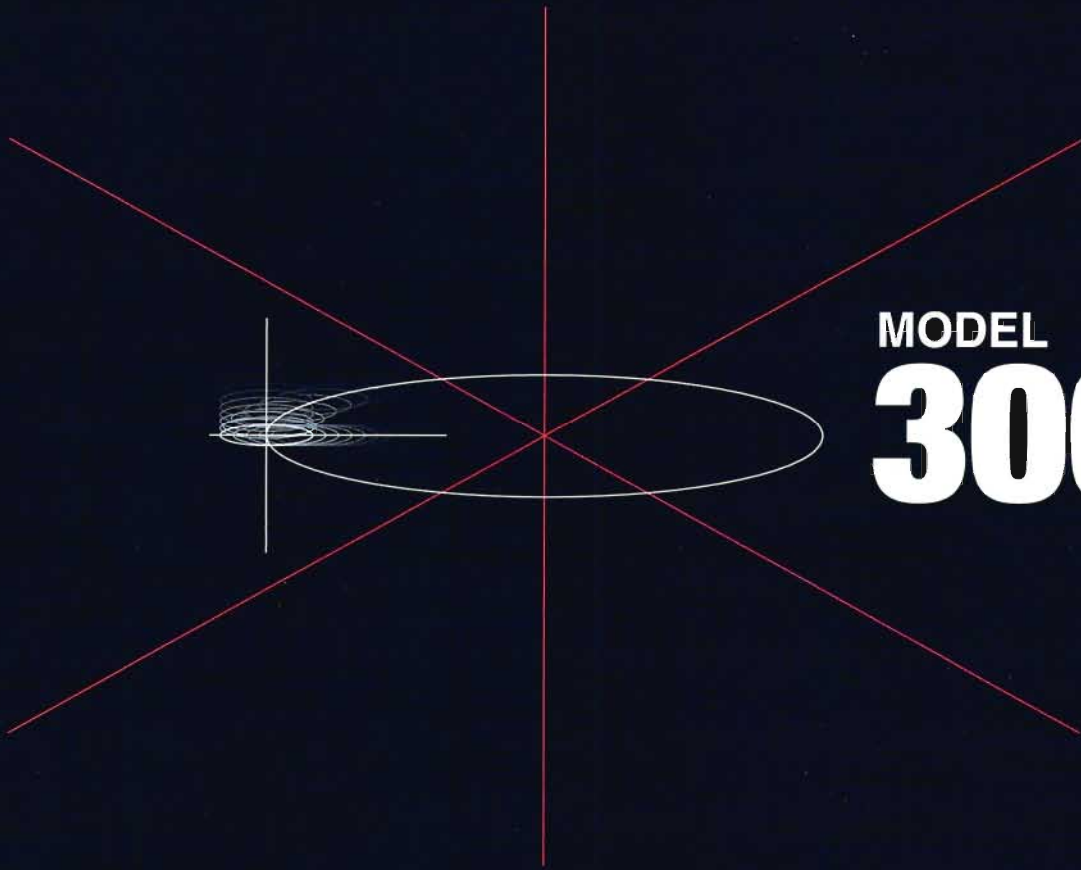


MITSUBI SEIKI

ULTRA PRECISION ECONOMY TYPE
CNC JIG GRINDING MACHINE



MODEL
300G

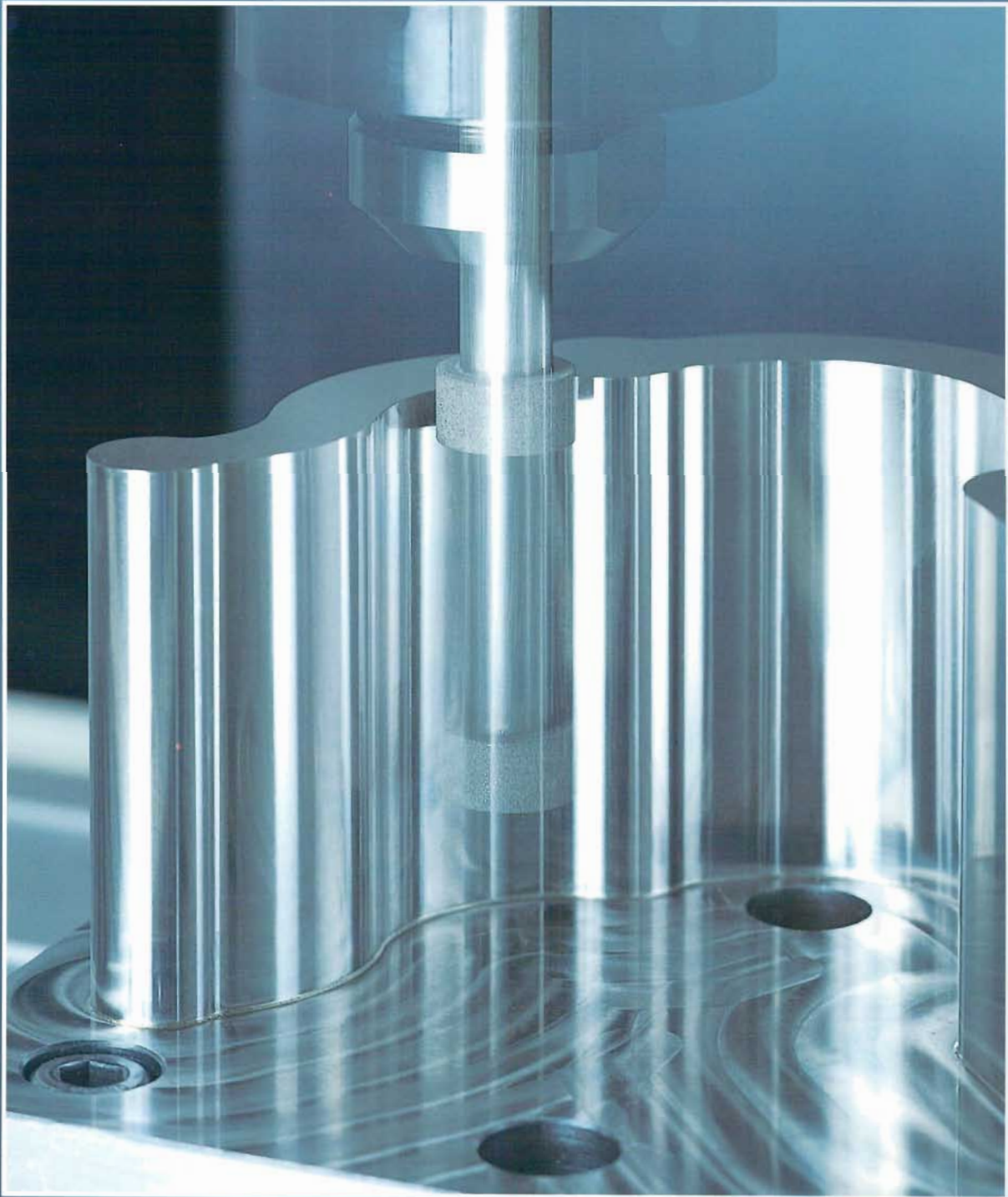


MITSUBI SEIKI KOGYO CO., LTD.

HIGHEST PERFORMANCE MACHINE AVAILABLE
FOR VERY REASONABLE PRICE

300G

ULTRA PRECISION ECONOMY TYPE
CNC PATH CONTROL JIG GRINDING MACHINE





Highest performance machine in the world for the price

You can buy a high accuracy and high performance machine for very reasonable price. The machine will promise you the high return to your investment.

Base machine structure is identical as the highest grade machine model 3GDN.

Positioning accuracy $\pm 0.7\mu\text{m}$ /full stroke guaranteed !

Actual results are less than $\pm 0.3\mu\text{m}$ /full stroke.



Repeating accuracy of quill Up/Down cyclic motion is $\pm 2 \mu\text{m}$.

With this accuracy high precision pockets and shoulders can be made easily.

Y axis guide ways are precisely hand scraped V-V structure and X axis guide ways are V-F structure.

These guideways realize perfect perpendicularity and straightness of table and saddle motion.

For X and Y axis motion, precision needle rollers are applied on the hand scraped guideways.

Because of the precision needle rollers, stick slip and lost motion are eliminated from the axis motion.

Spindle head Up/Down motion (W axis) guideways are precisely hand scraped V-V structure.

Thanks to this V-V guideways, excellent straightness and perpendicularity are maintained between head and table.

Low coefficient of heat expansion material is used for spindle head housing to minimize heat displacement of spindle head.

1/4 of coefficient of heat expansion material, compare to ordinal cast iron, reduces heat displacement of spindle head under long hours of operation.

500 min⁻¹ of planetary motion.

Faster planetary motion compare to previous models (300 min⁻¹) is helpful to grind small diameter holes.

Dual control mode on Z axis motion.

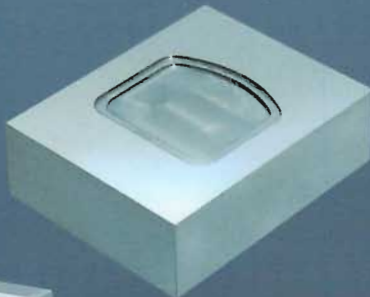
One control mode is "CNC control mode" that the Z axis is controlled same as X and Y axis. That is, position and speed is controlled by CNC in the same manner as X and Y axis. The other control mode is "Quill cycle mode", that is, the Z axis performs cyclic (oscillating) motion independently from other axes.

Ultra precision linear scales are used for position detectors.

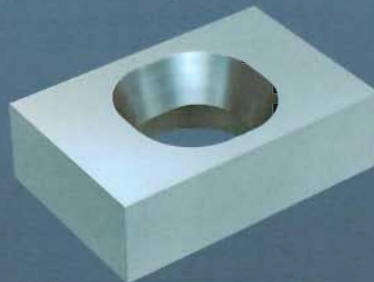
Non-contact type ultra precision scales are equipped on X,Y and z axis. Since the detecting heads do not touch to the scales, accuracy of each scale does not deteriorate for life of the machine. Since the coefficient of heat expansion of each scale is same as machine components, it maintains high positioning accuracy under various ambient temperatures.



Bottom grinding



Taper grinding



Thread grinding



Multiple step side face grinding



■ MACHINE SPECIFICATIONS

Working Range	Table longitudinal travel (X axis)		500 mm (19.7")
	Saddle transversal travel (Y axis)		300 mm (11.8")
	Quill vertical travel (Z axis)		100 mm (3.9")
	Spindle head vertical travel (W axis)		300 mm (11.8")
	Distance from spindle center to column front (Up to 330 mm high from table top)		370 mm (14.6")
	Distance from table top to grinding wheel collet		450 mm (17.7")
Table	Working surface (L x W)		700 x 350 mm (27.6 x 11.8")
	Number of T-slot		7
	T-slot width and spacing		JIS 10 x 50 mm
Spindle	Permissible table load		300 Kg (660 lbs)
	Planetary motion speed		5 - 500 min ⁻¹
	Rotating angle control		C axis control
Quill (Z axis)	Stroke		100 mm (3.94")
	Chopping (cyclic motion) stroke		95 mm (3.7")
	Number of stroke cycle (for 25 mm stroke)		200 cycles/min
Rapid traverse	Table (X axis) and Saddle (Y axis)		2,000 mm/min (79 ipm)
	Quill (Z axis)		3,000 mm/min (118 ipm)
	Spindle (C axis)		2,600 deg./min
Feed rate	Table (X axis) and Saddle (Y axis)		0.1 - 2,000 mm/min (0.01~79 ipm)
	Quill (Z axis)		0.1 - 13,000 mm/min (0.01~512 ipm)
	Spindle (C axis)		0.1 - 2,600 deg./min
Automatic Wheel Outfeed	Wheel outfeed range (on diameter)		4 mm (0.16")
	Minimum input resolution (on diameter)		0.001 mm (0.0001")
	Outfeed increment (on diameter)		0.001 - 4 mm (0.0001~0.16")
	Number of cycle for outfeed interval		1 - 99
	Number of sparkout cycle		1 - 99
Grinding head	Outfeed data setting register		10 sets
	High Frequency Motor	Low speed head (Standard)	9,000 - 45,000 min ⁻¹ Max. 0.75 Kw
	Air turbine (Option)	High speed head (Standard)	18,000 - 90,000 min ⁻¹ Max. 0.28 Kw
Grinding capacity	Hole to be ground (Planetary motion)		Max. 175,000 min ⁻¹
	Without adapter	With adapter	Min.0.5 - Max. 100 mm dia. (0.02~3.9")
	Taper grinding angle		Max. 310 mm dia. (12.2")
Accuracy	Positioning accuracy (X, Y, Z axis) (uni-directional single reading)		Max. 3 degree (including angle)
	Voltage		+/- 0.0007 mm in full stroke (+/- 0.000028")
Power specification	Consumption		AC 200/220, 3 phase, 50/60 Hz
	Pressure		11 KVA
Air specification	Consumption		0.6 Mpa (6 Kg/cm ²) (90 psi)
	Consumption		300 NI/min (11 cubic ft/min)
Machine weight			3,200 Kg (7,000 lbs)

■ CNC SPECIFICATIONS

CNC control name	FANUC 15MB	Minimum input resolution	X, Y, Z axis: 0.001 mm (0.0001")
Controlled axis	4 axes (X, Y, Z, C)	Minimum scale resolution	C axis: 0.001 deg.
Simultaneously controlled axis	4 axes		
CRT	9" mono-chrome		

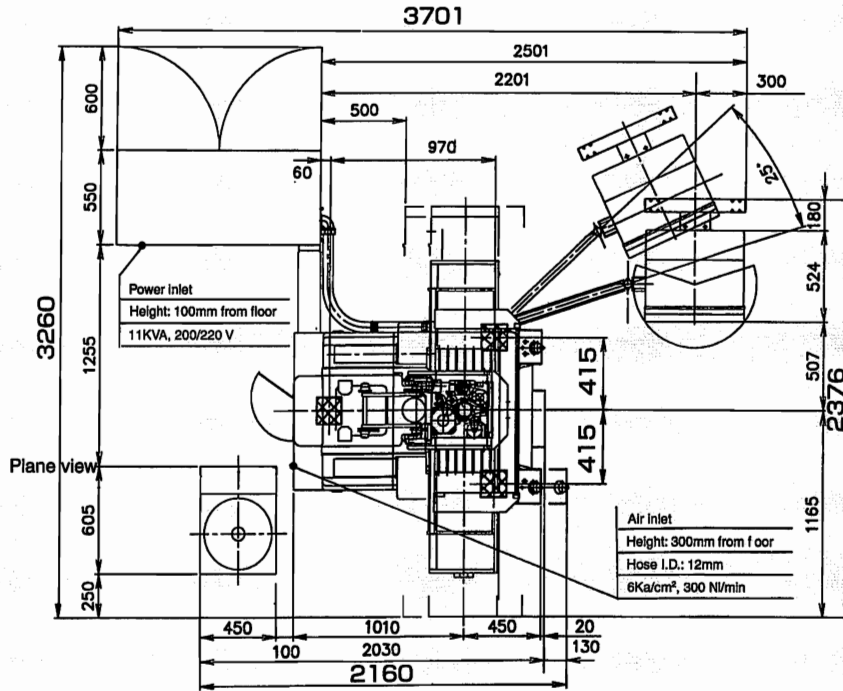
■ MACHINE STANDARD ACCESSORIES

High frequency motor	Low speed	Collets	For Low speed: ID. φ 5, 6, 10 mm
	9,000 - 45,000 min ⁻¹		For High speed: ID. φ 5, 6, 10 mm
Inverter	High speed	Angle plate	For bottom grinding
	18,000 - 90,000 min ⁻¹	Automatic power OFF	
Dresser		MF-1	3.5" Floppy disk drive
Work lamp		Bearing changing tools	For Low speed & High speed head
Truing block		Spanner & Screw driver	
Centering indicator		Spare parts	Carbon brushes, fuses
Grinding sound detector		Spindle overload alarm	
Grinding wheel arbor	For Low speed head φ 10 mm x 55 mm L	Spare bearing kits	For Low speed & High speed head

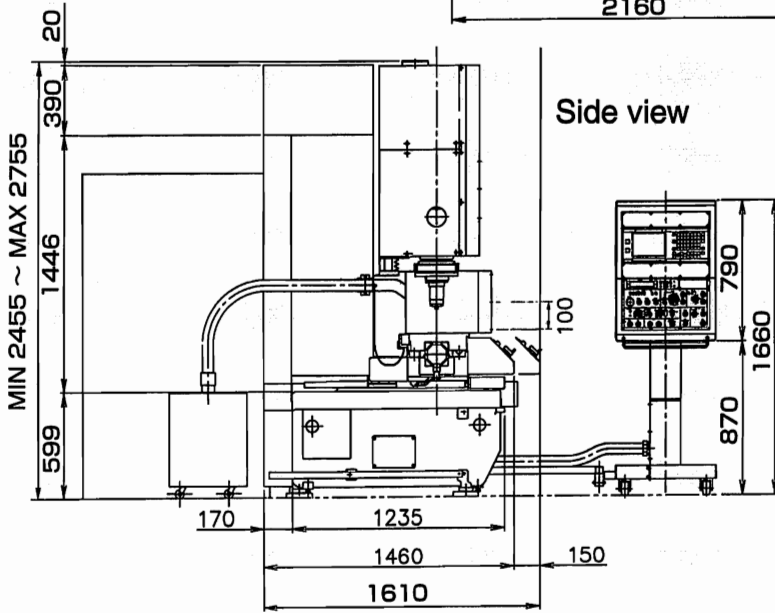
■ MACHINE OPTIONS

Beacon light set (2 lights unit)	Yellow for prog. stop Red for alarm	Coolant nozzle from table	
Elapse meter package	Power ON	Temperature controlled coolant system	
	Cycle ON Wheel spindle ON	Air cut time reducing system	
Ground fault detector		CRT	14" color
Door interlock		MF-2	Portable type 3.5" Floppy disk drive
Flood coolant & vacuum dust collector		Custom machine color	

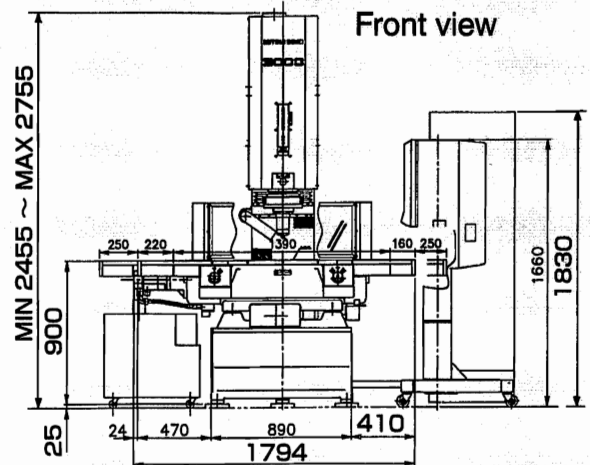
Plane view



Side view



Front view



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



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