INFORMATIONS OF PROBE
(TOUCH PROBE)

2016. 12. 30

KIHEUNG MACHINERY Co.,Ltd

Probe calibration

1. What calibration is :

Generally spindle has some tolerance and stylus also has its tolerance when it is clamping in spindle and it needs to be adjusted the tolerance lower by calibration cycle.

2. How to command

G65 P9019 D_ S_

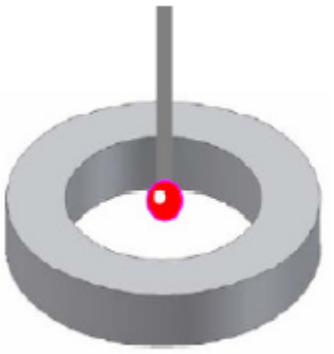
Ex) G65 P9019 D29.999 S54.

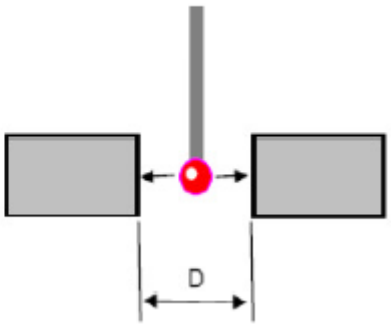
Here variables :

D = Ring gauge diameter

S = Center setting coordinates of ring gauge

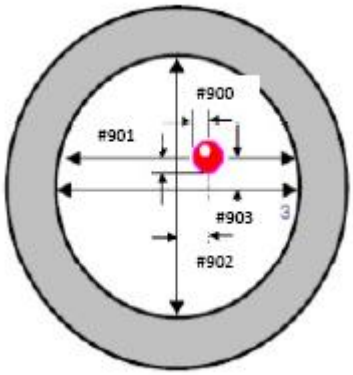
(S54 ~ S59 => G54 ~ G59)





TOUCH PROBE

Measuring result



1. Measured result is memorized into macro variables :

   #900 = X axis direction stylus ball radius(X RAD)

   #901 = Y axis direction stylus ball radius(XY RAD)

   #902 = X axis eccentricity

   #903 = Y axis eccentricity

2. How to compensate

   1) Measure center of ring and enter machine position(X, Y) into work coordinates that you want

   2) Installing touch probe

      Here variables :

      D = Ring gauge diameter

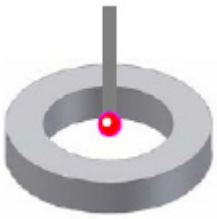
      S = Center setting coordinates of ring gauge

      (S54 ~ S59 => G54 ~ G59)

   3) Moving prove to the center of ring by Handle or Jog

   4) Changing MDI MODE and running :

      G65 P9019 D29.999 S54 ;



X, Y, Z Single Surface Measurement

1. What is :

To decide the measured surface as basement, refresh work offset.

And after measuring return to the start point..

2. Commanding :

G65 P9019 A1 X_ Y_ Z_ S_ [I, J, K]

Ex)

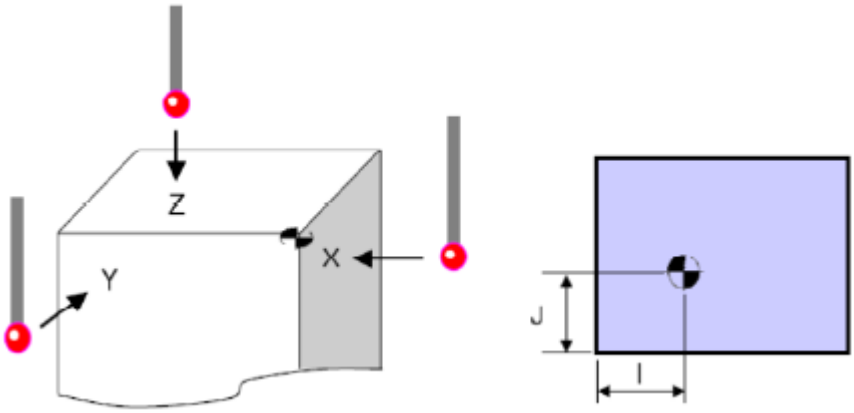
G65 P9019 A1. X10. S54

Parameters : necessary

A1	Single surface measurement(Necessary)
X, Y, Z	Distance from measuring surface (X or Y or Z)
S	Work offset (S54 ~ S59 => G54 ~G59)

Parameters : optional

I, J, K	Distance from workpiece coordinates

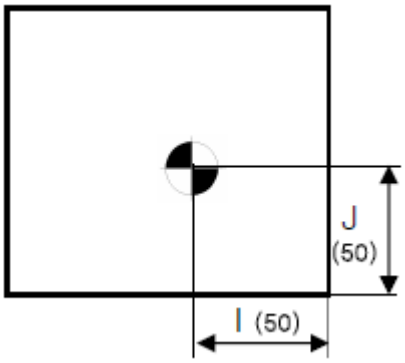


TOUCH PROBE

3. Method :

1) Changing tool to probe.

2) Moving probe adjacent to the measuring surface 1
(About 10mm ~ 15mm)



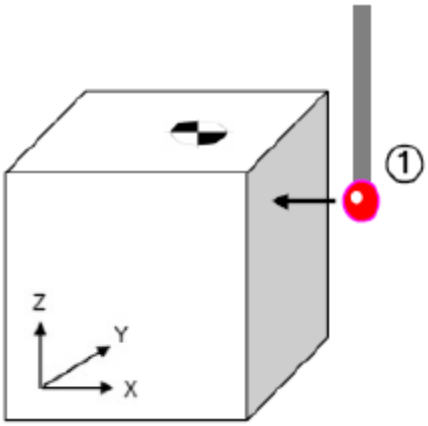
3) In MDI MODE executing :
G65 P9019 A1. X-10. I50. S54

4) Into X axis coordinate of G54 entering +50 automatically
(Also measuring Y and Z axis as same)

Ex)
O1000 (Z)
G65 P9019 A1. Z-20. S59 K0.

O1001 (X)
G65 P9019 A1. X-20. S59 I0.

O1002 (Y)
G65 P9019 A1. Y-20. S59 J0.



Boss(Hole outer surface) Measurement

1. What is :

To set up work offset to center of hole or measure hole outer diameter offset.

And after measuring return to the start point..

2. Commanding :

G65 P9019 A2 D_ Z_ S_

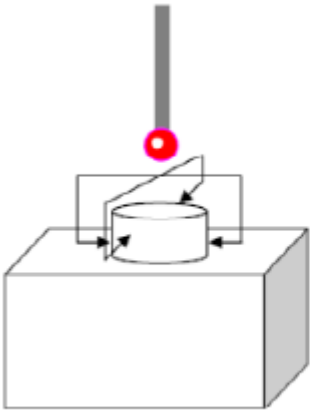
Ex)

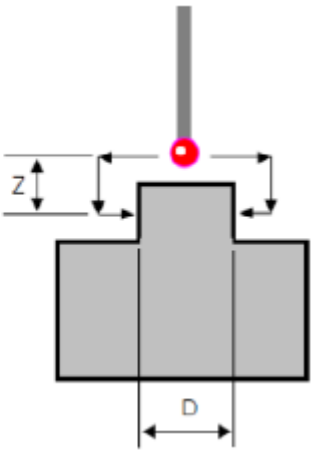
G65 P9019 A2. D20. Z15. S54

Parameters : necessary

A2	Boss measurement(Necessary)
D	Hole outer diameter
Z	Measuring position from stylus (Absolute)
S	Work offset (S54 ~ S59 => G54 ~G59)

#916 Hole outer diameter

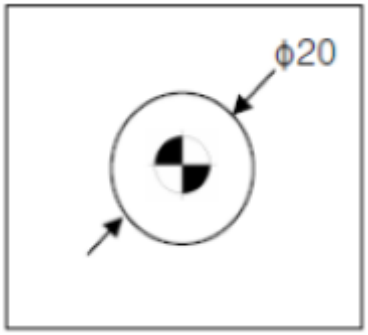




TOUCH PROBE

3. Method :

1) Changing tool to probe.

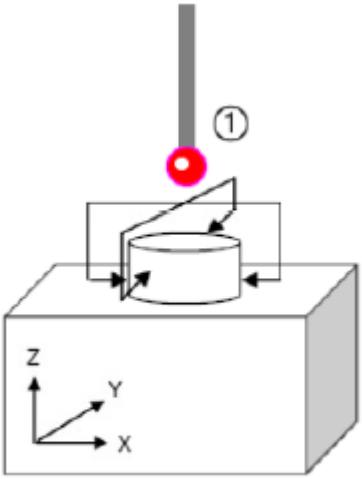


2) Moving probe adjacent to the measuring surface 1
(About 10mm ~ 15mm)

3) In MDI MODE executing :
G65 P9019 A2. D20. Z15. S54

4) Into X, Y axis coordinates of G54 entering current X, Y values automatically

Ex)
O3000 (HOLE)
G65 P9019 A2. D30. S59. Z-20.



Bore(Hole inner surface) Measurement

1. What is :

To set up work offset to center of hole or measure hole inner diameter offset.

2. Commanding :

G65 P9019 A2 D_ S_

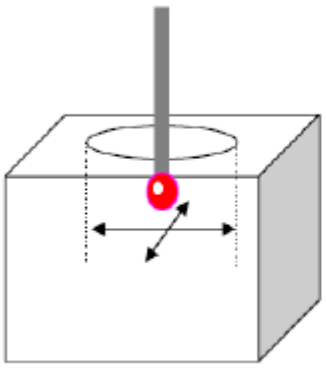
Ex)

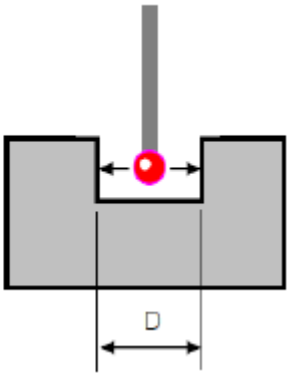
G65 P9019 A2. D20. S54

Parameters : necessary

A2	Bore measurement(Necessary)
D	Hole inner diameter
S	Work offset (S54 ~ S59 => G54 ~G59)

#916 Hole inner diameter

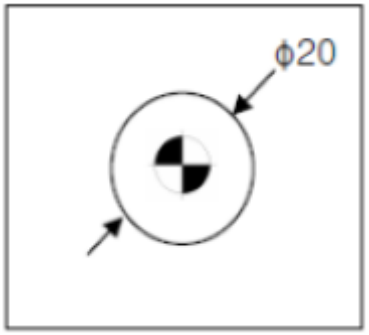




TOUCH PROBE

3. Method :

1) Changing tool to probe.

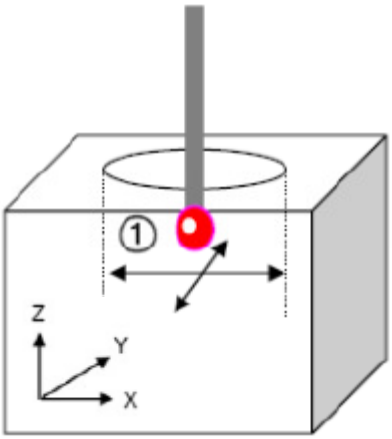


2) Moving probe adjacent to the measuring surface 1
(near center)

3) In MDI MODE executing :
G65 P9019 A2. D20. S54

4) Into X, Y axis coordinates of G54 entering current X, Y values automatically

Ex)
O3000 (HOLE)
G65 P9019 A2. D30. S59.



Web(Outer surface) Measurement

1. What is :

To set up work offset to center of rectangular or measure X, Y outer width.

2. Commanding :

G65 P9019 A3 X_ Y_ Z_ S_ [I_ J_]

Ex)

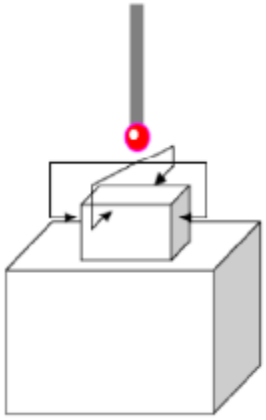
G65 P9019 A3. X20. Y30. Z-15. S54.

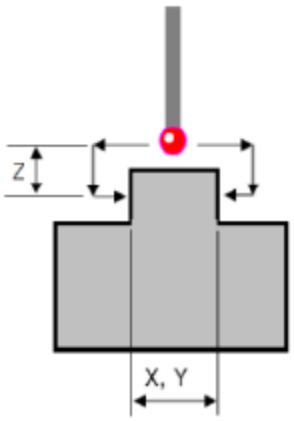
Parameters : necessary

A3	Web measurement(Necessary)
X, Y	Each width
Z	Measuring position from stylus (Absolute)
S	Work offset (S54 ~ S59 => G54 ~G59)

Parameters : optional

I, J	Distance from workpiece coordinates
#917	Web outer width



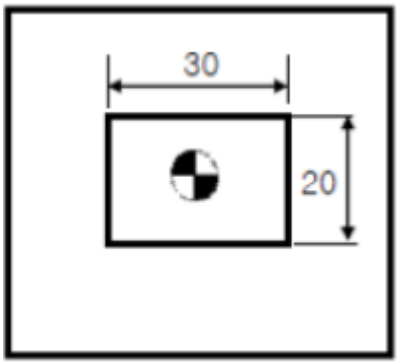


TOUCH PROBE

3. Method :

1) Changing tool to probe.

2) Moving probe adjacent to the measuring surface 1
(About 10mm ~ 15mm)

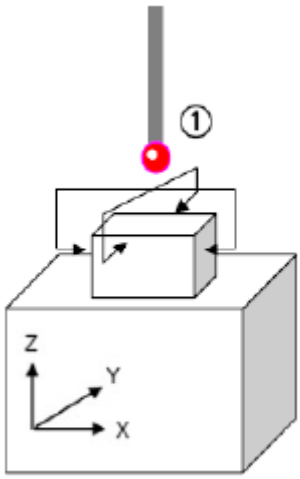


3) In MDI MODE executing :
G65 P9019 A3. X30.. Z-15. S54

4) Into X, Y axis coordinates of G54 entering current X, Y values automatically

Ex)
O2000 (X)
G65 P9019 A3. X30. S59. Z-20.

O2001 (Y)
G65 P9019 A3. Y20. S59. Z-20.



Pocket(Inner surface) Measurement

1. What is :

To set up work offset to center of rectangular or measure X, Y inner width.

2. Commanding :

G65 P9019 A3 X_ Y_ S_ [I_ J_]

Ex)

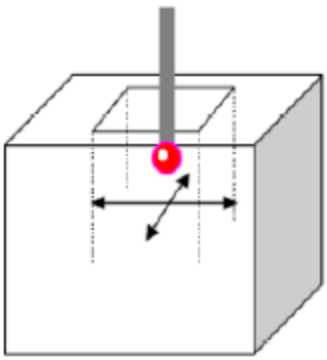
G65 P9019 A3. X20. Y30. S54.

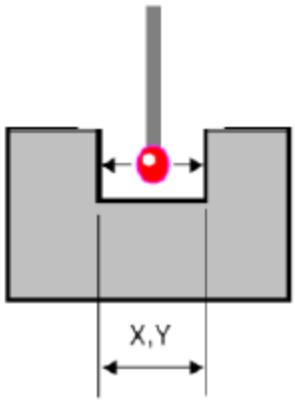
Parameters : necessary

A3	Web measurement(Necessary)
X, Y	Each width
S	Work offset (S54 ~ S59 => G54 ~G59)

Parameters : optional

I, J	Distance from workpiece coordinates
#917	Web inner width





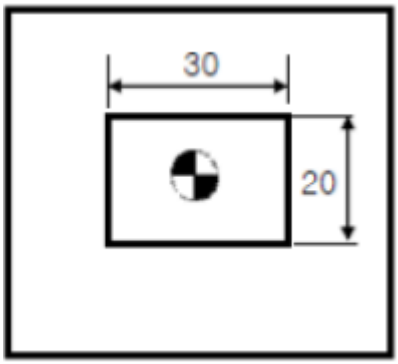
TOUCH PROBE

3. Method :

1) Changing tool to probe.

2) Moving probe adjacent to the measuring surface 1
(near center)

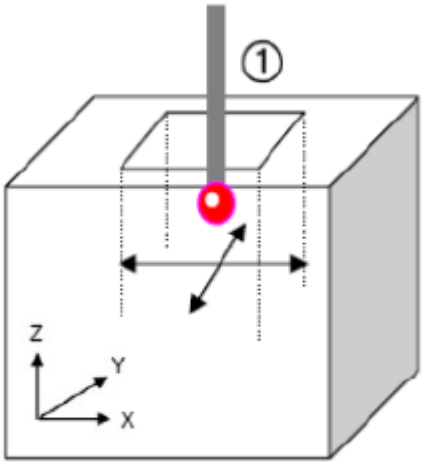
3) In MDI MODE executing :
G65 P9019 A3. X20.. S54



4) Into X, Y axis coordinates of G54 entering current X, Y values automatically

Ex)
O2000 (X)
G65 P9019 A3. X20. S59.

O2001 (Y)
G65 P9019 A3. Y20. S59.



Corner Measurement

1. What is :

To set up work offset to corner X, Y, Z of rectangular altogether.

2. Commanding :

G65 P9019 A4 C_ X_ Y_ S_ [I_ J_]

Ex)

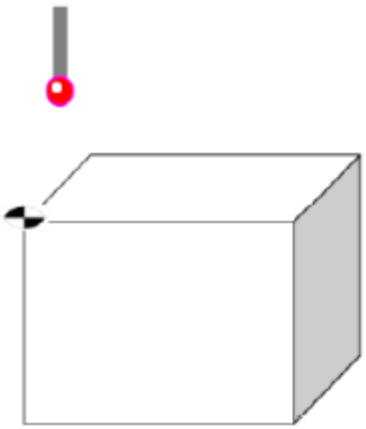
G65 P9019 A4. C1. S54.

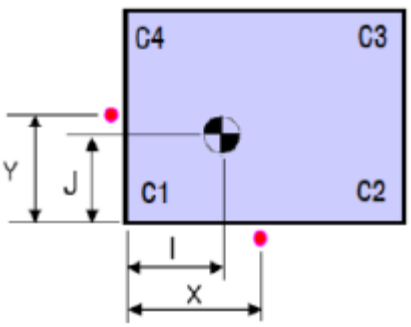
Parameters : necessary

A4	Corner measurement(Necessary)
C	Position of measuring corner
X, Y, Z	Measuring distance from corner (about 15mm)
S	Work offset (S54 ~ S59 => G54 ~G59)

Parameters : optional

I, J, K	Distance from workpiece coordinates
#916	Designation of measuring distance from corner



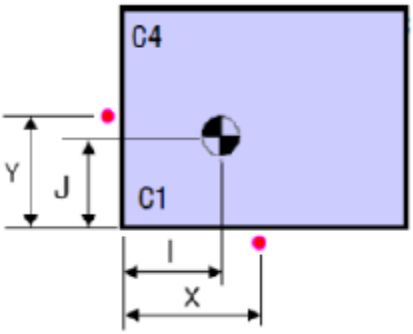


TOUCH PROBE

3. Method :

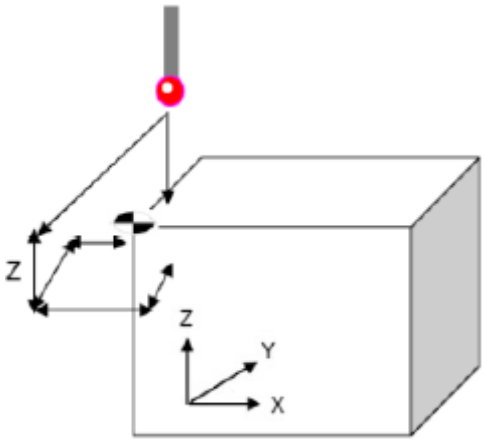
1) Changing tool to probe.

2) Moving probe adjacent to the measuring surface C1
(About 10mm ~ 15mm above Z axis surface)



3) In MDI MODE executing :
G65 P9019 A4. C1. S54

4) Into X, Y and Z axis coordinates of G54 entering current X, Y and Z values automatically



Angle Measurement

1. What is :

To get angle between two points of one surface.

2. Commanding :

G65 P9019 A5 X_ Y_ I_ J_

Ex)

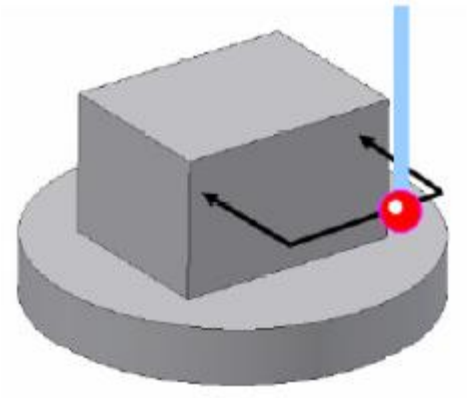
G65 P9019 A5. X10. J30.

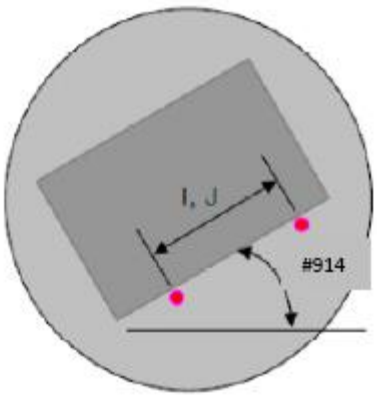
Parameters : necessary

A5	Angle measurement(Necessary)
X, Y	Measuring distance from measuring surface (X or Y)
I, J	Incremental distance between first measuring point to second

Result

#914	Measured angle



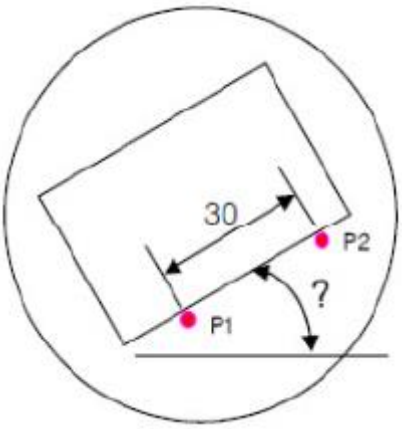


TOUCH PROBE

3. Method :

1) Changing tool to probe.

2) Moving probe adjacent to the measuring position P1
(About 10mm ~ 15mm)



3) In MDI MODE executing :
G65 P9019 A5. A5. Y10. I30.

4) Output results into #914 after measuring two points of one surface

Ex)
O4000(ANGLE SHIFT)
G65 P9019 A5. Y20. I30.