

MACHINE TOOLS

Company profile

1942

Manufacturing and assembly of precise drilling machines, lathes, knee-type milling machines and special machines TOS KUŘIM in newly-built production halls was launched.

1950

The national enterprise ČKD BLANSKO was founded. Metallurgy and engineering operations were expanded further. The company specialized in production of water machines, heavy machinery and metallurgy equipment.

1962

The first numeric-controlled machine was manufactured in TOS KUŘIM. The first steps towards automatized control of linear axes on machines were taken back in 1958.

1991

TOS KUŘIM as the first engineering enterprise was awarded the quality system certification ISO 9001.

2007

Focused on heavy duty machining centres.

2011

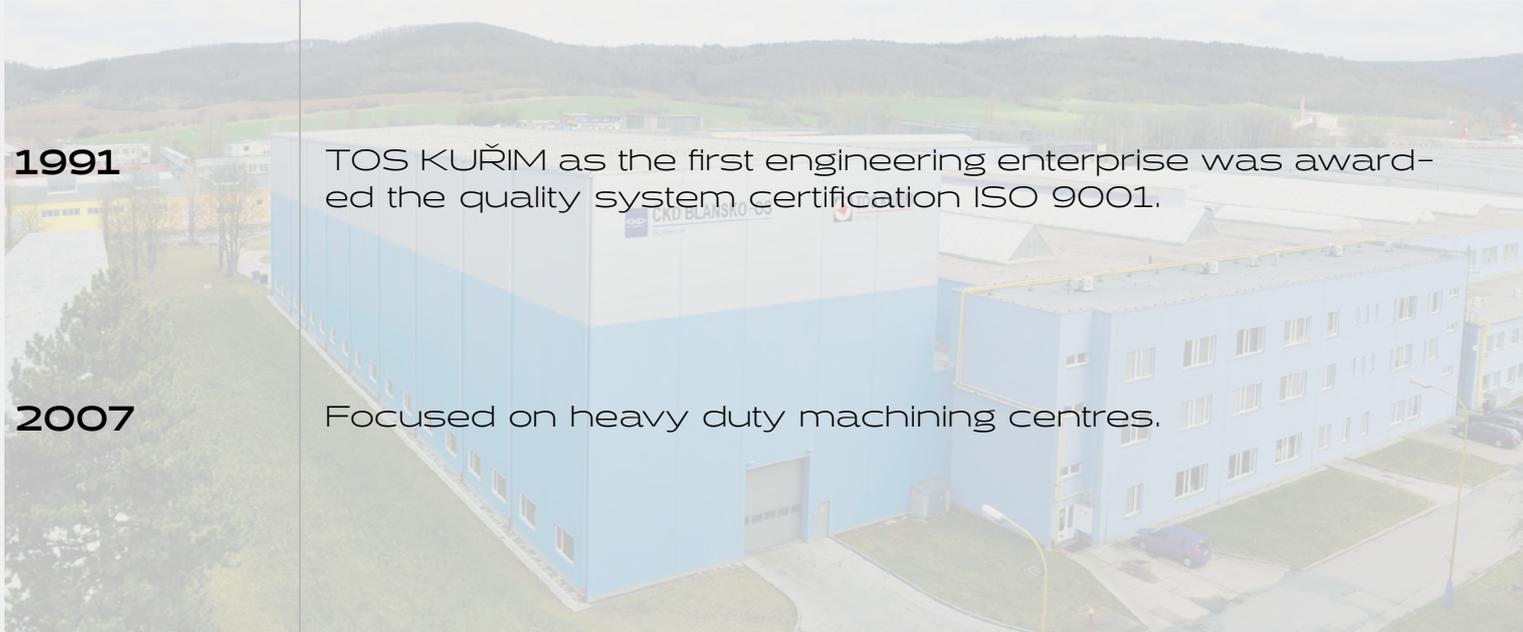
New manufacturing hall (area 2 600 m², crane capacity 100 and 50t). ČKD BLANSKO moved to the area of TOS KUŘIM.

2015

The new modern design of TOS KUŘIM and ČKD BLANSKO machines.

Present

TOS KUŘIM and ČKD BLANSKO becomes part of TOSHULIN group.



Product portfolio

Horizontal machining centres



FS

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FUT

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FU

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Portal machining centres



FRF

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FRU

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FRP

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Vertical lathes



SKD

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SKDY

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SKJ

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Single-purpose machines



BALL JOINT MACHINE

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Applications

aerospace industry



shipbuilding industry



railway industry



mining and building industry



defence industry



power industry



gear cutting industry



other industries

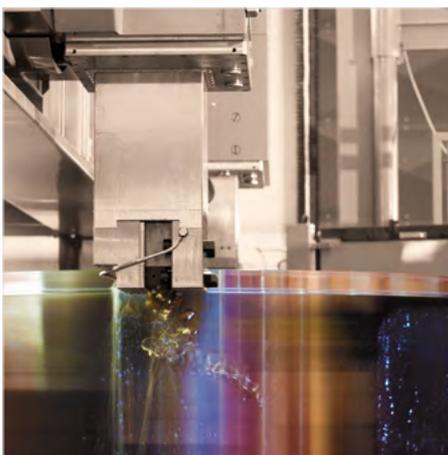


Essential characteristics

- + sturdy design
- + high geometric accuracy
- + wide range of exchangeable spindle heads
- + high machining productivity
- + option of turnkey solutions including technology
- + high cutting performance
- + up to 5-axis machining

Type of machining

- + milling
- + turning
- + boring
- + drilling
- + reaming
- + threading
- + grinding

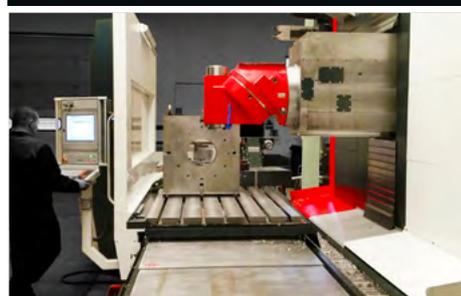


- + modern optimized composite solution of machine bed and column
- + rapid feed up to 30 m/min
- + thermal stabilization of headstock and exchangeable spindle heads
- + linear roller guideways in linear axes
- + automatic tool exchange
- + axial tool cooling
- + machine on flat foundation
- + long service life, accuracy and reliability

Basic parameters		FS 100	FS 125
working travel			
X (longitudinal axis)	[mm]	2 000/3 000/4 000/5 000	
Y (cross axis)	[mm]	1 000	1 250
Z (vertical axis)	[mm]	1 500/2 000	
table size (clamping area)			
length	[mm]	2 000/3 000/4 000/5 000	
width	[mm]	1 000	1 250
feed range			
X	[mm/min]	1 - 20 000 (1 - 30 000)	
Y	[mm/min]		
Z	[mm/min]		
motor power	[kW]	22/30/37	

Description, pictures and technical parameters can be changed due to development of our products.

FS 100/3, Czech Republic



FS 125/4, Sweden



- + modern optimized composite solution of machine bed and column
- + rapid feed up to 30 m/min
- + thermal stabilization of headstock and exchangeable spindle heads
- + linear roller guideways in linear axes
- + automatic exchange of spindle heads and tools
- + axial tool cooling
- + spindle 4 000 (6 000) rpm with high torque
- + machine on flat foundation

Basic parameters		FUT 150	FUT 150/125	FUT 200	FUT 200/125
working travel					
X (longitudinal axis)	[mm]	3 000/4 000/5 000			
Y (vertical axis)	[mm]	2 000/2 500/3 000			
Z (cross axis)	[mm]	1 500	1 500	2 000	2 000
W (headstock extension)	[mm]	1 250			1 250
headstock execution		with automatic interchangeable milling heads			
table size (clamping area)		1 600 × 1 800/1 800 × 2 200/2 000 × 2 400			
feed range					
X	[mm/min]	1 - 30 000			
Y	[mm/min]				
Z	[mm/min]				
W	[mm/min]	1 - 30 000		1 - 30 000	
motor power		37			

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FUT 150-4, Turkey



FUT 150-4, Finland



- + essential machine parts – castings
- + multifunctional version of machine with VTL function
- + thermal stabilization of headstock and exchangeable spindle heads
- + two ball screws in vertical axis
- + automatic exchange of spindle heads and tools
- + axial tool cooling
- + spindle 4 000 (6 000) rpm with high torque
- + great variability of the workspace
- + FU DUO version – two independent machines, one workspace

Basic parameters		FU 125/150/(200)	FU 150/200
working travel			
X (longitudinal axis)	[mm]	3 000 – 20 000 by 1 000	
Y (vertical axis)	[mm]	1 400/2 000/2 500/3 000/3 500/ 4 000/4 500/5 000	4 000/5 000/6 000/ 7 000/8 000
Z (cross axis)	[mm]	1 250/1 500/(2 000)	1 500/2 000
headstock execution		with automatic interchangeable milling heads	
workspace		optional (CEP, CES, KEP, KES, clamping plates)	
feed range			
X	[mm/min]	1 – 20 000	1 – 24 000
Y	[mm/min]	1 – 20 000	1 – 20 000
Z	[mm/min]	1 – 20 000/15 000/12 500	1 – 15 000
motor power	[kW]	30/37/45	60

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FU 125/7, India



FU 150/16, Slovenia



- + essential machine parts – castings
- + movable portal (gantry), fixed cross-rail
- + optionally divided workspace
- + thermal stabilization of headstock and exchangeable spindle heads
- + linear roller guideways in linear axes
- + axial tool cooling
- + spindle 4 000 (6 000) rpm with high torque
- + maximum use of built-up space
- + machine on flat foundation

Basic parameters		FRF 200	FRF 250	FRF 300	FRF 400
working travel					
X (longitudinal axis)	[mm]	4 000/5 000/6 000/7 000/8 000/10 000/12 000/ 14 000/16 000/18 000/20 000/22 000/24 000			
Y (cross axis)	[mm]	2 900	3 400	3 900	4 900
Z (vertical axis)	[mm]	1 500			
feed range					
X	[mm/min]	1 - 20 000 (1 - 30 000)			
Y	[mm/min]				
Z	[mm/min]				
table width	[mm]	2 000	2 500	3 000	4 000
clearance between columns	[mm]	2 550	3 050	3 550	4 550
clearance between table and cross-rail	[mm]	2 050			
motor power	[kW]	30/37/45			

Description, pictures and technical parameters can be changed due to development of our products.



- + essential machine parts - castings
- + movable portal (gantry), fixed table
- + fixed or movable cross-rail
- + multifunctional version of machine with VTL function
- + thermal stabilization of headstock and exchangeable spindle heads
- + hydrostatic or roller guideways of linear axis
- + automatic exchange of spindle heads and tools
- + axial tool cooling
- + spindle 4 000 (6 000) rpm with high torque
- + great variability of the workspace
- + machining of large and heavy workpieces

Basic parameters		FRU 200-500	FRU 300-800
working travel			
X (longitudinal axis)	[mm]	4 000 - 22 000	4 000 - 24 000
Y (cross axis)	[mm]	3 500 - 6 500	5 750 - 10 750
Z (vertical axis)	[mm]	1 500/2 000	1 500/2 000
W (movable cross-rail, optional)	[mm]	2 000/2 500	2 250/2 800/3 800
feed range			
X	[mm/min]	1 - 20 000 (1 - 30 000)	1 - 15 000
Y	[mm/min]	1 - 20 000 (1 - 30 000)	1 - 20 000
Z	[mm/min]	1 - 15 000 (1 - 20 000)	1 - 15 000
W (movable cross-rail, optional)	[mm/min]	1 - 4 000	1 - 4 000
clearance between columns	[mm]	3 000 - 6 000	4 000 - 9 000
clearance between table and cross-rail	[mm]	2 800 - 3 500	3 500 - 5 500
motor power	[kW]	30/37/45/60	60/71/100/113

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FRUF 300/7, Czech Republic



FRUF 300/12, Turkey



- + modern optimized composite solution of major parts of machine
- + fixed portal, movable table
- + fixed or movable cross-rail
- + thermal stabilization of headstock and exchangeable spindle heads
- + hydrostatic or roller guideways of linear axis
- + automatic exchange of spindle heads and tools
- + axial tool cooling
- + spindle 4 000 (6 000) rpm with high torque
- + rapid feed up to 30 m/min
- + machining of large and heavy workpieces

Basic parameters		FRP 150-250	FRP 200-400	FRP 200-450
working travel				
X (longitudinal axis)	[mm]	3 000/4 000/5 000	5 500 - 13 500	5 500 - 13 500
Y (cross axis)	[mm]	2 900/3 400/3 900	3 300 - 5 800	3 800 - 6 800
Z (vertical axis)	[mm]	1 250/1 500	1 500/(2 000)	1 500/2 000
W (movable cross-rail, optional)	[mm]		2 000	2 250
feed range				
X	[mm/min]	1 - 15 000 (1 - 30 000)	1 - 15 000	1 - 15 000
Y	[mm/min]	1 - 20 000 (1 - 30 000)	1 - 20 000	1 - 20 000
Z	[mm/min]	1 - 20 000 (1 - 30 000)	1 - 20 000	1 - 15 000 (1 - 20 000)
W (movable cross-rail, optional)	[mm/min]		1 - 4 000	1 - 4 000
table width	[mm]	1 500/2 000/2 500	2 000 - 4 000	2 000 - 4 500
clearance between columns	[mm]	2 600/3 100/3 600	3 050 - 4 550	3 050 - 5 550
clearance between table and cross-rail	[mm]	1 800	1 800 - 2 500	2 770
motor power	[kW]	37	30/37/45/60	60/71

Description, pictures and technical parameters can be changed due to development of our products.



FRP 150/5, India



FRPF 300/8, China

- + essential machine parts – castings
- + modular design
- + multifunctional version of machine with milling and grinding function
- + movable cross-rail
- + hydrostatic guideways of linear axis
- + sturdy tables for loads up to 320 tons
- + automatic exchange of tool holders and semi-automatic exchange of milling heads
- + long service life and reliability

Basic parameters		SKD 50	SKD 50-80
turning table diameter	[mm]	5 000	5 000 - 8 000
turning diameter	[mm]	6 000	6 500 - 10 000
turning height	[mm]	2 000/2 800	4 000 - 6 000
Z axis travel of ram	[mm]	2 000/2 500	2 500/3 200
W axis cross-rail travel	[mm]	1 500/2 000	2 800 - 4 800
workpiece weight	[kg]	100 000	100 000 - 320 000
turning table speed	[rpm]	60	60 - 25
ram cross-section	[mm]	340 x 340	340 x 340/400 x 400
cutting force	[kN]	40	100

Description, pictures and technical parameters can be changed due to development of our products.

SKD 50/53 D, Italy



SKD 63/65 D, Netherlands



- + essential machine parts - castings
- + modular design
- + movable portal (gantry), movable cross-rail
- + multifunctional version of machine with milling and grinding function
- + hydrostatic guideways of linear axis
- + sturdy tables for loads up to 320 tons
- + automatic exchange of tool holders and milling heads
- + long service life and reliability

Basic parameters		SKDY 40-50	SKDY 40-80
turning table diameter	[mm]	4 000/5 000	4 000 - 8 000
turning diameter	[mm]	5 000/6 000	5 000 - 10 000
turning height	[mm]	2 000/2 800	4 000 - 6 000
X axis travel	[mm]	6 000 - 7 000	6 000 - 11 000
Y axis travel	[mm]	4 000/5 000	4 500 - 6 500
Z axis travel of ram	[mm]	2 000/2 500	2 500/3 200
W axis cross-rail travel	[mm]	1 500/2 000	2 800 - 4 800
workpiece weight	[kg]	30 000 - 100 000	50 000 - 320 000
turning table speed	[rpm]	125 - 50	125 - 25
ram cross-section	[mm]	340 x 340	340 x 340/400 x 400
cutting force	[kN]	40	100

Description, pictures and technical parameters can be changed due to development of our products.



- + essential machine parts – castings
- + workpiece diameter up to 16 m
- + long service life and reliability
- + high geometrical accuracy
- + high cutting performance
- + modular design
- + sturdy tables for loads up to 320 tons
- + movable column

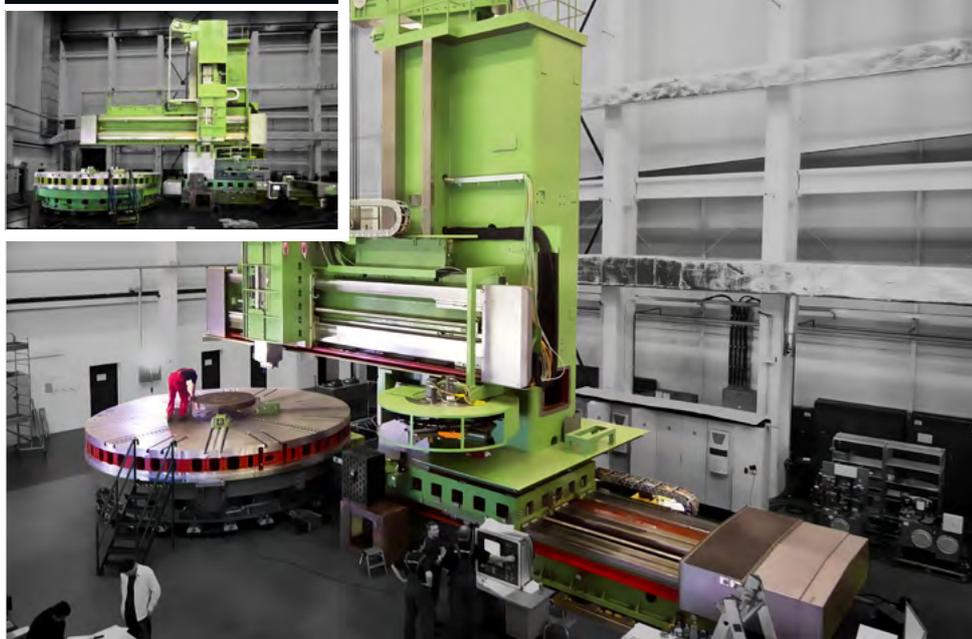
Basic parameters		SKJ 63-100	SKJ 80-160
turning table diameter	[mm]	6 300	8 000
turning diameter	[mm]	10 000	16 000
turning height	[mm]	3 000	6 300
Z axis travel of ram	[mm]	2 000	3 200
cross-rail travel	[mm]	2 050	5 000
workpiece weight	[kg]	150 000	320 000
turning table speed	[rpm]	35	25
ram cross-section	[mm]	340 × 340	450 × 450
cutting force	[kN]	100	125

Description, pictures and technical parameters can be changed due to development of our products.

SKJ 63-100 D, China



SKJ 80-140 D, Ukraine



TOS Ball joint machine

single-purpose machine

- + machine for continuous operation
- + low maintenance demands
- + high productivity and reliability
- + headstock with hydraulic clamping 6 000 rpm
- + rotary slide rest with tool holder and rolling device
- + handling between operations
- + compact design

Basic parameters		Lines for machining of ball joints	Ball joint machine with cross slide
workpiece	[mm]	ball joint \varnothing 19 - 40	ball joint \varnothing 19 - 32
workpiece material		forging (41CrS4, 42CrMoS4)	forging (30MnVS6; 27MnSiVS6v)
machining operations		turning and burnishing of ball	turning of neck and ball and burnishing of ball
machine cycle	[s]	15 - 20 (including handling in dependence on joint type and size)	16 - 18 (including handling in dependence on joint type and size)
production	[pcs]	1 350 - 2 025 pcs/7,5 hr at 90% machine utilization in dependence on joint type and size	1 350 - 1 520 pcs/7,5 hr at 90% machine utilization in dependence on joint type and size
spindle speed	[rpm]	6 000	6 000
manipulation		pneumatic manipulator or robot	pneumatic manipulator or robot

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turning of ball and neck

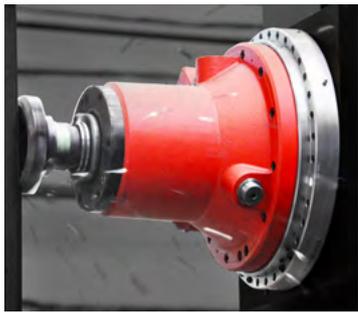


turning of shank

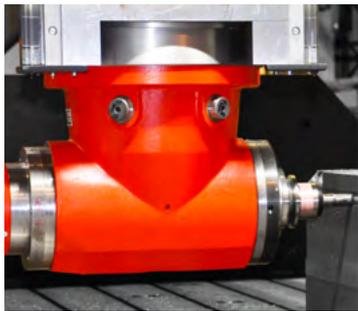


Accessories TOS

standard milling heads of own design and production



Straight head		VA1			VA2		
Power line		A			A	B	C
Max. speed	[rpm]	4 000/6 000			4 000/6 000	4 000	2 500
Max. torque	[Nm]	2 000/1 400			1 000	1 600	3 300
Max. power	[kW]	30/37/45			30/37/45	60	71



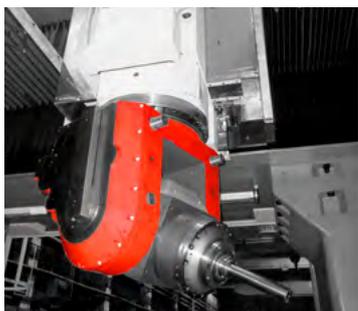
Angular head		VP1			VP2		
Power line		A	B	C	A	B	C
Max. speed	[rpm]	4 000/6 000	4 000	2 500	4 000/6 000	4 000	2 500
Max. torque	[Nm]	2 000/1 400	3 300	7 000	1 000	1 600	3 300
Max. power	[kW]	30/37/45	60	71	30/37/45	60	71



Universal indexing head		VO				
Power line		A			B	
Max. speed	[rpm]	4 000/6 000			4 000	
Max. torque	[Nm]	1 250			2 000	
Max. power	[kW]	30/37			60	



Two axis continuous head		VK		
Power line		A	B	C
Max. speed	[rpm]	4 000/6 000	4 000	2 500
Max. torque	[Nm]	1 000	1 600	3 200
Max. power	[kW]	30/37	60	71

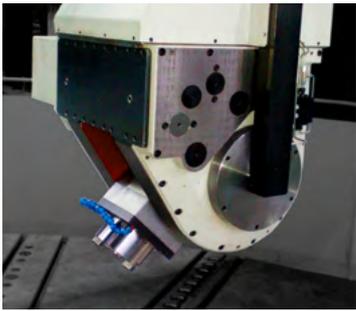


Two axis head with electro spindle		VKE		
Power line		A		B
Max. speed	[rpm]	16 000		
Max. torque	[Nm]	87		
Max. power	[kW]	25		

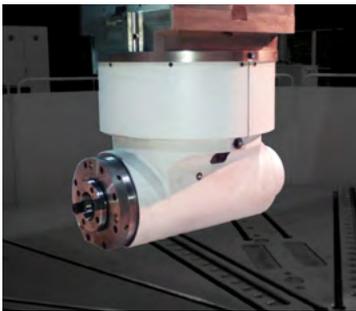
wide range of special spindle heads of type: VA, VP, VC, VF, VF, VG, VZN, VZ

Accessories ČKD

milling and boring heads, turning tool holders, grinding attachment



Universal NC milling head		C8
NC continually adjustable	[±°]	-92/+120
Max. speed	[rpm]	3 000
Max. torque	[Nm]	800
Max. power	[kW]	40



Angle milling head 90°		C10
Max. speed	[rpm]	3 000
Max. torque	[Nm]	1 200
Max. power	[kW]	40



Turning tool holders		Standard B 3.1 - B 3.9
Cooling		external
Holder length	[mm]	225
Max. tool diameter	[mm]	50 x 50/63 x 63/CAPTO 6/CAPTO 8
Tool clamping		manual
Tool position		vertical/horizontal



Turning tool holders		Extended B 3.4/B 3.5
Cooling		internal
Holder length	[mm]	600 (according to request up to 1 000)
Max. tool diameter	[mm]	40 x 40/MORSE 5/MORSE 6
Tool clamping		manual
Tool position		horizontal



Grinding equipment		C6
Max. wheel diameter	[mm]	350
Tool position		vertical/horizontal
Max. power	[kW]	3,7/4,5
Max. speed	[rpm]	1 500/3 000

Service



- + operation and maintenance training
- + warranty and after-warranty service
- + remote diagnostics
- + preventive servicing
- + option of turnkey solutions including technology
- + new production implementation support
- + flexible customer service



Modern design



reddot award 2017
winner



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