

Technical Datasheet No. 1/1612/2022, UNION TC 110-1, boring mill in cross table design

TECHNICAL DATA SHEET HORIZONTAL - BORING AND MILLING MACHINE

Manufacturer	UNION
Type	TC 110-1
Built Retrofit	2002 2022
Control	HEIDENHAIN iTNC 530



Working Area

X-axis, table cross adjustment	2.000 mm
Y-axis, vertical adjustment headstock	1.600 mm
Z-axis, longitudinal adjustment table	1.500 mm
W-axis, quill adjustment	550 mm
B-axis, positioning	360.000 x 0,001°

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Headstock with main spindle

Spindle diameter	110	mm
Fixed spindle throat, length	300	mm
Fixed spindle throat, diameter	260	mm
Smallest distance, Spindle edge to table center	50	mm
Lowest position above table surface	0	mm
Tool holder (short taper according to DIN 69871)	ISO 50	
Drive power S1 (100%) / S6 (60%)	22/27	kW
Max. torque at spindle	2.012	Nm
Spindle speed range, stepless adjustable	5 – 3.000	Min-1

NC – rotary table

Clamping surface	1.600 x 1.250	mm
centering hole in table	100	mm H6
max. load (max.150mm except table m.)	6.000	kg
T-slot width	22	mm
T-slot distance	125	mm
Holding torque B-axis	30.000	Nm
Positionability	360.000 x 0,001°	

Feeds and rapid traverse

Max. Feed range for X, Y, Z and W axis	1-6.000	mm/min
Rapid traverse for all linear axes	15.000	mm/min
B axis	3	min-1

Installation data

Operating voltage	3~ 400/230 V
Frequency	50 Hz
Connected load	63 kVA
Backup fuse	125 A

Tool magazine

Type	Chain magazine
Number of magazine spaces	40
max. Ø without free auxiliary spaces	125 mm
max. Ø with free auxiliary places	250 mm
max. tool length	500 mm
max. tool weight	30 kg
Max. permissible weight of all tools	800 kg

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Design features

Machine

Backlash-free ball screws in all linear axes

Direct, absolute measuring systems in all axes, make HEIDENHAIN

Machine bed

Wide, heavily ribbed steel construction, 4 - guides bed

Preloaded compact roller linear guides for backlash-free guiding of the table-slide

Bed and column are rigidly connected

Machine column

Solid ribbed cast iron column in box construction

Preloaded compact roller linear guides for backlash-free guiding of the headstock

Complete enclosure on the column for headstock vertical adjustment

Headstock / Drilling spindle

Rigid cast iron construction

Bearing of the spindle system with preloaded precision angular contact ball bearings with lifetime lubrication mounted in preloaded fixed spindle projection

Automatic switching of the two gear steps via primary gearing with hardened gears and oil cooling

Power transmission to the boring spindle through low-noise precision V-ribbed belts

Nitride-hardened, precision-balanced drilling spindle, axially adjustable, positionable at any angle and protected against chips and coolant by a spindle labyrinth

Table group

Clamping table (1,600 x 1,250 mm) and table slides in cast iron

Precisely scraped sliding surface to accommodate the table. Rotary table adjustment (B axis) with pinion drive

Table underside with plastic-coated sliding guide.

Hydraulic segment clamping, table bearing by precision bearings

Machine dimensions

L x W x H ca. 7.200 x 5.000 x 3.700 mm

Total weight ca. 22.000 kg

Accessories

3 pcs. chip conveyors (position left and right as well as front crosswise in front of the machine bed) - NEW

Tool magazine 40 places, automatic change

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Scope of retrofit

- Ball screws in X, Y, Z and W axis, incl. new bearings - NEW
- Linear guides and roller shoes in X, Y, Z and W axis - NEW
- Tool changer and magazine overhauled
- Bearings for spindle and quill - NEW
- CNC control HEIDENHAIN iTNC 530 -**NEW from our stock**-
- Tool clamping unit make OTT overhauled by manufacturer
- Measuring systems cleaned, checked and partially replaced by new components
- Machine completely checked mechanically and electrically
- Largely new cables, especially in the energy chains
- Energy chains - NEW
- Telescopic covers overhauled
- Bellows in the vertical axis – NEW
- Machine painting with oil-resistant and abrasion-resistant two-component paint - NEW
- 2 pcs. lubrication units - NEW
- 2 pcs. High pressure units make HAWE – NEW
- Oil-cooling device make HYDAC for main-gearbox - NEW
- All mechanical and electrical components have been checked and renewed if necessary

Options for extra charge

- Machine enclosure, custom made – NEW -
- Coolant system for internal & external cooling 20 / 8 bar -NEW-
- 3D touch probe measuring system