

Master Specifications

TDI Reference: #64452

Description: Horizontal Boring, Drilling, Milling Machine

Manufacturer: Union

Model: TC 110

Year: 2003 (In Service 2015)

Control Type: Heidenhain iTNC 530

Boring spindle		
Spindle diameter	mm	110 (4.33")
Number of gear steps		2
Speed range I. gear step	rpm	5 ... 670
II. gear step		671 ... 4 000
Main drive power (S1 duty)	kW	22
Max. main drive power	kW	27
Nominal torque at spindle (S1 duty)	Nm	1 639
Max. torque at spindle	Nm	2 012
Y-axis (vertical travel)	mm	1 600 (63")
W-axis (boring-spindle travel)	mm	550 (21.65")
Lowest position of spindle center to upper edge of workholding table	mm	0
Max. feed power Y	KN	16
Max. feed power W	KN	20
Feed rate Y/W	mm/min	0...6 000
Rapid feed rate Y/W	m/min	15

Workpiece Carrier (Table)

Max. load (work center of gravity max. 150 mm off table center)	kg	6 000 (13,227 lbs)
Maximum mass inertia moment of workpiece	kgm ²	2 500
Locking torque of B-axis	Nm	25 000
Max. torque permitted if B locked	Nm	20 000
Max. torque upon circular milling	Nm	5 000
Z-axis (lengthwise travel)	mm	1 500 (59")
X-axis (transverse travel)	mm	2 000 (79")
B-axis (table rotation)	°	360
Max. feed power Z	KN	20
Max. feed power X	KN	16
Machining torque of B-axis	Nm	5 000
Max Feed rate Z/X	mm/min	6 000 (236.22 IPM)
Rapid feed rate Z/X	m/min	15
Rapid feed rate B	rpm	3
	degrees/m in	1 080

Clamping sizes and other dimensions

Clamping surface of table	mm	1,250 x 1,600 (49" X 63")
Center bore	mm	Ø 100H6 (3.93")
T-slot width	mm	22 (.86")
T-slot spacing	mm	125 (4.921")
Height of clamping surface	mm	1,050 (41.33")

Tooling:

The machine is suitable to locate tools of steep taper ISO 50 and tools with steep-taper shank DIN 69871 type AD with bore for axial coolant supply and retention knob 1"-8 UNC-2A .

Current on hand

- Allied APX drills for hole opening of 3", 3.25", 3.50", 3.75"
- Allied APX pilot drill, 1-5/8" diameter
- 6" Right Handed Sandvik 360 shear cutter
- .840" core sample trepan tool (Inlet Tool)
- Sandvik 880 indexable endmill
- Sandvik 80 mm high feed mill

Tool Change Mechanism (*not currently functional*):

Number of magazine pockets				40		
Max. tool diameter						
- with occupied adjacent pockets			mm	125		
- with unoccupied adjacent pockets			mm	250		
Max. tool length			mm	500		
Max. tool weight			kg	30		
Tilt torque (at tool contact groove), max.			Nm	50		
Total weight permitted of all tools			kg	700		
Limit value for one-sided loading			kg	500		

Coolant Capacity:

- reservoir of 500 liters capacity
- filter 30 μm
- low-pressure pump 30 l/min at approx. 3 bar, adjustable
- supply through pivoting nozzle block on spindle head
- additional high-pressure pump 30 l/min at 13,5 bar, adjustable
- circulation circuit for weekend operation