



Electronica EL400 Bolt Hole Circle Function

Congratulations on the purchase of your Electronica EL400 series mill kit. This article addresses how to perform the Bolt Hole Circle function.

The Bolt Hole Circle function is comprised of two similar functions - Bolt Hole Circle and Bolt Hole Arc. Both functions allow the user to program a circular series of points around a designated central point. Bolt Hole Circle distributes the points evenly around a complete circle, whereas Bolt Hole Arc distributes the points along an arc, or in other words, less than a complete 360 circle. Both functions can "slew" the first point, ie allow the first hole to be placed at any given angle and distance from a centrally designated point. Simply put, if you want your points to be equally spaced around a full circle, use Bolt Hole Circle. If you want to put your holes on less than a full circle, or along an arc, then use Bolt Hole Arc.

In order to indicate the correct direction, the EL400 display assumes you have set your scales up as follows: As you cut from left to right on your workpiece (the mill table slides left) the X axis scale should count positive. As you cut from front to back on your workpiece (the mill table slides forward) the Y axis scale should also count positive. While the function will ultimately work with a non-std setup, the following explanations might appear contradictory if the assumed scale directions are not adhered to.

DRO PROS also recommends changing the Zero Beep settings. See the "EL400 Zero Beep" library article, which allows you to reduce the sensitivity of the display beeping as you approach each point.

Bolt Hole Circle:

1. To access the Bolt Hole Circle function, push the Bolt Hole Circle button. It's the top left in the cluster of eight function buttons and has a picture of a circle with three dots equally spaced in a circular pattern. The x axis display window will immediately read "**b hoLE**", then switch to "**CirCLE**" automatically. Also note that "fn" should light on the bottom of the display window in red.
2. Push the "**ent**" key once. The x axis display window will read "**0**", and the y axis window will read "**EntCnt0**".
3. On the keypad, enter the x coordinate value of the center of the circle, followed by the "**ent**" key. The x axis display window will read "**EntCnt1**", and the y axis window will read "**0**".
4. On the keypad, enter the y coordinate value of the center of the circle, followed by the "**ent**" key. The x axis display window will read "**rAdiUS**", and the y axis window will read "**0**".
5. On the keypad, enter the desired radius value of the circle, followed by the "**ent**" key. The x axis display window will read "**AnGLE**", and the y axis window will read "**0**".
6. On the keypad, enter the desired starting angle of the circle, followed by the "**ent**" key. The x axis display window will read "**hoLES**", and the y axis window will read "**0**".
7. On the keypad, enter the desired number of holes, followed by the "**ent**" key. The x and y axis display windows will both have an extra leading decimal on the far left of the display window, which is a visual reminder you are in a function mode.
 - The "distance to go" to hole position 1 is displayed on the x and y axis windows.
 - To proceed to hole position 1, move your mill such that the x and y windows "zero out".
 - To sequentially advance to the next hole position, push the #6 key.
 - To sequentially return to the previous hole position, push the #4 key.
 - To advance to the hole position of your choice, push the #2 key, then enter the desired hole position number on the keypad, followed by the "**ent**" key.
 - To check which hole the display is currently indicating, push the #8 key. To return to the normal screen, push the #8 key a second time.
8. To exit the Bolt Hole Circle function, push the "C" button.

Arc Hole Circle:

1. To access the Arc Hole Circle function, first push the Bolt Hole Circle button. It's the top left of the eight function buttons and has a picture of a circle with three dots equally spaced in a circular pattern. The x axis display window will immediately read "**b hoLE**", then switch to "**CirCLE**" automatically. Also note that "fn" should light on the bottom of the display window in red.
2. Push the #6 key once. The x axis display window will now read "**ArC**".
3. Push the "**ent**" key once. The x axis display window will read "**0**", and the y axis window will read "**EntCnt0**".
4. On the keypad, enter the x coordinate value of the center of the circle, followed by the "**ent**" key. The x axis display window will read "**EntCnt1**", and the y axis window will read "**0**".
5. On the keypad, enter the y coordinate value of the center of the arc, followed by the "**ent**" key. The x axis display window will read "**rAdiUS**", and the y axis window will read "**0**".
6. On the keypad, enter the desired radius value of the arc, followed by the "**ent**" key. The x axis display window will read "**Str AnG**", and the y axis window will read "**0**".
7. On the keypad, enter the desired starting angle of the arc, followed by the "**ent**" key. The x axis display window will read "**End AnG**", and the y axis window will read "**0**".
8. On the keypad, enter the desired ending angle of the arc, followed by the "**ent**" key. The x axis display window will read "**hoLES**", and the y axis window will read "**0**".
9. On the keypad, enter the desired number of holes, followed by the "**ent**" key. The x and y axis display windows will both have an extra leading decimal on the far left of the display window, which is a visual reminder you are in a function mode.
 - The "distance to go" to hole position 1 is displayed on the x and y axis windows.
 - To proceed to hole position 1, move your mill such that the x and y windows "zero out".
 - To sequentially advance to the next hole position, push the #6 key.
 - To sequentially return to the previous hole position, push the #4 key.
 - To advance to the hole position of your choice, push the #2 key, then enter the desired hole position number on the keypad, followed by the "**ent**" key.
 - To check which hole the display is currently indicating, push the #8 key. To return to the normal screen, push the #8 key a second time.
10. To exit the Bolt Hole Arc function, push the "C" button.

Congratulations, you've now accomplished Bolt Hole Arc!

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