

MILLING HEAD

NC universal spindle unit with integrated A-axis UNIMSP 12 – 63

Drive	direct = motor spindle
Tool fitting	HSK-A63, DIN 69893
Power	25 kW
Milling spindle torque	max. 120 Nm
Milling spindle speed	max. 16000 min ⁻¹

NC universal spindle unit with integrated A-axis UNIMSP 33 – 100

Drive	direct = motor spindle
Tool fitting	HSK-A100, DIN 69893
Power	70 kW
Milling spindle torque	max. 330 Nm
Milling spindle speed	max. 10000 min ⁻¹

Vertical spindle unit VSP 50 – 63

Drive	indirect, by means of the main spindle motor of the machine
Tool fitting	HSK-A63, DIN 69893
Power	30 kW
Milling spindle torque	max. 500 Nm for i=4 max. 190 Nm for i=1
Milling spindle speed	max. 5000 min ⁻¹

**Vertical spindle unit VSP 107 – 100
(alternatively VSP 107 – 50)**

Drive	indirect, by means of the main spindle motor of the machine
Tool fitting	HSK-A100, DIN 69893 (alternatively SK 50, DIN 69871)
Power	46 kW
Milling spindle torque	max. 1070 Nm for i=4 max. 290 Nm for i=1
Milling spindle speed	max. 3500 min ⁻¹

Horizontal spindle unit HSP 50 – 63

Drive	indirect, by means of the main spindle motor of the machine
Tool fitting	HSK-A63, DIN 69893
Power	30 kW
Milling spindle torque	max. 500 Nm for i=4 max. 190 Nm for i=1
Milling spindle speed	max. 3500 min ⁻¹

**Horizontal spindle unit HSP 107 – 100
(alternatively HSP 107 – 50)**

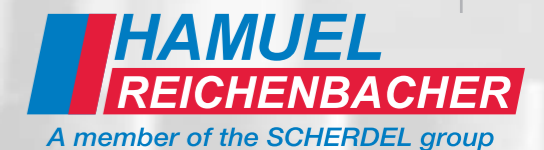
Drive	indirect, by means of the main spindle motor of the machine
Tool fitting	HSK-A100, DIN 69893 (alternatively SK 50, DIN 69871)
Power	46 kW
Milling spindle torque	max. 1070 Nm for i=4 max. 290 Nm for i=1
Milling spindle speed	max. 3000 min ⁻¹

Subject to technical changes and further development.



CNC Portal Milling Machines
HAMUEL
HSM Series

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CNC Portal Milling Machines **HAMUEL** HSM Series



CNC portal milling machines HSM series

Equipped with the most modern of drive and control engineering, the HAMUEL portal milling machines make it possible to maximise productivity and enable the greatest possible flexibility in the processing of:

- steel
- cast materials
- fine zinc alloys such as ZAMAK, KIRKSITE etc.
- aluminium
- brass alloys
- plastics such as UREOL etc.
- wood

These machines are mainly used:

- aerospace industry
- automotive industry
- model and mould making industry
- mechanical engineering industry
- tool-making industry
- contract production

Machine specifications:

The specifications depend exclusively on the customer's requirements, ie machining centres in GANTRY design are available for large parts or finished body shells. The working travel X is variable according to the customer's needs.

Optimal tool adjustment with two swivel-mounted CNC rotary axes

In order to optimise the positioning of the tool to the workpiece, both rotary axes are integrated as follows: the C-axis in the Z-axis and the A-axis in the fork head assembly.

This solution makes an extremely short tensioning length possible for the tool. In turn this guarantees optimal cutting conditions during the milling process. A further advantage of this design is the best possible avoidance of vibration leading to improved quality in the workpiece and reduced stresses in the machine.

Trouble-free non-stop operation

The liquid-cooled main drive spindles and milling spindle guarantee stability of temperature and performance during non-stop operation.

Linear axis guides

The movements of the axes X, Y and Z are carried out by means of pretensioned roller-bearings on hardened and ground guides.

Machine automation improves cost-effectiveness and makes multi-machine operations possible

The machine automation includes, among others, the following functions:

- tool change
- changing the milling-head
- laser measurement of the tool
- zero point adjustment of the workpiece
- workpiece measurement
- video monitoring

Due to automated peripheral functions the machine works on appropriate workpieces without personnel enabling multi-machine operation as the operating personnel only has monitoring tasks. An additional advantage is that time-consuming finishing work can be carried out during the night or at the weekend.

Complete processing of workpieces in one clamping operation

High-performance roughing-work and highly dynamic finishing work allow optimal accuracy. A further advantage is the time saving when the workpieces are completely processed in one clamping operation, ie processing from 5 sides as well as wet or dry processing as necessary.

High-Speed-Cutting (HSC) machine

Carefully selected milling-head systems, high-speed motor spindles combined with the extremely rigid machine construction make this generation of machines high-tech products in terms of high-speed machining. The increasing use of light metals and plastics requires new processing parameters which take the requirements of the material into greater consideration. Here the key to success is High-Speed-Cutting, the high-speed milling technology.

Drastically reduced processing times thanks to HSC-Technology

More and more efficient cutting materials can be employed due to the HSC-Technology which leads to drastically reduced processing times. Apart from the cost advantages obtained in this way, at the same time an improved surface quality is achieved and, in most cases additional reworking is not necessary.

TECHNICAL DATA

CNC Portal Milling Machines **HAMUEL** HSM Series

MILLING MACHINE

HSC-milling machine, 5 axes, **fixed fork head**, UNIMSP 12-63

LINEAR AXES	RAPID MOTION	FEED
X-axis	max. 30 m/min	max. 20 m/min
Y-axis	max. 30 m/min	max. 20 m/min
Z-axis	max. 20 m/min	max. 20 m/min

SWIVELLING AXES	SWIVELLING RANGE	SWIVELLING SPEED
C-axis	± 200°	max. 45°/sek
A-axis	± 110°	max. 35°/sek

OPTION:

HSC and universal milling machine, 5 axes, **interchangeable milling heads**, main spindle motor with standard transmission.

LINEAR AXES	RAPID MOTION	FEED
X-axis	max. 30 m/min	max. 20 m/min
Y-axis	max. 30 m/min	max. 20 m/min
Z-axis	max. 20 m/min	max. 20 m/min

SWIVELLING AXES	SWIVELLING RANGE	SWIVELLING SPEED
C-axis	± 200°	max. 45°/sec
A-axis	dependent on milling head	dependent on milling head

Main spindle drive with standard transmission 1 : 1 / 1 : 4

Power	30 kW	alternatively 46 kW
Revolution	max. 5000 for i=1 max. 1250 for i=4	max. 4000 for i=1 max. 1000 for i=4

Both machines are available in table and gantry versions

	TABLE VERSION	GANTRY VERSION
Working range		
X-axis	max. 6000 mm	max. 25000 mm
Y-axis	max. 4000 mm	max. 4000 mm
Z-axis	max. 2000 mm	max. 2000 mm
Table size	max. 6000 x 3500 mm	max. 25000 x 3500 mm
Table height	840 mm	
Work piece weight	max. 10 t	dependent on machine
Clearance between columns	max. 4200 mm	max. 4500 mm
Clearance under spindle	max. 2000 mm	max. 2500 mm