TOSHULIN

"From our founding we have been proud of the high quality of Czech manufacturing. More than 70 percent of all machine components are made directly under our control in TOSHULIN. Thanks to our continuous innovation process and development, TOSHULIN moves the boundaries of machine tool manufacturing forward."

Dagmar Herring
Chairman of the board

TOSHULIN is one of the world's leading manufacturers of technologically advanced multifunctional CNC machining centers for large workpieces. TOSHULIN machines are capable of integrating a variety of metal cutting technologies. Our added value is our ability to provide solutions to complex manufacturing we provide to our customers.

Thanks to our own development and design teams, we are able to quickly and flexibly react to requests from a variety of industrial fields. We also cooperate with various Czech universities, leaders in our field.

We focus on each customer's individual needs. In cooperation with our customers, we seek and find innovative solutions to satisfy the most demanding requirements for automation of production processes, precision of work pieces, stability of parameters and longevity of our machines.

We are proud that we have had many of the world's industry leaders as customers for decades.

TOSHULIN IN NUMBERS

70

More than
70 years of experience

73

Installed machine base in
73 countries of the world.

13 600

More than
13,600 machines
sold worldwide.

Development, manufacturing, and assembly all in one factory in Hulin, Czech Republic.

We have high quality equipment and utilize the most up-to-date technologies.

OUR HISTORY

TOSHULIN is a world leader and innovator in the vertical turning lathe market.

1949
Start of the construction of the factory; manufacturing starts a year later.

1959
The first numerically controlled machine produced in Czechoslovakia and one of the first in the world was built in Hulin.

1974
The start of production of vertical turning lathes with automated tool exchange.

1986
The first machine with pallet changer and C-axis control was produced.

1996
TOS Hulin, s.p. is privatized and company TOSHULIN, a.s. is formed.

2002
First machine with a table diameter over 4m is produced.

2008
POWERTURN line of machines is introduced.

2015
First multifunctional machine for separating and cutting forged rings for bearings during one clamping.

2016
Production of new line of EXPERTURN machine for efficient cutting of railway wheels.

2018
TOS Kurim – OS, a.s. is acquired by the TOSHULIN Group.

Introduction of TOSCADA application.

2019
Fully automatic machining line project realized.

Today
Entering the new segment of dry machining of composite materials.

MAIN APPLICATIONS

Transportation
Railway wheels, ship and locomotive drive and transmission systems, cylinders for testing equipment.

Mining & Petrochemical
Special parts for fitting and pumps, parts for drilling systems.

Aviation & Aerospace
Components of jet engines, parts used in aerospace programs.

General industries
Parts for transmission systems, parts for diagnostic devices in healthcare, large scale bearings, parts for defense industry.

Energy industry
Parts for steam and gas turbines, parts for transmission systems, bodies of electric motors.

OUR EXPERTISE & KNOW-HOW

- Application engineering centre – preparation of complete machining technology
- Proprietary research and development
- High product customization
- High automation
- Materials and products from the EU
- The smallest fully covered machining space
- Application of software for Industry 4.0
- The simplest concrete foundation for a vertical turning lathe in its category
- Long machine life

PRODUCT PORTFOLIO

BASICTURN

EFFECTIVE MACHINING
OF VARIETY OF WORKPIECES

Table diameter	[mm]	1250	1600	2000	2500	3000	4000
Maximum workpiece diameter	[mm]	1400	2000	2300	2900	3600	5000
Maximum workpiece height	[mm]	1900	2000	2000	2540	2540	2480
Maximum workpiece weight	[kg]	8000	12000	20000	25000	25000	25000
Maximum table speed	[1/min]	630	400	315	250	200	150

POWERTURN

DEMANDING TECHNOLOGICAL
APPLICATIONS WITH HIGH ACCURACY

Table diameter	[mm]	800	1000	1250	1600	2000	2500	3000	4000
Maximum workpiece diameter	[mm]	1000	1200	1500	2000	2500	3100	3700	5000
Maximum workpiece height	[mm]	1400	1400	2000	2000	3200	3200	3200	3140
Maximum workpiece weight	[kg]	5000	8000	10000	16000	20000	25000	30000	30000
Maximum table speed	[1/min]	1000	800	630	400	315	250	200	150

FORCETURN

HIGH PERFORMANCE METAL
CUTTING FOR LARGE WORKPIECES

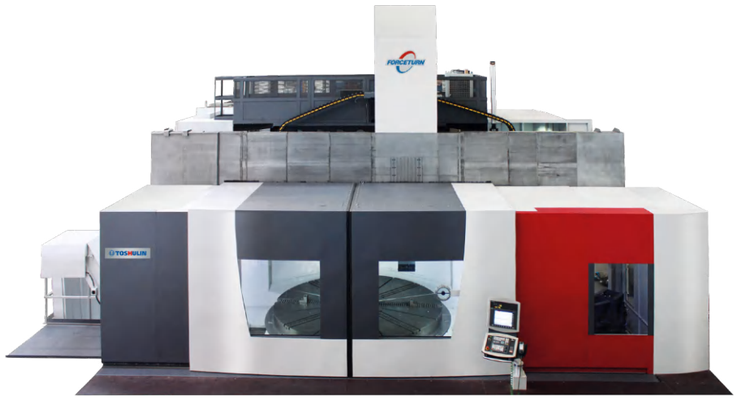


Table diameter	[mm]	2500	3000	4000
Maximum workpiece diameter	[mm]	2900	3600	5000
Maximum workpiece height	[mm]	4000	4000	5000
Maximum workpiece weight	[kg]	45000	45000	60000
Maximum table speed	[1/min]	250	200	150

EXPERTURN

COMPLEX SOLUTION
ACCORDING TO CUSTOMER
NEEDS WITHOUT COMPROMISE

High variability of tools.

Machine accuracy tuned to customers' specific needs.

Variable heights of work space area, **extended range** of X-axis.

Two- to five-axis machining. Optional configuration extension.

BASICTURN

EFFECTIVE MACHINING OF VARIETY OF WORKPIECES

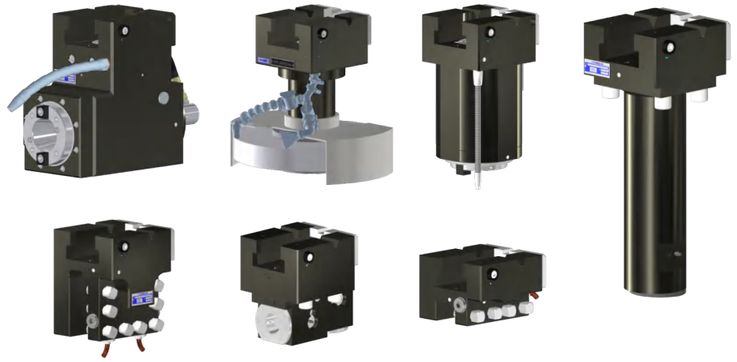
- Robust frame with focus on functionality and maintenance
- Automatic exchange of adapters into the ram and manual exchange of modular tools
- Partially covered working space
- Above-average clamping force of the adapters
- Possibility of extended travel of X-axis in both directions from the middle of the table
- Positioning of the table (C-axis) and live spindle available as options

TABLE DIAMETER	[mm]	1250	1600	2000	2500	3000	4000
Maximum workpiece diameter	[mm]	1400	2000	2300	2900	3600	5000
Maximum workpiece height	[mm]	1400 (1900)	1500 (2000)		1950 (2540)		1880 (2480)
Maximum workpiece weight	[kg]	8000	12000	20000	25000		
MAIN DRIVE							
Main motor power output Siemens/Fanuc	[kW]	44 (58) / 45 (60)	58 (81) / 60 (75)		81 (105) / 75 (100)		
Maximum table speed	[1/min]	400 (550, 630)	315 (400)	250 (315)	200 (250)	200	150
RAIL HEAD							
Rail-head section	[mm]	200 × 240					
Ram working stroke, Z-axis	[mm]	1060 (1360)					
AUTOMATIC TOOL EXCHANGE							
Capacity of disc tool magazine		9 (12)					
ROTARY TOOL DRIVE							
Motor power output	[kW]	22					
Maximum speed of rotary tools	[1/min]	4–3000					

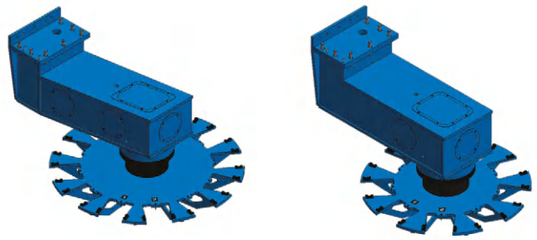
Parameters in brackets are optional.

RAM

TOOL HOLDERS



TOOL MAGAZINES



POWERTURN

DEMANDING TECHNOLOGICAL APPLICATIONS WITH HIGH ACCURACY

- Automatic adapter exchange into the ram
- Automatic exchange of tools into the adapters
- Completely enclosed working area allowing for installation of suction device
- Master-Slave drive option for advanced performance and precise positioning of the table
- Optional hydrostatic guidance of linear axis for better shock damping
- Wide choice of tool magazines and tooling
- Extended travel of X-axis in both directions from the center of the table
- Optional additional heads with added axes: B-head, C-head, Y-head

TABLE DIAMETER	[mm]	800	1000	1250	1600	2000	2500	3000	4000
Maximum workpiece diameter	[mm]	1000	1200	1500	2000	2500	3100	3700	5000
Maximum workpiece height	[mm]	1400	1400	1400 (2000)		1400 (2000, 2600, 3200)			1340 (1940, 2540, 3140)
Maximum workpiece weight	[kg]	5000	8000	10000	16000	20000	25000	30000	
MAIN DRIVE									
Main motor power output Siemens/Fanuc	[kW]	44 (58) / 45 (60)			58 (81) / 60 (75)			81 (105) / 60 (75)	
Main motor power output Master-Slave Siemens/Fanuc	[kW]	2×22 (2×31) / 2×22 (2×30)		2×31 (2×44) / 2×30 (2×45)			2×44 (2×58) / 2×45 (2×60)		
Maximum table speed	[1/min]	630 (800, 1000)	500 (630, 800)	400 (500, 630)	315 (400)	250 (315)	200 (250)	150 (200)	125 (150)
RAIL HEAD									
Rail-head section	[mm]	240 × 240							
Ram working stroke, Z-axis	[mm]	1280	1280	1280 (1500)		1500			
AUTOMATIC TOOL EXCHANGE									
Capacity of chain tool magazine		45 (60, 75, 76, 95, 96)							
Capacity of disc tool magazine		8 + 45							
ROTARY TOOL DRIVE									
Motor power output	[kW]	22 (31, 37) / 22 (30, 37)							
Maximum speed of rotary tools	[1/min]	4–4000 (4500)							

Parameters in brackets are optional.

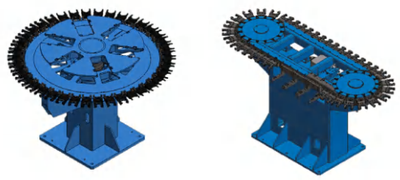
RAM

ADAPTERS

MODULAR MACHINING TOOLS

MODULAR ROTARY TOOLS

TOOL MAGAZINES



FORCETURN

HIGH PERFORMANCE METAL CUTTING FOR LARGE WORKPIECES

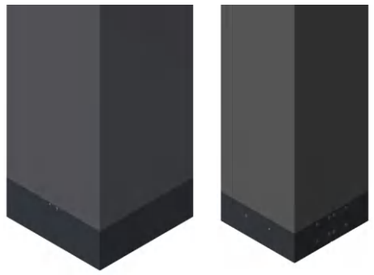
- Extremely stable and rigid machine frame made from heavy castings specifically designed for high performance, rapid material removal
- Above average ram rigidity – ram cross-section up to 400 × 400 mm
- Maximum work piece weight up to 60 tons
- Extremely rigid table mount – with either hydrostatic bearing or rolling bearing
- Fully-enclosed work area allows for the option of suction device
- The machine is suitable for roughing and finishing operations on very large workpieces
- The machine can be equipped with heads containing additional axes: B-head, C-head, Y-head

TABLE DIAMETER	[mm]	2500	3000	4000
Maximum workpiece diameter	[mm]	2900	3600	5000
Maximum workpiece height	[mm]	2500 (3500, 4000)		2500 (3500, 4000, 5000)
Maximum workpiece weight	[kg]	30000 (45000)[1]		40000 (60000)[1]
MAIN DRIVE				
Main motor power output Siemens/Fanuc	[kW]	2×58 (2×71) / 2×60 (2×75)		2×58 (2×71, 2×105) / 2×60 (2×75, 2×100)
Maximum table speed	[1/min]	250 (200)[1]	200	150 (125)[1]
RAIL HEAD				
Rail-head section	[mm]	400 × 400 (320 × 320)		
Ram working stroke, Z-axis	[mm]	2000 (2500)		
AUTOMATIC TOOL EXCHANGE				
Capacity of tool magazine		6 + 40 / 6 (8, 10, 12) + 40 (60, 82, 124)		
ROTARY TOOL DRIVE				
Motor power output	[kW]	31 (51) / 30 (45)		
Maximum speed of rotary tools	[1/min]	4–3000		

[1] Hydrostatic bearing of table.

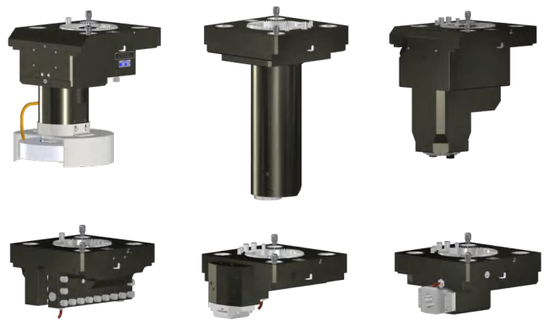
Parameters in brackets are optional.

RAMS



400 × 400 mm 320 × 320 mm

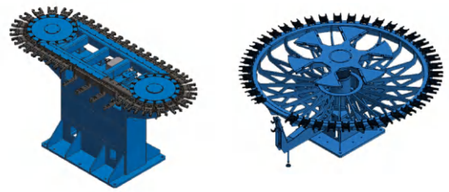
ADAPTERS



MODULAR MACHINING TOOLS

MODULAR ROTARY TOOLS

TOOL MAGAZINES



EXPERTURN

COMPLEX SOLUTION ACCORDING TO CUSTOMER NEEDS WITHOUT COMPROMISE

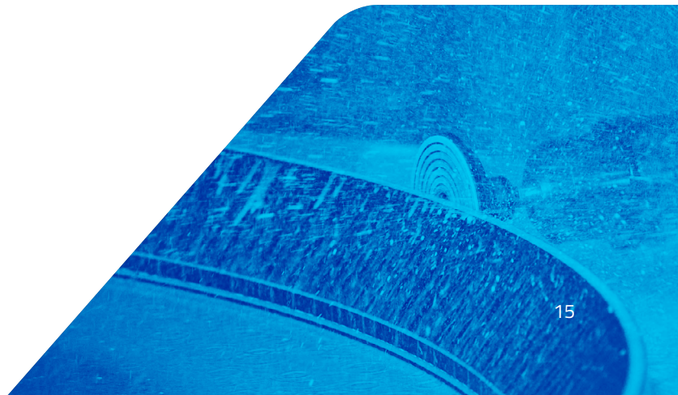
- Flexible machine design tailored to the specific needs of the customer
- Machine may be configured to incorporate fully-operational Y-axis
- Possible incorporation of a system of automatically-exchangeable pallets
- Machining of composite and conventional materials
- Available option of additional heads with added axes: B-head, C-head, Y-head
- Heads for live tooling can be equipped with electrospindle (with direct drive)
- High pressure or ultra-high pressure cooling may be included in the design

EXPERTURN 1600

MACHINING OF COMPOSITE MATERIALS

EXPERTURN 1400

MACHINING OF RAILWAY WHEELS



AUTOMATION AND DIGITALIZATION

For more than 20 years, TOSHULIN has been active in the development and production of pallet manipulation. It is key to improving productivity and competitiveness of our customers. Thanks to our long-term experience in this field, we are able to design, manufacture, and deliver automated production lines according to our customers' specifications.

TECHNOLOGICAL ACCESSORIES

Energy Saving

- Reduction of energy consumption based on shutting down some components of the machine
- This function can be configured based on customers' needs
- Energy savings up to 9 000 EUR/year

TOSCADA

- Application allows for easy access to information about the machine anywhere via remote access
- On-line history of alert messages
- The system is able to send notices on defined alerts (situations) via SMS or e-mail
- Monitoring of production effectivity
- Data export to an ERP/MES system possible
- Visualization and planning of maintenance

Camera systems

- Allow for easy monitoring during cutting of difficult pieces
- Position can vary depending on the customer's needs
- Can be linked with TOSCADA system enabling monitoring of more than one machine at the same time

Vibration elimination

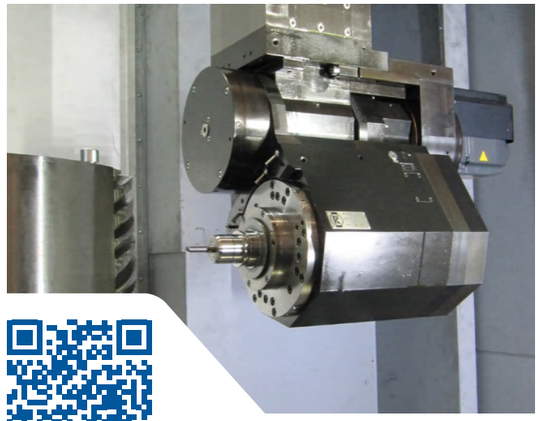
- Intuitive reaction to actual situation of vibrations measured by sensors
- Recommended for cutting of thin-walled work pieces

Advanced thermal compensation

- Application of proprietary, in-house devised mathematical model
- Enhanced cutting precision thanks to minimization of temperature instability from heat generation

Space compensation

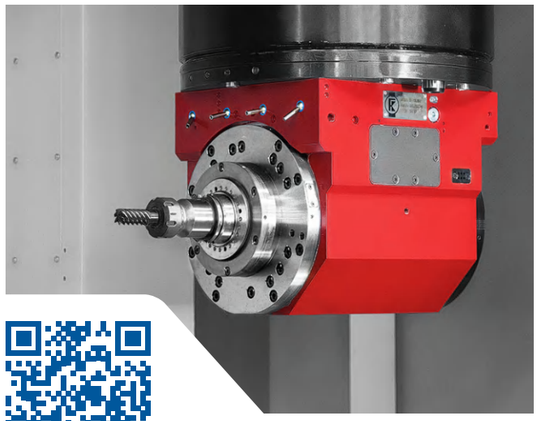
- Electronic compensation of deviation of the real position of the tip of the tool
- Useful for difficult work pieces (e.g. planetary gearbox parts)
- Improves cutting precision



Y-HEAD

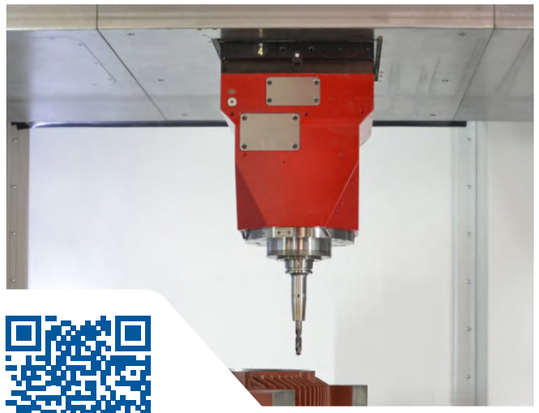
C-HEAD

B-HEAD



HORIZONTAL ELECTROSPINDLE

REVOLVER HEAD



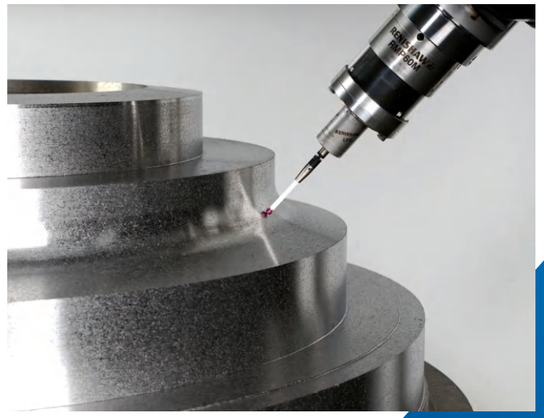
VERTICAL ELECTROSPINDLE

TWO RAMS

MAGNETIC TABLE

TOOL PROBE

GRINDING SPINDLE



WORKPIECE PROBE

CAMERA SYSTEM

MAJOR OVERHAUL

We draw on our long-term experience to extend the useful life of our older machines – mainly the types SKIQ, SKA, and POWERTURN. We have complete documentation relating to every machine produced in our factory. We perform modernization of our machines, done at the customer's facility, typically involving upgrade of the control system. Complete overhauls are done at the TOSHULIN factory, resulting in a nearly all-new machine.

Scope of repair

- New control system*
- New control panel*
- Exchange of drives*
- New electric panel*
- New PLC*
- Exchange of the hydraulics unit and cooling
- Exchange of all bearings
- Overhaul of the table
- Exchange of all the ball-screws and nuts
- New filtration device
- Complete disassembly of the machine to check all components
- Repair and exchange of all mechanical parts

*Modernization of the control system.

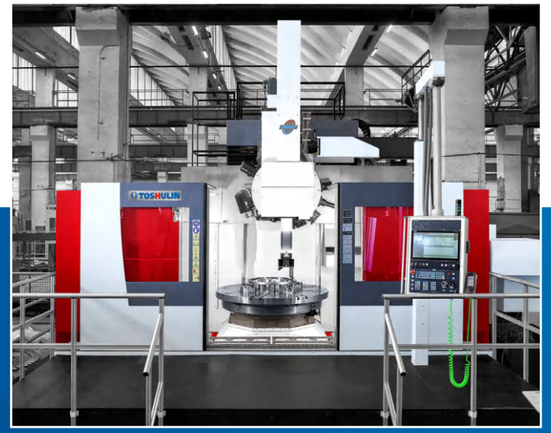
Properties of the machine after overhaul

- Improved precision
- More operator-friendly
- Higher productivity
- Lower production costs
- Higher reliability
- Longer machine life
- Ecologically responsible

SKIQ 16

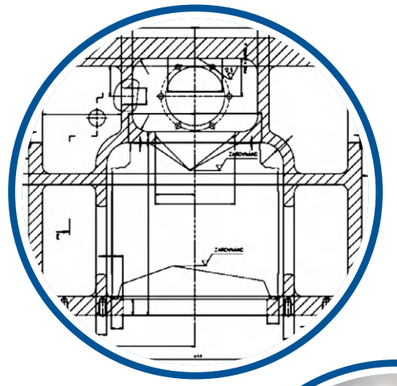
Made in **1986**

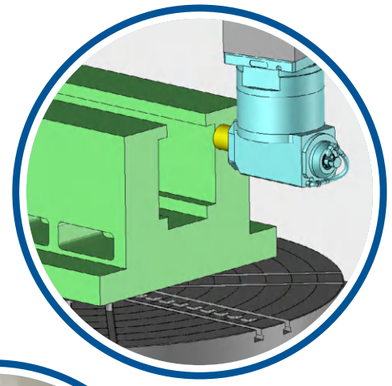
Overhauled in **2022**



APPLICATION ENGINEERING CENTRE

- Turnkey solution
- Tool equipment selection
- Test workpiece machining according to customer's specifications
- Time studies
- CAM system modeling
- Machine commissioning at customer's production site
- Complete operator training
- Ability to perform testing on machines installed at TOSHULIN
- Technical consulting available during warranty period





AUTHORIZED SERVICE AND CUSTOMER CARE

Individual Customer Support

— Training for operators and maintenance personnel

Warranty and After-Warranty Service

— Service calls performed by highly trained technicians
— We provide support with sub-suppliers during the warranty period and after

Remote Diagnostics

— The quickest way to identify causes of machine malfunction
— Rapid response time – short time between malfunction report and first on-line contact with the customer
— Over 90 % efficiency in solving problems
— Technical support during remote machine restart after control system shut down
— Data back up and archiving

Spare Parts

— Availability of spare parts and documentation for the life of the machine
— Fast delivery thanks to external, geographically-distributed warehouses of original spare parts
— Proprietary manufacturing of spare parts according to original documentation

Customer Hot Line

— Telephone or video consultation regarding the machine in question
— On-line support during solving issue on the machine
— Possibility of using remote diagnostic

Preventive Inspection of Machines

— During the warranty period
— Within the life of the machine
— Performed by certified technicians from TOSHULIN

MACHINERY EQUIPMENT

We have extensive machinery which allow us to produce 70 % of the components ourselves. We are thus able to ensure the quality of all parts and flexibly manage the timeliness of their delivery. At the same time, we are able to provide our business partners with cooperation services for demanding machining operations exactly according to their needs.

Vertical turning lathes

— FORCETURN 4000
— EXPERTURN 3000
— POWERTURN 2000
— BASICTURN 2000
— SKIQ 16

Machining centres

— HECKERT HEC 800 X5
— MORI SEIKI NH8000DCG
— TAJMAC MCFV 2080
— TAJMAC MCFV 1260
— TAJMAC H63

Turning machining centres

— MAS S80I
— MORI SEIKI NL 2500
— MORI SEIKI NL 3000
— MORI SEIKI NT6600 DCG/6000CS

Portal machining centres

— TOS KUŘIM FRFQ 350
— ZIMMERMANN FZ 42

Horizontal boring machines

— TOS KUŘIM FU150/10
— WHQ 13 CNC
— WD 130 with indication
— W 160 with indication

Grinding machines

— Guide surface grinders
— BRH surface grinder
— Grinding machine BUC 63
— Erwin JUNKER GRINDING Allround
— Shaft groove profile grinder

Measuring equipment

— Merlin 1100 Twin Star
— Five-axis continuous scanning head REVO – 2
— API LaserTracker T3-40
— WENZEL LH 108
— ZEISS Rondcom 44

Sheet metal processing

— TruLaser 3040
— TruBend 5170
— Fronius Trans Steel 5000

3D printing

— Prusa Research

Lathes

Paint shop

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LRQA CERTIFIED ISO 50001

LRQA CERTIFIED ISO 9001