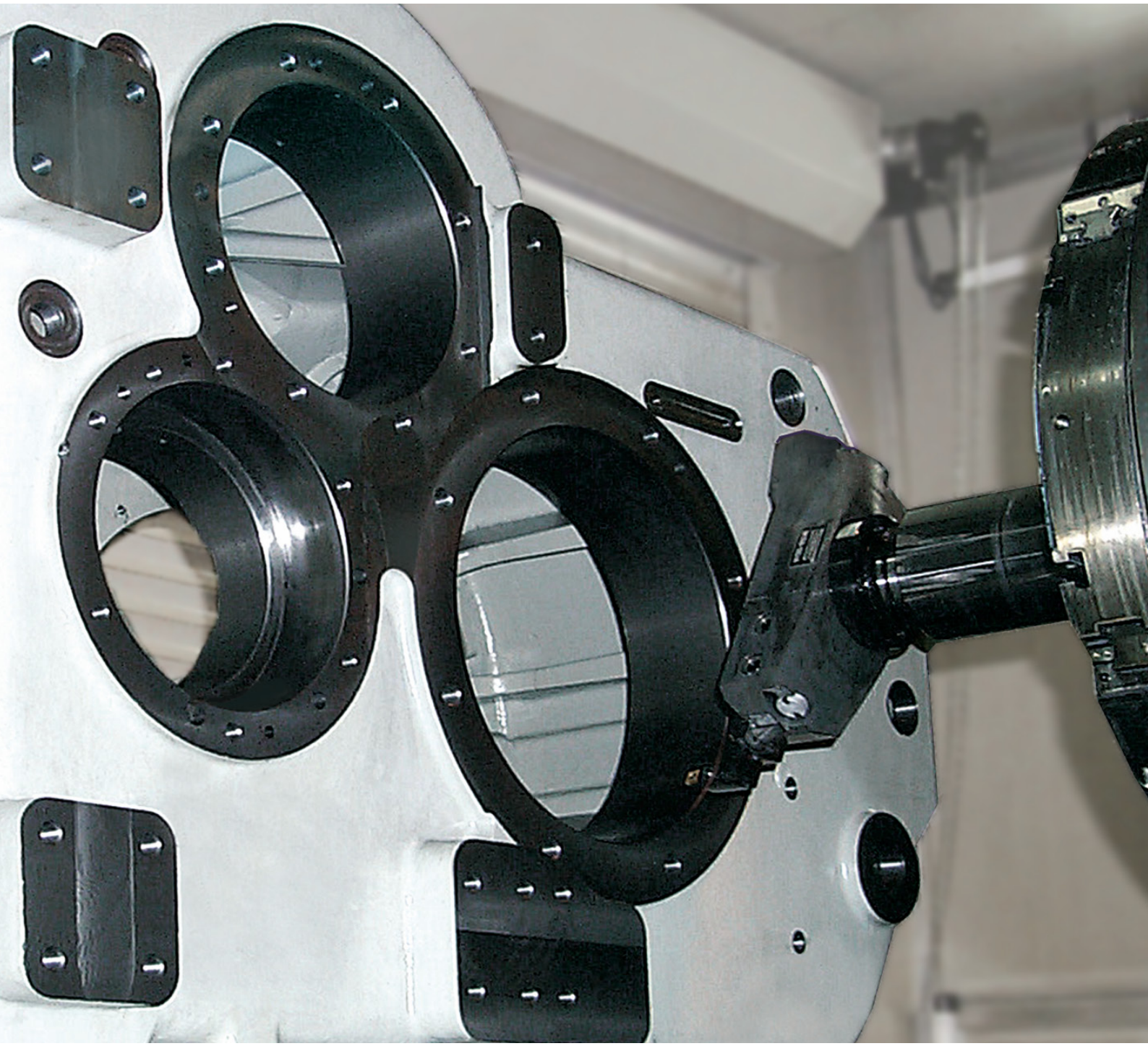
K 110 / KG 110 / K 130 / K 150 / KR 150

Efficient complete machining



P-SERIES
K-SERIES
T-SERIES
MILLFORCE

UNIONCHEMNITZ

A high degree of automation enables the efficient machining of complex heavy components of all types that are highly used in the power, mining, railroad, shipbuilding, aerospace and machine tool industries to name a few.

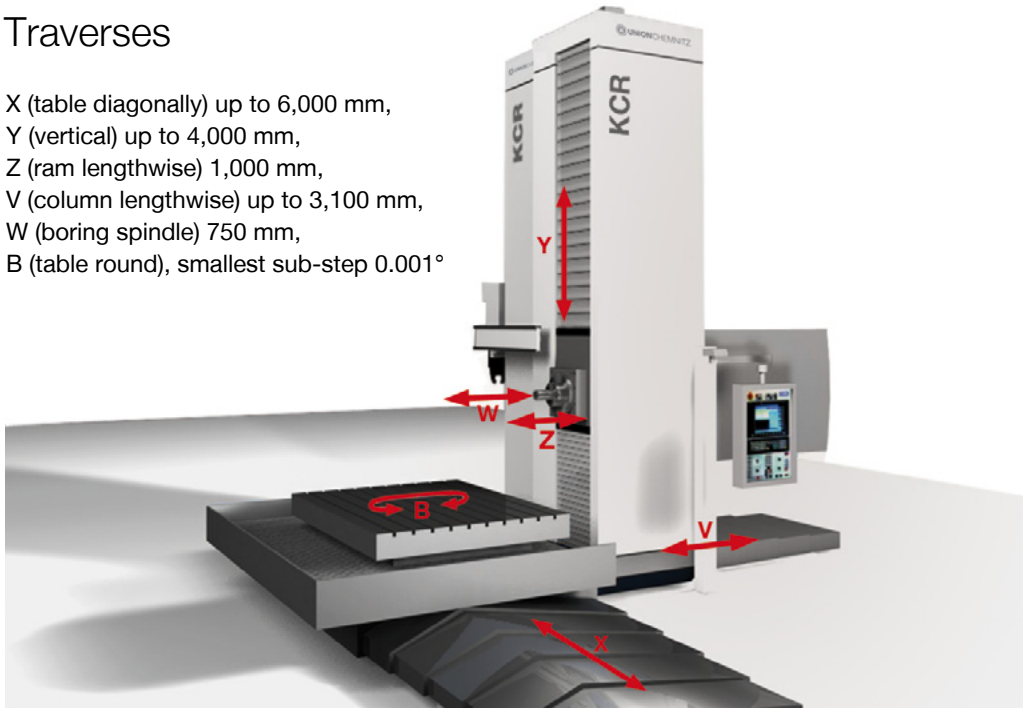
The K-Series – CNC planer type horizontal boring and milling machines

Precise machine tools to complete the efficient machining of heavy prismatic work pieces entirely. The use of an automatic tool changer and advanced process automation guarantee the efficient application of the machine with minimal non-productive time.

Your advantages at one glance:
- Speed range of up to 5,000 rpm
- Nitrided, axially traversable boring spindle, ceramic-coated on request
- Compact precision roller guide ways in all linear axes
- Hydrostatic guideways available for machines with ram
- Work piece changing in the form of conventional pallet changing or as a twin-table version
- Permanently installed NC facing head optionally available
- Length compensation of boring spindle and ram
- Available as high-precision boring mill KG 110

Traverses

X (table diagonally) up to 6,000 mm,
Y (vertical) up to 4,000 mm,
Z (ram lengthwise) 1,000 mm,
V (column lengthwise) up to 3,100 mm,
W (boring spindle) 750 mm,
B (table round), smallest sub-step 0.001°



Classification

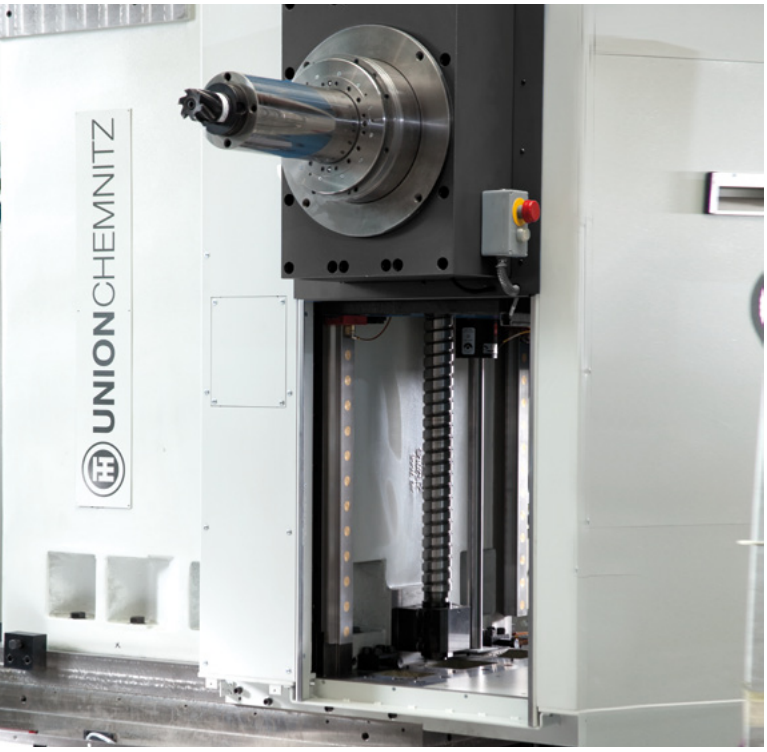
Planer type	K
with automatic tool changer	C
with permanently integrated facing head	U
with ram	R
Boring spindle diameters available:	110, 130 and 150 mm

Robust, modular machine technology

K-Series design
Solid and robust rigidity promotes vibration free cutting – the column and table unit: The solid, ribbed box-type cast column ensures a significantly higher bending stiffness compared with a classic frame construction. The construction of the T-shaped machine beds is robust and wide. Preloaded high precision ball screws and preloaded linear compact roller guide ways guarantee precise machining accuracies, especially on circular interpolation. A hydraulic segment table clamping provides high cutting performances. The resulting chips are effectively discharged by a chip conveyor positioned between machine and table. Highest quality made in Chemnitz: all core components are completely manufactured by UnionChemnitz. The front bearing of the headstock is reliably protected against the ingress of particles by means of a pressure-air filled labyrinth seal. The low-wear precision spindle bearing has life-time lubrication and is thermally controlled. An oil cooler stabilizes the temperature of the gear circulated lubrication.

KR / KCR 150 design
The KCR 150 can be equipped with a hydrostatically controlled ram that allows utilizing another infeed axis (Z). The overlapping column and ram movements result in a more robust cutting condition beyond the middle of the table.

High-precision boring mill KG 110
The UnionChemnitz high-precision boring mill KG 110 meets all demands of high-precision machining. It combines the tested K-Series design with optimal thermo management, optimization of details and highest accuracies.



Flexible, modular machine concept


Compact guide ways, ball screws and a direct measurement system

Optionally available

Automatic tool changing

- Column mounted tool magazine with max. 60 tools
- Magazine with max. 120 tools and linear tool gripper
- Arena magazine with max. 176 stations
- Tool gripper: SK 50 or HSK 100, others upon request

Pick-up station

- Automatic changing of milling heads via a shuttle beneath the tool changer

CNC controls

- Heidenhain iTNC 640
- Siemens 840 D sl
- FANUC 31i

Twin-table version

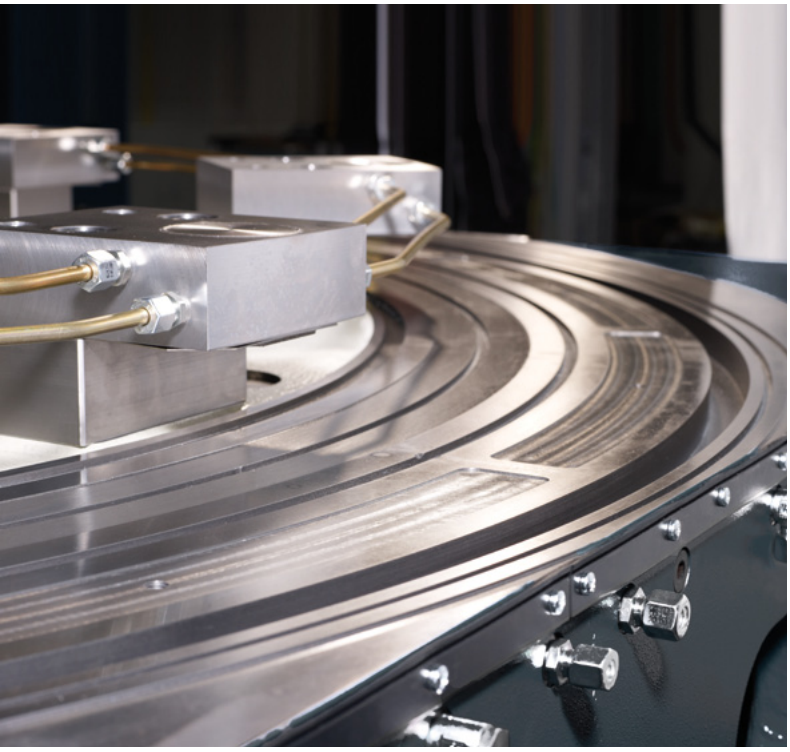
- Robust solution for work piece changing of up to 60,000 kg
- Interference diameters within the working area of up to 4,000 mm possible

NC controlled facing head

- Permanent integration within the headstock
- Use of the boring spindle without removal of the facing head
- Unbalance compensation by counter slide
- Automatic tool change and inner coolant supply in the facing slide tool

// Further options are available upon request.

Automatic tool changer



Hydraulic segment table clamping

Equipment variants

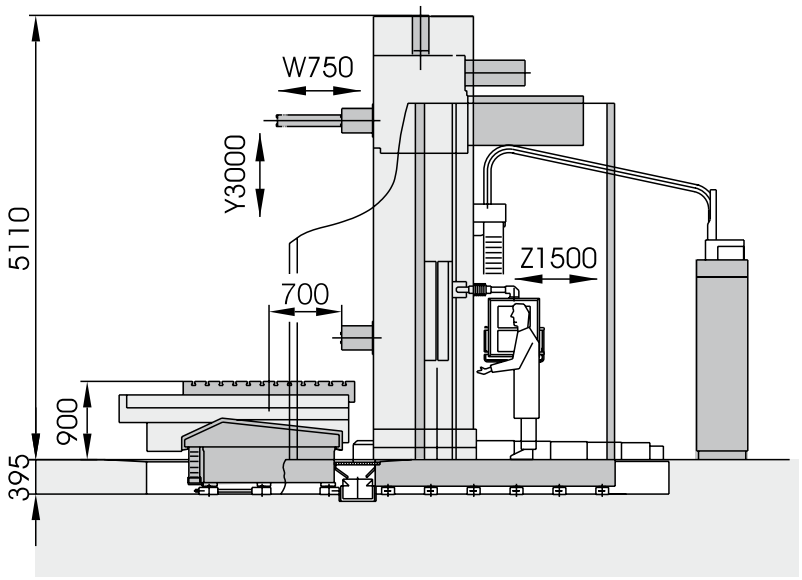
The machine can be equipped with a tool changer for up to 120 tools in an arena magazine with a robot. When tools weigh more than 50 kg, tool lengths and diameters can be adapted – they are optionally available with tool taper cleaning and breakage detection. An automatic milling head changer is also optionally available.

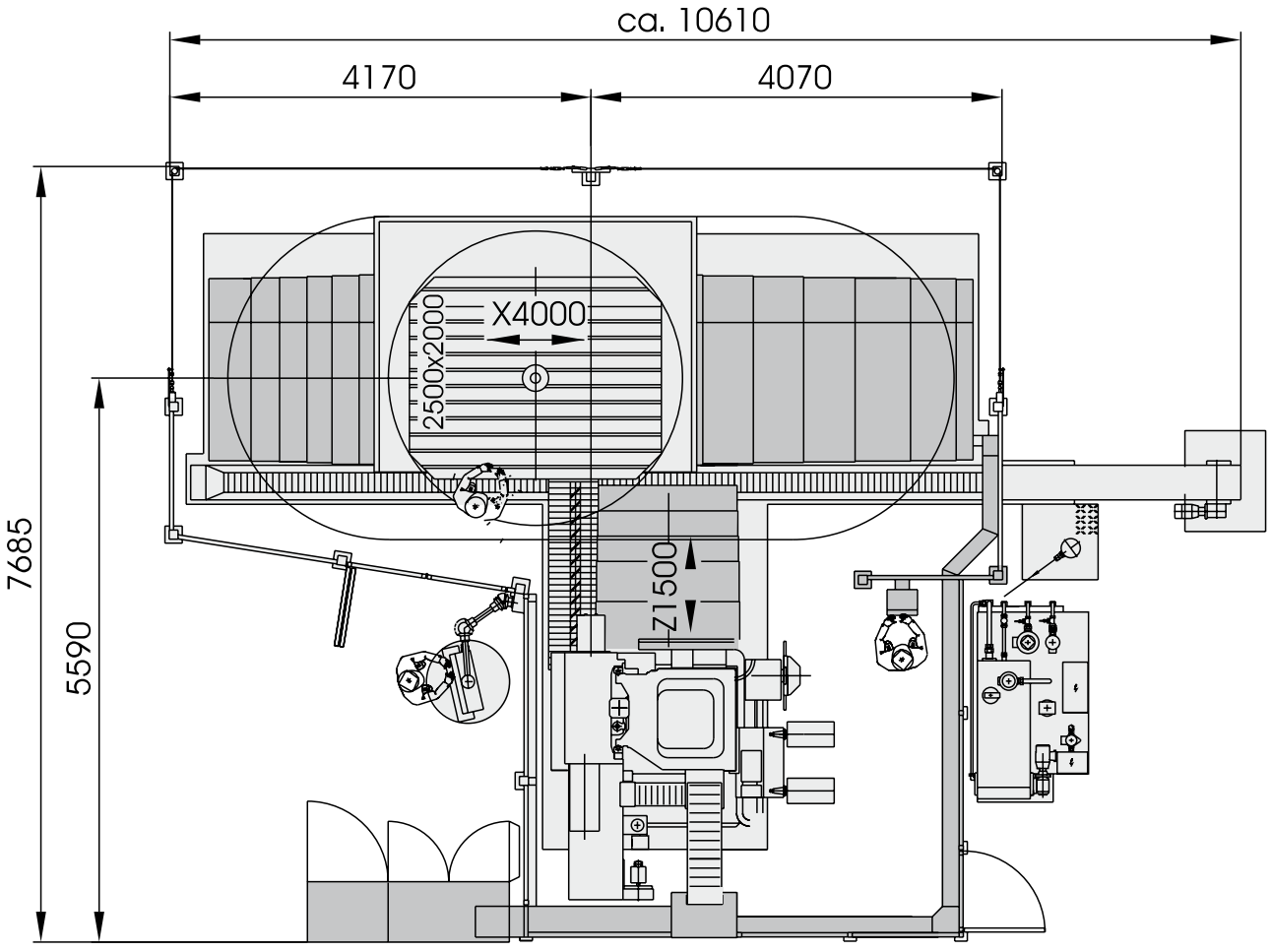
In order to better support the boring spindle, an additional support bearing can be integrated. Aside from a universal milling head (automatic positioning and tool clamping, maximum of 40 kW) vertical and universal milling heads are available, automatically positional, with internal/external coolant, 4,000 rpm and maximum of 40 kW. A pallet changer and tool measuring systems are also available as options.

We would happily integrate other equipment variants upon your request.

Layout of a KC 130

Model with
X = 4,000 mm,
Y = 3,000 mm,
Z = 1,500 mm,
Table 2,000 x 2,500 mm,
Table load 20,000 kg





Technical data

*for headstocks with integrated facing head only			K/KC 110	K/KC 130	K/KC/KCU 150	KR/KCR150
Boring spindle						
Diameter		mm	110	130	150	150/162
Drive speed, max. (S6)		kW	37	46	73	84
Torque, max. (S6)		Nm	2,012	2,179	3,000	5,800
Speed range, continuous, max.		min^{-1}	5 ... 6,000	5 ... 4,000	5 ... 3,500	5 ... 3,500
Diameter of the facing head*		mm			700	
Speed range, facing head*		min^{-1}			2.5 ... 330	
Clamping table						
Size of clamping table		mm	1,000 x 1,250	1,250 x 1,600	1,600 x 2,000	1,800 x 2,000
Optional		mm	1,400 x 1,600	up to 2,000 x 3,000	up to 3,000 x 4,000	up to 4,000 x 4,000
Table load, max.		kg	8,000	25,000	45,000	75,000
Traverses	Axes					
Table cross traverse	X	mm	2,000	2,500	3,200	3,200
Optional up to	X	mm	2,500	6,000	6,000	6,000
Headstock vertical	Y	mm	1,600	2,000	2,000	2,500
Optional up to	Y	mm	2,000	3,500	3,500	4,000
Column longitudinal	Z	mm	1,000	1,000	1,500	1,500
Optional up to	Z	mm	2,000	2,100	3,000	3,500
Ram	V	mm				1,000
Facing slide*	U*	mm			200	
Boring spindle axial	W	mm	550	750	750	700 / 900
Feed range / rapid traverse						
Feed range of all axes		mm/min	1... 20,000	1...15,000	1...15,000	1...15,000
Rapid traverse of all axes		mm/min	20,000	22,500	22,500	25,000
Feed range of the facing slide*	U*	mm/min			1...1,000	
Automatic tool changer						
Number of tools in the magazine			40 (up to 120)	40 (up to 160)	40 (up to 160)	40 (up to 176)
Tool diameter, max.		mm	250	250	250	250
Tool length, max.		mm	500	500	500	500
Tool weight, max.		kg	36	36	50	50

Union
Werkzeugmaschinen GmbH Chemnitz
Clemens-Winkler-Straße 5
09116 Chemnitz / Germany

Phone: +49-371-8741-0
Fax: +49-371-8741-407

Email: info@unionchemnitz.de

Ident. No. K-2013/12-E | Subject to change