HEIDENHAIN

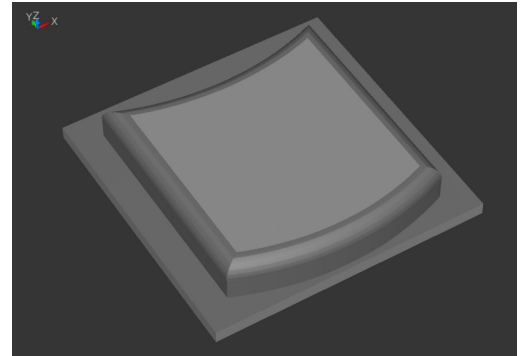# NC solutions

Description of NC program 3250

1   Description of NC program 3250_en.h

NC program for creation of a contour with a radius on the upper edge.

Description

In this NC program, the control creates a radius on the upper edge of a contour. The control performs this machining operation in contour lines. You indirectly define the number of contour lines with the parameter INFEED IN DEGREES. By this means, you can influence the machining time and the accuracy of the radius to be milled.

The machining operation can be performed with an end mille, a ball-nose cutter, or a toroid cutter. For this purpose, the control reads radius 2 of the active tool from the tool table. Depending on the type of milling, the point of intersection is dependent on the contact angle. The NC program automatically calculates the contour paths based on the contact angle.

Program sequence of NC program 3250_en.h

At the beginning of the program, you define the tool for milling the contour. Then the control positions the tool at a clearance height. Following this, SL cycles 14, 270, and 25 are defined for contour milling. In these cycles, you must configure the parameters in accordance with your application. The contour to be machined is described in the subprogram LBL 10. Then the control calls the cycles with function M99.

In the next step, you define the tool for machining the radius. Then the control retracts the tool to a clearance height. You then define the parameters that are needed for the radius. After that, the control jumps to the subprogram RADIUS.

In the RADIUS subprogram, the control performs all of the calculations and path contours needed for the radius. Since the parameters you have defined are used at this point, you do not need to change anything in the subprogram.

In the subprogram, cylces 14 and 270 are first defined. Then, with an FN18 function, the control reads the value of tool radius 2 of the active tool from the tool table. It then calculates the angle for the first contour line and checks whether this angle is greater than 90 degrees. If this angle is greater than 90 degrees, the control jumps to LBL END1, in which it machines the last contour line. If the angle of the first contour line is less than 90 degrees, the control calculates the milling depth and the lateral allowance for the first contour line. In the process, the control takes into account the compensation for radius 2 of the tool being used.

After the calculations, the control machines the calculated contour lines with Cycle 25. The control then repeats this section of the program until the calculated angle is greater than 90 degrees. Then the control jumps to LBL END1.

In the subprogram END1, the control calculates the last contour line and machines this path. Then it jumps back to the main program, where the control retracts the tool and ends the NC program.

Parameter	Name	Meaning
Q50	EDGE RADIUS	Radius that the control machines at the contour edge
Q51	INFEED IN DEGREES	Incremental stepping angle between two contour lines on the radius

			ID number	
Text:			Change No.	C000941-10
			Phase:	Nicht-Serie

			Platte	Werkstoff: Material:
Original drawing				
	Scale	Format		
RoHS	1:1	A4	Plate	

Maße in mm / Dimensions in mm	Einzelteilzeichnung / Component Drawing		● blanke Flächen/Blank surfaces

Werkstückkanten nach ISO 13715 Workpiece edges ISO 13715	Allgemeintoleranzen ISO 2768-mH ≦6mm: ±0,2 General tolerances ISO 2768-mH ≦6mm: ±0,2	Tolerierung nach ISO 8015 Tolerances as per ISO 8015	Oberflächen nach ISO 1302 Surfaces as per ISO 1302
-0.3 +0.3			Oberflächenbehandlung: Surface treatment:

The reproduction, distribution and utilization of this document as well as the communication of its contents to others without express authorization is prohibited. Offenders will be held liable for the payment of damages. All rights reserved in the event of the grant of a patent, utility model or design. (ISO 16016)

HEIDENHAIN

DR. JOHANNES HEIDENHAIN GmbH
83301 Traunreut, Germany

Created	Responsible	Released		Version	Revision	Sheet	Page
Feichtner			D1244580-00-A-01				1 of 1
07.02.2018			Document number				

744 650 A4

Q50

Q51

Q51

Q51

Q51

Bausatz

Assembly kit

Montage-ZZ / Assembly Drawing

| Allgemeintoleranzen ISO 2768-mH | ≤6mm: ±0,2 | Tolerierung nach ISO 8015 |
| General tolerances ISO 2768-mH | ≤6mm: ±0,2 | Tolerances as per ISO 8015 |

Werkstückkanten nach ISO 13715
Workpiece edges ISO 13715

Oberflächen nach ISO 1302
Surfaces as per ISO 1302

Oberflächenbehandlung:
Surface treatment:

● blanke Flächen/Blank surfaces

ID number

Change No. C000941-10
Phase: Nicht-Serie

Werkstoff:
Material:

Original drawing

| Scale | Format |
| 1:1 | A3 |

RoHS

Maße in mm / Dimensions in mm

Text:

Created | Responsible | Released

Feichtner

27.06.2018

HEIDENHAIN

DR. JOHANNES HEIDENHAIN GmbH
83301 Traunreut, Germany

The reproduction, distribution and utilization of this document as well as the communication of its contents to others without express authorization is prohibited.
Offenders will be held liable for the payment of damages. All rights reserved in the event of the grant of a patent, utility model or design. (ISO 16016)

Version | Revision | Sheet | Page

D1258919-00 - A-01

Document number

744 650 A3