



# Vertical Machining Centers Portalo C 3022 CNC

**SKU : 170144**

Machines of the Portalo C CNC series are specifically designed for precision machining of large and heavy workpieces. The machine frame features a fixed gantry and a movable table. The machines in this series are perfect solutions for heavy-duty machining and high-speed machining of complex dies and forms. An extensive assortment of standard equipment allows for easy adaptation for specific requirements.

- High workpiece weight
- Large work area
- Rigid fixed portal
- Quick-action tool changer
- Renishaw measuring systems for tool and workpiece



## TECHNICAL SPECS

### WORKING AREA

Table dimensions	3000 mm x 1800 mm
Table load capacity (max.)	10000 kg
Spindle nose-to-table surface distance	200 mm - 1200 mm
Column distance	2200 mm

### TRAVELS

Travel X-axis	3200 mm
Travel Y-axis	2500 mm
Travel Z-axis	1000 mm

### HEADSTOCK

Spindle speed	6000 1/min
Spindle mount	SK 50 ISO 7388-1 (DIN 69871)
Spindle diameter	190 mm

### RAPID FEED

X-axis rapid feed	12 m/min
Y-axis rapid feed	12 m/min
Z-axis rapid feed	10 m/min

### FEED

Work feed	8000 mm/min
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### TOOLING

Number of tool stations	24 positions
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### ACCURACIES

Positioning accuracy	0,005/300 mm
Repeatability	0,005/1000 mm

### DRIVE CAPACITY

Motor rating main drive	26 kW
Main drive, continuous load	22 kW

### MEASURES AND WEIGHTS

Overall dimensions (length x width x height)	8 m x 5.1 m x 4.9 m
Weight	30000 kg



## PRODUCT DETAILS

**The movable set-up table and a fixed gantry allow machining of large and heavy workpieces**

### Gantry

- The large machining area and long travel distances require an extra rigid gantry and guide solutions for the most stringent requirements
- A combination of linear guides and box ways ensure a long service life plus higher machining speeds and steadfast rigidity
- High-quality preloaded ball screws and proven Siemens servo-motors provide dynamic feed and rapid feed on all axes

### Main spindle

- High drive power and a wide speed range ensure availability of the necessary torque reserves during heavy-duty machining

### Tool Changer

- The robust 24-station tool changer features a dual-arm gripper for maximum flexibility and quick tool changes during production

### Control

- The Siemens 828 D provides intuitive, easy to learn programming features and comes with excellent support and service
- Siemens Shopmill software is included in the standard equipment. With this software even the most complex contours and workpieces can be produced with ease.

### Equipment

- The workspace features large sliding doors in the machine enclosure for great accessibility and easy tooling
- Renishaw measuring systems for tool and workpiece gauging and measuring significantly increase the machine's efficiency by providing more flexibility, shortening down-times, eliminating manual input errors and reducing waste
- A powerful coolant system combined with the included chip conveyor ensure chip disposal
- An automatic central lubrication system simplifies maintenance

## CONTROLS & SOFTWARE

### Siemens 828 D control

## SINUMERIK 828 D - The workhorse in the compact class of CNCs

### Highlights

- Compact, robust, maintenance-free control panel-based CNC
- Comfortable program and parameter input via QWERTY keyboard
- Maximum machining precision
- Intelligent kinematic transformations for machining of cylindrical parts, and for angled workpiece levels
- SINUMERIK MDynamics with the new Advanced Surface feature: for perfect part surfaces and shortest machining times in mold making applications
- ShopMill: shortest programming time for single parts and small batch productions
- ProgramGUIDE: fastest machining time and maximum flexibility for large series productions
- Unique spectrum of technology cycles - from milling contours with residual material recognition to process measurements
- Animated Elements: unique operation and programming assistance with animated sequences
- Modern data transfer options via USB stick, CF card and network (Ethernet)
- Easy Message: maximum machine availability due to process monitoring per texting (SMS)

### CNC hardware

- Control-panel based high-performance CNC Control
- Robust front control panel made of magnesium die-casting
- Integrated full-size QWERTY keyboard
- 10.4" TFT color monitor
- Maintenance-free design (no buffer battery required)

### CNC performance data and functions

- SINUMERIK MDynamics package with Advanced Surface for mold making applications
- Tool changing time: ~2 ms (PPU 260/261) / ~1 ms (PPU 280/281)
- Number of Look Ahead sets: 100 (PPU 260/261) / 150 (PPU 280/281)
- Jerk-limited acceleration
- Dynamic feed-forward control
- 4-axis simultaneous interpolation (X, Y, Z and rotary axis)
- Linear, circular and helical interpolation
- Tapping without compensating chuck, plus thread cutting
- Oriented spindle holder
- Toggle between inch and metric units
- FRAME concept for individual coordinate transformations, rotations, scaling and mirroring
- 100 adjustable zero offsets
- Synchronous actions and quick help function output

### CNC technology cycles

- Technology cycles for programGUIDE and ShopMill work step programming are available
- Large selection of drilling cycles
- Large selection of milling cycles for standard geometry
- Large selection of position patterns for drilling and milling operations
- High-speed settings for mold making applications
- Geometry calculator for free contour input
- Machining cycle for contour pockets / contour spigots with isolated contours

### Graphic features

- Animated Elements: input help for machining parameters with animated sequences
- Graphical online help system, similar to PC system
- Graphical CNC simulation with level display

### CNC tool management

- Display of tool and magazine data on one screen
- Tool management with plain-text tool names
- Loading/unloading feature for easy magazine assignment
- Number of tool edges: 256 (PPU 260/261) / 512 (PPU 280/281)
- Tool management with tool life monitoring

## STANDARD EQUIPMENT

Siemens 828 D control  
Shopmill Softwareoption für Sinumerik 828D  
20-station tool changer  
Spindle oil cooler  
Electronic hand-wheel  
Spiral chip conveyor  
Workpiece measurement Renishaw OMP 60  
Tool measuring system Renishaw TS27R  
LED work lamp  
Coolant gun  
Air gun  
Coolant system  
Automatic central lubrication  
Operating tools  
Operating manual

## OPTIONAL EQUIPMENT

- 90° Angle cutter head, SKU : 253901
- Oil skimmer, SKU : 254166
- 4th axis 400 mm (complete assembly) (Si), SKU : 254167
- Coolant flow through spindle 20bar, SKU : 254169



## KNUTH on YouTube Information to the point

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**Are you interested in a machine for which you cannot find a current video?  
Please feel free to contact us!**