

UniForce Series
Big. Strong. Flexible.



UniForce 6: Movable Giants.

UniForce is the large series in the range of SHW tooling machines. It provides travel path variations as well as tables and splash guard panels according to customer specifications.

The travelling column machines in the UniForce series are designed for the heaviest machining jobs and particularly for large workpieces; the single-column concept allows the machining of the most demanding parts in a single set-up. Although the machines are large in size, they are anything but awkward and cumbersome. This means that all our large machining centres can be custom-built, each one according to specific requirements, creating all the necessary conditions to later meet the highest operational standards of machining complexity and productivity!

The machines in the UniForce series have proven themselves to be highly flexible and economical in tool manufacture as well as in single and small-scale machine production.

The UniForce 6 can do the seemingly impossible:

On the one hand, it is so tough and strong that it can even handle workpieces of exceptional dimensions effortlessly.

On the other hand, it also guarantees the highest precision on the long travel paths. The sophisticated SHW head design ensures that the tools reach every part of the workpiece – regardless of how large, complex or cumbersome it may be.

The most important technical data:

Output

- Up to 60 kW
- Speed: maximum of 4,000 min⁻¹

Torque

- Up to 2,400 Nm

Travel paths

X up to 40,000 mm, Y up to 4,100 mm, Z = 1,600 mm



UniForce 7/8 XXL machining expertise.



UniForce 7 and 8 are large machining centres with the travel paths of a gantry machine. The XXL machines master the heaviest cutting jobs and even highly complex, modern machining tasks.

The most important technical data:

Output

- 42 kW at 100 % ED
- 63 kW at 40 % ED
- Speed: maximum of 5,000 min⁻¹

Torque

- Up to 1,800 Nm

Travel paths

- UniForce 7
X up to 40,000 mm, Y up to 5,100 mm, Z = 1,800 mm
- UniForce 8
X up to 40,000 mm, Y up to 6,100 mm, Z = 1,800 mm

The larger the machines, the more important the detailed solutions.



Robot tool changer
tool for the fastest chip-to-chip time and the
highest availability



SHW DuoDrive

- Prevents the tilting of the headstock at parallel passes over the milling table
- The tool is available over the entire length of the table always plano-parallel to the work-piece. (Precision of 1/100 mm at 1,600 mm (1,800 mm) in length)



Ride-along control station height adjustable
from Y = 3,100 mm



Rack and pinion drive in the X-axis for rapid
traverse rates up to 36 m/min and acceleration
up to 2 m/s²



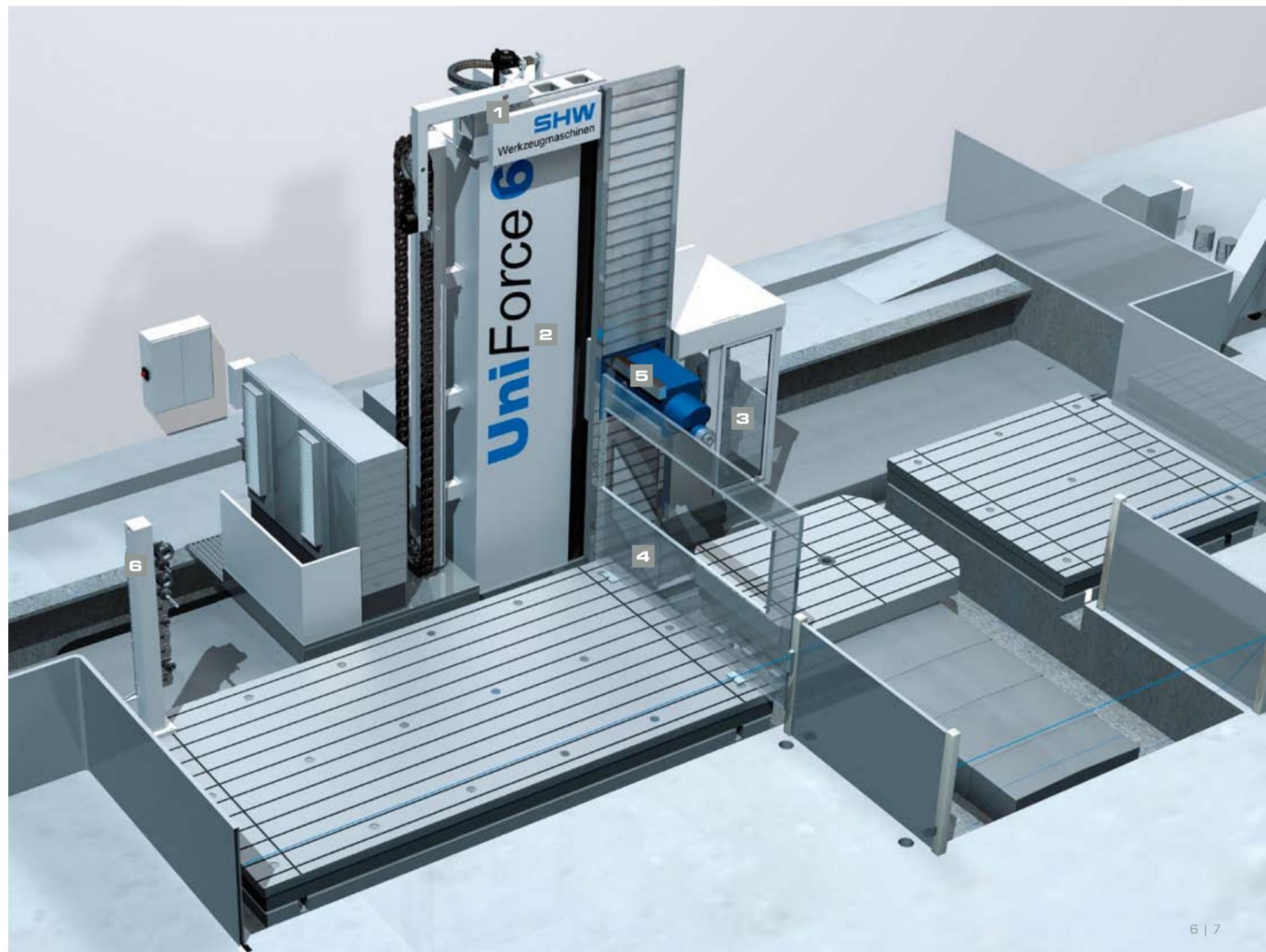
Guide track systems

X-axis: distance between the guide tracks
1,400 mm (UF 7)

Y- + Z-axis: hardened flat track guides; combined
sliding roller guides



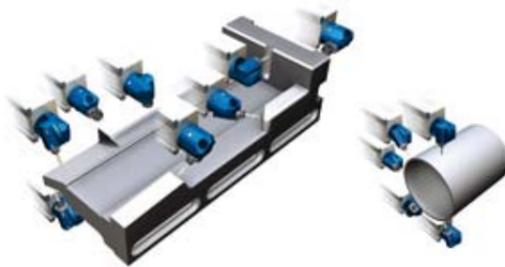
Pick-up station for heavy or oversized tools



Top performance begins in the head. Also in the UniForce series.

- Every SHW machine features the expertise that we have built up over 50 years of manufacturing universal milling heads. The SHW universal head/orthogonal head in the UniForce range comes as standard! As a result, you also get the numerous advantages of this head as standard.
- Due to the universality of the head, 64,800 different machining positions can be achieved. The milling head (A-axis) swivels through 180°, the milling head holder (C-axis) swivels through 360° (in degree increments). Each position is automatically swivelled into and calculated in the NC program.
- In every position of the head:
 - Friction and form-fit connections ensure that the drive power is fully transferred and utilised in every position
 - Can be drilled and milled
 - Every available cycle can be machined
 - Thread-cutting without a compensating chuck is possible
 - Face gear rings are positioned with a pull-down force of 13 tons
 - All energy supplies flow through the head
 - Repeatability is < 0.005 mm

Machining options



Milling head holder

360° x milling head 180° = 64,800
various positions in an imaginary hemisphere can be achieved



One clever head is not enough for us: the automatic head changing system.

The SHW head changing system is designed for those who want to combine the advantages of different machines in a single machine. With this system, we not only offer a universal head exchange interface but also a stepless C-axis, which can be used as a full NC-axis in the program. Our standard heads include:

1 SHW universal head in orthogonal design

Liquid-cooled with a max. speed of 5,000 min⁻¹

2 SHW horizontal head

Standard length 650 mm; also larger if required

3 SHW angle head

in ultra-compact design.

Other heads, such as the fork head for 5-axis simultaneous machining, are part of our standard range. Individual heads for special customer requirements can be custom-made.

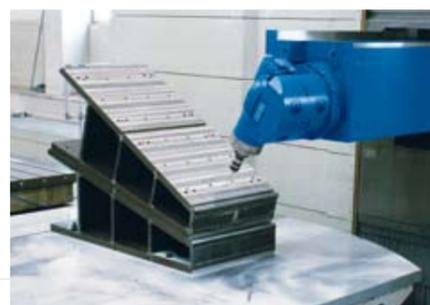
State-of-the-art torque drives in the head change interface and the latest control technology allow simultaneous machining of the C-axis together with the other NC-axes.

The C-axis can be hydraulically clamped in any position – so even the most difficult cutting specifications are no problem.



Compelling references:
UniForce machining examples.

SHW industry expertise:
Specialist versatility.



Energy



Construction machinery



Rails



Gear wheels



Motors

We are consistent in many ways.
By always remaining flexible.

SHW tooling machines represent the famous "Made in Germany" quality claim and – to raise the standard even further – the best performance from Swabia. And we are bound by the fact that our origins are here, our success is grounded here, and we see our future here. In recent years we have grown steadily at our location and we have continued to invest in our company and our employees.

In the future, too, we want to continue to move forward, remain flexible and think ahead. With self-confidence and sound judgement we thus create the conditions to meet our customers' needs in the future, assert our position as a technological market leader and take a firm step forward.

Those who come to us get much more than a mere machine.

Our machines have a considerable impact on the processes of our customers. That is why we bear a great deal of responsibility and thus approach each project holistically. We see the task you set us as a challenge. Our aim is to develop and implement the best solution for each situation – and that involves far more than "just" an excellent machine.

Personal liaison and support from the outset

- With us, each customer gets "his own" project team, which stands by his side from the outset and also provides him with advice on the structural design.

"Turn-key" machines

- The machine that we hand over to you is immediately fully operational.

Training

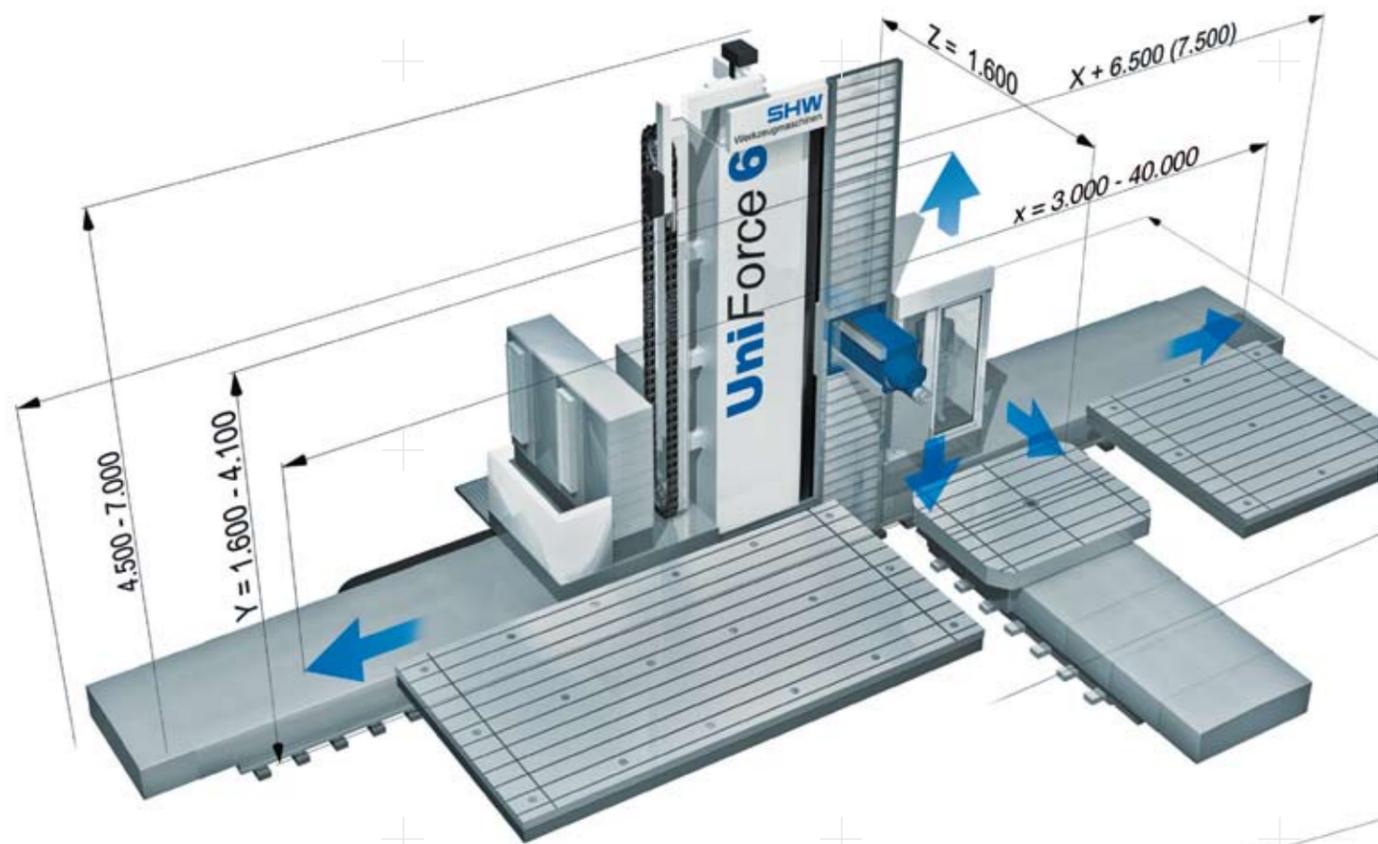
- We provide your operating staff with comprehensive training so that you can take full advantage of all the capabilities of your SHW machine. Our support begins with basic programming courses and extends to production support.

Service - for the life of the machine

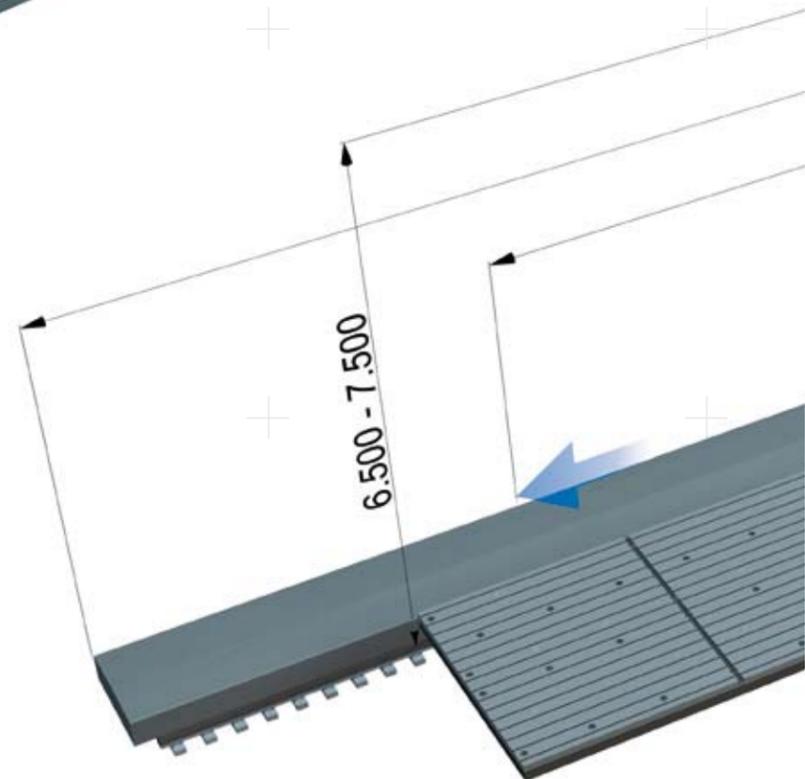
- After commissioning, we continue to provide support for customers' machines. Your SHW service technician will look after and maintain your machine over its lifetime, and will make regular on-site visits.
- We provide the fastest possible service – worldwide.
- All SHW machines are capable of remote diagnosis – a service tool that you can use without additional expense.



Technical data



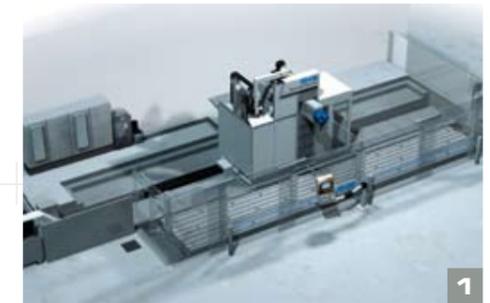
UniForce 6



UniForce 7/8

The SHW modular system for all-inclusive, customisable solutions.

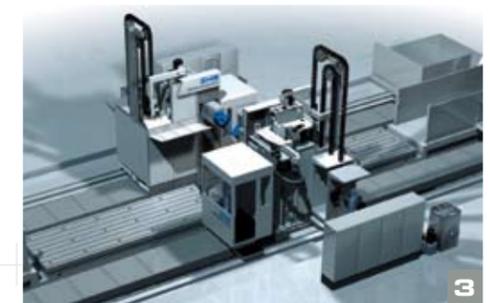
Our sophisticated modular system enables us to respond to your demands with extreme flexibility. The machining modules can be combined with variable bench assemblies. This means that we can design all work areas to meet your specific needs. You also benefit from our years of experience. You receive a workpiece-specific solution that ensures cost-effective production.



1



2



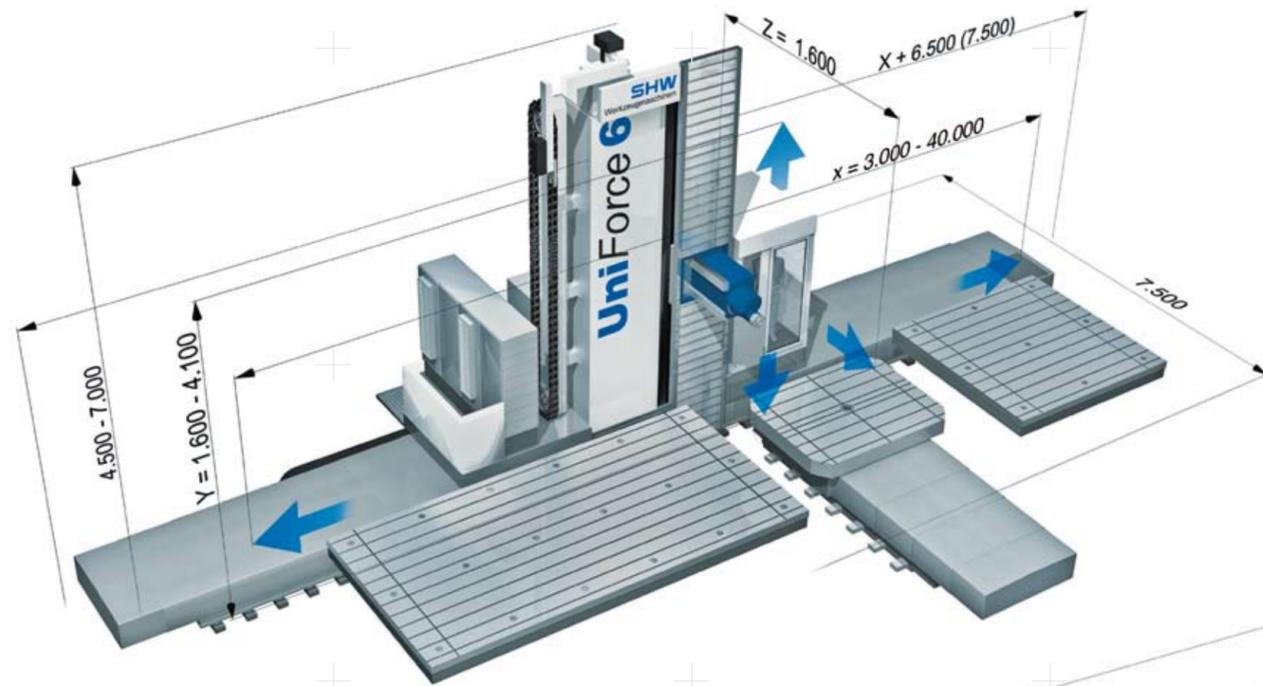
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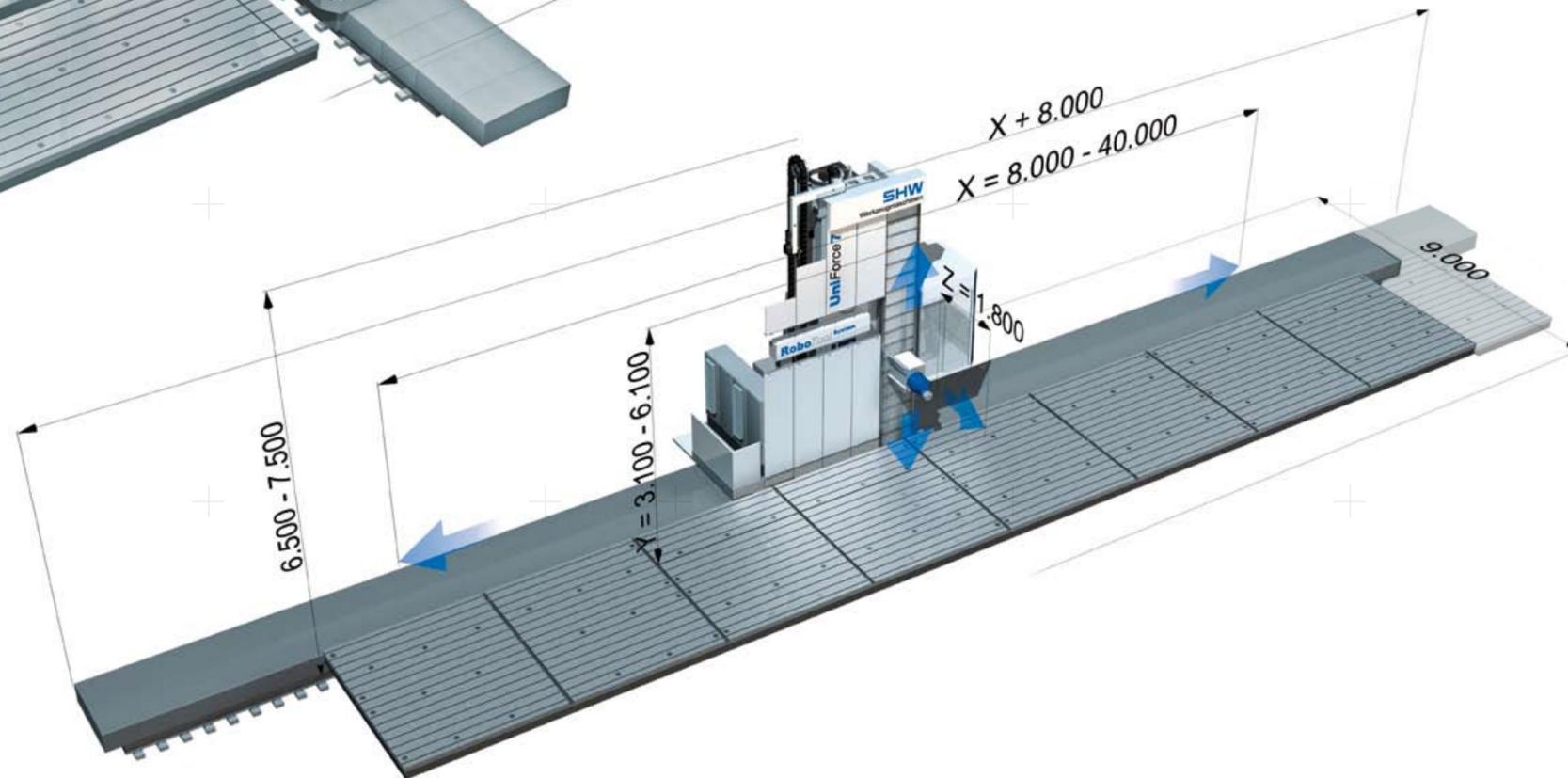
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- 1 Classic with face plate
- 2 Face plate with integrated rotary table
- 3 Double column system
- 4 Fully enclosed

Technical data



UniForce 6



UniForce 7/8

		UniForce 6	UniForce 7	UniForce 8
Machining area/travels				
X-axis [horizontal lengthwise]	mm	3,000 – 40,000	8,000 – 40,000	8,000 – 40,000
Y-axis [vertical]	mm	1,600 – 4,100	3,100 – 5,100	3,100 – 6,100
Z-axis [horizontal crosswise]	mm	up to 1,600	up to 1,800	up to 1,800
Travelling speeds				
Feed rates X, Y, Z	mm/min	2 – 36,000	2 – 36,000	2 – 36,000
Rapid traverses X, Y, Z	mm/min	up to 36,000	up to 36,000	up to 36,000
Acceleration	m/s ²	up to 2	up to 2	up to 2
Drive power				
Speed ranges	kW	37 – 40 – 60	up to 63	up to 63
	min ⁻¹	22 – 4,000	22 – 5,000	22 – 5,000
Tool holder				
Optional		SK 50 DIN 69871 HSK 100 A DIN 69893	SK 50 DIN 69871 HSK 100 A DIN 69893	SK 50 DIN 69871 HSK 100 A DIN 69893
Table assemblies				
Clamping surface	Machine table mm	500 mm segments longitudinal and cross	500 mm segments longitudinal and cross	500 mm segments longitudinal and cross
Rotary tables				
Clamping surface	fitted or separate mm	Diameter 1,000 up to customer requirements	Diameter 1,000 up to customer requirements	Diameter 1,000 up to customer requirements
Cross movement (W-axis)	mm	1,000 – 3,000	1,000 – 3,000	1,000 – 3,000
CNC System				
		Siemens and Heidenhain	Siemens and Heidenhain	Siemens and Heidenhain
ATC				
Number of pockets		48, 66, 90, 120, 150	70, 90, 120, 150	70, 90, 120, 150
Pick-up system				
		for oversized and special tools depending on customer requirements	for oversized and special tools depending on customer requirements	for oversized and special tools depending on customer requirements

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