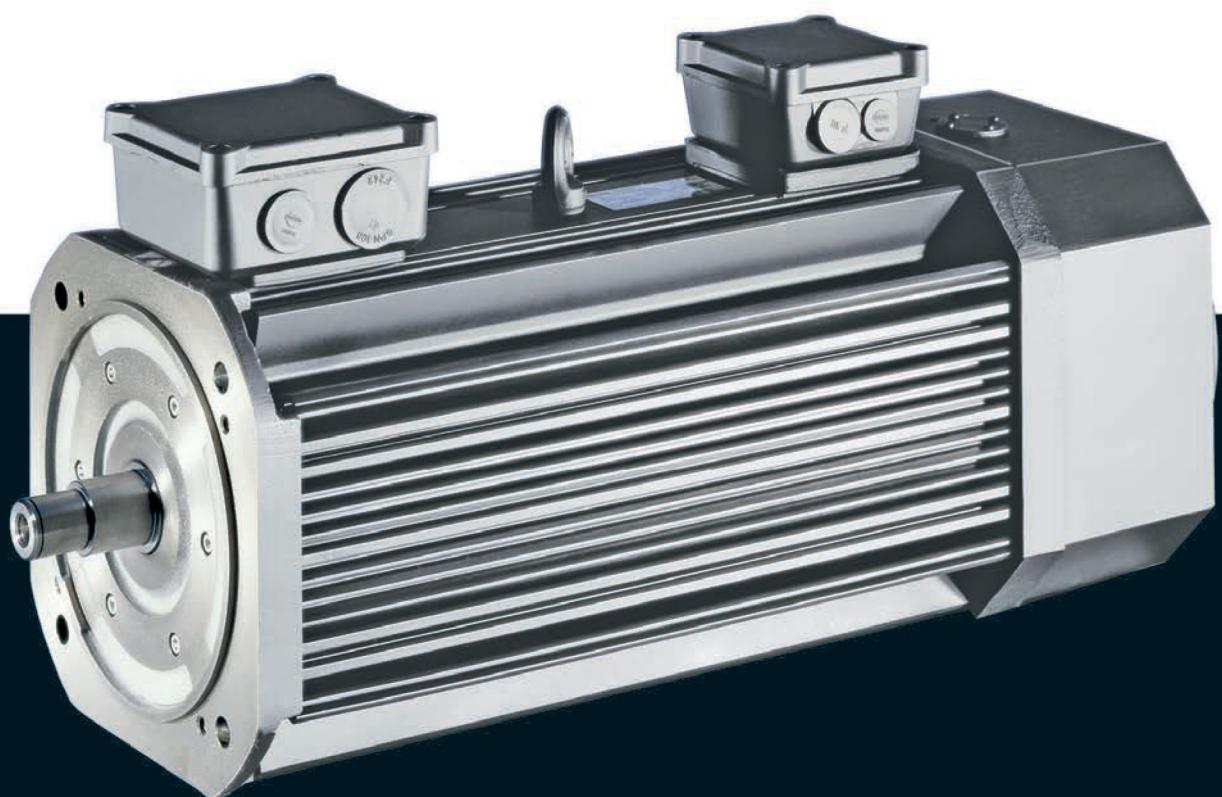


Motors

MCA asynchronous servo motors

2 to 1,100 Nm



MCA asynchronous servo motors



Contents

General information	List of abbreviations	5.5 - 4
	Product key	5.5 - 6
	Product information	5.5 - 8
	Functions and features	5.5 - 9
	Dimensioning	5.5 - 11
Technical data	Standards and operating conditions	5.5 - 19
	Permissible radial and axial forces	5.5 - 20
	Rated data, non-ventilated	5.5 - 22
	Rated data, IP54 forced ventilated	5.5 - 23
	Rated data, IP23s forced ventilated	5.5 - 24
	Selection tables, Servo Drives 9400 HighLine	5.5 - 25
	Selection tables, Inverter Drives 8400 TopLine	5.5 - 32
	Selection tables, Servo Drives ECS	5.5 - 38
	Selection tables, Servo Inverter 9300	5.5 - 41
	Torque characteristics	5.5 - 47
	Dimensions, self-ventilated	5.5 - 66
	Dimensions, forced ventilated	5.5 - 68
Accessories	Permanent magnet holding brake	5.5 - 75
	Spring-applied holding brake	5.5 - 78
	Resolver	5.5 - 80
	Incremental encoder and SinCos absolute value encoder	5.5 - 81
	Blower	5.5 - 83
	Temperature monitoring	5.5 - 84
	Terminal box	5.5 - 85
	ICN connector	5.5 - 87

MCA asynchronous servo motors



General information

List of abbreviations

$\eta_{100\%}$	[%]	Efficiency
$\cos \phi$		Power factor
dU/dt	[kV/ μ s]	Insulation resistance
$F_{ax,-}$	[N]	Min. axial force
$F_{ax,+}$	[N]	Max. axial force
$f_{in,max}$	[Hz]	Max. input frequency
f_{max}	[kHz]	Limit frequency
f_{max}	[kHz]	Max. switching frequency
f_N	[Hz]	Rated frequency
F_{rad}	[N]	Max. radial force
H_{max}	[m]	Site altitude
I_0	[A]	Standstill current
I_{max}	[A]	Max. short-time DC-bus current
I_{max}	[A]	Max. current
I_{max}	[A]	Max. current consumption
I_{max}	[A]	Max. current
I_{max}	[A]	Max. DC-bus current
I_N	[A]	Rated current
J	[kgcm ²]	Moment of inertia
J_{MB}	[kgcm ²]	Moment of inertia
$KE_{LL\ 150\ ^\circ C}$	[V / (1000 r/min)]	Voltage constant
$Kt_{0\ 150\ ^\circ C}$	[Nm/A]	Torque constant
L	[mH]	Mutual inductance
$L_{1\sigma}$	[mH]	Stator leakage inductance
$L_{2\sigma}$	[mH]	Rotor leakage inductance
L_N	[mH]	Rated inductance
m	[kg]	Mass
M_0	[Nm]	Stall torque
$M_{0,\ max}$	[Nm]	Max. standstill torque
M_{av}	[Nm]	Average dynamic torque
M_{max}	[Nm]	Max. torque
M_N	[Nm]	Rated torque
n_{eto}	[r/min]	Transition speed
n_k	[r/min]	Speed
n_{max}	[r/min]	Max. speed

n_N	[r/min]	Rated speed
P_N	[kW]	Rated power
Q_E	[J]	Maximum switching energy
R	[Ω]	Insulation resistance
R	[Ω]	Min. insulation resistance
R_1	[Ω]	Stator impedance
R_2	[Ω]	Charging resistor
R_2	[Ω]	Rotor impedance
$R_{UV\ 150\ ^\circ C}$	[Ω]	Stator impedance
$R_{UV\ 20\ ^\circ C}$	[Ω]	Stator impedance
$S_{hü}$	[1/h]	Transition operating frequency
T	[$^\circ$ C]	Operating temperature
T	[$^\circ$ C]	Rated temperature
T	[$^\circ$ C]	Max. ambient temperature of bearing
T	[$^\circ$ C]	Max. surface temperature
T	[$^\circ$ C]	Max. ambient temperature for transport
T	[$^\circ$ C]	Min. ambient storage temperature
T	[$^\circ$ C]	Min. ambient temperature for transport
T	[$^\circ$ C]	Ambient temperature
t_1	[ms]	Engagement time
t_2	[ms]	Disengagement time
$T_{opr,max}$	[$^\circ$ C]	Max. ambient operating temperature
$T_{opr,min}$	[$^\circ$ C]	Min. ambient operating temperature
$U_{in,max}$	[V]	Max. input voltage
$U_{in,min}$	[V]	Min. input voltage
U_{max}	[V]	Max. mains voltage
U_{max}	[V]	Min. input voltage
U_{min}	[V]	Min. mains voltage
$U_{N, AC}$	[V]	Rated voltage
$U_{N, DC}$	[V]	Rated voltage
Z_{ro}	[Ω]	Rotor impedance
Z_{rs}	[Ω]	Impedance
Z_{so}	[Ω]	Stator impedance

MCA asynchronous servo motors

General information



List of abbreviations

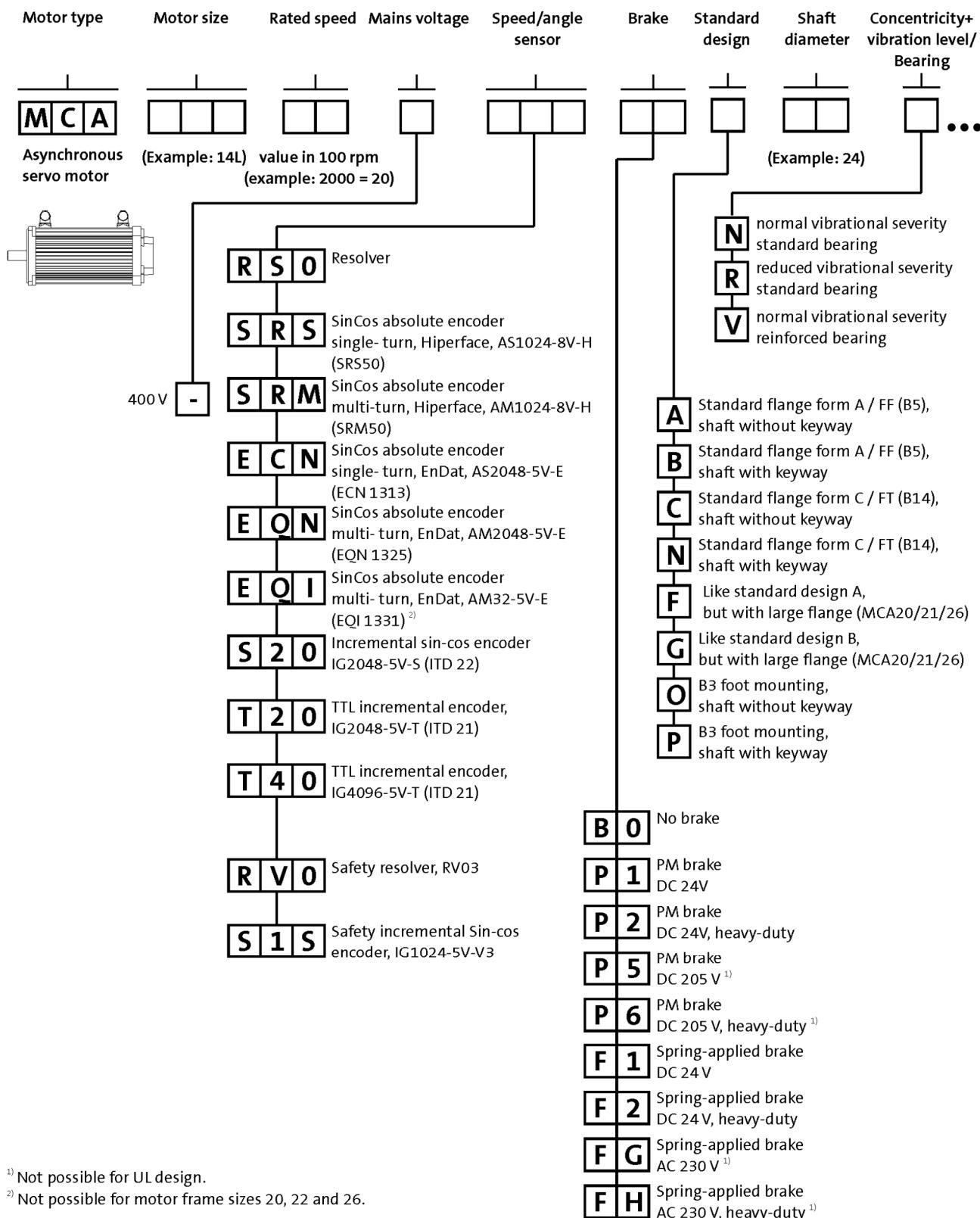
CE	Communauté Européenne
CSA	Canadian Standards Association
DIN	Deutsches Institut für Normung e.V.
EMC	Electromagnetic compatibility
EN	European standard
EAC	Customs union Russia / Belarus / Kazakhstan certificate
IEC	International Electrotechnical Commission
IM	International Mounting Code
IP	International Protection Code
NEMA	National Electrical Manufacturers Association
UkrSEPRO	Certificate for Ukraine
UL	Underwriters Laboratory Listed Product
UR	Underwriters Laboratory Recognized Product
VDE	Verband deutscher Elektrotechniker (Association of German Electrical Engineers)

MCA asynchronous servo motors



General information

Product key

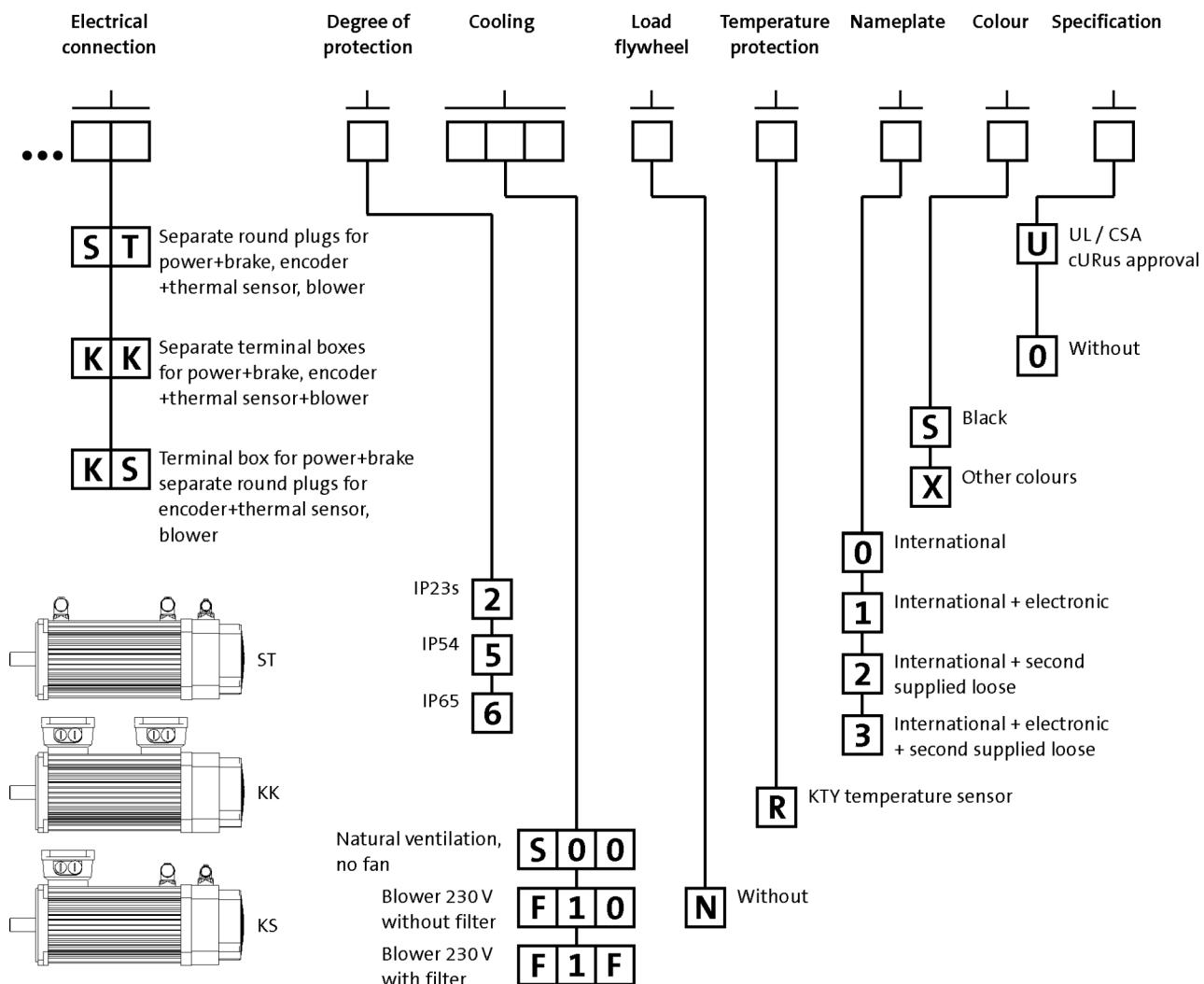


MCA asynchronous servo motors



General information

Product key



MCA asynchronous servo motors

General information



Product information

An application-oriented structure, low moments of inertia, compact dimensions and a high degree of intrinsic operational reliability characterise these robust and dynamic motors.

The compact design and the low moment of inertia allow these motors to be used in dynamic applications. If your application calls for a broad speed setting range and a robust construction, then the choice is easy: MCA asynchronous servo motors from Lenze.

Whether as a self-ventilated version or with a blower – with a power range from 0.8 to 53.8 kW, the MCA asynchronous servo motors offer rated torque values of up to 280 Nm and peak torque values of up to 1100 Nm. In comparison to standard three-phase AC motors, these servo motors have the edge in terms of lower moments of inertia, lower weight and higher maximum speeds.

Advantages

- High dynamic performance thanks to low moments of inertia
- Compact size with high power density
- Robust regenerative resolver system – alternatively SinCos and incremental encoder for the highest precision
- Easy to install and service friendly thanks to use of SpeedTec connectors
- Terminal box optional up to MCA21 MCA22 and 26 with three-part terminal box
- Protection: IP23, IP54, IP65 optional for naturally ventilated servo motors
- cURus-approved, GOST-certified, CE, RoHS-compliant
- High maximum speeds
- Wide speed setting range
- Field weakening operation usable
- Electronic nameplate



MCA21 asynchronous servo motor

MCA asynchronous servo motors



General information

Functions and features

	MCA10	MCA13	MCA14	MCA17	MCA19
Design	B14-FT85 B5-FF100	B14-FT130 B5-FF130	B14-FT130 B5-FF165	B14-FT130 B5-FF215	
Shaft end (with and without keyway)	14 x 30	19 x 40	24 x 50	28 x 60	
A end shield			Oil-tight Not oil-tight		
Brake					
Spring-applied brake					
Permanent magnetic brake			DC 24 V AC 230 V ¹⁾ DC 205 V ¹⁾		
Speed and angle encoder			Resolver SinCos single-turn/multi-turn Incremental encoder		
Cooling					
Without blower			Naturally ventilated		
Axial blower, 1 phase			230 V; 50 Hz		
Temperature sensor					
Thermal detector			KTY		
Motor connection: plug connector			Power + brake Encoder + thermal sensor Blower		
Motor connection: terminal box	Power + brake Encoder + thermal sensor		Power + brake Encoder + thermal sensor + blower		
Motor connection: Terminal box + plug connector			Power + brake Encoder + thermal sensor		
Terminal box					
Plug connector			Blower		
Shaft bearings					
Bearing type			Deep-groove ball bearing with high-temperature resistant grease, sealing disc or cover plate		
Position of the locating bearing			Drive end Standard motors (B3, B5, B14): side B Motors for gearbox direct mounting: side A		
Installation of the locating bearing					
Colour			RAL9005M		

¹⁾ Not possible for UR version.

MCA asynchronous servo motors



General information

Functions and features

	MCA20	MCA21	MCA22	MCA26
Design	B3 B35-FF215 B35-FF265	B14-FT130 B5-FF215 B5-FF265	B3 B35-FF265	B3 B35-FF265 B35-FF350
Shaft end (with and without keyway)		38 x 80		55 x 110
A end shield		Oil-tight Not oil-tight		
Brake				
Spring-applied brake	DC 24 V AC 230 V ¹⁾			DC 24 V AC 230 V ¹⁾
Permanent magnetic brake		DC 24 V AC 230 V ¹⁾ DC 205 V ¹⁾		
Speed and angle encoder		Resolver SinCos single-turn/multi-turn Incremental encoder		
Cooling				
Without blower		Naturally ventilated		
Axial blower, 1 phase	230 V; 50 Hz 230 V; 60 Hz	230 V; 50 Hz		230 V; 50 Hz 230 V; 60 Hz
Temperature sensor		KTY		
Thermal detector				
Motor connection: plug connector		Power + brake Encoder + thermal sensor Blower		
Motor connection: terminal box		Power + brake Encoder + thermal sensor + blower		
Motor connection: Terminal box + plug connector				
Terminal box	Power + brake	Power + brake Encoder + thermal sensor		Power + brake
Plug connector	Encoder + thermal sensor Blower	Blower		Encoder + thermal sensor Blower
Shaft bearings				
Bearing type	Deep-groove ball bearing with high-temperature resistant grease, sealing disc or cover plate			
Position of the locating bearing	Non-drive end	Drive end Standard motors (B3, B5, B14): side B Motors for gearbox direct mounting: side A		Non-drive end
Installation of the locating bearing	insulation			insulation
Colour	RAL9005M			

¹⁾ Not possible for UR version.

MCA asynchronous servo motors



General information

Dimensioning

Speed-dependent safety functions

Single encoder concepts with resolvers

Servo motors can perform speed-dependent safety functions for safe speed and / or safe relative position monitoring in a drive system with the Servo Drives 9400. The SM301 safety module, which can be integrated in the Servo Drives 9400, is used to implement these functions. When planning systems/installations of this kind, the following must always be observed:

When using just one single feedback system in the environment of these safety applications, the applicable safety engineering standard IEC 61800-5-2 [Adjustable speed electrical power drive systems - Part: 5-2: Safety requirements - Functional] stipulates special requirements for the connection between feedback system and motor shaft. This is due to the fact that two-channel safety systems at this point in the mechanical system are actually designed as single-channel systems. If this mechanical connection is designed with considerable overdimensioning, the standard permits exclusion of the fault "encoder-shaft breakage" or "encoder-shaft slip".

As such, acceleration limit values must not be exceeded for the individual drive solutions. You can find the limit values in the corresponding feedback data of the individual motor ranges.

Speed-dependent safety functions in connection with the SM301 safety module

For the following speed-dependent safety functions, the motor-feedback system combinations listed in the following table are available:

- Safe stop 1 (SS1)
- Safe operational stop (SOS)
- Safely Limited Speed (SLS)
- Safe Maximum Speed (SMS)

- Safe direction (SDI)
- Operation mode selector (OMS) with confirmation (ES)
- Safe speed monitor (SSM)
- Safely limited increment (SLI).

Encoder type	Encoder type	Product key	Feedback	Safe speed monitoring
			Design	
SinCos incremental	Single-turn	IG1024-5V-V3		PL e/SIL 3
Resolver		RV03	2-encoder concept	up to PL e / SIL 3

MCA asynchronous servo motors



General information

Dimensioning

Cooling effect of mounting flange

Mounting on a thermally conducting / insulating plate or machine chassis has an influence on heating up the motor, particularly when using naturally ventilated motors.

The motor rating data specified in the catalogue applies when mounting on a steel plate with free convection with the following dimensions:

- MCA10 / 13: 270 x 270 mm
- MCA14 / 17: 330 x 330 mm
- MCA19 to 26: 450 x 450 mm

Vibrational severity

		MCA10	MCA13	MCA14	MCA17	MCA19	MCA20	MCA21	MCA22	MCA26
Vibrational severity										
IEC/EN 60034-14		A		B		A	B		A	
Maximum r.m.s. value of the vibration velocity ¹⁾	[mm/s]	1.60		0.70		1.60	0.70		1.60	

¹⁾ Free suspension

► at n = 600 to 3,600 rpm

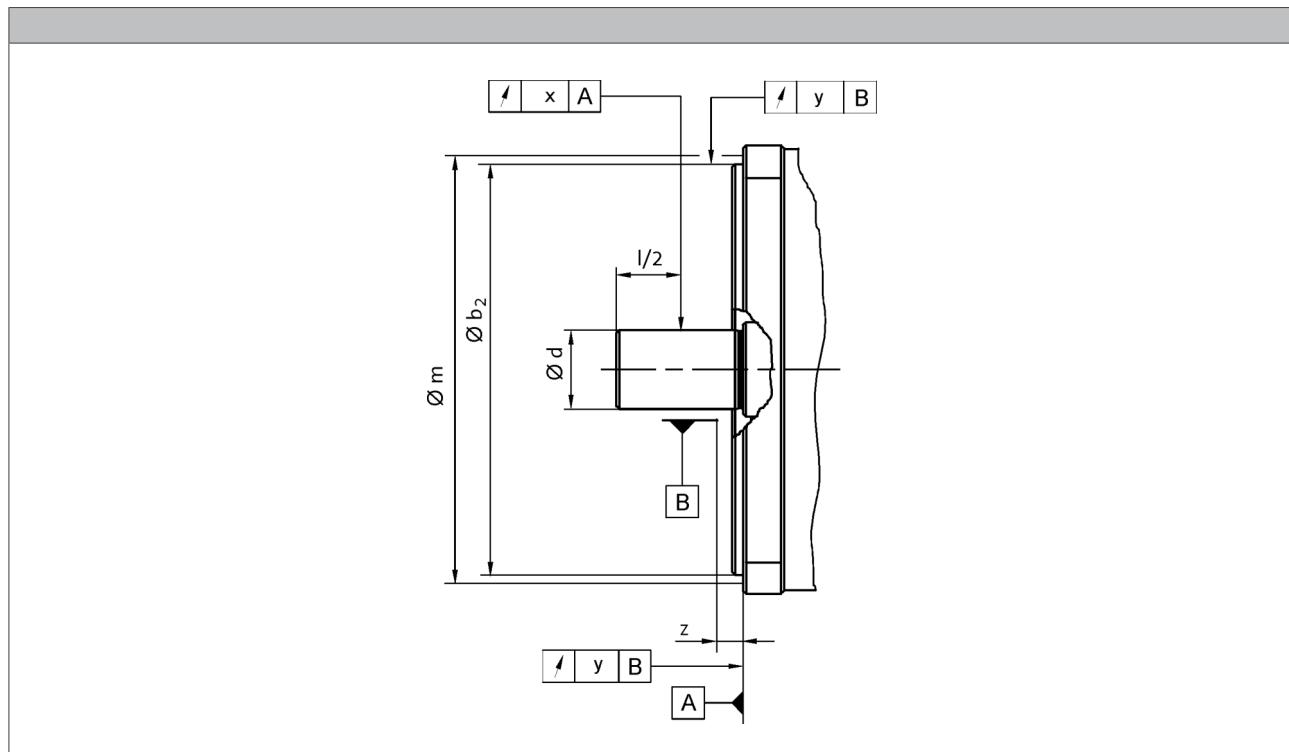
MCA asynchronous servo motors



General information

Dimensioning

Concentricity and axial run-out of the mounting flanges and smooth running of the shaft ends



			MCA10		MCA13		MCA14		MCA17		MCA19	
Flange size			FF100	FT85	FF130	FT130	FF165	FT130	FF165	FT130	FF215	FT130
Dimensions	b ₂	j6	[mm]	80	70	110	130	110	130	110	180	110
	b ₂	h6	[mm]									
	d	k6	[mm]	14		19			24		28	
	d	m6	[mm]									
Distance												
Measuring diameter	m		[mm]	113	98.0	149	188	149	188	149	239	149
Dial gauge holder for flange check	z	+/- 1	[mm]				10.0					
Concentricity												
IEC 60072				Normal class				Precision class				
Value	y		[mm]	0.080		0.10		0.050				
Axial run-out												
IEC 60072				Normal class				Precision class				
Value	y		[mm]	0.080		0.10		0.050				
Smooth running												
IEC 60072				Normal class				Precision class				
Value	x		[mm]	0.035		0.040		0.021				

- Limit values for checking the smooth running of the shaft ends as well as the concentricity and axial run-out of the mounting flange to IEC 60072

MCA asynchronous servo motors



General information

Dimensioning

Concentricity and axial run-out of the mounting flanges and smooth running of the shaft ends

			MCA20		MCA21			MCA22		MCA26	
Flange size			FF215	FF265	FF215	FF265	FT130	FF265	FF350		
Dimensions			180	230	180	230	110	230			
	b ₂	j6	[mm]							300	
	b ₂	h6	[mm]								
	d	k6	[mm]			38					
	d	m6	[mm]							55	
Distance											
Measuring diameter	m		[mm]	239	289	239	289	149	289	384	
Dial gauge holder for flange check	z	+/- 1	[mm]			10.0					
Concentricity											
IEC 60072				Normal class		Precision class				Normal class	
Value	y		[mm]	0.10		0.050				0.10	
Axial run-out											
IEC 60072				Normal class		Precision class				Normal class	
Value	y		[mm]	0.10		0.050				0.10	
Smooth running											
IEC 60072				Normal class		Precision class				Normal class	
Value	x		[mm]	0.050		0.060		0.050		0.060	

- ▶ Limit values for checking the smooth running of the shaft ends as well as the concentricity and axial run-out of the mounting flange to IEC 60072

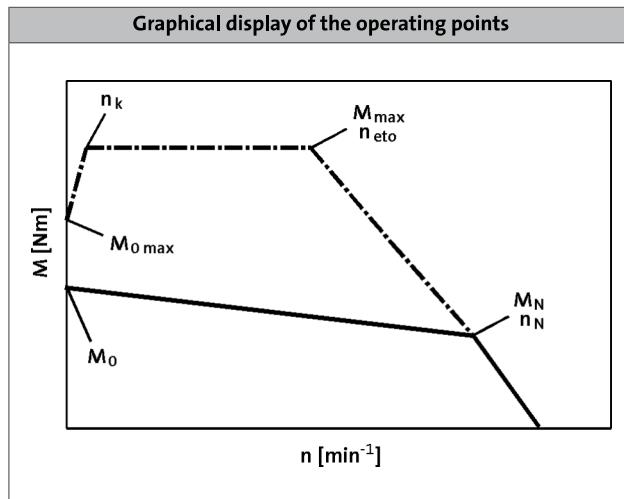
MCA asynchronous servo motors



General information

Dimensioning

Notes on the selection tables



Please note:

- With an active load (e.g. vertical drive axes, hoists, test benches, unwinders), $M_{0 \text{ max}}$ must be taken into account
- With a passive load (e.g. horizontal drive axes), M_{max} can generally be used
- At speeds $< n_k$, the inverter-specific torque $M_{0 \text{ max}}$ that can be achieved is lower than M_{max}
- On the servo inverters, the switching frequency-dependent overload capacity has been taken into account in the factory settings. For further information, please refer to the Servo-Inverters catalogue.

	n_k [r/min]
MCA	150
MQA	

Further selection tables with different switching frequencies are available with the following codes:

- DS_ZT_MCS_0001
- DS_ZT_MCA_0001
- DS_ZT_MDSKS_0001
- DS_ZT_MDFKS_0001

Simply enter this code (e.g. DS_ZT_MCS_0001) as a search string at www.lenze.de/dsc and you will be given the information immediately in the form of a PDF format.

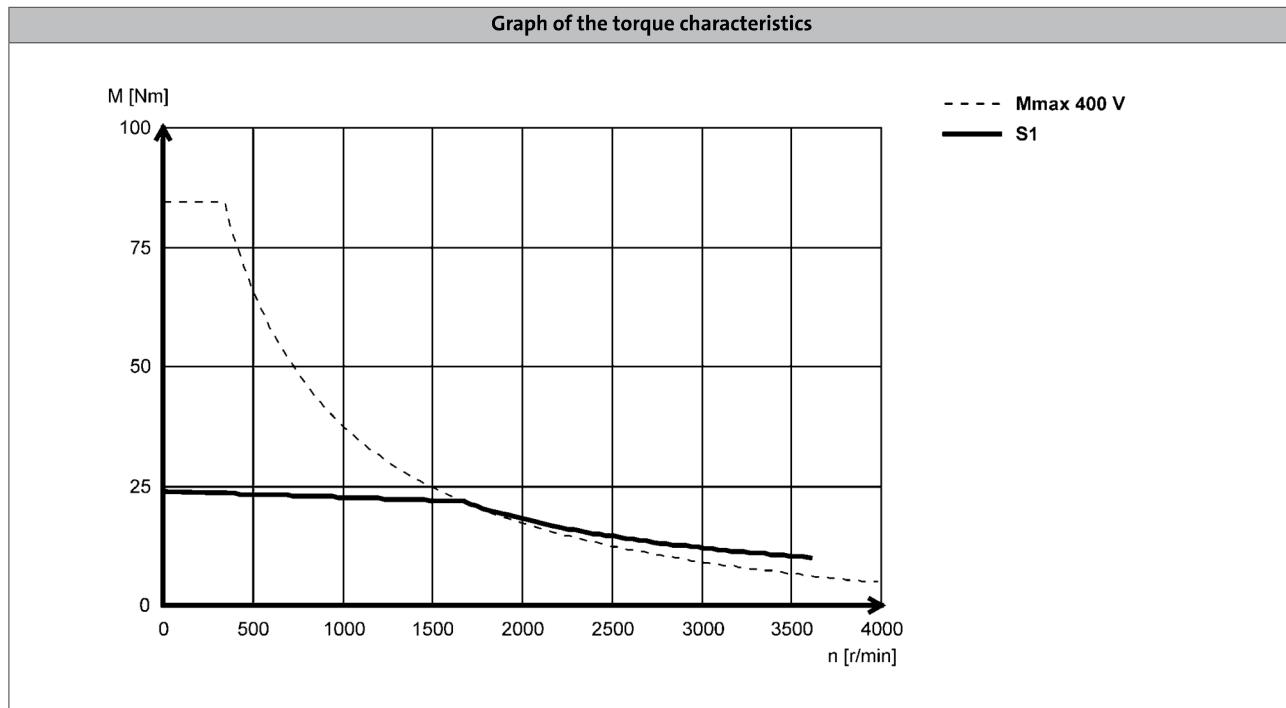
MCA asynchronous servo motors



General information

Dimensioning

Notes on the torque characteristics



With asynchronous servo motors, two characteristics are shown in each case. The characteristics for continuous operation (S1) show the speed-dependent constant torque of the motor when operating with a servo inverter that itself is operated at a constant switching frequency. The limit torque characteristics correspond to those that come about during operation of the motor with the largest possible 9400 Servo Drive in each case (see selection tables). The servo inverter is set to a variable switching frequency here.

5.5

Characteristics in the Internet

Torque characteristics for selectable motor/inverter combinations can be determined in the EASY Product Finder in the Internet. The S1 continuous characteristic and the max. limit characteristic are generated. The result can be saved or printed in a PDF protocol. In the EASY Explorer, available torque characteristics are provided automatically.

Further information on the terms switching frequency and default setting can be found in the respective operating instructions of the servo inverter.

MCA asynchronous servo motors



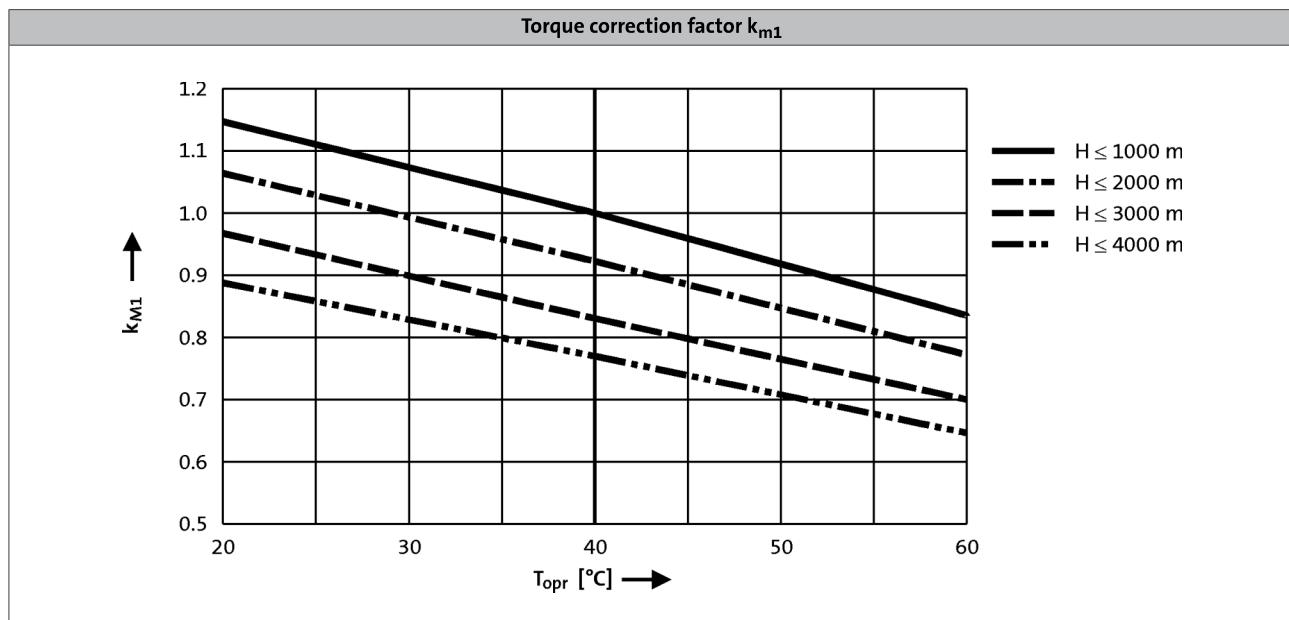
General information

Dimensioning

Influence of ambient temperature and site altitude

The information relating to the servo motors in the tables and graphs is valid for a maximum ambient temperature (T_{opr}) of 40 °C and a site altitude (H) up to 1000 m above sea level. The torque correction factor (k_{M1}) shall be applied to the S1 torque characteristic ($M_0 \dots M_N$) in the event of differing installation conditions.

- The maximum permissible ambient temperature (T_{opr}) for servo motors with blowers is 40 °C



MCA asynchronous servo motors

General information



MCA asynchronous servo motors



Technical data

Standards and operating conditions

			MCA	
Cooling type			Naturally ventilated	Blower
Degree of protection				
EN 60529			IP54 IP65	IP54 IP23s ²⁾
Temperature class				
IEC/EN 60034-1; utilisation			F	
IEC/EN 60034-1; insulation system (enamel-insulated wire)			H	
Conformity				
CE			Low-Voltage Directive 2006/95/EC	
EAC			TP TC 004/2011 (TR CU 004/2011)	
Approval				
CSA			UkrSEPRO CSA 22.2 No. 100	
cURus ³⁾			UL 1004-1 UL 1004-6 Power Conversion Equipment (File-No. E210321)	
Max. voltage load				
IEC/TS 60034-25			Pulse voltage limiting curve A	
Smooth running				
IEC 60072			Precision class ¹⁾ Normal class	
Axial run-out				
IEC 60072			Precision class ¹⁾ Normal class	
Concentricity				
IEC 60072			Precision class ¹⁾ Normal class	
Mechanical ambient conditions (vibration)				
IEC/EN 60721-3-3			3M6 3M6	
Min. ambient operating temperature				
Without brake	T _{opr,min}	[°C]	-20	-15
With brake	T _{opr,min}	[°C]		-10
Max. ambient operating temperature			40	
Max. surface temperature	T _{opr,max}	[°C]		
	T	[°C]	140	110
Mechanical tolerance				
Flange centring diameter			b ₂ ≤ 230 mm = j6 b ₂ > 230 mm = h6	
Shaft diameter			d ≤ 50 mm = k6 d > 50 mm = m6	
Site altitude				
Amsl	H _{max}	[m]	4000	

¹⁾ MCA14, 17, 19 and 21.

²⁾ MCA20, 22 and 26.

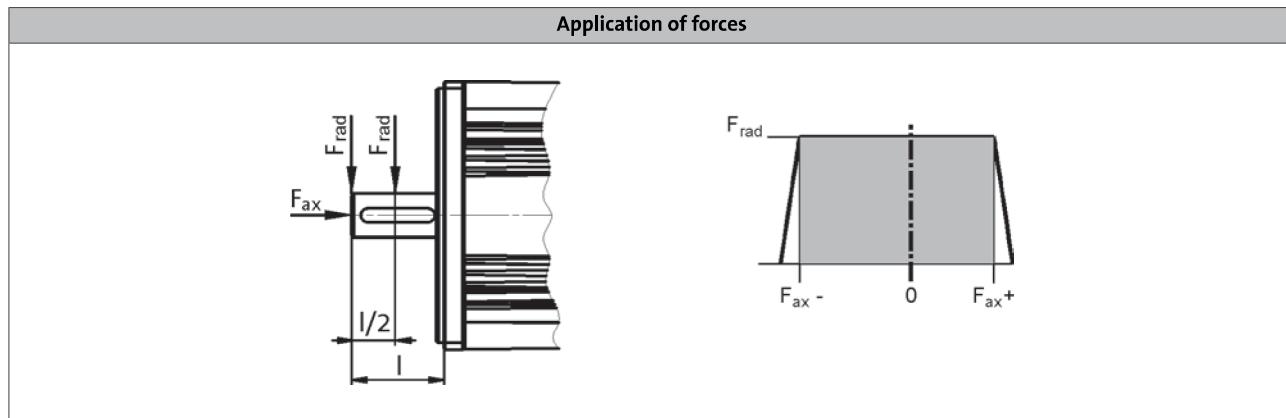
³⁾ MCA20X29, MCA21X35 with circular connector for motor connection only
UR

MCA asynchronous servo motors



Technical data

Permissible radial and axial forces



Application of force at $l/2$

	Bearing service life L_{10}												
	5000 h		10000 h		20000 h		30000 h		50000 h				
	F_{rad} [N]	$F_{\text{ax},-}$ [N]	$F_{\text{ax},+}$ [N]	F_{rad} [N]	$F_{\text{ax},-}$ [N]	$F_{\text{ax},+}$ [N]	F_{rad} [N]	$F_{\text{ax},-}$ [N]	$F_{\text{ax},+}$ [N]	F_{rad} [N]	$F_{\text{ax},-}$ [N]	$F_{\text{ax},+}$ [N]	
MCA10	630	-130	320	500	-60	250	400	-30	210	330	-10	190	230
MCA13	850	-110	570	700	-10	450	470	0	450	0	0	450	
MCA14	1000	-140	500	780	-60	420	550	-30	380	400	-10	360	250
MCA17	1380	-180	790	1040	-70	680	660	-40	650	440	-20	630	280
MCA19	1880	-50	1530	1080	-30	1510	500	-100	1490	160	0	1470	
MCA20	3400	-1330	690	2500	-1020	380	1950	-780	140	1700	-690	40	
MCA21	3200	-260	1740	2360	-70	1550	1470	-20	1504	1030	0	1480	
MCA22	3600	-2370	1700	2800	-1740	1090	2200	-1280	640	1900	-1080	440	1600
MCA26	6950	-2500	1580	5400	-1800	880	4300	-1300	380	3700	-1090	160	

Application of force at l

	Bearing service life L_{10}												
	5000 h		10000 h		20000 h		30000 h		50000 h				
	F_{rad} [N]	$F_{\text{ax},-}$ [N]	$F_{\text{ax},+}$ [N]	F_{rad} [N]	$F_{\text{ax},-}$ [N]	$F_{\text{ax},+}$ [N]	F_{rad} [N]	$F_{\text{ax},-}$ [N]	$F_{\text{ax},+}$ [N]	F_{rad} [N]	$F_{\text{ax},-}$ [N]	$F_{\text{ax},+}$ [N]	
MCA10	590	-130	320	470	-60	250	370	-30	210	310	-10	190	220
MCA13	780	-110	570	640	-10	450	430	0	450	300	0	450	
MCA14	930	-140	500	710	-60	420	490	-30	380	370	-10	360	230
MCA17	1270	-180	790	960	-70	680	610	-40	650	400	-20	630	260
MCA19	1740	-50	1530	1000	-30	1510	420	-100	1490	140	0	1470	
MCA20	3150	-1170	530	2300	-920	280	1800	-710	70	1400	-650	0	
MCA21	2940	-260	1740	2160	-70	1550	1350	-20	1504	950	0	1480	
MCA22	3500	-2240	1600	2600	-1640	1100	2050	-1200	560	1800	-1020	380	1450
MCA26	6400	-2080	1150	5000	-1600	680	4000	-1160	230	3400	-1090	50	

- The values for the bearing service life L_{10} relate to an average speed of 4000 r/min. For MCA20/22/26 the speed is 3000 r/min. Depending on the ambient temperatures, the service life of the bearings is also reduced by the grease lifetime.

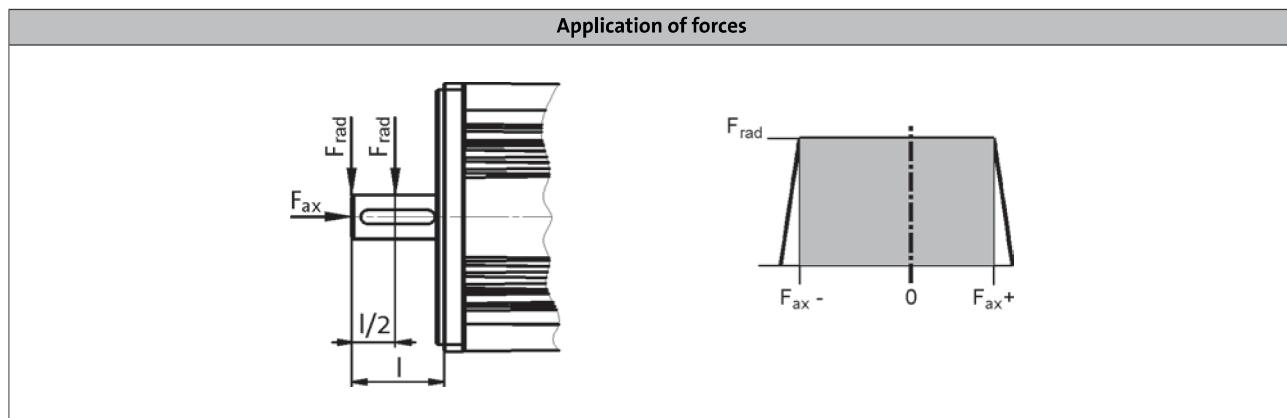
MCA asynchronous servo motors



Technical data

Permissible radial and axial forces

- Reinforced bearings



Application of force at $l/2$

Bearing service life L_{10}															
	5000 h			10000 h			20000 h			30000 h			50000 h		
	F_{rad} [N]	$F_{ax,-}$ [N]	$F_{ax,+}$ [N]												
MCA20	7100	-970	330	5100	-800	160	3900	-640	0						
MCA22	8500	-1850	1200	7000	-1400	760	5600	-1030	390	4350	-930	290	3200	-800	160
MCA26	10500	-2180	1250	8370	-1530	600	6670	-1130	200	5840	-960	30			

Application of force at l

Bearing service life L_{10}															
	5000 h			10000 h			20000 h			30000 h			50000 h		
	F_{rad} [N]	$F_{ax,-}$ [N]	$F_{ax,+}$ [N]												
MCA20	6350	-720	80	4100	-680	40	2800	-640	0						
MCA22	7000	-1750	1100	5500	-1300	660	4700	-920	280	3900	-820	180	3000	-700	60
MCA26	9600	-2200	1280	7700	-1280	360	6000	-960	30						

- The values for the bearing service life L_{10} refer to an average speed of 3000 r/min. Depending on the ambient temperatures, the service life of the bearings is also reduced by the grease lifetime.

5.5

MCA asynchronous servo motors



Technical data

Rated data, non-ventilated

► The data applies to a mains connection voltage of 3 x 400 V.

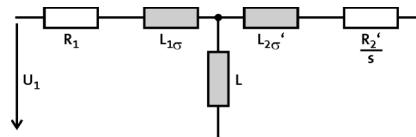
	n_N [r/min]	M_0 [Nm]	M_N [Nm]	M_{max} [Nm]	P_N [kW]	I_0 [A]	I_N [A]	$U_{N, AC}$ [V]	f_N [Hz]	$J^1)$ [kgcm ²]	$\eta_{100\%}$ [%]
MCA10I40	3950	2.30	2.00	10.0	0.80	2.60	2.40	390	140	2.40	0.70
MCA13I41	4050	4.60	4.00	32.0	1.70	4.60	4.40	390	140	8.30	75.0
MCA14L20	2000	8.00	6.70	60.0	1.40	3.90	3.30	390	70	19.2	84.0
MCA14L41	4100	8.00	5.40	60.0	2.30	7.70	5.80	390	140	19.2	78.0
MCA17N23	2300	12.8	10.8	100	2.60	6.00	5.50	390	80	36.0	86.0
MCA17N41	4110	12.8	9.50	100	4.10	12.0	10.2	350	140	36.0	83.0
MCA19S23	2340	22.5	16.3	180	4.00	9.90	8.20	390	80	72.0	90.0
MCA19S42	4150	22.5	12.0	180	5.20	19.7	14.0	330	140	72.0	83.0
MCA21X25	2490	39.0	24.6	300	6.40	15.9	13.5	390	85	180	85.0
MCA21X42	4160	39.0	17.0	300	7.40	31.8	19.8	320	140	180	84.0

	R_1 [Ω]	$R_{UV\ 20^\circ C}$ [Ω]	$R_{UV\ 150^\circ C}$ [Ω]	R_2 [Ω]	$L_{1\sigma}$ [mH]	L [mH]	$L_{2\sigma}'$ [mH]	$n_{max}^{2)}$ [r/min]	$m^1)$ [kg]
MCA10I40	4.70	9.40	12.7	5.20	9.80	169	10.0	8000	6.40
MCA13I41	1.70	3.40	4.60	1.41	5.40	92.6	4.90		10.4
MCA14L20	3.00	6.00	8.10	3.13	10.0	269	10.0		15.1
MCA14L41	0.75	1.50	2.00	0.78	2.50	65.8	2.50		22.9
MCA17N23	1.52	3.04	4.10	1.37	6.20	176	6.80		44.7
MCA17N41	0.38	0.76	1.00	0.34	1.50	43.4	1.70		60.0
MCA19S23	0.69	1.38	1.90	0.62	3.20	111	3.90		
MCA19S42	0.18	0.35	0.50	0.15	0.80	28.0	1.00		
MCA21X25	0.36	0.72	1.00	0.36	2.30	78.1	2.80		
MCA21X42	0.090	0.18	0.20	0.090	0.60	19.5	0.70		

¹⁾ Without brake.

²⁾ Mechanically permissible maximum speed.

The data in the R_1 , $L_{1\sigma}$, L , R_2' and $L_{2\sigma}'$ columns is based on a single-phase equivalent circuit diagram at 20°C.



MCA asynchronous servo motors



Technical data

Rated data, IP54 forced ventilated

► The data applies to a mains connection voltage of 3 x 400 V.

	n_N [r/min]	M_0 [Nm]	M_N [Nm]	M_{max} [Nm]	P_N [kW]	I_0 [A]	I_N [A]	$U_{N, AC}$ [V]	f_N [Hz]	$J^1)$ [kgcm ²]	$\eta_{100\%}$ [%]
MCA13I34	3410	7.00	6.30	32.0	2.20	6.30	6.00	390	120	8.30	72.0
MCA14L16	1635	13.5	12.0	60.0	2.10	5.30	4.80	390	60	19.2	80.0
MCA14L35	3455	13.5	10.8	60.0	3.90	10.5	9.10	390	120	19.2	79.0
MCA17N17	1680	23.9	21.5	100	3.80	9.10	8.50	390	60	36.0	83.0
MCA17N35	3480	23.9	19.0	100	6.90	18.1	15.8	390	120	36.0	81.0
MCA19S17	1700	40.0	36.3	180	6.40	15.4	13.9	390	60	72.0	82.0
MCA19S35	3510	40.0	36.0	180	13.2	30.8	28.7	390	120	72.0	85.0
MCA21X17	1710	75.0	61.4	300	11.0	25.8	22.5	390	60	180	85.0
MCA21X35	3520	75.0	55.0	300	20.3	49.5	42.5	390	120	180	88.0
MCA22P08...5F□□	760	120	110	500	8.75	23.4	22.1	345	28	487	80.0
MCA22P14...5F□□	1425	120	107	500	16.0	40.5	37.7	350	50	487	87.0
MCA22P17...5F□□	1670	120	106	500	18.5	46.7	42.7	360	58	487	88.0
MCA22P29...5F□□	2935	120	100	500	30.7	80.9	72.1	360	100	487	87.0
MCA26T05...5F□□	550	220	216	1100	12.4	35.4	34.9	350	19	1335	83.0
MCA26T10...5F□□	1030	220	210	1100	22.7	62.9	61.5	350	36	1335	88.0
MCA26T12...5F□□	1200	220	207	1100	26.0	78.4	75.1	350	41	1335	87.0
MCA26T22...5F□□	2235	220	195	1100	45.6	125	113	340	76	1335	92.0

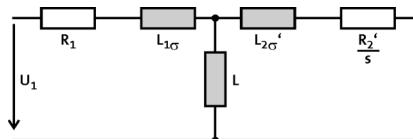
	R_1 [Ω]	$R_{UV\ 20^\circ C}$ [Ω]	$R_{UV\ 150^\circ C}$ [Ω]	R_2 [Ω]	$L_{1\sigma}$ [mH]	L [mH]	$L_{2\sigma}'$ [mH]	$n_{max}^{2)}$ [r/min]	$m^1)$ [kg]		
MCA13I34	1.70	3.40	4.60	1.41	4.90	76.7	4.40		12.0		
MCA14L16	3.00	6.00	8.10	3.13	9.50	224	9.30		16.9		
MCA14L35	0.75	1.50	2.00	0.78	2.40	56.7	2.30		25.5		
MCA17N17	1.52	3.04	4.10	1.37	5.60	144	6.00		48.2		
MCA17N35	0.38	0.76	1.00	0.34	1.40	36.9	1.50		63.5		
MCA19S17	0.69	1.38	1.90	0.62	2.60	80.9	3.10				
MCA19S35	0.18	0.35	0.50	0.15	0.70	20.3	0.80				
MCA21X17	0.36	0.72	1.00	0.36	2.10	68.9	2.60				
MCA21X35	0.090	0.18	0.20	0.090	0.50	16.8	0.60				
MCA22P08...5F□□	0.54	1.07	1.62	0.48	3.56	94.9	4.80	8000	5.5		
MCA22P14...5F□□		0.36	0.54		3.60	94.2	4.85				
MCA22P17...5F□□	0.13	0.27	0.40	0.12	0.90	23.4	1.21				
MCA22P29...5F□□		0.080	0.12			22.9					
MCA26T05...5F□□	0.29	0.59	0.89	0.25	2.86	66.8	5.04	5500	194		
MCA26T10...5F□□		0.20	0.30		2.93	69.2	5.12				
MCA26T12...5F□□	0.080	0.15	0.23	0.062	0.74	18.1	1.29				
MCA26T22...5F□□		0.050	0.075		0.78	19.8					

¹⁾ Without brake.

²⁾ Mechanically permissible maximum speed.

The permanent speed in case of MCA20, 22 and 26 is limited to 70% of the value.

The data in the R_1 , $L_{1\sigma}$, L , R_2' and $L_{2\sigma}'$ columns is based on a single-phase equivalent circuit diagram at 20°C.



MCA asynchronous servo motors



Technical data

Rated data, IP23s forced ventilated

► The data applies to a mains connection voltage of 3 x 400 V.

	n_N	M_0	M_N	M_{max}	P_N	I_0	I_N	$U_{N, AC}$	f_N	$J^1)$	$\eta_{100\%}$
	[r/min]	[Nm]	[Nm]	[Nm]	[kW]	[A]	[A]	[V]	[Hz]	[kgcm ²]	[%]
MCA20X14...2F□□	1420	68.0	61.0	250	9.07	26.0	23.0	350	50	171	82.0
MCA20X29...2F□□	2930	68.0	53.5	250	16.4	52.0	42.4	350	100	171	87.0
MCA22P08...2F□□	760	135	120	500	9.55	26.0	23.5	355	28	487	80.0
MCA22P14...2F□□	1425	135	115	500	17.2	45.1	40.0	360	50	487	86.0
MCA22P17...2F□□	1670	135	112	500	19.6	52.1	44.5	360	58	487	88.0
MCA22P29...2F□□	2935	135	110	500	33.8	90.2	77.8	360	100	487	89.0
MCA26T05...2F□□	550	290	280	1100	16.1	44.0	42.4	350	20	1335	81.0
MCA26T10...2F□□	1030	290	260	1100	28.0	78.0	69.6	350	36	1335	87.0
MCA26T12...2F□□	1200	290	255	1100	32.0	101	83.3	350	41	1335	87.0
MCA26T22...2F□□	2235	290	230	1100	53.8	160	127	340	76	1335	92.0

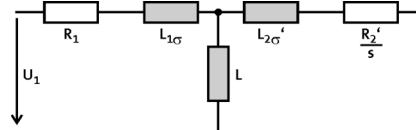
	R_1	$R_{UV\ 20^\circ C}$	$R_{UV\ 150^\circ C}$	R_2	$L_{1\sigma}$	L	$L_{2\sigma}$	$n_{max}^{2)}$	$m^1)$
	[Ω]	[Ω]	[Ω]	[Ω]	[mH]	[mH]	[mH]	[r/min]	[kg]
MCA20X14...2F□□	0.37	0.73	1.10	0.36	2.01	60.2	2.14	6500	64.0
MCA20X29...2F□□	0.090	0.18	0.28	0.090	0.50	14.3	0.54		
MCA22P08...2F□□	0.54	1.07	1.62	0.48	3.50	91.9	4.74		
MCA22P14...2F□□		0.36	0.54		3.55	90.9	4.79		
MCA22P17...2F□□	0.13	0.27	0.40	0.12	0.90	23.5	1.22	5500	105
MCA22P29...2F□□		0.080	0.12		0.90	22.9	1.21		
MCA26T05...2F□□	0.29	0.59	0.89	0.25	3.11	72.1	5.08		
MCA26T10...2F□□		0.20	0.30		3.17	71.4	5.14		
MCA26T12...2F□□	0.080	0.15	0.23	0.062	0.78	18.6	1.30	194	
MCA26T22...2F□□		0.050	0.077		0.78	20.2			

¹⁾ Without brake.

²⁾ Mechanically permissible maximum speed.

The permanent speed in case of MCA20, 22 and 26 is limited to 70% of the value.

The data in the R_1 , $L_{1\sigma}$, L , R_2 ' and $L_{2\sigma}'$ columns is based on a single-phase equivalent circuit diagram at 20°C.



MCA asynchronous servo motors



Technical data

Selection tables, Servo Drives 9400 HighLine

Non-ventilated motors

- The data applies to a mains connection voltage of 3 x 400 V and an inverter switching frequency of 4 kHz.

					E94A□□	E0024	E0034	E0044	E0074	E0094	E0134	E0174	E0244	E0324
MCA	M _N	n _N	I _N	P _N	I _N	1.9	3.1	5.0	8.8	11.7	16.3	20.6	29.4	38.4
					I _{max}	6.0	10.0	16.0	21.0	28.0	39.0	49.5	58.8	76.8
					M ₀	1.1	2.3							
					M _N	1.0	2.0							
					M _{0,max}	6.9	10.0							
					M _{max}	6.9	10.0							
					n _{eto}	-	-							
10I40	2.0	3950	2.4	0.80	M ₀			4.6	4.6					
					M _N			4.0	4.0					
					M _{0,max}			18.9	20.8					
					M _{max}			18.9	20.8					
					n _{eto}			-	-					
13I41	4.0	4050	4.4	1.70	M ₀			5.1	8.0					
					M _N			4.4	6.7					
					M _{0,max}			25.0	42.8					
					M _{max}			25.0	42.8					
					n _{eto}			-	-					
14L20	6.7	2000	3.3	1.40	M ₀			3.5	8.0	8.0				
					M _N			3.5	5.4	5.4				
					M _{0,max}			21.5	27.0	31.3				
					M _{max}			21.5	27.0	31.3				
					n _{eto}			-	-	-				
14L41	5.4	4100	5.8	2.30	M ₀			9.5	12.8					
					M _N			9.0	10.8					
					M _{0,max}			38.0	50.0					
					M _{max}			38.0	50.0					
					n _{eto}			-	-					
17N23	10.8	2300	5.5	2.60	M ₀			7.1	11.5	12.8	12.8			
					M _N			6.7	9.5	9.5	9.5			
					M _{0,max}			24.0	33.3	45.8	49.9			
					M _{max}			24.0	33.3	45.8	49.9			
					n _{eto}			-	-	-	-			
17N41	9.5	4110	10.2	4.10	M ₀			18.4	22.5	22.5				
					M _N			15.6	16.3	16.3				
					M _{0,max}			55.0	73.7	86.0				
					M _{max}			55.0	73.7	86.0				
					n _{eto}			-	-	-				
19S23	16.3	2340	8.2	4.00	M ₀					15.0	22.5	22.5		
					M _N					12.0	12.0	12.0		
					M _{0,max}					48.8	62.0	70.0		
					M _{max}					48.8	62.0	70.0		
					n _{eto}					-	-	-		
19S42	12.0	4150	14.0	5.20	M ₀					21.4	39.0	39.0	39.0	
					M _N					19.6	24.6	24.6	24.6	
					M _{0,max}					71.7	96.0	126.0	136.0	
					M _{max}					71.7	96.0	126.0	136.0	
					n _{eto}					-	-	-	-	
21X25	24.6	2490	13.5	6.40	M ₀									
					M _N									
					M _{0,max}									
					M _{max}									
					n _{eto}									

► I... [A], M... [Nm], n... [r/min], P... [kW]

MCA asynchronous servo motors



Technical data

Selection tables, Servo Drives 9400 HighLine

Non-ventilated motors

- The data applies to a mains connection voltage of 3 x 400 V and an inverter switching frequency of 4 kHz.

					E94A□□	E0024	E0034	E0044	E0074	E0094	E0134	E0174	E0244	E0324
			I _N		I _N	1.9	3.1	5.0	8.8	11.7	16.3	20.6	29.4	38.4
			I _{0,max}		I _{0,max}	6.0	10.0	16.0	21.0	28.0	39.0	49.5	58.8	76.8
MCA	M _N	n _N	I _N	P _N	I _{max}	6.0	10.0	16.0	21.0	28.0	39.0	49.5	58.8	76.8
21X42	17.0	4160	19.8	7.40	M ₀								31.3	39.0
					M _N								17.0	17.0
					M _{0,max}								71.7	91.0
					M _{max}								71.7	91.0
					n _{eto}								-	-

- I... [A], M... [Nm], n... [r/min], P... [kW]

MCA asynchronous servo motors



Technical data

Selection tables, Servo Drives 9400 HighLine

Forced ventilated IP54 motors

- The data applies to a mains connection voltage of 3 x 400 V and an inverter switching frequency of 4 kHz.

					E94A□□	E0044	E0074	E0094	E0134	E0174	E0244	E0324	E0474	E0594	E0864
MCA	M _N	n _N	I _N	P _N	I _{max}	16.0	21.0	28.0	39.0	49.5	58.8	76.8	94.0	118.0	172.0
13I34	6.3	3410	6.0	2.20	M ₀	4.6	7.0	7.0							
					M _N	4.4	6.3	6.3							
					M _{0,max}	20.8	26.0	29.2							
					M _{max}	20.8	26.0	29.2							
					n _{eto}	-	-	-							
14L16	12.0	1635	4.8	2.10	M ₀	12.0	13.5								
					M _N	12.0	12.0								
					M _{0,max}	45.4	52.6								
					M _{max}	45.4	52.6								
					n _{eto}	-	-	-							
14L35	10.8	3455	9.1	3.90	M ₀	10.1	13.5	13.5							
					M _N	9.7	10.8	10.8							
					M _{0,max}	32.4	46.0	60.0							
					M _{max}	32.4	46.0	60.0							
					n _{eto}	-	-	-							
17N17	21.5	1680	8.5	3.80	M ₀	21.6	23.9	23.9							
					M _N	21.5	21.5	21.5							
					M _{0,max}	59.4	81.4	84.5							
					M _{max}	59.4	81.4	84.5							
					n _{eto}	-	-	-							
17N35	19.0	3480	15.8	6.90	M ₀			19.4	23.9	23.9					
					M _N			19.0	19.0	19.0					
					M _{0,max}			59.2	75.0	90.0					
					M _{max}			59.2	75.0	90.0					
					n _{eto}			-	-	-					
19S17	36.3	1700	13.9	6.40	M ₀			40.0	40.0	40.0					
					M _N			36.3	36.3	36.3					
					M _{0,max}			105.0	133.0	148.0					
					M _{max}			105.0	133.0	148.0					
					n _{eto}			-	-	-					
19S35	36.0	3510	28.7	13.20	M ₀				36.9	40.0	40.0	40.0			
					M _N				36.0	36.0	36.0	36.0			
					M _{0,max}				82.0	112.0	132.0	160.0			
					M _{max}				82.0	112.0	132.0	160.0			
					n _{eto}				-	-	-	-			
21X17	61.4	1710	22.5	11.00	M ₀				54.4	75.0	75.0	75.0			
					M _N				50.4	61.4	61.4	61.4			
					M _{0,max}				134.0	158.0	215.0	246.0			
					M _{max}				134.0	158.0	215.0	246.0			
					n _{eto}				-	-	-	-			
21X35	55.0	3520	42.5	20.30	M ₀							63.9	75.0	75.0	
					M _N							55.0	55.0	55.0	
					M _{0,max}							134.0	167.0	232.0	
					M _{max}							134.0	167.0	232.0	
					n _{eto}							-	-	-	

► I... [A], M... [Nm], n... [r/min], P... [kW]

MCA asynchronous servo motors



Technical data

Selection tables, Servo Drives 9400 HighLine

Forced ventilated IP54 motors

- The data applies to a mains connection voltage of 3 x 400 V and an inverter switching frequency of 8 kHz.

					E94A□□	E0174	E0244	E0324	E0474	E0594	E0864	E1044	E1454	E1724	E2024	E2454
MCA	M _N	n _N	I _N	P _N	I _{max}	49.5	58.8	76.8	94.0	118.0	172.0	208.0	261.0	310.0	364.0	441.0
22P08-...5F□□	110.0	760	22.1	8.80	M ₀	64.0	110.0	120.0								
					M _N	64.0	110.0	110.0								
					M _{0,max}	261.0	313.0	402.0								
					M _{max}	261.0	313.0	402.0								
					n _{eto}	-	-	-								
22P14-...5F□□	107.0	1425	37.7	16.00	M ₀			82.0	120.0	120.0						
					M _N			82.0	107.0	107.0						
					M _{0,max}			242.0	300.0	372.0						
					M _{max}			242.0	300.0	372.0						
					n _{eto}			-	-	-						
22P17-...5F□□	105.0	1670	42.7	18.50	M ₀				99.0	120.0						
					M _N				99.0	106.0						
					M _{0,max}				325.0	463.0						
					M _{max}				325.0	463.0						
					n _{eto}				-	-						
22P29-...5F□□	100.0	2935	72.1	30.70	M ₀						110.0	120.0	120.0			
					M _N						100.0	100.0	100.0			
					M _{0,max}						335.0	416.0	465.0			
					M _{max}						335.0	416.0	465.0			
					n _{eto}						-	-	-			
26T05-...5F□□	216.0	550	34.9	12.40	M ₀			191.0	220.0	220.0	220.0					
					M _N			191.0	216.0	216.0	216.0					
					M _{0,max}			531.0	665.0	826.0	1010.0					
					M _{max}			531.0	665.0	826.0	1010.0					
					n _{eto}			-	-	-	-					
26T10-...5F□□	210.0	1030	61.5	22.70	M ₀				77.0	220.0	220.0	220.0				
					M _N				77.0	210.0	210.0	210.0				
					M _{0,max}				472.0	713.0	855.0	1044.0				
					M _{max}				472.0	713.0	855.0	1044.0				
					n _{eto}				-	-	-	-				
26T12-...5F□□	207.0	1200	75.1	26.00	M ₀					204.0	219.0	220.0	220.0			
					M _N					204.0	207.0	207.0	207.0			
					M _{0,max}					502.0	609.0	739.0	819.0			
					M _{max}					502.0	609.0	739.0	819.0			
					n _{eto}					-	-	-	-			
26T22-...5F□□	195.0	2235	112.9	45.60	M ₀						154.0	211.0	220.0	220.0		
					M _N						154.0	195.0	195.0	195.0		
					M _{0,max}						523.0	611.0	711.0	843.0		
					M _{max}						523.0	611.0	711.0	843.0		
					n _{eto}						-	-	-	-	-	-

- I... [A], M... [Nm], n... [r/min], P... [kW]
- If the motors are operated at a lower switching frequency, please contact your Lenze sales office!
- When operating at 4 kHz, the motor generates just 95 % of its rated torque with increased noise emissions.

MCA asynchronous servo motors



Technical data

Selection tables, Servo Drives 9400 HighLine

Forced ventilated IP23s motors

- The data applies to a mains connection voltage of 3 x 400 V and an inverter switching frequency of 8 kHz.

					E94A□□	E0174	E0244	E0324	E0474	E0594	E0864	E1044	E1454	E1724	E2024	E2454	E2924
MCA	M _N	n _N	I _N	P _N	I _{max}	16.5	23.5	32.0	41.0	41.0	73.0	78.0	102.0	120.0	131.0	160.0	191.0
					I _{0,max}	49.5	58.8	76.8	94.0	118.0	172.0	208.0	261.0	310.0	364.0	441.0	526.0
20X14-...2F□□	61.0	1420	23.0	9.10	M ₀	32.5	66.0										
20X29-...2F□□	53.5	2930	42.4	16.40	M _N	32.5	61.0										
22P08-...2F□□	120.0	760	23.5	9.60	M _{0,max}	154.2	190.0										
22P14-...2F□□	115.0	1425	40.0	17.20	M _{max}	154.2	190.0										
22P17-...2F□□	112.0	1670	44.5	19.60	n _{eto}	-	-										
22P29-...2F□□	110.0	2935	77.8	33.80	M ₀					99.0	135.0						
26T05-...2F□□	280.0	550	42.4	16.10	M _N					99.0	112.0						
26T10-...2F□□	260.0	1030	69.6	28.00	M _{0,max}					325.0	463.0						
					M _{max}					325.0	463.0						
					n _{eto}					-	-						

- I... [A], M... [Nm], n... [r/min], P... [kW]
- If the motors are operated at a lower switching frequency, please contact your Lenze sales office!
- When operating at 4 kHz, the motor generates just 95 % of its rated torque with increased noise emissions.

MCA asynchronous servo motors



Technical data

Selection tables, Servo Drives 9400 HighLine

Forced ventilated IP23s motors

- The data applies to a mains connection voltage of 3 x 400 V and an inverter switching frequency of 8 kHz.

					E94A□□	E0174	E0244	E0324	E0474	E0594	E0864	E1044	E1454	E1724	E2024	E2454	E2924
MCA	M _N	n _N	I _N	P _N	I _N	16.5	23.5	32.0	41.0	41.0	73.0	78.0	102.0	120.0	131.0	160.0	191.0
26T12-...2F□□	255.0	1200	83.3	32.00	I _{0,max}	49.5	58.8	76.8	94.0	118.0	172.0	208.0	261.0	310.0	364.0	441.0	526.0
					M ₀						204.0	219.0	290.0	290.0			
					M _N						204.0	219.0	255.0	255.0			
					M _{0,max}						502.0	609.0	739.0	840.0	896.0		
					M _{max}						502.0	609.0	739.0	840.0	896.0		
					n _{eto}						-	-	-	-	-	-	
26T22-...2F□□	230.0	2235	126.7	53.80	M ₀									211.0	242.0	290.0	290.0
					M _N									211.0	230.0	230.0	230.0
					M _{0,max}									611.0	711.0	843.0	1001.0
					M _{max}									611.0	711.0	843.0	1001.0
					n _{eto}									-	-	-	-

- I... [A], M... [Nm], n... [r/min], P... [kW]
- If the motors are operated at a lower switching frequency, please contact your Lenze sales office!
- When operating at 4 kHz, the motor generates just 95 % of its rated torque with increased noise emissions.

MCA asynchronous servo motors

Technical data



5.5

MCA asynchronous servo motors



Technical data

Selection tables, Inverter Drives 8400 TopLine

Non-ventilated motors

- The data applies to a mains connection voltage of 3 x 400 V and an inverter switching frequency of 8 kHz.

					E84AVTC	5514	7514	1124	1524	2224	3024	4024	5524	7524	1134	1534	1834									
MCA	M _N	n _N	I _N	P _N	I _{max}	3.6	4.8	6.4	7.8	11.2	14.6	19.0	26.0	33.0	47.0	64.0	78.0									
10I40	2.0	3950	2.4	0.80	M ₀	-	2.3	2.3	2.3																	
					M _N	-	1.9	1.9	1.9	1.9																
					M _{0,max}	4.2	5.8	8.0	9.8	10.0																
					M _{max}	4.2	5.8	8.0	9.8	10.0																
					n _{eto}	-	-	-	-	-																
					M ₀		-	-	4.6	4.6	4.6															
13I41	4.0	4050	4.4	1.70	M _N		-	-	4.0	4.0	4.0															
					M _{0,max}		7.6	9.6	14.3	18.9	22.9															
					M _{max}		7.6	9.6	14.3	18.9	22.9															
					n _{eto}		-	-	-	-	-															
					M ₀		-	8.0	8.0	8.0																
14L20	6.7	2000	3.3	1.40	M _N		-	6.7	6.7	6.7																
					M _{0,max}	11.6	16.2	20.1	29.4	34.7																
					M _{max}	11.6	16.2	20.1	29.4	34.7																
					n _{eto}	-	-	-	-	-																
					M ₀			-	8.0	8.0	8.0															
14L41	5.4	4100	5.8	2.30	M _N			-	5.4	5.4	5.4															
					M _{0,max}				14.1	19.0	25.1	31.0														
					M _{max}				14.1	19.0	25.1	31.0														
					n _{eto}				-	-	-	-														
					M ₀				-	12.8	12.8	12.8														
17N23	10.8	2300	5.5	2.60	M _N			-	10.8	10.8	10.8	10.8														
					M _{0,max}				17.1	25.3	33.3	43.8	51.1													
					M _{max}				17.1	25.3	33.3	43.8	51.1													
					n _{eto}				-	-	-	-	-													
					M ₀				-	-	12.8	12.8	12.8													
17N41	9.5	4110	10.2	4.10	M _N				-	-	9.5	9.5	9.5													
					M _{0,max}					16.5	22.3	31.1	39.9	49.5												
					M _{max}					16.5	22.3	31.1	39.9	49.5												
					n _{eto}					-	-	-	-	-												
					M ₀					-	22.5	22.5	22.5													
19S23	16.3	2340	8.2	4.00	M _N					-	16.3	16.3	16.3													
					M _{0,max}						32.8	43.6	60.9	77.5												
					M _{max}						32.8	43.7	61.0	77.5												
					n _{eto}						-	-	-	-												
					M ₀						-	22.5	22.5	22.5												
19S42	12.0	4150	14.0	5.20	M _N						-	12.0	12.0	12.0												
					M _{0,max}							28.5	37.0	53.7	64.7											
					M _{max}							28.5	37.0	53.8	64.7											
					n _{eto}							-	-	-	-											
					M ₀							-	-	39.0	39.0	39.0										
21X25	24.6	2490	13.5	6.40	M _N							-	-	24.5	24.5	24.5										
					M _{0,max}								33.6	46.7	59.3	85.9	97.3									
					M _{max}								33.6	46.7	59.3	85.9	97.6									
					n _{eto}								-	-	-	-	-									
					M ₀								-	-	39.0	39.0	39.0									

► I... [A], M... [Nm], n... [r/min], P... [kW]

MCA asynchronous servo motors



Technical data

Selection tables, Inverter Drives 8400 TopLine

Non-ventilated motors

- The data applies to a mains connection voltage of 3 x 400 V and an inverter switching frequency of 8 kHz.

					E84AVTC	□ 5514	□ 7514	□ 1124	□ 1524	□ 2224	□ 3024	□ 4024	□ 5524	□ 7524	□ 1134	□ 1534	□ 1834
MCA	M _N	n _N	I _N	P _N	I _N	1.8	2.4	3.2	3.9	5.9	7.3	9.5	13.0	16.5	23.5	32.0	39.0
					I _{0,max}	2.7	3.6	4.8	5.9	8.4	11.0	14.3	19.5	26.4	32.9	43.2	60.0
21X42	17.0	4160	19.8	7.40	I _{max}	3.6	4.8	6.4	7.8	11.2	14.6	19.0	26.0	33.0	47.0	64.0	78.0
					M ₀									-	39.0	39.0	39.0
					M _N									-	17.0	17.0	17.0
					M _{0,max}									35.3	52.2	72.1	88.5
					M _{max}									35.3	52.2	72.1	88.5
					n _{eto}									-	-	-	-

- I... [A], M... [Nm], n... [r/min], P... [kW]

MCA asynchronous servo motors



Technical data

Selection tables, Inverter Drives 8400 TopLine

Forced ventilated IP54 motors

- The data applies to a mains connection voltage of 3 x 400 V and an inverter switching frequency of 8 kHz.

					E84AVTC	□1524	□2224	□3024	□4024	□5524	□7524
MCA	M _N	n _N	I _N	P _N	I _N	3.9	5.9	7.3	9.5	13.0	16.5
					I _{0,max}	5.9	8.4	11.0	14.3	19.5	26.4
					I _{max}	7.8	11.2	14.6	19.0	26.0	33.0
					M ₀	-	7.0	7.0	7.0		
					M _N	-	6.2	6.2	6.2		
					M _{0,max}	16.0	21.4	28.2	32.0		
					M _{max}	16.0	21.4	28.2	32.0		
					n _{eto}	-	-	-	-		
					M ₀	-	13.5	13.5	13.5		
					M _N	-	12.3	12.3	12.3		
					M _{0,max}	23.4	34.7	45.5	50.8		
					M _{max}	23.4	34.7	45.5	50.8		
					n _{eto}	-	-	-	-		
					M ₀			-	13.5	13.5	13.5
					M _N			-	10.8	10.8	10.8
					M _{0,max}			21.1	28.4	39.8	51.1
					M _{max}			21.1	28.4	39.8	51.1
					n _{eto}			-	-	-	-
					M ₀			-	23.9	23.9	23.9
					M _N			-	21.6	21.6	21.6
					M _{0,max}			42.1	55.9	77.5	93.3
					M _{max}			42.2	56.0	77.5	93.3
					n _{eto}			-	-	-	-
					M ₀					-	23.9
					M _N					-	18.9
					M _{0,max}					38.0	49.5
					M _{max}					38.0	49.5
					n _{eto}					-	-
					M ₀					-	40.0
					M _N					-	36.0
					M _{0,max}					71.6	94.7
					M _{max}					71.6	94.7
					n _{eto}					-	-
					M ₀						
					M _N						
					M _{0,max}						
					M _{max}						
					n _{eto}						
					M ₀					-	-
					M _N					-	-
					M _{0,max}					99.0	
					M _{max}					99.0	
					n _{eto}					-	-
					M ₀						
					M _N						
					M _{0,max}						
					M _{max}						
					n _{eto}						

► I... [A], M... [Nm], n... [r/min], P... [kW]

MCA asynchronous servo motors



Technical data

Selection tables, Inverter Drives 8400 TopLine

Forced ventilated IP54 motors

- The data applies to a mains connection voltage of 3 x 400 V and an inverter switching frequency of 8 kHz.

□1134	□1534	□1834	□2234	□3034	□3734	□4534	E84AVTC					
23.5	32.0	39.0	47.0	61.0	76.0	89.0	I_N					
32.9	43.2	60.0	70.5	91.5	114.0	133.5	I_{0,max}					
47.0	64.0	78.0	94.0	122.0	152.0	178.0	I_{max}					
							M₀					
							M_N					
							M_{0,max}					
							M_{max}					
							n_{eto}					
							M₀					
							M_N					
							M_{0,max}					
							M_{max}					
							n_{eto}					
13.5							M₀					
10.8							M_N					
56.5							M_{0,max}					
56.6							M_{max}					
-							n_{eto}					
							M₀					
							M_N					
							M_{0,max}					
							M_{max}					
							n_{eto}					
23.9	23.9						M₀					
18.9	18.9						M_N					
72.5	97.8						M_{0,max}					
72.5	97.8						M_{max}					
-	-						n_{eto}					
40.0	40.0						M₀					
36.0	36.0						M_N					
138.9	165.2						M_{0,max}					
139.0	165.3						M_{max}					
-	-						n_{eto}					
-	40.0	40.0	40.0	40.0			M₀					
-	35.9	35.9	35.9	35.9			M_N					
55.1	78.8	97.8	112.8	146.2			M_{0,max}					
55.1	78.8	97.8	112.9	146.2			M_{max}					
-	-	-	-	-			n_{eto}					
75.0	75.0	75.0	75.0				M₀					
61.4	61.4	61.4	61.4				M_N					
143.7	198.5	242.2	277.2				M_{0,max}					
144.0	198.7	242.3	277.2				M_{max}					
-	-	-	-				n_{eto}					
-	-	-	75.0	75.0	75.0	75.0	M₀					
-	-	-	55.1	55.1	55.1	55.1	M_N					
97.5	120.6	138.5	177.5	216.7	267.8	M_{0,max}						
97.5	120.6	138.6	178.0	217.5	269.8	M_{max}						
-	-	-	-	-	-	n_{eto}						

► I... [A], M... [Nm], n... [r/min], P... [kW]

MCA asynchronous servo motors



Technical data

Selection tables, Inverter Drives 8400 TopLine

Forced ventilated IP54 motors

- The data applies to a mains connection voltage of 3 x 400 V and an inverter switching frequency of 8 kHz.

					E84AVTC	□7524	□1134	□1534	□1834	□2234	□3034	□3734	□4534
MCA	M _N	n _N	I _N	P _N	I _N	16.5	23.5	32.0	39.0	47.0	61.0	76.0	89.0
					I _{0,max}	26.4	32.9	43.2	60.0	70.5	91.5	114.0	133.5
					I _{max}	33.0	47.0	64.0	78.0	94.0	122.0	152.0	178.0
					M ₀	-	120.0	120.0	120.0	120.0			
					M _N	-	110.6	110.6	110.6	110.6			
					M _{0,max}	157.8	233.4	323.3	396.6	394.3			
					M _{max}	157.8	233.5	323.3	396.6	394.3			
					n _{eto}	-	-	-	-	-			
22P08-...5F□□	110.0	760	22.1	8.80	M ₀			-	120.0	120.0	120.0	120.0	120.0
					M _N			-	107.2	107.2	107.2	107.2	107.2
					M _{0,max}			186.5	232.5	268.8	345.7	422.7	458.8
					M _{max}			186.7	232.7	269.0	346.3	423.7	460.9
					n _{eto}			-	-	-	-	-	-
22P14-...5F□□	107.0	1425	37.7	16.00	M ₀			-	120.0	120.0	120.0	120.0	120.0
					M _N			-	107.2	107.2	107.2	107.2	107.2
					M _{0,max}			186.5	232.5	268.8	345.7	422.7	458.8
					M _{max}			186.7	232.7	269.0	346.3	423.7	460.9
					n _{eto}			-	-	-	-	-	-
22P17-...5F□□	105.0	1670	42.7	18.50	M ₀			-	120.0	120.0	120.0	120.0	120.0
					M _N			-	105.8	105.8	105.8	105.8	105.8
					M _{0,max}			162.7	204.2	236.9	307.8	374.9	461.2
					M _{max}			162.7	204.2	237.1	308.3	377.0	462.4
					n _{eto}			-	-	-	-	-	-
22P29-...5F□□	100.0	2935	72.1	30.70	M ₀					-	120.0	120.0	120.0
					M _N					-	99.9	99.9	99.9
					M _{0,max}					180.5	224.5	270.5	271.4
					M _{max}					180.8	226.0	271.4	271.4
					n _{eto}					-	-	-	-

- I... [A], M... [Nm], n... [r/min], P... [kW]
- If the motors are operated at a lower switching frequency, please contact your Lenze sales office!

MCA asynchronous servo motors



Technical data

Selection tables, Inverter Drives 8400 TopLine

Forced ventilated IP23s motors

- The data applies to a mains connection voltage of 3 x 400 V and an inverter switching frequency of 8 kHz.

					E84AVTC	□7524	□1134	□1534	□1834	□2234	□3034	□3734	□4534	
MCA	M _N	n _N	I _N	P _N	I _N	16.5	23.5	32.0	39.0	47.0	61.0	76.0	89.0	
					I _{0,max}	26.4	32.9	43.2	60.0	70.5	91.5	114.0	133.5	
					I _{max}	33.0	47.0	64.0	78.0	94.0	122.0	152.0	178.0	
20X14-...2F□□	61.0	1420	23.0	9.10	M ₀	-	67.0	68.0	68.0	68.0				
					M _N	-	61.2	61.2	61.2	61.2				
					M _{0,max}	94.8	139.9	192.6	235.5	250.0				
					M _{max}	94.9	139.9	192.8	235.7	250.0				
					n _{eto}	-	-	-	-	-				
20X29-...2F□□	53.5	2930	42.4	16.40	M ₀			-	-	57.0	68.0	68.0	68.0	
					M _N			-	-	53.4	53.4	53.4	53.4	
					M _{0,max}		96.8	121.2	140.3	182.5	222.1	250.0		
					M _{max}		96.8	121.2	140.4	182.6	223.0	250.0		
					n _{eto}			-	-	-	-	-	-	
22P08-...2F□□	120.0	760	23.5	9.60	M ₀	-	135.0	135.0	135.0	135.0				
					M _N	-	120.6	120.6	120.6	120.6				
					M _{0,max}	157.8	234.2	325.4	401.4	400.9				
					M _{max}	157.8	234.8	325.8	401.4	400.9				
					n _{eto}	-	-	-	-	-				
22P14-...2F□□	115.0	1425	40.0	17.20	M ₀			-	-	135.0	135.0	135.0	135.0	
					M _N			-	-	115.3	115.3	115.3	115.3	
					M _{0,max}		188.4	235.1	270.8	350.2	425.8	493.6		
					M _{max}		188.7	235.1	271.0	350.3	428.1	496.1		
					n _{eto}			-	-	-	-	-	-	
22P17-...2F□□	112.0	1670	44.5	19.60	M ₀			-	-	135.0	135.0	135.0	135.0	
					M _N			-	-	112.1	112.1	112.1	112.1	
					M _{0,max}		163.1	204.6	237.9	309.7	376.9	463.1		
					M _{max}		163.1	204.6	238.2	310.6	379.0	465.2		
					n _{eto}			-	-	-	-	-	-	
22P29-...2F□□	110.0	2935	77.8	33.80	M ₀					-	-	135.0		
					M _N					-	-	110.0		
					M _{0,max}					180.0	224.4	268.2		
					M _{max}					180.7	225.0	269.4		
					n _{eto}					-	-	-		

- I... [A], M... [Nm], n... [r/min], P... [kW]
- If the motors are operated at a lower switching frequency, please contact your Lenze sales office!

MCA asynchronous servo motors



Technical data

Selection tables, Servo Drives ECS

Non-ventilated motors

- The data applies to a mains connection voltage of 3×400 V and an inverter switching frequency of 4 kHz.

					ECS□□	008C□B	016C□B	032C□B	048C□B	064C□B
MCA	M _N	n _N	I _N	P _N	I _N	4.0	8.0	12.7	17.0	20.0
10I40	2.0	3950	2.4	0.80	I _{0,max}	4.6	9.1	18.1	27.2	36.3
					I _{max}	8.0	16.0	32.0	48.0	64.0
					M ₀	2.3				
					M _N	2.0				
					M _{0,max}	5.6				
					M _{max}	8.1				
					n _{eto}	-				
13I41	4.0	4050	4.4	1.70	M ₀	3.0	4.6			
					M _N	3.0	4.0			
					M _{0,max}	4.3	11.0			
					M _{max}	9.4	18.2			
					n _{eto}	-	-			
14L20	6.7	2000	3.3	1.40	M ₀	8.0	8.0			
					M _N	6.7	6.7			
					M _{0,max}	10.7	25.3			
					M _{max}	21.6	42.8			
					n _{eto}	-	-			
14L41	5.4	4100	5.8	2.30	M ₀	8.0	8.0			
					M _N	5.4	5.4			
					M _{0,max}	11.0	24.0			
					M _{max}	20.7	29.1			
					n _{eto}	-	-			
17N23	10.8	2300	5.5	2.60	M ₀	12.8	12.8			
					M _N	10.8	10.8			
					M _{0,max}	20.5	43.5			
					M _{max}	40.2	63.7			
					n _{eto}	-	-			
17N41	9.5	4110	10.2	4.10	M ₀	6.1	12.8	12.8		
					M _N	6.1	9.5	9.5		
					M _{0,max}	7.8	21.5	33.5		
					M _{max}	17.4	29.6	57.7		
					n _{eto}	-	-	-		
19S23	16.3	2340	8.2	4.00	M ₀	15.1	22.5			
					M _N	15.1	16.3			
					M _{0,max}	18.7	43.5			
					M _{max}	38.5	67.9			
					n _{eto}	-	-			
19S42	12.0	4150	14.0	5.20	M ₀		9.8	16.7		
					M _N		9.8	12.0		
					M _{0,max}		18.4	31.9		
					M _{max}		29.9	58.2		
					n _{eto}		-	-		
21X25	24.6	2490	13.5	6.40	M ₀		21.0	39.0		
					M _N		21.0	24.6		
					M _{0,max}		41.0	64.5		
					M _{max}		64.4	120.5		
					n _{eto}		-	-		

► I... [A], M... [Nm], n... [r/min], P... [kW]

MCA asynchronous servo motors



Technical data

Selection tables, Servo Drives ECS

Non-ventilated motors

- The data applies to a mains connection voltage of 3 x 400 V and an inverter switching frequency of 4 kHz.

					ECS□□	008C□B	016C□B	032C□B	048C□B	064C□B
MCA	M _N	n _N	I _N	P _N	I _N	4.0	8.0	12.7	17.0	20.0
21X42	17.0	4160	19.8	7.40	I _{0,max}	4.6	9.1	18.1	27.2	36.3
					I _{max}	8.0	16.0	32.0	48.0	64.0
					M ₀				13.0	17.0
					M _N				13.0	17.0
					M _{0,max}				30.0	45.0
					M _{max}				59.4	83.0
					n _{eto}				-	-

- I... [A], M... [Nm], n... [r/min], P... [kW]

MCA asynchronous servo motors



Technical data

Selection tables, Servo Drives ECS

Forced ventilated IP54 motors

- The data applies to a mains connection voltage of 3 x 400 V and an inverter switching frequency of 4 kHz.

					ECS□□	008C□B	016C□B	032C□B	048C□B	064C□B
MCA	M _N	n _N	I _N	P _N	I _N	4.0	8.0	12.7	17.0	20.0
					I _{0,max}	4.6	9.1	18.1	27.2	36.3
					I _{max}	8.0	16.0	32.0	48.0	64.0
					M ₀		7.0			
					M _N		6.3			
					M _{0,max}		10.7			
					M _{max}		20.8			
					n _{eto}		-			
13I34	6.3	3410	6.0	2.20	M ₀	8.9	13.5			
14L16	12.0	1635	4.8	2.10	M _N	8.9	12.0			
					M _{0,max}	11.5	25.4			
					M _{max}	21.6	46.7			
					n _{eto}	-	-			
14L35	10.8	3455	9.1	3.90	M ₀	8.3	13.5	13.5		
					M _N	8.3	10.8	10.8		
					M _{0,max}	11.0	27.0	41.0		
					M _{max}	22.2	42.0	60.0		
					n _{eto}	-	-	-		
17N17	21.5	1680	8.5	3.80	M ₀	19.5	23.9			
					M _N	19.5	21.5			
					M _{0,max}	23.0	53.0			
					M _{max}	44.8	80.0			
					n _{eto}	-	-			
17N35	19.0	3480	15.8	6.90	M ₀		12.7	23.0		
					M _N		12.7	19.0		
					M _{0,max}		23.0	37.5		
					M _{max}		37.7	64.4		
					n _{eto}		-	-		
19S17	36.3	1700	13.9	6.40	M ₀		28.3	40.0	40.0	
					M _N		28.3	36.3	36.3	
					M _{0,max}		46.5	72.0	98.0	
					M _{max}		75.4	130.8	158.9	
					n _{eto}		-	-	-	
21X17	61.4	1710	22.5	11.00	M ₀			52.5		
					M _N			52.5		
					M _{0,max}			107.0		
					M _{max}			190.0		
					n _{eto}			-		

- I... [A], M... [Nm], n... [r/min], P... [kW]

MCA asynchronous servo motors



Technical data

Selection tables, Servo Inverter 9300

Non-ventilated motors

- The data applies to a mains connection voltage of 3 x 400 V and an inverter switching frequency of 8 kHz.

					EVS	9322-E□	9323-E□	9324-E□	9325-E□	9326-E□	9327-E□	9328-E□	9329-E□
MCA	M _N	n _N	I _N	P _N	I _N	2.5	3.9	7.0	13.0	23.5	32.0	47.0	59.0
					I _{max}	3.8	5.9	10.5	19.5	35.3	48.0	70.5	88.5
					M ₀	2.2	2.3						
					M _N	2.0	2.0						
					M _{0,max}	4.4	7.3						
					M _{max}	4.4	7.3						
					n _{eto}	-	-						
10I40	2.0	3950	2.4	0.80	M ₀			4.6	4.6				
13I41	4.0	4050	4.4	1.70	M _N			4.0	4.0				
					M _{0,max}			12.6	19.5				
					M _{max}			12.6	19.5				
					n _{eto}			-	-				
14L20	6.7	2000	3.3	1.40	M ₀			8.0	8.0				
14L41	5.4	4100	5.8	2.30	M _N			6.7	6.7				
					M _{0,max}			15.1	29.3				
					M _{max}			15.1	29.3				
					n _{eto}			-	-				
17N23	10.8	2300	5.5	2.60	M ₀			7.0	8.0				
17N41	9.5	4110	10.2	4.10	M _N			5.4	5.4				
					M _{0,max}			13.2	26.0				
					M _{max}			13.2	26.0				
					n _{eto}			-	-				
19S23	16.3	2340	8.2	4.00	M ₀			12.8	12.8				
19S42	12.0	4150	14.0	5.20	M _N			10.8	10.8				
					M _{0,max}			24.4	46.2				
					M _{max}			24.4	46.2				
					n _{eto}			-	-				
21X25	24.6	2490	13.5	6.40	M ₀			22.5	22.5				
					M _N			16.3	16.3				
					M _{0,max}			47.2	78.0				
					M _{max}			47.2	88.2				
					n _{eto}			-	-				

► I... [A], M... [Nm], n... [r/min], P... [kW]

MCA asynchronous servo motors



Technical data

Selection tables, Servo Inverter 9300

Non-ventilated motors

- The data applies to a mains connection voltage of 3 x 400 V and an inverter switching frequency of 8 kHz.

					EVS	9322-E□	9323-E□	9324-E□	9325-E□	9326-E□	9327-E□	9328-E□	9329-E□
			I_N		I_N	2.5	3.9	7.0	13.0	23.5	32.0	47.0	59.0
			I_{0,max}		I_{0,max}	3.8	5.9	10.5	19.5	23.5	32.0	47.0	52.0
			I_{max}		I_{max}	3.8	5.9	10.5	19.5	35.3	48.0	70.5	88.5
			M₀		M₀					24.0	39.0	39.0	39.0
			M_N		M_N					17.0	17.0	17.0	17.0
			M_{0,max}		M_{0,max}					24.0	47.0	84.0	94.0
			M_{max}		M_{max}					43.9	63.3	96.8	123.0
			n_{eto}		n_{eto}					-	-	-	-

- I... [A], M... [Nm], n... [r/min], P... [kW]

MCA asynchronous servo motors



Technical data

Selection tables, Servo Inverter 9300

Forced ventilated IP54 motors

- The data applies to a mains connection voltage of 3 x 400 V and an inverter switching frequency of 8 kHz.

					EVS	9324-E	9325-E	9326-E	9327-E	9328-E	9329-E	9330-E	9331-E
MCA	M _N	n _N	I _N	P _N	I _N	7.0	13.0	23.5	32.0	47.0	59.0	89.0	110.0
					I _{0,max}	10.5	19.5	23.5	32.0	47.0	52.0	80.0	110.0
					I _{max}	10.5	19.5	35.3	48.0	70.5	88.5	133.5	165.0
					M ₀	7.0	7.0						
					M _N	6.3	6.3						
					M _{0,max}	13.0	25.0						
					M _{max}	13.0	25.0						
					n _{eto}	-	-						
					M ₀	13.5							
					M _N	12.0							
					M _{0,max}	29.6							
					M _{max}	29.6							
					n _{eto}	-							
					M ₀		13.5	13.5					
					M _N		10.8	10.8					
					M _{0,max}		29.3	47.0					
					M _{max}		29.3	53.8					
					n _{eto}		-	-					
					M ₀	23.9							
					M _N	21.5							
					M _{0,max}	57.2							
					M _{max}	57.2							
					n _{eto}	-							
					M ₀		23.9	23.9	23.9				
					M _N		19.0	19.0	19.0				
					M _{0,max}		27.5	57.0	89.0				
					M _{max}		50.7	69.2	100.2				
					n _{eto}		-	-	-				
					M ₀	34.0	40.0	40.0					
					M _N	34.0	36.3	36.3					
					M _{0,max}	50.1	76.0	112.0					
					M _{max}	50.1	95.9	130.8					
					n _{eto}	-	-	-					
					M ₀		21.0	39.0	40.0	40.0	40.0		
					M _N		21.0	36.0	36.0	36.0	36.0		
					M _{0,max}		21.0	39.0	73.0	80.0	161.5		
					M _{max}		45.7	67.6	104.3	132.9	180.0		
					n _{eto}		-	-	-	-	-		
					M ₀			65.5	75.0	75.0	75.0		
					M _N			61.4	61.4	61.4	61.4		
					M _{0,max}			65.5	102.0	178.0	200.0		
					M _{max}			104.1	143.3	210.7	257.3		
					n _{eto}			-	-	-	-		
					M ₀				68.0	75.0	75.0	75.0	
					M _N				55.0	55.0	55.0	55.0	
					M _{0,max}				68.0	88.0	156.0	219.0	
					M _{max}				107.7	135.9	205.0	250.1	
					n _{eto}				-	-	-	-	

- I... [A], M... [Nm], n... [r/min], P... [kW]

MCA asynchronous servo motors



Technical data

Selection tables, Servo Inverter 9300

Forced ventilated IP54 motors

- The data applies to a mains connection voltage of 3 x 400 V and an inverter switching frequency of 8 kHz.

					EVS	9326-E□	9327-E□	9328-E□	9329-E□	9330-E□	9331-E□	9332-E□
MCA	M _N	n _N	I _N	P _N	I _N	23.5	32.0	47.0	59.0	89.0	110.0	145.0
					I _{0,max}	23.5	32.0	47.0	52.0	80.0	110.0	126.0
					I _{max}	35.3	48.0	70.5	88.5	133.5	165.0	217.5
					M ₀	115.0	120.0	120.0	120.0			
					M _N	108.0	110.0	110.0	110.0			
					M _{0,max}	115.0	166.0	242.0	267.0			
					M _{max}	185.0	247.0	338.8	345.8			
					n _{eto}	-	-	-	-			
22P08-...5F□□	110.0	760	22.1	8.80	M ₀			120.0	120.0	120.0		
					M _N			107.0	107.0	107.0		
					M _{0,max}			146.0	160.0	264.0		
					M _{max}			230.1	292.9	341.8		
					n _{eto}			-	-	-		
22P14-...5F□□	107.0	1425	37.7	16.00	M ₀			120.0	120.0	120.0		
					M _N			107.0	107.0	107.0		
					M _{0,max}			146.0	160.0	264.0		
					M _{max}			230.1	292.9	341.8		
					n _{eto}			-	-	-		
22P17-...5F□□	105.0	1670	42.7	18.50	M ₀			120.0	120.0	120.0	120.0	
					M _N			106.0	106.0	106.0	106.0	
					M _{0,max}			124.0	140.0	240.0	335.0	
					M _{max}			180.5	227.7	342.1	378.3	
					n _{eto}			-	-	-	-	
22P29-...5F□□	100.0	2935	72.1	30.70	M ₀				118.0	120.0	120.0	
					M _N				100.0	100.0	100.0	
					M _{0,max}				122.0	171.0	200.0	
					M _{max}				215.6	273.1	355.1	
					n _{eto}				-	-	-	
26T05-...5F□□	216.0	550	34.9	12.40	M ₀	191.0	220.0	220.0	220.0			
					M _N	191.0	216.0	216.0	216.0			
					M _{0,max}	191.0	303.0	333.0	615.0			
					M _{max}	313.0	482.0	612.0	751.0			
					n _{eto}	-	-	-	-			
26T10-...5F□□	210.0	1030	61.5	22.70	M ₀			159.0	220.0	220.0		
					M _N			197.0	210.0	210.0		
					M _{0,max}			159.0	300.0	440.0		
					M _{max}			343.0	552.0	671.0		
					n _{eto}			-	-	-		
26T12-...5F□□	207.0	1200	75.1	26.00	M ₀				207.0	220.0	220.0	
					M _N				255.0	207.0	207.0	
					M _{0,max}				258.0	327.0	397.0	
					M _{max}				424.0	512.0	663.0	
					n _{eto}				-	-	-	
26T22-...5F□□	195.0	2235	112.9	45.60	M ₀					177.0	220.0	
					M _N					177.0	195.0	
					M _{0,max}					203.0	220.0	
					M _{max}					315.0	432.0	
					n _{eto}					-	-	

- I... [A], M... [Nm], n... [r/min], P... [kW]
- If the motors are operated at a lower switching frequency, please contact your Lenze sales office!

MCA asynchronous servo motors



Technical data

Selection tables, Servo Inverter 9300

Forced ventilated IP23s motors

- The data applies to a mains connection voltage of 3×400 V and an inverter switching frequency of 8 kHz.

					EVS	9326-E□	9327-E□	9328-E□	9329-E□	9330-E□	9331-E□	9332-E□
MCA	M _N	n _N	I _N	P _N	I _N	23.5	32.0	47.0	59.0	89.0	110.0	145.0
					I _{0,max}	23.5	32.0	47.0	52.0	80.0	110.0	126.0
					I _{max}	35.3	48.0	70.5	88.5	133.5	165.0	217.5
					M ₀	61.0	68.0	68.0				
					M _N	61.0	61.0	61.0				
					M _{0,max}	61.0	93.0	153.0				
					M _{max}	109.3	156.7	232.1				
					n _{eto}	-	-	-				
20X14-...2F□□	61.0	1420	23.0	9.10	M ₀		28.0	66.3	68.0	68.0		
					M _N		28.0	53.5	53.5	53.5		
					M _{0,max}		28.0	66.3	72.0	129.0		
					M _{max}		68.5	112.5	146.4	226.7		
					n _{eto}		-	-	-	-		
					M ₀							
20X29-...2F□□	53.5	2930	42.4	16.40	M _N							
					M _{0,max}							
					M _{max}							
					n _{eto}							
					M ₀	115.0	135.0	135.0	135.0			
					M _N	115.0	120.0	120.0	120.0			
22P08-...2F□□	120.0	760	23.5	9.60	M _{0,max}	115.0	166.0	242.0	267.0			
					M _{max}	185.0	247.0	338.8	345.8			
					n _{eto}	-	-	-	-			
					M ₀							
					M _N							
					M _{0,max}							
22P14-...2F□□	115.0	1425	40.0	17.20	M _{max}							
					n _{eto}							
					M ₀							
					M _N							
					M _{0,max}							
					M _{max}							
22P17-...2F□□	112.0	1670	44.5	19.60	n _{eto}							
					M ₀							
					M _N							
					M _{0,max}							
					M _{max}							
					n _{eto}							
22P29-...2F□□	110.0	2935	77.8	33.80	M ₀							
					M _N							
					M _{0,max}							
					M _{max}							
					n _{eto}							
					M ₀							
26T05-...2F□□	280.0	550	42.4	16.10	M _N	191.0	290.0	290.0	290.0			
					M _{0,max}	191.0	280.0	280.0	280.0			
					n _{eto}	191.0	303.0	333.0	615.0			
					M ₀	313.0	482.0	612.0	751.0			
					M _N	-	-	-	-			
					M _{0,max}	-	-	-	-			
26T10-...2F□□	260.0	1030	69.6	28.00	n _{eto}							
					M ₀							
					M _N							
					M _{0,max}							
					M _{max}							
					n _{eto}							

5.5

- I... [A], M... [Nm], n... [r/min], P... [kW]
- If the motors are operated at a lower switching frequency, please contact your Lenze sales office!

MCA asynchronous servo motors



Technical data

Selection tables, Servo Inverter 9300

Forced ventilated IP23s motors

- The data applies to a mains connection voltage of 3 x 400 V and an inverter switching frequency of 8 kHz.

					EVS	9326-E□	9327-E□	9328-E□	9329-E□	9330-E□	9331-E□	9332-E□
MCA	M_N	n_N	I_N	P_N	I_N	23.5	32.0	47.0	59.0	89.0	110.0	145.0
					I_{0,max}	23.5	32.0	47.0	52.0	80.0	110.0	126.0
					I_{max}	35.3	48.0	70.5	88.5	133.5	165.0	217.5
					M₀					232.0	290.0	290.0
					M_N					255.0	255.0	255.0
					M_{0,max}					258.0	327.0	397.0
					M_{max}					424.0	512.0	663.0
					n_{eto}					-	-	-
					M₀						177.0	222.0
					M_N						177.0	230.0
					M_{0,max}						203.0	220.0
					M_{max}						315.0	432.0
					n_{eto}						-	-
26T12- ...2F□□	255.0	1200	83.3	32.00								
26T22- ...2F□□	230.0	2235	126.7	53.80								

- I... [A], M... [Nm], n... [r/min], P... [kW]
- If the motors are operated at a lower switching frequency, please contact your Lenze sales office!

MCA asynchronous servo motors

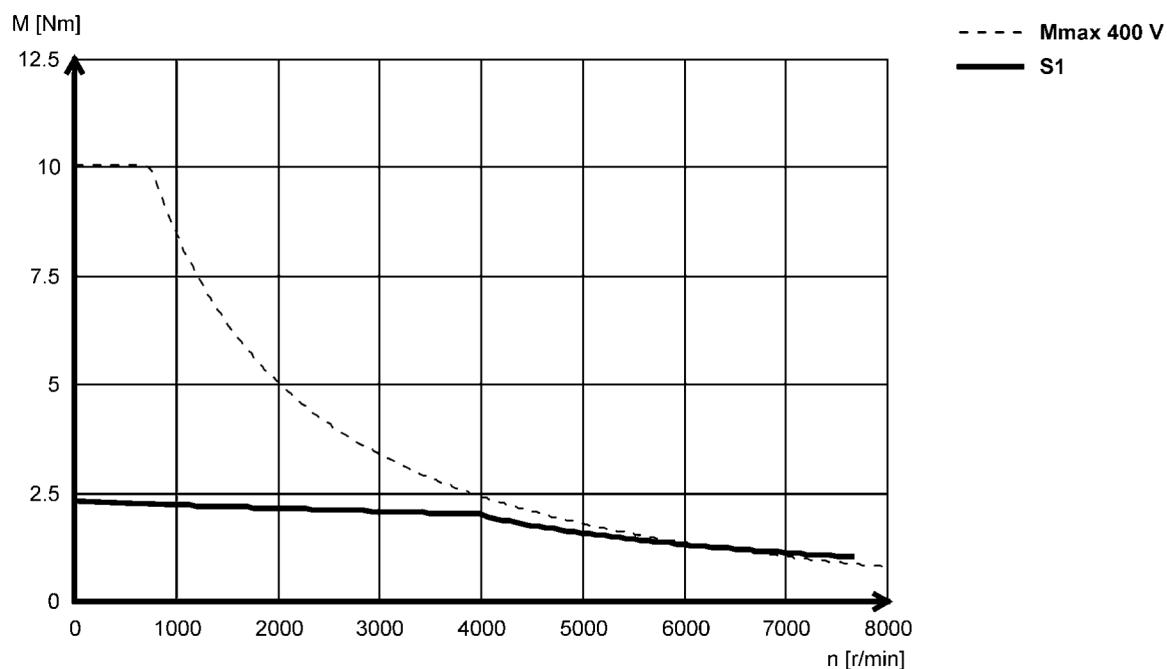


Technical data

Torque characteristics

- The data applies to a mains connection voltage of 3 x 400 V.

MCA10I40 (non-ventilated)



MCA asynchronous servo motors

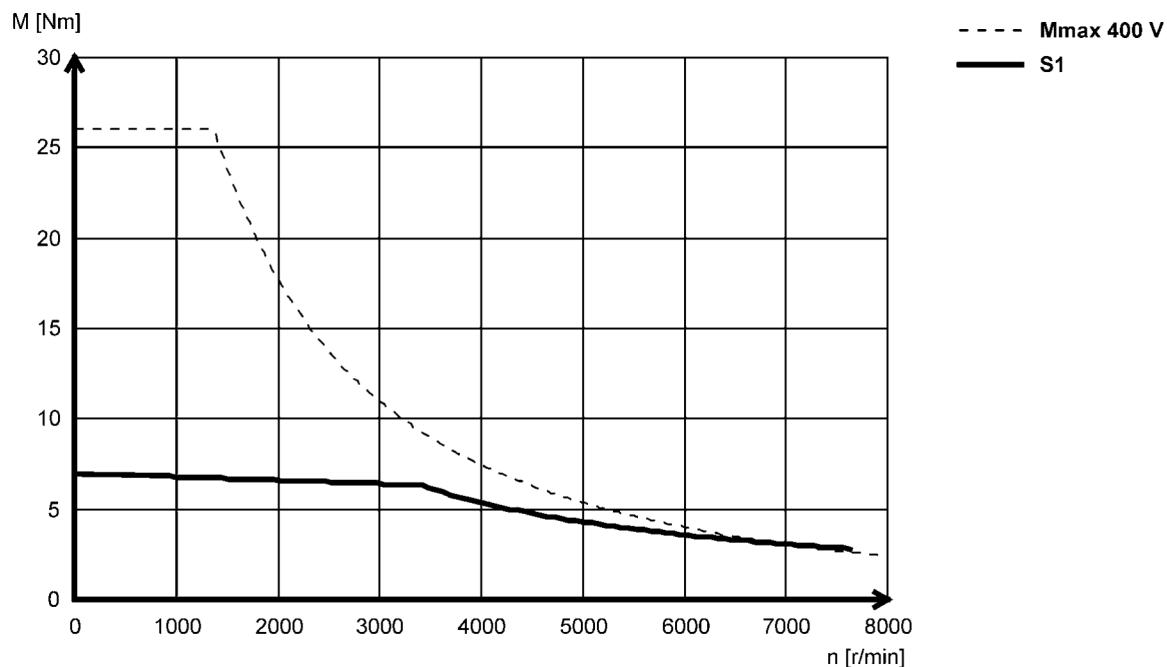


Technical data

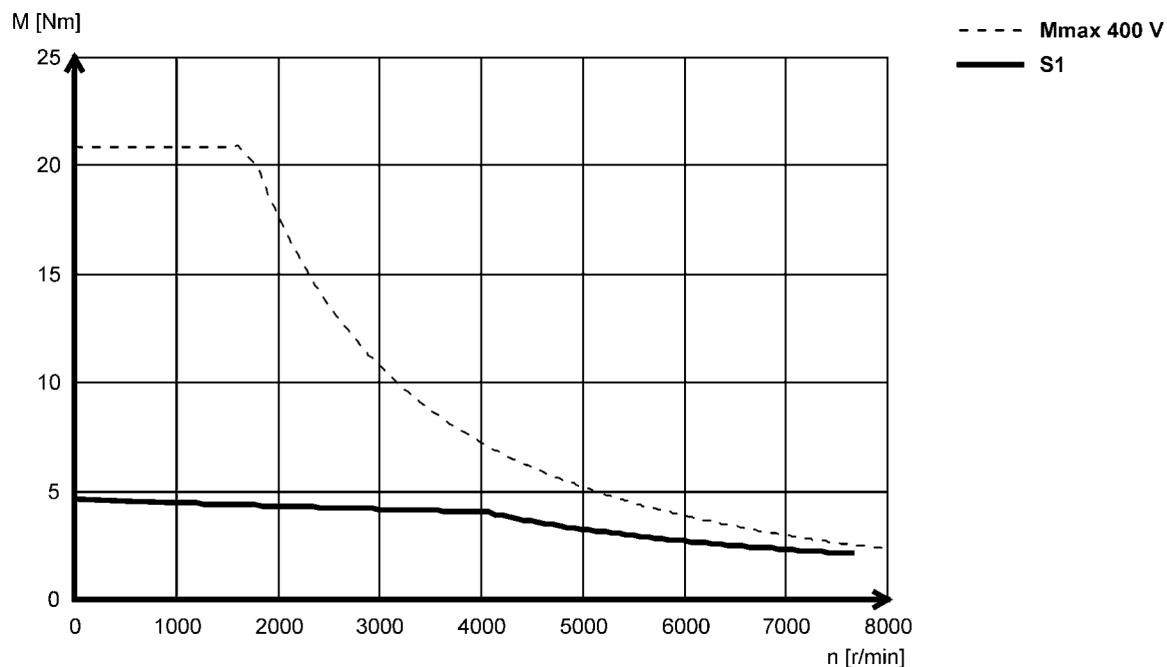
Torque characteristics

► The data applies to a mains connection voltage of 3 x 400 V.

MCA13I34 (forced ventilated)



MCA13I41 (non-ventilated)



MCA asynchronous servo motors

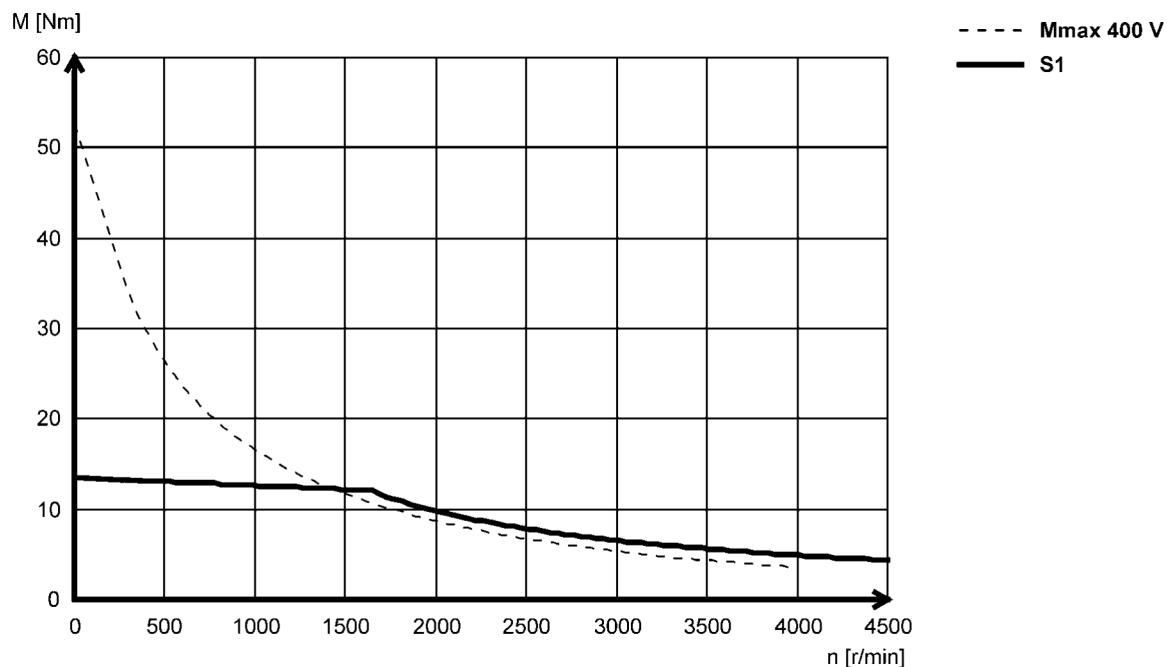


Technical data

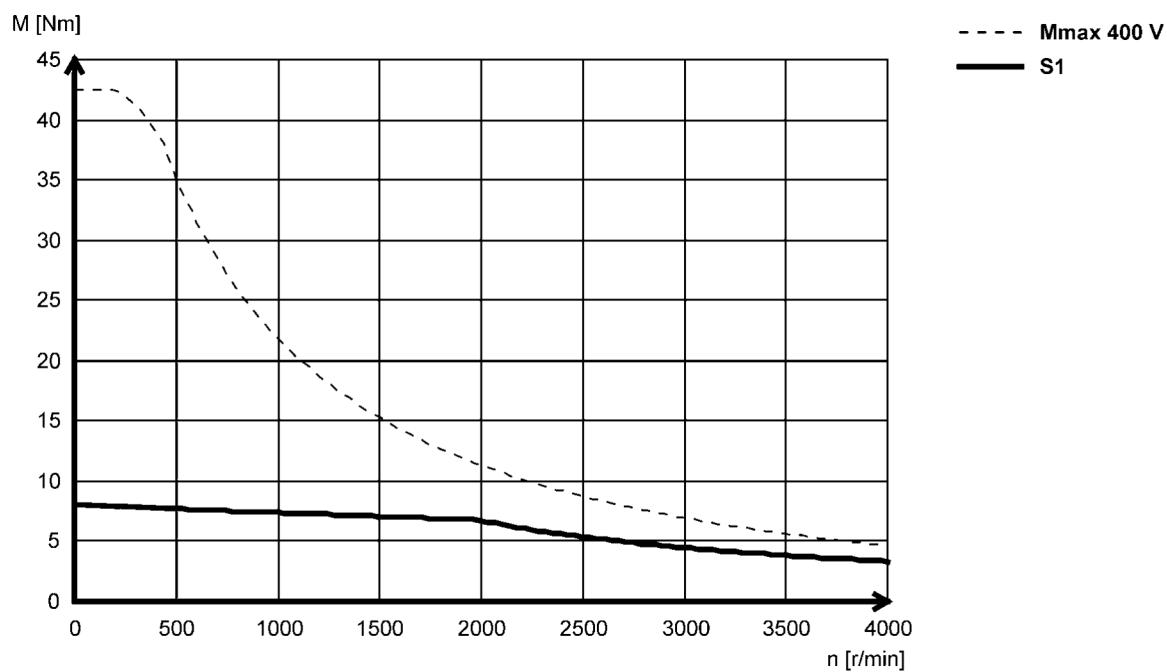
Torque characteristics

- The data applies to a mains connection voltage of 3 x 400 V.

MCA14L16 (forced ventilated)



MCA14L20 (non-ventilated)



MCA asynchronous servo motors

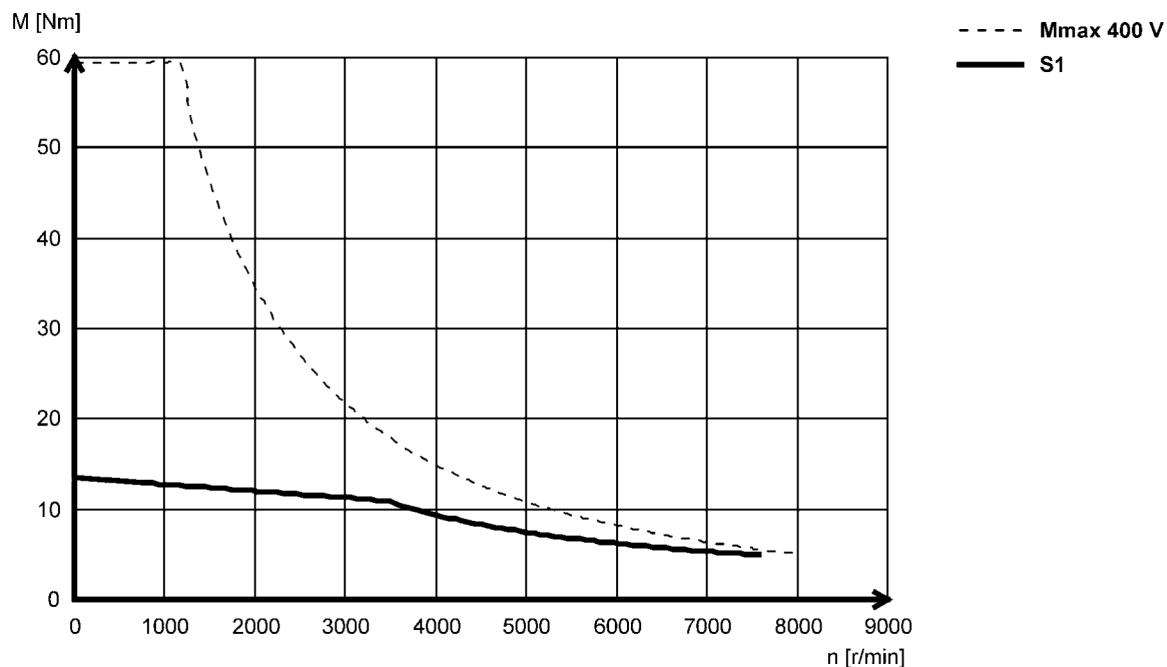


Technical data

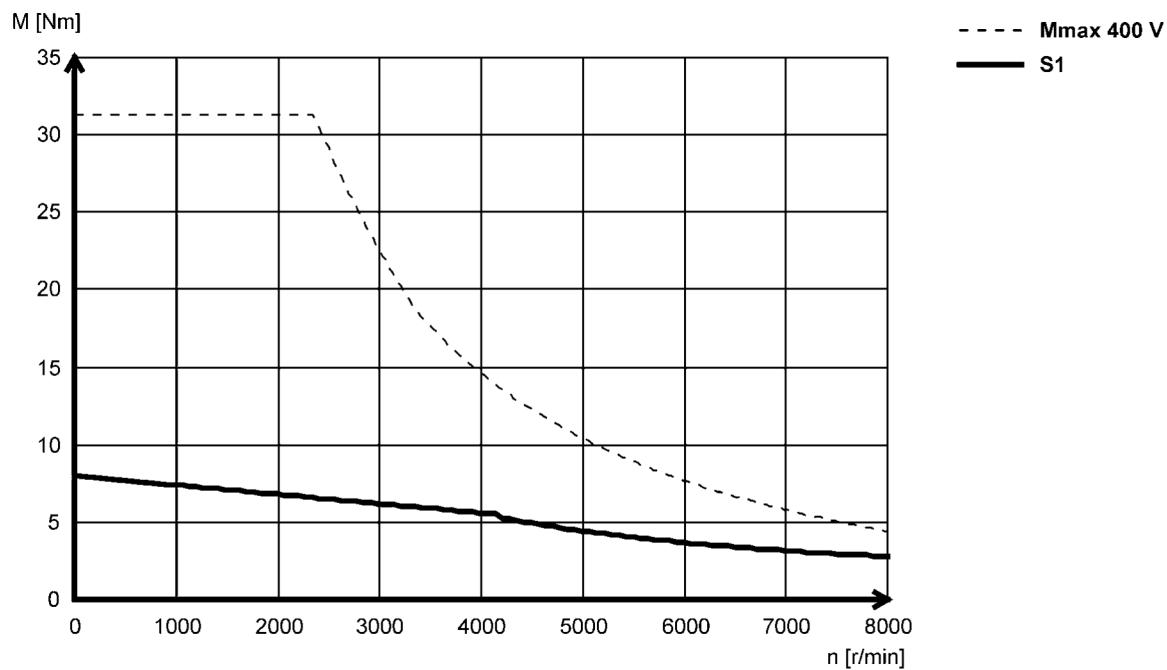
Torque characteristics

► The data applies to a mains connection voltage of 3×400 V.

MCA14L35 (forced ventilated)



MCA14L41 (non-ventilated)



MCA asynchronous servo motors

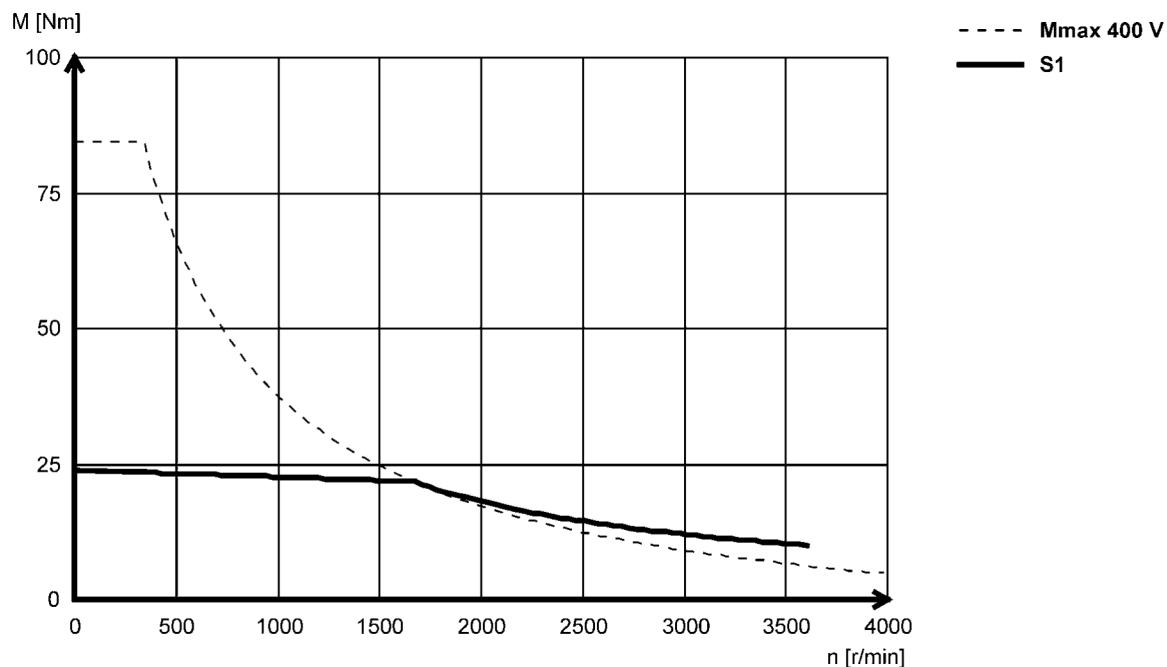
Technical data



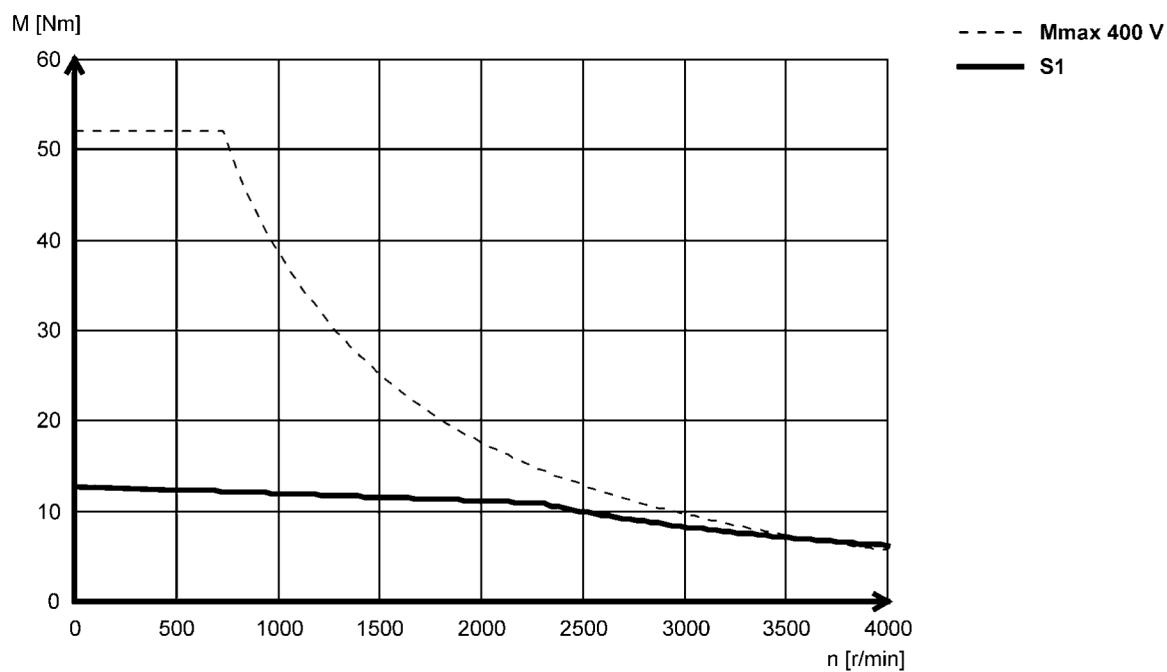
Torque characteristics

- The data applies to a mains connection voltage of 3 x 400 V.

MCA17N17 (forced ventilated)



MCA17N23 (non-ventilated)



MCA asynchronous servo motors

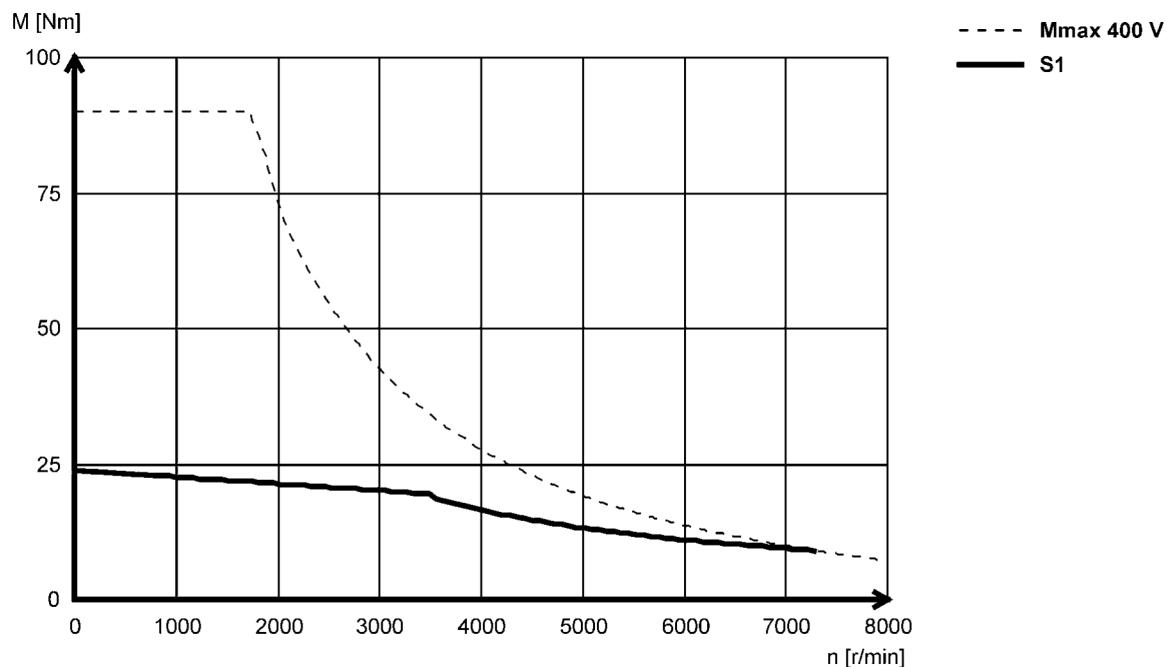


Technical data

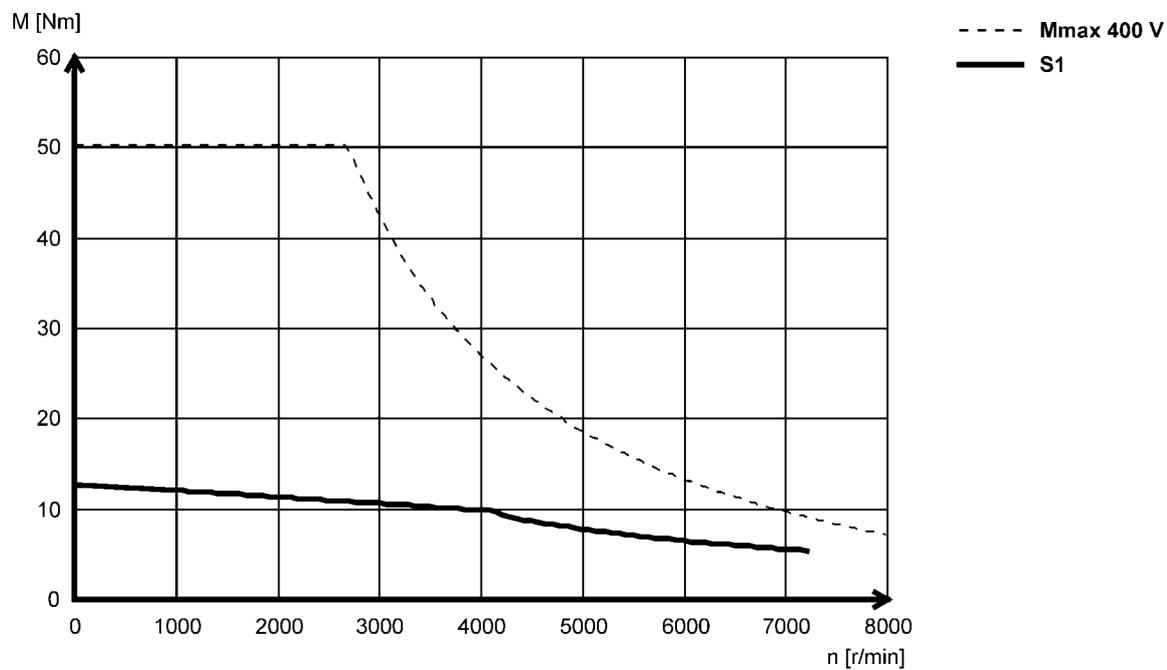
Torque characteristics

- The data applies to a mains connection voltage of 3 x 400 V.

MCA17N35 (forced ventilated)



MCA17N41 (non-ventilated)



MCA asynchronous servo motors

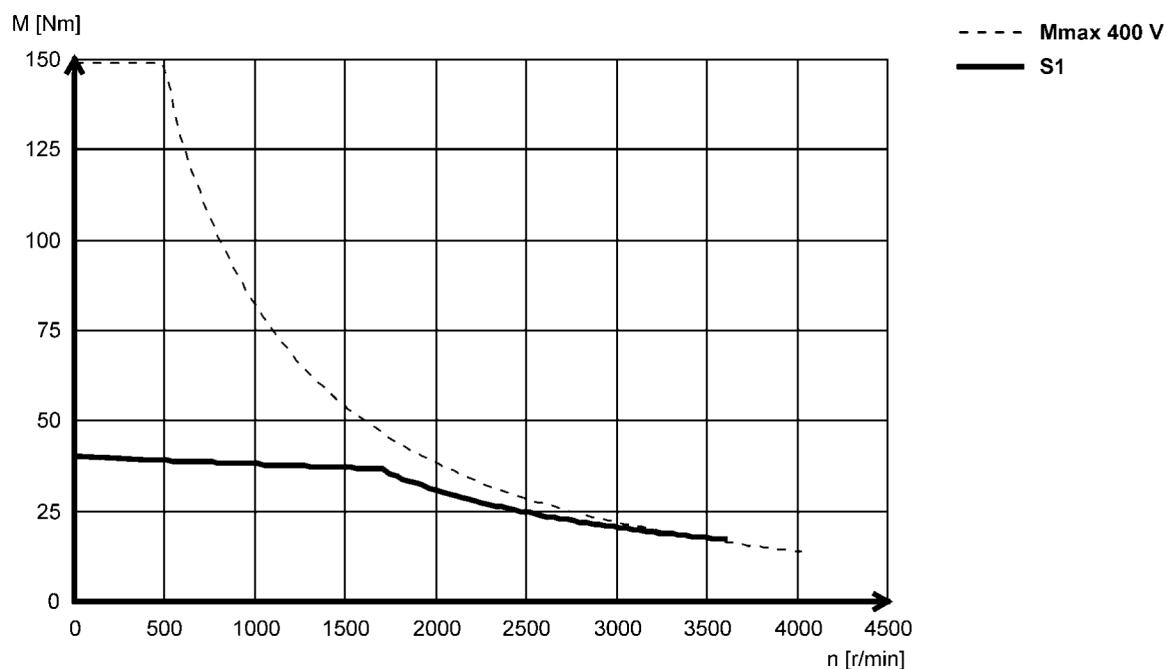


Technical data

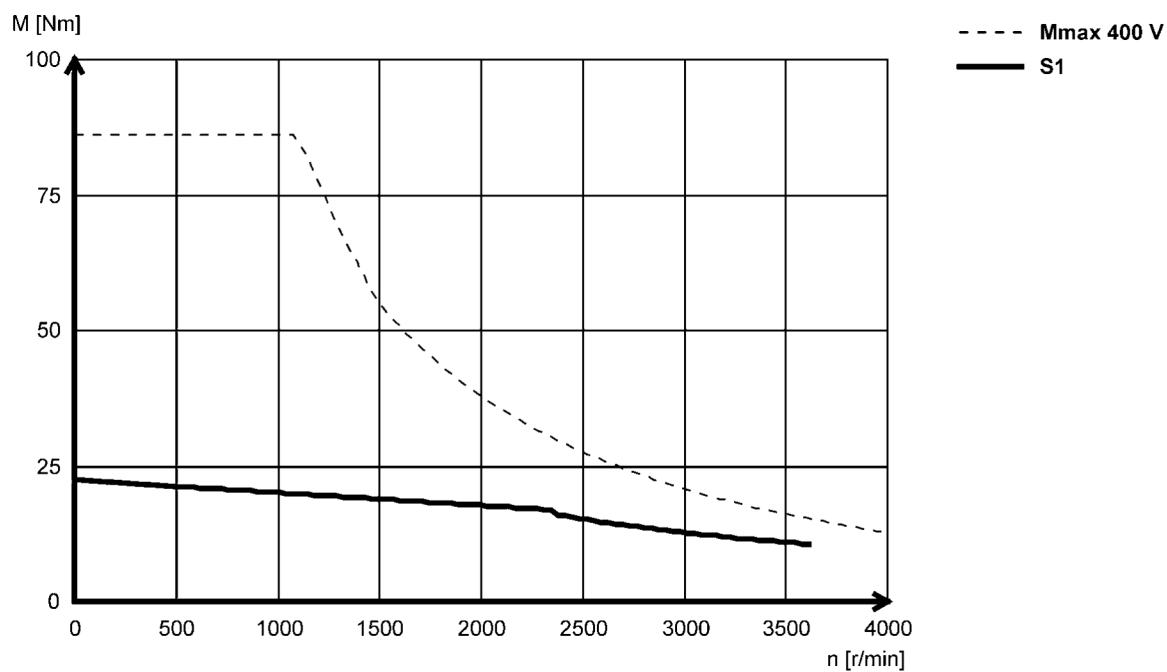
Torque characteristics

- The data applies to a mains connection voltage of 3 x 400 V.

MCA19517 (forced ventilated)



MCA19523 (non-ventilated)



MCA asynchronous servo motors

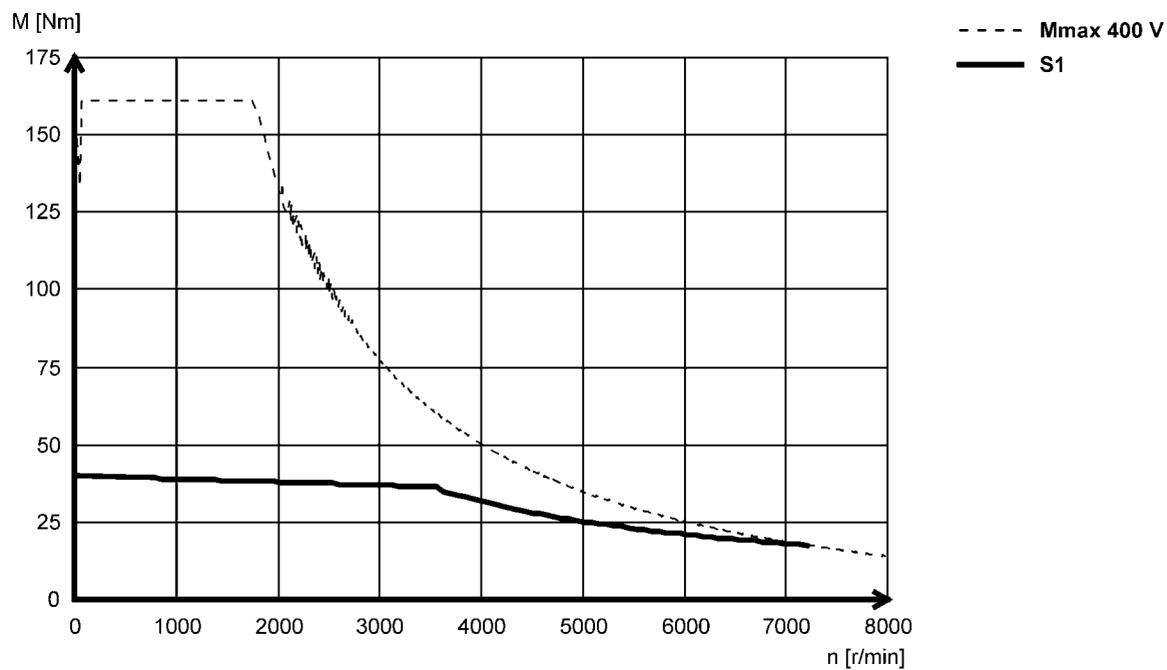


Technical data

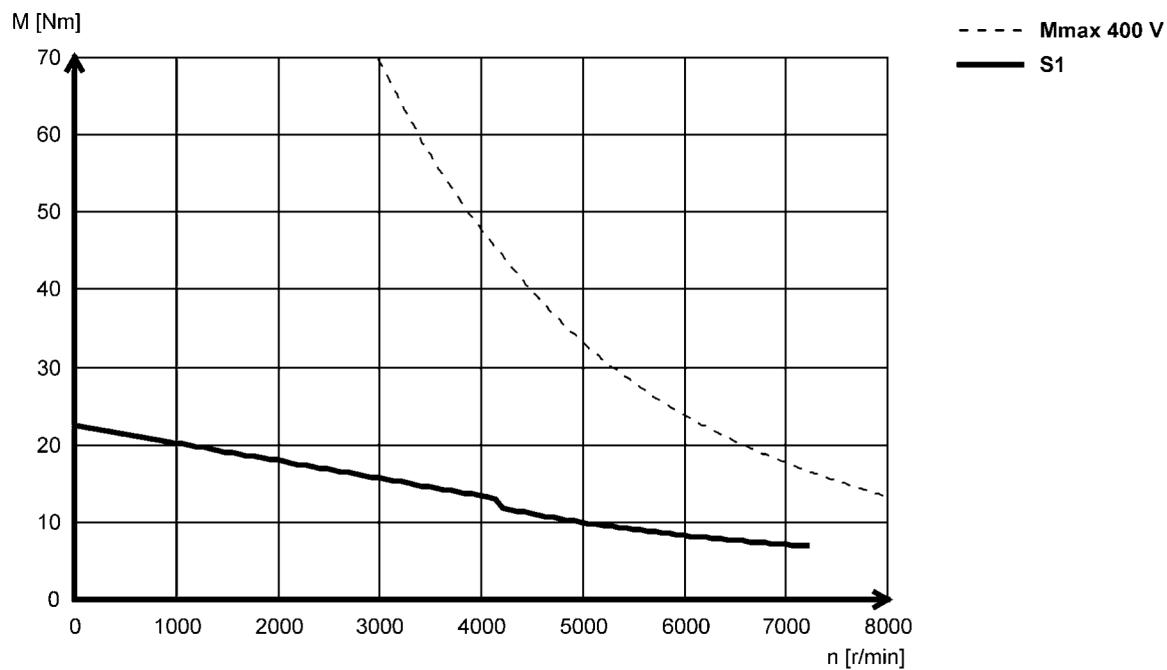
Torque characteristics

► The data applies to a mains connection voltage of 3 x 400 V.

MCA19535 (forced ventilated)



MCA19542 (non-ventilated)



MCA asynchronous servo motors

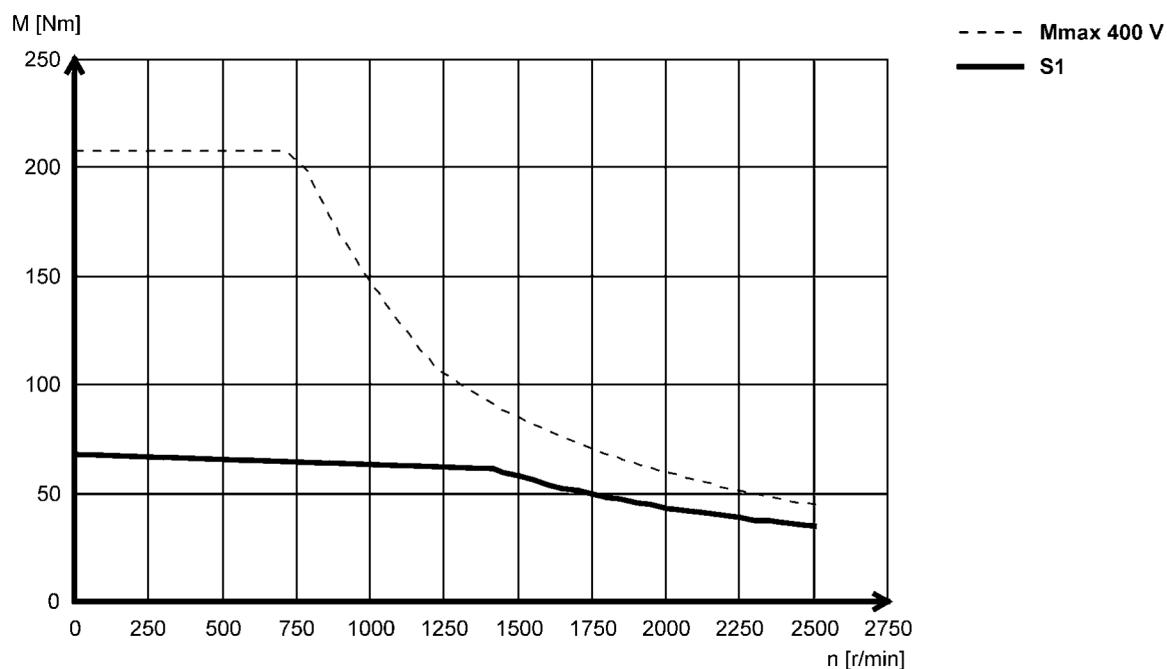


Technical data

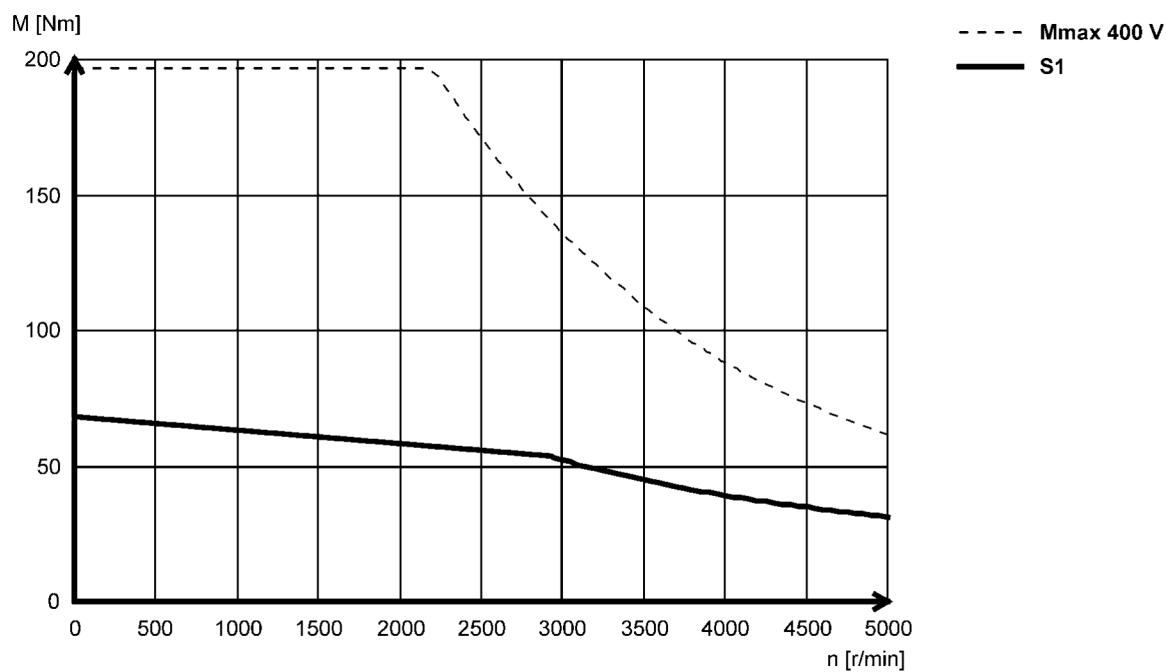
Torque characteristics

► The data applies to a mains connection voltage of 3 x 400 V.

MCA20X14...2F□□ (forced ventilated)



MCA20X29...2F□□ (forced ventilated)



MCA asynchronous servo motors

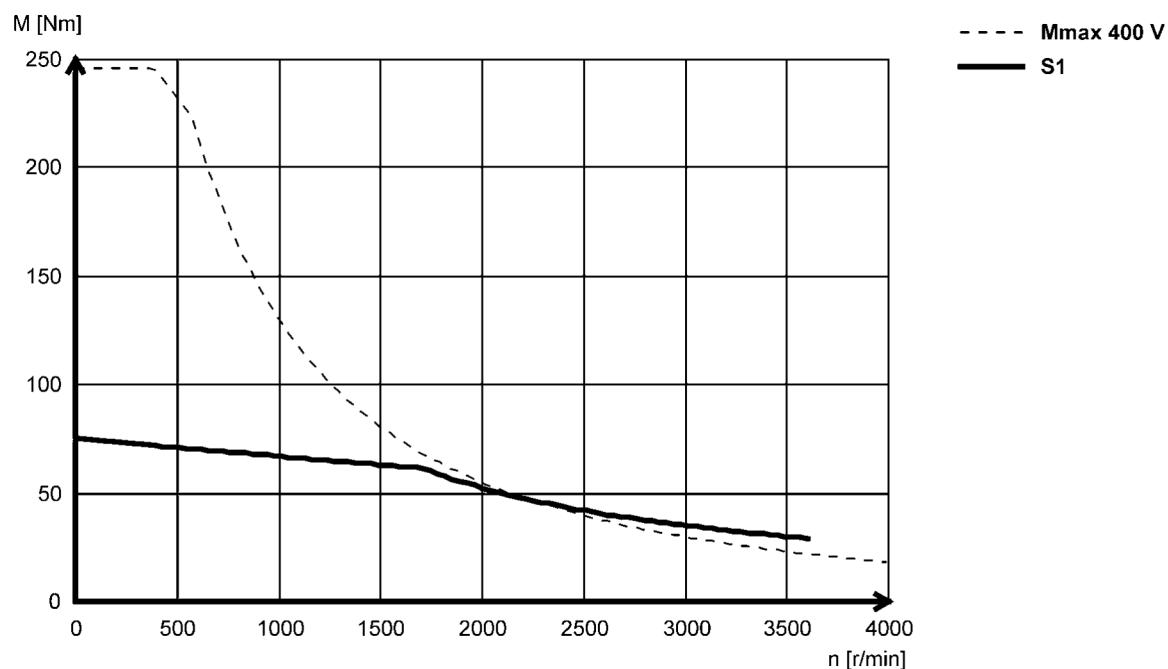
Technical data



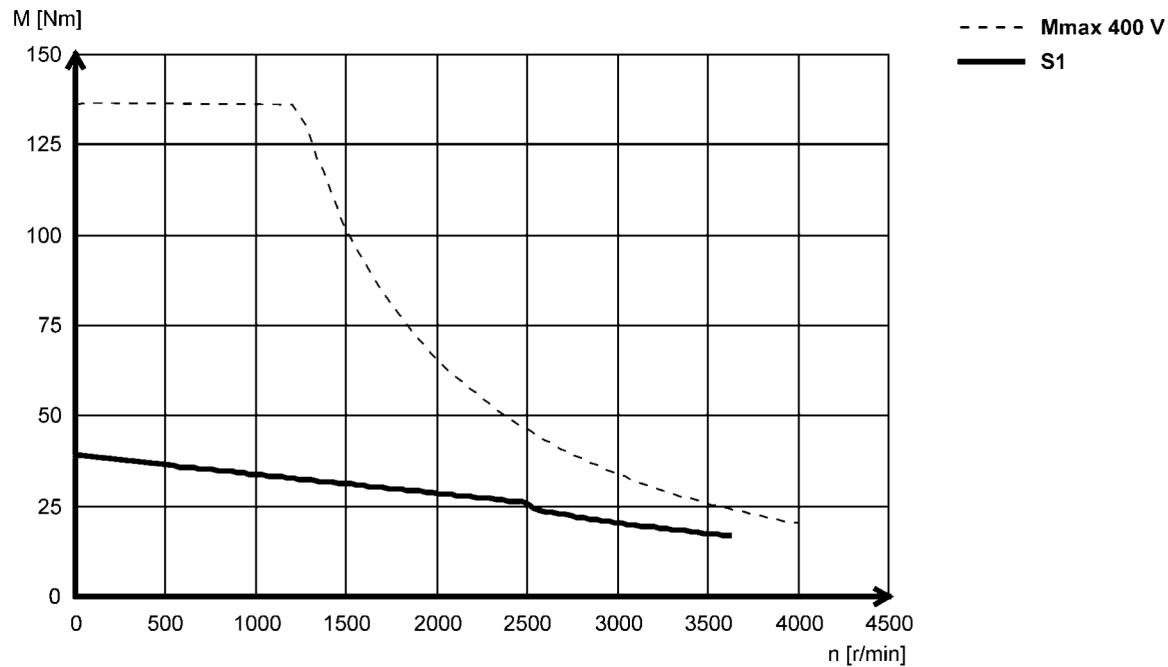
Torque characteristics

- The data applies to a mains connection voltage of 3 x 400 V.

MCA21X17 (forced ventilated)



MCA21X25 (non-ventilated)



MCA asynchronous servo motors

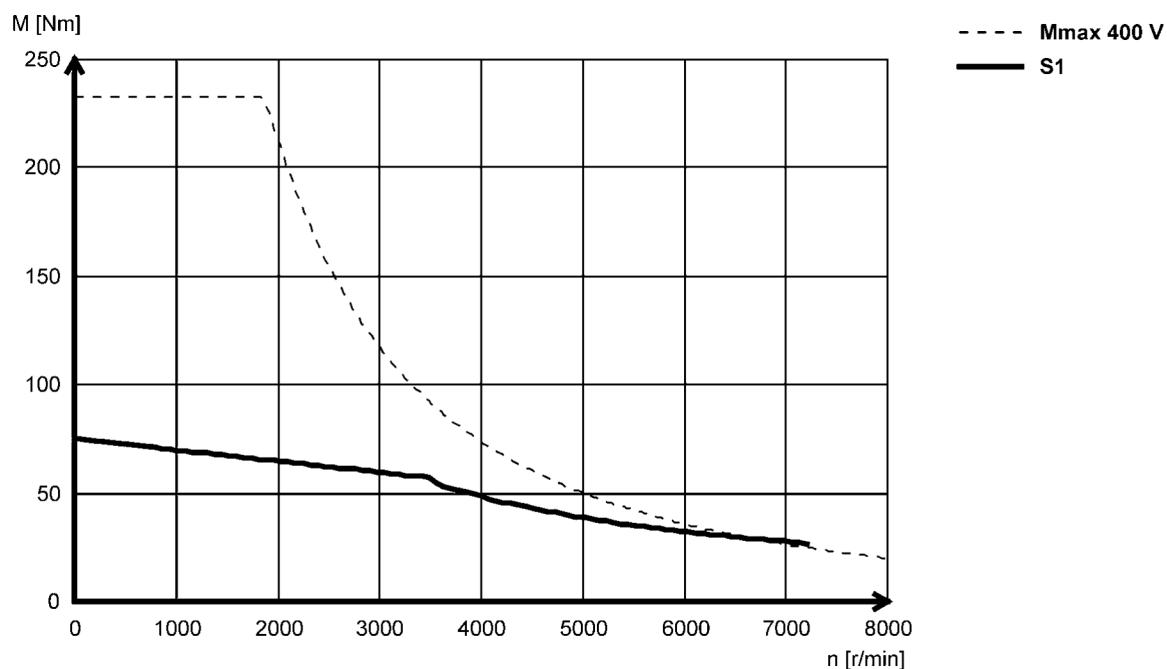


Technical data

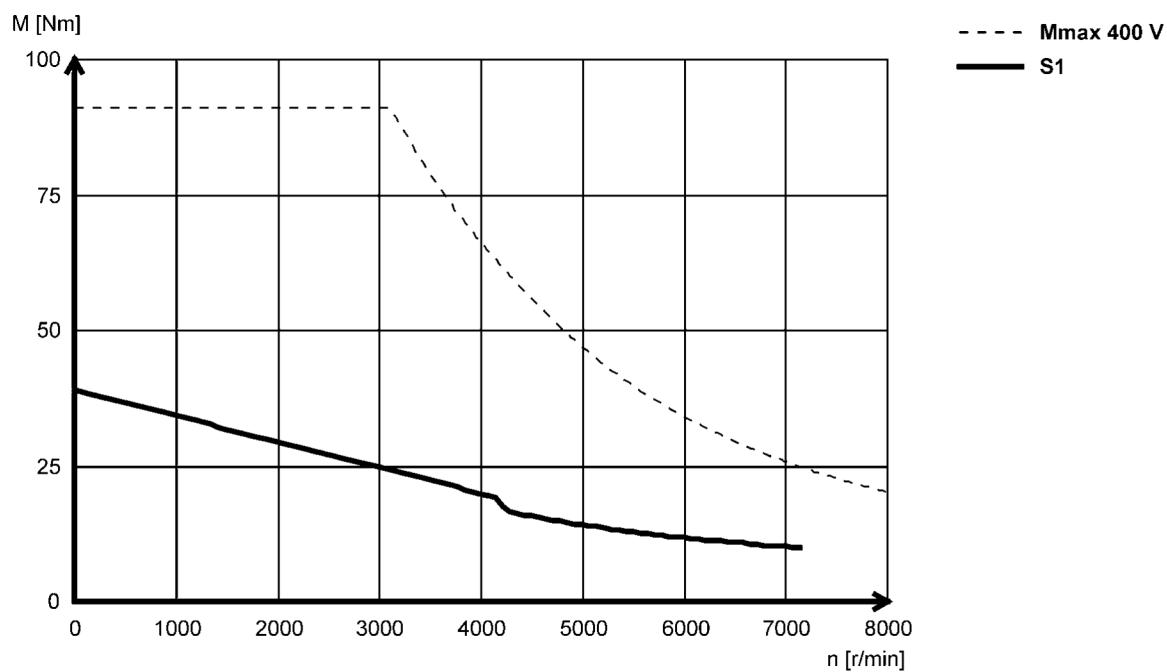
Torque characteristics

- The data applies to a mains connection voltage of 3 x 400 V.

MCA21X35 (forced ventilated)



MCA21X42 (non-ventilated)



MCA asynchronous servo motors

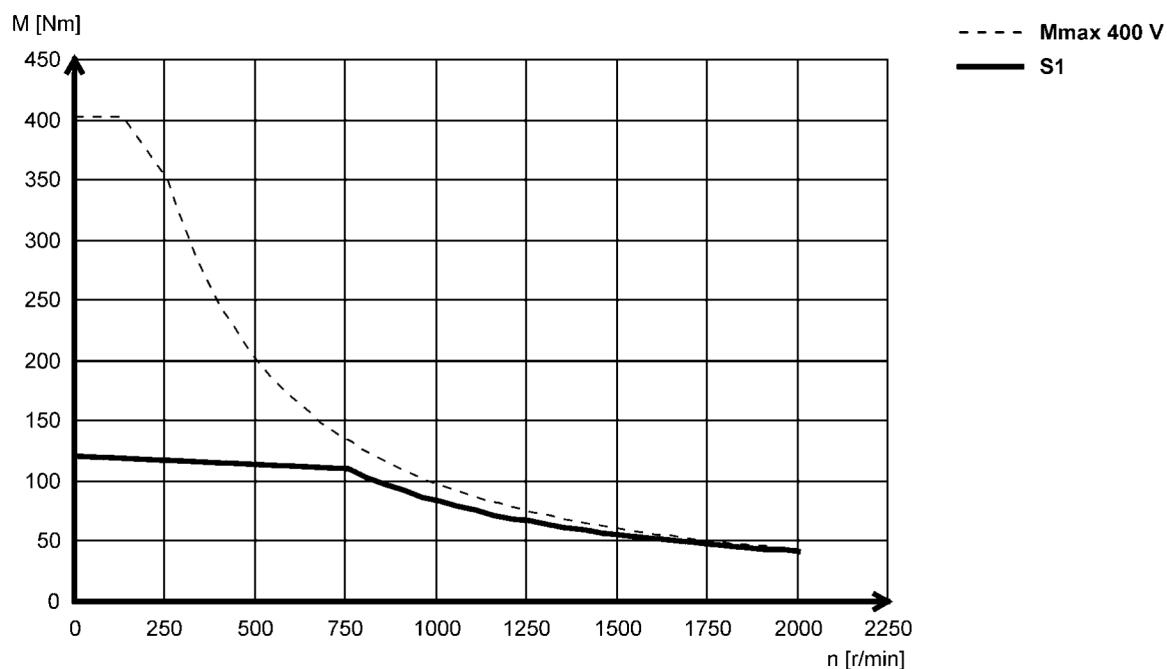


Technical data

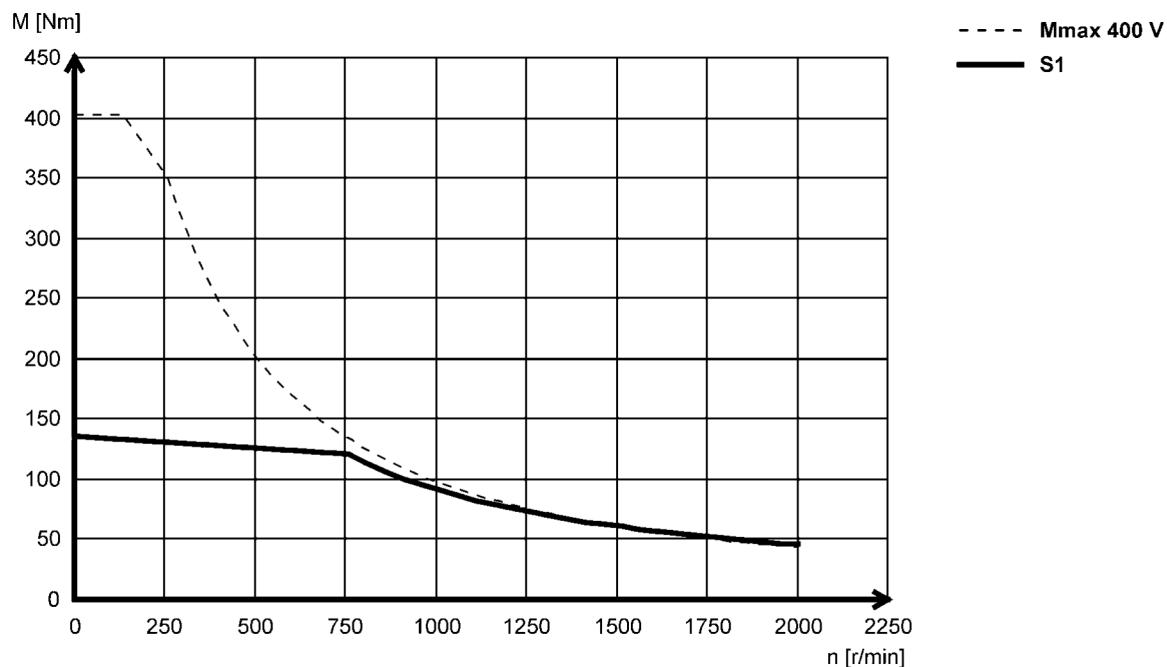
Torque characteristics

- The data applies to a mains connection voltage of 3 x 400 V.

MCA22P08...5F□□ (forced ventilated)



MCA22P08...2F□□ (forced ventilated)



MCA asynchronous servo motors

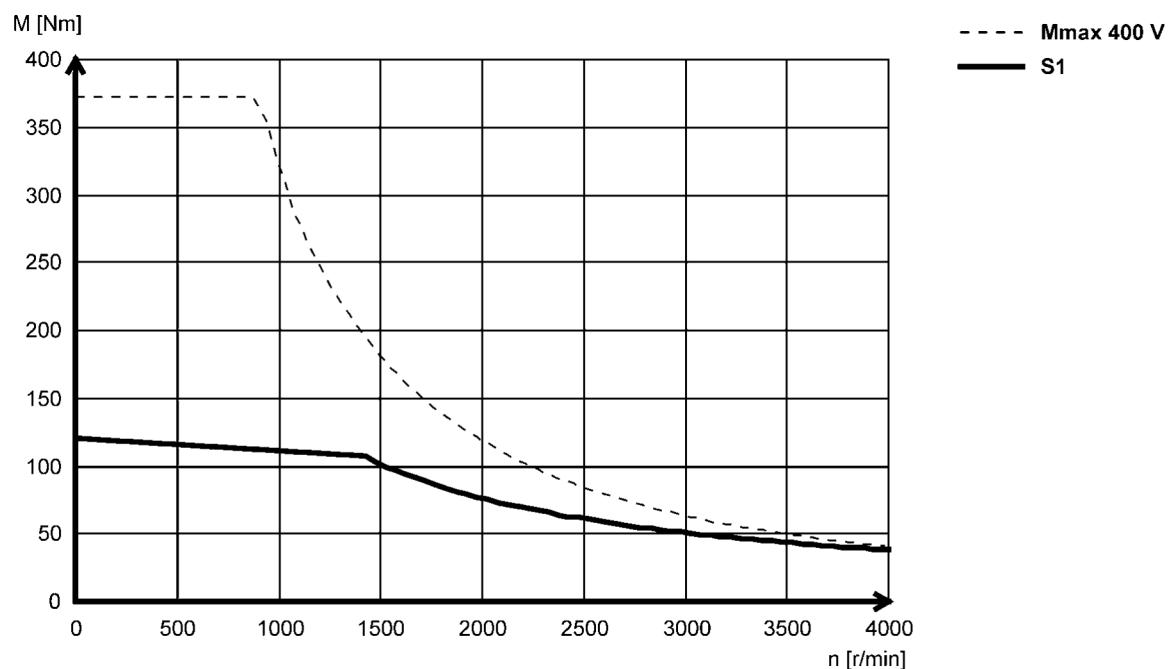


Technical data

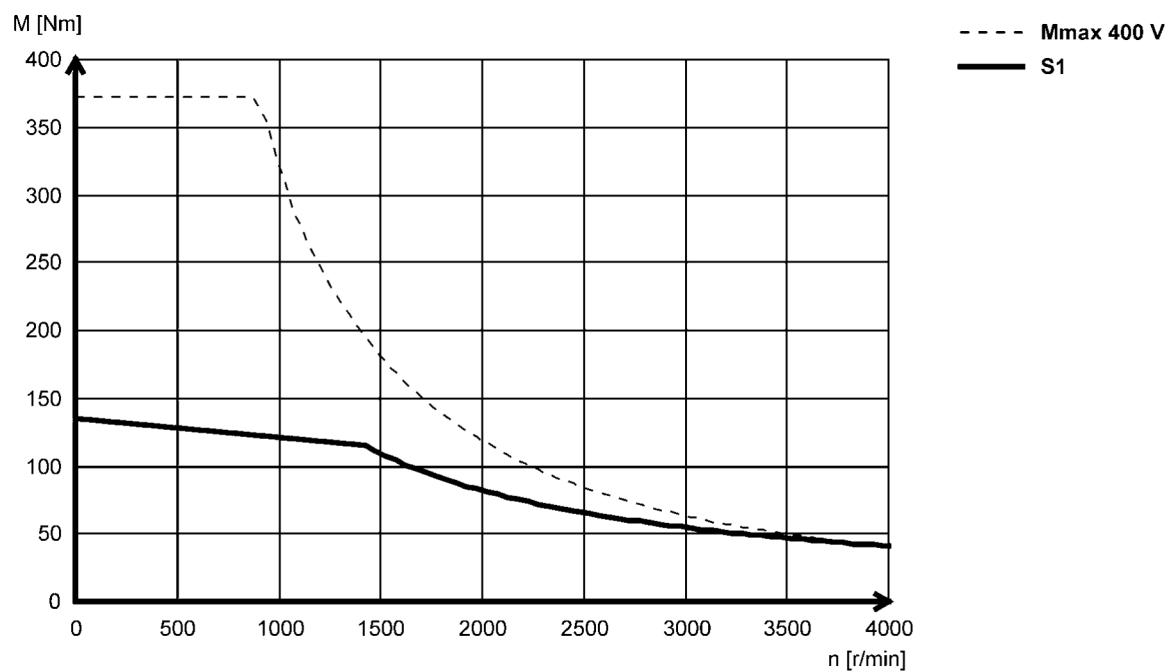
Torque characteristics

- The data applies to a mains connection voltage of 3 x 400 V.

MCA22P14...5F□□ (forced ventilated)



MCA22P14...2F□□ (forced ventilated)



MCA asynchronous servo motors

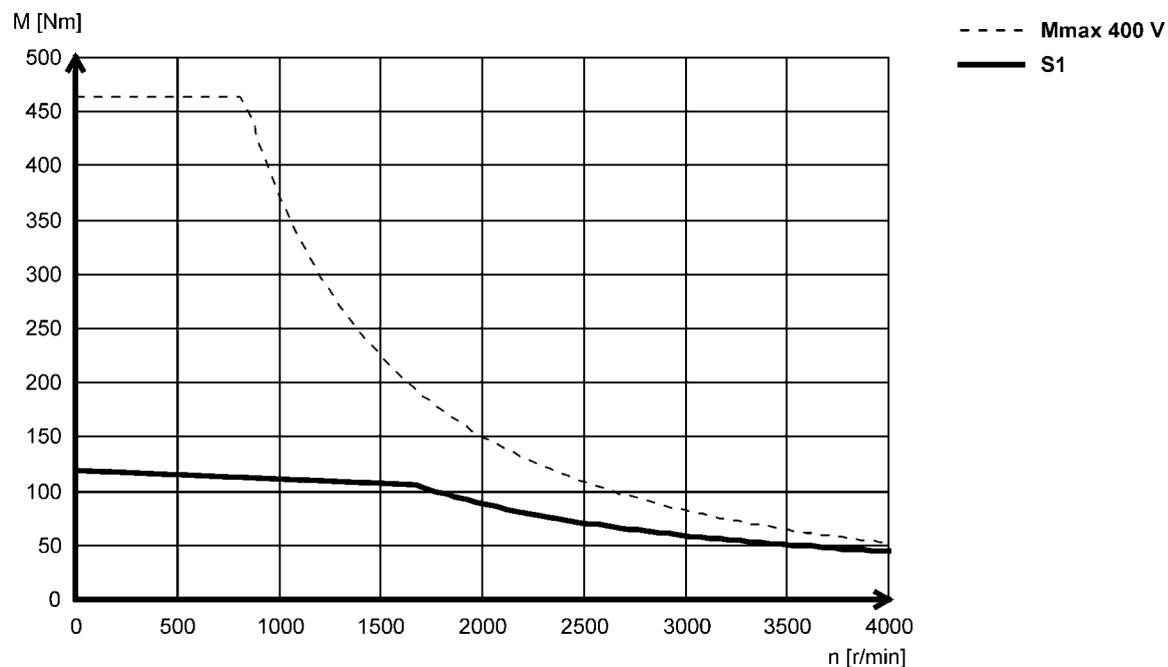
Technical data



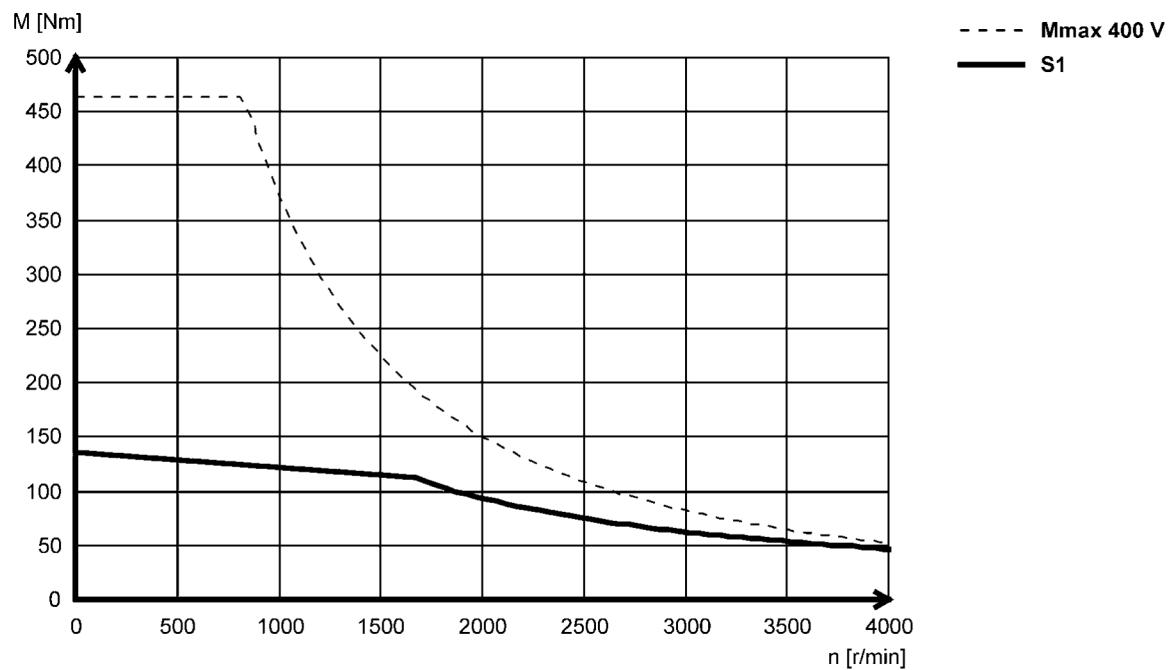
Torque characteristics

- The data applies to a mains connection voltage of 3 x 400 V.

MCA22P17...5F□□ (forced ventilated)



MCA22P17...2F□□ (forced ventilated)



MCA asynchronous servo motors

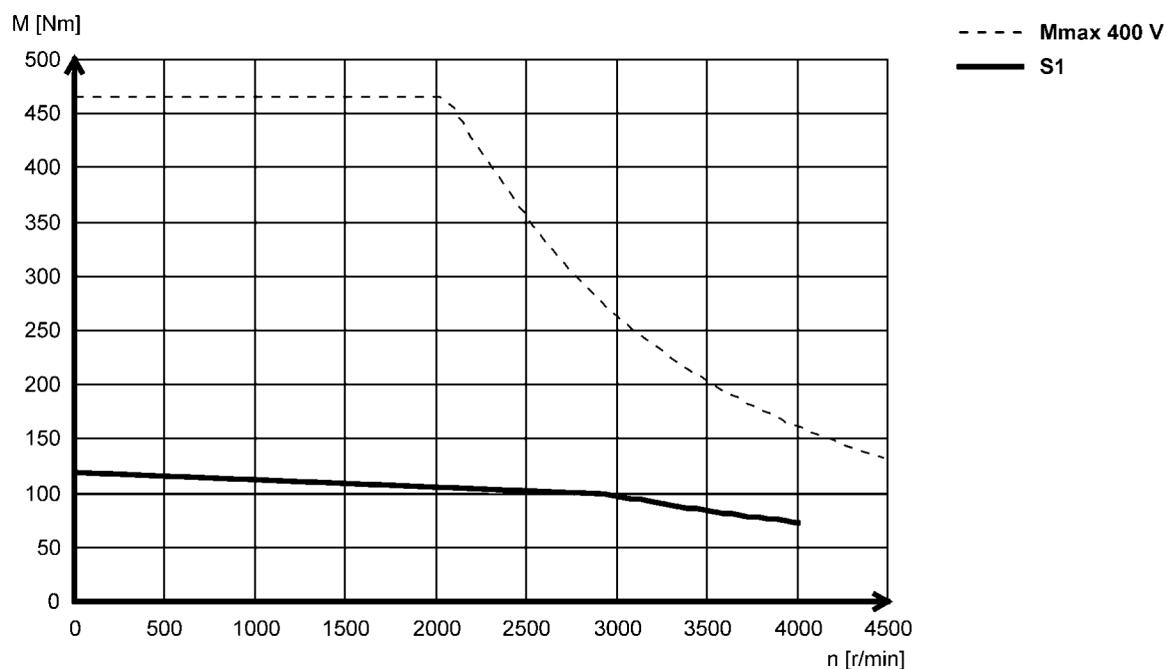


Technical data

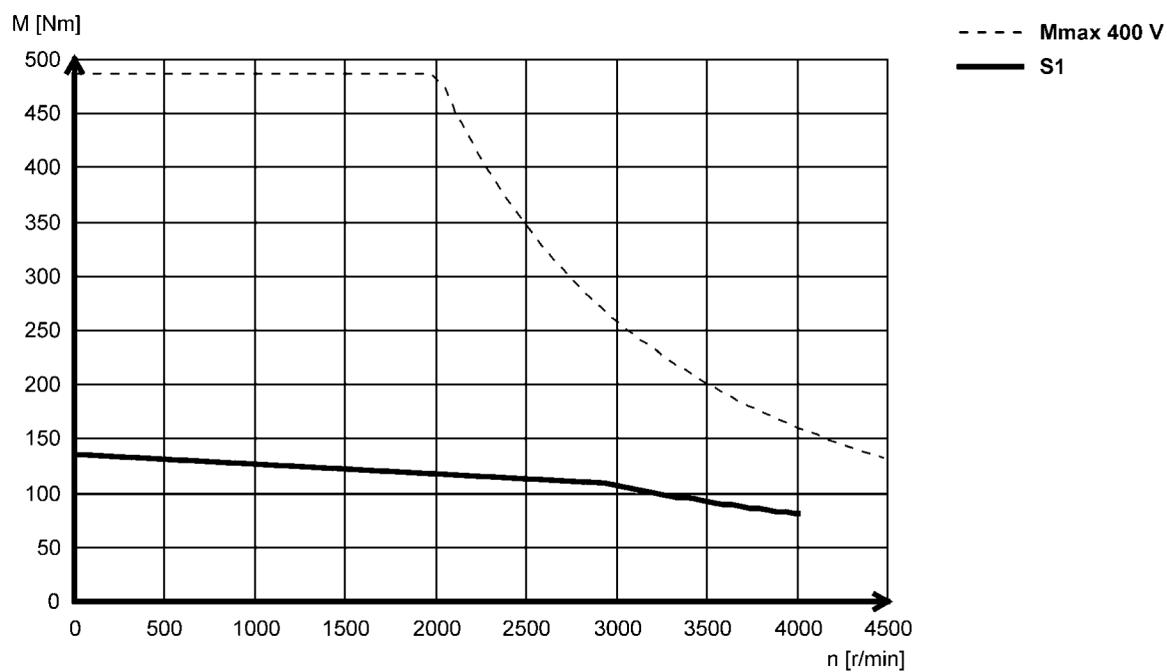
Torque characteristics

► The data applies to a mains connection voltage of 3 x 400 V.

MCA22P29...5F□□ (forced ventilated)



MCA22P29...2F□□ (forced ventilated)



MCA asynchronous servo motors

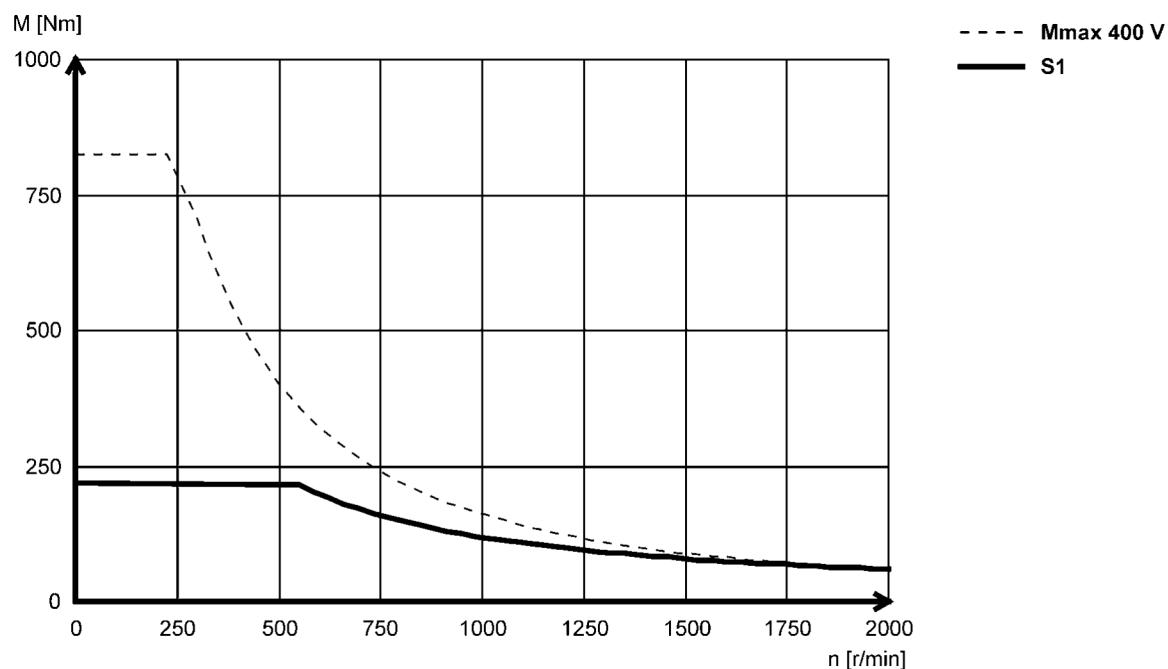


Technical data

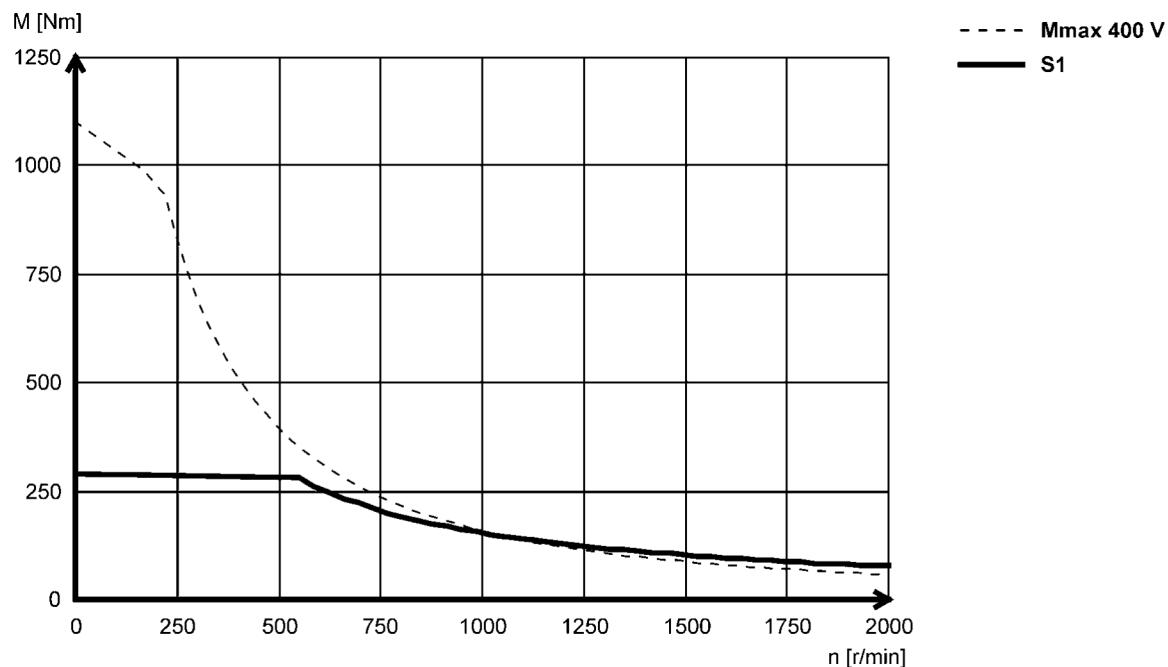
Torque characteristics

- The data applies to a mains connection voltage of 3 x 400 V.

MCA26T05...5F□□ (forced ventilated)



MCA26T05...2F□□ (forced ventilated)



MCA asynchronous servo motors

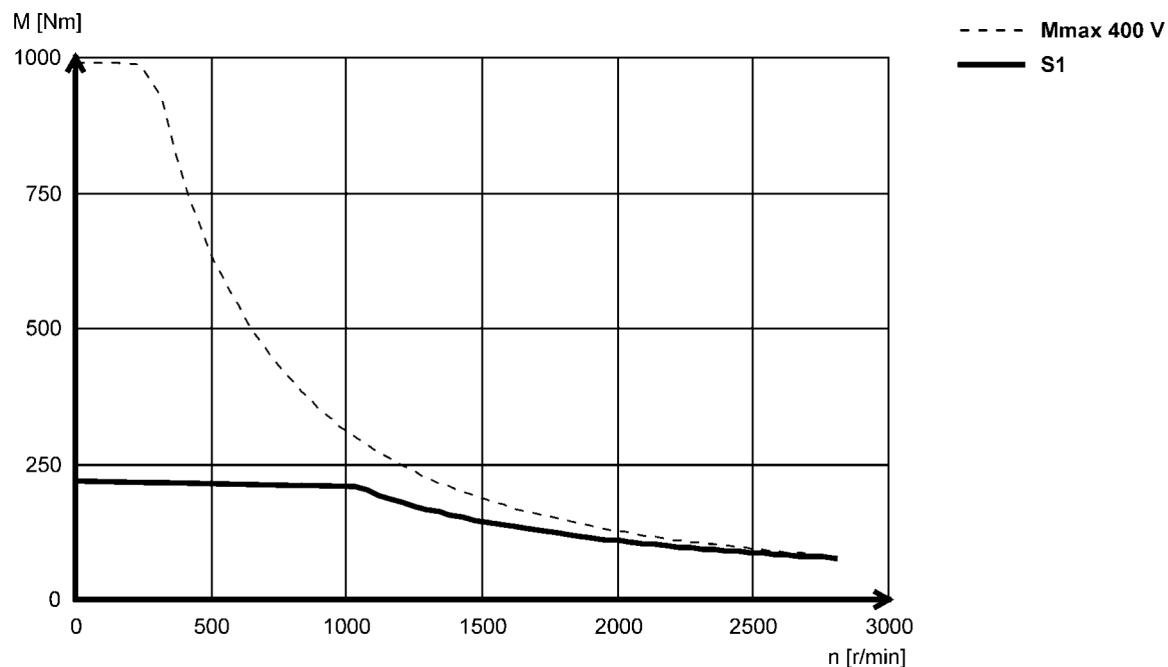


Technical data

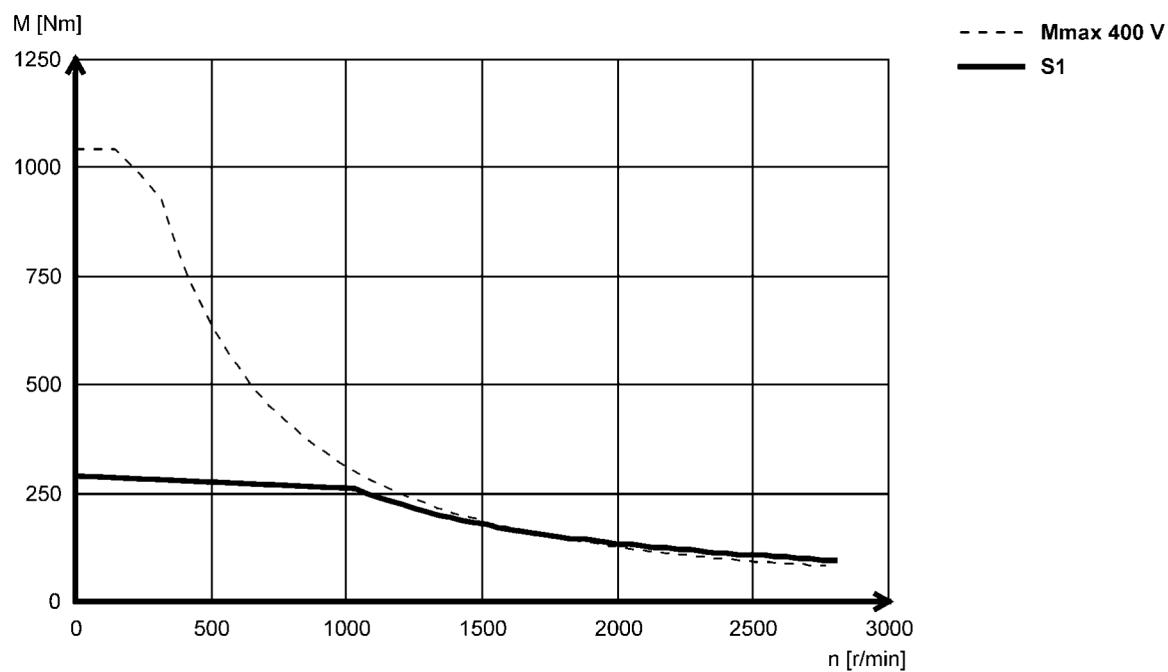
Torque characteristics

► The data applies to a mains connection voltage of 3 x 400 V.

MCA26T10...5F□□ (forced ventilated)



MCA26T10...2F□□ (forced ventilated)



MCA asynchronous servo motors

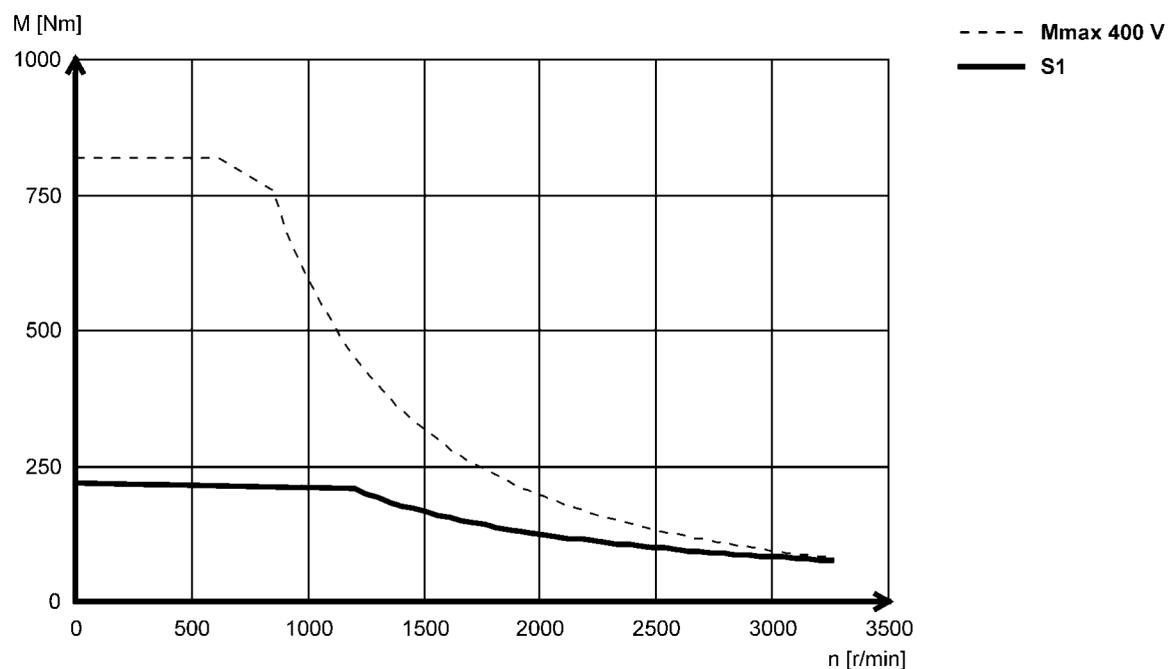


Technical data

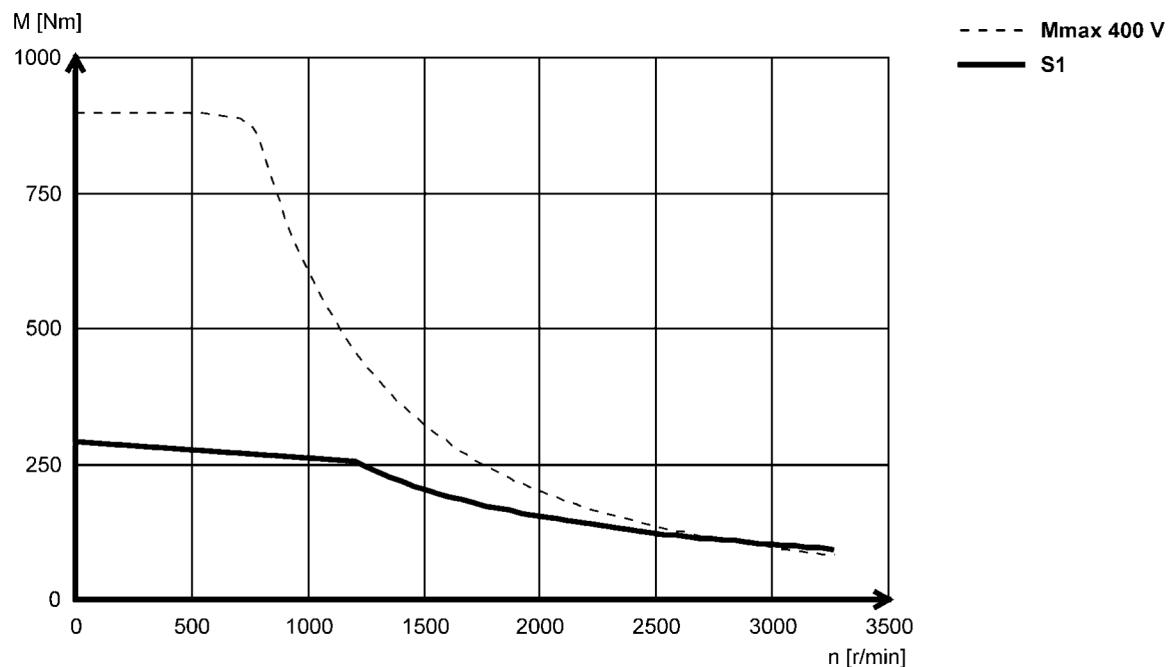
Torque characteristics

- The data applies to a mains connection voltage of 3 x 400 V.

MCA26T12...5F□□ (forced ventilated)



MCA26T12...2F□□ (forced ventilated)



MCA asynchronous servo motors

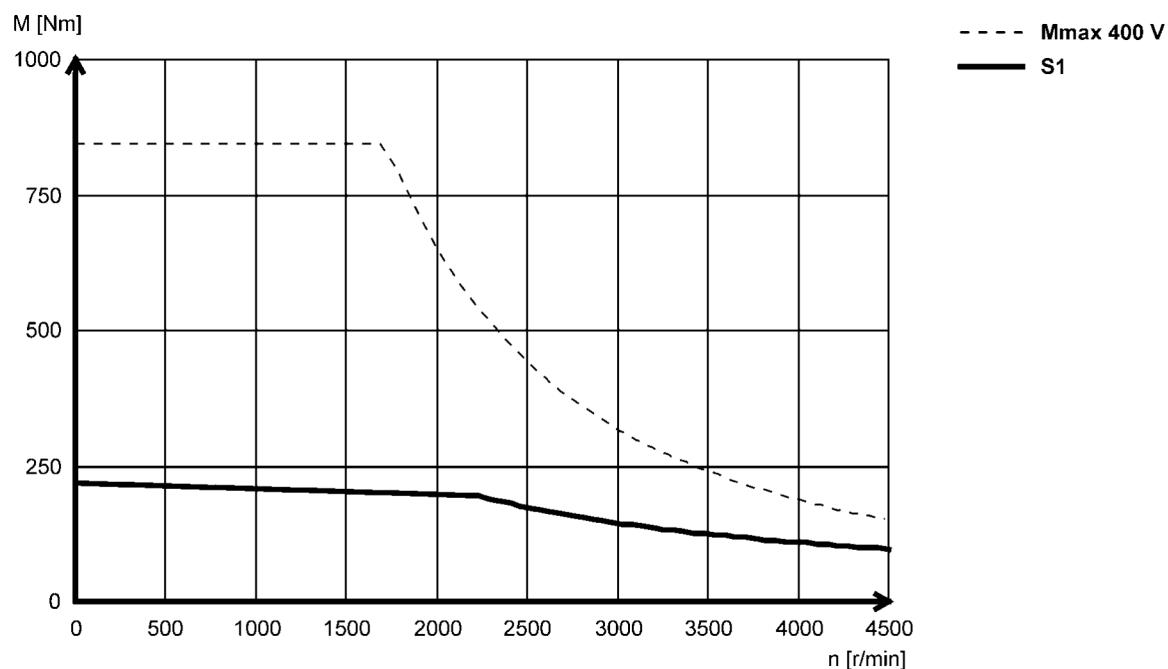


Technical data

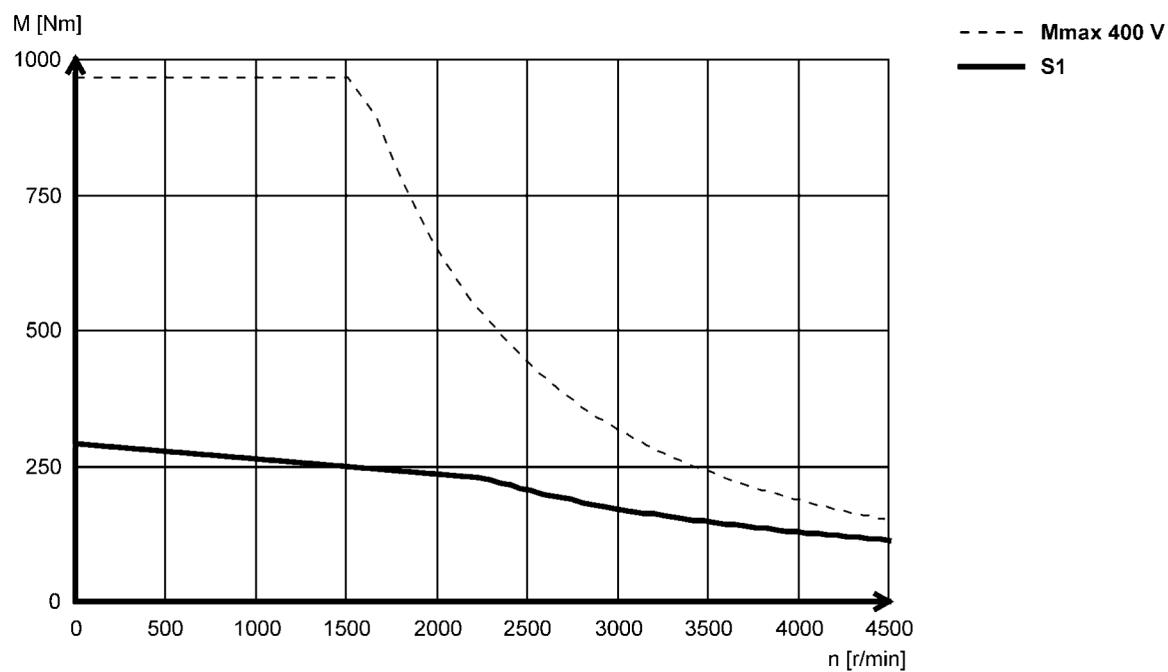
Torque characteristics

► The data applies to a mains connection voltage of 3 x 400 V.

MCA26T22...5F□□ (forced ventilated)



MCA26T22...2F□□ (forced ventilated)

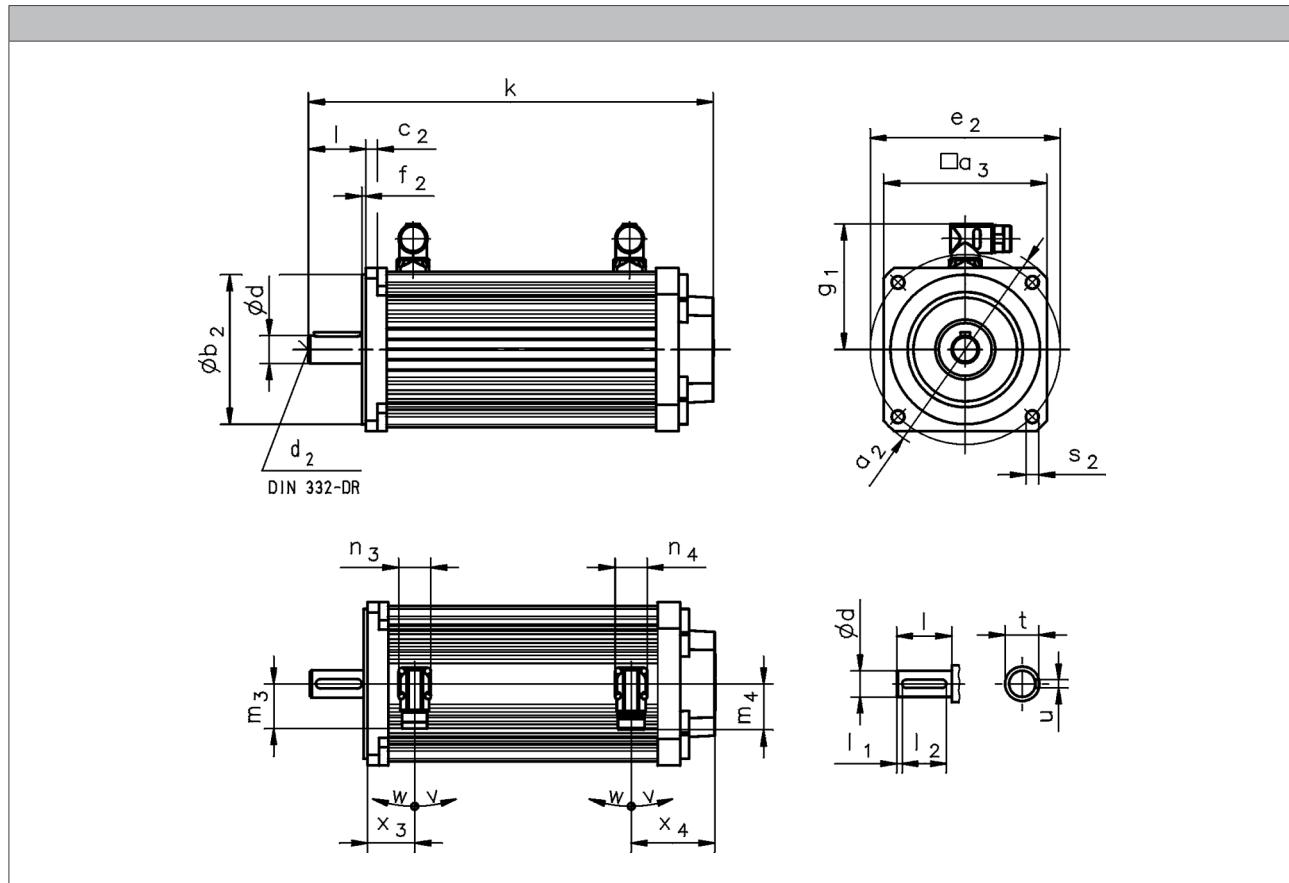


MCA asynchronous servo motors

Technical data



Dimensions, self-ventilated



5.5

			MCA10I40	MCA13I41	MCA14L20	MCA17N23	MCA19S23	MCA21X25
					MCA14L41	MCA17N41	MCA19S42	MCA21X42
R□0 B0	k	[mm]	292	311	352	390	461	550
	x ₃	[mm]	37	45	41	43	56	62
	x ₄	[mm]	61	65		73		78
R□0 P□	k	[mm]	317	346	385	425	499	592
	x ₃	[mm]	59	72	68	75	91	102
	x ₄	[mm]	61	65		73		78
S□□ / E□□ / T20 / B0	k	[mm]	346	365	407	444	511	599
	x ₃	[mm]	37	45	41	43	56	62
	x ₄	[mm]	115	119	128	127	123	127
S□□ / E□□ / T20 / P□	k	[mm]	371	400	440	479	549	641
	x ₃	[mm]	59	72	68	75	91	102
	x ₄	[mm]	115	119	128	127	123	127

- Speed/angle sensor: R50 / S□□ / E□□ / T20
- Brake: B0 / P□

MCA asynchronous servo motors



Technical data

Dimensions, self-ventilated

	g_1 [mm]	n_3 [mm]	n_4 [mm]	m_3 [mm]	m_4 [mm]	v [°]	w [°]
MCA10I40	90						
MCA13I41	102						
MCA14L20	109	28		40			
MCA14L41							
MCA17N23	118		28		40	195	
MCA17N41							80
MCA19S23	151						
MCA19S42		40		71			
MCA21X25	162						
MCA21X42							

	d k6 [mm]	d_2 M5 [mm]	 30 [mm]	l_1 2.5 [mm]	l_2 25 [mm]	u 5.0 [mm]	t 16.0 [mm]
MCA10	14	M5	30	2.5	25	5.0	16.0
MCA13	19	M6	40	2.0	36	6.0	21.5
MCA14	24	M8	50		40		27.0
MCA17	28	M10	60			8.0	
MCA19	38	M12	80		50		31.0
MCA21					70	10.0	41.0

	a_2 [mm]	a_3 [mm]	b_2 j6 [mm]	c_2 80 [mm]	e_2 100 [mm]	f_2 3.0 [mm]	s_2 7 [mm]
MCA10	120	102	80	8	100	3.0	7
			70		85	2.5	M6
MCA13	160	130	110	9	130		9.0
							M8
MCA14	188	142	130	10	165		11.0
			110		130		M8
MCA17	200	165	130	12	165		11.0
			110		130		M8
MCA19	250	192	180	11	215	4.0	13.0
			110		130	3.5	M8
			214		215		
MCA21	300	250	230	12	265	4.0	13.0
		214	110		130		M8

5.5

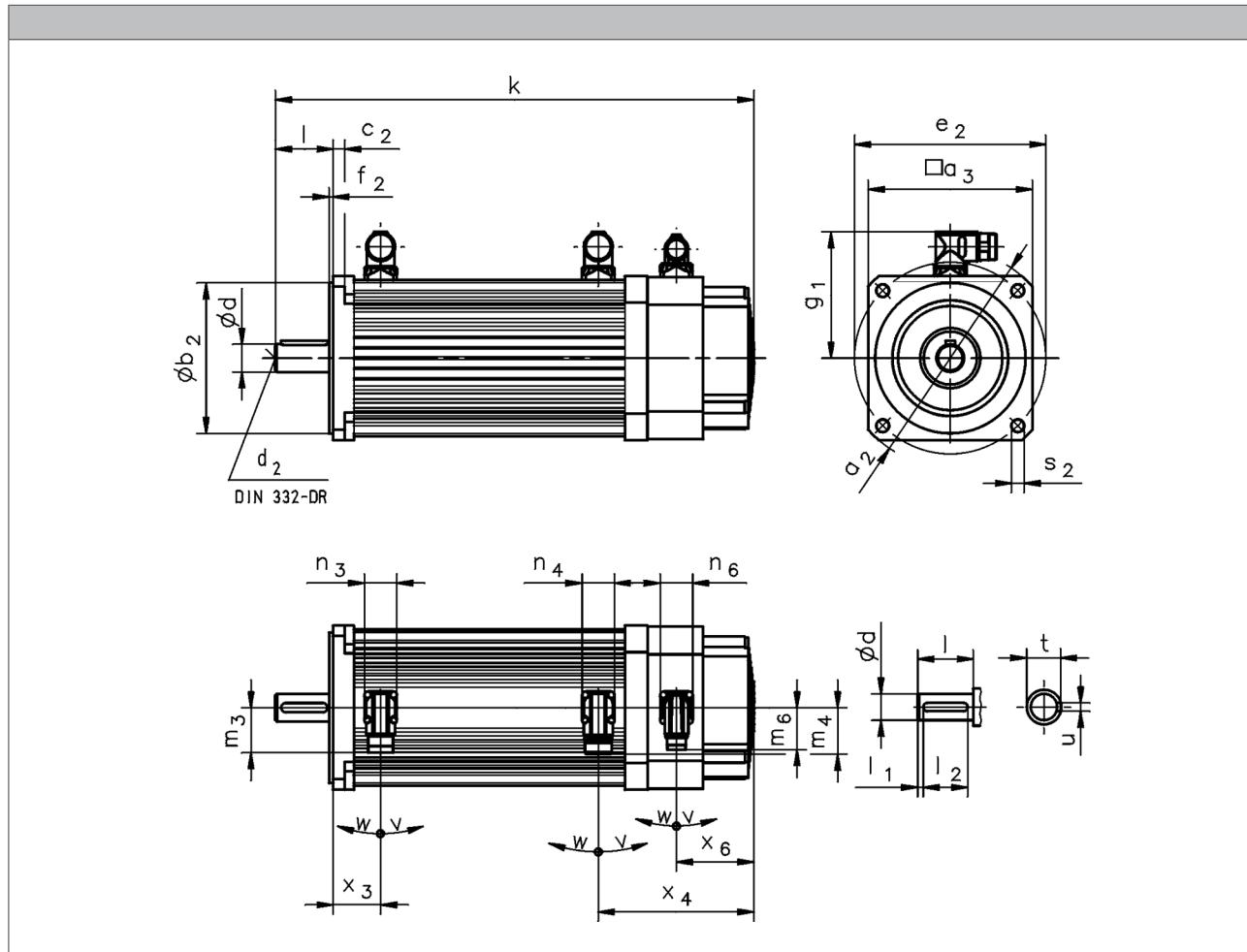
MCA asynchronous servo motors



Technical data

Dimensions, forced ventilated

Motors MCA13 to 19/21



		MCA13I34	MCA14L16	MCA17N17	MCA19S17	MCA21X17
		MCA14L35	MCA17N35	MCA19S35	MCA21X35	
R□O B0	k [mm]	379	414	476	558	646
	x ₃ [mm]	45	41	43	56	62
	x ₄ [mm]	133	135	159	170	174
R□O P□	k [mm]	414	447	511	596	688
	x ₃ [mm]	72	68	75	91	102
	x ₄ [mm]	133	135	159	170	174
S□□ / E□□ / T20 / B0	k [mm]	433	469	530	608	695
	x ₃ [mm]	45	41	43	56	62
	x ₄ [mm]	187	190	213	220	223
S□□ / E□□ / T20 / P□	k [mm]	468	502	565	646	737
	x ₃ [mm]	72	68	75	91	102
	x ₄ [mm]	187	190	213	220	223
	x ₆ [mm]	73	67	94	103	96

► Speed/angle sensor: RS0 / S□□ / E□□ / T20

► Brake: B0 / P□

MCA asynchronous servo motors



Technical data

Dimensions, forced ventilated

Motors MCA13 to 19/21

	g_1 [mm]	n_3 [mm]	n_4 [mm]	n_6 [mm]	m_3 [mm]	m_4 [mm]	m_6 [mm]	v [°]	w [°]
MCA13 34	102								
MCA14L16	109	28			40				
MCA14L35									
MCA17N17	118		28	28		40	37	195	80
MCA17N35									
MCA19S17	151	40			71				
MCA19S35									
MCA21X17	162								
MCA21X35									

	d k6 [mm]	d_2 [mm]	l [mm]	l_1 [mm]	l_2 [mm]	u [mm]	t [mm]
MCA13	19	M6	40	2.0	36	6.0	21.5
MCA14	24	M8	50		40		27.0
MCA17					5.0	8.0	
MCA19	28	M10	60		50		31.0
MCA21	38	M12	80		70	10.0	41.0

	a_2 [mm]	a_3 [mm]	b_2 [mm]	c_2 [mm]	e_2 [mm]	f_2 [mm]	s_2 [mm]
			j6				
MCA13	160	130	110	9	130		9.0
MCA14	188	142	130		165		M8
			110	10	130		11.0
MCA17	200	165	130		165		M8
			110	12	130		11.0
MCA19	250	192	180		215	4.0	M8
			110	11	130	3.5	13.0
MCA21	300	250	180		215		
	250	214	110	12	265	4.0	13.0
				11	130	3.5	M8

5.5

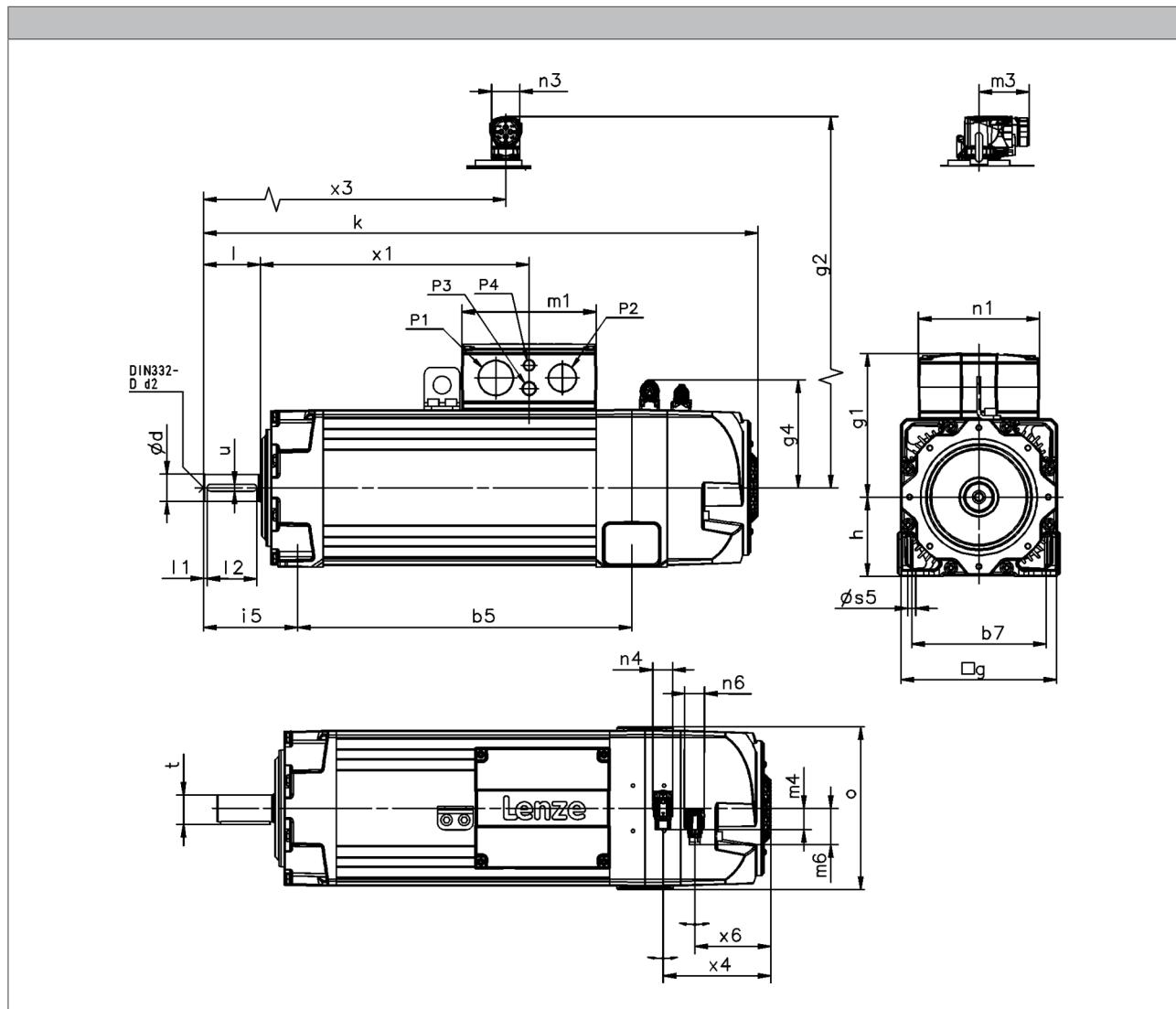
MCA asynchronous servo motors



Technical data

Dimensions, forced ventilated

MCA20/22/26 motors in B3 design



			MCA20	MCA22	MCA26
R□0 / E□□ / T□□ / S□□ / B0...F10	k	[mm]	666	783	970
R□0 / E□□ / T□□ / S□□ / B0...F1F	k	[mm]	754	865	1022
R□0 / E□□ / T□□ / S□□ / B0	x ₄	[mm]	146	153	194
	m ₄	[mm]	25.0	31.0	25.0
R□0 F1...F10	k	[mm]	753	878	1125
R□0 F1...F1F	k	[mm]	842	959	1177
R□0 F1	x ₄	[mm]	151	157	201
	m ₄	[mm]		31.0	
E□□ / T□□ / S□□ / F1...F10	k	[mm]	797	916	1163
E□□ / T□□ / S□□ / F1...F1F	k	[mm]	885	998	1215
E□□ / T□□ / S□□ / F1	x ₄	[mm]	146	162	200
	m ₄	[mm]		31.0	
R□0 / E□□ / T□□ / S□□ / F2...F10	k	[mm]	822	948	1163
R□0 / E□□ / T□□ / S□□ / F2...F1F	k	[mm]	910	1030	1215
R□0 / E□□ / T□□ / S□□ / F2	x ₄	[mm]	146	162	200
	m ₄	[mm]		31.0	

MCA asynchronous servo motors



Technical data

Dimensions, forced ventilated

MCA20/22/26 motors in B3 design

	g	g ₁	g ₂	g ₄	m ₁	m ₃	m ₆	n ₁	n ₃	n ₄	n ₆
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
MCA20	200	171	168	141	154	72		128	40		
MCA22	220	203		153	190		51	171		28	28
MCA26	260	256		173	234			212			

	o	P ₁	P ₂	P ₃	P ₄	x ₁	x ₃	x ₆
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
MCA20	206	M32x1.5	M25x1.5			299	422	101
MCA22	230	M50x1.5	M40x1.5			380		108
MCA26	269	M63x1.5	M50x1.5			465		152

	d	d	d ₂	l	l ₁	l ₂	u	t
	k6	m6		-0.7 ... 0.3				
	[mm]	[mm]	[mm]		[mm]	[mm]	[mm]	[mm]
MCA20								
MCA22	38		M12	80	5.0	70	10.0	41.0
MCA26		55	M20	110		100	16.0	59.0

	h	b ₅	b ₇	s ₅	i ₅
	[mm]	[mm]	[mm]	[mm]	[mm]
MCA20	100	366	160		134
MCA22	112	472	190	11.5	133
MCA26	132	581	215	14.0	165

- Speed/angle sensor: RS0 / S□□ / E□□ / T□□
- Brake: B0 / F1 / F2
- Blower: F10 / F1F

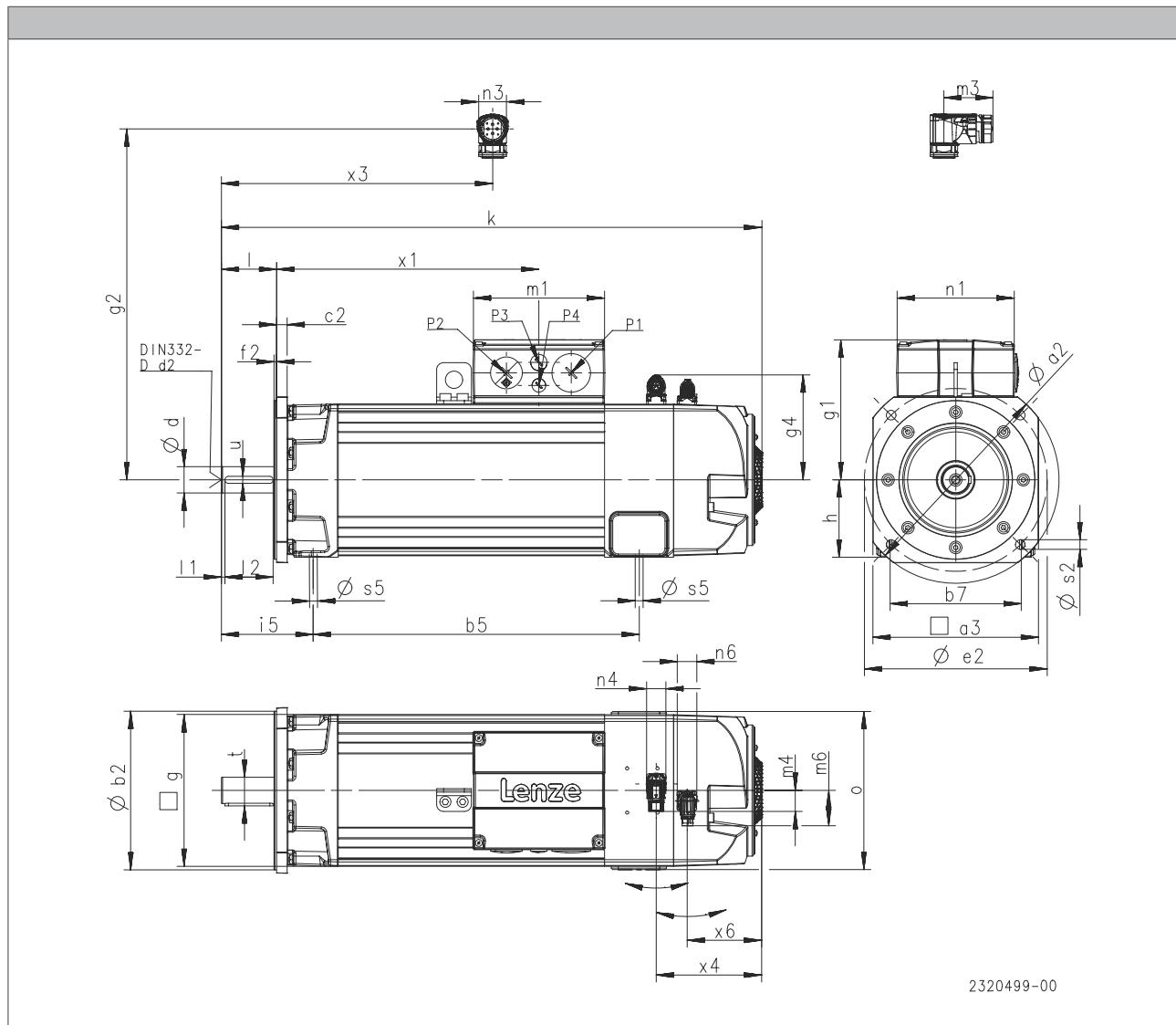
MCA asynchronous servo motors



Technical data

Dimensions, forced ventilated

MCA20/22/26 motors in B35 design



		MCA20	MCA22	MCA26
R□0 / E□□ / T□□ / S□□ / B0...F10	k [mm]	666	783	970
R□0 / E□□ / T□□ / S□□ / B0...F1F	k [mm]	754	865	1022
R□0 / E□□ / T□□ / S□□ / B0	x ₄ [mm]	146	153	194
	m ₄ [mm]	25.0	31.0	25.0
R□0 F1...F10	k [mm]	753	878	1125
R□0 F1...F1F	k [mm]	842	959	1177
R□0 F1	x ₄ [mm]	151	157	201
	m ₄ [mm]	31.0		
E□□ / T□□ / S□□ / F1...F10	k [mm]	797	916	1163
E□□ / T□□ / S□□ / F1...F1F	k [mm]	885	998	1215
E□□ / T□□ / S□□ / F1	x ₄ [mm]	146	162	200
	m ₄ [mm]	31.0		
R□0 / E□□ / T□□ / S□□ / F2...F10	k [mm]	822	948	1163
R□0 / E□□ / T□□ / S□□ / F2...F1F	k [mm]	910	1030	1215
R□0 / E□□ / T□□ / S□□ / F2	x ₄ [mm]	146	162	200
	m ₄ [mm]	31.0		

MCA asynchronous servo motors



Technical data

Dimensions, forced ventilated

MCA20/22/26 motors in B35 design

	g	g ₁	g ₂	g ₄	m ₁	m ₃	m ₆	n ₁	n ₃	n ₄	n ₆
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
MCA20	200	171	168	141	154	72		128	40		
MCA22	220	203		153	190		51	171		28	28
MCA26	260	256		173	234			212			

	o	P ₁	P ₂	P ₃	P ₄	x ₁	x ₃	x ₆
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
MCA20	206	M32x1.5	M25x1.5			299	422	101
MCA22	230	M50x1.5	M40x1.5			380		108
MCA26	269	M63x1.5	M50x1.5			465		152

	d	d	d ₂	l	l ₁	l ₂	u	t
	k6	m6		-0.7 ... 0.3				
	[mm]	[mm]	[mm]		[mm]	[mm]	[mm]	[mm]
MCA20								
MCA22	38		M12	80		70	10.0	41.0
MCA26		55	M20	110		100	16.0	59.0

	h	b ₅	b ₇	s ₅	i ₅
	[mm]	[mm]	[mm]	[mm]	[mm]
MCA20	100	366	160		
MCA22	112	472	190	11.5	133
MCA26	132	581	215	14.0	165

	a ₂	a ₃	b ₂	b ₂	c ₂	e ₂	f ₂	s ₂
			j6	h6				
	[mm]							
MCA20	250	196	180			215		
MCA22								
MCA22	300	240	230		15	265	4.0	14
MCA26	400	320		300		350	5.0	18

- Speed/angle sensor: RS0 / S□□ / E□□ / T□□
- Brake: B0 / F1 / F2
- Blower: F10 / F1F

5.5

MCA asynchronous servo motors

Technical data



MCA asynchronous servo motors



Accessories

Permanent magnet holding brake

The asynchronous servo motors MCA10 to 19 and 21 can be fitted with integral permanent magnet holding brakes.

In the case of permanent magnet brakes, the rated torque applies solely as holding torque at standstill. This is due to the nature of their design. During braking from full motor speed, e.g. in the event of emergency stops, the braking torque is significantly reduced.

As such, they may not be used as safety elements (particularly with lifting axes) without additional measures being implemented.

The brakes are activated when the supply voltage is disconnected (closed-circuit principle). When using the brakes purely as holding brakes, virtually no wear occurs on the friction surfaces.

If no suitable voltage (incorrect value, incorrect polarity) is applied to the brake, the brake will be applied and can be overheated and destroyed by the motor continuing to rotate.

The shortest switching times of the brakes are achieved by DC switching of the voltage. A spark suppressor is required to suppress interference and to increase the service life of the relay contacts here.

For traversing axes, adherence to the permissible load/brake motor (J_L / J_{MB}) moment of inertia ensures that the permissible maximum switching rate of the brake will not be exceeded and at least 2,000 emergency stop functions can be performed from a speed of 3,000 rpm.

For lifting axes, the load torque resulting from the weight acts additionally. In this case the specifications for J_L / J_{MB} do not apply.

Caution:

The brakes used are not safety brakes in the sense that a reduction in torque may arise as a result of disruptive factors that cannot be influenced, e.g. oil ingress.

The ohmic voltage drop along the cable must be taken into consideration in long motor supply cables and must be compensated for by a higher voltage at the line input.

The following applies for Lenze system cables:

$$U[V] = U_B[V] + 0.08 \frac{[V]}{[A] \cdot [m]} \cdot l_g[m] \cdot I_B[A]$$



5.5

Permanent magnet holding brake

MCA asynchronous servo motors



Accessories

Permanent magnet holding brake

Rated data with standard braking torque

- The figures stated apply to servo motors. They only apply to geared servo motors when the servo motor is connected via a mounting flange.

	$U_{N, DC}^{3, 4, 7)}$	$U_{N, AC}^{5, 7)}$	M_N	M_N	M_{av}	$I_N^{2)}$	J	$t_1^{1)}$	$t_2^{1)}$	$Q_E^{6)}$	m	J_{MB}	J_L/J_{MB}	
			20 °C	120 °C	120 °C									
	[V]	[V]	[Nm]	[Nm]	[Nm]	[A]	[kgcm²]	[ms]	[ms]	[J]	[kg]	[kgcm²]		
MCA10	24		3.30	2.50	1.20	0.50		0.38	10.0	20.0	350	0.90	2.78	24.5
	205					0.060								
MCA13	24		12.0	11.0	5.50	0.67		1.06	20.0	29.0	400	0.80	9.36	7.70
	205					0.080								
MCA14	24		15.0	12.0	6.00	0.75		3.60	13.0	30.0	700		22.8	5.20
	205					0.090								
MCA17	24		24.0	22.0	11.0	0.75		25.0	50.0	1200		1.50	39.6	5.10
	205					0.090								
MCA19	24		46.0	40.0	18.0	1.00	9.50		73.0	1900	2.70	81.5	3.70	
	205					0.12								
MCA21	24		88.0	80.0	35.0	1.46	31.8	53.0	97.0	2800	5.00	212	1.70	
	205					0.18								

¹⁾ Engagement and disengagement times are valid for rated voltage ($\pm 0\%$) and protective circuit for brakes with varistor for DC switching. The times may increase without a protective circuit.

²⁾ The currents are the maximum values when the brake is cold (value used for dimensioning the current supply). The values for a motor at operating temperature are considerably lower.

³⁾ With 24 V DC brake: smoothed DC voltage, ripple $\leq 1\%$.

With 205 V DC brake: connection to 230 V AC through rectifier.

⁴⁾ UR not possible in the case of a brake with a 205 V supply voltage.

⁵⁾ UR not possible in the case of a brake with 230 V supply voltage.

⁶⁾ Maximum switching energy per emergency stop at $n = 3000$ r/min for at least 2000 emergency stops.

⁷⁾ Voltage tolerance: permanent magnet brakes -10% to +5% spring-applied brakes $\pm 10\%$

MCA asynchronous servo motors



Accessories

Permanent magnet holding brake

Rated data with increased braking torque

- ▶ These ratings apply only for geared servo motors with integrated servo motor (without mounting flange).

	$U_{N, DC}^{3, 4, 7)}$	M_N	M_N	M_{av}	$I_N^{2)}$	J	$t_1^{1)}$	$t_2^{1)}$	$Q_E^{6)}$	m	J_{MB}	J_L/J_{MB}
	20 °C	120 °C	120 °C									
	[V]	[Nm]	[Nm]	[Nm]	[A]	[kgcm²]	[ms]	[ms]	[J]	[kg]	[kgcm²]	
MCA10	24	6.00	5.00	2.50	0.67	1.06	20.0	29.0	400	0.80	3.46	22.4
	205				0.80							
MCA13	24	15.0	12.0	6.00	0.75	3.60	13.0	30.0	700	1.50	11.9	8.40
	205				0.090							
MCA14	24	23.0	20.0	10.0	0.92	9.50	18.0	55.0	1350	2.40	22.8	6.60
	205				0.12							
MCA17	24				0.92						45.5	5.00
	205				0.12							
MCA19	24	48.0	40.0	20.0	1.46	31.8	30.0	100	2800	4.80	104	4.50
	205				0.18							
MCA21	24	88.0	80.0	35.0	1.46		53.0	97.0		5.00	212	1.70
	205				0.18							

¹⁾ Engagement and disengagement times are valid for rated voltage ($\pm 0\%$) and protective circuit for brakes with varistor for DC switching. The times may increase without a protective circuit.

²⁾ The currents are the maximum values when the brake is cold (value used for dimensioning the current supply). The values for a motor at operating temperature are considerably lower.

³⁾ With 24 V DC brake: smoothed DC voltage, ripple $\leq 1\%$.

With 205 V DC brake: connection to 230 V AC through rectifier.

⁴⁾ UR not possible in the case of a brake with a 205 V supply voltage.

⁵⁾ UR not possible in the case of a brake with 230 V supply voltage.

⁶⁾ Maximum switching energy per emergency stop at $n = 3000 \text{ r/min}$ for at least 2000 emergency stops.

⁷⁾ Voltage tolerance: permanent magnet brakes -10% to +5% spring-applied brakes $\pm 10\%$

MCA asynchronous servo motors



Accessories

Spring-applied holding brake

Spring-operated holding brakes are available for the asynchronous servo motors MCA20, 22 and 26.

The brakes are activated when the supply voltage is disconnected (closed-circuit principle). When using the brakes purely as holding brakes, virtually no wear occurs on the friction surfaces.

If no suitable voltage (incorrect value, incorrect polarity) is applied to the brake, the brake will be applied and can be overheated and destroyed by the motor continuing to rotate.

The shortest switching times of the brakes are achieved by DC switching of the voltage. A spark suppressor is required to suppress interference and to increase the service life of the relay contacts here.

Caution:

The brakes used are not safety brakes in the sense that a reduction in torque may arise as a result of disruptive factors that cannot be influenced, e.g. oil ingress.

The ohmic voltage drop along the cable must be taken into consideration in long motor supply cables and must be compensated for by a higher voltage at the line input.

The following applies for Lenze system cables:

$$U[V] = U_B[V] + 0.08 \frac{[V]}{[A] \cdot [m]} \cdot l_g[m] \cdot l_B[A]$$



Spring-applied holding brake

MCA asynchronous servo motors



Accessories

Spring-applied holding brake

Rated data with standard braking torque

- The figures stated apply to servo motors. They only apply to geared servo motors when the servo motor is connected via a mounting flange.

	$U_{N, DC}^{3, 4, 7)}$	$U_{N, AC}^{5, 7)}$	M_N	M_N	M_{av}	$I_N^{2)}$	J	$t_1^{1)}$	$t_2^{1)}$	$Q_E^{6)}$	m	J_{MB}	J_L/J_{MB}
			20 °C	120 °C	120 °C								
	[V]	[V]	[Nm]	[Nm]	[Nm]	[A]	[kgcm²]	[ms]	[ms]	[J]	[kg]	[kgcm²]	
MCA20	24		90.0	80.0	50.0	3.13	6.88	70.0	220	18000	13.0	177	19.6
		230				0.37							
MCA22	24		150	130	80.0	3.75	18.1	50.0	260	23000	20.5	505	8.20
		230				0.44		130					
MCA26	24		300	260	160	3.75	36.3	175	320	39000	26.0	1405	12.7
		230			200	0.37	70.4		360	51000	30.7		

Rated data with increased braking torque

- The figures stated apply to servo motors. They only apply to geared servo motors when the servo motor is connected via a mounting flange.

	$U_{N, DC}^{3, 4, 7)}$	$U_{N, AC}^{5, 7)}$	M_N	M_N	M_{av}	$I_N^{2)}$	J	$t_1^{1)}$	$t_2^{1)}$	$Q_E^{6)}$	m	J_{MB}	J_L/J_{MB}
			20 °C	120 °C	120 °C								
	[V]	[V]	[Nm]	[Nm]	[Nm]	[A]	[kgcm²]	[ms]	[ms]	[J]	[kg]	[kgcm²]	
MCA20	24		150	130	100	2.58	14.1	70.0	240	31000	15.4	189	33.0
		230				0.30							
MCA22	24		300	260	160	3.75	36.3	175	320	39000	26.0	523	14.1
		230				0.44		130	310				

¹⁾ Engagement and disengagement times are valid for rated voltage ($\pm 0\%$) and protective circuit for brakes with varistor for DC switching. The times may increase without a protective circuit.

²⁾ The currents are the maximum values when the brake is cold (value used for dimensioning the current supply). The values for a motor at operating temperature are considerably lower.

³⁾ With 24 V DC brake: smoothed DC voltage, ripple $\leq 1\%$.

With 205 V DC brake: connection to 230 V AC through rectifier.

⁴⁾ UR not possible in the case of a brake with a 205 V supply voltage.

⁵⁾ UR not possible in the case of a brake with 230 V supply voltage.

⁶⁾ Maximum switching energy per emergency stop at $n = 3000$ rpm for at least 300 emergency stops, maximally 4 emergency stops per hour.

⁷⁾ Voltage tolerance: permanent magnet brakes -10% to +5% spring-applied brakes $\pm 10\%$

MCA asynchronous servo motors



Accessories

Resolver

Stator-fed resolver with two stator windings offset by 90° and one rotor winding with transformer winding.

- The version MCA20, MCA22 and MCA26 with brake and resolver RV03 is not permissible!

Speed/angle sensor					
	1)			RS0	RV0
Product key				RS0	RV03
Resolution					
Angle		[°]		0.80	
Accuracy		[°]		-10 ... 10	
Absolute positioning				1 revolution	
Max. speed					8000
	n _{max}	[r/min]			
Max. input voltage					
DC	U _{in,max}	[V]		10.0	
Max. input frequency					4.00
	f _{in,max}	[kHz]			
Ratio					
Stator / rotor		± 5 %		0.30	
Rotor impedance					
	Z _{ro}	[Ω]		51 + j90	
Stator impedance					102 + j150
Impedance					44 + j76
Min. insulation resistance					
At DC 500 V	R	[MΩ]		10.0	
Number of pole pairs				1	
Max. angle error		[°]		-10 ... 10	
Inverter assignment				i700 E84AVTC E94A ECS EV593	E84AVTC E94A ECS EV593

¹⁾ 6 - Product key > speed/angle sensor

Speed-dependent safety functions

Suitable for safety function			No	Yes
Max. permissible angular acceleration				
MCA10 ... MCA19 ²⁾	α	[rad/s ²]		22000
MCA20 ... MCA26 ²⁾	α	[rad/s ²]		22000
Functional safety				
IEC 61508				SIL3
EN 13849-1				Up to Performance Level e

²⁾ 1 - Single encoder concepts with resolvers

MCA asynchronous servo motors



Accessories

Incremental encoder and SinCos absolute value encoder

Encoder type			TTL incremental	SinCos incremental	
Speed/angle sensor				S20	S1S
	1)		T20	T40	
Product key			IG2048-5V-T	IG4096-5V-T	IG2048-5V-S
Encoder type				Single-turn	
Pulses			2048	4096	2048
Output signals			TTL		1 Vss
Interfaces			A, B, N track and inverted		
Absolute revolutions				0	
Resolution					
Angle ²⁾		[°]	2.60	1.30	0.40
Accuracy		[°]	-2 ... 2		-0.8 ... 0.8
Min. input voltage					
DC	U _{in,min}	[V]	4.75	4.50	4.75
Max. input voltage					
DC	U _{in,max}	[V]	5.25	5.50	5.25
Max. speed					
	n _{max}	[r/min]	8789	5273	8000
Max. current consumption					
	I _{max}	[A]	0.15	0.10	0.070
Limit frequency					
	f _{max}	[kHz]	300	180	200
Inverter assignment			E84AVTC E94A ECS EVS93		E94A

1) 6 - Product key > speed/angle sensor

2) Inverter-dependent.

Speed-dependent safety functions

Suitable for safety function		No	No	No	Yes
Max. permissible angular acceleration					
MQA20 ... MQA26	α [rad/s ²]				73 000
Functional safety					
IEC 61508					SIL3
EN 13849-1					Up to Performance Level e

MCA asynchronous servo motors

Accessories



Incremental encoder and SinCos absolute value encoder

Encoder type			SinCos absolute value				
Speed/angle sensor	1)	EQI	SRS	SRM	ECN	EQN	
Product key		AM32-5V-E	AS1024-8V-H	AM1024-8V-H	AS2048-5V-E	AM2048-5V-E	
Encoder type		Multi-turn	Single-turn	Multi-turn	Single-turn	Multi-turn	
Pulses		32	1024	1024	2048	2048	
Output signals		1 Vss					
Interfaces		EnDat	Hiperface		EnDat		
Absolute revolutions		4096	1	4096	1	4096	
Resolution		0.40					
Angle	[°]	-5 ... 5					
Accuracy	[°]	-5 ... 5	-0.8 ... 0.8	-0.8 ... 0.8	-0.6 ... 0.6	-0.6 ... 0.6	
Min. input voltage		4.75					
DC	U _{in,min} [V]	4.75	7.00	7.00	4.75	4.75	
Max. input voltage		5.25					
DC	U _{in,max} [V]	5.25	12.0	12.0	5.25	5.25	
Max. speed	n _{max} [r/min]	12000	6000	6000	12000	12000	
Max. current consumption	I _{max} [A]	0.17	0.080	0.080	0.15	0.25	
Limit frequency	f _{max} [kHz]	6.00	200	200			
Inverter assignment		E94A	E84AVTC E94A ECS EVS93		E94A		

¹⁾

6 - Product key > speed/angle sensor

MCA asynchronous servo motors



Accessories

Blower

Rated data for 50 Hz

		Degree of protection	Number of phases		U_{min} [V]	U_{max} [V]	$U_{N, AC}$ [V]	P_N [kW]	I_N [A]
MCA13								0.019	0.12
MCA14						240			
MCA17								0.040	0.25
MCA19									
MCA20	F10 F1F	IP23s		1	210	250	230	0.17	0.73
MCA21	F10	IP54				240		0.060	0.26
MCA22	F10 F1F	IP23s IP54				250		0.24	1.05
MCA26								0.40	1.75

Rated data for 60 Hz

		Degree of protection	Number of phases		U_{min} [V]	U_{max} [V]	$U_{N, AC}$ [V]	P_N [kW]	I_N [A]
MCA13								0.019	0.12
MCA14						240			
MCA17								0.040	0.25
MCA19									
MCA20	F10 F1F	IP23s		1	210	250	230	0.20	0.90
MCA21	F10	IP54				240		0.060	0.26
MCA22	F10 F1F	IP23s IP54				250		0.28	1.23
MCA26								0.41	1.82

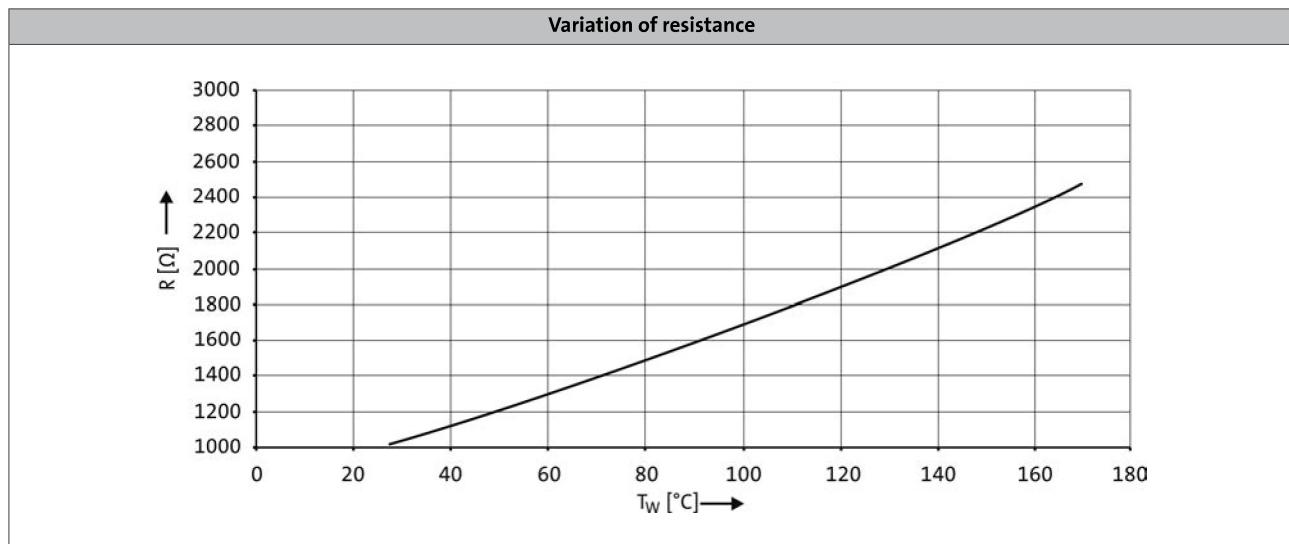
MCA asynchronous servo motors



Accessories

Temperature monitoring

The thermal sensors (1x KTY 83-110) used continuously monitor the motor temperature. The temperature signal is transmitted over the system cable of the feedback system to the servo controller. This means that the temperature of the motor is determined with great accuracy in the permitted operating range and at the same time the overtemperature response configured in the controller is executed in the event of overtemperature in one of the winding phases.



- If the thermal sensor is supplied with a measurement current of 1 mA, the above relationship between the temperature and the resistance applies.

MCA asynchronous servo motors

Accessories

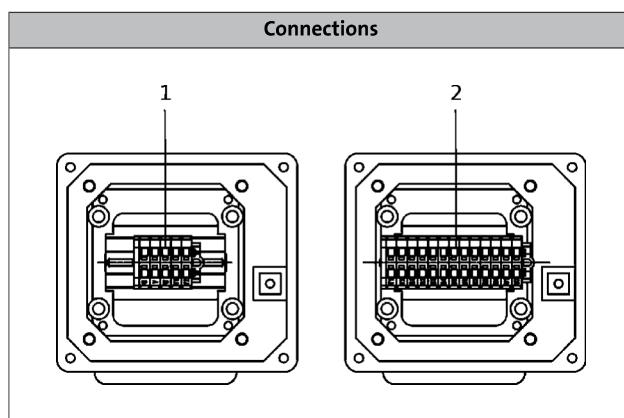


Terminal box

Motors MCA10 to 19/21

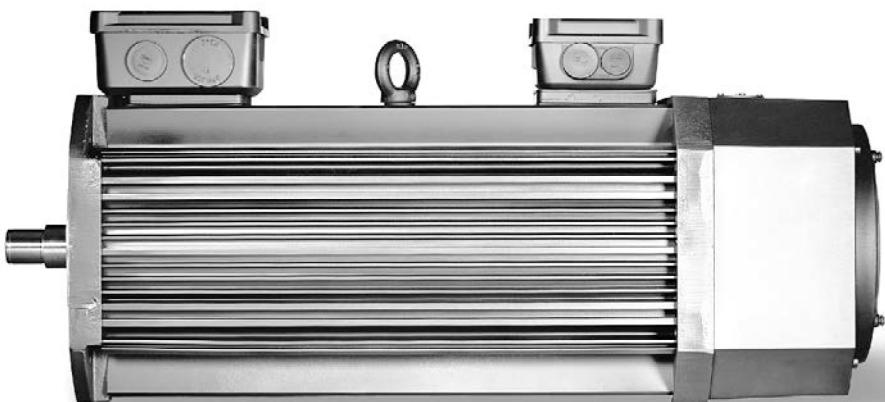
If a servo motor is to be connected to an existing cable or plug connectors are not to be used for other reasons, the connection can also be made via a terminal box.

The motor can either be fitted with a terminal box for the power connection and motor holding brake or a second terminal box provided to connect the motor feedback and blower (if applicable).



1: Power connection + brake connection + PE connection.

2: Angle/speed sensor connection + thermal sensor connection



5.5

MCA asynchronous servo motors with blower and terminal box

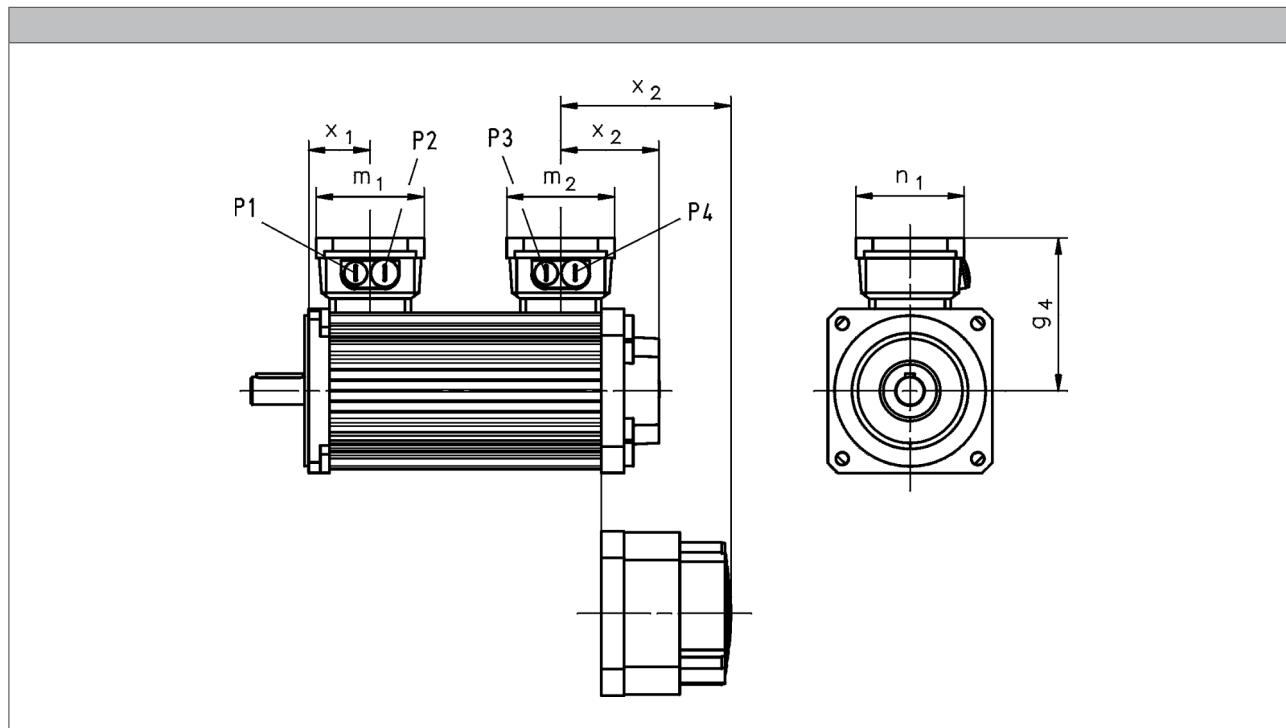
MCA asynchronous servo motors

Accessories



Terminal box

Motors MCA10 to 19/21



			MCA10I40	MCA13I41	MCA14L20	MCA17N23	MCA19S23	MCA21X25
					MCA14L41	MCA17N41	MCA19S42	MCA21X42
R□O B0	x ₂	[mm]	78	77		85	93	97
R□O P□	x ₂	[mm]	78	77		85	93	97
S□□ / E□□ / T20 / B0	x ₂	[mm]	132	131	140	139	143	147
S□□ / E□□ / T20 / P□	x ₂	[mm]	132	131	140	139	143	147

			MCA13I34	MCA14L16	MCA17N17	MCA19S17	MCA21X17
				MCA14L35	MCA17N35	MCA19S35	MCA21X35
R□O B0	x ₂	[mm]	145	147	171	190	193
R□O P□	x ₂	[mm]	145	147	171	190	193
S□□ / E□□ / T20 / B0	x ₂	[mm]	199	202	225	240	243
S□□ / E□□ / T20 / P□	x ₂	[mm]	199	202	225	240	243

► Speed/angle sensor: RS0 / S□□ / E□□ / T20

► Brake: B0 / P□

	g ₄	m ₁	m ₂	n ₁	x ₁	P ₁	P ₂	P ₃	P ₄
	[mm]								
MCA10	113				54				
MCA13	125				57				
MCA14	133				53				
MCA17	141				55				
MCA19	158				64				
MCA21	169				70				
						M20x1.5	M20x1.5	M20x1.5	M20x1.5

MCA asynchronous servo motors



Accessories

ICN connector

Servo motors MCA10 to 21 provide ICN connectors as standard for electrical connection. Servo motors MCA22 and MCA26 provide a terminal box for electrical connection.

A connector is used for the connection of motor and brake. The connections to the feedback system/temperature monitoring and the blower each employ a separate connector.

The connectors can be rotated through 270° and are fitted with a bayonet catch for SpeedTec connectors. As the connector fixing is also compatible with conventional union nuts. Existing mating connectors can therefore still be used without difficulty.

Connection for power and brake

► MCA10 to 17

Pin assignment		
Contact	Designation	Meaning
1	BD1	Holding brake +
2	BD2	Holding brake -
PE	PE	PE conductor
4	U	Phase U power
5	V	Phase V power
6	W	Phase W power

► MCA19 to 21

Pin assignment		
Contact	Designation	Meaning
1		Not assigned
2		
+	BD1	Holding brake +
-	BD2	Holding brake -
PE	PE	PE conductor
U	U	Phase U power
V	V	Phase V power
W	W	Phase W power

MCA asynchronous servo motors



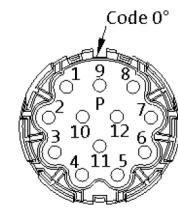
Accessories

ICN connector

Feedback connection

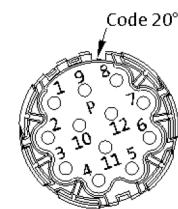
- Resolver

Pin assignment		
Contact	Designation	Meaning
1	+Ref	Transformer windings
2	-Ref	
3	+VCC ETS	Supply: Electronic nameplate
4	+COS	Cosine stator windings
5	-COS	
6	+SIN	Sine stator windings
7	-SIN	
8		
9		Not assigned
10		
11	+KTY	KTY temperature sensor
12	-KTY	



- Hiperface incremental encoder and SinCos absolute value encoder

Pin assignment		
Contact	Designation	Meaning
1	B	Track B/+SIN
2	A ⁻	Track A inverse/-COS
3	A	Track A/+COS
4	+U _B	Supply +
5	GND	Mass
6	Z ⁻	Zero track inverse/-RS485
7	Z	Zero track/+RS485
8		Not assigned
9	B ⁻	Track B inverse/-SIN
10		Not assigned
11	+KTY	KTY temperature sensor
12	-KTY	



MCA asynchronous servo motors



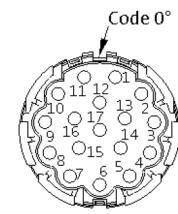
Accessories

ICN connector

Feedback connection

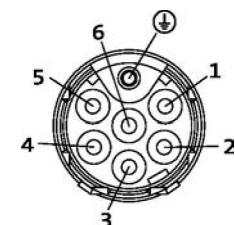
- SinCos absolute value encoder with EnDat interface

Pin assignment		
Contact	Designation	Meaning
1	U _P sensor	Supply: UP sensor
2		Not assigned
3		
4	0 V sensor	Supply: 0 V sensor
5	+KTY	KTY temperature sensor
6	-KTY	
7	+U _B	Supply +
8	Cycle	EnDat interface cycle
9	Cycle ⁻	EnDat interface inverse cycle
10	GND	Mass
11	Shield	Encoder housing screen
12	B	Track B
13	B ⁻	Track B inverse/-SIN
14	Data	EnDat interface data
15	A	Track A
16	A ⁻	Track A inverse
17	Data ⁻	EnDat interface inverse data



Blower connection

Pin assignment		
Contact	Designation	Meaning
PE	PE	PE conductor
1	U1	Fan
2	U2	
3		
4		
5		
6		



5.5

MCA asynchronous servo motors

Technical data



MCA asynchronous servo motors

Technical data



5.5

MCA asynchronous servo motors

Technical data



