

V SERIES 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 510mm to 2,040mm
- Table size from 600x350mm to 2,100x1,000mm

•FASTER / MORE PRODUCTIVE

- Rapid rates up to 36 M/minute
- 6,000 RPM standard (10,000/12,000 RPM optional)

•ERGONOMIC CONSIDERATIONS

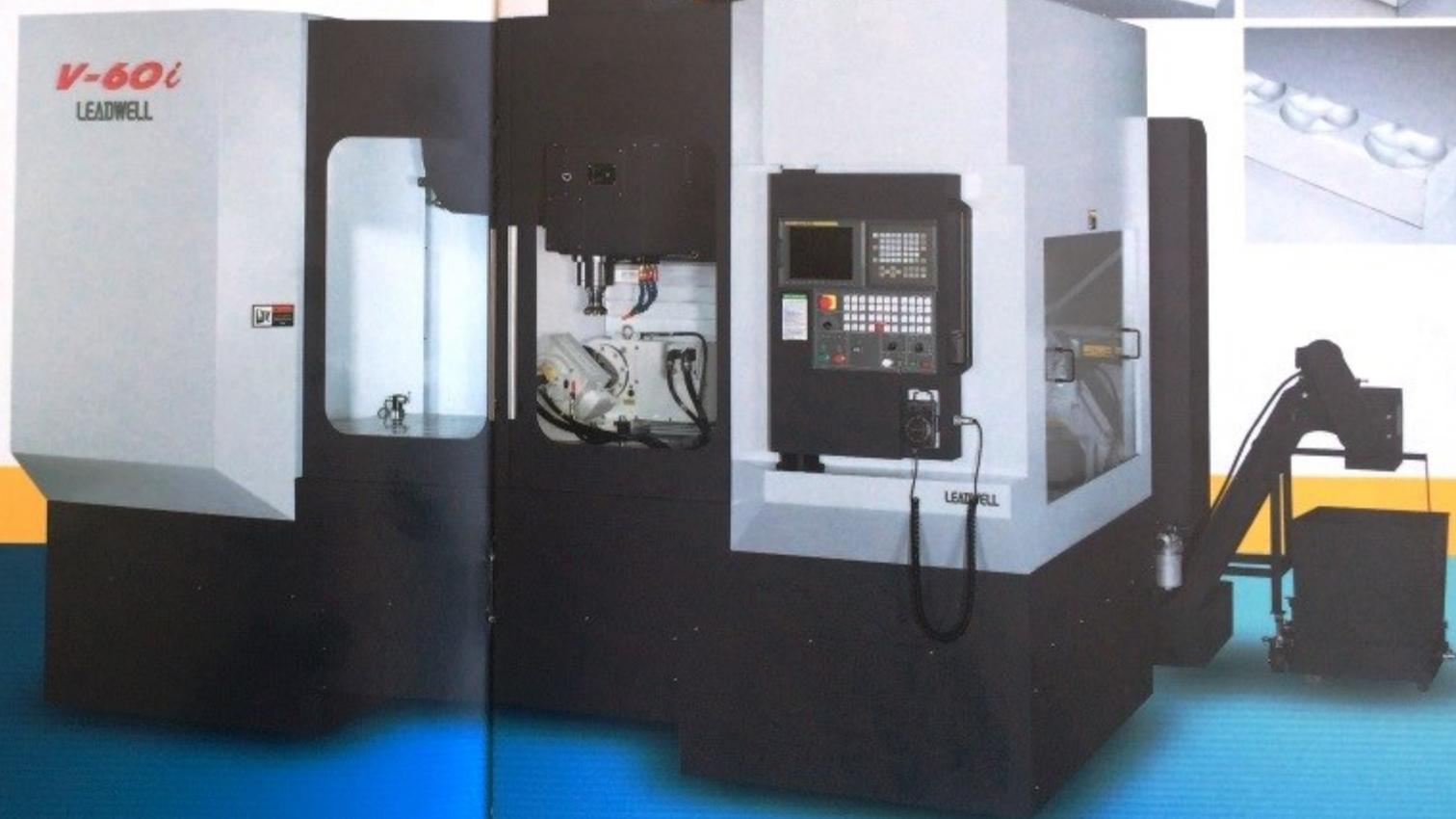
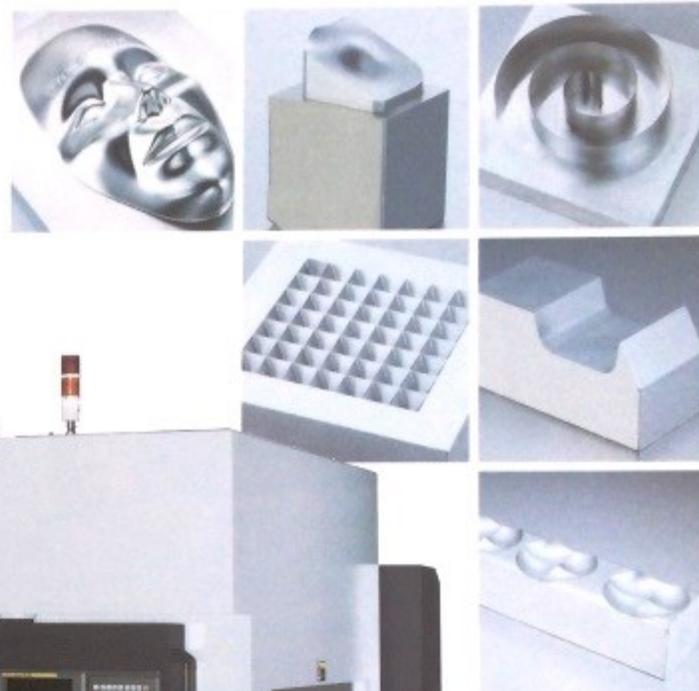
- Easy to use membrane touch-pad control station
- Easy moving operator door
- No chip or coolant leaks

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.

Swivel Operator Panel

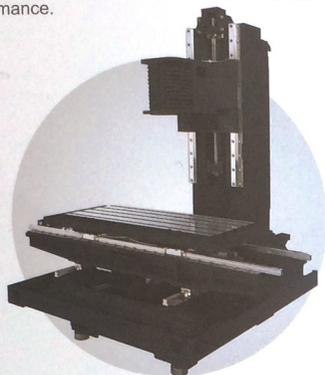
The operator panel swivels for better operator convenience.



V SERIES

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.



Picture represents the large frame of the V-60i.

- Z axis for V-20i/60i/80i is box way.
- Z axis V-30i/40 is linear way.

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. The augers move the chips into the disposal container, which eliminates the need for an operator to manually remove chips. This system eliminates operation intervention and reduces non-cutting time.



Directly Coupled Servo Motors

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



Double Nut Designed Ball Screws

LEADWELL uses only premium quality preloaded double-nut ball screws from high quality supplier. On the V-series 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. The rotational torque variation is inspected to guarantee a non-binding, highly accurate, and long running component. With this design the V-series can exceed customer requirements for accuracy and maximum life.



Linear Guide Ways

LEADWELL uses linear guide ways that feature zero clearance and fully-loaded carrying capacity in all directions. The ways consume less power and requires no adjustments. They linear guide ways out perform all other types of ways used today. Additionally, each way is automatically lubricated independently to increase life.



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.



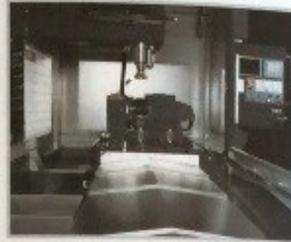
Cartridge Type Spindle

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.

High Productivity Options

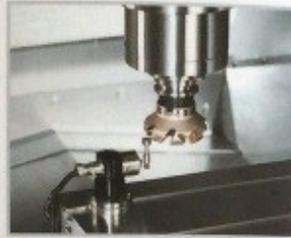
4th & 5th Axis Rotary Table Option

This 4th & 5th axis rotary table option boosts productivity by allowing more machining with a single set-up. It also can turn the V-series machine into a 4 Axis contouring machine which adds versatility.



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 ease setup, and check for broken tools.



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.



Coolant Through Spindle (CTS) Option

The optional CTS 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 V-series machine.



High Torque Spindle Option

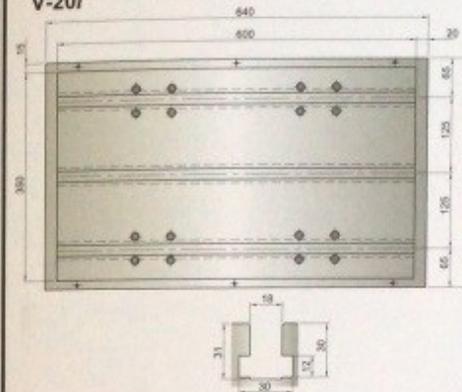
The cutting torque is maximized by combining the German ZF-2-speed gear box with the oil cooled main spindle. The gearbox has its own separate lubrication system.

The two speed spindle option advantages are:

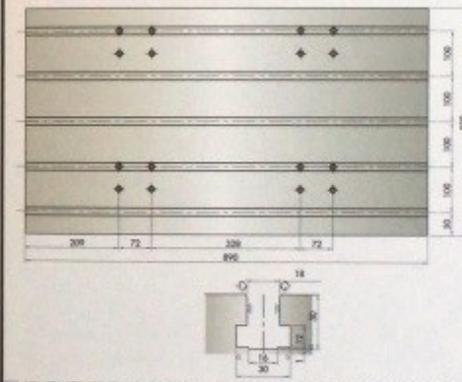
- Over 95% efficiency
- Quiet gears
- Heat is not transmitted to the main spindle
- Gear vibration is not transmitted to the main spindle
- Minimum backlash

Table Dimensional Drawing

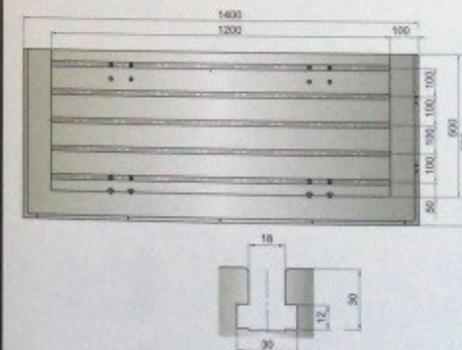
V-20i



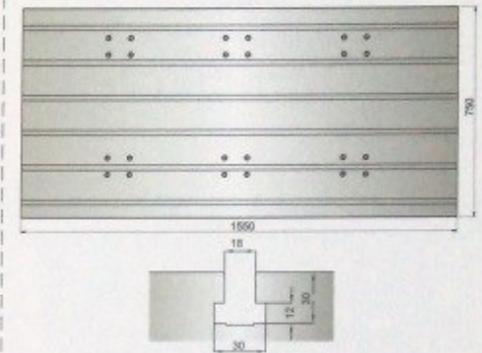
V-30i



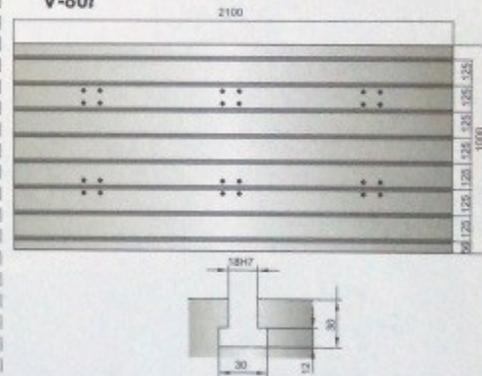
V-40



V-60i



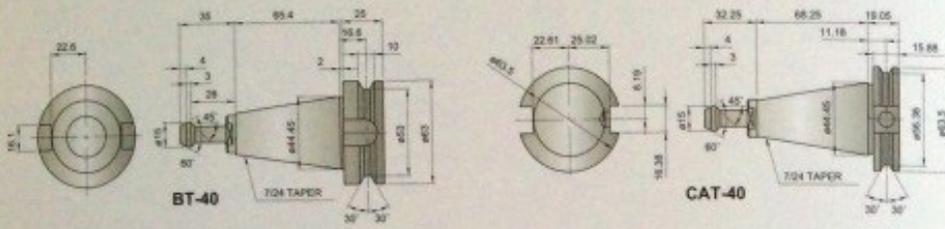
V-80i



Tool Drawing

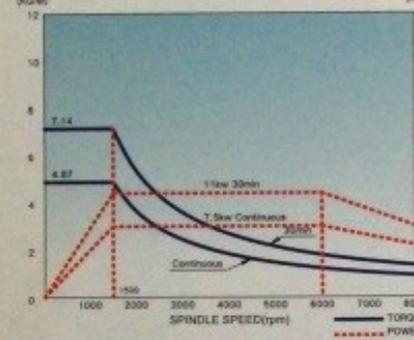
BT-40 & CAT-40

Unit:mm

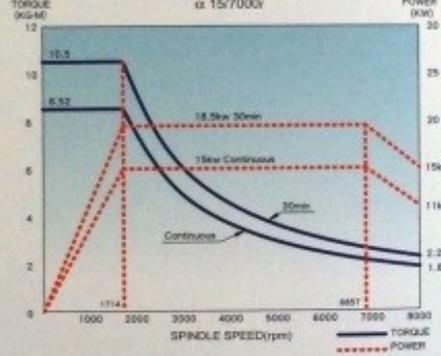


Spindle Speed/Power Output Diagram

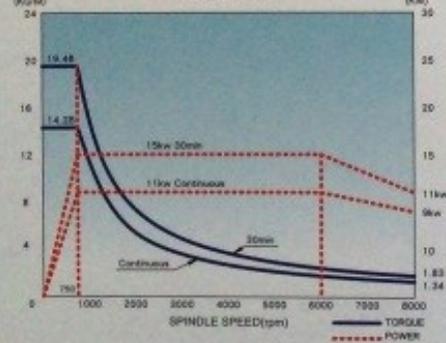
V-20i/V-30i FANUC SPINDLE MOTOR
α 8/8000i



V-40 FANUC SPINDLE MOTOR
α 15/7000i

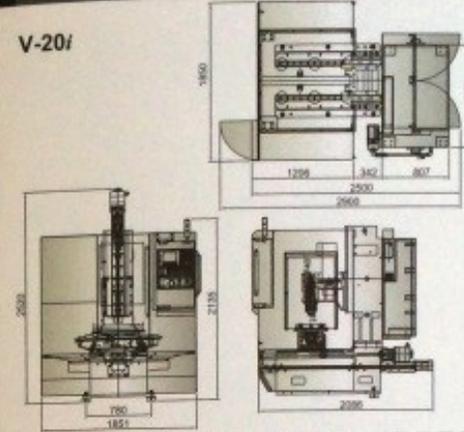


V-60i/V-80i FANUC SPINDLE MOTOR
α 22P/8000i

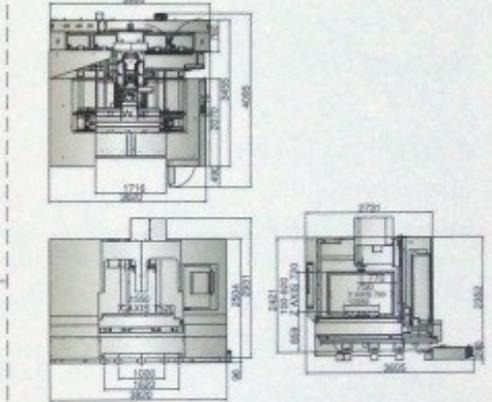


Outline Dimensional Drawing

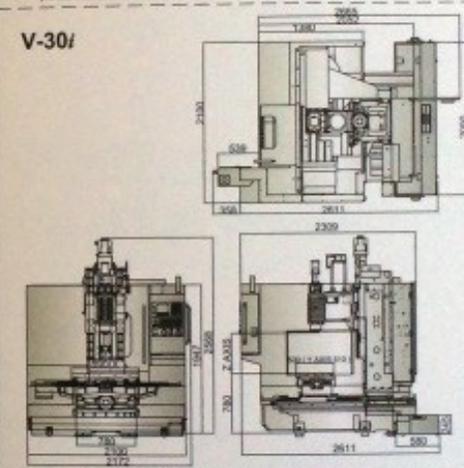
V-20i



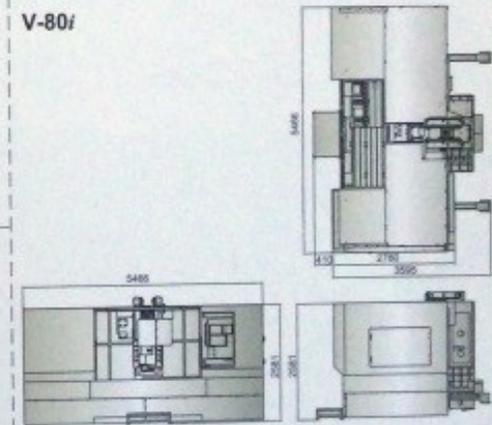
V-60i



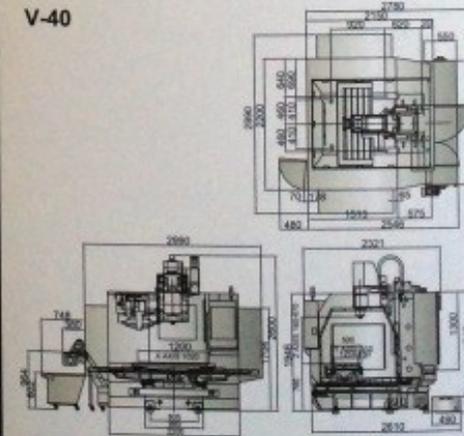
V-30i



V-80i



V-40



Machine Specifications

ITEM	MODEL	V-20i		V-30i		V-40	
		DRUM (STD.)	ARM (OPT.)	DRUM (STD.)	ARM (OPT.)	DRUM (STD.)	ARM (OPT.)
CAPACITY	Unit						
X axis travel	mm (in)	510 (20.1)		760 (30)		1020 (40.2)	
Y axis travel	mm (in)	350 (13.8)		510 (20.1)		510 (20.1)	
Z axis travel	mm (in)	410+110 (15.7+4.3)	510 (20.1)	510+110 (20.1+4.3)	610 (24)	510+110 (20.1+4.3)	610 (24)
Distance from spindle nose to table surface	mm (in)	132-642 (5.2-25.3)		195-805 (7.7-31.7)		160-770 (6.3-30.3)	
Distance from spindle nose to column surface	mm (in)	410 (16.1)		515 (20)		515 (20)	
TABLE (PALLET)							
Size of working surface	mm (in)	600x350 (23.6x13.8)		890x500 (35x19.7)		1200x500 (47.2x19.7)	
Permissible mass of workpiece	kg (lb)	200 (440)		300 (660)		500 (1100)	
T-slot size		18TxP125x3		18TxP100x5		18TxP100x5	
SPINDLE							
Spindle speed	rpm	8000		8000		8000	
Spindle nose (nominal size, No.)		7/24 Taper, No.40		7/24 Taper, No.40		No.40	
Spindle bearing inner diameter	mm	60 (2.4)/50 (2)		70 (2.75)		70 (2.75)	
FEEDRATE							
Rapid traverse X/Y/Z	M/min (F/M)	36/36/20 (1417/1417/787.4)		36/36/36 (1417/1417/1417)		24/24/20 (945/945/787.4)	
Max. cutting	M/min (F/M)	10 (394)		10 (394)		10 (394)	
A.T.C.							
Tool storage capacity		20	20	20	24	20	24
Max. tool diameter (with adjacent tools)	mm (in)	89 (3.5)	80 (3.2)	100 (3.9)	80 (3.2)	95 (3.7)	80 (3.15)
Max. tool length	mm (in)	200 (7.9)		250 (9.8)		250 (9.8)	
ATC time T-T	sec	6	2	6	2	6	2
ATC time C-C	sec	8	5	8	5	8	5
MOTORS							
Spindle motor (cont./30min) FANUC	kW (HP)	11 (14.7)		11 (14.7)		18.5 (24.8)	
X/Y/Z axis feed motors	kW (HP)	1.6/3/3 (2.1/4/4)		1.6/3/3 (2.1/4/4)		3/3/4 (4/4/5.4)	
MACHINE SIZES							
Height of machine (H)	mm (in)	2504 (98.5)		2585 (101)		2585 (101)	
Floor space (LxW)	mm (in)	1900x2983 (68.7x117.4)		2100x3275 (82.6x128.9)		2990x3290 (117.7x129.9)	
Total machine weight	kg (lb)	3000 (6610)		4900 (9900)		5400 (11880)	
Power requirement	KVA	25		25		30	
Computer control	FANUC	0i-M		0i-M		0i-M	



STANDARD ACCESSORIES

- RS232 interface
- Rigid tapping
- Fully enclosure guarding
- Chip conveyor(auger type)
- Work light
- Alarm lamp
- Heat exchanger
- Remote MPG (V-50/60/80i)
- Coolant system including coolant tank
- Lubrication system
- Leveling screws and pads
- Maintenance tool box
- 8,000rpm spindle
- Air purge

ITEM	MODEL	V-80i		V-90i	
		DRUM (STD.)	ARM (OPT.)	DRUM (STD.)	ARM (OPT.)
CAPACITY	Unit				
X axis travel	mm (in)	1520 (59.8)		2040 (80.3)	
Y axis travel	mm (in)	760 (30)		1000 (40)	
Z axis travel	mm (in)	610+110 (24+4.3)	720 (28.3)	610+110 (24+4.3)	720 (28.3)
Distance from spindle nose to table surface	mm (in)	120-840 (4.8-33.1)		120-840 (4.8-33.1)	
Distance from spindle nose to column surface	mm (in)	760 (30)		1000 (40)	
TABLE (PALLET)					
Size of working surface	mm (in)	1550x750 (61x29.5)		2100x1000 (82.7x40)	
Permissible mass of workpiece	kg (lb)	1200 (2640)		1800 (3960)	
T-slot size		18TxP125x6		18TxP125x8	
SPINDLE					
Spindle speed	rpm	8000		8000	
Spindle nose (nominal size, No.)		No.40		No.40	
Spindle bearing inner diameter	mm	70 (2.75)		70 (2.75)	
FEEDRATE					
Rapid traverse X/Y/Z	M/min (F/M)	24/24/20 (945/945/787.4)		24/24/20 (945/945/787.4)	
Max. cutting	M/min (F/M)	5 (196.8)		5 (196.8)	
A.T.C.					
Tool storage capacity		24	24	24	24
Max. tool diameter (with adjacent tools)	mm (in)	95 (3.7)	80 (3.15)	95 (3.7)	80 (3.15)
Max. tool length	mm (in)	250 (9.8)		250 (9.8)	
ATC time T-T	sec	6	2	6	2
ATC time C-C	sec	8	5	8	5
MOTORS					
Spindle motor (cont./30min) FANUC	kW (HP)	15 (20)		15 (20)	
X/Y/Z axis feed motors	kW (HP)	4/4/4 (5.4/5.4/5.4)		4/4/4 (5.4/5.4/5.4)	
MACHINE SIZES					
Height of machine (H)	mm (in)	3006 (118)		3006 (118)	
Floor space (LxW)	mm (in)	3820x4365 (150x172)		5466x4135 (215x163)	
Total machine weight	kg (lb)	10500 (23100)		11700 (25770)	
Power requirement	KVA	35		35	
Computer control	FANUC	0i-M		0i-M	

OPTIONAL ACCESSORIES

- Remote MPG (V-20i/30i/40)
- Big coolant tank
- Extra coolant tank
- 10,000rpm spindle
- 12,000rpm 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
- Auto counter for work piece
- DNC link software
- Richmill 50,000rpm electric spindle
- 3D tool measurement
- Automatic power off
- Transformer