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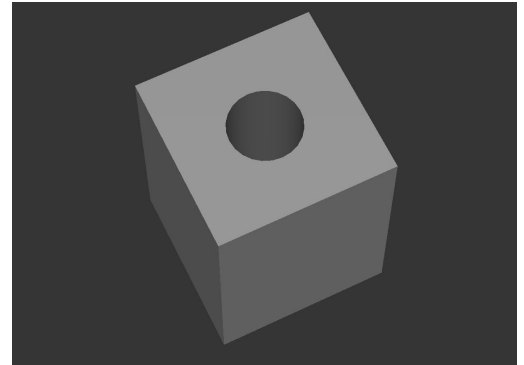
NC Solutions

Description of NC program 1070

English (en)
4/2017

1 Description of NC programs 1070_en.h and 10701_en.h

NC program for a drilling sequence starting in a pilot hole.



Description

You define the required parameters and the tool in a main program (1070_en.h). The control then calls the NC program 10701_en.h with Cycle 12 at the hole position. The actual drilling sequence is contained in this NC program. Machining can be executed at various positions without having to re-enter the parameters.

Drilling sequence

- 1 The control positions the tool in rapid traverse at the position defined in the main program at safety clearance above the surface coordinate
- 2 The spindle speed for approaching is activated; the spindle rotates counterclockwise
- 3 In the pilot hole the tool moves to the starting position
- 4 The spindle switches to drilling speed and rotates clockwise
- 5 Drilling is executed until the plunging depth is reached
- 6 Chip breaking or retraction for chip removal
- 7 The infeed is repeated until the hole depth is reached
- 8 The tool dwells at the bottom of the hole
- 9 The spindle is switched to counterclockwise rotation and plunging speed
- 10 The tool retracts from the hole to the 2nd safety clearance

1070_en.h NC program

In the 1070_en.h main program, Cycle 12 PGM CALL is programmed after the required parameters and the tool call. The NC program 10701_en.h is defined in this cycle. This enables a simple call via CYCL CALL or M99.

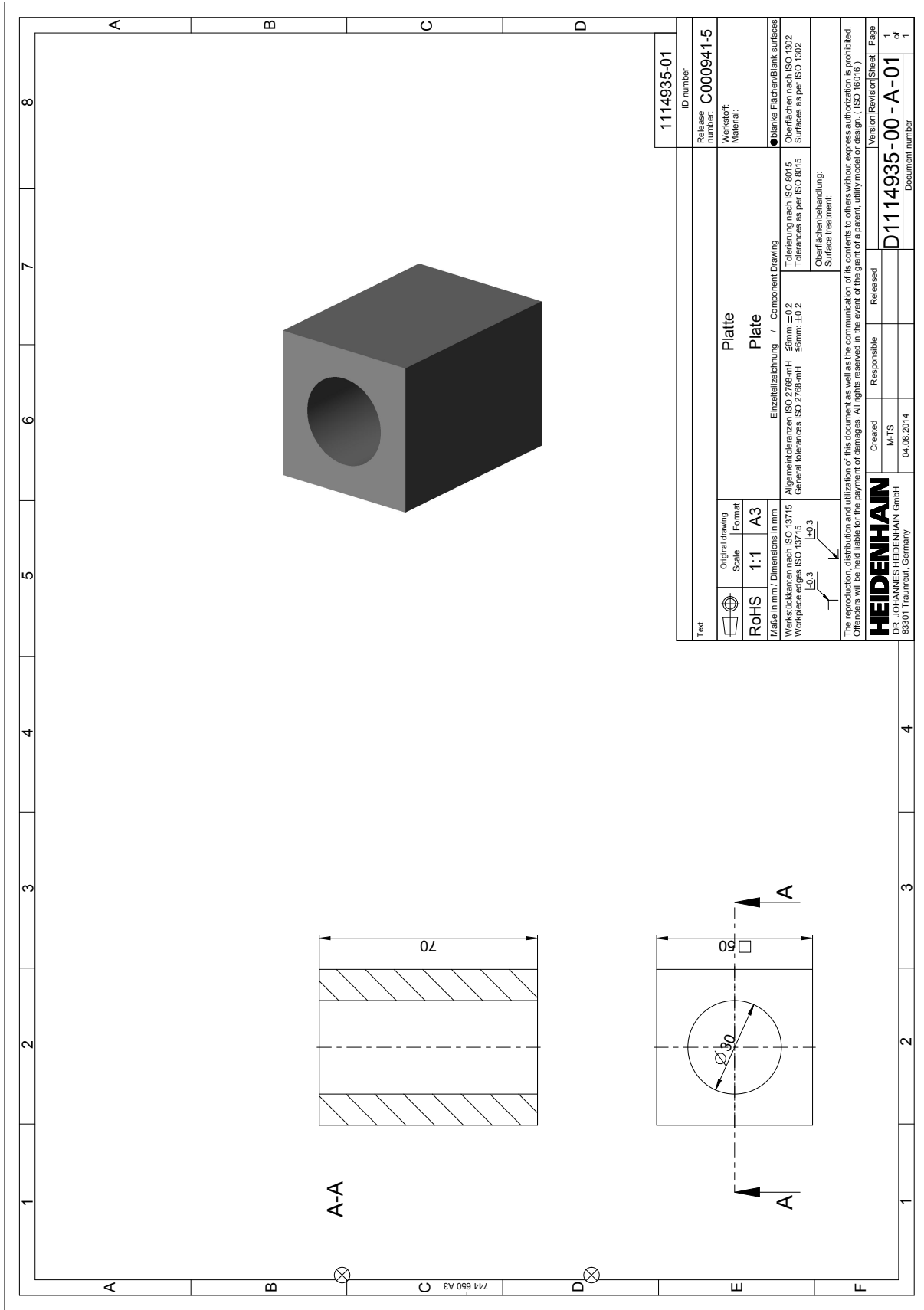
The control then approaches the first hole position and calls the NC program for the drilling sequence with M99. This could be followed by further positions with a cycle call. In the example the control retracts the tool after a machining step and terminates the program.

Parameter	Name	Meaning
Q1	COORDINATE SURFACE	Z coordinate of the workpiece plane
Q2	DEPTH OF PILOT HOLE	Incremental depth of the pilot hole in which the control centers the tool, from the workpiece plane.
Q3	RETRACTION HEIGHT FOR CHIP BREAKING	Position in relation to the workpiece plane to which the control retracts the tool for chip removal
Q4	FEED RATE FOR ENTRANCE	Traversing speed of the tool during positioning in the pilot hole
Q5	FEED RATE FOR DRILLING	Traversing speed of the tool during drilling
Q14	SHAFT SPEED OF ENTRY	Counterclockwise spindle speed during positioning in the pilot hole
Q6	ROTATION SPEED FOR DRILLING	Spindle speed during drilling
Q7	PLUNGING DEPTH	Incremental path drilled by the tool until chip breaking or chip removal
Q8	DEPTH	Depth from the workpiece plane to the bottom of the hole
Q9	DWELL TIME AT DEPTH	Time in seconds in which the tool dwells when the depth at the bottom of the hole is reached
Q10	RETRACTION FOR CHIP BREAKING	Incremental path along which the tool retracts from the bottom of the hole with chip breaking
Q11	SAFETY CLEARANCE	Z clearance between the tool and workpiece surface approached by the control in rapid traverse before machining is executed
Q12	2ND SAFETY CLEARANCE	Z coordinate referencing the workpiece plane traversed by the tool after machining
Q13	NUMBER OF CHIP BREAKS UNTIL CHIP REMOVAL	Number of chip breaks executed until the tool retracts for chip removal

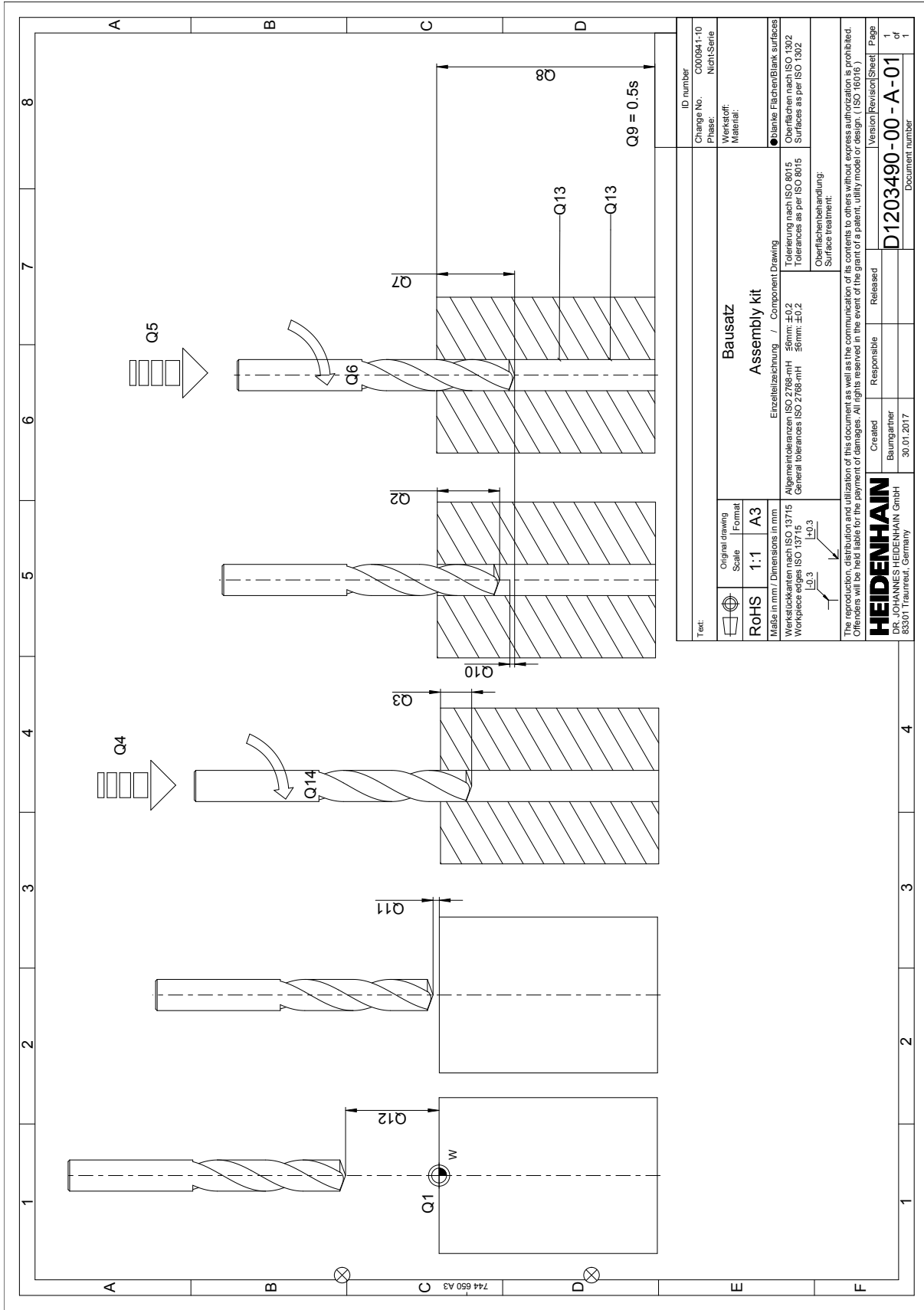
10701_en.h NC program

In the 10701_en.h NC program the control executes all calculations and path contours required for the drilling sequence.

Do not change this NC program if you do not wish to modify the drilling sequence. All required parameters are defined in the main program.



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Release number: C000941-5		Material: ●blanke Flächen/Blank surfaces	
Workpiece: Platte		Tolerierung nach ISO 1302 Surfaces as per ISO 1302	
Original drawing Scale 1:1		Einzelteilzeichnung / Component Drawing	
Format A3		Tolerierung nach ISO 8015 Tolerances as per ISO 8015	
RoHS		General tolerances ISO 2768-mH ±0.2	
Maße in mm / Dimensions in mm		Oberflächenbehandlung: Surface treatment:	
Werkstückkanten nach ISO 13715 Workpiece edges ISO 13715		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)	
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Text:		ID number	
Change No. C000941-10		Phase: Nicht-Serie	
Werkstoff:		Material:	
Material:		●blanke Flächen/Blank surfaces	
Oberflächen nach ISO 1302		Surfaces as per ISO 1302	
Toleranzen nach ISO 2768-mH		Tolerances as per ISO 2768-mH	
General tolerances ISO 2768-mH		General tolerances ISO 2768-mH	
Oberflächenbehandlung:		Surface treatment:	
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Maße in mm / Dimensions in mm		Maße in mm / Dimensions in mm	
Werkstoff nach ISO 13715		Werkstoff nach ISO 13715	
Workpiece edges ISO 13715		Workpiece edges ISO 13715	
±0,3		±0,3	
+0,3		+0,3	
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