



V M

# PORTAL MILLING MACHINES

5-axis  
with milling head exchange system







# 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 m<sup>2</sup> 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
- 480 portal machining centres at 200 satisfied customers in 25 countries of the world

## Our customers

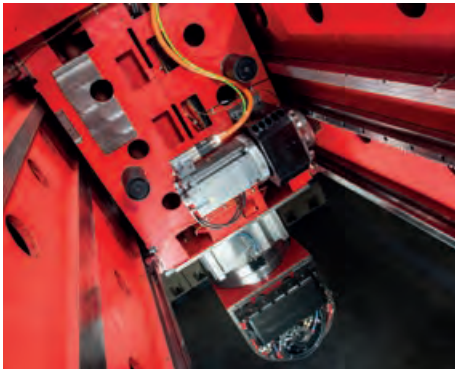
- Tool factories
- Forging shops
- Automotive industry
- Aerospace industry
- Energy industry

## 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:

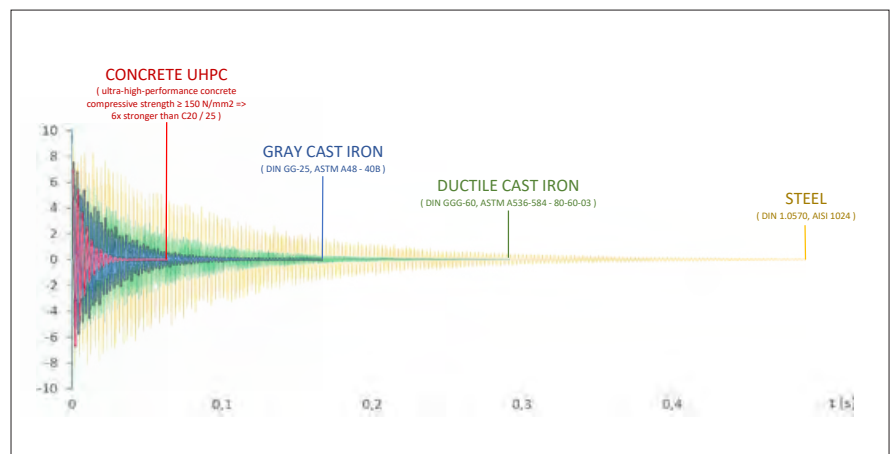
- Consistent milling results thanks to stable thermo-symmetrical arrangement on linear guideways
- Always 4 guides of the cross and vertical support for the machine, preventing the occurrence of the so-called „banana effect“ which deforms/bends the vertical support of the machine
- Increased rigidity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



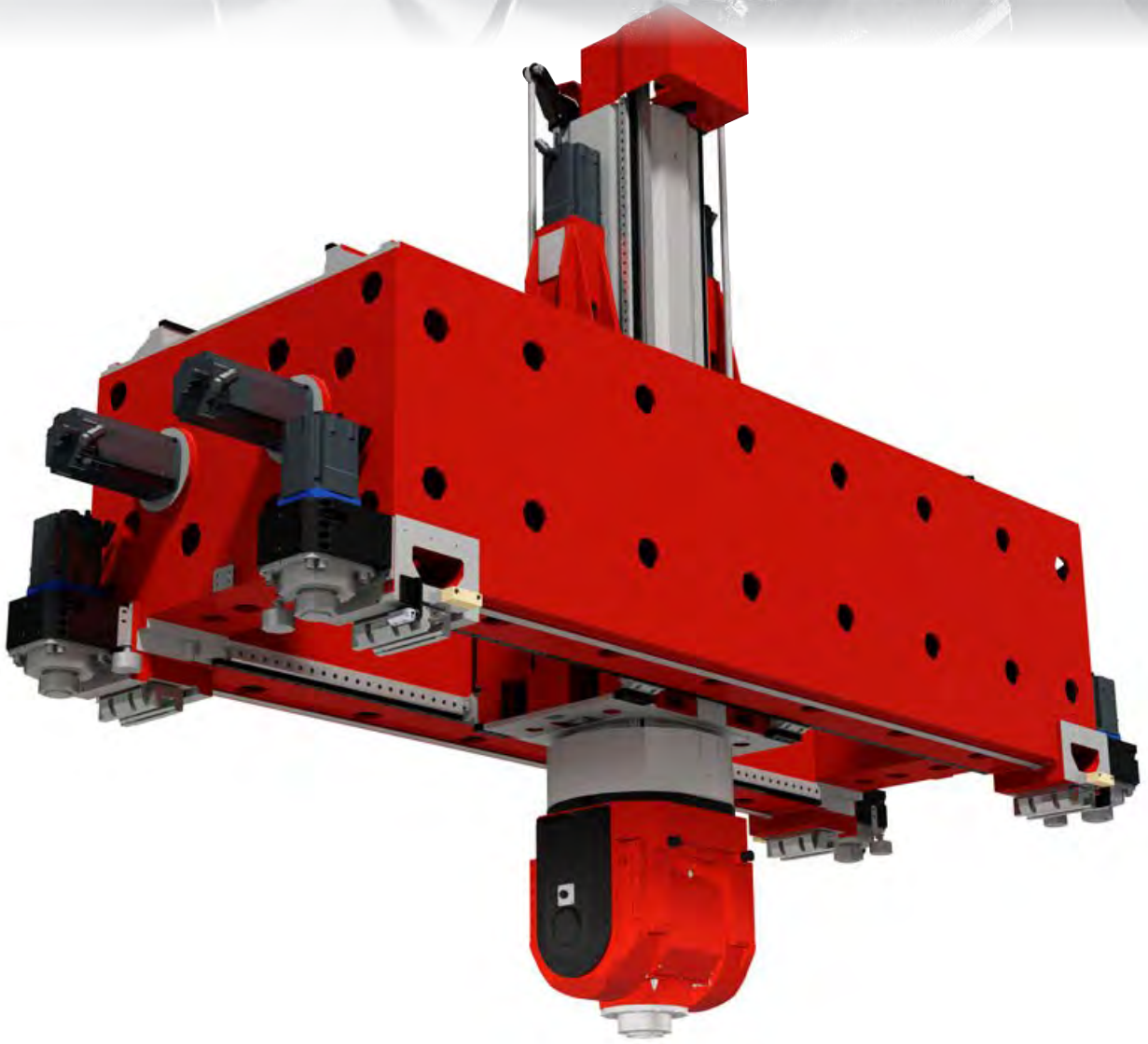
## ADVANTAGES OF USING UHPC:

- 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  $\geq 150$  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.

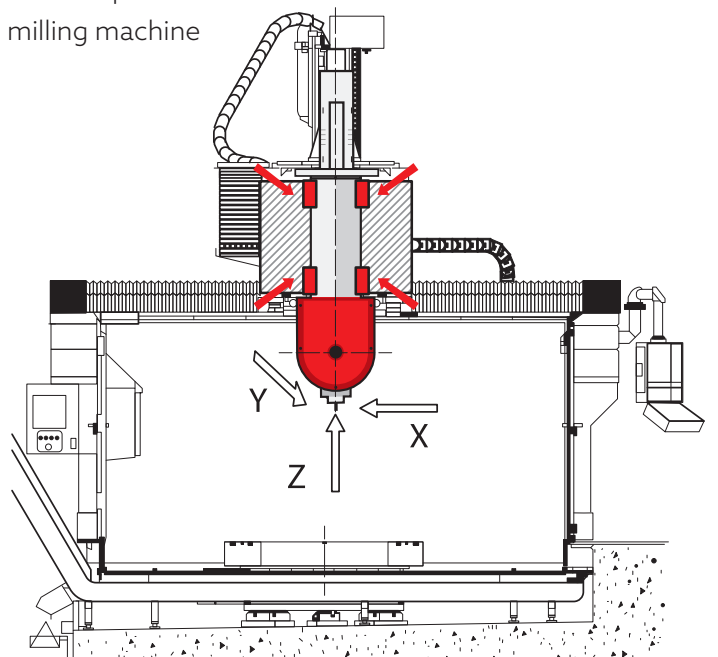
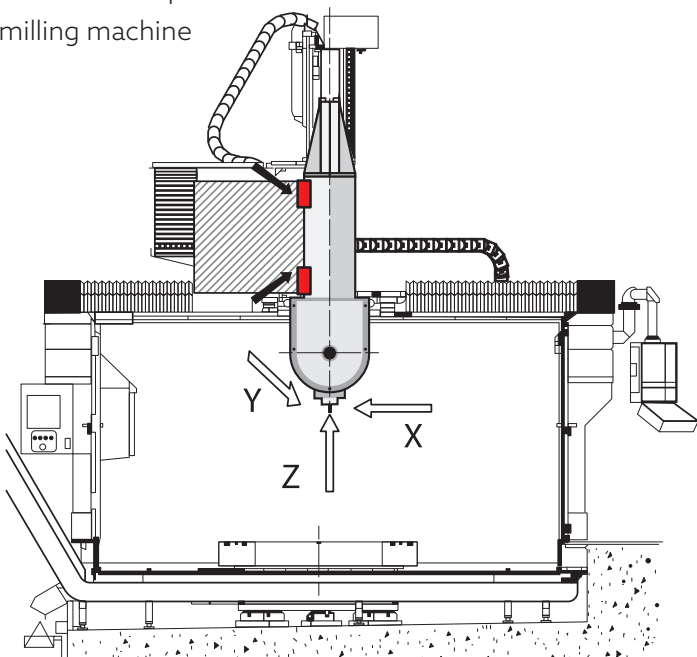




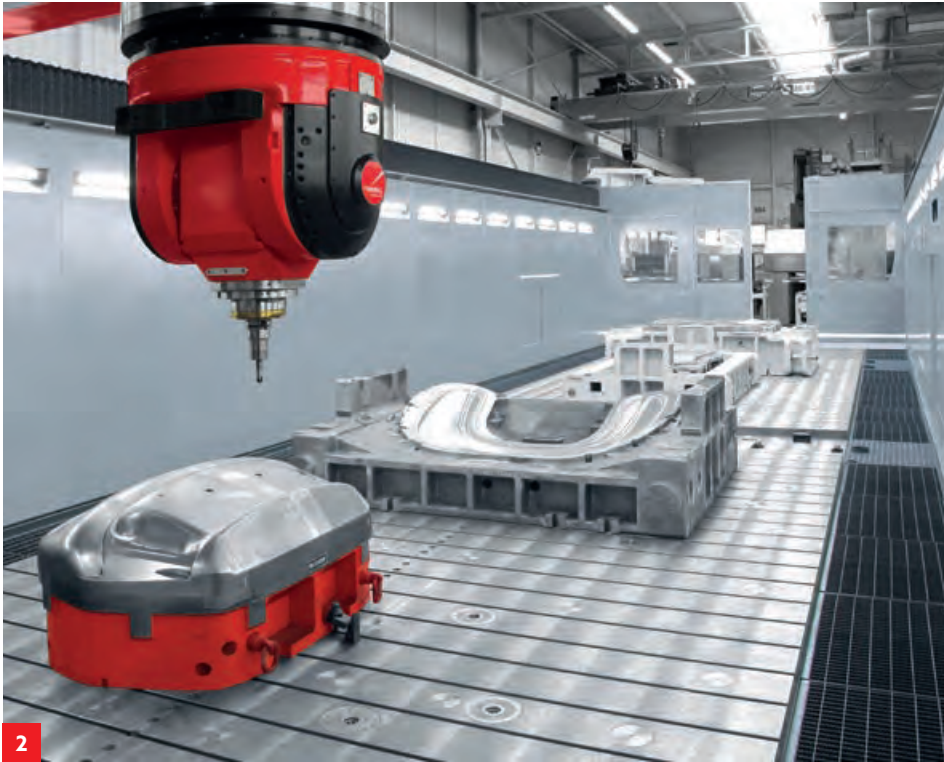


Conventional portal milling machine

TRIMILL portal milling machine



# TRIMILL VM 13535



**1** 5-axis portal milling machine with automatic milling heads exchange.  
Working travels: X 13.500 mm, Y 3.500 mm, Z 1.500 mm

**2** T21M fork-type milling head intended for finishing; stainless steel covers of the interior working area of the machine

**3** Tool exchange carried out by a robot, installed at the customer's request

**4** A2.1 right-angle milling head







	X	×	Y	×	Z
VM 4525	4.500	×	2.500	×	1.500
VM 4525	4.500	×	2.500	×	1.500
VM 5525	5.500	×	2.500	×	1.500
VM 6525	6.500	×	2.500	×	1.500
VM xx25	xxxx	×	2.500	×	1.500
VM 4535	4.500	×	3.500	×	1.500
VM 5535	5.500	×	3.500	×	1.500
VM 6535	6.500	×	3.500	×	1.500





# HEADS DEVELOPMENT AND PRODUCTION

Together with our machines, we develop, construct, manufacture and also test our own in detail milling heads. And all this right in Zlín!



The history of our own production of heads dates back to 2000, when we launched the first own milling head on the DEPOMILL2012 machine.

**Not only special spaces for the production of heads, but above all highly qualified staff with many years of experience are a guarantee for this high-tech production. We currently offer 9 custom types of milling heads.**

Thanks to our own production of heads, our customers also gain a great advantage in subsequent service care. TRIMILL technicians know in detail the construction of our milling heads and we have components and spare parts for milling heads in stock. Of course, there is a virtually immediate response to customer needs.

U2M



F4M/F5M



T19M/T21M



T30M



H3M



S1M



S2M/S3M



S4M



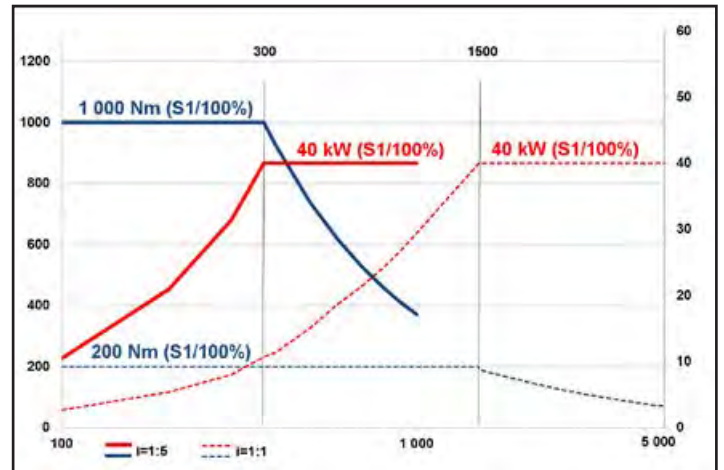
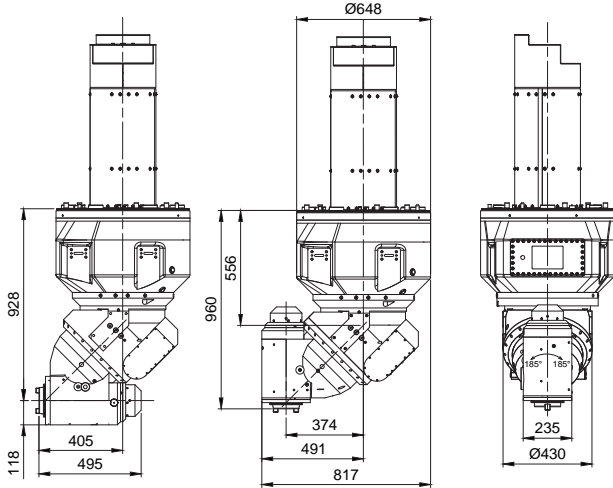
A2.1M



# TRIMILL HEADS

## U2M

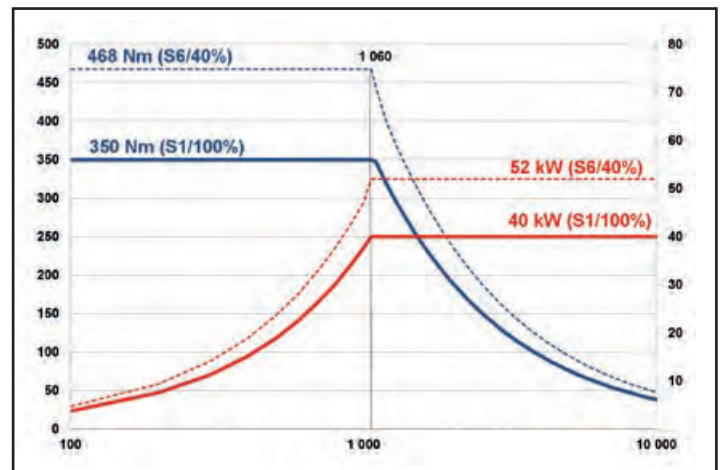
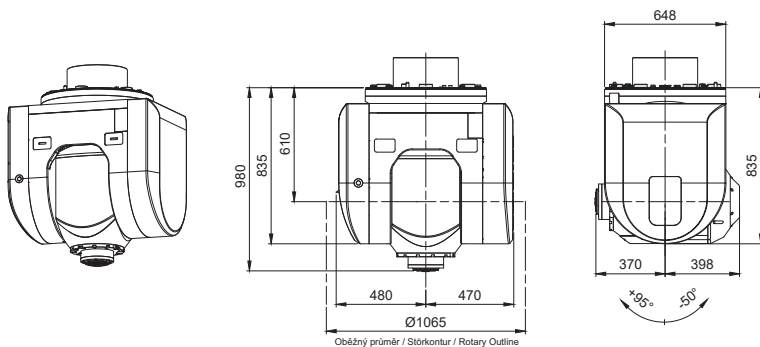
positioning



Power S1: 40 kW  
 Torque S1: 1000 Nm  
 Max. Speed: 5 000 rpm  
 Tool holder: SK-50, HSK-A100

## F4M / F5M

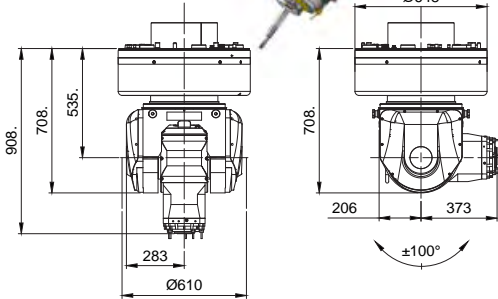
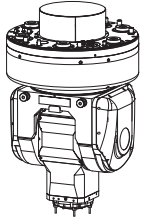
continuous / positioning



40kW, 350 Nm, 10.000/min, HSK-A100  
 B axis (milling head): -50/+95°  
 C axis (milling head): +/-240°  
 F4 - continuous milling  
 F5 - positioning milling (in steps of 0.001°)  
 B-axis clamping torque 17.200 Nm  
 C-axis clamping torque 15.000 Nm

# T19M

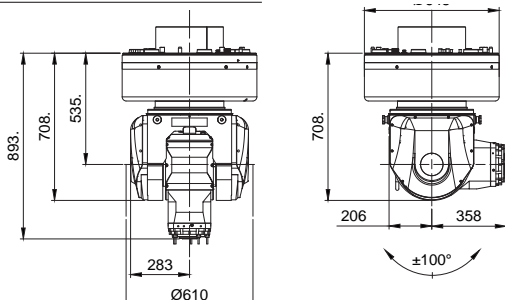
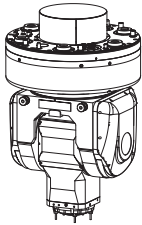
continuous



## MFW-1906/24

S1: 42 kW, 67 Nm; S6: 50 kW, 84 Nm; 24.000/min, HSK-A63

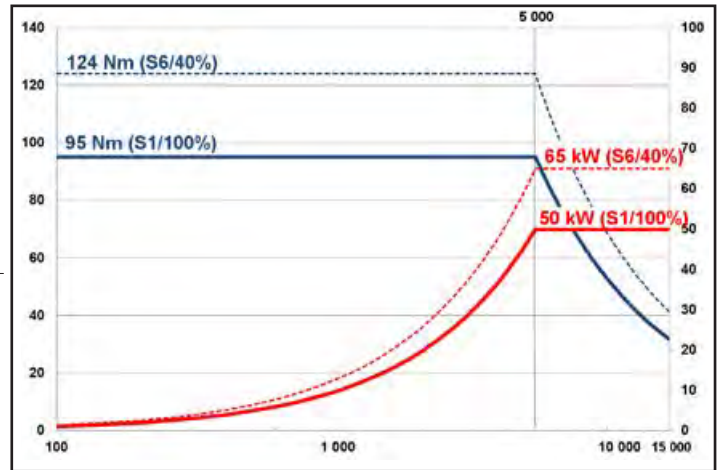
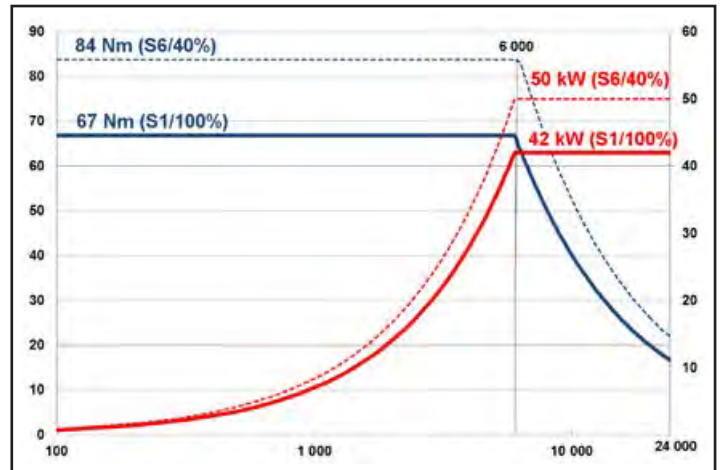
Oběžný průměr / Störkontur / Rotary Outline



## ES510

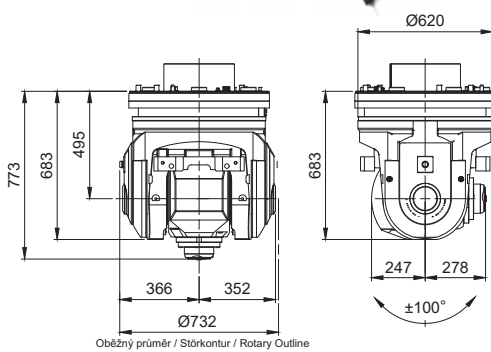
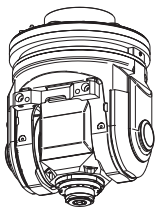
S1: 50 kW, 96 Nm; S6: 65 kW, 124 Nm; 15.000/min, HSK-A100

Oběžný průměr / Störkontur / Rotary Outline



# T21M / T21 CSC

continuous



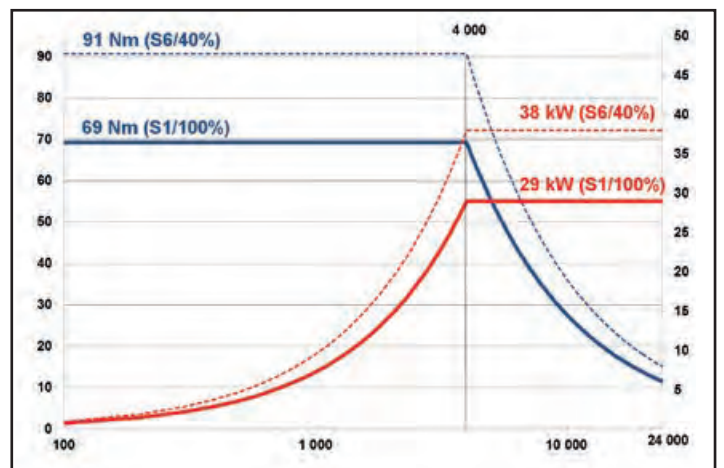
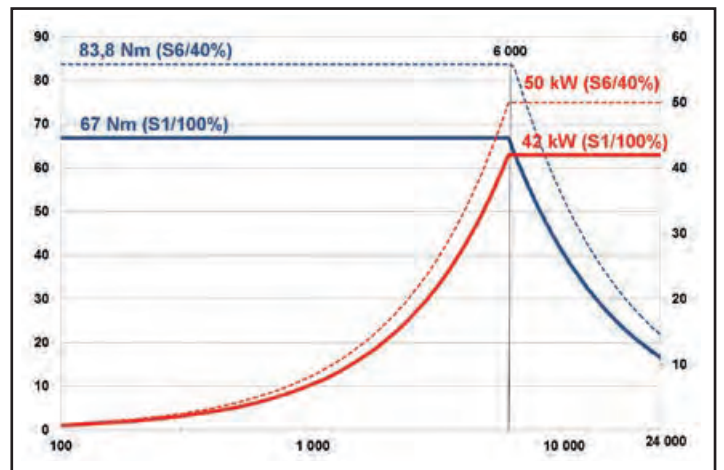
Oběžný průměr / Störkontur / Rotary Outline

## T21M

42kW, 67 Nm, 24.000/min, HSK-A63  
 B axis (milling head): +/-100°  
 C axis (milling head): +/-240°  
 B-axis clamping torque 4.000 Nm  
 C-axis clamping torque 15.000 Nm

## T21M CSC

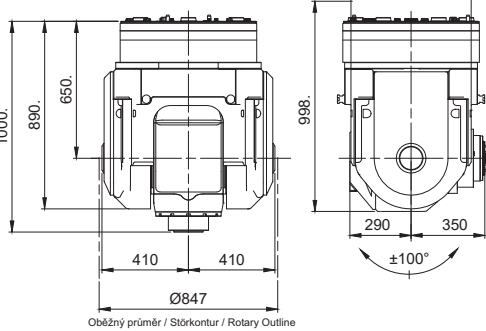
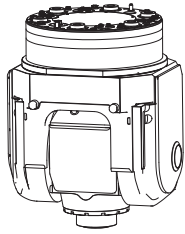
29kW, 69 Nm, 24.000/min, HSK-A63  
 B axis (milling head): +/-100°  
 C axis (milling head): +/-240°  
 B-axis clamping torque 4.000 Nm  
 C-axis clamping torque 15.000 Nm





# T30M / T30M CSC

continuous



## T30M

40kW, 248 Nm, 14.000/min, HSK-A100

B axis (milling head): +/-100°

C axis (milling head): +/-240°

B-axis clamping torque 8.000 Nm

C-axis clamping torque 15.000 Nm

## T30M CSC

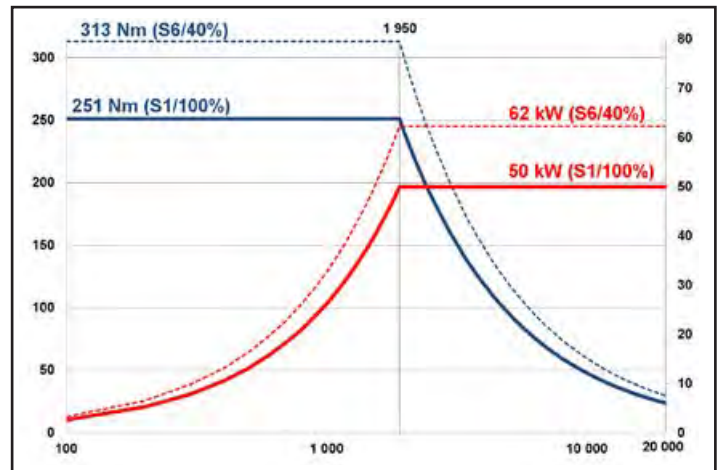
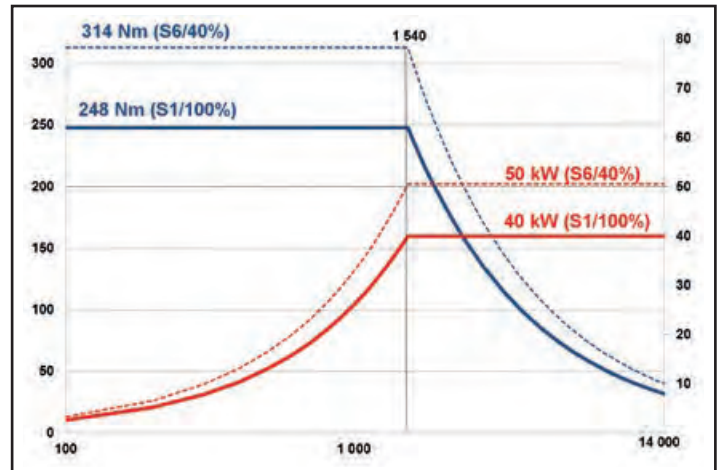
50kW, 251 Nm, 20.000/min, HSK-A100

B axis (milling head): +/-100°

C axis (milling head): +/-240°

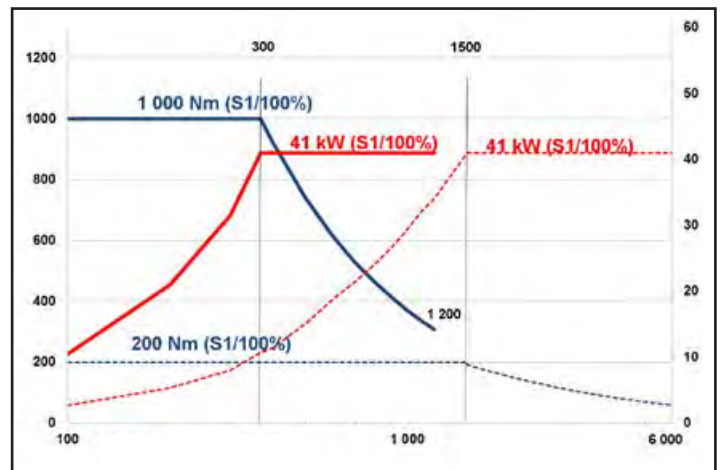
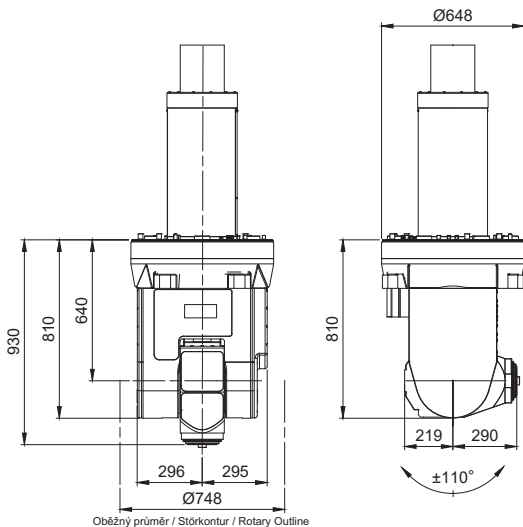
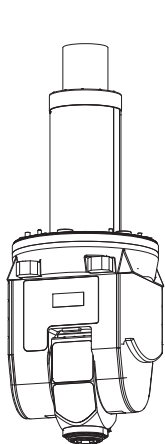
B-axis clamping torque 8.000 Nm

C-axis clamping torque 15.000 Nm



# H3M

positioning



41 kW, 1.000 Nm, 6.000/min

B axis (milling head): +/-105°

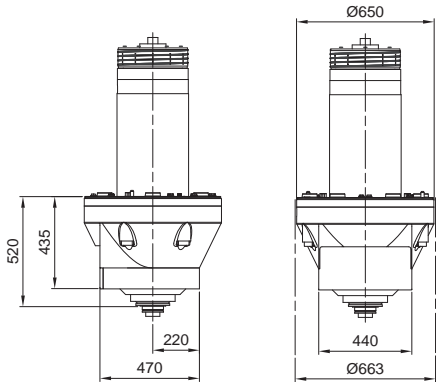
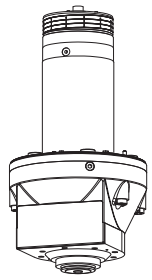
C axis (milling head): +/-240°

B-axis strengthening moment 6.000 Nm

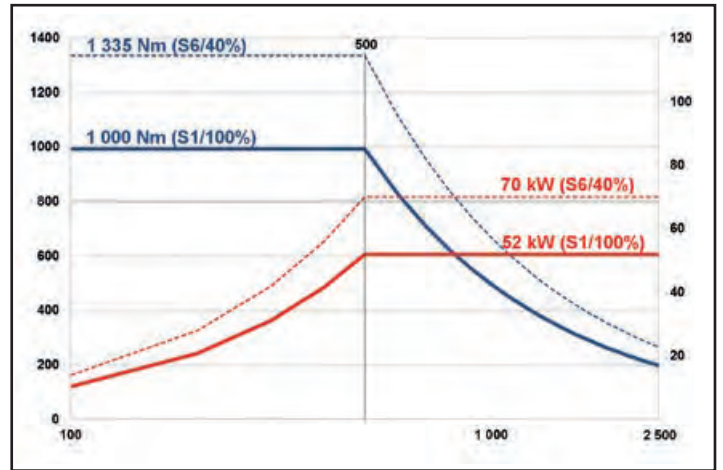
Tool holder: SK-50, HSK-A100

# S1M

straight



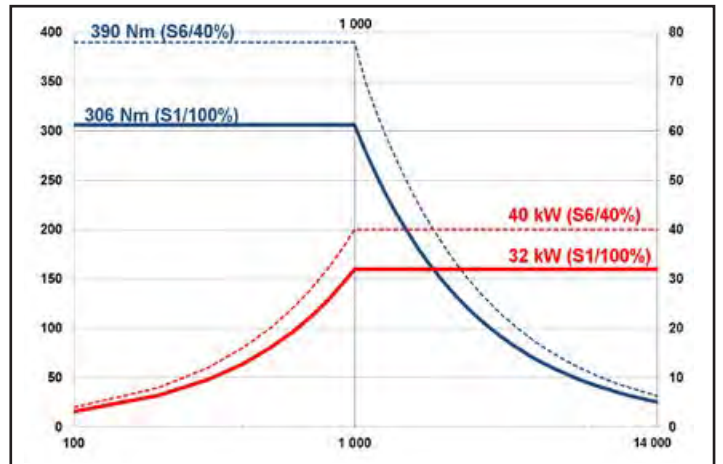
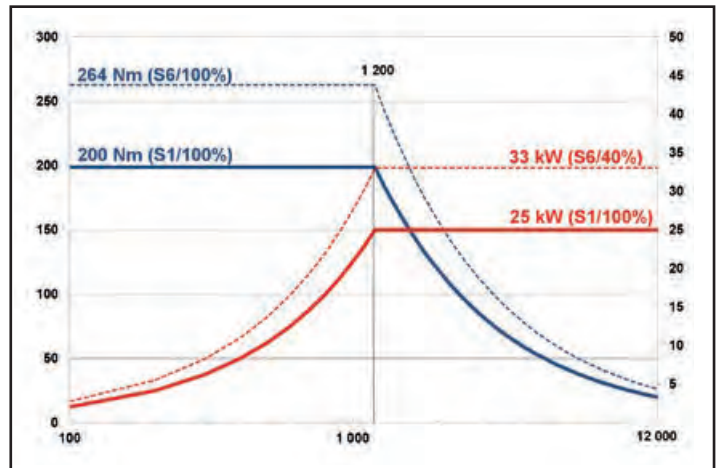
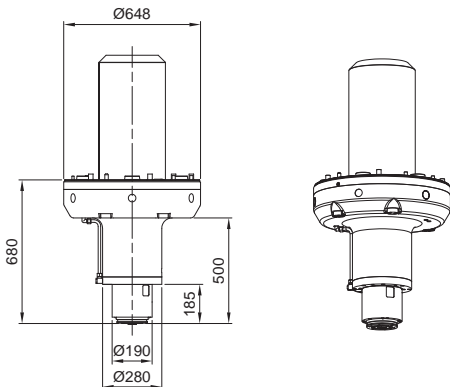
Oběžný průměr / Störkontur / Rotary Outline



52 kW, 1.000 Nm, 2.500/min, HSK-A100

# S2M / S3M

straight



S2M

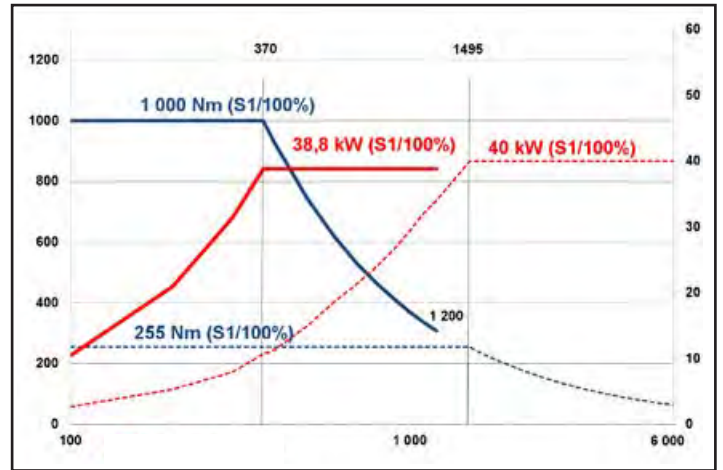
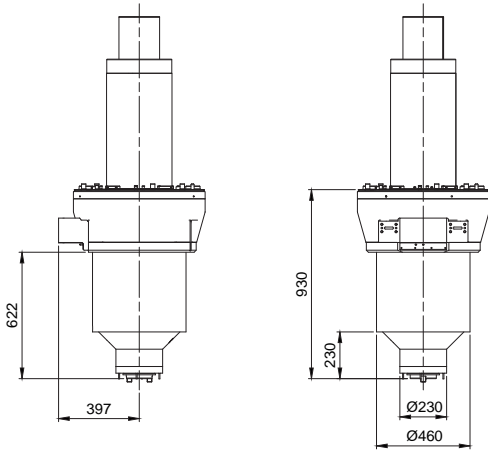
25 kW, 200 Nm, 12.000/min, HSK-A100

S3M

32 kW, 306 Nm, 14.000/min, HSK-A100

# S4M

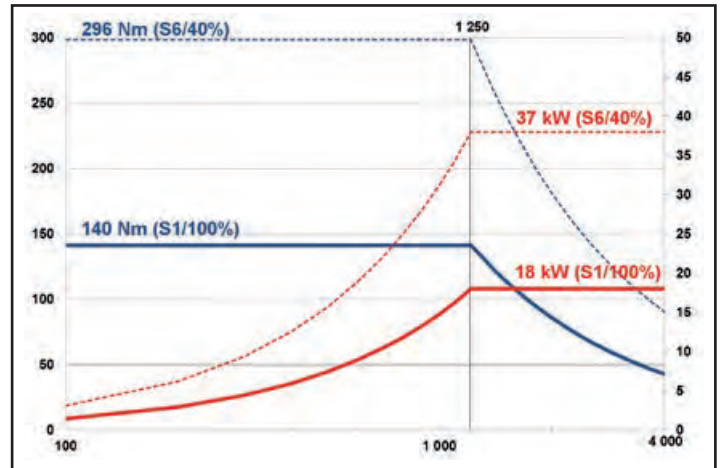
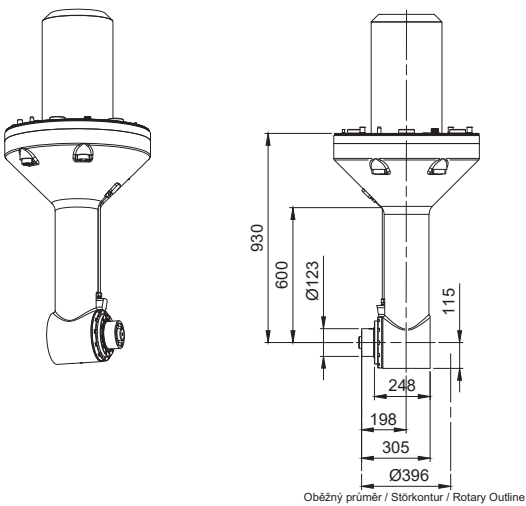
straight



38,8 kW, 1.000 Nm, 6.000/min, HSK-A100

# A2.1M

angled



18 kW, 140 Nm, 3.000/min, HSK-A100







# TRIMILL VM 6545



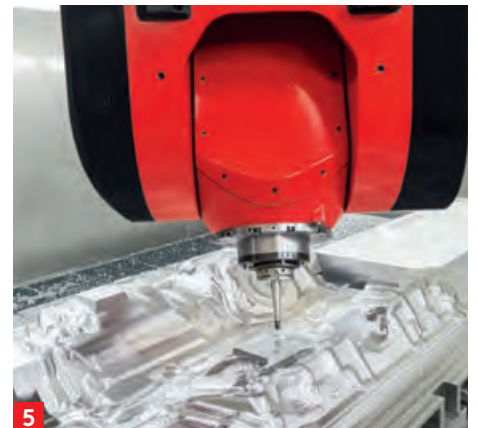
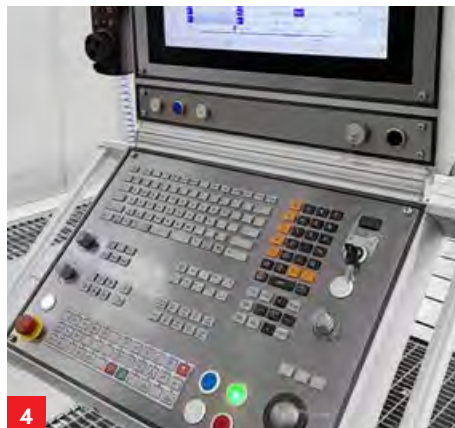
**1** Portal milling machine VM 6545 with automatic milling heads exchange.  
Working travels: X 6.500 mm, Y 4.500 mm, Z 1.500 mm

**2** Automatic tool magazine for 50 tools HSK - A100

**3** Chip conveyor with increased ejection

**4** CNC control system Heidenhain TNC 640 HSCI with color touch screen

**5** Milling head F5M

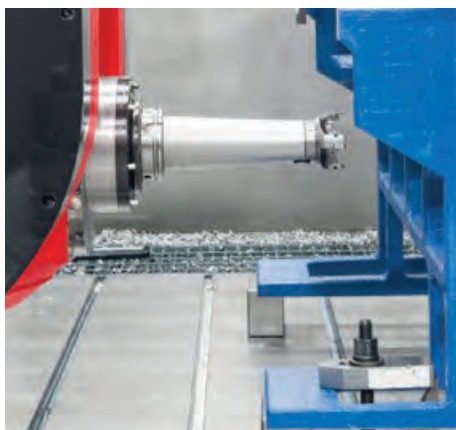




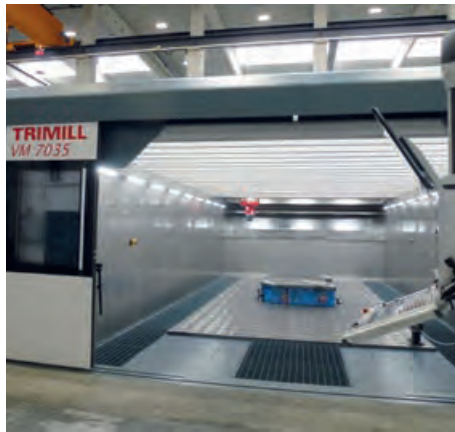
	X	×	Y	×	Z
VM xx35	xxxx	×	3.500	×	1.500
VM 4545	4.500	×	4.500	×	1.500
VM 5545	5.500	×	4.500	×	1.500
VM 6545	6.500	×	4.500	×	1.500
VM xx45	xxxx	×	4.500	×	1.500



# TRIMILL REFERENCE









## ■ AUTOMATIC REPLACEMENT OF MILLING HEADS

- the storage of the machining heads is completely closed and protected from contamination
- the storage is structurally designed for parallel storage of a maximum of 3 machining heads
- the storage location is in the rear of the work area, where it forms the rear wall of the machine
- opening and closing the storage, as well as lifting or depositing the machining head is fully automatic





# STANDARD MACHINE PARAMETERS

		VM 4525	VM 4535	VM 4545
<b>Travels</b>				
The x-axis	mm	4.500	4.500	4.500
Y axis	mm	2.500	3.500	4.500
Z axis	mm	1.500 (1.800)		
<b>Opening in the Z axis</b>	mm	1.530 – 1.990		
Clamping surface	mm	5.000 x 2.800	5.000 x 3.800	5.000 x 4.800
Workpiece weight	kg	98.000	133.000	168.000
Feed rate	mm/ min	40.000		
Acceleration	m/s <sup>2</sup>	3		
<b>Machine dimensions</b>				
Length	mm	10.415	10.415	10.415
Width	mm	7.830	8.830	9.830
Height	mm	6.208		
Machine weight approx.	kg	103.900	109.900	115.800

**gorenje**



**SIEMENS**



**ŠKODA**



**autoneum**



**MouldPro**

# STANDARD MACHINE COMPONENTS

## STANDARD COMPONENTS

## MAKER

<b>Electric spindle</b>	Weiss - Germany, Fischer - Switzerland
<b>Control system</b>	Heidenhain, Siemens - Germany
<b>Electric motors</b>	Siemens - Germany
<b>Measuring</b>	Heidenhain
<b>Toothed combs</b>	Schneeberger - Germany
<b>Linear management</b>	THK - Japan, Schneeberger - Germany, INA
<b>Table</b>	Stolle - Germany
<b>Electrical switchboard</b>	Rittal - Germany
<b>Cooling unit</b>	Rittal - Germany, Eurocold - Italy

# OPTIONAL EQUIPMENT (SELECTION)

TRIMILL Inform

TRIMILL Teleservice

Active temperature stabilization of the machine

Tool magazine ATC 32, ATC 50, ATC 90+

Tool cooling by external + internal liquid

Workpiece probe

Tool probe

Oil mist micro lubrication - internal, external

Video system with display and 2 controllable color cameras

TRIMILL - Kinematics

HR 550 - wireless hand control

Electrically operated top cover of the machine

Extraction of oil mist and cooling emulsion



TRIMILL Inform



TRIMILL Teleservis



ATC 50 tool magazine



Tool cooling liquid external + internal



Workpiece probe



Tool probe



Micro lubrication with oil fog - inner, outer



CCTV System



TRIMILL - Kinematics



HR 550 - wireless hand control



Electrically operated upper machine cover



Oil mist extraction and cooling emulsions



Oil mist extraction and cooling emulsions





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