

LEADWELL
LEADWELL CNC MACHINES MFG.,CORP.

NEW V Series

VERTICAL MACHINING CENTER

The Ultimate in Performance

LEADWELL CNC MACHINES MFG.,CORP

NO.23, Gong 33th Road, Taichung Industrial Park

Taichung 407, Taiwan

TEL: 886-4-23591880

FAX: 886-4-23592555, 23593875

E-mail: sales@leadwell.com.tw

www.leadwell.com.tw

※ All performance are based on 220V/3PH/60HZ. Specification are subject to change without notice.



NEW V SERIES

High Performance

VERTICAL MACHINING CENTERS

The Ultimate in Performance

◆ MORE POWERFUL

- Powerful spindle motor
- Massive cast iron base for extra stability
- Wide column design for extra rigidity

◆ INCREASED CAPACITY

- X travel from 510 mm(V-20S) to 1,520mm(V-60S)
- Table size from 600x400mm to 1,550x610mm

◆ FASTER / MORE PRODUCTIVE

- Rapid rates up to 36 M/minute at least
- 8,000 RPM standard (10,000/12,000 RPM optional)

◆ ERGONOMIC CONSIDERATIONS

- Easy to use membrane touch-pad control station
- Easy moving operator door
- No chip or coolant leaks



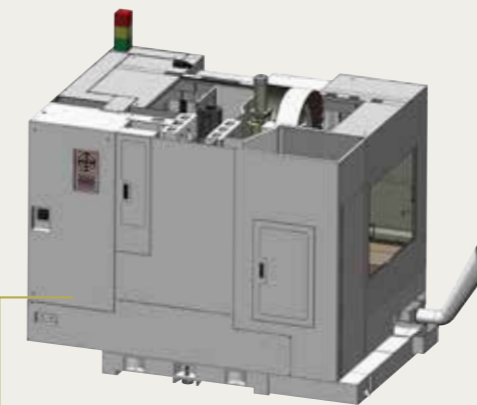
Swivel Operator Panel

The operator panel swivels for better operator convenience.

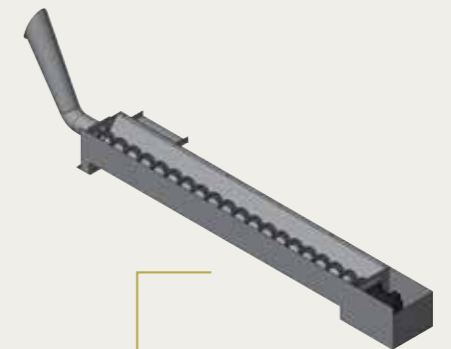


Look into these outstanding features integrated in the Leadwell NEW V SERIES

- We use high rigid cast iron construction with closed type design.
- Machine stable design supporting by big span saddle and foundation screws.
- Without counter weight enhance the accuracy on mold making as well as avoid vibration.
- Z axis transmission end fixed, as well as ball screw pretension, which enable to reduce the temperature.
- Easy chip removal front type by using two auger chip conveyor system.
- Rapid traverse 36 M/minute at least
- Special filtration tank unit
- Friendly design of operation control panel



Complete beauty back design.



Easy chip disposal front type chip conveyor. (STD.)



Rigid Tapping

The encoder is directly attached to the high-performance spindle motor. The spindle is then synchronized with the Z-axis motion. This synchronization eliminates the need for expensive floating tap holders and prevents thread distortion and thread pullout.



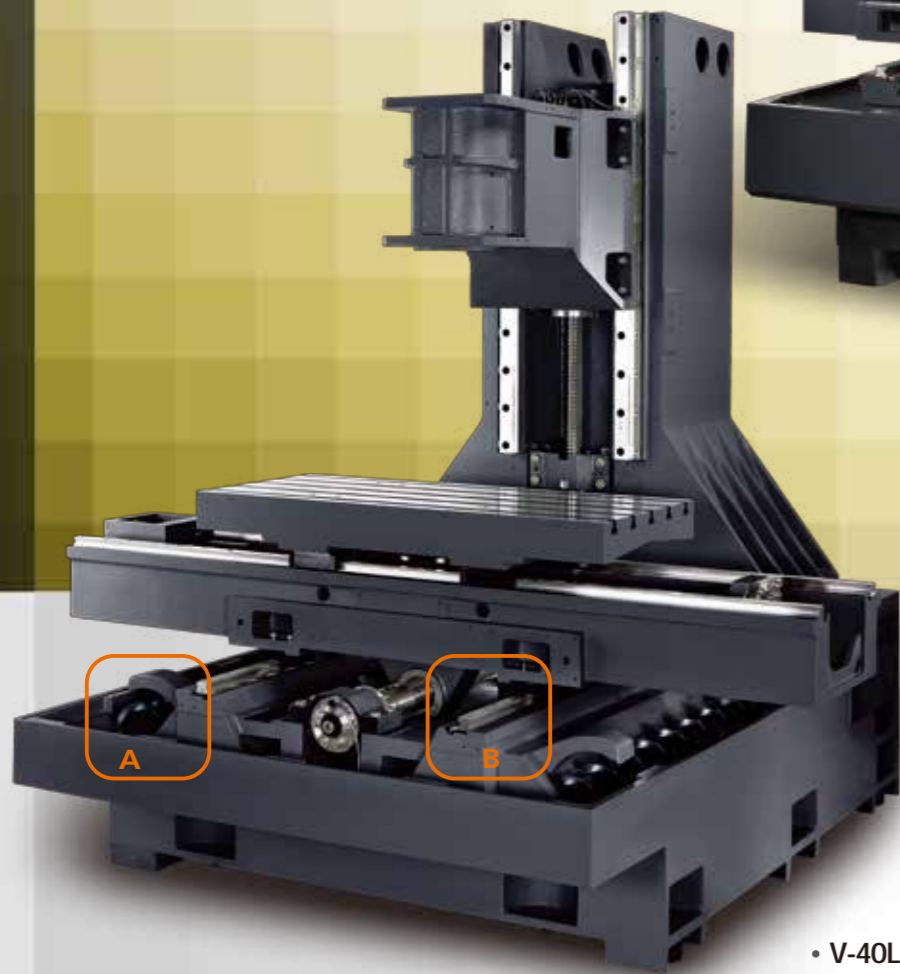
The Roller Type Linear Guide Way

New V series equip with roller type linear guide way can provide higher rigidity and make the movement more smooth and stability, especially for the request of high accuracy and heavy load.

NEW V SERIES RIGID CONSTRUCTION

Cast Iron Construction

LEADWELL uses only top quality well-ribbed castings. Finite Element Analysis (FEA) is used on each new casting to determine the size and location of all internal ribs ensuring high torsional stiffness and minimum vibration. The cast iron base column, saddle, headstock and tables have over 10 times the dampening capacity of those made from steel resulting in those made from steel resulting in superior cutting performance.



• V-40L



• V-20S

A) Chip Removal

LEADWELL's simple and efficient design uses chip augers on both sides of the machine and provides high volume coolant to wash the chips from the work area.

B) Roller Guide Ways

LEADWELL uses roller guide ways that feature zero clearance and fully-loaded carrying capacity in all directions.



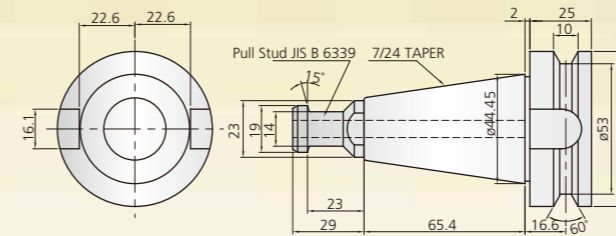
Cartridge Type Spindle

The heavy-duty spindle utilizes FAG, NSK or SKF bearings to allow heavy cutting. Oversized disk springs used to hold the tool in the spindle are tested for long life. The high retention force of the springs reduce tool movement, improve tool life, allow heavier cutting, reduce chatter, & create a better part finish. This spindle is prepared to easily add the CTS option.

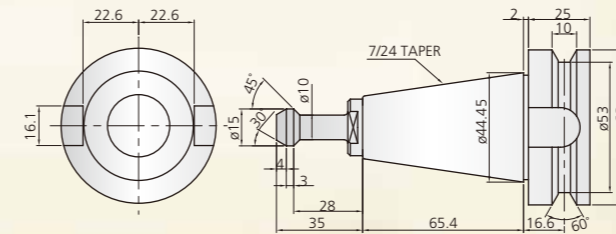
Tool Drawing

BT-40 with CTS & BT-40

Unit:mm



BT-40 with CTS



BT-40



Double-Nut Ball Screws

LEADWELL uses only premium quality preloaded double-nut ball screws from high quality suppliers on the machines. Each ball screw is accurately aligned parallel to the guide ways and anchored at both ends. They are then pretensioned to improve machine stiffness. Ball screw tail bearing supports are integral to the castings for extra rigidity. With this design the can exceed customer requirements for accuracy and maximum life.

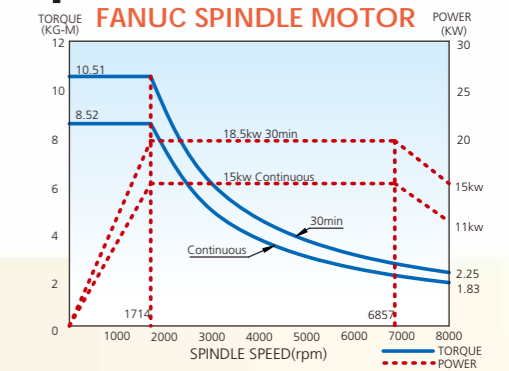
- Rotational torque variations are measured to guarantee a non-binding, highly accurate, and long running component



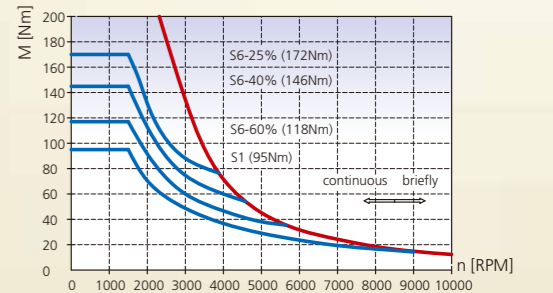
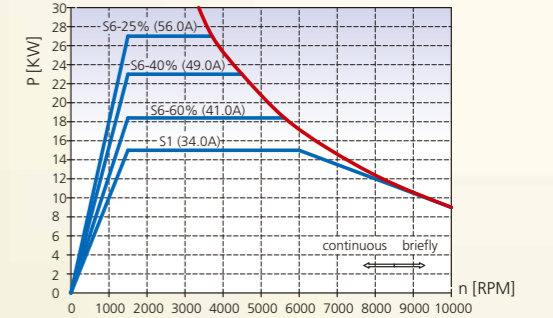
Chip Removal

LEADWELL's simple and efficient chip removal design uses chip augers on both sides of the machine. High volume coolant washes the chips from the work area into the augers that move the chips in the disposal container. This eliminates the need for an operator to manually remove chips reducing non-cutting time.

Spindle Motor



SIEMENS SPINDLE MOTOR



Directly Coupled Servo Motors

The NEW V series servo motors are connected directly to the ball screws with rigid shaft couplings. These couplings ensure that even under severe loading from sharp machining, precise interpolations is achieved. This design is superior to both belt driven and flexible shaft coupling designs.

- NEW V Series motors have 1,000,000 pulse encoders for high accuracy positioning of linear axes
- Motors are the same between all axes which reduces spare part requirements.

NEW V SERIES HIGH QUALITY ASSURANCE

Ball Bar Testing

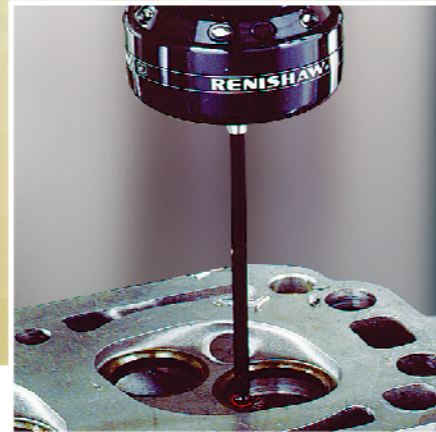
LEADWELL uses a stringent ball bar test that checks not only linear accuracy but also machine geometry. This test insures that each machine meets the three-dimensional squareness and accuracy requirements.

Laser Calibration

Lasers are used to measure the positioning accuracy of every machine over the full travel of each axis. Leadwell uses these measurements to compensate each axis so that each machine meets the high NEW V Series accuracy requirement.

- Each machine is shipped with an accuracy chart.

HIGH PRODUCTIVITY OPTIONS



Coolant Through Spindle (CTS) Option

The CTS option includes an auxiliary high-pressure pump, which supplies high pressure coolant to the cutting edge. CTS improves tool life, allows both deep hole drilling and blind pocket milling. It also allows higher speeds, which reduces cycle time.

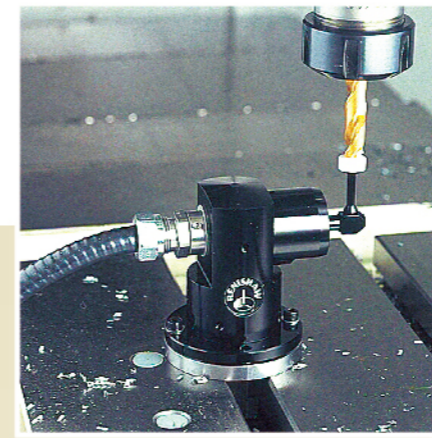
- This option can be easily added to any NEW V-series machine.

Spindle Annular Coolant Jet With 8 Nozzles Option

This unique spindle annular coolant jet with 8 nozzles option provides a ring around spindle nose where powerful coolant fluid is coming out to cool down / lubricate workpiece and tooling from all sides.

Spindle Probe Option

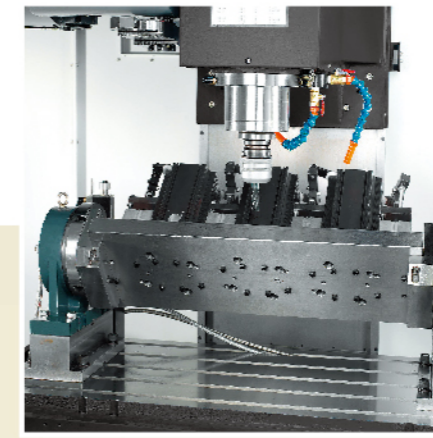
LEADWELL's spindle probe can automate workpiece setup and inspect parts.



Tool Probe Option

LEADWELL's tool probe option measures both tool length and tool diameter. It uses macro programming to automatically define and update tool offsets. This option will reduce setup time.

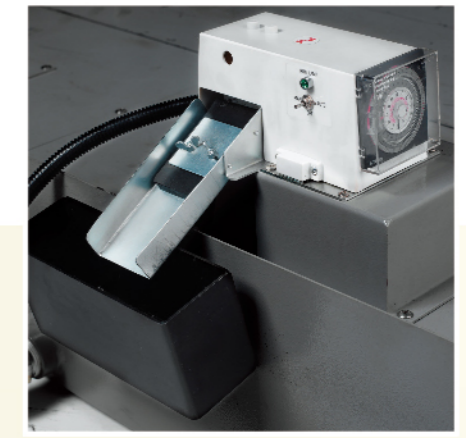
- The tool probe option can also check for broken tools.



4th Axis Rotary Table Option

This rotary table option boosts productivity by allowing more machining options with a single setup.

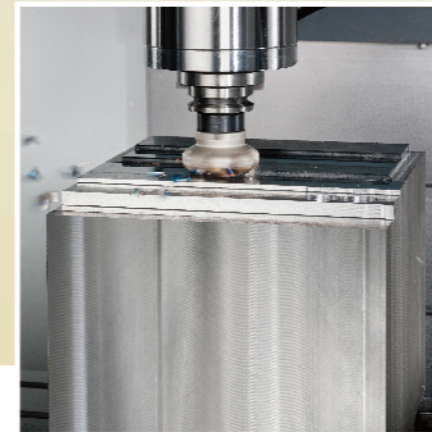
- The NEW V-series machines can become 4 Axis contouring machines.



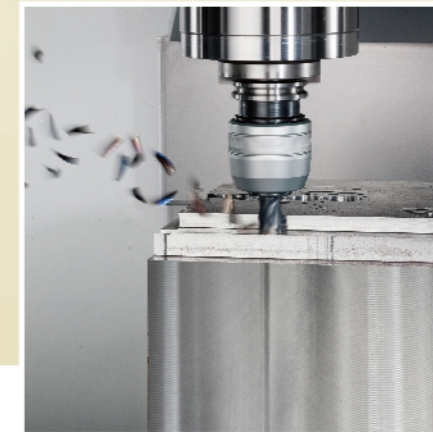
Oil Skimmer Option

Designed for collecting the oil dust in the coolant tank for reclamation and meeting environmental protection requirements.

Cutting-Testing (S45C)



Face Cutting



Gripping Cutting

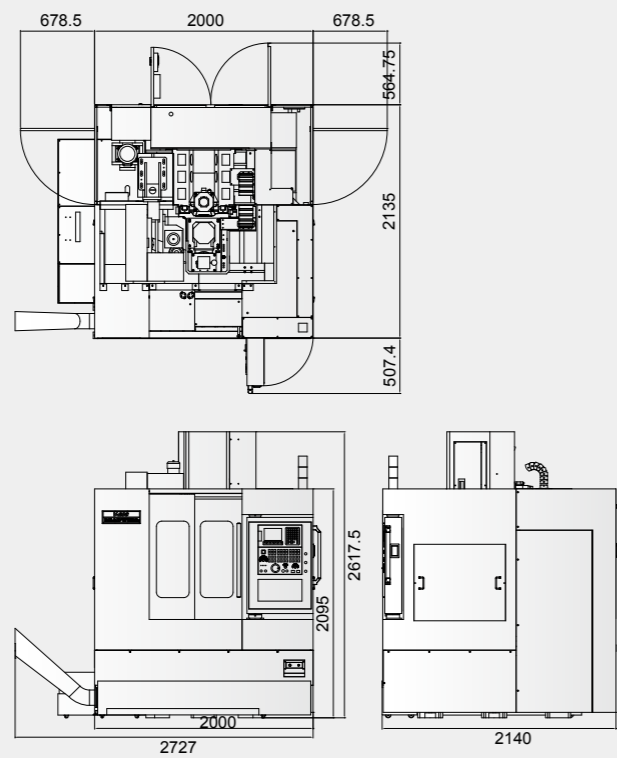


Drilling Cutting

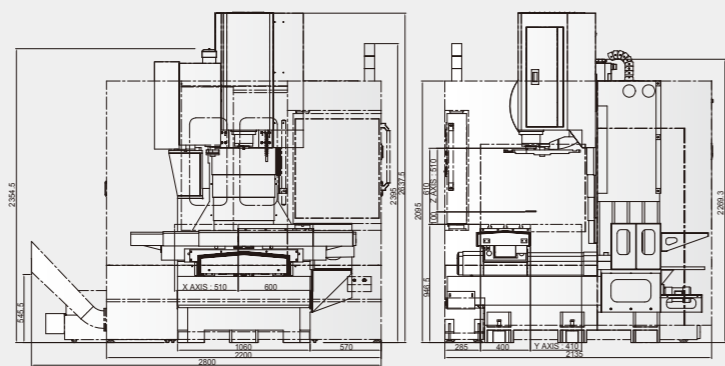
Material: S45C

| ITEM | Spindle speed (rpm) | Depth (mm) | Width (mm) | Fedrate (mm/min) | Volume (cc/min) | Tool spec |
|------------------|---------------------|------------|------------|------------------|-----------------|-----------|
| Face Cutting | 1500 | 4 | 65 | 1200 | 312 | φ 80 |
| Gripping Cutting | 510 | 40 | 12.5 | 180 | 90 | φ 25 |
| Drilling Cutting | 545 | 60 | 35 | 109 | - | φ 80 |

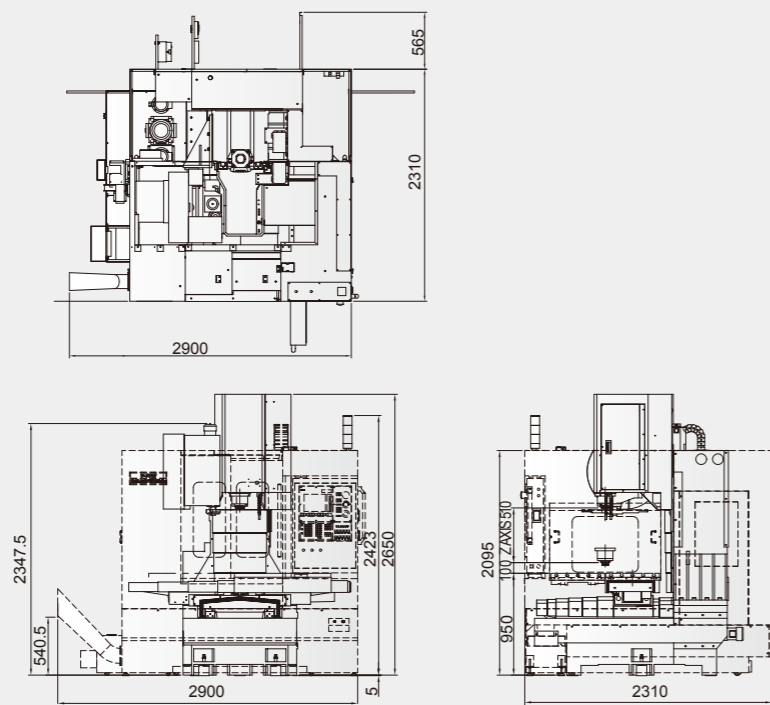
V-20S



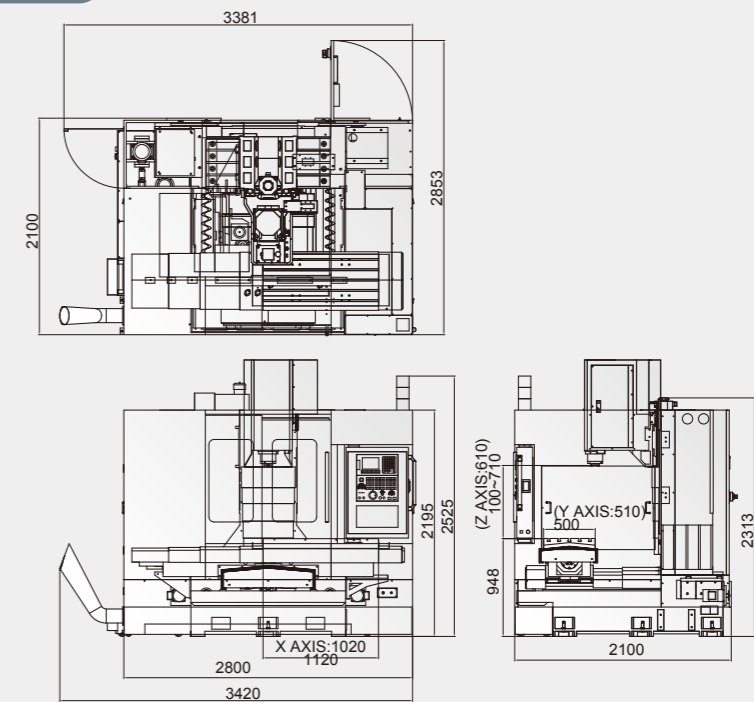
V-30S



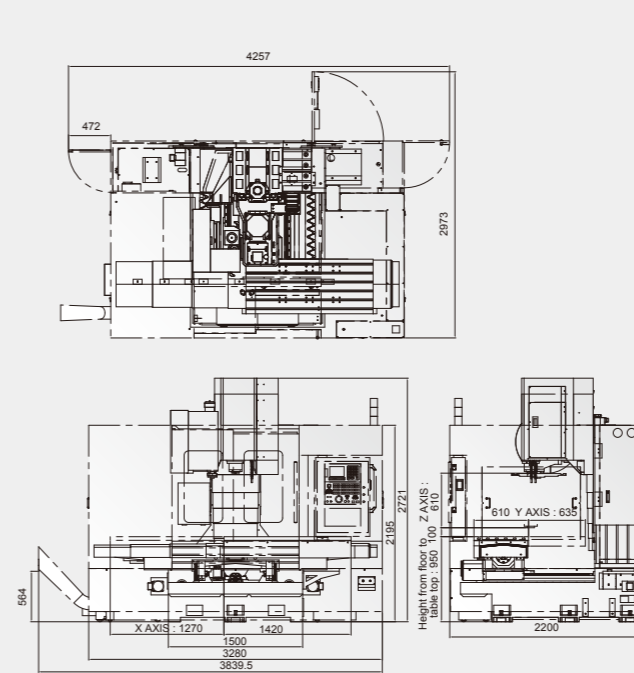
V-30M



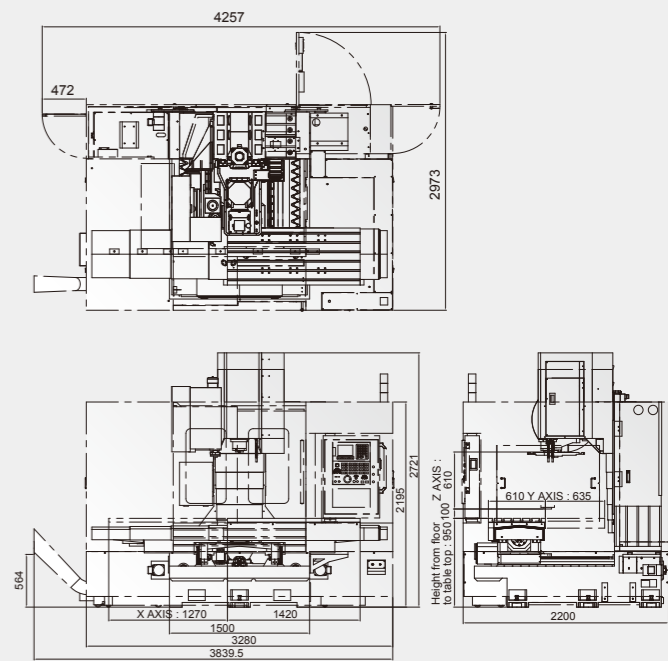
V-40M



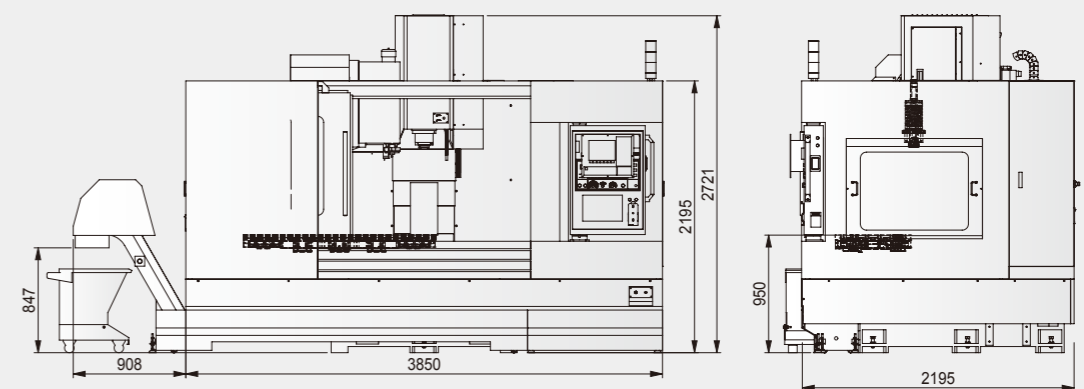
V-40L



V-50L



V-60S



MACHINE SPECIFICATIONS

| ITEM | MODEL | V-20S | | V-30S | | V-30M | |
|--|-------------|---------------------------|-----------|---------------------------|-----------|---------------------------|-----------|
| | | DRUM | ARM | DRUM | ARM | DRUM | ARM |
| A.T.C. | Type | | | | | | |
| CAPACITY | Unit | | | | | | |
| X axis travel | mm (in) | 510 (20) | | 800(31.5) | | 800 (31.5) | |
| Y axis travel | mm (in) | 410 (16) | | 410 (16) | | 510 (20) | |
| Z axis travel | mm (in) | 410+110(16+14.3) | 510 (20) | 410+110(16+4.3) | 510 (20) | 410+110(16+4.3) | 510 (20) |
| Distance from spindle nose to table surface | mm (in) | 100-610(3.9-24) | | 100-610(3.9-24) | | 100-610(4-24) | |
| Distance from spindle nose to column surface | mm (in) | 450 (17.7) | | 450 (17.7) | | 550 (22) | |
| TABLE | | | | | | | |
| Table size (LxW) | mm (in) | 600x400 (23.6x20.1) | | 900x400 (35.4x15.7) | | 900x500 (35.4x19.6) | |
| Max. table load weight | kg (lb) | 500 (1102) | | 500 (1102) | | 500 (1102) | |
| T-slot size | mm | 18TxP125x3 | | 18TxP100x3 | | 18TxP100x5 | |
| SPINDLE | | | | | | | |
| Spindle speeds | rpm | 8000 | | 8000 | | 8000 | |
| Spindle nose (nominal size, No.) | | No.40 | | No.40 | | No.40 | |
| Spindle bearing inner diameter | mm(in) | 70 (2.75) | | 70 (2.75) | | 70 (2.75) | |
| FEEDRATE | | | | | | | |
| Rapid traverse X/Y/Z | M/min (IPM) | 48/48/48 (1889/1889/1889) | | 48/48/48 (1889/1889/1889) | | 48/48/48 (1889/1889/1889) | |
| Max. cutting feedrate | M/min (IPM) | 10 (394) | | 10 (394) | | 10 (394) | |
| A.T.C. | | | | | | | |
| Tool storage capacity | pcs | 20 | 24 | 20 | 24 | 20 | 24 |
| Max. tool diameter (with adjacent tools) | mm (in) | 95 (3.7) | 80 (3.15) | 95 (3.7) | 80 (3.15) | 95 (3.7) | 80 (3.15) |
| Max. tool length | mm (in) | 250 (10) | | 250 (10) | | 250 (10) | |
| Tool change time T-T(C-C) | sec | 7.5 (13) | 3 (10) | 7.5 (13) | 3 (10) | 7.5 (13) | 3 (10) |
| MOTORS | | | | | | | |
| Spindle motor (30min) FANUC | KW (HP) | 11 (14.7) | | 11 (14.7) | | 11 (14.7) | |
| X/Y/Z axis motor | KW (HP) | 1.6/3/3 (2/4/4) | | 1.6/3/3 (2/4/4) | | 1.6/3/4 (2/4/5.4) | |
| MACHINE SIZE | | | | | | | |
| Height of machine (H) | mm (in) | 2620 (103) | | 2650 (104.3) | | 2650 (104.3) | |
| Floor space (LxW) | mm (in) | 2700x2200 (106.3x86.6) | | 2900x2200 (114x86.6) | | 2900x2310 (114x91) | |
| Total machine weight | kg (lb) | 5200 (11440) | | 5500 (12100) | | 5700 (12566) | |
| Power requirement | KVA | 25 | | 25 | | 25 | |
| Computer control | FANUC | O i-M | | O i-M | | O i-M | |

MACHINE SPECIFICATIONS

| ITEM | MODEL | V-40M | | V-40L | | V-50L | | V-60S | |
|--|-------------|---------------------------|-----------|---------------------------|-----------|---------------------------|-----------|--------------------------|-----------|
| | | DRUM | ARM | DRUM | ARM | DRUM | ARM | DRUM | ARM |
| A.T.C. | Type | | | | | | | | |
| CAPACITY | Unit | | | | | | | | |
| X axis travel | mm (in) | 1020 (40.2) | | 1020 (40.2) | | 1270 (50) | | 1520(59.8) | |
| Y axis travel | mm (in) | 510 (20) | | 635 (25) | | 635 (25) | | 635(25) | |
| Z axis travel | mm (in) | 510+110(20.1+4.3) | 610 (24) | 510+110(20+4.3) | 610 (24) | 510+110(20+4.3) | 610 (24) | 510 +110(20+4.3) | 610(24) |
| Distance from spindle nose to table surface | mm (in) | 100-710(3.9-28) | | 100-710(3.9-28) | | 100-710(3.9-28) | | 100-710(3.9-28) | |
| Distance from spindle nose to column surface | mm (in) | 560 (22) | | 635 (25) | | 635 (25) | | 635 (25) | |
| TABLE | | | | | | | | | |
| Table size (LxW) | mm (in) | 1120x500 (44x19.7) | | 1120x610 (44x24) | | 1420x610 (56x24) | | 1550x610 (61x24) | |
| Max. table load weight | kg (lb) | 800 (1760) | | 800 (1760) | | 800 (1760) | | 1000 (2200) | |
| T-slot size | mm | 18TxP100x5 | | 18TxP100x6 | | 18TxP100x6 | | 18TxP100x6 | |
| SPINDLE | | | | | | | | | |
| Spindle speeds | rpm | 8000 | | 8000 | | 8000 | | 8000 | |
| Spindle nose (nominal size, No.) | | No.40 | | No.40 | | No.40 | | No.40 | |
| Spindle bearing inner diameter | mm(in) | 70 (2.75) | | 70 (2.75) | | 70 (2.75) | | 70 (2.75) | |
| FEEDRATE | | | | | | | | | |
| Rapid traverse X/Y/Z | M/min (IPM) | 36/36/36 (1417/1417/1417) | | 36/36/36 (1417/1417/1417) | | 36/36/36 (1417/1417/1417) | | 36/36/36(1417/1417/1417) | |
| Max. cutting feedrate | M/min (IPM) | 10 (394) | | 10 (394) | | 10 (394) | | 10 (394) | |
| A.T.C. | | | | | | | | | |
| Tool storage capacity | pcs | 20 | 24 | 20 | 24 | 20 | 24 | 20 | 24 |
| Max. tool diameter (with adjacent tools) | mm (in) | 95 (3.7) | 80 (3.15) | 95 (3.7) | 80 (3.15) | 95 (3.7) | 80 (3.15) | 95 (3.7) | 80 (3.15) |
| Max. tool length | mm (in) | 250 (10) | | 250 (10) | | 250 (10) | | 250 (10) | |
| Tool change time T-T(C-C) | sec | 7.5 (10) | 3 (6) | 7.5 (10) | 3 (6) | 7.5 (13) | 3 (6) | 7.5 (10) | 3 (6) |
| MOTORS | | | | | | | | | |
| Spindle motor (30min) FANUC | KW (HP) | 18.5 (24.8) | | 18.5 (24.8) | | 18.5 (24.8) | | 18.5 (24.8) | |
| X/Y/Z axis motor | KW (HP) | 3/3/4 (4/4/5.4) | | 3/3/4 (4/4/5.4) | | 3/3/4 (4/4/6) | | 3/3/4 (4/4/5.4) | |
| MACHINE SIZE | | | | | | | | | |
| Height of machine (H) | mm (in) | 2721 (107) | | 2721 (107) | | 2721 (107) | | 2721 (107) | |
| Floor space (LxW) | mm (in) | 3420x2100 (135x83) | | 3420x2200 (135x86.6) | | 3840x2200 (151x86.6) | | 4130x2200(162.6x86.6) | |
| Total machine weight | kg (lb) | 6500 (14330) | | 6800 (14991) | | 7000 (15432) | | 7800 (17195) | |
| Power requirement | KVA | 30 | | 30 | | 30 | | 30 | |
| Computer control | FANUC | O i-M | | O i-M | | O i-M | | O i-M | |

STANDARD ACCESSORIES

- Full enclosure guarding
- Chip conveyor (auger type)
- Work light
- Alarm lamp
- Heat exchanger
- Rigid tapping
- Auto counter for work piece
- Remote MPG

OPTIONAL ACCESSORIES

- Surrounding coolant system
- 10,000 rpm spindle
- 12,000 rpm spindle
- Spindle oil chiller
- Tool tip air blow system
- Linear Scale
- Tool overload detection
- Auto tool length measurement (A.T.L.M)
- Automatic workpiece measurement
- Simple tool life management
- Chip conveyor outside machine & chip bucket
- Oil skimmer
- Coolant gun
- Air conditioner
- Rotary table preparation
- Through hole drill kit
- DNC link software
- Programmable Nozzle
- Programmable air blow
- CTS Preparation
- Extra coolant tank
- Auto door
- Spindle annular coolant jet (ARM type ATC)
- ARM (30T) ATC
- HEIDENHAIN control
- SIEMENS control

