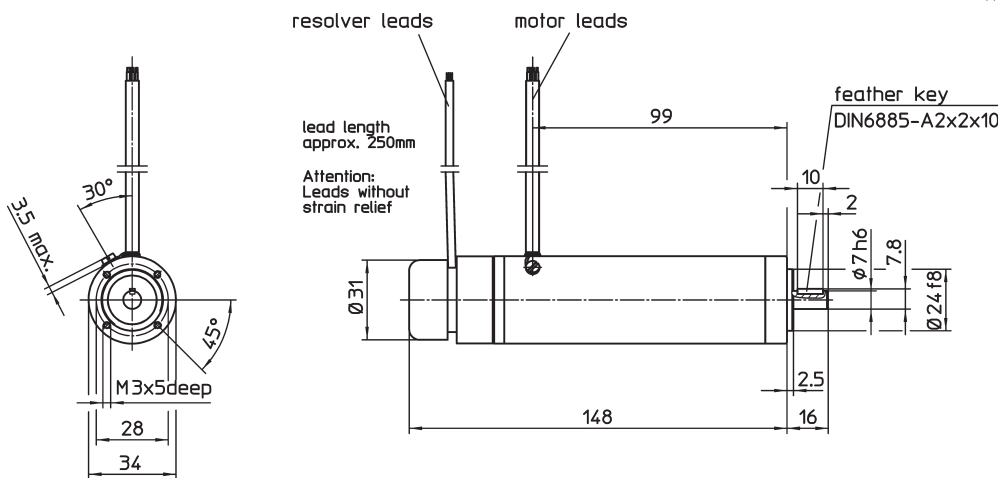


HLM 1660

High-Power Synchronous Servo Motors - slim design -

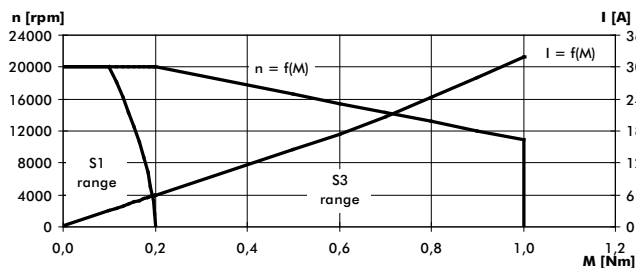
Motor series HLM 1660
peak torque 1,0 Nm
with brushless pancake-resolver



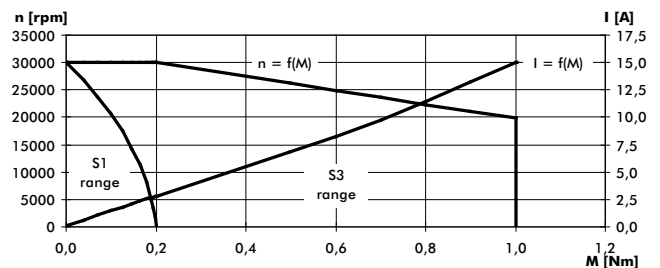
Operation characteristics:

Measured at servo-amplifier with 3-phase sinusoidal output

HLM 1660, 100V, 5000/20000rpm



HLM 1660, 320V, 5000/30000rpm



Motor design:

The High-Power Synchronous Servo Motors of series HLM 1660 are fitted with a 3-phase concentrated stator-winding system. The 4-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

		HLM 1660	
type		-	
series		-	
max. speed	rpm	20000	30000
bus voltage	V	100	320
nominal speed	rpm	5000	5000
nominal current ^{1) **)}	A	5,7	2,7
nominal power ²⁾	W	100	100
operation acc. to standards VDE 0530		S1	
protection acc. to standards VDE 0530		IP 41	
rotating direction		reversible	
structural shape acc. standards VDE 0530		B 14	
kind of connection		free leads	
mechanical data:			
moment of inertia motor	kgm ²	0,003*10 ⁻³	
moment of inertia resolver	kgm ²	0,0006*10 ⁻³	
nominal torque ²⁾	Nm	0,19	0,19
max. continuous torque at stall ²⁾	Nm	0,2	0,2
peak torque	Nm	1	1
max. time to peak torque ^{2) 6)}	s	5	5
speed regulation constant	N ⁻¹ cm ⁻¹ rpm	58	65
mechanical time constant	ms	2,1	2,4
friction torque	Nm	0,008	
rotor weight motor	kg	0,15	
rotor weight resolver	kg	0,04	
motor weight incl. resolver	kg	0,65	
ball bearings	A/B-side	608/626	
F _R (allowable radial shaft load) ³⁾	N	20	
F _A (allowable axial shaft load)	N	8	
electrical data:			
number of phases		3	
number of poles		4	
terminal resistance ⁴⁾	Ω	0,85	4,3
inductance ⁴⁾	mH	0,8	3,9
voltage constant ^{1) *)}	V/1000 rpm	4,2	9
torque constant ^{1) *)}	Nm/A	0,035	0,074
current at peak torque ^{1) **)}	A	32	15
max. peak current ^{1) 5)}	A	42	20
electrical time constant	ms	0,94	0,91
thermal data:			
max. ambient temperature	°C	40	
isolation acc. to standards VDE 0530		F	
thermal time constant	min	16	
temperature-rise n.v.	K/W	2,3	

*) 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.