



HEIDENHAIN



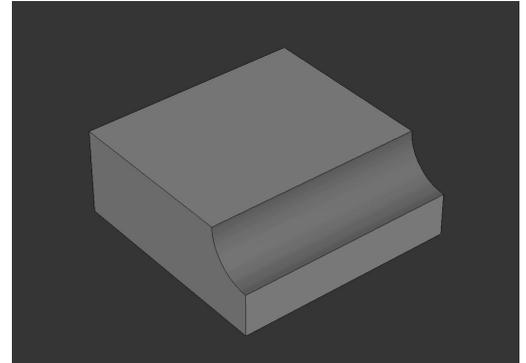
NC solutions

Description of NC Program 3225

English (en)
9/2017

1 Description of the NC program 3225_en.h

Program for machining a concave radius on the workpiece edge



Description

With this NC program, the control machines a radius along the X axis. This radius is milled by the control in contour lines. You define the number of contour lines in a parameter and can thereby influence the surface quality and the machining time. Machining can be performed using either an end mill or a ball-nose cutter. Machining is performed in the Z axis from top to bottom.



Please note while programming.

- The preset must be located in the X axis and in the Y axis at the minimum point of the workpiece because machining is performed in the positive direction.
- The preset in the Z axis must be located on the lower edge of the radius.
- The length of the cutting edge in the tool axis must be at least as large as the radius to be machined.

At program start, you define the tool and all of the parameters required for machining. The control then performs multiple calculations. If you have defined the tool in the parameters as an end mill, then a jump is made to a subprogram in which further calculations are carried out.

After these calculations, the control shifts the datum to the center of the radius to be machined. The control then pre-positions the tool in the X axis and in the Y axis. The control calculates this position in the X axis, taking the tool radius into account as well as the lateral safety clearance you have defined.

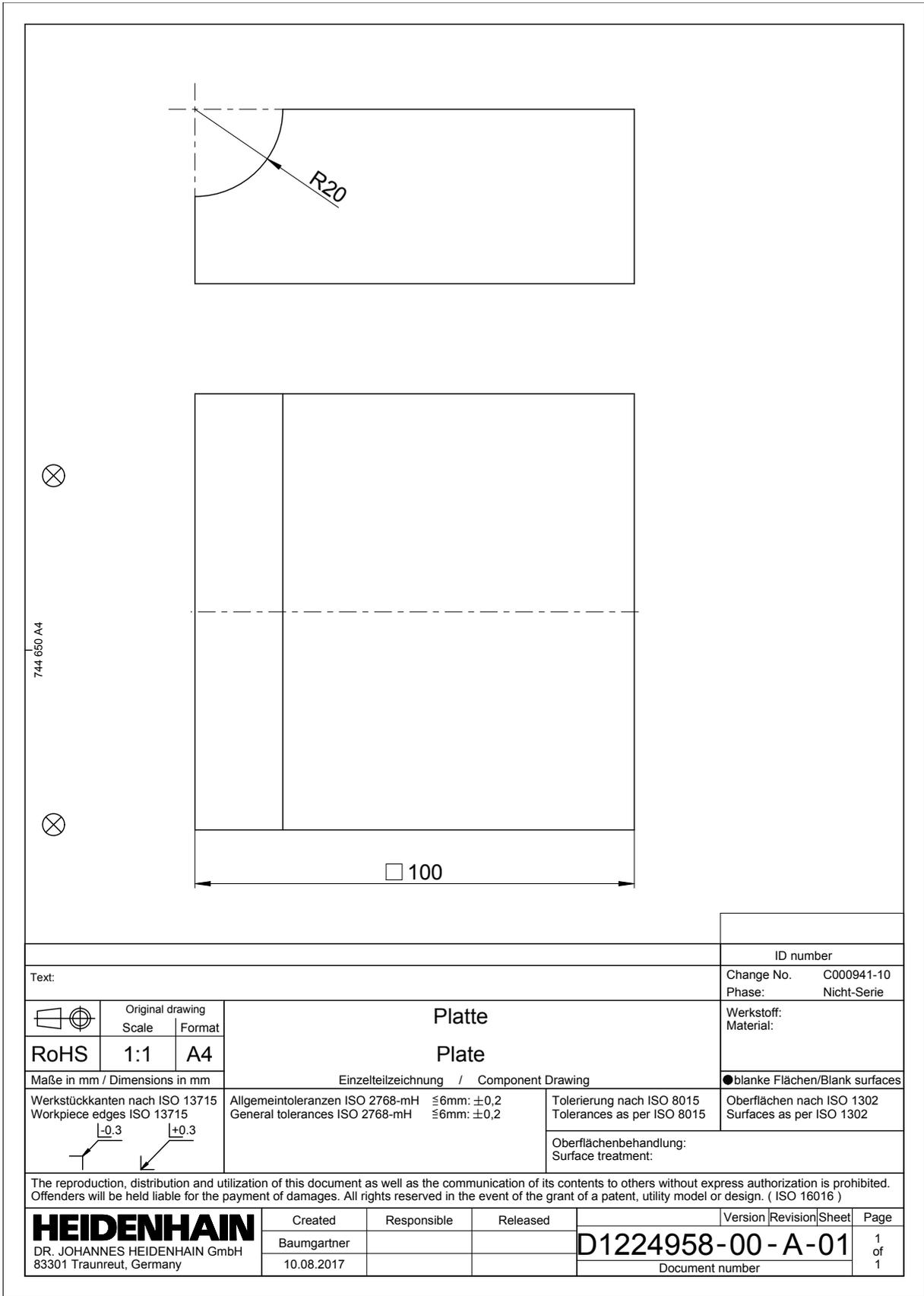
After this, the control positions the tool in the Z axis at the height of the first contour line. It then mills the first path. The end point is positioned in a such a way that the tool moves beyond the workpiece length by the amount of the tool radius and the lateral safety clearance.

The control then calculates the starting point of the next contour line and approaches this point. Subsequently, the control moves along the X axis to the next milling path. Calculations and positioning are programmed in a program section repeat that the control repeats until it has milled the number of contour lines you have defined. At the end of the program, the control resets the datum shift. It then retracts the tool and ends the NC program.

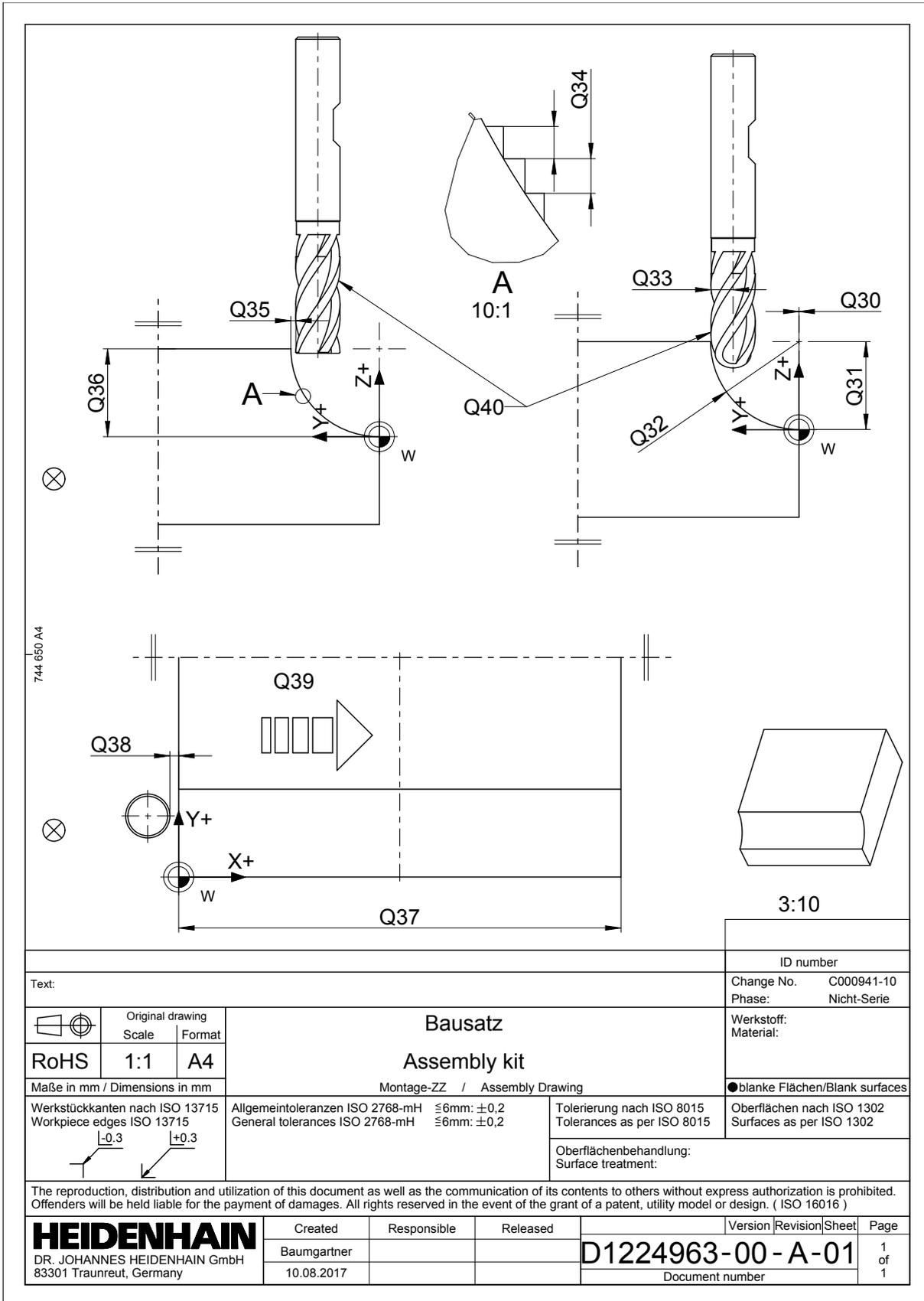
Parameter	Name	Meaning
Q30	CIRCLE CENTER IN Y	Y coordinate of the center of the radius to be machined.
Q31	CIRCLE CENTER IN Z	Z coordinate of the center of the radius to be machined.
Q32	RADIUS	The radius to be machined
Q34	PITCH	The number of contour lines that the control mills in order to machine the radius
Q35	OVERSIZE	Allowance that remains on the workpiece after the machining operation.
Q36	MACHINING HEIGHT	Z coordinate at the radius end point
Q37	LENGTH OF WORKPIECE	Workpiece length in the X axis
Q38	LATERAL SET-UP CLEARANCE	Distance between the tool and the workpiece approached by the control during positioning in the Y and Z axis.
Q39	FEED RATE FOR MILLING	Traversing speed of the tool during milling
Q40	SHAPE OF THE TOOL	Definition of the tool type ¹⁾ <ul style="list-style-type: none"> ■ Q40 = 0 for machining with an end mill ■ Q40 = 1 for machining with a ball-nose cutter
Q41	RADIUS OF BALL-NOSE-CUTTER	Sphere radius of the tool being used ²⁾

¹⁾ This definition must match the tool defined in the **TOOL CALL!**

²⁾ For definition of an end mill without function



ID number	
Change No.	C000941-10
Phase:	Nicht-Serie
Werkstoff:	Material:
●blanke Flächen/Blank surfaces	
Werkstückkanten nach ISO 13715 Workpiece edges ISO 13715	Allgmeintoleranzen ISO 2768-mH $\leq 6\text{mm}$: $\pm 0,2$ General tolerances ISO 2768-mH $\leq 6\text{mm}$: $\pm 0,2$
Tolerierung nach ISO 8015 Tolerances as per ISO 8015	Oberflächen nach ISO 1302 Surfaces as per ISO 1302
Oberflächenbehandlung: Surface treatment:	
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Version Revision Sheet Page	1 of 1



Text:		ID number							
Change No. C000941-10		Phase: Nicht-Serie							
Werkstoff: Material:		●blanke Flächen/Blank surfaces							
<table border="1"> <tr> <th>Original drawing</th> <th>Scale</th> <th>Format</th> </tr> <tr> <td></td> <td>1:1</td> <td>A4</td> </tr> </table>		Original drawing	Scale	Format		1:1	A4	Bausatz Assembly kit	
Original drawing	Scale	Format							
	1:1	A4							
Maße in mm / Dimensions in mm		Montage-ZZ / Assembly Drawing							
Werkstückkanten nach ISO 13715 Workpiece edges ISO 13715 	Allgmeintoleranzen 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						
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