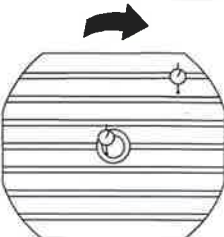
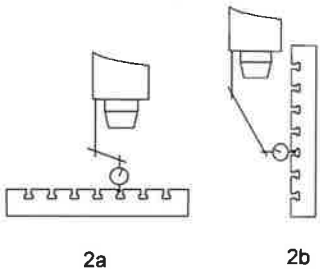
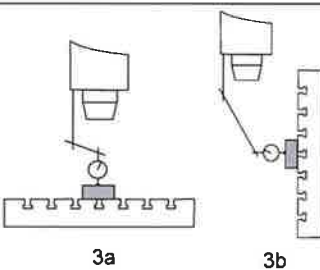
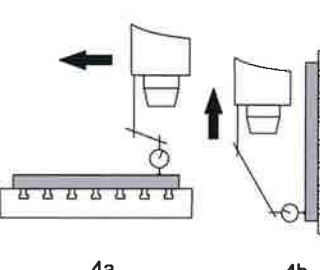
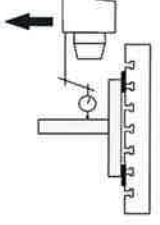
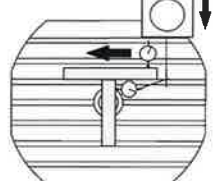

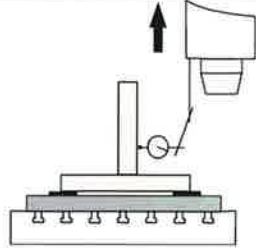

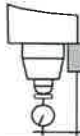

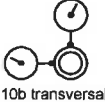
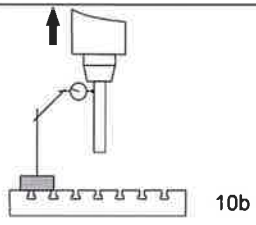
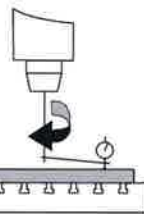
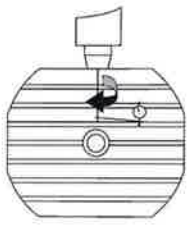
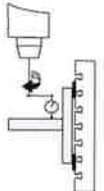


number	index	latest edition	approved / date	created by	originally created	page
SM001513	I	22.06.2018	seifertl / 22.06.18	LHES	22.11.2011	1 / 4
title						
<b>Geometrical Measurements (with NC rotary table)</b>						
machine type					series	
DMU 40 evo					5043	
customer			quality inspector / date		machine number	project number
			Dienst 02.02.2019		1546 577177 4	125352
No.	Object of measurement	Diagram	Measuring instruments	Measuring instructions	Deviation in mm	
					permissible	measured
1	1a Camming of the clamping surface		Dial gauge	Place dial gauge against table. Rotate table plate 360 degree.	0,015 mm Ø 350 mm	1a
	1b Concentricity of center bush					0,005
2	2a clamping surface horizontal		Dial gauge	Clamping surface horizontal! Place dial gauge against T-Slot behind middle T-slot from behind. Move measuring length longitudinal.	0,015 mm, measuring lgt. 400 mm	2a
	2b clamping surface vertical					0,008
3	3a clamping surface horizontal		Dial gauge, Measuring rail, Test block	Position measuring rail at center of table. Place dial gauge on the right side of measuring rail and set to zero. Move measuring length longitudinal. Notice table adjustment from preacceptance.	0,015 mm, measuring lgt. 400 mm	3a
	3b clamping surface vertical					0,006
4	4a Parallelism of transversal movement in relation to clamping surface		Dial gauge, Measuring rail, Test block	Position measuring rail at center of table. Place dial gauge behind of measuring rail and set to zero. Move measuring length transverse. Notice the table adjustment from preacceptance.	0,015 mm, measuring lgt. 350 mm	4a
	4b Parallelism of vertical movement to clamping surface					0,011
5	5a Parallelism of transversal movement to clamping surface		Dial gauge, Angle	Fix angle at center of table. Place dial gauge. Move measuring length transverse.	0,020 mm, measuring lgt. 300 mm	5
	5b Parallelism of vertical movement to clamping surface					0,009
6	Rectangularity of longitudinal movement to transversal movement		Dial gauge, Angle	Align bottom of the angle parallel to longitudinal movement. Place dial gauge against cylindrical part of the angle. Move measuring length transverse.	0,020 mm, measuring lgt. 300 mm	6

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title <b>Geometrical Measurements (with NC rotary table)</b>						
machine type DMU 40 evo				series 5043		
customer			quality inspector / date Dienst 02.02.2019	machine number 1546 577177 4	project number 125352	

No.	Object of measurement	Diagram	Measuring instruments	Measuring instructions	Deviation in mm	
					permissible	measured
7	Rectangularity of vertical movement in relation to clamping surface 7a longitudinal 		Dial gauge, Angle	Place angle at center of table. Move longitudinal axis in center position. Place dial gauge at angle. Move measuring length vertical.	0,015 mm, measuring lgt. 300 mm	7a 0,008
	7b transversal 				For measurement 7b turn angle and dial gauge 90 degrees.	7b 0,010
8	Axial movement of work spindle		Dial gauge, Testing arbor	Clamp testing arbor in spindle taper. Place dial gauge at center. Rotate work spindle with minimum speed!	0,005 mm	8 0,003
9	Concentricity of inside taper of milling spindle 9a close to spindle nose (invalid for spindle with more than 30000 U/min)		Dial gauge, Testing arbor 300 mm	Clamp testing arbor in spindle taper. Place dial gauge as shown in 9a, 9b. Rotate work spindle. Respectively 4 measurements to arrange (clamping 90 degrees displaced)! To generate median!	0,010 mm	9a 0,003
	9b at a distance of 300mm to spindle nose (spindle with more than 30000 U/min to arrange the measurement with a distance from 100 mm to the spindle nose)				0,020 mm	9b 0,014
					0,008 mm (≥30.000 U/min)	/
10	Parallelism of work spindle in relation to vertical movement 10a longitudinal 		Dial gauge, Testing arbor 300 mm	Clamp testing arbor in spindle taper. Check for concentric run. Place dial gauge as shown in 10a or 10b. Move measuring length vertical.	0,020 mm, measuring lgt. 300 mm	10a 0,008
	10b transversal					10b 0,009
11	Measurement with swing motion of work spindle: 11a longitudinal B-axis = 0°		Dial gauge, Measuring rail, Cranked arm 150 mm	Place work spindle in center position. Position measuring rail at center position. Clamp cranked arm with dial gauge in spindle taper. Place dial gauge on measuring rail and set to zero. Turn cranked arm 180 degrees. Check longitudinal (11a) and transversal (11b).	0,020 mm, Ø 300 mm	11a 0,008
	11b transverse B-axis = 0°					11b 0,007
12	Measurement with swing motion of work spindle: 12a longitudinal B-axis vertical		Dial gauge, Cranked arm 150 mm	Clamping surface horizontal. Adjust T-Slot to longitudinal axis. Swivel clamping surface in vertical position. Move work spindle in center position. Clamp cranked arm with dial gauge in work spindle. Place dial gauge in same T-Slot on same surface and set to zero. Turn work spindle 180 degrees.	0,020 mm, Ø 300 mm	12a 0,004
	12b transversal B-axis vertical					Fix angle at center of table. Move work spindle in center position. Clamp cranked arm with dial gauge in work spindle. Place dial gauge against angle and set to zero. Turn milling spindle 180 degrees.

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title  
**Geometrical Measurements (with NC rotary table)**

machine type DMU 40 evo	series 5043
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customer	quality inspector / date Dienst 02.02.2019	machine number 1546 577177 4	project number 125352
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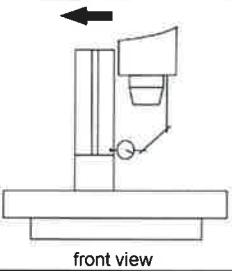

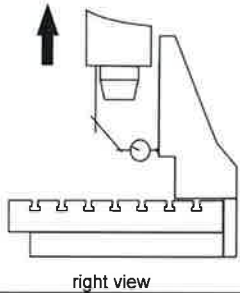


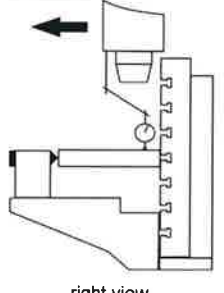

No.	Object of measurement	Diagram	Measuring instruments	Value in mm
13	Distance from milling spindle to reference point of longitudinal axis. Clamping surface in 0-degree pos. Swivel axis in 0-degree pos. Reference: Center bush in clamping surface.		Cranked arm, Dial gauge, Angle	13  -200,466
14	Distance from work spindle to reference point of transverse axis. Clamping surface in 0-degree pos. Swivel axis in 0-degree pos. Reference: Center bush in clamping surface.		Cranked arm, Dial gauge	14  -150,574
15	Distance from inside taper of work spindle to reference point of vertical axis. Clamping surface in 0-degree pos. Swivel axis in 0-degree pos. Reference: Clamping surface close to Center bush.		Testing arbor, Gauge block	15  -501,471
16	Distance from work spindle to reference point of longitudinal axis. Clamping surface in 0-degree pos. Swivel axis in 180-degree pos. Reference: Center bush in clamping surface.		Cranked arm, Gauge block Testing arbor	16  -200,461
17	Distance from inside taper of work spindle to reference point of transverse axis. Clamping surface in 0-degree pos. Swivel axis in 180-degree pos. Reference: Clamping surface close to Center bush.		Testing arbor, Gauge block	17  -25,667
18	Distance from work spindle to reference point of vertical axis. Clamping surface in 0- degree pos. Swivel axis in 180- degree pos. Reference: Center bush in clamping surface		Testing arbor, Gauge block	18  -376,570
19	19a: Distance from insider taper of work spindle to reference point of transverse axis. Reference: Table swivel axis.		19a Work out:	19a
	19b: Distance from insider taper of work spindle to reference point of vertical axis. Reference: Table swivel axis.		Distance 14 minus distance 17 =	124,907
			19b work out: Distance 15 minus distance 18 =	19b 124,901

The measuring of the machine has to be done with activate temperature compensation.  
Notes: The position of the longitudinal axis become after swing of the table about 180 degree (table vertical, table horizontal) of the machine equal drive on. This is through the application from workside of the compensation value in the corresponding machine constant. The compensation followed automatically by swing of the table.

**Attention: Do you consider the position of the reference point and the machine zero point at your machine. They can deviate from the symbolical representation (for example: after the exchange of the machine axis).**



axis	longitudinal axis	transversal axis	vertical axis
Diagram		_____	_____

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title <b>Geometrical Measurements (with NC rotary table)</b>						
machine type DMU 40 evo				series 5043		
customer		quality inspector / date Dienst 02.02.2019		machine number 1546 577177 4		project number 125352




No.	Object of measurement	Diagram	Measuring instruments	Measuring instructions	Deviation in mm	
					permissible	measured
20	Parallelism of longitudinal movement to overarm surface.	 front view	Dial gauge	B-axis in 0° position. Set dial gauge to zero on overarm surface. Move measuring length transverse (Y-axis).	0,010 mm, measuring lgt. 90mm	20 /
21	Parallelism of transversal movement in relation to overarm. 21a surface 	 right view	Dial gauge	B-axis in 0° position. Set dial gauge to zero on overarm surface. Move measuring length vertical (Z-axis).	0,020 mm, measuring lgt. 300 mm	21a /
	21b T slot 					Set dial gauge to zero in T-Slot. Move measuring length vertical (Z-axis).
22	Parallelism of transversal movement to overarm with tailstock 22a above 	 right view	Dial gauge, Testing arbor	B-axis in + 90° position. Give testing arbor in center bush. Set tailstock with dead center against testing arbor. Set dial gauge to zero on testing arbor. Move measuring length transverse (Y-axis).	0,020 mm, measuring lgt. 300mm	22a /
	22b lateral 					22b /

Angle values:

Copy the values from the accuracy test chart (SM001366) in the next chart.

	Value		Adjustment
	119,3530		
angle B	119,3530		
	-91,1243		
angle C	-91,1243		
kinematics B	target ≤ 34,9999	result 34,9972	
kinematics C	45,5622		

Values for B-axis-vector:

	Value (7 sites after comma)	Adjustment (7 sites after comma)
	+0,5849031	
VX	+0,5849031	
	-0,5735365	
VY	-0,5735365	
	+0,5735365	
VZ	+0,5735365	

## Declaration of conformity

in the context of the Machinery directive 2006/42/EC, Annex II, A

We herewith declare that the design of

**Identifier:** Machining center

**Machine type:** DMU 40 evo

**Machine number:** 15465771774

complies with the applicable provisions valid on the issue date stated below:

EC directive 2006/42/EC, in its current version  
EC directive 2014/30/EU, in its current version  
EC directive 2014/68/EU, in its current version.

Harmonised standards applied, in particular:

EN ISO 12100, EN IEC 60204-1, EN 12417...

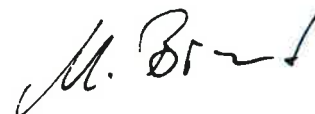
Person empowered to draw up the technical  
documentation:



Köhler, Hanno

Seebach, 05.02.2019

(Place and date of issue)



(Signature of the person)

Matthias Brand - manager R&D

(Name and position of the person)

### Bankverbindungen

Deutsche Bank AG  
HVB

IBAN: DE 45 4807 0020 0066 0076 00  
IBAN: DE 32 6302 0086 0387 5103 38

BIC: DEUTDE33XXX  
BIC: HYVEDEMM461

BLZ: 480 700 20  
BLZ: 630 200 86

Konto: 066 007 600  
Konto: 387 510 338

