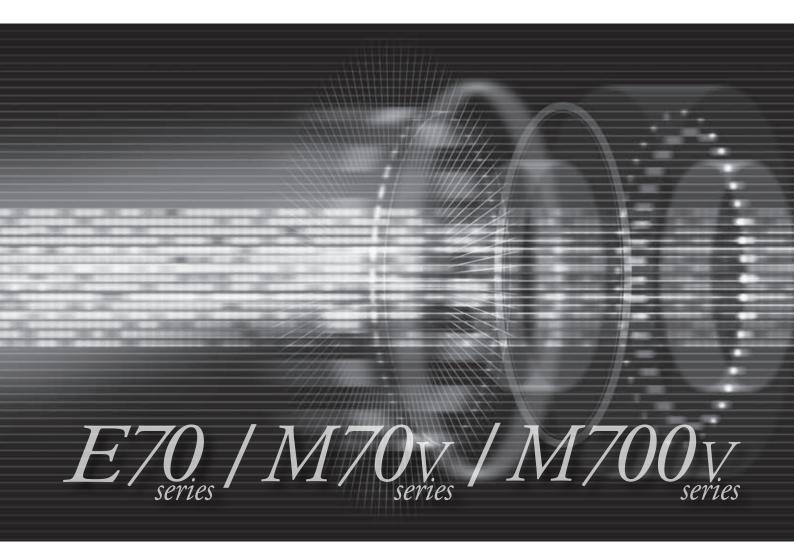
Changes for the Better



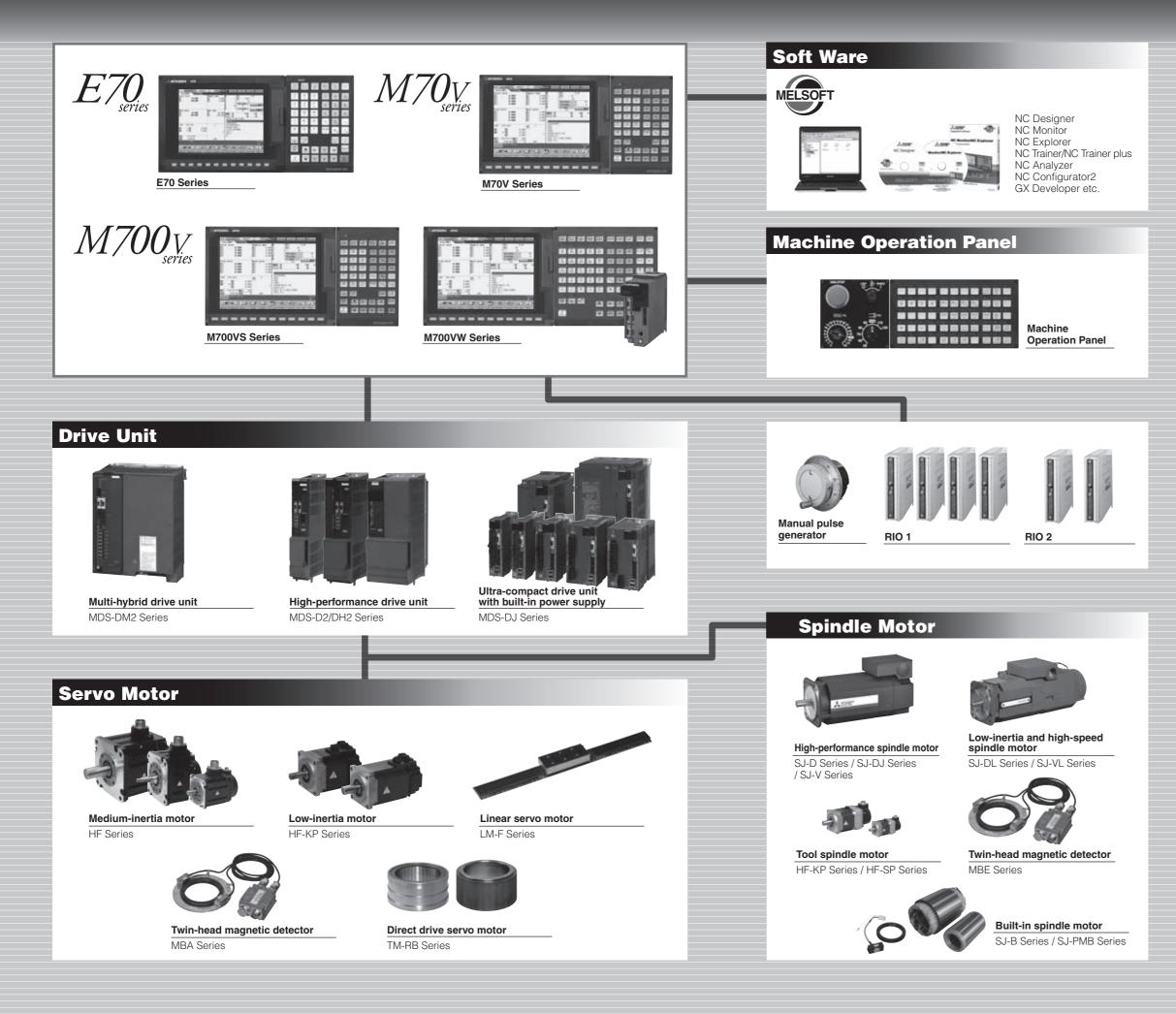
MITSUBISHI CNC NC Specification Selection Guide E70 / M70V / M700V Series



for a greener tomorrow



Product lines



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					Machini	ing center	system				
			(Display	/Control u	nit integra	ted type)		(Display/Co	ontrol unit se	parate type)	
Mod	el name	E70 Series	M70V	Series	M7	00VS Ser	ries	M7	00VW Se	ries	
			ТуреВ	ТуреА	M720VS	M730VS	M750VS	M720VW	M730VW	M750VW	
	Max. number of axes (NC axes + Spindles + PLC axes)	6	9	11	12	1	6	12	1	6	
Nu	Max. number of NC axes (in total for all the part systems)	3	5	8	8	1	6	8	1	6	
mber	Max. number of spindles	1	:	2		4			4		
of con	Max. number of PLC axes	2		6		6			6		
(in total for all the part systems) Max. number of spindles Max. number of PLC axes Max. number of PLC indexing axes Number of simultaneous contouring		1		4	4	(6	4	(6	
(es	Number of simultaneous contouring control axes	3		4	4	4	8		4	8	
	Max. number of NC axes in a part system	3	5	8	6	8	3	6	8		
Мах	Max. number of part systems		1	2	2			2			
CF d	card in control unit	-	·					Available			
	ard mode nt IC card mode)	Available	Available Available					Available			
Harc	d disk mode	-						Available			
Leas	st command increment	0.1µm	0.1	μm	0.1µm	1r	ım	0.1µm	1r	ım	
Leas	st control increment	1nm	1r	nm	1nm			1nm			
Max	. program capacity	230kB (600m) (400)	500kB (1,280m) (1,000)	2,000kB (5,120m) (1,000)	2,000k	(B (5,120m)	(1,000)	2,000kB (5,120m) (1,000)			
Max	. PLC program capacity	8,000 steps	20,000 steps	32,000 steps	1	128,000 step	S	-	128,000 step	S	
High [kBF	-speed machining mode I Max. M]	-	8.4	16.8	16.8	16.8	16.8	16.8	16.8	16.8	
High [kBF	-speed machining mode ${\mathbb I}$ Max. [M]	-	-	33.7	67.5	168	168	67.5	168	168	
	-speed high-accuracy control 1 Max. M] (1st part system only)	-	16.8	16.8	16.8	33.7	33.7	16.8	33.7	33.7	
	-speed high-accuracy control 2 Max. M] (limited to 1-part system configuration)	-	-	33.7	67.5	168	168	67.5	168	168	
	-accuracy control 1 part system only)	-	Available	Available	Available	Available	Available	Available	Available	Available	
	Control (1st part system only) per Smooth Surface)	-	-	Available	Available	Available	Available	Available	Available	Available	
CC-I	CC-Link (Master/Slave)		Available	Available	Available	Available	Available	Available	Available	Available	
Disp	lay	8.4-type			-type/10.4-ty ouch panel (/ /10.4-type tou pe touch pane		
Keyl	poard	sheet keys			/clear keys (clear keys	,	
нмі	customization function					NC Designer	r				
Wind	dows [®] XPe			-	-				Available		
	SUBISHI CNC hine Operation PanelHigh					Compatible					
Lanç	guages supported	Ji		glish/German/ n/Portuguese						1)/	
	ximum enacifications including optional	10 A									

* Maximum specifications including optional specifications are listed. Refer to the Specifications List for the details of each option.



(Display/Control unit integrated type)

	(Disp	hay/Control u	nii integrated	type)		(Display/Co	ontroi unit sep	arate type)	
E70 Series	M70V	Series	Ν	/700VS Serie	S	N	1700VW Serie	es	
	ТуреВ	ТуреА	M720VS	M730VS	M750VS	M720VW	M730VW	M750VW	
6	9	11	12	1	6	12	1	6	
3	5	9	12	1	6	12	1	6	
2	3	4	4	6	6	4	6	6	
2	6	5		6			6		
1	2	1	4	6	3	4	6	6	
3	2	1	4 6 4 6 4 6 4 6 4 6 4 6 4 6 4 8 4 6 8 6 6 2 4 2 7 2 4 2 7 Available 4 1nm 0.1µm 1nm $2,00kB$ (5,120m) (1,000) $2,00kB$ (5,120m) (1,000) $2,00kB$ (5,120m) (1,000)			4	8		
3	5	8	6	ξ	3	6	8	3	
1	1	2	2	2	1	2	4	4	
-	-	-		-			Available		
Available	Avai	lable		Available			Available		
-	-	-		-			Available		
0.1µm	0.1	μm	0.1µm	1n	ım	0.1µm	1r	ım	
1nm	1r	ım		1nm			1nm		
230kB (600m) (400)	500kB (1,280m) (1,000)	2,000kB (5,120m) (1,000)	2,000kB (5,120m) (1,000)			2,00	00kB (5,120m) (1,0	000)	
8,000 steps	20,000 steps	32,000 steps		128,000 steps		128,000 steps			
-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	
-	Available	Available	Available	Available	Available	Available	Available	Available	
8.4-type		8.4-type/10.4-type	e/10.4-type touch	panel (selectable)		10.4-ty 15-type/15-	pe/10.4-type touch type touch panel	n panel/ (selectable)	
sheet keys		sheet ke	eys/clear keys (se	lectable)			clear keys		
				NC Designer					
		-	_				Available		
				Compatible					
	Ja	apanese/English/0 Korean/Port	German/Italian/Fre uguese/Hungaria	ench/Spanish/Chir n/Dutch/Swedish/	nese (traditional)/(Turkish/Polish/Ru	Chinese (simplified ssian/Czech	d)/		

Lathe system



(Display/Control unit separate type)

CNC system Control Unit

Control Unit

E70 Series

Selection procedure flow chart

Start selecting the NC specifications! STEP 1 Check the machine type and specifications Machine type: lathe / machining center / grinding machine / special-purpose machine, etc. Details of control, required accuracy, with/without auxiliary axes (for workpiece feeding, turret, etc.) STEP 2 **P**3 **Decide the NC specifications** Number of axes, axis configuration, number of part systems, with/without spindles, number of I/O points · Check the position detection method and detection performance (absolute/relative position, number of pulses) · Select the size of the display unit, keyboard STEP 3 P50 Decide the servo motor Select the servo motor capacity · Check the outline dimensions, detector, and whether it has a scale or break STEP 4 P55 Decide the spindle motor Check the spindle's base/maximum rotation speed, output, torque, outline dimensions and whether it has a keyway · Frame-type or built-in spindle motor · With/without optional specifications (orientation, spindle/C-axis, synchronization, etc.) · Check the C axis accuracy and the speed (when C axis is used) STEP 5 P81 Decide the drive unit Check the capacity and the dimensions of a drive unit · Check the power regeneration/resistor regeneration STEP 6 P87 Decide the power supply unit Select the power supply unit only when a power regenerative drive unit is used. STEP 7 Decide the hardware options Check the options

Integrated type (Placed on the back of display)

M70V Series

MITSUBISHI CNC Machine Operation Pane

			[mm]
	Туре	Name	Contents
260	FCU7-KB921	MITSUBISHI CNC Machine Operation Panel A (Standard specification)	Key switch 55 points, LED 55 points MITSUBISHI standard key layout
071	FCU7-KB922	MITSUBISHI CNC Machine Operation Panel A (Custom specification)	Key switch 55 points, LED 55 points Without key tops (purchase custom parts separately)
041	FCU7-KB926	MITSUBISHI CNC Machine Operation Panel B	Rotary switches (spindle override, cutting override) Select switch (memory protection) Emergency stop push-button

The internal components of the machine operation panel are protected against water and oil (IP65F).

Handy Terminal



The internal components of the panels are protected against water and oil (IP65F). Possible to connect with the M700VW Series only.

P7,P13,P111 (manual pulse generator, synchronous encoder, availability of network connection and PLC connection, etc.) · Check the required cables and connectors. (In some cases, customers may need to prepare cables and connectors themselves.)

P127

STEP 8 Decide the software options P17 Check the number of programs stored (memory capacity), number of variable sets, etc. · Check the required functions



Check the screen development tool (when screen customization is required)

Check the development tools

NC specification selection completed!

M700VS Series	M700VW Series	
	Separate type (Placed separately from the display unit)	-

		[mm]
	Contents	
-L5	LCD (Monochrome display with backlight) Emergency stop button Manual pulse generator LED 10 points Membrane switch (key) Enable switch	

CNC system Control Unit

Displays a	& Keyboards				
		F70	Series		[mm]
Display Keyboard		L/0	FCU7-D	U120-13 type	
FCU7-KB024 sheet keys FCU7-KB025 sheet keys for lathe system <ong layout=""></ong>			260 8.4-type	140	
		M70V/M7	00VS Se	eries	
Display Keyboard	FCU7-DU120-12 (M70V) FCU7-DU120-11 (M700VS) 8.4-type	Display Keyboard	FC FC	CU7-DU140-12 (M70V) U7-DU140-11 (M700VS) 10.4-type	FCU7-DU140-32 (M70V) FCU7-DU140-31 (M700VS) 10.4-type touch panel
FCU7-KB024 sheet keys FCU7-KB025 sheet keys for lathe system <ong layout=""></ong>	260 140 8.4-type	FCU7-KB044 sheet keys <ong layout=""></ong>	220	290 140 10.4-type	290 140 0 10.4-type touch panel
FCU7-KB026 clear keys FCU7-KB028 clear keys for lathe system <ong layout=""></ong>	260 140 8.4-type	FCU7-KB046 clear keys <ong layout=""></ong>	220	290 140 10.4-type	290 140 0 10.4-type touch panel
-	-	FCU7-KB048 clear keys <abc layout=""></abc>	220	290 230 10.4-type	290 230
FCU7-KB029 sheet keys <ong layout=""></ong>	260 00 8.4-type 01	FCU7-KB047 clear keys <full keyboard=""></full>		290 8 10.4-type	290 10.4-type touch panel
		M700V	/W Serie	S	
Display Keyboard	FCU7-DA646-11 10.4-type	FCU7-DA646-33 10.4-type touch pa		FCU7-DA636-11 15-type	FCU7-DA636-33 15-type touch panel
FCU7-KB041 clear keys <abc layout=""></abc>	290 230 ରୁଷି 10.4-type	290 10.4-type touch panel	230	400 02 230 02 02	400 15-type touch panel 230
FCU7-KB045 clear keys <full keyboard=""></full>	290 02 10.4-type	290 Normal 10.4-type touch panel		400 80 15-type 290 90 90 90 90 90 90 90 90 90	400 15-type touch panel 290

The internal components of the keyboard are protected against water and oil (IP65F). The interface for USB memory and CF card are mounted on the front panel of the display for E70/ M70V/M700VS Series. The interface for USB memory and PCMCIA II are mounted on the front panel of the display for M700VW Series.

CNC system I/O unit and others

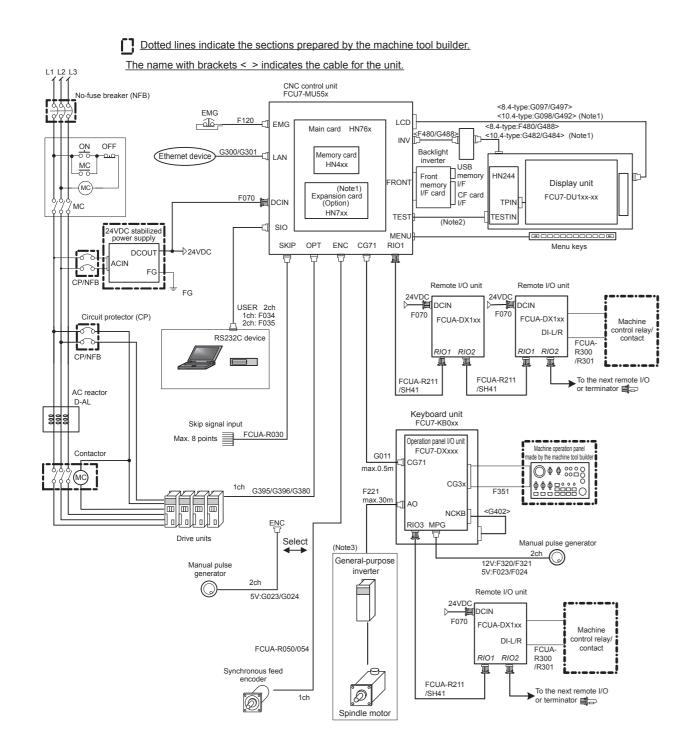
Observice Type Partner Partner Partner DD Serk output CULP_DOT10 Dis Service partner space Dis Service pa		Supr	orted mo	odel
Di SAVUY Di Bi-Popula 24/UP common hype Di G-Sponte sink hype MC2.20 MC2.20 Di Separate 24/UP common hype Di Separate 24/UP com hype Di	pe			
common reput DD Sink deglar PCUP-0X70 Occupied attains (iso, 1:, 2, 7, 8, 1000 advances attains, 4, 6, 6 - O PCUP-0X70 PCUP-0X70 DC Sequent attains (iso, 5, 1, 2, 7, 7, 1000 advances attains, 6, 5, 5 - O PCUP-0X70 PCUP-0X70 DC Sequent attains (iso, 5, 1, 2, 7, 7, 1000 advances attains, 6, 1, 5, 0 - O PCUP-0X700 PCUP-0X70 DC Sequent attains (iso, 1, 2, 3, 7, 8, 1000 advances attains, 6, 0 - O PCUP-0X700 DC Sequent attains (iso, 1, 2, 3, 7, 8, 1000 advances attains, 6, 0 - O O PCUP-0X701 DE Sequent attains (iso, 1, 2, 3, 7, 8, 1000 advances attains 4, 6, 0 - O O PCUP-0X701 DE Sequent attains (iso, 1, 2, 3, 7, 8, 1000 advances attains 4, 6, 0 - - - PCUP-0X721 DE Sequent attains (iso, 1, 2, 3, 7, 8, 1000 advances attains 4, 6, 0 - - - - Operation press DE Sequent attains (iso, 1, 2, 3, 7, 8, 1000 advances attains (iso, 1, 2, 0, 1, 2,	l			
PCUF 200720 D1 6 #-points 24/070 common type D0. 65-points acts type AD. 1 point MF02ah		- (
PCU-12AV20 Occupied attorns (fact 1: 2, 5, 7, 8. 1003) extensible attorns (7, 6, 6, 6) -<	DI: 96-points 241//01/ comm			-
PCU-02007 Cocceptor statutore (fund): 1, 2, 5, 7, 8, 1003 extensible statutors: 4, 6, 6 -		- (
D0 Source output FCUP DX82 D1 64-points 24VW common type D0.44-points source type M0.25h C C FCUP-DX711 D1.64-points 24VW common type D0.64-points source type M0.25h C C C FCUP-DX711 D1.64-points 24VW common type D0.64-points source type M0.25h C C C FCUP-DX711 D0.64-points 24VW common type D0.64-points source type M0.25h C C C FCUP-DX711 D0.64-points 24VW common type D0.64-points source type M0.72h C C C Common nput D0 Sink output FCUP-DX711 D1.64-points 24VW common type D0.72h points source type M0.72h C C D1 24VWV D0 Sink output FCUP-DX771 D1.64-points 24VW common type D0.72h points source type M0.72h C C D1 24VWV D0 Sinc output FCUP-DX777 D1.64-points 24VW common type D0.72h points source type M0.72h C C C D1 24V0VV D0 Sinc output FCUP-DX777 D1.22-points 24VW common type D0.72h points source type M0.72h C C C C C C C C C C C C C		- (
DD Solver onph PCU-DX11 Occuped stations (mod): 1.2, 3.7, 8.PICG extended stations 4.6, 6 O O PCU-DX11 DE R-points 24/07 common type OC O </td <td>DI: 64-points 24V/0V commo</td> <td>_</td> <td></td> <td></td>	DI: 64-points 24V/0V commo	_		
PCUP-DX11 Cocuped automs (mod): 1.2, 7,8 PCU2 extension C C C C PCUP-DX21 Dis Reporting XVVV common type. DC: Reports Surver type. DC: points Surver type. O	Occupied stations (fixed): 1,	<u> </u>	· _	
PCUP-DX721 D: 0: 95 points 24/V/V common type: D0: 85-points acure type: A0: point MPG2ab O O Operation panel K0 unit PCUP-DX731 D: 0: 96 points 24/V/V common type: D0: 35-points acure type: MPG2ab O O D Sink output PCUP-DX731 D: 0: 96 points 24/V/V common type: D0: 32-points activity type: MPG2ab - - - -		0 0		
PCUP-DX2R1 Occupied stations (tens): 1.2, 3.7, 8. PLO3 extensible stations: 4.5, 6 O O Operation panel IO mit) PCUP-DX731 D: Septetts 24/VVV common type DX Septetts 24/VVVV common type DX Septetts 24/VVVV common type DX Septetts	DI: 96-points 24V/0V commo	_	_	
CPCUFUND31 Occupied attaining (face): 1, 2, 3, 7, 8 PHOS demansion attaines, etc. C C C D1 AV/0V0 common reput D0 Sink output FCUF-DX670 D1 35-points 24V/0V common type DO. 35-points aink type MPG.3c.h Occupied attaines (DLO) Select 2 stations from between 1 and 6 MPG.7.8 (fitted) - - - D0 Source output FCUF-DX670 D1 35-points 24V/0V common type DO. 65-points aink type MPG.3c.h Occupied attaines totalions: Unselected attains thetween 1 and 6 MPG.7.8 (fitted) - - - D0 Source output FCUF-DX771 D1 35-points 24V/0V common type DO. 65-points aink type MPG.3c.h Occupied attaines totalions: Unselected attains: thetween 1 and 6 MPG.7.8 (fitted) - - - D1 45-points 24V/0V common type DO 65-points aink type MPG.3c.h Occupied attaines totalions: Unselected attains: thetween 1 and 6 MPG.7.8 (fitted) - <td></td> <td><u> </u></td> <td></td> <td></td>		<u> </u>		
Operation panel I/O unit] Di 33-points 24/07 common type DO 32-points sink type MPG:3ch - - - Di 34-points 24/07 common type DO 32-points sink type MPG:3ch - - - - Di 34-points 24/07 common type DO 32-points sink type MPG:3ch - - - - Di 34-points 24/07 common type DO 32-points sink type MPG:3ch - - - - Di 34-points 24/07 common type DO 32-points surk type MPG:3ch - - - - Di 34-points 24/07 common type DO 32-points surk type MPG:3ch - - - - Di 34-points 24/07 common type DO 32-points surk type MPG:3ch - - - - Di 34-points 24/07 common type DO 32-points surk type MPG:3ch - - - - Di 34-points 24/07 common type MPG:3ch -		0 0		
Dr. Service DD Sink output FCU/-DX07 Di 32-points 24/V/V common type EO-32-points aink type MFG.36.ht Occupied stations DI/OS Sect 1 station from between 1 and 6 MFG.7, 8 (fued) -	Occupied stations (lixed): 1,			
Do Sink output CU-200800 Initial estimate instances instances interaction interactinteres interaction int	DI: 32-points 24V/0V commo			
PCUP-DXT20 Di 64-points 24/0/0 common type DC: 64-points 3th type MPG:3ch - - - DO Source output FCUP-DXT20 Di 23-points 50/0C: Select 2 statos from between 1 and 6 MPG: 7, 8 (fixed) - - - DO Source output FCUP-DXT21 Di 23-points 24/0/0 common type DC: 64-points statures 1 to MPG: 3ch - - - Status Statu	670 Occupied stations DI/DO: S		· -	
PCUP-DX770 Cocupied stations: DVDC: Select 2 stations from betwein 1 and 6 -				-+
DC Source output FCU7-DX811 D1 32 points 24/070 common type D0: 32-points source type MPG:3ch Cocupied stations D100C-Select 1 station from between 1 and 6 MPG:7, 8 (fixed) FCU7-DX711 -			. _	
DD Source output FCU-2X871 Cocupied stations DI/OD. Select 1 station from between 1 and 6 MPG: 7, 6 (fixed) FCU-2X771 -				\rightarrow
RIACS estensible stations: Unselected stations between 1 and 6 Image: comparison of the stations of the stations of the stations of the Station of the Stations of the			. _	
FGU7-DX71 Occupied stations DUDO: Select 2 stations from between 1 and 6 MFG: 7, 8 (ftwod) - - Remote I/O unit) D Security 2 stations (from between 1 and 6 MFG: 7, 8 (ftwod) - 0 D2 AVUOV common input PCUA-DX100 DD: 32-points 24V/0V common type (photo oxupler insulation) - 0 D3 Avuov PCUA-DX110 DD: 45-points 24V/0V common type (photo oxupler insulation) - 0 Analog output FCUA-DX110 D0: 45-points 24V/0V common type (photo oxupler insulation) - 0 Analog output FCUA-DX110 D0: 45-points 24V/0V common type (photo oxupler insulation) 0 <td></td> <td></td> <td></td> <td></td>				
Renote I/O units PIC/3 extensible stations: Unselected stations: Un and 6 Image: Control of Contro Control of Control of Control of Control of Control of Control o				
Bernote IOV unit] Description Description Description D2 AVUV common input Do Sink output FCUA-DX100 DF: 32-points 24V/OV common type (photo coupler insulation) — … <		- -	· -	
Dot Same duput PCUA-DX100 D0: 32-points six type (non-insulation) Number of occupies disations: 1 - - 0 FCUA-DX110 D1: 64-points 24/V/O common type (photo cupier insulation) Number of occupies disations: 2 - 0 Analog output FCUA-DX110 D1: 64-points 24/V/O common type (photo cupier insulation) - 0 Analog output FCUA-DX140 D1: 64-points 24/V/O common type (photo cupier insulation) - 0 0 D0: 68-points 24/V/O common type (photo cupier insulation) Number of occupied stations: 2 0 0 0 D0: 68-points 24/V/O common type (photo cupier insulation) Number of occupied stations: 2 0				
Administration PDC 32-2011		_ (
PCA4-DAT10 D0: 48-points sink type (non-insulation) Number of occupied stations: 2 - - Analog output FCUA-DX120 D1: 64-points 24/V0V common type (photo coupler insulation) - - - Analog output FCUA-DX120 D1: 64-points 24/V0V common type (photo coupler insulation) Acting the transmitter of transmitter of the transmitter of transmitter of the transmitter of transmit	DU: 32-points sink type (nor			_
Analog output PCUAPDATEO D0: 48-points sink type (non-insulation) A0: 1: point Number of occupied stations: 2 - C Analog output FCUAPDAT140 D0: 32-points sink type (non-insulation) A1: 4 points A2: 1 point Number of occupied stations: 2 - C DO Source output FCUAPDAT101 D0: 42-points S4/UV for occupier insulation) C C C Analog output FCUAPDAT101 D0: 43-points S4/UV for occupier insulation) C C C Analog output FCUAPDAT121 D0: 48-points S4/UV for occupier insulation) C	DO: 48-points sink type (nor	- (·
Analog [nput/0000] FCUA-DX140 D: 32-points 24/V0V common type (phota coupler status) - <td></td> <td>- (</td> <td></td> <td></td>		- (
Input/Subput PCUR-X140 D0: 32-points six type (non-insulation) A1-4 points A2-10 point Number of occupied stations: 1 C C PCUR-DX110 D0: 32-points source type (non-insulation) C <td< td=""><td>DI: 32 points 241//01/ comm</td><td></td><td></td><td></td></td<>	DI: 32 points 241//01/ comm			
PLOA-XNU DC: 32-points source type (non-insulation) O O O Analog output FCUA-DX111 DC: 46-points source type (non-insulation) O	DO: 32-points sink type (non-insi	- (
FCUA-DX111DI: 64-points 24/0/0 common type (photo occupied istaliations: 2OOAnalog outputFCUA-DX121DI: 64-points 24/0/0 common type (photo occupied istalianos: 2OOAnalog hput/outputFCUA-DX121DI: 64-points 24/0/0 common type (photo oucpler insulation) box 32-points 24/0/0 common type (photo oucpler insulation) box 32-points 30-00 tept insulation) A1-0 points A4-points A4-poi		0 0		
DD: 45-points source type (non-insulation) Image output FCUA-DX121 DD: 45-points source type (non-insulation) Image	DI: 64-points 24V/0V commo	0 0		
Anlang output FOUR-DAT 21 Do: 48-points source type (non-insulation). A0: 1 point Number of occupied stations: 2 O O Anlang input/output FCUA-DX141 Do: 32-points source type (non-insulation). A0: 1 point Number of occupied stations: 2 O <td< td=""><td>DO: 48-points source type (I</td><td></td><td></td><td>+</td></td<>	DO: 48-points source type (I			+
Input/Gutput FCUA-DATA1 [D0: 32-points source type (non-insulation). ÅI: 4 points 'AO: 1 point. Number of occupied stations: 2] O O Scan V0 card] Scan DI/D0 = 64 points/64 points. DI/D0 = 32 points/32 points - 0 Source type HR357 Scan DI/D0 = 64 points/64 points. DI/D0 = 32 points/32 points - 0 Source type HR357 Scan DI/D0 = 64 points/64 points. DI/D0 = 32 points/32 points - 0 External power supply unit HR357 Scan DI/D0 = 64 points/64 points. DI/D0 = 32 points/32 points - 0 Starternal power supply with power supply PD25 Input 200VAC Output 24VDC (3A) 0 0 0 VMOFF function PD27 Input 200VAC Output 24VDC (3A) - - - 0		0 0		
Sean VO card] HR347 Scan D/DO = 64 points/64 points D/DO = 32 points/32 points - 0 Sink type HR357 Scan D/DO = 64 points/64 points D/DO = 32 points/32 points - 0 External power supply with power supply PD25 Input 200VAC Output 24VDC (3A) 0 0 NVOFF function - <td></td> <td>0 (</td> <td></td> <td></td>		0 (
Sink type HR347 Scan D/DO = 64 points/64 points D/DO = 32 points/32 points - O Source type HR357 Scan D//DO = 64 points/64 points D//DO = 32 points/32 points - O Sternal power supply with power supply PD25 Input 200VAC Output 24VDC (3A) O O Sternal power supply with power supply PD25 Input 200 to 400VAC Output 24VDC (8A) - - O Sternal power supply with power supply PD27 Input 200 to 400VAC Output 24VDC (8A) - - - O D D D D D D D D D D D D D D D D <t< td=""><td>DO: 32-points source type (non-ir</td><td></td><td></td><td></td></t<>	DO: 32-points source type (non-ir			
Source type HR357 Scan DVDO = 64 points/64 points DVDO = 32 points/32 points - O External power supply with power supply VNOFF function PD25 Input 200VAC Output 24VDC (3A) 0	Scan DI/DO = 64 points/64 p	- (
External power supply with power supply NVOFF function PD25 Input 200VAC Output 24VDC (3A) O O NVOFF function PD27 Input 200 to 400VAC Output 24VDC (8A) - - - NVOFF function PD27 Input 200 to 400VAC Output 24VDC (8A) - <				
DNOFF function PD23 Input 2001ck Output 24VDC (sk) C C Stemard power supply with power supply PD27 Input 200 to 400VAC Output 24VDC (sk) - - Manual pulse generator UFO-01-229 Input 5VDC 100pulse/rev O O O VM Anual pulse generator HD60 Input 5VDC 100pulse/rev O O O O Synchronous feed encoder OSE1024-3-15-68 Input 5VDC 1024pulse/rev O D				
External power supply with power supply NNOFF function PD27 Input 200 to 400VAC Output 24VDC (8A) - - - NNOFF function Wanual pulse generator UFO-01-229 Input 5VDC 100pulse/rev O	Input 200VAC Output 24VE	0 0		
DNOFF function PD27 Input 200 th 400 VAC Couplut 24 VDC (6A) - - - - - - - Input 5VDC 100 pulse/rev O< O				
SV Manual pulse generator UFO-01-229 Input SVDC 100pulse/rev O O I2V Manual pulse generator HD60 Input 12VDC 25pulse/rev O <td< td=""><td>Input 200 to 400VAC Output</td><td></td><td>-</td><td></td></td<>	Input 200 to 400VAC Output		-	
Input 12VDC 25pulse/rev O O Encoder] Synchronous feed encoder OSE1024-3-15-68 Input 5VDC 1024pulse/rev O O Synchronous feed encoder OSE1024-3-15-68 Input 5VDC 1024pulse/rev O O O Synchronous feed encoder OSE1024-3-15-68 Input 5VDC 1024pulse/rev O O O Expansion Unit Tstold FCU7-EX891 One expansion card HN5xx can be mounted additionally. - - - - Expansion Card] - FCU7-HN571 PROFIBUS-DP × 1ch - <td></td> <td></td> <td></td> <td></td>				
Encoder] OSE1024-3-15-68 Input 5VDC 1024pulse/rev O O Expansion Unit] Expansion Card] - - - Expansion Card] One expansion card HN5xx can be mounted additionally. - - - PROFIBUS-DP FCU7-EX891 One expansion card HN5xx can be mounted additionally. - - - PROFIBUS-DP FCU7-HN571 PROFIBUS-DP × 1ch - - - - 2C-Link FCU7-HN576 CC-Link × 1ch - - - - - 2C-Link FCU7-HN576 CC-Link × 1ch - <td></td> <td></td> <td></td> <td>_</td>				_
Synchronous feed encoder OSE 1024-3-15-68 Input 5VDC 1024pulse/rev O O Expansion unit x 1slot FCU7-EX891 One expansion card HN5xx can be mounted additionally. - - - Expansion unit x 1slot FCU7-EX891 One expansion card HN5xx can be mounted additionally. - - - Expansion Card] PROFIBUS-DP FCU7-HN576 CC-Link x 1ch - - - 2C-Link FCU7-HN576 CC-Link x 1ch - - - - CC-Link witi] CC-Link x 1ch - - - - - CC-Link witi] CC-Link x 1ch - - - - - CC-Link witi] CC-Link x 1ch - - - - - CC-Link witi] FCU7-HN746 CC-Link x 1ch -		5 1 0	<u> </u>	
Expansion unit × 1slot FCU7-EX891 One expansion card HN5xx can be mounted additionally. - - Expansion Card] -	-3-15-68 Input 5VDC 1024pulse/rev	0 (
Expansion Card] FCU7-HN571 PROFIBUS-DP × 1ch - <td></td> <td></td> <td></td> <td></td>				
PROFIBUS-DP FCU7-HN571 PROFIBUS-DP × 1ch -	891 One expansion card HN5xx		· –	
CC-Link FCU7-HN576 CC-Link × 1ch - CC-Link × 2ch - - CC-Link × 1ch - CD External PLC Link] DeviceNet/FL-net DeviceNet/FL-net DeviceNet/FL-net DeviceNet/FL-net DeviceNet/FL-net - O DeviceNet/FL - O DeviceNet/FL DeviceNet/FL DeviceNet/FL - O DeviceNet/FL DeviceNet/FL DeviceNet/FL DeviceNet/FL DeviceNet/FL DeviceNet/FL DeviceNet/FL DeviceNet/FL Devic				
CC-Link FCU7-HN577 CC-Link × 2ch - - - - - CC-Link x 1ch - - - CC-Link x 1ch - CD External PLC Link] DeviceNet/FL-net DeviceNet/FL-net DeviceNet/FL-net DeviceNet/FL-net - CD CD <td></td> <td></td> <td></td> <td>\rightarrow</td>				\rightarrow
CC-Link unit] FCU7-HN746 CC-Link × 1ch - O External PLC Link] - O - O DeviceNet/FL-net FCU7-HN747 DeviceNet/FL-net - O Memory expansion unit] - O O Memory expansion repeater unit] - O O Optical communication repeater unit] FCU7-HN754 Memory expansion - O Optical communication repeater unit FCU7-EX022 Using up to two units, relay of the total length of up to 90m can be performed. - O IITSUBISHI CNC machine operation panel FCU7-KB921 Mitsubishi standard 55 key. Key switch 55 points, LED 55 points O O IITSUBISHI CNC machine operation panel A FCU7-KB922 Customized 55 key. Key switch 55 points (a key top set is separately required) O O AllTSUBISHI CNC machine operation panel B FCU7-KB926 Rotary switches (spindle override, cutting override), Select switch (memory protection), Emergency stop push-button O O AllTSUBISHI CNC machine operation panel B FCU7-KB926 Rotary switches (spindle override, cutting override), Select switch (memory protection), Emergency stop push-button O O Olar key top set A			· -	+
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DeviceNet/FL-net FCU7-HN747 DeviceNet/FL-net - O Memory expansion unit]	746 CC-Link × 1ch	- (
Memory expansion unit] FCU7-HN754 Memory expansion - O Optical communication repeater unit FCU7-HN754 Memory expansion - O Optical communication repeater unit FCU7-EX022 Using up to two units, relay of the total length of up to 90m can be performed. - O MITSUBISHI CNC machine operation panel/ FCU7-KB921 Mitsubishi standard 55 key Key switch 55 points, LED 55 points O O MITSUBISHI CNC machine operation panel/A FCU7-KB922 Customized 55 key Key switch 55 points, LED 55 point (a key top set is separately required) O O MITSUBISHI CNC machine operation panel B FCU7-KB926 Rotary switches (spindle override, cutting override), Select switch (memory protection), Emergency stop push-button O O MITSUBISHI CNC machine operation panel B FCU7-KB926 Rotary switches (spindle override, cutting override), Select switch (memory protection), Emergency stop push-button O O MITSUBISHI CNC machine operation panel B FCU7-KB926 Rotary switches (spindle override, cutting override), Select switch (memory protection), Emergency stop push-button O O Clear key top set N030C975G51 A set of transparent key tops (20 pieces) O O				
Memory expansion FCU7-HN754 Memory expansion - O Optical communication repeater unit FCU7-EX022 Using up to two units, relay of the total length of up to 90m can be performed. - O MITSUBISHI CNC machine operation panel FCU7-KB921 Mitsubishi standard 55 key Key switch 55 points, LED 55 points O MITSUBISHI CNC machine operation panel FCU7-KB922 Customized 55 key Key switch 55 points, LED 55 points O MITSUBISHI CNC machine operation panel FCU7-KB922 Customized 55 key Key switch 55 points, LED 55 point (a key top set is separately required) O MITSUBISHI CNC machine operation panel B FCU7-KB922 Customized 55 key Key switch 55 points, LED 55 point (a key top set is separately required) O MITSUBISHI CNC machine operation panel B FCU7-KB926 Rotary switches (spindle override, cutting override, Select switch (memory protection), Emergency stop push-button O Olar key top set N030C975G51 A set of transparent key tops (20 pieces) O O Optional key top set A N030C975G52 A set of key tops marked with 20 identifiable characters such as axis name and part system numbers for additional functions O O	747 DeviceNet/FL-net	- (
Optical communication repeater unit FCU7-EX022 Using up to two units, relay of the total length of up to 90m can be performed. - O MITSUBISHI CNC machine operation panel] Mitsubishi standard 55 key Key switch 55 points, LED 55 points O O MITSUBISHI CNC machine operation panelA FCU7-KB921 Mitsubishi standard 55 key Key switch 55 points, LED 55 points O O MITSUBISHI CNC machine operation panel A FCU7-KB922 Customized 55 key Key switch 55 points, LED 55 point (a key top set is separately required) O O MITSUBISHI CNC machine operation panel B FCU7-KB922 Customized 55 key Key switch 55 points, LED 55 point (a key top set is separately required) O O MITSUBISHI CNC machine operation panel B FCU7-KB926 Rotary switches (spindle override, cutting override), Select switch (memory protection), Emergency stop push-button O O Clear key top set N030C975G51 A set of transparent key tops (20 pieces) O O Optional key top set A N030C975G52 A set of key tops marked with 20 identifiable characters such as axis name and part system numbers for additional functions O O	754 Momony oversist			
Deptical communication repeater unit FCU7-EX022 Using up to two units, relay of the total length of up to 90m can be performed. - O MITSUBISHI CNC machine operation panelA FCU7-KB921 Mitsubishi standard 55 key Key switch 55 points, LED 55 points O O MITSUBISHI CNC machine operation panelA FCU7-KB921 Mitsubishi standard 55 key Key switch 55 points, LED 55 point (a key top set is separately required) O O MITSUBISHI CNC machine operation panel B FCU7-KB922 Customized 55 key Key switch 55 points, LED 55 point (a key top set is separately required) O O MITSUBISHI CNC machine operation panel B FCU7-KB926 Rotary switches (spindle override, cutting override), Select switch (memory protection), Emergency stop push-button O O Clear key top set N030C975G51 A set of transparent key tops (20 pieces) O O Optional key top set A N030C975G52 A set of key tops marked with 20 identifiable characters such as axis name and part system numbers for additional functions O O	INIEITIOTY expansion	() -	
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ITSUBISHI CNC machine operation panel B FCU7-KB922 Customized 55 key Key switch 55 points, LED 55 point (a key top set is separately required) 0 0 ITSUBISHI CNC machine operation panel B FCU7-KB926 Rotary switches (spindle override, cutting override), Select switch (memory protection), Emergency stop push-button 0 0 0 Clear key top set N030C975G51 A set of transparent key tops (20 pieces) 0 0 0 0 Dptional key top set A N030C975G52 A set of key tops marked with 20 identifiable characters such as axis name and part system numbers for additional functions 0 0	921 Mitsubishi standard 55 key	0 0		
Clear key top set N030C975G51 A set of transparent key tops (20 pieces) O Optional key top set A N030C975G52 A set of key tops marked with 20 identifiable characters such as axis name and part system numbers for additional functions O O	922 Customized 55 key Key switch	0 () ()	
Optional key top set A N030C975G52 A set of key tops marked with 20 identifiable characters such as axis name and part system numbers for additional functions O O		-		
	5G52 A set of key tops marked with 20 identifia	<u> </u>		
unction expansion FCU7-HN721 Normal option (Graphic check/trace rotary axis drawing) – O ⁺¹	701 Normal antian (Orankia at a		*1	

DI: Digital input signals, DO: Digital output signals, AI: Analog input signals, AO: Analog output signals *1 M70V TypeA only. To use a function expansion unit, only one of the two can be selected: FCU7-HN746 or FCU7-HN754. (Up to 2 units including an expansion unit)

7

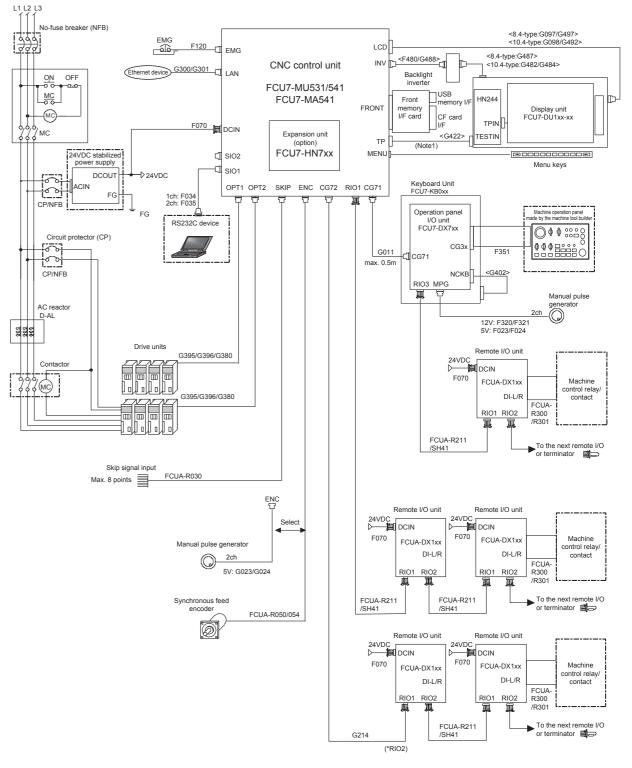
CNC system I/O unit and others

E70/M70V Series



M700VS Series

The name with brackets < > indicates the cable for the unit.



(Note 1) M70V Series only

(Note 2) Touch panels only

(Note 3) With analog spindle configuration

(Note 4) For a connection of the MITSUBISHI CNC Machine Operation Panel, refer to "Connection of MITSUBISHI CNC Machine Operation Panel" to be described. (Note 5) For connections of the drive units, refer to "Drive system System configuration drawing" to be described.

> (Note 1) Touch panels only (Note 2) For a connection of the MITSUBISHI CNC Machine Operation Panel, refer to "Connection of MITSUBISHI CNC Machine Operation Panel" to be described. (Note 3) For connections of the drive units, refer to "Drive system System configuration drawing" to be described.

Dotted lines indicate the sections prepared by the machine tool builder.

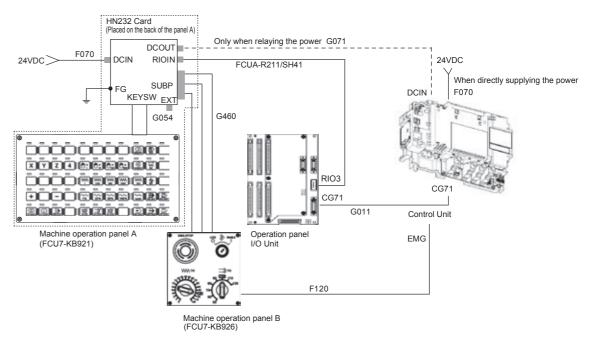
M700VW Series 15-type Display unit FCU7-DA636-11/31/33 PCMCIA slot Backlight inverte Dotted lines indicate the sections prepared by the machine tool builder. 15-type LCD CF PC Board MI-CM15-M5B VDS I/F SET No-fuse breake 90 N241 : Touch panel The name with brackets <> HN012 indicates the cable for the unit. G420> OFF HN241 TPOU MENLIKE AN USB2 USB1 FRONT_OUT 4 4 4 мс 10.4-type Display unit FCU7-DA646-11/31/33 Backlight inverte PCMCIA slot **7** CF 10.4-type LCD PC Board LVDS ON/O HN273/274 MI-CM15-M5B CF G170 Menu key HN012 24VDC HN273 : with touch panel function HN274 : without touch panel function <F142> HDD HDD Can be added ont MENUKEY DCOL CF25 LAN USB2 USB FRONT OUT Hard disk unit ∿∦ FCU7-HD002-001 Keyboard unit FCU7-KB0xx PC Keyboa Can be added onto back of keyboard G031/G03 [matel] RS232C device ð PCLAN NCRST _ _ _ _ _ F020/F021/F022 F070 24VDC OT release SW Manual pulse FMC Operation panel F120 _{IG} I/O unit FG (5V/12V FCU7-DX670/671/770/771 note I/O unit To the next remote I/O FCUA-R211 CG3x I∎⊢ minator 📺 🗔 DX101 Machine operation panel made by the machine tool bui 4VDC **T_T**. Machine I/O Expansion Unit USB LAN1 OPI FCU7-EX891 CF OT release SW ~~~~ Slot1 CNC control unit FCU7-MU031/041 F070 RS232C 24VDC FCU7-MA041 EXT-CON Handy termina MPG/ ENC SV1 SV2 RIO1 RIO2 OPT1 OPT 2 SDIO 66666 FCUA-R030 Skip signal input Synchronous feed encode Ø. FCUA-RC Manual puls generator (5V) 0 (Max:20m) FCUA-R21 not<u>e I/O unit</u> Remote I/O unit To the next remote I/O FCUA-R211/S / SH41 SH21 _1=1 or terminator 📺 🗔 CUA-DX1xx D MR-J2-CT 24VE Auxiliary axis/Servo drive units Machine I/O Machine I/0 FCUA-R211 Remote I/O unit Remote I/O un SH4 RIO2 To the next remote I/O or terminator FCUA-DX1xx FCUA-DX1x MR-J2-CT Auxiliary axis/Servo drive units **H**-7 Machine I/O Machine I/O

(Note 1) For a connection of the MITSUBISHI CNC Machine Operation Panel, refer to "Connection of MITSUBISHI CNC Machine Operation Panel" to be described. (Note 2) For connections of the drive units, refer to "Drive system System configuration drawing" to be described.

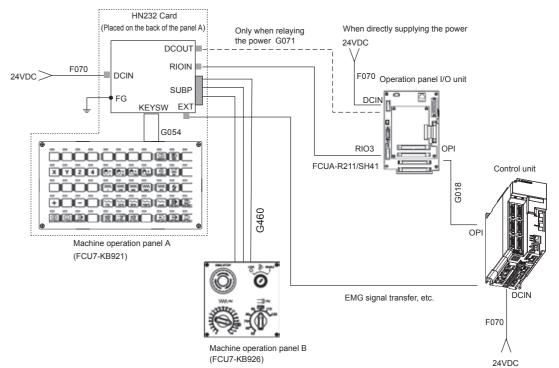
Connection of MITSUBISHI CNC Machine Operation Panel

Machine operation panel	Cable	Connection destination	E70/M70V	M700VS	M700VW
Machine operation panel A (RIOIN)	FCUA-R211 or SH41	Control unit (RIO1)	0	0	0
Machine operation panel A (RIOIN)	FCUA-R211 or SH41	Control unit (RIO2)	-	-	0
Machine operation panel A (RIOIN)	G214	Control unit (CG72)	-	0	-
Machine operation panel A (RIOIN)	FCUA-R211 or SH41	Operation panel I/O unit (RIO3)	0	0	0
Machine operation panel B	G460	Machine operation panel A (SUBP)	0	0	0
Machine operation panel B	F120	Control unit (EMG)	0	0	-

[Example] When connecting to the operation panel I/O unit (RIO3) (With E70/M70V/M700VS)



(With M700VW)



CNC system Cables List

			Length		Sur	ported m	nodel
	Application	Туре	(m)	Contents	E70/M70V	-	
		F110 L0.5M	0.5	DOW			
		F110 L1.5M F110 L3M	1.5				
(4)		F110 L3M	3			0	
1)	24VDC power cable for PD25/PD27	F110 LSM	5	CF01	0		0
		F110 L10M	10				
		F110 L15M	10				
		F170 L0.5M	0.5				+
		F170 L1.5M	1.5				
		F170 L3M	3	ON/OFF			
2)	ON/OFF switch cable for PD25/PD27	F170 L5M	5		0	0	0
		F170 L8M	8				
		F170 L10M	10	~~0			
		F170 L15M	15				
		G171 L0.5M	0.5				
		G171 L1M	1	CF24 ON/OFF			
	Power ON/OFF cable	G171 L3M	3				
3)	Display unit - PD25/PD27 power unit	G171 L5M	5		-	-	0
		G171 L7M	7				
		G171 L10M	10	E/-			
		G171 L15M	15				<u> </u>
		G170 L0.35M	0.35				1
		G170 L0.5M	0.5				
		G170 L1M	1	ON/OFF			1
	ON/OFF switch cable	G170 L1.5M	1.5				
ł)	ON/OFF switch - display unit	G170 L2M	2		-	-	0
		G170 L3M	3				1
		G170 L5M	5				
		G170 L10M	10				1
		G170 L15M	15				4
		F070 L0.5M	0.5				
		F070 L1.5M	1.5	2011			
		F070 L3M	3	DCIN			
5)	24VDC power cable	F070 L5M	5		0	0	0
<i>,</i>		F070 L8M	8		-	-	-
		F070 L10M	10	*\J			
		F070 L15M	15				
		F070 L20M	20				
		F120 L0.5M	0.5				
		F120 L1.5M	1.5				
		F120 L3M	3	EMG			
5)	Emergency stop cable	F120 L5M	5		0	0	0
<i>,</i>		F120 L8M	8				
		F120 L10M	10				
		F120 L15M	15				
		F120 L20M	20				-
		F320 L1M	1				
		F320 L2M	2				
		F320 L3M	3	HANDLE			
7)	Manual pulse generator cable (12V) : 1ch (for connection to operation panel I/O unit)	F320 L5M F320 L8M	5		0	0	-
	(ior connection to operation panel i/O unit)	F320 L10M	10				
		F320 L15M	10	H #			
		F320 L20M	20				
							-
		F321 L1M F321 L2M	1				
			2				
	Manual pulse generator cable(12V) : 2ch	F321 L3M F321 L5M	3	HANDLE			
3)	(for connection to operation panel I/O unit)	F321 L8M	8		0	0	-
		F321 L8M	10				
		F321 L15M	10				
		F321 L20M	20				
		F020 L0.5M	0.5				
		F020 L1M	1	-			1
		F020 L2M	2				1
	Manual pulse generator cable (12V) : 1ch	F020 L3M	3				1
9)	(for connection to operation panel I/O unit)	F020 L5M	5	MPG	-	-	0
		F020 L3M	7				1
		F020 L10M	10				1
		F020 L20M	20				1
			20				<u> </u>
		F021 L1M	1				1
	Manual pulse generator cable (12V) : 2ch		'				1
0)	(for connection to operation panel I/O unit)			MPG	-	-	0
		F021 L2M	2				1
							1
		F022 L1M	1				1
	Manual pulse generator cable (12V) : 3ch						L .
1)	(for connection to operation panel I/O unit)			MPG	-	-	0
	(ror connection to operation panel I/O unit)	F022 L2M	2	\\ +L0			1
			2				
		F023 L1M	1	-			1
		F023 L1M	2				
		F023 L3M	3				
	Manual nulse generator cable (51/) - tab		5	HANDLE			
		F023 L5M	5		0	0	-
2)	(for connection to operation panel //O unit) F023 L8M 8		1	1	1.00		
2)	(ior connection to operation parter i/O unit)					1	
2)	(in connection to operation parier //o unit)	F023 L10M F023 L15M	10				

	Application	Туре	Length (m)	Contents		ported m M700VS	
		F024 L1M	1		LIUNINU	1017 00 9 3	IVI
		F024 L2M	2				
		F024 L3M	3	HANDLE			
13)	Manual pulse generator cable (5V) : 2ch	F024 L5M	5		0	0	
	(for connection to operation panel I/O unit)	F024 L8M	8	• _	-		
		F024 L10M F024 L15M	10				
		F024 L15M	20				
		1 024 620101	20	0			F
(14)	Manual pulse generator cable (5V) : 1ch (for connection to operation panel I/O unit)	G020 L2M	2		-	-	
(15)	Manual pulse generator cable (5V) : 2ch (for connection to operation panel I/O unit)	G021 L2M	2		-	-	
(16)	Manual pulse generator cable (5V) : 3ch (for connection to operation panel I/O unit)	G022 L2M	2	MPG MPG	-	_	
		G023 L1M	1				
		G023 L1M	2				
		G023 L3M	3	ENC			
(17)	Manual pulse generator cable (5V) : 1ch	G023 L5M	5		0	0	
(17)	(for connection to control unit)	G023 L8M	8		~	0	
		G023 L10M	10				
		G023 L15M G023 L20M	15				
		G023 L20M G024 L1M	20				\vdash
		G024 L2M	2				
		G024 L3M	3	ENC PO			
(18)	Manual pulse generator cable (5V) : 2ch	G024 L5M	5		0	0	
	(for connection to control unit)	G024 L8M G024 L10M	8				
		G024 L15M	15	-0			
		G024 L20M	20				
		F034 L0.5M	0.5	٨Ť			
		F034 L1M	1	SIO de la			
(10)	RS232C I/F cable : 1ch	F034 L2M	2			0	
(19)	(for control unit)	F034 L3M F034 L5M	3		0	0	
		F034 L8M	8	4 2ch			
		F034 L10M	10				
		F035 L0.5M	0.5				
		F035 L1M F035 L2M	1				
(20)	RS232C I/F cable : 2ch	F035 L3M	3		0	0	
(20)	(for control unit)	F035 L5M	5		Ŭ	0	
		F035 L8M	8	2ch			
		F035 L10M	10	빅			
		G031 L0.5M	0.5	-#			
		G031 L1M G031 L2M	1	SIOPC : 1ch			
	RS232C I/F cable : 1ch	G031 L3M	3				
(21)	(for display unit)	G031 L5M	5		-	-	
		G031 L7M	7	: 2ch			
		G031 L10M	10				
		G031 L15M G032 L0.5M	15				\vdash
		G032 L0.5M	1	∏			
		G032 L2M	2	SIOPC : 1ch			
(22)	RS232C I/F cable : 2ch	G032 L3M	3		_	_	
(/	(for display unit)	G032 L5M	5				
		G032 L7M G032 L10M	7	: 2ch			
		G032 L15M	15	ΥΞΨ			
		F221 L1M	1				
		F221 L2M	2				
		F221 L3M	3	AO OA			
		F221 L5M	5		0	0	
(23)	Analog output cable	F221 9M	10				
(23)	Analog output cable	F221 L8M F221 L10M	1 102				
(23)	Analog output cable	F221 L8M F221 L10M F221 L15M	10				
(23)	Analog output cable	F221 L10M F221 L15M F221 L20M	15 20				1.7
(23)	Analog output cable	F221 L10M F221 L15M F221 L20M FCUA-R211-0.3M	15 20 0.3				
(23)		F221 L10M F221 L15M F221 L20M FCUA-R211-0.3M FCUA-R211-1M	15 20 0.3 1				
(23)	Remote I/O (with terminal block)	F221 L10M F221 L15M F221 L20M FCUA-R211-0.3M FCUA-R211-1M FCUA-R211-2M	15 20 0.3 1 2	RI01, RI02, RI03(FCUA-R211) (FCUA-R211)			
	Remote I/O (with terminal block) between remote I/O,	F221 L10M F221 L15M F221 L20M FCUA-R211-0.3M FCUA-R211-1M FCUA-R211-2M FCUA-R211-3M	15 20 0.3 1 2 3	RI01, RI02, RI03(FCUA-R211) (FCUA-R211)	0	0	
	Remote I/O (with terminal block) between remote I/O, remote I/O-CNC control unit, remote I/O-Operation panel I/O unit,	F221 L10M F221 L15M F221 L20M FCUA-R211-0.3M FCUA-R211-1M FCUA-R211-2M	15 20 0.3 1 2	RI01, RI02, RI03(FCUA-R211) (FCUA-R211)	0	0	
(23)	Remote I/O (with terminal block) between remote I/O, remote I/O-CNC control unit,	F221 L10M F221 L15M F221 L20M FCUA-R211-0.3M FCUA-R211-1M FCUA-R211-2M FCUA-R211-3M FCUA-R211-5M FCUA-R211-8M FCUA-R211-10M	15 20 0.3 1 2 3 5 5 8 8 10	RIO1, RIO2, RIO3(FCUA-R211)	0	0	
	Remote I/O (with terminal block) between remote I/O, remote I/O-CNC control unit, remote I/O-Operation panel I/O unit,	F221 L10M F221 L15M F221 L20M FCUA-R211-0.3M FCUA-R211-0.3M FCUA-R211-2M FCUA-R211-2M FCUA-R211-3M FCUA-R211-5M FCUA-R211-10M FCUA-R211-10M	15 20 0.3 1 2 3 3 5 8 8 10 15	RIO1, RIO2, RIO3(FCUA-R211) (FCUA-R211)	0	0	
	Remote I/O (with terminal block) between remote I/O, remote I/O-CNC control unit, remote I/O-Operation panel I/O unit, remote I/O-MITSUBISHI CNC machine operation panel A	F221 L10M F221 L15M F221 L20M FCUA-R211-0.3M FCUA-R211-1M FCUA-R211-2M FCUA-R211-3M FCUA-R211-5M FCUA-R211-8M FCUA-R211-10M	15 20 0.3 1 2 3 5 5 8 8 10	RIO1, RIO2, RIO3(FCUA-R211) (FCUA-R211)	0	0	
(24)	Remote I/O (with terminal block) between remote I/O, remote I/O-COC control unit, remote I/O-Operation panel I/O unit, remote I/O-MITSUBISHI CNC machine operation panel A Remote I/O cable between remote I/O,	F221 L10M F221 L15M F221 L20M FCUA-R211-0.3M FCUA-R211-0.3M FCUA-R211-2M FCUA-R211-3M FCUA-R211-3M FCUA-R211-5M FCUA-R211-10M FCUA-R211-10M FCUA-R211-20M SH41 0.3M	15 20 0.3 1 2 3 5 8 10 10 15 20 0.3	RI01, RI02, RI03(FCUA-R211) (FCUA-R211) RI01, RI03(CSH41) (CSH41)			
(23)	Remote I/O (with terminal block) between remote I/O, remote I/O-CNC control unit, remote I/O-Operation panel I/O unit, remote I/O-MITSUBISHI CNC machine operation panel A Remote I/O cable	F221 L10M F221 L15M F221 L20M FCUA-R211-0.3M FCUA-R211-0.3M FCUA-R211-2M FCUA-R211-2M FCUA-R211-3M FCUA-R211-5M FCUA-R211-15M FCUA-R211-15M FCUA-R211-15M	15 20 0.3 1 2 2 3 3 5 8 8 10 15 20		0	0	

CNC system Cables List

CNC system Cables List

	Application	Туре	Length (m)	Contents	Sup E70/M70V	ported m M700VS	
			(,	DI-L/DO-L, DI-R/DO-R	Lionitov		
(26)	DI/DO cable (one side connector) (for remote I/O unit)	FCUA-R300	3		0	0	0
		FCUA-R301-1M	1	DI-L/DO-L, DI-R/DO-R			
27)	DI/DO cable (both side connectors)	FCUA-R301-2M	2		0	0	0
21)	(for remote I/O unit)	FCUA-R301-3M	3				
		FCUA-R301-5M	5				
(28)	DI/DO cable (one side connector) (for operation panel I/O unit)	F351	3	CG31, CG32, CG33, CG34, CG35, CG36	0	0	-
		G018 L1M	1				
		G018 L2M	2				
		G018 L3M G018 L5M	5				
29)	Cable between control unit - operation panel I/O unit	G018 L7M	7		-	-	0
		G018 L10M	10				
		G018 L15M	15				
		G018 L20M	20				
30)	Operation panel I/O interface cable	G011 L0.5M	0.5	Ţīn mī	0	0	-
		G300 L1M	1	1 4 5 1			
31)	LAN cross cable (Shielded cable is recommended when the length will be	G300 L3M	3	│ ┝────────────────────────────────────	0	0	0
	1m or more)	G300 L5M	5				
		G300 L10M	10				-
32)	LAN straight cable (Shielded cable is recommended when the length will be 1m or more)	G301 L1M	1		0	0	0
(33)	SKIP input cable	FCUA-R030-3M	3	SKIP	0	0	0
		FCUA-R030-7M	7				
		FCUA-R031-2M	2	AIO			
34)	Analog input/output cable (for remote I/O unit)	FCUA-R031-3M	3		_	_	0
54)			7		_	_	ľ
(35)	Synchronous encoder - control unit (straight, with connector)	FCUA-R031-7M FCUA-R050-5M	5	ENC	0	0	0
		FCUA-R054-3M FCUA-R054-5M	3	510			
36)	Synchronous encoder - control unit	FCUA-R054-10M	10		0	0	0
00)	(right angle, with connector)	FCUA-R054-15M	15				
		FCUA-R054-20M	20				
		G214 L1M	1	CG72			
o=)	Remote I/O cable	G214 L5M	5				
37)	NC for RIO2 - remote I/O unit	G214 L10M	10		-	0	-
		G214 L20M	20	I/O address: X100 to, Y100 to			
		G430-L3M	3				
(38)	Cable for connection to handy terminal	G430-L5M	5		-	-	0
		G430-L10M	10	Control panel terminal block			
39)	Terminator for emergency stop interface	G123	-		-	-	0
(40)	Terminator for remote I/O interface	R-TM	-	One terminator is required to be installed at the final end of remote IO unit.	0	0	0
(41)	Terminator for OPI interface	E-TM	-	If no operation panel I/O unit is provided, terminator for OPI interface is required to be installed in the CNC unit.	-	-	0
(42)	Cable for hard disk (comes with the hard disk)	F142	0.5		-	-	0
(43)	USB cable for keyboard (comes with the keyboard unit)	G290	0.7		-	-	0
				NCRST NCRST			

Cable connector sets for CNC Application Туре Connect 10120-3 (1) Control unit - General I/O units Control unit - SVJ FCUA-CS000 Connecto (Tyco Ele 2-17828 (2) 200VAC power supply connector (for power supply unit PD25) 200V/400VAC power supply connector (for power supply unit PD27) FCUA-CN200 Connecto (Tyco Ele 3-178127 (3) 24VDC power supply connector for power supply unit (PD25/PD27) (with power OFF detection) 3-178127-6 1-175218-5* × 6pcs. Í Connecto (Tyco Ele 1-178288 1-178288-5 1-175218-5* × 6pcs. (4) ON/OFF connector for power supply unit (PD25/PD27) Connecto (MOLEX 005057-9 005057-9403 0016020103* × 3pcs. (5) Emergency stop connector Connect (Tyco Ele 1-17828 FCUA-CN211 (6) Remote I/O communication connector Connecto (Tyco Ele 2-17828 Í (7) 24VDC power supply connector FCUA-CN220 Connecto (Hirose E CDA-15F CDA-15P HDA-CTH CD-PC-111* × 14pcs. (8) Manual pulse generator input connector Housing (Hirose E HDA-CT

Con	tents		ported m	
ctor (3M)	Connector case (3M)	E70/M70V	M700VS	M700VW
3000VE × 2pcs.	10320-52F0-008 × 2pcs.			
		0	0	0
ctor Electronics)	Tin contact (Tyco Electronics)			
88-3 × 1pc.	1-175218-5 × 3pcs.			
1	Stal Stal Stal	0	0	0
2	* * *			
ctor	Tin contact			
Electronics) 27-6 × 1pc.	(Tyco Electronics) 1-175218-5 × 6pcs.			
7	Still Still Still	0	0	0
ļ				
-	<u> </u>			
ctor Electronics)	Tin contact (Tyco Electronics)			
88-5 × 1pc.	(1yco Electronics) 1-175218-5 × 6pcs.			
7	Still Still Still	0	0	0
	र्भा र्भा रभ			
3				
ctor (X)	Gold contact (MOLEX)			
7-9403 × 1pc.	(MOLEX) 0016020103 × 3pcs.			
	ल्ही ल्ही ल्ही	0	0	0
-15-0	CHI CHI CHI			
ctor Electronics)	Gold contact (Tyco Electronics)			
88-3 × 1pc.	1-175218-2 × 3pcs.			
7	AN CHI CHI	0	0	0
3				
ctor Electronics)	Tin contact (Tyco Electronics)			
88-3 × 1pc.	1-175218-5 × 3pcs.			
7	and and and	0	0	0
2				
ctor e Electric)	Gold contact (Hirose Electric)			
5P × 1pc.	CD-PC-111 × 14pc.			
	and the state			
	54) 54) 54) 54) 54) 54) 64) 54) 54)			
	CHI CHI CHI			
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g				
Electric)				
TH × 1pc.	-			

Class	E70	M701/	Series	-	ing center 700VS Ser		MZ	00VW Se	ries	E70	athe syste M70V	
01033	Series	TypeB	TypeA		M730VS			M730VW		Series	TypeB	Typ
ntrol axes			71: -								71: -	1 71
Control axes		1	1		1	1		1				
1 Number of basic control axes (NC axes)	03	03	03	03	03	03	03	03	03	02	02	0
2 Max. number of axes (NC axes + Spindles + PLC axes)	6	9	11	12	16	16	12	16	16	6	9	1
1 Max. number of NC axes (in total for all the part systems)		5	8	8	16	16	8	16	16	3	5	
2 Max. number of spindles 3 Max. number of PLC axes	1 2	2	2	4	4	4	4	4	4	2	3	
3 Max. number of auxiliary axes	-	0	0	0	-	0	4	6	6		0	
4 Max. number of PLC indexing axes	1	4	4	4	6	6	4	6	6	1	4	
5 Number of simultaneous contouring control axes	3	4	4	4	4	8	4	4	8	3	4	
6 Max. number of NC axes in a part system	3	5	8	6	8	8	6	8	8	3	5	
Control part system		-	-		-		-	-		-		
1 Standard number of part systems	1	1	1	1	1	1	1	1	1	1	1	
2 Max. number of part systems	01	01	02	02	02	02	02	02	02	01	01	C
Control axes and operation modes									·			
1 Tape (RS-232C input) mode	0	0	0	0	0	0	0	0	0	0	0	(
2 Memory mode	0	0	0	0	0	0	0	0	0	0	0	
3 MDI mode	0	0	0	0	0	0	0	0	0	0	0	
4 High-speed program server mode												
1 CF card in control unit	-	-	-	-	-	-	Δ	Δ	Δ	-	-	· ·
5 IC card mode (Front IC card mode)	0	0	0			Δ				0	0	
6 Hard disk mode	_	_	_	_	_	_	Δ	Δ	Δ	_	_	<u> </u>
out command	-			-						_		
Data increment												
1 Least command increment												
1 Least command increment 1µm	0	0	0	0	0	0	0	0	0	0	0	
2 Least command increment 0.1µm	0	0	0	Δ	Δ	Δ	Δ	Δ	Δ	0	0	
3 Least command increment 0.01µm (10nm)	-	-	-	-	Δ	Δ	-	Δ	Δ	-	-	
4 Least command increment 0.001µm (1nm)	-	-	-	-	Δ	Δ	-	Δ	Δ	-	-	
2 Least control increment												
1 Least control increment 0.01µm (10nm)	0	0	0	0	0	0	0	0	0	0	0	
2 Least control increment 0.001µm (1nm)	0	0	0	0	0	0	0	0	0	0	0	
3 Indexing increment	-	-	-	0	0	0	0	0	0	-	-	
Unit system			1			1						
1 Inch/Metric changeover	0	0	0			Δ	Δ			0	0	
-												-
2 Input command increment tenfold	0	0	0	0	0	0	0	0	0	-	-	
Program format												
1 Program format												
1 Format 1 for Lathe	-	-	-	-	-	-	-	-	-	0	0	
2 Format 2 for Lathe	-	-	-	-	-	-	-	-	-	-	0	
3 Special format for lathe	-	-	-	-	-	-	-	-	-	0	0	(
4 Format 1 for Machining center	0	0	0	0	0	0	0	0	0	-	-	· ·
5 Format 2 for Machining center (M2 format)	-	0	0	0	0	0	0	0	0	-	-	· ·
6 MITSUBISHI CNC special format	_	-	-	-	_	-	_	-	-	-	0	
Command value		1	1			1			1		1	1
1 Decimal point input I, I	0	0	0	0	0	0	0	0	0	0	0	
· F · · · F · · · ·												
2 Absolute/Incremental command	0	0	0	0	0	0	0	0	0	0	0	
	-			-		-						-
3 Diameter/Radius designation	_	-	-	-	-	_	-	-	-	0	0	
-												
sitioning/Interpolation												
Positioning	-						-					
1 Positioning	0	0	0	0	0	0	0	0	0	0	0	
2 Unidirectional positioning	0	0	0	Δ	Δ	Δ	Δ	Δ	Δ	-	-	
Linear/Circular interpolation												
1 Linear interpolation	0	0	0	0	0	0	0	0	0	0	0	
2 Circular interpolation (Center/Radius designation)	0	0	0	0	0	0	0	0	0	0	0	
			<u> </u>	Ť	<u> </u>	Ť		L	Ť		Ť	
3 Helical interpolation	0	0	0			Δ	Δ	Δ		0	0	
												-
4 Spiral/Conical interpolation	-	-	0	Δ	Δ	Δ	Δ	Δ	Δ	-	-	-
5 Cylindrical interpolation	-	0	0			Δ	Δ			-	0	
					ĺ							1
	1	-	-			Δ	Δ			-	0	
6 Polar coordinate interpolation	-	1			1	1						
6 Polar coordinate interpolation	-											
6 Polar coordinate interpolation 7 Milling interpolation	-	_	_	-	_	-	-	-	-	-	-	(
		_	_	-	_	-	-	-	-	-	-	(

		00VW Sei		Lathe ies	700VS Ser	M7
	M750VW	M730VW	M720VW	M750VS	M730VS	//720VS
				1		
The NC axis, spindle, and PLC axis	02	02	02	02	02	02
The NC axis can be manually or auto	16	16	12	16	16	12
The PLC axis can be controlled usin	16	16	12	16	16	12
The number of axes that is within the	6	6	4	6	6	4
NC axis, spindle and PLC axis, can I	6	6	6	6	6	6
Auxiliary axis: This can be connected	6	6	4	-	-	-
The number of PLC axes available to	6	6	4	6	6	4
Number of axes with which simultane	8	4	4	8	4	4
Max. number of NC axes possible to	8	8	6	8	8	6
One part system is the standard.	1	1	1	1	1	1
Up to four part systems for a lathe sy	04	O 4	O 2	04	04	O 2
In this mode, exercises is newformed	0	0	0	0	0	0
In this mode, operation is performed	0	0	0	0	0	0
Machining programs stored in the m	0	0	0	0	0	0
MDI data stored in the memory of the	0	0	0	0	0	0
Machining programs stored in a com	Δ	Δ	Δ	_	_	_
Machining programs stored in a PC						
control unit.	Δ	Δ	Δ	Δ	Δ	Δ
Machining programs stored in the ha	Δ	\triangle	Δ	-	-	-
The data increment handled in the co with parameters.						
Possible to command in increments	0	0	0	0	0	0
Possible to command in increments	Δ	Δ	Δ	Δ	Δ	<u> </u>
Possible to command in increments	Δ	Δ	-	Δ	Δ	_
			_			-
Possible to command in increments	Δ	\triangle	-	Δ	Δ	-
The least control increment determin						
Possible to control in increments of 0	0	0	0	0	0	0
Possible to control in increments of 0	0	0	0	0	0	0
This function limits the command val	0	0	0	0	0	0
The unit systems of the data handled	Δ	\triangle	Δ		Δ	\triangle
with a parameter and a machining p		-	-	-	-	-
The program's command increment valid when a decimal point is not use	-	-	-	-	-	-
Valiu When a decimal point is not use						
G code (program) format	0	0	0	0	0	0
G code (program) format G code list for the lathe system						-
G code (program) format G code list for the lathe system The G-code list is selected by param	0	0	0	0	0	0
G code (program) format G code list for the lathe system The G-code list is selected by param (Prepared for a specific machine too	0	0	0	0	0	0
G code (program) format G code list for the lathe system The G-code list is selected by param (Prepared for a specific machine too G code list for the machining center	0	0	0	0	0	0
G code (program) format G code list for the lathe system The G-code list is selected by param (Prepared for a specific machine too G code list for the machining center The G-code list is selected by param	0 0 -	0 - -	0	0	0 - -	0 0 -
G code (program) format G code list for the lathe system The G-code list is selected by param (Prepared for a specific machine too G code list for the machining center	0	0	0	0	0	0
G code (program) format G code list for the lathe system The G-code list is selected by param (Prepared for a specific machine too G code list for the machining center The G-code list is selected by param The formats of the fixed cycle for tur G76) and fixed cycle for drilling (G80	0 0 -	0 - -	0	0 - -	0 - -	0 0 - -
G code (program) format G code list for the lathe system The G-code list is selected by param (Prepared for a specific machine too G code list for the machining center The G-code list is selected by param The formats of the fixed cycle for tur G76) and fixed cycle for drilling (G80 For the decimal point input type I, t	0 - - 0	0 - - 0	0 - - 0	0 - - 0	0 - - 0	0 0 - - 0
G code (program) format G code list for the lathe system The G-code list is selected by param (Prepared for a specific machine too G code list for the machining center The G-code list is selected by param The formats of the fixed cycle for tur G76) and fixed cycle for drilling (G80 For the decimal point input type I, t least command increment. For decin	0 0 -	0 - -	0	0 - -	0 - -	0 0 -
G code (program) format G code list for the lathe system The G-code list is selected by param (Prepared for a specific machine too G code list for the machining center The G-code list is selected by param The formats of the fixed cycle for tur G76) and fixed cycle for drilling (G80 For the decimal point input type I, t least command increment. For decin in millimeters during the metric mode	0 - - 0	0 - - 0	0 - - 0	0 - - 0	0 - - 0	0 0 - - 0
G code (program) format G code list for the lathe system The G-code list is selected by param (Prepared for a specific machine too G code list for the machining center The G-code list is selected by param The formats of the fixed cycle for tur G76) and fixed cycle for drilling (G80 For the decimal point input type I, t least command increment. For decim in millimeters during the metric mode When axis coordinate data are issue	0 - - 0	0 - - 0	0 - - 0	0 - - 0	0 - - 0	0 0 - - 0
G code (program) format G code list for the lathe system The G-code list is selected by param (Prepared for a specific machine too G code list for the machining center The G-code list is selected by param The formats of the fixed cycle for tur G76) and fixed cycle for drilling (G80 For the decimal point input type I, t least command increment. For decin in millimeters during the metric mode	0 - - 0	0 - - 0	0 - - 0	0 - - 0	0 - - 0	0 0 - - 0
G code (program) format G code list for the lathe system The G-code list is selected by param (Prepared for a specific machine too G code list for the machining center The G-code list is selected by param The formats of the fixed cycle for tur G76) and fixed cycle for drilling (G80 For the decimal point input type I, t least command increment. For decin in millimeters during the metric mode When axis coordinate data are issue commands a relative distance from t a designated position in a predeterm The designation method of an axis c	0 - - 0	0 - - 0	0 - - 0 0	0 - - 0	0 - - 0	0 0 - - 0
G code (program) format G code list for the lathe system The G-code list is selected by param (Prepared for a specific machine too G code list for the machining center The G-code list is selected by param The formats of the fixed cycle for tur G76) and fixed cycle for drilling (G80 For the decimal point input type I, t least command increment. For decim in millimeters during the metric mode When axis coordinate data are issue commands a relative distance from t a designated position in a predeterm The designation method of an axis c or diameter designation. When the d	0 - - 0	0 - - 0	0 - - 0	0 - - 0	0 - - 0	0 0 - - 0
G code (program) format G code list for the lathe system The G-code list is selected by param (Prepared for a specific machine too G code list for the machining center The G-code list is selected by param The formats of the fixed cycle for tur G76) and fixed cycle for drilling (G80 For the decimal point input type I, t least command increment. For decin in millimeters during the metric mode When axis coordinate data are issue commands a relative distance from t a designated position in a predeterm The designation method of an axis c	0 - - 0	0 - - 0	0 - - 0 0	0 - - 0	0 - - 0	0 0 - - 0
G code (program) format G code list for the lathe system The G-code list is selected by param (Prepared for a specific machine too G code list for the machining center The G-code list is selected by param The formats of the fixed cycle for tur G76) and fixed cycle for drilling (G80 For the decimal point input type I, t least command increment. For decim in millimeters during the metric mode When axis coordinate data are issue commands a relative distance from t a designated position in a predeterm The designation method of an axis c or diameter designation. When the d	0 - - 0	0 - - 0	0 - - 0 0	0 - - 0	0 - - 0	0 0 - - 0
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G code (program) format G code list for the lathe system The G-code list is selected by param (Prepared for a specific machine too G code list for the machining center The G-code list is selected by param The formats of the fixed cycle for tur G76) and fixed cycle for drilling (G80 For the decimal point input type I, t least command increment. For decin in millimeters during the metric mode When axis coordinate data are issue commands a relative distance from t a designated position in a predeterm The designation method of an axis c or diameter designation. When the d (moves only half (1/2) the command	0 - 0 0	0 0 0	0 - 0 0	0 	0 - 0 0	0 - - 0 0 0
G code (program) format G code list for the lathe system The G-code list is selected by param (Prepared for a specific machine too G code list for the machining center The G-code list is selected by param The formats of the fixed cycle for tur G76) and fixed cycle for drilling (G80 For the decimal point input type I, t least command increment. For decin in millimeters during the metric mode When axis coordinate data are issue commands a relative distance from t a designated position in a predeterm The designation method of an axis c or diameter designation. When the d (moves only half (1/2) the command This function carries out positioning at	0 - 0 0	0 0 0	0 - 0 0	0 	0 - 0 0	0 - - 0 0 0
G code (program) format G code list for the lathe system The G-code list is selected by param (Prepared for a specific machine too G code list for the machining center The G-code list is selected by param The formats of the fixed cycle for tur G76) and fixed cycle for drilling (G80 For the decimal point input type I, t least command increment. For decin in millimeters during the metric mode When axis coordinate data are issue commands a relative distance from t a designated position in a predeterm The designation method of an axis c or diameter designation. When the d (moves only half (1/2) the command This function carries out positioning at The G code command always moves Linear interpolation is a function that	0 0 0 0 0 	0 0 0 0 0 0 -	0 - - 0 0 0 0 - -	0 - - 0 0 0 0 -	0 	
G code (program) format G code list for the lathe system The G-code list is selected by param (Prepared for a specific machine too G code list for the machining center The G-code list is selected by param The formats of the fixed cycle for tur G76) and fixed cycle for drilling (G80 For the decimal point input type I, t least command increment. For decin in millimeters during the metric mode When axis coordinate data are issue commands a relative distance from t a designated position in a predeterm The designation method of an axis c or diameter designation. When the d (moves only half (1/2) the command The G code command always move: Linear interpolation is a function that feedrate designated by the F code.				0 - - 0 0 0 0 0 - 0	0 - - 0 0 0 0 0 - 0	
G code (program) format G code list for the lathe system The G-code list is selected by param (Prepared for a specific machine too G code list for the machining center The G-code list is selected by param The formats of the fixed cycle for tur G76) and fixed cycle for drilling (G80 For the decimal point input type I, t least command increment. For decin in millimeters during the metric mode When axis coordinate data are issue commands a relative distance from t a designated position in a predeterm The designation method of an axis c or diameter designation. When the d (moves only half (1/2) the command This function carries out positioning at The G code command always move: Linear interpolation is a function that feedrate designated by the F code. This function moves a tool along a c	0 0 0 0 0 	0 0 0 0 0 0 -	0 - - 0 0 0 0 - -	0 - - 0 0 0 0 -	0 	
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G code (program) format G code list for the lathe system The G-code list is selected by param (Prepared for a specific machine too G code list for the machining center The G-code list is selected by param The formats of the fixed cycle for tur G76) and fixed cycle for drilling (G80 For the decimal point input type I, t least command increment. For decin in millimeters during the metric mode When axis coordinate data are issue commands a relative distance from t a designated position in a predeterm The designation method of an axis c or diameter designation. When the d (moves only half (1/2) the command This function carries out positioning at The G code command always moves Linear interpolation is a function that feedrate designated by the F code. This function moves a tool along a c With this function, any two of three a axis performs linear interpolation in s diameter screws or 3-dimensional ce This function transfers the shape tha onto a plane, and when the transferr						
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G code (program) format G code list for the lathe system The G-code list is selected by param (Prepared for a specific machine too G code list for the machining center The G-code list is selected by param The formats of the fixed cycle for tur G76) and fixed cycle for drilling (G80 For the decimal point input type I, t least command increment. For decin in millimeters during the metric mode When axis coordinate data are issue commands a relative distance from t a designated position in a predeterm The designation method of an axis c or diameter designation. When the d (moves only half (1/2) the command The G code command always move: Linear interpolation is a function that feedrate designated by the F code. This function moves a tool along a c With this function, any two of three a axis performs linear interpolation in s diameter screws or 3-dimensional ca This function intransfers the shape the onto a plane, and when the transferr is converted into a movement along controlled by means of the CNC unit This function converts the command novements) and rotary axis movem						
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G code (program) format G code list for the lathe system The G-code list is selected by param (Prepared for a specific machine too G code list for the machining center The G-code list is selected by param The formats of the fixed cycle for tur G76) and fixed cycle for drilling (G8C For the decimal point input type I, t least command increment. For decin in millimeters during the metric mode When axis coordinate data are issue commands a relative distance from t a designated position in a predeterm The designation method of an axis c or diameter designation. When the d (moves only half (1/2) the command The G code command always move: Linear interpolation is a function that feedrate designated by the F code. This function moves a tool along a c With this function, any two of three a axis performs linear interpolation in s diameter screws or 3-dimensional ce This function transfers the shape tha onto a plane, and when the transfer is converted into a movement along controlled by means of the CNC unit This function converts the command movements) and rotary axis movem the outside diameter of the workpiecc When a lathe with linear axes (X, Z a) end face or in the longitudinal direction						

S/W ver.J0

General explanation

s are generically called the control axis.

tomatically operated using a machining program.

ing a sequence program. he max. number of control axes, and that does not exceed the max. number given for the n be used.

ed to the channel (SV2) for J2-CT.

to be used as indexing axis. neous interpolation control is possible

to control in the same part system.

system, and up to two part systems for a machining center system.

ed using the machining program data from the RS-232C interface built in the CNC unit. memory of the CNC module are run. the CNC unit are executed.

mpact flash (CF) card can be operated by installing the CF card in the control unit. PCMCIA/CF card can be operated by installing the PCMCIA/CF card on the front of the

hard disk can be operated.

controller includes the input setting increment and command increment. Each type is set

s of 0.001mm (linear axis) and 0.001° (rotary axis).

s of 0.0001mm (linear axis) and 0.0001° (rotary axis).

s of 0.00001mm (linear axis) and 0.00001 $^\circ$ (rotary axis).

s of 0.000001mm (linear axis) and 0.000001° (rotary axis).

ines the CNC's internal operation accuracy.

f 0.00001mm (linear axis) and 0.00001 $^{\circ}$ (rotary axis).

f 0.000001mm (linear axis) and 0.000001° (rotary axis).

alue for the rotary axis.

ed in the controller include the metric system and inch system. The type can be designated program.

t can be multiplied by an arbitrary scale with the parameter designation. This function is sed for the command increment.

meter.

ol builder)

r system

imeter.

urning machining (G77 to G79), compound type fixed cycle for turning machining (G71 to 80 to G89) can be switched to the MITSUBISHI CNC special formats.

, the unit of the last digit of a command without a decimal point is the same as that of the simal point input type ${\rm I\!I}$, the last digit of a command without a decimal point is interpreted de, in inches in the inch mode, or in seconds for a time-based command.

ued in a machining program command, either the incremental command method, which the current position, or the absolute command method, which commands a movement to mined coordinate system, can be selected.

command value can be changed over with parameters between the radius designation diameter designation is selected, the scale of the length of the selected axis is doubled. ded amount)

at high speed using a rapid traverse rate with the travel command value given in the program. es the tool to the final position in the direction determined by parameters.

at moves a tool linearly by the travel command value supplied in the program at the cutting

circular arc on the plane selected by the travel command value supplied in the program. axes intersecting orthogonally are made to perform circular interpolation while the third synchronization with the arc rotation. This control can be exercised to machine largecams.

the start point and end point are not on the circumference of the same circle into spiral shapes. nat is on the cylinder's side surface (shape yielded by the cylindrical coordinate system) rred shape is designated in the program in the form of plane coordinates, the shape g the linear and rotary axes of the original cylinder coordinates, and the contours are nit during machining.

ds programmed by the orthogonal coordinate axes into linear axis movements (tool nents (workpiece rotation) to control the contours. It is useful for cutting linear cutouts on ice, grinding cam shafts, etc.

axes) and rotary axis (C axis) serving as the control axes is to perform milling at a workpiece ion of the workpiece, this function uses the hypothetical axis Y, which is at right angles to both ing shape to be programmed as the X, Y and Z orthogonal coordinate system commands. of the helical interpolation or spiral interpolation, including a linear axis, as a hypothetical t), and performs pulse distribution. This enables SIN or COS interpolation, which from the hypothetical axis) of the helical interpolation or spiral interpolation.

	dard ∆: Option □: Selection				Machin	ing center	system				L	athe syste	m
	Class	E70	<u> </u>	Series	M7	700VS Ser	ies		00VW Se		E70		Series
3 C	urve interpolation	Series	ТуреВ	ТуреА	M720VS	M730VS	M750VS	M720VW	M730VW	M750VW	Series	ТуреВ	Туре
_	Exponential interpolation	-	-	-	Δ	Δ	Δ	Δ	Δ	Δ	-	-	-
3	Spline interpolation (1st part system only)	-	-	0	Δ	Δ	Δ	Δ			-	-	-
4	NURBS interpolation	-	-	-	-	Δ	Δ	_	Δ	Δ	-	-	-
5	3-dimensional circular interpolation	_	_	-	-	Δ	Δ	_	Δ	Δ	_	_	_
Fee													
-	eed rate	4000	1000	1000	4000	1000	4000	4000	1000	1000	4000	4000	4004
	Rapid traverse rate (m/min)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
\vdash	Cutting feed rate (m/min)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	
	Manual feed rate (m/min)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	100
_	Rotary axis command speed tenfold eed rate input methods	0	0	0	0	0	0	0	0	0	0	0	0
1	Feed per minute	0	0	0	0	0	0	0	0	0	0	0	0
2	Feed per revolution	0	0	0	Δ	Δ	Δ	Δ	Δ	Δ	0	0	0
3	Inverse time feed	-	-	0	Δ	Δ	Δ	Δ	Δ	Δ	-	-	-
4	F 1-digit feed	0	0	0	0	0	0	0	0	0	0	0	0
5	Manual speed command	0	0	0	Δ	Δ	Δ	Δ	Δ	Δ	0	0	0
_	verride Rapid traverse override										0		
	Cutting feed override	0	0	0	0	0	0	0	0	0	0	0	0
	2nd cutting feed override	0	0	0	0	0	0	0	0	0	0	0	0
4	Override cancel	0	0	0	0	0	0	0	0	0	0	0	0
4 A	cceleration/Deceleration												
1	Automatic acceleration/deceleration after interpolation	0	0	0	0	0	0	0	0	0	0	0	0
2	Rapid traverse constant inclination acceleration/ deceleration	0	0	0	0	0	0	0	0	0	0	0	0
3	Rapid traverse constant inclination multi-step acceleration/deceleration (1st part system only)	-	0	0		Δ	Δ	Δ	Δ	Δ	-	-	-
	hread cutting Thread cutting (Lead/Thread number designation)	0	0	0	Δ	Δ	Δ	Δ	Δ	Δ	0	0	0
	Variable lead thread cutting	-	-	-	-	-	-	_	-	-	0	0	0
3	Synchronous tapping												
	1 Synchronous tapping cycle	0	0	0	Δ	Δ	Δ	Δ	Δ	Δ	0	0	0
	2 Pecking tapping cycle	-	0	0			Δ	Δ			-	0	0
	3 Deep-hole tapping cycle	-	0	0	Δ	Δ	Δ	Δ	Δ	Δ	-	0	0
4	Chamfering	-	-	-	-	-	-	-	-	-	0	0	0
6	Circular thread cutting	-	-	-	-	-	-	-	-	-	-	-	-
	High-speed synchronous tapping (OMR-DD)	-	0	0	0	0	0	0	0	0	-	0	0
T	anual feed	~											
	Manual rapid traverse	0	0	0	0	0	0	0	0	0	0	0	0
	Jog feed Incremental feed	0	0	0	0	0	0	0	0	0	0	0	0
	Handle feed	0	0	0	0	0	0	0	0	0	0	0	0
5	Manual feed rate B	0	0	0	0	0	0	0	0	0	0	0	0
	Manual feed rate B surface speed control	-	-	-	Δ	Δ	Δ	Δ	Δ	Δ	-	-	-
Т	well Dwell (Time-based designation)	0	0	0	0	0	0	0	0	0	0	0	0
	iram memory/editing emory capacity												
	Memory capacity (number of programs stored)												
	1 15kB[40m] (64 programs)	-	-	-	0	0	0	0	0	0	-	-	-
	2 30kB[80m] (128 programs) 3 60kB[160m] (200 programs)	-	-	-							-	-	-
	4 125kB[320m] (200 programs)	_	-	-			Δ				-	-	-
	5 230kB[600m] (400 programs)	0	-	-	Δ	Δ	Δ	Δ	Δ		0	-	-
	6 500kB[1280m] (1000 programs)	-	0	0	Δ	Δ	Δ	Δ	Δ	Δ	-	0	0
	7 1000kB[2560m] (1000 programs) 8 2000kB[5120m] (1000 programs)	-	_								-	-	
1				(HN754)					1				(HN7
2 E	diting												

	ies	00VW Sei	system M7	ies	00VS Ser	M7
	M750VW	M730VW	M720VW	M750VS	M730VS	M720VS
Mille also for all a set and a set						
With this function, the rotary axis more This function automatically generates s	Δ	Δ	Δ	Δ	Δ	Δ
program, and performs interpolation for	-	-	-	-	-	-
This function realizes NURBS curve control point). The path does not nee	-	-	-	-	-	-
An arc shape determined by three po space can be machined.	-	-	-	-	-	-
The rapid traverse rate can be set in	1000	1000	1000	1000	1000	1000
This function specifies the feedrate o feed amount per minute.	1000	1000	1000	1000	1000	1000
The manual feedrates are designated	1000	1000	1000	1000	1000	1000
feedrate during dry run ON for autom This function multiplies the rotary axi	0	0	0	0	0	0
· · ·						
By issuing a G command, the comma per minute (mm/min or inch/min).	0	0	0	0	0	0
By issuing a G command, the comma per spindle revolution (mm/rev or inc	0	0	0	0	0	0
This function can issue one block of I						
This enables the machining speed or if radius compensation is applied to t	-	-	-	-	-	-
The feedrate registered by paramete	0	0	0	0	0	0
By enabling a manual speed comma automatic operation can be carried o	Δ	Δ	Δ	Δ	Δ	Δ
Override can be applied to manual a	0	0	0	0	0	0
Override can be applied to manual of Override can be applied to the feedra	0	0	0	0	0	0
Override can be further applied as a	0	0	0	0	0	0
By turning on the override cancel ext automatic operation mode (tape, mer	0	0	0	0	0	0
Acceleration/deceleration is automati using a parameter from the following	0	0	0	0	0	0
acceleration/deceleration and expone This function performs acceleration/d						
traverse mode. Compared to the met	0	0	0	0	0	0
deceleration method enables improve This function carries out the acceleration						
automatic operation. (This function is not deceleration method makes for improved	-	-	-	-	-	-
			-			
Thread cutting with a designated lead can By commanding the lead increment/or	0	0	0	0	0	0
by commanding the lead incrementer		0	0		0	
This function performs tapping throug floating taps and enables tapping to I	Δ	Δ	Δ	Δ	Δ	\triangle
The load applied to the tool can be re	Δ	Δ	Δ	Δ	Δ	Δ
bottom with a multiple number of pas In the deep-hole tapping, the load ap	Δ	Δ	Δ	Δ	Δ	^
workpiece to the hole bottom with a r						Δ
Chamfering can be enabled during the Circular thread in which the lead is in	0 	0 	0 	0 	0 	0
The servo axis directly detects and com	0	0	0	0	0	0
the high-speed optical servo network. E			-			-
The tool can be moved at the rapid tr rate by means of the rapid traverse of	0	0	0	0	0	0
The tool can be moved in the axis dir	0	0	0	0	0	0
The tool can be moved for the design	0	0	0	0	0	0
The machine can be moved in very s	0	0	0	0	0	0
Manual feedrate B is a function that a When machining with the manual fee	0	0	0	0	0	0
rotation speed is controlled according	-	-	-	-	-	-
The G code command temporarily st	0	0	0	0	0	0
designated in the program.	0	0	0	0	0	0
	-	<u>^</u>	<u></u>		<u>^</u>	
	0 	0 	0 	0 	0 	0
	Δ	Δ	Δ	Δ	Δ	Δ
Machining programs are stored in the disk, etc.).	Δ	Δ	Δ	Δ	Δ	\triangle
(Note) For a multi-part system, the sp	Δ	Δ	Δ	Δ	Δ	Δ
* M70V TypeA requires a memory ex						Δ
	Δ	Δ	Δ	Δ	Δ	Δ
		l				
This function enables program editing This function enables one machining	0	0	0	0	0	0

General explanation

overment is changed into exponential functions vis-a-vis the linear axis movements. spline curves that smoothly pass through rows of dots designated by a fine-segment machining for the paths along the curves. This enables high-speed and high-accuracy machining. e machining by commanding NURBS curve parameters (number of stages, weight, knot, sed to be replaced with fine segments.

points (start point, intermediate point, end point) designated in the three-dimensional

independently for each axis using parameters.

of the cutting commands, and gives a command for a feed amount per spindle rotation or

ted as the feedrate in jog mode or incremental feed mode for manual operation and the omatic operation. The manual feedrates are set using external signals. xis' command speed by ten during initial inching.

mand from the block is issued directly with a numerical value following ${\sf F}$ as the feedrate

mand from the block is issued directly with a numerical value following F as the feedrate nch/rev).

of machining time (inverse) commands in F commands, in place of normal feed commands. on the cutting surface to be constantly controlled and prevents the loss of accuracy, even o the machining program that expresses the free curve surface with fine segment lines. ther in advance can be assigned by designating a single digit, following address F. nand and selecting either handle feed or jog (manual) feed in the memory or MDI mode, lout at this feedrate.

or automatic rapid traverse using the external input signal. rate command designated in the machining program using the external input signal. a second-stage override to the feedrate after the cutting feed override has been applied. xternal signal, the override is automatically set to 100% for the cutting feed during the

nemory and MDI).

atically applied to all commands. The acceleration/deceleration patterns can be selected ng types: linear acceleration/deceleration, soft acceleration/deceleration, exponent function onent function acceleration/linear deceleration.

n/deceleration at a constant inclination during linear acceleration/deceleration in the rapid nethod of acceleration/deceleration after interpolation, the constant inclination acceleration/ byout cycle time.

on/deceleration according to the torque characteristic of the motor in the rapid traverse mode during not available in manual operation.) The rapid traverse constant inclination multi-step acceleration/ red cycle time because the positioning time is shortened by using the motor ability to the maximum.

an be performed. Inch threads are cut by designating the number of threads per inch with the E address. t/decrement amount per thread rotation, variable lead thread cutting can be performed.

ugh synchronized control of the spindle and servo axis. This eliminates the need for o be conducted at a highly accurate tapping depth.

reduced by designating the depth of cut per pass and cutting the workpiece to the hole asses.

applied to the tool can be reduced by designating the depth of cut per pass and cutting the a multiple number of passes.

the thread cutting cycle by using external signals.

in longitudinal direction can be cut.

ompensates the spindle's delay in tracking by using the communication between drive units over . By minimizing the synchronization error, the accuracy of the synchronous tapping is increased.

traverse rate for each axis separately. Override can also be applied to the rapid traverse override function.

direction (+ or –) in which the machine is to be moved at the per-minute feedrate. gnated amount (incremental value) in the axis direction each time the jog switch is pressed. r small amounts by rotating the manual pulse generator.

tt sets an arbitrary axis feedrate from the user PLC separately from the manual feedrate. eedrate B function by moving the orthogonal axis while rotating the rotary table, the table ing to the distance from the rotation center.

stops machine movements and sets the machine in the stand-by status for the time

he NC memory, data server or external memory devices (front IC card, memory card, hard

specifications shown here is the total for all part systems. expansion unit FCU7-HN754.

ng such as correction, deletion and addition. Ig program to be created or edited while another program is running.

	Close		MZON	Sories		ing center		1/-	00VW Se	rice		athe syste	
	Class	E70 Series	M70V TypeB	Series TypeA	M720VS	M730VS Ser	M750VS		00VW Se M730VW		E70 Series	M70V TypeB	Series
3	Buffer correction	0	0	0	0	0	0	0	0	0	0	0	0
	ration and display	Ű			0		0	0		Ű	0		
_	tructure of operation/display panel									_			
	Color display (8.4-type LCD TFT)							-	-	-			
	Color display (10.4-type LCD TFT)	-						-	-	-	-		
	Color display (10.4-type LCD TFT/WindowsXPe)	-	-	-	-	-	-				-	-	-
	Color display (15-type LCD TFT/WindowsXPe)	-	-	-	-	-	-				-	-	- 1
	Color touch-panel display (10.4-type LCD TFT/	_	_	_	_	_	_	_	_	_	_		
5	WindowsXPe)		-	-	_	_	_				_	-	
6	Color touch-panel display (10.4-type LCD TFT)	-						-	-	-	-		
7	Color touch-panel display (15-type LCD TFT/	-	-	-	-	-	-				-	-	-
0	WindowsXPe) peration methods and functions												
				â				<u> </u>			<u> </u>		
_	Operation input	0	0	0	0	0	0	0	0	0	0	0	0
_	Absolute value/Incremental value setting	0	0	0	0	0	0	0	0	0	0	0	0
5	Displayed part system switch	-	-	0	0	0	0	0	0	0	-	-	0
6	Menu list	0	0	0	0	0	0	0	0	0	0	0	0
7	Display switch by operation mode	0	0	0	0	0	0	0	0	0	0	0	C
8	External signal display switch	-	-	0	0	0	0	0	0	0	-	-	C
10	Screen saver, backlight OFF	0	0	0	0	0	0	0	0	0	0	0	C
11	Parameter/Operation guidance	0*	0	0	0	0	0	0	0	0	0*	0	0
12	2 Alarm guidance	0*	0	0	Δ	Δ	Δ	Δ	Δ	Δ	0*	0	C
13	Machining program input mistake check warning	_	_	_	Δ	Δ	Δ	Δ	Δ	Δ	_	_	_
	Screen Capture	0	0	0	0	0	0	_	_	-	0	0	
	· · · · · · · · · · · · · · · · · · ·												<u> </u>
	User selectable menu configuration	0	0	0	0	0	0	0	0	0	0	0	0
	PC-NC network automatic connection	-	-	-	-	-	-	0	0	0	-	-	-
<u> </u>	Device open parameter	-	0	0	0	0	0	0	0	0	-	0	0
19	SRAM open parameter	-	0	0	0	0	0	0	0	0	-	0	C
20	MTB selectable menu configuration	0	0	0	0	0	0	0	0	0	0	0	C
D	isplay methods and contents					1			1				
	Status display	0	0	0	0	0	0	0	0	0	0	0	0
2	Clock display	0	0	0	0	0	0	0	0	0	0	0	0
3	Monitor screen display	0	0	0	0	0	0	0	0	0	0	0	C
4	Setup screen display	0	0	0	0	0	0	0	0	0	0	0	C
5	Edit screen display	0	0	0	0	0	0	0	0	0	0	0	C
	Diagnosis screen display	0	0	0	0	0	0	0	0	0	0	0	С
<u> </u>	Maintenance screen display	0	0	0	0	0	0	0	0	0	0	0	C
8	Additional languages												
	1 Japanese				0	0	0	0	0	0			
	2 English 3 German	0	0	0	 /□	0	0	 /□	 /□	 ∠/□	0	0	
	4 Italian												
	5 French												
	6 Spanish												
	7 Chinese	+											
	1 Traditional Chinese characters				∆/□	$\Delta \square$	$\Delta \square$	∆/□					
	2 Simplified Chinese characters				Δ / \Box	Δ / \Box	$\Delta \square$	$\Delta \square$	∆/□	Δ / \Box			E
	8 Korean				Δ / \Box	Δ / \Box	Δ / \Box	$\Delta \square$	Δ / \Box	$\Delta \square$			C
	9 Portuguese					$\Delta \square$	$\Delta \square$	$\Delta \square$		$\Delta \square$			
	10 Hungarian						∆/□						
	11 Dutch												
	12 Swedish												
	13 Turkish												
	14 Polish												
	15 Russian 16 Czech												
ou													
	16 Czech		_										
In 1	16 Czech t/Output functions and devices nput/Output data Machining program input/output	0	0	0	0	0	0	0	0	0	0	0	
In 1 2	16 Czech t/Output functions and devices nput/Output data Machining program input/output Tool offset data input/output	0	0	0	0	0	0	0	0	0	0	0	C
In 1 2 3	16 Czech t/Output functions and devices put/Output data Machining program input/output Tool offset data input/output Common variable input/output	0	0	0	0	0	0	0	0	0	0	0	C
In 1 2 3 4	16 Czech t/Output functions and devices aput/Output data Machining program input/output Tool offset data input/output Common variable input/output Parameter input/output	0	0 0 0	0 0	0 0 0	0 0 0	0 0 0	0 0	0 0 0	0 0 0	0	0 0 0	C C
In 1 2 3 4 5	16 Czech t/Output functions and devices ppt/Output data Machining program input/output Tool offset data input/output Common variable input/output Parameter input/output History data output	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0 0	0 0 0	
In 1 2 3 4 5 7	16 Czech t/Output functions and devices aput/Output data Machining program input/output Tool offset data input/output Common variable input/output Parameter input/output	0	0 0 0	0 0	0 0 0	0 0 0	0 0 0	0 0	0 0 0	0 0 0	0	0 0 0	

	ios	00VW Ser	system		00VS Ser	147
	M750VW	M730VW	M720VW	M750VS	M730VS	M720VS
During automatic operation (including MDI operation, this function initiates s	0	0	0	0	0	0
	-	-	-			
	-	-	-			
				-	-	-
The setting and display unit consists of				-	-	-
Refer to "Displays & Keyboards" desc				-	-	-
	_	_	_			
				_		_
In addition to the method of directly in	0	0	0	0	0	0
operators and function symbols can b						
When setting the data, the absolute/in	0	0	0	0	0	0
The part system displayed on the scre The menu list function displays the me	0	0	0	0	0	0
for other screens.	0	0	0	0	0	0
The screen display changes when the	0	0	0	0	0	0
The screen display changes with the	0	0	0	0	0	0
The screen saver function protects the	0	0	0	0	0	0
This function displays the details of th						
displayed.	0	0	0	0	0	0
* E70 requires add-on guidance data. Guidance is displayed for the alarm cr						
* E70 requires add-on guidance data.	Δ	\triangle	Δ	Δ	Δ	\triangle
If an illegal input is found in the decim						
warning message will appear.	Δ	Δ	Δ	Δ	Δ	Δ
This function allows to output a bitma	-	-	-	0	0	0
This function allows to change the dis	0	0	0	0	0	0
display/non-display selection.	0	0	0	-	-	-
This function supports to restore the co This function can set or change the us	0	0	0	0	0	0
This function can set or change the S	0	0	0	0	0	0
Menu items on the "Monitor", "Setup" a						
hidden as desired. The custom screen	0	0	0	0	0	0
The statue of the program ourrently h	0	0	0	0	0	0
The status of the program currently be The clock is built in, and the date (yea	0	0	0	0	0	0
Various information related to operation	0	0	0	0	0	0
Tool/workpiece related settings, user						
pallet program registration (option) ca	0	0	0	0	0	0
Machining program editing (addition,	0	0	0	0	0	0
output can be carried out.				_		
The following operations related to the (1) Display the hardware and software (2) Display the CNC options. (3) Diagnose the PLC interface. (4) Display the drive unit information. (5) Display the alarm message / alarm	0	0	0	0	0	0
Parameter setting and display, and No	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0
	Δ/□	Δ/□	Δ/□	Δ/□	Δ/□	Δ/□
	Δ / \Box	$\Delta \square$	∆/□	Δ / \Box	$\Delta \square$	$\Delta \square$
Available display languages.	∆/□	$\Delta \square$	∆/□	∆/□	∆/□	Δ / \Box
(Note) In E70/M70V/M700VS Series, available languages.	∆/□	Δ / \Box	∆/□	∆/□	∆/□	Δ / \Box
3-3-3-0	Δ / \Box	Δ / \Box	Δ / \Box	Δ / \Box	∆/□	\triangle / \Box
	∆/□	$\Delta \square$	∆/□	∆/□	$\Delta \square$	$\Delta \square$
	Δ / \Box	$\Delta \square$	Δ / \Box	Δ / \Box	$\Delta \square$	Δ / \Box
		∆/□				∆/□
	∆/□	∆/□	∆/□		∆/□	∆/⊡
	0	0	0	0	0	0
	0	0	0	0	0	0
Certain kinds of data handled by the I	0	0	0	0	0	0
devices.	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0
					-	
Port 1 and 2 are available with the RS	0	0	0	0	0	0

S/W ver.J0

General explanation

g memory, tape, Hard disk (HD), IC card, Memory card or Data Server (DS) operation) or single block stop and enables the next command to be corrected or changed.

s of the setting part and the keyboard part. scribed previously for the details.

inputting numeric data, a method to input the operation results using four basic arithmetic be used for specific data settings.

ncremental setting can be selected from the menu. reen can be changed.

menu configuration of each screen as a list, making it possible to directly select the menu

ne screen mode selection switch is changed.

e signal from PLC. e display unit by turning the backlight OFF after the length of time specified in a parameter. the parameters or the operation methods according to the state of the screen currently

currently issued.

mal point after the current cursor position, the cursor will move to that position, and a

ap file of a screen displayed on the setting and display unit. isplay order of the main menu in the "Monitor", "Setup" and "Edit" screens, and to change

connection when the network connection fails between the display unit and the control unit. user backed up area of the PLC device from the NC screen.

SRAM open area for machine tool builders from the NC screen.

and "Edit" screens (of MITSUBISHI standard format) can be moved within a screen or n menu items added by machine tool builders, on the contrary, cannot be moved or hidden.

being executed is indicated.

ear, month, date) and time (hour, minute, second) are displayed.

tion, such as the axis counter, speed display and MSTB command are displayed. r parameter settings, MDI editing, counter setting, manual numeric command issuing and an be carried out.

, deletion, change) and checking, simple program creation, and machining program input/

he CNC diagnosis can be carried out. re configuration.

rm history list etc. NC data input/output, etc., can be carried out.

, the guidance can be displayed in English and another two languages selected from the

NC system can be input and output between the NC system's memory and external

Class		M70V Series TypeB Type □ □ ○ ○ □ □ ○ ○ □ □ ○ ○ □ □ ○ ○	MT20VS - </th <th>Image: matrix for a set of a set</th> <th></th> <th>M720VW Ο Ο Ο Ο Ο Ο Ο Ο Ο</th> <th>00VW Ser M730VW Ο Ο Ο Ο Δ Ο Ο Ο Ο Ο</th> <th></th> <th>E70 Series</th> <th>M70V TypeB - - - - - - - - - - - - -</th> <th></th>	Image: matrix for a set of a set		M720VW Ο Ο Ο Ο Ο Ο Ο Ο Ο	00VW Ser M730VW Ο Ο Ο Ο Δ Ο Ο Ο Ο Ο		E70 Series	M70V TypeB - - - - - - - - - - - - -	
1 I//F for IC card in control unit [up to 2GByte] 2 Front IC card I/F [up to 2GByte] 3 Ethernet I/F 4 Hard disk I/F 6 USB memory I/F [up to 2GByte] Computer link Computer link 1 Computer link B Others 1 1 Handy terminal connection Spindle functions (S) 1 1 Spindle control functions 1 Spindle control functions 1 Spindle digital I/F 2 Spindle analog I/F 3 Coil switch 4 Automatic coil switch 5 Encoder input I/F 2 S code output 3 Constant surface speed control 4 Spindle override 5 Multiple-spindle control I 2 Spindle orientation 7 Spindle position control (Spindle/C axis control) 8 Spindle synchronization I 1 Spindle synchronization I 2 Spindle synchronization I 3 Guide bushing spindle synchronization I	Image: set of the			- Ο - Ο - Ο - Ο - Ο - Ο	- Ο Ο Ο Ο Ο Ο Ο Ο Ο Ο Ο Ο Ο				0 - 0 - 0 0 0 0 0 0 0 0 0 0 0 0 0		
2 Front IC card I/F [up to 2GByte] 3 Ethernet I/F 4 Hard disk I/F 6 USB memory I/F [up to 2GByte] Computer link 1 1 Computer link B Others 1 1 Handy terminal connection Dindle, Tool and Miscellaneous functions Spindle control functions 1 Spindle control functions 1 Spindle control functions 1 Spindle digital I/F 2 Spindle analog I/F 3 Coil switch 4 Automatic coil switch 5 Encoder input I/F 2 S code output 3 Constant surface speed control 4 Spindle override 5 Multiple-spindle control I 2 Multiple-spindle control I 3 Guide bushing spindle synchronization 1 Spindle synchronization I 2 Spindle synchronization I 3 Guide bushing spindle synchronization 4 Spindle synchronization I 5 Spindle synchronizatio	O I I I I <tr< th=""><th></th><th>Ο Ο Ο Ο</th><th>Ο Ο Ο Ο Ο Ο Ο Ο Ο Ο Ο Ο Ο Ο Ο Ο Ο Ο Ο</th><th>ο - ο - ο - - - - - - - - - - - - -</th><th></th><th></th><th></th><th>0 - 0 - 0 0 0 0 0 0 0 0 0 0 0 0 0</th><th></th><th></th></tr<>		Ο Ο Ο Ο	Ο Ο Ο Ο Ο Ο Ο Ο Ο Ο Ο Ο Ο Ο Ο Ο Ο Ο Ο	ο - ο - ο - - - - - - - - - - - - -				0 - 0 - 0 0 0 0 0 0 0 0 0 0 0 0 0		
3 Ethernet I/F 4 Hard disk I/F 6 USB memory I/F [up to 2GByte] Computer link 1 1 Computer link B Others 1 1 Handy terminal connection pindle functions (S) 1 1 Spindle control functions 2 Spindle analog I/F 3 Coil switch 4 Automatic coil switch 5 Encoder input I/F 2 S code output 3 Constant surface speed control 4 Spindle override 5 Multiple-spindle control 1 Nultiple-spindle control 1 Nultiple-spindle control 1 Nultiple-spindle control 1 Spindle prokiton control (Spindle/C axis control) 8 Spindle synchronization 1 Spindle synchronization 1 Spindle synchronization 2 Spindle synchronization 3 Guide bushing spindle synchronization 9 Tool spindle synchronization I (Spindle-Spindle, P <tr< td=""><td>Image: constraint of the sector of the se</td><td></td><td>Ο Ο - - O Δ O Δ O Δ O Δ O Ο</td><td>Ο - Ο - Ο - Ο Ο</td><td>Ο - Ο - Ο - - - - - - - - - - - - -</td><td></td><td></td><td></td><td>0 - 0 - - 0 0 0 0 0 0 0 0 0 0 0</td><td>0 </td><td></td></tr<>	Image: constraint of the sector of the se		Ο Ο - - O Δ O Δ O Δ O Δ O Ο	Ο - Ο - Ο - Ο Ο	Ο - Ο - Ο - - - - - - - - - - - - -				0 - 0 - - 0 0 0 0 0 0 0 0 0 0 0	0 	
4 Hard disk I/F 6 USB memory I/F [up to 2GByte] Computer link 0 1 Computer link B Others 1 1 Handy terminal connection spindle control functions 1 2 Spindle control functions 1 Spindle control functions 2 Spindle analog I/F 2 Spindle analog I/F 3 Coil switch 4 Automatic coil switch 5 Encoder input I/F 2 S code output 3 Constant surface speed control 4 Spindle override 5 Multiple-spindle control 1 Multiple-spindle control I 2 Multiple-spindle control I 3 Multiple-spindle control I 4 Spindle synchronization I 5 Spindle synchronization I 2 Spindle synchronization I 3 Guide bushing spindle synchronization 9 Tool spindle synchronization I A (Spindle-Spindle, P 2 Tool spindle synchronization I C (Spindle-NC axis, F	- - <td></td> <td> Ο Δ -</td> <td>- Ο</td> <td>- Ο - - - - - - - - - - - - -</td> <td></td> <td></td> <td></td> <td>- - - 0 0 0 0 0 0 0 0 0 0</td> <td>- 0 - 0 0 0 0 0 0 0</td> <td></td>		 Ο Δ -	- Ο	- Ο - - - - - - - - - - - - -				- - - 0 0 0 0 0 0 0 0 0 0	- 0 - 0 0 0 0 0 0 0	
6 USB memory I/F [up to 2GByte] Computer link B Spindle control functions Spindle digital I/F 2 Spindle analog I/F 3 Coil switch 4 Automatic coil switch 5 Encoder input I/F 2 S code output 3 Constant surface speed control 4 Spindle override 5 Multiple-spindle control 1 Multiple-spindle control 2 Multiple-spindle control 3 Spindle synchronization 4 Spindle synchronization 7 Spindle synchronization I 8 Spindle synchronization I 9 Tool spindle synchronization I 1 Tool spindle synchronization I	Image: select		ο ο ο ο ο ο ο ο ο ο ο ο ο ο	Ο Δ - Ο Ο Ο Ο Ο Ο Ο Ο Ο Ο Ο Ο Ο Ο Ο Δ Ο Α Ο Α Ο Α Ο Α Ο Α Ο Α Ο Α Ο Α Ο Α Ο Α Ο Α Ο Α Ο Α Ο Α Ο Α Ο Α Α Α Α	Ο - - - - - - - - - - - - -				- - 0 0 0 0 0 0 0 0 0	0 - - 0 0 0 0 0 0	
Computer link Computer link B Cothers Computer link B Computer	Image: select		 - - - - - - - - - - - - - - - - - -	Δ - 0 0 0 0 0 Δ 0 Δ 0 Δ 0 Δ 0 Δ 0 Δ 0 Δ 0 Δ 0 Δ 0 Δ 0 Δ 0 Δ	Δ - - - - - - - - Δ 0 - Δ 0 - - Δ 0				- - 0 0 0 0 0 0 0 0	- - 0 0 0 0	
1 Computer link B Others Tendy terminal connection I Handy terminal connection Spindle functions (S) 1 1 Spindle control functions 1 Spindle digital I/F 2 Spindle analog I/F 3 Coil switch 4 Automatic coil switch 5 Encoder input I/F 2 S code output 3 Constant surface speed control 4 Spindle override 5 Multiple-spindle control 1 Multiple-spindle control 2 Spindle orientation 7 Spindle position control (Spindle/C axis control) 8 Spindle synchronization I 2 Spindle synchronization I 3 Guide bushing spindle synchronization 9 Tool spindle synchronization I 1 Tool spindle synchronization I 2 Tool spindle synchronization I 3 Guide bushing spindle synchronization I 4 Tool spindle synchronization I 5 Tool spindle synchronization I 6	- - - - - <tr< td=""><td></td><td> </td><td>Ο Ο Ο Ο Ο Ο Δ Ο Δ Ο Δ Ο Δ Ο Δ Ο Δ Ο Δ Ο Δ Ο Δ Ο Δ Ο Δ Ο Δ Ο Δ Ο</td><td>- 0 0 0 0 Δ 0 Δ 0 Δ 0 Δ 0 Δ 0 Δ 0 Δ 0 Δ 0 Δ 0 0 Δ 0 0 0 0 0 0 0 0 0 0 0 0 0</td><td></td><td></td><td></td><td>- 0 0 0 0</td><td>- 0 0 0 0</td><td></td></tr<>		 	Ο Ο Ο Ο Ο Ο Δ Ο Δ Ο Δ Ο Δ Ο Δ Ο Δ Ο Δ Ο Δ Ο Δ Ο Δ Ο Δ Ο Δ Ο Δ Ο	- 0 0 0 0 Δ 0 Δ 0 Δ 0 Δ 0 Δ 0 Δ 0 Δ 0 Δ 0 Δ 0 0 Δ 0 0 0 0 0 0 0 0 0 0 0 0 0				- 0 0 0 0	- 0 0 0 0	
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9 Tool spindle synchronization I (Polygon) 1 Tool spindle synchronization I A (Spindle-Spindle, P 2 Tool spindle synchronization I B (Spindle-Spindle, P 3 Tool spindle synchronization I B (Spindle-Spindle, P 3 Tool spindle synchronization I C (Spindle-NC axis, F 10 Tool spindle synchronization I C (Spindle-NC axis, F 10 Tool spindle synchronization I (Hobbing) 11 Spindle speed clamp Tool functions (T) 1 1 Tool functions (T command) Miscellaneous functions 2 Multiple M codes in 1 block 3 3 M code independent output 4 Miscellaneous function finish 5 M code output during axis traveling 2nd miscellaneous functions (B) 1 1 2nd miscellaneous functions 0 compensation Tool length/Tool position 1	>olygon) - >olygon) - Polygon) - - - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 -			1	-	-	-	-	-	0	
9 Tool spindle synchronization I (Polygon) 1 Tool spindle synchronization I A (Spindle-Spindle, P 2 Tool spindle synchronization I B (Spindle-Spindle, P 3 Tool spindle synchronization I B (Spindle-Spindle, P 3 Tool spindle synchronization I C (Spindle-NC axis, F 10 Tool spindle synchronization I C (Spindle-NC axis, F 10 Tool spindle synchronization I (Hobbing) 11 Spindle speed clamp Tool functions (T) 1 1 Tool functions (T command) Miscellaneous functions 2 Multiple M codes in 1 block 3 3 M code independent output 4 Miscellaneous function finish 5 M code output during axis traveling 2nd miscellaneous functions (B) 1 1 2nd miscellaneous functions 0 compensation Tool length/Tool position 1	>olygon) - >olygon) - Polygon) - - - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 -			+							
1 Tool spindle synchronization I A (Spindle-Spindle, P 2 Tool spindle synchronization I B (Spindle-Spindle, P 3 Tool spindle synchronization I C (Spindle-NC axis, F 10 Tool spindle synchronization I (Hobbing) 11 Spindle speed clamp Tool functions (T) Tool functions (T command) Miscellaneous functions 1 1 Miscellaneous functions 2 Multiple M codes in 1 block 3 M code independent output 4 Miscellaneous function finish 5 M code output during axis traveling 2nd miscellaneous functions 1 1 2nd miscellaneous functions 1 2nd miscellaneous functions 2 Multiple M codes functions (B) 1 2nd miscellaneous functions 2nd miscellaneous functions 1 2nd miscellaneous functions 1 2nd miscellaneous functions 1 1 2nd miscellaneous functions	Polygon) Polygon)			-	-	-	-	-	-	-	
2 Tool spindle synchronization I B (Spindle-Spindle, P 3 Tool spindle synchronization I C (Spindle-NC axis, F 10 Tool spindle synchronization I (Hobbing) 11 Spindle speed clamp Tool functions (T) 1 1 Tool functions (T command) Miscellaneous functions 2 Multiple M codes in 1 block 3 M code independent output 4 Miscellaneous function finish 5 5 M code output during axis traveling 2nd miscellaneous functions B) 1 2nd miscellaneous functions	Polygon) Polygon)										
2 Tool spindle synchronization I B (Spindle-Spindle, P 3 Tool spindle synchronization I C (Spindle-NC axis, F 10 Tool spindle synchronization I (Hobbing) 11 Spindle speed clamp Tool functions (T) 1 1 Tool functions (T command) Miscellaneous functions 2 Multiple M codes in 1 block 3 M code independent output 4 Miscellaneous function finish 5 5 M code output during axis traveling 2nd miscellaneous functions B) 1 2nd miscellaneous functions 1 2nd miscellaneous functions 1 2nd miscellaneous functions 1 2nd miscellaneous functions 2 Multiple M code inductions (B) 1 2nd miscellaneous functions	Polygon) Polygon)		1								
3 Tool spindle synchronization I C (Spindle-NC axis, F 10 Tool spindle synchronization II (Hobbing) 11 Spindle speed clamp Tool functions (T) 1 1 Tool functions (T command) Miscellaneous functions (M) 1 Miscellaneous functions 2 Multiple M codes in 1 block 3 M code independent output 4 Miscellaneous functions (B) 1 2nd miscellaneous functions (B) 1 2nd miscellaneous functions	Polygon)		- -	-	-	-	-	-	-	0	
3 Tool spindle synchronization I C (Spindle-NC axis, F 10 Tool spindle synchronization II (Hobbing) 11 Spindle speed clamp Tool functions (T) 1 1 Tool functions (T command) Miscellaneous functions (M) 1 Miscellaneous functions 2 Multiple M codes in 1 block 3 M code independent output 4 Miscellaneous functions (B) 1 2nd miscellaneous functions (B) 1 2nd miscellaneous functions	Polygon)	(I			<u> </u>				ļ	'	
3 Tool spindle synchronization I C (Spindle-NC axis, F 10 Tool spindle synchronization II (Hobbing) 11 Spindle speed clamp Tool functions (T) 1 1 Tool functions (T command) Miscellaneous functions (M) 1 Miscellaneous functions 2 Multiple M codes in 1 block 3 M code independent output 4 Miscellaneous functions (B) 1 2nd miscellaneous functions (B) 1 2nd miscellaneous functions	Polygon)			_	_	_	_	_	_	0	
10 Tool spindle synchronization II (Hobbing) 11 Spindle speed clamp Tool functions (T) 1 1 Tool functions (T command) Miscellaneous functions (M) 1 1 Miscellaneous functions 2 Multiple M codes in 1 block 3 M code independent output 4 Miscellaneous function finish 5 M code output during axis traveling 2nd miscellaneous functions (B) 1 2nd miscellaneous functions of compensation Tool position			- -	-	-	-	-	-	-	0	
10 Tool spindle synchronization II (Hobbing) 11 Spindle speed clamp Tool functions (T) 1 1 Tool functions (T command) Miscellaneous functions (M) 1 1 Miscellaneous functions 2 Multiple M codes in 1 block 3 M code independent output 4 Miscellaneous function finish 5 M code output during axis traveling 2nd miscellaneous functions (B) 1 2nd miscellaneous functions of compensation Tool position				-							
11 Spindle speed clamp Tool functions (T) 1 Tool functions (T command) Miscellaneous functions (M) 1 Miscellaneous functions (M) 1 Miscellaneous functions 2 Multiple M codes in 1 block 3 M code independent output 4 Miscellaneous function finish 5 M code output during axis traveling 2nd miscellaneous functions (B) 1 1 2nd miscellaneous functions ol compensation Tool position			- -	-	-	-	-	-	-	-	
Tool functions (T) 1 Tool functions (T command) Miscellaneous functions (M) 1 1 Miscellaneous functions (M) 1 Miscellaneous functions 2 Multiple M codes in 1 block 3 M code independent output 4 Miscellaneous function finish 5 M code output during axis traveling 2nd miscellaneous functions (B) 1 2nd miscellaneous functions ol compensation Tool length/Tool position				-	-	-	-	-	-	-	
1 Tool functions (T command) Miscellaneous functions (M) 1 Miscellaneous functions 2 Multiple M codes in 1 block 3 M code independent output 4 Miscellaneous function finish 5 M code output during axis traveling 2nd miscellaneous functions (B) 1 2nd miscellaneous functions B or compensation Tool position	0 0 0	0 0		0	0	0	0	0	0	0	
Miscellaneous functions (M) 1 Miscellaneous functions 2 Multiple M codes in 1 block 3 M code independent output 4 Miscellaneous function finish 5 M code output during axis traveling 2nd miscellaneous functions (B) 1 1 2nd miscellaneous functions of compensation Tool length/Tool position	0 0 0										
Miscellaneous functions (M) 1 Miscellaneous functions 2 Multiple M codes in 1 block 3 M code independent output 4 Miscellaneous function finish 5 M code output during axis traveling 2nd miscellaneous functions (B) 1 1 2nd miscellaneous functions of compensation Tool length/Tool position	0 0 0	0 0	0 0	0	0	0	0	0	0	0	
1 Miscellaneous functions 2 Multiple M codes in 1 block 3 M code independent output 4 Miscellaneous function finish 5 M code output during axis traveling 2nd miscellaneous functions (B) 1 1 2nd miscellaneous functions ol compensation Tool length/Tool position	0				0	0		U U	0		
2 Multiple M codes in 1 block 3 M code independent output 4 Miscellaneous function finish 5 M code output during axis traveling 2nd miscellaneous functions (B) 1 2nd miscellaneous functions 60 compensation Tool length/Tool position	0										
2 Multiple M codes in 1 block 3 M code independent output 4 Miscellaneous function finish 5 M code output during axis traveling 2nd miscellaneous functions (B) 1 2nd miscellaneous functions 60 compensation Tool length/Tool position	0	0 0		0	0	0	0	0	0	0	
 3 M code independent output 4 Miscellaneous function finish 5 M code output during axis traveling 2nd miscellaneous functions (B) 1 2nd miscellaneous functions o compensation Tool length/Tool position 	0										-
Miscellaneous function finish Miscellaneous function finish Miscellaneous functions Miscellaneous functions And miscellaneous functions compensation Tool length/Tool position		0 0		0	0	0	0	0	0	0	-
5 M code output during axis traveling 2nd miscellaneous functions (B) 1 2nd miscellaneous functions ol compensation Tool length/Tool position	0	0 0		0	0	0	0	0	0	0	
5 M code output during axis traveling 2nd miscellaneous functions (B) 1 2nd miscellaneous functions 1 conpensation Tool length/Tool position	0			+	+						-
5 M code output during axis traveling 2nd miscellaneous functions (B) 1 2nd miscellaneous functions 1 conpensation Tool length/Tool position	- 1	0 0		0	0	0	0	0	0	0	
2nd miscellaneous functions (B) 1 2nd miscellaneous functions ol compensation Tool length/Tool position											
2nd miscellaneous functions (B) 1 2nd miscellaneous functions ol compensation Tool length/Tool position	_			_	_	_	_	_	_	_	
2nd miscellaneous functions ol compensation Tool length/Tool position						_					
ol compensation Tool length/Tool position											
ol compensation Tool length/Tool position	0	0 0		0	0	0	0	0	0	0	
Tool length/Tool position											
1 Tool length compensation							1				
	0			0	0	0	0	0	0	0	
		0 0			+				<u> </u>		1
2 Tool position offset	-				0	0	0	0	-	-	
2 Tool companyation for additional and		0 0 0 0		0							
3 Tool compensation for additional axes	-	0 0) O	0		-	-	-	0	0	
Tool radius) O		-						
1 Tool radius compensation		0 0) O	0	-				_	_	
		· · ·		-		0			_	_	
	0	0 0		0	-	0	0	0			1
2 3-dimensional tool radius compensation		0 0 0 0	 	0 - 0	0						1
	0 -	· · ·	 	-		о 	о 	о 	-	-	
3 Tool nose radius compensation (G40/41/42)		0 0 0 0	 	0 - 0	0						
		0 0 0 0	ο ο Ο ο - Δ	0 - 0	0				-	-	
4 Automatic decision of nose radius compensation direction	-	0 0 0 0 	ο ο ο ο - Δ 	ο - ο Δ	О Д	Δ	Δ	Δ			

		000000		Lathe s		
		00VW Se			700VS Ser	
	M750VW	M730VW	M720VW	M750VS	M730VS	M720VS
		0				
Interface card to use CF card can I	0	0	0	-	-	_
Interface card to use PCMCIA card	0	0	0	0	0	0
Ethernet interface card can be atta	0	0	0	0	0	0
A hard disk drive can be mounted.				-	-	0
A USB memory can be mounted.						0
Computer link B is a function to rec	Δ	Δ	Δ	Δ	Δ	Δ
Machine operations, such as setup	Δ	Δ	Δ	-	-	-
	_					
The spindle rotation speed is deter						
automatic operation or with manua						
This interface is used to connect th	0	0	0	0	0	0
Spindle control can be executed us	0	0	0	0	0	0
Constant output characteristics car	0	0	0	0	0	0
spindle motor connections. This is				Ŭ	Ŭ	
Constant output characteristics can be motor connections. This is a system u	0	0	0	0	0	0
With this function, arbitrary pulse c	Δ	Δ	Δ	Δ	Δ	Δ
When an 8-digit number following		~	0			0
or non-signed 32-bit binary data ar	0	0	0	0	0	0
With radial direction cutting, this fun	Δ	Δ	Δ	Δ	Δ	Δ
direction coordinates and the workp					-	
This function applies override to th	0	0	0	0	0	0
command during automatic operat						
Multiple-spindle control is a functio equipped with the second, third an						
This function controls the spindles	Δ	Δ	Δ	Δ	Δ	Δ
With this function, commands to th						
which spindle is selected.	Δ	Δ	\triangle	Δ		\triangle
This function stops the spindle rota	0	0	0	0	0	0
This function enables one spindle	Δ	Δ	Δ	Δ	Δ	Δ
In a machine with two or more spir	Δ	Δ	Δ	Δ	Δ	Δ
(synchronized spindle) in synchron	Δ	Δ	Δ	Δ	Δ	\wedge
methods for giving commands: G o						
This function is used for a machine B spindle) with the spindle motor u	Δ	Δ	\triangle	Δ		\triangle
With a machine equipped with two						
polygon machining (IA) by controlli	Δ	Δ	Δ	Δ		Δ
The rotary tool spindle and workpie						
With a machine equipped with two						
polygon machining (IB) by controlli	Δ	Δ	\triangle	Δ	Δ	\triangle
The rotary tool spindle and workpie						
This function controls the workpied	Δ	Δ	\triangle	Δ		\triangle
allowing polygon machining.		^	^	^		^
This function is to cut the gear with	Δ	Δ	Δ	Δ	Δ	Δ
The spindle rotation speed is clam	0	0	0	0	0	0
The tool function is commanded wit					1	
controller for a lathe, the tool compo	0	0	0	0	0	0
		-				
Miscellaneous function, or M function	0	0	0	0	0	0
backward or stopping it, as well as						
Up to four sets of M commands ca	0	0	0	0	0	0
When the M00, M01, M02 or M30 con command, the signal of this function i	0	0	0	0	0	0
These signals inform the CNC syst						
miscellaneous function (A, B, C) ha	0	0	0	0	0	0
operation. They include miscellane	-	_	-	-	-	-
This function controls the timing at	Δ	Δ	Δ	Δ	Δ	Δ
the axis reaches the designated po	Δ		Δ	Δ		
The code data and start signals are	0	0	0	0	0	0
whichever does not duplicate the a						_
	_	_			_	
These commonds make it possible						
These commands make it possible command by the amount set in the	0	0	0	0	0	0
This function uses commands to c						
positions which have been extended	-	-	-	-	-	-
The tool compensation for a lathe i		0	0			
will be validated for the additional a	0	0	0	0	0	0
This function provides tool radius of	_]	_	_	_]	-	_
actual tool center path is compensa						
This command serves the function		_	_			
center path to be either more outsi accordance with the 3-dimensional	-	_	_	-	-	-
		-	-	_	-	-
The tool nose of the specified fool	0	0	0	0	0	0
The tool nose of the specified tool half circle touches the programmed					0	
	0	0	0	0	0	0
half circle touches the programmed	0	0	0	0	0	0

S/W ver.J0

General explanation e attached inside the NC control unit. can be attached in front of the NC control unit. ched onto the NC unit. eive/send data between the host computer and the CNC. operations, are possible at hand by using a handy terminal. mined in consideration of the override and gear ratio for the S command given in I numerical commands, and the spindle is rotated. e digital spindle (AC spindle motor and spindle drive unit). ng an analog spindle instead of the digital spindle. be achieved across a broad spectrums down to the low-speed ranges by switching the system under which commands are assigned from the PLC. achieved across a broad spectrums down to the low-speed ranges by switching the spindle nder which the CNC module switches the coils automatically in accordance with the motor speed. an be input by parameters set in R register. address S (S0 to S±99999999) is commanded, signed 32-bit binary data and start signal, d start signal will be output to the PLC. tion enables the spindle speed to be changed in accordance with changes in the radial ece to be cut with the cutting point always kept at a constant speed (constant surface speed) rotation speed of a spindle or milling spindle assigned by the machining program on or by manual operation. that controls all the spindles except the first spindle (main spindle) in a machine tool fourth spindles (sub-spindles) in addition to the first spindle. in a machine tool equipped with several spindles. spindle are performed with one S command, and a signal from the PLC determines tion at a certain position. rive unit to be also used as the C axis (rotary axis) using an external signal. dles, this function controls the rotation speed and phase of one selected spindle zation with the rotation of the other selected spindle (basic spindle). There are two ode and PLC. vith a spindle motor to rotate a guide bushing. It synchronizes the guide bushing spindle (G/ sed as a reference (basic spindle). or more spindles under serial connection control, this function enables spindle-spindle ng the workpiece spindle rotation in synchronization with the rotary tool spindle rotation. ce spindle are designated from the spindles subject to serial connection control. or more spindles under serial connection control, this function enables spindle-spindle ng the rotary tool spindle rotation in synchronization with the workpiece spindle rotation. ce spindle are designated from the spindles subject to serial connection control. (spindle) and tool (NC axis) so that they synchronously rotate at the commanded ratio, a hob (hob cutter). ed between max. rotation speed and min. rotation speed. an 8-digit number following the address T (T0 to T99999999) to specify the tool No. In the nsation (tool length compensation, tool nose wear compensation) Nos. are also indicated. on, is used to command auxiliary functions for NC, such as rotating the spindle forward/ urning the cooling oil ON/OFF. be issued in a block. mand is issued during an automatic operation (tape, memory, MDI) or by a manual numerical output. It is turned OFF after the miscellaneous function finishes or by the reset & rewind signal. em that a miscellaneous function (M), spindle function (S), tool function (T) or 2nd s been issued, and that the PLC that has received it has completed the required us function finish signal 1 (FIN1) and miscellaneous function finish signal 2 (FIN2). which miscellaneous functions are output, and it outputs a miscellaneous function when ition movement. output when an 8-digit number is assigned following the address code A, B or C — $\epsilon i s$ name being used. to control the axis movement by offsetting the position of the end point of the travel tool compensation screen. ntrol the movement by changing the end point positions of the movement commands to d or reduced for a tool compensation amount. valid for the X and Z axes. If an additional axis (Y axis) is added, the tool compensation ompensation, Through a combination of the G command and D address assignment, the ted either inside or outside the programmed path by an amount equivalent to the tool radius. of compensating the spherical radius of ball end mills. It compensates the actual tool de or inside the programmed path by an amount equivalent to the tool radius amount in vectors. No, is assumed to be a half circle of the radius R, and compensation is applied so that the

No. is assumed to be a half circle of the radius R, and compensation is applied so that the I path.

ection is automatically determined from the tool tip and the specified movement vector. the compensation amount as diameter value and compensates the amount set in the tool n tool radius compensation(G41/G42) is commanded.

Class	E70 Series	M70V TypeB	Series TypeA	M7	ing center 700VS Ser M730VS	ies		00VW Se M730VW	ries M750VW	E70 Series	athe syste M70V TypeB	em / Series Type
Tool offset amount		1 11-	1 71 -								71-2	1 71
1 Number of tool offset sets												
1 20 sets	-	-	-	-	-	-	-	-	-	-	-	-
2 40 sets	-	-	-	0	0	0	0	0	0	-	-	-
3 80 sets	-	-	-	-	-	-	-	-	-	0	0	0
4 200 sets	0	-	-	Δ	Δ	Δ	Δ	Δ	Δ	-	-	-
5 400 sets	-	0	0	Δ	Δ	Δ	Δ	Δ	Δ	-	-	-
6 999 sets	-	-	-	-	Δ	Δ	-	Δ	Δ	-	-	-
7 (99 × number of part systems) sets	-	-	-	-	-	-	-	-	-	-	-	-
2 Offset memory												
1 Tool shape/wear offset amount	0	0	0	0	0	0	0	0	0	0	0	(
Coordinate system												
Coordinate system type and setting												
1 Machine coordinate system	0	0	0	0	0	0	0	0	0	0	0	(
2 Coordinate system setting	0	0	0	0	0	0	0	0	0	0	0	(
3 Automatic coordinate system setting	0	0	0	0	0	0	0	0	0	0	0	0
4 Workpiece coordinate system selection												
												T
1 Workpiece coordinate system selection (6 sets)	0	0	0	0	0	0	0	0	0	0	0	0
2 Extended workpiece coordinate system selection (48 sets) G54.1P1 to P48	0	0	0	Δ	Δ	Δ	Δ	Δ	Δ	0	0	
3 Extended workpiece coordinate system selection (96 sets) G54.1P1 to P96	-	-	-	-	Δ	Δ	-	Δ		-	-	
5 External workpiece coordinate offset	0	0	0	0	0	0	0	0	0	0	0	
												-
6 Workpiece coordinate system preset (G92.1)	_	-	-	Δ	Δ	Δ	Δ	Δ		0	0	(
7 Local coordinate system	0	0	0	0	0	0	0	0	0	0	0	(
8 Coordinate system for rotary axis	0	0	0	0	0	0	0	0	0	0	0	(
9 Plane selection	0	0	0	0	0	0	0	0	0	0	0	(
10 Origin set/Origin cancel	0	0	0	0	0	0	0	0	0	0	0	0
11 Counter set	0	0	0	0	0	0	0	0	0	0	0	(
Return		1	1						1			
1 Manual reference position return	0	0	0	0	0	0	0	0	0	0	0	(
2 Automatic 1st reference position return	0	0	0	0	0	0	0	0	0	0	0	0
												+
3 2nd, 3rd, 4th reference position return	0	0	0	0	0	0	0	0	0	0	0	0
4 Reference position check	0	0	0	0	0	0	0	0	0	0	0	(
5 Absolute position detection	0	0	0	Δ	Δ	Δ	Δ	Δ	Δ	0	0	(
6 Tool exchange position return	0	0	0	0	0	0	0	0	0	0	0	(
peration support functions Program control		_	_					_	_		_	_
	_			_	_	_	_	_	_	~	_	
1 Optional block skip	0	0	0	0	0	0	0	0	0	0	0	(
2 Optional block skip addition	_	0	0	Δ	Δ	Δ	Δ	Δ	Δ	_	0	
3 Single block	0	0	0	0	0	0	0	0	0	0	0	(
Program test												
1 Dry run	0	0	0	0	0	0	0	0	0	0	0	0
2 Machine lock												
	0	0	0	0	0	0	0	0	0	0	0	(
3 Miscellaneous function lock 4 Graphic check	0	0	0	0	0	0	0	0	0	0	0	(
1 Graphic check	0	0	0	Δ	Δ	Δ	Δ	Δ	Δ	0	0	
2 3D solid program check	_	-	0	Δ	Δ	Δ	Δ	Δ		_	-	-
3 Graphic check rotary axis drawing	_	-	-	-	_	-	-	-	-	_	_	(HN721)
5 Graphic trace			1		1	1		1			1	
1 Graphic trace	0	0	0	Δ	Δ	Δ	Δ	Δ	Δ	0	0	
2 Graphic trace rotary axis drawing	-	-	-	_	_	-	-	_	-	-	_	(HN721
	0	0	0	0	0	0	0	0	0	0	0	(111/21)
6 Machining time computation	-	_	-	-	-		-		-	-	-	<u>í se</u>
6 Machining time computation Program search/start/stop			0	0	0	0	0	0	0	0	0	
	0	0										+
Program search/start/stop Program search/start/stop Program search					0	0	0	0	0	0	0	
Program search/start/stop 1 Program search 2 Sequence number search	0	0	0	0	0 	0 	0 	0 	0 	0	0	
Program search/start/stop 1 Program search 2 Sequence number search 3 Verification stop	0	0	0	0 	Δ	Δ	Δ	Δ	Δ	-	0	0
Program search/start/stop 1 Program search 2 Sequence number search	0	0	0	0								() ()

		00VW Se M730VW	M720VW	M750VS	00VS Ser	
					M730VS	//720VS
	0	0	0	0	0	0
	-	-	-	-	-	-
The number of configurable cote of to	Δ	Δ	Δ	Δ	Δ	Δ
The number of configurable sets of to	_	_	_	_	_	_
	-	_	-	-	-	-
	Δ	\triangle	Δ	Δ	Δ	Δ
This function registers the tool shape	0	0	0	0	0	0
This shows the coordinate systems have						
The points that can be commanded with t						
The machine coordinate system is us end position) that are specific to each	0	0	0	0	0	0
reference position return after power						
By issuing a G code, the program coon After turning the power ON, even with	0	0	0	0	0	0
the workpiece coordinate system are	0	0	0	0	0	0
When multiple workpieces with the sa machined by executing a single mach	0	0	0	0	0	0
In addition to the six workpiece coord	Δ	^	^	^	^	\wedge
assigning G54.1Pn command.	-	-	-	-	-	_
An external workpiece coordinate offse						
the workpiece coordinates. By setting be shifted, and all the workpiece coord	0	0	0	0	0	0
This function presets the workpiece coord						
operation, as the workpiece coordinat	Δ	\triangle	Δ	Δ	Δ	\triangle
machine zero point by an amount equ						
This function is for assigning another the workpiece coordinate system to b	0	0	0	0	0	0
The rotary axis includes the rotating t						
all coordinate position linear type). The workpiece coordinate position rate	0	0	0	0	0	0
By issuing a G code, it is possible to spe	0	0	0	0	0	0
Origin set is a function that shifts the coo						
system containing the workpiece coordin Origin cancel is a function that manually	0	0	0	0	0	0
The relative position counter can be s	0	0	0	0	0	0
This function enables the tool to be re	0	0	0	0	0	0
By commanding the G code during an point is commanded, a positioning is n	0	0	0	0	0	0
As in the automatic 1st reference pos	<u>^</u>	<u> </u>			<u> </u>	~
to a certain position specific to the ma	0	0	0	0	0	0
By issuing a G code, a machining pro the reference position can be checked	0	0	0	0	0	0
With this function, a battery stores the						
even during the power OFF, and an a	Δ	\triangle	Δ	Δ	Δ	Δ
By specifying the tool change position machining program, the tool can be c	0	0	0	0	0	0
maonining program, the tool our be o						
When "/" (slash code) is programmed is turned ON for automatic operation,	0	0	0	0	0	0
When "/n (n:1 to 9)" is programmed a						
is turned ON for automatic operation,	Δ	Δ	Δ	Δ	Δ	Δ
The commands for automatic operation	0	0	0	0	0	0
E codo food commondo for outomotio						
F code feed commands for automatic by turning ON the dry run input signal	0	0	0	0	0	0
When the machine lock input signal is	0	0	0	0	0	0
When the "External input" signal or "N	0	0	0	0	0	0
miscellaneous function) will not be out						
	Δ	Δ	Δ	Δ	Δ	Δ
This function traces the programmed	-	_	-	-	-	-
drawing and also rotary axis drawing. * M70V TypeA requires a function exp	Δ	Δ	Δ	Δ	Δ	Δ
This function traces the machine tool	Δ	Δ	Δ	Δ	Δ	Δ
operation, and the tool tip movement						
the drawing of a rotary axis as well. * M70V TypeA requires a function exp		\triangle	Δ	Δ	Δ	\bigtriangleup
I INTO A TYPE A TEQUIES & TUTICITON EXP	0	0	0	0	0	0
This function analyzes the machining p		~	<u> </u>	<u> </u>	~	-
This function analyzes the machining p		0	0	0	0	0
This function analyzes the machining put This function specifies the program N	0			0	0	0
This function specifies the program N Blocks can be indexed by setting the	0	0	0			
This function specifies the program N Blocks can be indexed by setting the This function enables the single block st		0 Δ	Δ	Δ	Δ	\triangle
This function specifies the program N Blocks can be indexed by setting the	0				 	Δ

General explanation

tool data such as tool length compensation and tool radius compensation.

pe compensation and wear compensation amounts.

s handled by the NC.

In the movement command are points in the local coordinate system or machine coordinate system. used to express the prescribed positions (such as the tool change position and stroke cch machine, and it is automatically set immediately upon completion of the first dog-type er ON, or immediately after power ON if the absolute position specifications apply. pordinate system (zero point of program) can be changed in the workpiece coordinate system. without executing the reference position return, the basic machine coordinate system and re set automatically.

same shape are to be machined, these commands enable the same shape to be achining program in the coordinate system of each workpiece. ordinate systems G54 to G59, 48/96 sets of workpiece coordinate systems can be used by

ffset that serves as a reference for all the workpiece coordinate systems is available outside ng the external workpiece coordinate offset, the external workpiece coordinate system can ordinate systems can be simultaneously shifted by an amount equivalent to the offset. e coordinate system, which has been shifted by the programmed command or the manual nate system which has been offset by the programmed command (G92.1) from the equivalent to the workpiece coordinate offset amount.

er coordinate system in the workpiece coordinate system currently selected. This enables o be changed temporarily.

g type (short-cut valid/invalid) or the linear type (workpiece coordinate position linear type,

range is 0 to 359.999° for the rotating type, and 0 to 99999.999° for the linear type. pecify the planes for the arc, tool radius compensation, coordinate rotation and other commands. coordinate system so that the current position is set as the zero point in the workpiece coordinate dinate system's offset value.

Ily cancels all deviated amounts, and shifts to the designated zero point with the workpiece offset. e set to an arbitrary value from the setting and display unit screen.

e returned manually to a position specific to the machine (reference position). an automatic operation, the 1st reference position return is executed. If an intermediate is made to the point at rapid traverse rate, then each axis returns to its 1st reference position. position return, by commanding the G code during an automatic operation, an axis returns machine (2nd/3rd/4th reference position).

program where the tool is programmed to start off from the reference position and return to ked if the tool will return successfully to the reference position.

the relation of the actual machine position and the machine coordinate kept in the CNC automatic operation is enabled without executing a reference position return.

ion in a parameter and also assigning a tool change position return command in a e changed at the most appropriate position.

ed at the head of a block, and the optional block skip input signal from the external source on, the block with the "/" code is skipped.

at the head of a block, and the optional block skip input n signal from the external source n, the block with the "/n" code is skipped.

on can be executed one block at a time (block stop) by turning ON the single block input signal.

tic operation can be switched to the manual feedrate data of the machine operation board nal.

I is set to ON, the CNC operations can be executed without actually moving the NC axis. "Miscellaneous function lock" signal is turned ON, the output signals of M, S, T, and B (2nd output to the PLC. This is useful when checking only travel commands in a program check.

ed movement path without executing an automatic operation. It enables three-dimensional ig. By using this function, machining programs can be checked before they are actually run. expansion unit FCU7-HN721/HN722.

ol's machine positions. It draws the movement path of an actual automatic or manual nt path. The function also monitors the machine operations during machining. It enables

expansion unit FCU7-HN721/HN722. g program without moving the axis and calculates the approximate time required for machining.

m No. of the program to run automatically and calls the program. the program No., sequence No. and block No. of the program to run automatically. k stop status to be established at any block without having to turn the SINGLE BLOCK switch ON.

e resumed after suspended midway due to tool damage or for some other reason, this the block to resume and enables machining to be resumed from the block. aration start signal (change from ON to OFF), automatic operation of the program that was arted by the controller (or the halted program is restarted).

⊃: Sta	andard ∆: Option □: Selection				Mashin	ing contex	au cata ma				1	ath a susta	
		E70 Series	M70V TypeB	Series TypeA		ing center 00VS Ser M730VS	-	M7 M720VW	00VW Sei M730VW	ries M750VW	E70 Series	athe system M70V TypeB	m Series TypeA
	6 NC reset	0	0	0	0	0	0	0	0	0	0	0	0
	7 Feed hold	0	0	0	0	0	0	0	0	0	0	0	0
	8 Search & Start	0	0	0	0	0	0	0	0	0	0	0	0
	Interrupt operation Image: Interruption Image:	0	0	0	0	0	0	0	0	0	0	0	0
	2 Automatic operation handle interruption	0	0	0	0	0	0	0	0	0	0	0	0
	3 Manual absolute switch	0	0	0	0	0	0	0	0	0	0	0	0
	4 Thread cutting cycle retract	_	-	-	_	-	-	-	-	_	-	0	0
	5 Tapping retract	0	0	0	0	0	0	0	0	0	0	0	0
6	6 Manual numerical value command	0	0	0	0	0	0	0	0	0	0	0	0
	7 Arbitrary reverse run	-	-	0	Δ	Δ	Δ	Δ	Δ	Δ	-	-	-
8	8 MDI interruption	0	0	0	0	0	0	0	0	0	0	0	0
ę	9 Simultaneous operation of manual and automatic modes	0	0	0	0	0	0	0	0	0	0	0	0
1	10 Simultaneous operation of JOG and handle modes	0	0	0	0	0	0	0	0	0	0	0	0
1	11 Reference position retract	0	0	0	0	0	0	0	0	0	0	0	0
1	12 Tool retract and return	_	_	_	-	Δ	Δ	-	Δ	Δ	-	-	-
1	13 Skip retract	-	0	0	Δ	Δ	Δ	Δ	Δ	Δ	-	-	-
1	14 PLC interruption	-	0	0	Δ	Δ	Δ	Δ	Δ	Δ	-	0	0
	ogram support functions												
	Machining method support functions Image: Constraint of the support functions 1 Program Image: Constraint of the support functions Image: Constraint of the support functions												
		8 layers	○ 8 layers	O 8 layers	O 8 layers	\bigcirc 8 layers	○ 8 layers	○ 8 layers	○ 8 layers	O 8 layers	O 8 layers	⊖ 8 layers	⊖ 8 layers
	2 Figure rotation	-	-	-	Δ	Δ	Δ	Δ	Δ	Δ	-	-	-
	3 Scaling	0	0	0	Δ	Δ	Δ	Δ	Δ	Δ	-	-	-
	4 Axis name switch 2 Macro program	-	-	-	-	-	-	-	-	-	-	0	0
		4 layers	O 4 layers	O 4 layers	∆ 4 layers	\triangle 4 layers	\triangle 4 layers	\triangle 4 layers	\triangle 4 layers	\triangle 4 layers	O 4 layers	O 4 layers	O 4 layers
	2 Machine tool builder macro	-	0	0	Δ	Δ	Δ	Δ	Δ	Δ	-	0	0
	3 Macro interruption	0	0	0	Δ	Δ	Δ	Δ	Δ	Δ	0	0	0
	4 Variable command												
	1 100 sets 2 200 sets	-	-	-	0	0	0	0	0	0	-	-	-
	3 300 sets	0	_	-	Δ		Δ		Δ		0 -	-	-
	4 600 sets	-	-	-	Δ	Δ	Δ	Δ	Δ	Δ	-	0	-
	5 700 sets	-	0		Δ	Δ	Δ	Δ	Δ	Δ	-	-	
	6 8000 sets 7 (50+50×number of part systems) sets	-	-	(HN754) _	Δ 0	Δ 0	۵ 0	 ○	 ○	Δ 0	-	-	(HN754)
	8 (100+100×number of part systems) sets	-	-	-	Δ	Δ	Δ	Δ	Δ	Δ	-	-	-
	9 (200+100×number of part systems) sets	-	-	-	Δ	Δ	Δ	Δ	Δ	Δ	-	-	-
	10 (500+100×number of part systems) sets	-	-	-	Δ	Δ	Δ	Δ	Δ		-	-	-
	11 (600+100×number of part systems) sets 12 (7900+100×number of part systems) sets	-	_		Δ	Δ	Δ	Δ	Δ		_	-	
:	3 Fixed cycle			(11147.54)									(11147.54)
	1 Fixed cycle for drilling 2 Fixed cycle for drilling (Type Ⅱ)	0	0	0	0	0	0	0	0	0	0	0	0
	3 Special fixed cycle	0	0	0	Δ	Δ	Δ	Δ	Δ	Δ	-	-	-
	4 Fixed cycle for turning machining	-	-	-	-	-	-	-	-	-	0	0	0
	5 Compound type fixed cycle for turning machining 6 Compound type fixed cycle for turning machining (Type II)	-	-	-	-	-	-	-	-	-	0	0	0
	7 Small-diameter deep-hole drilling cycle	-	0	0	Δ	Δ	Δ	Δ	Δ	Δ	-	-	-
4	4 Mirror image		-	-	-		-	-	-	-			
	1 Mirror image by parameter setting 2 Mirror image by external input	-	0	0	0	0	0	0	0	0	-	0	0
	3 Mirror image by G code	0	0	0	0	0	0	0	0	0	-	-	-
	4 Mirror image for facing tool posts	-	-	-	-	-	-	-	-	-	-	-	0
	5 T code mirror image for facing tool posts	-	-	-	-	-	-	-	-	-	-	-	0

	ies	00VW Ser	system M7		00VS Ser	MZ
	M750VW		M720VW	M750VS	M730VS	M720VS
This function enables the controller to be res	0	0	0	0	0	0
When the feed hold signal is set to ON during	0	0	0	0	0	0
If the "Search & Start" signal is input when the						
executed from the beginning.	0	0	0	0	0	0
Manual interrupt is a function that enables m	0	0	0	0	0	0
The handle command can interrupt and be s	0	0	0	0	0	0
the machine by rotating the manual pulse ge			0	Ŭ		
The program absolute positions are updated when the manual absolute switch signal is tu	0	0	0	0	0	0
This function suspends the thread cutting cyc	Δ	Δ	Δ	Δ	Δ	Δ
If tapping is interrupted by a reset or emerge						
workpiece, the tap tool engaged inside the w	0	0	0	0	0	0
inputting the tap retract signal.						
On the screen of the setting and display unit, can be executed by setting numerical values	0	0	0	0	0	0
This function allows a program to run the exe	-	-	-	-	_	-
This function enables MDI programs to be ex	0					0
modal status is changed in a MDI program, t	0	0	0	0	0	0
This function enables manual operations to b						
mode (tape, MDI or memory) and manual mo (Arbitrary feed based on the PLC is also pos	0	0	0	0	0	0
When executing the jog feed and handle fee						
inputting the jog mode signal and simultaneo	0	0	0	0	0	0
When the retract signal is turned ON during t	0					
to a set reference position.	0	0	0	0	0	0
Even if the machining program's operation is	_		_	_	_	_
the tool can be returned to the halted point (r						
This function is used to return in the direction	-	-	-	-	-	-
The interrupt program set with the R register operation or during the manual mode.	\triangle	Δ	Δ	Δ	Δ	\triangle
When the same pattern is repeated during man	O 8 layers	O 8 layers	O 8 layers	O 8 layers	O 8 layers	8 layers
from the main program as required, thereby re			0 0 layers	0 0 layers		0 layers
If the same pattern is used repeatedly on a c subprogram. When the subprogram is called						
rotary phase can be easily created on the co	-	_	-	-	_	-
The shape commanded by a program can be						
movement axis command position.	_	-	-	-	-	-
The axis name switch function switches the r	0	0	0	0	0	0
In order to execute one integrated function, a	△ 4 layers	\triangle 4 layers	△ 4 layers	△ 4 layers	△ 4 layers	4 layers
macro program.						Δ
macro program. This function enables macro programs exclu			Δ	Δ	Δ	
macro program.	Δ	Δ				
macro program. This function enables macro programs exclu addition to the regular user macro programs.	-		Δ	Δ	Δ	Δ
macro program. This function enables macro programs exclu addition to the regular user macro programs. By inputting a user macro interrupt signal fro	Δ	Δ				
macro program. This function enables macro programs exclu addition to the regular user macro programs. By inputting a user macro interrupt signal fro	Δ	Δ				
macro program. This function enables macro programs exclu addition to the regular user macro programs. By inputting a user macro interrupt signal fro	Δ Δ Ο Δ	Δ Δ Ο Δ		Δ Ο Δ	Δ 0 Δ	Δ Ο Δ
macro program. This function enables macro programs exclu addition to the regular user macro programs. By inputting a user macro interrupt signal fro						Δ Ο Δ Δ
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macro program. This function enables macro programs exclu addition to the regular user macro programs. By inputting a user macro interrupt signal fro programs can be called instead.						Δ Ο Δ Δ
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S/W ver.J0

General explanation

to be reset.

DN during automatic operation, the machine feed is immediately decelerated and stopped. when the memory mode is selected, the designated machining program is searched and

- nables manual operations to be performed during automatic operation. and be superimposed onto a command without suspending automatic operation to move pulse generator during automatic operation.
- updated by an amount equivalent to the distance by which the tool is moved manually anal is turned ON.
- utting cycle if a feed hold signal has been input during thread cutting cycle. or emergency stop signal that is input during tapping and the tap is left engaged inside the side the workpiece can be rotated in the reverse direction so that it will be disengaged by

play unit, the M, S and T (and B when 2nd miscellaneous function is valid) commands al values and pressing [INPUT].

- n the executed blocks backward after the block stop in the automatic operation. s to be executed during automatic operation in the single block stop status. When the rogram, the modal status in the automatic operation mode is also changed. tions to be performed during automatic operation by selecting an automatic operation anual mode (handle, step, jog or manual reference position return) simultaneously. also possible.)
- andle feed. both these feeds are available without changing the mode each time by multaneous operation of jog and handle modes signal to the control unit. I during the automatic and manual operation, this function can retract the tool immediately
- eration is halted and the tool is retracted to change the tool or check the workpiece, etc., ad point (machining halted point) and resume machining.
- direction opposite the travel direction when the skip signal is input during G31 command. register is executed with the signals from the PLC during single block stop in program
- uring machining, the machining pattern is registered as one subprogram, which can be called nereby realizing the same machining easily. This enables the efficient use of programs. dly on a concentric circle, one of the rotary machining patterns can be registered as a is called from the main program, if the rotation center is designated, a path similar to the on the concentric circle. This simplifies the creation of a program.
- m can be extended or reduced to the desired size by applying a scale factor to the

hes the name of a command axis and a control axis.

unction, a group of control and arithmetic instructions can be used and registered as a

ms exclusively designed for use by a specific machine tool builder to be registered in

signal from the PLC, the program being currently executed is interrupted and other

and versatile by designating variables instead of directly assigning numbers to addresses lues of those variables as required when running the programs racting, multiplying and dividing) can also be conducted for the variables. xpansion unit FCU7-HN754.

ing and other hole machining cycles to be assigned in a simple 1-block program. Special combination with fixed cycles

several blocks for rough cutting, etc. in the turning machining can be commanded in one plifying machining programs.

act are repeated and the workpiece is machined multiple times. In addition, when PLC utting for the time concerned is skipped. In this way, the load applied to the tool is reduced.

uxis for which the mirror image function is to be executed before the machining program is run. request the mirror image operation either during or before the execution of a machining program. side of an image, this function can machine the other side of the image when a left/right

ol post and the facing tool post are integrated in one post, this function enables the base side to be executed by the tools on the facing side as well. Nos. 1 to 64 are selected (T commands) but these are the tool Nos. for which the facing already been designated with a parameter, the status equivalent to G68 (facing tool post

			14701	<u> </u>		ing center	-		001/04/0			athe syste	
	Class	E70 Series		Series		700VS Ser M730VS		M7 M720VW	00VW Se		E70 Series		Series
5 Cc	pordinate system operation	Jelles	ТуреВ	ТуреА	M/20VS	M730VS	M/50VS	M720VW	M730VW	M/50VW	Jelles	ТуреВ	Туре
1	Coordinate rotation by program	0	0	0			Δ				-	-	0
2	Coordinate rotation by parameter		_	_	Δ	Δ	Δ	Δ	Δ	Δ	_	_	_
			-										
3	3-dimensional coordinate conversion	-	-	-			Δ	Δ			-	-	-
6 Di	mension input												
1	Corner chamfering/Corner R	0	0	0			Δ				0	0	0
2	Linear angle command	0	0	0	Δ	Δ	Δ	Δ	Δ	Δ	0	0	0
2		0									0		
3	Geometric command	0	0	0			Δ	Δ		Δ	0	0	0
	Polar coordinate command	-	0	0	Δ	Δ	Δ	Δ	Δ	Δ	-	-	-
-	changing												
	Chopping												
	1 Chopping	-	0	0		Δ	Δ	Δ	Δ	Δ	-	0	0
2	Normal line control	-	-	0			Δ				-	-	-
2	Circular outting	0	0	0	Δ	Δ	Δ	Δ	Δ	Δ	_		
	Circular cutting										_	-	-
ອ Mi	ulti-part system control												
1	Timing synchronization between part systems	-	-	0	0	0	0	0	0	0	-	-	0
2	Start point designation timing synchronization	_	-	0	0	0	0	0	0	0	_	-	0
	Mixed control (cross axis control)		-	-	-	-	-	-	-	-	_	-	0
4	Control axis superimposition	-	-	-	-	-	-	-	-	-	-	-	-
5	Control axis synchronization across part systems	-	-	-	-	-	-	-	-	-	-	-	0
H													
6	Balance cut	-	-	-	-	-	-	-	-	-	-	-	0
-	Common momon for part systems		_				_					_	
	Common memory for part systems	-		-	-	-		-	-	-	-		0
	2-part system synchronous thread cutting Multi-part system program management	-	-	-	-	-	-	-	-	-	-	-	0
	ata input by program		_				0				_	-	
_	Parameter input by program	0	0	0	Δ	Δ	Δ	Δ	Δ	Δ	0	0	0
2	Compensation data input by program	0	0	0			Δ	Δ			0	0	0
10 Ma	achining modal												
	Tapping mode	0	0	0	0	0	0	0	0	0	0	0	0
	Cutting mode	0	0	0	0	0	0	0	0	0	0	0	0
	nining accuracy support functions		1										1
1 Au	utomatic corner override	0	0	0	0	0	0	0	0	0	0	0	0
_	eceleration check			0			<u> </u>						
	Exact stop check mode Exact stop check	0	0	0	0	0	0	0	0	0	0	0	0
3	Error detection	0	0	0	0	0	0	0	0	0	0	0	0
	Programmable in-position check	0	0	0	0	0	0	0	0	0	0	0	0
	-speed and high-accuracy functions[kBPM:k Block per gh-speed machining mode I (G5P1) Max. [kBPM]	Minute]	0 8.4	0 16.8	△ 16.8	△ 16.8	△ 16.8	△ 16.8	△ 16.8	△ 16.8	-	-	-
	gh-speed machining mode I (GSP1) Max. [kBPM]	-	-	0 33.7	△ 10.0	△ 16.8	△ 16.8	△ 10.0	△ 168	△ 168	-	-	-
3 Hi	gh-speed high-accuracy control 1 (G5.1Q1) Max.	-	0 16.8	0 16.8	△ 16.8	∆ 33.7	∆ 33.7	△ 16.8	△ 33.7	∆ 33.7	-	-	-
[[KI	3PM] (1st part system only) gh-speed high-accuracy control 2 (G5P10000) Max.											-	-
4 [kE	BPM] (limited to 1-part system configuration)	-	-	0 33.7	△ 67.5	△ 168	△ 168	△ 67.5	△ 168	△ 168	-	-	-
	gh-accuracy control1 (G61.1/G08) st part system only)	-	0	0	Δ	Δ	Δ	Δ	Δ	Δ	-	-	-
e Hi	gh-accuracy spline interpolation1 (G61.2)	_	_	0	Δ	Δ	Δ	Δ	Δ	Δ	_	_	
⁰ (1	st part system only)	_	_								_	_	
0 55	SS control												
1	SSS control (1st part system only)	-	-				Δ	Δ			-	-	-
	· · · · · · · · · · · · · · · · · · ·			(HN722)									
9 Hi	gh-accuracy acceleration/deceleration time constant	_	_	_	Δ	Δ	Δ	Δ	Δ	Δ	_	_	-
ex	tension (1st part system only)												-
10 Ma	achining condition selection I (1st part system only)	-	0	0	0	0	0	0	0	0	-	-	-
_													-
12 Di	rect command mode	-	-	-	-	-	-	-	-	-	-	-	-
	ramming support functions		1									1	1
Prog		0	0	0			Δ				-	-	-
<u> </u>	ayback	0	-	1									
1 Pla	ayback mple programming	_	0	0	Δ	Δ	Δ	Δ	Δ	Δ	-	0	0
1 Pla 3 Si				0	Δ	Δ	Δ	Δ	Δ		-	0	0

	ries	00VW Sei	system M7	ies	00VS Ser	M7
			M720VW	M750VS	M730VS	M720VS
When it is necessary to machine a c system, you can machine a rotated s then specifying the parallel shift amo	Δ	Δ	Δ	Δ	Δ	Δ
If a deviation occurs between the workp mounted, the machine can be controlled	-	-	-	-	-	-
With the 3-dimensional coordinate co						
parallel the zero point in respect to the	_	-	-	_	-	-
This function executes corner proces two consecutive travel blocks.	Δ	Δ	Δ	Δ	Δ	Δ
The end point coordinates are autor the end point coordinates and the lin	Δ	Δ	Δ	Δ	Δ	Δ
When it is difficult to find the intersection of the calculated automatically by p	0	0	0	0	0	0
With this function, the end point posi	-	-	-	-	-	-
This function continuously raises and operation, chopping can produce a b	Δ	Δ	Δ	Δ	Δ	Δ
This function controls the swiveling of	_	_	_	-	-	-
the X and Y axes movement comma In circular cutting, a system of cutting	_				_	
along the inside circumference of the	_	_	-	_	-	_
The multi-axis, multi-part system cor independently. This function is used	0	0	0	0	0	0
systems are to be synchronized or in						
The synchronizing point can be place	0	0	0	0	0	0
This function enables any axis to be		Δ	Δ	Δ	Δ	Δ
This function enables to superimpos Synchronization control enables an a		Δ	Δ	Δ	Δ	Δ
movement command assigned to an The deflection can be minimized b						
synchronization to machine the wor machining time is reduced.	Δ	Δ	Δ	Δ	Δ	Δ
For a machine with multiple part system can be made common to all	0	0	0	0	0	0
This function performs synchronous Separate programs, used in each pa	Δ 0	 ○	 ○	 ○	 ○	 ○
		0			0	Ŭ
The parameters set from the display	Δ	Δ	Δ	Δ	Δ	Δ
The value of the workpiece coordina The tool compensation amounts, that	Δ	\triangle	Δ	Δ	Δ	\bigtriangleup
When tapping mode commands are	0	0	0	0	0	0
When a cutting mode command is is	0	0	0	0	0	0
To prevent machining surface distort applies an override on the cutting fee	0	0	0	0	0	0
	0	0	0	0	0	0
This function decelerates and stops	0	0	0	0	0	0
caused by a rapid change of feedrat	0	0	0	0	0	0
	0	0	0	0	0	0
This function runs a machining progr	-	-	-	-	-	-
	-	-	-	-	-	-
This function runs machining progra high speed and with a high accuracy	-	-	-	-	-	-
This function controls the operation s	_	_	_	_	_	_
improved machining accuracy can be This function automatically generate	-	-	-	-	-	-
machining program, and performs in						
With SSS (Super Smooth Surface) c blocks. Thus, optimum speed contro machining with a fewer scratches an * M70V TypeA requires a function ex	-	-	-	-	-	-
This extends the upper limit of cuttin interpolation.	_	-	-	-	-	-
The machining condition parameter in advance for each machining appli finishing), and it can be switched acc	-	_	-	-	-	-
By reducing the load applied during programs expressed in fine segment	Δ	Δ	-	Δ	Δ	-
This function enables creation of a p	Δ	Δ	Δ	Δ	Δ	Δ
mechanical handle feed.	Δ	Δ	Δ	Δ	Δ	Δ
Create a part program by using NAV G code guidance is a function to disp			7	ı 7		

General explanation omplicated shape at a position that has been rotated with respect to the coordinate shape by programming the shape prior to rotation on the local coordinate system, and bunt and rotation angle by means of this coordinate rotation command. iece alignment line and the machine coordinate system's coordinate axis when the workpiece is to rotate the machining program coordinates according to the workpiece alignment line deviation onversion function, a new coordinate system can be defined by rotating and moving in he X, Y and Z axes of the currently set workpiece coordinate system ssing by automatically inserting a straight line or arc in the commanded amount between natically calculated by assigning one element (one component of the selected plane) of ear angle. ction point of two straight lines with a continuous linear interpolation command, this point rogramming the command for the angle of the straight lines. ition is commanded with the radius and angle. d lowers the chopping axis independently of program operation. During the grinding petter surface accuracy than using abrasive grain of the C axis (rotary axis) so that the tool is always pointing in the normal line direction for inds during program operation. a steps are performed; first, the tool departs from the center of the circle, and by cutting e circle, it draws a complete circle, then it returns to the center of the circle. npound control CNC system can simultaneously run multiple machining programs in cases when, at some particular point during operation, the operations of different part n cases when the operation of only one part system is required. ed in the middle of a block by designating the start point. replaced with another axis between part systems. e on and control an axis in a part system with an axis in another part system arbitrary control axis in another part system to move in synchronization with the arbitrary control axis. by holding tools simultaneously from both sides of the workpiece and using them in kpiece (balance cutting). In addition, since the workpiece is machined by two tools, the stems, the common variables and tool compensation memory which exist for each part part systems by setting the parameters. thread cutting for the same spindle using the 1st and 2nd part systems. art system, can be managed under a common name in a multi-part system. can be changed using machining programs. ate systems selected can be set or changed using program commands. at are set from the display can be input using program commands. issued, the CNC system is set to the internal control modes required for tapping. ssued, the CNC system is set to the cutting mode that enables a smoothly cut surface. tion due to increase in the cutting load when cutting corners, this function automatically edrate so that the cutting amount is not increased for a set time at the corner. a motor before executing the next block, which reduces the impact on the machine e, and prevents a corner from being machined round. ram that approximates a free curve with fine segments at a high speed. ims, in which free-form curved surfaces have been approximated by fine segments, at a so the lag will be eliminated in control systems and servo systems. With this function, e realized, especially during high-speed machining, and machining time can be reduced. es spline curves that smoothly pass through rows of dots designated by a fine-segment terpolation for the paths along the curves. control, the large area path information is used instead of just the angle between the of that is not adversely affected by minute steps or waviness is possible. This enables nd streaks on the cutting surface compared to the normal high-accuracy control function. kpansion unit FCU7-HN722. g feed time constant from 5,000[ms] to 30,000[ms] for acceleration/deceleration before set which consists of parameters related to the high-accuracy control can be configured cation (such as part machining or die machining) or machining process (such as rough or cording to the purpose. the NC program analysis and interpolation to the minimum possible level, the machining

ts are executed at a high processing speed.

program while proceeding with sample machining by manual (handle or job) feed or

VI MILL (for machining center system) or NAVI LATHE (for lathe system). splay illustration of the contents or movements of the commanded format for the G code d when creating or editing a machining program. ta.

		ption Selection Machining center system					L	athe system					
	Class	E70 Series	M70V			00VS Ser			00VW Sei M730VW		E70 Series	<u> </u>	Series
/lacl	chine accuracy compensation	Selles	ТуреВ	ТуреА	M720VS	M730VS	M750V5	M720VW	M730VW	M750VW	Jelles	ТуреВ	ТуреА
St	Static accuracy compensation								1	1			
	Backlash compensation	0	0	0	0	0	0	0	0	0	0	0	0
	2 Memory-type pitch error compensation	0	0	0	Δ	Δ	Δ	Δ	Δ	Δ	0	0	0
	Memory-type relative position error compensation	0	0	0	Δ	Δ	Δ	Δ	Δ	Δ	0	0	0
4	External machine coordinate system compensation	0	0	0	Δ	Δ	Δ	Δ	Δ	Δ	0	0	0
5	Circular error radius compensation	-	0	0	Δ	Δ	Δ	Δ	Δ	Δ	-	0	0
6	Ball screw thermal expansion compensation	-	0	0	Δ	Δ	Δ	Δ	Δ	Δ	-	0	0
7	7 Machine rotation center error compensation	-	-	-	-	Δ	Δ	-	Δ	Δ	-	-	-
8	Position-dependent gradually increasing-type backlash compensation	_	0	0	Δ	Δ	Δ	Δ	Δ	Δ	-	0	0
9	Two-way pitch error compensation	_	0	0	Δ	Δ	Δ	Δ	Δ	Δ	_	0	0
	Dynamic accuracy compensation												
T		0	0	0	0	0	0	0	0	0	0	0	0
	2 Dual feedback	0	0	0	0	0	0	0	0	0	0	0	0
3	3 Lost motion compensation	0	0	0	0	0	0	0	0	0	0	0	0
4	OMR II (Backlash with filter)	-	0	0	Δ	Δ	Δ	Δ	Δ	Δ	-	0	0
6	OMR-FF	_	_		Δ	Δ	Δ	Δ	Δ	Δ	_	_	-
	Distance-coded reference position detection	-	-	-	Δ	Δ	Δ	Δ	Δ	Δ	-	-	-
	omation support functions	_		_									_
	Measurement Skip												
	1 Skip	0	0	0	Δ	Δ	Δ	Δ	Δ	Δ	0	0	0
	2 Multiple-step skip	0	0	0	Δ	Δ	Δ	Δ	Δ	Δ	0	0	0
	4 PLC skip	_	0	0	Δ	Δ	Δ	Δ	Δ	Δ	-	0	0
	5 Speed change skip	-	-	-	Δ	Δ	Δ	Δ	Δ	Δ	-	-	-
2	2 Automatic tool length measurement	0	0	0	Δ	Δ	Δ	Δ	Δ	Δ	0	0	0
3	Manual tool length measurement 1	0	0	0	Δ	Δ	Δ	Δ	Δ	Δ	0	0	0
4	Manual tool length measurement 2	0	0	0		Δ	Δ	Δ	Δ	Δ	0	0	0
-	Workpiece coordinate offset measurement												
		-					_	-				0	0
6	Workpiece position measurement	-	0	0	Δ	Δ	Δ	Δ	Δ	Δ	-	-	-
	Rotation measurement	-	0	0	Δ	Δ	Δ	Δ	Δ	Δ	-	-	-
-	Tool life management												
	1 Tool life management I	0	0	0	Δ	Δ	Δ	Δ	Δ	Δ	0	0	0
	2 Tool life management I	0	0	0	Δ	Δ	Δ	Δ	Δ	Δ	0	0	0
	3 Tool life management II	0	0	0	Δ	Δ	Δ	Δ	Δ	Δ	-	-	-
2	Number of tool life management sets 1 80 sets	_	_	_	_	_	_	_	_	_	0	0	0
	2 200 sets	0	0	0	Δ	Δ	Δ	Δ	Δ	Δ	-	-	-
	3 400 sets	-	-	-	Δ	Δ	Δ	Δ	Δ	Δ	-	-	-
	4 600 sets 5 800 sets	_		-		Δ					-		-
	6 1000 sets	_	-	-	Δ	Δ	Δ	Δ	Δ	Δ	-	-	-
Т	Dthers												
-	Programmable current limitation	0	0	0	Δ	Δ	Δ	Δ	Δ	Δ	0	0	0
	2 Auto power off	-	-	-	0	0	0	0	0	0	-	-	-
	ety and maintenance Safety switches												
	Emergency stop	0	0	0	0	0	0	0	0	0	0	0	0
	Emorgoney stop	0											
-	2 Data protection key	0	0	0	0	0	0	0	0	0	0	0	0

	ine	001/11/ 00	147	ine	7001/0 0 0	14
		00VW Sei M730VW		M750VS	700VS Ser M730VS	M720VS
	101750000	1017 30 0 00	101720000	101750115	10173013	10172003
This function compensates the error	0	0	0	0	0	0
Machine accuracy can be improved (production errors, wear, etc.) of the	Δ	\triangle	Δ	Δ		\triangle
Machine accuracy can be improved by	Δ	Δ	Δ	Δ	Δ	Δ
The coordinate system can be shifte	Δ	Δ	Δ	Δ		\triangle
appear on the counters (all counters With commands designated during a						
a factor such as servo delay.	Δ	Δ	Δ	Δ	Δ	Δ
This compensates the axis feed erro	Δ	Δ	Δ	Δ	Δ	Δ
In a machine with a rotary axis, there mother words, "machine rotation center e	-	-	-	-	-	-
With this function, the gradually incr						
movement direction is reversed can to the distance from the direction re-	Δ	Δ	Δ	Δ		Δ
Two-way pitch error compensation f	Δ	Δ	Δ	Δ	Δ	Δ
compensation amount when moving						
This is a high-response and stable p	0	0	0	0	0	0
three-fold position loop gain compar	0	0	0	0	0	0
Use position feedback with a motor- acceleration, use position feedback	0	0	0	0	0	0
loop gain. A machine-side detector (
This function compensates the error during circular cutting.	0	0	0	0	0	0
The OMR (Optimal Machine Respon						
friction, viscosity coefficient, etc.) the High-accuracy machining is achieve						
quadrant protrusions during circular		Δ	Δ			Δ
OMR- II is a function that focuses o compensation is included in OMR- I						
OMR-FF control enables fine control	_	_	_	_	_	_
control to the program command the This is a function where a distance-code	Δ	Δ	Δ	Δ	Δ	Δ
This is a function where a distance-code						
When the external skip signal is inpo immediately and the remaining dista	Δ	\triangle	\triangle	Δ		\triangle
This function realizes skipping by de	Δ	Δ	Δ	Δ	Δ	Δ
This function enables skip operation		Δ	Δ			Δ
This function is used to change the for This function moves the tool in the direct	Δ	Δ	Δ	Δ	Δ	Δ
start position and measurement position		Δ	Δ			\triangle
coordinates where the tool has stopped for that tool.						
Simple measurement of the tool len	Δ	Δ	Δ	Δ	Δ	Δ
[M system] When the tool is position position to the tool tip and registered						
[L system] A device with a built-in to	Δ	\triangle	Δ	Δ		\triangle
feed, the tool compensation amount						
	Δ	\triangle	Δ	Δ		\triangle
The external workpiece coordinate of operations and inputting the workpie						
operations and inputting the workpie The workpiece position measureme		-	-	-	-	_
operations and inputting the workpie The workpiece position measureme and the sensor contacting the workp	-					
operations and inputting the workpie The workpiece position measureme and the sensor contacting the workp The surface, hole center and width or results are set in the workpiece coordinate	-					
operations and inputting the workpie The workpiece position measureme and the sensor contacting the workg The surface, hole center and width results are set in the workpiece coor The offset of the rotary coordinate s	-	_	-	_	_	-
operations and inputting the workpie The workpiece position measureme and the sensor contacting the workp The surface, hole center and width or results are set in the workpiece coordinate	-	-	-	-	-	-
operations and inputting the workpie The workpiece position measureme and the sensor contacting the workg The surface, hole center and width results are set in the workpiece coor The offset of the rotary coordinate s	-	-	-	-	-	-
operations and inputting the workpie The workpiece position measureme and the sensor contacting the workp The surface, hole center and width of results are set in the workpiece coor The offset of the rotary coordinate s workpiece coordinate system offset	- - Δ	<u>–</u>	<u>–</u>	- _	- _	-
operations and inputting the workpie The workpiece position measureme and the sensor contacting the workp The surface, hole center and width or results are set in the workpiece coor The offset of the rotary coordinate s workpiece coordinate system offset		_ 	<u>–</u>		- 	_
operations and inputting the workpie The workpiece position measureme and the sensor contacting the workp The surface, hole center and width of results are set in the workpiece cool The offset of the rotary coordinate s workpiece coordinate system offset The tool usage is monitored by acccl [M system] A spare tool change fund [L system] The life of each tool (time is selected from the same group.	Δ					
operations and inputting the workpie The workpiece position measureme and the sensor contacting the workp The surface, hole center and width or results are set in the workpiece coor The offset of the rotary coordinate s workpiece coordinate system offset The tool usage is monitored by accu. [M system] A spare tool change fund [L system] The life of each tool (time	Δ					
operations and inputting the workpie The workpiece position measureme and the sensor contacting the workp The surface, hole center and width of results are set in the workpiece coor The offset of the rotary coordinate s workpiece coordinate system offset The tool usage is monitored by acct [M system] A spare tool change fund [L system] The life of each tool (time is selected from the same group. The tool usage is monitored by acct	Δ					
operations and inputting the workpie The workpiece position measureme and the sensor contacting the workp The surface, hole center and width of results are set in the workpiece coor The offset of the rotary coordinate s workpiece coordinate system offset The tool usage is monitored by acct [M system] A spare tool change fund [L system] The life of each tool (time is selected from the same group. The tool usage is monitored by acct	Δ					
operations and inputting the workpie The workpiece position measureme and the sensor contacting the workp The surface, hole center and width of results are set in the workpiece coor The offset of the rotary coordinate s workpiece coordinate system offset The tool usage is monitored by acct [M system] A spare tool change fund [L system] The life of each tool (time is selected from the same group. The tool usage is monitored by acct	Δ - -	Δ 	Δ - Δ -	Δ - -	Δ - -	_ _
operations and inputting the workpie The workpiece position measureme and the sensor contacting the workp The surface, hole center and width of results are set in the workpiece coor The offset of the rotary coordinate s workpiece coordinate system offset The tool usage is monitored by acct [M system] A spare tool change fund [L system] The life of each tool (time is selected from the same group. The tool usage is monitored by acct	Δ Δ -	Δ	Δ - Δ	_ _ _	Δ - Δ	_ _
operations and inputting the workpie The workpiece position measureme and the sensor contacting the workpi The surface, hole center and width of results are set in the workpiece coor The offset of the rotary coordinate s workpiece coordinate system offset The tool usage is monitored by accu [M system] A spare tool change fund [L system] The life of each tool (time is selected from the same group. The tool usage is monitored by accu by the group No.	Δ - -	Δ 	Δ - Δ -	Δ - -	Δ - -	_ _
operations and inputting the workpie The workpiece position measureme and the sensor contacting the workpi The surface, hole center and width of results are set in the workpiece coor The offset of the rotary coordinate s workpiece coordinate system offset The tool usage is monitored by accu [M system] A spare tool change fund [L system] The life of each tool (time is selected from the same group. The tool usage is monitored by accu by the group No.	Δ - -	Δ 	Δ - Δ -	Δ - -	Δ - -	_ _
operations and inputting the workpie The workpiece position measureme and the sensor contacting the workpi The surface, hole center and width of results are set in the workpiece coor The offset of the rotary coordinate s workpiece coordinate system offset The tool usage is monitored by accu [M system] A spare tool change fund [L system] The life of each tool (time is selected from the same group. The tool usage is monitored by accu by the group No.	Δ - - - - - -	Δ 	Δ 	Δ - - - - - -	Δ 	_ _
operations and inputting the workpie The workpiece position measureme and the sensor contacting the workpi The surface, hole center and width of results are set in the workpiece coor The offset of the rotary coordinate s workpiece coordinate system offset The tool usage is monitored by accu [M system] A spare tool change fund [L system] The life of each tool (time is selected from the same group. The tool usage is monitored by accu by the group No.	Δ - -	Δ 	Δ - Δ -	Δ - -	Δ - -	_ _
operations and inputting the workpie The workpiece position measureme and the sensor contacting the workp The surface, hole center and width of results are set in the workpiece coordinates workpiece coordinate system offset The tool usage is monitored by accu- [M system] A spare tool change func [L system] The life of each tool (time is selected from the same group. The tool usage is monitored by accu- by the group No. The max. sets of tools available for This function allows the current limit the workpiece stopper, etc. Auto power OFF function notifies the	Δ - - - - - -	Δ 	Δ 	Δ - - - - - -	Δ 	Δ - - - - - - - -
operations and inputting the workpie The workpiece position measureme and the sensor contacting the workpi The surface, hole center and width of results are set in the workpiece coordinates workpiece coordinate system offset The tool usage is monitored by acct. [M system] A spare tool change funct L system] The life of each tool (time is selected from the same group. The tool usage is monitored by acct. by the group No. The max. sets of tools available for This function allows the current limit the workpiece stopper, etc.	Δ - - - - - - - - - - -	Δ 	Δ 	Δ - - - - - - -	Δ - - - - - - -	Δ - - - - - - - - - - -
operations and inputting the workpie The workpiece position measureme and the sensor contacting the workp The surface, hole center and width of results are set in the workpiece coordinates workpiece coordinate system offset The tool usage is monitored by accu- [M system] A spare tool change func [L system] The life of each tool (time is selected from the same group. The tool usage is monitored by accu- by the group No. The max. sets of tools available for This function allows the current limit the workpiece stopper, etc. Auto power OFF function notifies the	Δ - - - - - - - - - - -	Δ 	Δ 	Δ - - - - - - -	Δ - - - - - - -	Δ - - - - - - - - - - -
operations and inputting the workpie The workpiece position measureme and the sensor contacting the workpi The surface, hole center and width of results are set in the workpiece coordinates workpiece coordinate system offset The tool usage is monitored by acc. [M system] A spare tool change func [L system] The life of each tool (time is selected from the same group. The tool usage is monitored by acc. by the group No. The max. sets of tools available for This function allows the current limit the workpiece stopper, etc. Auto power OFF function notifies the entering "automatic power OFF required All operations are stopped by the er	Δ - - - - - - - - - - -	Δ 	Δ 	Δ - - - - - - -	Δ - - - - - - -	Δ - - - - - - - - - - - -
operations and inputting the workpie The workpiece position measureme and the sensor contacting the workp The surface, hole center and width of results are set in the workpiece coor The offset of the rotary coordinate s workpiece coordinate system offset The tool usage is monitored by accu- [M system] A spare tool change fund [L system] The life of each tool (time is selected from the same group. The tool usage is monitored by accu- by the group No.	Δ - - - - - - - - - - - - -	Δ - - - - - - - - - - - - - - - - - - -	Δ - - - - - - - - - - - - - - - - - - -	Δ 	Δ - - - - - - - - - - - - - - - - - - -	

S/W ver.J0

General explanation

or (backlash) produced when the direction of the machine system is reversed. I by compensating the errors in the screw pitch intervals among the mechanical errors of feed screws.

by compensating the relative error between machine axes, such as a production error or aging. ted by inputting a compensation amount from the PLC. This compensation amount will not is including machine position).

arc cutting, this function compensates movement toward the inside of the arcs caused by

ror caused by a ball screw's thermal expansion, etc. using the values set by the PLC. may be a case where the actual rotation center deviates from the programmed rotation center. (In error" may be observed.) Higher accuracy machining can be realized by compensating this error. creasing-type lost motion which depends on the distance from the point where the machine n be compensated by controlling the variation of backlash compensation amount according aversal point.

function is used to compensate the pitch error in each direction by setting the pitch error g in the positive and negative direction.

position control method using the servo system. SHG control realizes an approximately tred to the conventional control method.

r-side detector in ranges with high acceleration to enable stable control. In ranges with low with the machine-side detector (scale). This will make it possible to increase the position (scale) is separately required.

or in protrusion shapes caused by lost motion at the arc quadrant changeover section

onse) control function estimates the machine or motor model (moment of inertia, clone hat can cause a path error (deviation of the actual tool path from the programmed path). red by carrying out feed forward control based on that model. This allows error cased by ir interpolation or quadrants on the inner side of the path to be greatly reduced. on the quadrant protrusions, and improves the path error with this. Quadrant path Π

ol by generating feed forward inside the drive unit and can realize the strict feedback nan the conventional high-speed accuracy control.

ted reference scale is used to establish the reference point in the relative position detection system

but during linear interpolation using the G31 command, machine feeding is stopped tance is discarded to execute the commands in the next block.

designating a combination of skip signals for each skip command.

ons to be performed by signals which are input from the user PLC.

feed rate or to stop the movement by inputting the skip signal during the linear interpolation. action of the tool measurement position by the commanded value between the measurement on. It stops the tool as soon as it reaches the sensor and calculates the difference between the d and the command coordinates. It registers this difference as the tool length compensation amount

ngth is done without a sensor.

aned at the reference position, this function measures the distance from the reference ad it as the tool length compensation amount.

buch sensor is used. Simply by causing the tool nose to touch the touch sensor in manual t can be calculated and stored in tool compensation amount memory.

offset data for the Z axis can be set by cutting the workpiece face by means of manual ece measurement signal.

ent function is used to measure each axis' coordinate by installing a sensor on the spindle piece with the manual feed or handle feed. center coordinates are calculated from the measured coordinates, and those calculated

center coordinates are calculated from the measured coordinates, and those calculated pordinate offset.

system (rotation center and rotation angle) is measured, and the results are set to the t (rotation center) and the parameters.

cumulating each tool's usage time and the frequency of use. Inction is added to the tool life management $\, {\rm I}$. In the same type is controlled, and when the life is reached, a spare tool of the same type

cumulating each tool's usage time and the frequency of use. This function is not controlled

r tool life management

it value of the NC axis to be changed to a desired value in the program, and is used for

hat the control unit's power can be turned OFF after shutting the display unit down by uest" signal from user PLC to NC.

mergency stop signal input and, at the same time, the drive section is stopped and the

t is possible to prohibit the parameter setting or deletion, and the program edit from the

tandard \triangle : Option \Box : Selection				Machin	ing center	system				L	athe syste	m
Class	E70		Series	M	700VS Sei	ries		00VW Se		E70	M70V	Series
Display for ensuring safety	Series	ТуреВ	ТуреА	M720VS	M730VS	M750VS	M720VW	M730VW	M750VW	Series	ТуреВ	ТуреА
1 NC warning	0	0	0	0	0	0	0	0	0	0	0	0
2 NC alarm	0	0	0	0	0	0	0	0	0	0	0	0
3 Operation stop cause	0	0	0	0	0	0	0	0	0	0	0	0
4 Emergency stop cause	0	0	0	0	0	0	0	0	0	0	0	0
5 Thermal detection	0	0	0	0	0	0	0	0	0	0	0	0
6 Battery alarm/warning Protection	0	0	0	0	0	0	0	0	0	0	0	0
1 Stroke end (Over travel)	0	0	0	0	0	0	0	0	0	0	0	0
2 Stored stroke limit												
1 Stored stroke limit I / I	0	0	0	0	0	0	0	0	0	0	0	0
2 Stored stroke limit I B	-	0	0							-	0	0
3 Stored stroke limit I B 4 Stored stroke limit I C	-	0	0							-	0	0
3 Stroke check before travel	_	0	0	Δ	Δ	Δ	Δ	Δ	Δ	_	_	_
4 Chuck/Tailstock barrier check	-	-	-	-	-	-	-	-	-	0	0	0
5 Interlock	0	0	0	0	0	0	0	0	0	0	0	0
6 External deceleration	0	0	0	0	0	0	0	0	0	0	0	0
8 3D Machine Interference check	-	<u> </u>	-	-	_	-	-		Δ	_		-
9 Door interlock		1	1		I							
1 Door interlock I	0	0	0	0	0	0	0	0	0	0	0	0
2 Door interlock II	0	0	0	0	0	0	0	0	0	0	0	0
10 Parameter lock	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
11 Program protection (Edit lock B, C)	0	0		0	0	0	0	0	0	0	0	0
12 Program display lock	0	0	0	0	0	0	0	0	0	0	0	0
13 Safety observation	0	0	0	Δ	Δ	Δ	Δ	Δ	Δ	0	0	0
14 Vertical axis pull-up	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance and troubleshooting												0
1 Operation history	0	0	0	0	0	0	0	0	0	0	0	0
												0
2 Data sampling	0	0	0	0	0	0	0	0	0	0	0	0
3 NC data backup	0	0	0	0	0	0	0	0	0	0	0	0
5 Servo turning support tool												
1 MS Configurator (Need to prepare separate S/W)	-	0	0	0	0	0	0	0	0	-	0	0
2 NC Analyzer (Need to purchase separate S/W)	0	0	0	0	0	0	0	0	0	0	0	0
6 Automatic backup	0	0	0	0	0	0	0	0	0	0	0	0
7 System setup	0	0	0	0	0	0	0	0	0	0	0	0
11 Application error detection	-	-	-	-	-	-	0	0	0	-	-	-
12 NC Maintainer (Need separate PC S/W)	-	-	-	-	-	-				-	-	-
13 Parameter setup support tool		1	1			1		I	I		1	
1 NC Configurator2 (Need separate PC S/W)	0	0	0	0	0	0	0	0	0	0	0	0
rive system			1			1					1	
Servo/Spindle												
1 Feed axis 5 MDS-D2-V1/D2-V2/D2-V3 (200V)												
1 Servo motor: HF□□-A48 (260kp/rev)	-									-		
2 Servo motor: HF□□-A51 (1000kp/rev)	-									-		
3 Servo motor: HF□□-A74 (16000kp/rev) 6 Servo motor: HF-KP□□JW04 (260kp/rev)	-									-		
6 MDS-DH2-V1/DH2-V2 (400V)	_									_		
1 Servo motor: HF□□-A48 (260kp/rev)	-									-		
2 Servo motor: HF-H□□-A51 (1000kp/rev) 3 Servo motor: HF-H□□-A74 (16000kp/rev)	-									-		
7 MDS-DJ-V1(200V)	-									_		
1 Servo motor: HF□□-A48 (260kp/rev)												
2 Servo motor: HF□-A51 (1000kp/rev) 3 Servo motor: HF-KP□□JW04 (260kp/rev)												
3 Servo motor: HF-KPJW04 (260kp/rev) 8 MDS-DM2-SPV2/SPV3 (200V)												
1 Servo motor: HF□□-A48 (260kp/rev)												
2 Servo motor: HF□□-A51 (1000kp/rev)												
2 Spindle 6 MDS-D2-SP (200V)	-									-		
7 MDS-DH2-SP (400V)	-									-		

0 0 0 Warnings are output by the CNC syste description of the warning appears on the CNC syste of the System system, entry into the Interference system set to ON. 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 <				evetom	Lathe		
0 0 0 Warnings are output by the CNC syste description of the warning appears on the CNC syste description of the atam spacers on the CNC syste description of the atam spacers on the CNC syste description of the atam spacers on the CNC syste description of the atam spacers on the CNC syste description of the atam spacers on the CNC syste description of the atam spacers on the CNC syste description of the atam spacers on the CNC syste description of the atam spacers on the CNC syste description of the atam spacers on the CNC syste description of the atam spacers on the CNC syste description of the atam spacers on the CNC syste description of the atam spacers on the continue of the atam spacers on the contrained system, entry into the inner decared a programming error. 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		ries	00VW Se			00VS Ser	M7
0 0 0 0 0 0 0 0 0 0 1The alarms are output by the CNC systems are output by the CNC system setu		M750VW	M730VW	M720VW	M750VS	M730VS	M720VS
Image: Construction of the Warning appears on the Construction of the alarm appears on the Construction of the transfer and the construction of the construction allows the topola of the construction allows the topola of the construction and the construction allows the topola of the construction allows the construction allows the construction allows the construction allows the construct		0	0	0	0	0	0
O O The stop cause of automatic operation O O O When the "EMG" (emergency stop) memergency stop can be confirmed. O O O When it is time to change the batteries O O O When it is time to change the batteries O O O When it is time to change the batteries O O O When it is time to change the batteries O O O Imit switches and dogs are attached machine is stopped by the signal input O O O O A A A A A A A A A A A A A A A A A A A A A A A A D O O O This function sets the areas prohibited machine is stopped point movement. D O O O This function is used to point movement will declare to the while a machine is moving is prohibite machine is moving is mathen the doro open singual is	The alarms are output by the CNC sys				0	0	0
O O O O Permanents O O O O When overheating is detected in the o O O O O When it is time to change the batteries O O O O When it is time to change the batteries O O O O O O O O O O O O O O O O O O A A A A A A A A A A A A A A A A A A A A A A A A A A A A A By commanding, from the program, the interdocter interview of the interview of the interdocter interview of the interview of the interview o		0	0	0	0	0	0
0 0 0 When it is time to change the batteries 0 0 0 When it is time to change the batteries 0 0 0 Imit switches and dogs are attached rached range and method. 0 0 0 0 0 0 0 This function sets the areas prohibited factored in any set. This function sets the areas prohibited factored in any set. This function sets the areas prohibited factored in any set. This function reduces the feedrate to thas been set to ON. 0 0 0 0 This function reduces the feedrate to thas been set to ON. 0 0 0 0 This function reduces the feedrate to thas been set to ON. 0 0 0 0 This function is used to prohibite the financian size of a programming error. 0 0 0 0 This function is used to prohibite the financian size of a program size is put for ready OFF status, and then shute off ready of OF factus, and then shute off ready of OF factus. 0 0 0 0 This function allows the display of only monitor screen, etc. 0 0 0 0 This function size of a program streage of a programa streage of a program streage of a program streage of		0	0	0	0	0	0
0 0 0 Limit switches and dogs are attached machine is stopped by the signal input machine is stopped by the signal input for the signal input machine is stopped by the signal input machine is stopped by the signal input machine is stopped by the signal input machine is machine is more signal stopped of the interdock signal is turned of the second seco	When overheating is detected in the c	-	-		0	0	0
0 0 0 machine is stopped by the signal input 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	When it is time to change the batteries	0	0	0	0	0	0
A A A A A A A A A A A A A A A A A A A A A A A A B Constrate system, entry into the inner Constraints System, entry into the inner D O O D O O D O O D O O D O O D O O D O O D O O D O O D O O D O O D O O D O O D O O D O O D O O D O O D O O D <t< td=""><td></td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></t<>		0	0	0	0	0	0
A A A A A A A A A A A A A A A A A A A A A B Constrate system, entry into the inner Esy imming the too hose point moveme because of a programming error. C O O O D O O O D O O O D O O O D O O O D O O O D O O O D O O O D O O O D O O O D O O O D O O O D O O O D O O O D O O O D O O		0	0	0	0	0	0
A A A A A A A A A A A By commanding, from the program, th coordinate system, entry into the inner D O O O By limiting the tool nose point movement because of a programming error. D O O O The machine movement will decelerate to thas been set to ON. D O O O This function reduces the feedrate to thas been set to ON. D O O O When the obcropen signal is input for ready OFF status, and then shuts off the a machine is proving is prohibite the the read when these programs require is proving the off nose strong when the set programs require is the tool nose strong and then shuts off the a machine is set opservation function ensure without shutting off the power, which in the problems, etc. This information is save to problems, etc. This information is save to operamine is an put for when unit, etc.). This data can be composited and the shuts of the operamine is an operation that runs on a regular person the diverse operameter an application that runs on a regular person operameter and problems, etc. This information is save to operamine the interlock signed and the shuts off the operamine is a save operamine is an operamine operame is a sparameters, tool data and common operamine is prover intervelow and signed and common operamine is a save operamine is a parameters, tool data and common operamine is a parameters, tool data and common operamine is prover intervelow and to a spersonal operamine is a parameterer.	This function sets the areas prohibited		-	-	Δ	Δ	Δ
- - - By commanding, from the program, th coordinate system, entry into the inner 0 0 0 By limiting the tool nose point movem because of a programming error. 0 0 0 0 The machine movement will decelerate to thas been set to ON. - - - When the interlock signal is turned OF 0 0 0 0 This function reduces the feedrate to thas been set to ON. 0 0 0 0 Under the CE marking scheme of the while a machine is moving is prohible to the ready OFF status, and then shuts off the ore erased when these programs require the ready of on monitor screen, etc. 0 0 0 0 The safety observation function ensur without shutting off the power, which no is save to or the NC data sampling function samp the drive unit, etc.). This data can be or on the NC data sampling function backs use to on the NC data sampling function backs use to on the serve paramete application that runs on a regular per submit application that runs on a regular per submit application that runs on a regular per submit so for on the structure system data, ladder 0 0 0 0 The software tool runs on a personal is application that runs on a regular per submit accident of the serve paramete application that runs on a regular per sub on the serve paramete applicatin that run					Δ	Δ	\triangle
- - - coordinate system, entry into the inner 0 0 0 By limiting the tool nose point movement because of a programming error. 0 0 0 0 The machine movement will decelerat When the interlock signal is turned OF 0 0 0 0 This function reduces the feedrate to 1 has been set to ON. 0 0 0 0 When a possible collision is detected in a moving is prohibite a machine is moving is prohibite to a moving is prohibite to 0 0 0 0 0 This function is used to prohibite the foor open signal is input from ready OFF status, and then shus off to ready OFF status, and then shus off to a moving is prohibite to 0 0 0 0 0 This function is used to prohibite the tool from br moving screene, etc. 0 0 0 0 This function and the power, which in power interruption at low cutting speed 0 0 0 0 This function is used to prohibite a power. 0 0 0 0 The safety observation function which is save the dool from br power interruption at low cutting speed 0 0 0 0 The NC data back up function backs up t	-	Δ	Δ	Δ	Δ	Δ	\triangle
0 0 0 0 because of a programming error. 0 0 0 0 The machine movement will decelerat 0 0 0 0 This function reduces the feedrate to thas been set to ON. - - - When a possible collision is detected in a solution is used to prohibit the anachine is moving is prohibit to the door open signal is input for ready OFF status, and then shuts off to ready OFF status, and then shuts off the power, which no monitor screen, etc. 0 0 0 0 The safety observation function nensur which no monitor screen, etc. 0 0 0 0 This is a maintenance function which problems, etc. This information is save 0 0 0 0 The NC data sampling function sampling the drive unit, etc.). This data can be or application that runs on a regular personal an application that runs on a regular personal an application that runs on a regular personal or system setup function nables autom system status for the MTSUBISHI CNCs with or as parameters, tool data and common 0 0 0 Application error detection function or apersonal as parameters, tool dat	coordinate system, entry into the inner	-	-	-	-	-	-
0 0 0 When the interlock signal is turned OF 0 0 0 This function reduces the feedrate to 1 - - - When a possible collision is detected in a been set to ON. 0 0 0 0 Under the CE marking scheme of the while a machine is moving is prohibite When the door open signal is input for ready OFF status, and then shuts off 1 0 0 0 0 This function is used to prohibit the ch ready OFF status, and then shuts off 1 0 0 0 0 This function allows the display of only monitor screen, etc. 0 0 0 0 This function prevents the tool from the power, which n monitor screen, etc. 0 0 0 0 This function prevents the tool from the power interruption at low cutting speed 0 0 0 0 The NC data sampling function samp the drive unit, etc.). This data can be concommon the drive unit, etc.). This data can be concommented application that runs on a regular personal act. This software tool runs on a regular personal act. for the MITSUBISHI CNCs with concommon application that runs on a personal application that runs on a personal application that runs on a personal application the MITSUBISHI CNCs with concommon apersonal act. for the MITSU	because of a programming error.	0	0	0	0	0	0
0 0 0 has been set to ON. - - - When a possible collision is detected in a machine is moving is prohible while a machine is moving is prohible is input for ready OFF status, and then shuts off t 0 0 0 0 This function is used to prohibit the off to prohibit	When the interlock signal is turned OF	0	0	0	0	0	0
O O O Under the CE marking scheme of the while a machine is moving is prohibite O O O O When the door open signal is input from the chor open signal is used to prohibit the ch O O O This function is used to prohibit the ch O O O The edit lock function B or C inhibits no monitor screen, etc. A A A The safety observation function ensure without shutting off the power, which r O O O This is a maintenance function which problems, etc. This information is save O O O O This is a maintenance function backs up problems, etc. This information is save O O O O The NC data sampling function backs up function that runs on a regular person of the drive unit, etc.). This data can be or on on the drive unit, etc.). This data can be or on on on the NC data back up function backs up function that runs on a regular person on a personal equilation that runs on a regular person on on on on on on the NC data back up function neason a regular person on on on on this software tool runs on a personal equilation that runs on a personal etc.) for the MITSUBISHI CNCs with on the software tool runs on a personal etc.) for the MITSUBISHI CNCs with on the software tool runs on a personal etc.) for the MITSUBISHI CNCs with on the software tool runs on a personal etc.) for the MITSUBISHI CNCs with on the software tool runs on a personal etc.) for the MITSUBISHI CNCs with on the soft	has been set to ON.	0	0	0	0	0	0
Image: constraint of the second consecond consecond constration the second constraint of t	When a possible collision is detected in a	-	_	-	-	-	-
O O O When the door open signal is input from ready OFF status, and then shuts off the open signal is input from the open sinput from the open sinput from the open signal		0	0	0	0	0	0
O O O The edit lock function B or C inhibits merased when these programs require proprams require propramete an application that runs on a regular person O O O O This is function, the servo paramete an application that runs on a regular person O O O O With this function, system data, ladder opplication enables automs O O O O Application error detection function of a personal of etc.) for the MIT SUBISHI CNCs with c O O O O O This software tool runs on a personal of etc.) for the MIT SUBISHI CNCs with c	When the door open signal is input fro	0	0	0	0	0	0
0 0 0 0 erased when these programs require if monitor screen, etc. 0 0 0 0 This function allows the display of only monitor screen, etc. 0 0 0 0 The safety observation function ensure without shutting off the power, which repower interruption at low cutting speec 0 0 0 0 0 0 0 0 0 This is a maintenance function is save power interruption at low cutting speec 0 0 0 0 The NC data sampling function samp the drive unit, etc.). This data can be of the drive unit, etc.). This data can be of the drive unit, etc.). This data can be of the drive unit, etc.). This data can be of the drive unit, etc.). This data can be of the drive unit, etc.). This data can be of the drive unit, etc.). This data can be of the drive unit, etc.). This data can be of the drive unit, etc.). This data can be of the drive unit, etc.). This data can be of the drive unit, etc.). This data can be of the drive unit, etc.). This data can be of the drive unit, spindle monitor and application that runs on a regular person of the drive unit and the drive unit, etc.). This data can be of the drive unit, spindle monitor and the drive unit, spindle monitor and the drive units, spindle monitor and as parameters, tool data and common as parameters, tool data		0	0	0	0	0	0
0 0 0 monitor screen, etc. A A A A A A A The safety observation function ensure without shutting off the power, which re yower interruption at low cutting speed O O O This function prevents the tool from br power interruption at low cutting speed O O O This is a maintenance function which problems, etc. This information is save the form the role of the NC data sampling function samp the drive unit, etc.). This data can be of O O O O The NC data back up function backs up function that runs on a regular persent the application that runs on a regular persent of application that runs on a regular persent of O O O O With this function, system data, ladder O O O With this function enables automa as parameter O O O With this function on a personal of as parameters, tool data and common as parameters, tool data and common O O O O O O O O O O O O O O This software tool runs on a personal of as parameters, tool data and common O O O O O O	erased when these programs require p		0	0	0	0	0
Δ Δ Δ without shutting off the power, which no power interruption at low cutting speed 0 0 0 0 This function prevents the tool from brower interruption at low cutting speed 0 0 0 0 This is a maintenance function which repower interruption at low cutting speed 0 0 0 0 This is a maintenance function which repower interruption at low cutting speed 0 0 0 0 The NC data sampling function samp the drive unit, etc.). This data can be constructed to the drive unit, etc.). This data can be constructed to the drive unit, etc.). This data can be constructed to the drive unit, etc.). The NC data back up function backs up function that runs on a regular persection system data, ladder 0 0 0 With this function, system data, ladder 0 0 0 System setup function enables automic - 0 0 O Application error detection function on the error such as screen lock is detected, as parameters, tool data and common - 0 0 0 0 CNC-dedicated drive units, spindle model as parameters, tool data and common - 0 0 0 0	monitor screen, etc.	0	0	0	0	0	0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 With this function, the servo paramete an application that runs on a regular pers 0 0 0 0 With this function, system data, ladder 0 0 0 0 System setup function enables autom 0 0 0 0 System setup function on a personal at etc.) for the MITSUBISHI CNCs with c 0 0 0 0 0 This software tool runs on a personal as parameters, tool data and common 0 0 0 0 0 0	without shutting off the power, which re			Δ	Δ	Δ	Δ
0 0 0 0 0 0 0 0 0 0 1he NC data sampling function samp the drive unit, etc.). This data can be or on the drive unit, etc.). This data can be or on the drive unit, etc.). This data can be or on the drive unit, etc.). This data can be or on the drive unit, etc.). This data can be or on the drive unit, etc.). This data can be or on the drive unit, etc.). This data can be or on a period and the drive unit, etc.). This data can be or on a period and the drive unit, etc.). This data can be or on a period and the drive unit, etc.). This data can be or on a period and the drive unit on th		0	0	0	0	0	0
0 0 0 0 the drive unit, etc.). This data can be on the drive unit, etc.). This data can be on the drive unit, etc.). This data can be on the drive unit, etc.). This data can be on the drive unit, etc.). This data can be on the drive unit, etc.). This data can be on the drive unit, etc.). This data can be on the drive unit, etc.). This data can be on the drive unit, etc.). This data can be on the drive unit, etc.). This data can be on the drive unit, etc.). This data can be on the drive unit, etc.). This data can be on the drive unit, etc.). This data can be on the drive unit, etc.). This data can be on the drive unit, etc.). This data can be on the drive unit, spindle more data and common the data and		0	0	0	0	0	0
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 With this function, the servo paramete an application that runs on a regular personal application that runs on a regular personal of error such as screen lock is detected. O O O O Application error detection function ob error such as screen lock is detected. - A A This software tool runs on a personal of etc.) for the MITSUBISHI CNCs with common O O O O This software tool runs on a personal of as parameters, tool data and common O O O O This software tool runs on a personal of as parameters, tool data and common O O O O CNC-dedicated drive units, spindle model O O O O O O O O O O O O O O O O O O O O		0	0	0	0	0	0
0 0 0 an application that runs on a regular prediction that runs on a prediction observer such as screen lock is detected, or such as screen lock is detected, or etc.) for the MITSUBISHI CNCs with concernent of the difference of the diffe	The NC data back up function backs u	0	0	0	0	0	0
O O O With this function, the servo parameter application that runs on a regular pers O O O With this function, system data, ladder O O O With this function, system data, ladder O O O Application error detection function on berror such as screen lock is detected, - A A A - A A A - O O Prior such as screen lock is detected, - A A A - A A A - O O O - O O O - A A A - O O O - O O O - O O O - O O O - O O O - O O O - O O O - O O O -		0	0	0	0	0	0
O O O With this function, system data, ladder O O O System setup function enables automa - O O Application error detection function ob error such as screen lock is detected, - A A This software tool runs on a personal of etc.) for the MITSUBISHI CNCs with c O O O This software tool runs on a personal of as parameters, tool data and common O O O O O O O This software tool runs on a personal of as parameters, tool data and common 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 <	With this function, the servo parameter application that runs on a regular pers	0	0	0	0	0	0
Application error detection function ob error such as screen lock is detected, A A A A This software tool runs on a personal is etc.) for the MITSUBISHI CNCs with c B B <tr< td=""><td>With this function, system data, ladder</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr<>	With this function, system data, ladder	0	0	0	0	0	0
- 0 0 0 error such as screen lock is detected, - A A This software tool runs on a personal etc.) for the MITSUBISHI CNCs with c - 0 0 0 This software tool runs on a personal etc.) for the MITSUBISHI CNCs with c - - - - - - 0 0 0 This software tool runs on a personal as parameters, tool data and common - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -		0	0	0	0	0	0
- Δ Δ etc.) for the MITSUBISHI CNCs with a sparameters, tool data and common as personal as parameters, tool data and common - - This software tool runs on a personal as parameters, tool data and common - - -	error such as screen lock is detected,	0	0	0	-	-	-
Image: Second		Δ	Δ	Δ	-	-	-
Image:		0	0	0	0	0	0
Image:		_	_				
Image:							
Image:		П	п	Π			
Image: CNC-dedicated drive units, spindle model							
CNC-dedicated drive units, spindle mo							
Image: Constraint of the second se							
Image: Constraint of the second se							
CNC-dedicated drive units, spindle mo							
	CNC-dedicated drive units, spindle mo						
			_			_	

General explanation

ystem. When one of these warnings occurs, a warning number is output to the PLC and a on the screen. Operation can be continued without taking further action. system. When one of these alarms occurs, an alarm number is output to the PLC, and a the screen. Operation cannot be continued without taking remedial action. tion is shown on the display.

message is displayed in the operation status area of the display, the cause of the

e control unit, an overheat signal is output at the same time as the alarm is displayed. rries, an alarm and warning are displayed.

ed to the machine, and when a limit switch has kicked a dog, the movement of the aput from the limit switch.

ited for the tool to enter. There are multiple types of prohibitions according to the prohibited

, the boundary for prohibiting machine entry as a coordinate position in the machine iner side of that boundary can be prohibited. ement range, this function prevents the tool from colliding with the chuck or tail stock

erate and stop as soon as the interlock signal, serving as the external input, is turned ON. OFF, the machine starts moving again.

to the deceleration speed set by the parameter when the external deceleration input signal

in a machine model registered beforehand, the motor decelerates to a stop and avoids collision.

he European safety standards (machine directive), the opening of any protection doors bited.

t from the PLC, this function first decelerates, stops all the control axes, establishes the off the drive power inside the servo drive units so that the motors are no longer driven. a changing of machine parameters.

ts machining program B or C (group by machining program numbers) from being edited or ire protection.

only a target program (label address 9000) to be disabled for the program display in the

sures safe access to the machine's working parts (e.g. for adjustment or preparation) th reduces the time required to restart the machine. In breakage, through pulling up the cutting tool during emergency stop or instantaneous

eed.

hich is useful for tracing down the history and NC operation information and analyzing aved in the history data file, and can be displayed on the screen and output to a file. mples the NC internal data (speed output from NC to drive unit, and feedback data from se output as text data.

is up the NC parameters, etc., on an HD or IC card. The data can also be restored.

eters can be automatically adjusted by connecting the CNC and MS Configurator, which is ar personal computer. (available for free download from the MITSUBISHI CNC website) eters can be automatically adjusted by connecting the CNC and NC Analyzer, which is an ersonal computer.

der program and custom software can be automatically backed up in case of system failure. omatic settings for the NC's initial startup just by inputting the minimum required items.

observes applications such as MITSUBISHI standard screen or custom screen. When an ad, this function saves information and data in the log to investigate the causes easily. al computer to perform maintenance (parameter setting, NC diagnosis, ladder diagnosis, h customer-supplied display units.

al computer to edit the NC data files required for NC control and machine operations such non variables.

motors, and servo motors are used.

Class	Class F70			E70 M70V Series M700VS Series						E70 M70V Ser		
Class	E70 Series	M70V TypeB	Series TypeA	M720VS				00VW Se	M750VW	E70 Series	M70V TypeB	Serie Typ
8 MDS-D2-SP2 (200V)	-									_		
9 MDS-DJ-SP (200V)												
10 MDS-DM2-SPV2/SPV3/SPHV3 (200V)												
3 Auxiliary axis												
1 Indexing/Positioning servo:MR-J2-CT	-	-	-	-	-	-				-	-	-
1 Servo motor: HC-SF/HC-RF (16kp/rev)	-	-	-	-	-	-				-	-	-
2 Servo motor: HA-FF/HC-MF (8kp/rev)	-	-	-	-	-	-				-	-	-
4 Power supply												
3 Power supply: MDS-D2-CV (200V)	-									-		[
4 Power supply: MDS-DH2-CV (400V)	-									-] [
5 AC reactor for power supply												[
6 Ground plate												[
PLC												
		1	1									1
1 Built-in PLC processing mode	0	0	0	0	0	0	0	0	0	0	0	(
2 PLC functions		•										
				0	0	0	0	0	O			
1 Built-in PLC basic function	0	0	0	* Index qualification	* Index qualification	* Index qualification	* Index qualification	* Index qualification	* Index qualification	0	0	0
				is available.	is available.	is available.	is available.	is available.	is available.			
2 PLC exclusive instruction	-	0	0	0	0	0	0	0	0	-	0	0
3 PLC support functions		1	1		L	I		l				
1 Alarm message display	0	0	0	0	0	0	0	0	0	0	0	
2 Operator message display	0	0	0	0	0	0	0	0	0	0	0	
	0	0		0	0	0	0	0	0	0	0	
3 Memory switch (PLC switch)												
1 PLC switch 32 points	0	0	0	0	0	0	0	0	0	0	0	
2 PLC switch 64 points	-	-	-	Δ	Δ	Δ	Δ	Δ	Δ	-	-	-
4 Load meter display	0	0	0	0	0	0	0	0	0	0	0	(
5 User PLC version display	0	0	0	0	0	0	0	0	0	0	0	
6 Multi-ladder program register and execution	0	0	0	0	0	0	0	0	0	0	0	-
7 Ladder program writing during RUN	0	0	0	0	0	0	0	0	0	0	0	
8 PLC protection	0	0	0	0	0	0	0	0	0	0	0	
4 Built-in PLC capacity												
1 Standard PLC capacity	0 8000	0 20000	0 32000	0 64000	0 64000	0 64000	0 64000	0 64000	0 64000	0 8000	0 20000	32
	8000	20000	32000	<u>04000</u> ∆	∆	∆	∆	∆	∆ 04000	8000	20000	32
2 Large PLC capacity	-	-	-	128000	128000	128000	128000	128000	128000	-	-	
	-	-										
5 Machine contact input/output I/F	0	0	0	0	0	0	0	0	0	0	0	(
6 Ladder monitor	0	0	0	0	0	0	0	0	0	0	0	
7 PLC development												
							_	_		~	_	
1 On-board development	0	0	0	0	0	0	0	0	0	0	0	0
2 MELSEC development tool (GX Developer) (Need separate PC S/W)	0	0	0	0	0	0	0	0	0	0	0	(
8 PLC parameter					-						0	
1 PLC constant (150 points)	0	0	0	0	0	0	0	0	0	0	0	(
2 PLC constant extension (Up to 755 points)	-	-	-	0	0	0	0	0	0	-	-	
10 Pallet program registration	-	-	-	Δ		Δ	Δ	Δ	Δ	-	-	
11 Additional PLC engine	-	-	0	-	-	-	-	-	-	-	-	
Machine construction												
1 Servo OFF	0	0	0	0	0	0	0	0	0	0	0	
2 Axis detachment	0	0	0	Δ	Δ	Δ	Δ	Δ	Δ	0	0	
3 Synchronous control	_	0	0	Δ	Δ	Δ	Δ	Δ		_	0	
	_									_		`
4 Inclined axis control		1								~		
4 Inclined axis control	-	-	-	-	-	-	-	-	-	0	0	(
5 Position switch	0 24	0 24	0 24	0 24	0 24	0 24	0 24	0 24	0 24	0 24	0 24	0
7 Index table indexing	-	0	0	0	0	0	0	0	0	-	0	
8 Auxiliary axis control (J2-CT)	-	-	-	-	-	-	Δ	Δ	Δ	-	-	<u> </u>
		1	-	-		Δ	-	Δ	Δ	-	-	.
9 Tool length compensation along the tool axis	_	-										
9 Tool length compensation along the tool axis	-	-				1						
9 Tool length compensation along the tool axis	-	-										1
9 Tool length compensation along the tool axis 10 Tool handle feed & interruption	_	-	_	_	Δ	Δ	-	Δ	Δ	-	-	· ·
			_	_	Δ	Δ	-	Δ	Δ	-	-	
10 Tool handle feed & interruption		-										
			-	-	Δ	Δ	-	_		-	-	
10 Tool handle feed & interruption 11 Tool center coordinate display	-	-	_	_	_	Δ	-	-	Δ	_	-	
10 Tool handle feed & interruption		-										
10 Tool handle feed & interruption 11 Tool center coordinate display	-	-	_	_	_	Δ	-	-	Δ	_	-	-
10 Tool handle feed & interruption 11 Tool center coordinate display 12 Tool center point control 13 Inclined surface machining command	-	-		- - -	- - -		- - -	- - -		-	-	-
10 Tool handle feed & interruption 11 Tool center coordinate display 12 Tool center point control	-		-	-	-	Δ	-	-	Δ	-	-	

	ies	00VW Ser	system M7	ies	700VS Ser	M7
	M750VW	M730VW	M720VW	M750VS	M730VS	M720VS
			_			
				_	-	-
CNC-dedicated drive units, spindle n				_	-	-
				_	_	_
An exclusive sequence program that	0	0	0	0		0
operations applicable to each maching	0	0	0	0	0	0
Basic commands (bit processing con	* Index	* Index	○ * Index	Index	○ * Index	* Index
Function commands : 188 command small identification, binary/BCD conv	qualification is available.	qualification is available.	qualification is available.	qualification is available.	qualification is available.	ualification available.
PLC-dedicated instruction is provide						
to carry out only by the basic instruct	0	0	0	0	0	0
The contents of the alarms which ha	~	~	~	~	_	0
display unit.	0	0	0	0	0	0
When some conditions occur where	0	0	0	0	0	0
separately from the alarm message.		Ŭ	Ŭ		Ű	0
	-	-			-	-
PLC switches can be set on the setti	0	0	0	0	0	0
	Δ	Δ	Δ	Δ	Δ	Δ
A load meter can be displayed on the	0	0	0	0	0	0
The user PLC version can be display	0	0	0	0	0	0
This function stores and executes m	0	0	0	0	0	0
Ladder program can be edited while	0	0	0	0	0	0
A keyword can be set to protect the	0	0	0	0	0	0
	0	0	0	0	0	0
In the program memory, it is possi	64000	64000	64000	64000	64000	64000
sequence programs, device commer	Δ	Δ	Δ	Δ	Δ	Δ
	128000	128000	128000	128000	128000	128000
The operation panel I/O unit or the r	0	0	0	0	0	0
or output and the number of contacts	-	-	-	-	-	-
This function enables the operating s	0	0	0	0	0	0
On board refers consticulty to the D						
On-board refers generically to the PI The Mitsubishi CNC on-board realiz	0	0	0	0	0	0
Developer).						
This function enables the data of the P	0	0	0	0	0	0
The PLC constants set with the data	0	0	0	0	0	0
screen as the parameters to use in t	0	0	0	0	0	0
Pallet program function assists the n	_	_	-	-	_	_
auto pallet changer.						
This function improves the performation	-	-	-	-	-	-
The fulledoff improved the periornal						
· ·						
When the servo OFF signal (per axis	0	0	0	0	0	0
When the servo OFF signal (per axis mechanically clamped, this function						
When the servo OFF signal (per axis mechanically clamped, this function This function enables the control axis	О Д	0 	0 	0	0 	0
When the servo OFF signal (per axis mechanically clamped, this function						
When the servo OFF signal (per axis mechanically clamped, this function This function enables the control axis The synchronous control is a control command by designating the travel of	Δ	Δ	Δ	Δ	Δ	Δ
When the servo OFF signal (per axis mechanically clamped, this function This function enables the control axi The synchronous control is a control command by designating the travel of used in such equipment as large ma Even when the control axes in a mark	Δ	Δ	Δ	Δ	Δ	Δ
When the servo OFF signal (per axis mechanically clamped, this function This function enables the control axi The synchronous control is a control command by designating the travel of used in such equipment as large ma Even when the control axes in a man programmed and controlled in the sa	Δ	Δ	Δ	Δ	Δ	Δ
When the servo OFF signal (per axis mechanically clamped, this function This function enables the control axis The synchronous control is a control command by designating the travel of used in such equipment as large ma Even when the control axes in a ma programmed and controlled in the sa Instead of a dog switch on a machine's	Δ	Δ	Δ	Δ	Δ	Δ
When the servo OFF signal (per axis mechanically clamped, this function This function enables the control axis The synchronous control is a control command by designating the travel of used in such equipment as large ma Even when the control axes in a ma programmed and controlled in the sa Instead of a dog switch on a machine's show the axis name and the hypothetic	△ △ △ ○ 24	Δ Δ Δ Ο 24	△ △ △ ○ 24	Δ Δ Δ Ο 24	Δ Δ Δ Ο 24	△ △ △ ○ 24
When the servo OFF signal (per axis mechanically clamped, this function This function enables the control axis The synchronous control is a control command by designating the travel of used in such equipment as large ma Even when the control axes in a mar programmed and controlled in the sa Instead of a dog switch on a machine's show the axis name and the hypothetic The indexing of the index table can be	△ △ ○ 24 ○	△ △ △ ○ 24 ○	△ △ △ ○ 24 ○	Δ Δ Δ		
When the servo OFF signal (per axis mechanically clamped, this function This function enables the control axis The synchronous control is a control command by designating the travel or used in such equipment as large ma Even when the control axes in a mar programmed and controlled in the sa- Instead of a dog switch on a machine's show the axis name and the hypothetic The indexing of the index table can to The MR-J2-CT drive unit for position	△ △ △ ○ 24	Δ Δ Δ Ο 24	△ △ △ ○ 24	Δ Δ Δ Ο 24	Δ Δ Δ Ο 24	△ △ △ ○ 24
When the servo OFF signal (per axis mechanically clamped, this function This function enables the control axis The synchronous control is a control command by designating the travel or used in such equipment as large ma Even when the control axes in a mad programmed and controlled in the sa Instead of a dog switch on a machine's show the axis name and the hypothetic The indexing of the index table can the	△ △ ○ 24 ○	△ △ △ ○ 24 ○	△ △ △ ○ 24 ○	Δ Δ Δ Ο 24	Δ Δ Δ Ο 24	△ △ △ ○ 24
When the servo OFF signal (per axis mechanically clamped, this function This function enables the control axis The synchronous control is a control command by designating the travel or used in such equipment as large ma Even when the control axes in a mad programmed and controlled in the sa Instead of a dog switch on a machine's show the axis name and the hypothetic The indexing of the index table can to The MR-J2-CT drive unit for position (1) Changing the tool length compen Even if the tool axis direction is n the tool axis direction.	△ △ ○ 24 ○	△ △ △ ○ 24 ○	△ △ △ ○ 24 ○	Δ Δ Δ Ο 24	Δ Δ Δ Ο 24	△ △ △ ○ 24
When the servo OFF signal (per axis mechanically clamped, this function This function enables the control axis The synchronous control is a control command by designating the travel or used in such equipment as large ma Even when the control axes in a mad programmed and controlled in the se Instead of a dog switch on a machine's show the axis name and the hypothetic The indexing of the index table can the The MR-J2-CT drive unit for position (1) Changing the tool length compen Even if the tool axis direction. (2) Machine configuration	△ △ ○ 24 ○	△ △ △ ○ 24 ○	△ △ △ ○ 24 ○	Δ Δ Δ Ο 24	Δ Δ Δ Ο 24	△ △ △ ○ 24
When the servo OFF signal (per axis mechanically clamped, this function This function enables the control axis The synchronous control is a control command by designating the travel of used in such equipment as large ma Even when the control axes in a mad programmed and controlled in the se Instead of a dog switch on a machine's show the axis name and the hypothetic The indexing of the index table can the The MR-J2-CT drive unit for position (1) Changing the tool length compen Even if the tool axis direction. (2) Machine configuration The tool length compensation alo	△ △ ○ 24 ○	△ △ △ ○ 24 ○	△ △ △ ○ 24 ○	Δ Δ Δ Ο 24	Δ Δ Δ Ο 24	△ △ △ ○ 24
When the servo OFF signal (per axis mechanically clamped, this function This function enables the control axis The synchronous control is a control command by designating the travel or used in such equipment as large ma Even when the control axes in a mad programmed and controlled in the se Instead of a dog switch on a machine's show the axis name and the hypothetic The indexing of the index table can the The MR-J2-CT drive unit for position (1) Changing the tool length compen Even if the tool axis direction. (2) Machine configuration	△ △ ○ 24 ○	△ △ △ ○ 24 ○	△ △ △ ○ 24 ○	Δ Δ Δ Ο 24	Δ Δ Δ Ο 24	△ △ △ ○ 24
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When the servo OFF signal (per axis mechanically clamped, this function This function enables the control axis The synchronous control is a control command by designating the travel of used in such equipment as large ma Even when the control axes in a mac programmed and controlled in the sea Instead of a dog switch on a machine's show the axis name and the hypothetic The indexing of the index table can the The MR-J2-CT drive unit for position (1) Changing the tool length compensation aloo This function makes it possible to me direction X and tool diameter direction. The tool center coordinates, handle in tool center point control function, tool	Δ Δ Δ Ο 24 Ο Δ	△ △ △ ○ 24 ○	Δ Δ Δ Ο 24 Ο Δ	Δ Δ Δ Ο 24	Δ Δ Δ Ο 24	△ △ △ ○ 24
When the servo OFF signal (per axis mechanically clamped, this function This function enables the control axis. The synchronous control is a control command by designating the travel of used in such equipment as large ma Even when the control axes in a mar programmed and controlled in the sal Instead of a dog switch on a machine's show the axis name and the hypothetic The indexing of the index table can the The MR-J2-CT drive unit for position (1) Changing the tool length compen Even if the tool axis direction is not the tool length compensation aloo This function makes it possible to ma direction X and tool diameter directic The tool center coordinates, handle in tool conter point control function, tool (tool axis direction handle feed, tool for the sale of the ot of the sale of the tool canter for the tool control function, tool (tool axis direction handle feed, tool for the sale of the ot of the sale of the tool control function, tool (tool axis direction for the control function, tool (tool axis direction for the sale of the tool control function, tool (tool axis direction function) for the sale of th	Δ Δ Δ Ο 24 Ο Δ	△ △ △ ○ 24 ○	Δ Δ Δ Ο 24 Ο Δ	Δ Δ Δ Ο 24	Δ Δ Δ Ο 24	△ △ △ ○ 24
When the servo OFF signal (per axis mechanically clamped, this function This function enables the control axis The synchronous control is a control command by designating the travel of used in such equipment as large ma Even when the control axes in a mar programmed and controlled in the sa Instead of a dog switch on a machine's show the axis name and the hypothetic The indexing of the index table can the The MR-J2-CT drive unit for position (1) Changing the tool length compern Even if the tool axis direction is n the tool axis direction. (2) Machine configuration The tool length compensation alo This function makes it possible to me direction X and tool diameter directio The tool center coordinates, handle in tool center point control function, tool (cloal axis direction controls so that the pos	Δ Δ Δ Ο 24 Ο Δ	△ △ △ ○ 24 ○	Δ Δ Δ Ο 24 Ο Δ	Δ Δ Δ Ο 24	Δ Δ Δ Ο 24	△ △ △ ○ 24
When the servo OFF signal (per axis mechanically clamped, this function This function enables the control axis The synchronous control is a control command by designating the travel of used in such equipment as large ma Even when the control axes in a mar programmed and controlled in the sas Instead of a dog switch on a machine's show the axis name and the hypothetic The indexing of the index table can to The MR-J2-CT drive unit for position (1) Changing the tool length compen Even if the tool axis direction is n the tool axis direction. (2) Machine configuration This tool length compensation alo This function makes it possible to ma direction X and tool diameter direction The tool center coordinates, handle in tool center point control function, tool (tool axis direction handle feed, tool 1 This function controls so that the pos system (table coordinate system) wh	Δ Δ Ο 24 Ο Δ - - -	Δ Δ Ο 24 Ο Δ - - -	Δ Δ Ο 24 Ο Δ - - -	Δ Δ Ο 24 Ο - - - - - -	Δ Δ Ο 24 Ο - - - - -	△ △ ○ 24 ○ - - - - - - - -
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When the servo OFF signal (per axis mechanically clamped, this function This function enables the control axis The synchronous control is a control command by designating the travel of used in such equipment as large ma Even when the control axes in a mar programmed and controlled in the sas Instead of a dog switch on a machine's show the axis name and the hypothetic The indexing of the index table can to The MR-J2-CT drive unit for position (1) Changing the tool length compen Even if the tool axis direction is n the tool axis direction. (2) Machine configuration This tool length compensation alo This function makes it possible to ma direction X and tool diameter direction The tool center coordinates, handle in tool center point control function, tool (tool axis direction handle feed, tool 1 This function controls so that the pos system (table coordinate system) wh	Δ Δ Ο 24 Ο Δ - - -	Δ Δ Ο 24 Ο Δ - - -	Δ Δ Ο 24 Ο Δ - - -	Δ Δ Ο 24 Ο - - - - - -	Δ Δ Ο 24 Ο - - - - -	△ △ ○ 24 ○ - - - - - - - -
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S/W ver.J0

General explanation

motors, and servo motors are used.

at controls various signals between the controller and the machine to realize the ine can be created and built in.

nmands) : 43 commands including LD, LDI, OR, ORI, AND, ANI, OUT, PLS, etc. ds including data transfer, 4 basic arithmetic operations, logic arithmetic operations, large/ version, branching, conditional branching, decoding, encoding, etc. led for some limited applications, enabling a complex machining process, which is difficult ctions and function instructions.

ave occurred during sequence (user PLC) processing can be displayed on the setting and

you wish to inform a messages to the operator, an operator message can be displayed

tting and display unit screen, and the ON/OFF control executed.

he setting and display unit.

ayed in the software list on the Software Configuration screen.

ore than one sequence program. PLC is running.

e sequence programs stored in the CNC.

sible to store the system area of parameters, intelligent function module parameters, ents, and device initial values.

remote I/O unit is selected based on the types of signals (sink/source) available for input cts required.

status of the sequence circuit to be checked on the controller's setting and display unit.

PLC related operations carried out with the CNC unit. izes functions and operations similar to the MELSEC Series ladder development tool (GX

PLC contained inside the NC system to be developed and debugged using the GX Developer.

a type, and the bit selection parameters set with the bit types can be specified on the the built-in PLC.

machining setups as it allows machining programs to be registered for each pallet of the

nce of processing PLC programs.

is) is input, the corresponding axis is set in the servo OFF state. When the moving axis is is designed to prevent the servo motor from being overloaded by the clamping force. is to be released from control.

ol method whereby both primary and secondary axes are controlled with the same travel I command for the primary axis also to the secondary axis. This function is assumed to be tachine tools, which drive one axis with two servo motors.

achine are mounted at an angle other than 90 degrees, this function enables it to be ame way as with an orthogonal axis.

axis, a hypothetical dog switch is established using a parameter to set a coordinate position to ical dog position. When the machine reaches the position, a signal is output to the PLC interface. be performed by setting the index axes.

ning and indexing can be connected for auxiliary axis control.

ensation along the tool axis and compensation amount not the Z axis direction because the rotary axis is rotated, the tool can be compensated in

long the tool axis is carried out in respect to the direction of the tool nose axis (rotary axis). ove the axis with the manual pulse generator in the tool axis direction, tool diameter ion Y in the hypothetical coordinate system over the tool axis.

interrupt amount (tool axis movement) and tool center point speed are displayed during the ol length compensation along the tool axis function, and tool handle feed & interrupt function handle interrupt, tool diameter direction handle feed, nose center rotation handle feed). osition command in a machining program is at the tool center point in the coordinate hich rotates together with the workpiece.

with this function can be machined using normal program commands.

tool radius in a 5-axis machine with two rotary axes, in accordance with the change of the of the tool due to the movement of the rotary axis.

machine. This compensates the error when a workpiece is placed off the workpiece ning according to the program.

				-	ing center					Lathe system			
Class	E70	M70V	Series	M7	700VS Ser	ries	M7	00VW Se	ries	E70	M70V	Series	
	Series	TypeB	TypeA	M720VS	M730VS	M750VS	M720VW	M730VW	M750VW	Series	TypeB	Туре	
16 Manual feed for 5-axis machining	-	-	-	Δ	Δ	Δ	Δ	Δ	Δ	-	-	-	
17 R-Navi	-	-	-	Δ	Δ	Δ	Δ	Δ	Δ	-	-	-	
PLC operation													
1 Arbitrary feed in manual mode	0	0	0	0	0	0	0	0	0	0	0	0	
2 Circular feed in manual mode	-	-	-	Δ	Δ	Δ	Δ	Δ	Δ	-	-	-	
3 PLC axis control	0	0	0	Δ	Δ	Δ	Δ	Δ	Δ	0	0	C	
5 PLC axis indexing	0	0	0	Δ	Δ	Δ	Δ	Δ	Δ	0	0	С	
PLC interface		1	1		1			1			1	1	
1 CNC control signal	0	0	0	0	0	0	0	0	0	0	0	0	
2 CNC status signal	0	0	0	0	0	0	0	0	0	0	0	C	
3 PLC window	0	0	0	Δ	Δ	Δ	Δ	Δ	Δ	0	0	С	
4 External search	0	0	0	Δ	Δ	Δ	Δ	Δ	Δ	0	0	С	
Machine contact I/O			1								<u> </u>	-	
1 Additional DI/DO (DI:32/DO:32)													
2 Additional DI/DO (DI:64/DO:64)													
3 Remote I/O 32/32													
4 Remote I/O 64/48													
5 MITSUBISHI CNC machine operation panel	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ		
External PLC link		1	1					1			1	1	
3 CC-Link (Master/Slave)													
3 CC-LINK (Waster/Slave)	-	(HN746)	(HN746)	(HN746)	(HN746)	(HN746)	(HN576/HN577)	(HN576/HN577)	(HN576/HN577)	-	(HN746)	(HN)	
4 PROFIBUS-DP (Master)	-	-	-	-	-	-	□ (HN571)	□ (HN571)	□ (HN571)	-	-	-	
5 DeviceNet (Master)	-	-	-	(HN747)	□ (HN747)	□ (HN747)	-	-	-	-	-	-	
6 FL-net	-	-	-	(HN747)	□ (HN747)	(HN747)	-	-	-	-	-	-	
Installing S/W for machine tools													
1 Customization (NC Designer) (Need separate PC S/W)	0	0	0	Δ	Δ	Δ	Δ	Δ	Δ	0	0	C	
1 Customization data storage capacity [MByte]	1	3 ∆6 (HN754)	3 ∆6 (HN754)	6	6	6	Depending on hard disk space	Depending on hard disk space	on hard	1	3 ∆6 (HN754)	3 	
2 Customization workpiece data size [MByte]	1	3	3	6	6	6	6	6	6	1	3	3	
2 User-defined key	-	-	-	0	0	0	0	0	0	-	-	-	
3 EZSocket I/F (Need separate PC S/W)	0	0	0	0	0	0	0	0	0	0	0	0	
4 APLC release (Need separate PC S/W)	0	0	0	Δ	Δ	Δ	Δ	Δ	Δ	0	0	0	
Others											<u></u>	<u></u>	
1 System lock	0	0	0	Δ	Δ	Δ	Δ	Δ	Δ	0	0	0	
2 CNC Remote Operation Tool											-	-	
1 NC Monitor (Need separate PC S/W)	-	0	0	0	0	0	0	0	0	-	0	0	
		0	0	0	0	0	0	0	0	_	0	0	
2 NC Explorer (Need to prepare separate S/W)	-					U U		Ĭ		Į.	1 Ŭ		

			system	Lathe		
	ies	00VW Ser	M7	ies	00VS Ser	M7
	M750VW	M730VW	M720VW	M750VS	M730VS	M720VS
By selecting the hypothetical coordin INCREMENTAL) in the coordinate s	-	-	-	-	-	-
This provides easy setup of index m	-	-	-	-	-	-
This function enables the feed direction	0	0	0	0	0	0
By specifying a hypothetical coordin interpolation is executed with jog/ha	Δ	Δ	Δ	Δ	Δ	Δ
This function allows independent ax	Δ	Δ	Δ	Δ	Δ	Δ
By setting positioning points (station point No. (station No.).	Δ	Δ	Δ	Δ	Δ	Δ
Control commands to the CNC syste can also be used.	0	0	0	0	0	0
The status signals are output from the	0	0	0	0	0	0
This function uses the "read window operation status, axis information, p	Δ	Δ	Δ	Δ	Δ	Δ
This function enables searching of the sequence No. can be designated. In	Δ	Δ	Δ	Δ	Δ	Δ
The number of DI/DO points that						
maximum.						
The remote I/O unit equipped with						
DO. Multiple remote I/O units can be						
It is a machine operation panel supp the machine.	Δ	Δ	Δ	Δ	Δ	Δ
NC unit can be directly connected to	(HN576/HN577)	(HN576/HN577)	(HN576/HN577)	□ (HN746)	□ (HN746)	□ (HN746)
The slave stations that support the F	□ (HN571)	□ (HN571)	□ (HN571)	-	-	-
MELSEC-Q series I/O intelligent fun	-	-	-	□ (HN747)	□ (HN747)	□ (HN747)
	-	-	-			
				(HN747)	(HN747)	(HN747)
	•	•			•	
	 Deresting			Δ	Δ	Δ
It is an optional function that allows on the screen.	Depending on hard disk space	Depending on hard disk space	Depending on hard disk space	6	6	6
	6	6	6	6	6	6
This function allows an arbitrary cha	0	0	0	0	0	0
This middleware makes it easy to de	0	0	0	0	0	0
APLC (Advanced Programmable Lo be called from the NC. Control operations that are difficult to	Δ	Δ	Δ	Δ	Δ	Δ
This function locks the operations of	Δ	Δ	Δ	Δ	Δ	Δ
NC Monitor is a PC software tool that	0	0	0	0	0	0
NC Explorer is a software tool to op by Ethernet connection from the Exp	0	0	0	0	0	0
Automatic operation lock function pr	0	0	0	0	0	0

S/W ver.J0

General	ovr	Jana	tion

linate system to be machined, the axis can be moved with manual feed (JOG, HANDLE or system with this function.

machining (multiple/inclined surface machining) using a rotary axis.

tions and feed rates of the control axes to be controlled using commands from the user PLC. nate on the machine coordinate from the user PLC, oblique linear interpolation or circular andle feed, manual rapid traverse or incremental feed of either X axis or Y axis. xes to be controlled with PLC-based commands, separately from the NC control axes. ns) in advance, positioning control can be performed simply by designating a positioning

tem are assigned from the PLC. Input signals with skip inputs that respond at high speed

the CNC system. They can be utilized by referencing them from the PLC. w" or "write window" assigned to the R register's user area to read and write the CNC parameters and tool data, etc.

the program to automatically start from the PLC. The program No., block No. and In addition, the details of the search in progress can be read.

can be equipped on the machine operation panel is 64/64 as standard, and 96/96 at

n the maximum number of DI/DO points is the one with 64 points for DI and 48 points for be used as long as the total number of occupied stations is eight or less. pplied by Mitsubishi. Its keyboard layout can be changed according to the specifications of

to the network to serve as the master/local station of the MELSEC CC-Link.

PROFIBUS-DP communication can be connected to input/output device.

inction unit can be connected with NC.

s a user-created screen or window to be displayed as an HMI screen or another application

aracter string to be assigned to a key and makes it easy to input a typical character string. Jevelop applications having the Windows interface.

ogic Controller) release is a function that allows the user-generated C language module to

to express in a sequence program can be created with the C language.

of the NC if the release code is not entered before the specified time limit.

nat monitors information in the NC unit connected with the Ethernet.

perate the machining data files of each NC unit connected with a host personal computer plorer on the host personal computer.

prevents the falsification of APLC (C language module) by a third party.

Servo Motors

HF Series

- Medium-inertia, high-accuracy and high-speed motors
- High-inertia machine accuracy is ensured. Suitable for machines requiring quick acceleration.
- Range: 0.5 to 9 [kW]
- Maximum speed: 4.000 or 5.000 [r/min] Supports three types of detectors with a resolution of 260,000, 1 million or 16 million p/rev.

■ Linear Servo Motor LM-F Series

- Use in clean environments is possible since no ball screws are used and therefore
- contamination from grease is not an issue. Elimination of transmission mechanisms which include backlash, enables smooth and quiet
- operation even at high speeds.
- Dimensions: Length: 290 to 1,010 [mm]
- Width: 120 to 240 [mm]

HF-KP Series • Small-capacity, low-inertia motors

- Suitable for an auxiliary axis that
- require high-speed positioning • Range: 0.1 to 0.75[kW]
- Maximum speed: 6.000 [r/min]
- · Supports a detector with a resolution of 260,000p/rev.

■ Direct Drive Servo Motor TM-RB Series

- High-torque direct-drive combined motor with a high-gain control system provides quick acceleration and
- positioning, which makes rotation smoother. Suitable for a rotary axis that drives a
- table or spindle head. Compared with a conventional rotary axis with a deceleration gear, this motor has higher accuracy and is maintenance-free, having no wear or backlash.
- Range:



■ High-performance Spindle Motor SJ-V Series

0.75 to 55 [kW]

- Maximum torque: 36 to 1,280 [N·m]

• A vast range of spindle motors is available,

output units, all ready to support diversified

SJ-V Series

SJ-V Series

machine tool needs.

Wide-range constant output

Product line:

High-speed

Normal

including standard, high-speed and wide-range

Drive Units

■ High-performance Servo/Spindle Drive Units MDS-D2/DH2 Series

- With the fastest current control cycle, basic performance is drastically enhanced (high-gain control). A combination of high-speed servo motor and high-accuracy detector helps enhance overall drive performance.
- A high-efficiency fin and low-loss power module have enabled unit downsizing. A line of drive units driving a maximum of two spindles is available, contributing to a reduction in control panel size.
- STO (safe torque off) is now available. (Note)

■ All-in-one compact drive units MDS-DJ Series

- Ultra-compact drive units with built-in power supplies contribute to reducing control panel size.
- A high-efficiency fin and low-loss power module have enabled unit downsizing, which also leads to a reduction in control panel size.
- STO (safe torque off) is now available. (Note)

Spindle Motors

■ High-performance New Type Spindle Motor SJ-D Series

 Motor energy loss has been significantly reduced by optimizing the magnetic circuit.

Product line:

Drive

system

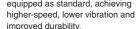
Drive

unit

2

utline

• High-speed-specification bearings are equipped as standard, achieving





- SJ-D Series 3.7 to 11 [kW] Normal SJ-DJ Series 5.5 to 15 [kW] Compact & light Low-inertia SJ-DL Series 0.75 to 7.5 [kW]
- Low-inertia, High-speed Spindle Motor SJ-VL Series
- The spindle dedicated to tapping machines
- requiring faster drilling and tapping. The low-inertia reduces acceleration/deceleration time, resulting in higher productivity. In addition, when driven by a multi-hybrid drive (MDS-DM2-SPV
- Series), this motor contributes to downsizing
- of the cabinet, and energy savings. Hollow-shaft specifications are also available • Product line:
- Low-inertia normal Low-inertia hollow shaft SJ-VLS Series 3.7 to 11 [kW]
- Built-in Spindle Motor
- Electricity loss is minimized by providing better efficiency during high-speed rotation. Stator coil-end size has been reduced.
- realizing a shorter overall motor length. · As feedback communication is serial, the
- resolution is significantly enhanced (Max. 4 million p/rev) • The adjustment PCB has been eliminated to
- achieve adjustment-free conditions. The standard gap has been reduced to 0.3mm.





5.5 to 18.5 [kW] Hollow-shaft SJ-VS Series 5.5 to 18.5 [kW]

■ Tool Spindle Motor (HF-KP/HF-SP Series)

SJ-V-Z Series 2.2 to 22 [kW]

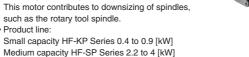
 Taking advantage of the characteristics of a servo motor such as smallness and high-output, this motor serves as a compact and high-output spindle motor which is capable of high-speed rotation (6,000r/min). This motor contributes to downsizing of spindles, such as the rotary tool spindle. Product line: Small capacity HF-KP Series 0.4 to 0.9 [kW]

■ IPM Spindle Motor

• In answer to demands for downsizing and higher efficiency, an IPM motor has been introduced for further energy savings. A reduction in acceleration/deceleration time contributes to shorter cycle times.









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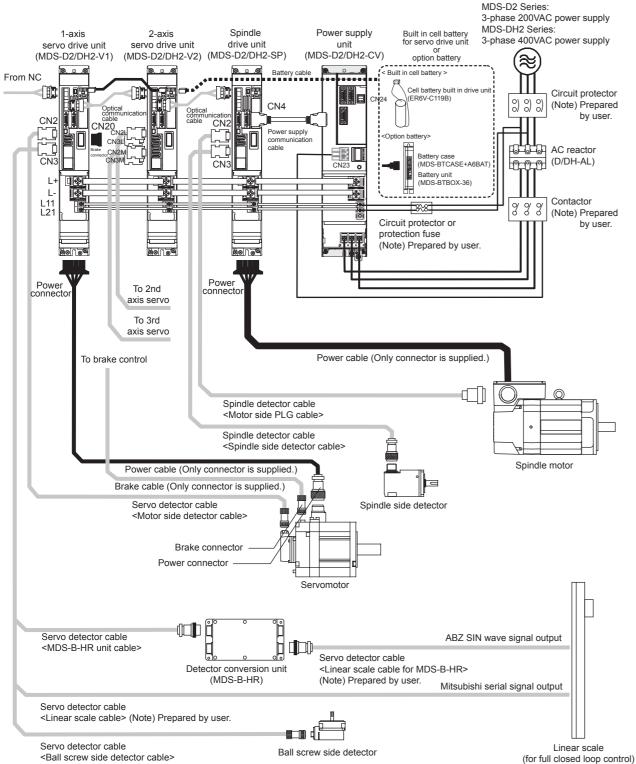
Multi-hybrid Drive Units MDS-DM2 Series

- A line of high-performance multi-hybrid drive units are available. The multi-hybrid drive unit drives a maximum of three servo axes and one spindle, supporting the downsizing of units and offering technical advantages.
- A power regeneration system that efficiently uses energy during deceleration as power contributes to highly-frequent acceleration/ deceleration and energy savings.
- STO (safe torque off) is now available. (Note)

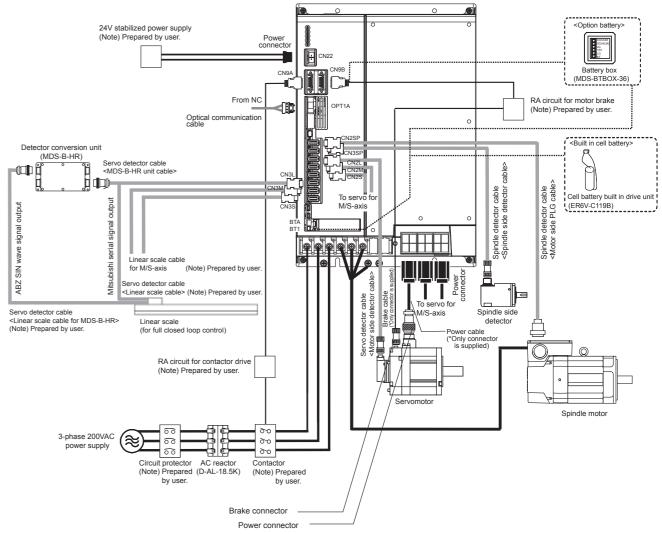


(Note) Please contact us for availability of STO as a whole system.

MDS-D2/DH2 Series



MDS-DM2 Series



Drive system

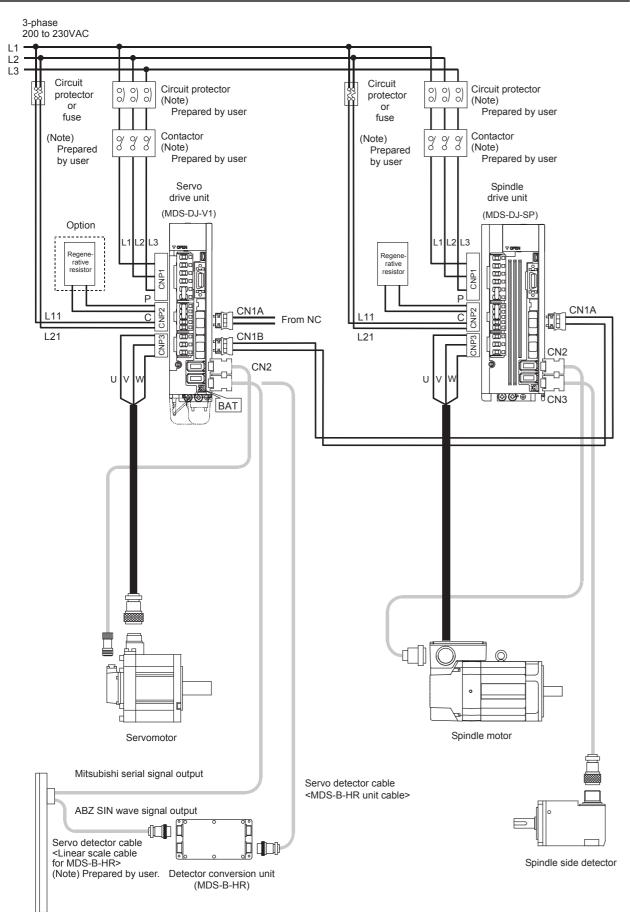
System

configuration

(Note) Prepared by user.

Drive system System configuration

MDS-DJ Series



Linear scale

(Note) Prepared by user

Servo / Spindle specifications

	Function name	MDS-D2-V1/V2/V3	MDS-DH2-V1/V2	MDS-DM2 -SPV2/3, SPHV3	MDS-DJ-V1
	Software Version	A0	A0	A0	A0
	1-1 Full closed loop control	•	•	•	•
Deservation (for all and	1-2 Position command synchronous control	•	•	•	•
1 Base control functions	1-3 Speed command synchronous control	•	•	-	-
	1-4 Distance-coded reference position control	•	•	•	•
	2-1 Torque limit function (stopper function)	۲	•	٠	•
	2-2 Variable speed loop gain control	•	•	•	•
	2-3 Gain changeover for synchronous tapping control	•	•	•	•
	2-4 Speed loop PID changeover control	•	•	•	•
Servo control function	2-5 Disturbance torque observer	٠	•	٠	•
Servo control function	2-6 Smooth High Gain control (SHG control)	•	•	٠	•
	2-7 High-speed synchronous tapping control (OMR-DD control)	•	•	•	•
	2-8 Dual feedback control	•	•	•	•
	2-9 HAS control	٠	•	•	•
	2-10 OMR-FF control	٠	•	۲	•
	3-1 Jitter compensation	•	•	•	•
	3-2 Notch filter	Variable frequency: 4 Fixed frequency: 1			
	3-3 Adaptive tracking-type notch filter	•	•	•	•
Compensation control	3-4 Overshooting compensation	•	•	•	•
function	3-5 Machine end compensation control	•	•	•	•
	3-6 Lost motion compensation type 2	•	•	•	•
	3-7 Lost motion compensation type 3	•	•	•	•
	3-8 Lost motion compensation type 4	•	•	•	•
	4-1 Deceleration control at emergency stop	•	•	•	•
	4-2 Vertical axis drop prevention/pull-up control	•	•	•	•
	4-3 Earth fault detection	•	•	•	•
Protection function	4-4 Collision detection function	•	•	•	•
	4-5 SLS (Safely Limited Speed) function	•	•	•	•
	4-6 Fan stop detection	•	•	•	•
	4-9 STO (Safe Torque Off) function	•	•	•	•
	5-2 Motor brake control function (Note 1)	•	•	•	•
Sequence function	5-4 Specified speed output	•	•	•	_
	5-5 Quick READY ON sequence	•	•	•	-
	6-1 Monitor output function	•	•	•	•
D:	6-2 Machine resonance frequency display function	•	•	•	•
Diagnosis function	6-3 Machine inertia display function	•	•	•	•
	6-4 Motor temperature display function (Only for linear or DDM)		•	_	

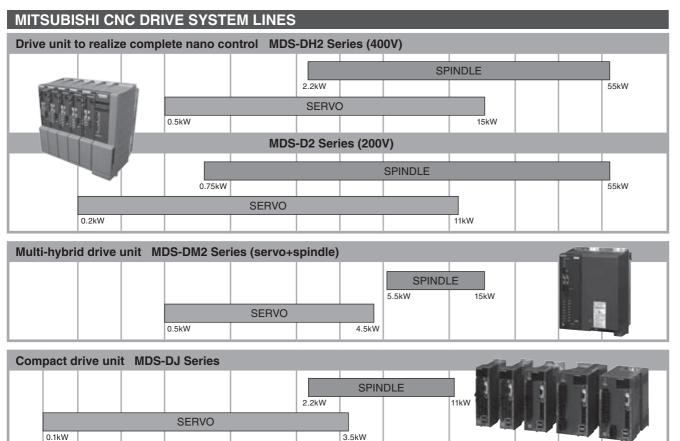
It is required to turn the servo of all axes OFF in the drive unit in order to enable a motor brake output.

<Spindle specification> MDS-D2-S Function name Software Version A0 1-5 Spindle's continuous position loop control 1-6 Coil changeover control 1-7 Gear changeover control 1-8 Orientation control 1 Base control functions 1-9 Indexing control 1-10 Synchronous tapping control 1-11 Spindle synchronous control 1-12 Spindle/C axis control 1-13 Proximity switch orientation control 2-1 Torque limit function 2-2 Variable speed loop gain contro 2-5 Disturbance torque observer 2-6 Smooth High Gain control (SHG control) 2 Spindle control 2-7 High-speed synchronous tapping control (OMR-DD control 2-8 Dual feedback control functions 2-11 Control loop gain changeover 2-12 Spindle output stabilizing control 2-13 High-response spindle acceleration/dece 3-1 Jitter compensation ariable freque 3-2 Notch filter Fixed frequence 3 Compensation control 3-3 Adaptive tracking-type notch filter function 3-4 Overshooting compensation 3-6 Lost motion compensation type 2 3-9 Spindle motor temperature compensation function 4-1 Deceleration control at emergency stop4-3 Earth fault detection Protection function 4-5 SLS (Safely Limited Speed) function 4-6 Fan stop detection 4-9 STO (Safe Torque Off) function 5-4 Specified speed output 5 Sequence function 5-5 Quick READY ON sequence 6-1 Monitor output function 2 Machine resonance frequency display function 6-3 Machine inertia display function6-4 Motor temperature display function 6 Diagnosis function 6-5 Load monitor output function 6-6 Open loop control function

SP	MDS-DH2-SP	MDS-D2-SP2	MDS-DM2	MDS-DJ-SP
			-SPV2/3, SPHV3	
	A0	A0	A0	A0
	•	•	•	•
	•	-	•	-
	•	•	•	•
	•	•	•	•
	•	•	•	•
	•	•	•	•
	•	•	•	•
	•	•	•	•
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	•	•	•	•
	•	•	•	•
	•	•	•	•
	•	•	•	•
	•	•	•	•
ncy: 4	Variable frequency: 4		Variable frequency: 4	Variable frequency: 4
cy: 1	Fixed frequency: 1	Fixed frequency: 1	Fixed frequency: 1	Fixed frequency: 1
	•	•	•	•
	•	•	•	•
	•	•	•	•
	•	•	•	•
	•	•	•	•
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	•	•	•	-
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	•	•	•	•
	•	•	•	•
	•	•	•	•

Power Supply specification

	Function name	MDS-D2-CV	MDS-DH2-CV	MDS-DM2 -SPVx, SPHV3 built-in converter	MDS-DJ-V1 built-in converter	MDS-DJ-SP built-in converter
	Software Version	AO	A0	A0	A0	A0
1 Base control functions	1-14 Power regeneration control	•	•	•	-	-
	1-15 Resistor regeneration control	-	-	-	•	•
	4-6 Fan stop detection	•	•	•	•	•
4 Protection function	4-7 Open-phase detection	•	•	•	-	-
	4-8 Contactor weld detection	•	•	•	•	•
5 Sequence function	5-1 Contactor control function	•	•	•	•	•
	5-3 External emergency stop function	•	•	•	•	•
	5-5 High-speed ready ON sequence	•	•	•	•	-
6 Diagnosis function	6-7 Power supply voltage display function	•	•	•	-	_



3.5kW 0.3 0.5 1.0 2.0 3.0 5.0 10 20 30 50

Compatible motors' rated capacity

200V HF servo motor

<HF Series>



$\textcircled{1}\label{eq:relation}$ Rated output and maximum rotation speed Symbol Rated output Max. rotation speed Flange size (mm) 75 0.75 kW 5000 r/min 90 SQ. 105 1.0 kW 5000 r/min 90 SQ. 54 0.5 kW 4000 r/min 130 SQ. 130 SQ. 104 1.0 kW 4000 r/min 154 1.5 kW 4000 r/min 130 SQ. 224 4000 r/min 130 SQ. 2.2 kW 204 2.0 kW 4000 r/min 176 SQ. 176 SQ. 3.5 kW 4000 r/min 354 123 1.2 kW 3000 r/min 130 SQ. 2.2 kW 3000 r/min 130 SQ. 223

303	3.0 kW	3000 r/min	176 SQ.
453	4.5 kW	3500 r/min	176 SQ.
703	7.0 kW	3000 r/min	176 SQ.
903	9.0 kW	3000 r/min	204 SQ.
142	1.4 kW	2000 r/min	130 SQ.
302	3.0 kW	2000 r/min	176 SQ.

2 Magnet	ic brake		3Shaft er	nd structure
Symbol	Magnetic br	ake	Symbol	Shaft end structure
None	None		S	Straight
В	With magnetic	brake	Т	Taper
Detecto	or		the	per" is available for motor whose flange is 90 SQ. mm or SQ. mm.
Sym	nbol Dete	ection method	Detec	tor resolution
A4	48			260,000 p/rev
A5	51	Absolute	1	.000.000 p/rev

	260,000 p/rev
	200,000 p/16V
	1,000,000 p/rev
poolaon	16,000,000 p/rev
	Absolute position t Trade Control Ordi

200V Direct-drive motor

<tm-rb series=""></tm-rb>	①Rated torque	
	Symbol	Rated torque
Primary side [coil side]	012	12 N · m
TM-RBP 1 2 3	036	36 N · m
	048	48 N · m
Secondary side [magnet side]	105	105 N · m
	150	150 N · m
TM-RBS 1 2 3	340	340 N · m
	500	500 N · m

200V Linear servo motor

<LM-F Series>

100 (kW)

Primary side [coil side] LM-FP 1 2 – 3 M-1WW0						
①Width ②Length ③Rated thrust						
Symbol	Width (nominal)	Symbol	Length (nominal)	Symbol	Rated thrust	
2	120 mm	В	290 mm	06	600 N	
4	200 mm	D	530 mm	12	1200 N	
5	240 mm	F	770 mm	18	1800 N	
		н	1010 mm	24	2400 N	
				36	3600 N	
				48	4800 N	
				60	6000 N	

0.1 0.2

<HF-KP Series>

HF-KP13 2 J-S17

Rated output	Max. rotation speed	Flange size (mm)		
0.1 kW	6000 r/min	40 SQ.		
The motor and dataster has absolute position specifications				

but is not equipped with the capacitor for data backup. Thus, absolute position is lost immediately after disconnection of the detector cable.

HF-KP 1 2 JW04-S6

①Rated output and maximum rotation speed

Symbol	Rated output	Max. rotation speed	Flange size (mm)
23	0.2 kW	6000 r/min	60 SQ.
43	0.4 kW	6000 r/min	60 SQ.
73	0.75 kW	6000 r/min	80 SQ.

②Magnetic brake

Symbol	Magnetic brake
None	None
В	With magnetic brake

3 Detector

Symbol Detection method		Detector resolution
None	Absolute position	260,000 p/rev

(Note) There is no detector specification symbol for the HF-KP series.
 The detector specification is A48 only.
 (Note) Detector A51 and A74/A74N can not be used with the HF-KP series.



2 Stator dimensions		
Symbol	Dimension	
С	DIA 130 mm	
E	DIA 180 mm	
G	DIA 230 mm	
J	DIA 330 mm	

3 Rated rotation speed		
Symbol	Speed	
10	100 r/min	
20	200 r/min	

Secondary side [magnet side] LM-FS 10-2-1WW0

1)Width

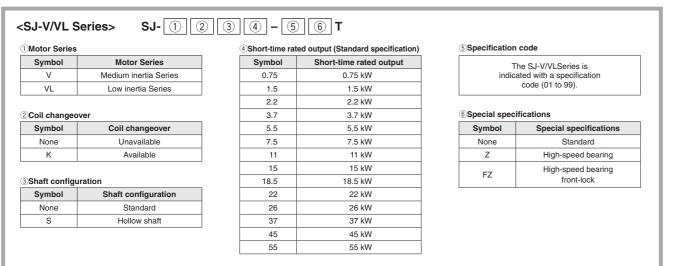
Symbol	Width (nominal)
2	120 mm
4	200 mm
5	240 mm

2 Length		
Length (nominal)		
480 mm		
576 mm		

Drive system Type

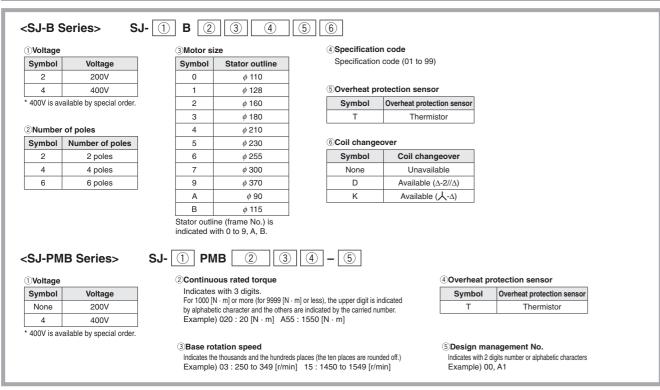
200V SJ-D spindle motor <SJ-D Series (for 200V)> SJ-D ① ② / ③ - ④ ⑤ - ⑥ ①Motor Series ②Short-time (or %ED) rated output ③Maximum rotation speed 6 Option (Note) 5 Detector Indicates the hundreds place Symbol Symbol Motor Series Symbol Short-time rated output Symbol Туре Option and higher order digits. None Normal specifications 0.75 0.75 kW None Type 1 Standard (flange type, without oil seal, without key, None coil changeover unavailable, air-cooling, solid shaft) 1.5 1.5 kW Т Type 2 Compact & lightweight J specifications 3.7 3.7 kW 4 Specification code С With key Indicates a specification Oil seal 5.5 5.5 kW Low-inertia J L code (01 to 99). specifications 7.5 7.5 kW Х Reversed cooling air (Note) If more than one option is included, 11 11 kW the symbols are in alphabetical order. 15 15 kW

200V SJ-V spindle motor



Drive system Type

200V Built-in spindle motor



200V Tool spindle motor

<HF-KP Series>

HF-KP 1 J 2 W09

1 Rated output · Maximum rotation speed

Symbol	Rated output	Maximum rotation speed	Flange size (mm)
46	0.4 kW	6000 r/min	60 SQ.
56	0.5 kW	6000 r/min	60 SQ.
96	0.9 kW	6000 r/min	80 SQ.

② Option

Symbol	Option
None	Without keyway
К	With keyway (with key)

<HF Series>

HF 1 2 - 3

Symbol	Rated output	Maximum rotation speed	Flange size (mm)
75	0.75 kW	4000 r/min	90 SQ.
105	1.0 kW	4000 r/min	90 SQ.
54	0.5 kW	3000 r/min	130 SQ.
104	1.0 kW	3000 r/min	130 SQ.
154	1.5 kW	3000 r/min	130 SQ.
224	2.2 kW	3000 r/min	130 SQ.
204	2.0 kW	3000 r/min	176 SQ.
354	3.5 kW	3000 r/min	176 SQ.
123	1.2 kW	2000 r/min	130 SQ.
223	2.2 kW	2000 r/min	130 SQ.
303	3.0 kW	2000 r/min	176 SQ.
453	4.5 kW	3000 r/min	176 SQ.
703	7.0 kW	3000 r/min	176 SQ.
903	9.0 kW	3000 r/min	204 SQ.

Sym

<HF-SP Series>

HF-SP	1 J	2	W09
(1)Rated o	utput · Max	(imum)	rotation speed

Unated output · Maximum rotation speed				
	Symbol	Rated output	Maximum rotation speed	Flange size (mm)
	226	2.2 kW	6000 r/min	130 SQ.
	406	4.0 kW	6000 r/min	130 SQ.

2 Option

Symbol	Option
None	Without keyway
К	With keyway (without key)

2 Shaft end structure

nbol	Shaft end structure
S	Straight

nbol	Resolution
48	260,000 p/rev
) Detector A51 and A74N can	

not be used with the tool spindle motor.

400V HF-H servo motor

<HF-H Series> HF-H 1 2 3 – 4 4 Detector 1 Rated output · Maximum rotation speed 2 Magnetic brakes Symbol Rated output Maximum rotation speed Flange size (mm) Symbol Magnetic brakes Symbol Detector Resolution 75 0.75 kW 5000 r/min 260,000 p/rev 90 SQ. None None A48 Absolute 1.0 kW B With magnetic brakes A51 1,000,000 p/rev 105 5000 r/min 90 SQ. position A74N 16,000,000 p/rev 54 0.5 kW 4000 r/min 130 SQ. 104 4000 r/min 130 SQ. 1.0 kW 3Shaft end structure 154 1.5 kW 4000 r/min 130 SQ. Symbol Shaft end structure 204 2.0 kW 4000 r/min 176 SQ. S Straight 354 3.5 kW 4000 r/min 176 SQ. Т Taper 453 4.5 kW 3500 r/min 176 SQ. (Note) "Taper" is available for the motor whose flange size is 90 SQ. mm or 703 7.0 kW 3000 r/min 176 SQ. 9.0 kW 903 3000 r/min 204 SQ. 130 SQ. mm. 400V SJ-4-V spindle motor <SJ-V Series> SJ-4- 1 2 3 4 – 5 6 T 2 Coil changeover **5**Specification code 1)Motor Series (4)Short time rated output The SJ-4-V Series is indicated with a (Standard specification) Symbol Motor Series Symbol Coil changeover specification code (01 to 99). Symbol Short time rated output V Medium-inertia Series None Unavailable 2.2 2.2 kW 6 Special specification **3Shaft configuration** 3.7 3.7 kW 5.5 Symbol Special specification Symbol Axis configuration 5.5 kW None Standard 7.5 7.5 kW None Standard 11 11 kW S Hollow shaft Ζ High-speed bearing 15 15 kW 18.5 18.5 kW 22 22 kW 26 26 kW 37 37 kW 45 45 kW

55

55 kW

(Note 1) The built-in spindle motor is available by special order.

(Note 2) This explains the model name system of a spindle motor, and all combinations of motor types listed above do not exist.

Drive system Servo motor 200V HF Series

Motor ture						14.00		114/01/06					
Motor type	1-axis type	MDS-D2-V1	-	HF-KP13 J-S1	7 HF-KP23 JW0 20	J4-S6	HF-KP43	JW04-S6	HF-KP7	3□JW04-S6 20		HF75 20	HF10 20
	2-axis type	MDS-D2-V2		-	2020 (L, M 4020 (M)		2020 (L 4020 (0 (L, M) 20 (M)		20 (L, M) 020 (M)	2020 (L 4020 (
Compatible drive unit	3-axis type	MDS-D2-V3		-	202020 (L, M	l, S)	202020 (L	, M, S)	20202	0 (L, M, S)		20 (L, M, S) 40 (L, M, S)	202020 (L 404040 (L
	Multi axis integrated type	MDS-DM2-	SPV2- SPV3-	-			-			-		-	-
Regenerative resistor type MDS-DJ-V1-		10	10		15			30		30	30		
Outrat		[N -	m] 15										1
Output Stall torque			10 5 0	0.32 0.95	0.64 1.9	a	1.3	3.8	2.4	7.2	2.	0	3.0
Rated output			[kW]		0.2		0.4			0.75		0.75	1.0
Maximum rotation Motor inertia	speed	[kc	[r/min] • cm ²]		6000 0.23		6000 0.42			5000 1.43		5000 2.6	5000 5.1
Motor inertia with	a brake		· cm ²]		0.31		0.50			1.63		2.8	5.3
Degree of protection	(The shaft-through	portion is excl	uded.)	IP65	IP65		IP65	5		IP65		IP67	IP67
Outline dimension (Without a brake, S (Note) The total len when using a	traight shaft, A48 d	longer	[mm]	40 SQ.			<u>60 S</u>					0 SQ.	90 SC
(Note) The detector series is A48	specification for th			92. 8									
Flange fitting diam	neter		[mm]		<i>φ</i> 50		<i>φ</i> 50			φ 70		φ 80	<i>φ</i> 80
Shaft diameter Mass (with a brak	e)		[mm] [kg]		φ 14 1.2 (1.8)		φ 14 1.7 (2			φ 19 9 (4.1)		φ 14 .5 (3.9)	φ 14 4.3 (5.
Absolute position	e) 16,000,000 [p/r	rev] (A74/A74		-	-		- 1.7 (2	,	2.	-	۷.	D2	4.3 (5. D2
detector compatible drive unit	1,000,000 [p/ 260,000 [p/	rev] (A51)		– DJ	– D2, DJ		– D2, D)J	D	2, DJ	C	02, DJ	D2, D
Motor type				HF54	HF104		HF1	154		HF224		ŀ	HF204
	1-axis type	MDS-D2-V1	-	40	40		-	8	-	80		-	80
	2-axis type MDS-D2-V2-		4020 (L) 4040 (L, M) 8040 (M)	4020 (L) 4040 (L, M) 8040 (M)		-	8040 8080 1608	(L, M)	8040 (L) 8080 (L, N 16080 (M	(N	-	8040 8080 (16080	
Compatible	3-axis type	3-axis type MDS-D2-V3-		404040 (L, M, S)	404040 (L, M, S)	4040	40 (L, M, S)	-		-		-	-
drive unit	Multi axis	Iulti axis		xxx80 (L, M)*	xxx80 (L, M)*		-	xxx80	,	xxx80 (L, N	·	-	xxx80 (
	integrated type	MDS-DM2-	SPV3-	xxx80 (L, M, S)*	xxx80 (L, M, S)*		-	xxx80 (L 200120 (., M, S)* (L, M, S)	xxx80 (L, M, 200120 (L, N		-	xxx80 (L 200120 (
			SPHV3-	20080 (L, M, S)	20080 (L, M, S)		-	20080 (L, M, S)	20080 (L, M	l, S)	-	20080 (L
	Regenerative resistor type	MDS-DJ-V1	-	30	40		-	8	0	80		80	-
		[N	m] 50						42.0	46.	5	42.0	
Output Stall torque I Max. torque I			40 30 20 10	13.0	23.3	7	23.7	9.0		12.0		13.7	13.7
-			0					_					
Rated output Maximum rotation	speed		[kW] [r/min]		1.0 4000		1.			2.2 4000			2.0 4000
Motor inertia	opood	[kg	· cm ²]		11.9		17			23.7			38.3
Motor inertia with			· cm ²]		14.1		20			25.9			48.0
Degree of protection	(i ne shatt-through	portion is excl	uded.)	IP67	IP67		IPe	5/		IP67			IP67
Outline dimension (Without a brake, S		letector)	[mm]		130 50.			SQ.		130 SQ.			76 SQ.
(Note) The total len	-	longer						5		184.5			
Flange fitting diam	neter		[mm]		φ 110		<i>φ</i> 1			φ 110		¢	114.3
Shaft diameter	e)		[mm] [kg]	- /	φ 24 6.5 (8.5)		φ 2 8.3 (1			φ 24 10.0 (12.0	0)	12	φ 35 .0 (18.0)
Mass (with a brak			[r\y]		0.0 (0.0)		0.0 (1	,		D2	~/	12.	.0 (18.0) D2

"Heter to "MDS-DM2 Series Multi-hybrid drive" in this book for compatible drive unit type. (Note) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

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Drive system Servo motor 200V HF Series

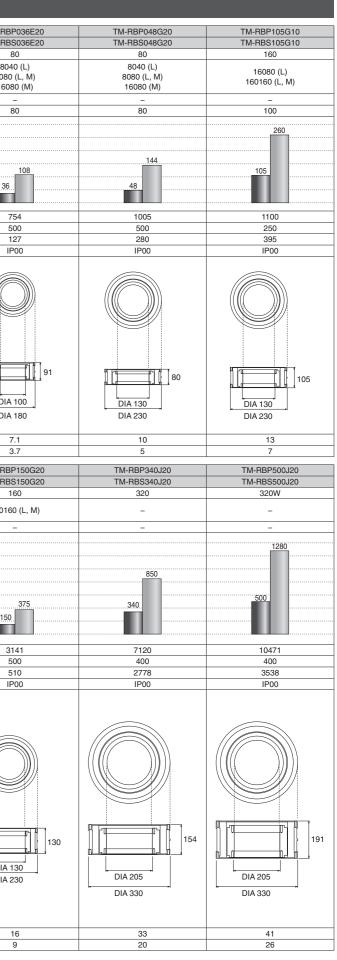
Motor type	es									
instor type					HF354		HF123		223	HF303
	1-axis type	MDS-D2-V1-		-	-	160	20	-	40	80
	2-axis type	MDS-D2-V2-		-	-	16080 (L) 160160 (L, M)	2020 (L, M) 4020 (M)	-	4020 (L) 4040 (L, M) 8040 (M)	8040 (L) 8080 (L, M) 16080 (M)
Compatible	3-axis type	MDS-D2-V3	-	-	-	-	202020 (L, M, S) 404040 (L, M, S)	404040 (M, S)	404040 (L)	-
drive unit			SPV2-	-	-	-	-	-	xxx80 (L, M)*	xxx80 (L, M)
	Multi axis integrated type		SPV3-	-	200120 (L, M, S)	-	-	-	xxx80 (L, M, S)*	xxx80 (L, M, 8 200120 (L, M,
	Regenerative	MDS-DJ-V1-	SPHV3-	- 100	-	-	- 40	-	20080 (L, M, S) 40	20080 (L, M, 5 80
	resistor type	[N·m	1100			90:0				
			80	65.0						64.0
Output	I.		60							04.0
Stall torque			40	22.5	22.5	22.5	17.0		32.0	22.5
	I		20 0	22.3	22.3	22.5	7.0	10.0	12:0	22.5
Rated output			[kW]	0500	3.5		1.2	2.1	2.2	3.0
Maximum rotation	speed		r/min]	3500	40	00	3000		00	3000
Notor inertia Notor inertia with	a brake		 cm²] cm²] 		75.0 84.7		11.9 14.1		3.7 5.9	75.0
Degree of protection					IP67		IP67		67	IP67
3.11 0. p.0100101	(share in ody	,			176 SQ.					176 SQ.
					- e		130 SQ.	130	SQ.	0 00
					1			6)	
								le	والع	
Outline dimension		detector)	[mm]		۳ ۳				J	"
Without a brake, S	araigni shart, A48 (uelecior)			183.5		140.5	104	5	183.5
								184.		
		1			⊌⊨╡┝╴╵		▏┙╋╋╋╋┥	비는		╽╙╬╞╧╡┞╴
Note) The total len when using	igth will be 3.5mm an A51 or A74/A74				۳ <u>۳</u>		믭	日		
Flange fitting diar			[mm]		φ 114.3		φ 110	<i>ó</i> 1	110	φ 114.3
Shaft diameter			[mm]		φ 35		φ 24		24	\$ 435
Mass (with a brak	, · · · · · · · · · · · · · · · · · · ·		[kg]		19.0 (25.0)		6.5 (8.5)	10.0	(12.0)	19.0 (25.0)
Absolute position	16,000,000 [p/	rev] (A74/A741	V)	-	-		D2	-	D2	D2
detector compatible	1,000,000 [p/			DJ	DM2	D2	D2, DJ	D2-V3	D2	D2
drive unit	260,000 [p/	/rev] (A48)					, -		DM2, DJ	DM2, DJ
Motor type				HF		HF703	HF903	HF142	HF	302
	1-axis type	MDS-D2-V1-		-	160	160W	320	20	-	40
	2-axis type	MDS-D2-V2-		-	16080 (L) 160160 (L, M)	160160W (L, M)	-	2020 (L, M) 4020 (M)	-	4020 (L) 4040 (L, M)
Compatible	3-axis type	MDS-D2-V3-	_		_			202020 (L, M, S)	404040 (M, S)	8040 (M) 404040 (L)
drive unit	0-axis type						_	404040 (L, M, S)		.,
	Multi axis	1	SPV2-	-	-	-	-	-	-	xxx80 (L, M)
	integrated type		SPV3- SPHV3-	200120 (L, M, S)	-	-	-	-	-	xxx80 (L, M, S
	Regenerative			_		-	-			20080 (L, M,
	resistor type	MDS-DJ-V1-		-	-	-	-	40	-	40
		[N · n	n] 200			150.0	208.0			
Output		[N · n	n] 200 150		122.0	152.0	208.0			
Output Stall torque		[N · n	-		122.0					
		[N · n	150	90.0	122.0	49.0	58.8	11.0 26.5	50.0	50.0
Stall torque		[N · n	150 100					11.0 26:5	50.0 15.6	50.0 20.0
Stall torque		[N · n	150 100 50					<u>11.0</u> 26:5 1.4		
Stall torque			150 100 50		<u>37.2</u> 5	49.0	58.8	11.0	2.2	20.0
Stall torque	n speed	[150 100 50 [kW] r/min] cm ²]	<u></u>	5 00 2.0	49.0 7.0 3000 154.0	58.8 9.0 3000 196.0	1.4 2000 17.8	15.6 2.2 20 75	20.0 3.0 000 5.0
Stall torque	n speed a brake	[[kg [kg	150 100 50 [kW] r/min] • cm ²]			7.0 3000 154.0 163.7	9.0 3000 196.0 205.7	1.4 2000 17.8 20.0	15.6 2.2 20 75 84	20.0 3.0 000 5.0 4.7
Stall torque	n speed a brake	[[kg [kg	150 100 50 [kW] r/min] • cm ²]	<u></u>		49.0 7.0 3000 154.0	58.8 9.0 3000 196.0	1.4 2000 17.8	15.6 2.2 20 75 84	20.0 3.0 000 5.0
Stall torque	n speed a brake	[[kg [kg	150 100 50 [kW] r/min] • cm ²]		37.2 5 00 2.0 1.7 67	7.0 3000 154.0 163.7	9.0 3000 196.0 205.7	1.4 2000 17.8 20.0 IP67	15.6 2.2 20 75 84 IP	20.0 3.0 000 5.0 4.7
Stall torque	n speed a brake	[[kg [kg	150 100 50 [kW] r/min] • cm ²]	37.2 4 35 111 12 IP	37.2 5 00 2.0 1.7 67	49.0 7.0 3000 154.0 163.7 IP67	9.0 3000 196.0 205.7	1.4 2000 17.8 20.0	15.6 2.2 20 75 84 IP	20.0 3.0 000 5.0 4.7 267
Stall torque	n speed a brake	[[kg [kg	150 100 50 [kW] r/min] • cm ²]	37.2 4 35 111 12 IP	37.2 5 00 2.0 1.7 67	49.0 7.0 3000 154.0 163.7 IP67	9.0 3000 196.0 205.7	1.4 2000 17.8 20.0 IP67	15.6 2.2 20 75 84 IP	20.0 3.0 000 5.0 4.7 267
Stall torque Max. torque Rated output Maximum rotation Motor inertia Motor inertia with Degree of protection	a speed a brake n (The shaft-through	[[kg [kg	150 100 50 [kW] r/min] . cm ²] . cm ²] ded.)	37.2 4 35 111 12 IP	37.2 5 00 2.0 1.7 67	49.0 7.0 3000 154.0 163.7 IP67	9.0 3000 196.0 205.7	1.4 2000 17.8 20.0 IP67	15.6 2.2 20 75 84 IP	20.0 3.0 000 5.0 4.7 267
Stall torque	a brake n (The shaft-through n drawing	[kg [kg h portion is exclu	150 100 50 [kW] r/min] • cm ²]	37.2 4 35 111 12 IP	37.2 5 00 2.0 1.7 67	49.0 7.0 3000 154.0 163.7 IP67	9.0 3000 196.0 205.7	1.4 2000 17.8 20.0 IP67	15.6 2.2 20 75 84 IP	20.0 3.0 000 5.0 4.7 267
Stall torque Max. torque Rated output Maximum rotation Motor inertia Motor inertia with Degree of protection	a brake n (The shaft-through n drawing	[kg [kg h portion is exclu	150 100 50 [kW] r/min] . cm ²] . cm ²] ded.)	37.2 4 35 111 12 IP	37.2 5 00 2.0 1.7 67	49.0 7.0 3000 154.0 163.7 IP67	9.0 3000 196.0 205.7	1.4 2000 17.8 20.0 IP67 130 S0.	15.6 2.2 20 75 84 IP	20.0 3.0 000 5.0 4.7 267
Stall torque Max. torque Rated output Maximum rotation Motor inertia Motor inertia with Degree of protection	a brake n (The shaft-through n drawing	[kg [kg h portion is exclu	150 100 50 [kW] r/min] . cm ²] . cm ²] ded.)	37.2 4 35 111 12 IP	37.2 5 00 2.0 1.7 67	49.0 7.0 30000 154.0 163.7 IP67 176 S0.	9.0 3000 196.0 205.7 IP67 204 S0.	1.4 2000 17.8 20.0 IP67	15.6 2.2 20 75 84 IP	20.0 3.0 000 5.0 4.7 267
Stall torque Max. torque Rated output Maximum rotation Motor inertia Motor inertia with Degree of protection	a brake n (The shaft-through n drawing	[kg [kg h portion is exclu	150 100 50 [kW] r/min] . cm ²] . cm ²] ded.)	37.2 4 35 111 12 IP	37.2 5 00 2.0 1.7 67	49.0 7.0 30000 154.0 163.7 IP67 176 S0.	9.0 3000 196.0 205.7 IP67 204 S0.	1.4 2000 17.8 20.0 IP67 130 S0.	15.6 2.2 20 75 84 IP	20.0 3.0 000 5.0 4.7 267
Stall torque Max. torque Rated output Maximum rotatior Motor inertia Motor inertia with Degree of protectior Dutline dimensior Without a brake, S	a brake a brake n (The shaft-through n drawing traight shaft, A48 o	[kg [kg h portion is exclu	150 100 50 [kW] r/min] . cm ²] . cm ²] ded.)	37.2 4 35 111 12 IP	37.2 5 00 2.0 1.7 67	49.0 7.0 30000 154.0 163.7 IP67 176 S0.	9.0 3000 196.0 205.7 IP67 204 S0.	1.4 2000 17.8 20.0 IP67 130 S0.	15.6 2.2 20 75 84 IP	20.0 3.0 000 5.0 4.7 267
Stall torque Max. torque Rated output Maximum rotation Motor inertia Motor inertia with Degree of protection Dutline dimension Without a brake, S Note) The total len	a brake n (The shaft-through n drawing	[kg [kg h portion is exclu detector)	150 100 50 [kW] r/min] . cm ²] . cm ²] ded.)	37.2 4 35 111 12 IP	37.2 5 00 2.0 1.7 67	49.0 7.0 30000 154.0 163.7 IP67 176 S0.	9.0 3000 196.0 205.7 IP67 204 S0.	1.4 2000 17.8 20.0 IP67 130 S0.	15.6 2.2 20 75 84 IP	20.0 3.0 000 5.0 4.7 267
Stall torque Max. torque Rated output Maximum rotatior Motor inertia Motor inertia with Degree of protection Dutline dimensior Without a brake, S Note) The total len when using	a brake a brake n (The shaft-through n drawing traight shaft, A48 of an A51 or A74/A74	[kg [kg h portion is exclu detector)	150 100 50 0 [kWi] . cm²] . cm²] ded.)	37.2 4 35 111 12 IP	37.2 5 00 2.0 1.7 57 50. 57	49.0 7.0 30000 154.0 163.7 IP67 263.5 263.5 263.5	9.0 3000 196.0 205.7 IP67 204 S0 330 330 330	1.4 2000 17.8 20.0 IP67 130 S0. 162.5 162.5	15.6 2.2 77 84 IP	20.0 3.0 000 5.0 4.7 767 5 5 5 5
Stall torque Max. torque Rated output Maximum rotation Motor inertia Motor inertia with Degree of protection Dutline dimension Without a brake, S Note) The total len when using Flange fitting diar	a brake a brake n (The shaft-through n drawing traight shaft, A48 of an A51 or A74/A74	[kg [kg h portion is exclu detector)	150 100 50 0 [kW] (mW] (mm] [mm]	37.2 4 35 111 12 IP	37.2 5 00 2.0 1.7 57 50. 57 50. 57 50. 57 50. 57 50. 57 50. 57 50. 57 50. 57 50. 57 50. 57 50. 57 50. 57 57 50. 57 57 57 57 57 57 57 57 57 57 57 57 57	49.0 7.0 3000 154.0 163.7 IP67 176 S0. 263.5 φ 114.3	9.0 3000 196.0 205.7 IP67 204 S0.	1.4 2000 17.8 20.0 IP67 130 S0.	15.6 2.2 73 84 IP 176 183.1	20.0 3.0 000 5.0 4.7 267
Stall torque Max. torque Rated output Maximum rotation Motor inertia Motor inertia with Degree of protection Dutline dimension Without a brake, S Note) The total len	a brake a brake n (The shaft-through n drawing traight shaft, A48 of straight shaft, A48 of an A51 or A74/A74 neter	[kg [kg h portion is exclu detector)	150 100 50 0 [kWi] . cm²] . cm²] ded.)	37.2 4 35 111 12 IP 176 223 223	37.2 5 00 2.0 1.7 57 50 57 50 57 50 57 50 57 50 57 50 57 50 57 50 57 50 57 57 50 57 57 50 57 57 57 57 57 57 57 57 57 57	49.0 7.0 30000 154.0 163.7 IP67 263.5 263.5 263.5	9.0 3000 196.0 205.7 IP67 204 30. 330 ↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓	1.4 2000 17.8 20.0 IP67 130 S0. 162.5 ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	15.6 2.2 73 84 IP 176 183.1 183.1 183.1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	20.0 3.0 000 5.0 4.7 767 5 5 5 5 5 1 4.3
Stall torque Max. torque Max. torque Max. torque Rated output Maximum rotatior Motor inertia Motor i	a brake a brake (The shaft-through traight shaft, A48 of an A51 or A74/A76 neter (e)	[kg [kg h portion is exclu detector)	[mm] [kg]	37.2 4 35 111 12 IP 0 223. 223. 0 0 11 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	37.2 5 00 2.0 1.7 57 50 57 50 57 50 57 50 57 50 57 50 57 50 57 50 57 50 57 57 50 57 57 50 57 57 57 57 57 57 57 57 57 57	49.0 7.0 3000 154.0 163.7 IP67 176 S0. 263.5 ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	9.0 3000 196.0 205.7 IP67 204 S0. 204 S0. 0 0 0 0 0 0 0 0 0 0 0 0 0	1.4 2000 17.8 20.0 IP67 130 S0. 162.5 ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	15.6 2.2 73 84 IP 176 183.1 183.1 183.1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	20.0 3.0 000 5.0 4.7 767 5 5 5 14.3 35
Stall torque Max. torque Max. torque Mated output Maximum rotation Motor inertia Motor inertia Motor inertia Motor of protection Dutline dimension Without a brake, S Note) The total len when using Flange fitting diar Shaft diameter Mass (with a brake	a brake a brake (The shaft-through traight shaft, A48 of an A51 or A74/A76 neter (e)	[kg [kg h portion is exclu detector) longer tN detector. rev] (A74/A741 rev] (A51)	[mm] [kg]	37.2 4 35 111 12 IP 176 2223. 223. 0 0 1 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0	37.2 5 00 2.0 1.7 57 50 57 50 57 50 57 50 57 50 57 50 57 50 57 50 57 50 57 57 50 57 57 50 57 57 57 57 57 57 57 57 57 57	49.0 7.0 3000 154.0 163.7 IP67 176 S0. 263.5 ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	9.0 3000 196.0 205.7 IP67 204 S0. 204 S0. 0 0 0 0 0 0 0 0 0 0 0 0 0	$ \begin{array}{c} 1.4 \\ 2000 \\ 17.8 \\ 20.0 \\ 1967 \\ 130 \\ 50. \\ \hline 162.5 \\ \hline 0 \\ 162.5 \\ \hline 0 \\ 110 \\ \phi \\ 24 \\ 8.3 (10.3) \end{array} $	15.6 2.2 77 84 IP 176 0 183.1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	20.0 3.0 000 5.0 4.7 767 5 5 5 14.3 35 (25.0)

*Refer to "MDS-DM2 Series Multi-hybrid drive" in this book for compatible drive unit type. (Note) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

Drive system Servo motor 200V TM-RB Series

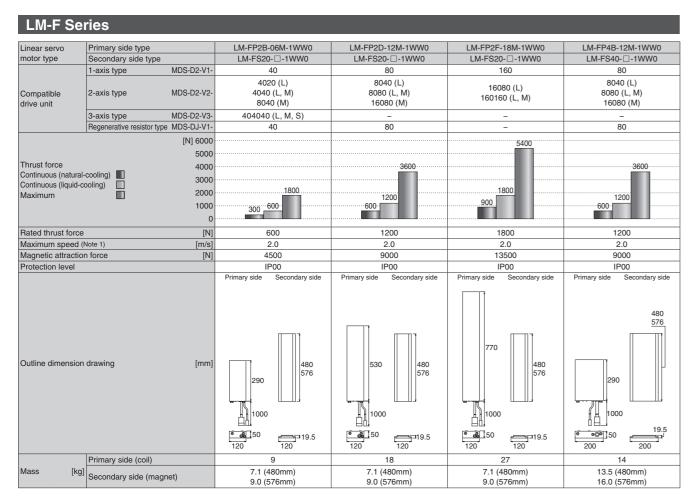
Direct-drive Primary side type TM-RBS012220 Compabile 2-axis type MDS-D2-V2 400 2-axis type MDS-D2-V2 40040 (L, M) 8040 (M) 3-axis type MDS-D2-V2 40040 (L, M, S) 8040 (M) 3-axis type MDS-D2-V2 400400 (L, M, S) 8040 (M) 3-axis type MDS-D2-V2 400400 (L, M, S) 8040 (M) 3-axis type MDS-D2-V2 400400 (L, M, S) 8040 (M) 3-axis type MDS-D2-V2 4004040 (L, M, S) 8040 (M) 3-axis type MDS-D2-V1 40 90 90 3-axis type MDS-D2-V1 90 90 90 90 Axis torque 100 100 90 90 90 90 Outline dimension drawing [mm] 1.7 100 1.7 100 1.7 Direct-drive Primary side type TM-BBS105C20 100 100 100 100 100 100 100 100 100 100 10 100 <th>Direct-drivo</th> <th>Primary side ty</th> <th>De</th> <th>TM-RBP012C20</th> <th></th>	Direct-drivo	Primary side ty	De	TM-RBP012C20	
1-axis type MDS-D2-V1 40 2-axis type MDS-D2-V2 4040 (L) 3-axis type MDS-D2-V3 40404 (L) Automation 250 9 0 250 9 9 1 200 9 9 Anal torus flip-dat-coling) 100 9 9 100 36 9 100 9 9 100 9 Anaximum rotation speed [r/min] 22 Protection level IP00 17 Outline dimension drawing [mm] 17 Direct-drive Primary side (coli) 3.9 Secondary side (pp TM-RBS105G20 100 Compatible 2-axis type MDS-D2-V2 160160 (L) Aris type MDS-D2-V2 160160 (L) 10160 (L) Arise type MDS-D2-V2					
Compatible drive unit 2-axis type MDS-D2-V2 4020 (L) 94040 (L, M) 8040 (M) 3-axis type MDS-D2-V3 404040 (L, M, S) Beprenetie resistry (MDS-D2-V3 404040 (L, M, S) Output 80 9 Rest provide resistry (MDS-D2-V3 404040 (L, M, S) Beprenetie resistry (MDS-D2-V3 404040 (L, M, S) Rest provide resistry (MDS-D2-V3 404040 (L, M, S) Provide resistry (MDS-D2-V3 404040 (L, M, S) Rest provide resistry (MDS-D2-V3 4000 Max. torque 100 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9					
Compatible drive unit drive unit 3-axis type MDS-D2-V2- MDS-D2-V3- 404040 (L, M) 8040 (M) 40 3-axis type MDS-D2-V3- 404040 (L, M, S) 40 Quiput 100 250 Max torque 100 250 Max torque 100 39 Bate torque fipal cooling) 100 39 Bate torque fipal cooling) 100 39 Max torque 100 39 Protection level IP00 Outline dimension drawing [mm1] Quitine dimension drawing [mm1] Immary side (coll) 3.9 Secondary side type TM-HBP105G20 Mass [kg] Primary side (coll) 3.9 Secondary side type TM-HBP105G20 1 Direct-rive Promeary side type TM-HBP105G20 1 Protection level 100 1.7 100 Compatible Pasis type MDS-D2-V2- 16080 (L) 1 Protection level 100 100 100 100 10 R		71.			
g-axis type MDS-D2-V3 404040 (L, M, S) Imprendim restoringe MDS-D2-V1 40 [N - m] 300 200 200 Output 200 200 Rest torque (lpuid-cooling) 150 36 Max. torque 100 39 Pated output MI 252 Outline dimension drawing [mm1] 22 Protection level IP00 17 Outline dimension drawing [mm1] 1.7 Direct-rive Primary side (col) 3.9 Secondary side (magnet) 1.7 1.7 Direct-rive Primary side type TM-HBS105G20 I taxis type MDS-D2-V1 160 Compatible 2-axis type MDS-D2-V2 1000 100 100 Output 800 100 Pated output MDS-D2-V2 16006 (L, M) Represelve reside type TM-HBS105G20 100 Protection level 100 100 Output 800 1		2-axis type	MDS-D2-V2-	4040 (L, M)	
Represente restor type MDS-DJ-V1- 40 [N - m] 300 200 200 All to type (figuid cooling) 150 36 0 12 100 Rated output 0 220 Maximum rotation speed [r/min] 500 Motor inertia [Ng - cm] 22 Protection level IP00 Outline dimension drawing [mm] 17 Direct-drive Primary side (paid (magnet) 1.7 Direct-drive Secondary side (pagnet) 1.7 Compatible 2-axis type MSD-D2-V1 160 Compatible 2-axis type MDS-D2-V2 160160 (L, M) Representer setting (pagnet) 1.7 0 1000 Output 1200 1000 1000 1000 Output Rated output (M 199 1	drive unit			.,	
[N · m] 300 250 Rate longe liquid cooling) 150 Max. torque 150 Bated output [M] 252 Maximum rotation speed [r/mi] Maximum rotation speed [r/mi] Outline dimension drawing [mm] Protection level IP00 Outline dimension drawing [mm] Image: speed spe					
Output 200 Rate toruse (injekt-coing) 100 Secondary side (rrinin) 500 Max. torque 100 Secondary side (coil) 30 Protection level 1P00 Outline dimension drawing [mm] Mass [kg] Primary side (coil) 3.9 Secondary side type TM-RBP105G20 motor type Secondary side type 1-axis type MDS-D2-V2 1 axis		Regenerative resistor typ		40	
Output Rated torque (iquid-cooling) 200					
Output 150 Max. torque 100 50 12 And torque (iquid-cooling) 100 6 12 Maximum rotation speed [//min] Motor inertia [kg - cm] Protection level IPO0 Outline dimension drawing [mm] Image: the system of the			250		
Max. torque 100 Rated output IVV Maximum rotation speed [r/min] Motor inertia [kg - cm] Protection level IP00 Outline dimension drawing [mm] Image: speed in the	Output		200		
100 38 60 12 Rated output IW Maximum rotation speed Ir/min Outline dimension drawing [mm] 22 Protection level Outline dimension drawing [mm] 100 3.9 Secondary side (coil) 3.9 Secondary side (magnet) 1.7 Direct-drive Primary side type TM-RBP105G20 Compatible 2-axis type MDS-D2-V1 16080 (L) 16080 (L) 1exis type MDS-D2-V1 160800 (L) 1exis type MDS-D2-V1 160800 (L) 1exis type MDS-D2-V1 160800 (L) 1exis type MDS-D2-V1 1601800 (L) 1exis type MDS-D2-V1 160800 (L) 1exis type MDS-D2-V1 160800 (L) 1exis type MDS-D2-V1 1601800 (L) 1exis type MDS-D2-V1 1601800 (L) 1exis type MDS-D2-V1 - 0utput Red toruput Red torupe (liquid-cooling)			150		
0 12 Maximum rotation speed [r/mi] 500 Motor inertia [kg - cm] 22 Protection level IP00 Outline dimension drawing [mm] 100 Mass [kg] Primary side (coil) 3.9 Secondary side (per the secondary side (magnet) 1.7 1.7 Direct-drive Primary side (per the secondary side type TM-RBP105G20 motor type Secondary side type TM-RB105G20 I = axis type MDS-D2-V1 1600 Compatible 2-axis type MDS-D2-V1 16080 (L) Reset torque (Figuide cooling) 800 1000 1200 Output Representive resider type 1000 1200 1000 Output 800 600 1000 1000 1000 Max: torque 000 1000 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100	Max. torque		100		
0				12	
Maximum rotation speed [r/min] 500 Motor inertia [kg - cm²] 22 Protection level IP00 Outline dimension drawing [mm]			0		
Motor inertia [kg · cm ²] 22 Protection level IP00 Outline dimension drawing [mm] IP00 Mass [kg] Primary side (coll) 3.9 Mass [kg] Primary side (coll) 3.9 Direct-drive Primary side (magnet) 1.7 Direct-drive Primary side (magnet) 1.7 Direct-drive Primary side (ppe TM-RBP105G20 motor type Secondary side (magnet) 1.7 Output 1-axis type MDS-D2-V1 16000 (L) 16000 (L) Protection level IP00 Output Representive restortype TM-RBP105G20 Max. torque [N · m] 1400 1000 1000 1000 0 Max. torque [Vmin] 500 Max. torque [Kg · cm ²] 395 Protection level I/Vinij 500 Output [kg · cm ²] 395 Protection level IP00 105	Rated output	it	[W]	252	
Protection level IP00 Outline dimension drawing [mm] Image: Base of the second seco					
Outline dimension drawing [mm] Mass [kg] Primary side (coli) 3.9 Mass [kg] Secondary side (magnet) 1.7 Direct-drive Primary side type TM-RBP105C20 motor type Secondary side type TM-RBP105C20 Compatible 1-axis type MDS-D2-V1 160 Compatible 1-axis type MDS-D2-V2 160160 (L, M) Representer resistor type MDS-D2-V2 160160 (L, M) Representer resistor type 0 0 Output Representer resistor type 1000 000 1000 0 01000 000 0 01000 1000 0 01000 000 0 01000 000 0 01000 000 0 000 1000 0 000 000 0 000 000 0 000 000 0 000 000 0 <tr< td=""><td></td><td></td><td>[kg · cm²]</td><td></td><td></td></tr<>			[kg · cm ²]		
Mass [kg] Primary side (coil) 3.9 Secondary side (magnet) 1.7 Direct-drive Primary side type TM-RBP105G20 Compatible 1-2 axis type MDS-D2-V1 1 axis type MDS-D2-V2 16080 (L) 1 axis type MDS-D2-V2 160160 (L, M) Pegnerative resistor type MDS-D2-V2 160160 (L, M) Max. torque 1000 100 Max. torque 1000 105 Max. torque [N - m] 1400 100 Max. torque [N - m] 395 100 Protection level IP00 105 Outline dimension drawing [mm] 105 DIA 230 12 105	Protection le	vel		IP00	
Mass [Kg] Secondary side (magnet) 1.7 Direct-drive motor type Primary side type TM-RBP105G20 Compatible drive unit 1-axis type MDS-D2-V1 160 2-axis type MDS-D2-V2 160080 (L) 160160 (L, M) 160 Regenerative resistor type MDS-D2-V1 - - Output Rated torque (iquid-cooling) 1200 1000 800 Max. torque 0 1200 105 260 Max. torque 0 1000 800 0 0 Rated output [W] 2199 0 0 0 0 Rated output [W] 2199 1000 0	Outline dime	ension drawing	[mm]	DIA 56	
Mass [Kg] Secondary side (magnet) 1.7 Direct-drive motor type Primary side type TM-RBP105G20 Compatible drive unit 1-axis type MDS-D2-V1 160 2-axis type MDS-D2-V2 160080 (L) 160160 (L, M) 160 Regenerative resistor type MDS-D2-V1 - - Output Rated torque (iquid-cooling) 1200 1000 800 Max. torque 0 1200 105 260 Max. torque 0 1000 800 0 0 Rated output [W] 2199 0 0 0 0 Rated output [W] 2199 1000 0					
1.7 1.7 Direct-drive motor type Primary side type TM-RBP105G20 Secondary side type TM-RBS105G20 1-axis type MDS-D2-V1 160 2-axis type MDS-D2-V2 160160 (L) Primary side resistor type MDS-D2-V2 160160 (L, M) Regenerative resistor type MDS-D2-V1 - Output Regenerative resistor type 1000 1000 1200 1000 Max. torque 1000 1200 0 105 260 0 105 260 0 105 260 0 105 260 0 105 260 0 105 260 0 105 260 0 105 260 0 105 260 0 105 100 Maximum rotation speed [r/min] 500 Motor inertia [kg - cm²] 395 Protection level IP00 105 DIA 130 DIA 230 105 <td>Mass [kg]</td> <td></td> <td></td> <td></td> <td></td>	Mass [kg]				
motor type Secondary side type TM-RBS105G20 Compatible drive unit 1-axis type MDS-D2-V1 160 2-axis type MDS-D2-V2 160160 (L, M) Regenerative resistor type MDS-D2-V1 - Output Regenerative resistor type MDS-D2-V2 160160 (L, M) Rated torque (liquid-cooling) 1200 1000 1000 Max. torque 0 1000 105 260 0 1000 1000 105 260 0 Rated torque (liquid-cooling) 800 600 105 260 0 Maximum rotation speed [r/min] 500 1000 1000 1000 Protection level IP00 IP00 1000 105 1	[Secondary side	e (magnet)	1.7	
motor type Secondary side type TM-RBS105G20 Compatible drive unit 1-axis type MDS-D2-V2 16000 (L) 160160 (L, M) 2-axis type MDS-D2-V2 160160 (L, M) Represente resistor type MDS-D2-V1 – (N - m) 1400 – Qutput Rated torque (liquid-cooling) 1200 1000 Max. torque 1000 1000 0 1000 1000 Maximum rotation speed [r/min] 500 Motor inertia [kg - cm²] 395 Protection level IP00 105	Direct-drive	Primary side ty	ре	TM-RBP105G20	
Compatible drive unit 2-axis type MDS-D2-V2- Pegenerative resistor type 16080 (L) 160160 (L, M) Pegenerative resistor type MDS-DJ-V1- (N · m] 1400 – Output 800 1000 Rated torque (liquid-cooling) 800 600 Max. torque 600 105 Max. torque 600 105 Maximum rotation speed [r/min] 500 Motor inertia [kg · cm²] 395 Protection level IP00 IP00			-	TM-RBS105G20	
drive unit 22-8xis type MDS-D2-V2- 160160 (L, M) Regenerative resistor type MDS-DJ-V1- - Output [N · m] 1400 - Rated torque (liquid-cooling) 800 800 Max. torque 600 400 200 0 - Rated output [W] 2199 Maximum rotation speed [r/min] 500 Motor inertia [kg · cm²] 395 Protection level IP00 -				160	
Invertising Invertising Invertising Invertising Protection level Invertising Invertising Invertising Output Rated torque (liquid-cooling) Invertising Invertising Invertising Rated torque (liquid-cooling) Invertising Invertising Invertising Invertising Max. torque Invertising Invertising Invertising Invertising Invertising Rated output IVV 2199 Invertising Invertising Invertising Invertising Invertising Maximum rotation speed [r/min] 500 Invertising		2-axis type	MDS-D2-V2		
Image: Second	drive unit			160160 (L, M)	
Output 1200 Rated torque (liquid-cooling) 800 Max. torque 600 400 200 0 105.280 Maximum rotation speed [r/min] 500 500 Motor inertia [kg · cm²] 395 Protection level Protection level IP00		Regenerative resistor typ	NID2-D2-V1-	-	
Output 1000 Rated torque (liquid-cooling) 800 Max. torque 600 400 200 0 105 Protection level [r/min] Fortection level IP00					
Output Rated torque (liquid-cooling) 800 Max. torque 600 400 200 0 105 260 0 Maximum rotation speed [r/min] 500 500 Motor inertia [kg · cm²] 995 97 Protection level IP00					
Rated torque (liquid-cooling) 0 Max. torque 600 400 400 200 0 Rated output [W] Rated output [W] Maximum rotation speed [r/min] Motor inertia [kg · cm²] 395 Protection level IP00 IP00	Output				
Max. torque		quid-cooling) 🔲			
200 105 200 0 0 0 Maximum rotation speed [r/min] 500 Motor inertia [kg · cm²] 395 Protection level IP00					
0 0 Rated output [W] Maximum rotation speed [r/min] 500 Motor inertia Motor inertia [kg · cm²] 395 Protection level Protection level IP00				105 260	
Rated output [W] 2199 Maximum rotation speed [r/min] 500 Motor inertia [kg · cm²] 395 Protection level IP00 Outline dimension drawing [mm] Image: Dia 130 DIA 130 DIA 230 13					
Maximum rotation speed [r/min] 500 Motor inertia [kg · cm²] 395 Protection level IP00 Outline dimension drawing [mm] Image: Dia 130 DIA 130 DIA 230 13			0		
Motor inertia [kg · cm²] 395 Protection level IP00 Outline dimension drawing [mm] Image: Dia 130 DIA 130 DIA 230 DIA 230					
Protection level IP00 Outline dimension drawing [mm] Primary side (coil) 13					
Outline dimension drawing [mm]			[kg · cm ²]		
Primary side (coil) 13	TOLECTION IE			IFUU	
Money Firmary side (coil) 13					
Mana Ilan Primary side (coil) 13	Outline dime	ension drawing	[mm]		
Maga light	Outline dime	ension drawing	[mm]		

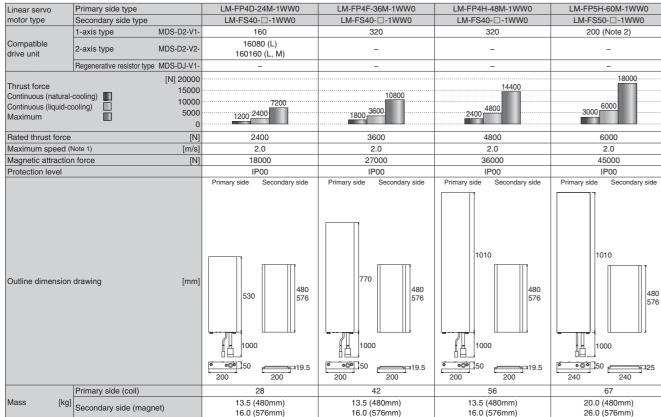
(Note 2) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.



Drive system Servo motor 200V TM-RB Series

Drive system Servo motor 200V LM-F Series

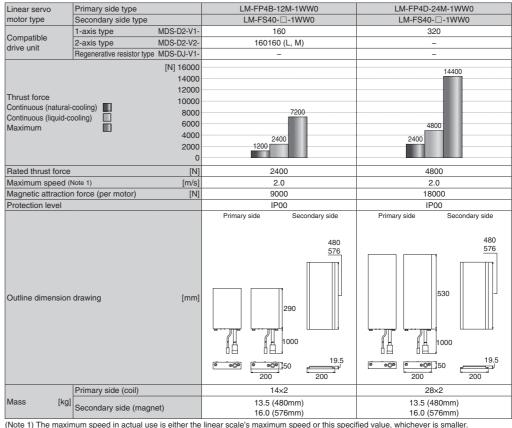




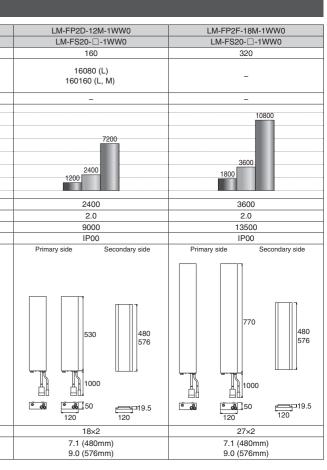
(Note 1) The maximum speed in actual use is either the linear scale's maximum speed or this specified value, whichever is smaller (Note 2) 400V specifications

(Note 3) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

			e unit	-			
Linear servo	Primary side type			LM-FP2B-06M	-		
motor type	Secondary side ty			LM-FS20-D-	1WW0		
	1-axis type	MDS-D2-V1-					
Compatible	2-axis type	MDS-D2-V2-		8040 (L 8080 (L, I	,		
drive unit	2-axis type	WD5-D2-V2-		16080 (L, 1			
	Regenerative resisto	r type MDS-DJ-V1-		-	,		
		[N] 12000					
		10000					
Thrust force		8000					
Continuous (natur		6000					
Continuous (liquid	-cooling)	4000			3600		
Maximum		2000		1000			
				600 1200			
		0					
Rated thrust for		[N]		1200			
Maximum speed	ion force (per motor)	[m/s] [N]		2.0 4500			
Protection level		[11]		4500 IP00			
Outline dimensio	on drawing	[mm]	Prima	290 290 1000 120	480 576 120		
	Primary side (coil)			9×2			
Mass [k	[g] Secondary side (n			7.1 (480m 9.0 (576m			



(Note 1) The maximum speed in actual use is either the linear scale's maximum speed or this specified value, whichever is smaller. (Note 2) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.



SJ-D Series (Normal specifications)

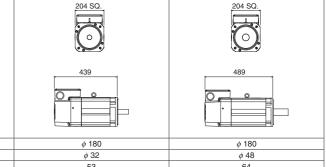
Motor type			SJ-D3.7/100-01	SJ-D5.5/100-01	SJ-D5.5/120-01	SJ-D7.5/100-01	SJ-D7.5/120-01
	1-axis type MDS	S-D2-SP-	80	80	80	160	160
Compatible drive unit	2-axis type MDS	S-D2-SP2-	8040 (L) 8080 (L, M) 16080S (M)	8040 (L) 8080 (L, M) 16080S (M)	8040 (L) 8080 (L, M) 16080S (M)	16080S (L)	16080S (L)
Multi axis MDS-DN		SPV2-	-	10080	10080	10080	10080
	integrated type	SPV3-	-	10080	10080	10080	10080
	Regenerative resistor type MDS	S-DJ-SP-	80	100	100	120	120
Output Acceleration/Deceleration Short-time rating Continuous rating			kW 6 4 2 2 500 6000 10000 10000 10000 10000 10000 10000 10000 10000	kW 6 4 4 5 5 5 5 5 0 5 5 0 5 0 5 0 5 0 5 0 5	kW 5.5 6 4 0 1500 6000 12000 rmin Short-time rating (30min)	kW 6 5.5 1500 6000 10000 rmin Short-time rating (30min)	kW r7.5 6 5.5 0 1500 6000 12000 rmin Short-time rating (30min)
Base rotatio	on speed	[r/min]	1500	1500	1500	1500	1500
Max. rotation	n speed in constant output rang	e [r/min]	6000	6000	6000	6000	6000
Maximum ro	otation speed	[r/min]	10000	10000	12000	10000	12000
Continuous	rated torque	[N · m]	14.0	23.6	23.6	35.0	35.0
Motor inertia	a	[kg · m²]	0.0074	0.013	0.013	0.023	0.023
Outline dimension drawing (flange type) [mm]			174 SQ.	417	417	204 SQ.	204 SQ.
			¢ 150	¢ 150	¢ 150	¢ 180	¢ 180
Flange tittin	9 44410101	Luuui l	¥ 100	φ 100	y 100	φ 100	¥ 100
Flange fittin Shaft diame	ater	[mm]	<i>φ</i> 28	<i>φ</i> 28	<i>φ</i> 28	ø 32	ø 32

Motor type			SJ-D11/80-01	SJ-D11/100-01		SJ-D5.5/120-02			
	1-axis type	MDS-D2-SP-	160	160	-	160	200		
Compatible drive unit	2-axis type	MDS-D2-SP2-	16080S (L)	16080S (L)	-	16080S (L)	-		
anve unit	Multi axis	MDS-DM2-	16080	16080	10080	16080	20080		
	integrated type	SPV3-	16080	16080	10080	16080	20080		
	Regenerative resistor type	MDS-DJ-SP-	160	160	-	-	-		
Output Acceleration %ED rating Short-time ra Continuous	ating		kW 15 0 7.5 0 1500 4500 8000 rmin Short-time rating (30min)	kW 15 0 10 10 10 10 10 1000 1000 1000 100	kW <u>7.5</u> 6 5.5 2 2 2000 2800 8000 12000 rmin %ED rating (25%ED)	kW 15 10 5.5 200 2800 6000 8000 (2000 rmin %ED rating (25%ED)	kW 15 10 15,5,3,7 10 10 10 15,5,3,7 10 10 10 2000 1000 10000 10000 1000000		
Base rotatio	on speed	[r/min]	1500	1500		2800			
Max. rotation	n speed in constant output	t range [r/min]	4500	4500		8000			
Maximum ro	otation speed	[r/min]	8000	10000		12000			
Continuous	rated torque	[N · m]	47.7	47.7	12.6				
Motor inertia	a	[kg · m²]	0.031	0.031		0.0074			
Outline dime	ension drawing (flange t	type) [mm]	204 SQ.	204 SQ.		174 SO.			
	, or a second								
Flange fitting	g diameter	[mm]	<i>φ</i> 180	<i>φ</i> 180		<i>φ</i> 150			
Shaft diame	eter	[mm]	<i>φ</i> 48	<i>φ</i> 48		<i>φ</i> 28			
onun alamo			64	64		26			

				tweight specificatio	1	
lotor type				SJ-DJ5.5/100-01	SJ-DJ5.5/120-01	SJ-DJ5.5/120-02
	1-axis type	MDS-D2-SP	-	80	80	-
				8040 (L)	8040 (L)	
compatible	2-axis type	MDS-D2-SP	2-	8080 (L, M)	8080 (L, M)	-
rive unit				16080S (M)	16080S (M)	
iive uiiit	Multi axis		SPV2-	10080	10080	10080
	integrated ty	MDS-DM2-	SPV3-	10080	10080	10080
	<u> </u>	esistor type MDS-DJ-SP		100	100	-
	l'ingenieration			100	100	
				kW	LW	1-147
				8	^{kW} <u>5.5</u>	kW
Output				6 5.5	3.7	6 5.5
	n/Deceleratior			3.7	4	-3.7
%ED rating					2	4
Continuous	rating			2		2
/01111110005	raung	-			0	01500 4500 10000
				1500 2000 4500 10000	01500 4500 12000 2000 r/min	⁰ 1500 4500 12000 2000 r/min
				rmin %ED rating (25%ED)	%ED rating (25%ED)	%ED rating (25%ED)
	0	hort-time	r/min]	1500	1500	1500
lase rotatio	n sneed –			2000	2000	
			[r/min]			2000
	· ·	tant output range	[r/min]	4500	4500	4500
laximum ro	otation speed	[[r/min]	10000	12000	12000
Continuous	rated torque	[N · m]	17.7	17.7	17.7
Aotor inertia			g ∙ m²]	0.0074	0.0074	0.0074
				174 SQ.	174 SQ.	174 SQ.
				•		
				(o)	10)	((()
Outline dime	ension drawin	g (flange type)	[mm]			
				327	327	327
				1.150	1.150	
lange fitting			[mm]	φ 150	φ 150	φ 150
Shaft diame	ter		[mm]	<i>φ</i> 28	φ 28	φ 28
Mass			[kg]	26	26	26
lotor type				SJ-DJ7.5/100-01	SJ-DJ11/100-01	SJ-DJ15/80-01
	1-axis type	MDS-D2-SP	-	160	160	200
	7.5					
	2-axis type	MDS-D2-SP	2-	16080S (L)	16080S (L)	_
Compatible	2-axis type	WD0-D2-0F	-	100000 (L)	100000 (L)	-
lrive unit			0010	40000	40000	
	Multi axis	MDS-DM2-	SPV2-	10080	16080	20080
	integrated ty	De HIEG BINE	SPV3-	10080	16080	20080
	Regenerative r	esistor type MDS-DJ-SP	-	120	160	-
						kW
				kW7.5	kW	16
					16	12 11
Dutput				6 5.5	12 11	
%ED rating				4	8 7.5	8
Short-time ra	ating					4
Continuous				2	4	
	3	_				1500 2000 4000 8000
				1500 2000 4500 10000 rmin	1500 2000 4500 10000 r/min	r/min
				Short-time rating (15min)		%ED rating (15%ED)
				Short-unie raurig (150000)	Short-time rating (15min)	Short-time rating (15min)
	9	hort-time	r/min1	1500	1500	1500
Base rotatio	n sneed 🛛 🛏		[r/min] [r/min]	1500 2000	1500 2000	1500 2000

Motor type				SJ-DJ7.5/100-01	SJ-DJ11/100-01	SJ-DJ15/80-01	
	1-axis type	MDS-D2-SF	P-	160	160	200	
Compatible	2-axis type	MDS-D2-SF	P2-	16080S (L)	16080S (L)	-	
drive unit	Multi axis		SPV2-	10080	16080	20080	
	integrated type	MDS-DM2-	SPV3-	10080	16080	20080	
	Regenerative resisto	r type MDS-DJ-SF	D_	120	160	-	
Output %ED rating Short-time rating Continuous rating			kW 7.5 6 15.5 1500 2000 4500 10000 rmin Short-time rating (15min)		kW 16 12 17.5 1500 2000 4500 10000 rmin Short-time rating (15min)	KW 16 12 4 15 15 15 15 15 15 15 15 15 15	
						Short-time rating (15min)	
Base rotatio	on speed		[r/min]	1500	1500	1500	
	Contin		[r/min]	2000	2000	2000	
	n speed in constant o		[r/min]	4500	4500	4000	
	otation speed		[r/min]	<u>10000</u> <u>10000</u> 26.3 35.8		8000	
	rated torque		[N · m]			52.5	
Motor inertia	а	[K	(g · m²]	0.013	0.023	0.031	
				174 SQ.	204 SQ.	204 SQ.	
Outline dimension drawing (flange type) [mm]		[mm]					
Flange fittin	g diameter		[mm]	φ 150	φ 180	φ 180	
Shaft diame	eter		[mm]	<i>φ</i> 28	φ 32	φ 48	
Mass			[kq]	39	53	64	

(Note 2) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.



Drive system Spindle motor 200V SJ-DL Series

SJ-DI	L Series (Lo	w-inert	ia s	pecification)		
Motor type				SJ-DL0.75/100-01	SJ-DL1.5/100-01	SJ-DL5.5/150-01T
	1-axis type	MDS-D2-SP	-	20	40	160
Compatible	2-axis type	MDS-D2-SP	2-	2020 (L, M) 4020 (M)	4020 (L) 4040S (L, M) 8040 (M)	16080S (L)
drive unit	Multi avia		SPV2-	-	-	16080
	Multi axis integrated type		SPV3-	-	-	16080
	integrated type		SPHV3-	-	-	-
	Regenerative resistor type	MDS-DJ-SP	-	-	-	-
Output Acceleration/Deceleration				kW 1.5 1.0 .5 .5 .5 .5 .50 1800 10000 rmin Short-time rating (10min)	kW 2.0 1.5 1.5 0 1.5 1.0 1.5 1.5 1.0 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5	kW 15 10 5.5.3.7 0 2500 3000 4200 15000 rrmin Short-time rating (15min) (30min)
Base rotatio	on speed n speed in constant outpu		[r/min] [r/min]	1500 10000	1500 10000	2500 15000
	otation speed		[r/min]	10000	10000	15000
	rated torque		N · m]	2.55	4.77	14.1
Motor inertia	· · · ·			0.011	0.019	0.0046
		[mm]	130 SQ.	130 SQ.	174 SQ.	
Flange fittin	-		[mm]	φ 110	φ 110	φ 150
Shaft diame	eter		[mm]	φ 22	φ 22	φ 28
Mass			[kg]	10	14	30

5.4

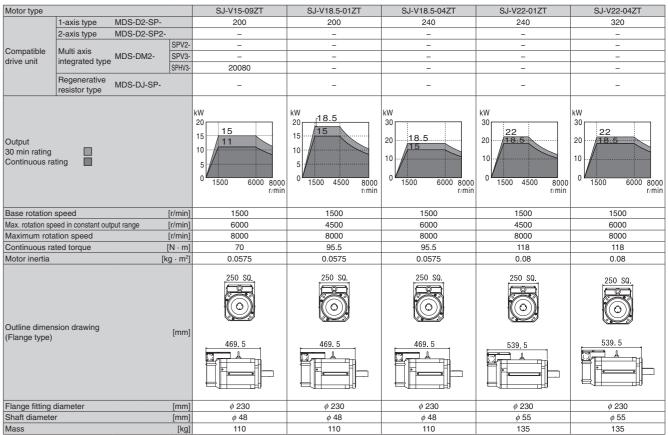
Motor type		SJ-DL5.5/200-01T	SJ-DL7.5/150-01T
1-axis type MDS-D2-SI	P.	160	160
2-axis type MDS-D2-SI	P2-	16080S (L)	16080S (L)
Compatible	SPV2-	-	16080
drive unit Multi axis MDS-DM2-	SPV3-	-	16080
integrated type	SPHV3-	-	-
Regenerative resistor type MDS-DJ-SF	D_	-	-
Output Acceleration/Deceleration Short-time rating Continuous rating		kW 15 10 5,5 3,7 5 0 15000 20000 2500 3000 4200 rrmin Short-time rating (15min) (30min)	kW 15 10 5.5 0 1500 1800 8000 15000 rmin Short-time rating (30min)
Base rotation speed	[r/min]	2500	1500
Max. rotation speed in constant output range	[r/min]	20000	8000
Maximum rotation speed	[r/min]	20000	15000
Continuous rated torque	[N · m]	14.1	35.0
Motor inertia [k	(g · m²]	0.0046	0.016
		174 SQ.	204 SQ.
Outline dimension drawing (flange type)	[mm]		
Flange fitting diameter	[mm]	<i> </i> ϕ 150	φ 180
Shaft diameter	[mm]	φ 28	φ 32
Mass	[kg]	30	56

(Note) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

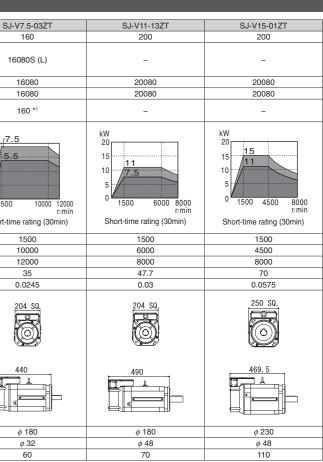
Drive system Spindle motor 200V SJ-V Series

SJ-V S	Series (S	tandard	spe	cification)	
Motor type				SJ-V2.2-01T	S
	1-axis type	MDS-D2-SP-		40	
Compatible	2-axis type	MDS-D2-SP2-		4020 (L) 4040S (L, M) 8040 (M)	
drive unit	Multi axis integrated type	MDS-DM2-	SPV2- SPV3-		
	Regenerative resistor type	MDS-DJ-SP-		40	
Output Short-time ra Continuous ra				kW 6 2.2 0 1500 6000 10000 r/min Chot time rating (1 Emin)	kW 8 14 6 5 5 4 2 0 150
				Short-time rating (15min)	Short-1
Base rotation			[r/min]	1500	
	beed in constant out		[r/min]	6000	
Maximum rot			[r/min]	10000	
Continuous ra Motor inertia	ated torque		[N · m] a · m²]	9.5 0.00675	
	nsion drawing	л <u>і</u>	[mm]	300	
Flange fitting Shaft diamete			[mm]	φ 150 φ 28	
Mass			[kg]	25	

*1 The maximum rotation speed is 10000r/min.



(Note) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.



Drive system Spindle motor 200V SJ-V Series

SJ-V Series (Standard specification)

Motor type		SJ-V26-01ZT	SJ-V37-01ZT	SJ-V45-01ZT	SJ-V55-01ZT
	MDS-D2-SP-	320	400	640	640
2-axis type	MDS-D2-SP2-	-	-	_	-
Compatible drive Multi axis integrated type	MDS-DM2-	-	-	-	-
Regenerative resistor type	MDS-DJ-SP-	-	-	-	-
Output 30 min rating Continuous rating		kW 30 10 10 1500 6000 8000 r/min	kW 60 37 30 0 1150 3450 6000 r/min	kW 60 20 0 1500 4500 6000 r/min	kW 60 40 45 0 1150 3450 4500 r/min
Base rotation speed	[r/min]	1500	1150	1500	1150
Max. rotation speed in constant output range	[r/min]	6000	3450	4500	3450
Maximum rotation speed	[r/min]	8000	6000	6000	4500
Continuous rated torque	[N · m]	140	249	236	374
Motor inertia	[kg · m ²]	0.0925	0.34	0.34	0.8475
Outline dimension drawing (Flange type)	(mm)	250 SQ.	320 SQ.	320 S0.	480 SQ. 724
Flange fitting diameter	[mm]	<i>φ</i> 230	<i>φ</i> 300	<i>φ</i> 300	<i>φ</i> 450
Shaft diameter	[mm]	<i>ф</i> 55	<i>φ</i> 60	<i>φ</i> 60	φ 75
Mass	[kg]	155	300	300	450

(Note) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

Motor type SJ-VL2.2-02ZT MDS-D2-SP-1-axis type 40 4020 (L) 2-axis type MDS-D2-SP2-4040S (L, M) 8040 (M) Compatible SPV2integrated type MDS-DM2drive unit SPV3-_ SPHV3 Regenerative MDS-DJ-SP-80 *2 resistor type kW Output 15 min rating 30 min rating Continuous rating 3000 15000 r/min Base rotation speed [r/min] 3000 Max. rotation speed in constant output range [r/min] 15000 15000 Maximum rotation speed [r/min] Continuous rated torque [N · m] 4.77 0.0024 Motor inertia [kg · m²] 130 SQ. Outline dimension drawing [mm] (Flange type) 325

SJ-V Series (High-speed specification)

 Flange fitting diameter
 [mm]
 φ 110

 Shaft diameter
 [mm]
 φ 22

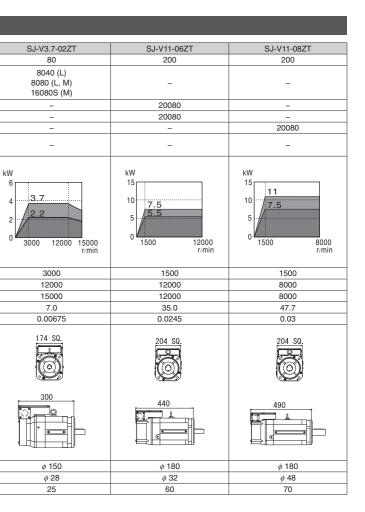
 Mass
 [kg]
 20

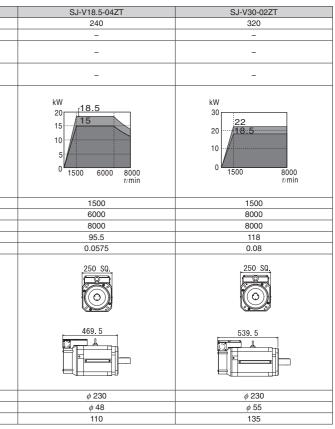
*1 The acceleration/deceleration frequency is limited by the regenerative resistor.

*2 The maximum rotation speed is 12000r/min.

Motor type			SJ-V2	SJ-V22-06ZT		
	1-axis type	MDS-D2-SP-	2	240		
	2-axis type	MDS-D2-SP2-		-		
Compatible drive unit	Multi axis integrated type	MDS-DM2-		-		
	Regenerative resistor type	MDS-DJ-SP-		-		
Output 30 min rating Continuous ra	ating		kW 30 20 15 10 1500	8000 r/min		
Base rotation	speed	[r/mir] 1	1500		
Max. rotation sp	eed in constant out	put range [r/mir] 8	8000		
Maximum rota	ation speed	[r/mir] 8	8000		
Continuous ra	ated torque	[N · m] 7	70.0		
Motor inertia		[kg · m	2] 0.0	0575		
Outline dimension drawing (Flange type)		[mn				
Flange fitting diameter [mm]			φ	230		
Shaft diameter [mm]] <i>φ</i>	48		
Mass		[kg	1	110		

(Note) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.





SJ-V S	Series (Wide ran	ige co	onstant output s	pecification)			
Motor type			SJ-V11-01T	SJ-V11-09T	SJ-V15-03T	SJ-V18.5-03T	
	1-axis type MDS-D2-SP-		160	160	200	240	
	2-axis type MDS-D2-SP	2-	16080S (L)	16080S (L)	_	-	
Compatible drive unit		SPV2-	16080	16080	_	_	
	Multi axis integrated type MDS-DM2-	SPV3-	16080	16080	-	-	
	integrated type	SPHV3-	-	-	20080	-	
	Regenerative resistor type MDS-DJ-SP-		-	-	-	-	
Output 30 min rating Continuous rating			kW 15 10 5.5 5.5 0 750 6000 r/min	kW 15 10 5,5 0 750 6000 r/min	kW 15 10 7.5 0 750 6000 r/min	kW 15 10 5 0 750 6000 r/min	
Base rotation speed [r/min]		[r/min]	750	750	750	750	
Max. rotation speed in constant output range [r/min]			6000	6000	6000	6000	
Maximum rota	ation speed	[r/min]	6000	6000	6000	6000	
Continuous rated torque [N · m]		47.1	70.0	95.5	115		
Motor inertia [kg · m ²]		0.03	0.0575	0.0575	0.08		
Outline dimension drawing [mm] (Flange type)		mension drawing		250 \$9.	250 50.	250 50	
		[1111]					
Flange fitting	diameter	[mm]	<i>φ</i> 180	<i> </i> \$ 230	<i> </i> ϕ 230	<i>\overline 230</i>	
Shaft diameter [mm]		[mm]	<i>φ</i> 48	φ 48	φ 48	φ 55 135	
Mass [kg]			70	110	110 110		

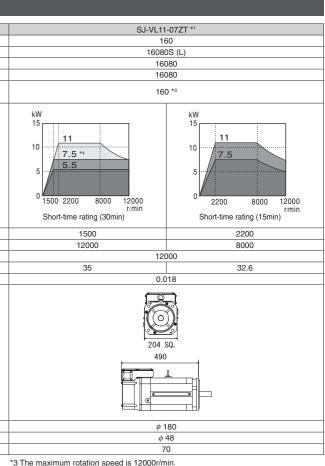
Notor type SJ-V22-06T SJ-V22-06T SJ-V22-06T SJ-V22-06T Compatible 1-asis type MDS-D2-SP- 320 320 Compatible 1-asis type MDS-D2-SP- - - - Compatible MDS-D2-SP- - - - - Molin target of type MDS-DJ-SP- - - - - Pegenerative resistor type MDS-DJ-SP- - - - - Output continuous rating Image: contract target targe							
Compatible drive unit 2-axis type MDS-D2-SP2- - - - - Compatible drive unit MDS-DM2- integrated type resistor type MDS-DM2- megenerative resistor type - - - - Output Short-time rating Short-time rating Short-time rating (30min) KW 30 -555 KW 20 -555 KW 20 -	Motor type		SJ-V22-05T	SJ-V22-09T			
Compatible drive until axis integrated type MDS-DJ-SP. - - - Pegenerative MDS-DJ-SP. - - - Output Short-time rating Continuous rated torque (r/min) KW XW		1-axis type MDS-D2-SP-	320	320	32	20	
drive unit Regenerative resistor type MDS-DJ-SP- - - - Output Short-time rating Continuous rating Note of the state of t		2-axis type MDS-D2-SP2-	-	-	-		
resistor type MUS-DJ-SP* - - - - Output Short-time rating Continuous rating Image: Continuous rating Ima			-	-	-		
Output Short-time rating Continuous rating $30 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 5 \\ 0 \\ 0$			-	-	-		
Max. rotation speed in constant output range [r/min] 6000 3500 750 3450 Maximum rotation speed [r/min] 6000 4500 750 6000 Continuous rated torque [N · m] 140 239 310 307.3 Motor inertia [kg · m²] 0.08 0.3075 0.34 Outline dimension drawing (Flange type) [mm] 539.5 631 700 Flange fitting diameter [mm] \$230 \$300 \$300 Flange fitting diameter [mm] \$230 \$300 \$300 Shaft diameter [mm] \$55 \$60 \$60	Short-time rating		30 10 15 10 750 6000 rmin	30 20 15 10 0 500 600 3500 4500 rmin	30 20 18.5 10 330 400 750 rmin	30 20 10 575 3450 6000 rmin	
Maximum rotation speed [r/min] 6000 4500 750 6000 Continuous rated torque [N · m] 140 239 310 307.3 Motor inertia [kg · m²] 0.08 0.3075 0.34 Outline dimension drawing (Flange type) [mm] 250 S0. 320 S0.	Base rotation speed [r/min]		1] 750	500	330	575	
Continuous rated torque [N · m] 140 239 310 307.3 Motor inertia [kg · m²] 0.08 0.3075 0.34 Outline dimension drawing (Flange type) [mm] 250 S0. 320 S0. 320 S0. 539.5 631 700 1 1 1 Flange fitting diameter [mm] \$230 \$300 \$300 Shaft diameter [mm] \$55 \$60 \$60	Max. rotation speed in constant output range [r/min]		n] 6000	3500	750	3450	
Motor inertia [kg·m²] 0.08 0.3075 0.34 Outline dimension drawing (Flange type) [mm] 250 S0. 320 S0.	Maximum rota	ation speed [r/mir	i] 6000	4500	750	6000	
Outline dimension drawing (Flange type) $250 \ S0$, $\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	Continuous rated torque [N · m]		140	239	310	307.3	
Outline dimension drawing (Flange type) [mm] 539.5 631 1 1 1	Motor inertia [kg · m ²]		2] 0.08	0.3075	0.34		
Shaft diameter [mm] φ 55 φ 60 φ 60							
			*				
Mass [kg] 135 280 300			-	/	r		
	Mass	[kg	1] 135	280	300		

(Note) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

SJ-VL Series (Low-inertia specification) Motor type SJ-VL11-05FZT-S01 1-axis type MDS-D2-SP-160 2-axis type MDS-D2-SP2-16080S (L) integrated type MDS-DM2-16080 *2 Compatible SPV2 drive unit SPV3-16080 *2 Regenerative MDS-DJ-SP-160 *³ resistor type kW 15г 11 10 Output Acceleration/Deceleration Short-time rating Continuous rating 1.5 <u>3</u> 5000 6000 18000 20000 r/min Short-time rating (10min) Base rotation speed Max. rotation speed in constant output range 5000 [r/min] [r/min 20000 Maximum rotation speed [r/min] 20000 Continuous rated torque [N · m] 2.8 Motor inertia [kg · m²] 0.0024 130 SQ. Outline dimension drawing [mm] 325 (Flange type) Flange fitting diameter Shaft diameter 110 [mm [mm Mass 20 [kg]

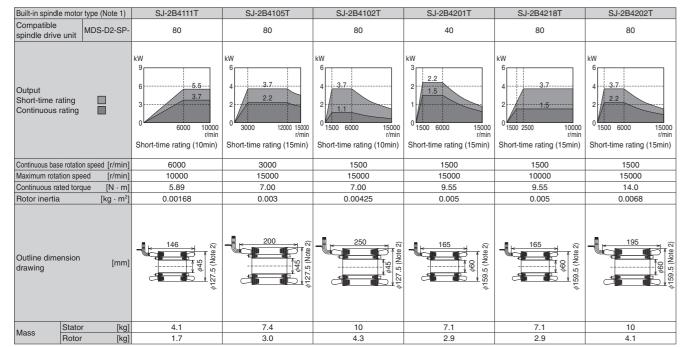
*1 The acceleration/deceleration frequency is limited by the regenerative resistor. *2 The maximum rotation speed is 15000r/min.

(Note) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.



*3 The maximum rotation speed is 12000r/min. *4 The output can be changed by parameter. Always use the designated combination.

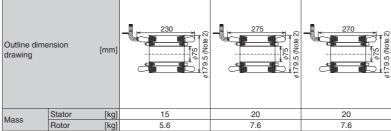
Built-in spindle n	notor type (Note 1)	SJ-2B4A01T	SJ-2B4002T	SJ-2B4004T	SJ-2B4003T	SJ-2B4B01T	SJ-2B4112T
Compatible spindle drive u	Init MDS-D2-SP-	80	20	40	40	160	40
Output Acceleration/Dec Short-time rati Continuous rat	ng 🖾 🗆 🗖	kW 3 2 1.5 1.5 1.0 3400 5000 10000 r/min Short-time rating (5min) (15min)	kW 0.9 0.6 0.75 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.7 0.75 0.4 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75	kW 3 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5	kW 3 2 1.5 1 0 3000 12000 12000 1/min Short-time rating (15min)	kW 9 6 3.7 3.7 2:2 2:2 2:2 2:2 2:2 2:2 2:2 2:2 2:2 2:	kW 3 2 1.5 1 2 500 1000 r/m Short-time rating (15mir
Continuous base r	otation speed [r/min]	5000	3000	3000	3000	5500	2500
Maximum rotatio	n speed [r/min]	10000	10000	15000	12000	10000	10000
Continuous rate	d torque [N · m]	1.91	1.27	2.39	4.77	3.82	5.73
Rotor inertia	[kg · m²]	0.00020	0.00078	0.00078	0.00138	0.00163	0.00168
Outline dimens	sion [mm]	0280.5 (Note 2)	91 09-5 (Note 2)	042 (Note 2)	042 (Note 2)	φ114.5 (Note 2)	
1266 L	itator [kg]		2.2	2.2	3.9	3.0	4.1
F F	lotor [kg]	0.5	0.9	0.9	1.7	1.5	1.7



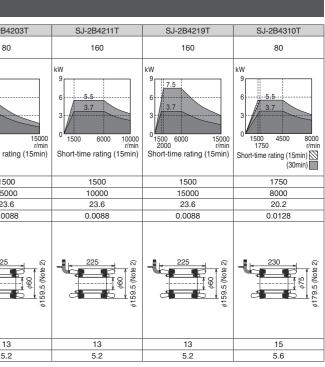
(Note 1) Please contact your Mitsubishi Electric dealer for the special products not listed above.

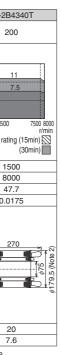
(Note 3) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

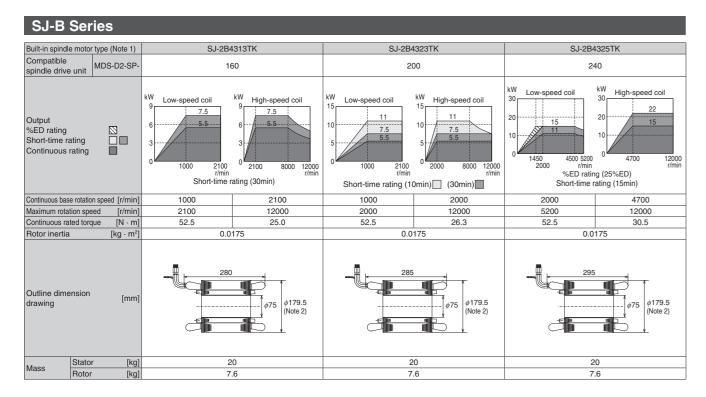
SJ-B Sei	ries				
Built-in spindle moto	or type (Note 1)	SJ-2B4207T	SJ-2B4215T	SJ-2B	
Compatible spindle drive unit	MDS-D2-SP-	160	200	8	
Output Acceleration/Deceler Short-time rating Continuous rating	ation	kW 9 6 3 0 3000 10000 r/min Short-time rating (15min)	kW 15 10 5,5,5,5,5,5,5,5,5,5,5,5,7,7,7,7,7,7,7,7	kW 9 6 3.7 0 1500 4500 Short-time r	
Continuous base rotati	on speed [r/min]	3000	1500	15	
Maximum rotation sp		10000	15000	15	
Continuous rated tor		17.5	23.6	23	
Rotor inertia	[kg · m ²]	0.0068	0.0085	0.0	
Outline dimension drawing	' [mm]	0000 2)	0159.5 (Note 2)		
Mass	or [kg]	10	13	1	
Roto	r [kg]	4.1	5.1	5.	
Built-in spindle moto	or type (Note 1)	SJ-2B4301T	SJ-2B4327T	SJ-2B	
Compatible spindle drive unit	MDS-D2-SP-	160	160	2	
Output Acceleration/Deceler Short-time rating Continuous rating	ation 🗌	kW 9 6 3.7 0 1100 6000 8180 12000 1500 r/min Short-time rating (30min)	kW 15 10 10 10 10 10 10 7.5 5 0 1500 200 6600 8000 r/min Short-time rating (15min) (30min)	kW 15 10 5 0 1350 1500 Short-time rati	
Continuous base rotati	on speed [r/min]	1100	1700	15	
Maximum rotation sp		12000	8000	80	
Continuous rated tor	que [N · m]	32.1	30.9	47	
Rotor inertia	[kg · m ²]	0.0128	0.0175	0.0	
Outline dimension drawing	[mm]				

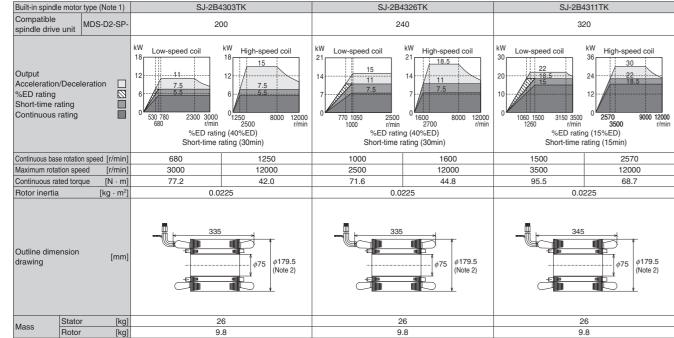


(Note 1) Please contact your Mitsubishi Electric dealer for the special products not listed above. (Note 2) These dimensions are the dimensions after machine machining. (Note 3) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.





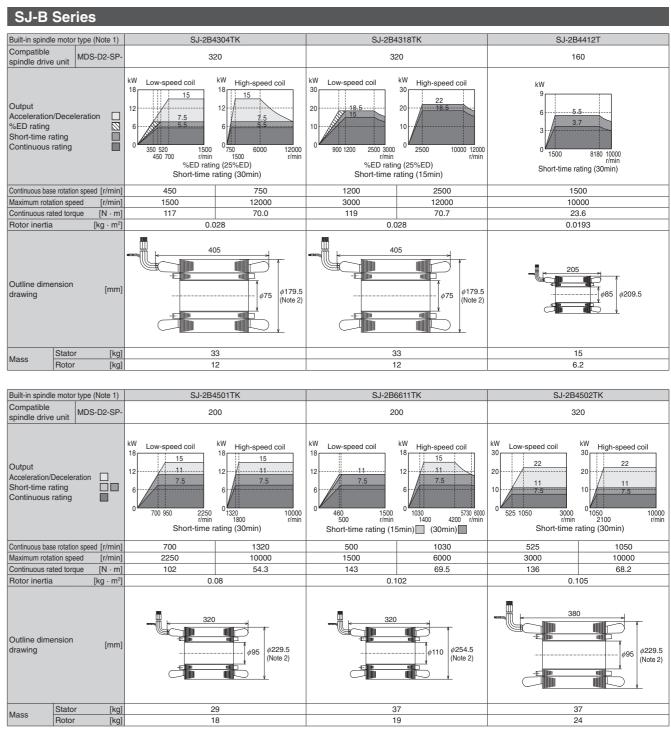


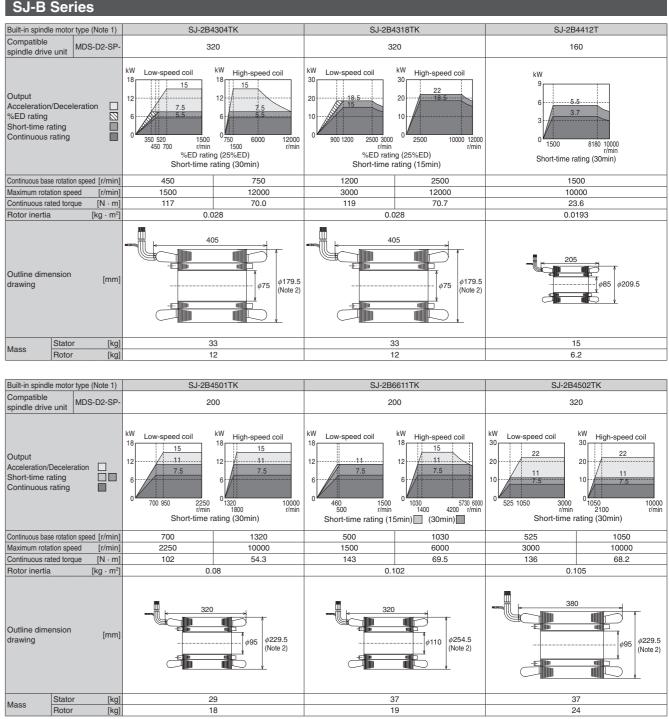


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(Note 2) These dimensions are the dimensions after machine machining.

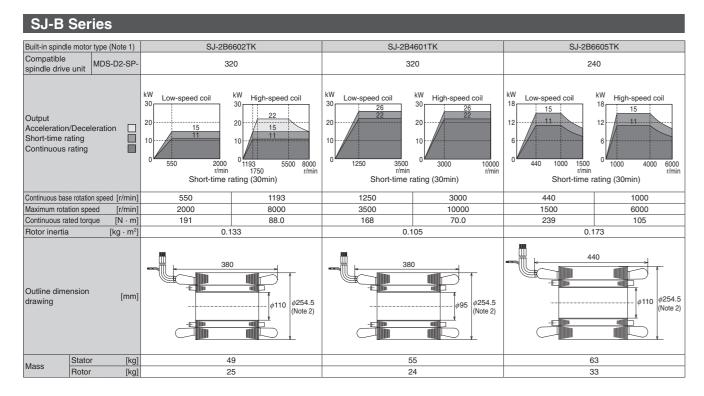
(Note 3) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

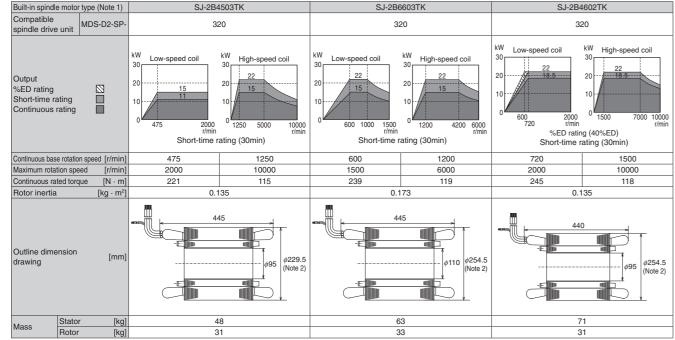




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Drive system

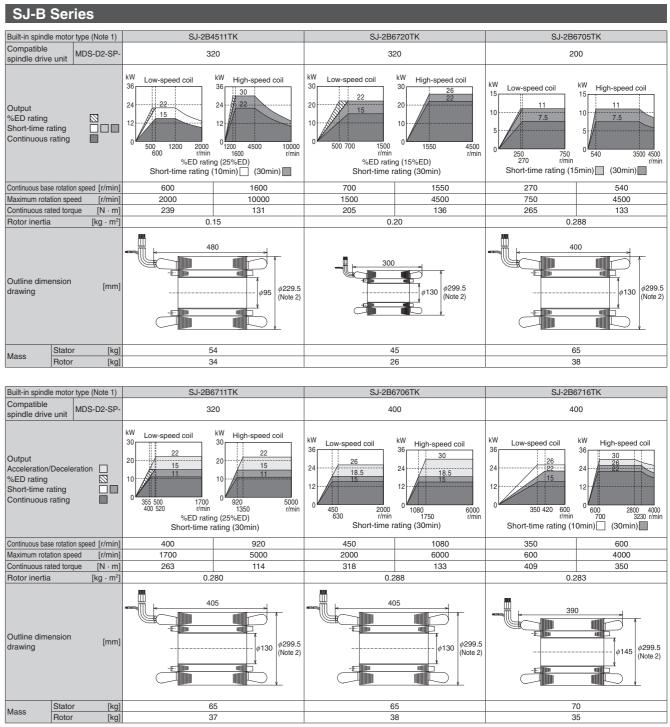


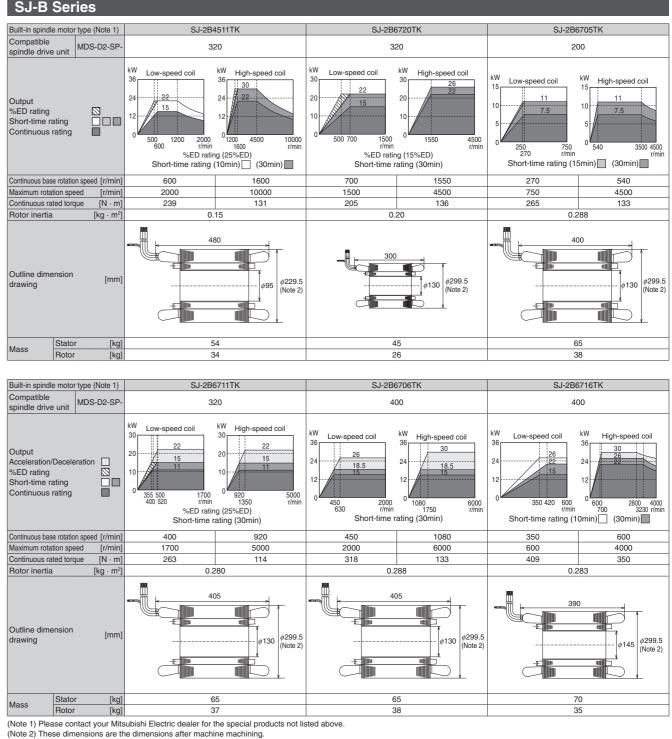


(Note 1) Please contact your Mitsubishi Electric dealer for the special products not listed above.

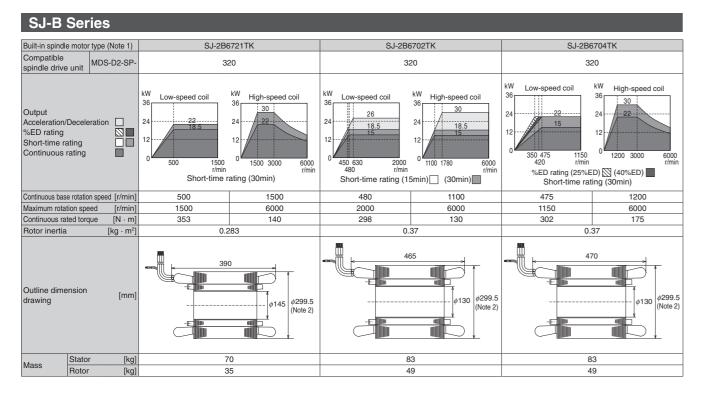
(Note 2) These dimensions are the dimensions after machine machining.

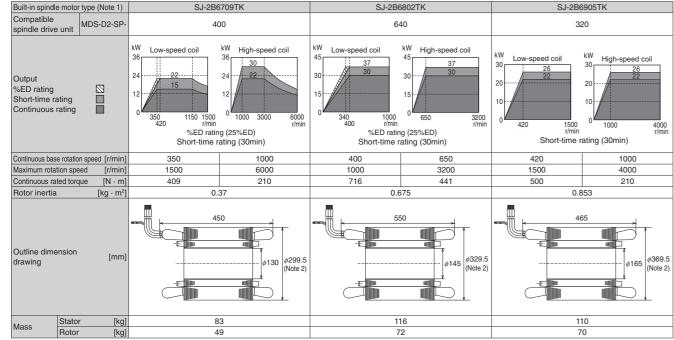
(Note 3) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.





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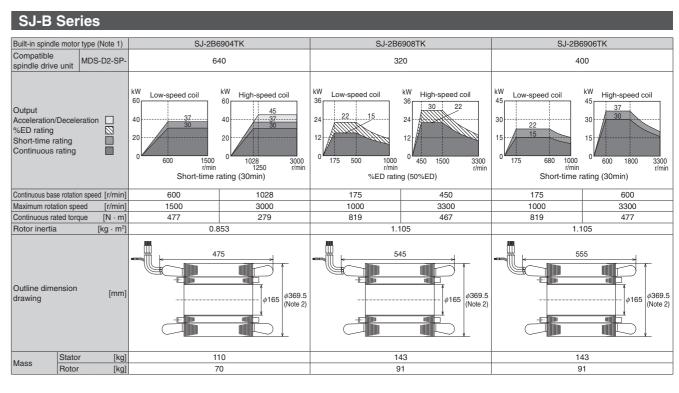


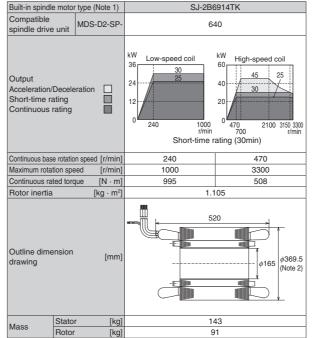


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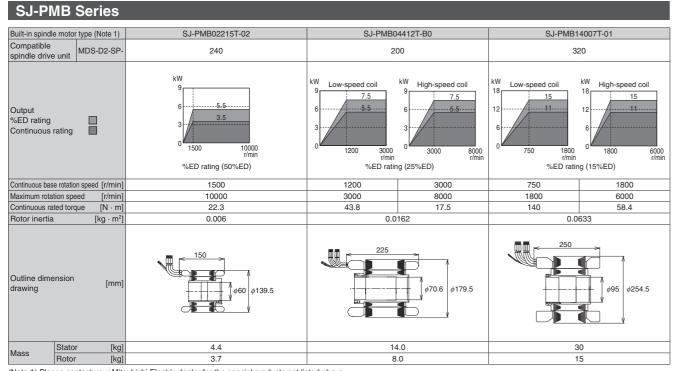


(Note 1) Please contact your Mitsubishi Electric dealer for the special products not listed above.
 (Note 2) These dimensions are the dimensions after machine machining.
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Drive system Spindle motor 200V Built-in spindle motor



(Note 1) Please contact your Mitsubishi Electric dealer for the special products not listed above.

(Note 2) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

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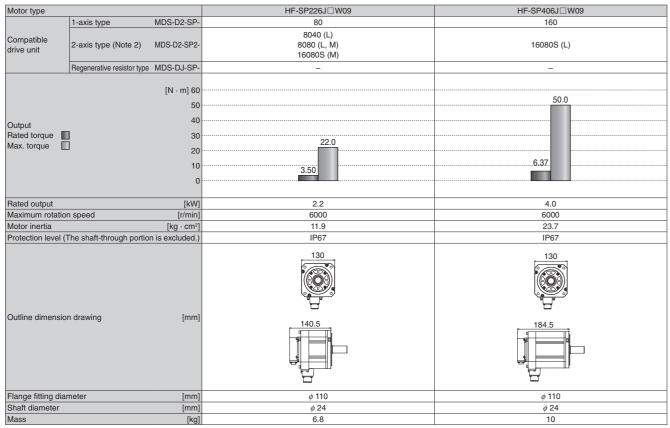
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Drive system Spindle motor 200V Built-in spindle motor

Drive system Spindle motor 200V Tool spindle motor

HF-KP	Series (Small capacit	ty)		
Motor type		HF-KP46J W09	HF-KP56J W09	HF-KP96J 🗆 W09
	1-axis type MDS-D2-SP-	20	20	20
Compatible drive unit	2-axis type (Note 2) MDS-D2-SP2-	2020 (L, M) 4020 (M)	2020 (L, M) 4020 (M)	2020 (L, M) 4020 (M)
	Regenerative resistor type MDS-DJ-SP-	20	20	20
	[N · m] 8 - 6 - 4 - 2 - 0 -	2.50 0.64	0.80	6.50
Rated output	[kW]	0.40	0.50	0.90
Maximum rotatio		6000	6000	6000
Notor inertia	[kg · cm ²] (The shaft-through portion is excluded.)	0.24 IP67	0.42 IP67	1.43 IP67
Outline dimensio	on drawing [mm]			80
	un urawning [mini]			
Flange fitting dia	ameter [mm]	<i> </i> ϕ 50	<i>φ</i> 50	φ 70
Shaft diameter	[mm]	φ 1 4	φ 14	φ 19
Mass	[kg]	1.2	1.7	2.9

HF-SP Series (Medium capacity)



(Note 1) This motor produces heat of about 100°C during high-speed rotation even when no load is connected. Mount the motor on a machine-side flange which has an appropriate size for sufficient heat dissipation.

(Note 2) A 2-axis spindle drive unit (MDS-D2-SP2) drives two tool spindle motors only. A spindle motor other than tool spindle motor is not usable.

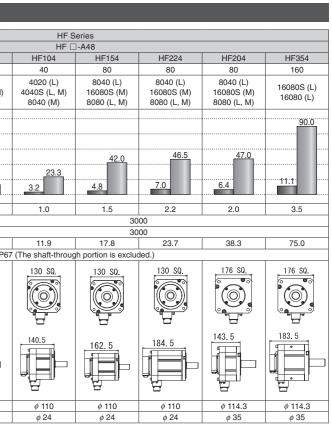
(Note 3) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

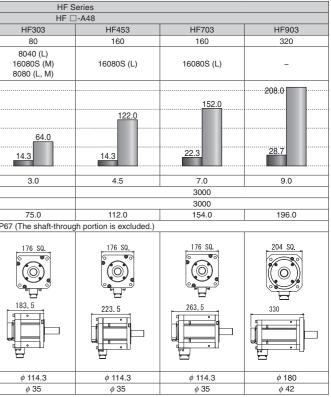
HF Series

Tool spindle mo	otor type				
			HF75	HF105	HF54
	1-axis type	MDS-D2-SP-	20	20	40
Compatible spindle drive unit	2-axis type	MDS-D2-SP2-	2020 (L, M) 4020 (M)	2020 (L, M) 4020 (M)	4020 (L) 4040S (L, M) 8040 (M)
		[N · m] 100			
		80			
Output		60			
_ '.					
Max. torque		40			
		20	1 0 _8.0_	11.0	13.0
		0	1.8 0.0	2.4	1.6
Rated output		[kW]	0.75	1.0	0.5
Rated rotation a	speed	[r/min]	40		
Maximum rotati	ion speed	[r/min]	40	00	
Motor inertia		[kg · cm ²]	2.6	5.1	6.1
Degree of prote	ection				IP6
Outline dimens	sion drawing	[mm]	90 SQ.	90 50.	130 SQ.
(flange type)		[]			118.5
Flange fitting di	amotor	[mm]	<i>ø</i> 80	<i>φ</i> 80	ø 110
i lange inting u	ameter				

Tool spindle mot	tor type				
			HF123	HF223	
	1-axis type	MDS-D2-SP-	20	40	
Compatible spindle drive unit	2-axis type	MDS-D2-SP2-	2020 (L, M) 4020 (M)	4020 (L) 4040S (L, M) 8040 (M)	
		[N · m] 200			
Output		150			
Rated torque		100			
		50 0	5.7 17.0	32.0 10.5	
Rated output		[kW]	1.2	2.2	
Rated rotation s	peed	[r/min]		2000	
Maximum rotatio	on speed	[r/min]		2000	
Motor inertia		[kg · cm ²]	11.9	23.7	
Degree of prote	ction				IP
Outline dimensi (flange type)	ion drawing	[mm]			
Flange fitting dia	ameter	[mm]	<i>φ</i> 110	φ 110	

(Note 1) The above characteristics values are representative values. The maximum current and maximum torque are the values when combined with the drive unit. (Note 2) A 2-axis spindle drive unit (MDS-D2-SP2) drives two tool spindle motors only. A spindle motor other than tool spindle motor is not usable. (Note 3) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.





Drive system Spindle motor 200V Tool spindle motor

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HF-H	Series
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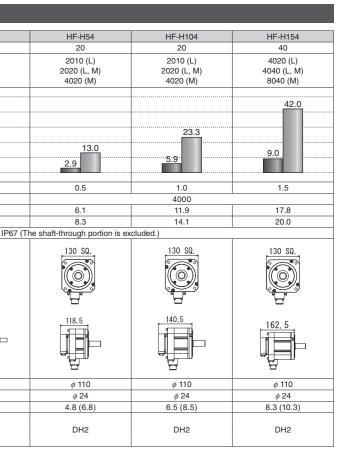
Servo motor typ	pe		HF-H75	HF-H105
O a mar a tilt la	1-axis type MI	DS-DH2-V1-	10	10
Compatible servo drive unit	2-axis type MI	DS-DH2-V2-	1010 (L, M) 2010 (M)	1010 (L, M) 2010 (M)
		[N · m] 50		
		40		
Output Stall torque		30		
Maximum torqu	ie 🗖	20		
		10	8.0	11.0
			2.0	3.0
		0		
Rated output		[kW]	0.75	1.0
Maximum rotat	ion speed	[r/min]	50	00
Motor inertia		[kg · cm ²]	2.6	5.1
Motor inertia wi	ith brake	[kg · cm ²]	2.8	5.3
Degree of prote	ection			I
Outline dimension drawing (flange type) (Note) The total length will be 3.5mm longer when using an A51 or A74N detector.			90 SQ.	

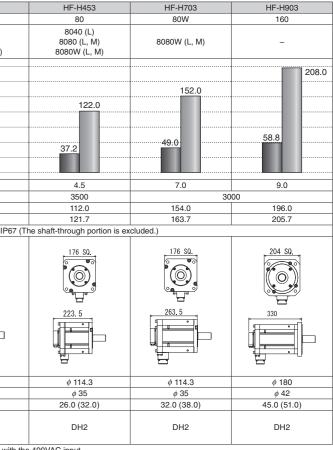
Flange fitting di	ameter [mrr] φ 80	φ 80
Shaft diameter [n] φ 14	φ 14
Mass (with a brake)		2.5 (3.9)	4.3 (5.7)
Absolute position	16,000,000 [p/rev] (A74/A74N		
detector compatible	1,000,000 [p/rev] (A51)	DH2	DH2
drive unit	260,000 [p/rev] (A48)		
	260,000 [p/rev] (A48)		

Servo motor typ	pe		HF-H204	HF-H354
Compatible	1-axis type	MDS-DH2-V1-	40	80
Compatible servo drive unit	2-axis type	MDS-DH2-V2-	4020 (L) 4040 (L, M) 8040 (M)	8040 (L) 8080 (L, M) 8080W (L, M)
		[N · m] 210		
		180		
		150		
Output		120		
Stall torque		90		90.0
Maximum torqu	e 🛄	60		
			47.0	00.5
		30	13.7	
		0		
Rated output		[kW]	2.0	3.5
Maximum rotati	on speed	[r/min]	-	000
Motor inertia		[kg · cm ²]	38.3	75.0
Motor inertia wi		[kg · cm ²]	48.0	84.7
Degree of prote	ection			IP
Outline dimensi (flange type) (Note) The total I longer wh A74N detr	ength will be a		176 SQ.	
Flange fitting di	ameter	[mm]	φ 114.3	φ 114.3
Shaft diameter		[mm]	<i>φ</i> 35	φ 35
Mass (with a br	ake)	[kg]	12.0 (18.0)	19.0 (25.0)
	16 000 000 [r	/rev] (A74/A74N)		
Absolute position	10,000,000 [p			

This motor is not compatible with the conventional MDS-B/C1/CH Series.

(Note 2) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

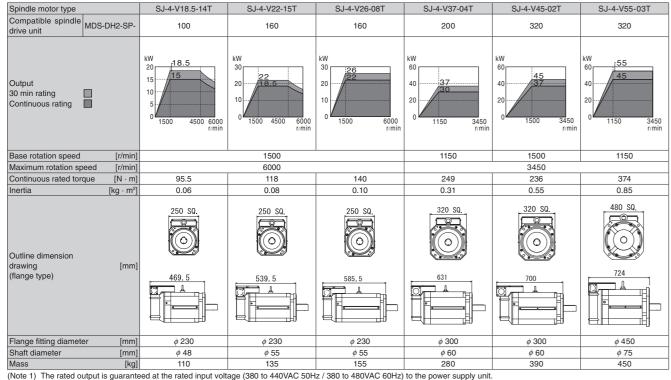




e with the 400VAC input.

Drive system Spindle motor 400V SJ-4-V Series

SJ-4-V Series (Sta	indard)					
Spindle motor type	SJ-4-V2.2-03T	SJ-4-V3.7-03T	SJ-4-V5.5-07T	SJ-4-V7.5-12T	SJ-4-V11-18T	SJ-4-V15-18T
Compatible spindle drive unit MDS-DH2-SP-	20	20	40	40	80	100
Output Short-time rating Continuous rating	kW 6 2.2 0 1500 6000 10000 r/min Short-time rating (15min) Short-time rating		kW 8 4 2 0 1500 6000 8000 rmin Short-time rating (30min)	kW 8.0 4.0 0 1500 6000 8000 rmin Short-time rating (30min)	kW 20 15 10 5 0 1500 4500 6000 rmin Short-time rating (30min)	kW 20 15 0 15 0 1500 4500 6000 r/min Short-time rating (30min)
Base rotation speed [r/min]		Short-time rating (15min)	15		Short-ume raung (Somin)	Short-time rating (Somin)
Maximum rotation speed [r/min]		10000		8000		00
Continuous rated torque [N · m]	-	9.5 14.0		23.5 35.0		70.0
Inertia [kg · m ²]	0.007	0.009	0.015	0.025	0.03	0.06
Outline dimension drawing [mm]	174 SQ.	174 SQ.	174 SQ.	204 50.	204 50	250 SQ.
(flange type)			425			
Flange fitting diameter [mm]		<i>φ</i> 150	<i>φ</i> 150	<i>φ</i> 180	<i>φ</i> 180	<i> </i> ϕ 230
Shaft diameter [mm]	<i>φ</i> 28	<i>\$</i> 28	<i>φ</i> 28	<i>\$</i> 32	<i>φ</i> 48	<i>φ</i> 48
Mass [kg]	25	30	49	60	70	110



If the input voltage fluctuates and drops below 380VAC, the rated output may not be attained.

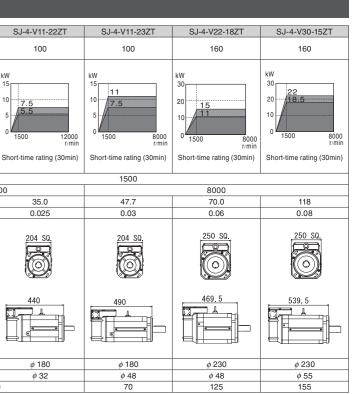
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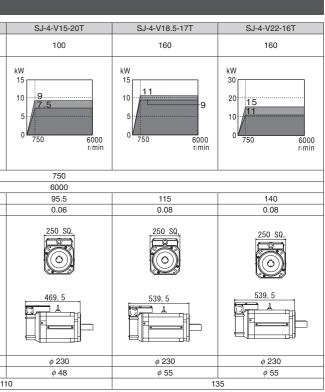
SJ-4-V Series (High-speed) Spindle motor type SJ-4-V3.7-05Z1 SJ-4-V7.5-13ZT Compatible spindle MDS-DH2-SP-80 20 drive unit 37 6.0 Output Continuous rating Short-time rating 12000 15000 3000 r/mir Short-time rating (15min) Short-time rating (30min) Base rotation speed [r/min 3000 15000 12000 Maximum rotation speed [r/min] Continuous rated torque [N · m] 7.0 35.0 0.007 0.025 Inertia [kg · m²] 174 SQ. 204 SQ Ø ð Outline dimension drawing 300 (flange type) 440 -Flange fitting diamete 150 180 [mm] Shaft diameter \$32 [mm [kg] 25

SJ-4-V Series (Wide range constant output)

Spindle motor type SJ-4-V11-18T SJ-4-V11-21T Compatible spindle MDS-DH2-SP-80 80 drive unit kW 10 Output 30 min rating Continuous rating 5000 r/min 5000 r/min Base rotation speed [r/min Maximum rotation speed [r/min 47.1 70.0 Continuous rated torque $[N \cdot m]$ 0.03 Inertia [kg · m²] 0.06 250 SQ 204 SQ Ö Outline dimension drawing [mr (flange type) 469.5 490 Flange fitting diameter [mm] 180 Shaft diameter 48 48 [mm] 70 Mass [kg]

(Note 1) The rated output is guaranteed at the rated input voltage (380 to 440VAC 50Hz / 380 to 480VAC 60Hz) to the power supply unit. If the input voltage fluctuates and drops below 380VAC, the rated output may not be attained. (Note 2) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.





Drive system Spindle motor 400V SJ-4-V Series

Drive system Spindle motor 400V SJ-4-V Series

Spindle motor type	SJ-4-VS7.5-	13ZT SJ-4-VS22-18ZT	SJ-4-VS30-15ZT
Compatible spindle MDS-DH2	-SP- 80	160	160
Dutput 30 min rating 🔲 Continuous rating 🔲	kW 8.0 6.0 4.0 0 1500	12000 r/min 12000	kW 30 20 10 1500 8000 rrmin
Base rotation speed [r	/min] 1500		1500
Maximum rotation speed [r	/min] 12000		8000
Continuous rated torque [N	l · m] 35.0	70.0	118
nertia [kg	· m²] 0.025	0.058	0.08
Dutline dimension	204 50	250 50.	250 50.
frawing flange type)	[mm]		
Flange fitting diameter	[mm]	φ 230	φ 230
Shaft diameter	[mm]	φ 48	φ 55
Mass	[kg] 65	115	140

(Note 1) The rated output is guaranteed at the rated input voltage (380 to 440VAC 50Hz / 380 to 480VAC 60Hz) to the power supply unit. If the input voltage fluctuates and drops below 380VAC, the rated output may not be attained.
 (Note 2) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

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Drive system Spindle motor 400V SJ-4-V Series

MDS-D2 Series

1-axis servo drive unit

				1					
Drive unit type MDS-D2-V1-20 MDS-D2-V1-40 MDS-D2-V1-80 MDS-D2-V1-160 MDS-D2-V1-160W MDS-D2-V1-320				MDS-D2-V1-320	MDS-D2-V1-320W				
Drive unit categ	Jory				1-axis servo				
Nominal maximum	n current (peak) [A]	20	40	80	160	160	320	320	
	Rated voltage [V]				270 to 311DC				
Power input	Rated current [A]	7	7	14	30	35	45	55	
	Frequency [Hz]	50/60 Tolerable frequency fluctuation: between +3% and -3%							
Control	Voltage [V]		200AC (50Hz) / 200 to 230AC (60Hz) Tolerable voltage fluctuation rate: between +10% and -15%						
power input	Current [A]	MAX. 0.2							
Control method		Sine wave PWM control method							
Dynamic brakes	S	Built-in					External		
Machine end de	etector	Compatible							
Cooling method	1	Forced wind cooling							
Mass	[kg]	3.8	3.8	3.8	3.8	4.5	5.8	7.5	
Unit outline dimension drawing		A1	A1	A1	A1	B1	C1	D1	

2-axis servo drive unit

Drive unit type

Drive unit categ	lotà	2-axis servo							
Nominal maximum current (peak) [A]		20/20	40/20	40/40	80/40	80/80	160/80	160/160	160/160
	Rated voltage [V]				270 to	311DC			
Power input	Rated current [A]	14 (7/7)	14 (7/7)	14 (7/7)	21 (14/7)	28 (14/14)	44 (30/14)	60 (30/30)	70 (35/35)
	Frequency [Hz]			50/60 To	lerable frequency f	luctuation: betweer	1 +3% and -3%	^	
Control	Voltage [V]		200AC (50Hz) / 200 to 230AC (6	0Hz) Tolerab	le voltage fluctuation	on rate: between +1	0% and -15%	
power input	Current [A]				MAX	(. 0.2			
Control method			Sine wave PWM control method						
Dynamic brakes	S		Built-in						
Machine end de	etector				Comp	oatible			
Cooling method			Forced wind cooling						
Mass [kg]		4.5	4.5	4.5	4.5	4.5	5.2	5.2	6.3
Unit outline dim	ension drawing	A1	A1	A1	A1	A1	B1	B1	C1
				·	•	•			

3-axis servo drive unit

Drive unit type		MDS-D2-V3-202020	MDS-D2-V3-404040			
Drive unit cate	gory	3-ax	is servo			
Nominal maximur	n current (peak) [A]	20/20/20	40/40/40			
	Rated voltage [V]	270 t	o 311DC			
Power input	Rated current [A]	21 (7/7/7)	21 (7/7/7)			
	Frequency [Hz]	50/60 Tolerable frequency fluctuation: between +3% and -3%				
Control	Voltage [V]	200AC (50Hz) / 200 to 230AC (60Hz) Tolera	ble voltage fluctuation rate: between +10% and -15%			
power input	Current [A]	MAX. 0.2				
Control method	Ł	Sine wave PWM control method				
Dynamic brake	S	Built-in				
Machine end d	etector	Not compatible				
Cooling method		Forced wind cooling				
Mass	[kg]	3.8	3.8			
Unit outline dim	nension drawing	AO	AO			

Drive system 200V MDS-D2-SPx/CV

MDS-D2 Series

1-axis spindle drive unit

Drive unit type			MDS-D2-SP-20	MDS-D2-SP-40	MDS-D2-SP-80	MDS-D2-S
Drive unit cate	gory					
Nominal maximur	n current (peak) [A]	20	40	80	160
	Rated voltage [V]				
Power input	Rated current [A]	7	13	20	41
	Frequency [H	łz]			50/60	Tolera
Control	Voltage [V]		200AC (5	0Hz) / 200 to 230	AC (60Hz
power input	Current [A]				
Control method	1					ę
Cooling methor	d					
Mass	[k	(g]	3.8	3.8	3.8	4.5
Unit outline dim	nension drawing		A1	A1	A1	B1

2-axis spindle drive unit

Drive unit type		MDS-D2-SP2-2020	MDS-D2-SP2-4020	MDS-D2-SP2-4040S	MDS-D2-SP2-8040	MDS-D2-SP2-8080	MDS-D2-SP2-16080S		
Drive unit categ	lory			2-axis	spindle				
Nominal maximum	n current (peak) [A]	20/20	40/20	40/40	80/40	80/80	160/80		
	Rated voltage [V]		270 to 311DC						
Power input	Rated current [A]	14 (7/7)	14 (7/7) 20 (13/7) 26 (13/13) 33 (20/13) 40 (20/20) 61 (41/20)						
	Frequency [Hz]		50/60 Tolerable frequency fluctuation: between +3% and -3%						
Control	Voltage [V]	2	00AC (50Hz) / 200 to 230	DAC (60Hz) Tolerab	le voltage fluctuation rate	: between +10% and -15	%		
power input	Current [A]			MAX	. 0.2				
Control method				Sine wave PWN	I control method				
Cooling method	i			Forced wi	nd cooling				
Mass	[kg]	4.5	4.5 4.5 5.2 6.5 5.2						
Unit outline dim	ension drawing	A1	A1	A1	B1	C1	B1		

Power supply unit

Power supply u	nit type	MDS-D2-CV-37	MDS-D2-CV-75	MDS-D2-CV-110	MDS-D2-CV-185	MDS-D2-CV-300	MDS-D2-CV-370	MDS-D2-CV-450	MDS-D2-CV-550
Rated output [kW] 3.7 7.5 11.0 18.5 30.0 37.0 45.0 55						55.0			
	Rated voltage [V]		200AC (50Hz) / 200 to 230AC (60Hz) Tolerable voltage fluctuation rate: between +10% and -15%						
Power input	Rated current [A]	15	26	35	65	107	121	148	200
	Frequency [Hz]		50/60 Tolerable frequency fluctuation: between +3% and -3%						
Control	Voltage [V]		200AC (50Hz) / 200 to 230AC (6	0Hz) Tolerab	le voltage fluctuation	on rate: between +1	0% and -15%	
power input	Current [A]				MAX	(. 0.2			
Regeneration m	nethod				Power regene	eration method			
Cooling method	1		Forced wind cooling						
Mass	[kg]	4.0	4.0 4.0 6.0 6.0 10.0 10.0 25.5						
Unit outline dimension drawing A2 A2 B1 B1 D1 D1 D2						F1			

AC reactor

AC reactor model		D-AL-7.5K	D-AL-11K	D-AL-18.5K	D-AL-30K	D-AL-37K	D-AL-45K	D-AL-55K
Compatible power supply unit type	DS-D2-CV-	37, 75	110	185	300	370	450	550
Rated capacity	[kW]	7.5	11	18.5	30	37	45	55
Rated voltage	[V]	200AC (50Hz) / 200 to 230AC (60Hz) Tolerable fluctuation: between +10% and -15%						
Rated current	[A]	27	40	66	110	133	162	200
Frequency	[Hz]			50/60 Toler	able fluctuation: betwe	een +3% and -3%		
Mass	[kg]	4.2	3.7	5.3	6.1	8.6	9.7	11.5
Unit outline dimension drawing		R1	R1	R2	R2	R3	R3	R4

P-160	MDS-D2-SP-200	MDS-D2-SP-240	MDS-D2-SP-320	MDS-D2-SP-400	MDS-D2-SP-640				
	1-axis spindle								
	200	240	320	400	640				
	270 to 311DC								
	76	95	140	150	210				
ble fre	quency fluctuatio	n: between +3%	and -3%						
)	Tolerable voltag	e fluctuation rate	: between +10%	and -15%					
	MAX. 0.2								
ine wa	ave PWM control	method							
F	Forced wind cooling								
	5.8	6.5	7.5	16.5	16.5				
	C1	D1	D2	E1	F1				

Drive system 200V MDS-D2-SPx/CV

MDS-DH2 Series

1-axis servo drive unit

Drive unit type		MDS-DH2-V1-10	MDS-DH2-V1-20	MDS-DH2-V1-40	MDS-DH2-V1-80	MDS-DH2-V1-80W	MDS-DH2-V1-160	MDS-DH2-V1-160W	MDS-DH2-V1-200
Drive unit categ	ory				1-axis	servo			
Nominal maximum	current (peak) [A]	10	10 20 40 80 80 160 160						
	Rated voltage [V]				513 to	648DC			
Power input	Rated current [A]	0.9	0.9 1.6 2.9 6.0 8.0 11.9 16.7 39.0						
	Frequency [Hz]		50/60 Tolerable frequency fluctuation: between +3% and -3%						
Control	Voltage [V]		380 to 440AC (50Hz) / 380 to 480AC (60Hz) Tolerable voltage fluctuation rate: between +10% and -15%						
power input	Current [A]				MAX	. 0.1			
Control method					Sine wave PWM	I control method			
Dynamic brakes	;			Bui	lt-in			External (M	DS-D-DBU)
Degree of prote	ction			IP	20 ([over all] / IP00	[Terminal block TE	1])		
Cooling method			Forced wind cooling						
Mass	[kg]	[kg] 3.8 3.8 3.8 3.8 4.5 5.8 7.5 16.5						16.5	
Unit outline dim	ension drawing	A1	A1	A1	A1	B1	C1	D1	E1

2-axis servo drive unit

	MDS-DH2-V2-1010	S-DH2-V2-1010 MDS-DH2-V2-2010 MDS-DH2-V2-2020 MDS-DH2-V2-4020 MDS-DH2-V2-4040 MDS-DH2-V2-8040 MDS-DH2-V2-8080 MDS-DH2-V2-						MDS-DH2-V2-8080W
ory				2-axis	servo			
current (peak) [A]	10/10	20/10	20/20	40/20	40/40	80/40	80/80	80/80
Rated voltage [V]		513 to 648DC						
Rated current [A]	1.8 (0.9/0.9)	8 (0.9/0.9) 2.5 (1.6/0.9) 3.2 (1.6 / 1.6) 4.5 (2.9/1.6) 5.8 (2.9/2.9) 8.9 (6.0/2.9) 12 (6.0/6.0) 16 (8.0)						16 (8.0/8.0)
Frequency [Hz]		50/60 Tolerable frequency fluctuation: between +3% and -3%						
Voltage [V]		380 to 440AC (50Hz) / 380 to 480AC (60Hz) Tolerable voltage fluctuation rate: between +10% and -15%						
Current [A]				MAX	. 0.1			
			Sine wave	e PWM control met	hod · Current contro	ol method		
8				Bui	lt-in			
ction				IP	20			
		Forced wind cooling						
ass [kg] 3.8 3.8 3.8 3.8 3.8 6.2 5.2 5.2 6.3					6.3			
ension drawing	A1	A1	A1	A1	A1	B1	B1	C1
	ory current (peak) [A] Rated voltage [V] Rated current [A] Frequency [Hz] Voltage [V] Current [A] s ction	MDS-DH2-V2-1010 ory INDS-DH2-V2-1010 current (peak) [A] 10/10 Rated voltage [V] Rated current [A] 1.8 (0.9/0.9) Frequency [Hz] Voltage [V] Current [A] s current text g s s text g s s text g s s text s text g	MDS-DH2-V2-1010 MDS-DH2-V2-2010 ory	MDS-DH2-V2-1010 MDS-DH2-V2-2010 MDS-DH2-V2-2020 ory	MDS-DH2-V2-1010 MDS-DH2-V2-2010 MDS-DH2-V2-2020 MDS-DH2-V2-4020 ory 2-axis 2-axis current (peak) [A] 10/10 20/10 20/20 40/20 Rated voltage [V] 513 to 513 to 513 to Rated voltage [V] 50/60 Tolerable frequency fr	MDS-DH2-V2-1010 MDS-DH2-V2-2010 MDS-DH2-V2-2020 MDS-DH2-V2-4020 MDS-DH2-V2-4020 ory 2-axis servo current (peak) [A] 10/10 20/10 20/20 40/20 40/40 Rated voltage [V] 513 to 648DC Rated voltage [V] 513 to 648DC Rated current [A] 1.8 (0.9/0.9) 2.5 (1.6/0.9) 3.2 (1.6 / 1.6) 4.5 (2.9/1.6) 5.8 (2.9/2.9) Frequency [H2] 50/60 Tolerable frequency fluctuation: between Voltage [V] 380 to 440AC (50Hz) / 380 to 480AC (60Hz) Tolerable voltage fluctu Current [A] MAX. 0.1 Sine wave PWM control method - Current control sine wave PWM control method - Current control Built-in IP20 ferced wind cooling 3.8 3.8 3.8 3.8 3.8	MDS-DH2-V2-1010 MDS-DH2-V2-2010 MDS-DH2-V2-2020 MDS-DH2-V2-4020 MDS-DH2-V2-4040 MDS-DH2-V2-4040 ory 2-axis servo 2-axis servo 2-axis servo 2-axis servo current (peak) [A] 10/10 20/10 20/20 40/20 40/40 80/40 Rated voltage [V] 513 to 648DC 513 to 648DC 8.9 (6.0/2.9) 8.9 (6.0/2.9) 8.9 (6.0/2.9) 8.9 (6.0/2.9) 8.9 (6.0/2.9) 8.9 (6.0/2.9) 7.0 (and the control serve) 4.5 (2.9/1.6) 5.8 (2.9/2.9) 8.9 (6.0/2.9) 8.9 (6.0/2.9) 8.9 (6.0/2.9) 8.9 (6.0/2.9) 7.0 (and the control serve) 7.0 (an	MDS-DH2-V2-1010 MDS-DH2-V2-2010 MDS-DH2-V2-2020 MDS-DH2-V2-4020 MDS-DH2-V2-4040 MDS-DH2-V2-8040 MDS-DH2-V2

1-axis spindle drive unit

Drive unit type		MDS-DH2-SP-20	MDS-DH2-SP-40	MDS-DH2-SP-80	MDS-DH2-SP-100	MDS-DH2-SP-160	MDS-DH2-SP-200	MDS-DH2-SP-320	MDS-DH2-SP-480
Drive unit categ	ory				1-axis	spindle 160 200 320 480 0 648DC 72 82 119 150 fluctuation: between +3% and -3% 3% 110 100			
Nominal maximum	current (peak) [A]	20	40	80	100	160	200	320	480
	Rated voltage [V]				513 to	648DC		-	
Power input	Rated current [A]	10	15	21	38	72	82	119	150
	Frequency [Hz]		50/60 Tolerable frequency fluctuation: between +3% and -3%						
Control	Voltage [V]		380 to 440AC (50Hz) / 380 to 480AC (60Hz) Tolerable voltage fluctuation rate: between +10% and -15%						
power input	Current [A]				MAX	(. 0.1			
Control method					Sine wave PWN	I control method			
Degree of prote	ction			IP	20 ([over all] / IP00	[Terminal block TE	1])		
Cooling method					Forced wi	nd cooling			
Mass	[kg]	3.8	3.8 4.5 4.5 5.8 7.5 16.5 16.5 22.						
Unit outline dim	ension drawing	A1	A1	B1	C1	D1	E1	E1	F1

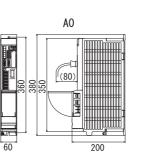
(Note) Rated output capacity and rated speed of the motor used in combination with the drive unit are as indicated when using the power supply voltage and frequency listed. The torque drops when the voltage is less than specified.

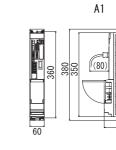
Power supply unit

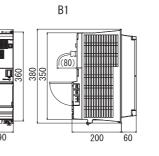
Power supply u	init type		MDS-DH2-CV-37	MDS-DH2-CV-75	MDS-DH2-CV-110	MDS-DH2-CV-185	MDS-DH2-CV-300	MDS-DH2-CV-370	MDS-DH2-CV-450	MDS-DH2-CV-550	MDS-DH2-CV-750
Rated output		[kW]	3.7	3.7 7.5 11.0 18.5 30.0 37.0 45.0 55.0						75.0	
	Rated voltage	[V]		380 to 440A0	C (50Hz) / 380 to	480AC (60Hz)	Itage fluctuation	rate: between +10	0% and -15%		
Power input	Rated current	[A]	5.2	13	18	35	61	70	85	106	130
	Frequency	[Hz]		50/60 Tolerable frequency fluctuation: between +3% and -3%							
Control	Voltage	[V]		380 to 440A0	C (50Hz) / 380 to	480AC (60Hz)	Tolerable vo	Itage fluctuation i	rate: between +10	0% and -15%	
power input	Current	[A]					MAX. 0.1				
Main circuit me	thod					Converter w	ith power regene	ration circuit			
Cooling method	Ł			Forced wind cooling							
Mass		[kg]	6.0	6.0 6.0 6.0 10.0 10.0 10.0 25.5 2						25.5	
Unit outline dim	ension drawing	1	B1	B1	B1	B1	D1	D1	D1	F1	F1

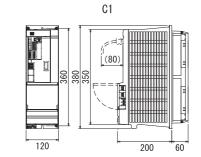
AC reactor

AC reactor model		DH-AL-7.5K	DH-AL-11K	DH-AL-18.5K	DH-AL-30K	DH-AL-37K	DH-AL-45K	DH-AL-55K	DH-AL-75K	
Compatible power supply unit type	MDS-DH2-CV-	37, 75	110	185	300	370	450	550	750	
Rated capacity	[kW]	7.5	11	18.5	30	37	45	55	75	
Rated voltage [V]			380 to 440AC (50Hz) / 380 to 480AC (60Hz)				Tolerable fluctuation: between +10% and -15%			
Rated current	[A]	14	21	37	65	75	85	106	142	
Frequency	[Hz]			50/60	Tolerable fluctua	ation: between +3%	and -3%			
Mass	[kg]	4.0	3.7	5.3	6.0	8.5	9.8	10.5	13.0	
Unit outline dimension	on drawing	R1	R1	R2	R2	R3	R3	R5	R6	

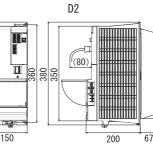








E1

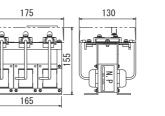


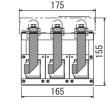
R1



240

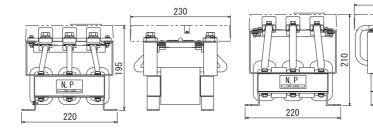
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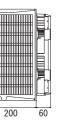


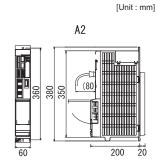
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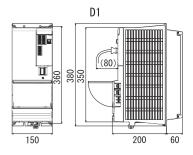
R5



Drive system 400V MDS-DH2

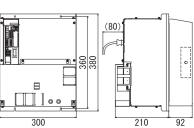






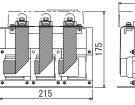
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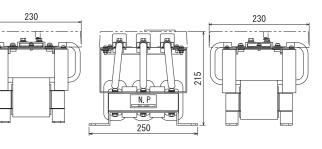
R3







R6



Drive system Drive unit outline dimension drawing

MDS-DM2 Series

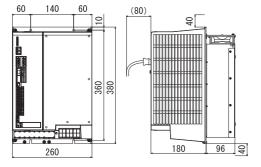
Multi-hybrid drive

Drive unit type		MDS-DM2-SPV2-10080	MDS-DM2-SPV2-16080	MDS-DM2-SPV2-20080				
Drive unit categ	lory		2-axis servo, 1-axis spindle (with converter)					
Nominal maximum curr	rent (spindle/servo) [A]	100/80×2	160/80×2	200/80×2				
	Rated voltage [V]	200AC (50Hz) / 200 to 230	DAC (60Hz) Tolerable voltage fluctuation rate	: between +10% and -15%				
Power input	Rated current [A]	33	43	55				
	Frequency [Hz]	50/60	50/60 Tolerable frequency fluctuation: between +3% and -3%					
Control	Voltage [V]	24DC	24DC Tolerable voltage fluctuation rate: between +10% and -10%					
power input	Current [A]		MAX. 4					
Control method			Sine wave PWM control method					
Regeneration m	nethod		Power regeneration method					
Dynamic brake	s (servo)		Built-in					
Machine end de	tector (servo)	Compatible						
Cooling method	1		Forced wind cooling					
Mass	[kg]	14.5	14.5	14.5				

Drive unit type		MDS-DM2-SPV3-10080	MDS-DM2-SPV3-16080	MDS-DM2-SPV3-20080	MDS-DM2-SPV3-200120	MDS-DM2-SPHV3-20080			
Drive unit cate	gory		3-axis	servo, 1-axis spindle (with con	verter)				
Nominal maximum cur	rrent (spindle/servo) [A] 100/80×3	160/80×3	200/80×3	200/120×3	200/80×3			
	Rated voltage [V] 200A0	C (50Hz) / 200 to 230AC (60Hz) Tolerable voltage fluct	uation rate: between +10% and	1-15%			
Power input	Rated current [A] 38	38 48 60 65 60						
	Frequency [Hz]	50/60 Tolerable frequency fluctuation: between +3% and -3%						
Control	Voltage [V	1	24DC Tolerable voltage fluctuation rate: between +10% and -10%						
power input	Current [A]		MAX. 4					
Control method	1		S	Sine wave PWM control metho	d				
Regeneration r	nethod			Power regeneration method					
Dynamic brake	s (servo)			Built-in					
Machine end de	etector (servo)		Compatible						
Cooling method	d			Forced wind cooling					
Mass	[kg] 15	15	15	15	15			

Unit outline dimension drawing

Drive unit MDS-DM2-SPUVU-U



MDS-DJ Series

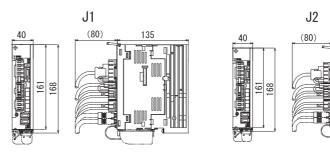
All-in-or	ne compac	t servo drive	unit							
Drive unit type		MDS-DJ-V1-10	MDS-DJ-V1-15	MDS-DJ-V1-30	DS-DJ-V1-30 MDS-DJ-V1-40 MDS-DJ-V1-80 MDS-DJ-V1-100					
Drive unit categ	Jory			1-axis servo (v	1-axis servo (with converter)					
Rated output	[kW]	0.3	0.4	0.4 0.7 1.0 2.0 3.5						
Rated voltage [V] 200AC (50Hz) / 200 to 230AC (60Hz) Tolerable voltage fluctuation rate: between +10% and -15%					%					
Power input Rated current [A] 1.5 2.9 3.8 5.0 10.5 16.0						16.0				
	Voltage [V]	2	200AC (50Hz) / 200 to 23	0AC (60Hz) Tolerab	le voltage fluctuation rate	between +10% and -15%	%			
Control power input	Current [A]		MAX. 0.2							
powerinput	Frequency [Hz]		50/60	Tolerable frequency f	luctuation: between +5%	and -5%				
Control method				Sine wave PWM	I control method					
Regeneration n	nethod			Power regene	eration method					
Dynamic brake	s			Bui	lt-in					
Machine end de	etector			Comp	atible					
Cooling method Natural cooling Forced wind cooling										
Mass	[kg]	0.8	1.0	1.4	2.3	2.3	2.3			
Unit outline dim	ension drawing	J1	J2	J3	J4a	J4a	J4b			

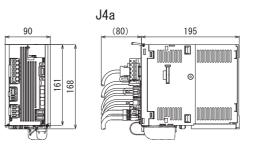
All-in-one compact spindle drive unit

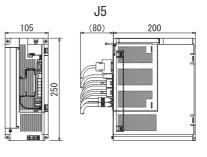
Drive unit type		MDS-DJ-SP-20	SP-20 MDS-DJ-SP-40 MDS-DJ-SP-80 MDS-DJ-SP-100 MDS-DJ-SP-120 MDS-DJ-SP-16								
Drive unit cate	gory		1-axis spindle (with converter)								
Rated output	[kW]	0.75	0.75 2.2 3.7 5.5 7.5 11.0								
Deverinent	Rated voltage [V]	2	200AC (50Hz) / 200 to 230	DAC (60Hz) Tolerab	ble voltage fluctuation rate	: between +10% and -159	%				
Power input Rated current [A] 2.6 9.0 10.5 16.0 26.0 35						35.4					
Voltage [V] 200AC (50Hz) / 200 to 230AC (60Hz) Tolerable voltage fluctuation rate: between +10% and -15%						%					
Control power input	Current [A]			MAX	(. 0.2						
ponor input	Frequency [Hz]		50/60	Tolerable frequency f	fluctuation: between +5%	and -5%					
Control method	ł			Sine wave PWN	I control method						
Regeneration r	nethod			Power regene	eration method						
Cooling method Forced wind cooling											
Mass	[kg]	1.4	2.1	2.1	4.6	4.6	6.5				
Unit outline din	nension drawing	J3	J4a	J4b	J5	J5	J6				

Unit outline dimension drawing

[Unit : mm]

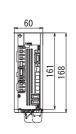


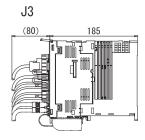


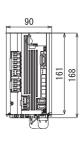


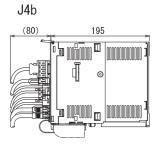
[Unit : mm]

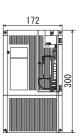


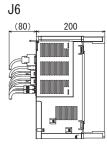












Drive system 200V MDS-DJ-V1/SP

Selection of the power supply unit

For the power supply unit, calculate the spindle motor output and servo motor output each, and select the capacity satisfying the required rated capacity and the maximum momentary output. Use of "Servo selection software" is recommended as a tool.

■Calculation of spindle output

The spindle rated output and spindle maximum momentary rated output are calculated.

(1) Calculation of spindle rated output

The spindle rated output is calculated according to the following procedure.

(a) Spindle motor rated output

The spindle motor rated output is calculated from the following expression.

Spindle motor rated output =

MAX (continuous rated output, short-time rated output × short-time rated output coefficient α)

(Note) For the spindle motor rated output, use the larger one of "continuous rated output" and "short-time rated output x short-time rated output coefficient α ".

For the spindle short-time rated output coefficient α , use the value in the following table.

List of short-time rated output time and short-time rated output coefficient

Short-time rated output time	Short-time rated output coefficient α	Short-time rated output time	Short-time rated output coefficient α
1 minute	0.2	5 minutes	0.7
2 minutes	0.4	6 to 7 minutes	0.8
3 minutes	0.5	8 to 9 minutes	0.9
4 minutes	0.6	10 minutes or more	1.0

(Note 1) Select the set time for the short-time rated output of your spindle motor from the list. E.g.) When the set time for the short-time rated output is "1/12h", it means "5 minutes".

(Note 2) For the motor with coil changeover specification, select the set time for the short-time rated output of the high-speed coil.

(b) Spindle rated output

The spindle rated output is calculated from the following expression.

Spindle rated output

For the spindle motor rated output of the above expression, use the value calculated in (a). For the motor output coefficient of the combined spindle drive unit, use the value corresponding to the used spindle drive unit in the following table.

Motor output coefficient list of combined spindle drive unit **MDS-D2 Series**

Spindle motor				Combined s	pindle drive unit N	IDS-D2-SP-			
rated output	20	40	80	160	200	240	320	400	640
~ 1.5kW	1.00	1.15	1.25	-	-	-	-	-	-
~ 2.2kW	-	1.00	1.15	1.30	-	-	-	-	-
~ 3.7kW	-	1.00	1.05	1.20	-	-	-	-	-
~ 5.5kW	-	-	1.00	1.10	1.20	-	-	-	-
~ 7.5kW	-	-	-	1.00	1.15	1.20	-	-	-
~ 11.0kW	-	-	-	1.00	1.05	1.10	1.15	-	-
~ 15.0kW	-	-	-	-	1.00	1.05	1.10	-	-
~ 18.5kW	-	-	-	-	1.00	1.00	1.05	1.10	-
~ 22kW	-	-	-	-	-	1.00	1.00	1.05	1.15
~ 26kW	-	-	-	-	-	-	1.00	1.00	1.10
~ 30kW	-	-	-	-	-	-	1.00	1.00	1.05
~ 37kW	-	-	-	-	-	-	-	1.00	1.05
~ 45kW	-	-	-	-	-	-	-	-	1.0
~ 55kW	-	-	-	-	-	-	-	-	1.0

MDS-DH2 Series

Spindle motor			Co	ombined spindle driv	ve unit MDS-DH2-S	P-		
rated output	20	40	80	100	160	200	320	480
~ 2.2kW	1.00	1.15	1.30	-	-	-	-	-
~ 3.7kW	1.00	1.05	1.20	-	-	-	-	-
~ 5.5kW	-	1.00	1.10	1.20	-	-	-	-
~ 7.5kW	-	-	1.00	1.15	-	-	-	-
~ 11.0kW	-	-	1.00	1.05	1.15	-	-	-
~ 15.0kW	-	-	-	1.00	1.10	-	-	-
~ 18.5kW	-	-	-	1.00	1.05	1.10	-	-
~ 22kW	-	-	-	-	1.00	1.05	1.15	-
~ 26kW	-	-	-	-	1.00	1.00	1.10	1.20
~ 30kW	-	-	-	-	1.00	1.00	1.05	1.15
~ 37kW	-	-	-	-	-	1.00	1.05	1.10
~ 45kW	-	-	-	-	-	-	1.00	1.05
~ 55kW	-	-	-	-	-	-	1.00	1.00
~ 75kW	-	-	-	-	-	-	-	1.00

POINT

[1] When the spindle motor applies to the wide range constant output specification or the high-torque specification, the spindle rated output may become large.

[2] The spindle rated output is calculated from the motor output coefficient of the spindle drive unit used in combination with the spindle motor.

(2) Calculation of spindle maximum momentary output The spindle maximum momentary output is calculated from the following expression.

Spindle maximum momentary output =MAX (short-time rated output × 1.2, output at acceleration/deceleration × 1.2)

(Note) For the spindle rated output, use the larger one of "short-time rated output \times 1.2" and "output at acceleration/deceleration × 1.2".

=Spindle motor rated output x motor output coefficient β of the combined spindle drive unit

■Calculation of servo motor output

(1) Selection with rated output

(2) Selection with maximum momentary output

For the rated output and maximum momentary output of the servo motor, use the value corresponding to the servo motor in the following table.

22.0

Data for servo motor output selection

MDS-D2-V1/V2 Series

Maximum momentary output (kW)

Motor HF	75	105	54	104	154	224	204	354
Rated output (kW)	0.75	1.0	0.5	1.0	1.5	2.2	2.0	3.5
Maximum momentary output (kW)	2.6	3.6	2.3	5.0	9.0	12.3	8.0	18.0
						-	-	
Motor HF	123	223	303	453	703	903	142	302
Rated output (kW)	1.2	2.2	3.0	4.5	7.0	9.0	1.4	3.0

12.0

Motor HF-KP	23	43	73
Rated output (kW)	0.2	0.4	0.75
Maximum momentary output (kW)	0.72	1.72	2.85

4.0

7.5

MDS-D2-V3 Series

Motor HF	75	105	54	104	154	123	223 (M, S)	223 (L)	142	302 (M, S)	302 (L)
Rated output (kW)	0.75	1.0	0.5	1.0	1.5	1.2	2.1	2.2	1.4	2.2	3.0
Maximum momentary output (kW)	2.6	3.6	2.3	5.0	8.0	4.0	7.5	7.5	3.8	7.4	7.4

28.0

41.0

3.8

74

Motor HF-KP	23	43	73
Rated output (kW)	0.2	0.4	0.75
Maximum momentary output (kW)	0.72	1.72	2.85

MDS-DH2 Series

Motor HF-H	75	105	54	104	154	204	354	453	703	903
Rated output (kW)	0.75	1.0	0.5	1.0	1.5	2.0	3.5	4.5	7.0	9.0
Maximum momentary output (kW)	2.6	3.6	2.3	5.0	9.0	8.0	18.0	22.0	28.0	41.0

(Note) The maximum momentary output in this table is reference data for selecting the power supply unit and is not data which guarantees the maximum output.

■Selection of the power supply unit

Select the power supply unit from the total sum of the rate output and the maximum momentary output.

(1) Calculation of required rated output (a) When there is only one servo motor axis

(b) When there are two or more servo motor axes

Power supply unit rated capacity > Σ (Spindle rated output) + 0.7 Σ (Servo motor rated output)

Substitute the output calculated from (1) of "Calculation of spindle output" and (1) of "Calculation of servo motor output" to the expression (a) and (b), and calculate the total sum of the spindle rated output and servo motor rated output. According to this, select the power supply unit satisfying the rated capacity from the following table.

(2) Calculation of required maximum momentary output

Maximum momentary rated capacity of power supply unit \geq Σ (Spindle maximum momentary output) + Σ (Maximum momentary output of servo motor accelerating / decelerating simultaneously)

Substitute the output calculated from (2) of "Calculation of spindle output" and (2) of "Calculation of servo motor output" to the above expression, and calculate the total sum of the "spindle maximum momentary output" and "output of servo motor accelerating / decelerating simultaneously". According to this, select the power supply unit satisfying the maximum momentary rated capacity from the following table.

(3) Selection of power supply unit

Select the power supply unit of which the capacity is larger than that selected in the item (1) and (2).

Power supply unit rated capacity and maximum momentary rated capacity

MDS-D2 Series

Unit	MDS-D2-CV-	37	75	110	185	300	370	450	550
Rated capacity (kW)		4.2	8	11.5	19	31	38	46	56
Maximum momentar	y rated capacity (kW)	16	23	39	60	92	101	125	175

MDS-DH2 Series

Unit	MDS-DH2-CV-	37	75	110	185	300	370	450	550	750
Rated cap	pacity (kW)	4.2	8	11.5	19	31	38	46	56	76
Maximum momentary rated capacity (kW)		16	23	39	60	92	101	125	175	180

Power supply unit rated capacity > Σ (Spindle rated output) + (Servo motor rated output)

1. When two or more servo motor axes are connected, do the calculation with the largest rated capacity of the servo motor if a value obtained by multiplying the total sum of the servo motor rated output by "0.7" is smaller than the largest rated capacity of the servo motors.

Example: HF Series

- (1) For "HF903 (9.0kW) + HF104 (1.0kW)", " $0.7 \times (9.0 + 1.0) = 7.0 < 9.0$ " is applied. So, do the calculation with applying "9.0kW" to the total sum of the servo motor's rated output.
- (2) For "HF903 (9.0kW) + HF903 (9.0kW)", "0.7 × (9.0 + 9.0) = 12.6 > 9.0" is applied. So, do the calculation with applying "12.6kW" to the total sum of the servo motor's rated output.

Example: HF-H Series

(1) For "HF-H903 (9.0kW) + HF-H104 (1.0kW)", "0.7 × (9.0 + 1.0) = 7.0 < 9.0" is applied. So, do the calculation with applying "9.0kW" to the total sum of the servo motor's rated output.

- (2) For "HF-H903 (9.0kW) + HF-H903 (9.0kW)", "0.7 × (9.0 + 9.0) = 12.6 > 9.0" is applied. So, do the calculation with applying "12.6kW" to the total sum of the servo motor's rated output.
- 2. When reducing the time constant replacing the conventional motor with the HF, HF-KP or HF-H Series motor, the power supply capacity may rise because the motor maximum momentary output increases more than the conventional motor. Therefore, make sure to check the selection with maximum momentary rated capacity.
- 3. When the large capacity drive unit (MDS-D2-SP-400/640, MDS-DH2-SP-200/320/450, MDS-DH2-V1-200) is connected to the power supply unit, always install the drive unit proximally in the left side of the power supply unit and connect PN terminal with the dedicated DC connection bar.
- 4. When using two large capacity drive units or more, the power supply unit is required for each drive unit.

■Required capacity of power supply

For the power supply capacity, calculate the required spindle rated output and servo motor rated output each, and select the power supply capacity satisfying them.

(1) Spindle rate output required for power supply

The spindle rate output required for power supply is calculated from the following expression.

- Spindle rate output required for power supply = spindle drive unit
- spindle output".

(2) Servo motor rate output required for power supply

For the servo motor rate output required for power supply, use the value calculated in (1) of "Calculation of servo motor output".

- (3) Calculation of rate output required for power supply (a) When there is only one servo motor axis
 - Rated capacity required for power supply = power supply)

(b) When there are two or more servo motor axes

Rated capacity required for power supply = for power supply)

Substitute the output calculated from the item (1) and (2) to the expression (a) and (b), and calculate the rated capacity required for the power supply.

(4) Calculation of required power supply

Power supply capacity (kVA) = supply unit (kW)) × Power supply capacity base value (kVA)}

The power supply capacity base value corresponding to the capacity of the selected power supply unit is as the following table.

MDS-D2 Series										
Unit	MDS-D2-CV-	37	75	110	185	300	370	450	550	
Power supply cap	acity base value (kVA)	5.3	11.0	16.0	27.0	43.0	53.0	64.0	78.0	
MDS-DH2 Se					1					
Unit	MDS-DH2-CV-	37	75	110	185	300	370	450	550	750
Power supply cap	acity base value (kVA)	5.3	11.0	16.0	27.0	43.0	53.0	64.0	78.0	107.0

MAX (Spindle motor continuous rated output, Spindle motor output at accelerating / decelerating, Spindle motor short-time output) × motor output coefficient β of combined

(Note) For the spindle rate output required for the power supply, multiply the largest one of "spindle motor continuous rate output", "spindle motor output at acceleration/deceleration" and "spindle motor short time output" by the motor output coefficient β of the combined spindle drive unit. For the motor output coefficient of the combined spindle drive unit, use the value corresponding to the used spindle drive unit in the table on page 86 of (1) of "Calculation of

 Σ (Spindle rate output required for power supply) + (servo motor rate output required for

 Σ (Spindle rate output required for power supply) + 0.7 Σ (servo motor rate output required

Σ {(Required rated capacity calculated in the item (3) (kW) / Capacity of selected power

Example for power supply unit and power supply facility capacity

MDS-D2-V1/V2 Series

(Example 1)

Axis name	Motor	Drive unit	Rated output	Maximum momentary output
X-axis	HF354	(MDS-D2-V2-160160)	3.5kW	18kW
Y-axis	HF354	(MDS-D2-V2-160160)	3.5kW	18kW
Z-axis	HF354	(MDS-D2-V1-160)	3.5kW	18kW
Spindle	Spindle motor 22kW MDS-D2-SP-320 (Output coefficient 1.0)		22kW	26.4kW
	Total		0.7 × (3.5 × 3) + 22 = 29.35kW < 31kW (D2-CV-300)	(18 × 3) + 26.4 = 80.4kW < 92kW (D-CV-300)

The power supply unit satisfying the total of the rate output and the maximum momentary output is MDS-D2-CV-300. Required power supply capacity (kVA) = $(29.35 / 30) \times 43 = 42.1$ (kVA)

(Example 2)

Axis name	Motor	Drive unit	Rated output	Maximum momentary output
X1-axis	HF453	(MDS-D2-V2-160160)	4.5kW	22kW
X2-axis	HF453	(MDS-D2-V2-160160)	4.5kW	22kW
Y-axis	HF354	(MDS-D2-V2-160160)	3.5kW	18kW
Z-axis	HF354	(MDS-D2-V2-160160)	3.5kW	18kW
Spindle	Spindle motor 15kW MDS-D2-SP-200 (Output coefficient 1.0)		15kW	18kW
	Total		0.7 × (4.5 × 2 + 3.5 × 2) + 15 = 26.2kW < 31kW (D2-CV-300)	22 × 2 + 18 × 2 + 18 = 98.0kW < 101kW (D2-CV-370)

The power supply unit satisfying the total of the rate output and the maximum momentary output is MDS-D2-CV-370.

Required power supply capacity (kVA) = (26.2 / 37) × 53 = 37.5 (kVA)

(Example 3)

Axis name	Motor	Drive unit	Rated output	Maximum momentary output
X-axis	HF354	MDS-D2-V1-160	3.5kW	18kW
Y-axis	HF204	MDS-D2-V2-8080	2.0kW	8kW
Z-axis	HF204	MDS-D2-V2-8080	2.0kW	8kW
Spindle	le Spindle motor 15kW MDS-D2-SP-320 (High-torque motor) (Output coefficient 1.1)		16.5kW	18kW
	Total		0.7 × (3.5 + 2.0 × 2) + 16.5 = 21.75kW < 31kW (D2-CV-300)	18 + 8 × 2 + 18 = 52kW < 60kW (D2-CV-185)

The power supply unit satisfying the total of the rate output and the maximum momentary output is MDS-D2-CV-300.

Required power supply capacity (kVA) = (21.75 / 30) × 43 = 31.2 (kVA)

MDS-D2-V3 Series

Axis name	Motor	Drive unit	Rated output	Maximum momentary output
X-axis	HF223	(MDS-D2-V3-404040)	2.1kW	7.5kW
Y-axis	HF223	(MDS-D2-V3-404040)	2.1kW	7.5kW
Z-axis	HF302B	(MDS-D2-V3-404040)	3.0kW	7.4kW
Spindle	Idle Spindle motor 22kW MDS-D2-SP-320 (Output coefficient 1.0)		22kW	26.4kW
	Total		0.7 × (2.1 × 2 + 3.0) + 22 = 27.04kW < 31kW (D2-CV-300)	(7.5 × 2 + 7.4) + 26.4 = 48.8kW < 92kW (D2-CV-300)

The power supply unit satisfying the total of the rate output and the maximum momentary output is MDS-D2-CV-300. Required power supply capacity (kVA) = (27.04 / 30) × 43 = 38.8 (kVA)

MDS-DH2 Series

Example	1)			
Axis name	Motor	Drive unit	Rated output	Maximum momentary output
X-axis	HF-H354	(MDS-DH2-V2-8080)	3.5kW	18kW
Y-axis	HF-H354	(MDS-DH2-V2-8080)	3.5kW	18kW
Z-axis	HF-H354	(MDS-DH2-V1-80)	3.5kW	18kW
Spindle	Spindle motor 22kW (Output 22kW)		22kW	26.4kW
	Total		0.7 × (3.5 × 3) + 22 = 29.35kW < 31kW (DH2-CV-300)	(18 × 3) + 26.4 = 80.4kW < 92kW (DH2-CV-300)

The power supply unit satisfying the total of the rate output and the maximum momentary output is MDS-DH2-CV-300. Required power supply capacity (kVA) = (29.35 / 30) × 43 = 42.0 (kVA)

(Example 2)

(-/			
Axis name	Motor	Drive unit	Rated output	Maximum momentary output
X1-axis	HF-H453	(MDS-DH2-V2-8080)	4.5kW	22kW
X2-axis	HF-H453	(MDS-DH2-V2-8080)	4.5kW	22kW
Y-axis	HF-H354	(MDS-DH2-V2-8080)	3.5kW	18kW
Z-axis	HF-H354	(MDS-DH2-V2-8080)	3.5kW	18kW
Spindle	Spindle motor 15kW MDS-DH2-SP-100 (Output coefficient 1.0)		15kW	18kW
	Total		0.7 × (4.5 × 2 + 3.5 × 2) + 15 = 26.2kW < 31kW (DH-CV-300)	22 × 2 + 18 × 2 + 18 = 98.0kW < 101kW (DH2-CV-370)

The power supply unit satisfying the total of the rate output and the maximum momentary output is MDS-DH2-CV-370. Required power supply capacity (kVA) = $(26.2 / 30) \times 43 = 37.6$ (kVA)

(Example 3)

Axis name	Motor	Drive unit	Rated output	Maximum momentary output
X-axis	HF-H354	MDS-DH2-V1-160	3.5kW	18kW
Y-axis	HF-H204	MDS-DH2-V2-8080	2.0kW	8kW
Z-axis	HF-H204	MDS-DH2-V2-8080	2.0kW	8kW
Spindle Spindle motor 15kW MDS-DH2-SP-320 (High-torque motor) (Output coefficient 1.1)			16.5kW	18kW
Total			0.7 × (3.5 + 2.0 × 2) + 16.5 = 21.75kW < 31kW (DH2-CV-300)	18 + 8 × 2 + 18 = 52kW < 60kW (DH2-CV-185)

The power supply unit satisfying the total of the rate output and the maximum momentary output is MDS-DH2-CV-370. Required power supply capacity (kVA) = (21.75 / 30) × 43 = 31.2 (kVA)

Servo options

The option units are required depending on the servo system configuration. Check the option units to be required referring the following items.

System establishment in the full closed loop control

Full closed loop control for linear axis

	Machine side detect	or to be used	Detector signal output	Interface unit	Drive unit input signal	Battery option	Remarks
	Rectangular wave signal	SR74, SR84 (MAGNESCALE)	Rectangular wave signal	-	Rectangular wave signal	-	
	output	Various scale	Rectangular wave signal	-	Rectangular wave signal	-	
		LS187, LS487	SIN wave signal	IBV series (HEIDENHAIN)	Rectangular wave signal	-	
		(HEIDENHAIN)	Silv wave signal	EIB series (HEIDENHAIN)	Mitsubishi serial signal	-	
ncremental detector	SIN wave signal	LS187C, LS487C	SIN wave signal	MDS-B-HR-11 (P) (MITSUBISHI ELECTRIC)	Mitsubishi serial	(Required)	Distance-coded
	output	(HEIDENHAIN)	Silv wave signal	EIB series (HEIDENHAIN)	signal	Note	reference scale
		Various scale	SIN wave signal	MDS-B-HR-11 (P) (MITSUBISHI ELECTRIC)	Mitsubishi serial signal	(Required) Note	Distance-coded reference scale is
		various scale		EIB series (HEIDENHAIN)			also available
	Mitsubishi serial signal output	SR75, SR85 (MAGNESCALE)	Mitsubishi serial signal	-	Mitsubishi serial signal	-	
		OSA105ET2A OSA166ET2NA (MITSUBISHI ELECTRIC)	Mitsubishi serial signal	-	Mitsubishi serial signal	Required	Ball screw end detector
		SR77, SR87 (MAGNESCALE)	Mitsubishi serial signal	-	Mitsubishi serial signal	Not required	
		LC193M, LC493M (HEIDENHAIN)	Mitsubishi serial signal	-	Mitsubishi serial signal	Not required	
Absolute	Mitsubishi serial signal output	AT343, AT543, AT545 (Mitutoyo)	Mitsubishi serial signal	-	Mitsubishi serial signal	Not required	
position detector	signal output	SAM Series (FAGOR)	Mitsubishi serial signal	-	Mitsubishi serial signal	Not required	
		SVAM Series (FAGOR)	Mitsubishi serial signal	-	Mitsubishi serial signal	Not required	
		GAM Series (FAGOR)	Mitsubishi serial signal	-	Mitsubishi serial signal	Not required	
		LAM Series (FAGOR)	Mitsubishi serial signal	-	Mitsubishi serial signal	Not required	
	SIN wave signal output	MPS Series (MME Corp.)	SIN wave signal	ADB-20J60 (MME Corp.)	Mitsubishi serial signal	Required	

(Note) When using the distance-coded reference scale, it is recommended to use with distance-coded reference check function. In this case, the battery option is required.

Full closed loop control for rotary axis

Machine side detector to be used			Detector signal output	Interface unit	Output signal	Battery option	Remarks
	Rectangular wave signal output	Various scale	Rectangular wave signal	-	Rectangular wave signal	-	
Incremental		ERM280 Series (HEIDENHAIN)	SIN wave signal	EIB series (HEIDENHAIN)	Mitsubishi serial signal	-	
	SIN wave signal output	Various scale	SIN wave signal	MDS-B-HR-11 (P) (MITSUBISHI ELECTRIC)	Mitsubishi serial	(Required) Note	Distance-coded
		Valious scale	Silv wave signal	EIB series (HEIDENHAIN)	signal		also available
		MBA405W Series (MITSUBISHI ELECTRIC)	Mitsubishi serial signal	-	Mitsubishi serial signal	Not required	
	Mitsubishi serial	RU77 (MAGNESCALE)	Mitsubishi serial signal	-	Mitsubishi serial signal	Not required	
Absolute position detector SIN wave	signal output	RCN223M, RCN227M (HEIDENHAIN)	Mitsubishi serial signal	-	Mitsubishi serial signal	Not required	
		RCN727M, RCN827M (HEIDENHAIN)	Mitsubishi serial signal	-	Mitsubishi serial signal	Not required	
	SIN wave	MPRZ Series (MME Corp.)	SIN wave signal	ADB-20J71 (MME Corp.)	Mitsubishi serial signal	Not required	
	signal output	MPI Series (MME Corp.)	SIN wave signal	ADB-20J60 (MME Corp.)	Mitsubishi serial signal	Required	

(Note) When using the distance-coded reference scale, it is recommended to use with distance-coded reference check function. In this case, the battery option is required.

System establishment in the synchronous control

Position command synchronous control

The synchronous control is all executed in the NC, and the each servo is controlled as an independent axis. Therefore, preparing special options for the synchronous control is not required on the servo side.

Speed command synchronization control

The common position control in two axes is performed by one linear scale. Basically, the two axes integrated type drive unit (MDS-D2/DH2-V2) is used, and the feedback signal is divided for two axes inside the drive unit. When the two 1-axis type drive units are used in driving the large capacity servo motor, the linear scale feedback signal must be divided outside.

<Required option in the speed command synchronous control>

	For MDS-D2/DH2-V2	For MDS-D2/DH2-V1 × 2 units	Remarks
SIN wave signal output scale	MDS-B-HR-11 (P) (Serial conversion)	MDS-B-HR-12 (P) (Serial conversion/signal division)	
Mitsubishi serial signal output scale	-		Including the case that an interface unit of the scale manufacturer is used with SIN wave output scale.

(Note) The rectangular wave signal output scale speed command synchronous control is not available

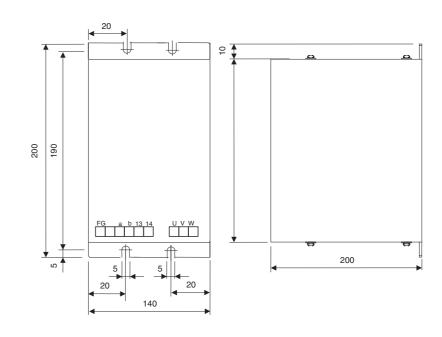
■Dynamic brake unit (MDS-D-DBU)

Specifications

-	
Туре	MDS-D-DBU
Coil specifications	24VDC 160mA
Wire size	5.5mm ² or more (For IV wire)
Compatible drive unit MDS-D2-V1-320W, MDS-DH2-V1-160W, MDS-DH2-V1-200	
Mass	2kg

Outline dimension drawing

MDS-D-DBU



[Unit : mm]

■Battery option

This battery option may be required to establish absolute position system. Select a battery option from the table below depending on the servo system.

Туре		ER6V-C119B	A6BAT (MR-BAT)	MDS-BTBOX-36	MR-BAT6V1SET	
Installation type		Drive unit with battery holder type	Dedicated case type	Unit and battery integration type	Drive unit with battery holder type	
Hazard class		Not applicable	Not applicable (24 or less)	Not applicable	Not applicable	
Number of connectable axes		Up to 3 axes	Up to 8 axes (When using dedicated case)	Up to 8 axes	1 axis	
Battery chang	е	Possible	Possible	Possible	Possible	
Appearance		Battery connector	Battery A6BAT (MR-BAT) Dedicated case MDS-BTCASE			
O and a like to	D2/DH2	0	0	0	-	
Compatible model	DM2	0	0	0	-	
model -	DJ	_	-	_	0	

■Cell battery (ER6V-C119B)

Specifications

Battery option type		Cell battery		
		ER6V-C119B (Note 1)		
Battery model name		ER6V		
Nominal voltage		3.6V		
Number of connectable axes		Up to 3 axes (Note 3)		
Battery continuous backup time		Up to 2 axes: Approx. 10000 hours 3 axes connected: Approx. 6600 hours		
Back up time from battery warning to alarm occurrence (Note 2)		Up to 2 axes: Approx. 100 hours 3 axes connected: Approx. 60 hours		
Compatible model	D2/DH2	0		
	DM2	0		
	DJ	_		

(Note 1) ER6V-C119B is a battery built in a servo drive unit. Install this battery only in the servo drive unit that executes absolute position control.

(Note 2) This time is a guideline, so does not guarantee the back up time. Replace the battery with a new battery as soon as a battery warning occurs. (Note 3) When using ball screw side detector OSA166ET2NA/OSA105ET2A, both ball screw side detector and motor side detector need to be backed up by a battery, so the

number of load shaft should be two.

■Cell battery (A6BAT)

Always use the cell battery (A6BAT) in combination with the dedicated case (MDS-BTCASE).

Specifications

Battery option type	Cell battery		
	A6BAT (MR-BAT)		
Battery model name	ER17330V		
Nominal voltage	3.6V		
Number of connectable axes	1 axis / (per 1 battery)		
Data save time in battery replacement	Approx.10000 hours		
Back up time from battery warning to alarm occurrence (Note)	Approx. 80 hours		

(Note) This time is a guideline, so does not guarantee the back up time. Replace the battery with a new battery as soon as a battery warning occurs.

Specifications of the dedicated case MDS-BTCASE

Туре		MDS-BTCASE		
Number of batteries installed		Up to 8 A6BATs (MR-BATs) (Install either 2, 4, 6 or 8 A6BATs (MR-BATs))		
Number of connectable axes		Max. 8 axes (It varies depending on the number of batteries installed.) When A6BAT (MR-BAT)×2, 1 to 2 axis/axes When A6BAT (MR-BAT)×4, 3 to 4 axes When A6BAT (MR-BAT)×6, 5 to 6 axes When A6BAT (MR-BAT)×8, 7 to 8 axes		
	D2/DH2	0		
Compatible model	DM2	0		
	DJ	-		

■Battery box (MDS-BTBOX-36)

Specifications

Battery o	ption type	
Battery model name		siz
Nominal voltage		
Number of connectable	axes	
Battery continuous back	up time	Approx. 10000 hours (when
Back up time from batte occurrence	ry warning to alarm	Appro
	D2/DH2	
Compatible model	DM2	
	DJ	

(Note 1) Install commercially-available alkaline dry batteries into MDS-BTBOX-36. The batteries should be procured by customers.
 (Note 2) These backup periods are estimated based on the JIS standard, assuming that the product is used at a room temperature. The actual backup period may vary depending on the batteries (type and storage period after production, etc.) and the operating environment. Thus, regard these values only as a guide.

Converged battery option

When using the following battery options, the wiring between units which configure an absolute position system is required.

Battery option type	Installation type	Battery charge	
A6BAT (MR-BAT)	Dedicated case type (built-in MDS-BTCASE)	Possible	
MDS-BTBOX-36	Unit and battery integration type	Possible	

■Cell battery (MR-BAT6V1SET)

Specifications

Battery option type		Cell battery		
		MR-BAT6V1SET (Note 1)		
Battery model name		ER6V		
Nominal voltage		3.6V		
Number of connectable	axes	1 axis		
Data save time in batter	ry replacement	Approx. 20000 hours		
Back up time from batte occurrence (Note 2)	ery warning to alarm	Approx. 100 hours		
	D2/DH2	-		
Compatible model	DM2	-		
	DJ	0		

(Note 1) MR-BAT6V1SET is a battery built in a servo drive unit. Install this battery only in the servo drive unit that executes absolute position control. (Note 2) This time is a guideline, so does not guarantee the back up time. Replace the battery with a new battery as soon as a battery alarm occurs.

Drive

Battery box
MDS-BTBOX-36
ze-D alkaline batteries LR20×4 pieces (Note1)
3.6V (Unit output), 1.5V (Isolated battery)
Up to 8 axes
a 8 axes are connected, cumulative time in non-energized state) (Note2)
x. 336 hours (when 8 axes are connected) (Note2)
0
0
-
atteries should be procured by customers.

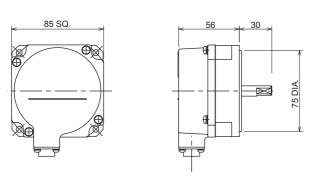
■Ball screw side detector OSA105ET2A, OSA166ET2NA

Specifications

	Detector type	OSA105ET2A	OSA166ET2NA		
Electrical characteristics	Detector resolution	1,000,000pulse/rev	16,000,000pulse/rev		
	Detection method	Absolute position method (battery backup method)			
	Tolerable rotation speed at power off (Note)	500r/min			
	Detector output data	Serial data			
	Power consumption	0.3	3A		
	Inertia	0.5×10 ⁻⁴ kg	0.5×10 ⁻⁴ kgm² or less		
Mechanical characteristics for	Shaft friction torque	0.1Nm or less			
rotation	Shaft angle acceleration	4×10 ⁴ rad/s ² or less			
Totation	Tolerable continuous rotation speed	4000r/min			
	Shaft amplitude (position 15mm from end)	0.02mm or less			
Mechanical	Tolerable load (thrust direction/radial direction)	9.8N/19.8N			
configuration	Mass	0.6	Skg		
	Degree of protection	IP65 (The shaft-throug	h portion is excluded.)		
	Recommended coupling	bellows coupling			
	D2/DH2	0 0			
Compatible model	DM2	0	_		
	DJ	0	_		

Outline dimension drawing

OSA105ET2A/OSA166ET2NA

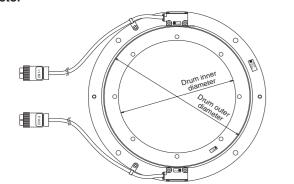


Twin-head magnetic detector (MBA Series) Specifications

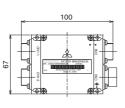
Detector type		MBA405W-BE082	MBA405W-BF125	MBA405W-BG160	
	Detector resolution		4,000,000 pulse/rev	•	
	Detection method	Absolute position method (battery backup method)			
	Tolerable rotation speed at power off	3000r/min	2000r/min	1500r/min	
Electrical characteristics	Accuracy (Typ)	±4 seconds	±3 seconds	±2 seconds	
	Wave number within one rotation	512 waves	768 waves	1024 waves	
	Detector output data	Serial data			
	Power consumption	0.2A or less			
Mechanical	Inertia	0.5×10 ⁻³ kg · m ²	2.4×10 ⁻³ kg · m ²	8.7×10 ⁻³ kg · m ²	
characteristics	Tolerable angle acceleration (time of backup)	500rad/s ²			
for rotation	Tolerable continuous rotation speed	3000r/min	2000r/min	1500r/min	
	Drum inner diameter	φ 82mm	φ 125mm	φ 160mm	
	Drum outer diameter	φ 100mm	φ 150.3mm	φ 200.6mm	
Mechanical configuration	Drum mass	0.2kg	0.46kg	1.0kg	
	Degree of protection		IP67		
	Outline dimension	<i>ϕ</i> 140mm×21.5mm	φ 190mm×23.5mm	φ 242mm×25.5mm	

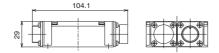
Outline dimension drawing

Detector









[Unit : mm]

[Unit : mm]

Spindle options

According to the spindle control to be adopted, select the spindle side detector based on the following table.

No-variable speed control (When spindle and motor are directly coupled or coupled with a 1:1 gear ratio)

			 Control possible x: Control not possible
Spindle control item	Control specifications	Without spindle side detector	With spindle side detector
	Normal cutting control	•	
Spindle control	Constant surface speed control (lathe)	•	
	Thread cutting (lathe)	•	
	1-point orientation control	•	
Orientation control	Multi-point orientation control	•	This normally is not used for novariable speed
	Orientation indexing	•	control.
Synchronous tap control	Standard synchronous tap	•	
Synchronous tap control	Synchronous tap after zero point return	•	
Spindle synchronous control	Without phase alignment function	•	
	With phase alignment function	•	
C-axis control	C-axis control	(Note)	•

(Note) When spindle and motor are coupled with a 1:1 gear ratio, use of a spindle side detector is recommended to assure the precision.

Variable speed control (When using V-belt, or when spindle and motor are connected with a gear ratio other than 1:1)

		Without spindle side - detector	With spindle side detector			
Spindle control item	Control specifications		TS5690/ERM280/ MPCI Series	OSE-1024	Proximity switch	
	Normal cutting control	•	۲	•	-	
Spindle control	Constant surface speed control (lathe)	• (Note 1)	۲	•	×	
	Thread cutting (lathe)	×	٠	•	×	
	1-point orientation control	×	٠	•	•	
Orientation control	Multi-point orientation control	×	•	•	×	
	Orientation indexing	×	۲	•	×	
Currely and the constral	Standard synchronous tap	 (Note 2) 	٠	•	×	
Synchronous tap control	Synchronous tap after zero point return	×	٠	•	×	
Spindle synchronous control	Without phase alignment function	• (Note 1)	٠	•	×	
	With phase alignment function	×	۲	•	×	
C-axis control	C-axis control	×	٠	×	×	
(Note 1) Control not possib	(Note 1) Control not possible when connected with the V-belt.					

(Note 2) Control not possible when connected with other than the gears.

Cautions for connecting the spindle end with an OSE-1024 detector

[1] Confirm that the gear ratio (pulley ratio) of the spindle end to the detector is 1:1. [2] Use a timing belt when connecting by a belt.

•: Control possible ×: Control not possible

Spindle side ABZ pulse output detector (OSE-1024 Series)

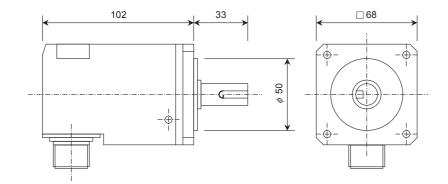
When a spindle and motor are connected with a V-belt, or connected with a gear ratio other than 1:1, use this spindle side detector to detect the position and speed of the spindle. Also use this detector when orientation control and synchronous tap control, etc are executed under the above conditions.

Specifications

	Detector type	OSE-1024-3-15-68	OSE-1024-3-15-68-8		
	Inertia	0.1×10 ⁻⁴ kgm ² or less	0.1×10 ⁻⁴ kgm ² or less		
Mechanical characteristics	Shaft friction torque	0.98Nm or less	0.98Nm or less		
or rotation	Shaft angle acceleration	10 ⁴ rad/s ² or less	10 ⁴ rad/s ² or less		
	Tolerable continuous rotation speed	6000r/min	8000r/min		
	Bearing maximum non-lubrication time	20000h/6000r/min	20000h/8000r/min		
	Shaft amplitude (position 15mm from end)	0.02mm or less	0.02mm or less		
	Tolerable load (thrust direction/radial direction)	10kg/20kg Half of value during operation	10kg/20kg Half of value during operation		
Mechanical configuration	Mass	1.5kg	1.5kg		
	Degree of protection	IP	54		
	Squareness of flange to shaft	0.05mm or less			
	Flange matching eccentricity	0.05mm	n or less		
	D2/DH2	0	0		
Compatible model	DM2	0	0		
	DJ	0	0		

(Note) Confirm that the gear ratio (pulley ratio) of the spindle end to the detector is 1:1.

Outline dimension drawing



Spindle side detector (OSE-1024-3-15-68, OSE-1024-3-15-68-8)

[Unit : mm]

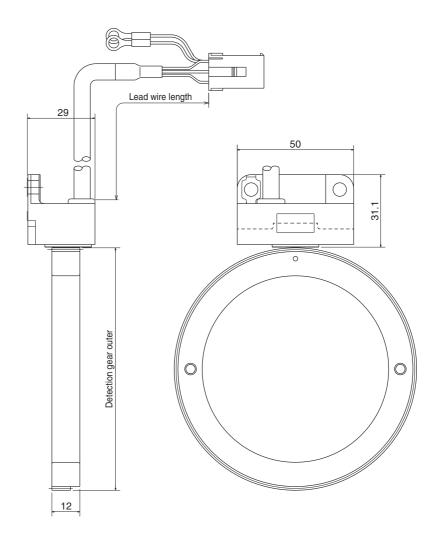
■Spindle side PLG serial output detector (TS5690, MU1606 Series)

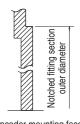
This detector is used when a more accurate synchronous tapping control or C-axis control than OSE detector is performed to the spindle which is not directly-connected to the spindle motor.

Specifications

	Series type)		TS	5690N64	XX			TS	5690N12	2xx		TS5690N25xx				
Sensor	xx (The end of the ty	pe name)	10	20	30	40	60	10	20	30	40	60	10	20	30	40	60
Gensor	Length of lead	[mm]	400 ±10	800 ±20	1200 ±20	1600 ±30	2000 ±30	400 ±10	800 ±20	1200 ±20	1600 ±30	2000 ±30	400 ±10	800 ±20	1200 ±20	1600 ±30	2000 ±30
	Туре			MU	J1606N6	01			M	J1606N7	09			MU1606N805			
	The number of teet	th			64					128					256		
Detection	Outer diameter	[mm]			<i>\$</i> 52.8					<i>\phi</i> 104.0					<i>\phi</i> 206.4		
gear	Inner diameter	[mm]			<i>ϕ</i> 40H5				<i>φ</i> 80H5						<i>ϕ</i> 140H5		
	Thickness	[mm]		12			12			14							
	Shrink fitting	[mm]		0.020 to 0.040				0.030 to 0.055			0.050 to 0.085						
Notched fitting	Outer diameter	[mm]			<i>φ</i> 72.0					<i>ϕ</i> 122.0					<i>\$</i> 223.6		
section				+0.010 to +0.060 -0.025 to +0.025			-0.025 to +0.025										
The number of	A/B phase				64			128				256					
output pulse	Z phase				1			1			1						
Detection resolu	ution	[p/rev]	2 million						4 million					8 million			
Absolute accura	acy at stop			150" 100"				95"									
Tolerable speed		[r/min]	nin] 40,000 20,000				10,000										
Signal output								N	litsubish	i high-sp	eed seria	al					
Compatible	D2/DH2				0					0					0		
Compatible model	DM2				0			0			0						
mouor	DJ				0					0				0			

Outline dimension drawing





Encoder mounting face of machine side

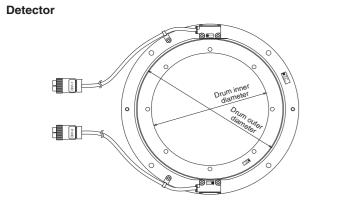
Drive system Dedicated Options

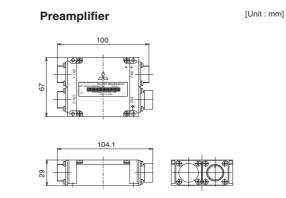
Twin-head magnetic detector (MBE Series)

Specifications

[Detector type	MBE405W-BE082	MBE405W-BF125	MBE405W-BG160	
	Detector resolution		4,000,000 pulse/rev		
	Detection method		Incremental		
Electrical	Accuracy (Typ)	±4 seconds	±3 seconds	±2 seconds	
characteristics	Wave number within one rotation	512 waves	768 waves	1024 waves	
	Detector output data	Serial data			
	Power consumption	0.2A or less			
Mechanical characteristics	Inertia	0.5×10^{-3} kg \cdot m ²	2.4×10 ⁻³ kg · m ²	8.7×10 ⁻³ kg · m ²	
for rotation	Tolerable continuous rotation speed	15000 r/min	10000 r/min	8000 r/min	
	Drum inner diameter	<i>φ</i> 82mm	φ 125mm	φ 160mm	
	Drum outer diameter	<i>ϕ</i> 100mm	φ 150.3mm	φ 200.6mm	
Mechanical configuration	Drum mass	0.2kg	0.46kg	1.0kg	
comguration	Degree of protection		IP67	-	
	Outline dimension	φ 140mm×21.5mm	φ 190mm×23.5mm	φ 242mm×25.5mm	

Outline dimension drawing





Spindle side accuracy serial output detector (ERM280, MPCI Series)

C-axis control detector is used in order to perform an accurate C-axis control.

Manufacturer		HEIDEI	MHI MACHINE TOOL ENGINEERING CO., LTD	
Detector type		ERM280 1200	ERM280 2048	MPCI series
		EIB192M C4 1200	EIB192M C6 2048	ADB-20,J20
Interface unit type		EIB392M C4 1200	EIB392M C6 2048	ADB-20J20
Minimum detectior	n resolution	0.0000183° (19,660,800p/rev)		
Tolerable maximur	n speed	20000r/min	11718r/min	10000r/min
	D2/DH2	C	0	
Compatible model	DM2	0		0
	DJ	C	0	

Detector interface unit

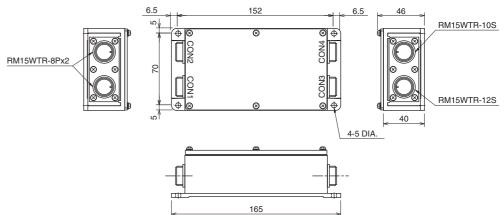
Serial output interface unit for ABZ analog detector MDS-B-HR

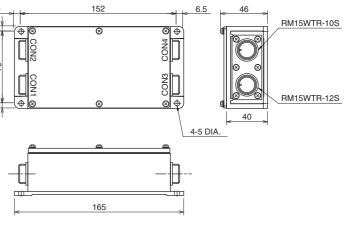
This unit superimposes the scale analog output raw waves, and generates high resolution position data. Increasing the detector resolution is effective for the servo high-gain. MDS-B-HR-12(P) is used for the synchronous control system that 1-scale 2-drive operation is possible.

Specifications

Ту	pe	MDS-B-HR-11	MDS-B-HR-12	MDS-B-HR-11P	MDS-B-HR-12P		
Compatible scale (exa	ample)		LS186 / LS486 (HEIDENHAIN)				
Signal 2-division func	tion	×	0	×	0		
Analog signal input sp	pecifications		A-phase, B-phase, Z-pl	hase (Amplitude 1Vp-p)			
Compatible frequency	/		Analog raw wave	form max. 200kHz			
Scale resolution			Analog raw waveform/512 division				
Input/output commun	nput/output communication style		High-speed serial communication I/F, RS485 or equivalent				
Tolerable power volta	ge	5VDC±5%					
Maximum heating val	ue		2	W			
Mass			0.5kg	or less			
Degree of protection		IP65 IP67			67		
	D2/DH2	0	0	0	0		
Compatible model	DM2	0	-	0	_		
	DJ	0	0	0	0		

Outline dimension drawing





Serial signal division unit MDS-B-SD

This unit has a function to divide the position and speed signals fed back from the high-speed serial detector and high-speed serial linear scale. This unit is used to carry out synchronized control of the motor with two MDS-D2/ DH2-V1 drive units.

Specifications

Туре		MDS-B-SD
Compatible servo drive	unit	MDS-D2/DH2-V1-
Input/output communic	ation style	High-speed serial communication I/F, RS485 or equivalent
Tolerable power voltage		5VDC±10%
Maximum heating value		4W
Mass		0.5kg or less
Degree of protection		IP20
	D2/DH2	0
Compatible model	DM2	-
	DJ	0

[Unit : mm]

Serial output interface unit for ABZ analog detector EIB192M (Other manufacturer's product)

Specifications

Ту	ре	EIB192M A4 20µm	EIB192M C4 1200	EIB192M C4 2048			
Manufacturer			HEIDENHAIN				
Input signal			A-phase, B-phase: SIN wave 1Vpp, Z-phase	e			
Maximum input freque	ency		400kHz				
Output signal		Mi	tsubishi high-speed serial signal (MITSU02	-4)			
Interpolation division	number		Maximum 16384 divisions				
Compatible detector		LS187, LS487	7 ERM280 1200 ERM				
Minimum detection re	solution	0.0012 <i>µ</i> m	0.0000183° (19,660,800p/rev)	0.0000107° (33,554,432p/rev)			
Degree of protection			IP65				
Outline dimension			98mm×64mm×38.5mm				
Mass			300g				
	D2/DH2	0	0	0			
Compatible model	DM2	0	0	0			
	DJ	0	0	0			

Serial output interface unit for ABZ analog detector EIB392M (Other manufacturer's product)

Specifications

Ту	Туре Е		EIB392M C4 1200	EIB392M C4 2048			
Manufacturer			HEIDENHAIN				
Input signal			A-phase, B-phase: SIN wave 1Vpp, Z-phase	e			
Maximum input freque	ency		400kHz				
Output signal		Mi	tsubishi high-speed serial signal (MITSU02	-4)			
Interpolation division	number		Maximum 16384 divisions				
Compatible detector		LS187, LS487	ERM280 1200	ERM280 2048			
Minimum detection re	solution	0.0012 <i>µ</i> m	0.0012µm 0.000183° (19.660,800p/rev)				
Degree of protection			IP40				
Outline dimension			76.5mm×43mm×16.6mm				
Mass			140g				
	D2/DH2	0	0	0			
Compatible model	DM2	0	0	0			
	DJ	0	0	0			

Serial output interface unit for ABZ analog detector ADB-20J Series (Other manufacturer's product)

Specifications

Ту	ре	ADB-20J20	ADB-	ADB-20J71	
Manufacturer			MHI MACHINE TOOL E	NGINEERING CO., LTD	
Maximum response s	peed	10,000r/min	3,600m/min	5,000r/min	10,000r/min
Output signal			Mitsubishi high-s	peed serial signal	·
Compatible detector		MPCI series	MPS series	MPI series	MPRZ series
Minimum detection resolution		0.00005° (7,200,000p/rev)	0.05µm 0.000025° (1,440,000p/rev)		0.000043° (8,388,608p/rev)
Degree of protection			IP	20	
Outline dimension			190mm×16	0mm×40mm	
Mass			0.9	Эkg	
	D2/DH2	0	0	0	0
Compatible model	DM2	0	0	0	0
	DJ	0	0	0	0

Drive unit option

Optical communication repeater unit (FCU7-EX022)

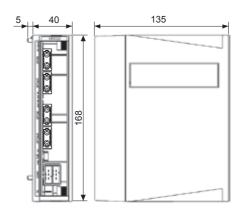
When the distance of the optical communication cable between NC control unit and drive unit is over 30m (M700V/ M70V/E70 Series: maximum 30m, M700/M70/C70 Series: maximum 20m), the communication can be performed by relaying the optical signal.

Using up to two units, relay of the total length of up to 90m can be performed.

Specifications

	Туре			
	Input voltage			
DC24V input	Inrush current	Inrush current		
DC24V Input	Power consumption			
	Consumption current	Consumption current		
Optical interface	Channel number			
Oplical Interface	Connectable number			
Dimension	Dimension			
Dimension	Mounting method			
Mass				
		D2/DH2		
Compatible model		DM2		
		DJ		

Outline dimension drawing



■DC connection bar

When connecting a large capacity drive unit with L+L- terminal of power supply unit, DC connection bar is required. In use of the following large capacity drive units, use a dedicated DC connection bar. The DC connection bar to be used depends on the connected power supply, so make a selection according to the following table.

Specifications

	Series	MDS	S-D2	MDS-DH2			
Large capacity drive unit		MDS-D2-SP-400 MDS-D2-SP-640	MDS-D2-SP-400 MDS-D2-SP-640	MDS-DH2-SP-200 MDS-DH2-SP-320 MDS-DH2-SP-480	MDS-DH2-V1-200 MDS-DH2-SP-200 MDS-DH2-SP-320	MDS-DH2-V1-200	
Power supply unit		MDS-D2-CV-300 MDS-D2-CV-370 MDS-D2-CV-450	MDS-D2-CV-550	S-D2-CV-550 MDS-DH2-CV-550 MDS-D2-CV MDS-DH2-CV-750 MDS-D2-CV MDS-DH2-CV-750 MDS-D2-CV		MDS-DH2-CV-185	
Required conne	ection bar	D-BAR-B1006	D-BAR-A1010 (Two-parts set)	DH-BAR-A0606 (Two-parts set)	DH-BAR-B0606	DH-BAR-C0606	
0	D2/DH2	0	0	0	0	0	
Compatible model	DM2	-	-	-	-	-	
	DJ	-	-	_	-	_	

■Side protection cover (D-COVER-1)

Install the side protection cover outside the both ends of the connected units.

FCU7-EX022
24V±10% (21.6V to 26.4V)
35A
10W
0.4A
2 channels
Maximum 2
(depth)135mm $ imes$ (width)40mm $ imes$ (height)168mm
Screw cramp with M5 2 screw cramps
0.42kg
0
0
0

[Unit : mm]]

■Regenerative option

Confirm the regeneration resistor capacity and possibility of connecting with the drive unit. The regenerative resistor generates heats, so wire and install the unit while taking care to safety. When using the regenerative resistor, make sure that flammable matters, such as cables, do not contact the resistor, and provide a cover on the machine so that dust or oil does not accumulate on the resistor and ignite.

Combination with servo drive unit

Corresponding servo	Standard b	ouilt-in			External of	option regenerativ	ve resistor		
drive unit	regenerativ	ve resistor	MR-RB032	MR-RB12	MR-RB32	MR-RB30	MR-RB50	MR-RB31	MR-RB51
		Parameter setting value		1300h	1400h	1500h	1600h	1700h	1800h
	M	ass	0.5kg	0.8kg	2.9kg	2.9kg	5.6kg	2.9kg	5.6kg
	Unit outline	Unit outline dimension		168mm× 40mm× 149mm	150mm× 100mm× 318mm	150mm× 100mm× 318mm	350mm× 128mm× 200mm	150mm× 100mm× 318mm	350mm× 128mm× 200mm
			W1	W2	W3	W3	W4	W3	W4
		External option regenerative resistor		-	GZG200W120 OHMK ×3	GZG200W39 OHMK ×3	GZG300W39 OHMK ×3	GZG200W20 OHMK ×3	GZG300W20 OHMK ×3
	Regenerat	ive capacity	30W	100W	300W	300W	500W	300W	500W
		Resistance value	40Ω	40Ω	40Ω	13Ω	13Ω	6.7Ω	6.7Ω
MDS-DJ-V1-10	10W	100Ω	0	0					
MDS-DJ-V1-15	10W	100Ω	0	0					
MDS-DJ-V1-30	20W	20W 40Ω		0	0				
MDS-DJ-V1-40	100W	13Ω				0	0		
MDS-DJ-V1-80	100W	9Ω						0	0
MDS-DJ-V1-100	100W	9Ω						0	0

				External option regenerative resistor									
Corresponding servo drive unit	Standard b regenerativ		FCUA-RB22	FCUA-RB37	FCUA-RB55	FCUA-RB75/2 (1 unit)	R-UNIT2	FCUA-RB55 2 units connected in parallel	FCUA-RB75/2 2 units connected in parallel				
		Parameter setting value		2500h	2600h	2700h	2900h	2E00h	2D00h				
	M	ass	0.8kg 1.2kg 2.2kg 2.2kg 4.4kg		4.4kg	4.4kg							
	Unit outline	Unit outline dimension		30mm× 60mm× 335mm	40mm× 80mm× 400mm	40mm× 80mm× 400mm	355mm× 105mm× 114mm	40mm× 80mm× 400mm	40mm× 80mm× 400mm				
			W5	W5	W6	W6	W7	W6	W6				
	Regenerat	ive capacity	155W	185W	340W	340W	700W	680W	680W				
		Resistance value	40Ω	25Ω	20Ω	30Ω	15Ω	10Ω	15Ω				
MDS-DJ-V1-10	10W	100Ω											
MDS-DJ-V1-15	10W	100Ω											
MDS-DJ-V1-30	20W	40Ω	0										
MDS-DJ-V1-40	100W	13Ω		0	0	0	0		0				
MDS-DJ-V1-80	100W	9Ω					0	0	0				
MDS-DJ-V1-100	100W	9Ω						0					

Combination with servo drive unit

			orporated in the spir tion regenerative res		
Corresponding			External option re	generative resistor	
spindle drive unit		MR-RB12	MR-RB32	MR-RB30	MR-RB50
	Parameter setting value	1300h	1400h	1500h	1600h
	Mass	0.8kg	2.9kg	2.9kg	5.6kg
	Unit outline dimension	168mm× 40mm× 149mm	150mm× 100mm× 318mm	150mm× 100mm× 318mm	350mm× 128mm× 200mm
		W2	W3	W3	W4
	External option regenerative resistor	GZG200W39OHMK	GZG200W120 OHMK×3	GZG200W39 OHMK×3	GZG300W39 OHMK×3
	Regenerative capacity	100W	300W	300W	500W
	Resistance value	40Ω	40Ω	13Ω	13Ω
MDS-DJ-SP-20	-	0	0		
MDS-DJ-SP-40	-			0	0
MDS-DJ-SP-80	-			0	0
MDS-DJ-SP-100	-			0	0
MDS-DJ-SP-120	-				0
MDS-DJ-SP-160	-				

		0	
MDS-DJ-SP-40	-		
MDS-DJ-SP-80	-		
MDS-DJ-SP-100	-		
MDS-DJ-SP-120	-		
MDS-DJ-SP-160	-		
Corresponding			
spindle drive unit		FCUA-RB22	
	Parameter setting value	2400h	
	Mass	0.8kg	
		30mm×	
	Unit outline dimension	60mm×	
		215mm	

W5

155W

40Ω

0

Regenerative capacity

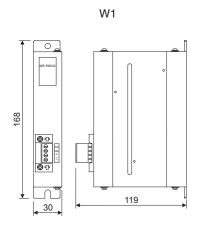
Resistance value

MDS-DJ-SP-20

MDS-DJ-SP-20	-	0	-	0				
MDS-DJ-SP-40	-	0		0		0		0
MDS-DJ-SP-80	-			0		0		0
MDS-DJ-SP-100	-					0		
MDS-DJ-SP-120	-							
MDS-DJ-SP-160	-							
				External	option regenera	tive resistor		
Corresponding spindle drive unit		R-UNIT1	R-UNIT2	R-UNIT3	R-UNIT4	R-UNIT5	FCUA-RB55 2 units connected in parallel	FCUA-RB75/2 2 units connected in parallel
	Parameter setting value	2800h	2900h	2A00h	2B00h	2C00h	2E00h	2D00h
	Mass	4.3kg	4.4kg	10.8kg	11.0kg	15.0kg	4.4kg	4.4kg
	Unit outline dimension	355mm× 105mm× 114mm	355mm× 105mm× 114mm		375mm× 276mm× 104mm	375mm× 276mm× 160mm	40mm× 80mm× 400mm	40mm× 80mm× 400mm
		W7	W7	W8	W8	W9	W6	W6
	Regenerative capacity	700W	700W	2100W	2100W	3100W	680W	680W
	Resistance value	30Ω	15Ω	15Ω	10Ω	10Ω	10Ω	15Ω
MDS-DJ-SP-20	-							
MDS-DJ-SP-40	-	0	0	0				0
MDS-DJ-SP-80	-	0	0	0	0	0	0	0
MDS-DJ-SP-100	-		0	0	0	0	0	0
MDS-DJ-SP-120	-		0	0	0	0	0	0
MDS-DJ-SP-160	-				0	0		

External option reg	generative resistor	
FCUA-RB37	FCUA-RB55	FCUA-RB75/2 (1 unit)
2500h	2600h	2700h
1.2kg	2.2kg	2.2kg
30mm× 60mm× 335mm	40mm× 80mm× 400mm	40mm× 80mm× 400mm
W5	W6	W6
185W	340W	340W
25Ω	20Ω	30Ω
0		
0	0	0
0	0	0
	0	

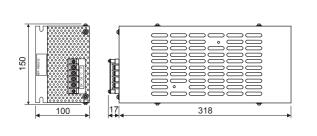
External option regenerative resistor unit

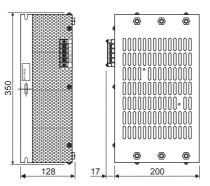


W2 89 40 149

W4

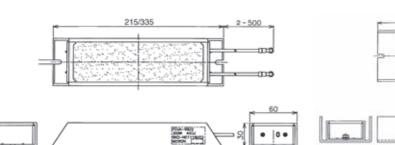
W3





W6

W5



6

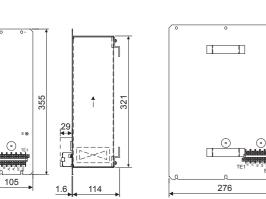
W7

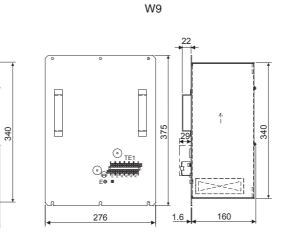


29

1.6

104





NE.

[Unit : mm]

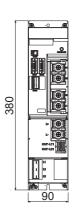
■Power backup unit MDS-D/DH-PFU

Use this unit to protect machines or drive units at power failure.

Specifications

Power backup uni	it type		MDS-DH-PFU
	Rated voltage	[V]	AC380 to 480 (50/6 Tolerable voltage fluctuation rate be
AC Input	Frequency	[Hz]	50/60
	Rated current	[A]	2
	Rated voltage	[V]	DC513 to 648
DC Input/Output	Rated current	[A]	Regenerative input: M. Power running output: N
	Voltage	[V]	Single-phase Quasi-AC380
	Current	[A]	MAX 2
AC output for control power backup	Maximum number of drive uni	ts to connect	
	Switching time		W
	Minimum backup time		75ms or more (AC380V input, at maximum number of
Degree of protect	ion		IP
Cooling method			
Mass		[ka]	

Outline dimension drawing

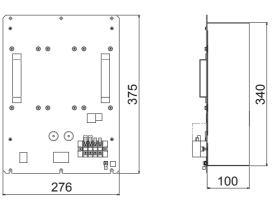


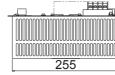
■Regenerative resistor unit for power backup unit R-UNIT-6, R-UNIT-7

Specifications

Regenerative resistor type		R-UNIT-6	R-UNIT-7
Corresponding power backup unit type		MDS-DH-PFU	MDS-D-PFU
Resistance value	[Ω]	5	1.4
Instantaneous regeneration capacity	[kW]	128	114
Tolerable regeneration work amount	[kJ]	180	180
Cooling method		Natural-cooling	Natural-cooling
Mass	[kg]	10	10

Outline dimension drawing



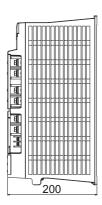


Dedicated Options

Drive system

109

U	MDS-D-PFU
/60Hz)	AC200 to 230(50/60Hz)
etween +10% and -10%	Tolerable voltage fluctuation rate between +10% and -15%
0 Tolerable frequency flue	ctuation between +3% and -3%
	4
18	DC270 to 300
MAX 200A	Regenerative input: MAX 300A
MAX 160A	Power running output: MAX 200A
30 to 480 (50Hz)	Single-phase Quasi- AC200 to 240 (50Hz)
	MAX 4
6 units (except for th	e power supply unit)
Within 100ms after AC inpu	t instantaneous interruption
re	75ms or more
r of drive units to connect)	(AC200V input, at maximum number of drive units to connect)
P20 [except for the termina	al block and connector area]
Natural	-cooling
2	4



[Unit : mm]



MDS-D2 Series Power Cable and Brake Cable for Servo Motor Selection List

			Drive unit type			Power Cable			Brake cable	
Serv	o motor type		MDS-D2-		Deive weit eide	Moto	r side	Deixe weit eide	Motor side	
		V1	V2	V3	- Drive unit side	Straight Right angle		Drive unit side	Straight	Right angle
HF Series	HF75									
	HF105	20	2020 (L, M)	202020	4040					
	HF123	20	4020 (M)	404040		CNP18-10S (14)	CNP18-10L (14)			
	HF142						Applicable cable outline \$\$\phi\$ 10.5 to 14 (mm)			
	HF54					φ 10.5 to 14 (IIIII)	φ 10.5 to 14 (mm)			
	HF104		4020 (L)		CNU1S (AWG14)					
	HF223	40	4040 (L, M) 8040 (M)							CNB10-R2L (6) Applicable cable outline \$\overline\$ 4.0 to 6.0 (mm)
	HF302		0040 (IVI)	404040		CNP22-22S (16) Applicable cable outline ϕ 12.5 to 16 (mm)	CNP22-22L (16) Applicable cable outline ϕ 12.5 to 16 (mm)	_		
	HF154	80	8040 (L) 8080 (L, M)							
		-	16080 (M)	-	CNU1S (AWG10)	CNP18-10S (14)	CNP18-10L (14) Applicable cable outline			
	HF224	80	8040 (L) 8080 (L, M)	404040	CNU1S (AWG14)	φ 10.5 to 14 (mm)	φ 10.5 to 14 (mm)		CNB10-R2S (6) Applicable cable outline	
		-	16080 (M)	-	CNU1S (AWG10)					
	HF204	80	8040 (L) 8080 (L, M)	404040	CNU1S (AWG14)					
		-	16080 (M)	-	CNU1S (AWG10)]				
	HF303	80	8040 (L) 8080 (L, M)	404040	CNU1S (AWG14)					
		-	16080 (M)	-		CNP22-22S (16)	CNP22-22L (16) Applicable cable outline			
	HF354	160	16080 (L) 160160 (L, M)	-	CNU1S (AWG10)	ϕ 12.5 to 16 (mm)	ϕ 12.5 to 16 (mm)			
		-	160160W (L, M)	-	Terminal block connection					
	HF453	160	16080 (L) 160160 (L, M)	-	CNU1S (AWG10)			-		
		-	160160W (L, M)							
	HF703	160W	160160W (L, M)	-	Terminal block connection	CNP32-17S (23)	CNP32-17L (23) Applicable cable outline			
	HF903	320	-	-		ϕ 22 to 23.8 (mm)	ϕ 22 to 23.8 (mm)			

						Power Cable		Brake cable			
Servo motor type		Drive unit type MDS-D2-		Drive unit side	Motor side		Drive unit side	Motor side			
		V1	V2	V3		Lead out in direction of motor shaft	Lead out in opposite direction of motor shaft		Lead out in direction of motor shaft	Lead out in opposite direction of motor shaft	
HF-KP Series	HF-KP23JW04-S6			202020	CNU1S (AWG14)	MR-PWS1CBL	MR-PWS1CBL			MR-BKS1CBL	
	HF-KP43JW04-S6	20	2020 (L, M) 4020 (M)			M-A1-H	M-A2-H	CNU20S (AWG14)	M-A1-H	M-A2-H	
	HF-KP73JW04-S6		4020 (M)			2, 3, 5, 7, 10	2, 3, 5, 7, 10		2, 3, 5, 7, 10	2, 3, 5, 7, 10	

MDS-D2 Series Detector Cable and Connector for

								Servo de	tector cable					
							Mo	otor side detector c	able					
			Drive unit type			Ca	able			Single connector		Ball screw side		
Serv	o motor type		MDS-D2-		Detec	tor: A48	Detector:	A51/A74N	Drive unit side	Moto	r side	detector		
		V1	V2	V3	Straight	Right angle	Straight	Right angle	Drive unit side	Straight	Right angle			
HF Series	HF75													
	HF105	20	2020 (L, M) 20	2020 (L, M)	2020 (L, M) 2	202020								
	HF123	20	4020 (M)	404040										
	HF142]				CNV2E-9P-□M □ : Length (m) 2, 3, 4, 5, 7, 10, 15, 20, 25, 30		CNV2E-7P-IM : Length (m) 2, 3, 4, 5, 7, 10, 15, 20, 25, 30 CNV2E-9P-IM : Length (m) 2, 3, 4, 5, 7, 10, 15, 20, 25, 30						
	HF54				1									
	HF104	40	4020 (L)				□ : Length (m) 2, 3, 4, 5, 7, 10,		CNU2S (AWG18)			CNV2E-6P-⊡M □: Length (m) 2, 3, 4, 5, 7, 10, 15, 20, 25, 30		
HF2	HF223	40	4040 (L, M) 8040 (M)	404040										
	HF302	1												
	HF154	80	8040 (L) 8080 (L, M)											
		-	16080 (M)	-										
	HF224	80	8040 (L) 8080 (L, M)	404040	: Length (m)					CNE10-R10S (9) Applicable cable outline \$\phi 6.0 to 9.0 (mm)\$	CNE10-R10L (9) Applicable cable outline \$\phi 6.0 to 9.0 (mm)			
		HF224	16080 (M)	-										
	HF204	80	8040 (L) 8080 (L, M)	404040	15, 20, 25, 30		CNV2E-8P-□M □ : Length (m) 2, 3, 4, 5, 7, 10,							
	111 201	-	16080 (M)	-			15, 20, 25, 30							
	HF303	80	8040 (L) 8080 (L, M)	404040										
	111 000	-	16080 (M)	-										
	HF354	160	16080 (L) 160160 (L, M)	-										
		-	160160W (L, M)	-										
	HF453	160	16080 (L) 160160 (L, M)	-										
	HF453 -	160160W (L, M)	-	1										
	HF703	160W	160160W (L, M)	-	1									
	HF903	320	-	-	1									

						Servo detector cable							
							Motor side detector cable						
			Drive unit type		Coble (Director	onnection type)		Cable (Relay type)		Ball screw side			
s	ervo motor type		MDS-D2-		Cable (Direct d	onnection type)		Moto	detector				
		V1 V2 V		V3	Lead out in direction of motor shaft	Lead out in opposite direction of motor shaft	Drive unit side	Lead out in direction of motor shaft	Lead out in opposite direction of motor shaft				
HF-KP Series	HF-KP23JW04-S6					CNV2E-K2P-□M	CNV2E-6P-□M			CNV2E-6P-□M			
Series	HF-KP43JW04-S6	20	2020 (L, M) 4020 (M)	202020	2, 3, 5, 7, 10	□ : Length (m) 2, 3, 5, 7, 10	: Length (m)	CNV22J-K1P-0.3M	CNV22J-K2P-0.3M	□ : Length (m) 2, 3, 4, 5, 7, 10, 15,			
	HF-KP73JW04-S6			Compatible with only IP65	e with only Compatible with only 15, 20, IP65				20, 25, 30				

	or Servo	Motor	Selectio	n List
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SJ-D Series (Standard)	SJ-D3.7/100-01 SJ-D5.5/100-01 SJ-D5.5/120-01 SJ-D7.5/100-01	SP 80 - 80 - 80 - 80 - 80	MDS-D2- SP2 - 8040 (L) 8080 (L, M) 16080S (M) - 8040 (L) 8080 (L, M) 16080S (M) - 8040 (L) 8040 (L	Drive unit side CNU1S (AWG14) CNU1S (AWG10) Terminal block connection CNU1S (AWG14) CNU1S (AWG10) Terminal block connection CNU1S (AWG10) Terminal block connection CNU1S (AWG10) Terminal block connection CNU1S (AWG14) CNU1S (AWG14) CNU1S (AWG10)	
	SJ-D5.5/100-01 SJ-D5.5/120-01	- 80 - 80 -	8040 (L) 8080 (L, M) 160805 (M) - 8040 (L) 8080 (L, M) 160805 (M) - 8040 (L) 8080 (L, M)	CNU1S (AWG10) Terminal block connection CNU1S (AWG14) CNU1S (AWG10) Terminal block connection CNU1S (AWG14)	
	SJ-D5.5/100-01 SJ-D5.5/120-01	80 - 80 -	8080 (L, M) 16080S (M) - 8040 (L) 8080 (L, M) 16080S (M) - 8040 (L) 8080 (L, M)	Terminal block connection CNU1S (AWG14) CNU1S (AWG10) Terminal block connection CNU1S (AWG14)	
	SJ-D5.5/120-01	- 80		CNU1S (AWG14) CNU1S (AWG10) Terminal block connection CNU1S (AWG14)	
	SJ-D5.5/120-01	- 80	8040 (L) 8080 (L, M) 16080S (M) - 8040 (L) 8080 (L, M)	CNU1S (AWG10) Terminal block connection CNU1S (AWG14)	
	SJ-D5.5/120-01	80	8080 (L, M) 16080S (M) - 8040 (L) 8080 (L, M)	Terminal block connection CNU1S (AWG14)	
_		-	- 8040 (L) 8080 (L, M)	CNU1S (AWG14)	
_		-	8040 (L) 8080 (L, M)		
_			8080 (L, M)	CNU1S (AWG10)	
_	SJ-D7.5/100-01		16090S (M)	-	
	SJ-D7.5/100-01		100003 (101)		
		160	-		
		-	16080S (L)		
	SJ-D7.5/120-01	160	-		
	00 07.0120 01	-	16080S (L)		
	SJ-D11/80-01	160	-	Terminal block connection	
	00 0 1 1 00 0 1	-	16080S (L)		
	SJ-D11/100-01	160	-		
		-	16080S (L)		
	SJ-D5.5/120-02	160 200	-		
		-	16080S (L)		
SJ-DJ Series ompact & lightweight)		80	-	CNU1S (AWG14)	Terminal block connection
	SJ-DJ5.5/100-01	-	8040 (L) 8080 (L, M)	CNU1S (AWG10)	
			16080S (M)	Terminal block connection	
		80	-	CNU1S (AWG14)	
	SJ-DJ5.5/120-01	-	8040 (L) 8080 (L, M)	CNU1S (AWG10)	
			16080S (M)		
	SJ-DJ7.5/100-01	160	16080S (L)	Terminal block connection	
	SJ-DJ11/100-01				
	SJ-DJ15/80-01	200	-		_
SJ-DL Series (Low-inertia)	S I-DI 0 75/100 01T	20	-		
	SJ-DL0.75/100-01T	-	2020 (L, M) 4020 (M)	CNU1S (AWG14)	
		40	-		
	SJ-DL1.5/100-01T	-	4020 (L) 4040S (L, M)		
			8040 (M)	CNU1S (AWG10)	
	SJ-DL5.5/150-01T	160	-		
		-	16080S (L)		
	SJ-DL5.5/200-01T	160	-	Terminal block connection	
		-	16080S (L)		

Spindle mo	ntor type	Driv	ve unit type /IDS-D2-
opinalo m	olor type	SP	s
SJ-V Series (Standard)	SJ-V2.2-01T	40	402 40405
	33-12.2-011	_	804
-		80	
	SJ-V3.7-01T	-	804
-		80	
	SJ-V5.5-01ZT		8080
		-	1608
	SJ-V7.5-01ZT		
	SJ-V7.5-03ZT	160	1608
	SJ-V11-01ZT		
	SJ-V11-13ZT		
	SJ-V15-01ZT		
	SJ-V15-09ZT	200	
	SJ-V18.5-01ZT		
	SJ-V18.5-04ZT	040	1
	SJ-V22-01ZT	240	
	SJ-V22-04ZT	000	1
	SJ-V26-01ZT	320	
	SJ-V37-01ZT	400]
	SJ-V45-01ZT	640	
	SJ-V55-01ZT	640	
SJ-V Series (High-speed)	SJ-VL2.2-02ZT	40	402 40405
		-	804
		80	
	SJ-V3.7-02ZT	-	804 8080
-			1608
-	SJ-V11-06ZT	200	
-	SJ-V11-08ZT		-
-	SJ-V22-06ZT	240	
-	SJ-V18.5-04ZT		
	SJ-V30-02ZT	320	
SJ-V Series (Wide range constant output)	SJ-V11-01T	160	1608
-	SJ-V11-09T		
-	SJ-V15-03T	200	-
-	SJ-V18.5-03T	240	-
-	SJ-V22-05T SJ-V22-09T	320	
-		320	
SJ-VL Series	SJ-VK22-19ZT SJ-VL11-05FZT-S01		
(Low-inertia)		160	1608
	SJ-VL11-07ZT		

	Power	Cable
SP2	Drive unit side	Motor side
4020 (L) 40S (L, M)	CNU1S (AWG14)	
040 (M)	CNU1S (AWG10)	
-	CNU1S (AWG14)	
3040 (L)	CNU1S (AWG10)	
-	CNU1S (AWG14)	
180 (L, M)	CNU1S (AWG10)	
080S (M)		
6080S (L)		
-	Terminal block connection	Terminal block connection
1020 (L) 10S (L, M)	CNU1S (AWG14)	
040 (M)	CNU1S (AWG10)	
-	CNU1S (AWG14)	
8040 (L) 80 (L, M)	CNU1S (AWG10)	
- 080S (M)		
6080S (L)	Terminal block connection	
-		
6080S (L)		

MDS-D2 Series Detector Cable and Connector for Spindle Motor Selection List

								Spindle detecto				
				When connect		motor				ng to a spindle side det		
		Dri	ve unit type MDS-D2-	Motor s	ide PLG cable	onnector	Spindle side accu		S5690 cable connector		de detector OSE-1024 Cable	cable Single connec
Spindle m	notor type		-	Cable	Drive unit	Detector	Cable	Drive unit	Detector			Drive uni
		SP	SP2		side	side		side	side	Straight	Right angle	side
SJ-D Series (Standard)		80	-	-								
(Stanuaru)	SJ-D3.7/100-01		8040 (L) 8080 (L, M)									
		-	16080S (M)	1								
		80	-									
	SJ-D5.5/100-01		8040 (L)	1								
	00 20:0/100 01	-	8080 (L, M)	-								
		80	16080S (M)	-								
		00	8040 (L)	1								
	SJ-D5.5/120-01	-	8080 (L, M)									
			16080S (M)	-								
	SJ-D7.5/100-01	160	- 16080S (L)	-								
		160	- 100003 (E)	-								
	SJ-D7.5/120-01	-	16080S (L)]								
	SJ-D11/80-01	160	-									
		-	16080S (L)	-								
	SJ-D11/100-01	160	16080S (L)	-								
		160	_	1								
	SJ-D5.5/120-02	200		-								
SJ-DJ Series		- 80	16080S (L)	-								
(Compact &		80	8040 (L)	-								
lightweight)	SJ-DJ5.5/100-01	-	8080 (L, M)									
			16080S (M)]								
		80	-]								
	SJ-DJ5.5/120-01	_	8040 (L) 8080 (L, M)									
		-	16080S (M)									
	SJ-DJ7.5/100-01	160		1								
	SJ-DJ11/100-01	160	16080S (L)									
	SJ-DJ15/80-01	200	-	-								
SJ-DL Series (Low-inertia)	SJ-DL0.75/100-01T	20	-	-								
(Low morad)	33-DE0.73/100-011	-	2020 (L,M) 4020 (M)									
		40	-	1								
	SJ-DL1.5/100-01T		4020 (L)	1								
	00 02110/100 011	-	4040S (L,M)	-								
		100	8040 (M)	-								
	SJ-DL5.5/150-01T	160	16080S (L)									
		160	-	-								
	SJ-DL5.5/200-01T	-	16080S (L)	1								
		160	-	CNP2E-1-DM			CNP2E-1-□M			CNP3EZ-2P-□M	CNP3EZ-3P-□M	
	SJ-DL7.5/150-01T	-	16080S (L)	□ : Length (m) 2, 3, 4, 5, 7, 10,	CNU2S (AWG18)	CNEPGS	□ : Length (m) 2, 3, 4, 5, 7, 10,	CNU2S (AWG18)	CNEPGS	□ : Length (m) 2, 3, 4, 5, 7, 10,	□ : Length (m) 2, 3, 4, 5, 7, 10,	CNU2S (AWG18)
SJ-V Series		40	4020 (L)	15, 20, 25, 30			15, 20, 25, 30	(15, 20, 25, 30	15, 20, 25, 30	(
(Standard)	SJ-V2.2-01T	-	4040S (L, M) 8040 (M)	-								
		80	- 0040 (IVI)	-								
	SJ-V3.7-01T	-	8040 (L)									
		80	-									
	SJ-V5.5-01ZT		8080 (L, M)	1								
		-	16080S (M)]								
	SJ-V7.5-01ZT											
	SJ-V7.5-03ZT	160	16080S (L)									
	SJ-V11-01ZT			-								
	SJ-V11-13ZT SJ-V15-01ZT											
	SJ-V15-09ZT	200										
	SJ-V15-0921 SJ-V18.5-01ZT											
	SJ-V18.5-04ZT	0.40	1									
	SJ-V22-01ZT	240	-									1
	SJ-V22-04ZT	320										1
	SJ-V26-01ZT		-									
	SJ-V37-01ZT	400	-									
	SJ-V45-01ZT SJ-V55-01ZT	640										1
SJ-V Series	J210-CCA-P2		4020 (L)	1								1
(High-speed)	SJ-VL2.2-02ZT	40	4020 (L) 4040S (L, M)	J								
		-	8040 (M)									
		80	-	-								1
	SJ-V3.7-02ZT		8040 (L) 8080 (L, M)									1
		-	16080S (M)	-								
	SJ-V11-06ZT			1								
	SJ-V11-08ZT	200										1
	SJ-V22-06ZT	0.40	1 -									1
	SJ-V18.5-04ZT	240										
	SJ-V30-02ZT	320										
SJ-V Series	SJ-V11-01T		1000000									1
(Wide range constant output)	SJ-V11-09T	160	16080S (L)									1
	SJ-V15-03T	200		1								
	SJ-V18.5-03T	240	1									
	SJ-V22-05T		1 -									1
	SJ-V22-09T	320										1
	SJ-VK22-19ZT			-								
SJ-VL Series (Low-inertia)	SJ-VL11-05FZT-S01	160	16080S (L)									1
	SJ-VL11-07ZT		1		1							

MDS-D2 Series Power Cable for Tool Spindle Motor Selection List

		Dri	ive unit type			Power Cable		
Tool spin	dle motor type		MDS-D2-			Moto	or side	
		SP	SP2	Drive unit side	Straight	Right angle	Lead out in direction of motor shaft	Lead out in opposite direction of motor shaft
HF-KP Series	HF-KP46-W09						MR-PWS1CBLDM-A1-H	MR-PWS1CBL□M-A2-H
	HF-KP56-W09	20	2020 (L, M) 4020 (M)	CNU1S (AWG14)	-	-	□: Length (m)	: Length (m)
	HF-KP96-W09			CNUTS (AWG14)			2, 3, 5, 7, 10	2, 3, 5, 7, 10
HF-SP Series		80	-					
	HF-SP226-JW09	_	8040 (L) 8080 (L, M)	CNU1S (AWG10)				
			16080S (M)]			
	HF-SP406-JW09	160	16080S (L)	Terminal block connection				
HF Series	HF75-A48							
	HF105-A48	20	2020 (L, M) 4020 (M)		CNP18-10S (14) Applicable cable outline	CNP18-10L (14) Applicable cable outline		
	HF123-A48	1	4020 (11)	CNU1S (AWG14)	φ 10.5 to 14 (mm)	φ 10.5 to 14 (mm)		
	HF54-A48 HF104-A48	40	4020 (L) 4040S (L, M)					
	HF223-A48	-	8040 (M)	CNU1S (AWG10)	1		-	-
		80	-	CNU1S (AWG14)	1			
	HF154-A48 HF224-A48		8040 (L)					
	HF204-A48 HF303-A48	-	8080 (L, M)	CNU1S (AWG10)			1	
	HF303-A46		16080S (M)		CNP22-22S (16)	CNP22-22L (16)		
	HF354-A48				Applicable cable outline \$\phi\$ 12.5 to 16 (mm)	Applicable cable outline ϕ 12.5 to 16 (mm)		
	HF453-A48	160						
	HF703-A48	160W	16080S (L)	Terminal block connection	CNP32-17S (23) Applicable cable outline	CNP32-17L (23) Applicable cable outline	1	
	HF903-A48	320	-	1	φ 22 to 23.8 (mm)	φ 22 to 23.8 (mm)		

MDS-D2 Series Detector Cable and Connector for Tool Spindle Motor Selection List

								Spindle	detector cable					
				١	When connecting t	to a tool spir	ndle motor (HF-KF	?)		When	connecting	to a spindle side d	etector	
	Drive unit type MDS-D2-			Cable			Single connect	tor	Spindle side TS5	accuracy d 690 cable	etector	Spindle side	detector OSE-102	24 cable
Tool sp	ol spindle motor type		MDS-D2-			Drive unit	Motor side			Single c	onnector	Cable		Single connector
	SP SP2		SP2	Straight	Right angle	side	Straight	Right angle	Cable	Drive unit side	Detector side	Straight	Right angle	Drive unit side
HF-KP	HF-KP46-W09			CNV2E-8P-□M	CNV2E-9P-□M		CNE10-R10S (9)					CNP3EZ-2P-□M	CNP3EZ-3P-DM	
Series	HF-KP56-W09	20			: Length (m) 3, 4, 5, 7, 10, 2, 3, 4, 5, 7, 10, (A		Applicable cable outline	Applicable cable outline		CNU2S (AWG18)	CNEPGS			CNU2S (AWG18)
	HF-KP96-W09			15, 20, 25, 30	15, 20, 25, 30		φ 6.0 to 9.0 (mm)	φ 6.0 to 9.0 (mm)				15, 20, 25, 30	15, 20, 25, 30	

								Spindle	detector cable					
				W	hen connecting to	a tool spind	lle motor (HF/HF-S	SP)		When	connecting	to a spindle side d	etector	
		Driv	ve unit type	0	ible		Single connect	tor	Spindle side TS5	accuracy de 690 cable	etector	Spindle side	detector OSE-102	4 cable
Tool sp	indle motor type	N	MDS-D2-	00	Die	Drive unit	Moto	r side		Single c	onnector	Ca	ble	Single connector
		SP	SP2	Straight	Right angle	side	Straight	Right angle	Cable	Drive unit side	Detector side	Straight	Right angle	Drive unit side
HF-SP Series		80	-											
Series	HF-SP226-JW09	-	8040 (L) 8080 (L, M)]										
			16080S (M)	1									CNP3EZ-3P-⊡M □:Length (m)	
	HF-SP406-JW09	160	16080S (L)]							CNEPGS	□: Length (m)		
HF Series	HF75-A48													
Series	HF105-A48	20	2020 (L, M) 4020 (M)											
	HF123-A48				2-□M CNV2E-9P-□M									
	HF54-A48 HF104-A48	40	4020 (L) 4040S (L, M)	CNV2E-8P-□M						CNU2S (AWG18)				
	HF223-A48	-	8040 (M)	□: Length (m)	□: Length (m)	CNU2S	Applicable cable	Applicable cable						CNU2S
		80	-	2, 3, 4, 5, 7, 10, 15, 20, 25, 30	2, 3, 4, 5, 7, 10, 15, 20, 25, 30	(AWG18)	outline \$\$\phi\$ 6.0 to 9.0 (mm)	outline \$\$\phi\$ 6.0 to 9.0 (mm)	2, 3, 4, 5, 7, 10, 15, 20, 25, 30			2, 3, 4, 5, 7, 10, 15, 20, 25, 30	2, 3, 4, 5, 7, 10, 15, 20, 25, 30	
	HF154-A48 HF224-A48 HF204-A48 HF303-A48	-	8040 (L) 16080S (M) 8080 (L, M)		15, 20, 25, 50) <i>#</i> 6.0 to 9.0 (mm)						
	HF354-A48	160]										
	HF453-A48	001	16080S (L)											
	HF703-A48	160W	100003 (L)											
	HF903-A48	320	-	1										

MDS-DM2 Series Power Cable and Brake Cable for Servo Motor Selection List

						Power Cable			Brake cable	
Servo mo	tor type		Drive unit type MDS-DM2-		Drive unit side	Moto	or side	Drive unit side	Mote	or side
		SPV2	SPV3	SPHV3	For CN31(L/M/S)	Straight	Right angle]	Straight	Right angle
HF Series	HF54									
	HF104		10080 16080			CNP18-10S (14) Applicable cable outline \$\overline\$ 10.5 to 14 (mm)	CNP18-10L (14) Applicable cable outline \$\overline\$ 10.5 to 14 (mm)			
	HF223		20080						CNB10-R2S (6) Applicable cable outline \$\$ 4.0 to 6.0 (mm)	
	HF302		080	20080		CNP22-22S (16) Applicable cable outline ϕ 12.5 to 16 (mm)	CNP22-22L (16) Applicable cable outline ϕ 12.5 to 16 (mm)			CNB10-R2L (6) Applicable cable outline \$\$4.0 to 6.0 (mm)
	HF154	10080 16080			RCN31S RCN31M Applicable cable	CNP18-10S (14) Applicable cable outline	CNP18-10L (14) Applicable cable outline	CNU20S (AWG14)		
	HF224	20080			outline φ 1.25 to 5.5 (mm)	φ 10.5 to 14 (mm)	φ 10.5 to 14 (mm)			
	HF204									
	HF303					CNP22-22S (16) Applicable cable	CNP22-22L (16) Applicable cable			
	HF354			-	-	outline \$\$\phi\$ 12.5 to 16 (mm)	outline \$\$\overline\$ 12.5 to 16 (mm)			
	HF453			-						

MDS-DM2 Series Detector Cable and Connector for Servo Motor Selection List

							Servo detector cable		
							Motor side detector cable		
			Drive unit type		0	able		Single connector	
Servo mo	tor type		MDS-DM2-			able .	Drive unit side	Moto	r side
		SPV2	SPV3	SPHV3	Straight	Right angle		Straight	Right angle
HF Series	HF54								
	HF104		10080 16080						
	HF223		20080					CNE10-R10S (9) Applicable cable outline ϕ 6.0 to 9.0 (mm)	
	HF302			20080			CNU2S (AWG18)		
	HF154	10080			CNV2E-8P-□M □ : Length (m)	CNV2E-9P-□M □ : Length (m)			CNE10-R10L (9) Applicable cable outline
	HF224	20080			2, 3, 4, 5, 7, 10, 15, 20, 25, 30	2, 3, 4, 5, 7, 10, 15, 20, 25, 30			Applicable cable outline ϕ 6.0 to 9.0 (mm)
	HF204		10080 16080						
	HF303		20080 200120						
	HF354			-					
	HF453			-					

MDS-DM2 Series Power Cable, Detector Cable, and Connector for Spindle Motor Selection List

					Power	Cable				Spir	dle detector				
							When connecti	ng to a spind	lle motor		When	connecting	to a spindle side d	etector	
		Dri	ive unit ty	rpe			Motor s	de PLG cabl	e		accuracy de 690 cable	tector	Spindle side	detector OSE-1024	4 cable
Spindle	motor type	N	IDS-DM2	2-	Drive unit side	Motor side	0.11	Single of	onnector	0.11	Single co	onnector	Ca	ıble	Single connecto
		SPV2	SPV3	SPHV3			Cable	Drive unit side	Detector side	Cable	Drive unit side	Detector side	Straight	Right angle	Drive uni side
SJ-D Series	SJ-D5.5/100-01														
(Standard)	SJ-D5.5/120-01														
	SJ-D7.5/100-01	10080	10080	-											
	SJ-D7.5/120-01														
	SJ-D11/80-01														
	SJ-D11/100-01	16080	16080	-											
	SJ-D5.5/120-02	10080 16080 20080	10080 16080 20080	-											
SJ-DJ Series	SJ-DJ5.5/100-01														
(Compact & lightweight)	SJ-DJ5.5/120-01														
ilgintwolgint)	SJ-DJ5.5/120-02	10080	10080	-									CNP3EZ-2P-□M □: Length (m)	CNP3EZ-3P-□M	
	SJ-DJ7.5/100-01									CNP2E-1-□M	CNU2S				CNU2S (AWG18)
	SJ-DJ11/100-01	16080	16080	-								CNEPGS			
	SJ-DJ15/80-01	20080	20080	-											
SJ-DL Series	SJ-DL5.5/150-01T			-	Terminal	Terminal	CNP2E-1-□M □: Length (m)	CNU2S	1 1						
(Low-inertia)	SJ-DL7.5/150-01T	16080	16080	-	block connection	block connection	2, 3, 4, 5, 7, 10,	(AWG18)	CNEPGS	2, 3, 4, 5, 7, 10,	(AWG18)		2, 3, 4, 5, 7, 10,	2, 3, 4, 5, 7, 10,	
SJ-V Series	SJ-V5.5-01ZT						15, 20, 25, 30			15, 20, 25, 30			15, 20, 25, 30	15, 20, 25, 30	
(Standard)	SJ-V7.5-01ZT	10080	10080	-											
	SJ-V7.5-03ZT														
	SJ-V11-01ZT	16080	16080	-											
	SJ-V11-13ZT														
	SJ-V15-01ZT	20080	20080	-											
	SJ-V15-09ZT	-	-	20080											
SJ-V Series	SJ-V11-06ZT	20080	20080	-											
(High-speed)	SJ-V11-08ZT	-	-	20080											
SJ-V Series	SJ-V11-01T														
(Wide range constant	SJ-V11-09T	16080	16080	-											
output)	SJ-V15-03T	-	-	20080											
SJ-VL Series	SJ-VL11-05FZT-S01														
(Low-inertia)	SJ-VL11-07ZT	16080	16080	-											

MDS-DJ Series Power Cable and Brake Cable for Servo Motor Selection List

				Power Cable		Brake	Cable	
Song	o motor type	Drive unit type	Drive unit side	Moto	r side	Motor side		
Serve	o motor type	MDS-DJ-V1-	Drive unit side	Straight	Right angle	Straight	Right angle	
HF Series	HF75	30						
	HF105	30						
	HF123	40	CNP18-10S (14) Applicable cable outlin φ 10.5 to 14 (mm)	Applicable cable outline				
	HF142	40						
	HF54	30		φ 10.5 to 14 (mm)				
	HF104		1			CNB10-R2S (6) Applicable cable outline \$\phi 4.0 to 6.0 (mm)		
	HF223						CNB10-R2L (6)	
	HF302	40	Supplied for each drive unit	CNP22-22S (16) Applicable cable outline ϕ 12.5 to 16 (mm)	CNP22-22L (16) Applicable cable outline ϕ 12.5 to 16 (mm)		Applicable cable outline ϕ 4.0 to 6.0 (mm)	
	HF154]	CNP18-10S (14)	CNP18-10L (14)			
	HF224	80		Applicable cable outline ϕ 10.5 to 14 (mm)	Applicable cable outline ϕ 10.5 to 14 (mm)			
	HF204	80	CN	CNID00.000 (10)	CNID00.001.(10)			
	HF303			CNP22-22S (16) Applicable cable outline				
	HF354	100]	\$ 12.5 to 16 (mm)	\$ 12.5 to 16 (mm)			

				Power Cable			Cable	
		Drive weith the s		Moto	or side	Motor side		
Servo motor type		Drive unit type MDS-DJ-V1-	Drive unit side	Lead out in direction of motor shaft	Lead out in opposite direction of motor shaft	Lead out in direction of motor shaft	Lead out in opposite direction of motor shaft	
HF-KP Series								
	HF-KP23JW04-S6	10					MR-BKS1CBLDM-A2-H	
	HF-KP43JW04-S6	15		□ : Length (m) 2, 3, 5, 7, 10			□ : Length (m) 2, 3, 5, 7, 10	
	HF-KP73JW04-S6	30						

MDS-DJ Series Detector Cable and Connector for Servo Motor Selection List

							Servo detector	cable			
				Moto	or side detect	or cable			Ball screw	side detector	
			0	able		Single connec	tor	Ball screw side detector OSA105-ET2			
Se	rvo motor type	Drive unit type MDS-DJ-V1-		able	Drive unit	Motor side		Ca	able	Single connector	
			Straight	Right angle	side	Straight	Right angle	Straight	Right angle	Straight	Right angle
HF Series	HF75	- 30									
	HF105	30									
	HF123	40									
	HF142	40			CNU2S (AWG18)	Applicable cable	CNE10-R10L (9) Applicable cable outline	□: Length (m)	CNV2E-9P-⊡M □ : Length (m) 2, 3, 4, 5, 7, 10, 15, 20, 25, 30	CNE10-R10S (9) Applicable cable outline	
	HF54	30									
	HF104		CNV2E-8P-□M	CNV2E-9P-□M							CNE10-R10L (9)
	HF223	40	□ : Length (m) 2, 3, 4, 5, 7, 10,								Applicable cable outline
	HF302]	15, 20, 25, 30	15, 20, 25, 30		φ 6.0 to 9.0 (mm)	φ 6.0 to 9.0 (mm)			φ 6.0 to 9.0 (mm)	φ 6.0 to 9.0 (mm)
	HF154										
	HF224										
-	HF204	80									
	HF303	1									
	HF354	100									

Drive system Selection of cables

				Servo detector cable										
				Motor side detector cable					Ball screw side detector					
					Cable (Relay type)			Ball screw side detector OSA105-ET2						
		Drive unit type	Cable (Direct connection type)			Moto	Motor side		able	Single connector				
		MDS-DJ-V1-	Lead out in direction of motor shaft	Lead out in opposite direction of motor shaft	Drive unit side	Lead out in direction of motor shaft	Lead out in opposite direction of motor shaft	Straight	Right angle	Straight	Right angle			
HF-KP	HF-KP13J-S17	10	CNV2E-K1P-□M											
Series	HF-KP23JW04-S6	10	: Length (m)	: Length (m)	CNV2E-8P-□M □ : Length (m)		CNV22J-K2P-0.3M Length : 0.3 (m)	CNV2E-8P-OM	CNV2E-9P-DM CNV2E-9P-M	CNE10-R10S (9) Applicable cable	CNE10-R10L (9) Applicable cable			
	HF-KP43JW04-S6	15	Compatible with	Compatible with	2, 3, 4, 5, 7, 10, 15, 20, 25, 30	Compatible with			2, 3, 4, 5, 7, 10, 15, 20, 25, 30		outline \$\$\phi\$ 6.0 to 9.0 (mm)			
	HF-KP73JW04-S6	30	only IP65	only IP65	10, 20, 20, 00			10, 20, 20, 00	10, 20, 20, 00	\$ 0.0 10 0.0 (min)	9 0.0 10 0.0 (mm)			

MDS-DJ Series Power Cable, Detector Cable, and Connector for Spindle Motor Selection List

								Spin	dle detector	cable			
			Power (Cable	When connect	ing to a spind	le motor		When	connecting	to a spindle side d	etector	
		Drive unit	When conn a spindle		Motor side PLG cable			Spindle side accuracy detector TS5690 cable			Spindle side detector OSE-1024 cable		4 cable
Spind	e motor type	type				Single connector			Single connector		Ca	ıble	Single connect
		MDS-DJ-SP-	Drive unit side	Motor side	Cable	Drive unit side	Detector side	Cable	Drive unit side	Detector side	Straight	Right angle	Drive unit side
SJ-D Series (Standard)	SJ-D3.7/100-01	80	Supplied for each drive unit										
	SJ-D5.5/100-01												
	SJ-D5.5/120-01	100											
	SJ-D7.5/100-01	120	1										
	SJ-D7.5/120-01	1 120								CNEPGS	CNP3EZ-2P-□M □: Length (m) 2, 3, 4, 5, 7, 10, 15, 20, 25, 30	CNP3EZ-3P-⊡M □: Length (m)	
	SJ-D11/80-01	100	Terminal block										CNU2S (AWG18)
SJ-DJ Series	SJ-D11/100-01	160	connection										
	SJ-DJ5.5/100-01	100	1					CNP2E-1-⊡M □: Length (m)	CNU2S				
(Compact & lightweight)	SJ-DJ5.5/120-01	1 100											
	SJ-DJ7.5/100-01	120	1										
	SJ-DJ11/100-01	160		Terminal	CNP2E-1-DM CNP2E-1-DM	CNU2S							
SJ-V Series	SJ-V2.2-01T	40	Supplied for	block connection	2, 3, 4, 5, 7, 10, 15, 20, 25, 30	(AWG18)	CNEPGS	2, 3, 4, 5, 7, 10, 15, 20, 25, 30	(AWG18)			2, 3, 4, 5, 7, 10, 15, 20, 25, 30	
(Standard)	SJ-V3.7-01T	80	each drive unit		10, 20, 20, 00			10, 20, 20, 00			10, 20, 20, 00	10, 20, 20, 00	
	SJ-V5.5-01ZT	100											
	SJ-V7.5-01ZT	120	Terminal block										
	SJ-V7.5-03ZT	160	connection										
	SJ-V11-01ZT	1 100											
SJ-V Series (High-speed)	SJ-VL2.2-02ZT	80	Supplied for each drive unit										
SJ-V Series (Wide range constant output)	SJ-V11-01T	- 160	Terminal block										
SJ-VL Series	SJ-VL11-05FZT-S01		connection										
(Low-inertia)	SJ-VL11-07ZT	1											

Drive system List of cables

<Optical communication cable>

	Item	Model	Length	Contents	Co	ompatible mod	iel
	liem	woder	(m)	Contents	D2/DH2	DM2	DJ
		G396 L0.3M	0.3				
		G396 L0.5M	0.5				
	Optical communication cable	G396 L1M	1		0	0	0
	For wiring between drive units (inside panel)	G396 L2M	2				
		G396 L3M	3				
		G396 L5M	5				
	Optical communication cable For wiring between drive units (outside panel)	G395 L1M	1				
For		G395 L2M	2				
CN1A/		G395 L3M	3		0	0	0
CN1A/ CN1B/		G395 L5M	5				
OPT1A	For wining between NC-drive units	G395 L7M	7				
UPITA		G395 L10M	10				
		G380 L5M	5				
		G380 L10M	10				
	Optical communication cable	G380 L12M	12				
	For wiring between drive units (outside panel)	G380 L15M	15		0	0	0
	For optical communication repeater unit	G380 L20M	20 25				
		G380 L25M	25				
		G380 L30M	30				

(Note1) For details on the optical communication cable, refer to the section "Optical communication cable specification".

<Battery cable and connector>

Item		Model	Length	Contents	Compatible model			
	Item	IVIODEI	(m)	Contents	D2/DH2	DM2	DJ	
	Battery cable (For drive unit - battery unit)	DG21-0.3M DG21-0.5M DG21-1M DG21-5M	0.3 0.5 1 5	D	0	0	-	
For battery unit	Battery cable (For drive unit -Battery box) (Note) The battery box side is connected using a bare conductor or a terminal bar.	DG23-0.3M DG23-0.5M DG23-1M DG23-1M DG23-2M DG23-3M DG23-5M DG23-7M DG23-7M DG23-10M	0.3 0.5 1 2 3 5 7 10	D	0	0	-	
	5V supply/DO output cable (For drive unit Battery box) (Note) The battery box side is connected using a bare conductor or a terminal bar.	DG24-0.3M DG24-0.5M DG24-1M DG24-2M DG24-2M DG24-3M DG24-5M DG24-7M DG24-10M	0.3 0.5 1 2 3 5 7 10		0	0	-	
For drive unit	Battery cable (For drive unit - drive unit) (Note) This cable is required to supply the power from the battery unit to multiple drive units.	DG22-0.3M DG22-0.5M DG22-1M DG22-2M DG22-3M DG22-5M DG22-7M DG22-7M DG22-10M	0.3 0.5 1 2 3 5 7 10	D	0	0	_	
For CN9	Battery cable Connector set	FCUA-CS000	-	• •	0	0	-	

<Power supply communication cable and connector>

	Item	Model	Length	Contents	C	ompatible mod	iel
		Widder	(m)		D2/DH2	DM2	DJ
For CN4/9	Power supply communication cable	SH21	0.35 0.5 0.7 1 1 5 2 2.5 3 3.55 4 4 4.5 5 6 6 7 7 8 8 9 9 10 15 200 30		0	0	-
	Power supply communication cable connector set	FCUA-CS000	-	• •	0	-	-
For CN23	Contactor control output connector Applicable cable outline: 0.85mm ² to 3.5mm ²				0	-	-
FUI CIV23	Finish outside diameter: to ¢ 4.2mm	_	_	<u> </u>	0	-	-

<Power supply communication cable and connector>

	linear	Madal	Length	Orastanta	C	ompatible mod	lel
	Item	Model	(m)	Contents	D2/DH2	DM2	DJ
For CN24	External emergency stop input connector	CNU24S (AWG18)	-		0	_	-
For CN41	Power backup unit communication cable	SH21	0.36 0.5 0.7 1 2.5 3 3.5 4 4 4.5 5 6 6 7 7 8 9 9 10 15 200 30		0	-	-

<Power backup unit connector>

	Item	Model	Length	Contents	Compatil	ble model
	item	woder	(m)	Contents	D-PFU	DH-PFU
For CN43	Power backup unit connector	-	-		0	0
For TE1	Power backup unit power connector	-	-		0	0

<STO input connector>

	Item	Model	Length	Contents	Compatible model			
	Item	WOUEI	(m)	Contents	D2/DH2	DM2	DJ	
For CN8	STO input connector	-	-		0	0	0	
	STO short-circuit connector	These connectors are supplied for each drive unit.	_	Required when not using STO input	0	0	0	

<Optical communication repeater unit>

	Item	Model	Length	Orantarata	Co	ompatible mod	el
	item	INIODEI	(m)	Contents	D2/DH2	DM2	DJ
For OPT1/2	Optical communication cable For wiring between drive unit and optical communication repeater unit/ For wiring between optical communication repeater units	G380 L5M G380 L10M G380 L12M G380 L15M G380 L20M G380 L25M G380 L25M	5 10 12 15 20 25 30		0	0	0
For DCIN	For optical communication repeater unit DC24V power cable	F070	0.5 1.5 3 5 8 10 15 20		0	0	0
For DCIN/ ACFAIL	For optical communication repeater unit/ For connecting Mitsubishi power unit PD25, PD27 DC24V power cable (power OFF detection)	F110	0.5 1.5 3 5 8 10 15		0	0	0

Drive system List of cables

Drive system List of cables

<Servo / tool spindle detector cable and connector>

Item		Model Length	Length	Contents	Compatible model			
			(m)	Contents	D2/DH2	DM2	DJ	
			CNV2E-8P-2M	2				
			CNV2E-8P-3M	3				
		CNV2E-8P-4M	4					
			CNV2E-8P-5M	5				0
			CNV2E-8P-7M	7		0	0	
			CNV2E-8P-10M	10				
			CNV2E-8P-15M	15				
			CNV2E-8P-20M	20				
		HF-KP (Tool spindle)	CNV2E-8P-25M	25 30				
For CN2/3		etector cable (for A48/A51/ A74N)	CNV2E-8P-30M CNV2E-9P-2M	2				<u> </u>
	NOIDI SILLE LE	Rector cable (IOI A46/A51/A74IN)	CNV2E-9P-3M	3				
			CNV2E-9P-4M	4				
			CNV2E-9P-5M	5				
			CNV2E-9P-7M	7	f~~f			
			CNV2E-9P-10M	10	보니 비율 급입	0	0	0
			CNV2E-9P-15M	15	9			
			CNV2E-9P-20M	20				
			CNV2E-9P-25M	25				
			CNV2E-9P-30M	30				
		For HF-KP (Servo) Motor side detector	CNV2E-K1P-2M	2				
	Direct connection type	cable	CNV2E-K1P-3M	3	©₽			
			CNV2E-K1P-5M	5		0	-	0
		Lead out in direction of motor shaft	CNV2E-K1P-7M	7				
		Compatible with only IP65	CNV2E-K1P-10M	10				
		For HF-KP (Servo) Motor side detector	CNV2E-K2P-2M	2				
		cable	CNV2E-K2P-3M CNV2E-K2P-5M	3				
				5		0	-	0
		Lead out in opposite direction of motor shaft		7				
		Compatible with only IP65	CNV2E-K2P-10M	10				
5 010/0		For HF-KP (Servo) Motor side detector relay cable (motor side) Lead out in direction of motor shaft Compatible with only IP65	CNV22J-K1P-0.3M	0.3		0	-	0
For CN2/3	Relay type (Note)	For HF-KP (Servo) Motor side detector relay cable (motor side) Lead out in opposite direction of motor shaft Compatible with only IP65	CNV22J-K2P-0.3M 0.3		0	-	0	
			CNV2E-8P-2M	2				
			CNV2E-8P-3M	3				
			CNV2E-8P-4M	4				
			CNV2E-8P-5M	5				
		For HF-KP (Servo) Motor side detector	CNV2E-8P-7M	7	674	0		0
		relay cable (Drive unit side)	CNV2E-8P-10M	10			-	
			CNV2E-8P-15M	15				
			CNV2E-8P-20M	20				
			CNV2E-8P-25M	25				
			CNV2E-8P-30M	30				
For motor letector/ Ball		etector connector/ le detector connector	CNE10-R10S (9)	-		0	0	0
screw side detector	Applicable cable outline ϕ 6.0 to 9.0mm		CNE10-R10L (9)	-	•	0	0	0

(Note) When using cable of 15m or longer, use relay cable.

<Servo / tool spindle detector cable and connector>

Item		Model Length Contents		Compatible model D2/DH2 DM2 DJ			
	item		(m)	(m) Contents		DM2	DJ
For CN3	MDS-B-HR unit cable	CNV2E-HP-3M CNV2E-HP-3M CNV2E-HP-3M CNV2E-HP-7M CNV2E-HP-7M CNV2E-HP-10M CNV2E-HP-15M CNV2E-HP-25M CNV2E-HP-30M	2 3 4 5 7 10 15 20 25 30	[] []	0	-	0
For MDS-B- HR unit	MDS-B-HR connector (For CON1,2: 1) (For CON3: 1) Applicable cable outline ϕ 8.5 to 11mm	CNEHRS (10)	-	рр	0	-	0
For CN3	MDS-B-SD unit cable	CNV2E-D-2M CNV2E-D-3M CNV2E-D-3M CNV2E-D-5M CNV2E-D-7M CNV2E-D-10M CNV2E-D-15M CNV2E-D-20M CNV2E-D-26M CNV2E-D-30M	2 3 4 5 7 10 15 20 25 30	[]	0	-	-
For MDS-B- SD unit	MDS-B-SD connector (Two-piece set)	FCUA-CS000	-	• •	0	-	-
For CN2/3	Detector connector	CNU2S (AWG18)	-	۲.)	0	0	0

<Brake cable and connector>

Item		Model	Length	Contents	Compatible model			
	Item	IVIOUEI	(m)	Contents	D2/DH2	DM2	DJ	
	HF <400V Series> HF-H brake connector	CNB10-R2S (6)	-	ı Z	0	0	0	
		CNB10-R2L (6)	-	4€	0	0	0	
For	Brake cable for <200V Series> HF-KP	MR-BKS1CBL 2M-A1-H	2					
motor brake		MR-BKS1CBL 3M-A1-H	3					
motor brake		MR-BKS1CBL 5M-A1-H	5		0	0	0	
	Lead out in direction of motor shaft	MR-BKS1CBL 7M-A1-H	7					
		MR-BKS1CBL 10M-A1-H	10					
	Brake cable for <200V Series> HF-KP	MR-BKS1CBL 2M-A2-H	2	<u>_</u>				
		MR-BKS1CBL 3M-A2-H	3					
		MR-BKS1CBL 5M-A2-H	5		0	0	0	
		MR-BKS1CBL 7M-A2-H	7					
	Lead out in opposite direction of motor shaft	MR-BKS1CBL 10M-A2-H	10					
For CN20	Brake connector for motor brake control output	CNU20S (AWG14)	-		0	0	-	

Drive system List of cables

<Power cable>

	Item	Model	Length	Contents	L	ompatible mod	
	liem	WOUCI	(m)	Contento	D2/DH2	DM2	DJ
	Power connector for <200V Series> HF75, 105, 54, 104, 154, 224, 123, 223, 142	CNP18-10S (14)	-	0 -	0	0	0
	<400V Series> HF-H54, 75, 104, 105, 154 Applicable cable outline ϕ 10.5 to 14mm	CNP18-10L (14)	-		0	0	0
	Power connector for <200V Series> HF204, 354, 303, 453, 302 <400V Series>	CNP22-22S (16)	-	Û.	0	0	0
For	HF-H204, 354, 453, 703 Applicable cable outline ϕ 12.5 to 16mm	CNP22-22L (16)	-		0	0	0
notor power	Power connector for <200V Series> HF703, 903 <400V Series>	CNP32-17S (23)	-	04	0	-	-
	<400V Series> HF-H903 Applicable cable outline ϕ 22 to 23.8mm	CNP32-17L (23)	-	۵۳. ۱	0	-	-
	Power cable for <200V Series> HF-KP	MR-PWS1CBL 2M-A1-H MR-PWS1CBL 3M-A1-H MR-PWS1CBL 5M-A1-H MR-PWS1CBL 7M-A1-H	2 3 5 7		0	-	0
	Lead out in direction of motor shaft Power cable for <200V Series> HF-KP (Note) It can not be used with HF-KP13. Lead out in opposite direction of motor shaft	MR-PWS1CBL 10M-A1-H MR-PWS1CBL 2M-A2-H MR-PWS1CBL 3M-A2-H MR-PWS1CBL 5M-A2-H MR-PWS1CBL 5M-A2-H MR-PWS1CBL 10M-A2-H	10 2 3 5 7 10		0	_	0
For TE1	Power connector for MDS-D2-V1-20 to 80 MDS-D2-V2-2020 to 8080 MDS-D2-SP-20 to 40 MDS-D2-SP-2020 to 4040 MDS-DH2-V1-10 to 80 MDS-DH2-V1-10 to 8080 MDS-DH2-V2-1010 to 8080 MDS-DH2-V2-2020 to 404040	CNU1S (AWG14)	-	1	0	_	-
	Power connector for MDS-D2-V1-160 MDS-D2-V2-16080, 160160 MDS-D2-SP-80 MDS-D2-SP-80 MDS-D42-V1-80, 8080 MDS-DH2-V1-80, 80W MDS-DH2-V2-8080W MDS-DH2-SP-80	CNU1S (AWG10)	_		0	_	-
For CN31 L/M/S	Power connector for MDS-DM2 Series Applicable cable outline ϕ 1.25 to 5.5mm	RCN31S RCN31M	-		-	0	_
For CN22	Control power connector for MDS-DM2 Series Applicable cable outline ϕ 1.25 to 2.2mm	RCN22	_		-	0	-

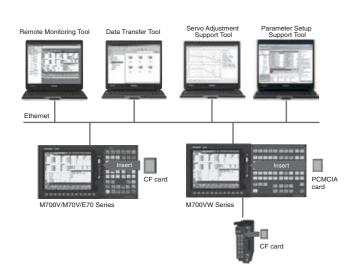
<Drive unit side main circuit connector>

Item		Model	Length			Compatible model		
	item	Model	(m)	Contents	D2/DH2	DM2	DJ	
For drive unit For MDS-DJ-V1-40, 80, 100 For MDS-DJ-SP-40, 80 Applicable cable outline: (For CNP1, for Cl 1.25mm ² to 5.5mm ² (For CNP2)	For MDS-DJ-SP-20	These connectors are supplied for each drive	-	000000	-	-	0	
			-		-	-	0	
	Applicable cable outline: 0.8mm ² to 2.1mm ² Finish outside diameter: to ϕ 3.9mm	unit.	-	- 81	-	-	0	
			-		-	-	0	
	For MDS-DJ-V1-40, 80, 100 For MDS-DJ-SP-40, 80 Applicable cable outline: (For CNP1, for CNP3) 1.25mm ² to 5.5mm ² (For CNP2) 0.14mm ² to 0.4mm ²	These connectors are supplied for each drive	-		-	-	0	
			-		-	-	0	
		unit.	-		-	-	0	
			-		-	-	0	

<Spindle detector cable and connector>

Item		Model Leng		Contents	Compatible model			
	nem		(m)	Contents	D2/DH2	DM2	DJ	
		CNP2E-1-2M	2					
		CNP2E-1-3M	3					
		CNP2E-1-4M	4					
	Motor side PLG cable	CNP2E-1-5M	5	_				
For CN2	Spindle side accuracy detector	CNP2E-1-7M	7	<u>م</u> رال	0	0	0	
1010142	TS5690 cable	CNP2E-1-10M	10	연~~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	0	0	0	
		CNP2E-1-15M	15					
		CNP2E-1-20M	20					
		CNP2E-1-25M	25					
		CNP2E-1-30M	30					
		CNP3EZ-2P-2M	2					
		CNP3EZ-2P-3M	3					
		CNP3EZ-2P-4M	4					
		CNP3EZ-2P-5M CNP3EZ-2P-7M	5					
		CNP3EZ-2P-7M CNP3EZ-2P-10M	10		0	0	0	
	Spindle side detector OSE-1024 cable	CNP3EZ-2P-10M CNP3EZ-2P-15M	10					
		CNP3EZ-2P-15M CNP3EZ-2P-20M	20					
		CNP3EZ-2P-20M CNP3EZ-2P-25M	20					
		CNP3EZ-2P-25M CNP3EZ-2P-30M	30					
For CN3		CNP3EZ-3P-2M						
		CNP3EZ-3P-3M	2 3 4 5 7					
		CNP3EZ-3P-4M	4					
		CNP3EZ-3P-5M	5					
		CNP3EZ-3P-7M	7			0		
		CNP3EZ-3P-10M	10		0		0	
		CNP3EZ-3P-15M	15	(
		CNP3EZ-3P-20M	20					
		CNP3EZ-3P-25M	25					
		CNP3EZ-3P-30M	30					
	Motor side PLG connector			d Th				
	Spindle side accuracy detector	CNEPGS	-	(<u> </u>)	0	0	0	
	TS5690 connector							
For spindle								
motor	Spindle side detector		-		0	0	0	
1110101	OSE-1024 cable							
	USL-1024 Gable							
	Applicable cable outline ϕ 6.8 to 10mm		-		0	0	0	
				5-11				
⊢or CN2/3	Spindle detector drive unit side connector	CNU2S (AWG18)	-		0	0	0	
				کلہ ا				

Drive system List of cables



NC Trainer/NC Trainer plus M700V M70V E70

MITSUBISHI CNC Training Tool

- NC Trainer is an application for operating the screens of MITSUBISHI CNC M700V/M70V/E70 Series and machining programs. This application can be used for learning operating CNC and checking the operations of the machining programs.
- · NC Trainer plus can also be used for checking the PLC program and custom screens.

A software tool for a personal computer to carry out

maintenance (such as parameter setting, NC disgnosis

and PLC program diagnosis) of MITSUBISHI CNC on



NC Maintainer

customer's display.



M700VW

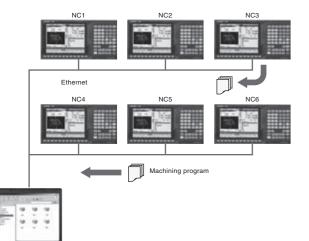
NC Explorer

Data Transfer Tool

By connecting the NC and host personal computer via Ethernet, data such as machining programs can easily be shared.

M700V M70V E70

This tool is free of charge. Please contact us.



Control unit COLUMN STATES MITSUBISHI CN

* An operation check is required in combination with software installed on the display

PLC n

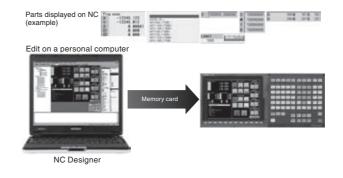
NC Designer

Screen Design Tool

• By laying out ready-made standard parts, you can easily create original screens without programming.

M700V M70V E70

· Using the C language source generation function of NC Designer, customized functions can be added by programming in C language. (Dedicated development environment necessary)



M700V M70V E70 NC Monitor

Remote Monitoring Tool

An identical NC display screen can be displayed on a personal computer. By connecting a personal computer to the NC unit when necessary, various data can be checked and set using the same HMI as the standard NC screen.



NC Monitor (M700V, M70V, E70)

Servo Selection Tool

M700V M70V E70

By selecting the machine configuration model and inputting the machine specifications, the optimal servo motor meeting specifications can be selected. Other selection functions which fully support drive system selection are also available. This tool is free of charge. Please contact us.

When the machine model and input specifications are selected, the selection result for the motor will be displayed. The result can be output in PDF format.

<Main functions: Servo motor capacity selection, regenerative resistor capacity selection, spindle acceleration/deceleration time calculation, power supply capacity selection, power supply facility capacity calculation, etc.

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User Support Tools/Development

NC Explore

Servo Adjustment Support Tool

NC Analyzer

Servo parameters can be automatically adjusted by activating the motor using machining programs for adjustment or vibration signals, and measuring/ analyzing the machine characteristics.

<Main functions>

Bode diagram measurement display, speed loop gain adjustment, position loop gain adjustment, notch filter setting, acceleration/deceleration time constant adjustment, circularity adjustment and servo waveform measurement



NC Configurator2

M700V M70V E70

Parameter Setup Support Tool

The NC data file necessary for NC control and machine operation (such as parameters, tool data and common variables) can be edited on a personal computer.

Please contact us to purchase a full function version. (A limited function version is also available free of charge.)

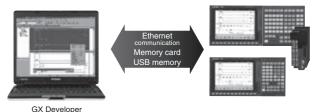




<u>M700V</u> M70V E70

Sequence Programming Tool

The MELSEC programming tool, offering a wide array of functions and easy use, allows for convenient program design and debugging. Linking with a simulator or other utility allows for the efficient creation of desired programs.



* MELSEC is a registered trademark of Mitsubishi Electric Corporation in Japan and/or other countries

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