



# HEIDENHAIN



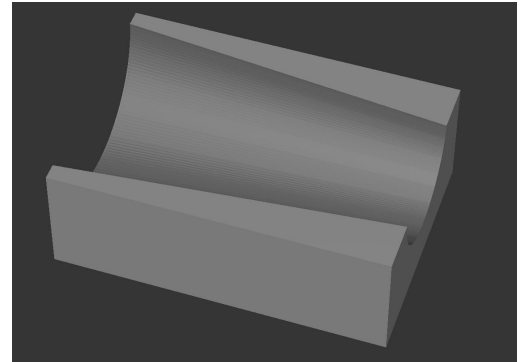
## NC Solutions

Description of NC program 3045

English (en)  
6/2017

## 1 Description of the NC program 3045\_en.h

NC program for machining a horizontal truncated cone from inside in contour lines



The cone axis is parallel to the X axis.

### Description

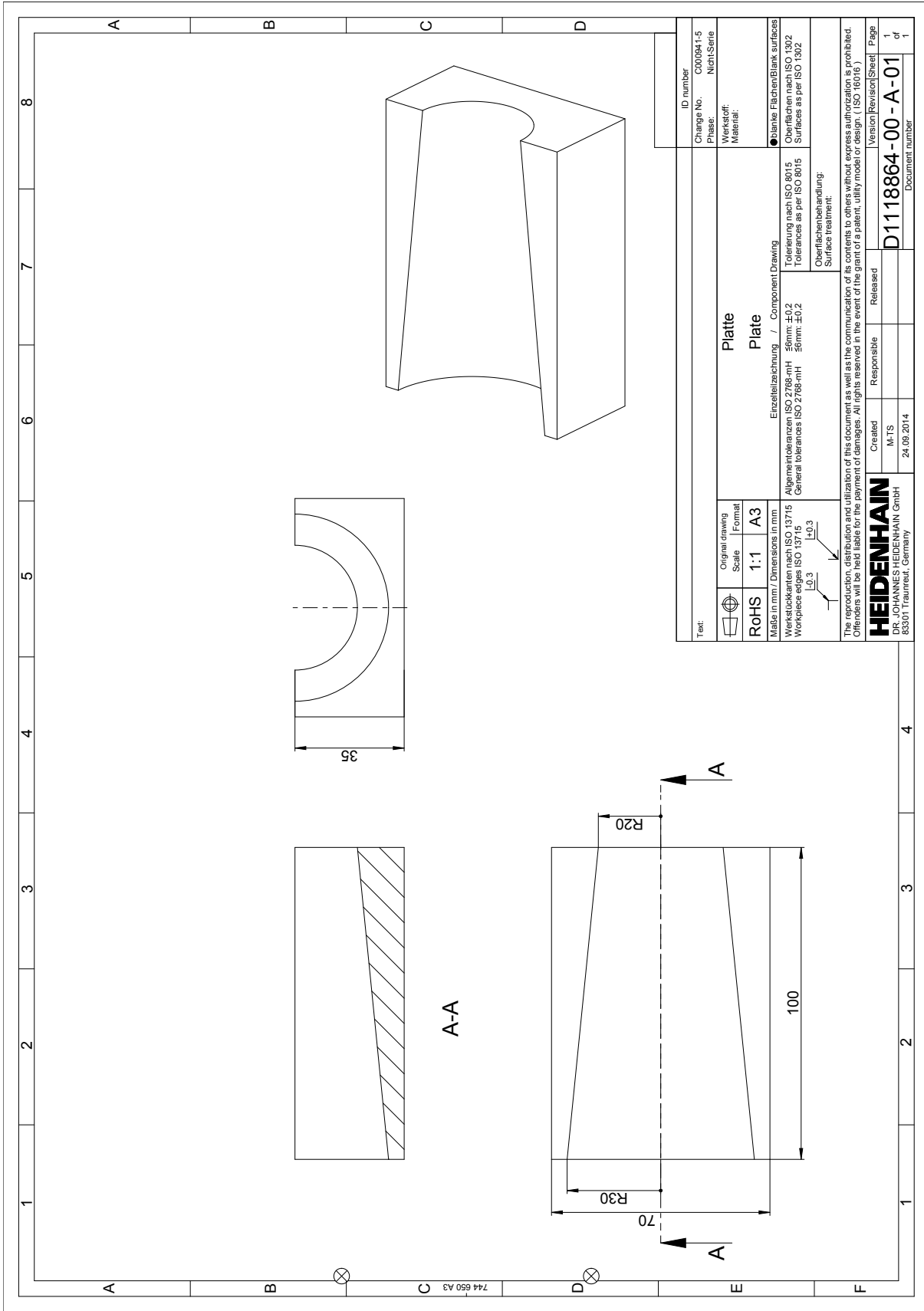
With this NC program, the control mills a horizontal truncated cone. The control carries out this machining operation with a ball-nose cutter in contour lines. You define the number of contour lines in one parameter. This allows you to influence the surface quality of the truncated cone as well as the machining time.

In the first part of the NC program, you define the tool and all of the parameters required for the calculation. Then a further **TOOL CALL** is programmed. In this **TOOL CALL**, the control compensates for the tool length into the center of the ball-nose cutter. For this purpose, a length change amounting to the active tool radius is defined. If you have measured the tool at the center of the ball, then you must delete this NC block.

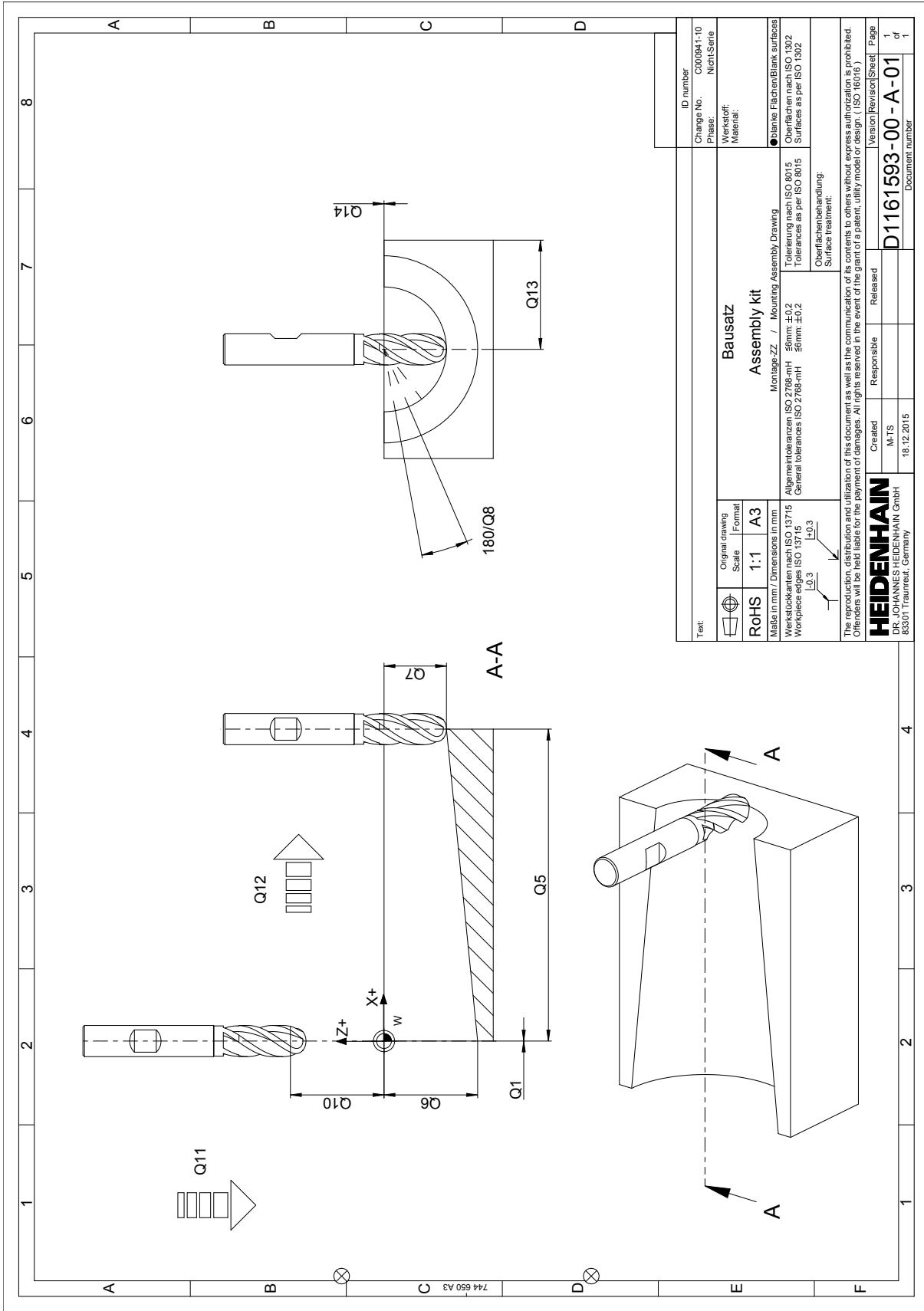
The control then pre-positions the tool and calls a subprogram. In this subprogram, the control first carries out several calculations. The control then shifts the datum to the center of the cone. Then the control calculates the starting point and the end point of the first milling path and approaches these points. When the end point has been reached, the tool moves in the Z axis to the safety clearance.

The program repeats the program section with the calculations and the traversing of the calculated path until the specified number of contour lines have been reached. The control then ends the subprogram and resets the datum. The control subsequently retracts the tool and terminates the NC program.

<b>Parameter</b>	<b>Name</b>	<b>Meaning</b>
Q13	TAPER CENTER IN Y	Y coordinate of the center of the cone
Q14	TAPER CENTER IN Z	Z coordinate of the center of the cone
Q1	MINIMUM X COORDINATE	Minimum X coordinate of the truncated cone
Q5	MAXIMUM X COORDINATE	Maximum X coordinate of the truncated cone
Q6	RADIUS WITH X MINIMUM	Radius of the truncated cone at the minimum X coordinate
Q7	RADIUS WITH X MAXIMUM	Radius of the truncated cone at the maximum X coordinate
Q8	SCALE	Number of contour paths
Q10	SAFETY CLEARANCE	Incremental distance at which the control retracts the tool from the contour path
Q11	FEED RATE FOR PECKING	Traversing speed of the tool in the Z axis
Q12	FEED RATE FOR MILLING	Traversing speed of the tool during milling



Text:		ID number	
Change No.	C000941-5	Change No.	C000941-5
Phase:	Nicht-Serie	Phase:	Nicht-Serie
Werkstoff:		Werkstoff:	
Material:		Material:	
RoHS		Platte	
Original drawing	Scale	Format	Platte
1:1	A3		
Maße in mm / Dimensions in mm		Einzelteilzeichnung / Component Drawing	
Werkstücktoleranzen ISO 13715		Tolerierung nach ISO 8015	
±0,3		Tolerances as per ISO 8015	
Werkstückkanten ISO 13715		General tolerances ISO 2768-mH	
±0,3		±0,2	
Oberflächenbehandlung:		Oberflächenbehandlung:	
		Surfaces as per ISO 1302	
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ID number		Change No. C000941-10	
Phase:		Nicht-Serie	
Werkstoff:		Material:	
●Blanke Flächen/Blank surfaces		Oberflächen nach ISO 1302	
Toleranzen nach ISO 1302		Surfaces as per ISO 1302	
Oberflächenbehandlung:			
Surface treatment:			
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Original drawing		Scale	
RoHS		1:1	
Formate		A3	
Maße in mm / Dimensions in mm			
Werkstücktoleranzen nach ISO 13715			
General tolerances ISO 13715			
Workpiece edges ISO 13715			
±0,3			
+0,3			
-0,3			
Bausatz			
Assembly kit			
Montage-ZZ / Mounting Assembly Drawing			
Toleranzen nach ISO 8015			
General tolerances ISO 8015			
Tolerances as per ISO 8015			
Surface treatment:			
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