



HEIDENHAIN



NC Solutions

Description of NC Program 5085

English (en)
9/2017

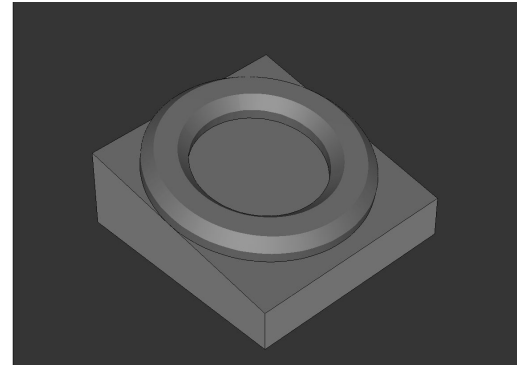
1 Description of NC program 5085

NC program for machining a chamfer on a circular contour.



The NC program can be run on the following controls if software option 2 (option 9) is activated:

- TNC 640
- TNC 620 as of NC software number 340 56x-03
- iTNC 530 as of NC software number 340 422-xx



Requirement:

Use an inclined tool to mill a chamfer on a circular contour that is machined in a tilted coordinate system.

Description of NC program 5085_en.h

In NC program 5085_en.h, you first define the workpiece blank and the tool. The control subsequently tilts the coordinate system to the spatial angle you defined. Then machining begins. Three machining steps are defined with cycles to prepare the workpiece. A **FACE MILLING** cycle is defined as the first machining step. Then the **CIRCULAR POCKET** and **CIRCULAR STUD** cycles follow.

The chamfers are subsequently machined. You first have to define the necessary parameters. After that, a **TOOL CALL** block follows. Only a **DL** is defined in this tool call. The definition of the DL enables you to influence whether and how far the control positions the cutting edge beyond the lower edge of the chamfer.

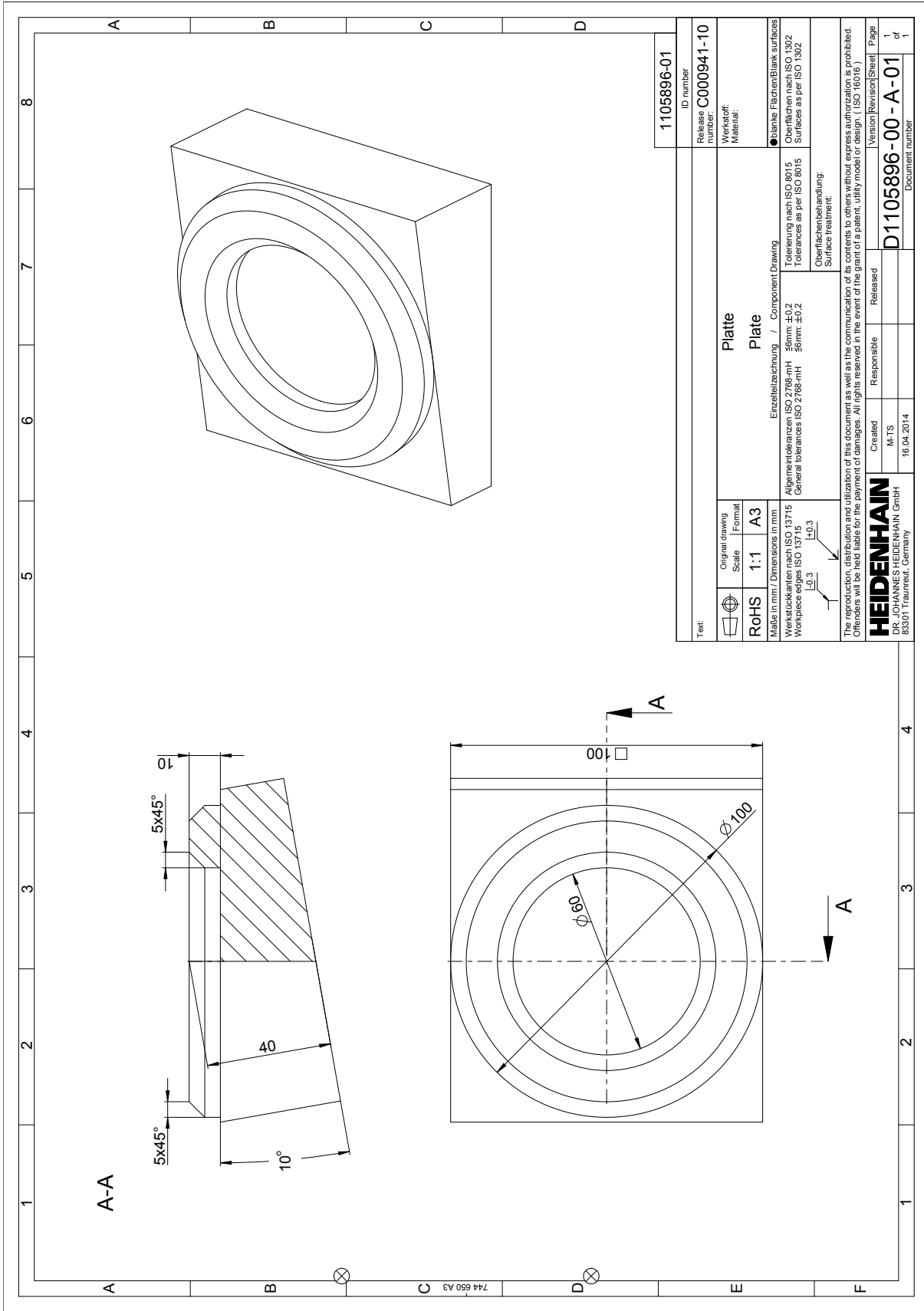
The control then calls a subprogram. The control jumps to another subprogram—the type of subprogram depends on whether you select inside machining or outside machining in Q4. In these subprograms, **FUNCTION TCPM** is defined first. The control subsequently carries out a few calculations. It then pre-positions the tool to the calculated starting position. The control subsequently inclines the tool by the defined chamfer angle and approaches the first contour point. The control divides the circular path required for the chamfer into individual linear paths. In a program section repeat, the control then calculates the end point of each linear path and approaches this point. In this path contour, the change in the spatial angle C is defined in addition to the X coordinate and the Y coordinate. The control executes the program section repeat until the chamfer is completely machined.

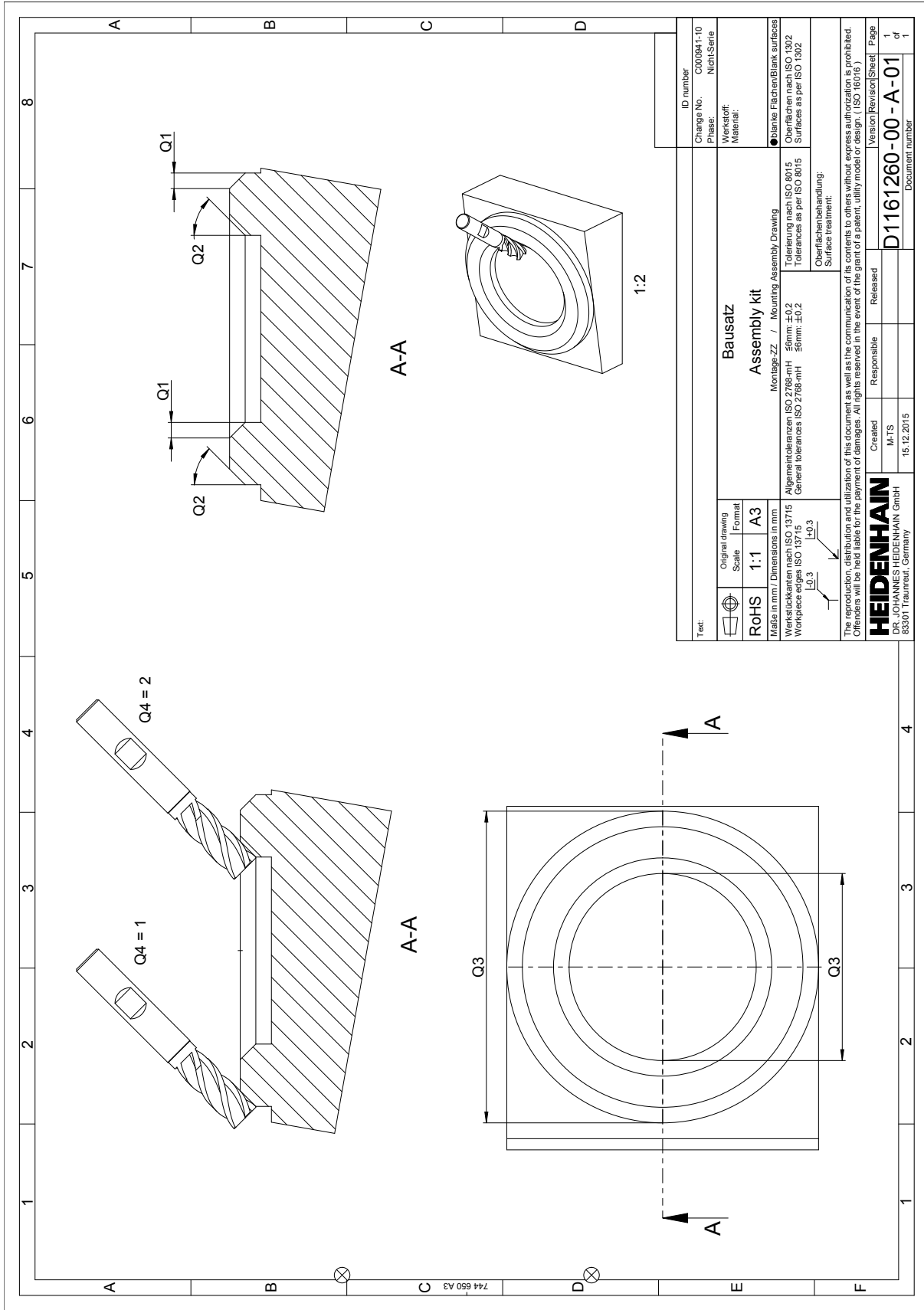
Then the control returns the tool to the starting point and retracts in the Z axis. After that, it resets **FUNCTION TCPM**, moves to a safe position and cancels the tilting of the working plane.

In the example program, a definition of the parameters and call of the subprogram follow again after the return jump to the main program, in order to execute outside machining in addition to inside machining.

After the second chamfer has also been completed, the control ends the NC program.

Parameter	Name	Meaning
Q1	CHAMFER LENGTH	Length of the chamfer section with respect to the circle radius
Q2	CHAMFER ANGLE	Inclination angle of the tool with respect to the Z axis
Q3	DIAMETER CIRCLE	Circle diameter
Q4	1=OUTSIDE 2=INSIDE PROCESSING	Selecting the type of machining <ul style="list-style-type: none"> ■ 1 = Machining on the outside ■ 2 = Machining on the inside





ID number		Change No. C000941-10	
Phase:		Nicht-Serie	
Werkstoff:		Material:	
●Blanke Flächen/Blank surfaces		Oberflächen nach ISO 1302	
Surfaces as per ISO 1302		Surfaces as per ISO 1302	
Text: Bausatz Assembly kit Montage ZZ / Mounting Assembly Drawing Tolerieren nach ISO 8015 Tolerances as per ISO 8015 General tolerances ISO 2768-mH ± 0.2 Werkstücktoleranzen ISO 2768-mH ± 0.2 Tolerances as per ISO 1302 Oberflächenbehandlung: Surface treatment:			
Original drawing	Scale	Format	RoHS
	1:1	A3	
Maße in mm / Dimensions in mm			
Werkstücktoleranzen ISO 13715			
Workpiece edges ISO 13715			
-0.3 $+0.3$			
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