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The NC function G2/G3 moves to a programmed position in the active machining plane interpolating on a circular path in clockwise/anticlockwise rotation at the current feed (programmable via the F-address). Additional axes beyond the working plane can be included into the programming with linearly interpolated motions. The axes traversing on the arc are defined by the selected working plane (G17, G18, G19, G20). The programmed feed value (F) acts as path feed. When traversing multiple axes, the feed of each axis should be less than F. An error is reported if no value F<Number> is explicitly programmed.

The function is modal and deletes the functions G0, G2, G3, G5, G6, G12, G13, G33.

Syntax

Function name	G2, G02, G002 G3, G03, G003
Modal group	Geo

The circular path can be programmed using radius programming or center point programming.

- Radius programming:

Meaning	Value
<EP>	Coordinates of the endpoint
F	Feed value
R	<ul style="list-style-type: none"> ■ Radius of the circular path ■ The radius has to be at least half the distance between the starting point and the endpoint. ■ A positive radius value means that it is traversed along the smaller circular arc (Arc <= 180 degrees). A negative radius value means that it is traversed along the larger circular arc (Arc > 180 degrees). ■ $Radius = distance(end\ point, start\ point)/2$ results in a semicircle, whereby any sign (positive/negative) can be used.

■ Center point programming

Meaning	Value
<EP>	Coordinates of the endpoint If the starting and endpoints are identical within the circular plane, a full circle is generated automatically.
F	Feed value
<IP> I(X-coordinate) J(Y-coordinate) K(Z-coordinate)	Interpolation parameters <ul style="list-style-type: none"> ■ I, J and K define the distance between the center point and the starting point along the respective axis ■ An inaccurate center point can be automatically corrected as per the tolerance set. ■ If the interpolation parameters are not suitable for the selected position, errors are generated by the motion.

Example

```

N10 G0 X0 Y0 Z0 ; Move to initial position
N20 G17 ; Activate the XY plane
N30 G2 X20 Y0 Z10 F10 ; Clockwise circular interpolation with radius parameter in XY plane, linear interpolation along Z axis
N50 G3 X40 Y0 I10 J0 ; Counterclockwise circular interpolation with center point parameter

```

Configuration

When PathDynLim is switched off, the Motion uses the default dynamic limit of the kinematics which can be configured in the following Data Layer path:

motion/kin//cfg/lim/**

Respective Motion command

moveCircle2D