

# Vertical Machining Centers

## VECTOR 1200 M SI



### SKU : 181423

The Vector 1200 series was developed for machining large and heavy workpieces. The heavy machine frame made of Meehanite cast, the robust construction with four guideways on the Y-axis and high-quality components guarantee consistently high cutting performance. You can rely on high precision even in multi-shift operations. A wide range of accessories allows the machines to be expanded into tailor-made complete solutions for specific applications. The series offers automation solutions that enable you to further increase productivity.

- Spindle on multiple bearings ensures minimal vibrations
- 30-bar CTS to ensure optimum machining quality
- Designed for multi-shift operation
- Many customization and automation possibilities
- 2-year standard warranty

## TECHNICAL SPECS

### WORKING AREA

Table dimensions	1300 mm x 600 mm
Table load capacity	1200 kg
Tool weight max.	7 kg
Spindle nose-to-table surface distance	150 mm - 750 mm
Spindle center - column	670 mm
Number of T-slots	5 positions
T-slot (width x spacing)	18 mm x 100 mm

### TRAVELS

Travel X-axis	1220 mm
Travel Y-axis	600 mm
Travel Z-axis	600 mm

### HEADSTOCK

Spindle speed	10000 1/min
Spindle mount	SK 40 ISO 7388-1 (DIN 69871)

### RAPID FEED

Rapid feed	36 m/min
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### FEED

Work feed	10000 mm/min
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### TOOLING

Number of tool stations	24 positions
Tool size Ø x L (max.)	80 mm x 300 mm
Tool-changing time chip/chip	3.9 sec
Tool-change time tool/tool	1.8 sec

### ACCURACIES

Positioning accuracies	± 0,005/ 0.0002" mm
Repeatabilities	± 0,003 / ± 0.00012" mm

### DRIVE CAPACITY

Main drive, continuous load	12 kW
Motor rating X-axis	3.3 kW
Motor rating Y-axis	3.3 kW
Motor rating Z-axis	5.5 kW
Total power consumption	13 kVA

### CONTROL

Control	Siemens
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### MEASURES AND WEIGHTS

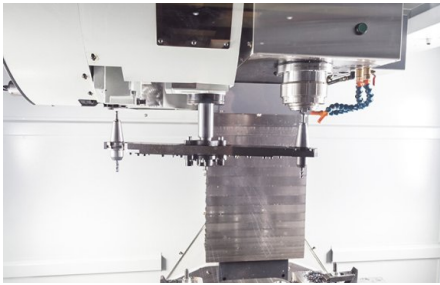
Overall dimensions (length x width x height)	3 m x 2.4 m x 2.93 m
Weight	6500 kg



*Linear-roller guides for super quiet operation*



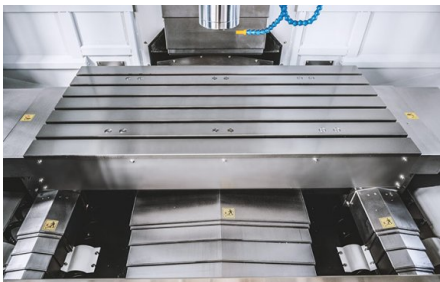
*Siemens Sinumerik 828D with ShopMill*



*Tool changer with dual-arm gripper and 24 tool stations*



*Wide opening front doors*



*Additional guides for even more load capacity and increased stability*

## PRODUCT DETAILS

### Machine Design

- The innovative machine base design features a low center of gravity for excellent rigidity, allowing high-precision machining of workpieces with weights up to 1200 kg
- With extensive experience and modern FEM analysis tools for the simulation of countless load conditions, it was possible to guarantee superior stability of the machine frame in real-world applications
- One development goal was to achieve a space-saving, compact design
- Linear roller guides on all axes provide high load capacities, maximum rigidity and smooth motion ensuring the high dynamics needed to optimally handle high loads
- Powerful servo-drives connect directly to large preloaded ball screws providing zero-loss high torque transmission

### Main spindle

- Main spindle runs on multiple bearings to ensure excellent absorption and dissipation of forces during machining
- The advanced design of our spindles ensure low heat accumulation under load
- Large pre-loaded bearings ensure radial stability during heavy-duty machining operations
- High-temperature lubricants ensure optimum lubrication at any operating temperature and a long tool life
- Clamping the tool between contact surfaces at the taper and workpiece flange ensures maximum hold of the tool in the spindle

### Tool Changer

- The VECTOR is equipped with the best tool changer to allow full utilization of the machining center's capacity
- With only 1.8 seconds tool changing time, the dual-arm gripper also is one of the fastest tool changers on the market

### Handling

- The totally enclosed workspace features a large door and side doors for easy access, safety and cleanliness
- Electrical equipment is divided into separate control cabinets for high and low voltage systems, which results in a significant reduction of heat accumulation and noise
- An electronic hand-wheel simplifies machine set-up
- The automatic central lubrication system ensures proper lubrication of all lube points

## CONTROLS & SOFTWARE

### Siemens 828D control with Shopmill

## **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
- Maintenance-free design (no buffer battery required)

### **CNC performance data and functions**

- SINUMERIK MDynamics package with Advanced Surface for mold making applications
- 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
- Tool management with tool life monitoring
- 10.4" TFT color monitor
- Jerk-limited acceleration

## **STANDARD EQUIPMENT**

Siemens 828D control with Shopmill  
Coolant through spindle 30 bar with double filter

24-station tool changer with dual-arm  
 ST 40 mount  
 Spindle oil cooler  
 Chain-type conveyor with chip container  
 Electronic hand-wheel  
 Oil skimmer  
 Automatic central lubrication  
 Coolant system flush gun  
 Chip wash system  
 Heat Exchanger for electric control cabinet  
 Telescoping axis cover  
 Preparation for Renishaw TS 27 R  
 USB port  
 CF card reader  
 Totally enclosed work space  
 Work lamp  
 3-color signal lamp  
 Coolant system  
 Adjustable machine feet  
 Operating tools  
 Operator instructions

## OPTIONAL EQUIPMENT

- Arm Type BT40 upg. from 24 to 30 tools, SKU : 252967
- Connection for 4th axis (wiring only and axis chart), SKU : 253019
- Siemens Function: P25: 3D Simulation, SKU : 253378
- Siemens Function: P13: Residual Material Detection, SKU : 253379
- Siemens Function: P22: Simultaneous Recording, SKU : 253380
- Ø 170mm 4th axis (4th axis, servo motor, driver, air brakes)(Si), SKU : 253605
- Ø 210mm 4th axis (4th axis, servo motor, driver, air brakes)(Si), SKU : 253606
- Ø 250mm 4th axis (4th axis, servo motor, driver, air brakes)(Si), SKU : 253607
- manual tailstock ST-170T for rotary table for X.mill, SKU : 253618
- manual tailstock ST-210T for rotary table for X.mill, SKU : 253619
- manual tailstock ST-255T for rotary table for X.mill, SKU : 253620
- manual 6" chuck for rotary table for X.mill, SKU : 253622
- manual 8" chuck for rotary table for X.mill, SKU : 253623
- manual 9" chuck for rotary table for X.mill, SKU : 253624
- Z axis travel upgrade from 550 to 800 mm for X.mill, SKU : 253625
- Upgrade from 10.4" to 15" touch screen (for PPU260 or higher), SKU : 253674
- 200mm diam. 4th & 5th axis, SKU : 253682
- Spindle speed upgrade to 12000 rpm, belt-type, SKU : 253781
- Top cover for Vector 1200, SKU : 253838
- 12,000 rpm, direct drive CTS for Vector 650-1200(Si), SKU : 253956
- Renishaw OMP40-2T Workpiece Scanning Probe, SKU : 253288
- Renishaw SET OMP40-2T measuring probe +OTS Toolsetter (SK 40), SKU : 254026
- Renishaw OTS Toolsetter, SKU : 254285