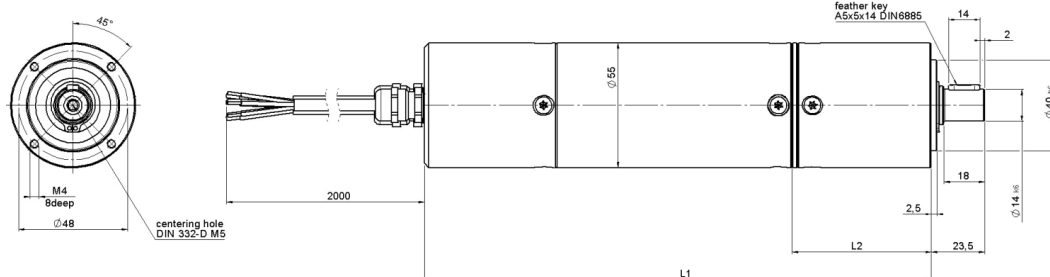




HSM46-GP55

Brushless DC motors with gear

Up to 180W output power
Hall sensor as feedback system with and without holding brake
Planetary gear GP55
max. perm. 50 Nm



Type	Gear ratio	Dimension L1	Dimension L2
HSM4615...-GP55	4 : 1 - 9 : 1 (1-stage)	195	62
HSM4615...-GP55	16 : 1 - 49 : 1 (2-stage)	214	81
HSM4630...-GP55	4 : 1 - 9 : 1 (1-stage)	210	62
HSM4630...-GP55	16 : 1 - 49 : 1 (2-stage)	229	81
HSM4645...-GP55	4 : 1 - 9 : 1 (1-stage)	225	62
HSM4645...-GP55	16 : 1 - 49 : 1 (2-stage)	244	81

Power cable

Description	Wire colour
motor phase A	black with number print 1
motor phase B	black with number print 2
motor phase C	black with number print 3

Signal cable

Description	Wire colour
Hall sensor 1	green
Hall sensor 2	yellow
Hall sensor 3	orange
Hall sensor supply	red
Hall sensor ground	black
temperature sensor PT1000 + (max. 24 V _{DC})	violet
temperature sensor PT1000 - (GND)	blue
voltage drop over PT1000 (connection to analog input)	brown

Description:

The motors of the HSM series are brushless permanent magnet DC motors. These motor systems commutate on the basis of suitable drive controllers (hence the term EC motor). The stator is a 3-phase toothed coil winding, the rotor consists of 6 high-quality neodymium-iron-bore magnets. The specially developed Hall sensor board serves as a very cost-efficient and reliable feedback system. The HSM drives can be expanded modularly with different gearboxes, holding brakes and encoder systems.

Characteristics:

- high power density
- cost efficiency
- high efficiency
- low inertia rotor
- good controllability
- compact design
- all windings also available as standard in 48V_{DC}
- IP protection classes above 54 available as an option
- optional connectors available
- winding optimization also for other speeds
- connecting cable available in different lengths and with or without shield
- connecting cable assembled to the suitable EDC drive controllers

HSM 46 - GP55

1 nominal voltage	2 nominal speed	3 nominal torque ²⁾	4 peak torque	5 nominal power ²⁾	6 nominal current ¹⁾	7 peak current ¹⁾	8 power gear box input	9 nominal gear box input	10 ratio gear box	11 efficiency gear box	load limitations gear box			15 max. backlash	16 moment of inertia gear box ³⁾	17 total weight motor + gear box	18 total weight motor + gear box + parking brake	19 F _R (permissible radial shaft load ⁴⁾)	20 F _A (permissible axial shaft load)	21 motor - type
V	rpm	Nm	Nm	W	A _{rms}	A _{rms}	W	rpm	i	%	W	Nm	Nm	◄ min	kgm ²	kg	kg	N	N	

HSM 4615-24-GP55

24	750	0,63	1,8	49,0	3,3	8,8	52	3000	4 :1	95	1100	14,0	25	25	0,00448x10 ⁻³	2,0	2,65	800	300	HSM 4615
24	429	1,10	3,2	49,0	3,3	8,8	52	3000	7 :1	95	630	14,0	25	25	0,00368x10 ⁻³	2,0	2,65	800	300	
24	333	1,41	4,1	49,0	3,3	8,8	52	3000	9 :1	95	350	10,0	15	25	0,00352x10 ⁻³	2,0	2,65	800	300	
24	188	2,38	6,9	47,0	3,3	8,8	52	3000	16 :1	90	550	28,0	50	30	0,00418x10 ⁻³	2,3	2,95	800	300	
24	107	4,16	12,1	47,0	3,3	8,8	52	3000	28 :1	90	315	28,0	50	30	0,00413x10 ⁻³	2,3	2,95	800	300	
24	61	7,28	21,2	47,0	3,3	8,8	52	3000	49 :1	90	160	25,0	30	30	0,00356x10 ⁻³	2,3	2,95	800	300	

HSM 4630-24-GP55

24	750	1,5	4,4	115,0	7,5	21,0	120	3000	4 :1	95	1100	14,0	25	25	0,00448x10 ⁻³	2,15	2,8	800	300	HSM 4630
24	429	2,6	7,8	115,0	7,5	21,0	120	3000	7 :1	95	630	14,0	25	25	0,00368x10 ⁻³	2,15	2,8	800	300	
24	333	3,3	10,0	115,0	7,5	21,0	120	3000	9 :1	95	350	10,0	15	25	0,00352x10 ⁻³	2,15	2,8	800	300	
24	188	5,6	16,8	110,0	7,5	21,0	120	3000	16 :1	90	550	28,0	50	30	0,00418x10 ⁻³	2,45	3,1	800	300	
24	107	9,8	29,5	110,0	7,5	21,0	120	3000	28 :1	90	315	28,0	50	30	0,00413x10 ⁻³	2,45	3,1	800	300	
24	61	17,2	30,0 ⁵⁾	110,0	7,5	12,7 ⁵⁾	120	3000	49 :1	90	160	25,0	30	30	0,00356x10 ⁻³	2,45	3,1	800	300	

HSM 4630-48-GP55

48	750	1,5	4,4	115,0	3,7	10,6	120	3000	4 :1	95	1100	14,0	25	25	0,00448x10 ⁻³	2,15	2,8	800	300	HSM 4630
48	429	2,6	7,8	115,0	3,7	10,6	120	3000	7 :1	95	630	14,0	25	25	0,00368x10 ⁻³	2,15	2,8	800	300	
48	333	3,3	10,0	115,0	3,7	10,6	120	3000	9 :1	95	350	10,0	15	25	0,00352x10 ⁻³	2,15	2,8	800	300	
48	188	5,6	16,8	110,0	3,7	10,6	120	3000	16 :1	90	550	28,0	50	30	0,00418x10 ⁻³	2,45	3,1	800	300	
48	107	9,8	29,5	110,0	3,7	10,6	120	3000	28 :1	90	315	28,0	50	30	0,00413x10 ⁻³	2,45	3,1	800	300	
48	61	17,2	30,0 ⁵⁾	110,0	3,7	6,3 ⁵⁾	120	3000	49 :1	90	160	25,0	30	30	0,00356x10 ⁻³	2,45	3,1	800	300	

HSM 46 - GP55

1 nominal voltage	2 nominal speed	3 nominal torque ²⁾	4 peak torque	5 nominal power ²⁾	6 nominal current ¹⁾	7 peak current ¹⁾	8 power gear box input	9 nominal gear box input	10 ratio gear box	11 efficiency gear box	load limitations gear box			15 max. backlash	16 moment of inertia gear box ³⁾	17 total weight motor + gear box	18 total weight motor + gear box + parking brake	19 F _R (permissible radial shaft load) ⁴⁾	20 F _A (permissible axial shaft load)	21 motor - type
V	rpm	Nm	Nm	W	A _{rms}	A _{ms}	W	rpm	i	%	W	Nm	Nm	± min	kgm ²	kg	kg	N	N	

HSM 4645-24-GP55

24	750	2,2	3,8	170,0	10,3	31,0	175,0	3000	4 :1	95	1100	14,0	25	25	0,00448x10 ⁻³	2,3	2,95	800	300	HSM 4645
24	429	3,7	6,6	170,0	10,3	31,0	175,0	3000	7 :1	95	630	14,0	25	25	0,00368x10 ⁻³	2,3	2,95	800	300	
24	333	4,8	8,4 ⁵⁾	170,0	10,3	31,0 ⁵⁾	175,0	3000	9 :1	95	350	10,0	15	25	0,00352x10 ⁻³	2,3	2,95	800	300	
24	188	8,0	15,0	160,0	10,3	31,0	175,0	3000	16 :1	90	550	28,0	50	30	0,00418x10 ⁻³	2,7	3,35	800	300	
24	107	14,0	26,0	160,0	10,3	31,0	175,0	3000	28 :1	90	315	28,0	50	30	0,00413x10 ⁻³	2,7	3,35	800	300	
24	61	25,0 ⁵⁾	30,0 ⁵⁾	160,0	10,8 ⁵⁾	20,7 ⁵⁾	175,0	3000	49 :1	90	160	25,0	30	30	0,00356x10 ⁻³	2,7	3,35	800	300	

HSM 4645-48-GP55

48	750	2,2	3,8	180,0	4,6	13,3	190	3000	4 :1	95	1100	14,0	25	25	0,00448x10 ⁻³	2,3	2,95	800	300	HSM 4645
48	429	3,9	6,8	180,0	4,6	13,3	190	3000	7 :1	95	630	14,0	25	25	0,00368x10 ⁻³	2,3	1,95	800	300	
48	333	5,0	8,7 ⁵⁾	180,0	4,6	13,3 ⁵⁾	190	3000	9 :1	95	350	10,0	15	25	0,00352x10 ⁻³	2,3	2,95	800	300	
48	188	8,5	15,6	170,0	4,6	13,3	190	3000	16 :1	90	550	28,0	50	30	0,00418x10 ⁻³	2,7	3,35	800	300	
48	107	14,9	27,2	170,0	4,6	13,3	190	3000	28 :1	90	315	28,0	50	30	0,00413x10 ⁻³	2,7	3,35	800	300	
48	61	25,0 ⁵⁾	30,0 ⁵⁾	160,0	4,5 ⁵⁾	8,4 ⁵⁾	185	3000	49 :1	90	160	25,0	30	30	0,00356x10 ⁻³	2,7	3,35	800	300	

Tolerances
± 10%

Columns 3 and 11

Values are valid at operating temperature after run-in period.

Columns 3 and 6

In order to avoid overloading the gear unit, the motor torque must be limited by setting the motor current on the external controller.

Columns 4 and 7

The drive may only be loaded with the peak current for a short time, otherwise the motor system or the gear unit may be destroyed.

Columns 12, 13 and 14

Do not exceed the stated values in order to avoid gearbox overload. For oscillation operation the limits stated must be multiplied by 0,75.

- 1) RMS values of the phase current, to be read externally or in edc tools.
- 2) Values apply to motor mounting on aluminium contact surfaces of at least 0,15 m² with a minimum thickness of 10 mm or equivalent metal surface.
- 3) Values are reduced to motor shaft.
- 4) Centre of the shaft.
- 5) Motor current must be limited to the reduced value by setting on the integrated controller.