MITSUI SEIKI

6CN-II

Jig Boring Machine

MITSUI SEIKI KOGYO CO.,LTD.

BALANCED AND RIGID DESIGN ASSURING HIGH GEORMETRIC ACCURACY FOR CONTINUOUS YEARS OF DEPENDABLE SERVICE THAT MEETS VARIOUS REQUIRE-MENTS FOR HIGH PRECISION MACHINING.

The Model 6CN-II best suited for the machining of typical precision components such as jigs and sophisticated dies and is applicable to processing a wide range of contrasting materials including light weight alloy components requiring high speed cutting as compared to tough high strength parts that are difficult to machine.

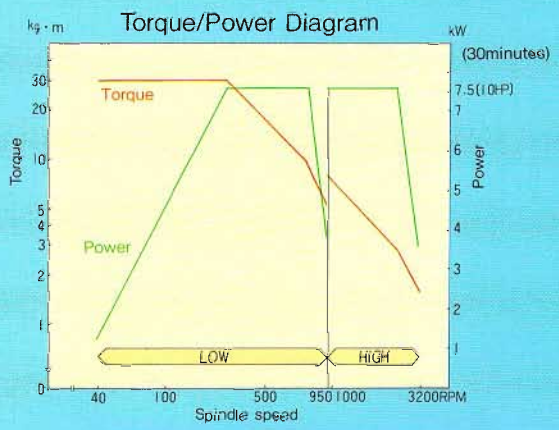
EXCEPTIONAL FEATURES

HIGH ACCURACY

- Double column box shaped design, three point support bed.
- Hand scrape-finished V & Flat slideways for the X-axis table.
- Application of built-in ultra precision glass scales with 10μm grids as position detectors for the X-Y-and Z-axes; minimum resolution of detector heads is 0.1μm which provides accuracy $\pm$1μm ($\pm$0.00004") full stroke.
- Advanced spindle head design, as a standard feature, with refrigerator type Oil temperature control unit to eliminate thermal displacement.
- Pneumatic crossrail balance cylinders available as an option to insure long lasting parallelism within the entire range of the W-axis.

INCREASED PRODUCTIVITY

- AC-Motor driven spindle provides faster start and stop response time and allows frequent spindle directional reversal; S 4-digit direct command for spindle speed optimizes cutting conditions.
- Powerfull 7.5 kW (10 HP) AC spindle motor featuring 30 kg.m (220 ft-lbs) of max torque and 3200 RPM of max speed; this contributes considerably to increase productivity.
- Large diameter X, Y and Z ball screws directly coupled with AC motors with digital servo system providing high precision contour milling.
- Quill driven by directly coupled ball screw allowing contour milling by the simultaneous three-axis control. (Quill stroke: 300mm (12"))



Model show in the photographics equipped with the following options:
Automatic tool changer 20 tools
Crossrail balance (Air balance)

JIG BORING & MILLING MACHINE with CNC

Positioning Accuracy
±0.0010mm/Full stroke
±0.00004inch/Full stroke

STANDARD MACHINE SPECIFICATIONS

• **Working capacity**		
Table, longitudinal (X)		1020 mm (40″)
Spindle head, transversal (Y)		760 mm (30″)
Quill, vertical (Z)		300 mm (12″)
Crossrail movement, vertical		750 mm (29.5″)
Distance between columns		1120 mm (44″)
Max. distance from table top to spindle nose		950 mm (37.5″)
Min. distance from table top to spindle nose		200 mm
• **Table**		
Table working surface (L × W)		1280 × 960 mm (50″ × 38″)
Table height		940 mm (37″)
Max. load on table		1200kg (2,700 lbs)
Number of Tee slots		8
Pitch of Tee slots		106 mm (4.17″)
Shape of Tee slot		16H7
• **Spindle**		
Spindle taper		ISO45
Spindle diameter		ø75 mm (dia. 3″)
Spindle speed (stepless)		40 to 3200r.p.m.
Spindle motor		AC 7.5kW (10HP)/30 min. rating
• **Quill**		
Quill diameter	Slide section	ø125 mm (dia. 5″)
	Bearing section	ø145 mm (dia. 5.7″)

• **Feed rate**		
Rapid traverse rate	X and Y axis	5000 mm/min (200 ipm)
	Z axis (Quil)	3000 mm/min (120 ipm)
Cutting feed rate		0.1 to 2000 mm/min (0.004—80 ipm)
• **Minimum input increment for X, Y and Z axis**		0.001 mm (0.0001″)
• **Minimum travel increment**		0.001 mm
• **Motors**		
Spindle drive		AC 7.5kW/30 min. rating
Hydraulic pump		AC 1.5kW
Slideway lubrication pump		AC 4W
Spindle head lubrication pump	Lubrication side	AC 0.4kW
	Return side	AC 0.4kW
Crossrail up and down		AC 1.5kW
Coolant pump		AC 0.18kW
Feed drive	for X axis	AC 2.8kW
	for Y axis	AC 2.8kW
	for Z axis	AC 1.8kW
• **Power consumption**		26KVA 200/220V, 50/60Hz
• **Numerical unit**		FANUC-15M
• **Machine weight**		Approximate 10 tons (22,000 lbs)

ACCURACIES

Positioning accuracy/Full stroke	**±0.0010 mm (±0.00004″)**	**Repeatability**	**±0.0005 mm (±0.00002″)**

OPTIONAL SPECIFICATIONS

Automatic tool changer (20 tools, 60 tools)	Automatic lubrication system for X axis
Interfacing for 4th axis control	Air balance cylinder for cross-rail
Protection cover for vertical travel of cross-rail and quil	Drive control for cross-rail
Telescopic slide way cover for X axis	

SPECIAL EQUIPMENT

Splash guard for without ATC , with ATC	Operation hour meter	Coolant system huge capacity type (50ℓ, 100ℓ, 200ℓ)
A or C axis CNC rotary table (ø300,400mm)	Automatic power-off system	
Weekly timer	Breaker for short circuit	NC cooling device
Pato-light	Foot switch for tool clamp/unclamp	Power source transformer
Oil shot system	Oil pan	Motor generator

SPECIAL APPLICATION SYSTEM

Automatic Measuring and Compensation Centering System	AMCS-6-S (Standard software)
	AMCS-6-H (Upper level software)
	Printer

SPECIFICATIONS OF AUTOMATIC TOOL CHANGER (OPTION)

Tool storage capacity	20 tools/60 tools	Max. tool length storable	300m
Tool selection method	Random	Max. tool diameter storable	ø125 mm
Shape of tool shank	MAS403BT45	Max. tool weight storable	10kg

SUPERIOR ERGONOMIC OPERATOR CONSOLE WITH STATE OF THE ART CNC SPECIFICATION

Superior Ergonomic Operator Features

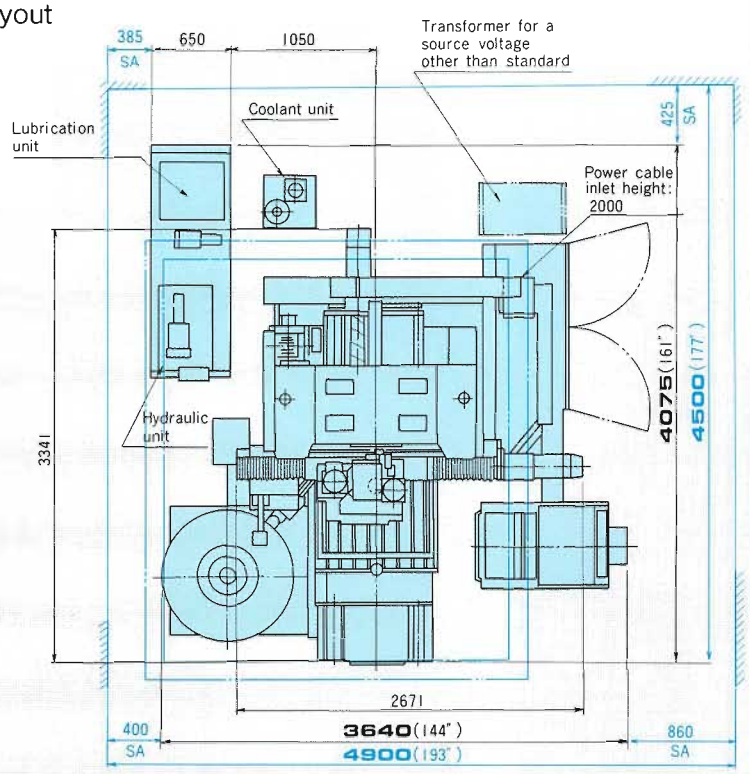
- Combined CNC control panel and machine control panel into one operator panel has increased efficiency.
- Easy to read 14″ CRT color display
- Pull stud system provides an accurate and fast tool clamping method.
- Optional - Programmable control of vertical cross-rail position for W Axis.
- Optional - Conversional programming for simplified programming of complex parts.
- Operator assist alarms and maintenance self-diagnostics, including ladder diagram and relay logic review.
- Standard CNC unit is FANUC 15M which is adapted worldwide as an industry standard.

Ergonomically designed console panel excellent in operability

OPTIONAL FUNCTION FOR NC UNIT 15M

Single direction positioning		Coordinate system rotation		FANUC PPR	
Helical interpolation		Custom macro		Stored stroke check 2	
Hypothetical axis interpolation		Custom macro Common variable	200 sets	Stroke check before movement	
F-1 digit			300 sets	2nd auxiliary function	
Automatic corner override		Interruption type custom macro		Skip function	
Programmable data input		Sequence number verify stop		High speed skip signal input	
Polar coordinate command		Restart of program		Multi-step skip function	
Inch / metric conversion		Handle interruption		Program encryption	
Tool life management		Play back function		Graphic display function	
Addition of optional block skip		Manual numerical command			
Optional angle chamfering, corner R		Storable programs	200 programs		
Programmable mirror image			400 programs		
Cutter diameter compensation C		Tape memory length	320m		
Three-dimensional tool compensation			640m		
Tool offset amount memory	Type B		1280mm		
	Type C		2560m		
Number of tool offsets	99 sets	Reader/puncher interface			
	200 sets	Floppy cassette and adaptor			
Scaling		Floppy cassette (3.5'' FD 10 pices)			

Floor Layout



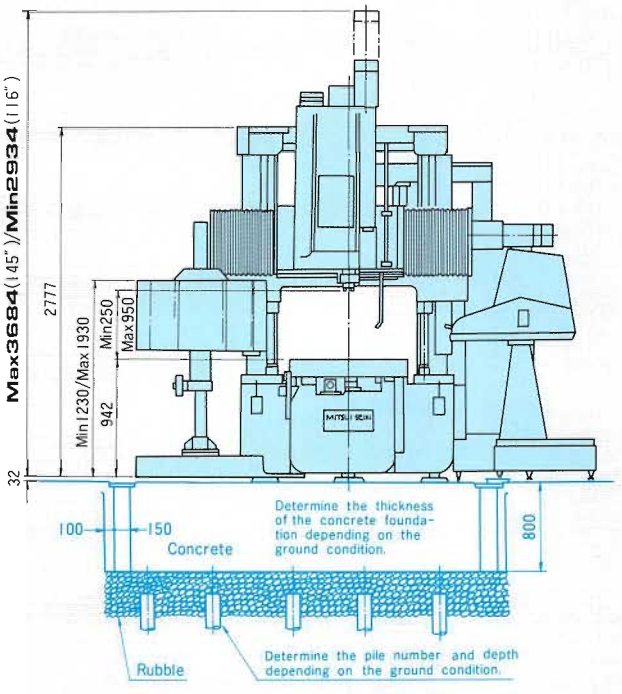
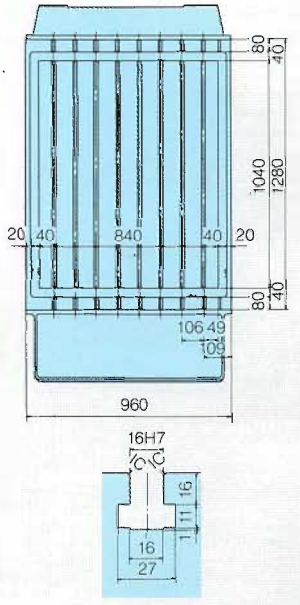
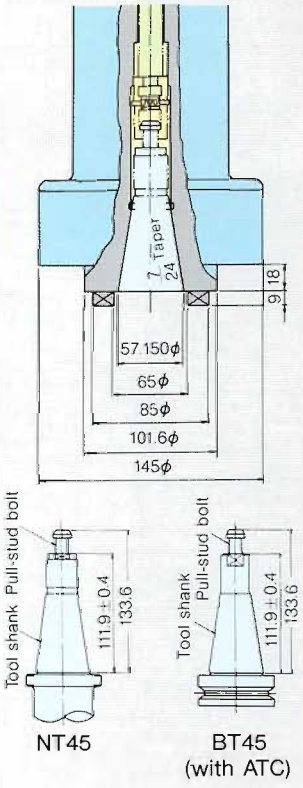


Table shape



Shape of spindle nose



Specifications described in this catalog are subject to change without any prior notice for improvement.

MITSUI SEIKI KOGYO CO.,LTD.
TOKYO JAPAN

20F Sphere Tower Tennoz 2-2-8, Higashi-Shinagawa,
Shinagawa-ku, Tokyo 140-0002 Japan
TEL: 03-5715-4022 FAX: 03-5715-3919
URL: http://www.mitsuiseiki.co.jp

6CNII-3 Printed in Japan
02.07.1000TK