

TRADITION – ACCURACY – RELIABILITY

 **TOSHULIN**

Since 1949



TOSHULIN, a.s. is one of the world's leading producers of technically advanced machine tools - vertical turning lathes and vertical turning centers. Machine tools produced by TOSHULIN, a.s. are designed primarily for the manufacture of medium and large sized work pieces. The company is based in Hulin, Czech Republic.



Present time

TOSHULIN, a.s. designs and manufactures vertical turning lathes and vertical turning centers with table diameters ranging from 800 to 5000 mm. The primary customer base includes manufacturers of jet aircraft engines, transportation components, energy equipment including windmill components, valves for gas and oil industry and many others.

TOSHULIN, a.s. has its own strong development team that systematically researches and applies new technology into the production of vertical lathes. Due to its emphasis on research and development, TOSHULIN, a.s. is able to provide one of the most technically advanced machine tools in the world.

The company provides support to its worldwide customers through its global trading network and in cooperation with capable business and service partners. Vertical lathes and vertical turning centers made in TOSHULIN, a.s. are designed for turning as well as multifunction operations such as drilling, thread cutting, milling and grinding.



History

TOSHULIN began manufacturing machine tools in 1949. Since that time, the company has delivered more than 13,000 vertical lathes and vertical turning centers to 60 countries in the world. The company's success has been achieved through the knowledge and experience of three generations of engineers. For more than 60 years, this knowledge and experience has evolved into TOSHULIN's, a.s. motto

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Aircraft Industry

TOSHULIN, a.s. supplies high precision machine tools to the aircraft industry, which are used for the manufacture of jet engine parts. The company's expertise of the vertical lathes design and the technology required for machining modern, difficult-to-machine metals such as Titanium and its alloys has made TOSHULIN, a.s. a leader in the aircraft industry.



Power Industry

To machine large dimensional parts used for energy production (turbines and windmill parts) TOSHULIN, a.s. has developed machine tools characterized by high accuracy. The machines enable multi-axial machining and can be equipped with a special technology that makes it possible to machine entire work piece in one clamping. The manufacturing of precise, large dimensional bearings is a prime example of TOSHULIN's capabilities in this industry.



Valves

TOSHULIN, a.s. performs a number of applications in the field of gas and oil industry. Among these is the machining of large, complex valves.



Transportation Industry

TOSHULIN, a.s. has developed vertical turning centers and manufacturing lines designed for high performance simultaneous machining of railway wheels with two tools. Manufacturing lines can be completed with a manipulator allowing automated handling of work pieces. TOSHULIN, a.s. has supplied machines for the locomotive, rail truck and marine business sectors.



REV



The REV vertical lathes are progressive machines designed and built to perform efficient machining of one-off work piece or repeat production of small and medium sized series.

The REV machines are manufactured with table diameters from 1250 to 2000 mm.

Characteristics:

- automatic tool exchange
- tool magazine with 45 locations
- ram cross section 200 x 240 mm
- CNC control SIEMENS or FANUC
- C-axis and the live spindle - option

Parameters:

Table diameter	1250 – 2000	mm
Max. workpiece diameter	1400 – 2300	mm
Max. workpiece height	1350 – 1450	mm
Max. workpiece weight	8000 – 20000	kg



POWERTURN



POWERTURN machine series is recognized for high performance and precise turning and rotary operations. One of the advantages of POWERTURN machines is enormous flexibility of tool types that can be utilized. Table diameters of POWERTURN machines range from 1250 to 5000 mm.

Characteristics:

- various tool types may be stored in the tool magazine (up to 150)
- automatic tool exchange of tool holders and tools (CAPTO, HSK, KENNAMETAL, ISO 50, CAT 50)
- tools in the tool magazine can be used for vertical as well as horizontal machining operations
- C-axis and the live spindle – option
- Second Rail head option can be provided
- high pressure coolant (up to 350 bar)
- fully covered machine working area

POWERTURN machines can be also equipped with pallet exchange system for automatic manipulation with work pieces (work piece alignment and clamping within the machining time).

Parameters:

Table diameter	1250 – 5000	mm
Max. workpiece diameter	1400 – 5500	mm
Max. workpiece height	1300 – 2380	mm
Max. workpiece weight	8000 – 30000	kg

SKL



The SKL type machines are designed to achieve exact high speed machining of work pieces of a smaller diameter. They are manufactured with table diameters from 800 to 1250 mm.

Characteristics:

- automatic tool exchange
- tool magazine specified for 16 or 24 tools
- high-speed machining (maximum table speed up to 1500 rpm)
- fully covered working area
- CNC control SIEMENS or FANUC
- C-axis and the live spindle - option

Parameters:

Table diameter	800 - 1250 mm
Max. workpiece diameter	1200 - 1700 mm
Max. workpiece height	1000 mm
Max. workpiece weight	2000 kg



SKA



The SKA vertical lathes and vertical turning centers are identified by the quick exchange of tooling when machining technically complicated work pieces. The SKA machines are manufactured in sizes from 1250 to 5000 mm.

Characteristics:

- quick automatic exchange of tool holders (specified for tools 40x40 mm) and of rotary tools (ISO 50, CAT 50)
- ram cross section 200 x 240 mm or 240 x 240 mm specified for high power machining
- high-pressure coolant
- fully covered working area
- CNC control SIEMENS or FANUC
- C-axis and the live spindle - option

Machines suitable especially for efficient machining.

Parameters:

Table diameter	1250 – 5000 mm
Max. workpiece diameter	1400 – 5500 mm
Max. workpiece height	1400 – 2480 mm
Max. workpiece weight	8000 – 30000 kg



SKIQ



Traditional type of vertical lathes manufactured by TOSHULIN primarily characterized by the 15 position tool magazine located on the machine rail head. SKIQ machines are manufactured with table diameters ranging from 1250 to 3000 mm.

Characteristics:

- high speed of tool exchange
- tool magazine with 15 positions
- ram cross section 180 x 200 mm
- protective guarding of the machine working area
- CNC control SIEMENS or FANUC
- C-axis and the live spindle - option

Parameters:

Table diameter	1250 – 3000	mm
Max. workpiece diameter	1400 – 3600	mm
Max. workpiece height	1400 – 2000	mm
Max. workpiece weight	8000 – 30000	kg



SKG



The SKG vertical turning lathes are designed specifically for high-efficiency machining of heavy parts with one or two rail heads simultaneously. The machines are manufactured with table diameters of 4000 and 5000 mm.

Characteristics:

- table is supported by a hydrostatic bearing
- automatic tool exchange of tool holders and rotary tools on each rail head
- ram cross section 320 x 320 mm
- protective guarding of the machine working area
- CNC control SIEMENS or FANUC
- C-axis and the live spindle - option

Parameters:

Table diameter	4000 – 5000	mm
Max. workpiece diameter	4500 – 6000	mm
Max. workpiece height	3500 – 4200	mm
Max. workpiece weight	60000 – 90000	kg



POWERTURN Y



Based on the high-performance POWERTURN machines, POWERTURN Y machining centers incorporate a drive system to move the table in the Y-axis. The centers are manufactured in sizes from 1250 to 2000 mm.

Characteristics:

- four controlled axis – X, Z, C, Y
- table located on a linear guidway system which moves in the Y-axis
- various tool types may be stored in the tool magazine (up to 150)
- automatic tool exchange of tool holders and tools (CAPTO, HSK, KENNAMETAL, ISO 50, CAT 50)
- machine can be equipped with special adapters such as rotary B-axis head
- tools in the tool magazine can be used for vertical as well as horizontal machining operations
- ram cross section 240 x 240 mm specified for high efficient machining
- high pressure coolant (up to 350 bar)
- fully covered machine working area
- CNC control SIEMENS or FANUC

POWERTURN Y machines can be also equipped with pallet exchange system for automatic manipulation of work pieces (work piece alignment and clamping within machining time).



Parameters:

Table diameter	1250 – 2000	mm
Max. workpiece diameter	1400 – 2300	mm
Max. workpiece height	1275 – 1875	mm
Max. workpiece weight	8000 – 20000	kg

SKAT



SKAT special vertical lathes are designed for complete machining of low ring-shaped work pieces using two rail heads simultaneously. These lathes are manufactured with table diameters from 1250 to 1600 mm.

Characteristics:

- two rail heads for simultaneous machining
- cross rail is not height-adjustable
- automatic tool exchange of tool holders and rotary tools on each rail head
- ram cross section 240 x 240 mm
- fully covered working area
- CNC control SIEMENS or FANUC
- C-axis and the live spindle - option

Parameters:

Table diameter	1250 – 1600	mm
Max. workpiece diameter	1500 – 2000	mm
Max. workpiece height	570 – 840	mm
Max. workpiece weight	6000 – 10000	kg



C-axis and live spindle

This option extends the standard function of vertical lathes, i.e. turning to add drilling, milling, grinding and thread cutting operations on circular and linear shapes of a work piece.

Grinding spindle

This option extends the standard function of vertical lathes, i.e. turning operations. Can be completed with automatic dressing equipment to perform grinding wheel dressing of straight, contoured and angled surfaces.

Pallet system

Enabling automatic manipulation of a work piece after its alignment and clamping within the machining time to considerably increase the productivity of the machine.

Active tool checking

Provides automatic measurement of a tool dimensions and compensation of found deviations into the technology program.

Active work piece checking

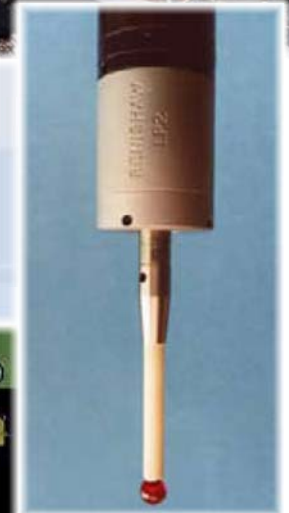
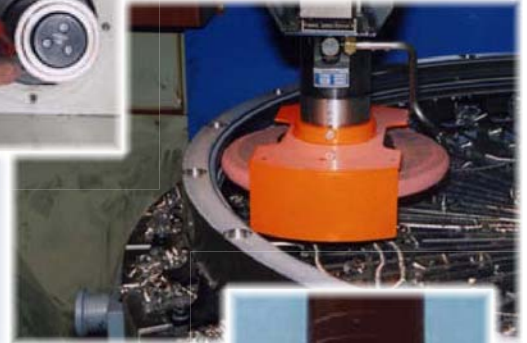
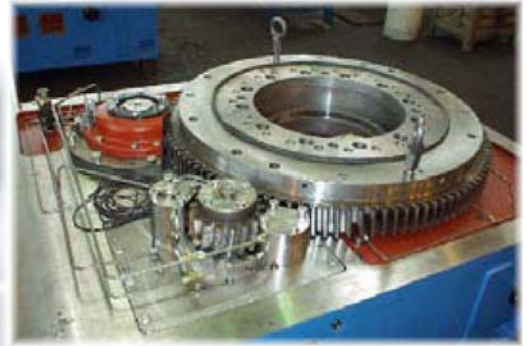
Provides automatic verification of achieved accuracies of the work piece.

Tool condition monitoring

The equipment evaluates collision situations, tool breakage and tool wear to minimize the risk of damage to the workpiece and machine.

Hydraulic self-centering chuck

The chuck provides automatic clamping and centering of the work piece. This feature will considerably reduce idle time of the work piece setting and increase the accuracy of the work.



Side head and second rail head

Machines equipped with side head or two rail heads are able to work simultaneously with two tools. They can be provided with full automatic tool exchange on both the rail heads.

Special B-axis head

Extends the working capability of POWERTURN machines with a controlled B-axis continuous contouring head.

Remote diagnostics

Allows TOSHULIN technicians to perform remote maintenance on the machine directly from the service center in Hulin. Helps to prevent and fix problems in a very effective way. Access can be accomplished only with customer's assistance.

Special Y-axis head

Increases the working capability of POWERTURN machines with a continuously controlled Y-axis head.

Tool management

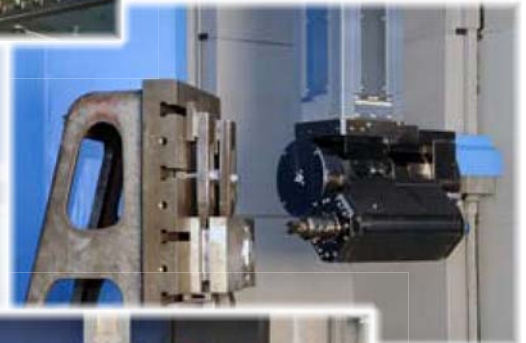
Increases effectiveness and profitability of machining with automatic control of tool life and minimizes risk of tool, work piece and/or machine damage.

Machine working area air filtration

Together with safety guarding this equipment exhausts coolant and steam from the machine working area during machining and prevents them from interfering with the machine's productivity. Air filtration provides a cleaner and safer work environment.

High pressure coolant

Machine is prepared for the technically demanding high pressure coolant (up to 350 bar). This modern technology of high pressure cooling is applied mainly for machining special Titanium alloys used for in the manufacture of jet engine parts or aerospace technologies.





Manufacturing cell

Manufacturing cell consisting of two TOSHULIN vertical lathes or vertical machining centers connected together with a pallet system. The cell management allows for circulation of the work pieces between both machines and considerably increases the productivity and effectiveness of the machining of complicated work pieces.



Manufacture of large dimensioned bearings

One of the ways TOSHULIN machines are utilized is in the manufacture of large dimensioned thin-walled parts. TOSHULIN delivers not only the machinery but can also supply technology solutions for customers' machining needs.



Precision machining

TOSHULIN manufactures high-quality, reliable vertical lathes and vertical turning centers, which are used for precise machining of various work pieces, especially from difficult-to-machine metals. The lathes are utilized in many industrial sectors, including the aircraft, aerospace industries and energy sectors.





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