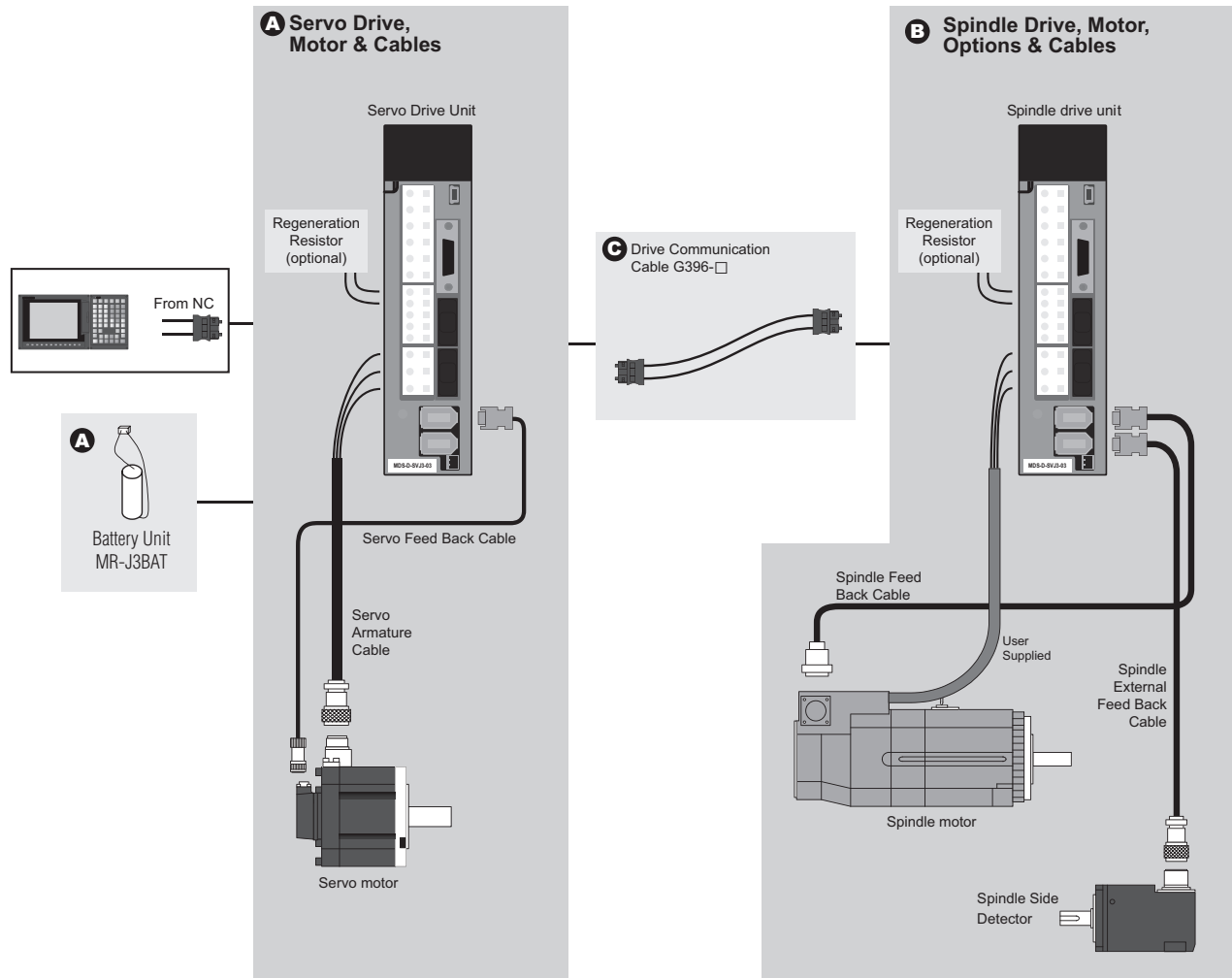


# MDS-DJ Drive System Selections

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-DJ Configuration



# Servo Drive, Motor and Cables

## HF Series Motors

Servo Drive Unit			Compatible Motor																	
MDS-DJ-V1-	Rated Output (A)	Unit Width	HF_												HF-KP_					
			75	105	54	104	154	224	204	354	123	223	303	142	302	13	23	43	73	
10	10	40mm															•	•		
15	15	40mm																	•	
30	30	60mm	•	•	•															•
40	40	90mm				•						•	•			•	•			
80	80	90mm					•	•	•							•				
100	100	90mm									•									

• Indicates the compatible motor for each servo unit drive.

## HF Series Specifications

Model Number HF_-A51 / HF_-A48	HF75	HF105	HF54	HF104	HF154	HF224	HF204	HF354
Compatible Servo Drive Unit Type	MDS-DJ-V1	30	30	30	40	80	80	100
	MDS-DJ-V2-	3030	3030	3030	-	-	-	-
Continuous Characteristics	Rated Output (kW)	0.75	1.0	0.5	1.0	1.5	2.2	3.5
	Rated Current (A)	2.8	3.6	1.8	3.6	5.8	8.5	13.8
	Rated Torque (N•m)	1.8	2.4	1.6	3.2	4.8	7.0	11.1
	Stall Current (A)	3.2	4.6	3.2	6.6	11.0	14.5	22.0
	Stall Torque (N•m)	2.0	3.0	2.9	5.9	9.0	12.0	13.7
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	52.0	64.0
Maximum Torque (N•m)	8.0	11.0	13.0	23.3	42.0	46.5	42.0	65.0
Power Rate at Continuous Rated Torque (kW/s)	12.3	12.2	4.1	84.2	12.7	20.7	10.6	16.5
Motor Inertia (kg•cm <sup>2</sup> )	2.6	5.1	6.1	11.9	17.8	23.7	38.3	75.0
Motor Inertia with Brake (kg•cm <sup>2</sup> )	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 A51: 1,000,000 pulse/rev, A48: 260,000 pulse/rev							
Degree of Protection	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 <sup>2</sup> (2.5G)					X: 24.5m/s <sup>2</sup> (2.5G) Y: 29.4m/s <sup>2</sup> (3G)	
Flange Size (mm)	90 SQ.	90 SQ.	130 SQ.	130 SQ.	130 SQ.	130 SQ.	176 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	ø80	ø110	ø110	ø110	ø110	ø114.3	ø114.3
Shaft Diameter (mm)	ø14	ø14	ø24	ø24	ø24	ø24	ø35	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:**

- The above characteristics values are representative values. The maximum current and maximum torque are the values when combined with the drive unit.
- The total length will be 3.5mm longer when using an A51 detector.
- Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

## HF Series Specifications

Model Number HF_-A51 / HF_-A48		HF123	HF223	HF303	HF142	HF302
Compatible Servo Drive Unit Type	MDS-DJ-V1	40	40	80	40	40
Continuous Characteristics	Rated Output (kW)	1.2	2.2	3.0	1.4	3.0
	Rated Current (A)	5.2	9.0	10.7	3.9	7.8
	Rated Torque (N•m)	5.7	10.5	14.3	6.7	14.3
	Stall Current (A)	6.4	10.2	15.8	6.4	10.9
	Stall Torque (N•m)	7.0	12.0	22.5	11.0	20.0
Power Facility Capacity (kVA)	2.3	4.1	5.5	2.7	5.5	
Rated Rotation Speed (r/min)	2000				2000	
Maximum Rotation Speed (r/min)	3000				2000	
Maximum Current (A)	15.5	29.0	48.0	15.5	29.0	
Maximum Torque (N•m)	17.0	32.0	64.0	26.5	50.0	
Power Rate at Continuous Rated Torque (kW/s)	27.3	46.5	27.3	25.2	27.3	
Motor Inertia (kg•cm <sup>2</sup> )	11.9	23.7	15.0	17.8	75.0	
Motor Inertia with Brake (kg•cm <sup>2</sup> )	14.1	25.9	84.7	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 A51: 1,000,000 pulse/rev, A48: 260,000 pulse/rev					
Degree of Protection	P67 (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 <sup>2</sup> (2.5G)		X: 24.5m/s <sup>2</sup> (2.5G) Y: 29.4m/s <sup>2</sup> (3G)	X, Y: 24.5m/s <sup>2</sup> (2.5G)	X: 24.5m/s <sup>2</sup> (2.5G) Y: 29.4m/s <sup>2</sup> (3G)
Flange Size (mm)	130 SQ.	130 SQ.	176 SQ.	130 SQ.	176 SQ.	
Total Length (Excluding Shaft) (mm) (*2)	140.5	184.5	183.5	162.5	183.5	
Flange Fitting Diameter (mm)	ø110	ø110	ø114.3	ø110	ø114.3	
Shaft Diameter (mm)	ø24	ø24	ø35	ø24	ø35	
Weight Without / With Brake (kg)	6.5/8.5	10.0/12.0	19.0/25.0	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 detector.
3. Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

## KP Series Specifications

Model Number (Absolute Position Standard)		HF-KP13J-S17	HF-KP23JW04-S6	HF-KP43JW04-S6	HF-KP73JW04-S6
Compatible Servo Drive Unit Type	MDS-DJ-V1	10	10	15	30
	MDS-DJ-V2-	-	-	-	3030 (L, M)
Continuous Characteristics	Rated Output (kW)	0.1	0.2	0.4	0.75
	Rated Current (A)	0.77	1.4	2.7	5.2
	Rated Torque (N•m)	0.32	.064	1.3	2.4
	Stall Current (A)	0.77	1.4	2.7	5.2
	Stall Torque (N•m)	0.32	0.64	1.3	2.4
Power Facility Capacity (kVA)		0.4	0.6	0.9	1.5
Rated Rotation Speed (r/min)		3000			
Maximum Rotation Speed (r/min)		6000			
Maximum Current (A)		23.1	4.3	8.5	15.5
Maximum Torque (N•m)		0.95	1.9	3.8	7.2
Power Rate at Continuous Rated Torque (kW/s)		11.5	16.9	38.6	39.9
Motor Inertia (kg•cm <sup>2</sup> )		0.088	0.23	0.42	14.3
Motor Inertia with Brake (kg•cm <sup>2</sup> )		0.090	0.31	0.50	16.3
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 (*2)			
Degree of Protection		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: 49m/s <sup>2</sup> (5G)			
Flange Size (mm)		40 SQ. (*4)	60 SQ.	60 SQ.	80 SQ.
Total Length (Excluding Shaft) (mm)		92.8	98	119.9	134.2
Flange Fitting Diameter (mm)		ø30	ø50	ø50	ø70
Shaft Diameter (mm)		ø8	ø14	ø14	ø19
Weight Without / With Brake (kg)		0.66/0.96	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. HF-KP13J-S17 is an absolute position specification motor, however this motor is not equipped with a capacitor for data backup. Thus the absolute position is lost as soon as the detector cable is disconnected.
3. The outside dimensions of the detector part are 50 sq. mm.
4. Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

## HF Series Servomotor Selection

Description	Model Number	Stocked Item	Notes
Servomotor With Brake 2NM STALL 5KRPM 1MPPR	HF75BS-A51	S	Use MDS-DJ-V_-30 drive unit
Servomotor 2NM STALL 5KRPM 1MPPR	HF75S-A51	S	
Servomotor With Brake 3NM STALL 5KRPM 1MPPR	HF105BS-A51	S	
Servomotor 3NM STALL 5KRPM 1MPPR	HF105S-A51	S	
Servomotor With Brake 2.9NM STALL 4KRPM 1MPPR	HF54BS-A51	S	
Servomotor 2.9NM STALL 4KRPM 1MPPR	HF54S-A51	S	
Servomotor With Brake 5.9NM STALL 4KRPM 1MPPR	HF104BS-A51	S	Use MDS-DJ-V_-40 drive unit
Servomotor 5.9NM STALL 4KRPM 1MPPR	HF104S-A51	S	
Servomotor With Brake 9NM STALL 4KRPM 1MPPR	HF154BS-A51	S	Use MDS-DJ-V_-80 drive unit
Servomotor 9NM STALL 4KRPM 1MPPR	HF154S-A51	S	
Servomotor With Brake 12NM STALL 4KRPM 1MPPR	HF224BS-A51	-	
Servomotor 12NM STALL 4KRPM 1MPPR	HF224S-A51	-	
Servomotor With Brake 13.7NM STALL 4KRPM 1MPPR	HF204BS-A51	S	
Servomotor 13.7NM STALL 4KRPM 1MPPR	HF204S-A51	S	
Servomotor With Brake 22.5NM STALL 4KRPM 1MPPR	HF354BS-A51	S	Use MDS-DJ-V_-100 drive unit
Servomotor 22.5NM STALL 4KRPM 1MPPR	HF354S-A51	S	
Servomotor With Brake 7NM STALL 3KRPM 1MPPR	HF123BS-A51	-	Use MDS-DJ-V_-40 drive unit
Servomotor 7NM STALL 3KRPM 1MPPR	HF123S-A51	-	
Servomotor With Brake 12NM STALL 3KRPM 1MPPR	HF223BS-A51	-	
Servomotor 12NM STALL 3KRPM 1MPPR	HF223S-A51	-	
Servomotor With Brake 22.5NM STALL 3KRPM 1MPPR	HF303BS-A51	-	Use MDS-DJ-V_-80 drive unit
Servomotor 22.5NM STALL 3KRPM 1MPPR	HF303S-A51	-	
Servomotor With Brake 11NM STALL 2KRPM 1MPPR	HF142BS-A51	-	Use MDS-DJ-V_-40 drive unit
Servomotor 11NM STALL 2KRPM 1MPPR	HF142S-A51	-	
Servomotor With Brake 20NM STALL 2KRPM 1MPPR	HF302BS-A51	-	
Servomotor 20NM STALL 2KRPM 1MPPR	HF302S-A51	-	
Servomotor With Brake 2NM STALL 5KRPM 260KPPR	HF75BS-A48	S	Use MDS-DJ-V_-30 drive unit
Servomotor 2NM STALL 5KRPM 260KPPR	HF75S-A48	S	
Servomotor With Brake 3NM STALL 5KRPM 260KPPR	HF105BS-A48	-	
Servomotor 3NM STALL 5KRPM 260KPPR	HF105S-A48	-	
Servomotor With Brake 2.9NM STALL 4KRPM 260KPPR	HF54BS-A48	S	
Servomotor 2.9NM STALL 4KRPM 260KPPR	HF54S-A48	S	
Servomotor With Brake 5.9NM STALL 4KRPM 260KPPR	HF104BS-A48	S	Use MDS-DJ-V_-40 drive unit
Servomotor 5.9NM STALL 4KRPM 260KPPR	HF104S-A48	S	
Servomotor With Brake 9NM STALL 4KRPM 260KPPR	HF154BS-A48	S	Use MDS-DJ-V_-80 drive unit
Servomotor 9NM STALL 4KRPM 260KPPR	HF154S-A48	S	
Servomotor With Brake 12NM STALL 4KRPM 260KPPR	HF224BS-A48	-	
Servomotor 12NM STALL 4KRPM 260KPPR	HF224S-A48	-	
Servomotor With Brake 13.7NM STALL 4KRPM 260KPPR	HF204BS-A48	S	
Servomotor 13.7NM STALL 4KRPM 260KPPR	HF204S-A48	S	
Servomotor With Brake 22.5NM STALL 4KRPM 260KPPR	HF354BS-A48	S	Use MDS-DJ-V_-100 drive unit
Servomotor 22.5NM STALL 4KRPM 260KPPR	HF354S-A48	S	
Servomotor With Brake 7NM STALL 3KRPM 260KPPR	HF123BS-A48	-	Use MDS-DJ-V_-40 drive unit
Servomotor 7NM STALL 3KRPM 260KPPR	HF123S-A48	-	
Servomotor With Brake 12NM STALL 3KRPM 260KPPR	HF223BS-A48	-	
Servomotor 12NM STALL 3KRPM 260KPPR	HF223S-A48	-	
Servomotor With Brake 22.5NM STALL 3KRPM 260KPPR	HF303BS-A48	-	Use MDS-DJ-V_-80 drive unit
Servomotor 22.5NM STALL 3KRPM 260KPPR	HF303S-A48	-	
Servomotor With Brake 11NM STALL 2KRPM 260KPPR	HF142BS-A48	-	Use MDS-DJ-V_-40 drive unit
Servomotor 11NM STALL 2KRPM 260KPPR	HF142S-A48	-	
Servomotor With Brake 20NM STALL 2KRPM 260KPPR	HF302BS-A48	-	
Servomotor 20NM STALL 2KRPM 260KPPR	HF302S-A48	-	

## HF KP Series Servo Motors

Description	Model Number	Stocked Item	Notes
Servomotor 0.64NM STALL 3KRPM 260KPPR	HF-KP23JW04-S06	-	Use MDS-DJ-V1-10 drive
Servomotor with Brake 0.64NM STALL 3KRPM 260KPPR	HF-KP23BJW04-S06	-	
Servomotor 1.3NM STALL 3KRPM 260KPPR	HF-KP43JW04-S06	S	Use MDS-DJ-V1-15 drive
Servomotor with Brake 1.3NM STALL 3KRPM 260KPPR	HF-KP43BJW04-S06	S	
Servomotor 2.4NM STALL 3KRPM 260KPPR	HF-KP73JW04-S06	S	Use MDS-DJ-V1-30 drive
Servomotor with Brake 2.4NM STALL 3KRPM 260KPPR	HF-KP73BJW04-S06	-	

## MDS-D-SVJ3 Drives

Description	Model Number	Stocked Item	Notes
Servo Drive 10A	MDS-DJ-V1-10	S	
Servo Drive 15A	MDS-DJ-V1-15	S	
Servo Drive 30A	MDS-DJ-V1-30	S	Use HF75, 105, 54
Servo Drive 40A	MDS-DJ-V1-40	S	Use HF104
Servo Drive 80A	MDS-DJ-V1-80	S	Use HF154, 204
Servo Drive 100A	MDS-DJ-V1-100	S	Use HF354

## Required Battery Unit for Each Servo Drive Unit

Description	Model Number	Stocked Item	Notes
Battery Unit	MR-BAT6V1 Set	S	Qty. 1 Required for each drive unit

## Servo Feedback Cables

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

## 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
Servomotor Brake, 2M	MR-J3BK-2M	S	Add quantity 1 of CNU20S(AWG14) for each cable
Servomotor Brake, 5M	MR-J3BK-5M	S	
Servomotor Brake, 10M	MR-J3BK-10M	S	
HF-KP Servomotor Brake, 2M	MR-BKS1CBL2M-A1-H	-	
HF-KP Servomotor Brake, 5M	MR-BKS1CBL5M-A1-H	-	
HF-KP Servomotor Brake, 10M	MR-BKS1CBL10M-A1-H	-	
HF-KP Servomotor Brake, 2M	MR-BKS1CBL2M-A2-H	S	
HF-KP Servomotor Brake, 5M	MR-BKS1CBL5M-A2-H	S	
HF-KP Servomotor 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 heat, so wire and install the unit according to safety specifications. When using the regenerative resistor, make sure flammable matter, such as cables, do not contact the resistor. Install 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	
				GZG200W39 OHMK	GZG200W120 OHMK x 3 Units	GZG200W39 OHMK x 3 Units	GZG300W 39 OHMK x 3 Units	GZG200W20 OHMK x 3 Units	GZG300W20 OHMK x 3 Units	
			1200h	1300h	1400h	1500h	1600h	1700h	1800h	
			30W	100W	300W	300W	500W	300W	500W	
Regenerative Capacity	40Ω	40Ω	40Ω	13Ω	13Ω	6.7Ω	6.7Ω			
MDS-DJ-V1-10	10W	100Ω	•	•						
MDS-DJ-V1-15	10W	100Ω	•	•						
MDS-DJ-V1-30	20W	40Ω	•	•	•					
MDS-DJ-V1-40	100W	13Ω				•	•			
MDS-DJ-V1-80	100W	9Ω						•	•	
MDS-DJ-V1-100	100W	9Ω						•	•	
MDS-DJ-V2-3030	100W	9Ω				•	•			

Corresponding Servo Drive Unit	Standard Built-in Regenerative Resistor	Resistance Value	External Option Regenerative Resistor							
			FCUA-RB22	FCUA-RB37	FCUA-RB55	FCUA-RB75/2 1 Unit	R-UNIT2	FCUA-RB55 2 Units Connected in Parallel	FCUA-RB75/2 2 Units Connected in Parallel	
			2400h	2500h	2600h	2700h	2900h	2E00h	2D00h	
			155W	185W	340W	340W	700W	680W	680W	
			Regenerative Capacity	40Ω	25Ω	20Ω	30Ω	15Ω	10Ω	15Ω
MDS-DJ-V1-10	10W	100Ω								
MDS-DJ-V1-15	10W	100Ω								
MDS-DJ-V1-30	20W	40Ω	•							
MDS-DJ-V1-40	100W	13Ω		•	•	•	•			•
MDS-DJ-V1-80	100W	9Ω					•	•	•	•
MDS-DJ-V1-100	100W	9Ω						•		
MDS-DJ-V2-3030	100W	9Ω		•	•					

# Spindle Motor, Drive, Options and Cables

## SJ-V Series

Model Number SJ-V		L0.75-01T	L1.5-01T	2.2-01T	3.7-01T	5.5-01ZT	7.5-01ZT	7.5-03ZT	11-01T	11-01ZT
Compatible Spindle Drive Unit Type	MDS-DJ-SP	20	40	80	80	100	20	160	160	160
	MDS-DJ-SP2-	2020	-	-	-	-	2020	-	-	-
Output Capacity (kW)	Continuous Rated Output	0.4	0.75	1.5	2.2	3.7	5.5	5.5	7.5	7.5
	Short Time Rated Output	0.75 (10-min. rating)	1.5 (10-min. rating)	2.2 (15-min. rating)	3.7 (15-min. rating)	5.5 (30-min. rating)	7.5 (30-min. rating)	7.5 (30-min. rating)	11 (30-min. rating)	11 (30-min. rating)
	Standard Output During Acceleration/Deceleration	0.75	1.5	2.2	3.7	5.5	7.5	7.5	11	11
	Actual Acceleration/Deceleration Output (*3)	0.9	1.8	2.64	4.44	6.6	9	9	13.2	13.2
Power Facility Capacity (kVA)		1.5	2.8	4.1	6.7	9.9	13.4	13.4	19.6	19.6
Base Rotation Speed (r/min)		1500	1500	1500	1500	1500	1500	1500	1500	1500
Maximum Rotation Speed (r/min)		10000	10000	10000	10000	12000	12000	10000	6000	8000
Frame No.		A71	B71	A90	B90	D90	A112	A112	B112	B112
Continuous Rated Torque (N•m)		2.55	4.77	9.5	14.0	23.6	35	35	47.7	47.7
GD <sup>2</sup> (kg•m <sup>2</sup> )		0.0053	0.0096	0.027	0.035	0.059	0.098	0.098	0.12	0.12
Inertia (kg•m <sup>2</sup> )		0.0013	0.0024	0.007	0.009	0.0148	0.0245	0.0245	0.03	0.03
Tolerable Radial Load (N)		490			980			1960		
Cooling Fan	Input Voltage	Single-phase 200V					3-phase 200V			
	Maximum Power Consumption	14W			36W		40W			
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.	130 SQ.	174 SQ.	174 SQ.	174 SQ.	204 SQ.	204 SQ.	204 SQ.	204 SQ.
Total Length (Excluding Shaft) (mm)		265	325	300	330	425	440		490	
Flange Fitting Diameter (mm)		ø110	ø110	ø150	ø150	ø150	ø180	ø180	ø180	ø180
Shaft Diameter (mm)		ø22	ø22	ø28	ø28	ø28	ø32	ø32	ø48	ø48
Weight (kg)		15	20	25	30	49	60	60	70	70
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

Model Number		SJ-D3.7/100-01	SJ-D5.5/100-01	SJ-D5.5/120-01	SJ-D7.5/100-01	SJ-D7.5/120-01	SJ-D11/80-01	SJ-D11/100-01
Compatible Spindle Drive Unit Type	MDS-DJ-SP	80	100	100	120	120	160	160
Output Capacity (kW)	Continuous Rated Output	2.2	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)	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	7.5	7.5	11	11
	Actual Acceleration/Deceleration Output (*3)	4.44	6.6	6.6	9	9	13.2	13.2
Power Facility Capacity (kVA)		6.7	9.9	9.9	13.4	13.4	19.6	19.6
Base Rotation Speed (r/min)		1500	1500	1500	1500	1500	1500	1500
Maximum Rotation Speed (r/min)		10000	10000	12000	10000	12000	8000	10000
Frame No.		B90	D90	D90	A112	A112	B112	B112
Continuous Rated Torque (N•m)		14.0	23.6	23.6	35.0	35.0	47.7	47.7
GD <sup>2</sup> (kg•m <sup>2</sup> )		0.030	0.053	0.053	0.094	0.094	0.122	0.122
Inertia (kg•m <sup>2</sup> )		0.0074	0.013	0.013	0.023	0.023	0.031	0.031
Tolerable Radial Load (N)		980	1470	1470	1960	1960	1960	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.	174 SQ.	174 SQ.	204 SQ.	180 SQ.	204 SQ.	180 SQ.
Total Length (Excluding Shaft) (mm)		327	417	417	439	439	489	489
Flange Fitting Diameter (mm)		ø150	ø150	ø150	ø180	ø180	ø180	ø180
Shaft Diameter (mm)		ø28	ø28	ø28	ø32	ø32	ø48	ø48
Weight (kg)		26	39	39	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".

## SD-DJ Series

Model Number		SJ-DJ5.5/100-01	SJ-DJ5.5/120-01	SJ-DJ7.5/100-01	SJ-DJ11/100-01
Compatible Spindle Drive Unit Type	MDS-DJ-SP	100	100	120	160
	Continuous Rated Output	3.7	3.7	5.5	7.5
Output Capacity (kW)	Short Time Rated Output	5.5 (25%ED rating)	5.5 (25%ED rating)	7.5 (15-minute rating)	11 (15-minute rating)
	Standard Output During Acceleration/Deceleration	5.5	5.5	7.5	11
	Actual Acceleration/Deceleration Output (*3)	6.6	6.6	9	13.2
	Power Facility Capacity (kVA)	9.9	9.9	13.4	19.6
Base Rotation Speed (r/min)		1500	1500 (25%ED rating:2000)	1500	1500
Maximum Rotation Speed (r/min)		10000	12000	10000	10000
Frame No.		B90	B90	D90	A112
Continuous Rated Torque (N•m)		17.7	17.7	26.3	35.8
GD <sup>2</sup> (kg•m <sup>2</sup> )		0.030	0.030	0.053	0.094
Inertia (kg•m <sup>2</sup> )		0.0074	0.0074	0.013	0.023
Tolerable Radial Load (N)		980	980	1470	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.	174 SQ.	174 SQ.	204 SQ.
Total Length (Excluding Shaft) (mm)		327	327	417	439
Flange Fitting Diameter (mm)		ø150	ø150	ø150	ø180
Shaft Diameter (mm)		ø28	ø28	ø28	ø32
Weight (kg)		26	26	39	53
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 Motors

Description	Model Number	Stocked item	Notes
Spindle Drive 20A	MDS-DJ-SP-20	-	
Spindle Drive 40A	MDS-DJ-SP-40	-	
Spindle Drive 80A	MDS-DJ-SP-80	-	
Spindle Drive 100A	MDS-DJ-SP-100	S	
Spindle Drive 120A	MDS-DJ-SP-120	S	

## Spindle Motors

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

Note: Only flange mount unless approved by factory.

## Tool Spindle Motor HF-KP Series

Model Number	HF-KP46-W09	HF-KP56-W09	HF-KP96-W09
Compatible Spindle Drive Unit Type	MDS-DJ-SP	20	20
	MDS-DJ-SP2-	2020	2020
Continuous Characteristics	Rated Output (kW)	0.4	0.5
	Rated Current (A)	1.5	1.8
	Rated Torque (N•m)	0.64	0.80
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	5.0	6.5
Motor Inertia (kg•cm <sup>2</sup> )	0.24	0.42	1.43
Motor Side Detector	Resolution per motor revolution 260,000 pulse/rev		
Degree of Protection	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: 49m/s <sup>2</sup> (5G)		
Flange Size (mm)	60 SQ.	60 SQ.	80 SQ.
Total Length (Excluding Shaft) (mm)	118.7	140.6	149.1
Flange Fitting Diameter (mm)	ø50	ø50	ø70
Shaft Diameter (mm)	ø14	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.

## Tool Spindle Motor HF Series

Model Number		HF75	HF105	HF54	HF104	HF154	HF224	HF204	HF123	HF223	HF303
Compatible Spindle Drive Unit Type	MDS-DJ-SP	20	20	20	40	80	80	80	20	40	80
	MDS-DJ-SP2-	2020	2020	2020	-	-	-	-	2020	-	-
Continuous Characteristics	Rated Output (kW)	0.75	1.0	0.5	1.0	1.5	2.2	2.0	1.2	2.2	3.0
	Rated Current (A)	2.8	3.6	1.8	3.6	5.8	8.5	6.8	5.2	9.0	10.7
	Rated Torque (N•m)	1.8	2.4	1.6	3.2	4.8	7.0	6.4	5.7	10.5	14.3
Power Facility Capacity (kVA)		1.5	2.0	1.1	2.0	2.8	4.1	3.7	2.3	4.1	5.5
Rated Rotation Speed (r/min)		4000			3000			2000			
Maximum Rotation Speed (r/min)		4000			3000			2000			
Maximum Current (A)		14.0	15.5	16.8	29.0	52.0	57.0	52.0	15.5	29.0	48.0
Maximum Torque (N•m)		8.0	11.0	13.0	23.3	42.0	46.5	42.0	17.0	32.0	64.0
Motor Inertia (kg•cm <sup>2</sup> )		2.6	5.1	6.1	11.9	17.8	23.7	38.3	11.9	23.7	75.0
Motor Side Detector		Resolution per motor revolution 260,000 pulse/rev									
Degree of Protection		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: 19.6m/s <sup>2</sup> (2G) Y: 19.6m/s <sup>2</sup> (2G)									
Flange Size (mm)		90 SQ.	90 SQ.	130 SQ.	130 SQ.	130 SQ.	130 SQ.	176 SQ.	130 SQ.	130 SQ.	176 SQ.
Total Length (Excluding Shaft) (mm)		126.5	162.5	118.5	140.5	162.5	184.5	143.5	140.5	184.5	183.5
Flange Fitting Diameter (mm)		ø80	ø80	ø110	ø110	ø110	ø110	ø114.3	ø110	ø110	ø114.3
Shaft Diameter (mm)		ø14	ø14	ø24	ø24	ø24	ø24	ø35	ø24	ø24	ø35
Weight (kg)		2.5	4.3	4.8	6.5	8.3	10.0	12.0	6.5	10.0	19.0
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.

## Regenerative Resistor

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	S	15M
Spindle Feedback Cable	CNP2E-1-20.0M	S	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	S	0.5M
Drive Communication Cable	G396-1.0M	S	1M
Drive Communication Cable	G396-5.0M	S	5M

## 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