

VS

VERTICAL
MILLING MACHINES

5-axis
with tilting rotary table





TRIMILL – your partner for PORTAL MILLING MACHINES

Our main mission is to develop and manufacture portal milling machines with an excellent proportion of QUALITY – OUTPUT – RELIABILITY – PRICE. An important part of our services comprises a well-elaborated system of the warranty and after-warranty service.

A wide selection of the TRIMILL machines contains vertical and horizontal portal milling machines, which are distinguished by high rigidity and accuracy and are intended for machining of pressing tools, moulds and precise workpieces in the single-piece production.

- Machine travels from (X,Y,Z) 1.100/1.000/700 mm to 13.500/4.500/1.800 mm
- Three-, five- and multi-axis design

Partnership with our customers is based on following pillars:

- Proficiency, experience, professionalism
- Customized solutions
- Development of new solutions
- Top service and immediate availability of spare parts

Figures and facts

- 12.900 m² of the production area and more than 130 specialists in development, design, assembly and technology
- Since 2000, when our family company was established, we have been operating in the markets all over the world
- 500 portal machining centres at 200 satisfied customers in 30 countries of the world

Our customers

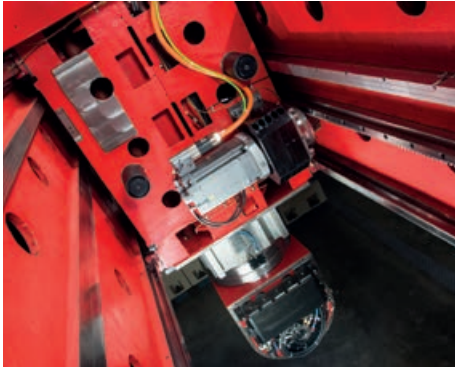
- Tool factories
- Forging shops
- Automotive industry
- Aerospace industry
- Energy industry

The most frequently machined materials on our machines

- Tool steel
- Aluminium alloys
- Cast iron
- Structural materials

■ TRIMILL PRINCIPLE: BOX-IN-BOX and UHPC

The box-in-box is a unique system of closed construction of the cross-beam and cross-slide with internally positioned and guided ram unit (axes Y and Z). UHPC is a high strength concrete with excellent properties for vibration damping and thermal stability of machines.



THE ADVANTAGES OF TRIMILL PRINCIPLE:

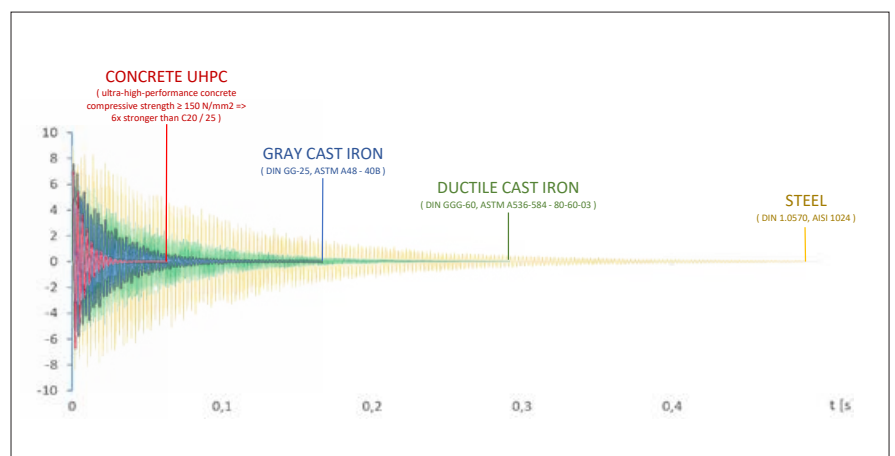
- Consistent milling results thanks to stable thermo-symmetrical arrangement on linear guideways
- Always 4 guides of the cross and vertical support for the machine, preventing the occurrence of the so-called „banana effect“ which deforms/bends the vertical support of the machine
- Increased rigidity of the machine in the X axis by +60%, in the Y axis by +30% and in the Z axis by +90%

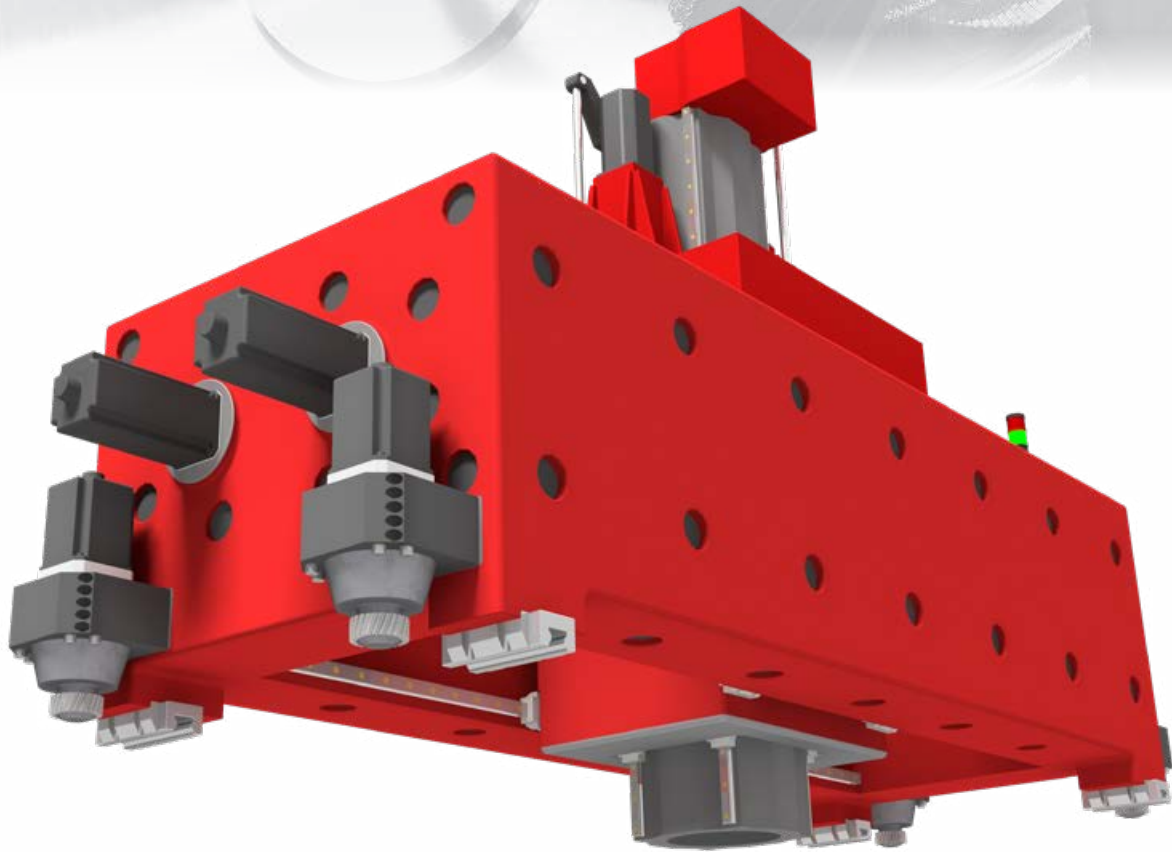


ADVANTAGES OF USING UHPC:

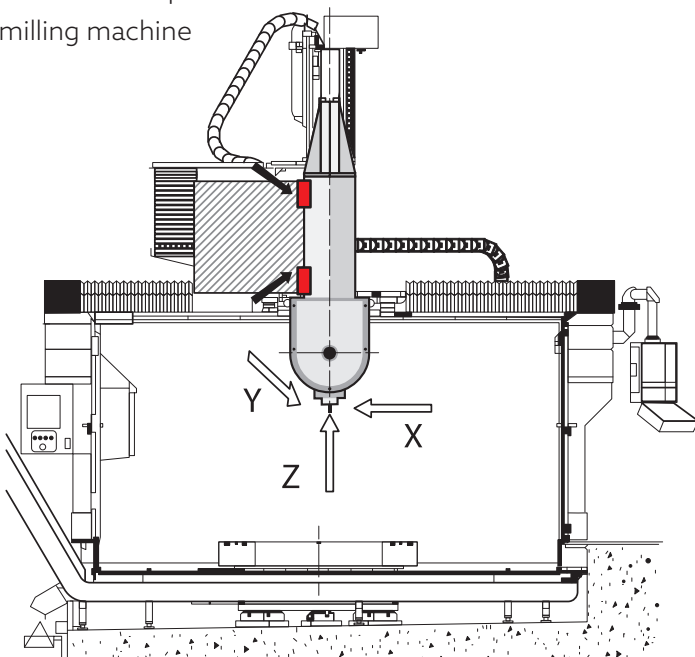
- The columns and longbeams of most TRIMILL machines are made of high-strength concrete (UHPC).
- Maximum vibration damping and extended tool life
- Low thermal conductivity and high heat capacity resulting in high thermal stability of the machines
- Compressive strength ≥ 150 Mpa \Rightarrow 6 times stronger than C20/25 concrete
- Production in our own concrete plant in TRIMILL, a.s.

TRIMILL uses UHPC with the most effective damping properties for all stationary machine components, which ultimately means better surface quality, higher precision and longer tool life.

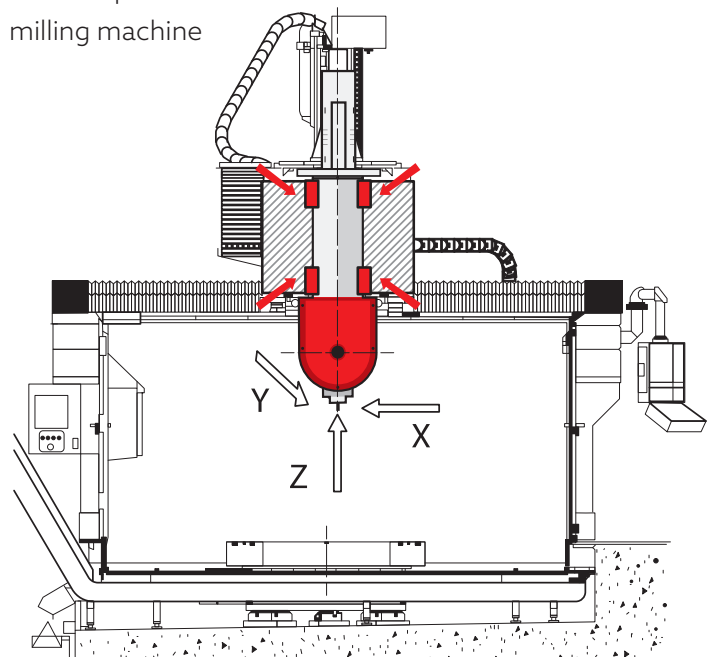




Conventional portal milling machine



TRIMILL portal milling machine



TRIMILL VS 1614



5-AXIS MACHINE WITH TILTING ROTARY TABLE



Travels X, Y, Z

X-axis	1.600 mm
Y-axis	1.400 mm
Z-axis	800 mm

Spindle (S1/100%)

Spindle - option 1:	25 kW, 200 Nm, 12.000 1/min, HSK-A100
Spindle - option 2:	32 kW, 306 Nm, 14.000 1/min, HSK-A100
Spindle - option 3:	29 kW, 69 Nm, 24.000 1/min, HSK-A63



Tilting rotary table

Clamping surface	ø 1.200 mm
Workpiece weight	max 2.500 kg
Workpiece size	max ø 1.415 mm
Workpiece height	max 900 mm
Tilting speed B-axis	26 min ⁻¹
Rotation speed C-axis	50 min ⁻¹
Clamping torque B-axis	+130°/-130°
Rotation range C-axis	n × 360°
Clamping torque B-axis	10.000 Nm
Clamping torque C-axis	6.500 Nm

Feed rate

Feed rates X, Y, Z	30 m/min
Acceleration X, Y, Z	3 m/sec ²



Technical data

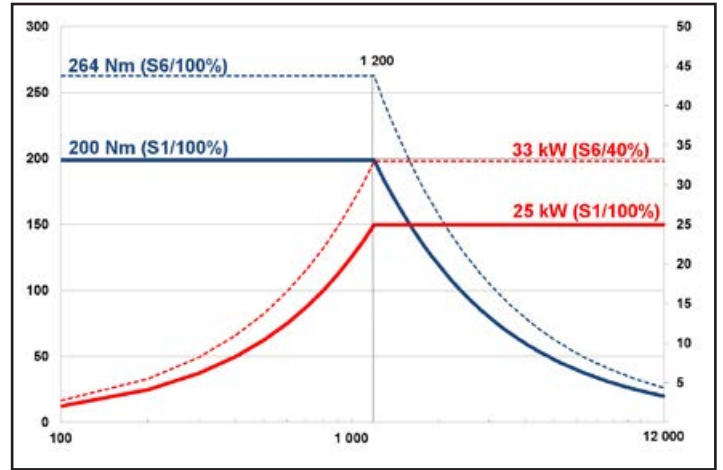
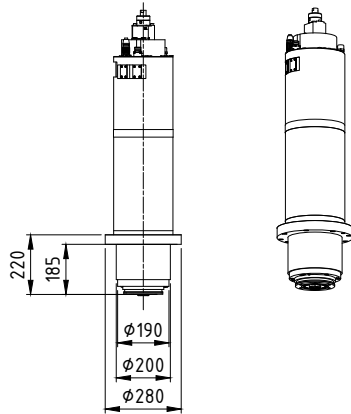
Machine weight approx:	32.000 kg
Machine dimensions:	cca 6.600 × 4.400 × 4.300 mm



SPINDLE CHARACTERISTICS

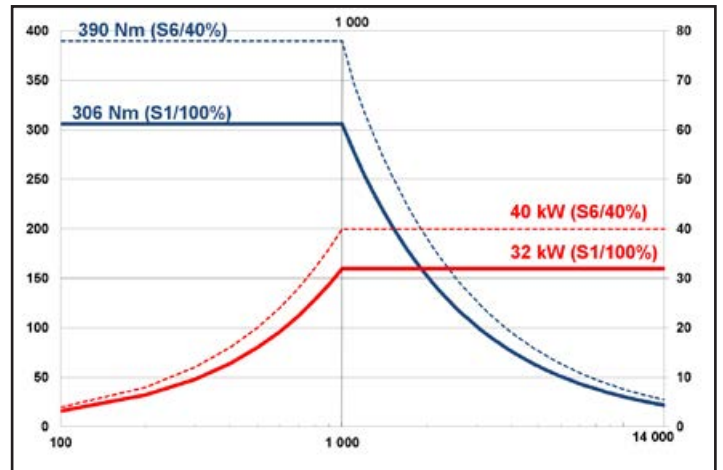
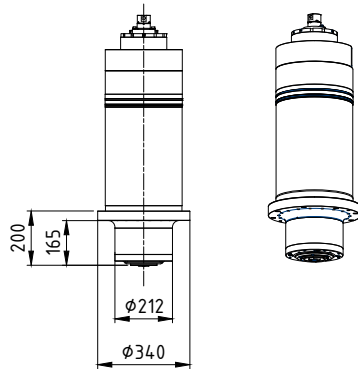
OPTION 1

Power S1:	25 kW
Max. Power S6:	33 kW
Torque S1:	200 Nm
Max. Torque S6:	264 Nm
Max. Speed:	12.000 rpm
Clamping Beam:	HSK-A100



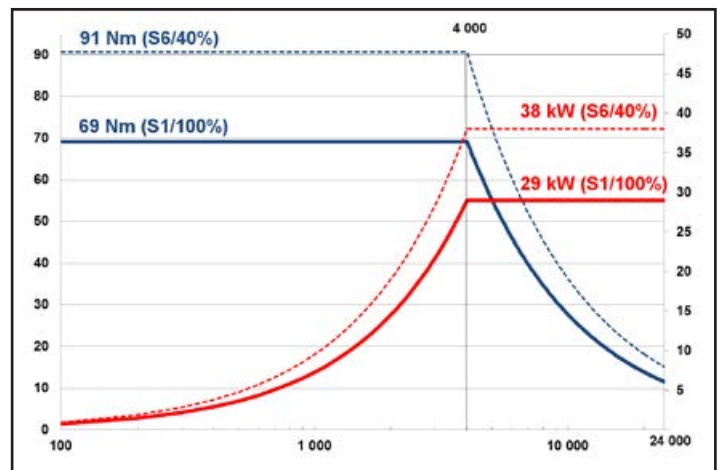
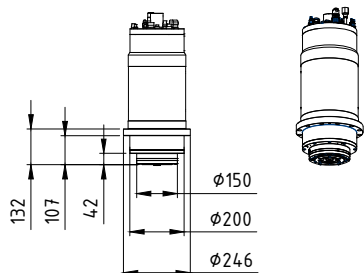
OPTION 2

Power S1:	32 kW
Max. Power S6:	40 kW
Torque S1:	306 Nm
Max. Torque S6:	390 Nm
Max. Speed:	14.000 rpm
Clamping Beam:	HSK-A100



OPTION 3

Power S1:	29 kW
Max. Power S6:	38 kW
Torque S1:	69 Nm
Max. Torque S6:	91 Nm
Max. Speed:	24.000 rpm
Clamping Beam:	HSK-A63



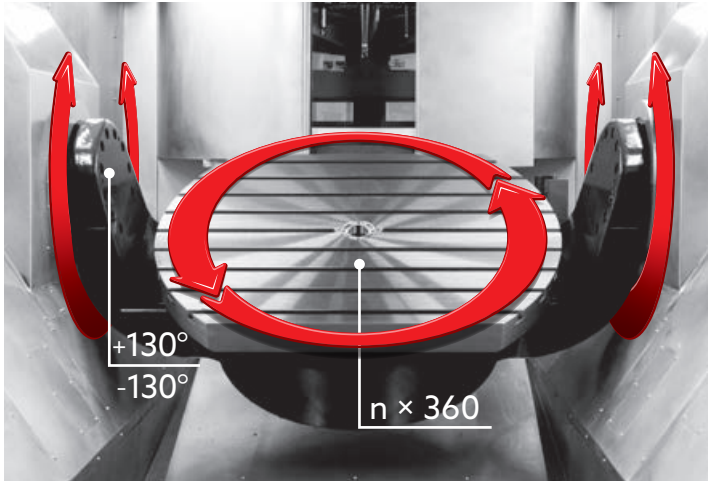
- Power (S1/100%)
- Torque (S1/100%)
- - - Power (S6/40%)
- - - Torque (S6/40%)

OTHER TECHNICAL PARAMETERS

OPERATING RANGE OF ROTATIONAL AXES

Use of torque motors guarantees the dynamics of the axes rotation.

- 1 torque motor for table rotation (C-axis)
- 2 torque motors for table tilting (B-axis)



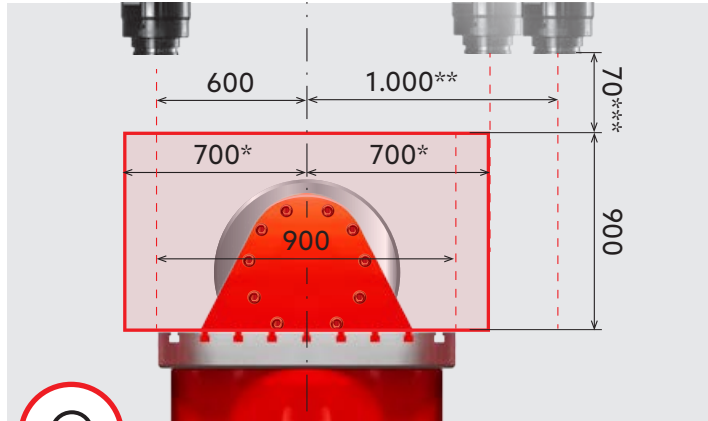
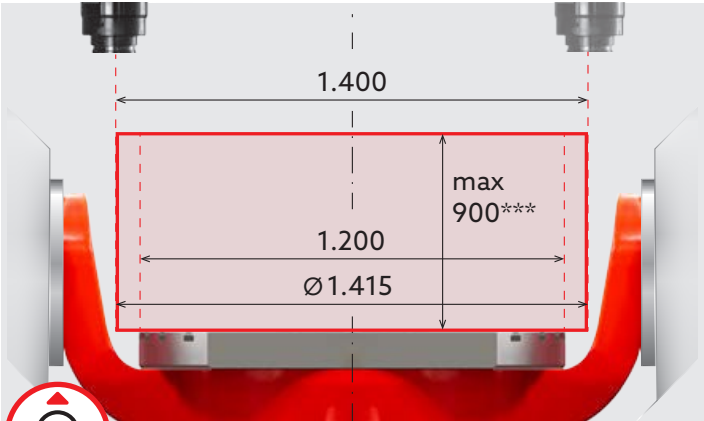
TECHNOLOGY OPTIONS



5-side positioning milling



Continuous milling of 3D general surfaces



* Plate-type ATC

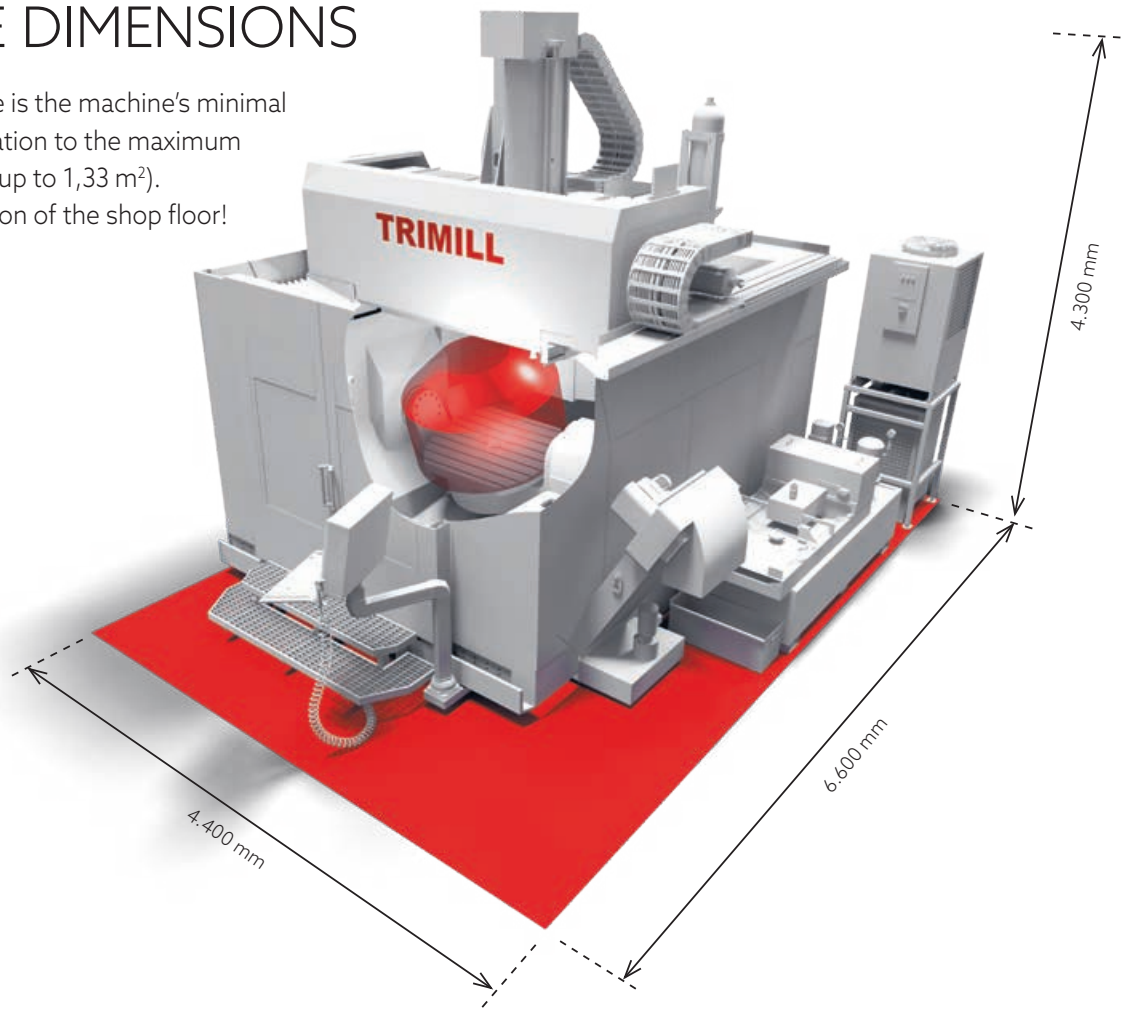
** Rack-type ATC

*** Height dependent on chosen type of spindle and length of tool



MACHINE DIMENSIONS

Significant design advantage is the machine's minimal footprint (only 28 m²), in relation to the maximum machinable workpiece size (up to 1,33 m²). This leads to perfect utilization of the shop floor!



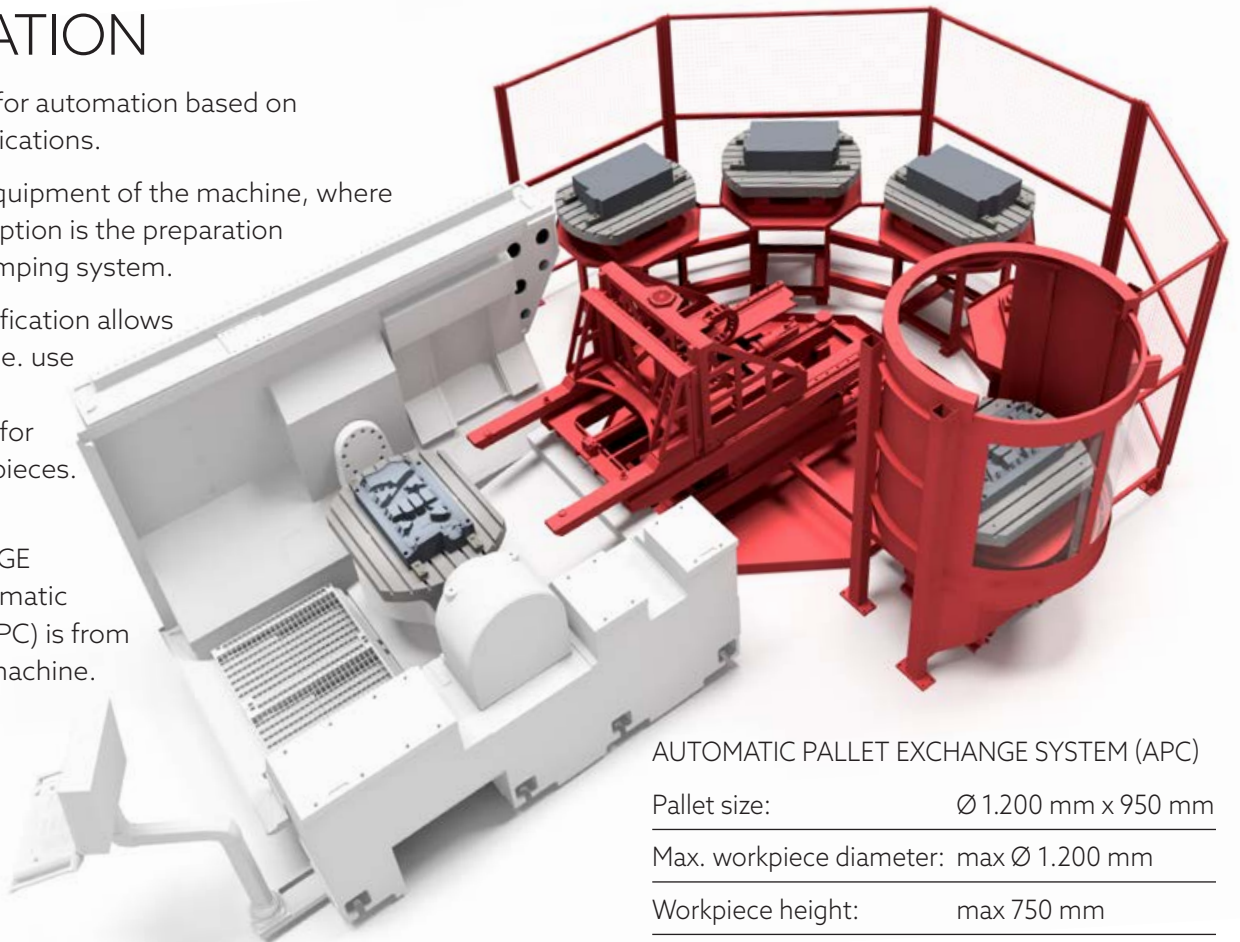
AUTOMATION

Machine is ready for automation based on customer's specifications.

It is an optional equipment of the machine, where the basis of this option is the preparation for zero-point clamping system.

The highest specification allows for palletization, i.e. use of automated changing system for pallets with workpieces.

GREAT ADVANTAGE
Entrance for Automatic Pallet Changer (APC) is from back side of the machine.



AUTOMATIC PALLET EXCHANGE SYSTEM (APC)

Pallet size: \varnothing 1.200 mm x 950 mm

Max. workpiece diameter: max \varnothing 1.200 mm

Workpiece height: max 750 mm

Max. workpiece weight: 1.800 kg

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