



DUGARD *EAGLE 1300*

Vertical Machining Centre

A New Definition Of Performance!



EAGLE 1300

The EAGLE Difference.
Not Just Machines.
In-Depth Support.

■ High Speed and High Precision Spindle Design

- This spindle is supported by class 7 (P4) angular contact ball bearings, which not only endure high axial end thrust and radial loads but also keep high accuracy with low vibration.
- Floating-type configuration is employed in the tool unclamping mechanism.
- Coolant is passed through a jacket around the spindle assembly, to dissipate any heat generated by the bearings, to a circular coolant curtain around the cutting tools.
- The spindle head is counterbalanced using the double chain system to increase stability and reduce vibration at rapid traverse speeds.

■ Highly Rigid and Stable Machine Construction

- The major parts of the machines are constructed of high quality FC-30 castings.

■ Precise 3-axes Transmission System

- All three axes employ high precision ballscrews which are double-anchored and pre-tensioned using class 7(P4) angular contact ball bearings.



EAGLE 1300

Powerful! Big Capacity!

- Table size 1450x570mm
- Table load 1200kg
- x/y/z travel 1300/635/635mm
- Spindle speed 80-8000RPM(Standard); 10000,12000RPM(optional)
- 20 station ATC(Carousel type) (24,32 station twin arm type optional)
- 11kw spindle motor(13kw optional)
- Fanuc, Siemens and Heidenhain controls available

EAGLE 1300

Quality Engineered To The
Highest Standard

X AND Y RAPIDS
30M/MIN



User Friendly

Control Features

Standard



Fanuc 0iMB

- Industry standard G code programming
- Biggest selling control in the history of CNC
- 9" monochrome screen, 320 M memory
- Fully digital drive package.



Siemens 802D

- 13kw spindle drive.
- 10.4" colour TFT screen with graphic display.
- G Code programming with menu support cycles. 640M Memory.

Optional



Heidenhain

1 Heidenhain TNC 530i

- 12kw spindle drive.
- 15" colour TFT screen with graphic display.
- Heidenhain conversational & FK programming.
- Hard disc memory 6 GB storage.

2 Siemens 810D

- 13kw spindle drive.
- 10.4" colour TFT screen with graphic display.
- "Shopmill" conversational automatic programming system.

NOTE : Machine shown with optional accessories.

■ Standard Equipment

- Fully enclosed splash guard designed to full CE regulations and health and safety requirements
- Rear chip flushing for efficient swarf removal
- Machine lighting
- Counterbalanced head

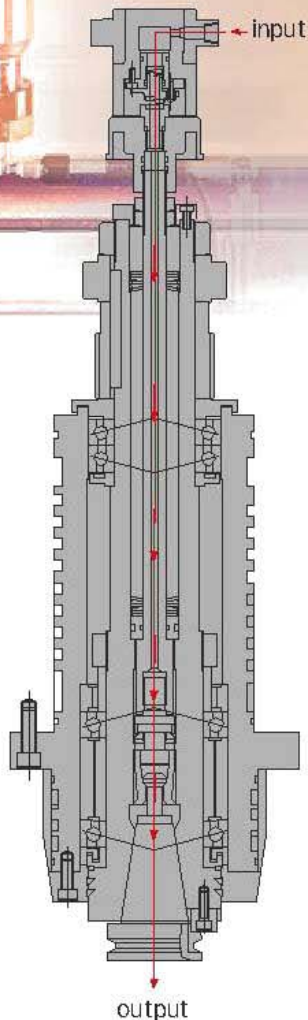
■ Wide Range of Accessories

- Swarf conveyor and bin
- 4th axis tables and interface
- Spindle probing
- Tool setting probe
- Through spindle coolant
- 10,000/12,000 RPM spindle speed

Precise . . . Productive .

EAGLE 1300

Helping To Boost Your Productivity



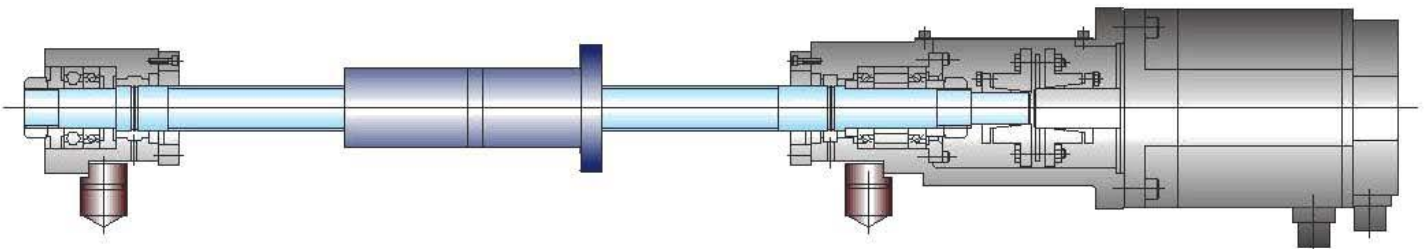
■ High Rigidity Precision Spindle

- The spindle is supported by **class 7 (P4) angular contact ball bearings** which have been accurately measured, selected and preloaded, then assembled in a temperature controlled clean room to ensure high accuracy and rigidity throughout the full RPM range. An automatic air blower is installed to keep the spindle cool during high speed cutting.
- The spindle clamp and unclamp mechanism is a floating design which keeps all the forces of tool changing away from the spindle bearings to maximize accuracy and bearing life.
- Z-axis counterweight system ensures smooth movement during rapid feed.

■ Through-spindle Coolant (OPTIONAL)

High pressure coolant delivered through the tool directly to the cutting edge forcing out swarf to enhance machining efficiency and improve tool life. Thermal deformation of workpiece and tool is effectively controlled and machining accuracy improved.

High Precision Ballscrews

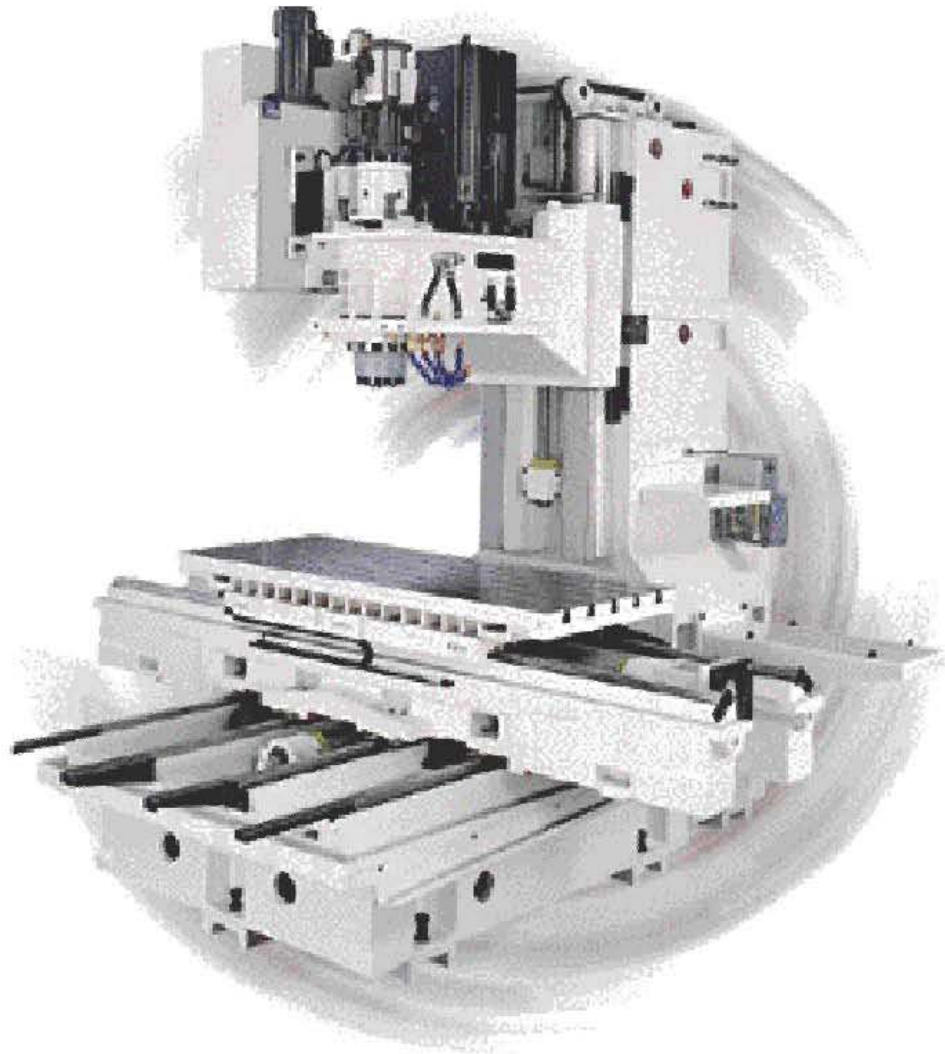


40mm dia. Class 3 high precision ballscrews are used on all 3 axes, X-Y-Z and are double anchored and pretensioned. Backlash and pitch errors are compensated by using laser calibration equipment.

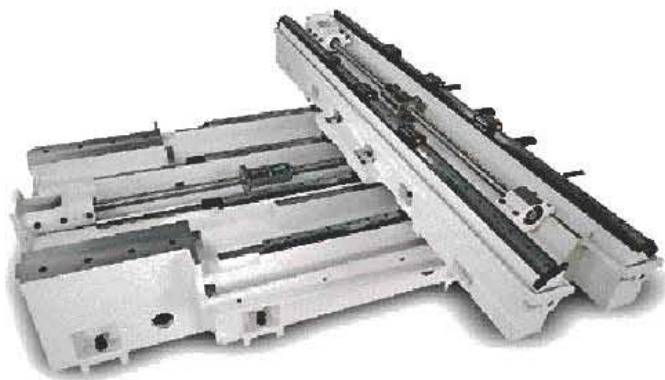
. Profitable !

Heavy Duty Rugged Construction

The machine structure is engineered to give extra rigidity and stability for heavy duty machining.



Heavy Duty Casting



■ **High Speed and Rigid Linearway**

The X and Y axes employ the latest Japanese THK NR35 highly rigid linear guideways. This new linear guideway design ensures the X and Y axes can traverse at high speeds and is suitable for both heavy and light duty machining.

The Y axis employs 4 NR type linearways with 8 load carrying bearing blocks. The table is fully supported to minimise overhang and provide maximum rigidity, assuring excellent machining stability.



■ **Rigid Structure**

*The major parts of the machines are constructed of high quality **FC-30 castings**. In order to enhance the structure, the column and machine base are box type designs, incorporating durable rib construction for maximum rigidity and minimum vibration.*

Powerful . . . Big Capacity . . . EAGLE 1300

Ensures Fast, Precision Machining
and Easy Operation

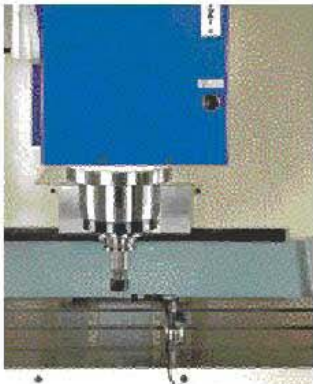


EAGLE 1300				
Tool	FACE MILLING	END MILLING	DRILLING	TAPPING
Workpiece Material	S45C	S45C	S45C	S45C
Tool Dia	75mm	25mm	40mm	M24*P2.5
Tool Flute	4	5	2	
Spindle Rpm	1000 min	533 min	533 min	180 min
Cutting Depth	4 mm	20 mm	50 mm	40 mm
Cutting Width	55 mm	20 mm		
Feedrate	1400 mm/min	390 mm/min	90 mm/min	540 mm/min
Stock Removal Rate	308 c.c/min	156 c.c/min	113 c.c/min	

Inspection

Laser Calibration

All machines are inspected and calibrated using state of the art laser equipment. This system ensures all axes are verified and compensated for any backlash or mechanical error ensuring the best possible accuracy and repeatability.



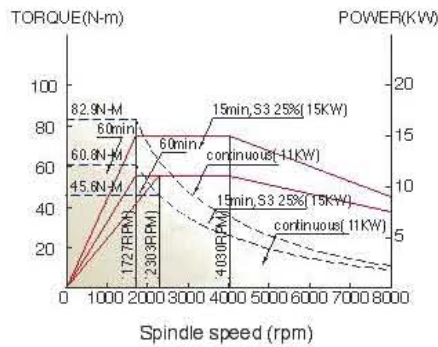
Ball Bar Testing

All machines are tested with the latest "ball bar" test equipment which can measure down to 1 micron, this is attached to the spindle and table then put through a series of circular moves in all axes to allow the technicians to validate the geometric alignments of the machine. A chart is supplied with every machine showing these results.

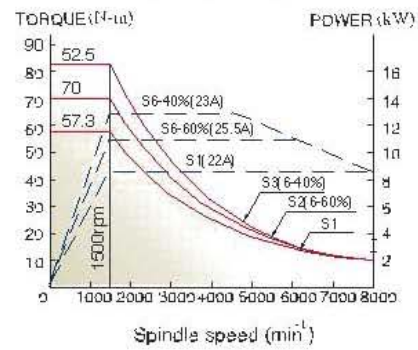


Spindle Motor Output

FANUC
15KW AC Spindle Motor
8000RPM SPINDLE
(15KW,30min)

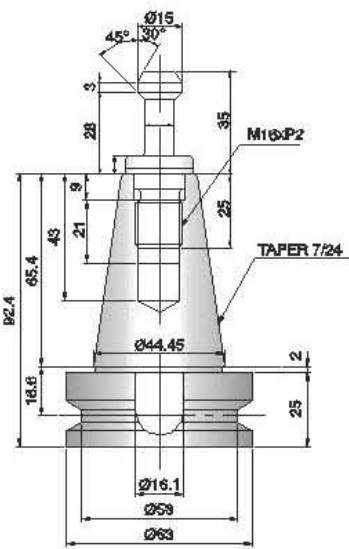


SIEMENS
13KW AC Spindle Motor
8000RPM SPINDLE
(13KW,30min)



Tool Shank & Pull Stud

BT-40



CT-40

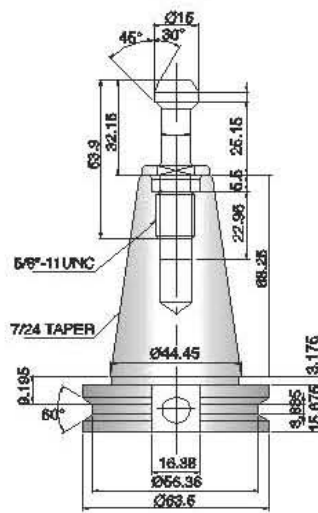
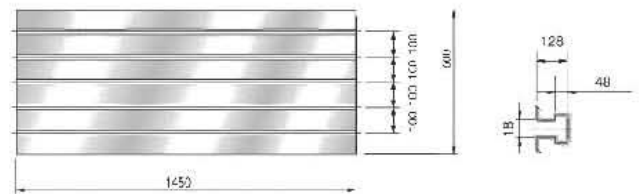


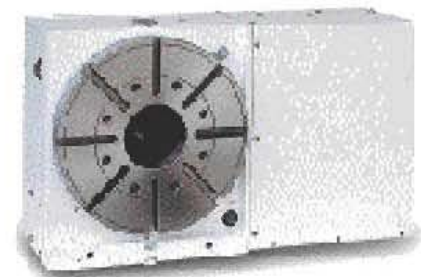
Table Dimensions

EAGLE 1300



Standard Accessories

- 20 station A.T.C.(carousel type)
- Coolant system
- Fully enclosed splash guard
- Worklight
- Central lubrication system
- Spindle air blast
- Tool kit
- Leveling bolts & pads
- Chip flushing
- Set of pull studs
- Operating manual & part list



Fourth axis rotary table

Optional Accessories

- CT-40 pull stud
- BT-40 pull stud
- Cutting air blast
- Through-tool coolant device
- Chip conveyor
- Oil skimmer
- Siemens 13kw spindle motor
- 24 or 32 station A.T.C.(cam operated twin arm type, max. tool diameter 76mm)
- 4th axis preparation
- Fourth axis rotary table and motor
- Workpiece wash gun
- Automatic power shut off
- Automatic tool length measurement
- 10000rpm spindle
- 12000rpm spindle with refrigeration unit
- Through-spindle coolant device
- Fanuc 18M
- Heidenhain TNC 530i
- Siemens 810D/840D



24 station A.T.C.(arm type)

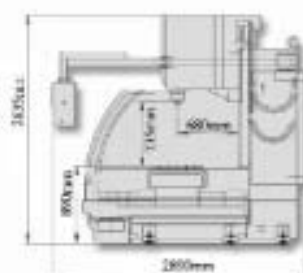
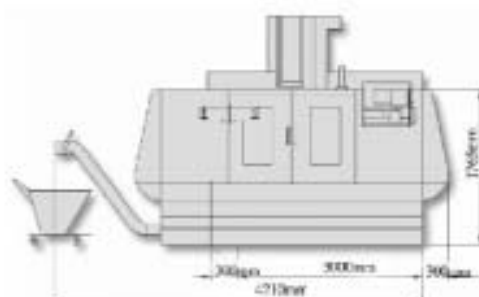
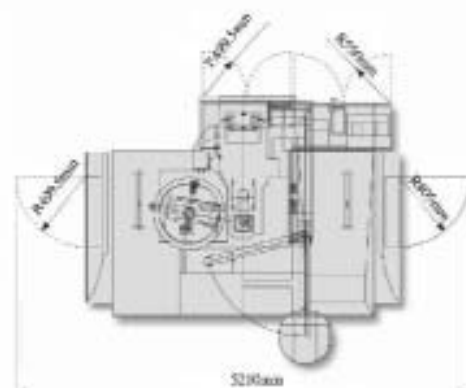
General Specifications

Description	EAGLE 1300
Table	
Table Size	1450x570mm
T-slots(no. xwidthxdis)	5x18mmx100mm
Table Load	1200kg
Travel	
X Travel	1300mm
Y Travel	635mm
Z Travel	635mm
Spindle	
Spindle Nose to Table	100 - 735mm
Spindle Center to Column	685mm
Spindle Taper	#40
Spindle Speed	80-8000rpm (Opt. 10000, 12000 rpm)
Feedrates	
Rapid on(X/Y/Z)Axes	30/30/18 m/min
Cutting Feedrate FANUC	1-7600 mm/min
Cutting Feedrate S810/HH410/F18M	1-12000 mm/min
Cutting Feedrate HH426/A2100	1-15000 mm/min
Accuracy	
Positioning	0.004mm *
Repeatability	±0.002mm *
Tool Changer	
Tool Capacity	20(carousel);opt.24,32 (cam-arm type)
Tool Shank	CT-40 or BT-40
Pull Stud	JMBTA standard 45°
Max. Tool Diameter	89mm,24 station cam-arm type 76mm
Max. Tool Weight	7kg
Motor	
Spindle Motor(30min)	15kw (Opt. 13kw)
Drive Motor X, Y, Z	1kw (Opt. 2.9kw)
Coolant Pump	0.75kw
General	
Power Required	20kVA(Opt.25kVA)
Air Required	5kg/cm ² ; 200L/min
Floor Space (L x W x H)	3600x2890x2635mm
Packing Dimension(L x W x H)	2930x2290x2560mm
Net Weight approx	7300kg
Gross Weight, approx.	9300kg

*Manufacturer's data

Note:The manufacture reserves the right to modify the design , specifications, mechanisms,.....etc. of the machine without notice. All the specifications shown above are just for reference.

Dimensional Drawings unit : mm



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