



UNISIGN

Unicom 6000

4-Axes CNC Turning & Milling
Machining Centre



Unicom 6000

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The economical solution to flexible complete machining!

The UNICOM 6000 represents the latest generation of UNISIGN machining centres for combined milling, drilling and vertical turning operations. This highly flexible and powerful machining centre for complete machining results from the continuous development of vertical machining centres over a period of more than 25 years.

The concept of UNICOM 6000 is based on a moving table with integrated carousel turning station and an interface that can receive pallets of up to 1.800 mm in diameter. The table movement is designated as Y-axis and it runs underneath a traverse with cross slide and spindle carrier. The movements of cross slide and spindle carrier are designated as X- and Z-axis respectively.

Powerful servo drive systems allow for highest dynamical values, offering **30 m/min.** of rapid traverse and **3 m/s²** of acceleration and deceleration *in all axes*. Positioning times as well as tool- and head change times are thus reduced to an absolute minimum. The standard pallet changer with two pallets reduces set-up times by allowing loading and unloading parallel to the machining cycle.

The carousel turning station is powered by two drive units, each one consisting of an integrated water cooled drive motor with two-stage gearbox. The individual drive units are mounted on either end of the moving table, underneath the Y-axis steel telescope covers. Alternative to turning operations, the turn table may also be utilized as a highly accurate C-axis rotary table.

The milling and drilling spindle is configured as a cartridge type spindle that is integrated in the lower end of the spindle carrier. The spindle drive unit consists of a water cooled main drive motor with 2-stage gearbox that is installed in the upper end of the spindle carrier. The drive unit is connected to the milling and drilling spindle via a central drive shaft. For horizontal milling and drilling operations, the Unisign right angle head can be automatically attached to the spindle nose. Alternatively, a universal angular head can be supplied with the machine to allow positioning of the spindle in two axes (A- and C-axis, in 5° increments).

The chain type tool magazine offers space to 80 milling, drilling and turning tools with HSK 100 interface. Opposite the tool magazine a pickup station is located for the turning tool adapter and the right angle head (or the universal angular head).

For highest operating comfort and safety, the machine is equipped with a fully enclosed guarding section. An operator access door with large window is located sideways on the front of the machine, close to the machine spindle. The control panel with integrated CNC-control is located next to this access door.

The pallet changer is located sideways at the back of the machine. A rotary transfer unit delivers the pallet from the machine to the pallet loading station at the front of the machine, near the control panel.

UNICOM 6000 TOOLING SYSTEM

1. Vertical spindle for milling and drilling operations.
2. Spindle loaded adapter for turning tools.
3. Right angle head for horizontal milling and drilling operations.



4-Axes CNC Turn

STANDARD CONFIGURATION



- 4-Axes Turning & Milling Machining Centre
- Pallet Changer for two pallets
- Work Envelope X-2.150; Y-1.425; Z-800
- Distance spindle nose to pallet top face 1.100 mm
- Swing circle \varnothing 2.000 mm
- Rotary C-axis 360° in the table
- Integrated vertical milling & drilling spindle
36 kW / 6.000 rpm / 720 Nm
- Carousel turning station 70 kW / 450 rpm / 25.000 Nm
- HSK-100 tool magazine with 80 pockets
- Spindle loaded adapter for turning tools

- Position feedback with linear scales
- High accuracy linear roller bearings in all axes
- Machine cooling system
- Fully enclosed guarding section
- Chip conveyor with integrated coolant collecting tank
- Two-tone machine painting in light grey / medium grey
- SIEMENS Sinumerik 840-D CNC-control
- TFT Colour display
- Remote access via integrated modem

*Pallet Changer with **three pallets** (no safety fence for display purposes)*



ing & Milling Machining Centre

APPLICATIONS

Components, typically suited for UNICOM 6000

Aerospace:

- Jet Engines and Related Components

Oil and Gas Industry:

- Valves and Related Components

Power Generating Industry:

- Compressors and Turbo Chargers

Food Processing:

- Pumps and Related Components



AVAILABLE OPTIONS

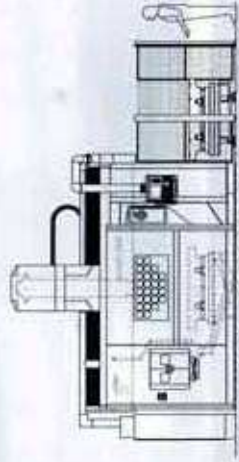
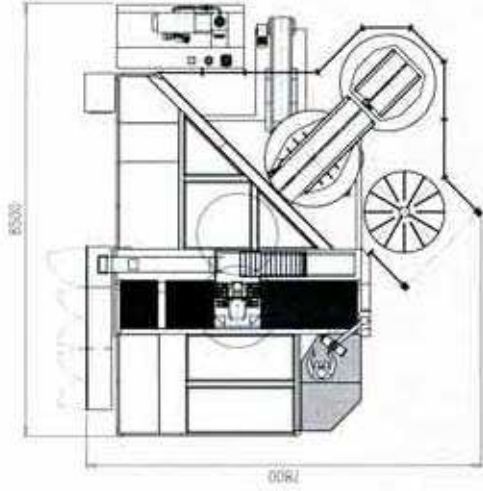
Selection of available options

- Extended Z-axis travel 1.000 mm
- Elevation of the cross rail for increased distance spindle nose to pallet top face of 1.300 mm
- Pallets $\varnothing 1.250$ mm, $\varnothing 1.600$ mm or $\varnothing 1.800$ mm
- Extra pallet buffer station
- Integrated vertical milling & drilling spindle 9.000 rpm
- Tool magazine extension (+61 / +122 additional pockets)
- Right angle head 4.000 rpm or 6.000 rpm for tools HSK-100
- Universal angular head 4.000 rpm or 6.000 rpm for combined A- and C-axes positioning in 5° or 2.5° increments
- High pressure through the spindle coolant supply
- Tool probe
- Tool identification system with data chips
- Tool life control with sister tool selection
- In-process tool break detection
- Spindle loaded measuring probe
- In-process measuring probe for finish turning
- Mist extraction system w with electrostatic filter unit
- Handheld pulse generator with electronic hand wheel
- Ethernet connection via integrated network card



1. Right angle head for horizontal milling and drilling operations.
2. Universal angular head for combined A- and C-axis positioning.
3. In-process measuring probe on separate slide for finish turning of high accuracy diameters.

TECHNICAL SPECIFICATIONS



Work Area	
Swing circle	mm
X-axis, cross travel	Ø 2,000
Y-axis, table travel	mm
Z-axis, spindle height travel	mm
	Standard
	Optional
Distance spindle nose to pallet top	mm
	Standard
	Optional

Pallet Changer	
Pallet Changer for No. of Pallets:	2
Pallet size	mm
	Ø 1,250
	mm
	Ø 1,600
	mm
	Ø 1,800
Admissible pallet load	kg
	3,000
Pallet central bore	mm
	Ø 100H6
Pallet radial T-slots, number	-
	12
Pallet radial T-slots, size	mm
	22H9
Pallet change time	sec
	60

Milling and Drilling Spindle	
Direct drive AC	kW
	36
	(S6-40%)
	(S1-100%)
Spindle speed	rpm
	6,000
	9,000
	2-speed
Gearbox	-
Maximum available spindle torque	Nm
	720
Main spindle bearing diameter	mm
	100

Carousel Turning Station	
Main drive AC	kW
	70
Gearbox	-
Max. speed of rotation	rpm
	2-speed
	with Ø 1,250 mm pallet
	rpm
	450
	with Ø 1,600 mm pallet
	rpm
	350
	with Ø 1,800 mm pallet
	rpm
	315
Max. available torque	Nm
	25,000

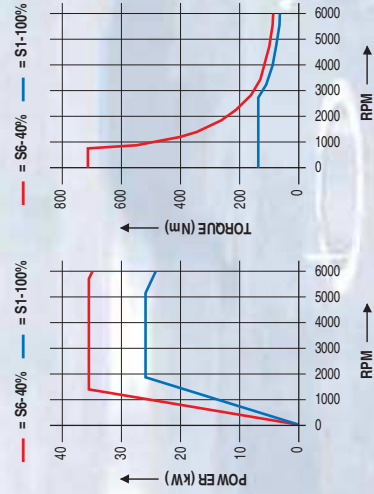
Tool System	
Chain type rotary tool magazine located at the column	
Taper size DIN 69893	-
drilling and milling tools	HSK 100-A
turning tools	HSK 100-A
Number of pockets	-
	Standard
	80
	+61 / +122
Maximum tool size	mm
w. loaded adjacent pockets	Ø 150
w. empty adjacent pockets	mm
	Ø 200
Maximum tool length	mm
	450
Maximum tool weight	kg
	25
Tool change time, chip-to-chip	sec.
	10

Axis Drive- and Feed System	
Digital AC-Servo drives	
Rapid traverse	mm/min
X-, Y- and Z-axis	30,000
C-axis	/min
	5,400
Feed rate	mm/min
X-, Y- and Z-axis	5 - 30,000
C-axis	/min
	5,400
Acceleration / deceleration, X-, Y- and Z-axis	m/sec ²
	3
Feed pressure	N
X- and Y-axis	30,000
Z-axis	N
	16,000

Capacity in C45	
With 6,000 rpm Gearbox Drive Spindle	
Drilling	mm
	Ø 120
Tapping	-
Milling	cm ³ /min
	1,000

Various	
Power supply	KVA
	140
Electrical cabinet	400 V / 3 ph / 50 Hz
Foot print, approx.	mm
	8,500 x 7,800
Overall weight, approx.	kg
	65,000

POWER/TORQUE CHARTS



We reserve the right to change technical specifications without prior notice.



MARKETING
INDUSTRIEL

UNISIGN

The Unisign range of standard products, UNIVERS, UNIPRO, UNIPORT and UNICOM, are ideally suited for almost any machining task due to their flexibility. All configurations guarantee high productivity combined with competitive prices. The machining centres are developed and built by Unisign and supported by our well trained service technicians for fast and reliable service, direct from Unisign.

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