

LSP Servomotors

Order Catalogue



Series:

LSP servomotors

Stall torque: 0.18 to 18.5 Nm

Order Catalogue: LSP Servomotors

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Date: 10/2012

Subject to technical change without notice.

The German version is the original of this Order Catalogue.

LSP Servomotors

The following double-page spread sets out the contents of the Order Catalogue.

This catalogue contains key information relating to the power capabilities of LSP servomotors. Please take time to familiarise yourself with it.

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Basic information

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Overview of LSP servomotors

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Selection procedure

1

Basic information	To select the correct drive and motor, you need to know the specific speed and the load cycle of the drive task at hand.
 1.	Define supply voltage: 230 V to 400 V.
 2.	Define the construction windows.
 3.	Define maximum torque from the load cycle profile or by dimensioning via Servosoft - see c-line Drives Engineering Guide, in appendix - on our product DVD.
 4.	Define the mean (effective) torque - see Engineering Guide.
 5.	Define the required motor type: LSP ...
 6.	Select the motor on the relevant data page in line with the following criteria: Synchronous servomotor: $n_{\max} \leq 1.1 \cdot n_{\text{rated}}$ $M_{\text{eff}} \leq M_{\text{rated}}$
 7.	Define the required encoder system in line with requirements: resolver, absolute value encoder, pulses per revolution.
 8.	Complete motor designation, with all required options (type code).
 9.	Define the length of the required ready made power cable.
 10.	Define the required ready made encoder cable.
 11.	Select the ServoOne junior for the chosen motor from the selection and order data based on the standard overload conditions. Select the servocontroller according to the respective motor stall current/rated current.

General data

Ambient conditions and base configuration

Motor type	Permanent magnet excited 3-phase-current synchronous servomotor	
Ambient temperatures (in operation)	-10°C to +40°C	
Storage temperatures (not in operation)	-20°C to +70°C	
Humidity	<90% relative air humidity (non-condensing)	
Insulation class	F (= to 155°C) Δ T = 115 K	
Protection	IP65 as standard (except AS side, here IP21)	
Cooling	Convective (self-cooling)	
Bearing life	20000 h under rated conditions (Mn)	
Temperature sensor	KTY	
Voltage steepness dU/dt	8 kV/μs	
Max. installation altitude	4000 metres above MSL; above 1000 metres 2% derating per 100 m	
Accurate true running, coaxiality and axial run-out to DIN 42955	N (normal)	
Vibration severity to ISO 2373	Level N	
Detent torques	LSP04	2.5% ± 0.5 % of max. rated current
	LSP06	2.0% ± 0.5 % of max. rated current
	LSP08	1.5% ± 0.5 % of max. rated current
	LSP10	1.5% ± 0.5 % of max. rated current
	LSP13	1.5% ± 0.5 % of max. rated current
Coating	Baking enamel black, RAL 9005	
Magnet material	Neodymium-iron-boron (NdFeB)	
Shaft end	Cylindrical shaft end with/without feather key way	
Balance	Q 2.5	
Measuring systems	Resolver, SinCos® SEK/SEL37, SKS/SKM36, SRS/SRM50	
Approbations	CE, UL insulation system HE-GM1 (E 238319)	

General data

Abbreviations and definitions

Abbreviation	Unit	Explanation
f_n	[Hz]	Rated frequency
I_0	[A]	Stall current (motor current at stall torque M_0)
I_n	[A]	Rated current (rated current per phase)
I_{max}	[A]	Peak current (maximum permissible current per phase)
J	[kgcm ²]	Rotor moment of inertia (rotor moment of inertia relates to a motor without brake)
K_E	[V _{rms} /1000min ⁻¹]	EMF constant (induced voltage between two phases at 1000 rpm)
K_T	[Nm/A]	Torque constant at nominal point (quotient of rated torque M_n and rated current I_n)
$K_{T,0}$	[Nm/A]	Torque constant at standstill (quotient of stall torque M_0 and stall current I_0)
L_{ph}	[mH]	Winding inductance between phase and neutral point
m	[kg]	Ground (motor ground without brake)
M_0	[Nm]	Stall torque (stall torque with S1)
M_n	[Nm]	Rated torque (rated torque with S1)
M_{max}	[Nm]	Peak torque (maximum permissible short-time torque)
n_n	[rpm]	Rated speed
n_{max}	[rpm]	Maximum speed
p		Number of pole pairs
P_n	[W]	Rated power (mechanical rated power on the shaft)
R_{ph}	[Ω]	Winding resistance (resistance between phase and neutral point at a winding temperature of 20°C)
T_{el}	[min]	Electrical time constant
T_{th}	[min]	Thermal time constant
U_n	[V]	Controller rated voltage
U_{DC}	[V]	DC link voltage

Declaration of conformity for LSP servomotors

EG-Konformitätserklärung



EC Declaration of Conformity

Der Hersteller
The manufacturer LTI DRIVES GmbH
Gewerbestraße 5-9
35633 Lahnau

erklärt hiermit, dass die folgenden Produkte
declares that the following products

Produktbezeichnung: Servomotor
Product designation: *Servomotor*

Produkttypen: LSMx, LSP
Product types: *LSMx, LSP*

den Sicherheitsbestimmungen der nachstehenden EG-Richtlinie entsprechen:
comply with the essential requirements of the following EC Directive:

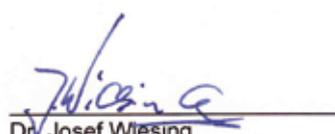
2006/95/EG [Niederspannungsrichtlinie]
2006/95/EC *[Low Voltage Directive]*

und dass folgende angeführten harmonisierten Normen angewandt wurden:
and that the following harmonised standards have been applied:

EN 60034-1:2010
Drehende elektrische Maschinen - Teil 1: Bemessung und Betriebsverhalten (IEC 60034-1:2010)
Rotating electrical machines - Part 1: Rating and performance (IEC 60034-1:2010)

EN 60529:1991/A1:2000
Schutzarten durch Gehäuse (IP-Code) (IEC 60529:1989+A1:1999)
Degrees of protection provided by enclosures (IP Code) (IEC 60529:1989+A1:1999)

Jahr der CE-Kennzeichnung / *Year of CE-marking:* 2011

Unterschrift / *signature* 
Name / *name:* Dr. Josef Wiesing
Stellung / *position:* Geschäftsführer / *Managing Director*
Datum / *date:* 13.04.2011

Dokument: 1175.0DK.0-00

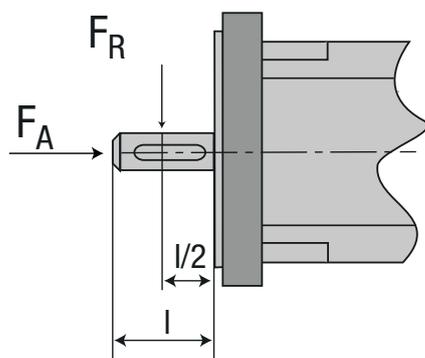
Life

Permissible forces

Maximum radial force F_R [N]

Motor type	1000 rpm	2000 rpm	3000 rpm	4000 rpm	5000 rpm	6000 rpm	7000 rpm	8000 rpm	9000 rpm
LSP04-002	215	170	150	135	125	120	115	110	105
LSP04-004	235	185	160	150	135	130	125	120	115
LSP06-007	350	290	250	230	210	200	190	180	-
LSP06-015	390	310	270	250	230	220	205	195	-
LSP08-028	500	400	350	320	300	270	260	-	-
LSP08-035	520	410	360	320	300	280	265	-	-
LSP10-056	940	740	650	590	550	515	-	-	-
LSP10-075	970	770	680	615	570	540	-	-	-
LSP13-055	820	650	570	510	480	-	-	-	-
LSP13-091	860	680	590	640	500	-	-	-	-
LSP13-123	1100	900	790	710	660	-	-	-	-
LSP13-185	1200	960	840	760	700	-	-	-	-

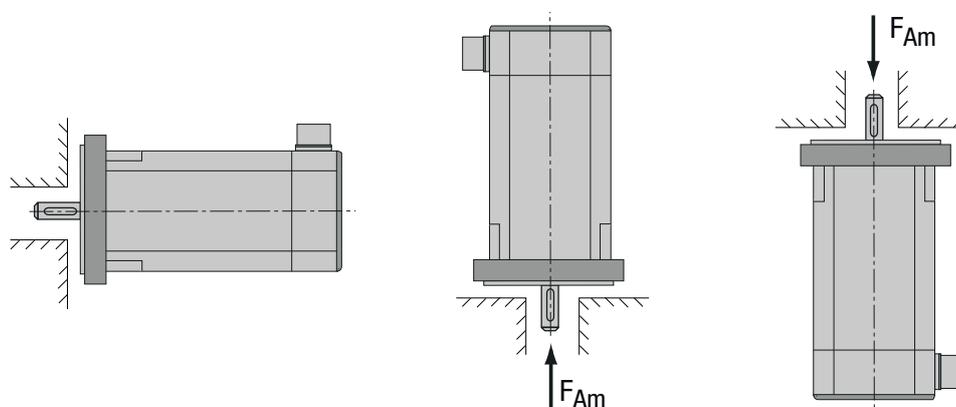
Table 3.1 Maximum axial force: $F_A = 0.2 \times F_R$



The table indicates the maximum permissible lateral force (radial force F_R) at the point of application $l/2$ and the **maximum permissible axial force F_A ($F_A = 0.2 \cdot F_R$)** for a **service life of 20000 h**. A lateral force not applied in the middle of the shaft end can simply be translated to allow for the changed lever ratios.

Either the permissible radial force or the axial force may act on the motor shaft! A one-off axial force of 40% of the radial force at standstill is permissible for motor installation.

Technical data Design



Design	B5	V1	V3
Shaft	Free shaft end	Free shaft end at bottom	Free shaft end at top
Attachment	Flange mounting Access from housing side	Flange mounting at bottom Access from housing side	Flange mounting at top Access from housing side

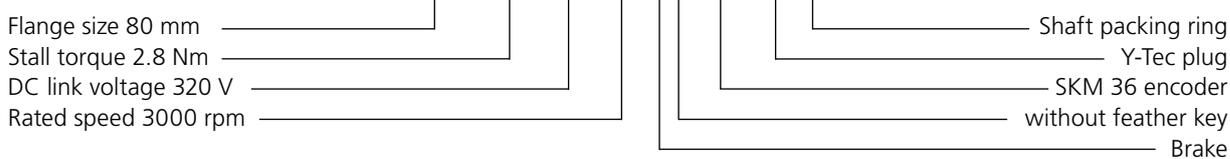


NOTE: With vertical mounting (V1) the permissible axial forces (F_{Δ}) apply. With vertical upward mounting (V3) the permissible axial forces are reduced by the force due to weight of the rotor (F_G).

Order code

LSP 08- 028- 320- 30- B O H2M Y17 O	
LTi synchronous motor Series P	
Flange size	40 mm → 04 60 mm → 06 80 mm → 08 100 mm → 10 130 mm → 13
Standstill torque	0.2 Nm → 002 0.4 Nm → 004 0.7 Nm → 007 1.5 Nm → 015 2.8 Nm → 028 3.5 Nm → 035 5.6 Nm → 056 7.5 Nm → 075 5.5 Nm → 055 9.1 Nm → 091 12.3 Nm → 123 18.5 Nm → 185
DC link voltage	48 V → 048 320 V → 320 560 V → 560
Rated speed	2000 rpm → 20 3000 rpm → 30 3600 rpm → 36 5000 rpm → 50 5500 rpm → 55 6000 rpm → 60 9000 rpm → 90
Brake option	Brake B X XXX XXX X All motor types
Feather key option	Feather key X P XXX XXX X All motor types
Encoder system options	Resolver X X R1P XXX X All motor types SEK 3X X X H1S XXX X All motor types SEL 3X X X H1M XXX X All motor types SKS 36 X X H2S XXX X LSP06, LSP08, LSP10, LSP13 SKM 36 X X H2M XXX X LSP06, LSP08, LSP10, LSP13 SRS 50 X X H3S XXX X LSP08, LSP10, LSP13 SRM 50 X X H3M XXX X LSP08, LSP10, LSP13
Connection options	Y-Tec X X XXX Y17 X LSP04, LSP06, LSP08 M23 angled X X XXX W23 X LSP06, LSP08, LSP10, LSP13
Shaft packing ring	with Shaft packing ring X X XXX XXX W without Shaft packing ring X X XXX XXX O

Example: LSP08-028-320-30-BOH2MY17W



Brakes option

Technical data

The brakes are permanent magnet DC voltage no-load current brake units.
The brakes are not service brakes. Switch on and off only at speed = 0.

Insulating class: F (155°)
Max. speed: 10000 rpm
Voltage supply: 24 V DC +6% -10%

Technical data - Brake	LSP04-		LSP06-		LSP08-	
	002	004	007	015	028	035
Moment of inertia with brake [kgm ²]	0.055 · 10 ⁻⁴	0.079 · 10 ⁻⁴	0.319 · 10 ⁻⁴	0.512 · 10 ⁻⁴	1.68 · 10 ⁻⁴	2.20 · 10 ⁻⁴
Braking torque. static [Nm]	0.4	0.4	2.0	2.0	4.5	4.5
Braking torque. dynamic [Nm]	0.3	0.3	1.7	1.7	3.8	3.8
Brake input power [W]	8	8	11	11	12	12
Brake voltage [V DC]	24	24	24	24	24	24
Brake input current [A]	0.33	0.33	0.46	0.46	0.50	0.50
Brake friction energy [kJ]	180	180	580	580	580	580
Brake disengagement time [ms]	10	10	25	25	35	35
Brake response delay [ms]	2	2	2	2	2	2
Closure time [ms]	6	6	10	10	15	15
Weight of motor with brake [kg]	0.7	0.8	2.0	2.6	4.1	4.8

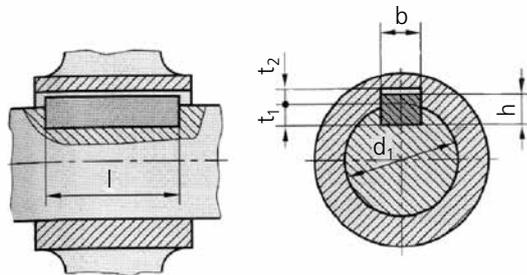
Technical data - Brake	LSP10-		LSP13-			
	056	075	055	091	123	185
Moment of inertia with brake [kgm ²]	5.63 · 10 ⁻⁴	7.20 · 10 ⁻⁴	10.5 · 10 ⁻⁴	14.8 · 10 ⁻⁴	23.1 · 10 ⁻⁴	35.8 · 10 ⁻⁴
Braking torque. static [Nm]	9.0	9.0	9.0	9.0	20	20
Braking torque. dynamic [Nm]	7.5	7.5	7.5	7.5	15	15
Brake input power [W]	18	18	18	18	24	24
Brake voltage [V DC]	24	24	24	24	24	24
Brake input current [A]	0.75	0.75	0.75	0.75	1.00	1.00
Brake friction energy [kJ]	890	890	890	890	1290	1290
Brake disengagement time [ms]	40	40	40	40	50	50
Brake response delay [ms]	2	2	2	2	3	3
Closure time [ms]	20	20	20	20	40	40
Weight of motor with brake [kg]	7.3	8.3	8.0	9.4	12.2	16.4

The motors must not be run against the closed brake. The motor brake is designed as a holding brake at standstill. An emergency stop of the running motor is permissible in exceptional circumstances. The number of emergency stops is limited by the moment of inertia of the overall system.

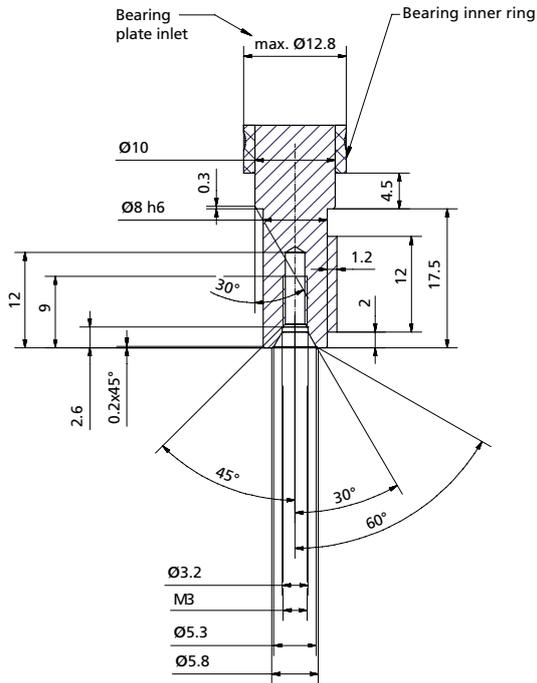
Feather key option

A "high form" feather key is used (see DIN 6885-1 (1968-08). form A). The shaft groove width is securely seated (tolerance P9).

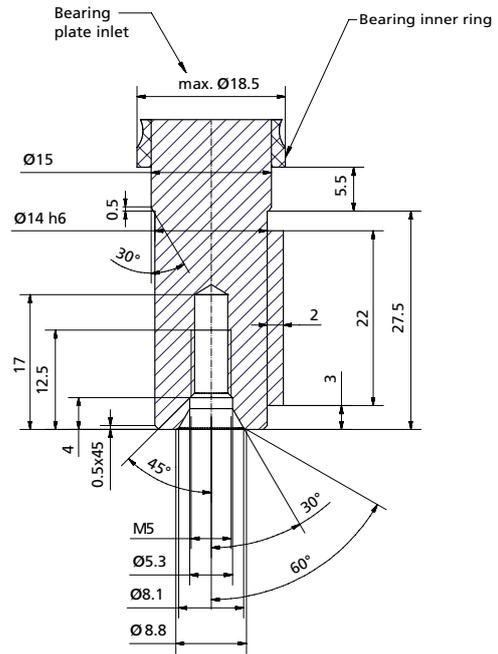
Motor type	Feather key					Distance to front end of shaft
	b [mm]	h [mm]	t ₁ [mm]	t ₂ [mm]	l [mm]	
LSP04	3	3	1.8	1.4	12	2
LSP06	5	5	3	2.3	22	3
LSP08	6	6	3.5	2.8	22	3
LSP10	6	6	3.5	2.8	32	4
LSP13	8	7	4	3.3	40	5



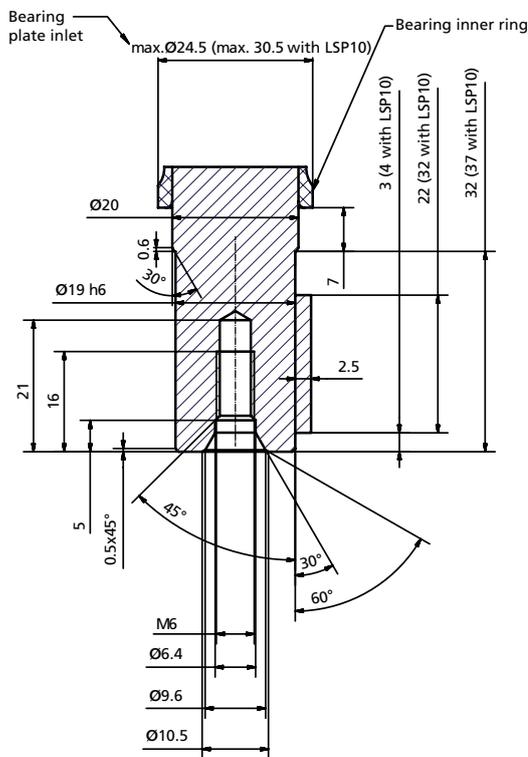
LSP04



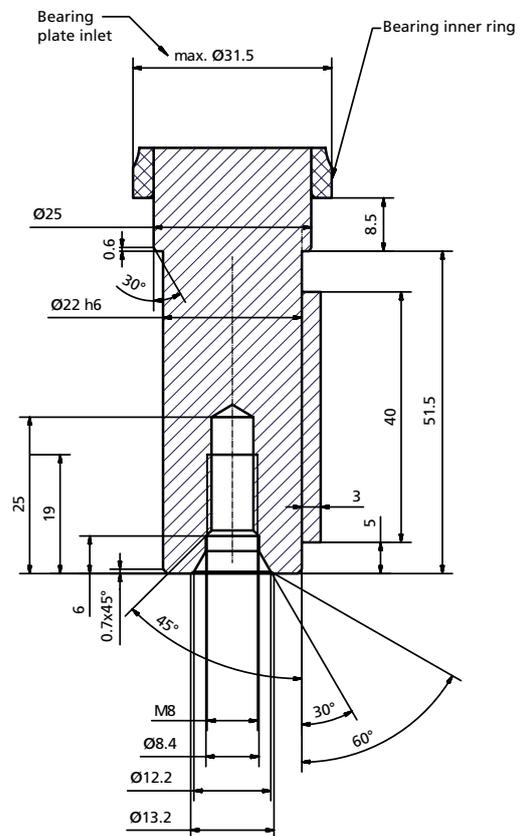
LSP06



LSP08 and LSP10



LSP13



Absolute value encoder option

1

Resolver

RE-15



Technical data:

- 1 sine/cosine period per revolution
- Resolution 14-bit

Capacitive systems

SEK/SEL37

(single/multi-turn encoder)



Technical data:

- 16 sine/cosine periods per revolution
- Absolute position with a resolution of 512 increments per revolution
- 4096 revolutions measurable (multi-turn)
- Electronic rating plate

Optical systems

SKS/SKM36

(single/multi-turn encoder)



Technical data:

- 128 sine/cosine periods per revolution
- Absolute position with a resolution of 4096 increments per revolution
- 4096 revolutions measurable (multi-turn)
- Electronic rating plate

SRS/SRM50

(single/multi-turn encoder)



Technical data:

- 1024 sine/cosine periods per revolution
- Absolute position with a resolution of 32768 increments per revolution
- 4096 revolutions measurable (multi-turn)
- Electronic rating plate

Technical data to DIN 32878	Resolver RE-15	SEK/SEL37	SKS/SKM36	SRS/SRM50
Rating plate identifier	R1P	H1S/H1M	H2S/H2M	H3S/H3M
Number of sine/cosine periods per revolution	1	16	128	1024
Number of absolutely measurable revolutions	Single 1 Multi 0	Single SEK 1 Multi SEL 4096	Single SKS 1 Multi SKM 4096	Single SRS 1 Multi SRM 4096
Code type for absolute value	Analog	Binary	Binary	Binary
Code curve ¹⁾	Rising	Rising	Rising	Rising
Repetition accuracy	± 10 angle min.	± 288 angle sec.	± 80 angle sec.	± 45 angle sec.
Absolute accuracy	± 11 angle min.	± 432 angle sec.	± 120 angle sec.	± 52 angle sec.
Shock resistance	100 g/11 ms	100 g/10 ms	100 g/6 ms	100 g/10 ms
Vibration resistance	50 g/10 ... 500 Hz	50 g/10 ... 2000 Hz	50 g/10 ... 2000 Hz	50 g/10 ... 2000 Hz
Operating voltage range	7 V	7 ... 12 V	7 ... 12 V	7 ... 12 V
Max. operating current without load	---	< 50 mA	60 mA	80 mA
Interface signals Process data cable = SIN, REFSIN, COS, REFCOS Parameter channel = RS 485	---	Analog, differential digital	Analog, differential digital	Analog, differential digital
Position resolution for positioning speed control when operating on ServoOne junior	14-bit	17-bit	21-bit	24-bit

1) With shaft rotating clockwise as seen looking towards "A"

Encoder selection help

Application	Resolver	Stegmann SEK37 Sin-Cos 16	Stegmann SKS36 Sin-Cos 128	Stegmann SRS50 Sin-Cos 1024
Handling	+	++	++	++
Robotics	+	++	++	++
Packaging	0	+	++	++
Machine tools	--	-	0	+
Printing machinery	--	-	0	+

„++“ ... Very well suited

„+“ ... Well suited

„0“ ... Possibly suitable, verification required

„-“ ... Mostly unsuitable (possibly usable)

„--“ ... Unsuitable

Encoder system options

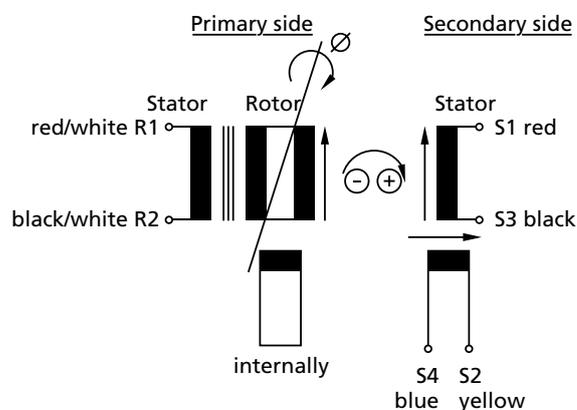
All LTi LSP motors are fitted with a resolver as standard. Various SinCos encoders with the Hiperface® interface can optionally be built on to the model series. For motors with these encoders the angle offset is written to the encoder memory.

Overview of suitable encoders:

Motor type	Resolver	Absolute value encoder		
	Standard	SEK/SEL37 (34)	SKS/SKM36	SRS/SRM50
LSP04	X	X		
LSP06	X	X	X	
LSP08	X	X	X	X
LSP10	X	X	X	X
LSP13	X	X	X	X

Resolver circuit diagram:

Stability	
Working environment	IE 32 to EN 60721-3-3
Working temperatures	-55 °C – 155 °C
Vibration resistance to EN 60068-2-6 in the range	<500 m/s ² 55 – 2000 Hz
Impact resistance at	<1000 m/s ² 11 ms
Max. working speed	20000 rpm



Termination technique

Motor type	Standard: Y-Tec	Optional in project business with ServoOne: M23 angled rotating
LSP04	X	
LSP06	X	X
LSP08	X	X
LSP10	X	X
LSP13	X	X

Termination technique

Y-Tec plug, standard Y17



Power

Assignment	Function
A	U
B	V
C	W
Grounding	PE
1	-
2	-
3	Brake +*
4	Brake -*
5	-

* If available

Resolver signal

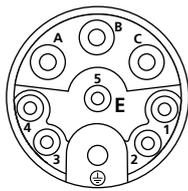
Assignment	Function
1	cos+
2	cos -/refcos
3	sin +
4	sin -/refsin
5	R1 (ref +)
6	R2 (ref -)
7	-
8	-
9	Temp +
10	Temp -
11	-
12	-

Hiperface signal

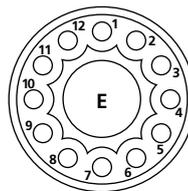
Assignment	Function
1	cos+
2	cos -/refcos
3	sin +
4	sin -/refsin
5	Data +
6	Data
7	Us
8	GND
9	Temp +
10	Temp -
11	-
12	-

Motor plug

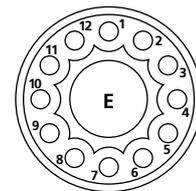
View of plug-in side



Power plug, 9-pin
9 x Ø 1 mm (3 + PE + 5)



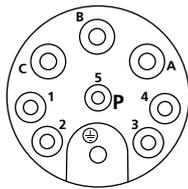
Signal plug, 12-pin
12 x Ø 1 mm



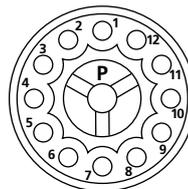
Signal plug, 9-pin
12 x Ø 1 mm

Mating plug

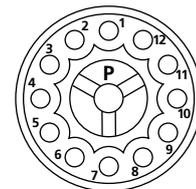
View of plug-in side



Intercontec designation
ESTB 202 NN00 13 0500 000
(Cable clamp range 10.5-12 mm)



Intercontec designation
ESTB 002 NN00 11 0001 000
(Cable clamp range 7.5-10 mm)



Intercontec designation
ESTB 002 NN00 11 0001 000
(Cable clamp range 7.5-10 mm)

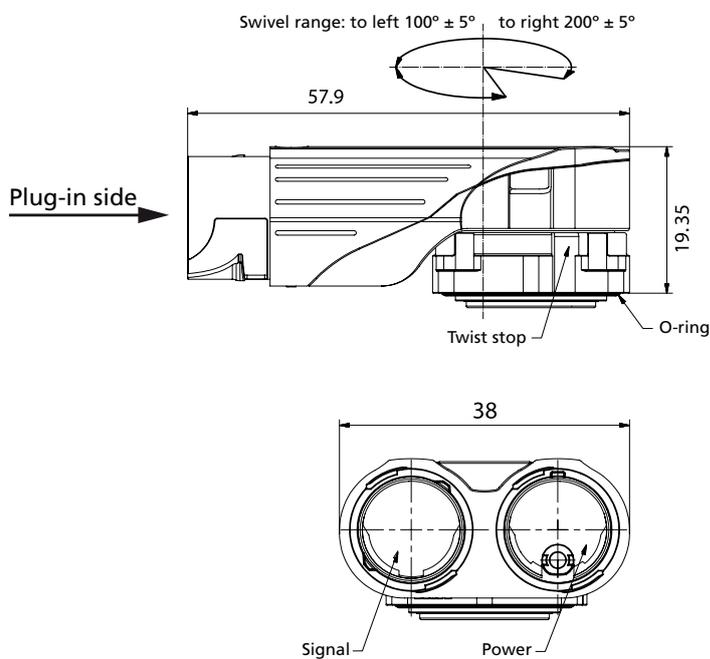
Mating plug for Y17



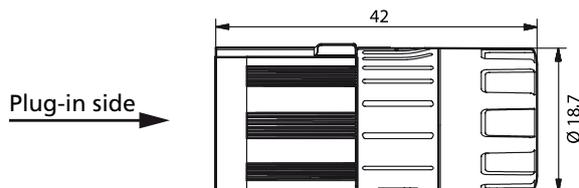
Technical drawing

Motor plug

Rotating angled socket Y-Tec



Mating plug



Termination technique

Plug M23, option W23 (optionally in conjunction with ServoOne)



Power

Assignment	Function
A	Brake +*
B	Brake -*
C	-
D	-
1	U
4	V
3	W
Grounding	PE

* If available

Resolver signal

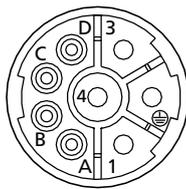
Assignment	Function
1	cos+
2	cos -/refcos
3	sin +
4	sin -/refsin
5	-
6	R1 (ref +)
7	R2 (ref -)
8	-
9	-
10	-
11	Temp +
12	Temp -

Hiperface signal

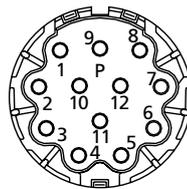
Assignment	Function
1	cos+
2	cos -/refcos
3	sin +
4	sin -/refsin
5	-
6	-
7	GND
8	-
9	Us
10	Data +
11	Data
12	-
13	-
14	Temp +
15	Temp -
16	-
17	-

Motor plug

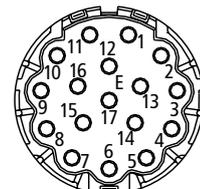
View of plug-in side



8-pin
4 x Ø 2 mm (3 + PE) 4 x Ø 1 mm



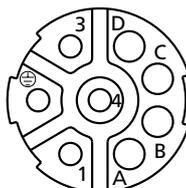
12-pin
12 x Ø 1 mm, 0° coded



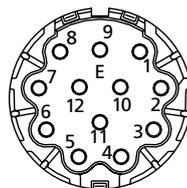
17-pin
17 x Ø 1 mm, 0° coded

Mating plug

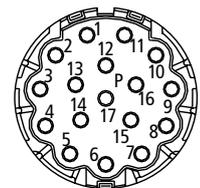
View of plug-in side



Intercontec designation
BSTA 078 NN00 42 0100 000
(Cable clamp range 9.5-14 mm)



Intercontec designation
ASTA 013 NN00 41 0100 000
(Cable clamp range 6-10 mm)



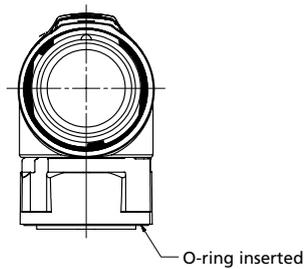
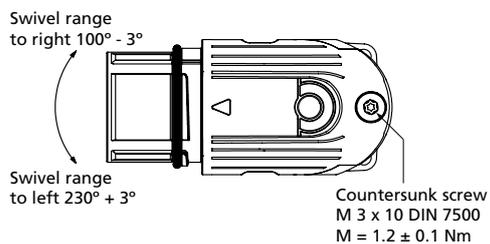
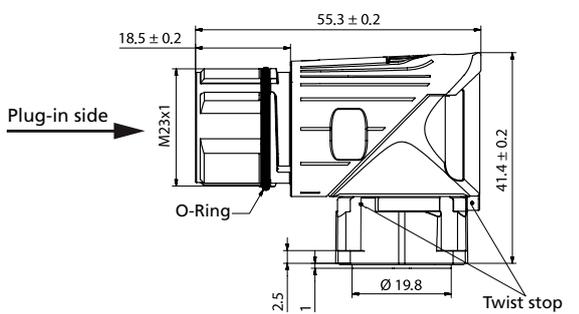
Intercontec designation
ASTA 014 NN00 41 0100 000
(Cable clamp range 6-10 mm)

Mating plug for W23

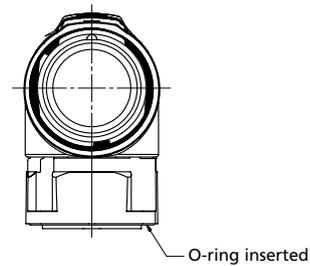
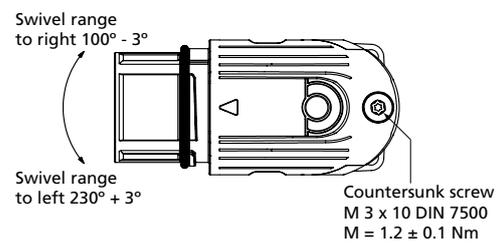
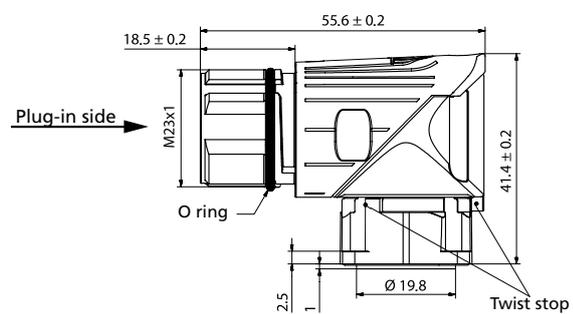


Technical drawing

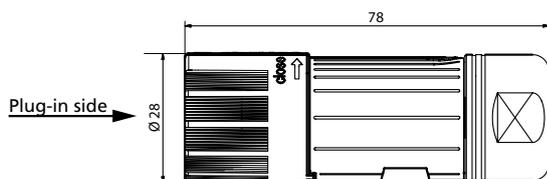
Power - motor plug



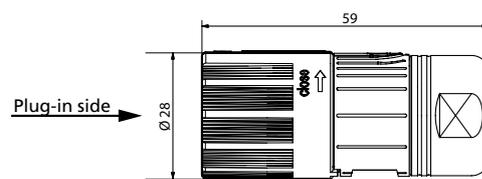
Signal - motor plug



Mating plug



Mating plug



Space for notes

A large grid of graph paper for taking notes, consisting of 20 columns and 30 rows of small squares.

Overview of LSP servomotors



Technical data

Type	Technical data 1)	U _{dc} [V]	I ₀ [A]	I _n [A]	M ₀ [Nm]	M _n [Nm]	M _{max} [Nm]	n _n [rpm]	J [kg m ²]	P _n (S1) [W]
LSP04	LSP04-002	48	2.0	1.8	0.18	0.16	0.6	3000	0.03 · 10 ⁻⁴	50
		48	3.8	2.9	0.18	0.14	0.6	6000	0.03 · 10 ⁻⁴	85
		320	0.9	0.6	0.18	0.12	0.7	9000	0.03 · 10 ⁻⁴	110
	LSP04-004	48	3.4	3.1	0.35	0.32	1.1	3000	0.054 · 10 ⁻⁴	100
		48	7.2	5.7	0.35	0.28	1.3	6000	0.054 · 10 ⁻⁴	175
		320	1.8	1.1	0.35	0.21	1.4	9000	0.054 · 10 ⁻⁴	200
LSP06	LSP06-007	320	0.9	0.8	0.7	0.6	2.8	3000	0.22 · 10 ⁻⁴	200
		320	1.8	1.3	0.7	0.5	2.8	6000	0.22 · 10 ⁻⁴	325
	LSP06-015	320	1.9	1.6	1.5	1.2	6.0	3000	0.413 · 10 ⁻⁴	400
		320	3.6	2.1	1.5	0.9	6.0	6000	0.413 · 10 ⁻⁴	550
LSP08	LSP08-028	320	3.1	3.0	2.8	2.4	11.2	3000	1.40 · 10 ⁻⁴	750
		320	6.2	3.8	2.8	1.7	11.2	5500	1.40 · 10 ⁻⁴	1000
		560	1.8	1.7	2.8	2.3	11.2	3000	1.40 · 10 ⁻⁴	750
		560	3.5	2.2	2.8	1.7	11.2	5500	1.40 · 10 ⁻⁴	1000
	LSP08-035	320	4.0	3.9	3.5	3.2	14.0	3000	1.93 · 10 ⁻⁴	1000
		320	7.8	4.7	3.5	2.1	14.0	5500	1.93 · 10 ⁻⁴	1200
		560	2.3	2.2	3.5	3.2	14.0	3000	1.93 · 10 ⁻⁴	1000
		560	4.4	2.6	3.5	2.1	14.0	5500	1.93 · 10 ⁻⁴	1200
LSP10	LSP10-056	560	3.9	3.3	5.6	4.8	22.4	3000	4.84 · 10 ⁻⁴	1500
		560	6.3	3.9	5.6	3.4	22.4	5000	4.84 · 10 ⁻⁴	1800
	LSP10-075	560	5.1	4.4	7.5	6.4	30.0	3000	6.41 · 10 ⁻⁴	2000
		560	8.4	5.3	7.5	4.8	30.0	5000	6.41 · 10 ⁻⁴	2500
LSP13	LSP13-055	320	4.8	4.1	5.5	4.8	22.0	2000	9.82 · 10 ⁻⁴	1000
		320	8.2	6.0	5.5	4.0	22.0	3600	9.82 · 10 ⁻⁴	1500
		560	2.7	2.3	5.5	4.8	22.0	2000	9.82 · 10 ⁻⁴	1000
		560	4.7	3.4	5.5	4.0	22.0	3600	9.82 · 10 ⁻⁴	1500
	LSP13-091	560	4.4	3.4	9.1	7.2	36.4	2000	14.0 · 10 ⁻⁴	1500
		560	7.7	5.0	9.1	6.0	36.4	3600	14.0 · 10 ⁻⁴	2250
	LSP13-123	560	4.7	4.5	12.3	9.6	49.2	2000	21.1 · 10 ⁻⁴	2000
		560	10.3	6.7	12.3	8.0	49.2	3600	21.1 · 10 ⁻⁴	3000
	LSP13-185	560	8.4	6.5	18.5	14.4	74.0	2000	33.8 · 10 ⁻⁴	3000
		560	14.8	8.0	18.5	10.0	74.0	3600	33.8 · 10 ⁻⁴	3750

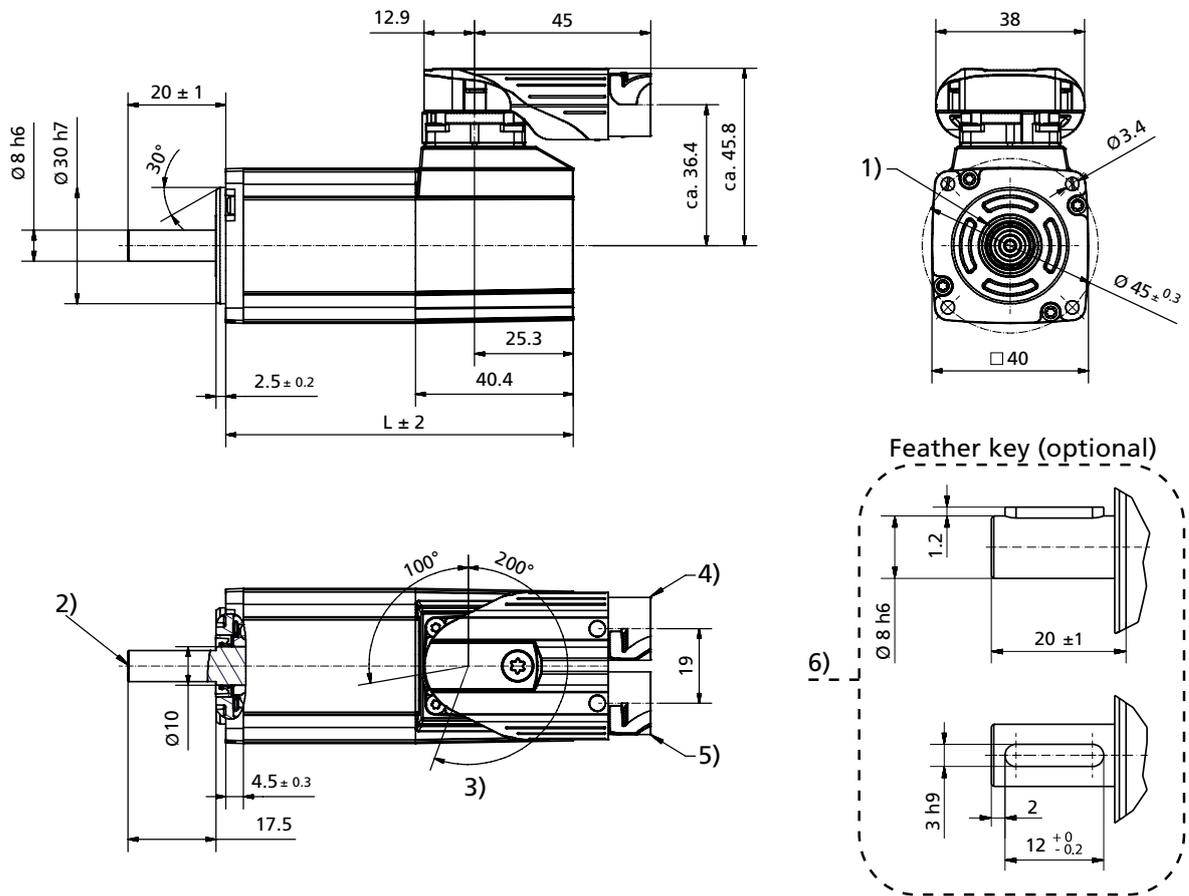
Table 4.1 Motor series data

1) All values with a tolerance of ± 5%

Motor type: LSP04-002



Dimensional drawing



Motor lengths

Motor type		L
LSP04-002	without brake	86 mm
LSP04-002	with brake	121 mm

Key

- 1) Radial shaft packing ring (16x10x4)
- 2) Centring hole with axial thread to DIN 332 - DS M3 (M3x9)
- 3) Swivel range of Y-Tec plug from Intercontec
- 4) Power plug
- 5) Signal plug
- 6) Feather key (optional)

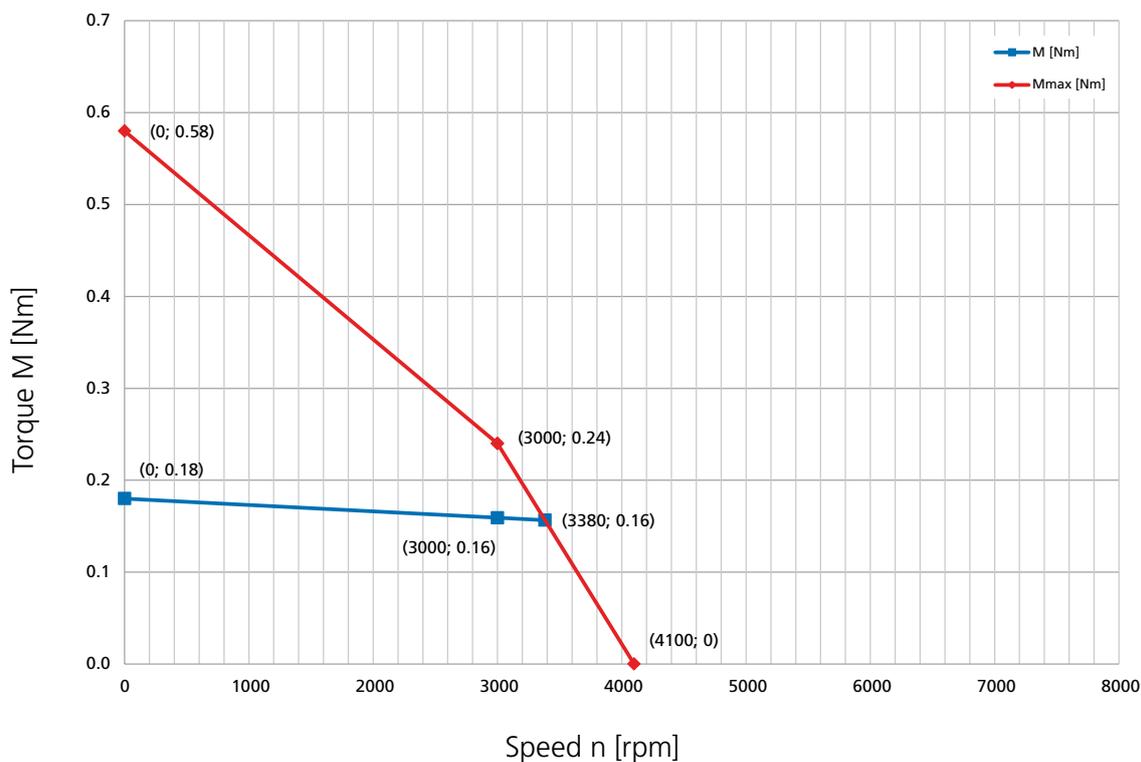
Technical data ¹⁾	Abbreviation	LSP04-002		
Rated speed [rpm]	n_n	3000	6000	9000
Rated frequency [Hz]	f_n	100	200	300
Number of pole pairs	p	2	2	2
Controller DC link voltage [V]	U_{DC}	48	48	320
Controller rated voltage [V]	U_n	48	48	230
Rated power [W]	P_n	50	85	110
Rated torque [Nm]	M_n	0.16	0.14	0.12
Rated current per phase [A]	I_n	2.0	3.8	0.9
Stall torque [Nm]	M₀	0.18	0.18	0.18
Stall current per phase [A]	I₀	2.0	3.8	0.9
Maximum permissible torque [Nm]	M_{max}	0.6	0.6	0.7
Maximum permissible current per phase [A]	I_{max}	6.5	12.2	3.6
Maximum speed [rpm]	n_{max}	4100	7750	10000
EMF constant [V/1000 min ⁻¹]	K_E	9.0	3.9	15.5
Torque constant at nominal point [Nm/A]	K_T	0.09	0.05	0.2
Winding resistance (per phase) at 20 °C [Ω]	R_{ph}	2.3	0.6	10.9
Winding inductance (per phase) [mH]	L_{ph}	1.5	0.4	7.6
Electric time constant [ms]	T_{el}	0.8	0.8	0.7
Thermal time constant [min]	T_{th}	15	15	15
Rotor moment of inertia [kg m ²]	J	0.03 · 10 ⁻⁴	0.03 · 10 ⁻⁴	0.03 · 10 ⁻⁴
Motor mass [kg]	m	0.6	0.6	0.6

1) All values with a tolerance of ± 5%

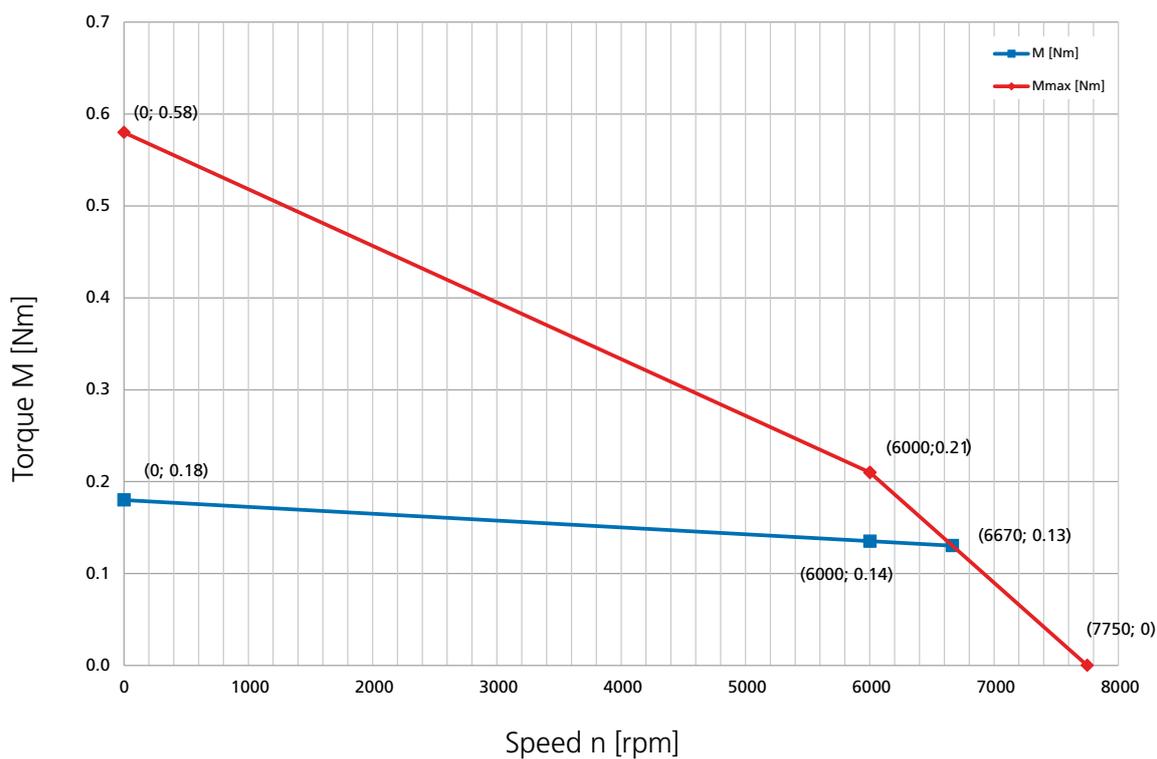
Characteristics

The characteristic M_{max} describes the maximum possible short-time torque at the corresponding speed.
The characteristic M_n shows the thermally permissible rated torque.

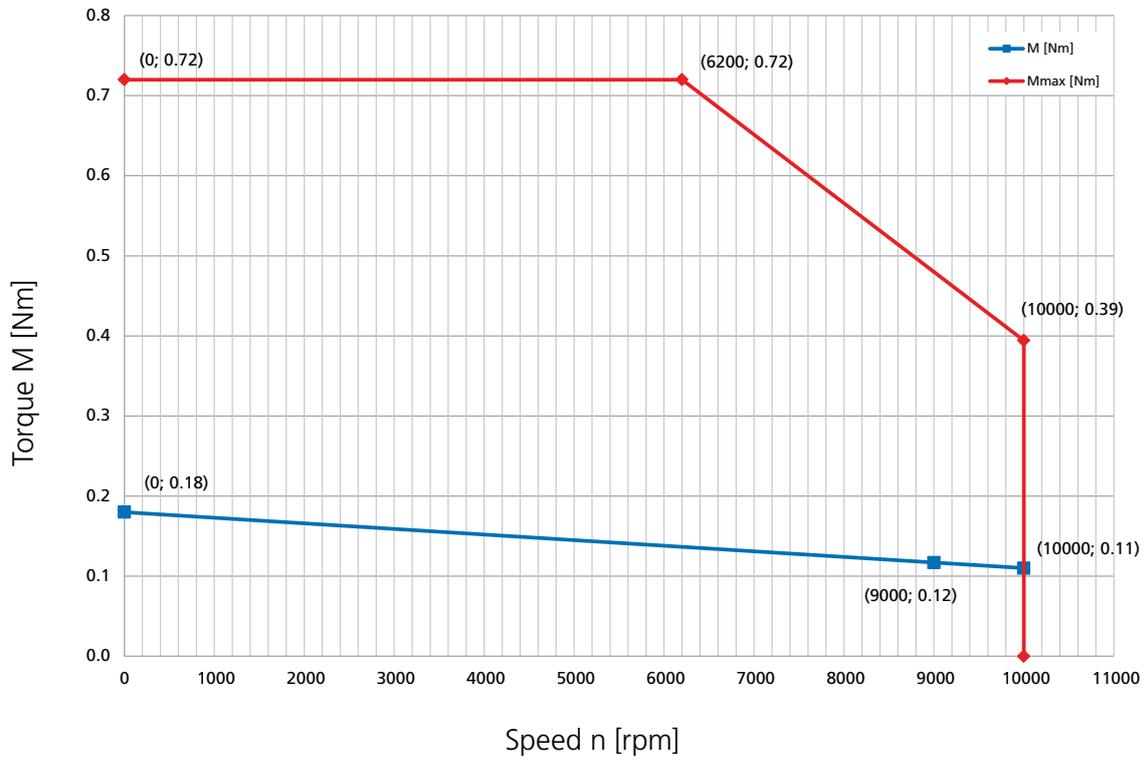
LSP04-002-048-30-[...]



LSP04-002-048-60-[...]



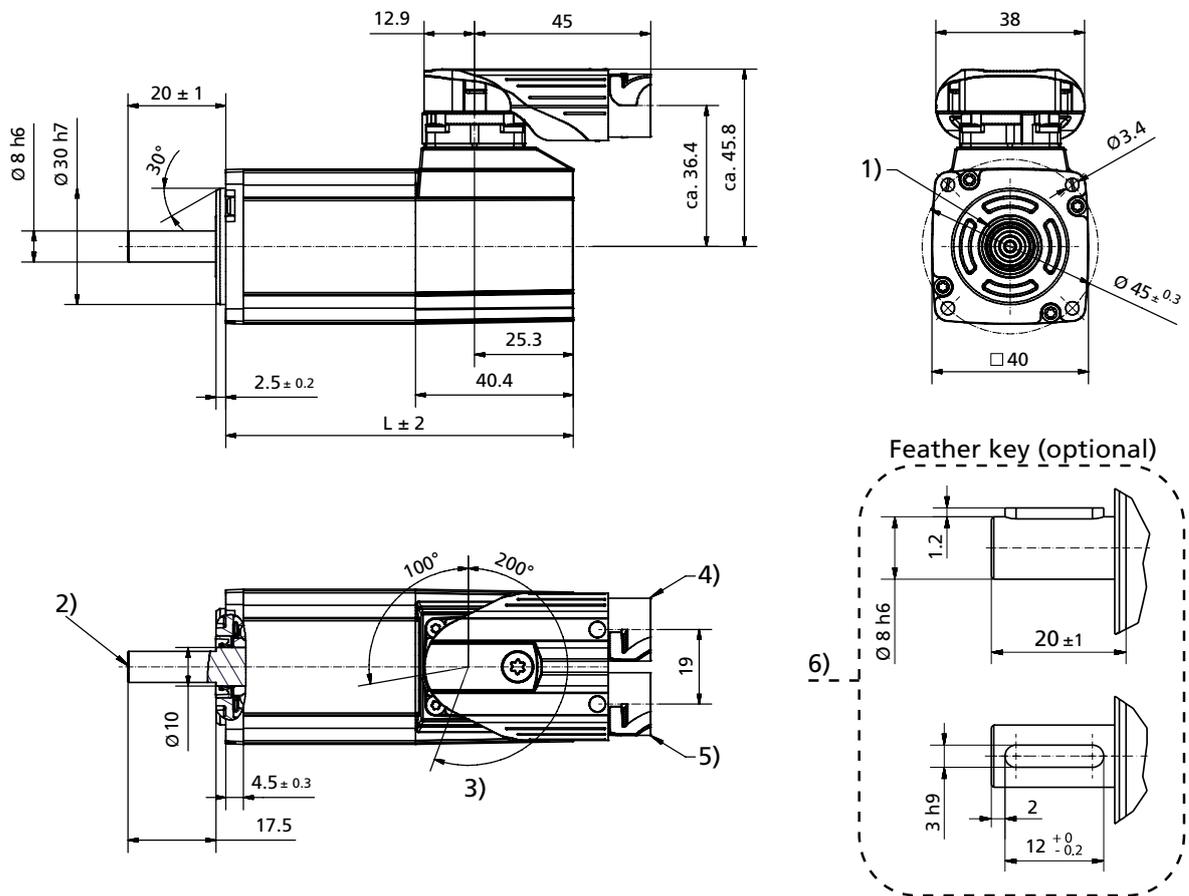
LSP04-002-320-90-[...]



Motor type: LSP04-004



Dimensional drawing



Motor lengths

Motor type		L
LSP04-004	without brake	111 mm
LSP04-004	with brake	146 mm

Key

- 1) Radial shaft packing ring (16x10x4)
- 2) Centring hole with axial thread to DIN 332 - DS M3 (M3x9)
- 3) Swivel range of Y-Tec plug from Intercontec
- 4) Power plug
- 5) Signal plug
- 6) Feather key (optional)

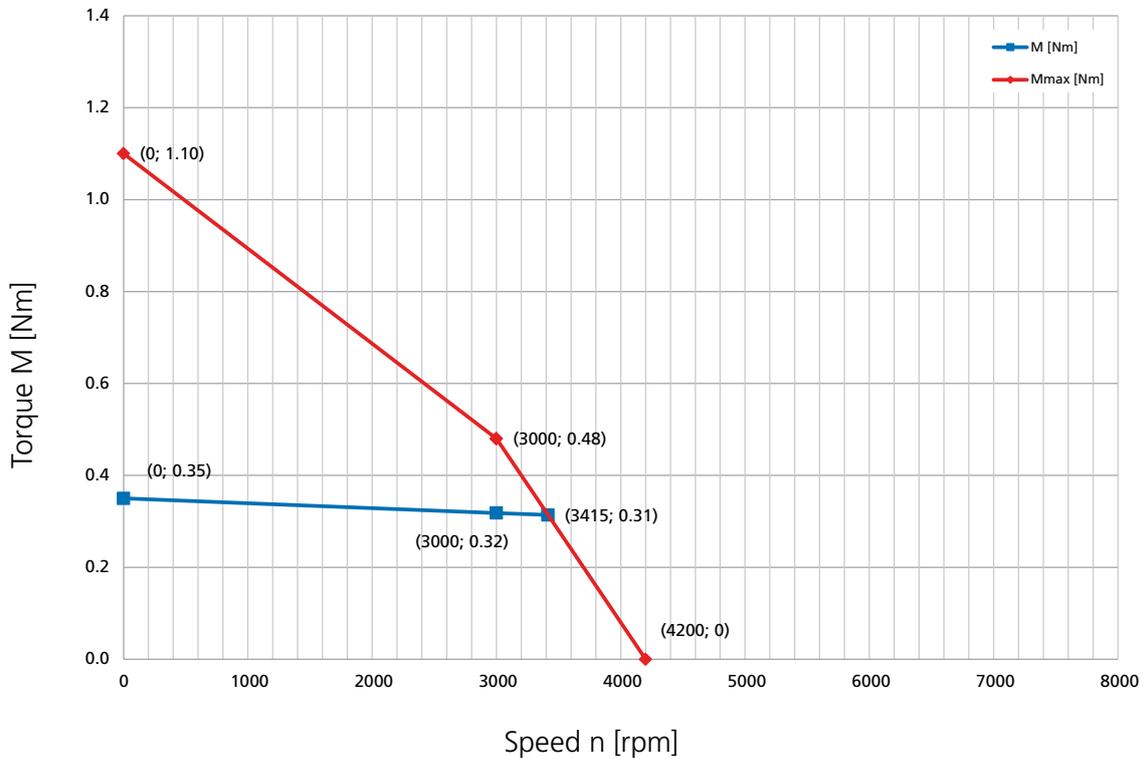
Technical data ¹⁾	Abbreviation	LSP04-004		
Rated speed [rpm]	n_n	3000	6000	9000
Rated frequency [Hz]	f_n	100	200	300
Number of pole pairs	p	2	2	2
Controller DC link voltage [V]	U_{ZK}	48	48	320
Controller rated voltage [V]	U_n	48	48	230
Rated power [W]	P_n	100	175	200
Rated torque [Nm]	M_n	0.32	0.28	0.21
Rated current per phase [A]	I_n	3.1	5.7	1.1
Stall torque [Nm]	M₀	0.35	0.35	0.35
Stall current per phase [A]	I₀	3.4	7.2	1.8
Maximum permissible torque [Nm]	M_{max}	1.10	1.3	1.4
Maximum permissible current per phase [A]	I_{max}	10.7	26.6	7.2
Maximum speed [rpm]	n_{max}	4200	7600	10000
EMF constant [V/1000 min ⁻¹]	K_E	8.2	3.8	14.6
Torque constant at nominal point [Nm/A]	K_T	0.10	0.05	0.19
Winding resistance (per phase) at 20 °C [Ω]	R_{ph}	0.8	0.2	3.9
Winding inductance (per phase) [mH]	L_{ph}	0.7	0.2	3.4
Electric time constant [ms]	T_{el}	1.0	1.0	0.9
Thermal time constant [min]	T_{th}	15	15	15
Rotor moment of inertia [kg m ²]	J	0.054 · 10 ⁻⁴	0.054 · 10 ⁻⁴	0.054 · 10 ⁻⁴
Motor mass [kg]	m	0.7	0.7	0.7

1) All values with a tolerance of ± 5%

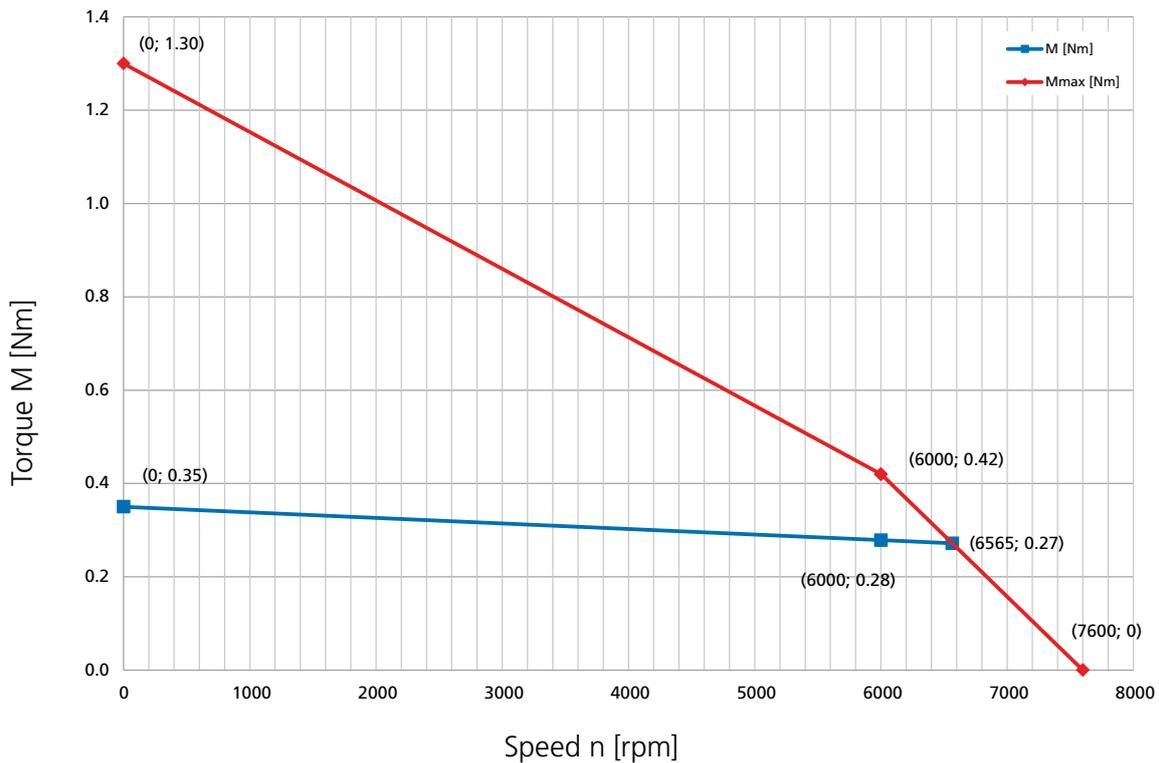
Characteristics

The characteristic M_{\max} describes the maximum possible short-time torque at the corresponding speed.
The characteristic M_n shows the thermally permissible rated torque.

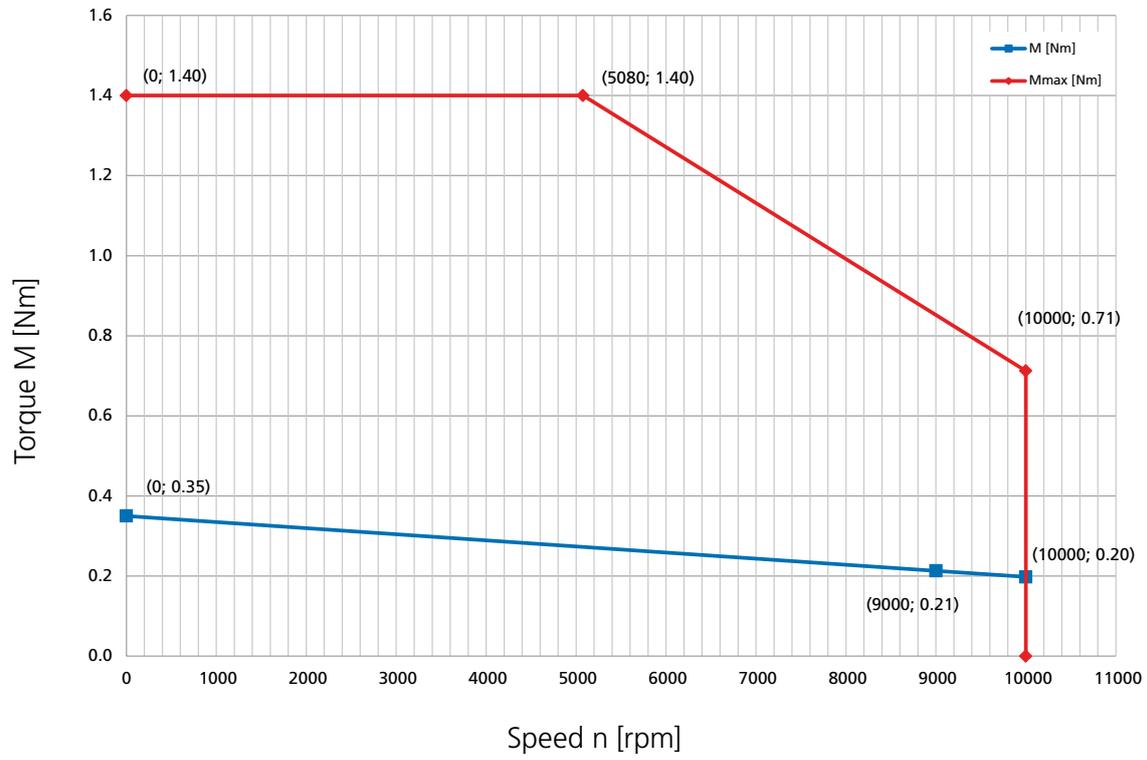
LSP04-004-048-30-[...]



LSP04-004-048-60-[...]



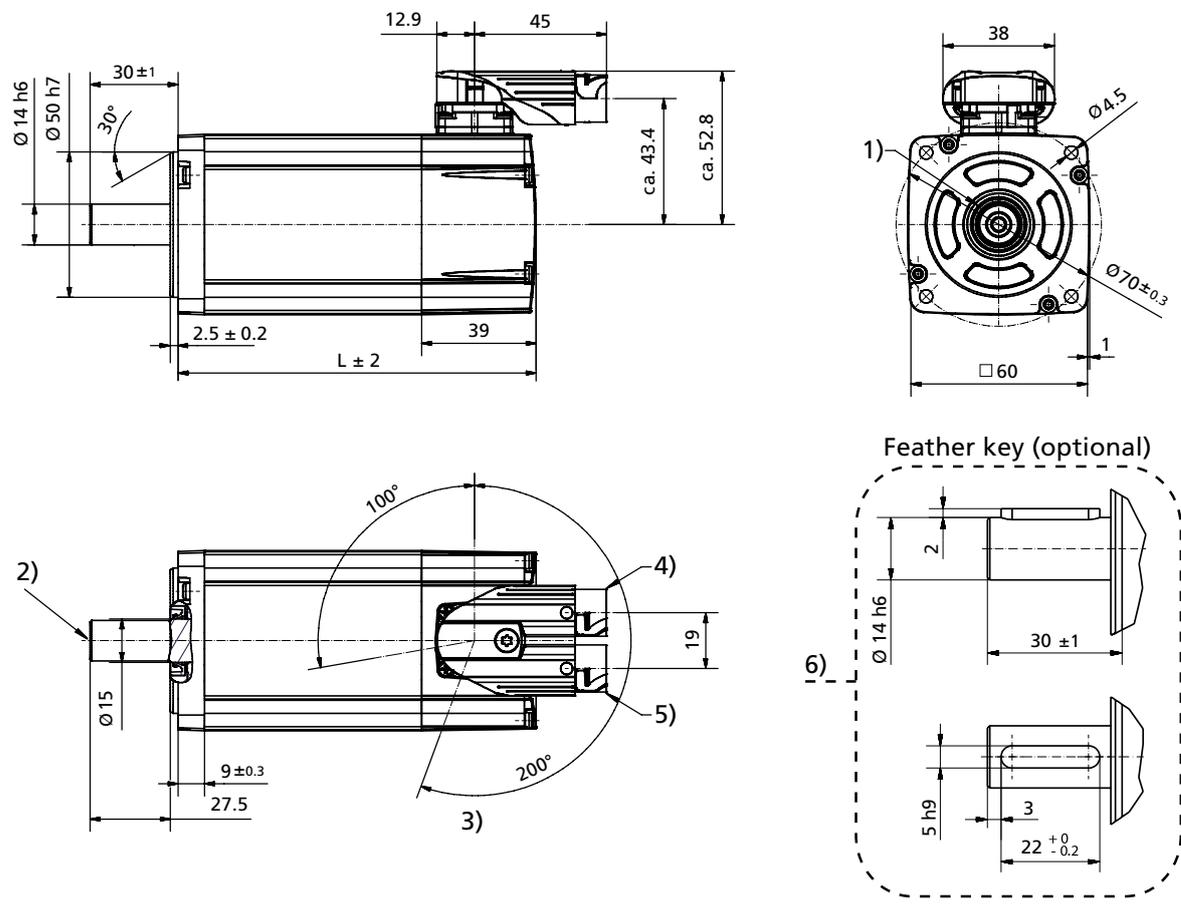
LSP04-004-320-90-[...]



Motor type:
LSP06-007,
LSP06-015



Dimensional drawing



Motor lengths

Motor type		L
LSP06-007	without brake	121 mm
LSP06-007	with brake	155 mm
LSP06-015	without brake	151 mm
LSP06-015	with brake	185 mm

Key

- 1) Radial shaft packing ring (24x15x5)
- 2) Centring hole with axial thread to DIN 332 - DS M5 (M5x12.5)
- 3) Swivel range of Y-Tec plug from Intercontec
- 4) Power plug
- 5) Signal plug
- 6) Feather key (optional)

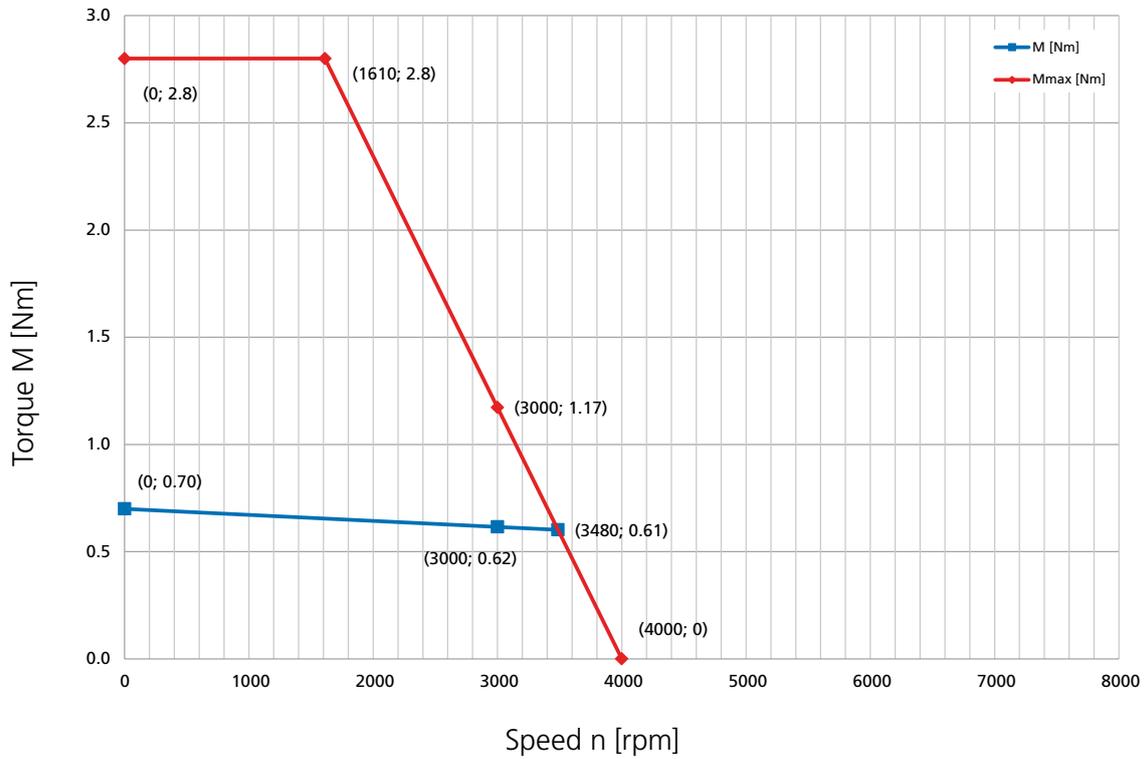
Technical data ¹⁾	Abbreviation	LSP06-007		LSP06-015	
Rated speed [rpm]	n_n	3000	6000	3000	6000
Rated frequency [Hz]	f_n	150	300	150	300
Number of pole pairs	p	3	3	3	3
Controller DC link voltage [V]	U_{ZK}	320	320	320	320
Controller rated voltage [V]	U_n	230	230	230	230
Rated power [W]	P_n	200	325	400	550
Rated torque [Nm]	M_n	0.6	0.5	1.2	0.9
Rated current per phase [A]	I_n	0.8	1.3	1.6	2.1
Stall torque [Nm]	M₀	0.7	0.7	1.5	1.5
Stall current per phase [A]	I₀	0.9	1.8	1.9	3.6
Maximum permissible torque [Nm]	M_{max}	2.8	2.8	6.0	6.0
Maximum permissible current per phase [A]	I_{max}	3.6	7.0	7.6	14.4
Maximum speed [rpm]	n_{max}	4000	7300	3950	7200
EMF constant [V/1000 min ⁻¹]	K_E	58	30	59	30
Torque constant at nominal point [Nm/A]	K_T	0.7	0.4	0.8	0.4
Winding resistance (per phase) at 20 °C [Ω]	R_{ph}	11.8	3.6	4.4	1.3
Winding inductance (per phase) [mH]	L_{ph}	19.1	5.6	9.4	2.7
Electric time constant [ms]	T_{el}	1.5	1.5	1.9	1.9
Thermal time constant [min]	T_{th}	25	25	25	25
Rotor moment of inertia [kg m ²]	J	0.22 · 10 ⁻⁴	0.22 · 10 ⁻⁴	0.413 · 10 ⁻⁴	0.413 · 10 ⁻⁴
Motor mass [kg]	m	1.7	1.7	2.2	2.2

1) All values with a tolerance of ± 5%

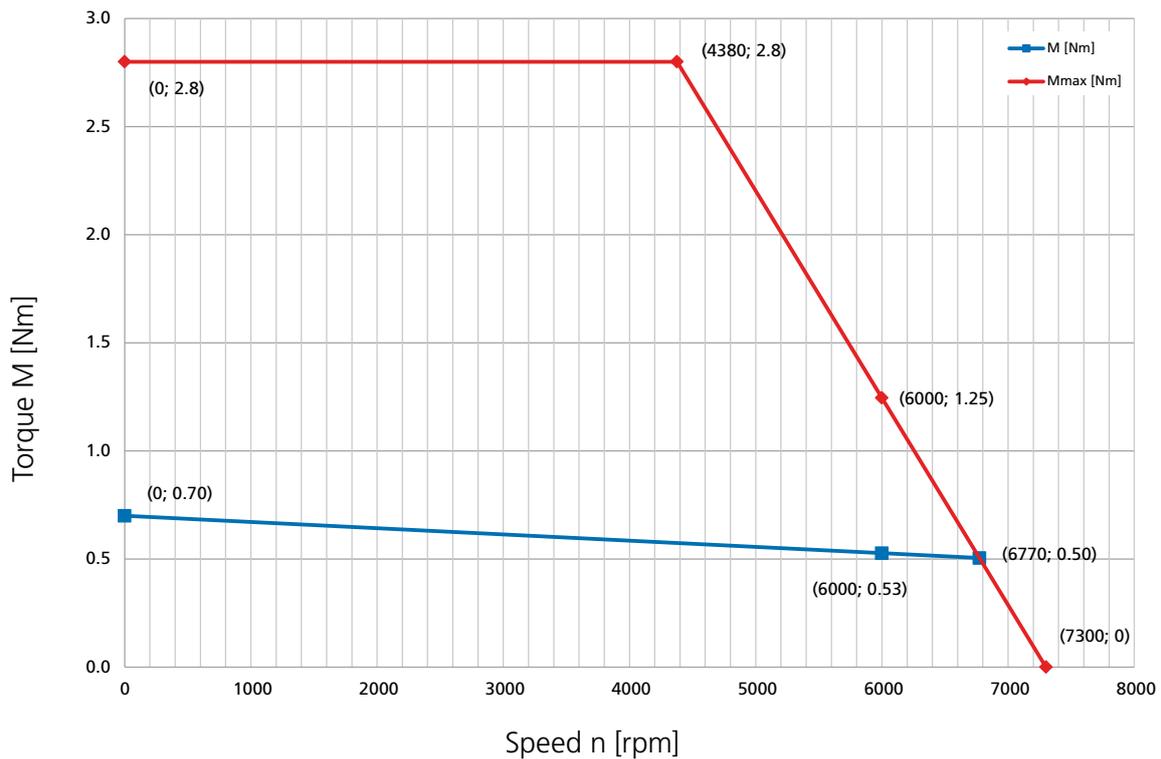
Characteristics

The characteristic M_{max} describes the maximum possible short-time torque at the corresponding speed.
 The characteristic M_n shows the thermally permissible rated torque.

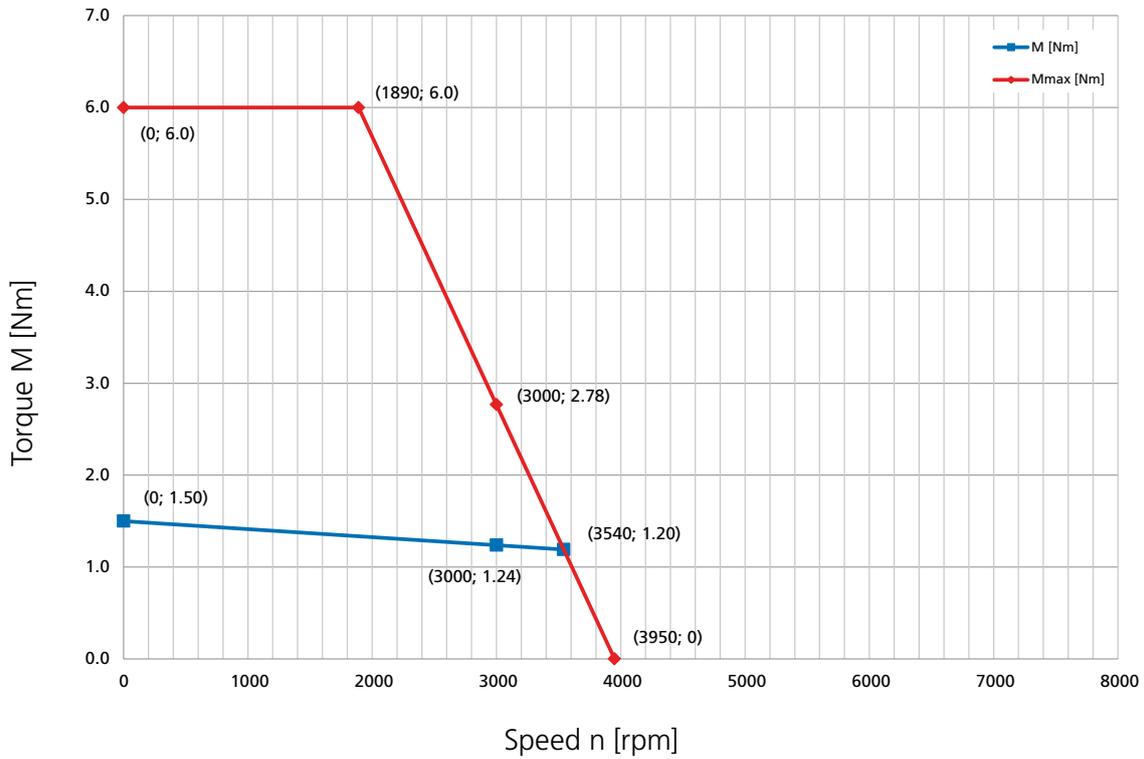
LSP06-007-320-30-[...]



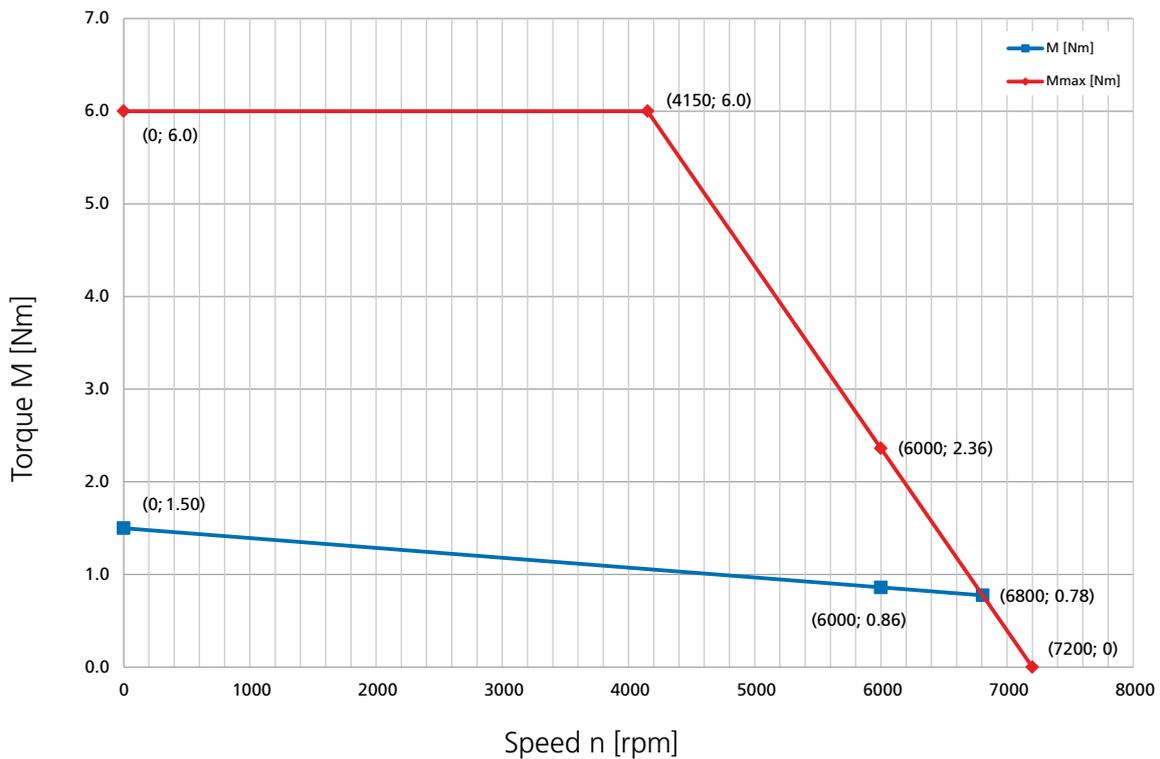
LSP06-007-320-60-[...]



LSP06-015-320-30-[...]



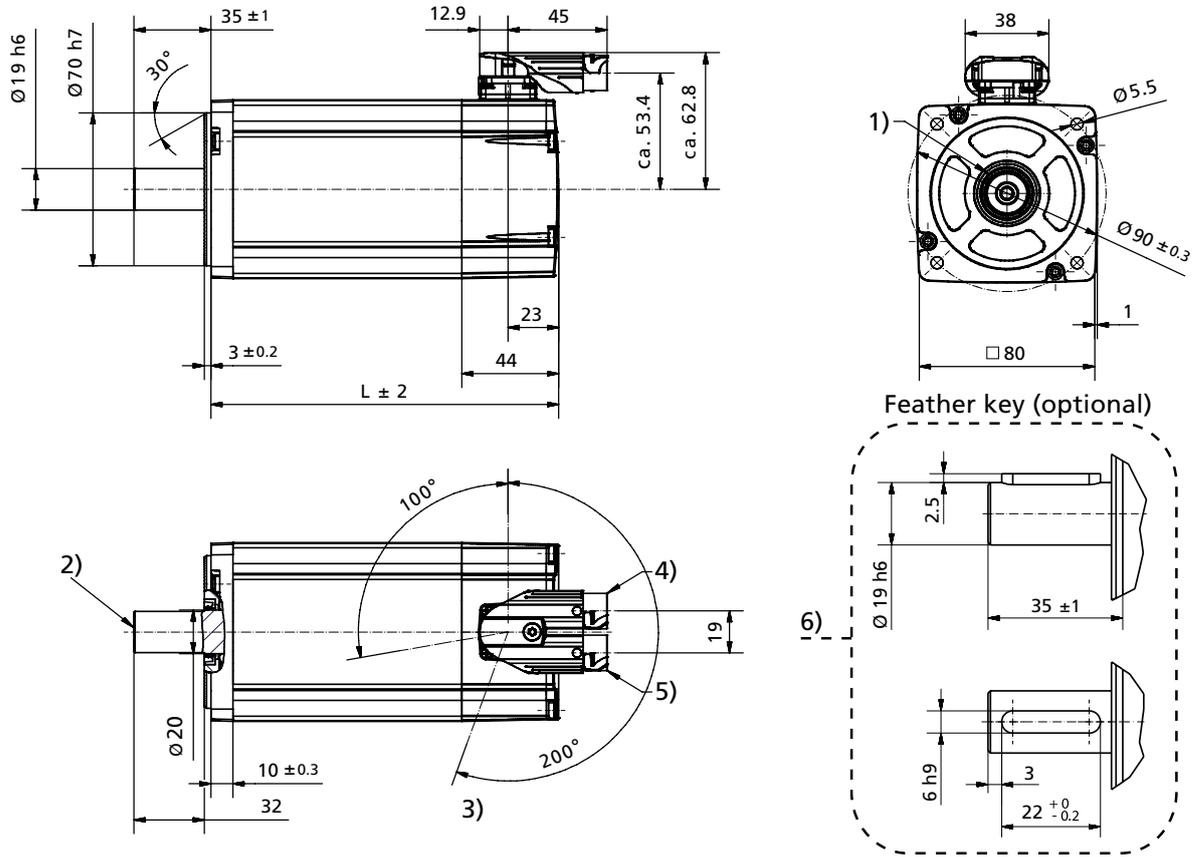
LSP06-015-320-60-[...]



Motor type: LSP08-028



Dimensional drawing



Motor lengths

Motor type		L
LSP08-028	without brake	158 mm
LSP08-028	with brake	200 mm

Key

- 1) Radial shaft packing ring (30x20x5)
- 2) Centring hole with axial thread to DIN 332 - DS M6 (M6x16)
- 3) Swivel range of Y-Tec plug from Intercontec
- 4) Power plug
- 5) Signal plug
- 6) Feather key (optional)

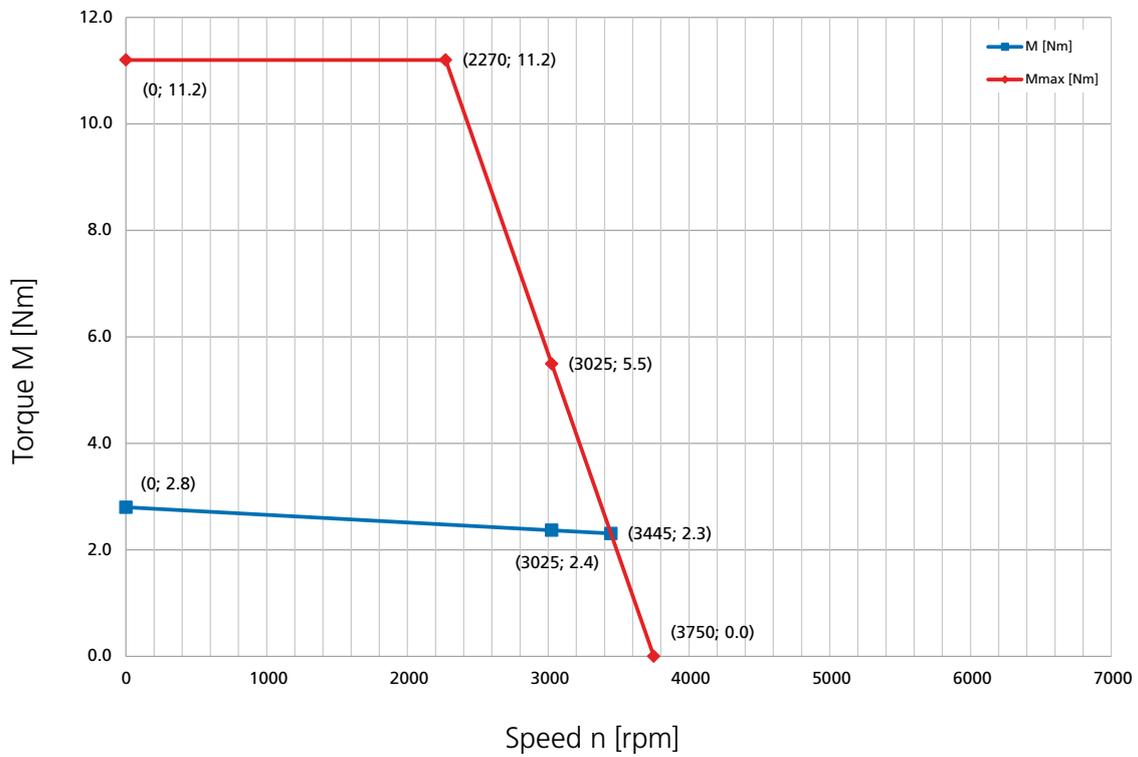
Technical data ¹⁾	Abbreviation	LSP08-028			
Rated speed [rpm]	n_n	3000	5500	3000	5500
Rated frequency [Hz]	f_n	150	275	150	275
Number of pole pairs	p	3	3	3	3
Controller DC link voltage [V]	U_{ZK}	320	320	560	560
Controller rated voltage [V]	U_n	230	230	400	400
Rated power [W]	P_n	750	1000	750	1000
Rated torque [Nm]	M_n	2.4	1.7	2.3	1.7
Rated current per phase [A]	I_n	3.0	3.8	1.7	2.2
Stall torque [Nm]	M₀	2.8	2.8	2.8	2.8
Stall current per phase [A]	I₀	3.1	6.2	1.8	3.5
Maximum permissible torque [Nm]	M_{max}	11.2	11.2	11.2	11.2
Maximum permissible current per phase [A]	I_{max}	12.4	24.8	7.2	14.0
Maximum speed [rpm]	n_{max}	3750	6500	3750	6350
EMF constant [V/1000 min ⁻¹]	K_E	60	32	105	57
Torque constant at nominal point [Nm/A]	K_T	0.8	0.5	1.4	0.8
Winding resistance (per phase) at 20 °C [Ω]	R_{ph}	2.2	0.7	6.6	2.2
Winding inductance (per phase) [mH]	L_{ph}	6.0	1.9	18.5	6.0
Electric time constant [ms]	T_{el}	2.6	2.6	2.6	2.6
Thermal time constant [min]	T_{th}	30	30	30	30
Rotor moment of inertia [kg m ²]	J	1.40 · 10 ⁻⁴	1.40 · 10 ⁻⁴	1.40 · 10 ⁻⁴	1.40 · 10 ⁻⁴
Motor mass [kg]	m	3.4	3.4	3.4	3.4h

1) All values with a tolerance of ± 5%

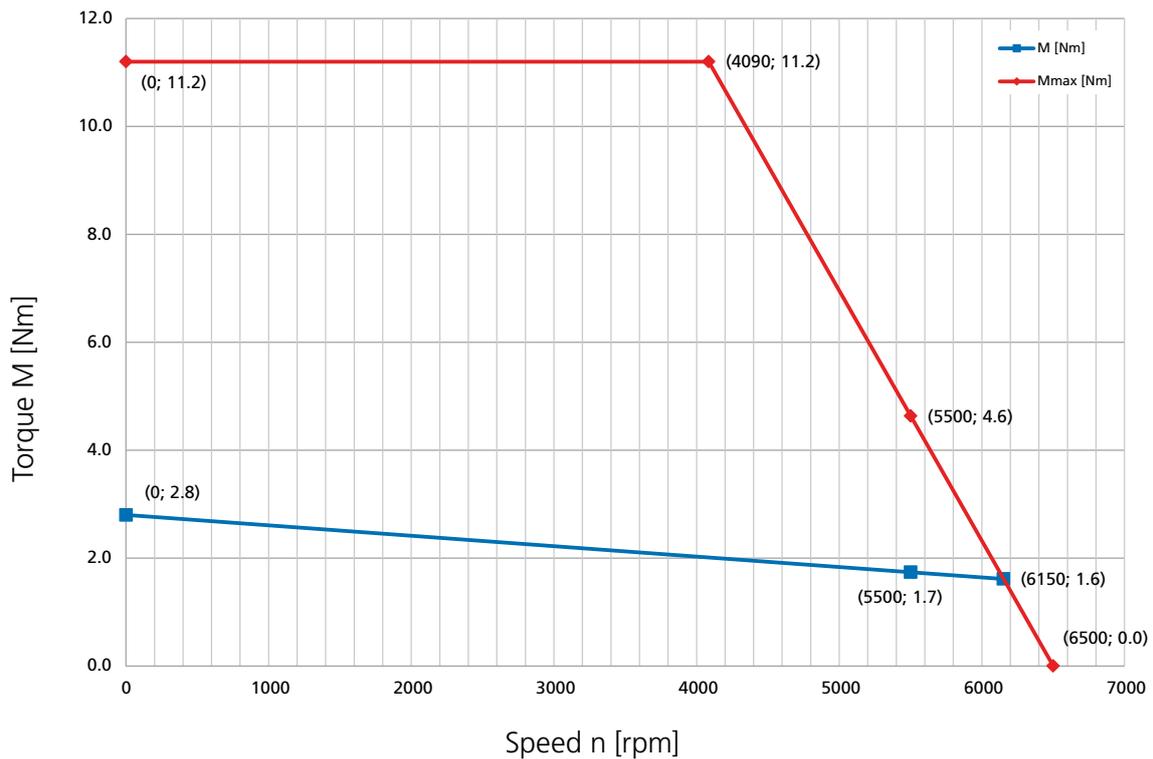
Characteristics

The characteristic M_{max} describes the maximum possible short-time torque at the corresponding speed.
The characteristic M_n shows the thermally permissible rated torque.

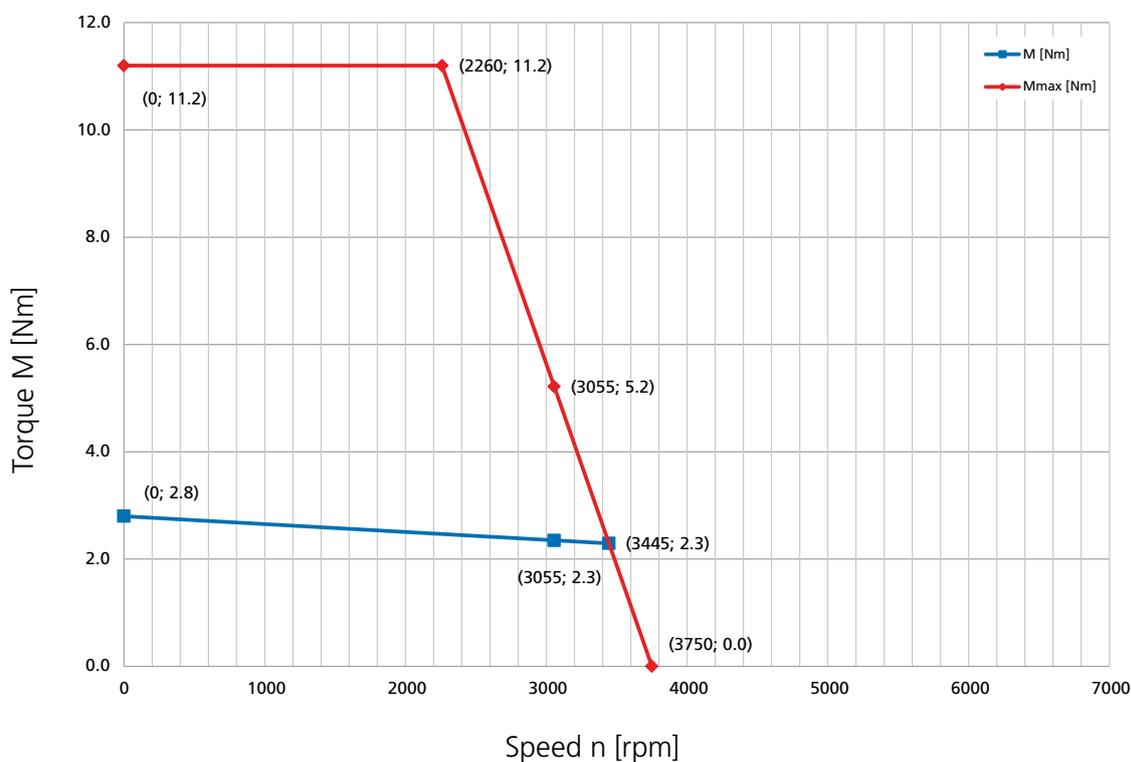
LSP08-028-320-30-[...]



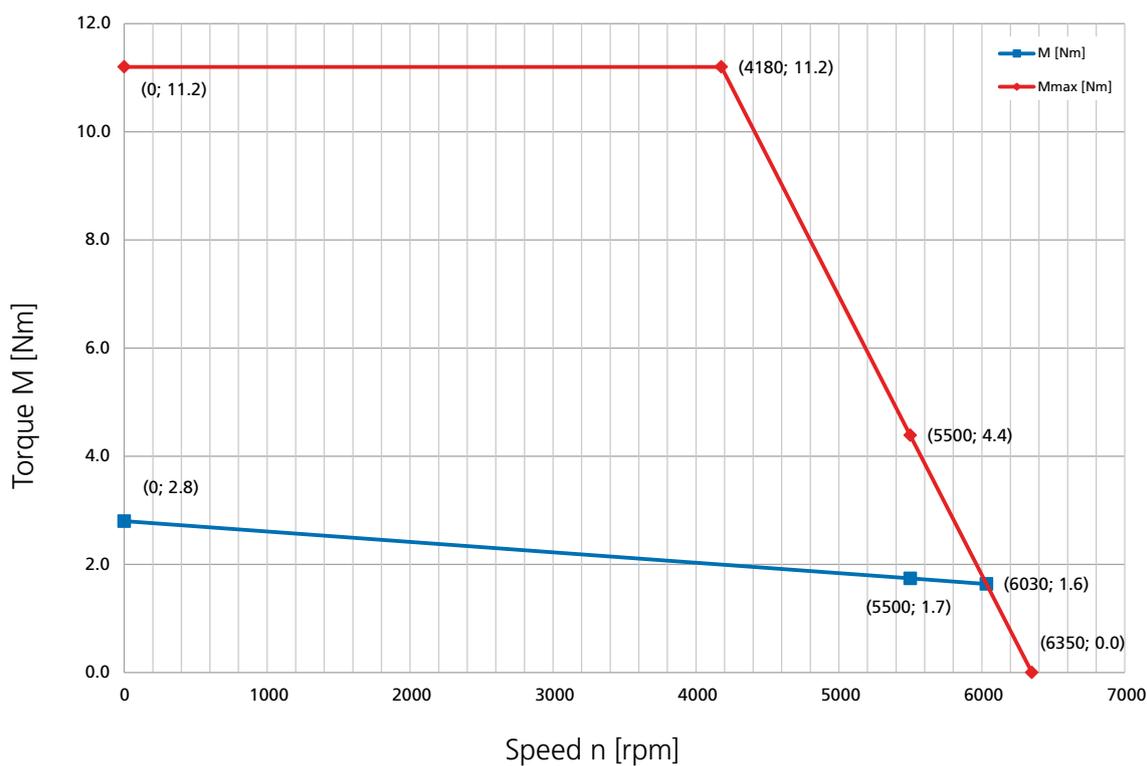
LSP08-028-320-55-[...]



LSP08-028-560-30-[...]



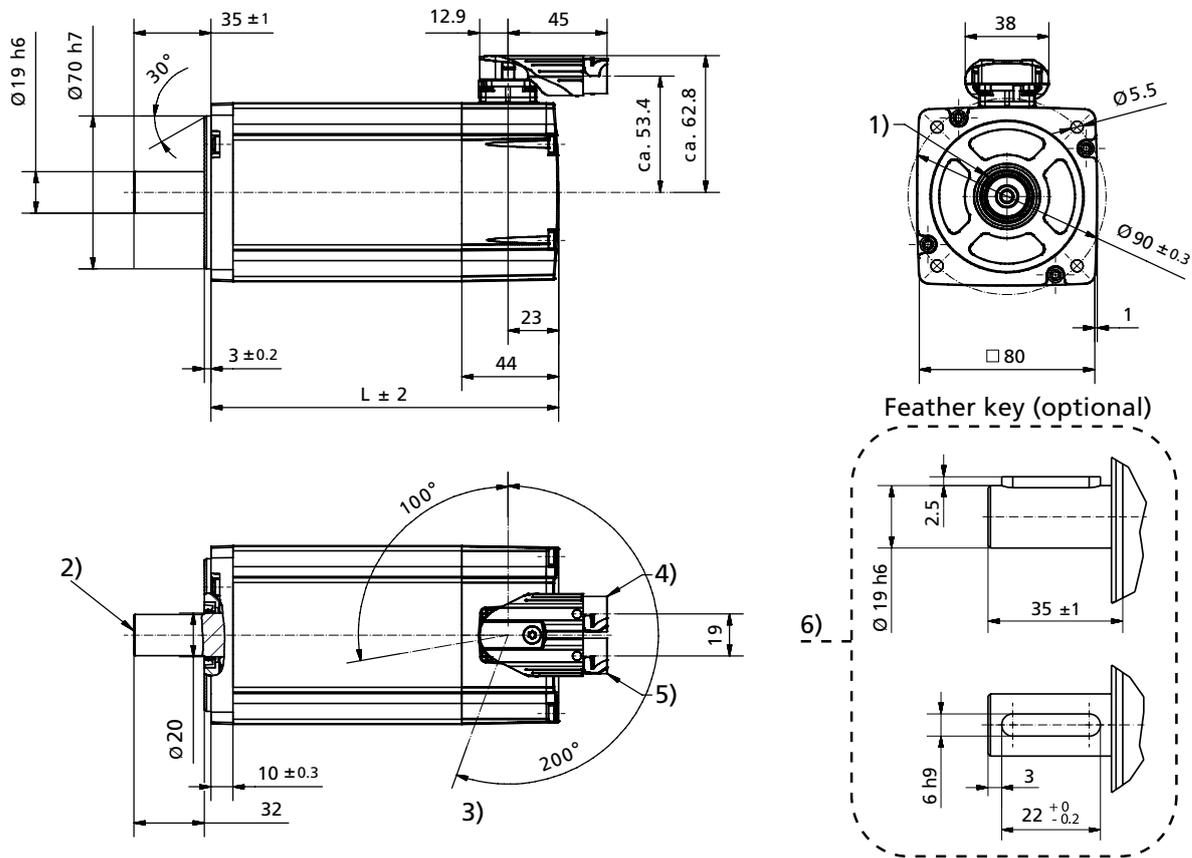
LSP08-028-560-55-[...]



Motor type: LSP08-035



Dimensional drawing



Motor lengths

Motor type		L
LSP08-035	without brake	178 mm
LSP08-035	with brake	220 mm

Key

- 1) Radial shaft packing ring (30x20x5)
- 2) Centring hole with axial thread to DIN 332 - DS M3 (M6x16)
- 3) Swivel range of Y-Tec plug from Intercontec
- 4) Power plug
- 5) Signal plug
- 6) Feather key (optional)

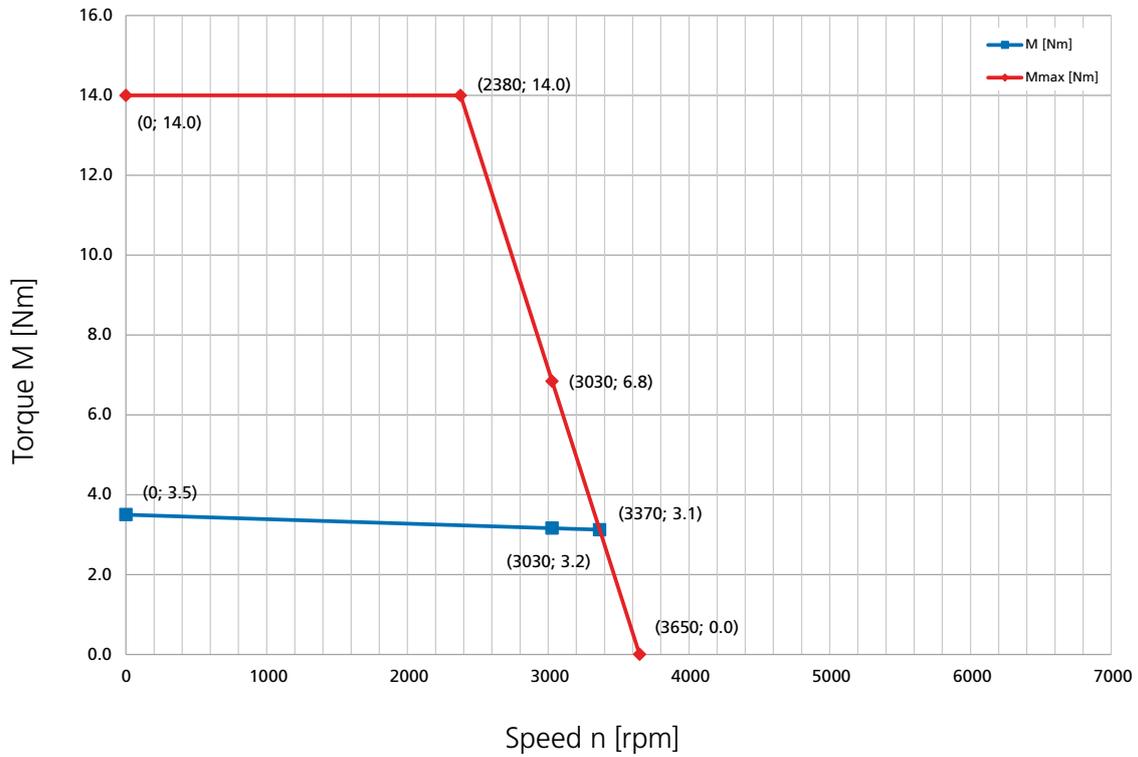
Technical data ¹⁾	Abbreviation	LSP08-035			
Rated speed [rpm]	n_n	3000	5500	3000	5500
Rated frequency [Hz]	f_n	150	275	150	275
Number of pole pairs	p	3	3	3	3
Controller DC link voltage [V]	U_{ZK}	320	320	560	560
Controller rated voltage [V]	U_n	230	230	400	400
Rated power [W]	P_n	1000	1200	1000	1200
Rated torque [Nm]	M_n	3.2	2.1	3.2	2.1
Rated current per phase [A]	I_n	3.9	4.7	2.2	2.6
Stall torque [Nm]	M₀	3.5	3.5	3.5	3.5
Stall current per phase [A]	I₀	4.0	7.8	2.3	4.4
Maximum permissible torque [Nm]	M_{max}	14.0	14.0	14.0	14.0
Maximum permissible current per phase [A]	I_{max}	16.0	31.2	9.2	17.6
Maximum speed [rpm]	n_{max}	3650	6650	3650	6400
EMF constant [V/1000 min ⁻¹]	K_E	60	32	106	57
Torque constant at nominal point [Nm/A]	K_T	0.8	0.4	1.4	0.8
Winding resistance (per phase) at 20 °C [Ω]	R_{ph}	1.3	0.4	4.2	1.3
Winding inductance (per phase) [mH]	L_{ph}	4.3	1.3	13.3	4.3
Electric time constant [ms]	T_{el}	2.9	2.9	2.9	2.9
Thermal time constant [min]	T_{th}	30	30	30	30
Rotor moment of inertia [kg m ²]	J	1.93 · 10 ⁻⁴	1.93 · 10 ⁻⁴	1.93 · 10 ⁻⁴	1.93 · 10 ⁻⁴
Motor mass [kg]	m	4.1	4.1	4.1	4.1

1) All values with a tolerance of ± 5%

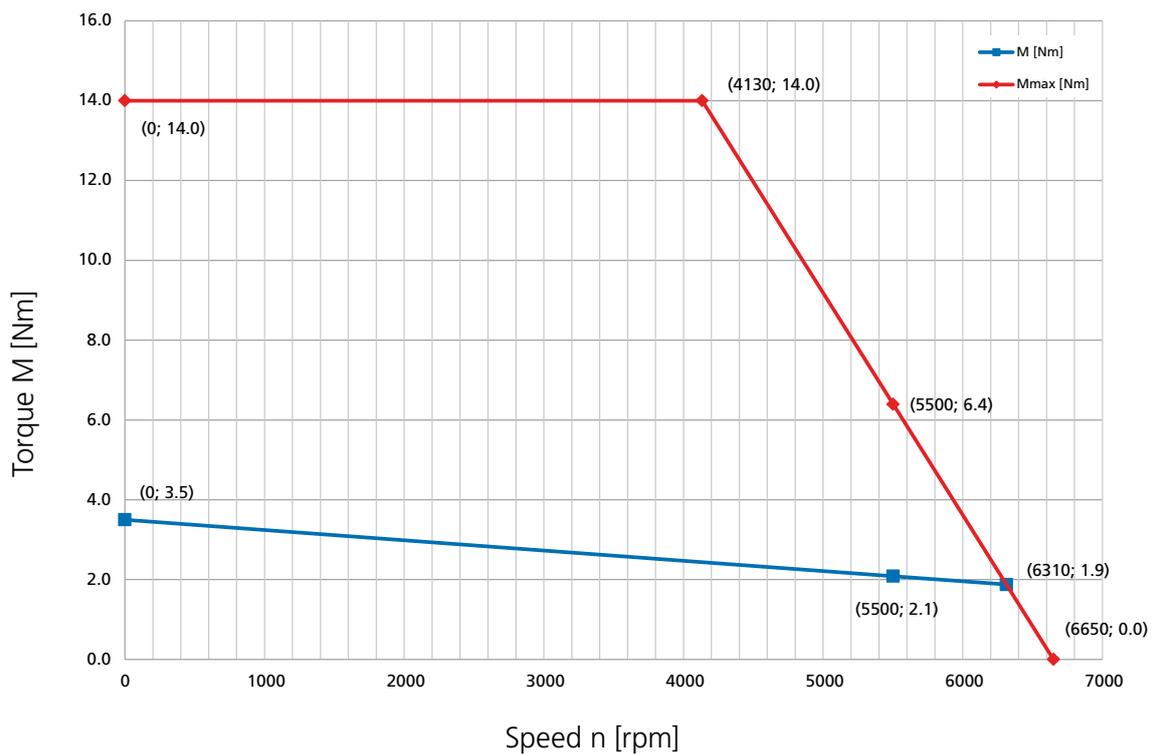
Characteristics

The characteristic M_{max} describes the maximum possible short-time torque at the corresponding speed.
 The characteristic M_n shows the thermally permissible rated torque.

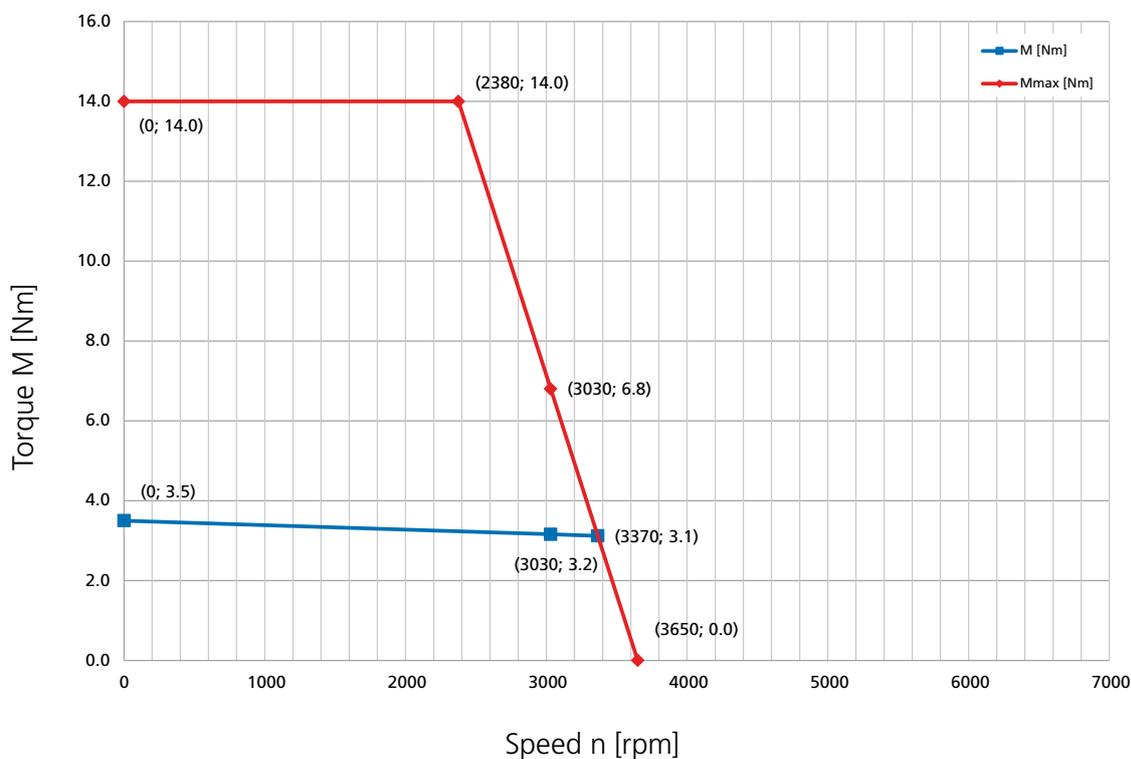
LSP08-035-320-30-[...]



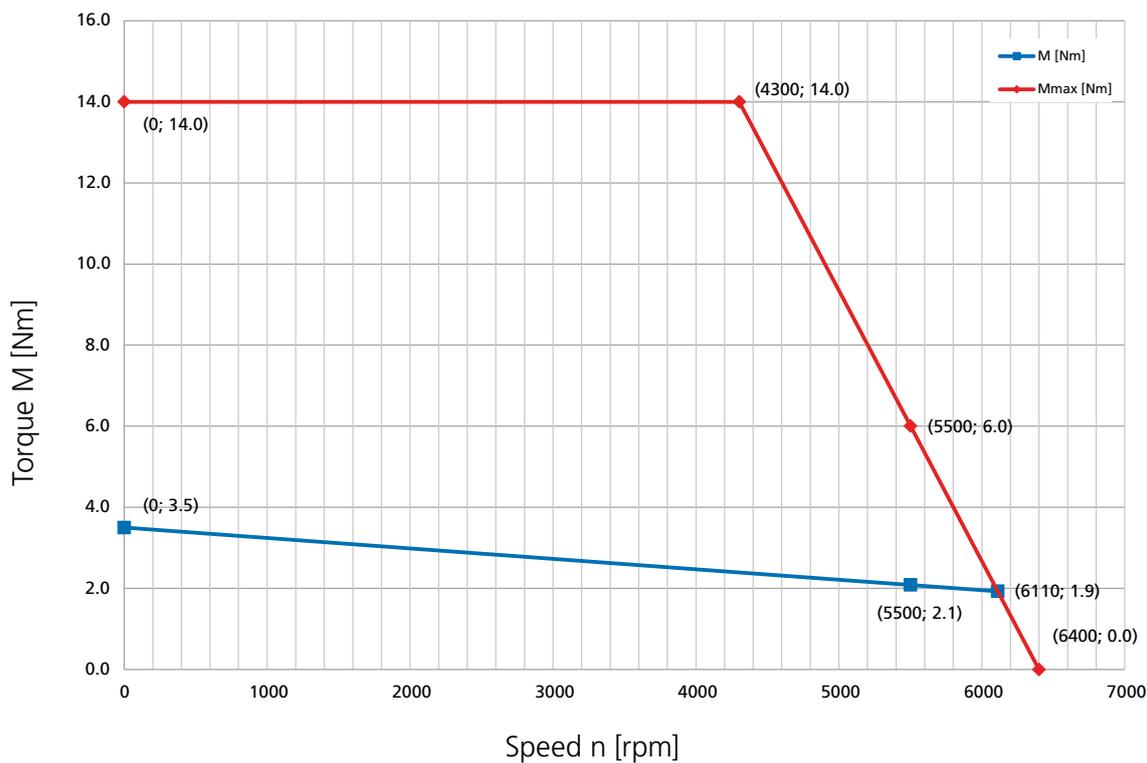
LSP08-035-320-55-[...]



LSP08-035-560-30-[...]



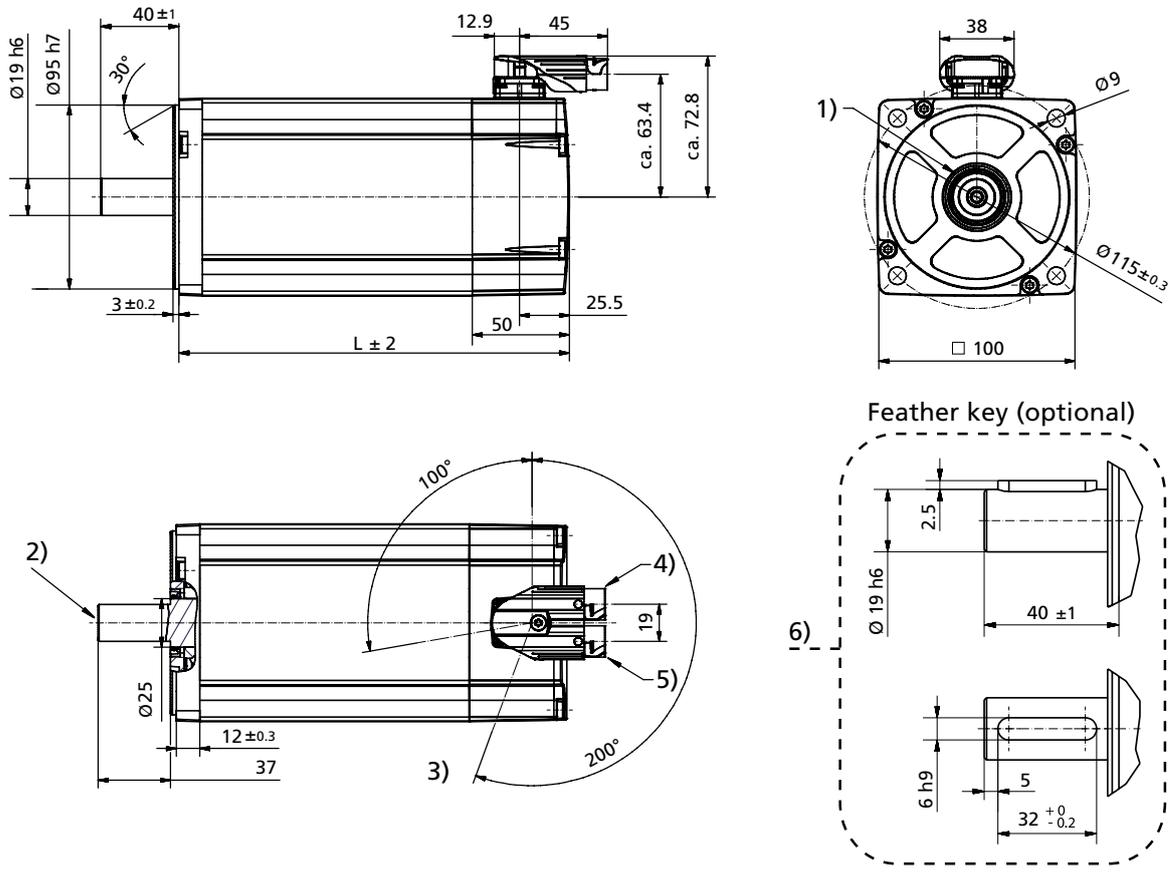
LSP08-035-560-55-[...]



Motor type:
LSP10-056,
LSP10-075



Dimensional drawing



Motor lengths

Motor type		L
LSP10-056	without brake	200 mm
LSP10-056	with brake	242 mm
LSP10-075	without brake	225 mm
LSP10-075	with brake	267 mm

Key

- 1) Radial shaft packing ring (35x25x5)
- 2) Centring hole with axial thread to DIN 332 - DS M6 (M6x16)
- 3) Swivel range of Y-Tec plug from Intercontec
- 4) Power plug
- 5) Signal plug
- 6) Feather key (optional)

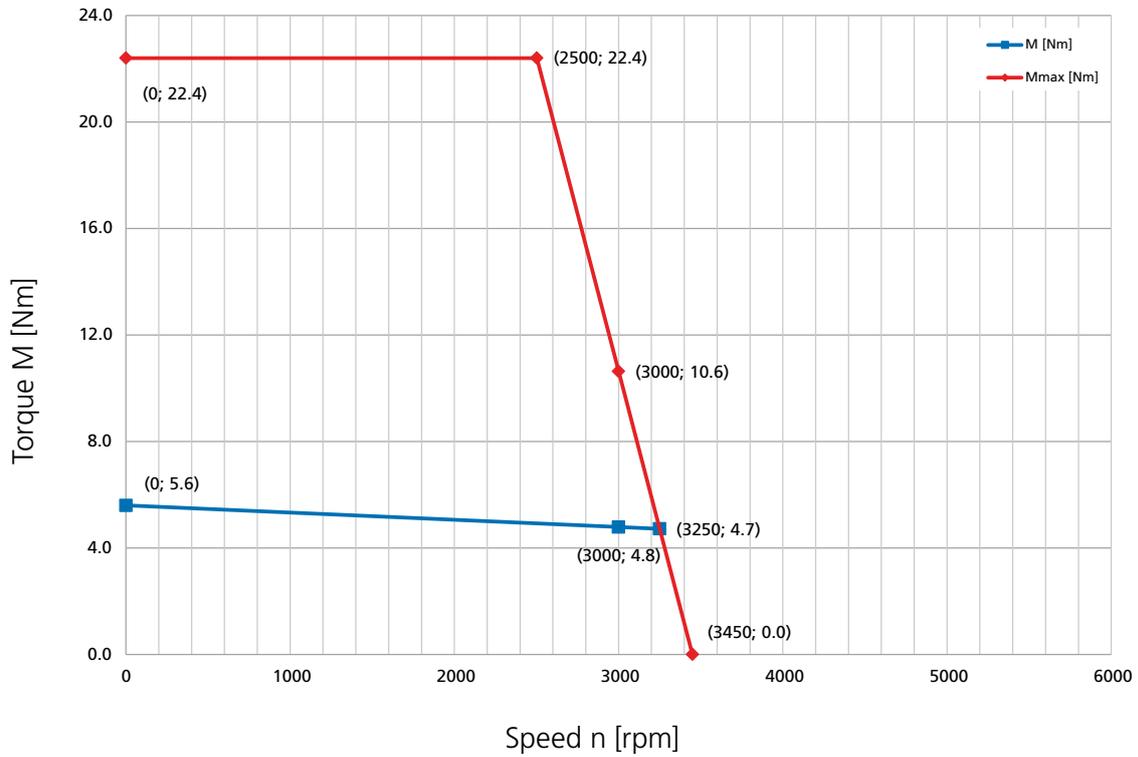
Technical data ¹⁾	Abbreviation	LSP10-056		LSP10-075	
Rated speed [rpm]	n_n	3000	5000	3000	5000
Rated frequency [Hz]	f_n	150	250	150	250
Number of pole pairs	p	3	3	3	3
Controller DC link voltage [V]	U_{ZK}	560	560	560	560
Controller rated voltage [V]	U_n	400	400	400	400
Rated power [W]	P_n	1500	1800	2000	2500
Rated torque [Nm]	M_n	4.8	3.4	6.4	4.8
Rated current per phase [A]	I_n	3.3	3.9	4.4	5.3
Stall torque [Nm]	M₀	5.6	5.6	7.5	7.5
Stall current per phase [A]	I₀	3.9	6.3	5.1	8.4
Maximum permissible torque [Nm]	M_{max}	22.4	22.4	30.0	30.0
Maximum permissible current per phase [A]	I_{max}	15.6	25.2	20.4	33.6
Maximum speed [rpm]	n_{max}	3450	5650	3420	5630
EMF constant [V/1000 min ⁻¹]	K_E	105	63	107	64
Torque constant at nominal point [Nm/A]	K_T	1.4	0.9	1.5	0.9
Winding resistance (per phase) at 20 °C [Ω]	R_{ph}	2.2	0.9	1.6	0.6
Winding inductance (per phase) [mH]	L_{ph}	10.0	3.7	7.5	2.8
Electric time constant [ms]	T_{el}	3.1	3.1	3.5	3.5
Thermal time constant [min]	T_{th}	30	30	35	35
Rotor moment of inertia [kg m ²]	J	4.84 · 10 ⁻⁴	4.84 · 10 ⁻⁴	6.41 · 10 ⁻⁴	6.41 · 10 ⁻⁴
Motor mass [kg]	m	6.3	6.3	7.3	7.3

1) All values with a tolerance of ± 5%

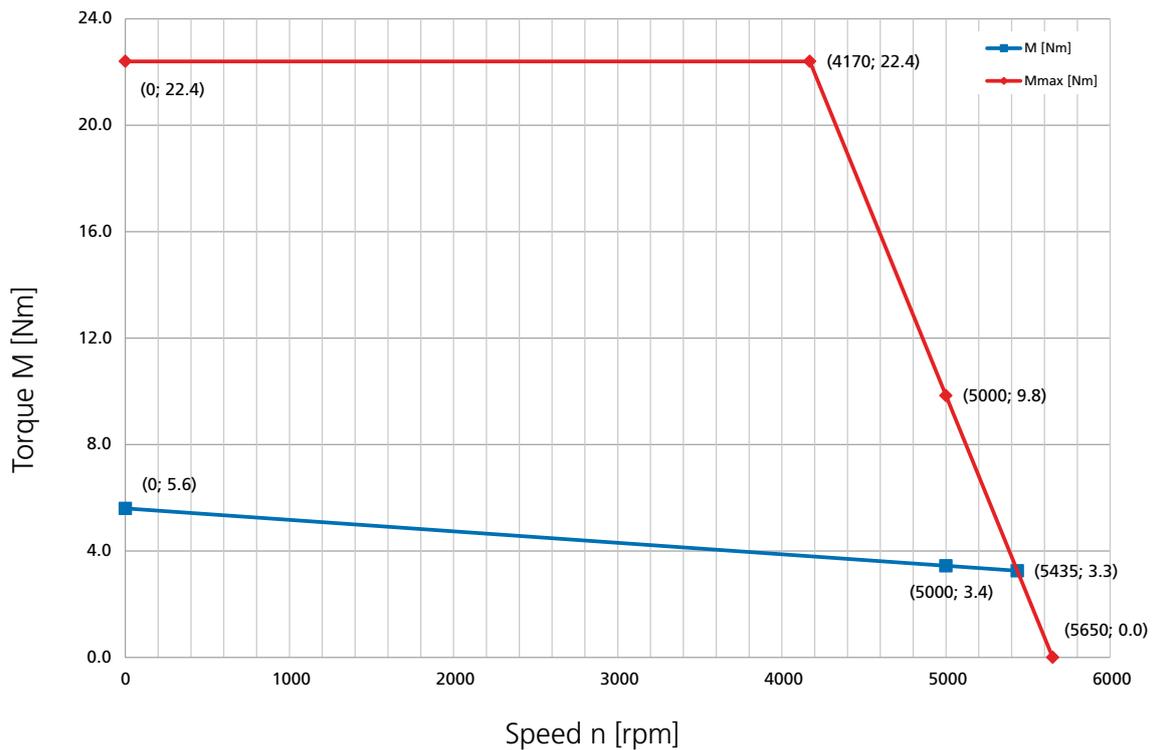
Characteristics

The characteristic M_{max} describes the maximum possible short-time torque at the corresponding speed.
The characteristic M_n shows the thermally permissible rated torque.

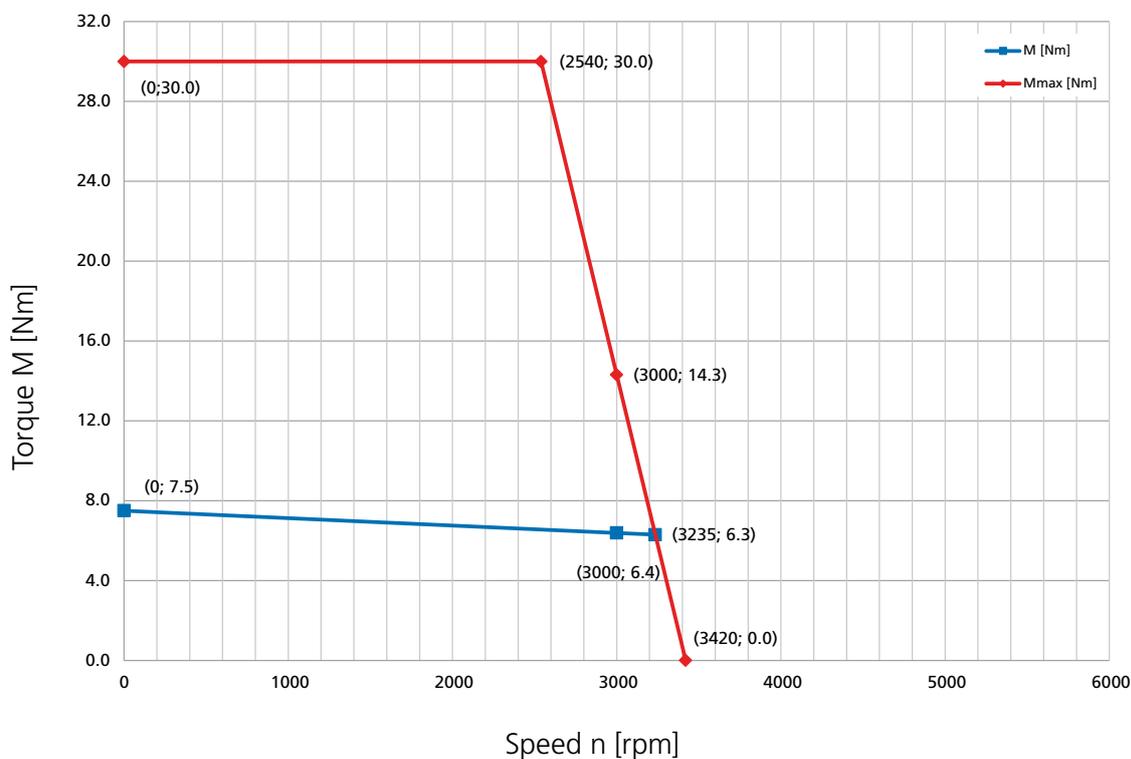
LSP10-056-560-30-[...]



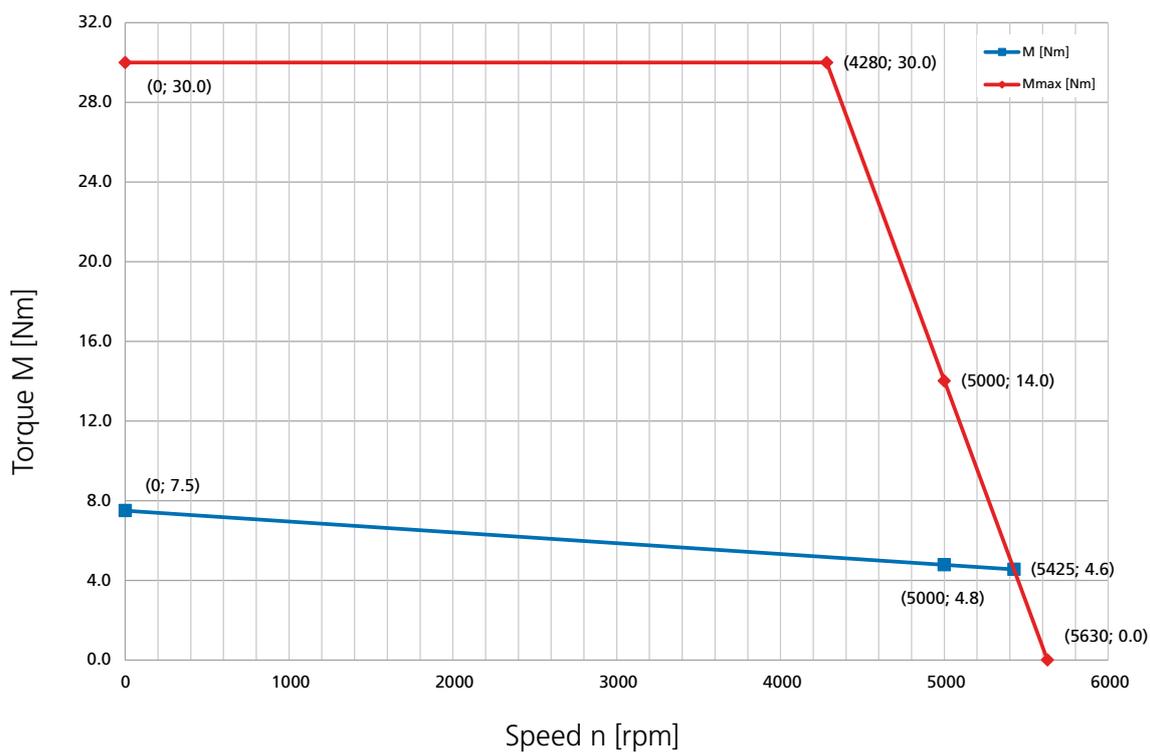
LSP10-056-560-50-[...]



LSP10-075-560-30-[...]



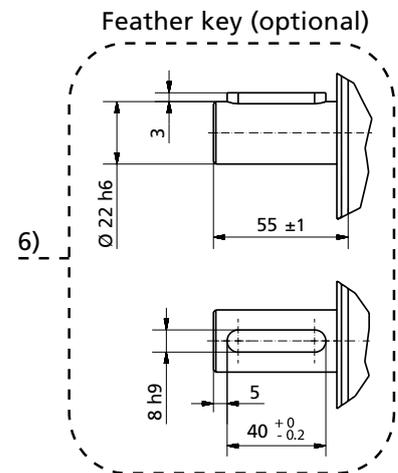
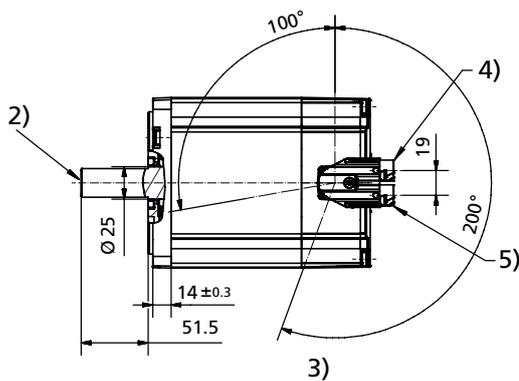
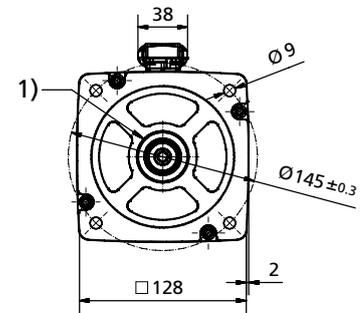
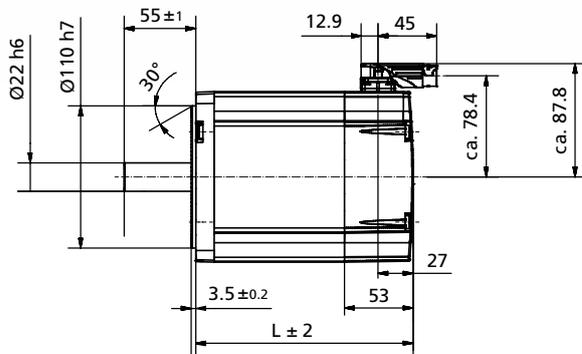
LSP10-075-560-50-[...]





Motor type:
LSP13-055,
LSP13-091

Dimensional drawing



Motor lengths

Motor type		L
LSP13-055	without brake	167 mm
LSP13-055	with brake	197 mm
LSP13-091	without brake	182 mm
LSP13-091	with brake	212 mm

Key

- 1) Radial shaft packing ring (40x25x5)
- 2) Centring hole with axial thread to DIN 332 - DS M8 (M8x19)
- 3) Swivel range of Y-Tec plug from Intercontec
- 4) Power plug
- 5) Signal plug
- 6) Feather key (optional)

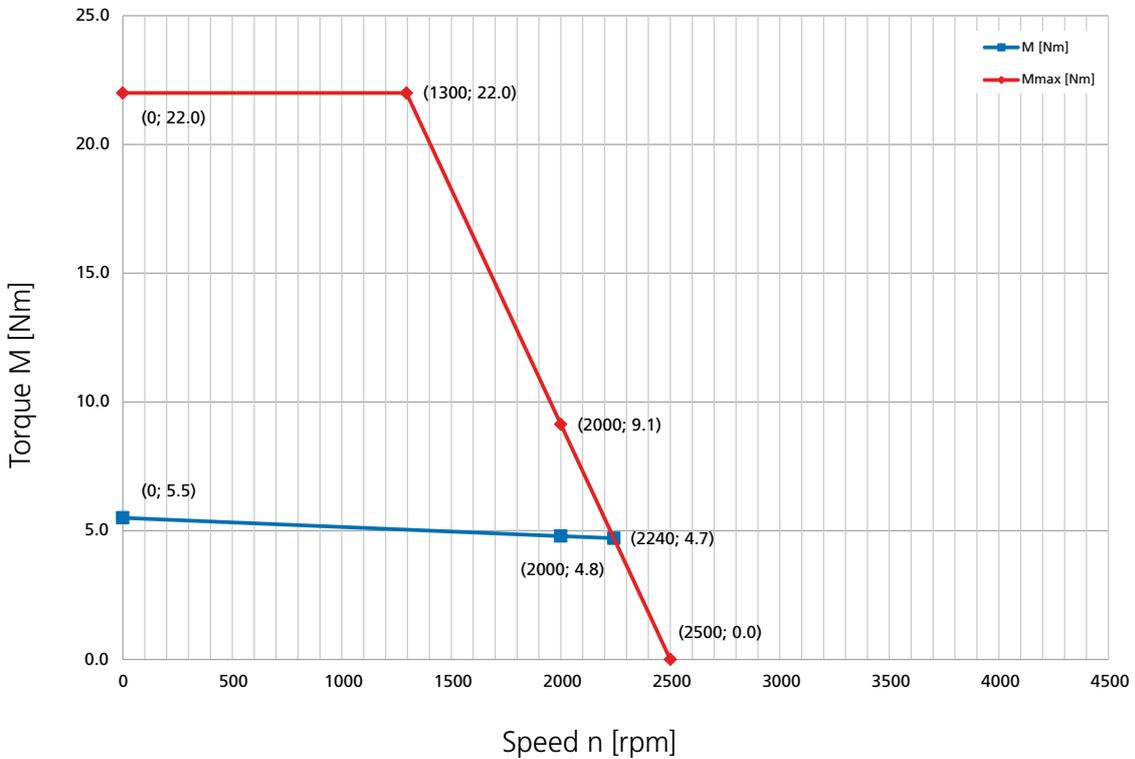
Technical data ¹⁾	Abbreviation	LSP13-055				LSP13-091	
		2000	3600	2000	3600	2000	3600
Rated speed [rpm]	n_n	2000	3600	2000	3600	2000	3600
Rated frequency [Hz]	f_n	100	180	100	180	100	180
Number of pole pairs	p	3	3	3	3	3	3
Controller DC link voltage [V]	U_{ZK}	320	320	560	560	560	560
Controller rated voltage [V]	U_n	230	230	400	400	400	400
Rated power [W]	P_n	1000	1500	1000	1500	1500	2250
Rated torque [Nm]	M_n	4.8	4.0	4.8	4.0	7.2	6.0
Rated current per phase [A]	I_n	4.1	6.0	2.3	3.4	3.4	5.0
Stall torque [Nm]	M₀	5.5	5.5	5.5	5.5	9.1	9.1
Stall current per phase [A]	I₀	4.8	8.2	2.7	4.7	4.4	7.7
Maximum permissible torque [Nm]	M_{max}	22.0	22.0	22.0	22.0	36.4	36.4
Maximum permissible current per phase [A]	I_{max}	19.0	32.8	10.8	18.8	17.6	30.8
Maximum speed [rpm]	n_{max}	2500	4400	2450	4350	2400	4300
EMF constant [V/1000 min ⁻¹]	K_E	89	49	158	85	158	86
Torque constant at nominal point [Nm/A]	K_T	1.2	0.7	2.1	1.2	2.1	1.2
Winding resistance (per phase) at 20 °C [Ω]	R_{ph}	2.0	0.6	6.0	2.0	3.4	1.1
Winding inductance (per phase) [mH]	L_{ph}	7.5	2.5	23.9	7.5	16.1	5.1
Electric time constant [ms]	T_{el}	3.9	3.9	4.2	4.2	4.9	4.9
Thermal time constant [min]	T_{th}	35	35	35	35	42	42
Rotor moment of inertia [kg m ²]	J	9.82 · 10 ⁻⁴	9.82 · 10 ⁻⁴	9.82 · 10 ⁻⁴	9.82 · 10 ⁻⁴	14.0 · 10 ⁻⁴	14.0 · 10 ⁻⁴
Motor mass [kg]	m	7.0	7.0	7.0	7.0	8.6	8.6

¹⁾ All values with a tolerance of ± 5%

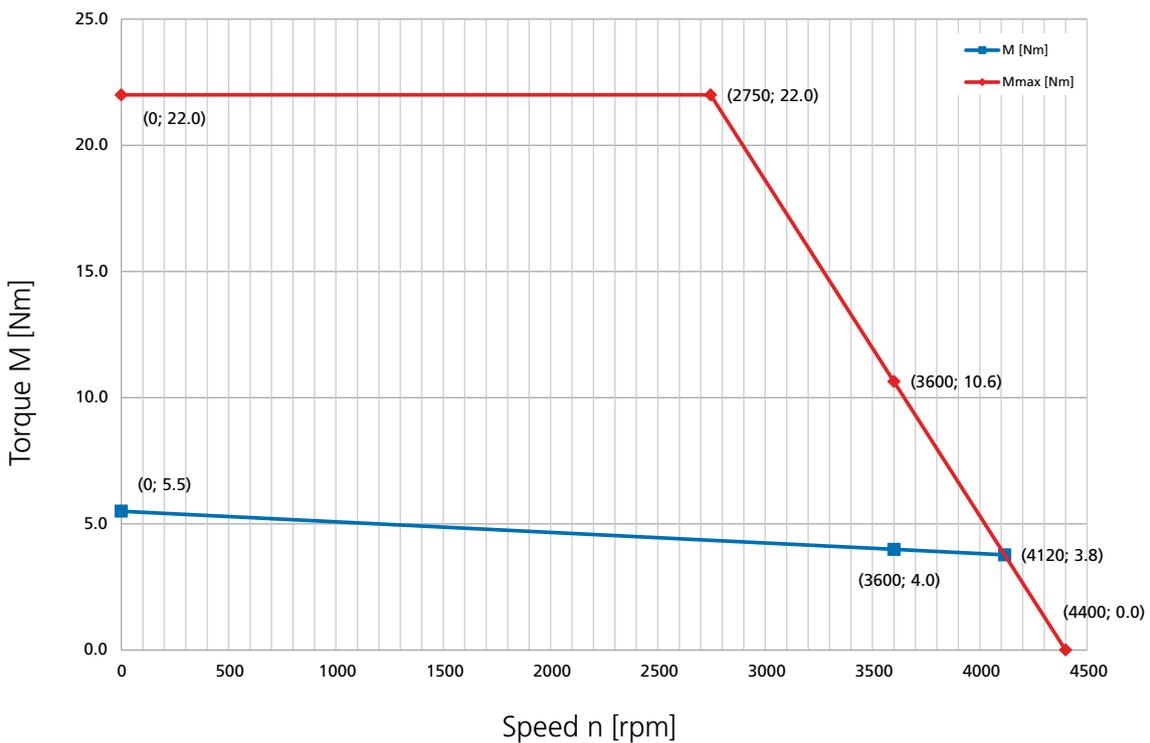
Characteristics

The characteristic M_{max} describes the maximum possible short-time torque at the corresponding speed.
 The characteristic M_n shows the thermally permissible rated torque.

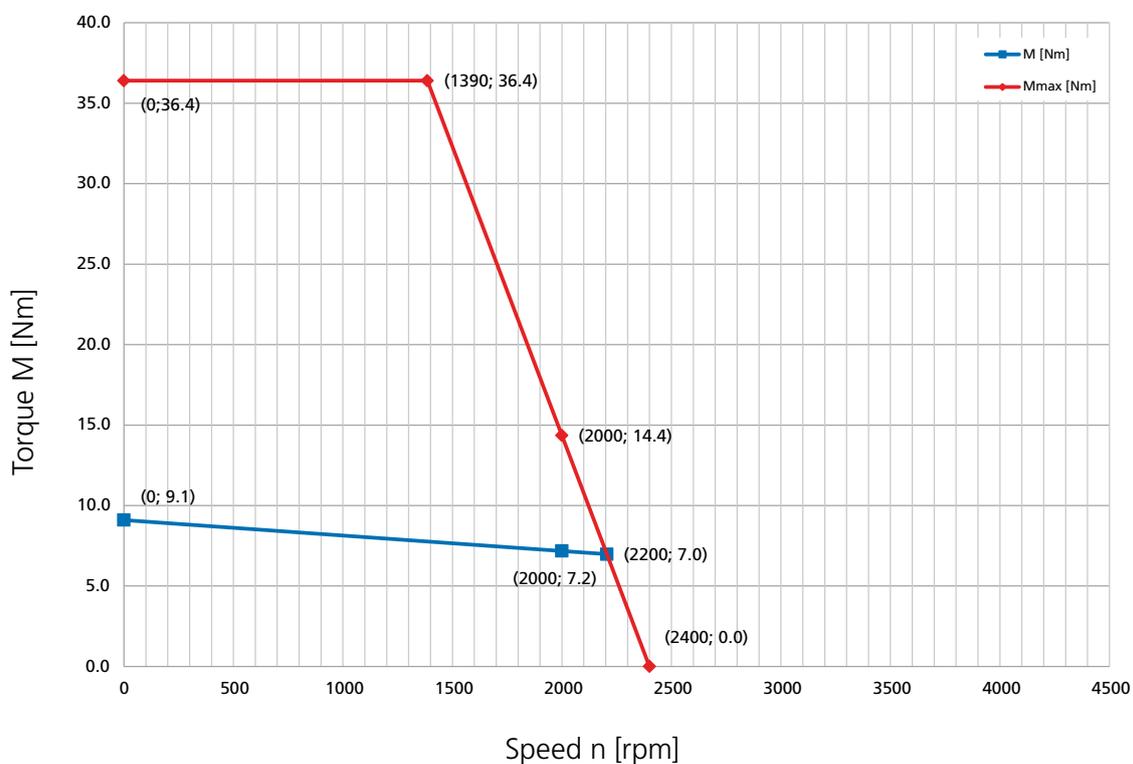
LSP13-055-320/560-20-[...]



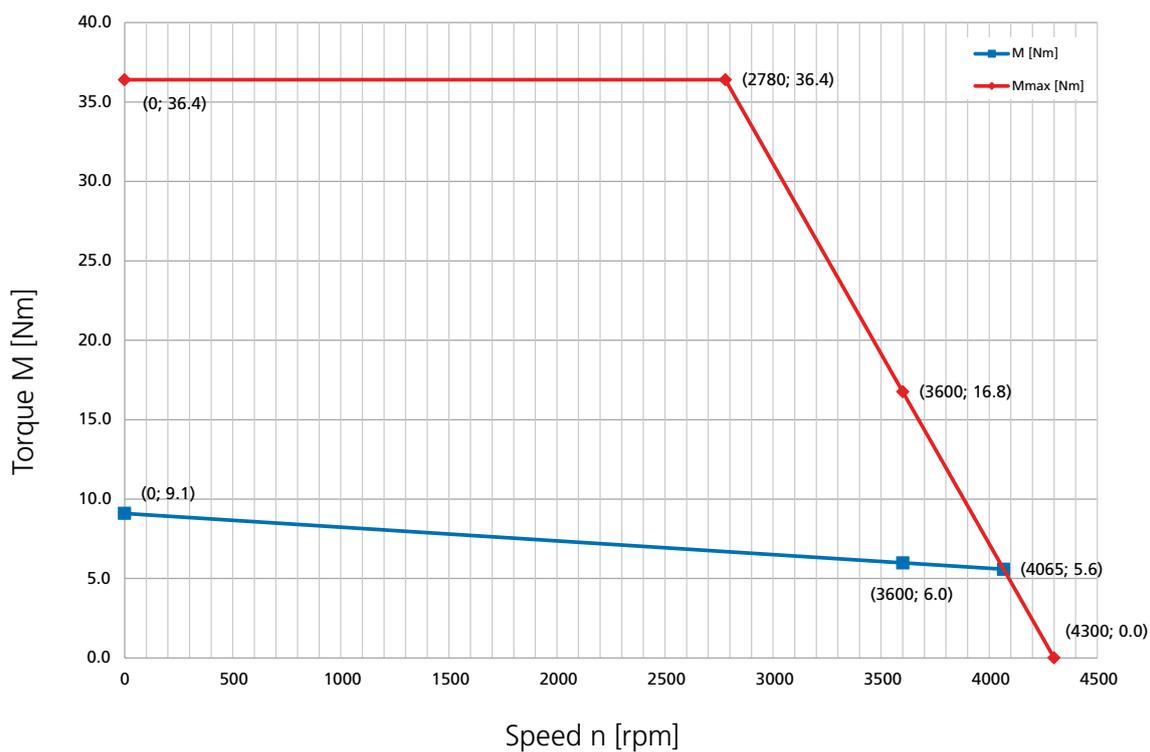
LSP13-055-320/560-36-[...]



LSP13-091-560-20-[...]



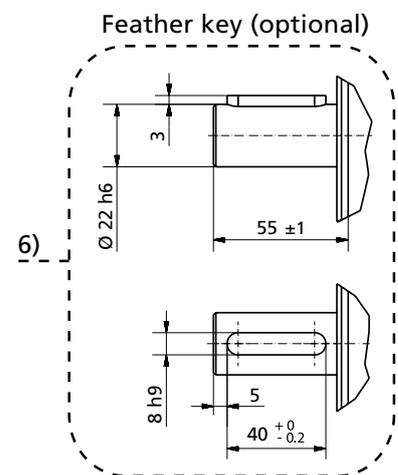
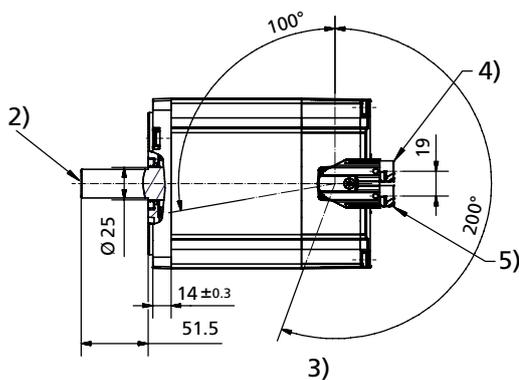
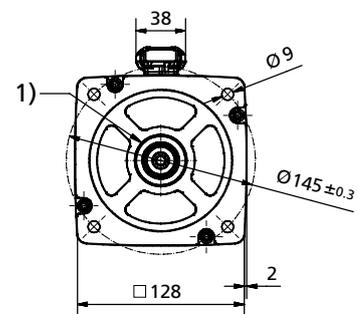
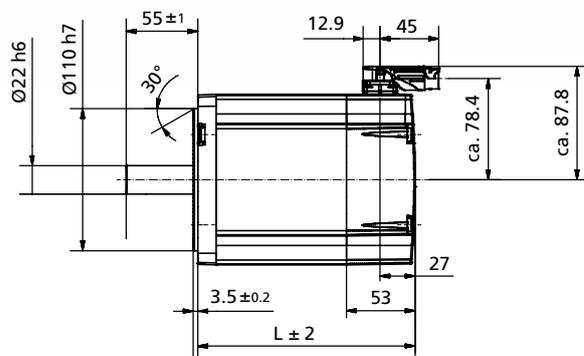
LSP13-091-560-36-[...]





Motor type:
LSP13-123,
LSP13-185

Dimensional drawing



Motor lengths

Motor type		L
LSP13-123	without brake	207 mm
LSP13-123	with brake	242 mm
LSP13-185	without brake	252 mm
LSP13-185	with brake	287 mm

Key

- 1) Radial shaft packing ring (40x25x5)
- 2) Centring hole with axial thread to DIN 332 - DS M8 (M8x19)
- 3) Swivel range of Y-Tec plug from Intercontec
- 4) Power plug
- 5) Signal plug
- 6) Feather key (optional)

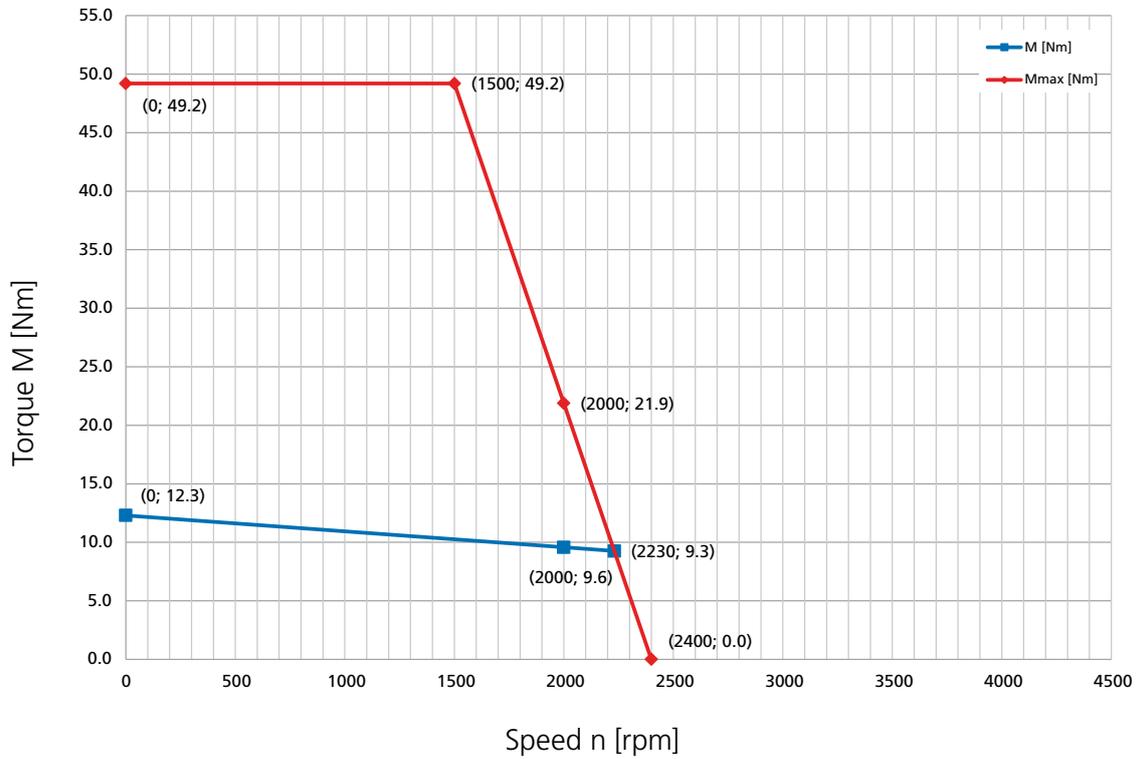
Technical data ¹⁾	Abbreviation	LSP13-123		LSP13-185	
Rated speed [rpm]	n_n	2000	3600	2000	3600
Rated frequency [Hz]	f_n	100	180	100	180
Number of pole pairs	p	3	3	3	3
Controller DC link voltage [V]	U_{ZK}	560	560	560	560
Controller rated voltage [V]	U_n	400	400	400	400
Rated power [W]	P_n	2000	3000	3000	3750
Rated torque [Nm]	M_n	9.6	8.0	14.4	10.0
Rated current per phase [A]	I_n	4.5	6.7	6.5	8.0
Stall torque [Nm]	M₀	12.3	12.3	18.5	18.5
Stall current per phase [A]	I₀	4.7	10.3	8.4	14.8
Maximum permissible torque [Nm]	M_{max}	49.2	49.2	74.0	74.0
Maximum permissible current per phase [A]	I_{max}	18.8	41.2	33.6	59.2
Maximum speed [rpm]	n_{max}	2400	4300	2300	4100
EMF constant [V/1000 min ⁻¹]	K_E	158	85	160	88
Torque constant at nominal point [Nm/A]	K_T	2.1	1.2	2.2	1.2
Winding resistance (per phase) at 20 °C [Ω]	R_{ph}	1.9	0.6	1.0	0.3
Winding inductance (per phase) [mH]	L_{ph}	10.6	3.3	6.6	2.1
Electric time constant [ms]	T_{el}	5.4	5.4	5.4	5.4
Thermal time constant [min]	T_{th}	49	49	49	49
Rotor moment of inertia [kg m ²]	J	21.1 · 10 ⁻⁴	21.1 · 10 ⁻⁴	33.8 · 10 ⁻⁴	33.8 · 10 ⁻⁴
Motor mass [kg]	m	10.7	10.7	14.8	14.8

1) All values with a tolerance of ± 5%

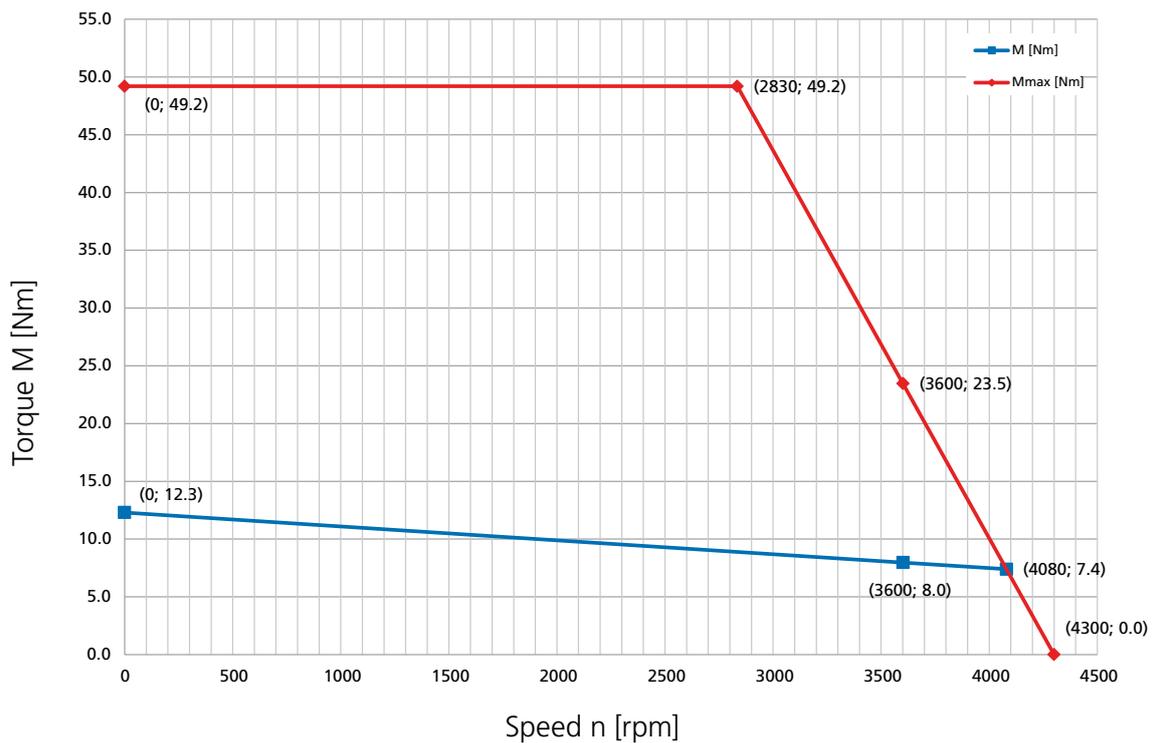
Characteristics

The characteristic M_{max} describes the maximum possible short-time torque at the corresponding speed.
 The characteristic M_n shows the thermally permissible rated torque.

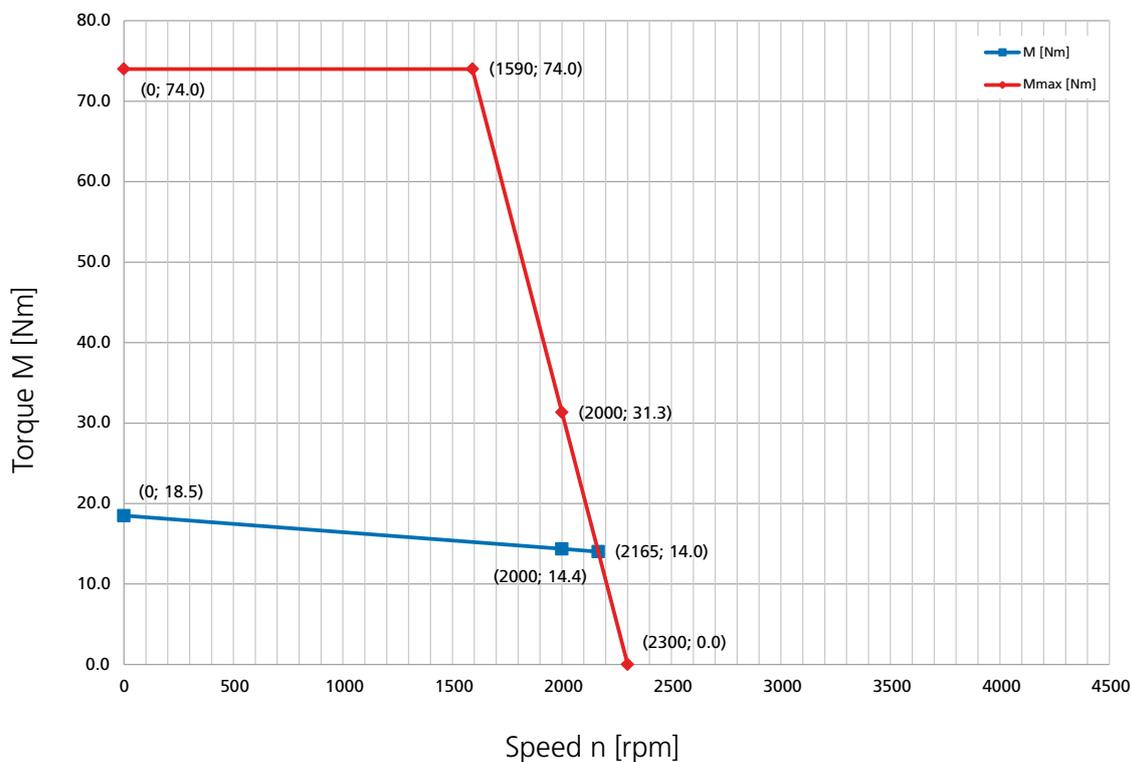
LSP13-123-560-20-[...]



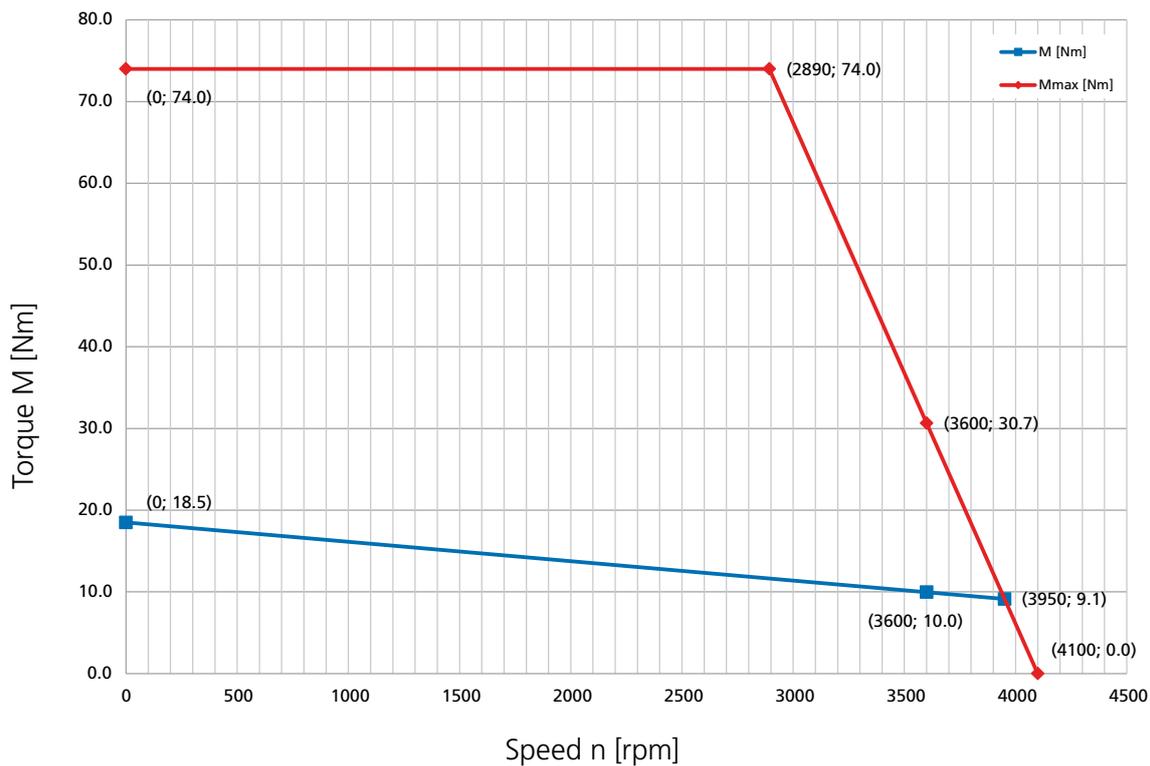
LSP13-123-560-36-[...]



LSP13-185-560-20-[...]



LSP13-185-560-36-[...]



Ready made motor cables for ServoOne junior



Order code

KMx - KS - 005 - XXX	
Ready made cable	ServoOne junior Y 17 with brake → 6 ServoOne junior Y 17 without brake → 8
Festoon-compatible	
Cable length	2 m → 002 3 m → 003 5 m → 005 8 m → 008 10 m → 010 15 m → 015 20 m → 020
Motor cable	to I₀ = 16 A

Technical data

		KM6-KSXXX	KM8-KSXXX
Motor type		Motors up to I ₀ = 16 A with plug-in power connection	Motors up to I ₀ = 16 A with plug-in power connection
Minimum bend radius	with fixed layout with flexible layout	90 mm 120 mm	90 mm 120 mm
Temperature range		-30 ... +80 °C	-30 ... +80 °C
Cable diameter approx.		12 mm	12 mm
Cable cross-section		4G1.5 + 2 x 2 x 0.75 mm ²	4G1.5 + 2 x 2 x 0.75 mm ²
Material of outer sheath		PUR	PUR
Resistance		Resistant to oil, hydrolysis and microbic attack (VDE 0472)	
Wiring		1 = U 2 = V 3 = W ye/gn = PE 7 = Brake+ 8 = Brake -	1 = U 2 = V 3 = W ye/gn = PE
Approval		UL AWM 80 °C - 600 V/1000 V; CSA AWM 80 °C - 600 V/1000 V FT1	

Ready made encoder cables for ServoOne junior



Order code

K RY3 - KS - XXX	
Ready made cable	
Encoder system	Resolver cable → KRY3 Hiperface encoder cable → KGH5
Festoon-compatible	
Cable length	2 m → 002 3 m → 003 5 m → 005 8 m → 008 10 m → 010 15 m → 015 20 m → 020

Technical data

	KRY3-KSXXX	KGH5-KSXXX
Controller type	ServoOne junior	ServoOne junior
Motors with encoder system	Resolver	HXX Hiperface encoder
Controller-end assignment (sub-D connector)	1 = SIN+ (S2) 2 = SIN- (S4) 3 = COS+ (S1) 4 = n.c. 5 = Temp+ (PTC+) 6 = REF+ (R1) 7 = REF- (R2) 8 = COS- (S3) 9 = Temp- (PTC-)	1 = REFCOS 2 = COS+ 3 = 7 - 12 V DC 4 = DATA+ 5 = DATA- 6 = REFSIN 7 = con. to pin 12 8 = GND 9 = n.c. 10 = n.c. 11 = SIN+ 12 = con. to pin 7 13 = n.c. 14 = n.c. 15 = n.c.
Minimum bend radius	90 mm	100 mm
Temperature range	with fixed layout with flexible layout -40 ... +85 °C	-35 ... +85 °C -35 ... +85 °C
Cable diameter approx.	8.8 mm	
Festoon-compatible	Yes	
Material of outer sheath	PUR	
Resistance	Resistant to oil, hydrolysis and microbic attack (VDE 0472)	
Approvals	UL AWM 80 °C - 600 V/1000 V; CSA AWM 80 °C - 600 V/1000 V FT1	

Space for notes

A large grid of graph paper for taking notes, consisting of 20 columns and 30 rows of small squares.

Appendix: Holding brake



The backlash-free, permanent-field single-disc holding brake works on the closed circuit principle, meaning that current needs to be applied to the brake to release it.

For optimum holding torque and lowest possible circumferential backlash, on all LSP motors the holding brake is attached directly behind the flange (on the drive side).

The holding brake is always activated and deactivated at standstill. When the holding brake is deployed as an emergency stop brake, you need to pay attention to the maximum permissible friction (WR).

LTI DRIVES
<http://www.lti.com>

TYP	LSP08-028-560-30-B0H2MY17W		
SN	XXXXXX		
M _n	2.3 Nm	U _{zk}	565 V
n _n	3000 rpm	I _{nph}	1.7 A
f _n	150 Hz		IP65 / IP21
U _B	24 V DC	M _B	3.8 Nm
			S1

Made in Germany

An LSP servomotor with holding brake is identifiable by the name plate.

Example:

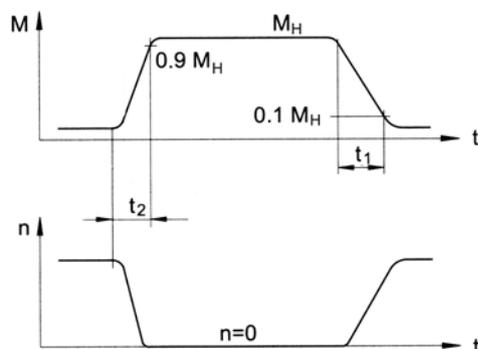
LSP08-028-560-30-B OH2MY17W



NOTE: When the holding brake is deployed as an emergency stop brake, the braking torque may be substantially lower than the holding torque.

Holding brake response times

If DC-side switching takes place between the rectifier and coil, an extremely short run-on is attained. For drives requiring precise braking, in particular for lifting gear, DC-side switching of the brake is essential.



Letter	Meaning
M	Braking torque
M _H	Holding torque of spring-operated brake
N	Speed
t	Time
t ₁	Switch-on time
t ₂	Switch-off time

Space for notes

A large grid of graph paper for taking notes, consisting of 20 columns and 30 rows of small squares.

Space for notes

A large grid of graph paper for taking notes, consisting of 20 columns and 30 rows of small squares.

Space for notes

A large grid of graph paper for taking notes, consisting of 20 columns and 30 rows of small squares.





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Subject to technical change without notice.

The content of our Order Catalogue was compiled with the greatest care and attention, and based on the latest information available to us.

We should nevertheless point out that this document cannot always be updated in line with ongoing technical developments in our products.

Information and specifications may be subject to change at any time. For information on the latest version please visit <http://drives.lt-i.com>.

The German version is the original of this Order Catalogue.

