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Module Commands

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Draw>Long Hole, Center - Center - Radius (Module TSDRAW1)
General

This command can be used to draw a long hole, which is combination of two 180° circular arcs and two lines. Size and position are determines by the two circular arc's centers and a radius definition point.

1. *Enter circle center 1*
   The center point of the first long hole circular arc can be entered by clicking the mouse anywhere in the drawing.

   Optionally, specific coordinates can be entered. Press the F8 key or press ENTER. Absolute or polar coordinates can then be entered. For further information on coordinate entry, see <u>Coordinate Entry (F8)</u>.

2. *Enter circle center 2*
   The center point of the second long hole circular arc can be entered by clicking the mouse anywhere in the drawing.

   Optionally, specific coordinates can be entered. Press the F8 key or press ENTER. Absolute, relative or polar coordinates can then be entered. For further information on coordinate entry, see <u>Coordinate Entry (F8)</u>.

3. *Enter radius*
   The radius of the long hole can be entered by clicking the mouse anywhere in the drawing at a point through which the second circle should run.

   Optionally, specific coordinates can be entered. Press the F8 key or press ENTER. Absolute, relative or polar coordinates can then be entered.
   You can also enter a specific radius. This gives the radius of both circular arcs. For further information on coordinate entry, see <u>Coordinate Entry (F8)</u>.

The long hole is assigned to the current layer. In addition, it contains a reference to the current pen.

Options

No options available.

Draw>Long Hole, Mid-Point - Center - Radius (Module TSDRAW1)
General

This command can be used to draw a long hole, which is combination of two 180° circular arcs and two lines. Size and position are determines by the two circular arc's centers and a radius definition point.

1. *Enter center point*
   The center point of the long hole can be entered by clicking the mouse anywhere in the drawing.

   Optionally, specific coordinates can be entered. Press the F8 key or press ENTER. Absolute or polar coordinates can then be entered. For further information on coordinate entry, see <u>Coordinate Entry (F8)</u>.

2. *Enter circle center*
   The center point of one of the long hole circular arcs can be entered by clicking the mouse anywhere in the drawing.

   Optionally, specific coordinates can be entered. Press the F8 key or press ENTER. Absolute, relative or polar coordinates can then be entered. For further information on coordinate entry, see <u>Coordinate Entry (F8)</u>.

3. *Enter radius*
   The radius of the long hole can be entered by clicking the mouse anywhere in the drawing at a point through which the second circle should run.

   Optionally, specific coordinates can be entered. Press the F8 key or press ENTER. Absolute, relative or polar coordinates can then be entered.
   You can also enter a specific radius. This gives the radius of both circular arcs. For further information on coordinate entry, see <u>Coordinate Entry (F8)</u>.

The long hole is assigned to the current layer. In addition, it contains a reference to the current pen.

Options

No options available.

Draw>Long Hole, Edge - Edge - Center (Module TSDRAW1)
General

This command can be used to draw a long hole, which is combination of two 180° circular arcs and two lines. Size and position are determines by the center points of the two long hole's edges and a radius definition point.

1. *Enter edge center 1*
   The center of the long hole's first edge can be entered by clicking the mouse anywhere in the drawing.

   Optionally, specific coordinates can be entered. Press the F8 key or press ENTER. Absolute or polar coordinates can then be entered. For further information on coordinate entry, see <u>Coordinate Entry (F8)</u>.

2. *Enter edge center 2*
   The center of the long hole's second edge can be entered by clicking the mouse anywhere in the drawing.

   Optionally, specific coordinates can be entered. Press the F8 key or press ENTER. Absolute, relative or polar coordinates can then be entered. For further information on coordinate entry, see <u>Coordinate Entry (F8)</u>.

3. *Enter circle center*
   The center point of one of the long hole circular arcs can be entered by clicking the mouse anywhere in the drawing at a point through which the second circle should run.

   Optionally, specific coordinates can be entered. Press the F8 key or press ENTER. Absolute, relative or polar coordinates can then be entered.
   You can also enter a specific radius. This gives the radius of both circular arcs. For further information on coordinate entry, see <u>Coordinate Entry (F8)</u>.

The long hole is assigned to the current layer. In addition, it contains a reference to the current pen.

Options

No options available.

Draw>Direct Freehand Line (Module TSDRAW1)
General

This command can be used to draw a "direct" freehand line. Contrary to the normal freehand line in the application, which creates a random line based on a polyline, this command allows to directly draw a path using the mouse.

Due to technical limitations, it is not possible to draw the line with a pressed mouse button. Instead, the key CTRL is used. While the CTRL key is pressed, mouse movements result in a path created. Otherwise, single lines can be entered like with the Polyline command.

Options

To access an explanation of an individual element in the dialog box shown below, click the left mouse button on the element. Explanations are available whenever the mouse pointer changes from an arrow (▸) to a hand (
👆).
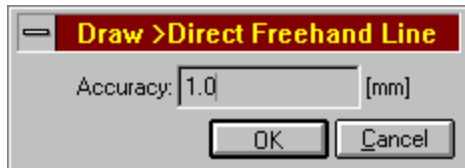
Draw>Bézier Curves via Polyline (Module TSDRAW1)
General

This command draws a bézier curve sequence based on a polyline. A polyline is an open series of connected lines.

1. *Enter start point*
   The start point of a polyline can be entered by clicking the mouse anywhere within the drawing.

   Optionally, specific coordinates can be entered. Press the F8 key or press ENTER. Absolute or polar coordinates can then be entered. For further information on coordinate entry, see <u>Coordinate Entry (F8)</u>.

2. *Enter point*
   After entering the start point, several points can be entered, one after another. The polyline begins at the start point and runs through all the subsequently-entered points. These points can be entered by clicking the mouse at any point in the drawing for each point.

   Optionally, specific coordinates can be entered. Press the F8 key or press ENTER. Absolute, relative or polar coordinates can then be entered.
   You can also enter the length and/or angle of the next section relative to the previous section. This is an easy way, for example, to enter bends with a given angle. For further information on coordinate entry, see <u>Coordinate Entry (F8)</u>.

   Polyline input is ended by clicking the right mouse button. Unlike most other commands, this does not lead to the previous entry being ignored; instead the polyline is inserted into the drawing. If required, this can be undone using the <u>Undo</u> command.

A bézier curve sequence can consist of up to 500 curves. If this limit is reached during point entry, no further points can be entered. A bézier curve sequence is stored internally as a curve. It can be manipulated using the same commands as can be used on curves.

The curve created is assigned to the current layer. It also contains a reference to the current pen.

Note: All point entries can be undone step by step using <u>Previous Point (ESC)</u> or by pressing the ESC key. This enables incorrect entries to easily be corrected without having to enter the entire polyline again.

Options

To access an explanation of an individual element in the dialog box shown below, click the left mouse button on the element. Explanations are available whenever the mouse pointer changes from an arrow (⬉) to a hand (
👆).

Draw >Bézier Curves via Polyl

Waviness: 0.3905

Ending Style

- ● Tangential
- ○ Symmetrical

[Standard] [OK] [Cancel]

Draw>Bézier Curves via DeBoor Points (Module TSDRAW1)
General

This command draws a bézier curve sequence based on the DeBoor algorithm, which relies on a polyline. A polyline is an open series of connected lines.

1. *Enter start point*
   The start point of a polyline can be entered by clicking the mouse anywhere within the drawing.

   Optionally, specific coordinates can be entered. Press the F8 key or press ENTER. Absolute or polar coordinates can then be entered. For further information on coordinate entry, see <u>Coordinate Entry (F8)</u>.

2. *Enter point*
   After entering the start point, several points can be entered, one after another. The polyline begins at the start point and runs through all the subsequently-entered points. These points can be entered by clicking the mouse at any point in the drawing for each point.

   Optionally, specific coordinates can be entered. Press the F8 key or press ENTER. Absolute, relative or polar coordinates can then be entered.
   You can also enter the length and/or angle of the next section relative to the previous section. This is an easy way, for example, to enter bends with a given angle. For further information on coordinate entry, see <u>Coordinate Entry (F8)</u>.

   Polyline input is ended by clicking the right mouse button. Unlike most other commands, this does not lead to the previous entry being ignored; instead the polyline is inserted into the drawing. If required, this can be undone using the <u>Undo</u> command.
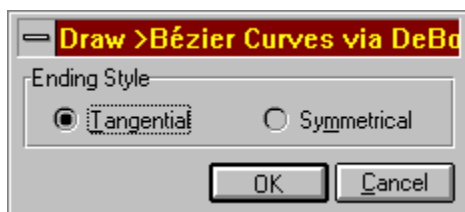
A bézier curve sequence can consist of up to 500 curves. If this limit is reached during point entry, no further points can be entered. A bézier curve sequence is stored internally as a curve. It can be manipulated using the same commands as can be used on curves.

The curve created is assigned to the current layer. It also contains a reference to the current pen.

Note: All point entries can be undone step by step using <u>Previous Point (ESC)</u> or by pressing the ESC key. This enables incorrect entries to easily be corrected without having to enter the entire polyline again.

Options

To access an explanation of an individual element in the dialog box shown below, click the left mouse button on the element. Explanations are available whenever the mouse pointer changes from an arrow (▶) to a hand (
👆).

Clicking on this button will close the dialog accepting all changes. Any changes or operations specified will be carried out.

Clicking on this button will close the dialog, without accepting any changes. Any following operation will not be carried out.

The value in this edit field determines the waviness of the bezier sequence. A value of 0 will result in a polyline, a value of 1 will result in a sweeping line.

Clicking on this button will reset the waviness to its default value.

If this radio box is selected, the ends of the bézier sequence will be tangential, i.e. the first and last pivot point lie on the first or last line of the polyline entered.

If this radio box is selected, the ends of the bézier sequence will be symmetrical to the calculated other end of that bézier curve.

The value in this edit field determines the accuracy of the freehand line. This accuracy determines the average line length created.