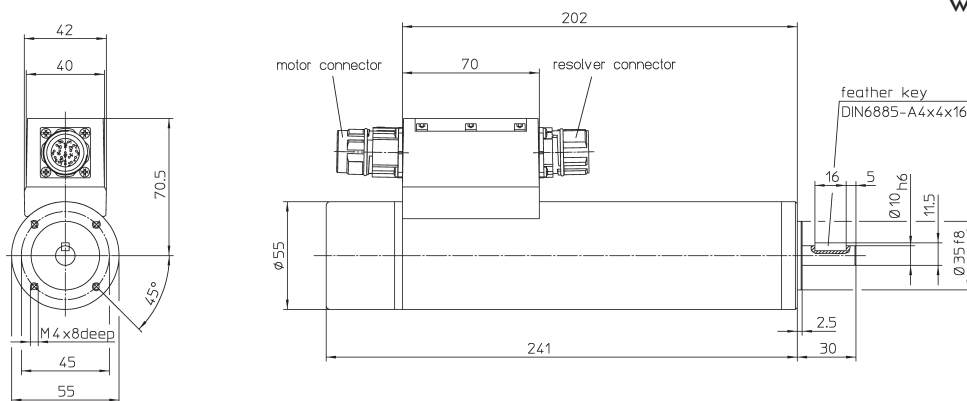




HLM 28135

High-Power Synchronous Servo Motors - slim design -

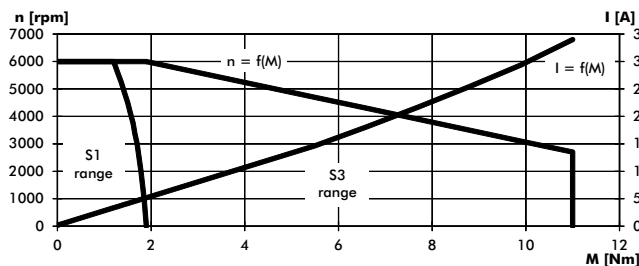
Motor series HLM 28135
peak torque 11 Nm
with brushless pancake-resolver



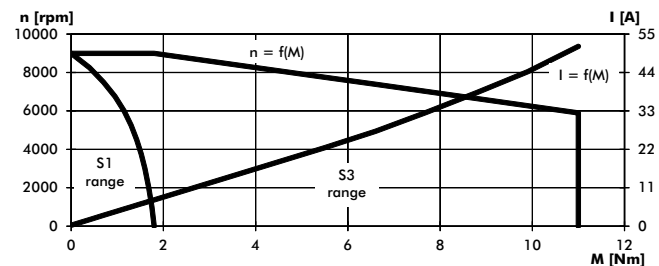
Operation characteristics:

Measured at servo-amplifier with 3-phase sinusoidal output

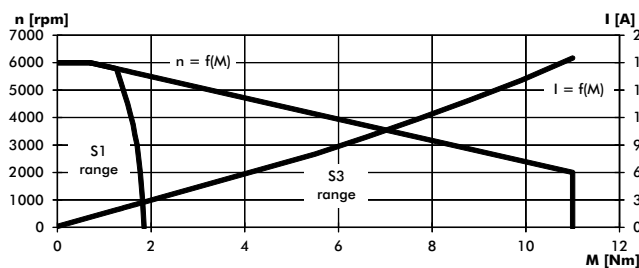
HLM 28135, 320V, 3000/6000rpm



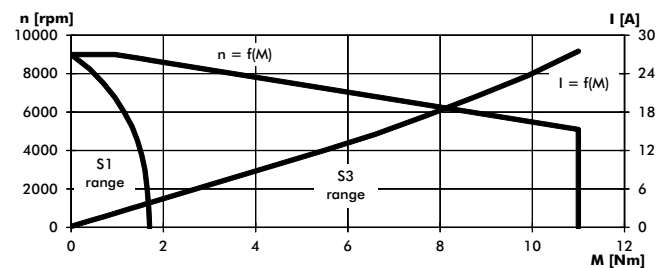
HLM 28135, 320V, 3000/9000rpm



HLM 28135, 560V, 3000/6000rpm



HLM 28135, 560V, 3000/9000rpm



Motor design:

The High-Power Synchronous Servo Motors of series HLM 28135 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

type series		HLM 28135		HLM 28135	
max. speed	rpm	6000	6000	9000	9000
bus voltage	V	320	560	320	560
nominal speed	rpm	3000	3000	3000	3000
nominal current ^{1) **)}	A	4,7	2,6	6,8	3,7
nominal power ²⁾	W	535	535	500	500
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	0,064*10 ⁻³		0,064*10 ⁻³	
moment of inertia resolver	kgm ²	0,0025*10 ⁻³		0,0025*10 ⁻³	
nominal torque ²⁾	Nm	1,7	1,7	1,6	1,6
max. continous torque at stall ²⁾	Nm	1,9	1,9	1,8	1,7
peak torque	Nm	11	11	11	11
max. time to peak torque ^{2) 6)}	s	5	5	5	5
speed regulation constant	N ⁻¹ cm ⁻¹ rpm	1,7	2	1,8	1,8
mechanical time constant	ms	1,4	1,5	1,4	1,4
friction torque	Nm	0,07		0,07	
rotor weight motor	kg	0,85		0,85	
rotor weight resolver	kg	0,04		0,04	
motor weight incl. resolver	kg	3,4		3,4	
ball bearings	A/B-side	6200/6200		6200/6200	
F _R (allowable radial shaft load) ³⁾	N	100		100	
F _A (allowable axial shaft load)	N	40		40	
electrical data:					
number of phases		3		3	
number of poles		6		6	
terminal resistance ⁴⁾	Ω	3	11,5	1,35	4,7
inductance ⁴⁾	mH	5,7	21	2,6	8,7
voltage constant ^{1) *)}	V/1000 rpm	46	84	30	56
torque constant ^{1) *)}	Nm/A	0,38	0,695	0,248	0,463
current at peak torque ^{1) **)}	A	34	18,5	51,5	27,5
max. peak current ^{1) 5)}	A	42	23	64	34
electrical time constant	ms	1,9	1,85	1,9	1,85
thermal data:					
max. ambient temperature	°C	40		40	
isolation acc. to standards VDE 0530		F		F	
thermal time constant	min	25		25	
temperature-rise n.v.	K/W	0,95		0,95	
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 m² 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