

JET-1000 DMC-909/912/915

JET-1000



Adhering to our outstanding quality and development experience on the vertical machining centers for many years, the series of vertical high-speed machining centers can provide you faster processing efficiency and more careful machining quality.

The machine of JET series has the following superior performance different from the traditional machine.

■ Excellent Ergonomics - The distance between the table and safety door is only 220 mm. It makes users more convenient to carry on the loading and

unloading and settlement of the workpiece.

■ **Easy Chip Removal** - High-pressure rivers plus twin screw-type conveyors ensure complete chip removal with little manual cleaning.

■ **High Rigidity** - Different from the conventional C-type VMCs with a horizontal movable spindle head its center is far from the guide ways, the JET spindle is very close to the guide ways for the best possible rigidity.

■ **High-speed Machining** - The Swiss roller-type linear ways used on all 3 axes offer high-loading capacity and accurate displacement for high-speed machining. The overall accuracy is improved over a conventional VMC.

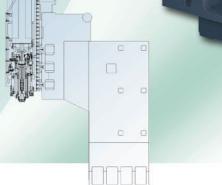
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ADVANCED STRUCTURE

Taper of spindle is BBT-40. HSK A63 is optional.

Distance between the spindle center and the Z-axis guide ways is only 180 mm. It provides machine owning much better cutting rigidity and accuracy.

Both of X and Y-axes use the ball-type linear ways and Swiss roller-type linear ways are used on the Z-axis for speed and precision. The rapid traverse for all 3 axes is 24 m/min.



Lightened Direct-Driving Spindle

The spindle is coupled directly on the motor and driven without the gearbox for low thermal growth.

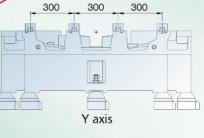


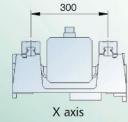
Direct Driving Ballscrews

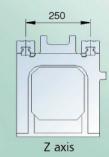
Servo motors couple directly to the ballscrews=Accuracy and precision. Oversized ϕ 1.77" (45mm) pretensioned, double nut ballscrews use on all 3 axes=No Thermal Growth and Accuracy.

Large power and no weight balance used on the Z-axis design can make the Z-axis movement more stable.

One-piece L-type column for maximum rigidity.









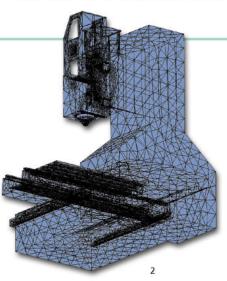
Double Nut Ballscrew

Zero Table Overhand

Super wide linear way arrangement allows the weight of the table and the workpiece to be kept in the travel of saddle and provides machine for rigidity and accuracy.

Optimal Design for Structure

We cast the main parts of machine with the high-class meehanite cast iron for high rigidity and damping.



FEA For Structure

The structures of major components for constructing the machine are designed with the finite element analysis (FEA). By this way, we refine our design and improve the quality of machine. It makes the machines high rigidity and good precision that are for beyond ordinary.

DMC-909 / 912 / 915



Expanding on our popular

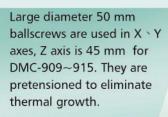
DMC series of large frame bridge mills, this series of mid-frame bridge mills can take the place of large C-Frame type mills while still offering value pricing.

These machines offer distinct advantages over conventional VMC's.

- **Ergonomics** much easier to load / unload and set-up.
- **Chip Removal** twin screw type conveyors plus a caterpillar conveyor ensure complete chip removal with little manual cleaning.
- Floor Space Our double columns consume less floor space then a similar size VMC.
- **Rigidity** Opposed to large VMC's with a very large spindle center to column distance, the
 - DMC spindle is very close to the bridge for the best possible rigidity.
- Total Accuracy Because the Y and Z axes have fixed loads at all times and the X axis carries

the only dynamic load, overall accuracy is improved over a conventional VMC.

Setting the Standard.... With Solid Construction



High-rigid roller-type linear ways are used on the Y axis for heavy cutting, and the distance between the ways is 580 mm Extra large milling head is with rigid linear ways. The head is held by 480 mm of the saddle.

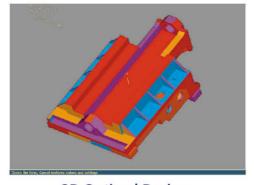
Huge saddle has a size of 800 mm x 722 mm

One-piece columns and bridge casting for maximum rigidity.

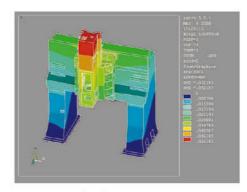
Heavy duty and high rigidity roller-type linear ways are used on the X-axis for speed and precision.

One-piece meehanite cast iron base.

17/24 kW spindle motor with 15000 rpm standard is used on the 40 Taper machines. It comes with a spindle water cooler, too.



3D Optimal Design



Main Structure FEA

Built Right....Built to Last!

MACHINING SAMPLES FOR MOLD & DIE



Feed Rate 3000 mm/min Spindle Speed 12000 r.p.m

Machining Time 52 min

Material Al Alloy

Workpiece Cell Shell

Characteristic High-Speed 3D Machining



Material Al Alloy (6061)

Workpiece Standard Test Workpiece of SST Characteristic

High-Speed 3D Machining



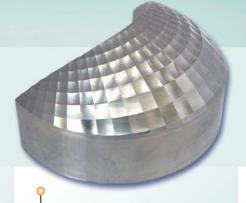
Feed Rate 1000 mm/min Spindle Speed 13000 r.p.m Machining Time 1 hr 38 min

Material S45C

Workpiece Lampshade of Car

Characteristic Excellent Gloss on

Surface



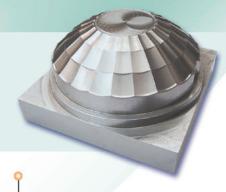
Feed Rate 1000 mm/min Spindle Speed 13000 r.p.m **Machining Time** 3 hr 46 min

Material

Workpiece Lampshade of Car Excellent Gloss on Characteristic

P5

Surface



Feed Rate 1000 mm/min Spindle Speed 13000 r.p.m

Machining Time 3 hr 03 min

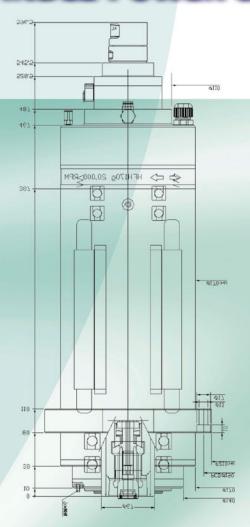
T4, HRC 32 Material

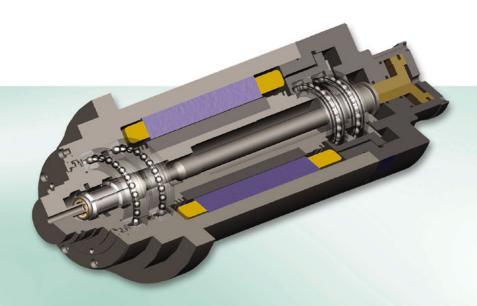
Workpiece Lampshade of Projector

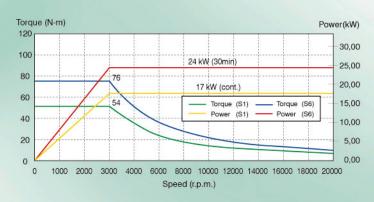
Characteristic **Excellent Gloss on**

Surface

SPINDLE POWER & TORQUE CHART







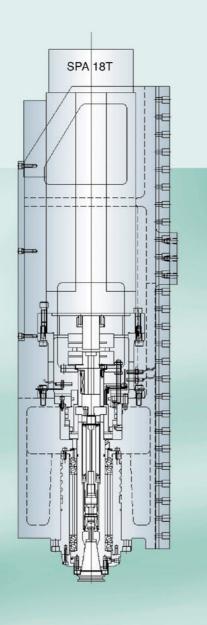
HSK A63 20,000 rpm(Opt.)

Technical Data

	Drive Layout							
Power		17 kW						
Nominal Speed	3000 r.p.m.							
Max. Torque		54 N-m						
Max. Speed	200	20000 r.p.m.						
Control	Fanuc / Sier	Fanuc / Siemens / Heidenhain						
Voltage	230	0 V / 380V						
Max. Current	9	O A /54A						
Driver								
Tool System	HSK A63							
Clamping System	Spring-mechanical	Spring-mechanical + Power-mechanical						
Clamping Force	10 kN	18 kN						
Tool Cleaning	Central	Central + Surrounding						

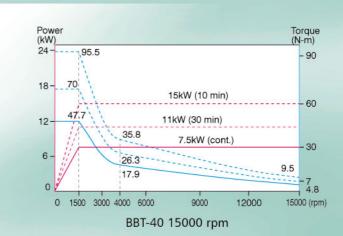
Spindle Specificat	ion
Spindle Bearing	2x φ 70
Bearing Rigidity	Sr 310.2 N/ μ m
Bearing Lubrication	Grease
Spindle Cooling	Water Glycol
Cooling Performance	Above 2.5 kW
Cooling Temperature	The same as machine
Cooling Volume (Approx.)	Above 12 ℓ/min
Tool Cooling	
Central Coolant Flow	Optional
Max. Pressure	< 80 bar
Suitable for Dry Operation	Yes
Air	Possible
Min. Quantities of Cooling Lubricant	Optional

Metal Removal Rate	Milling	Milling	Drilling	Threading
Power	17 kW	17 kW	17 kW	17 kW
Material	Steel 60-70 kg/mm ²	Aluminum	Steel 60-70 kg/mm ²	Steel 60-70 kg/mm ²
Machining Volume (cm³/min)	180	5 - 1	-	-
Tool/Edges (φ/mm)	φ 60 / 6	φ60/6	φ 30	M24
Rotational Speed (min-1)	1400	2800	350	500
Cutting Speed (m/min)	260	520	32	37
Cutting WidthxDepth (mm)	40 x 3	40 x 4	*	-
Feed Rate (mm/min)	1500	4000	50	500



There are many kinds of spindle speed for your choice.





Technical Data

	Drive Layout
Power	7.5 / 15 kW
Nominal Speed	1500 r.p.m.
Max. Torque	95.5 N-m
Max. Speed	15000 r.p.m.
Control	Fanuc / Siemens
Voltage	200 V
Max. Current	56 A
Driver	
Tool System	BBT-40 / HSK A63 (Opt.)
Clamping System	Hydro-mechanical
Clamping Force	10 kN

Spindle Specific	ation			
Spindle Bearing	4x φ 65 Ceramic Balls			
Bearing Rigidity	350 N/ μ m			
Bearing Lubrication	Grease			
Spindle Cooling	Oil			
Cooling Performance	2 kW			
Cooling Temperature	22-25°			
Cooling Volume (Approx.)	10 <i>e</i> /min			
Tool Cooling				
Central Coolant Flow	Optional			
Max. Pressure	<70 bar			
Air	Possible			
Min. Quantities of Cooling Lubricant	Optional			

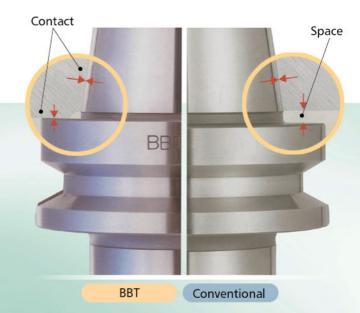
Metal Removal Rate	Milling	Milling	Drilling	Threading
Power	7.5/15 kW	7.5 kW	7.5/15 kW	7.5/15 kW
Material	Steel 60-70 kg/mm ²	Aluminium	Steel 60-70 kg/mm ²	Steel 60-70 kg/mm ²
Machining Volume (cm³/min)	150	540		-
Tool/Edges (ϕ /mm)	φ 60 / 6	φ 60 / 6	φ30	M24
Rotational Speed (min ⁻¹)	1400	2800	350	500
Cutting Speed (m/min)	260	520	33	37
Cutting WidthxDepth (mm)	33 x 3	40 x 4	-	-
Feed Rate (mm/min)	1500	3360	50	500

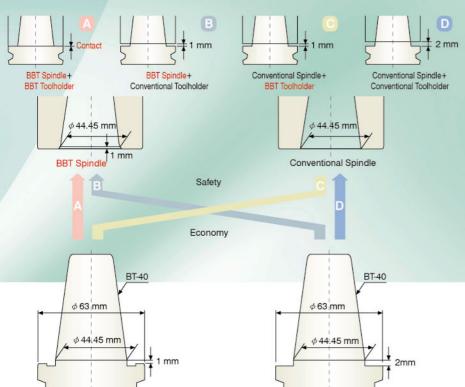
TOOL SYSTEM (Std.)

Advantages of BBT Spindle System

Perfect Interchangeability -

The BBT spindle system has the perfect interchangeability with the conventional toolholders and machines. The conventional toolholders, such as these specifications of JIS-BT, DIN-69871, ISO, CAT-V, and so on, can be used on the BBT spindle system. Alternatively, the BBT toolholders also can be equipped with the conventional spindles.





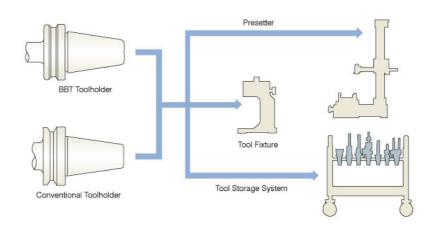
Existing Accessories Utilized -

You don't need prepare new accessories for the BBT spindle system. The existing accessories, such as presetters, tool fixtures and tool storage systems, can be used with the BBT toolholders. And further, it is not necessary to modify the tool magazines and ATC devices of existing machines.

Eliminating the Z-axial Movement -

BBT Toolholder

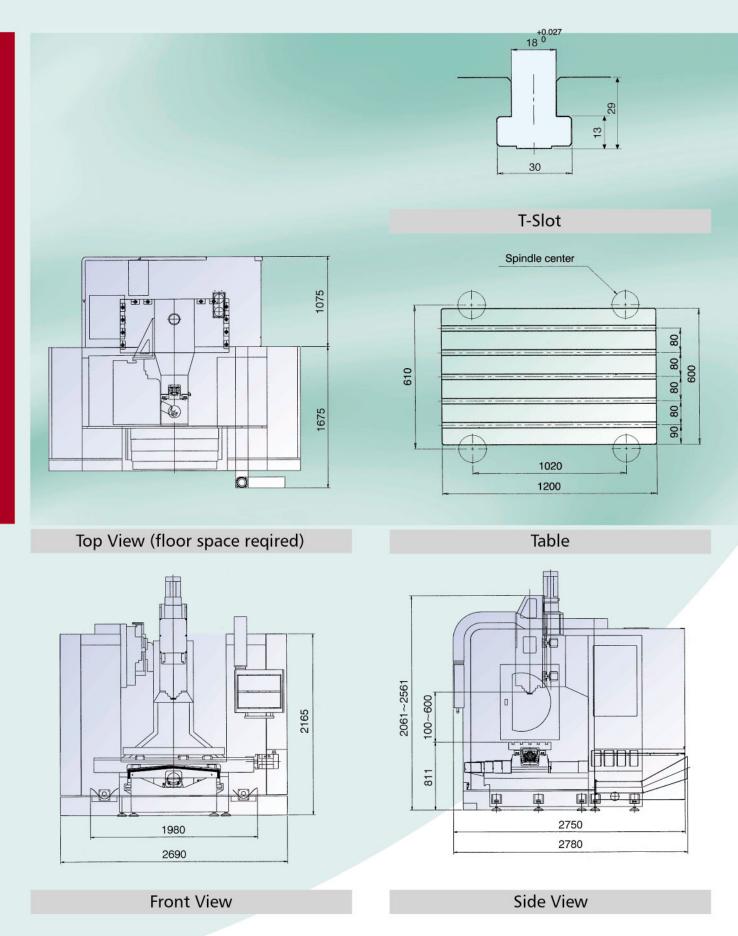
In the high rotary spindle speeds, the mouth of spindle can expand slightly due to the centrifugal force. It will cause the conventional toolholders pulled back into the spindle and make the Z-axial movement. This slight pull back of the cutter can affect dimensional accuracy of the Z-axis. The face contact of BBT spindle system can prevent the toolholder from being drawn back into the spindle.



Conventional Toolholder

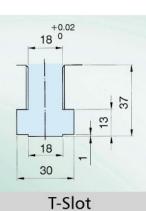
DIMENSIONS

JET-1000

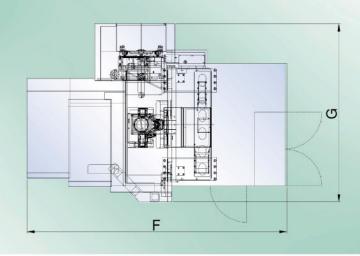


DMC-909/912/915

Size Model	А	В	С	D	Е	F	G	Н	1	J	K
DMC- 909	780	600	450	1845	3130	4235	2920	1100	1000	850	125
DMC- 912	780	600	450	1845	3130	4235	2920	1100	1300	850	125
DMC- 915	780	600	450	1845	3130	4755	2920	1100	1600	850	125

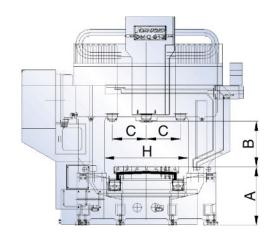


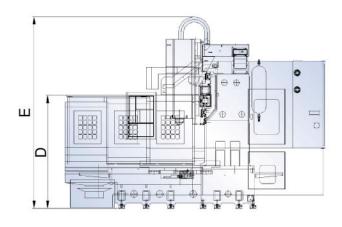




Table

Top View (floor space reqired)





Front View

Side View

ACCESSORIES

Standard Features-Great Equipment



Rigid Tapping



High Pressure Coolant (P:3.5 kg/cm², Q:100 e/min)

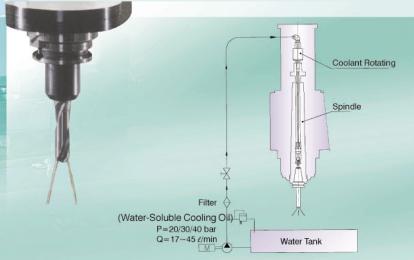


Automatic Chip Removal (Screw Type Chip Conveyor)

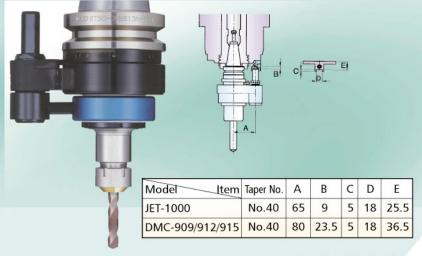


Remote Handwheel

Coolant Thru Spindle



Coolant Thru Tool Tip



* No.40 24 Tools (Std.)



* Time of Tool Change for Standard Type: No.40:2.5 sec (for DMC-909/912/915)

CNC SYSTEM-FANUC 18/-MB

We use the FANUC CNC system for reliability, performance, and FANUC's excellent worldwide service. It is up to the machine tool builder that options are resident in the control and we load it up. Others call them options, but we call them standard. Features such as 10.4" color LCD display, Custom Macro B, Helical, 640 m of memory, Canned Cycles, Full MDI keyboard, and AI NANO Contour Control (high speed machining with 180 blocks look ahead) are all standard. Not to mentioned Fanuc's state-of-the-art AC digital servo and spindle systems.



Do You Want To Fly?

With the optional Data Server (up to the maximum capacity of 1 GB for your choice) and AI NANO HPCC (High Precision Contour Control) with 64-bit RISC processor, you can fly through 3-axis simultaneous movements at 60,000 blocks per minute. Or take it one step further by adding the NURBS option for even faster contouring with better finishes. Call us for the fastest CNC system on the planet.





Conversational

If ease of programming at the machine is your need, the optional Manual Guide *i* software is what you have been looking for. 10.4" color LCD, tool and material libraries, solid modeling animation, automatic graphical prompt driven programming and simple question and answer format make programming at the machine in a breeze.



SPECIFICATIONS

Item	Model	JET-1000	DMC-909	DMC-912	DMC-915			
Table working sur	face	1200x600 mm	1000x850 mm	1300x850 mm	1600x850 mm			
Longitudinal trave	el (X-axis)	1020 mm	900 mm	1500 mm				
Cross travel (Y-axi	ross travel (Y-axis) 610 mm 900 mm							
Vertical travel (Z-a	xis)	500 mm						
Spindle nose to ta	able	100 mm~600 mm 150 mm~650 mm						
Spindle center to	slideway	180 mm						
Spindle taper		BBT-40 / HSK A63 (Opt.)						
Spindle speed		60~15000 rpm / 20000 rpm (Opt.)						
Spindle motor			11/15 kW direct d	riving spindle (Std.)				
	New			in spindle (Opt.)				
X-Y-Z Rapid traver	se			4 m/min				
Cutting feed rate			1~12000) mm/min				
Tool magazine ca	rry		Bi-direction, Change tool	s in the shortest distance.				
No.of tools				rm type (Std.)				
			32 Tools or more f	or Arm type (Opt.)				
Max. tool dia. for	,	75 mm						
Adjacent pockets Max. tool diamete	r	100 mm						
	1	200 mm	100	0072752				
Max. tool length		300 mm 320 mm						
Max. tool weight			10 kgs					
Table load capaci	ty	800 kgs		3000 kgs				
Machine weight		8000 kgs	9000 kgs	11000 kgs	14000 kgs			
Machine dimension	ons (LxWxH)	3100x2800x2870 mm	4235x2920x3130 mm	4235x2920x3130 mm	4755x2920x3130 mm			
Cutting capacity	Milling		240 c	c/min	,			
	Drilling		φ30) mm				
(S45C)	Tapping	M30xP3.5						

^{*} All data subject to change without notice.

Standard Accessories

- 1.Coolant system
- 2. Spindle air blast
- 3. Auto lubrication with alarm
- 4. Tools, tool box and various manuals
- 5. Halogen working lamp
- 6.Screw type chip conveyor
- 7. Spindle cooler
- 8.Full enclosure splash guard
- 9.FANUC 0i-MC

Optional Accessories

- 1.Tool presetter (Renishaw TS-27)
- 2.CNC Rotary table
- 3. High pressure coolant thru tool tip
- 4. High pressure coolant thru spindle (20/30 bar or more)
- 5.Arm type ATC for 32/40 tools or more (BBT-40, HSK A63)
- 6.Chain type chip conveyor
- 7.20000 rpm high-speed built-in spindle (BBT-40, HSK A63)
- 8.Internal cooling ballscrew
- 9.Manual guide 0i (0iMC); Manual guide i (18iMB/21iMB)

^{*} All the specifications are listed with the FANUC CNC system.

CNC CONTROL SPECS

o: Std. \triangle : Opt. -: Nil

Input commands Input commands Input commands Input commands Inch/ Abso Input Pre-re- ISO/6 RS23 Posit Linea Circu Helic Rigid Program Program Pre-re Rapic Cuttie Hand Miscellaneous function Coordinate system Moc Mach Work Coordinate Autor Autor 2nd r Referer Tool function Tool function Tool function Operation Operation Operation Programming support function Programming support function Guste No. o Rack Mach Optic Misce Manu PLC: Sub- Corn Cann Autor User No. o Back	rundard number of control axes andard number of control axes ast detection increment ast programmable increment h/metric conversion solute/incremental command but buffer bread buffer (No-of block) D/EIA automatic identification 232-C interface sistioning (interpolation) ear interpolation cular interpolation dical interpolation jid Tapping mory capacity of programs stored ckground editing code output 4-digit BCD-binary indle rate reminute poid traverse rate titing feed rate indle feed rate code tomatic coordinate system work coordinate system ord reference point return dereference point return dereference point return dereference point return dereference point return deference point return	Specification axes axes 1μ 1μ G20/G21 G90/G91 word/characters block G00 G01 G02/G03 S4BCD % low25%,50%,100% 0%-150% x1,x10,x100 M2(BCD) G54-G59 G92	4 3 1μ 1μ 0 0 1024 30 0 0 0 0 0 0 0 0 0 0 0 0 0	3 3 0.1μ 0.1μ 0 0 unlimited 256 0 0 0 0 0 6 GB unlimited 0 0 50 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	18/MB 3 3 1 μ 1 μ 0 0 6 180 0 0 0 0 0 0 0 640M 200 0 0	21/MB 3 3 1 μ 1 μ 0 0 6 80 0 0 0 0 0 640M 200 0 50-150	0/MC 3 3 1μ 1μ 0 0 1 20 0 0 0 0 0 640M 200 0	$\begin{array}{c} \textbf{810D} \\ \textbf{4} \\ \textbf{4} \\ \textbf{1}\mu \\ \textbf{0} \\ \textbf{O} \\ \textbf{unlimited} \\ \textbf{100} \\ \textbf{O} \\ $	840D 4 1μ 1μ 0 0 unlimited 300 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 unlimited 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
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Input commands Input Pre-re ISO/E RS23 Positi Linea Circu Helic Rigid Program Program Program Pre-re ISO/E RS23 Positi Linea Mem No. c Back Spindle functions Per-m Rapid Cuttir Hand Miscellaneous function Miscellaneous function Mach Work Coordinate system Tool function Tool function Tool function Operation Operation Operation Programming support Function Frogramming support Function Programming support Function Outcom Sub-Jack Sub-Jack Ocont Canton Outcom Sub-Jack Ocont Canton Outcom Sub-Jack Ocont Canton Outcom Sub-Jack	solute/incremental command but buffer e-read buffer (No-of block) D/EIA automatic identification 232-C interface sitioning (interpolation) ear interpolation cular interpolation lical interpolation gid Tapping mory capacity of programs stored ckground editing code output 4-digit BCD-binary indle rate r-minute pid traverse rate titing feed rate ndle feed rate ndle feed rate code tomatic coordinate system ordinate system ordinate system ordinate system ordinate system setting unual reference point return tomatic reference point return	G90/G91 word/characters block G00 G01 G02/G03 S4BCD % low25%,50%,100% 0%-150% x1,x10,x100 M2(BCD) G54-G59	O 1024 30 O O O O O O O O O O O O O O O O O O	O unlimited 256 O O O O O O O O O O O O O O O O O O O	O 6 180 O O O O O O O O O O O O O O O O O O O	O 6 80 O O O O O O O O O O O O O O O O O O	O 1 20 O O O O O O O O O O O O O O O O O O	O unlimited 100 O O O O O O O O O O O O O O O O O O	O unlimited 300 O O O O O O O O O O O O O O O O O O
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Interpolation Pre-ri SO/E RS23 Positi Linea Circu Helic Rigid Mem Program No. c Sack Some Per-ri Rapid Cuttin Hand Miscellaneous function M-co Autor Mach Work Coordinate system Coordinate system Tool function Tool function Cutte Numl Singl Block Dry ri Mach Optic Miscellaneous function Mach Cutte Numl Singl Refer Tool of Cutte Numl Num	e-read buffer (No-of block) D/EIA automatic identification 232-C interface sitioning (interpolation) ear interpolation cular interpolation cular interpolation lical interpolation lical interpolation gind Tapping mory capacity . of programs stored ckground editing code output 4-digit BCD-binary indle rate r-minute pid traverse rate titing feed rate ndle feed rate code tomatic coordinate system setting chine coordinate system ordinate system setting mual reference point return tomatic reference point return	G00 G01 G02/G03 S4BCD % low25%,50%,100% 0%-150% x1,x10,x100 M2(BCD)	30 0 0 0 0 0 0 256 KB 100 0 0 0 0	256 O O O O O O O O O G GB unlimited O O O	180 O O O O O O O O O O O O O O O O O O O	80 O O O O O O O O O O O O O O O O O O O	20 O O O O O O O O O O O O O O O O O O O	100 O O O O O O O O O O O O O O O O O O	300 O O O O O O O O
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Interpolation Interpolation Interpolation Interpolation Program Program Program Program Per-n Rapic Cuttin Hand Miscellaneous function Coordinate system Tool function Tool function Tool function Operation Operation Programming support function Reservation Reservation Interpolation Reservation Reservation Operation Programming support Function Usser No. c Back	232-C interface sitioning (interpolation) ear interpolation cular interpolation cular interpolation lical interpolation gid Tapping mory capacity . of programs stored ckground editing code output 4-digit BCD-binary indle rate r-minute pid traverse rate titing feed rate ndle feed rate code tomatic coordinate system setting chine coordinate system ordinate system setting inual reference point return tomatic reference point return	G01 G02/G03 S4BCD % low25%,50%,100% 0%-150% x1,x10,x100 M2(BCD)	O O O O O O O O O O O O O O O O O O O	O O O O O O O O O O O O O O O O O O O	O O O O O O O O O O O O O O O O O O O	O O O O O O O O O O O O O O O O O O O	O O O O O O O O O O O O O O O O O O O	O O O O O 1.5MB unlimited	O O O O O O 2.5MB
Interpolation Positi Linea Circu Helic Rigid Mem No. of Back Scot Spindle functions Per-m Rapid Cuttin Hand Miscellaneous function M-co Mach Work Coordinate system Tool function Tool function Tool function Operation	sitioning (interpolation) ear interpolation cular interpolation cular interpolation lical interpolation gid Tapping mory capacity of programs stored ckground editing code output 4-digit BCD-binary indle rate r-minute pid traverse rate titing feed rate nodle feed rate code tomatic coordinate system setting cichine coordinate system ordinate system setting inual reference point return tomatic reference point return	G01 G02/G03 S4BCD % low25%,50%,100% 0%-150% x1,x10,x100 M2(BCD)	0 0 0 0 0 0 256 KB 100 0 0 0-1	O O O O O O O O O O O O O O O O O O O	O O O O O O O O O O O O O O O O O O O	O O O O O O O O O O O O O O O O O O O	O O O 640M 200 O	O O O O O 1.5MB unlimited O	0 0 0 0 0 2.5MB
Interpolation Circultelic	ear interpolation cular interpolation lical interpolation gid Tapping mory capacity of programs stored ckground editing code output 4-digit BCD-binary indle rate r-minute pid traverse rate titing feed rate nodle feed rate code tomatic coordinate system setting cichine coordinate system ord coordinate system ordinate system setting inual reference point return tomatic reference point return	G01 G02/G03 S4BCD % low25%,50%,100% 0%-150% x1,x10,x100 M2(BCD)	O O O O O O O O O O O O O O O O O O O	O O O O 6 GB unlimited O O 50 O	O O O O O O O O O O	O O O 640M 200 O	O O O O 640M 200	O O O O 1.5MB unlimited O	O O O 2.5MB
Interpolation	cular interpolation lical interpolation jid Tapping mory capacity . of programs stored ckground editing code output 4-digit BCD-binary indle rate r-minute pid traverse rate titing feed rate nodle feed rate code tomatic coordinate system setting chine coordinate system ordinate system ordinate system ordinate system ordinate system setting inual reference point return tomatic reference point return	S4BCD % low25%,50%,100% 0%-150% x1,x10,x100 M2(BCD)	O O O O O O O O O O O O O O O O O O O	O O O G GB unlimited O O O O O O O O O O O O O O O O O O O	O O O O O O	O O 640M 200 O	O O O 640M 200	O O O 1.5MB unlimited O	O O O 2.5MB
Helic Rigid Mem No. c Back Spindle functions Score Spindle functions Per-m Rapid Cuttin Hand Miscellaneous function M-co Autor Mach Work Coordinate system Tool function Tool function Cutte Numl Single Block Dry r Mach Optio Miscellaneous function Mach Coordinate system Cutte Numl Single Block Dry r Mach Cordinate Sub-j Cordina	lical interpolation gid Tapping mory capacity . of programs stored ckground editing code output 4-digit BCD-binary indle rate r-minute pid traverse rate titing feed rate code tomatic coordinate system setting chine coordinate system ork coordinate system ordinate system setting inual reference point return tomatic reference point return	S4BCD % low25%,50%,100% 0%-150% x1,x10,x100 M2(BCD)	O O 256 KB 100 O O O O O O O O O O O O O O O O O O	O O 6 GB unlimited O O 50	O O 640M 200 O	O O 640M 200 O	O O 640M 200 O	O O 1.5MB unlimited O	O O 2.5MB
Program	id Tapping mory capacity . of programs stored ckground editing code output 4-digit BCD-binary indle rate r-minute pid traverse rate titing feed rate nodle feed rate code tomatic coordinate system setting chine coordinate system ork coordinate system ordinate system setting inual reference point return tomatic reference point return	% low25%,50%,100% 0%-150% x1,x10,x100 M2(BCD)	O 256 KB 100 O O O O O O O O O O O O O O O O O O	O 6 GB unlimited O O 50 O -	O 640M 200 O O	O 640M 200 O	O 640M 200 O	O 1.5MB unlimited O	O 2.5MB
Program Mem No. c Back Sc cor Spind Per-m Rapid Cuttin Hand Miscellaneous function M-co Autor Mach Work Coordinate system Tool function Tool function Tool function Tool function Singl Block Dry r Mach Optic Miscellaneous function Mach Coordinate system Tool function Singl Block Dry r Mach Corion Canna Can	emory capacity . of programs stored ckground editing code output 4-digit BCD-binary indle rate r-minute pid traverse rate titing feed rate nodle feed rate code tomatic coordinate system setting chine coordinate system ork coordinate system ordinate system ordinate system setting inual reference point return tomatic reference point return	% low25%,50%,100% 0%-150% x1,x10,x100 M2(BCD)	256 KB 100 O O 0-1 O - O	6 GB unlimited O O 50 O	640M 200 O O	640M 200 O	640M 200 O	1.5MB unlimited O	2.5MB
Program	of programs stored ckground editing code output 4-digit BCD-binary indle rate reminute pid traverse rate titing feed rate code tomatic coordinate system setting chine coordinate system ordinate system setting chine coordinate system cordinate system setting chine coordinate system cordinate system cordinate system setting chine coordinate system setting chine coordinate system setting chinal reference point return tomatic reference point return	% low25%,50%,100% 0%-150% x1,x10,x100 M2(BCD)	100 O O 0-1 O - O	unlimited O O 50 O	200 O O	200 O O	200 O	unlimited O	
Spindle functions S coc Spind Per-n Rapic Cuttin Hand Miscellaneous function Coordinate system Coordinate system Coordinate system Coordinate system Tool function Tool function Tool function Tool function Operation Operation Operation Operation Programming support function Back S coc Spind Autor Coordinate Mach Coordinate Num Singl Block Dry ri Mach Optic Misce Manu PLC: Sub-l Corn Cann Autor User No. c Back	ckground editing code output 4-digit BCD-binary indle rate r-minute pid traverse rate titing feed rate ndle feed rate code tomatic coordinate system setting chine coordinate system ork coordinate system ordinate system setting inual reference point return tomatic reference point return	% low25%,50%,100% 0%-150% x1,x10,x100 M2(BCD)	0 0 0-1 0 - 0	0 0 50 0	0	0	0	0	
Spindle functions Spindle functions Spindle functions Per-m Rapic Cuttii Hand Miscellaneous function Mach Work Coor Manu Autor 2nd r Refer Tool function Tool function Operation Operation Programming support function Spindle Sub-i Com Cann Autor User No. c Back	code output 4-digit BCD-binary indle rate r-minute pid traverse rate titing feed rate ndle feed rate code tomatic coordinate system setting chine coordinate system ork coordinate system ordinate system ordinate system ordinate system ordinate system ordinate system ordinate system inual reference point return tomatic reference point return	% low25%,50%,100% 0%-150% x1,x10,x100 M2(BCD)	0 0-1 0 - 0	O 50 O	0	0			0
Feed Spindle functions Spindle functions Spindle functions Per-m Rapid Cuttin Hand Miscellaneous function M-co Autor Mach Work Coordinate system Autor 2nd r Refer Tool of Cutte Numl Single Block Dry r Mach Optic Misce Manu PLC sub-Corm Cann Autor Condens Manu PLC sub-Corm Cann Autor User No. c Back No. c Back	indle rate r-minute pid traverse rate titing feed rate ndle feed rate code tomatic coordinate system setting chine coordinate system ork coordinate system ordinate system ordinate system ordinate system ordinate system inual reference point return tomatic reference point return	low25%,50%,100% 0%-150% x1,x10,x100 M2(BCD)	0 - 0 -	0		50-150		0	0
Feed Rapic Cuttin Hand Miscellaneous function Moco Autor Mach Work Coordinate system Coordinate system Tool function Tool function Operation Operation Programming support function Rapic Cutte Num Mach Optic Misce Manu PLC: Sub- Com Autor Autor Autor User No. c Back	pid traverse rate tting feed rate ndle feed rate code tomatic coordinate system setting chine coordinate system ork coordinate system ordinate system ordinate system setting inual reference point return tomatic reference point return	0%-150% x1,x10,x100 M2(BCD)	0 - 0 -	0		00 100		50-200	50-200
Niscellaneous function	tting feed rate ndle feed rate code tomatic coordinate system setting chine coordinate system ork coordinate system ordinate system ordinate system setting inual reference point return tomatic reference point return	0%-150% x1,x10,x100 M2(BCD)	- t		0	0	0	0	0
Name	tting feed rate ndle feed rate code tomatic coordinate system setting chine coordinate system ork coordinate system ordinate system ordinate system setting inual reference point return tomatic reference point return	0%-150% x1,x10,x100 M2(BCD)	- t	0	0	0	0	0	0
Miscellaneous function Miscellaneous function Coordinate system Coordinate system Coordinate system Autor Mank Autor Mank Autor 2nd r Refer Tool of Cutte Numl Single Block Dry r Mach Optic Misce Mank PLC s Sub-j Com Cann Autor Autor User No. c Back No. c Back	ndle feed rate code tomatic coordinate system setting chine coordinate system ork coordinate system ordinate system ordinate system setting inual reference point return tomatic reference point return	M2(BCD) G54-G59					0-200		
Miscellaneous function M-co Autor Mach Work Coord Manual Ma	code tomatic coordinate system setting chine coordinate system ork coordinate system ordinate system ordinate system setting inual reference point return tomatic reference point return	G54-G59	0		0	0	0	0	0
Coordinate system Coordinate system Coordinate system Coordinate system Coordinate system Tool of the first system Tool function Tool function Tool of the first system Tool of the first syste	chine coordinate system ork coordinate system ordinate system setting unual reference point return tomatic reference point return			0	0	0	0	0	0
Coordinate system Coordinate system Coordinate system Autor 2nd r Refer Tool of Cutte Numl Singl Block Dry r Operation Operation Operation Autor Corn Misce Manu PLC: Sub- Corn Autor User No. c Back Back	ork coordinate system ordinate system setting unual reference point return tomatic reference point return		- 51	-	0	0	0	0	0
Coordinate system Coordinate system Autor 2nd r Refer Tool of Cutte Num Singl Block Dry r Mack Optic Misce Manu PLC: Sub-j Corn Cann Autor User No. o Back	ordinate system setting nual reference point return tomatic reference point return		0	0	0	0	0	0	0
Tool function Single Block Dry right Mack Optic Misses Manuel PLC selection Sub-jection Commendation Programming support function Function Manuel Func	nual reference point return tomatic reference point return	G92	0	0	0	0	0	0	0
Tool function Single Block Dry re Mach Optic Misce Manuel PLC selection Sub-jection Programming support function Final Autor Cannel	tomatic reference point return	UJZ	0	0	0	0	0	0	0
2nd r Refer Tool of Refer			0	0	0	0	0	0	0
Tool function Tool function Tool of Cutte Numl Singl Block Dry ri Mach Optic Misce Manu PLC: Sub-j Corn Cann Autor User No. o Back	d reference point return	G28/G29	70	18	0	0	0	0	0
Tool function Tool of Cutte Num Single Block Dry re Mach Optic Misse Manu PLC: Sub-j Corn Cann Autor User No. o Back		G30	- 23	-	0	0	0	0	0
Tool function Tool I Cutte Num! Singl Block Dry ri Operation Operation Mach Optic Misce Manu PLC: Sub- Corn Cann Autor User No. c Back	ference point return verify	G27	-	-	0	0	0	0	0
Operation Operation Operation Operation Operation Optic Misce Manu PLC: Sub- Corn Cann Autor Programming support function Cutte Name No. o Back	ol command	T2 BCD	0	0	0	0	0	0	0
Operation Operation Operation Operation Option Mach Option Autor Cann Autor User No. o Back	ol length offest	G43/G44/G49	2		0	0	0	0	0
Operation Operation Operation Optic Misce Manu PLC: Sub-j Comm Cann Autor Autor Vuser No. o Back	tter compensation C	G40/G41/G42	0	0	0	0	0	0	0
Operation Operation Operation Optic Misce Manu PLC: Sub-I Comm Cann Autor User No. o Back	mber of offest sets	W 1	999	999	400	400	400	unlimited	unlimited
Operation Operation Optic Misce Manuel PLC: Sub-j Corm Cann Autor User No. o Back	gle block		0	0	0	0	0	0	0
Operation Mach Optic Misce Manu PLC: Sub- Corn Cann Autor Programming support function Mach Misce Manu PLC: Sub- Corn Cann Autor User No. c Back			0	0	0	0	0	0	0
Operation Optic Misce Manu-PLC: Manu-PLC: Sub-J-Corn-Cann Autor User No. c function Back		V	0	0	0	0	0	Ó	0
Misce Manu PLC: Sub-J Corn Cann Autor User No. c Back	chine lock	M01	Δ	<u> </u>	0	0	0	0	Δ_
Manu PLC: Sub-; Corni Cann Autor User No. c function Back	scellaneous function lock	M.S.T.lock	0	0	0	0	0		0
PLC: Sub-; Corn. Cann Autor User No. c function Back	nual/Absolute ON/OFF	IVI.S. I.IOCK	0	0	0	0	0	0	0
Programming support function Sub-i Corn Cann Autor User No. c Back			0	0	0	0	0	0	0
Programming support User No. c function Back	b-program control	M98, M99	0	0	0	0	0	0	0
Programming support Function Cann Autor User No. c	rner chamfering/corner rounding	19100, 19100	0	0	Δ	Δ	0	0	0
Programming support User No. c function Back	nned cycle for drilling	G80-G89	0	0	0	0	0	0	0
Programming support User No. c function Back	tomatic corner override		0	0	Δ	Δ	0	0	Ö
function Back	er macro		0	0	0	0	0	0	0
function Back	. of variable command sets		unlimited		500	500	500	unlimited	unlimited
	cklash compensation		0	0	0	0	0	0	0
Mem	mory-type pitch error compensation		0	0	0	0	0	0	0
	ordinate system rotation	G68/G69	0	0	Δ	Δ	0	0	0
Scali	aling	G50/G51	0	0	Δ	Δ	0	0	0
Polar	ar coordinate command	G15/G16	0	0	Δ	Δ	0	0	0
Measurement function Skip	p function		0	0	0	0	0	0	0
Tool !	ol length automatic measurement		0	0	Δ	Δ	Δ	0	0
	nergency stop		0	0	0	0	0	0	0
	vel protected		0	0	0	0	0	0	0
	ogram protected		0	0	0	0	0	0	0
CRT			10.4" LCD	15" LCD	10.4"LCD			10.4"LCD	10.4"LCD
MDI		Full key	0	0	0		Small type	0	0
	nguages	English/Japaness	10	10	7	7	7	7	7
	ts count		0	0	0	0	0	-	-
	n hour display and parts count		0	0	0	0	0	-	
			0	0	0	0	0	0	0
Uliner	aphic display		0	Δ	0	0	0	0	0
Ment	aphic display axis interface		0	0	0	0	0	0	0
	aphic display axis interface nu programming	Manual guide	0	0	Δ.	Δ	Δ	Δ	Δ
	aphic display axis interface onu programming nversational programming with graphic function		0	0	0	0	0	0	0
	aphic display axis interface onu programming nversational programming with graphic function rror function		0	0	^	0	0	0	0
	aphic display axis interface onu programming nversational programming with graphic function fror function inese. French. German. Italian. Spanish	041111111111111111111111111111111111111			0		-	_ /	Λ.
Data ETHF	aphic display axis interface onu programming nversational programming with graphic function rror function	64 bit RISC	-	0	Δ	Δ	Δ	$\frac{\Delta}{\Delta}$	Δ

^{*} All data subject to change without notice.







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