

## SKU : 170141

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	2000 mm x 1200 mm
Table load capacity (max.)	4000 kg
Spindle nose-to-table surface distance	150 mm - 950 mm
Column distance	1400 mm

### TRAVELS

Travel X-axis	2100 mm
Travel Y-axis	1400 mm
Travel Z-axis	800 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
-----------	-------------

### TOOLING

Number of tool stations	24 positions
-------------------------	--------------

### 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)	6.3 m x 4.15 m x 4.45 m
Weight	16000 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

On our YouTube channel you can find videos for nearly all machines from our program. We show the machines from current deliveries and you get an impression of the handling, the processing quality and the machining performance.

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