



HEIDENHAIN



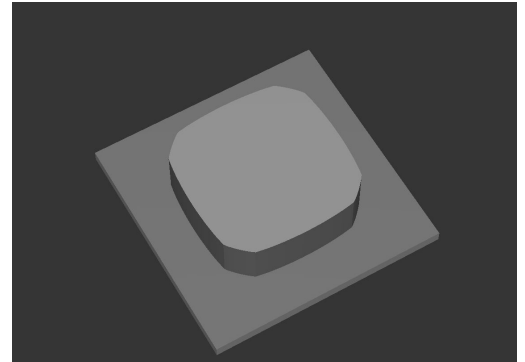
NC Solutions

Description of NC program 2140

English (en)
8/2017

1 Description of the NC program 2140_en.h

NC program for milling a stud in the shape of a P4C polygon as per DIN 32712



Description

With this NC program, the control mills a P4C polygon stud as per DIN 32712. At program start, you define the tool and all the parameters required for machining.

Please take into consideration that the center of the blank diameter is also the center of the polygon. In order to ensure the complete machining of the blank, you must define the blank diameter in such a way that it is double the size of the largest distance from the center of the polygon to the edge of the blank.

Then the control starts the machining operation. In an initial step, the control mills a circular stud with the external diameter of the polygon. Then the subprogram LBL 1 is assigned in a Cycle 14. In this subprogram 1, the control calculates all the values required for machining the sides of the polygon and thereby defines the contour edge. The control machines the calculated contour with a Cycle 25. In order to machine all four contour edges, the control rotates the coordinate system incrementally by 90° and performs the machining operation again. The control repeats this step twice.

After all machining operations have been carried out, the tool retracts, the control resets all coordinate conversions, and the control ends the NC program.

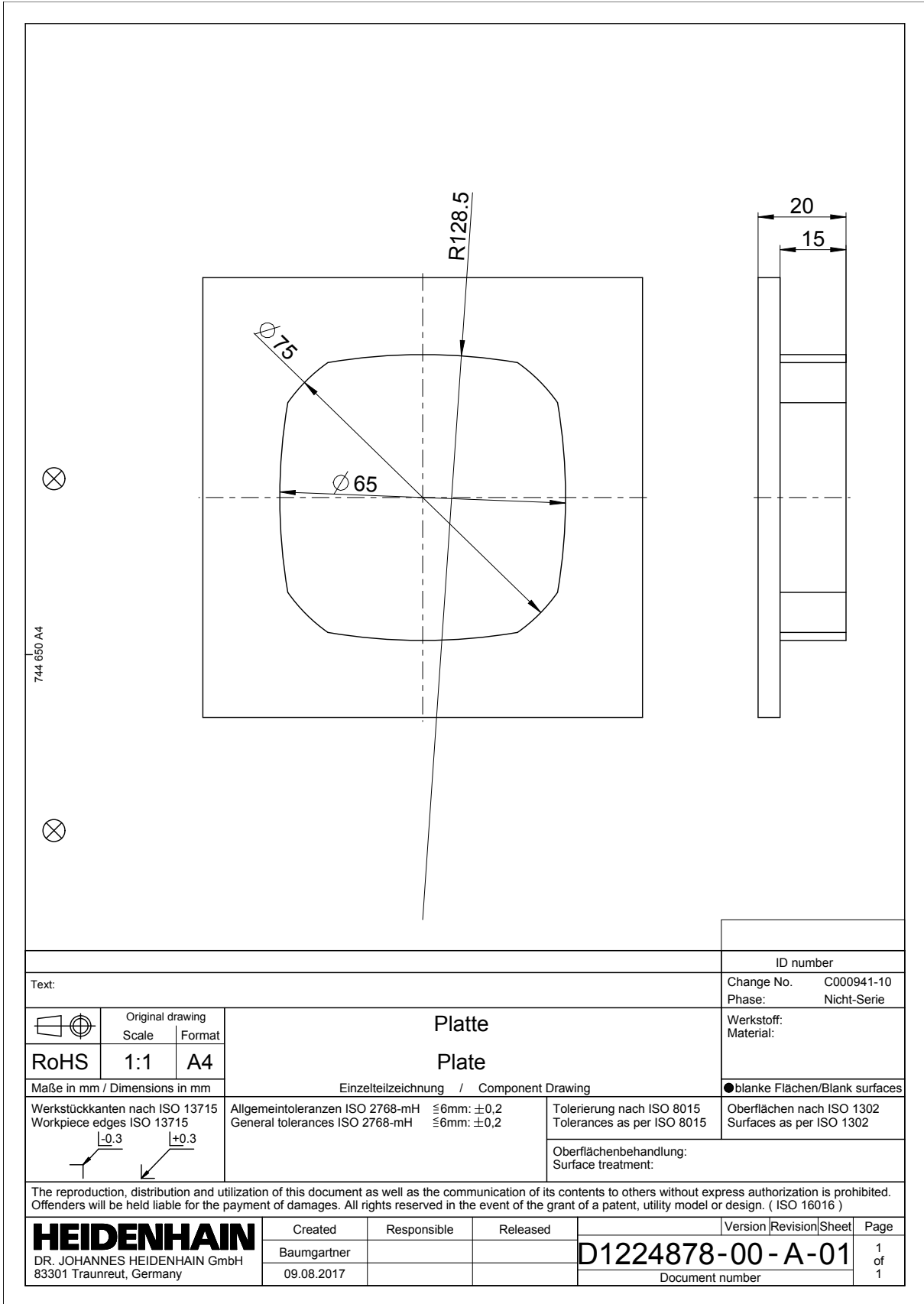
Parameter	Name	Meaning
Q50	MILLING DEPTH	Depth of the stud
Q51	PLUNGING DEPTH	Incremental depth at which the control feeds the tool along the tool axis.
Q52	SET UP CLEARANCE	Z-axis clearance between the tool and workpiece surface; the clearance is approached by the control in rapid traverse before machining
Q53	FEED RATE FOR PLUNGING	Traversing speed of the tool in the Z axis
Q54	FEED RATE FOR MILLING	Traversing speed of the tool during milling
Q28	WORKPIECE BLANK DIAMETER	Diameter of the blank to be machined—relative to the center of the polygon.
Q29	OUTSIDE DIAMETER (d1)	Outside diameter of the polygon see "P4C polygon as per DIN 32712", page 4
Q30	INSIDE DIAMETER (d2)	Inside diameter of the polygon see "P4C polygon as per DIN 32712", page 4
Q31	ECCENTRIC SIZE (e)	Eccentric size of the polygon see "P4C polygon as per DIN 32712", page 4
Q36	CENTER OF THE POLYGON IN THE X AXIS	X coordinate of the center of the polygon
Q37	CENTER OF THE POLYGON IN THE Y AXIS	Y coordinate of the center of the polygon
Q38	ROTATION	Angle at which the coordinate system is rotated around the center of the polygon

P4C polygon as per DIN 32712

Geometric dimensions required for manufacturing a stud with program 2140_en.h

Nominal size	Outside diameter (d1) ¹⁾	Inside diameter (d2) ¹⁾	Eccentric size (e) ¹⁾
12	12	10	1.5
14	14	11	1.6
18	18	15	2
20	20	17	3
22	22	18	3
25	25	21	5
28	28	24	5
30	30	25	5
32	32	27	5
35	35	30	5
40	40	35	6
45	45	40	6
50	50	43	6
55	55	48	6
60	60	53	6
65	65	58	6
70	70	60	6
75	75	65	6
80	80	70	8
85	85	75	8
90	90	80	8
95	95	85	8
100	100	90	8

¹⁾ Dimensions in mm



744 650 A4

ID number	
Change No.	C000941-10
Phase:	Nicht-Serie
Werkstoff:	Material:
●blanke Flächen/Blank surfaces	
Tolerierung nach ISO 8015	Tolerances as per ISO 8015
Oberflächen nach ISO 1302	Surfaces as per ISO 1302
Oberflächenbehandlung: Surface treatment:	
Version	Revision
Sheet	Page
D1224878-00-A-01	
Document number	
1	of 1

Text:			Platte		Plate	
Original drawing	Scale	Format	Einzelteilzeichnung / Component Drawing			
RoHS	1:1	A4				
Maße in mm / Dimensions in mm						
Werkstückkanten nach ISO 13715 Workpiece edges ISO 13715		Allgemeintoleranzen ISO 2768-mH General tolerances ISO 2768-mH		Tolerierung nach ISO 8015 Tolerances as per ISO 8015		Oberflächen nach ISO 1302 Surfaces as per ISO 1302
		$\leq 6\text{mm}: \pm 0,2$ $\leq 6\text{mm}: \pm 0,2$				

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Baumgartner		
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Version	Revision	Sheet	Page
D1224878-00-A-01			1
Document number			of 1

