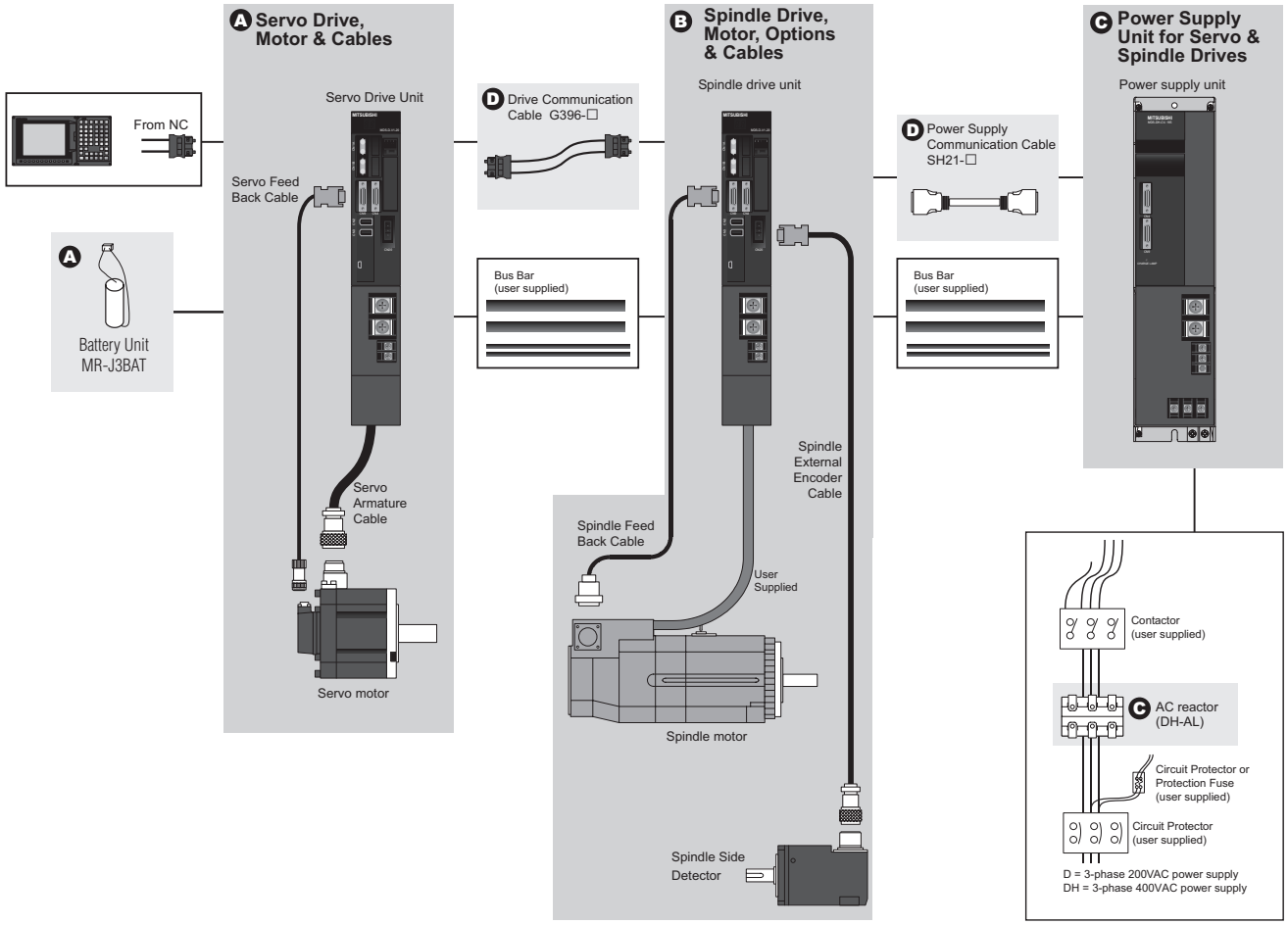
MDS-D2/DH2 Drive System Selections

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-D2/DH2 Configuration



Servomotor, Drive and Cables

HF 200 Series Motor Specifications

Model Number HF_-A74N / -A51 / -A48		HF75	HF105	HF54	HF104	HF154	HF224	HF204	HF354
Compatible Servo Drive Unit Type:	MDS-D2-V1-	20	20	40	40	80	80	80	160
	MDS-D2-V2-	2020 4020 (M)	2020 4020 (M)	4020 (L) 4040 8040 (M)	4020 (L) 4040 8040 (M)	8040 (L) 8080 16080 (M)	8040 (L) 8080 16080 (M)	8040 (L) 8080 16080 (M)	16080 (L) 160160 160160W
	MDS-D2-V3-	202020 (L,M,S) 404040 (L,M,S)	202020 (L,M,S) 404040 (L,M,S)	404040 (L,M,S)	404040 (L,M,S)	-	404040 (L,M,S)	-	-
Continuous Characteristics	Rated Output (kW)	0.75	1.0	0.5	1.0	1.5	2.2	2.0	3.5
	Rated Current (A)	2.8	3.6	1.8	3.6	5.8	8.5	6.8	13.8
	Rated Torque (N·m)	1.8	2.4	1.6	3.2	4.8	7.0	6.4	11.1
	Stall Current (A)	3.2	4.6	3.2	6.6	11.0	14.5	14.6	22.0
	Stall Torque (N·m)	2.0	3.0	2.9	5.9	9.0	12.0	13.7	22.5
Power Facility Capacity (kVA)		1.5	2.0	1.1	2.0	2.8	4.1	3.7	6.4
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	57.0	57.0	116.0
Maximum Torque (N·m)		8.0	11.0	13.0	23.3	42.0	46.5	47.0	90.0
Power Rate at Continuous Rated Torque (kW/s)		12.3	11.2	4.1	8.4	12.7	20.7	10.6	16.5
Motor Inertia (kg·cm^2)		2.6	5.1	6.1	11.9	17.8	23.7	38.3	75.0
Motor Inertia With Brake (kg·cm^2)		2.8	5.3	8.3	14.1	20.0	25.9	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; A74N: 16,000,000 pulse/rev, A51: 1,000,000 pulse/rev, A48: 260,000 pulse/rev							
Structure		IP67 (The shaft-through portion is excluded)							
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, Y:24.5m/s^2 (2.5G)						X:24.5m/s^2 (2.5G) Y:29.4m/s^2(3G)	
Flange Size (mm)		90 SQ.		130 SQ.				176 SQ.	
Total Length (Excluding Shaft) (mm) (*2)		126.5	162.5	118.5	140.5	162.5	184.5	143.5	183.5
Flange Fitting Diameter (mm)		ø80		ø110				ø114.3	
Shaft Diameter (mm)		ø14		ø24				ø35	
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	10.0/12.0	12.0/18.0	19.0/25.0
Heat-Resistant Class		155 (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. The total length will be 3.5mm longer when using an A51 or A74N detector.
3. Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

HF 200 Series Motor Specifications

Model Number HF_-A74N / HF_-A51 / HF_-A48		HF123	HF223	HF303	HF453	HF703	HF903	HF142	HF302
Compatible Servo Drive Unit Type:	MDS-D2-V1-	20	20	80	160	160W	320	20	40
	MDS-D2-V2-	2020 4020 (M)	4020 (L) 4040 8040 (M)	8040 (L) 8080 16080 (M)	16080 (L) 160160 160160W	160160W	-	2020 4020 (M)	4020 (L) 4040 8040 (M)
	MDS-D2-V3-	202020 (L,M,S) 404040 (L,M,S)	404040 (L,M,S)	-	-	-	-	-	202020 (L,M,S) 404040 (L,M,S)
Continuous Characteristics	Rated Output (kW)	1.2	2.2 (2.1)	3.0	4.5	7.0	9.0	1.4	3.0 (2.2)
	Rated Current (A)	5.2	9.0 (8.5)	10.7	13.4	16.6	27.2	3.9	10.9 (8.5)
	Rated Torque (N·m)	5.7	10.5 (10.0)	14.3	14.3	22.3	28.7	6.7	14.3 (10.6)
	Stall Current (A)	6.4	10.2 (8.5)	15.8	28.0	36.4	56.0	6.4	10.9 (8.5)
	Stall Torque (N·m)	7.0	12.0 (10.0)	22.5	37.2	49.0	58.8	11.0	20.0 (15.6)
Power Facility Capacity (kVA)		2.3	4.1 (3.9)	5.5	8.1	12.5	16.1	2.7	5.5 (4.1)
Rated Rotation Speed (r/min)		2000			3000			2000	
Maximum Rotation Speed (r/min)		3000			3500	3000		2000	
Maximum Current (A)		15.5	29.0	48.0	104.2	108.4	204.0	15.5	29.0
Maximum Torque (N·m)		17.0	32.0	64.0	122.0	152.0	208.0	26.5	50.0
Power Rate at Continuous Rated Torque (kW/s)		27.3	46.5	27.3	18.3	32.2	42.1	25.2	27.3
Motor Inertia (kg·cm^2)		11.9	23.7	75.0	112.0	154.0	196.0	17.8	75.0
Motor Inertia With Brake (kg·cm^2)		14.1	25.9	84.7	121.7	163.7	205.7	20.0	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; A74N: 16,000,000 pulse/rev, A51: 1,000,000 pulse/rev, A48: 260,000 pulse/rev							
Structure		IP67 (The shaft-through portion is excluded)							
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, Y: 24.5m/s^2 (2.5G)		X: 24.5m/s^2 (2.5G) Y: 29.4m/s^2(3G)			X, Y: 9.8m/s^2 (1G)	X, Y: 24.5m/s^2 (2.5G)	X: 24.5m/s^2 (2.5G) Y: 29.4m/s^2 (3G)
Flange Size (mm)		130 SQ.		176 SQ.			204 SQ.	130 SQ.	176 SQ.
Total Length (Excluding Shaft) (mm) (*2)		140.5	184.5	183.5	223.5	263.5	330	162.5	183.5
Flange Fitting Diameter (mm)		ø110		ø114.3			ø180	ø110	ø114.3
Shaft Diameter (mm)		ø24		ø35			ø42	ø24	ø35
Weight Without / With Brake (kg)		6.5/8.5	0.0/12.0	19.0/25.0	26.0/32.0	32.0/38.0	45.0/51.0	8.3/10.3	19.0/25.0
Heat-Resistant Class		155 (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. The total length will be 3.5mm longer when using an A51 or A74N detector.
3. Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.
4. The values in the parentheses are specifications when connecting with the M/S-axis of the MDS-D2-V3-404040.

HF Series Servomotor Selection

Description	Model Number	Stocked Item	Notes
Servomotor With Brake 5.9NM STALL 4KRPM 1MPPR	HF104BS-A51	S	Use MDS-D2-V_-40 drive unit
Servomotor 5.9NM STALL 4KRPM 1MPPR	HF104S-A51	S	
Servomotor With Brake 3NM STALL 5KRPM 1MPPR	HF105BS-A51	S	Use MDS-D2-V_-20 drive unit
Servomotor 3NM STALL 5KRPM 1MPPR	HF105S-A51	S	
Servomotor With Brake 5.7NM STALL 3KRPM 1MPPR	HF123BS-A51	-	
Servomotor 5.7NM STALL 3KRPM 1MPPR	HF123S-A51	-	
Servomotor With Brake 6.7NM STALL 2KRPM 1MPPR	HF142BS-A51	-	
Servomotor 6.7NM STALL 2KRPM 1MPPR	HF142S-A51	-	
Servomotor With Brake 9NM STALL 4KRPM 1MPPR	HF154BS-A51	S	Use MDS-D2-V_-80 drive unit
Servomotor 9NM STALL 4KRPM 1MPPR	HF154S-A51	S	
Servomotor With Brake 13.7NM STALL 4KRPM 1MPPR	HF204BS-A51	S	
Servomotor 13.7NM STALL 4KRPM 1MPPR	HF204S-A51	S	
Servomotor With Brake 10.5NM STALL 3KRPM 1MPPR	HF223BS-A51	-	Use MDS-D2-V_-40 drive unit
Servomotor 10.5NM STALL 3KRPM 1MPPR	HF223S-A51	-	
Servomotor With Brake 7NM STALL 4KRPM 1MPPR	HF224BS-A51	-	Use MDS-D2-V_-80 drive unit
Servomotor 7NM STALL 4KRPM 1MPPR	HF224S-A51	-	
Servomotor With Brake 14.3NM STALL 2KRPM 1MPPR	HF302BS-A51	-	Use MDS-D2-V_-40 drive unit
Servomotor 14.3NM STALL 2KRPM 1MPPR	HF302S-A51	-	
Servomotor With Brake 14.3NM STALL 3KRPM 1MPPR	HF303BS-A51	-	Use MDS-D2-V_-80 drive unit
Servomotor 14.3NM STALL 3KRPM 1MPPR	HF303S-A51	-	
Servomotor With Brake 22.5NM STALL 4KRPM 1MPPR	HF354BS-A51	S	Use MDS-D2-V_-160 drive unit
Servomotor 22.5NM STALL 4KRPM 1MPPR	HF354S-A51	S	
Servomotor With Brake 37.2NM STALL 3.5KRPM 1MPPR	HF453BS-A51	S	
Servomotor 37.2NM STALL 4KRPM 1MPPR	HF453S-A51	S	
Servomotor With Brake 2.9NM STALL 4KRPM 1MPPR	HF54BS-A51	S	Use MDS-D2-V_-40 drive unit
Servomotor 2.9NM STALL 4KRPM 1MPPR	HF54S-A51	S	
Servomotor With Brake 49NM STALL 3KRPM 1MPPR	HF703BS-A51	-	Use MDS-D2-V_-160W drive unit
Servomotor 49NM STALL 3KRPM 1MPPR	HF703S-A51	S	
Servomotor With Brake 2NM STALL 5KRPM 1MPPR	HF75BS-A51	S	Use MDS-D-V_-20 drive unit
Servomotor 2NM STALL 5KRPM 1MPPR	HF75S-A51	S	
Servomotor With Brake 58.8NM STALL 3KRPM 1MPPR	HF903BS-A51	-	Use MDS-D2-V_-320 drive unit
Servomotor 58.8NM STALL 3KRPM 1MPPR	HF903S-A51	-	
Servomotor With Brake 5.9NM STALL 4KRPM 260KPPR	HF104BS-A48	S	Use MDS-D2-V_-40 drive unit
Servomotor 5.9NM STALL 4KRPM 260KPPR	HF104S-A48	S	
Servomotor With Brake 3NM STALL 5KRPM 260KPPR	HF105BS-A48	S	Use MDS-D2-V_-20 drive unit
Servomotor 3NM STALL 5KRPM 260KPPR	HF105S-A48	S	
Servomotor With Brake 5.7NM STALL 3KRPM 260KPPR	HF123BS-A48	-	
Servomotor 5.7NM STALL 3KRPM 260KPPR	HF123S-A48	-	
Servomotor With Brake 6.7NM STALL 2KRPM 260KPPR	HF142BS-A48	-	
Servomotor 6.7NM STALL 2KRPM 260KPPR	HF142S-A48	-	
Servomotor With Brake 9NM STALL 4KRPM 260KPPR	HF154BS-A48	S	Use MDS-D2-V_-80 drive unit
Servomotor 9NM STALL 4KRPM 260KPPR	HF154S-A48	S	
Servomotor With Brake 13.7NM STALL 4KRPM 260KPPR	HF204BS-A48	S	
Servomotor 13.7NM STALL 4KRPM 260KPPR	HF204S-A48	S	
Servomotor With Brake 10.5NM STALL 3KRPM 260KPPR	HF223BS-A48	-	Use MDS-D2-V_-40 drive unit
Servomotor 10.5NM STALL 3KRPM 260KPPR	HF223S-A48	-	
Servomotor With Brake 7NM STALL 4KRPM 260KPPR	HF224BS-A48	-	Use MDS-D2-V_-80 drive unit
Servomotor 7NM STALL 4KRPM 260KPPR	HF224S-A48	-	
Servomotor With Brake 14.3NM STALL 2KRPM 260KPPR	HF302BS-A48	-	Use MDS-D2-V_-40 drive unit
Servomotor 14.3NM STALL 2KRPM 260KPPR	HF302S-A48	-	
Servomotor With Brake 14.3NM STALL 3KRPM 260KPPR	HF303BS-A48	-	Use MDS-D2-V_-80 drive unit
Servomotor 14.3NM STALL 3KRPM 260KPPR	HF303S-A48	-	
Servomotor With Brake 22.5NM STALL 4KRPM 260KPPR	HF354BS-A48	S	Use MDS-D2-V_-160 drive unit
Servomotor 22.5NM STALL 4KRPM 260KPPR	HF354S-A48	S	
Servomotor With Brake 37.2NM STALL 3.5KRPM 260KPPR	HF453BS-A48	S	
Servomotor 37.2NM STALL 4KRPM 260KPPR	HF453S-A48	S	
Servomotor With Brake 2.9NM STALL 4KRPM 260KPPR	HF54BS-A48	S	Use MDS-D2-V_-40 drive unit
Servomotor 2.9NM STALL 4KRPM 260KPPR	HF54S-A48	S	
Servomotor With Brake 49NM STALL 3KRPM 260KPPR	HF703BS-A48	-	Use MDS-D2-V_-160W drive unit
Servomotor 49NM STALL 3KRPM 260KPPR	HF703S-A48	S	
Servomotor With Brake 2NM STALL 5KRPM 260KPPR	HF75BS-A48	S	Use MDS-D2-V_-20 drive unit
Servomotor 2NM STALL 5KRPM 260KPPR	HF75S-A48	S	
Servomotor With Brake 58.8NM STALL 3KRPM 260KPPR	HF903BS-A48	-	Use MDS-D2-V_-320 drive unit
Servomotor 58.8NM STALL 3KRPM 260KPPR	HF903S-A48	-	

HF-H 400 Series Motor Specifications

Model Number HF-H_-A74N/HF-H_-A51/HF-H_-A48		HF-H75	HF-H105	HF-H54	HF-H104	HF-H154
Compatible Servo Drive Unit Type:	MDS-DH2-V1-	10	10	20	20	40
	MDS-DH2-V2-	1010 2010 (M)	1010 2010 (M)	2010 (L) 2020 4020 (M)	2010 (L) 2020 4020 (M)	4020 (L) 4040 8040 (M)
Continuous Characteristics	Rated Output (kW)	0.75	1.0	0.5	1.0	1.5
	Rated Current (A)	1.4	1.8	0.9	1.8	2.9
	Rated Torque (N·m)	1.8	2.4	1.6	3.2	4.8
	Stall Current (A)	1.6	2.3	1.6	3.3	5.5
	Stall Torque (N·m)	2.0	3.0	2.9	5.9	9.0
Power Facility Capacity (kVA)		1.5	2.0	1.1	2.0	2.8
Rated Rotation Speed (r/min)		4000		3000		
Maximum Rotation Speed (r/min)		5000		4000		
Maximum Current (A)		7.0	7.75	8.4	14.5	26.0
Maximum Torque (N·m)		8.0	11.0	13.0	23.3	42.0
Power Rate at Continuous Rated Torque (kW/s)		12.3	11.2	4.1	8.4	12.7
Motor Inertia ($kg \cdot cm^2$)		2.6	5.1	6.1	11.9	17.8
Motor Inertia With Brake ($kg \cdot cm^2$)		2.8	5.3	8.3	14.1	20.0
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): 7 times or less of motor inertia				
Motor Side Detector		Resolution per motor revolution; A74N: 16,000,000 pulse/rev, A51: 1,000,000 pulse/rev, A48: 260,000 pulse/rev				
Structure		IP67 (The shaft-through portion is excluded)				
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, Y: 24.5m/s^2 (2.5G)				
Flange Size (mm)		90 SQ.	90 SQ.	130 SQ.	130 SQ.	130 SQ.
Total Length (Excluding Shaft) (mm) (*2)		126.5	162.5	118.5	140.5	162.5
Flange Fitting Diameter (mm)		ø80	ø80	ø110	ø110	ø110
Shaft Diameter (mm)		ø14	ø14	ø24	ø24	ø24
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
Heat-Resistant Class		155 (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. The total length will be 3.5mm longer when using an A51 or A74N detector.
3. Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

HF-H 400 Series Motor Specifications

Model Number HF-H_-A74N / HF-H_-A51 / HF-H_-A48		HF-H204	HF-H354	HF-H453	HF-H703	HF-H903
Compatible Servo Drive Unit Type:	MDS-DH2-V1-	40	80	80	80W	160
	MDS-DH2-V2-	4020 (L) 4040 8040 (M)	8040 (L) 8080 8080W	8040 (L) 8080 8080W	8080W	-
Continuous Characteristics	Rated Output (kW)	2.0	3.5	4.5	7.0	9.0
	Rated Current (A)	3.4	6.9	6.7	8.3	13.6
	Rated Torque (N·m)	6.4	11.1	14.3	22.3	28.7
	Stall Current (A)	7.3	14.0	17.0	18.2	28.0
	Stall Torque (N·m)	13.7	22.5	37.2	49.0	58.8
Power Facility Capacity (kVA)		3.7	6.4	8.1	12.5	16.1
Rated Rotation Speed (r/min)		3000				
Maximum Rotation Speed (r/min)		4000		3500	3000	
Maximum Current (A)		28.5	58.0	52.1	54.2	102.0
Maximum Torque (N·m)		47.0	90.0	122.0	152.0	208.0
Power Rate at Continuous Rated Torque (kW/s)		10.6	16.5	18.3	32.2	42.1
Motor Inertia (kg·cm²)		38.3	75.0	112.0	154.0	196.0
Motor Inertia With Brake (kg·cm²)		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; A74N: 16,000,000 pulse/rev, A51: 1,000,000 pulse/rev, A48: 260,000 pulse/rev				
Structure		IP67 (The shaft-through portion is excluded)				
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:24.5m/s² (2.5G) Y:29.4m/s²(3G)				X,Y:9.8m/s² (1G)
Flange Size (mm)		176 SQ.				204 SQ.
Total Length (Excluding Shaft) (mm) (*2)		143.5	183.5	223.5	263.5	330
Flange Fitting Diameter (mm)		ø114.3				ø180
Shaft Diameter (mm)		ø35				ø42
Weight Without / With Brake (kg)		12.0/18.0	19.0/25.0	26.0/32.0	32.0/38.0	45.0/51.0
Heat-Resistant Class		155 (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. The total length will be 3.5mm longer when using an A51 or A74N detector.
3. Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

HF-H Series Servomotor Selection

Description	Model Number	Stocked Item	Notes
Servomotor With Brake 5.9NM STALL 4KRPM 1MPPR	HF-H104BS-A51	-	Use MDS-DH2-V_-20 drive unit
Servomotor 5.9NM STALL 4KRPM 1MPPR	HF-H104S-A51	-	
Servomotor With Brake 3NM STALL 5KRPM 1MPPR	HF-H105BS-A51	-	Use MDS-DH2-V_-10 drive unit
Servomotor 3NM STALL 5KRPM 1MPPR	HF-H105S-A51	-	
Servomotor With Brake 9NM STALL 4KRPM 1MPPR	HF-H154BS-A51	-	Use MDS-DH2-V_-40 drive unit
Servomotor 9NM STALL 4KRPM 1MPPR	HF-H154S-A51	-	
Servomotor With Brake 13.7NM STALL 4KRPM 1MPPR	HF-H204BS-A51	-	
Servomotor 13.7NM STALL 4KRPM 1MPPR	HF-H204S-A51	-	
Servomotor With Brake 22.5NM STALL 4KRPM 1MPPR	HF-H354BS-A51	-	Use MDS-DH2-V_-80 drive unit
Servomotor 22.5NM STALL 4KRPM 1MPPR	HF-H354S-A51	-	
Servomotor With Brake 37.2NM STALL 3.5KRPM 1MPPR	HF-H453BS-A51	-	
Servomotor 37.2NM STALL 3KRPM 1MPPR	HF-H453S-A51	-	
Servomotor With Brake 2.9NM STALL 4KRPM 1MPPR	HF-H54BS-A51	-	Use MDS-DH2-V_-20 drive unit
Servomotor 2.9NM STALL 4KRPM 1MPPR	HF-H54S-A51	-	
Servomotor With Brake 49NM STALL 3KRPM 1MPPR	HF-H703BS-A51	-	Use MDS-DH2-V_-80W drive unit
Servomotor 49NM STALL 3KRPM 1MPPR	HF-H703S-A51	-	
Servomotor With Brake 2NM STALL 5KRPM 1MPPR	HF-H75BS-A51	-	Use MDS-DH2-V_-10 drive unit
Servomotor 2NM STALL 5KRPM 1MPPR	HF-H75S-A51	-	
Servomotor With Brake 58.8NM STALL 3KRPM 1MPPR	HF-H903BS-A51	-	Use MDS-DH2-V_-160 drive unit
Servomotor 58.8NM STALL 3KRPM 1MPPR	HF-H903S-A51	-	

HF-H Series Servomotor Selection

Description	Model Number	Stocked Item	Notes
Servomotor With Brake 5.9NM STALL 4KRPM 260KPPR	HF-H104BS-A48	-	Use MDS-DH2-V_-20 drive unit
Servomotor 5.9NM STALL 4KRPM 260KPPR	HF-H104S-A48	-	
Servomotor With Brake 3NM STALL 5KRPM 260KPPR	HF-H105BS-A48	-	Use MDS-DH2-V_-10 drive unit
Servomotor 3NM STALL 5KRPM 260KPPR	HF-H105S-A48	-	
Servomotor With Brake 9NM STALL 4KRPM 260KPPR	HF-H154BS-A48	-	Use MDS-DH2-V_-40 drive unit
Servomotor 9NM STALL 4KRPM 260KPPR	HF-H154S-A48	-	
Servomotor With Brake 13.7NM STALL 4KRPM 260KPPR	HF-H204BS-A48	-	
Servomotor 13.7NM STALL 4KRPM 260KPPR	HF-H204S-A48	-	
Servomotor With Brake 22.5NM STALL 4KRPM 260KPPR	HF-H354BS-A48	-	Use MDS-DH2-V_-80 drive unit
Servomotor 22.5NM STALL 4KRPM 260KPPR	HF-H354S-A48	-	
Servomotor With Brake 37.2NM STALL 3.5KRPM 260KPPR	HF-H453BS-A48	-	
Servomotor 37.2NM STALL 3KRPM 260KPPR	HF-H453S-A48	-	
Servomotor With Brake 2.9NM STALL 4KRPM 260KPPR	HF-H54BS-A48	-	Use MDS-DH2-V_-20 drive unit
Servomotor 2.9NM STALL 4KRPM 260KPPR	HF-H54S-A48	-	
Servomotor With Brake 49NM STALL 3KRPM 260KPPR	HF-H703BS-A48	-	Use MDS-DH2-V_-80W drive unit
Servomotor 49NM STALL 3KRPM 260KPPR	HF-H703S-A48	-	
Servomotor With Brake 2NM STALL 5KRPM 260KPPR	HF-H75BS-A48	-	Use MDS-DH2-V_-10 drive unit
Servomotor 2NM STALL 5KRPM 260KPPR	HF-H75S-A48	-	
Servomotor With Brake 58.8NM STALL 3KRPM 260KPPR	HF-H903BS-A48	-	Use MDS-DH2-V_-160 drive unit
Servomotor 58.8NM STALL 3KRPM 260KPPR	HF-H903S-A48	-	

HP Series Motor Specifications

Model Number HP_-A74N / HP_-A51 / HP_-A48		HP54	HP104	HP154	HP224	HP204
Compatible Servo Drive Unit Type:	MDS-DH2-V1-	40	40	80	80	80
	MDS-DH2-V2-	4020 (L) 4040 8040 (M)	4020 (L) 4040 8040 (M)	8040 (L) 8080 16080 (M)	8040 (L) 8080 16080 (M)	8040 (L) 8080 16080 (M)
Continuous Characteristics	Rated Output (kW)	0.5	1.0	1.5	2.2	2.0
	Rated Current (A)	1.8	3.6	5.0	7.4	7.2
	Rated Torque (N·m)	1.6	3.2	4.8	6.4	6.4
	Stall Current (A)	3.6	6.8	9.4	14.0	15.4
	Stall Torque (N·m)	3.0	5.9	9.0	12.0	13.7
Power Facility Capacity (kVA)		1.1	2.0	2.8	4.1	3.7
Rated Rotation Speed (r/min)		3000				
Maximum Rotation Speed (r/min)		4000				
Maximum Current (A)		16.8	25.6	52.0	57.0	57.0
Maximum Torque (N·m)		11.0	19.2	36.5	46.0	43.0
Power Rate at Continuous Rated Torque (kW/s)		5.5	13.0	19.0	20.0	14.0
Motor Inertia (kg·cm²)		4.6	7.7	12.0	20.0	29.0
Motor Inertia With Brake (kg·cm²)		5.1	8.2	12.5	20.5	34.5
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; A74N: 16,000,000 pulse/rev, A51: 1,000,000 pulse/rev, A48: 260,000 pulse/rev				
Structure		IP67 (The shaft-through portion is excluded)				
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, Y: 24.5m/s² (2.5G)				X: 24.5m/s² (2.5G) Y: 29.4m/s² (3G)
Flange Size (mm)		130 SQ.	130 SQ.	130 SQ.	130 SQ.	180 SQ.
Total Length (Excluding Shaft) (mm) (*2)		133.5	152.5	171.5	204	172.5
Flange Fitting Diameter (mm)		ø110	ø110	ø110	ø110	ø114.3
Shaft Diameter (mm)		ø24	ø24	ø24	ø24	ø35
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
Heat-Resistant Class		155 (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. The total length will be 3.5mm longer when using an A51 or A74N detector.
3. Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

HP Series Motor Specifications

Model Number HP_-A74N / HP_-A51 / HP_-A48		HP354	HP454	HP704	HP903	HP1103
Compatible Servo Drive Unit Type:	MDS-DH2-V1-	160	160	160W	320	320W
	MDS-DH2-V2-	16080 (L) 160160 160160W	16080 (L) 160160 160160W	160160W	-	
Continuous Characteristics	Rated Output (kW)	3.5	4.5	7.0	9.0	11.0
	Rated Current (A)	15.2	14.2	19.2	22.2	25.2
	Rated Torque (N·m)	11.1	14.3	22.3	28.7	35.0
	Stall Current (A)	31.0	32.0	42.0	54.0	79.0
	Stall Torque (N·m)	22.5	31.9	49.0	70.0	110.0
Power Facility Capacity (kVA)		6.4	8.1	12.5	16.1	19.6
Rated Rotation Speed (r/min)		3000				
Maximum Rotation Speed (r/min)		4000			3000	
Maximum Current (A)		116.0	116.0	116.0	172.0	212.0
Maximum Torque (N·m)		66.0	95.0	120.0	170.0	260.0
Power Rate at Continuous Rated Torque (kW/s)		33.0	36.0	59.0	52.0	48.0
Motor Inertia ($kg \cdot cm^2$)		37.0	55.0	82.0	163.0	255.0
Motor Inertia With Brake ($kg \cdot cm^2$)		42.5	60.0	87.5	187.0	279.0
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; A74N: 16,000,000 pulse/rev, A51: 1,000,000 pulse/rev, A48: 260,000 pulse/rev				
Structure		IP67 (The shaft-through portion is excluded)				
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: 24.5m/s^2 (2.5G); Y: 29.4m/s^2(3G)				X, Y:9.8m/s^2 (1G)
Flange Size (mm)		180 SQ.	180 SQ.	180 SQ.	220 SQ.	220 SQ.
Total Length (Excluding Shaft) (mm) (*2)		195.5	225.5	305.5	346.5	419.5
Flange Fitting Diameter (mm)		ø114.3	ø114.3	ø114.3	ø200	ø200
Shaft Diameter (mm)		ø35	ø35	ø35	ø55	ø55
Weight Without / With Brake (kg)		17.0/22.0	21.0/26.0	37.0/43.0	51.0/61.4	74.0/84.4
Heat-Resistant Class		155 (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. The total length will be 3.5mm longer when using an A51 or A74N detector.
3. Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

HP Series Servomotor Selection

Description	Model Number	Stocked Item	Notes
Servomotor With Brake 5.9NM STALL 4KRPM 1MPPR	HP104BS-A51	-	Use MDS-D2-V_-40 drive unit
Servomotor 5.9NM STALL 4KRPM 1MPPR	HP104S-A51	-	
Servomotor With Brake 110NM STALL 3KRPM 1MPPR	HP1103BS-A51	-	Use MDS-D2-V_-320W drive unit
Servomotor 110NM STALL 3KRPM 1MPPR	HP1103S-A51	-	
Servomotor With Brake 9NM STALL 4KRPM 1MPPR	HP154BS-A51	-	Use MDS-D2-V_-80 drive unit
Servomotor 9NM STALL 4KRPM 1MPPR	HP154S-A51	-	
Servomotor With Brake 13.7NM STALL 4KRPM 1MPPR	HP204BS-A51	-	
Servomotor 13.7NM STALL 4KRPM 1MPPR	HP204S-A51	-	
Servomotor With Brake 22.5NM STALL 4KRPM 1MPPR	HP354BS-A51	-	Use MDS-D2-V_-160 drive unit
Servomotor 22.5NM STALL 4KRPM 1MPPR	HP354S-A51	-	
Servomotor With Brake 31.9NM STALL 4KRPM 1MPPR	HP454BS-A51	-	
Servomotor 31.9NM STALL 4KRPM 1MPPR	HP454S-A51	-	
Servomotor With Brake 3NM STALL 4KRPM 1MPPR	HP54BS-A51	-	Use MDS-D2-V_-40 drive unit
Servomotor 3NM STALL 4KRPM 1MPPR	HP54S-A51	-	
Servomotor With Brake 49NM STALL 4KRPM 1MPPR	HP704BS-A51	-	Use MDS-D2-V_-160W drive unit
Servomotor 49NM STALL 4KRPM 1MPPR	HP704S-A51	-	
Servomotor With Brake 70NM STALL 3KRPM 1MPPR	HP903BS-A51	-	Use MDS-D2-V_-320 drive unit
Servomotor 70NM STALL 3KRPM 1MPPR	HP903S-A51	-	

HP-H Series Motor Specifications

Model Number HP-H_-A74N / HP-H_-A51 / HP-H_-A48		HP-H354	HP-H454	HP-H704	HP-H903	HP-H1103
Compatible Servo Drive Unit Type:	MDS-DH2-V1-	80	80	80W	160	160W
	MDS-DH2-V2-	8040 (L) 8080 8080W	8040 (L) 8080 8080W	8080W (L, M)	-	-
Continuous Characteristics	Rated Output (kW)	3.5	4.5	7.0	9.0	11.0
	Rated Current (A)	7.6	7.1	9.6	11.1	12.6
	Rated Torque (N·m)	11.1	14.3	22.3	28.7	35.0
	Stall Current (A)	15.5	16.0	21.0	27.0	39.5
	Stall Torque (N·m)	22.5	31.9	49.0	70.0	110.0
Power Facility Capacity (kVA)		6.4	8.1	12.5	16.1	19.6
Rated Rotation Speed (r/min)		3000				
Maximum Rotation Speed (r/min)		4000			3000	
Maximum Current (A)		58.0	58.0	58.0	86.0	106.0
Maximum Torque (N·m)		66.0	95.0	120.0	170.0	260.0
Power Rate at Continuous Rated Torque (kW/s)		33.0	36.0	59.0	52.0	48.0
Motor Inertia (kg·cm^2)		37.0	55.0	82.0	163.0	255.0
Motor Inertia With Brake (kg·cm^2)		42.5	60.5	87.5	187.0	2790
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; A74N: 16,000,000 pulse/rev, A51: 1,000,000 pulse/rev, A48: 260,000 pulse/rev				
Structure		IP67 (The shaft-through portion is excluded)				
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:2 4.5m/s^2 (2.5G) Y: 29.4m/s^2(3G)			X, Y: 9.8m/s^2 (1G)	
Flange Size (mm)		180 SQ	180 SQ	180 SQ	220 SQ	220 SQ
Total Length (Excluding Shaft) (mm) (*2)		195.5	225.5	305.5	346.5	419.5
Flange Fitting Diameter (mm)		ø114.3	ø114.3	ø114.3	ø200	ø200
Shaft Diameter (mm)		ø35	ø35	ø35	ø55	ø55
Weight Without / With Brake (kg)		17.0/22.0	21.0/26.0	37.0/43.0	51.0/61.4	74.0/84.4
Heat-Resistant Class		155 (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. The total length will be 3.5mm longer when using an A51 or A74N detector.
3. Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

HP-H Series Servomotor Selection

Description	Model Number	Stocked Item	Notes
Servomotor With Brake 5.9NM STALL 4KRPM 1MPPR	HP-H104BS-A51	-	Use MDS-DH2-V_-20 drive unit
Servomotor 5.9NM STALL 4KRPM 1MPPR	HP-H104S-A51	-	
Servomotor With Brake 110NM STALL 3KRPM 1MPPR	HP-H1103BS-A51	-	Use MDS-DH2-V_-160W drive unit
Servomotor 110NM STALL 3KRPM 1MPPR	HP-H1103S-A51	-	
Servomotor With Brake 9NM STALL 4KRPM 1MPPR	HP-H154BS-A51	-	Use MDS-DH2-V_-40 drive unit
Servomotor 9NM STALL 4KRPM 1MPPR	HP-H154S-A51	-	
Servomotor With Brake 13.7NM STALL 4KRPM 1MPPR	HP-H204BS-A51	-	
Servomotor 13.7NM STALL 4KRPM 1MPPR	HP-H204S-A51	-	
Servomotor With Brake 22.5NM STALL 4KRPM 1MPPR	HP-H354BS-A51	-	Use MDS-DH2-V_-80 drive unit
Servomotor 22.5NM STALL 4KRPM 1MPPR	HP-H354S-A51	-	
Servomotor With Brake 31.9NM STALL 4KRPM 1MPPR	HP-H454BS-A51	-	
Servomotor 31.9NM STALL 4KRPM 1MPPR	HP-H454S-A51	-	
Servomotor With Brake 3NM STALL 4KRPM 1MPPR	HP-H54BS-A51	-	Use MDS-DH2-V_-20 drive unit
Servomotor 3NM STALL 4KRPM 1MPPR	HP-H54S-A51	-	
Servomotor With Brake 49NM STALL 4KRPM 1MPPR	HP-H704BS-A51	-	Use MDS-DH2-V_-80W drive unit
Servomotor 49NM STALL 4KRPM 1MPPR	HP-H704S-A51	-	
Servomotor With Brake 70NM STALL 3KRPM 1MPPR	HP-H903BS-A51	-	Use MDS-DH2-V_-160 drive unit
Servomotor 70NM STALL 3KRPM 1MPPR	HP-H903S-A51	-	

HF-KP Series Motor Specifications

Model Number		HF-KP23JW04-S6	HF-KP43JW04-S6	HF-KP73JW04-S6
Compatible Servo Drive Unit Type:	MDS-D2-V1-	20	20	20
	MDS-D2-V2-	2020 4020 (M)	2020 4020 (M)	2020 4020 (M)
	MDS-D2-V3-	202020	202020	202020
Continuous Characteristics	Rated Output (kW)	0.2	0.4	0.75
	Rated Current (A)	1.4	2.7	5.2
	Rated Torque (N·m)	0.64	1.3	2.4
	Stall Current (A)	1.4	2.7	5.2
	Stall Torque (N·m)	0.64	1.3	2.4
Power Facility Capacity (kVA)		0.6	0.9	1.5
Rated Rotation Speed (r/min)		3000		
Maximum Rotation Speed (r/min)		6000		
Maximum Current (A)		4.3	8.5	15.5
Maximum Torque (N·m)		1.9	3.8	7.2
Power Rate at Continuous Rated Torque (kW/s)		16.9	38.6	39.9
Motor Inertia ($kg \cdot cm^2$)		0.23	0.42	1.43
Motor Inertia With Brake ($kg \cdot cm^2$)		0.31	0.50	1.63
Maximum Motor Shaft Conversion Load Inertia Ratio		General machine (non-interpolation axis): 15 times or less of motor inertia		
Motor Side Detector		Resolution per motor revolution: 260,000 pulse/rev		
Structure		IP65 (The shaft-through portion is excluded.)		
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, Y: $49 m/s^2$ (5G)		
Flange Size (mm)		60 SQ		80 SQ
Total Length (Excluding Shaft) (mm) (*2)		98	119.9	134.2
Flange Fitting Diameter (mm)		ø50		ø70
Shaft Diameter (mm)		ø14		ø19
Weight Without / With Brake (kg)		1.2/1.8	1.7/2.3	2.9/4.1
Heat-Resistant Class		130 (B)		

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

HF-KP Series Servomotor Selection

Description	Model Number	Stocked Item	Notes
Servomotor With Brake .64NM STALL 6KRPM 260KPPR	HF-KP23BJW04-S6	-	Use MDS-D2-V_-20 drive unit
Servomotor .64NM STALL 6KRPM 260KPPR	HF-KP23JW04-S6	-	
Servomotor With Brake 1.3NM STALL 6KRPM 260KPPR	HF-KP43BJW04-S6	S	
Servomotor 1.3NM STALL 6KRPM 260KPPR	HF-KP43JW04-S6	S	
Servomotor With Brake 2.4NM STALL 6KRPM 260KPPR	HF-KP73BJW04-S6	-	
Servomotor 2.4NM STALL 6KRPM 260KMPPR	HF-KP73JW04-S6	S	

200V Servo Unit Drive

1-Axis Servo Drive Unit			Compatible Motor																			
(1) Type MDS-D2-	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-D2-	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		L							•	•								•	•			
	160 + 80A	90mm	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-D2-V1-160	S	Add Qty 1 ER6V-C119B battery for each drive unit
1 Axis Servo 160 A For HF703 HP704	MDS-D2-V1-160W	S	
1 Axis Servo 20 A For HF75, 105	MDS-D2-V1-20	S	
1 Axis Servo 320 A For HF903 HP903	MDS-D2-V1-320	-	
1 Axis Servo 320 A For HP1103	MDS-D2-V1-320W	-	
1 Axis Servo 40 A For HF54, 104 HP54, 104	MDS-D2-V1-40	S	
1 Axis Servo 80 A For HF154, 204 HP154, 204	MDS-D2-V1-80	S	
2 Axis Servo 160+160 For HF354, 453X2	MDS-D2-V2-160160	S	
2 Axis Servo 160+80 For HF354, 453+HF154, 204	MDS-D2-V2-16080	S	
2 Axis Servo 20+20 For HF75, 105	MDS-D2-V2-2020	S	
2 Axis Servo 40+20 For HF54,154+HF75, 105	MDS-D2-V2-4020	-	
2 Axis Servo 40+40 For HF54, 104X2	MDS-D2-V2-4040	S	
2 Axis Servo 80+40 For HF154, 204+HF54, 104	MDS-D2-V2-8040	S	
2 Axis Servo 80+80 For HF154, 204X2	MDS-D2-V2-8080	S	

400V Servo Unit Drive

1-Axis Servo Drive Unit			Compatible Motor																			
(1) Type MDS-DH2-	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-DH2-	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							•	•								•	•			
		90mm	M					•	•							•	•	•					
V2-8080	80 + 80A		LM							•	•								•	•			

• Indicates the compatible motor for each servo unit drive.

400V Servo Drive Unit Selection

Description	Model Number	Stocked Item	Notes
1 Axis Servo 160 A For HF354, 453 HP354, 454	MDS-DH2-V1-80	-	Add Qty 1 ER6V-C119B battery for each Drive Unit
1 Axis Servo 160 A For HF703 HP704	MDS-DH2-V1-80W	-	
1 Axis Servo 20 A For HF75, 105	MDS-DH2-V1-10	-	
1 Axis Servo 320 A For HF903 HP903	MDS-DH2-V1-160	-	
1 Axis Servo 320 A For HP1103	MDS-DH2-V1-160W	-	
1 Axis Servo 40 A For HF54, 104 HP54, 104	MDS-DH2-V1-20	-	
1 Axis Servo 80 A For HF154, 204 HP154, 204	MDS-DH2-V1-40	-	
2 Axis Servo 160+160 For HF354, 453X2	MDS-DH2-V2-8080	-	
2 Axis Servo 160+80 For HF354, 453+HF154, 204	MDS-DH2-V2-8040	-	
2 Axis Servo 20+20 For HF75, 105	MDS-DH2-V2-1010	-	
2 Axis Servo 40+20 For HF54, 154+HF75, 105	MDS-DH2-V2-2010	-	
2 Axis Servo 40+40 For HF54, 104X2	MDS-DH2-V2-2020	-	
2 Axis Servo 80+40 For HF154, 204+HF54, 104	MDS-DH2-V2-4020	-	
2 Axis Servo 80+80 For HF154, 204X2	MDS-DH2-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
Servomotor Encoder Cable 2M For HF Series	CNV2E-6P-2.0M	-	IP65, High Flexibility + Shield
Servomotor Encoder Cable 5M For HF Series	CNV2E-6P-5.0M	S	
Servomotor Encoder Cable 10M For HF Series	CNV2E-6P-10.0M	S	
Servomotor Encoder Cable 15M For HF Series	CNV2E-6P-15.0M	S	
Servomotor Encoder Cable 20M For HF Series	CNV2E-6P-20.0M	S	
Servomotor Encoder Cable 2M For KP Series	CNV2E-K2P-2.0M	S	Away from shaft orient
Servomotor Encoder Cable 5M For KP Series	CNV2E-K2P-5.0M	S	
Servomotor Encoder Cable 10M For KP Series	CNV2E-K2P-10.0M	S	
Servomotor Encoder Cable 2M For KP Series	CNV2E-K1P-2.0M	S	Towards shaft orient
Servomotor Encoder Cable 5M For KP Series	CNV2E-K1P-5.0M	S	
Servomotor Encoder Cable 10M For KP Series	CNV2E-K1P-10.0M	S	

Servo Armature Cables

Description	Model Number	Stocked Item	Notes
Servo Arm Cable HF54-154 NO SHLD STD FLX 2M For HF Series	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 For HF Series	MR-J3P2-5M	S	
Servo Arm Cable HF54-154 NO SHLD STD FLX 10M For HF Series	MR-J3P2-10M	S	
Servo Arm Cable HF204-453 NO SHLD STD FLX 2M For HF Series	MR-J3P5-2M	S	
Servo Arm Cable HF204-453 NO SHLD STD FLX 5M For HF Series	MR-J3P5-5M	S	
Servo Arm Cable HF204-4533 NO SHLD ST FLX 10M For HF Series	MR-J3P5-10M	S	
HF Servo Arm Cable HF704-HF903 & HP454-1103 No Shld Std Flx 2M	MR-J3P7-2M	S	
HF Servo Arm Cable CAB HF704-HF903 & HP454-1103 No Shld Std Flx 5M	MR-J3P7-5M	S	
HF Servo Arm Cable CAB HF704-HF903 & HP454-1103 No Shld Std Flx 10M	MR-J3P7-10M	S	
Servo Arm Cable NO SHLD STD FLX 2M For KP Series	MR-PWS12M-A2-H	S	Away from shaft orient
Servo Arm Cable NO SHLD STD FLX 5M For KP Series	MR-PWS15M-A2-H	S	
Servo Arm Cable NO SHLD STD FLX 10M For KP Series	MR-PWS110M-A2-H	S	
Servo Arm Cable NO SHLD STD FLX 2M For KP Series	MR-PWS12M-A1-H	S	Towards shaft orient
Servo Arm Cable NO SHLD STD FLX 5M For KPF Series	MR-PWS15M-A1-H	S	
Servo Arm Cable NO SHLD ST FLX 10M For KP Series	MR-PWS110M-A1-H	S	

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

Servo Brake Cables

Description	Model Number	Stocked Item	Notes
Servomotor Brake Cable, 2M For HF Series	MR-J3BK-2M	S	Add Qty 1 of CNU20S (AWG14) for each cable
Servomotor Brake Cable, 5M For HF Series	MR-J3BK-5M	S	
Servomotor Brake Cable,10M For HF Series	MR-J3BK-10M	S	
Servomotor Brake Cable, 2M For KP Series	MR-BKS1CBL2M-A2-H	S	Away from shaft orient
Servomotor Brake Cable, 5M For KP Series	MR-BKS1CBL5M-A2-H	S	
Servomotor Brake Cable,10M For KP Series	MR-BKS1CBL10M-A2-H	S	
Servomotor Brake Cable, 2M For KP Series	MR-BKS1CBL2M-A1-H	S	Towards shaft orient
Servomotor Brake Cable, 5M For KP Series	MR-BKS1CBL5M-A1-H	S	
Servomotor Brake Cable,10M For KP Series	MR-BKS1CBL10M-A1-H	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)	-	
Straight Servo Brake Connector With Contacts	CNB10-R2S(6)	-	
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	
Power Supply Connector	CNU23S	S	Included with CV unit

Spindle Motors, Drive, Options and Cables

SJ-V Series Specifications

Model Number SJ-V_ZT		SJ-V7.5-01	SJ-V7.5-03	SJ-V11-01	SJ-V11-13	SJ-V15-01	SJ-V15-09	SJ-V8.5-01	SJ-V18.5-04	SJ-V22-01	SJ-V22-04
Compatible Spindle Drive Unit Type:	MDS-D2-SP-	160	160	160	200	200	200	200	240	240	320
	MDS-D2-SP2-	16080S (L) 16080 (L)	16080S (L) 16080 (L)	16080S (L) 16080 (L)	-	-	-	-	-	-	-
Output Capacity (kW)	Continuous Rated Output	5.5	5.5	7.5	7.5	11	11	15	15	18.5	18.5
	Short Time Rated Output (30 Minute Rating)	7.5	7.5	11	11	15	15	18.5	18.5	22	22
	Standard Output During Acceleration/Deceleration	7.5	7.5	11	11	15	15	15	15	22	22
	Actual Acceleration/Deceleration Output (*3)	9	9	13.2	13.2	18	18	22.2	22.2	26.4	26.4
Power Facility Capacity (kVA)		13.4	13.4	19.6	19.6	26.7	26.7	32.8	32.8	39.0	39.0
Rated Rotation Speed (r/min)		1500									
Maximum Rotation Speed (r/min)		12000		8000							
Frame No.		A112		B112		A160				B160	
Continuous Rated Torque (N•m)		35		47.7		70		95.5		118	
GD^2 (kg•m^2)		0.098		0.12		0.23				0.319	
Inertia (kg•m^2)		0.0245		0.03		0.0575				0.08	
Tolerable Radial Load (N)		980		1960		2940					
Cooling Fan	Input Voltage	3-phase 200V									
	Maximum Power Consumption	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: 1000 meters or less above sea level, Transportation: 10000 meters or less above sea level									
Degree of Protection		IP44									
Flange Size (mm)		204 SQ.				250 SQ.					
Total Length (Excluding Shaft) (mm)		440		490		469.5				539.5	
Flange Fitting Diameter (mm)		ø180				ø230					
Shaft Diameter (mm)		ø32		ø48						ø55	
Weight (kg)		60		70		110				135	
Heat-Resistant Class		155 (F)									

Notes:
1. The tolerable radial load is the value calculated at the center of output shaft.
2. Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.
3. Actual acceleration/deceleration output is 1.2-fold of “Standard output during acceleration/deceleration” or “Short time rated output”.

SJ-V Series Specifications

Model Number		SJ-V26-01ZT	SJ-V37-01ZT	SJ-V45-01ZT	SJ-V55-01ZT
Compatible Spindle Drive Unit Type:	MDS-D2-SP-	320	400	640	640
	MDS-D2-SP2-	-	-	-	-
Output Capacity (kW)	Continuous Rated Output	22	30	37	45
	Short Time Rated Output (30 Minute Rating)	26 (30-minute rating)	37 (30-minute rating)	45 (30-minute rating)	55 (30-minute rating)
	Standard Output During Acceleration/Deceleration	26	37	45	55
	Actual Acceleration/Deceleration Output (*3)	31.2	44.4	54	66
Power Facility Capacity (kVA)		46.1	65.5	79.6	97.2
Rated Rotation Speed (r/min)		1500	1150	1500	1150
Maximum Rotation Speed (r/min)		8000	6000		4500
Frame No.		C160	B180	B180	A225
Continuous Rated Torque (N•m)		140	249	236	374
GD^2 ($kg•m^2$)		0.37	1.36	1.36	3.39
Inertia ($kg•m^2$)		0.0925	0.34	0.34	0.848
Tolerable Radial Load (N)		2940	3920	3920	5880
Cooling Fan	Input Voltage	3-phase 200V			
	Maximum Power Consumption	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: 1000 meters or less above sea level, Transportation: 10000 meters or less above sea level			
Degree of Protection		IP44			
Flange Size (mm)		250 SQ.	320 SQ.		480 SQ.
Total Length (Excluding Shaft) (mm)		585.5	700	700	724
Flange Fitting Diameter (mm)		ø230	ø300		ø450
Shaft Diameter (mm)		ø55	ø60		ø75
Weight (kg)		155	300		450
Heat-Resistant Class		155 (F)			

Notes:
1. The tolerable radial load is the value calculated at the center of output shaft.
2. Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.
3. Actual acceleration/deceleration output is 1.2-fold of “Standard output during acceleration/deceleration” or “Short time rated output”.

Spindle Motor Specifications • Wide Range Constant Output Series

Model Number		SJ-V11-01T	SJ-V11-09T	SJ-V15-03T	SJ-V18.5-03T	SJ-V22-05T	SJ-V22-09T	SJ-VK22-19ZT	
Compatible Spindle Drive Unit Type:	MDS-D2-SP-	160	160	200	240	320	320	320	
	MDS-D2-SP2-	16080S (L) 16080 (L)	16080S (L) 16080 (L)	-	-	-	-	-	
Output Capacity (kW)	Continuous Rated Output	3.7	5.5	7.5	9	11	15	13	18.5
	Short Time Rated Output (30 Minute Rating)	5.5	7.5	9	11	15	18.5	18.5	22
	Standard Output During Acceleration/Deceleration	5.5	7.5	9	11	15	18.5	18.5	22
	Actual Acceleration/Deceleration Output (*3)	6.6	9	10.8	13.2	18	22.2	22.2	26.4
Power Facility Capacity (kVA)		9.9	13.4	16.1	19.6	26.7	32.8	32.8	39.0
Base Rotation Speed (r/min)		750				750	500	330	575
Maximum Rotation Speed (r/min)		6000				6000	4500	750	6000
Frame No.		B112	A160	A160	B160	B160	A180	B180	
Continuous Rated Torque (N•m)		47.1	70.0	95.5	115	140	239	310	307.3
GD^2 ($kg•m^2$)		0.12	0.23	0.23	0.32	0.32	1.23	1.36	
Inertia ($kg•m^2$)		0.03	0.06	0.06	0.08	0.08	0.31	0.34	
Tolerable Radial Load (N)		1960	2940			2940	3920	3920	
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: 1000 meters or less above sea level, Transportation: 10000 meters or less above sea level							
Degree of Protection		IP44							
Flange Size (mm)		204 SQ.	250 SQ.				320 SQ.		
Total Length (Excluding Shaft) (mm)		490	469.5		539.5	539.5	631	700	
Flange Fitting Diameter (mm)		ø180	ø230				ø300		
Shaft Diameter (mm)		ø48			ø55		ø60		
Weight (kg)		70	110	110	135	135	280	300	300
Heat-Resistant Class		155 (F)							

Notes:
1. The tolerable radial load is the value calculated at the center of output shaft.
2. Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.
3. Actual acceleration/deceleration output is 1.2-fold of “Standard output during acceleration/deceleration” or “Short time rated output”.

200V Spindle Motor Specifications • High Speed Series

Model Number		SJ-VL2.2-02ZT	SJ-V3.7-02ZT	SJ-V11-06ZT	SJ-V11-08ZT	SJ-V22-06ZT	SJ-V18.5-04ZT	SJ-V30-02ZT
Compatible Spindle Drive Unit Type:	MDS-D2-SP-	40	80	200	200	240	240	320
	MDS-D2-SP2-	4020 (L) 4040S (L, M) 4040 (L, M) 8040 (M)	8040 (L) 16080S (M) 8080 (L, M)	-	-	-	-	-
Output Capacity (kW)	Continuous Rated Output	1.5	2.2	5.5	7.5	11	15	18.5
	Short Time Rated Output (30 Minute Rating)	2.2	3.7	7.5	11	15	18.5	22
	Standard Output During Acceleration/Deceleration	2.2	3.7	7.5	11	15	18.5	22
	Actual Acceleration/Deceleration Output (*3)	2.64	4.44	9	13.2	18	22.2	26.4
Power Facility Capacity (kVA)		4.1	6.7	13.4	19.6	26.7	32.8	39.0
Base Rotation Speed (r/min)		3000		1500				
Maximum Rotation Speed (r/min)		15000		12000		8000		
Frame No.		B71	A90	A112	B112	A160	A160	B160
Continuous Rated Torque (N•m)		4.77	7.0	35.0	47.7	70.0	95.5	118
GD^2 ($kg•m^2$)		0.0096	0.027	0.098	0.12	0.23	0.23	0.32
Inertia ($kg•m^2$)		0.0024	0.007	0.025	0.03	0.06	0.0575	0.08
Tolerable Radial Load (N)		196	245	980	1470	1960	2940	1960
Cooling fan	Input Voltage	Single-phase 200V		3-phase 200V				Single-phase 200V
	Maximum Power Consumption	14W	42W	40W	40W	63W	63W	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: 1000 meters or less above sea level, Transportation: 10000 meters or less above sea level						
Degree of Protection		IP44						
Flange Size (mm)		130 SQ.	174 SQ.	204 SQ.		250 SQ.		
Total Length (Excluding Shaft) (mm)		325	300	440	490	469.5	469.5	539.5
Flange Fitting Diameter (mm)		ø110	ø150	ø180	ø180	ø230	ø230	ø230
Shaft Diameter (mm)		ø22	ø28	ø32	ø48	ø48	ø48	ø48
Weight (kg)		20	25	60	70	125	110	155
Heat-Resistant Class		155 (F)						

Notes:
1. The tolerable radial load is the value calculated at the center of output shaft.
2. Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.
3. Actual acceleration/deceleration output is 1.2-fold of “Standard output during acceleration/deceleration” or “Short time rated output”.

SJ-D Series • 200V

Model Number SJ-D_		3.7/100-01	5.5/100-01	5.5/120-01	5.5/120-02		7.5/100-01	7.5/120-01	11/80-01	11/100-01
Compatible Spindle Drive Unit Type:	MDS-D2-SP-	80	80	80	160	200	160	160	160	160
	MDS-D2-SP2-	8040 (L) 16080S (M) 8080 16080 (M)	8040 (L) 16080S (M) 8080 16080 (M)	8040 (L) 8080 (L, M) 16080S (M)	16080S (L)	-	16080S (L) 16080 (L)	16080S (L)	16080S (L) 16080 (L)	16080S (L)
Output Capacity (kW)	Continuous Rated Output	2.2	3.7	3.7	3.7		5.5	5.5	7.5	7.5
	Short Time Rated Output	3.7 (15-minute rating)	5.5 (30-minute rating)	5.5 (30-minute rating)	5.5 (30-minute rating)		7.5 (30-minute rating)	7.5 (30-minute rating)	11 (30-minute rating)	11 (30-minute rating)
	Standard Output During Acceleration/Deceleration	3.7	5.5	5.5	9.2	10.4	7.5	7.5	11	11
	Actual Acceleration/Deceleration Output (*3)	4.44	6.6	6.6	11.04	12.48	9	9	13.2	13.2
Power Facility Capacity (kVA)		6.7	9.9	9.9	9.9		13.4	13.4	19.6	19.6
Base Rotation Speed (r/min)		1500			2800		1500			
Maximum Rotation Speed (r/min)		10000		12000	12000		10000	12000	8000	10000
Frame No.		B90	D90		B90		A112		B112	
Continuous Rated Torque (N•m)		14.0	23.6		12.6		35.0		47.7	
GD^2 (kg•m^2)		0.030	0.053		0.030		0.094		0.122	
Inertia (kg•m^2)		0.0074	0.013		0.0074		0.023		0.031	
Tolerable Radial Load (N)		980	1470		980		1960			
Cooling Fan	Input Voltage	3-phase 200V								
	Maximum Power Consumption	38W					50W			
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: 1000 meters or less above sea level, Transportation: 10000 meters or less above sea level								
Degree of Protection		IP54 (The shaft-through portion is excluded)								
Flange Size (mm)		174 SQ.					204 SQ.	180 SQ.	204 SQ.	180 SQ.
Total Length (Excluding Shaft) (mm)		327	417	427	327		439			
Flange Fitting Diameter (mm)		150					180			
Shaft Diameter (mm)		28					32		48	
Weight (kg)		26	39	39	26		53	53	64	64
Heat-Resistant Class		155 (F)								

Notes:
1. The tolerable radial load is the value calculated at the center of output shaft.
2. Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.
3. Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or "Short time rated output".
4. For SJ-D5.5/120-02, output characteristics at acceleration/deceleration vary depending on the connected drive unit. Refer to "output characteristics" for details.

SJ-DJ Series • Compact and Lightweight Specifications

Model Number		SJ-DJ5.5/100-01	SJ-DJ5.5/120-01	SJ-DJ7.5/100-01	SJ-DJ11/100-01	SJ-DJ15/80-01
Compatible Spindle Drive Unit Type:	MDS-D2-SP-	80	80	160	160	200
	MDS-D2-SP2-	8040 (L) 16080S (M) 8080 16080 (M)	8040 (L) 8080 (L, M) 16080S (M)	16080S (L) 16080 (L)	16080S (L) 16080 (L)	-
Output Capacity (kW)	Continuous Rated Output	3.7	3.7	5.5	7.5	11
	Short Time Rated Output	5.5 (25%ED rating)	5.5 (25%ED rating)	7.5 (15-minute rating)	11 (15-minute rating)	15 (15-minute rating) (15%ED rating)
	Standard Output During Acceleration/Deceleration	5.5	5.5	7.5	11	15
	Actual Acceleration/Deceleration Output (*3)	6.6	6.6	9	13.2	18
Power Facility Capacity (kVA)		9.9	9.9	13.4	19.6	26.7
Base Rotation Speed (r/min)		(Continuous) 2000 (Short time) 1500	(Continuous) 2000 (Short time) 1500	(Continuous) 2000 (Short time) 1500	(Continuous) 2000 (Short time) 1500	(Continuous) 2000 (Short time) 1500
Maximum Rotation Speed (r/min)		10000	12000	10000	10000	8000
Frame No.		B90	B90	D90	A112	B112
Continuous Rated Torque (N•m)		17.7	17.7	26.3	35.8	52.5
GD^2 ($kg•m^2$)		0.030	0.030	0.053	0.094	0.122
Inertia ($kg•m^2$)		0.0074	0.0074	0.013	0.023	0.031
Tolerable Radial Load (N)		980	980	1470	1960	1960
Cooling Fan	Input Voltage	3-phase 200V				
	Maximum Power Consumption	38W	38W	38W	50W	50W
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: 1000 meters or less above sea level, Transportation: 10000 meters or less above sea level				
Degree of Protection		IP54 (The shaft-through portion is excluded)				
Flange Size (mm)		174 SQ.			204 SQ.	
Total Length (Excluding Shaft) (mm)		327		417	439	
Flange Fitting Diameter (mm)		ø150			ø180	
Shaft Diameter (mm)		ø28			ø32	ø48
Weight (kg)		26		39	53	64
Heat-Resistant Class		155 (F)				

Notes:
1. The tolerable radial load is the value calculated at the center of output shaft.
2. Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.
3. Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or "Short time rated output".

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-D2-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-D2-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-D2-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-D2-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)	S	
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-D2-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-D2-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-D2-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-D2-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-D2-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-D2-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-D2-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-D2-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)	S	Use MDS-D2-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-D2-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-D2-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-D2-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-D2-SP-160 drive unit
M7SPN MT 7.5K 1.5/12KRPM RSV Foot	SJ-VS7.5-03ZT(M)	-	
M7SPN MT 3.7KW 1.5/10KRPM	SJ-D3.7/100-01	-	
M7SPN MT 5.5KW 1.5/10KRPM	SJ-D5.5/100-01	-	
M7SPN MT 5.5KW 1.5/10KRPM	SJ-D5.5/120-01	-	
M7SPN MT 5.5KW 1.5/10KRPM	SJ-D5.5/120-02	-	
M7SPN MT 7.5KW 1.5/10KRPM	SJ-D7.5/100-01	-	
M7SPN MT 7.5KW 1.5/10KRPM	SJ-D7.5/120-01	-	
M7SPN MT 11KW 1.5/10KRPM	SJ-D11/80-01	-	
M7SPN MT 11KW 1.5/10KRPM	SJ-D11/100-01	-	
M7SPN MT 5.5KW 1.5/10KRPM	SJ-DJ5.5/100-01	-	
M7SPN MT 5.5KW 1.5/10KRPM	SJ-DJ5.5/120-01	-	
M7SPN MT 7.5KW 1.5/10KRPM	SJ-DJ7.5/100-01	-	
M7SPN MT 11KW 1.5/10KRPM	SJ-DJ11/100-01	-	
M7SPN MT 15KW 1.5/10KRPM	SJ-DJ15/80-01	-	

Spindle Drive Unit MDS-D2-SP Series Specifications

Model Number		MDS-D2-SP-20	MDS-D2-SP-40	MDS-D2-SP-80	MDS-D2-SP-160	MDS-D2-SP-200	MDS-D2-SP-240	MDS-D2-SP-320	MDS-D2-SP-400	MDS-D2-SP-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)	50/60 Frequency 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-D2-SP-160	S	
20 AMP Spindle Drive	MDS-D2-SP-20	S	Qty 1 of 1-179958-4 and 4 contacts required
200 AMP Spindle Drive	MDS-D2-SP-200	S	
240 AMP Spindle Drive	MDS-D2-SP-240	S	
320 AMP Spindle Drive	MDS-D2-SP-320	S	
40 AMP Spindle Drive	MDS-D2-SP-40	S	Qty 1 of 1-179958-4 and 4 contacts required
400 AMP Spindle Drive	MDS-D2-SP-400	S	
640 AMP Spindle Drive	MDS-D2-SP-640	S	
80 AMP Spindle Drive	MDS-D2-SP-80	S	Qty 1 of 1-179958-4 and 4 contacts required

SJ-4-V 400V Series

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 Type	MDS-DH2-SP-	20		40		80	100
Output Capacity (kW)	Continuous Rated Output	1.5	2.2	3.7	5.5	7.5	11
	Short Time Rated Output	2.2 (15-minute rating)	3.7 (15-minute rating)	5.5 (30-minute rating)	7.5 (30-minute rating)	11 (30-minute rating)	15 (30-minute rating)
	Standard Output During Acceleration/Deceleration	2.2	3.7	5.5	5.7	11	15
	Actual Acceleration/ Deceleration Output (*3)	2.64	4.44	6.6	9	13.2	18
Power Facility Capacity (kVA)		4.1	6.7	9.9	13.4	19.6	26.7
Base Rotation Speed (r/min)		1500					
Maximum Rotation Speed (r/min)		10000		8000		6000	
Frame No.		A90	B90	D90	A112	B112	A160
Continuous Rated Torque (N•m)		9.5	14.0	23.5	35.0	47.7	70.0
GD^2($kg•m^2$)		0.027	0.035	0.059	0.098	0.12	0.23
Inertia ($kg•m^2$)		0.007	0.009	0.015	0.025	0.03	0.06
Tolerable Radial Load (N)		980		1470	1960		2940
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: 1000 meters or less above sea level, Transportation: 10000 meters or less above sea level					
Degree Of Protection		IP44					
Flange Size (mm)		174 SQ.			204 SQ.		250 SQ.
Total Length (Excluding Shaft) (mm)		300	330	425	440		469.5
Flange Fitting Diameter (mm)		ø150			ø180	ø180	ø230
Shaft Diameter (mm)		ø28			ø32	ø48	ø48
Weight (kg)		25	30	49	60	70	110
Heat-Resistant Class		155 (F)					

Notes:
1. The tolerable radial load is the value calculated at the center of output shaft.
2. Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.
3. Actual acceleration/deceleration output is 1.2-fold of “Standard output during acceleration/deceleration” or “Short time rated output”.
4. 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.

SJ-4-V Series

Spindle Motor Type		SJ-4-V18.5-14T	SJ-4-V22-15T	SJ-4-V26-08T	SJ-4-V37-04T	SJ-4-V45-02T	SJ-4-V55-03T
Compatible Spindle Drive Unit Type	MDS-DH2-SP-	100	160		200	320	
Output Capacity (kW)	Continuous Rated Output	15	18.5	22	30	37	45
	Short Time Rated Output	18.5 (30-minute rating)	22 (30-minute rating)	26 (30-minute rating)	37 (30-minute rating)	45 (30-minute rating)	55 (30-minute rating)
	Standard Output During Acceleration/Deceleration	18.5	22	26	37	45	55
	Actual Acceleration/ Deceleration Output (*3)	22.2	26.4	31.2	44.4	54	66
Power Facility Capacity (kVA)		32.8	39.0	46.1	65.5	79.6	97.2
Base Rotation Speed (r/min)		1500			1150	1500	1150
Maximum Rotation Speed (r/min)		6000			3450		
Frame No.		A160	B160	C160	A180	B180	A225
Continuous Rated Torque (N•m)		95.5	118	140	249	236	374
GD^2 (kg•m^2)		0.23	0.32	0.38	1.23	2.19	3.39
Inertia (kg•m^2)		0.06	0.08	0.10	0.31	0.55	0.85
Tolerable Radial Load (N)		2940			3920		5880
Cooling Fan	Input Voltage	3-phase 400V					
	Maximum Power Consumption	72W			Refer to each motor specifications.		
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: 1000 meters or less above sea level, Transportation: 10000 meters or less above sea level					
Degree of Protection		IP44					
Flange Size (mm)		250 SQ.			320 SQ.		480 SQ.
Total Length (Excluding Shaft) (mm)		469.5	539.5	585.5	631	700	724
Flange Fitting Diameter (mm)		ø230			ø300		ø450
Shaft Diameter (mm)		ø48	ø55		ø60		ø75
Weight (kg)		110	135	155	280	390	450
Heat-Resistant Class		155 (F)					

Notes:
1. The tolerable radial load is the value calculated at the center of output shaft.
2. Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.
3. Actual acceleration/deceleration output is 1.2-fold of “Standard output during acceleration/deceleration” or “Short time rated output”.
4. 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.

SJ-4-V Series • Wide-Range Constant Output

Spindle Motor Type		SJ-4-V11-18T	SJ-4-V11-21T	SJ-4-V15-20T	1SJ-4-V8.5-17T	SJ-4-V22-16T
Compatible Spindle Drive Unit Type	MDS-DH2-SP-	80		100	160	
Output Capacity (kW)	Continuous Rated Output	3.7	5.5	7.5	9	11
	Short Time Rated Output	5.5 (30-minute rating)	7.5 (30-minute rating)	9 (30-minute rating)	11 (30-minute rating)	15 (30-minute rating)
	Standard Output During Acceleration/Deceleration	5.5	7.5	9	11	15
	Actual Acceleration/ Deceleration Output (*3)	6.6	9	10.8	13.2	18
Power Facility Capacity (kVA)		9.9	13.4	16.1	19.6	26.7
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				
	Max. 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: 1000 meters or less above sea level, Transportation: 10000 meters or less above sea level				
Degree Of Protection		IP44				
Flange Size (mm)		204 SQ.	250 SQ.			
Total Length (Excluding Shaft) (mm)		490	469.5	469.5	539.5	539.5
Flange Fitting Diameter (mm)		ø180	ø230			
Shaft Diameter (mm)		ø48			ø55	
Weight (kg)		70	110		135	
Heat-Resistant Class		155 (F)				

Notes:
1. The tolerable radial load is the value calculated at the center of output shaft.
2. Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.
3. Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or "Short time rated output".
4. 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.

SJ-4-V Series • High Speed Series

Spindle Motor Type		SJ-4-V3.7-05	SJ-4-V7.5-13	SJ-4-V11-22	SJ-4-V11-23	SJ-4-V22-18	SJ-4-V30-15
Compatible Spindle Drive Unit Type	MDS-DH2-SP-	20	80	100		160	
Output Capacity (kW)	Continuous Rated Output	2.2	5.5	5.5	7.5	11	18.5
	Short Time Rated Output	3.7 (15-minute rating)	7.5 (30-minute rating)	7.5 (30-minute rating	11 (30-minute rating)	15 (30-minute rating)	22 (30-minute rating)
	Standard Output During Acceleration/Deceleration	3.7	7.7	7.5	11	15	22
	Actual Acceleration/ Deceleration Output (*3)	4.44	9	9	13.2	18	26.4
Power Facility Capacity (kVA)		6.7	13.4	13.4	19.6	26.7	39.0
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	0.32
Inertia ($kg•m^2$)		0.007	0.025	0.025	0.03	0.06	0.08
Tolerable Radial Load (N)		490	980		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: 1000 meters or less above sea level, Transportation: 10000 meters or less above sea level					
Degree Of Protection		IP44					
Flange Size (mm)		174 SQ.	204 SQ.			250 SQ.	250 Q.
Total Length (Excluding Shaft) (mm)		300	440		490	469.5	539.5
Flange Fitting Diameter (mm)		ø150	ø180			ø230	
Shaft Diameter (mm)		ø28	ø32		ø48	ø48	ø55
Weight (kg)		25	60		70	125	155
Heat-Resistant Class		155 (F)					

Notes:
1. The tolerable radial load is the value calculated at the center of output shaft.
2. Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.
3. Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or "Short time rated output".
4. 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.

SJ-4-VS Series • Hollow Shaft

Spindle Motor Type		SJ-4-VS7.5-13ZT	SJ-4-VS22-18ZT	SJ-4-VS30-15ZT
Compatible Spindle Drive Unit Type	MDS-DH2-SP-	80	160	
Output Capacity (kW)	Continuous Rated Output	5.5	11	18.5
	Short Time Rated Output	7.5 (30-minute rating)	15 (30-minute rating)	22 (30-minute rating)
	Standard Output During Acceleration/Deceleration	7.5	15	22
	Actual Acceleration/ Deceleration Output (*3)	9	18	26.4
Power Facility Capacity (kVA)		13.4	26.7	39.0
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
GD^2 ($kg•m^2$)		0.099	0.23	0.32
Inertia ($kg•m^2$)		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: 1000 meters or less above sea level, Transportation: 10000 meters or less above sea level		
Degree Of Protection		IP44		
Flange Size (mm)		204 SQ.	250 SQ.	
Total Length (Excluding Shaft) (mm)		440	469.5	539.5
Flange Fitting Diameter (mm)		ø180	ø230	
Shaft Diameter (mm)		ø32	ø48	ø55
Weight (kg)		65	115	140
Heat-Resistant Class		155 (F)		

Notes:
1. Do not apply a radial load.
2. Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.
3. Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or "Short time rated output".
4. 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.

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-DH2-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-DH2-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-DH2-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-DH2-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-V22-15T(M)	-	Use MDS-DH2-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 1.5/6kkrpm 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-DH2-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-DH2-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-DH2-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-DH2-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-DH2-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-DH2-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-DH2-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-DH2-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-DH2-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-DH2-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-DH2-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-DH2-SP Series Specifications

Model Number		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
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-DH2-SP-10	-	Add Qty 1 of 1-179958-4 and 4 contacts
20 Amp Spindle Drive	MDS-DH2-SP-20	-	
40 Amp Spindle Drive	MDS-DH2-SP-40	-	
80 Amp Spindle Drive	MDS-DH2-SP-80	-	
100 Amp Spindle Drive	MDS-DH2-SP-100	-	
160 Amp Spindle Drive	MDS-DH2-SP-160	-	
200 Amp Spindle Drive	MDS-DH2-SP-200	-	
320 Amp Spindle Drive	MDS-DH2-SP-320	-	
480 Amp Spindle Drive	MDS-DH2-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	S	15.0M
Spindle Feedback Cable	CNP2E-1-20.0M	S	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	S	20.0M

HF-KP Tool Spindle Motor Specifications

Model Number		HF-KP46-W09	HF-KP56-W09	HF-KP96-W09
Compatible Spindle Drive Unit Type:	MDS-D2-SP-	20	20	20
	MDS-D2-SP2-	2020 4020 (M)	2020 4020 (M)	2020 4020 (M)
Continuous Characteristics	Rated Output (kW)	0.4	0.5	0.9
	Rated Current (A)	1.5	1.8	3.6
	Rated Torque (N•m)	0.64	0.80	1.43
Power Facility Capacity (kVA)		0.9	1.1	1.8
Rated Rotation Speed (r/min)		6000		
Maximum Rotation Speed (r/min)		6000		
Maximum Current (A)		5.5	11.3	15.5
Maximum Torque (N•m)		2.5	5	6.5
Motor Inertia ($kg \cdot cm^2$)		0.24	0.42	1.43
Motor Side Detector		Resolution per motor revolution 260,000 pulse/rev		
Structure		IP67 (The shaft-through portion is excluded)		
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, Y: $49 m/s^2$ (5G)		
Flange Size (mm)		60 SQ.		80 SQ.
Total Length (Excluding Shaft) (mm) (*2)		118.7	140.6	149.1
Flange Fitting Diameter (mm)		ø50		ø70
Shaft Diameter (mm)		ø14		ø19
Weight (kg)		1.2	1.7	2.9
Heat-Resistant Class		130 (B)		

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

HF-SP Tool Spindle Motor Specifications

Model Number		HF-SP226-JW09	HF-SP406-JW09
Compatible Spindle Drive Unit Type:	MDS-D2-SP-	80	160
	MDS-D2-SP2-	8040 (L) 16080S (M) 8080 16080 (M)	16080S (L) 16080 (L)
Continuous Characteristics	Rated Output (kW)	2.2	4.0
	Rated Current (A)	8.2	14.4
	Rated Torque (N•m)	3.5	6.37
Power Facility Capacity (kVA)		4.1	7.3
Rated Rotation Speed (r/min)		6000	
Maximum Rotation Speed (r/min)		6000	
Maximum Current (A)		44.0	95.0
Maximum Torque (N•m)		22.0	50.0
Motor Inertia (kg·cm^2)		11.9	23.7
Motor Side Detector		Resolution per motor revolution 260,000 pulse/rev	
Structure		IP67 (The shaft-through portion is excluded)	
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, Y: 24.5m/s^2 (2.5G)	
Flange Size (mm)		130 SQ.	
Total Length (Excluding Shaft) (mm) (*2)		140.5	184.5
Flange Fitting Diameter (mm)		ø110	
Shaft Diameter (mm)		ø24	
Weight (kg)		6.8	10.0
Heat-Resistant Class		155 (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. Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

HF Tool Spindle Motor Specifications

Model Number		HF75-A48	HF105-A48	HF54-A48	HF104-A48	HF154-A48	HF224-A48	HF204-A48	HF354-A48
Compatible Spindle Drive Unit Type:	MDS-D2-SP-	20	20	40	40	80	80	80	160
	MDS-D2-SP2-	2020 4020 (M)	2020 4020 (M)	4020 (L) 4040S 4040 8040 (M)	4020 (L) 4040S 4040 8040 (M)	8040 (L) 16080S(M) 8080 16080 (M)	8040 (L) 16080S(M) 8080 16080 (M)	8040 (L) 16080S(M) 8080 16080 (M)	16080S(L) 16080 (L)
Continuous Characteristics	Rated Output (kW)	0.75	1.0	0.5	1.0	1.5	2.2	2.0	3.5
	Rated Current (A)	2.8	3.6	1.8	3.6	5.8	8.5	6.8	13.8
	Rated Torque (N•m)	1.8	2.4	1.6	3.2	4.8	7.0	6.4	11.1
Power Facility Capacity (kVA)		1.5	2.0	1.1	2.0	2.8	4.1	3.7	6.4
Rated Rotation Speed (r/min)		4000		3000					
Maximum Rotation Speed (r/min)		4000		3000					
Maximum Current (A)		14.0	15.5	16.8	29.0	52.0	57.0	57.0	116.0
Maximum Torque (N•m)		8.0	11.0	13.0	23.3	42.0	46.5	47.0	90.0
Motor Inertia (kg·cm^2)		2.6	5.1	6.1	11.9	17.8	23.7	38.3	75.0
Motor Side Detector		Resolution per motor revolution 260,000 pulse/rev							
Structure		IP67 (The shaft-through portion is excluded)							
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, Y: 24.5m/s^2 (2.5G)							
Flange Size (mm)		90 SQ.		130 SQ.				176 SQ.	
Total Length (Excluding Shaft) (mm) (*2)		126.5	162.5	118.5	140.5	162.5	184.5	143.5	183.5
Flange Fitting Diameter (mm)		ø80		ø110				ø114.3	
Shaft Diameter (mm)		ø14		ø24				ø35	
Weight (kg)		2.5	4.3	4.8	6.5	8.3	10.0	12.0	19.0
Heat-Resistant Class		155 (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. Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

HF Tool Spindle Motor Specifications

Model Number		HF123-A48	HF223-A48	HF303-A48	HF453-A48	HF703-A48	HF903-A48
Compatible Spindle Drive Unit Type:	MDS-D2-SP-	20	40	80	160	160	320
	MDS-D2-SP2-	2020 4020 (M)	4020 (L) 4040S 4040 8040 (M)	8040 (L) 16080S(M) 8080 16080 (M)	16080S(L) 16080 (L)	16080S(L) 16080 (L)	-
Continuous Characteristics	Rated Output (kW)	1.2	2.2	3.0	4.5	7.0	9.0
	Rated Current (A)	5.2	9.0	10.7	13.4	16.6	27.2
	Rated Torque (N·m)	5.7	10.5	14.3	14.3	22.3	28.7
Power Facility Capacity (kVA)		2.3	4.1	5.5	8.1	12.5	16.1
Rated Rotation Speed (r/min)		2000			3000		
Maximum Rotation Speed (r/min)		2000			3000		
Maximum Current (A)		15.5	29.0	48.0	104.2	108.4	204.0
Maximum Torque (N·m)		17.0	32.0	64.0	122.0	152.0	208.0
Motor Inertia (kg·cm²)		11.9	23.7	75.0	112.0	154.0	196.0
Motor Side Detector		Resolution per motor revolution 260,000 pulse/rev					
Structure		IP67 (The shaft-through portion is excluded)					
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, Y: 24.5m/s^2 (2.5G)					
Flange Size (mm)		130 SQ.		176 SQ.			204 SQ.
Total Length (Excluding Shaft) (mm) (*2)		140.5	184.5	183.5	223.5	263.5	330
Flange Fitting Diameter (mm)		ø110		ø114.3			ø180
Shaft Diameter (mm)		ø24		ø35			ø42
Weight (kg)		6.5	10.0	19.0	26.0	32.0	45.0
Heat-Resistant Class		155 (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. Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

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-D2-CV-110	S	Use D-AL-11k AC reactor unit
18.5KW Power Supply Unit	MDS-D2-CV-185	S	Use D-AL-18.5k AC reactor unit
30KW Power Supply Unit	MDS-D2-CV-300	S	Use D-AL-30k AC reactor unit
3.7KW Power Supply Unit	MDS-D2-CV-37	-	Use D-AL-7.5k AC reactor unit
37KW Power Supply Unit	MDS-D2-CV-370	S	Use D-AL-37k AC reactor unit
45KW Power Supply Unit	MDS-D2-CV-450	S	Use D-AL-45k AC reactor unit
55KW Power Supply Unit	MDS-D-CV-550	S	Use D-AL-55k AC reactor unit
7.5KW Power Supply Unit	MDS-D2-CV-75	S	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	S	
55KW AC Reactor	D-AL-55K	S	
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-DH2-CV-110	-	Use DH-AL-11k AC reactor unit
18.5KW Power Supply Unit	MDS-DH2-CV-185	-	Use DH-AL-18.5k AC reactor unit
30KW Power Supply Unit	MDS-DH2-CV-300	-	Use DH-AL-30k AC reactor unit
3.7KW Power Supply Unit	MDS-DH2-CV-37	-	Use DH-AL-7.5k AC reactor unit
37KW Power Supply Unit	MDS-DH2-CV-370	-	Use DH-AL-37k AC reactor unit
45KW Power Supply Unit	MDS-DH2-CV-450	-	Use DH-AL-45k AC reactor unit
55KW Power Supply Unit	MDS-DH2-CV-550	-	Use DH-AL-55k AC reactor unit
7.5KW Power Supply Unit	MDS-DH2-CV-75	-	Use DH-AL-7.5k AC reactor unit
750KW Power Supply Unit	MDS-DH2-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	-	

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	S	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	-	5M
Communication Cable (G013)	SH21-10.0M	-	10M