

Dhruva HE

SERIES

3050 | 3070 | 4050 | 4070



Drilling and Milling Made Easy

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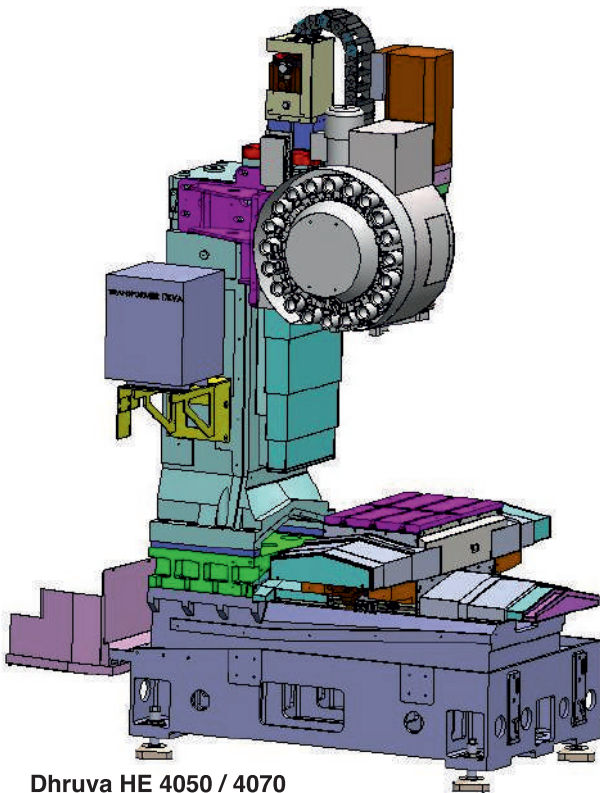
Dhruva HE

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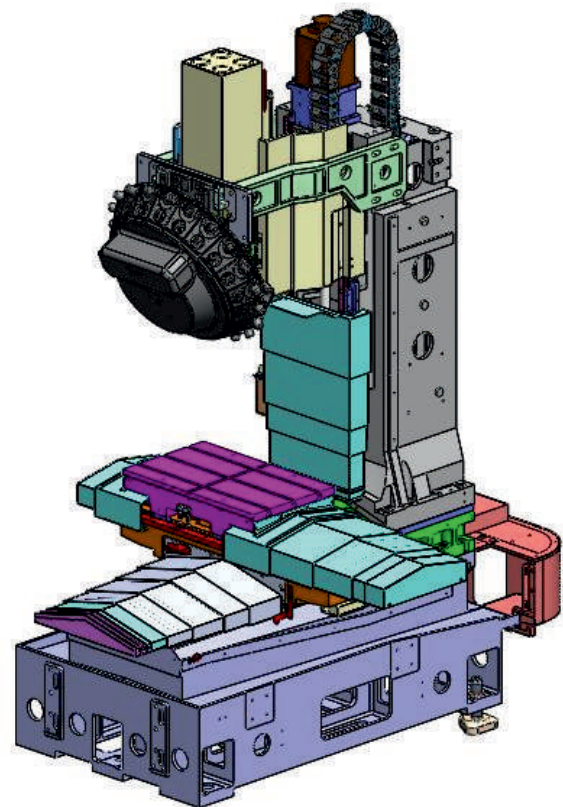
High Speed Vertical Machining Center

Dhruva, the Pole Star is the brightest star in the sky which is aligned with the earth's axis of rotation. Dhruva, the machine has worked for hundreds of satisfied customers over the years & helped them achieve greater results. We now present to you Dhruva HE, the brightest star among our products.

Dhruva HE perfectly aligns with your requirements, offering the right combination of precision with quality, productivity, performance with reliability, and flexibility. Dhruva machines are flexible to suit diverse customer requirements.



Dhruva HE 4050 / 4070



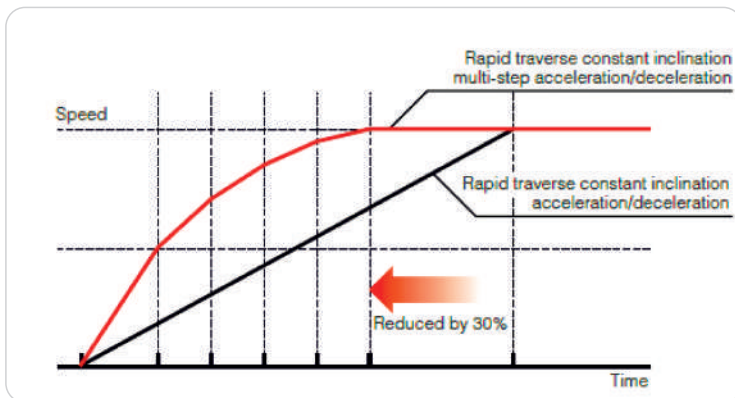
Dhruva HE 3050 / 3070

Model	Dhruva HE 3050	Dhruva HE 3070	Dhruva HE 4050	Dhruva HE 4070
Spindle	BT 30		BT 40	
Table size (mm)	650 x 400	850 x 410	650 x 400	850 x 410
Axes strokes (mm)	500 / 400/ 350	700 / 400/ 350	500/ 400/ 450	700/ 400/ 450
Tool magazine	21 tools, Direct pickup		24 tools, Side-mounted with ATC arm	

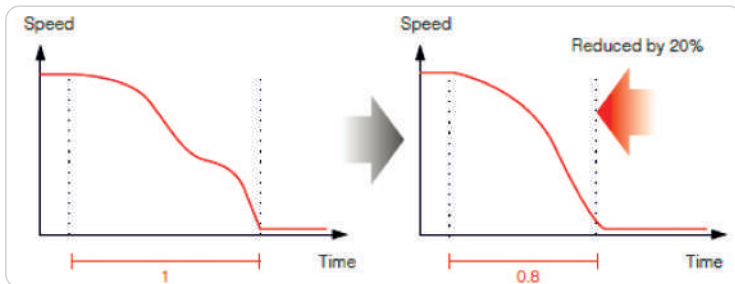
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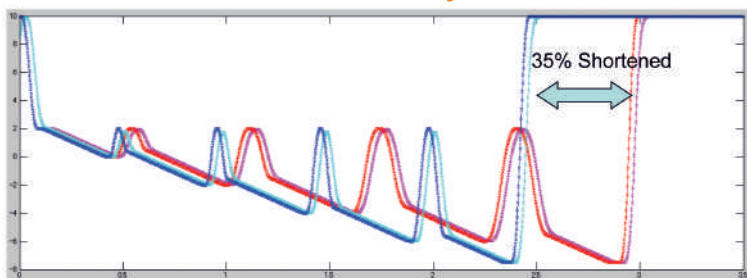
High speed positioning



Faster spindle orientation



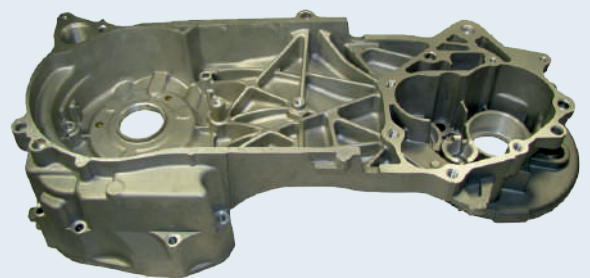
Faster fixed cycles



Productivity

Rapid rates: 60 m/min
Acceleration: 1G
Max spindle speed: 12000 rpm (BT 30)

Drill dia: 6.8, 15 deep (12 Nos)
Tap M 8 x 1.25, 12 deep (12 Nos)
Time taken: 41 s



Dhruva HE 3050/ 3070			
Metal	Milling	Drilling	Tapping
Aluminium	400 cc/min (68 cc/min/kW)	Ø 48 (0.1 mm/rev)	M24 x 2
Cast iron (GGG40)	120 cc/min (32 cc/min/kW)	Ø 28 (0.1 mm/rev)	M14 x 2
C45 steel	60 cc/min (20 cc/min/kW)	Ø 28 (0.1 mm/rev)	M14 x 1.5

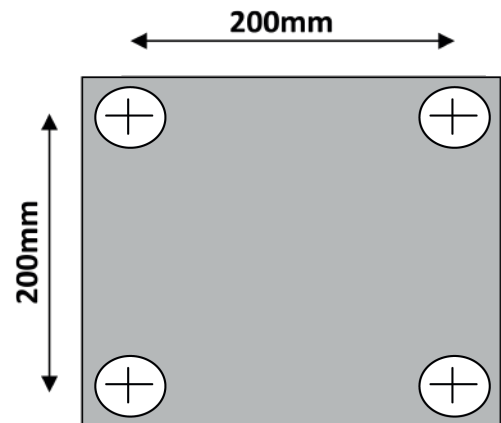
Dhruva HE 4050/ 4070			
Metal	Milling	Drilling	Tapping
Aluminium	550 cc/min (75 cc/min/kW)	Ø 55 (0.15 mm/rev)	M36 x 3
Cast iron (GGG40)	150 cc/min (32 cc/min/kW)	Ø 32 (0.15 mm/rev)	M18 x 2
C45 steel	75 cc/min (20 cc/min/kW)	Ø 32 (0.15 mm/rev)	M16 x 2

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Machining Lines

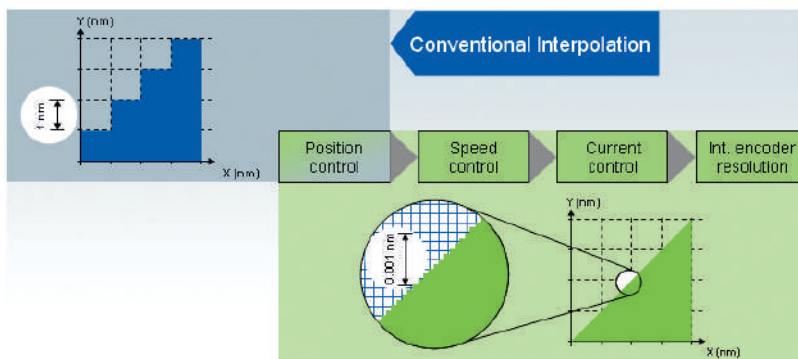


CD variation (X): < 0.008 mm

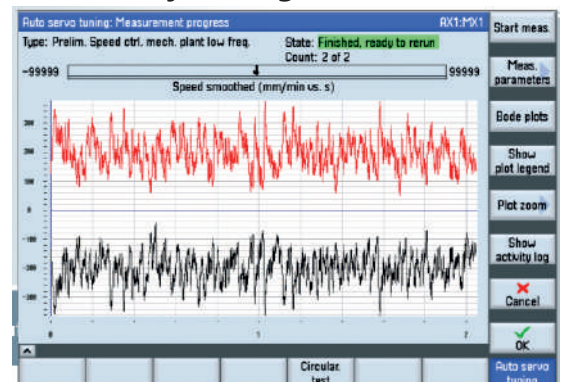
CD variation (Y): < 0.008 mm

Number of parts: 30

Nano interpolation

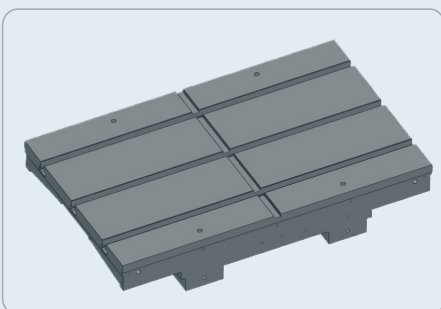


Automatic servo tuning and circularity settings

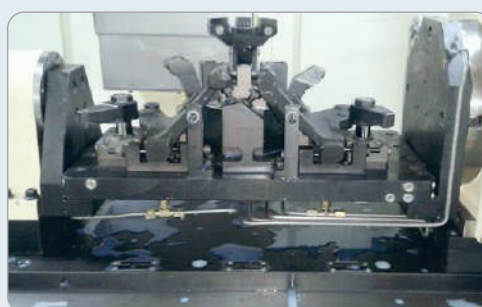


Flexibility

Various table options:



Fixed table



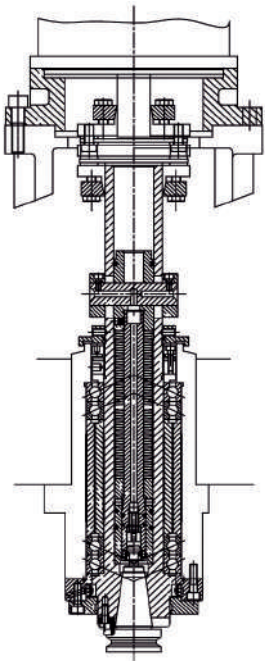
Rotary table



Tilting rotary table

Spindle Characteristics

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Spindle Assembly

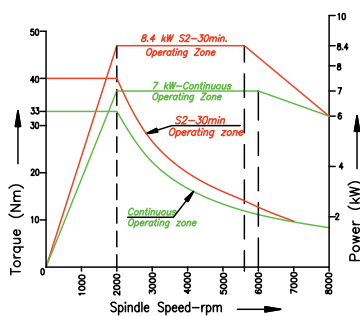
In-line type spindle drive with low inertia coupling
Cartridge type spindle
The spindle is supported on four precision angular contact ball bearings
Tool clamping through disc spring
Tool declamping through cam and lever

CNC Features

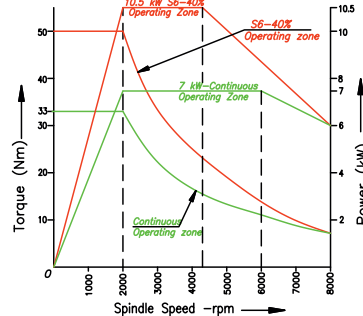
FEATURES	Siemens 828D	Mitsubishi M80B
10.4" color LCD display	S	S
Part program memory	1 MB	500 kB
Number of register able programmes	300	300
Look ahead	150 blocks	675 blocks
High speed positioning	S	S
Fast spindle orientation	S	S
Faster fixed cycles	S	S
Background editing	S	S
Work piece co-ordinate system	S	S
Special canned cycles	S	S
Custom macros	S	S
Mirror image	S	S
Scaling	S	S
Coordinate system rotation	S	S
Linear interpolation	S	S
Circular interpolation	S	S
Cylindrical interpolation	S	S
Helical interpolation	S	S
Polar coordinate command	S	S
Dry run	S	S
Feedrate override	S	S
Tool length compensation	S	S
Cutter radius compensation	S	S
Backlash compensation	S	S
Pitch error compensation	S	S
Rigid tapping	S	S
Rigid tapping retract function	S	S
Tool life management	S	S
Run hour and part count display	S	S
Ladder diagram display	S	S
Manual pulse generator	S	S
Help function	S	S
User-friendly online guide	S	S
Alarm history	S	S
Memory card interface and Edit	S	S
USB port interface	S	S
Fast Ethernet port with data server	S	S
Pop up screen for easy Edit	S	S
Graphic simulation 2D (static)	S	S
Graphic simulation - 3D (offline)	O	O
High speed skip function for probes	O	O
Higher part program memory capacity for 3 MB (Siemens), 1 and 2 MB (Mitsubishi)	O	O
Advanced surface function for die-mould	O	O
Auto servo turning	S	O
Nano interpolation	S	O
True to size tooling display	S	O
Remote reporting of process and machine info	S	NA
400 V technology for superior energy efficiency	S	NA

S: Standard, O: Optional, NA: Not Applicable

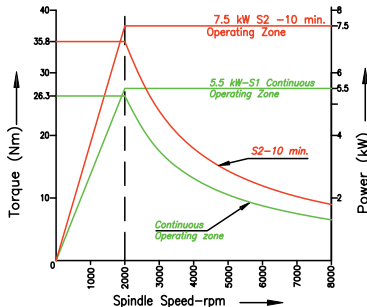
Dhruva HE 3050/3070 SPINDLE OUTPUT CHARACTERISTICS
Siemens Spindle Motor 1PH8103 (SLM/BLM)



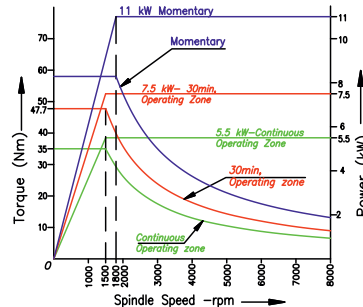
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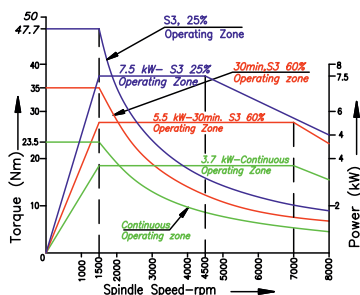
DHURVA 3050/3070 HE SPINDLE OUTPUT CHARACTERISTICS
Mitsubishi SJ-D7.5/150-04T-S-S059



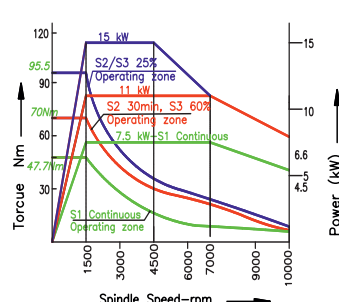
Dhruva HE 4050/4070 SPINDLE OUTPUT CHARACTERISTICS
Mitsubishi SJ-D7.5/150-01T



Dhruva HE 3050/3070 SPINDLE OUTPUT CHARACTERISTICS
Fanuc Spindle Motor alpha i 3/ 10000

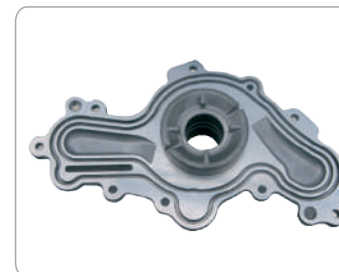
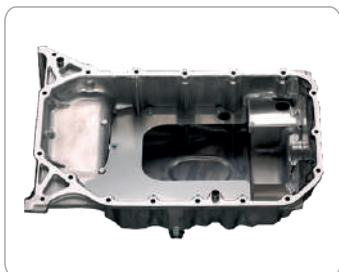


Dhruva HE 4050/4070 SPINDLE OUTPUT CHARACTERISTICS
Fanuc Spindle Motor alpha i T8/ 12000



Applications

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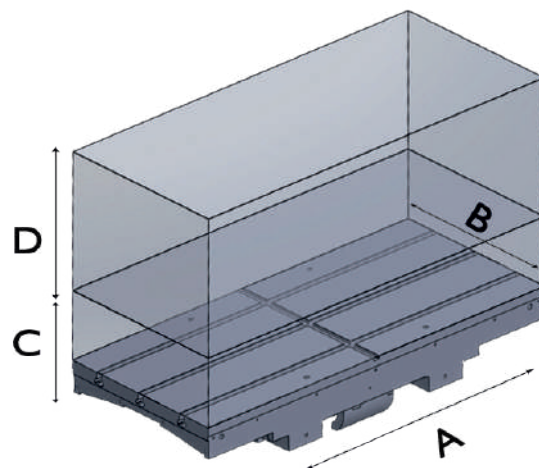
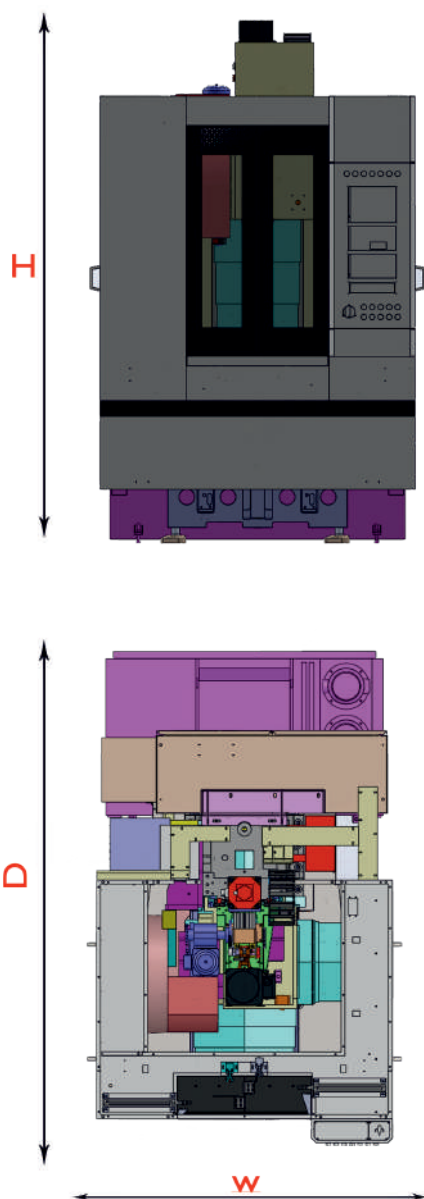


Many More...

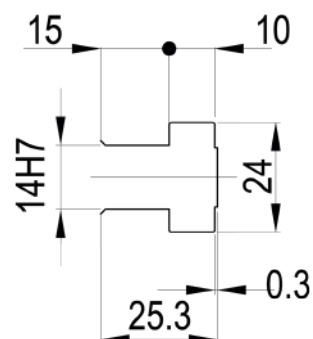
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Machine Dimensions

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Center T - Slot details



Machine model	All dimensions in mm		
	W	D	H
Dhruva HE 3050	1,650	2,950	3,050
Dhruva HE 4050	1,650	2,950	3,050
Dhruva HE 3070	2,050	2,950	3,050
Dhruva HE 4070	2,050	2,950	3,050

Depth (D) of the machine includes coolant tank and will vary based on the other accessories selected.

Machine model	All dimensions in mm				
	A	B	C1	C2	D
Dhruva HE 3050	650	400	300	400	350
Dhruva HE 4050	650	400	300	400	350
Dhruva HE 3070	850	410	300	400	450
Dhruva HE 4070	850	410	300	400	450

C1 150 mm height block

C2 250 mm height block

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Technical Specifications

Description	Unit	Dhruva HE 3050	Dhruva HE 3070	Dhruva HE 4050	Dhruva HE 4070
Traverse:					
Long/Trans./Vert. - X/ Y/ Z	mm	500/ 400/ 350	700/ 400/ 350	500/ 400/ 450	700/ 400/ 450
Spindle nose to table top min./ max.	mm	300/ 650		300/ 750	
Spindle center to column front	mm	400			
Table height from floor	mm	960			
Rapid traverse X/ Y/ Z	m/min	60/ 60/ 48			
Feed rate	m/min	40			
Spindle					
Power, cont./ 30 min/ S6 - Siemens	kW	7/ 8.4		7/ 10.5	
Power, cont./ 30 min/ instant - Mitsubishi	kW	5.5/ 7.5		5.5/ 7.5	
Power, cont./ 30 min/ S6 Fanuc	kW	3.7/ 5.5		7.5/ 11/ 15	
Torque, cont./ 30 min./ S6 - Siemens	kW	33/ 40		33/ 50	
Torque, cont./ 30 min./ instant - Mitsubishi	Nm	26/ 36		35/ 47.7	
Torque, cont./ 30 min./ S6 - Fanuc	Nm	23.5/ 35		47.7/ 70/ 95.5	
Taper	type	BBT 30		BT 40 (HSK A 63)	
Speed	rpm	80-8000 (120-12000, 15000, 20000, 24000)		80-8000 (100-10000)	
Table					
Size	mm	650 x 400	850 x 410	650 x 400	850 x 410
T-slot (no. x size x pitch)	mm	3 x 14 x 125			
Maximum safe load on table	kg	300			
Automatic Tool Changer					
Tool changing system		Direct pick-up		Twin arm (Servo-driven arm)	
Tool storage capacity	No.	21		24	
Pull stud		MAS		MAS	
Max tool Ø with adjacent pocket empty	mm	80 (100)		65/ 125	
Max tool weight	kg	3		6	
Tool change time (T-T)	s	1.4		1.9	
Tool change time (C-C)	s	1.7		2.7	
Accuracy As Per ISO 230-2					
Positioning A	mm	0.012			
Repeatability R	mm	0.010			
Machine Installation data					
Basic machine weight	kg	2500	2700	2600	2800
Floor space (machine with coolant tank)	mm x mm	~ 1650 x 2950	~ 2050 x 2950	~ 1650 x 2950	~ 2050 x 2950
Total connected load	kVA	13		16	
Compressed air	bar	6			
Power supply		415 V AC, 50 Hz, 3 Phase			
CNC System		Siemens 828 D/ Mitsubishi M80 (Fanuc Oi MF)			

Standard Features

- ✓ LM guide-ways for all axes
- ✓ Ball - screws for all axes
- ✓ Centralised oil lubrication system
- ✓ Absolute encoder feedback for all axes
- ✓ Air blast for spindle taper cleaning
- ✓ Electronic counter-balance for vertical axis
- ✓ Tool clamping through disc-springs and lever
- ✓ Coolant tank
- ✓ Feedback through absolute encoder
- ✓ Spindle taper air blow
- ✓ Rigid tapping
- ✓ Full machine guard
- ✓ Levelling pads
- ✓ Maintenance tool kit
- ✓ 8000 rpm spindle speed
- ✓ 3-tier lamp
- ✓ Coolant gun

Optional Features

- ✓ Increased day light area
- ✓ Provision for 4th and 5th axes
- ✓ Chip conveyor and drum filtration
- ✓ High pressure coolant through spindle (16 bar/ 40 bar) with suitable filtration
- ✓ Oil skimmer
- ✓ Automatic front door
- ✓ Tool breakage sensor
- ✓ Interfacing for robot loading
- ✓ Voltage stabiliser
- ✓ Air gun
- ✓ AC for electrical cabinet



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