UDC 621.914.4 DEUTSCHE NORMEN July 1980

Machine Tools

Boring and Milling Machines with Horizontal Spindle

Table-Type Machines; Rotary Tables; Acceptance Conditions

DIN 8620 Part 3

Werkzeugmaschinen; Waagerecht-Bohr-Fräsmaschinen mit Tisch und festem Ständer – Drehtische, Abnahmebedingungen

For connection with the International Standard ISO 3070/I – 1975, Addendum 1 – 1976 published by the International Organization for Standardization (ISO), see Explanations.

Type:	Machine No.:
Customer:	Order No.:
Date:	Accepted by:

Dimensions in mm

1 Purpose and range of application

This Standard lays down the technical acceptance conditions for rotary tables used in conjunction with boring and milling machines. It includes geometrical tests (accuracy of manufacture) and practical tests (accuracy of working) on the final workpieces.

2 Other relevant Standards

DIN 874 Part 1 Steel straight edges; dimensions; technical conditions of delivery

DIN 879 Part 1 Precision dial gauge with mechanical display

DIN 8601 (Preliminary Standard) Machine tools; acceptance conditions for machine tools for the machine cutting of metals; general rules

3 General

3.1 For the application of this Standard reference is made to DIN 8601 (Preliminary Standard), December 1977 edition, Section 3.2.2, that particularly for the preparation of the tests, all moving parts are to be at a normal operating temperature. Further reference is made to the description of the measuring methods and the recommended degree of accuracy for the test equipment.

3.2 The numerical sequence of the geometrical tests corresponds to the sequence to be observed for the practical tests.

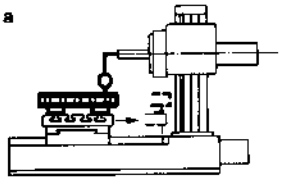
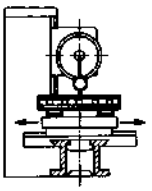
3.3 When testing a rotary table, it is not always necessary for all of the individual tests listed in this Standard to be carried out. The user (purchaser) is, in agreement with the manufacturer, at liberty to negotiate a selection of relevant tests to be established at the time of ordering.

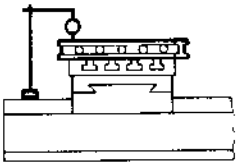
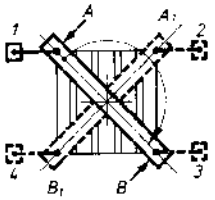
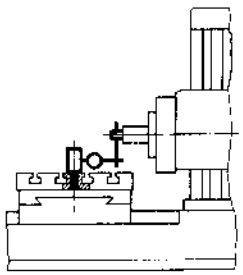
3.4 In the column "Test instructions", at the end, the relevant section number from DIN 8601 (Preliminary Standard), December 1977 edition, is indicated when the test concerned corresponds to the stipulations contained therein.

3.5 If the tolerance for a gauge length deviates from that contained in this Standard (see DIN 8601 [Preliminary Standard] December 1977 edition, Section 2.3.1.1), it must be borne in mind that the minimum value for this tolerance is 0.0025 mm.

Continued on pages 2 to 6
Explanations on page 6

4 Geometrical tests

No.	Subject of the test	Diagram	Test equipment	Test instructions	Deviations	
					permissible	measured
G1	Parallelism of the clamping surface of the table a) in the longitudinal direction of the machine b) in the transverse direction of the machine	a  b 	Measuring column Precision dial gauge according to DIN 879 Part 1 Straight edge according to DIN 874 Part 1 Test blocks or other optical test equipment	Secure the measuring column with the precision dial gauge to a fixed part of the machine or to the clamped spindle. A straight edge can be used if this is placed parallel to the table surface. The measuring plunger of the precision dial gauge should be placed in the vertical plane in the direction of the spindle axis of the machine. If the length of the table exceeds 1600 mm the test is carried out with the position of the straight edge being gradually changed. During this time, the setting of the precision dial gauge should not be changed. Move the table firstly in the longitudinal and then in the transverse direction, read off the indication. Transverse and longitudinal slides clamped. The tests are to be carried out in the positions 0°, 90°, 180° and 270°. 5.2.3.2.1 5.4.2.2.1	a. 0.04 mm up to 1000 mm Local tolerance: 0.015 mm at 300 mm For every additional 1000 mm gauge length the permissible deviation is to be increased by 0.01 mm. Maximum permissible deviation: 0.06 mm b. 0.04 mm at 1000 mm gauge length	a 0° . . . . . . 90° . . . . . . 180° . . . . . . 270° . . . . . . b 0° . . . . . . 90° . . . . . . 180° . . . . . . 270° . . . . . .

No.	Subject of the test	Diagram	Test equipment	Test instructions	Deviations	
					permissible	measured
G2	Surface trueness of the clamping surface of the table during the rotary movement	 	Measuring column Precision dial gauge according to DIN 879 Part 1 Straight edge according to DIN 874 Part 1	Secure the measuring column with the precision dial gauge on the slideway in position 1. Place the straight edge over the axis of rotation in the direction A–B. Place the measuring plunger of the dial gauge at A against the straight edge, rotate the table through 180° and read off the change in the indication at B. Then place the straight edge in the direction A_1–B_1 and repeat the test. During this time the setting of the precision dial gauge should not be changed. By moving the measuring column to positions 2, 3 and 4, further tests are to be carried out at both A–B and A_1–B_1. During these tests the table saddle is to be clamped. The maximum deviation is acceptable for the testing of the surface trueness. 5.6.3.2 5.6.3.3	0.02 mm for a test diameter in each case of 1000 mm Position 1: A B A_1 B_1 Position 2: A B A_1 B_1 Position 3: A B A_1 B_1 Position 4: A B A_1 B_1	....
G3	True running of the inner centring of the table in relation to the axis of rotation		Measuring column Precision dial gauge according to DIN 879 Part 1 Test mandrel.	Secure the measuring column with the precision dial gauge to the clamped spindle or to a fixed part of the machine. Place the measuring plunger of the precision dial gauge against the test mandrel, rotate the table and read off the indication. The test can be carried out directly in the bore hole without the use of a test mandrel. 5.6.1.2.3	0.015 mm	.....