

Ultra low inertia *Mitsubishi* servo motors HC –MFS series

The HC-MFS series of Brushless servo motors have been developed specifically for use with the compact Mitsubishi *MEL MR-J2 Super* packaged brushless drive and offer the following key features:

- Compact size down to 40 mm square
- Ultra low inertia provides fast response with rapid acceleration and mechanical time constants down to 2 msec.
- Maintenance-free 3 phase brushless construction
- Peak torque ratings up to 7.2 Nm
- Optional low backlash planetary geared versions with peak torque ratings up to 250 Nm
- Encoder commutation facilitates Sinewave drive technology to provide smooth operation and high resolution up to 131,072 counts/rev.
- Optional Integral Parking brake



Mitsi HC-MFS series servo motor dimensions:

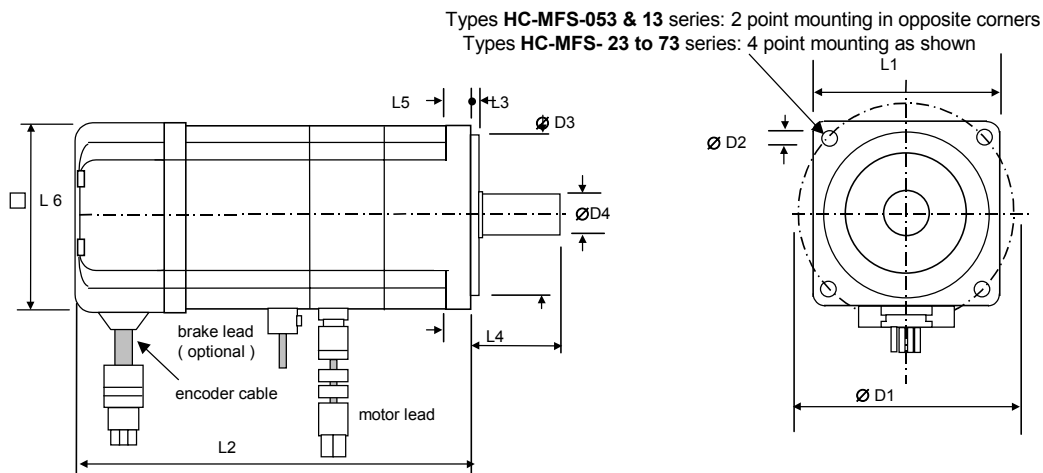


Table of Dimensions: mm.

Motor Options:		HC-MFS053	HC-MFS13	HC-MFS23	HC-MFS43	HC-MFS73
Code for brake option		Add 'B'	Add 'B'	Add 'B'	Add 'B'	Add 'B'
Flange Size (square)	L1	40	40	60	60	80
Body Length	L2	81.5	96.5	99.5	124.5	142
Body length with brake		109.5	124.5	131.5	156.5	177.5
Centring Spigot Length	L3	2.5	2.5	3	3	3
Shaft length	L4	25	25	30	30	40
Typical Flange thickness	L5	5	5	7	7	8
Max. Body size (square)	L6	42	42	62	62	82
Diametric measurements						
Mounting hole PCD	D1	46	46	70	70	90
Mounting hole diameter	D2	2 x 4.5	2 x 4.5	4 x 5.8	4 x 5.8	4 x 6.6
Spigot Diameter	D3	30 h7	30 h7	50 h7	50 h7	70 h7
Shaft Diameter	D4	8 h6	8 h6	14 h6	14 h6	19 h7

Specification & performance using MEL-Servo MR-J2S brushless drivers

Motor Options:		HC-MFS053	HC-MFS13	HC-MFS23	HC-MFS43	HC-MFS73
Matched MEL Drive		-J2S-10A	-J2S-10A	-J2S-20A	-J2S-40A	-J2S-70A
Rated Torque	Nm	0.16	0.32	0.64	1.3	2.4
Peak Torque	Nm	0.48	0.95	1.9	3.8	7.2
Output Power	kW	0.05	0.1	0.2	0.4	0.75
Rotor Inertia	Kgcm ²	0.019	0.03	0.088	0.143	0.6
Mass	kg	0.4	0.53	0.99	1.45	3.0
Maximum Continuous Speed		4,500 rpm				
Rated Speed		3,000 rpm				
Maximum Load / motor inertia ratio		30				
Integral encoder		dual track, resolution: 131.072 counts per rev.				
Enclosure		totally enclosed, self cooling				
Ambient temperature range		0 to + 40 deg. C				

Planetary geared brushless servo motors HPE/HC-MFS series

- High peak torque provides high acceleration & deceleration capability
- Capable of withstanding factor 2 emergency shock loads without damage
- Low backlash construction provides accurate positioning and long life
- High torsional rigidity for stable operation in high speed positioning.
- Low torque ripple for smooth operation in velocity servo applications
- Planetary construction for high torque to volume ratio
- High reliability and serviceability

Planetary geared servo motor dimensions:

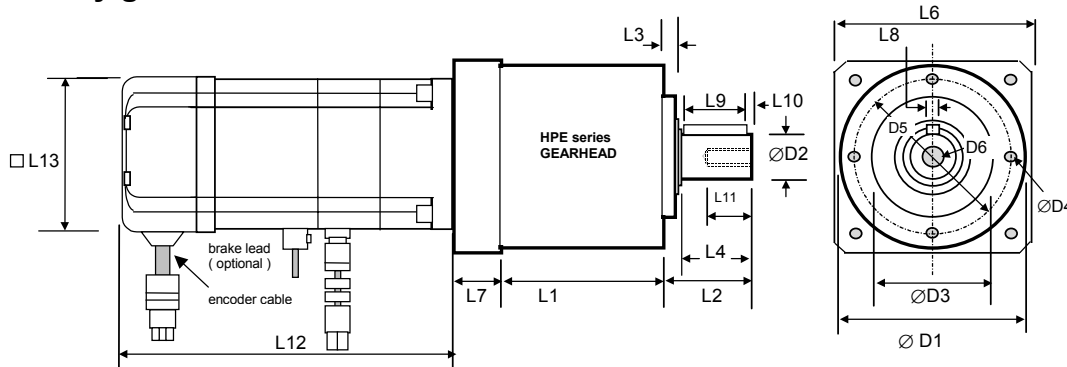


Table of Dimensions: mm

Gearhead		HPE50		HPE70		HPE90	
Motor Types	HC-	MFS13	MFS053 MFS13	MFS43	MFS23 MFS43	MFS73	MFS43 MFS73
Gearbox Version		HPE50 S	HPE50 D	HPE70 S	HPE70 D	HPE90 S	HPE90 D
Gearbox Diameter	D1	50	50	70	70	90	90
Output shaft diameter	D2	12 k6	12 k6	16 k6	16 k6	22 k6	22 k6
Gearbox mounting register	D3	35 h6	35 h6	52 h6	52 h6	68 h6	68 h6
Gearbox mounting holes	D4	4 x M4 8 deep		4 x M5 10 deep		4 x M8 12 deep	
mounting hole PCD	D5	44	44	62	62	80	80
Shaft fixing bolt diameter	D6	Tapped M4		Tapped M5		Tapped M8	
Gearbox Length	L1	53	74.5	69	91.5	80	109
Overall Output Shaft length	L2	24.5	24.5	36	36	46	46
Gearbox register length	L3	4	4	5	5	5	5
Free shaft length	L4	18	18	28	28	36	36
Gearhead flange size	L6	50	50	70	70	90	90
Adaptor length	L7	19	19	22	22	32	32
Output shaft key width	L8	4 h9	4 h9	5 h9	5 h9	6 h9	6 h9
Output shaft Key length	L9	14	14	25	25	32	32
Key distance to shaft end	L10	2	2	2	2	2	2
Shaft fixing tapped length	L11	8	8	10	10	13	13
Motor body length	L12	See motor data					
Motor body square	L13	42	42	62	62	82	62 / 82

Performance of geared servo motors

Gearbox Model	Gear Ratio n:1	Motor Model	Rated Speed (rpm)	Rated Torque (Nm)	Peak Torque (Nm)	Maximum Emergency Torque (Nm)	Max. Backlash (arc. min.)	Assembly Mass (Kg)
HPE 50 S	5	MFS13	600	1.3	4.4	4.4	≤ 12	1.3
	10		300	2.6	8.7	8.7		
HPE 50 D	25	MFS13	120	6.3	15	21	≤ 15	1.5
	50	MFS053	60	5.1	15	20		
	100		30	5.5	12	28		
HPE 70 S	5	MFS43	600	5.6	17.5	18	≤ 12	3.5
	10		300	11	30	37		
HPE 70 D	25	MFS23	120	12	33	41	≤ 15	3.5
	50		60	18	33	75		
HPE 90S	10	MFS73	300	20	66	66	≤ 12	7.3
HPE 90 D	25	MFS43	120	22	80	80	≤ 15	6.8
		MFS73		45	82	160		
		MFS43		60	43	82		
	100		30	40	80	200		8.3

For ultra low backlash specify Omagear HP series gearhead