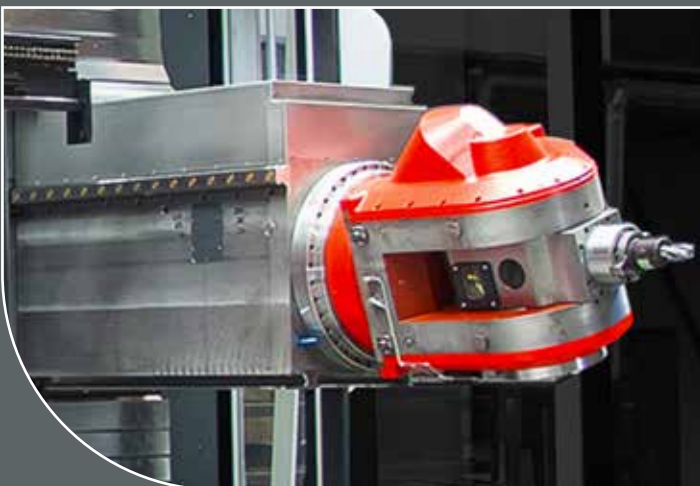
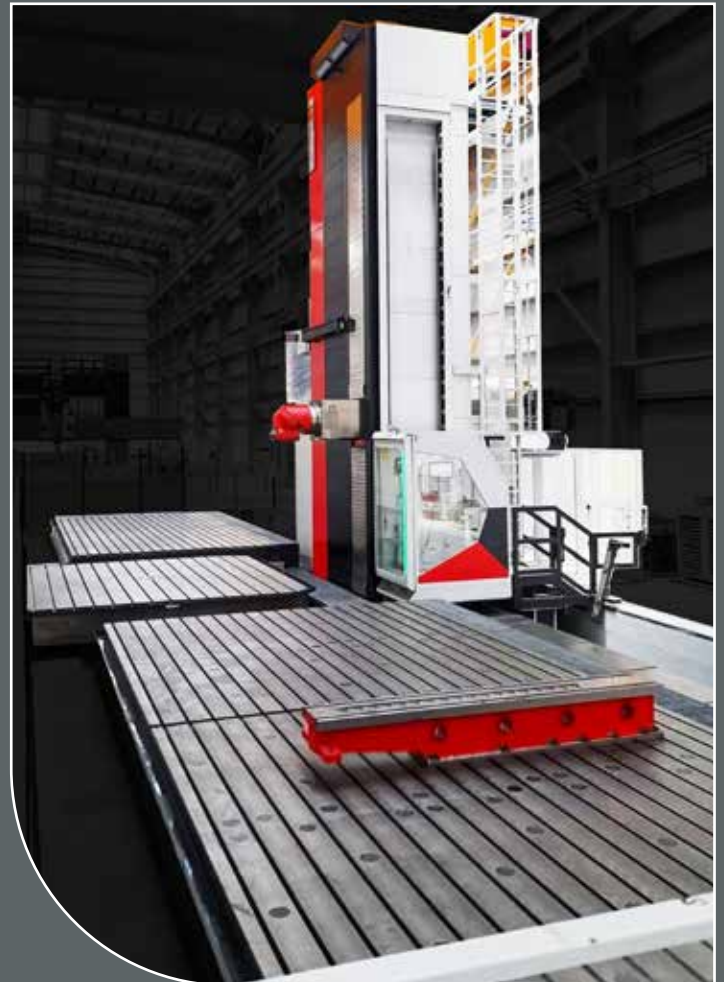




MACHINING CENTERS



Gantry machining centers
Horizontal machining centers
Vertical lathes



Company profile

1942 Manufacturing and assembly of precise drilling machines, lathes, knee-type milling machines, and special TOS KUŘIM machines in newly-built production halls began.

1962 The first numerically controlled machine was manufactured in TOS KUŘIM. The first steps towards automated control of linear axes were taken back in 1958.

1991 ISO 9001 certificate obtained

2007 Focus on heavy duty machining centres

2011 Merging of the production portfolio of TOS KUŘIM and ČKD BLANSKO, new production hall (area of 2600 m², crane capacity 100 and 50 tons)

2015 New modern design of horizontal and gantry machining centers.

2018 TOS KUŘIM becomes part of the TOSHULIN group

2022 80 years anniversary of TOS KUŘIM founding



Product portfolio

Gantry machining centers



FRF

page 5



FRUN

page 6



FRUF

page 7



FRPN

page 8



FRPF

page 9

Horizontal machining centers



FU

page 10



FUT

page 11

Vertical lathes



SKD

page 14



SKDY

page 15



SKJ

page 16

Accessories



Horizontal and gantry centers
Vertical lathes

page 12, 13
page 17

Essential characteristics

- + sturdy desing
- + high geometric accuracy
- + wide range of exchangeable spindle heads
- + high machining productivity
- + custom machine solutions including technology
- + high cutting performance
- + five-or-more axes machining

Types of machining

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



- + essential machine parts - castings
- + movable gantry, fixed cross-rail
- + multifunctional machine design with carousel and grinding function
- + thermal stabilization of headstock and exchangeable spindle heads
- + linear roller quideways in linear axes
- + axial tool cooling
- + spindle speed 4 000 (6 000) rpm with high torque
- + maximum use of built-up space
- + can be installed directly on the load-bearing floor of the hall

Basic parameters		FRF 200	FRF 250	FRF 300	FRF 350	FRF 400
working stroke						
X (longitudinal axis)	[mm]	4 000 - 24 000 by 1 000				
Y (transverse axis)	[mm]	2 900	3 400	3 900	4 400	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	3 500	4 000
clearance between columns	[mm]	2 550	3 050	3 550	4 050	4 550
clearance between table and cross-rail	[mm]	2 050				
max. spindle speed	[rpm]	4 000/6 000				
drive power	[kW]	30/37/45				
workspace	[mm]	fixed table, fixed table with carousel table				

Description, pictures and technical parameters can be changed due to continuous product development.

FRF 300/9, Czech Republic



FRF 350/10, Ukraine



FRF 300/10, Czech Republic



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

Basic parameters		FRUN-A 200-500	FRUN-B 200-800	FRUN-C 200-800
working stroke				
X (longitudinal axis)	[mm]	5 000 - 25 000 by 1 000		
Y (transverse axis)	[mm]	3 600 - 6 600	3 600 - 9 600	3 600 - 9 600
Z (vertical axis)	[mm]	1 500/2 000		
feed range				
X	[mm/min]	1 - 20 000 (1 - 30 000)	1 - 15 000 (1 - 20 000)	1 - 15 000
Y	[mm/min]	1 - 20 000 (1 - 30 000)	1 - 15 000 (1 - 20 000)	1 - 15 000
Z	[mm/min]	1 - 15 000 (1 - 20 000)	1 - 15 000 (1 - 20 000)	1 - 15 000
table width	[mm]	2 000 - 5 000	2 000 - 8 000	2 000 - 8 000
clearance between columns	[mm]	3 000 - 6 000	3 000 - 9 000	3 000 - 9 000
clearance between table and cross-rail	[mm]	min. 2 450		
max. spindle speed	[rpm]	4 000/6 000	4 000	2 500
drive power	[kW]	30/37/45	60/71	100/113
workspace		optional (rotary tables, clamping plates)		

Description, pictures and technical parameters can be changed due to continuous product development.

- + essential machine parts - castings
- + movable gantry, movable cross-rail
- + multifunctional machine design with carousel and grinding function
- + thermal stabilization of headstock and exchangeable spindle heads
- + linear roller or hydrostatic guideways in linear axes
- + automatic exchange of spindle heads and tools
- + axial tool cooling
- + spindle speed 4 000 (6 000) rpm with high torque
- + great workspace variability
- + machining of large and heavy workpieces

Basic parameters		FRUF-A 250-500	FRUF-B 300-800	FRUF-C 300-800
working stroke				
X (longitudinal axis)	[mm]	5 000 - 25 000 by 1 000		
Y (transverse axis)	[mm]	4 500 - 7 000	5 200 - 10 200	5 200 - 10 200
Z (vertical axis)	[mm]	1 500/2 000		
W (movable cross-rail)	[mm]	2 000/2 500	2 500/3 000	2 800/3 800/4 800
feed range				
X	[mm/min]	1 - 20 000 (1 - 30 000)	1 - 15 000 (1 - 20 000)	1 - 15 000
Y	[mm/min]	1 - 20 000 (1 - 30 000)	1 - 15 000 (1 - 20 000)	1 - 15 000
Z	[mm/min]	1 - 15 000 (1 - 20 000)	1 - 15 000 (1 - 20 000)	1 - 15 000
W	[mm/min]	1 - 2 000 (1 - 4 000)		
table width	[mm/min]	2 500 - 5 000	3 000 - 8 000	3 000 - 8 000
clearance between columns	[mm]	3 500 - 6 000	4 000 - 9 000	4 000 - 9 000
clearance between table and cross-rail	[mm]	2 800/3 550	3 500 - 4 000	3 500 - 6 500
max. spindle speed	[rpm]	4 000/6 000	4 000	2 500
drive power	[kW]	30/37/45	60/71	100/113
workspace		optional (rotary tables, clamping plates)		

Description, pictures and technical parameters can be changed due to continuous product development.



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

Basic parameters		FRPN-A 150-400	FRPN-B (C) 200-400
working stroke			
X (longitudinal axis)	[mm]	3 000/4 000/5 000	5 500 - 13 500
Y (transverse axis)	[mm]	2 900 - 5 400	3 300 - 5 800
Z (vertical axis)	[mm]	1 500/2 000	
feed range			
X	[mm/min]	1 - 15 000 (1 - 30 000)	1 - 15 000
Y	[mm/min]	1 - 15 000 (1 - 30 000)	1 - 15 000 (1 - 20 000)
Z	[mm/min]	1 - 15 000 (1 - 30 000)	1 - 15 000 (1 - 20 000)
table width, carousel plate diameter	[mm]	1 500 - 4 000	2 000 - 4 000
clearance between columns	[mm]	2 600 - 5 100	3 050 - 4 550
clearance between table and cross-rail	[mm]	1 840	1 800 - 2 500
max. spindle speed	[rpm]	4 000/6 000	4 000/ (2 500)
drive power	[kW]	30/37/45	60/71 (100)

Description, pictures and technical parameters can be changed due to continuous product development.

- + essential machine parts - castings
- + fixed gantry, movable cross-rail, movable table
- + multifunctional machine design with carousel and grinding function
- + thermal stabilization of headstock and exchangeable spindle heads
- + linear roller or hydrostatic guideways in linear axes
- + automatic exchange of spindle heads and tools
- + axial tool cooling
- + spindle speed 4 000 (6 000) rpm with high torque
- + machining of large and heavy workpieces

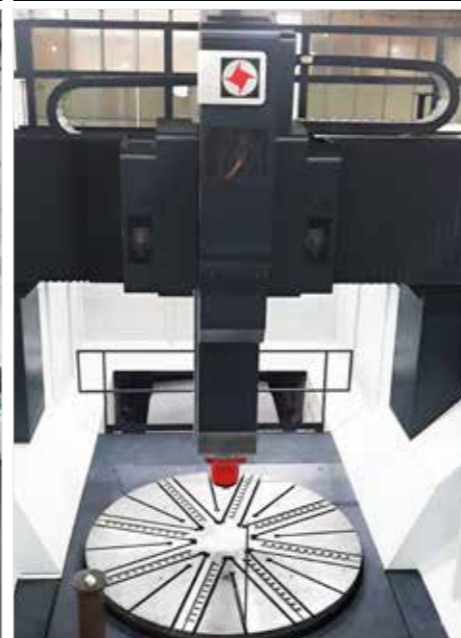
Basic parameters		FRPF-A 200-400	FRPF-B (C) 200-400
working stroke			
X (longitudinal axis)	[mm]	5 500 - 13 500 by 500	
Y (transverse axis)	[mm]	3 000 - 5 000	3 700 - 5 700
Z (vertical axis)	[mm]	1 500/2 000	
W (movable cross-rail)	[mm]	2 000/2 500	2 500/3 000
feed range			
X	[mm/min]	1 - 15 000	
Y	[mm/min]	1 - 15 000 (1 - 20 000)	
Z	[mm/min]	1 - 15 000 (1 - 20 000)	
W	[mm/min]	1 - 2 000 (1 - 4 000)	
table width, carousel plate diameter	[mm]	2 000 - 4 000	
clearance between columns	[mm]	2 500 - 4 500	
clearance between table and cross-rail	[mm]	2 400 - 3 150	3 000 - 4 000
max. spindle speed	[rpm]	4 000/6 000	4 000/ (2 500)
drive power	[kW]	30/37/45	60/71/100

Description, pictures and technical parameters can be changed due to continuous product development.

FRPN 150/5, India



FRPN 250/4, Croatia



FRPF 300/8, China



FRPF 300/10, Czech Republic



FRPF 200B/2A6, India



- + essential machine parts - castings
- + longitudinally movable column
- + multifunctional machine design with carousel and grinding function
- + linear roller or hydrostatic guideways in linear axes
- + thermal stabilization of headstock and exchangeable spindle heads
- + two ballscrews in vertical axis, three for $Y \geq 3\,500$ mm
- + axial tool cooling
- + spindle speed 4 000 (6 000) rpm with high torque
- + great variability of the workspace
- + FU DUO option - two independent machines, one workspace

Basic parameters		FU-A	FU-B
working stroke			
X (longitudinal axis)	[mm]	4 000 - 24 000 by 1 000	
Z (transverse 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
Y (vertical axis)	[mm]	1 250/1 500/2 000	1 600/2 000
W (extendable working spindle)	[mm]	--	1 000
feed range			
X	[mm/min]	1 - 20 000	1 - 15 000
Y	[mm/min]	1 - 20 000	1 - 15 000
Z	[mm/min]	1 - 20 000/1 - 15 000/ 1 - 12 500	1 - 15 000
W		--	1 - 10 000
max. spindle speed	[rpm]	4 000/6 000	4 000
workspace optional (rotary tables, clamping plates)			
drive power	[kW]	30/37/45	60

Description, pictures and technical parameters can be changed due to continuous product development.

- + modern optimized solution of machine bed and column
- + transversely movable 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 speed 4 000 (6 000) rpm with high torque
- + can be installed directly on the load-bearing floor of the hall

Basic parameters		FUT 150	FUT 150-125	FUT 200	FUT 200-125
working stroke					
X (longitudinal axis - rotary table)	[mm]	3 000/4 000/5 000			
Y (vertical axis)	[mm]	2 000/2 500/3 000			
Z (transverse axis)	[mm]	1 500	1 500	2 000	2 000
W (headstock extension)	[mm]	--	1 250/1 500	--	1 250/1 500
feed range					
X	[mm/min]	1 - 20 000 (1 - 30 000)			
Y	[mm/min]	1 - 20 000 (1 - 30 000)			
Z	[mm/min]	1 - 20 000 (1 - 30 000)			
W	[mm/min]	1 - 20 000 (1 - 30 000)			
max. spindle speed	[rpm]	4 000/6 000			
rotary table	[mm]	1 600 × 1 800 / 1 800 × 2 200 / 2 000 × 2 400			
drive power	[kW]	30/37/45			

Description, pictures and technical parameters can be changed due to continuous product development.

FU 150/12, Estonia



FU 150/16, Slovenia



FUT 150/5, Czech Republic



FUT 150/4, Turkey



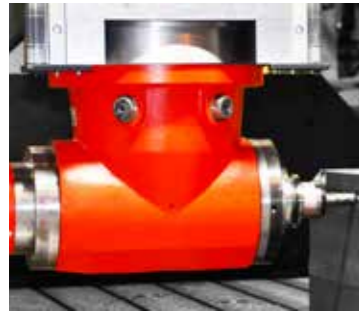
FUT 150/4, Finland



Exchangeable spindle heads



Straight head		VA1			VA2		
Size		A			A	B	C
Speed range (rpm)	[ot/min]	4 000/6 000			4 000/6 000	4 000	2 500
Max. torque (Nm)	[Nm]	2 000/1 400			1 000	1 600	3 300
Power (kW)	[kW]	30/37/45			30/37/45	60	71



Angular head		VP1			VP2		
Size		A	B	C	A	B	C
Speed range	[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
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 continuously controlled head		VK		
Size		A	B	C
Speed range (rpm)	[rpm]	4 000/6 000	4 000	2 500
Max. torque	[Nm]	1 000	1 600	3 200
Power	[kW]	30/37	60	71

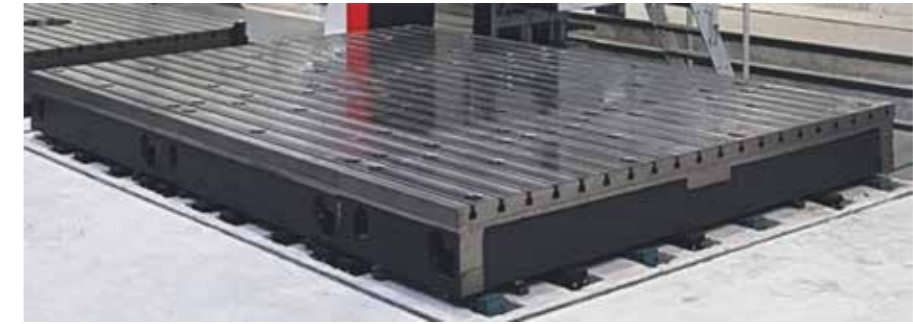


Two-axis continuously controlled head with electrospindle		VKE	
Size		A	B
Speed range	[rpm]	16 000	
Max. torque	[Nm]	87	
Power	[kW]	25	

Workspace

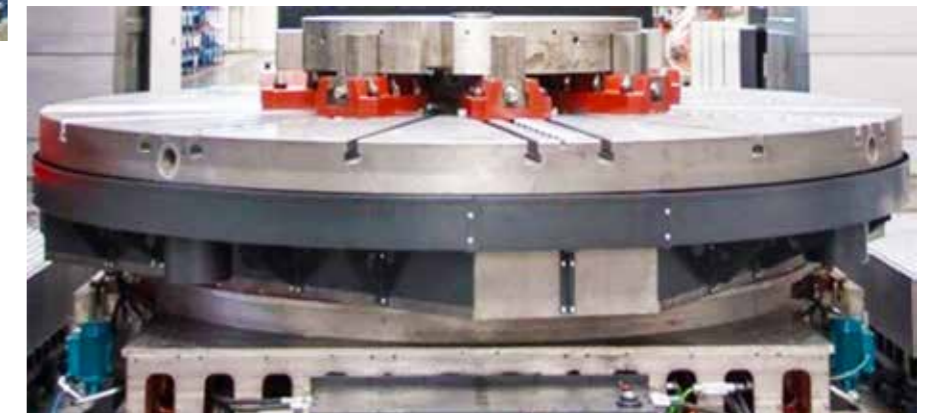
Fixed clamping plate

- + Basic part of the workspace
- + Plate array composed of segments
- + Segment width from 1 500 mm to 5 000 by 500 mm
- + Segment length of 2 000 mm, optional length of 1 000 mm
- + Table load 6 000 kg/m²



Rotary (and movable) table

- + CEP - rotary table
- + CES - rotary table, movable in linear axis
- + KEP - rotary table with carousel function
- + KES - rotary table with carousel function, movable in linear axis
- + Rectangular/square plate design, sizes ranging from 1 500 x 1 500 to 4 000 x 4 000 mm
- + Circular plate design, diameters ranging from 2 000 to 5 000 mm
- + Table load from 15 000 to 100 000 kg



- + essential machine parts - castings
- + modular desing
- + movable cross-rail
- + multifunctional machine design with milling and grinding function
- + ram with a built-in milling spindle option
- + sliding or hydrostatic guideways in linear axes
- + sturdy tables for loads of up to 320 tons
- + automatic exchange of tool holders and semi-automatic exchange of milling heads
- + long service life and reliability

Basic parameters		SKD - D	SKD - E
clamping plate diameter	[mm]	4 000/5 000	5 000/6 300/8 000
max. machining diameter	[mm]	6 000	6 500 - 10 000
machining height	[mm]	2 000/2 800	4 000/5 000/6 000
workpiece weight	[kg]	100 000	80 000 - 320 000
clamping plate rpm	[rpm]	125 - 60	100 - 25
X axis travel (support travel)	[mm]	3 000 - 6 800	7 500 - 11 000
ram extension (vertical Z axis)	[mm]	2 000/2 500	2 500/3 200
cross-rail stroke (W axis)	[mm]	1 500/2 000	2 800 - 4 800
ram cross-section	[mm]	340 x 340	340 x 340/400 x 400
cutting power	[kN]	40	100
Z axis guideways		sliding	hydrostatic
X and W axis guideways		linear profile	hydrostatic

Description, pictures and technical parameters can be changed due to continuous product development.

- + essential machine parts - castings
- + modular desing
- + movable gantry, movable cross-rail
- + multifunctional machine design with milling and grinding function
- + ram with a built-in milling spindle option
- + sliding or hydrostatic guideways in linear axes
- + sturdy tables for loads of up to 320 tons
- + automatic exchange of tool holders and milling heads
- + long service life and reliability

Basic parameters		SKDY - D	SKDY - E	SKDY - D (movable table)
clamping plate diameter	[mm]	3 000/4 000/5 000	5 000/6 300/8 000	2 500/3 000/4 000/4 500
max. machining diameter	[mm]	4 000/5 000/6 000	5 600 - 10 000	3 000 - 5 500
machining height	[mm]	2 000/2 800	4 000/5 000/6 000	2 000/2 800
workpiece weight	[kg]	30 000 - 100 000	80 000 - 320 000	30 000 - 70 000
clamping plate rpm	[rpm]	125 - 60	100 - 25	250 - 80
X axis travel (support travel)	[mm]	5 000 - 7 000	6 000 - 11 000	3 000 - 5 500
Y axis travel	[mm]	3 000/5 000	4 500 - 6 500	2 500 - 4 000
ram extension (vertical Z axis)	[mm]	2 000/2 500	2 500/3 200	2 000/2 500
cross-rail stroke (W axis)	[mm]	1 500/2 000	2 800 - 4 800	0 - 2 000
ram cross-section	[mm]	340 x 340	340 x 340/ 400 x 400	340 x 340
cutting power	[kN]	40	100	40
Z axis guideways		sliding	hydrostatic	sliding
X, Y, W axis guideways		linear profile	hydrostatic	linear profile

Description, pictures and technical parameters can be changed due to continuous product development.

SKD 50/53 D, Italy



SKD 40/50 D, Turkey



SKD 63/65 D, Netherlands



SKDY 63/80 D, Germany



SKDY 70/85 D, Turkey

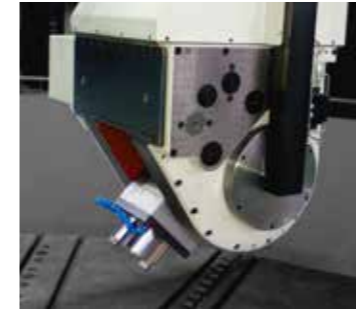


- + essential machine parts – castings
- + modular desing
- + movable column, movable cross-rail
- + multifunctional machine design with milling and grinding function
- + ram with a built-in milling spindle option
- + sliding guideways in linear axes
- + sturdy tables for loads up to 320 tons
- + workpiece diameter up to 16 m
- + automatic exchange of tool holders and milling heads
- + long service life and reliability

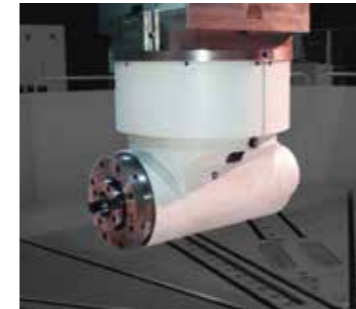
Basic parameters		SKJ 50	SKJ 63	SKJ 80
clamping plate diameter	[mm]	5 000	6 300	8 000
max. machining diameter	[mm]	10 000	10 000	16 000
machining height	[mm]	3 000 - 5 000	3 000 - 5 000	5 000/6 300
workpiece weight	[kg]	80 000/100 000	150 000	320 000
clamping plate rpm	[rpm]	100 - 50	40	25
X axis travel (support travel)	[mm]	4 000	4 000	5 000
column travel	[mm]	2 000	2 000	4 000
ram extension (vertical Z axis)	[mm]	2 000/2 500	2 000/2 500	3 200/3 600
cross-rail stroke (W axis)	[mm]	2 000 - 3 500	2 000 - 3 500	3 800/4 800
ram cross-section	[mm]	340 x 340	340 x 340	450 x 450
cutting power	[kN]	100	100	125
X and Z axis guideways		sliding		

Description, pictures and technical parameters can be changed due to continuous product development.

Vertical lathes accessories



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



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



Tool holders		Standard B 3.1 - B 3.9
Cooling		external
Holder height	[mm]	225
Max. tool cross-section	[mm]	50 x 50/63 x 63/CAPTO 6/CAPTO 8
Clamping		manual
Tool position		vertical/horizontal



Tool holders		extended B 3.4/B 3.5
Cooling		external
Holder height	[mm]	600 (or 1000 on demand)
Max. tool cross-section	[mm]	40 x 40/MORSE 5/MORSE 6
Clamping		manual
Tool position		horizontal

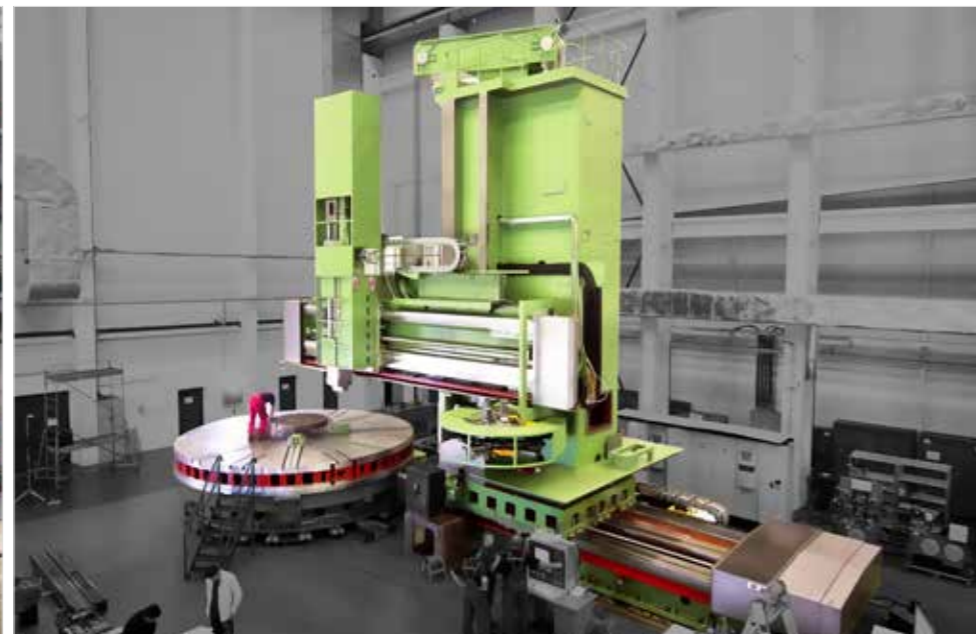


Grinding attachment		C6
Max. disc diameter	[mm]	350
Grinder position		vertical/horizontal
Power	[kW]	3,7/4,5
Disc speed	[1/min]	1 500/3 000

SKJ 63/100 D, China



SKJ 80/140 D, Ukraine



Service and after-sales care



- + 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



Applications



Francis turbine machining



Valve body machining



Propeller machining



Aircraft engine machining



Engine block machining



Bogie frame machining



Gear ring machining

- » Aircraft industry
- » Shipbuilding industry
- » Railway industry
- » Mining and building industry
- » Defence industry
- » Power industry
- » Gear cutting industry
- » Other industries

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