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# DRO DISPLAY USER MANUAL

## MODEL: SNS-3V-YE102024 / SNS-3V-YE161838

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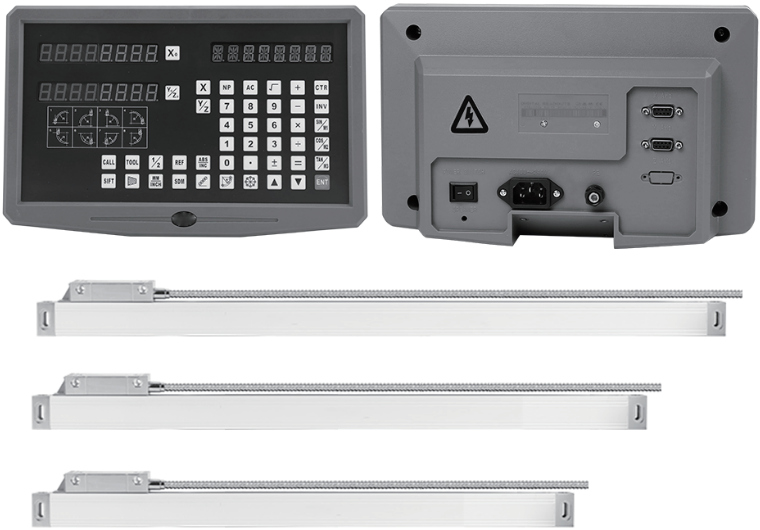
# DRO DISPLAY

**MODEL:SNS-3V-YE102024 / SNS-3V-YE161838**



## NEED HELP? CONTACT US!

Have product questions? Need technical support? Please feel free to contact us:

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This is the original instruction, please read all manual instructions carefully before operating. VEVOR reserves a clear interpretation of our user manual. The appearance of the product shall be subject to the product you received. Please forgive us that we won't inform you again if there are any technology or software updates on our product.

Dear Users:

Thank you for purchasing multifunction series digital readouts. Digital readouts are used in a wide variety of application. These include machine tools, infeed axes, measuring and inspection equipment, EDM, dividing apparatuses, setting tools, and measuring stations for production control. In order to meet the requirements of these applications, many encoders can be connected to the digital readouts. Read all the instructions in the manual carefully before used and strictly follow them. Keep the manual for future references.

Safety attention:

⌘ To prevent electric shock or fire, moisture or directly sprayed cooling liquid must be avoid. In case of any smoke or peculiar smell from the digital readout, please unplug the power plug immediately, otherwise, fire or electric shock may be caused. In such a case, do not try to repair it, please contact the Company or distributors.

⌘ Digital readout is a precise measuring device used with an optical Linear Scale. When it is in use, if the connection between the Linear Scale and the digital readout is broken or damaged externally, incorrect measuring values may be resulted. Therefore, the user should be careful.

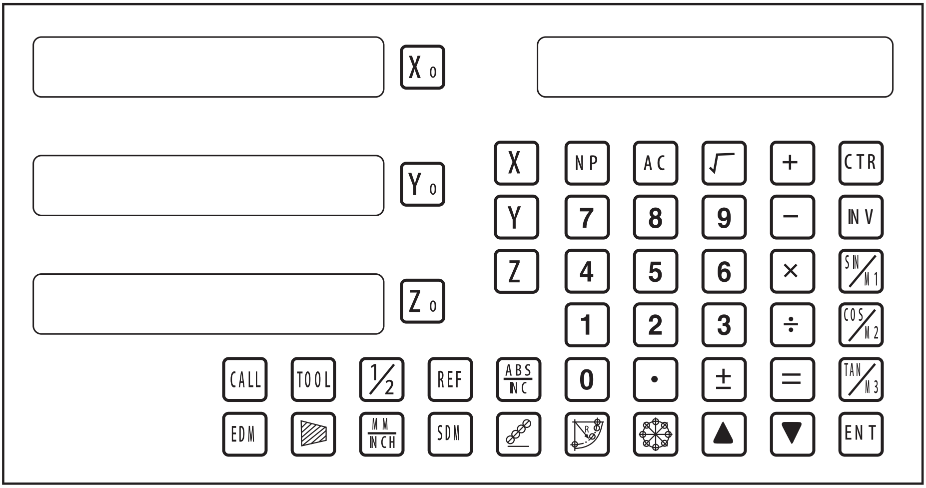
⌘ Do not try to repair or modify the digital readout, otherwise, failure, fault or injury may occur. In case of any abnormal condition, please contact the Company or distributor.

⌘ If the optical Linear Scale used with the digital readout is damaged, do not use a Linear Scale of other brand. Because the performan ce, specification and connection of the products of different and can not be connected without the instruction of specialized technical personnel, otherwise, trouble will be caused to the digital readout.

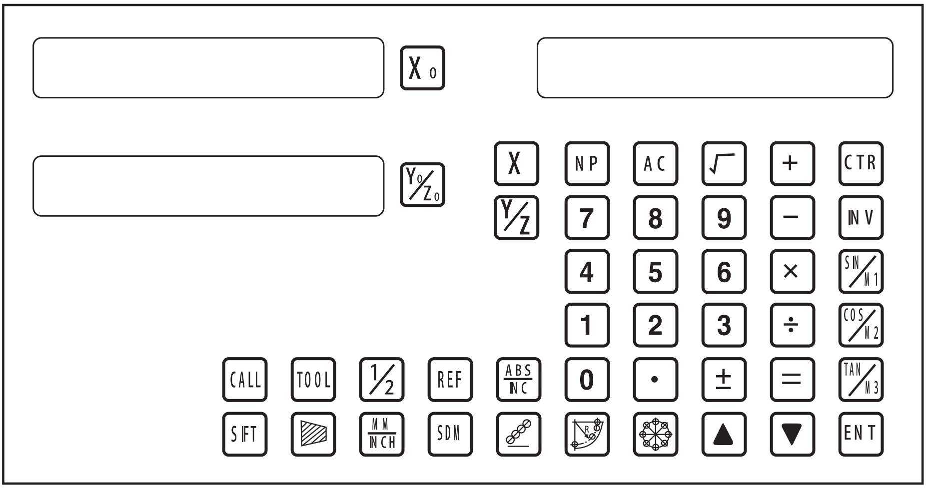
⌘ With the continuous updating of products, if there are changes or changes to the sample parameters, the random files shall prevail, and the company has the final interpretation right without notice.

Contents

THREE AXIS PANEL




TWO AXIS PANEL



Keyboard Description

| | |
|---|---|
| X Y Z | Keys for axis selection |
| $X_0$ $Y_0$ $Z_0$ | Zero select axis |
| ± | Enter +/- sign |
| • | Enter decimal point |
| 0 1 2 3 4 5 6 7 8 9 | Entry keys for numbers |
| + − × ÷ = | Operation key (in Calculation function key) |
| CTR | Enter or quit calculating state |
| AC | Cancel incorrect operation |
| INV | Calculate inverse trigonometric |
| √ | Square root |
| ENT | Confirm operation |
| MM/INCH | Toggles between inch and millimeter units. |
| REF | Press when ready to identify a reference mark. |
| SDM | Function keys for 200 sub datum |
|  | ARC cutting function |
|  | holes displayed equally on a circle |
|  | holes displayed equally on a  line |

| | |
|---|---|
| SIN/M1 | Calculate trigonometric or Slope Processing function key |
| COS/M2 | Calculate trigonometric or rectangular inner chamber processing function key |
| TAN/M3 | Calculate trigonometric or the tool diameter compensation function key |
| ABS/INC | Toggle between ABS/INC coordinate |
| ▲ ▼ | Stroll up or down to select |
|  | Taper measured function key |
| CALL | Tool library call key |
| TOOL | Opens the tool table.( lathe) |
| EDM | EDM function key |
| SFT | Filter display function key |
| ½ | Half a display value of an axis |
| NP | Non Linear Error Compensation function keys |

# 3、Parameters settings

## 3.1 Parameters setup routine entrance.

Press • to enter initial system and self-check after DRO powers on in 1 second, then Parameters settings display in the Parameters window.press ▲ ▼ to select the item you want to chang.

If you want to quit initial setting, press ▲ ▼ until "QUIT" appears in message window and press ENT. You can also press • to quit initial setting.

## 3.2 Parameters Settings Description

### 3.2.1 Setting the Resolution

Press ▲ ▼ until "RESOLUTE" appears in message window;

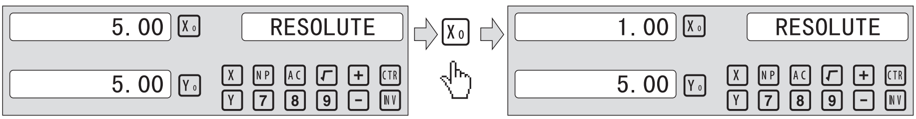
When selecting the LINEAR encode, the resolution will be set as follow:

There are 19 types of resolution:

0.01um;0.02um;0.05um;0.10um;0.20um;0.25um;0.50um;1.00um; 2.00um;2.50um;5.00um;10.00um;20.00um;25.00um;50.00um; 100.00um;200.00um;250.00um;500.00um.

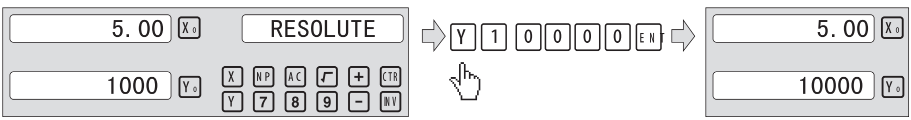
Press X0 to change the resolution for X axis;Press Y0 to change the resolution for Y axis;Press Z0 to change the resolution for Z axis;

Set the resolution 5.00um to 1.00um for X axis:




When selecting the rotary encode, the resolution will be set as follow:

Input the rotary encode parameter value .

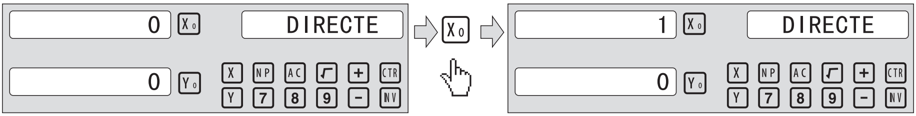


### 3.2.2 Setting Positive Direction for Counter

Press [▲] [▼] until " DIRECTE" appears in message window.

Direction '0' means the display value will increase when scale moves form right to left and decrease when scale moves from left to right. Direction '1' means the display value will increase when scale moves form left to right and decrease when scale moves from right to left.

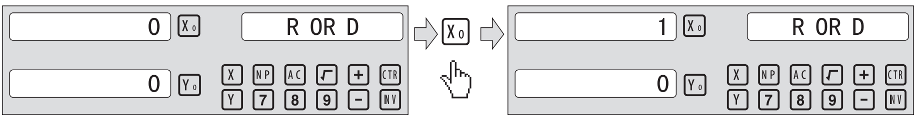
Press [X0] to change the Direction for X axis;Press [Y0] to change the Direction for Y axis;Press [Z0] to change the Direction for Z axis; as follow:




### 3.2.3 Toggle Betwween R/D Display Mode

Press [▲] [▼] until "R OR D" appears in message window. X window, Ywindow, Z window displays '0' or '1' separately.

'0' is mode R, which means the dispay value equals the actual measurement. '1' is mode D where the display value equals the double actual measurement. Press [X0] to change the R/D for X axis;Press [Y0] to change the R/D for Y axis;Press [Z0] to change the R/D for Z axis; as follow:

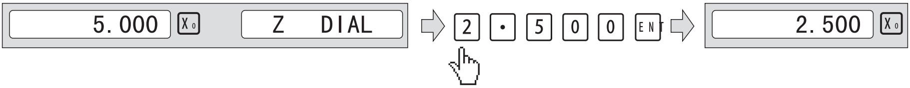



### 3.2.4 Setting Z axis Dial

Press [▲] [▼] until "Z DIAL" appears in message window.

Z axis dial should be set if Z axis is emulated for 2 axis milling and only install linear scale for X,Y axis. Z axis dial means the distance the Z axis travels when screw runs a revolution.

Set the Z axis Dial 2.5mm as follow ;

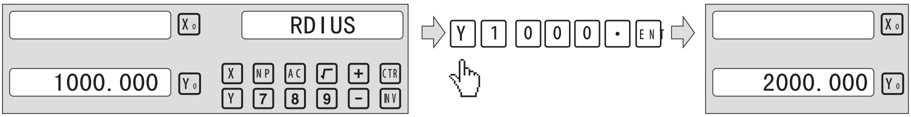



3.2.5 Setting the Rotary Radius of the Workpiece

Press ▲ ▼ until "RDIUS" appears in message window.

The Rotary rdius type is used perimeter to measure angle.

Input the Rotary Radius parameter value 2000mm as follow:




3.2.6 Setting the Angle Display Mode

Press ▲ ▼ until "ANG DISP" appears in message window.

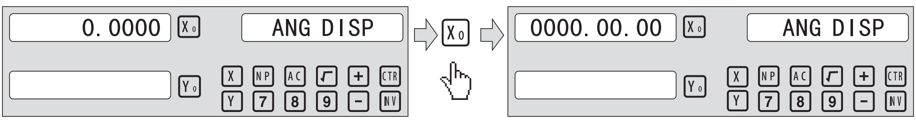
Press X0 to change the angle display mode for X axis;Press Y0 to change the angle display mode for Y axis;Press Z0 to change the angle display mode for Z axis; Example for X axis:

"0.0000" means the angle mode is Circulating DD;

"0000.0000" means the angle mode is Incremental DD;

"0.00.00" means the angle mode is Circulating DMS;

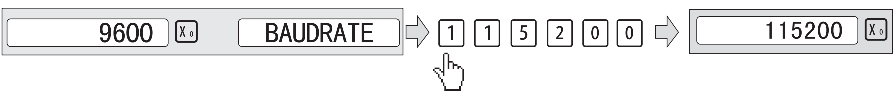
"0000.00.00" means the angle mode is Incremental DMS;




3.2.7 Setting the Baudrate of RS_232 (Special customization function, if you need to buy, please contact the dealer to customize)

Press ▲ ▼ until "BAUDRATE" appears in message window.

Set the Baudrate 115200 as follow ;



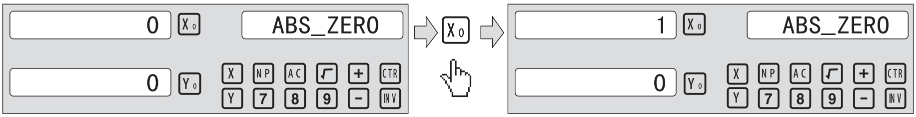
### 3.2.8 Setting the Absolute Zeroing enable or disable

Press ▲ ▼ until "ABS_ZERO" appears in the message window.

'0' means operation the ABS zeroing and preset data will be enable in the normal display state.

'1' means operation the ABS zeroing and preset data will be disable in the normal display state.

Press X0 to change the absolute zeroing mode for X axis;Press Y0 to change the absolute zeroing mode for Y axis;Press Z0 to change the absolute zeroing mode for Z axis; Example for X axis·



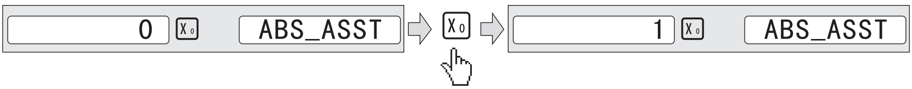

### 3.2.9 Setting the Absolute form the Special Function

Press ▲ ▼ until "ABS_ASST" appears in message window.

'0' means only special function position value is display in the Special Function operation.

'1' means special function position value + ABS position value is display in the Special Function operation.

Press X0 to change the absolute mode for the Special Function will be set as follow:



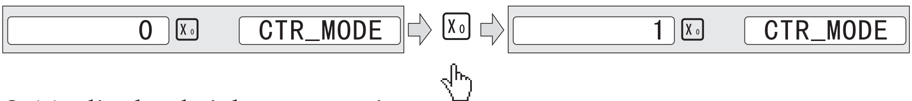

### 3.2.10 Setting the Calculator display Mode

Press ▲ ▼ until "CTR_MODE" appears in message window.

'0' means the calculator display value at the X window in the disply;

'1' means the calculator display value at the message window in the disply;

Press X0 to change the calculator display mode will be set as follow:




### 3.2.11 display brightness setting

LED display brightness setting, the factory default setting is only "3", the higher the parameter, the brighter the brightness. Press "X0" to set, it is not recommended that you set the default value yourself.

3.2.12 The linear scale counting frequency setting

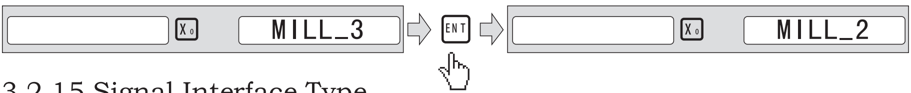
The factory default setting is only "12", the higher the parameter, the lower the counting frequency, press "X0" to set, it is not recommended that you set the default value yourself.

3.2.13 Setting QUIT: Digital display table parameters quit button.

3.2.14 Setting the type of the DRO.

The type of the DRO will be display on the right window. then press the key ENT to select the correct type. the following system item will be set:

"MILL-3" means the DRO type is 3-axis milling machine table;
"MILL-2" means the DRO type is 2-axis milling machine table;
"LATHE-2" means the DRO type is 2-axis lathe table;
"LATHE-3" means the DRO type is 3-axis lathe table;
"GRIND" means the DRO type is Grind table;
"EDM" means the DRO type is EDM table; (Special customization function, if you need to buy, please contact the dealer to customize)




3.2.15 Signal Interface Type

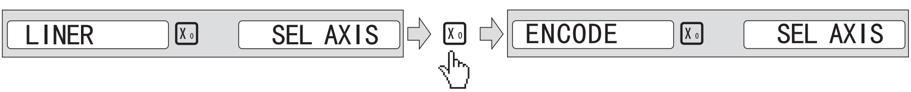
Message window displays " SEL AXIS" which indicates the step is to Sensor input signal mode. Press X0 to change the signal mode for X axis;Press Y0 to change the signal mode for Y axis;Press Z0 to change the signal mode for Z axis;Example for X axis:

Press X0 to scroll through the Rotary encode type, the Linear encode type, the Rotary rdius type.

X window displays the Signal type.

"LInER" means the Signal type is linear encode type ;
"EnCOdE " means the Signal type is Rotary encode type;
"RdIUS" means the Signal type is Rotary rdius type ;

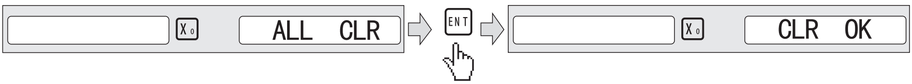
Example: currently in the linear encode type, to toggle to the Rotary encode type;



3.2.16 Restore Factory Settings:

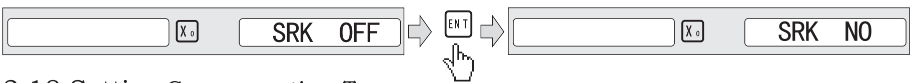
Clear all data except DRO type.DRO will load default setup for parameter.After loading default setup,user must search RI once to enable resuming ABS dadum function;otherwise to resume the datum by RI is unable;

Message window displays " ALL CLR" , press ENT and message windows display "PASSWORD" indicating the operator to input password; Press 2000 + ENT in turn to load default value;




3.2.17 Shrinkage Ratio enable or disable.

Message window displays " SRK OFF" to disable Shrinkage rate function. Press ENT to enable Shrinkage rate function in Message window displays " SRK ON" :



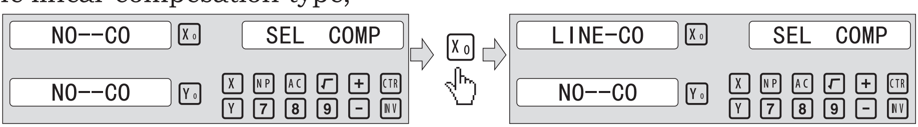

3.2.18 Setting Compensation Type

Message window displays " SEL COMP" which indicates the step is to compensation type. Press X0 to change the compensation type for X axis;Press Y0 to change the compensation type for Y axis;Press Z0 to change the compensation type for Z axis;Example for X axis:

Press X0 to scroll through the not compesation type, the Linear compesation type, the non-linear compesation type.

"no-CO" means the compesation type is not compesation type;
"LInE-CO" means the compesation type is linear compesation type.
"non-LinE" means the compesation type is non-linear linear compesation type;

Example for X axis: currently in the not compesation type, to toggle to the linear compesation type;



3.2.19 Inch display, set the number of digits after the decimal point

In the inch display mode, the number of digits after the decimal point is set, the factory default digit is "4", press "X0" to set, can be set according to actual needs.

3.2.20 Setting EDM: it is not recommended that you set the default value yourself, EDM function, Set the relay off on time.

3.2.21 Setting Linearity Compensation.

Message window displays “ LIN COMP” which indicates the step is to Linearity Compensation. Compensate the linear error to make display value equals to standard value.

The calculation of compensation rectifying coefficient:

$$\text{Coefficient} = \frac{(\text{Measurement} - \text{Standard value}) \times 1000.000}{\text{Standard value}}$$

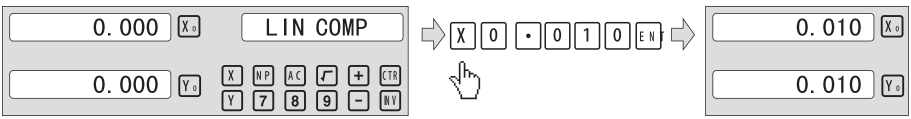
Example for X axis:

Measurement 200.020mm

Standard value 200.000mm

Rectifying coefficient= (200.020-200) * 1000 /200 =-0.01mm/m

Input compensation rectifying coefficient 0.01 as follow:

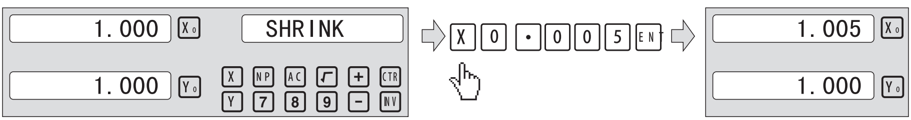



3.2.22 Setting the Shrinkage Ratio

Press ▲ ▼ until “ SHRINK” appears in message window;

$$\text{Shrinkage radio} = \frac{\text{Dimensions of the finished product}}{\text{Dimensions of the working piece}}$$

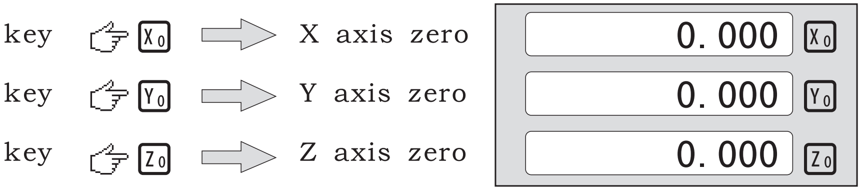
Set the shrinkage radio 1.005 as follow;



## 4、General Operations;

### 4.1 Zeroing

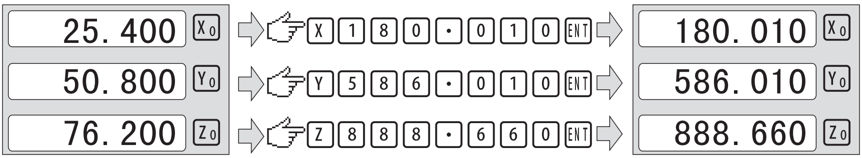
Zero the designated axis in normal display state.Zeroing is used to set the current point as datum point as follow;




X0 or Y0 or Z0 will be return to the original data before the reset。

### 4.2 Preset Data to Designated Axis

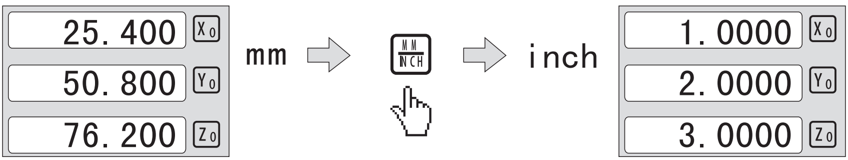
Preset a value to current position for a designated axis in normal display state.



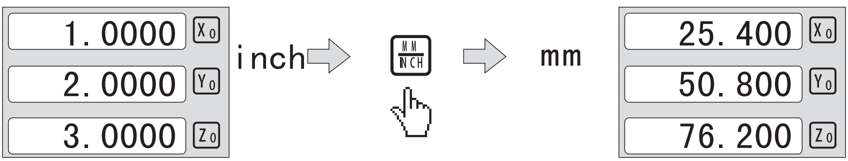

### 4.3 Toggle Display Unit between inch and mm

Length can be displayed either in "mm" (metric) or "inch" (imperial). Display unit can be toggled between mm and inch.

Example: Display value toggle from mm to inch;



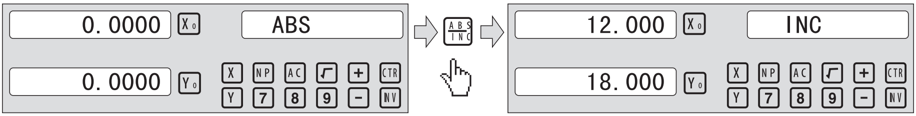

Example: Display value toggle from inch to mm;



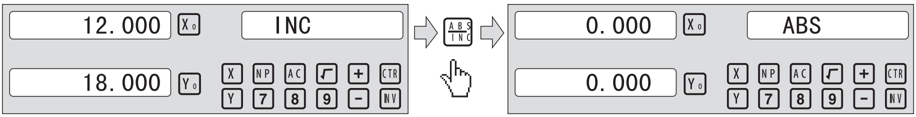
## 4.4 Absolute/Incremental/200 groups SDM

Function: The DRO has 3 coordinate display modes: the absolute mode (ABS); the incremental mode (INC) and 200 goups Second Data Mamory (SDM) with the range of 00 to 99.Zero point of work-piece is set at the origin point of ABS coordinate. The relative distance between datum of ABS and SDM remains unchanged when ABS datum is changed.

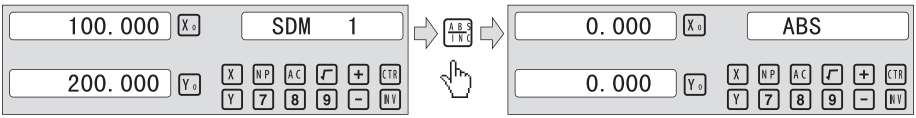
1. Toggle from ABS to INC coordinate;




2. Toggle from INC to ABS coordinate;




3. Toggle from SMD to ABS coordinate;



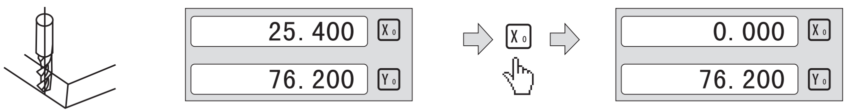

## 4.5 1/2 Function

Function: Set the center of work piece as datum by halving the displayed value.

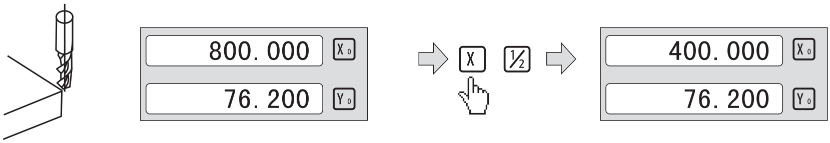
Example: Set the center of rectangle as datum as the right figure.

Steps:

1、Touch one side of the workpiece with the TOOL,then zero the X axis。



2、Take the TOOL to the opposite side of the workpiece and touch it. Then press [X] + [½] in turn to value the X axis display value.




3、Move the maching table until "0.000" is display in X axis window. The position is the work-piece's center.

4.6 Clear All SDM datum.

In ABS mode, to continuously press [•] ten times will cause to clear all the datum for 200 sets SDM. Message window displays "SDM CLR".

4.7 Sleeping Mode

In not ABS Mode, pressing the key [REF] can turn off all the display and the DRO accessing to the Sleeping Mode, then pressing this key again will cause the DRO back to the working Mode. In the Sleeping Mode the DRO is still in working state and actually records the TOOL movement.

Example: In not ABS Mode, to access the sleeping Mode by pressing the key [REF]. In Sleeping Mode, pressing the key [REF] to quit the sleeping Mode.

4.8 Power Interruption Memory.

The memory is used to store the settings of the DRO and machine reference values when power is turn off.

## 4.9 Search the Absolute Reference Point of Scale

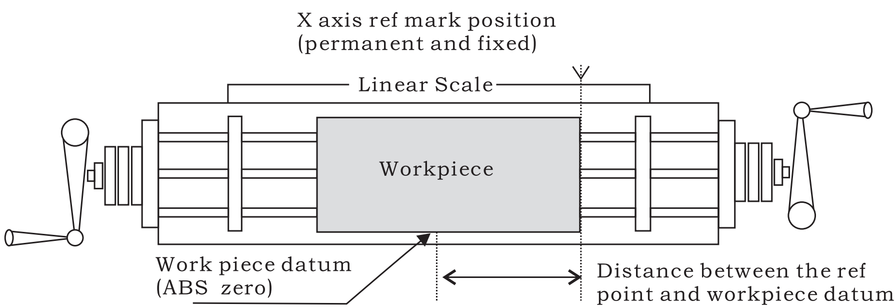
During the daily machining process, it is very common that the machining cannot be completed within one work shift, and hence the DRO have to be switched off after work, or power failure happen during the machining process which is leading to lost of the workpiece datum (workpiece zero position), the re-establishment of workpiece datum using edge finder or other method is inevitably induce higher machining in accuracy because it is not possible to re-establish the workpiece datum exactly at the previous position. To allow the recovery of workpiece datum very accurately and no need to re-establish the workpiece datum using edge finder or other methods, every Linear scale have a ref point location which is equipped with ref position to provide datum point memory function.

The working principal of the ref datum memory function are as follows.

Since the ref point of Linear scale is permanent and fixed, it will never change or disappear when the DRO system is switched off. Therefore, we simply need to store the distance between the ref point and the workpiece datum (zero position) in NON-Volatile memory. Then in case of the power failure or DRO being switched off, we can recover the workpiece datum (zero position) by presetting the display zero position as the stored distance from the ref point.

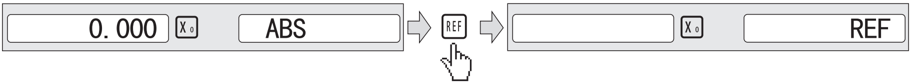
An absolute datum should be set when a work-piece is machined. There are three mode operation (REF、AB、LEF_AB):

Example: to store the X axis work datum.

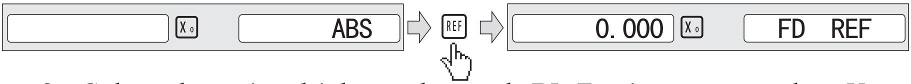


**Example for REF mode :**

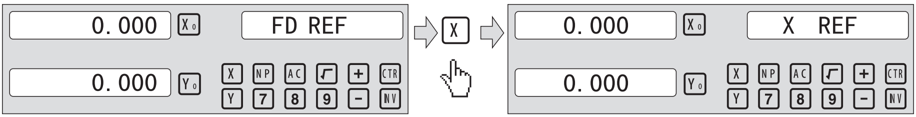
1、DRO is set in ABS coordinate. Press REF , then the message window display "REF" .




2、Message window displays "REF" , Press ENT until "FD_REF" appears in message window.



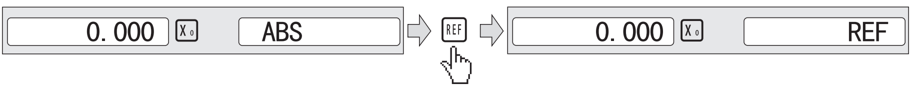

3、Select the axis which need search RI. For instance : selsct X axis, then press X . "X_REF" is displayed in message window, and X axis window flashes.



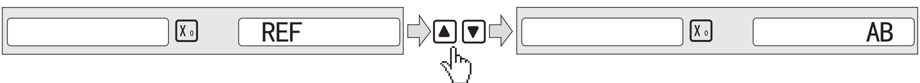

4、 Move the machine table .The buzzer sounds when RI is searched, then X window stops flashing and displays the value of the current position .the DRO returns normal display state. Then message window displays "FIND_X" .

**Example for AB mode :**

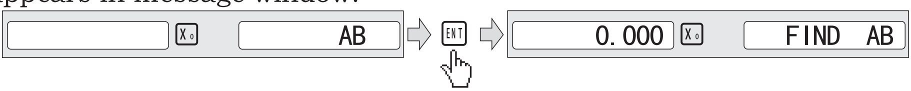
1、 DRO is set in ABS coordinate. Press REF , then the message window display "REF" .



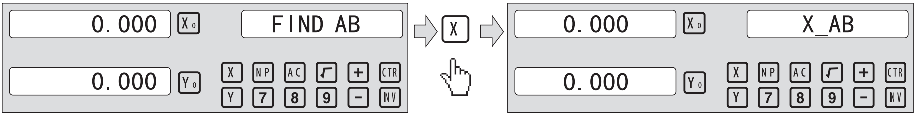

2、Press ▲ ▼ , then the massage window display "AB" .




3、Message window displays "AB" , Press ENT until "FIND_AB" appears in message window.



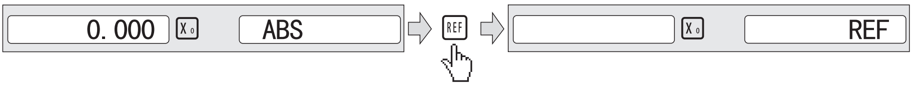
4、Select the axis which need search RI. For instance : selsct X axis, then press X . “X_REF” is displayed in message window, and X axis window flashes.



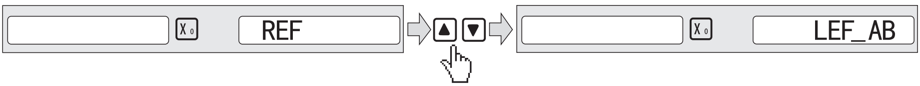

5、 Move the machine table .The buzzer sounds when RI is searched, displays the value of the current position for the absolute datum zero. the DRO returns normal display state. Then message window displays “FIND_AB” .

**Example for LEF_AB mode :**

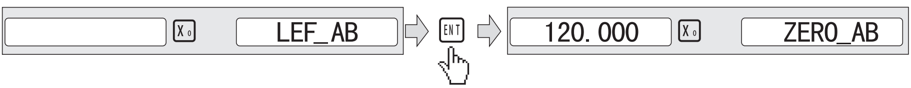
1、 DRO is set in ABS coordinate. Press REF , then the message window display “REF” .



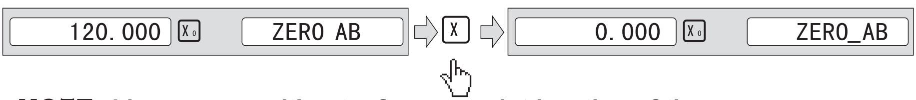

2、Press ▲ ▼, then the message window display “AB” .




3、Message window displays “LEF_AB” , Press ENT until “ZERO_AB” appears in message window.




4、Move the machine table to be set zero position piont. then press X , X axis will be zeroing . the current position for the absolute datum zero. the DRO returns normal display state.




NOTE: **Linear range without reference point location of the user**

## 4.10 Non Linear Error Compensation

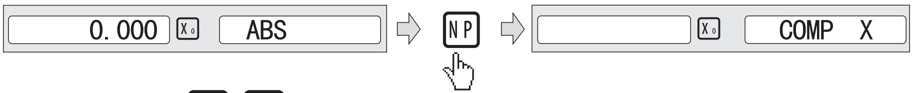
First compensation Type ( Linear or Non-Linear) in parameter setting must be set Non-Linear. Linear scale have a ref point location and find to the Absolute Reference Point will be enable.

Default Non-Linear compensation : 50.

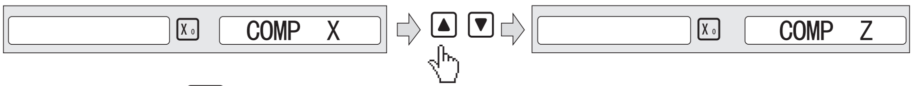
**Example for Y axis:**

Step 1: Search the Absolute Reference Point of Scale;

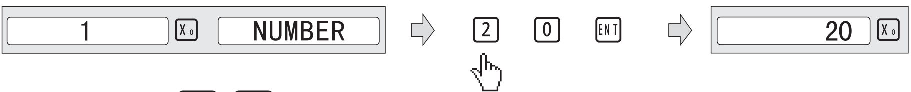
Step 2: Press NP , then the message window display “COMP X” .



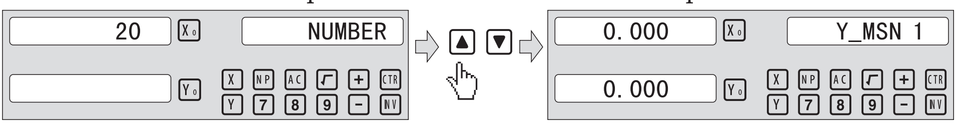

Step 3: Press ▲ ▼, then the massage window display “COMP Y”




Step 4: Press ENT, then the message window display “NUMBER” .
Then input the compensation parameter NUMBER.




Step 5: Press ▲ ▼, then message window displays “Y-MSN-1” which indicates the step is to Non Linear Error Compensation.



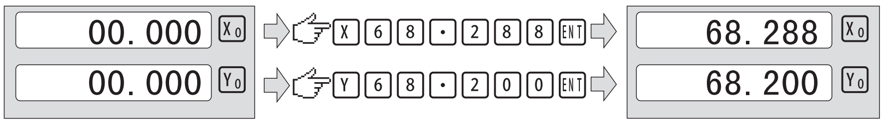

Step 6: Input compensation value .

X window display the value of the measurement value.

Y window display the value of the standard value.

Example for the first compensation point:

Measurement value :68.288mm. Standard value: 68.200mm



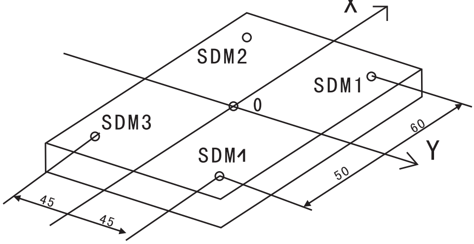

Step 7: After input all parameter, the DRO automatically exit.

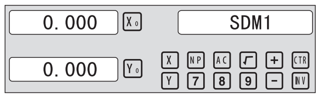
## 5、200 Groups SDM coordinate

The DRO has three display modes: the absolute mode (ABS),the incremental mode (INC) and the 200 groups second data memory (SDM 1 – SDM200). ABS datum of the work-piece is set at the beginning and the 200 groups SDM is set relative to ABS coordinate.

ABS Mode, INC Mode and SdM Mode are specially designed to provide much more convenience features to the operator to cope with the batch machining of relative works and the machining of the workpiece machining dimensions from more than one datum.

**Example:** The ABS datum is the center point O, the point sdm1, sdm2, sdm3, sdm4 needed processing are set as datum of SDM 1 – SDM 4.




Two ways to set SDM coordinate:

1、 Zeroing at the Current Point.

2、 Preset datum of SDM coordinate.

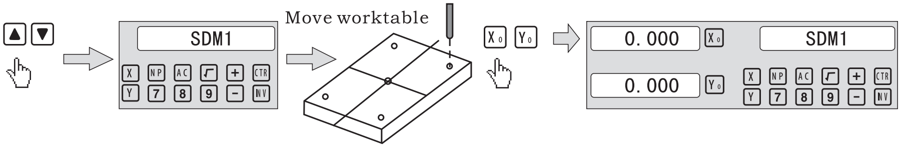
## 5.1 Zeroing at the Current Point

At first set the center point of the work-piece as the origin of the ABS, then align the TOOL with point SDM1,SDM2,SDM3,SDM4 by moving the machine table and zero them. It is the position to process where the “0.000” appears in X window, Y window by moving the machine table whether in ABS or in SDM coordinate.

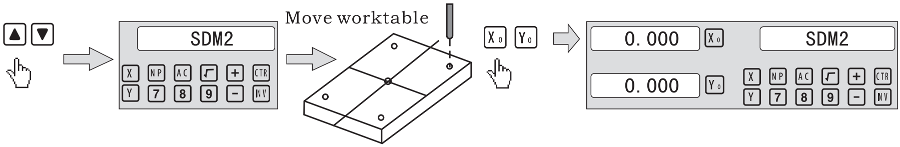
**Steps:**

1、 Move worktable to place the TOOL at the center of the workpiece point O as the datum of ABS. Then zero X axis and Y axis in SDM 1 ; Zero X axis and Y axis in SDM 2 ; Zero X axis and Y axis in SDM 3 ; Zero X axis and Y axis in SDM 4.

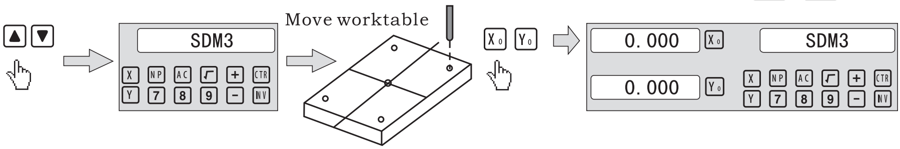
2、Set the point sdm1 as the datum of SDM 1. Move the machine worktable to x = 60.000, y = 45.000. Then proess $X_0$ $Y_0$.



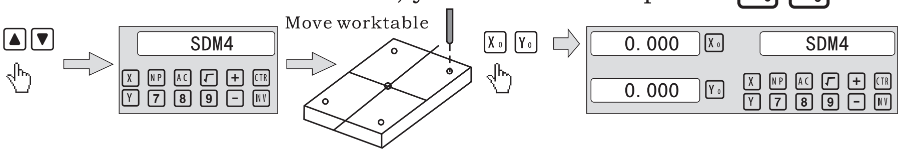

2、 Set the point sdm1 as the datum of SDM 2. Move the machine worktable to x = 60.000, y = -45.000. Then proess $X_0$ $Y_0$.




3、 Set the point sdm1 as the datum of SDM 3. Move the machine worktable to x = -60.000, y = -45.000. Then proess $X_0$ $Y_0$.




4、 Set the point sdm1 as the datum of SDM 4. Move the machine worktable to x = -60.000, y = 45.000. Then proess $X_0$ $Y_0$.



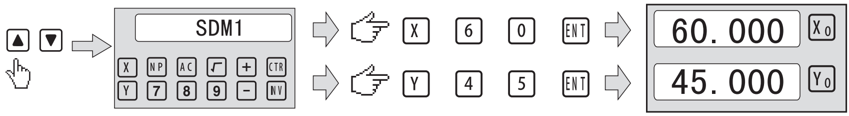

5.2 Preset datum of SDM coordinate

There are the same sample as Method 1. First Move the worktable to place the TOOL exactly at the origin of ABS, secondly Enter the ABS Mode as follow.

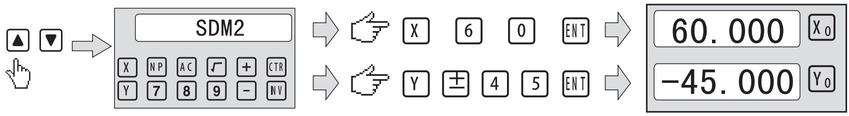
**Steps:**

1、Move worktable to place the TOOL at the center of the workpiece point O as the datum of ABS. Then zero X axis and Y axis in SDM 1 ; Zero X axis and Y axis in SDM 2 ; Zero X axis and Y axis in SDM 3 ; Zero X axis and Y axis in SDM 4。

2、Set point sdm1 as the datum of SDM 1. Press ▲ ▼, then the message window display “SDM 1”. Input x = 60.000, y = 45.000.

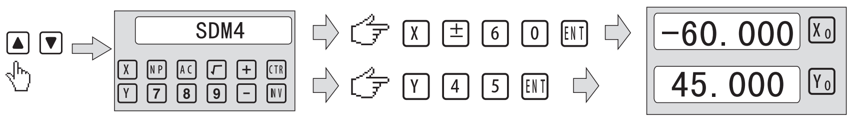



3、Set point sdm1 as the datum of SDM 2. Press ▲ ▼, then the message window display “SDM 2”. Input x = -60.000, y = 45.000.




4、Set point sdm1 as the datum of SDM 3. Press ▲ ▼, then the message window display “SDM 3”. Input x = -60.000, y = -45.000.


5、Set point sdm1 as the datum of SDM 4. Press ▲ ▼, then the message window display “SDM 4”. Input x = -60.000, y = 45.000.

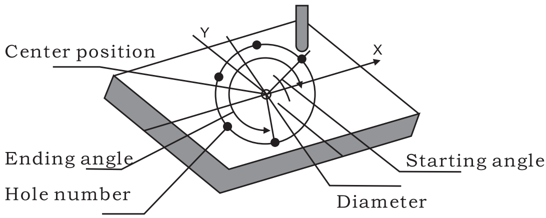


# 6、Special Function

## 6.1 Circumference Holes Processing

The Function of PCD Hole positioning on Circumference is used to distribute arc equally, such as boring hole on flange. The right window will show the parameter to be defined when selecting PCD Function. The Parameters to be defined are:

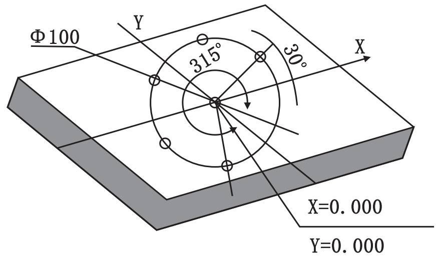
| | |
|---|---|
| PCD_XY(XZ,YZ) | Select place |
| CENTER | Center position |
| DIA | Diameter of circle |
| NO_HOLE | Hole number |
| ST ANG | Starting angle |
| ED ANG | Ending angle |




The postion of the hole center are calculated automatically after input all parameters. Press ▲ or ▼ to choose the hole No. and move the machine table until the "0.000" appears in X window , Y window, Z window. It is the position to process a table.

Example for the XY place: Machine hole on circumference as the figure

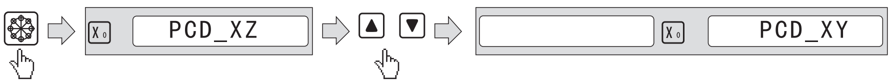
| | |
|---|---|
| PCD_XY(XZ,YZ) | XY |
| CENTER | X=0,000,Y=0.000 |
| DIA | 100,000 |
| NO_HOLE | 5 |
| ST ANG | 30,000 |
| ED ANG | 315,000 |




Steps:

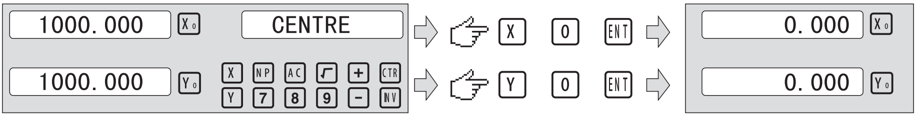
1. Set display unit to metric in normal state; Move the machine table until the machine TOOL is aligned with the center of the ciecle , then zero X axis ,Y axis.
2. Select plece.

Press [PCD key] , then the message window display "PCD_XY" to the Circumference Holes Processing. Press ▲ or ▼ to select XY place.



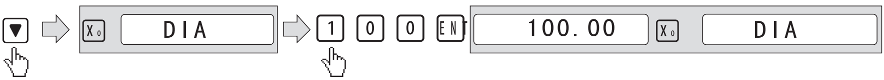
2. Input center position.

Press [ENT] , then the message window display "CENTER" . X and Y window displays the formerly preset center position. Input X = 0, Y = 0 as follow.



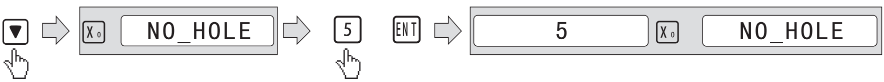

4. Input diameter.

Press [▼] until "DIA" appears in the message window. X window despalys the formerly preset diameter. Then input the diameter is 100.000.



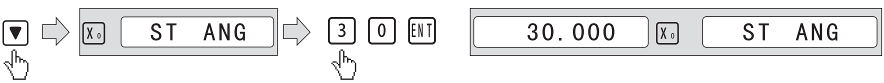

5. Input number.

Press [▼] until "NO_HOLE" appears in the message window. X window despalys the formerly preset number. Then press [5] in turn to input number.



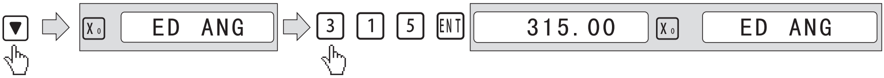

6. Input starting angle.

Press [▼] until "ST ANG" appears in the message window. X window despalys the formerly preset the starting angle. Then press [3] [0] in turn to input the starting angle.



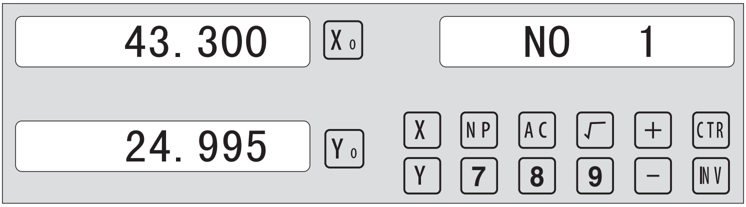

7. Input ending angle.

Press [▼] until "ED ANG" appears in the message window. X window dispalys the formerly preset the ending angle.. Then press [3] [1] [5] in turn to input the ending angle.




8. Press ▼ until “NO 1” appears in the message window.

It is the position of the first hole to punch where the “0.000” is displayed in X window and Y window by moving the machine table. After finishing the first hole, press ▼ or ▲ to change holes number.

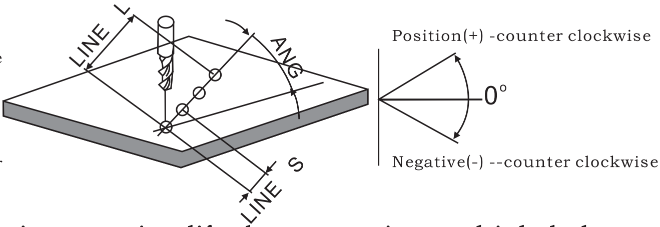



9. After processing all holes, press to return normal display.

## 6.2 Linear Holes Processing

There are two modes to carry out the linear drilling: Length mode and Step mode.

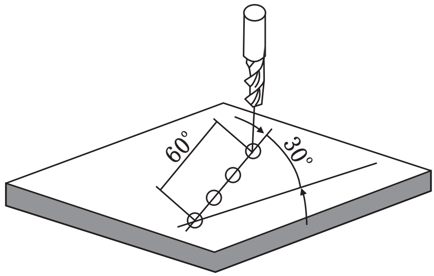
| | |
|---|---|
| 1.LINE S | Step mode |
| LINE L | Length mode |
| 2.STEP | Step length |
| LENGTH | Line length |
| 3. ANG | Angle |
| 4. NO.HOLE | Hole number |




Linear Holes function can simplify the processing multiple holes whose centers are attributed equally on one line.

Example :

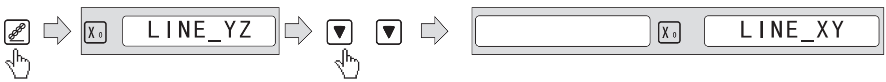
| | |
|---|---|
| LINE_L | Length mode |
| LENGTH | 60.000 |
| ANG | 30.000 |
| NO.HOLE | 4 |




Steps :

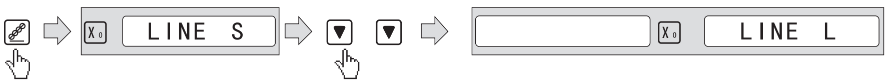
1. Select plece.

Press , then the message window display "LINE_XY" to the Linear Holes Processing. Press or to select XY place.




2. Select Linear Holes mode.

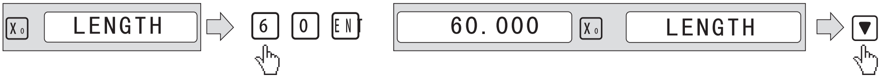
Press ENT , then the message window display "LINE_S" . Press or to select "LINE_L" .




3. Input linear length;

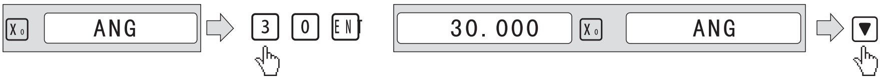
Press ENT , then the message window display "LENGTH" .

X window despalys the formerly preset the linear length. Press 6 0 in turn to input the linear length.



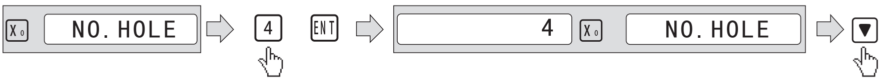

4. Input angle;

Message window displays "ANG" which indicates the step is to angle. X window despalys the formerly preset the angle. Press 3 0 in turn to input the angle.



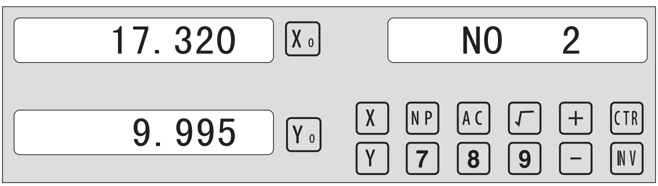

5. Input number;

Message window displays "ANG" which indicates the step is to angle. X window despalys the formerly preset the number. Press 4 in turn to input the number.




6. Press ▼ until "NO 1" appears in the message window.

It is the position of the first hole to punch where the "0.000" is displayed in X window and Y window by moving the machine table. After finishing the first hole, press ▲ or ▼ to change holes number.

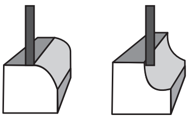


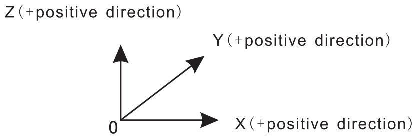

7. After processing all holes, press the key shown to return normal display.

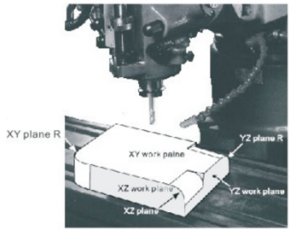
## 6.3 ARC Processing

Two functions are available for the ARC function: the simple ARC Function and the smooth R function. Press  to enter ARC function, then press ▲ or ▼ for selecting smooth ARC function or Simple ARC Function.

During installation, normally the coordinate of the machine and the direction of X, Y , Z are as per follow. The work plane is shown as the right figure.


(RAD+TL) (RAD+TL)

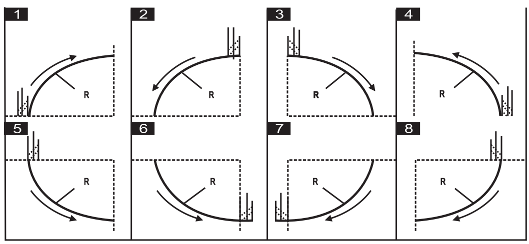



Simple ARC Function:

When the smoothness is not highly demanded, the SIMPLE ARC function is normally used for machining arc. In the SIMPLE function there are only eight type of ARC used to machine. The operator just select the type of R and input the parameters of the radius of Arc , MAX CUT and outer arc or inner arc. In general, an arc may be machined by a planar slot TOOL or arc TOOL, the different between them in different work plane as shown as per follows.

| | |
|---|---|
| 1、SIMPLE | Simple processing |
| 2、TYPE 1-8 | Mode of the ARC. |
| 3、SEL_XY(XZ,YZ) | Select place |
| 4、RAD | Arc radius |
| 5、TL DIA | Tool diam eter |
| 6、MAX CUT | Feed step |
| 7、RAD_TL | Outer arc and inner arc (only for XY place) |



Smooth ARC function :

Provides maximum flexibility in ARC machining, the ARC sector to be machined by the coordinates of ARC. Very flexible, ARC function can machine virtually all kinds of ARC, ever the intersected ARC. Relatively a bit complicated to operate, operator need to calculate and enter the coordinates of ARC centre, start angle and end angle.

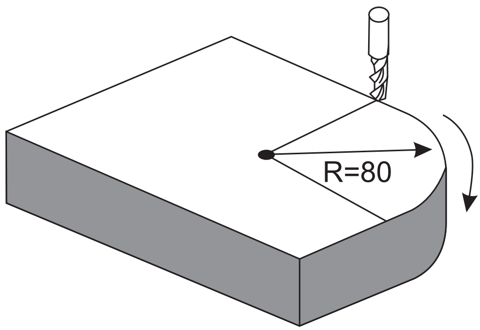
Basic parameter as follow:

| | |
|---|---|
| 1. SMOOTH | Mode of the Smooth ARC processing; |
| 2. SEL_XY(YZ, XZ) | Select place; |
| 3. CENTER | Refer to the position of an center. |
| 4. RAD | Radius of the ARC |
| 5. TL_DIA | Diameter of the TOOL |
| 6. MAX_CUT | Feed step |
| 7. ST_ANG | Starting angle |
| 8. ED_ANG | Ending angle |
| 9. RAD+TL | Outer arc. |
| RAD-TL | Inner arc. |

**Example 1 for the Simple ARC Processing:**

Parameters settings as follow:

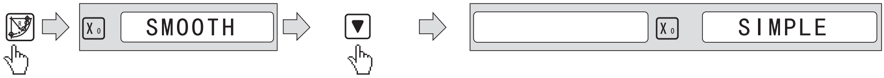
| | |
|---|---|
| SIMPLE | Simple mode |
| TYPE | 3 |
| SEL_XY | XY |
| RAD | 80.000 |
| TL_DIA | 6.000 |
| MAX_CUT | 0.500 |
| RAD+TL | 1 |




Steps:

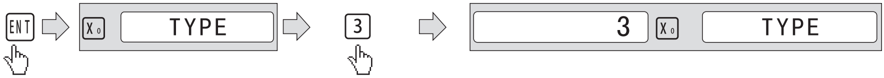
1. Select process mode

Press  , then the message window display “SIMPLE” to the ARC Processing. Press ▲ or ▼ to select mode of the simple, The message window display “SIMPLE”



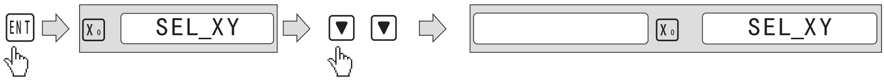

2. Input the type:

Press ENT until “TYPE” appears in the message window. X-window despalys the formerly preset the type. Press 3 in turn




3. Select place

Press ENT until “SEL_XY” appears in the message window. Press ▲ or ▼ to select place to display “SEL_XY” ;




4. Input radius:

Press ENT until “RAD” appears in the message window. X window despalys the formerly preset the radius of ARC. Press 8 0 in turn to input the radius.;


5. Input Diameter of the TOOL

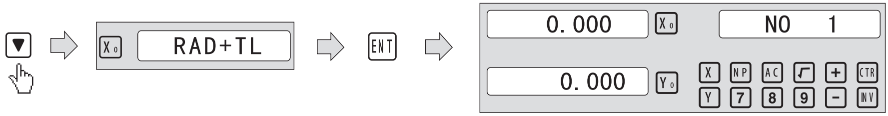
Press ▲ or ▼ until “TL DIA” appears in the message window. X window despalys the formerly preset the Diameter of the TOOL. Press 6 in turn to input the Diameter value;


6. Input Feed step (MAX_CUT);

Press ▲ or ▼ until “MAX_CUT” appears in the message window. X window despalys the formerly preset the MAX_CUT. Press 0 · 5 in turn to input the MAX_CUT value;

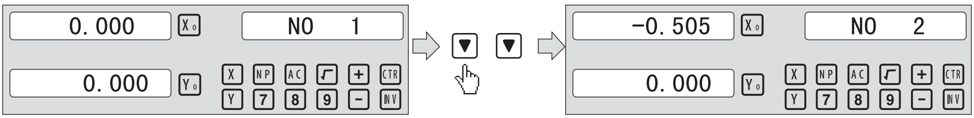
7. Select outer arc or inner arc

Press ▲ or ▼ until “RAD-TL” appears in the message window. Press ▲ or ▼ to select place to display “RAD+TL”;




8. After inputting all parameters, press the key ENT for machining.

The DRO will display the position of the first point. Retract the axes until the displays read 0.000, Machine the Arc point by point in accordance with the display. After finishing the position of the first point, press ▲ or ▼ to change position point.

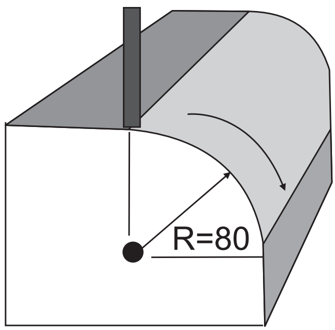



Press  to quit R function any time.

**Example 2 for the Simple ARC Processing:**

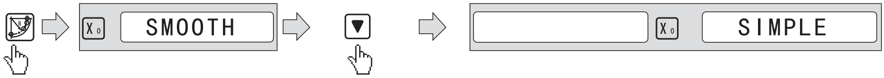
Parameters settings as follow:

| | |
|---|---|
| SIMPLE | Simple mode |
| TYPE | 3 |
| SEL_XY | XZ |
| RAD | 80.000 |
| TL_DIA | 6.000 |
| MAX_CUT | 0.500 |



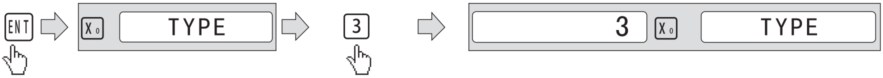

Steps:

1. Press  , then the message window display “SIMPLE” to the ARC Processing. Press ▲ or ▼ to select mode of the simple, The message window display “SIMPLE”



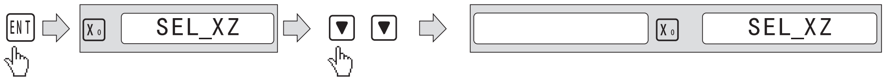

2. Input the type:

Press ENT until "TYPE" appears in the message window. X-window despalys the formerly preset the type. Press 3 in turn




3. Select place

Press ENT until "SEL_XZ" appears in the message window. Press ▲ or ▼ to select place to display "SEL_XZ" ;




4. Input radius:

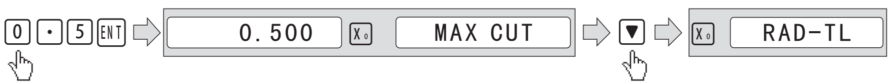
Press ENT until "RAD" appears in the message window. X window despalys the formerly preset the radius of ARC. Press 8 0 in turn to input the radius.;


5. Input Diameter of the TOOL

Press ▲ or ▼ until "TL DIA" appears in the message window. X window despalys the formerly preset the Diameter of the TOOL. Press 6 in turn to input the Diameter value;

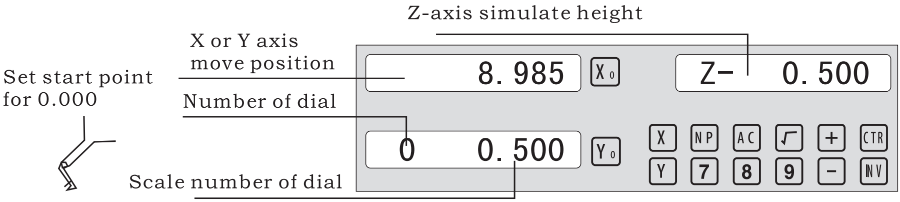

6. Input Feed step (MAX_CUT);

Press ▲ or ▼ until "MAX_CUT" appears in the message window. X window despalys the formerly preset the MAX_CUT. Press 0 · 5 in turn to input the MAX_CUT value;



7. After inputting all parameters, press the key [ENT] for machining.

For 2-axis milling machine table , It is not installed with Z-axis, please press [▲] or [▼] to simulate position of Z-axis. Press [▲] simulate moving to the former process, and press [▼] simulate moving to the next process point.



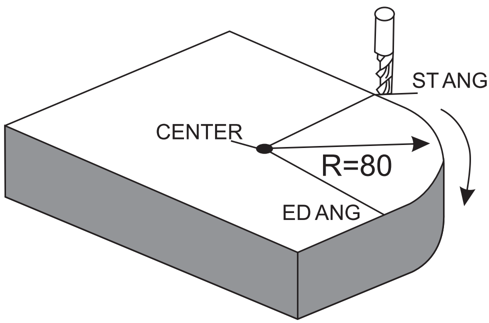

Z-axis simulate height = Number of dial x Z axis Dial + Scale number of dial

Press  to quit R function any time.

**Example 3 for the Smooth ARC function**:

Parameters settings as follow:

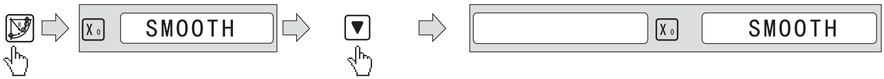
| | |
|---|---|
| SMOOTH | Smooth mode |
| SEL_XY(YZ,XZ) | XY |
| CENTER | X=0,Y=0 |
| RAD | 80.000 |
| TL_DIA | 6.000 |
| MAX_CUT | 0.500 |
| ST_ANG | 0.000 |
| ED_ANG | 135.000 |
| RAD+TL | 1 |




Steps:

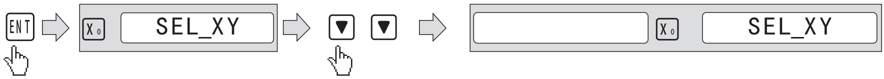
1. Press  , then the message window display “SIMPLE” to the ARC Processing. Press [▲] or [▼] to select mode of the simple, The

message window display “SMOOTH”; For 3-axis milling machine table without this step. In second step. Then press ENT .



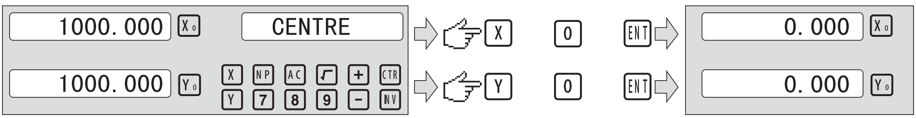

2. Select place

Message window display “SEL_XY” which indicates the select is to place. Press ▲ or ▼ to select place to display “SEL_XY”;



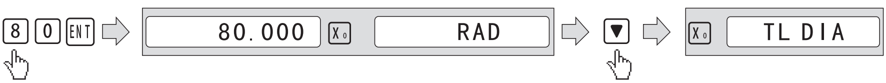

3. Input center position.

Press ENT , then the message window display “CENTER”. X and Y window displays the formerly preset center position. Input X = 0, Y = 0 as follow.




4. Input radius:

Press ENT until “RAD” appears in the message window. X window despalys the formerly preset the radius of ARC. Press 8 0 in turn to input the radius.;

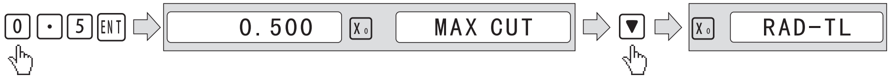



5. Input Diameter of the TOOL

Press ▲ or ▼ until “TL DIA” appears in the message window. X window despalys the formerly preset the Diameter of the TOOL. Press 6 in turn to input the Diameter value;

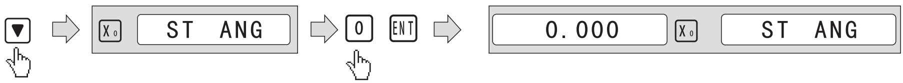
6. Input Feed step (MAX_CUT);

Press [▲] or [▼] until “MAX_CUT” appears in the message window. X window despalys the formerly preset the MAX_CUT. Press [0] [·] [5] in turn to input the MAX_CUT value;



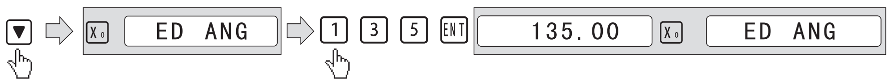

7. Input starting angle.

Press [▼] until “ST ANG” appears in the message window. X window despalys the formerly preset the starting angle. Then press [0] in turn to input the starting angle.



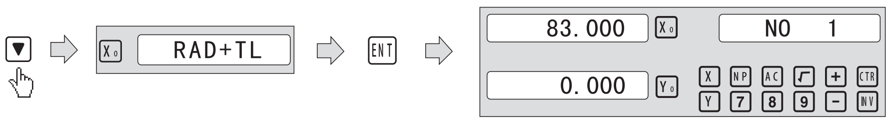

8. Input ending angle.

Press [▼] until “ED ANG” appears in the message window. X window dispalys the formerly preset the ending angle.. Then press [1] [3] [5] in turn to input the ending angle.



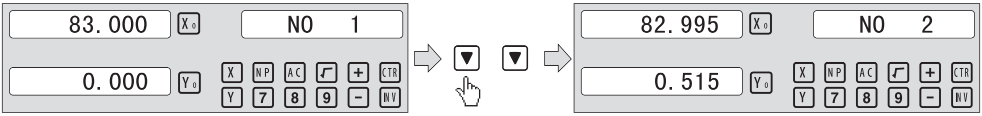

9. Select outer arc or inner arc

Press [▲] or [▼] until “RAD-TL” appears in the message window. Press [▲] or [▼] to select place to display “RAD+TL” ;




10. After inputting all parameters, machining.

The DRO will display the position of the first point. Retract the axes until the displays read 0.000, Machine the Arc point by point in accordance with the display. After finishing the position of the first point, press [▲] or [▼] to change position point.




Press  to quit ARC function any time.

## 6.4 Oblique Processing

There are 2 ways available for maching oblique place:

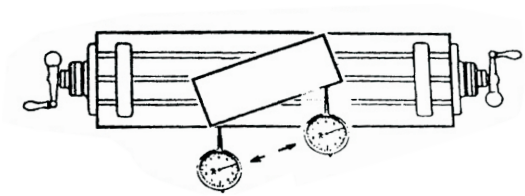
a). on the place. b). on the place YZ, or XZ;

Only the following parameters need to be inputted:

| | |
|---|---|
| INCL_XY(XZ,YZ) | Set machine place XY,YZ,0r XZ place. |
| ANG | The inclination angle of the oblique. |
| DIA | The TOOL Diameter. |
| ST_POT | Starting position; |
| ED_POT | Ending posting; |

**Example 1 for the** Oblique **XY place**:

When the machining plane is on plane XY as the part shown in Figure, the angle of obliquity of the workpiece should be calibrated before the oblique plane is machined. Therefore , at this point the machining of oblique plane plays the role of calibrating the obliquity.



Procedure for calibrating the obliquity

First place the workpiece on the worktable as per the required angle of obliquity.

1) Enter the function of oblique plane.

2) Select the function of plane X Y .

3) Input the angle of obliquity.

4) Move the worktable until the measuring tool (such as a dial gauge) installed on the milling machine touches the obliquity-calibrating plane, adjust it to zero, and move the worktable for any distance in the direction of X-axis.

5) Move the worktable in the distance of Y-Axis until the display turns to zero.

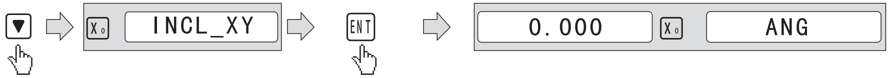
6) Change the angle of the work piece to make the workpiece touch the measuring tool and adjust it to zero.

STEPS:

1. Select place

Press [SN/M1] , then the message window display "INCL_XY" to the Oblique Processing. Press [▲] or [▼] to select place to display "SEL_XY;

Then press [ENT] to in next step;

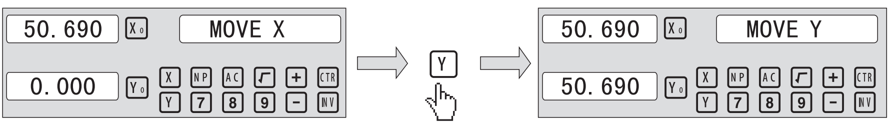



2. Input the angle of obliquity

The message window display "ANG" , X window dispalys the formerly preset the angle of obliquity. Press [4] [5] in turn to input the angle of obliquity .


3. Move the workpiece along the X-Axis until the measuring tool touches the workpiece adjust it to zero, and move the worktable for any distance along the X-Axis.


4. Press [Y], display the value of Y-Axis. Move the workpiece along the Y-Axis, change the angle of workpiece to make the obliquity-calibrating plane touch the measuring tool until it turns to zero. Move the worktable until Y-Axis is displayed as zero.




5. Press [SN/M1] to quit oblique function any time.

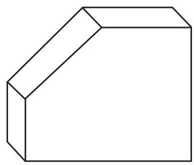
**Example 2 for the oblique XZ or YZ place:**

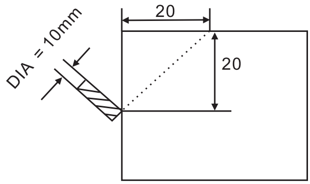
When the machining plane is on plane XZ or YZ, the function of TOOL inclination can instruct the operator to machine the oblique plane step by step.

Procedures for using the function of cutter inclination:

When the machining plane is on plane XZ or YZ, first please calibrate the obliquity of the primary spindle nose and set the TOOL:

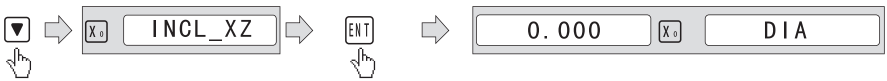
| | |
|---|---|
| INCL_XY(XZ,YZ) | INCL_XZ |
| DIA | 10.000 |
| ST_POT | 20.000 |
| ED_POT | 20.000 |





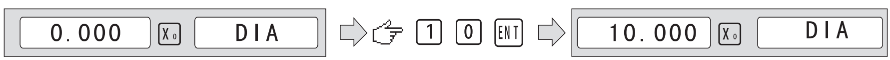

STEPS:

1. Press [SN/M1], then the message window display “INCL_XY” to the oblique Processing. Press [▲] or [▼] to select place to display “SEL_XZ; Then press [ENT] to in next step;



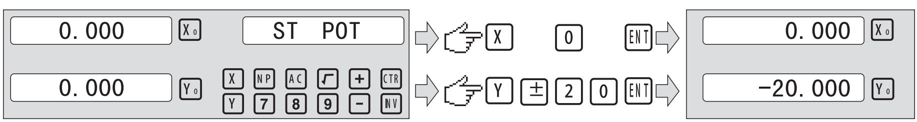

2. Input The TOOL Diameter

The message window display “DIA” , X window dispalys the formerly preset the angle of obliquity. Press [1] [0] in turn to input the TOOL Diameter of obliquity . OK, then press [▼] to in next step;



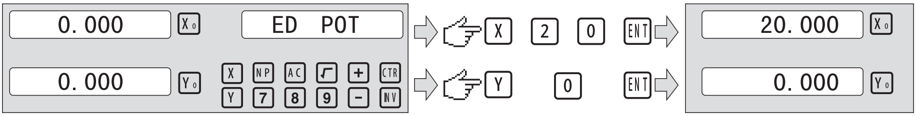

3. Input ST_POT;

The message window display “ST_POT” , X and Y window dispalys the formerly preset the stating position of obliquity. Input X= 0, Y = -20.000. OK, then press [▼] to in next step;



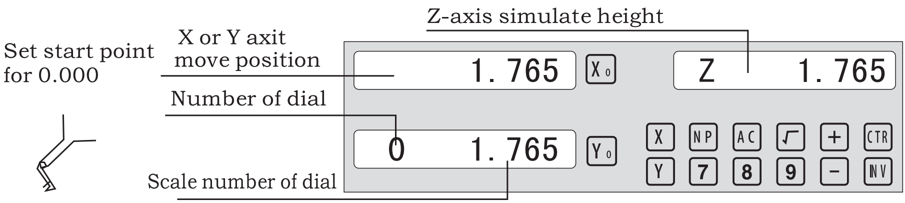
4. Input ED_POT;

The message window display "ED_POT", X and Y window dispalys the formerly preset the stating position of obliquity. Input X= 20.000, Y = 0.000 .




5. After input all parameter, press the key ▼ for machining.

For 2-axis milling machine table , It is not installed with Z-axis, please press ▲ or ▼ to simulate position of Z-axis. Press ▲ simulate moving to the former process, and press ▼ simulate moving to the next process point.



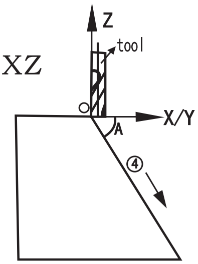

Z-axis simulate height = Number of dial x Z axis Dial + Scale number of dial

Press SN/M1 to quit **oblique** function any time.

## 6.5 Slope Processing

This function can calculate the position of everynprocessing point automatically in processing slope. Only the following parameters need to be inputted:

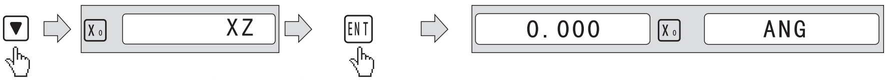
| | |
|---|---|
| XZ, YZ | Set machine place YZ, or XZ |
| ANG | The inclination angle |
| Z_STEP | The slope length each time processing |




**Example 1 for the Slope XZ place;**

Step 1. Select place

Press [TAN/M3] , then the message window display “XZ” to the slope Processing. Press [▲] or [▼] to select place to display “SEL_XY; Then press [ENT] to in next step;

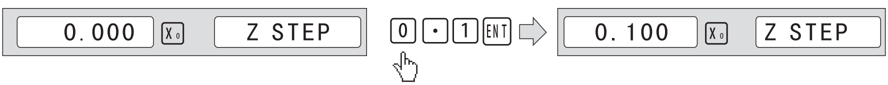



Step 2. Input the angle of slope

The message window display “ANG” , X window dispalys the formerly preset the angle of slope. Press [4] [5] in turn.


Step 3. Input Z_step;

The message window display “Z STEP” , X window dispalys the formerly preset the stating position of slope. Input [0] [·] [1] in turn.

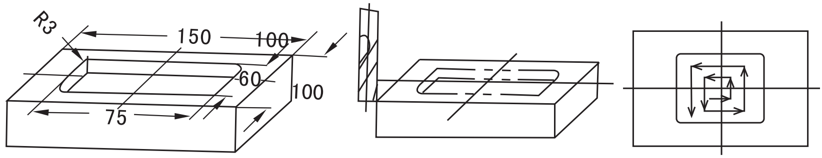



Step 4:Finishing the ALL processing . Press [TAN/M3] to quit slope function any time.

6.6 Chambering Processing

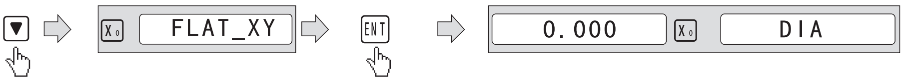
1,FLAT_XY: machine place; 2, DIA:diameter of TOOL; 3, CENTER: center of the chambering ; 4, SIZE: size of the chambering ;

Figure as follow:

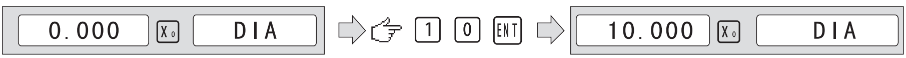



STEPS:

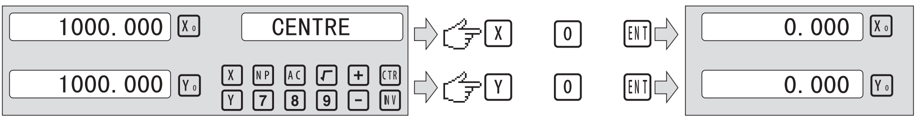
1. Press , then the message window display "FLAT_XY" to the Chambering Processing.



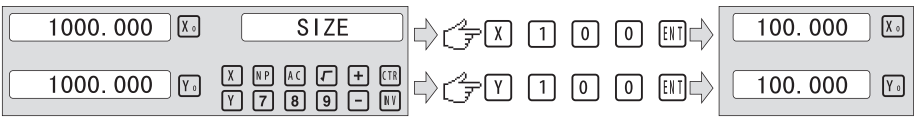

2. Inpur DIA of the TOOL;




3. Input the center coordinate;




4. Input the size;




5. process Chambering;

Move the machine until the display of the axis is zero,ie, the position of the first point. Machine the first point . Display the next machining point by pressing ▲ or ▼ .On the completion of machining, the right window shows OVER. Press ▲ or ▼ , the system will goto the first position for the next workpiece. Press  to quit the Chambering Function.

## 6.7 The Tool Diameter Compensation Function

Without TOOL compensation, the operator has to move the TOOL for an additional distance of the diameter of the TOOL along each side when machining the four 150 and 100 sides of a workpiece to finish machining the whole brim. The digital readouts shall automatically compensate when the TOOL compensation function is enable.

Note: the TOOL compensation is made in the direction of X and Yaxis.

Procedures:

1) . Enter the function of compensating the diameter of the TOOL.
2) . Select one of the (four) preset machining modes.
3). Input the diameter of the TOOL.
4) . Enter machining.

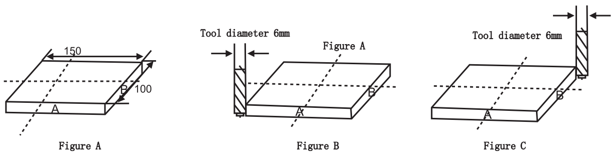
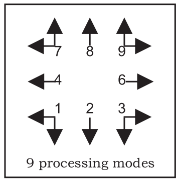



Figure A    Figure B    Figure C

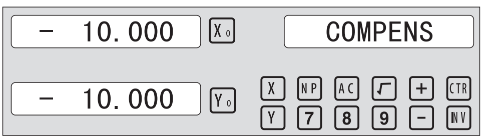



9 processing modes

Step1: press [TAN/M3] to enter the TOOL compensation Function. then the message window display “TYPE” .Press [9] .


Step 2: input the diameter of the TOOL; Press [1] [0] in turn..


Step 3: Press [▼] to the machining Mode.




Machining of 2 side planes can be done by moving the TOOL until X-Axis is 150.000 and Y-Axis is 100.000.Press the Key [TAN/M3] to quit the Function.

## 6.8 Digital Filter of the Grinding Machine

When machine a work-piece by grinder, the display values quickly due to the vibration of grinder. User can not see display value clearly. Grinder DRO provides display value filter function to disable the quake change of display value.

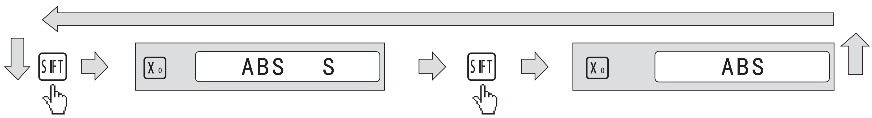
STEPS:

1. Enter display value filter function.

In normal display state, press SIFT to simultaneously, enter display value filter function.

2. Exit display value filter function;

Press SIFT , exit display value filter function;



## 6.9 Lathe Function

### 6.9.1 200 sets TOOL Libs

It always needs different TOOL when processing different parts. For convenient operation, the Lathe digital readouts has the function of 200 sets TOOL Libs.

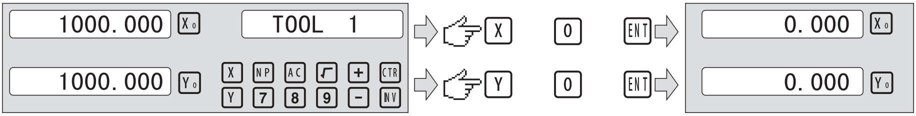
Note: Only when the lathe is equipped with the tool setting block , the 200 sets TOOL Libs can be used.

1. Set a datum TOOL. After tool setting, Zero X axis and Z axis, the set zero of absolute coordinate.
2. According to the size of TOOLl and datumTOOL, determine the position ofTOOL relative to zero of absolute coordinate and datum tool. As Figure 6-1. The relative size of TOOL 2 is as follows X axis 25-30=-5, Z axis 20-10=10.
3. Save the TOOL number and the size into digital readout.
4. The number of TOOL can be input at random, the digital readouts will display the position of tool to absolute coordinate zero. Move lathe until X axis and Z axis both display zero.
5. TOOL Libs can save the 200 sets of the data of tools.
6. The TOOL Libs must be use in the opening state. The 200 sets TOOL Libs can be opened by continuously pressing ± ten times until the right window flashes TL - OPEN and a mark "⊿" display at the left of the right information window. The Mark indicate the operator can setup or revise the 200 sets TOOL Libs. Continuously pressing the key ± ten times will cause the 200 sets TOOL Libs to be closed and the right window flashes TL – CLOSE and the Mark disappear . When the Mark "⊿" disappear the 200 sets TOOL Libs can not be revised.

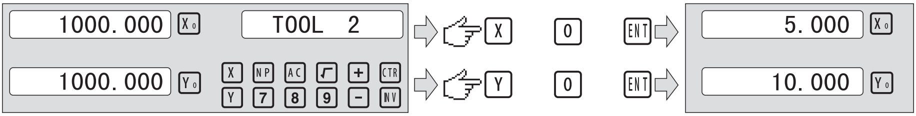
The operations for TOOL data and calling TOOL is shown as follows.

Step 1: In ABS state, input the data of the 200 sets TOOL Libs. To opening the 200 sets TOOL Libs by continuously pressing the key ± ten time. A Mark "⊿" will appear at the left window of the right info window.

Step 2: Press TOOL to access the inputting state. Input TOOL 1 data:




Step 3: Input TOOL 2 data:




Step 4: Press to continue to input the data of next tool. By pressing number and the key ENT , the operator can directly input the special tool data. Press TOOL to quit.

After TOOL libs is setup. Use the TOOL libs according to the following operations first mount the second tool.

Step 5: To access the using state by press CALL . Then press 2 ENT .


Step 6: Press ▲ or ▼. Select the base TOOL. Then press 1 ENT .


;

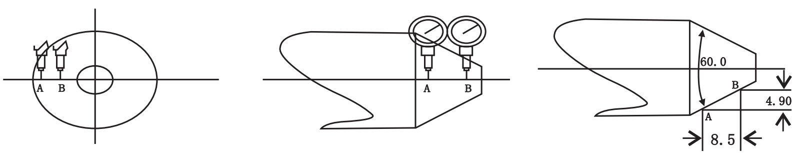
Step 7: Press CALL to quit the function;

Note:

When the base tool is used, the axis can not be zeroed in ABS state .
When the others are used, the axis can only be zeroed in INC state.

## 6.9.2 Taper Function

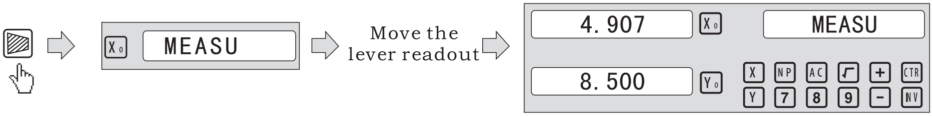
For lathing the workpiece with taper, the taper of the workpiece can be measured in processing;



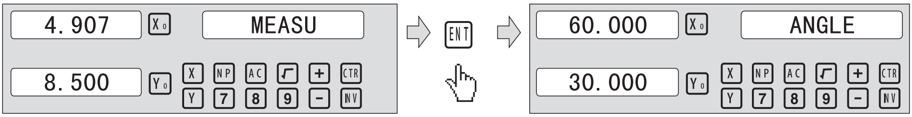
Operations :

As figure, contact surface A of workpiece with lever readouts and resets the lever readouts point to zero.

Step 1: Press , then the message window display “MEASU” to the paper processing. Move the lever readout to the surface B until the lever readouts point as follow;




Step 2: Press to calculate .




Step 3: press to quit the function;

6.9.3 R/D Function

For 2 axes Lathe and 3 axes Lathe, press , The display Mode of X axis is switched between Radius and Diameter . When X axis for display of Diameter, A mark “⍂” will appear at the left of the right information window, but when X axis for display of iameter , the mark “⍂” disappear . Only X axis has the function of the diameter / radius transformation.

6.9.4 Y + Z Function ( only applicable to : 3 axes Lathe)

For 3 axes Lathe, the counter of Y axis and the counter of Z axis can be added to displayed in the Z axis by pressing the key , then press the key can cancel the Y + Z function.

6.10 EDM (Special customization function, if you need to buy, please contact the dealer to customize)

1、 Description: This function is used for the special machining of Electro Discharge Machining (EDM). When the set target value of EDM Z- axis is equal to the present value, the digital readout will output the switch signal to control EDM to stop the depth machining.

The setting of Z-axis direction the Digital Readout is shown as Fig 1, i.e. The deeper the depth is, the large the coordinate value of Z-axis displays. Since starting machining, the depth will gradually deepen and Z-axis.

According to the set Z-axis direction, the machining direction is divided into positive and negative machining. When the electrode descends and the machining is carried out from up to down, the digital readout value will increase, which is called positive machining (Positive). The setting of this direction is the normal setting.

When the electrode ascends and the machining is carried out from down to up, the digital readout value will decrease. The machining direction is negative direction (negative), which is also called negative machining (shown as Fig.1)

The Digital Readout also features other functions, such as negative fire proof-height. Negative fireproof height function is a kind of intelligent position follow check safety protective device. In the process of machining, the electrode surface will generate the carbon accumulation phenomenon. Due to the long-time or diurnal machining without tending , when generating the carbon accumulation and nobody makes the cleaning, the electrode will slowly increase along the negative direction. Once the electrode exceeds the liquid level, it will frequently catch fire and cause losses. This function is just set to aim at this problem. When setting negative fireproof height, and the increased height of electrode exceeds the height between it and the depth of machined surface (i.e. Negative fireproof height), the digital readout display will blink for waring; at the same time, the output signal will automatically turn off EDM to eliminate the fire chance.

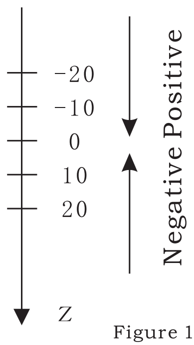


Figure 1

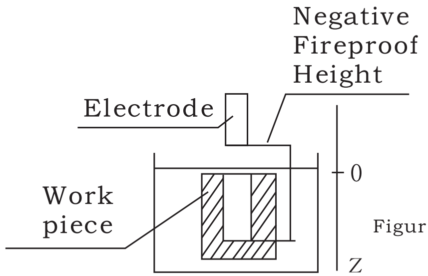


Figure 2

2. procedure :

See the following example for detailed machining.

1) Before machining, firstly set each parameter of DEPTH (machining depth);ERRHIGH( negative fireproof height), machining direction(POSITIVE / NEGATIVE) ; exit mode (AUTO/STOP) and EDM Relay Output Mode.

2) Move the main axis electrode of Z-axis to make it contact the workpiece reference. Clear A-axis to zero or set the value.

3) Enter EDM machining by press the key EDM.

4) X-axis will display Machining depth target value. Y-axis will display Value has been to be depth. ( The value on Y-axis is the value that the workpiece has been machined depth) Z-axis will display Self-position real time value. ( The value on Z-axis is the position value of the main axis electrode of Z-axis.)

5) Start machining, Z-axis display value is gradually close to the target value, and Y-axis display value is also gradually close to the target value. If at this time, the electrode is repeatedly up and down, Z-axis display value will change subsequently, but Y-axis display value will not change, which will always display the machined depth value.

6) When Z-axis display value is equal to the set target value, the position reaching switch will be turned off, EDM will stop machining, According to the operator setting. There are two kinds of exit modes:

a) Automatic Mode:

it will automatically exit from EDM machining status and recover to the original state before machining;

b) Stop Mode:

It will always stay at the machining interface after finishing machining, and you should press [EDM] to exit and back to the original state.

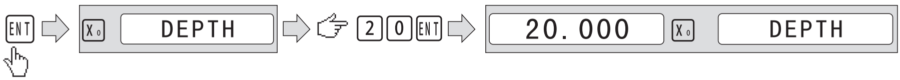
**Operation steps:**

**The DEPTH (machining Depth), ERRHIGH (Negative fireproof height), exit Mode, EDM Relay Output Mode and machining direction should be set.**

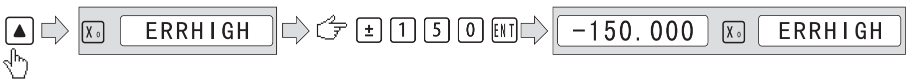
STEPS:

1. Press [EDM] to enter the EDM Function. Press [▲] to input parameters;Press [▼] to enter EDM machining state.

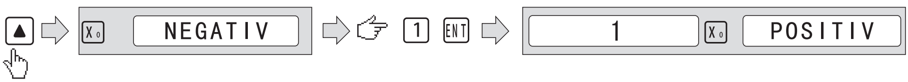
2. Input DEPTH ( machining depth). Press the key [▲] to set the next parameter.



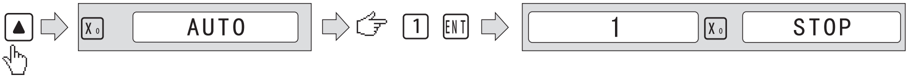

3. input ERRHIGH ( Negative Fireproof Height ) (undefine) .Press the key [▲] to set the next parameter.



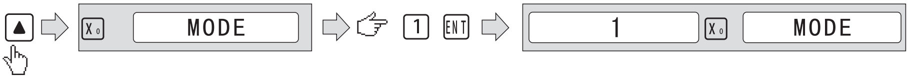

4. Set machining direction(Positive or Negative). Press [1] to select Positive direction. Press [0] to select Negative direction. Press the key [▲] to set the next parameter.



5. Set exit Mode (AUTO Mode or STOP Mode) Press [0] to select AUTO Mode; Press [1] to select STOP Mode ; Press the key [▲] to set the next parameter.



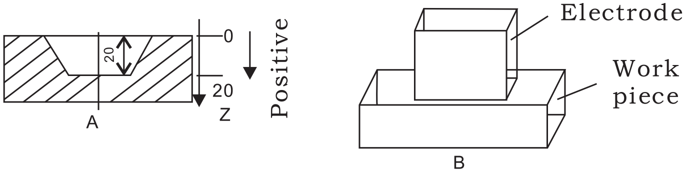

6. Set the Output Mode (Mode 0 or Mode 1); ( undefine ). Press [0] to select Mode 0; Press [1] to select Mode 1.




7. Continuously press [▼] to return EDM for machining. press [EDM] to quit the function;

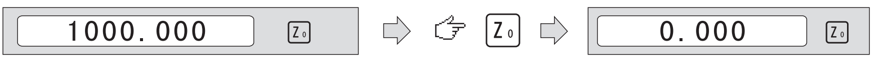
**Example 1: positive direction machining ;**

Machining is shown as the model chamber as follows

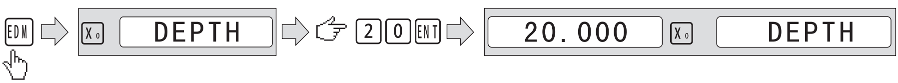



STEPS:

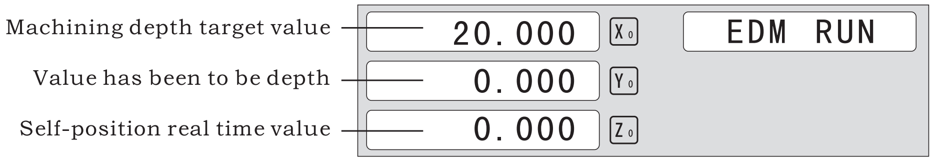
1、Touch one side of the workpiece with the TOOL,then press [Z0] , zero the Z axis。




2、Press [EDM], Setting DEPTH for 20.000; press [▼] to EDM for machining;

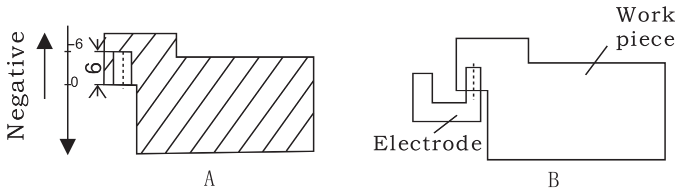



3、Starting machining。



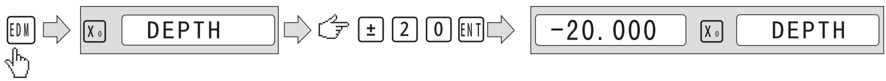

**Example 2: Negative direction machining**

Machining is shown as the model chamber as follows

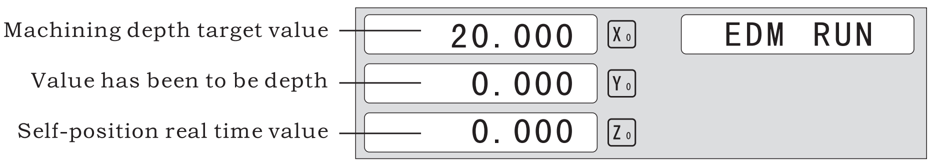



1、Touch one side of the workpiece with the TOOL,then press [Z0] , zero the Z axis。


2、Press [EDM], Setting DEPTH for -20.000; press [▼] to EDM for machining;




3、Starting machining。




**Example 3:** PCD Function for EDM

PCD Function can access the EDM Function . The operator enters PCD Function to input parameters for PCD and enter PCD machining state. At every position for machining, press the key [EDM] to access the EDM Function .

When entering EDM Function, the operator can input the parameters for EDM.

The operation procedure is as follows:

1) Set PCD parameters(the setting is the same as the common setting of PCD)

After input all parameters and enter PCD machining state. The position of the first hole will be display.

2) Press EDM to enter EDM Function parameter( the setting methos is the same as the common setting of EDM parameter); after input all parameters , continuously press ▼ to enter EDM machining state. When the machining is done, press EDM to quit EDM function and enter PCD machining state.

3) In PCD machining state, press ▼ for the position of the next hole, move the machine to the display value 0 , then press EDM to access EDM function again.

4) Repeat the step 2 and step 3 for the following machining points.

# 7 Calculator

The Calculator not only provides normal mathematical calculations such as +, - , x , /, it also provide trigonmetric calculations such as SIN, Arc SIN, COS , Arc COS, TAN, Arc TAN SQRT etc.
The Operations are same as the commerical calculators, easy to use.

**Enter and exit Calculator Function**

In normal display state: Press [CTR] to enter calculator function.

In calculator display state: Press [CTR] to exit calculator function.

**Transferring the Calculator Results fo Selected Zxis.**

After calculating is finished, if the Calculator display Mode Set for mode 1 , user can:

Press [X0] to transfer the calculated result to X axis; then the X window will display this value;

Press [Y0] to transfer the calculated result to Y axis; then the Y window will display this value;

Press [Z0] to transfer the calculated result to Z axis; then the Z window will display this value;

**Transferring the Current Display Value in window to** Calculator.

if the Calculator display Mode Set for mode 1 , user can:

Press [X] to transfer the display value in X window to calculater;

Press [Y] to transfer the display value in Y window to calculater;

Press [Z] to transfer the display value in Z window to calculater;

# 8 Appendix

## 1. Troubleshooting:

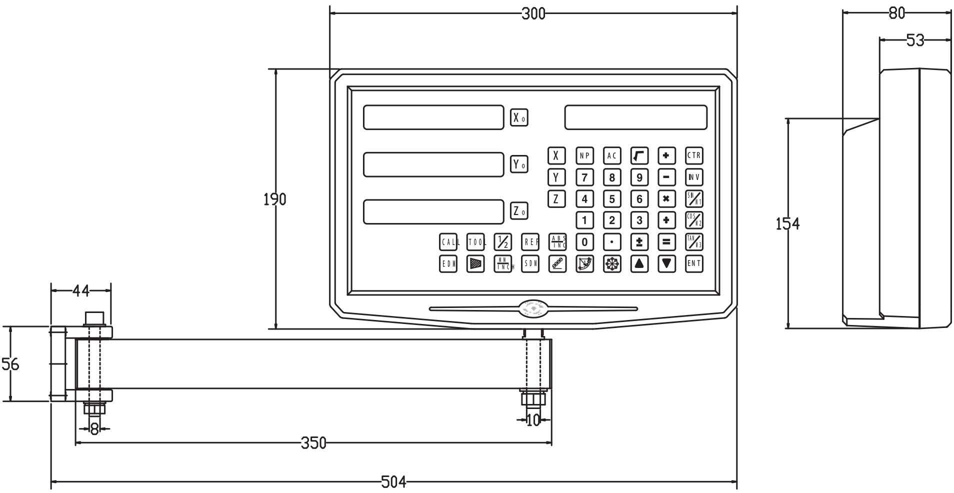
The following are the preliminary solvents for troubleshooting.

If there is still trouble, Please contact out company or agents for help.

| Troubles | Possible reasons | Solvents |
|---|---|---|
| No display | 1. Power isn't connected<br>2. Power switch is off.<br>3. The range of power voltage is not right.<br>4. The inner power of Linear Scale is short. | 1. Check power wire and connect the power<br>2. Turn on the power switch.<br>3. The range of voltage is in 80--260V<br>4. Unplug the connector of linear scale |
| One axis is not counting | 1. Replace the linear scale of the other axis.<br>2. DRO is in special function | 1. If count is normal, the linear scale has trouble; If abnormal, the DRO readouts has trouble.<br>2. Quit the special function. |
| Linear scale is not counting | 1. Reading head is bad for using range exceeds.<br>2. Aluminum chips is in reading head of linear scale.<br>3. The span between the reading head and metal part of linear scale is large.<br>4. The metal parts of linear scale is damage. | 1.Repair the linear scale<br>2. Repair the linear scale<br>3. Repair the linear scale<br>4. Repair the linear scale |
| Counting is error | 1. Shell is poor grounding.<br>2. Low precision of machine.<br>3. Speed of machine is too rapid.<br>4. Precision of linear scale is low.<br>5. The resolution of DRO readouts and the linear scale is not match.<br>6. The unit (mm/inch) is not match.<br>7. Setting thelinear compensating is not arrest.<br>8. Reading head of the linear scale is damaged. | 1. Shell is good grounding.<br>2. Repair the machine.<br>3. Reduce the speed of machine.<br>4. Mount the linear scale again.<br>5. Set the resolution of the DRO again,<br>6. Cover the unit of display mm/inch.<br>7. Reset the linear compensation.<br>8. Repair the linear scale. |
| The counting of the linear scale is not accurate | 1. The mounting of linear scale does not demand the requirement, and the prcision is not adequate.<br>2. The screw is loosen.<br>3. Precision of machine is low.<br>4. The resolution of digital readouts and the linear scale is not match. | 1. Mount the linear scale again and level it.<br>2. Lock all fixing screws.<br>3. Repair the machine.<br>4. Reset the resolution of digital readouts. |
| Sometimes the linear scale is not counting | 1. The small car and steel ball is separated.<br>2. The glass of reading head is wearied.<br>3. The glass of reading head of the linear scale has dirt.<br>4. The elasticity of the steel wire is not adequate. | 1. Repair the linear scale.<br>2. Repair the linear scale.<br>3. Repair the linear scale.<br>4. Repair the linear scale. |

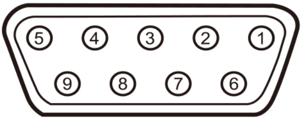
2. Specifications of Digital Readout.
   1) Supply Voltage range: AC 85 V ~ 230 V; 50 ~ 60 Hz
   2) Power consumption: 15VA
   3) Operating temperature: 0℃-- 50℃
   4) Storage temperature: - 30℃-- 70℃
   5) Relative humidity: < 90 % ( 25 )
   6) Max Coordinate number: 3
   7) Readout allowable input signal: TTL square wave
   8) Allowable input signal frequency: < 5 M Hz
   9) Max resolution of digital display length: 0.01 um
   10)Max resolution of digital display angle: 0.0001 / PULSE

3. Instructions



## 4. Examples of character output at the data interface

### 1、X,Y,Z Axis

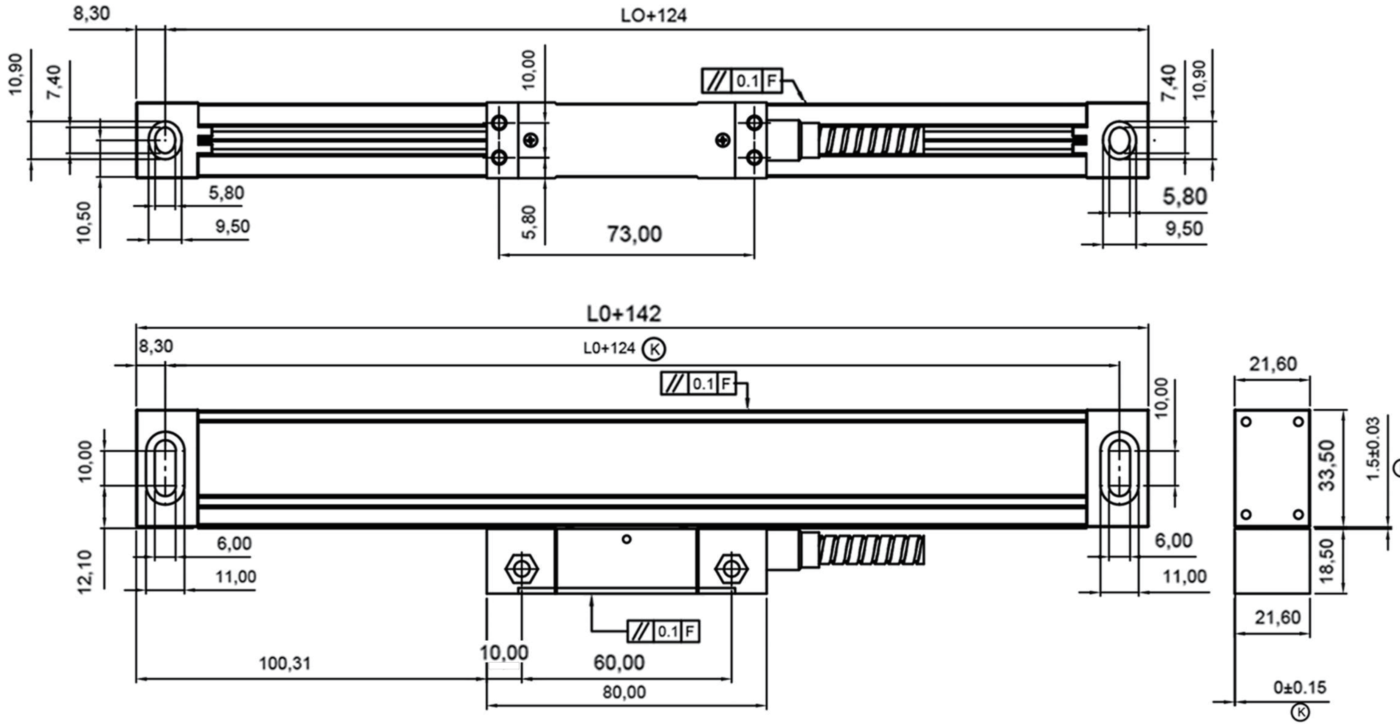



| Pin | TTL (Standard) |
|---|---|
| 1 | |
| 2 | OV |
| 3 | |
| 4 | |
| 5 | |
| 6 | A+ |
| 7 | 5V |
| 8 | B+ |
| 9 | R+ |

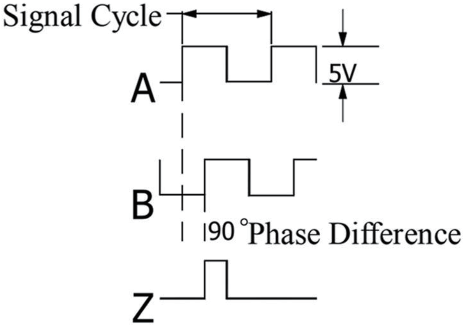
| Pin | TTL (Standard) |
|---|---|
| 1 | 5V |
| 2 | OV |
| 3 | A+ |
| 4 | B+ |
| 5 | R+ |
| 6 | |
| 7 | |
| 8 | |
| 9 | |

For your convenience,
If you buy a digital readout,

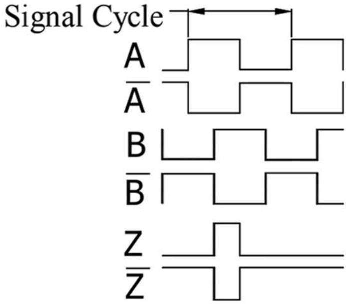
The wiring definition of your linear scale must be the same as the 2 definitions in the above diagram to be universal!


8,30
LO+124
10,90
7,40
10,00
0.1 F
7,40
10,90
5,80
10,50
9,50
5,80
73,00
5,80
9,50
L0+142
8,30
L0+124 K
0.1 F
10,00
21,60
10,00
33,50
1.5±0.03
K
6,00
12,10
11,00
6,00
11,00
18,50
0.1 F
21,60
100,31
10,00
60,00
80,00
0±0.15
K

TTL signal Output:




EIA-422-A signal Output:




1. TECHNICAL PARAMETER

1.1 SCALING DISTANCE: 0.02 MM (50LINES /MM)

1.2 RESOLUTION: 5μM、1μM、0.5μM

1.3 PRECISION: ±3μM、±5μM、±15μM/M (20±0.1℃)

1.4 MEASURING RANGE: 30~3000MM

1.5 MOVING SPEED: HIGH-SPEED ENCODER 120 M/MIN (TO BE CUSTOMIZED)

ORDINARY ENCODER 60M/MIN

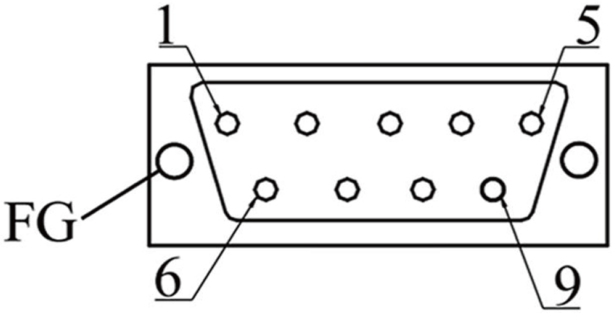
1.6 POWER SUPPLY: +5V±5%、80MA

1.7 CABLE LENGTH: STANDARD 3M (SPECIAL LENGTH AVAILABLE ACCORDING TO THE USER'S NEEDS)☒

1.8 WORKING TEMPERATURE: 0~45℃

1.9 PIN DESCRIPTION:

1) APPLICABLE TO: 9 PIN SOCKET EIA-422-A SIGNAL OUTPUT.




1) Applicable to:  9 pin socket EIA-422-A signal Output.

| Pin Position | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| Signal | $\overline{A}$ | $0V$ | $\overline{B}$ | Empty | $\overline{Z}$ | $A$ | +5V | $B$ | $Z$ |
| Color | Green Black | Black | Orange black | FG | White black | Green | Red | White | Orange |

FG: Shield connected to metal casing.

1) Applicable to:  9 pin socket TTL signal Output.

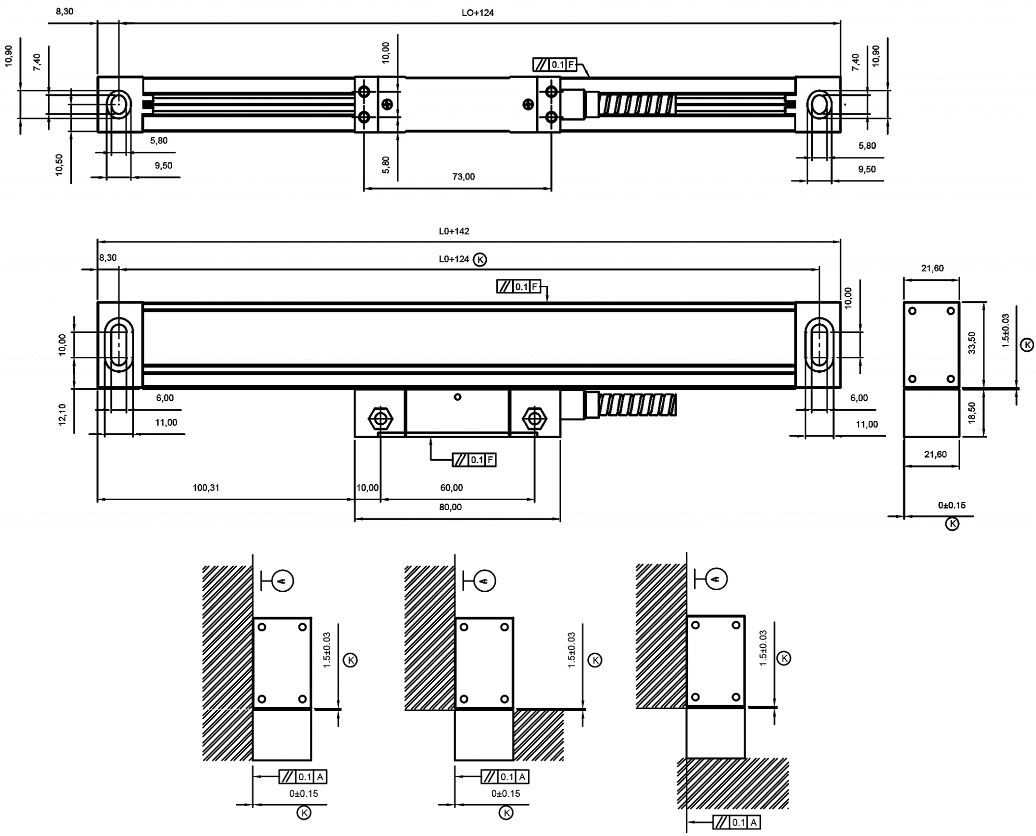
| Pin Position | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| Signal | | $0V$ | | Empty | | $A$ | +5V | $B$ | $Z$ |
| Color | | Black | | FG | | Green | Red | Orange | White |

FG: Shield connected to metal casing.

# Linear scale

## Installation drawings

# Installation method:



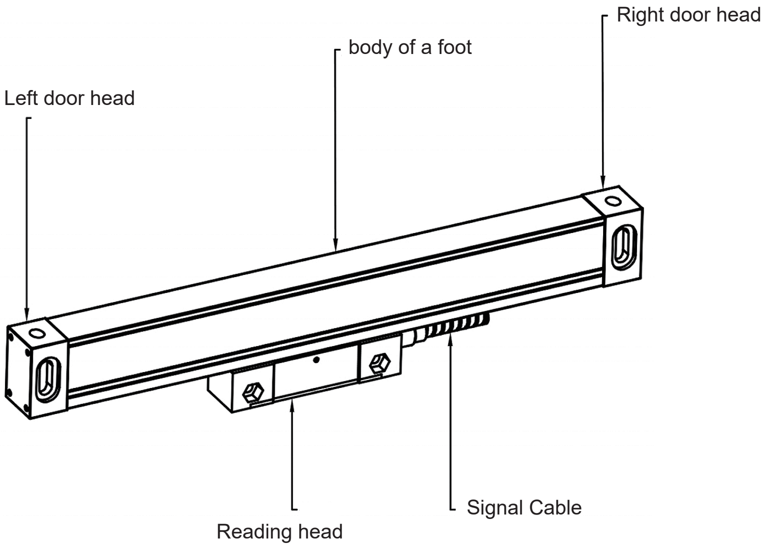

# Standard size：(Unit：mm)

| Model | L0 | L1 | L2 | Model | L0 | L1 | L2 |
|---|---|---|---|---|---|---|---|
| YE-50 | 50 | 174 | 190 | YE-550 | 550 | 674 | 690 |
| YE-100 | 100 | 224 | 240 | YE-600 | 600 | 724 | 740 |
| YE-150 | 150 | 274 | 290 | YE-650 | 650 | 774 | 790 |
| YE-200 | 200 | 324 | 340 | YE-700 | 700 | 824 | 840 |
| YE-250 | 250 | 374 | 390 | YE-750 | 750 | 874 | 890 |
| YE-300 | 300 | 424 | 440 | YE-800 | 800 | 924 | 940 |
| YE-350 | 350 | 474 | 490 | YE-850 | 850 | 974 | 990 |
| YE-400 | 400 | 524 | 540 | YE-900 | 900 | 1024 | 1040 |
| YE-450 | 450 | 574 | 590 | YE-950 | 950 | 1074 | 1090 |
| YE-500 | 500 | 624 | 640 | YE-1000 | 1000 | 1124 | 1140 |

L0: Effective measuring length of the linear encoder; L1: Length of linear encoder mounting holes; L2: Linear encoder overall length

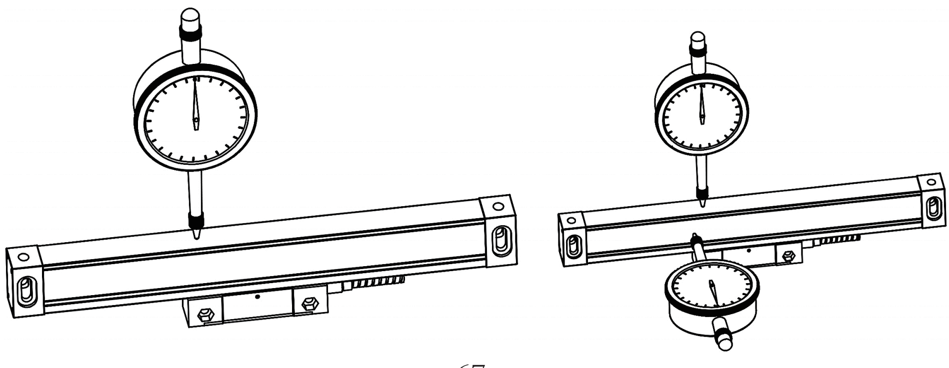
# Maintenance:

1. The effective travel of the linear encoder should be longer than the maximum travel of the machine tool. If the length is not enough, replace the linear encoder with a larger stroke or add a limit block on the machines.The end position of the reading head from the end of the linear encoder body should be not less than 10mm space, (see the following diagram).

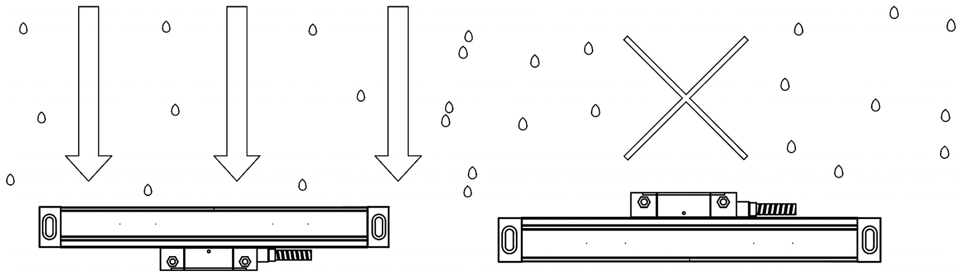



2. For any non-machined surface, a shim must be placed on the back of the linear encoder or a user-made installation shim must be used to ensure the stability and reliability of the connection between the grating ruler and the mounting surface.

3. When using a dial gauge or similar instrument to calibrate the parallelism of the linear encoder, the angle of the side head must be within ±30 degrees, and the smaller the angle, the better.



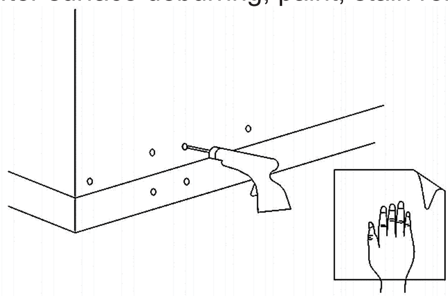
4. The installation position of the linear encoder must avoid direct impact from iron filings, oil, water, and dust (as shown in the figure below). The installation length of the L-plate should be as short as possible under possible circumstances, and the force situation of the mounting surface must be taken into consideration.

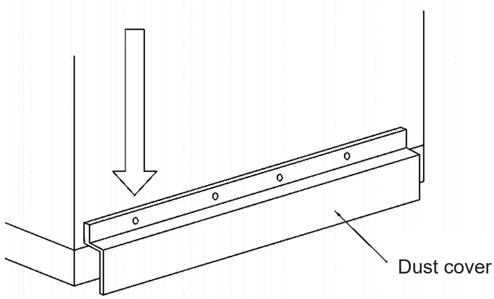


Correct installation　　Wrong installation

5. There must be a gap of 0.5mm or more between the dust cover and the ruler body, and avoid contact between the dust cover and the ruler body when moving the reading head (as below).

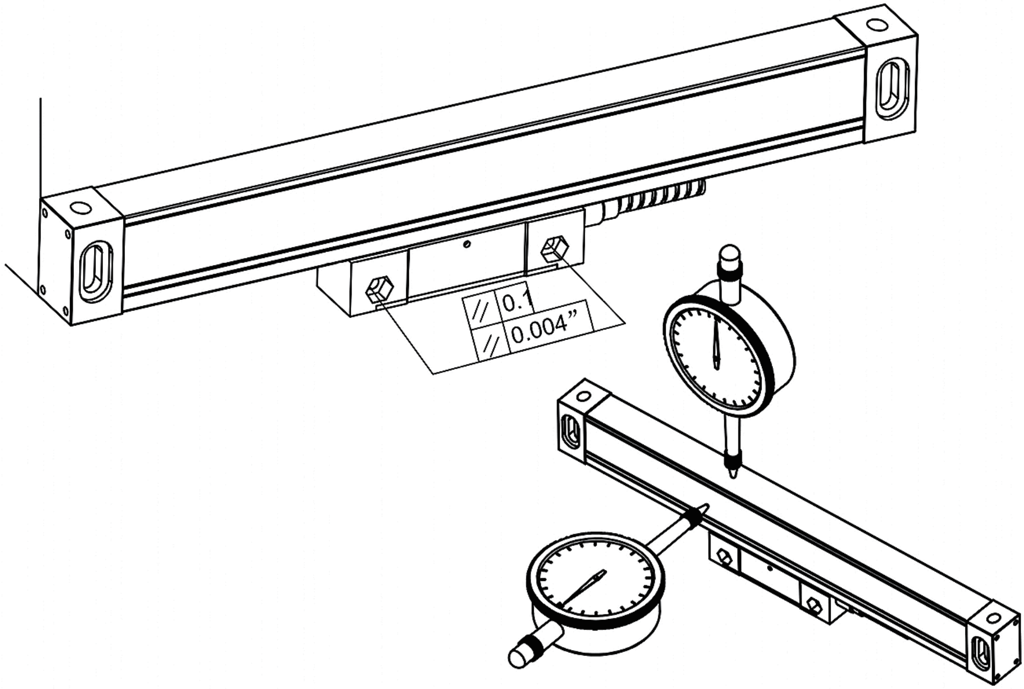
6. Installation screw thread depth, at least must have 6 teeth of locking depth; force greater part, such as supporting the digital display meter shelf fixed plate, must have 8 teeth of locking depth; YE series of scale, the depth of the thread depth of the locking depth. Such as supporting the digital display meter shelf fixed plate, must have more than 8 teeth locking depth; YE series scale With M4 screws installed mounting surface tapping after surface deburring, paint, stain removal. (The following figure)



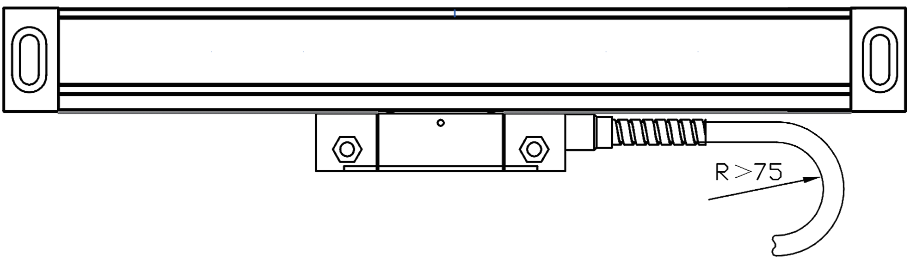


7. The fixing of the signal line must take into account all relevant moving distances. Fixing position as far as possible placed in the very center of the stroke, and the excess signal line is fixed with a wire tie.

8. Adjustment of the scale height level must be the length of the scale center to take the two sides of the symmetry point Do adjust the reference point, any scale regardless of the school level direction or height direction, the Adjustment range: for the scale body, to the head from the scale body at a distance of not more than 20mm from each end shall prevail. For the reading head, between the two quadrilateral reference surfaces (the following figure)




9. The bending radius of the signal line of the scale is greater than 60mm.



10.Scale installation standard

(1) Installation base surface standard (Figure 4.8a.b.c three installation methods)

1.The installation surface of the ruler body is parallel to the installation surface of the reading head, and the parallelism between the installation surfaces is <0.1mm

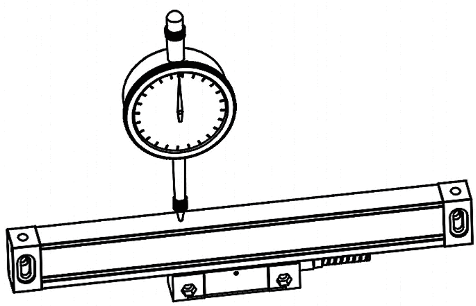
2.The installation surface of the ruler body is perpendicular to the installation surface of the reading head, and the perpendicularity between the installation surfaces is <0.1mm

2) Ruler body installation standards (Figure 4.9, Figure 4.10)

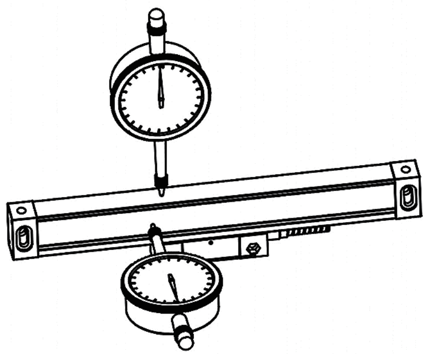
1. Height direction relative to the machine guide parallelism <0.1mm, maximum not more than 0.15mm In terms of symmetry point, the smaller the better.

3) Standard of reading head installation

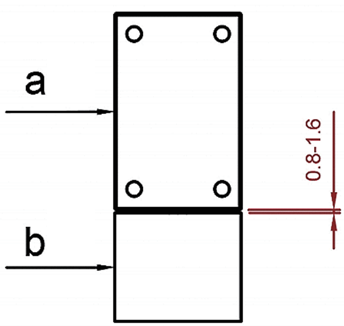
1.The clearance between the reading head and the height direction of the ruler body is 0.8mm-1.6mm after installation, and then withdraw the pad block (Figure 4.11)



4.9



4.10




2. Reading head a side and ruler body B side. Misalignment in horizontal direction. 0.25±0.15mm

3. Parallelism of reading head relative to machine tool <0.10mm, maximum cannot exceed 0.30mm

Parameter:

| Modle | SNS-3V-YE102024 | SNS-3V-YE161838 |
|---|---|---|
| Rated voltage: | AC85-230V 50Hz/60Hz | |
| Resolution | 5 μm | |
| Number of axles | 3 | |
| Range | 10 inches<br>20 inches<br>24 inches | 16 inches<br>18 inches<br>38 inches |

Standard accessories:

| Accessories for digital display meters: | Accessories for grating ruler: |
|---|---|
| 1. Support rod * 1 | 1. Ruler cover * 3 |
| 2. Knife holder plate * 1 | 2. L mounting plate * 4 |
| 3. Transparent watch case * 1 | 3. Plug * 6 |
| 4. Power cord * 1 | 4. Screw pack * 3 bags |
| 5. Watch holder * 1 | Each bag contains: |
| 6. Butterfly piece * 2 | Internal hexagonal screw M4 * 30 * 4; |
| 7. M8 * 70 screw * 1 | Internal hexagonal screw M4 * 12 * 2; |
| 8. M10 * 55 screw * 1 | Internal hexagonal screw M4 * 8 * 4; |
| 9. Nut M10 * 1 | U-shaped gasket T=0.2mm * 2; |
| 10. Nut M8 * 1 | Washer φ 6 * 2; |
| 11. Nut M5 * 1 | Washer φ 5 * 2; |
| 12. Internal hexagonal screw M5 * 20 * 2 | Washer φ 4 * 6; |
| 13. Internal hexagonal screw M5 * 25 * 1 | Line card * 2 |
| 14. M4 * hex socket screw * 4 | |
| 15. M5 * 10 machine meter screws * 2 | |
| 16. Washer φ 10 * 1 | |
| 17. Washer φ 8 * 1 | |
| 18. Washer φ 5 * 1 | |
| 19. Rubber washer 20 * 10 * 1 * 1 | |
| 20. Rubber washer 20 * 10 * 0.5 * 1 | |
| 21. Spring washer φ 10 * 1 | |
| 22. Spring washer φ 8 * 1 | |
| 23. Spring washer φ 5 * 1 | |

**Manufacturer:** Shanghaimuxinmuyeyouxiangongsi
**Address:** Shuangchenglu 803nong11hao1602A-1609shi, baoshanqu, shanghai 200000 CN.
**Imported to AUS:** SIHAO PTY LTD, 1 ROKEVA STREETEASTWOOD NSW 2122 Australia
**Imported to USA:** Sanven Technology Ltd., Suite 250, 9166 Anaheim Place, Rancho Cucamonga, CA 91730

EC REP
E-CrossStu GmbH
Mainzer Landstr.69, 60329 Frankfurt am Main.

UK REP
YH CONSULTING LIMITED.
C/O YH Consulting Limited Office 147, Centurion House, London Road, Staines-upon-Thames, Surrey, TW18 4AX

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# MANUEL D'UTILISATION DE L'AFFICHAGE DRO

MODÈLE : SNS-3V-YE102024 IS NS-3V-YE161838

nous continuons à nous engager à vous fournir des outils à des prix compétitifs.
« Sauver la moitié » , « Moitié prix » ou toute autre expression similaire utilisée par nous ne représente qu'une estimation des économies que vous pourriez réaliser en achetant certains outils chez nous par rapport aux principaux grandes marques et ne vise pas nécessairement à couvrir toutes les catégories d'outils que nous proposons. Vous nous vous rappelons de bien vouloir vérifier attentivement lorsque vous passez une commande chez nous si vous êtes en fait, vous économisez la moitié par rapport aux grandes marques.

VEVOR®
TOUGH TOOLS, HALF PRICE

# AFFICHAGE DRO

MODÈLE : SNS-3V-YE102024 SNS-3V-YE161838

## BESOIN D'AIDE? CONTACTEZ-NOUS!

Vous avez des questions sur les produits ? Besoin d'assistance technique ? N'hésitez pas à nous contacter. Contactez-nous:

Assistance technique et certificat de garantie électronique
Www.vevor.com/support

Ceci est l'instruction originale, veuillez lire toutes les instructions du manuel attentivement avant de l'utiliser. VEVOR se réserve une interprétation claire de notre manuel d'utilisation. L'apparence du produit sera soumise à la produit que vous avez reçu. Veuillez nous pardonner, nous ne vous informerons plus s'il y a des mises à jour technologiques ou logicielles sur notre produit.

Chers utilisateurs :

Nous vous remercions d'avoir acheté les afficheurs numériques multifonctions de la série ·

Les affichages numériques sont utilisés dans une grande variété d'applications. Celles-ci incluent machines-outils , dans les axes d'alimentation, les équipements de mesure et d'inspection, l'EDM et les appareils de division, outils de réglage , stations de mesure pour contrôle de la production. Afin de répondre aux exigences de ces applications, de nombreux encodeurs peuvent être connectés aux lectures numériques. Lisez attentivement toutes les instructions du manuel avant utilisation et suivez-les strictement · conservez le manuel pour référence ultérieure ·

Attention à la sécurité :

⌘ Pour éviter les chocs électriques ou les incendies, l'humidité ou les projections directes Il faut éviter d'utiliser du liquide de refroidissement. En cas de fumée ou de phénomènes particuliers une odeur se dégage de l'affichage numérique, veuillez débrancher la prise d'alimentation immédiatement, sinon, un incendie ou un choc électrique pourrait se produire. un tel cas, n'essayez pas de le réparer, veuillez contacter l'entreprise ou distributors.

⌘ L'affichage numérique est un appareil de mesure précis utilisé avec un appareil optique Échelle linéaire · lorsqu'elle est utilisée, si la connexion entre le L'échelle linéaire et l'affichage numérique sont cassés ou endommagés de l'extérieur, des valeurs de mesure erronées peuvent en résulter · Par conséquent, l'utilisateur doit être prudent.

⌘ N'essayez pas de réparer ou de modifier l'affichage numérique, sinon, vous risquez de tomber en panne. une panne ou une blessure peut survenir. En cas de condition anormale, Veuillez contacter l'entreprise ou le distributeur.

⌘ Si l'échelle linéaire optique utilisée avec l'affichage numérique est endommagée, n'utilisez pas d'échelle linéaire d'une autre marque. · En raison des performances, des spécifications et de la connexion des produits de différentes marques, ne doit pas être connecté sans l'instruction d'un technicien spécialisé personnel, sinon des problèmes seront causés à l'affichage numérique.

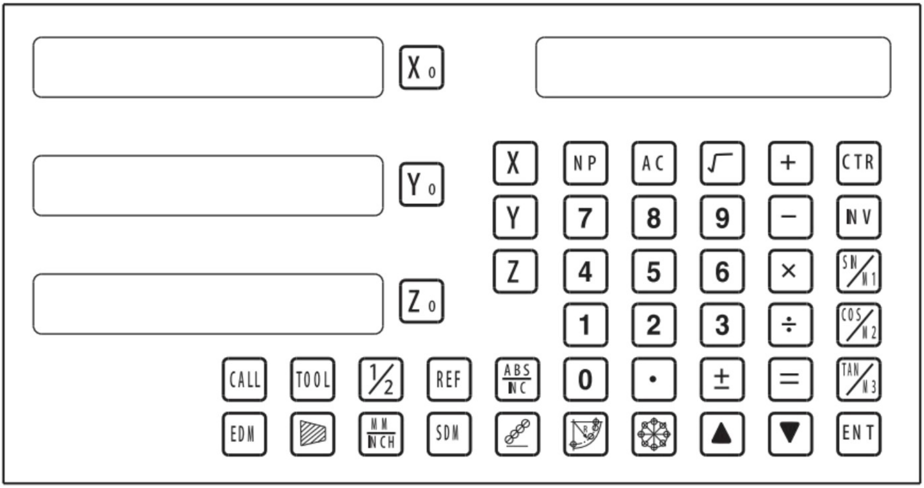
⌘ With the continuous updating of products, if there are changes or En cas de modification des paramètres de l'échantillon, les fichiers aléatoires prévalent et la société a le droit d'interprétation finale sans préavis.

# Contents

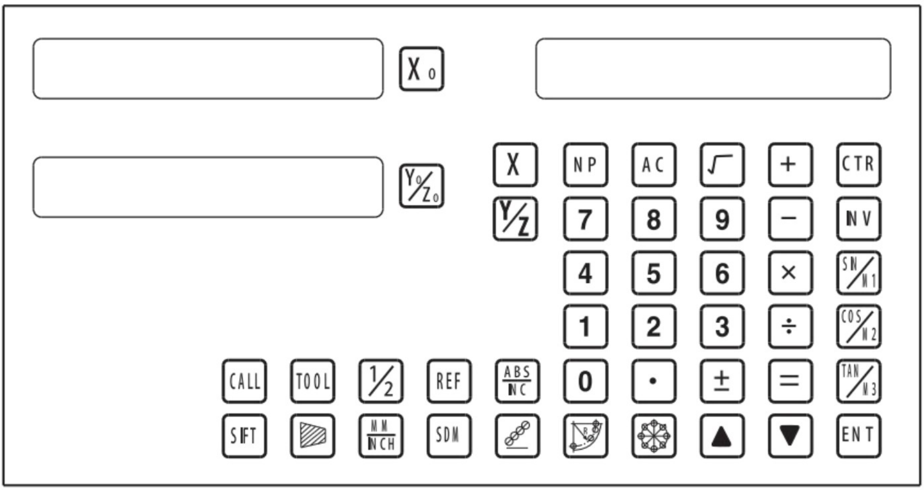
# Contents

# Illustration of Panel and keyboard

## THREE AXIS PANEL




## TWO AXIS PANEL



Keyboard Description

| | |
|---|---|
| X Y Z | Keys for axis selection |
| $X_0$ $Y_0$ $Z_0$ | Zero select axis |
| ± | Enter +/- sign |
| • | Enter decimal point |
| 0 1 2 3 4<br>5 6 7 8 9 | Entry keys for numbers |
| + − × ÷ = | Operation key (in Calculation function key) |
| CTR | Enter or quit calculating state |
| AC | Cancel incorrect operation |
| INV | Calculate inverse trigonometric |
| √ | Square root |
| ENT | Confirm operation |
| MM/INCH | Toggles between inch and millimeter units. |
| REF | Press when ready to identify a reference mark. |
| SDM | Function keys for 200 sub datum |
|  | ARC cutting function |
|  | holes displayed equally on a circle |
|  | holes displayed equally on a line |

# Caption of the keyboard

| | |
|---|---|
| SIN/M1 | Calculate trigonometric or Slope Processing function key |
| COS/M2 | Calculate trigonometric or rectangular inner chamber processing function key |
| TAN/M3 | Calculate trigonometric or the tool diameter compensation function key |
| ABS/INC | Toggle between ABS/INC coordinate |
| ▲ ▼ | Stroll up or down to select |
|  | Taper measured function key |
| CALL | Tool library call key |
| TOOL | Opens the tool table.( lathe) |
| EDM | EDM function key |
| SFT | Filter display function key |
| 1/2 | Half a display value of an axis |
| NP | Non Linear Error Compensation function keys |

# 3、Parameters settings

## 3.1 Parameters setup routine entrance.

Press [•] to enter initial system and self-check after DRO powers on in 1 second, then Parameters settings display in the Parameters window.press [▲] [▼] to select the item you want to chang.

If you want to quit initial setting, press [▲] [▼] until "QUIT" appears in message window and press [ENT]. You can also press [•] to quit initial setting.

## 3.2 Parameters Settings Description

### 3.2.1 Setting the Resolution

Press [▲] [▼] until "RESOLUTE" appears in message window;

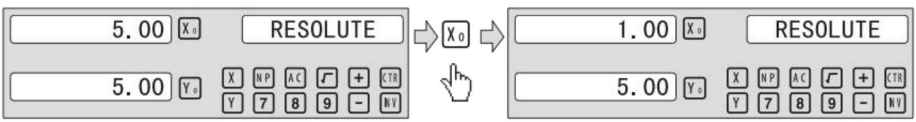
When selecting the LINEAR encode, the resolution will be set as follow:

There are 19 types of resolution:

0.01um;0.02um;0.05um;0.10um;0.20um;0.25um;0.50um;1.00um;
2.00um;2.50um;5.00um;10.00um;20.00um;25.00um;50.00um;
100.00um;200.00um;250.00um;500.00um.

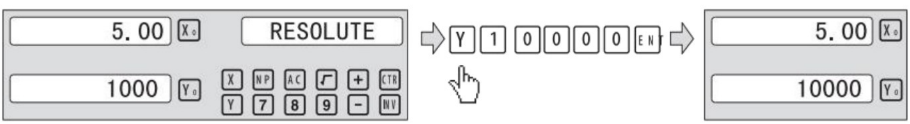
Press [X0] to change the resolution for X axis;Press [Y0] to change the resolution for Y axis;Press [Z0] to change the resolution for Z axis;

Set the resolution 5.00um to 1.00um for X axis:




When selecting the rotary encode, the resolution will be set as follow:

Input the rotary encode parameter value .

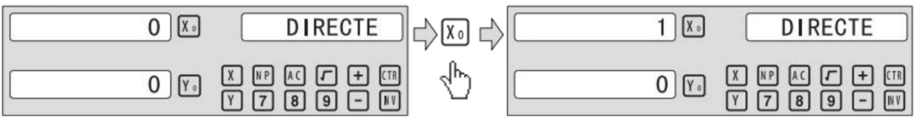


### 3.2.2 Setting Positive Direction for Counter

Press ▲ ▼ until " DIRECTE" appears in message window.

Direction '0' means the display value will increase when scale moves form right to left and decrease when scale moves from left to right. Direction '1' means the display value will increase when scale moves form left to right and decrease when scale moves from right to left.

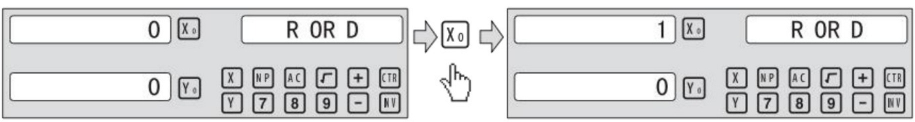
Press X0 to change the Direction for X axis;Press Y0 to change the Direction for Y axis;Press Z0 to change the Direction for Z axis; as follow:




### 3.2.3 Toggle Betwween R/D Display Mode

Press ▲ ▼ until "R OR D" appears in message window. X window, Ywindow, Z window displays '0' or '1' separately.

'0' is mode R, which means the dispay value equals the actual measurement. '1' is mode D where the display value equals the double actual measurement. Press X0 to change the R/D for X axis;Press Y0 to change the R/D for Y axis;Press Z0 to change the R/D for Z axis; as follow:




### 3.2.4 Setting Z axis Dial

Press ▲ ▼ until "Z DIAL" appears in message window.

Z axis dial should be set if Z axis is emulated for 2 axis milling and only install linear scale for X,Y axis. Z axis dial means the distance the Z axis travels when screw runs a revolution.

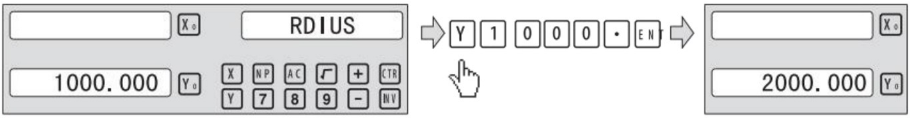
Set the Z axis Dial 2.5mm as follow ;


3.2.5 Setting the Rotary Radius of the Workpiece

Press ▲ ▼ until "RDIUS" appears in message window.

The Rotary rdius type is used perimeter to measure angle.

Input the Rotary Radius parameter value 2000mm as follow:

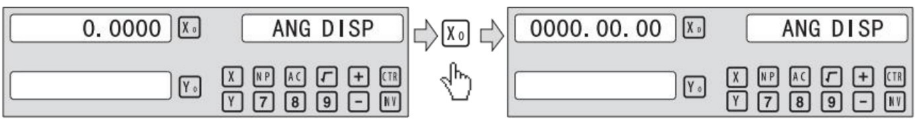



3.2.6 Setting the Angle Display Mode

Press ▲ ▼ until "ANG DISP" appears in message window.

Press $X_0$ to change the angle display mode for X axis;Press $Y_0$ to change the angle display mode for Y axis;Press $Z_0$ to change the angle display mode for Z axis; Example for X axis:

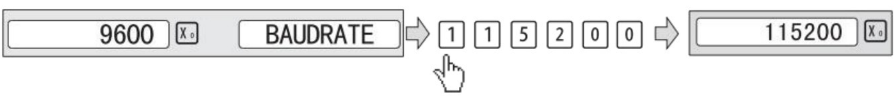
"0.0000" means the angle mode is Circulating DD;
"0000.0000" means the angle mode is Incremental DD;
"0.00.00" means the angle mode is Circulating DMS;
"0000.00.00" means the angle mode is Incremental DMS;




3.2.7 Setting the Baudrate of RS_232 (Special customization function, if you need to buy, please contact the dealer to customize)

Press ▲ ▼ until "BAUDRATE" appears in message window.

Set the Baudrate 115200 as follow ;



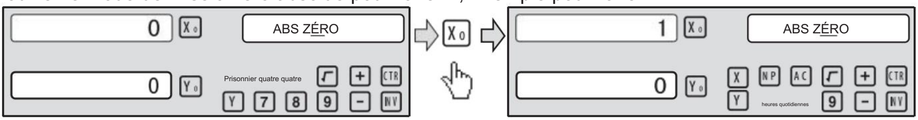
3.2.8 Réglage de l'activation ou de la désactivation de la mise à zéro absolue

presse ▲ ▼ jusqu'à ce que « ABS ZERO » apparaisse dans la fenêtre de message·

' le ' signifie que le fonctionnement de la mise à zéro ABS et des données prédéfinies sera activer dans l'état d'affichage normal ·

' 1 ' signifie que le fonctionnement de la mise à zéro ABS et des données prédéfinies sera désactiver dans l'état d'affichage normal ·

appuyez X0 pour modifier le mode de mise à zéro absolue de l'axe x, appuyez sur Y0 pour modifier le mode de mise à zéro absolue pour l'axe Y, appuyez sur Z0 à modifier le mode de mise à zéro absolue pour l'axe Z ; Exemple pour l'axe x ·



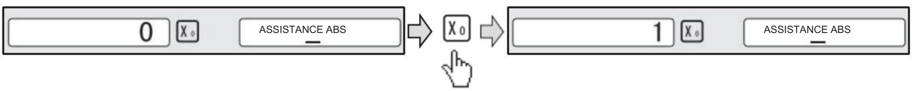

3 . 2 . 9 définition de la forme absolue de la fonction spéciale

presse ▲ ▼ jusqu'à ce que « ABS ASST » apparaisse dans la fenêtre de message·

'o signifie que seule la valeur de position de fonction spéciale est affichée dans le opération de fonction spéciale.

' 1 ' signifie valeur de position de fonction spéciale + ABS La valeur de position est affichage dans l'opération de fonction spéciale.

presse X0 pour changer le mode absolu de la fonction spéciale, être défini comme suit :



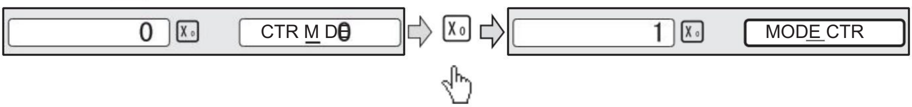

3 . 2.10 réglage de la Calculator Mode d'affichage

presse ▲ ▼ jusqu'à ce que « UCCTR MODE » apparaisse dans le message Window

' le ' m eans la calculatrice affiche la valeur au vent x dans le moyen la calculatrice affiche ow la disply;

' 1 ' valeur dans la fenêtre de message dans l'affichage ;

presse X0 pour changer le mode d'affichage de la calculatrice sera défini AS follow:




3.2.11 Réglage de la luminosité de l'écran

Réglage de la luminosité de l'affichage LED, le réglage par défaut d'usine est uniquement "3", plus le paramètre est élevé, plus la luminosité est élevée. appuyez sur "xo" pour définir, il n'est pas recommandé de définir vous-même la valeur par défaut.

3.2.12 The linear scale counting frequency setting

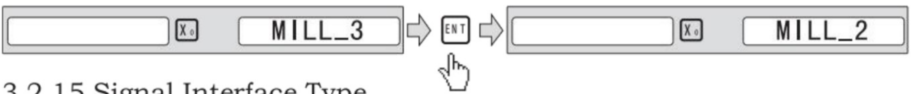
The factory default setting is only "12", the higher the parameter, the lower the counting frequency, press "X0" to set, it is not recommended that you set the default value yourself.

3.2.13 Setting QUIT: Digital display table parameters quit button.

3.2.14 Setting the type of the DRO.

The type of the DRO will be display on the right window. then press the key ENT to select the correct type. the following system item will be set:

"MILL-3" means the DRO type is 3-axis milling machine table;
"MILL-2" means the DRO type is 2-axis milling machine table;
"LATHE-2" means the DRO type is 2-axis lathe table;
"LATHE-3" means the DRO type is 3-axis lathe table;
"GRIND" means the DRO type is Grind table;
"EDM" means the DRO type is EDM table; (Special customization function, if you need to buy, please contact the dealer to customize)




3.2.15 Signal Interface Type

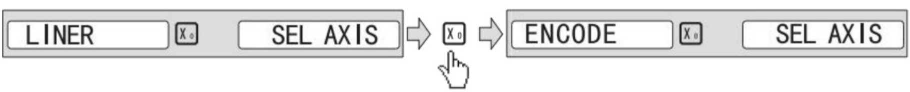
Message window displays " SEL AXIS" which indicates the step is to Sensor input signal mode. Press X0 to change the signal mode for X axis;Press Y0 to change the signal mode for Y axis;Press Z0 to change the signal mode for Z axis;Example for X axis:

Press X0 to scroll through the Rotary encode type, the Linear encode type, the Rotary rdius type.

X window displays the Signal type.

"LInER" means the Signal type is linear encode type ;
"EnCOdE " means the Signal type is Rotary encode type;
"RdIUS" means the Signal type is Rotary rdius type ;

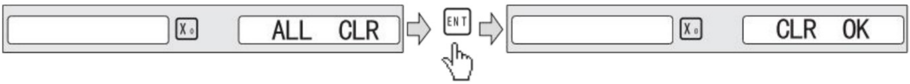
Example: currently in the linear encode type, to toggle to the Rotary encode type;



### 3.2.16 Restore Factory Settings:

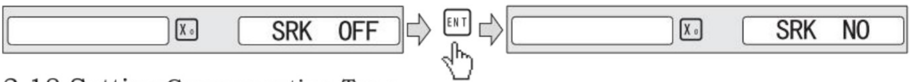
Clear all data except DRO type.DRO will load default setup for parameter.After loading default setup,user must search RI once to enable resuming ABS dadum function;otherwise to resume the datum by RI is unable;

Message window displays “ ALL CLR” , press ENT and message windows display “PASSWORD” indicating the operator to input password; Press 2000 + ENT in turn to load default value;




### 3.2.17 Shrinkage Ratio enable or disable.

Message window displays “ SRK OFF” to disable Shrinkage rate function. Press ENT to enable Shrinkage rate function in Message window displays “ SRK ON” :



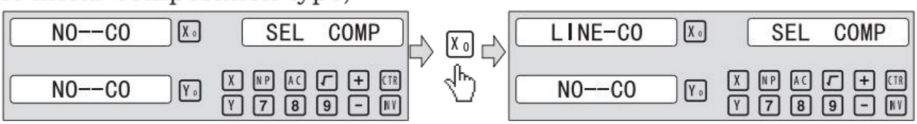

### 3.2.18 Setting Compensation Type

Message window displays “ SEL COMP” which indicates the step is to compensation type. Press $X_0$ to change the compensation type for X axis;Press $Y_0$ to change the compensation type for Y axis;Press $Z_0$ to change the compensation type for Z axis;Example for X axis:

Press $X_0$ to scroll through the not compesation type, the Linear compesation type, the non-linear compesation type.

“no-CO” means the compesation type is not compesation type;
“LInE-CO” means the compesation type is linear compesation type.
“non-LinE” means the compesation type is non-linear linear compesation type;

Example for X axis: currently in the not compesation type, to toggle to the linear compesation type;



3.2.19 Inch display, set the number of digits after the decimal point

In the inch display mode, the number of digits after the decimal point is set, the factory default digit is "4", press "X0" to set, can be set according to actual needs.

3.2.20 Setting EDM: it is not recommended that you set the default value yourself, EDM function, Set the relay off on time.

3.2.21 Setting Linearity Compensation.

Message window displays " LIN COMP" which indicates the step is to Linearity Compensation. Compensate the linear error to make display value equals to standard value.

The calculation of compensation rectifying coefficient:

$$\text{Coefficient} = \frac{(\text{Measurement} - \text{Standard value}) \times 1000.000}{\text{Standard value}}$$

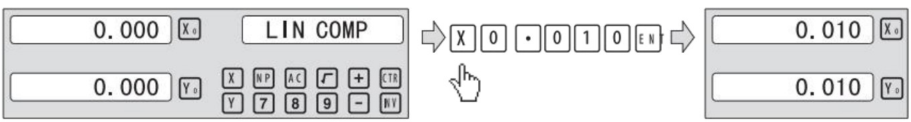
Example for X axis:

Measurement 200.020mm

Standard value 200.000mm

Rectifying coefficient= (200.020-200) * 1000 /200 =-0.01mm/m

Input compensation rectifying coefficient 0.01 as follow:

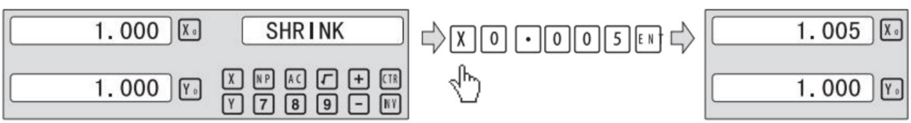



3.2.22 Setting the Shrinkage Ratio

Press ▲ ▼ until " SHRINK" appears in message window;

$$\text{Shrinkage radio} = \frac{\text{Dimensions of the finished product}}{\text{Dimensions of the working piece}}$$

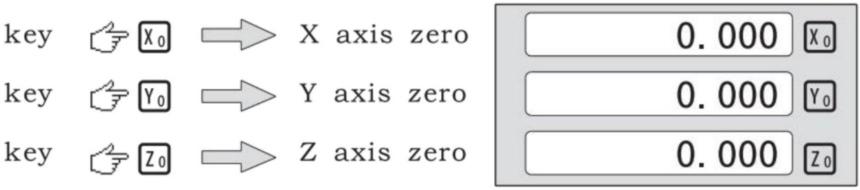
Set the shrinkage radio 1.005 as follow;



# 4、General Operations;

## 4.1 Zeroing

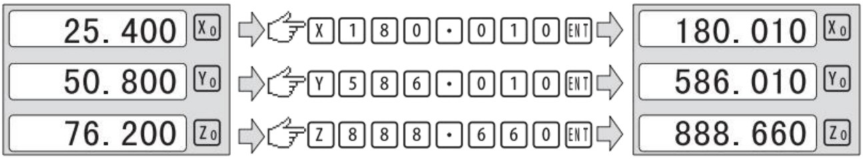
Zero the designated axis in normal display state.Zeroing is used to set the current point as datum point as follow;




X0 or Y0 or Z0 will be return to the original data before the reset。

## 4.2 Preset Data to Designated Axis

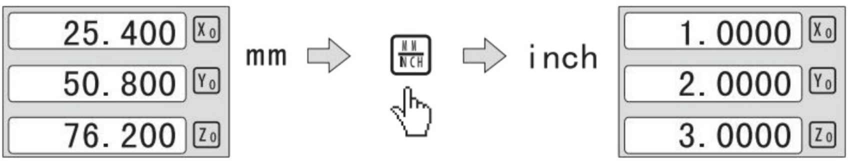
Preset a value to current position for a designated axis in normal display state.



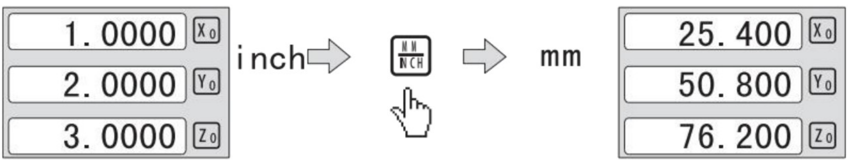

## 4.3 Toggle Display Unit between inch and mm

Length can be displayed either in "mm" (metric) or "inch" (imperial). Display unit can be toggled between mm and inch.

Example: Display value toggle from mm to inch;



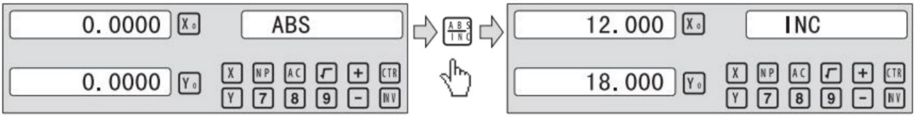

Example: Display value toggle from inch to mm;



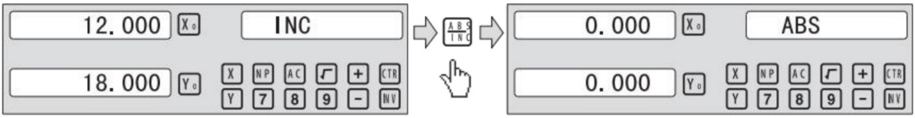
## 4.4 Absolute/Incremental/200 groups SDM

Function: The DRO has 3 coordinate display modes: the absolute mode (ABS); the incremental mode (INC) and 200 goups Second Data Mamory (SDM) with the range of 00 to 99.Zero point of work-piece is set at the origin point of ABS coordinate. The relative distance between datum of ABS and SDM remains unchanged when ABS datum is changed.

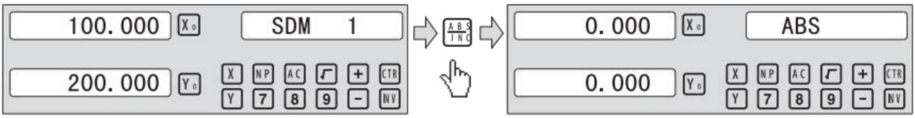
1. Toggle from ABS to INC coordinate;




2. Toggle from INC to ABS coordinate;




3. Toggle from SMD to ABS coordinate;



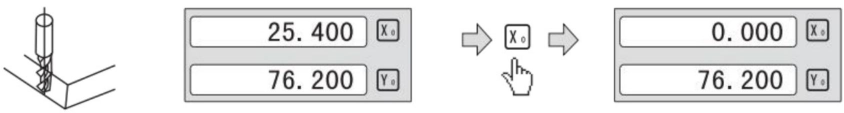

## 4.5 1/2 Function

Function: Set the center of work piece as datum by halving the displayed value.

Example: Set the center of rectangle as datum as the right figure.

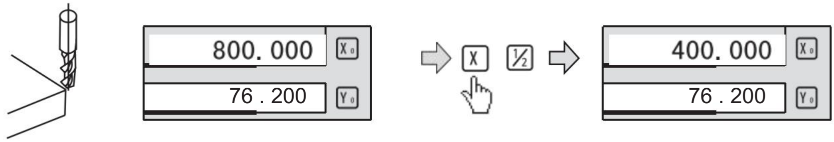
Steps:

1、Touch one side of the workpiece with the TOOL,then zero the X axis。



2 Amenez l'OUTIL sur le côté opposé de la pièce et touchez-le.

Appuyez ensuite sur X + ½ à son tour pour évaluer la valeur d'affichage de l'axe X.




3. Déplacez la table de correspondance jusqu'à ce que « o. 000 » s'affiche sur l'axe des x fenêtre. La position est le centre de la pièce à usiner.

4 . 6 Effacer toutes les données SDM.

En mode AB, pour appuyer en continu · dix fois suffiront à effacer toutes les données pour 200 ensembles SDM. La fenêtre Mcssage affiche USDM "CLR" .

4. 7 Mode veille

en mode non ABS, en appuyant sur la touche RE F CAn éteint tout l'affichage et le DRO accède au mode veille, puis en appuyant sur cette touche à nouveau, le DRO reviendra au mode de fonctionnement. En mode veille Mode le DRO est toujours en état de fonctionnement et enregistre réellement l'OUTIL movement.

Exemple : en mode non ABS, pour accéder au mode veille, appuyez sur la touche F . RE En mode veille, appuyez sur la touche F pour quitter le RE Mode veille ·

4. 8 Mémoire d'interruption de puissance.

La mémoire est utilisée pour stocker les paramètres du DRO et de la machine valeurs de référence lorsque l'alimentation est coupée.

4. 9 rechercher le point de référence absolu de l'échelle

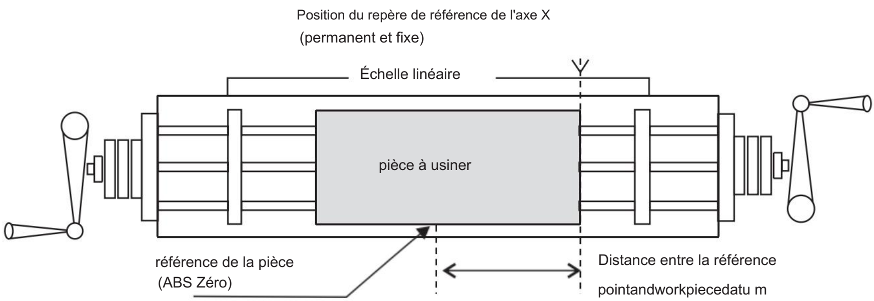
Au cours du processus d'usinage quotidien, il est très courant que le l'usinage ne peut pas être terminé en un seul quart de travail, et donc Les DRO doivent être éteints après le travail, sinon une panne de courant se produit pendant le processus d'usinage qui conduit à la perte de la référence de la pièce (position zéro de la pièce) , le rétablissement de la référence de la pièce l'utilisation d'un détecteur de bord ou d'une autre méthode induit inévitablement des valeurs plus élevées usinage avec précision car il n'est pas possible de rétablir la référence de la pièce exactement à la position précédente. POUR permettre à récupération précise du repère de la pièce et pas besoin de rétablir le repère de la pièce à l'aide d'un détecteur de bord ou d'autres méthodes, chaque échelle linéaire possède un emplacement de point de référence qui est équipé d'une référence position pour fournir une fonction de mémoire de point de référence.

Le principe de fonctionnement de la fonction de mémoire de référence est le suivant suit.

étant donné que le point de référence de l'échelle linéaire est permanent et fixe, il ne change jamais ou ne disparaît jamais lorsque le système DRO est éteint. Par conséquent, nous devons simplement stocker la distance entre le point de référence et la référence de la pièce (position zéro) dans la mémoire NON volatile · Ensuite en cas de panne de courant ou de DRO éteint, nous pouvons récupérer la référence de la pièce (position zéro) en préréglant le zéro de l'affichage position comme la distance enregistrée à partir du point de référence ·

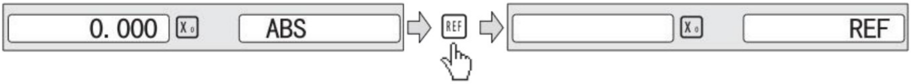
Une référence absolue doit être définie lors de l'usinage d'une pièce. Il existe trois modes de fonctionnement (REF, AB, LEF AB) :

Exemple : pour stocker la référence de travail de l'axe X·

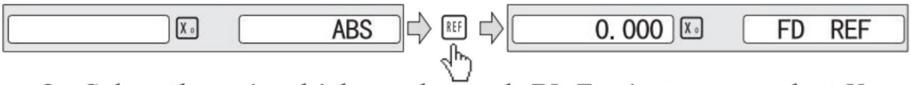


**Example for REF mode** :

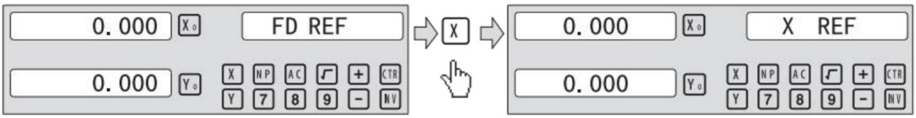
1、DRO is set in ABS coordinate. Press REF , then the message window display "REF" .




2、Message window displays "REF" , Press ENT until "FD_REF" appears in message window.



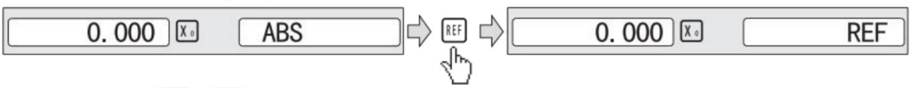

3、Select the axis which need search RI. For instance : selsct X axis, then press X . "X_REF" is displayed in message window, and X axis window flashes.




4、 Move the machine table .The buzzer sounds when RI is searched, then X window stops flashing and displays the value of the current position .the DRO returns normal display state. Then message window displays "FIND_X" .

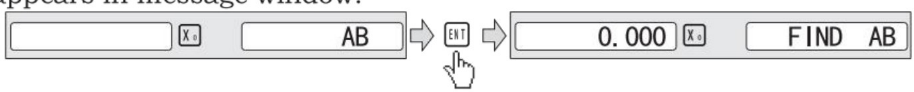
**Example for AB mode** :

1、 DRO is set in ABS coordinate. Press REF , then the message window display "REF" .

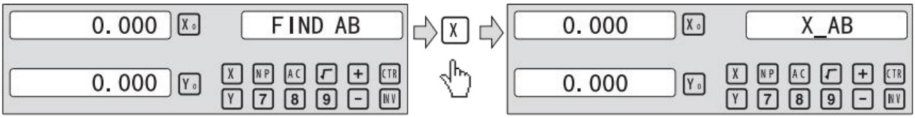



2、Press ▲ ▼ , then the massage window display "AB" .


3、Message window displays "AB" , Press ENT until "FIND_AB" appears in message window.



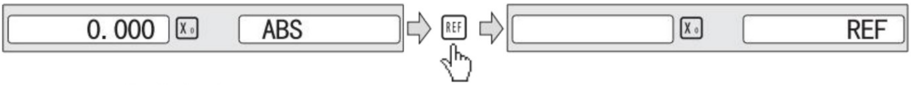
4、Select the axis which need search RI. For instance : selsct X axis, then press X . "X_REF" is displayed in message window, and X axis window flashes.



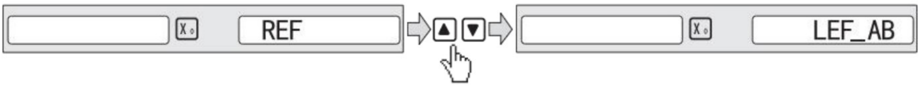

5、 Move the machine table .The buzzer sounds when RI is searched, displays the value of the current position for the absolute datum zero. the DRO returns normal display state. Then message window displays "FIND_AB" .

**Example for LEF_AB mode** :

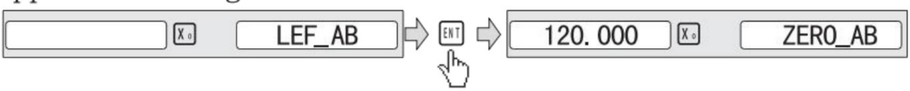
1、DRO is set in ABS coordinate. Press REF, then the message window display "REF" .



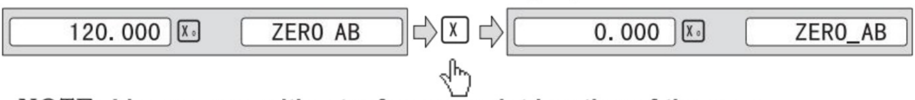

2、Press ▲ ▼, then the message window display "AB" .




3、Message window displays "LEF_AB" , Press ENT until "ZERO_AB" appears in message window.




4、Move the machine table to be set zero position piont. then press X , X axis will be zeroing . the current position for the absolute datum zero. the DRO returns normal display state.




NOTE: **Linear range without reference point location of the user**

Machine Translated by Google



## 4.10 Non Linear Error Compensation

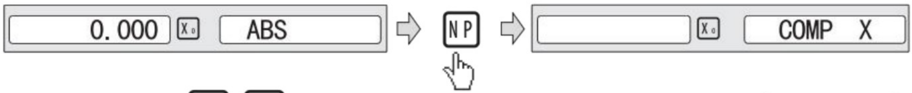
First compensation Type ( Linear or Non-Linear) in parameter setting must be set Non-Linear. Linear scale have a ref point location and find to the Absolute Reference Point will be enable.

Default Non-Linear compensation : 50.

**Example for Y axis:**

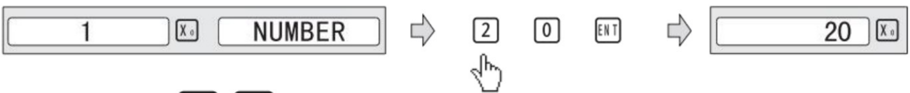
Step 1: Search the Absolute Reference Point of Scale;

Step 2: Press NP , then the message window display "COMP X" .

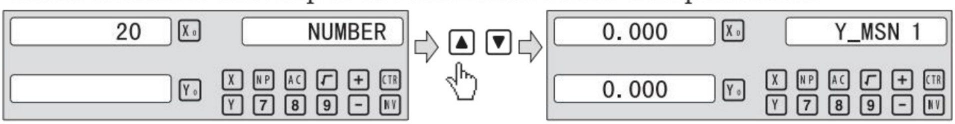



Step 3: Press ▲ ▼, then the massage window display "COMP Y"


Step 4: Press ENT, then the message window display "NUMBER" .
Then input the compensation parameter NUMBER.




Step 5: Press ▲ ▼, then message window displays "Y-MSN-1" which indicates the step is to Non Linear Error Compensation.



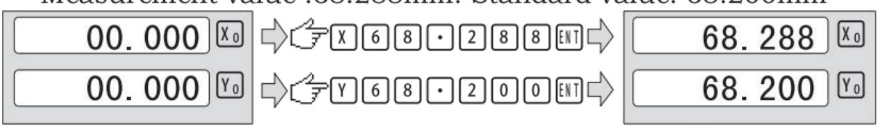

Step 6: Input compensation value .

X window display the value of the measurement value.

Y window display the value of the standard value.

Example for the first compensation point:

Measurement value :68.288mm. Standard value: 68.200mm



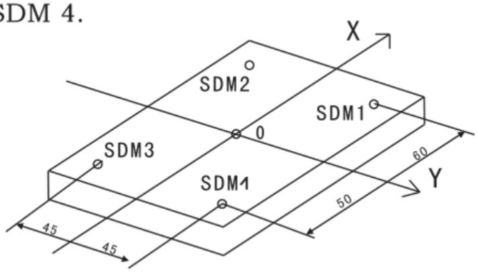

Step 7: After input all parameter, the DRO automatically exit.

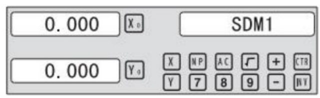
## 5、200 Groups SDM coordinate

The DRO has three display modes: the absolute mode (ABS),the incremental mode (INC) and the 200 groups second data memory (SDM 1 – SDM200). ABS datum of the work-piece is set at the beginning and the 200 groups SDM is set relative to ABS coordinate.

ABS Mode, INC Mode and SdM Mode are specially designed to provide much more convenience features to the operator to cope with the batch machining of relative works and the machining of the workpiece machining dimensions from more than one datum.

**Example:** The ABS datum is the center point O, the point sdm1, sdm2, sdm3, sdm4 needed processing are set as datum of SDM 1 – SDM 4.




Two ways to set SDM coordinate:

1、 Zeroing at the Current Point.

2、 Preset datum of SDM coordinate.

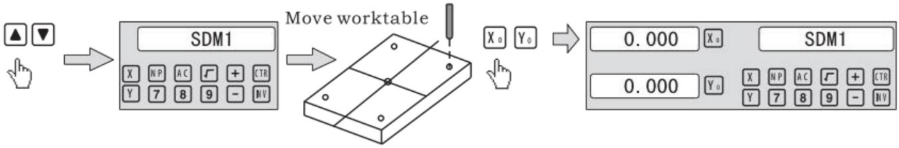
## 5.1 Zeroing at the Current Point

At first set the center point of the work-piece as the origin of the ABS, then align the TOOL with point SDM1,SDM2,SDM3,SDM4 by moving the machine table and zero them. It is the position to process where the “0.000” appears in X window, Y window by moving the machine table whether in ABS or in SDM coordinate.

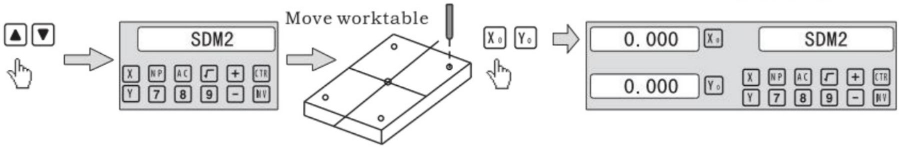
**Steps:**

1、 Move worktable to place the TOOL at the center of the workpiece point O as the datum of ABS. Then zero X axis and Y axis in SDM 1 ; Zero X axis and Y axis in SDM 2 ; Zero X axis and Y axis in SDM 3 ; Zero X axis and Y axis in SDM 4.

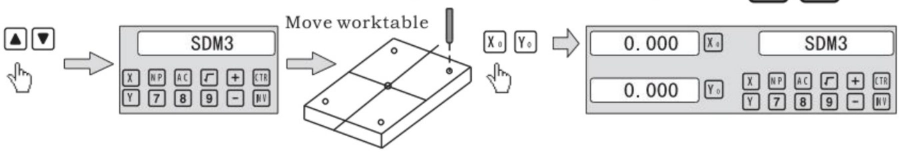
2、Set the point sdm1 as the datum of SDM 1. Move the machine worktable to x = 60.000, y = 45.000. Then proess $\boxed{X_0}$ $\boxed{Y_0}$.



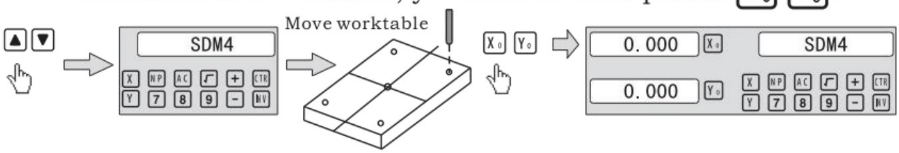

2、 Set the point sdm1 as the datum of SDM 2. Move the machine worktable to x = 60.000, y = -45.000. Then proess $\boxed{X_0}$ $\boxed{Y_0}$.




3、 Set the point sdm1 as the datum of SDM 3. Move the machine worktable to x = -60.000, y = -45.000. Then proess $\boxed{X_0}$ $\boxed{Y_0}$.




4、 Set the point sdm1 as the datum of SDM 4. Move the machine worktable to x = -60.000, y = 45.000. Then proess $\boxed{X_0}$ $\boxed{Y_0}$.




## 5.2 Preset datum of SDM coordinate

There are the same sample as Method 1. First Move the worktable to place the TOOL exactly at the origin of ABS, secondly Enter the ABS Mode as follow.

**Steps:**

1、Move worktable to place the TOOL at the center of the workpiece point O as the datum of ABS. Then zero X axis and Y axis in SDM 1 ; Zero X axis and Y axis in SDM 2 ; Zero X axis and Y axis in SDM 3 ; Zero X axis and Y axis in SDM 4。

2、Set point sdm1 as the datum of SDM 1. Press ▲ ▼, then the message window display "SDM 1" . Input x = 60.000, y = 45.000.


3、Set point sdm1 as the datum of SDM 2. Press ▲ ▼, then the message window display "SDM 2" . Input x = -60.000, y = 45.000.


4、Set point sdm1 as the datum of SDM 3. Press ▲ ▼, then the message window display "SDM 3" . Input x = -60.000, y = -45.000.

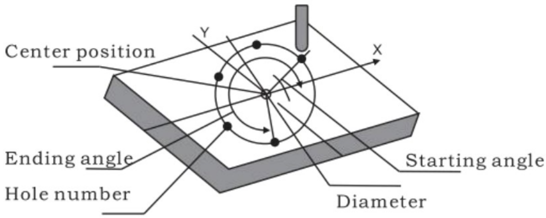

5、Set point sdm1 as the datum of SDM 4. Press ▲ ▼, then the message window display "SDM 4" . Input x = -60.000, y = 45.000.

# 6. Fonction spéciale

## 6.1 Circumference Holes Processing

The Function of PCD Hole positioning on Circumference is used to distribute arc equally, such as boring hole on flange. The right window will show the parameter to be defined when selecting PCD Function. The Parameters to be defined are:

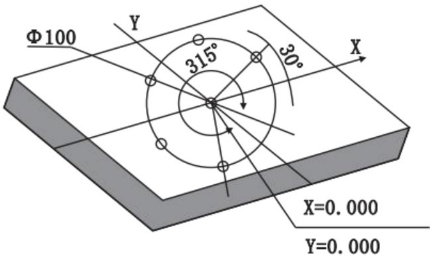
| | |
|---|---|
| PCD_XY(XZ,YZ) | Select place |
| CENTER | Center position |
| DIA | Diameter of circle |
| NO_HOLE | Hole number |
| ST ANG | Starting angle |
| ED ANG | Ending angle |




The postion of the hole center are calculated automatically after input all parameters. Press ▲ or ▼ to choose the hole No. and move the machine table until the "0.000" appears in X window , Y window, Z window. It is the position to process a table.

Example for the XY place: Machine hole on circumference as the figure

| | |
|---|---|
| PCD_XY(XZ,YZ) | XY |
| CENTER | X=0,000,Y=0.000 |
| DIA | 100,000 |
| NO_HOLE | 5 |
| ST ANG | 30,000 |
| ED ANG | 315,000 |



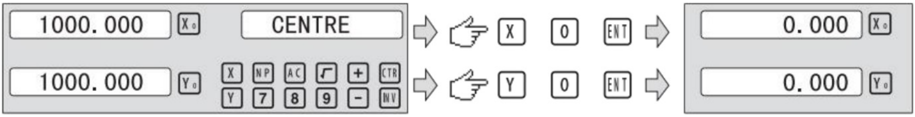

Steps:

1. Set display unit to metric in normal state; Move the machine table until the machine TOOL is aligned with the center of the ciecle , then zero X axis ,Y axis.
2. Select plece.

Press [key], then the message window display "PCD_XY" to the Circumference Holes Processing. Press ▲ or ▼ to select XY place.

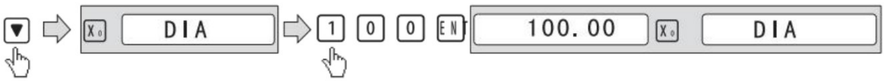
2. Input center position.

Press ENT , then the message window display "CENTER" . X and Y window displays the formerly preset center position. Input X = 0, Y = 0 as follow.



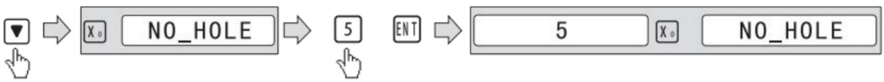

4. Input diameter.

Press ▼ until "DIA" appears in the message window. X window despalys the formerly preset diameter. Then input the diameter is 100.000.



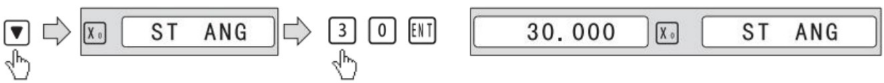

5. Input number.

Press ▼ until "NO_HOLE" appears in the message window. X window despalys the formerly preset number. Then press 5 in turn to input number.



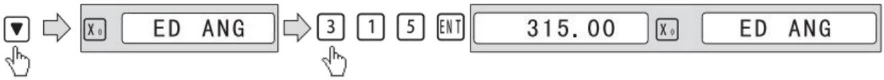

6. Input starting angle.

Press ▼ until "ST ANG" appears in the message window. X window despalys the formerly preset the starting angle. Then press 3 0 in turn to input the starting angle.



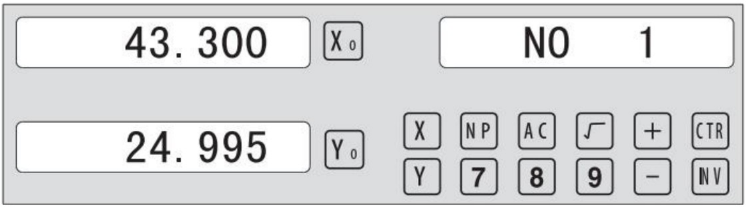

7. Input ending angle.

Press ▼ until "ED ANG" appears in the message window. X window dispalys the formerly preset the ending angle.. Then press 3 1 5 in turn to input the ending angle.




8. Press ▼ until “NO 1” appears in the message window.

It is the position of the first hole to punch where the “0.000” is displayed in X window and Y window by moving the machine table. After finishing the first hole, press ▼ or ▲ to change holes number.

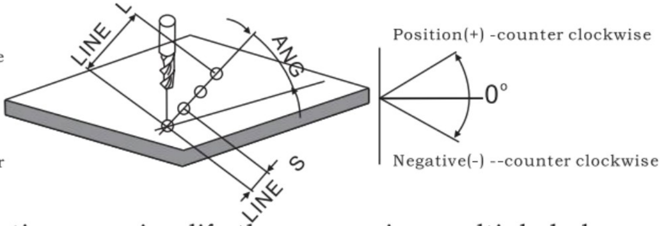



9. After processing all holes, press to return normal display.

## 6.2 Linear Holes Processing

There are two modes to carry out the linear drilling: Length mode and Step mode.

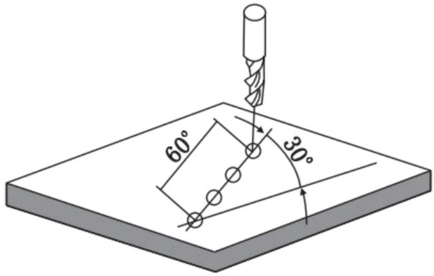
| | |
|---|---|
| 1.LINE S | Step mode |
| LINE L | Length mode |
| 2.STEP | Step length |
| LENGTH | Line length |
| 3. ANG | Angle |
| 4. NO.HOLE | Hole number |




Linear Holes function can simplify the processing multiple holes whose centers are attributed equally on one line.

Example：

| | |
|---|---|
| LINE_L | Length mode |
| LENGTH | 60.000 |
| ANG | 30.000 |
| NO.HOLE | 4 |




Steps :

1. Select plece.

Press , then the message window display "LINE_XY" to the Linear Holes Processing. Press or to select XY place.

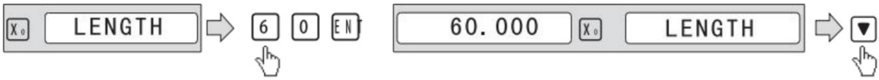

2. Select Linear Holes mode.

Press ENT , then the message window display "LINE_S" . Press or to select "LINE_L" .


3. Input linear length;

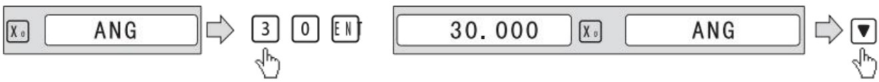
Press ENT , then the message window display "LENGTH" .

X window despalys the formerly preset the linear length. Press 6 0 in turn to input the linear length.



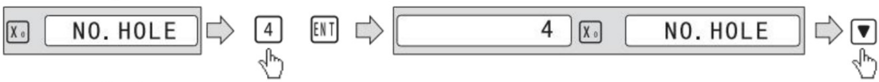

4. Input angle;

Message window displays "ANG" which indicates the step is to angle. X window despalys the formerly preset the angle. Press 3 0 in turn to input the angle.



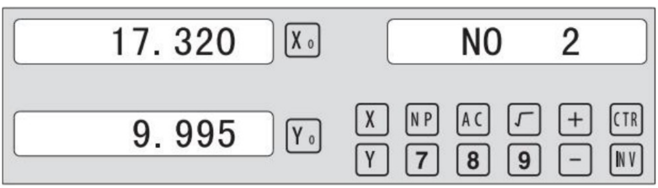

5. Input number;

Message window displays "ANG" which indicates the step is to angle. X window despalys the formerly preset the number. Press 4 in turn to input the number.




6. Press ▼ until "NO 1" appears in the message window.

It is the position of the first hole to punch where the "0.000" is displayed in X window and Y window by moving the machine table. After finishing the first hole, press ▲ or ▼ to change holes number.



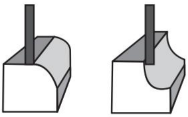

7. After processing all holes, press  to return normal display.

## 6. 3 Traitement ARC

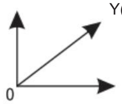
DEUX fonctions sont disponibles pour la fonction ARC : l'ARC simple

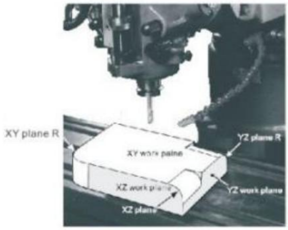
Fonction et fonction R lisse · appuyez puis pr css  pour accéder à la fonction ARC,  ou  pour sélectionner la fonction ARC lisse ou simple Fonction ARC.

Lors de l'installation, normalement les coordonnées de la machine et de la direction de X, Y , Z sont comme suit. Le plan de travail est représenté comme le chiffre de droite.



(RAD+TL) (RAD+TL )

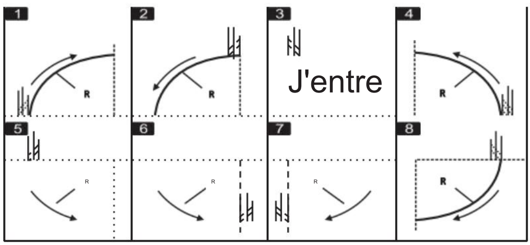



Fonction ARC simple :

lorsque la douceur n'est pas très demandée, le SIMPLE ARC La fonction est normalement utilisée pour l'usinage d'arcs. Dans la fonction SIMPLE il n'y a que huit types d'ARC utilisés pour l'usinage. L'opérateur vient sélectionnez le type de R et entrez les paramètres du rayon de l'arc , MAX CUT et Qrc extérieur ou arc intérieur. En général, un arc peut être usiné par une fente plane T dans un OOL Ou arc TOOL, la différence entre plan de travail différent comme indiqué ci-dessous ·

| | |
|---|---|
| 1 SIMPLE | traitement simple |
| 2 TYPE 1 - 8 | Mode de l'ARC. |
| 3、SEL_XY(XZ,YZ) | sélectionner un lieu |
| 4 RAD | Rayon de l'arc |
| 5TLHIM | Diamètre de l'outil |
| 6. COUPE MAXIMALE | Étape d'alimentation |
| 7RADTL _ | arc extérieur et arc intérieur |
| | (uniquement pour la place xy) |



Smooth ARC function :

Provides maximum flexibility in ARC machining, the ARC sector to be machined by the coordinates of ARC. Very flexible, ARC function can machine virtually all kinds of ARC, ever the intersected ARC. Relatively a bit complicated to operate, operator need to calculate and enter the coordinates of ARC centre, start angle and end angle.

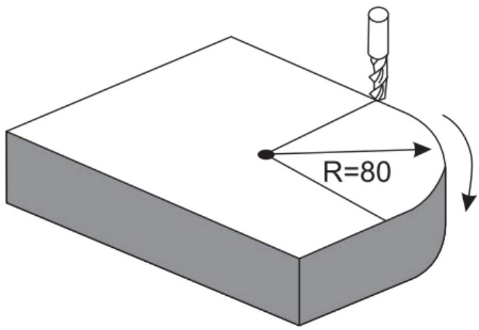
Basic parameter as follow:

| | |
|---|---|
| 1. SMOOTH | Mode of the Smooth ARC processing; |
| 2. SEL_XY(YZ, XZ) | Select place; |
| 3. CENTER | Refer to the position of an center. |
| 4. RAD | Radius of the ARC |
| 5. TL_DIA | Diameter of the TOOL |
| 6. MAX_CUT | Feed step |
| 7. ST_ANG | Starting angle |
| 8. ED_ANG | Ending angle |
| 9. RAD+TL | Outer arc. |
| RAD-TL | Inner arc. |

**Example 1 for the Simple ARC Processing:**

Parameters settings as follow:

| | |
|---|---|
| SIMPLE | Simple mode |
| TYPE | 3 |
| SEL_XY | XY |
| RAD | 80.000 |
| TL_DIA | 6.000 |
| MAX_CUT | 0.500 |
| RAD+TL | 1 |



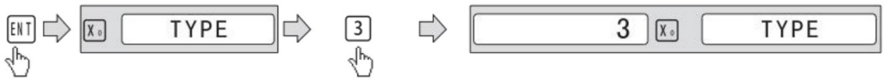

Steps:

1. Select process mode

Press [key] , then the message window display “SIMPLE” to the ARC Processing. Press ▲ or ▼ to select mode of the simple, The message window display “SIMPLE”

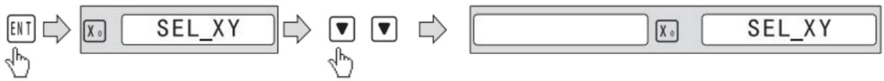

2. Input the type:

Press ENT until “TYPE” appears in the message window. X-window despalys the formerly preset the type. Press 3 in turn




3. Select place

Press ENT until “SEL_XY” appears in the message window. Press ▲ or ▼ to select place to display “SEL_XY” ;




4. Input radius:

Press ENT until “RAD” appears in the message window. X window despalys the formerly preset the radius of ARC. Press 8 0 in turn to input the radius.;


5. Input Diameter of the TOOL

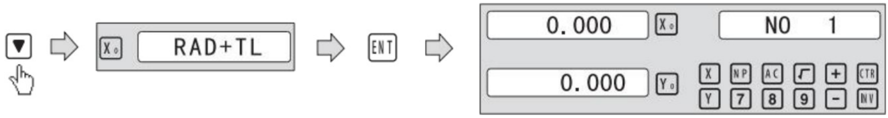
Press ▲ or ▼ until “TL DIA” appears in the message window. X window despalys the formerly preset the Diameter of the TOOL. Press 6 in turn to input the Diameter value;


6. Input Feed step (MAX_CUT);

Press ▲ or ▼ until “MAX_CUT” appears in the message window. X window despalys the formerly preset the MAX_CUT. Press 0 · 5 in turn to input the MAX_CUT value;

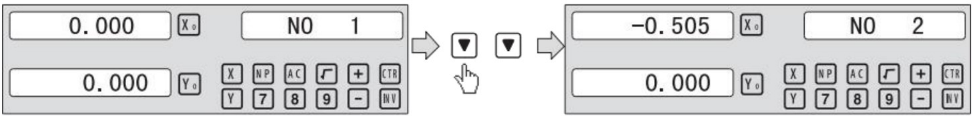
7. Select outer arc or inner arc

Press ▲ or ▼ until "RAD-TL" appears in the message window. Press ▲ or ▼ to select place to display "RAD+TL" ;




8. After inputting all parameters, press the key ENT for machining.

The DRO will display the position of the first point. Retract the axes until the displays read 0.000, Machine the Arc point by point in accordance with the display. After finishing the position of the first point, press ▲ or ▼ to change position point.

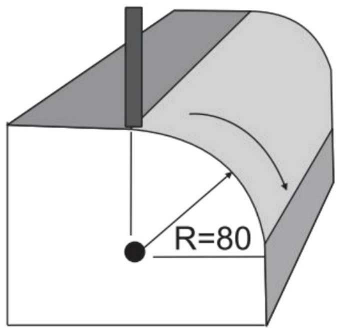



Press to quit R function any time.

**Example 2 for the Simple ARC Processing:**

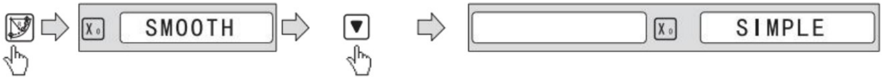
Parameters settings as follow:

| | |
|---|---|
| SIMPLE | Simple mode |
| TYPE | 3 |
| SEL_XY | XZ |
| RAD | 80.000 |
| TL_DIA | 6.000 |
| MAX_CUT | 0.500 |



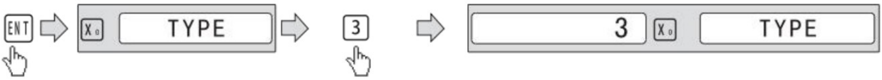

Steps:

1. Press , then the message window display "SIMPLE" to the ARC Processing. Press ▲ or ▼ to select mode of the simple, The message window display "SIMPLE"



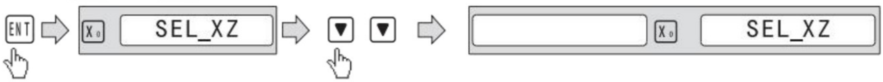

2. Input the type:

Press [ENT] until "TYPE" appears in the message window. X-window despalys the formerly preset the type. Press [3] in turn




3. Select place

Press [ENT] until "SEL_XZ" appears in the message window. Press [▲] or [▼] to select place to display "SEL_XZ" ;




4. Input radius:

Press [ENT] until "RAD" appears in the message window. X window despalys the formerly preset the radius of ARC. Press [8] [0] in turn to input the radius.;

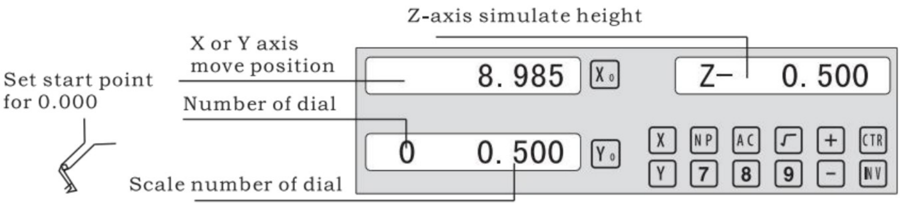

5. Input Diameter of the TOOL

Press [▲] or [▼] until "TL DIA" appears in the message window. X window despalys the formerly preset the Diameter of the TOOL. Press [6] in turn to input the Diameter value;


6. Input Feed step (MAX_CUT);

Press [▲] or [▼] until "MAX_CUT" appears in the message window. X window despalys the formerly preset the MAX_CUT. Press [0] [·] [5] in turn to input the MAX_CUT value;

7. After inputting all parameters, press the key ENT for machining. For 2-axis milling machine table , It is not installed with Z-axis, please press ▲ or ▼ to simulate position of Z-axis. Press ▲ simulate moving to the former process, and press ▼ simulate moving to the next process point.



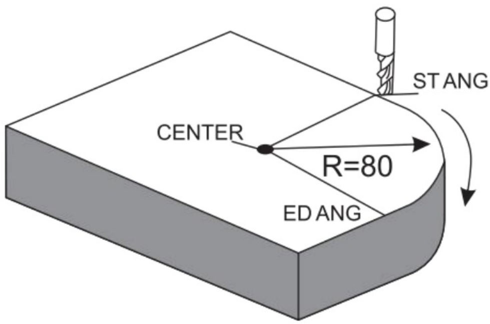

Z-axis simulate height = Number of dial x Z axis Dial + Scale number of dial

Press to quit R function any time.

**Example 3 for the Smooth ARC function**:

Parameters settings as follow:

| | |
|---|---|
| SMOOTH | Smooth mode |
| SEL_XY(YZ,XZ) | XY |
| CENTER | X=0,Y=0 |
| RAD | 80.000 |
| TL_DIA | 6.000 |
| MAX_CUT | 0.500 |
| ST_ANG | 0.000 |
| ED_ANG | 135.000 |
| RAD+TL | 1 |



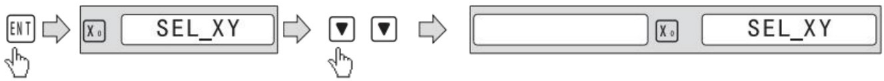

Steps:

1. Press , then the message window display "SIMPLE" to the ARC Processing. Press ▲ or ▼ to select mode of the simple, The

message window display "SMOOTH" ; For 3-axis milling machine table without this step. In second step. Then press [ENT] .

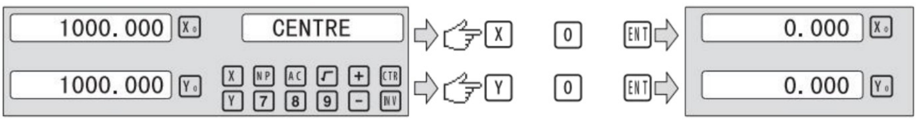

2. Select place

Message window display "SEL_XY" which indicates the select is to place. Press [▲] or [▼] to select place to display "SEL_XY" ;




3. Input center position.

Press [ENT] , then the message window display "CENTER" . X and Y window displays the formerly preset center position. Input X = 0, Y = 0 as follow.




4. Input radius:

Press [ENT] until "RAD" appears in the message window. X window despalys the formerly preset the radius of ARC. Press [8] [0] in turn to input the radius.;


5. Input Diameter of the TOOL

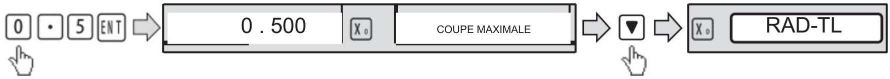
Press [▲] or [▼] until "TL DIA" appears in the message window. X window despalys the formerly preset the Diameter of the TOOL. Press [6] in turn to input the Diameter value;

6. Étape d'alimentation d'entrée (MAX_CUT) ;

presse ou jusqu'à ce que l'application "UMAX CUT apparaisse dans le message

fenêtre. X Window de spa lys l'anciennement préréglé le MAX_CUT. appuyez sur

0 · 5 à son tour pour saisir la valeur MAX_CUT ;

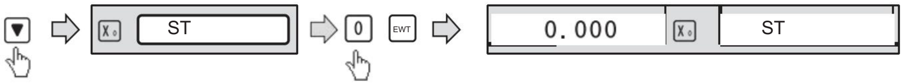



7 . Angle de départ d'entrée ·

presse jusqu'à ce que "USTANG" apparaisse dans la fenêtre de message.x

fenêtre de spa lys l'ancien préréglage de l'angle de départ · Puis appuyez

0 à son tour pour entrer l'angle de départ-




8 . Angle de fin d'entrée ·

presse jusqu'à ce que « UED ANG » apparaisse dans la fenêtre de message. X

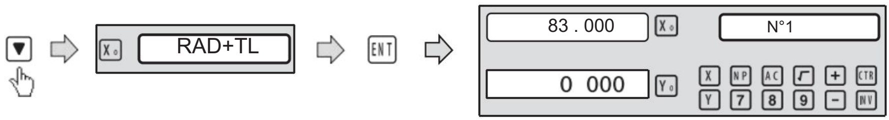
fenêtre ispa d lys l'angle de fin précédemment prédéfini. Appuyez ensuite sur 1

3 5 à son tour pour entrer l'angle de fin·


9. sélectionnez l'arc extérieur ou l'arc intérieur

appuyez ou jusqu'à ce que « RAD-TL » apparaisse dans le message

sur la fenêtre.appuyez sur ou pour sélectionner l'emplacement où afficher « RAD+TL » ;




10. Après avoir saisi tous les paramètres, machining.

Le DRO affichera la position du premier point. Rétractez le

axes jusqu'à ce que les écrans indiquent 0. 000, usinez l'arc point par point dans

conformément à l'affichage. Après avoir terminé la position du premier

pointer, appuyer ou pour changer de point de position.


Press  to quit ARC function any time.

6. 4 traitement oblique

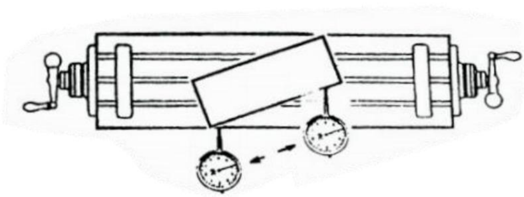
Il existe 2 méthodes disponibles pour usiner un endroit oblique :
A). sur le lieu. b). sur le lieu yz, ou Xz ;

seuls les paramètres suivants doivent être saisis :

| | |
|---|---|
| Y compris Xy(xz,yz) | définir la machine à placer xy, yz, 0rxz · |
| LE | L'angle d'inclinaison de l'oblique· |
| LÀ | Le diamètre de l'OUTIL · |
| SAINT-POT | Position de départ; |
| ED PEUT | Fin de la publication ; |

Exemple 1 pour la place oblique xy :

lorsque le plan d'usinage est sur le plan xy comme la pièce représentée dans Figure, l'angle d'obliquité de la pièce doit être calibré avant que le plan oblique soit usiné. Par conséquent , à ce stade, le l'usinage du plan oblique joue le rôle de calibrage de l'obliquité ·



procédure d'étalonnage de l'obliquité

Placez d'abord la pièce sur la table de travail selon l'angle requis d'obliquité ·

1) Entrez la fonction du plan oblique. 2) sélectionnez la fonction du plan XY .

3) Entrez l'angle d'obliquité·

4) Déplacez la table de travail jusqu'à ce que l'outil de mesure (comme un comparateur à cadran) installé sur la fraiseuse touche le plan d'étalonnage d'obliquité, l'ajuste à zéro et déplace la table de travail sur n'importe quelle distance dans le direction de l'axe x.

5) Déplacez la table de travail à la distance de l'axe y jusqu'à ce que l'affichage tourne à zéro.

6) Change the angle of the work piece to make the workpiece touch the measuring tool and adjust it to zero.

STEPS:

1. Select place

Press SN/M1 , then the message window display "INCL_XY" to the Oblique Processing. Press ▲ or ▼ to select place to display "SEL_XY;

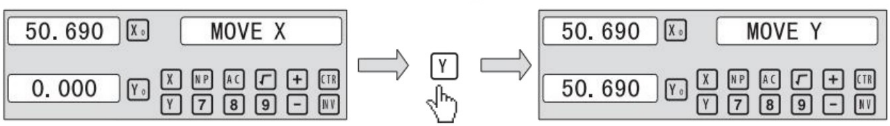
Then press ENT to in next step;


2. Input the angle of obliquity

The message window display "ANG" , X window dispalys the formerly preset the angle of obliquity. Press 4 5 in turn to input the angle of obliquity .


3. Move the workpiece along the X-Axis until the measuring tool touches the workpiece adjust it to zero, and move the worktable for any distance along the X-Axis.


4. Press Y , display the value of Y-Axis. Move the workpiece along the Y-Axis, change the angle of workpiece to make the obliquity-calibrating plane touch the measuring tool until it turns to zero. Move the worktable until Y-Axis is displayed as zero.




5. Press SN/M1 to quit oblique function any time.

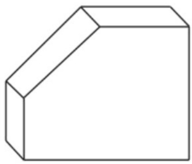
**Example 2 for the oblique XZ or YZ place**:

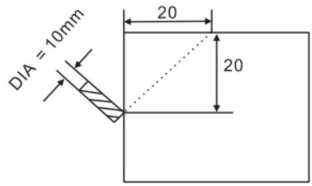
When the machining plane is on plane XZ or YZ, the function of TOOL inclination can instruct the operator to machine the oblique plane step by step.

Procedures for using the function of cutter inclination:

When the machining plane is on plane XZ or YZ, first please calibrate the obliquity of the primary spindle nose and set the TOOL:

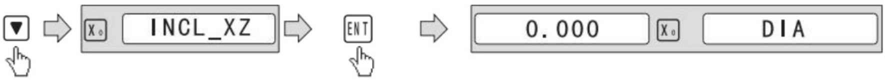
| | |
|---|---|
| INCL_XY(XZ,YZ) | INCL_XZ |
| DIA | 10.000 |
| ST_POT | 20.000 |
| ED_POT | 20.000 |






STEPS:

1. Press [SN/M1], then the message window display "INCL_XY" to the oblique Processing. Press [▲] or [▼] to select place to display "SEL_XZ; Then press [ENT] to in next step;

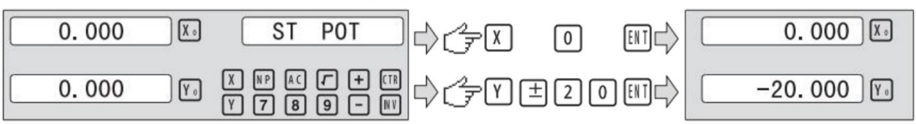



2. Input The TOOL Diameter

The message window display "DIA", X window dispalys the formerly preset the angle of obliquity. Press [1] [0] in turn to input the TOOL Diameter of obliquity . OK, then press [▼] to in next step;

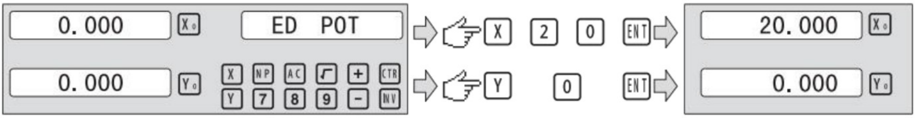

3. Input ST_POT;

The message window display "ST_POT", X and Y window dispalys the formerly preset the stating position of obliquity. Input X= 0, Y = -20.000. OK, then press [▼] to in next step;



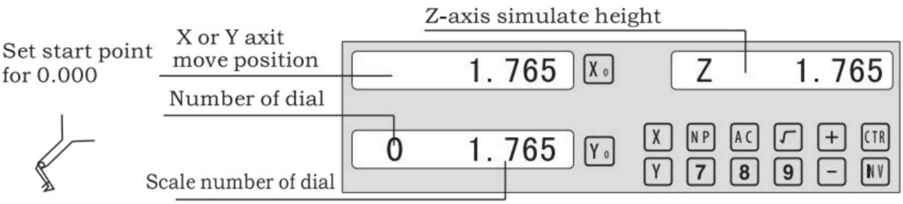
4. Input ED_POT;

The message window display "ED_POT", X and Y window dispalys the formerly preset the stating position of obliquity. Input X= 20.000, Y = 0.000 .




5. After input all parameter, press the key ▼ for machining.

For 2-axis milling machine table, It is not installed with Z-axis, please press ▲ or ▼ to simulate position of Z-axis. Press ▲ simulate moving to the former process, and press ▼ simulate moving to the next process point.



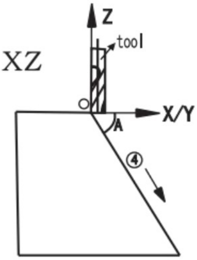

Z-axis simulate height = Number of dial x Z axis Dial + Scale number of dial

Press [SN/N1] to quit **oblique** function any time.

## 6.5 Slope Processing

This function can calculate the position of everynprocessing point automatically in processing slope. Only the following parameters need to be inputted:

| | |
|---|---|
| XZ, YZ | Set machine place YZ, or XZ |
| ANG | The inclination angle |
| Z_STEP | The slope length each time processing |




**Example 1 for the Slope XZ place**;

Step 1. Select place

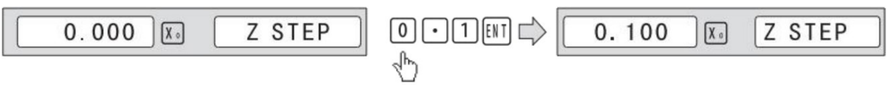
Press TAN/M3 , then the message window display "XZ" to the slope Processing. Press ▲ or ▼ to select place to display "SEL_XY; Then press ENT to in next step;


Step 2. Input the angle of slope

The message window display "ANG" , X window dispalys the formerly preset the angle of slope. Press 4 5 in turn.


Step 3. Input Z_step;

The message window display "Z STEP" , X window dispalys the formerly preset the stating position of slope. Input 0 · 1 in turn.

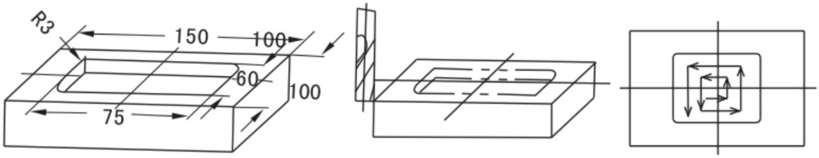



Step 4:Finishing the ALL processing . Press TAN/M3 to quit slope function any time.

## 6.6 Chambering Processing

1,FLAT_XY: machine place; 2, DIA:diameter of TOOL; 3, CENTER: center of the chambering ; 4, SIZE: size of the chambering ;

Figure as follow:

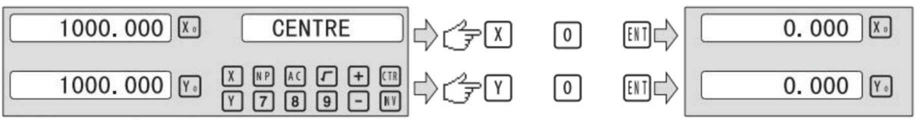



STEPS:

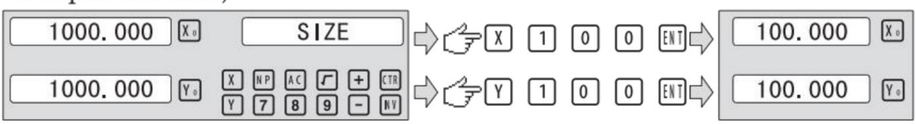
1. Press , then the message window display "FLAT_XY" to the Chambering Processing.


2. Inpur DIA of the TOOL;


3. Input the center coordinate;




4. Input the size;




5. process Chambering;

Move the machine until the display of the axis is zero,ie, the position of the first point. Machine the first point . Display the next machining point by pressing or .On the completion of machining, the right window shows OVER. Press or , the system will goto the first position for the next workpiece. Press to quit the Chambering Function.

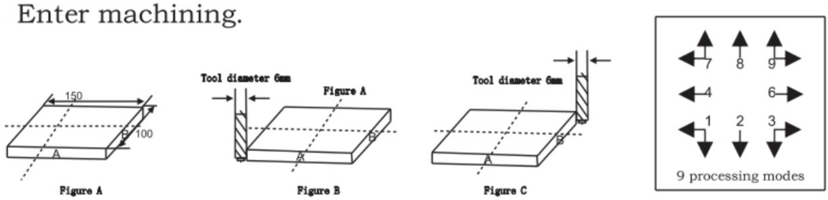
## 6.7 The Tool Diameter Compensation Function

Without TOOL compensation, the operator has to move the TOOL for an additional distance of the diameter of the TOOL along each side when machining the four 150 and 100 sides of a workpiece to finish machining the whole brim. The digital readouts shall automatically compensate when the TOOL compensation function is enable.

Note: the TOOL compensation is made in the direction of X and Yaxis.

Procedures:

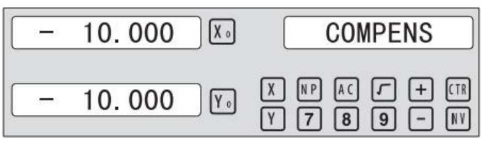
1) . Enter the function of compensating the diameter of the TOOL.
2) . Select one of the (four) preset machining modes.
3). Input the diameter of the TOOL.
4) . Enter machining.




Step1: press [TAN/M3] to enter the TOOL compensation Function. then the message window display "TYPE" .Press [9] .


Step 2: input the diameter of the TOOL; Press [1] [0] in turn..


Step 3: Press [▼] to the machining Mode.




Machining of 2 side planes can be done by moving the TOOL until X-Axis is 150.000 and Y-Axis is 100.000.Press the Key [TAN/M3] to quit the Function.

## 6.8 Digital Filter of the Grinding Machine

When machine a work-piece by grinder, the display values quickly due to the vibration of grinder. User can not see display value clearly. Grinder DRO provides display value filter function to disable the quake change of display value.

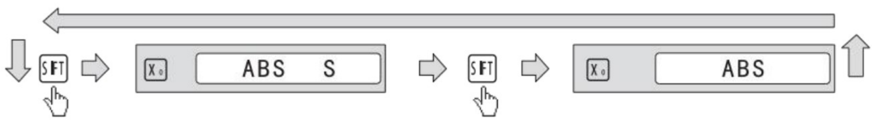
STEPS:

1. Enter display value filter function.

In normal display state, press SIFT to simultaneously, enter display value filter function.

2. Exit display value filter function;

Press SIFT , exit display value filter function;



## 6. 9 La fonction

### 6.9. 1 200 ensembles de bibliothèques d'outils

Il faut toujours un OUTIL différent lors du traitement de différentes pièces · Pour fonctionnement pratique, les affichages numériques La ont pour fonction de 200 ensembles de bibliothèques d'outils ·

Remarque : les 200 jeux de bibliothèques d'outils peuvent être utilisés uniquement lorsque le tour , est équipé du bloc de réglage d'outils .

1. définissez un OUTIL de référence. Après le réglage de l'outil, l'axe x et l'axe Z à zéro, l'outil mettre à zéro la coordonnée absolue ·

2. En fonction de la taille de TOOL l et de datumTOOL, déterminez la position de l'OUTIL par rapport au zéro de la coordonnée absolue et de l'outil de référence · AS Figure 6-1. La taille relative de l'OUTIL 2 est AS suit l'axe x 25-30=- 5 , Axe Z 20-10=10 ·

3. Enregistrez le numéro de l'OUTIL et la taille dans l'affichage numérique ·

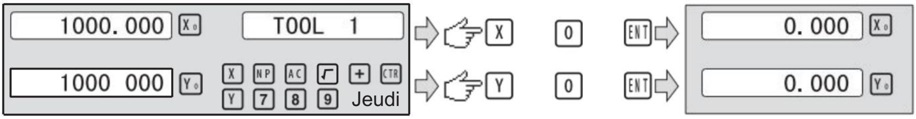
4. Le nombre d'OUTILS peut être saisi au hasard, les lectures numériques affichera la position de l'outil à la coordonnée absolue zéro · Déplacez la jusqu'à ce que l'axe X et l'axe Z affichent tous deux zéro · 5. Les bibliothèques d'outils peuvent enregistrer les 200 ensembles de données d'outils.

6. Les bibliothèques d'outils doivent être utilisées dans l'état d'ouverture. Les 200 ensembles Les bibliothèques rooi peuvent être ouvertes en appuyant continuellement ± dix fois jusqu'à ce que la fenêtre de droite clignote TL - OPEN et une marque "21" s'affiche à à gauche de la fenêtre d'information de droite. La marque indique le L'opérateur peut configurer ou réviser les 200 ensembles de bibliothèques d'outils en continu en appuyant sur la ± dix fois entraîneront la destruction des 200 ensembles de bibliothèques d'outils touche fermée et la fenêtre droite clignote TL - CLOSE et la marque disparaître · lorsque la marque « 21 » disparaît, les 200 ensembles de bibliothèques d'outils peuvent ne pas être révisé·

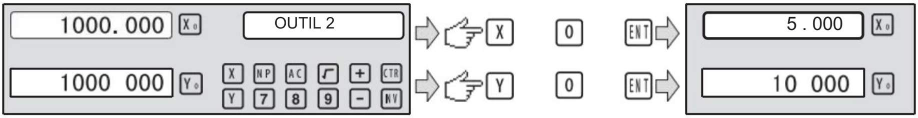
Les opérations pour les données TOOL et l'appel de TOOL sont présentées comme suit : ·

étape 1 : Dans l'état ABS, saisissez les données des 200 ensembles de bibliothèques TOOL. ouvrir les 200 ensembles TOOL Libs en appuyant continuellement sur la touche ± dix fois A. Mark "" apparaîtra dans la fenêtre gauche de la fenêtre droite fenêtre d'information.

étape 2 : appuyez sur TOOL pour accéder à l'état d'entrée. Entrez les données rooi 1 :




étape 3 : Saisie des données de l'OUTIL 2 :




étape 4 : appuyez sur pour continuer à saisir les données de l'outil suivant. EN APPUYANT

numéro et la clé l'opérateur peut directement saisir le spécial

données d'outils. appuyez sur TOOL touche

Une fois les bibliothèques d'outils configurées, utilisez les bibliothèques d'outils conformément aux

après les opérations suivantes, montez d'abord le deuxième outil ·

étape 5 : Pour accéder à l'état d'utilisation en appuyant sur css CALL .Puis appuyez sur css 2 EN T ·


étape G : appuyez sur ▲ ou ▼ · sélectionnez le rôle de base. Appuyez ensuite sur 1 ET T .


;

étape 7 : appuyez sur CALL pour quitter la fonction ;

Note:

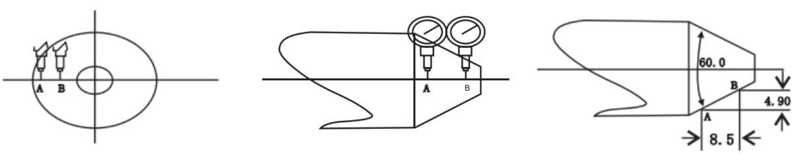
lorsque l'outil de base est utilisé , l'axe ne peut pas être mis à zéro dans l'état ABS ·

quand les autres sont utilisés , l'axe ne peut être mis à zéro que dans l'état INC ·

6. 9. 2 Fonction conique

Pour le tournage de la pièce avec un cône, le cône de la pièce peut

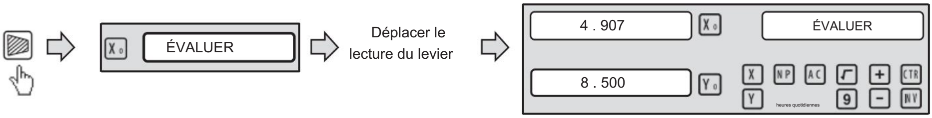
être mesuré dans le traitement;



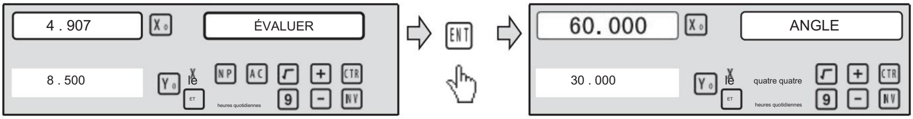
Operations :

Figure AS, surface de contact A de la pièce avec lectures de levier et réinitialise le point de lecture du levier à zéro ·

étape 1 : appuyez sur puis la fenêtre de message affiche UMEASU" à l' traitement du papier · Déplacez le levier de lecture vers la surface B jusqu'à ce que le les lectures du levier indiquent que le AS suit ;




étape 2 : appuyez sur T pour calculer.




étape 3 : appuyez sur pour quitter la fonction ;

## 6. 9. 3 Fonction R/D

Pour les tours 2 x et les tours 3 axes, appuyez sur , Le mode d'affichage l'axe des x est commuté entre le rayon et le diamètre. lorsque l'axe des x pour affichage du diamètre, une fenêtre d'information " apparaîtra à gauche de la droite de marque u, mais lorsque l'axe X pour l'affichage d'un compteur ia , la marque " " disparaît · seul l'axe x a la fonction du diamètre/rayon transformation.

## 6. 9. 4 Fonction Y + Z (applicable uniquement à : 3 axes La the)

Pour 3 axes La le, le compteur de l'axe y et le compteur de l'axe z Peut être ajouté pour être affiché sur l'axe Z en appuyant sur la touche ,

puis appuyez sur la touche CAn pour annuler la fonction y + Z ·

6.10 EDM (fonction de personnalisation spéciale, si vous devez acheter, veuillez contacter le revendeur pour personnaliser)

1 Description : Cette fonction est utilisée pour l'usinage spécial de Usinage par électroérosion (EDM) . lorsque la valeur cible définie pour l'EDM L'axe Z est égal à la valeur actuelle, l'affichage numérique affichera la valeur signal de commutation pour contrôler l'EDM afin d'arrêter l'usinage en profondeur.

Le réglage de la direction de l'axe Z de l'affichage numérique est illustré dans la figure 1. , ie Plus la profondeur est grande, plus la valeur des coordonnées de l'axe Z est grande affiche · depuis le début de l'usinage, la profondeur va progressivement s'approfondir et l'axe Z.

Selon la direction de l'axe Z définie, la direction d'usinage est divisé en usinage positif et négatif · lorsque l'électrode descend et l'usinage s'effectue de haut en bas, le numérique la valeur de lecture augmentera, ce qui est appelé usinage positif (positif). Le réglage de cette direction est le réglage normal·

lorsque l'électrode ASC se termine et que l'usinage est effectué de bas en haut, la valeur de lecture numérique diminuera · Le la direction d'usinage est la direction négative (négative), qui est également appelée usinage négatif (représenté par la Fig. 1)

L'affichage numérique dispose également d'autres fonctions , tel que négatif hauteur anti-incendie. La fonction de hauteur anti-incendie négative est une sorte de dispositif de protection de sécurité de suivi de position intelligent. Dans le processus de l'usinage, la surface de l'électrode va générer le carbone phénomène d'accumulation. En raison de l'usinage de longue durée ou diurne sans tendre, lors de la génération de l'accumulation de carbone et personne ne fait le nettoyage, l'électrode augmentera lentement le long de la direction négative · une fois que l'électrode dépasse le niveau de liquide, elle prennent souvent feu et provoquent des pertes. Cette fonction est simplement configurée pour viser à ce problème. lors du réglage de la hauteur coupe-feu négative, et le la hauteur accrue de l'électrode dépasse la hauteur entre elle et la profondeur de la surface usinée (c'est-à-dire hauteur ignifuge négative), le numérique l'affichage de lecture clignotera pendant WQring ; en même temps, la sortie le signal éteindra automatiquement l'EDM pour éliminer le risque d'incendie ·

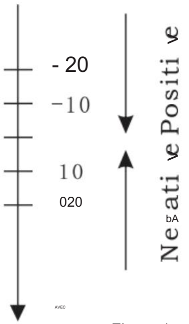



Figure 1

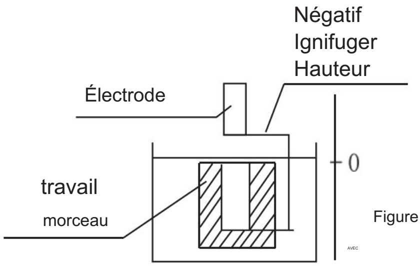



Figure 2

2. procédure :

voir l'exemple suivant pour l'usinage détaillé

1) Avant l'usinage, définissez d'abord chaque paramètre de PROFONDEUR (profondeur d'usinage);ERRHIGH( hauteur coupe-feu négative), usinage direction (POSITIF / NÉGATIF) ; mode de sortie (AUTO/STOP) et Mode de sortie relais EDM · 2)

Déplacez l'électrode de l'axe principal de l'axe Z pour la mettre en contact avec le référence de la pièce · remettre l'axe A à zéro ou définir la valeur ·

3) Entrez dans l'usinage EDM en appuyant sur la touche css EDM .

4) L'axe X affichera la valeur cible de la profondeur d'usinage. L'axe Y affichera la valeur d'affichage doit être la profondeur. (La valeur sur l'axe Y est la valeur que la pièce a été usinée en profondeur) L'axe Z sera affiche la valeur en temps réel de l'auto-positionnement. (La valeur sur l'axe Z est la valeur de position de l'électrode de l'axe principal de l'axe z.)

5) démarrer l'usinage, la valeur d'affichage de l'axe Z se rapproche progressivement de la valeur cible, la valeur d'affichage de l'axe Y se rapproche également progressivement de la valeur cible. Si à ce moment, l'électrode est montée et descendue à plusieurs reprises, la valeur d'affichage de l'axe Z changera par la suite, mais l'affichage de l'axe Y la valeur ne changera pas, ce qui affichera toujours la profondeur usinée value.

6) lorsque la valeur d'affichage de l'axe Z est égale à la valeur cible définie, le l'interrupteur de position sera désactivé, l'EDM arrêtera l'usinage, Selon le réglage de l'opérateur · Il existe deux types de modes de sortie :

a) Automatic Mode:

it will automatically exit from EDM machining status and recover to the original state before machining;

b) Stop Mode:

It will always stay at the machining interface after finishing machining, and you should press [EDM] to exit and back to the original state.

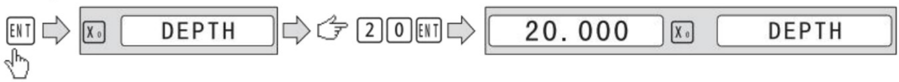
**Operation steps:**

**The DEPTH (machining Depth), ERRHIGH (Negative fireproof height), exit Mode, EDM Relay Output Mode and machining direction should be set.**

STEPS:

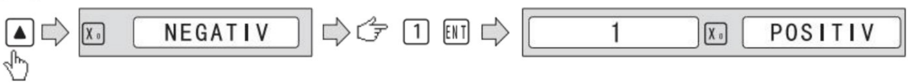
1. Press [EDM] to enter the EDM Function. Press [▲] to input parameters;Press [▼] to enter EDM machining state.

2. Input DEPTH ( machining depth). Press the key [▲] to set the next parameter.




3. input ERRHIGH ( Negative Fireproof Height ) (undefine) .Press the key [▲] to set the next parameter.


4. Set machining direction(Positive or Negative). Press [1] to select Positive direction. Press [0] to select Negative direction. Press the key [▲] to set the next parameter.



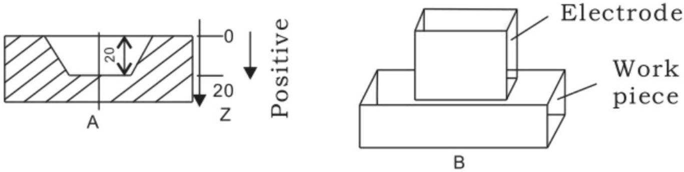
5. Set exit Mode (AUTO Mode or STOP Mode) Press [0] to select AUTO Mode; Press [1] to select STOP Mode ; Press the key [▲] to set the next parameter.


6. Set the Output Mode (Mode 0 or Mode 1); ( undefine ). Press [0] to select Mode 0; Press [1] to select Mode 1.


7. Continuously press [▼] to return EDM for machining. press [EDM] to quit the function;

**Example 1: positive direction machining ;**

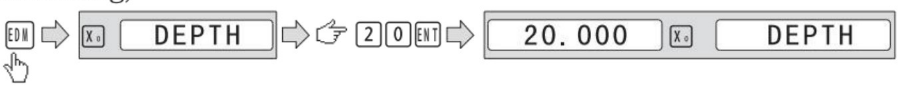
Machining is shown as the model chamber as follows



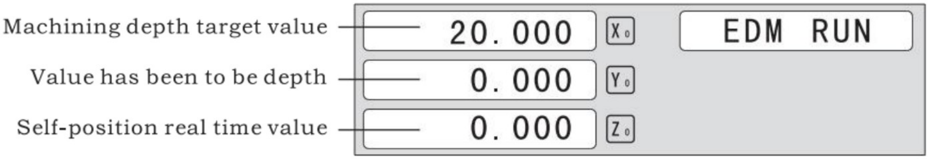

STEPS:

1、Touch one side of the workpiece with the TOOL,then press [Z0] , zero the Z axis。


2、Press [EDM], Setting DEPTH for 20.000; press [▼] to EDM for machining;

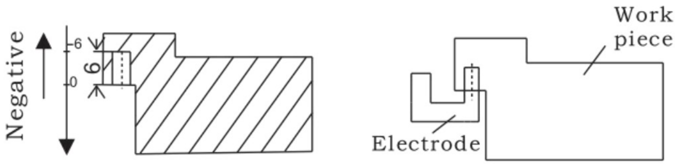



3、Starting machining。




**Example 2: Negative direction machining**

Machining is shown as the model chamber as follows

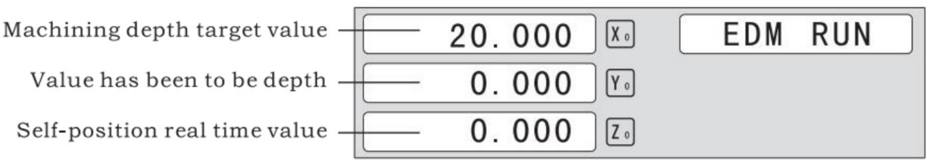



A B

1、Touch one side of the workpiece with the TOOL,then press Z0 , zero the Z axis。


2、Press EDM , Setting DEPTH for -20.000; press ▼ to EDM for machining;


3、Starting machining。




**Example 3:** PCD Function for EDM

PCD Function can access the EDM Function . The operator enters PCD Function to input parameters for PCD and enter PCD machining state. At every position for machining, press the key EDM to access the EDM Function .

lors de l'entrée dans la fonction EDM, l'opérateur peut saisir les paramètres pour EDM ·

La procédure de fonctionnement est la suivante :

1) définir les paramètres PCD (le réglage est le même que le réglage commun de PCD)

Après avoir saisi tous les paramètres et entré l'état d'usinage PCD · Le la position du premier trou sera affichée.

2) appuyez pour entrer le paramètre de fonction EDM (la méthode de réglage est sur le même que le réglage commun du paramètre EDM) ; après avoir saisi tout

paramètres, appuyez en continu lorsque l'usinage pour entrer dans l'état d'usinage EDM. pour est terminé, appuyez sur entrer dans l'état d'usinage quitter la fonction EDM et PCD ·

3 ) Dans l'état d'usinage PCD, appuyez sur pour la position du trou suivant, OVE la machine à la valeur d'affichage 0 , alors pr css pour accéder Fonction EDM à nouveau · 4)

Répétez l'étape 2 et l'étape 3 pour les points d'usinage suivants.

## 7 calculatrice

La calculatrice ne fournit pas seulement des calculs mathématiques normaux comme +, - , x , /, il fournit également des calculs trigonométriques tels que

PÉCHÉ , Arc NAS , COS , Arc COS , TANNÉ , Arc TAN SQRT etc.

Les opérations sont les mêmes que celles des calculatrices commerciales, faciles à utiliser.

### Fonction d'entrée et de sortie de la calculatrice

en état d'affichage normal : appuyez sur R pour CT accéder à la fonction calculatrice.

dans l'état d'affichage de la calculatrice : appuyez sur CT R pour quitter la fonction calculatrice.

Transfert de l'échelleRésultats pour les zx sélectionnés.

Une fois le calcul terminé, si la calculatrice affiche le mode défini sur mode 1 , l'utilisateur peut :

appuyez X0 pour transférer le résultat calculé sur l'axe x ; puis l'axe x sur la fenêtre pour afficher cette valeur ;

presse Y0 pour transférer le résultat calculé à l'axe du jouet ; puis ils la fenêtre affichera cette valeur ;

appuyez Z0 pour transférer le résultat calculé vers l'axe z ; puis le z sur la fenêtre pour afficher cette valeur ;

### Transfert de la valeur d'affichage actuelle dans la fenêtre vers la calculatrice.

si la calculatrice affiche le mode défini pour le mode 1 , l'utilisateur peut :

presse X pour transférer la valeur d'affichage dans la fenêtre x vers la calculatrice ;

presse Y pour transférer la valeur d'affichage dans la fenêtre Y pour calculer r ;

presse Z pour transférer la valeur d'affichage dans la fenêtre z vers la calculatrice ;

# 8 Appendix

## 1. Troubleshooting:

The following are the preliminary solvents for troubleshooting.

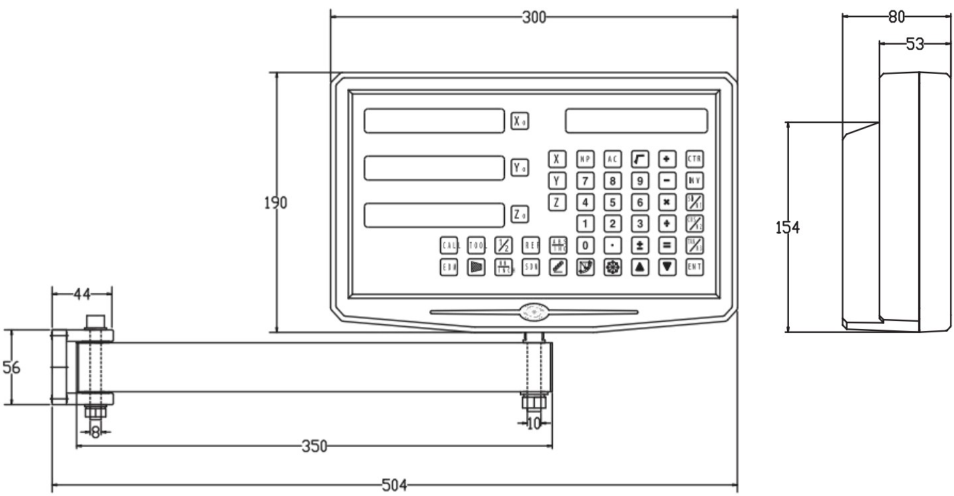
If there is still trouble, Please contact out company or agents for help.

| Troubles | Possible reasons | Solvents |
|---|---|---|
| No display | 1. Power isn't connected<br>2. Power switch is off.<br>3. The range of power voltage is not right.<br>4. The inner power of Linear Scale is short. | 1. Check power wire and connect the power<br>2. Turn on the power switch.<br>3. The range of voltage is in 80--260V<br>4. Unplug the connector of linear scale |
| One axis is not counting | 1. Replace the linear scale of the other axis.<br>2. DRO is in special function | 1. If count is normal, the linear scale has trouble; If abnormal, the DRO readouts has trouble.<br>2. Quit the special function. |
| Linear scale is not counting | 1. Reading head is bad for using range exceeds.<br>2. Aluminum chips is in reading head of linear scale.<br>3. The span between the reading head and metal part of linear scale is large.<br>4. The metal parts of linear scale is damage. | 1.Repair the linear scale<br>2. Repair the linear scale<br>3. Repair the linear scale<br>4. Repair the linear scale |
| Counting is error | 1. Shell is poor grounding.<br>2. Low precision of machine.<br>3. Speed of machine is too rapid.<br>4. Precision of linear scale is low.<br>5. The resolution of DRO readouts and the linear scale is not match.<br>6. The unit (mm/inch) is not match.<br>7. Setting thelinear compensating is not arrest.<br>8. Reading head of the linear scale is damaged. | 1. Shell is good grounding.<br>2. Repair the machine.<br>3. Reduce the speed of machine.<br>4. Mount the linear scale again.<br>5. Set the resolution of the DRO again,<br>6. Cover the unit of display mm/inch.<br>7. Reset the linear compensation.<br>8. Repair the linear scale. |
| The counting of the linear scale is not accurate | 1. The mounting of linear scale does not demand the requirement, and the prcision is not adequate.<br>2. The screw is loosen.<br>3. Precision of machine is low.<br>4. The resolution of digital readouts and the linear scale is not match. | 1. Mount the linear scale again and level it.<br>2. Lock all fixing screws.<br>3. Repair the machine.<br>4. Reset the resolution of digital readouts. |
| Sometimes the linear scale is not counting | 1. The small car and steel ball is separated.<br>2. The glass of reading head is wearied.<br>3. The glass of reading head of the linear scale has dirt.<br>4. The elasticity of the steel wire is not adequate. | 1. Repair the linear scale.<br>2. Repair the linear scale.<br>3. Repair the linear scale.<br>4. Repair the linear scale. |

2. Specifications of Digital Readout.

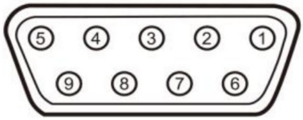
1) Supply Voltage range: AC 85 V ~ 230 V; 50 ~ 60 Hz
2) Power consumption: 15VA
3) Operating temperature: 0℃-- 50℃
4) Storage temperature: - 30℃-- 70℃
5) Relative humidity: < 90 % ( 25 )
6) Max Coordinate number: 3
7) Readout allowable input signal: TTL square wave
8) Allowable input signal frequency: < 5 M Hz
9) Max resolution of digital display length: 0.01 um
10) Max resolution of digital display angle: 0.0001 / PULSE

3. Instructions



# 4. Examples of character output at the data interface

## 1、X,Y,Z Axis

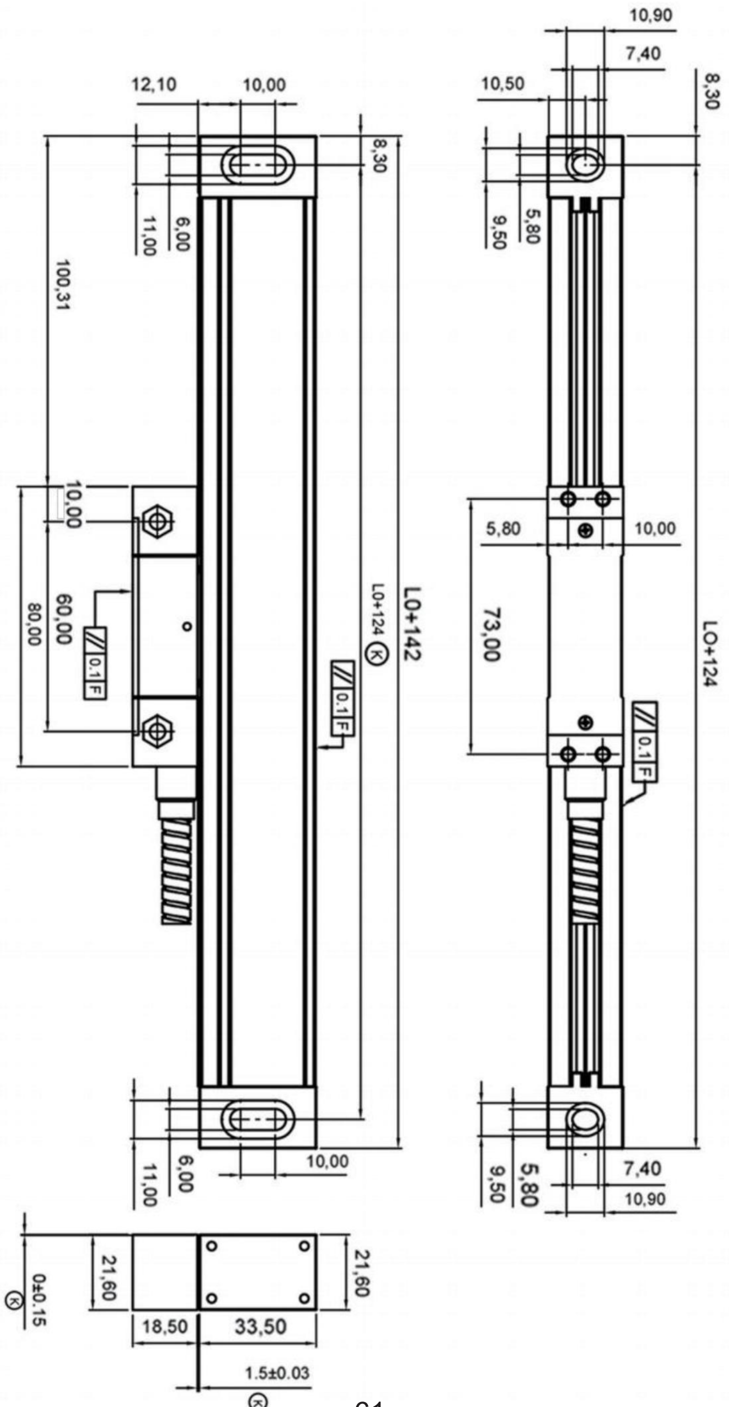



| Pin | TTL (Standard) |
|---|---|
| 1 | |
| 2 | OV |
| 3 | |
| 4 | |
| 5 | |
| 6 | A+ |
| 7 | 5V |
| 8 | B+ |
| 9 | R+ |

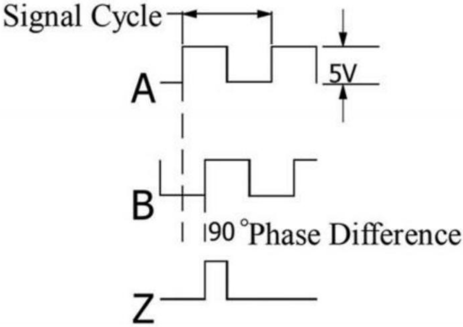
| Pin | TTL (Standard) |
|---|---|
| 1 | 5V |
| 2 | OV |
| 3 | A+ |
| 4 | B+ |
| 5 | R+ |
| 6 | |
| 7 | |
| 8 | |
| 9 | |

For your convenience,
If you buy a digital readout,

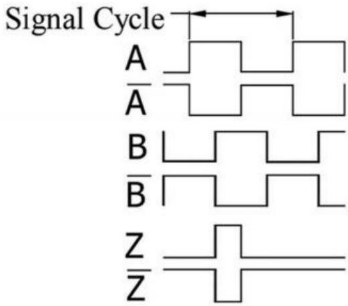
The wiring definition of your linear scale must be the same as the 2 definitions in the above diagram to be universal!


10,90
7,40
12,10
10,00
10,50
8,30
8,30
11,00
6,00
9,50
5,80
100,31
10,00
5,80
10,00
60,00
80,00
L0+124 Ⓚ
L0+142
73,00
LO+124
0.1 F
0.1 F
0.1 F
10,00
11,00
6,00
9,50
5,80
7,40
10,90
21,60
21,60
0±0.15 Ⓚ
18,50
33,50
1.5±0.03 Ⓚ

TTL signal Output:




EIA-422-A signal Output:




1. TECHNICAL PARAMETER

1.1 SCALING DISTANCE: 0.02 MM (50LINES /MM)

1.2 RESOLUTION: 5μM、1μM、0.5μM

1.3 PRECISION: ±3μM、±5μM、±15μM/M (20±0.1℃)

1.4 MEASURING RANGE: 30~3000MM

1.5 MOVING SPEED: HIGH-SPEED ENCODER 120 M/MIN (TO BE CUSTOMIZED)

ORDINARY ENCODER 60M/MIN

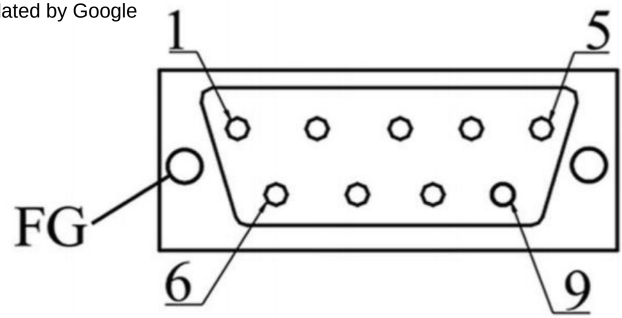
1.6 POWER SUPPLY: +5V±5%、80MA

1.7 CABLE LENGTH: STANDARD 3M (SPECIAL LENGTH AVAILABLE ACCORDING TO THE USER'S NEEDS)⊠

1.8 WORKING TEMPERATURE: 0~45℃

1.9 PIN DESCRIPTION:

1) APPLICABLE TO: 9 PIN SOCKET EIA-422-A SIGNAL OUTPUT.




1) Applicable to: 9 pin socket EIA-422-A signal Output.

| Pin Position | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| Signal | $\overline{A}$ | OV | $\overline{B}$ | Empty | $\overline{Z}$ | $A$ | +5V | $B$ | $Z$ |
| Color | Green Black | Black | Orange black | FG | White black | Green | Red | White | Orange |

FG: Shield connected to metal casing.

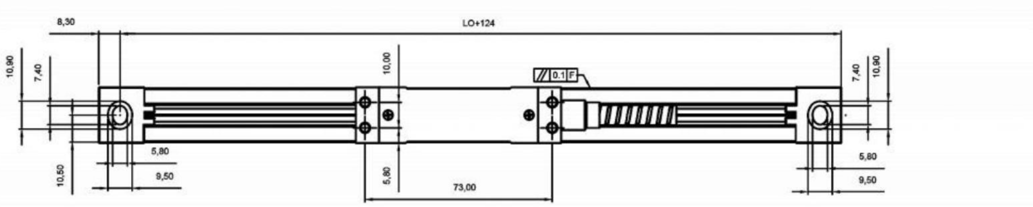
1) Applicable to: 9 pin socket TTL signal Output.

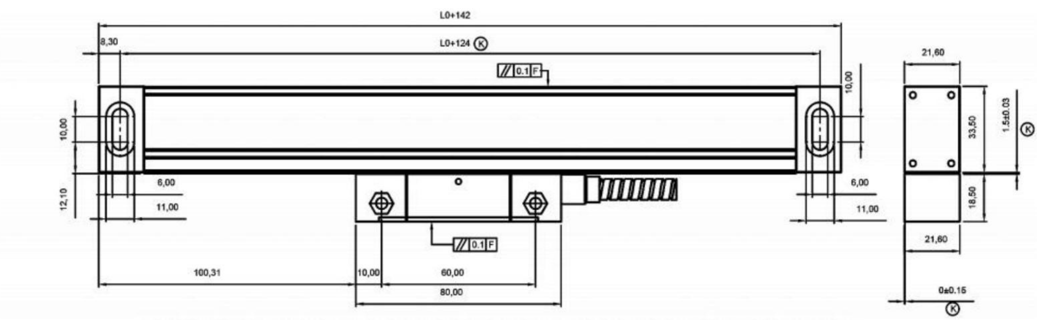
| Pin Position | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| Signal | | OV | | Empty | | $A$ | +5V | $B$ | $Z$ |
| Color | | Black | | FG | | Green | Red | Orange | White |

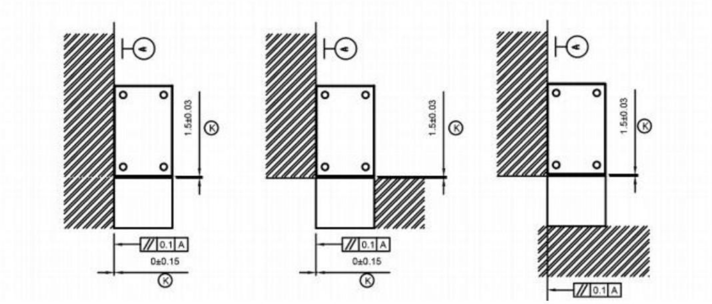
FG: Shield connected to metal casing.

# Échelle linéaire Dessins d'installation

# Méthode d'installation :



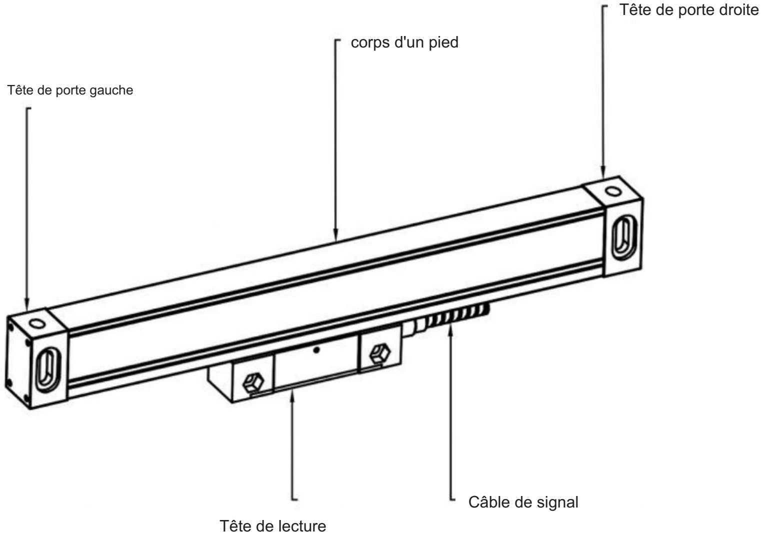

## Taille standard : (Unité : mm)

| Modèle | IL | L1 | L2 | Modèle | L0 | L1 | L2 |
|---|---|---|---|---|---|---|---|
| YE-50 | 50 | 174 | 190 | YE-550 | 550 | 674 | 690 |
| YE-100 | 100 | 224 | 240 | YE-600 | 600 | 724 | 740 |
| YE-150 | 150 | 274 | 290 | YE-650 | 650 | 774 | 790 |
| YE-200 | 200 | 324 | 340 | YE-700 | 700 | 824 | 840 |
| YE-250 | 250 | 374 | 390 | YE-750 | 750 | 874 | 890 |
| YE-300 | 300 | 424 | 440 | YE-800 | 800 | 924 | 940 |
| YE-350 | 350 | 474 | 490 | YE-850 | 850 | 974 | 990 |
| YE-400 | 400 | 524 | 540 | YE-900 | 900 | 1024 | 1040 |
| YE-450 | 450 | 574 | 590 | YE-950 | 950 | 1074 | 1090 |
| YE-500 | 500 | 624 | 640 | YE-1000 | 1000 | 1124 | 1140 |

L0 : Longueur de mesure effective du codeur linéaire ; L1 : Longueur du codeur linéaire trous de montage ; L2 : longueur totale du codeur linéaire

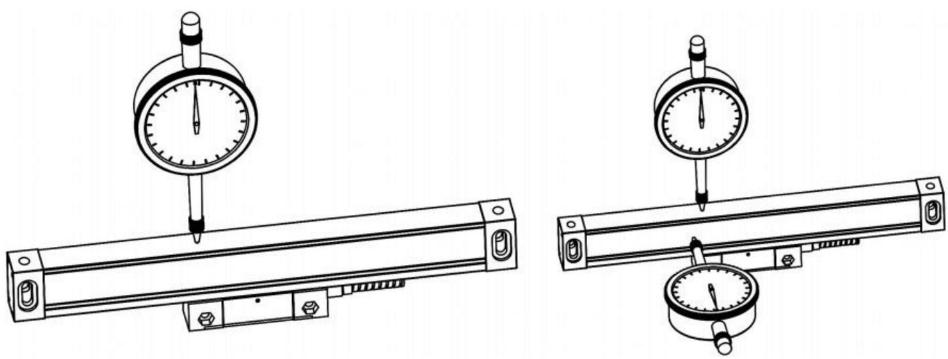
# Entretien:

1. La course effective du codeur linéaire doit être plus longue que la course maximale déplacement de la machine-outil. Si la longueur n'est pas suffisante, remplacez le codeur linéaire par une course plus grande ou ajoutez un bloc de fin de course sur les machines. La position finale de la tête de lecture par rapport à l'extrémité du corps du codeur linéaire ne doit pas être inférieure à 10 mm (voir le schéma suivant).

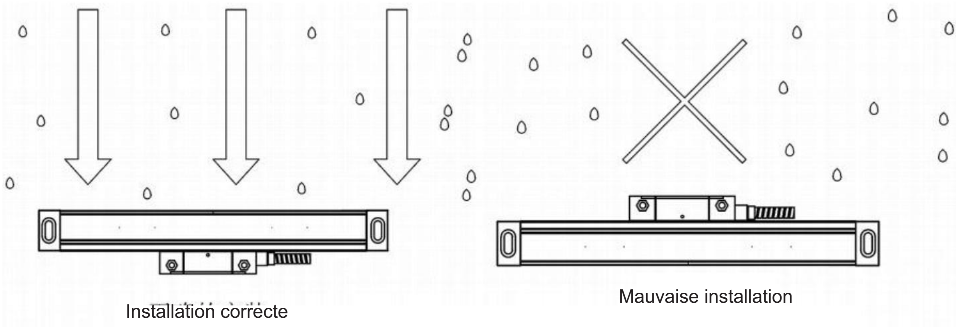



2. Pour toute surface non usinée, une cale doit être placée à l'arrière du codeur linéaire ou une cale d'installation fabriquée par l'utilisateur doit être utilisée pour assurer la stabilité et la fiabilité de la connexion entre la règle de réseau et la surface de montage.

3. Lorsque vous utilisez un comparateur à cadran ou un instrument similaire pour étalonner le parallélisme du codeur linéaire, l'angle de la tête latérale doit être compris entre ± 30 degrés, et plus l'angle est petit, mieux c'est.

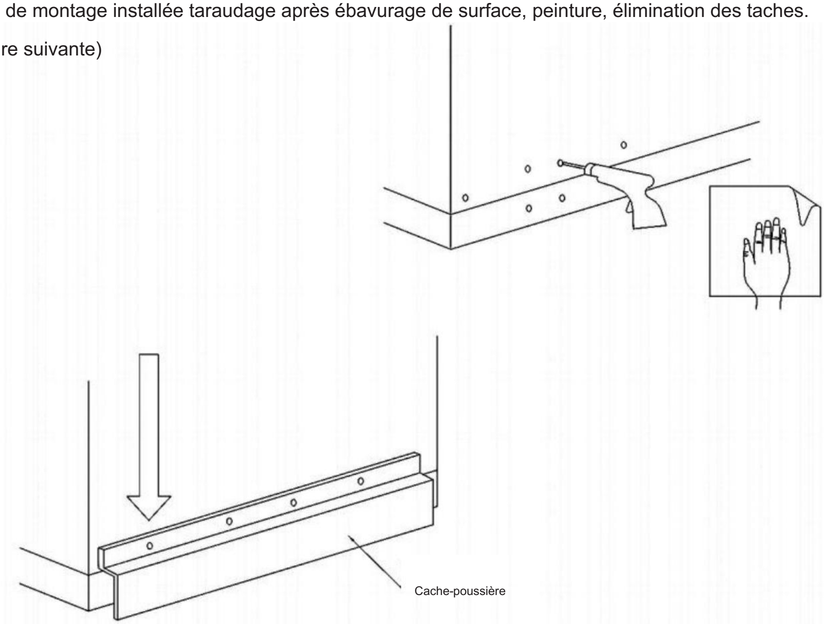


4. La position d'installation du codeur linéaire doit éviter tout impact direct du fer limailles, huile, eau et poussière (comme indiqué sur la figure ci-dessous). La longueur d'installation de la plaque en L doit être aussi courte que possible dans les circonstances possibles, et la situation de force de la surface de montage doit être prise en considération.



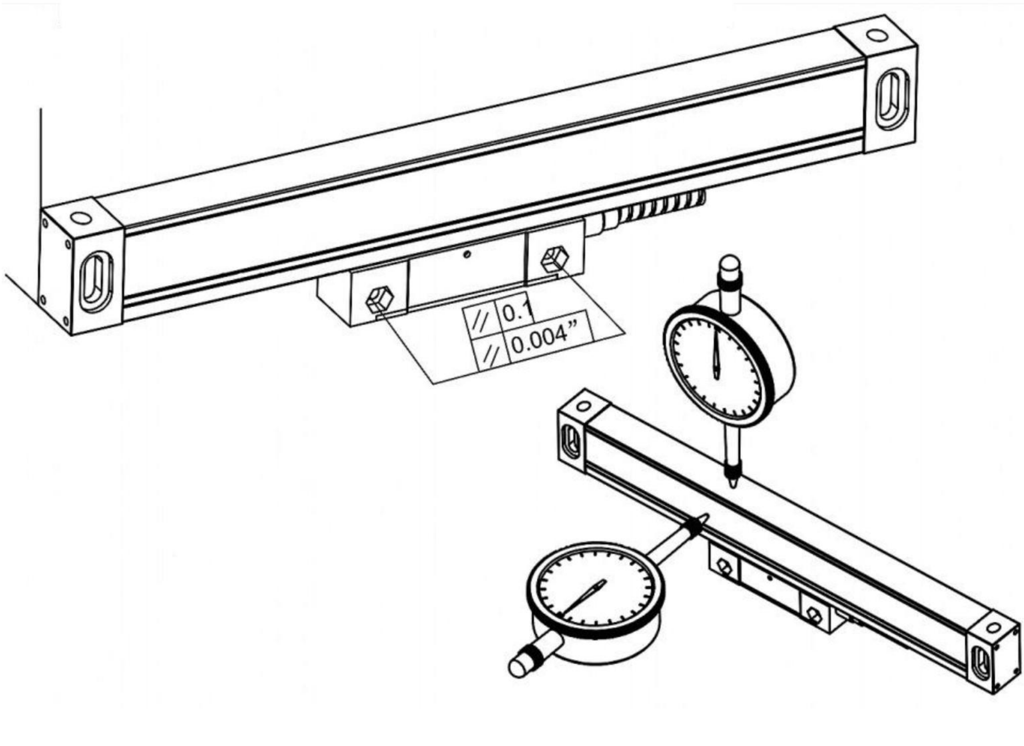

5. Il doit y avoir un espace de 0,5 mm ou plus entre le cache-poussière et la règle corps et éviter tout contact entre le cache-poussière et le corps de la règle lorsque déplacer la tête de lecture (comme ci-dessous).

6. Profondeur du filetage de la vis d'installation, doit avoir au moins 6 dents de profondeur de verrouillage ; force la plus grande partie, comme le support de la plaque fixe de l'étagère du compteur d'affichage numérique, doit avoir 8 dents de profondeur de verrouillage ; série YE d'échelle, la profondeur du filetage profondeur de la profondeur de verrouillage. Tels que le support de l'étagère du compteur d'affichage numérique fixe plaque, doit avoir une profondeur de verrouillage supérieure à 8 dents ; échelle de la série YE avec vis M4 surface de montage installée taraudage après ébavurage de surface, peinture, élimination des taches.
(La figure suivante)

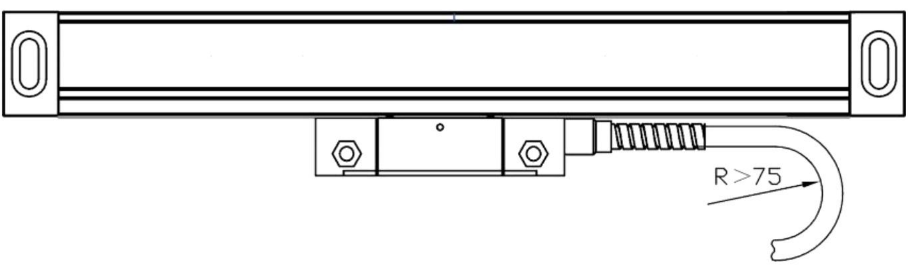


7. La fixation de la ligne de signalisation doit tenir compte de toutes les distances de déplacement pertinentes. Position de fixation placée autant que possible au centre même de la course, et la ligne de signal en excès est fixée avec un lien métallique.

8. Le réglage de la hauteur de l'échelle doit être la longueur du centre de l'échelle pour prendre les deux côtés du point de symétrie. Pour ajuster le point de référence, quelle que soit l'échelle, quelle que soit la direction du niveau scolaire ou de la hauteur, la plage de réglage : pour le corps de l'échelle, à une distance ne dépassant pas 20 mm de chaque extrémité de la tête de lecture doit prévaloir. Pour la tête de lecture, entre les deux surfaces de référence quadrilatérales (figure suivante)




9. Le rayon de courbure de la ligne de signal de la balance est supérieur à 60 mm.



## 10. Norme d'installation de la balance

(1) Norme de surface de base d'installation (Figure 4.8abc trois méthodes d'installation)

1. La surface d'installation du corps de la règle est parallèle à la surface d'installation de la tête de lecture et le parallélisme entre les surfaces d'installation est < 0,1 mm

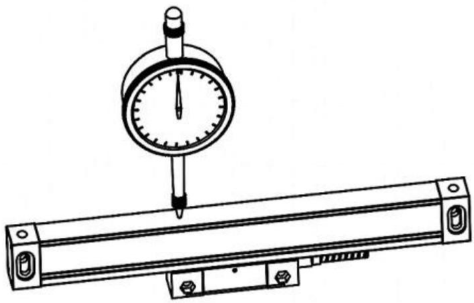
2. La surface d'installation du corps de la règle est perpendiculaire à l'installation surface de la tête de lecture et la perpendicularité entre les surfaces d'installation est < 0,1 mm

2) Normes d'installation du corps de règle (Figure 4.9, Figure 4.10)

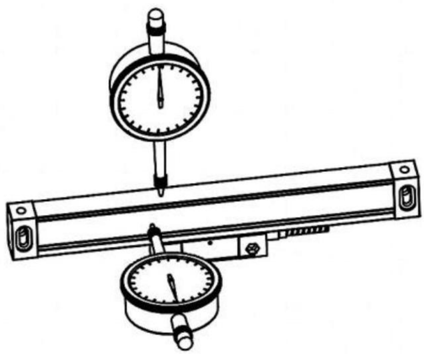
1. Sens de hauteur par rapport au parallélisme du guide de la machine < 0,1 mm, maximum ne dépassant pas 0,15 mm En termes de point de symétrie, plus il est petit, mieux c'est.

3) Norme d'installation de la tête de lecture

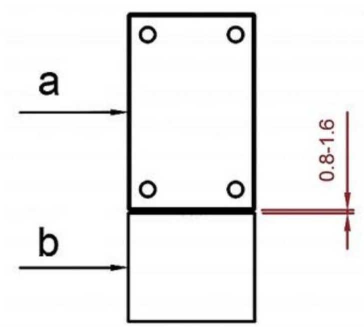
1. L'espace entre la tête de lecture et la direction de la hauteur du corps de la règle est de 0,8 mm à 1,6 mm après l'installation, puis retirez le bloc de tampon (Figure 4.11)



4.9



4.10




2. Tête de lecture côté A et corps de la règle côté B. Désalignement dans le sens horizontal. 0,25±0,15 mm

3. Parallélisme de la tête de lecture par rapport à machine-outil < 0,10 mm, le maximum ne peut pas dépasser 0,30 mm

# Paramètre:

| Modle | SNS-3V-YE102024 | SNS-3V-YE161838 |
|---|---|---|
| Rated voltage: | CA 85-230 V 50 Hz/60 Hz | |
| Resolution | 5 μm | |
| Number of axles | 3 | |
| Range | 10 inches<br>20 inches<br>24 inches | 16 inches<br>18 inches<br>38 inches |

Accessoires standards :

| Accessories for digital display meters: | Accessories for grating ruler: |
|---|---|
| 1. Support rod * 1 | 1. Ruler cover * 3 |
| 2. Knife holder plate * 1 | 2. L mounting plate * 4 |
| 3. Transparent watch case * 1 | 3. Plug * 6 |
| 4. Power cord * 1 | 4. Screw pack * 3 bags |
| 5. Watch holder * 1 | Each bag contains: |
| 6. Butterfly piece * 2 | Internal hexagonal screw M4 * 30 * 4; |
| 7. M8 * 70 screw * 1 | Internal hexagonal screw M4 * 12 * 2; |
| 8. M10 * 55 screw * 1 | Internal hexagonal screw M4 * 8 * 4; |
| 9. Nut M10 * 1 | U-shaped gasket T=0.2mm * 2; |
| 10. Nut M8 * 1 | Washer φ 6 * 2; |
| 11. Nut M5 * 1 | Washer φ 5 * 2; |
| 12. Internal hexagonal screw M5 * 20 * 2 | Washer φ 4 * 6; |
| 13. Internal hexagonal screw M5 * 25 * 1 | Line card * 2 |
| 14. M4 * hex socket screw * 4 | |
| 15. M5 * 10 machine meter screws * 2 | |
| 16. Washer φ 10 * 1 | |
| 17. Washer φ 8 * 1 | |
| 18. Washer φ 5 * 1 | |
| 19. Rubber washer 20 * 10 * 1 * 1 | |
| 20. Rubber washer 20 * 10 * 0.5 * 1 | |
| 21. Spring washer φ 10 * 1 | |
| 22. Spring washer φ 8 * 1 | |
| 23. Spring washer φ 5 * 1 | |

Cet appareil est conforme à la partie 15 des règles de la FCC. Son fonctionnement est soumis aux deux conditions suivantes : (1) cet appareil ne doit pas provoquer d'interférences nuisibles et (2) il doit accepter toute interférence reçue, y compris les interférences pouvant provoquer un fonctionnement indésirable.

Fabricant : Shanghaimuxinmuyeyouxiangongsi

Adresse : Shuangchenglu 803nong11hao1602A-1609shi, baoshanqu, Shanghai 200000 CN.

Importé en Australie : SIHAO PTY LTD, 1 ROKEVA STREET, ASTWOOD NSW 2122 Australie

Importé aux États-Unis : Sanven Technology Ltd., Suite 250, 9166 Anaheim Place, Rancho Cucamonga, CA 91730

REPRÉSENTANT DE LA CE

E-CrossStu GmbH

Mainzer Landstr.69, 60329 Francfort-sur-le-Main.

REPRÉSENTANT DU ROYAUME-UNI

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Produkt, das Sie erhalten haben. Bitte verzeihen Sie uns, dass wir Sie nicht erneut informieren, wenn es Technologie- oder Software-Updates für unser Produkt gibt.

Sehr geehrte Benutzer,

Vielen Dank für den Kauf der Digitalanzeigen der Multifunktionsserie ·

Digitale Anzeigen werden in einer Vielzahl von Anwendungen eingesetzt. Dazu gehören Werkzeugmaschinen , in Vorschubachsen Mess- und Prüfeinrichtungen, EDM und Messstationen für Teilapparate, Setzgeräte ,

Produktionskontrolle. Um die Anforderungen dieser Anwendungen können viele Encoder an die Digitalanzeigen angeschlossen werden. Lesen Sie vor der Verwendung alle Anweisungen im Handbuch sorgfältig durch und Halten Sie sich strikt an die Anweisungen. · Bewahren Sie das Handbuch zum späteren Nachschlagen auf. ·

Sicherheitshinweis:

⌘ Um elektrischen Schlag oder Feuer zu verhindern, Feuchtigkeit oder direktes Sprühen Kühlflüssigkeit muss vermieden werden. Bei Rauch oder besonderen Geruch von der Digitalanzeige, ziehen Sie bitte den Netzstecker sofort, sonst kann es zu Feuer oder Stromschlag kommen. Versuchen Sie in einem solchen Fall nicht, das Gerät zu reparieren. Wenden Sie sich bitte an das Unternehmen oder distributors.

⌘ Die Digitalanzeige ist ein präzises Messgerät mit einem optischen Lineare Skala· wenn es im Einsatz ist, wenn die Verbindung zwischen dem Lineare Skala und die Digitalanzeige sind defekt oder beschädigt extern, können falsche Messwerte entstehen · Deshalb, der Benutzer sollte vorsichtig sein.

⌘ Versuchen Sie nicht, die Digitalanzeige zu reparieren oder zu verändern, da es sonst zu Störungen, Es kann zu Störungen oder Verletzungen kommen. Im Falle eines anormalen Zustands wenden Sie sich bitte an das Unternehmen oder den Händler.

⌘ Wenn die optische Linearskala, die mit der Digitalanzeige verwendet wird, beschädigt ist, verwenden Sie keine Linearskala einer anderen Marke. · Da die Leistung, Spezifikation und Verbindung der Produkte verschiedener und CAN-Hersteller unterschiedlich sein können, darf nicht ohne Anweisung eines Fachtechnikers angeschlossen werden. Personal, sonst kommt es zu Problemen mit der Digitalanzeige.

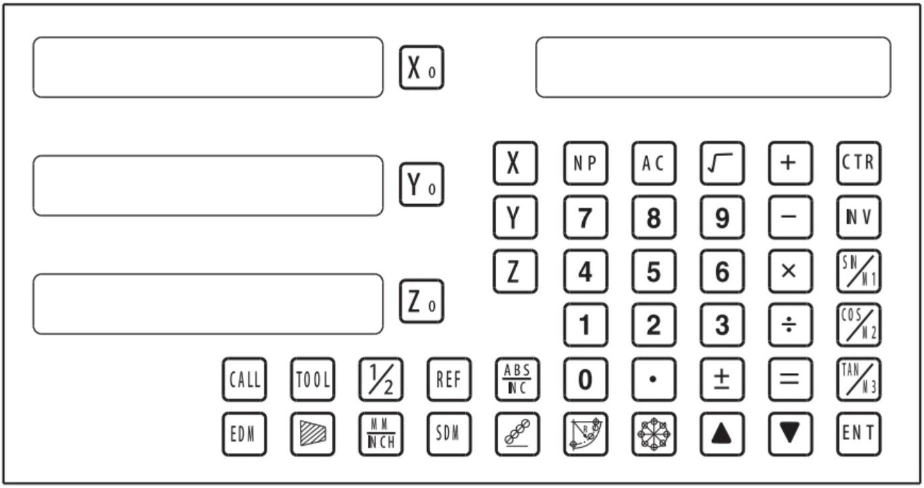
⌘ With the continuous updating of products, if there are changes or Bei Änderungen der Beispielparameter sind die Zufallsdateien maßgebend und das Unternehmen hat das endgültige Auslegungsrecht ohne Vorankündigung.

# Contents

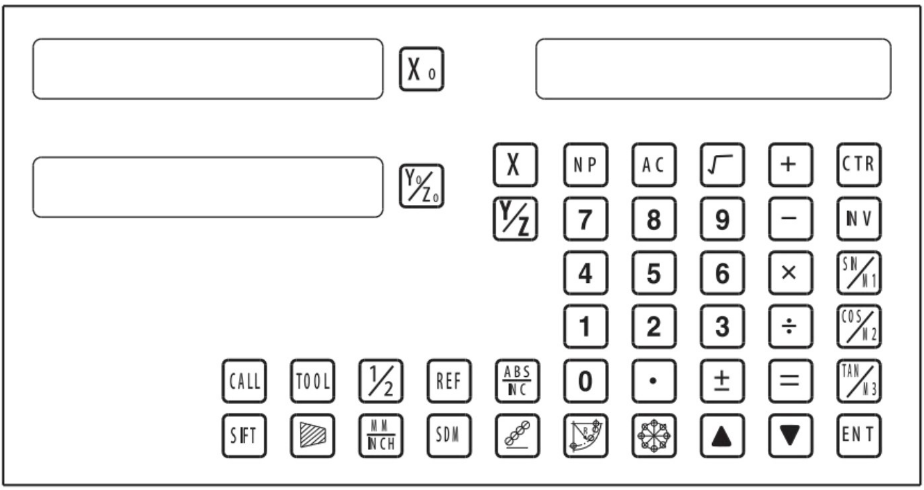
# Contents

# Illustration of Panel and keyboard

## THREE AXIS PANEL




## TWO AXIS PANEL



Keyboard Description

| | |
|---|---|
| X Y Z | Keys for axis selection |
| X0 Y0 Z0 | Zero select axis |
| ± | Enter +/- sign |
| • | Enter decimal point |
| 0 1 2 3 4 5 6 7 8 9 | Entry keys for numbers |
| + − × ÷ = | Operation key (in Calculation function key) |
| CTR | Enter or quit calculating state |
| AC | Cancel incorrect operation |
| INV | Calculate inverse trigonometric |
| √ | Square root |
| ENT | Confirm operation |
| MM/INCH | Toggles between inch and millimeter units. |
| REF | Press when ready to identify a reference mark. |
| SDM | Function keys for 200 sub datum |
|  | ARC cutting function |
|  | holes displayed equally on a circle |
|  | holes displayed equally on a line |

| | |
|---|---|
| SIN/M1 | Calculate trigonometric or Slope Processing function key |
| COS/M2 | Calculate trigonometric or rectangular inner chamber processing function key |
| TAN/M3 | Calculate trigonometric or the tool diameter compensation function key |
| ABS/INC | Toggle between ABS/INC coordinate |
| ▲ ▼ | Stroll up or down to select |
|  | Taper measured function key |
| CALL | Tool library call key |
| TOOL | Opens the tool table.( lathe) |
| EDM | EDM function key |
| SFT | Filter display function key |
| 1/2 | Half a display value of an axis |
| NP | Non Linear Error Compensation function keys |

## 3、Parameters settings

### 3.1 Parameters setup routine entrance.

Press [•] to enter initial system and self-check after DRO powers on in 1 second, then Parameters settings display in the Parameters window.press [▲] [▼] to select the item you want to chang.

If you want to quit initial setting, press [▲] [▼] until "QUIT" appears in message window and press [ENT]. You can also press [•] to quit initial setting.

### 3.2 Parameters Settings Description

#### 3.2.1 Setting the Resolution

Press [▲] [▼] until "RESOLUTE" appears in message window;

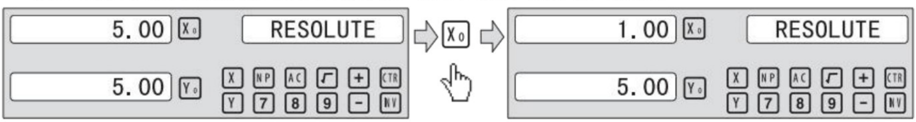
When selecting the LINEAR encode, the resolution will be set as follow:

There are 19 types of resolution:

0.01um;0.02um;0.05um;0.10um;0.20um;0.25um;0.50um;1.00um; 2.00um;2.50um;5.00um;10.00um;20.00um;25.00um;50.00um; 100.00um;200.00um;250.00um;500.00um.

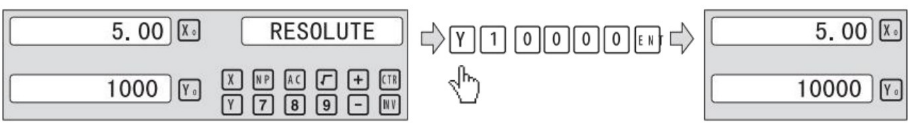
Press [X0] to change the resolution for X axis;Press [Y0] to change the resolution for Y axis;Press [Z0] to change the resolution for Z axis;

Set the resolution 5.00um to 1.00um for X axis:




When selecting the rotary encode, the resolution will be set as follow:

Input the rotary encode parameter value .

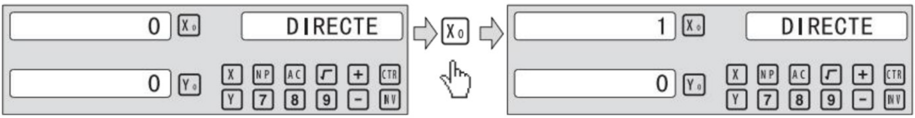


### 3.2.2 Setting Positive Direction for Counter

Press ▲ ▼ until " DIRECTE" appears in message window.

Direction '0' means the display value will increase when scale moves form right to left and decrease when scale moves from left to right. Direction '1' means the display value will increase when scale moves form left to right and decrease when scale moves from right to left.

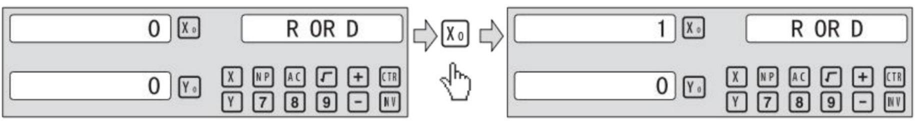
Press X0 to change the Direction for X axis;Press Y0 to change the Direction for Y axis;Press Z0 to change the Direction for Z axis; as follow:




### 3.2.3 Toggle Betwween R/D Display Mode

Press ▲ ▼ until "R OR D" appears in message window. X window, Ywindow, Z window displays '0' or '1' separately.

'0' is mode R, which means the dispay value equals the actual measurement. '1' is mode D where the display value equals the double actual measurement. Press X0 to change the R/D for X axis;Press Y0 to change the R/D for Y axis;Press Z0 to change the R/D for Z axis; as follow:

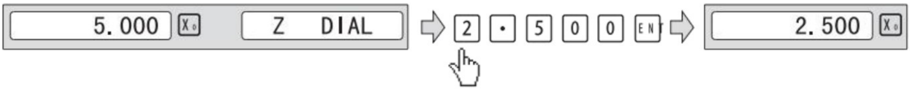



### 3.2.4 Setting Z axis Dial

Press ▲ ▼ until "Z DIAL" appears in message window.

Z axis dial should be set if Z axis is emulated for 2 axis milling and only install linear scale for X,Y axis. Z axis dial means the distance the Z axis travels when screw runs a revolution.

Set the Z axis Dial 2.5mm as follow ;

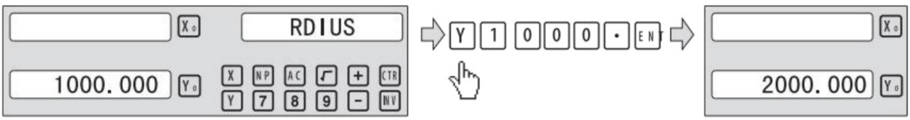



### 3.2.5 Setting the Rotary Radius of the Workpiece

Press ▲ ▼ until "RDIUS" appears in message window.

The Rotary rdius type is used perimeter to measure angle.

Input the Rotary Radius parameter value 2000mm as follow:

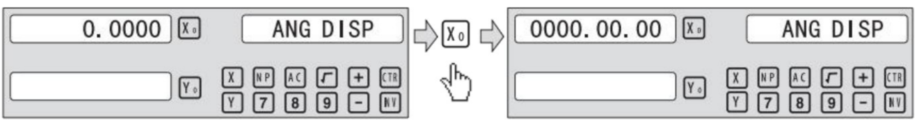



### 3.2.6 Setting the Angle Display Mode

Press ▲ ▼ until "ANG DISP" appears in message window.

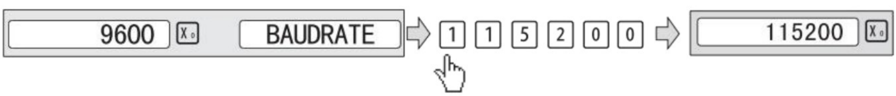
Press X0 to change the angle display mode for X axis;Press Y0 to change the angle display mode for Y axis;Press Z0 to change the angle display mode for Z axis; Example for X axis:

"0.0000" means the angle mode is Circulating DD;
"0000.0000" means the angle mode is Incremental DD;
"0.00.00" means the angle mode is Circulating DMS;
"0000.00.00" means the angle mode is Incremental DMS;




### 3.2.7 Setting the Baudrate of RS_232 (Special customization function, if you need to buy, please contact the dealer to customize)

Press ▲ ▼ until "BAUDRATE" appears in message window.
Set the Baudrate 115200 as follow ;



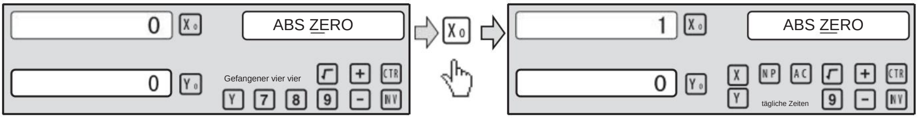
3 . 2 . 8 Einstellen der absoluten Nullung aktivieren oder deaktivieren

drücken bis „ABS ZERO" im Meldungsfenster erscheint·

Die bedeutet Betrieb des ABS-Nullstellens und voreingestellte Daten werden aktivieren im normalen Anzeigezustand ·

' 1 ' bedeutet Betrieb des ABS-Nullstellens und voreingestellte Daten werden im normalen Anzeigezustand deaktivieren ·

Drücken Um den absoluten Nullungsmodus für die X-Achse zu ändern, drücken Sie Sie, um den absoluten Nullungsmodus für die Y-Achse zu ändern. Drücken Sie Zu Ändern des absoluten Nullungsmodus für die Z-Achse; Beispiel für die X-Achse ·



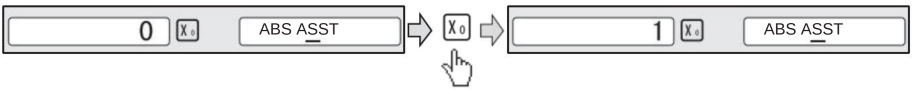

3 . 2 . 9 Einstellen des Absolutwertes der Sonderfunktion

drücken bis „ABS ASST" im Meldungsfenster erscheint·

'o bedeutet, dass nur der Positionswert der Sonderfunktion im Sonderfunktionsbetrieb.

' 1 ' bedeutet Sonderfunktion Positionswert + ABS Positionswert ist Anzeige im Sonderfunktionsbetrieb.

drücken zum Ändern des absoluten Modus für die spezielle Funktion wird wie folgt eingestellt werden:



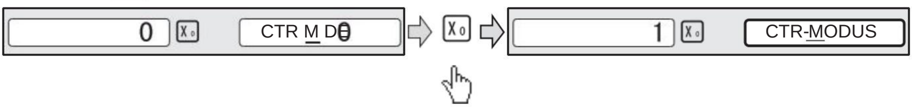

3 . 2.10 Einstellen der Calculator Anzeigemodus

drücken bis UCCTR MODE" in der Meldung W erscheint · indow

Die meden Rechneranzeigewert bei der x-ten Anzeige bedeutet den ow disply;

' 1 ' Rechneranzeigewert im Meldungsfenster im Display;

drücken Um den Rechner-Anzeigemodus zu ändern, wird AS eingestellt follow:




3.2.11 Displayhelligkeit einstellen

Einstellung der Helligkeit der LED-Anzeige, die Werkseinstellung ist nur "3", je höher der Parameter, desto heller die Helligkeit. Drücken Sie "xo", um festgelegt ist, ist es nicht empfehlenswert, den Standardwert selbst festzulegen.

3.2.12 The linear scale counting frequency setting

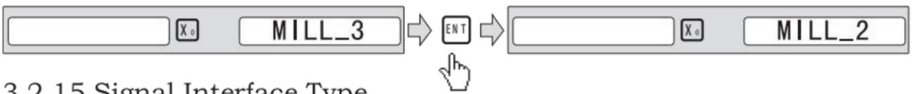
The factory default setting is only "12", the higher the parameter, the lower the counting frequency, press "X0" to set, it is not recommended that you set the default value yourself.

3.2.13 Setting QUIT: Digital display table parameters quit button.

3.2.14 Setting the type of the DRO.

The type of the DRO will be display on the right window. then press the key ENT to select the correct type. the following system item will be set:

"MILL-3" means the DRO type is 3-axis milling machine table;
"MILL-2" means the DRO type is 2-axis milling machine table;
"LATHE-2" means the DRO type is 2-axis lathe table;
"LATHE-3" means the DRO type is 3-axis lathe table;
"GRIND" means the DRO type is Grind table;
"EDM" means the DRO type is EDM table; (Special customization function, if you need to buy, please contact the dealer to customize)




3.2.15 Signal Interface Type

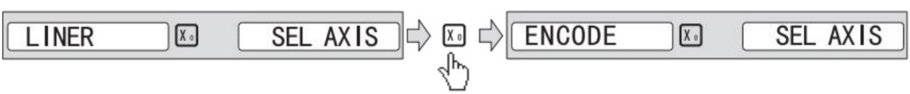
Message window displays " SEL AXIS" which indicates the step is to Sensor input signal mode. Press X0 to change the signal mode for X axis;Press Y0 to change the signal mode for Y axis;Press Z0 to change the signal mode for Z axis;Example for X axis:

Press X0 to scroll through the Rotary encode type, the Linear encode type, the Rotary rdius type.

X window displays the Signal type.

"LInER" means the Signal type is linear encode type ;
"EnCOdE " means the Signal type is Rotary encode type;
"RdIUS" means the Signal type is Rotary rdius type ;

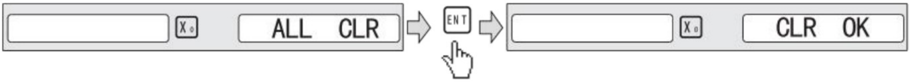
Example: currently in the linear encode type, to toggle to the Rotary encode type;



### 3.2.16 Restore Factory Settings:

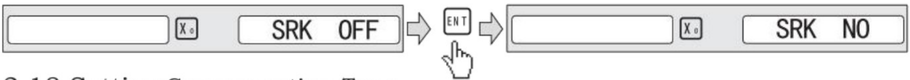
Clear all data except DRO type.DRO will load default setup for parameter.After loading default setup,user must search RI once to enable resuming ABS dadum function;otherwise to resume the datum by RI is unable;

Message window displays " ALL CLR" , press ENT and message windows display "PASSWORD" indicating the operator to input password; Press 2000 + ENT in turn to load default value;




### 3.2.17 Shrinkage Ratio enable or disable.

Message window displays " SRK OFF" to disable Shrinkage rate function. Press ENT to enable Shrinkage rate function in Message window displays " SRK ON" :




### 3.2.18 Setting Compensation Type

Message window displays " SEL COMP" which indicates the step is to compensation type. Press X0 to change the compensation type for X axis;Press Y0 to change the compensation type for Y axis;Press Z0 to change the compensation type for Z axis;Example for X axis:

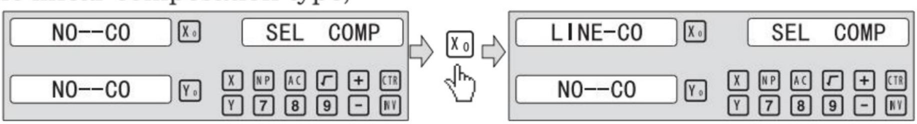
Press X0 to scroll through the not compesation type, the Linear compesation type, the non-linear compesation type.

"no-CO" means the compesation type is not compesation type;

"LInE-CO" means the compesation type is linear compesation type.

"non-LinE" means the compesation type is non-linear linear compesation type;

Example for X axis: currently in the not compesation type, to toggle to the linear compesation type;



3.2.19 Inch display, set the number of digits after the decimal point

In the inch display mode, the number of digits after the decimal point is set, the factory default digit is "4", press "X0" to set, can be set according to actual needs.

3.2.20 Setting EDM: it is not recommended that you set the default value yourself, EDM function, Set the relay off on time.

3.2.21 Setting Linearity Compensation.

Message window displays "LIN COMP" which indicates the step is to Linearity Compensation. Compensate the linear error to make display value equals to standard value.

The calculation of compensation rectifying coefficient:

$$\text{Coefficient} = \frac{(\text{Measurement} - \text{Standard value}) \times 1000.000}{\text{Standard value}}$$

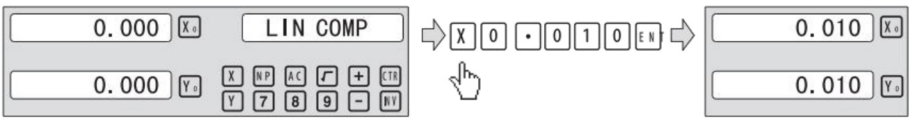
Example for X axis:

Measurement 200.020mm

Standard value 200.000mm

Rectifying coefficient= (200.020-200) * 1000 /200 =-0.01mm/m

Input compensation rectifying coefficient 0.01 as follow:

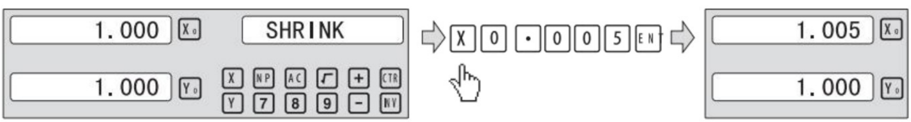



3.2.22 Setting the Shrinkage Ratio

Press ▲ ▼ until "SHRINK" appears in message window;

$$\text{Shrinkage radio} = \frac{\text{Dimensions of the finished product}}{\text{Dimensions of the working piece}}$$

Set the shrinkage radio 1.005 as follow;



## 4、General Operations;

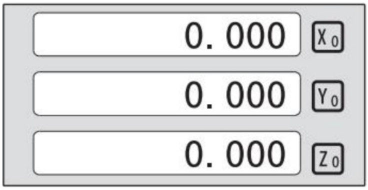
### 4.1 Zeroing

Zero the designated axis in normal display state.Zeroing is used to set the current point as datum point as follow;

key ☞ X0 ⇒ X axis zero

key ☞ Y0 ⇒ Y axis zero

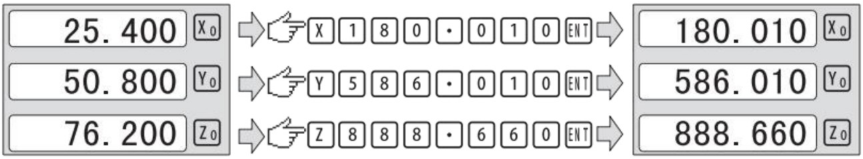
key ☞ Z0 ⇒ Z axis zero




X0 or Y0 or Z0 will be return to the original data before the reset。

### 4.2 Preset Data to Designated Axis

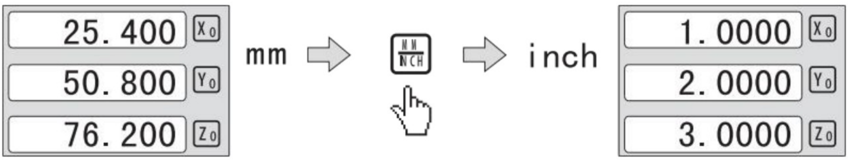
Preset a value to current position for a designated axis in normal display state.



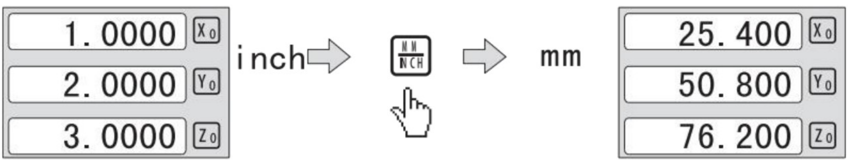

### 4.3 Toggle Display Unit between inch and mm

Length can be displayed either in “mm” (metric) or “inch” (imperial). Display unit can be toggled between mm and inch.

Example: Display value toggle from mm to inch;



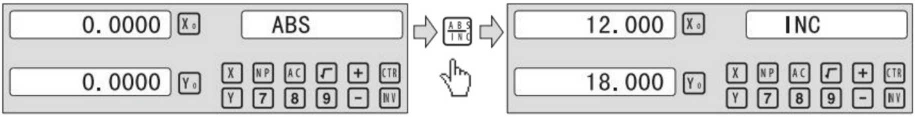

Example: Display value toggle from inch to mm;



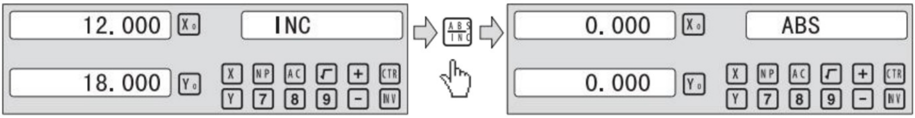
## 4.4 Absolute/Incremental/200 groups SDM

Function: The DRO has 3 coordinate display modes: the absolute mode (ABS); the incremental mode (INC) and 200 goups Second Data Mamory (SDM) with the range of 00 to 99.Zero point of work-piece is set at the origin point of ABS coordinate. The relative distance between datum of ABS and SDM remains unchanged when ABS datum is changed.

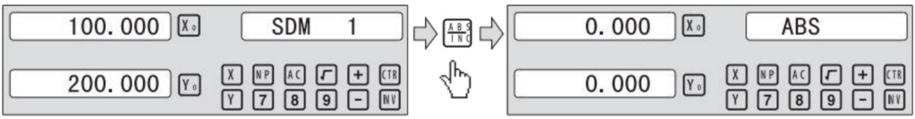
1. Toggle from ABS to INC coordinate;




2. Toggle from INC to ABS coordinate;




3. Toggle from SMD to ABS coordinate;



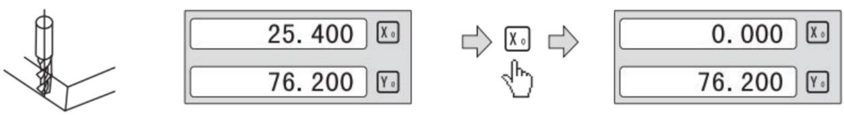

## 4.5 1/2 Function

Function: Set the center of work piece as datum by halving the displayed value.

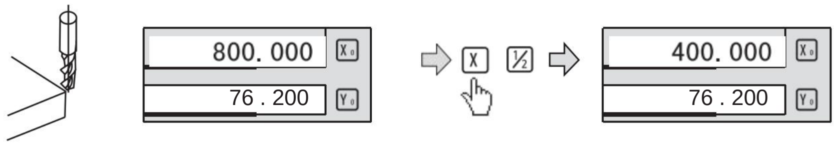
Example: Set the center of rectangle as datum as the right figure.

Steps:

1、Touch one side of the workpiece with the TOOL,then zero the X axis。



2 , Gehen Sie mit dem WERKZEUG zur gegenüberliegenden Seite des Werkstücks und berühren Sie es. Drücken Sie dann X + ½ um wiederum den Anzeigewert der X-Achse zu bewerten.




3. Bewegen Sie den Bearbeitungstisch, bis auf der X-Achse „0.000“ angezeigt wird. Fenster. Die Position ist die Mitte des Werkstücks·

4. 6 Alle SDM-Daten löschen.

Im ABs-Modus drücken Sie kontinuierlich zehnmal wird klar alle Daten für 200 Sätze SDM. Mcssage-Fenster zeigt USDM CLR" .

4. 7 Schlafmodus

im nicht ABS-Modus, durch Drücken der Taste F Kann alle Displays ausschalten und der DRO in den Schlafmodus versetzt wird, dann diese Taste drücken wieder wird die DRO zurück in den Arbeitsmodus versetzt. Im Schlafmodus Modus ist die DRO noch im Arbeitszustand und zeichnet tatsächlich die WERKZEUG movement.

Beispiel: Wenn Sie sich nicht im ABS-Modus befinden, gelangen Sie in den Sleepin8-Modus, indem Sie drücken Im Schlafmodus können Sie mit der Taste F den Schlafmodus beenden.

Schlafmodus ·

4. 8 Stromunterbrechungsspeicher.

Der Speicher dient zum Speichern der Einstellungen der DRO und der Maschine Referenzwerte, wenn POWER ausgeschaltet ist.

4 . 9 Sucheden absoluten Bezugspunktdes Maßstabs

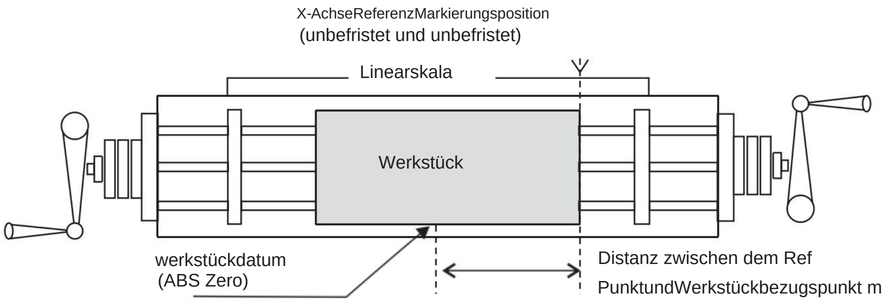
Im täglichen Bearbeitungsprozess kommt es häufig vor, dass die Die Bearbeitung kann nicht innerhalb einer Arbeitsschicht abgeschlossen werden, und daher DRO muss nach der Arbeit ausgeschaltet werden, oder es kommt zu einem Stromausfall während der Bearbeitungsprozess, der zum Verlust des Werkstückbezugs führt (Werkstücknullpunkt) , die Wiederherstellung des Werkstücknullpunktes Die Verwendung von Kantenfindern oder anderen Methoden führt zwangsläufig zu höheren Bearbeitungsgenauigkeit, da es nicht möglich ist, die Werkstück-Nullpunkt exakt an der vorherigen Position. Damit das Wiederherstellung des Werkstückbezugspunkts sehr genau und keine erneute Ermittlung des Werkstückbezugspunkts mit Kantentaster oder anderen Methoden erforderlich, Jede Linearskala hat einen Referenzpunkt, der mit Referenz ausgestattet ist Position, um eine Bezugspunkt-Speicherfunktion bereitzustellen.

Das Funktionsprinzip der Referenzdatum-Speicherfunktion ist wie folgt folgt.

Da der Referenzpunkt der linearen Skala permanent und fest ist, wird er ändert sich nie oder verschwindet, wenn das DRO-System ausgeschaltet ist. Daher müssen wir lediglich den Abstand zwischen dem Referenzpunkt speichern und der Werkstücknullpunkt im nichtflüchtigen Speicher· Dann Im Falle eines Stromausfalls oder einer Abschaltung der DRO können wir wiederherstellen den Werkstück-Nullpunkt durch Vorgabe des Anzeige-Nullpunktes Position als gespeicherte Distanz vom Referenzpunkt ·

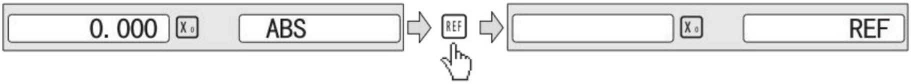
Bei der Bearbeitung eines Werkstückes muss ein absoluter Bezugspunkt gesetzt werden· Es gibt drei Betriebsarten (REF, AB, LEF AB):

Beispiel: Speichern des Arbeitsdatums der X-Achse·

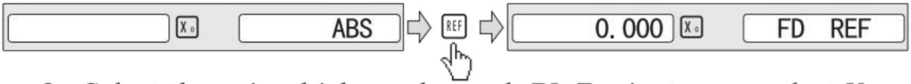


**Example for REF mode** :

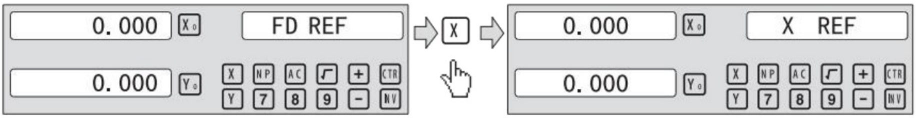
1、DRO is set in ABS coordinate. Press [REF], then the message window display "REF" .




2、Message window displays "REF" , Press [ENT] until "FD_REF" appears in message window.



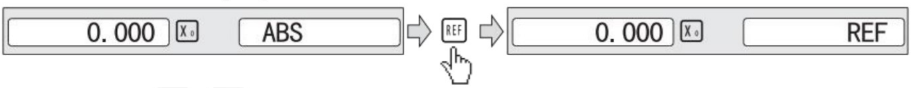

3、Select the axis which need search RI. For instance : selsct X axis, then press [X] . "X_REF" is displayed in message window, and X axis window flashes.




4、 Move the machine table .The buzzer sounds when RI is searched, then X window stops flashing and displays the value of the current position .the DRO returns normal display state. Then message window displays "FIND_X" .

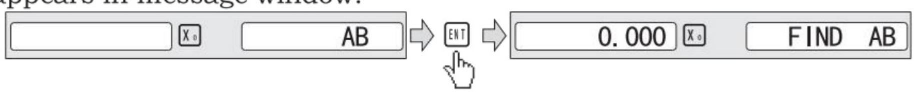
**Example for AB mode** :

1、 DRO is set in ABS coordinate. Press [REF], then the message window display "REF" .

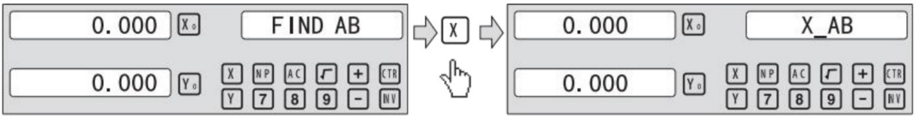



2、Press [▲] [▼], then the massage window display "AB" .


3、Message window displays "AB" , Press [ENT] until "FIND_AB" appears in message window.



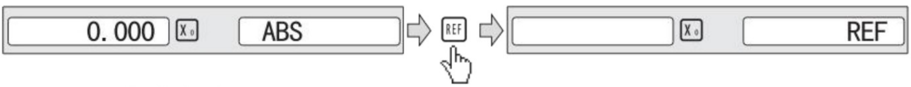
4、Select the axis which need search RI. For instance : selsct X axis, then press [X] . “X_REF” is displayed in message window, and X axis window flashes.



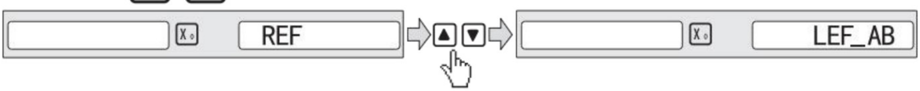

5、 Move the machine table .The buzzer sounds when RI is searched, displays the value of the current position for the absolute datum zero. the DRO returns normal display state. Then message window displays “FIND_AB” .

**Example for LEF_AB mode** :

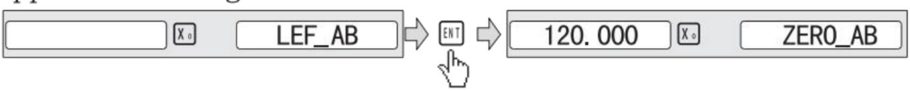
1、DRO is set in ABS coordinate. Press [REF], then the message window display “REF” .



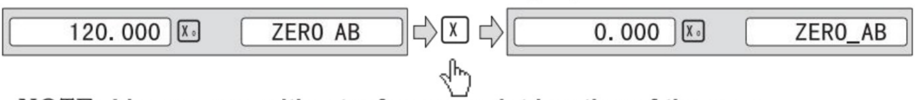

2、Press [▲] [▼], then the message window display “AB” .




3、Message window displays “LEF_AB” , Press [ENT] until “ZERO_AB” appears in message window.




4、Move the machine table to be set zero position piont. then press [X] , X axis will be zeroing . the current position for the absolute datum zero. the DRO returns normal display state.




NOTE: **Linear range without reference point location of the user**

## 4.10 Non Linear Error Compensation

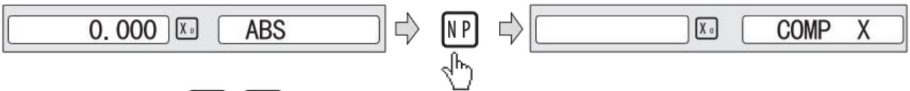
First compensation Type ( Linear or Non-Linear) in parameter setting must be set Non-Linear. Linear scale have a ref point location and find to the Absolute Reference Point will be enable.

Default Non-Linear compensation : 50.

**Example for Y axis:**

Step 1: Search the Absolute Reference Point of Scale;

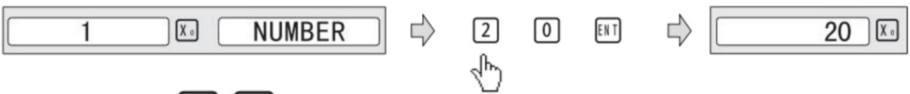
Step 2: Press NP , then the message window display "COMP X" .



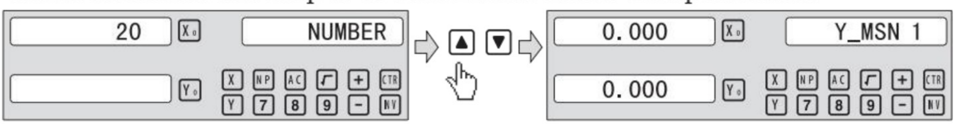

Step 3: Press ▲ ▼, then the massage window display "COMP Y"


Step 4: Press ENT, then the message window display "NUMBER" .

Then input the compensation parameter NUMBER.




Step 5: Press ▲ ▼, then message window displays "Y-MSN-1" which indicates the step is to Non Linear Error Compensation.



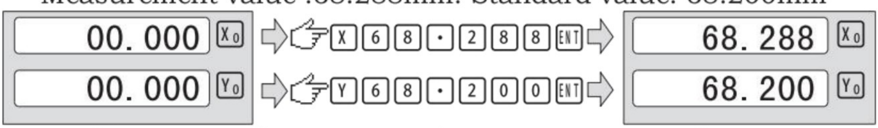

Step 6: Input compensation value .

X window display the value of the measurement value.

Y window display the value of the standard value.

Example for the first compensation point:

Measurement value :68.288mm. Standard value: 68.200mm



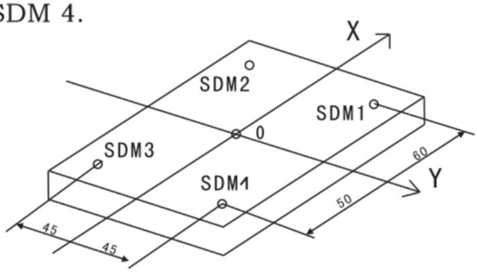

Step 7: After input all parameter, the DRO automatically exit.

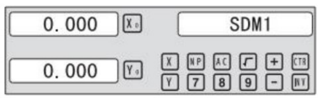
5、200 Groups SDM coordinate

The DRO has three display modes: the absolute mode (ABS),the incremental mode (INC) and the 200 groups second data memory (SDM 1 – SDM200). ABS datum of the work-piece is set at the beginning and the 200 groups SDM is set relative to ABS coordinate.

ABS Mode, INC Mode and SdM Mode are specially designed to provide much more convenience features to the operator to cope with the batch machining of relative works and the machining of the workpiece machining dimensions from more than one datum.

**Example:** The ABS datum is the center point O, the point sdm1, sdm2, sdm3, sdm4 needed processing are set as datum of SDM 1 – SDM 4.




Two ways to set SDM coordinate:

1、 Zeroing at the Current Point.

2、 Preset datum of SDM coordinate.

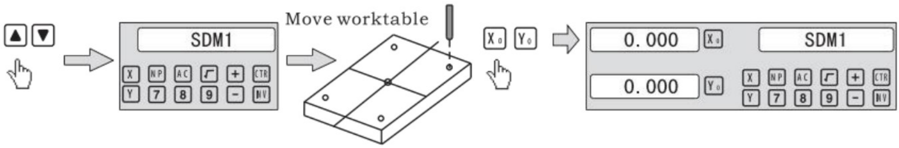
5.1 Zeroing at the Current Point

At first set the center point of the work-piece as the origin of the ABS, then align the TOOL with point SDM1,SDM2,SDM3,SDM4 by moving the machine table and zero them. It is the position to process where the "0.000" appears in X window, Y window by moving the machine table whether in ABS or in SDM coordinate.

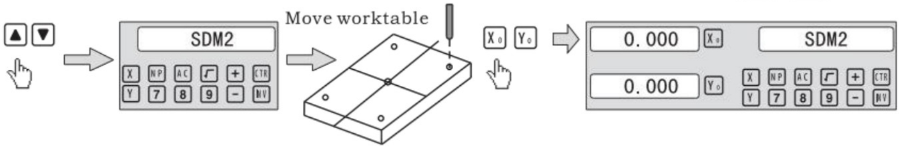
**Steps:**

1、 Move worktable to place the TOOL at the center of the workpiece point O as the datum of ABS. Then zero X axis and Y axis in SDM 1 ; Zero X axis and Y axis in SDM 2 ; Zero X axis and Y axis in SDM 3 ; Zero X axis and Y axis in SDM 4.

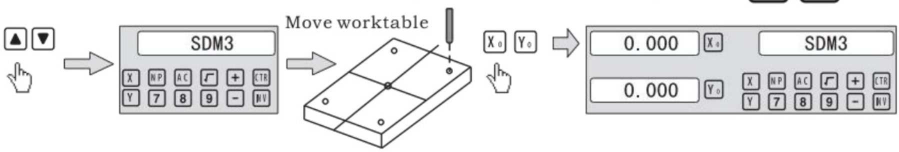
2、Set the point sdm1 as the datum of SDM 1. Move the machine worktable to x = 60.000, y = 45.000. Then proess $\boxed{X_0}$ $\boxed{Y_0}$.



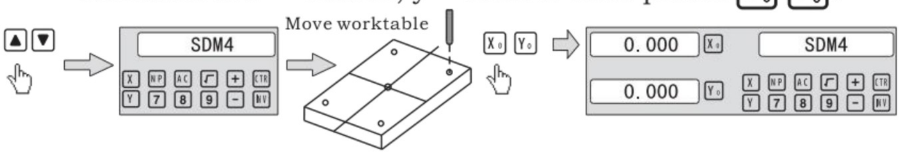

2、 Set the point sdm1 as the datum of SDM 2. Move the machine worktable to x = 60.000, y = -45.000. Then proess $\boxed{X_0}$ $\boxed{Y_0}$.




3、 Set the point sdm1 as the datum of SDM 3. Move the machine worktable to x = -60.000, y = -45.000. Then proess $\boxed{X_0}$ $\boxed{Y_0}$.




4、 Set the point sdm1 as the datum of SDM 4. Move the machine worktable to x = -60.000, y = 45.000. Then proess $\boxed{X_0}$ $\boxed{Y_0}$.




## 5.2 Preset datum of SDM coordinate

There are the same sample as Method 1. First Move the worktable to place the TOOL exactly at the origin of ABS, secondly Enter the ABS Mode as follow.

**Steps:**

1、Move worktable to place the TOOL at the center of the workpiece point O as the datum of ABS. Then zero X axis and Y axis in SDM 1 ; Zero X axis and Y axis in SDM 2 ; Zero X axis and Y axis in SDM 3 ; Zero X axis and Y axis in SDM 4。

2、Set point sdm1 as the datum of SDM 1. Press ▲ ▼, then the message window display "SDM 1" . Input x = 60.000, y = 45.000.


3、Set point sdm1 as the datum of SDM 2. Press ▲ ▼, then the message window display "SDM 2" . Input x = -60.000, y = 45.000.


4、Set point sdm1 as the datum of SDM 3. Press ▲ ▼, then the message window display "SDM 3" . Input x = -60.000, y = -45.000.

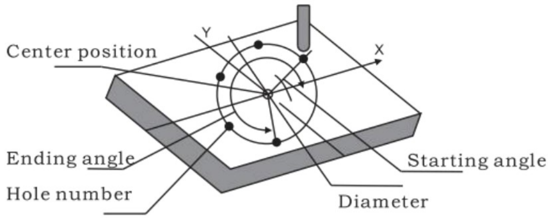

5、Set point sdm1 as the datum of SDM 4. Press ▲ ▼, then the message window display "SDM 4" . Input x = -60.000, y = 45.000.

# 6. Sonderfunktion

## 6.1 Circumference Holes Processing

The Function of PCD Hole positioning on Circumference is used to distribute arc equally, such as boring hole on flange. The right window will show the parameter to be defined when selecting PCD Function. The Parameters to be defined are:

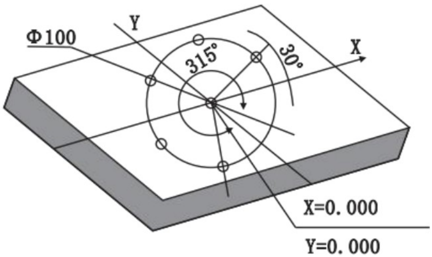
| | |
|---|---|
| PCD_XY(XZ,YZ) | Select place |
| CENTER | Center position |
| DIA | Diameter of circle |
| NO_HOLE | Hole number |
| ST ANG | Starting angle |
| ED ANG | Ending angle |




The postion of the hole center are calculated automatically after input all parameters. Press ▲ or ▼ to choose the hole No. and move the machine table until the "0.000" appears in X window , Y window, Z window. It is the position to process a table.

Example for the XY place: Machine hole on circumference as the figure

| | |
|---|---|
| PCD_XY(XZ,YZ) | XY |
| CENTER | X=0,000,Y=0.000 |
| DIA | 100,000 |
| NO_HOLE | 5 |
| ST ANG | 30,000 |
| ED ANG | 315,000 |



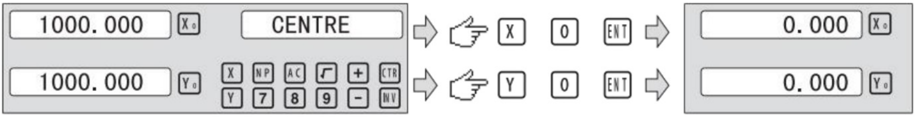

Steps:

1. Set display unit to metric in normal state; Move the machine table until the machine TOOL is aligned with the center of the ciecle , then zero X axis ,Y axis.
2. Select plece.

Press  , then the message window display "PCD_XY" to the Circumference Holes Processing. Press ▲ or ▼ to select XY place.

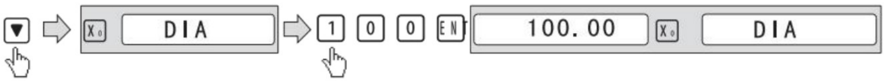
2. Input center position.

Press ENT , then the message window display "CENTER" . X and Y window displays the formerly preset center position. Input X = 0, Y = 0 as follow.



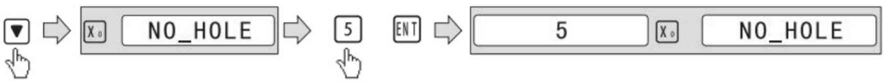

4. Input diameter.

Press ▼ until "DIA" appears in the message window. X window despalys the formerly preset diameter. Then input the diameter is 100.000.



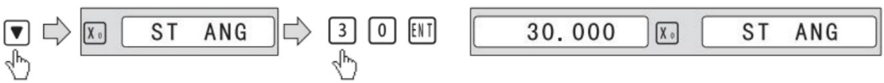

5. Input number.

Press ▼ until "NO_HOLE" appears in the message window. X window despalys the formerly preset number. Then press 5 in turn to input number.



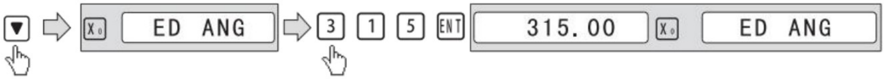

6. Input starting angle.

Press ▼ until "ST ANG" appears in the message window. X window despalys the formerly preset the starting angle. Then press 3 0 in turn to input the starting angle.



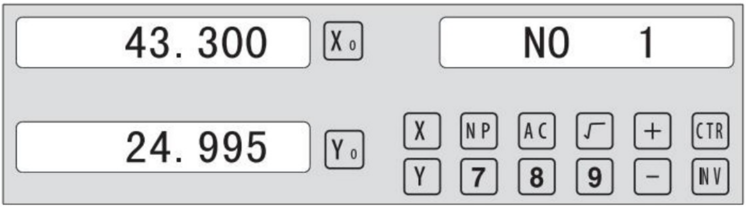

7. Input ending angle.

Press ▼ until "ED ANG" appears in the message window. X window dispalys the formerly preset the ending angle.. Then press 3 1 5 in turn to input the ending angle.




8. Press ▼ until "NO 1" appears in the message window.

It is the position of the first hole to punch where the "0.000" is displayed in X window and Y window by moving the machine table. After finishing the first hole, press ▼ or ▲ to change holes number.

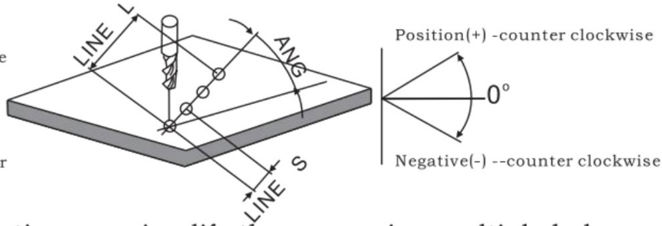



9. After processing all holes, press  to return normal display.

## 6.2 Linear Holes Processing

There are two modes to carry out the linear drilling: Length mode and Step mode.

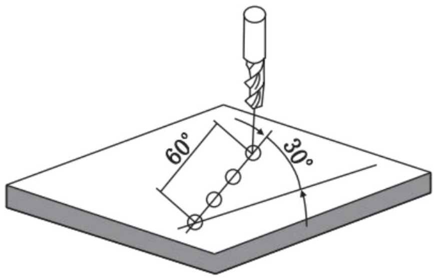
| | |
|---|---|
| 1.LINE S | Step mode |
| LINE L | Length mode |
| 2.STEP | Step length |
| LENGTH | Line length |
| 3. ANG | Angle |
| 4. NO.HOLE | Hole number |




Linear Holes function can simplify the processing multiple holes whose centers are attributed equally on one line.

Example：

| | |
|---|---|
| LINE_L | Length mode |
| LENGTH | 60.000 |
| ANG | 30.000 |
| NO.HOLE | 4 |




Steps :

1. Select plece.

Press , then the message window display “LINE_XY” to the Linear Holes Processing. Press or to select XY place.

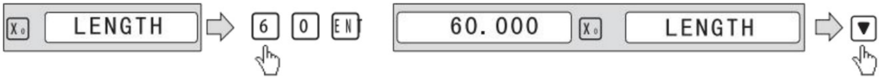

2. Select Linear Holes mode.

Press , then the message window display “LINE_S” . Press or to select “LINE_L” .


3. Input linear length;

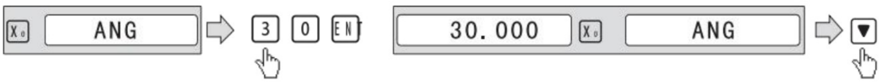
Press , then the message window display “LENGTH” .

X window despalys the formerly preset the linear length. Press [6] [0] in turn to input the linear length.




4. Input angle;

Message window displays "ANG" which indicates the step is to angle. X window despalys the formerly preset the angle. Press [3] [0] in turn to input the angle.

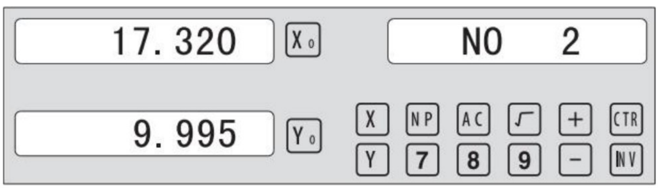



5. Input number;

Message window displays "ANG" which indicates the step is to angle. X window despalys the formerly preset the number. Press [4] in turn to input the number.


6. Press [▼] until "NO 1" appears in the message window.

It is the position of the first hole to punch where the "0.000" is displayed in X window and Y window by moving the machine table. After finishing the first hole, press [▲] or [▼] to change holes number.

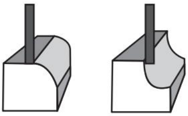



7. After processing all holes, press [ ] to return normal display.

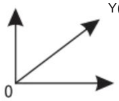
## 6.3 ARC-Verarbeitung

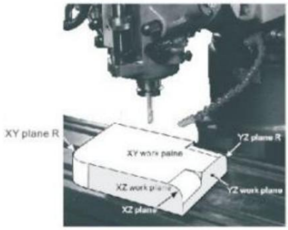
Für die ARC-Funktion stehen ZWEI Funktionen zur Verfügung: die einfache ARC Funktion und die glatte R-Funktion · drücken Sie dann pr css  um die ARC-Funktion aufzurufen,  oder  zur Auswahl der Smooth ARC-Funktion oder der einfachen ARC-Funktion.

Bei der Installation werden normalerweise die Koordinaten der Maschine und der Richtung von X, Y , Z sind wie folgt. Die Arbeitsebene wird als rechte Abbildung.



(RAD+TL) (RAD+TL )




einfache ARC-Funktion:

wenn die Glätte nicht sehr hoch gefordert ist, der SIMPLE ARC Die Funktion wird normalerweise für die Bearbeitung von Bögen verwendet. In der Funktion SIMPLE Es gibt nur acht Arten von ARC, die zur Bearbeitung verwendet werden. Der Bediener Wählen Sie den Typ R und geben Sie die Parameter für den Radius des Bogens ein , MAX CUT und äußerer Qrc oder innerer Bogen. Im Allgemeinen kann ein Bogen bearbeitet durch einen ebenen Schlitz T OOL Oder arc TOOL, der Unterschied zwischen in verschiedenen Arbeitsebenen, wie im Folgenden gezeigt ·

1 , EINFACH — einfache Verarbeitung Modus des ARC.

2 , TYP 1 - 8

3、SEL_XY(XZ,YZ) — Ort auswählen

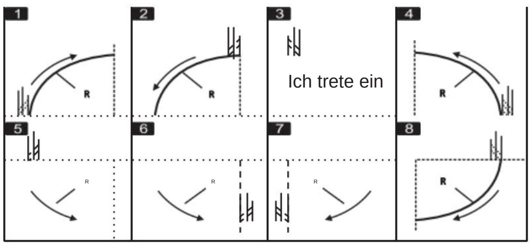
4 , RAD — Bogenradius

5ÿ TL IHN — Werkzeugdurchmesser

6. MAXIMALER SCHNITT — Vorschubschritt

7ÿ RAD TL _ — Außenbogen und innerer Bogen

(nur für Ort xy)



Smooth ARC function :

Provides maximum flexibility in ARC machining, the ARC sector to be machined by the coordinates of ARC. Very flexible, ARC function can machine virtually all kinds of ARC, ever the intersected ARC. Relatively a bit complicated to operate, operator need to calculate and enter the coordinates of ARC centre, start angle and end angle.

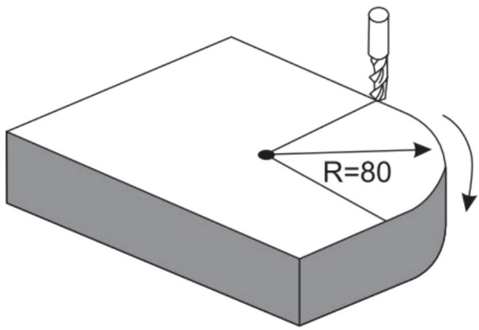
Basic parameter as follow:

| | |
|---|---|
| 1. SMOOTH | Mode of the Smooth ARC processing; |
| 2. SEL_XY(YZ, XZ) | Select place; |
| 3. CENTER | Refer to the position of an center. |
| 4. RAD | Radius of the ARC |
| 5. TL_DIA | Diameter of the TOOL |
| 6. MAX_CUT | Feed step |
| 7. ST_ANG | Starting angle |
| 8. ED_ANG | Ending angle |
| 9. RAD+TL | Outer arc. |
| RAD-TL | Inner arc. |

**Example 1 for the Simple ARC Processing:**

Parameters settings as follow:

| | |
|---|---|
| SIMPLE | Simple mode |
| TYPE | 3 |
| SEL_XY | XY |
| RAD | 80.000 |
| TL_DIA | 6.000 |
| MAX_CUT | 0.500 |
| RAD+TL | 1 |



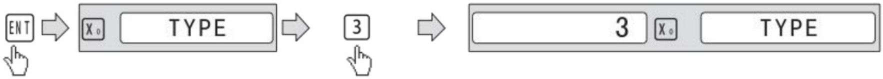

Steps:

1. Select process mode

Press [key], then the message window display “SIMPLE” to the ARC Processing. Press ▲ or ▼ to select mode of the simple, The message window display “SIMPLE”

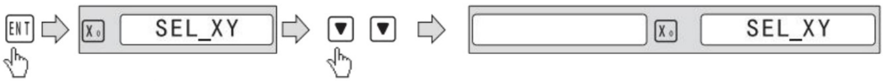

2. Input the type:

Press ENT until "TYPE" appears in the message window. X-window despalys the formerly preset the type. Press 3 in turn




3. Select place

Press ENT until "SEL_XY" appears in the message window. Press ▲ or ▼ to select place to display "SEL_XY" ;




4. Input radius:

Press ENT until "RAD" appears in the message window. X window despalys the formerly preset the radius of ARC. Press 8 0 in turn to input the radius.;


5. Input Diameter of the TOOL

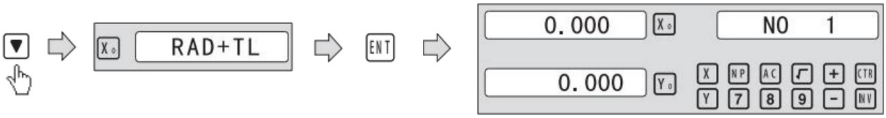
Press ▲ or ▼ until "TL DIA" appears in the message window. X window despalys the formerly preset the Diameter of the TOOL. Press 6 in turn to input the Diameter value;


6. Input Feed step (MAX_CUT);

Press ▲ or ▼ until "MAX_CUT" appears in the message window. X window despalys the formerly preset the MAX_CUT. Press 0 · 5 in turn to input the MAX_CUT value;

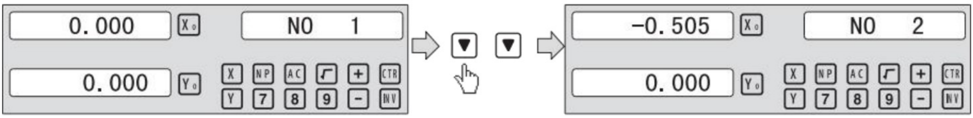
7. Select outer arc or inner arc

Press ▲ or ▼ until "RAD-TL" appears in the message window. Press ▲ or ▼ to select place to display "RAD+TL" ;




8. After inputting all parameters, press the key ENT for machining.

The DRO will display the position of the first point. Retract the axes until the displays read 0.000, Machine the Arc point by point in accordance with the display. After finishing the position of the first point, press ▲ or ▼ to change position point.

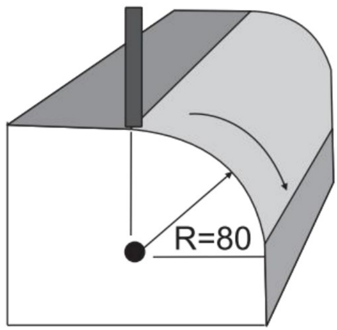



Press to quit R function any time.

**Example 2 for the Simple ARC Processing:**

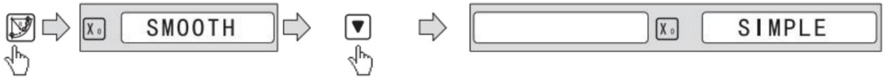
Parameters settings as follow:

| | |
|---|---|
| SIMPLE | Simple mode |
| TYPE | 3 |
| SEL_XY | XZ |
| RAD | 80.000 |
| TL_DIA | 6.000 |
| MAX_CUT | 0.500 |



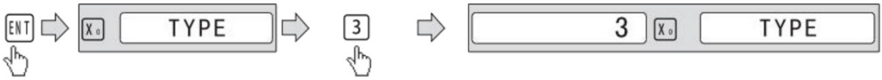

Steps:

1. Press , then the message window display "SIMPLE" to the ARC Processing. Press ▲ or ▼ to select mode of the simple, The message window display "SIMPLE"



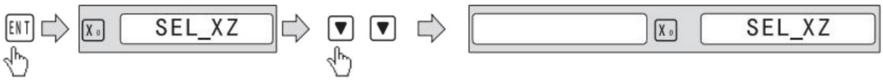

2. Input the type:

Press ENT until "TYPE" appears in the message window. X-window despalys the formerly preset the type. Press 3 in turn




3. Select place

Press ENT until "SEL_XZ" appears in the message window. Press ▲ or ▼ to select place to display "SEL_XZ" ;




4. Input radius:

Press ENT until "RAD" appears in the message window. X window despalys the formerly preset the radius of ARC. Press 8 0 in turn to input the radius.;


5. Input Diameter of the TOOL

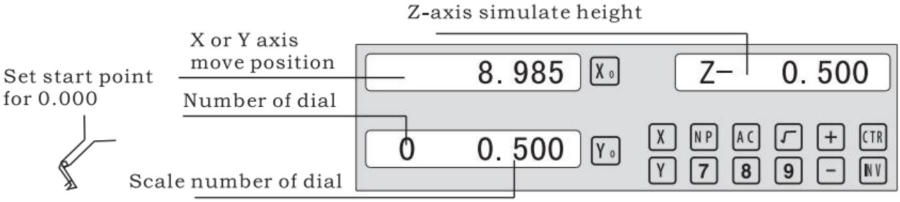
Press ▲ or ▼ until "TL DIA" appears in the message window. X window despalys the formerly preset the Diameter of the TOOL. Press 6 in turn to input the Diameter value;


6. Input Feed step (MAX_CUT);

Press ▲ or ▼ until "MAX_CUT" appears in the message window. X window despalys the formerly preset the MAX_CUT. Press 0 · 5 in turn to input the MAX_CUT value;

7. After inputting all parameters, press the key [ENT] for machining.

For 2-axis milling machine table , It is not installed with Z-axis, please press [▲] or [▼] to simulate position of Z-axis. Press [▲] simulate moving to the former process, and press [▼] simulate moving to the next process point.



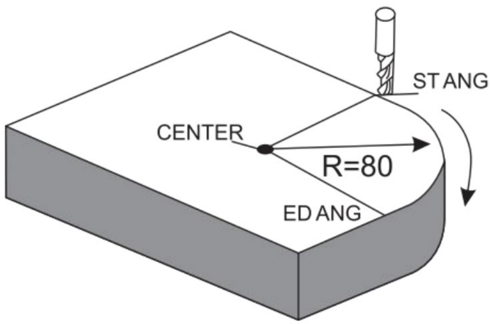

Z-axis simulate height = Number of dial x Z axis Dial + Scale number of dial

Press to quit R function any time.

**Example 3 for the Smooth ARC function**:

Parameters settings as follow:

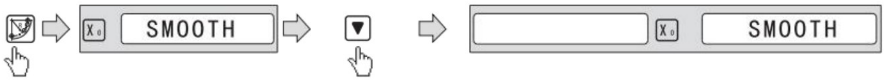
| | |
|---|---|
| SMOOTH | Smooth mode |
| SEL_XY(YZ,XZ) | XY |
| CENTER | X=0,Y=0 |
| RAD | 80.000 |
| TL_DIA | 6.000 |
| MAX_CUT | 0.500 |
| ST_ANG | 0.000 |
| ED_ANG | 135.000 |
| RAD+TL | 1 |




Steps:

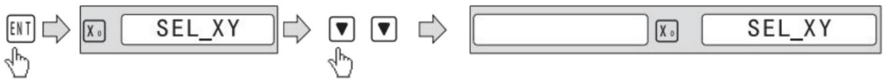
1. Press , then the message window display “SIMPLE” to the ARC Processing. Press [▲] or [▼] to select mode of the simple, The

message window display "SMOOTH" ; For 3-axis milling machine table without this step. In second step. Then press [ENT] .



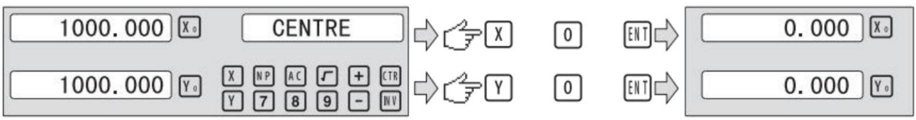

2. Select place

Message window display "SEL_XY" which indicates the select is to place. Press [▲] or [▼] to select place to display "SEL_XY" ;




3. Input center position.

Press [ENT] , then the message window display "CENTRE" . X and Y window displays the formerly preset center position. Input X = 0, Y = 0 as follow.




4. Input radius:

Press [ENT] until "RAD" appears in the message window. X window despalys the formerly preset the radius of ARC. Press [8] [0] in turn to input the radius.;


5. Input Diameter of the TOOL

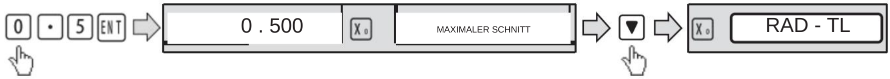
Press [▲] or [▼] until "TL DIA" appears in the message window. X window despalys the formerly preset the Diameter of the TOOL. Press [6] in turn to input the Diameter value;

6. Vorschubschritt eingeben (MAX_CUT);

drücken ▲ oder ▼ bis UMAX CUT App Autos" in der Nachricht

Fenster. X Fenster de spa lys die zuvor voreingestellte MAX_CUT. drücken

0 · 5 um wiederum den MAX CUT-Wert einzugeben;

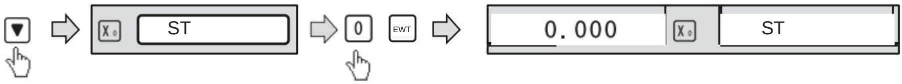



7. Startwinkel eingeben ·

drücken ▼ bis USTANG" im Meldungsfenster erscheint.x

Fenster de spa lys die zuvor voreingestellten Startwinkel · Dann drücken Sie

0 wiederum zur Eingabe des Startwinkels-




8 . Endwinkel eingeben ·

drücken ▼ bis „UED ANG“ im Meldungsfenster erscheint. X

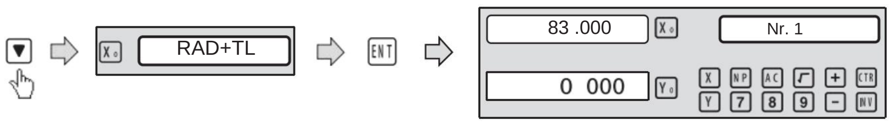
Fenster zeigt d den zuvor voreingestellten Endwinkel an. Drücken Sie dann 1

3 5 um wiederum den Endwinkel einzugeben·


9. Wählen Sie den äußeren oder inneren Bogen

Drücken ▲ oder ▼ bis "RAD-TL" in der Meldung erscheint

Sie window.press ▲ oder ▼ um den Ort für die Anzeige von „RAD+TL“ auszuwählen;




10. Nach Eingabe aller Parameter, machining.

Die DRO zeigt die Position des ersten Punktes an. Ziehen Sie den

Achsen bis die Anzeigen 0 . 000 anzeigen, Bearbeiten Sie den Bogen Punkt für Punkt in entsprechend der Anzeige. Nach Abschluss der Position des ersten

Punkt, drücken ▲ oder ▼ um den Positionspunkt zu ändern.


Press  to quit ARC function any time.

6. 4 Schrägbearbeitung

Für die Bearbeitung schräger Stellen stehen zwei Möglichkeiten zur Verfügung:

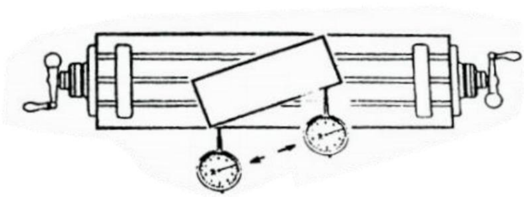
A). an der Stelle. b). an der Stelle yz oder Xz;

es müssen lediglich folgende Parameter eingegeben werden:

| | |
|---|---|
| INKL. Xy(xz,yz) | Maschinenort xy,yz,0rxz festlegen · |
| DER | Der Neigungswinkel der Schräge· |
| DORT | Der WERKZEUG-Durchmesser · |
| ST POT | Startposition; |
| ED KANN | Ende der Veröffentlichung; |

Beispiel 1 für die schräge xy-Position:

wenn die Bearbeitungsebene auf der xy-Ebene liegt, wie das in Abbildung: Der Neigungswinkel des Werkstücks sollte kalibriert werden bevor die schräge Ebene bearbeitet wird. Daher , an diesem Punkt die Die Bearbeitung der schrägen Ebene dient der Kalibrierung der Schiefe ·



Verfahren zur Kalibrierung der Schiefe

Platzieren Sie zunächst das Werkstück im gewünschten Winkel auf dem Arbeitstisch. der Schrägheit ·

1) Geben Sie die Funktion der schrägen Ebene ein. 2) Wählen Sie die Funktion der XY-Ebene.

3) Geben Sie den Neigungswinkel ein·

4) Bewegen Sie den Arbeitstisch, bis das Messwerkzeug (z. B. eine Messuhr) Wenn die auf der Fräsmaschine installierte Ebene die Neigungskalibrierungsebene berührt, wird sie auf Null gestellt und der Arbeitstisch wird um eine beliebige Distanz in der Richtung der x-Achse.

5) Verschieben Sie den Arbeitstisch in der Entfernung dery-Achse bis die Anzeige wird auf Null.

6) Change the angle of the work piece to make the workpiece touch the measuring tool and adjust it to zero.

STEPS:

1. Select place

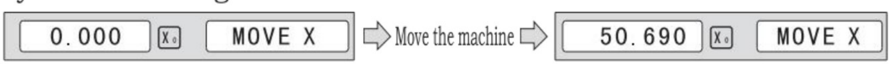
Press [SN/M1] , then the message window display "INCL_XY" to the Oblique Processing. Press [▲] or [▼] to select place to display "SEL_XY;

Then press [ENT] to in next step;

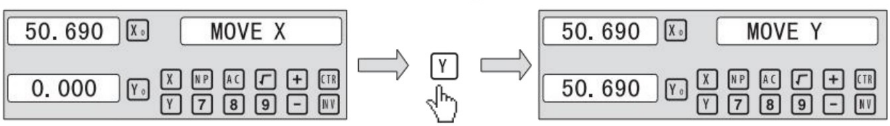

2. Input the angle of obliquity

The message window display "ANG" , X window dispalys the formerly preset the angle of obliquity. Press [4] [5] in turn to input the angle of obliquity .


3. Move the workpiece along the X-Axis until the measuring tool touches the workpiece adjust it to zero, and move the worktable for any distance along the X-Axis.




4. Press [Y], display the value of Y-Axis. Move the workpiece along the Y-Axis, change the angle of workpiece to make the obliquity-calibrating plane touch the measuring tool until it turns to zero. Move the worktable until Y-Axis is displayed as zero.




5. Press [SN/M1] to quit oblique function any time.

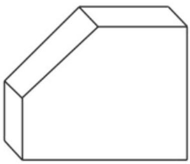
**Example 2 for the oblique XZ or YZ place**:

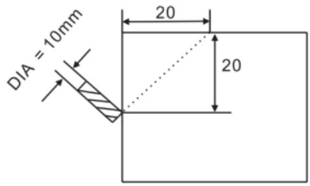
When the machining plane is on plane XZ or YZ, the function of TOOL inclination can instruct the operator to machine the oblique plane step by step.

Procedures for using the function of cutter inclination:

When the machining plane is on plane XZ or YZ, first please calibrate the obliquity of the primary spindle nose and set the TOOL:

| | |
|---|---|
| INCL_XY(XZ,YZ) | INCL_XZ |
| DIA | 10.000 |
| ST_POT | 20.000 |
| ED_POT | 20.000 |






STEPS:

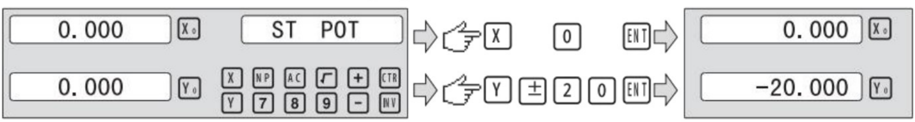
1. Press SN/M1, then the message window display "INCL_XY" to the oblique Processing. Press ▲ or ▼ to select place to display "SEL_XZ; Then press ENT to in next step;


2. Input The TOOL Diameter

The message window display "DIA" , X window dispalys the formerly preset the angle of obliquity. Press 1 0 in turn to input the TOOL Diameter of obliquity . OK, then press ▼ to in next step;

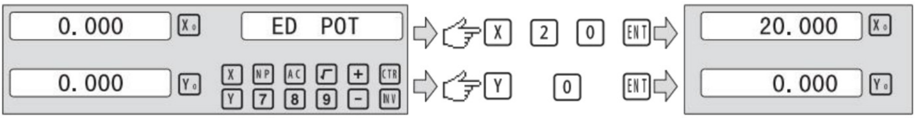

3. Input ST_POT;

The message window display "ST_POT" , X and Y window dispalys the formerly preset the stating position of obliquity. Input X= 0, Y = -20.000. OK, then press ▼ to in next step;



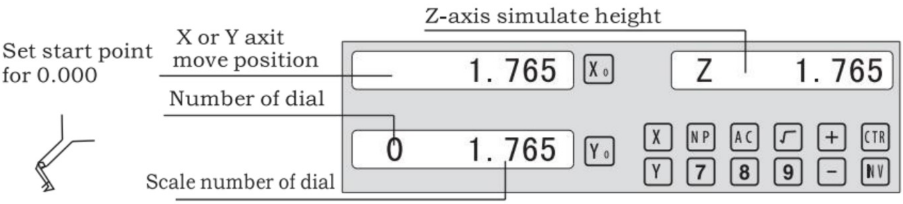
4. Input ED_POT;

The message window display "ED_POT" , X and Y window dispalys the formerly preset the stating position of obliquity. Input X= 20.000, Y = 0.000 .




5. After input all parameter, press the key ▼ for machining.

For 2-axis milling machine table , It is not installed with Z-axis, please press ▲ or ▼ to simulate position of Z-axis. Press ▲ simulate moving to the former process, and press ▼ simulate moving to the next process point.



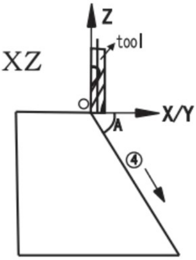

Z-axis simulate height = Number of dial x Z axis Dial + Scale number of dial

Press SN/N1 to quit **oblique** function any time.

## 6.5 Slope Processing

This function can calculate the position of everynprocessing point automatically in processing slope. Only the following parameters need to be inputted:

| | |
|---|---|
| XZ, YZ | Set machine place YZ, or XZ |
| ANG | The inclination angle |
| Z_STEP | The slope length each time processing |




**Example 1 for the Slope XZ place**;

Step 1. Select place

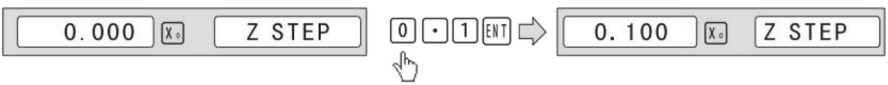
Press [TAN/M3] , then the message window display "XZ" to the slope Processing. Press [▲] or [▼] to select place to display "SEL_XY; Then press [ENT] to in next step;


Step 2. Input the angle of slope

The message window display "ANG" , X window dispalys the formerly preset the angle of slope. Press [4] [5] in turn.


Step 3. Input Z_step;

The message window display "Z STEP" , X window dispalys the formerly preset the stating position of slope. Input [0] [·] [1] in turn.

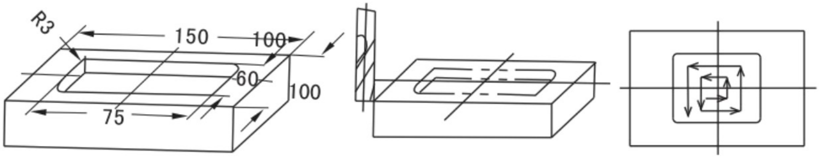



Step 4:Finishing the ALL processing . Press [TAN/M3] to quit slope function any time.

## 6.6 Chambering Processing

1,FLAT_XY: machine place; 2, DIA:diameter of TOOL; 3, CENTER: center of the chambering ; 4, SIZE: size of the chambering ;

Figure as follow:

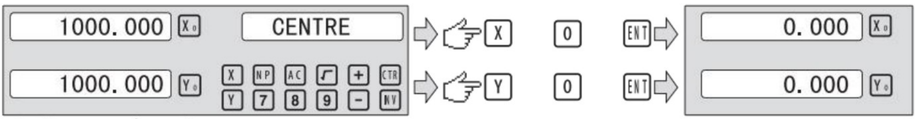



STEPS:

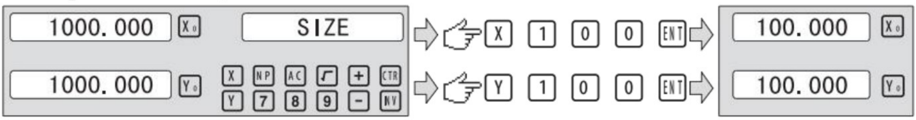
1. Press COS/N2 , then the message window display "FLAT_XY" to the Chambering Processing.


2. Inpur DIA of the TOOL;


3. Input the center coordinate;




4. Input the size;




5. process Chambering;

Move the machine until the display of the axis is zero,ie, the position of the first point. Machine the first point . Display the next machining point by pressing ▲ or ▼ .On the completion of machining, the right window shows OVER. Press ▲ or ▼ , the system will goto the first position for the next workpiece. Press COS/N2 to quit the Chambering Function.

## 6.7 The Tool Diameter Compensation Function

Without TOOL compensation, the operator has to move the TOOL for an additional distance of the diameter of the TOOL along each side when machining the four 150 and 100 sides of a workpiece to finish machining the whole brim. The digital readouts shall automatically compensate when the TOOL compensation function is enable.

Note: the TOOL compensation is made in the direction of X and Yaxis.

Procedures:

1) . Enter the function of compensating the diameter of the TOOL.
2) . Select one of the (four) preset machining modes.
3). Input the diameter of the TOOL.
4) . Enter machining.

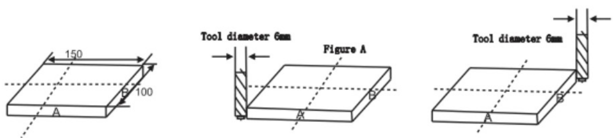
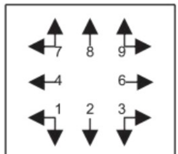



Figure A Figure B Figure C

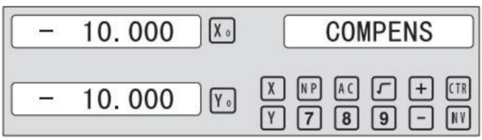



9 processing modes

Step1: press [TAN/M3] to enter the TOOL compensation Function. then the message window display "TYPE" .Press [9] .


Step 2: input the diameter of the TOOL; Press [1] [0] in turn..


Step 3: Press [▼] to the machining Mode.




Machining of 2 side planes can be done by moving the TOOL until X-Axis is 150.000 and Y-Axis is 100.000.Press the Key [TAN/M3] to quit the Function.

## 6.8 Digital Filter of the Grinding Machine

When machine a work-piece by grinder, the display values quickly due to the vibration of grinder. User can not see display value clearly. Grinder DRO provides display value filter function to disable the quake change of display value.

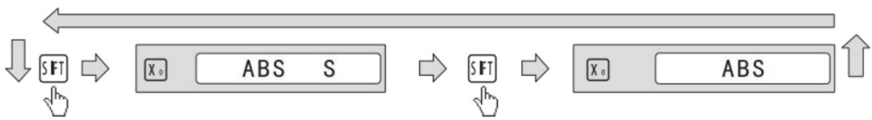
STEPS:

1. Enter display value filter function.

In normal display state, press SIFT to simultaneously, enter display value filter function.

2. Exit display value filter function;

Press SIFT , exit display value filter function;



## 6 . 9 La die Funktion

### 6.9.1 200 Sätze TOOL-Bibliotheken

Es werden immer unterschiedliche WERKZEUGE für die Bearbeitung unterschiedlicher Teile benötigt. komfortable Bedienung, die La die Digitalanzeigen hat die Funktion der 200 Sätze TOOL-Bibliotheken ·

Hinweis: Nur wenn die Maschine mit dem Werkzeug-Einstellblock ausgestattet ist, können die 200 , Sätze Werkzeugbibliotheken verwendet werden.

1. Setzen Sie ein Bezugswerkzeug. Nach der Werkzeugeinstellung, Nullung der X- und Z-Achse, Nullpunkt der absoluten Koordinate setzen ·

2. Bestimmen Sie anhand der Größe von TOOL l und datumTOOL die Position von TOOL relativ zum Nullpunkt der absoluten Koordinate und des Bezugswerkzeugs · AS Abbildung 6-1. Die relative Größe von TOOL 2 ist AS folgt der x-Achse 25-30=- 5 , Z-Achse 20-10=10 ·

3. Speichern Sie die Werkzeugnummer und die Größe in der Digitalanzeige ·

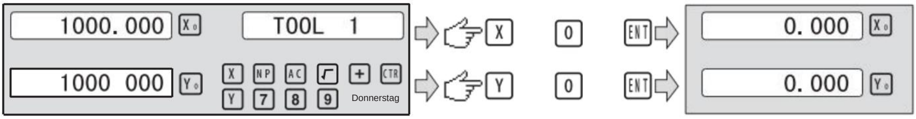
4. Die Anzahl der WERKZEUGE kann beliebig eingegeben werden, die digitalen Anzeigen zeigt die Position des Werkzeugs zur absoluten Koordinate Null an · Bewegen Sie bis sowohl die X-Achse als auch die Z-Achse Null anzeigen · 5. TOOL Libs können 200 Werkzeugdatensätze speichern.

6. Die TOOL Libs müssen im Eröffnungszustand verwendet werden. Die 200 Sätze Rooi Libs können durch kontinuierliches Drücken geöffnet werden ± zehnmal bis im rechten Fenster TL - OPEN blinkt und eine Markierung "21" angezeigt wird links vom rechten Informationsfenster. Die Markierung zeigt die Der Bediener kann die 200 TOOL-Bibliotheken kontinuierlich einrichten oder überarbeiten. Drücken der Taste ± Zehnmaliges Ausführen führt dazu, dass die 200sets TOOL Libs geschlossen und im rechten Fenster blinkt TL - CLOSE und die Markierung verschwinden · wenn die Markierung "21" verschwindet, können die 200 Sätze TOOL Libs nicht überarbeitet werden·

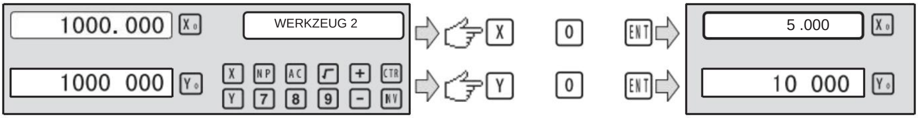
Die Vorgänge für TOOL-Daten und das Aufrufen von TOOL werden wie folgt angezeigt: · Schritt 1: Geben Sie im ABS-Zustand die Daten der 200 TOOL-Bibliothekssätze ein.

Öffnen der 200 Sätze TOOL Libs durch anhaltendes Drücken der Taste ± Zehnmal erscheint die Markierung "" im linken Fenster des rechten Infofenster.

Schritt 2: Drücken Sie TOOL um auf den Eingabestatus zuzugreifen. Daten von Raum 1 eingeben:




Schritt 3: TOOL 2 Daten eingeben:




Schritt 4: Drücken Sie , um mit der Eingabe der Daten des nächsten Werkzeugs fortzufahren.

## Nummer und Schlüsselỷ kann der Bediener direkt die Sonderfunktion eingeben

Werkzeugdaten.Presse TOOL Berührungen

Nach dem Einrichten der TOOL-Bibliotheken · verwenden Sie die TOOL-Bibliotheken gemäß den

Bei den folgenden Arbeitsgängen montieren Sie zuerst das zweite Werkzeug ·

Schritt 5: Zugriff auf den Nutzungsstatus über PR CSS CALL .Dann pr css 2 EN T ·


Schritt G: Drücken Sie ▲ oder ▼ · Wählen Sie die Basisrolle. Drücken Sie dann 1 UND T .


;

Schritt 7: Drücken Sie CALL um die Funktion zu beenden;

Notiz:

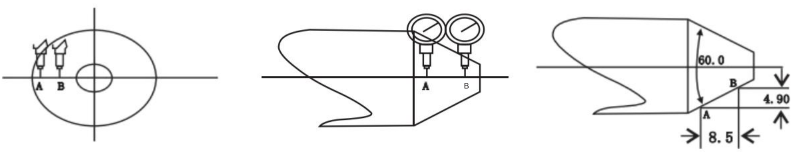
wenn das Basiswerkzeug verwendet wird , die Achse kann im ABS-Zustand nicht auf Null gesetzt werden ·

wenn die anderen verwendet werden , Die Achse kann nur im Zustand INC auf Null gesetzt werden ·

### 6 . 9 . 2 Taper-Funktion

Beim Drehen des Werkstücks mit Kegel kann der Kegel des Werkstücks

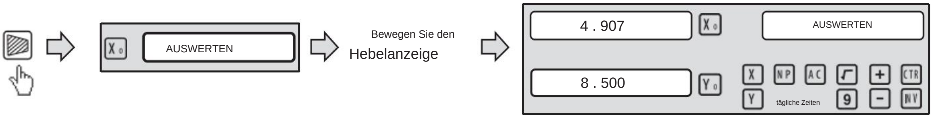
in der Verarbeitung gemessen werden;



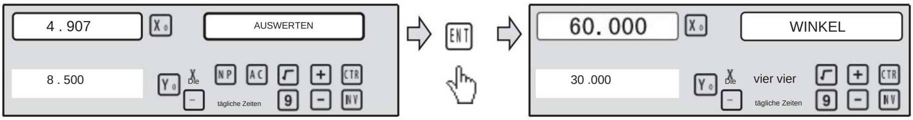
## Operations :

AS-Abbildung, Kontaktfläche A des Werkstücks mit Hebelanzeigen und setzt den Zeiger der Hebelanzeige auf Null zurück ·

Schritt 1: Drücken Sie dann die Meldungsanzeige UMEASU" auf die Papierverarbeitung · Bewegen Sie den Hebel zur Oberfläche B, bis der Hebelanzeigen zeigen auf AS wie folgt;




Schritt 2: Drücken Sie T zum Berechnen.




Schritt 3: Drücken Sie um die Funktion zu beenden;

### 6 . 9 . 3 R/D-Funktion

Für 2 xes Drehmaschine und 3 Achsen Drehmaschine, Presse , Der Anzeigemodus ofx-Achse wird zwischen Radius und Durchmesser umgeschaltet. wenn x-Achse für Anzeige von Durchmesser, A markieren Sie " erscheint links von rechts u Informationsfenster, aber wenn X-Achse für die Anzeige von ia Meter , die Marke " " verschwinden · nur die x-Achse hat die Funktion des Durchmessers / Radius transformation.

### 6 . 9 . 4 Y + Z Funktion ( gilt nur für : 3 Achsen La the)

Für 3 Achsen La der Zähler der y-Achse und der Zähler der z-Achse Kann durch Drücken der Taste zur Anzeige in der Z-Achse hinzugefügt werden , dann die Taste C drücken und die y + Z Funktion abbrechen ·

## 6.10 EDM (spezielle Anpassungsfunktion, wenn Sie kaufen müssen, bitte kontaktieren Sie den Händler zur Anpassung)

1 ÿ Beschreibung: Diese Funktion dient zur Spezialbearbeitung von Elektroerosive Bearbeitung (EDM). Wenn der eingestellte Zielwert von EDM Z-Achse ist gleich dem aktuellen Wert, die digitale Anzeige gibt den Schaltsignal zur Steuerung des EDM, um die Tiefenbearbeitung zu stoppen.

Die Einstellung der Z-Achsenrichtung auf der Digitalanzeige ist in Abb. 1 dargestellt. , d. h. je tiefer die Tiefe ist, desto größer ist der Koordinatenwert der Z-Achse zeigt · seit Beginn der Bearbeitung wird die Tiefe allmählich größer und Z-Achse.

Die Bearbeitungsrichtung ist je nach eingestellter Z-Achsenrichtung unterteilt in positive und negative Bearbeitung · wenn die Elektrode senkt sich und die Bearbeitung erfolgt von oben nach unten, die digitale Der Anzeigewert erhöht sich, was als positive Bearbeitung (positiv) bezeichnet wird. Die Einstellung dieser Richtung ist die normale Einstellung·

wenn die Elektrode ASCEnds und die Bearbeitung durchgeführt wird von unten nach oben wird der digitale Anzeigewert kleiner · Der Die Bearbeitungsrichtung ist die negative Richtung (negativ), die auch als Negativbearbeitung (siehe Abb. 1)

Die Digitalanzeige bietet außerdem weitere Funktionen , so negativ Feuerfeste Höhe. Negative Feuerfeste Höhe Funktion ist eine Art von intelligente Position Follow Check Sicherheitsschutzeinrichtung. Dabei der Bearbeitung, die Elektrodenoberfläche erzeugt den Kohlenstoff Ansammlungsphänomen. Aufgrund der langen Zeit oder der täglichen Bearbeitung ohne Pflege, bei der Erzeugung der Kohlenstoffansammlung und niemand macht die Reinigung, die Elektrode wird langsam entlang der negative Richtung · sobald die Elektrode den Flüssigkeitspegel überschreitet, wird sie fangen häufig Feuer und verursachen Verluste. Diese Funktion ist nur darauf ausgerichtet, bei diesem Problem. bei der Einstellung einer negativen Feuerschutzhöhe und der Die erhöhte Höhe der Elektrode übersteigt die Höhe zwischen ihr und der Tiefe der bearbeiteten Oberfläche (d. h. negative feuerfeste Höhe), die digitale Die Anzeige blinkt für WQring; gleichzeitig wird die Ausgabe Signal schaltet EDM automatisch ab, um die Brandgefahr auszuschließen ·

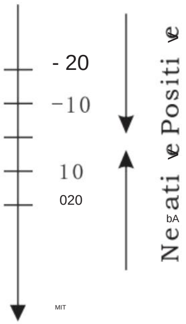



Abbildung 1

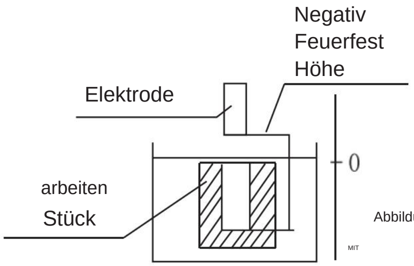



Abbildung 2

2. Vorgehensweise:

Eine detaillierte Bearbeitung finden Sie im folgenden Beispiel

1) Vor der Bearbeitung stellen Sie zunächst jeden Parameter von DEPTH ein (Bearbeitungstiefe);ERRHIGH(negative feuerfeste Höhe), Bearbeitung Richtung (POSITIV / NEGATIV); Modus verlassen (AUTO/STOP) und EDM Relaisausgangsmodus · 2)

Bewegen Sie die Hauptachsenelektrode der Z-Achse, so dass sie den Werkstückreferenz · A-Achse auf Null setzen bzw. Wert setzen ·

3) Geben Sie EDM-Bearbeitung ein, indem Sie den Schlüssel pr css verwenden EDM .

4) Auf der X-Achse wird der Zielwert für die Bearbeitungstiefe angezeigt. Auf der Y-Achse Anzeigewert war Tiefe. (Der Wert auf der Y-Achse ist der Wert, dass das Werkstück bearbeitet wurde Tiefe) Z-Achse wird Anzeige des Echtzeitwertes der Eigenposition. (Der Wert auf der Z-Achse ist der Positionswert der Hauptachsenelektrode der Z-Achse.)

5) starten bearbeitung, Z-achse display wert ist allmählich in der nähe der Zielwert, undy-Achsen-Anzeigewert ist auch allmählich in der Nähe der Zielwert. Wenn zu diesem Zeitpunkt die Elektrode wiederholt auf und ab bewegt wird, ändert sich der Anzeigewert auf der Z-Achse anschließend, aber der Anzeigewert auf der Y-Achse Wert ändert sich nicht, es wird immer die bearbeitete Tiefe angezeigt value.

6) Wenn der Anzeigewert der Z-Achse dem eingestellten Zielwert entspricht, Position erreicht Schalter wird ausgeschaltet, EDM wird die Bearbeitung stoppen, Je nach Einstellung des Betreibers gibt es zwei Arten von Beendigungsmodi:

a) Automatic Mode:

it will automatically exit from EDM machining status and recover to the original state before machining;

b) Stop Mode:

It will always stay at the machining interface after finishing machining, and you should press [EDM] to exit and back to the original state.

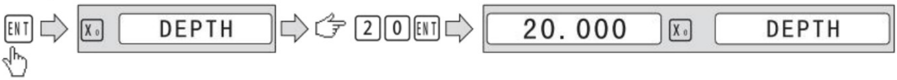
**Operation steps:**

**The DEPTH (machining Depth), ERRHIGH (Negative fireproof height), exit Mode, EDM Relay Output Mode and machining direction should be set.**

STEPS:

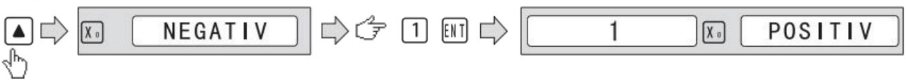
1. Press [EDM] to enter the EDM Function. Press [▲] to input parameters;Press [▼] to enter EDM machining state.

2. Input DEPTH ( machining depth). Press the key [▲] to set the next parameter.




3. input ERRHIGH ( Negative Fireproof Height ) (undefine) .Press the key [▲] to set the next parameter.


4. Set machining direction(Positive or Negative). Press [1] to select Positive direction. Press [0] to select Negative direction. Press the key [▲] to set the next parameter.



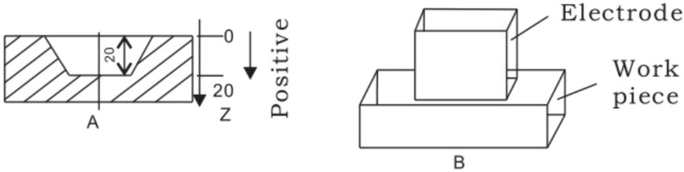
5. Set exit Mode (AUTO Mode or STOP Mode) Press [0] to select AUTO Mode; Press [1] to select STOP Mode ; Press the key [▲] to set the next parameter.


6. Set the Output Mode (Mode 0 or Mode 1); ( undefine ). Press [0] to select Mode 0; Press [1] to select Mode 1.


7. Continuously press [▼] to return EDM for machining. press [EDM] to quit the function;

**Example 1: positive direction machining ;**

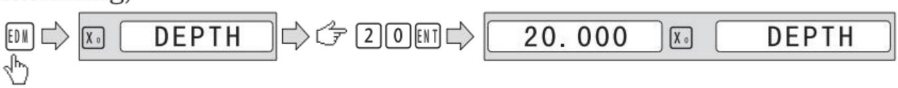
Machining is shown as the model chamber as follows



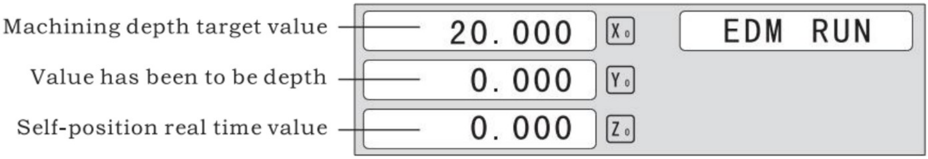

STEPS:

1、Touch one side of the workpiece with the TOOL,then press [Z0] , zero the Z axis。


2、Press [EDM], Setting DEPTH for 20.000; press [▼] to EDM for machining;

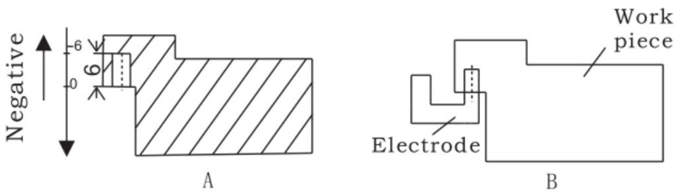



3、Starting machining。




**Example 2: Negative direction machining**

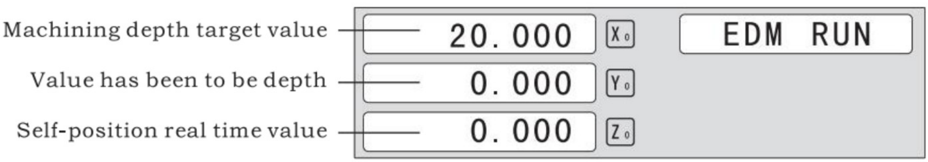
Machining is shown as the model chamber as follows




1、Touch one side of the workpiece with the TOOL,then press Z0 , zero the Z axis。


2、Press EDM , Setting DEPTH for -20.000; press ▼ to EDM for machining;


3、Starting machining。




**Example 3:** PCD Function for EDM

PCD Function can access the EDM Function . The operator enters PCD Function to input parameters for PCD and enter PCD machining state. At every position for machining, press the key EDM to access the EDM Function .

Beim Aufrufen der EDM-Funktion kann der Bediener die Parameter eingeben für Funkenerosion ·

Der Betriebsablauf ist wie folgt:

1) PCD-Parameter einstellen (die Einstellung ist die gleiche wie die allgemeine Einstellung von PCD)

Nach Eingabe aller Parameter und Aufruf des PCD-Bearbeitungsstatus · Die Position des ersten Lochs wird angezeigt.

2) Drücken EDM um den EDM-Funktionsparameter einzugeben (die Einstellungsmethode ist Sie die gleiche Taste wie bei der allgemeinen Einstellung des EDM-Parameters); nach Eingabe aller

Parameter, gedrückt halten, wenn die ▼ um in den EDM-Bearbeitungszustand zu Bearbeitung abgeschlossen ist, drücken, um EDM wechseln. um die EDM-Funktion zu beenden und den PCD-Bearbeitungsstatus einzugeben ·

3) Im PCD-Bearbeitungszustand drücken Sie ▼ für die Position des nächsten Lochs, OVE die Maschine auf den Anzeigewert 0 , dann pr css EDM Zugang

EDM-Funktion erneut · 4)

Wiederholen Sie Schritt 2 und Schritt 3 für die folgenden Bearbeitungspunkte.

# 7 Taschenrechner

Der Rechner bietet nicht nur normale mathematische Berechnungen wie +, - , x , /, es bietet auch trigonometrische Berechnungen wie AS SÜNDE , Arc SIN , COS , Bogen-COS , BRÄUNEN , Arc TAN SQRT usw.

Die Bedienung ist dieselbe wie bei handelsüblichen Taschenrechnern und einfach zu bedienen.

## Rechnerfunktion aufrufen und beenden

Im normalen Anzeigezustand: Drücken Sie R, um die Rechnerfunktion aufzurufen.

im Rechneranzeigezustand: Drücken Sie R, um die Rechnerfunktion zu verlassen.

Die Rechnerergebnisse werden für die ausgewählten Werte übertragen.

Wenn die Berechnung abgeschlossen ist und der Anzeigemodus des Rechners auf Modus 1 , Der Benutzer kann:

Das X0 um das berechnete Ergebnis auf die x-Achse zu übertragen; dann wird die x-Pressefenster zeigt diesen Wert an.

drücken Y0 um das berechnete Ergebnis auf die Achse zu übertragen; dann Das Fenster zeigt diesen Wert an.

Das Z0 um das berechnete Ergebnis auf die Z-Achse zu übertragen; dann wird die Z-Achse Pressefenster zeigt diesen Wert an.

## Übertragen des aktuellen Anzeigewertes im Fenster zum Rechner.

wenn der Rechner Anzeigemodus auf Modus 1 eingestellt ist , Der Benutzer kann:

drücken X um den Anzeigewert im X-Fenster an den Rechner zu übertragen;

drücken Y um den Anzeigewert im Y-Fenster zu übertragen, um r zu berechnen;

drücken Z um den Anzeigewert im Z-Fenster an den Rechner zu übertragen;

# 8 Appendix

## 1. Troubleshooting:

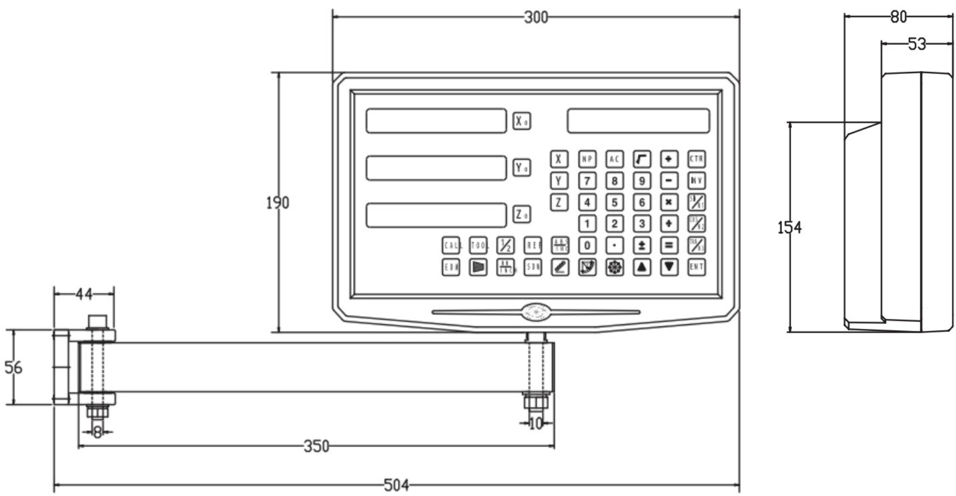
The following are the preliminary solvents for troubleshooting.

If there is still trouble, Please contact out company or agents for help.

| Troubles | Possible reasons | Solvents |
|---|---|---|
| No display | 1. Power isn't connected<br>2. Power switch is off.<br>3. The range of power voltage is not right.<br>4. The inner power of Linear Scale is short. | 1. Check power wire and connect the power<br>2. Turn on the power switch.<br>3. The range of voltage is in 80--260V<br>4. Unplug the connector of linear scale |
| One axis is not counting | 1. Replace the linear scale of the other axis.<br>2. DRO is in special function | 1. If count is normal, the linear scale has trouble; If abnormal, the DRO readouts has trouble.<br>2. Quit the special function. |
| Linear scale is not counting | 1. Reading head is bad for using range exceeds.<br>2. Aluminum chips is in reading head of linear scale.<br>3. The span between the reading head and metal part of linear scale is large.<br>4. The metal parts of linear scale is damage. | 1.Repair the linear scale<br>2. Repair the linear scale<br>3. Repair the linear scale<br>4. Repair the linear scale |
| Counting is error | 1. Shell is poor grounding.<br>2. Low precision of machine.<br>3. Speed of machine is too rapid.<br>4. Precision of linear scale is low.<br>5. The resolution of DRO readouts and the linear scale is not match.<br>6. The unit (mm/inch) is not match.<br>7. Setting thelinear compensating is not arrest.<br>8. Reading head of the linear scale is damaged. | 1. Shell is good grounding.<br>2. Repair the machine.<br>3. Reduce the speed of machine.<br>4. Mount the linear scale again.<br>5. Set the resolution of the DRO again,<br>6. Cover the unit of display mm/inch.<br>7. Reset the linear compensation.<br>8. Repair the linear scale. |
| The counting of the linear scale is not accurate | 1. The mounting of linear scale does not demand the requirement, and the prcision is not adequate.<br>2. The screw is loosen.<br>3. Precision of machine is low.<br>4. The resolution of digital readouts and the linear scale is not match. | 1. Mount the linear scale again and level it.<br>2. Lock all fixing screws.<br>3. Repair the machine.<br>4. Reset the resolution of digital readouts. |
| Sometimes the linear scale is not counting | 1. The small car and steel ball is separated.<br>2. The glass of reading head is wearied.<br>3. The glass of reading head of the linear scale has dirt.<br>4. The elasticity of the steel wire is not adequate. | 1. Repair the linear scale.<br>2. Repair the linear scale.<br>3. Repair the linear scale.<br>4. Repair the linear scale. |

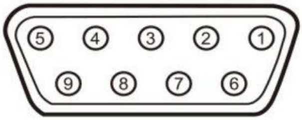
2. Specifications of Digital Readout.
   1) Supply Voltage range: AC 85 V ~ 230 V; 50 ~ 60 Hz
   2) Power consumption: 15VA
   3) Operating temperature: 0℃-- 50℃
   4) Storage temperature: - 30℃-- 70℃
   5) Relative humidity: < 90 % ( 25 )
   6) Max Coordinate number: 3
   7) Readout allowable input signal: TTL square wave
   8) Allowable input signal frequency: < 5 M Hz
   9) Max resolution of digital display length: 0.01 um
   10)Max resolution of digital display angle: 0.0001 / PULSE

3. Instructions



# 4. Examples of character output at the data interface

## 1、X,Y,Z Axis

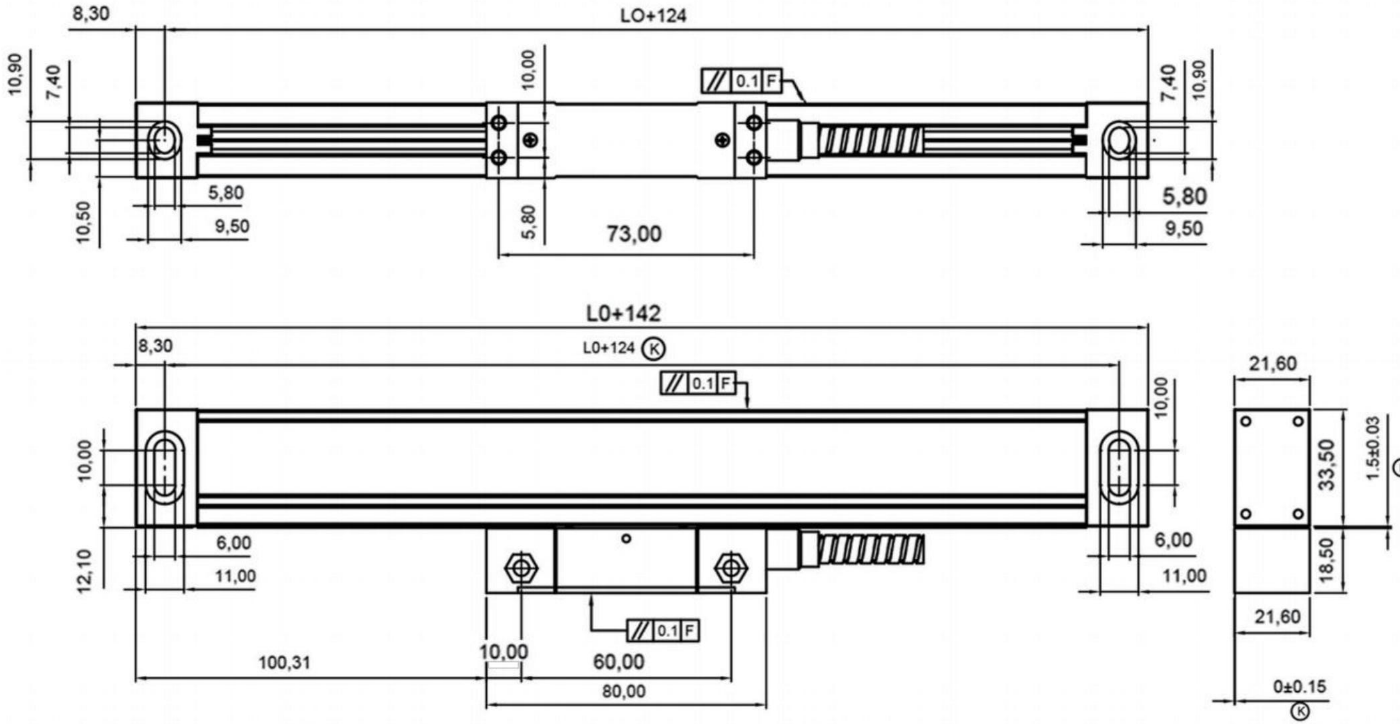



| Pin | TTL (Standard) |
|---|---|
| 1 | |
| 2 | OV |
| 3 | |
| 4 | |
| 5 | |
| 6 | A+ |
| 7 | 5V |
| 8 | B+ |
| 9 | R+ |

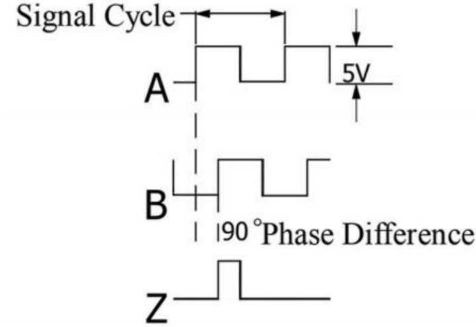
| Pin | TTL (Standard) |
|---|---|
| 1 | 5V |
| 2 | OV |
| 3 | A+ |
| 4 | B+ |
| 5 | R+ |
| 6 | |
| 7 | |
| 8 | |
| 9 | |

For your convenience,
If you buy a digital readout,

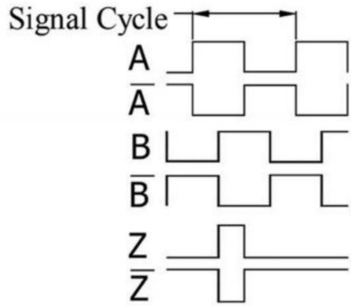
The wiring definition of your linear scale must be the same as the 2 definitions in the above diagram to be universal!


8,30
LO+124
10,90
7,40
10,00
0.1 F
5,80
10,50
9,50
5,80
73,00
7,40
10,90
5,80
9,50
L0+142
8,30
L0+124 K
0.1 F
10,00
10,00
6,00
12,10
11,00
6,00
11,00
0.1 F
100,31
10,00
60,00
80,00
21,60
33,50
1.5±0.03 K
18,50
21,60
0±0.15 K

TTL signal Output:




EIA-422-A signal Output:




1. TECHNICAL PARAMETER

1.1 SCALING DISTANCE: 0.02 MM (50LINES /MM)

1.2 RESOLUTION: 5μM、 1μM、 0.5μM

1.3 PRECISION: ±3μM、 ±5μM、 ±15μM/M (20±0.1℃)

1.4 MEASURING RANGE: 30~3000MM

1.5 MOVING SPEED: HIGH-SPEED ENCODER 120 M/MIN (TO BE CUSTOMIZED)

ORDINARY ENCODER 60M/MIN

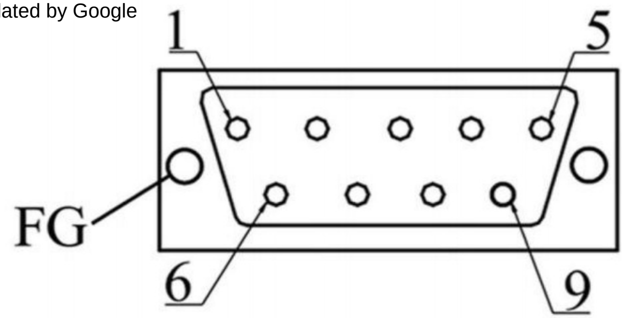
1.6 POWER SUPPLY: +5V±5%、 80MA

1.7 CABLE LENGTH: STANDARD 3M (SPECIAL LENGTH AVAILABLE ACCORDING TO THE USER'S NEEDS)☒

1.8 WORKING TEMPERATURE: 0~45℃

1.9 PIN DESCRIPTION:

1) APPLICABLE TO: 9 PIN SOCKET EIA-422-A SIGNAL OUTPUT.




1) Applicable to: 9 pin socket EIA-422-A signal Output.

| Pin Position | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| Signal | $\overline{A}$ | OV | $\overline{B}$ | Empty | $\overline{Z}$ | $A$ | +5V | $B$ | $Z$ |
| Color | Green Black | Black | Orange black | FG | White black | Green | Red | White | Orange |

FG: Shield connected to metal casing.

1) Applicable to: 9 pin socket TTL signal Output.

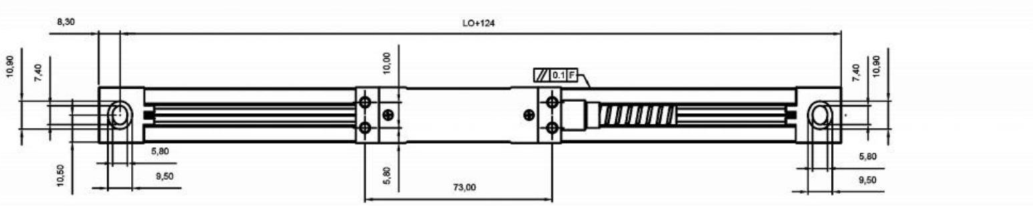
| Pin Position | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| Signal | | OV | | Empty | | $A$ | +5V | $B$ | $Z$ |
| Color | | Black | | FG | | Green | Red | Orange | White |

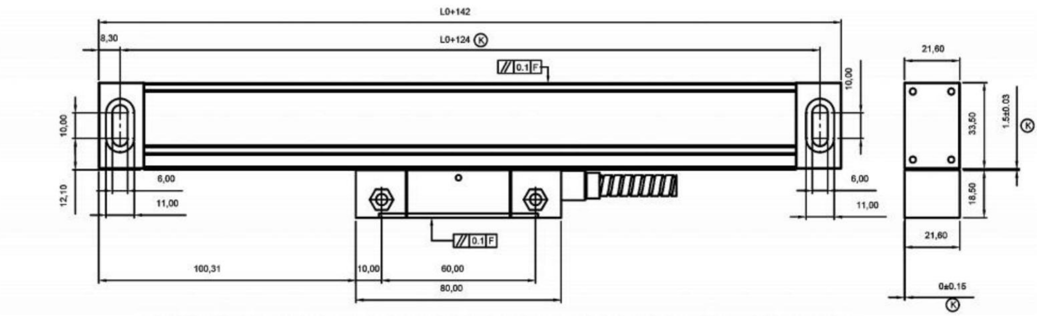
FG: Shield connected to metal casing.

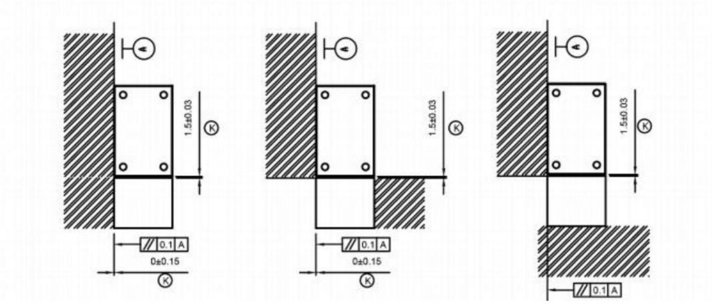
# Lineare Skala

## Einbauzeichnungen

# Installationsmethode:



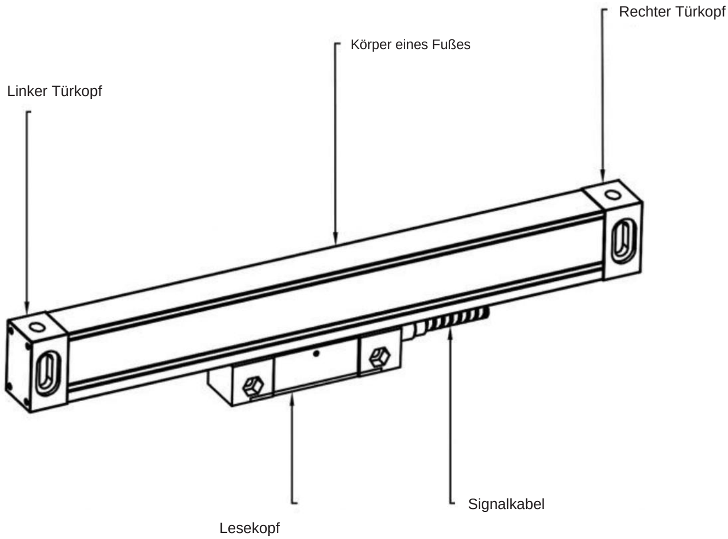

## Standardgröße: (Einheit: mm)

| Modell | ES | L1 | L2 | Modell | L0 | L1 | L2 |
|---|---|---|---|---|---|---|---|
| YE-50 | 50 | 174 | 190 | YE-550 550 | | 674 | 690 |
| YE-100 | 100 | 224 | 240 | YE-600 | 600 | 724 | 740 |
| YE-150 | 150 | 274 | 290 | YE-650 650 | | 774 | 790 |
| YE-200 200 | | 324 | 340 | YE-700 700 | | 824 | 840 |
| YE-250 250 | | 374 | 390 | YE-750 | 750 | 874 | 890 |
| YE-300 300 | | 424 | 440 | YE-800 | 800 | 924 | 940 |
| YE-350 350 | | 474 | 490 | YE-850 850 | | 974 | 990 |
| YE-400 400 | | 524 | 540 | YE-900 | 900 | 1024 | 1040 |
| YE-450 450 | | 574 | 590 | YE-950 950 | | 1074 | 1090 |
| YE-500 500 | | 624 | 640 | YE-1000 1000 | | 1124 | 1140 |

L0: Effektive Messlänge des Linearencoders; L1: Länge des Linearencoders Befestigungslöcher; L2: Gesamtlänge des Linearencoders

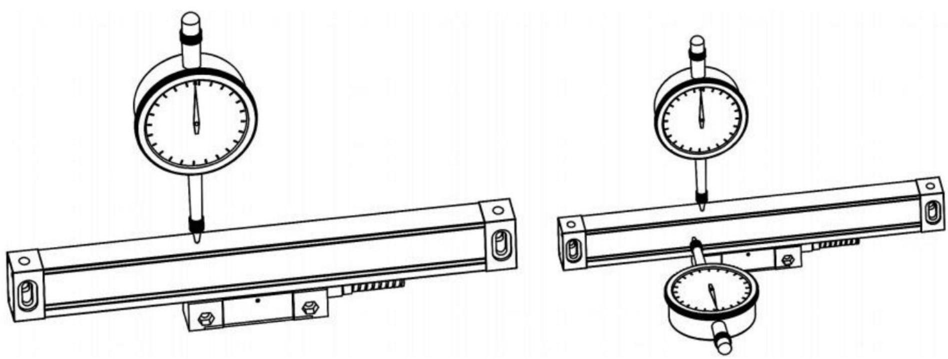
# Wartung:

1. Der effektive Weg des Linearencoders sollte länger sein als der maximale Verfahrweg der Werkzeugmaschine. Wenn die Länge nicht ausreicht, ersetzen Sie den Lineargeber durch einen mit größerem Hub oder fügen Sie einen Begrenzungsblock an den Maschinen hinzu. Die Endposition des Lesekopfs vom Ende des Lineargeberkörpers sollte mindestens 10 mm Abstand betragen (siehe folgendes Diagramm).

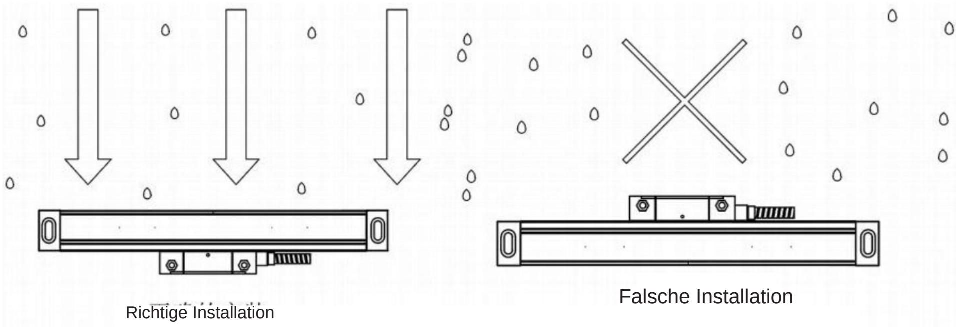



2. Bei jeder nicht bearbeiteten Oberfläche muss auf der Rückseite des Linearencoders eine Unterlegscheibe platziert oder eine benutzerdefinierte Installationsunterlegscheibe verwendet werden, um die Stabilität und Zuverlässigkeit der Verbindung zwischen dem Gitterlineal und der Montagefläche sicherzustellen

3. Wenn Sie zum Kalibrieren der Parallelität des Linearencoders eine Messuhr oder ein ähnliches Instrument verwenden, muss der Winkel des Seitenkopfes innerhalb von ±30 Grad liegen. Je kleiner der Winkel, desto besser.

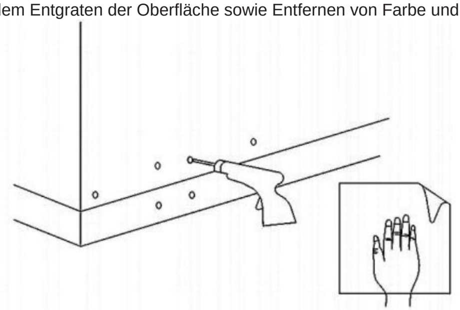


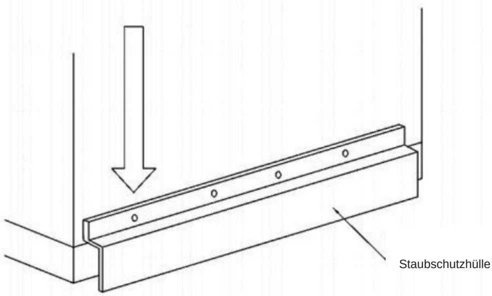
4. Die Einbaulage des Linearencoders muss direkte Stöße durch Eisen vermeiden Späne, Öl, Wasser und Staub (siehe Abbildung unten). Die Einbaulänge der L-Platte sollte unter Umständen so kurz wie möglich sein und die Kräfteverhältnisse des Anschraubgrundes müssen berücksichtigt werden.




5. Zwischen der Staubschutzhülle und dem Lineal muss ein Abstand von 0,5 mm oder mehr vorhanden sein Körper, und vermeiden Sie den Kontakt zwischen der Staubschutzhülle und dem Linealkörper, wenn Bewegen des Lesekopfes (siehe unten).

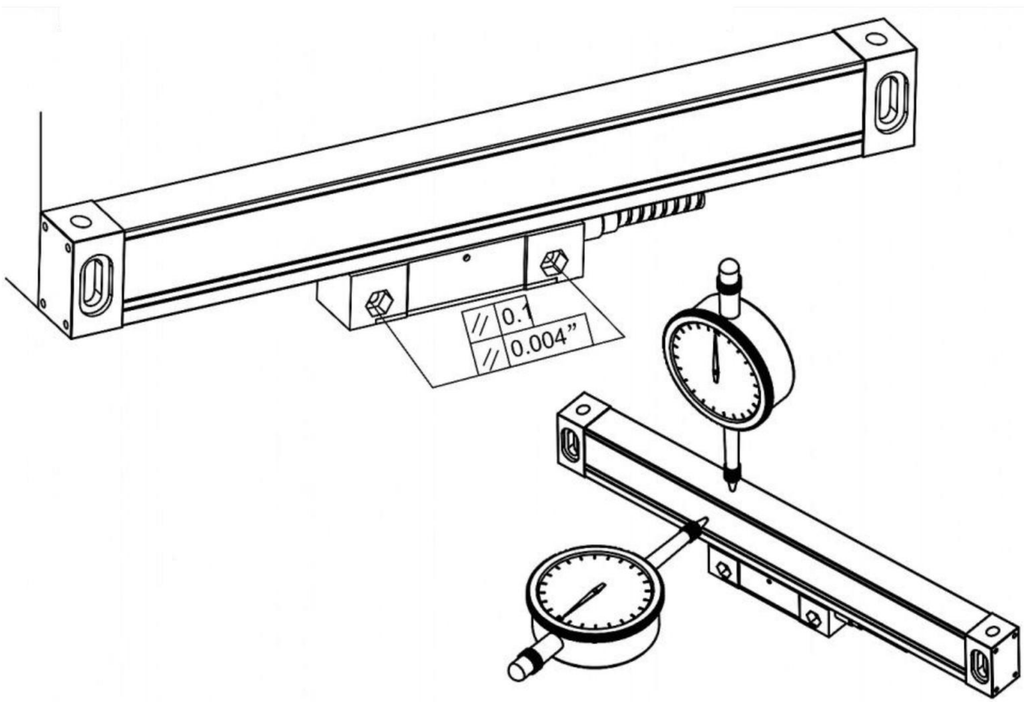
6. Die Gewindetiefe der Installationsschraube muss mindestens 6 Zähne betragen. Kraft größer Teil, wie die Unterstützung der Digitalanzeige Meter Regal feste Platte, muss 8 Zähne der Verriegelungstiefe haben; YE Serie von Skala, die Tiefe des Gewindes Tiefe der Verriegelungstiefe. Wie die Unterstützung der Digitalanzeige Meter Regal fixiert Platte, muss mehr als 8 Zähne Verriegelungstiefe haben; YE Serie Skala Mit M4 Schrauben Gewindeschneiden der installierten Montagefläche nach dem Entgraten der Oberfläche sowie Entfernen von Farbe und Flecken. (Die folgende Abbildung)



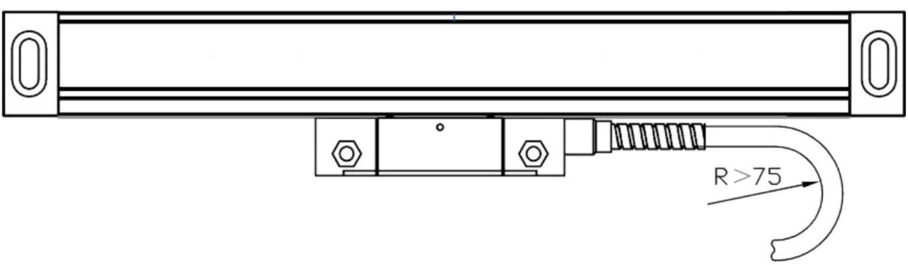


7. Bei der Befestigung der Signalleitung müssen alle relevanten Bewegungsdistanzen berücksichtigt werden. Die Befestigungsstelle wird möglichst in der Mitte des Hubes platziert und die überschüssige Signalleitung mit einem Kabelbinder fixiert.

8. Die Höheneinstellung der Skala muss so erfolgen, dass die Länge der Skalenmitte die Symmetriepunkte auf beiden Seiten erreicht. Stellen Sie den Referenzpunkt ein. Bei jeder Skala gilt unabhängig von der Höhen- oder Höhenrichtung der Einstellbereich: Für den Skalenkörper gilt ein Abstand von nicht mehr als 20 mm von jedem Ende zum Skalenkopf. Für den Lesekopf gilt zwischen den beiden viereckigen Referenzflächen (siehe folgende Abbildung).




9. Der Biegeradius der Signalleitung der Skala ist größer als 60 mm.



10.Standard für die Installation von Waagen

(1) Standard-Installationsgrundfläche (Abbildung 4.8abc, drei Installationsmethoden)

1.Die Installationsfläche des Linealkörpers ist parallel zur Installationsfläche des Lesekopfes und die Parallelität zwischen den Installationsflächen beträgt <0,1 mm

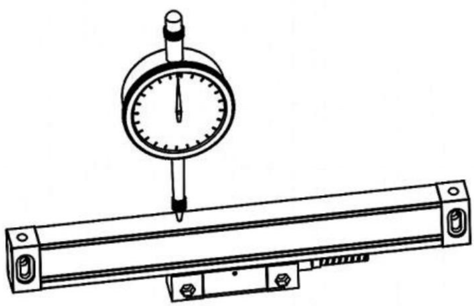
2.Die Installationsfläche des Linealkörpers ist senkrecht zur Installation Oberfläche des Lesekopfes und die Rechtwinkligkeit zwischen den Montageflächen beträgt <0,1 mm

2) Standards für die Installation des Linealkörpers (Abbildung 4.9, Abbildung 4.10)

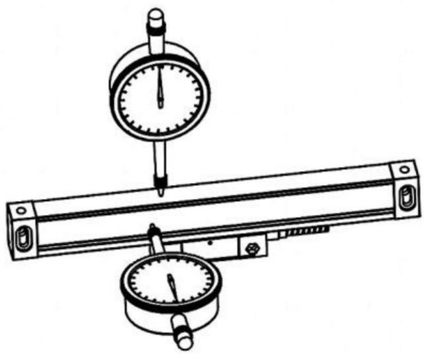
1. Höhenrichtung relativ zur Maschinenführung Parallelität <0,1 mm, maximal nicht mehr als 0,15 mm. In Bezug auf den Symmetriepunkt gilt: je kleiner, desto besser.

3) Standard für die Installation des Lesekopfes

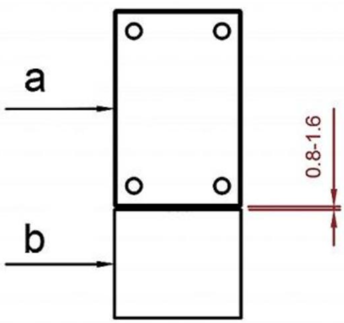
1. Der Abstand zwischen dem Lesekopf und der Höhenrichtung des Linealkörpers beträgt nach der Installation 0,8–1,6 mm. Ziehen Sie anschließend den Polsterblock heraus (Abbildung 4.11).



4.9



4.10




2. Lesekopf Seite A und Linealkörper Seite B. Fehlausrichtung in horizontaler Richtung.

0,25 ± 0,15 mm

3. Parallelität des Lesekopfes zur

Werkzeugmaschine <0,10 mm, maximal darf 0,30 mm nicht überschritten werden

## Parameter:

| Modle | SNS-3V-YE102024 | SNS-3V-YE161838 |
|---|---|---|
| Rated voltage: | AC85-230V 50Hz/60Hz | |
| Resolution | 5 μm | |
| Number of axles | 3 | |
| Range | 10 inches<br>20 inches<br>24 inches | 16 inches<br>18 inches<br>38 inches |

## Standardzubehör:

| Accessories for digital display meters: | Accessories for grating ruler: |
|---|---|
| 1. Support rod * 1 | 1. Ruler cover * 3 |
| 2. Knife holder plate * 1 | 2. L mounting plate * 4 |
| 3. Transparent watch case * 1 | 3. Plug * 6 |
| 4. Power cord * 1 | 4. Screw pack * 3 bags |
| 5. Watch holder * 1 | Each bag contains: |
| 6. Butterfly piece * 2 | Internal hexagonal screw M4 * 30 * 4; |
| 7. M8 * 70 screw * 1 | Internal hexagonal screw M4 * 12 * 2; |
| 8. M10 * 55 screw * 1 | Internal hexagonal screw M4 * 8 * 4; |
| 9. Nut M10 * 1 | U-shaped gasket T=0.2mm * 2; |
| 10. Nut M8 * 1 | Washer φ 6 * 2; |
| 11. Nut M5 * 1 | Washer φ 5 * 2; |
| 12. Internal hexagonal screw M5 * 20 * 2 | Washer φ 4 * 6; |
| 13. Internal hexagonal screw M5 * 25 * 1 | Line card * 2 |
| 14. M4 * hex socket screw * 4 | |
| 15. M5 * 10 machine meter screws * 2 | |
| 16. Washer φ 10 * 1 | |
| 17. Washer φ 8 * 1 | |
| 18. Washer φ 5 * 1 | |
| 19. Rubber washer 20 * 10 * 1 * 1 | |
| 20. Rubber washer 20 * 10 * 0.5 * 1 | |
| 21. Spring washer φ 10 * 1 | |
| 22. Spring washer φ 8 * 1 | |
| 23. Spring washer φ 5 * 1 | |

**Dieses Gerät entspricht Teil 15 der FCC-Bestimmungen. Der Betrieb unterliegt den folgenden beiden Bedingungen: (1) Dieses Gerät darf keine schädlichen Störungen verursachen und (2) dieses Gerät muss alle empfangenen Störungen akzeptieren, einschließlich Störungen, die einen unerwünschten Betrieb verursachen können.**

**Hersteller:** Shanghaimuxinmuyeyouxiangongsi

**Adresse:** Shuangchenglu 803nong11hao1602A-1609shi, baoshanqu,
Shanghai 200000 CN.

**Nach AUS importiert:** SIHAO PTY LTD, 1 ROKEVA STREETEASTWOOD NSW 2122 Australien

**Importiert in die USA:** Sanven Technology Ltd., Suite 250, 9166 Anaheim Place, Rancho Cucamonga, CA 91730

**Vertreter der EG**

E-CrossStu GmbH

Mainzer Landstr.69, 60329 Frankfurt am Main.

**UK REP**

YH CONSULTING LIMITED.

C/O YH Consulting Limited Office 147, Centurion House, London Road, Staines-upon-Thames, Surrey, TW18 4AX

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# MANUALE D'USO DEL DISPLAY DRO

MODELLO: SNS-3V-YE102024 È NS-3V-YE161838

continuiamo a impegnarci per fornirvi strumenti a prezzi competitivi.
"salva la metà" , "Metà prezzo" o qualsiasi altra espressione simile da noi utilizzata rappresenta solo un stima del risparmio che potresti ottenere acquistando determinati strumenti con noi rispetto ai principali marchi top e non significa necessariamente coprire tutte le categorie di strumenti da noi offerti.
ti ricordiamo cortesemente di verificare attentamente quando effettui un ordine con noi se sei risparmiando effettivamente la metà rispetto ai marchi più importanti.

VEVOR®
TOUGH TOOLS, HALF PRICE

# DISPLAY DRO

MODELLO: SNS-3V-YE102024 SNS-3V-YE161838

HAI BISOGNO DI AIUTO? CONTATTACI!

Hai domande sul prodotto? Hai bisogno di supporto tecnico? Non esitare a contattarci contattaci:

Supporto tecnico e certificato di garanzia elettronica
Www.vevor.com/support

Questa è l'istruzione originale, si prega di leggere tutte le istruzioni del manuale attentamente prima di operare. VEVOR si riserva una chiara interpretazione del nostro manuale utente. L'aspetto del prodotto sarà soggetto alla prodotto ricevuto. Ti preghiamo di scusarci se non ti informeremo più se ci saranno aggiornamenti tecnologici o software sul nostro prodotto.

Cari utenti:

Grazie per aver acquistato i display digitali multifunzione della serie ·

Le letture digitali sono utilizzate in un'ampia gamma di applicazioni. Tra queste: macchine utensili , negli assi di alimentazione, apparecchiature di misurazione e controllo, EDM e stazioni apparecchi di divisione, utensili di regolazione , di misurazione per controllo della produzione. Per soddisfare i requisiti di questi applicazioni, molti encoder possono essere collegati ai display digitali.
Leggere attentamente tutte le istruzioni nel manuale prima dell'uso e seguirli rigorosamente · conservare il manuale per riferimenti futuri ·

attenzione alla sicurezza:

⌘ PER prevenire scosse elettriche o incendi, umidità o spruzzi diretti liquido di raffreddamento deve essere evitato. In caso di fumo o particolari odore dal display digitale, si prega di scollegare la spina di alimentazione immediatamente, altrimenti potrebbero verificarsi incendi o scosse elettriche. in tal caso, non tentare di ripararlo, contattare l'azienda o distributors.

⌘ Il display digitale è un dispositivo di misurazione preciso utilizzato con un'ottica Scala lineare · quando è in uso, se la connessione tra il La scala lineare e la lettura digitale sono rotte o danneggiate esternamente, possono essere rilevati valori di misurazione errati · Pertanto, l'utente deve fare attenzione.

⌘ Non tentare di riparare o modificare il display digitale, altrimenti si verificherà un guasto, potrebbe verificarsi un guasto o un infortunio. In caso di qualsiasi condizione anomala, contattare l'azienda o il distributore.

⌘ Se la scala lineare ottica utilizzata con la lettura digitale è danneggiata, non utilizzare una scala lineare di un'altra marca. Poiché le prestazioni, le specifiche e la connessione dei prodotti di marche diverse possono variare non essere collegato senza l'istruzione di un tecnico specializzato personale, altrimenti si verificheranno dei problemi al display digitale.

⌘ With the continuous updating of products, if there are changes or modifiche ai parametri del campione, prevarranno i file casuali e la società avrà il diritto di interpretazione finale senza preavviso.

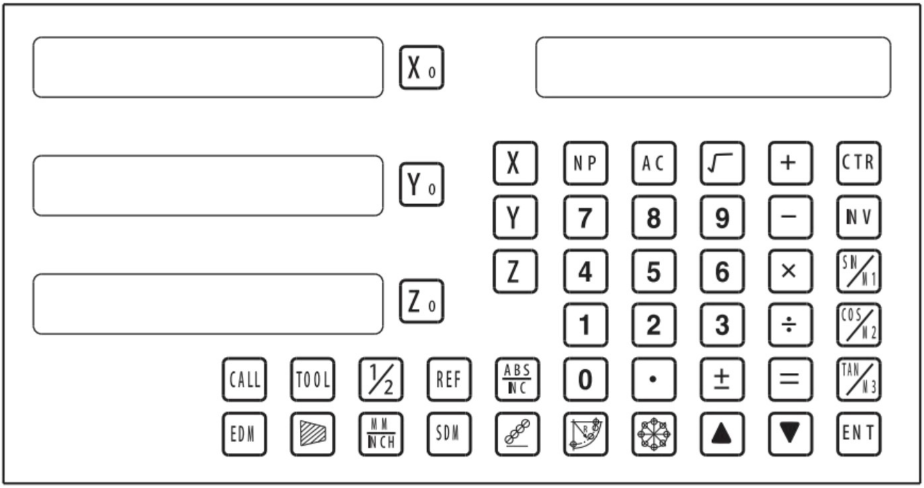
# Contents

# Contents

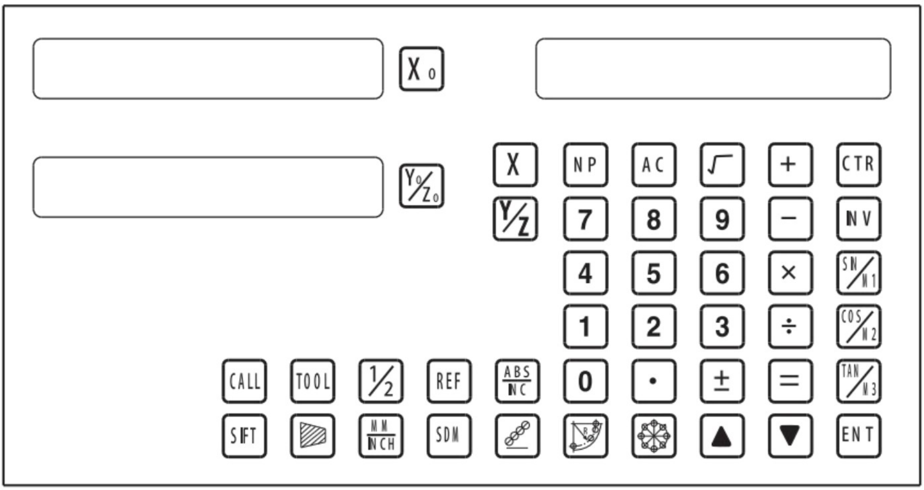
Machine Translated by Google



THREE AXIS PANEL




TWO AXIS PANEL



# Caption of the keyboard

## Keyboard Description

| | |
|---|---|
| X Y Z | Keys for axis selection |
| X0 Y0 Z0 | Zero select axis |
| ± | Enter +/- sign |
| · | Enter decimal point |
| 0 1 2 3 4 5 6 7 8 9 | Entry keys for numbers |
| + − × ÷ = | Operation key (in Calculation function key) |
| CTR | Enter or quit calculating state |
| AC | Cancel incorrect operation |
| INV | Calculate inverse trigonometric |
| √ | Square root |
| ENT | Confirm operation |
| MM/INCH | Toggles between inch and millimeter units. |
| REF | Press when ready to identify a reference mark. |
| SDM | Function keys for 200 sub datum |
|  | ARC cutting function |
|  | holes displayed equally on a circle |
|  | holes displayed equally on a line |

| | |
|---|---|
| SIN/M1 | Calculate trigonometric or Slope Processing function key |
| COS/M2 | Calculate trigonometric or rectangular inner chamber processing function key |
| TAN/M3 | Calculate trigonometric or the tool diameter compensation function key |
| ABS/INC | Toggle between ABS/INC coordinate |
| ▲ ▼ | Stroll up or down to select |
|  | Taper measured function key |
| CALL | Tool library call key |
| TOOL | Opens the tool table.( lathe) |
| EDM | EDM function key |
| SFT | Filter display function key |
| 1/2 | Half a display value of an axis |
| NP | Non Linear Error Compensation function keys |

## 3、Parameters settings

### 3.1 Parameters setup routine entrance.

Press [•] to enter initial system and self-check after DRO powers on in 1 second, then Parameters settings display in the Parameters window.press [▲] [▼] to select the item you want to chang.

If you want to quit initial setting, press [▲] [▼] until "QUIT" appears in message window and press [ENT]. You can also press [•] to quit initial setting.

### 3.2 Parameters Settings Description

#### 3.2.1 Setting the Resolution

Press [▲] [▼] until "RESOLUTE" appears in message window;

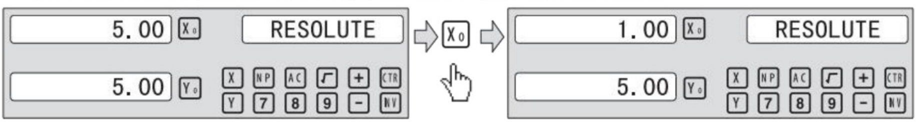
When selecting the LINEAR encode, the resolution will be set as follow:

There are 19 types of resolution:

0.01um;0.02um;0.05um;0.10um;0.20um;0.25um;0.50um;1.00um; 2.00um;2.50um;5.00um;10.00um;20.00um;25.00um;50.00um; 100.00um;200.00um;250.00um;500.00um.

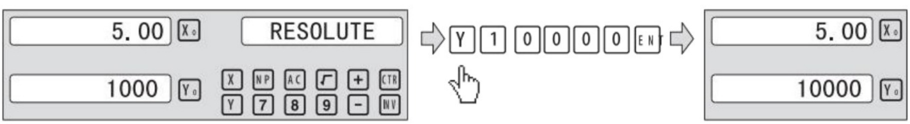
Press [X0] to change the resolution for X axis;Press [Y0] to change the resolution for Y axis;Press [Z0] to change the resolution for Z axis;

Set the resolution 5.00um to 1.00um for X axis:




When selecting the rotary encode, the resolution will be set as follow:

Input the rotary encode parameter value .

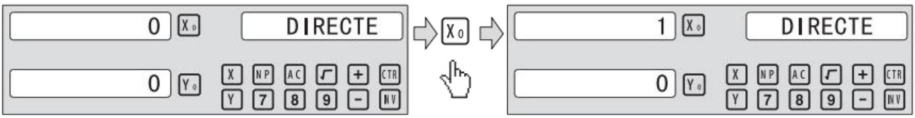


### 3.2.2 Setting Positive Direction for Counter

Press ▲ ▼ until " DIRECTE" appears in message window.

Direction '0' means the display value will increase when scale moves form right to left and decrease when scale moves from left to right. Direction '1' means the display value will increase when scale moves form left to right and decrease when scale moves from right to left.

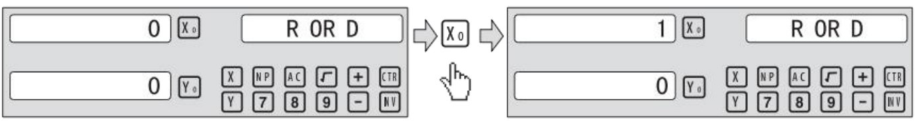
Press $X_0$ to change the Direction for X axis;Press $Y_0$ to change the Direction for Y axis;Press $Z_0$ to change the Direction for Z axis; as follow:




### 3.2.3 Toggle Betwween R/D Display Mode

Press ▲ ▼ until "R OR D" appears in message window. X window, Ywindow, Z window displays '0' or '1' separately.

'0' is mode R, which means the dispay value equals the actual measurement. '1' is mode D where the display value equals the double actual measurement. Press $X_0$ to change the R/D for X axis;Press $Y_0$ to change the R/D for Y axis;Press $Z_0$ to change the R/D for Z axis; as follow:




### 3.2.4 Setting Z axis Dial

Press ▲ ▼ until "Z DIAL" appears in message window.

Z axis dial should be set if Z axis is emulated for 2 axis milling and only install linear scale for X,Y axis. Z axis dial means the distance the Z axis travels when screw runs a revolution.

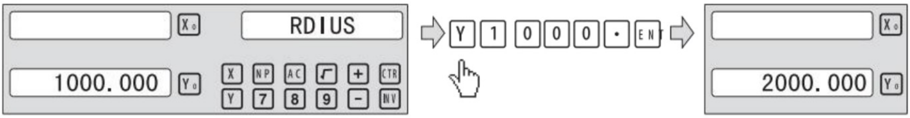
Set the Z axis Dial 2.5mm as follow ;


### 3.2.5 Setting the Rotary Radius of the Workpiece

Press ▲ ▼ until “RDIUS” appears in message window.

The Rotary rdius type is used perimeter to measure angle.

Input the Rotary Radius parameter value 2000mm as follow:

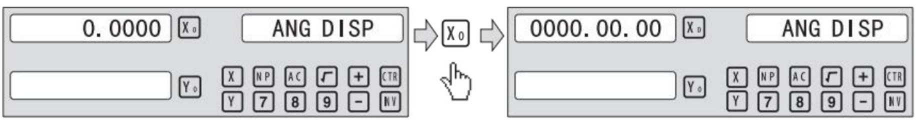



### 3.2.6 Setting the Angle Display Mode

Press ▲ ▼ until “ANG DISP” appears in message window.

Press $X_0$ to change the angle display mode for X axis;Press $Y_0$ to change the angle display mode for Y axis;Press $Z_0$ to change the angle display mode for Z axis; Example for X axis:

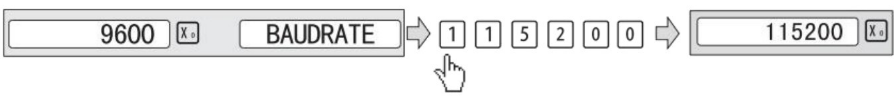
“0.0000” means the angle mode is Circulating DD;
“0000.0000” means the angle mode is Incremental DD;
“0.00.00” means the angle mode is Circulating DMS;
“0000.00.00” means the angle mode is Incremental DMS;




### 3.2.7 Setting the Baudrate of RS_232 (Special customization function, if you need to buy, please contact the dealer to customize)

Press ▲ ▼ until “BAUDRATE” appears in message window.

Set the Baudrate 115200 as follow ;



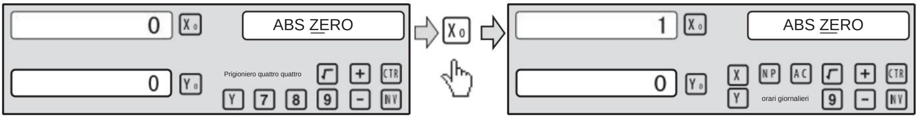
3 . 2 . 8 impostazione abilita o disabilita l'azzeramento assoluto

premere finché non compare "ABS ZERO" nella finestra dei messaggi·

IL significa che l'operazione di azzeramento ABS e i dati preimpostati saranno abilitare nello stato di visualizzazione normale ·

' 1 ' significa che l'operazione di azzeramento ABS e i dati preimpostati saranno disabilitare nello stato di visualizzazione normale ·

premere per cambiare la modalità di azzeramento assoluto per l'asse x, premere per cambiare la modalità di azzeramento assoluto per l'asse Y, premere A cambia la modalità di azzeramento assoluto per l'asse Z; Esempio per l'asse x ·



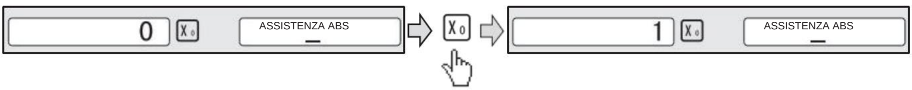

3 . 2 . 9 impostazione della forma assoluta della funzione speciale

premere finché non compare "ABS ASST" nella finestra dei messaggi·

'o significa che solo il valore della posizione della funzione speciale viene visualizzato nel operazione di funzione speciale.

' 1 ' significa valore di posizione della funzione speciale + valore di posizione ABS è visualizzare nell'operazione Funzione speciale.

premere per cambiare la modalità assoluta per la funzione speciale essere impostato come segue:



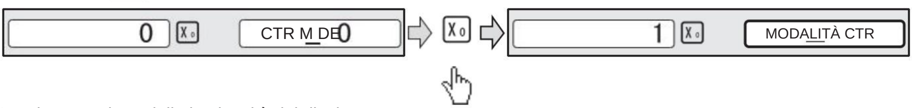

3 . 2.10 impostazione del Calculator Modalità di visualizzazione

premere finché nel messaggio W non compare "UCCTR MODE" indow

IL metà calcolatrice visualizza il valore in corrispondenza del vento x nel mezzo la disply;

' 1 ' calcolatrice visualizza il valore nella finestra dei messaggi nel display;

premere per cambiare la modalità di visualizzazione della calcolatrice verrà impostata AS follow:




3.2.11 impostazione della luminosità del display

Impostazione della luminosità del display LED, l'impostazione predefinita di fabbrica è solo "3", più alto è il parametro, più luminosa è la luminosità. premere "xo" per impostato, non è consigliabile impostare autonomamente il valore predefinito.

3.2.12 The linear scale counting frequency setting

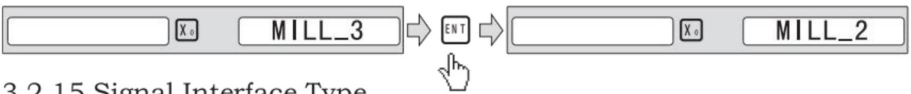
The factory default setting is only "12", the higher the parameter, the lower the counting frequency, press "X0" to set, it is not recommended that you set the default value yourself.

3.2.13 Setting QUIT: Digital display table parameters quit button.

3.2.14 Setting the type of the DRO.

The type of the DRO will be display on the right window. then press the key ENT to select the correct type. the following system item will be set:

"MILL-3" means the DRO type is 3-axis milling machine table;
"MILL-2" means the DRO type is 2-axis milling machine table;
"LATHE-2" means the DRO type is 2-axis lathe table;
"LATHE-3" means the DRO type is 3-axis lathe table;
"GRIND" means the DRO type is Grind table;
"EDM" means the DRO type is EDM table; (Special customization function, if you need to buy, please contact the dealer to customize)




3.2.15 Signal Interface Type

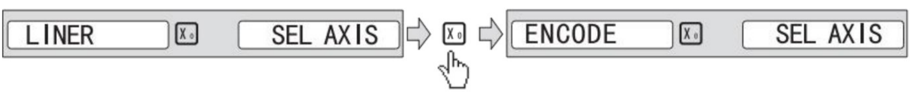
Message window displays " SEL AXIS" which indicates the step is to Sensor input signal mode. Press $X_0$ to change the signal mode for X axis;Press $Y_0$ to change the signal mode for Y axis;Press $Z_0$ to change the signal mode for Z axis;Example for X axis:

Press $X_0$ to scroll through the Rotary encode type, the Linear encode type, the Rotary rdius type.

X window displays the Signal type.

"LInER" means the Signal type is linear encode type ;
"EnCOdE " means the Signal type is Rotary encode type;
"RdIUS" means the Signal type is Rotary rdius type ;

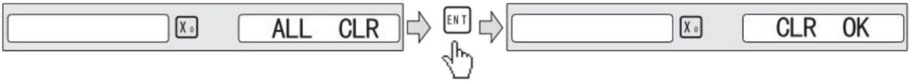
Example: currently in the linear encode type, to toggle to the Rotary encode type;



### 3.2.16 Restore Factory Settings:

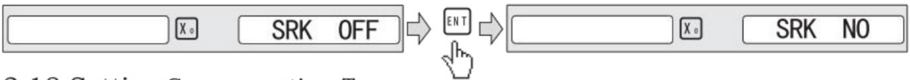
Clear all data except DRO type.DRO will load default setup for parameter.After loading default setup,user must search RI once to enable resuming ABS dadum function;otherwise to resume the datum by RI is unable;

Message window displays " ALL CLR" , press ENT and message windows display "PASSWORD" indicating the operator to input password; Press 2000 + ENT in turn to load default value;




### 3.2.17 Shrinkage Ratio enable or disable.

Message window displays " SRK OFF" to disable Shrinkage rate function. Press ENT to enable Shrinkage rate function in Message window displays " SRK ON" :



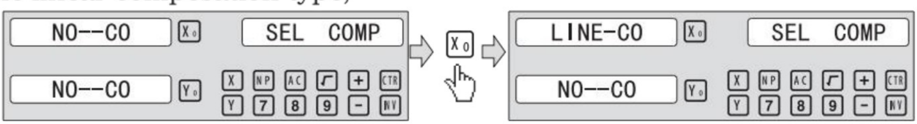

### 3.2.18 Setting Compensation Type

Message window displays " SEL COMP" which indicates the step is to compensation type. Press X0 to change the compensation type for X axis;Press Y0 to change the compensation type for Y axis;Press Z0 to change the compensation type for Z axis;Example for X axis:

Press X0 to scroll through the not compesation type, the Linear compesation type, the non-linear compesation type.

"no-CO" means the compesation type is not compesation type;
"LInE-CO" means the compesation type is linear compesation type.
"non-LinE" means the compesation type is non-linear linear compesation type;

Example for X axis: currently in the not compesation type, to toggle to the linear compesation type;



3.2.19 Inch display, set the number of digits after the decimal point

In the inch display mode, the number of digits after the decimal point is set, the factory default digit is "4", press "X0" to set, can be set according to actual needs.

3.2.20 Setting EDM: it is not recommended that you set the default value yourself, EDM function, Set the relay off on time.

3.2.21 Setting Linearity Compensation.

Message window displays “ LIN COMP” which indicates the step is to Linearity Compensation. Compensate the linear error to make display value equals to standard value.

The calculation of compensation rectifying coefficient:

$$\text{Coefficient} = \frac{(\text{Measurement} - \text{Standard value}) \times 1000.000}{\text{Standard value}}$$

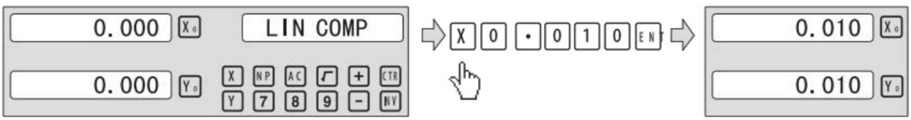
Example for X axis:

Measurement 200.020mm

Standard value 200.000mm

Rectifying coefficient= (200.020-200) * 1000 /200 =-0.01mm/m

Input compensation rectifying coefficient 0.01 as follow:

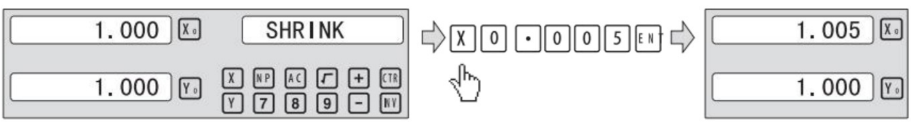



3.2.22 Setting the Shrinkage Ratio

Press ▲ ▼ until “ SHRINK” appears in message window;

$$\text{Shrinkage radio} = \frac{\text{Dimensions of the finished product}}{\text{Dimensions of the working piece}}$$

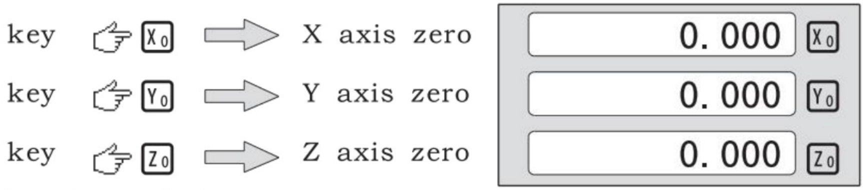
Set the shrinkage radio 1.005 as follow;



# 4、General Operations;

## 4.1 Zeroing

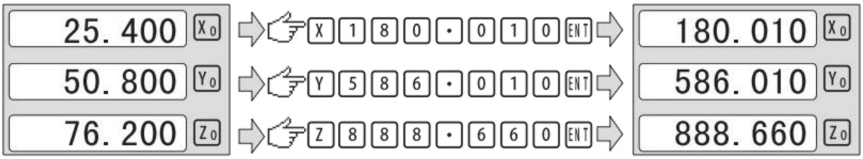
Zero the designated axis in normal display state.Zeroing is used to set the current point as datum point as follow;




X0 or Y0 or Z0 will be return to the original data before the reset。

## 4.2 Preset Data to Designated Axis

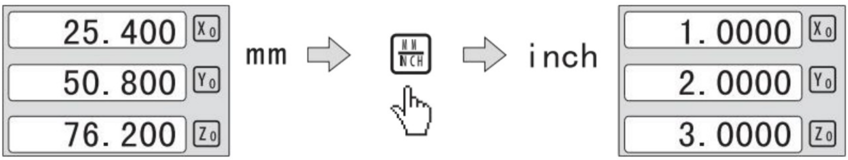
Preset a value to current position for a designated axis in normal display state.



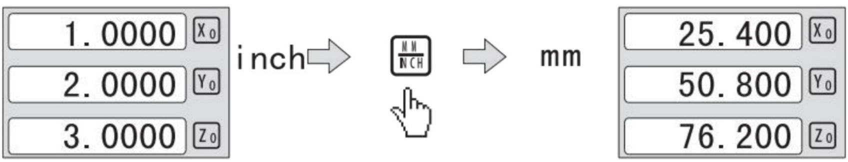

## 4.3 Toggle Display Unit between inch and mm

Length can be displayed either in "mm" (metric) or "inch" (imperial). Display unit can be toggled between mm and inch.

Example: Display value toggle from mm to inch;



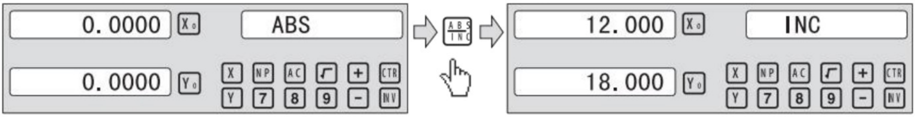

Example: Display value toggle from inch to mm;



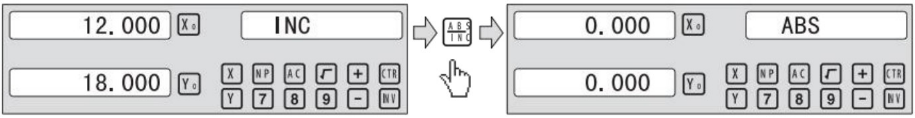
## 4.4 Absolute/Incremental/200 groups SDM

Function: The DRO has 3 coordinate display modes: the absolute mode (ABS); the incremental mode (INC) and 200 goups Second Data Mamory (SDM) with the range of 00 to 99.Zero point of work-piece is set at the origin point of ABS coordinate. The relative distance between datum of ABS and SDM remains unchanged when ABS datum is changed.

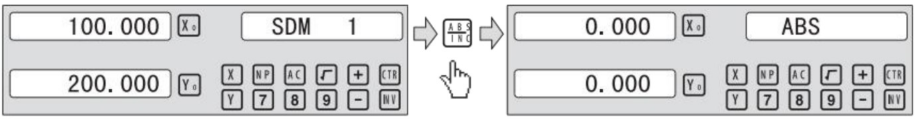
1. Toggle from ABS to INC coordinate;




2. Toggle from INC to ABS coordinate;




3. Toggle from SMD to ABS coordinate;



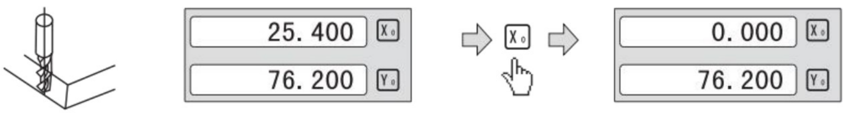

## 4.5 1/2 Function

Function: Set the center of work piece as datum by halving the displayed value.

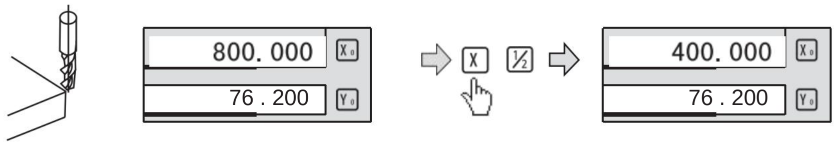
Example: Set the center of rectangle as datum as the right figure.

Steps:

1、Touch one side of the workpiece with the TOOL,then zero the X axis。



2 , PORTARE l'UTENSILE sul lato opposto del pezzo in lavorazione e toccarlo.
Quindi premere X + ½ a sua volta per valutare il valore visualizzato sull'asse X.




3ÿ Spostare il tavolo di lavorazione finché non viene visualizzato "o. 000" sull'asse x finestra. La posizione è il centro del pezzo in lavorazione·

4 . 6 cancella tutti i dati SDM.

In modalità ABs, premere continuamente dieci volte causerà la cancellazione tutti i dati per 200 set SDM. La finestra Mcsage visualizza USDM "CLR" .

4. 7 Modalità di sospensione

in modalità non ABS, premendo il tasto F CAn spegne tutti i display e il DRO accede alla modalità di sospensione, quindi premendo questo tasto di nuovo CAUSE il DRO torna alla modalità di lavoro. Nella modalità di sospensione Modalità il DRO è ancora in stato di funzionamento e registra effettivamente lo STRUMENTO movement.

Esempio: in modalità non ABS, per accedere alla modalità sleepin8 premere il tasto F. In modalità di sospensione, premere il tasto F per uscire

Modalità di sospensione ·

4. 8 Memoria di interruzione di corrente.

La memoria viene utilizzata per memorizzare le impostazioni del DRO e della macchina valori di riferimento quando POWEr è spento.

4 . 9 Cerca il punto di riferimento assoluto della scala

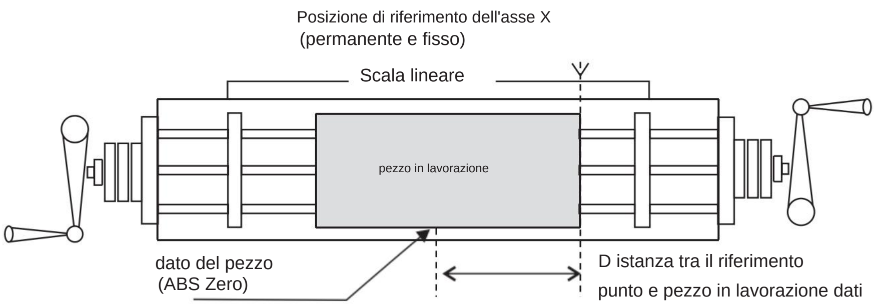
Durante il processo di lavorazione quotidiano, è molto comune che il la lavorazione non può essere completata in un turno di lavoro e quindi la Il DRO deve essere spento dopo il lavoro, altrimenti si verifica un'interruzione di corrente durante il processo di lavorazione che porta alla perdita del dato del pezzo in lavorazione (posizione zero del pezzo), il ripristino del dato del pezzo l'utilizzo di un rilevatore di bordi o di un altro metodo induce inevitabilmente un aumento lavorazione con precisione perché non è possibile ristabilire la riferimento del pezzo esattamente nella posizione precedente. PER consentire il recupero del dato del pezzo in lavorazione in modo estremamente accurato e senza necessità di ristabilire il dato del pezzo in lavorazione utilizzando un rilevatore di bordi o altri metodi, Ogni scala lineare ha una posizione del punto di riferimento che è dotata di riferimento posizione per fornire la funzione di memoria del punto di riferimento.

Il principio di funzionamento della funzione di memoria del dato di riferimento è il seguente: segue.

poiché il punto di riferimento della scala lineare è permanente e fisso, sarà non cambiano né scompaiono mai quando il sistema DRO è spento. Pertanto, dobbiamo semplicemente memorizzare la distanza tra il punto di riferimento e il dato del pezzo (posizione zero) nella memoria NON volatile· Quindi in caso di interruzione di corrente o spegnimento del DRO, possiamo ripristinare il dato del pezzo (posizione zero) preimpostando lo zero del display posizione come distanza memorizzata dal punto di riferimento ·

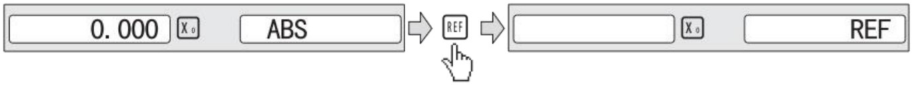
Un dato assoluto deve essere impostato quando un pezzo viene lavorato. Ci sono tre modalità di funzionamento (REFÿ ABÿ LEF_AB):

Esempio: per memorizzare il dato di lavoro dell'asse X·

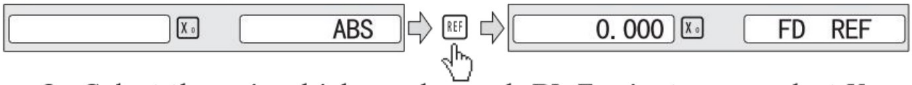


**Example for REF mode :**

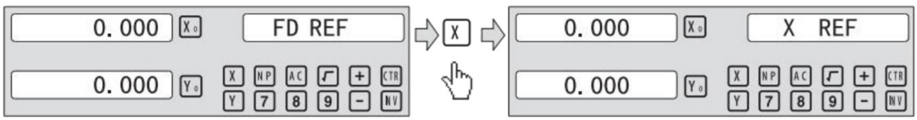
1、DRO is set in ABS coordinate. Press [REF], then the message window display "REF" .




2、Message window displays "REF" , Press [ENT] until "FD_REF" appears in message window.



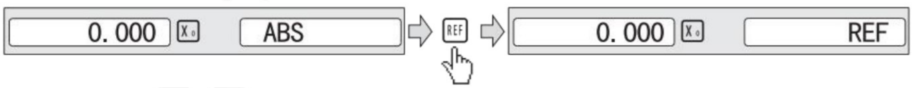

3、Select the axis which need search RI. For instance : selsct X axis, then press [X] . "X_REF" is displayed in message window, and X axis window flashes.



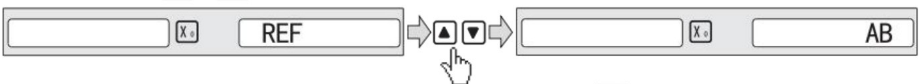

4、 Move the machine table .The buzzer sounds when RI is searched, then X window stops flashing and displays the value of the current position .the DRO returns normal display state. Then message window displays "FIND_X" .

**Example for AB mode :**

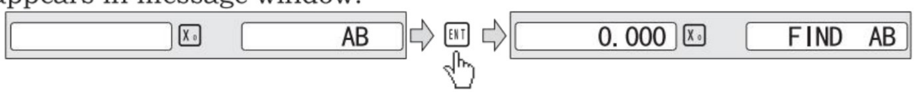
1、 DRO is set in ABS coordinate. Press [REF], then the message window display "REF" .



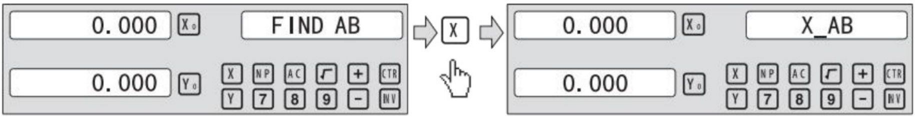

2、Press [▲] [▼], then the massage window display "AB" .




3、Message window displays "AB" , Press [ENT] until "FIND_AB" appears in message window.



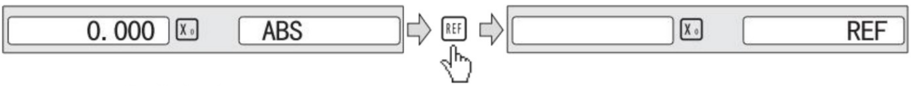
4、Select the axis which need search RI. For instance : selsct X axis, then press X . "X_REF" is displayed in message window, and X axis window flashes.



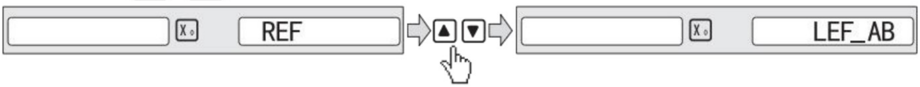

5、 Move the machine table .The buzzer sounds when RI is searched, displays the value of the current position for the absolute datum zero. the DRO returns normal display state. Then message window displays "FIND_AB" .

**Example for LEF_AB mode** :

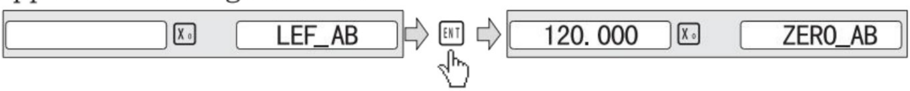
1、 DRO is set in ABS coordinate. Press REF , then the message window display "REF" .



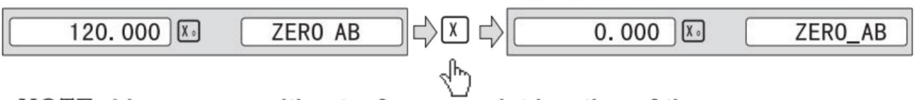

2、Press ▲ ▼, then the message window display "AB" .




3、Message window displays "LEF_AB" , Press ENT until "ZERO_AB" appears in message window.




4、Move the machine table to be set zero position piont. then press X , X axis will be zeroing . the current position for the absolute datum zero. the DRO returns normal display state.




NOTE: **Linear range without reference point location of the user**

## 4.10 Non Linear Error Compensation

First compensation Type ( Linear or Non-Linear) in parameter setting must be set Non-Linear. Linear scale have a ref point location and find to the Absolute Reference Point will be enable.

Default Non-Linear compensation : 50.

**Example for Y axis:**

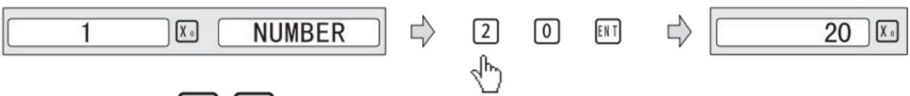
Step 1: Search the Absolute Reference Point of Scale;

Step 2: Press NP , then the message window display "COMP X" .

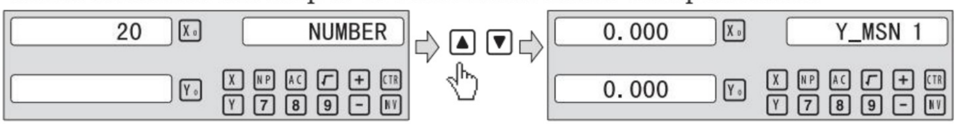

Step 3: Press ▲ ▼, then the massage window display "COMP Y"


Step 4: Press ENT, then the message window display "NUMBER" .

Then input the compensation parameter NUMBER.




Step 5: Press ▲ ▼, then message window displays "Y-MSN-1" which indicates the step is to Non Linear Error Compensation.



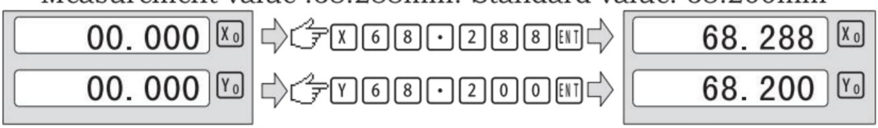

Step 6: Input compensation value .

X window display the value of the measurement value.

Y window display the value of the standard value.

Example for the first compensation point:

Measurement value :68.288mm. Standard value: 68.200mm



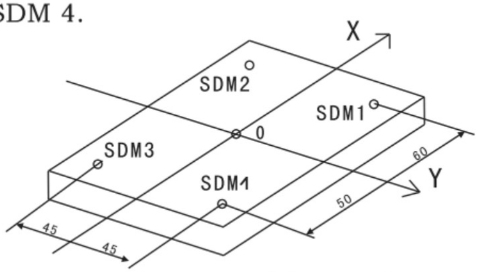

Step 7: After input all parameter, the DRO automatically exit.

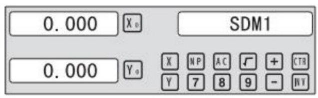
5、200 Groups SDM coordinate

The DRO has three display modes: the absolute mode (ABS),the incremental mode (INC) and the 200 groups second data memory (SDM 1 – SDM200). ABS datum of the work-piece is set at the beginning and the 200 groups SDM is set relative to ABS coordinate.

ABS Mode, INC Mode and SdM Mode are specially designed to provide much more convenience features to the operator to cope with the batch machining of relative works and the machining of the workpiece machining dimensions from more than one datum.

**Example:** The ABS datum is the center point O, the point sdm1, sdm2, sdm3, sdm4 needed processing are set as datum of SDM 1 – SDM 4.




Two ways to set SDM coordinate:

1、 Zeroing at the Current Point.

2、 Preset datum of SDM coordinate.

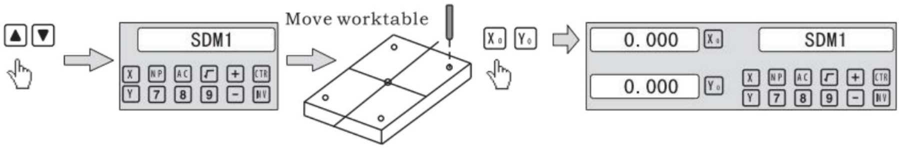
5.1 Zeroing at the Current Point

At first set the center point of the work-piece as the origin of the ABS, then align the TOOL with point SDM1,SDM2,SDM3,SDM4 by moving the machine table and zero them. It is the position to process where the "0.000" appears in X window, Y window by moving the machine table whether in ABS or in SDM coordinate.

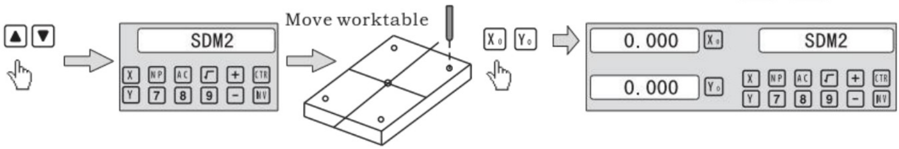
**Steps:**

1、 Move worktable to place the TOOL at the center of the workpiece point O as the datum of ABS. Then zero X axis and Y axis in SDM 1 ; Zero X axis and Y axis in SDM 2 ; Zero X axis and Y axis in SDM 3 ; Zero X axis and Y axis in SDM 4.

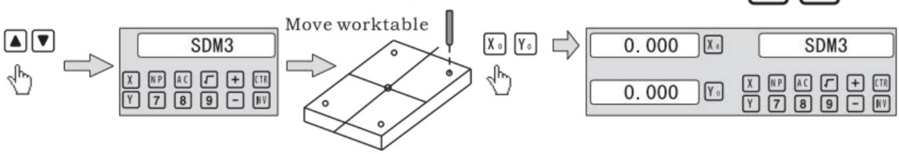
2、Set the point sdm1 as the datum of SDM 1. Move the machine worktable to x = 60.000, y = 45.000. Then proess $\boxed{X_0}$ $\boxed{Y_0}$.



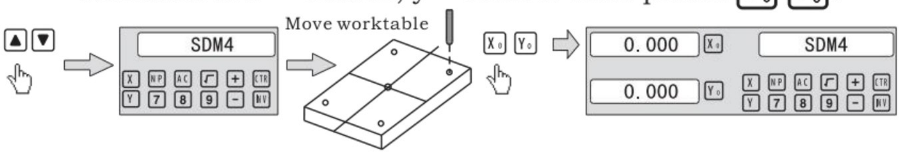

2、 Set the point sdm1 as the datum of SDM 2. Move the machine worktable to x = 60.000, y = -45.000. Then proess $\boxed{X_0}$ $\boxed{Y_0}$.




3、 Set the point sdm1 as the datum of SDM 3. Move the machine worktable to x = -60.000, y = -45.000. Then proess $\boxed{X_0}$ $\boxed{Y_0}$.




4、 Set the point sdm1 as the datum of SDM 4. Move the machine worktable to x = -60.000, y = 45.000. Then proess $\boxed{X_0}$ $\boxed{Y_0}$.




## 5.2 Preset datum of SDM coordinate

There are the same sample as Method 1. First Move the worktable to place the TOOL exactly at the origin of ABS, secondly Enter the ABS Mode as follow.

**Steps:**

1、Move worktable to place the TOOL at the center of the workpiece point O as the datum of ABS. Then zero X axis and Y axis in SDM 1 ; Zero X axis and Y axis in SDM 2 ; Zero X axis and Y axis in SDM 3 ; Zero X axis and Y axis in SDM 4。

2、Set point sdm1 as the datum of SDM 1. Press ▲ ▼, then the message window display "SDM 1" . Input x = 60.000, y = 45.000.


3、Set point sdm1 as the datum of SDM 2. Press ▲ ▼, then the message window display "SDM 2" . Input x = -60.000, y = 45.000.


4、Set point sdm1 as the datum of SDM 3. Press ▲ ▼, then the message window display "SDM 3" . Input x = -60.000, y = -45.000.

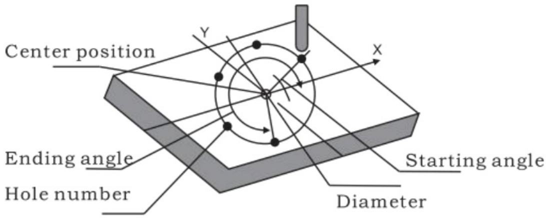

5、Set point sdm1 as the datum of SDM 4. Press ▲ ▼, then the message window display "SDM 4" . Input x = -60.000, y = 45.000.

# 6ÿ Funzione speciale

## 6.1 Circumference Holes Processing

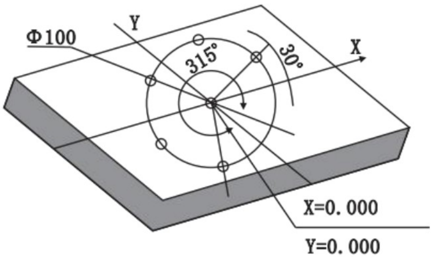
The Function of PCD Hole positioning on Circumference is used to distribute arc equally, such as boring hole on flange. The right window will show the parameter to be defined when selecting PCD Function.
The Parameters to be defined are:

| | |
|---|---|
| PCD_XY(XZ,YZ) | Select place |
| CENTER | Center position |
| DIA | Diameter of circle |
| NO_HOLE | Hole number |
| ST ANG | Starting angle |
| ED ANG | Ending angle |




The postion of the hole center are calculated automatically after input all parameters. Press ▲ or ▼ to choose the hole No. and move the machine table until the "0.000" appears in X window , Y window, Z window. It is the position to process a table.
Example for the XY place: Machine hole on circumference as the figure

| | |
|---|---|
| PCD_XY(XZ,YZ) | XY |
| CENTER | X=0,000,Y=0.000 |
| DIA | 100,000 |
| NO_HOLE | 5 |
| ST ANG | 30,000 |
| ED ANG | 315,000 |



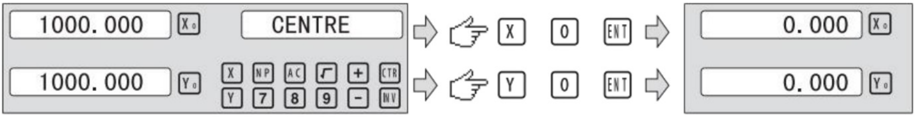

Steps:

1. Set display unit to metric in normal state; Move the machine table until the machine TOOL is aligned with the center of the ciecle , then zero X axis ,Y axis.
2. Select plece.

Press , then the message window display "PCD_XY" to the Circumference Holes Processing. Press ▲ or ▼ to select XY place.

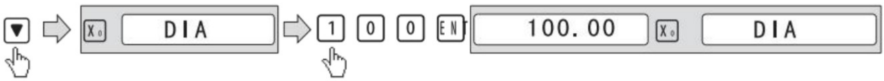
2. Input center position.

Press ENT , then the message window display "CENTER" . X and Y window displays the formerly preset center position. Input X = 0, Y = 0 as follow.



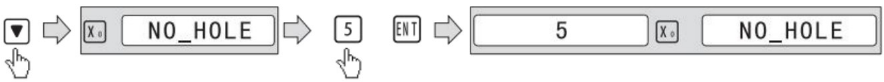

4. Input diameter.

Press ▼ until "DIA" appears in the message window. X window despalys the formerly preset diameter. Then input the diameter is 100.000.



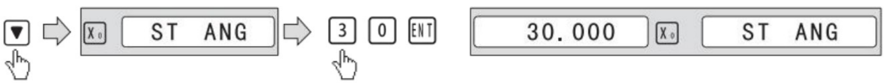

5. Input number.

Press ▼ until "NO_HOLE" appears in the message window. X window despalys the formerly preset number. Then press 5 in turn to input number.



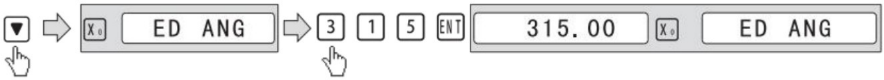

6. Input starting angle.

Press ▼ until "ST ANG" appears in the message window. X window despalys the formerly preset the starting angle. Then press 3 0 in turn to input the starting angle.



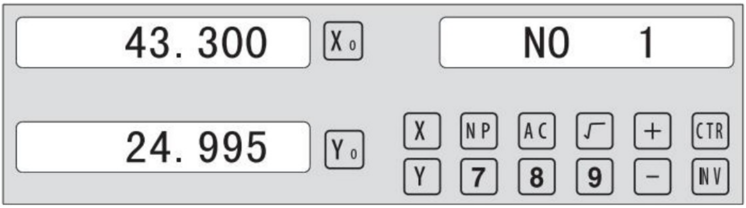

7. Input ending angle.

Press ▼ until "ED ANG" appears in the message window. X window dispalys the formerly preset the ending angle.. Then press 3 1 5 in turn to input the ending angle.




8. Press ▼ until “NO 1” appears in the message window.

It is the position of the first hole to punch where the “0.000” is displayed in X window and Y window by moving the machine table. After finishing the first hole, press ▼ or ▲ to change holes number.

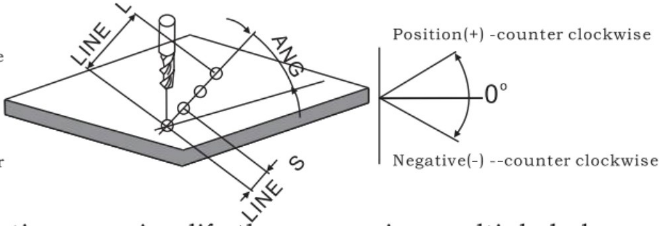



9. After processing all holes, press to return normal display.

## 6.2 Linear Holes Processing

There are two modes to carry out the linear drilling: Length mode and Step mode.

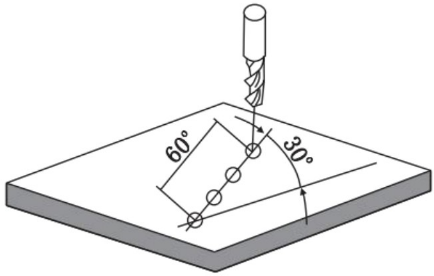
| | |
|---|---|
| 1.LINE S | Step mode |
| LINE L | Length mode |
| 2.STEP | Step length |
| LENGTH | Line length |
| 3. ANG | Angle |
| 4. NO.HOLE | Hole number |




Linear Holes function can simplify the processing multiple holes whose centers are attributed equally on one line.

Example：

| | |
|---|---|
| LINE_L | Length mode |
| LENGTH | 60.000 |
| ANG | 30.000 |
| NO.HOLE | 4 |




Steps :

1. Select plece.

Press , then the message window display "LINE_XY" to the Linear Holes Processing. Press ▲ or ▼ to select XY place.

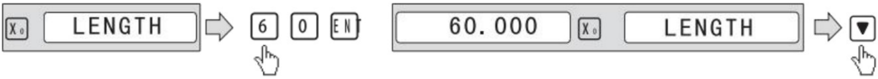

2. Select Linear Holes mode.

Press ENT , then the message window display "LINE_S" . Press ▲ or ▼ to select "LINE_L" .


3. Input linear length;

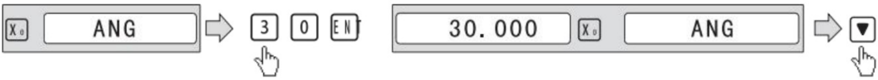
Press ENT , then the message window display "LENGTH" .

X window despalys the formerly preset the linear length. Press [6] [0] in turn to input the linear length.




4. Input angle;

Message window displays "ANG" which indicates the step is to angle. X window despalys the formerly preset the angle. Press [3] [0] in turn to input the angle.

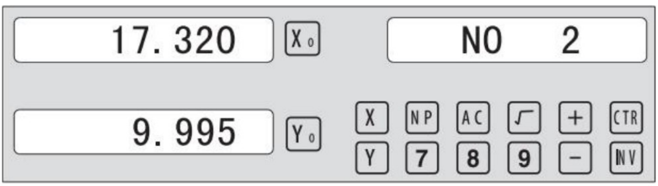



5. Input number;

Message window displays "ANG" which indicates the step is to angle. X window despalys the formerly preset the number. Press [4] in turn to input the number.


6. Press [▼] until "NO 1" appears in the message window.

It is the position of the first hole to punch where the "0.000" is displayed in X window and Y window by moving the machine table. After finishing the first hole, press [▲] or [▼] to change holes number.




7. After processing all holes, press [key] to return normal display.

## 6 . 3 Elaborazione ARC

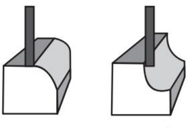
Per la funzione ARC sono disponibili DUE funzioni: la semplice ARC

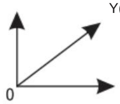
Funzione e funzione R regolare · premere quindi pr css per accedere alla funzione ARC,

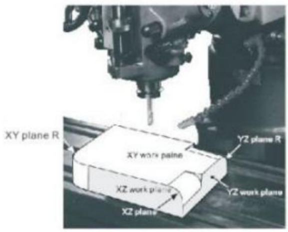
o per selezionare la funzione ARC regolare o semplice

Funzione ARC.

Durante l'installazione, normalmente vengono prese in considerazione le coordinate della macchina e del direzione di X, Y , Z sono come segue. Il piano di lavoro è mostrato AS the figura giusta.



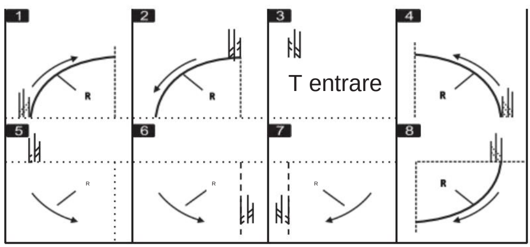

semplice funzione ARC:

quando la scorrevolezza non è molto richiesta, il SIMPLE ARC la funzione è normalmente utilizzata per la lavorazione dell'arco. Nella funzione SIMPLE ci sono solo otto tipi di ARC utilizzati per la macchina. L'operatore deve solo seleziona il tipo di R e inserisci i parametri del raggio dell'arco ,

MAX CUT e Qrc esterno o arco interno. In generale, un arco può essere lavorati da una scanalatura piana T OOL Oppure arco TOOL, la differenza tra su piani di lavoro diversi come mostrato di seguito ·

| | |
|---|---|
| 1 , SEMPLICE | elaborazione semplice Modalità dell'ARC. |
| 2 , TIPO 1 - 8 | |
| 3、SEL_XY(XZ,YZ) | seleziona luogo |
| 4 , RAD | Raggio dell'arco |
| 5ÿ TL LUI | Diametro utensile |
| 6ÿ TAGLIO MASSIMO | Fase di alimentazione |
| 7ÿ RADTL _ | arco esterno e arco interno |

(solo per posto xy)



Smooth ARC function :

Provides maximum flexibility in ARC machining, the ARC sector to be machined by the coordinates of ARC. Very flexible, ARC function can machine virtually all kinds of ARC, ever the intersected ARC. Relatively a bit complicated to operate, operator need to calculate and enter the coordinates of ARC centre, start angle and end angle.

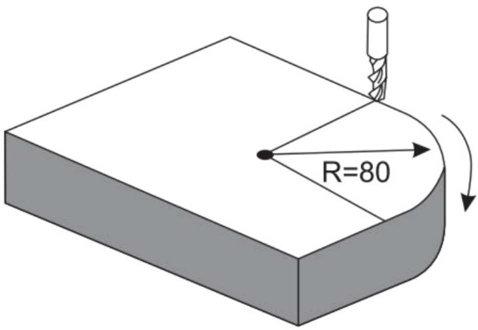
Basic parameter as follow:

| | |
|---|---|
| 1. SMOOTH | Mode of the Smooth ARC processing; |
| 2. SEL_XY(YZ, XZ) | Select place; |
| 3. CENTER | Refer to the position of an center. |
| 4. RAD | Radius of the ARC |
| 5. TL_DIA | Diameter of the TOOL |
| 6. MAX_CUT | Feed step |
| 7. ST_ANG | Starting angle |
| 8. ED_ANG | Ending angle |
| 9. RAD+TL | Outer arc. |
| RAD-TL | Inner arc. |

**Example 1 for the Simple ARC Processing:**

Parameters settings as follow:

| | |
|---|---|
| SIMPLE | Simple mode |
| TYPE | 3 |
| SEL_XY | XY |
| RAD | 80.000 |
| TL_DIA | 6.000 |
| MAX_CUT | 0.500 |
| RAD+TL | 1 |



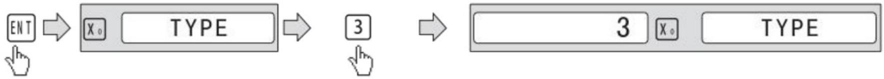

Steps:

1. Select process mode

Press  , then the message window display "SIMPLE" to the ARC Processing. Press ▲ or ▼ to select mode of the simple, The message window display "SIMPLE"

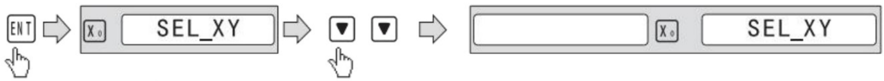

2. Input the type:

Press ENT until "TYPE" appears in the message window. X-window despalys the formerly preset the type. Press 3 in turn




3. Select place

Press ENT until "SEL_XY" appears in the message window. Press ▲ or ▼ to select place to display "SEL_XY" ;




4. Input radius:

Press ENT until "RAD" appears in the message window. X window despalys the formerly preset the radius of ARC. Press 8 0 in turn to input the radius.;


5. Input Diameter of the TOOL

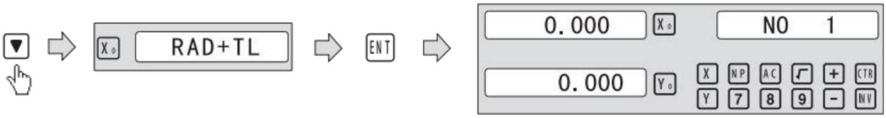
Press ▲ or ▼ until "TL DIA" appears in the message window. X window despalys the formerly preset the Diameter of the TOOL. Press 6 in turn to input the Diameter value;


6. Input Feed step (MAX_CUT);

Press ▲ or ▼ until "MAX_CUT" appears in the message window. X window despalys the formerly preset the MAX_CUT. Press 0 · 5 in turn to input the MAX_CUT value;

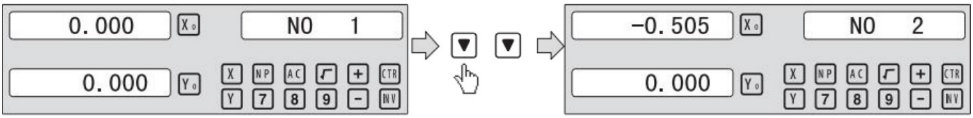
7. Select outer arc or inner arc

Press ▲ or ▼ until "RAD-TL" appears in the message window. Press ▲ or ▼ to select place to display "RAD+TL" ;




8. After inputting all parameters, press the key ENT for machining.

The DRO will display the position of the first point. Retract the axes until the displays read 0.000, Machine the Arc point by point in accordance with the display. After finishing the position of the first point, press ▲ or ▼ to change position point.

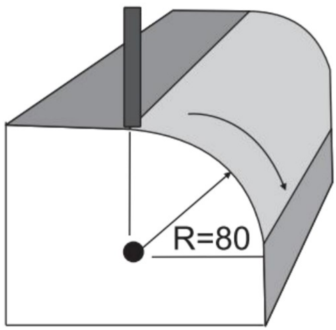



Press  to quit R function any time.

**Example 2 for the Simple ARC Processing:**

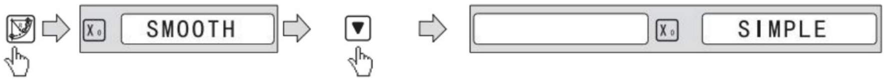
Parameters settings as follow:

| | |
|---|---|
| SIMPLE | Simple mode |
| TYPE | 3 |
| SEL_XY | XZ |
| RAD | 80.000 |
| TL_DIA | 6.000 |
| MAX_CUT | 0.500 |



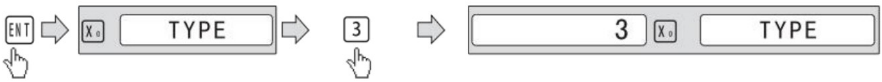

Steps:

1. Press  , then the message window display "SIMPLE" to the ARC Processing. Press ▲ or ▼ to select mode of the simple, The message window display "SIMPLE"



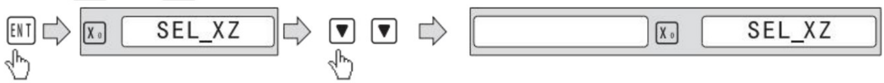

2. Input the type:

Press ENT until “TYPE” appears in the message window. X-window despalys the formerly preset the type. Press 3 in turn




3. Select place

Press ENT until “SEL_XZ” appears in the message window. Press ▲ or ▼ to select place to display “SEL_XZ” ;




4. Input radius:

Press ENT until “RAD” appears in the message window. X window despalys the formerly preset the radius of ARC. Press 8 0 in turn to input the radius.;


5. Input Diameter of the TOOL

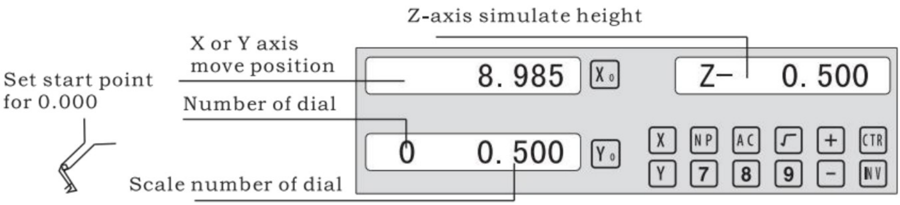
Press ▲ or ▼ until “TL DIA” appears in the message window. X window despalys the formerly preset the Diameter of the TOOL. Press 6 in turn to input the Diameter value;


6. Input Feed step (MAX_CUT);

Press ▲ or ▼ until “MAX_CUT” appears in the message window. X window despalys the formerly preset the MAX_CUT. Press 0 · 5 in turn to input the MAX_CUT value;

7. After inputting all parameters, press the key ENT for machining.

For 2-axis milling machine table , It is not installed with Z-axis, please press ▲ or ▼ to simulate position of Z-axis. Press ▲ simulate moving to the former process, and press ▼ simulate moving to the next process point.



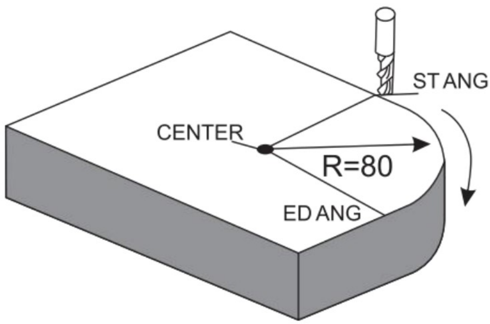

Z-axis simulate height = Number of dial x Z axis Dial + Scale number of dial

Press to quit R function any time.

**Example 3 for the Smooth ARC function**:

Parameters settings as follow:

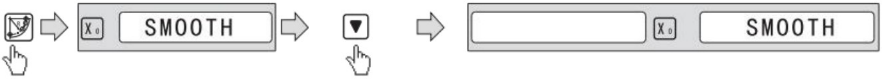
| | |
|---|---|
| SMOOTH | Smooth mode |
| SEL_XY(YZ,XZ) | XY |
| CENTER | X=0,Y=0 |
| RAD | 80.000 |
| TL_DIA | 6.000 |
| MAX_CUT | 0.500 |
| ST_ANG | 0.000 |
| ED_ANG | 135.000 |
| RAD+TL | 1 |




Steps:

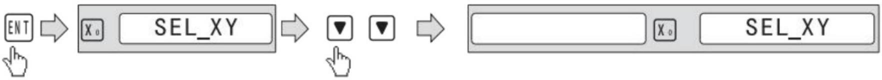
1. Press , then the message window display "SIMPLE" to the ARC Processing. Press ▲ or ▼ to select mode of the simple, The

message window display "SMOOTH"; For 3-axis milling machine table without this step. In second step. Then press ENT .



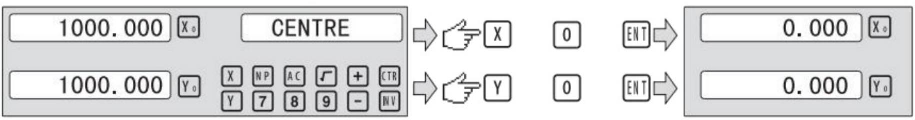

2. Select place

Message window display "SEL_XY" which indicates the select is to place. Press ▲ or ▼ to select place to display "SEL_XY";




3. Input center position.

Press ENT , then the message window display "CENTER". X and Y window displays the formerly preset center position. Input X = 0, Y = 0 as follow.




4. Input radius:

Press ENT until "RAD" appears in the message window. X window despalys the formerly preset the radius of ARC. Press 8 0 in turn to input the radius.;


5. Input Diameter of the TOOL

Press ▲ or ▼ until "TL DIA" appears in the message window. X window despalys the formerly preset the Diameter of the TOOL. Press 6 in turn to input the Diameter value;

6 . Passaggio di alimentazione in ingresso (MAX_CUT);

premere ▲ O ▼ fino a quando l'app UMAX CUT non compare nel messaggio

finestra. X Window de spa lys il preset precedente MAX_CUT. premere

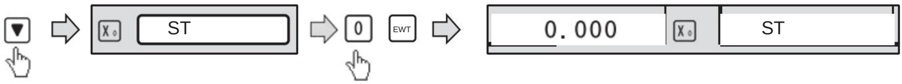
0 · 5 a sua volta per immettere il valore MAX CUT;


7. Inserire l'angolo di partenza ·

premere ▼ finché non appare USTANG" nella finestra del messaggio.x

finestra de spa lys l'angolo di partenza precedentemente preimpostato · Quindi premere

0 a sua volta per immettere l'angolo di partenza-




8 . Angolo finale di input ·

premere ▼ finché nella finestra del messaggio non appare "UED ANG". X

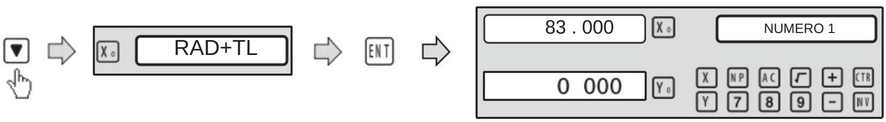
finestra ispadlys il precedentemente preimpostato l'angolo finale. Quindi premere 1

3 5 a sua volta per immettere l'angolo endin8·


9 . seleziona arco esterno o arco interno

premere ▲ O ▼ finché non compare "RAD-TL" nel messaggio

finestra.premere ▲ O ▼ per selezionare il luogo in cui visualizzare "RAD+TL";




10. Dopo aver inserito tutti i parametri, machining.

Il DRO visualizzerà la posizione del primo punto. Ritrarre il

assi finché i display non leggono 0. 000, lavora l'arco punto per punto in

in accordo con il display. Dopo aver terminato la posizione del primo

punto, premere ▲ O ▼ per cambiare punto di posizione.


Press  to quit ARC function any time.

6 . 4 elaborazione obliqua

Ci sono 2 modi disponibili per lavorare in posizione obliqua:

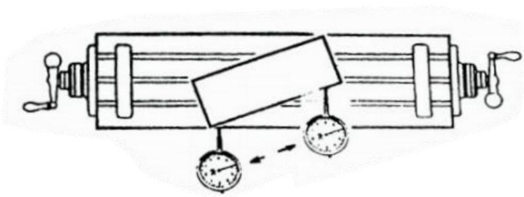
A). sul posto. b). sul posto yz, o Xz;

è necessario immettere solo i seguenti parametri:

| | |
|---|---|
| INCLUSO Xy(xz,yz) | imposta la posizione della macchina xy,yz,0rxz · |
| IL | L'angolo di inclinazione dell'obliquo· |
| LÀ | Diametro dell'UTENSILE · |
| ST POT | Posizione di partenza; |
| ED PUÒ | Fine della pubblicazione; |

Esempio 1 per il posto xy obliquo:

quando il piano di lavorazione è sul piano xy come la parte mostrata in Figura, l'angolo di obliquità del pezzo in lavorazione deve essere calibrato prima che il piano obliquo venga lavorato. Pertanto , a questo punto il la lavorazione del piano obliquo svolge il ruolo di calibrare l'obliquità ·



procedura per la calibrazione dell'obliquità

Per prima cosa posizionare il pezzo da lavorare sul tavolo da lavoro secondo l'angolazione richiesta di obliquità ·

1) Inserire la funzione del piano obliquo. 2) Selezionare la funzione del piano XY.

3) Inserire l'angolo di obliquità

4) Spostare il tavolo di lavoro fino a quando lo strumento di misura (ad esempio un comparatore a quadrante) installato sulla fresatrice tocca il piano di calibrazione dell'obliquità, lo regola a zero e sposta il tavolo di lavoro per qualsiasi distanza nel direzione dell'asse x.

5) Spostare il tavolo di lavoro nella distanza dell'asse y fino a quando il display diventa zero.

6) Change the angle of the work piece to make the workpiece touch the measuring tool and adjust it to zero.

STEPS:

1. Select place

Press SN/M1 , then the message window display "INCL_XY" to the Oblique Processing. Press ▲ or ▼ to select place to display "SEL_XY;

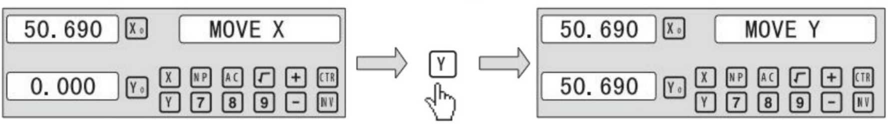
Then press ENT to in next step;


2. Input the angle of obliquity

The message window display "ANG" , X window dispalys the formerly preset the angle of obliquity. Press 4 5 in turn to input the angle of obliquity .


3. Move the workpiece along the X-Axis until the measuring tool touches the workpiece adjust it to zero, and move the worktable for any distance along the X-Axis.


4. Press Y , display the value of Y-Axis. Move the workpiece along the Y-Axis, change the angle of workpiece to make the obliquity-calibrating plane touch the measuring tool until it turns to zero. Move the worktable until Y-Axis is displayed as zero.




5. Press SN/M1 to quit oblique function any time.

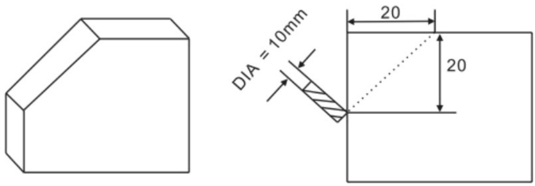
**Example 2 for the oblique XZ or YZ place**:

When the machining plane is on plane XZ or YZ, the function of TOOL inclination can instruct the operator to machine the oblique plane step by step.

Procedures for using the function of cutter inclination:

When the machining plane is on plane XZ or YZ, first please calibrate the obliquity of the primary spindle nose and set the TOOL:

| | |
|---|---|
| INCL_XY(XZ,YZ) | INCL_XZ |
| DIA | 10.000 |
| ST_POT | 20.000 |
| ED_POT | 20.000 |




STEPS:

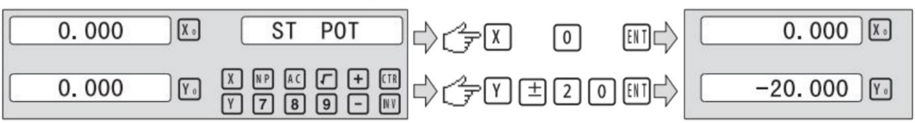
1. Press , then the message window display "INCL_XY" to the oblique Processing. Press ▲ or ▼ to select place to display "SEL_XZ; Then press ENT to in next step;


2. Input The TOOL Diameter

The message window display "DIA" , X window dispalys the formerly preset the angle of obliquity. Press 1 0 in turn to input the TOOL Diameter of obliquity . OK, then press ▼ to in next step;

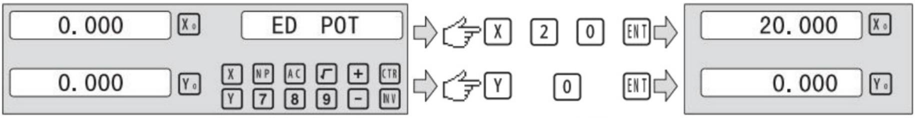

3. Input ST_POT;

The message window display "ST_POT" , X and Y window dispalys the formerly preset the stating position of obliquity. Input X= 0, Y = -20.000. OK, then press ▼ to in next step;



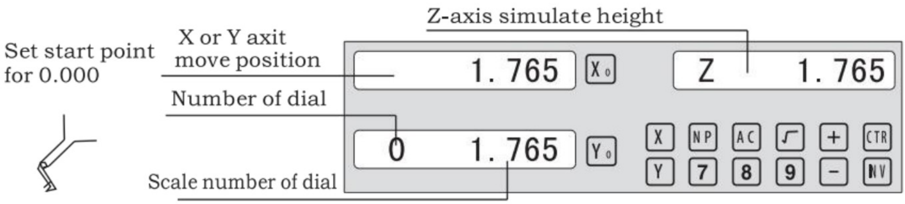
4. Input ED_POT;

The message window display "ED_POT" , X and Y window dispalys the formerly preset the stating position of obliquity. Input X= 20.000, Y = 0.000 .




5. After input all parameter, press the key ▼ for machining.

For 2-axis milling machine table , It is not installed with Z-axis, please press ▲ or ▼ to simulate position of Z-axis. Press ▲ simulate moving to the former process, and press ▼ simulate moving to the next process point.



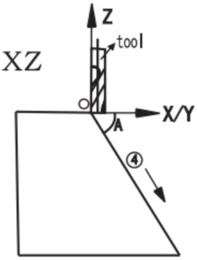

Z-axis simulate height = Number of dial x Z axis Dial + Scale number of dial

Press SN/N1 to quit **oblique** function any time.

## 6.5 Slope Processing

This function can calculate the position of everynprocessing point automatically in processing slope. Only the following parameters need to be inputted:

| | |
|---|---|
| XZ, YZ | Set machine place YZ, or XZ |
| ANG | The inclination angle |
| Z_STEP | The slope length each time processing |




**Example 1 for the Slope XZ place**;

Step 1. Select place

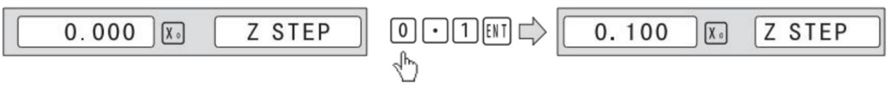
Press TAN/M3 , then the message window display "XZ" to the slope Processing. Press ▲ or ▼ to select place to display "SEL_XY; Then press ENT to in next step;


Step 2. Input the angle of slope

The message window display "ANG" , X window dispalys the formerly preset the angle of slope. Press 4 5 in turn.


Step 3. Input Z_step;

The message window display "Z STEP" , X window dispalys the formerly preset the stating position of slope. Input 0 · 1 in turn.

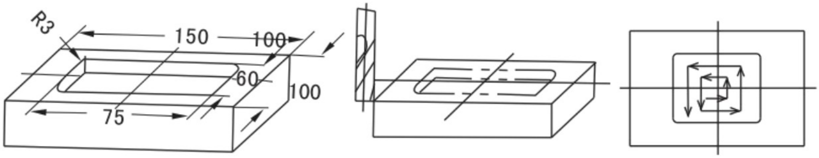



Step 4:Finishing the ALL processing . Press TAN/M3 to quit slope function any time.

## 6.6 Chambering Processing

1,FLAT_XY: machine place; 2, DIA:diameter of TOOL; 3, CENTER: center of the chambering ; 4, SIZE: size of the chambering ;

Figure as follow:

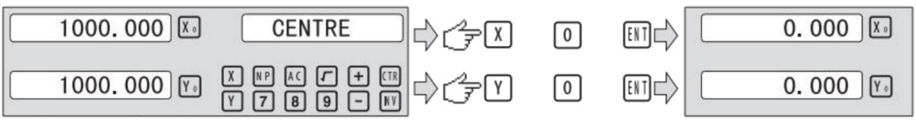



STEPS:

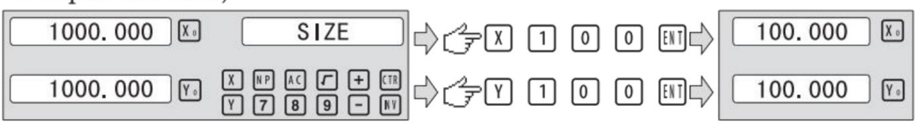
1. Press , then the message window display "FLAT_XY" to the Chambering Processing.


2. Inpur DIA of the TOOL;


3. Input the center coordinate;




4. Input the size;




5. process Chambering;

Move the machine until the display of the axis is zero,ie, the position of the first point. Machine the first point . Display the next machining point by pressing ▲ or ▼ .On the completion of machining, the right window shows OVER. Press ▲ or ▼ , the system will goto the first position for the next workpiece. Press to quit the Chambering Function.

## 6.7 The Tool Diameter Compensation Function

Without TOOL compensation, the operator has to move the TOOL for an additional distance of the diameter of the TOOL along each side when machining the four 150 and 100 sides of a workpiece to finish machining the whole brim. The digital readouts shall automatically compensate when the TOOL compensation function is enable.

Note: the TOOL compensation is made in the direction of X and Yaxis.

Procedures:

1) . Enter the function of compensating the diameter of the TOOL.
2) . Select one of the (four) preset machining modes.
3). Input the diameter of the TOOL.
4) . Enter machining.

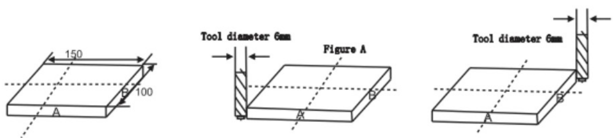
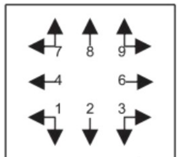


Figure A Figure B Figure C

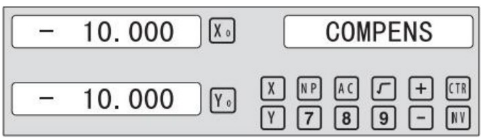


9 processing modes

Step1: press [TAN/M3] to enter the TOOL compensation Function. then the message window display "TYPE" .Press [9] .


Step 2: input the diameter of the TOOL; Press [1] [0] in turn..


Step 3: Press [▼] to the machining Mode.




Machining of 2 side planes can be done by moving the TOOL until X-Axis is 150.000 and Y-Axis is 100.000.Press the Key [TAN/M3] to quit the Function.

## 6.8 Digital Filter of the Grinding Machine

When machine a work-piece by grinder, the display values quickly due to the vibration of grinder. User can not see display value clearly. Grinder DRO provides display value filter function to disable the quake change of display value.

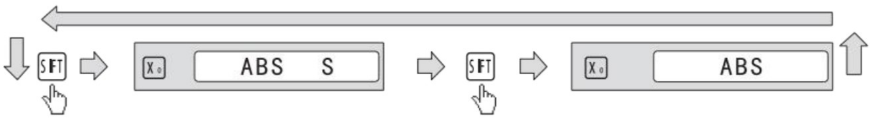
STEPS:

1. Enter display value filter function.

In normal display state, press SIFT to simultaneously, enter display value filter function.

2. Exit display value filter function;

Press SIFT , exit display value filter function;



## 6 . 9 La funzione

### 6.9. 1 200 set di librerie TOOL

Per elaborare parti diverse è sempre necessario uno STRUMENTO diverso · Per funzionamento conveniente, la La le letture digitali hanno la funzione di 200 set di librerie TOOL ·

Nota: solo quando il la è dotato del blocco di impostazione degli utensili è possibile utilizzare , le 200 librerie TOOL.

1. impostare un dato TOOL. Dopo l'impostazione dell'utensile, azzerare l'asse x e l'asse Z, il imposta lo zero della coordinata assoluta ·

2. In base alla dimensione di TOOL l e datumTOOL, determinare il posizione di TOOL relativa allo zero della coordinata assoluta e dello strumento di riferimento · AS Figura 6-1. La dimensione relativa di TOOL 2 è AS segue l'asse x 25-30=- 5 , Asse Z 20-10=10 ·

3. Salvare il numero dello STRUMENTO e la dimensione nel display digitale ·

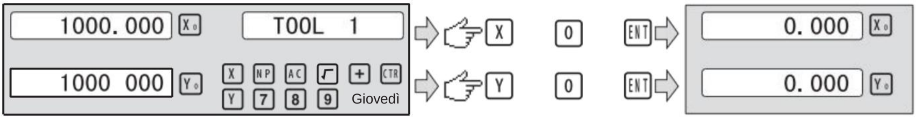
4. Il numero di TOOL può essere inserito in modo casuale, le letture digitali visualizzerà la posizione dell'utensile rispetto alla coordinata assoluta zero · Sposta la finché sia l'asse X che l'asse Z non visualizzano zero · 5.
Le librerie TOOL possono salvare 200 set di dati degli utensili.

6. Le librerie TOOL devono essere utilizzate nello stato di apertura. I 200 set rooi Libs può essere aperto premendo continuamente ± dieci volte finché la finestra di destra lampeggia TL - OPEN e viene visualizzato un segno "21" la finestra informativa a sinistra della destra. Il Mark indica il l'operatore può configurare o rivedere i 200 set di librerie TOOL in modo continuo premendo il tasto ± dieci volte causerà la cancellazione delle 200 librerie TOOL da chiuso e il finestrino destro lampeggia TL - CLOSE e il Mark scompaiono · quando il segno "21" scompare, le librerie TOOL set 200 possono non essere rivisto

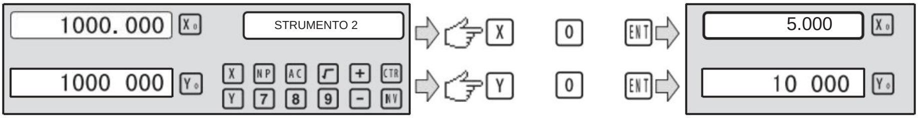
Le operazioni per i dati TOOL e la chiamata a TOOL sono illustrate di seguito · passaggio 1: nello stato ABS, immettere i dati dei 200 set di librerie TOOL.

apertura dei 200 set TOOL Libs premendo continuamente il tasto ± dieci volte A. Il segno "" apparirà nella finestra di sinistra della finestra di destra finestra informativa.

passo 2: premere TOOL per ACCEDERE allo stato di immissione. Inserisci i dati rooi 1:




passaggio 3: immissione dati TOOL 2:




passo 4: premere per continuare a immettere i dati dello strumento successivo. Premendo

numero e il tastoÿ l'operatore può immettere direttamente lo speciale

datistrumentali. stampa TOOL tocca

Dopo aver configurato le librerie TOOL, utilizzare le librerie TOOL in base a operazioni successive montare prima il secondo utensile ·

passaggio 5: Per accedere allo stato di utilizzo tramite pr css CALL .Quindi pr css 2 EN T ·


passo G: premere ▲ O ▼ · seleziona il rotolo base. Quindi premi 1 ET


passo 7: premere CALL per uscire dalla funzione;

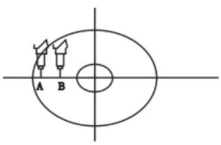
Nota:

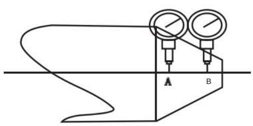
quando viene utilizzato lo strumento base , l'asse non può essere azzerato nello stato ABS ·

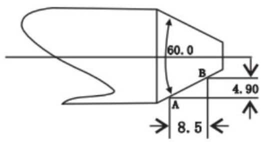
quando gli altri vengono utilizzati , l'asse può essere azzerato solo nello stato INC ·

6 . 9 . 2 Funzione di riduzione

Per la tornitura del pezzo con conicità, la conicità del pezzo può essere misurato in fase di elaborazione;



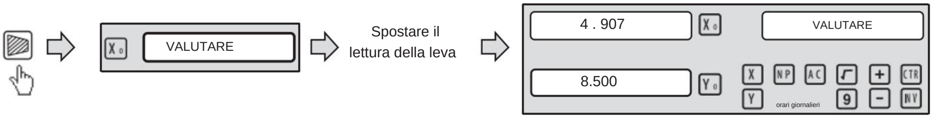



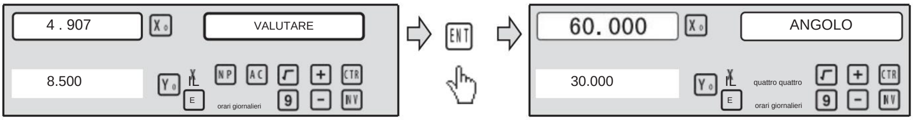
## Operations :

Figura AS, superficie di contatto A del pezzo in lavorazione con letture a leva e ripristina il punto di lettura della leva a zero ·

passaggio 1: premere quindi la finestra del messaggio visualizza UMEASU" per elaborazione della carta · Spostare la lettura della leva sulla superficie B finché il le letture della leva indicano come segue;




passaggio 2: premere T per calcolare.




passaggio 3: premere per uscire dalla funzione;

### 6 . 9 . 3 Funzione R/D

Per tornio a 2 assi e tornio a 3 assi, premere , La modalità di visualizzazione l'asse ofx viene commutato tra Raggio e Diametro. quando l'asse x per visualizzazione del diametro, un segno u finestra " apparirà a sinistra della destra informativa, ma quando l'asse X per la visualizzazione di un metro , il segno " " scompare · solo l'asse x ha la funzione di diametro/raggio transformation.

### 6 . 9 . 4 Funzione Y + Z (applicabile solo a: 3 assi La the)

Per 3 assi La, il contatore dell'asse y e il contatore dell'asse z Può essere aggiunto alla visualizzazione sull'asse Z premendo il tasto ,

quindi premere il tasto CAn per annullare la funzione y + Z ·

## 6.10 EDM (funzione di personalizzazione speciale, se è necessario acquistarla, si prega di contattare il rivenditore per la personalizzazione)

1 Descrizione: Questa funzione viene utilizzata per la lavorazione speciale di Elettroerosione (EDM). quando il valore target impostato per l'EDM L'asse Z è uguale al valore attuale, il display digitale emetterà il valore segnale di commutazione per controllare l'EDM per interrompere la lavorazione in profondità.

L'impostazione della direzione dell'asse Z del display digitale è mostrata come nella figura 1 , cioè Più profonda è la profondità, maggiore è il valore delle coordinate dell'asse Z visualizza · dall'inizio della lavorazione, la profondità aumenterà gradualmente e asse Z.

In base alla direzione dell'asse Z impostata, la direzione di lavorazione è divisa in lavorazione positiva e negativa · quando l'elettrodo scende e la lavorazione viene eseguita dall'alto verso il basso, il digitale il valore di lettura aumenterà, e ciò viene definito lavorazione positiva (positiva). L'impostazione di questa direzione è l'impostazione normale·

quando l'elettrodo ASCENDS e la lavorazione viene eseguita dal basso verso l'alto, il valore della lettura digitale diminuirà · Il la direzione di lavorazione è la direzione negativa (negativa), che è anche chiamata lavorazione negativa (mostrata come Fig. 1)

Il Digital Readout presenta anche altre funzioni , come ad esempio negativo altezza ignifuga. La funzione altezza ignifuga negativa è un tipo di posizione intelligente segui controllo dispositivo di protezione di sicurezza. Nel processo della lavorazione, la superficie dell'elettrodo genererà il carbonio fenomeno di accumulo. A causa del lungo tempo o della lavorazione diurna senza tendere, quando si genera l'accumulo di carbonio e nessuno fa la pulizia, l'elettrodo aumenterà lentamente lungo la direzione negativa · una volta che l'elettrodo supera il livello del liquido, spesso prendono fuoco e causano perdite. Questa funzione è impostata solo per mirare a questo problema. quando si imposta un'altezza ignifuga negativa, e il l'altezza aumentata dell'elettrodo supera l'altezza tra esso e l' profondità della superficie lavorata (cioè altezza ignifuga negativa), il digitale il display di lettura lampeggerà per WQring; allo stesso tempo, l'uscita il segnale disattiverà automaticamente l'EDM per eliminare il rischio di incendio ·

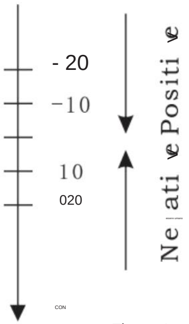



Figura 1

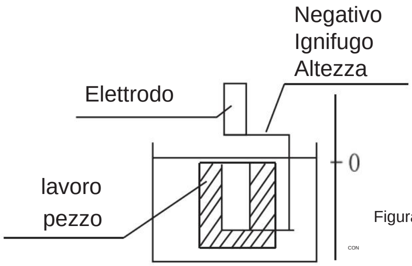



Figura 2

2. procedura:

vedere l'esempio seguente per la lavorazione dettagliata

1) Prima della lavorazione, impostare innanzitutto ogni parametro di PROFONDITÀ (profondità di lavorazione); ERRHIGH (altezza ignifuga negativa), lavorazione direzione (POSITIVO / NEGATIVO); modalità di uscita (AUTO/STOP) e Modalità di uscita del relè EDM ·

2) Spostare l'elettrodo dell'asse principale dell'asse Z per farlo entrare in contatto con riferimento del pezzo · azzerare l'asse A o impostare il valore ·

3) Entrare nella lavorazione EDM premendo il tasto css EDM .

4) L'asse X visualizzerà il valore target della profondità di lavorazione · L'asse Y visualizzerà il valore visualizzato è stato la profondità. (Il valore sull'asse Y è il valore che il pezzo è stato lavorato in profondità) L'asse Z sarà visualizza il valore in tempo reale della posizione di sé. (Il valore sull'asse Z è il valore di posizione dell'elettrodo dell'asse principale dell'asse z.)

5) avviare la lavorazione, il valore visualizzato sull'asse Z si avvicina gradualmente al valore target, e il valore visualizzato sull'asse y è anche gradualmente vicino al valore target. Se in questo momento l'elettrodo viene ripetutamente Su e Giù, il valore visualizzato sull'asse Z cambierà successivamente, ma il valore visualizzato sull'asse Y il valore non cambierà, e verrà sempre visualizzata la profondità lavorata value.

6) quando il valore visualizzato sull'asse Z è uguale al valore target impostato, il l'interruttore di posizione raggiunto verrà spento, l'EDM interromperà la lavorazione, In base alle impostazioni dell'operatore, sono disponibili due tipi di modalità di uscita:

a) Automatic Mode:

it will automatically exit from EDM machining status and recover to the original state before machining;

b) Stop Mode:

It will always stay at the machining interface after finishing machining, and you should press [EDM] to exit and back to the original state.

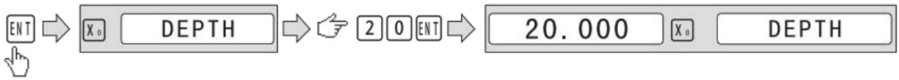
**Operation steps:**

**The DEPTH (machining Depth), ERRHIGH (Negative fireproof height), exit Mode, EDM Relay Output Mode and machining direction should be set.**

STEPS:

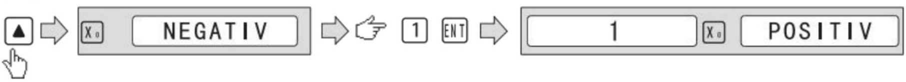
1. Press [EDM] to enter the EDM Function. Press [▲] to input parameters;Press [▼] to enter EDM machining state.

2. Input DEPTH ( machining depth). Press the key [▲] to set the next parameter.




3. input ERRHIGH ( Negative Fireproof Height ) (undefine) .Press the key [▲] to set the next parameter.


4. Set machining direction(Positive or Negative). Press [1] to select Positive direction. Press [0] to select Negative direction. Press the key [▲] to set the next parameter.



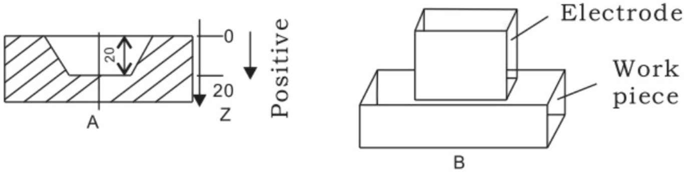
5. Set exit Mode (AUTO Mode or STOP Mode) Press 0 to select AUTO Mode; Press 1 to select STOP Mode ; Press the key ▲ to set the next parameter.


6. Set the Output Mode (Mode 0 or Mode 1); ( undefine ). Press 0 to select Mode 0; Press 1 to select Mode 1.


7. Continuously press ▼ to return EDM for machining. press EDM to quit the function;

**Example 1: positive direction machining ;**

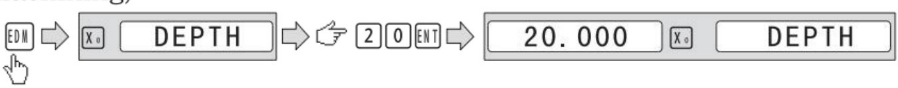
Machining is shown as the model chamber as follows



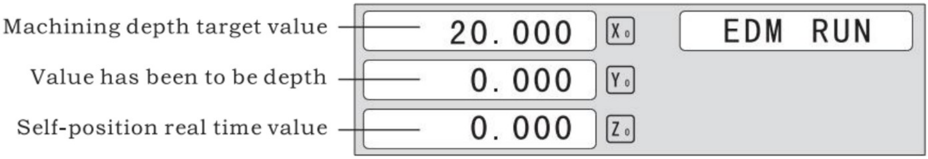

STEPS:

1、Touch one side of the workpiece with the TOOL,then press Z0 , zero the Z axis。


2、Press EDM , Setting DEPTH for 20.000; press ▼ to EDM for machining;

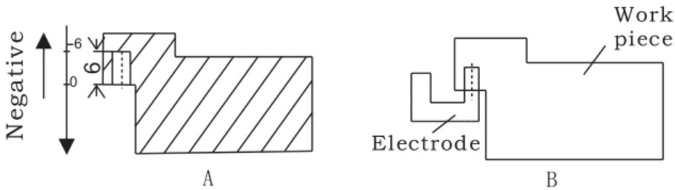



3、Starting machining。




**Example 2: Negative direction machining**

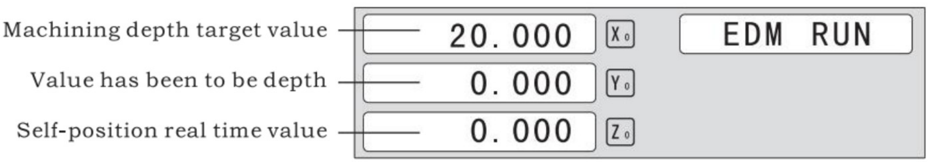
Machining is shown as the model chamber as follows




1、Touch one side of the workpiece with the TOOL,then press [Z0] , zero the Z axis。


2、Press [EDM], Setting DEPTH for -20.000; press [▼] to EDM for machining;


3、Starting machining。




**Example 3:** PCD Function for EDM

PCD Function can access the EDM Function . The operator enters PCD Function to input parameters for PCD and enter PCD machining state. At every position for machining, press the key [EDM] to access the EDM Function .

quando si accede alla funzione EDM, l'operatore può immettere i parametri per EDM ·

La procedura operativa è la seguente:

1) impostare i parametri PCD (l'impostazione è la stessa dell'impostazione comune del PCD)

Dopo aver inserito tutti i parametri ed essere entrati nello stato di lavorazione PCD · Il verrà visualizzata la posizione del primo foro.

2) premere EDM per immettere il parametro della funzione EDM (il metodo di impostazione è lo stesso dell'impostazione comune del parametro EDM); dopo aver inserito tutti i parametri, premere continuamente quando la ▼ per entrare nello stato di lavorazione EDM. lavorazione è terminata, premere Invio Stato di EDM per uscire dalla funzione EDM e lavorazione PCD ·

3) Nello stato di lavorazione PCD, premere ▼ per la posizione della buca successiva, OVE la macchina al valore di visualizzazione 0 , quindi pr css EDM per accedere Funzione EDM di nuovo · 4) Ripetere i passaggi 2 e 3 per i seguenti punti di lavorazione.

## 7 calcolatrice

La calcolatrice non fornisce solo normali calcoli matematici come +, - , x , /, fornisce anche calcoli trigonometrici come AS PECCATO , Arco SIN , COS , Arco COS , ABBRONZATO , Arco TAN SQRT ecc.

Le operazioni sono le stesse delle calcolatrici commerciali, facili da usare.

### Funzione di entrata e uscita dalla calcolatrice

in stato di visualizzazione normale: premere R per CT accedere alla funzione calcolatrice.

nello stato di visualizzazione della calcolatrice: premere CT R per uscire dalla funzione calcolatrice.

Trasferimento dei risultati della calcolatrice per zx selezionato.

Dopo aver completato il calcolo, se la calcolatrice visualizza la modalità impostata per modalità 1 , l'utente può:

premere X0 per trasferire il risultato calcolato sull'asse tox; quindi l'asse x la finestra visualizzerà questo valore;

premere Y0 per trasferire il risultato calcolato sull'asse del giocattolo; quindi la finestra visualizzerà questo valore;

premere Z0 per trasferire il risultato calcolato sull'asse z; quindi z la finestra visualizzerà questo valore;

### Trasferimento del valore corrente di Displayvalueinwindow alla calcolatrice.

se la calcolatrice visualizza la modalità impostata per la modalità 1 , l'utente può:

premere X per trasferire il valore visualizzato nella finestra x alla calcolatrice;

premere Y per trasferire il valore visualizzato nella finestra Y per calcolare r;

premere Z per trasferire il valore visualizzato nella finestra z alla calcolatrice;

# 8 Appendix

## 1. Troubleshooting:

The following are the preliminary solvents for troubleshooting.

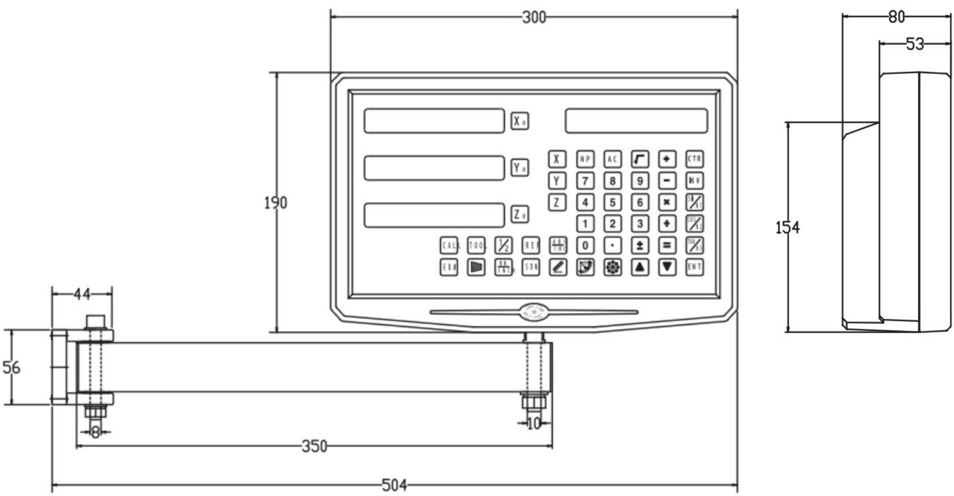
If there is still trouble, Please contact out company or agents for help.

| Troubles | Possible reasons | Solvents |
|---|---|---|
| No display | 1. Power isn't connected<br>2. Power switch is off.<br>3. The range of power voltage is not right.<br>4. The inner power of Linear Scale is short. | 1. Check power wire and connect the power<br>2. Turn on the power switch.<br>3. The range of voltage is in 80--260V<br>4. Unplug the connector of linear scale |
| One axis is not counting | 1. Replace the linear scale of the other axis.<br>2. DRO is in special function | 1. If count is normal, the linear scale has trouble; If abnormal, the DRO readouts has trouble.<br>2. Quit the special function. |
| Linear scale is not counting | 1. Reading head is bad for using range exceeds.<br>2. Aluminum chips is in reading head of linear scale.<br>3. The span between the reading head and metal part of linear scale is large.<br>4. The metal parts of linear scale is damage. | 1.Repair the linear scale<br>2. Repair the linear scale<br>3. Repair the linear scale<br>4. Repair the linear scale |
| Counting is error | 1. Shell is poor grounding.<br>2. Low precision of machine.<br>3. Speed of machine is too rapid.<br>4. Precision of linear scale is low.<br>5. The resolution of DRO readouts and the linear scale is not match.<br>6. The unit (mm/inch) is not match.<br>7. Setting thelinear compensating is not arrest.<br>8. Reading head of the linear scale is damaged. | 1. Shell is good grounding.<br>2. Repair the machine.<br>3. Reduce the speed of machine.<br>4. Mount the linear scale again.<br>5. Set the resolution of the DRO again,<br>6. Cover the unit of display mm/inch.<br>7. Reset the linear compensation.<br>8. Repair the linear scale. |
| The counting of the linear scale is not accurate | 1. The mounting of linear scale does not demand the requirement, and the prcision is not adequate.<br>2. The screw is loosen.<br>3. Precision of machine is low.<br>4. The resolution of digital readouts and the linear scale is not match. | 1. Mount the linear scale again and level it.<br>2. Lock all fixing screws.<br>3. Repair the machine.<br>4. Reset the resolution of digital readouts. |
| Sometimes the linear scale is not counting | 1. The small car and steel ball is separated.<br>2. The glass of reading head is wearied.<br>3. The glass of reading head of the linear scale has dirt.<br>4. The elasticity of the steel wire is not adequate. | 1. Repair the linear scale.<br>2. Repair the linear scale.<br>3. Repair the linear scale.<br>4. Repair the linear scale. |

2. Specifications of Digital Readout.

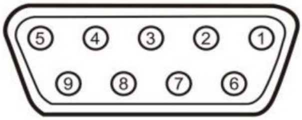
1) Supply Voltage range: AC 85 V ~ 230 V; 50 ~ 60 Hz
2) Power consumption: 15VA
3) Operating temperature: 0℃-- 50℃
4) Storage temperature: - 30℃-- 70℃
5) Relative humidity: < 90 % ( 25 )
6) Max Coordinate number: 3
7) Readout allowable input signal: TTL square wave
8) Allowable input signal frequency: < 5 M Hz
9) Max resolution of digital display length: 0.01 um
10) Max resolution of digital display angle: 0.0001 / PULSE

3. Instructions



# 4. Examples of character output at the data interface

## 1、X,Y,Z Axis

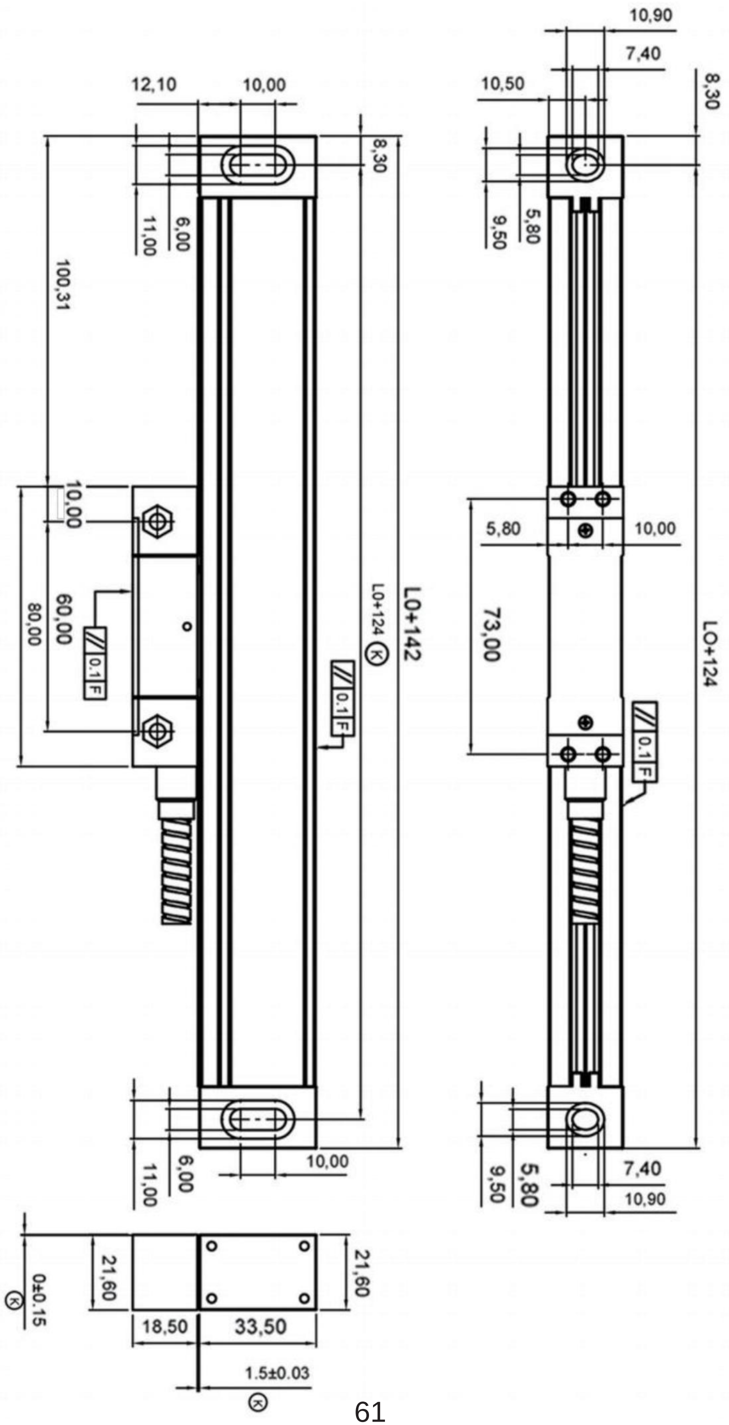



| Pin | TTL (Standard) |
|---|---|
| 1 | |
| 2 | OV |
| 3 | |
| 4 | |
| 5 | |
| 6 | A+ |
| 7 | 5V |
| 8 | B+ |
| 9 | R+ |

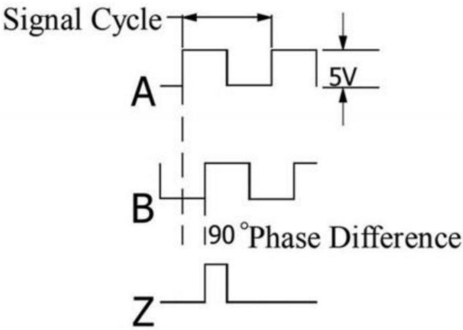
| Pin | TTL (Standard) |
|---|---|
| 1 | 5V |
| 2 | OV |
| 3 | A+ |
| 4 | B+ |
| 5 | R+ |
| 6 | |
| 7 | |
| 8 | |
| 9 | |

For your convenience,
If you buy a digital readout,

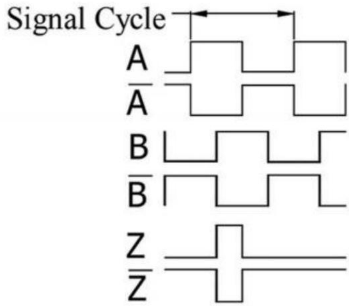
The wiring definition of your linear scale must be the same as the 2 definitions in the above diagram to be universal!


12,10
10,00
8,30
6,00
11,00
100,31
10,00
60,00
80,00
0.1 F
L0+124 K
L0+142
10,00
6,00
11,00
21,60
18,50
33,50
21,60
0±0.15 K
1.5±0.03 K
10,90
7,40
10,50
8,30
5,80
9,50
5,80
10,00
73,00
LO+124
0.1 F
7,40
10,90
5,80
9,50

TTL signal Output:




EIA-422-A signal Output:




1. TECHNICAL PARAMETER

1.1 SCALING DISTANCE: 0.02 MM (50LINES /MM)

1.2 RESOLUTION: 5μM、1μM、0.5μM

1.3 PRECISION: ±3μM、±5μM、±15μM/M (20±0.1℃)

1.4 MEASURING RANGE: 30~3000MM

1.5 MOVING SPEED: HIGH-SPEED ENCODER 120 M/MIN (TO BE CUSTOMIZED)

ORDINARY ENCODER 60M/MIN

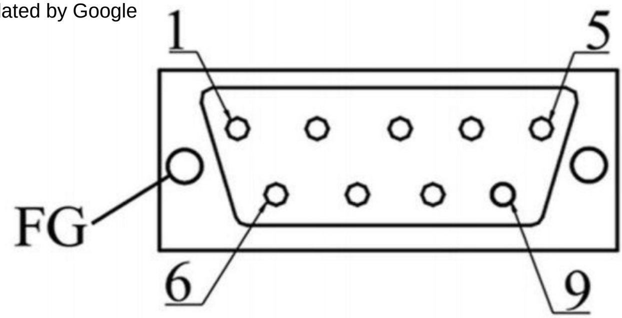
1.6 POWER SUPPLY: +5V±5%、80MA

1.7 CABLE LENGTH: STANDARD 3M (SPECIAL LENGTH AVAILABLE ACCORDING TO THE USER'S NEEDS)☒

1.8 WORKING TEMPERATURE: 0~45℃

1.9 PIN DESCRIPTION:

1) APPLICABLE TO: 9 PIN SOCKET EIA-422-A SIGNAL OUTPUT.




1) Applicable to: 9 pin socket EIA-422-A signal Output.

| Pin Position | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| Signal | $\overline{A}$ | OV | $\overline{B}$ | Empty | $\overline{Z}$ | $A$ | +5V | $B$ | $Z$ |
| Color | Green Black | Black | Orange black | FG | White black | Green | Red | White | Orange |

FG: Shield connected to metal casing.

1) Applicable to: 9 pin socket TTL signal Output.

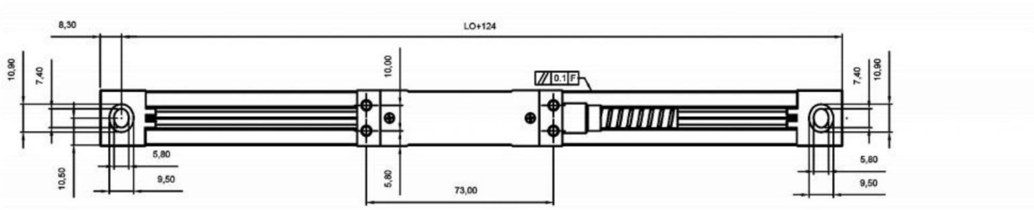
| Pin Position | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| Signal | | OV | | Empty | | $A$ | +5V | $B$ | $Z$ |
| Color | | Black | | FG | | Green | Red | Orange | White |

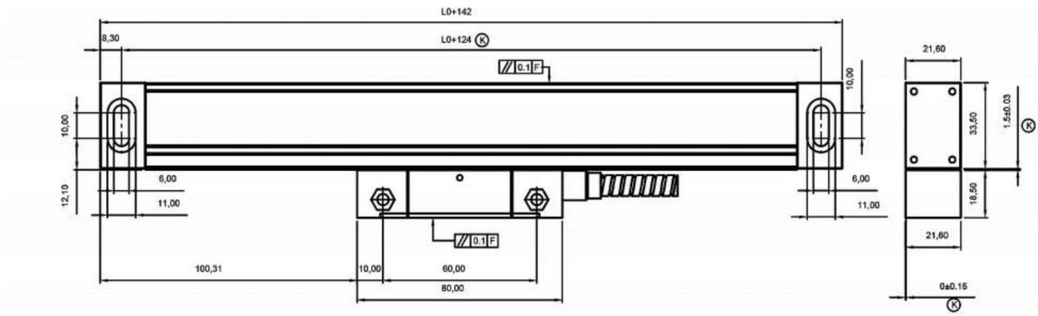
FG: Shield connected to metal casing.

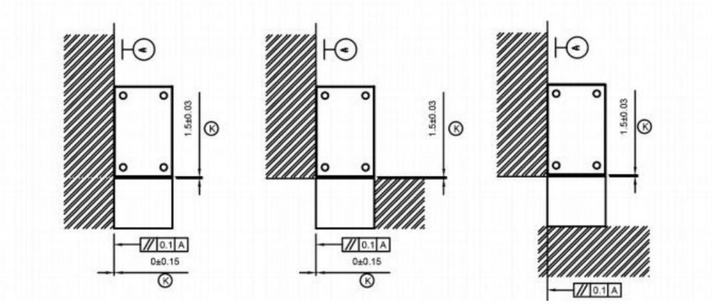
# Scala lineare

## Disegni di installazione

# Metodo di installazione:



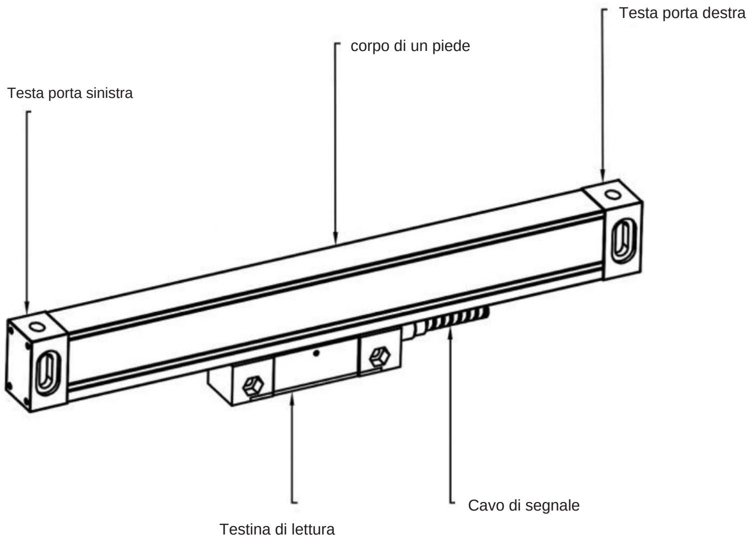

## Misura standard: (Unità:mm)

| Modello | ESSO | L1 | L2 | Modello | L0 | L1 | L2 |
|---|---|---|---|---|---|---|---|
| YE-50 | 50 | 174 | 190 YE-550 550 | | | 674 | 690 |
| YE-100 | 100 | 224 | 240 YE-600 | | 600 | 724 | 740 |
| YE-150 | 150 | 274 | 290 | Modello YE-650 650 | | 774 | 790 |
| Anno-200 200 | | 324 | 340 YE-700 700 | | | 824 | 840 |
| YE-250 250 | | 374 | 390 | YE-750 | 750 | 874 | 890 |
| YE-300 300 | | 424 | 440 YE-800 | | 800 | 924 | 940 |
| YE-350 350 | | 474 | 490 YE-850 850 | | | 974 | 990 |
| YE-400 400 | | 524 | 540 YE-900 | | 900 | 1024 | 1040 |
| YE-450 450 | | 574 | 590 YE-950 950 | | | 1074 | 1090 |
| YE-500 500 | | 624 | 640 YE-1000 1000 | | | 1124 | 1140 |

L0: Lunghezza di misura effettiva dell'encoder lineare; L1: Lunghezza dell'encoder lineare fori di montaggio; L2: lunghezza complessiva dell'encoder lineare

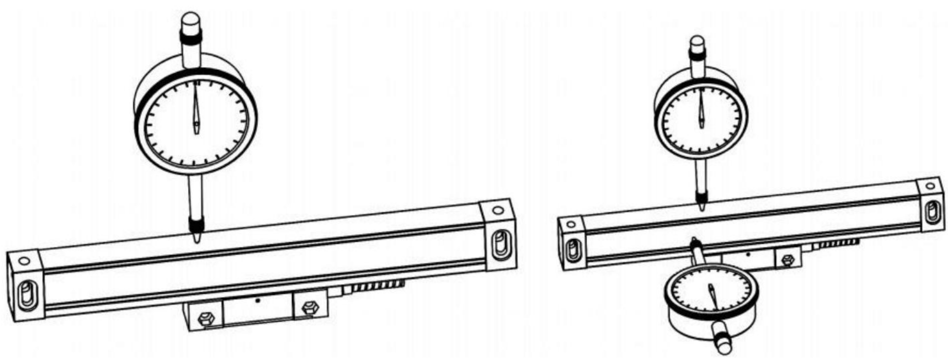
# Manutenzione:

1. La corsa effettiva dell'encoder lineare deve essere più lunga del massimo corsa della macchina utensile. Se la lunghezza non è sufficiente, sostituire l'encoder lineare con una corsa maggiore o aggiungere un blocco di fine corsa sulle macchine. La posizione finale della testina di lettura dall'estremità del corpo dell'encoder lineare non deve essere inferiore a 10 mm di spazio (vedere il diagramma seguente).

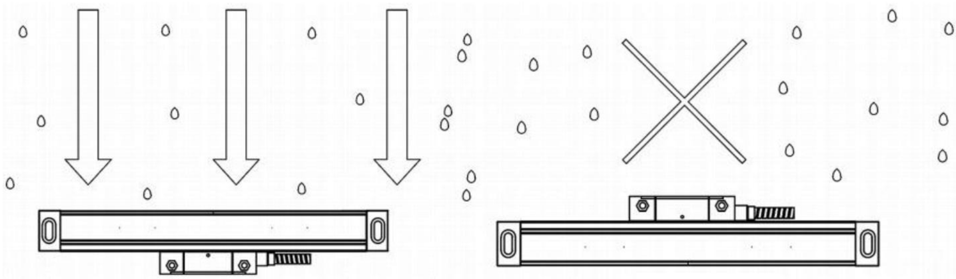



2. Per qualsiasi superficie non lavorata, è necessario posizionare un distanziale sul retro dell'encoder lineare oppure utilizzare un distanziale di installazione realizzato dall'utente per garantire la stabilità e l'affidabilità della connessione tra il righello a reticolo e la superficie di montaggio

3. Quando si utilizza un comparatore a quadrante o uno strumento simile per calibrare il parallelismo dell'encoder lineare, l'angolo della testa laterale deve essere compreso tra ±30 gradi e più piccolo è l'angolo, meglio è.



4. La posizione di installazione dell'encoder lineare deve evitare l'impatto diretto del ferro limatura, olio, acqua e polvere (come mostrato nella figura sottostante). La lunghezza di installazione della piastra L dovrebbe essere il più corta possibile in base alle circostanze possibili, e bisogna tenere conto della situazione di forza della superficie di montaggio.

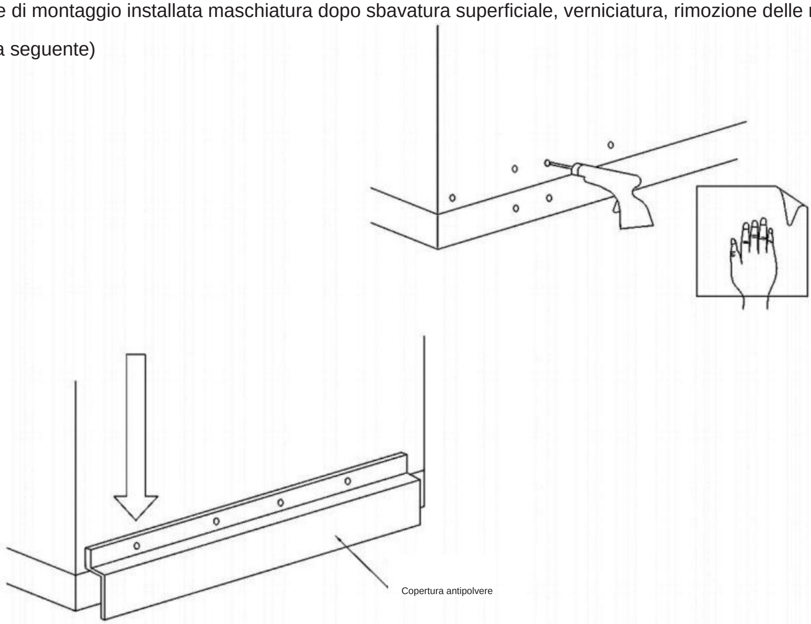


Installazione corretta

Installazione errata

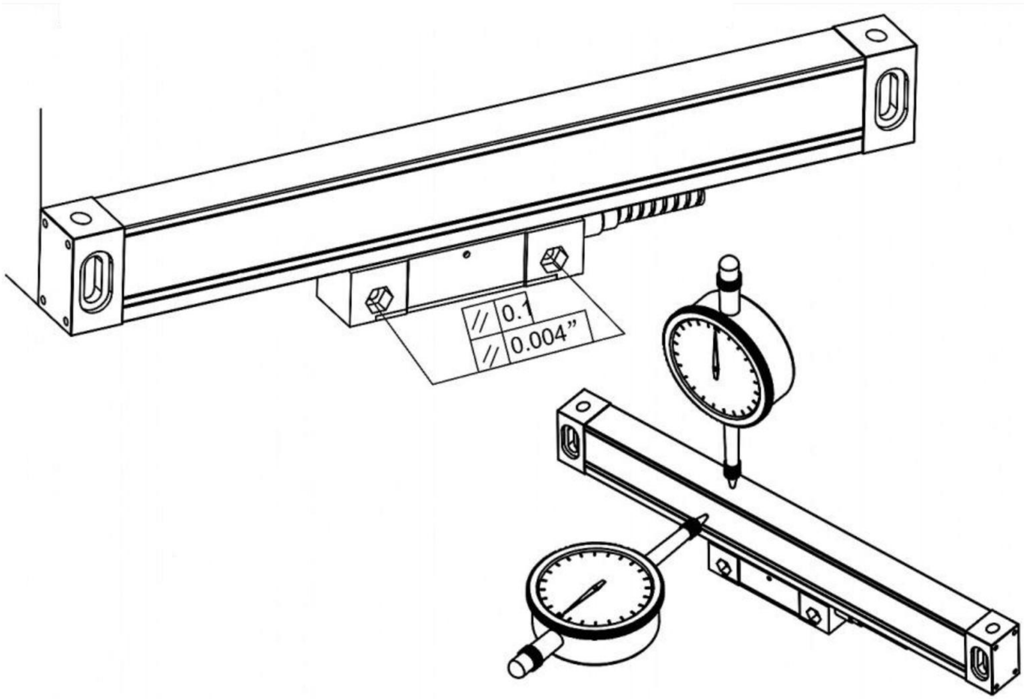
5. Deve esserci uno spazio di 0,5 mm o più tra la copertura antipolvere e il righello corpo ed evitare il contatto tra il coperchio antipolvere e il corpo del righello quando muovendo la testina di lettura (come sotto).

6. Profondità della filettatura della vite di installazione, deve avere almeno 6 denti di profondità di bloccaggio; forzare la parte più grande, come il supporto della piastra fissa del ripiano del misuratore del display digitale, deve avere 8 denti di profondità di bloccaggio; serie YE di scala, la profondità della filettatura profondità della profondità di bloccaggio. Come il supporto del ripiano del misuratore del display digitale fisso piastra, deve avere una profondità di bloccaggio superiore a 8 denti; scala serie YE con viti M4 superficie di montaggio installata maschiatura dopo sbavatura superficiale, verniciatura, rimozione delle macchie. (La figura seguente)

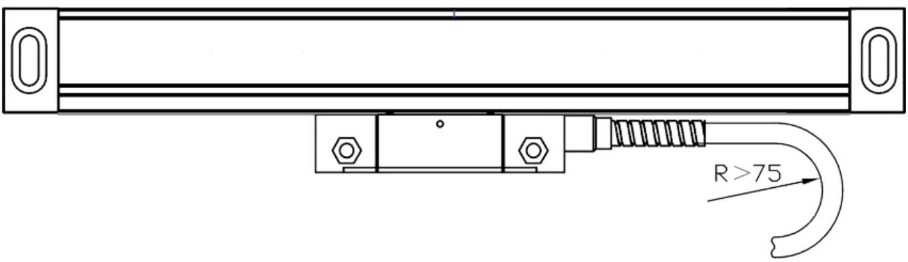


7. Il fissaggio della linea di segnale deve tenere conto di tutte le distanze di movimento rilevanti. La posizione di fissaggio deve essere posizionata il più possibile al centro della corsa e la linea del segnale in eccesso viene fissata con una fascetta.

8. La regolazione del livello di altezza della scala deve essere la lunghezza del centro della scala per prendere i due lati del punto di simmetria. Regolare il punto di riferimento, qualsiasi scala indipendentemente dalla direzione del livello scolastico o dalla direzione dell'altezza, l'intervallo di regolazione: per il corpo della scala, alla testa dal corpo della scala a una distanza non superiore a 20 mm da ciascuna estremità prevarrà. Per la testina di lettura, tra le due superfici di riferimento quadrilatere (la figura seguente)




9. Il raggio di curvatura della linea del segnale della scala è maggiore di 60 mm.



10.Standard di installazione della scala

(1) Standard di superficie di base dell'installazione (Figura 4.8abc tre metodi di installazione)

1. La superficie di installazione del corpo del righello è parallela alla superficie di installazione della testina di lettura e il parallelismo tra le superfici di installazione è <0,1 mm

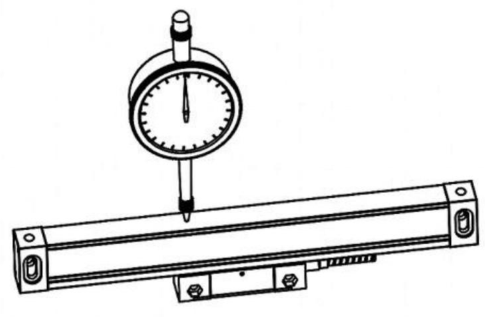
2. La superficie di installazione del corpo del righello è perpendicolare all'installazione superficie della testina di lettura e la perpendicolarità tra le superfici di installazione è <0,1 mm

2) Standard di installazione del corpo del righello (Figura 4.9, Figura 4.10)

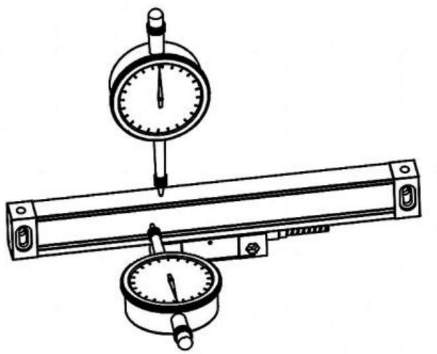
1. Direzione dell'altezza rispetto al parallelismo della guida della macchina <0,1 mm, massimo non superiore a 0,15 mm In termini di punto di simmetria, più piccolo è, meglio è.

3) Standard di installazione della testina di lettura

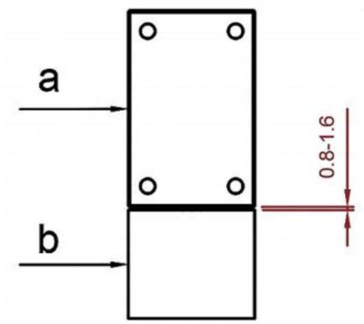
1. Dopo l'installazione, la distanza tra la testina di lettura e la direzione dell'altezza del corpo del righello è di 0,8 mm-1,6 mm, quindi estrarre il blocco del pad (Figura 4.11)



4.9



4.10




2. Testina di lettura lato A e corpo del righello lato B. Disallineamento in direzione orizzontale.

0,25±0,15 mm

3. Parallelismo della testina di lettura rispetto a

macchina utensile <0,10mm, il massimo non può superare 0,30mm

## Parametro:

| Modle | SNS-3V-YE102024 | SNS-3V-YE161838 |
|---|---|---|
| Rated voltage: | AC85-230V 50Hz/60Hz | |
| Resolution | 5 μm | |
| Number of axles | 3 | |
| Range | 10 inches<br>20 inches<br>24 inches | 16 inches<br>18 inches<br>38 inches |

## Accessori standard:

| Accessories for digital display meters: | Accessories for grating ruler: |
|---|---|
| 1. Support rod * 1 | 1. Ruler cover * 3 |
| 2. Knife holder plate * 1 | 2. L mounting plate * 4 |
| 3. Transparent watch case * 1 | 3. Plug * 6 |
| 4. Power cord * 1 | 4. Screw pack * 3 bags |
| 5. Watch holder * 1 | Each bag contains: |
| 6. Butterfly piece * 2 | Internal hexagonal screw M4 * 30 * 4; |
| 7. M8 * 70 screw * 1 | Internal hexagonal screw M4 * 12 * 2; |
| 8. M10 * 55 screw * 1 | Internal hexagonal screw M4 * 8 * 4; |
| 9. Nut M10 * 1 | U-shaped gasket T=0.2mm * 2; |
| 10. Nut M8 * 1 | Washer φ 6 * 2; |
| 11. Nut M5 * 1 | Washer φ 5 * 2; |
| 12. Internal hexagonal screw M5 * 20 * 2 | Washer φ 4 * 6; |
| 13. Internal hexagonal screw M5 * 25 * 1 | Line card * 2 |
| 14. M4 * hex socket screw * 4 | |
| 15. M5 * 10 machine meter screws * 2 | |
| 16. Washer φ 10 * 1 | |
| 17. Washer φ 8 * 1 | |
| 18. Washer φ 5 * 1 | |
| 19. Rubber washer 20 * 10 * 1 * 1 | |
| 20. Rubber washer 20 * 10 * 0.5 * 1 | |
| 21. Spring washer φ 10 * 1 | |
| 22. Spring washer φ 8 * 1 | |
| 23. Spring washer φ 5 * 1 | |

**Questo dispositivo è conforme alla Parte 15 delle Norme FCC. Il funzionamento è soggetto alle due condizioni seguenti: (1) Questo dispositivo non può causare interferenze dannose e (2) Questo dispositivo deve accettare qualsiasi interferenza ricevuta, comprese le interferenze che possono causare un funzionamento indesiderato.**

**Produttore:** Shanghaimuxinmuyeyouxiangongsi
**Indirizzo:** Shuangchenglu 803nong11hao1602A-1609shi, baoshanqu, shanghai 200000 CN.

**Importato in AUS:** SIHAO PTY LTD, 1 ROKEVA STREETEASTWOOD NSW 2122 Australia

**Importato negli USA:** Sanven Technology Ltd., Suite 250, 9166 Anaheim Place, Rancho Cucamonga, CA 91730

Rappresentante della CE

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Mainzer Landstr.69, 60329 Francoforte sul Meno.

RAPPRESENTANZA DEL REGNO UNITO

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C/O YH Consulting Limited Ufficio 147, Centurion House, Viale Europa, 101, 00186 Roma, Italia

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# MANUAL DEL USUARIO DE LA PANTALLA DRO

## MODELO: SNS-3V-YE102024 ES NS-3V-YE161838

Seguimos comprometidos a brindarle herramientas a precios competitivos.
"salvar la mitad" , "Mitad de precio" o cualquier otra expresión similar utilizada por nosotros sólo representa una
Estimación de los ahorros que podría obtener al comprar ciertas herramientas con nosotros en comparación con las principales
Las mejores marcas y no necesariamente significa cubrir todas las categorías de herramientas que ofrecemos.
Se le recuerda que debe verificar cuidadosamente cuando realice un pedido con nosotros si está
En realidad, ahorrando la mitad en comparación con las principales marcas líderes.

VEVOR®
TOUGH TOOLS, HALF PRICE

# PANTALLA DRO

MODELO: SNS-3V-YE102024 SNS-3V-YE161838

¿NECESITA AYUDA? ¡CONTÁCTENOS!

¿Tiene preguntas sobre el producto? ¿Necesita asistencia técnica? No dude en ponerse en contacto con nosotros.

Contáctenos:

Soporte técnico y certificado de garantía electrónica
www.vevor.com/support

Estas son las instrucciones originales, lea todas las instrucciones del manual.

Antes de utilizar el producto, lea atentamente el manual de usuario. VEVOR se reserva una interpretación clara de este manual. La apariencia del producto estará sujeta a las producto que recibió. Por favor, perdónenos por no informarle nuevamente si hay actualizaciones de tecnología o software en nuestro producto.

Estimados usuarios:

Gracias por adquirir lectores digitales de la serie multifunción ·

Los lectores digitales se utilizan en una amplia variedad de aplicaciones. Estas incluyen: máquinas herramientas , en ejes de avance, equipos de medición e inspección, electroerosión y estaciones de aparatos divisores, herramientas de ajuste , medición para control de producción. Para cumplir con los requisitos de estos Aplicaciones: Se pueden conectar muchos codificadores a las lecturas digitales.

Lea atentamente todas las instrucciones del manual antes de usarlo y Sígalas estrictamente · Conserve el manual para futuras consultas ·

Atención de seguridad:

⌘ Para evitar descargas eléctricas o incendios, humedad o rociado directo Se debe evitar el uso de líquido refrigerante. En caso de humo o de que se produzcan Si siente olor en la lectura digital, desconecte el cable de alimentación. inmediatamente, de lo contrario, podría producirse un incendio o una descarga eléctrica. En tal caso, no intente repararlo, comuníquese con la empresa o distributors.

⌘ El lector digital es un dispositivo de medición preciso que se utiliza con un dispositivo óptico. Escala lineal· cuando está en uso, si la conexión entre la La escala lineal y la lectura digital están rotas o dañadas. externamente, pueden producirse valores de medición incorrectos · Por lo tanto, El usuario debe tener cuidado.

⌘ No intente reparar ni modificar la lectura digital, de lo contrario, podría producirse una falla. Puede producirse una avería o lesión. En caso de cualquier condición anormal, Por favor, póngase en contacto con la empresa o el distribuidor.

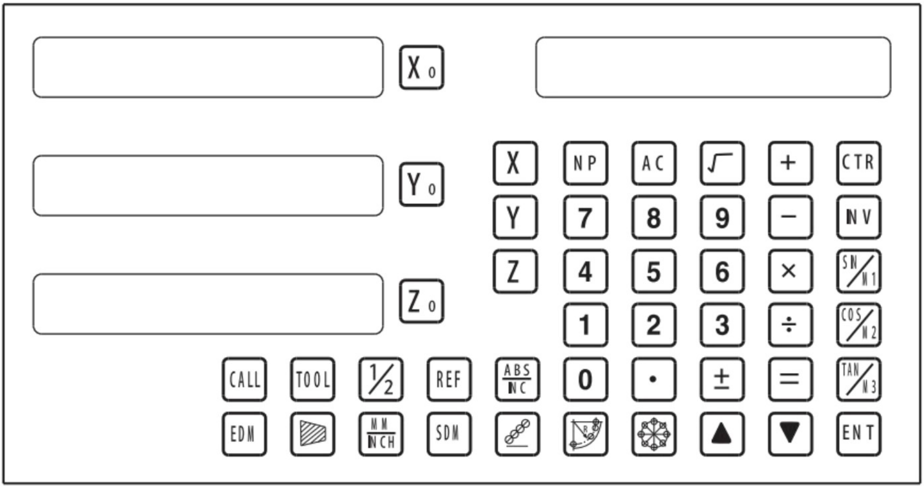
⌘ Si la escala lineal óptica utilizada con la lectura digital está dañada, no utilice una escala lineal de otra marca. Debido a que el rendimiento, las especificaciones y la conexión de los productos de diferentes marcas pueden No se conectará sin la instrucción de un técnico especializado. personal, de lo contrario, se producirán problemas en la lectura digital.

⌘ With the continuous updating of products, if there are changes or En caso de cambios en los parámetros de muestra, prevalecerán los archivos aleatorios y la empresa tendrá el derecho de interpretación final sin previo aviso.

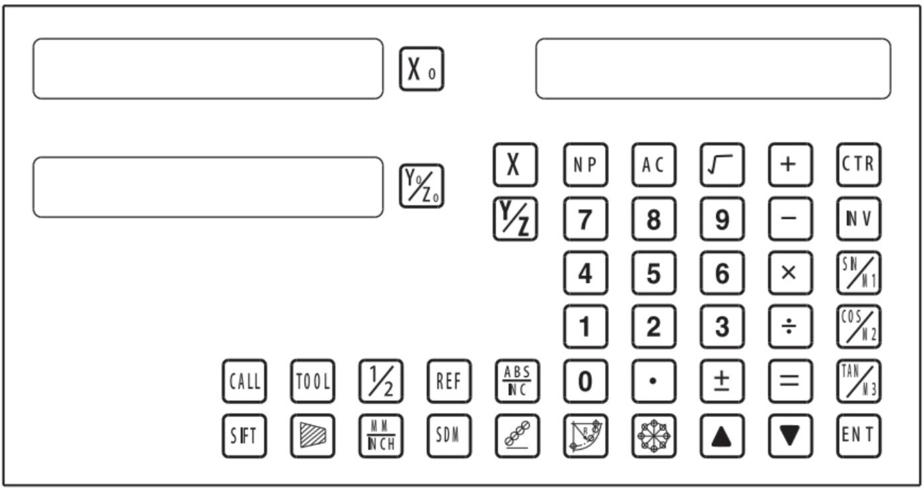
# Contents

# Contents

THREE AXIS PANEL




TWO AXIS PANEL



Keyboard Description

| | |
|---|---|
| X Y Z | Keys for axis selection |
| $X_0$ $Y_0$ $Z_0$ | Zero select axis |
| ± | Enter +/- sign |
| . | Enter decimal point |
| 0 1 2 3 4 5 6 7 8 9 | Entry keys for numbers |
| + − × ÷ = | Operation key (in Calculation function key) |
| CTR | Enter or quit calculating state |
| AC | Cancel incorrect operation |
| INV | Calculate inverse trigonometric |
| √ | Square root |
| ENT | Confirm operation |
| MM/INCH | Toggles between inch and millimeter units. |
| REF | Press when ready to identify a reference mark. |
| SDM | Function keys for 200 sub datum |
|  | ARC cutting function |
|  | holes displayed equally on a circle |
|  | holes displayed equally on a line |

| | |
|---|---|
| SIN/M1 | Calculate trigonometric or Slope Processing function key |
| COS/M2 | Calculate trigonometric or rectangular inner chamber processing function key |
| TAN/M3 | Calculate trigonometric or the tool diameter compensation function key |
| ABS/INC | Toggle between ABS/INC coordinate |
| ▲ ▼ | Stroll up or down to select |
|  | Taper measured function key |
| CALL | Tool library call key |
| TOOL | Opens the tool table.( lathe) |
| EDM | EDM function key |
| SFT | Filter display function key |
| 1/2 | Half a display value of an axis |
| NP | Non Linear Error Compensation function keys |

## 3、Parameters settings

### 3.1 Parameters setup routine entrance.

Press [·] to enter initial system and self-check after DRO powers on in 1 second, then Parameters settings display in the Parameters window.press [▲] [▼] to select the item you want to chang.

If you want to quit initial setting, press [▲] [▼] until “QUIT” appears in message window and press [ENT]. You can also press [·] to quit initial setting.

### 3.2 Parameters Settings Description

#### 3.2.1 Setting the Resolution

Press [▲] [▼] until “RESOLUTE” appears in message window;

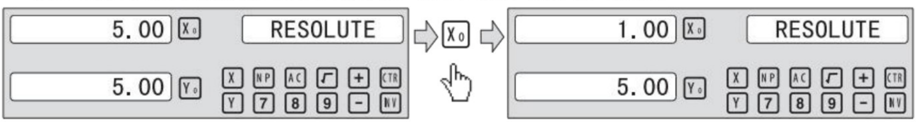
When selecting the LINEAR encode, the resolution will be set as follow:

There are 19 types of resolution:

0.01um;0.02um;0.05um;0.10um;0.20um;0.25um;0.50um;1.00um; 2.00um;2.50um;5.00um;10.00um;20.00um;25.00um;50.00um; 100.00um;200.00um;250.00um;500.00um.

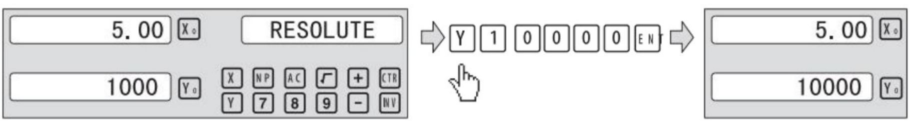
Press [X0] to change the resolution for X axis;Press [Y0] to change the resolution for Y axis;Press [Z0] to change the resolution for Z axis;

Set the resolution 5.00um to 1.00um for X axis:




When selecting the rotary encode, the resolution will be set as follow:

Input the rotary encode parameter value .

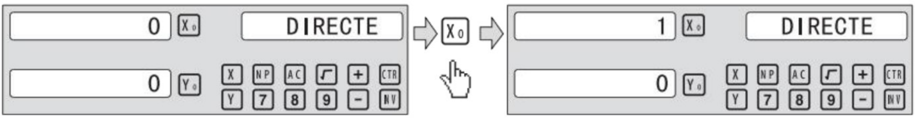


### 3.2.2 Setting Positive Direction for Counter

Press ▲ ▼ until " DIRECTE" appears in message window.

Direction '0' means the display value will increase when scale moves form right to left and decrease when scale moves from left to right. Direction '1' means the display value will increase when scale moves form left to right and decrease when scale moves from right to left.

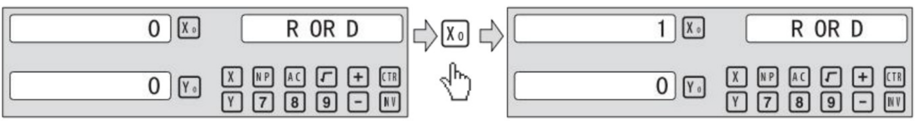
Press X0 to change the Direction for X axis;Press Y0 to change the Direction for Y axis;Press Z0 to change the Direction for Z axis; as follow:




### 3.2.3 Toggle Betwween R/D Display Mode

Press ▲ ▼ until "R OR D" appears in message window. X window, Ywindow, Z window displays '0' or '1' separately.

'0' is mode R, which means the dispay value equals the actual measurement. '1' is mode D where the display value equals the double actual measurement. Press X0 to change the R/D for X axis;Press Y0 to change the R/D for Y axis;Press Z0 to change the R/D for Z axis; as follow:




### 3.2.4 Setting Z axis Dial

Press ▲ ▼ until "Z DIAL" appears in message window.

Z axis dial should be set if Z axis is emulated for 2 axis milling and only install linear scale for X,Y axis. Z axis dial means the distance the Z axis travels when screw runs a revolution.

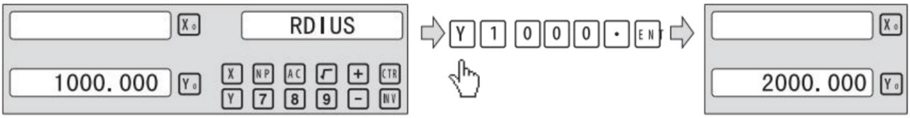
Set the Z axis Dial 2.5mm as follow ;


### 3.2.5 Setting the Rotary Radius of the Workpiece

Press ▲ ▼ until "RDIUS" appears in message window.

The Rotary rdius type is used perimeter to measure angle.

Input the Rotary Radius parameter value 2000mm as follow:




### 3.2.6 Setting the Angle Display Mode

Press ▲ ▼ until "ANG DISP" appears in message window.

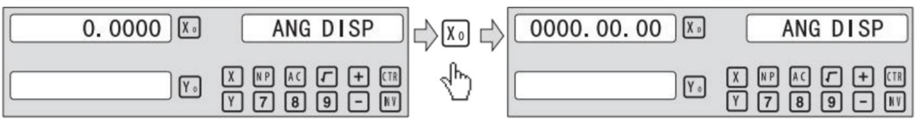
Press $X_0$ to change the angle display mode for X axis;Press $Y_0$ to change the angle display mode for Y axis;Press $Z_0$ to change the angle display mode for Z axis; Example for X axis:

"0.0000" means the angle mode is Circulating DD;

"0000.0000" means the angle mode is Incremental DD;

"0.00.00" means the angle mode is Circulating DMS;

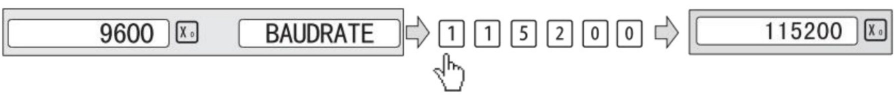
"0000.00.00" means the angle mode is Incremental DMS;




### 3.2.7 Setting the Baudrate of RS_232 (Special customization function, if you need to buy, please contact the dealer to customize)

Press ▲ ▼ until "BAUDRATE" appears in message window.

Set the Baudrate 115200 as follow ;



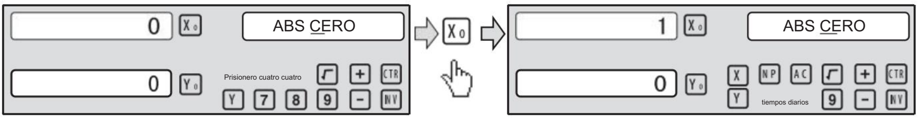
3 . 2 . 8 Configuración de la habilitación o deshabilitación de la puesta a cero absoluta

prensa hasta que aparezca "ABS CERO" en la ventana de mensajes

' el ' significa que la operación de puesta a cero del ABS y los datos preestablecidos serán habilitar en el estado de visualización normal

' 1 ' significa que la operación de puesta a cero del ABS y los datos preestablecidos serán Deshabilitar en el estado de visualización normal

Presione Para cambiar el modo de puesta a cero absoluta del eje x, presione para cambiar el modo de puesta a cero absoluta para el eje Y, presione a cambiar el modo de puesta a cero absoluta para el eje Z; Ejemplo para el eje x ·



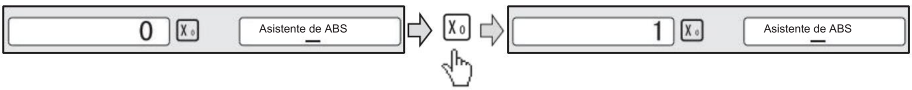

3 . 2 . 9 configuración de la forma absoluta de la función especial

prensa hasta que aparezca "ABS ASST" en la ventana de mensajes

'o significa que solo se muestra el valor de la posición de la función especial Operación de función especial.

' 1 ' significa valor de posición de función especial + valor de posición ABS es mostrar en la operación de Función especial.

prensa para cambiar el modo absoluto de la Función especial será se establecerá de la siguiente manera:



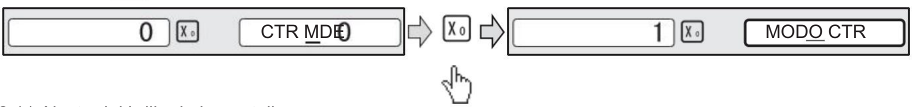

3 . 2.10 configuración de la Calculator Modo de visualización

prensa hasta que aparezca "UCCTR MODE" en el mensaje W · indow

' el ' m eans el valor que muestra la calculadora en el viento x significa el valor que ow disply;

' 1 ' muestra la calculadora en la ventana de mensajes en la pantalla;

prensa Para cambiar el modo de visualización de la calculadora se establecerá AS follow:




3.2.11 Ajuste del brillo de la pantalla

Configuración de brillo de la pantalla LED, la configuración predeterminada de fábrica es solo "3", cuanto mayor sea el parámetro, más brillante será el brillo. Presione "xo" para conjunto, no se recomienda que usted mismo establezca el valor predeterminado.

3.2.12 The linear scale counting frequency setting

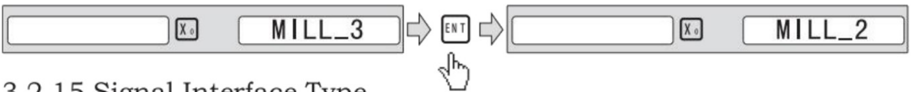
The factory default setting is only "12", the higher the parameter, the lower the counting frequency, press "X0" to set, it is not recommended that you set the default value yourself.

3.2.13 Setting QUIT: Digital display table parameters quit button.

3.2.14 Setting the type of the DRO.

The type of the DRO will be display on the right window. then press the key ENT to select the correct type. the following system item will be set:

"MILL-3" means the DRO type is 3-axis milling machine table;
"MILL-2" means the DRO type is 2-axis milling machine table;
"LATHE-2" means the DRO type is 2-axis lathe table;
"LATHE-3" means the DRO type is 3-axis lathe table;
"GRIND" means the DRO type is Grind table;
"EDM" means the DRO type is EDM table; (Special customization function, if you need to buy, please contact the dealer to customize)




3.2.15 Signal Interface Type

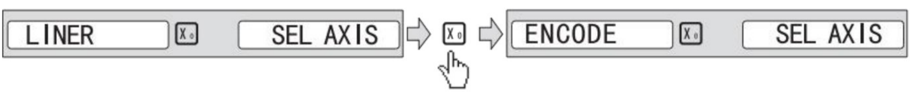
Message window displays " SEL AXIS" which indicates the step is to Sensor input signal mode. Press X0 to change the signal mode for X axis;Press Y0 to change the signal mode for Y axis;Press Z0 to change the signal mode for Z axis;Example for X axis:

Press X0 to scroll through the Rotary encode type, the Linear encode type, the Rotary rdius type.

X window displays the Signal type.

"LInER" means the Signal type is linear encode type ;
"EnCOdE " means the Signal type is Rotary encode type;
"RdIUS" means the Signal type is Rotary rdius type ;

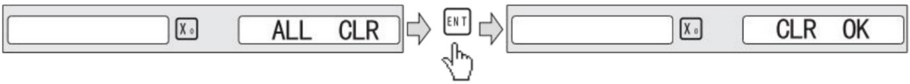
Example: currently in the linear encode type, to toggle to the Rotary encode type;



### 3.2.16 Restore Factory Settings:

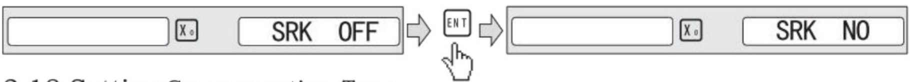
Clear all data except DRO type.DRO will load default setup for parameter.After loading default setup,user must search RI once to enable resuming ABS dadum function;otherwise to resume the datum by RI is unable;

Message window displays " ALL CLR" , press ENT and message windows display "PASSWORD" indicating the operator to input password; Press 2000 + ENT in turn to load default value;




### 3.2.17 Shrinkage Ratio enable or disable.

Message window displays " SRK OFF" to disable Shrinkage rate function. Press ENT to enable Shrinkage rate function in Message window displays " SRK ON" :



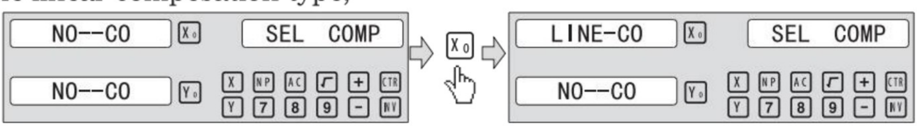

### 3.2.18 Setting Compensation Type

Message window displays " SEL COMP" which indicates the step is to compensation type. Press X0 to change the compensation type for X axis;Press Y0 to change the compensation type for Y axis;Press Z0 to change the compensation type for Z axis;Example for X axis:

Press X0 to scroll through the not compesation type, the Linear compesation type, the non-linear compesation type.

"no-CO" means the compesation type is not compesation type;
"LInE-CO" means the compesation type is linear compesation type.
"non-LinE" means the compesation type is non-linear linear compesation type;

Example for X axis: currently in the not compesation type, to toggle to the linear compesation type;



3.2.19 Inch display, set the number of digits after the decimal point

In the inch display mode, the number of digits after the decimal point is set, the factory default digit is "4", press "X0" to set, can be set according to actual needs.

3.2.20 Setting EDM: it is not recommended that you set the default value yourself, EDM function, Set the relay off on time.

3.2.21 Setting Linearity Compensation.

Message window displays " LIN COMP" which indicates the step is to Linearity Compensation. Compensate the linear error to make display value equals to standard value.

The calculation of compensation rectifying coefficient:

$$\text{Coefficient} = \frac{(\text{Measurement} - \text{Standard value}) \times 1000.000}{\text{Standard value}}$$

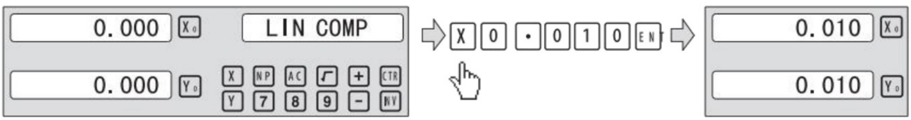
Example for X axis:

Measurement 200.020mm

Standard value 200.000mm

Rectifying coefficient= (200.020-200) * 1000 /200 =-0.01mm/m

Input compensation rectifying coefficient 0.01 as follow:

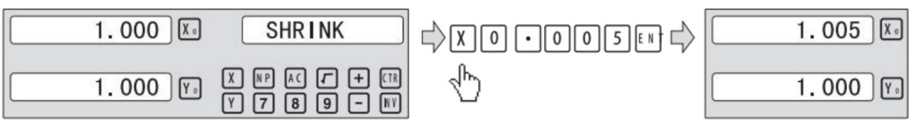



3.2.22 Setting the Shrinkage Ratio

Press ▲ ▼ until " SHRINK" appears in message window;

$$\text{Shrinkage radio} = \frac{\text{Dimensions of the finished product}}{\text{Dimensions of the working piece}}$$

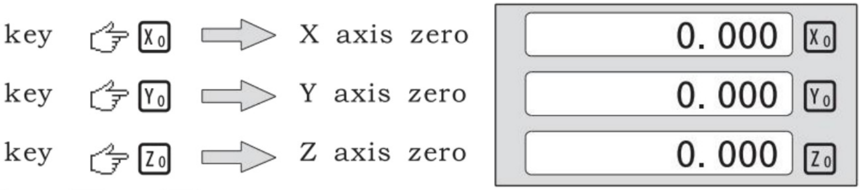
Set the shrinkage radio 1.005 as follow;



# 4、General Operations;

## 4.1 Zeroing

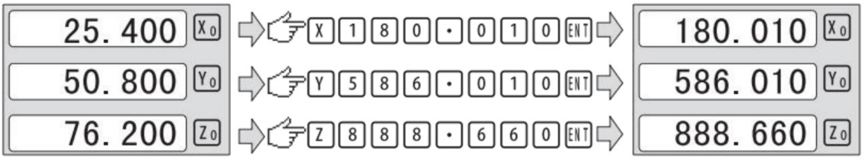
Zero the designated axis in normal display state.Zeroing is used to set the current point as datum point as follow;




X0 or Y0 or Z0 will be return to the original data before the reset。

## 4.2 Preset Data to Designated Axis

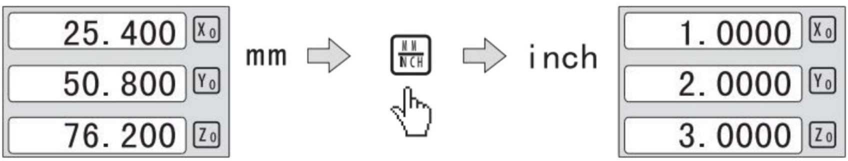
Preset a value to current position for a designated axis in normal display state.



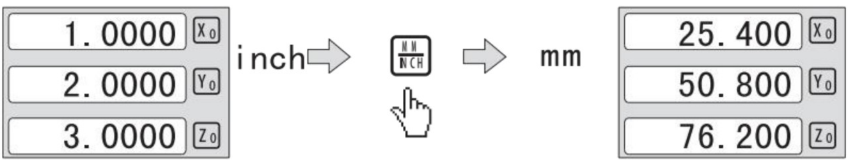

## 4.3 Toggle Display Unit between inch and mm

Length can be displayed either in "mm" (metric) or "inch" (imperial). Display unit can be toggled between mm and inch.

Example: Display value toggle from mm to inch;



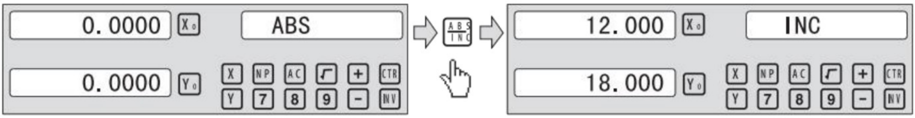

Example: Display value toggle from inch to mm;



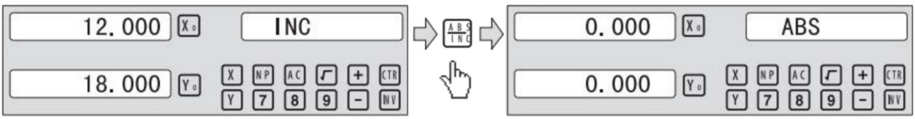
## 4.4 Absolute/Incremental/200 groups SDM

Function: The DRO has 3 coordinate display modes: the absolute mode (ABS); the incremental mode (INC) and 200 goups Second Data Mamory (SDM) with the range of 00 to 99.Zero point of work-piece is set at the origin point of ABS coordinate. The relative distance between datum of ABS and SDM remains unchanged when ABS datum is changed.

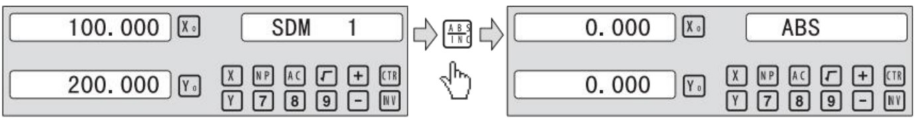
1. Toggle from ABS to INC coordinate;




2. Toggle from INC to ABS coordinate;




3. Toggle from SMD to ABS coordinate;



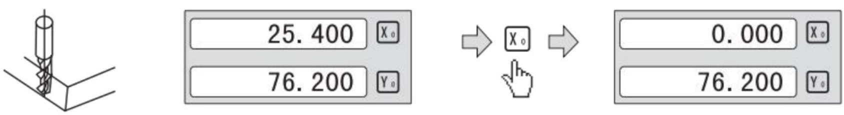

## 4.5 1/2 Function

Function: Set the center of work piece as datum by halving the displayed value.

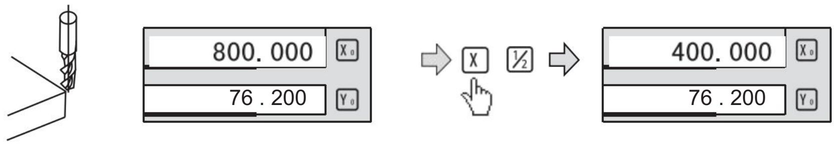
Example: Set the center of rectangle as datum as the right figure.

Steps:

1、Touch one side of the workpiece with the TOOL,then zero the X axis。



2 Lleve la HERRAMIENTA al lado opuesto de la pieza de trabajo y tóquela.
Luego presione X + ½ a su vez para valorar el valor de visualización del eje X.




3. Mueva la mesa de mecanizado hasta que se muestre "0. 000" en el eje x. ventana. La posición es el centro de la pieza de trabajo.

4. 6 Borrar todos los datos SDM.

En modo ABs, presionar continuamente • Diez veces harán que se aclare

Todos los datos para 200 conjuntos SDM. La ventana de mensajes muestra USDM "CLR" .

4.7 Modo de suspensión

en modo no ABS, pulsando la tecla E F Puede apagar toda la pantalla

y el DRO accediendo al modo de reposo, luego presionando esta tecla nuevamente hará que el DRO vuelva al modo de trabajo. En el modo de suspensión El modo DRO todavía está en estado de funcionamiento y realmente registra la HERRAMIENTA movement.

Ejemplo: En modo no ABS, para acceder al modo sleepin8 presione

la tecla F. En el modo de suspensión, al pulsar la tecla F se sale del modo RE

Modo dormir ·

4. 8 Memoria de interrupción de energía.

La memoria se utiliza para almacenar las configuraciones del DRO y de la máquina. Valores de referencia cuando se apaga la alimentación.

4. 9 Busque el punto de referencia absoluto de la escala

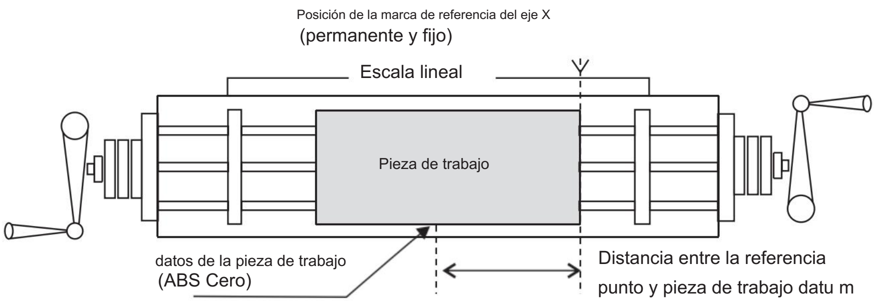
Durante el proceso de mecanizado diario, es muy común que el El mecanizado no se puede completar en un turno de trabajo, por lo que El DRO debe apagarse después del trabajo o puede ocurrir un corte de energía durante el mismo. El proceso de mecanizado que conduce a la pérdida de los datos de la pieza de trabajo. (posición cero de la pieza de trabajo), el restablecimiento del punto de referencia de la pieza de trabajo El uso de un detector de bordes u otro método inevitablemente induce una mayor mecanizado con precisión porque no es posible restablecer la punto de referencia de la pieza de trabajo exactamente en la posición anterior.PARA permitir que recuperación de los datos de la pieza de trabajo con gran precisión y sin necesidad de restablecer los datos de la pieza de trabajo utilizando un detector de bordes u otros métodos, Cada escala lineal tiene una ubicación de punto de referencia que está equipada con referencia posición para proporcionar la función de memoria del punto de referencia.

El principio de funcionamiento de la función de memoria de datos de referencia es el siguiente: Sigue.

Dado que el punto de referencia de la escala lineal es permanente y fijo, nunca cambian ni desaparecen cuando el sistema DRO está apagado. Por lo tanto, simplemente necesitamos almacenar la distancia entre el punto de referencia y el dato de la pieza de trabajo (posición cero) en la memoria NO volátil. Luego En caso de corte de energía o de que se apague el DRO, podemos recuperarlo. el punto de referencia de la pieza de trabajo (posición cero) mediante el preajuste del cero de la pantalla posición como la distancia almacenada desde el punto de referencia ·

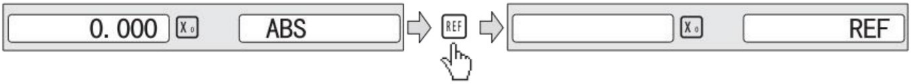
Se debe establecer un dato absoluto cuando se mecaniza una pieza de trabajo. Hay tres modos de funcionamiento (REF, AB, LEF AB):

Ejemplo: para almacenar el dato de trabajo del eje X

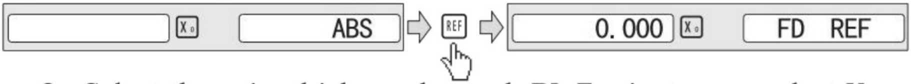


**Example for REF mode** :

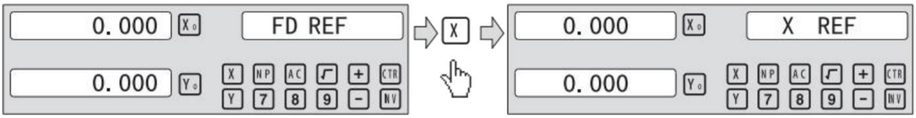
1、DRO is set in ABS coordinate. Press REF , then the message window display "REF" .




2、Message window displays "REF" , Press ENT until "FD_REF" appears in message window.



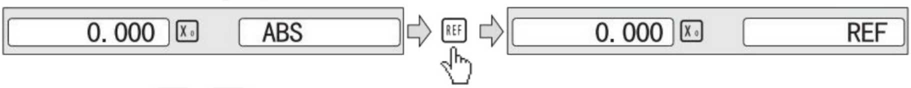

3、Select the axis which need search RI. For instance : selsct X axis, then press X . "X_REF" is displayed in message window, and X axis window flashes.



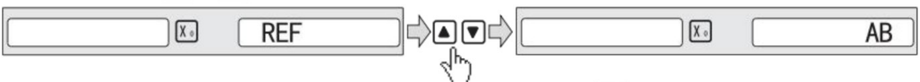

4、 Move the machine table .The buzzer sounds when RI is searched, then X window stops flashing and displays the value of the current position .the DRO returns normal display state. Then message window displays "FIND_X" .

**Example for AB mode** :

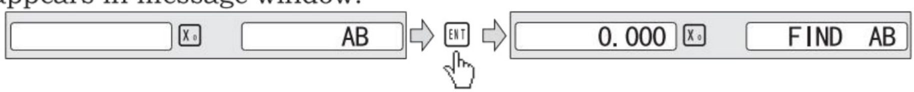
1、 DRO is set in ABS coordinate. Press REF , then the message window display "REF" .



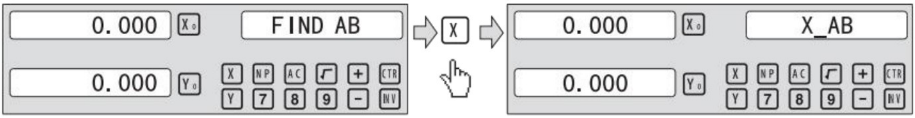

2、Press ▲ ▼, then the massage window display "AB" .




3、Message window displays "AB" , Press ENT until "FIND_AB" appears in message window.



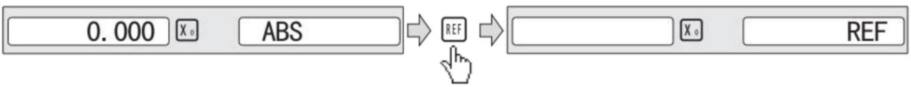
4、Select the axis which need search RI. For instance : selsct X axis, then press X . “X_REF” is displayed in message window, and X axis window flashes.



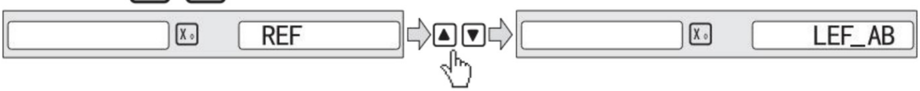

5、 Move the machine table .The buzzer sounds when RI is searched, displays the value of the current position for the absolute datum zero. the DRO returns normal display state. Then message window displays “FIND_AB” .

**Example for LEF_AB mode** :

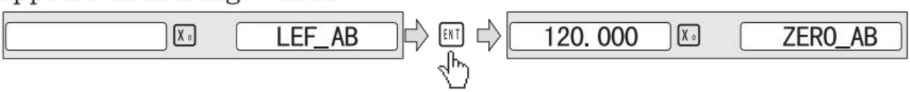
1、 DRO is set in ABS coordinate. Press REF , then the message window display “REF” .



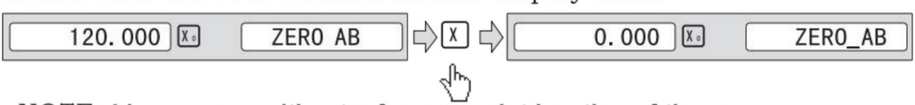

2、Press ▲ ▼, then the message window display “AB” .




3、Message window displays “LEF_AB” , Press ENT until “ZERO_AB” appears in message window.




4、Move the machine table to be set zero position piont. then press X , X axis will be zeroing . the current position for the absolute datum zero. the DRO returns normal display state.




NOTE: **Linear range without reference point location of the user**

## 4.10 Non Linear Error Compensation

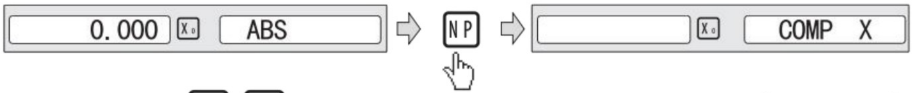
First compensation Type ( Linear or Non-Linear) in parameter setting must be set Non-Linear. Linear scale have a ref point location and find to the Absolute Reference Point will be enable.

Default Non-Linear compensation : 50.

**Example for Y axis:**

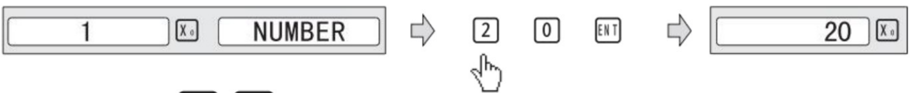
Step 1: Search the Absolute Reference Point of Scale;

Step 2: Press NP , then the message window display "COMP X" .

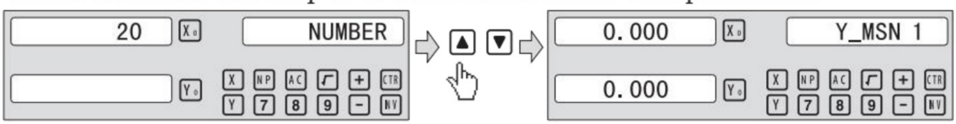



Step 3: Press ▲ ▼, then the massage window display "COMP Y"


Step 4: Press ENT, then the message window display "NUMBER" . Then input the compensation parameter NUMBER.




Step 5: Press ▲ ▼, then message window displays "Y-MSN-1" which indicates the step is to Non Linear Error Compensation.



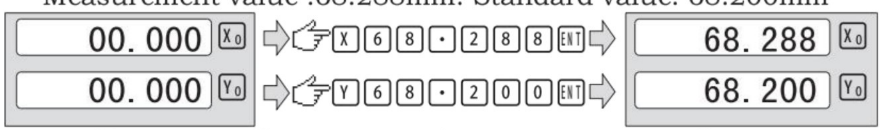

Step 6: Input compensation value .

X window display the value of the measurement value.

Y window display the value of the standard value.

Example for the first compensation point:

Measurement value :68.288mm. Standard value: 68.200mm



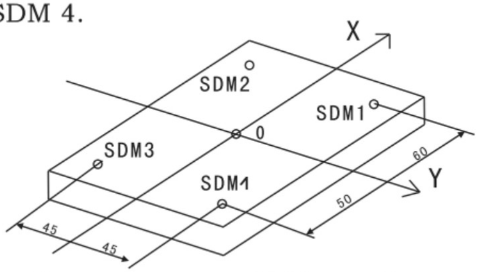

Step 7: After input all parameter, the DRO automatically exit.

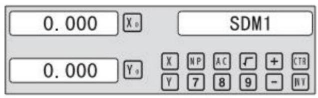
## 5、200 Groups SDM coordinate

The DRO has three display modes: the absolute mode (ABS),the incremental mode (INC) and the 200 groups second data memory (SDM 1 – SDM200). ABS datum of the work-piece is set at the beginning and the 200 groups SDM is set relative to ABS coordinate.

ABS Mode, INC Mode and SdM Mode are specially designed to provide much more convenience features to the operator to cope with the batch machining of relative works and the machining of the workpiece machining dimensions from more than one datum.

**Example:** The ABS datum is the center point O, the point sdm1, sdm2, sdm3, sdm4 needed processing are set as datum of SDM 1 – SDM 4.




Two ways to set SDM coordinate:

1、 Zeroing at the Current Point.
2、 Preset datum of SDM coordinate.

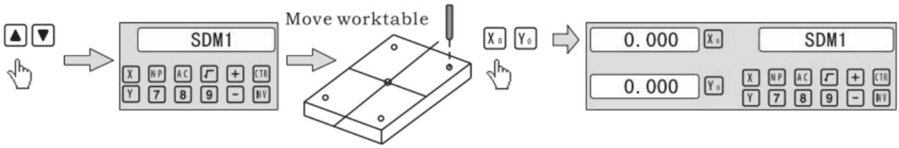
## 5.1 Zeroing at the Current Point

At first set the center point of the work-piece as the origin of the ABS, then align the TOOL with point SDM1,SDM2,SDM3,SDM4 by moving the machine table and zero them. It is the position to process where the “0.000” appears in X window, Y window by moving the machine table whether in ABS or in SDM coordinate.

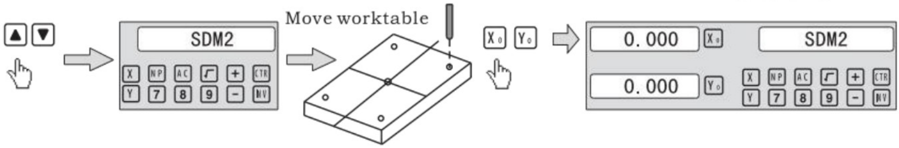
**Steps:**

1、 Move worktable to place the TOOL at the center of the workpiece point O as the datum of ABS. Then zero X axis and Y axis in SDM 1 ; Zero X axis and Y axis in SDM 2 ; Zero X axis and Y axis in SDM 3 ; Zero X axis and Y axis in SDM 4.

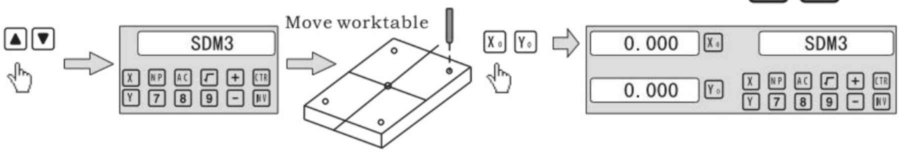
2、Set the point sdm1 as the datum of SDM 1. Move the machine worktable to x = 60.000, y = 45.000. Then proess $\boxed{X_0}$ $\boxed{Y_0}$.



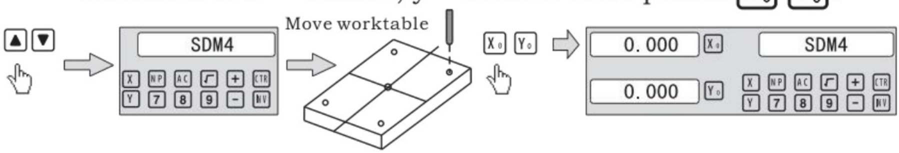

2、 Set the point sdm1 as the datum of SDM 2. Move the machine worktable to x = 60.000, y = -45.000. Then proess $\boxed{X_0}$ $\boxed{Y_0}$.




3、 Set the point sdm1 as the datum of SDM 3. Move the machine worktable to x = -60.000, y = -45.000. Then proess $\boxed{X_0}$ $\boxed{Y_0}$.




4、 Set the point sdm1 as the datum of SDM 4. Move the machine worktable to x = -60.000, y = 45.000. Then proess $\boxed{X_0}$ $\boxed{Y_0}$.




5.2 Preset datum of SDM coordinate

There are the same sample as Method 1. First Move the worktable to place the TOOL exactly at the origin of ABS, secondly Enter the ABS Mode as follow.

**Steps:**

1、Move worktable to place the TOOL at the center of the workpiece point O as the datum of ABS. Then zero X axis and Y axis in SDM 1 ; Zero X axis and Y axis in SDM 2 ; Zero X axis and Y axis in SDM 3 ; Zero X axis and Y axis in SDM 4。

2、Set point sdm1 as the datum of SDM 1. Press ▲ ▼, then the message window display "SDM 1" . Input x = 60.000, y = 45.000.


3、Set point sdm1 as the datum of SDM 2. Press ▲ ▼, then the message window display "SDM 2" . Input x = -60.000, y = 45.000.


4、Set point sdm1 as the datum of SDM 3. Press ▲ ▼, then the message window display "SDM 3" . Input x = -60.000, y = -45.000.

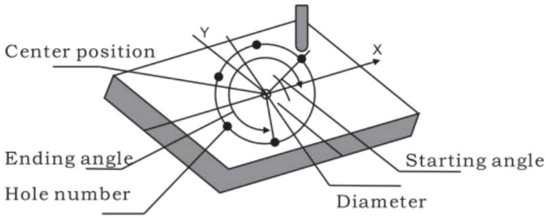

5、Set point sdm1 as the datum of SDM 4. Press ▲ ▼, then the message window display "SDM 4" . Input x = -60.000, y = 45.000.

# 6Función especial

## 6.1 Circumference Holes Processing

The Function of PCD Hole positioning on Circumference is used to distribute arc equally, such as boring hole on flange. The right window will show the parameter to be defined when selecting PCD Function. The Parameters to be defined are:

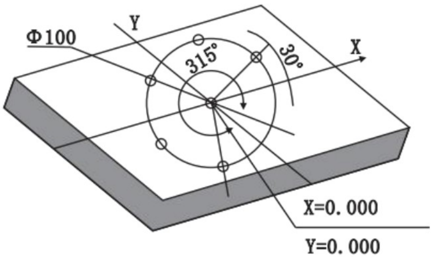
| | |
|---|---|
| PCD_XY(XZ,YZ) | Select place |
| CENTER | Center position |
| DIA | Diameter of circle |
| NO_HOLE | Hole number |
| ST ANG | Starting angle |
| ED ANG | Ending angle |




The postion of the hole center are calculated automatically after input all parameters. Press ▲ or ▼ to choose the hole No. and move the machine table until the "0.000" appears in X window , Y window, Z window. It is the position to process a table.

Example for the XY place: Machine hole on circumference as the figure

| | |
|---|---|
| PCD_XY(XZ,YZ) | XY |
| CENTER | X=0,000,Y=0.000 |
| DIA | 100,000 |
| NO_HOLE | 5 |
| ST ANG | 30,000 |
| ED ANG | 315,000 |



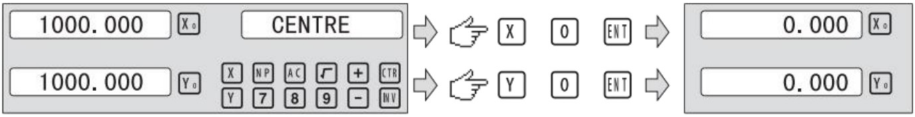

Steps:

1. Set display unit to metric in normal state; Move the machine table until the machine TOOL is aligned with the center of the ciecle , then zero X axis ,Y axis.
2. Select plece.

Press , then the message window display "PCD_XY" to the Circumference Holes Processing. Press ▲ or ▼ to select XY place.

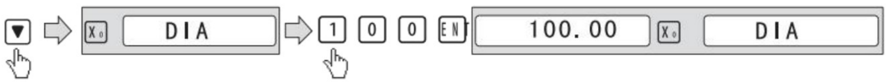
2. Input center position.

Press ENT , then the message window display "CENTER" . X and Y window displays the formerly preset center position. Input X = 0, Y = 0 as follow.



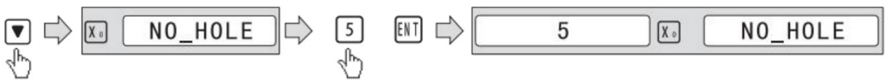

4. Input diameter.

Press ▼ until "DIA" appears in the message window. X window despalys the formerly preset diameter. Then input the diameter is 100.000.



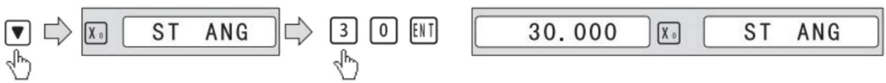

5. Input number.

Press ▼ until "NO_HOLE" appears in the message window. X window despalys the formerly preset number. Then press 5 in turn to input number.



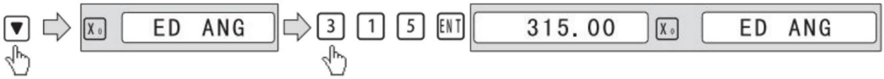

6. Input starting angle.

Press ▼ until "ST ANG" appears in the message window. X window despalys the formerly preset the starting angle. Then press 3 0 in turn to input the starting angle.



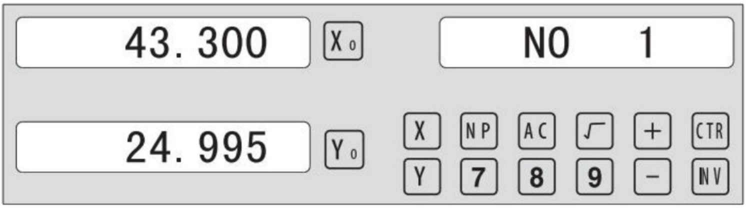

7. Input ending angle.

Press ▼ until "ED ANG" appears in the message window. X window dispalys the formerly preset the ending angle.. Then press 3 1 5 in turn to input the ending angle.




8. Press ▼ until “NO 1” appears in the message window.

It is the position of the first hole to punch where the “0.000” is displayed in X window and Y window by moving the machine table. After finishing the first hole, press ▼ or ▲ to change holes number.

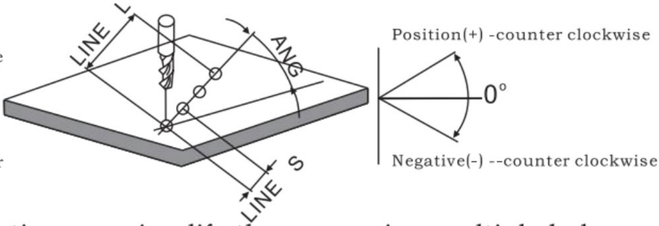



9. After processing all holes, press  to return normal display.

## 6.2 Linear Holes Processing

There are two modes to carry out the linear drilling: Length mode and Step mode.

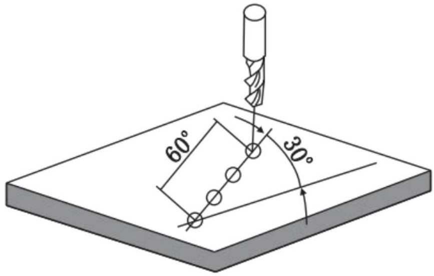
| | |
|---|---|
| 1.LINE S | Step mode |
| LINE L | Length mode |
| 2.STEP | Step length |
| LENGTH | Line length |
| 3. ANG | Angle |
| 4. NO.HOLE | Hole number |




Linear Holes function can simplify the processing multiple holes whose centers are attributed equally on one line.

Example：

| | |
|---|---|
| LINE_L | Length mode |
| LENGTH | 60.000 |
| ANG | 30.000 |
| NO.HOLE | 4 |




Steps :

1. Select plece.

Press , then the message window display "LINE_XY" to the Linear Holes Processing. Press ▲ or ▼ to select XY place.

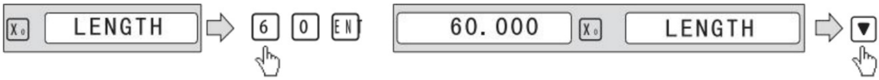

2. Select Linear Holes mode.

Press ENT , then the message window display "LINE_S" . Press ▲ or ▼ to select "LINE_L" .


3. Input linear length;

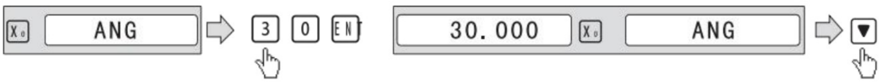
Press ENT , then the message window display "LENGTH" .

X window despalys the formerly preset the linear length. Press 6 0 in turn to input the linear length.




4. Input angle;

Message window displays "ANG" which indicates the step is to angle. X window despalys the formerly preset the angle. Press 3 0 in turn to input the angle.

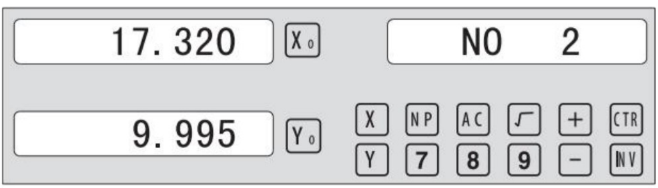



5. Input number;

Message window displays "ANG" which indicates the step is to angle. X window despalys the formerly preset the number. Press 4 in turn to input the number.


6. Press ▼ until "NO 1" appears in the message window.

It is the position of the first hole to punch where the "0.000" is displayed in X window and Y window by moving the machine table. After finishing the first hole, press ▲ or ▼ to change holes number.




7. After processing all holes, press [key] to return normal display.

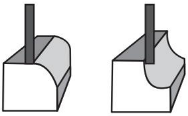
## 6.3 Procesamiento ARC

Hay DOS funciones disponibles para la función ARC: la función ARC simple

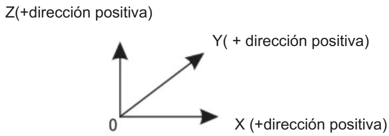
Función y la función R suave · presione y luego pr css para ingresar a la función ARC, o para seleccionar la función ARC suave o simple

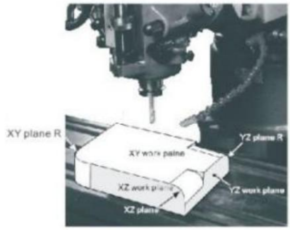
Función ARC.

Durante la instalación, normalmente las coordenadas de la máquina y la dirección de X, Y , Z son los siguientes. El plano de trabajo se muestra como figura correcta



(RAD+TL) (RAD+TL )



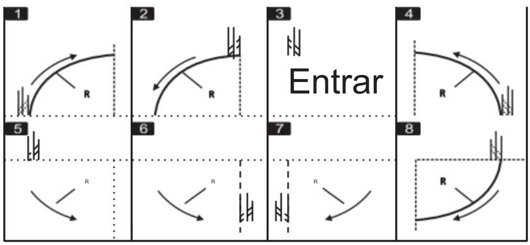




Función ARC simple:

Cuando la suavidad no es muy exigida, el ARCO SIMPLE La función se utiliza normalmente para mecanizar arcos. En la función SIMPLE Sólo hay ocho tipos de ARC que se utilizan para mecanizar. El operador simplemente Seleccione el tipo de R e ingrese los parámetros del radio del arco. ,

CORTE MÁXIMO y Qrc exterior o arco interior. En general, un arco puede ser Mecanizado mediante una ranura planaOOL O HERRAMIENTA de arco, la diferencia entre T en un plano de trabajo diferente como se muestra a continuación ·

| | | |
|---|---|---|
| 1 | SIMPLE | procesamiento simple Modo del ARC. |
| 2 | TIPO 1 - 8 | |
| 3、 | SEL_XY(XZ,YZ) | Seleccione lugar |
| 4 | RAD | Radio del arco |
| 5 | TL ÉL | Diámetro de la herramienta |
| 6 | CORTE MÁXIMO | Paso de alimentación |
| 7 | RAD TL | arco exterior y arco interior (solo para el lugar xy) |



Smooth ARC function :

Provides maximum flexibility in ARC machining, the ARC sector to be machined by the coordinates of ARC. Very flexible, ARC function can machine virtually all kinds of ARC, ever the intersected ARC. Relatively a bit complicated to operate, operator need to calculate and enter the coordinates of ARC centre, start angle and end angle.

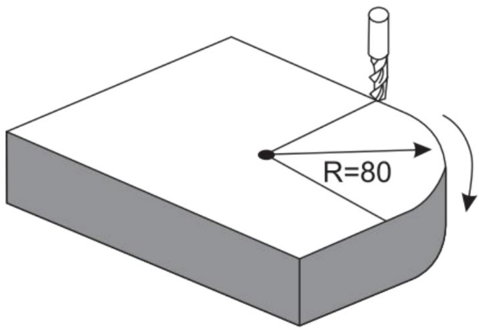
Basic parameter as follow:

| | |
|---|---|
| 1. SMOOTH | Mode of the Smooth ARC processing; |
| 2. SEL_XY(YZ, XZ) | Select place; |
| 3. CENTER | Refer to the position of an center. |
| 4. RAD | Radius of the ARC |
| 5. TL_DIA | Diameter of the TOOL |
| 6. MAX_CUT | Feed step |
| 7. ST_ANG | Starting angle |
| 8. ED_ANG | Ending angle |
| 9. RAD+TL | Outer arc. |
| RAD-TL | Inner arc. |

**Example 1 for the Simple ARC Processing:**

Parameters settings as follow:

| | |
|---|---|
| SIMPLE | Simple mode |
| TYPE | 3 |
| SEL_XY | XY |
| RAD | 80.000 |
| TL_DIA | 6.000 |
| MAX_CUT | 0.500 |
| RAD+TL | 1 |



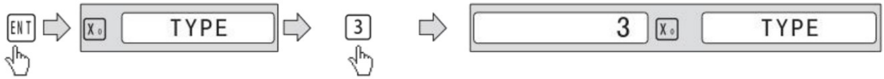

Steps:

1. Select process mode

Press  , then the message window display “SIMPLE” to the ARC Processing. Press ▲ or ▼ to select mode of the simple, The message window display “SIMPLE”

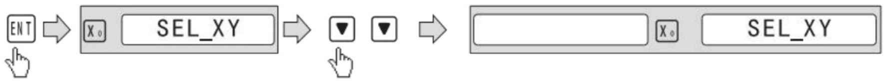

2. Input the type:

Press ENT until "TYPE" appears in the message window. X-window despalys the formerly preset the type. Press 3 in turn




3. Select place

Press ENT until "SEL_XY" appears in the message window. Press ▲ or ▼ to select place to display "SEL_XY" ;




4. Input radius:

Press ENT until "RAD" appears in the message window. X window despalys the formerly preset the radius of ARC. Press 8 0 in turn to input the radius.;


5. Input Diameter of the TOOL

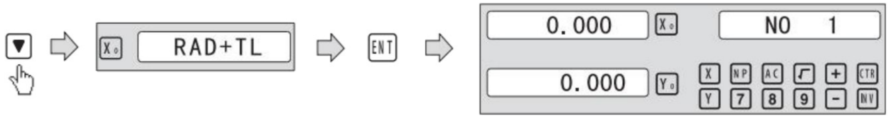
Press ▲ or ▼ until "TL DIA" appears in the message window. X window despalys the formerly preset the Diameter of the TOOL. Press 6 in turn to input the Diameter value;


6. Input Feed step (MAX_CUT);

Press ▲ or ▼ until "MAX_CUT" appears in the message window. X window despalys the formerly preset the MAX_CUT. Press 0 · 5 in turn to input the MAX_CUT value;

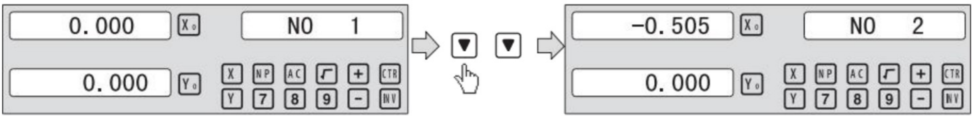
7. Select outer arc or inner arc

Press ▲ or ▼ until "RAD-TL" appears in the message window. Press ▲ or ▼ to select place to display "RAD+TL" ;




8. After inputting all parameters, press the key ENT for machining.

The DRO will display the position of the first point. Retract the axes until the displays read 0.000, Machine the Arc point by point in accordance with the display. After finishing the position of the first point, press ▲ or ▼ to change position point.

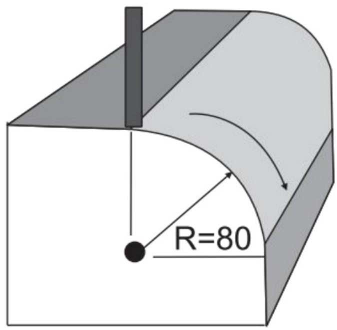



Press to quit R function any time.

**Example 2 for the Simple ARC Processing:**

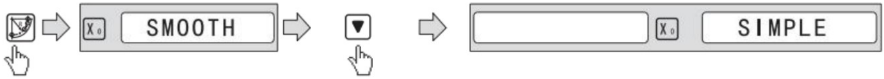
Parameters settings as follow:

| | |
|---|---|
| SIMPLE | Simple mode |
| TYPE | 3 |
| SEL_XY | XZ |
| RAD | 80.000 |
| TL_DIA | 6.000 |
| MAX_CUT | 0.500 |



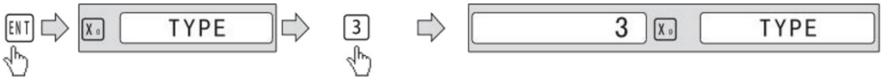

Steps:

1. Press , then the message window display "SIMPLE" to the ARC Processing. Press ▲ or ▼ to select mode of the simple, The message window display "SIMPLE"



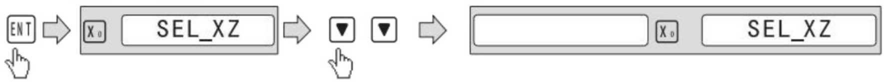

2. Input the type:

Press ENT until "TYPE" appears in the message window. X-window despalys the formerly preset the type. Press 3 in turn




3. Select place

Press ENT until "SEL_XZ" appears in the message window. Press ▲ or ▼ to select place to display "SEL_XZ" ;




4. Input radius:

Press ENT until "RAD" appears in the message window. X window despalys the formerly preset the radius of ARC. Press 8 0 in turn to input the radius.;


5. Input Diameter of the TOOL

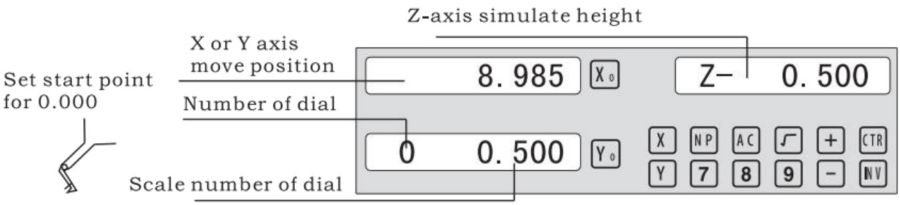
Press ▲ or ▼ until "TL DIA" appears in the message window. X window despalys the formerly preset the Diameter of the TOOL. Press 6 in turn to input the Diameter value;


6. Input Feed step (MAX_CUT);

Press ▲ or ▼ until "MAX_CUT" appears in the message window. X window despalys the formerly preset the MAX_CUT. Press 0 · 5 in turn to input the MAX_CUT value;

7. After inputting all parameters, press the key ENT for machining.

For 2-axis milling machine table , It is not installed with Z-axis, please press ▲ or ▼ to simulate position of Z-axis. Press ▲ simulate moving to the former process, and press ▼ simulate moving to the next process point.



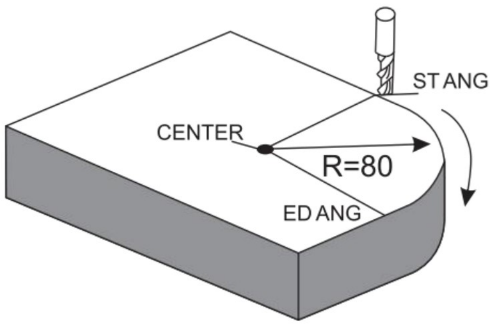

Z-axis simulate height = Number of dial x Z axis Dial + Scale number of dial

Press to quit R function any time.

**Example 3 for the Smooth ARC function**:

Parameters settings as follow:

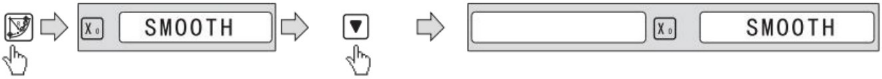
| | |
|---|---|
| SMOOTH | Smooth mode |
| SEL_XY(YZ,XZ) | XY |
| CENTER | X=0,Y=0 |
| RAD | 80.000 |
| TL_DIA | 6.000 |
| MAX_CUT | 0.500 |
| ST_ANG | 0.000 |
| ED_ANG | 135.000 |
| RAD+TL | 1 |




Steps:

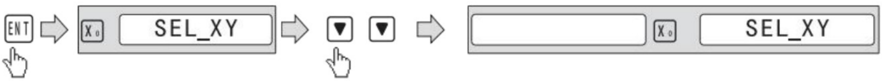
1. Press , then the message window display "SIMPLE" to the ARC Processing. Press ▲ or ▼ to select mode of the simple, The

message window display "SMOOTH" ; For 3-axis milling machine table without this step. In second step. Then press ENT .



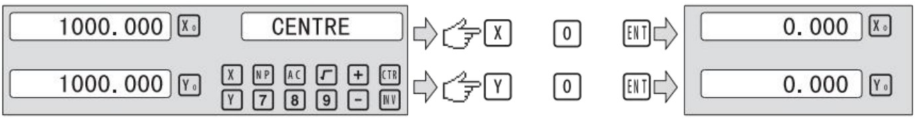

2. Select place

Message window display "SEL_XY" which indicates the select is to place. Press ▲ or ▼ to select place to display "SEL_XY" ;




3. Input center position.

Press ENT , then the message window display "CENTRE" . X and Y window displays the formerly preset center position. Input X = 0, Y = 0 as follow.




4. Input radius:

Press ENT until "RAD" appears in the message window. X window despalys the formerly preset the radius of ARC. Press 8 0 in turn to input the radius.;


5. Input Diameter of the TOOL

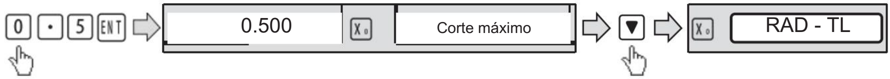
Press ▲ or ▼ until "TL DIA" appears in the message window. X window despalys the formerly preset the Diameter of the TOOL. Press 6 in turn to input the Diameter value;

6. Paso de alimentación de entrada (MAX_CUT);

prensa ▲ o ▼ Hasta que la aplicación "UMAX CUT aparezca en el mensaje

ventana. X Window de spa lys el anteriormente preestablecido MAX_CUT. presione

0 · 5 a su vez para ingresar el Valor de CORTE MÁXIMO;

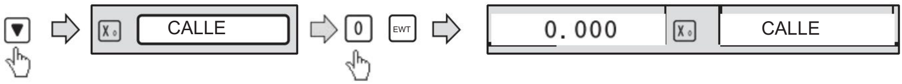



7 . Ingrese el ángulo inicial ·

prensa ▼ hasta que aparezca "USTANG" en la ventana del mensaje.x

ventana de spa lys el anteriormente preestablecido el ángulo de inicio · Luego presione

0 a su vez para introducir el ángulo inicial-




8 . Ángulo final de entrada ·

prensa ▼ hasta que aparezca "UED ANG" en la ventana del mensaje. X

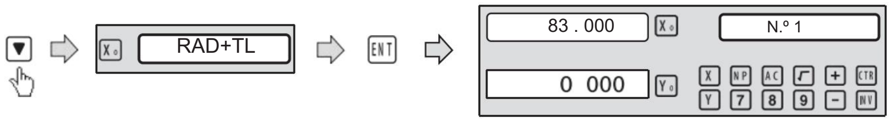
ventana ispa d lys el ángulo final preestablecido anteriormente. Luego presione 1

3 5 a su vez para ingresar el ángulo final.


9. seleccione arco exterior o arco interior

Presione ▲ o ▼ hasta que aparezca "RAD-TL" en el mensaje

la ventana.Presione ▲ o ▼ para seleccionar el lugar donde se mostrará "RAD+TL";




10. Después de ingresar todos los parámetros, machining.

El DRO mostrará la posición del primer punto. Retraiga el

ejes hasta que la pantalla muestre 0.000, mecanice el arco punto por punto en acuerdo con la pantalla. Después de terminar la posición del primer

punto,presionar ▲ o ▼ para cambiar el punto de posición.


Press  to quit ARC function any time.

## 6. 4 procesamiento oblicuo

Hay 2 formas disponibles para realizar el mecanizado en posición oblicua:

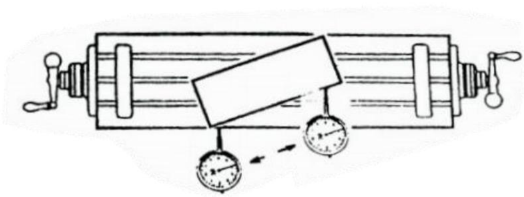
A). en el lugar. b). en el lugar yz, o Xz;

Sólo es necesario introducir los siguientes parámetros:

| | |
|---|---|
| INCLUYE Xy(xz,yz) | Establecer la posición de la máquina xy,yz,0rxz · |
| EL | El ángulo de inclinación del oblicuo· |
| ALLÁ | Diámetro de la HERRAMIENTA · |
| ST OLLA | Posición inicial; |
| ED PUEDE | Finalización de la publicación; |

Ejemplo 1 para el eje xy oblicuo:

cuando el plano de mecanizado está en el plano xy como la pieza que se muestra en Figura, el ángulo de oblicuidad de la pieza de trabajo debe calibrarse. antes de mecanizar el plano oblicuo. Por lo tanto , En este punto el El mecanizado del plano oblicuo desempeña la función de calibrar la oblicuidad.



procedimiento para calibrar la oblicuidad

Primero coloque la pieza de trabajo sobre la mesa de trabajo según el ángulo requerido. de oblicuidad ·

1) Ingrese la función del plano oblicuo. 2) Seleccione la función del plano XY.

3) Ingrese el ángulo de oblicuidad.

4) Mueva la mesa de trabajo hasta que la herramienta de medición (como un comparador de cuadrante) instalado en la fresadora toca el plano de calibración de oblicuidad, ajústelo a cero y mueva la mesa de trabajo cualquier distancia en el dirección del eje x.

5) Mueva la mesa de trabajo en la distancia del eje y hasta que aparezca en la pantalla se convierte en cero.

6) Change the angle of the work piece to make the workpiece touch the measuring tool and adjust it to zero.

STEPS:

1. Select place

Press SN/M1 , then the message window display "INCL_XY" to the Oblique Processing. Press ▲ or ▼ to select place to display "SEL_XY;

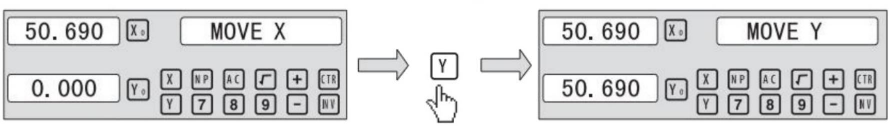
Then press ENT to in next step;


2. Input the angle of obliquity

The message window display "ANG" , X window dispalys the formerly preset the angle of obliquity. Press 4 5 in turn to input the angle of obliquity .


3. Move the workpiece along the X-Axis until the measuring tool touches the workpiece adjust it to zero, and move the worktable for any distance along the X-Axis.


4. Press Y , display the value of Y-Axis. Move the workpiece along the Y-Axis, change the angle of workpiece to make the obliquity-calibrating plane touch the measuring tool until it turns to zero. Move the worktable until Y-Axis is displayed as zero.




5. Press SN/M1 to quit oblique function any time.

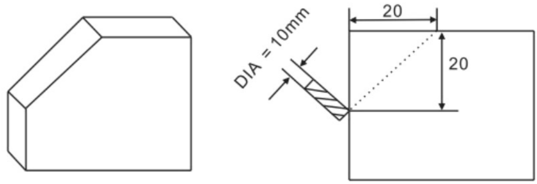
**Example 2 for the oblique XZ or YZ place**:

When the machining plane is on plane XZ or YZ, the function of TOOL inclination can instruct the operator to machine the oblique plane step by step.

Procedures for using the function of cutter inclination:

When the machining plane is on plane XZ or YZ, first please calibrate the obliquity of the primary spindle nose and set the TOOL:

| | |
|---|---|
| INCL_XY(XZ,YZ) | INCL_XZ |
| DIA | 10.000 |
| ST_POT | 20.000 |
| ED_POT | 20.000 |




STEPS:

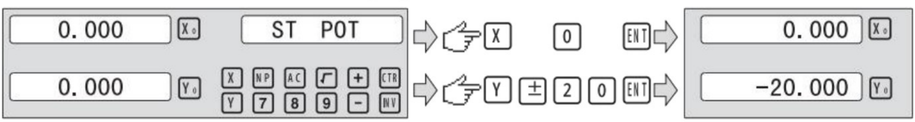
1. Press [SN/M1], then the message window display "INCL_XY" to the oblique Processing. Press [▲] or [▼] to select place to display "SEL_XZ; Then press [ENT] to in next step;


2. Input The TOOL Diameter

The message window display "DIA", X window dispalys the formerly preset the angle of obliquity. Press [1] [0] in turn to input the TOOL Diameter of obliquity . OK, then press [▼] to in next step;

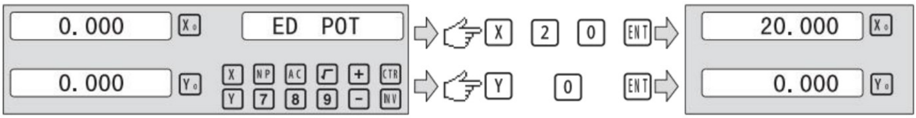

3. Input ST_POT;

The message window display "ST_POT", X and Y window dispalys the formerly preset the stating position of obliquity. Input X= 0, Y = -20.000. OK, then press [▼] to in next step;



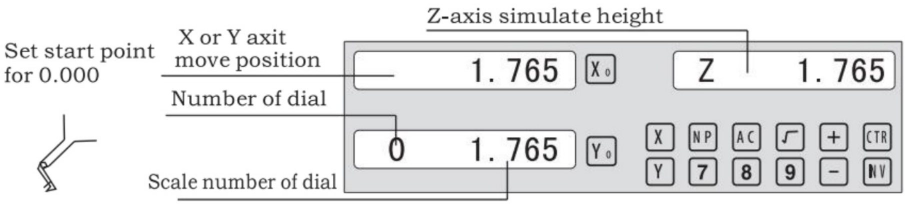
4. Input ED_POT;

The message window display "ED_POT" , X and Y window dispalys the formerly preset the stating position of obliquity. Input X= 20.000, Y = 0.000 .




5. After input all parameter, press the key [▼] for machining.

For 2-axis milling machine table , It is not installed with Z-axis, please press [▲] or [▼] to simulate position of Z-axis. Press [▲] simulate moving to the former process, and press [▼] simulate moving to the next process point.



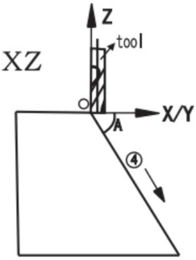

Z-axis simulate height = Number of dial x Z axis Dial + Scale number of dial

Press [SN/N1] to quit **oblique** function any time.

## 6.5 Slope Processing

This function can calculate the position of everynprocessing point automatically in processing slope. Only the following parameters need to be inputted:

| | |
|---|---|
| XZ, YZ | Set machine place YZ, or XZ |
| ANG | The inclination angle |
| Z_STEP | The slope length each time processing |




**Example 1 for the Slope XZ place**;

Step 1. Select place

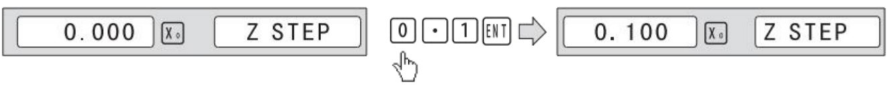
Press [TAN/M3] , then the message window display "XZ" to the slope Processing. Press [▲] or [▼] to select place to display "SEL_XY; Then press [ENT] to in next step;


Step 2. Input the angle of slope

The message window display "ANG" , X window dispalys the formerly preset the angle of slope. Press [4] [5] in turn.


Step 3. Input Z_step;

The message window display "Z STEP" , X window dispalys the formerly preset the stating position of slope. Input [0] [·] [1] in turn.

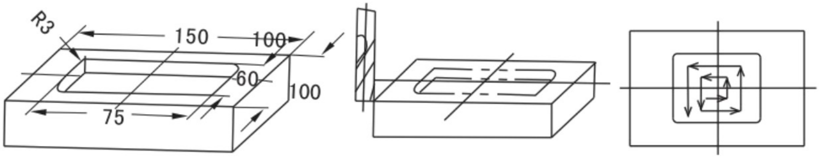



Step 4:Finishing the ALL processing . Press [TAN/M3] to quit slope function any time.

## 6.6 Chambering Processing

1,FLAT_XY: machine place; 2, DIA:diameter of TOOL; 3, CENTER: center of the chambering ; 4, SIZE: size of the chambering ;

Figure as follow:

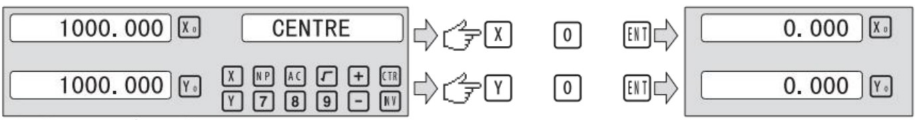



STEPS:

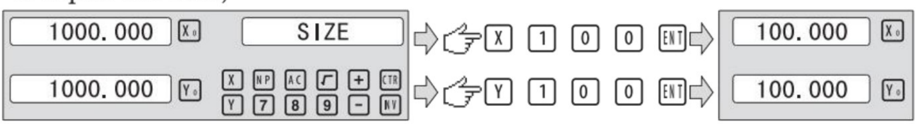
1. Press , then the message window display "FLAT_XY" to the Chambering Processing.


2. Inpur DIA of the TOOL;


3. Input the center coordinate;




4. Input the size;




5. process Chambering;

Move the machine until the display of the axis is zero,ie, the position of the first point. Machine the first point . Display the next machining point by pressing ▲ or ▼ .On the completion of machining, the right window shows OVER. Press ▲ or ▼ , the system will goto the first position for the next workpiece. Press  to quit the Chambering Function.

Machine Translated by Google



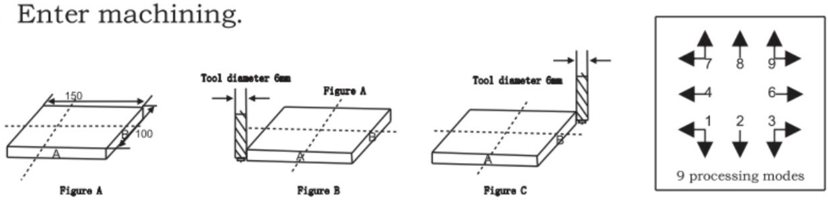
## 6.7 The Tool Diameter Compensation Function

Without TOOL compensation, the operator has to move the TOOL for an additional distance of the diameter of the TOOL along each side when machining the four 150 and 100 sides of a workpiece to finish machining the whole brim. The digital readouts shall automatically compensate when the TOOL compensation function is enable.

Note: the TOOL compensation is made in the direction of X and Yaxis.

Procedures:

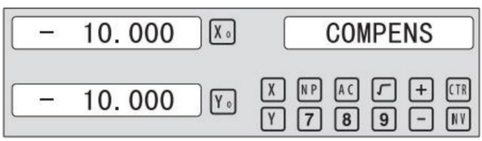
1) . Enter the function of compensating the diameter of the TOOL.
2) . Select one of the (four) preset machining modes.
3). Input the diameter of the TOOL.
4) . Enter machining.




Step1: press [TAN/M3] to enter the TOOL compensation Function. then the message window display "TYPE" .Press [9] .


Step 2: input the diameter of the TOOL; Press [1] [0] in turn..


Step 3: Press [▼] to the machining Mode.




Machining of 2 side planes can be done by moving the TOOL until X-Axis is 150.000 and Y-Axis is 100.000.Press the Key [TAN/M3] to quit the Function.

## 6.8 Digital Filter of the Grinding Machine

When machine a work-piece by grinder, the display values quickly due to the vibration of grinder. User can not see display value clearly. Grinder DRO provides display value filter function to disable the quake change of display value.

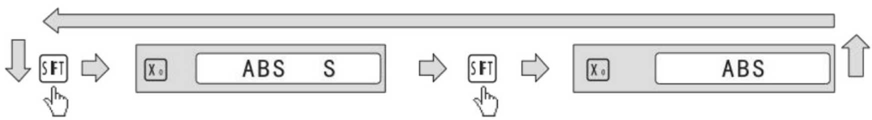
STEPS:

1. Enter display value filter function.

In normal display state, press SIFT to simultaneously, enter display value filter function.

2. Exit display value filter function;

Press SIFT , exit display value filter function;



## 6. 9 La Función

### 6.9.1 200 conjuntos de bibliotecas de herramientas

Siempre se necesitan diferentes herramientas al procesar diferentes piezas · Para Operación conveniente, el La las lecturas digitales tienen la función de 200 conjuntos de bibliotecas de herramientas ·

Nota: solo cuando la la está equipada con el bloque de configuración de herramientas se pueden , utilizar los 200 conjuntos de bibliotecas de herramientas.

1. Establezca una HERRAMIENTA de referencia. Después de configurar la herramienta, ponga a cero el eje X y el eje Z, establecer cero de la coordenada absoluta

2. De acuerdo con el tamaño de TOOL l y datumTOOL, determine la Posición de la HERRAMIENTA con respecto al cero de la herramienta de coordenadas absolutas y de referencia · AS Figura 6-1. El tamaño relativo de la HERRAMIENTA 2 es AS según el eje x 25-30=- 5 , Eje Z 20-10=10 ·

3. guarde el número de HERRAMIENTA y el tamaño en la lectura digital ·

4. El número de HERRAMIENTA se puede ingresar de forma aleatoria, las lecturas digitales mostrará la posición de la herramienta en la coordenada absoluta cero · Mover la hasta que el eje X y el eje Z muestren cero · 5 . TOOL Libs puede guardar los 200 conjuntos de datos de herramientas.

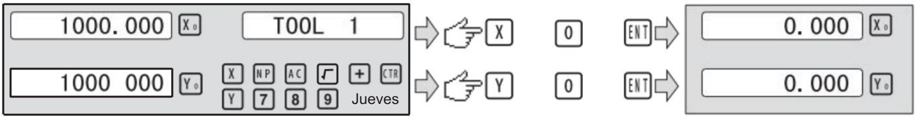
6. Las bibliotecas TOOL deben usarse en el estado de apertura. Los 200 conjuntos Las bibliotecas rooi se pueden abrir presionando continuamente ± diez veces hasta que la ventana derecha parpadee TL - OPEN y aparezca una marca "21" en La izquierda de la ventana de información derecha. La marca indica la El operador puede configurar o revisar los 200 conjuntos de herramientas de biblioteca de forma continua.

Al presionar la tecla se ± Diez veces provocará que las bibliotecas de herramientas 200sets sean cierra y la ventana derecha parpadea TL - CLOSE y la marca desaparecer · cuando la marca "21" desaparece los 200 conjuntos TOOL Libs pueden no ser revisado

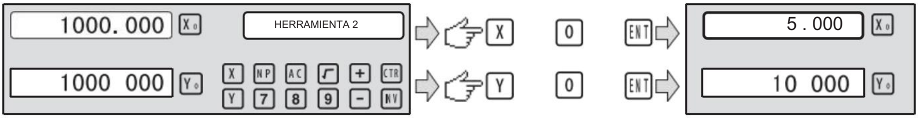
Las operaciones para los datos de TOOL y la llamada de TOOL se muestran a continuación ·

paso 1: En el estado ABS, ingrese los datos de los 200 conjuntos de bibliotecas de TOOL. abriendo los 200 conjuntos TOOL Libs presionando continuamente la tecla ± diez veces A. La marca "" aparecerá en la ventana izquierda de la derecha ventana de información.

Paso 2:presione TOOL para ACCEDER al estado de entrada. Datos de entrada de rooi 1:




Paso 3: Ingrese los datos de la HERRAMIENTA 2:




Paso 4: presione para continuar ingresando los datos de la siguiente herramienta.

número y la tecla el operador puede ingresar directamente el especial

Datos de herramientas. prensa TOOL toca

Después de configurar las bibliotecas TOOL, use las bibliotecas TOOL de acuerdo con las Las siguientes operaciones primero montan la segunda herramienta ·

Paso 5: Para acceder al estado de uso mediante pr css CALL .Entonces pr css 2 EN Yo·


Paso G: presione ▲ o ▼ · Seleccione la rueda base. Luego presione 1 YT .


;

Paso 7:presione CALL para salir de la función;

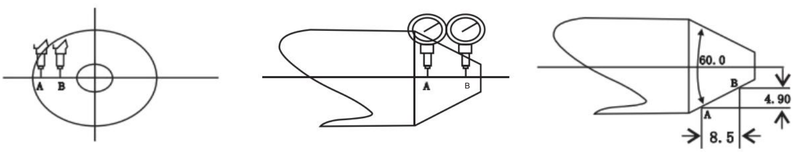
Nota:

cuando se utiliza la herramienta base , El eje no se puede poner a cero en estado ABS

Cuando se utilizan los demás , El eje solo se puede poner a cero en el estado INC

6 . 9 . 2 Función de conicidad

Para tornear la pieza de trabajo con cono, la conicidad de la pieza de trabajo puede medirse en el procesamiento;

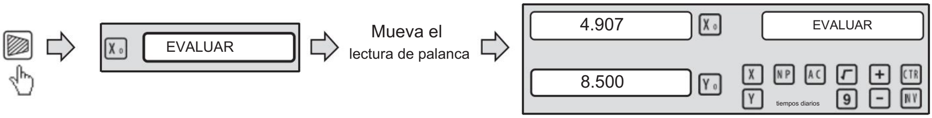


## Operations :

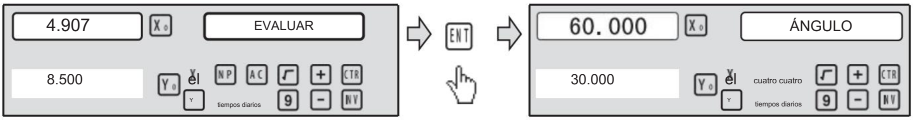
Figura AS, superficie de contacto A de la pieza de trabajo con lecturas de palanca y restablece el punto de lectura de la palanca a cero ·

Paso 1: presione y luego la ventana de mensajes mostrará "UMEASU" Procesamiento de papel · Mueva la palanca de lectura a la superficie B hasta que

Las lecturas de palanca apuntan a lo siguiente:




Paso 2: presione T para calcular.




Paso 3: presione para salir de la función;

### 6 . 9 . 3 Función R/D

Para torno de 2 ejes y torno de 3 ejes, prensa , El modo de visualización El eje x cambia entre Radio y Diámetro. cuando el eje x para visualización de Diámetro, una marca u " aparecerá a la izquierda de la derecha ventana de información, pero cuando el eje X para la visualización de ia metro , La marca " " desaparece · solo el eje x tiene la función de diámetro/radio transformation.

### 6. 9. 4 Función Y + Z (solo aplicable a: 3 ejes La)

Para 3 ejes La, el contador del eje y y el contador del eje z Se puede agregar a la visualización en el eje Z presionando la tecla , luego presione la tecla CAn cancelar la función y + Z ·

6.10 EDM (función de personalización especial, si necesita comprar, por favor Contacte con el distribuidor para personalizarlo)

1 Descripción: Esta función se utiliza para el mecanizado especial de Mecanizado por electroerosión (EDM). cuando se alcanza el valor objetivo establecido de EDM El eje Z es igual al valor actual, la lectura digital emitirá el Cambiar la señal para controlar la EDM para detener el mecanizado de profundidad.

La configuración de la dirección del eje Z de la lectura digital se muestra en la figura 1. , es decir Cuanto mayor sea la profundidad, mayor será el valor de la coordenada del eje Z. muestra · desde que se inicia el mecanizado, la profundidad se irá haciendo cada vez más profunda y el eje Z.

Según la dirección del eje Z establecida, la dirección de mecanizado es dividido en mecanizado positivo y negativo · cuando el electrodo desciende y el mecanizado se realiza de arriba hacia abajo, el digital El valor de lectura aumentará, lo que se denomina mecanizado positivo (positivo). La configuración de esta dirección es la configuración normal.

cuando el electrodo ASC Ends y se realiza el mecanizado De abajo hacia arriba, el valor de lectura digital disminuirá · El La dirección de mecanizado es la dirección negativa (negativa), que también se denomina mecanizado negativo (mostrado en la Fig. 1)

El lector digital también cuenta con otras funciones , tal como negativo Altura de resistencia al fuego. La función de altura de resistencia al fuego negativa es un tipo de Dispositivo de protección de seguridad de control de seguimiento de posición inteligente. En el proceso Durante el mecanizado, la superficie del electrodo generará el carbono. Fenómeno de acumulación. Debido al mecanizado prolongado o diurno. Sin cuidar, al generar la acumulación de carbono y Nadie hace la limpieza, el electrodo irá aumentando lentamente a lo largo de la dirección negativa · una vez que el electrodo excede el nivel del líquido, se incendian con frecuencia y causan pérdidas. Esta función está configurada solo para apuntar En este problema, al establecer una altura ignífuga negativa, y el La altura aumentada del electrodo excede la altura entre éste y el profundidad de la superficie mecanizada (es decir, altura ignífuga negativa), la digital La pantalla de lectura parpadeará para WQring; al mismo tiempo, la salida La señal apagará automáticamente el EDM para eliminar la posibilidad de incendio.

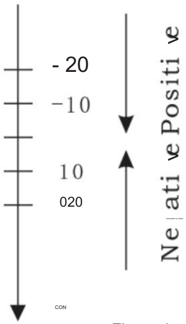



Figura 1

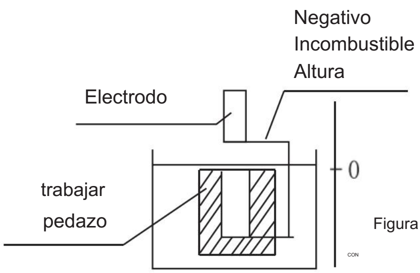



Figura 2

2. procedimiento:

Vea el siguiente ejemplo para un mecanizado detallado.

1) Antes de mecanizar, configure primero cada parámetro de PROFUNDIDAD (profundidad de mecanizado); ERRHIGH (altura ignífuga negativa), mecanizado dirección (POSITIVO / NEGATIVO); modo de salida (AUTO/STOP) y Modo de salida de relé EDM · 2)

Mueva el electrodo del eje principal del eje Z para que entre en contacto con el Referencia de la pieza de trabajo · Poner a cero el eje A o establecer el valor ·

3) Ingrese al mecanizado EDM presionando la tecla CSS EDM .

4) El eje X mostrará el valor objetivo de profundidad de mecanizado. El eje Y mostrará El valor de visualización debe ser la profundidad. (El valor en el eje Y es el valor en el que la pieza de trabajo ha sido mecanizada en profundidad) El eje Z Muestra el valor de autoposición en tiempo real. (El valor en el eje Z es el Valor de posición del electrodo del eje principal del eje z.)

5) Comience a mecanizar, el valor de visualización del eje Z se acerca gradualmente al valor objetivo, el valor de visualización del eje y también se acerca gradualmente al valor objetivo. Si en este momento, el electrodo se mueve repetidamente hacia arriba y hacia abajo, el valor de visualización del eje Z cambiará posteriormente, pero el valor de visualización del eje Y El valor no cambiará, lo que siempre mostrará la profundidad mecanizada.

value.

6) cuando el valor de visualización del eje Z es igual al valor objetivo establecido, El interruptor de alcance de posición se apagará, la EDM detendrá el mecanizado. Según la configuración del operador · Hay dos tipos de modos de salida:

a) Automatic Mode:

it will automatically exit from EDM machining status and recover to the original state before machining;

b) Stop Mode:

It will always stay at the machining interface after finishing machining, and you should press [EDM] to exit and back to the original state.

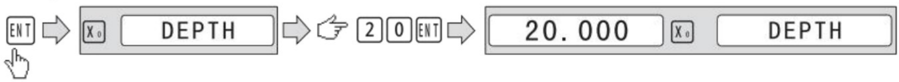
**Operation steps:**

**The DEPTH (machining Depth), ERRHIGH (Negative fireproof height), exit Mode, EDM Relay Output Mode and machining direction should be set.**

STEPS:

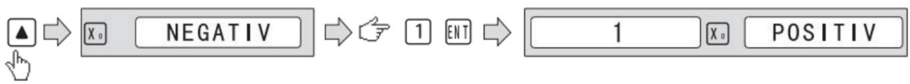
1. Press [EDM] to enter the EDM Function. Press [▲] to input parameters;Press [▼] to enter EDM machining state.

2. Input DEPTH ( machining depth). Press the key [▲] to set the next parameter.




3. input ERRHIGH ( Negative Fireproof Height ) (undefine) .Press the key [▲] to set the next parameter.


4. Set machining direction(Positive or Negative). Press [1] to select Positive direction. Press [0] to select Negative direction. Press the key [▲] to set the next parameter.



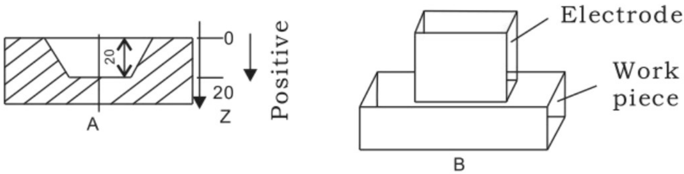
5. Set exit Mode (AUTO Mode or STOP Mode) Press 0 to select AUTO Mode; Press 1 to select STOP Mode ; Press the key ▲ to set the next parameter.


6. Set the Output Mode (Mode 0 or Mode 1); ( undefine ). Press 0 to select Mode 0; Press 1 to select Mode 1.


7. Continuously press ▼ to return EDM for machining. press EDM to quit the function;

**Example 1: positive direction machining ;**

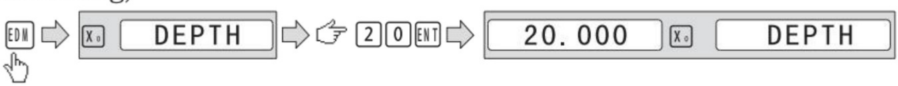
Machining is shown as the model chamber as follows



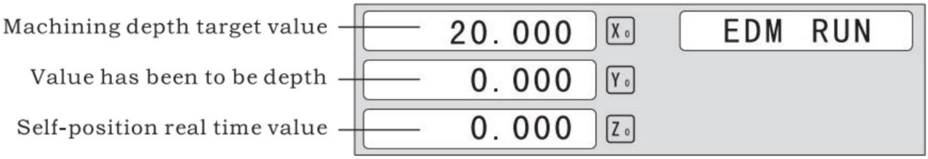

STEPS:

1、Touch one side of the workpiece with the TOOL,then press Z0 , zero the Z axis。


2、Press EDM , Setting DEPTH for 20.000; press ▼ to EDM for machining;

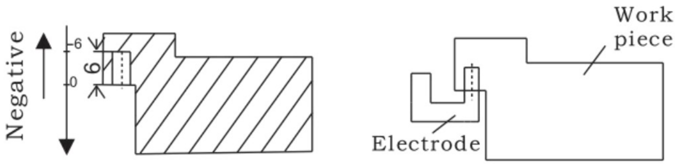



3、Starting machining。




**Example 2: Negative direction machining**

Machining is shown as the model chamber as follows

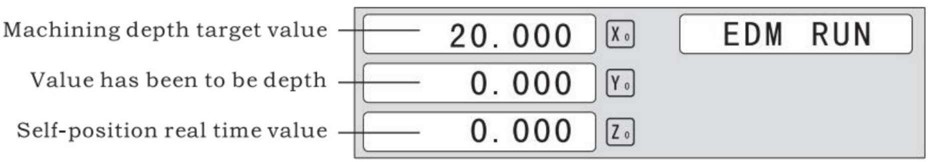



A B

1、Touch one side of the workpiece with the TOOL,then press [Z0] , zero the Z axis。


2、Press [EDM], Setting DEPTH for -20.000; press [▼] to EDM for machining;


3、Starting machining。




**Example 3:** PCD Function for EDM

PCD Function can access the EDM Function . The operator enters PCD Function to input parameters for PCD and enter PCD machining state. At every position for machining, press the key [EDM] to access the EDM Function .

Al ingresar a la función EDM, el operador puede ingresar los parámetros para EDM ·

El procedimiento de operación es el siguiente:

1) Establezca los parámetros PCD (la configuración es la misma que la configuración común) de PCD)

Después de ingresar todos los parámetros e ingresar al estado de mecanizado PCD · El Se mostrará la posición del primer hoyo.

2) presione  para ingresar el parámetro de función EDM (el método de configuración es lo mismo que la configuración común del parámetro EDM); después de ingresar todo

parámetros, presione continuamente cuando  para ingresar al estado de mecanizado finalice el mecanizado, presione para ingresar al  EDM. para salir de la función EDM y estado de mecanizado PCD ·

3 )En el estado de mecanizado PCD, presione  Para la posición del siguiente agujero, OVE la máquina al valor de visualización 0 , luego pr css  Para acceder Función EDM nuevamente ·

4) Repita el paso 2 y el paso 3 para los siguientes puntos de mecanizado.

## 7 calculadora

La calculadora no solo proporciona cálculos matemáticos normales como por ejemplo +, - , x , /, también proporciona cálculos trigonométricos en métricos como AS PECADO , Arc SIN , PORQUE , Arco COS , BRONCEARSE , Arco TAN SQRT etc.

Las operaciones son las mismas que las calculadoras comerciales, fáciles de usar.

### Entrar y salir de la función de calculadora

En estado de visualización normal: presione R para ingresar a la función de calculadora.

En el estado de visualización de la calculadora: presione R para salir de la función de calculadora.

Calculadora de transferenciaEl resultado es el zx seleccionado.

Una vez finalizado el cálculo, si el modo de visualización de la calculadora está configurado para Modo 1 , El usuario puede:

Al X0 para trasladar el resultado calculado al eje x; luego, x presionar la ventana se mostrará este valor;

prensa Y0 para transferir el resultado calculado al eje del juguete; luego La ventana mostrará este valor;

Al Z0 para transferir el resultado calculado al eje z; luego el eje z presionar la ventana se mostrará este valor;

### Transfiriendo el valor actual de Displayvalueinwindow a la calculadora.

Si la calculadora muestra el modo establecido en el modo 1 , El usuario puede:

prensa X para transferir el valor mostrado en la ventana x a la calculadora;

prensa Y para transferir el valor de visualización en la ventana Y para calcular r;

prensa Z para transferir el valor mostrado en la ventana z a la calculadora;

# 8 Appendix

## 1. Troubleshooting:

The following are the preliminary solvents for troubleshooting.

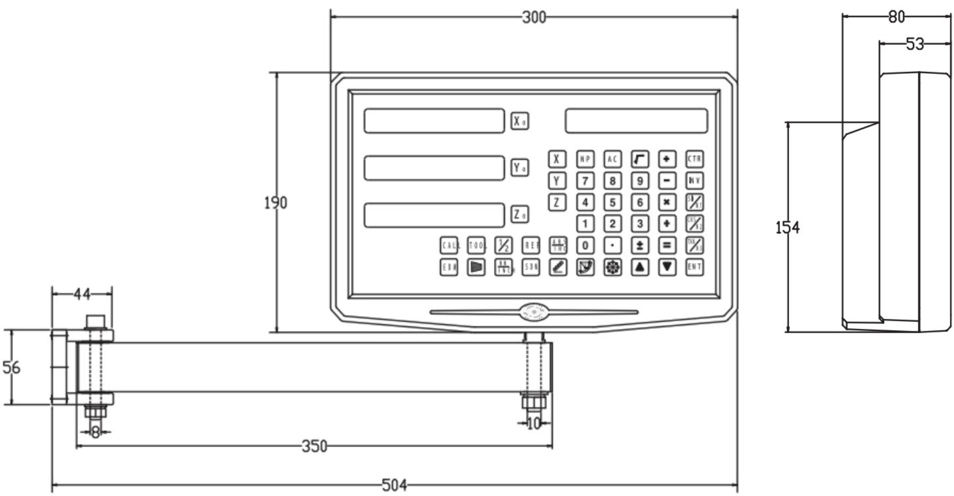
If there is still trouble, Please contact out company or agents for help.

| Troubles | Possible reasons | Solvents |
|---|---|---|
| No display | 1. Power isn't connected<br>2. Power switch is off.<br>3. The range of power voltage is not right.<br>4. The inner power of Linear Scale is short. | 1. Check power wire and connect the power<br>2. Turn on the power switch.<br>3. The range of voltage is in 80--260V<br>4. Unplug the connector of linear scale |
| One axis is not counting | 1. Replace the linear scale of the other axis.<br>2. DRO is in special function | 1. If count is normal, the linear scale has trouble; If abnormal, the DRO readouts has trouble.<br>2. Quit the special function. |
| Linear scale is not counting | 1. Reading head is bad for using range exceeds.<br>2. Aluminum chips is in reading head of linear scale.<br>3. The span between the reading head and metal part of linear scale is large.<br>4. The metal parts of linear scale is damage. | 1.Repair the linear scale<br>2. Repair the linear scale<br>3. Repair the linear scale<br>4. Repair the linear scale |
| Counting is error | 1. Shell is poor grounding.<br>2. Low precision of machine.<br>3. Speed of machine is too rapid.<br>4. Precision of linear scale is low.<br>5. The resolution of DRO readouts and the linear scale is not match.<br>6. The unit (mm/inch) is not match.<br>7. Setting thelinear compensating is not arrest.<br>8. Reading head of the linear scale is damaged. | 1. Shell is good grounding.<br>2. Repair the machine.<br>3. Reduce the speed of machine.<br>4. Mount the linear scale again.<br>5. Set the resolution of the DRO again,<br>6. Cover the unit of display mm/inch.<br>7. Reset the linear compensation.<br>8. Repair the linear scale. |
| The counting of the linear scale is not accurate | 1. The mounting of linear scale does not demand the requirement, and the prcision is not adequate.<br>2. The screw is loosen.<br>3. Precision of machine is low.<br>4. The resolution of digital readouts and the linear scale is not match. | 1. Mount the linear scale again and level it.<br>2. Lock all fixing screws.<br>3. Repair the machine.<br>4. Reset the resolution of digital readouts. |
| Sometimes the linear scale is not counting | 1. The small car and steel ball is separated.<br>2. The glass of reading head is wearied.<br>3. The glass of reading head of the linear scale has dirt.<br>4. The elasticity of the steel wire is not adequate. | 1. Repair the linear scale.<br>2. Repair the linear scale.<br>3. Repair the linear scale.<br>4. Repair the linear scale. |

2. Specifications of Digital Readout.

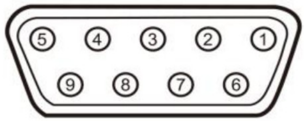
1) Supply Voltage range: AC 85 V ~ 230 V; 50 ~ 60 Hz
2) Power consumption: 15VA
3) Operating temperature: 0℃-- 50℃
4) Storage temperature: - 30℃-- 70℃
5) Relative humidity: < 90 % ( 25 )
6) Max Coordinate number: 3
7) Readout allowable input signal: TTL square wave
8) Allowable input signal frequency: < 5 M Hz
9) Max resolution of digital display length: 0.01 um
10) Max resolution of digital display angle: 0.0001 / PULSE

3. Instructions



# 4. Examples of character output at the data interface

## 1、X,Y,Z Axis



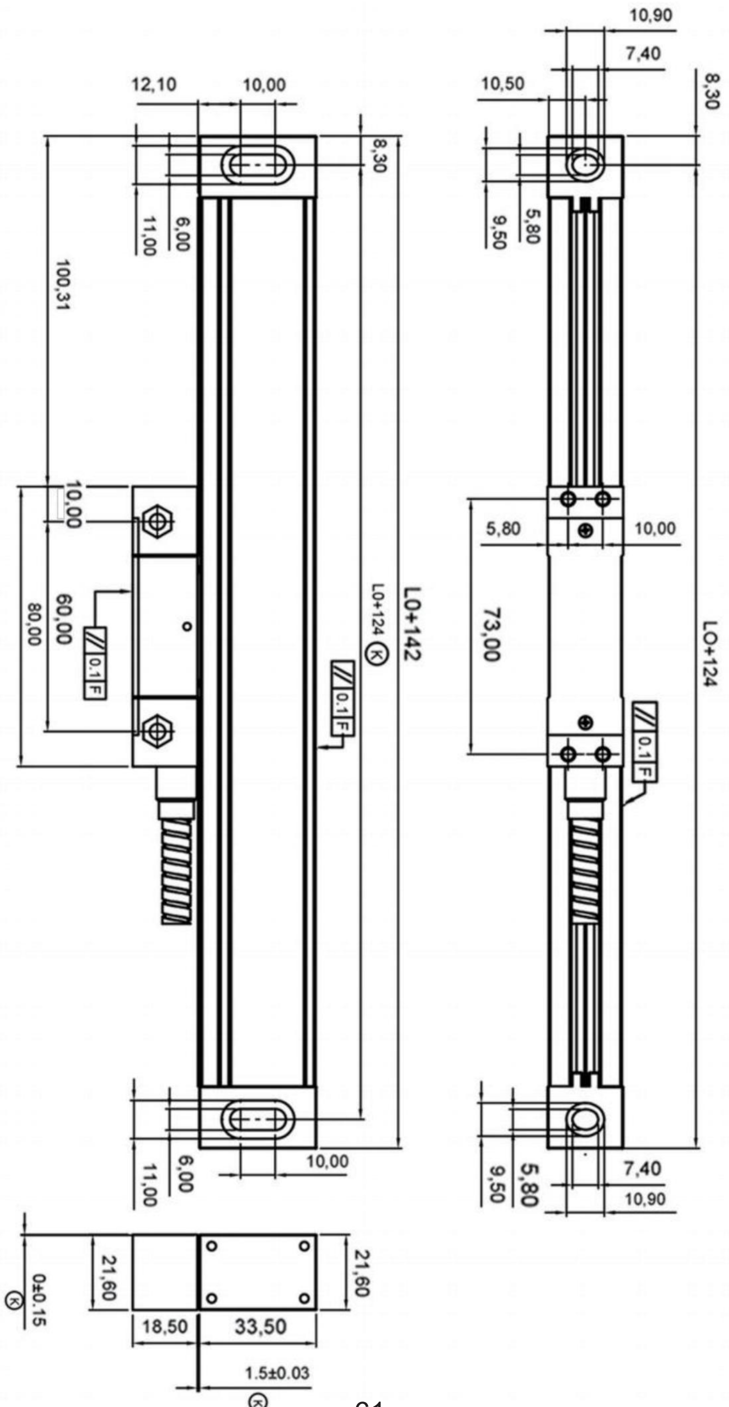

| Pin | TTL (Standard) |
|---|---|
| 1 | |
| 2 | OV |
| 3 | |
| 4 | |
| 5 | |
| 6 | A+ |
| 7 | 5V |
| 8 | B+ |
| 9 | R+ |

| Pin | TTL (Standard) |
|---|---|
| 1 | 5V |
| 2 | OV |
| 3 | A+ |
| 4 | B+ |
| 5 | R+ |
| 6 | |
| 7 | |
| 8 | |
| 9 | |

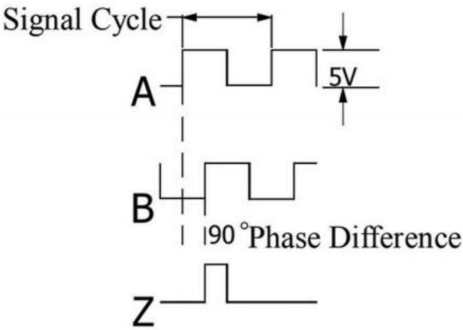
For your convenience,
If you buy a digital readout,

The wiring definition of your linear scale must be the same as the 2 definitions in the above diagram to be universal!

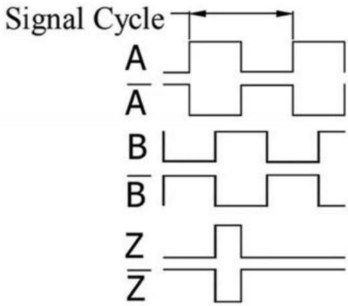
Installation Instructions



TTL signal Output:




EIA-422-A signal Output:




1. TECHNICAL PARAMETER

1.1 SCALING DISTANCE: 0.02 MM (50LINES /MM)

1.2 RESOLUTION: 5μM、1μM、0.5μM

1.3 PRECISION: ±3μM、±5μM、±15μM/M (20±0.1℃)

1.4 MEASURING RANGE: 30~3000MM

1.5 MOVING SPEED: HIGH-SPEED ENCODER 120 M/MIN (TO BE CUSTOMIZED)

ORDINARY ENCODER 60M/MIN

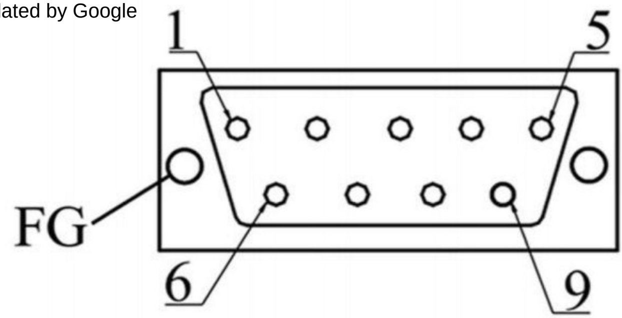
1.6 POWER SUPPLY: +5V±5%、80MA

1.7 CABLE LENGTH: STANDARD 3M (SPECIAL LENGTH AVAILABLE ACCORDING TO THE USER'S NEEDS)☒

1.8 WORKING TEMPERATURE: 0~45℃

1.9 PIN DESCRIPTION:

1) APPLICABLE TO: 9 PIN SOCKET EIA-422-A SIGNAL OUTPUT.




1) Applicable to: 9 pin socket EIA-422-A signal Output.

| Pin Position | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| Signal | $\overline{A}$ | 0V | $\overline{B}$ | Empty | $\overline{Z}$ | A | +5V | B | Z |
| Color | Green Black | Black | Orange black | FG | White black | Green | Red | White | Orange |

FG: Shield connected to metal casing.

1) Applicable to: 9 pin socket TTL signal Output.

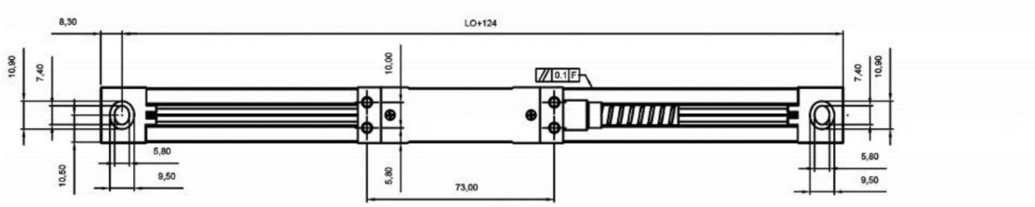
| Pin Position | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| Signal | | 0V | | Empty | | A | +5V | B | Z |
| Color | | Black | | FG | | Green | Red | Orange | White |

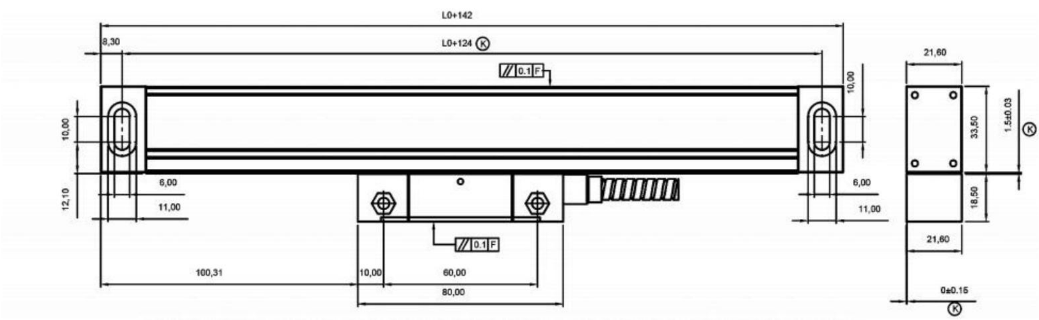
FG: Shield connected to metal casing.

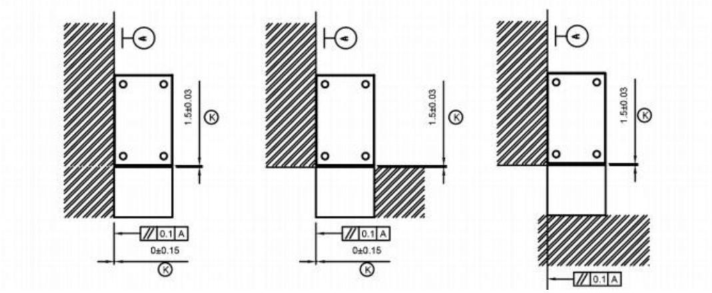
# Escala lineal

## Dibujos de instalación

# Método de instalación:



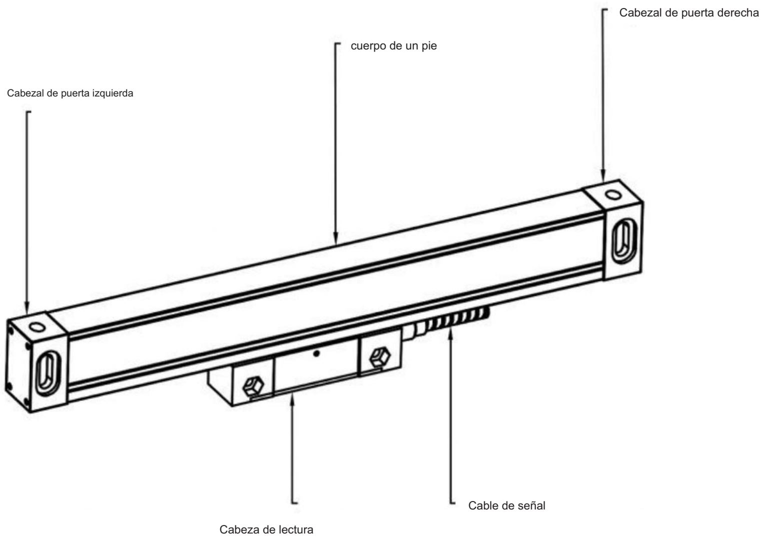

## Tamaño estándar: (Unidad: mm)

| Modelo | LO | L1 | L2 | Modelo | L0 | L1 | L2 |
|---|---|---|---|---|---|---|---|
| YE-50 | 50 | 174 | 190 | YE-550 | 550 | 674 | 690 |
| YE-100 | 100 | 224 | 240 | YE-600 | 600 | 724 | 740 |
| YE-150 | 150 | 274 | 290 | YE-650 | 650 | 774 | 790 |
| YE-200 | 200 | 324 | 340 | YE-700 | 700 | 824 | 840 |
| YE-250 | 250 | 374 | 390 | YE-750 | 750 | 874 | 890 |
| YE-300 | 300 | 424 | 440 | YE-800 | 800 | 924 | 940 |
| YE-350 | 350 | 474 | 490 | YE-850 | 850 | 974 | 990 |
| YE-400 | 400 | 524 | 540 | YE-900 | 900 | 1024 | 1040 |
| YE-450 | 450 | 574 | 590 | YE-950 | 950 | 1074 | 1090 |
| YE-500 | 500 | 624 | 640 | YE-1000 | 1000 | 1124 | 1140 |

L0: Longitud de medición efectiva del codificador lineal; L1: Longitud del codificador lineal Orificios de montaje; L2: Longitud total del codificador lineal

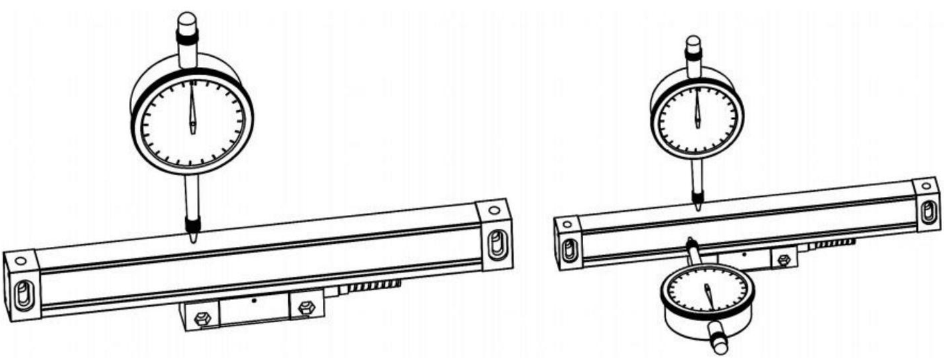
# Mantenimiento:

1. El recorrido efectivo del codificador lineal debe ser mayor que el máximo Recorrido de la máquina herramienta. Si la longitud no es suficiente, sustituya el codificador lineal por uno de mayor recorrido o añada un bloque de límite a la máquina. La posición final del cabezal de lectura desde el extremo del cuerpo del codificador lineal no debe ser inferior a 10 mm (consulte el siguiente diagrama).

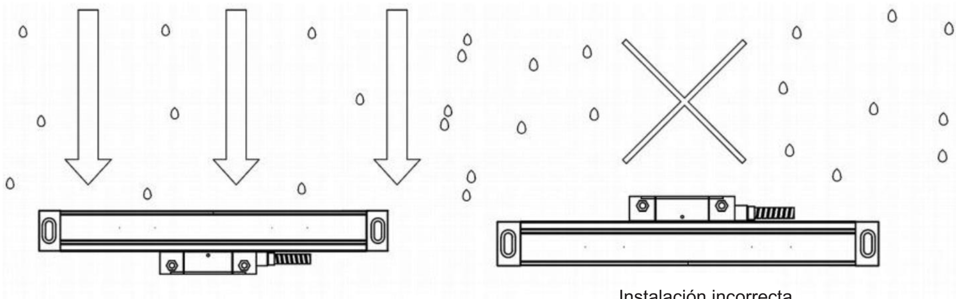



2. Para cualquier superficie no mecanizada, se debe colocar una cuña en la parte posterior del codificador lineal o se debe utilizar una cuña de instalación hecha por el usuario para garantizar la estabilidad y confiabilidad de la conexión entre la regla de rejilla y la superficie de monta

3. Al utilizar un comparador o un instrumento similar para calibrar el paralelismo del codificador lineal, el ángulo del cabezal lateral debe estar dentro de ±30 grados, y cuanto menor sea el ángulo, mejor.



4. La posición de instalación del codificador lineal debe evitar el impacto directo del hierro. limaduras, aceite, agua y polvo (como se muestra en la figura siguiente). La longitud de instalación La placa en L debe ser lo más corta posible en las posibles circunstancias, y Se debe tener en cuenta la situación de fuerza de la superficie de montaje.

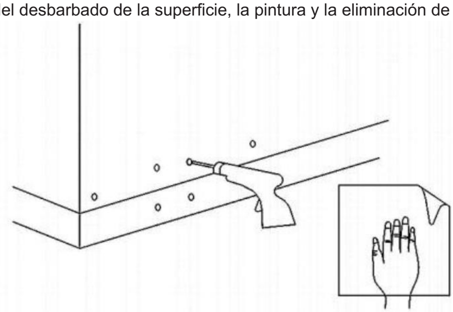


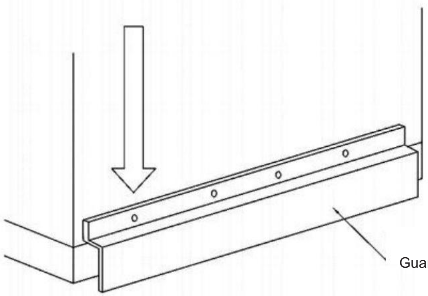
Instalación correcta

Instalación incorrecta

5. Debe haber un espacio de 0,5 mm o más entre la cubierta antipolvo y la regla. cuerpo y evite el contacto entre la cubierta antipolvo y el cuerpo de la regla cuando moviendo el cabezal de lectura (como se muestra a continuación).

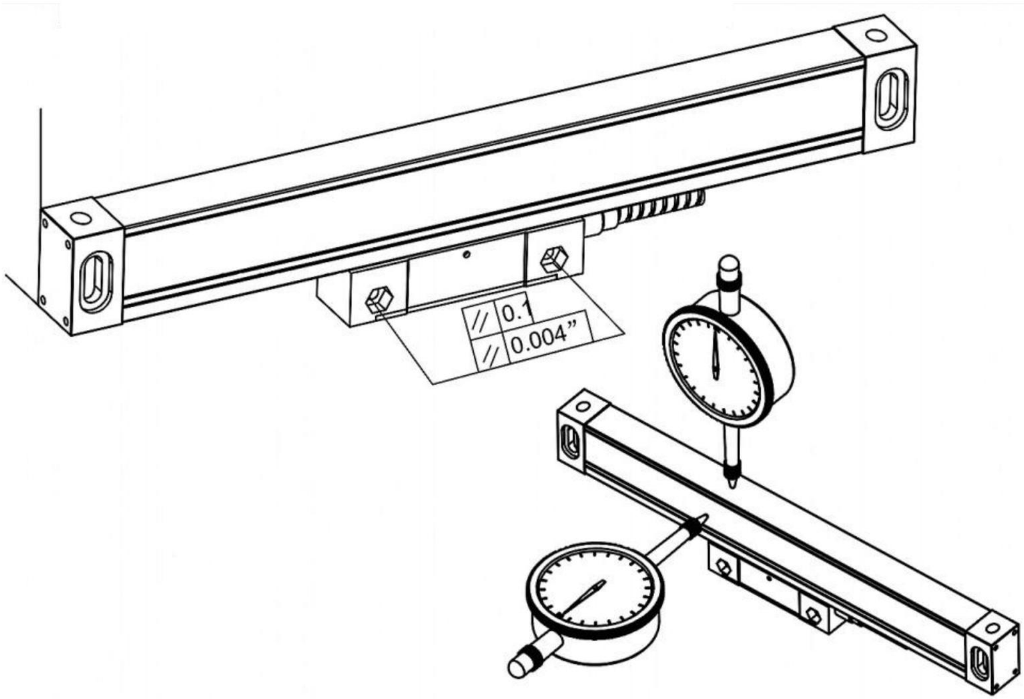
6. Profundidad de la rosca del tornillo de instalación, debe tener al menos 6 dientes de profundidad de bloqueo; La parte más importante de la fuerza, como el soporte de la placa fija del estante del medidor de pantalla digital, debe tener 8 dientes de profundidad de bloqueo; serie YE de escala, la profundidad de la rosca Profundidad de bloqueo. Por ejemplo, para fijar el estante del medidor de pantalla digital. placa, debe tener más de 8 dientes de profundidad de bloqueo; escala de la serie YE Con tornillos M4 Instalación de la superficie de montaje roscada después del desbarbado de la superficie, la pintura y la eliminación de manchas. (La siguiente figura)



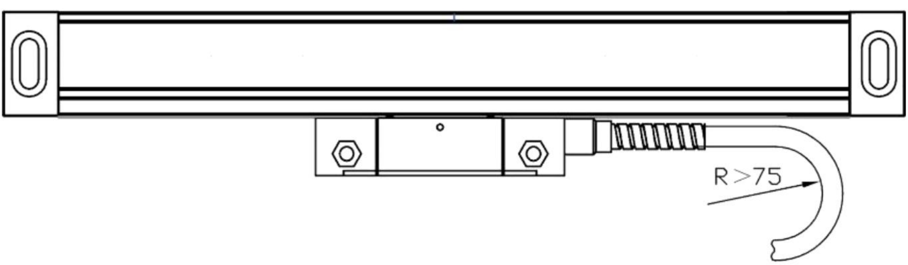


7. La fijación de la línea de señal debe tener en cuenta todas las distancias de movimiento relevantes. La posición de fijación se coloca lo más cerca posible del centro del recorrido y el exceso de línea de señal se fija con una brida de alambre.

8. El ajuste de la altura de la escala debe ser la longitud del centro de la escala para tomar los dos lados del punto de simetría. Para ajustar el punto de referencia, cualquier escala independientemente de la dirección del nivel de la escuela o la dirección de la altura, el rango de ajuste: para el cuerpo de la escala, hasta la cabeza desde el cuerpo de la escala a una distancia de no más de 20 mm desde cada extremo prevalecerá. Para el cabezal de lectura, entre las dos superficies de referencia cuadriláteras (la siguiente figura)




9. El radio de curvatura de la línea de señal de la escala es mayor a 60 mm.



10. Norma de instalación de la báscula

(1) Estándar de superficie de la base de instalación (Figura 4.8abc tres métodos de instalación)

1. La superficie de instalación del cuerpo de la regla es paralela a la superficie de instalación del cabezal de lectura y el paralelismo entre las superficies de instalación es <0,1 mm.

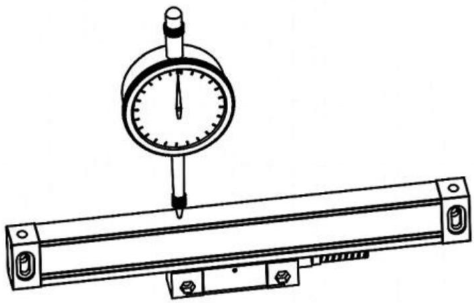
2.La superficie de instalación del cuerpo de la regla es perpendicular a la instalación. superficie del cabezal de lectura y la perpendicularidad entre las superficies de instalación es <0,1 mm

2) Normas de instalación del cuerpo de la regla (Figura 4.9, Figura 4.10)

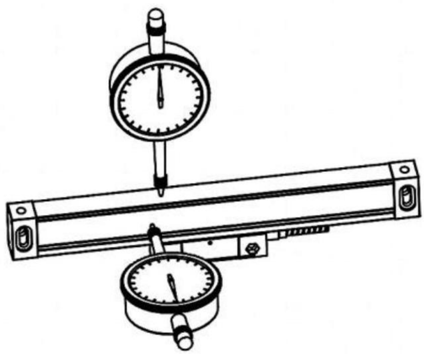
1. Dirección de altura relativa al paralelismo de la guía de la máquina <0,1 mm, máximo no más de 0,15 mm. En términos de punto de simetría, cuanto más pequeño, mejor.

3) Normas de instalación del cabezal de lectura

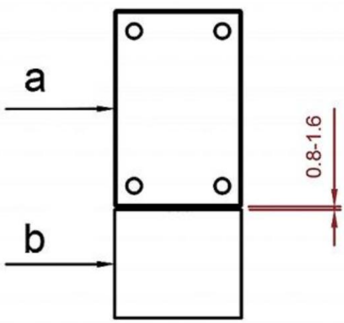
1. El espacio libre entre el cabezal de lectura y la dirección de altura del cuerpo de la regla es de 0,8 mm a 1,6 mm después de la instalación, y luego retire el bloque de almohadilla (Figura 4.11)



4.9



4.10




2. Cabezal de lectura lado A y cuerpo de la regla lado B. Desalineación en dirección horizontal.

0,25 ± 0,15 mm

3. Paralelismo del cabezal de lectura con respecto a

Máquina herramienta <0,10 mm, el máximo no puede superar los 0,30 mm

# Parámetro:

| Modle | SNS-3V-YE102024 | SNS-3V-YE161838 |
|---|---|---|
| Rated voltage: | CA 85-230 V 50 Hz/60 Hz | |
| Resolution | 5 μm | |
| Number of axles | 3 | |
| Range | 10 inches<br>20 inches<br>24 inches | 16 inches<br>18 inches<br>38 inches |

# Accesorios estándar:

| Accessories for digital display meters: | Accessories for grating ruler: |
|---|---|
| 1. Support rod * 1 | 1. Ruler cover * 3 |
| 2. Knife holder plate * 1 | 2. L mounting plate * 4 |
| 3. Transparent watch case * 1 | 3. Plug * 6 |
| 4. Power cord * 1 | 4. Screw pack * 3 bags |
| 5. Watch holder * 1 | Each bag contains: |
| 6. Butterfly piece * 2 | Internal hexagonal screw M4 * 30 * 4; |
| 7. M8 * 70 screw * 1 | Internal hexagonal screw M4 * 12 * 2; |
| 8. M10 * 55 screw * 1 | Internal hexagonal screw M4 * 8 * 4; |
| 9. Nut M10 * 1 | U-shaped gasket T=0.2mm * 2; |
| 10. Nut M8 * 1 | Washer φ 6 * 2; |
| 11. Nut M5 * 1 | Washer φ 5 * 2; |
| 12. Internal hexagonal screw M5 * 20 * 2 | Washer φ 4 * 6; |
| 13. Internal hexagonal screw M5 * 25 * 1 | Line card * 2 |
| 14. M4 * hex socket screw * 4 | |
| 15. M5 * 10 machine meter screws * 2 | |
| 16. Washer φ 10 * 1 | |
| 17. Washer φ 8 * 1 | |
| 18. Washer φ 5 * 1 | |
| 19. Rubber washer 20 * 10 * 1 * 1 | |
| 20. Rubber washer 20 * 10 * 0.5 * 1 | |
| 21. Spring washer φ 10 * 1 | |
| 22. Spring washer φ 8 * 1 | |
| 23. Spring washer φ 5 * 1 | |

Este dispositivo cumple con la Parte 15 de las Normas de la FCC. Su funcionamiento está sujeto a las dos condiciones siguientes: (1) Este dispositivo no puede causar interferencias perjudiciales y (2) Este dispositivo debe aceptar cualquier interferencia que reciba, incluidas las interferencias que puedan causar un funcionamiento no deseado.

Fabricante: Shanghaimuxinmuyeyouxiangongsi
Dirección: Shuangchenglu 803nong11hao1602A-1609shi, baoshanqu, shanghai 200000 CN.

Importado a Australia: SIHAO PTY LTD, 1 ROKEVA STREETEASTWOOD NSW 2122 Australia

Importado a EE. UU.: Sanven Technology Ltd., Suite 250, 9166 Anaheim Place, Rancho Cucamonga, CA 91730

REPRESENTANTE CE

E-CrossStu GmbH
Mainzer Landstr.69, 60329 Fráncfort del Meno.

REPRESENTANTE DEL REINO UNIDO

YH CONSULTING LIMITADA.
C/O YH Consulting Limited Oficina 147, Centurion House, Carretera de Londres, Staines-upon-Thames, Surrey, TW18 4AX

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# INSTRUKCJA OBSŁUGI WYŚWIETLACZA DRO

MODEL: SNS-3V-YE102024 JEST NS-3V-YE161838

nadal staramy się dostarczać Państwu narzędzia w konkurencyjnych cenach.
„zapisz połowę ", „Połowa ceny" lub inne podobne określenia używane przez nas oznaczają jedynie
szacunkowe oszczędności, jakie możesz uzyskać kupując u nas określone narzędzia w porównaniu z większymi
najlepszych marek i niekoniecznie oznacza to, że obejmuje wszystkie kategorie narzędzi oferowanych przez nas.
uprzejmie przypominamy o konieczności dokładnego sprawdzenia, czy składając u nas zamówienie,
faktycznie oszczędzając połowę w porównaniu z najlepszymi markami.

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MODEL: SNS-3V-YE102024 SNS-3V-YE161838

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To jest oryginalna instrukcja, proszę przeczytać wszystkie instrukcje w podręczniku ostrożnie przed rozpoczęciem użytkowania. VEVOR zastrzega sobie prawo do jednoznacznej interpretacji naszej instrukcji obsługi. Wygląd produktu podlega otrzymany produkt. Przepraszamy, że nie będziemy Cię już więcej informować, jeśli w naszym produkcie pojawią się jakiekolwiek aktualizacje technologiczne lub oprogramowania.

Drodzy użytkownicy:

Dzię kujemy za zakup wielofunkcyjnych cyfrowych wskaźników odczytu ·

Odczyty cyfrowe są wykorzystywane w wielu różnych zastosowaniach. Obejmują one: narzę dzia maszynowe , w osiach posuwu, urządzeniach pomiarowych i kontrolnych, EDM i stanowiskach aparaty dzielące, narzę dzia do ustawiania , pomiarowych kontrola produkcji. Aby spełnić wymagania tych W wielu zastosowaniach do odczytów cyfrowych można podłączyć wiele enkoderów. Przed użyciem należy uważnie przeczytać wszystkie instrukcje zawarte w instrukcji. ściśle ich przestrzegaj · zachowaj instrukcję do wykorzystania w przyszłości ·

uwaga dotycząca bezpieczeństwa:

⌘ Aby zapobiec porażeniu prądem elektrycznym lub pożarowi, wilgoci lub bezpośredniemu rozpyleniu należy unikać płynu chłodzącego. W przypadku jakiegokolwiek dymu lub osobliwego zapach z wyświetlacza cyfrowego, proszę odłączyć wtyczkę zasilającą natychmiast, w przeciwnym razie może dojść do pożaru lub porażenia prądem. w takim przypadku nie należy podejmować prób naprawy, lecz skontaktować się z firmą lub distributors.

⌘ Odczyt cyfrowy to precyzyjne urządzenie pomiarowe, stosowane za pomocą przyrządu optycznego. Skala liniowa · gdy jest używana, jeśli połączenie mię dzy Skala liniowa i odczyt cyfrowy są uszkodzone lub uszkodzone zewnę trznie mogą wystąpić nieprawidłowe wartości pomiarowe · Dlatego też, użytkownik powinien zachować ostrożność.

⌘ Nie należy podejmować prób naprawy lub modyfikacji wyświetlacza cyfrowego, gdyż może to spowodować awarię , może wystąpić błąd lub uraz. W przypadku jakichkolwiek nieprawidłowych warunków, Proszę skontaktować się z firmą lub dystrybutorem.

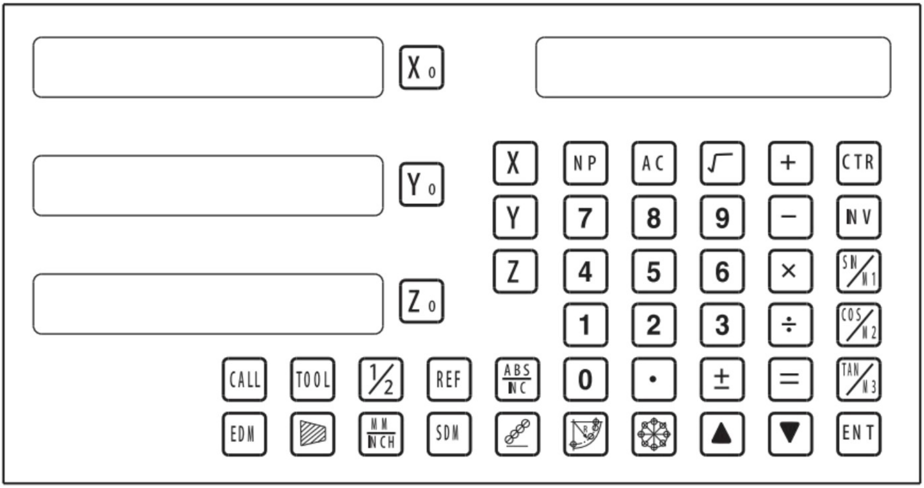
⌘ Jeżeli optyczna skala liniowa używana z odczytem cyfrowym jest uszkodzona, nie należy używać skali liniowej innej marki. · Ponieważ wydajność, specyfikacja i połączenie produktów różnych i różnych marek różnią się w zależności od modelu, nie wolno podłączać bez instrukcji specjalistycznego personelu technicznego personelu, w przeciwnym razie mogą wystąpić problemy z odczytem cyfrowym.

⌘ With the continuous updating of products, if there are changes or W przypadku zmian parametrów próbki, pierwszeństwo mają pliki losowe, a firma ma prawo do ostatecznej interpretacji bez wcześniejszego powiadomienia.

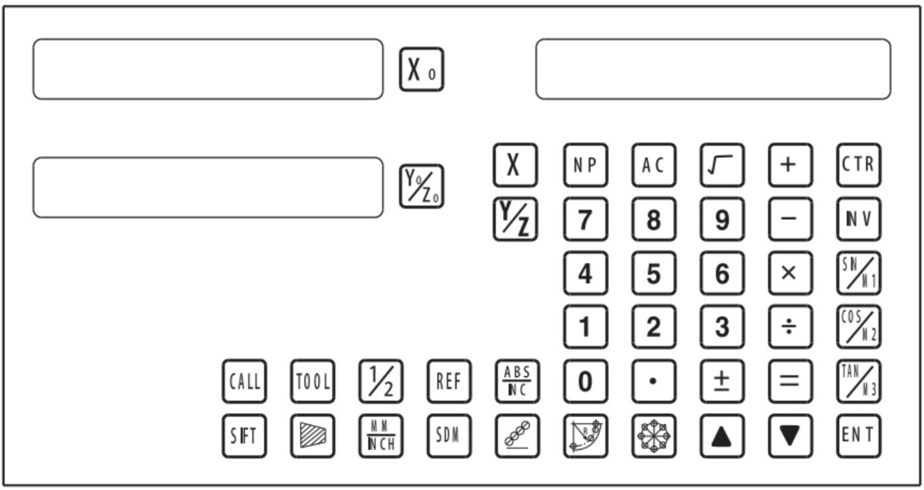
# Contents

# Contents

THREE AXIS PANEL




TWO AXIS PANEL



# Caption of the keyboard

## Keyboard Description

| | |
|---|---|
| X Y Z | Keys for axis selection |
| $X_0$ $Y_0$ $Z_0$ | Zero select axis |
| ± | Enter +/- sign |
| • | Enter decimal point |
| 0 1 2 3 4<br>5 6 7 8 9 | Entry keys for numbers |
| + − × ÷ = | Operation key (in Calculation function key) |
| CTR | Enter or quit calculating state |
| AC | Cancel incorrect operation |
| INV | Calculate inverse trigonometric |
| √ | Square root |
| ENT | Confirm operation |
| MM/INCH | Toggles between inch and millimeter units. |
| REF | Press when ready to identify a reference mark. |
| SDM | Function keys for 200 sub datum |
|  | ARC cutting function |
|  | holes displayed equally on a circle |
|  | holes displayed equally on a line |

| | |
|---|---|
| SIN/M1 | Calculate trigonometric or Slope Processing function key |
| COS/M2 | Calculate trigonometric or rectangular inner chamber processing function key |
| TAN/M3 | Calculate trigonometric or the tool diameter compensation function key |
| ABS/INC | Toggle between ABS/INC coordinate |
| ▲ ▼ | Stroll up or down to select |
|  | Taper measured function key |
| CALL | Tool library call key |
| TOOL | Opens the tool table.( lathe) |
| EDM | EDM function key |
| SFT | Filter display function key |
| 1/2 | Half a display value of an axis |
| NP | Non Linear Error Compensation function keys |

## 3、Parameters settings

### 3.1 Parameters setup routine entrance.

Press [•] to enter initial system and self-check after DRO powers on in 1 second, then Parameters settings display in the Parameters window.press [▲] [▼] to select the item you want to chang.

If you want to quit initial setting, press [▲] [▼] until "QUIT" appears in message window and press [ENT]. You can also press [•] to quit initial setting.

### 3.2 Parameters Settings Description

#### 3.2.1 Setting the Resolution

Press [▲] [▼] until "RESOLUTE" appears in message window;

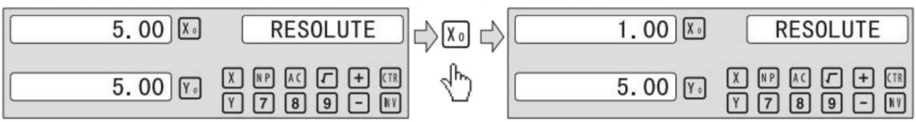
When selecting the LINEAR encode, the resolution will be set as follow:

There are 19 types of resolution:

0.01um;0.02um;0.05um;0.10um;0.20um;0.25um;0.50um;1.00um;
2.00um;2.50um;5.00um;10.00um;20.00um;25.00um;50.00um;
100.00um;200.00um;250.00um;500.00um.

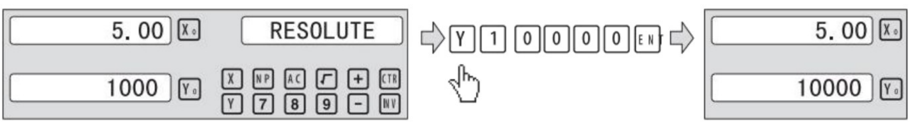
Press [X0] to change the resolution for X axis;Press [Y0] to change the resolution for Y axis;Press [Z0] to change the resolution for Z axis;

Set the resolution 5.00um to 1.00um for X axis:




When selecting the rotary encode, the resolution will be set as follow:

Input the rotary encode parameter value .

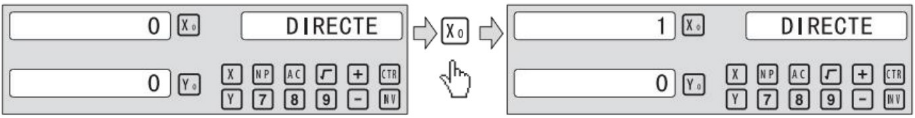


### 3.2.2 Setting Positive Direction for Counter

Press ▲ ▼ until " DIRECTE" appears in message window.

Direction '0' means the display value will increase when scale moves form right to left and decrease when scale moves from left to right. Direction '1' means the display value will increase when scale moves form left to right and decrease when scale moves from right to left.

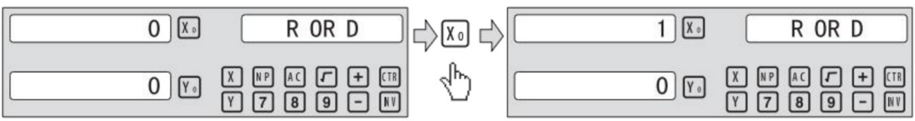
Press X0 to change the Direction for X axis;Press Y0 to change the Direction for Y axis;Press Z0 to change the Direction for Z axis; as follow:




### 3.2.3 Toggle Betwween R/D Display Mode

Press ▲ ▼ until "R OR D" appears in message window. X window, Ywindow, Z window displays '0' or '1' separately.

'0' is mode R, which means the dispay value equals the actual measurement. '1' is mode D where the display value equals the double actual measurement. Press X0 to change the R/D for X axis;Press Y0 to change the R/D for Y axis;Press Z0 to change the R/D for Z axis; as follow:




### 3.2.4 Setting Z axis Dial

Press ▲ ▼ until "Z DIAL" appears in message window.

Z axis dial should be set if Z axis is emulated for 2 axis milling and only install linear scale for X,Y axis. Z axis dial means the distance the Z axis travels when screw runs a revolution.

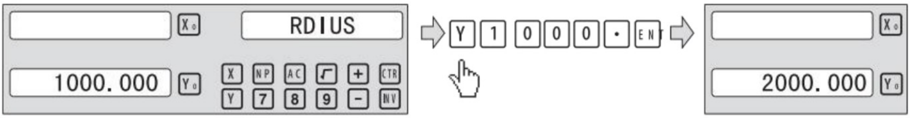
Set the Z axis Dial 2.5mm as follow ;


### 3.2.5 Setting the Rotary Radius of the Workpiece

Press ▲ ▼ until "RDIUS" appears in message window.

The Rotary rdius type is used perimeter to measure angle.

Input the Rotary Radius parameter value 2000mm as follow:

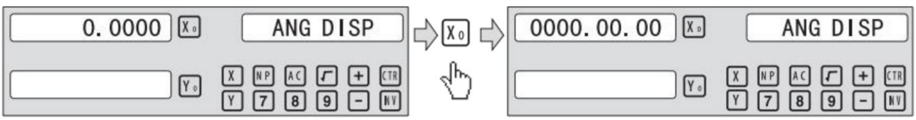



### 3.2.6 Setting the Angle Display Mode

Press ▲ ▼ until "ANG DISP" appears in message window.

Press $X_0$ to change the angle display mode for X axis;Press $Y_0$ to change the angle display mode for Y axis;Press $Z_0$ to change the angle display mode for Z axis; Example for X axis:

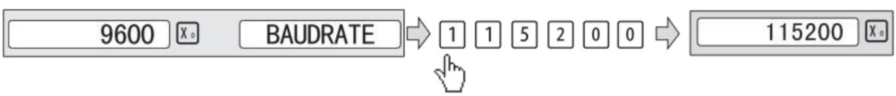
"0.0000" means the angle mode is Circulating DD;
"0000.0000" means the angle mode is Incremental DD;
"0.00.00" means the angle mode is Circulating DMS;
"0000.00.00" means the angle mode is Incremental DMS;




### 3.2.7 Setting the Baudrate of RS_232 (Special customization function, if you need to buy, please contact the dealer to customize)

Press ▲ ▼ until "BAUDRATE" appears in message window.

Set the Baudrate 115200 as follow ;



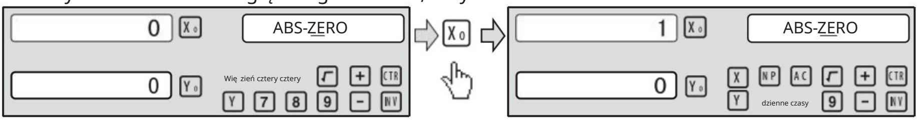
3. 2. 8 ustawienie włączania lub wyłączania zerowania bezwzględnego

naciskać aż w oknie komunikatu pojawi się napis „ABS ZERO” ·

the oznacza, że operacja zerowania ABS i ustawienia danych zostaną włącz w normalnym stanie wyświetlania ·

'1' oznacza, że operacja zerowania ABS i ustawienia danych zostaną wyłącz w normalnym stanie wyświetlania ·

naciśnij Aby zmienić tryb zerowania bezwzględnego dla osi x, naciśnij aby zmienić tryb zerowania bezwzględnego dla osi Y, naciśnij Do zmień tryb zerowania bezwzględnego dla osi Z; Przykład dla osi x ·



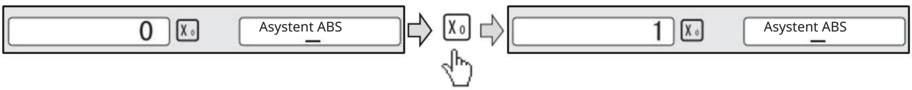

3 . 2 . 9 ustawianie formy absolutnej specjalnej funkcji

naciskać aż w oknie komunikatu pojawi się „ABS ASST” ·

„o” oznacza, że wyświetlana jest tylko wartość pozycji specjalnej funkcji Operacja specjalna.

'1' oznacza specjalną funkcję wartość pozycji + ABS Wartość pozycji to Wyświetl w operacji specjalnej Funkcji.

naciskać aby zmienić tryb absolutny dla funkcji specjalnej, ustawić następująco:



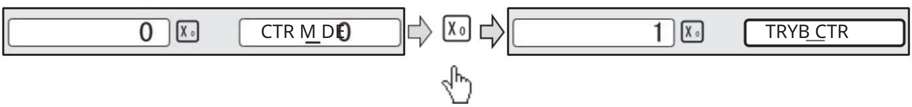

3. 2.10 ustawianie Calculator Tryb wyświetlania

naciskać dopóki w wiadomości W nie pojawi się napis „UCCTR MODE” indow

the eans m wartość wyświetlana przez kalkulator w punkcie x oznacza wartość ow disply ;

'1' wyświetlaną przez kalkulator w oknie komunikatu na wyświetlaczu;

naciskać aby zmienić tryb wyświetlania kalkulatora zostanie ustawiony jako follow:




3.2.11 ustawienie jasności wyświetlacza

Ustawienie jasności wyświetlacza LED, domyślne ustawienie fabryczne to tylko „3”, im wyższy parametr, tym większa jasność. Naciśnij „xo”, aby ustaw, nie zaleca się samodzielnego ustawiania wartości domyślnej.

3.2.12 The linear scale counting frequency setting

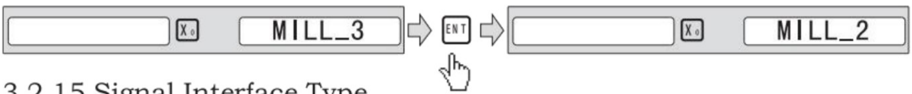
The factory default setting is only "12", the higher the parameter, the lower the counting frequency, press "X0" to set, it is not recommended that you set the default value yourself.

3.2.13 Setting QUIT: Digital display table parameters quit button.

3.2.14 Setting the type of the DRO.

The type of the DRO will be display on the right window. then press the key ENT to select the correct type. the following system item will be set:

"MILL-3" means the DRO type is 3-axis milling machine table;
"MILL-2" means the DRO type is 2-axis milling machine table;
"LATHE-2" means the DRO type is 2-axis lathe table;
"LATHE-3" means the DRO type is 3-axis lathe table;
"GRIND" means the DRO type is Grind table;
"EDM" means the DRO type is EDM table; (Special customization function, if you need to buy, please contact the dealer to customize)




3.2.15 Signal Interface Type

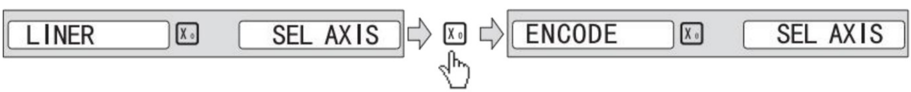
Message window displays " SEL AXIS" which indicates the step is to Sensor input signal mode. Press $X_0$ to change the signal mode for X axis;Press $Y_0$ to change the signal mode for Y axis;Press $Z_0$ to change the signal mode for Z axis;Example for X axis:

Press $X_0$ to scroll through the Rotary encode type, the Linear encode type, the Rotary rdius type.

X window displays the Signal type.

"LInER" means the Signal type is linear encode type ;
"EnCOdE " means the Signal type is Rotary encode type;
"RdIUS" means the Signal type is Rotary rdius type ;

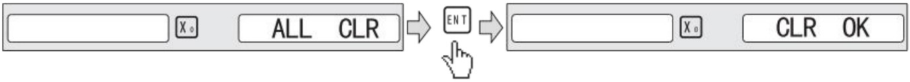
Example: currently in the linear encode type, to toggle to the Rotary encode type;



3.2.16 Restore Factory Settings:

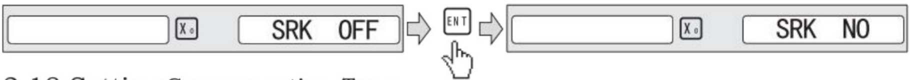
Clear all data except DRO type.DRO will load default setup for parameter.After loading default setup,user must search RI once to enable resuming ABS dadum function;otherwise to resume the datum by RI is unable;

Message window displays " ALL CLR" , press ENT and message windows display "PASSWORD" indicating the operator to input password; Press 2000 + ENT in turn to load default value;




3.2.17 Shrinkage Ratio enable or disable.

Message window displays " SRK OFF" to disable Shrinkage rate function. Press ENT to enable Shrinkage rate function in Message window displays " SRK ON" :




3.2.18 Setting Compensation Type

Message window displays " SEL COMP" which indicates the step is to compensation type. Press X0 to change the compensation type for X axis;Press Y0 to change the compensation type for Y axis;Press Z0 to change the compensation type for Z axis;Example for X axis:

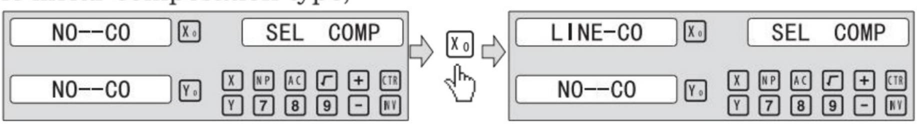
Press X0 to scroll through the not compesation type, the Linear compesation type, the non-linear compesation type.

"no-CO" means the compesation type is not compesation type;

"LInE-CO" means the compesation type is linear compesation type.

"non-LinE" means the compesation type is non-linear linear compesation type;

Example for X axis: currently in the not compesation type, to toggle to the linear compesation type;



3.2.19 Inch display, set the number of digits after the decimal point

In the inch display mode, the number of digits after the decimal point is set, the factory default digit is "4", press "X0" to set, can be set according to actual needs.

3.2.20 Setting EDM: it is not recommended that you set the default value yourself, EDM function, Set the relay off on time.

3.2.21 Setting Linearity Compensation.

Message window displays "LIN COMP" which indicates the step is to Linearity Compensation. Compensate the linear error to make display value equals to standard value.

The calculation of compensation rectifying coefficient:

$$\text{Coefficient} = \frac{(\text{Measurement} - \text{Standard value}) \times 1000.000}{\text{Standard value}}$$

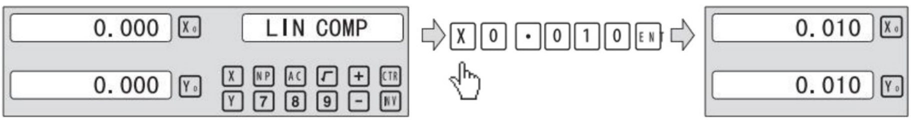
Example for X axis:

Measurement 200.020mm

Standard value 200.000mm

Rectifying coefficient= (200.020-200) * 1000 /200 =-0.01mm/m

Input compensation rectifying coefficient 0.01 as follow:

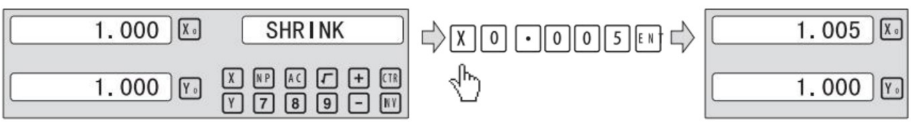



3.2.22 Setting the Shrinkage Ratio

Press ▲ ▼ until "SHRINK" appears in message window;

$$\text{Shrinkage radio} = \frac{\text{Dimensions of the finished product}}{\text{Dimensions of the working piece}}$$

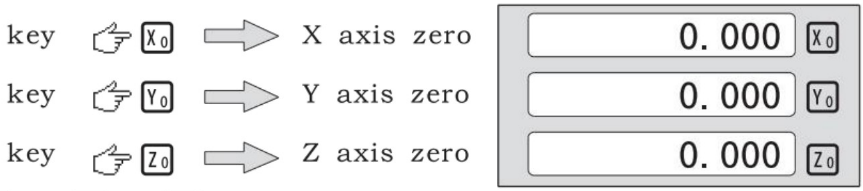
Set the shrinkage radio 1.005 as follow;



## 4、General Operations;

### 4.1 Zeroing

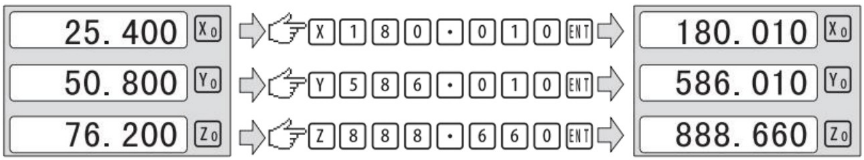
Zero the designated axis in normal display state.Zeroing is used to set the current point as datum point as follow;




X0 or Y0 or Z0 will be return to the original data before the reset。

### 4.2 Preset Data to Designated Axis

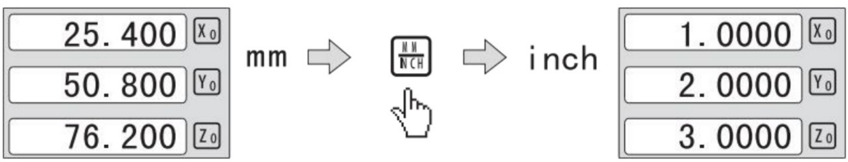
Preset a value to current position for a designated axis in normal display state.



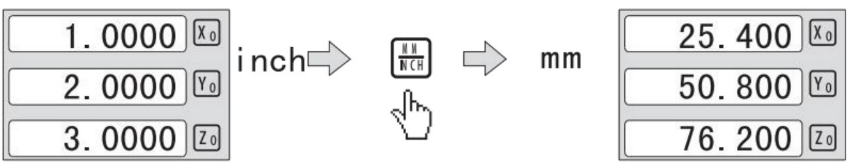

### 4.3 Toggle Display Unit between inch and mm

Length can be displayed either in "mm" (metric) or "inch" (imperial). Display unit can be toggled between mm and inch.

Example: Display value toggle from mm to inch;



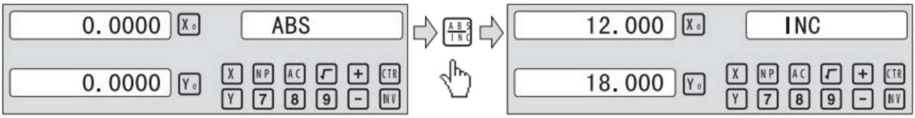

Example: Display value toggle from inch to mm;



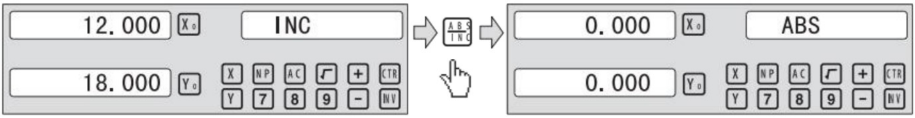
## 4.4 Absolute/Incremental/200 groups SDM

Function: The DRO has 3 coordinate display modes: the absolute mode (ABS); the incremental mode (INC) and 200 goups Second Data Mamory (SDM) with the range of 00 to 99.Zero point of work-piece is set at the origin point of ABS coordinate. The relative distance between datum of ABS and SDM remains unchanged when ABS datum is changed.

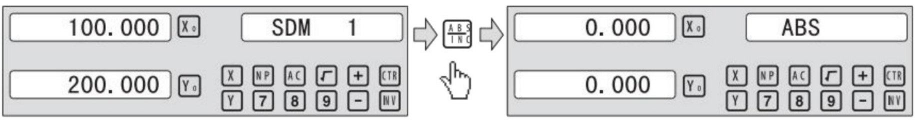
1. Toggle from ABS to INC coordinate;




2. Toggle from INC to ABS coordinate;




3. Toggle from SMD to ABS coordinate;



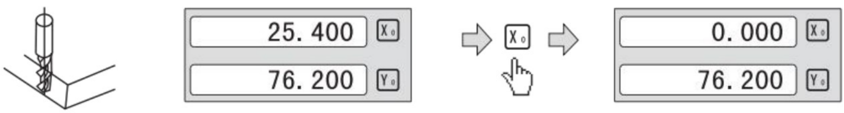

## 4.5 1/2 Function

Function: Set the center of work piece as datum by halving the displayed value.

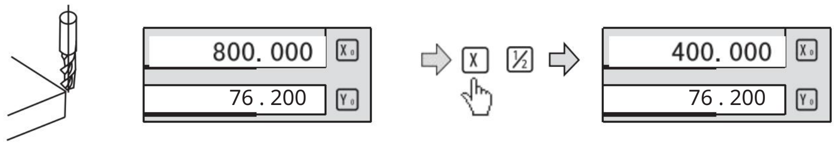
Example: Set the center of rectangle as datum as the right figure.

Steps:

1、Touch one side of the workpiece with the TOOL,then zero the X axis。



2 , Przenieś NARZĘDZIE na przeciwną stronę przedmiotu obrabianego i dotknij go.
Następnie naciśnij X + ½ z kolei, aby wyświetlić wartość na osi X.




3 Przesuń tabelę motywów, aż na osi x wyświetli się „o. 000” okno. Pozycja jest środkiem obrabianego przedmiotu.

4 . 6 Wyczyść wszystkie dane SDM.

W trybie ABs, aby nacisnąć w sposób ciągły • dziesięć razy spowoduje wyczyszczenie wszystkie dane dla 200 zestawów SDM. Okno Mcssage wyświetla USDM "CLR" .

4 . 7 Tryb uśpienia

w trybie innym niż ABS, naciśnięcie klawisza RE F C Wyłącz wszystkie wyświetlacze i DRO uzyskując dostęp do trybu uśpienia, a następnie naciskając ten klawisz ponownie spowoduje powrót DRO do trybu roboczego. W trybie uśpienia Tryb DRO jest nadal w stanie roboczym i faktycznie rejestruje NARZĘDZIE movement.

Przykład: W trybie innym niż ABS, aby uzyskać dostęp do trybu uśpienia, naciśnij klawisz F. W trybie RE uśpienia naciśnięcie klawisza F powoduje wyjście z trybu RE

Tryb uśpienia ·

4. 8 Pamięć przerwania zasilania.

Pamięć służy do przechowywania ustawień DRO i maszyny wartości odniesienia przy wyłączonym zasilaniu.

4. 9 wyszukaj bezwzględny punkt odniesienia skali

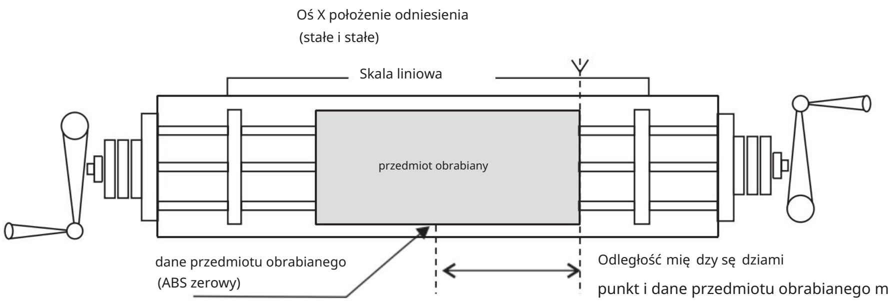
W codziennym procesie obróbki bardzo często zdarza się, że obróbka nie może zostać ukończona w ciągu jednej zmiany roboczej, stąd DRO musi zostać wyłączone po pracy, a przerwa w dostawie prądu może nastąpić w trakcie Proces obróbki, który prowadzi do utraty punktu odniesienia przedmiotu obrabianego (pozycja zerowa przedmiotu obrabianego), ponowne ustalenie punktu odniesienia przedmiotu obrabianego używanie urządzenia do wyszukiwania krawędzi lub innej metody nieuchronnie powoduje wyższe obróbka z dokładnością, ponieważ nie jest możliwe ponowne ustalenie punkt odniesienia obrabianego przedmiotu dokładnie w poprzedniej pozycji.ABY umożliwić odzyskiwanie punktu odniesienia obrabianego przedmiotu z dużą dokładnością i bez konieczności ponownego ustalania punktu odniesienia obrabianego przedmiotu za pomocą czujnika krawędzi lub innych metod, każda skala liniowa ma punkt odniesienia, który jest wyposażony w punkt odniesienia pozycja zapewniająca funkcję pamięci punktu odniesienia.

Zasada działania funkcji pamięci danych odniesienia jest następująca:
następuje.

ponieważ punkt odniesienia skali liniowej jest stały i ustalony, będzie nigdy się nie zmieniają i nie znikają po wyłączeniu systemu DRO. Dlatego musimy po prostu zapisać odległość między punktem odniesienia i punkt odniesienia przedmiotu obrabianego (pozycja zerowa) w pamięci NIEUlotnej· Następnie w przypadku awarii zasilania lub wyłączenia DRO możemy odzyskać punkt odniesienia obrabianego przedmiotu (pozycja zerowa) poprzez wstępne ustawienie zera wyświetlacza pozycja jako zapisana odległość od punktu odniesienia ·

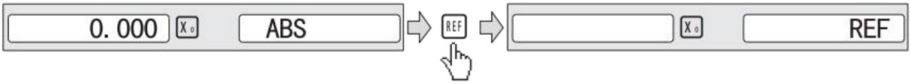
Podczas obróbki przedmiotu obrabianego należy ustalić punkt odniesienia bezwzględnego. Dostępne są trzy tryby pracy (REF, AB, LEF AB):

Przykład: aby zapisać punkt odniesienia osi X

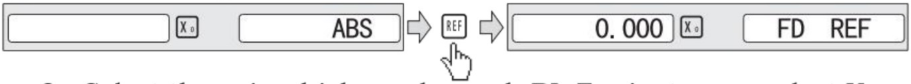


**Example for REF mode** :

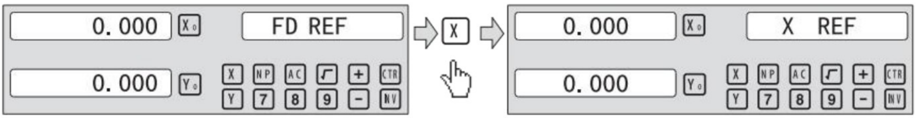
1、DRO is set in ABS coordinate. Press [REF], then the message window display “REF” .




2、Message window displays “REF” , Press [ENT] until “FD_REF” appears in message window.



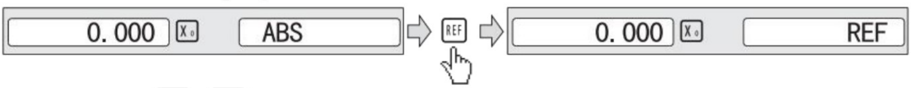

3、Select the axis which need search RI. For instance : selsct X axis, then press [X] . “X_REF” is displayed in message window, and X axis window flashes.




4、 Move the machine table .The buzzer sounds when RI is searched, then X window stops flashing and displays the value of the current position .the DRO returns normal display state. Then message window displays “FIND_X” .

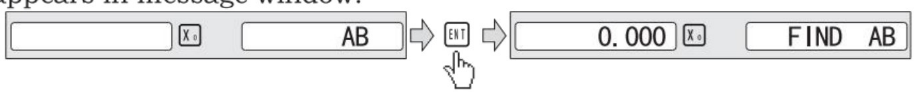
**Example for AB mode** :

1、 DRO is set in ABS coordinate. Press [REF], then the message window display “REF” .

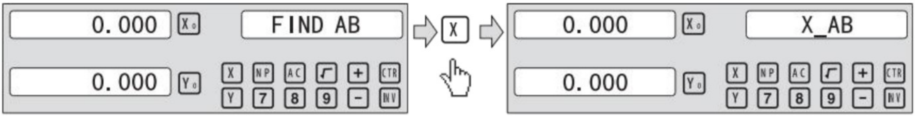



2、Press [▲] [▼], then the massage window display “AB” .


3、Message window displays “AB” , Press [ENT] until “FIND_AB” appears in message window.



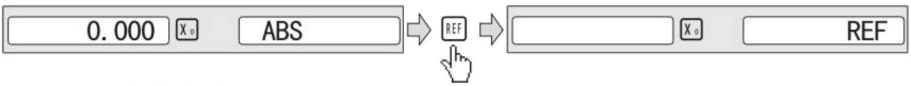
4、Select the axis which need search RI. For instance : selsct X axis, then press X . "X_REF" is displayed in message window, and X axis window flashes.



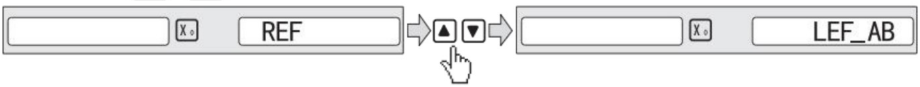

5、 Move the machine table .The buzzer sounds when RI is searched, displays the value of the current position for the absolute datum zero. the DRO returns normal display state. Then message window displays "FIND_AB" .

**Example for LEF_AB mode** :

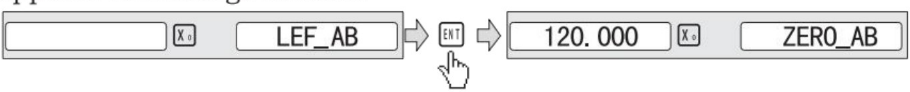
1、 DRO is set in ABS coordinate. Press REF , then the message window display "REF" .



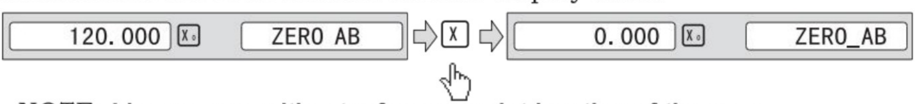

2、Press ▲ ▼, then the message window display "AB" .




3、Message window displays "LEF_AB" , Press ENT until "ZERO_AB" appears in message window.




4、Move the machine table to be set zero position piont. then press X , X axis will be zeroing . the current position for the absolute datum zero. the DRO returns normal display state.




NOTE: **Linear range without reference point location of the user**

## 4.10 Non Linear Error Compensation

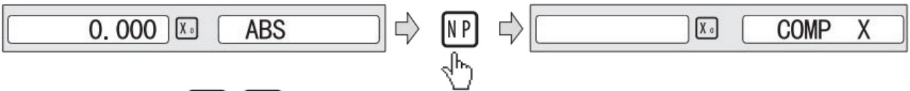
First compensation Type ( Linear or Non-Linear) in parameter setting must be set Non-Linear. Linear scale have a ref point location and find to the Absolute Reference Point will be enable.

Default Non-Linear compensation : 50.

**Example for Y axis:**

Step 1: Search the Absolute Reference Point of Scale;

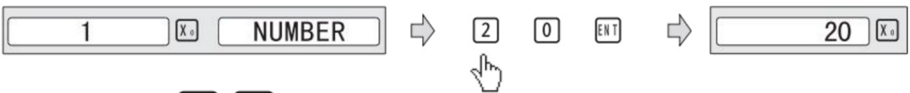
Step 2: Press NP , then the message window display "COMP X" .



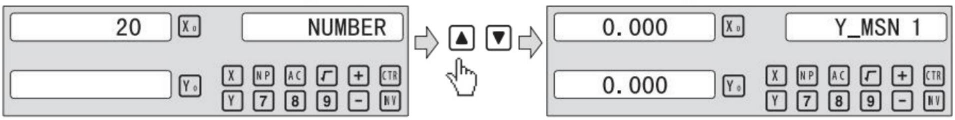

Step 3: Press ▲ ▼, then the massage window display "COMP Y"


Step 4: Press ENT, then the message window display "NUMBER" .

Then input the compensation parameter NUMBER.




Step 5: Press ▲ ▼, then message window displays "Y-MSN-1" which indicates the step is to Non Linear Error Compensation.



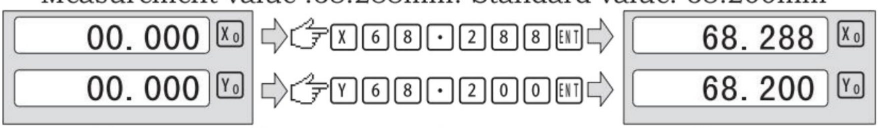

Step 6: Input compensation value .

X window display the value of the measurement value.

Y window display the value of the standard value.

Example for the first compensation point:

Measurement value :68.288mm. Standard value: 68.200mm



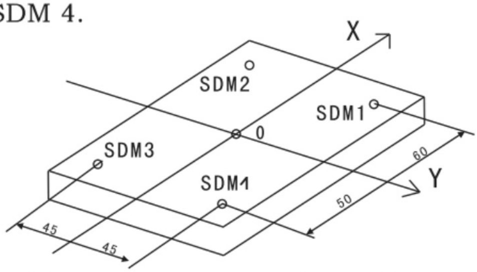

Step 7: After input all parameter, the DRO automatically exit.

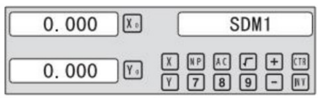
5、200 Groups SDM coordinate

The DRO has three display modes: the absolute mode (ABS),the incremental mode (INC) and the 200 groups second data memory (SDM 1 – SDM200). ABS datum of the work-piece is set at the beginning and the 200 groups SDM is set relative to ABS coordinate.

ABS Mode, INC Mode and SdM Mode are specially designed to provide much more convenience features to the operator to cope with the batch machining of relative works and the machining of the workpiece machining dimensions from more than one datum.

**Example:** The ABS datum is the center point O, the point sdm1, sdm2, sdm3, sdm4 needed processing are set as datum of SDM 1 – SDM 4.




Two ways to set SDM coordinate:

1、 Zeroing at the Current Point.

2、 Preset datum of SDM coordinate.

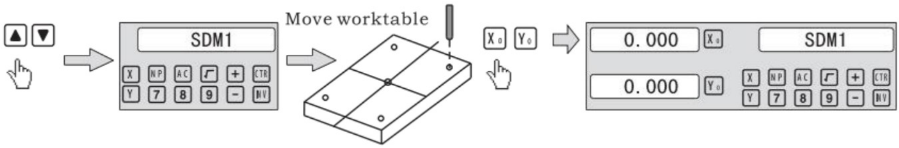
5.1 Zeroing at the Current Point

At first set the center point of the work-piece as the origin of the ABS, then align the TOOL with point SDM1,SDM2,SDM3,SDM4 by moving the machine table and zero them. It is the position to process where the "0.000" appears in X window, Y window by moving the machine table whether in ABS or in SDM coordinate.

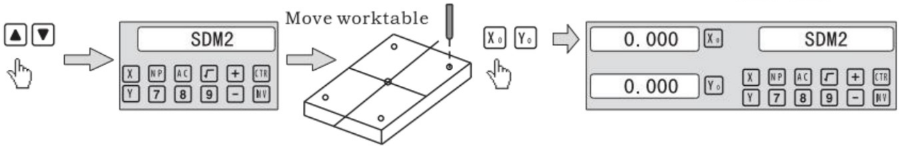
**Steps:**

1、 Move worktable to place the TOOL at the center of the workpiece point O as the datum of ABS. Then zero X axis and Y axis in SDM 1 ; Zero X axis and Y axis in SDM 2 ; Zero X axis and Y axis in SDM 3 ; Zero X axis and Y axis in SDM 4.

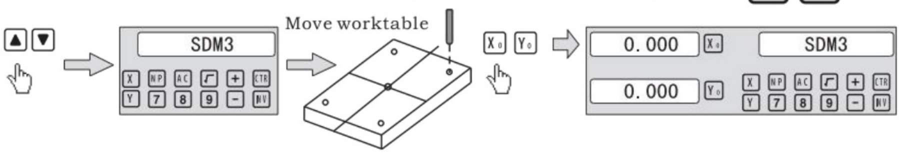
2、Set the point sdm1 as the datum of SDM 1. Move the machine worktable to x = 60.000, y = 45.000. Then proess $\boxed{X_0}$ $\boxed{Y_0}$.



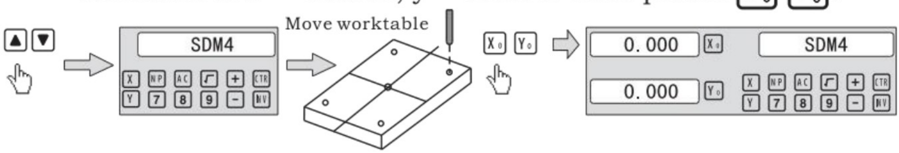

2、 Set the point sdm1 as the datum of SDM 2. Move the machine worktable to x = 60.000, y = -45.000. Then proess $\boxed{X_0}$ $\boxed{Y_0}$.




3、 Set the point sdm1 as the datum of SDM 3. Move the machine worktable to x = -60.000, y = -45.000. Then proess $\boxed{X_0}$ $\boxed{Y_0}$.




4、 Set the point sdm1 as the datum of SDM 4. Move the machine worktable to x = -60.000, y = 45.000. Then proess $\boxed{X_0}$ $\boxed{Y_0}$.




## 5.2 Preset datum of SDM coordinate

There are the same sample as Method 1. First Move the worktable to place the TOOL exactly at the origin of ABS, secondly Enter the ABS Mode as follow.

**Steps:**

1、Move worktable to place the TOOL at the center of the workpiece point O as the datum of ABS. Then zero X axis and Y axis in SDM 1 ; Zero X axis and Y axis in SDM 2 ; Zero X axis and Y axis in SDM 3 ; Zero X axis and Y axis in SDM 4。

2、Set point sdm1 as the datum of SDM 1. Press ▲ ▼, then the message window display "SDM 1" . Input x = 60.000, y = 45.000.


3、Set point sdm1 as the datum of SDM 2. Press ▲ ▼, then the message window display "SDM 2" . Input x = -60.000, y = 45.000.


4、Set point sdm1 as the datum of SDM 3. Press ▲ ▼, then the message window display "SDM 3" . Input x = -60.000, y = -45.000.

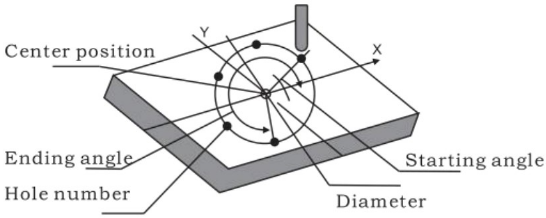

5、Set point sdm1 as the datum of SDM 4. Press ▲ ▼, then the message window display "SDM 4" . Input x = -60.000, y = 45.000.

# 6, funkcja specjalna

## 6.1 Circumference Holes Processing

The Function of PCD Hole positioning on Circumference is used to distribute arc equally, such as boring hole on flange. The right window will show the parameter to be defined when selecting PCD Function. The Parameters to be defined are:

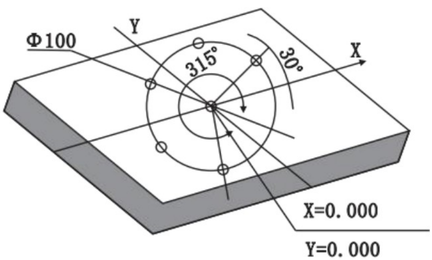
| | |
|---|---|
| PCD_XY(XZ,YZ) | Select place |
| CENTER | Center position |
| DIA | Diameter of circle |
| NO_HOLE | Hole number |
| ST ANG | Starting angle |
| ED ANG | Ending angle |




The postion of the hole center are calculated automatically after input all parameters. Press ▲ or ▼ to choose the hole No. and move the machine table until the "0.000" appears in X window , Y window, Z window. It is the position to process a table.

Example for the XY place: Machine hole on circumference as the figure

| | |
|---|---|
| PCD_XY(XZ,YZ) | XY |
| CENTER | X=0,000,Y=0.000 |
| DIA | 100,000 |
| NO_HOLE | 5 |
| ST ANG | 30,000 |
| ED ANG | 315,000 |




Steps:

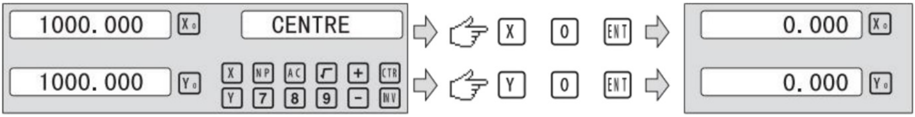
1. Set display unit to metric in normal state; Move the machine table until the machine TOOL is aligned with the center of the ciecle , then zero X axis ,Y axis.

2. Select plece.

Press [PCD key] , then the message window display "PCD_XY" to the Circumference Holes Processing. Press ▲ or ▼ to select XY place.

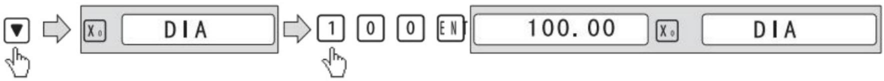
2. Input center position.

Press ENT , then the message window display "CENTER" . X and Y window displays the formerly preset center position. Input X = 0, Y = 0 as follow.



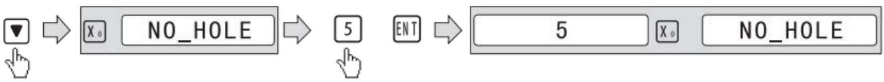

4. Input diameter.

Press ▼ until "DIA" appears in the message window. X window despalys the formerly preset diameter. Then input the diameter is 100.000.



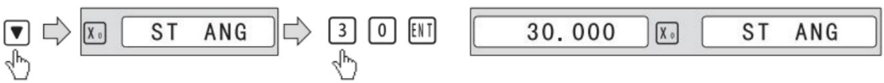

5. Input number.

Press ▼ until "NO_HOLE" appears in the message window. X window despalys the formerly preset number. Then press 5 in turn to input number.



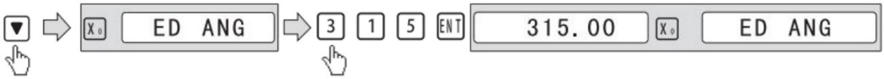

6. Input starting angle.

Press ▼ until "ST ANG" appears in the message window. X window despalys the formerly preset the starting angle. Then press 3 0 in turn to input the starting angle.



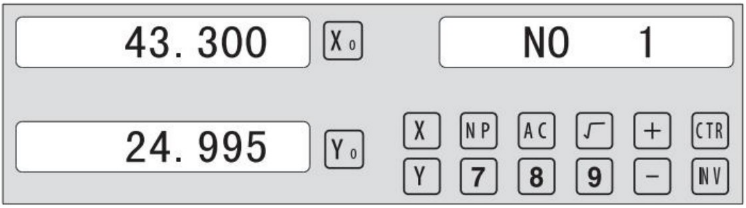

7. Input ending angle.

Press ▼ until "ED ANG" appears in the message window. X window dispalys the formerly preset the ending angle.. Then press 3 1 5 in turn to input the ending angle.




8. Press ▼ until "NO 1" appears in the message window.

It is the position of the first hole to punch where the "0.000" is displayed in X window and Y window by moving the machine table. After finishing the first hole, press ▼ or ▲ to change holes number.

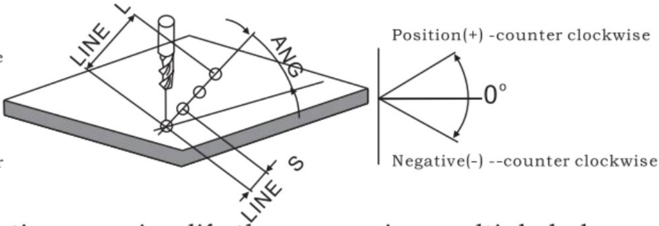



9. After processing all holes, press  to return normal display.

## 6.2 Linear Holes Processing

There are two modes to carry out the linear drilling: Length mode and Step mode.

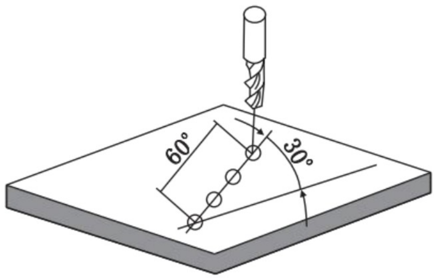
| | |
|---|---|
| 1.LINE S | Step mode |
| LINE L | Length mode |
| 2.STEP | Step length |
| LENGTH | Line length |
| 3. ANG | Angle |
| 4. NO.HOLE | Hole number |




Linear Holes function can simplify the processing multiple holes whose centers are attributed equally on one line.

Example：

| | |
|---|---|
| LINE_L | Length mode |
| LENGTH | 60.000 |
| ANG | 30.000 |
| NO.HOLE | 4 |




Steps :

1. Select plece.

Press , then the message window display "LINE_XY" to the Linear Holes Processing. Press or to select XY place.

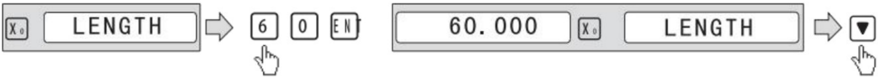

2. Select Linear Holes mode.

Press ENT , then the message window display "LINE_S" . Press or to select "LINE_L" .


3. Input linear length;

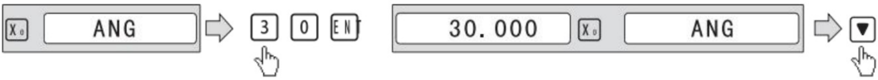
Press ENT , then the message window display "LENGTH" .

X window despalys the formerly preset the linear length. Press [6] [0] in turn to input the linear length.




4. Input angle;

Message window displays "ANG" which indicates the step is to angle. X window despalys the formerly preset the angle. Press [3] [0] in turn to input the angle.

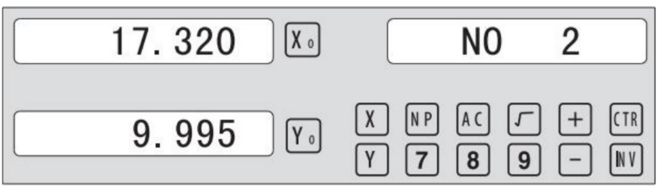



5. Input number;

Message window displays "ANG" which indicates the step is to angle. X window despalys the formerly preset the number. Press [4] in turn to input the number.


6. Press [▼] until "NO 1" appears in the message window.

It is the position of the first hole to punch where the "0.000" is displayed in X window and Y window by moving the machine table. After finishing the first hole, press [▲] or [▼] to change holes number.



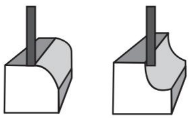

7. After processing all holes, press  to return normal display.

## 6.3 Przetwarzanie ARC

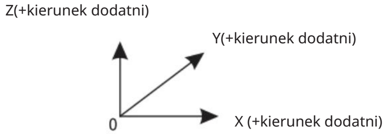
Dla funkcji ARC dostę pne są DWIE funkcje: prosta ARC

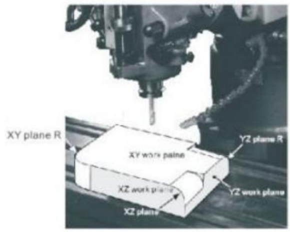
Funkcja i gładka funkcja R · naciśnij, a nastę pnie pr css aby wejść do funkcji ARC, Lub do wyboru funkcji gładkiego łuku lub prostego Funkcja ARC.

Podczas instalacji zazwyczaj określa się współrzę dne maszyny i kierunek X, Y , Z są nastę pujące. Płaszczyzna robocza jest pokazana JAKO prawa figura.



(RAD+TL) (RAD+TL )




prosta funkcja ARC:

gdy gładkość nie jest bardzo pożądana, ŁUK PROSTY Funkcja jest normalnie używana do obróbki łuku. W funkcji SIMPLE Do obróbki stosuje się tylko osiem typów ARC. Operator po prostu wybierz typ R i wprowadź parametry promienia łuku , MAX CUT i zewnę trzny Qrc lub wewnę trzny łuk r. Ogólnie rzecz biorąc, łuk może być obrabiane przez płaskie rowki T w OOL Lub arc TOOL, różnica mię dzy różnych płaszczyznach roboczych, jak pokazano poniżej ·

1 , PROSTY — proste przetwarzanie

2 , TYP 1 - 8 — Tryb ARC.

3、SEL_XY(XZ,YZ) — wybierz miejsce

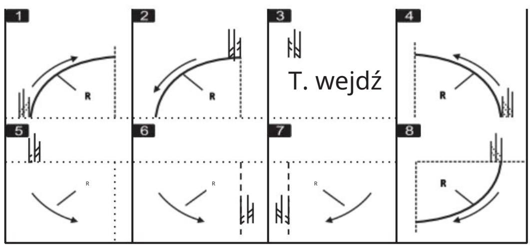
4 , RAD — Promień łuku

5. Porozmawiaj z nim — Średnica narzę dzia

6 MAKSYMALNE CIĘCIE — Krok podawania

7, RAD TL _ — łuk zewnę trzny i łuk wewnę trzny

(tylko dla miejsca xy)



Smooth ARC function :

Provides maximum flexibility in ARC machining, the ARC sector to be machined by the coordinates of ARC. Very flexible, ARC function can machine virtually all kinds of ARC, ever the intersected ARC. Relatively a bit complicated to operate, operator need to calculate and enter the coordinates of ARC centre, start angle and end angle.

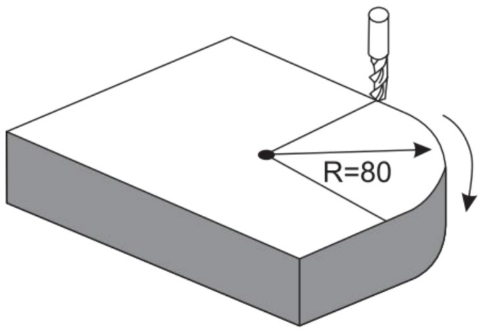
Basic parameter as follow:

| | |
|---|---|
| 1. SMOOTH | Mode of the Smooth ARC processing; |
| 2. SEL_XY(YZ, XZ) | Select place; |
| 3. CENTER | Refer to the position of an center. |
| 4. RAD | Radius of the ARC |
| 5. TL_DIA | Diameter of the TOOL |
| 6. MAX_CUT | Feed step |
| 7. ST_ANG | Starting angle |
| 8. ED_ANG | Ending angle |
| 9. RAD+TL | Outer arc. |
| RAD-TL | Inner arc. |

**Example 1 for the Simple ARC Processing:**

Parameters settings as follow:

| | |
|---|---|
| SIMPLE | Simple mode |
| TYPE | 3 |
| SEL_XY | XY |
| RAD | 80.000 |
| TL_DIA | 6.000 |
| MAX_CUT | 0.500 |
| RAD+TL | 1 |



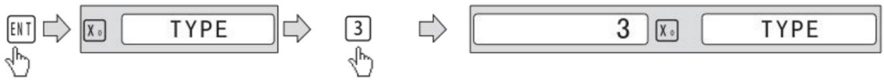

Steps:

1. Select process mode

Press , then the message window display “SIMPLE” to the ARC Processing. Press ▲ or ▼ to select mode of the simple, The message window display “SIMPLE”

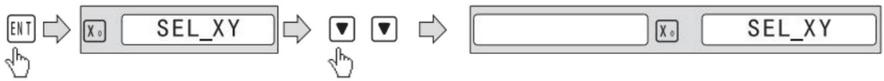

2. Input the type:

Press ENT until "TYPE" appears in the message window. X-window despalys the formerly preset the type. Press 3 in turn




3. Select place

Press ENT until "SEL_XY" appears in the message window. Press ▲ or ▼ to select place to display "SEL_XY" ;




4. Input radius:

Press ENT until "RAD" appears in the message window. X window despalys the formerly preset the radius of ARC. Press 8 0 in turn to input the radius.;


5. Input Diameter of the TOOL

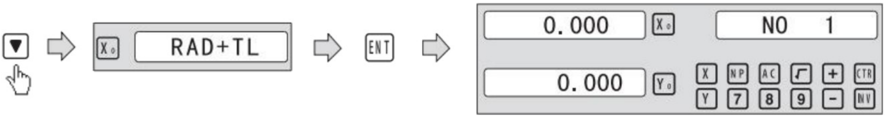
Press ▲ or ▼ until "TL DIA" appears in the message window. X window despalys the formerly preset the Diameter of the TOOL. Press 6 in turn to input the Diameter value;


6. Input Feed step (MAX_CUT);

Press ▲ or ▼ until "MAX_CUT" appears in the message window. X window despalys the formerly preset the MAX_CUT. Press 0 · 5 in turn to input the MAX_CUT value;

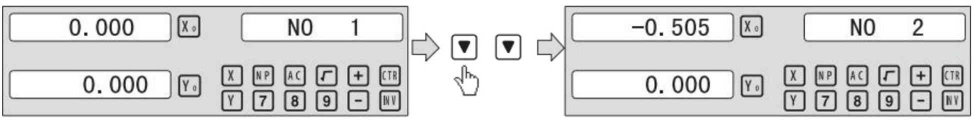
7. Select outer arc or inner arc

Press ▲ or ▼ until “RAD-TL” appears in the message window. Press ▲ or ▼ to select place to display “RAD+TL” ;




8. After inputting all parameters, press the key ENT for machining.

The DRO will display the position of the first point. Retract the axes until the displays read 0.000, Machine the Arc point by point in accordance with the display. After finishing the position of the first point, press ▲ or ▼ to change position point.

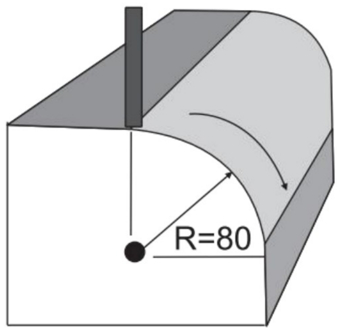



Press to quit R function any time.

**Example 2 for the Simple ARC Processing:**

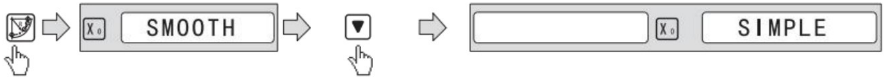
Parameters settings as follow:

| | |
|---|---|
| SIMPLE | Simple mode |
| TYPE | 3 |
| SEL_XY | XZ |
| RAD | 80.000 |
| TL_DIA | 6.000 |
| MAX_CUT | 0.500 |



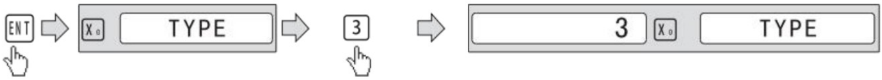

Steps:

1. Press , then the message window display “SIMPLE” to the ARC Processing. Press ▲ or ▼ to select mode of the simple, The message window display “SIMPLE”



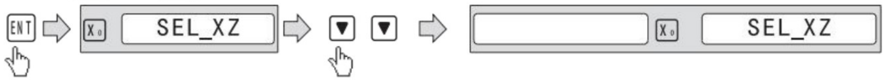

2. Input the type:

Press ENT until "TYPE" appears in the message window. X-window despalys the formerly preset the type. Press 3 in turn




3. Select place

Press ENT until "SEL_XZ" appears in the message window. Press ▲ or ▼ to select place to display "SEL_XZ" ;




4. Input radius:

Press ENT until "RAD" appears in the message window. X window despalys the formerly preset the radius of ARC. Press 8 0 in turn to input the radius.;


5. Input Diameter of the TOOL

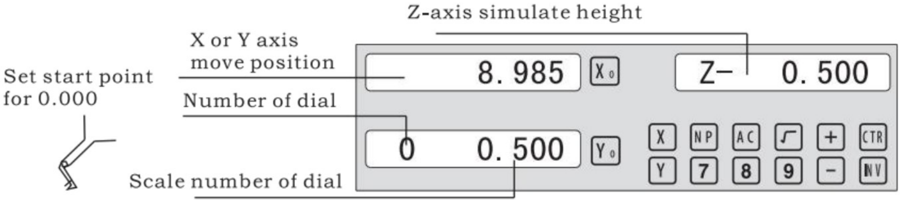
Press ▲ or ▼ until "TL DIA" appears in the message window. X window despalys the formerly preset the Diameter of the TOOL. Press 6 in turn to input the Diameter value;


6. Input Feed step (MAX_CUT);

Press ▲ or ▼ until "MAX_CUT" appears in the message window. X window despalys the formerly preset the MAX_CUT. Press 0 · 5 in turn to input the MAX_CUT value;

7. After inputting all parameters, press the key ENT for machining.

For 2-axis milling machine table , It is not installed with Z-axis, please press ▲ or ▼ to simulate position of Z-axis. Press ▲ simulate moving to the former process, and press ▼ simulate moving to the next process point.



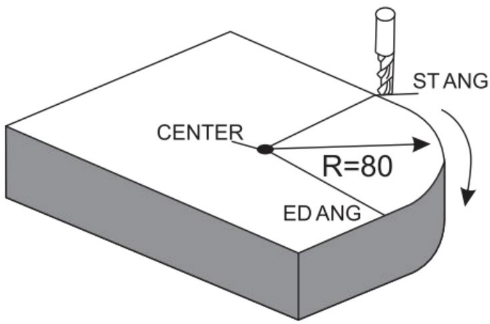

Z-axis simulate height = Number of dial x Z axis Dial + Scale number of dial

Press to quit R function any time.

**Example 3 for the Smooth ARC function**:

Parameters settings as follow:

| | |
|---|---|
| SMOOTH | Smooth mode |
| SEL_XY(YZ,XZ) | XY |
| CENTER | X=0,Y=0 |
| RAD | 80.000 |
| TL_DIA | 6.000 |
| MAX_CUT | 0.500 |
| ST_ANG | 0.000 |
| ED_ANG | 135.000 |
| RAD+TL | 1 |



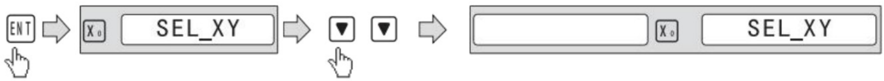

Steps:

1. Press , then the message window display "SIMPLE" to the ARC Processing. Press ▲ or ▼ to select mode of the simple, The

message window display "SMOOTH" ; For 3-axis milling machine table without this step. In second step. Then press ENT .

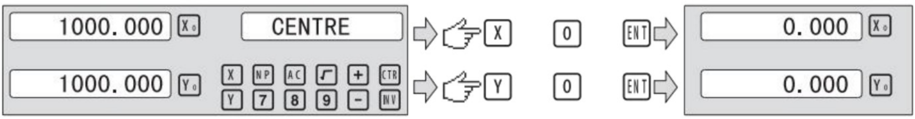

2. Select place

Message window display "SEL_XY" which indicates the select is to place. Press ▲ or ▼ to select place to display "SEL_XY" ;




3. Input center position.

Press ENT , then the message window display "CENTER" . X and Y window displays the formerly preset center position. Input X = 0, Y = 0 as follow.




4. Input radius:

Press ENT until "RAD" appears in the message window. X window despalys the formerly preset the radius of ARC. Press 8 0 in turn to input the radius.;

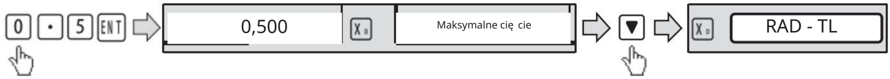

5. Input Diameter of the TOOL

Press ▲ or ▼ until "TL DIA" appears in the message window. X window despalys the formerly preset the Diameter of the TOOL. Press 6 in turn to input the Diameter value;

6. Krok podawania wejściowego (MAX_CUT);

naciskać ▲ Lub ▼ aż do momentu, gdy aplikacja UMAX CUT pojawi się w wiadomości

okno. X Window de spa lys poprzednio ustawione MAX_CUT. naciśnij 0 · 5 po kolei, aby wprowadzić wartość MAX CUT;

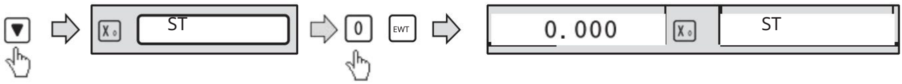



7. Wprowadź kąt początkowy ·

naciskać ▼ dopóki w oknie wiadomości nie pojawi się napis „USTANG”.x

okno spa lys poprzednio ustawiony kąt początkowy · Następnie naciśnij

0 po kolei, aby wprowadzić kąt początkowy-




8. Wprowadź kąt końcowy ·

naciskać ▼ dopóki w oknie komunikatu nie pojawi się napis „UED ANG”. X

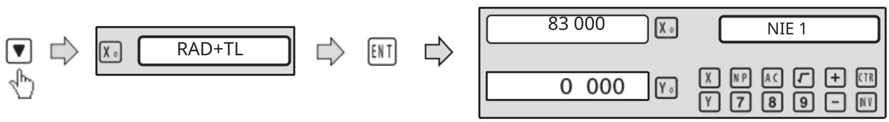
okno ispa lys poprzednio ustawiony kąt końcowy. Następnie naciśnij 1

3 5 po kolei, aby wprowadzić kąt końcowy·


9. Wybierz łuk zewnętrzny lub łuk wewnętrzny

okno ▲ Lub ▼ aż w komunikacie pojawi się „RAD-TL”

prasowe.naciśnij ▲ Lub ▼ aby wybrać miejsce wyświetlania "RAD+TL";




10. Po wprowadzeniu wszystkich parametrów, machining.

DRO wyświetli pozycję pierwszego punktu. Wycofaj osie, aż wyświetlacz wskaże 0,000, Wytnij łuk punkt po punkcie zgodnie z wyświetlaczem. Po zakończeniu pozycji pierwszego punkt, naciśnij ▲ Lub ▼ aby zmienić punkt położenia.


Press  to quit ARC function any time.

6.4 przetwarzanie skośne

Istnieją dwa sposoby obróbki miejsc skośnych:

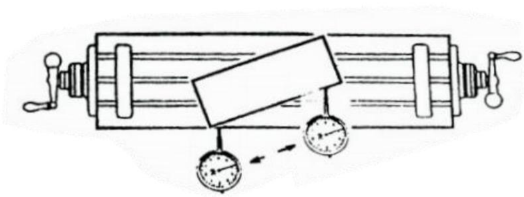
A) na miejscu. b) na miejscu yz, lub Xz;

należy wprowadzić tylko nastę pujące parametry:

| | |
|---|---|
| Zawiera Xy(xz,yz) | ustaw maszynę w miejscu xy,yz,0rxz · |
| TO | Kąt nachylenia skośnego |
| TAM | Średnica narzę dzia · |
| ST POT | Pozycja początkowa; |
| ED CAN | Zakończenie postowania; |

Przykład 1 dla ukośnego miejsca xy:

gdy płaszczyzna obróbki znajduje się na płaszczyźnie xy, jak pokazano na czę ści Rysunek, kąt nachylenia przedmiotu obrabianego powinien być skalibrowany przed obróbką płaszczyzny skośnej. Dlatego , w tym momencie obróbka płaszczyzny skośnej pełni rolę kalibracji skośności ·



procedura kalibracji skosu

Najpierw umieść obrabiany przedmiot na stole roboczym pod wymaganym kątem skośny ·

1) Wprowadź funkcję płaszczyzny ukośnej.

2) Wybierz funkcję płaszczyzny XY.

3) Wprowadź kąt nachylenia·

4) Przesuwaj stół roboczy, aż narzę dzie pomiarowe (np. czujnik zegarowy) zainstaluj diodę LED na frezarce, dotknie płaszczyzny kalibracji skośnej, ustaw ją na zero i przesuń stół roboczy na dowolną odległość w kierunek osi x. _

5) Przesuń stół roboczy na odległość osi y, aż do wyświetlenia zmienia się na zero.

6) Change the angle of the work piece to make the workpiece touch the measuring tool and adjust it to zero.

STEPS:

1. Select place

Press SN/M1 , then the message window display "INCL_XY" to the Oblique Processing. Press ▲ or ▼ to select place to display "SEL_XY;

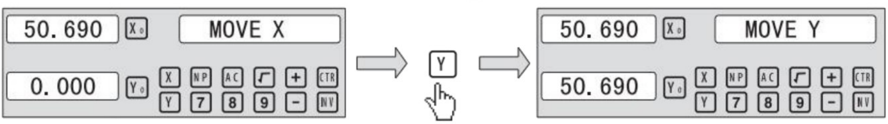
Then press ENT to in next step;


2. Input the angle of obliquity

The message window display "ANG" , X window dispalys the formerly preset the angle of obliquity. Press 4 5 in turn to input the angle of obliquity .


3. Move the workpiece along the X-Axis until the measuring tool touches the workpiece adjust it to zero, and move the worktable for any distance along the X-Axis.


4. Press Y , display the value of Y-Axis. Move the workpiece along the Y-Axis, change the angle of workpiece to make the obliquity-calibrating plane touch the measuring tool until it turns to zero. Move the worktable until Y-Axis is displayed as zero.




5. Press SN/M1 to quit oblique function any time.

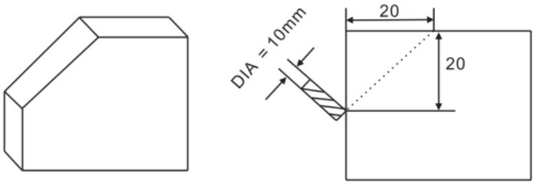
**Example 2 for the oblique XZ or YZ place**:

When the machining plane is on plane XZ or YZ, the function of TOOL inclination can instruct the operator to machine the oblique plane step by step.

Procedures for using the function of cutter inclination:

When the machining plane is on plane XZ or YZ, first please calibrate the obliquity of the primary spindle nose and set the TOOL:

| | |
|---|---|
| INCL_XY(XZ,YZ) | INCL_XZ |
| DIA | 10.000 |
| ST_POT | 20.000 |
| ED_POT | 20.000 |




STEPS:

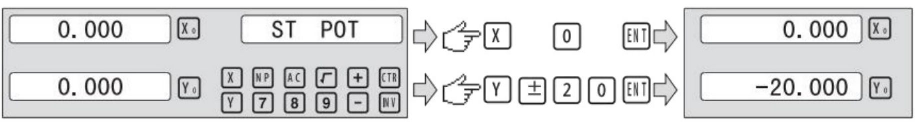
1. Press [SN/M1], then the message window display "INCL_XY" to the oblique Processing. Press [▲] or [▼] to select place to display "SEL_XZ; Then press [ENT] to in next step;


2. Input The TOOL Diameter

The message window display "DIA", X window dispalys the formerly preset the angle of obliquity. Press [1] [0] in turn to input the TOOL Diameter of obliquity . OK, then press [▼] to in next step;

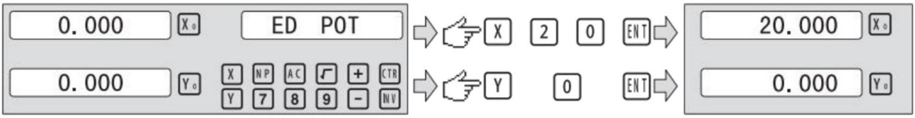

3. Input ST_POT;

The message window display "ST_POT", X and Y window dispalys the formerly preset the stating position of obliquity. Input X= 0, Y = -20.000. OK, then press [▼] to in next step;



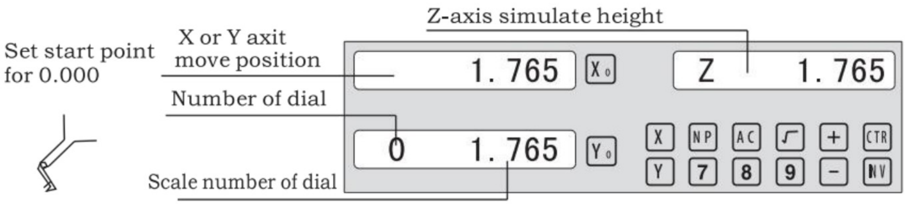
4. Input ED_POT;

The message window display "ED_POT" , X and Y window dispalys the formerly preset the stating position of obliquity. Input X= 20.000, Y = 0.000 .




5. After input all parameter, press the key ▼ for machining.

For 2-axis milling machine table , It is not installed with Z-axis, please press ▲ or ▼ to simulate position of Z-axis. Press ▲ simulate moving to the former process, and press ▼ simulate moving to the next process point.



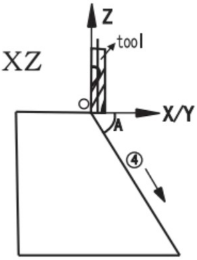

Z-axis simulate height = Number of dial x Z axis Dial + Scale number of dial

Press SN/N1 to quit **oblique** function any time.

## 6.5 Slope Processing

This function can calculate the position of everynprocessing point automatically in processing slope. Only the following parameters need to be inputted:

| | |
|---|---|
| XZ, YZ | Set machine place YZ, or XZ |
| ANG | The inclination angle |
| Z_STEP | The slope length each time processing |




**Example 1 for the Slope XZ place**;

Step 1. Select place

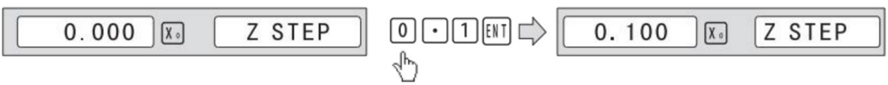
Press TAN/M3 , then the message window display "XZ" to the slope Processing. Press ▲ or ▼ to select place to display "SEL_XY; Then press ENT to in next step;


Step 2. Input the angle of slope

The message window display "ANG" , X window dispalys the formerly preset the angle of slope. Press 4 5 in turn.


Step 3. Input Z_step;

The message window display "Z STEP" , X window dispalys the formerly preset the stating position of slope. Input 0 · 1 in turn.

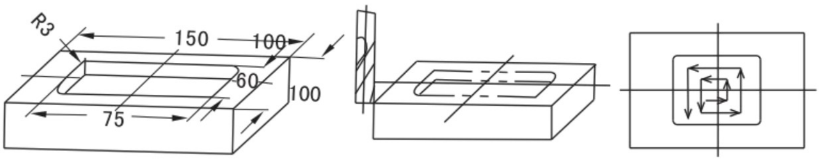



Step 4:Finishing the ALL processing . Press TAN/M3 to quit slope function any time.

## 6.6 Chambering Processing

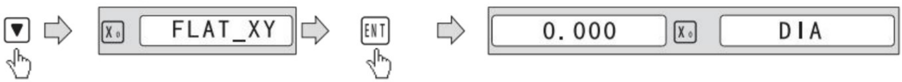
1,FLAT_XY: machine place; 2, DIA:diameter of TOOL; 3, CENTER: center of the chambering ; 4, SIZE: size of the chambering ;

Figure as follow:



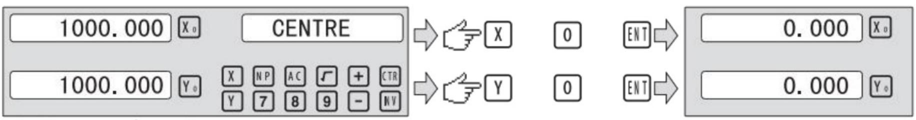

STEPS:

1. Press [COS/N2] , then the message window display "FLAT_XY" to the Chambering Processing.

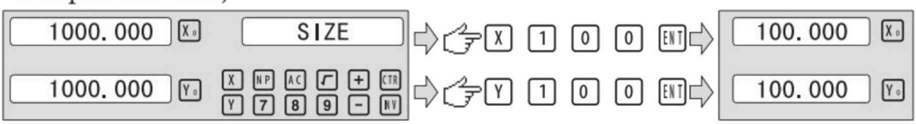



2. Inpur DIA of the TOOL;


3. Input the center coordinate;




4. Input the size;




5. process Chambering;

Move the machine until the display of the axis is zero,ie, the position of the first point. Machine the first point . Display the next machining point by pressing [▲] or [▼] .On the completion of machining, the right window shows OVER. Press [▲] or [▼] , the system will goto the first position for the next workpiece. Press [COS/N2] to quit the Chambering Function.

## 6.7 The Tool Diameter Compensation Function

Without TOOL compensation, the operator has to move the TOOL for an additional distance of the diameter of the TOOL along each side when machining the four 150 and 100 sides of a workpiece to finish machining the whole brim. The digital readouts shall automatically compensate when the TOOL compensation function is enable.

Note: the TOOL compensation is made in the direction of X and Yaxis.

Procedures:

1) . Enter the function of compensating the diameter of the TOOL.
2) . Select one of the (four) preset machining modes.
3). Input the diameter of the TOOL.
4) . Enter machining.

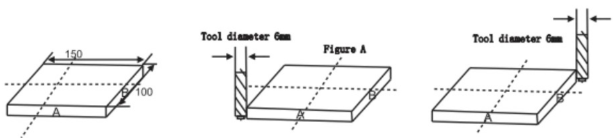
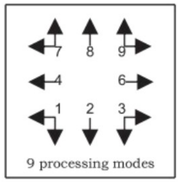


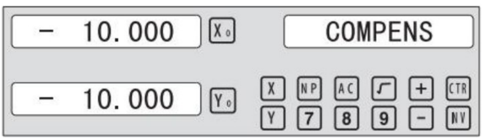

Figure A Figure B Figure C




Step1: press [TAN/M3] to enter the TOOL compensation Function. then the message window display "TYPE" .Press [9] .


Step 2: input the diameter of the TOOL; Press [1] [0] in turn..


Step 3: Press [▼] to the machining Mode.




Machining of 2 side planes can be done by moving the TOOL until X-Axis is 150.000 and Y-Axis is 100.000.Press the Key [TAN/M3] to quit the Function.

6.8 Digital Filter of the Grinding Machine

When machine a work-piece by grinder, the display values quickly due to the vibration of grinder. User can not see display value clearly. Grinder DRO provides display value filter function to disable the quake change of display value.

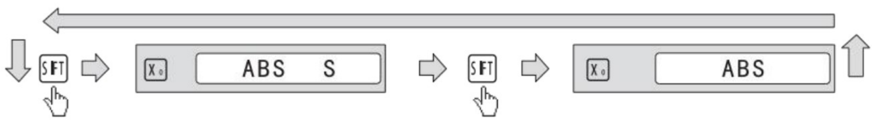
STEPS:

1. Enter display value filter function.

In normal display state, press SIFT to simultaneously, enter display value filter function.

2. Exit display value filter function;

Press SIFT , exit display value filter function;



## 6.9 La Funkcja

### 6.9. 1 200 zestawów bibliotek narzę dziowych

Do obróbki różnych czę ści zawsze potrzebne jest inne NARZĘDZIE · Do wygodna obsługa, cyfrowe odczyty La mają funkcję 200 zestawów bibliotek narzę dziowych ·

Uwaga: Tylko wtedy, gdy la jest wyposażona w blok ustawiania narzę dzi, można używać 200 , zestawów bibliotek narzę dzi.

1. ustaw punkt odniesienia TOOL. Po ustawieniu narzę dzia, wyzeruj oś x i oś Z, ustaw zero współrzę dnych bezwzglę dnych ·

2. Na podstawie rozmiaru TOOL l i datumTOOL określ położenie NARZĘDZIA wzglę dem zera współrzę dnej bezwzglę dnej i narzę dzia odniesienia · AS Rysunek 6-1. Wzglę dny rozmiar NARZĘDZIA 2 to AS podążający za osią x 25-30=- 5 , Oś Z 20-10=10 ·

3. Zapisz numer narzę dzia i jego rozmiar w cyfrowym czytniku ·

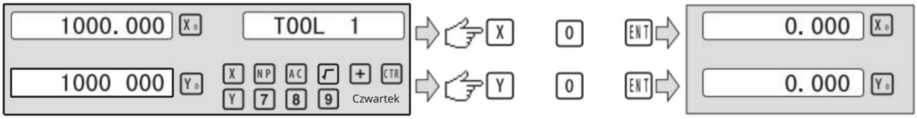
4. Numer NARZĘDZIA można wprowadzić losowo, odczyty cyfrowe wyświetli położenie narzę dzia do współrzę dnej absolutnej zera · Przesuń la aż oś X i oś Z nie wyświetlą zera · 5. Biblioteki narzę dzi mogą zapisać 200 zestawów danych narzę dzi.

6. Biblioteki TOOL muszą być używane w stanie otwarcia. 200 zestawów rooi Libs można otworzyć poprzez ciągłe naciśnię cie ± dziesię ć razy aż do momentu, gdy w prawym okienku zacznie migać napis TL - OTWARTE i pojawi się znak „21" po lewej stronie prawego okna informacyjnego. Znak wskazuje operator CAn konfiguracja lub zmiana 200 zestawów TOOL Lib s. w sposób ciągły naciśnię cie klawisza ± dziesię ć razy spowoduje, że biblioteki narzę dziowe 200sets bę dą powoduje zamknię cie i miganie prawego okna TL - CLOSE i Mark zniknie · gdy zniknie Mark „21" , 200 zestawów bibliotek TOOL może nie podlegać rewizji

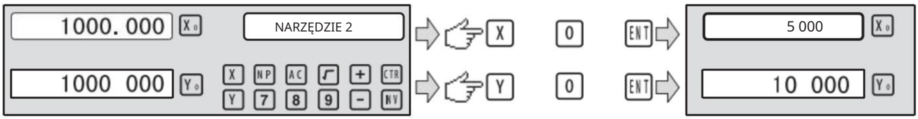
Operacje na danych TOOL i wywołanie TOOL są pokazane nastę pująco: · krok 1: W stanie ABS wprowadź dane 200 zestawów bibliotek TOOL.

otwieranie 200 zestawów bibliotek TOOL poprzez ciągłe naciskanie klawisza ± dziesię ć razy A. Znak „" pojawi się w lewym oknie prawego okno informacyjne.

krok 2: naciśnij TOOL aby UZYSKAĆ dostę p do stanu wprowadzania. Wprowadź dane rooi 1:




krok 3: Wprowadź dane narzę dzia TOOL 2:




krok 4: naciśnij , aby kontynuować wprowadzanie danych nastę pnego narzę dzia. POPRZEZ Naciśnię cie

numer i klucz, operator może bezpośrednio wprowadzić specjalny kod

tooldata. naciśnij TOOL dotyka

Po skonfigurowaniu bibliotek TOOL należy używać ich zgodnie z

Po wykonaniu poniższych czynności najpierw zamontuj drugie narzę dzie ·

krok 5: Aby uzyskać dostę p do stanu użycia za pomocą polecenia pr css CALL .Nastę pnie pr css 2 EN T·


krok G: naciśnij ▲ Lub ▼ · wybierz rolkę bazową. Nastę pnie naciśnij 1 IT .


;

krok 7: naciśnij CALL aby wyjść z funkcji;

Notatka:

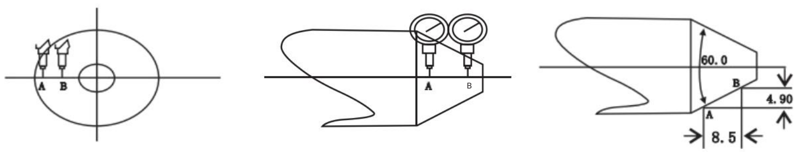
gdy używane jest narzę dzie bazowe , oś CAN nie może zostać wyzerowana w stanie ABS ·

gdy inne są używane , oś CAn może być zerowana tylko w stanie INC ·

6 . 9 . 2 Funkcja zwę żania

Do toczenia przedmiotu obrabianego ze stożkiem, stożek przedmiotu obrabianego może

być mierzonym w przetwarzaniu;



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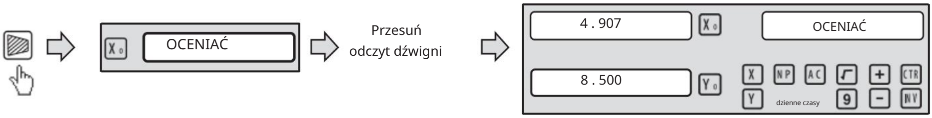
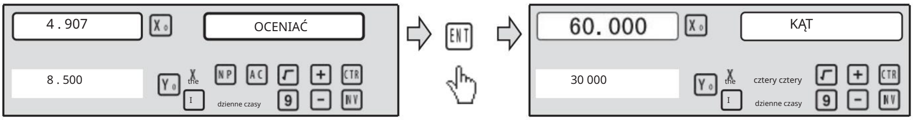
## Operations :

Rysunek AS, powierzchnia styku A przedmiotu obrabianego z odczytami dźwigni i resetuje wskazania dźwigni do zera ·

krok 1: naciśnij, a następnie wyświetl okno komunikatu „UMEASU” przetwarzanie papieru · Przesuń dźwignię odczytu na powierzchnię B, aż odczyty dźwigni punkt AS nastę pują;




krok 2: naciśnij T, aby obliczyć.




krok 3: naciśnij aby wyjść z funkcji;

6. 9. 3 Funkcja badawczo-rozwojowa

Do tokarek 2-osiowych i 3-osiowych naciśnij , Tryb wyświetlania oś ofx jest przełączana pomię dzy promieniem i średnicą. gdy oś x dla wyświetlanie średnicy, okna „ pojawi się po lewej stronie prawej informacyjnego znaku A, ale gdy oś X służy do wyświetlania miernika ia , znak „” znika · tylko oś x pełni funkcję średnicy/promienia transformation.

6. 9. 4 Funkcja Y + Z (dotyczy tylko: 3 osi La the)

Dla 3 osi La, licznika osi y i licznika osi z

Można dodać do wyświetlanego na osi Z poprzez naciśnięcie klawisza , następnie naciśnij klawisz CAn aby anulować funkcję y + Z ·

6.10 EDM (specjalna funkcja dostosowywania, jeśli potrzebujesz kupić, proszę skontaktuj się ze sprzedawcą w celu dostosowania)

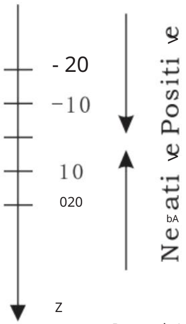
1 Opis: Funkcja ta jest wykorzystywana do specjalnej obróbki Obróbka elektroerozyjna (EDM) . gdy ustawiona wartość docelowa EDM Oś Z jest równa wartości bieżącej, odczyt cyfrowy wyprowadzi przełącz sygnał sterujący EDM, aby zatrzymać obróbkę głę boką.

Ustawienie kierunku osi Z na wyświetlaczu cyfrowym pokazano na rys. 1 , Im wię ksza głę bokość, tym wię ksza wartość współrzę dnych osi Z wyświetla · od rozpoczę cia obróbki głę bokość bę dzie stopniowo się zwię kszać i osi Z.

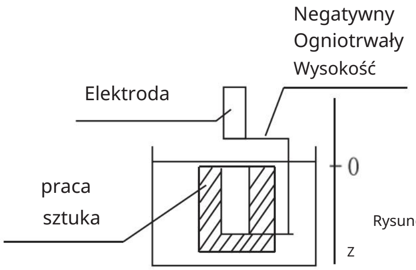
Zgodnie z ustawionym kierunkiem osi Z, kierunek obróbki jest dzieli się na obróbkę pozytywną i negatywną · gdy elektroda opada, a obróbka odbywa się od góry do dołu, cyfrowo wartość odczytu wzrośnie, co nazywa się obróbką dodatnią (dodatnią). Ustawienie tego kierunku jest ustawieniem normalnym.

gdy elektroda ASCEnduje się i wykonywana jest obróbka od dołu do góry, wartość odczytu cyfrowego bę dzie się zmniejszać · kierunek obróbki jest kierunkiem ujemnym (ujemnym), który jest również nazywany obróbka negatywna (przedstawiona na rys. 1)

Cyfrowy odczyt posiada również inne funkcje , taki JAK negatywny fire proof-height. Funkcja ujemnej wysokości ognioodpornej jest rodzajem inteligentna pozycja śledź sprawdzaj urządzenie ochronne bezpieczeństwa. W procesie obróbki, powierzchnia elektrody wytworzy wę giel zjawisko akumulacji. Z powodu długiego czasu lub obróbki dobowej bez dbania o to, podczas generowania akumulacji wę gla i nikt nie wykonuje czyszczenia, elektroda bę dzie powoli wzrastać wzdłuż kierunek ujemny · gdy elektroda przekroczy poziom cieczy, czę sto się zapalają i powodują straty. Ta funkcja jest ustawiona tylko do celu w tym problemie. podczas ustawiania ujemnej wysokości ognioodpornej i zwię kszona wysokość elektrody przekracza wysokość mię dzy nią a głę bokość powierzchni obrabianej (tj. ujemna wysokość ognioodporna), cyfrowa wyświetlacz odczytu bę dzie migał w celu sprawdzenia poprawności działania; w tym samym czasie wyjście sygnał automatycznie wyłączy EDM, aby wyeliminować ryzyko pożaru ·




Rysunek 1




Rysunek 2

2. Procedura:

zobacz poniższy przykład szczegółowej obróbki

1) Przed obróbką należy najpierw ustawić każdy parametr GŁĘBOKOŚCI (głę bokość obróbki); ERRHIGH (ujemna wysokość ognioodporna), obróbka kierunek (DODATNI/UJEMNY); tryb wyjścia (AUTO/STOP) i Tryb wyjścia przekaźnika EDM · 2)

Przesuń elektrodę osi głównej osi Z, aby zetknę ła się z odniesienie do przedmiotu obrabianego · wyczyść oś A do zera lub ustaw wartość ·

3) Wprowadź obróbkę EDM za pomocą klawisza PR CSS EDM ·

4) Oś X wyświetli wartość docelową głę bokości obróbki. Oś Y wyświetli wartość wyświetlana ma być głę bokością. (Wartość na osi Y to wartość, na której głę bokość obrabianego przedmiotu została obrobiona) Oś Z bę dzie wyświetla wartość w czasie rzeczywistym dotyczącą własnego położenia. (Wartość na osi Z to wartość położenia głównej elektrody osiowej osi z.)

5) Rozpocznij obróbkę , wartość wyświetlana na osi Z stopniowo zbliża się do wartość docelowa, wyświetlana na osi Y wartość jest również stopniowo bliska wartość docelowa. Jeśli w tym momencie elektroda jest wielokrotnie przesuwana w górę i w dół, wartość wyświetlana na osi Z bę dzie się zmieniać, ale wartość wyświetlana na osi Y wartość nie ulegnie zmianie, co zawsze bę dzie wyświetlać głę bokość obróbki value.

6) gdy wyświetlana wartość osi Z jest równa ustawionej wartości docelowej, przełącznik osiągnię cia pozycji zostanie wyłączony, EDM zatrzyma obróbkę , W zależności od ustawień operatora istnieją dwa rodzaje trybów wyjścia:

a) Automatic Mode:

it will automatically exit from EDM machining status and recover to the original state before machining;

b) Stop Mode:

It will always stay at the machining interface after finishing machining, and you should press [EDM] to exit and back to the original state.

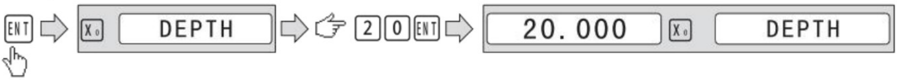
**Operation steps:**

**The DEPTH (machining Depth), ERRHIGH (Negative fireproof height), exit Mode, EDM Relay Output Mode and machining direction should be set.**

STEPS:

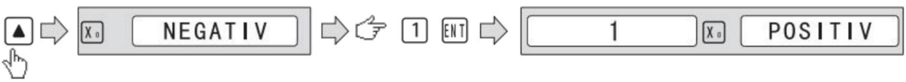
1. Press [EDM] to enter the EDM Function. Press [▲] to input parameters;Press [▼] to enter EDM machining state.

2. Input DEPTH ( machining depth). Press the key [▲] to set the next parameter.




3. input ERRHIGH ( Negative Fireproof Height ) (undefine) .Press the key [▲] to set the next parameter.


4. Set machining direction(Positive or Negative). Press [1] to select Positive direction. Press [0] to select Negative direction. Press the key [▲] to set the next parameter.



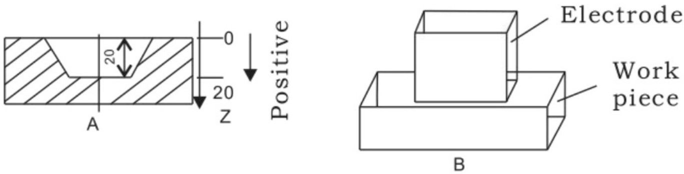
5. Set exit Mode (AUTO Mode or STOP Mode) Press 0 to select AUTO Mode; Press 1 to select STOP Mode ; Press the key ▲ to set the next parameter.


6. Set the Output Mode (Mode 0 or Mode 1); ( undefine ). Press 0 to select Mode 0; Press 1 to select Mode 1.


7. Continuously press ▼ to return EDM for machining. press EDM to quit the function;

**Example 1: positive direction machining ;**

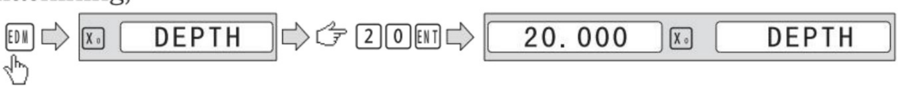
Machining is shown as the model chamber as follows



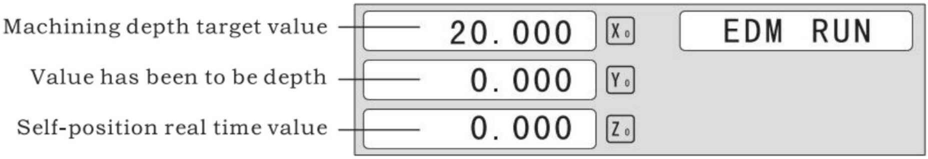

STEPS:

1、Touch one side of the workpiece with the TOOL,then press Zo , zero the Z axis。


2、Press EDM , Setting DEPTH for 20.000; press ▼ to EDM for machining;

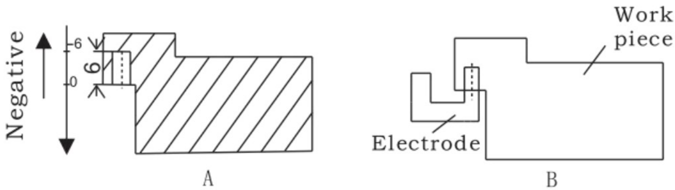



3、Starting machining。




**Example 2: Negative direction machining**

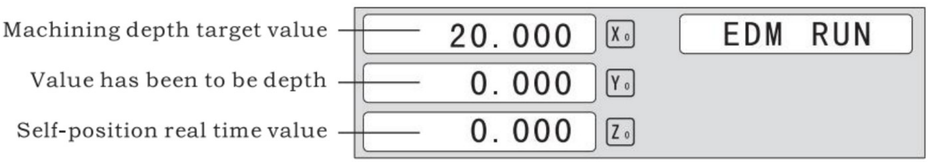
Machining is shown as the model chamber as follows




1、Touch one side of the workpiece with the TOOL,then press Z0 , zero the Z axis。


2、Press EDM , Setting DEPTH for -20.000; press ▼ to EDM for machining;


3、Starting machining。




**Example 3:** PCD Function for EDM

PCD Function can access the EDM Function . The operator enters PCD Function to input parameters for PCD and enter PCD machining state. At every position for machining, press the key EDM to access the EDM Function .

podczas wchodzenia do funkcji EDM operator może wprowadzić parametry dla EDM ·

Procedura operacji wygląda następująco:

1) Ustaw parametry PCD (ustawienie jest takie samo jak ustawienie wspólne) (PKD)

Po wprowadzeniu wszystkich parametrów i przejściu do stanu obróbki PCD · wyświetlona zostanie pozycja pierwszego dołka.

2) naciśnij EDM aby wprowadzić parametr funkcji EDM (metoda ustawień to ten sam przycisk, co ustawienie wspólne parametru EDM); po wprowadzeniu wszystkich parametry, naciśnij ciągle, gdy obróbka ▼ aby wejść w stan obróbki EDM. aby jest zakończona, naciśnij, aby wprowadzić EDM wyjść z funkcji EDM i stan obróbki PCD ·

3) W stanie obróbki PCD naciśnij ▼ dla pozycji następnego dołka, Przesuń maszynę do wartości wyświetlanej 0 , następnie pr css EDM uzyskać dostęp

Ponowne uruchomienie

funkcji EDM · 4) Powtórz krok 2 i krok 3 dla następujących punktów obróbki.

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## 7 kalkulator

Kalkulator nie tylko umożliwia wykonywanie normalnych obliczeń matematycznych takie jak +, - , x , /, zapewnia również trygonometrię do obliczeń metrycznych, takich jak AS GRZECH , Łuk SIN , SAŁATA , Łuk COS , DĘBNIK , Łuk TAN SQRT itd.

Obsługa jest taka sama jak w przypadku kalkulatorów komercyjnych i jest prosta.

### Wejdź i wyjdź z funkcji kalkulatora

w normalnym trybie wyświetlania: naciśnij R, aby wejść w funkcję kalkulatora.

w trybie wyświetlania kalkulatora: naciśnij R, aby wyjść z funkcji kalkulatora.

Wynik transferu kalkulatora dla wybranego zx wynosi.

Po zakończeniu obliczeń, jeżeli tryb wyświetlania kalkulatora jest ustawiony na tryb 1 , użytkownik może:

naciśnij X0 aby przenieść obliczony wynik na oś tox; następnie x okno, a wyświetli się ta wartość;

naciskać Y0 aby przenieść obliczony wynik na oś zabawki; następnie okno wyświetli tę wartość;

naciśnij Z0 aby przenieść obliczony wynik na oś z; następnie z okno, a wyświetli się ta wartość;

### Przesyłanie bieżącej wartości wyświetlanej w oknie do kalkulatora.

jeśli kalkulator wyświetla Tryb ustawiony na tryb 1 , użytkownik może:

naciskać X przeniesienie wartości wyświetlanej w oknie X do kalkulatora;

naciskać Y aby przesłać wartość wyświetlaną w oknie Y w celu obliczenia r;

naciskać Z aby przesłać wartość wyświetlaną w oknie z do kalkulatora;

# 8 Appendix

## 1. Troubleshooting:

The following are the preliminary solvents for troubleshooting.

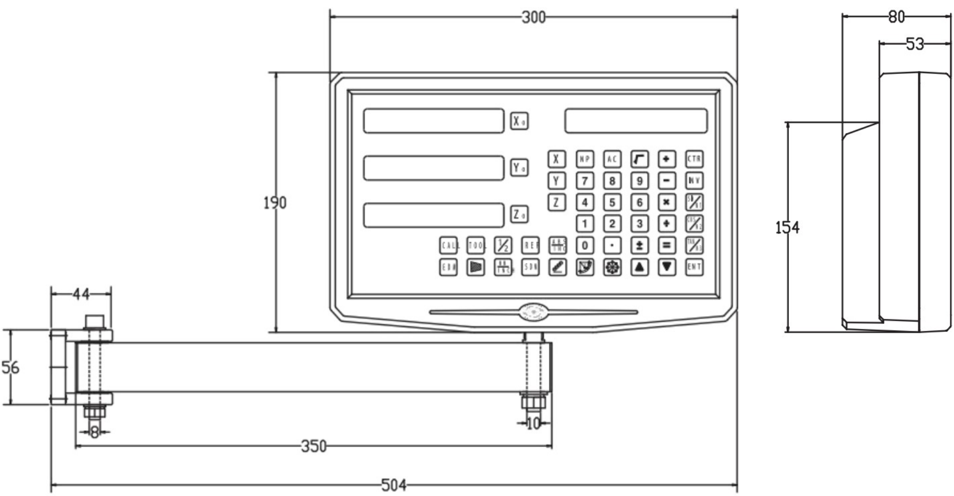
If there is still trouble, Please contact out company or agents for help.

| Troubles | Possible reasons | Solvents |
|---|---|---|
| No display | 1. Power isn't connected<br>2. Power switch is off.<br>3. The range of power voltage is not right.<br>4. The inner power of Linear Scale is short. | 1. Check power wire and connect the power<br>2. Turn on the power switch.<br>3. The range of voltage is in 80--260V<br>4. Unplug the connector of linear scale |
| One axis is not counting | 1. Replace the linear scale of the other axis.<br>2. DRO is in special function | 1. If count is normal, the linear scale has trouble; If abnormal, the DRO readouts has trouble.<br>2. Quit the special function. |
| Linear scale is not counting | 1. Reading head is bad for using range exceeds.<br>2. Aluminum chips is in reading head of linear scale.<br>3. The span between the reading head and metal part of linear scale is large.<br>4. The metal parts of linear scale is damage. | 1.Repair the linear scale<br>2. Repair the linear scale<br>3. Repair the linear scale<br>4. Repair the linear scale |
| Counting is error | 1. Shell is poor grounding.<br>2. Low precision of machine.<br>3. Speed of machine is too rapid.<br>4. Precision of linear scale is low.<br>5. The resolution of DRO readouts and the linear scale is not match.<br>6. The unit (mm/inch) is not match.<br>7. Setting thelinear compensating is not arrest.<br>8. Reading head of the linear scale is damaged. | 1. Shell is good grounding.<br>2. Repair the machine.<br>3. Reduce the speed of machine.<br>4. Mount the linear scale again.<br>5. Set the resolution of the DRO again,<br>6. Cover the unit of display mm/inch.<br>7. Reset the linear compensation.<br>8. Repair the linear scale. |
| The counting of the linear scale is not accurate | 1. The mounting of linear scale does not demand the requirement, and the prcision is not adequate.<br>2. The screw is loosen.<br>3. Precision of machine is low.<br>4. The resolution of digital readouts and the linear scale is not match. | 1. Mount the linear scale again and level it.<br>2. Lock all fixing screws.<br>3. Repair the machine.<br>4. Reset the resolution of digital readouts. |
| Sometimes the linear scale is not counting | 1. The small car and steel ball is separated.<br>2. The glass of reading head is wearied.<br>3. The glass of reading head of the linear scale has dirt.<br>4. The elasticity of the steel wire is not adequate. | 1. Repair the linear scale.<br>2. Repair the linear scale.<br>3. Repair the linear scale.<br>4. Repair the linear scale. |

2. Specifications of Digital Readout.

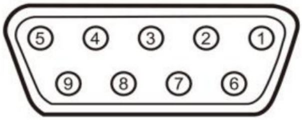
1) Supply Voltage range: AC 85 V ~ 230 V; 50 ~ 60 Hz
2) Power consumption: 15VA
3) Operating temperature: 0℃-- 50℃
4) Storage temperature: - 30℃-- 70℃
5) Relative humidity: < 90 % ( 25 )
6) Max Coordinate number: 3
7) Readout allowable input signal: TTL square wave
8) Allowable input signal frequency: < 5 M Hz
9) Max resolution of digital display length: 0.01 um
10) Max resolution of digital display angle: 0.0001 / PULSE

3. Instructions



# 4. Examples of character output at the data interface

## 1、X,Y,Z Axis

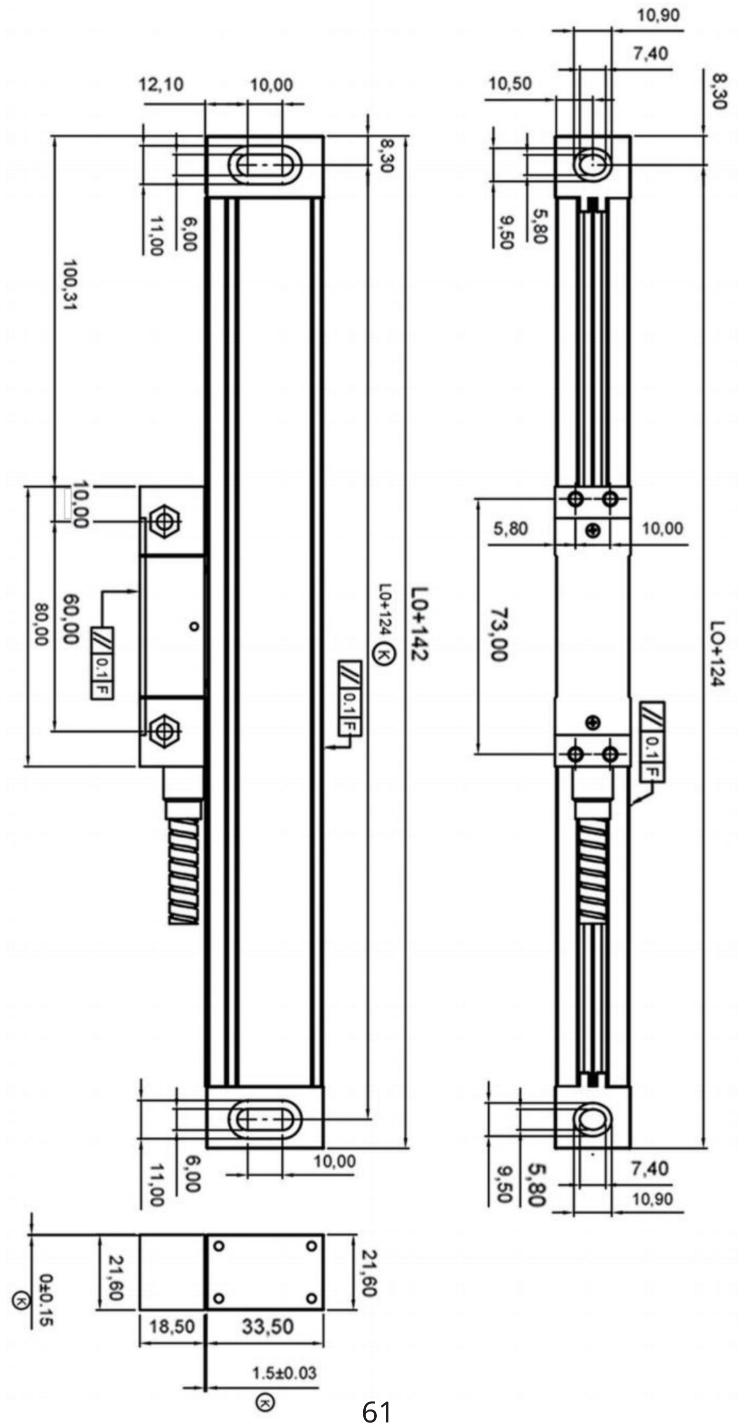



| Pin | TTL (Standard) |
|---|---|
| 1 | |
| 2 | OV |
| 3 | |
| 4 | |
| 5 | |
| 6 | A+ |
| 7 | 5V |
| 8 | B+ |
| 9 | R+ |

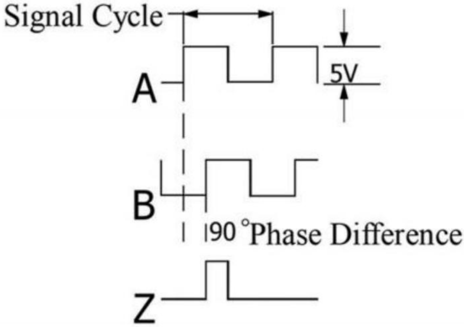
| Pin | TTL (Standard) |
|---|---|
| 1 | 5V |
| 2 | OV |
| 3 | A+ |
| 4 | B+ |
| 5 | R+ |
| 6 | |
| 7 | |
| 8 | |
| 9 | |

For your convenience,
If you buy a digital readout,

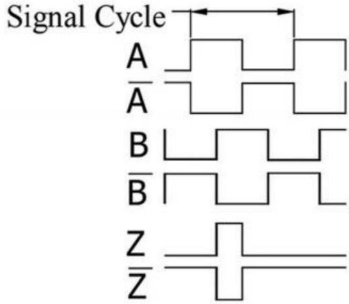
The wiring definition of your linear scale must be the same as the 2 definitions in the above diagram to be universal!


12,10
10,00
8,30
6,00
11,00
100,31
10,00
60,00
80,00
0.1 F
L0+124 K
L0+142
0.1 F
6,00
11,00
10,00
21,60
21,60
0±0.15 K
18,50
33,50
1.5±0.03 K
10,90
7,40
10,50
8,30
5,80
9,50
5,80
10,00
73,00
LO+124
0.1 F
9,50
5,80
7,40
10,90

TTL signal Output:




EIA-422-A signal Output:




1. TECHNICAL PARAMETER

1.1 SCALING DISTANCE: 0.02 MM (50LINES /MM)

1.2 RESOLUTION: 5μM、1μM、0.5μM

1.3 PRECISION: ±3μM、±5μM、±15μM/M (20±0.1℃)

1.4 MEASURING RANGE: 30~3000MM

1.5 MOVING SPEED: HIGH-SPEED ENCODER 120 M/MIN (TO BE CUSTOMIZED)

ORDINARY ENCODER 60M/MIN

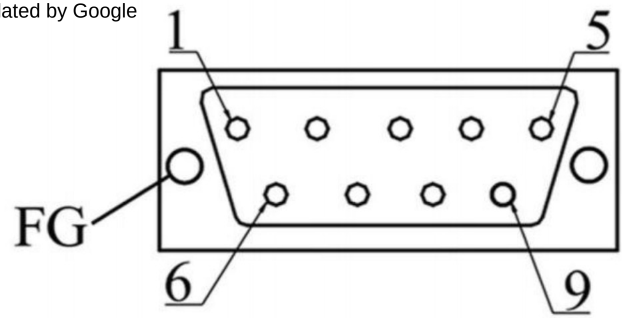
1.6 POWER SUPPLY: +5V±5%、80MA

1.7 CABLE LENGTH: STANDARD 3M (SPECIAL LENGTH AVAILABLE ACCORDING TO THE USER'S NEEDS)☒

1.8 WORKING TEMPERATURE: 0~45℃

1.9 PIN DESCRIPTION:

1) APPLICABLE TO: 9 PIN SOCKET EIA-422-A SIGNAL OUTPUT.




1) Applicable to: 9 pin socket EIA-422-A signal Output.

| Pin Position | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| Signal | $\overline{A}$ | $OV$ | $\overline{B}$ | Empty | $\overline{Z}$ | $A$ | +5V | $B$ | $Z$ |
| Color | Green Black | Black | Orange black | FG | White black | Green | Red | White | Orange |

FG: Shield connected to metal casing.

1) Applicable to: 9 pin socket TTL signal Output.

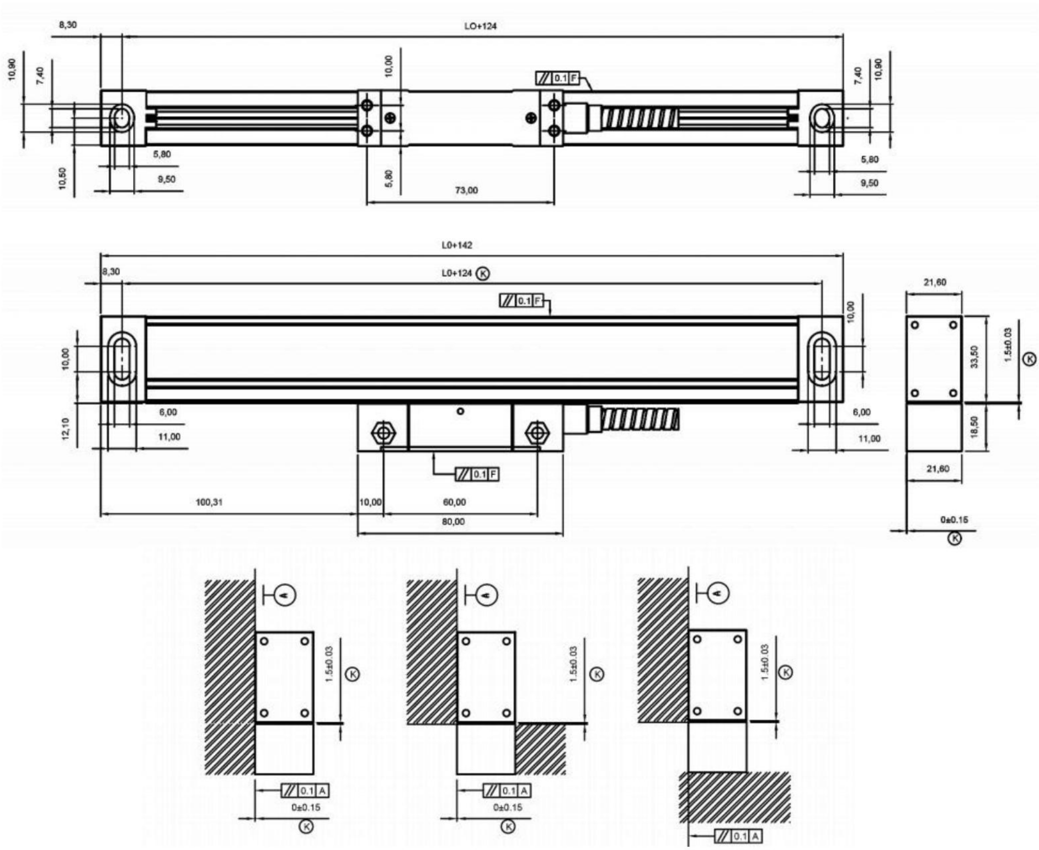
| Pin Position | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| Signal | | $OV$ | | Empty | | $A$ | +5V | $B$ | $Z$ |
| Color | | Black | | FG | | Green | Red | Orange | White |

FG: Shield connected to metal casing.

# Skala liniowa

## Rysunki instalacyjne

# Metoda instalacji:



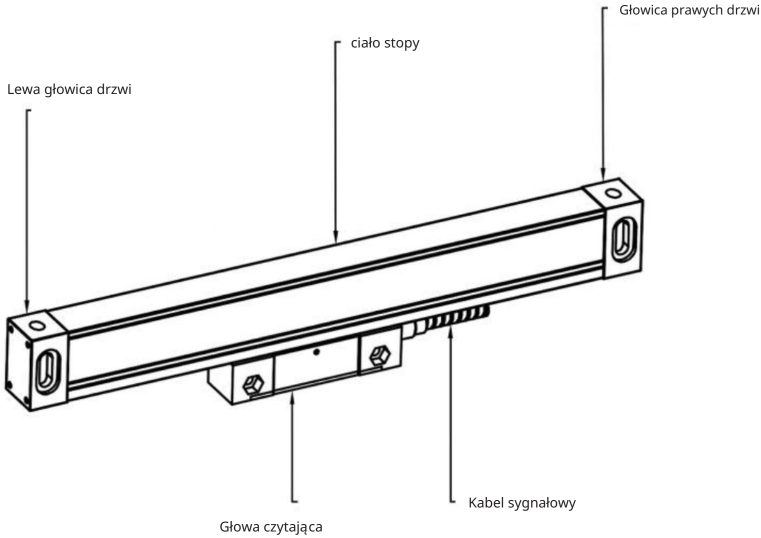

Rozmiar standardowy: (Jednostka: mm)

| Model | TO | L1 | L2 | Model | L0 | L1 | L2 |
|---|---|---|---|---|---|---|---|
| YE-50 | 50 | 174 | 190 | lat-550 550 | | 674 | 690 |
| YE-100 | 100 | 224 | 240 | lat-600 | 600 | 724 | 740 |
| YE-150 | 150 | 274 | 290 | YE-650 650 | | 774 | 790 |
| YE-200 | 200 | 324 | 340 | lat-700 700 | | 824 | 840 |
| YE-250 | 250 | 374 | 390 | YE-750 | 750 | 874 | 890 |
| YE-300 | 300 | 424 | 440 | YE-800 | 800 | 924 | 940 |
| YE-350 | 350 | 474 | 490 | YE-850 850 | | 974 | 990 |
| YE-400 | 400 | 524 | 540 | YE-900 | 900 | 1024 | 1040 |
| YE-450 | 450 | 574 | 590 | YE-950 950 | | 1074 | 1090 |
| YE-500 | 500 | 624 | 640 | lat-1000 1000 | | 1124 | 1140 |

L0: Efektywna długość pomiarowa enkodera liniowego; L1: Długość enkodera liniowego otwory montażowe; L2: całkowita długość enkodera liniowego

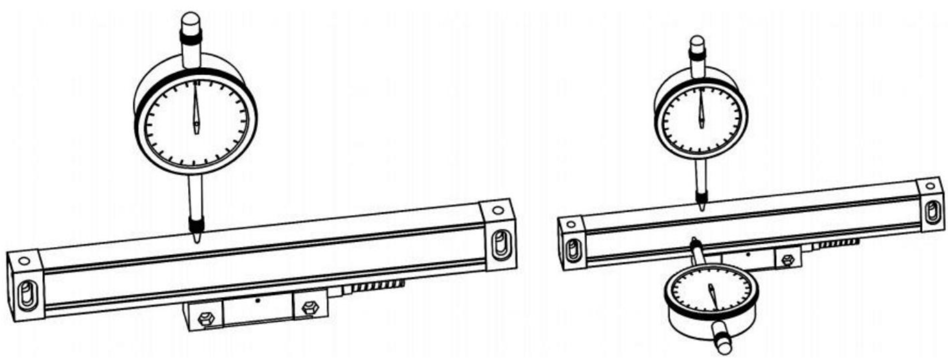
# Konserwacja:

1. Efektywny przesuw enkodera liniowego powinien być dłuższy niż maksymalny przesuwu obrabiarki. Jeśli długość jest niewystarczająca, należy wymienić enkoder liniowy na wię kszy lub dodać blok ograniczający na maszynach. Pozycja końcowa głowicy odczytującej od końca korpusu enkodera liniowego powinna być nie mniejsza niż 10 mm odstę pu, (patrz poniższy schemat).

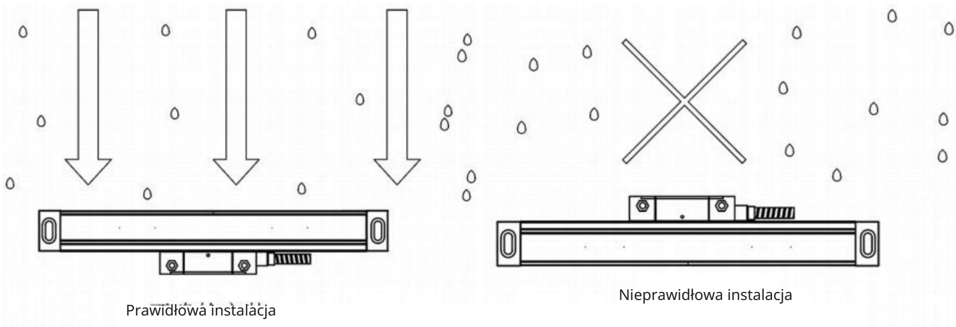



2. W przypadku powierzchni nieobrobionych, z tyłu enkodera liniowego należy umieścić podkładkę lub zastosować samodzielnie wykonaną podkładkę montażową, aby zapewnić stabilność i niezawodność połączenia pomię dzy liniałem kratowym a powierzchnią mon

3. Podczas kalibracji równoległości enkodera liniowego za pomocą czujnika zegarowego lub podobnego przyrządu, kąt głowicy bocznej musi mieścić się w granicach ±30 stopni. Im mniejszy kąt, tym lepiej.

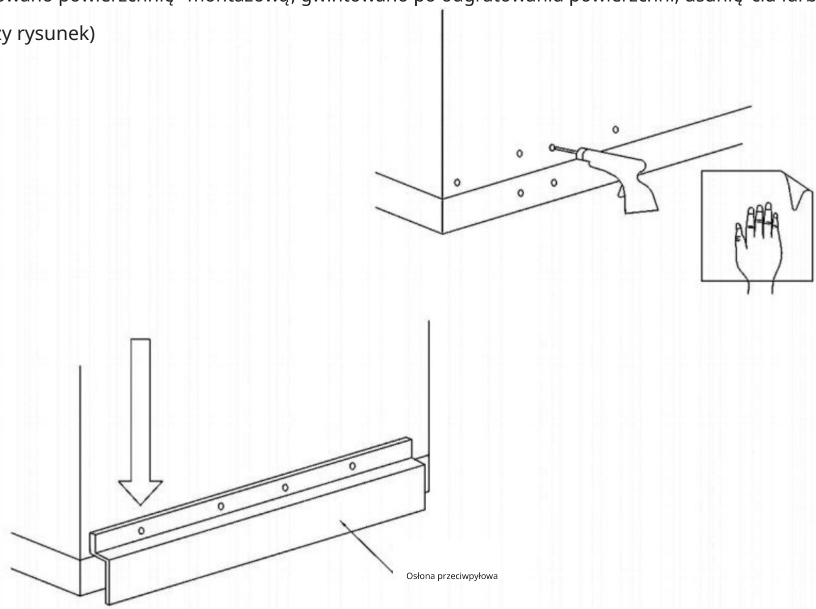


4. Pozycja montażu enkodera liniowego musi być taka, aby nie był narażony na bezpośrednie działanie żelaza.
opiłki, olej, woda i kurz (jak pokazano na poniższym rysunku). Długość instalacji
długość płyty L powinna być możliwie najkrótsza w możliwych okolicznościach, a
należy wziąć pod uwagę sytuację siłową powierzchni montażowej.



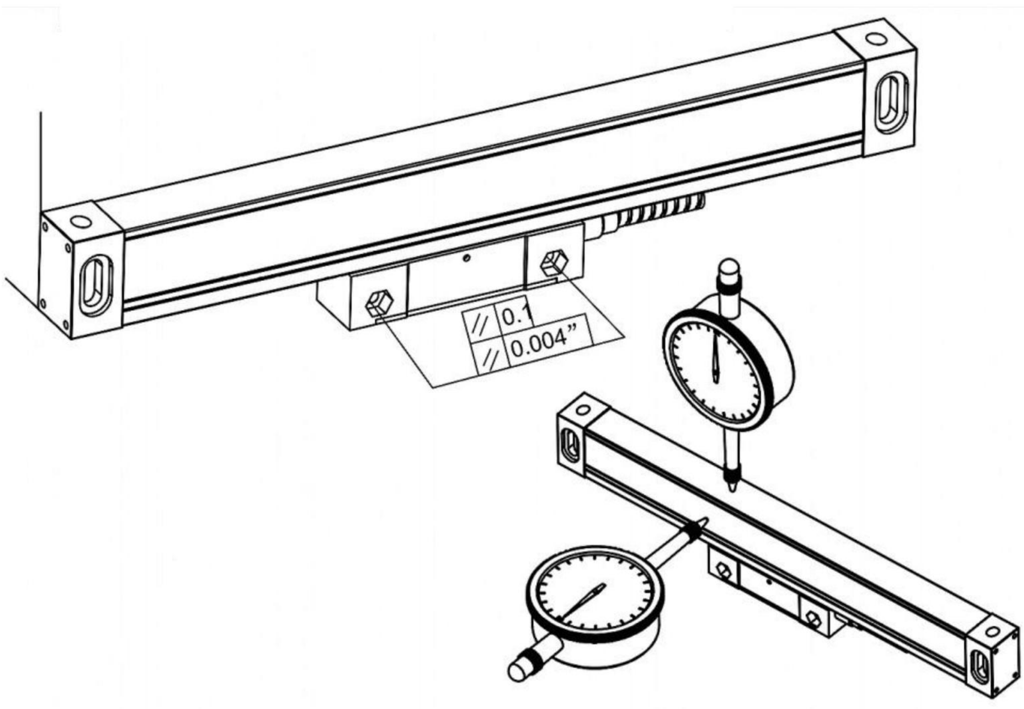

5. Mię dzy osłoną przeciwpyłową a linijką musi być odstę p co najmniej 0,5 mm.
korpusu i unikaj kontaktu pokrywy przeciwpyłowej z korpusem linijki podczas
przesuwając głowicę czytającą (jak poniżej).

6. Głę bokość gwintu śruby montażowej musi wynosić co najmniej 6 zę bów głę bokości blokowania;
siła wię ksza czę ść, taka jak podtrzymywanie cyfrowej półki licznika wyświetlacza płyty stałej, musi mieć
8 zę bów głę bokości blokowania; seria YE skali, głę bokość gwintu
głę bokość głę bokości blokowania. Takie jak podtrzymywanie wyświetlacza cyfrowego półka miernika stała
płyta, musi mieć głę bokość blokowania wię kszą niż 8 zę bów; skala serii YE ze śrubami M4
zamontowano powierzchnię montażową, gwintowano po odgratowaniu powierzchni, usunię ciu farby i plam.
(Poniższy rysunek)

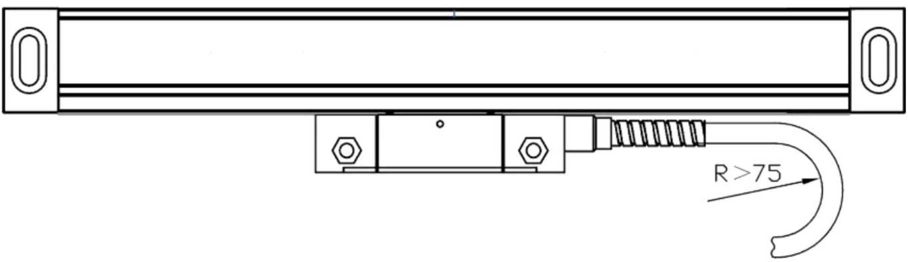


7. Mocowanie linii sygnałowej musi uwzględniać wszystkie istotne odległości ruchome. Miejsce mocowania należy umieścić możliwie jak najbardziej w samym środku skoku, a nadmiar przewodu sygnałowego zamocować opaską zaciskową.

8. Regulacja wysokości skali musi być długością środka skali, aby wziąć dwa boki punktu symetrii. Dostosuj punkt odniesienia, dowolną skalę niezależnie od kierunku poziomu szkoły lub kierunku wysokości, zakres regulacji: dla korpusu skali, do głowicy od korpusu skali w odległości nie większej niż 20 mm od każdego końca ma pierwszeństwo. Dla głowicy czytającej, między dwiema czworokątnymi powierzchniami odniesienia (następujący rysunek)




9. Promień gięcia przewodu sygnałowego skali jest większy niż 60 mm.



10. Standard instalacji wagi

(1) Standardowa powierzchnia podstawy instalacji (rysunek 4.8abc trzy metody instalacji)

1. Powierzchnia montażowa korpusu linijki jest równoległa do powierzchni montażowej głowicy odczytującej, a równoległość mię dzy powierzchniami montażowymi wynosi <0,1 mm

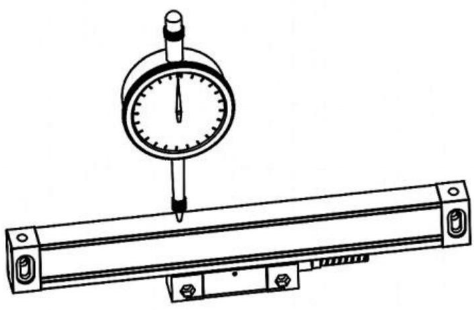
2. Powierzchnia montażowa korpusu linijki jest prostopadła do powierzchni montażowej powierzchnia głowicy odczytującej, a prostopadłość mię dzy powierzchniami instalacyjnymi wynosi <0,1 mm

2) Normy montażu korpusu linijki (rysunek 4.9, rysunek 4.10)

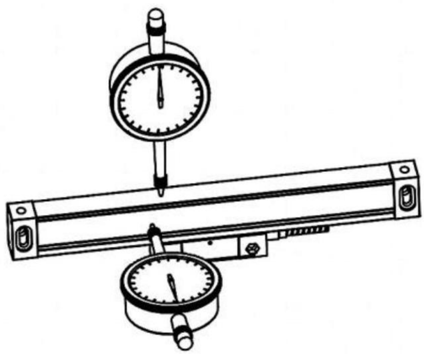
1. Kierunek wysokości wzglę dem równoległości prowadnicy maszyny <0,1 mm, maksymalnie nie wię cej niż 0,15 mm. Pod wzglę dem punktu symetrii im mniejszy tym lepiej.

3) Standard instalacji głowicy odczytującej

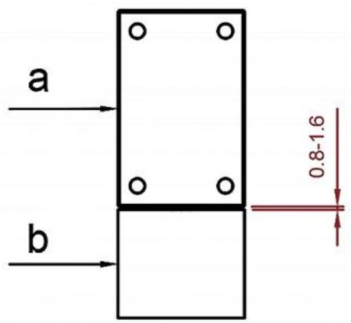
1. Po zainstalowaniu odstę p mię dzy głowicą odczytującą a kierunkiem wysokości korpusu linijki wynosi 0,8–1,6 mm; nastę pnie należy wyjąć blok podkładek (rysunek 4.11).



4.9



4.10




2. Głowica czytająca stronę A i korpus linijki stronę B. Niewspółosiowość w kierunku poziomym. 0,25±0,15 mm

3. Równoległość głowicy czytającej wzglę dem obrabiarka <0,10 mm, maksimum nie może przekroczyć 0,30 mm

# Parametr:

| Modle | SNS-3V-YE102024 | SNS-3V-YE161838 |
|---|---|---|
| Rated voltage: | AC85-230V 50Hz/60Hz | |
| Resolution | 5 μm | |
| Number of axles | 3 | |
| Range | 10 inches<br>20 inches<br>24 inches | 16 inches<br>18 inches<br>38 inches |

Akcesoria standardowe:

| Accessories for digital display meters: | Accessories for grating ruler: |
|---|---|
| 1. Support rod * 1 | 1. Ruler cover * 3 |
| 2. Knife holder plate * 1 | 2. L mounting plate * 4 |
| 3. Transparent watch case * 1 | 3. Plug * 6 |
| 4. Power cord * 1 | 4. Screw pack * 3 bags |
| 5. Watch holder * 1 | Each bag contains: |
| 6. Butterfly piece * 2 | Internal hexagonal screw M4 * 30 * 4; |
| 7. M8 * 70 screw * 1 | Internal hexagonal screw M4 * 12 * 2; |
| 8. M10 * 55 screw * 1 | Internal hexagonal screw M4 * 8 * 4; |
| 9. Nut M10 * 1 | U-shaped gasket T=0.2mm * 2; |
| 10. Nut M8 * 1 | Washer φ 6 * 2; |
| 11. Nut M5 * 1 | Washer φ 5 * 2; |
| 12. Internal hexagonal screw M5 * 20 * 2 | Washer φ 4 * 6; |
| 13. Internal hexagonal screw M5 * 25 * 1 | Line card * 2 |
| 14. M4 * hex socket screw * 4 | |
| 15. M5 * 10 machine meter screws * 2 | |
| 16. Washer φ 10 * 1 | |
| 17. Washer φ 8 * 1 | |
| 18. Washer φ 5 * 1 | |
| 19. Rubber washer 20 * 10 * 1 * 1 | |
| 20. Rubber washer 20 * 10 * 0.5 * 1 | |
| 21. Spring washer φ 10 * 1 | |
| 22. Spring washer φ 8 * 1 | |
| 23. Spring washer φ 5 * 1 | |

To urządzenie jest zgodne z częścią 15 przepisów FCC. Jego działanie podlega następującym dwóm warunkom: (1) To urządzenie nie może powodować szkodliwych zakłóceń i (2) to urządzenie musi akceptować wszelkie odbierane zakłócenia, w tym zakłócenia, które mogą powodować niepożądane działanie.

Producent: Shanghaimuxinmuyeyouxiangongsi

Adres: Shuangchenglu 803nong11hao1602A-1609shi, baoshanqu, szanghaj 200000 CN.

Importowane do AUS: SIHAO PTY LTD, 1 ROKEVA STREETEASTWOOD NSW 2122 Australia

Importowane do USA: Sanven Technology Ltd., Suite 250, 9166 Anaheim Place, Rancho Cucamonga, CA 91730

Przedstawiciel UE

E-CrossStu GmbH

Mainzer Landstr.69, 60329 Frankfurt nad Menem.

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# DRO DISPLAY GEBRUIKERSHANDLEIDING

## MODEL: SNS-3V-YE102024 IS NS-3V-YE161838

Wij blijven ons inzetten om u gereedschappen te leveren tegen concurrerende prijzen.
"red de helft" , "Halve prijs" of andere soortgelijke uitdrukkingen die wij gebruiken, vertegenwoordigen slechts een schatting van de besparingen die u kunt behalen door bepaalde gereedschappen bij ons te kopen in vergelijking met de belangrijkste topmerken en betekent niet noodzakelijkerwijs dat alle categorieën gereedschappen die wij aanbieden, worden gedekt. U Wij herinneren u eraan om bij het plaatsen van een bestelling bij ons zorgvuldig te controleren of u: in feite de helft besparen vergeleken met de grote topmerken.

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# DRO-SCHERM

MODEL: SNS-3V-YE102024 SNS-3V-YE161838

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Heeft u vragen over het product? Heeft u technische ondersteuning nodig? Neem dan gerust contact met ons op.

Neem contact met ons op:

Technische ondersteuning en E-garantie certificaat
Www.vevor.com/support

Dit is de originele instructie, lees alle instructies in de handleiding zorgvuldig voor gebruik. VEVOR behoudt zich een duidelijke interpretatie van onze gebruikershandleiding voor. Het uiterlijk van het product is onderworpen aan de product dat u hebt ontvangen. Vergeef ons dat we u niet meer op de hoogte stellen als er technologische of software-updates voor ons product zijn.

Beste gebruikers:

Bedankt voor uw aankoop van de multifunctionele digitale uitlezingen ·

Digitale uitlezingen worden in een breed scala aan toepassingen gebruikt. Deze omvatten: gereedschapswerktuigen , in invoerassen, meet- en inspectieapparatuur, EDM en meetstations voor verdeelapparaten, instelgereedschappen ,

productiecontrole. Om te voldoen aan de eisen van deze

Bij veel toepassingen kunnen veel encoders op de digitale uitlezingen worden aangesloten. Lees alle instructies in de handleiding zorgvuldig door voordat u het product gebruikt en volg ze strikt op · bewaar de handleiding voor toekomstige referenties ·

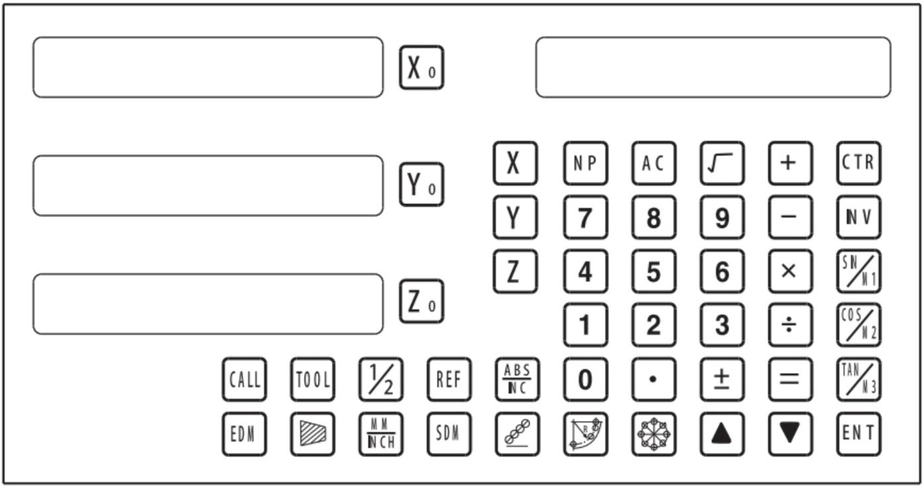
Veiligheidswaarschuwing:

- ⌘ Om elektrische schokken of brand, vocht of direct gespoten vloeistof te voorkomen koelvloeistof moet worden vermeden. In geval van rook of bijzondere ruik je de geur van de digitale uitlezing, trek dan de stekker uit het stopcontact onmiddellijk, anders kan er brand of een elektrische schok ontstaan. Probeer in zo'n geval niet om het te repareren, maar neem contact op met het bedrijf of distributors.
- ⌘ Digitale uitlezing is een nauwkeurig meetinstrument dat wordt gebruikt met een optische Lineaire schaal· wanneer het in gebruik is, als de verbinding tussen de Lineaire schaal en de digitale uitlezing zijn kapot of beschadigd extern kunnen er onjuiste meetwaarden ontstaan · Daarom, De gebruiker moet voorzichtig zijn.
- ⌘ Probeer de digitale uitlezing niet te repareren of te wijzigen, anders kan er een storing optreden. fout of letsel kan optreden. In geval van een abnormale toestand, Neem contact op met het bedrijf of de distributeur.
- ⌘ Als de optische lineaire weegschaal die met de digitale uitlezing wordt gebruikt, beschadigd is, mag u geen lineaire weegschaal van een ander merk gebruiken. · Omdat de prestaties, specificaties en aansluitingen van de producten van verschillende merken en niet worden aangesloten zonder de instructie van een gespecialiseerde technicus personeel, anders ontstaan er problemen met de digitale uitlezing.
- ⌘ With the continuous updating of products, if there are changes or Bij wijzigingen in de voorbeeldparameters hebben de willekeurige bestanden voorrang en heeft het bedrijf het uiteindelijke interpretatierecht zonder voorafgaande kennisgeving.

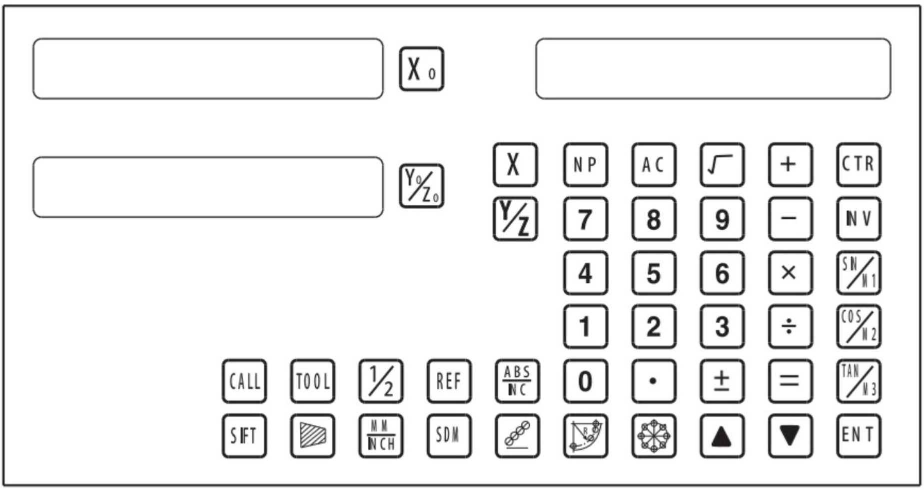
# Contents

# Contents

THREE AXIS PANEL




TWO AXIS PANEL



# Caption of the keyboard

## Keyboard Description

| | |
|---|---|
| X Y Z | Keys for axis selection |
| $X_0$ $Y_0$ $Z_0$ | Zero select axis |
| ± | Enter +/- sign |
| . | Enter decimal point |
| 0 1 2 3 4<br>5 6 7 8 9 | Entry keys for numbers |
| + − × ÷ = | Operation key (in Calculation function key) |
| CTR | Enter or quit calculating state |
| AC | Cancel incorrect operation |
| INV | Calculate inverse trigonometric |
| √ | Square root |
| ENT | Confirm operation |
| MM/INCH | Toggles between inch and millimeter units. |
| REF | Press when ready to identify a reference mark. |
| SDM | Function keys for 200 sub datum |
|  | ARC cutting function |
|  | holes displayed equally on a circle |
|  | holes displayed equally on a line |

# Caption of the keyboard

| | |
|---|---|
| SIN/M1 | Calculate trigonometric or Slope Processing function key |
| COS/M2 | Calculate trigonometric or rectangular inner chamber processing function key |
| TAN/M3 | Calculate trigonometric or the tool diameter compensation function key |
| ABS/INC | Toggle between ABS/INC coordinate |
| ▲ ▼ | Stroll up or down to select |
|  | Taper measured function key |
| CALL | Tool library call key |
| TOOL | Opens the tool table.( lathe) |
| EDM | EDM function key |
| SFT | Filter display function key |
| 1/2 | Half a display value of an axis |
| NP | Non Linear Error Compensation function keys |

# 3、Parameters settings

## 3.1 Parameters setup routine entrance.

Press [•] to enter initial system and self-check after DRO powers on in 1 second, then Parameters settings display in the Parameters window.press [▲] [▼] to select the item you want to chang.

If you want to quit initial setting, press [▲] [▼] until "QUIT" appears in message window and press [ENT]. You can also press [•] to quit initial setting.

## 3.2 Parameters Settings Description

### 3.2.1 Setting the Resolution

Press [▲] [▼] until "RESOLUTE" appears in message window;

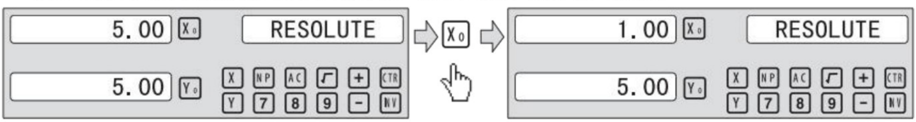
When selecting the LINEAR encode, the resolution will be set as follow:

There are 19 types of resolution:

0.01um;0.02um;0.05um;0.10um;0.20um;0.25um;0.50um;1.00um;
2.00um;2.50um;5.00um;10.00um;20.00um;25.00um;50.00um;
100.00um;200.00um;250.00um;500.00um.

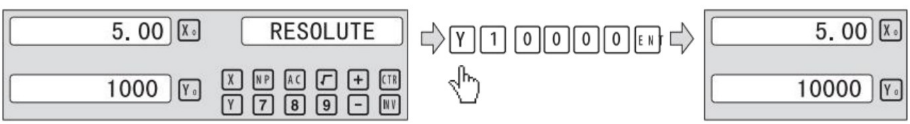
Press [X0] to change the resolution for X axis;Press [Y0] to change the resolution for Y axis;Press [Z0] to change the resolution for Z axis;

Set the resolution 5.00um to 1.00um for X axis:




When selecting the rotary encode, the resolution will be set as follow:

Input the rotary encode parameter value .

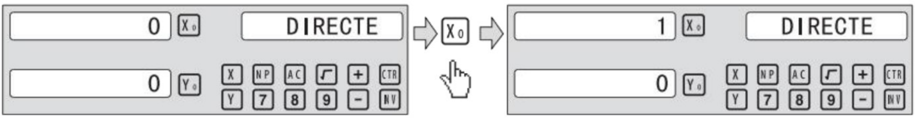


### 3.2.2 Setting Positive Direction for Counter

Press ▲ ▼ until " DIRECTE" appears in message window.

Direction '0' means the display value will increase when scale moves form right to left and decrease when scale moves from left to right. Direction '1' means the display value will increase when scale moves form left to right and decrease when scale moves from right to left.

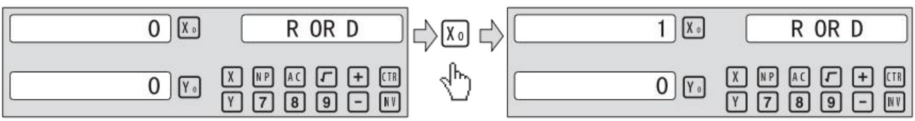
Press X0 to change the Direction for X axis;Press Y0 to change the Direction for Y axis;Press Z0 to change the Direction for Z axis; as follow:




### 3.2.3 Toggle Betwween R/D Display Mode

Press ▲ ▼ until "R OR D" appears in message window. X window, Ywindow, Z window displays '0' or '1' separately.

'0' is mode R, which means the dispay value equals the actual measurement. '1' is mode D where the display value equals the double actual measurement. Press X0 to change the R/D for X axis;Press Y0 to change the R/D for Y axis;Press Z0 to change the R/D for Z axis; as follow:




### 3.2.4 Setting Z axis Dial

Press ▲ ▼ until "Z DIAL" appears in message window.

Z axis dial should be set if Z axis is emulated for 2 axis milling and only install linear scale for X,Y axis. Z axis dial means the distance the Z axis travels when screw runs a revolution.

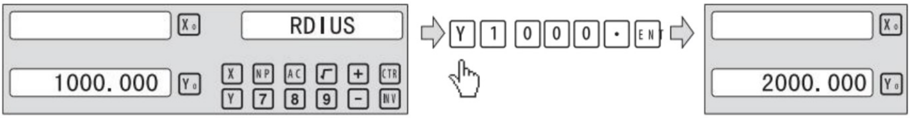
Set the Z axis Dial 2.5mm as follow ;


3.2.5 Setting the Rotary Radius of the Workpiece

Press ▲ ▼ until "RDIUS" appears in message window.

The Rotary rdius type is used perimeter to measure angle.

Input the Rotary Radius parameter value 2000mm as follow:

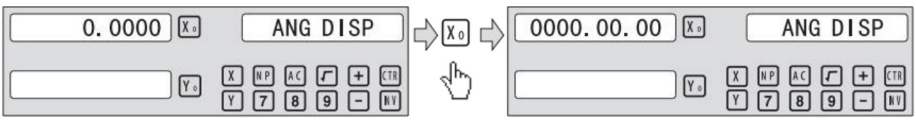



3.2.6 Setting the Angle Display Mode

Press ▲ ▼ until "ANG DISP" appears in message window.

Press X0 to change the angle display mode for X axis;Press Y0 to change the angle display mode for Y axis;Press Z0 to change the angle display mode for Z axis; Example for X axis:

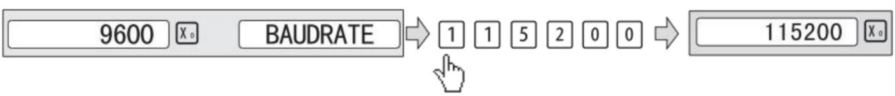
"0.0000" means the angle mode is Circulating DD;
"0000.0000" means the angle mode is Incremental DD;
"0.00.00" means the angle mode is Circulating DMS;
"0000.00.00" means the angle mode is Incremental DMS;




3.2.7 Setting the Baudrate of RS_232 (Special customization function, if you need to buy, please contact the dealer to customize)

Press ▲ ▼ until "BAUDRATE" appears in message window.

Set the Baudrate 115200 as follow ;



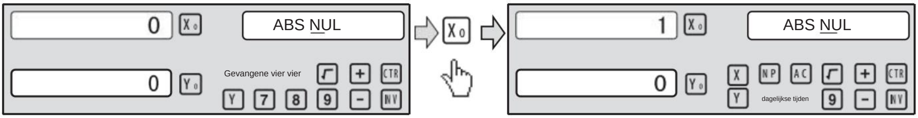
3. 2. 8 Instellen van de absolute nulstelling in- of uitschakelen

pers totdat "ABS_ZERO" in het berichtenvenster verschijnt·

de betekent dat de ABS-nulstelling en de vooraf ingestelde gegevens worden uitgevoerd inschakelen in de normale weergavestatus ·

'1' betekent dat de ABS-nulstelling en de vooraf ingestelde gegevens worden uitgevoerd uitschakelen in de normale weergavestatus ·

druk om X0 om de absolute nulstellingsmodus voor de x-as te wijzigen, drukt u op Y0 de absolute nulstellingsmodus voor de Y-as te wijzigen, druk op Z0 naar verander de absolute nulmodus voor de Z-as; Voorbeeld voor de x-as ·



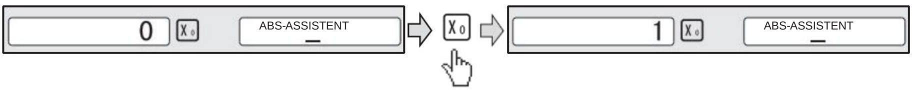

3. 2. 9 het instellen van de Absolute vorm van de speciale Functie

pers totdat "ABS_ASST" in het berichtenvenster verschijnt·

'o betekent dat alleen de speciale functiepositiewaarde wordt weergegeven in de speciale Functiebewerking.

'1' betekent speciale functie positiewaarde + ABS Positiewaarde is weergeven in de speciale Functiebewerking.

pers X0 om de absolute modus voor de speciale functie te wijzigen, zal als volgt worden ingesteld:



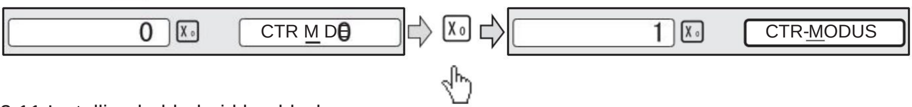

3. 2.10 instellen van de Calculator Weergavemodus

pers totdat UCCTR_MODE" verschijnt in bericht W · indow

de mede weergavewaarde van de rekenmachine bij de x wind in de code disply;

'1' betekent de weergavewaarde van de rekenmachine in het berichtenvenster op het disply;

pers X0 om de weergavemodus van de rekenmachine te wijzigen, wordt AS ingesteld follow:




3.2.11 Instelling helderheid beeldscherm

Instelling helderheid LED-scherm, de fabrieksinstelling is alleen "3", hoe hoger de parameter, hoe helderder de helderheid. Druk op "xo" om is het niet aan te raden om de standaardwaarde zelf in te stellen.

3.2.12 The linear scale counting frequency setting

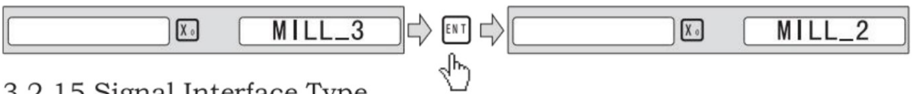
The factory default setting is only "12", the higher the parameter, the lower the counting frequency, press "X0" to set, it is not recommended that you set the default value yourself.

3.2.13 Setting QUIT: Digital display table parameters quit button.

3.2.14 Setting the type of the DRO.

The type of the DRO will be display on the right window. then press the key ENT to select the correct type. the following system item will be set:

"MILL-3" means the DRO type is 3-axis milling machine table;
"MILL-2" means the DRO type is 2-axis milling machine table;
"LATHE-2" means the DRO type is 2-axis lathe table;
"LATHE-3" means the DRO type is 3-axis lathe table;
"GRIND" means the DRO type is Grind table;
"EDM" means the DRO type is EDM table; (Special customization function, if you need to buy, please contact the dealer to customize)




3.2.15 Signal Interface Type

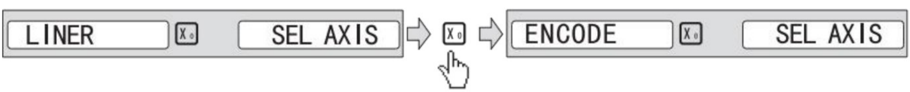
Message window displays " SEL AXIS" which indicates the step is to Sensor input signal mode. Press X0 to change the signal mode for X axis;Press Y0 to change the signal mode for Y axis;Press Z0 to change the signal mode for Z axis;Example for X axis:

Press X0 to scroll through the Rotary encode type, the Linear encode type, the Rotary rdius type.

X window displays the Signal type.

"LInER" means the Signal type is linear encode type ;
"EnCOdE " means the Signal type is Rotary encode type;
"RdIUS" means the Signal type is Rotary rdius type ;

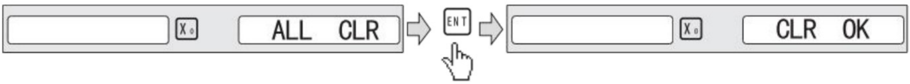
Example: currently in the linear encode type, to toggle to the Rotary encode type;



3.2.16 Restore Factory Settings:

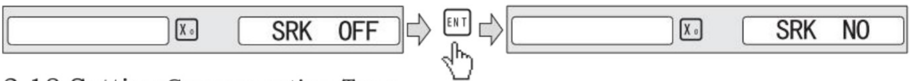
Clear all data except DRO type.DRO will load default setup for parameter.After loading default setup,user must search RI once to enable resuming ABS dadum function;otherwise to resume the datum by RI is unable;

Message window displays " ALL CLR" , press ENT and message windows display "PASSWORD" indicating the operator to input password; Press 2000 + ENT in turn to load default value;




3.2.17 Shrinkage Ratio enable or disable.

Message window displays " SRK OFF" to disable Shrinkage rate function. Press ENT to enable Shrinkage rate function in Message window displays " SRK ON" :




3.2.18 Setting Compensation Type

Message window displays " SEL COMP" which indicates the step is to compensation type. Press X0 to change the compensation type for X axis;Press Y0 to change the compensation type for Y axis;Press Z0 to change the compensation type for Z axis;Example for X axis:

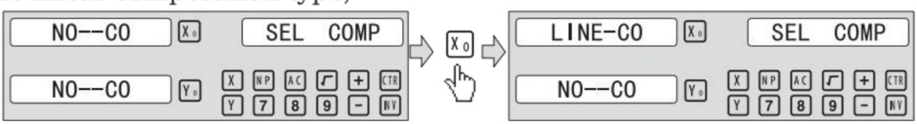
Press X0 to scroll through the not compesation type, the Linear compesation type, the non-linear compesation type.

"no-CO" means the compesation type is not compesation type;

"LInE-CO" means the compesation type is linear compesation type.

"non-LinE" means the compesation type is non-linear linear compesation type;

Example for X axis: currently in the not compesation type, to toggle to the linear compesation type;



3.2.19 Inch display, set the number of digits after the decimal point

In the inch display mode, the number of digits after the decimal point is set, the factory default digit is "4", press "X0" to set, can be set according to actual needs.

3.2.20 Setting EDM: it is not recommended that you set the default value yourself, EDM function, Set the relay off on time.

3.2.21 Setting Linearity Compensation.

Message window displays “ LIN COMP” which indicates the step is to Linearity Compensation. Compensate the linear error to make display value equals to standard value.

The calculation of compensation rectifying coefficient:

$$\text{Coefficient} = \frac{(\text{Measurement} - \text{Standard value}) \times 1000.000}{\text{Standard value}}$$

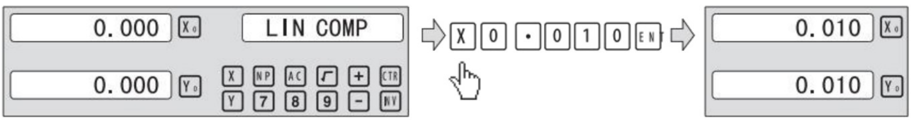
Example for X axis:

Measurement 200.020mm

Standard value 200.000mm

Rectifying coefficient= (200.020-200) * 1000 /200 =-0.01mm/m

Input compensation rectifying coefficient 0.01 as follow:

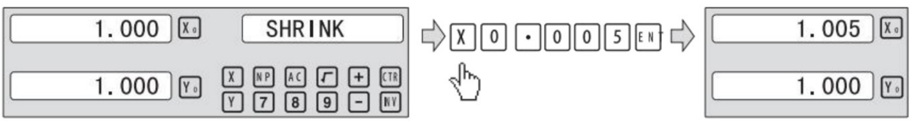



3.2.22 Setting the Shrinkage Ratio

Press ▲ ▼ until “ SHRINK” appears in message window;

$$\text{Shrinkage radio} = \frac{\text{Dimensions of the finished product}}{\text{Dimensions of the working piece}}$$

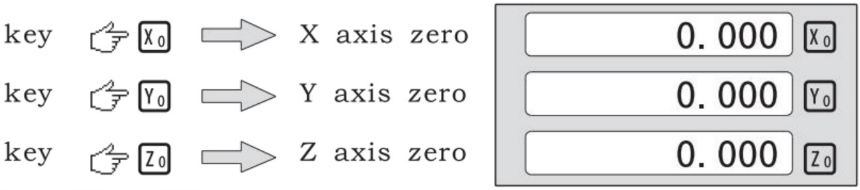
Set the shrinkage radio 1.005 as follow;



## 4、General Operations;

### 4.1 Zeroing

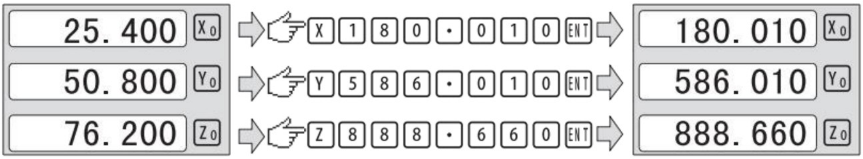
Zero the designated axis in normal display state.Zeroing is used to set the current point as datum point as follow;




X0 or Y0 or Z0 will be return to the original data before the reset。

### 4.2 Preset Data to Designated Axis

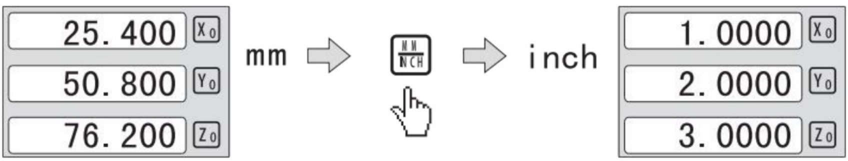
Preset a value to current position for a designated axis in normal display state.



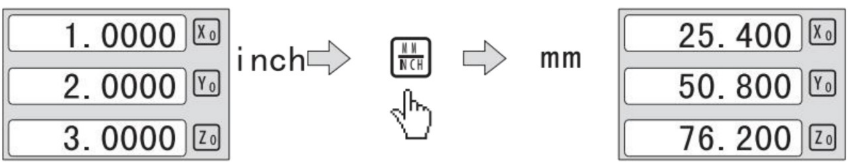

### 4.3 Toggle Display Unit between inch and mm

Length can be displayed either in “mm” (metric) or “inch” (imperial). Display unit can be toggled between mm and inch.

Example: Display value toggle from mm to inch;



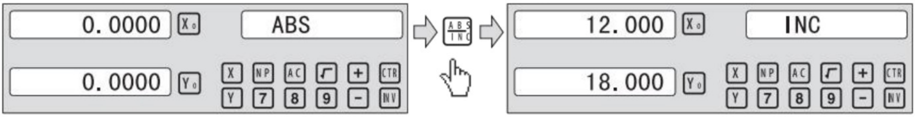

Example: Display value toggle from inch to mm;



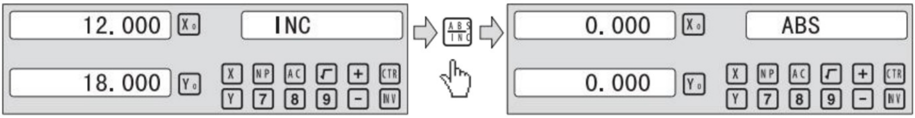
## 4.4 Absolute/Incremental/200 groups SDM

Function: The DRO has 3 coordinate display modes: the absolute mode (ABS); the incremental mode (INC) and 200 goups Second Data Mamory (SDM) with the range of 00 to 99.Zero point of work-piece is set at the origin point of ABS coordinate. The relative distance between datum of ABS and SDM remains unchanged when ABS datum is changed.

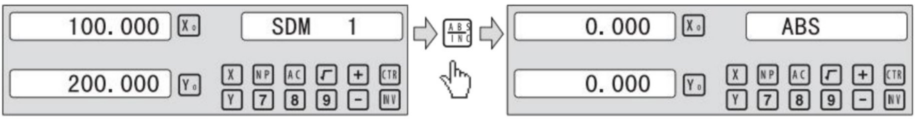
1. Toggle from ABS to INC coordinate;




2. Toggle from INC to ABS coordinate;




3. Toggle from SMD to ABS coordinate;



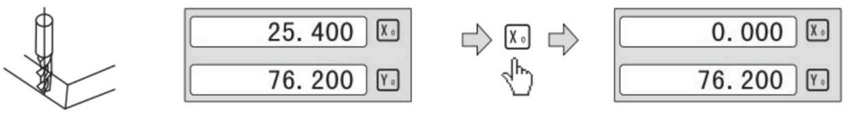

## 4.5 1/2 Function

Function: Set the center of work piece as datum by halving the displayed value.

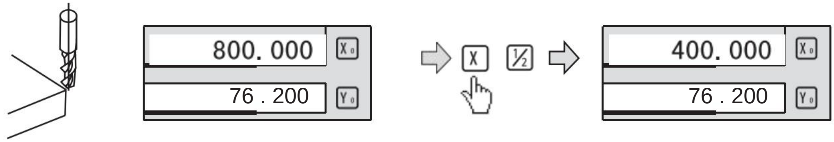
Example: Set the center of rectangle as datum as the right figure.

Steps:

1、Touch one side of the workpiece with the TOOL,then zero the X axis。



2 , Breng het GEREEDSCHAP naar de andere kant van het werkstuk en raak het aan. Druk dan op X + ½ om op zijn beurt de weergavewaarde van de X-as te bepalen.




3. Verplaats de rekentafel totdat "0.000" wordt weergegeven op de x-as venster. De positie is het werkstuk' S Center·

4. 6 Wis alle SDM-gegevens.

In de AB-modus, om continu op te drukken · tien keer zal ervoor zorgen dat het duidelijk wordt alle gegevens voor 200 sets SDM. Mcssage-venster geeft USDM weer "CLR".

4. 7 Slaapstand

in de niet-ABS-modus, door op de toets te drukken RE F CAn schakelt alle weergaven uit en de DRO toegang krijgt tot de slaapstand, en vervolgens op deze toets drukt zal de DRO weer terugbrengen naar de werkmodus. In de slaapstand De DRO is nog steeds in werkende staat en registreert daadwerkelijk de TOOL movement.

Voorbeeld: In de niet-ABS-modus kunt u de slaapstand openen door op te drukken de toets F. In RE de slaapstand kunt u de toets F indrukken om de RE slaapstand ·

4. 8 Stroomonderbrekingsgeheugen.

Het geheugen wordt gebruikt om de instellingen van de DRO en de machine op te slaan referentiewaarden wanneer POWEr is uitgeschakeld.

4. 9 zoek het absolute referentiepunt van de schaal

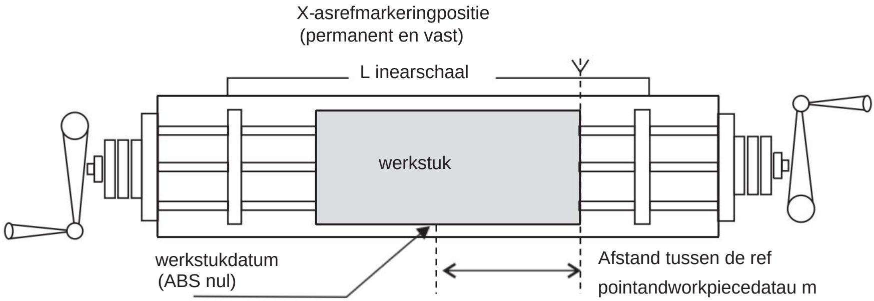
Tijdens het dagelijkse bewerkingsproces komt het vaak voor dat de De bewerking kan niet binnen één werkploeg worden voltooid, en daarom DRO moet na het werk worden uitgeschakeld, anders treedt er tijdens het werk een stroomstoring op het bewerkingsproces dat leidt tot het verlies van het werkstukgegeven (werkstuknulpositie), het opnieuw vaststellen van het werkstuknulpunt het gebruik van een kantenzoeker of een andere methode leidt onvermijdelijk tot hogere bewerking met nauwkeurigheid omdat het niet mogelijk is om de werkstuknulpunt exact op de vorige positie.Om de het nauwkeurig herstellen van het werkstuknulpunt en het niet nodig zijn om het werkstuknulpunt opnieuw vast te stellen met behulp van een kantenzoeker of andere methoden, Elke lineaire schaal heeft een refpuntlocatie die is uitgerust met ref positie om een geheugenfunctie voor het referentiepunt te bieden.

Het werkprincipe van de ref-datumgeheugenfunctie is als volgt: volgt.

omdat het referentiepunt van de lineaire schaal permanent en vast is, zal het veranderen of verdwijnen nooit wanneer het DRO-systeem wordt uitgeschakeld. Daarom hoeven we alleen de afstand tussen het referentiepunt op te slaan en het werkstuknulpunt (nulpositie) in NIET-vluchtig geheugen. Dan in het geval van een stroomstoring of het uitschakelen van de DRO kunnen wij het probleem verhelpen het werkstuknulpunt (nulpositie) door het display op nul te zetten positie als de opgeslagen afstand vanaf het referentiepunt ·

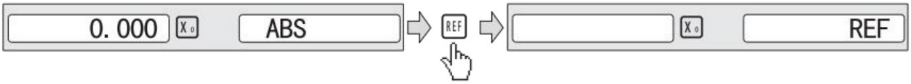
Bij het bewerken van een werkstuk moet een absoluut nulpunt worden ingesteld. Er zijn drie werkingsmodi (REFÿ ABÿ LEF AB):

Voorbeeld: om het werkpunt van de X-as op te slaan

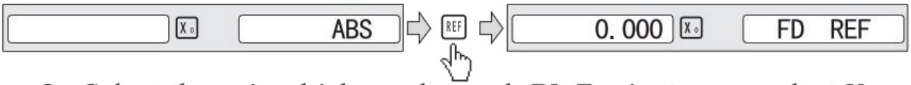


**Example for REF mode :**

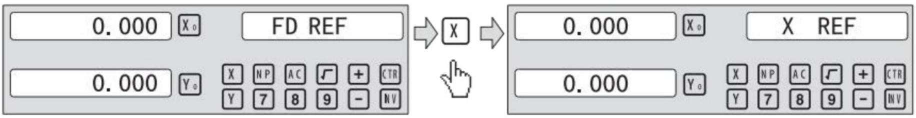
1、DRO is set in ABS coordinate. Press REF , then the message window display “REF” .




2、Message window displays “REF” , Press ENT until “FD_REF” appears in message window.



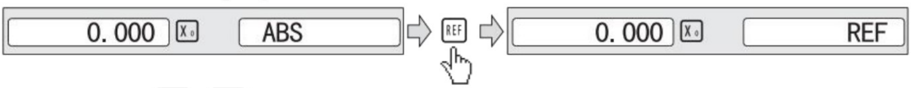

3、Select the axis which need search RI. For instance : selsct X axis, then press X . “X_REF” is displayed in message window, and X axis window flashes.




4、 Move the machine table .The buzzer sounds when RI is searched, then X window stops flashing and displays the value of the current position .the DRO returns normal display state. Then message window displays “FIND_X” .

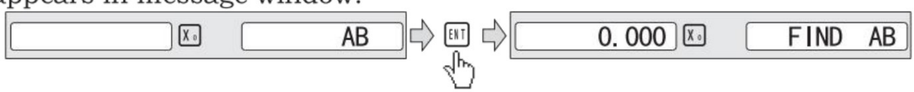
**Example for AB mode :**

1、 DRO is set in ABS coordinate. Press REF , then the message window display “REF” .

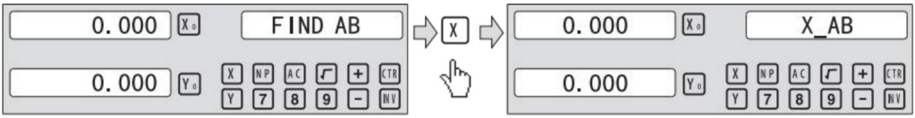



2、Press ▲ ▼ , then the massage window display “AB” .


3、Message window displays “AB” , Press ENT until “FIND_AB” appears in message window.



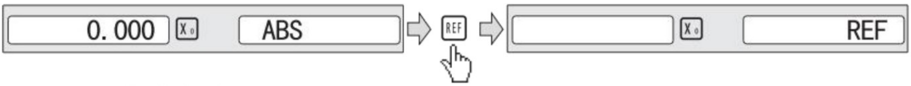
4、Select the axis which need search RI. For instance : selsct X axis, then press X . "X_REF" is displayed in message window, and X axis window flashes.



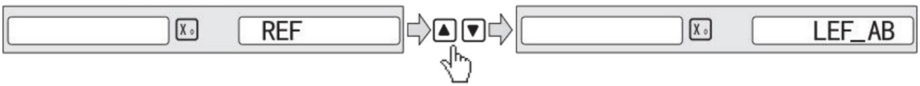

5、 Move the machine table .The buzzer sounds when RI is searched, displays the value of the current position for the absolute datum zero. the DRO returns normal display state. Then message window displays "FIND_AB" .

**Example for LEF_AB mode** :

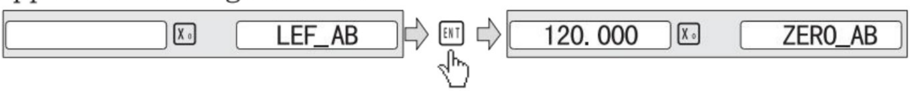
1、DRO is set in ABS coordinate. Press REF, then the message window display "REF" .



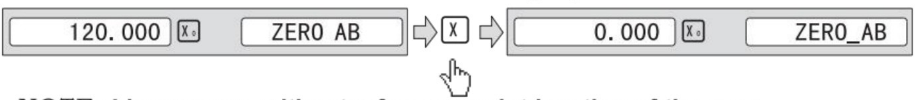

2、Press ▲ ▼, then the message window display "AB" .




3、Message window displays "LEF_AB" , Press ENT until "ZERO_AB" appears in message window.




4、Move the machine table to be set zero position piont. then press X , X axis will be zeroing . the current position for the absolute datum zero. the DRO returns normal display state.




NOTE: **Linear range without reference point location of the user**

## 4.10 Non Linear Error Compensation

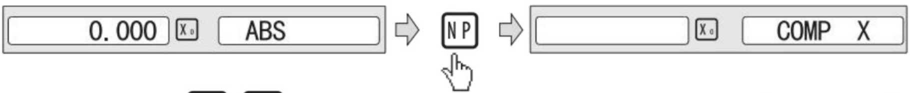
First compensation Type ( Linear or Non-Linear) in parameter setting must be set Non-Linear. Linear scale have a ref point location and find to the Absolute Reference Point will be enable.

Default Non-Linear compensation : 50.

**Example for Y axis:**

Step 1: Search the Absolute Reference Point of Scale;

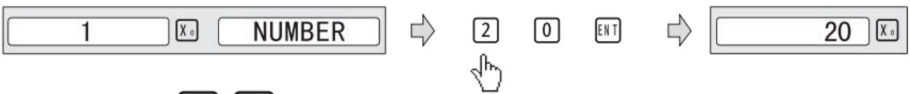
Step 2: Press NP , then the message window display "COMP X" .



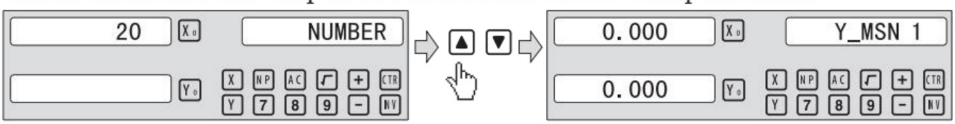

Step 3: Press ▲ ▼, then the massage window display "COMP Y"


Step 4: Press ENT, then the message window display "NUMBER" .

Then input the compensation parameter NUMBER.




Step 5: Press ▲ ▼, then message window displays "Y-MSN-1" which indicates the step is to Non Linear Error Compensation.



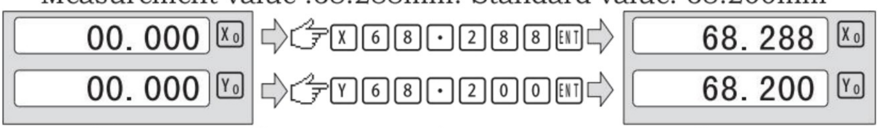

Step 6: Input compensation value .

X window display the value of the measurement value.

Y window display the value of the standard value.

Example for the first compensation point:

Measurement value :68.288mm. Standard value: 68.200mm



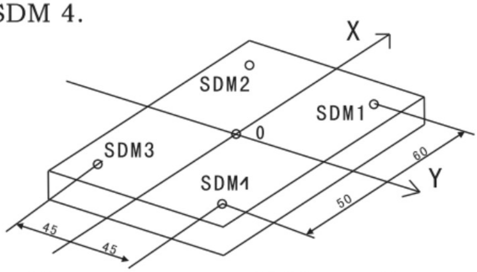

Step 7: After input all parameter, the DRO automatically exit.

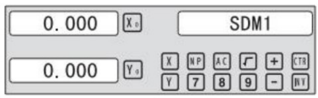
## 5、200 Groups SDM coordinate

The DRO has three display modes: the absolute mode (ABS),the incremental mode (INC) and the 200 groups second data memory (SDM 1 – SDM200). ABS datum of the work-piece is set at the beginning and the 200 groups SDM is set relative to ABS coordinate.

ABS Mode, INC Mode and SdM Mode are specially designed to provide much more convenience features to the operator to cope with the batch machining of relative works and the machining of the workpiece machining dimensions from more than one datum.

**Example:** The ABS datum is the center point O, the point sdm1, sdm2, sdm3, sdm4 needed processing are set as datum of SDM 1 – SDM 4.




Two ways to set SDM coordinate:

1、 Zeroing at the Current Point.

2、 Preset datum of SDM coordinate.

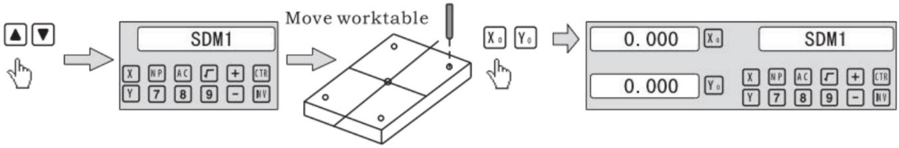
### 5.1 Zeroing at the Current Point

At first set the center point of the work-piece as the origin of the ABS, then align the TOOL with point SDM1,SDM2,SDM3,SDM4 by moving the machine table and zero them. It is the position to process where the "0.000" appears in X window, Y window by moving the machine table whether in ABS or in SDM coordinate.

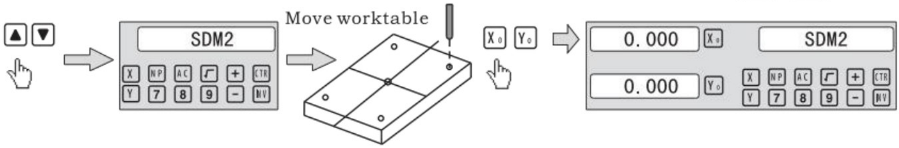
**Steps:**

1、 Move worktable to place the TOOL at the center of the workpiece point O as the datum of ABS. Then zero X axis and Y axis in SDM 1 ; Zero X axis and Y axis in SDM 2 ; Zero X axis and Y axis in SDM 3 ; Zero X axis and Y axis in SDM 4.

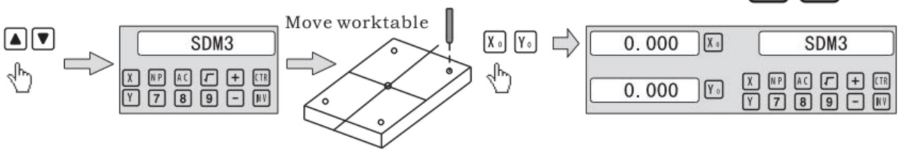
2、Set the point sdm1 as the datum of SDM 1. Move the machine worktable to x = 60.000, y = 45.000. Then proess $\boxed{X_0}$ $\boxed{Y_0}$.



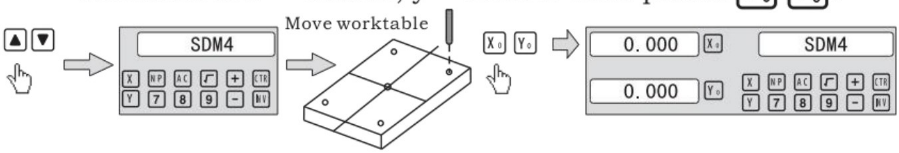

2、 Set the point sdm1 as the datum of SDM 2. Move the machine worktable to x = 60.000, y = -45.000. Then proess $\boxed{X_0}$ $\boxed{Y_0}$.




3、 Set the point sdm1 as the datum of SDM 3. Move the machine worktable to x = -60.000, y = -45.000. Then proess $\boxed{X_0}$ $\boxed{Y_0}$.




4、 Set the point sdm1 as the datum of SDM 4. Move the machine worktable to x = -60.000, y = 45.000. Then proess $\boxed{X_0}$ $\boxed{Y_0}$.




5.2 Preset datum of SDM coordinate

There are the same sample as Method 1. First Move the worktable to place the TOOL exactly at the origin of ABS, secondly Enter the ABS Mode as follow.

**Steps:**

1、Move worktable to place the TOOL at the center of the workpiece point O as the datum of ABS. Then zero X axis and Y axis in SDM 1 ; Zero X axis and Y axis in SDM 2 ; Zero X axis and Y axis in SDM 3 ; Zero X axis and Y axis in SDM 4。

2、Set point sdm1 as the datum of SDM 1. Press ▲ ▼, then the message window display “SDM 1” . Input x = 60.000, y = 45.000.


3、Set point sdm1 as the datum of SDM 2. Press ▲ ▼, then the message window display “SDM 2” . Input x = -60.000, y = 45.000.


4、Set point sdm1 as the datum of SDM 3. Press ▲ ▼, then the message window display “SDM 3” . Input x = -60.000, y = -45.000.

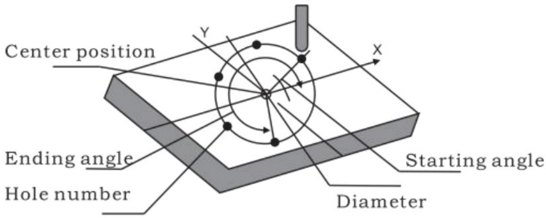

5、Set point sdm1 as the datum of SDM 4. Press ▲ ▼, then the message window display “SDM 4” . Input x = -60.000, y = 45.000.

# 6ÿ speciale functie

## 6.1 Circumference Holes Processing

The Function of PCD Hole positioning on Circumference is used to distribute arc equally, such as boring hole on flange. The right window will show the parameter to be defined when selecting PCD Function. The Parameters to be defined are:

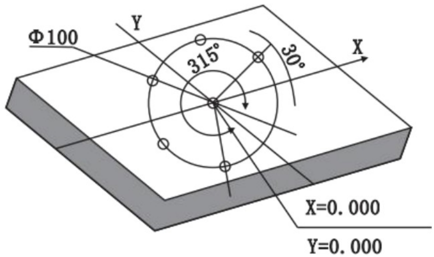
| | |
|---|---|
| PCD_XY(XZ,YZ) | Select place |
| CENTER | Center position |
| DIA | Diameter of circle |
| NO_HOLE | Hole number |
| ST ANG | Starting angle |
| ED ANG | Ending angle |




The postion of the hole center are calculated automatically after input all parameters. Press ▲ or ▼ to choose the hole No. and move the machine table until the "0.000" appears in X window , Y window, Z window. It is the position to process a table.

Example for the XY place: Machine hole on circumference as the figure

| | |
|---|---|
| PCD_XY(XZ,YZ) | XY |
| CENTER | X=0,000,Y=0.000 |
| DIA | 100,000 |
| NO_HOLE | 5 |
| ST ANG | 30,000 |
| ED ANG | 315,000 |



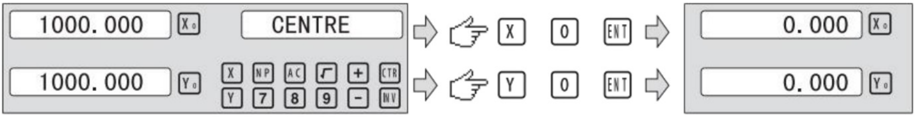

Steps:

1. Set display unit to metric in normal state; Move the machine table until the machine TOOL is aligned with the center of the ciecle , then zero X axis ,Y axis.
2. Select plece.

Press , then the message window display "PCD_XY" to the Circumference Holes Processing. Press ▲ or ▼ to select XY place.

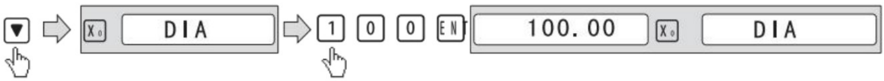
2. Input center position.

Press ENT , then the message window display "CENTER" . X and Y window displays the formerly preset center position. Input X = 0, Y = 0 as follow.



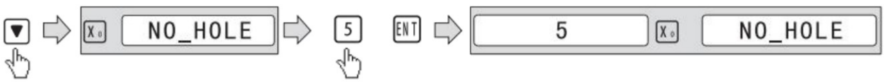

4. Input diameter.

Press ▼ until "DIA" appears in the message window. X window despalys the formerly preset diameter. Then input the diameter is 100.000.



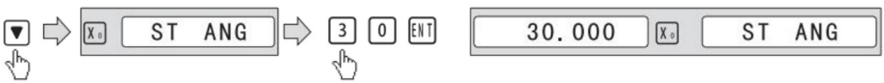

5. Input number.

Press ▼ until "NO_HOLE" appears in the message window. X window despalys the formerly preset number. Then press 5 in turn to input number.



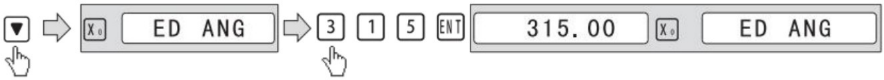

6. Input starting angle.

Press ▼ until "ST ANG" appears in the message window. X window despalys the formerly preset the starting angle. Then press 3 0 in turn to input the starting angle.



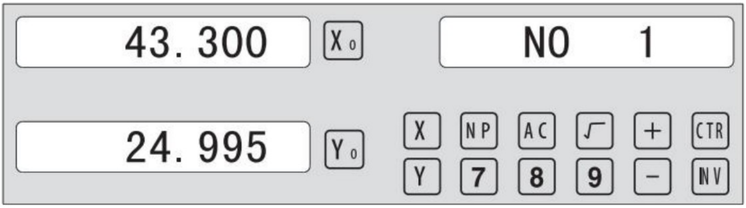

7. Input ending angle.

Press ▼ until "ED ANG" appears in the message window. X window dispalys the formerly preset the ending angle.. Then press 3 1 5 in turn to input the ending angle.




8. Press ▼ until "NO 1" appears in the message window.

It is the position of the first hole to punch where the "0.000" is displayed in X window and Y window by moving the machine table. After finishing the first hole, press ▼ or ▲ to change holes number.

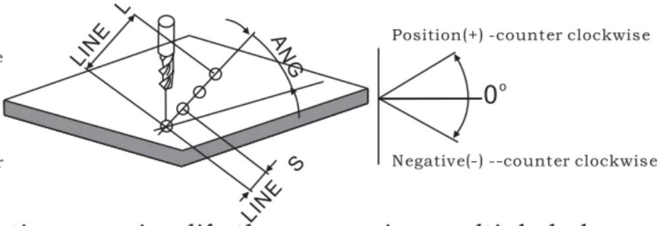



9. After processing all holes, press  to return normal display.

## 6.2 Linear Holes Processing

There are two modes to carry out the linear drilling: Length mode and Step mode.

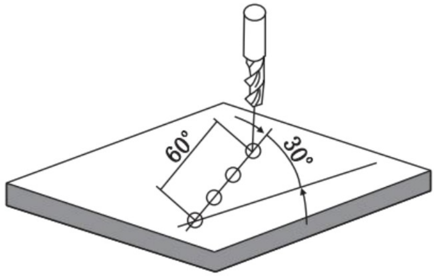
| | |
|---|---|
| 1.LINE S | Step mode |
| LINE L | Length mode |
| 2.STEP | Step length |
| LENGTH | Line length |
| 3. ANG | Angle |
| 4. NO.HOLE | Hole number |




Linear Holes function can simplify the processing multiple holes whose centers are attributed equally on one line.

Example：

| | |
|---|---|
| LINE_L | Length mode |
| LENGTH | 60.000 |
| ANG | 30.000 |
| NO.HOLE | 4 |




Steps :

1. Select plece.

Press , then the message window display “LINE_XY” to the Linear Holes Processing. Press ▲ or ▼ to select XY place.

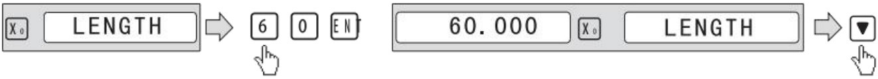

2. Select Linear Holes mode.

Press ENT , then the message window display “LINE_S” . Press ▲ or ▼ to select “LINE_L” .


3. Input linear length;

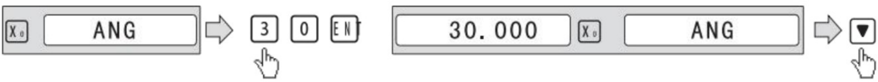
Press ENT , then the message window display “LENGTH” .

X window despalys the formerly preset the linear length. Press [6] [0] in turn to input the linear length.




4. Input angle;

Message window displays "ANG" which indicates the step is to angle. X window despalys the formerly preset the angle. Press [3] [0] in turn to input the angle.

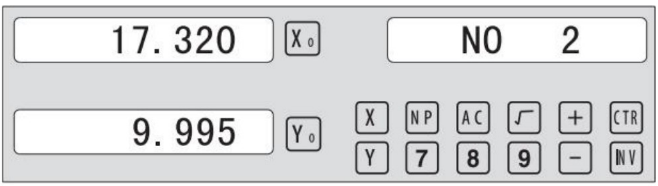



5. Input number;

Message window displays "ANG" which indicates the step is to angle. X window despalys the formerly preset the number. Press [4] in turn to input the number.


6. Press [▼] until "NO 1" appears in the message window.

It is the position of the first hole to punch where the "0.000" is displayed in X window and Y window by moving the machine table. After finishing the first hole, press [▲] or [▼] to change holes number.



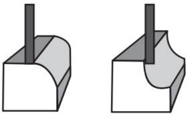

7. After processing all holes, press [ ] to return normal display.

## 6. 3 ARC-verwerking

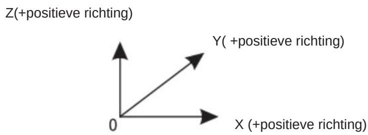
Voor de ARC-functie zijn TWEE functies beschikbaar: de eenvoudige ARC

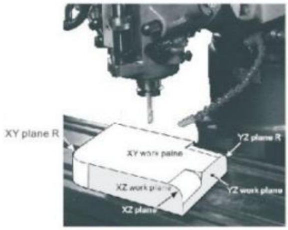
Functie en de soepele R-functie · druk op en vervolgens op om de ARC-functie te openen, pr css of voor het selecteren van een soepele ARC-functie of een eenvoudige ARC-functie.

Tijdens de installatie worden normaal gesproken de coördinaten van de machine en de richting van X, Y , Z zijn als volgt. Het werkvlak wordt weergegeven ALS de rechter figuur.



(RAD+TL) (RAD+TL )



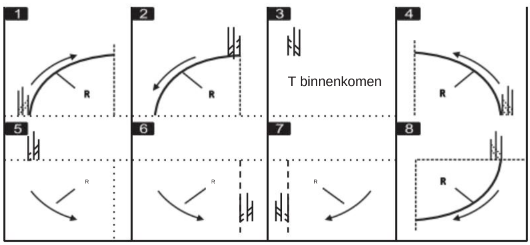




eenvoudige ARC-functie:

wanneer de gladheid niet hoog wordt gevraagd, de EENVOUDIGE BOOG functie wordt normaal gesproken gebruikt voor bewerkingsboog. In de SIMPLE-functie Er worden slechts acht soorten ARC gebruikt voor de machine. De operator hoeft alleen maar Selecteer het type R en voer de parameters van de straal van Arc in ,

MAX CUT en outer Qrc of inner arc. Over het algemeen kan een boog zijn bewerkt door een vlakke sleuf T ze in OOL Of arc TOOL, het verschil tussen verschillende werkvlakken zoals hieronder getoond ·

| | |
|---|---|
| 1 , EENVOUDIG | eenvoudige verwerking |
| 2 , TYPE 1 - 8 | Modus van de ARC. |
| 3、SEL_XY(XZ,YZ) | Selecteer plaats |
| 4 , RAD | Boogstraal |
| 5, TL HEM | Gereedschapsdiameter |
| 6ÿ MAXIMALE SNIJDING | Voerstap |
| 7, RADTL _ | buitenste boog en binnenste boog |
| | (alleen voor xy-plaats) |



Smooth ARC function :

Provides maximum flexibility in ARC machining, the ARC sector to be machined by the coordinates of ARC. Very flexible, ARC function can machine virtually all kinds of ARC, ever the intersected ARC. Relatively a bit complicated to operate, operator need to calculate and enter the coordinates of ARC centre, start angle and end angle.

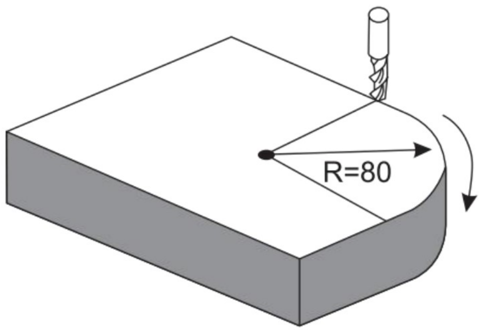
Basic parameter as follow:

1. SMOOTH Mode of the Smooth ARC processing;
2. SEL_XY(YZ, XZ) Select place;
3. CENTER Refer to the position of an center.
4. RAD Radius of the ARC
5. TL_DIA Diameter of the TOOL
6. MAX_CUT Feed step
7. ST_ANG Starting angle
8. ED_ANG Ending angle
9. RAD+TL Outer arc.
   RAD-TL Inner arc.

**Example 1 for the Simple ARC Processing:**

Parameters settings as follow:

| | |
|---|---|
| SIMPLE | Simple mode |
| TYPE | 3 |
| SEL_XY | XY |
| RAD | 80.000 |
| TL_DIA | 6.000 |
| MAX_CUT | 0.500 |
| RAD+TL | 1 |



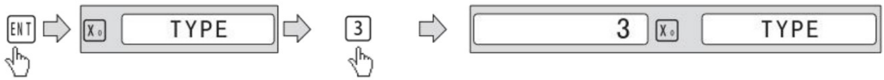

Steps:

1. Select process mode

Press , then the message window display "SIMPLE" to the ARC Processing. Press ▲ or ▼ to select mode of the simple, The message window display "SIMPLE"

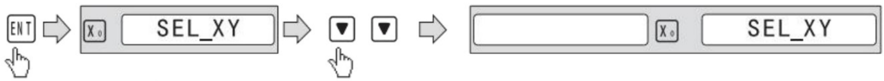

2. Input the type:

Press [ENT] until "TYPE" appears in the message window. X-window despalys the formerly preset the type. Press [3] in turn




3. Select place

Press [ENT] until "SEL_XY" appears in the message window. Press [▲] or [▼] to select place to display "SEL_XY" ;




4. Input radius:

Press [ENT] until "RAD" appears in the message window. X window despalys the formerly preset the radius of ARC. Press [8] [0] in turn to input the radius.;


5. Input Diameter of the TOOL

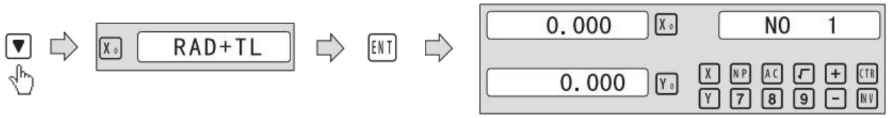
Press [▲] or [▼] until "TL DIA" appears in the message window. X window despalys the formerly preset the Diameter of the TOOL. Press [6] in turn to input the Diameter value;


6. Input Feed step (MAX_CUT);

Press [▲] or [▼] until "MAX_CUT" appears in the message window. X window despalys the formerly preset the MAX_CUT. Press [0] [·] [5] in turn to input the MAX_CUT value;

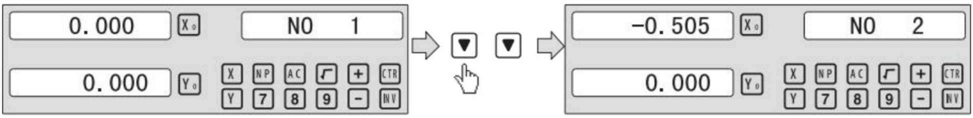
7. Select outer arc or inner arc

Press ▲ or ▼ until "RAD-TL" appears in the message window. Press ▲ or ▼ to select place to display "RAD+TL" ;




8. After inputting all parameters, press the key ENT for machining.

The DRO will display the position of the first point. Retract the axes until the displays read 0.000, Machine the Arc point by point in accordance with the display. After finishing the position of the first point, press ▲ or ▼ to change position point.

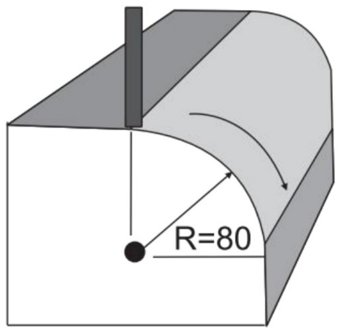



Press to quit R function any time.

**Example 2 for the Simple ARC Processing:**

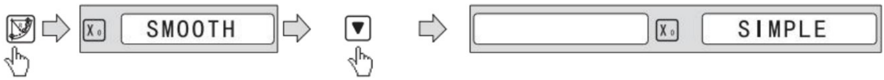
Parameters settings as follow:

| | |
|---|---|
| SIMPLE | Simple mode |
| TYPE | 3 |
| SEL_XY | XZ |
| RAD | 80.000 |
| TL_DIA | 6.000 |
| MAX_CUT | 0.500 |



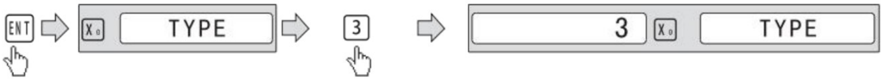

Steps:

1. Press , then the message window display "SIMPLE" to the ARC Processing. Press ▲ or ▼ to select mode of the simple, The message window display "SIMPLE"



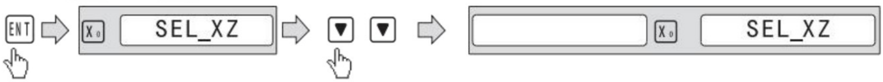

2. Input the type:

Press ENT until "TYPE" appears in the message window. X-window despalys the formerly preset the type. Press 3 in turn




3. Select place

Press ENT until "SEL_XZ" appears in the message window. Press ▲ or ▼ to select place to display "SEL_XZ" ;




4. Input radius:

Press ENT until "RAD" appears in the message window. X window despalys the formerly preset the radius of ARC. Press 8 0 in turn to input the radius.;


5. Input Diameter of the TOOL

Press ▲ or ▼ until "TL DIA" appears in the message window. X window despalys the formerly preset the Diameter of the TOOL. Press 6 in turn to input the Diameter value;


6. Input Feed step (MAX_CUT);

Press ▲ or ▼ until "MAX_CUT" appears in the message window. X window despalys the formerly preset the MAX_CUT. Press 0 · 5 in turn to input the MAX_CUT value;

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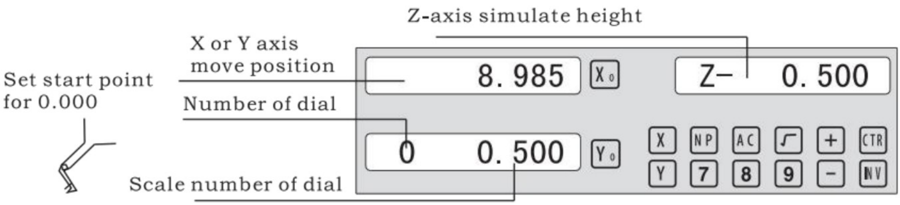
7. After inputting all parameters, press the key ENT for machining.

For 2-axis milling machine table , It is not installed with Z-axis, please press ▲ or ▼ to simulate position of Z-axis. Press ▲ simulate moving to the former process, and press ▼ simulate moving to the next process point.



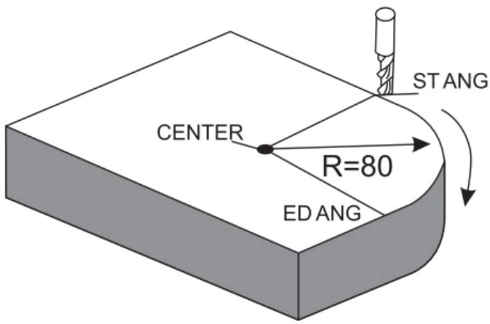

Z-axis simulate height = Number of dial x Z axis Dial + Scale number of dial

Press to quit R function any time.

**Example 3 for the Smooth ARC function**:

Parameters settings as follow:

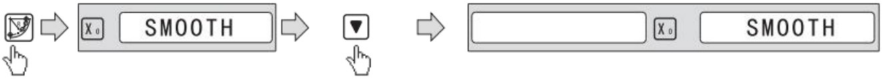
| | |
|---|---|
| SMOOTH | Smooth mode |
| SEL_XY(YZ,XZ) | XY |
| CENTER | X=0,Y=0 |
| RAD | 80.000 |
| TL_DIA | 6.000 |
| MAX_CUT | 0.500 |
| ST_ANG | 0.000 |
| ED_ANG | 135.000 |
| RAD+TL | 1 |




Steps:

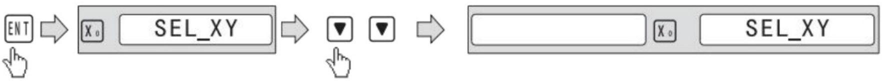
1. Press , then the message window display “SIMPLE” to the ARC Processing. Press ▲ or ▼ to select mode of the simple, The

message window display "SMOOTH"; For 3-axis milling machine table without this step. In second step. Then press [ENT].



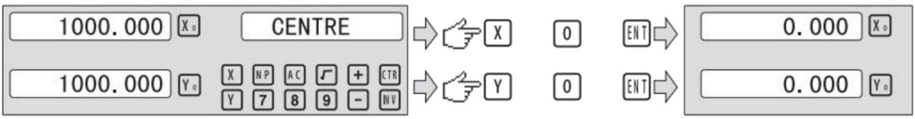

2. Select place

Message window display "SEL_XY" which indicates the select is to place. Press [▲] or [▼] to select place to display "SEL_XY";




3. Input center position.

Press [ENT], then the message window display "CENTER". X and Y window displays the formerly preset center position. Input X = 0, Y = 0 as follow.




4. Input radius:

Press [ENT] until "RAD" appears in the message window. X window despalys the formerly preset the radius of ARC. Press [8] [0] in turn to input the radius.;

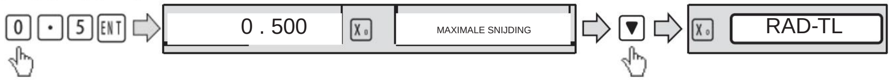

5. Input Diameter of the TOOL

Press [▲] or [▼] until "TL DIA" appears in the message window. X window despalys the formerly preset the Diameter of the TOOL. Press [6] in turn to input the Diameter value;

6. Invoerfeedstap (MAX_CUT);

pers ▲ of ▼ totdat UMAX CUT app auto's in het bericht

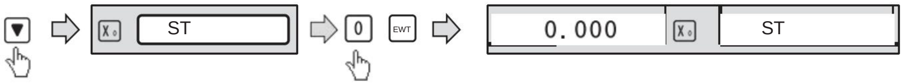
venster. X Venster de spa lys de voorheen vooraf ingestelde de MAX_CUT. druk op 0 · 5 om op zijn beurt de MAX CUT-waarde in te voeren;




7. Invoer starthoek ·

pers ▼ totdat "USTANG" in het berichtenvenster verschijnt.x window de spa lys de voorheen ingestelde beginhoek · Druk vervolgens op

0 op zijn beurt de beginhoek invoeren-




8. Invoer eindhoek ·

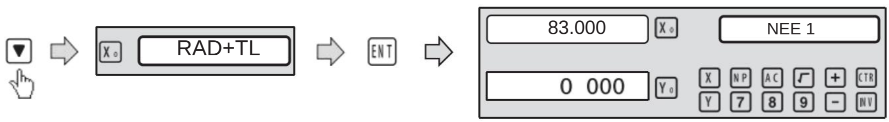
pers ▼ totdat UED ANG" in het berichtenvenster verschijnt. X

venster ispa lys de voorheen vooraf ingestelde eindhoek. Druk vervolgens op 1 3 5 op zijn beurt de eindhoek invoeren·


9. Selecteer buitenste boog of binnenste boog

druk ▲ of ▼ totdat "RAD-TL" in het bericht verschijnt

op venster.druk ▲ of ▼ om de plaats te selecteren waar "RAD+TL" moet worden weergegeven;




10. Nadat u alle parameters hebt ingevoerd, machining.

De DRO zal de positie van het eerste punt weergeven. Trek de assen totdat de displays 0.000 aangeven, Bewerk de boog punt voor punt in overeenstemming met de weergave. Na het voltooien van de positie van de eerste punt,druk ▲ of ▼ om het positiepunt te veranderen.


Press to quit ARC function any time.

## 6.4 schuine verwerking

Er zijn 2 manieren om de schuine positie te bewerken:

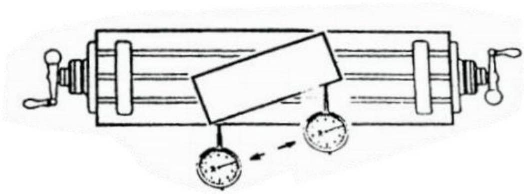
A) op de plaats. b) op de plaats yz, of Xz;

Alleen de volgende parameters hoeven te worden ingevoerd:

| | |
|---|---|
| INCL Xy(xz,yz) | stel machine plaats xy,yz,0rxz plaats · |
| DE | De hellingshoek van de schuine |
| DAAR | De GEREEDSCHAPSdiameter · |
| ST POT | Startpositie; |
| ED KAN | Eindeposting; |

### Voorbeeld 1 voor de schuine xy-plaats:

wanneer het bewerkingsvlak zich op vlak xy bevindt, zoals het weergegeven onderdeel Figuur, de schuine hoek van het werkstuk moet worden gekalibreerd voordat het schuine vlak wordt bewerkt. Daarom , op dit punt de bewerking van schuine vlakken speelt de rol van het kalibreren van de schuinte ·



procedure voor het kalibreren van de schuinte

Plaats eerst het werkstuk op de werktafel in de gewenste hoek van scheefstand ·

1) Voer de functie van het schuine vlak in.

2) Selecteer de functie van het vlak XY.

3) Voer de hellingshoek in

4) Verplaats de werktafel totdat het meetinstrument (zoals een meetklok) geïnstalleerd op de freesmachine raakt het schuinte-kalibratievlak aan, stel het in op nul en verplaats de werktafel over een willekeurige afstand in de richting van de x-as.

5) Beweeg de werktafel in de afstand van de y-as totdat het display verandert naar nul.

6) Change the angle of the work piece to make the workpiece touch the measuring tool and adjust it to zero.

STEPS:

1. Select place

Press SN/M1, then the message window display "INCL_XY" to the Oblique Processing. Press ▲ or ▼ to select place to display "SEL_XY;

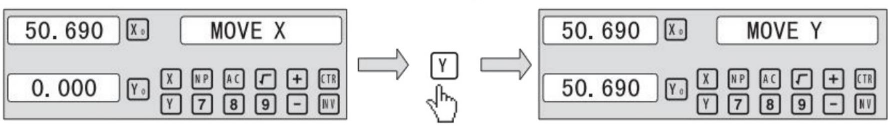
Then press ENT to in next step;


2. Input the angle of obliquity

The message window display "ANG", X window dispalys the formerly preset the angle of obliquity. Press 4 5 in turn to input the angle of obliquity .


3. Move the workpiece along the X-Axis until the measuring tool touches the workpiece adjust it to zero, and move the worktable for any distance along the X-Axis.


4. Press Y, display the value of Y-Axis. Move the workpiece along the Y-Axis, change the angle of workpiece to make the obliquity-calibrating plane touch the measuring tool until it turns to zero. Move the worktable until Y-Axis is displayed as zero.




5. Press SN/M1 to quit oblique function any time.

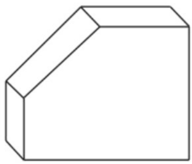
**Example 2 for the oblique XZ or YZ place**:

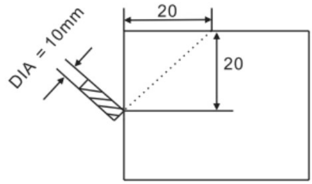
When the machining plane is on plane XZ or YZ, the function of TOOL inclination can instruct the operator to machine the oblique plane step by step.

Procedures for using the function of cutter inclination:

When the machining plane is on plane XZ or YZ, first please calibrate the obliquity of the primary spindle nose and set the TOOL:

| | |
|---|---|
| INCL_XY(XZ,YZ) | INCL_XZ |
| DIA | 10.000 |
| ST_POT | 20.000 |
| ED_POT | 20.000 |






STEPS:

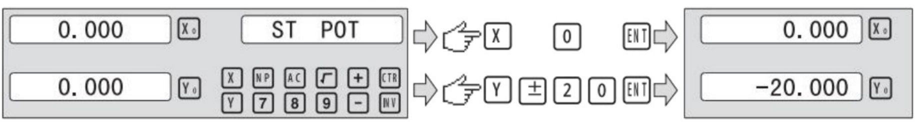
1. Press SN/M1, then the message window display "INCL_XY" to the oblique Processing. Press ▲ or ▼ to select place to display "SEL_XZ; Then press ENT to in next step;


2. Input The TOOL Diameter

The message window display "DIA" , X window dispalys the formerly preset the angle of obliquity. Press 1 0 in turn to input the TOOL Diameter of obliquity . OK, then press ▼ to in next step;

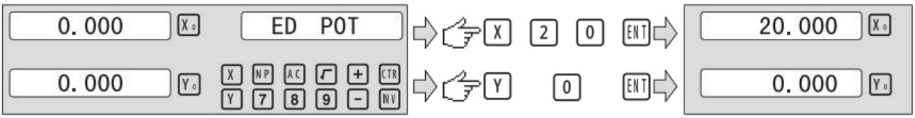

3. Input ST_POT;

The message window display "ST_POT" , X and Y window dispalys the formerly preset the stating position of obliquity. Input X= 0, Y = -20.000. OK, then press ▼ to in next step;



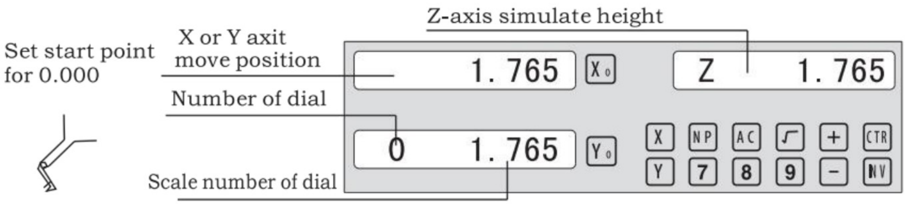
4. Input ED_POT;

The message window display "ED_POT" , X and Y window dispalys the formerly preset the stating position of obliquity. Input X= 20.000, Y = 0.000 .




5. After input all parameter, press the key ▼ for machining.

For 2-axis milling machine table , It is not installed with Z-axis, please press ▲ or ▼ to simulate position of Z-axis. Press ▲ simulate moving to the former process, and press ▼ simulate moving to the next process point.




Z-axis simulate height = Number of dial x Z axis Dial + Scale number of dial

Press SN/N1 to quit **oblique** function any time.

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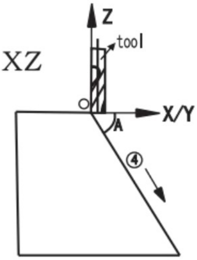
## 6.5 Slope Processing

This function can calculate the position of everynprocessing point automatically in processing slope. Only the following parameters need to be inputted:




| | |
|---|---|
| XZ, YZ | Set machine place YZ, or XZ |
| ANG | The inclination angle |
| Z_STEP | The slope length each time processing |

**Example 1 for the Slope XZ place**;

Step 1. Select place

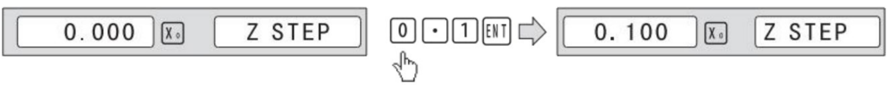
Press [TAN/M3] , then the message window display "XZ" to the slope Processing. Press [▲] or [▼] to select place to display "SEL_XY; Then press [ENT] to in next step;


Step 2. Input the angle of slope

The message window display "ANG" , X window dispalys the formerly preset the angle of slope. Press [4] [5] in turn.


Step 3. Input Z_step;

The message window display "Z STEP" , X window dispalys the formerly preset the stating position of slope. Input [0] [·] [1] in turn.

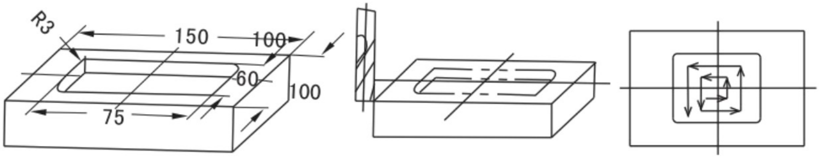



Step 4:Finishing the ALL processing . Press [TAN/M3] to quit slope function any time.

## 6.6 Chambering Processing

1,FLAT_XY: machine place; 2, DIA:diameter of TOOL; 3, CENTER: center of the chambering ; 4, SIZE: size of the chambering ;

Figure as follow:

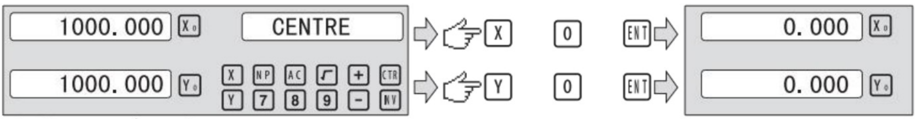



STEPS:

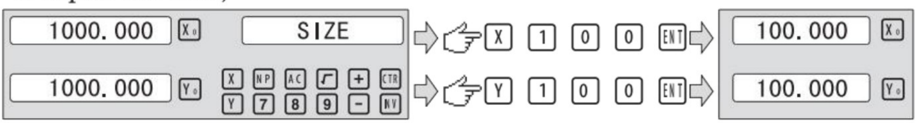
1. Press ▢, then the message window display "FLAT_XY" to the Chambering Processing.


2. Inpur DIA of the TOOL;


3. Input the center coordinate;




4. Input the size;




5. process Chambering;

Move the machine until the display of the axis is zero,ie, the position of the first point. Machine the first point . Display the next machining point by pressing ▲ or ▼ .On the completion of machining, the right window shows OVER. Press ▲ or ▼ , the system will goto the first position for the next workpiece. Press ▢ to quit the Chambering Function.

## 6.7 The Tool Diameter Compensation Function

Without TOOL compensation, the operator has to move the TOOL for an additional distance of the diameter of the TOOL along each side when machining the four 150 and 100 sides of a workpiece to finish machining the whole brim. The digital readouts shall automatically compensate when the TOOL compensation function is enable.

Note: the TOOL compensation is made in the direction of X and Yaxis.

Procedures:

1) . Enter the function of compensating the diameter of the TOOL.
2) . Select one of the (four) preset machining modes.
3). Input the diameter of the TOOL.
4) . Enter machining.

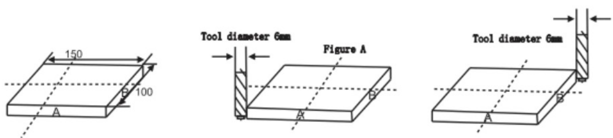
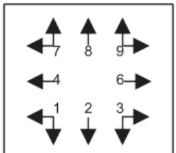



Figure A Figure B Figure C

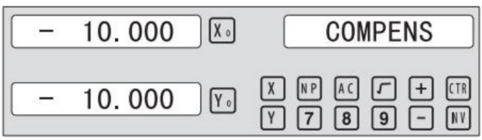



9 processing modes

Step1: press [TAN/M3] to enter the TOOL compensation Function. then the message window display "TYPE" .Press [9] .


Step 2: input the diameter of the TOOL; Press [1] [0] in turn..


Step 3: Press [▼] to the machining Mode.




Machining of 2 side planes can be done by moving the TOOL until X-Axis is 150.000 and Y-Axis is 100.000.Press the Key [TAN/M3] to quit the Function.

## 6.8 Digital Filter of the Grinding Machine

When machine a work-piece by grinder, the display values quickly due to the vibration of grinder. User can not see display value clearly. Grinder DRO provides display value filter function to disable the quake change of display value.

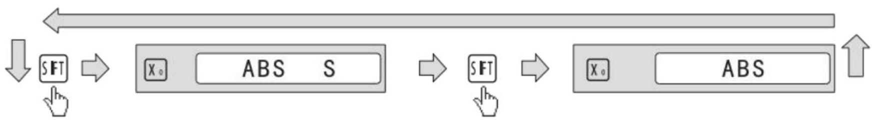
STEPS:

1. Enter display value filter function.

In normal display state, press SIFT to simultaneously, enter display value filter function.

2. Exit display value filter function;

Press SIFT , exit display value filter function;



## 6. 9 De functie

### 6.9.1 200 sets TOOL-bibliotheken

Er is altijd een ander GEREEDSCHAP nodig bij het verwerken van verschillende onderdelen · Voor gemakkelijke bediening, de La de digitale uitlezingen hebben de functie van 200 sets TOOL-bibliotheken ·

Let op: alleen als de la is uitgerust met het gereedschapsinstelblok kunnen de 200 sets TOOL , Libs worden gebruikt.

1. stel een datum TOOL in. Na het instellen van het gereedschap, nul x-as en Z-as, de stel nulpunt van absolute coördinaat in ·

2. Bepaal de grootte van TOOL l en datumTOOL, positie van TOOL relatief tot nul van absolute coördinaten en datum tool · AS Afbeelding 6-1. De relatieve grootte van TOOL 2 is AS volgt x-as 25-30=- 5 , Z-as 20-10=10 ·

3. Sla het TOOL-nummer en de grootte op in de digitale uitlezing ·

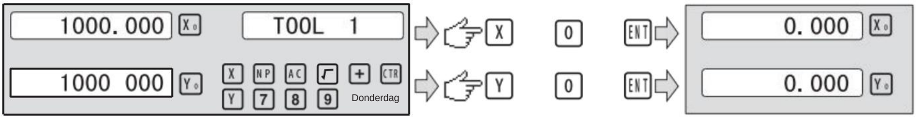
4. Het aantal TOOLS kan willekeurig worden ingevoerd, de digitale uitlezingen zal de positie van het gereedschap weergeven op absolute coördinaat nul · Verplaats de totdat de X-as en de Z-as beide nul · 5 weergeven. TOOL Libs kunnen de 200 sets met gegevens van gereedschappen opslaan.

6. De TOOL Libs moeten in de openingsstatus worden gebruikt. De 200 sets rooi Libs kan worden geopend door continu op te drukken ± tien keer totdat het rechtervenster TL - OPEN knippert en er een teken "21" wordt weergegeven links van het rechter informatievenster. De Mark geeft de operator CAn de 200 sets TOOL Lib s. continu instellen of herzien door op de toets te ± tien keer zal ervoor zorgen dat de 200 sets TOOL Libs worden drukken, sluit het rechterraam en knippert TL - CLOSE en het merkteken verdwijnen · wanneer het merkteken "21" verdwijnt, kunnen de 200 sets TOOL Libs niet herzien worden·

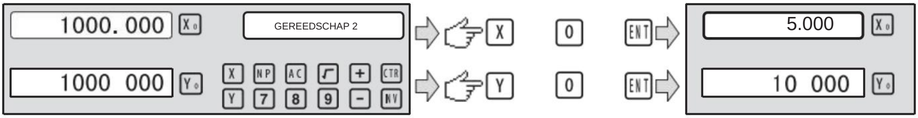
De bewerkingen voor TOOL-gegevens en het aanroepen van TOOL worden ALS volgt weergegeven: stap 1: Voer in de ABS-status de gegevens van de 200 sets TOOL-bibliotheken in.

het openen van de 200 sets TOOL Libs door continu op de toets te drukken ± tien keer A. Mark "" zal verschijnen Oor bij het linker raam van de rechter infovenster.

stap 2: druk op TOOL om TOEGANG te krijgen tot de invoerstatus. Input rooi 1 data:




stap 3: invoer TOOL 2-gegevens:




stap 4: druk op om door te gaan met het invoeren van de gegevens van het volgende gereedschap. DOOR op te drukken

nummer en de sleutelÿ de,operator kan direct de speciale invoer invoeren

gereedschapsgegevens. druk op TOOL raakt

Nadat de TOOL-bibliotheken zijn ingesteld, gebruikt u de TOOL-bibliotheken volgens de volgende handelingen monteer eerst het tweede gereedschap ·

stap 5: Toegang krijgen tot de gebruiksstatus via pr css CALL .Dan pr css 2 EN T ·


stap G: druk op ▲ of ▼ · Selecteer de basisrol. Druk vervolgens op 1 EN T .


;

stap 7: druk op CALL de functie verlaten;

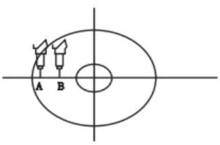
Opmerking:

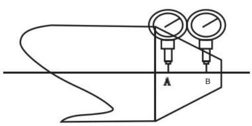
wanneer het basisgereedschap wordt gebruikt , de as kan niet op nul worden gezet in ABS-status ·

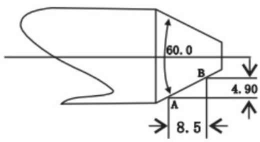
wanneer de anderen worden gebruikt , de as kan alleen op nul worden gezet in de INC-status ·

6 . 9 . 2 Taperfunctie

Voor het draaien van het werkstuk met conus kan de conus van het werkstuk gemeten worden in de verwerking;



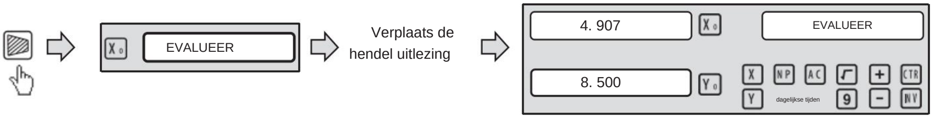



Operations :

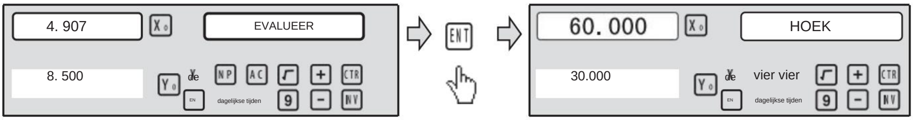
AS-figuur, contactvlak A van werkstuk met hendeluitlezingen en
reset het hendeluitlezingspunt naar nul ·

stap 1: druk op het berichtvenster en geef vervolgens "UMEASU" weer
papierverwerking · Beweeg de hendeluitlezing naar het oppervlak B Totdat de

hendeluitlezingen punt AS volgen;




stap 2: druk op om te berekenen.




stap 3: druk op de functie verlaten;

## 6 . 9 . 3 R/D-functie

Voor 2-assige draaibank en 3-assige draaibank, druk , De weergavemodus
ofx-as wordt omgeschakeld tussen Radius en Diameter. Wanneer de x-as voor
weergave van Diameter, Een merk u " zal verschijnen aan de linkerkant van de rechterkant
informatievenster, maar wanneer X-as voor weergave van ia meter , het merkteken
" " verdwijnen · alleen de x-as heeft de functie van de diameter/straal
transformation.

## 6 . 9 . 4 Y + Z-functie (alleen van toepassing op: 3 assen La)

Voor 3 assen La de, de teller van y-as en de teller van z-as
Kan worden toegevoegd aan de weergave in de Z-as door op de toets te drukken ,
druk dan op de toets CAn om de y + Z-functie te annuleren ·

6.10 EDM (speciale aanpassingsfunctie, als u deze moet kopen, neem dan contact met ons op)
Neem contact op met de dealer om het aan te passen)

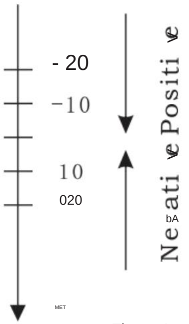
1 ÿ Beschrijving: Deze functie wordt gebruikt voor de speciale bewerking van Elektro-ontladingsbewerking (EDM). Wanneer de ingestelde streefwaarde van EDM Z-as is gelijk aan de huidige waarde, de digitale uitlezing zal de schakelsignaal om EDM te besturen en de dieptebewerking te stoppen.

De instelling van de Z-asrichting van de digitale uitlezing wordt weergegeven in figuur 1. , dwz Hoe dieper de diepte is, hoe groter de coördinaatwaarde van de Z-as displays · sinds het begin van de bewerking zal de diepte geleidelijk dieper worden en Z-as.

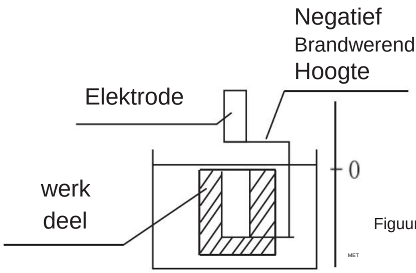
De bewerkingsrichting is afhankelijk van de ingestelde Z-asrichting verdeeld in positieve en negatieve bewerking · wanneer de elektrode daalt en de bewerking wordt van boven naar beneden uitgevoerd, de digitale De uitleeswaarde zal toenemen, dit wordt positieve bewerking (positief) genoemd. De instelling van deze richting is de normale instelling·

wanneer de elektrode ASCEnds en de bewerking wordt uitgevoerd van beneden naar boven zal de digitale uitleeswaarde afnemen · De bewerkingsrichting is negatieve richting (negatief), wat ook wel wordt genoemd negatieve bewerking (weergegeven als figuur 1)

De digitale uitlezing heeft ook andere functies , zoals negatief brandwerende hoogte. Negatieve brandwerende hoogtefunctie is een soort intelligente positie volg controle veiligheidsbeschermingsapparaat. In het proces van de bewerking zal het elektrodeoppervlak de koolstof genereren accumulatie fenomeen. Vanwege de lange tijd of dagelijkse bewerking zonder te zorgen, bij het genereren van de koolstofaccumulatie en niemand maakt de reiniging, de elektrode zal langzaam toenemen langs de negatieve richting · zodra de elektrode het vloeistofniveau overschrijdt, zal deze vaak vlam vatten en verliezen veroorzaken. Deze functie is alleen ingesteld om te richten bij dit probleem. bij het instellen van een negatieve brandwerende hoogte, en de de verhoogde hoogte van de elektrode overschrijdt de hoogte tussen de elektrode en de diepte van het bewerkte oppervlak (d.w.z. negatieve brandwerende hoogte), de digitale het uitleesscherm knippert voor WQring; tegelijkertijd zal de uitvoer signaal schakelt automatisch EDM uit om de kans op brand te elimineren ·




Figuur 1




Figuur 2

2. Werkwijze:

zie het volgende voorbeeld voor gedetailleerde bewerking

1) Stel voor het bewerken eerst elke parameter van DIEPTE in (bewerkingsdiepte); ERRHIGH (negatieve brandwerende hoogte), bewerking richting (POSITIEF / NEGATIEF); uitgangsmodus (AUTO/STOP) en EDM-relaisuitgangsmodus · 2)

Verplaats de hoofdaselektrode van de Z-as zodat deze contact maakt met de werkstukreferentie · A-as op nul zetten of waarde instellen ·

3) Voer EDM-bewerking in door de toets pr css te gebruiken EDM .

4) De X-as geeft de doelwaarde voor de bewerkingsdiepte weer. De Y-as geeft de doelwaarde voor de bewerkingsdiepte weer. De weergavewaarde moet diepte zijn. (De waarde op de Y-as is de waarde dat het werkstuk is bewerkt diepte) Z-as zal weergave van de realtimewaarde van de zelfpositie. (De waarde op de Z-as is de positiewaarde van de hoofdaselektrode van de z-as.)

5) begin met bewerken, de weergavewaarde van de Z-as komt geleidelijk dichter bij de doelwaarde, de weergavewaarde van de y-as komt ook geleidelijk dichter bij de streefwaarde. Als de elektrode op dit moment herhaaldelijk omhoog en omlaag gaat, verandert de Z-asweergavewaarde vervolgens, maar de y-asweergave verandert waarde zal niet veranderen, die altijd de bewerkte diepte zal weergeven value.

6) wanneer de weergavewaarde van de Z-as gelijk is aan de ingestelde doelwaarde, De schakelaar voor het bereiken van de positie wordt uitgeschakeld, EDM stopt met bewerken, Afhankelijk van de instellingen van de operator zijn er twee soorten exit-modi:

a) Automatic Mode:

it will automatically exit from EDM machining status and recover to the original state before machining;

b) Stop Mode:

It will always stay at the machining interface after finishing machining, and you should press [EDM] to exit and back to the original state.

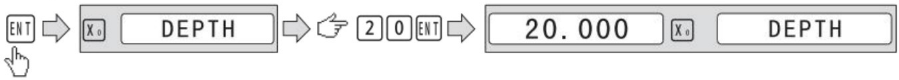
**Operation steps:**

**The DEPTH (machining Depth), ERRHIGH (Negative fireproof height), exit Mode, EDM Relay Output Mode and machining direction should be set.**

STEPS:

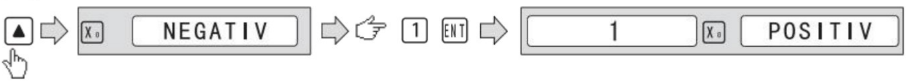
1. Press [EDM] to enter the EDM Function. Press [▲] to input parameters;Press [▼] to enter EDM machining state.

2. Input DEPTH ( machining depth). Press the key [▲] to set the next parameter.




3. input ERRHIGH ( Negative Fireproof Height ) (undefine) .Press the key [▲] to set the next parameter.


4. Set machining direction(Positive or Negative). Press [1] to select Positive direction. Press [0] to select Negative direction. Press the key [▲] to set the next parameter.



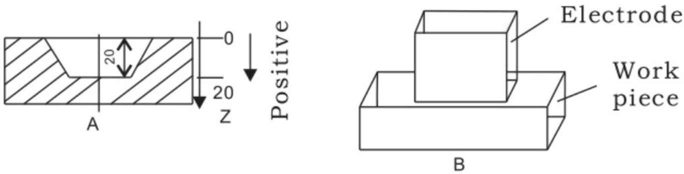
5. Set exit Mode (AUTO Mode or STOP Mode) Press 0 to select AUTO Mode; Press 1 to select STOP Mode ; Press the key ▲ to set the next parameter.


6. Set the Output Mode (Mode 0 or Mode 1); ( undefine ). Press 0 to select Mode 0; Press 1 to select Mode 1.


7. Continuously press ▼ to return EDM for machining. press EDM to quit the function;

**Example 1: positive direction machining ;**

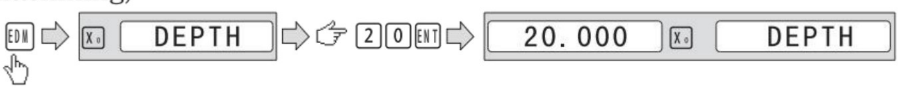
Machining is shown as the model chamber as follows



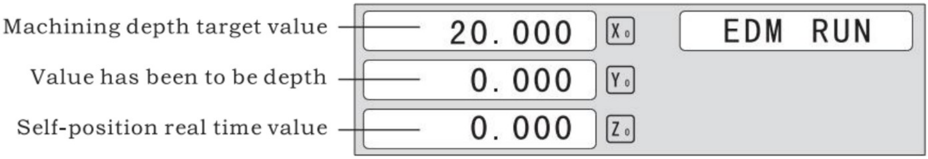

STEPS:

1、Touch one side of the workpiece with the TOOL,then press Z0 , zero the Z axis。


2、Press EDM , Setting DEPTH for 20.000; press ▼ to EDM for machining;

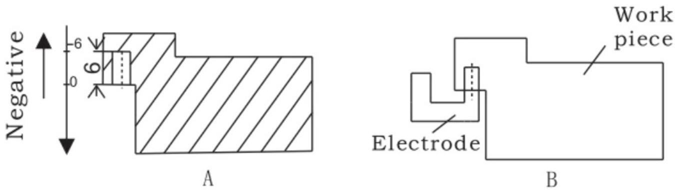



3、Starting machining。




**Example 2: Negative direction machining**

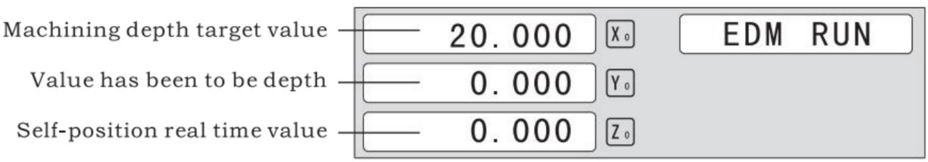
Machining is shown as the model chamber as follows




1、Touch one side of the workpiece with the TOOL,then press Z0 , zero the Z axis。


2、Press EDM, Setting DEPTH for -20.000; press ▼ to EDM for machining;


3、Starting machining。




**Example 3:** PCD Function for EDM

PCD Function can access the EDM Function . The operator enters PCD Function to input parameters for PCD and enter PCD machining state. At every position for machining, press the key EDM to access the EDM Function .

Bij het invoeren van de EDM-functie kan de operator de parameters invoeren voor EDM ·

De bedieningsprocedure is als volgt:

1) PCD-parameters instellen (de instelling is hetzelfde als de algemene instelling) van PCD)

Nadat u alle parameters hebt ingevoerd en de PCD-bewerkingsstatus hebt ingevoerd · De De positie van het eerste gat wordt weergegeven.

2) druk op 

om de EDM-functieparameter in te voeren (de instellingsmethoden zijn dezelfde manier als de algemene instelling van EDM Parameter); na invoer van alle

parameters, continu indrukken wanneer de  om de EDM-bewerkingsstatus in te bewerking is voltooid, druk op enter PCD- 

voeren. om de EDM-functie te verlaten en bewerkingsstatus ·

3) Druk in de PCD-bewerkingsstatus op  voor de positie van het volgende gat, OVE de machine naar de displaywaarde 0 , dan pr css 

toegang krijgen

EDM-functie opnieuw · 4)

Herhaal stap 2 en stap 3 voor de volgende bewerkingspunten.

## 7 rekenmachine

De rekenmachine biedt niet alleen normale wiskundige berekeningen zoals +, - , x , /, het biedt ook trigonometrie op metrische berekeningen zoals AS ZONDE , Boog ZONDE , COS , Boog COS , BRUINEN , Boog TAN SQRT enz.

De bediening is hetzelfde als bij commerciële rekenmachines: eenvoudig te gebruiken.

### Functie rekenmachine invoeren en verlaten

in normale weergavestand: druk op R om de rekenmachinefunctie te openen.

in de weergavestand van de rekenmachine: druk op R om de rekenmachinefunctie te verlaten.

Overdracht van de rekenmachineResultaten van geselecteerde zx is.

Nadat de berekening is voltooid, als de weergavemodus van de rekenmachine is ingesteld op modus 1 , gebruiker kan:

druk op X0 om het berekende resultaat naar de x-as over te brengen; dan de x het venster zal deze waarde weergeven;

pers Y0 om het berekende resultaat speelgoedas over te brengen; dan venster zal deze waarde weergeven;

druk op Z0 om het berekende resultaat over te brengen naar de z-as; dan de z het venster zal deze waarde weergeven;

### De huidige weergegeven waarde in het venster overbrengen naar de rekenmachine.

als de rekenmachine de weergavemodus voor modus 1 heeft ingesteld , gebruiker kan:

pers X om de weergegeven waarde in het x-venster over te brengen naar de rekenmachine;

pers Y om de weergegeven waarde in het Y-venster over te brengen om r te berekenen;

pers Z om de weergegeven waarde in het z-venster over te brengen naar de rekenmachine;

# 8 Appendix

## 1. Troubleshooting:

The following are the preliminary solvents for troubleshooting.

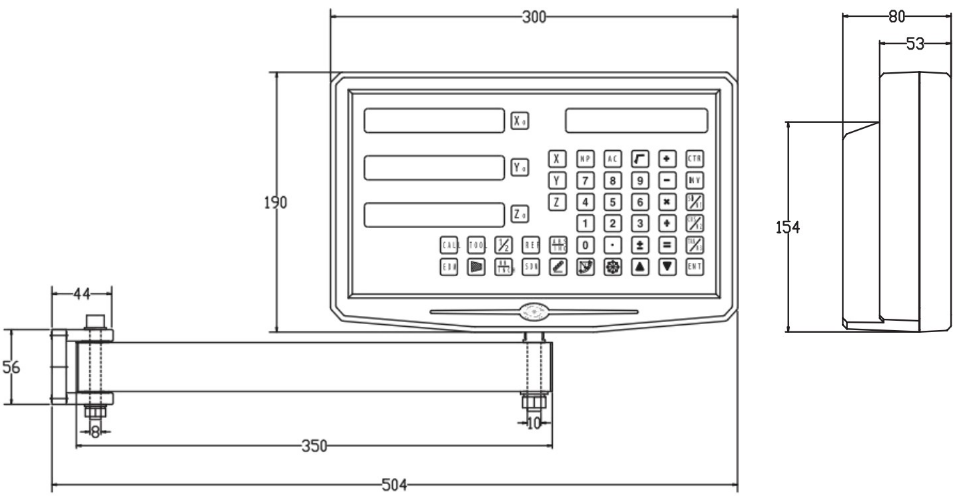
If there is still trouble, Please contact out company or agents for help.

| Troubles | Possible reasons | Solvents |
|---|---|---|
| No display | 1. Power isn't connected<br>2. Power switch is off.<br>3. The range of power voltage is not right.<br>4. The inner power of Linear Scale is short. | 1. Check power wire and connect the power<br>2. Turn on the power switch.<br>3. The range of voltage is in 80--260V<br>4. Unplug the connector of linear scale |
| One axis is not counting | 1. Replace the linear scale of the other axis.<br>2. DRO is in special function | 1. If count is normal, the linear scale has trouble; If abnormal, the DRO readouts has trouble.<br>2. Quit the special function. |
| Linear scale is not counting | 1. Reading head is bad for using range exceeds.<br>2. Aluminum chips is in reading head of linear scale.<br>3. The span between the reading head and metal part of linear scale is large.<br>4. The metal parts of linear scale is damage. | 1.Repair the linear scale<br>2. Repair the linear scale<br>3. Repair the linear scale<br>4. Repair the linear scale |
| Counting is error | 1. Shell is poor grounding.<br>2. Low precision of machine.<br>3. Speed of machine is too rapid.<br>4. Precision of linear scale is low.<br>5. The resolution of DRO readouts and the linear scale is not match.<br>6. The unit (mm/inch) is not match.<br>7. Setting thelinear compensating is not arrest.<br>8. Reading head of the linear scale is damaged. | 1. Shell is good grounding.<br>2. Repair the machine.<br>3. Reduce the speed of machine.<br>4. Mount the linear scale again.<br>5. Set the resolution of the DRO again,<br>6. Cover the unit of display mm/inch.<br>7. Reset the linear compensation.<br>8. Repair the linear scale. |
| The counting of the linear scale is not accurate | 1. The mounting of linear scale does not demand the requirement, and the prcision is not adequate.<br>2. The screw is loosen.<br>3. Precision of machine is low.<br>4. The resolution of digital readouts and the linear scale is not match. | 1. Mount the linear scale again and level it.<br>2. Lock all fixing screws.<br>3. Repair the machine.<br>4. Reset the resolution of digital readouts. |
| Sometimes the linear scale is not counting | 1. The small car and steel ball is separated.<br>2. The glass of reading head is wearied.<br>3. The glass of reading head of the linear scale has dirt.<br>4. The elasticity of the steel wire is not adequate. | 1. Repair the linear scale.<br>2. Repair the linear scale.<br>3. Repair the linear scale.<br>4. Repair the linear scale. |

2. Specifications of Digital Readout.

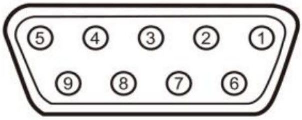
1) Supply Voltage range: AC 85 V ~ 230 V; 50 ~ 60 Hz
2) Power consumption: 15VA
3) Operating temperature: 0℃-- 50℃
4) Storage temperature: - 30℃-- 70℃
5) Relative humidity: < 90 % ( 25 )
6) Max Coordinate number: 3
7) Readout allowable input signal: TTL square wave
8) Allowable input signal frequency: < 5 M Hz
9) Max resolution of digital display length: 0.01 um
10) Max resolution of digital display angle: 0.0001 / PULSE

3. Instructions



# 4. Examples of character output at the data interface

## 1、X,Y,Z Axis

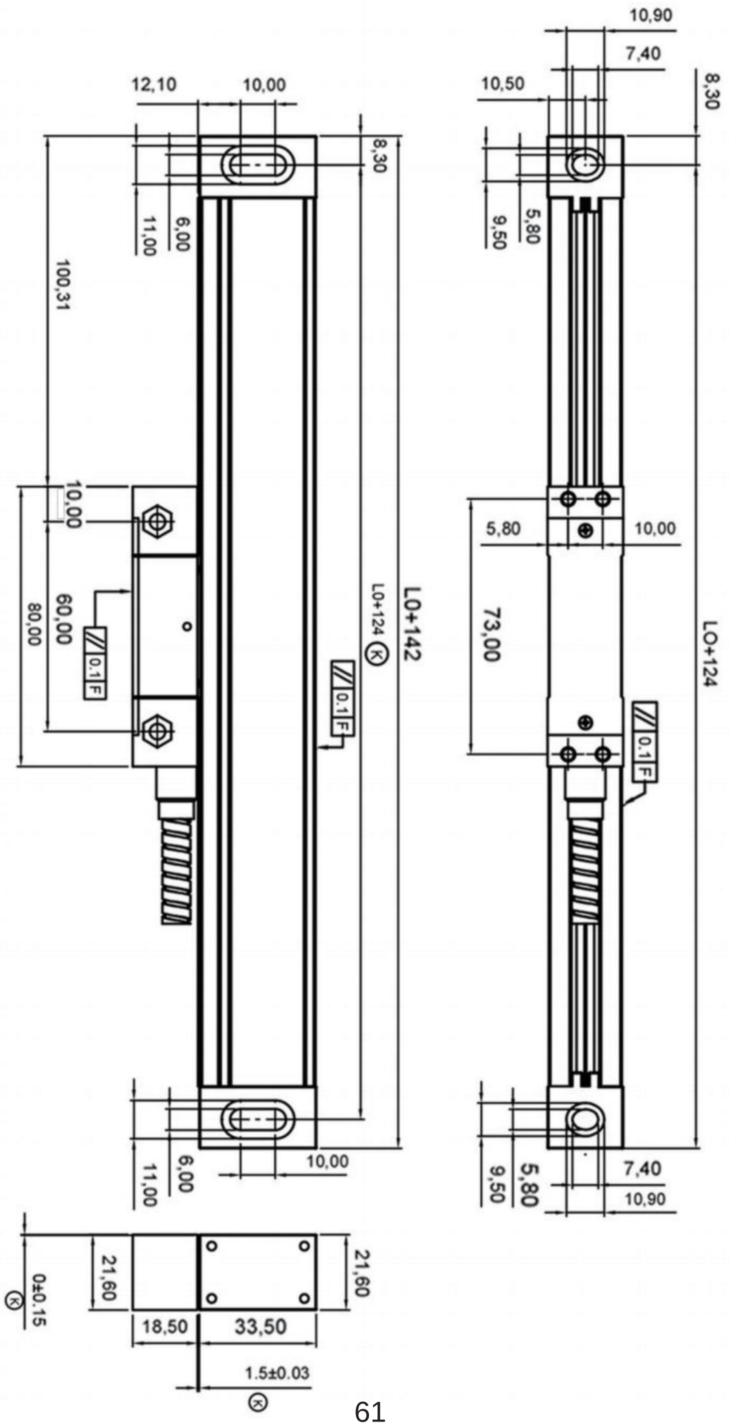


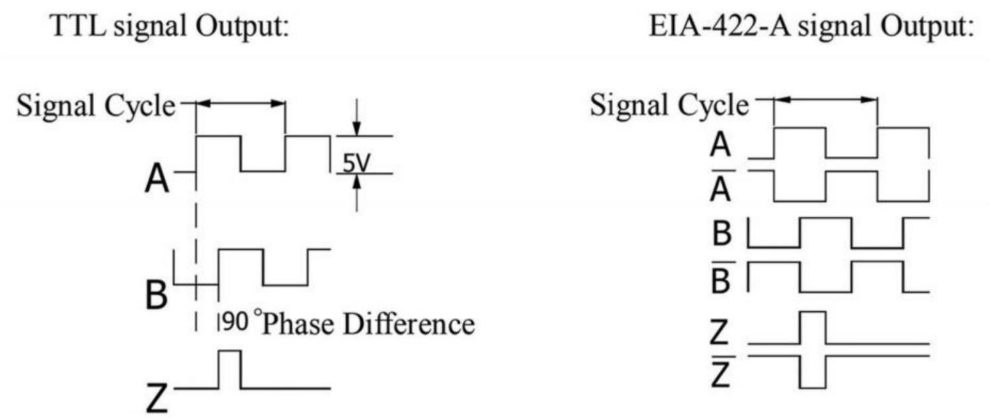

| Pin | TTL (Standard) |
|---|---|
| 1 | |
| 2 | OV |
| 3 | |
| 4 | |
| 5 | |
| 6 | A+ |
| 7 | 5V |
| 8 | B+ |
| 9 | R+ |

| Pin | TTL (Standard) |
|---|---|
| 1 | 5V |
| 2 | OV |
| 3 | A+ |
| 4 | B+ |
| 5 | R+ |
| 6 | |
| 7 | |
| 8 | |
| 9 | |

For your convenience,
If you buy a digital readout,

The wiring definition of your linear scale must be the same as the 2 definitions in the above diagram to be universal!


10,90
7,40
12,10
10,00
10,50
8,30
8,30
11,00
6,00
9,50
5,80
100,31
10,00
5,80
10,00
80,00
60,00
0.1 F
L0+124 K
L0+142
0.1 F
73,00
LO+124
0.1 F
11,00
6,00
10,00
9,50
5,80
7,40
10,90
0±0.15
K
21,60
18,50
33,50
21,60
1.5±0.03
K




1. TECHNICAL PARAMETER

1.1 SCALING DISTANCE: 0.02 MM (50LINES /MM)

1.2 RESOLUTION: 5μM、1μM、0.5μM

1.3 PRECISION: ±3μM、±5μM、±15μM/M (20±0.1℃)

1.4 MEASURING RANGE: 30~3000MM

1.5 MOVING SPEED: HIGH-SPEED ENCODER 120 M/MIN (TO BE CUSTOMIZED)

ORDINARY ENCODER 60M/MIN

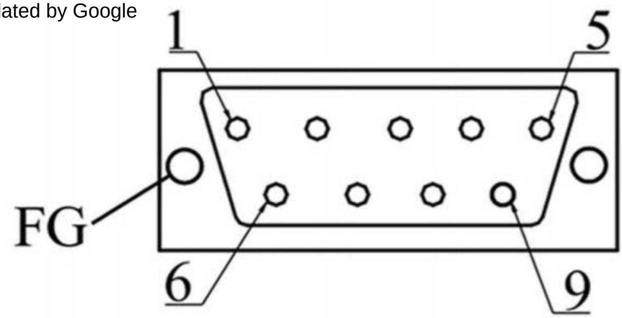
1.6 POWER SUPPLY: +5V±5%、80MA

1.7 CABLE LENGTH: STANDARD 3M (SPECIAL LENGTH AVAILABLE ACCORDING TO THE USER'S NEEDS)⊠

1.8 WORKING TEMPERATURE: 0~45℃

1.9 PIN DESCRIPTION:

1) APPLICABLE TO: 9 PIN SOCKET EIA-422-A SIGNAL OUTPUT.




1) Applicable to: 9 pin socket EIA-422-A signal Output.

| Pin Position | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| Signal | $\overline{A}$ | OV | $\overline{B}$ | Empty | $\overline{Z}$ | $A$ | +5V | $B$ | $Z$ |
| Color | Green Black | Black | Orange black | FG | White black | Green | Red | White | Orange |

FG: Shield connected to metal casing.

1) Applicable to: 9 pin socket TTL signal Output.

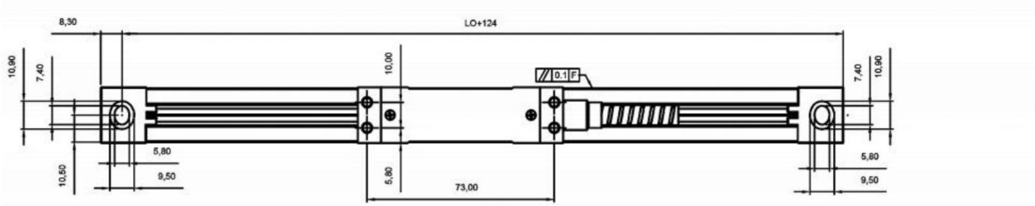
| Pin Position | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| Signal | | OV | | Empty | | $A$ | +5V | $B$ | $Z$ |
| Color | | Black | | FG | | Green | Red | Orange | White |

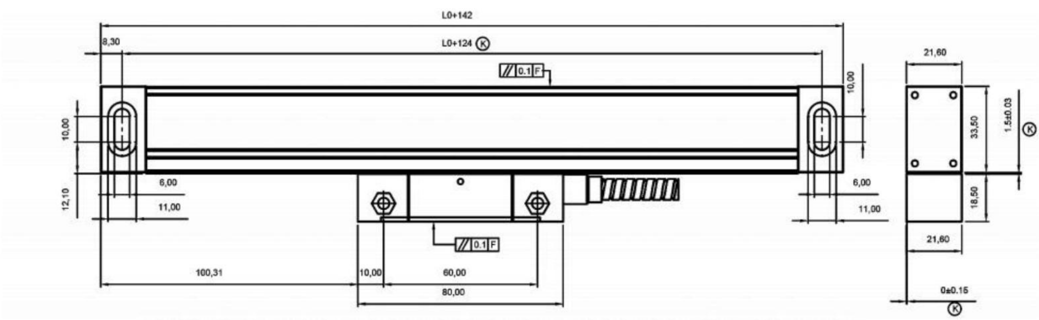
FG: Shield connected to metal casing.

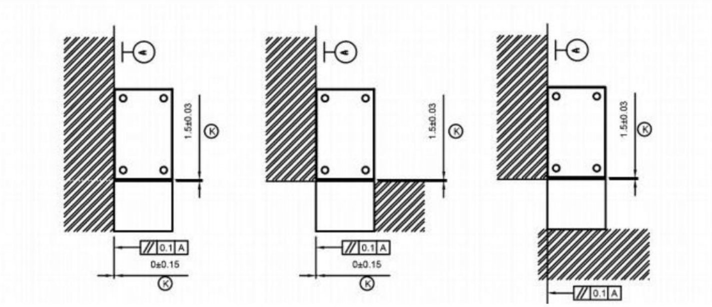
# Lineaire schaal

Installatietekeningen

# Installatiemethode:



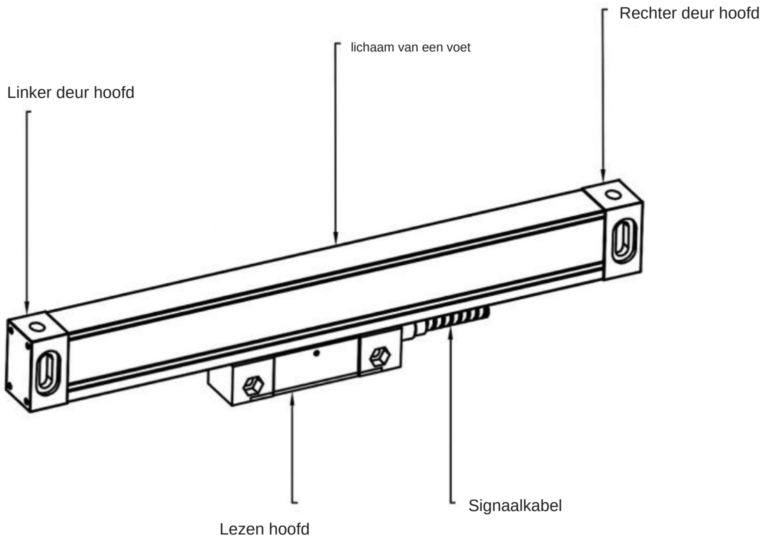

Standaardformaat: (Eenheid: mm)

| Model | HET | L1 | L2 | Model | L0 | L1 | L2 |
|---|---|---|---|---|---|---|---|
| JAAR-50 | 50 | 174 | 190 | JAAR-550 | 550 | 674 | 690 |
| JAAR-100 | 100 | 224 | 240 | YE-600 | 600 | 724 | 740 |
| JAAR-150 | 150 | 274 | 290 | JA-650 | 650 | 774 | 790 |
| JAAR-200 | 200 | 324 | 340 | JAAR-700 | 700 | 824 | 840 |
| JAAR-250 | 250 | 374 | 390 | JIJ-750 | 750 | 874 | 890 |
| JAAR-300 | 300 | 424 | 440 | YE-800 | 800 | 924 | 940 |
| JAAR-350 | 350 | 474 | 490 | JAAR-850 | 850 | 974 | 990 |
| JA-400 | 400 | 524 | 540 | JAAR-900 | 900 | 1024 | 1040 |
| JAAR-450 | 450 | 574 | 590 | JAAR-950 | 950 | 1074 | 1090 |
| JAAR-500 | 500 | 624 | 640 | JAAR-1000 | 1000 | 1124 | 1140 |

L0: Effectieve meetlengte van de lineaire encoder; L1: Lengte van de lineaire encoder montagegaten; L2: Totale lengte lineaire encoder

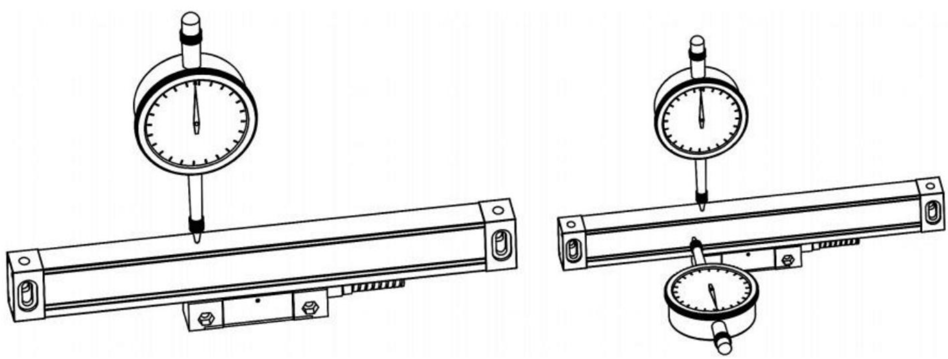
# Onderhoud:

1. De effectieve slag van de lineaire encoder moet langer zijn dan de maximale slag. slag van de machinetool. Als de lengte niet voldoende is, vervang dan de lineaire encoder door een grotere slag of voeg een limietblok toe aan de machines. De eindpositie van de leeskop vanaf het einde van de lineaire encoderbehuizing moet niet minder dan 10 mm ruimte zijn (zie het volgende diagram).

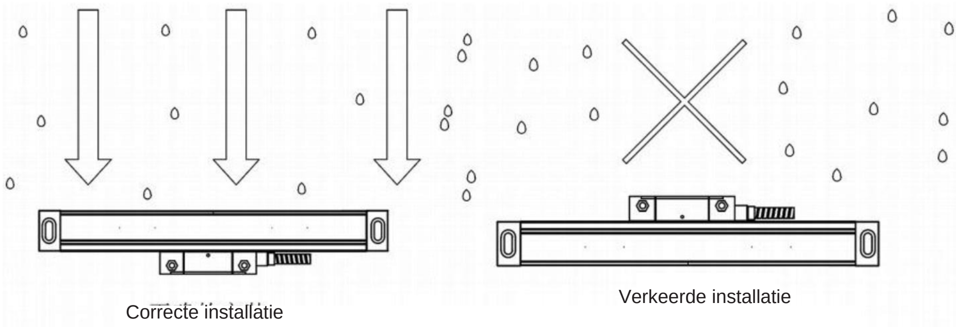



2. Voor elk niet-bewerkt oppervlak moet een vulstuk op de achterkant van de lineaire encoder worden geplaatst of moet een door de gebruiker gemaakte installatievulstuk worden gebruikt om de stabiliteit en betrouwbaarheid van de verbinding tussen de roosterliniaal en het montageoppervlak te garande

3. Wanneer u een meetklok of een soortgelijk instrument gebruikt om de parallelliteit van de lineaire encoder te kalibreren, moet de hoek van de zijkop binnen ±30 graden liggen. Hoe kleiner de hoek, hoe beter.

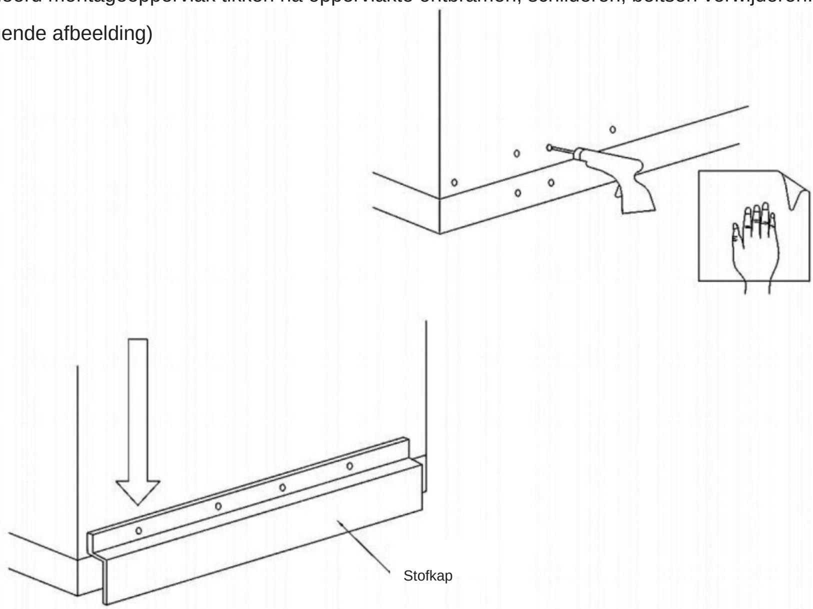


4. De installatiepositie van de lineaire encoder moet directe impact van ijzer vermijden vijlsel, olie, water en stof (zoals weergegeven in de onderstaande afbeelding). De installatielengte van de L-plaat moet zo kort mogelijk zijn onder mogelijke omstandigheden, en Er moet rekening worden gehouden met de krachtsituatie van het montageoppervlak.



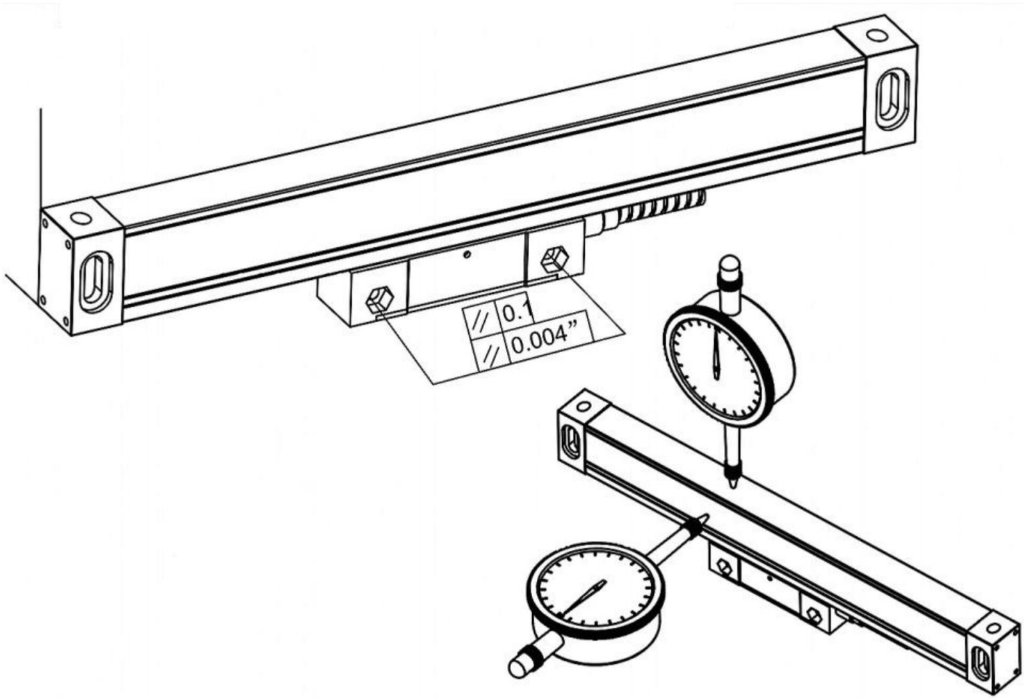

5. Er moet een opening van 0,5 mm of meer zijn tussen de stofkap en de liniaal lichaam, en vermijd contact tussen de stofkap en het liniaallichaam wanneer door de leeskop te verplaatsen (zoals hieronder).

6. Installatieschroefdraaddiepte, moet minimaal 6 tanden vergrendelingsdiepte hebben; kracht groter deel, zoals het ondersteunen van de digitale display meter plank vaste plaat, moet 8 tanden van vergrendeling diepte hebben; YE serie van schaal, de diepte van de draad diepte van de vergrendelingsdiepte. Zoals het ondersteunen van de digitale displaymeterplank vast plaat, moet meer dan 8 tanden vergrendelingsdiepte hebben; YE-serie schaal Met M4-schroeven geïnstalleerd montageoppervlak tikken na oppervlakte ontbramen, schilderen, beitsen verwijderen. (De volgende afbeelding)

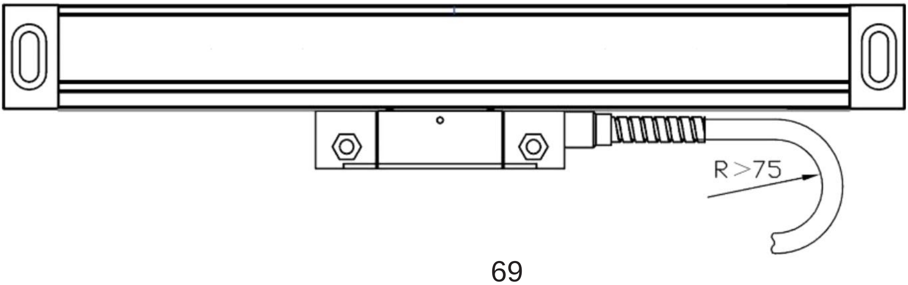


7. Bij het bevestigen van de signaallijn moet rekening worden gehouden met alle relevante bewegingsafstanden. De bevestigingspositie wordt zo ver mogelijk in het midden van de slag geplaatst en de overtollige signaallijn wordt met een kabelbinder vastgezet.

8. De aanpassing van het schaalhoogteniveau moet de lengte van het schaalcentrum zijn om de twee zijden van het symmetriepunt te nemen. Pas het referentiepunt aan, elke schaal, ongeacht de schoolniveaurichting of hoogterichting, het aanpassingsbereik: voor het schaallichaam, tot de kop van het schaallichaam op een afstand van niet meer dan 20 mm van elk uiteinde zal prevaleren. Voor de leeskop, tussen de twee vierhoekige referentieoppervlakken (de volgende afbeelding)




9. De buigradius van de signaallijn van de weegschaal is groter dan 60 mm.



10.Schaalinstallatie standaard

(1) Installatiebasisoppervlaktestandaard (Figuur 4.8abc drie installatiemethoden)

1. Het installatieoppervlak van het liniaallichaam is evenwijdig aan het installatieoppervlak van de leeskop en de parallelliteit tussen de installatieoppervlakken is <0,1 mm

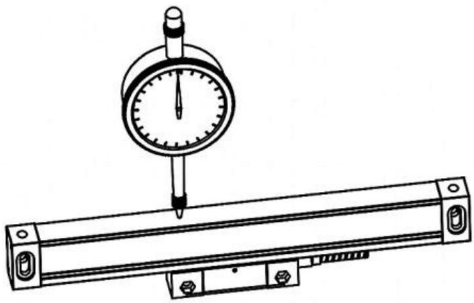
2. Het installatieoppervlak van het liniaallichaam staat loodrecht op de installatie oppervlak van de leeskop, en de loodrechtheid tussen de installatieoppervlakken is <0,1 mm

2) Installatienormen voor het liniaallichaam (Figuur 4.9, Figuur 4.10)

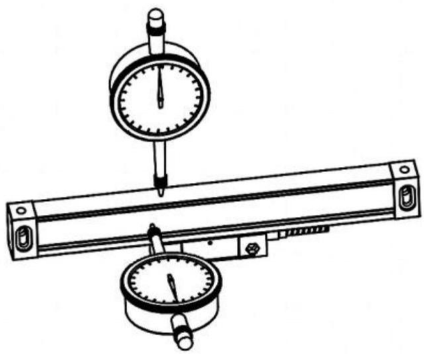
1. Hoogterichting ten opzichte van de machinegeleider, parallelliteit <0,1 mm, maximaal niet meer dan 0,15 mm. Wat betreft het symmetriepunt geldt: hoe kleiner, hoe beter.

3) Standaard van leeskopinstallatie

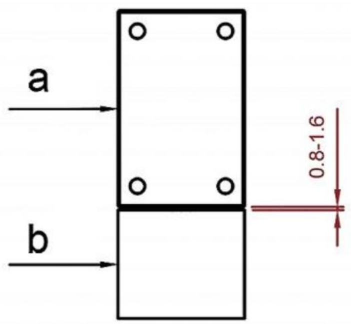
1. De speling tussen de leeskop en de hoogterichting van het liniaallichaam bedraagt na installatie 0,8 mm - 1,6 mm en trek vervolgens het padblok terug (Figuur 4.11)



4.9



4.10




2. Lees de kop aan de A-kant en de liniaal aan de B-kant. Verkeerde uitlijning in horizontale richting.

0,25±0,15 mm

3. Parallelliteit van de leeskop ten opzichte van machinegereedschap <0,10 mm, maximaal mag niet groter zijn dan 0,30 mm

## Parameter:

| Modle | SNS-3V-YE102024 | SNS-3V-YE161838 |
|---|---|---|
| Rated voltage: | AC85-230V 50Hz/60Hz | |
| Resolution | 5 μm | |
| Number of axles | 3 | |
| Range | 10 inches<br>20 inches<br>24 inches | 16 inches<br>18 inches<br>38 inches |

## Standaard accessoires:

| Accessories for digital display meters: | Accessories for grating ruler: |
|---|---|
| 1. Support rod * 1<br>2. Knife holder plate * 1<br>3. Transparent watch case * 1<br>4. Power cord * 1<br>5. Watch holder * 1<br>6. Butterfly piece * 2<br>7. M8 * 70 screw * 1<br>8. M10 * 55 screw * 1<br>9. Nut M10 * 1<br>10. Nut M8 * 1<br>11. Nut M5 * 1<br>12. Internal hexagonal screw M5 * 20 * 2<br>13. Internal hexagonal screw M5 * 25 * 1<br>14. M4 * hex socket screw * 4<br>15. M5 * 10 machine meter screws * 2<br>16. Washer φ 10 * 1<br>17. Washer φ 8 * 1<br>18. Washer φ 5 * 1<br>19. Rubber washer 20 * 10 * 1 * 1<br>20. Rubber washer 20 * 10 * 0.5 * 1<br>21. Spring washer φ 10 * 1<br>22. Spring washer φ 8 * 1<br>23. Spring washer φ 5 * 1 | 1. Ruler cover * 3<br>2. L mounting plate * 4<br>3. Plug * 6<br>4. Screw pack * 3 bags<br>Each bag contains:<br>Internal hexagonal screw M4 * 30 * 4;<br>Internal hexagonal screw M4 * 12 * 2;<br>Internal hexagonal screw M4 * 8 * 4;<br>U-shaped gasket T=0.2mm * 2;<br>Washer φ 6 * 2;<br>Washer φ 5 * 2;<br>Washer φ 4 * 6;<br>Line card * 2 |

**Dit apparaat voldoet aan Deel 15 van de FCC-regels. De werking is onderworpen aan de volgende twee voorwaarden: (1) Dit apparaat mag geen schadelijke interferentie veroorzaken, en (2) dit apparaat moet alle ontvangen interferentie accepteren, inclusief interferentie die ongewenste werking kan veroorzaken.**

**Fabrikant:** Shanghaimuxinmuyeyouxiangongsi

**Adres:** Shuangchenglu 803nong11hao1602A-1609shi, baoshanqu, shanghai 200000 CN.

**Geïmporteerd naar AUS:** SIHAO PTY LTD, 1 ROKEVA STREETEASTWOOD NSW 2122 Australië

**Geïmporteerd naar de VS:** Sanven Technology Ltd., Suite 250, 9166 Anaheim Place, Rancho Cucamonga, CA 91730

EC-REP

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Mainzer Landstr.69, 60329 Frankfurt am Main.

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# DRO DISPLAY ANVÄNDARHANDBOK

MODELL: SNS-3V-YE102024 ÄR NS-3V-YE161838

vi fortsätter att vara engagerade i att ge dig verktyg till konkurrenskraftiga priser. "rädda hälften" , "Halva priset" eller andra liknande uttryck som används av oss representerar endast en uppskattning av besparingar du kan dra nytta av att köpa vissa verktyg hos oss jämfört med de större toppmärken och betyder inte nödvändigtvis att täcka alla kategorier av verktyg som erbjuds av oss. Du påminns vänligen om att kontrollera noggrant när du gör en beställning hos oss om du gör det faktiskt spara hälften i jämförelse med de främsta stora varumärkena.

TOUGH TOOLS, HALF PRICE

DRO DISPLAY

MODELL: SNS-3V-YE102024 SNS-3V-YE161838

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Har du produktfrågor? Behöver du teknisk support? Du får gärna kontakta oss:

Teknisk support och E-garanticertifikat Www.vevor.se/support

Detta är den ursprungliga instruktionen, läs alla manualer noggrant innan användning. VEVOR reserverar sig för en tydlig tolkning av vår användarmanual. Produktens utseende ska vara beroende av produkt du fått. ursäkta oss att vi inte kommer att informera dig igen om det finns någon teknik eller mjukvaruuppdateringar på vår produkt.

Kära användare:

Tack för att du köpte digitala avläsningar i multifunktionsserien ·

Digitala avläsningar används i en mängd olika applikationer. Dessa inkluderar verktygsmaskiner , i foderyxor, mät- och inspektionsutrustning, EDM, och mätstationer för uppdelningsapparater, inställningsverktyg , produktionskontroll. För att uppfylla kraven i dessa applikationer kan många kodare anslutas till de digitala avläsningarna.

Läs noga alla instruktionerna i bruksanvisningen före användning och följ dem strikt · spara manualen för framtida referenser ·

säkerhetsuppmärksamhet:

⌘ TILL Förhindra elektriska stötar eller brand, fukt eller direkt sprutning kylvätska måste undvikas. I händelse av rök eller konstigt luktar från den digitala avläsningen, dra ur nätkontakten omedelbart, annars kan brand eller elektriska stötar orsakas. I ett sådant fall, försök inte reparera det, kontakta företaget eller distributors.

⌘ Digital avläsning är en exakt mätenhet som används med en optik Linjär skala· när den används, om kopplingen mellan Linjär skala och den digitala avläsningen är trasig eller skadad externt kan felaktiga mätvärden uppstå · Därför, användaren bör vara försiktig.

⌘ Försök inte att reparera eller modifiera den digitala avläsningen, annars kan fel, fel eller skada kan uppstå. I händelse av något onormalt tillstånd, vänligen kontakta företaget eller distributören.

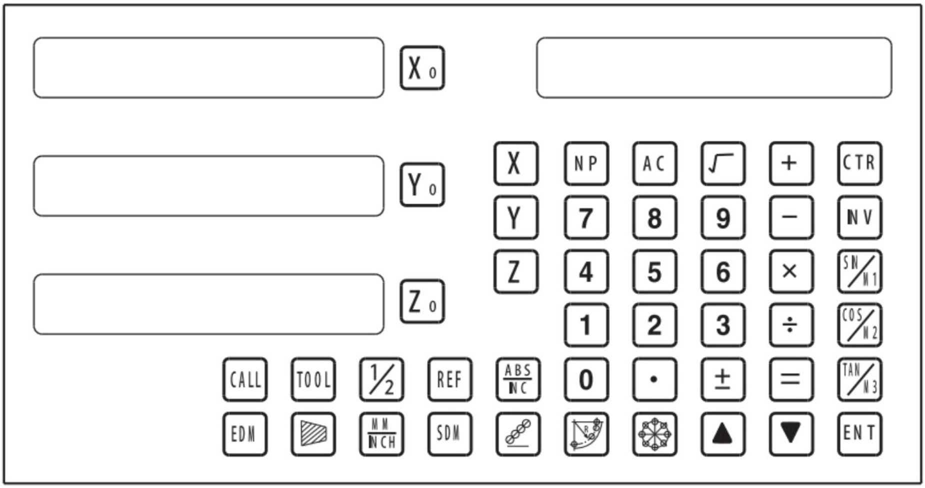
⌘ Om den optiska linjära vågen som används med den digitala avläsningen är skadad, använd inte en linjär våg av annat märke · Eftersom prestanda, specifikation och anslutning av produkter från olika och CAn inte anslutas utan instruktion av specialiserad teknik personal, annars uppstår problem med den digitala avläsningen.

⌘ With the continuous updating of products, if there are changes or ändringar av urvalsparametrarna ska de slumpmässiga filerna ha företräde och företaget har den slutliga tolkningsrätten utan förvarning.

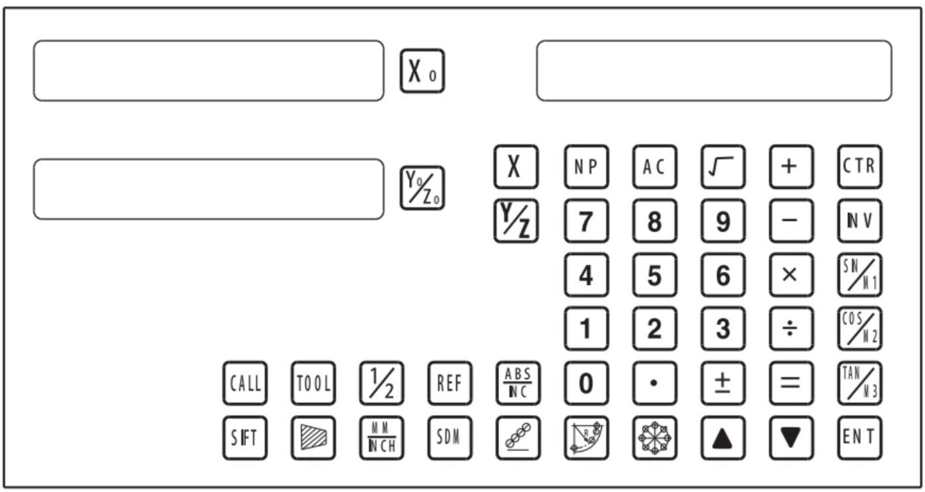
# Contents

# Contents

THREE AXIS PANEL




TWO AXIS PANEL



# Caption of the keyboard

## Keyboard Description

| | |
|---|---|
| X Y Z | Keys for axis selection |
| X0 Y0 Z0 | Zero select axis |
| ± | Enter +/- sign |
| · | Enter decimal point |
| 0 1 2 3 4 5 6 7 8 9 | Entry keys for numbers |
| + − × ÷ = | Operation key (in Calculation function key) |
| CTR | Enter or quit calculating state |
| AC | Cancel incorrect operation |
| INV | Calculate inverse trigonometric |
| √ | Square root |
| ENT | Confirm operation |
| MM/INCH | Toggles between inch and millimeter units. |
| REF | Press when ready to identify a reference mark. |
| SDM | Function keys for 200 sub datum |
|  | ARC cutting function |
|  | holes displayed equally on a circle |
|  | holes displayed equally on a line |

# Caption of the keyboard

| | |
|---|---|
| SIN/M1 | Calculate trigonometric or Slope Processing function key |
| COS/M2 | Calculate trigonometric or rectangular inner chamber processing function key |
| TAN/M3 | Calculate trigonometric or the tool diameter compensation function key |
| ABS/INC | Toggle between ABS/INC coordinate |
| ▲ ▼ | Stroll up or down to select |
|  | Taper measured function key |
| CALL | Tool library call key |
| TOOL | Opens the tool table.( lathe) |
| EDM | EDM function key |
| SFT | Filter display function key |
| ½ | Half a display value of an axis |
| NP | Non Linear Error Compensation function keys |

## 3、Parameters settings

### 3.1 Parameters setup routine entrance.

Press [·] to enter initial system and self-check after DRO powers on in 1 second, then Parameters settings display in the Parameters window.press [▲] [▼] to select the item you want to chang.

If you want to quit initial setting, press [▲] [▼] until "QUIT" appears in message window and press [ENT]. You can also press [·] to quit initial setting.

### 3.2 Parameters Settings Description

#### 3.2.1 Setting the Resolution

Press [▲] [▼] until "RESOLUTE" appears in message window;

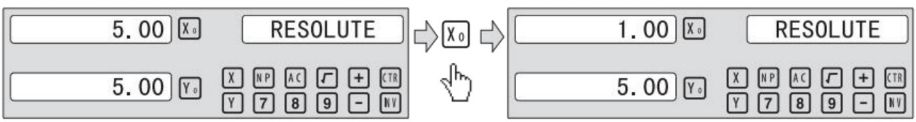
When selecting the LINEAR encode, the resolution will be set as follow:

There are 19 types of resolution:

0.01um;0.02um;0.05um;0.10um;0.20um;0.25um;0.50um;1.00um; 2.00um;2.50um;5.00um;10.00um;20.00um;25.00um;50.00um; 100.00um;200.00um;250.00um;500.00um.

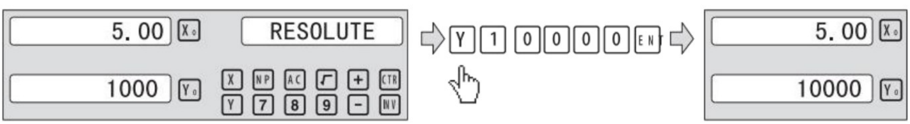
Press [X0] to change the resolution for X axis;Press [Y0] to change the resolution for Y axis;Press [Z0] to change the resolution for Z axis;

Set the resolution 5.00um to 1.00um for X axis:




When selecting the rotary encode, the resolution will be set as follow:

Input the rotary encode parameter value .

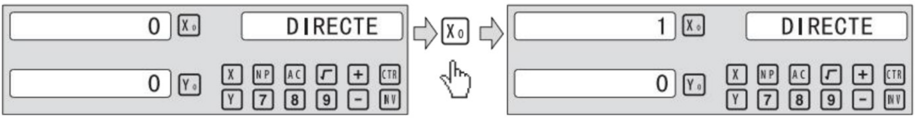


### 3.2.2 Setting Positive Direction for Counter

Press ▲ ▼ until " DIRECTE" appears in message window.

Direction '0' means the display value will increase when scale moves form right to left and decrease when scale moves from left to right. Direction '1' means the display value will increase when scale moves form left to right and decrease when scale moves from right to left.

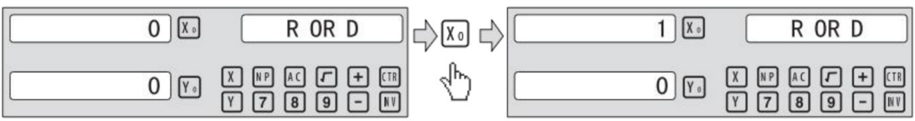
Press X0 to change the Direction for X axis;Press Y0 to change the Direction for Y axis;Press Z0 to change the Direction for Z axis; as follow:




### 3.2.3 Toggle Betwween R/D Display Mode

Press ▲ ▼ until "R OR D" appears in message window. X window, Ywindow, Z window displays '0' or '1' separately.

'0' is mode R, which means the dispay value equals the actual measurement. '1' is mode D where the display value equals the double actual measurement. Press X0 to change the R/D for X axis;Press Y0 to change the R/D for Y axis;Press Z0 to change the R/D for Z axis; as follow:




### 3.2.4 Setting Z axis Dial

Press ▲ ▼ until "Z DIAL" appears in message window.

Z axis dial should be set if Z axis is emulated for 2 axis milling and only install linear scale for X,Y axis. Z axis dial means the distance the Z axis travels when screw runs a revolution.

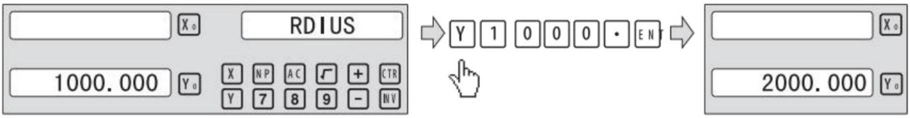
Set the Z axis Dial 2.5mm as follow ;


### 3.2.5 Setting the Rotary Radius of the Workpiece

Press ▲ ▼ until "RDIUS" appears in message window.

The Rotary rdius type is used perimeter to measure angle.

Input the Rotary Radius parameter value 2000mm as follow:

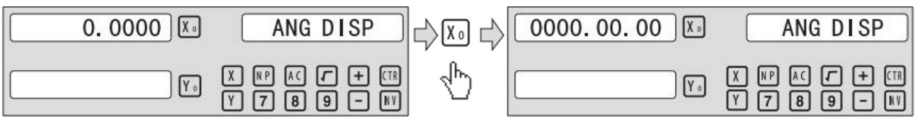



### 3.2.6 Setting the Angle Display Mode

Press ▲ ▼ until "ANG DISP" appears in message window.

Press $X_0$ to change the angle display mode for X axis;Press $Y_0$ to change the angle display mode for Y axis;Press $Z_0$ to change the angle display mode for Z axis; Example for X axis:

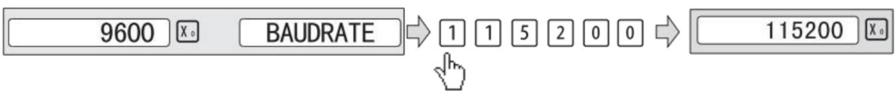
"0.0000" means the angle mode is Circulating DD;
"0000.0000" means the angle mode is Incremental DD;
"0.00.00" means the angle mode is Circulating DMS;
"0000.00.00" means the angle mode is Incremental DMS;




### 3.2.7 Setting the Baudrate of RS_232 (Special customization function, if you need to buy, please contact the dealer to customize)

Press ▲ ▼ until "BAUDRATE" appears in message window.

Set the Baudrate 115200 as follow ;



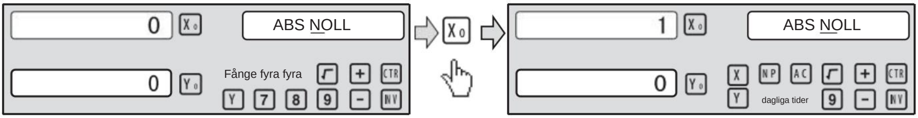
3 . 2 . 8 aktivera eller inaktivera absolut nollställning

trycka tills "ABS NOLL" visas i meddelandefönstret·

de betyder att ABS-nollställning och förinställda data kommer att vara aktivera i normalt displayläge ·

' 1 ' betyder att ABS-nollställning och förinställda data kommer att vara inaktivera i normalt displayläge ·

tryck för för att ändra det absoluta nollställningsläget för axelaxeln, tryck på att ändra absolut nollställningsläge för Y-axeln, tryck till ändra det absoluta nollställningsläget för Z-axeln; Exempel för x-axeln ·



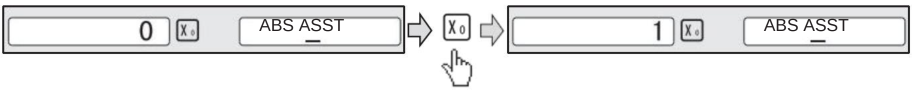

3 . 2 . 9 ställa in Absolut från specialfunktionen

trycka tills "ABS ASST" visas i meddelandefönstret·

'o betyder att endast specialfunktionspositionsvärde visas i specialfunktion drift.

' 1 ' betyder specialfunktionspositionsvärde + ABS Positionsvärdet är visas i den speciella funktionsfunktionen.

trycka för att ändra det absoluta läget för specialfunktionen ställas in enligt följande:



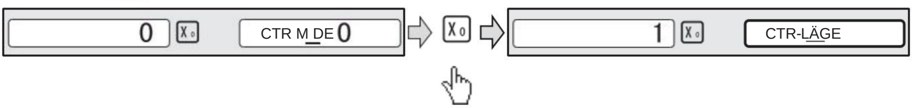

3 . 2.10 ställa in Calculator visningsläge

trycka tills UCCTR MODE" visas i meddelandet W · indow

de m eans räknarens visningsvärde vid x-vinden i betyder räknarens ew disply;

' 1 ' visningsvärde vid meddelandefönstret i displayen;

trycka för att ändra räknarens visningsläge ställs in AS follow:




3.2.11 inställning av displayens ljusstyrka

LED-skärmens ljusstyrka, fabriksinställningen är endast "3", ju högre parameter, desto ljusare ljusstyrka. tryck "xo" för att set, det rekommenderas inte att du ställer in standardvärdet själv.

3.2.12 The linear scale counting frequency setting

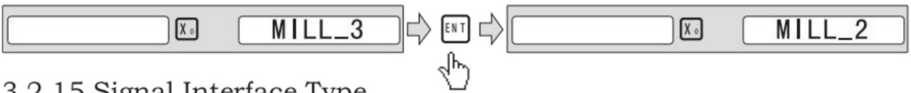
The factory default setting is only "12", the higher the parameter, the lower the counting frequency, press "X0" to set, it is not recommended that you set the default value yourself.

3.2.13 Setting QUIT: Digital display table parameters quit button.

3.2.14 Setting the type of the DRO.

The type of the DRO will be display on the right window. then press the key ENT to select the correct type. the following system item will be set:

"MILL-3" means the DRO type is 3-axis milling machine table;
"MILL-2" means the DRO type is 2-axis milling machine table;
"LATHE-2" means the DRO type is 2-axis lathe table;
"LATHE-3" means the DRO type is 3-axis lathe table;
"GRIND" means the DRO type is Grind table;
"EDM" means the DRO type is EDM table; (Special customization function, if you need to buy, please contact the dealer to customize)




3.2.15 Signal Interface Type

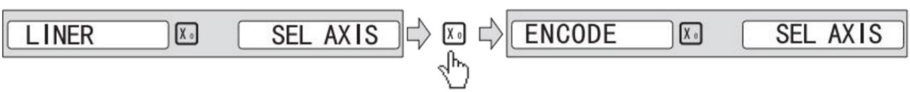
Message window displays " SEL AXIS" which indicates the step is to Sensor input signal mode. Press X0 to change the signal mode for X axis;Press Y0 to change the signal mode for Y axis;Press Z0 to change the signal mode for Z axis;Example for X axis:

Press X0 to scroll through the Rotary encode type, the Linear encode type, the Rotary rdius type.

X window displays the Signal type.

"LInER" means the Signal type is linear encode type ;
"EnCOdE " means the Signal type is Rotary encode type;
"RdIUS" means the Signal type is Rotary rdius type ;

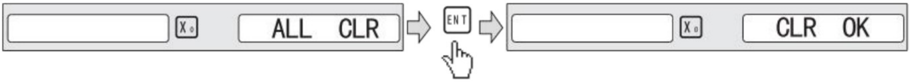
Example: currently in the linear encode type, to toggle to the Rotary encode type;



### 3.2.16 Restore Factory Settings:

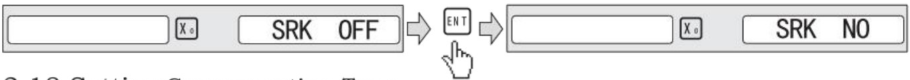
Clear all data except DRO type.DRO will load default setup for parameter.After loading default setup,user must search RI once to enable resuming ABS dadum function;otherwise to resume the datum by RI is unable;

Message window displays " ALL CLR" , press ENT and message windows display "PASSWORD" indicating the operator to input password; Press 2000 + ENT in turn to load default value;




### 3.2.17 Shrinkage Ratio enable or disable.

Message window displays " SRK OFF" to disable Shrinkage rate function. Press ENT to enable Shrinkage rate function in Message window displays " SRK ON" :



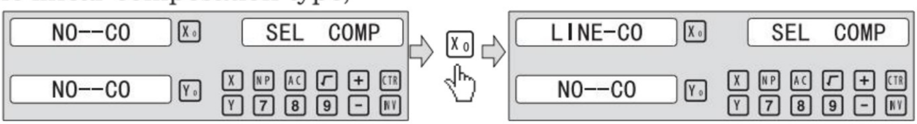

### 3.2.18 Setting Compensation Type

Message window displays " SEL COMP" which indicates the step is to compensation type. Press X0 to change the compensation type for X axis;Press Y0 to change the compensation type for Y axis;Press Z0 to change the compensation type for Z axis;Example for X axis:

Press X0 to scroll through the not compesation type, the Linear compesation type, the non-linear compesation type.

"no-CO" means the compesation type is not compesation type;
"LInE-CO" means the compesation type is linear compesation type.
"non-LinE" means the compesation type is non-linear linear compesation type;

Example for X axis: currently in the not compesation type, to toggle to the linear compesation type;



3.2.19 Inch display, set the number of digits after the decimal point

In the inch display mode, the number of digits after the decimal point is set, the factory default digit is "4", press "X0" to set, can be set according to actual needs.

3.2.20 Setting EDM: it is not recommended that you set the default value yourself, EDM function, Set the relay off on time.

3.2.21 Setting Linearity Compensation.

Message window displays “ LIN COMP” which indicates the step is to Linearity Compensation. Compensate the linear error to make display value equals to standard value.

The calculation of compensation rectifying coefficient:

$$\text{Coefficient} = \frac{(\text{Measurement} - \text{Standard value}) \times 1000.000}{\text{Standard value}}$$

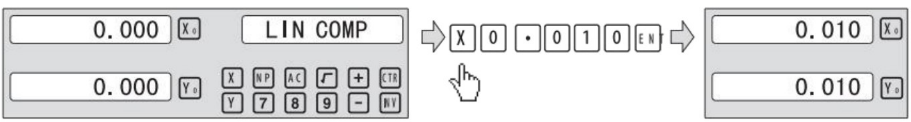
Example for X axis:

Measurement 200.020mm

Standard value 200.000mm

Rectifying coefficient= (200.020-200) * 1000 /200 =-0.01mm/m

Input compensation rectifying coefficient 0.01 as follow:

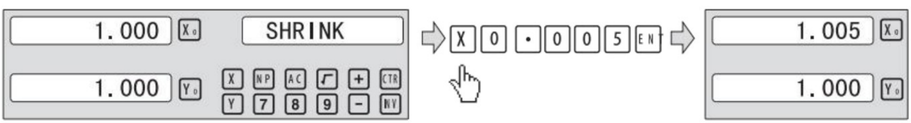



3.2.22 Setting the Shrinkage Ratio

Press ▲ ▼ until “ SHRINK” appears in message window;

$$\text{Shrinkage radio} = \frac{\text{Dimensions of the finished product}}{\text{Dimensions of the working piece}}$$

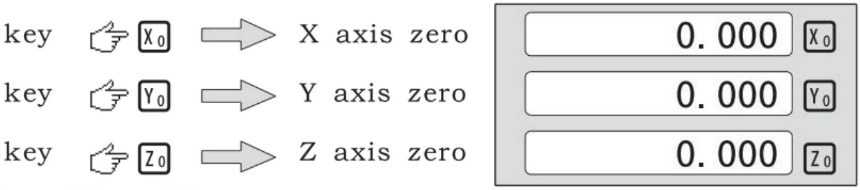
Set the shrinkage radio 1.005 as follow;



# 4、General Operations;

## 4.1 Zeroing

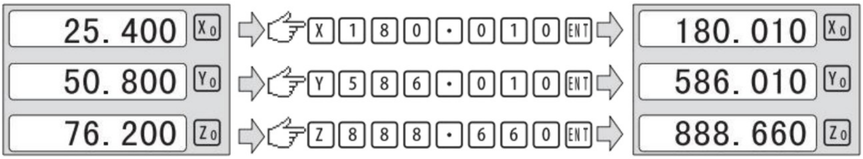
Zero the designated axis in normal display state.Zeroing is used to set the current point as datum point as follow;




X0 or Y0 or Z0 will be return to the original data before the reset。

## 4.2 Preset Data to Designated Axis

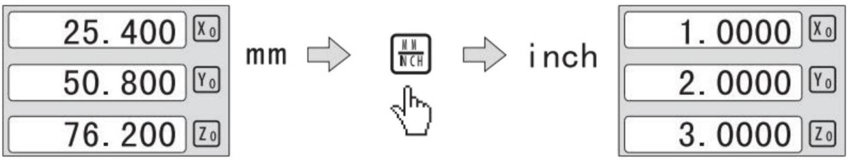
Preset a value to current position for a designated axis in normal display state.



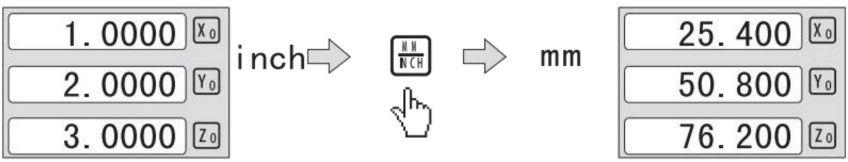

## 4.3 Toggle Display Unit between inch and mm

Length can be displayed either in "mm" (metric) or "inch" (imperial). Display unit can be toggled between mm and inch.

Example: Display value toggle from mm to inch;



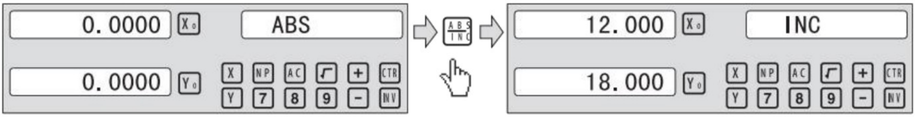

Example: Display value toggle from inch to mm;



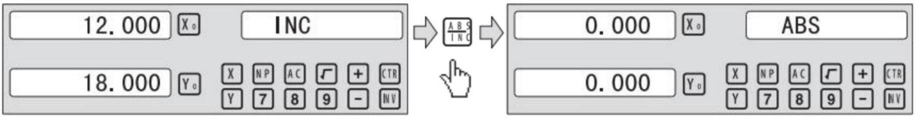
## 4.4 Absolute/Incremental/200 groups SDM

Function: The DRO has 3 coordinate display modes: the absolute mode (ABS); the incremental mode (INC) and 200 goups Second Data Mamory (SDM) with the range of 00 to 99.Zero point of work-piece is set at the origin point of ABS coordinate. The relative distance between datum of ABS and SDM remains unchanged when ABS datum is changed.

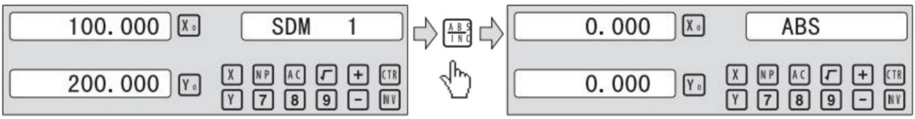
1. Toggle from ABS to INC coordinate;




2. Toggle from INC to ABS coordinate;




3. Toggle from SMD to ABS coordinate;



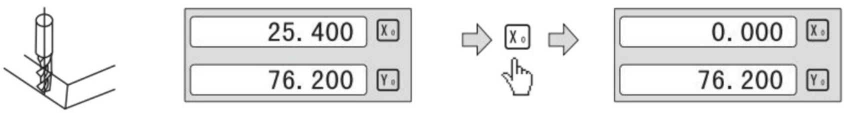

## 4.5 1/2 Function

Function: Set the center of work piece as datum by halving the displayed value.

Example: Set the center of rectangle as datum as the right figure.

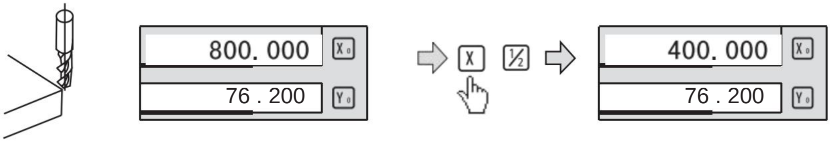
Steps:

1、Touch one side of the workpiece with the TOOL,then zero the X axis。



2 , Ta VERKTYGET till motsatt sida av arbetsstycket och rör vid det.

Tryck sedan på X + ½ i sin tur för att värdera X-axelns visningsvärde.




3ÿ Flytta bearbetningstabellen tills "o. 000" visas i x-axeln fönster. Positionen är arbetsstyckets centrum·

4 . 6 radera alla SDM-datum.

I ABs-läge, för att kontinuerligt trycka på • tio gånger kommer att orsaka att rensa alla datum för 200 uppsättningar SDM. Mcssage-fönstret visar USDM CLR".

4 . 7 sovläge

i inte ABS-läge, tryck på knappen RE F KAN stänga av all display och DRO:n går in i viloläget och trycker sedan på denna tangent igen kommer DRO att återgå till arbetsläget. I den sovande Läge DRO är fortfarande i arbetsläge och registrerar faktiskt VERKTYGET movement.

Exempel: I inte ABS-läge, för att komma åt sleepin8-läget genom att trycka på nyckeln F . RE viloläge, tryck på knappen F för att avsluta RE sovläge ·

4 . 8 strömavbrottsminne.

Minnet används för att lagra inställningarna för DRO och maskinen referensvärden när POWER är avstängd.

4 . 9 sök i skalans A bsoutreferenspunkt

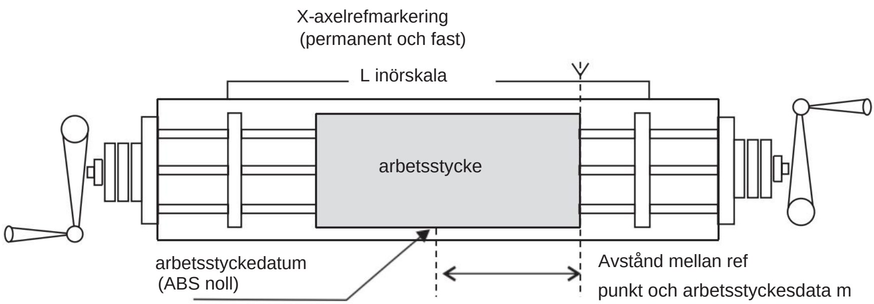
Under den dagliga bearbetningsprocessen är det mycket vanligt att bearbetning kan inte slutföras inom ett arbetsskift, och därmed DRO måste stängas av efter arbetet, eller strömavbrott inträffar under bearbetningsprocessen som leder till förlorad arbetsstyckesdatum (arbetsstyckets nollposition), återställande av arbetsstyckets nollpunkt att använda kantsökare eller annan metod är oundvikligen inducera högre bearbetning med noggrannhet eftersom det inte är möjligt att återupprätta arbetsstyckets utgångspunkt exakt vid föregående position återställning av arbetsstyckets datum vcry exakt och inget behov av att återställa arbetsstyckets datum med hjälp av kantavkännare eller andra metoder, varje linjär skala har en refpoint position som är utrustad med ref position för att tillhandahålla referenspunktsminnesfunktion.

Arbetsprincipen för referensdatumminnesfunktionen är som följer.

eftersom refpunkten för linjär skala är permanent och fixerad kommer den att göra det ändras eller försvinner aldrig när DRO-systemet är avstängt. Därför behöver vi helt enkelt lagra avståndet mellan refpunkten och arbetsstyckets nollpunkt (nollposition) i EJ flyktigt minne· Därefter om strömavbrottet eller DRO stängs av kan vi återhämta oss arbetsstyckets nollpunkt (nollposition) genom att förinställa displayens nollpunkt position som lagrat avstånd från refpunkten ·

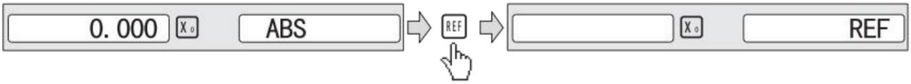
En absolut utgångspunkt bör ställas in när ett arbetsstycke bearbetas· Det finns tre lägen (REFÿ ABÿ LEF AB):

Exempel: lagra X-axelns arbetsdatum·

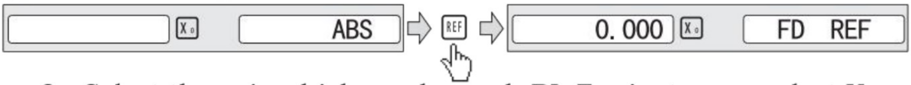


**Example for REF mode** :

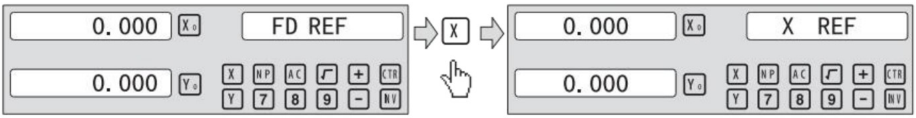
1、DRO is set in ABS coordinate. Press REF , then the message window display "REF" .




2、Message window displays "REF" , Press ENT until "FD_REF" appears in message window.



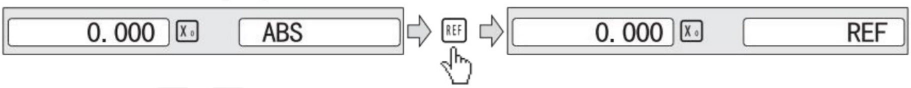

3、Select the axis which need search RI. For instance : selsct X axis, then press X . "X_REF" is displayed in message window, and X axis window flashes.



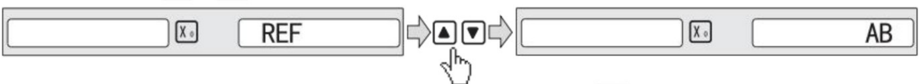

4、 Move the machine table .The buzzer sounds when RI is searched, then X window stops flashing and displays the value of the current position .the DRO returns normal display state. Then message window displays "FIND_X" .

**Example for AB mode** :

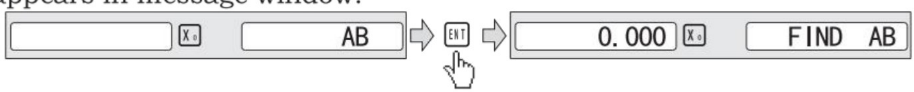
1、 DRO is set in ABS coordinate. Press REF , then the message window display "REF" .



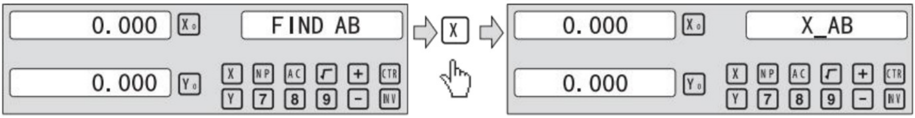

2、Press ▲ ▼ , then the massage window display "AB" .




3、Message window displays "AB" , Press ENT until "FIND_AB" appears in message window.



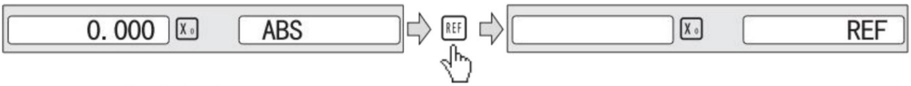
4、Select the axis which need search RI. For instance : selsct X axis, then press X . “X_REF” is displayed in message window, and X axis window flashes.



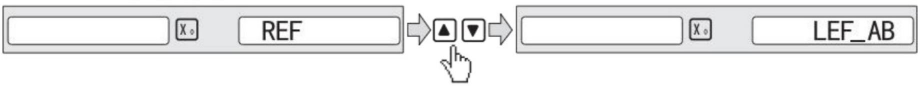

5、 Move the machine table .The buzzer sounds when RI is searched, displays the value of the current position for the absolute datum zero. the DRO returns normal display state. Then message window displays “FIND_AB” .

**Example for LEF_AB mode** :

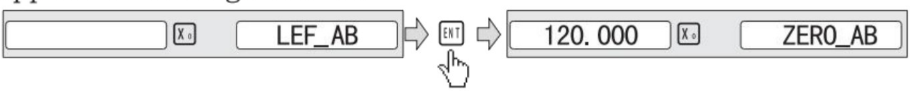
1、DRO is set in ABS coordinate. Press REF , then the message window display “REF” .



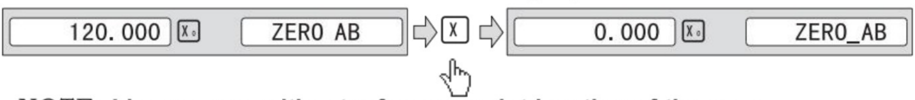

2、Press ▲ ▼, then the message window display “AB” .




3、Message window displays “LEF_AB” , Press ENT until “ZERO_AB” appears in message window.




4、Move the machine table to be set zero position piont. then press X , X axis will be zeroing . the current position for the absolute datum zero. the DRO returns normal display state.




NOTE: **Linear range without reference point location of the user**

## 4.10 Non Linear Error Compensation

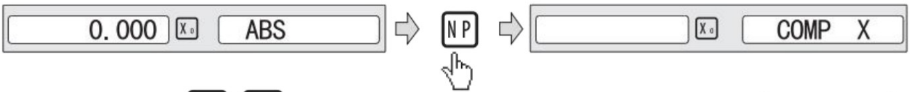
First compensation Type ( Linear or Non-Linear) in parameter setting must be set Non-Linear. Linear scale have a ref point location and find to the Absolute Reference Point will be enable.

Default Non-Linear compensation : 50.

**Example for Y axis:**

Step 1: Search the Absolute Reference Point of Scale;

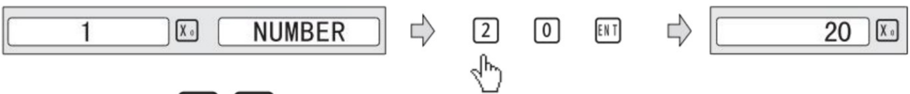
Step 2: Press [NP] , then the message window display "COMP X" .



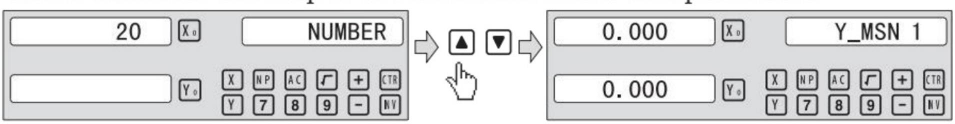

Step 3: Press [▲] [▼], then the massage window display "COMP Y"


Step 4: Press [ENT], then the message window display "NUMBER" .

Then input the compensation parameter NUMBER.




Step 5: Press [▲] [▼], then message window displays "Y-MSN-1" which indicates the step is to Non Linear Error Compensation.



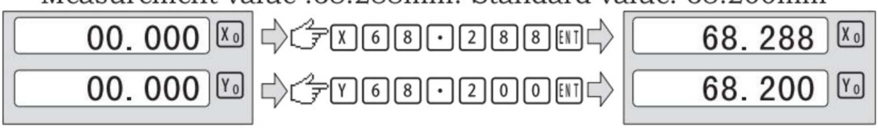

Step 6: Input compensation value .

X window display the value of the measurement value.

Y window display the value of the standard value.

Example for the first compensation point:

Measurement value :68.288mm. Standard value: 68.200mm



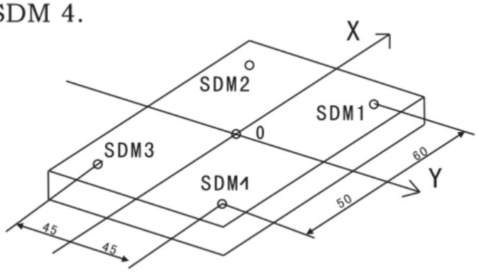

Step 7: After input all parameter, the DRO automatically exit.

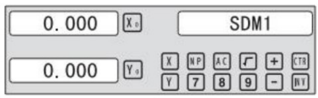
5、200 Groups SDM coordinate

The DRO has three display modes: the absolute mode (ABS),the incremental mode (INC) and the 200 groups second data memory (SDM 1 – SDM200). ABS datum of the work-piece is set at the beginning and the 200 groups SDM is set relative to ABS coordinate.

ABS Mode, INC Mode and SdM Mode are specially designed to provide much more convenience features to the operator to cope with the batch machining of relative works and the machining of the workpiece machining dimensions from more than one datum.

**Example:** The ABS datum is the center point O, the point sdm1, sdm2, sdm3, sdm4 needed processing are set as datum of SDM 1 – SDM 4.




Two ways to set SDM coordinate:

1、 Zeroing at the Current Point.

2、 Preset datum of SDM coordinate.

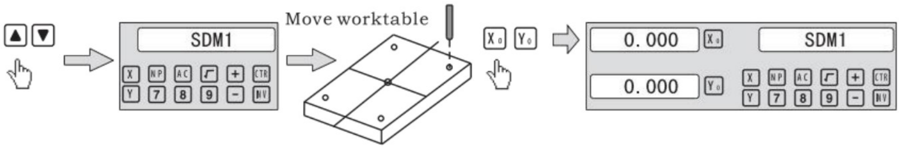
5.1 Zeroing at the Current Point

At first set the center point of the work-piece as the origin of the ABS, then align the TOOL with point SDM1,SDM2,SDM3,SDM4 by moving the machine table and zero them. It is the position to process where the “0.000” appears in X window, Y window by moving the machine table whether in ABS or in SDM coordinate.

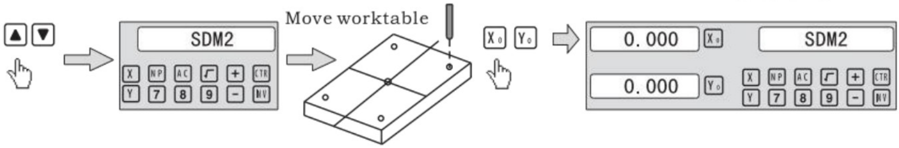
**Steps:**

1、 Move worktable to place the TOOL at the center of the workpiece point O as the datum of ABS. Then zero X axis and Y axis in SDM 1 ; Zero X axis and Y axis in SDM 2 ; Zero X axis and Y axis in SDM 3 ; Zero X axis and Y axis in SDM 4.

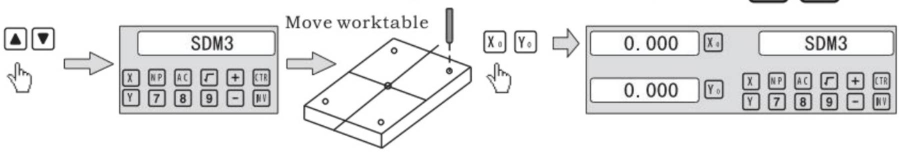
2、Set the point sdm1 as the datum of SDM 1. Move the machine worktable to x = 60.000, y = 45.000. Then proess $\boxed{X_0}$ $\boxed{Y_0}$.



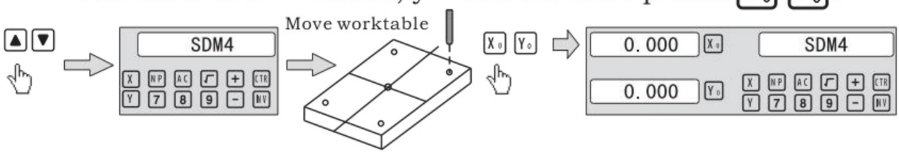

2、 Set the point sdm1 as the datum of SDM 2. Move the machine worktable to x = 60.000, y = -45.000. Then proess $\boxed{X_0}$ $\boxed{Y_0}$.




3、 Set the point sdm1 as the datum of SDM 3. Move the machine worktable to x = -60.000, y = -45.000. Then proess $\boxed{X_0}$ $\boxed{Y_0}$.




4、 Set the point sdm1 as the datum of SDM 4. Move the machine worktable to x = -60.000, y = 45.000. Then proess $\boxed{X_0}$ $\boxed{Y_0}$.




5.2 Preset datum of SDM coordinate

There are the same sample as Method 1. First Move the worktable to place the TOOL exactly at the origin of ABS, secondly Enter the ABS Mode as follow.

**Steps:**

1、Move worktable to place the TOOL at the center of the workpiece point O as the datum of ABS. Then zero X axis and Y axis in SDM 1 ; Zero X axis and Y axis in SDM 2 ; Zero X axis and Y axis in SDM 3 ; Zero X axis and Y axis in SDM 4。

2、Set point sdm1 as the datum of SDM 1. Press ▲ ▼, then the message window display "SDM 1" . Input x = 60.000, y = 45.000.


3、Set point sdm1 as the datum of SDM 2. Press ▲ ▼, then the message window display "SDM 2" . Input x = -60.000, y = 45.000.


4、Set point sdm1 as the datum of SDM 3. Press ▲ ▼, then the message window display "SDM 3" . Input x = -60.000, y = -45.000.

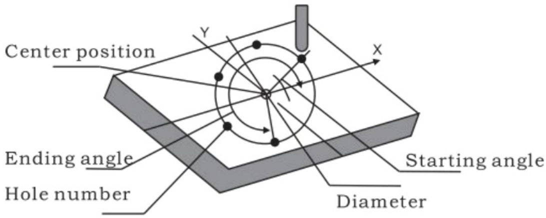

5、Set point sdm1 as the datum of SDM 4. Press ▲ ▼, then the message window display "SDM 4" . Input x = -60.000, y = 45.000.

# 6, specialfunktion

## 6.1 Circumference Holes Processing

The Function of PCD Hole positioning on Circumference is used to distribute arc equally, such as boring hole on flange. The right window will show the parameter to be defined when selecting PCD Function. The Parameters to be defined are:

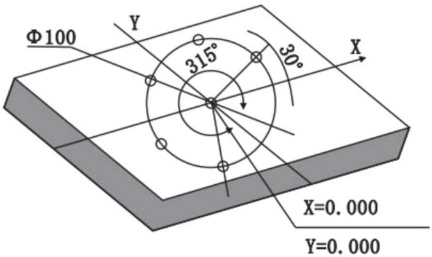
| | |
|---|---|
| PCD_XY(XZ,YZ) | Select place |
| CENTER | Center position |
| DIA | Diameter of circle |
| NO_HOLE | Hole number |
| ST ANG | Starting angle |
| ED ANG | Ending angle |




The postion of the hole center are calculated automatically after input all parameters. Press ▲ or ▼ to choose the hole No. and move the machine table until the "0.000" appears in X window , Y window, Z window. It is the position to process a table.

Example for the XY place: Machine hole on circumference as the figure

| | |
|---|---|
| PCD_XY(XZ,YZ) | XY |
| CENTER | X=0,000,Y=0.000 |
| DIA | 100,000 |
| NO_HOLE | 5 |
| ST ANG | 30,000 |
| ED ANG | 315,000 |



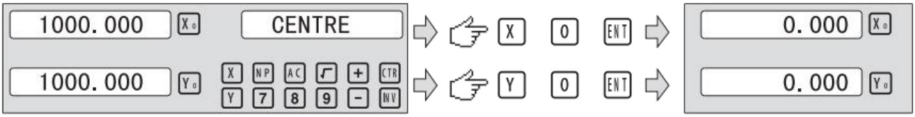

Steps:

1. Set display unit to metric in normal state; Move the machine table until the machine TOOL is aligned with the center of the ciecle , then zero X axis ,Y axis.
2. Select plece.

Press , then the message window display "PCD_XY" to the Circumference Holes Processing. Press ▲ or ▼ to select XY place.

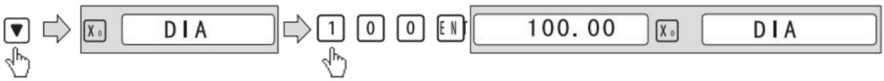
2. Input center position.

Press ENT , then the message window display "CENTER" . X and Y window displays the formerly preset center position. Input X = 0, Y = 0 as follow.



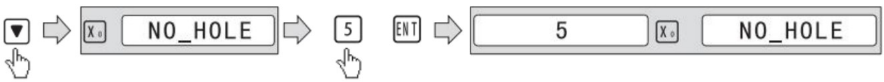

4. Input diameter.

Press ▼ until "DIA" appears in the message window. X window despalys the formerly preset diameter. Then input the diameter is 100.000.



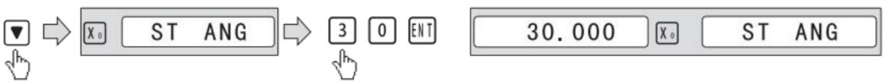

5. Input number.

Press ▼ until "NO_HOLE" appears in the message window. X window despalys the formerly preset number. Then press 5 in turn to input number.



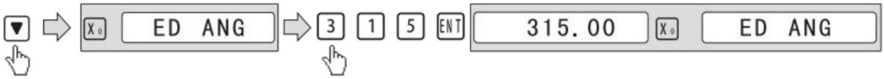

6. Input starting angle.

Press ▼ until "ST ANG" appears in the message window. X window despalys the formerly preset the starting angle. Then press 3 0 in turn to input the starting angle.



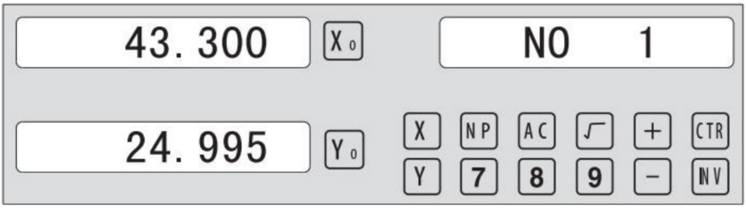

7. Input ending angle.

Press ▼ until "ED ANG" appears in the message window. X window dispalys the formerly preset the ending angle.. Then press 3 1 5 in turn to input the ending angle.




8. Press ▼ until "NO 1" appears in the message window.

It is the position of the first hole to punch where the "0.000" is displayed in X window and Y window by moving the machine table. After finishing the first hole, press ▼ or ▲ to change holes number.

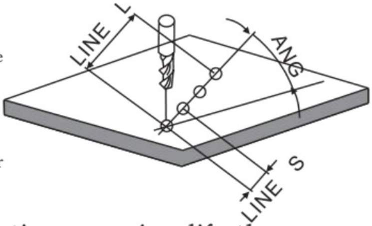


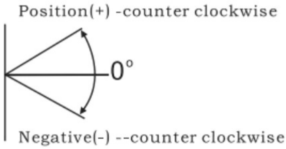

9. After processing all holes, press [key] to return normal display.

## 6.2 Linear Holes Processing

There are two modes to carry out the linear drilling: Length mode and Step mode.

| | |
|---|---|
| 1.LINE S | Step mode |
| LINE L | Length mode |
| 2.STEP | Step length |
| LENGTH | Line length |
| 3. ANG | Angle |
| 4. NO.HOLE | Hole number |

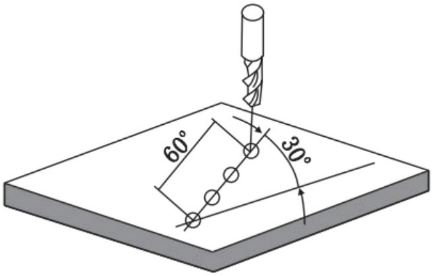



Linear Holes function can simplify the processing multiple holes whose centers are attributed equally on one line.

Example：

| | |
|---|---|
| LINE_L | Length mode |
| LENGTH | 60.000 |
| ANG | 30.000 |
| NO.HOLE | 4 |




Steps :

1. Select plece.

Press , then the message window display “LINE_XY” to the Linear Holes Processing. Press ▲ or ▼ to select XY place.

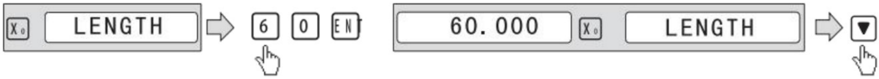

2. Select Linear Holes mode.

Press ENT , then the message window display “LINE_S” . Press ▲ or ▼ to select “LINE_L” .


3. Input linear length;

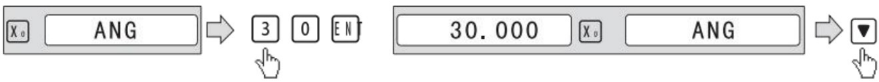
Press ENT , then the message window display “LENGTH” .

X window despalys the formerly preset the linear length. Press 6 0 in turn to input the linear length.




4. Input angle;

Message window displays "ANG" which indicates the step is to angle. X window despalys the formerly preset the angle. Press 3 0 in turn to input the angle.

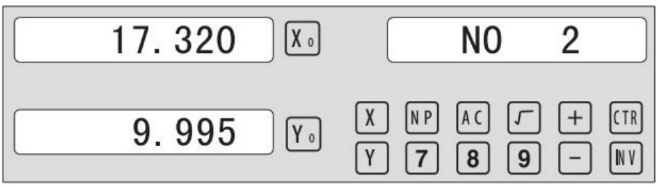



5. Input number;

Message window displays "ANG" which indicates the step is to angle. X window despalys the formerly preset the number. Press 4 in turn to input the number.


6. Press ▼ until "NO 1" appears in the message window.

It is the position of the first hole to punch where the "0.000" is displayed in X window and Y window by moving the machine table. After finishing the first hole, press ▲ or ▼ to change holes number.



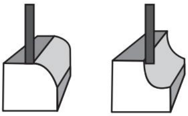

7. After processing all holes, press to return normal display.

6 . 3 ARC-bearbetning

TVÅ funktioner är tillgängliga för ARC-funktionen: den enkla ARC

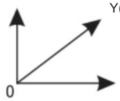
Funktion och den mjuka R-funktionen · tryck sedan på pr css  för att gå in i ARC-funktionen,  eller  för att välja smidig ARC-funktion eller enkel ARC-funktion.

Under installationen, normalt koordinaten för maskinen och den riktning X, Y , Z är enligt följande. Arbetsplanet visas SOM höger figur.



(RAD+TL) (RAD+TL )

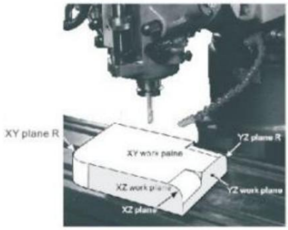
Z(+positiv riktning)



Y( +positiv riktning)

0

X (+positiv riktning)




enkel ARC-funktion:

när jämnheten inte är mycket efterfrågad, SIMPLE ARC funktionen används normalt för bearbetning av ljusbåge. I SIMPLE-funktionen det finns bara åtta typer av ARC Används för att bearbeta. Operatören bara välj typ av R och mata in parametrarna för bågens radie ,

MAX CUT och yttre Qrc eller inner rbåge. I allmänhet kan en båge vara bearbetade av en plan slits T dem i olika OOL Eller arc TOOL, skillnaden mellan arbetsplan enligt bilden enligt följande ·

1 , ENKEL — enkel bearbetning Läge för ARC.

2 , TYP 1 - 8

3、SEL_XY(XZ,YZ) — välj plats

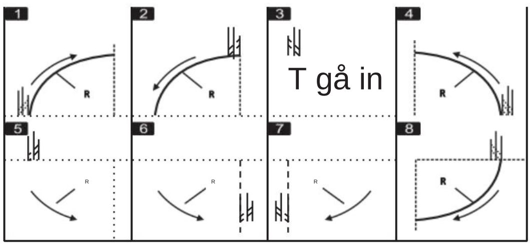
4 , RAD — Bågradie

5, TL HONOM — Verktygsdiameter

6ÿ MAX SNITT — Matningssteg

7ÿ RAD TL _ — yttre båge och inre båge

(endast för xy plats)



Smooth ARC function :

Provides maximum flexibility in ARC machining, the ARC sector to be machined by the coordinates of ARC. Very flexible, ARC function can machine virtually all kinds of ARC, ever the intersected ARC. Relatively a bit complicated to operate, operator need to calculate and enter the coordinates of ARC centre, start angle and end angle.

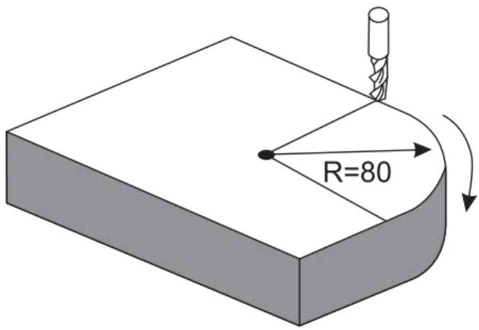
Basic parameter as follow:

| | |
|---|---|
| 1. SMOOTH | Mode of the Smooth ARC processing; |
| 2. SEL_XY(YZ, XZ) | Select place; |
| 3. CENTER | Refer to the position of an center. |
| 4. RAD | Radius of the ARC |
| 5. TL_DIA | Diameter of the TOOL |
| 6. MAX_CUT | Feed step |
| 7. ST_ANG | Starting angle |
| 8. ED_ANG | Ending angle |
| 9. RAD+TL | Outer arc. |
| RAD-TL | Inner arc. |

**Example 1 for the Simple ARC Processing:**

Parameters settings as follow:

| | |
|---|---|
| SIMPLE | Simple mode |
| TYPE | 3 |
| SEL_XY | XY |
| RAD | 80.000 |
| TL_DIA | 6.000 |
| MAX_CUT | 0.500 |
| RAD+TL | 1 |



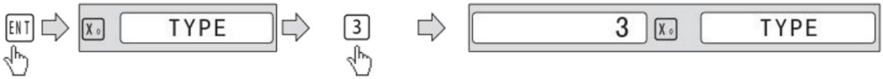

Steps:

1. Select process mode

Press  , then the message window display "SIMPLE" to the ARC Processing. Press ▲ or ▼ to select mode of the simple, The message window display "SIMPLE"

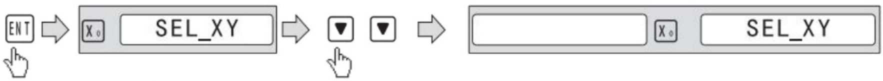

2. Input the type:

Press [ENT] until “TYPE” appears in the message window. X-window despalys the formerly preset the type. Press [3] in turn




3. Select place

Press [ENT] until “SEL_XY” appears in the message window. Press [▲] or [▼] to select place to display “SEL_XY” ;




4. Input radius:

Press [ENT] until “RAD” appears in the message window. X window despalys the formerly preset the radius of ARC. Press [8] [0] in turn to input the radius.;


5. Input Diameter of the TOOL

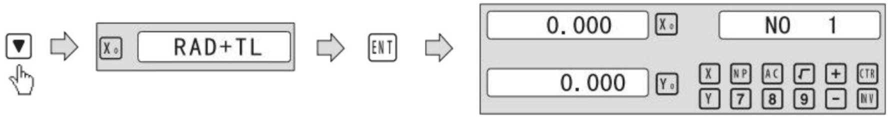
Press [▲] or [▼] until “TL DIA” appears in the message window. X window despalys the formerly preset the Diameter of the TOOL. Press [6] in turn to input the Diameter value;


6. Input Feed step (MAX_CUT);

Press [▲] or [▼] until “MAX_CUT” appears in the message window. X window despalys the formerly preset the MAX_CUT. Press [0] [·] [5] in turn to input the MAX_CUT value;

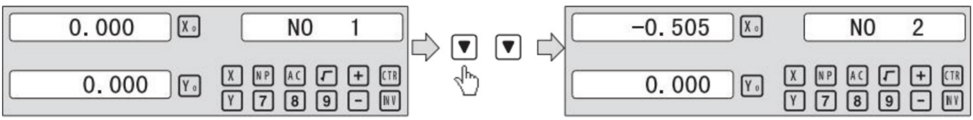
7. Select outer arc or inner arc

Press ▲ or ▼ until "RAD-TL" appears in the message window. Press ▲ or ▼ to select place to display "RAD+TL" ;




8. After inputting all parameters, press the key ENT for machining.

The DRO will display the position of the first point. Retract the axes until the displays read 0.000, Machine the Arc point by point in accordance with the display. After finishing the position of the first point, press ▲ or ▼ to change position point.

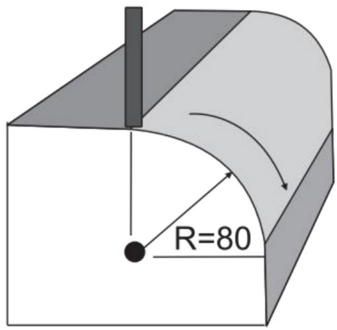



Press to quit R function any time.

**Example 2 for the Simple ARC Processing:**

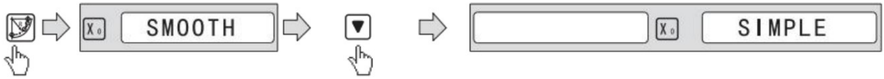
Parameters settings as follow:

| | |
|---|---|
| SIMPLE | Simple mode |
| TYPE | 3 |
| SEL_XY | XZ |
| RAD | 80.000 |
| TL_DIA | 6.000 |
| MAX_CUT | 0.500 |



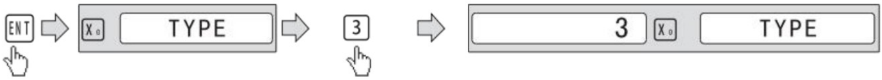

Steps:

1. Press , then the message window display "SIMPLE" to the ARC Processing. Press ▲ or ▼ to select mode of the simple, The message window display "SIMPLE"



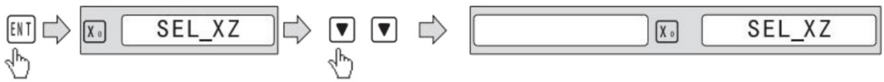

2. Input the type:

Press ENT until "TYPE" appears in the message window. X-window despalys the formerly preset the type. Press 3 in turn




3. Select place

Press ENT until "SEL_XZ" appears in the message window. Press ▲ or ▼ to select place to display "SEL_XZ" ;




4. Input radius:

Press ENT until "RAD" appears in the message window. X window despalys the formerly preset the radius of ARC. Press 8 0 in turn to input the radius.;


5. Input Diameter of the TOOL

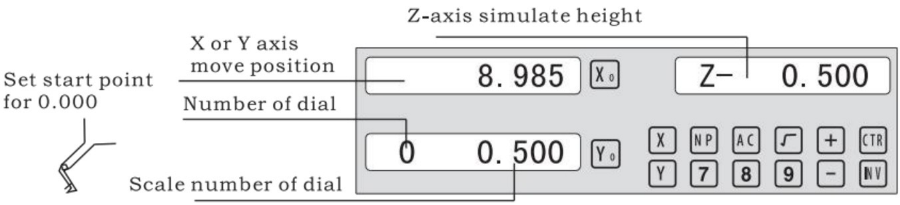
Press ▲ or ▼ until "TL DIA" appears in the message window. X window despalys the formerly preset the Diameter of the TOOL. Press 6 in turn to input the Diameter value;


6. Input Feed step (MAX_CUT);

Press ▲ or ▼ until "MAX_CUT" appears in the message window. X window despalys the formerly preset the MAX_CUT. Press 0 · 5 in turn to input the MAX_CUT value;

7. After inputting all parameters, press the key ENT for machining.

For 2-axis milling machine table , It is not installed with Z-axis, please press ▲ or ▼ to simulate position of Z-axis. Press ▲ simulate moving to the former process, and press ▼ simulate moving to the next process point.



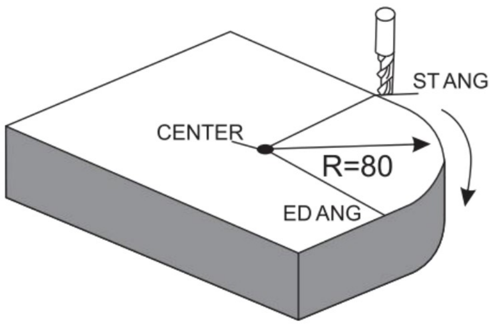

Z-axis simulate height = Number of dial x Z axis Dial + Scale number of dial

Press to quit R function any time.

**Example 3 for the Smooth ARC function**:

Parameters settings as follow:

| | |
|---|---|
| SMOOTH | Smooth mode |
| SEL_XY(YZ,XZ) | XY |
| CENTER | X=0,Y=0 |
| RAD | 80.000 |
| TL_DIA | 6.000 |
| MAX_CUT | 0.500 |
| ST_ANG | 0.000 |
| ED_ANG | 135.000 |
| RAD+TL | 1 |



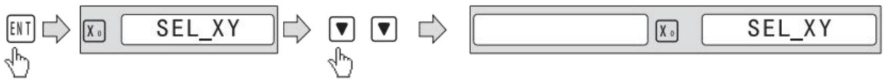

Steps:

1. Press , then the message window display “SIMPLE” to the ARC Processing. Press ▲ or ▼ to select mode of the simple, The

message window display "SMOOTH" ; For 3-axis milling machine table without this step. In second step. Then press ENT .

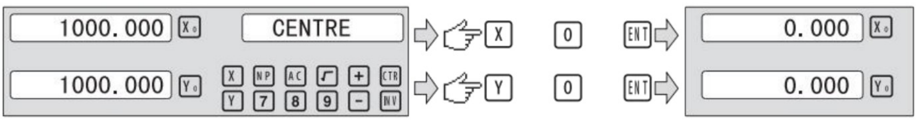

2. Select place

Message window display "SEL_XY" which indicates the select is to place. Press ▲ or ▼ to select place to display "SEL_XY" ;




3. Input center position.

Press ENT , then the message window display "CENTER" . X and Y window displays the formerly preset center position. Input X = 0, Y = 0 as follow.




4. Input radius:

Press ENT until "RAD" appears in the message window. X window despalys the formerly preset the radius of ARC. Press 8 0 in turn to input the radius.;


5. Input Diameter of the TOOL

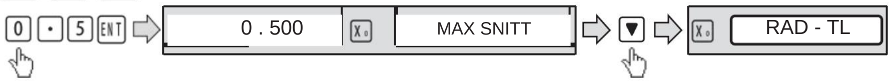
Press ▲ or ▼ until "TL DIA" appears in the message window. X window despalys the formerly preset the Diameter of the TOOL. Press 6 in turn to input the Diameter value;

6 . Inmatningssteg (MAX_CUT);

trycka ▲ eller ▼ tills UMAX CUT app bilar i "meddelandet

fönster. X Window de spa lyser den tidigare förinställda MAX_CUT. trycka

0 · 5 i sin tur att mata in MAX CUT-värdet; __

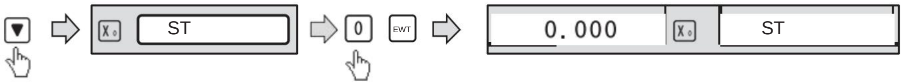



7 . Ingångs startvinkel ·

trycka ▼ tills USTANG" visas i meddelandefönstret.x

window de spa lyser den tidigare förinställda startvinkeln · Tryck sedan

0 i sin tur för att mata in startvinkeln-




8 . Ingångsslutvinkel ·

trycka ▼ tills UED ANG" visas i meddelandefönstret. X

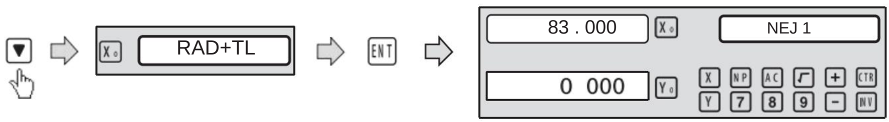
fönstret visar den tidigare förinställda slutvinkeln. Tryck sedan på 1

3 5 i sin tur för att mata in endin8-vinkeln·


9 . välj yttre båge eller inre båge

tryck ▲ eller ▼ tills "RAD-TL" visas i meddelandet

fönster.tryck ▲ eller ▼ för att välja plats för att visa "RAD+TL" ;




10. Efter att ha matat in alla parametrar, machining.

DRO kommer att visa positionen för den första punkten. Dra tillbaka

axlar tills displayerna visar 0 . 000, Bearbeta bågen punkt för punkt in

i enlighet med displayen. Efter att ha avslutat positionen för den första

peka, tryck ▲ eller ▼ för att ändra positionspunkt.


Press to quit ARC function any time.

## 6 . 4 sned bearbetning

Det finns två tillgängliga sätt att bearbeta en sned plats:

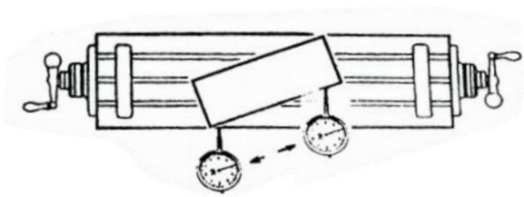
A). på platsen. b). på platsen yz, eller Xz;

endast följande parametrar behöver matas in:

| | |
|---|---|
| INKL Xy(xz,yz) | ställ in maskinplats xy,yz,0rxz plats · |
| DE | Lutningsvinkeln för den sneda· |
| DET | VERKTYGSdiametern · |
| ST POT | Startposition; |
| ED KAN | Slutpostering; |

Exempel 1 för den sneda xyplace:

när bearbetningsplanet är i plan xy som den del som visas i Figur, arbetsstyckets snedvinkel ska kalibreras innan det sneda planet bearbetas. Därför , vid denna tidpunkt bearbetning av snedplan spelar rollen att kalibrera snedställningen ·



förfarande för att kalibrera snedställningen

Placera först arbetsstycket på arbetsbordet enligt önskad vinkel av snedhet ·

1) Ange funktionen för snedplan. 2) välj funktionen för planet XY.

3) Mata in snedvinkeln·

4) Flytta arbetsbordet tills mätverktyget (som en mätklocka) installerad på fräsmaskinen vidrör det sneda kalibreringsplanet, justera det till noll och flytta arbetsbordet för valfritt avstånd i riktning på x-axeln.

5) Flytta arbetsbordet i avståndet från y-axeln tills displayen visas blir noll.

6) Change the angle of the work piece to make the workpiece touch the measuring tool and adjust it to zero.

STEPS:

1. Select place

Press [SN/M1], then the message window display "INCL_XY" to the Oblique Processing. Press ▲ or ▼ to select place to display "SEL_XY;

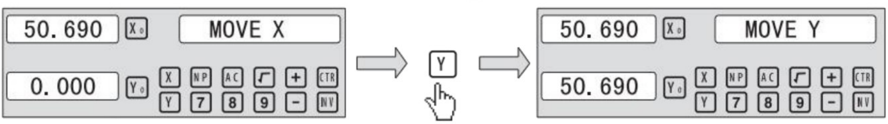
Then press [ENT] to in next step;


2. Input the angle of obliquity

The message window display "ANG", X window dispalys the formerly preset the angle of obliquity. Press [4] [5] in turn to input the angle of obliquity .


3. Move the workpiece along the X-Axis until the measuring tool touches the workpiece adjust it to zero, and move the worktable for any distance along the X-Axis.


4. Press [Y], display the value of Y-Axis. Move the workpiece along the Y-Axis, change the angle of workpiece to make the obliquity-calibrating plane touch the measuring tool until it turns to zero. Move the worktable until Y-Axis is displayed as zero.




5. Press [SN/M1] to quit oblique function any time.

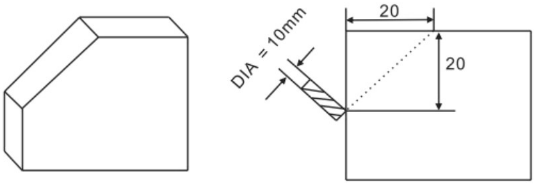
**Example 2 for the oblique XZ or YZ place**:

When the machining plane is on plane XZ or YZ, the function of TOOL inclination can instruct the operator to machine the oblique plane step by step.

Procedures for using the function of cutter inclination:

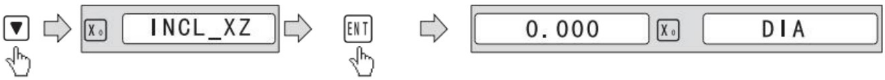
When the machining plane is on plane XZ or YZ, first please calibrate the obliquity of the primary spindle nose and set the TOOL:

| | |
|---|---|
| INCL_XY(XZ,YZ) | INCL_XZ |
| DIA | 10.000 |
| ST_POT | 20.000 |
| ED_POT | 20.000 |




STEPS:

1. Press [SN/M1], then the message window display "INCL_XY" to the oblique Processing. Press [▲] or [▼] to select place to display "SEL_XZ; Then press [ENT] to in next step;

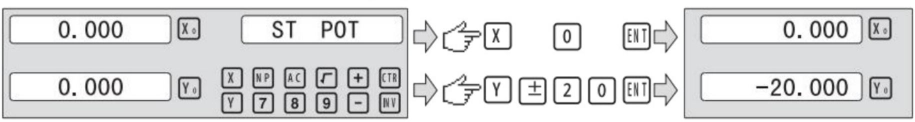



2. Input The TOOL Diameter

The message window display "DIA", X window dispalys the formerly preset the angle of obliquity. Press [1] [0] in turn to input the TOOL Diameter of obliquity . OK, then press [▼] to in next step;

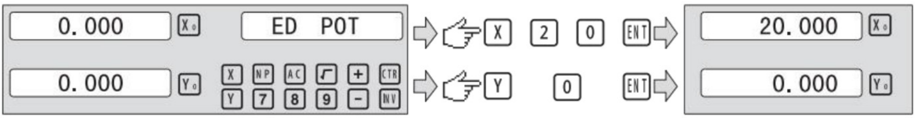

3. Input ST_POT;

The message window display "ST_POT", X and Y window dispalys the formerly preset the stating position of obliquity. Input X= 0, Y = -20.000. OK, then press [▼] to in next step;



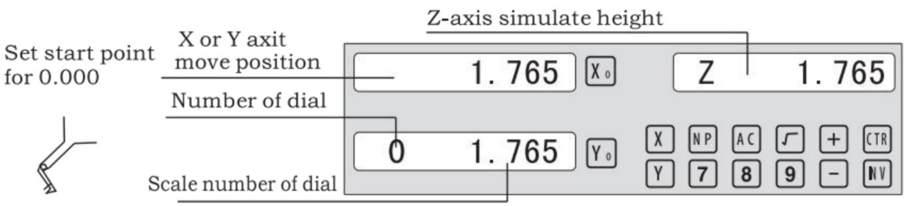
4. Input ED_POT;

The message window display "ED_POT" , X and Y window dispalys the formerly preset the stating position of obliquity. Input X= 20.000, Y = 0.000 .




5. After input all parameter, press the key [▼] for machining.

For 2-axis milling machine table , It is not installed with Z-axis, please press [▲] or [▼] to simulate position of Z-axis. Press [▲] simulate moving to the former process, and press [▼] simulate moving to the next process point.



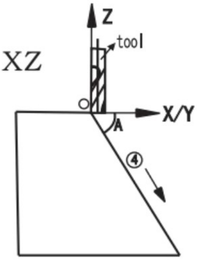

Z-axis simulate height = Number of dial x Z axis Dial + Scale number of dial

Press [SN/N1] to quit **oblique** function any time.

## 6.5 Slope Processing

This function can calculate the position of everynprocessing point automatically in processing slope. Only the following parameters need to be inputted:

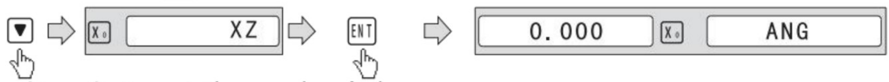
| | |
|---|---|
| XZ, YZ | Set machine place YZ, or XZ |
| ANG | The inclination angle |
| Z_STEP | The slope length each time processing |




**Example 1 for the Slope XZ place**;

Step 1. Select place

Press [TAN/M3] , then the message window display "XZ" to the slope Processing. Press [▲] or [▼] to select place to display "SEL_XY; Then press [ENT] to in next step;

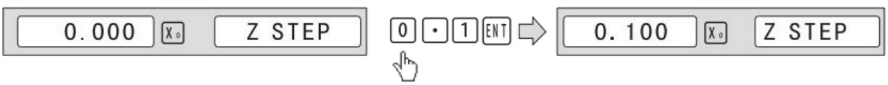



Step 2. Input the angle of slope

The message window display "ANG" , X window dispalys the formerly preset the angle of slope. Press [4] [5] in turn.


Step 3. Input Z_step;

The message window display "Z STEP" , X window dispalys the formerly preset the stating position of slope. Input [0] [·] [1] in turn.

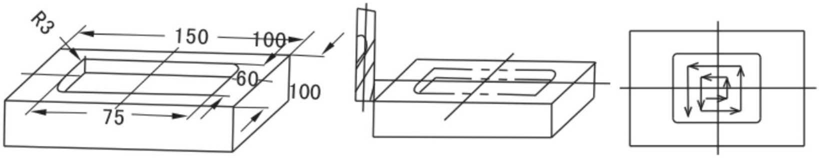



Step 4:Finishing the ALL processing . Press [TAN/M3] to quit slope function any time.

## 6.6 Chambering Processing

1,FLAT_XY: machine place; 2, DIA:diameter of TOOL; 3, CENTER: center of the chambering ; 4, SIZE: size of the chambering ;

Figure as follow:

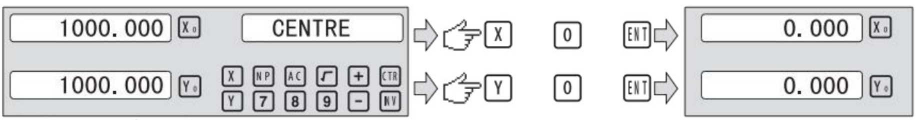



STEPS:

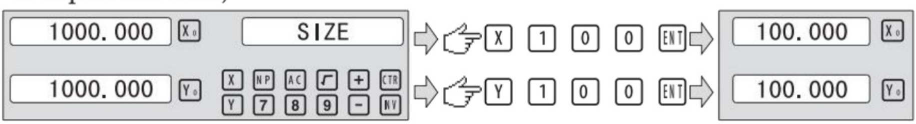
1. Press , then the message window display "FLAT_XY" to the Chambering Processing.


2. Inpur DIA of the TOOL;


3. Input the center coordinate;




4. Input the size;




5. process Chambering;

Move the machine until the display of the axis is zero,ie, the position of the first point. Machine the first point . Display the next machining point by pressing or .On the completion of machining, the right window shows OVER. Press or , the system will goto the first position for the next workpiece. Press to quit the Chambering Function.

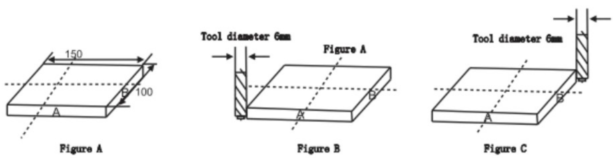
## 6.7 The Tool Diameter Compensation Function

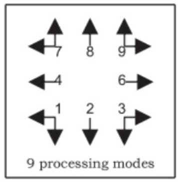
Without TOOL compensation, the operator has to move the TOOL for an additional distance of the diameter of the TOOL along each side when machining the four 150 and 100 sides of a workpiece to finish machining the whole brim. The digital readouts shall automatically compensate when the TOOL compensation function is enable.

Note: the TOOL compensation is made in the direction of X and Yaxis.

Procedures:

1) . Enter the function of compensating the diameter of the TOOL.
2) . Select one of the (four) preset machining modes.
3). Input the diameter of the TOOL.
4) . Enter machining.

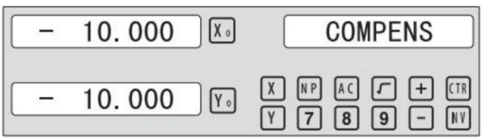



Step1: press [TAN/M3] to enter the TOOL compensation Function. then the message window display "TYPE" .Press [9] .


Step 2: input the diameter of the TOOL; Press [1] [0] in turn..


Step 3: Press [▼] to the machining Mode.




Machining of 2 side planes can be done by moving the TOOL until X-Axis is 150.000 and Y-Axis is 100.000.Press the Key [TAN/M3] to quit the Function.

## 6.8 Digital Filter of the Grinding Machine

When machine a work-piece by grinder, the display values quickly due to the vibration of grinder. User can not see display value clearly. Grinder DRO provides display value filter function to disable the quake change of display value.

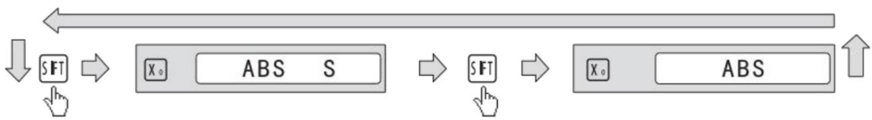
STEPS:

1. Enter display value filter function.

In normal display state, press SIFT to simultaneously, enter display value filter function.

2. Exit display value filter function;

Press SIFT , exit display value filter function;



## 6 . 9 La funktionen

### 6.9. 1 200 set VERKTYG Libs

Den behöver alltid olika VERKTYG vid bearbetning av olika delar · För bekväm drift, La de digitala avläsningarna har funktionen av 200 set VERKTYG Libs ·

Obs: endast när la the är utrustad med verktygsinställningsblocket kan de 200 seten TOOL Libs , användas·

1 . ställ in ett datum VERKTYG. Efter verktygsinställning, noll x-axel och Z-axel, den sätt noll för absolut koordinat ·

2 . Beroende på storleken på TOOL l och datumTOOL, bestäm position för VERKTYG i förhållande till nollpunkten för absoluta koordinat- och nollpunktsverktyget · AS Figur 6-1. Den relativa storleken på VERKTYG 2 är enligt x-axeln 25-30=- 5 , Z-axel 20-10=10 ·

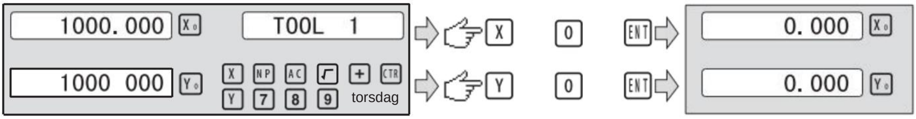
3 . spara VERKTYG-numret och storleken i digital avläsning ·

4 . Antalet VERKTYG Kan matas in slumpmässigt, de digitala avläsningarna kommer att visa verktygets position till absolut koordinat noll · Flytta la the tills X-axeln och Z-axeln båda visar noll · 5 . TOOL Libs kan spara de 200 uppsättningarna av verktygsdata.

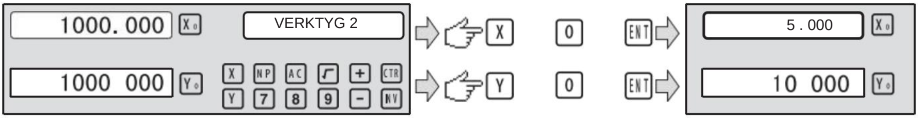
6 . TOOL Libs måste användas i öppningsläge. De 200 seten rooi Libs KAN öppnas genom att kontinuerligt trycka på ± tio gånger tills det högra fönstret blinkar TL - OPEN och en markering "21" visas vid till vänster om det högra informationsfönstret. Märket indikerar operatör KAN ställa in eller revidera de 200 uppsättningarna VERKTYG Lib s. kontinuerligt genom att trycka på ± tio gånger kommer att göra att 200 sets TOOL Libs blir knappen stängd och det högra fönstret blinkar TL - CLOSE och markeringen försvinner · när markeringen "21" försvinner kan de 200 uppsättningarna TOOL Libs inte revideras ·

Operationerna för TOOL-data och anrop av TOOL visas enligt följande · steg 1: I ABS-tillstånd, mata in data för de 200 uppsättningarna TOOL Libs. TILL öppna 200 sets TOOL Libs genom att kontinuerligt trycka på knappen ± tio gånger A. Markera "" kommer att visas i det vänstra fönstret till höger infofönster.

steg 2: tryck TOOL för att komma åt inmatningsläget. Mata in rooi 1-data:




steg 3: Mata in TOOL 2-data:




steg 4: tryck på för att fortsätta att mata in data för nästa verktyg. GENOM att trycka

nummer och nyckeln operatören kan mata in specialen direkt

verktygsdata. trycka TOOL berör

Efter att TOOL libs har ställts in · använd TOOL libs enligt efter operationer montera först det andra verktyget ·

steg 5: För att komma åt användningstillståndet med pr css CALL . Sedan pr css 2 EN T


steg G: tryck ▲ eller ▼ · välj basvalet. Tryck sedan på 1 OCH T .


;

steg 7: tryck CALL för att avsluta funktionen;

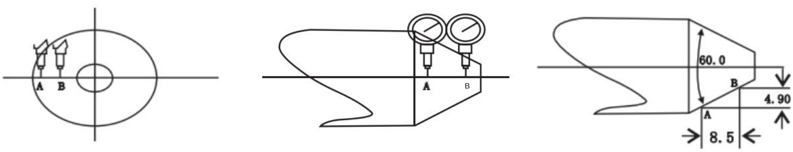
Notera:

när basverktyget används , axeln kan inte nollställas i ABS-tillstånd ·

när de andra används , axeln kan endast nollställas i INC-tillstånd ·

6 . 9 . 2 Taper Funktion

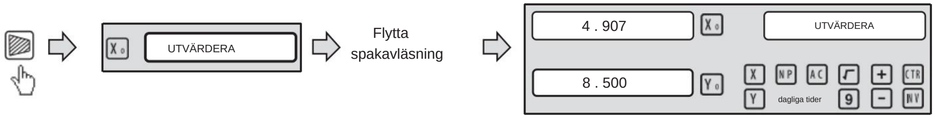
För svarvning av arbetsstycket med kona kan arbetsstyckets kon mätas i bearbetning;



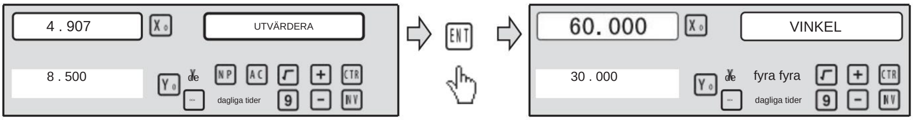
## Operations :

AS-figur, kontaktyta A Av arbetsstycke med spakavläsningar och återställer spakens avläsningar till noll ·

steg 1: tryck sedan på, meddelandefönstret visa UMEASU" till pappersbearbetning · Flytta spakens avläsning till ytan B Tills spakavläsningar punkt SOM följer;




steg 2: tryck på " för att beräkna.




steg 3: tryck för att avsluta funktionen;

### 6 . 9 . 3 R/D-funktion

För 2 x svarvar och 3 axlar svarv, tryck , Visningsläget ofx-axeln växlas mellan Radie och Diameter. när x-axeln för visning av Diameter, A mark u " kommer att visas till vänster om höger informationsfönster, men när X-axeln för visning av ia meter , märket " " försvinner · endast x-axeln har funktionen av diametern /radien transformation.

### 6 . 9 . 4 Y + Z Funktion (gäller endast: 3 axlar La the)

För 3 axlar La, räknaren på axeln och räknaren på z-axeln Kan läggas till som visas i Z-axeln genom att trycka på knappen , tryck sedan på knappen KAN avbryta y + Z-funktionen ·

6.10 EDM (särskild anpassningsfunktion, om du behöver köpa, tack kontakta återförsäljaren för att anpassa)

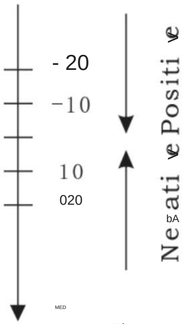
1 ÿ Beskrivning: Denna funktion används för specialbearbetning av Elektrourladdningsbearbetning (EDM) . när det inställda målvärdet för EDM Z-axeln är lika med det aktuella värdet, den digitala avläsningen kommer att mata ut switchsignal för att styra EDM för att stoppa djupbearbetningen.

Inställningen av Z-axelns riktning för den digitala avläsningen visas som Fig. 1 , dvs. Ju djupare djupet är, desto stort är Z-axelns koordinatvärde visas · sedan start av bearbetning kommer djupet gradvis att fördjupas och Z-axeln.

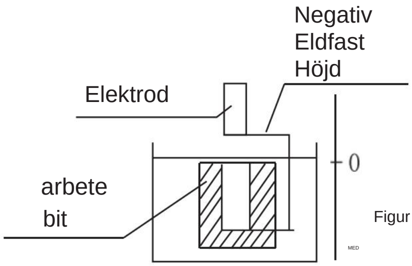
Enligt den inställda Z-axelns riktning är bearbetningsriktningen uppdelad i positiv och negativ bearbetning · när elektroden sjunker och bearbetningen utförs från upp till ner, det digitala avläsningsvärdet kommer att öka, vilket kallas positiv bearbetning (positiv). Inställningen av denna riktning är den normala inställningen·

när elektroden ASCEnds och bearbetningen utförs från ner till upp kommer det digitala avläsningsvärdet att minska · Den bearbetningsriktning är negativ riktning (negativ), vilket också kallas negativ bearbetning (visas som fig. 1)

Digital Readout har även andra funktioner , sådan AS negativ brandsäker höjd. Negativ brandsäker höjd funktion är ett slags intelligent position följ kontroll säkerhetsskyddsanordning. I processen vid bearbetning kommer elektrodytan att generera kolet ackumuleringsfenomen. På grund av den långa eller dagliga bearbetningen utan att tendera , när man genererar kolansamlingen och ingen gör rengöringen, elektroden kommer långsamt att öka längs med negativ riktning · när elektroden överstiger vätskenivån kommer den att göra det tar ofta eld och orsakar förluster. Denna funktion är bara inställd på mål vid detta problem. vid inställning av negativ brandsäker höjd, och den ökad höjd på elektroden överstiger höjden mellan den och djup av bearbetad yta (dvs. negativ brandsäker höjd), den digitala avläsningsdisplayen blinkar för WQring; samtidigt utgången signalen stängs automatiskt av EDM för att eliminera brandrisken ·




Figur 1




Figur 2

2 . procedur:

se följande exempel för detaljerad bearbetning

1) Före bearbetning, ställ först in varje parameter för DEPTH (bearbetningsdjup); ERRHIGH( negativ brandsäker höjd), bearbetning riktning (POSITIV / NEGATIV) ; utgångsläge (AUTO/STOPP) och EDM-reläutgångsläge · 2) Flytta huvudaxelelektroden på Z-axeln så att den kommer i kontakt med arbetsstyckesreferens · nollställ A-axeln eller ställ in värdet ·

3) Ange EDM-bearbetning genom att trycka på knappen EDM .

4) X-axeln visar bearbetningsdjupets målvärde· Y-axeln kommer visningsvärdet har varit att vara djup. (Värdet på Y-axeln är värde att arbetsstycket har bearbetats djup) Z-axeln kommer visa självpositionsvärde i realtid. (Värdet på Z-axeln är positionsvärdet för huvudaxelelektroden på z-axeln.)

5) starta bearbetningen, Z-axelns visningsvärde är gradvis nära målvärde, andy-axelns visningsvärde är också gradvis nära målvärde. Om vid denna tidpunkt elektroden upprepas upp och ner, kommer Z-axelns visningsvärde att ändras senare, men y-axelns visning värdet kommer inte att ändras, vilket alltid visar det bearbetade djupet value.

6) när Z-axelns visningsvärde är lika med det inställda målvärdet omkopplaren för att nå positionen kommer att stängas av, EDM kommer att stoppa bearbetningen, Enligt operatörsinställningen · Det finns två typer av utgångslägen:

a) Automatic Mode:

it will automatically exit from EDM machining status and recover to the original state before machining;

b) Stop Mode:

It will always stay at the machining interface after finishing machining, and you should press [EDM] to exit and back to the original state.

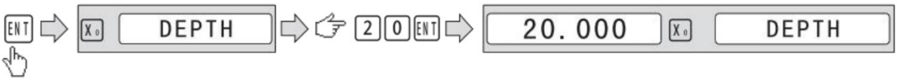
**Operation steps:**

**The DEPTH (machining Depth), ERRHIGH (Negative fireproof height), exit Mode, EDM Relay Output Mode and machining direction should be set.**

STEPS:

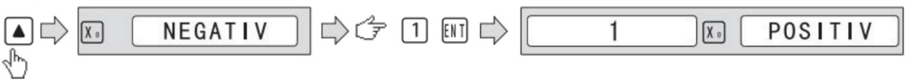
1. Press [EDM] to enter the EDM Function. Press [▲] to input parameters;Press [▼] to enter EDM machining state.

2. Input DEPTH ( machining depth). Press the key [▲] to set the next parameter.




3. input ERRHIGH ( Negative Fireproof Height ) (undefine) .Press the key [▲] to set the next parameter.


4. Set machining direction(Positive or Negative). Press [1] to select Positive direction. Press [0] to select Negative direction. Press the key [▲] to set the next parameter.



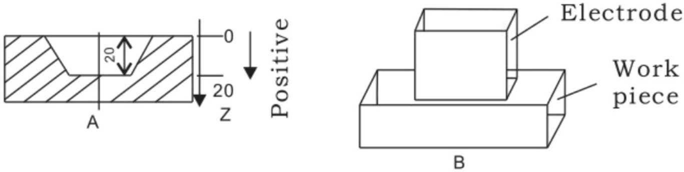
5. Set exit Mode (AUTO Mode or STOP Mode) Press [0] to select AUTO Mode; Press [1] to select STOP Mode ; Press the key [▲] to set the next parameter.


6. Set the Output Mode (Mode 0 or Mode 1); ( undefine ). Press [0] to select Mode 0; Press [1] to select Mode 1.


7. Continuously press [▼] to return EDM for machining. press [EDM] to quit the function;

**Example 1: positive direction machining ;**

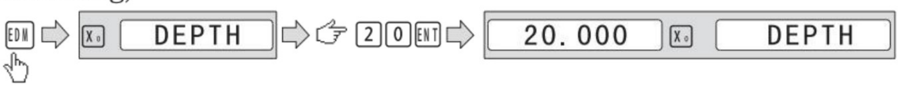
Machining is shown as the model chamber as follows



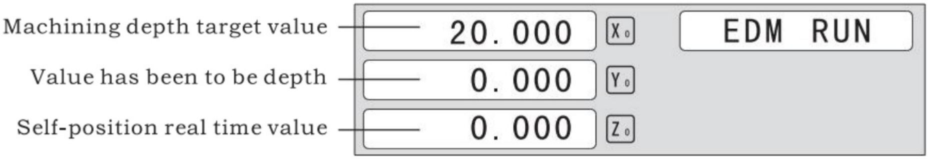

STEPS:

1、Touch one side of the workpiece with the TOOL,then press [Z0] , zero the Z axis。


2、Press [EDM], Setting DEPTH for 20.000; press [▼] to EDM for machining;

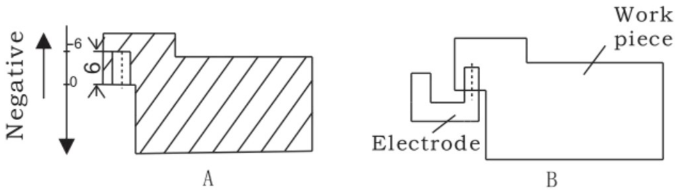



3、Starting machining。




**Example 2: Negative direction machining**

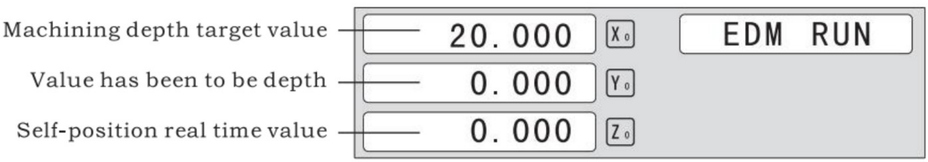
Machining is shown as the model chamber as follows




1、Touch one side of the workpiece with the TOOL,then press Z0 , zero the Z axis。


2、Press EDM , Setting DEPTH for -20.000; press ▼ to EDM for machining;


3、Starting machining。




**Example 3:** PCD Function for EDM

PCD Function can access the EDM Function . The operator enters PCD Function to input parameters for PCD and enter PCD machining state. At every position for machining, press the key EDM to access the EDM Function .

när EDM-funktionen går in, KAN operatören mata in parametrarna för EDM ·

Operationsproceduren är som följer:

1) ställ in PCD-parametrar (inställningen är densamma som den vanliga inställningen av PCD)

Efter inmatning av alla parametrar och ange PCD-bearbetningstillstånd · Den positionen för det första hålet visas.

2) tryck på  för att ange parametern EDM Function (inställningsmetoden är samma som den vanliga inställningen för EDM-parametern); efter inmatning alla paramneters , tryck kontinuerligt när  för att gå in i EDM-bearbetningstillstånd. bearbetningen är klar, tryck på enter PCD-  för att avsluta EDM-funktionen och bearbetningstillstånd ·

3 )I PCD-bearbetningstillstånd, tryck  för positionen för nästa hål, ÖVER maskinen till visningsvärdet 0 , sedan pr css  att komma åt EDM-funktion igen · 4)

Upprepa steg 2 och steg 3 för följande bearbetningspunkter.

## 7 kalkylator

Kalkylatorn ger inte bara normala matematiska beräkningar som +, - , x , /, det ger också trig på metriska beräkningar såsom AS SYND , Arc SIN , COS , Arc COS , SOLBRÄNNA , Arc TAN SQRT etc.

Operationerna är desamma som de kommersiella miniräknare, lätta att använda.

### Gå in i och avsluta kalkylatorns funktion

i normalt displayläge: tryck på R för att gå in i kalkylatorfunktionen. $\boxed{CT}$

i räknarens visningsläge: tryck på R för att avsluta räknarfunktionen. $\boxed{CT}$

ÖverföringkalkulatorResultat vald zx är.

Efter att beräkningen är klar, om räknarens visningsläge är inställt för läge 1 , användaren kan:

tryck på $\boxed{X_0}$ att överföra den beräknade resultatet toxaxeln; sedan x fönster för att visa detta värde;

trycka $\boxed{Y_0}$ att överföra det beräknade resultatet leksaksaxeln; då de fönstret kommer att visa detta värde;

tryck på $\boxed{Z_0}$ att överföra det beräknade resultatet till zaxis; sedan z fönster för att visa detta värde;

### Överför det aktuella visningsvärdet i fönstret till kalkylatorn.

om räknaren visar Läge inställt för läge 1 , användaren kan:

trycka $\boxed{X}$ att överföra visningsvärdet i x-fönster till kalkylator;

trycka $\boxed{Y}$ för att överföra visningsvärdet i Y Window för att beräkna r;

trycka $\boxed{Z}$ för att överföra visningsvärdet i z-fönstret till räknaren;

# 8 Appendix

## 1. Troubleshooting:

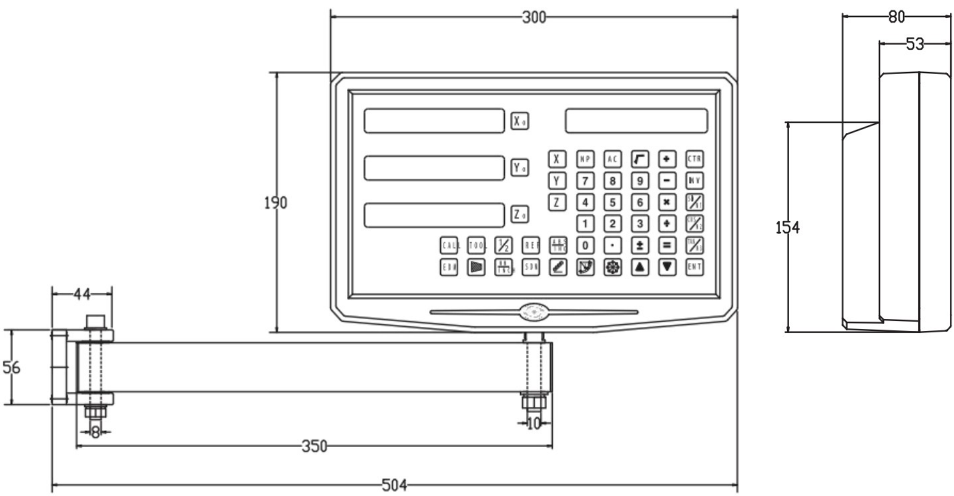
The following are the preliminary solvents for troubleshooting.

If there is still trouble, Please contact out company or agents for help.

| Troubles | Possible reasons | Solvents |
|---|---|---|
| No display | 1. Power isn't connected<br>2. Power switch is off.<br>3. The range of power voltage is not right.<br>4. The inner power of Linear Scale is short. | 1. Check power wire and connect the power<br>2. Turn on the power switch.<br>3. The range of voltage is in 80--260V<br>4. Unplug the connector of linear scale |
| One axis is not counting | 1. Replace the linear scale of the other axis.<br>2. DRO is in special function | 1. If count is normal, the linear scale has trouble; If abnormal, the DRO readouts has trouble.<br>2. Quit the special function. |
| Linear scale is not counting | 1. Reading head is bad for using range exceeds.<br>2. Aluminum chips is in reading head of linear scale.<br>3. The span between the reading head and metal part of linear scale is large.<br>4. The metal parts of linear scale is damage. | 1.Repair the linear scale<br>2. Repair the linear scale<br>3. Repair the linear scale<br>4. Repair the linear scale |
| Counting is error | 1. Shell is poor grounding.<br>2. Low precision of machine.<br>3. Speed of machine is too rapid.<br>4. Precision of linear scale is low.<br>5. The resolution of DRO readouts and the linear scale is not match.<br>6. The unit (mm/inch) is not match.<br>7. Setting thelinear compensating is not arrest.<br>8. Reading head of the linear scale is damaged. | 1. Shell is good grounding.<br>2. Repair the machine.<br>3. Reduce the speed of machine.<br>4. Mount the linear scale again.<br>5. Set the resolution of the DRO again,<br>6. Cover the unit of display mm/inch.<br>7. Reset the linear compensation.<br>8. Repair the linear scale. |
| The counting of the linear scale is not accurate | 1. The mounting of linear scale does not demand the requirement, and the prcision is not adequate.<br>2. The screw is loosen.<br>3. Precision of machine is low.<br>4. The resolution of digital readouts and the linear scale is not match. | 1. Mount the linear scale again and level it.<br>2. Lock all fixing screws.<br>3. Repair the machine.<br>4. Reset the resolution of digital readouts. |
| Sometimes the linear scale is not counting | 1. The small car and steel ball is separated.<br>2. The glass of reading head is wearied.<br>3. The glass of reading head of the linear scale has dirt.<br>4. The elasticity of the steel wire is not adequate. | 1. Repair the linear scale.<br>2. Repair the linear scale.<br>3. Repair the linear scale.<br>4. Repair the linear scale. |

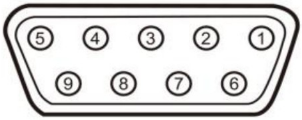
2. Specifications of Digital Readout.
   1) Supply Voltage range: AC 85 V ~ 230 V; 50 ~ 60 Hz
   2) Power consumption: 15VA
   3) Operating temperature: 0℃-- 50℃
   4) Storage temperature: - 30℃-- 70℃
   5) Relative humidity: < 90 % ( 25 )
   6) Max Coordinate number: 3
   7) Readout allowable input signal: TTL square wave
   8) Allowable input signal frequency: < 5 M Hz
   9) Max resolution of digital display length: 0.01 um
   10) Max resolution of digital display angle: 0.0001 / PULSE

3. Instructions



# 4. Examples of character output at the data interface

## 1、X,Y,Z Axis

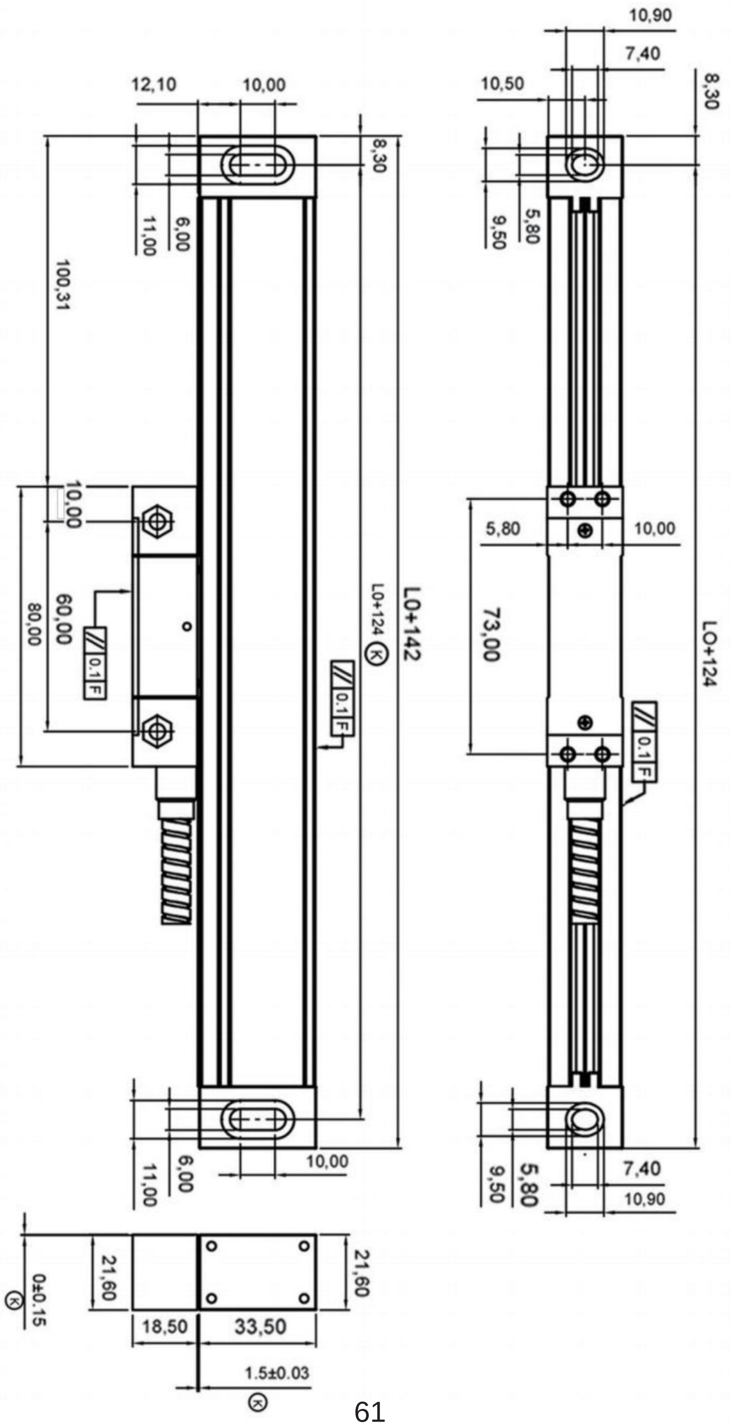



| Pin | TTL (Standard) |
|---|---|
| 1 | |
| 2 | OV |
| 3 | |
| 4 | |
| 5 | |
| 6 | A+ |
| 7 | 5V |
| 8 | B+ |
| 9 | R+ |

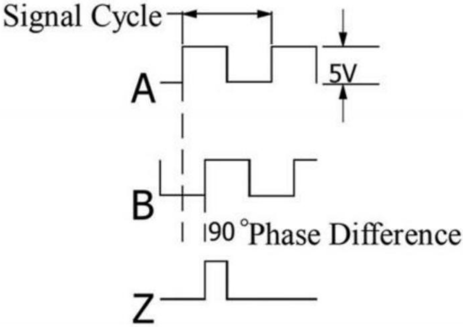
| Pin | TTL (Standard) |
|---|---|
| 1 | 5V |
| 2 | OV |
| 3 | A+ |
| 4 | B+ |
| 5 | R+ |
| 6 | |
| 7 | |
| 8 | |
| 9 | |

For your convenience,
If you buy a digital readout,

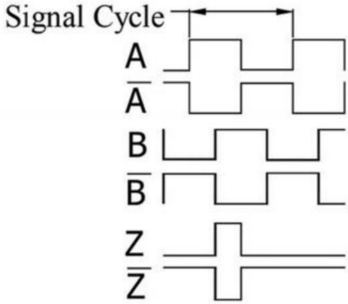
The wiring definition of your linear scale must be the same as the 2 definitions in the above diagram to be universal!


10,90
7,40
12,10
10,00
10,50
8,30
8,30
11,00
6,00
9,50
5,80
100,31
10,00
5,80
10,00
60,00
80,00
L0+124 Ⓚ
L0+142
73,00
LO+124
0.1 F
0.1 F
0.1 F
11,00
6,00
10,00
9,50
5,80
7,40
10,90
21,60
21,60
0±0.15
18,50
33,50
1.5±0.03

TTL signal Output:




EIA-422-A signal Output:




1. TECHNICAL PARAMETER

1.1 SCALING DISTANCE: 0.02 MM (50LINES /MM)

1.2 RESOLUTION: 5μM、1μM、0.5μM

1.3 PRECISION: ±3μM、±5μM、±15μM/M (20±0.1℃)

1.4 MEASURING RANGE: 30~3000MM

1.5 MOVING SPEED: HIGH-SPEED ENCODER 120 M/MIN (TO BE CUSTOMIZED)

ORDINARY ENCODER 60M/MIN

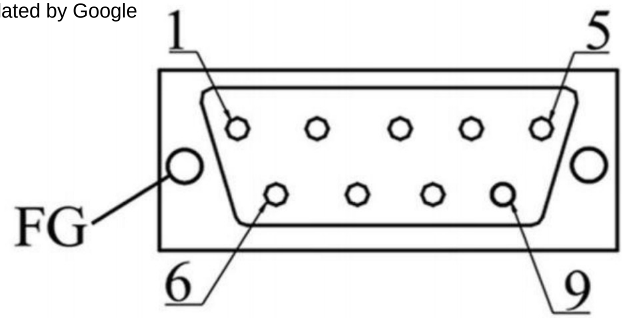
1.6 POWER SUPPLY: +5V±5%、80MA

1.7 CABLE LENGTH: STANDARD 3M (SPECIAL LENGTH AVAILABLE ACCORDING TO THE USER'S NEEDS)☒

1.8 WORKING TEMPERATURE: 0~45℃

1.9 PIN DESCRIPTION:

1) APPLICABLE TO: 9 PIN SOCKET EIA-422-A SIGNAL OUTPUT.




1) Applicable to: 9 pin socket EIA-422-A signal Output.

| Pin Position | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| Signal | $\overline{A}$ | OV | $\overline{B}$ | Empty | $\overline{Z}$ | $A$ | +5V | $B$ | $Z$ |
| Color | Green Black | Black | Orange black | FG | White black | Green | Red | White | Orange |

FG: Shield connected to metal casing.

1) Applicable to: 9 pin socket TTL signal Output.

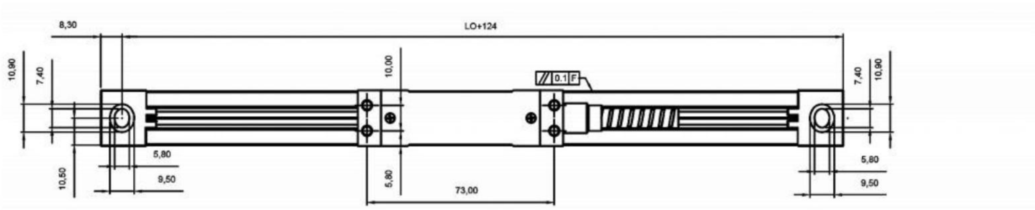
| Pin Position | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| Signal | | OV | | Empty | | $A$ | +5V | $B$ | $Z$ |
| Color | | Black | | FG | | Green | Red | Orange | White |

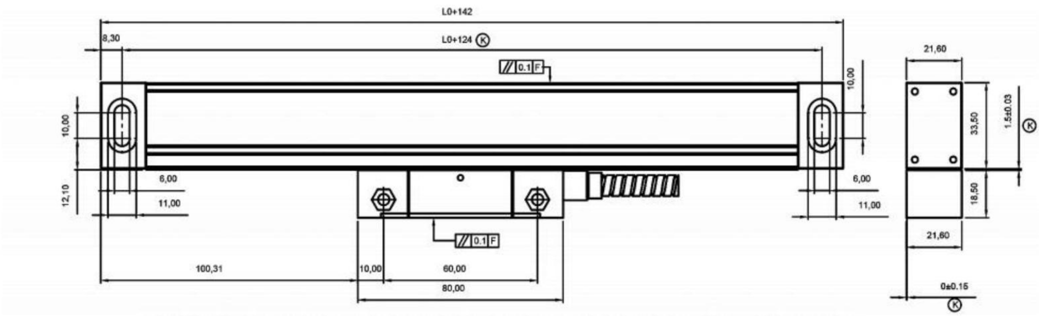
FG: Shield connected to metal casing.

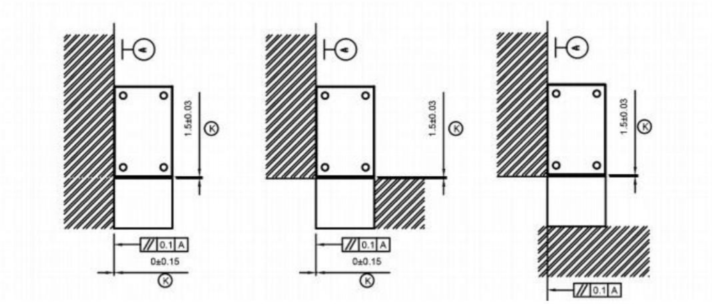
# Linjär skala

# Installationsritningar

# Installationsmetod:



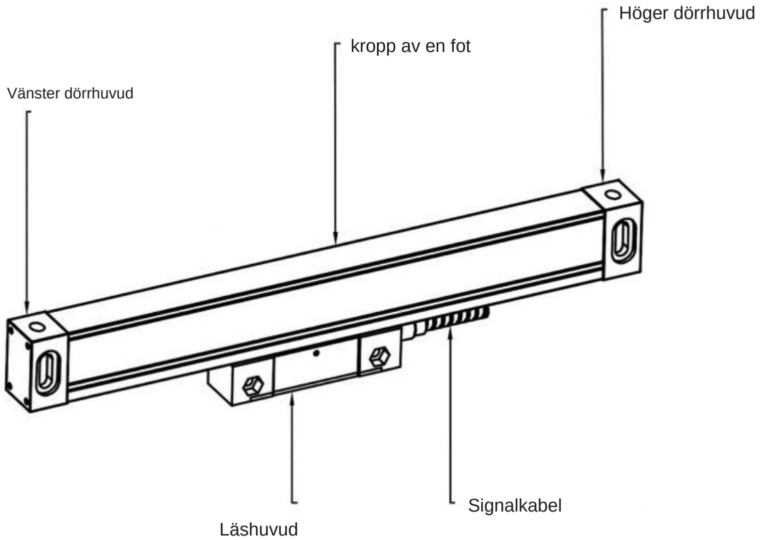

## Standardstorlek: (Enhet:mm)

| Modell | DET | L1 | L2 | Modell | L0 | L1 | L2 |
|---|---|---|---|---|---|---|---|
| YE-50 | 50 | 174 | 190 | YE-550 | 550 | 674 | 690 |
| YE-100 | 100 | 224 | 240 | YE-600 | 600 | 724 | 740 |
| YE-150 | 150 | 274 | 290 | YE-650 | 650 | 774 | 790 |
| YE-200 | 200 | 324 | 340 | YE-700 | 700 | 824 | 840 |
| YE-250 | 250 | 374 | 390 | YE-750 | 750 | 874 | 890 |
| YE-300 | 300 | 424 | 440 | YE-800 | 800 | 924 | 940 |
| YE-350 | 350 | 474 | 490 | YE-850 | 850 | 974 | 990 |
| YE-400 | 400 | 524 | 540 | YE-900 | 900 | 1024 | 1040 |
| YE-450 | 450 | 574 | 590 | YE-950 | 950 | 1074 | 1090 |
| YE-500 | 500 | 624 | 640 | YE-1000 | 1000 | 1124 | 1140 |

L0: Effektiv mätlängd för linjärgivaren; L1: Längd på linjär givare monteringshål; L2: Linjär givare total längd

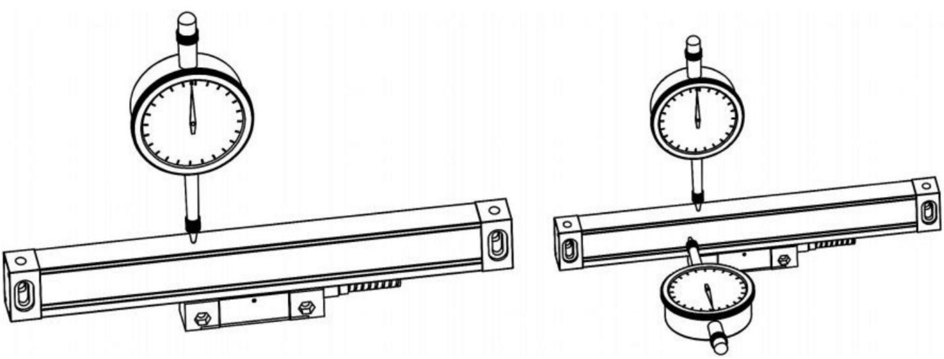
# Underhåll:

1. Den effektiva rörelsen för linjärgivaren bör vara längre än max rörelse av verktygsmaskinen. Om längden inte räcker, byt ut den linjära pulsgivaren med ett större slag eller lägg till ett gränsblock på maskinerna. Läshuvudets ändposition från änden av den linjära givarens kropp bör inte vara mindre än 10 mm utrymme, (se följande diagram).

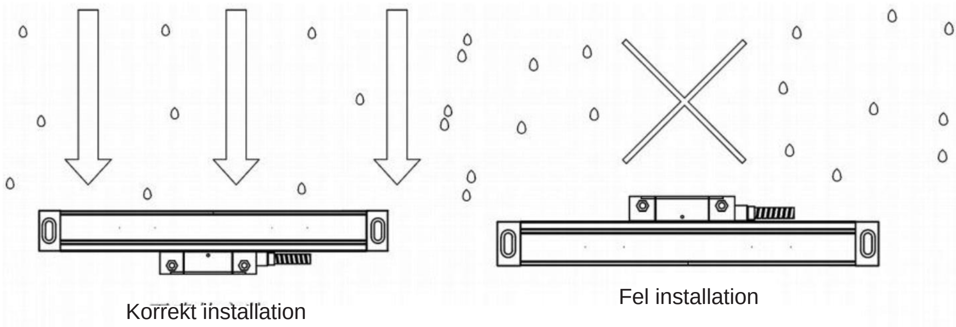



2. För alla icke-bearbetade ytor måste ett mellanlägg placeras på baksidan av den linjära omkodaren eller så måste ett användartillverkat installationsunderlägg användas för att säkerställa stabiliteten och tillförlitligheten hos anslutningen mellan gallerlinjalen och monteringsyta

3. När du använder en mätklocka eller liknande instrument för att kalibrera parallelliteten hos den linjära kodaren, måste vinkeln på sidohuvudet vara inom ±30 grader, och ju mindre vinkeln är, desto bättre.

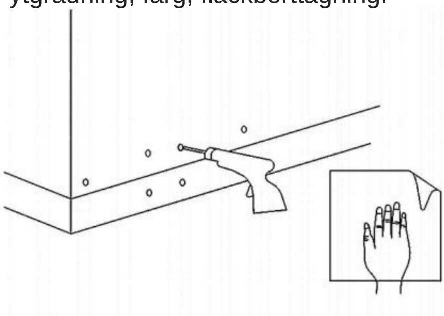


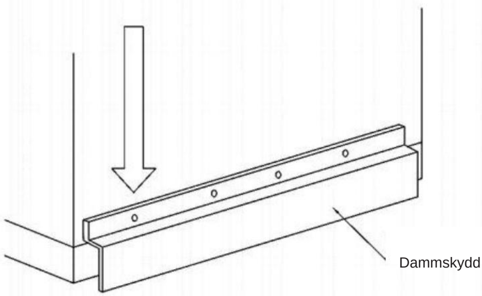
4. Installationspositionen för linjärgivaren måste undvika direkta stötar från järn fil, olja, vatten och damm (som visas i bilden nedan). Installationslängden av L-plattan bör vara så kort som möjligt under möjliga omständigheter, och monteringsytans kraftsituation måste beaktas.




5. Det måste finnas ett mellanrum på 0,5 mm eller mer mellan dammskyddet och linjalen kropp, och undvik kontakt mellan dammskyddet och linjalkroppen när flytta läshuvudet (enligt nedan).

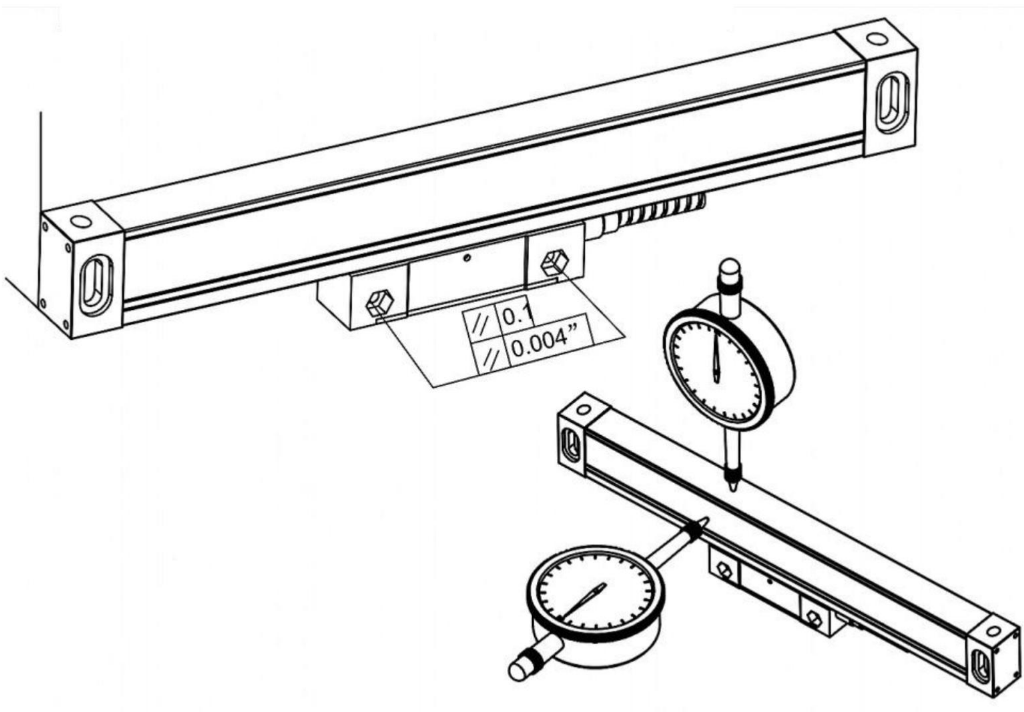
6. Installationsskruvens gängdjup, minst måste ha 6 tänder med låsdjup; kraft större del, såsom att stödja den digitala displayen mätare hyllan fast platta, måste ha 8 tänder låsningsdjup; YE serie av skala, djupet av tråden djupet på låsdjupet. Som att stödja den digitala displayen mätare hyllan fast platta, måste ha mer än 8 tänder låsdjup; YE serieskala Med M4 skruvar monterad monteringsyta gängning efter ytgradning, färg, fläckborttagning. (Följande bild)



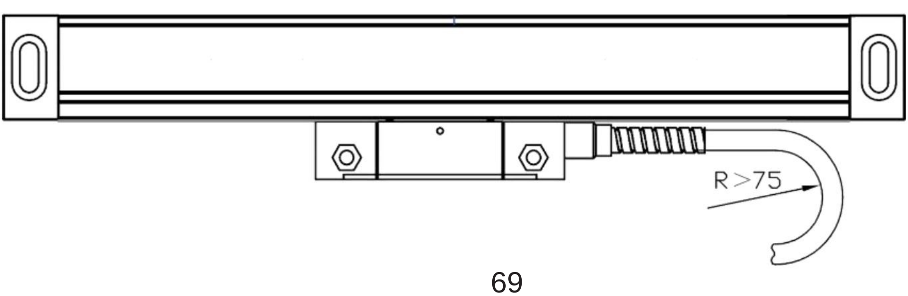


7. Fixeringen av signalledningen måste ta hänsyn till alla relevanta rörelseavstånd. Fixeringsposition så långt som möjligt placerad i mitten av slaget, och överskottssignalledningen fixeras med en wire tie.

8. Justering av skalans höjdnivå måste vara längden på skalans centrum för att ta de två sidorna av symmetripunkten. Justera referenspunkten, vilken skala som helst oavsett skolnivåns riktning eller höjdriktning, justeringsområde: för skalan kropp, till huvudet från vågkroppen på ett avstånd av högst 20 mm från varje ände ska råda. För läshuvudet, mellan de två fyrsidiga referensytorna (följande bild)




9. Böjningsradien för vågens signallinje är större än 60 mm.



10. Skala installationsstandard

(1) Ytstandard för installationsbas (Figur 4.8abc tre installationsmetoder)

1. Linjalkroppens installationsyta är parallell med läshuvudets installationsyta och parallelliteten mellan installationsytorna är <0,1 mm

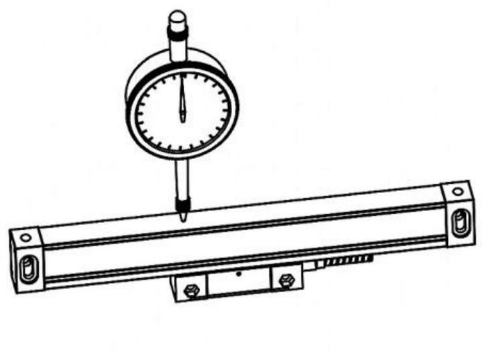
2. Linjalkroppens installationsyta är vinkelrät mot installationen läshuvudets yta, och vinkelrätheten mellan installationsytorna är <0,1 mm

2) Installationsstandarder för linjalkropp (Figur 4.9, Figur 4.10)

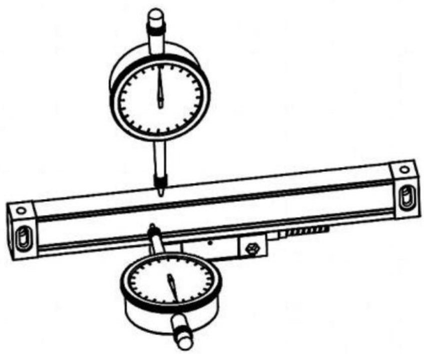
1. Höjdriktning i förhållande till maskinstyrningens parallellitet <0,1 mm, max inte mer än 0,15 mm När det gäller symmetripunkten, ju mindre desto bättre.

3ÿ Standard för installation av läshuvud

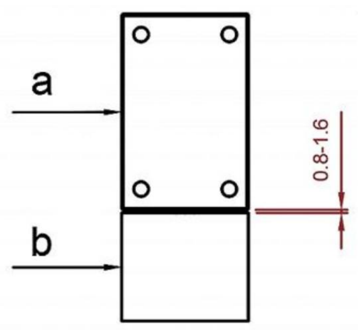
1. Spelet mellan läshuvudet och linjalkroppens höjdriktning är 0,8 mm-1,6 mm efter installation, och dra sedan tillbaka dynblocket (Figur 4.11)



4.9



4.10




2. Läshuvud a sida och linjalkropp B sida. Felinriktning i horisontell riktning. 0,25±0,15 mm

3. Parallellism av läshuvud i förhållande till verktygsmaskin <0,10 mm, maximalt får inte överstiga 0,30 mm

## Parameter:

| Modle | SNS-3V-YE102024 | SNS-3V-YE161838 |
|---|---|---|
| Rated voltage: | AC85-230V 50Hz/60Hz | |
| Resolution | 5 μm | |
| Number of axles | 3 | |
| Range | 10 inches<br>20 inches<br>24 inches | 16 inches<br>18 inches<br>38 inches |

## Standardtillbehör:

| Accessories for digital display meters: | Accessories for grating ruler: |
|---|---|
| 1. Support rod * 1 | 1. Ruler cover * 3 |
| 2. Knife holder plate * 1 | 2. L mounting plate * 4 |
| 3. Transparent watch case * 1 | 3. Plug * 6 |
| 4. Power cord * 1 | 4. Screw pack * 3 bags |
| 5. Watch holder * 1 | Each bag contains: |
| 6. Butterfly piece * 2 | Internal hexagonal screw M4 * 30 * 4; |
| 7. M8 * 70 screw * 1 | Internal hexagonal screw M4 * 12 * 2; |
| 8. M10 * 55 screw * 1 | Internal hexagonal screw M4 * 8 * 4; |
| 9. Nut M10 * 1 | U-shaped gasket T=0.2mm * 2; |
| 10. Nut M8 * 1 | Washer φ 6 * 2; |
| 11. Nut M5 * 1 | Washer φ 5 * 2; |
| 12. Internal hexagonal screw M5 * 20 * 2 | Washer φ 4 * 6; |
| 13. Internal hexagonal screw M5 * 25 * 1 | Line card * 2 |
| 14. M4 * hex socket screw * 4 | |
| 15. M5 * 10 machine meter screws * 2 | |
| 16. Washer φ 10 * 1 | |
| 17. Washer φ 8 * 1 | |
| 18. Washer φ 5 * 1 | |
| 19. Rubber washer 20 * 10 * 1 * 1 | |
| 20. Rubber washer 20 * 10 * 0.5 * 1 | |
| 21. Spring washer φ 10 * 1 | |
| 22. Spring washer φ 8 * 1 | |
| 23. Spring washer φ 5 * 1 | |

**Denna enhet uppfyller del 15 av FCC-reglerna. Driften är föremål för följande två villkor: (1) Den här enheten får inte orsaka skadliga störningar och (2) den här enheten måste acceptera alla mottagna störningar, inklusive störningar som kan orsaka oönskad funktion.**

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