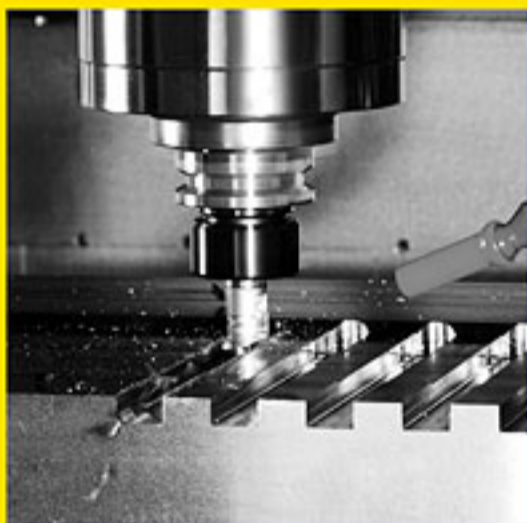


**LEADWELL**  
LEADWELL CNC MACHINES MFG., CORP.

***MV SERIES***  
***VERTICAL MACHINING***  
***CENTERS***



**The Ultimate in Performance**

# **MV SERIES**

## **VERTICAL MACHINING CENTERS**

### **The Ultimate in Performance**

#### ◆ MORE POWERFUL

- Powerful alpha 18/8000iP spindle motor
- Massive cast iron base for extra stability
- Wide column design for extra rigidity

#### ◆ INCREASED CAPACITY

- X travel from 800mm (MV-30i) to 1270 (MV-50i)
- Table size from 890x510 to 1420x610

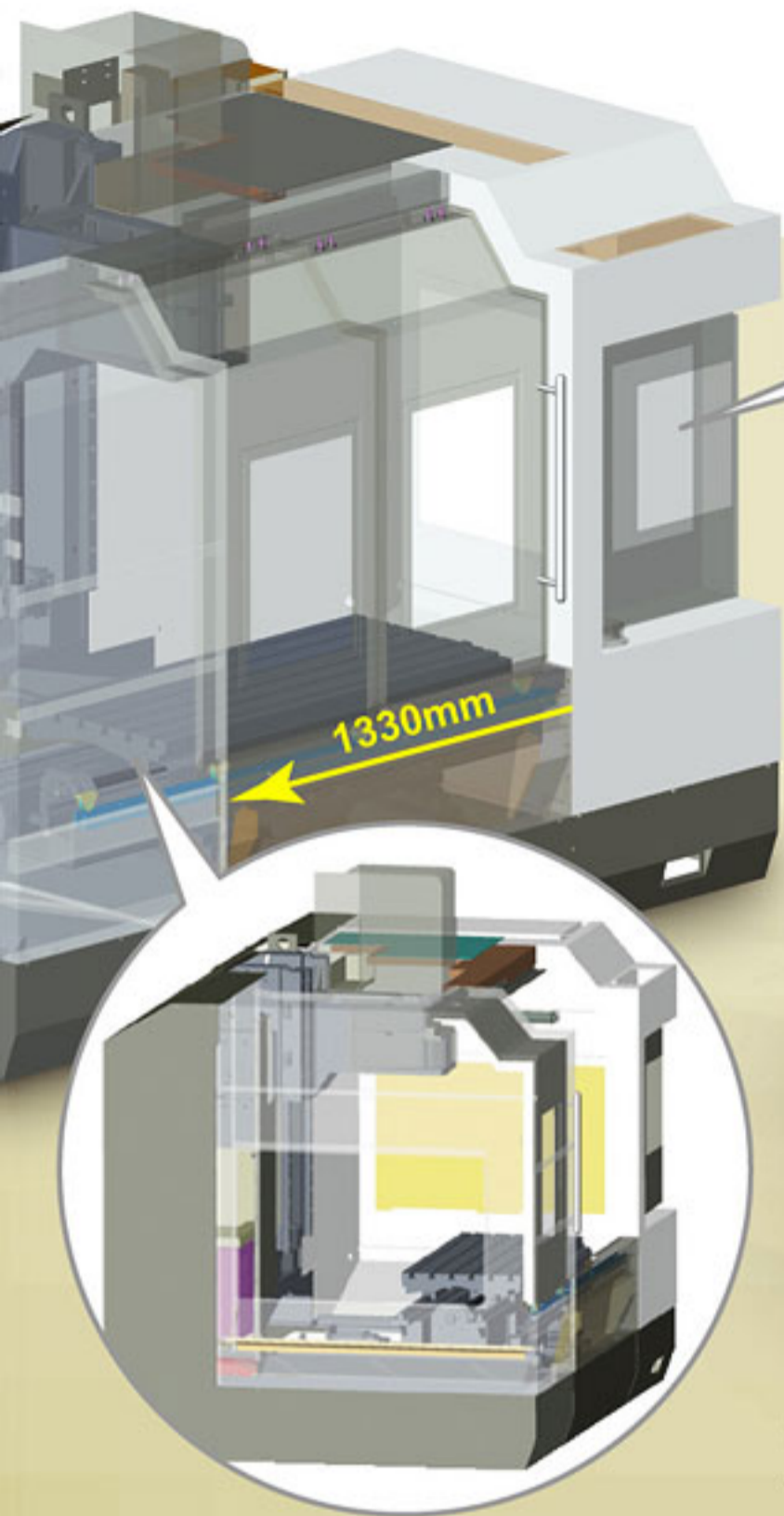
#### ◆ FASTER / MORE PRODUCTIVE

- Rapid rates up to 32 m/minute
- 8000 RPM standard (10/12,000 RPM optional)

#### ◆ ERGONOMIC CONSIDERATIONS

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

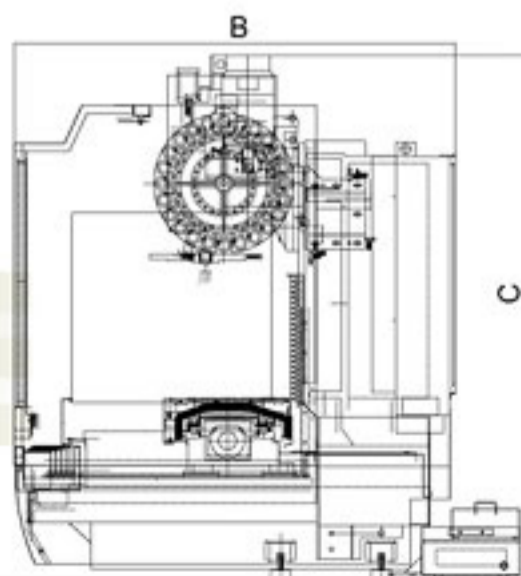
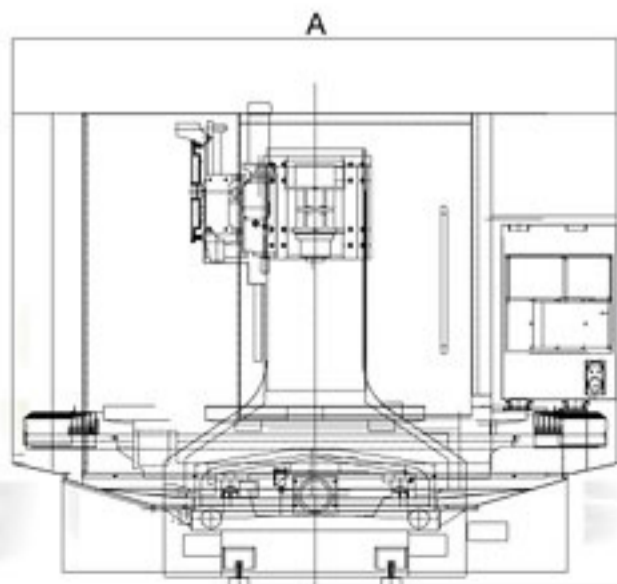




Full sized side chip covers provides easy loading and unloading of long work pieces.

**MACHINE DIMENSIONS**

MODE	A	B	C
MV-30i	2730(107.5)	2535(100)	2585(101)
MV-40	3030(119)	2535(100)	2585(101)
MV-40i	2800(110)	2860(113)	3000(119)
MV-50i	3250(128)	2860(113)	3000(119)



# **MV 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, & tables have over 10 times the dampening capacity of those made from steel resulting in superior cutting performance.

- Linear guideways trucks are interchangeable for easy maintenance.



### **Double-nut ball screws**

Leadwell uses only premium quality preloaded double-nut ball screws from THK, IBL, STAR and HIWIN on the machines. Each ball screw is accurately aligned parallel to the guide ways and anchored at both ends. They are then pre-tensioned 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.

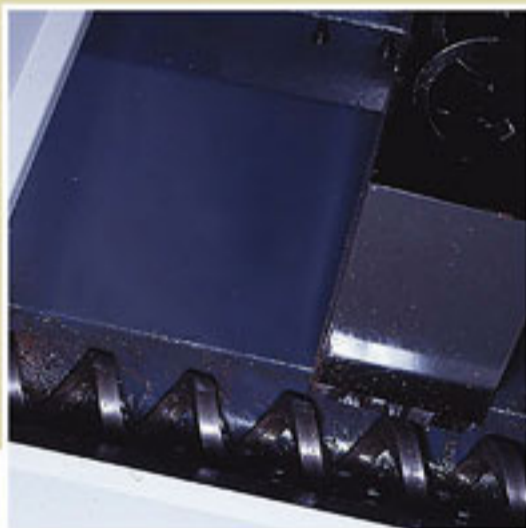
- Rotational torque variations are measured to guarantee a non-binding, highly accurate, and long running component.



## Cartridge Type Spindle

The heavy-duty spindle utilizes FAG or NSK ABEC-7 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 reduces tool movement, which reduces chatter, improves tool life and allows heavier cutting. All of which produces better part finish in less time.

- The spindle is prepared to easily add the CTS option.



## 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.



## Rigid Tapping

The encoder is attached directly 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.



## Directly Coupled Servo Motors

The MV-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 interpolation is achieved. This design is superior to both belt driven and flexible shaft coupling designs.

- MV 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.

# MV 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 MV Series accuracy requirement.

- Each machine is shipped with an accuracy chart.

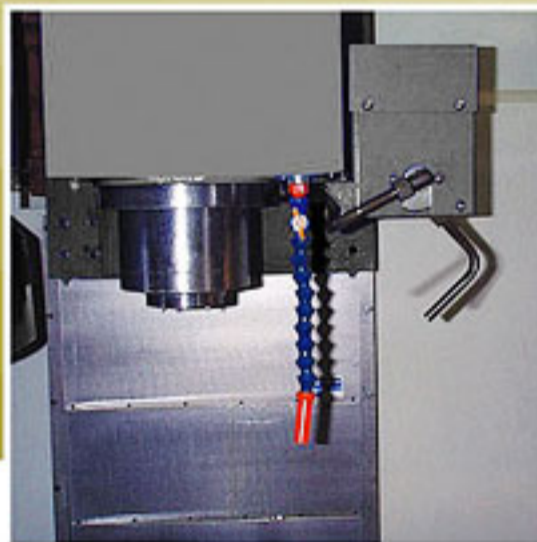
### HIGH PRODUCTIVITY OPTIONS



### Coolant Thru 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 MV-series machine.



### Programmable Coolant Nozzle Option

This unique programmable coolant nozzle option provides precise coolant control. It allows the NC program to change the coolant direction during the machining cycle. The nozzle can be programmed for tool lengths from 60mm (2.4") to 250mm (10").

- This option eliminates operator adjustment causing unnecessary downtime.



### High Speed ATC Option

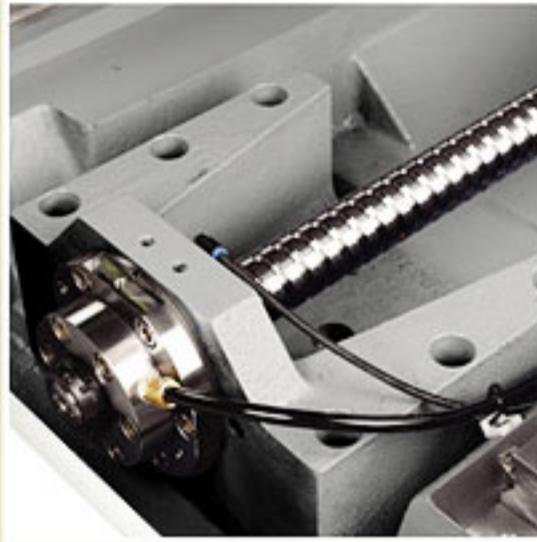
The high-speed cam drive automatic tool changer option can easily handle ISO #40 tools weighing up to 7kg. The cam drive provides smooth, reliable tool changes, and it is easy to maintain.

- The PLC controller provides quick random tool selection.
- 24 hr Non-Stop Reliability Test



### Thermal Control Option

Cooling oil is circulated through X, Y, and Z hollow ball screws for thermal control of the linear axes. Circulated around the spindle to help improve tool point accuracy.



### Spindle Probe Option

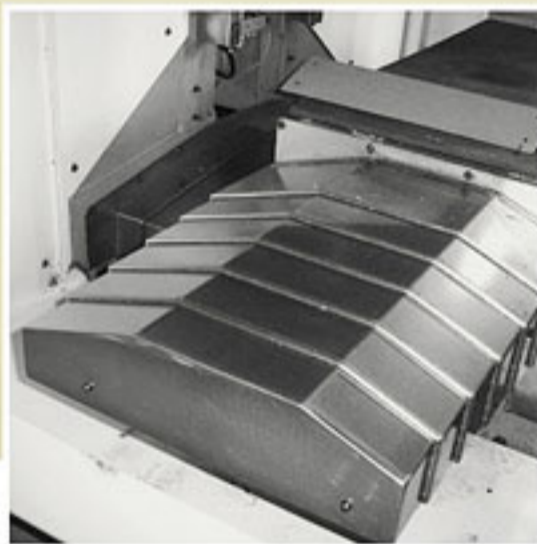
Leadwell's spindle probe can automate workpiece setup and inspect parts.



### Tool Probe Option

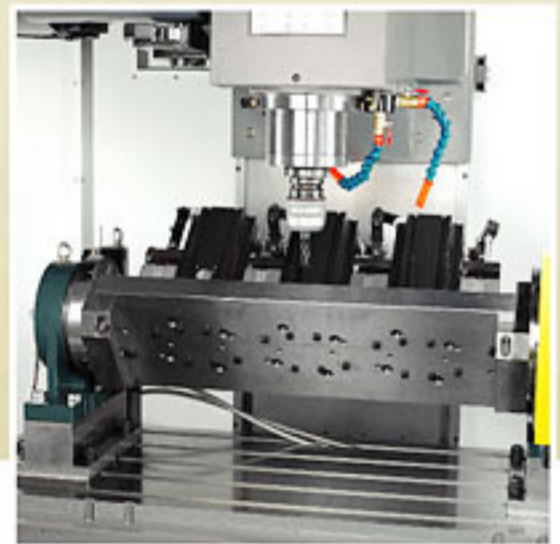
Leadwell's tool probe option measures both tool length and tool diameter. It uses macro programming to automatically define and update tool offsets. This option will reduce setup time.

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



### Scissor Type Telescopic Way Cover Option

The sloped scissor type way cover option is an enhanced design where all sections move smoothly in unison. This design not only provides smooth and quiet movement but the slope surface aids in effective chip removal. This design ensures excellent reliability and long life of the machine.



### 4th Axis Rotary Table Option

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

- The MV-series machines can become 4 Axis contouring machines.



## MACHINE SPECIFICATIONS

ITEM	MODEL	MV-30I	MV-40	MV-40I	MV-50I
<b>CAPACITY</b>					
X axis travel	mm (in)	800 (31.5)	1020 (40.2)	1020 (40.2)	1270 (50)
Y axis travel	mm (in)	510 (20.1)	510 (20.1)	635 (25)	635 (25)
Z axis travel	mm (in)	620 (24)	620 (24)	610 (24)	610 (24)
Distance from spindle nose to table surface	mm (in)	100-720 (4-28.2)	100-720 (4-28.2)	152-762 (6-30)	152-762 (6-30)
Distance from spindle nose to column surface	mm (in)	550 (22)	550 (22)	660 (26)	660 (26)
<b>TABLE</b>					
Table size (LxW)	mm (in)	890x510 (35x19.7)	1100x510(43x19.7)	1120x610(44x24)	1420x610(56x24)
Max. table load weight	kg (lb)	500(1100)	500(1100)	800(1760)	800(1760)
T-slot size		18TxP100x5	18TxP100x5	18TxP100x6	18TxP100x6
<b>SPINDLE</b>					
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	70	70	70	70
<b>FEEDRATE</b>					
Rapid traverse X,Y/Z	m/min (IPM)	32/28 (1260/1102)	32/28 (1260/1102)	32 (1260)	32 (1260)
Max. cutting feedrate	m/min (IPM)	12 (472.8)	12 (472.8)	10 (394)	10 (394)
<b>A.T.C.</b>					
		Drum type/Arm type(opt.)			
Tool storage capacity	pcs	20/24 (opt.)	20/24 (opt.)	20/24 (opt.)	20/24 (opt.)
Max. tool diameter (with adjacent tools)	mm (in)	125 (5)	125 (5)	95 (3.7)	95 (3.7)
Max. tool length	mm (in)	250 (10)	250 (10)	250 (10)	250 (10)
Tool change time (T-T/C-C)	sec	7/13	7/13	7/13	7/13
<b>MOTORS</b>					
Spindle motor (30min/cont) FANUC	kw (HP)	7.5 (10)	7.5 (10)	11 (14.7)	11 (14.7)
X,Y/Z axis motor	kw (HP)	3/4 (4/5.3)	3/4 (4/5.3)	3/4 (4/5.3)	3/4 (4/5.3)
<b>MACHINE SIZE</b>					
Height of machine (H)	mm (in)	2585 (101)	2585 (101)	3000 (119)	3000 (119)
Floor space (LxW)	mm (in)	2730x2535 (107.5x100)	3030x2535 (119x100)	2800x2860 (110x113)	3250x2860 (128x113)
Total machine weight	kg (lb)	5500 (12120)	5800 (12790)	6890 (15190)	6980 (15390)
Power requirement	KVA	25	25	40	40
Computer control	FANUC	0i-MC	0i-MC	0i-MC	0i-MC

### STANDARD ACCESSORIES

- RS232 interface
- Rigid tapping
- Fully enclosure guarding
- Chip conveyor(auger type)
- Work light
- Alarm lamp
- Heat exchanger
- Remote MPG
- Coolant system including coolant tank
- Lubrication system
- Leveling screws and pads
- Maintenance tool box
- 8000rpm spindle
- Air purge
- Auto counter for work piece
- Drum A.T.C with 20 tools magazine(BT40)

### OPTIONAL ACCESSORIES

- Oversize coolant tank
- Extra coolant tank
- 10000rpm spindle
- 12000rpm spindle
- Spindle oil chiller
- Two speed gearbox
- C.T.S preparation
- Tool tip air blow system
- Linear scales
- Tool overload detection
- Auto tool length measurement
- Automatic workpiece measurement
- Simple tool life management
- Shower coolant system
- Chip conveyor outside machine & chip bucket
- Oil skimmer
- Coolant gun
- Rotary table preparation
- Manual tail stock for rotary table
- Through hole drill kit
- DNC link software
- Richmill 50,000rpm electric spindle
- 3D tool measurement
- Arm A.T.C with 24 tools magazine
- Arm A.T.C with 30 tools magazine
- Automatic power off
- Transformer

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