

# **Model SV-2414SE-M Mini Mill**

**High Precision Box Way Compact Vertical Machining Center**





## SV-2414SE-M models    Main Features

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### Box Way Construction

**Machine Travels:** X = 24" , Y = 14" , Z = 18.1"

**Worktable:** 27.9" x 13.8"

### CNC Control:

#### **Siemens 828D-PPU260 (SV-2414SE-M)**

- 10.4" color LCD
- Remote jog handle (MPG)
- USB port, RS232 interface
- 7680m ( 3M ) memory, 100 blocks look ahead
- "Shop Mill" Full Conversational type Program
- Embedded Ethernet
- 4 spare M codes
- Support 4<sup>th</sup> axis
- 2 years warranty parts and labor

### Spindle:

- CAT-40 taper
- 10,000 rpm
- Rigid tapping
- Air blow (for cutting dry)

### Automatic Tool Changer:

- 10 tools, optional 16T, carousel style
- Air blast at tool change

### Coolant System:

- 42 gallon roll out coolant tank
- Flood coolant system

### Pull-out Style Chip Cabinet

### Heat Exchange System for Electric Cabinet

### Machine Construction:

- All Meehanite cast iron structural components
- Hardened and Ground Box ways
- Precision hand scraping on all structural components
- Double anchored, pre-tensioned double nut ball screws
- Full metal enclosure with removable side doors
- Full metal way covers

### Small Footprint :

- W: 78.7" / D: 85" / H: 91.5"
- Overall height can be reduced to fit through most door opening by removing Z axis motor

## Standard Machine Specifications

Specifications		SV-2414SE-M Siemens 828D-PPU260
<b>Work Capacity</b>		
X axis travel	mm (inch)	610 (24" )
Y axis travel	mm (inch)	355 (14" )
Z axis travel	mm (inch)	460 ( 18." )
Spindle nose to table	mm (inch)	78.7 - 530 ( 3.1" – 20.9" )
Spindle center to column	mm (inch)	430 ( 16.9" )
<b>Worktable</b>		
Table area	mm (inch)	710 x 350 ( 28" x 13.8" )
Max. work piece weight	kg (lb.)	350 ( 770 lbs.)
T-Slot (Number x Width )		5 x 16 ( 5 x 0.63" )
<b>Spindle</b>		
Spindle taper		CAT-40
Spindle speed	rpm	10,000
Spindle motor: cont. / 30 min	kw (hp)	7/8 ( 9.3/10.7)
Torque	Nm(ft.lb)	60(45) at 1500 rpm
Transmission		Belt Drive
<b>Automatic Tool Changer</b>		
ATC type		Carousel Style
Tool capacity		10, opt. 16
Max. tool diameter	mm (inch)	10T : 120 (3.9" ), 16T : 93 (3.7")
Without adjacent tool	mm (inch)	10T : 229 ( 9" ), 16T : 183 (7..2")
Max. tool length	mm (inch)	10T, 16T : 350 (13.8" )
Max. tool weight	kg (lb.)	10T, 16T : 7 (15.4 lbs )
Tool change time (tool to tool)		7 sec
Tool change time (chip to chip)		8 sec
Method of tool selection		Set tool Number
<b>Motion</b>		
Rapid traverse	mm/min (ipm)	X / Y / Z 15,000 ( 590.5 in / min )
Cutting feed rate	mm/min (ipm)	1 - 10,000 ( 0.04 – 393 in / min )
Transmission		Direct drive
Positioning accuracy*	mm (inch)	+/- 0.004 ( 0.00016" )
Repeatability accuracy*	mm (inch)	+/- 0.003 ( 0.00012" )
Ballscrews X/Y/Z	mm	32 mm



		<b>SV-2414SE-M</b> <b>Siemens 828D-PPU260</b>
<b>Coolant System</b>		
Coolant tank capacity	L (gal)	160 ( 42 gal )
Number of Coolant Nozzles		2
<b>Machine Size</b>		
Floor space (w/o chip conveyor)	mm (inch)	10T : W: 2000 (78.7" ) x D: 2160 ( 85" )
Height**	mm (inch)	2325 ( 91.5" )
Weight	kg (lb.)	3300 ( 7260 lbs.)
Door opening	mm (inch)	635 ( 25" )
<b>Power Requirements</b>		
Electrical	60 Hz	220V / 3 p / 20 KVA
Air		6 CFM @ 88 psi

*\* Proper foundation and environmental controls are required*

***Overall height can be reduced to fit through most door openings by removing the “Z” axis motor.***

## Standard Features and Accessories

### Standard Features and Accessories



#### **Hardened and Ground Box Ways**

All guide ways are induction hardened then precision ground

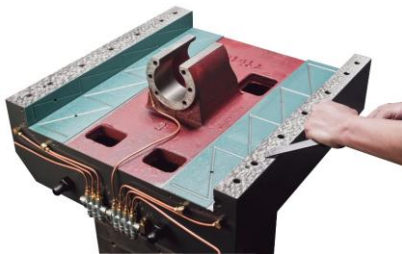
#### **Meehanite Cast Iron**

Meehanite cast iron is used on all structural components.

Finite Element Analysis (FEA) is used to optimize the structure for rigidity.

#### **No Table Overhang**

A wide saddle fully supports the worktable throughout the travel.



#### **Precision Hand Scraping**

All mating surfaces are precision hand scraped to increase the flatness and improve geometric accuracy (straightness and squareness) of the whole assembly

#### **Turcite B**

Turcite B is bonded to all sliding surfaces. Oil grooves are machined and then it's hand scraped to produce an excellent bearing surface.

Note that even the mounting surfaces for the ball screw nut are hand scraped. This assures that it is square to the ball screw and guideways

## Siemens Sinumerik 828D CNC control and drives



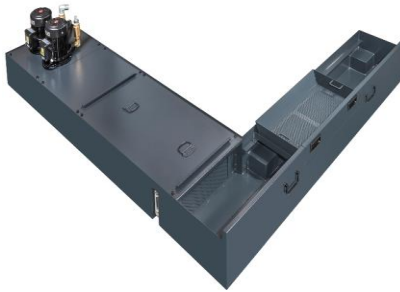
The Siemens 828D-260.2 model offers a 10.4" color LCD screen. The control is equipped with premium CNC functions such as the ability to execute kinematic transformations or powerful tool management without being unnecessarily complicated. Its unique graphic user interface is ideal for shopfloor machining. The highlights include:

- \* QWERTY keyboard for user-friendly program and parameter input
- \* 80-bit NANO accuracy for high degree of machining precision
- \* Advanced Surface : perfect workpiece surfaces and shortest machining times when producing mold and die parts
- \* ShopMill : programming without G code knowledge for drilling, centering, grooving or pocket milling are displayed in the form of steps making CNC programs compact and easy to read. All geometric elements are displayed true-to-scale using dynamic broken-line graphics. The graphic automatically adapt to the geometric input. Circular pockets, thread undercuts, deep-hole drilling and engraving cycles are a few of the other operations that can be programmed easily.
- \* ProgramGUIDE: shortest machining time and maximum degree of flexibility when producing large batch series
- \* Unique range of technology cycles – from machining of milling contours with residual material detection to in-process measuring cycles
- \* Data transport using USB stick, CF card, embedded Ethernet and RS232
- \* Animated Elements : unique operator control and programming support with animated graphic sequences.

### 4 spare M codes

4 spare (user definable) M codes are included. They can be used for auxiliary equipment such as an indexer that requires communication with the control.





### Separate Roll Out Coolant Tank

A large separate roll out coolant tank is used to prevent heat in the coolant from transferring to the machine base casting.

42 gallon capacity



Coolant tank with standard chip bin is shown



### Air Reservoir Tank

An air reservoir tank with alarm is used to stabilize the incoming air pressure and volume.

### Automatic Lubrication System

Automatic lubrication with alarm is provided to all ways and ball screws. Lubrication oil is delivered by metered piston distributors to precisely control the volume of oil.



**Air Gun and Coolant Gun** are conveniently located below the control panel . They are provided for blowing away chips embedded inside work piece holes and pockets as well as washing away chips piling up along the sides of the table.



### **Large Side Doors**

Both sides of the machine enclosure have large removable doors. Long work pieces can be loaded through the sides. The door openings are large enough to allow full "Y" axis travel with long work pieces extending through the sides



## Standard Accessories

### Box Way Construction

### CNC Control:

**Siemens 828D-PPU260 (SV-2414SE-M)**

### Spindle:

- CAT-40 taper
- 10,000 rpm
- Rigid tapping
- Air blow (for cutting dry)

### Automatic Tool Changer:

- 10 tools, ( 16T optional) carousel style
- Air blast at tool change

### Coolant System:

- 42 gallon roll out coolant tank
- Flood coolant system

- Auto-Lubrication System with Alarm

- Coolant gun

- Air gun

- Pull-out style Chip Pan

- Heat Exchanger for Electric Cabinet

- Fluorescent Work Light

- Air Reservoir Tank with Alarm

- 3 Tier Status Light

- Full metal enclosure with 2 large side doors

- Door Interlock

- Tool kit, Leveling bolts and pads



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SV-2414SE-M	Mini Mill with Siemens 828D-PPU260 control	<del>\$ 50,990.00-</del> <b>\$ 35,000.00</b>
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- General Notes:** Equipment, specifications and materials are subject to change until order is accepted by Sharp Industries. Pricing is valid for 30 days  
Siemens will offer one day free training for Siemens control.
- Delivery:** If not in stock, delivery lead time will be verified by the factory after receipt of your written, firm purchase order.
- F.O.B.:** Gardena, CA. U.S.A.  
Sharp Industries responsibility ceases when delivery is made to the carrier. Any claim for loss and/or damages must be made by the purchaser against the carrier.
- Terms:** Sharp Industries Standard Terms & Conditions will apply.  
All factory special order machines require the following: End user purchase order to be issued to Sharp Industries as the *Seller*.
- 30 Per Cent (30%) down payment with your purchase order.
  - 60 Per Cent (60%) prior to shipment.
  - 10 Per Cent (10%) balance due net 30 days after final acceptance.
- Warranty:** Sharp Industries **Limited Warranty** will apply.

Prices and specifications subject to change without notice

**Available Optional Accessories\***

<b>Machine Options</b>	
Flat type chip conveyor with bucket ( factory order )	\$ 3,190.00
Chip auger ( factory order)	\$ 1,800.00
16 tools ATC ( carousel type)	TBD
Tsudakoma 6" Indexer: Model RZ-160 with TPC-Jr Controller, no installation	\$ 10,800.00
Factory installation of 4 <sup>th</sup> axes rotary table	\$ 3125.00
Spindle chiller	\$ 1,160.00
Coolant through spindle( CTS) prepped 70 bar ( 1000 psi) factory order only	\$ 1,850.00
CoolJet T8-300, 300 psi CTS pump, 40 G tank, single high capacity filter ( installed at Sharp)	\$ 7,140.00
Chip Blaster cooling system M30-70, 1000 psi, 8 GPM, 50 G tank, installed at Sharp	\$ 10,075.00
UL approved electrical components and wiring ( factory order only)	\$ 500.00
CE Mark ( factory order only)	\$ 6,400.00
Tooling certificate from Iscar Metals. Certificate will be sent to end user directly from Iscar Metals.	\$ 1,000 and up

**Prices and specifications subject to change without notice**

30 % deposit is required and payment terms subject to Sharp standard terms and conditions.



## Sharp Industries Inc. Limited Warranty

Sharp Industries warrants to the original purchaser, other than a purchaser for resale, (the "Purchaser") that Sharp Industries machine tools shall be free of defects in materials and workmanship. For a period of one (1) year from completion of installation, or for a period of fifteen (15) months from date of shipment, whichever is earlier, Sharp Industries will, at its sole and exclusive discretion, either replace or repair any machine or part thereof defective in workmanship or material, at no charge to the Purchaser.

All warranty repairs must either be performed by or authorized by a Sharp Industries Authorized Service Organization. To obtain warranty service, Purchaser must contact their local Sharp Industries Authorized Service Organization. Purchaser must provide verification of the date of delivery/installation when requesting warranty service (dated installation report). Ground freight charges (UPS regular or common carrier truck) for all warranty replacement parts are paid by Sharp Industries. If machine is not operational, Sharp Industries will pay next-day air shipment charges for necessary parts weighing 100 lbs. or less. Materials or parts alleged to be defective shall be returned to Sharp Industries, at Sharp Industries' request, transportation charges prepaid. After the warranty repair or replacement of a defective part, Sharp Industries' warranty for such part shall continue for ninety (90) days or for the remainder of the original Limited Warranty, whichever is longer.

### WARRANTY LIMITATIONS

This warranty shall remain in effect only if the machine is used and maintained in accordance with all operating and maintenance instructions set forth in the manuals and instruction sheets furnished by Sharp Industries. Sharp Industries shall have no liability to repair or replace defective parts until the Purchaser has fulfilled its payment obligations. No allowance will be made for repairs or alterations made without Sharp Industries' prior written consent or approval. The limited warranty provided by Sharp Industries excludes the following:

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2. Damage, malfunction, or failure caused by modification of the machine (mechanical or electrical) without written authorization by Sharp Industries.
3. Damage, malfunction or failure caused by installation or use of accessories or peripherals not purchased through or authorized in writing by Sharp Industries.
4. Paint, batteries, filters, fluids, fuses, light bulbs, or any commonly expendable item.
5. Damage to machines and/or components while being transported from Sharp Industries' warehouse or facility to destination.
6. Accessories or peripherals not manufactured by Sharp Industries, which shall be subject only to whatever warranty that is supplied by the manufacturer of such product.
7. CNC control, spindle and servo motors, spindle and servo drives, which are covered by a one (1) year manufacturer warranty.

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