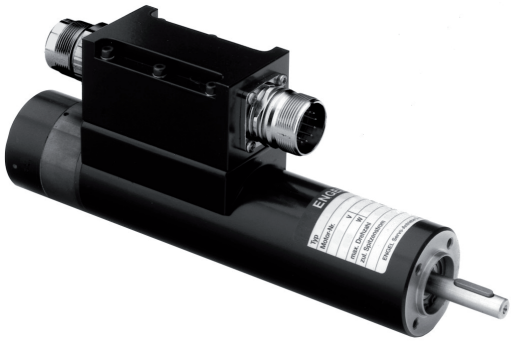
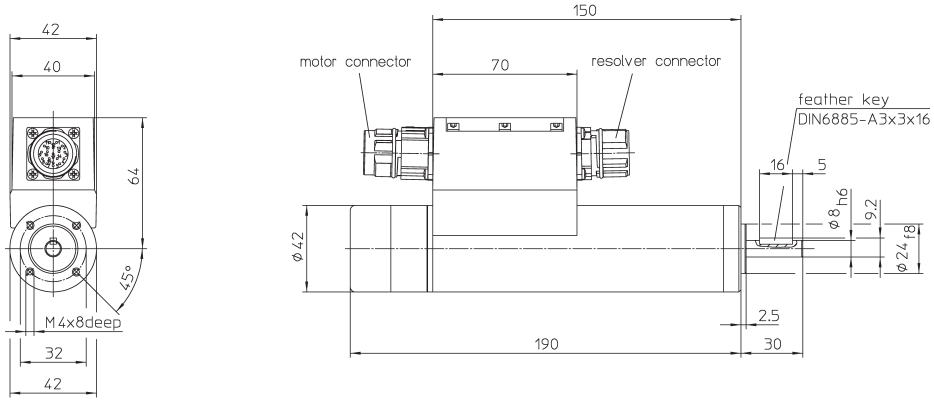
ENGEL ELEKTROANTRIEBE



HLM 2285

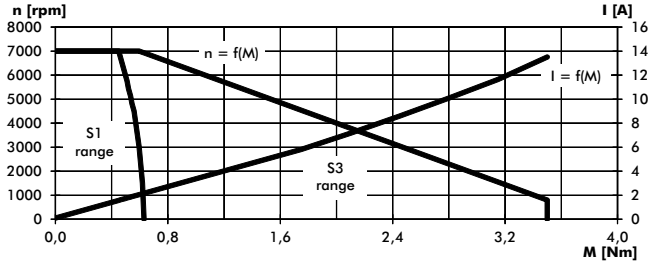
High-Power Synchronous Servo Motors
- slim design -

Motor series HLM 2285
peak torque 3,5 Nm
with brushless pancake-resolver

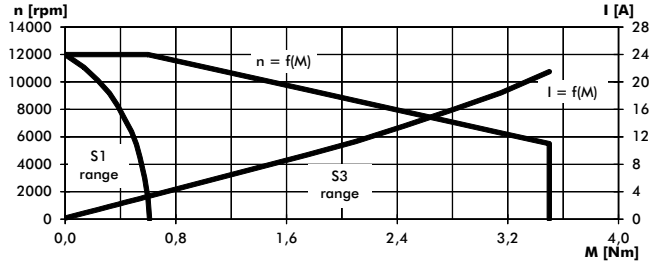


Operation characteristics:
Measured at servo-amplifier with 3-phase sinusoidal output

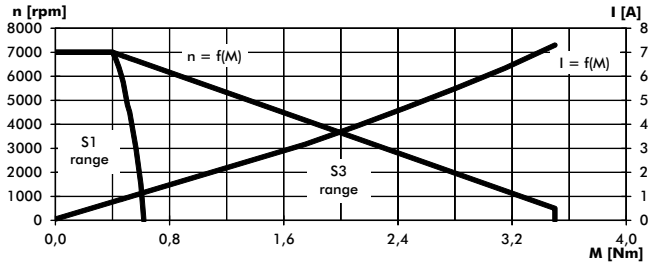
HLM 2285, 320V, 4500/7000rpm



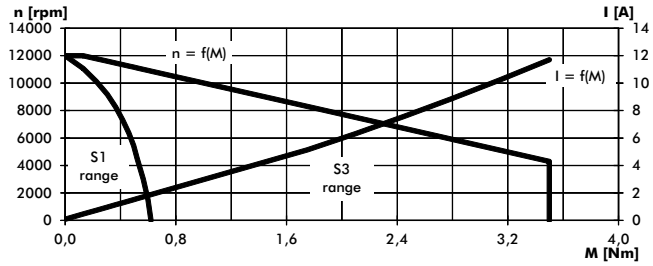
HLM 2285, 320V, 4500/12000rpm



HLM 2285, 560V, 4500/7000rpm



HLM 2285, 560V, 4500/12000rpm



Motor design:

The High-Power Synchronous Servo Motors of series HLM 2285 are fitted with a 3-phase concentrated stator-winding system. The 6-pole rotor-magnet system is made of high-grade Neodymium Iron Boron.

The motors have a sinusoidal Back EMF.

The position information of the rotor, a required tacho voltage and pulses for a closed loop position control will be generated using the integrated brushless pancake-resolver.

To avoid thermal overload a PTC resistor is embedded in the stator winding.

Features:

- High acceleration because of small moments of inertia
- Large peak torques because of high allowable pulse currents
- Increased maximum speed because of reduced no-load losses
- Decreased cogging effects achieved by system improvement
- Maintenance-free operation due to brushless design - mechanical life cycle only depends on bearing and its lubrication
- High overload range due to high thermal time constant and good dissipation of the power-losses occurred in the stator
- The extremely slim design allowing excellent peak torque capabilities in a motor housing with very small diameter
- Sinusoidal Back EMF

edition 06.17

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type		HLM 2285		HLM 2285	
series		-		-	
max. speed	rpm	7000	7000	12000	12000
bus voltage	V	320	560	320	560
nominal speed	rpm	4500	4500	4500	4500
nominal current [1) **)]	A	2	1	3	1,6
nominal power [2)]	W	265	245	255	245
operation acc. to standards VDE 0530		S1		S1	
protection acc. to standards VDE 0530		IP 54		IP 54	
rotating direction		reversible		reversible	
structural shape acc. standards VDE 0530		B 14		B 14	
kind of connection		connectors (see below)		connectors (see below)	
mechanical data:					
moment of inertia motor	kgm^2	$0{,}014*10^{-3}$		$0{,}014*10^{-3}$	
moment of inertia resolver	kgm^2	$0{,}0025*10^{-3}$		$0{,}0025*10^{-3}$	
nominal torque [2)]	Nm	0,56	0,52	0,54	0,52
max. continous torque at stall [2)]	Nm	0,63	0,62	0,61	0,62
peak torque	Nm	3,5	3,5	3,5	3,5
max. time to peak torque [2) 6)]	s	5	5	5	5
speed regulation constant	$N^{-1}\ cm^{-1}$ rpm	11	11,9	10,8	12
mechanical time constant	ms	1,9	2	1,8	2
friction torque	Nm	0,03		0,03	
rotor weight motor	kg	0,32		0,32	
rotor weight resolver	kg	0,04		0,04	
motor weight incl. resolver	kg	1,6		1,6	
ball bearings	A/B-side	6000/608		6000/608	
F_R (allowable radial shaft load) [3)]	N	50		50	
F_A (allowable axial shaft load)	N	20		20	
electrical data:					
number of phases		3		3	
number of poles		6		6	
terminal resistance [4)]	Ω	12,5	45,5	4,7	17,5
inductance [4)]	mH	7,5	27	2,8	10
voltage constant [1) *)]	V/1000 rpm	37	68	23	42
torque constant [1) *)]	Nm/A	0,306	0,562	0,19	0,347
current at peak torque [1) **)]	A	13,5	7,3	21,5	11,7
max. peak current [1) 5)]	A	17	9	27	15
electrical time constant	ms	0,6	0,59	0,6	0,57
thermical data:					
max. ambient temperature	°C	40		40	
isolation acc. to standards VDE 0530		F		F	
thermal time constant	min	17,5		17,5	
temperature-rise n.v.	K/W	1,3		1,3	
connectors:					
motor flange socket		BEGA 120 NN 00 00 0200 000 (INTERNONTEC)			
resolver flange socket		AEGA 113 NN 00 00 0201 000 (INTERCONTEC)			

*) Tolerance - 10 %
**) Tolerance + 10 %
1) Sinusoidal-peak
2) Values are for motor-assembling on a locating face of aluminium of at least 0,15 m^2 at a thickness of 10 mm or similar metal face.
3) Middle of the shaft-extension.
4) Measured between two phases.
5) The mentioned values are valid for operation in temperature-ranges from 0 up to +40 °C and it is not allowed to excess them, not even for a short-time, to avoid magnet-weakening.
6) Only valid for a once cycle out of could status.

design-changes reserved