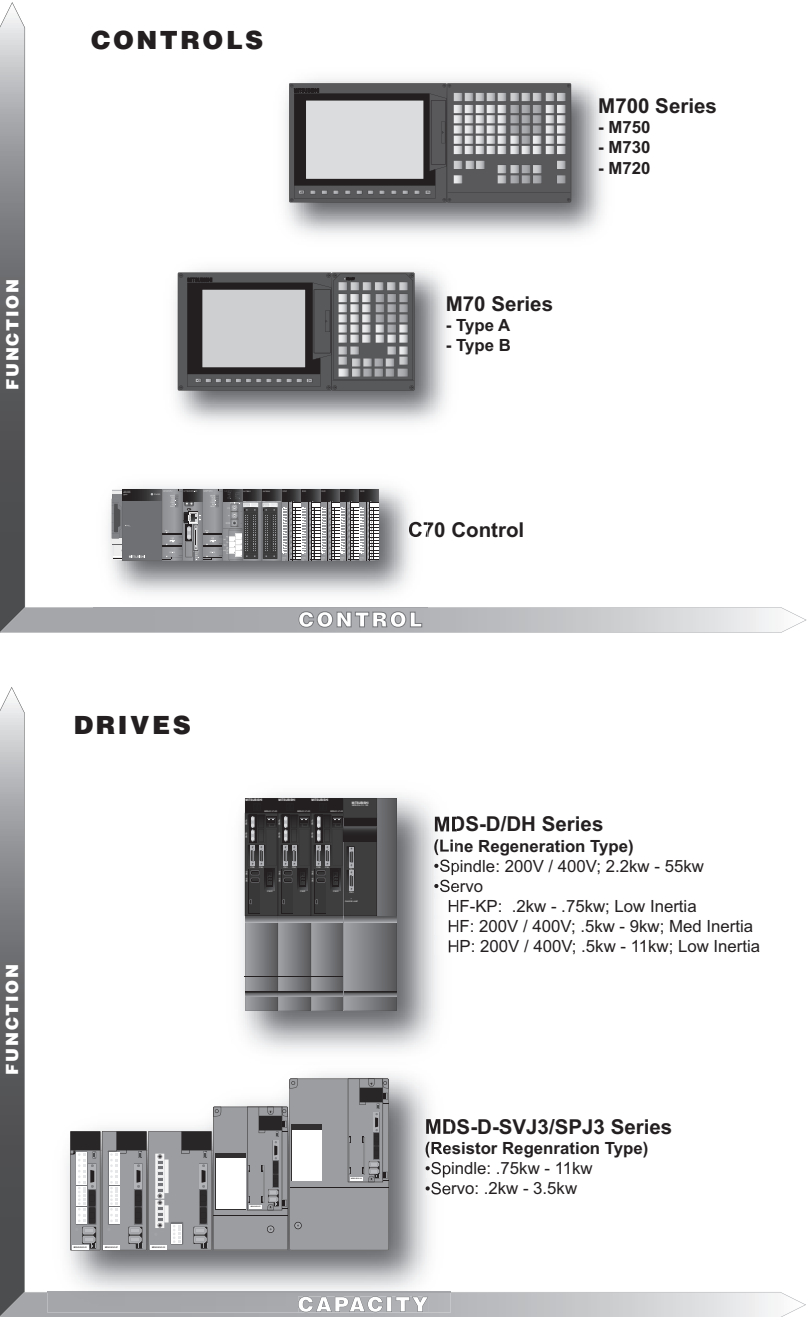


Computerized Numerical Controls



C70 Control.....	408
M70 Series.....	411
M700 Series.....	414
MDS-D/DH Series	419
MDS-D-SVJ3/SPJ3	437

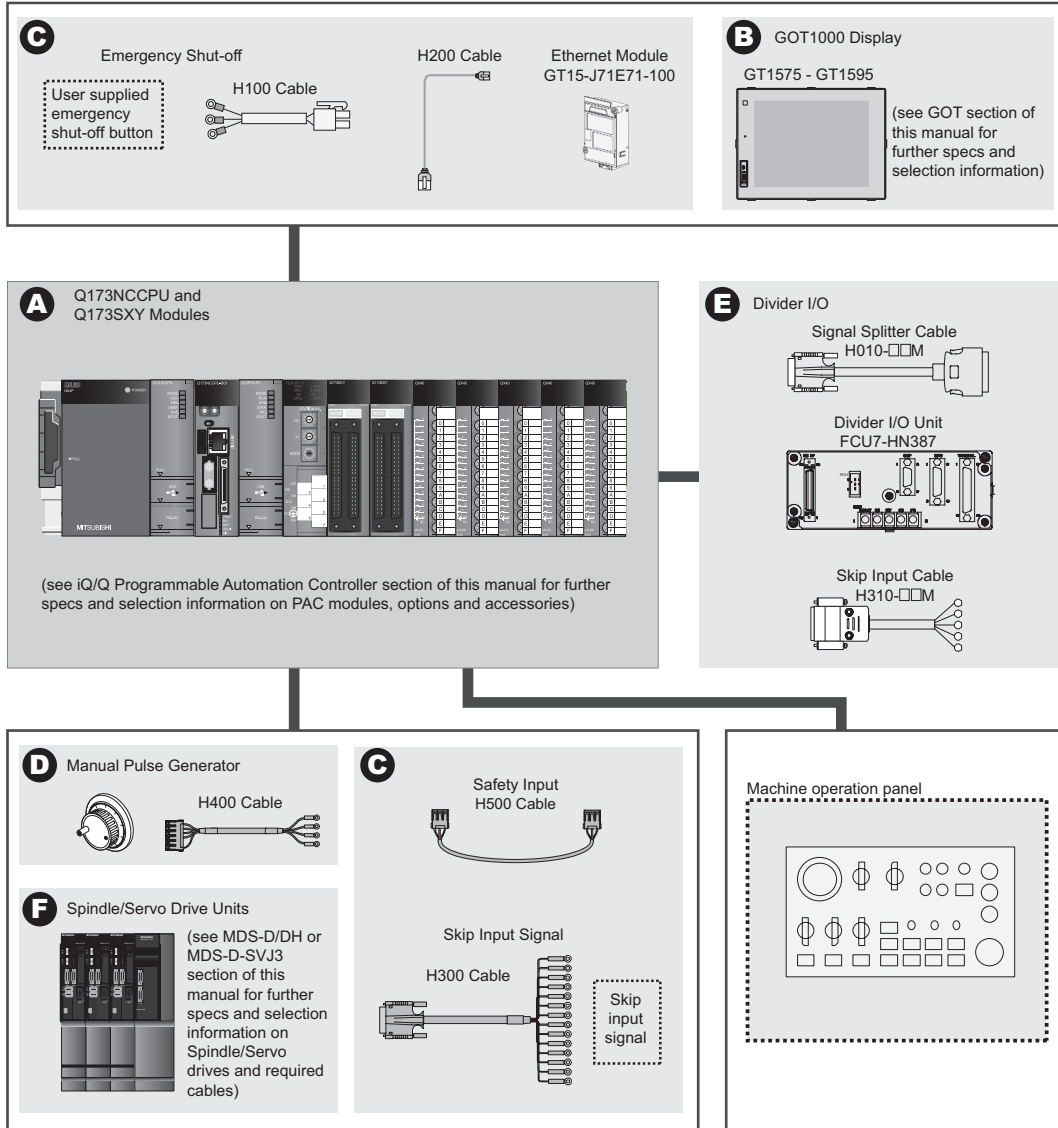
Stock Product: Stock product is product MEAU makes every effort to have on hand for immediate shipment. There may be instances when we are out of stock due to unexpected large requirements. All stock product will be indicated in this book by an "S" in the Stocked Item columns/rows.

Non-Stock Product: Non-stock product is product supplied on an "as-needed" basis. Standard lead times of 12 - 16 weeks apply, product is non-returnable and non-cancelable. Product listed as non-stock may change to stock product subject to increases in sales and usage. All non-stock product will be indicated in this book by a dash "-" in the Stocked Item columns/rows.

C70 Computerized Numerical Controller

C70 series is a rack based CNC solution designed to offer a maximum TCO reduction effect to large scale machining line customers. The C70 series features reliability with reduced tact times, and advancement in technology with the use of the iQ Series platform. This dedicated control comes in a machining Center and Lathe configuration with the ability to control up to 16 axes for maximum efficiency in production lines.

General System Diagram for C70 Configuration



A. CNC Control CPU and Modules	409
B. GOT Display	409
C. Control System Cables	409
D. Manual Pulse Generator	410
E. Divider I/O	410
F. Spindle/Servo Drive Units	410

A CNC Selection and Associated Cables (All Models Required for System)

Base Units

Description	Notes
Base Rack	See iQ - Q PAC section for detailed information and specifications

CNC CPU

Description	Model Number	Stocked Item	Notes
C70 NC Unit	Q173NCCPU-S01	S	Includes Q170DBATC battery and required cable

Safety Modules

Description	Model Number	Stocked Item	Notes
IO Redundant Monitoring Unit	Q173SXY	S	Safety input cable required

Processors

Description	Notes
Processors	See iQ - Q PAC section for detailed information and specifications

Special Function Modules

Description	Notes
Q-IQ Modules	See iQ - Q PAC section for detailed information and specifications

Power Supply Modules

Description	Notes
Power Supplies	See iQ - Q PAC section for detailed information and specifications

B GOT

Description	Model Number	Notes
10.4" to 15." SVGA or Higher	GT1575-95	See GOT section for detailed information and specifications
Ethernet Card	GT15-J71E71-100	1 required
Memory card	GT15-QFNB16M	1 required
CF Card Interface	GT15-CFEX-C08-SET	optional

C Control System Cable Selections

Emergency Stop Cables

Description	Model Number	Stocked Item	Cable Length
Emergency Stop Input Cable	H100-2.0M	S	2.0M
Emergency Stop Input Cable	H100-5.0M	S	5.0M
Emergency Stop Input Cable	H100-10.0M	S	10.0M
Emergency Stop Input Cable	H100-20.0M	S	20.0M

Note: Max 20 Meters

Display Ethernet Cable

Description	Model Number	Stocked Item	Notes
Display Interface Cable 2.0M	H200-2.0M	S	Connects to GT15 module
Display Interface Cable 5.0M	H200-5.0M	S	
Display Interface Cable 10.0M	H200-10.0M	S	

Skip Input Cable

Description	Model Number	Stocked item	Cable Length
Skip Input Cable For CNC CPU	H300-2.0M	S	2.0M
Skip Input Cable For CNC CPU	H300-5.0M	S	5.0M
Skip Input Cable For CNC CPU	H300-10.0M	S	10.0M

Note: Max 20 Meters

Safety Input Cable

Description	Model Number	Stocked Item	Cable Length
Safety Signal Unit Cable	H500-0.5M	S	0.5M

D Manual Pulse Generator

Description	Model Number	Stocked Item	Notes
Manual Pulse Generator 12V Supply Type	HD60C	S	Need signal splitter

Manual Pulse Generator Cable

Description	Model Number	Stocked Item	Notes
MPG Cable (CNC CPU) 5V Supply Type 2.0M	H400-2.0M	S	Use 5 VDC MPG
MPG Cable (CNC CPU) 5V Supply Type 5.0M	H400-5.0M	S	Use 5 VDC MPG
MPG Cable (CNC CPU) 5V Supply Type 10.0M	H400-10.0M	S	Use 5 VDC MPG
MPG Cable (CNC CPU) 12V Supply Type 10.0M	F020-5.0M	S	Use with HD60C
MPG Cable (CNC CPU) 12V Supply Type 10.0M	F020-10.0M	S	Use with HD60C

Note: Max 20 Meters

E Divider I/O

Description	Model Number	Stocked Item	Notes
Signal Splitter	FCU7-HN387	S	Need 1 H010-__M Cable and 1 H310-__M cable for skip
Signal Splitter Cable	H010-0.5M	S	0.5M
Signal Splitter Cable	H010-2.0M	S	2.0M
Signal Splitter Cable	H010-5.0M	S	5.0M
Skip Input for FCU7-HN387-2.0M	H310-2.0M	S	2.0M
Skip Input for FCU7-HN387-5.0M	H310-5.0M	S	5.0M
Skip Input for FCU7-HN387-10.0M	H310-10.0M	S	10.0M
Skip Input for FCU7-HN387-15.0M	H310-15.0M	S	15.0M

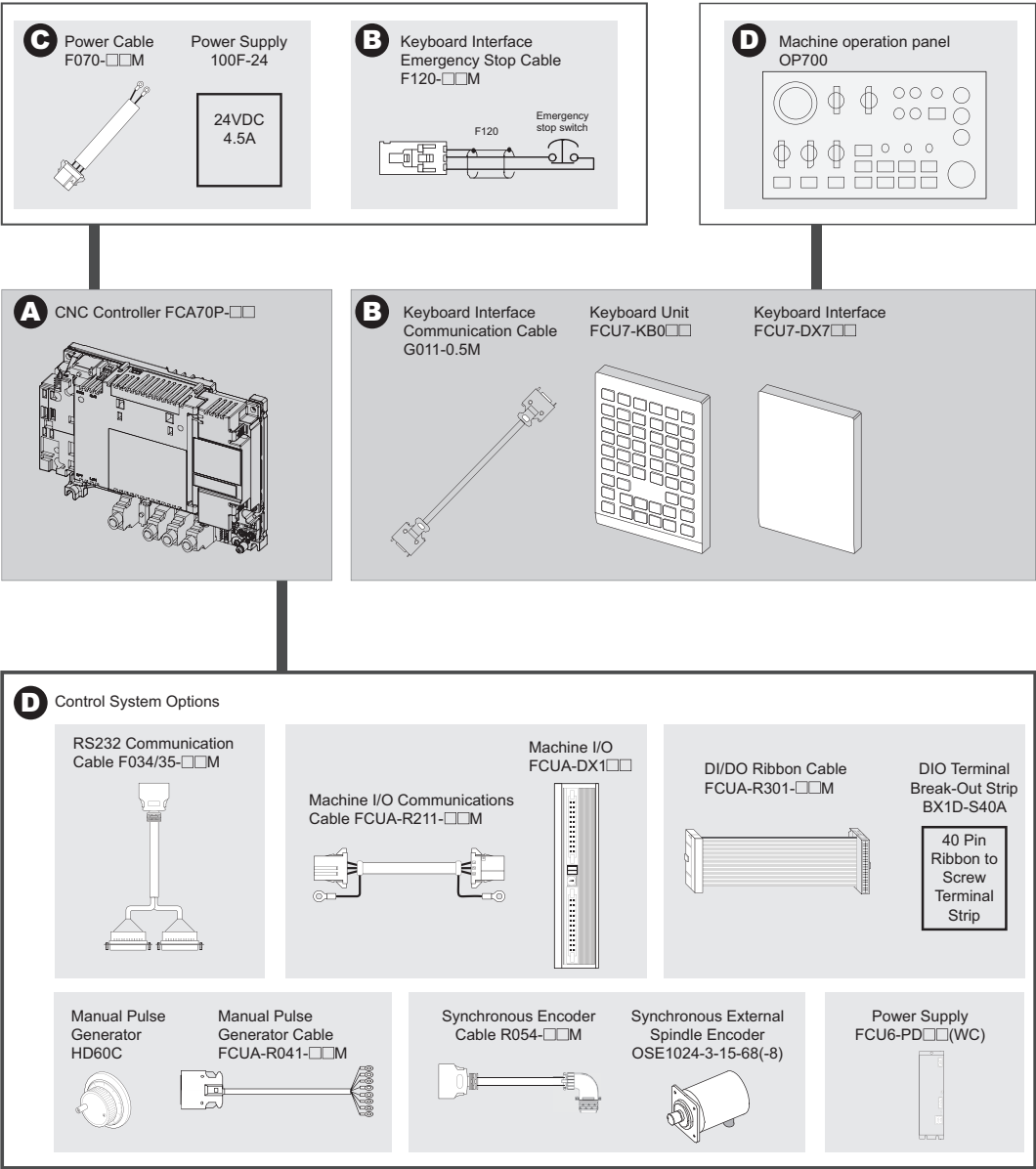
F Drive System

Description	Drive Series	Notes
Full Sizes Drives	MDS-D	See MDS-D/DH section for detailed information and specifications
Jr Series Drives	MDS-D-SVJ3	See MDS-D-SVJ3/SPJ3 section for detailed information and specifications

M70 Computerized Numerical Controller

The M70 series is designed to provide productivity and operating ease. The M70 series features shortened setup time with easy operability. This dedicated control comes in 2 configurations: Type A, which can control up to 11 axes, 4 simultaneous axes and a maximum PLC program of 32,000 steps; Type B, which can control up to 9 axes, 4 simultaneous axes and a maximum PLC program of 20,000 steps.

General System Diagram for M70 Configuration



A. M70 CNC Controller	412
B. Keyboard Unit	412
C. Power Supply and Cable	412
D. Control System Options	412

A M70 CNC Controller

Description	Model Number	Stocked Item	Notes
M70 A TYPE Control For 8.4	FCA70P-2A	S	8.4" display only
M70 B TYPE Control For 8.4	FCA70P-2B	S	8.4" display only
M70 A TYPE Control For 10.4	FCA70P-4A	S	10.4" display only
M70 B TYPE Control For 10.4	FCA70P-4B	S	10.4" display only

Note: Need to choose 1 control from above

B Keyboard Unit

Description	Model Number	Stocked Item	Notes
M70 Keyboard For 8.4	FCU7-KB024	S	8.4" display only
M70 Keyboard For 10.4	FCU7-KB044	S	10.4" display only

Note: Need to choose 1 style keyboard from above.

Keyboard Interface

Description	Model Number	Stocked Item	Notes
Keyboard I/F Sink 64/64 W 2 MPG I/F	FCU7-DX710	-	
Keyboard I/F Source 64/64 W 2 MPG I/F	FCU7-DX711	S	
Keyboard /F Sink 96/80 W 2 MPG I/F 1A0	FCU7-DX720	-	
Keyboard I/F Source 96/80 W 2 MPG I/F 1A0	FCU7-DX721	S	
Keyboard I/F Sink 96/96 W 2 MPG IF	FCU7-DX730	-	
Keyboard I/F Source 96/96 W 2 MPG I/F	FCU7-DX731	S	

Note: Need to select 1 style I/O module for back of keyboard.

CNC Unit to Keyboard Interface Communication Cable

Description	Model Number	Stocked Item	Notes
Communication Cable 0.5M (G011)	G011-0.5M	S	Connects from CG71 on control to CG71 on keyboard

Keyboard Interface Emergency Stop Cable

Description	Model Number	Stocked Item	Notes
Emergency Stop Cable 0.5M	F120-0.5M	S	Qty 1 required
Emergency Stop Cable 1M	F120-1.0M	S	
Emergency Stop Cable 3M	F120-3.0M	S	
Emergency Stop Cable 5M	F120-5.0M	S	
Emergency Stop Cable 10M	F120-10.0M	S	

C Power Supply and Cable**CNC +24V Power Cable**

Description	Model Number	Stocked Item	Notes
24V Power Cable 0.5M	F070-0.5M	S	Qty 1 required
24V Power Cable 1M	F070-1.0M	S	
24V Power Cable 3M	F070-3.0M	S	
24V Power Cable 5M	F070-5.0M	S	
24V Power Cable 10M	F070-10.0M	S	

Power Supply

Description	Model Number	Stocked Item	Notes
24VDC-4.5A Power Supply	100F-24	S	Qty 1 required

D Control System Options**CNC Unit RS232 Communication Cable**

Description	Model Number	Stocked Item	Cable Length
1CH RS232 SIO Communication Cable	F034-1.0M	-	1.0M
1CH RS232 SIO Communication Cable	F034-5.0M	S	5.0M
1CH RS232 SIO Communication Cable	F034-10.0M	S	10.0M
2CH RS232 SIO Communication Cable	F035-1.0M	-	1.0M
2CH RS232 SIO Communication Cable	F035-5.0M	-	5.0M
2CH RS232 SIO Communication Cable	F035-10.0M	-	10.0M

Machine I/O

Description	Model Number	Stocked Item	Notes
RIO SYNC DI/DO=32/32	FCUA-DX100	-	Qty 2 40 pin ribbon connections
RIO SOURCE DI/DO=32/32	FCUA-DX101	S	
RIO SYNC DI/DO=64/48	FCUA-DX110	-	Qty 4 40 pin ribbon connections
RIO SOURCE DI/DO=64/64	FCUA-DX111	S	
RIO SYNC DI/DO=64/48 + AO 1 POINT	FCUA-DX120	-	
RIO SOURCE DI/DO=64/48 + AO 1 PT	FCUA-DX121	S	
RIO SYNC DI/DO=32/32 + AL 4 PT AO 1 PT	FCUA-DX140	-	
RIO SOURCE DI/DO=32/32 + AI 4 PT AO 1 PT	FCUA-DX141	S	

Note: Add one F070-__M cable for each I/O unit. These units use 40 pin ribbon connectors it is recommended to include cables FCUA-R301-__M and terminal strips BX1D-S40A Qty 4 per I/O module.

Machine I/O Communications Cable

Description	Model Number	Stocked Item	Notes
RIO Communication Cable 0.3M	FCUA-R211-0.3M	S	Include 1 FCUA-R211-__M cable for each I/O unit and 1 for connection to the CNC Unit.
RIO Communication Cable 1.0 METER	FCUA-R211-1.0M	S	
RIO Communication Cable 3.0M	FCUA-R211-3.0M	S	
RIO Communication Cable 5.0M	FCUA-R211-5.0M	S	
RIO Communication Cable 10.0M	FCUA-R211-10.0M	S	

DIO Cable

Description	Model Number	Stocked Item	Notes
DI/DO Ribbon Cable FLT/RND 0.5M	FCUA-R301-0.5M	S	Add Qty 1 BX1D-S40A for each.
DI/DO Ribbon Cable FLT/RND 1.0M	FCUA-R301-1.0M	S	
DI/DO Ribbon Cable FLT/RND 2.0 M	FCUA-R301-2.0M	S	
DI/DO Ribbon Cable FLT/RND 3.0M	FCUA-R301-3.0M	S	
DI/DO Ribbon Cable FLT/RND 5.0M	FCUA-R301-5.0M	S	

DIO Terminal Break-Out Strip

Description	Model Number	Stocked Item	Notes
40 Pin Ribbon to Screw Terminal Strip	BX1D-S40A	S	

Manual Pulse Generator (Handwheel)

Description	Model Number	Stocked Item	Notes
Manual Pulse Generator	HD60C	S	

Manual Pulse Generator Cable

Description	Model Number	Stocked Item	Cable Length
1CH MPG Cable	FCUA-R041-2.0M	S	2.0M
1CH MPG Cable	FCUA-R041-5.0M	S	5.0M
1CH MPG Cable	FCUA-R041-10.0M	S	10.0M

Machine Operation Panel

Description	Model Number	Stocked Item	Notes
M700 Operation Panel	OP700	S	Requires Qty 4 FCUA-R301-__M Requires Qty 1 F070-R301-__M

Note: Requires either DX unit attached to Keyboard or Remote D-I/O module.

Synchronous External Spindle Encoder

Description	Model Number	Stocked Item	Notes
6000RPM External Spindle Encoder	OSE1024-3-15-68	-	
6000RPM External Spindle Encoder	OSE1024-3-15-68-8	S	

Synchronous External Spindle Encoder Cable

Description	Model Number	Stocked Item	Cable Length
Angle Spin ENC TO NC COMM Cable	R054-3.0M	-	3.0M
Angle Spin ENC TO NC COMM Cable	R054-5.0M	S	5.0M
Angle Spin ENC TO NC COMM Cable	R054-10.0M	S	10.0M

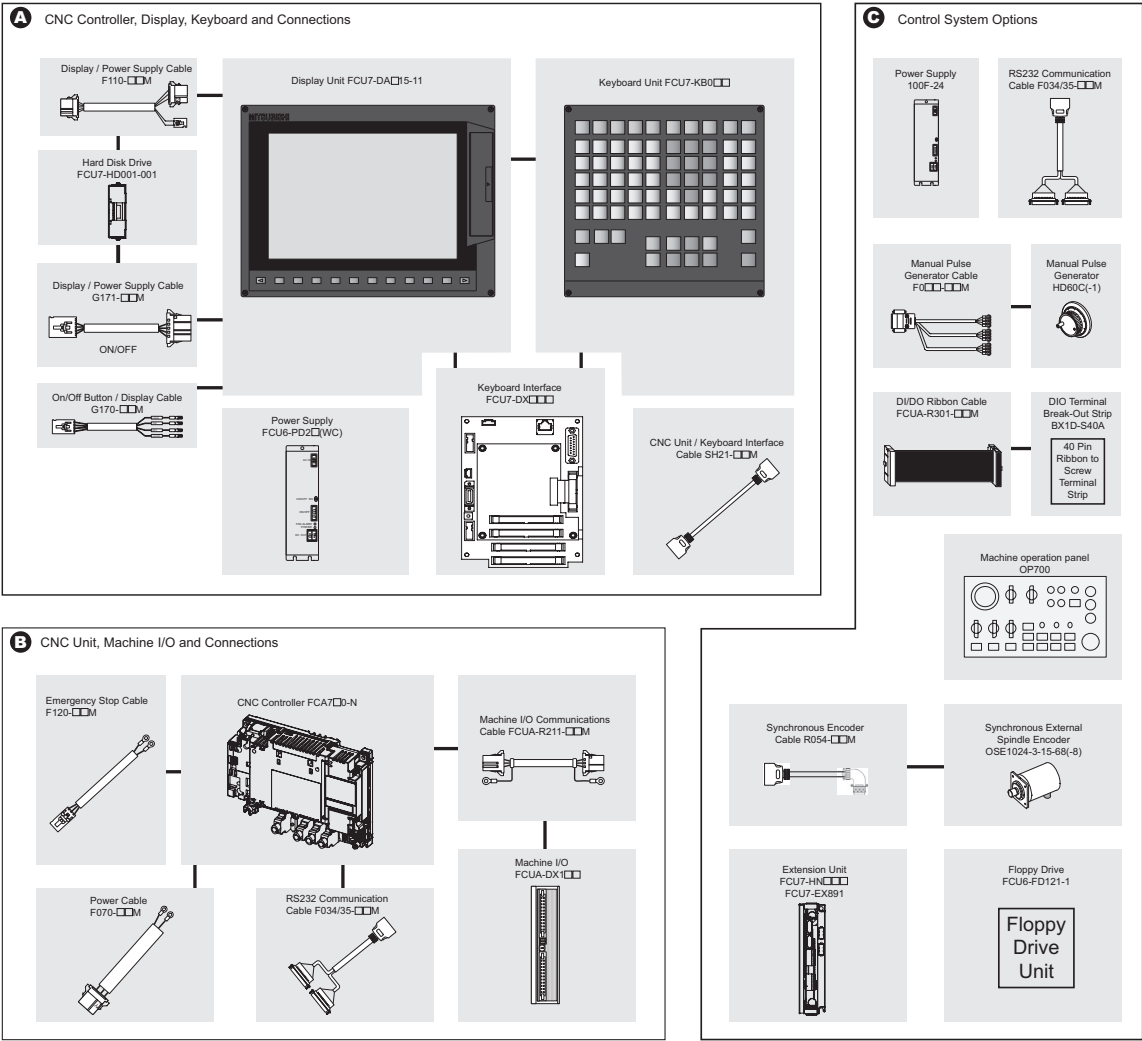
Power Supply

Description	Model Number	Stocked Item	Notes
24VAC 200-230V/3A Power Supply with Connector	FCU6-PD25(WC)	-	Can use instead of 100F-24 Power Supply Unit
24VAC 200-480V/8A Power Supply with Connector	FCU6-PD27(WC)	S	

M700 Computerized Numerical Controller

The CNC M700 series is designed to provide productivity and operating ease. The M700 series features nano-control technology to meet the needs of a new era, and also incorporates an original high-speed servo network. As Mitsubishi's flagship machining center, the M700 series continues to deliver world-class specifications and optimum performance to users. The new Mitsubishi CNC series opens new horizons of productivity, leading you to the next level of success.

General System Diagram for M700 Configuration



A. Display, Keyboard, and Connections.....	415
B. Controller Unit, Machine I/O and Connections.....	416
C. Control System Options	417

A Display, Keyboard, and Connections

Control Axes

Description	M720M	M730M	M750M	M720L	M730L	M750L
1.1.1 Number Of Basic Control Axes (NC Axes) (*1)	3	3	3	2	2	2
1.1.2 Max. Number of Axes (NC Axes + Spindles + PLCs)	6	16	16	12	16	16
1.1.2 Max. Number of NC Axes (In Total for All the Part Systems)	6	16	16	12	16	16
1.1.2 Max. Number of Spindles	2	4	4	2	4	4
1.1.2 Max. Number of PLC Axes	2	2	2	2	2	2
1.1.3 Max. Number of Auxiliary Axis	4	4	4	4	4	4
1.1.4 Number of Simultaneous Contouring Control Axes	4	4	8	4	4	8
1.1.5 Max. Number of NC Axis in a Part System	6	8	8	6	8	8
1.2.1 Standard Number of Part Systems	1	1	1	1	1	1
1.2.2 Max. Number of Part Systems	1	2 (*2)	2 (*2)	4 (*2)	4 (*2)	4 (*2)

Notes:

1. Standard.
2. Optional

Windows XP Display

Description	Model Number	Stocked Item	Notes
10.4" Color XPE IC Card with Label	FCU7-DA315-11	-	Celeron 733 MHz processor
10.4" Color XPE IC Card with Label	FCU7-DA415-11	S	Pentium 3-1.26Ghz processor

Keyboard

Description	Model Number	Stocked Item	Notes
M700 Keyboard for M/C 8.4	FCU7-KB021	-	8.4" CE displays only
M700 Keyboard for Lathe 8.4	FCU7-KB022	-	8.4" CE displays only
M700 Keyboard for 10.4	FCU7-KB041	S	XP and CE display types

Keyboard Interface

Description	Model Number	Stocked Item	Notes
Keyboard I/F Sync 32/32 With 3 MPG I/F	FCU7-DX670	-	
Keyboard I/F Source 32/32 With 3 MPG I/F	FCU7-DX671	-	
Keyboard I/F Sync 64/64 With 3 MPG I/F	FCU7-DX770	-	
Keyboard I/F Source 64/64 With 3 MPG I/F	FCU7-DX771	S	

Hard Disk Drive

Description	Model Number	Stocked Item	Notes
M700 20GB Hard Drive with Windows XPE	FCU7-HD001-001	S	Cable included

Display to Power Supply Cable

Description	Model Number	Stocked Item	Cable Length
DCIN Display to Power Supply Cable	F110-0.5M	S	0.5M
DCIN Display to Power Supply Cable	F110-5.0M	S	5.0M
DCIN Display to Power Supply Cable	F110-10.0M	S	10.0M

On / Off Button to Display Cable

Description	Model Number	Stocked Item	Cable Length
On / Off Button to Display Cable	G170-0.5M	S	0.5M
On / Off Button to Display Cable	G170-5.0M	S	5.0M
On / Off Button to Display Cable	G170-10.0M	S	10.0M

Display to Power Supply On / Off Cable

Description	Model Number	Stocked Item	Cable Length
On / Off Display to Power Supply Cable	G171-0.5M	S	0.5M
On / Off Display to Power Supply Cable	G171-5.0M	S	5.0M
On / Off Display to Power Supply Cable	G171-10.0M	S	10.0M

Power Supply

Description	Model Number	Stocked Item	Notes
24VAC 200 - 230 V/3A Power Supply with Connector	FCU6-PD25(WC)	-	
24VAC 200 - 480 V/8A Power Supply with Connector	FCU6-PD27(WC)	S	

CNC Unit to Keyboard Interface Communication Cable

Description	Model Number	Stocked Item	Cable Length
Communication Cable (G013)	SH21-0.35M	S	0.35M
Communication Cable (G013)	SH21-0.5M	S	0.5M
Communication Cable (G013)	SH21-1.0M	S	1.0M
Communication Cable (G013)	SH21-3.0M	-	3.0M
Communication Cable (G013)	SH21-5.0M	S	5.0M
Communication Cable (G013)	SH21-10.0M	S	10.0M

B Controller, Machine I/O and Connections**CNC Control Unit**

Description	Model Number	Stocked Item	Notes
M720 CNC Unit	FCA720-N	S	
M730 CNC Unit	FCA730-N	S	
M750 CNC Unit	FCA750-N	-	Special Order Requirement

CNC Unit to Emergency Stop Cable

Description	Model Number	Stocked Item	Cable Length
Emergency Stop Cable	F120-0.5M	S	0.5M
Emergency Stop Cable	F120-1.0M	S	1.0M
Emergency Stop Cable	F120-3.0M	S	3.0M
Emergency Stop Cable	F120-5.0M	S	5.0M
Emergency Stop Cable	F120-10.0M	S	10.0M

CNC Unit +24V Power Cable

Description	Model Number	Stocked Item	Cable Length
24V Power Cable	F070-0.5M	S	0.5M
24V Power Cable	F070-1.0M	S	1.0M
24V Power Cable	F070-3.0M	S	3.0M
24V Power Cable	F070-5.0M	S	5.0M
24V Power Cable	F070-10.0M	S	10.0M

CNC Unit RS-232 Communication Cable

Description	Model Number	Stocked Item	Cable Length
1CH RS-232 SIO Communication Cable	F034-1.0M	-	1.0M
1CH RS-232 SIO Communication Cable	F034-5.0M	S	5.0M
1CH RS-232 SIO Communication Cable	F034-10.0M	S	10.0M
2CH RS-232 SIO Communication Cable	F035-1.0M	-	1.0M
2CH RS-232 SIO Communication Cable	F035-5.0M	-	5.0M
2CH RS-232 SIO Communication Cable	F035-10.0M	-	10.0M

Machine I/O Selection

Description	Model Number	Stocked Item	Notes
RIO Sync DI / DO = 32/32	FCUA-DX100	-	Quantity 2 40-pin ribbon connections
RIO Source DI / DO = 32/32	FCUA-DX101	S	
RIO Sync DI / DO = 64/64	FCUA-DX110	-	Quantity 4 40-pin ribbon connections
RIO Source DI / DO = 64/64	FCUA-DX111	S	
RIO Sync DI / DO = 64/48 + AO 1 Point	FCUA-DX120	-	
RIO Source DI / DO = 64/48 + AO 1 Point	FCUA-DX121	S	
RIO Sync DI / DO = 32/32 + AL 4 Point AO 1 Point	FCUA-DX140	-	
RIO Source DI / DO = 32/32 + AI 4 Point AO 1 Point	FCUA-DX141	S	

Note: Add one F070-__M cable for each I/O unit. These units use 40-pin ribbon connectors and it is recommended to include cables FCUA-R301-nM and terminal strips BX1D-S40A.

Machine I/O Communications Cable

Description	Model Number	Stocked Item	Cable Length
RIO Communication Cable	FCUA-R211-0.3M	S	0.3M
RIO Communication Cable	FCUA-R211-1.0M	S	1.0M
RIO Communication Cable	FCUA-R211-3.0M	S	3.0M
RIO Communication Cable	FCUA-R211-5.0M	S	5.0M
RIO Communication Cable	FCUA-R211-10.0M	S	10.0M

Note: Include one FUA-R211-__M cable for each I/O unit and one for connection to the CNC unit.

Control System Options

Power Supply

Description	Model Number	Stocked Item	Notes
24VDC-4.5A Power Supply	100F-24	S	

RS-232 Cable

Description	Model Number	Stocked Item	Cable Length
1CH RS-232 SIO Communication Cable	F034-1.0M	S	1.0M
1CH RS-232 SIO Communication Cable	F034-5.0M	S	5.0M
1CH RS-232 SIO Communication Cable	F034-10.0M	S	10.0M
2CH RS-232 SIO Communication Cable	F035-1.0M	-	1.0M
2CH RS-232 SIO Communication Cable	F035-5.0M	-	5.0M
2CH RS-232 SIO Communication Cable	F035-10.0M	-	10.0M

DIO Cable Selection

Description	Model Number	Stocked Item	Cable Length
DIO Ribbon Cable FLT / RND	FCUA-R301-0.5M	S	0.5M
DIO Ribbon Cable FLT / RND	FCUA-R301-1.0M	S	1.0M
Remote I/O RND to FLT Ribbon Cable	FCUA-R301-2.0M	S	2.0M
DIO Ribbon Cable FLT / RND	FCUA-R301-3.0M	S	3.0M
DIO Ribbon Cable FLT / RND	FCUA-R301-5.0M	S	5.0M

Note: Requires 1 BX1D-S40A for each cable

DIO Terminal Break-Out Strip

Description	Model Number	Stocked Item	Notes
40-Pin Ribbon to Screw Terminal Strip	BX1D-S40A	S	

Manual Pulse Generator

Description	Model Number	Stocked Item	Notes
Manual Pulse Generator	HD60C	S	
Manual Pulse Generator (With MELDAS Mark)	HD60C-1	-	

Manual Pulse Generator Cable

Description	Model Number	Stocked item	Cable Length
1CH MPG Cable	F020-0.5M	S	0.5M
1CH MPG Cable	F020-5.0M	S	5.0M
1CH MPG Cable	F020-10.0M	S	10.0M
2CH MPG Cable	F021-0.5M	-	0.5M
2CH MPG Cable	F021-5.0M	-	5.0M
2CH MPG Cable	F021-10.0M	-	10.0M
3CH MPG Cable	F022-0.5M	-	0.5M
3CH MPG Cable	F022-5.0M	-	5.0M
3CH MPG Cable	F022-10.0M	-	10.0M

Machine Operation Panel

Description	Model Number	Stocked item	Notes
M700 Operation Panel	OP700	S	Requires 4 FCUA-R301-_M Requires 1 F070-__M

Synchronous External Spindle Encoder

Description	Model Number	Stocked item	Notes
6000 RPM External Spindle Encoder	OSE1024-3-15-68	-	
8000 RPM External Spindle Encoder	OSE1024-3-15-68-8	S	

Synchronous Encoder Cable

Description	Model Number	Stocked item	Cable Length
Angle Spin ENC to NC Communication Cable	R054-3.0M	-	3.0M
Angle Spin ENC to NC Communication Cable	R054-5.0M	S	5.0M
Angle Spin ENC to NC Communication Cable	R054-10.0M	S	10.0M

CNC Extension Units

Description	Model Number	Stocked item	Notes
Extension Unit 1 Slot	FCU7-EX891	-	
Optical Servo Communication 1 CH	FCU7-HN551	-	
Optical Servo Communication 2 CH	FCU7-HN552	-	
PROFIBUS DP Master I/F	FCU7-HN571	-	

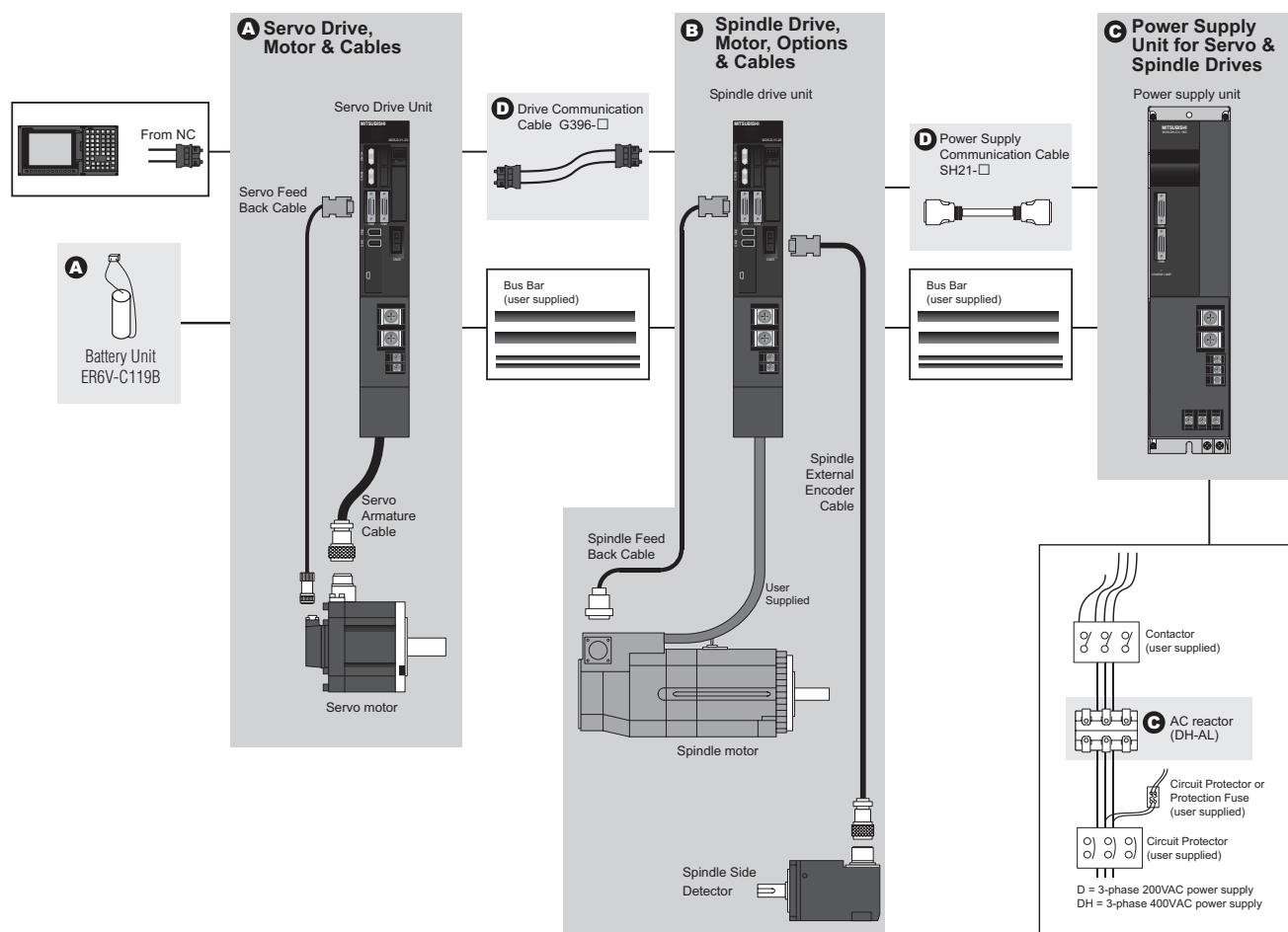
Floppy Drive

Description	Model Number	Stocked item	Notes
M700 Floppy Drive Unit	FCU6-FD121-1	-	Windows XP Displays only

MDS-D/DH Drive System Selections

Digital AC servo and spindle drive systems deliver efficient, accurate and reliable performance for demanding machine tool applications, making them the ideal solution for high-speed and function servo and spindle applications.

General System Diagram for MDS-D/DH Configuration



A. Servo Motor, Drive and Cables	420
B. Spindle Motor, Drive, Options and Cables	427
C. Power Supply Unit for Servo and Spindle Drive Units	435
D. Drive System Interconnections	436

A Servo Motor, Drive and Cables

HF Series Motor Specifications

Model Number HF_-A74/-A51		75	105	54	104	154	204	354	453	703	903
Compatible Servo Drive Unit Type: MDS-D-V1/2-__		20	20	40	40	80	80	160	160	160W	320
Continuous Characteristics	Rated Output [kW]	0.75	1.0	0.5	1.0	1.5	2.0	3.5	4.5	7.0	9.0
	Rated Current [A]	2.8	3.6	1.8	3.6	5.8	6.8	13.8	13.4	16.6	27.2
	Rated Torque [N·m]	1.8	2.4	1.6	3.2	4.8	6.4	11.1	14.3	22.3	28.7
	Stall current [A]	3.2	4.6	3.2	6.6	11.0	14.6	28.0	28.0	36.4	56.0
	Stall Torque [N·m]	2.0	3.0	2.9	5.9	9.0	13.7	22.5	37.2	49.0	58.8
Rated Rotation Speed [r/min]		4000			3000						
Maximum Rotation Speed [r/min]		5000			4000				3500	3000	
Maximum Current [A]		14.0	15.5	16.8	29.0	52.0	57.0	116.0	114.2	108.4	204.0
Maximum Torque [N·m]		8.0	11.0	13.0	23.3	42.0	47.0	90.0	122.0	152.4	208.0
Power Rate at Continuous Rated Torque [kW/s]		12.3	11.2	4.1	8.4	12.7	10.6	16.5	18.3	32.2	42.1
Motor Inertia [kg·cm ²]		2.6	5.1	6.1	11.9	17.8	38.3	75.0	112.0	154.0	196.0
Motor Inertia With Brake [kg·cm ²]		2.8	5.3	8.3	14.1	20.0	48.0	84.7	121.7	163.7	205.7
Maximum Motor Shaft Conversion Load Inertia Ratio		High-speed, high-accuracy machine : 3 times or less of motor inertia General machine tool (interpolation axis) : 5 times or less of motor inertia General machine (non-interpolation axis) : 7 times or less of motor inertia									
Motor Side Detector		Resolution per motor revolution A74: 16,000,000 pulse/rev, A51: 1,000,000 pulse/rev									
Structure		Fully closed, self-cooling (Protection method: IP67) (*3)									
Environment	Ambient Temperature	Operation: 0 to 40°C (with no freezing), Storage: -15°C to 70°C (with no freezing)									
	Ambient Humidity	Operation: 80%RH or less (with no dew condensation), Storage: 90%RH or less (with no dew condensation)									
	Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, or dust									
	Altitude	Operation: 1000 meters or less above sea level, Storage: 10000 meters or less above sea level									
	Vibration	X: 19.6m/s ² (2G) Y: 19.6m/s ² (2G)									
Weight Without / With Brake [kg]		2.5/3.9	4.3/5.7	4.8/6.8	6.5/8.5	8.3/10.3	12.0/18.0	19.0/25.0	26.0/32.0	32.0/38.0	45.0/51.0
Armature Insulation Class		Class F									

Notes:

1. The above characteristics values are representative values. The maximum current and maximum torque are the values when combined with the drive unit.
2. Use the HF motor in combination with the MDS-D Series drive unit compatible with the 200VAC input. This motor is not compatible with the conventional MDS-B/C1/CH Series.
3. The shaft-through portion is excluded.

HF-H Series Motor Specifications

Servomotor Type HF-H_-A74/-A51		75	105	54	104	154	204	354	453	703	903
Compatible Servo Drive Unit Type: MDS-D-V1/2-__		10	10	20	20	40	40	80	80	80W	160
Continuous Characteristics	Rated Output [kW]	0.75	1.0	0.5	1.0	1.5	2.0	3.5	4.5	7.0	9.0
	Rated Current [A]	1.4	1.8	0.9	1.8	2.9	3.4	6.9	6.7	8.3	13.6
	Rated Torque [N·m]	1.8	2.4	1.6	3.2	4.8	6.4	11.1	14.3	22.3	28.7
	Stall Current [A]	1.6	2.3	1.6	3.3	5.5	7.3	14.1	14.0	18.2	28.0
	Stall Torque [N·m]	2.0	3.0	2.9	5.9	9.0	13.7	22.5	37.2	49.0	58.8
Rated Rotation Speed [r/min]		4000			3000						
Maximum Rotation Speed [r/min]		5000			4000				3500	3000	
Maximum Current [A]		7.0	7.75	8.4	14.5	26.0	28.5	58.0	52.1	54.2	102.0
Maximum Torque [N·m]		8.0	11.0	13.0	23.3	42.0	47.0	90.0	122.0	152.4	208.0
Power Rate at Continuous Rated Torque [kW/s]		12.3	11.2	4.1	8.4	12.7	10.6	16.5	18.3	32.2	42.1
Motor Inertia [kg·cm ²]		2.6	5.1	6.1	11.9	17.8	38.3	75.0	112.0	154.0	196.0
Motor Inertia With Brake [kg·cm ²]		2.8	5.3	8.3	14.1	20.0	48.0	84.7	121.7	163.7	205.7
Maximum Motor Shaft Conversion Load Inertia Ratio		High-speed, high-accuracy machine : 3 times or less of motor inertia General machine tool (interpolation axis) : 5 times or less of motor inertia General machine (non-interpolation axis) : 7 times or less of motor inertia									
Motor Side Detector		Resolution per motor revolution A74: 16,000,000 pulse/rev, A51: 1,000,000 pulse/rev									
Structure		Fully closed, self-cooling (Protection method: IP67) (*3)									
Environment	Ambient Temperature	Operation: 0 to 40°C (with no freezing), Storage: -15°C to 70°C (with no freezing)									
	Ambient Humidity	Operation: 80%RH or less (with no dew condensation), Storage: 90%RH or less (with no dew condensation)									
	Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, or dust									
	Altitude	Operation: 1000 meters or less above sea level, Storage: 10000 meters or less above sea level									
	Vibration	X: 19.6m/s ² (2G) Y: 19.6m/s ² (2G)									
Weight Without / With Brake [kg]		2.5/3.9	4.3/5.7	4.8/6.8	6.5/8.5	8.3/10.3	12.0/18.0	19.0/25.0	26.0/32.0	32.0/38.0	45.0/51.0
Armature Insulation Class		Class F									

Notes:

1. The above characteristics values are representative values. The maximum current and maximum torque are the values when combined with the drive unit.
2. Use the HF motor in combination with the MDS-DH Series drive unit compatible with the 200VAC input. This motor is not compatible with the conventional MDS-B/C1/CH Series.
3. The shaft-through portion is excluded.

HF Series Servo Motor Selection

Description	Model Number	Stocked Item	Notes
Servo Motor With Brake 5.9NM STALL 4KRPM 1MPPR	HF104BS-A51	S	Use MDS-D-V_-40 drive unit
Servo Motor 5.9NM STALL 4KRPM 1MPPR	HF104S-A51	S	
Servo Motor With Brake 3NM STALL 5KRPM 1MPPR	HF105BS-A51	S	Use MDS-D-V_-20 drive unit
Servo Motor 3NM STALL 5KRPM 1MPPR	HF105S-A51	S	
Servo Motor With Brake 9NM STALL 4KRPM 1MPPR	HF154BS-A51	S	Use MDS-D-V_-80 drive unit
Servo Motor 9NM STALL 4KRPM 1MPPR	HF154S-A51	S	
Servo Motor With Brake 13.7NM STALL 4KRPM 1MPPR	HF204BS-A51	S	
Servo Motor 13.7NM STALL 4KRPM 1MPPR	HF204S-A51	S	
Servo Motor With Brake 22.5NM STALL 4KRPM 1MPPR	HF354BS-A51	S	Use MDS-D-V_-160 drive unit
Servo Motor 22.5NM STALL 4KRPM 1MPPR	HF354S-A51	S	
Servo Motor With Brake 37.2NM STALL 3.5KRPM 1MPPR	HF453BS-A51	S	
Servo Motor 37.2NM STALL 4KRPM 1MPPR	HF453S-A51	S	
Servo Motor With Brake 2.9NM STALL 4KRPM 1MPPR	HF54BS-A51	S	Use MDS-D-V_-40 drive unit
Servo Motor 2.9NM STALL 4KRPM 1MPPR	HF54S-A51	S	
Servo Motor With Brake 49NM STALL 3KRPM 1MPPR	HF703BS-A51	-	Use MDS-D-V_-160W drive unit
Servo Motor 49NM STALL 3KRPM 1MPPR	HF703S-A51	-	
Servo Motor With Brake 2NM STALL 5KRPM 1MPPR	HF75BS-A51	S	Use MDS-D-V_-20 drive unit
Servo Motor 2NM STALL 5KRPM 1MPPR	HF75S-A51	S	
Servo Motor With Brake 58.8NM STALL 3KRPM 1MPPR	HF903BS-A51	-	Use MDS-D-V_-320 drive unit
Servo Motor 58.8NM STALL 3KRPM 1MPPR	HF903S-A51	-	

HF-H Series Servo Motor Selection

Description	Model Number	Stocked Item	Notes
Servo Motor With Brake 5.9NM STALL 4KRPM 1MPPR	HF-H104BS-A51	-	Use MDS-DH-V_-20 drive unit
Servo Motor 5.9NM STALL 4KRPM 1MPPR	HF-H104S-A51	-	
Servo Motor With Brake 3NM STALL 5KRPM 1MPPR	HF-H105BS-A51	-	Use MDS-DH-V_-10 drive unit
Servo Motor 3NM STALL 5KRPM 1MPPR	HF-H105S-A51	-	
Servo Motor With Brake 9NM STALL 4KRPM 1MPPR	HF-H154BS-A51	-	Use MDS-DH-V_-40 drive unit
Servo Motor 9NM STALL 4KRPM 1MPPR	HF-H154S-A51	-	
Servo Motor With Brake 13.7NM STALL 4KRPM 1MPPR	HF-H204BS-A51	-	
Servo Motor 13.7NM STALL 4KRPM 1MPPR	HF-H204S-A51	-	
Servo Motor With Brake 22.5NM STALL 4KRPM 1MPPR	HF-H354BS-A51	-	Use MDS-DH-V_-80 drive unit
Servo Motor 22.5NM STALL 4KRPM 1MPPR	HF-H354S-A51	-	
Servo Motor With Brake 37.2NM STALL 3.5KRPM 1MPPR	HF-H453BS-A51	-	
Servo Motor 37.2NM STALL 3KRPM 1MPPR	HF-H453S-A51	-	
Servo Motor With Brake 2.9NM STALL 4KRPM 1MPPR	HF-H54BS-A51	-	Use MDS-DH-V_-20 drive unit
Servo Motor 2.9NM STALL 4KRPM 1MPPR	HF-H54S-A51	-	
Servo Motor With Brake 49NM STALL 3KRPM 1MPPR	HF-H703BS-A51	-	Use MDS-DH-V_-80W drive unit
Servo Motor 49NM STALL 3KRPM 1MPPR	HF-H703S-A51	-	
Servo Motor With Brake 2NM STALL 5KRPM 1MPPR	HF-H75BS-A51	-	Use MDS-DH-V_-10 drive unit
Servo Motor 2NM STALL 5KRPM 1MPPR	HF-H75S-A51	-	
Servo Motor With Brake 58.8NM STALL 3KRPM 1MPPR	HF-H903BS-A51	-	Use MDS-DH-V_-160 drive unit
Servo Motor 58.8NM STALL 3KRPM 1MPPR	HF-H903S-A51	-	

HP Series Motor Specifications

Servomotor Type HP_-A74/-A51		54	104	154	224	204	354	454	704	903	1103
Compatible Servo Drive Unit Type: MDS-D-V1/2-		40	40	80	80	80	160	160	160W	320	320W
Continuous Characteristics	Rated Output [kW]	0.5	1.0	1.5	2.2	2.0	3.5	4.5	7.0	9.0	11.0
	Rated Current [A]	1.8	3.6	5.0	7.4	7.2	15.2	14.2	19.2	22.2	25.2
	Rated Torque [N·m]	1.6	3.2	4.8	6.4	6.4	11.11	4.3	22.3	28.7	35.0
	Stall Current [A]	3.6	6.8	9.4	14.0	15.4	31.0	32.0	42.0	54.0	79.0
	Stall Torque [N·m]	3.0	5.9	9.0	12.0	13.7	22.5	31.9	49.0	70.0	110.0
Rated Rotation Speed [r/min]		3000									
Maximum Rotation Speed [r/min]		4000								3000	
Maximum Current [A]		16.8	25.6	52.0	57.0	57.0	116.0	116.0	116.0	172.0	212.0
Maximum Torque [N·m]		11.0	19.23	36.5	46.0	43.0	66.0	95.0	120.0	170.0	260.0
Power Rate at Continuous Rated Torque [kW/s]		5.5	13.0	19.0	20.0	14.0	14.0	36.0	59.0	52.0	48.0
Motor Inertia [kg·cm ²]		4.6	7.7	12.0	20.0	29.0	37.0	55.0	82.0	225.0	300.0
Motor Inertia With Brake [kg·cm ²]		5.1	8.2	12.5	25.5	34.5	42.5	60.5	87.5	249.0	324.0
Maximum Motor Shaft Conversion Load Inertia Ratio		High-speed, high-accuracy machine : 3 times or less of motor inertia General machine tool (interpolation axis) : 5 times or less of motor inertia General machine (non-interpolation axis) : 10 times or less of motor inertia									
Motor Side Detector		Resolution per motor revolution A74: 16,000,000 pulse/rev, A51: 1,000,000 pulse/rev									
Structure		Fully closed, self-cooling (Protection method: IP67) (*3)									
Environment	Ambient Temperature	Operation: 0 to 40°C (with no freezing), Storage: -15°C to 70°C (with no freezing)									
	Ambient Humidity	Operation: 80%RH or less (with no dew condensation), Storage: 90%RH or less (with no dew condensation)									
	Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, or dust									
	Altitude	Operation: 1000 meters or less above sea level, Storage: 10000 meters or less above sea level									
	Vibration	X: 19.6m/s ² (2G) Y: 19.6m/s ² (2G)									
Weight Without / With Brake [kg]		6.0/7.3	7.0/8.5	8.0/9.5	12.0/13.9	14.0/15.9	17.0/22.0	21.0/26.0	37.0/43.0	51.0/61.47	74.0/84.4
Armature Insulation Class		Class F									

Notes:

- The above characteristics values are representative values. The maximum current and maximum torque are the values when combined with the drive unit.
- Use the HP motor in combination with the MDS-D Series drive unit compatible with the 200VAC input. This motor is not compatible with the conventional MDS-B/C1/CH Series.
- The shaft-through portion is excluded.

HP-H Series Motor Specifications

Servomotor Type HP-H_-A74/-A51		54	104	154	224	204	354	454	704	903	1103
Compatible Servo Drive Unit Type: MDS-D-V1/2-		20	20	40	40	40	80	80	80W	160	160W
Continuous Characteristics	Rated Output [kW]	0.5	1.0	1.5	2.2	2.0	3.5	4.5	7.0	9.0	11.0
	Rated Current [A]	0.9	1.8	2.5	3.7	3.6	7.6	7.1	9.6	11.1	12.6
	Rated Torque [N·m]	1.6	3.2	4.8	6.4	6.4	11.11	14.3	22.3	28.7	35.0
	Stall Current [A]	1.8	3.4	4.7	7.0	7.7	15.5	16.0	21.0	27.0	39.5
	Stall Torque [N·m]	3.0	5.9	9.0	12.0	13.7	22.5	31.9	49.0	70.0	110.0
Rated Rotation Speed [r/min]		3000									
Maximum Rotation Speed [r/min]		4000								3000	
Maximum Current [A]		8.4	12.8	26.0	28.5	28.5	58.0	58.0	58.0	86.5	106.0
Maximum Torque [N·m]		11.0	19.2	36.5	46.0	43.0	66.0	95.0	120.0	170.0	260.0
Power Rate at Continuous Rated Torque [kW/s]		5.5	13.0	19.0	20.0	14.0	33.0	36.0	59.0	52.0	48.0
Motor Inertia [kg·cm ²]		4.6	7.7	12.0	20.0	29.0	37.0	55.0	82.0	225.0	300.0
Motor Inertia With Brake [kg·cm ²]		5.1	8.2	12.5	25.5	34.5	42.5	60.5	87.5	249.0	324.0
Maximum Motor Shaft Conversion Load Inertia Ratio		High-speed, high-accuracy machine : 3 times or less of motor inertia General machine tool (interpolation axis) : 5 times or less of motor inertia General machine (non-interpolation axis) : 10 times or less of motor inertia									
Motor Side Detector		Resolution per motor revolution A74: 16,000,000 pulse/rev, A51: 1,000,000 pulse/rev									
Structure		Fully closed, self-cooling (Protection method: IP67) (*3)									
Environment	Ambient Temperature	Operation: 0 to 40°C (with no freezing), Storage: -15°C to 70°C (with no freezing)									
	Ambient Humidity	Operation: 80%RH or less (with no dew condensation), Storage: 90%RH or less (with no dew condensation)									
	Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, or dust									
	Altitude	Operation: 1000 meters or less above sea level, Storage: 10000 meters or less above sea level									
	Vibration	X: 19.6m/s ² (2G) Y: 19.6m/s ² (2G)									
Weight Without / With Brake [kg]		6.0/7.3	7.0/8.5	8.0/9.5	12.0/13.9	14.0/15.9	17.0/22.0	21.0/26.0	37.0/43.0	51.0/61.47	74.0/84.4
Armature Insulation Class		Class F									

Notes:

- The above characteristics values are representative values. The maximum current and maximum torque are the values when combined with the drive unit.
- Use the HP motor in combination with the MDS-DH Series drive unit compatible with the 200VAC input. This motor is not compatible with the conventional MDS-B/C1/CH Series.
- The shaft-through portion is excluded.

HP Series Servo Motor Selection

Description	Model Number	Stocked Item	Notes
Servo Motor With Brake 5.9NM STALL 4KRPM 1MPPR	HP104BS-A51	-	Use MDS-D-V_-40 drive unit
Servo Motor 5.9NM STALL 4KRPM 1MPPR	HP104S-A51	-	
Servo Motor With Brake 110NM STALL 3KRPM 1MPPR	HP1103BS-A51	-	Use MDS-D-V_-320W drive unit
Servo Motor 110NM STALL 3KRPM 1MPPR	HP1103S-A51	-	
Servo Motor With Brake 9NM STALL 4KRPM 1MPPR	HP154BS-A51	-	Use MDS-D-V_-80 drive unit
Servo Motor 9NM STALL 4KRPM 1MPPR	HP154S-A51	-	
Servo Motor With Brake 13.7NM STALL 4KRPM 1MPPR	HP204BS-A51	-	
Servo Motor 13.7NM STALL 4KRPM 1MPPR	HP204S-A51	-	
Servo Motor With Brake 22.5NM STALL 4KRPM 1MPPR	HP354BS-A51	-	Use MDS-D-V_-160 drive unit
Servo Motor 22.5NM STALL 4KRPM 1MPPR	HP354S-A51	-	
Servo Motor With Brake 31.9NM STALL 4KRPM 1MPPR	HP454BS-A51	-	
Servo Motor 31.9NM STALL 4KRPM 1MPPR	HP454S-A51	-	
Servo Motor With Brake 3NM STALL 4KRPM 1MPPR	HP54BS-A51	-	Use MDS-D-V_-40 drive unit
Servo Motor 3NM STALL 4KRPM 1MPPR	HP54S-A51	-	
Servo Motor With Brake 49NM STALL 4KRPM 1MPPR	HP704BS-A51	-	Use MDS-D-V_-160W drive unit
Servo Motor 49NM STALL 4KRPM 1MPPR	HP704S-A51	-	
Servo Motor With Brake 70NM STALL 3KRPM 1MPPR	HP903BS-A51	-	Use MDS-D-V_-320 drive unit
Servo Motor 70NM STALL 3KRPM 1MPPR	HP903S-A51	-	

HP-H Series Servo Motor Selection

Description	Model Number	Stocked Item	Notes
Servo Motor With Brake 5.9NM STALL 4KRPM 1MPPR	HP-H104BS-A51	-	Use MDS-DH-V_-20 drive unit
Servo Motor 5.9NM STALL 4KRPM 1MPPR	HP-H104S-A51	-	
Servo Motor With Brake 110NM STALL 3KRPM 1MPPR	HP-H1103BS-A51	-	Use MDS-DH-V_-160W drive unit
Servo Motor 110NM STALL 3KRPM 1MPPR	HP-H1103S-A51	-	
Servo Motor With Brake 9NM STALL 4KRPM 1MPPR	HP-H154BS-A51	-	Use MDS-DH-V_-40 drive unit
Servo Motor 9NM STALL 4KRPM 1MPPR	HP-H154S-A51	-	
Servo Motor With Brake 13.7NM STALL 4KRPM 1MPPR	HP-H204BS-A51	-	
Servo Motor 13.7NM STALL 4KRPM 1MPPR	HP-H204S-A51	-	
Servo Motor With Brake 22.5NM STALL 4KRPM 1MPPR	HP-H354BS-A51	-	Use MDS-DH-V_-80 drive unit
Servo Motor 22.5NM STALL 4KRPM 1MPPR	HP-H354S-A51	-	
Servo Motor With Brake 31.9NM STALL 4KRPM 1MPPR	HP-H454BS-A51	-	
Servo Motor 31.9NM STALL 4KRPM 1MPPR	HP-H454S-A51	-	
Servo Motor With Brake 3NM STALL 4KRPM 1MPPR	HP-H54BS-A51	-	Use MDS-DH-V_-20 drive unit
Servo Motor 3NM STALL 4KRPM 1MPPR	HP-H54S-A51	-	
Servo Motor With Brake 49NM STALL 4KRPM 1MPPR	HP-H704BS-A51	-	Use MDS-DH-V_-80W drive unit
Servo Motor 49NM STALL 4KRPM 1MPPR	HP-H704S-A51	-	
Servo Motor With Brake 70NM STALL 3KRPM 1MPPR	HP-H903BS-A51	-	Use MDS-DH-V_-160 drive unit
Servo Motor 70NM STALL 3KRPM 1MPPR	HP-H903S-A51	-	

200V Servo Unit Drive

1-Axis Servo Drive Unit			Compatible Motor																				
(1) Type MDS-D-	Nominal Maximum Current	Unit Width	HF_										HP_										
			75	105	54	104	154	204	354	453	703	903	54	104	154	224	204	354	454	704	903	1103	
V1-20	20A	60mm	•	•																			
V1-40	40A					•	•						•	•									
V1-80	80A							•	•						•	•	•						
V1-160	160A									•	•							•	•				
V1-160W	160A	90mm									•									•			
V1-320	320A	120mm										•									•		
V1-320W	320A	150mm																			•		

• Indicates the compatible motor for each servo unit drive.

2-Axis Servo Drive Unit			Compatible Motor																							
(1) Type MDS-D-	Nominal Maximum Current	Unit Width	Axis	HF_										HP_												
				75	105	54	104	154	204	354	453	703	903	54	104	154	224	204	354	454	704	903	1103			
V2-2020	20 + 20A	60mm	LM	•	•																					
V2-4020	40 + 40A		L			•	•								•	•										
			M	•	•																					
V2-4040	80 + 40A		LM			•	•								•	•										
V2-8040			L					•	•								•	•	•							
			M			•	•								•	•										
V2-8080				LM					•	•								•	•	•						
V2-16080	80 + 80A	90mm	L							•	•									•	•					
	160 + 80A		M					•	•							•	•	•								
V2-160160	160 + 160A		LM								•	•									•	•				

• Indicates the compatible motor for each servo unit drive.

200V Servo Drive Unit Selection

Description	Model Number	Stocked Item	Notes
1 Axis Servo 160 A For HF354,453 HP354,454	MDS-D-V1-160	S	Add Qty 1 ER6V-C119B battery for each drive unit
1 Axis Servo 160 A For HF703 HP704	MDS-D-V1-160W	-	
1 Axis Servo 20 A For HF75,105	MDS-D-V1-20	S	
1 Axis Servo 320 A For HF903 HP903	MDS-D-V1-320	-	
1 Axis Servo 320 A For HP1103	MDS-D-V1-320W	-	
1 Axis Servo 40 A For HF54,104 HP54,104	MDS-D-V1-40	S	
1 Axis Servo 80 A For HF154,204 HP154,204	MDS-D-V1-80	S	
2 Axis Servo 160+160 For HF354,453X2	MDS-D-V2-160160	S	
2 Axis Servo 160+80 For HF354,453+HF154,204	MDS-D-V2-16080	-	
2 Axis Servo 20+20 For HF75,105	MDS-D-V2-2020	S	
2 Axis Servo 40+20 For HF54,154+HF75, 105	MDS-D-V2-4020	-	
2 Axis Servo 40+40 For HF54, 104X2	MDS-D-V2-4040	S	
2 Axis Servo 80+40 For HF154, 204+HF54, 104	MDS-D-V2-8040	-	
2 Axis Servo 80+80 For HF154, 204X2	MDS-D-V2-8080	S	

400V Servo Unit Drive

1-Axis Servo Drive Unit			Compatible Motor																			
(1) Type MDS-DH-	Nominal Maximum Current	Unit Width	HF-H_										HP-H_									
			75	105	54	104	154	204	354	453	703	903	54	104	154	224	204	354	454	704	903	1103
V1-10	10A	60mm	•	•																		
V1-20	20A					•	•						•	•								
V1-40	40A						•	•							•	•	•					
V1-80	80A								•	•								•	•			
V1-80W	80A	90mm								•									•			
V1-160	160A	120mm									•									•		
V1-160W	160A	150mm																		•		
V1-200	200A	240mm (*1)																				

Note: DC connection bar is required. Always install a large capacity drive unit in the left side of power supply unit, and connect with DC connection bar. • Indicates the compatible motor for each servo unit drive.

2-Axis Servo Drive Unit			Compatible Motor																					
(1) Type MDS-DH-	Nominal Maximum Current	Unit Width	Axis	HF-H_										HP-H_										
				75	105	54	104	154	204	354	453	703	903	54	104	154	224	204	354	454	704	903	1103	
V2-1010	10 + 10A	60mm	LM	•	•																			
V2-2010	20 + 10A		L			•	•								•	•								
			M	•	•																			
V2-2020	20 + 20A		LM			•	•							•	•									
V2-4020	40 + 20A		L					•	•								•	•	•					
			M			•	•							•	•									
V2-4040	40 + 40A		LM					•	•								•	•	•					
V2-8040	80 + 40A		L								•	•								•	•			
			M					•	•								•	•	•					
V2-8080	80 + 80A	90mm	LM							•	•								•	•				

• Indicates the compatible motor for each servo unit drive.

400 V Servo Drive Unit Selection

Description	Model Number	Stocked Item	Notes
1 Axis Servo 160 A For HF354, 453 HP354, 454	MDS-DH-V1-80	-	Add Qty 1 ER6V-C119B battery for each Drive Unit
1 Axis Servo 160 A For HF703 HP704	MDS-DH-V1-80W	-	
1 Axis Servo 20 A For HF75, 105	MDS-DH-V1-10	-	
1 Axis Servo 320 A For HF903 HP903	MDS-DH-V1-160	-	
1 Axis Servo 320 A For HP1103	MDS-DH-V1-160W	-	
1 Axis Servo 40 A For HF54, 104 HP54, 104	MDS-DH-V1-20	-	
1 Axis Servo 80 A For HF154, 204 HP154, 204	MDS-DH-V1-40	-	
2 Axis Servo 160+160 For HF354, 453X2	MDS-DH-V2-8080	-	
2 Axis Servo 160+80 For HF354, 453+HF154, 204	MDS-DH-V2-8040	-	
2 Axis Servo 20+20 For HF75, 105	MDS-DH-V2-1010	-	
2 Axis Servo 40+20 For HF54, 154+HF75, 105	MDS-DH-V2-2010	-	
2 Axis Servo 40+40 For HF54, 104X2	MDS-DH-V2-2020	-	
2 Axis Servo 80+40 For HF154,204+HF54, 104	MDS-DH-V2-4020	-	
2 Axis Servo 80+80 For HF154, 204X2	MDS-DH-V2-4040	-	

Required Battery Unit for Each Servo Drive Unit

Description	Model Number	Stocked Item	Notes
Battery Unit	ER6V-C119B	S	Qty. 1 Required for each drive unit

Servo Feedback Cables

Description	Model Number	Stocked Item	Notes
Servo Motor Encoder Cable 2M	CNV2E-6P-2.0M	S	IP65, High Flexibility + Shield
Servo Motor Encoder Cable 5M	CNV2E-6P-5.0M	S	
Servo Motor Encoder Cable 10M	CNV2E-6P-10.0M	S	

Servo Armature Cables

Description	Model Number	Stocked Item	Notes
Servo Arm Cable HF54-154 NO SHLD STD FLX 2M	MR-J3P2-2M	S	Drive side TE1 connector included as loose models. IP65, Standard Flexibility, no shielding.
Servo Arm Cable HF54-154 NO SHLD STD FLX 5M	MR-J3P2-5M	S	
Servo Arm Cable HF54-154 NO SHLD STD FLX 10M	MR-J3P2-10M	S	
Servo Arm Cable HF204-453 NO SHLD STD FLX 2M	MR-J3P5-2M	S	
Servo Arm Cable HF204-453 NO SHLD STD FLX 5M	MR-J3P5-5M	S	
Servo Arm Cable Servo Arm Cable HF204-4533 NO SHLD ST FLX 10M	MR-J3P5-10M	S	
Servo Arm Cable HF704-HF903 & HP454-1103NO SHLD STD FLX 2M	MR-J3P7-2M	S	
Servo Arm Cable CAB HF704-HF903 & HP454-1103NO SHLD STD FLX 5M	MR-J3P7-5M	S	
Servo Arm Cable CAB HF704-HF903 & HP454-1103NO SHLD STD FLX10M	MR-J3P7-10M	S	

Note: Consult Factory for availability of high flexibility shielded armature cables.

Servo Brake Cables

Description	Model Number	Stocked Item	Notes
Servo Motor Brake Cable, 2M	MR-J3BK-2M	S	Add qty 1 of CNU20S(AWG14) for each cable
Servo Motor Brake Cable, 5M	MR-J3BK-5M	S	
Servo Motor Brake Cable, 10M	MR-J3BK-10M	S	

Note: Consult Factory for availability of high flexibility shielded brake cables.

Servo Connectors

Description	Model Number	Stocked Item	Notes
Spindle Drive Unit Connector With Shell	CNU2S(AWG18)	S	For all CN2/3 connections
Servo Drive Brake Connector With Contacts	CNU20S(AWG14)	S	
Angle Servo Brake Connector With Contacts	CNB10-R2L(6)	S	
Straight Servo Brake Connector With Contacts	CNB10-R2S(6)	S	
Angle Encoder Connector With Contacts	CNE10-R10L(9)	S	
Straight Encoder Connector With Contacts	CNE10-R10S(9)	S	
Angle Servo Arm Connector With Shell HF54-154	CNP18-10L(14)	S	
Straight Servo Arm Connector With Shell HF54-154	CNP18-10S(14)	S	
Angle Servo Arm Connector With Shell HF204-903	CNP22-22L(16)	S	
Straight Servo Arm Connector With Shell HF204-903	CNP22-22S(16)	S	
Angle Servo Arm Connector With Shell HF454-1103	CNP32-17L(23)	S	
Straight Servo Arm Connector With Shell HF454-1103	CNP32-17S(23)	S	
4 Pin Connector FOR MDS-D TE1	1-179958-4	S	Include Qty 4 of 316040-3 or 316041-3 for each
Contact AWG14-16 FOR 1-179958-4	316040-3	S	
Contact AWG10-12 FOR 1-179958-4	316041-3	S	

B Spindle Motors, Drive, Options and Cables

200V Spindle Motor Specifications • Base Rotation Speed 1150r/min Series, 1500r/min Series

Model Number SJ-V _ - T		2.2-01	3.7-01	5.5-01	7.5-01	11-01	15-01	18.5-01	22-01	26-01	37-01	45-01	55-01
Compatible Spindle Drive Unit Type: MDS-D-		SP-40	SP-80			SP-160	SP-200		SP-240	SP-320	SP-400	SP-01T	
Output Capacity	Continuous Rating [kW]	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45
	30-Minute Rating 50%ED Rating [kW]	2.2	3.7	5.5	7.5	11	15	18.5	22	26	37	45	55
Base Rotation Speed [r/min]		1500									1150	1500	1150
Maximum Rotation Speed [r/min]		10000		8000		6000					3450		
Frame No.		A90	B90	D90	A112	B112	A160		B160	C160	A180	B180	A225
Continuous Rated Torque [N·m]		9.5	14.0	23.5	35.0	47.7	70.0	95.5	118	140	249	236	374
GD² [kg·m²]		0.027	0.035	0.059	0.098	0.12	0.23	0.23	0.32	0.38	1.23	2.19	3.39
Inertia [kg·m²]		0.007	0.009	0.015	0.025	0.03	0.06	0.06	0.08	0.10	0.31	0.55	0.85
Tolerable Radial Load [N]		980		1470	1960		2940				3920		5880
Cooling Fan	Input Voltage	Single-Phase 200V			3-phase 200V								
	Maximum Power Consumption	42W			40W		63W				175W		115W
Environment	Ambient Temperature	Operation: 0 to 40°C (with no freezing), Storage: -20°C to 65°C (with no freezing)											
	Ambient Humidity	Operation: 90%RH or less (with no dew condensation), Storage: 90%RH or less (with no dew condensation)											
	Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, or dust											
	Altitude	Operation: 1000 meters or less above sea level, Storage: 10000 meters or less above sea level Transportation: 13000 meters or less above sea level											
Weight [kg]		25	30	49	60	70	110	110	135	155	280	390	450
Insulation		Class F											

Notes:

1. The rated output is guaranteed at the rated input voltage (200/220/230VAC) to the power supply unit. If the input voltage fluctuates and drops below 200VAC, the rated output may not be attained.
2. The 50%ED rating applies for a 10-minute cycle time consisting of ON for five minutes and OFF for five minutes.
3. The tolerable radial load is the value calculated at the center of output shaft.
4. The protection level is IP44.

200V Spindle Motor Specifications • Wide Range Constant Output Series

Model Number SJ-V _ - T		11-01	11-09	15-03	18.5-03	22-05	22-09
Compatible Spindle Drive Unit Type: MDS-D-		SP-160		SP-200	SP-240	SP-320	
Output Capacity	Continuous Rating [kW]	3.7	5.5	7.5	9	11	15
	30-Minute Rating 50%ED Rating [kW]	5.5	7.5	9	11	15	18.5
Base Rotation Speed [r/min]		750					500
Maximum Rotation Speed [r/min]		6000					4500
Frame No.		B112	A160		B160		A180
Continuous Rated Torque [N·m]		47.1	70.0	95.5	115	140	239
GD² [kg·m²]		0.12	0.23	0.23	0.32	0.32	1.23
Inertia [kg·m²]		0.03	0.06	0.06	0.08	0.08	0.31
Tolerable Radial Load [N]		1960	2940				2940
Cooling Fan	Input Voltage	3-phase 200V					
	Maximum Power Consumption	40W	63W				175W
Environment	Ambient Temperature	Operation: 0 to 40°C (with no freezing), Storage: -20°C to 65°C (with no freezing)					
	Ambient Humidity	Operation: 90%RH or less (with no dew condensation), Storage: 90%RH or less (with no dew condensation)					
	Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, or dust					
	Altitude	Operation: 1000 meters or less above sea level, Storage: 10000 meters or less above sea level Transportation: 13000 meters or less above sea level					
Weight [kg]		70	110		135		280
Insulation		Class F					

Notes:

1. The rated output is guaranteed at the rated input voltage (200/220/230VAC) to the power supply unit. If the input voltage fluctuates and drops below 200VAC, the rated output may not be attained.
2. The 50%ED rating applies for a 10-minute cycle time consisting of ON for five minutes and OFF for five minutes.
3. The tolerable radial load is the value calculated at the center of output shaft.
4. The protection level is IP44.

200V Spindle Motor Specifications • High Speed Series

Model Number SJ-V_- _ ZT		3.7-02	7.5-03	11-06	11-08	22-06	30-02
Compatible Spindle Drive Unit Type: MDS-D-_		SP-80	SP-160	SP-200		SP-240	SP-320
Output Capacity	Continuous Rating [kW]	2.2	5.5	5.5	7.5	11	18.5
	30-Minute Rating 50%ED Rating [kW]	3.7 (15 min. rating)	7.5	7.5	11	15	22
Base Rotation Speed [r/min]		3000	1500				
Maximum Rotation Speed [r/min]		15000	12000		8000		
Frame No.		A90	A112		B112	A160	B160
Continuous Rated Torque [N·m]		7.0	35.0	35.0	47.7	70.0	118
GD ² [kg·m ²]		0.027	0.098	0.098	0.12	0.23	1.32
Inertia [kg·m ²]		0.007	0.025	0.025	0.03	0.06	0.08
Tolerable Radial Load [N]		490	908		1470	1960	
Cooling Fan	Input Voltage	Single-phase 200V	3-phase 200V				
	Maximum Power Consumption	42W	40W			63W	
Environment	Ambient Temperature	Operation: 0 to 40°C (with no freezing), Storage: -20°C to 65°C (with no freezing)					
	Ambient Humidity	Operation: 90%RH or less (with no dew condensation), Storage: 90%RH or less (with no dew condensation)					
	Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, or dust					
	Altitude	Operation: 1000 meters or less above sea level, Storage: 10000 meters or less above sea level					
Weight [kg]		25	60		70	125	155
Insulation		Class F					

- Notes:
1. The rated output is guaranteed at the rated input voltage (200/220/230VAC) to the power supply unit. If the input voltage fluctuates and drops below 200VAC, the rated output may not be attained.
 2. The 50%ED rating applies for a 10-minute cycle time consisting of ON for five minutes and OFF for five minutes.
 3. The tolerable radial load is the value calculated at the center of output shaft.
 4. The protection level is IP44.

200V Spindle Motor Specifications

Model Number SJ-V_- _ZT / SJ-V_- _		Hollow Shaft Series			IPM Series	
		7.5-03	22-06	30-02	01830T-00	0350T-00
Compatible Spindle Drive Unit Type: MDS-D-		SP-160	SP-240	SP-320	SP-160	SP-200
Output Capacity	Continuous Rating [kW]	5.5	11	18.5	3.7	7.5
	30-Minute Rating 50%ED Rating [kW]	7.5	15	22	5.5	11.0
Base Rotation Speed [r/min]		1500	1500		3000	
Maximum Rotation Speed [r/min]		12000	8000		8000	
Frame No.		A112	A160	B160	71	90
Continuous Rated Torque [N·m]		35.0	70.0	118	11.8	23.9
GD² [kg·m²]		0.099	0.23	0.32	0.015	0.034
Inertia [kg·m²]		0.025	0.058	0.08	0.004	0.009
Tolerable Radial Load [N]		0 (*3)	0 (*3)	0 (*3)	1470	1960
Cooling Fan	Input Voltage	Single-phase 200V	3-phase 200V			
	Maximum Power Consumption	40W	40W		38W	32W
Environment	Ambient Temperature	Operation: 0 to 40°C (with no freezing), Storage: -20°C to 65°C (with no freezing)				
	Ambient Humidity	Operation: 90%RH or less (with no dew condensation), Storage: 90%RH or less (with no dew condensation)				
	Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, or dust				
	Altitude	Operation: 1000 meters or less above sea level, Storage: 10000 meters or less above sea level				
Weight [kg]		65	115	140	23	35
Insulation		Class F				

- Notes:
1. The rated output is guaranteed at the rated input voltage (200 to 230VAC) to the power supply unit.
 2. The 50%ED rating applies for a 10-minute cycle time consisting of ON for five minutes and OFF for five minutes.
 3. Do not apply a radial load

200V Spindle Motor Selection

Description	Model Number	Stocked Item	Notes
M7SPN MT 11K 1.5/6KRPM RSV Flange	SJ-V11-01T(F)	S	Use MDS-D-SP-160 drive unit
M7SPN MT 11K 1.5/6KRPM RSV Foot	SJ-V11-01T(M)	-	
M7SPN MT 5.5K .75/6KRPM RSV Flange	SJ-V11-01WT(F)	-	
M7SPN MT 5.5K .75/6KRPM RSV Foot	SJ-V11-01WT(M)	-	
M7SPN MT 7.5K 1.5/12KRPM RSV Flange	SJ-V11-06ZT(F)	-	Use MDS-D-SP-200 drive unit
M7SPN MT 7.5K 1.5/12KRPM RSV Foot	SJ-V11-06ZT(M)	-	
M7SPN MT 11K 1.5/8KRPM RSV Flange	SJ-V11-08ZT(F)	-	
M7SPN MT 11K 1.5/8KRPM RSV Foot	SJ-V11-08ZT(M)	-	
M7SPN MT 7.5K .75/6KRPM RSV Flange	SJ-V11-09WT(F)	-	Use MDS-D-SP-160 drive unit
M7SPN MT 7.5K .75/6KRPM RSV Foot	SJ-V11-09WT(M)	-	
M7SPN MT 15K 1.5/6KRPM RSV Flange	SJ-V15-01T(F)	S	Use MDS-D-SP-200 drive unit
M7SPN MT 15K 1.5/6KRPM RSV Foot	SJ-V15-01T(M)	-	
M7SPN MT 9/7.5K .75/6KRPM RS Flange	SJ-V15-03WT(F)	-	
M7SPN MT 9/7.5K .75/6KRPM RSV Foot	SJ-V15-03WT(M)	-	
M7SPN MT 18.5K 1.5/6KRPM RSV Flange	SJ-V18.5-01T(F)	-	
M7SPN MT 18.5K 1.5/6KRPM RSV Foot	SJ-V18.5-01T(M)	-	
M7SPN MT 11K .75/6KRPM RSV Flange	SJ-V18.5-03WT(F)	-	Use MDS-D-SP-240 drive unit
M7SPN MT 11K .75/6KRPM RSV Foot	SJ-V18.5-03WT(M)	-	
M7SPN MT 2.2K 1.5/10KRPM RSV Flange	SJ-V2.2-01T(F)	-	Use MDS-D-SP-40 drive unit
M7SPN MT 2.2K 1.5/10KRPM RSV Foot	SJ-V2.2-01T(M)	-	
M7SPN MT 22K 1.5/6KRPM RSV Flange	SJ-V22-01T(F)	-	Use MDS-D-SP-240 drive unit
M7SPN MT 22K 1.5/6KRPM RSV Foot	SJ-V22-01T(M)	-	
M7SPN MT 15K .75/6KRPM RSV Flange	SJ-V22-05WT(F)	-	Use MDS-D-SP-320 drive unit
M7SPN MT 15K .75/6KRPM RSV Foot	SJ-V22-05WT(M)	-	
M7SPN MT 15K 1.5/8KRPM RSV Flange	SJ-V22-06ZT(F)	-	Use MDS-D-SP-240 drive unit
M7SPN MT 15K 1.5/8KRPM RSV Foot	SJ-V22-06ZT(M)	-	
M7SPN MT 26K 1.5/6KRPM RSV Flange	SJ-V26-01T(F)	S	Use MDS-D-SP-320 drive unit
M7SPN MT 26K 1.5/6KRPM RSV Foot	SJ-V26-01T(M)	-	
M7SPN MT 3.7K 1.5/10KRPM RSV Flange	SJ-V3.7-01T(F)	S	Use MDS-D-SP-80 drive unit
M7SPN MT 3.7K 1.5/10KRPM RSV Foot	SJ-V3.7-01T(M)	-	
M7SPN MT 3.7K 3/15KRPM RSV Flange	SJ-V3.7-02ZT(F)	-	
M7SPN MT 3.7K 3/15KRPM RSV Foot	SJ-V3.7-02ZT(M)	-	
M7SPN MT 22K 1.5/8KRPM RSV Flange	SJ-V30-02ZT(F)	-	Use MDS-D-SP-320 drive unit
M7SPN MT 22K 1.5/8KRPM RSV Foot	SJ-V30-02ZT(M)	-	
M7SPN MT Flange	SJ-V30A(F)	-	Consult Factory
M7SPN MT Foot	SJ-V30A(M)	-	
M7SPN MT 5.5K 1.5/8KRPM RSV Flange	SJ-V5.5-01T(F)	-	Use MDS-D-SP-80 drive unit
M7SPN MT 5.5K 1.5/8KRPM RSV Foot	SJ-V5.5-01T(M)	-	
M7SPN MT 7.5K 1.5/8KRPM RSV Flange	SJ-V7.5-01T(F)	S	
M7SPN MT 7.5K 1.5/8KRPM RSV Foot	SJ-V7.5-01T(M)	-	
M7SPN MT 7.5K 1.5/12KRPM RSV Flange	SJ-V7.5-03ZT(F)	-	Use MDS-D-SP-160 drive unit
M7SPN MT 7.5K 1.5/12KRPM RSV Foot	SJ-V7.5-03ZT(M)	-	
M7SPN MT 15K 1.5/8KRPM RSV Flange	SJ-VS22-06ZT(F)	-	Use MDS-D-SP-240 drive unit
M7SPN MT 15K 1.5/8KRPM RSV Foot	SJ-VS22-06ZT(M)	-	
M7SPN MT 22K 1.5/8KRPM RSV Flange	SJ-VS30-02ZT(F)	-	Use MDS-D-SP-320 drive unit
M7SPN MT 22K 1.5/8KRPM RSV Foot	SJ-VS30-02ZT(M)	-	
M7SPN MT 7.5K 1.5/12KRPM RSV Flange	SJ-VS7.5-03ZT(F)	-	Use MDS-D-SP-160 drive unit
M7SPN MT 7.5K 1.5/12KRPM RSV Foot	SJ-VS7.5-03ZT(M)	-	

Spindle Drive Unit MDS-D-SP Series Specifications

Model Number MDS-D-SP-__		20	40	80	160	200	240	320	400	640
Nominal Maximum Current (Peak) [A]		20	40	80	160	200	240	320	400	640
Output	Rated Voltage [V]	155AC								
	Rated Current [A]	4.5	10	18	37	63	79	130	174	200
Input	Rated Voltage [V]	270 to 311DC								
	Rated Current [A]	7	13	20	41	76	95	140	150	210
Control Power	Voltage [V]	200AC (50Hz) / 200 to 230AC (60Hz)Power fluctuation rate within +10%, -15%								
	Frequency [Hz]	50/60Frequency fluctuation within ±3%								
	Current [A]	Max. 0.2								
	Rush Current [A]	Max. 30								
	Rush Conductivity Time [ms]	Max. 6							Max. 9	
Earth Leakage Current [mA]		6 (Max. 15)								
Control Method		Sine wave PWM control method								
Braking		Regenerative braking								
External Analog Output		0 to +5V, 2ch (data for various adjustments)								
Structure		Protection type (Protection method: IP20 [over all] / IP00 [Terminal block TE1])								
Cooling Method		Forced wind cooling								
Weight [kg]		3.8			4.5	5.8	6.5	7.5	16.5	
Heat Radiated at Continuous Rated Output [W]		55	94	158	290	481	620	806	1045	1427
Noise		Less than 55dB								

200V Spindle Drive Unit Selection

Description	Model Number	Stocked Item	Notes
160 AMP Spindle Drive	MDS-D-SP-160	S	
20 AMP Spindle Drive	MDS-D-SP-20	S	Qty 1 of 1-179958-4 and 4 contacts required
200 AMP Spindle Drive	MDS-D-SP-200	S	
240 AMP Spindle Drive	MDS-D-SP-240	S	
320 AMP Spindle Drive	MDS-D-SP-320	S	
40 AMP Spindle Drive	MDS-D-SP-40	S	Qty 1 of 1-179958-4 and 4 contacts required
400 AMP Spindle Drive	MDS-D-SP-400	-	
640 AMP Spindle Drive	MDS-D-SP-640	-	
80 AMP Spindle Drive	MDS-D-SP-80	S	Qty 1 of 1-179958-4 and 4 contacts required

400V Spindle Motor Specifications • Base Rotation Speed 1150r/min Series, 1500r/min Series

Model Number SJ-4-V _ _ T		2.2-03	3.7-03	5.5-07	7.5-12	11-18	15-18	18.5-14	22-15	26-08	37-04	45-02	55-03
Compatible Spindle Drive Unit Type: MDS-DH-		SP-20		SP-40		SP-80	SP-100		SP-160		SP-200	SP-320	
Output Capacity	Continuous Rating [kW]	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45
	30-Minute Rating 50%ED Rating [kW]	2.2	3.7	5.5	7.5	11	15	18.5	22	26	37	45	55
Base Rotation Speed [r/min]		1500									1150	1500	1150
Maximum Rotation Speed [r/min]		10000		8000		6000					3450		
Frame No.		A90	B90	D90	A112	B112	A160		B160	C160	A180	B180	A225
Continuous Rated Torque [N·m]		9.5	14.0	23.5	35.0	47.7	70.0	95.5	118	140	249	236	374
GD² [kg·m²]		0.027	0.035	0.059	0.098	0.12	0.23	0.23	0.32	0.38	1.23	2.19	3.39
Inertia [kg·m²]		0.007	0.009	0.015	0.025	0.03	0.06	0.06	0.08	0.10	0.31	0.55	0.85
Tolerable Radial Load [N]		980		1470	1960		2940				3920		5880
Cooling Fan	Input Voltage	Single-Phase 400V					3-phase 400V						
	Maximum Power Consumption	30W			70W		72W				(*5)		
Environment	Ambient Temperature	Operation: 0 to 40°C (with no freezing), Storage: -20°C to 65°C (with no freezing)											
	Ambient Humidity	Operation: 90%RH or less (with no dew condensation), Storage: 90%RH or less (with no dew condensation)											
	Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, or dust											
	Altitude	Operation: 1000m or less above sea level, Storage: 10000m or less above sea level Transportation: 13000m or less above sea level											
Weight [kg]		25	30	49	60	70	110	110	135	155	280	390	450
Insulation		Class F											

Notes:

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 400VAC, the rated output may not be attained.
2. The 50%ED rating applies for a 10-minute cycle time consisting of ON for five minutes and OFF for five minutes.
3. The tolerable radial load is the value calculated at the center of output shaft.
4. The protection level is IP44.
5. Confirm in each motor specifications.

400V Spindle Motor Specifications • Wide Range Constant Output Series

Model Number SJ-4-V _ _ T		11-18	11-21	15-20	18.5-17	22-16
Compatible Spindle Drive Unit Type: MDS-D-		SP-80		SP-100	SP-160	
Output Capacity	Continuous Rating [kW]	3.7	5.5	7.5	9	11
	30-Minute Rating 50%ED Rating [kW]	5.5	7.5	9	11	15
Base Rotation Speed [r/min]		750				
Maximum Rotation Speed [r/min]		6000				
Frame No.		B112	A160		B160	
Continuous Rated Torque [N·m]		47.1	70.0	95.5	115	140
GD ² [kg·m ²]		0.12	0.23	0.23	0.32	0.32
Inertia [kg·m ²]		0.03	0.06	0.06	0.08	0.08
Tolerable Radial Load [N]		1960	2940			
Cooling Fan	Input Voltage	3-phase 400V				
	Maximum Power Consumption	70W	72W			
Environment	Ambient Temperature	Operation: 0 to 40°C (with no freezing), Storage: -20°C to 65°C (with no freezing)				
	Ambient Humidity	Operation: 90%RH or less (with no dew condensation), Storage: 90%RH or less (with no dew condensation)				
	Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, or dust				
	Altitude	Operation: 1000 meters or less above sea level, Storage: 10000 meters or less above sea level Transportation: 13000 meters or less above sea level				
Weight [kg]		70	110		135	
Insulation		Class F				

Notes:

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 400VAC, the rated output may not be attained.
2. The 50%ED rating applies for a 10-minute cycle time consisting of ON for five minutes and OFF for five minutes.
3. The tolerable radial load is the value calculated at the center of output shaft.
4. The protection level is IP44.

400V Spindle Motor Specifications • High Speed Series

Model Number SJ-4-V_-_ZT		3.7-05	7.5-13	11-22	11-32	22-18	30-15
Compatible Spindle Drive Unit Type: MDS-D-		SP-20	SP-80	SP-100		SP-160	
Output Capacity	Continuous Rating [kW]	2.2	5.5	5.5	7.5	11	18.5
	30-Minute Rating 50%ED Rating [kW]	3.7 (15 min. rating)	7.5	7.5	11	15	22
Base Rotation Speed [r/min]		3000	1500				
Maximum Rotation Speed [r/min]		15000	12000		8000		
Frame No.		A90	A112		B112	A160	B160
Continuous Rated Torque [N·m]		7.0	35.0	35.0	47.7	70.0	118
GD² [kg·m²]		0.027	0.098	0.098	0.12	0.23	1.32
Inertia [kg·m²]		0.007	0.025	0.025	0.03	0.06	0.08
Tolerable Radial Load [N]		490	908		1470	1960	
Cooling Fan	Input Voltage	Single-phase 400V	3-phase 400V				
	Maximum Power Consumption	30W	70W			72W	
Environment	Ambient Temperature	Operation: 0 to 40°C (with no freezing), Storage: -20°C to 65°C (with no freezing)					
	Ambient Humidity	Operation: 90%RH or less (with no dew condensation), Storage: 90%RH or less (with no dew condensation)					
	Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, or dust					
	Altitude	Operation: 1000 meters or less above sea level, Storage: 10000 meters or less above sea level					
Weight [kg]		25	60		70	125	155
Insulation		Class F					

- Notes:
1. The rated output is guaranteed at the rated input voltage (380 to 440VAC 50 HZ / 380 TO 480VAC 60 HZ) to the power supply unit. If the input voltage fluctuates and drops below 200VAC, the rated output may not be attained.
 2. The 50%ED rating applies for a 10-minute cycle time consisting of ON for five minutes and OFF for five minutes.
 3. The tolerable radial load is the value calculated at the center of output shaft.
 4. The protection level is IP44.

400V Spindle Motor Specifications

Model Number SJ-4-VS_- _ZT		Hollow Shaft Series		
		7.5-13	22-18	30-15
Compatible Spindle Drive Unit Type: MDS-D-		SP-80	SP-160	
Output Capacity	Continuous Rating [kW]	5.5	11	18.5
	30-Minute Rating 50%ED Rating [kW]	7.5	15	22
Base Rotation Speed [r/min]		1500	1500	
Maximum Rotation Speed [r/min]		12000	8000	
Frame No.		A112	A160	B160
Continuous Rated Torque [N·m]		35.0	70.0	118
GD² [kg·m²]		0.099	0.23	0.32
Inertia [kg·m²]		0.025	0.058	0.08
Tolerable Radial Load [N]		0 (*3)	0 (*3)	0 (*3)
Cooling Fan	Input Voltage	3-phase 400V		
	Maximum Power Consumption	70W	72W	
Environment	Ambient Temperature	Operation: 0 to 40°C (with no freezing), Storage: -20°C to 65°C (with no freezing)		
	Ambient Humidity	Operation: 90%RH or less (with no dew condensation), Storage: 90%RH or less (with no dew condensation)		
	Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, or dust		
	Altitude	Operation: 1000 meters or less above sea level, Storage: 10000 meters or less above sea level Transportation: 13000 meters or less above sea level		
Weight [kg]		65	115	140
Insulation		Class F		

- Notes:
1. The rated output is guaranteed at the rated input voltage (200 to 230VAC) to the power supply unit.
 2. The 50%ED rating applies for a 10-minute cycle time consisting of ON for five minutes and OFF for five minutes.
 3. Do not apply a radial load

400V Spindle Motor Selection

Description	Model Number	Stocked item	Notes
M7Spn Mt 2.2k 1.5/10krpm RSV Foot	SJ-4-V2.2-03T(M)	-	Use MDS-DH-SP-20 drive unit
M7Spn Mt 2.2k 1.5/10krpm RSV Flange	SJ-4-V2.2-03T(F)	-	
M7Spn Mt 3.7k 1.5/10krpm RSV Foot	SJ-4-V3.7-03T(M)	-	
M7Spn Mt 3.7k 1.5/10krpm RSV Flange	SJ-4-V3.7-03T(F)	-	
M7Spn Mt 5.5k 1.5/8krpm RSV Foot	SJ-4-V5.5-07T(M)	-	Use MDS-DH-SP-40 drive unit
M7Spn Mt 5.5k 1.5/8krpm RSV Flange	SJ-4-V5.5-07T(F)	-	
M7Spn Mt 7.5k 1.5/8krpm RSV Foot	SJ-4-V7.5-12T(M)	-	
M7Spn Mt 7.5k 1.5/8krpm RSV Flange	SJ-4-V7.5-12T(F)	-	
M7Spn Mt 11k 1.5/6krpm RSV Foot	SJ-4-V11-18T(M)	-	Use MDS-DH-SP-80 drive unit
M7Spn Mt 11k 1.5/6krpm RSV Flange	SJ-4-V11-18T(F)	-	
M7Spn Mt 15k 1.5/6krpm RSV Foot	SJ-4-V15-18T(M)	-	Use MDS-DH-SP-100 drive unit
M7Spn Mt 15k 1.5/6krpm RSV Flange	SJ-4-V15-18T(F)	-	
M7Spn Mt 18.5k 1.5/6krpm RSV Foot	SJ-4-V18.5-14T(M)	-	
M7Spn Mt 18.5k 1.5/6krpm RSV Flange	SJ-4-V18.5-14T(F)	-	
M7Spn Mt 22k 1.5/6krpm RSV Foot	SJ-4-V22-015T(M)	-	Use MDS-DH-SP-160 drive unit
M7Spn Mt 22k 1.5/6krpm RSV Flange	SJ-4-V22-15T(F)	-	
M7Spn Mt 26k 1.5/6krpm RSV Foot	SJ-4-V26-08T(M)	-	
M7Spn Mt 26k 1.5/6krpm RSV Flange	SJ-4-V26-08T(F)	-	
M7Spn Mt Foot	SJ-4-V30A(M)	-	Consult Factory
M7Spn Mt Flange	SJ-4-V30A(F)	-	
M7Spn Mt 37k 1.1/3.4krpm RSV Foot	SJ-4-V37-04T(M)	-	Use MDS-DH-SP-200 drive unit
M7Spn Mt 37k 1.1/3.4krpm RSV Flange	SJ-4-V37-04T(F)	-	
M7Spn Mt 45k 1.5/3.4krpm RSV Foot	SJ-4-V45-02T(M)	-	Use MDS-DH-SP-320 drive unit
M7Spn Mt 45k 1.5/3.4krpm RSV Flange	SJ-4-V45-02T(F)	-	
M7Spn Mt 55k 1.1/3.4krpm RSV Foot	SJ-4-V55-03T(M)	-	
M7Spn Mt 55k 1.1/3.4krpm RSV Flange	SJ-4-V55-03T(F)	-	
M7Spn Mt 75k 1.1/3.4krpm RSV Foot	SJ-4-V75-01T(M)	-	Consult Factory
M7Spn Mt 75k 1.1/3.4krpm RSV Flange	SJ-4-V75-01T(F)	-	
M7Spn Mt 5.5k .75/6krpm RSV Foot	SJ-4-V11-18WT(M)	-	Use MDS-DH-SP-80 drive unit
M7Spn Mt 5.5k .75/6krpm RSV Flange	SJ-4-V11-18WT(F)	-	
M7Spn Mt 7.5k .75/6krpm RSV Foot	SJ-4-V11-21WT(M)	-	
M7Spn Mt 7.5k .75/6krpm RSV Flange	SJ-4-V11-21WT(F)	-	
M7Spn Mt 9/7.5k .75/6krpm RSV Foot	SJ-4-V15-20WT(M)	-	Use MDS-DH-SP-100 drive unit
M7Spn Mt 9/7.5k .75/6krpm RSV Flange	SJ-4-V15-20WT(F)	-	
M7Spn Mt 11k .75/6krpm RSV Foot	SJ-4-V18.5-17WT(M)	-	Use MDS-DH-SP-160 drive unit
M7Spn Mt 11k .75/6krpm RSV Flange	SJ-4-V18.5-17WT(F)	-	
M7Spn Mt 15k .75/6krpm RSV Foot	SJ-4-V22-16WT(M)	-	
M7Spn Mt 15k .75/6krpm RSV Flange	SJ-4-V22-16WT(F)	-	
M7Spn Mt 3.7k 3/15krpm RSV Foot	SJ-4-V3.7-05ZT(M)	-	Use MDS-DH-SP-20 drive unit
M7Spn Mt 3.7k 3/15krpm RSV Flange	SJ-4-V3.7-05ZT(F)	-	
M7Spn Mt 7.5k 1.5/12krpm RSV Foot	SJ-4-V7.5-13ZT(M)	-	Use MDS-DH-SP-80 drive unit
M7Spn Mt 7.5k 1.5/12krpm RSV Flange	SJ-4-V7.5-13ZT(F)	-	
M7Spn Mt 7.5k 1.5/12krpm RSV Foot	SJ-4-V11-22ZT(M)	-	Use MDS-DH-SP-100 drive unit
M7Spn Mt 7.5k 1.5/12krpm RSV Flange	SJ-4-V11-22ZT(F)	-	
M7Spn Mt 11k 1.5/8krpm RSV Foot	SJ-4-V11-23ZT(M)	-	
M7Spn Mt 11k 1.5/8krpm RSV Flange	SJ-4-V11-23ZT(F)	-	
M7Spn Mt 15k 1.5/8krpm RSV Foot	SJ-4-V22-18ZT(M)	-	Use MDS-DH-SP-160 drive unit
M7Spn Mt 15k 1.5/8krpm RSV Flange	SJ-4-V22-18ZT(F)	-	
M7Spn Mt 22k 1.5/8krpm RSV Foot	SJ-4-V30-15ZT(M)	-	
M7Spn Mt 22k 1.5/8krpm RSV Flange	SJ-4-V30-15ZT(F)	-	
M7Spn Mt 7.5k 1.5/12krpm RSV Foot	SJ-4-VS7.5-13ZT(M)	-	Use MDS-DH-SP-80 drive unit
M7Spn Mt 7.5k 1.5/12krpm RSV Flange	SJ-4-VS7.5-13ZT(F)	-	
M7Spn Mt 15k 1.5/8krpm RSV Foot	SJ-4-VS22-18ZT(M)	-	Use MDS-DH-SP-160 drive unit
M7Spn Mt 15k 1.5/8krpm RSV Flange	SJ-4-VS22-18ZT(F)	-	
M7Spn Mt 22k 1.5/8krpm RSV Foot	SJ-4-VS30-15ZT(M)	-	
M7Spn Mt 22k 1.5/8krpm RSV Flange	SJ-4-VS30-15ZT(F)	-	

400V Spindle Drive Unit MDS-DH-SP Series Specifications

Model Number MDS-DH-SP-__		20	40	80	100	160	200	320	480
Nominal Maximum Current (peak) [A]		20	40	80	100	160	200	320	480
Output	Rated Voltage [V]	340AC							
	Rated Current [A]	9	13	19	30	65	70	103	132
Input	Rated Voltage [V]	513 to 648DC							
	Rated Current [A]	10	15	21	38	72	82	119	150
Control Power	Voltage [V]	380 to 440AC (50Hz)/380 to 480AC (60Hz) Power fluctuation rate within ±10%							
	Frequency [Hz]	50/60 Frequency fluctuation within ±3%							
	Current [A]	Max. 0.1							
	Rush Current [A]	Max. 18							
	Rush Conductivity Time [ms]	Max. 12							Max. 18
Earth Leakage Current [mA]		6 (Max. 15)							
Control Method		Sine wave PWM control method							
Braking		Regenerative braking							
External Analog Output		0 to +5V, 2ch (data for various adjustments)							
Structure		Protection type (Protection method: IP20 [over all] / IP00 [Terminal block TE1])							
Cooling Method		Forced wind cooling							
Weight [kg]		3.8	4.5	5.8	7.5	16.5	22.5		
Heat Radiated at Continuous Rated Output [W]		120	200	291	442	479	872	1202	1720
Noise		Less than 55dB							

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.

400V Spindle Drive Selection

Description	Model Number	Stocked Item	Notes
10 Amp Spindle Drive	MDS-DH-SP-10	-	Add Qty 1 of 1-179958-4 and 4 contacts
20 Amp Spindle Drive	MDS-DH-SP-20	-	
40 Amp Spindle Drive	MDS-DH-SP-40	-	
80 Amp Spindle Drive	MDS-DH-SP-80	-	
100 Amp Spindle Drive	MDS-DH-SP-100	-	
160 Amp Spindle Drive	MDS-DH-SP-160	-	
200 Amp Spindle Drive	MDS-DH-SP-200	-	
320 Amp Spindle Drive	MDS-DH-SP-320	-	
480 Amp Spindle Drive	MDS-DH-SP-480	-	

Spindle Feedback Cables

Description	Model Number	Stocked Item	Cable Length
Spindle Feedback Cable	CNP2E-1-5.0M	S	5.0M
Spindle Feedback Cable	CNP2E-1-10.0M	S	10.0M
Spindle Feedback Cable	CNP2E-1-15.0M	-	15.0M
Spindle Feedback Cable	CNP2E-1-20.0M	-	20.0M

Spindle Armature Connectors

Description	Model Number	Stocked Item	Notes
4 Pin Connector For MDS-D TE1	1-179958-4	S	Include Qty 4 of 316040-3 or 316041-3 for each.
Contact AWG14-16 FOR 1-179958-4	316040-3	S	
Contact AWG10-12 FOR 1-179958-4	316041-3	S	

Note: This connector is required for all drives up to 80 Amp capacity.

Spindle External Encoders

Description	Model Number	Stocked Item	Notes
6000RPM External Spindle Encoder	OSE1024-3-15-68	-	
8000RPM External Spindle Encoder	OSE1024-3-15-68-8	S	

Spindle External Encoder Cables

Description	Model Number	Stocked Item	Cable Length
Spindle Encoder Feedback Cable	CNP3EZ-3P-10.0M	S	10.0M
Spindle Encoder Feedback Cable	CNP3EZ-3P-15.0M	-	15.0M
Spindle Encoder Feedback Cable	CNP3EZ-3P-20.0M	-	20.0M

Power Supply Unit for Servo and Spindle Drive Units

200V Common Power Supply Units

Description	Model Number	Stocked Item	Notes
11KW Power Supply Unit	MDS-D-CV-110	-	Use D-AL-11k AC reactor unit
18.5KW Power Supply Unit	MDS-D-CV-185	S	Use D-AL-18.5k AC reactor unit
30KW Power Supply Unit	MDS-D-CV-300	S	Use D-AL-30k AC reactor unit
3.7KW Power Supply Unit	MDS-D-CV-37	-	Use D-AL-7.5k AC reactor unit
37KW Power Supply Unit	MDS-D-CV-370	S	Use D-AL-37k AC reactor unit
45KW Power Supply Unit	MDS-D-CV-450	-	Use D-AL-45k AC reactor unit
55KW Power Supply Unit	MDS-D-CV-550	-	Use D-AL-55k AC reactor unit
7.5KW Power Supply Unit	MDS-D-CV-75	-	Use D-AL-7.5k AC reactor unit

200V AC Reactor Units (Required for all Systems)

Description	Model Number	Stocked Item	Notes
11KW AC Reactor	D-AL-11K	S	
18.5KW AC Reactor	D-AL-18.5K	S	
30KW AC Reactor	D-AL-30K	S	
37KW AC Reactor	D-AL-37K	S	
45KW AC Reactor	D-AL-45K	-	
55KW AC Reactor	D-AL-55K	-	
7.5KW AC Reactor	D-AL-7.5K	S	

400V Common Power Supply Units

Description	Model Number	Stocked Item	Notes
11KW Power Supply Unit	MDS-DH-CV-110	-	Use DH-AL-11k AC reactor unit
18.5KW Power Supply Unit	MDS-DH-CV-185	-	Use DH-AL-18.5k AC reactor unit
30KW Power Supply Unit	MDS-DH-CV-300	-	Use DH-AL-30k AC reactor unit
3.7KW Power Supply Unit	MDS-DH-CV-37	-	Use DH-AL-7.5k AC reactor unit
37KW Power Supply Unit	MDS-DH-CV-370	-	Use DH-AL-37k AC reactor unit
45KW Power Supply Unit	MDS-DH-CV-450	-	Use DH-AL-45k AC reactor unit
55KW Power Supply Unit	MDS-DH-CV-550	-	Use DH-AL-55k AC reactor unit
7.5KW Power Supply Unit	MDS-DH-CV-75	-	Use DH-AL-7.5k AC reactor unit
750KW Power Supply Unit	MDS-DH-CV-750	-	User DH-AL-750k AC reactor unit

400V AC Reactor Units (Required for all Systems)

Description	Model Number	Stocked Item	Notes
11KW AC Reactor	DH-AL-11K	-	
18.5KW AC Reactor	DH-AL-18.5K	-	
30KW AC Reactor	DH-AL-30K	-	
37KW AC Reactor	DH-AL-37K	-	
45KW AC Reactor	DH-AL-45K	-	
55KW AC Reactor	DH-AL-55K	-	
7.5KW AC Reactor	DH-AL-7.5K	-	
75KW AC Reactor	DH-AL-75K	-	

D Drive Unit Interconnection Cables

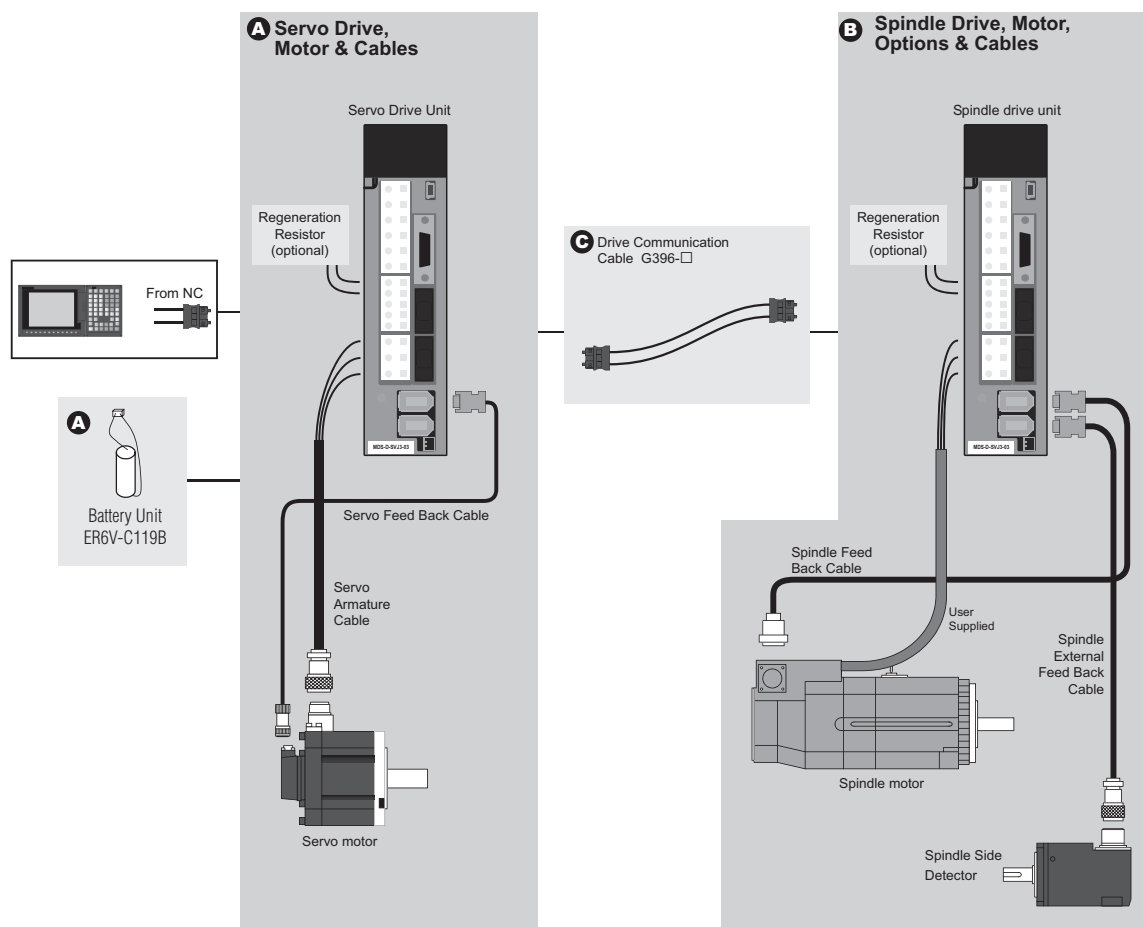
Communication Cables

Description	Model Number	Stocked Item	Cable Length
Drive Communication Cable	G380-10.0M	S	10M
Drive Communication Cable	G380-20.0M	S	20M
Drive Communication Cable	G396-0.3M	S	0.3M
Drive Communication Cable	G396-0.5M	-	0.5M
Drive Communication Cable	G396-1.0M	S	1M
Drive Communication Cable	G396-5.0M	S	5M
Communication Cable (G013)	SH21-0.35M	S	0.35M
Communication Cable (G013)	SH21-0.5M	-	0.5M
Communication Cable (G013)	SH21-1.0M	S	1M
Communication Cable (G013)	SH21-3.0M	-	3M
Communication Cable (G013)	SH21-5.0M	S	5M
Communication Cable (G013)	SH21-10.0M	-	10M

MDS-D-SVJ3/SPJ3 Drive System Selections

Digital JR AC servo and spindle drive systems deliver Ultra compact drive units with built-in power supplies to contribute to reducing control panel size. Their High Speed optical communications enable shorter position interpolation cycle and synchronization between drives, promoting further high-speed and high-accuracy machining. Unit dimensions have been greatly reduced, thanks to high efficiency fin and low-loss power module, which also contributes to the downsizing of control panels.

General System Diagram for MDS-S-SVJ3 Configuration



A. Servo Motor, Drive and Cables	438
B. Spindle Motor, Drive, Options and Cables	442
C. Drive System Interconnections	443

A Servo Drive, Motor and Cables

HF Series Motors

Servo Drive Unit			Compatible Motor						
(1) Type MDS-D-SVJ3-	Rated Output	Unit Width	HF-__						
			75	105	54	104	154	204	354
03	0.3kW	40mm							
04	0.4	40mm							
07	0.7	60mm	•	•	•				
10	1.0	90mm				•			
20	2.0	90mm					•	•	
35	3.5	90mm							•

• Indicates the compatible motor for each servo unit drive.

HF Series Specifications

Model Number HF -A48 / -A51		75	105	54	104	154	204	354
Compatible Servo Drive Unit Type: MDS-D-V1/2-		07	07	07	10	20	20	35
Continuous Characteristics	Rated Output [kW]	0.75	1.0	0.5	1.0	1.5	2.0	3.5
	Rated Current [A]	2.8	3.6	1.8	3.6	5.8	6.8	13.8
	Rated Torque [N·m]	1.8	2.4	1.6	3.2	4.8	6.4	11.1
	Stall Current [A]	3.2	4.6	3.2	6.6	11.0	14.6	22.0
	Stall Torque [N·m]	2.0	3.0	2.9	5.9	9.0	13.7	22.5
Rated Rotation Speed [r/min]		4000			3000			
Maximum Rotation Speed [r/min]		5000			4000			
Maximum Current [A]		14.0	15.5	16.8	29.0	52.0	52.0	64.0
Maximum Torque [N·m]		8.0	11.0	13.0	23.3	42.0	42.0	65.0
Power Rate at Continuous Rated Torque [kW/s]		12.3	11.2	4.1	8.4	12.7	10.6	16.5
Motor Inertia [kg·cm ²]		2.6	5.1	6.1	11.9	17.8	38.3	75.0
Motor Inertia With Brake [kg·cm ²]		2.8	5.3	8.3	14.1	20.0	48.0	84.7
Maximum Motor Shaft Conversion Load Inertia Ratio		High-speed, high-accuracy machine : 3 times or less of motor inertia General machine tool (interpolation axis) : 5 times or less of motor inertia General machine (non-interpolation axis) : 7 times or less of motor inertia						
Motor Side Detector		Resolution per motor revolution A48: 26,000 pulse/rev						
Structure		Fully closed, self-cooling (Protection method: IP67) (*3)						
Environment	Ambient Temperature	Operation: 0 to 40°C (with no freezing), Storage: -15°C to 70°C (with no freezing)						
	Ambient Humidity	Operation: 80%RH or less (with no dew condensation), Storage: 90%RH or less (with no dew condensation)						
	Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, or dust						
	Altitude	Operation: 1000 meters or less above sea level, Storage: 10000 meters or less above sea level						
	Vibration	X: 19.6m/s ² (2G) Y: 19.6m/s ² (2G)						
Weight Without / With Brake [kg]		2.5/3.9	4.3/5.7	4.8/6.8	6.5/8.5	8.3/10.3	12.0/18.0	19.0/25.0
Armature Insulation Class		Class F						

Notes:

1. The above characteristics values are representative values. The maximum current and maximum torque are the values when combined with the drive unit.
2. Use the HF motor in combination with the MDS-D-SVJ3 Series drive unit compatible with the 200VAC input. This motor is not compatible with the conventional MDS-B/C1/CH Series.
3. The shaft-through portion is excluded.

HF Series Servo Motors

Description	Model Number	Stocked Item	Notes
Servo Motor With Brake 5.9NM STALL 4KRPM 1MPPR	HF104BS-A51	S	Use MDS-D-SVJ3-10 drive unit
Servo Motor With Brake 5.9NM STALL 4KRPM 260KPPR	HF104BS-A48	-	
Servo Motor 5.9NM STALL 4KRPM 1MPPR	HF104S-A51	S	
Servo Motor 5.9NM STALL 4KRPM 260KPPR	HF104S-A48	-	
Servo Motor With Brake 3NM STALL 4KRPM 1MPPR	HF105BS-A51	S	Use MDS-D-SVJ3-07 drive unit
Servo Motor With Brake 3NM STALL 4KRPM 260KPPR	HF105BS-A48	-	
Servo Motor 3NM STALL 4KRPM 1MPPR	HF105S-A51	S	
Servo Motor 3NM STALL 4KRPM 1MPPR	HF105S-A48	-	
Servo Motor With Brake 9NM STALL 4KRPM 1MPPR	HF154BS-A51	S	Use MDS-D-SVJ3-20 drive unit
Servo Motor With Brake 9NM STALL 4KRPM 260KPPR	HF154BS-A48	-	
Servo Motor 9NM STALL 4KRPM 1MPPR	HF154S-A51	S	
Servo Motor 9NM STALL 4KRPM 260KPPR	HF154S-A48	-	
Servo Motor With Brake 13.7NM STALL 4KRPM 1MPPR	HF204BS-A51	S	
Servo Motor With Brake 13.7NM STALL 4KRPM 260KPPR	HF204BS-A48	-	
Servo Motor 13.7NM STALL 4KRPM 1MPPR	HF204S-A51	S	
Servo Motor 13.7NM STALL 4KRPM 260KPPR	HF204S-A48	-	
Servo Motor With Brake 2.9NM STALL 4KRPM 1MPPR	HF54BS-A51	S	Use MDS-D-SVJ3-07 drive unit
Servo Motor With Brake 2.9NM STALL 4KRPM 260KPPR	HF54BS-A48	-	
Servo Motor 2.9NM STALL 4KRPM 1MPPR	HF54S-A51	S	
Servo Motor 2.9NM STALL 4KRPM 260KPPR	HF54S-A48	-	
Servo Motor With Brake 22.5NM STALL 4KRPM 1MPPR	HF354BS-A51	S	Use MDS-D-SVJ3-35 drive unit
Servo Motor With Brake 22.5NM STALL 4KRPM 1MPPR	HF354BS-A48	-	
Servo Motor 22.5NM STALL 4KRPM 1MPPR	HF354S-A51	S	
Servo Motor 22.5NM STALL 4KRPM 1MPPR	HF354S-A48	-	
Servo Motor With Brake 2NM STALL 5KRPM 1MPPR	HF75BS-A51	S	Use MDS-D-SVJ3-07 drive unit
Servo Motor With Brake 2NM STALL 5KRPM 260KPPR	HF75BS-A48	-	
Servo Motor 2NM STALL 5KRPM 1MPPR	HF75S-A51	S	
Servo Motor 2NM STALL 5KRPM 1MPPR	HF75S-A48	-	

HF KP Series Servo Motors

Description	Model Number	Stocked Item	Notes
Servo Motor 0.64NM STALL 3KRPM 260KPPR	HF-KP23JW04-S06	-	Use MDS-D-SVJ3-03 drive
Servo Motor 1.3NM STALL 3KRPM 260KPPR	HF-KP43JW04-S06	S	Use MDS-D-SVJ3-04 drive
Servo Motor 2.4NM STALL 3KRPM 260KPPR	HF-KP73JW04-S06	-	Use MDS-D-SVJ3-07 drive

MDS-D-SVJ3 Drives

Description	Model Number	Stocked Item	Notes
Servo Motor 300W	MDS-D-SVJ3-03	S	
Servo Motor 400W	MDS-D-SVJ3-04	S	
Servo Motor 700W	MDS-D-SVJ3-07	S	Use HF75,105,54
Servo Motor 1kW	MDS-D-SVJ3-10	S	Use HF104
Servo Motor 2kW	MDS-D-SVJ3-20	S	Use HF154,204
Servo Motor 3.5kW	MDS-D-SVJ3-35	-	Use HF354

Required Battery Unit for Each Servo Drive Unit

Description	Model Number	Stocked Item	Notes
Battery Unit	MR-J3BAT	S	Qty. 1 Required for each drive unit

Servo Feedback Cables

Description	Model Number	Stocked Item	Notes
Servo Motor Encoder Cable For A48	CNV2E-8P-2.0M	-	IP65, High Flexibility + Shield
Servo Motor Encoder Cable For A48	CNV2E-8P-5.0M	-	
Servo Motor Encoder Cable For A48	CNV2E-8P-10.0M	-	
Servo Motor Encoder Cable 2M	CNV2E-6P-2.0M	S	
Servo Motor Encoder Cable 5M	CNV2E-6P-5.0M	S	
Servo Motor Encoder Cable 10M	CNV2E-6P-10.0M	S	
HF-KP Servo Motor Encoder Cable 2M	CNV2E-K1P-2.0M	-	
HF-KP Servo Motor Encoder Cable 5M	CNV2E-K1P-5.0M	-	
HF-KP Servo Motor Encoder Cable 10M	CNV2E-K1P-10.0M	-	
HF-KP Servo Motor Encoder Cable 2M	CNV2E-K2P-2.0M	-	
HF-KP Servo Motor Encoder Cable 5M	CNV2E-K2P-5.0M	-	
HF-KP Servo Motor Encoder Cable 10M	CNV2E-K2P-10.0M	-	

Servo Armature Cables

Description	Model Number	Stocked Item	Notes
Servo Armature Cable HF54-154, 2M	MR-J3P2-2M	S	IP65, Standard Flexibility, no shielding
Servo Armature Cable HF54-154, 5M	MR-J3P2-5M	S	
Servo Armature Cable HF54-154, 10M	MR-J3P2-10M	S	
Servo Armature Cable HF204-453 , 2M	MR-J3P5-2M	S	
Servo Armature Cable HF204-453, 5M	MR-J3P5-5M	S	
Servo Armature Cable HF204-453, 10M	MR-J3P5-10M	S	
Servo Armature Cable HF-KP, 2M	MR-PWS1CBL2M-A1-H	-	
Servo Armature Cable HF-KP, 5M	MR-PWS1CBL5M-A1-H	-	
Servo Armature Cable HF-KP, 10M	MR-PWS1CBL10M-A1-H	-	
Servo Armature Cable HF-KP, 2M	MR-PWS1CBL2M-A2-H	S	
Servo Armature Cable HF-KP, 5M	MR-PWS1CBL5M-A2-H	S	
Servo Armature Cable HF-KP, 10M	MR-PWS1CBL10M-A2-H	S	

Note: Consult Factory for availability of high flexibility shielded armature cables.

Servo Brake Cables

Description	Model Number	Stocked Item	Notes
Servo Motor Brake, 2M	MR-J3BK-2M	S	Add quantity 1 of CNU20S(AWG14) for each cable
Servo Motor Brake, 5M	MR-J3BK-5M	S	
Servo Motor Brake, 10M	MR-J3BK-10M	S	
HF-KP Servo Motor Brake, 2M	MR-BKS1CBL2M-A1-H	-	
HF-KP Servo Motor Brake, 5M	MR-BKS1CBL5M-A1-H	-	
HF-KP Servo Motor Brake, 10M	MR-BKS1CBL10M-A1-H	-	
HF-KP Servo Motor Brake, 2M	MR-BKS1CBL2M-A2-H	S	
HF-KP Servo Motor Brake, 5M	MR-BKS1CBL5M-A2-H	S	
HF-KP Servo Motor Brake, 10M	MR-BKS1CBL10M-A2-H	S	

Regeneration Resistors

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 Drive Unit	Standard Built-in Regenerative Resistor	Resistance Value	External Option Regenerative Resistor						
			MR-RB032	MR-RB12	MR-RB32	MR-RB30	MR-RB50	MR-RB31	MR-RB51
					GZG200W 1200HMK x 3 units	GZG200W 390HMK x 3 units	GZG300W 39 0HMK x 3 units	GZG200W 20 0HMK x 3 units	GZG300W 200HMK x 3 units
	Regenerative Capacity		30W	100W	300W	300W	500W	300W	500W
			40Ω	40Ω	40Ω	13Ω	13Ω	6.7Ω	6.7Ω
MDS-D-SVJ3-03	10W	100Ω	•	•					
MDS-D-SVJ3-04	10W	100Ω	•	•					
MDS-D-SVJ3-07	20W	40Ω	•	•	•				
MDS-D-SVJ3-10	100W	13Ω				•	•		
MDS-D-SVJ3-20	100W	9Ω						•	•
MDS-D-SVJ3-35	100W	9Ω						•	•

Corresponding Servo Drive Unit	Standard Built-in Regenerative Resistor	Resistance Value	External Option Regenerative Resistor				
			FCUA-RB22	FCUA-RB37	FCUA-RB55	R-UNIT2	FCUA-RB75/22 units
			155W	185W	340W	700W	680W
	Regenerative Capacity		40Ω	25Ω	20Ω	15Ω	15Ω
MDS-D-SVJ3-03	10W	40Ω					
MDS-D-SVJ3-04	10W	40Ω					
MDS-D-SVJ3-07	20W	40Ω	•				
MDS-D-SVJ3-10	100W	13Ω		•	•	•	•
MDS-D-SVJ3-20	100W	9Ω				•	•
MDS-D-SVJ3-35	100W	9Ω					

Note: The power value in the table is a regenerative power by the resistor, not a rated power.

B Spindle Motor, Drive, Options and Cables

200V Spindle Motor Specifications • Base Rotation Speed 1150r/min Series, 1500r/min Series

Model Number SJ-V_ _T		2.2-01	3.7-01	5.5-01	7.5-01	11-01	15-01	18.5-01	22-01	26-01	37-01	45-01	55-01
Compatible Spindle Drive Unit Type: MDS-D-		SP-40	SP-80			SP-160	SP-200		SP-240	SP-320	SP-400	SP-640	
Output Capacity	Continuous Rating [kW]	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45
	30-Minute Rating 50%ED Rating [kW]	2.2	3.7	5.5	7.5	11	15	18.5	22	26	37	45	55
Base Rotation Speed [r/min]		1500									1150	1500	1150
Maximum Rotation Speed [r/min]		10000		8000		6000					3450		
Frame No.		A90	B90	D90	A112	B112	A160		B160	C160	A180	B180	A225
Continuous Rated Torque [N·m]		9.5	14.0	23.5	35.0	47.7	70.0	95.5	118	140	249	236	374
GD² [kg·m²]		0.027	0.035	0.059	0.098	0.12	0.23	0.23	0.32	0.38	1.23	2.19	3.39
Inertia [kg·m²]		0.007	0.009	0.015	0.025	0.03	0.06	0.06	0.08	0.10	0.31	0.55	0.85
Tolerable Radial Load [N]		980		1470	1960		2940				3920		5880
Cooling Fan	Input Voltage	Single-Phase 200V			3-phase 200V								
	Maximum Power Consumption	42W			40W		63W				175W		115W
Environment	Ambient Temperature	Operation: 0 to 40°C (with no freezing), Storage: -20°C to 65°C (with no freezing)											
	Ambient Humidity	Operation: 90%RH or less (with no dew condensation), Storage: 90%RH or less (with no dew condensation)											
	Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, or dust											
	Altitude	Operation: 1000m or less above sea level, Storage: 10000m or less above sea level Transportation: 13000m or less above sea level											
Weight [kg]		25	30	49	60	70	110	110	135	155	280	390	450
Insulation		Class F											

Notes:

1. The rated output is guaranteed at the rated input voltage (200/220/230VAC) to the power supply unit. If the input voltage fluctuates and drops below 200VAC, the rated output may not be attained.
2. The 50%ED rating applies for a 10-minute cycle time consisting of ON for five minutes and OFF for five minutes.
3. The tolerable radial load is the value calculated at the center of output shaft.
4. The protection level is IP44.

Spindle Drive Unit MDS-D-SPJ3 Series

Spindle Drive Unit Type MDS-D-SPJ3_ _		075	22	37	55	75	110
Rated Output		0.75	2.2	3.7	5.5	7.5	11.0
Power Facility Capacity		2.0	4.0	7.0	9.0	12.0	17.0
Input	Rated Voltage [V]	200AC (50Hz) / 200 to 230AC (60Hz) Power fluctuation rate within +10%, -15%					
	Frequency [Hz]	50/60 Frequency fluctuation within: ±5%					
	Rated Current [A]	2.6	9.0	10.5	16.0	26.0	53.4
Output	Rated Voltage [V]	270 to 311DC					
	Rated Current [A]	4.5	10.0	11.0	18.0	26.0	36.0
Control Power	Voltage [V]	200AC (50Hz) / 200 to 230AC (60Hz) Power fluctuation rate within +10%, -15%					
	Frequency [Hz]	50/60 Frequency fluctuation within ±3%					
	Current [A]	Max. 0.2					
	Rush Current [A]	Max. 30					
	Rush Conductivity Time [ms]	Max. 6					
Earth Leakage Current [mA]		6 (Max. 15)					
Main Circuit Method		Converter with resistor regeneration circuit					
Control Method		Sine wave PWM control method					
Braking		Regenerative braking					
External Analog Output		0 to +5V, 2ch (data for various adjustments)					
Structure		Protection type (Protection method: IP20 [over all] / IP00 [Terminal block TE1])					
Cooling Method		Forced wind cooling					
Weight [kg]		1.4	2.1	2.1	4.6	4.6	6.5
Heat Radiated at Continuous Rated Output [W]		50	90	130	150	200	300
Noise		Less than 55dB					

Spindle Drive

Description	Model Number	Stocked item	Notes
Spindle Drive 75W	MDS-D-SPJ3-075	-	
Spindle Drive 2.2kW	MDS-D-SPJ3-22	S	
Spindle Drive 3.7kW	MDS-D-SPJ3-37	S	
Spindle Drive 5.5kW	MDS-D-SPJ3-55	S	
Spindle Drive 7.5kW	MDS-D-SPJ3-75	S	
Spindle Drive 11kW	MDS-D-SPJ3-110	-	

Spindle Motors

Description	Model Number	Stocked Item	Notes
M7 SPN MTR 2.2KW 1.5/10KRPM Flange	SJ-V2.2-01T(F)	-	Use with MDS-D-SPJ3-22
M7 SPN MTR 3.7KW 1.5/10KRPM Flange	SJ-V3.7-01T(F)	S	Use with MDS-D-SPJ3-37
M7 SPN MTR 5.5KW 1.5/8KRPM Flange	SJ-V5.5-01T(F)	-	Use with MDS-D-SPJ3-55
M7 SPN MTR 7.5KW 1.5/8KRPM Flange	SJ-V7.5-01T(F)	-	Use with MDS-D-SPJ3-75
M7 SPN MTR 11KW 1.5/6KRPM Flange	SJ-V11-01T(F)	-	Use with MDS-D-SPJ3-110

Note: Only flange mount unless approved by factory.

External Option Regenerative Resistor

Corresponding Spindle Drive Unit	Standard Built-in Regenerative Resistor	Resistance Value	External Option Regenerative Resistor						
			MR-RB032	MR-RB12	MR-RB32	MR-RB30	MR-RB50	MR-RB31	MR-RB51
					GZG200W 120OHMK x 3 units	GZG200W 390OHMK x 3 units	GZG300W 39 OHMK x 3 units	GZG200W 20 OHMK x 3 units	GZG300W 200OHMK x 3 units
	60W		80W	120W	155W	185W	340W	340W	
	200Ω		100Ω	60Ω	40Ω	25Ω	20Ω	30Ω	
MDS-D-SPJ3-075	-	-	●	●	●	●			
MDS-D-SPJ3-22	-	-			●	●	●		●
MDS-D-SPJ3-37	-	-					●	●	●
MDS-D-SPJ3-55	-	-						●	
MDS-D-SPJ3-75	-	-							
MDS-D-SPJ3-110	-	-							

Description	Model Number	Stocked Item	Notes
Regeneration Resistor 680W 15 ohms	FCUA-RB75	S	2 are required
Regeneration Resistor 100W 40 ohms	MR-RB12	S	
Regeneration Resistor 300W 40 ohms	MR-RB32	S	
Regeneration Resistor 300W 40 ohms	MR-RB30	S	
Regeneration Resistor 500W 13 ohms	MR-RB50	S	

Spindle Feedback Cables

Description	Model Number	Stocked Item	Cable Length
Spindle Feedback Cable	CNP2E-1-10.0M	S	10M
Spindle Feedback Cable	CNP2E-1-15.0M	-	15M
Spindle Feedback Cable	CNP2E-1-20.0M	-	20M

Spindle External Encoders

Description	Model Number	Stocked Item	Notes
6000 rpm External Spindle Encoder	OSE1024-3-15-68	-	
8000 rpm External Spindle Encoder	OSE1024-3-15-68-8	S	

Spindle External Encoder Cables

Description	Model Number	Stocked Item	Cable Length
Spindle Encoder Feedback Cable	CNP3EZ-3P-10.0M	S	10M
Spindle Encoder Feedback Cable	CNP3EZ-3P-15.0M	-	15M
Spindle Encoder Feedback Cable	CNP3EZ-3P-20.0M	-	20M

Drive System Interconnection

Description	Model Number	Stocked item	Cable Length
Drive Communication Cable	G380-10.0M	S	10M
Drive Communication Cable	G380-20.0M	S	20M
Drive Communication Cable	G396-0.3M	S	0.3M
Drive Communication Cable	G396-0.5M	-	0.5M
Drive Communication Cable	G396-1.0M	S	1M
Drive Communication Cable	G396-5.0M	S	5M

