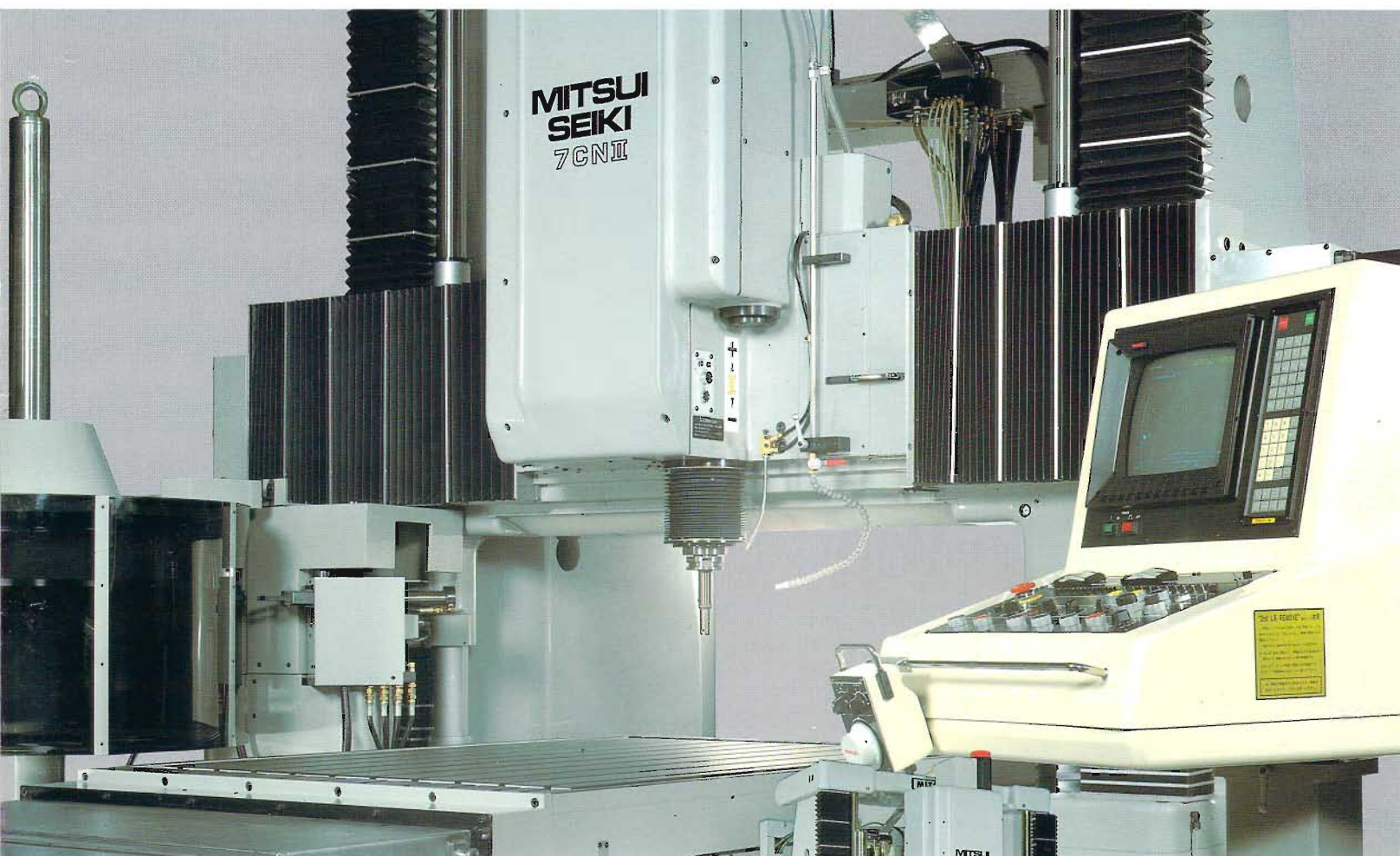


MITSUBI SEIKI

7CN-II Jig Boring Machine



MITSUBI SEIKI KOGYO CO., LTD.

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

The Model 7CN-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.

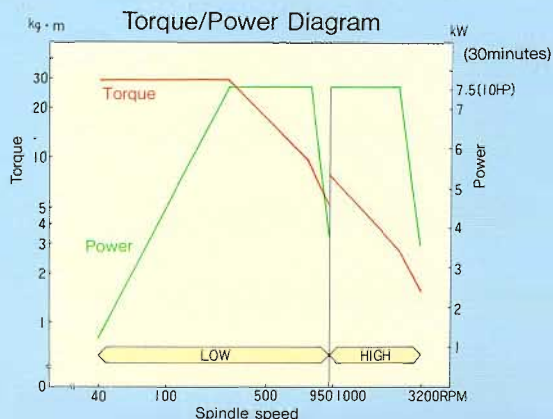
EXCEPTIONAL FEATURES

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 $10\mu\text{m}$ grids as position detectors for the X-Y-and Z-axes; minimum resolution of detector heads is $0.1\mu\text{m}$ which provides accuracy $\pm 1\mu\text{m}$ ($\pm 0.00004''$) 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'')).



**JIG BORING
&
MILLING MACHINE
with CNC
7CN-II**



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

STANDARD MACHINE SPECIFICATIONS

• Working capacity		• Feed rate			
Table, longitudinal (X)	1530 mm (60")	Rapid traverse rate	X and Y axis	5000 mm/min (200 ipm)	
Spindle head, transversal (Y)	1020 mm (40")		Z axis (Quill)	3000 mm/min (120 ipm)	
Quill, vertical (Z)	300 mm (12")		Cutting feed rate		0.1 to 2000 mm/min (0.004—80 ipm)
Crossrail movement, vertical	920 mm (36")		• Minimum input increment for X, Y and Z axis		0.001 mm (0.00004")
Distance between columns	1600 mm (63")	• Minimum travel increment		0.001 mm (0.00004")	
Max. distance from table top to spindle nose	1225 mm (48")	• Motors			
Min. distance from table top to spindle nose	200 mm	Spindle drive		AC 7.5kW/30 min. rating	
• Table		Hydraulic pump		AC 1.5kW	
Table working surface (L x W)	1830 x 1200 mm (72" x 47")	Slideway lubrication pump		AC 4W	
Table height	940 mm (37")	Spindle head lubrication pump	Lubrication side	AC 0.4kW	
Max. load on table	2000kg (2,700 lbs)		Return side	AC 0.4kW	
Number of Tee slots	10	Crossrail up and down		AC 3.7kW	
Pitch of Tee slots	106 mm (4.17")	Coolant pump		AC 0.18kW	
Shape of Tee slot	16H7	Spindle head cooler		AC 1kW	
• Spindle		Feed drive	for X axis	AC 2.8kW	
Spindle taper	ISO45		for Y axis	AC 2.8kW	
Spindle diameter	ø75 mm (dia. 3")		for Z axis	AC 1.8kW	
Spindle speed (stepless)	40 to 3200r.p.m.	• Power consumption		26KVA 200/220V, 50/60Hz	
Spindle motor	AC 7.5kW (10HP)/30 min. rating	• Numerical unit		FANUC-15M	
• Quill		• Machine weight		Approximate 14 tons (31,000 lbs)	
Quill diameter	Slide section	ø125 mm (dia. 5")			
	Bearing section	ø145 mm (dia. 5.7")			

ACCURACIES

Positioning accuracy/Full stroke	± 0.0010 mm (± 0.00004")	Repeatability	± 0.0005 mm (± 0.00002")
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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 quill	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 (High level software)
	Printer

SPECIFICATIONS OF AUTOMATIC TOOL CHANGER (OPTION)

Tool storage capacity	20 tools/60 tools	Max. tool length storable	300mm (12")
Tool selection method	Random	Max. tool diameter storable	ø125 mm (dia. 5")
Shape of tool shank	MAS403BT45	Max. tool weight storable	10kg (22 lbs)

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.

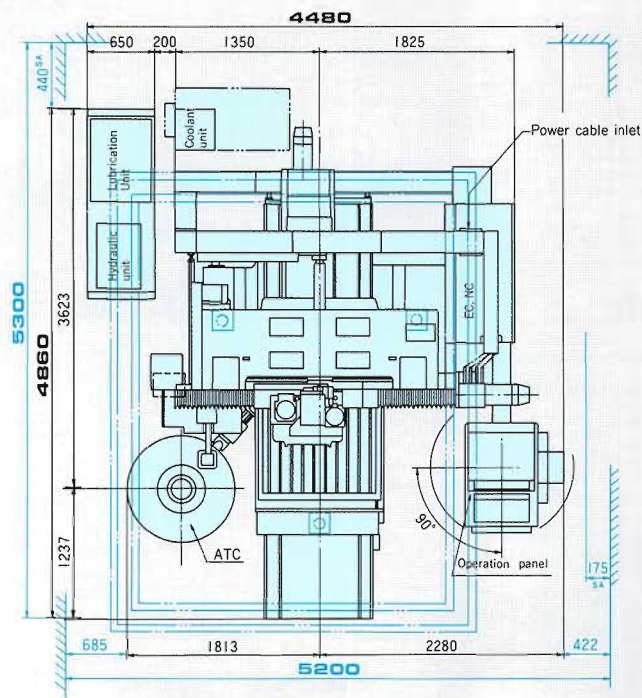


**Ergonomically designed console panel
excellent in operability**

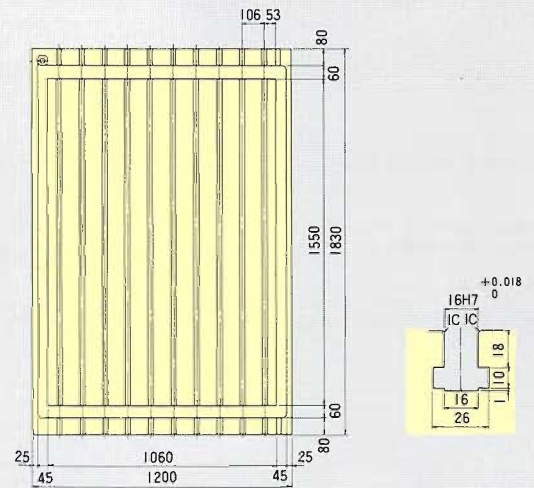
OPTIONAL FUNCTION FOR NC UNIT 15M

Single direction positioning	Coordinate system rotation	FANUC PPR
Helical interpolation	Custom macro	Stored stroke check 2
Hypothetical axis interpolation	Custom macro	200 sets
F-1 digit	Common variable	300 sets
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		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)

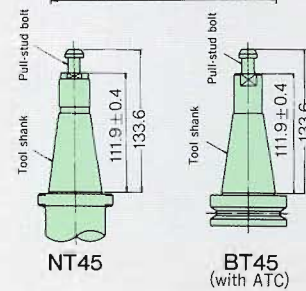
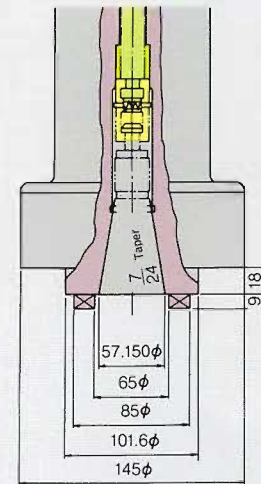
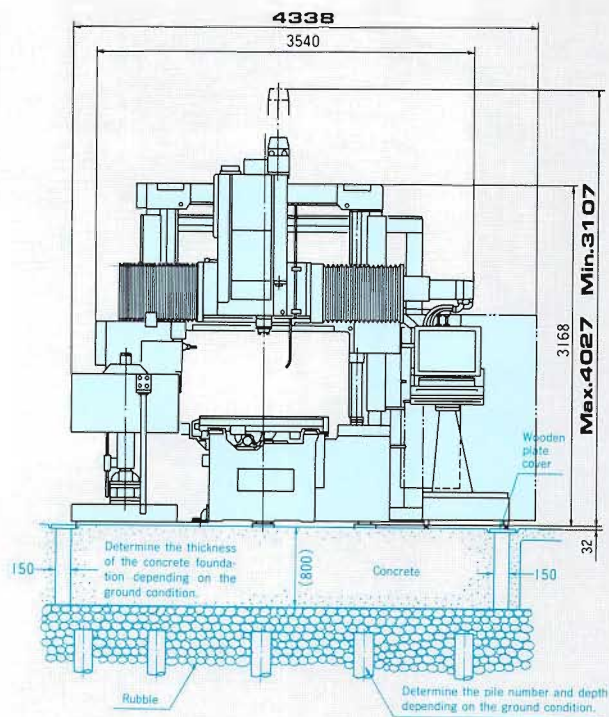
■ Floor layout



■ Table shape



■ Shape of spindle nose



All the specifications indicated in this brochure are subject to change without prior notice.



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