SHARP

PRECISION MACHINE TOOLS

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SHARP

PRECISION MACHINE TOOLS

SVL-2517

High Speed Production
Vertical Machining Center
Cross-roller Type Linear Ways

SVL-2517SX-F、SVL-2517SZ-F

- Cross-roller type linear ways on 3 axes
- 12,000 rpm belt-drive spindle
- CAT40 spindle taper
- BIG PLUS dual contact spindle system
- 24 tools arm type tool magazine
- Rapid traverse rates on X, Y, Z-axis
  1,417 rpm (36,000 mm / min)

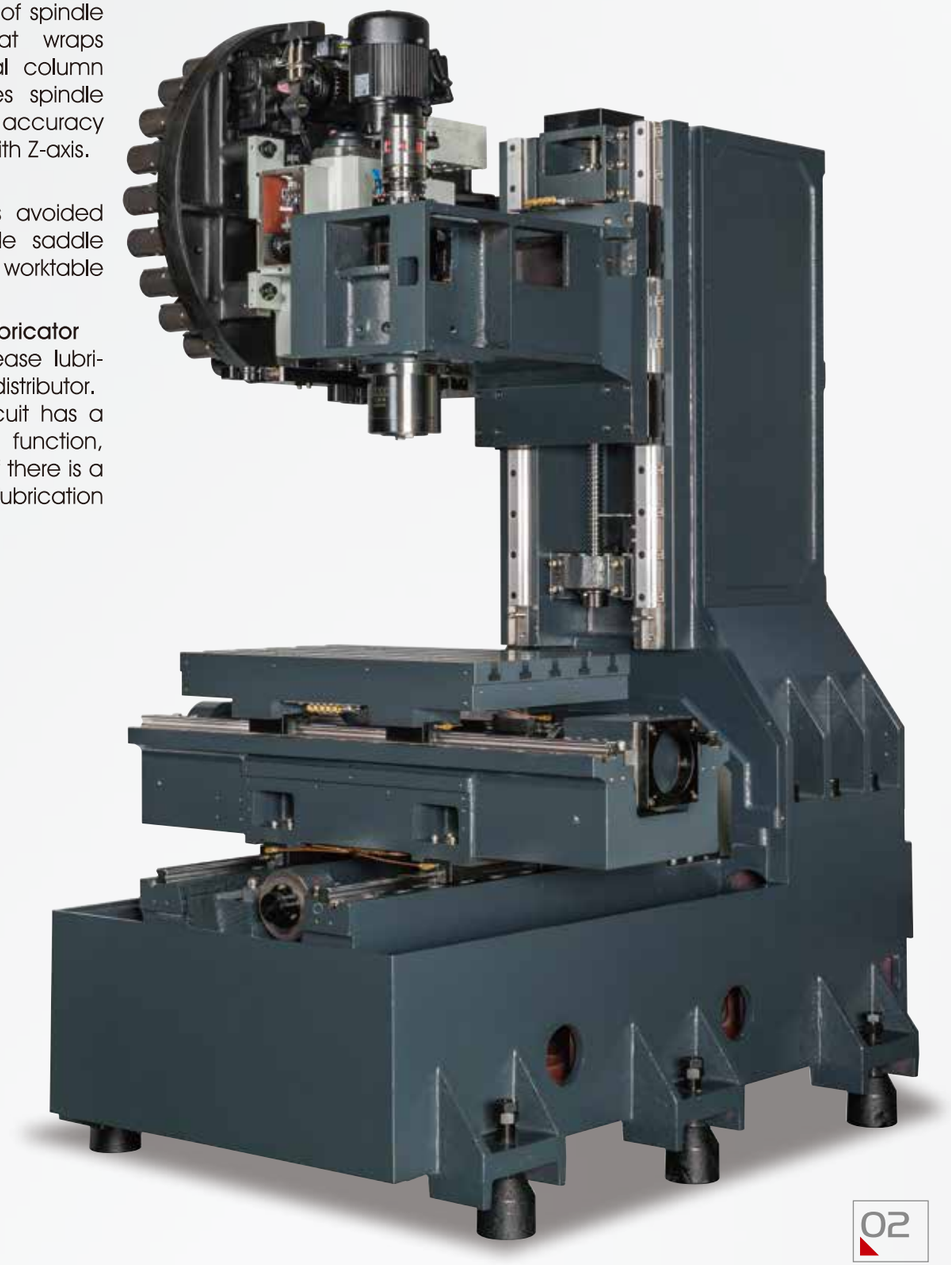
Robust Column
- The column bottom is reinforced so that it can firmly support the weight of the automatic tool changer and the spindle, as well as disperse the cutting force from the spindle head.
- With the oversized column structure, the machine will present outstanding stability when performing high-speed cutting.

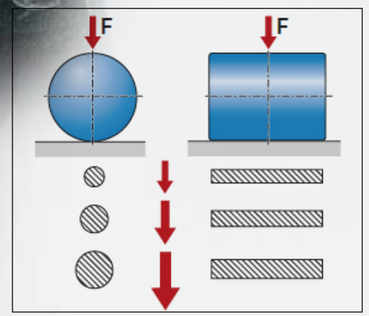
Cross-roller Type Linear Ways on Three Axes
- The saddle, table and spindle head travel on heavy-duty cross-roller type linear ways. They provide reduced co-efficient of friction along with increased acceleration and deceleration.

Trap Z
- Trap Z at the back of spindle head casting that wraps around the vertical column linear ways ensures spindle travel maintain its accuracy at all times along with Z-axis.

No Table Overhang
- Table overhang is avoided with the extra wide saddle that supports the worktable through its travel.

Automatic Grease Lubricator
- The automatic grease lubricator utilizes an oil distributor.
- The lubrication circuit has a pressure detection function, which can detect if there is a clog or leak in the lubrication circuit.





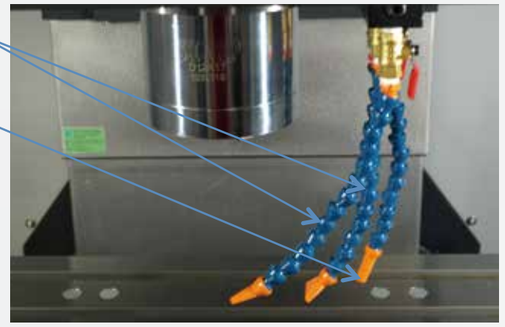
- Balls under load develops point contact with the raceway, while rollers under load develops line contact and give higher load capacity.

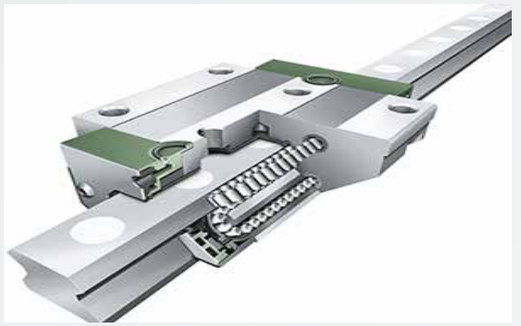
Two Adjustable Coolant Nozzles
- The coolant nozzles direct flood coolant at desired locations.

One Adjustable Air Nozzle
- It directs air at desired location for dry cutting or cleaning.

Air Purge System
- The air purge system inside the spindle blows out embedded chips at each tool change motion.

Air Curtain
- It blows out air from spindle to protect spindle bearings from up-splashing coolants.

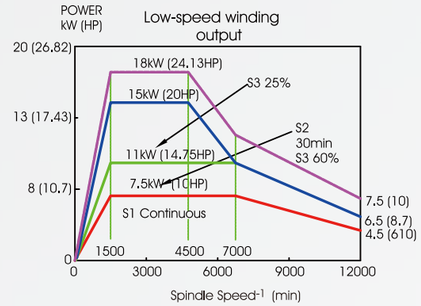


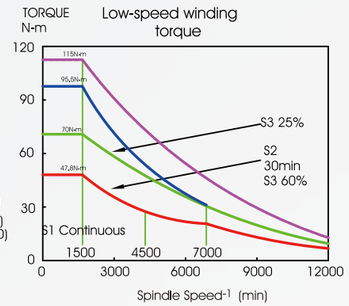


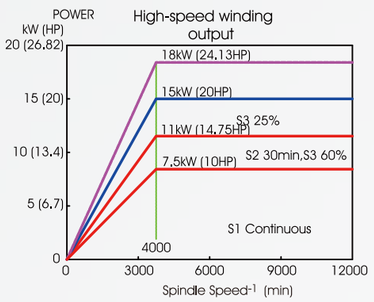
Cross-roller type
- The cross-roller type linear guide ways by THK offers higher load capacity and higher rigidity than regular ball type linear guide ways. THK is world renowned for its high quality linear guide way systems.

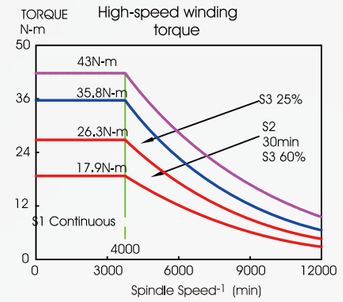
24 Tools Arm Type Magazine
- An arm type side-mount tool magazine.
- Bi-directional random tool selection provides quick tool change.
- Tool change time: 2 sec. (tool to tool), 6 sec. (chip to chip)

SPINDLE MOTOR OUTPUT - α 8/12000 for SVL-2517SZ-F

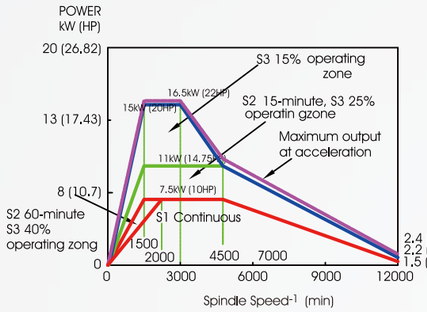


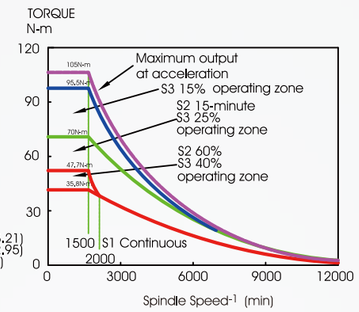






SPINDLE MOTOR OUTPUT - β 8/12000 for SVL-2517SX-F



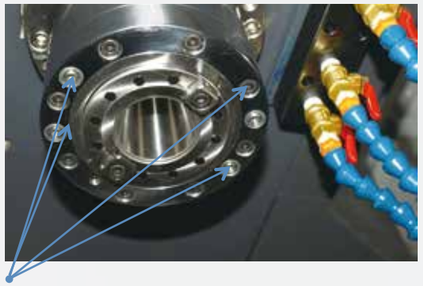


High Precision Spindle
- The rigid spindle is mounted on two matched pair of high precision (ABEC-7) angular contact bearings and one ball bearing at the rear. These angular contact bearings are able to withstand both axial and radial loads.
- Direct drive spindle providing 12,000 rpm.

BIG PLUS Spindle System
- The BIG PLUS spindle system provides dual contact between the spindle face and the flange face of BIG PLUS tooling.
- With the use of BIG PLUS spindle system, it will dramatically increase tool rigidity, reduce run-out to a minimum while increasing machining efficiency and productivity.

Double Anchored Ball Screw

- The pre-tensioned, double anchored ball screw at both ends with high precision angular contact bearings eliminates play and chatter that can lead to inaccuracy.



4 Coolant Openings

- In addition to the 2 adjustable coolant nozzles, the underside of the spindle has 4 coolant openings that can also deliver coolant on to the workpiece. This is necessary in the event the nozzles interfere with the workpiece movements.

Chip Wash Nozzles

- The chip wash nozzles are installed for disposing chips efficiently. This model has 3 nozzles are mounted at two sides of the base instead of at the back.

State-Of-The-Art Hand Scraping

- Geometric features of machine tools, such as straightness and parallelism of travel, squareness and flatness, are fundamental to produce repeatable volumetric positioning and accuracy in the machining envelope. This is only achieved by hand scraping and fitting of the machine tool components. As such, SHARP has paid special efforts in scraping technique.

Hand Scraping Meets High Standards

- SHARP's well-trained scraping technicians perform scraping according to the rigorous standards, so that the scraping surfaces can last for longer life than competitive models.

FANUC 0i-MF CNC Control

- The FANUC 0i-MF CNC Control and servo drive motors are used for their world-renowned reliability and legendary service.
- Two Year Parts and Labor Warranty on all FANUC components standard.
- The portable electronic handwheel (MPG) allows operator to get close to machine parts or tools during feed adjustment.

Comprehensive Interfaces

- Embedded Ethernet, RS232 port, USB port and Flash drive port are all standard features on the CNC control. They greatly increase the ease and speed in data transfer.

Air And Coolant Guns
- The air and coolant guns are conveniently located at the front of the machine for easy access by the operator to blow off or flush off chips.

Automatic Grease System
- The automatic grease system is used instead of lube oil since it requires less maintenance, less need for oil skimmer and subsequently less waste oil to be disposed of.
- Low-level alarm is standard.

Spindle Chiller
- Refrigerated oil is circulated around the Spindle to draw heat from it. This helps to control thermal expansion which can effect accuracy and also the preload on the spindle bearings. Since the temperature is better controlled, a tighter bearing preload can be used. This makes for a stiffer and more rigid spindle assembly that can take heavier cuts and maintain better accuracy throughout the day.

Pneumatic Accumulator
- The pneumatic accumulator for stability of incoming air pressure and volume is equipped with a safety sensor, which triggers an alarm if pressure is not maintained.
- This feature ensures safe and reliable operation of the pneumatic system during tool change.

Ball Bar Testing
- Each SHARP VMC is also inspected using an advanced ball bar test device. This allows the user to inspect and calibrate circularity and geometric accuracy. Such inspection may ensure cutting accuracy and circle smoothness.

Laser Inspection
- An advanced laser interferometer is used for inspection and calibration of screw pitch error, backlash, positioning accuracy and repeatability.

High Accurate Positioning and Repeatability
- Positioning accuracy (full travel): 0.0002" (0.005 mm)
- Repeatability accuracy (full travel): 0.00016" (0.004 mm)

Machine Features

Standard features
- Cross-roller linear way construction
- Precision scraping on components
- Removable side doors
- Full metal sliding way covers
- FANUC 0i-MF control , drives
- Big Plus, CAT-40 spindle
- 24 Tool ATC
- Rigid tapping
- Flood coolant nozzles (2)
- Air blow nozzle (1) for cutting dry
- Coolant openings under spindle
- Air curtain
- Air blast at each tool change
- Pull out style chip cabinet
- Heat exchange system for electrics
- Auto grease system with low level alarm
- Coolant gun
- Air gun
- Spindle oil chiller (12,000 rpm spindle)
- Pneumatic accumulator
- Fluorescent work light
- Interlock doors

Optional features
- Chip conveyor (scraper) w/ bucket
- Chip conveyor (hinge) w/ bucket
- Chip auger
- Oil skimmer
- Indexer - 4th or 5th axis
- Rotary table - 4th axis or 4+1 axis
- 4th Axis Preparation
- 4th Axis installed with rotary table
- Coolant through spindle (CTS) prepped
- CTS systems up to 1,000 psi
- FANUC 10.4" color LCD screen
- Manual Guide I (in lieu of 0i)
- Tooling package

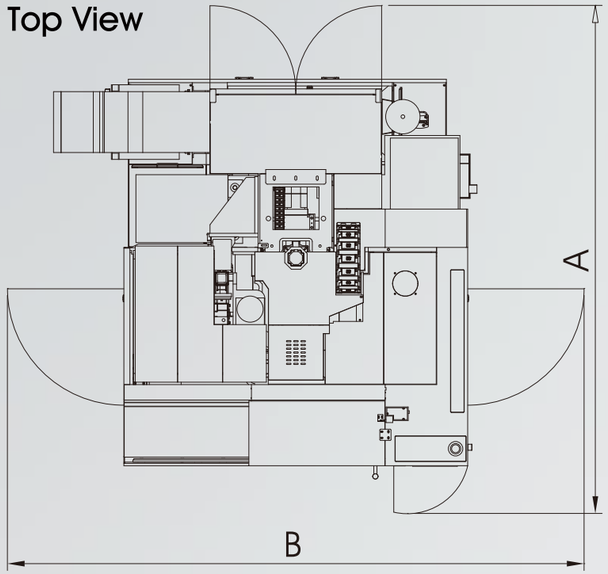
Specifications

Model		SVL-2517SX-F	SVL-2517SZ-F
CNC Control		Fanuc 0i-MF	Fanuc 0i-MF
Screen size		8.4LCD	8.4LCD
Guideway Type		Cross-roller guideway	Cross-roller guideway
Work Capacity	Unit		
X axis travel	in(mm)	25.2 (640)	25.2 (640)
Y axis travel	in(mm)	16.9 (430)	16.9 (430)
Z axis travel	in(mm)	18.1 (460)	23.6 (600)
Spindle nose to table	in(mm)	3.1-21.2 (80-540)	3.9-27.6 (100-700)
Spindle center to column	in(mm)	19.3 (490)	19.3 (490)
Worktable			
Table area	in(mm)	27.5×16.5(700×420)	27.5×16.5 (700×420)
Max workpiece weight	lb(kg)	660 (300)	660 (300)
T-slot (no. x width x pitch)		5×0.7×3.14 (5×18×80)	5×0.7×3.14 (5×18×80)
Spindle			
Spindle taper		CAT 40 Big Plus	CAT 40 Big Plus
Spindle speed	rpm	12,000	12,000
Spindle motor-cont/30 min	hp(kw)	10/15 (7.5/11)	10/15 (7.5/11)
Transmission		Direct drive	Direct drive
Spindle oil chiller		yes	yes
Automatic Tool Changer			
Type		Arm-type	Arm-type
Tool capacity		24	24
Max. tool diameter with adjacent tool	in(mm)	2.9 (75)	2.9 (75)
Max. tool diameter without adjacent tool	in(mm)	5.9 (150)	5.9 (150)
Max tool length	in(mm)	11.8 (300)	11.8 (300)
Max tool weight	lbs(kg)	15.4 (7)	15.4 (7)
Pull stud / retention knob		CAT-40 45A	CAT-40 45A
Tool change time (t-t)	sec	2	2
Tool change time (c-c)	sec	6	6
Method of tool selection		Set tool number	Random
Air blast at tool change		yes	yes
Air blow nozzle for cutting dry		yes	yes
Air curtain to protect bearings		yes	yes
Motion			
Rapid traverse	ipm(mm/min)	X/Y/Z 1417 (36,000)	X/Y/Z 1417 (36,000)
Cutting feed rate	ipm(mm/min)	0.04-393.7 (1-10,000)	0.04-393.7 (1-10,000)
Feed motor X / Y /Z	hp(kw)	1.6/1.6/2.4 (1.2/1.2/1.6)	1.6/1.6/2.4 (1.2/1.2/1.6)
Accuracy			
Postioning accuracy (full travel)	in(mm)	±0.00020" (0.005)	±0.00020" (0.005)
Repeatability accuracy (full travel)	in(mm)	±0.00016" (0.004)	±0.00016" (0.004)
Coolant system			
Coolant tank capacity	gal(L)	42 (160)	42 (160)
No. of adjustable coolant nozzles		2	2
No. of air blow nozzle		1	1
Spindle bottom coolant flow		yes	yes
General			
Floor space (without chip conveyor)			
Width	in(mm)	78.74" (2000 mm)	78.74" (2000 mm)
Depth	in(mm)	100.67" (2557 mm)	100.67" (2557 mm)
Height	in(mm)	100" (2537 mm)	115.59" (2936 mm)
Weight	lbs(kg)	8,272 lbs (3760 kgs)	8,492 lbs (3860 kgs)
Door opening	in(mm)	28.4" (720 mm)	28.4" (720 mm)

* Power Foundation and environmental controls are required.

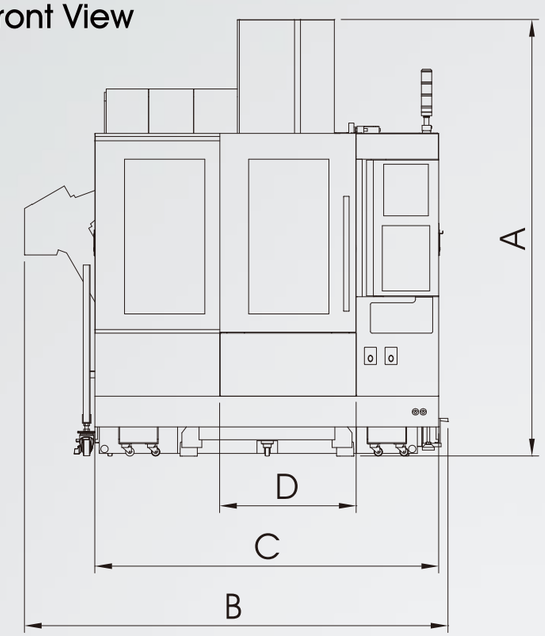
SVL-2517S-F、SVL-2517SZ-F

Top View



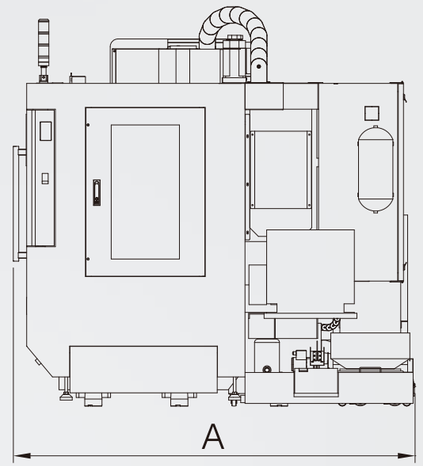
A	125.00" (3175mm)
B	132.05" (3354mm)

Front View



A	99.4" (2525mm)
B	97.00" (2464mm)
C	78.74" (2000mm)
D	28.34" (720mm) door open

Side View



A	100.67" (2557mm)