



VF

VERTICAL MILLING MACHINES

5-axis
with fixed 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

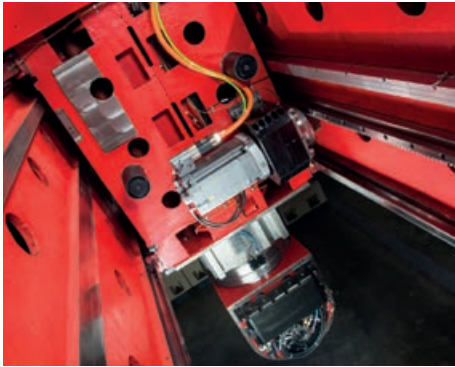
- Tool factories
- Forging shops
- Automotive industry
- Aerospace industry
- Energy industry

The most frequently machined materials on our machines

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

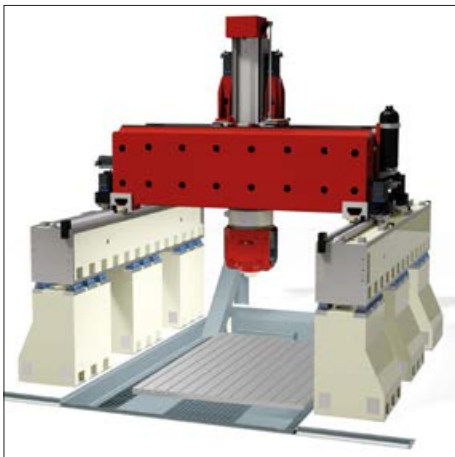
■ TRIMILL PRINCIPLE: BOX-IN-BOX and UHPC

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:

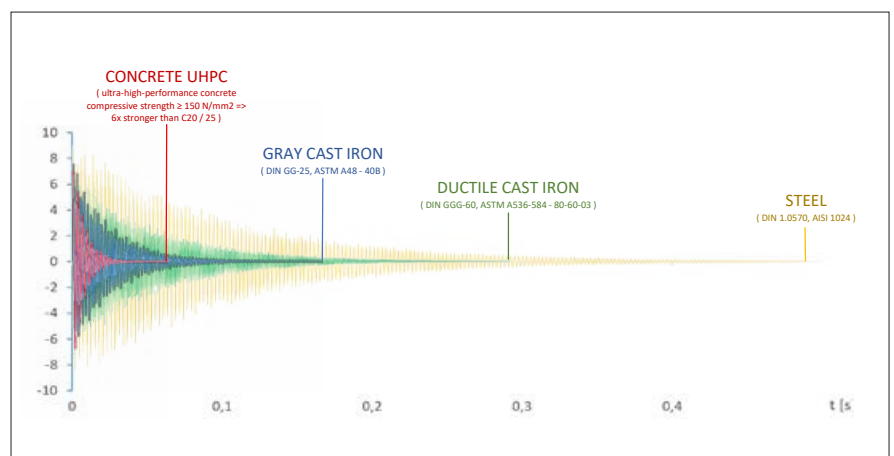
- Consistent milling results thanks to stable thermo-symmetrical arrangement on linear guideways
- Always 4 guides of the cross and vertical support for the machine, preventing the occurrence of the so-called „banana effect“ which deforms/bends the vertical support of the machine
- Increased rigidity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

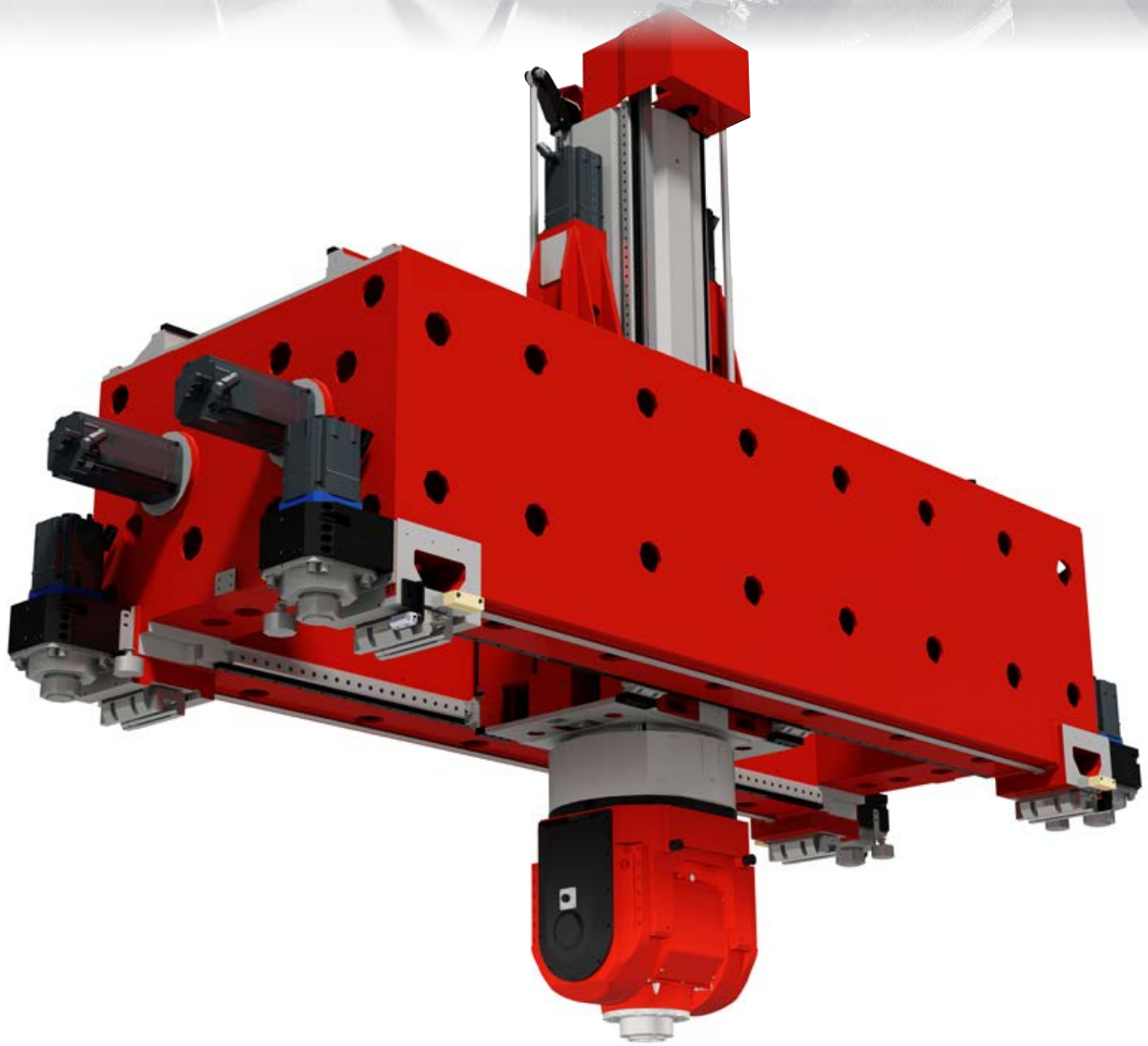


ADVANTAGES OF USING UHPC:

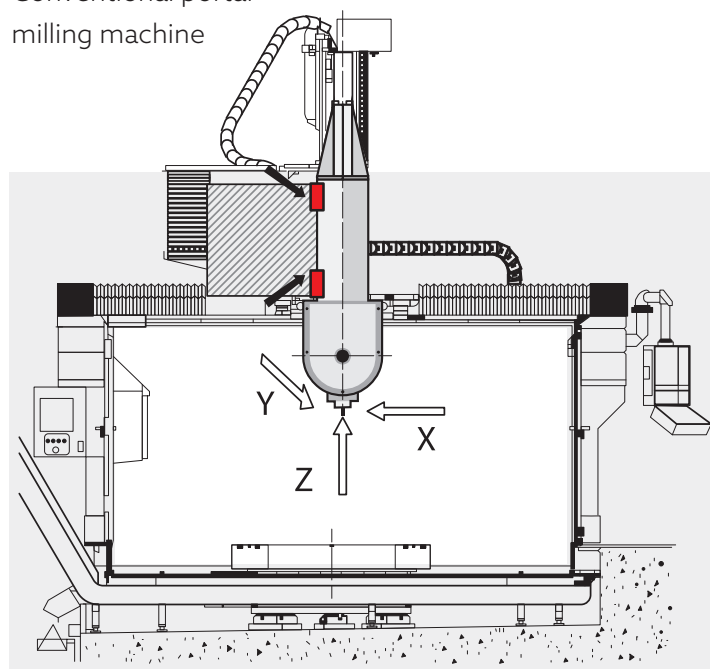
- The columns and longbeams of most TRIMILL machines are made of high-strength concrete (UHPC)
- TRIMILL's VFC machine has whole U-shaped MONOBLOCK base made of UHPC concrete
- Maximum vibration damping and extended tool life
- Low thermal conductivity and high heat capacity resulting in high thermal stability of the machines
- Compressive strength $\geq 150 \text{ Mpa} \Rightarrow$ 6 times stronger than C20/25 concrete
- Production in our own concrete mixing plant

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.

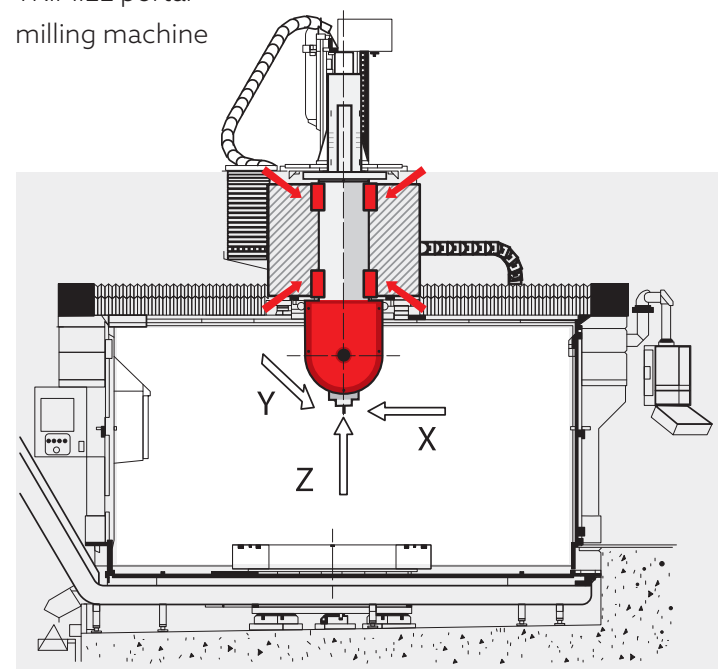




Conventional portal
milling machine



TRIMILL portal
milling machine



TRIMILL VF 3016/3021



- 1 5-axis milling with single clamping using a two-axis milling head
- 2 T30C fork-type milling head for continuous milling with WEISS electric spindle (B- and C-axes)
- 3 Heidenhain TNC 640 HSCI CNC control system with a 19" colour display. Sliding door for access to the machine working area
- 4 Chip conveyors with an elevated chip outlet and a tool magazine





	X	×	Y	×	Z
VF 2216	2.200	×	1.600	×	1.200
VF 2221	2.200	×	2.100	×	1.200
VF 3016	3.000	×	1.600	×	1.200
VF 3021	3.000	×	2.100	×	1.200

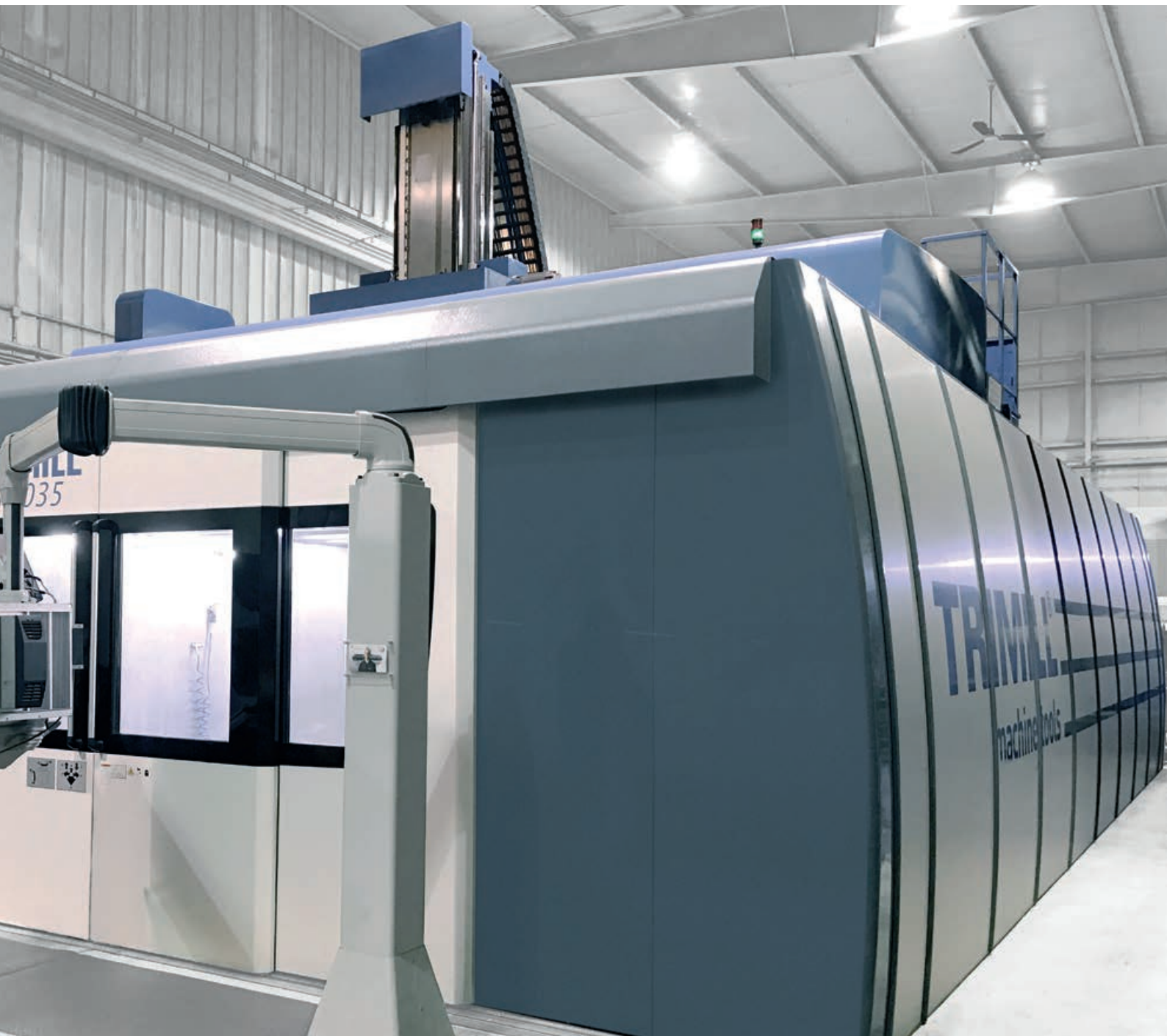
TRIMILL VF 10035



- 1** Customized configuration of TRIMILL VF 10035 machine with X-axis travel of 10.000 mm
- 2** F4F fork-type milling head for continuous milling with WEISS electric spindle (B- and C-axes)
- 3** Special solution of TRIMILL machine with 2 gantries with 2 different U2C and F5F milling heads
- 4** A system of outer machine covers made of composite materials in a modern design (brushed aluminium)



5-AXIS VERTICAL MACHINES

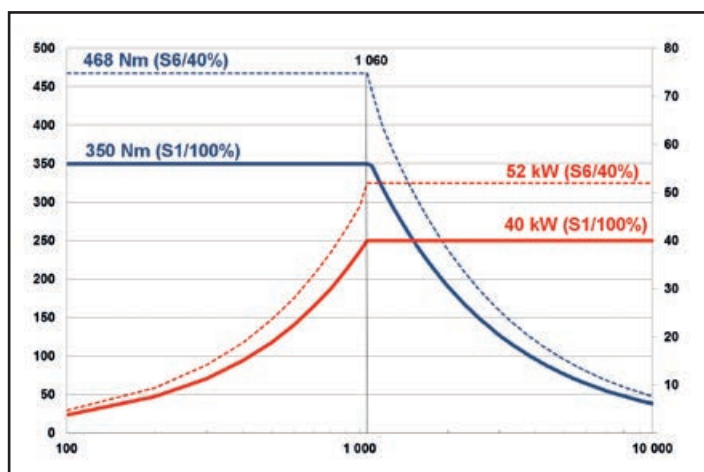
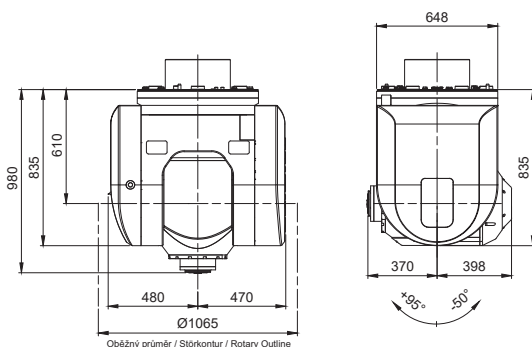
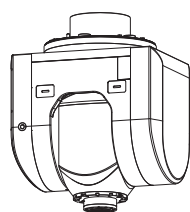


	X	×	Y	×	Z
VF 4525	4.500	×	2.500	×	1.500
VF xx25	xxxx	×	2.500	×	1.500
VF 4535	4.500	×	3.500	×	1.500
VF xx35	xxxx	×	3.500	×	1.500
VF 4545	4.500	×	4.500	×	1.500
VF xx45	xxxx	×	4.500	×	1.500

TRIMILL HEADS

F4F / F5F

continuous / positioning



40kW, 350 Nm, 10.000/min, HSK-A100

B axis (milling head): -50/+95°

C axis (milling head): +/-240°

F4 - continuous milling

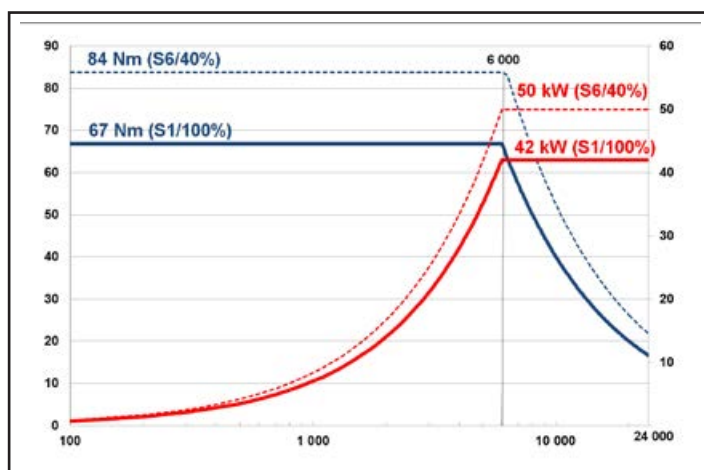
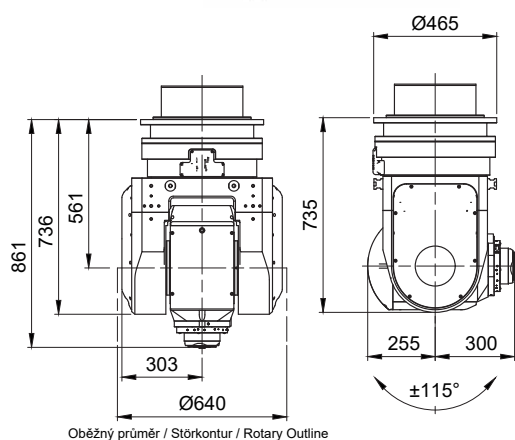
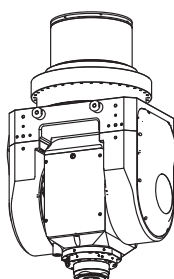
F5 - position milling (step 0,001°)

B-axis clamping torque: 17.200 Nm

C-axis clamping torque: 15.000 Nm

T15C

continuous



T15C

42 kW, 67 Nm, 24.000 ot/min, HSK-A63

B axis (milling head): +/-115°

C axis (milling head): +/-360°

B-axis clamping torque: 5.400 Nm

C-axis clamping torque: 6.120 Nm

T15C

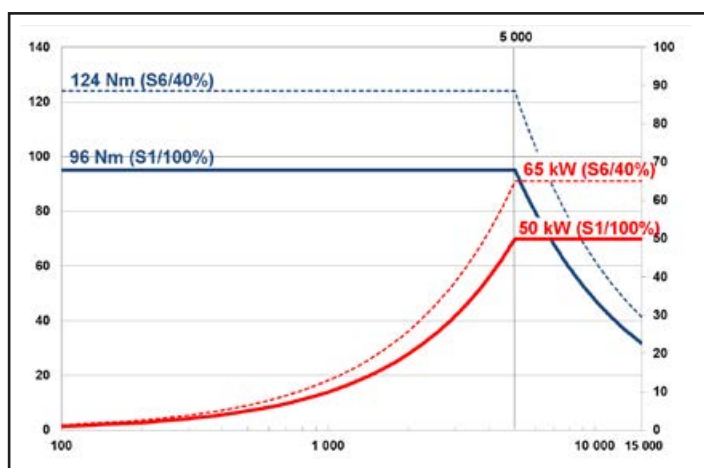
50 kW, 96 Nm, 15.000 ot/min, HSK-A100

B axis (milling head): +/-115°

C axis (milling head): +/-360°

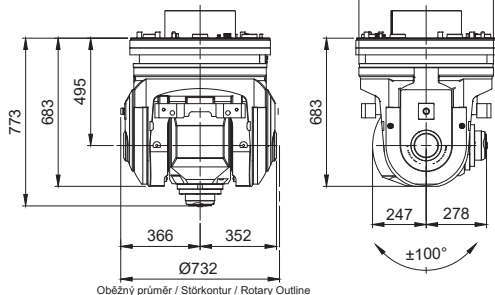
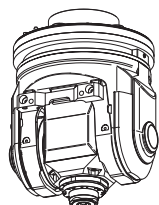
B-axis clamping torque: 5.400 Nm

C-axis clamping torque: 6.120 Nm



T21C / T21 CSC

continuous



T21C

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: 4.000 Nm

T21 CSC

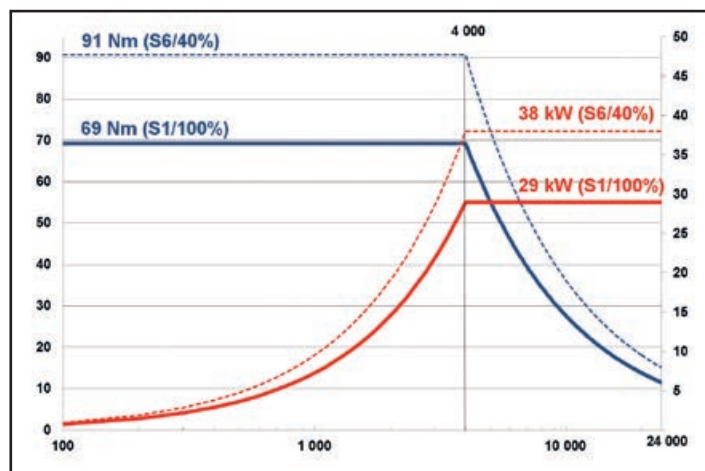
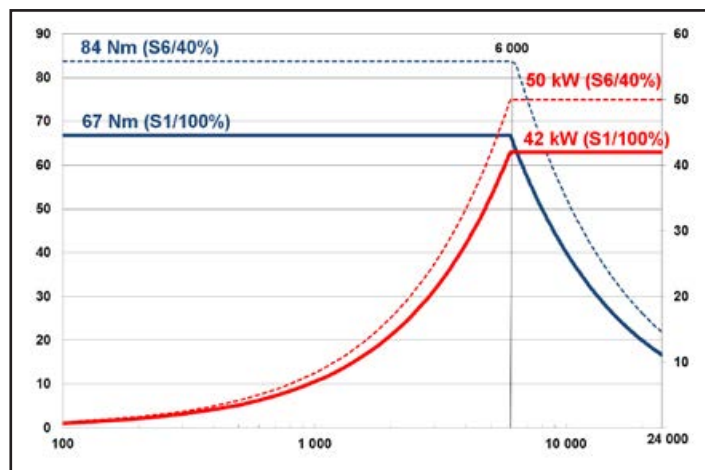
29kW, 69 Nm, 24.000/min, HSK-A63

B axis (milling head): +/-100°

C axis (milling head): +/-240°

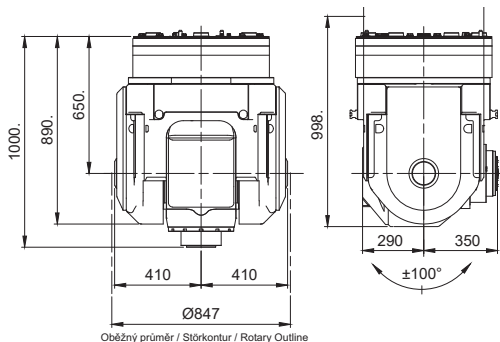
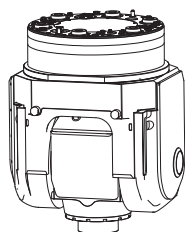
B-axis clamping torque: 4.000 Nm

C-axis clamping torque: 4.000 Nm



T30C / T30 CSC

continuous



T30C

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: 8.000 Nm

T30C CSC

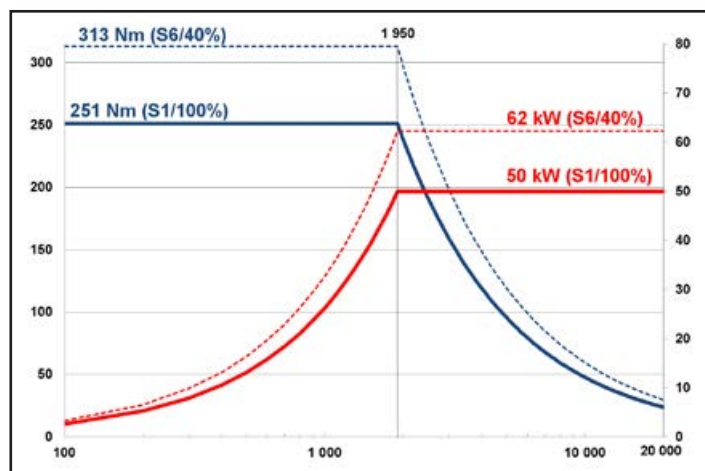
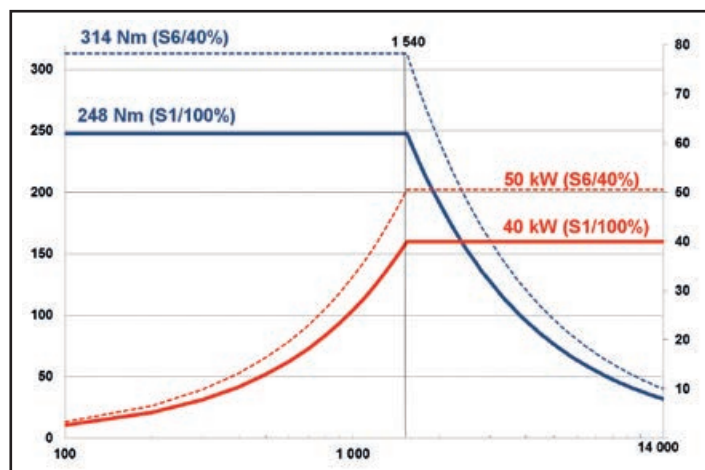
50kW, 251 Nm, 20.000/min, HSK-A100

B axis (milling head): +/-100°

C axis (milling head): +/-240°

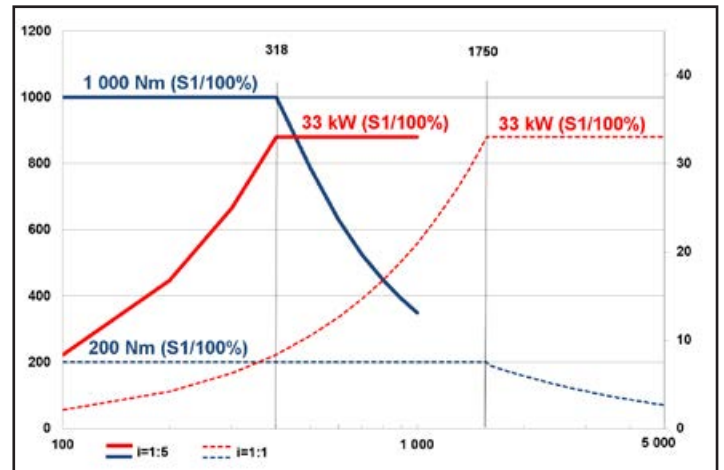
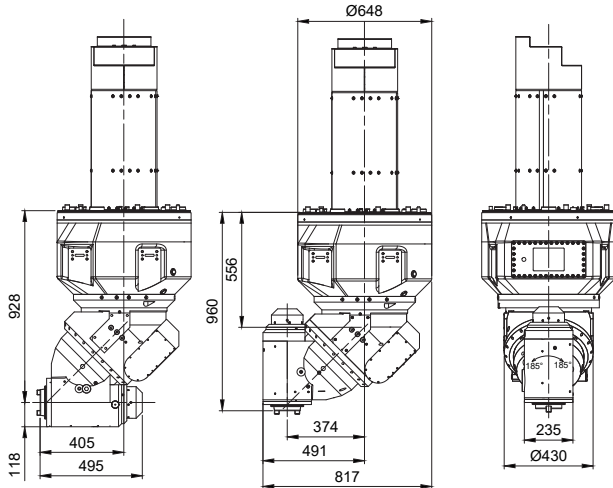
B-axis clamping torque: 8.000 Nm

C-axis clamping torque: 8.000 Nm



U2C

positioning



33 kW, 1.000 Nm, 5.000/min

A axis (milling head): +/- 185°

A-axis clamping torque: 3.000 Nm

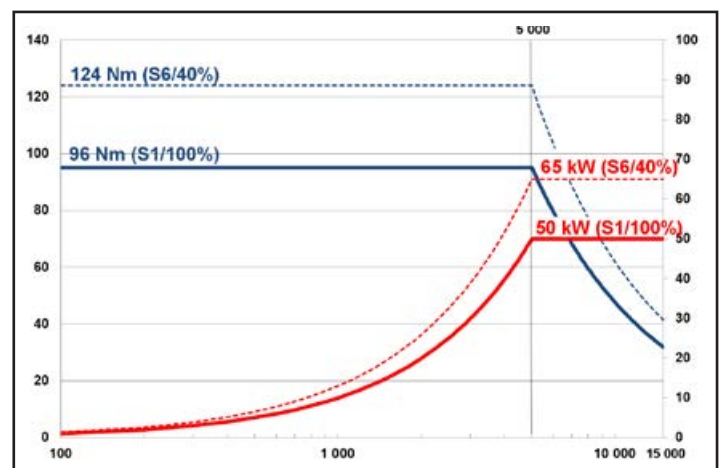
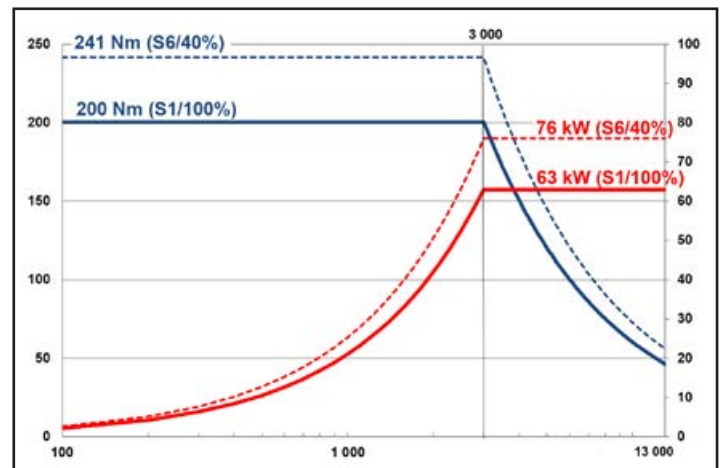
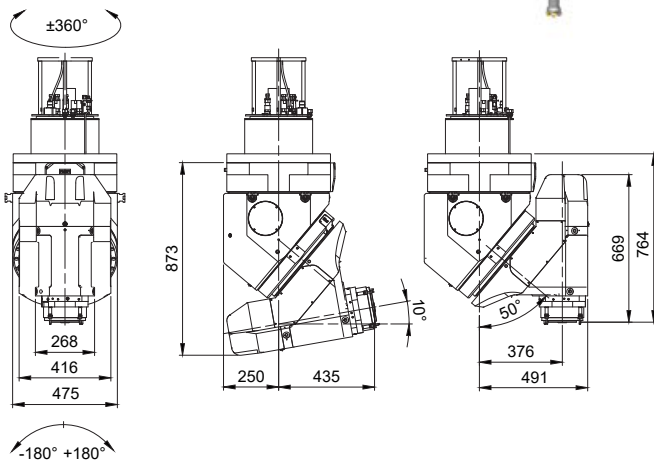
C-axis clamping torque: 6.500 Nm

Positioning step: 0,001°

Tool holder: SK-50, HSK-A100

U3C

simultaneous



U3C

42 kW, 67 Nm, 24.000/min

A axis (milling head): +/- 185°

C axis (milling head): +/- 360°

A-axis clamping torque: 5.400 Nm

C-axis clamping torque: 5.400 Nm

Tool holder: HSK-A63

U3C

63 kW, 200 Nm, 13.000/min

A axis (milling head): +/- 185°

C axis (milling head): +/- 360°

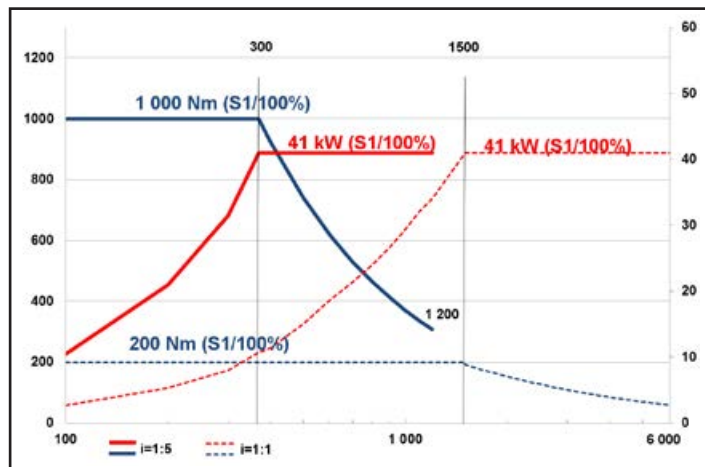
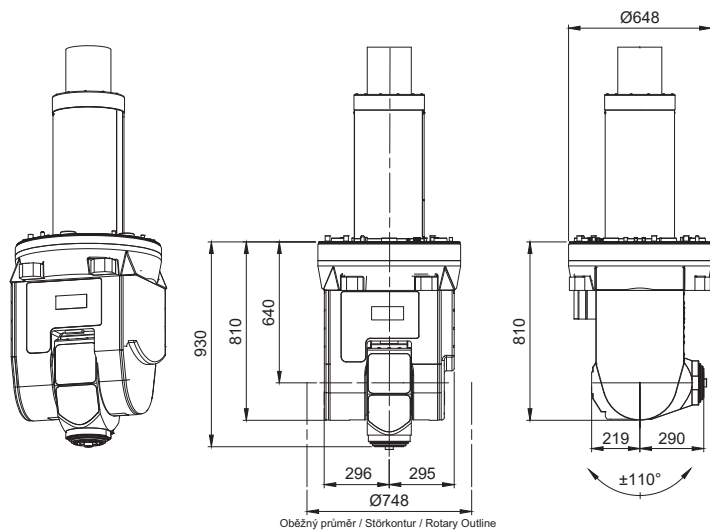
A-axis clamping torque: 5.400 Nm

C-axis clamping torque: 5.400 Nm

Tool holder: HSK-A100

H3F

positioning



41 kW, 1.000 Nm, 6.000/min

B axis (milling head): +/-105°

C axis (milling head): +/-240°

B-axis clamping torque: 6.000 Nm

Tool holder: SK-50, HSK-A100

TRIMILL VFC 3021



- Machine has a single-piece highly rigid MONOBLOCK U-Shaped base with integrated side walls and clamping table
- U-Shaped base is made of UHPC concrete and can be anchored directly to a flat shop floor
- Thermal Stability - UHPC + cooling/heating lines (base, sidewalls, longbeams, table), clamping table made of steel
- BOX-IN-BOX design of cross-beam
- Rapid feed rates of 40.000 mm/min
- Roughing and finishing operations in one set-up
- Stainless steel inside covers
- Very compact machine and accessories
- Machine can be optionally equipped with independent removable rotary table





	X	×	Y	×	Z
VFC 3021	3.000	×	2.100	×	1.200

Table

Fixed clamping table is made of steel					
Clamping surface	3.250 × 2.250 mm				
Workpiece weight	max 7.000 kg/m ²				
13 T-slots in transverse direction	18 mm H12				
Pitch of T-slots	250 mm				

Feed rate

Feed rates X, Y, Z	40.000 mm/min
Acceleration X, Y, Z	4 m/sec ²

Machine accuracy - VDI/DGQ 3441 standard

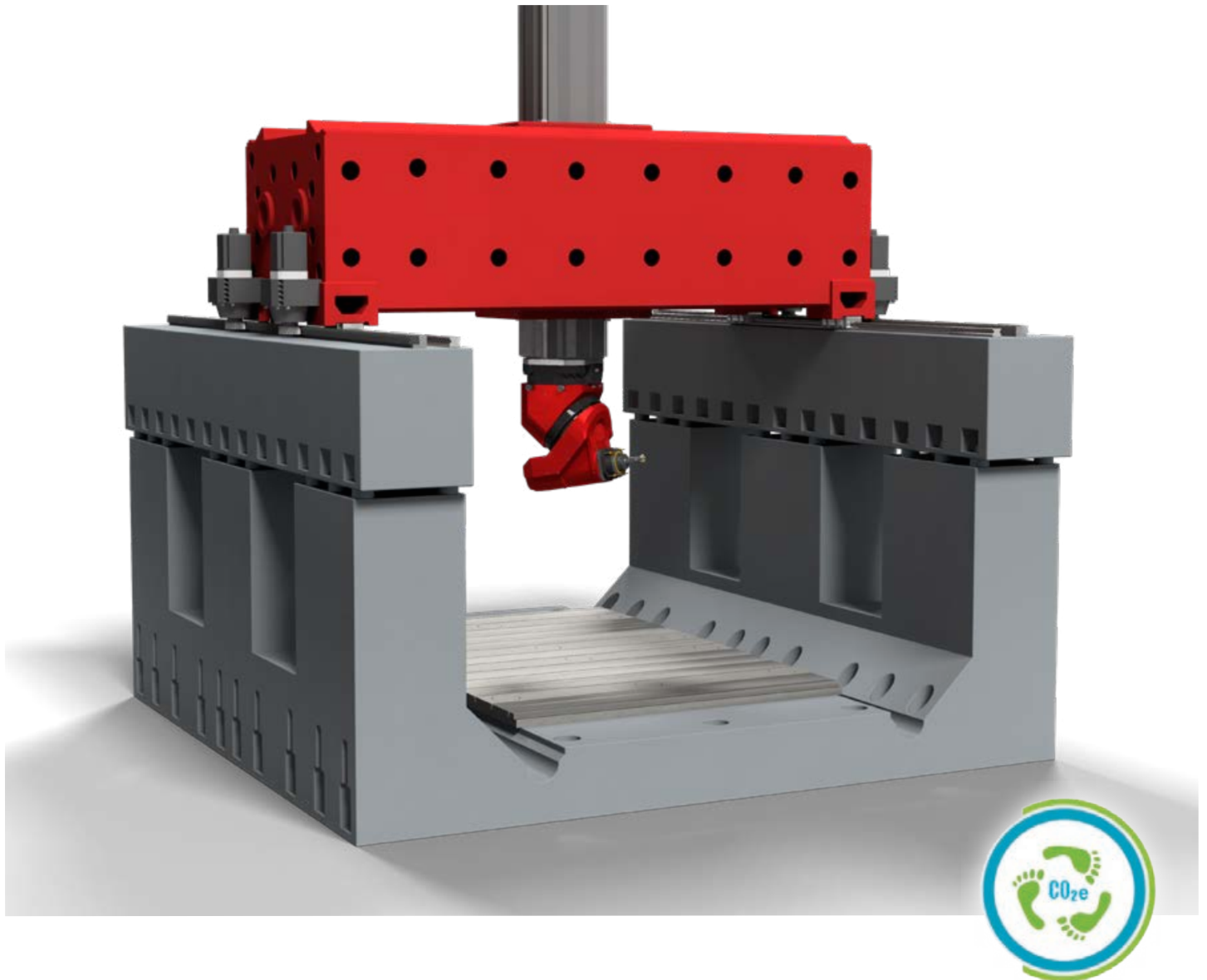
Positioning accuracy P (X,Y,Z)	max. 0,008 mm
Positioning scatter Ps (X,Y,Z)	max. 0,006 mm

Technical data

Machine weight approx.	72.000 kg
Total covered floor area	47,7 m ²



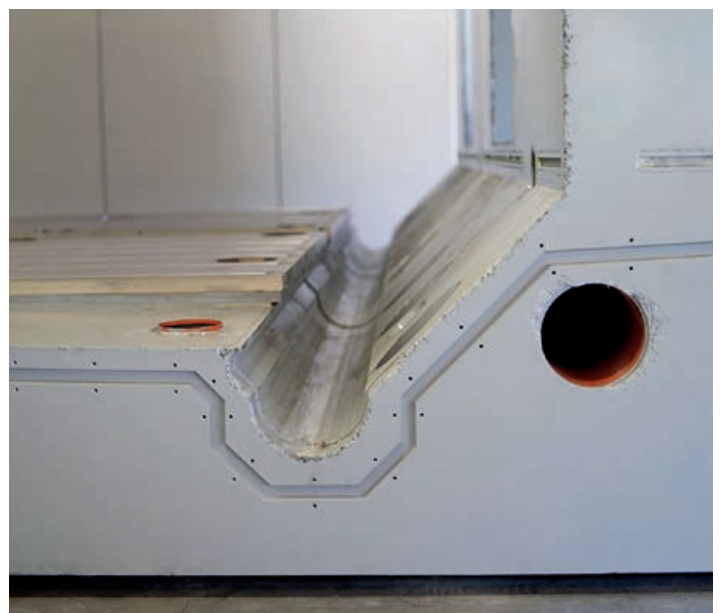
TRIMILL ULTRA-HIGH-PERFORMANCE CONCRETE (UHPC)



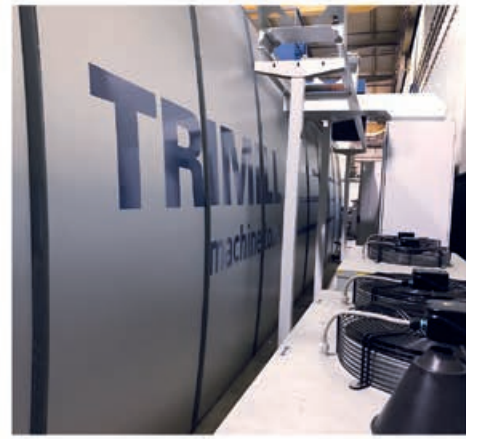
UNIQUE AND ENVIRONMENTALLY-FRIENDLY SOLUTION

If we compare a conventional machine with an overall cast iron supporting structure and TRIMILL's UHPC concrete monoblock with longbeams, TRIMILL saves 56 tons of CO₂e. By producing the UHPC concrete in own concrete mixing plant, TRIMILL saves additional 32 tonnes of CO₂e by limiting need for shipping. In total, by changing the materials from cast iron to UHPC concrete, 88 tons of CO₂e is saved, which corresponds to the annual CO₂ absorption of 3,260 mature trees.

Overall, TRIMILL has reduced the carbon footprint of the supporting structure of VFC machine by 73%!



TRIMILL REFERENCES



■ STANDARD MACHINE PARAMETERS

		VF 2216	VF 3016	VF 3021	VFC 3021
Travels					
The X-axis	mm	2.200	3.000	3.000	3.000
Y axis	mm	1.600	1.600	2.100	2.100
Z axis	mm	1.200	1.200	1.200	1.200
Feed rate	mm/min	40.000			
Fixed machine table	mm	2.700 x 1.750	3.500 x 1.750	3.500 x 2.250	3.500 x 2.250
Workpiece weight	kg/m ²	7.000	7.000	7.000	7.000
Acceleration	m/s ²	4	4	4	4
Machine dimensions					
Length	mm	6.525	7.275	8.230	8.065
Width	mm	4.870	5.295	5.795	7.005
Height	mm	5.160	5.160	5.160	6.245
Machine weight approx.	kg	52.500	58.500	61.100	72.000

■ STANDARD MACHINE PARAMETERS

		VF 3525	VF 4525	VF 4535	VF 4545
Travels					
The X-axis	mm	3.500	4.500	4.500	4.500
Y axis	mm	2.500	2.500	3.500	4.500
Z axis	mm	1.500	1.500	1.500	1.500
Feed rate	mm/min	40.000			
Fixed machine table	mm	4.000 x 2.800	5.000 x 2.800	5.000 x 3.800	5.000 x 4.800
Workpiece weight	kg/m ²	7.000	7.000	7.000	7.000
Acceleration	m/s ²	3	3	3	3
Machine dimensions					
Length	mm	8.065	9.065	9.065	9.065
Width	mm	7.005	7.005	8.005	6.005
Height	mm	6.245	6.245	6.245	6.245
Machine weight approx.	kg	89.300	103.900	109.900	115.800

Solutions for both large and small companies.
Always tailor-made.

gorenje



SIEMENS



ŠKODA



autoneum



MouldPro

STANDARD MACHINE COMPONENTS

STANDARD COMPONENTS

OEM

Electric spindle	Weiss – Germany, Fischer – Switzerland, HSD - Italy, Peron - Italy
Control system	Heidenhain, Siemens – Germany
Electric motors	Siemens – Germany
Measuring Systems	Heidenhain
Rack & Pinion	Schneeberger – Germany
Linear guideways	THK - Japan, Schneeberger, INA - Germany
Table	Stolle – Germany
Electrical switchboard	Rittal – Germany
Cooling unit	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

Czech Republic

TRIMILL, a.s.
Dlouhé díly 447
763 02 Zlín-Louky
Czech Republic
Phone: +420 577 112 111
info@trimill.cz
www.trimill.cz

Czech Republic

TRIMILL, a.s.
Jasenice 2061
755 01 Vsetín
Czech Republic
Phone: +420 577 112 171
info@trimill.cz
www.trimill.cz

Germany

TRIMILL GmbH
Zeissstrasse 6
32052 Herford
Germany
Phone: +49 5221 69 448-0
info@trimill.de
www.trimill.de