

Motors

MCS synchronous servo motors

0.5 ... 190 Nm



MCS synchronous servo motors

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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
$S_{h\ddot{u}}$	[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

MCS synchronous servo motors

General information



List of abbreviations

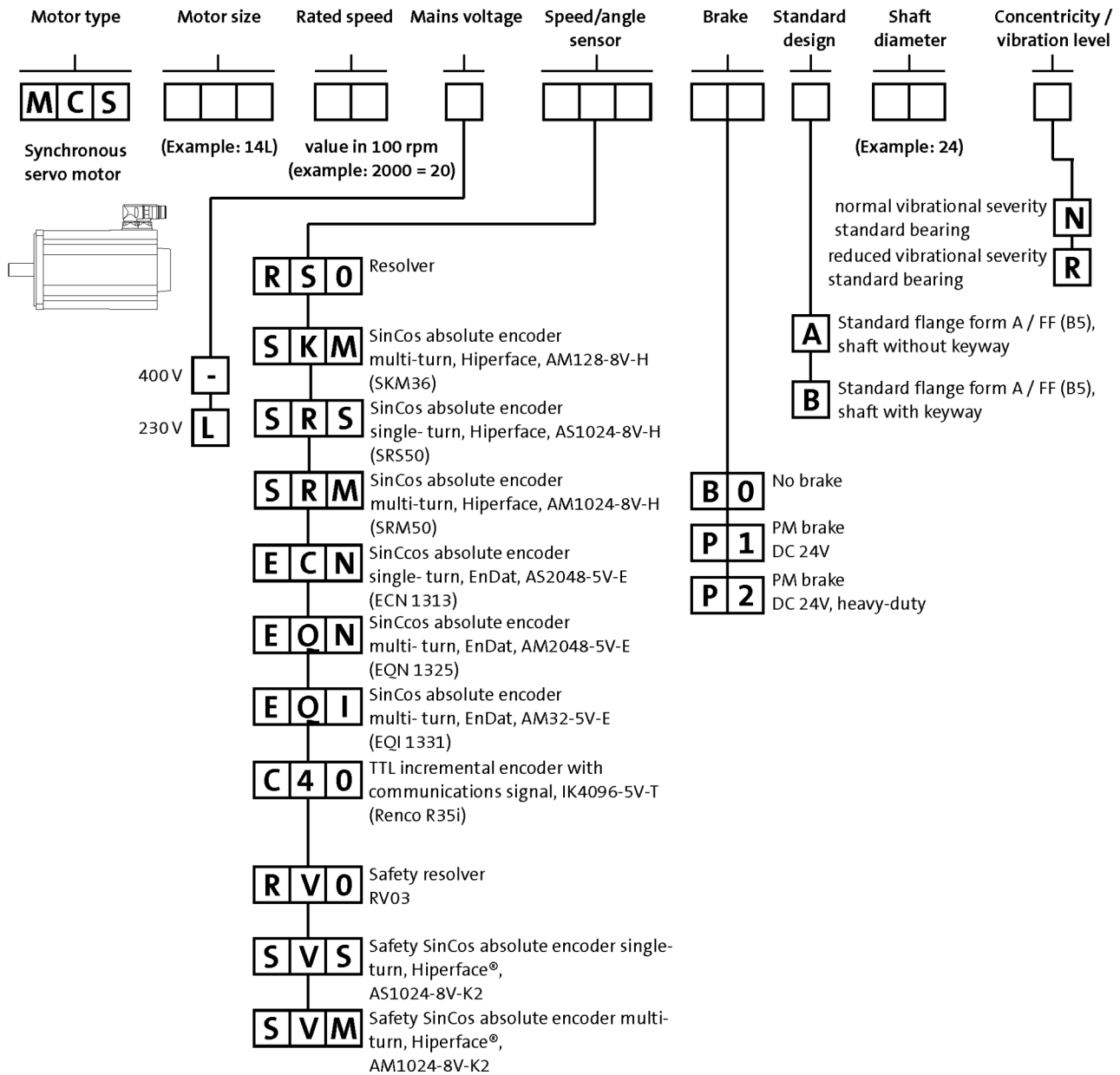
CE	Communauté Européenne
CSA	Canadian Standards Association
DIN	Deutsches Institut für Normung e.V.
EMC	Electromagnetic compatibility
EN	European standard
EAC	Customs union Russia / Belarus / Kazakhstan certificate
IEC	International Electrotechnical Commission
IM	International Mounting Code
IP	International 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)

MCS synchronous servo motors

General information



Product key

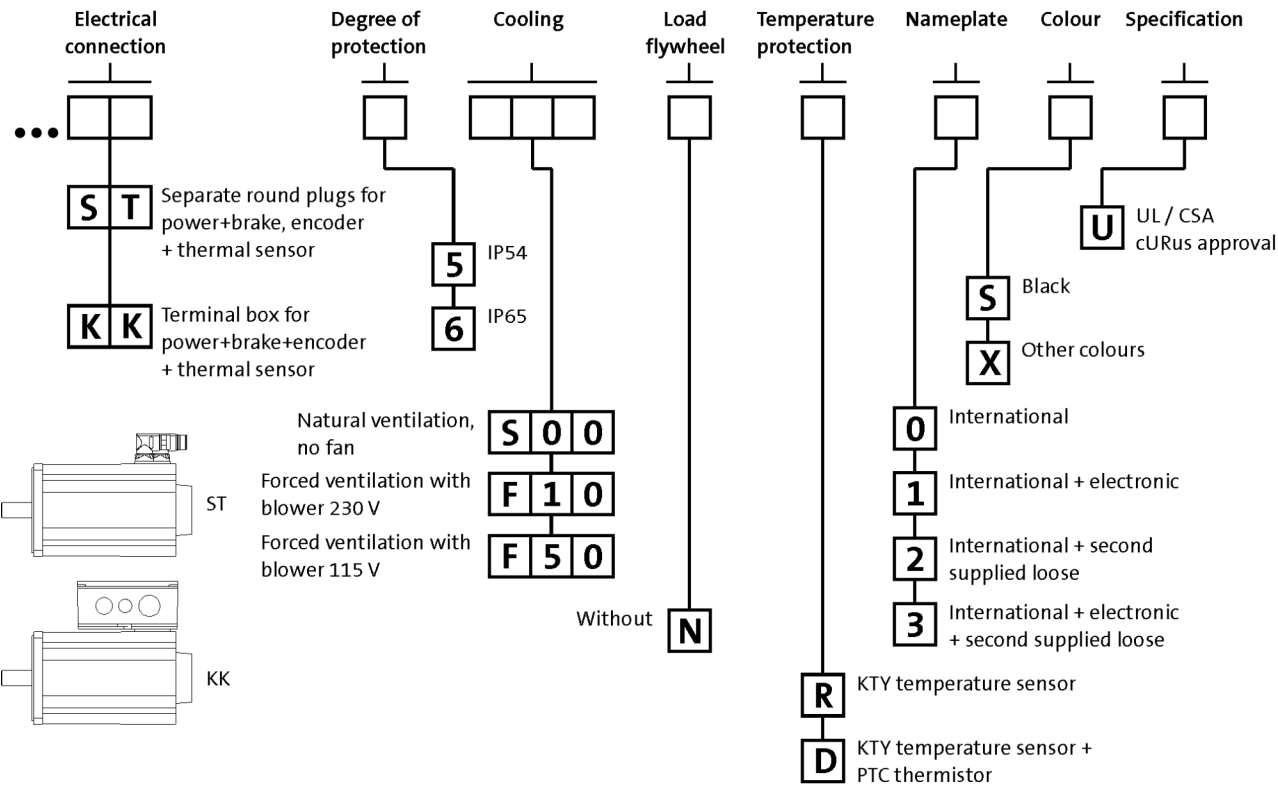


MCS synchronous servo motors

General information



Product key



MCS synchronous servo motors

General information



Product information

When space is limited, but strict requirements in terms of dynamics and precision still have to be met, the MCS synchronous servo motors are the right choice.

With a power range from 0.25 kW to 15.8 kW and a rated torque range from 0.5 Nm to 72 Nm and peak torques of up to 190 Nm, these motors leave nothing to be desired in installations requiring compact and dynamic drive technology. The stator winding of the MCS motors employs innovative Single Element Pole Technology – SEPT – and is made up of individual coils. High-quality magnetic materials and specially developed pole shapes set the conditions for their excellent drive characteristics. This results in a significant increase in power density, while at the same time reducing moments of inertia. The minimum detent torques offer exceptional smooth running characteristics and thereby secure excellent control behaviour.

The robust mechanical structure with reinforced bearings, the high degree of protection and the full stator encapsulation increase operational reliability, even in harsh ambient conditions.

Advantages

- High dynamic performance thanks to low moments of inertia
- Compact size with high power density
- Cooling with or without axial external fan
- Robust regenerative resolver system as standard
- Alternatively sin/cos encoder for the highest precision
- Easy to install and service friendly thanks to use of SpeedTec connectors
- Optional terminal box
- Protection: IP54, IP65 optional
- cURus-approved, GOST-certified, CE, RoHS compliant
- Smooth surface
- Single Element Pole Technology
- Optimum rotation characteristics
- Virtually free of detent torque
- Electronic nameplate

5.1



MCS09 synchronous servo motor

MCS synchronous servo motors

General information



Functions and features

	MCS06	MCS09	MCS12	MCS14	MCS19
Design					
	B5-FF75	B5-FF100	B5-FF130	B5-FF165	B5-FF215
Shaft end (with and without keyway)					
	11 x 23	14 x 30	19 x 40	24 x 50	28 x 60
A end shield					
	Not oil-tight				
Brake					
Permanent magnetic brake	DC 24 V	DC 24 V 24 V DC, reinforced			
Speed and angle encoder					
	Resolver SinCos single-turn/multi-turn				
Cooling					
Without blower	Naturally ventilated				
Axial blower, 1 phase			230 V; 50 Hz 115 V; 60 Hz		
Temperature sensor					
Thermal detector	KTY				
PTC thermistor		2x PTC additional (3-phase monitoring)			
Motor connection: plug connector					
	Power + brake Encoder + thermal sensor		Power + brake Encoder + thermal sensor Blower		
Motor connection: terminal box					
		Power + brake + encoder + thermal sensor			
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				
Colour					
	RAL9005M				

- Terminal boxes not possible if blower is fitted.



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).

5.1

Encoder type	Encoder type	Product key	Feedback	Safe speed monitoring
			Design	
SinCos absolute value	Single-turn	AS1024-8V-K2		PL d/SIL 2
	Multi-turn	AM1024-8V-K2		
Resolver		RV03		PL e/SIL 3
			2-encoder concept	up to PL e / SIL 3

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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:

- MCS06: 270 x 270 mm
- MCS09: 330 x 330 mm
- MCS12 / 14 / 19: 450 x 450 mm

Vibrational severity

		MCS06	MCS09	MCS12	MCS14	MCS19
Vibrational severity						
IEC/EN 60034-14		A				
Maximum r.m.s. value of the vibration velocity ¹⁾	[mm/s]	1.60				

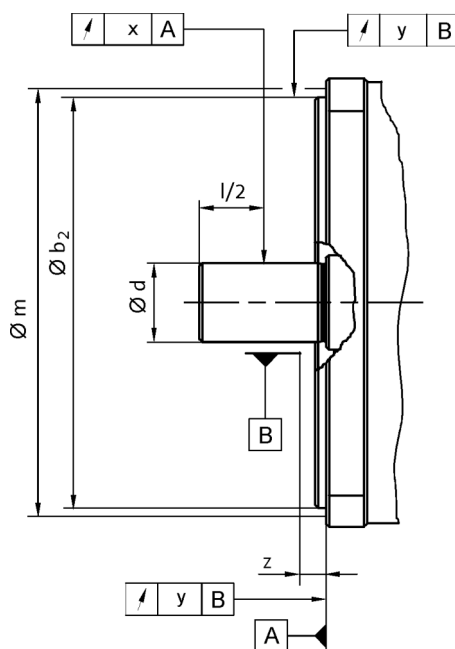
¹⁾ Free suspension

► at n = 600 to 3,600 rpm



Dimensioning

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



5.1

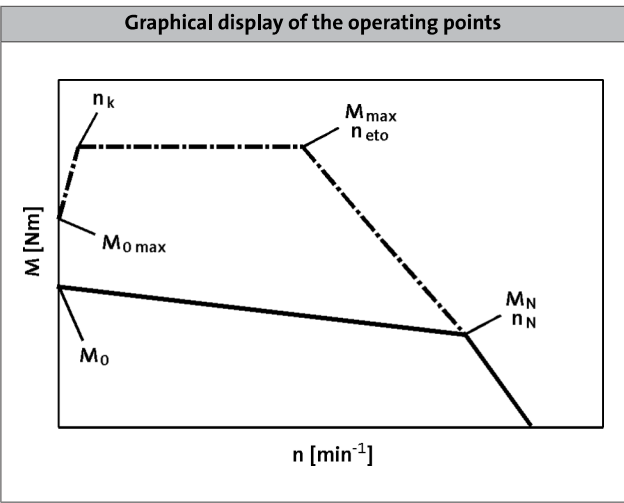
				MCS06	MCS09	MCS12	MCS14	MCS19
Flange size				FF75	FF100	FF130	FF165	FF215
Dimensions								
	b ₂	j6	[mm]	60	80	110	130	180
	d	k6	[mm]	11	14	19	24	28
Distance								
Measuring diameter	m		[mm]	65.0	85.0	115	135	185
Dial gauge holder for flange check	z	+/- 1	[mm]	10.0				
Concentricity								
IEC 60072				Normal class				
Value	y		[mm]	0.080		0.10		
Axial run-out								
IEC 60072				Normal class				
Value	y		[mm]	0.080		0.10		
Smooth running								
IEC 60072				Normal class				
Value	x		[mm]	0.035		0.040		

- 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



Dimensioning

Notes on the selection tables



	n_k [r/min]
MCS	75.0
MDSKS	100
MDFKS	

Please note:

- In case of an active load (e.g. vertical drive axes, hoists, test benches, unwinders), $M_{0\max}$ has to be considered
- In case of a passive load (e.g. horizontal drive axes), $M_{\max}$ can be usually used
- In case of a speed $< n_k$ and inverter-specifically, the achievable torque $M_{0\max}$ is smaller than $M_{\max}$
- In case of a speed $n = 0$, the standstill torque M_0 and the standstill current I_0 have to be reduced by 30% after 2 seconds. In case of applications which require a longer holding of M_0 , we recommend the drive to be held via the holding brake and reduce the current, e.g. by controller inhibit.
- In case of servo inverters, the switching frequency dependent overload capacity is considered in the default setting. For more information, see the servo inverter catalogue.

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.

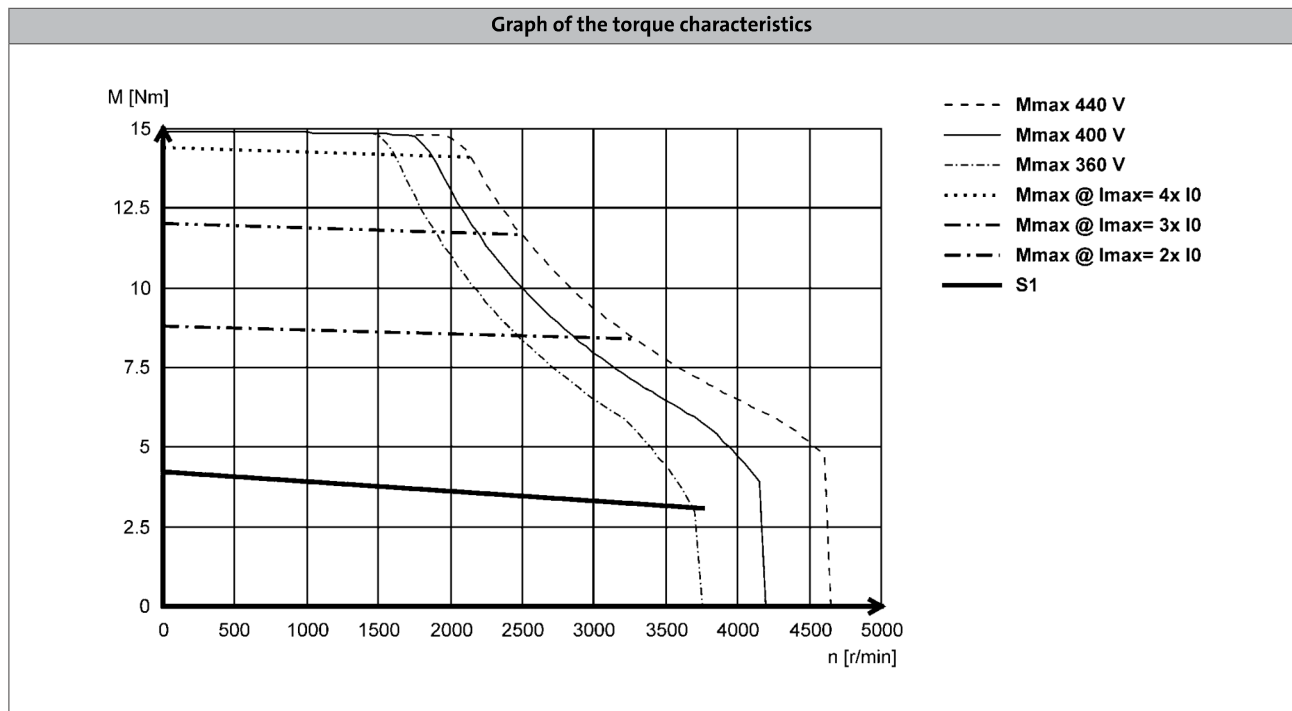
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Dimensioning

Notes on the torque characteristics



5.1

With synchronous servo motors, the limit torque characteristics that result from the selection of servo inverters with maximum currents are also shown alongside the characteristics for continuous operation (S1). These correspond to a multiple of the motor standstill current ($2 \times I_0$ to $4 \times I_0$).

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.

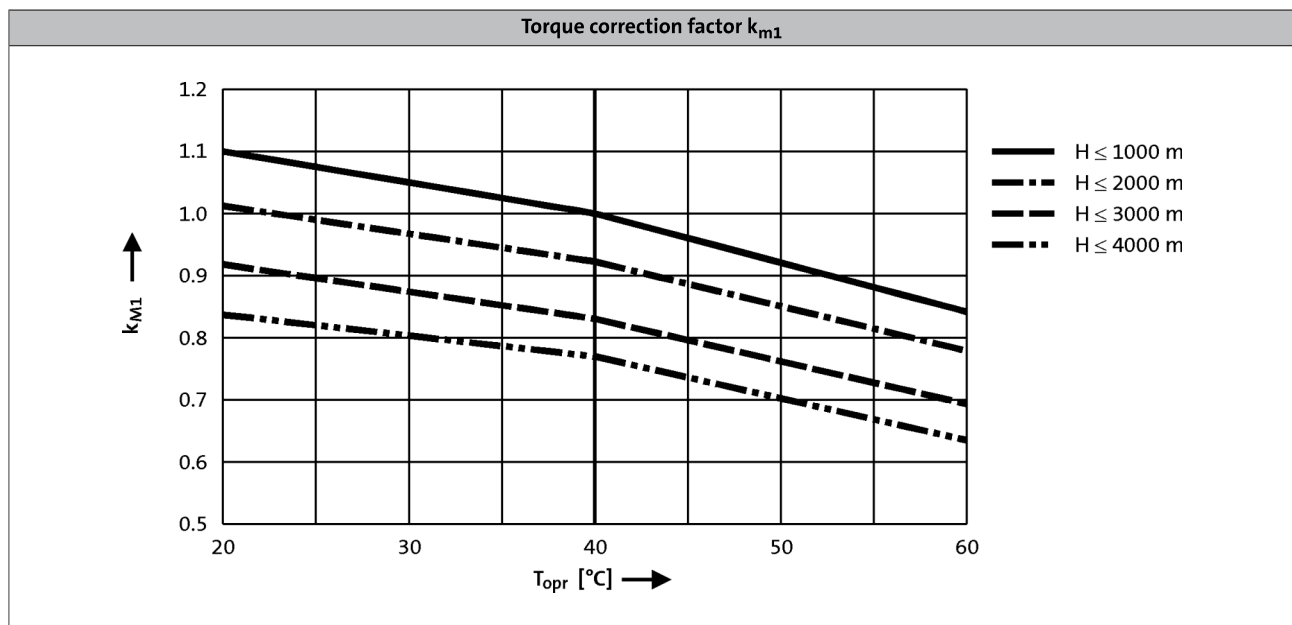


Dimensioning

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 ($M_0...M_N$) in the event of differing installation conditions.

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



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MCS synchronous servo motors

Technical data



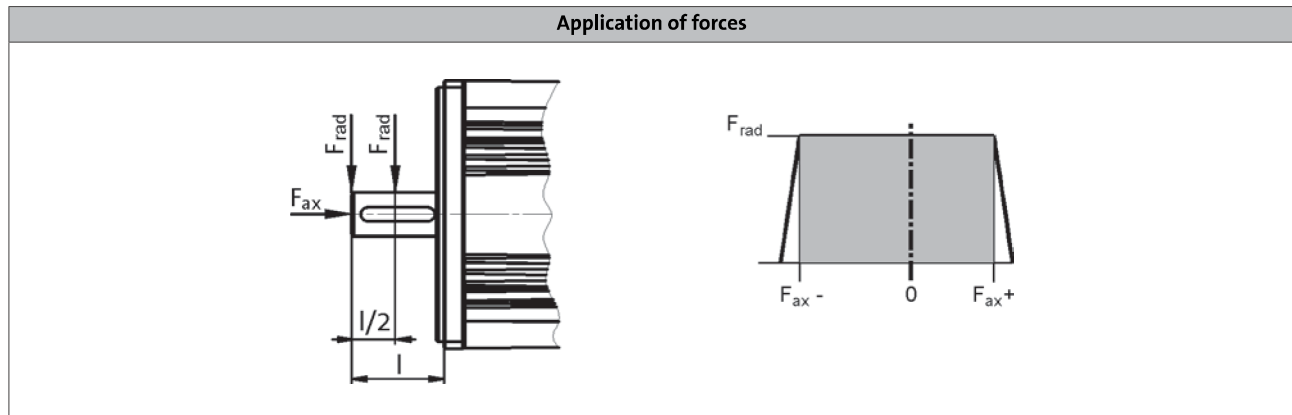
Standards and operating conditions

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

5.1



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}	$F_{ax,-}$	$F_{ax,+}$	F_{rad}	$F_{ax,-}$	$F_{ax,+}$	F_{rad}	$F_{ax,-}$	$F_{ax,+}$	F_{rad}	$F_{ax,-}$	$F_{ax,+}$	F_{rad}	$F_{ax,-}$	$F_{ax,+}$
	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]
MCS06	740	-260	140	590	-210	80	470	-170	40	410	-150	30	340	-140	10
MCS09	1040	-700	470	830	-550	310	660	-440	200	580	-380	150	490	-330	90
MCS12	1030	-880	560	820	-690	370	650	-550	230	570	-490	160	480	-420	100
MCS14	1830	-1150	720	1450	-900	470	1150	-720	290	1010	-640	200	850	-550	120
MCS19	3840	-1550	950	3050	-1210	620	2430	-960	360	2120	-840	250	1790	-730	130

Application of force at l

Bearing service life L_{10}															
	5000 h			10000 h			20000 h			30000 h			50000 h		
	F_{rad}	$F_{ax,-}$	$F_{ax,+}$	F_{rad}	$F_{ax,-}$	$F_{ax,+}$	F_{rad}	$F_{ax,-}$	$F_{ax,+}$	F_{rad}	$F_{ax,-}$	$F_{ax,+}$	F_{rad}	$F_{ax,-}$	$F_{ax,+}$
	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]
MCS06	630	-210	90	500	-170	50	400	-140	20	350	-130	0	290	-120	-10
MCS09	900	-630	400	710	-500	260	570	-400	160	500	-350	120	420	-300	70
MCS12	890	-820	490		-640	320	560	-520	190	490	-460	130		-400	
MCS14	1590	-1040	610		-820	390	1000	-660	230	880	-580	150		-510	
MCS19	3330	-1320	730	2650	-1040	450	2100	-830	240	1840	-740	140	1550	-640	40

- The values for the bearing service life L_{10} refer to an average speed of 4000 r/min. Depending on the ambient temperatures, the service life of the bearings is also reduced by the grease life-time.

MCS synchronous servo motors

Technical data



Rated data, non-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	I_{max}	$U_{N, AC}$	f_N
	[r/min]	[Nm]	[Nm]	[Nm]	[kW]	[A]	[A]	[A]	[V]	[Hz]
MCS06C41-	4050	0.80	0.60	2.40	0.25	1.30	1.30	5.40	225	270
MCS06C60-	6000	0.80	0.50	2.40	0.31	2.50	2.40	10.8	135	400
MCS06F41-	4050	1.50	1.20	4.40	0.51	1.50	1.50	5.30	320	270
MCS06F60-	6000	1.50	0.90	4.40	0.57	2.90	2.50	10.5	180	400
MCS06I41-	4050	2.00	1.50	6.20	0.64	1.70	1.60	5.90	325	270
MCS06I60-	6000	2.00	1.20	6.20	0.75	3.40	2.90	11.8	190	400
MCS09D41-	4050	3.30	2.30	9.50	1.00	2.60	2.30	10.0	320	270
MCS09D60-	6000	3.30	1.80	9.50	1.10	5.30	3.80	20.0	210	400
MCS09F38-	3750	4.20	3.10	15.0	1.20	3.00	2.50	15.0	330	250
MCS09F60-	6000	4.20	2.40	15.0	1.50	6.00	4.50	30.0	230	400
MCS09H41-	4050	5.50	3.80	20.0	1.60	4.30	3.40	20.0	300	270
MCS09H60-	6000	5.50	3.00	20.0	1.90	8.50	6.00	40.0	190	400
MCS09L41-	4050	7.50	4.50	32.0	1.90	6.20	4.20	32.0	295	270
MCS09L51-	5100	7.50	3.60	32.0	1.90	12.4	6.90	64.0	180	340

	$\eta_{100\%}$	$J^{1)}$	$KE_{LL\ 150\ ^\circ C}$	$R_{UV\ 20\ ^\circ C}$	$R_{UV\ 150\ ^\circ C}$	L_N	$Kt_{0\ 150\ ^\circ C}$	$n_{max}^{2)}$	$m^{1)}$
	[%]	[kgcm ²]	[V / (1000 r/min)]	[Ω]	[Ω]	[mH]	[Nm/A]	[r/min]	[kg]
MCS06C41-	65.0	0.14	36.6	27.1	36.5	51.0	0.66	8000	1.80
MCS06C60-	70.0	0.14	18.3	6.80	9.10	12.8	0.33	8000	1.80
MCS06F41-	77.0	0.22	60.1	21.9	29.5	63.5	1.05	8000	2.20
MCS06F60-	81.0	0.22	30.0	5.50	7.40	15.9	0.53	8000	2.20
MCS06I41-	81.0	0.30	73.4	18.8	25.4	60.2	1.21	8000	2.90
MCS06I60-	84.0	0.30	36.7	4.70	6.30	15.1	0.60	8000	2.90
MCS09D41-	87.0	1.10	71.2	7.00	9.40	25.1	1.25	7000	4.30
MCS09D60-	87.0	1.10	35.6	1.80	2.40	6.30	0.62	7000	4.30
MCS09F38-	91.0	1.50	79.8	5.20	7.00	24.6	1.40	7000	5.20
MCS09F60-	91.0	1.50	39.9	1.30	1.80	6.20	0.70	7000	5.20
MCS09H41-	91.0	1.90	75.7	3.20	4.30	16.1	1.29	7000	6.10
MCS09H60-	91.0	1.90	37.8	0.80	1.10	4.00	0.65	7000	6.10
MCS09L41-	91.0	2.80	71.7	1.80	2.40	9.90	1.21	7000	7.90
MCS09L51-	91.0	2.80	35.9	0.44	0.59	2.50	0.60	7000	7.90

¹⁾ Without brake.

²⁾ Mechanically permissible maximum speed.

MCS synchronous servo motors

Technical data



Rated data, non-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	I_{max}	$U_{N, AC}$	f_N
	[r/min]	[Nm]	[Nm]	[Nm]	[kW]	[A]	[A]	[A]	[V]	[Hz]
MCS12D20-	1950	6.40	5.50	18.0	1.10	2.70	2.60	10.0	345	130
MCS12D41-	4050	6.40	4.30	18.0	1.80	5.50	4.50	20.0	310	270
MCS12H15-	1500	11.4	10.0	29.0	1.60	4.10	3.80	12.0	300	100
MCS12H35-	3525	11.4	7.50	29.0	2.80	8.20	5.70	24.0	325	235
MCS12L20-	1950	15.0	13.5	56.0	2.80	6.20	5.90	28.0	330	130
MCS12L41-	4050	15.0	11.0	56.0	4.70	12.4	10.2	57.0	300	270
MCS14D15-	1500	11.0	9.20	29.0	1.45	5.00	4.50	17.0	305	100
MCS14D36-	3600	11.0	7.50	29.0	2.80	10.0	7.50	33.0	295	240
MCS14H15-	1500	21.0	16.0	55.0	2.50	8.50	6.60	26.0	325	100
MCS14H32-	3225	21.0	14.0	55.0	4.70	16.9	11.9	52.0	295	215
MCS14L15-	1500	28.0	23.0	77.0	3.60	12.0	9.70	37.0	315	100
MCS14L32-	3225	28.0	17.2	77.0	5.80	24.0	15.0	75.0	275	215
MCS14P14-	1350	37.0	30.0	105	4.20	12.2	10.8	46.0	340	90
MCS14P32-	3225	37.0	21.0	105	7.10	24.3	15.6	92.0	315	215

	$\eta_{100\%}$	$J^{1)}$	$KE_{LL\ 150\ ^\circ C}$	$R_{UV\ 20\ ^\circ C}$	$R_{UV\ 150\ ^\circ C}$	L_N	$Kt_{0\ 150\ ^\circ C}$	$n_{max}^{2)}$	$m^{1)}$
	[%]	[kgcm ²]	[V / (1000 r/min)]	[Ω]	[Ω]	[mH]	[Nm/A]	[r/min]	[kg]
MCS12D20-	79.0	4.00	137	8.70	11.8	52.2	2.34	6000	6.40
MCS12D41-	84.0	4.00	68.6	2.20	2.90	13.0	1.17	6000	6.40
MCS12H15-	88.0	7.30	173	5.70	7.70	42.1	2.79	6000	9.50
MCS12H35-	91.0	7.30	86.5	1.40	1.90	10.5	1.40	6000	9.50
MCS12L20-	90.0	10.6	149	2.20	3.00	21.8	2.42	6000	12.6
MCS12L41-	91.0	10.6	74.6	0.55	0.75	5.50	1.21	6000	12.6
MCS14D15-	88.0	8.10	129	4.00	5.40	49.8	2.19	6000	10.7
MCS14D36-	92.0	8.10	64.2	1.00	1.35	12.5	1.09	6000	10.7
MCS14H15-	92.0	14.2	153	2.08	2.81	34.1	2.48	6000	15.5
MCS14H32-	93.0	14.2	76.3	0.52	0.70	8.50	1.24	6000	15.5
MCS14L15-	90.0	23.4	152	1.21	1.64	22.0	2.33	6000	20.1
MCS14L32-	93.0	23.4	76.2	0.30	0.41	5.50	1.16	6000	20.1
MCS14P14-	90.0	34.7	179	1.10	1.49	23.9	3.04	6000	24.9
MCS14P32-	93.0	34.7	89.4	0.28	0.37	6.00	1.52	6000	24.9

¹⁾ Without brake.

²⁾ Mechanically permissible maximum speed.

MCS synchronous servo motors

Technical data



Rated data, non-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	I_{max}	$U_{N, AC}$	f_N
	[r/min]	[Nm]	[Nm]	[Nm]	[kW]	[A]	[A]	[A]	[V]	[Hz]
MCS19F14-	1425	32.0	27.0	86.0	4.00	9.90	8.60	31.0	335	95
MCS19F30-	3000	32.0	21.0	86.0	6.60	19.8	14.0	63.0	300	200
MCS19J14-	1425	51.0	40.0	129	6.00	15.2	12.3	45.0	330	95
MCS19J30-	3000	51.0	29.0	129	9.10	30.5	18.5	90.0	300	200
MCS19P14-	1350	64.0	51.0	190	7.20	17.5	14.3	60.0	330	90
MCS19P30-	3000	64.0	32.0	190	10.0	34.9	19.0	120	320	200

	$\eta_{100\%}$	$J^1)$	$KE_{LL\ 150\ ^\circ C}$	$R_{UV\ 20\ ^\circ C}$	$R_{UV\ 150\ ^\circ C}$	L_N	$Kt_{0\ 150\ ^\circ C}$	$n_{max}^2)$	$m^1)$
	[%]	[kgcm ²]	[V / (1000 r/min)]	[Ω]	[Ω]	[mH]	[Nm/A]	[r/min]	[kg]
MCS19F14-	92.0	65.0	195	1.30	1.75	20.8	3.23	4000	23.0
MCS19F30-	93.0	65.0	97.2	0.32	0.44	5.20	1.62	4000	23.0
MCS19J14-	92.0	105	199	0.65	0.88	12.8	3.31	4000	30.0
MCS19J30-	93.0	105	99.5	0.16	0.22	3.20	1.65	4000	30.0
MCS19P14-	92.0	160	216	0.54	0.73	9.60	3.66	4000	40.0
MCS19P30-	93.0	160	108	0.14	0.18	2.40	1.83	4000	40.0

¹⁾ Without brake.

²⁾ Mechanically permissible maximum speed.

MCS synchronous servo motors

Technical data



Rated data, non-ventilated

► The data applies to a mains connection voltage of 3 x 230 V.

	n_N	M_0	M_N	M_{max}	P_N	I_0	I_N	I_{max}	$U_{N, AC}$	f_N
	[r/min]	[Nm]	[Nm]	[Nm]	[kW]	[A]	[A]	[A]	[V]	[Hz]
MCS06C41L	4050	0.80	0.60	2.40	0.25	2.50	2.50	10.8	125	270
MCS06C60L	6000	0.80	0.50	2.40	0.31	4.30	4.00	18.5	85	400
MCS06F41L	4050	1.50	1.20	4.40	0.51	2.90	2.90	10.5	165	270
MCS06F60L	6000	1.50	0.90	4.40	0.57	3.80	3.40	16.5	125	400
MCS06I41L	4050	2.00	1.50	6.20	0.64	3.10	2.90	11.8	175	270
MCS06I60L	6000	2.00	1.20	6.20	0.75	4.20	3.60	16.0	150	400
MCS09D41L	4050	3.30	2.30	9.50	1.00	5.30	4.60	20.0	165	270
MCS09D60L	6000	3.30	1.80	9.50	1.10	10.3	7.00	39.0	110	400
MCS09F38L	3750	4.20	3.10	15.0	1.20	6.00	5.00	30.0	160	250
MCS09F60L	6000	4.20	2.40	15.0	1.50	10.5	7.90	53.0	125	400
MCS09H41L	4050	5.50	3.80	20.0	1.60	8.50	6.80	40.0	160	270
MCS09H60L	6000	5.50	3.00	20.0	1.90	12.0	8.00	57.0	145	400
MCS09L41L	4050	7.50	4.50	32.0	1.90	12.4	8.40	64.0	145	270

	$\eta_{100\%}$	$J^1)$	$KE_{LL\ 150\ ^\circ C}$	$R_{UV\ 20\ ^\circ C}$	$R_{UV\ 150\ ^\circ C}$	L_N	$Kt_0\ 150\ ^\circ C$	$n_{max}^2)$	$m^1)$
	[%]	[kgcm ²]	[V / (1000 r/min)]	[Ω]	[Ω]	[mH]	[Nm/A]	[r/min]	[kg]
MCS06C41L	65.0	0.14	21.5	6.00	8.00	12.8	0.33	8000	1.80
MCS06C60L	70.0	0.14	12.5	2.20	2.90	4.30	0.19	8000	1.80
MCS06F41L	81.0	0.22	34.5	5.50	7.40	15.9	0.62	8000	2.20
MCS06F60L	82.0	0.22	22.2	2.30	3.00	6.90	0.40	8000	2.20
MCS06I41L	81.0	0.30	38.0	4.70	6.20	15.1	0.64	8000	2.90
MCS06I60L	84.0	0.30	28.5	2.50	3.40	9.30	0.48	8000	2.90
MCS09D41L	87.0	1.10	35.6	1.80	2.40	6.30	0.62	7000	4.30
MCS09D60L	87.0	1.10	18.3	0.45	0.61	1.70	0.32	7000	4.30
MCS09F38L	90.0	1.50	39.9	1.30	1.80	6.20	0.70	7000	5.20
MCS09F60L	91.0	1.50	22.8	0.42	0.56	2.00	0.40	7000	5.20
MCS09H41L	91.0	1.90	37.8	0.80	1.10	4.00	0.65	7000	6.10
MCS09H60L	91.0	1.90	26.6	0.36	0.48	2.00	0.46	7000	6.10
MCS09L41L	91.0	2.80	35.9	0.44	0.59	2.50	0.60	7000	7.90

¹⁾ Without brake.

²⁾ Mechanically permissible maximum speed.

MCS synchronous servo motors

Technical data



Rated data, non-ventilated

► The data applies to a mains connection voltage of 3 x 230 V.

	n_N	M_0	M_N	M_{max}	P_N	I_0	I_N	I_{max}	$U_{N, AC}$	f_N
	[r/min]	[Nm]	[Nm]	[Nm]	[kW]	[A]	[A]	[A]	[V]	[Hz]
MCS12D20L	1950	6.40	5.50	18.0	1.10	5.50	5.20	20.0	175	130
MCS12D41L	4050	6.40	4.30	18.0	1.80	10.7	8.80	40.0	155	270
MCS12H15L	1500	11.4	10.0	29.0	1.60	8.20	7.80	24.0	158	100
MCS12H30L	3000	11.4	8.00	29.0	2.50	13.5	10.5	39.0	165	200
MCS12L20L	1950	15.0	13.5	56.0	2.80	12.4	11.8	57.0	165	130

	$\eta_{100\%}$	$J^{1)}$	$KE_{LL\ 150\ ^\circ C}$	$R_{UV\ 20\ ^\circ C}$	$R_{UV\ 150\ ^\circ C}$	L_N	$Kt_{0\ 150\ ^\circ C}$	$n_{max}^{2)}$	$m^{1)}$
	[%]	[kgcm ²]	[V / (1000 r/min)]	[Ω]	[Ω]	[mH]	[Nm/A]	[r/min]	[kg]
MCS12D20L	79.0	4.00	68.6	2.20	2.90	13.0	1.17	6000	6.40
MCS12D41L	84.0	4.00	35.0	0.55	0.75	3.40	0.60	6000	6.40
MCS12H15L	82.0	7.30	86.5	1.41	1.90	10.5	1.40	6000	9.50
MCS12H30L	87.0	7.30	53.0	0.50	0.67	4.00	0.86	6000	9.50
MCS12L20L	90.0	10.6	76.9	0.55	0.75	5.50	1.21	6000	12.6

¹⁾ Without brake.

²⁾ Mechanically permissible maximum speed.

MCS synchronous servo motors

Technical data



Rated data, 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	I_{max}	$U_{N, AC}$	f_N
	[r/min]	[Nm]	[Nm]	[Nm]	[kW]	[A]	[A]	[A]	[V]	[Hz]
MCS12D17-	1650	7.50	7.00	17.7	1.20	3.20	3.00	10.0	330	110
MCS12D35-	3525	7.50	6.00	17.7	2.20	6.40	5.60	20.0	300	235
MCS12H14-	1350	12.8	12.0	29.0	1.70	4.30	4.10	12.0	310	90
MCS12H34-	3375	12.8	10.5	29.0	3.70	8.50	7.50	24.0	320	225
MCS12L17-	1650	19.0	17.0	56.4	2.90	7.20	6.70	28.0	300	110
MCS12L39-	3900	19.0	14.0	56.4	5.70	14.4	11.7	57.0	295	260
MCS14D14-	1350	12.5	12.0	29.0	1.70	5.70	5.40	17.0	345	90
MCS14D30-	3000	12.5	10.5	29.0	3.30	11.4	9.70	33.0	325	200
MCS14H12-	1200	25.5	23.5	54.8	3.00	9.30	8.30	26.0	335	80
MCS14H28-	2775	25.5	20.5	54.8	6.00	18.4	15.0	52.0	325	185
MCS14L14-	1350	34.5	30.5	77.1	4.30	13.4	11.8	37.0	335	90
MCS14L30-	3000	34.5	25.5	77.1	8.00	26.7	20.8	75.0	310	200
MCS14P11-	1050	43.5	42.0	105	4.60	14.1	13.4	46.0	330	70
MCS14P26-	2625	43.5	33.0	105	9.10	28.3	21.9	92.0	325	175

	$\eta_{100\%}$	$J^{1)}$	$KE_{LL\ 150\ ^\circ C}$	$R_{UV\ 20\ ^\circ C}$	$R_{UV\ 150\ ^\circ C}$	L_N	$Kt_{0\ 150\ ^\circ C}$	$n_{max}^{2)}$	$m^{1)}$
	[%]	[kgcm ²]	[V / (1000 r/min)]	[Ω]	[Ω]	[mH]	[Nm/A]	[r/min]	[kg]
MCS12D17-	75.0	4.00	137	8.72	11.8	52.2	2.34	6000	8.50
MCS12D35-	82.0	4.00	68.6	2.18	2.94	13.0	1.17	6000	8.50
MCS12H14-	80.0	7.30	173	5.72	7.72	42.1	2.98	6000	11.6
MCS12H34-	86.0	7.30	86.5	1.39	1.88	10.5	1.51	6000	11.6
MCS12L17-	90.0	10.6	149	2.22	2.99	21.8	2.64	6000	14.7
MCS12L39-	94.0	10.6	74.6	0.55	0.75	5.50	1.32	6000	14.7
MCS14D14-	84.0	8.10	129	4.00	5.40	49.8	2.19	6000	14.5
MCS14D30-	92.0	8.10	64.2	1.00	1.35	12.5	1.09	6000	14.5
MCS14H12-	87.0	14.2	153	2.08	2.81	34.1	2.75	6000	19.5
MCS14H28-	93.0	14.2	76.3	0.52	0.70	8.50	1.39	6000	19.5
MCS14L14-	88.0	23.4	152	1.21	1.64	22.0	2.57	6000	24.0
MCS14L30-	92.0	23.4	76.2	0.30	0.41	5.50	1.29	6000	24.0
MCS14P11-	86.0	34.7	179	1.10	1.49	23.9	3.08	6000	29.0
MCS14P26-	92.0	34.7	89.4	0.28	0.37	6.00	1.54	6000	29.0

¹⁾ Without brake.

²⁾ Mechanically permissible maximum speed.

MCS synchronous servo motors

Technical data



Rated data, 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	I_{max}	$U_{N, AC}$	f_N
	[r/min]	[Nm]	[Nm]	[Nm]	[kW]	[A]	[A]	[A]	[V]	[Hz]
MCS19F12-	1200	41.5	38.0	86.0	4.80	12.2	11.3	31.0	320	80
MCS19F29-	2850	41.5	32.5	86.0	9.70	24.5	20.1	63.0	320	190
MCS19J12-	1200	70.5	62.5	129	7.90	20.3	18.3	45.0	320	80
MCS19J29-	2850	70.5	50.5	129	15.1	40.6	31.0	90.0	315	190
MCS19P12-	1200	86.0	72.0	190	9.00	22.4	21.3	60.0	310	80
MCS19P29-	2850	86.0	53.0	190	15.8	44.7	29.5	120	315	190

	$\eta_{100\%}$	$J^{1)}$	$KE_{LL\ 150\ ^\circ C}$	$R_{UV\ 20\ ^\circ C}$	$R_{UV\ 150\ ^\circ C}$	L_N	$Kt_{0\ 150\ ^\circ C}$	$n_{max}^{2)}$	$m^{1)}$
	[%]	[kgcm ²]	[V / (1000 r/min)]	[Ω]	[Ω]	[mH]	[Nm/A]	[r/min]	[kg]
MCS19F12-	90.4	65.0	195	1.30	1.75	20.8	3.40	4000	29.0
MCS19F29-	94.7	65.0	97.2	0.32	0.44	5.20	1.69	4000	29.0
MCS19J12-	89.3	105	199	0.65	0.88	12.8	3.47	4000	36.0
MCS19J29-	92.8	105	99.5	0.16	0.22	3.20	1.74	4000	36.0
MCS19P12-	90.3	160	216	0.54	0.73	9.60	3.84	4000	46.0
MCS19P29-	93.4	160	108	0.14	0.18	2.40	1.92	4000	46.0

¹⁾ Without brake.

²⁾ Mechanically permissible maximum speed.

MCS synchronous 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	E0474	E0594
					I _N	1.9	3.1	5.0	8.8	11.7	16.3	20.6	29.4	38.4	47.0	59.0
					I _{0,max}	6.0	10.0	16.0	21.0	28.0	39.0	49.5	58.8	76.8	94.0	118.0
MCS	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	94.0	118.0
06C41-	0.6	4050	1.3	0.25	M ₀	0.8										
					M _N	0.6										
					M _{0,max}	2.4										
					M _{max}	2.4										
					η _{eto}	-										
06C60-	0.5	6000	2.4	0.31	M ₀	0.6	0.8									
					M _N	0.4	0.5									
					M _{0,max}	1.5	2.3									
					M _{max}	1.5	2.3									
					η _{eto}	-	-									
06F41-	1.2	4050	1.5	0.51	M ₀	1.5										
					M _N	1.2										
					M _{0,max}	4.4										
					M _{max}	4.4										
					η _{eto}	-										
06F60-	0.9	6000	2.5	0.57	M ₀	1.0	1.5									
					M _N	0.7	0.9									
					M _{0,max}	3.0	4.3									
					M _{max}	3.0	4.3									
					η _{eto}	-	-									
06I41-	1.5	4050	1.6	0.64	M ₀	2.0										
					M _N	1.5										
					M _{0,max}	6.2										
					M _{max}	6.2										
					η _{eto}	-										
06I60-	1.2	6000	2.9	0.75	M ₀	1.1	1.8	2.0								
					M _N	0.8	1.2	1.2								
					M _{0,max}	3.3	5.5	6.2								
					M _{max}	3.3	5.5	6.2								
					η _{eto}	-	-	-								
09D41-	2.3	4050	2.3	1.00	M ₀	2.4	3.3									
					M _N	1.9	2.3									
					M _{0,max}	6.3	9.5									
					M _{max}	6.3	9.5									
					η _{eto}	-	-									
09D60-	1.8	6000	3.8	1.10	M ₀			3.1	3.3							
					M _N			1.8	1.8							
					M _{0,max}			8.0	9.5							
					M _{max}			8.0	9.5							
					η _{eto}			-	-							
09F38-	3.1	3750	2.5	1.20	M ₀		4.2	4.2								
					M _N		3.1	3.1								
					M _{0,max}		11.6	14.9								
					M _{max}		11.6	14.9								
					η _{eto}		-	-								

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

MCS synchronous 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	E0474	E0594
					I _N	1.9	3.1	5.0	8.8	11.7	16.3	20.6	29.4	38.4	47.0	59.0
					I _{0,max}	6.0	10.0	16.0	21.0	28.0	39.0	49.5	58.8	76.8	94.0	118.0
MCS	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	94.0	118.0
09F60-	2.4	6000	4.5	1.50	M ₀			3.5	4.2	4.2	4.2					
					M _N			2.4	2.4	2.4	2.4					
					M _{0,max}			9.8	12.0	14.4	14.9					
					M _{max}			9.8	12.0	14.4	14.9					
					η _{eto}			-	-	-	-					
09H41-	3.8	4050	3.4	1.60	M ₀		4.0	5.5	5.5							
					M _N		3.5	3.8	3.8							
					M _{0,max}		12.0	17.5	20.4							
					M _{max}		12.0	17.5	20.4							
					η _{eto}		-	-	-							
09H60-	3.0	6000	6.0	1.90	M ₀				5.5	5.5	5.5	5.5				
					M _N				3.0	3.0	3.0	3.0				
					M _{0,max}				12.5	15.8	20.1	20.4				
					M _{max}				12.5	15.8	20.1	20.4				
					η _{eto}				-	-	-	-				
09L41-	4.5	4050	4.2	1.90	M ₀			6.0	7.5	7.5						
					M _N			4.5	4.5	4.5						
					M _{0,max}			17.4	22.2	28.5						
					M _{max}			17.4	22.2	28.5						
					η _{eto}			-	-	-						
09L51-	3.6	5100	6.9	1.90	M ₀				5.3	7.0	7.5	7.5	7.5			
					M _N				3.6	3.6	3.6	3.6	3.6			
					M _{0,max}				11.9	15.5	20.9	25.8	29.7			
					M _{max}				11.9	15.5	20.9	25.8	29.7			
					η _{eto}				-	-	-	-	-			
12D20-	5.5	1950	2.6	1.10	M ₀	4.4	6.4									
					M _N	4.0	5.5									
					M _{0,max}	11.8	17.7									
					M _{max}	11.8	17.7									
					η _{eto}	-	-									
12D41-	4.3	4050	4.5	1.80	M ₀			5.9	6.4							
					M _N			4.3	4.3							
					M _{0,max}			14.7	17.7							
					M _{max}			14.7	17.7							
					η _{eto}			-	-							
12H15-	10.0	1500	3.8	1.60	M ₀		8.7	11.4								
					M _N		8.2	10.0								
					M _{0,max}		24.6	29.0								
					M _{max}		24.6	29.0								
					η _{eto}		-	-								
12H35-	7.5	3525	5.7	2.80	M ₀			7.0	11.4	11.4	11.4					
					M _N			6.6	7.5	7.5	7.5					
					M _{0,max}			20.1	25.8	29.0	29.0					
					M _{max}			20.1	25.8	29.0	29.0					
					η _{eto}			-	-	-	-					

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

MCS synchronous 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	E0474	E0594
					I _N	1.9	3.1	5.0	8.8	11.7	16.3	20.6	29.4	38.4	47.0	59.0
					I _{0,max}	6.0	10.0	16.0	21.0	28.0	39.0	49.5	58.8	76.8	94.0	118.0
MCS	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	94.0	118.0
12L20-	13.5	1950	5.9	2.80	M ₀			12.1	15.0	15.0	15.0					
					M _N			11.4	13.5	13.5	13.5					
					M _{0,max}			35.5	44.6	55.7	56.4					
					M _{max}			35.5	44.6	55.7	56.4					
					η _{eto}			-	-	-	-					
12L41-	11.0	4050	10.2	4.70	M ₀				10.6	14.0	15.0	15.0	15.0			
					M _N				9.5	11.0	11.0	11.0	11.0			
					M _{0,max}				24.4	31.6	41.9	50.8	56.4			
					M _{max}				24.4	31.6	41.9	50.8	56.4			
					η _{eto}				-	-	-	-	-			
14D15-	9.2	1500	4.5	1.45	M ₀			11.0	11.0							
					M _N			9.2	9.2							
					M _{0,max}			28.3	29.0							
					M _{max}			28.3	29.0							
					η _{eto}			-	-							
14D36-	7.5	3600	7.5	2.80	M ₀				9.6	11.0	11.0					
					M _N				7.5	7.5	7.5					
					M _{0,max}				20.2	25.6	29.0					
					M _{max}				20.2	25.6	29.0					
					η _{eto}				-	-	-					
14H15-	16.0	1500	6.6	2.50	M ₀			12.4	21.0	21.0	21.0					
					M _N			12.1	16.0	16.0	16.0					
					M _{0,max}			37.1	46.6	54.8	54.8					
					M _{max}			37.1	46.6	54.8	54.8					
					η _{eto}			-	-	-	-					
14H32-	14.0	3225	11.9	4.70	M ₀					14.4	20.3	21.0	21.0			
					M _N					13.6	14.0	14.0	14.0			
					M _{0,max}					33.0	43.9	53.2	54.8			
					M _{max}					33.0	43.9	53.2	54.8			
					η _{eto}					-	-	-	-			
14L15-	23.0	1500	9.7	3.60	M ₀				20.5	27.1	28.0					
					M _N				20.9	23.0	23.0					
					M _{0,max}				48.0	61.4	77.1					
					M _{max}				48.0	61.4	77.1					
					η _{eto}				-	-	-					
14L32-	17.2	3225	15.0	5.80	M ₀						19.0	24.0	28.0	28.0	28.0	
					M _N						17.2	17.2	17.2	17.2	17.2	
					M _{0,max}						45.0	55.3	63.9	77.1	77.1	
					M _{max}						45.0	55.3	63.9	77.1	77.1	
					η _{eto}						-	-	-	-	-	
14P14-	30.0	1350	10.8	4.20	M ₀				26.7	35.2	37.0	37.0				
					M _N				24.4	30.0	30.0	30.0				
					M _{0,max}				56.1	71.7	93.3	105.1				
					M _{max}				56.1	71.7	93.3	105.1				
					η _{eto}				-	-	-	-				

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

MCS synchronous 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	E0474	E0594
					I _N	1.9	3.1	5.0	8.8	11.7	16.3	20.6	29.4	38.4	47.0	59.0
					I _{0,max}	6.0	10.0	16.0	21.0	28.0	39.0	49.5	58.8	76.8	94.0	118.0
MCS	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	94.0	118.0
14P32-	21.0	3225	15.6	7.10	M ₀						24.8	31.4	37.0	37.0	37.0	
					M _N						21.0	21.0	21.0	21.0	21.0	
					M _{0,max}						52.5	64.6	74.7	92.2	105.1	
					M _{max}						52.5	64.6	74.7	92.2	105.1	
					η _{eto}						-	-	-	-	-	
19F14-	27.0	1425	8.6	4.00	M ₀				28.4	32.0	32.0					
					M _N				27.0	27.0	27.0					
					M _{0,max}				62.1	78.9	86.0					
					M _{max}				62.1	78.9	86.0					
					η _{eto}				-	-	-					
19F30-	21.0	3000	14.0	6.60	M ₀						26.3	32.0	32.0	32.0		
					M _N						21.0	21.0	21.0	21.0		
					M _{0,max}						56.6	70.2	81.6	86.0		
					M _{max}						56.6	70.2	81.6	86.0		
					η _{eto}						-	-	-	-		
19J14-	40.0	1425	12.3	6.00	M ₀					38.9	51.0	51.0				
					M _N					37.7	40.0	40.0				
					M _{0,max}					85.0	114.4	129.0				
					M _{max}					85.0	114.4	129.0				
					η _{eto}					-	-	-				
19J30-	29.0	3000	18.5	9.10	M ₀						27.3	34.4	49.2	51.0	51.0	
					M _N						25.6	29.0	29.0	29.0	29.0	
					M _{0,max}						60.8	75.9	88.9	112.9	129.0	
					M _{max}						60.8	75.9	88.9	112.9	129.0	
					η _{eto}						-	-	-	-	-	
19P14-	51.0	1350	14.3	7.20	M ₀						59.6	64.0	64.0	64.0		
					M _N						51.0	51.0	51.0	51.0		
					M _{0,max}						128.4	159.9	186.6	190.0		
					M _{max}						128.4	159.9	186.6	190.0		
					η _{eto}						-	-	-	-		
19P30-	32.0	3000	19.0	10.00	M ₀						29.9	37.8	53.9	64.0	64.0	64.0
					M _N						27.5	32.0	32.0	32.0	32.0	32.0
					M _{0,max}						65.7	83.6	98.5	126.6	152.5	187.2
					M _{max}						65.7	83.6	98.5	126.6	152.5	187.2
					η _{eto}						-	-	-	-	-	-

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

MCS synchronous servo motors

Technical data



Selection tables, Servo Drives 9400 HighLine

Non-ventilated motors

- The data applies to a mains connection voltage of 3x230V and an inverter switching frequency of 4 kHz.

					E94A□□	E0024	E0034	E0044	E0074	E0094	E0134	E0174	E0244	E0324
					I _N	1.9	3.1	5.0	8.8	11.7	16.3	20.6	29.4	38.4
					I _{0,max}	6.0	10.0	16.0	21.0	28.0	39.0	49.5	58.8	76.8
MCS	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
06C41L	0.6	4050	2.6	0.25	M ₀	0.6	0.8							
					M _N	0.5	0.6							
					M _{0,max}	1.5	2.3							
					M _{max}	1.5	2.3							
					η _{eto}	-	-							
06C60L	0.5	6000	4.0	0.31	M ₀		0.6	0.8	0.8					
					M _N		0.4	0.5	0.5					
					M _{0,max}		1.5	2.2	2.4					
					M _{max}		1.5	2.2	2.4					
					η _{eto}		-	-	-					
06F41L	1.2	4050	2.9	0.51	M ₀	1.0	1.5	1.5						
					M _N	0.8	1.2	1.2						
					M _{0,max}	2.7	4.2	4.4						
					M _{max}	2.7	4.2	4.4						
					η _{eto}	-	-	-						
06F60L	0.9	6000	3.8	0.57	M ₀		1.2	1.5	1.5					
					M _N		0.8	0.9	0.9					
					M _{0,max}		3.1	4.3	4.4					
					M _{max}		3.1	4.3	4.4					
					η _{eto}		-	-	-					
06I41L	1.5	4050	3.2	0.64	M ₀		2.0	2.0						
					M _N		1.5	1.5						
					M _{0,max}		5.4	6.2						
					M _{max}		5.4	6.2						
					η _{eto}		-	-						
06I60L	1.2	6000	3.8	0.75	M ₀		1.5	2.0						
					M _N		1.0	1.2						
					M _{0,max}		4.4	6.2						
					M _{max}		4.4	6.2						
					η _{eto}		-	-						
09D41L	2.3	4050	4.6	1.00	M ₀			3.1	3.3					
					M _N			2.3	2.3					
					M _{0,max}			8.0	9.5					
					M _{max}			8.0	9.5					
					η _{eto}			-	-					
09D60L	1.8	6000	7.0	1.10	M ₀				2.8	3.3	3.3			
					M _N				1.8	1.8	1.8			
					M _{0,max}				5.7	7.3	9.5			
					M _{max}				5.7	7.3	9.5			
					η _{eto}				-	-	-			
09F38L	3.1	3750	5.0	1.20	M ₀			3.5	4.2	4.2	4.2			
					M _N			3.1	3.1	3.1	3.1			
					M _{0,max}			9.8	12.0	13.8	15.0			
					M _{max}			9.8	12.0	13.8	15.0			
					η _{eto}			-	-	-	-			

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

MCS synchronous servo motors

Technical data



Selection tables, Servo Drives 9400 HighLine

Non-ventilated motors

- The data applies to a mains connection voltage of 3x230V and an inverter switching frequency of 4 kHz.

					E94A□□	E0024	E0034	E0044	E0074	E0094	E0134	E0174	E0244	E0324
					I _N	1.9	3.1	5.0	8.8	11.7	16.3	20.6	29.4	38.4
					I _{0,max}	6.0	10.0	16.0	21.0	28.0	39.0	49.5	58.8	76.8
MCS	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
09F60L	2.4	6000	7.9	1.50	M ₀				3.5	4.2	4.2	4.2	4.2	
					M _N				2.4	2.4	2.4	2.4	2.4	
					M _{0,max}				7.8	9.8	12.6	14.5	15.0	
					M _{max}				7.8	9.8	12.6	14.5	15.0	
					η _{eto}				-	-	-	-	-	
09H41L	3.8	4050	6.8	1.60	M ₀				5.5	5.3	5.5	5.5		
					M _N				3.8	3.0	3.8	3.8		
					M _{0,max}				12.4	11.8	19.7	20.0		
					M _{max}				12.4	11.8	19.7	20.0		
					η _{eto}				-	-	-	-		
09H60L	3.0	6000	8.0	1.90	M ₀				4.0	5.5	5.5	5.5	5.5	
					M _N				3.0	3.8	3.0	3.0	3.0	
					M _{0,max}				9.2	15.6	15.4	18.3	20.0	
					M _{max}				9.2	15.6	15.4	18.3	20.0	
					η _{eto}				-	-	-	-	-	
09L41L	4.5	4050	8.4	1.90	M ₀				5.3	7.0	7.5	7.5	7.5	7.5
					M _N				4.5	4.5	4.5	4.5	4.5	4.5
					M _{0,max}				11.9	15.5	20.9	25.8	29.7	31.9
					M _{max}				11.9	15.5	20.9	25.8	29.7	31.9
					η _{eto}				-	-	-	-	-	-
12D20L	5.5	1950	5.2	1.10	M ₀			5.9	6.4					
					M _N			5.3	5.5					
					M _{0,max}			14.9	17.7					
					M _{max}			14.9	17.7					
					η _{eto}			-	-					
12D41L	4.3	4050	8.8	1.80	M ₀				5.3	6.4	6.4	6.4		
					M _N				4.3	4.3	4.3	4.3		
					M _{0,max}				10.6	13.6	17.7	17.9		
					M _{max}				10.6	13.6	17.7	17.9		
					η _{eto}				-	-	-	-		
12H15L	10.0	1500	7.6	1.60	M ₀				11.4	11.4	10.0			
					M _N				10.0	10.0	11.4			
					M _{0,max}				25.8	29.0	29.0			
					M _{max}				25.8	29.0	29.0			
					η _{eto}				-	-	-			
12H30L	8.0	3000	10.5	2.50	M ₀				7.4	9.8	11.4			
					M _N				6.7	8.0	8.0			
					M _{0,max}				16.4	21.5	29.0			
					M _{max}				16.4	21.5	29.0			
					η _{eto}				-	-	-			
12L20L	13.5	1950	11.8	2.80	M ₀				10.6	14.0	15.0	15.0	15.0	
					M _N				10.1	13.3	13.5	13.5	13.5	
					M _{0,max}				24.4	31.5	41.8	50.5	56.0	
					M _{max}				24.4	31.5	41.8	50.5	56.0	
					η _{eto}				-	-	-	-	-	

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

MCS synchronous 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□□	E0024	E0034	E0044	E0074	E0094	E0134	E0174	E0244	E0324	E0474	E0594
					I _N	1.9	3.1	5.0	8.8	11.7	16.3	20.6	29.4	38.4	47.0	59.0
					I _{0,max}	6.0	10.0	16.0	21.0	28.0	39.0	49.5	58.8	76.8	94.0	118.0
MCS	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	94.0	118.0
12D17-	7.0	1650	3.0	1.20	M ₀	4.4	7.3									
					M _N	4.0	7.0									
					M _{0,max}	11.8	17.7									
					M _{max}	11.8	17.7									
					η _{eto}	-	-									
12D35-	6.0	3525	5.6	2.20	M ₀			5.9	7.5							
					M _N			5.4	6.0							
					M _{0,max}			14.7	17.7							
					M _{max}			14.7	17.7							
					η _{eto}			-	-							
12H14-	12.0	1350	4.1	1.70	M ₀		8.7	12.8								
					M _N		8.2	12.0								
					M _{0,max}		24.6	29.0								
					M _{max}		24.6	29.0								
					η _{eto}		-	-								
12H34-	10.5	3375	7.5	3.70	M ₀			7.0	12.8	12.8	12.8					
					M _N			6.6	10.5	10.5	10.5					
					M _{0,max}			20.1	25.8	29.0	29.0					
					M _{max}			20.1	25.8	29.0	29.0					
					η _{eto}			-	-	-	-					
12L17-	17.0	1650	6.7	2.90	M ₀			12.1	19.0	19.0	19.0					
					M _N			11.4	17.0	17.0	17.0					
					M _{0,max}			35.5	44.6	55.7	56.4					
					M _{max}			35.5	44.6	55.7	56.4					
					η _{eto}			-	-	-	-					
12L39-	14.0	3900	11.7	5.70	M ₀				10.6	15.3	19.0	19.0	19.0			
					M _N				9.5	13.9	14.0	14.0	14.0			
					M _{0,max}				24.4	31.6	41.9	50.8	56.4			
					M _{max}				24.4	31.6	41.9	50.8	56.4			
					η _{eto}				-	-	-	-	-			
14D14-	12.0	1350	5.4	1.70	M ₀			11.0	12.5							
					M _N			11.0	12.0							
					M _{0,max}			28.3	29.0							
					M _{max}			28.3	29.0							
					η _{eto}			-	-							
14D30-	10.5	3000	9.7	3.30	M ₀				9.6	12.5	12.5					
					M _N				9.5	10.5	10.5					
					M _{0,max}				20.2	25.6	29.0					
					M _{max}				20.2	25.6	29.0					
					η _{eto}				-	-	-					
14H12-	23.5	1200	8.3	3.00	M ₀			12.4	24.1	25.5	25.5					
					M _N			12.1	23.5	23.5	23.5					
					M _{0,max}			37.1	46.6	54.8	54.8					
					M _{max}			37.1	46.6	54.8	54.8					
					η _{eto}			-	-	-	-					

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

MCS synchronous 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□□	E0024	E0034	E0044	E0074	E0094	E0134	E0174	E0244	E0324	E0474	E0594
					I _N	1.9	3.1	5.0	8.8	11.7	16.3	20.6	29.4	38.4	47.0	59.0
					I _{0,max}	6.0	10.0	16.0	21.0	28.0	39.0	49.5	58.8	76.8	94.0	118.0
MCS	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	94.0	118.0
14H28-	20.5	2775	15.0	6.00	M ₀					16.1	20.5	25.5	25.5			
					M _N					15.9	20.5	20.5	20.5			
					M _{0,max}					33.0	43.9	53.2	54.8			
					M _{max}					33.0	43.9	53.2	54.8			
					η _{eto}					-	-	-	-			
14L14-	30.5	1350	11.8	4.30	M ₀				20.5	30.0	34.5					
					M _N				20.5	30.0	30.5					
					M _{0,max}				48.0	61.4	77.1					
					M _{max}				48.0	61.4	77.1					
					η _{eto}				-	-	-					
14L30-	25.5	3000	20.8	8.00	M ₀						21.0	26.6	34.5	34.5	34.5	
					M _N						20.0	25.3	25.5	25.5	25.5	
					M _{0,max}						45.0	55.3	63.9	77.1	77.1	
					M _{max}						45.0	55.3	63.9	77.1	77.1	
					η _{eto}						-	-	-	-	-	
14P11-	42.0	1050	13.4	4.60	M ₀				26.7	36.4	43.5	43.5				
					M _N				24.4	36.4	42.0	42.0				
					M _{0,max}				56.1	71.7	93.3	105.1				
					M _{max}				56.1	71.7	93.3	105.1				
					η _{eto}				-	-	-	-				
14P26-	33.0	2625	21.9	9.10	M ₀						24.8	31.4	43.5	43.5	43.5	
					M _N						24.6	31.0	33.0	33.0	33.0	
					M _{0,max}						52.5	64.6	74.7	92.2	105.1	
					M _{max}						52.5	64.6	74.7	92.2	105.1	
					η _{eto}						-	-	-	-	-	
19F12-	38.0	1200	11.3	4.80	M ₀				29.9	39.5	41.5					
					M _N				29.3	38.0	38.0					
					M _{0,max}				62.1	78.9	86.0					
					M _{max}				62.1	78.9	86.0					
					η _{eto}				-	-	-					
19F29-	32.5	2850	20.1	9.70	M ₀						26.3	34.9	41.5	41.5		
					M _N						26.0	32.5	32.5	32.5		
					M _{0,max}						56.6	70.2	81.6	86.0		
					M _{max}						56.6	70.2	81.6	86.0		
					η _{eto}						-	-	-	-		
19J12-	62.5	1200	18.3	7.90	M ₀						56.6	70.5				
					M _N						55.7	62.5				
					M _{0,max}						114.4	129.0				
					M _{max}						114.4	129.0				
					η _{eto}						-	-				
19J29-	50.5	2850	31.0	15.10	M ₀								49.2	66.7	70.5	
					M _N								47.9	50.5	50.5	
					M _{0,max}								88.9	112.9	129.0	
					M _{max}								88.9	112.9	129.0	
					η _{eto}								-	-	-	

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

MCS synchronous 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□□	E0024	E0034	E0044	E0074	E0094	E0134	E0174	E0244	E0324	E0474	E0594
					I _N	1.9	3.1	5.0	8.8	11.7	16.3	20.6	29.4	38.4	47.0	59.0
					I _{0,max}	6.0	10.0	16.0	21.0	28.0	39.0	49.5	58.8	76.8	94.0	118.0
MCS	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	94.0	118.0
19P12-	72.0	1200	21.3	9.00	M ₀							79.1	86.0	86.0		
					M _N							69.6	72.0	72.0		
					M _{0,max}							159.9	186.6	190.0		
					M _{max}							159.9	186.6	190.0		
					n _{eto}							-	-	-		
19P29-	53.0	2850	29.5	15.80	M ₀								56.5	73.9	86.0	86.0
					M _N								52.8	53.0	53.0	53.0
					M _{0,max}								98.5	126.6	152.5	187.2
					M _{max}								98.5	126.6	152.5	187.2
					n _{eto}								-	-	-	-

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

MCS synchronous servo motors

Technical data



MCS synchronous 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	□3714	□5514	□7514	□1124	□1524	□2224	□3024
					I _N	1.3	1.8	2.4	3.2	3.9	5.9	7.3
					I _{0,max}	2.0	2.7	3.6	4.8	5.9	8.4	11.0
MCS	M _N	n _N	I _N	P _N	I _{max}	2.6	3.6	4.8	6.4	7.8	11.2	14.6
06C41-	0.6	4050	1.3	0.25	M ₀	0.8	0.8	0.8	0.8	0.8		
					M _N	0.6	0.6	0.6	0.6	0.6		
					M _{0,max}	1.4	1.7	2.3	2.4	2.4		
					M _{max}	1.4	1.7	2.3	2.4	2.4		
					η _{eto}	-	-	-	-	-		
06C60-	0.5	6000	2.4	0.31	M ₀			0.8	0.8	0.8	0.8	0.8
					M _N			0.5	0.5	0.5	0.5	0.5
					M _{0,max}			1.3	1.6	2.0	2.4	2.4
					M _{max}			1.3	1.6	2.0	2.4	2.4
					η _{eto}			-	-	-	-	-
06F41-	1.2	4050	1.5	0.51	M ₀	1.3	1.5	1.5	1.5	1.5		
					M _N	1.0	1.2	1.2	1.2	1.2		
					M _{0,max}	2.3	3.2	4.3	4.4	4.4		
					M _{max}	2.3	3.2	4.3	4.4	4.4		
					η _{eto}	-	-	-	-	-		
06F60-	0.9	6000	2.5	0.57	M ₀			1.2	1.5	1.5	1.5	1.5
					M _N			0.9	0.9	0.9	0.9	0.9
					M _{0,max}			2.1	3.3	4.0	4.4	4.4
					M _{max}			2.1	3.3	4.0	4.4	4.4
					η _{eto}			-	-	-	-	-
06I41-	1.5	4050	1.6	0.64	M ₀	1.6	2.0	2.0	2.0	2.0		
					M _N	1.2	1.5	1.5	1.5	1.5		
					M _{0,max}	2.9	4.0	5.3	6.2	6.2		
					M _{max}	2.9	4.0	5.3	6.2	6.2		
					η _{eto}	-	-	-	-	-		
06I60-	1.2	6000	2.9	0.75	M ₀				2.0	2.0	2.0	2.0
					M _N				1.2	1.2	1.2	1.2
					M _{0,max}				3.6	4.4	5.7	5.7
					M _{max}				3.6	4.4	5.7	5.7
					η _{eto}				-	-	-	-
09D41-	2.3	4050	2.3	1.00	M ₀		2.2	3.1	3.3	3.3	3.3	3.3
					M _N		1.7	2.3	2.3	2.3	2.3	2.3
					M _{0,max}		4.0	5.3	6.7	8.2	9.4	9.4
					M _{max}		4.0	5.3	6.7	8.2	9.4	9.4
					η _{eto}		-	-	-	-	-	-
09D60-	1.8	6000	3.8	1.10	M ₀				2.0	2.4	3.3	3.3
					M _N				1.5	1.8	1.8	1.8
					M _{0,max}				3.5	4.2	6.3	7.8
					M _{max}				3.5	4.2	6.3	7.8
					η _{eto}				-	-	-	-
09F38-	3.1	3750	2.5	1.20	M ₀			3.4	4.2	4.2	4.2	4.2
					M _N			3.0	3.1	3.1	3.1	3.1
					M _{0,max}			6.6	8.4	10.2	12.0	12.0
					M _{max}			6.6	8.4	10.2	12.0	12.0
					η _{eto}			-	-	-	-	-

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

MCS synchronous 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.

□4024	□5524	□7524	□1134	□1534	□1834	□2234	□3034	E84AVTC					
9.5	13.0	16.5	23.5	32.0	39.0	47.0	61.0	I _N					
14.3	19.5	26.4	32.9	43.2	60.0	70.5	91.5	I _{0,max}					
19.0	26.0	33.0	47.0	64.0	78.0	94.0	122.0	I _{max}	P _N	I _N	n _N	M _N	MCS
								M ₀	0.25	1.3	4050	0.6	06C41-
								M _N					
								M _{0,max}					
								M _{max}					
								n _{eto}					
								M ₀	0.31	2.4	6000	0.5	06C60-
								M _N					
								M _{0,max}					
								M _{max}					
								n _{eto}					
								M ₀	0.51	1.5	4050	1.2	06F41-
								M _N					
								M _{0,max}					
								M _{max}					
								n _{eto}					
								M ₀	0.57	2.5	6000	0.9	06F60-
								M _N					
								M _{0,max}					
								M _{max}					
								n _{eto}					
								M ₀	0.64	1.6	4050	1.5	06I41-
								M _N					
								M _{0,max}					
								M _{max}					
								n _{eto}					
								M ₀	0.75	2.9	6000	1.2	06I60-
								M _N					
								M _{0,max}					
								M _{max}					
								n _{eto}					
								M ₀	1.00	2.3	4050	2.3	09D41-
								M _N					
								M _{0,max}					
								M _{max}					
								n _{eto}					
3.3	3.3							M ₀	1.10	3.8	6000	1.8	09D60-
1.8	1.8							M _N					
9.1	9.3							M _{0,max}					
9.1	9.3							M _{max}					
-	-							n _{eto}					
								M ₀	1.20	2.5	3750	3.1	09F38-
								M _N					
								M _{0,max}					
								M _{max}					
								n _{eto}					

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

MCS synchronous 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	□3714	□5514	□7514	□1124	□1524	□2224	□3024
					I _N	1.3	1.8	2.4	3.2	3.9	5.9	7.3
					I _{0,max}	2.0	2.7	3.6	4.8	5.9	8.4	11.0
MCS	M _N	n _N	I _N	P _N	I _{max}	2.6	3.6	4.8	6.4	7.8	11.2	14.6
09F60-	2.4	6000	4.5	1.50	M ₀						4.2	4.2
					M _N						2.4	2.4
					M _{0,max}						7.8	9.6
					M _{max}						7.8	9.6
					η _{eto}						-	-
09H41-	3.8	4050	3.4	1.60	M ₀				4.7	5.0	5.5	5.5
					M _N				3.6	3.8	3.8	3.8
					M _{0,max}				8.1	9.9	14.0	17.4
					M _{max}				8.1	9.9	14.0	17.4
					η _{eto}				-	-	-	-
09H60-	3.0	6000	6.0	1.90	M ₀						4.4	4.5
					M _N						3.0	3.0
					M _{0,max}						7.5	9.3
					M _{max}						7.5	9.3
					η _{eto}						-	-
09L41-	4.5	4050	4.2	1.90	M ₀				3.9	4.7	7.5	7.5
					M _N				3.4	4.2	4.5	4.5
					M _{0,max}				7.3	8.9	13.1	16.3
					M _{max}				7.3	8.9	13.1	16.3
					η _{eto}				-	-	-	-
09L51-	3.6	5100	6.9	1.90	M ₀							4.2
					M _N							3.6
					M _{0,max}							8.3
					M _{max}							8.3
					η _{eto}							-
12D20-	5.5	1950	2.6	1.10	M ₀			5.7	6.4	6.4	6.4	6.4
					M _N			5.1	5.5	5.5	5.5	5.5
					M _{0,max}			9.6	12.6	15.3	17.7	17.7
					M _{max}			9.6	12.6	15.3	17.7	17.7
					η _{eto}			-	-	-	-	-
12D41-	4.3	4050	4.5	1.80	M ₀				3.8	4.6	6.4	6.4
					M _N				3.0	3.7	4.3	4.3
					M _{0,max}				6.4	7.8	11.4	14.0
					M _{max}				6.4	7.8	11.4	14.0
					η _{eto}				-	-	-	-
12H15-	10.0	1500	3.8	1.60	M ₀				9.2	10.9	11.4	11.4
					M _N				8.4	10.0	10.0	10.0
					M _{0,max}				16.4	20.0	29.0	29.0
					M _{max}				16.4	20.0	29.0	29.0
					η _{eto}				-	-	-	-
12H35-	7.5	3525	5.7	2.80	M ₀						9.8	9.8
					M _N						7.5	7.5
					M _{0,max}						15.2	18.8
					M _{max}						15.2	18.8
					η _{eto}						-	-

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

MCS synchronous 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.

□4024	□5524	□7524	□1134	□1534	□1834	□2234	□3034	E84AVTC					
9.5	13.0	16.5	23.5	32.0	39.0	47.0	61.0	I _N					
14.3	19.5	26.4	32.9	43.2	60.0	70.5	91.5	I _{0,max}					
19.0	26.0	33.0	47.0	64.0	78.0	94.0	122.0	I _{max}	P _N	I _N	n _N	M _N	MCS
4.2	4.2							M ₀					
2.4	2.4							M _N					
11.1	11.4							M _{0,max}					
11.1	11.4							M _{max}					
-	-							n _{eto}	1.50	4.5	6000	2.4	09F60-
5.5	5.5							M ₀					
3.8	3.8							M _N					
19.6	20.1							M _{0,max}					
19.6	20.1							M _{max}					
-	-							n _{eto}	1.60	3.4	4050	3.8	09H41-
5.5	5.5							M ₀					
3.0	3.0							M _N					
11.4	11.7							M _{0,max}					
11.4	11.7							M _{max}					
-	-							n _{eto}	1.90	6.0	6000	3.0	09H60-
7.5	7.5							M ₀					
4.5	4.5							M _N					
20.3	20.8							M _{0,max}					
20.3	20.8							M _{max}					
-	-							n _{eto}	1.90	4.2	4050	4.5	09L41-
7.5	7.5	7.5	7.5					M ₀					
3.6	3.6	3.6	3.6					M _N					
10.8	19.1	19.1	19.1					M _{0,max}					
10.8	19.1	19.1	19.1					M _{max}					
-	-	-	-					n _{eto}	1.90	6.9	5100	3.6	09L51-
								M ₀					
								M _N					
								M _{0,max}					
								M _{max}					
								n _{eto}	1.10	2.6	1950	5.5	12D20-
								M ₀					
								M _N					
								M _{0,max}					
								M _{max}					
								n _{eto}	1.80	4.5	4050	4.3	12D41-
6.4	6.4							M ₀					
4.3	4.3							M _N					
16.9	17.3							M _{0,max}					
16.9	17.3							M _{max}					
-	-							n _{eto}	1.60	3.8	1500	10.0	12H15-
11.4	11.4							M ₀					
10.0	10.0							M _N					
28.3	29.0							M _{0,max}					
28.3	29.0							M _{max}					
-	-							n _{eto}	2.80	5.7	3525	7.5	12H35-
11.4	11.4							M ₀					
7.5	7.5							M _N					
23.5	24.1							M _{0,max}					
23.5	24.1							M _{max}					
-	-							n _{eto}					

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

MCS synchronous 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	□3714	□5514	□7514	□1124	□1524	□2224	□3024
					I _N	1.3	1.8	2.4	3.2	3.9	5.9	7.3
					I _{0,max}	2.0	2.7	3.6	4.8	5.9	8.4	11.0
MCS	M _N	n _N	I _N	P _N	I _{max}	2.6	3.6	4.8	6.4	7.8	11.2	14.6
12L20-	13.5	1950	5.9	2.80	M ₀						15.0	15.0
					M _N						13.5	13.5
					M _{0,max}						27.4	33.9
					M _{max}						27.4	33.9
					n _{eto}						-	-
12L41-	11.0	4050	10.2	4.70	M ₀							
					M _N							
					M _{0,max}							
					M _{max}							
					n _{eto}							
14D15-	9.2	1500	4.5	1.45	M ₀				7.0	8.5	11.0	11.0
					M _N				6.6	8.0	9.2	9.2
					M _{0,max}				13.1	16.0	22.7	28.1
					M _{max}				13.1	16.0	22.7	28.1
					n _{eto}				-	-	-	-
14D36-	7.5	3600	7.5	2.80	M ₀							8.0
					M _N							7.3
					M _{0,max}							15.2
					M _{max}							15.2
					n _{eto}							-
14H15-	16.0	1500	6.6	2.50	M ₀							17.3
					M _N							16.0
					M _{0,max}							35.3
					M _{max}							35.3
					n _{eto}							-
14H32-	14.0	3225	11.9	4.70	M ₀							
					M _N							
					M _{0,max}							
					M _{max}							
					n _{eto}							
14L15-	23.0	1500	9.7	3.60	M ₀							
					M _N							
					M _{0,max}							
					M _{max}							
					n _{eto}							
14L32-	17.2	3225	15.0	5.80	M ₀							
					M _N							
					M _{0,max}							
					M _{max}							
					n _{eto}							
14P14-	30.0	1350	10.8	4.20	M ₀							
					M _N							
					M _{0,max}							
					M _{max}							
					n _{eto}							

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

MCS synchronous 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.

□4024	□5524	□7524	□1134	□1534	□1834	□2234	□3034	E84AVTC					
9.5	13.0	16.5	23.5	32.0	39.0	47.0	61.0	I _N	P _N	I _N	n _N	M _N	MCS
14.3	19.5	26.4	32.9	43.2	60.0	70.5	91.5	I _{0,max}					
19.0	26.0	33.0	47.0	64.0	78.0	94.0	122.0	I _{max}	2.80	5.9	1950	13.5	12L20-
15.0	15.0							M ₀					
13.5	13.5							M _N					
40.8	41.9							M _{0,max}					
40.8	41.9							M _{max}					
-	-							n _{eto}	4.70	10.2	4050	11.0	12L41-
14.0	15.0	15.0	15.0	15.0				M ₀					
10.2	11.0	11.0	11.0	11.0				M _N					
22.2	30.4	35.5	35.5	35.5				M _{0,max}					
22.2	30.4	49.6	49.6	49.6				M _{max}					
-	-	-	-	-				n _{eto}	1.45	4.5	1500	9.2	14D15-
11.0	11.0							M ₀					
9.2	9.2							M _N					
28.3	29.0							M _{0,max}					
28.3	29.0							M _{max}					
-	-							n _{eto}	2.80	7.5	3600	7.5	14D36-
11.0	11.0	11.0	11.0					M ₀					
7.5	7.5	7.5	7.5					M _N					
18.5	25.3	29.0	29.0					M _{0,max}					
18.5	22.2	22.2	22.2					M _{max}					
-	-	-	-					n _{eto}	2.50	6.6	1500	16.0	14H15-
21.0	21.0							M ₀					
16.0	16.0							M _N					
42.8	43.9							M _{0,max}					
42.8	43.9							M _{max}					
-	-							n _{eto}	4.70	11.9	3225	14.0	14H32-
12.9	16.2	21.0	21.0	21.0				M ₀					
11.2	14.0	14.0	14.0	14.0				M _N					
23.2	31.7	37.1	37.1	37.1				M _{0,max}					
23.2	31.7	51.9	51.9	51.9				M _{max}					
-	-	-	-	-				n _{eto}	3.60	9.7	1500	23.0	14L15-
27.4	28.0	28.0	28.0					M ₀					
22.5	23.0	23.0	23.0					M _N					
43.8	52.9	52.9	52.9					M _{0,max}					
43.8	60.0	73.8	73.8					M _{max}					
-	-	-	-					n _{eto}	5.80	15.0	3225	17.2	14L32-
	15.2	27.4	27.4	28.0	28.0	28.0		M ₀					
	14.9	17.2	17.2	17.2	17.2	17.2		M _N					
	31.3	39.7	52.9	52.9	52.9	52.9		M _{0,max}					
	31.3	57.6	73.9	73.9	73.9	73.9		M _{max}					
-	-	-	-	-	-	-		n _{eto}	4.20	10.8	1350	30.0	14P14-
32.5	37.0	37.0	37.0	37.0				M ₀					
26.4	30.0	30.0	30.0	30.0				M _N					
51.2	70.0	80.0	80.0	80.0				M _{0,max}					
51.2	70.0	105.1	105.1	105.1				M _{max}					
-	-	-	-	-				n _{eto}					

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

MCS synchronous 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	□3714	□5514	□7514	□1124	□1524	□2224	□3024
					I _N	1.3	1.8	2.4	3.2	3.9	5.9	7.3
					I _{0,max}	2.0	2.7	3.6	4.8	5.9	8.4	11.0
MCS	M _N	n _N	I _N	P _N	I _{max}	2.6	3.6	4.8	6.4	7.8	11.2	14.6
14P32-	21.0	3225	15.6	7.10	M ₀							
					M _N							
					M _{0,max}							
					M _{max}							
					n _{eto}							
19F14-	27.0	1425	8.6	4.00	M ₀							23.6
					M _N							22.9
					M _{0,max}							45.9
					M _{max}							45.9
					n _{eto}							-
19F30-	21.0	3000	14.0	6.60	M ₀							
					M _N							
					M _{0,max}							
					M _{max}							
					n _{eto}							
19J14-	40.0	1425	12.3	6.00	M ₀							
					M _N							
					M _{0,max}							
					M _{max}							
					n _{eto}							
19J30-	29.0	3000	18.5	9.10	M ₀							
					M _N							
					M _{0,max}							
					M _{max}							
					n _{eto}							
19P14-	51.0	1350	14.3	7.20	M ₀							
					M _N							
					M _{0,max}							
					M _{max}							
					n _{eto}							
19P30-	32.0	3000	19.0	10.00	M ₀							
					M _N							
					M _{0,max}							
					M _{max}							
					n _{eto}							

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

MCS synchronous 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.

□4024	□5524	□7524	□1134	□1534	□1834	□2234	□3034	E84AVTC					
9.5	13.0	16.5	23.5	32.0	39.0	47.0	61.0	I _N	P _N	I _N	n _N	M _N	MCS
14.3	19.5	26.4	32.9	43.2	60.0	70.5	91.5	I _{0,max}					
19.0	26.0	33.0	47.0	64.0	78.0	94.0	122.0	I _{max}					
	19.8	35.8	35.8	37.0	37.0	37.0		M ₀					
	17.5	21.0	21.0	21.0	21.0	21.0		M _N					
	36.5	46.3	61.8	61.8	61.8	61.8		M _{0,max}	7.10	15.6	3225	21.0	14P32-
	36.5	67.3	86.4	86.4	86.4	86.4		M _{max}					
	-	-	-	-	-	-		n _{eto}					
32.0	32.0	32.0	32.0					M ₀					
27.0	27.0	27.0	27.0					M _N	4.00	8.6	1425	27.0	19F14-
56.7	68.3	68.3	68.3					M _{0,max}					
56.7	77.6	86.0	86.0					M _{max}					
-	-	-	-					n _{eto}					
	21.0	32.0	32.0	32.0				M ₀	6.60	14.0	3000	21.0	19F30-
	19.5	21.0	21.0	21.0				M _N					
	47.2	47.2	47.2	47.2				M _{0,max}					
	38.9	68.3	68.3	68.3				M _{max}					
	-	-	-	-				n _{eto}					
	43.6	51.0	51.0	51.0				M ₀	6.00	12.3	1425	40.0	19J14-
	40.0	40.0	40.0	40.0				M _N					
	81.1	96.0	96.0	96.0				M _{0,max}					
	81.1	129.0	129.0	129.0				M _{max}					
	-	-	-	-				n _{eto}					
			39.3	51.0	51.0	51.0	51.0	M ₀	9.10	18.5	3000	29.0	19J30-
			29.0	29.0	29.0	29.0	29.0	M _N					
			73.6	79.5	79.5	79.5	79.5	M _{0,max}					
			110.4	127.6	127.6	127.6	127.6	M _{max}					
			-	-	-	-	-	n _{eto}					
	47.5	64.0	64.0	64.0				M ₀	7.20	14.3	1350	51.0	19P14-
	46.4	51.0	51.0	51.0				M _N					
	92.7	106.7	106.7	106.7				M _{0,max}					
	92.7	155.5	155.5	155.5				M _{max}					
	-	-	-	-				n _{eto}					
			43.1	58.7	64.0	64.0	64.0	M ₀	10.00	19.0	3000	32.0	19P30-
			32.0	32.0	32.0	32.0	32.0	M _N					
			79.2	87.6	87.6	87.6	87.6	M _{0,max}					
			118.6	144.3	144.3	144.3	144.3	M _{max}					
			-	-	-	-	-	n _{eto}					

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

MCS synchronous 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	1124	1524	2224	3024	4024	5524	7524	1134	1534	1834	2234	3034
					I _N	3.2	3.9	5.9	7.3	9.5	13.0	16.5	23.5	32.0	39.0	47.0	61.0
					I _{0,max}	4.8	5.9	8.4	11.0	14.3	19.5	26.4	32.9	43.2	60.0	70.5	91.5
MCS	M _N	n _N	I _N	P _N	I _{max}	6.4	7.8	11.2	14.6	19.0	26.0	33.0	47.0	64.0	78.0	94.0	122.0
12D17-	7.0	1650	3.0	1.20	M ₀	7.5	7.5	7.5	7.5								
					M _N	7.0	7.0	7.0	7.0								
					M _{0,max}	12.6	15.3	17.7	17.7								
					M _{max}	12.6	15.3	17.7	17.7								
					n _{eto}	-	-	-	-								
12D35-	6.0	3525	5.6	2.20	M ₀		4.6	7.5	7.5	7.5	7.5						
					M _N		3.7	6.0	6.0	6.0	6.0						
					M _{0,max}		7.8	11.4	14.0	16.9	17.3						
					M _{max}		7.8	11.4	14.0	16.9	17.3						
					n _{eto}		-	-	-	-	-						
12H14-	12.0	1350	4.1	1.70	M ₀	8.9	10.9	12.8	12.8	12.8	12.8						
					M _N	8.5	10.3	12.0	12.0	12.0	12.0						
					M _{0,max}	16.4	20.0	29.0	29.0	28.3	29.0						
					M _{max}	16.4	20.0	29.0	29.0	28.3	29.0						
					n _{eto}	-	-	-	-	-	-						
12H34-	10.5	3375	7.5	3.70	M ₀				10.2	12.8	12.8						
					M _N				10.0	10.5	10.5						
					M _{0,max}				18.8	23.5	24.1						
					M _{max}				18.8	23.5	24.1						
					n _{eto}				-	-	-						
12L17-	17.0	1650	6.7	2.90	M ₀				18.5	19.0	19.0						
					M _N				17.0	17.0	17.0						
					M _{0,max}				33.9	40.8	41.9						
					M _{max}				33.9	40.8	41.9						
					n _{eto}				-	-	-						
12L39-	14.0	3900	11.7	5.70	M ₀					17.2	17.2	19.0	19.0	19.0			
					M _N					14.0	14.0	14.0	14.0	14.0			
					M _{0,max}					22.2	30.4	35.5	35.5	35.5			
					M _{max}					22.2	30.4	49.6	49.6	49.6			
					n _{eto}					-	-	-	-	-			
14D14-	12.0	1350	5.4	1.70	M ₀		8.5	12.5	12.5	12.5	12.5						
					M _N		8.0	12.0	12.0	12.0	12.0						
					M _{0,max}		16.0	22.7	28.1	28.3	29.0						
					M _{max}		16.0	22.7	28.1	28.3	29.0						
					n _{eto}		-	-	-	-	-						
14D30-	10.5	3000	9.7	3.30	M ₀				7.7	12.2	12.5	12.5	12.5				
					M _N				7.0	9.8	10.0	10.0	10.0				
					M _{0,max}				15.2	18.5	25.3	29.0	29.0				
					M _{max}				15.2	18.5	22.2	22.2	22.2				
					n _{eto}				-	-	-	-	-				
14H12-	23.5	1200	8.3	3.00	M ₀				18.0	25.5	25.5						
					M _N				17.9	23.5	23.5						
					M _{0,max}				35.3	42.8	43.9						
					M _{max}				35.3	42.8	43.9						
					n _{eto}				-	-	-						

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

MCS synchronous 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	□1124	□1524	□2224	□3024	□4024	□5524	□7524	□1134	□1534	□1834	□2234	□3034
					I _N	3.2	3.9	5.9	7.3	9.5	13.0	16.5	23.5	32.0	39.0	47.0	61.0
					I _{0,max}	4.8	5.9	8.4	11.0	14.3	19.5	26.4	32.9	43.2	60.0	70.5	91.5
MCS	M _N	n _N	I _N	P _N	I _{max}	6.4	7.8	11.2	14.6	19.0	26.0	33.0	47.0	64.0	78.0	94.0	122.0
14H28-	20.5	2775	15.0	6.00	M ₀						16.2	25.5	25.5	25.5			
					M _N						16.1	20.5	20.5	20.5			
					M _{0,max}						31.7	37.1	37.1	37.1			
					M _{max}						31.7	51.9	51.9	51.9			
					η _{eto}						-	-	-	-			
14L14-	30.5	1350	11.8	4.30	M ₀					26.9	33.4	34.5	34.5				
					M _N					24.6	30.5	30.5	30.5				
					M _{0,max}					43.8	52.9	52.9	52.9				
					M _{max}					43.8	60.0	73.8	73.8				
					η _{eto}					-	-	-	-				
14L30-	25.5	3000	20.8	8.00	M ₀								27.4	34.5	34.5	34.5	
					M _N								25.5	25.5	25.5	25.5	
					M _{0,max}								52.9	52.9	52.9	52.9	
					M _{max}								73.9	73.9	73.9	73.9	
					η _{eto}								-	-	-	-	
14P11-	42.0	1050	13.4	4.60	M ₀						38.9	43.5	43.5	43.5			
					M _N						38.8	42.0	42.0	42.0			
					M _{0,max}						70.0	80.0	80.0	80.0			
					M _{max}						70.0	105.1	105.1	105.1			
					η _{eto}						-	-	-	-			
14P26-	33.0	2625	21.9	9.10	M ₀								35.8	43.5	43.5	43.5	
					M _N								33.0	33.0	33.0	33.0	
					M _{0,max}								66.0	86.4	86.4	86.4	
					M _{max}								86.4	86.4	86.4	86.4	
					η _{eto}								-	-	-	-	
19F12-	38.0	1200	11.3	4.80	M ₀				23.6	34.9	41.5	41.5	41.5				
					M _N				22.9	31.9	38.0	38.0	38.0				
					M _{0,max}				45.9	56.7	68.3	68.3	68.3				
					M _{max}				45.9	56.7	77.6	86.0	86.0				
					η _{eto}				-	-	-	-	-				
19F29-	32.5	2850	20.1	9.70	M ₀								39.9	41.5			
					M _N								32.5	32.5			
					M _{0,max}								47.2	47.2			
					M _{max}								68.3	68.3			
					η _{eto}								-	-			
19J12-	62.5	1200	18.3	7.90	M ₀					43.6			70.5	70.5			
					M _N					43.4			62.5	62.5			
					M _{0,max}					81.1			96.0	96.0			
					M _{max}					81.1			129.0	129.0			
					η _{eto}					-			-	-			
19J29-	50.5	2850	31.0	15.10	M ₀									55.5	70.5	70.5	70.5
					M _N									50.5	50.5	50.5	50.5
					M _{0,max}									87.6	87.6	87.6	87.6
					M _{max}									127.6	127.6	127.6	127.6
					η _{eto}									-	-	-	-

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

MCS synchronous 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	□1124	□1524	□2224	□3024	□4024	□5524	□7524	□1134	□1534	□1834	□2234	□3034
					I _N	3.2	3.9	5.9	7.3	9.5	13.0	16.5	23.5	32.0	39.0	47.0	61.0
					I _{0,max}	4.8	5.9	8.4	11.0	14.3	19.5	26.4	32.9	43.2	60.0	70.5	91.5
MCS	M _N	n _N	I _N	P _N	I _{max}	6.4	7.8	11.2	14.6	19.0	26.0	33.0	47.0	64.0	78.0	94.0	122.0
19P12-	72.0	1200	21.3	9.00	M ₀						47.5		86.0	86.0			
					M _N						46.4		72.0	72.0			
					M _{0,max}						92.7		106.7	106.7			
					M _{max}						92.7		155.5	155.5			
					n _{eto}						-		-	-			
19P29-	53.0	2850	29.5	15.80	M ₀									58.7	86.0	86.0	86.0
					M _N									53.0	53.0	53.0	53.0
					M _{0,max}									87.6	87.6	87.6	87.6
					M _{max}									144.3	144.3	144.3	144.3
					n _{eto}									-	-	-	-

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

MCS synchronous 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□□	004C□B	008C□B	016C□B	032C□B	048C□B	064C□B
					I _N	2.0	4.0	8.0	12.7	17.0	20.0
					I _{0,max}	2.3	4.6	9.1	18.1	27.2	36.3
MCS	M _N	n _N	I _N	P _N	I _{max}	4.0	8.0	16.0	32.0	48.0	64.0
06C41-	0.6	4050	1.3	0.25	M ₀	0.8					
					M _N	0.6					
					M _{0,max}	1.2					
					M _{max}	1.9					
					n _{eto}	2747					
06C60-	0.5	6000	2.4	0.31	M ₀	0.6	0.8				
					M _N	0.4	0.5				
					M _{0,max}	0.6	1.2				
					M _{max}	1.0	1.9				
					n _{eto}	7000	6814				
06F41-	1.2	4050	1.5	0.51	M ₀	1.5					
					M _N	1.2					
					M _{0,max}	2.0					
					M _{max}	3.6					
					n _{eto}	1902					
06F60-	0.9	6000	2.5	0.57	M ₀	1.0	1.5				
					M _N	0.7	0.9				
					M _{0,max}	1.0	2.0				
					M _{max}	1.8	3.7				
					n _{eto}	7000	4602				
06I41-	1.5	4050	1.6	0.64	M ₀	2.0	2.0				
					M _N	1.5	1.5				
					M _{0,max}	2.6	5.0				
					M _{max}	4.4	6.2				
					n _{eto}	1898	1384				
06I60-	1.2	6000	2.9	0.75	M ₀	1.2	2.0	2.0			
					M _N	0.8	1.2	1.2			
					M _{0,max}	1.3	2.6	5.2			
					M _{max}	2.2	4.7	6.2			
					n _{eto}	6407	4200	3157			
09D41-	2.3	4050	2.3	1.00	M ₀		3.3	3.3			
					M _N		2.3	2.3			
					M _{0,max}		5.0	8.8			
					M _{max}		8.0	9.4			
					n _{eto}		2361	2008			
09D60-	1.8	6000	3.8	1.10	M ₀		2.5	3.3			
					M _N		1.8	1.8			
					M _{0,max}		2.5	4.9			
					M _{max}		4.4	8.0			
					n _{eto}		7000	5217			
09F38-	3.1	3750	2.5	1.20	M ₀		4.2	4.2			
					M _N		3.1	3.1			
					M _{0,max}		6.2	10.8			
					M _{max}		9.8	14.9			
					n _{eto}		2589	1737			

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

MCS synchronous 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□□	004C□B	008C□B	016C□B	032C□B	048C□B	064C□B
					I _N	2.0	4.0	8.0	12.7	17.0	20.0
					I _{0,max}	2.3	4.6	9.1	18.1	27.2	36.3
MCS	M _N	n _N	I _N	P _N	I _{max}	4.0	8.0	16.0	32.0	48.0	64.0
09F60-	2.4	6000	4.5	1.50	M ₀		2.8	4.2	4.2		
					M _N		2.1	2.4	2.4		
					M _{0,max}		3.2	6.1	10.8		
					M _{max}		5.4	9.8	14.9		
					n _{eto}		7000	5906	3715		
09H41-	3.8	4050	3.4	1.60	M ₀		5.2	5.5			
					M _N		3.8	3.8			
					M _{0,max}		5.9	11.1			
					M _{max}		9.9	17.5			
					n _{eto}		3675	2231			
09H60-	3.0	6000	6.0	1.90	M ₀			5.2	5.5	5.5	
					M _N			3.0	3.0	3.0	
					M _{0,max}			5.9	11.0	15.5	
					M _{max}			9.9	17.5	20.4	
					n _{eto}			7000	5061	4375	
09L41-	4.5	4050	4.2	1.90	M ₀		4.8	7.5	7.5		
					M _N		4.3	4.5	4.5		
					M _{0,max}		5.2	10.3	19.5		
					M _{max}		9.1	17.4	31.9		
					n _{eto}		4450	3188	1878		
09L51-	3.6	5100	6.9	1.90	M ₀			4.8	7.5	7.5	7.5
					M _N			3.6	3.6	3.6	3.6
					M _{0,max}			5.2	10.3	15.1	19.6
					M _{max}			9.1	17.5	25.1	31.9
					n _{eto}			7000	7000	5647	4076
12D20-	5.5	1950	2.6	1.10	M ₀	4.7	6.4	6.4			
					M _N	4.2	5.5	5.5			
					M _{0,max}	4.6	9.1	17.0			
					M _{max}	8.0	15.3	17.7			
					n _{eto}	1730	1089	919			
12D41-	4.3	4050	4.5	1.80	M ₀		4.7	6.4			
					M _N		3.8	4.3			
					M _{0,max}		4.6	8.8			
					M _{max}		7.8	14.7			
					n _{eto}		3902	2433			
12H15-	10.0	1500	3.8	1.60	M ₀		11.2	11.4			
					M _N		10.0	10.0			
					M _{0,max}		11.9	22.6			
					M _{max}		20.1	29.0			
					n _{eto}		1220	918			
12H35-	7.5	3525	5.7	2.80	M ₀		5.6	11.2	11.4		
					M _N		5.3	7.5	7.5		
					M _{0,max}		6.0	11.8	22.5		
					M _{max}		10.4	20.1	29.0		
					n _{eto}		3850	2838	2092		

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

MCS synchronous 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□□	004C□B	008C□B	016C□B	032C□B	048C□B	064C□B
					I _N	2.0	4.0	8.0	12.7	17.0	20.0
					I _{0,max}	2.3	4.6	9.1	18.1	27.2	36.3
MCS	M _N	n _N	I _N	P _N	I _{max}	4.0	8.0	16.0	32.0	48.0	64.0
12L20-	13.5	1950	5.9	2.80	M ₀			15.0	15.0		
					M _N			13.5	13.5		
					M _{0,max}			21.4	39.4		
					M _{max}			35.5	56.4		
					n _{eto}			1324	863		
12L41-	11.0	4050	10.2	4.70	M ₀			9.7	15.0	15.0	15.0
					M _N			8.6	11.0	11.0	11.0
					M _{0,max}			10.8	21.3	30.8	39.5
					M _{max}			19.0	35.5	49.6	56.4
					n _{eto}			4450	3013	2236	1907
14D15-	9.2	1500	4.5	1.45	M ₀		8.8	11.0			
					M _N		8.2	9.2			
					M _{0,max}		9.6	17.9			
					M _{max}		15.9	28.3			
					n _{eto}		1141	689			
14D36-	7.5	3600	7.5	2.80	M ₀			8.8	11.0		
					M _N			7.5	7.5		
					M _{0,max}			9.5	17.8		
					M _{max}			15.9	28.3		
					n _{eto}			2496	1614		
14H15-	16.0	1500	6.6	2.50	M ₀			19.8	21.0		
					M _N			16.0	16.0		
					M _{0,max}			22.3	41.2		
					M _{max}			37.1	54.8		
					n _{eto}			920	667		
14H32-	14.0	3225	11.9	4.70	M ₀				15.8	21.0	21.0
					M _N				14.0	14.0	14.0
					M _{0,max}				22.2	32.1	41.3
					M _{max}				37.1	51.9	54.8
					n _{eto}				1953	1471	1409
14L15-	23.0	1500	9.7	3.60	M ₀			18.7	28.0	28.0	
					M _N			19.0	23.0	23.0	
					M _{0,max}			21.9	42.1	59.9	
					M _{max}			37.6	68.5	77.1	
					n _{eto}			1284	828	767	
14L32-	17.2	3225	15.0	5.80	M ₀				14.8	19.8	23.3
					M _N				14.6	17.2	17.2
					M _{0,max}				21.8	32.4	42.2
					M _{max}				37.6	53.9	68.5
					n _{eto}				2801	2096	1757
14P14-	30.0	1350	10.8	4.20	M ₀				37.0	37.0	37.0
					M _N				30.0	30.0	30.0
					M _{0,max}				49.1	70.0	88.4
					M _{max}				80.0	105.1	105.1
					n _{eto}				710	573	573

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

MCS synchronous 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□□	004C□B	008C□B	016C□B	032C□B	048C□B	064C□B
					I _N	2.0	4.0	8.0	12.7	17.0	20.0
					I _{0,max}	2.3	4.6	9.1	18.1	27.2	36.3
MCS	M _N	n _N	I _N	P _N	I _{max}	4.0	8.0	16.0	32.0	48.0	64.0
14P32-	21.0	3 225	15.6	7.10	M ₀				19.3	25.9	30.5
					M _N				17.1	21.0	21.0
					M _{0,max}				25.4	37.9	49.3
					M _{max}				43.9	63.0	80.0
					n _{eto}				2 469	1 829	1 495
19F14-	27.0	1 425	8.6	4.00	M ₀			25.9	32.0		
					M _N			25.1	27.0		
					M _{0,max}			28.6	54.6		
					M _{max}			48.9	86.0		
					n _{eto}			1 204	746		
19F30-	21.0	3 000	14.0	6.60	M ₀				20.5	27.5	32.0
					M _N				19.0	21.0	21.0
					M _{0,max}				27.2	40.5	53.0
					M _{max}				47.2	68.3	86.0
					n _{eto}				2 774	2 033	1 653
19J14-	40.0	1 425	12.3	6.00	M ₀				42.6	51.0	
					M _N				40.0	40.0	
					M _{0,max}				58.9	82.8	
					M _{max}				96.0	129.0	
					n _{eto}				1 063	839	
19J30-	29.0	3 000	18.5	9.10	M ₀					28.4	33.4
					M _N					26.6	29.0
					M _{0,max}					42.6	56.9
					M _{max}					73.8	96.0
					n _{eto}					2 850	2 323
19P14-	51.0	1 350	14.3	7.20	M ₀				46.4	62.2	64.0
					M _N				45.3	51.0	51.0
					M _{0,max}				64.6	91.5	120.1
					M _{max}				106.7	155.5	190.0
					n _{eto}				1 227	996	870
19P30-	32.0	3 000	19.0	10.00	M ₀					31.2	36.7
					M _N					28.6	32.0
					M _{0,max}					45.8	61.1
					M _{max}					81.2	106.7
					n _{eto}					2 938	2 715

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

MCS synchronous servo motors

Technical data



Selection tables, Servo Drives ECS

Non-ventilated motors

- The data applies to a mains connection voltage of 3x230V and an inverter switching frequency of 4 kHz.

					ECS□□	004C□B	008C□B	016C□B	032C□B	048C□B	064C□B
					I _N	2.0	4.0	8.0	12.7	17.0	20.0
					I _{0,max}	2.3	4.6	9.1	18.1	27.2	36.3
MCS	M _N	n _N	I _N	P _N	I _{max}	4.0	8.0	16.0	32.0	48.0	64.0
06C41L	0.6	4050	2.6	0.25	M ₀	0.6	0.8				
					M _N	0.5	0.6				
					M _{0,max}	0.6	1.1				
					M _{max}	1.0	1.9				
					n _{eto}	6298	2835				
06C60L	0.5	6000	4.0	0.31	M ₀		0.7	0.8			
					M _N		0.5	0.5			
					M _{0,max}		0.7	1.3			
					M _{max}		1.2	2.2			
					n _{eto}		7000	1149			
06F41L	1.2	4050	2.9	0.51	M ₀	1.0	1.5	1.5			
					M _N	0.8	1.2	1.2			
					M _{0,max}	1.2	2.1	3.9			
					M _{max}	1.9	3.5	4.4			
					n _{eto}	3838	2118	2831			
06F60L	0.9	6000	3.8	0.57	M ₀		1.5	1.5			
					M _N		0.9	0.9			
					M _{0,max}		1.5	2.9			
					M _{max}		2.6	4.3			
					n _{eto}		6138	3182			
06I41L	1.5	4050	3.2	0.64	M ₀	1.3	2.0	2.0			
					M _N	1.0	1.5	1.5			
					M _{0,max}	1.4	2.8	5.0			
					M _{max}	2.4	4.4	6.2			
					n _{eto}	3549	1947	2831			
06I60L	1.2	6000	3.8	0.75	M ₀		1.9	2.0			
					M _N		1.2	1.2			
					M _{0,max}		2.1	4.1			
					M _{max}		3.6	6.2			
					n _{eto}		3417	1149			
09D41L	2.3	4050	4.6	1.00	M ₀		2.5	3.3	3.3		
					M _N		2.0	2.3	2.3		
					M _{0,max}		2.5	4.9	8.8		
					M _{max}		4.4	8.0	9.5		
					n _{eto}		4091	2547	2170		
09D60L	1.8	6000	7.0	1.10	M ₀			2.6	3.3	3.3	
					M _N			1.8	1.8	1.8	
					M _{0,max}			2.6	5.0	7.1	
					M _{max}			4.5	8.1	9.5	
					n _{eto}			7000	5373	4626	
09F38L	3.1	3750	5.0	1.20	M ₀			4.2	4.2		
					M _N			3.1	3.1		
					M _{0,max}			6.1	10.8		
					M _{max}			9.8	15.0		
					n _{eto}			1149	1951		

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

MCS synchronous servo motors

Technical data



Selection tables, Servo Drives ECS

Non-ventilated motors

- The data applies to a mains connection voltage of 3x230V and an inverter switching frequency of 4 kHz.

					ECS□□	004C□B	008C□B	016C□B	032C□B	048C□B	064C□B
					I _N	2.0	4.0	8.0	12.7	17.0	20.0
					I _{0,max}	2.3	4.6	9.1	18.1	27.2	36.3
MCS	M _N	n _N	I _N	P _N	I _{max}	4.0	8.0	16.0	32.0	48.0	64.0
09F60L	2.4	6000	7.9	1.50	M ₀			3.2	4.2	4.2	4.2
					M _N			2.4	2.4	2.4	2.4
					M _{0,max}			3.6	6.8	9.6	11.9
					M _{max}			6.1	10.9	14.3	15.0
					n _{eto}			6985	3448	2612	2397
09H41L	3.8	4050	6.8	1.60	M ₀			5.2	5.5	5.5	
					M _N			3.8	3.8	3.8	
					M _{0,max}			5.9	11.0	15.3	
					M _{max}			9.9	17.2	20.0	
					n _{eto}			1149	2138	1852	
09H60L	3.0	6000	8.0	1.90	M ₀			3.7	5.5	5.5	5.5
					M _N			3.0	3.0	3.0	3.0
					M _{0,max}			4.1	8.0	11.5	14.5
					M _{max}			7.2	13.2	17.9	20.0
					n _{eto}			1149	4081	2984	2695
09L41L	4.5	4050	8.4	1.90	M ₀			4.8	7.5	7.5	7.5
					M _N			4.3	4.5	4.5	4.5
					M _{0,max}			5.2	10.3	15.1	19.6
					M _{max}			9.1	17.5	25.1	31.9
					n _{eto}			4562	3243	2497	1909
12D20L	5.5	1950	5.2	1.10	M ₀		4.7	6.4			
					M _N		4.2	5.5			
					M _{0,max}		4.6	9.0			
					M _{max}		8.0	14.9			
					n _{eto}		1878	1181			
12D41L	4.3	4050	8.8	1.80	M ₀			4.8	6.4	6.4	
					M _N			3.9	4.3	4.3	
					M _{0,max}			4.6	9.2	13.3	
					M _{max}			8.1	15.2	17.9	
					n _{eto}			4102	2535	2187	
12H15L	10.0	1500	7.6	1.60	M ₀			11.2	11.4		
					M _N			10.0	10.0		
					M _{0,max}			11.8	22.5		
					M _{max}			20.1	29.0		
					n _{eto}			1098	827		
12H30L	8.0	3000	10.5	2.50	M ₀			6.8	10.7	11.4	
					M _N			6.1	8.0	8.0	
					M _{0,max}			7.2	14.3	20.9	
					M _{max}			12.7	24.3	29.0	
					n _{eto}			2831	1849	1591	
12L20L	13.5	1950	11.8	2.80	M ₀				15.0	15.0	15.0
					M _N				13.5	13.5	13.5
					M _{0,max}				21.3	30.7	39.4
					M _{max}				35.4	49.3	56.0
					n _{eto}				1307	1004	866

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

MCS synchronous 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□□	004C□B	008C□B	016C□B	032C□B	048C□B	064C□B
					I _N	2.0	4.0	8.0	12.7	17.0	20.0
					I _{0,max}	2.3	4.6	9.1	18.1	27.2	36.3
MCS	M _N	n _N	I _N	P _N	I _{max}	4.0	8.0	16.0	32.0	48.0	64.0
12D17-	7.0	1650	3.0	1.20	M ₀	4.7	7.5	7.5			
					M _N	4.2	7.0	7.0			
					M _{0,max}	4.6	9.1	17.0			
					M _{max}	8.0	15.3	17.7			
					n _{eto}	1730	1089	919			
12D35-	6.0	3525	5.6	2.20	M ₀		4.7	7.5			
					M _N		3.8	6.0			
					M _{0,max}		4.6	8.8			
					M _{max}		7.8	14.7			
					n _{eto}		3902	2433			
12H14-	12.0	1350	4.1	1.70	M ₀		11.2	12.8			
					M _N		10.6	12.0			
					M _{0,max}		11.9	22.6			
					M _{max}		20.1	29.0			
					n _{eto}		1220	918			
12H34-	10.5	3375	7.5	3.70	M ₀		5.6	11.2	12.8		
					M _N		5.3	10.0	7.5		
					M _{0,max}		6.0	11.8	22.5		
					M _{max}		10.4	20.1	29.0		
					n _{eto}		3850	2838	2092		
12L17-	17.0	1650	6.7	2.90	M ₀			19.0	19.0		
					M _N			17.0	17.0		
					M _{0,max}			21.4	39.4		
					M _{max}			35.5	56.4		
					n _{eto}			1324	863		
12L39-	14.0	3900	11.7	5.70	M ₀			9.7	16.7	19.0	19.0
					M _N			8.6	14.0	14.0	14.0
					M _{0,max}			10.8	21.3	30.8	39.5
					M _{max}			19.0	35.5	49.6	56.4
					n _{eto}			4450	3013	2236	1907
14D14-	12.0	1350	5.4	1.70	M ₀		8.8	12.5			
					M _N		8.2	12.0			
					M _{0,max}		9.6	17.9			
					M _{max}		15.9	28.3			
					n _{eto}		1141	689			
14D30-	10.5	3000	9.7	3.30	M ₀			8.8	11.4		
					M _N			8.6	9.7		
					M _{0,max}			9.5	17.8		
					M _{max}			15.9	28.3		
					n _{eto}			2496	1614		
14H12-	23.5	1200	8.3	3.00	M ₀			19.8	25.5		
					M _N			19.6	23.5		
					M _{0,max}			22.3	41.2		
					M _{max}			37.1	54.8		
					n _{eto}			920	667		

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

MCS synchronous 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□□	004C□B	008C□B	016C□B	032C□B	048C□B	064C□B
					I _N	2.0	4.0	8.0	12.7	17.0	20.0
					I _{0,max}	2.3	4.6	9.1	18.1	27.2	36.3
MCS	M _N	n _N	I _N	P _N	I _{max}	4.0	8.0	16.0	32.0	48.0	64.0
14H28-	20.5	2775	15.0	6.00	M ₀				15.8	23.5	25.5
					M _N				15.6	20.5	20.5
					M _{0,max}				22.2	32.1	41.3
					M _{max}				37.1	51.9	54.8
					n _{eto}				1953	1471	1409
14L14-	30.5	1350	11.8	4.30	M ₀			18.7	32.7	34.5	
					M _N			19.0	30.5	30.5	
					M _{0,max}			21.9	42.1	59.9	
					M _{max}			37.6	68.5	77.1	
					n _{eto}			1284	828	767	
14L30-	25.5	3000	20.8	8.00	M ₀					19.8	23.3
					M _N					19.7	23.3
					M _{0,max}					32.4	42.2
					M _{max}					53.9	68.5
					n _{eto}					2096	1757
14P11-	42.0	1050	13.4	4.60	M ₀				39.1	43.5	43.5
					M _N				38.9	42.0	42.0
					M _{0,max}				49.1	70.0	88.4
					M _{max}				80.0	105.1	105.1
					n _{eto}				710	573	573
14P26-	33.0	2625	21.9	9.10	M ₀					25.9	30.5
					M _N					25.6	30.1
					M _{0,max}					37.9	49.3
					M _{max}					63.0	80.0
					n _{eto}					1829	1495
19F12-	38.0	1200	11.3	4.80	M ₀			25.9	41.5		
					M _N			25.1	38.0		
					M _{0,max}			28.6	54.6		
					M _{max}			48.9	86.0		
					n _{eto}			1204	746		
19F29-	32.5	2850	20.1	9.70	M ₀					27.5	33.9
					M _N					27.4	32.5
					M _{0,max}					40.5	53.0
					M _{max}					68.3	86.0
					n _{eto}					2033	1653
19J12-	62.5	1200	18.3	7.90	M ₀					59.0	69.4
					M _N					58.1	62.5
					M _{0,max}					82.8	82.8
					M _{max}					129.0	129.0
					n _{eto}					839	839
19J29-	50.5	2850	31.0	15.10	M ₀						34.3
					M _N						32.6
					M _{0,max}						56.9
					M _{max}						96.0
					n _{eto}						2323

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

MCS synchronous 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□□	004C□B	008C□B	016C□B	032C□B	048C□B	064C□B
					I _N	2.0	4.0	8.0	12.7	17.0	20.0
					I _{0,max}	2.3	4.6	9.1	18.1	27.2	36.3
MCS	M _N	n _N	I _N	P _N	I _{max}	4.0	8.0	16.0	32.0	48.0	64.0
19P12-	72.0	1200	21.3	9.00	M ₀					62.2	76.8
					M _N					57.5	67.6
					M _{0,max}					91.5	120.1
					M _{max}					155.5	190.0
					n _{eto}					996	870
19P29-	53.0	2850	29.5	15.80	M ₀						36.7
					M _N						35.9
					M _{0,max}						61.1
					M _{max}						106.7
					n _{eto}						2715

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

MCS synchronous 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	9321- E□	9322- E□	9323- E□	9324- E□	9325- E□	9326- E□	9327- E□	9328- E□	9329- E□
					I _N	1.5	2.5	3.9	7.0	13.0	23.5	32.0	47.0	59.0
					I _{0,max}	2.3	3.8	5.9	10.5	19.5	23.5	32.0	47.0	52.0
MCS	M _N	n _N	I _N	P _N	I _{max}	2.3	3.8	5.9	10.5	19.5	35.3	48.0	70.5	88.5
06C41-	0.6	4050	1.3	0.25	M ₀	0.8	0.8	0.8						
					M _N	0.6	0.6	0.6						
					M _{0,max}	1.2	1.8	2.4						
					M _{max}	1.2	1.8	2.4						
					n _{eto}	4635	2871	2019						
06C60-	0.5	6000	2.4	0.31	M ₀		0.8	0.8	0.8					
					M _N		0.5	0.5	0.5					
					M _{0,max}		1.0	1.5	2.4					
					M _{max}		1.0	1.5	2.4					
					n _{eto}		7000	7000	5368					
06F41-	1.2	4050	1.5	0.51	M ₀	1.5	1.5	1.5						
					M _N	1.2	1.2	1.2						
					M _{0,max}	2.0	3.4	4.4						
					M _{max}	2.0	3.4	4.4						
					n _{eto}	2819	1973	1562						
06F60-	0.9	6000	2.5	0.57	M ₀		1.3	1.5	1.5					
					M _N		0.9	0.9	0.9					
					M _{0,max}		1.7	3.0	4.4					
					M _{max}		1.7	3.0	4.4					
					n _{eto}		7000	5714	3773					
06I41-	1.5	4050	1.6	0.64	M ₀	1.8	2.0	2.0						
					M _N	1.4	1.5	1.5						
					M _{0,max}	2.6	4.2	6.2						
					M _{max}	2.6	4.2	6.2						
					n _{eto}	2994	1980	1384						
06I60-	1.2	6000	2.9	0.75	M ₀		1.5	2.0	2.0					
					M _N		1.0	1.2	1.2					
					M _{0,max}		2.1	3.3	5.7					
					M _{max}		2.1	3.3	5.7					
					n _{eto}		7000	5486	3414					
09D41-	2.3	4050	2.3	1.00	M ₀		3.1	3.3	3.3					
					M _N		2.3	2.3	2.3					
					M _{0,max}		4.2	6.2	9.4					
					M _{max}		4.2	6.2	9.4					
					n _{eto}		4895	2937	2008					
09D60-	1.8	6000	3.8	1.10	M ₀			2.4	3.3	3.3				
					M _N			1.8	1.8	1.8				
					M _{0,max}			3.2	5.6	9.3				
					M _{max}			3.2	5.6	9.3				
					n _{eto}			7000	7000	4492				
09F38-	3.1	3750	2.5	1.20	M ₀		3.5	4.2	4.2					
					M _N		3.1	3.1	3.1					
					M _{0,max}		5.2	7.7	12.0					
					M _{max}		5.2	7.7	12.0					
					n _{eto}		4000	3250	2173					

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

MCS synchronous 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	9321- E□	9322- E□	9323- E□	9324- E□	9325- E□	9326- E□	9327- E□	9328- E□	9329- E□
					I _N	1.5	2.5	3.9	7.0	13.0	23.5	32.0	47.0	59.0
					I _{0,max}	2.3	3.8	5.9	10.5	19.5	23.5	32.0	47.0	52.0
MCS	M _N	n _N	I _N	P _N	I _{max}	2.3	3.8	5.9	10.5	19.5	35.3	48.0	70.5	88.5
09F60-	2.4	6000	4.5	1.50	M ₀				4.2	4.2				
					M _N				2.4	2.4				
					M _{0,max}				6.9	11.4				
					M _{max}				6.9	11.4				
					n _{eto}				7000	5035				
09H41-	3.8	4050	3.4	1.60	M ₀			5.0	5.5	5.5				
					M _N			3.8	3.8	3.8				
					M _{0,max}			7.5	12.5	20.1				
					M _{max}			7.5	12.5	20.1				
					n _{eto}			4250	2977	1988				
09H60-	3.0	6000	6.0	1.90	M ₀				4.5	5.5				
					M _N				3.0	3.0				
					M _{0,max}				6.7	11.7				
					M _{max}				6.7	11.7				
					n _{eto}				7000	7000				
09L41-	4.5	4050	4.2	1.90	M ₀			4.7	7.5	7.5				
					M _N			4.2	4.5	4.5				
					M _{0,max}			6.7	11.7	20.8				
					M _{max}			6.7	11.7	20.8				
					n _{eto}			4450	4154	2796				
09L51-	3.6	5100	6.9	1.90	M ₀				4.2	7.5	7.5			
					M _N				3.6	3.6	3.6			
					M _{0,max}				6.0	11.1	13.2			
					M _{max}				6.0	11.1	19.1			
					n _{eto}				7000	7000	7000			
12D20-	5.5	1950	2.6	1.10	M ₀		5.9	6.4	6.4					
					M _N		5.3	5.5	5.5					
					M _{0,max}		7.6	11.6	17.7					
					M _{max}		7.6	11.6	17.7					
					n _{eto}		1790	1358	919					
12D41-	4.3	4050	4.5	1.80	M ₀			4.6	6.4	6.4				
					M _N			3.7	4.3	4.3				
					M _{0,max}			5.9	10.1	17.3				
					M _{max}			5.9	10.1	17.3				
					n _{eto}			4344	3275	2116				
12H15-	10.0	1500	3.8	1.60	M ₀			10.9	11.4	11.4				
					M _N			10.0	10.0	10.0				
					M _{0,max}			15.1	25.8	29.0				
					M _{max}			15.1	25.8	29.0				
					n _{eto}			1676	1013	918				
12H35-	7.5	3525	5.7	2.80	M ₀				9.8	11.4				
					M _N				7.5	7.5				
					M _{0,max}				13.5	24.1				
					M _{max}				13.5	24.1				
					n _{eto}				3618	2447				

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

MCS synchronous 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	9321- E□	9322- E□	9323- E□	9324- E□	9325- E□	9326- E□	9327- E□	9328- E□	9329- E□
					I _N	1.5	2.5	3.9	7.0	13.0	23.5	32.0	47.0	59.0
					I _{0,max}	2.3	3.8	5.9	10.5	19.5	23.5	32.0	47.0	52.0
MCS	M _N	n _N	I _N	P _N	I _{max}	2.3	3.8	5.9	10.5	19.5	35.3	48.0	70.5	88.5
12L20-	13.5	1950	5.9	2.80	M ₀				15.0	15.0				
					M _N				13.5	13.5				
					M _{0,max}				24.4	41.9				
					M _{max}				24.4	41.9				
					n _{eto}				1718	1158				
12L41-	11.0	4050	10.2	4.70	M ₀					15.0	15.0	15.0		
					M _N					11.0	11.0	11.0		
					M _{0,max}					22.8	27.0	35.5		
					M _{max}					22.8	38.5	49.6		
					n _{eto}					4287	2799	2236		
14D15-	9.2	1500	4.5	1.45	M ₀			8.5	11.0	11.0				
					M _N			8.0	9.2	9.2				
					M _{0,max}			12.1	20.2	29.0				
					M _{max}			12.1	20.2	29.0				
					n _{eto}			1437	928	676				
14D36-	7.5	3600	7.5	2.80	M ₀				7.7	11.0	11.0			
					M _N				7.0	7.5	7.5			
					M _{0,max}				10.9	19.0	22.2			
					M _{max}				10.9	19.0	29.0			
					n _{eto}				3479	2159	1593			
14H15-	16.0	1500	6.6	2.50	M ₀				17.3	21.0				
					M _N				16.0	16.0				
					M _{0,max}				25.4	43.9				
					M _{max}				25.4	43.9				
					n _{eto}				1247	800				
14H32-	14.0	3225	11.9	4.70	M ₀					16.2	21.0	21.0		
					M _N					14.0	14.0	14.0		
					M _{0,max}					23.8	28.2	37.1		
					M _{max}					23.8	40.2	51.9		
					n _{eto}					2875	1817	1471		
14L15-	23.0	1500	9.7	3.60	M ₀					28.0	28.0			
					M _N					23.0	23.0			
					M _{0,max}					45.0	52.9			
					M _{max}					45.0	73.8			
					n _{eto}					1126	788			
14L32-	17.2	3225	15.0	5.80	M ₀					15.2	27.4	28.0	28.0	
					M _N					14.9	17.2	17.2	17.2	
					M _{0,max}					23.5	28.3	37.6	52.9	
					M _{max}					23.5	41.0	53.9	73.9	
					n _{eto}					3953	2608	2096	1672	
14P14-	30.0	1350	10.8	4.20	M ₀					37.0	37.0	37.0		
					M _N					30.0	30.0	30.0		
					M _{0,max}					52.5	61.8	80.0		
					M _{max}					52.5	86.3	105.1		
					n _{eto}					998	668	573		

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

MCS synchronous 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	9321- E□	9322- E□	9323- E□	9324- E□	9325- E□	9326- E□	9327- E□	9328- E□	9329- E□
					I _N	1.5	2.5	3.9	7.0	13.0	23.5	32.0	47.0	59.0
					I _{0,max}	2.3	3.8	5.9	10.5	19.5	23.5	32.0	47.0	52.0
MCS	M _N	n _N	I _N	P _N	I _{max}	2.3	3.8	5.9	10.5	19.5	35.3	48.0	70.5	88.5
14P32-	21.0	3 225	15.6	7.10	M ₀					19.8	35.8	37.0	37.0	
					M _N					17.5	21.0	21.0	21.0	
					M _{0,max}					27.4	33.0	43.9	61.8	
					M _{max}					27.4	47.9	63.0	86.4	
					n _{eto}					3300	2299	1829	1404	
19F14-	27.0	1425	8.6	4.00	M ₀				22.6	32.0	32.0			
					M _N				22.0	27.0	27.0			
					M _{0,max}				33.0	58.2	68.3			
					M _{max}				33.0	58.2	86.0			
					n _{eto}				1459	1056	746			
19F30-	21.0	3000	14.0	6.60	M ₀					21.0	32.0	32.0		
					M _N					19.5	21.0	21.0		
					M _{0,max}					29.2	35.2	47.2		
					M _{max}					29.2	51.5	68.3		
					n _{eto}					3352	2573	2033		
19J14-	40.0	1425	12.3	6.00	M ₀					43.6	51.0	51.0		
					M _N					40.0	40.0	40.0		
					M _{0,max}					60.8	72.4	96.0		
					M _{max}					60.8	104.5	129.0		
					n _{eto}					1376	996	839		
19J30-	29.0	3000	18.5	9.10	M ₀						39.3	51.0	51.0	51.0
					M _N						29.0	29.0	29.0	29.0
					M _{0,max}						36.8	50.2	72.4	79.5
					M _{max}						55.2	73.8	104.7	127.6
					n _{eto}						3150	2850	2162	1817
19P14-	51.0	1350	14.3	7.20	M ₀					47.5	64.0	64.0		
					M _N					46.4	51.0	51.0		
					M _{0,max}					69.5	79.6	106.7		
					M _{max}					69.5	116.7	155.5		
					n _{eto}					1400	1187	996		
19P30-	32.0	3000	19.0	10.00	M ₀						43.1	58.7	64.0	64.0
					M _N						32.0	32.0	32.0	32.0
					M _{0,max}						39.6	53.9	79.6	87.6
					M _{max}						59.3	81.2	116.9	144.3
					n _{eto}						3000	2938	2638	2298

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

MCS synchronous 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	9322-E□	9323-E□	9324-E□	9325-E□	9326-E□	9327-E□	9328-E□	9329-E□
					I _N	2.5	3.9	7.0	13.0	23.5	32.0	47.0	59.0
					I _{0,max}	3.8	5.9	10.5	19.5	23.5	32.0	47.0	52.0
MCS	M _N	n _N	I _N	P _N	I _{max}	3.8	5.9	10.5	19.5	35.3	48.0	70.5	88.5
12D17-	7.0	1650	3.0	1.20	M ₀	5.9	7.5	7.5					
					M _N	5.3	7.0	7.0					
					M _{0,max}	7.6	11.6	17.7					
					M _{max}	7.6	11.6	17.7					
					n _{eto}	1790	1358	919					
12D35-	6.0	3525	5.6	2.20	M ₀		4.6	7.5	7.5				
					M _N		3.7	6.0	6.0				
					M _{0,max}		5.9	10.1	17.3				
					M _{max}		5.9	10.1	17.3				
					n _{eto}		4344	3275	2116				
12H14-	12.0	1350	4.1	1.70	M ₀		10.9	12.8	12.8				
					M _N		10.3	12.0	12.0				
					M _{0,max}		15.1	25.8	29.0				
					M _{max}		15.1	25.8	29.0				
					n _{eto}		1676	1013	918				
12H34-	10.5	3375	7.5	3.70	M ₀			9.8	12.8				
					M _N			9.6	10.5				
					M _{0,max}			13.5	24.1				
					M _{max}			13.5	24.1				
					n _{eto}			3618	2447				
12L17-	17.0	1650	6.7	2.90	M ₀			18.5	19.0				
					M _N			17.0	17.0				
					M _{0,max}			24.4	41.9				
					M _{max}			24.4	41.9				
					n _{eto}			1718	1158				
12L39-	14.0	3900	11.7	5.70	M ₀				17.2	19.0	19.0		
					M _N				14.0	14.0	14.0		
					M _{0,max}				22.8	27.0	35.5		
					M _{max}				22.8	38.5	49.6		
					n _{eto}				4287	2799	2236		
14D14-	12.0	1350	5.4	1.70	M ₀		8.5	12.5	12.5				
					M _N		8.0	12.0	12.0				
					M _{0,max}		12.1	20.2	29.0				
					M _{max}		12.1	20.2	29.0				
					n _{eto}		1437	928	676				
14D30-	10.5	3000	9.7	3.30	M ₀			7.7	12.5	12.5			
					M _N			7.0	10.0	10.0			
					M _{0,max}			10.9	19.0	22.2			
					M _{max}			10.9	19.0	29.0			
					n _{eto}			3479	2159	1593			
14H12-	23.5	1200	8.3	3.00	M ₀			17.3	25.5				
					M _N			17.2	23.5				
					M _{0,max}			25.4	43.9				
					M _{max}			25.4	43.9				
					n _{eto}			1247	800				

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

MCS synchronous 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	9322-E□	9323-E□	9324-E□	9325-E□	9326-E□	9327-E□	9328-E□	9329-E□
					I _N	2.5	3.9	7.0	13.0	23.5	32.0	47.0	59.0
					I _{0,max}	3.8	5.9	10.5	19.5	23.5	32.0	47.0	52.0
MCS	M _N	n _N	I _N	P _N	I _{max}	3.8	5.9	10.5	19.5	35.3	48.0	70.5	88.5
14H28-	20.5	2775	15.0	6.00	M ₀				16.2	25.5	25.5		
					M _N				16.1	20.5	20.5		
					M _{0,max}				23.8	28.2	37.1		
					M _{max}				23.8	40.2	51.9		
					n _{eto}				2875	1817	1471		
14L14-	30.5	1350	11.8	4.30	M ₀				33.4	34.5			
					M _N				30.5	30.5			
					M _{0,max}				45.0	52.9			
					M _{max}				45.0	73.8			
					n _{eto}				1126	788			
14L30-	25.5	3000	20.8	8.00	M ₀					27.4	34.5	34.5	
					M _N					25.5	25.5	25.5	
					M _{0,max}					28.3	37.6	52.9	
					M _{max}					41.0	53.9	73.9	
					n _{eto}					2608	2096	1672	
14P11-	42.0	1050	13.4	4.60	M ₀				40.1	43.5	43.5		
					M _N				40.0	42.0	42.0		
					M _{0,max}				52.5	61.8	80.0		
					M _{max}				52.5	86.3	105.1		
					n _{eto}				998	668	573		
14P26-	33.0	2625	21.9	9.10	M ₀					35.8	43.5	43.5	
					M _N					33.0	33.0	33.0	
					M _{0,max}					33.0	43.9	61.8	
					M _{max}					47.9	63.0	86.4	
					n _{eto}					2299	1829	1404	
19F12-	38.0	1200	11.3	4.80	M ₀			22.6	41.5	41.5			
					M _N			22.0	38.0	38.0			
					M _{0,max}			33.0	58.2	68.3			
					M _{max}			33.0	58.2	86.0			
					n _{eto}			1459	1056	746			
19F29-	32.5	2850	20.1	9.70	M ₀					39.9	41.5		
					M _N					32.5	32.5		
					M _{0,max}					35.2	47.2		
					M _{max}					51.5	68.3		
					n _{eto}					2573	2033		
19J12-	62.5	1200	18.3	7.90	M ₀				43.6	70.5	70.5		
					M _N				43.4	62.5	62.5		
					M _{0,max}				60.8	72.4	96.0		
					M _{max}				60.8	104.5	129.0		
					n _{eto}				1376	996	839		
19J29-	50.5	2850	31.0	15.10	M ₀						55.5	70.5	70.5
					M _N						50.5	50.5	50.5
					M _{0,max}						50.2	72.4	79.5
					M _{max}						73.8	104.7	127.6
					n _{eto}						2850	2162	1817

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

MCS synchronous 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	9322-E□	9323-E□	9324-E□	9325-E□	9326-E□	9327-E□	9328-E□	9329-E□
					I _N	2.5	3.9	7.0	13.0	23.5	32.0	47.0	59.0
					I _{0,max}	3.8	5.9	10.5	19.5	23.5	32.0	47.0	52.0
MCS	M _N	n _N	I _N	P _N	I _{max}	3.8	5.9	10.5	19.5	35.3	48.0	70.5	88.5
19P12-	72.0	1200	21.3	9.00	M ₀				47.5	86.0	86.0		
					M _N				46.4	72.0	72.0		
					M _{0,max}				69.5	79.6	106.7		
					M _{max}				69.5	116.7	155.5		
					n _{eto}				1400	1187	996		
19P29-	53.0	2850	29.5	15.80	M ₀						58.7	86.0	86.0
					M _N						53.0	53.0	53.0
					M _{0,max}						53.9	79.6	87.6
					M _{max}						81.2	116.9	144.3
					n _{eto}						2938	2638	2298

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

MCS synchronous servo motors

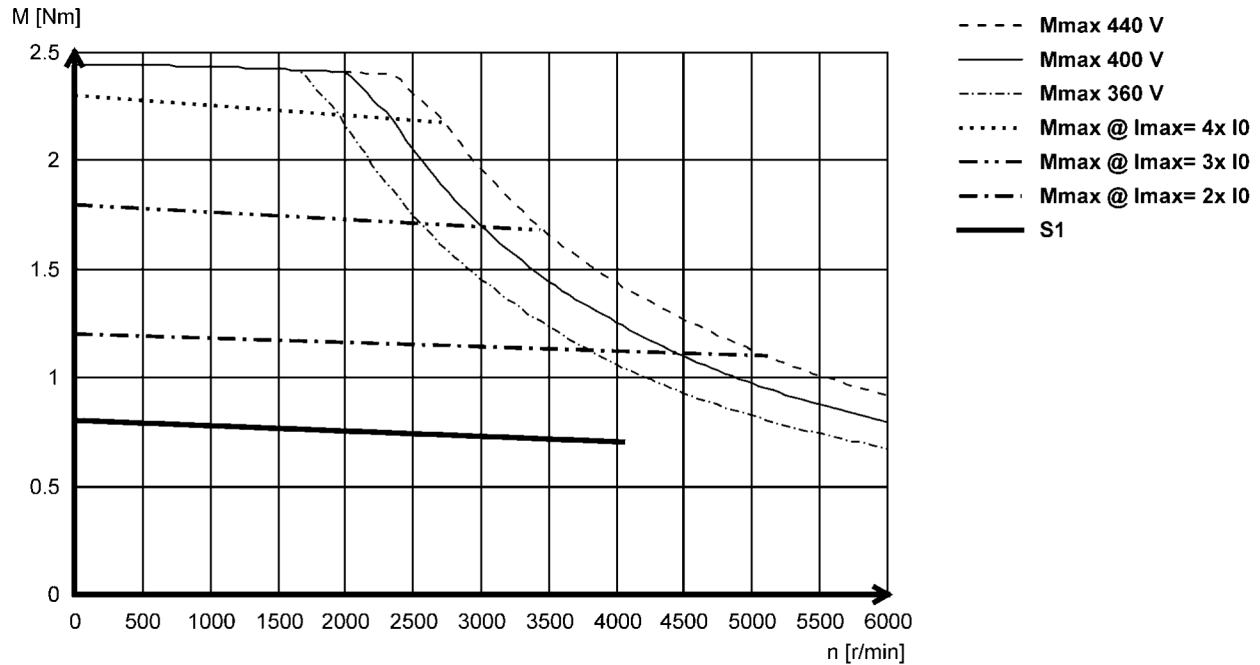
Technical data



Torque characteristics

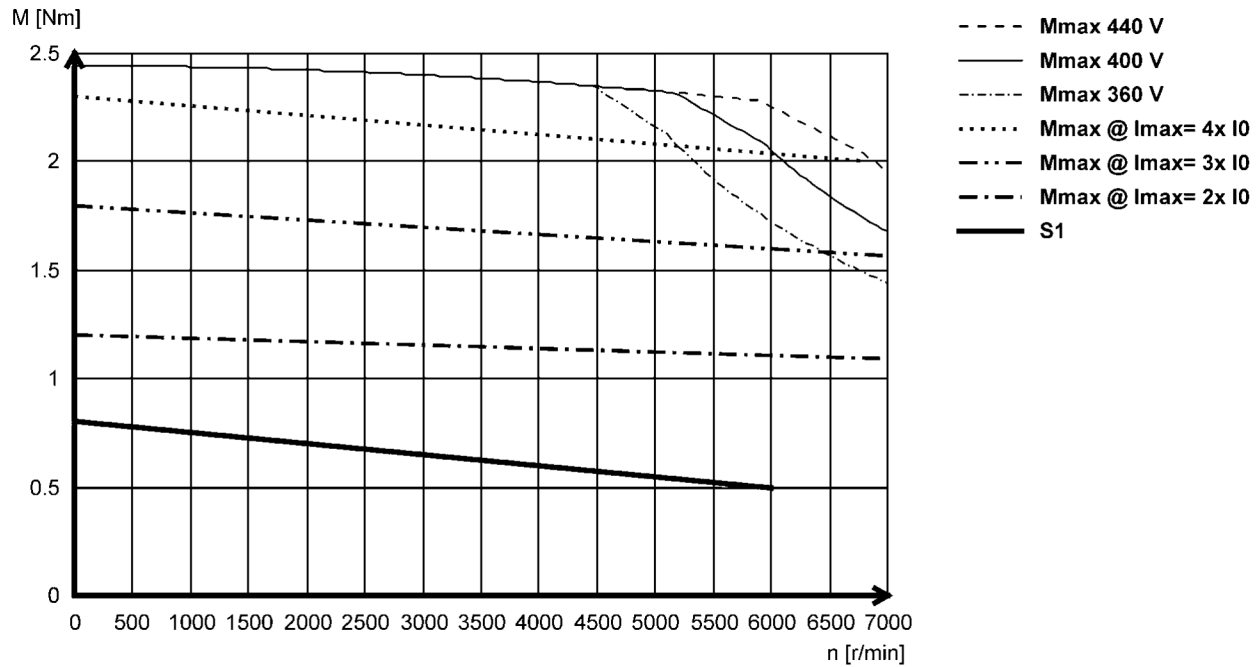
► The data applies to a mains connection voltage of 3 x 400 V.

MCS06C41- (non-ventilated)



5.1

MCS06C60- (non-ventilated)



MCS synchronous servo motors

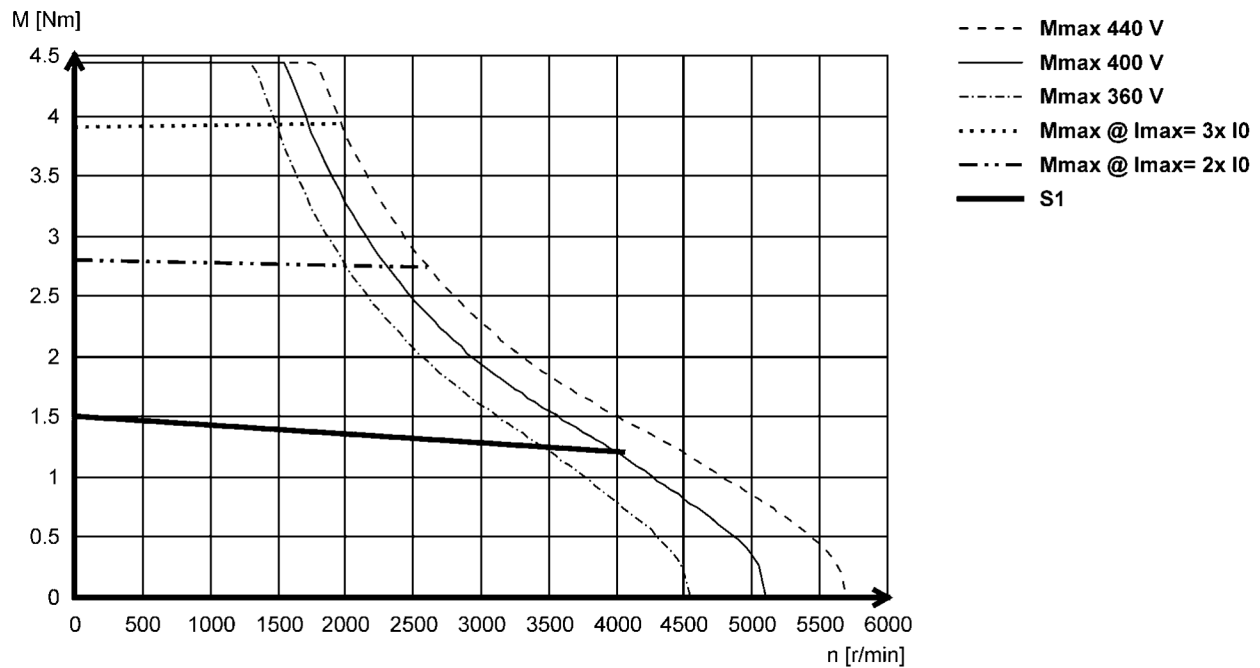
Technical data



Torque characteristics

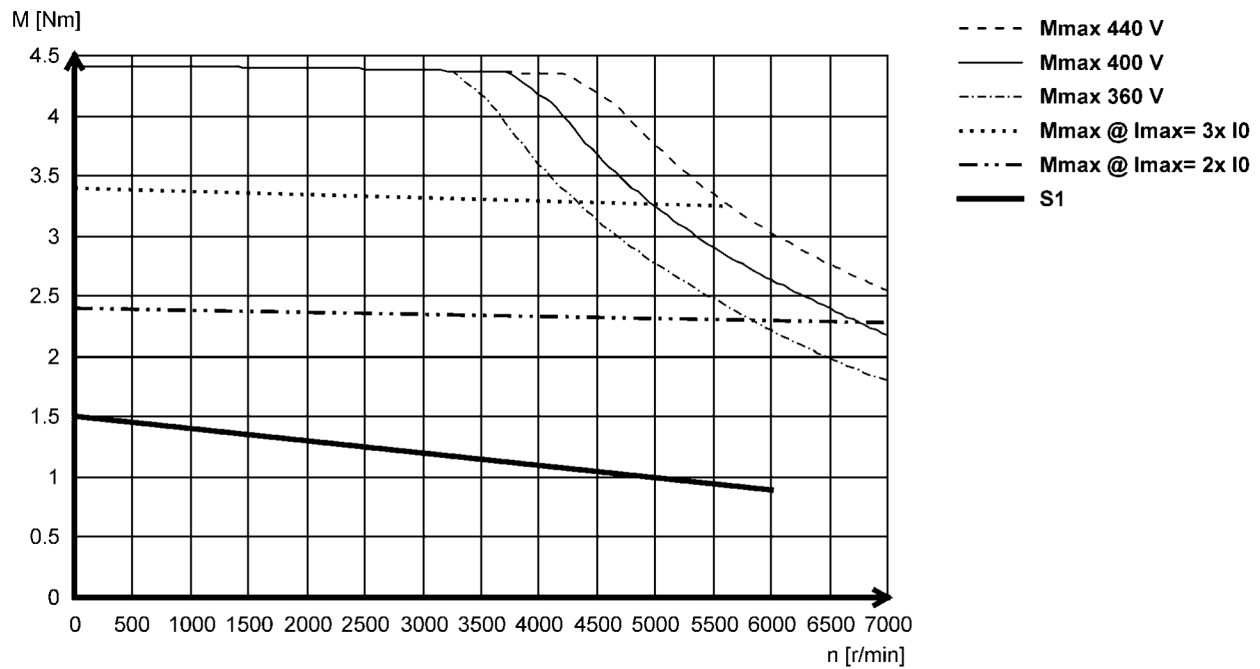
► The data applies to a mains connection voltage of 3 x 400 V.

MCS06F41- (non-ventilated)



5.1

MCS06F60- (non-ventilated)



MCS synchronous servo motors

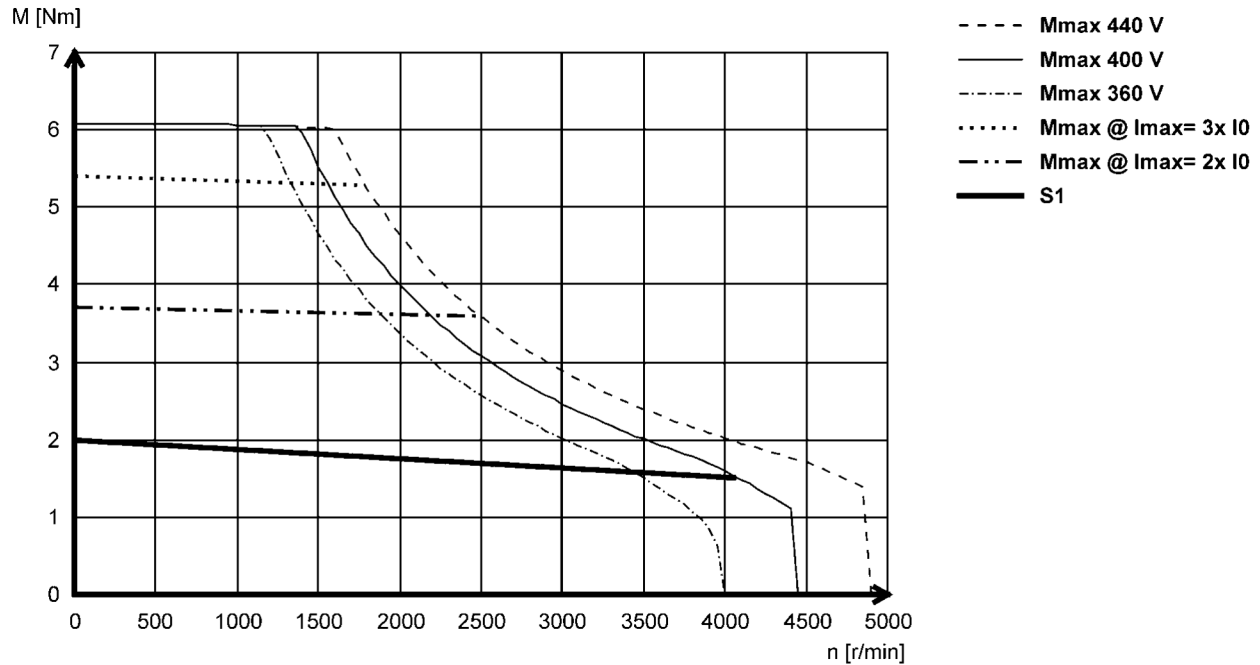
Technical data



Torque characteristics

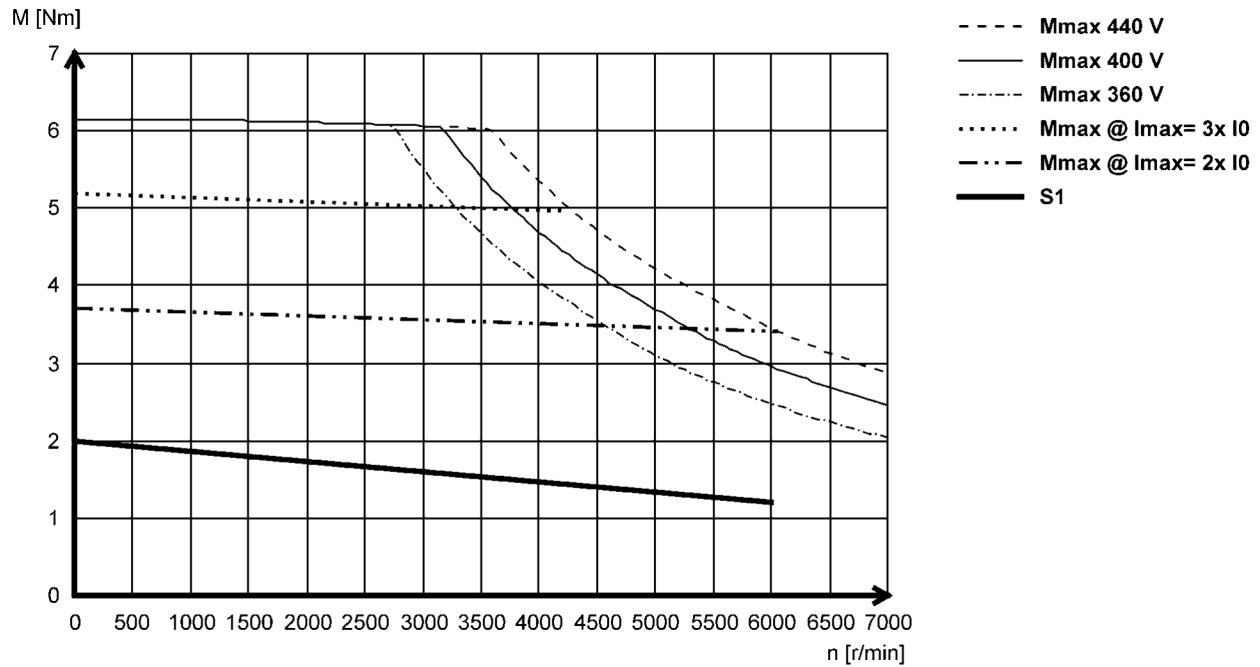
► The data applies to a mains connection voltage of 3 x 400 V.

MCS06I41- (non-ventilated)



5.1

MCS06I60- (non-ventilated)



MCS synchronous servo motors

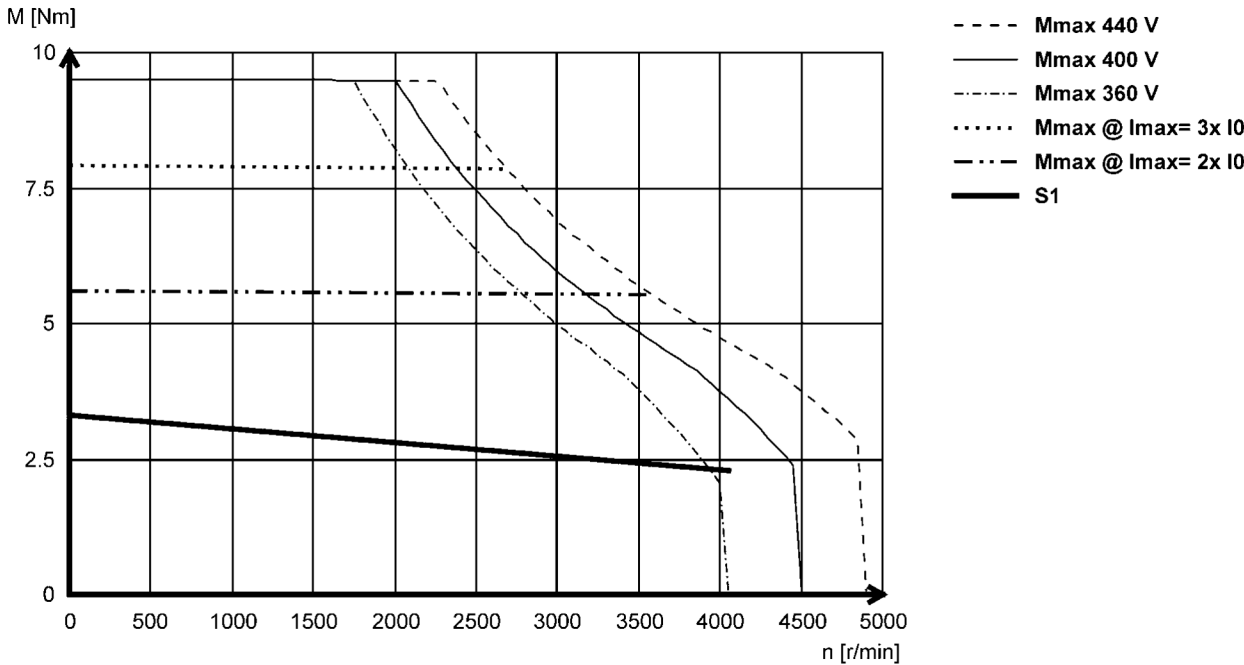
Technical data



Torque characteristics

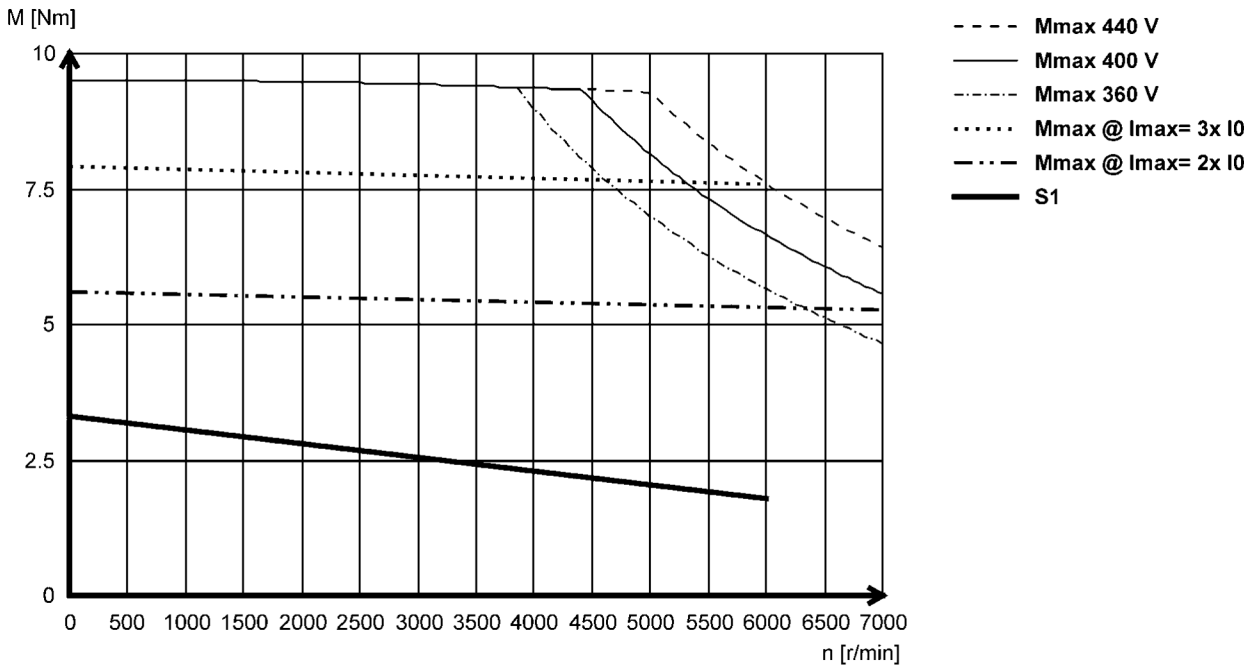
► The data applies to a mains connection voltage of 3 x 400 V.

MCS09D41- (non-ventilated)



5.1

MCS09D60- (non-ventilated)



MCS synchronous servo motors

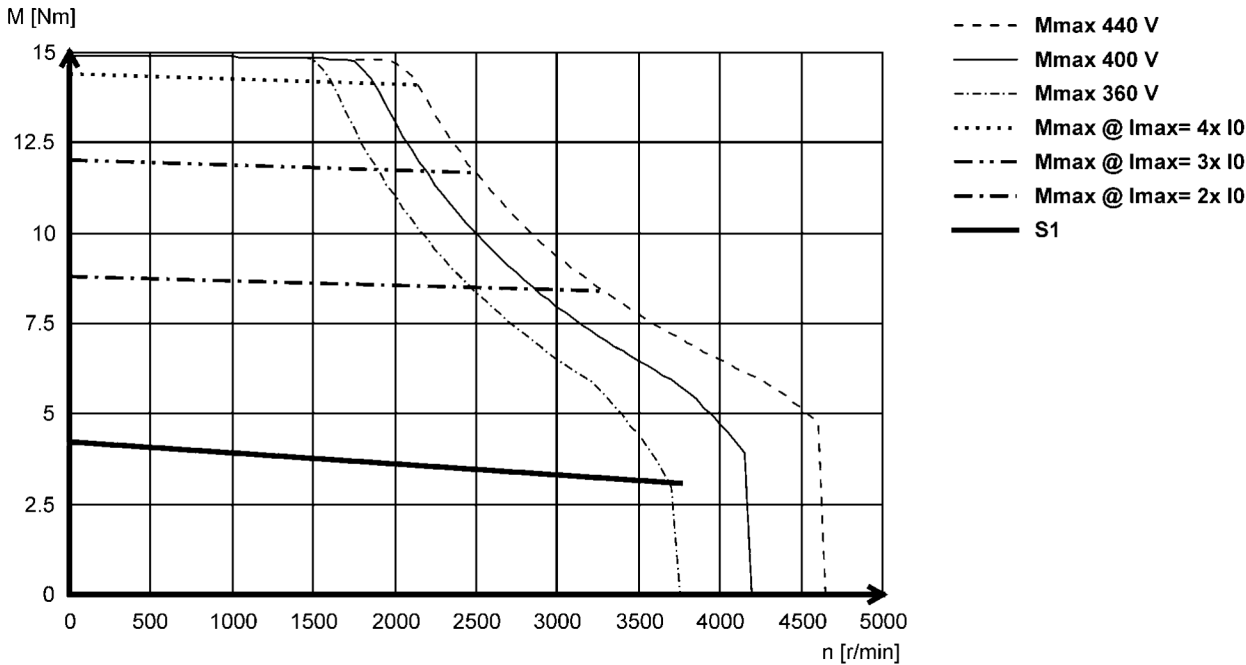
Technical data



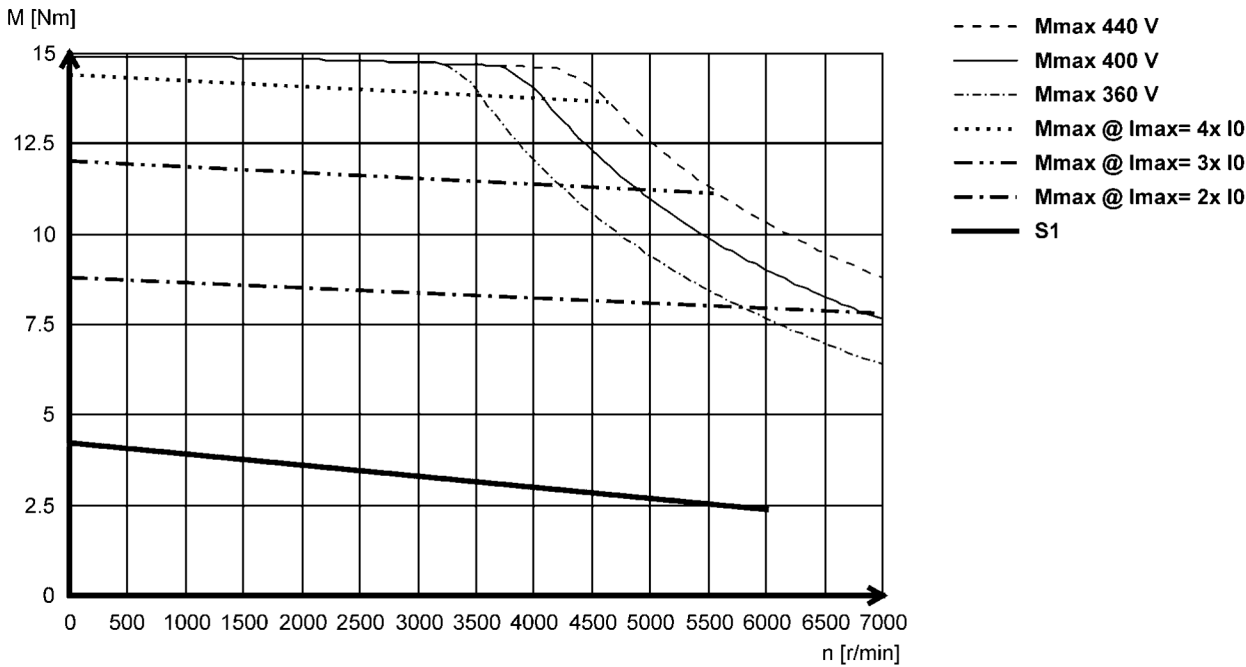
Torque characteristics

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

MCS09F38- (non-ventilated)



MCS09F60- (non-ventilated)



MCS synchronous servo motors

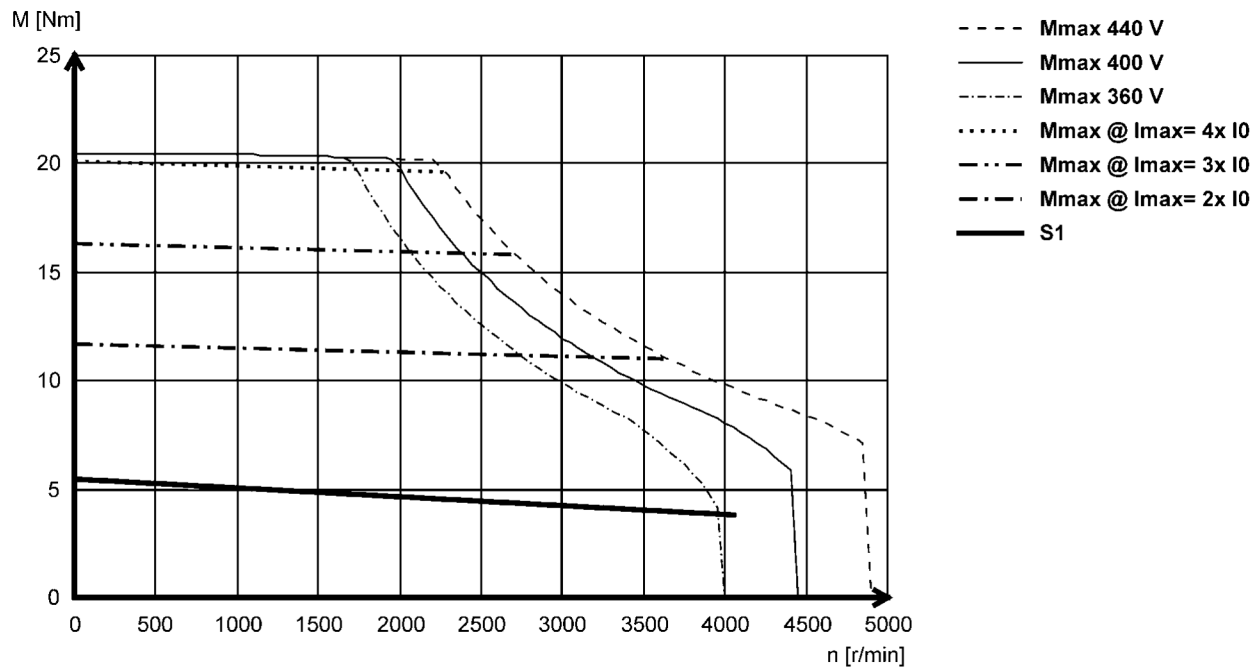
Technical data



Torque characteristics

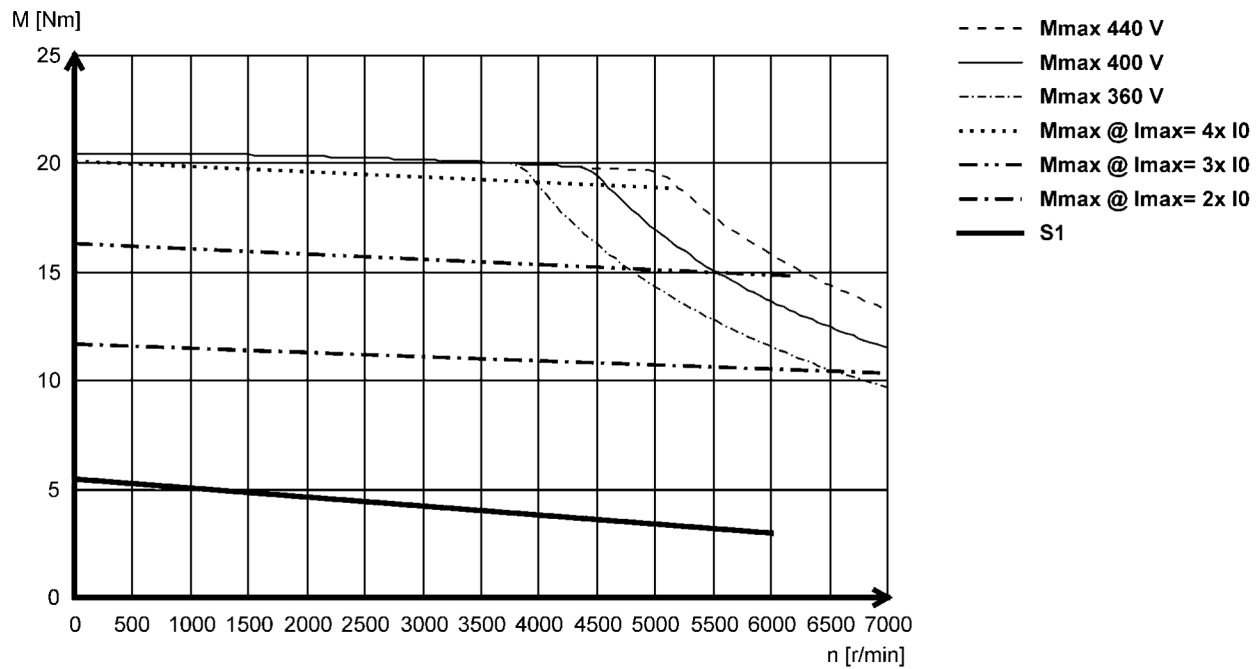
► The data applies to a mains connection voltage of 3 x 400 V.

MCS09H41- (non-ventilated)



5.1

MCS09H60- (non-ventilated)

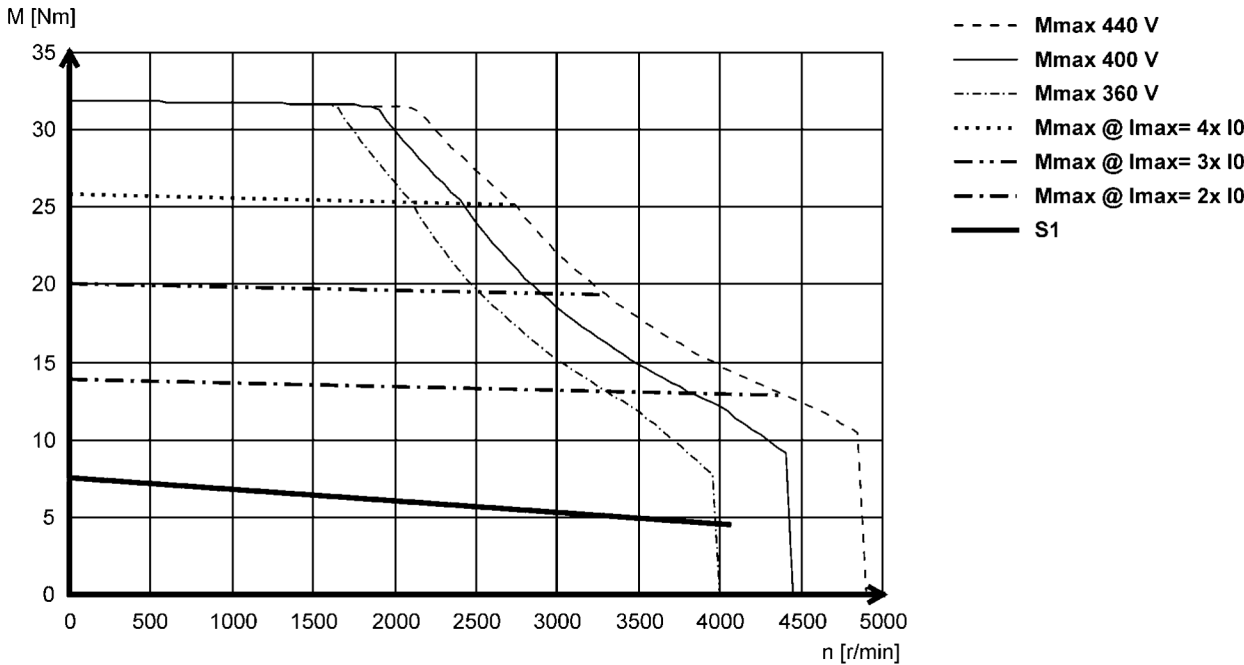




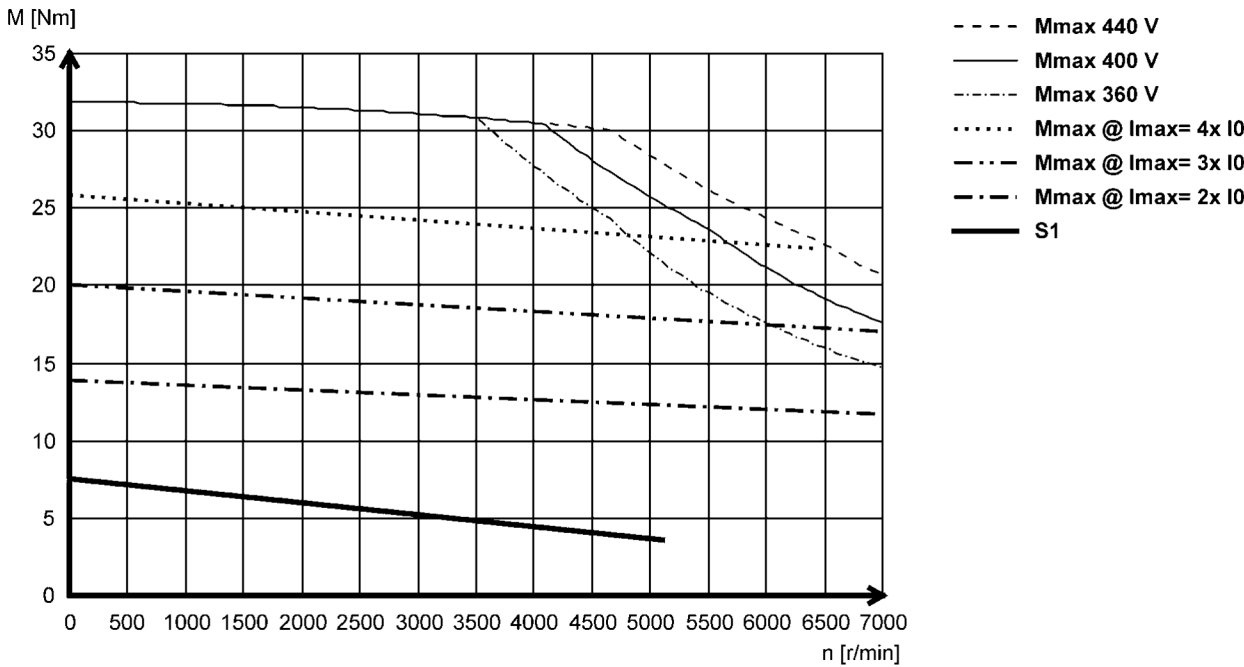
Torque characteristics

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

MCS09L41- (non-ventilated)



MCS09L51- (non-ventilated)



MCS synchronous servo motors

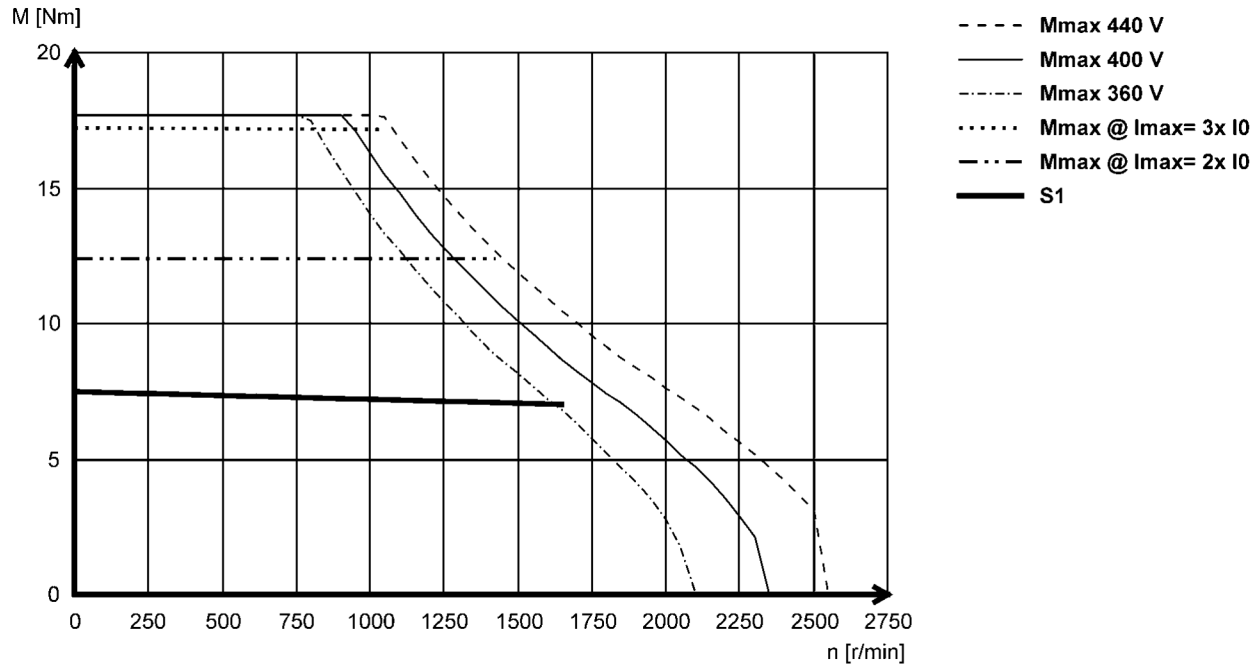
Technical data



Torque characteristics

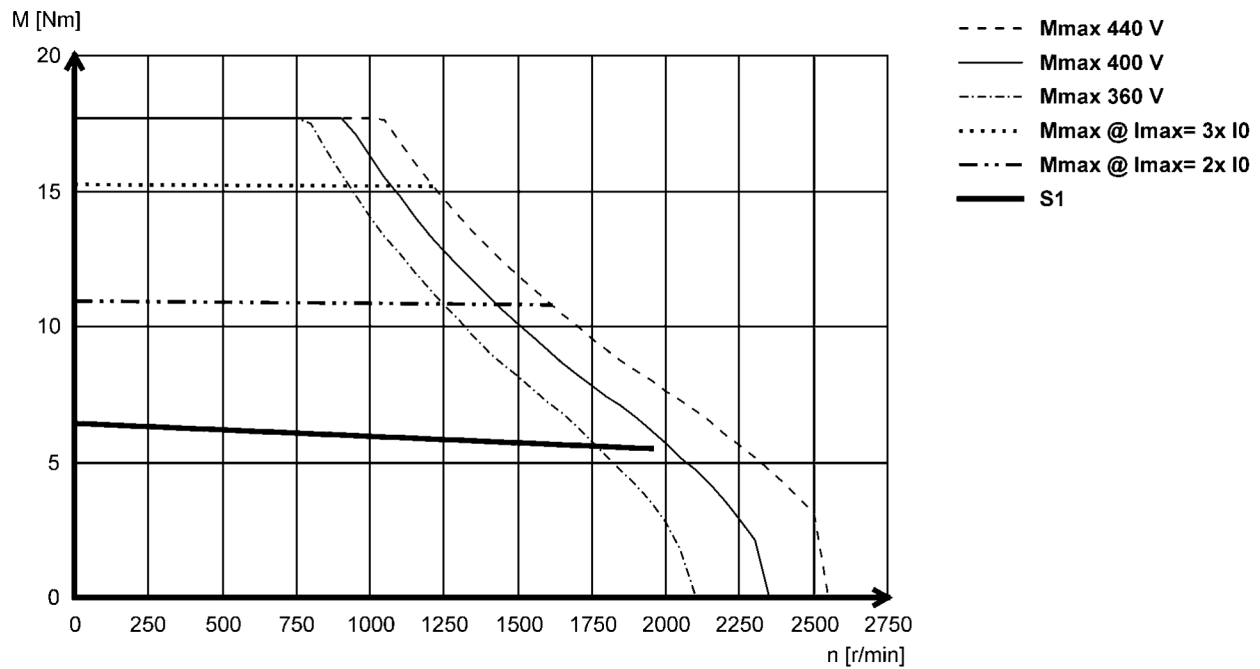
► The data applies to a mains connection voltage of 3 x 400 V.

MCS12D17 (forced ventilated)



5.1

MCS12D20- (non-ventilated)



MCS synchronous servo motors

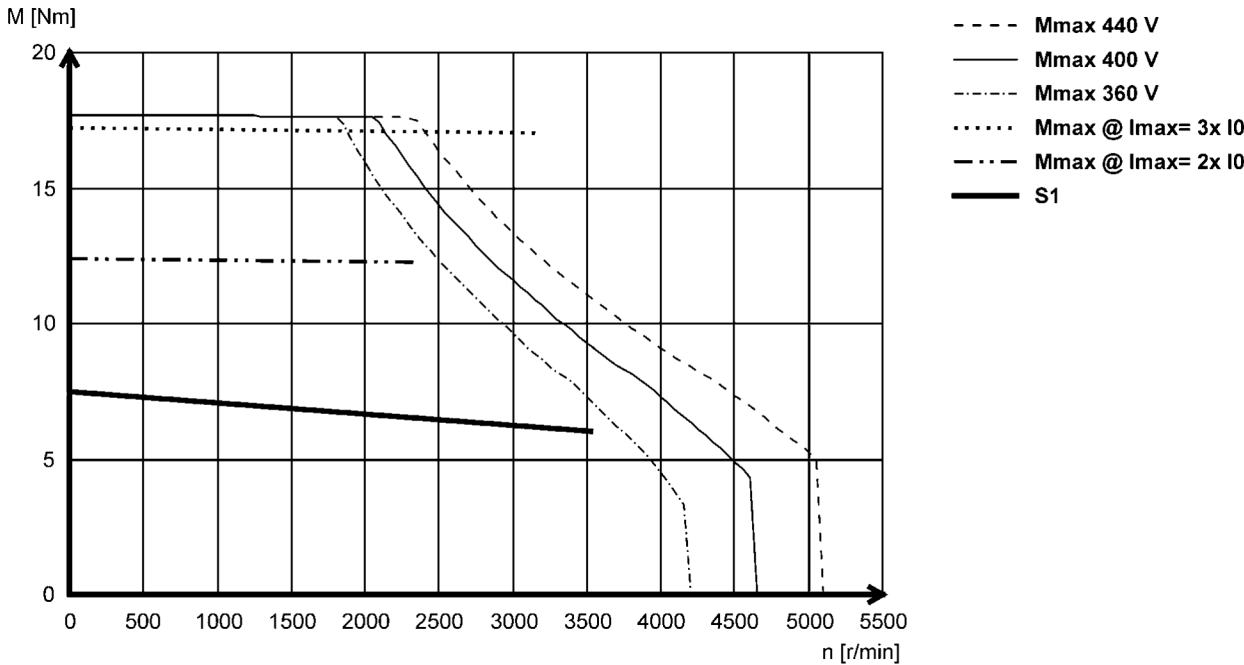
Technical data



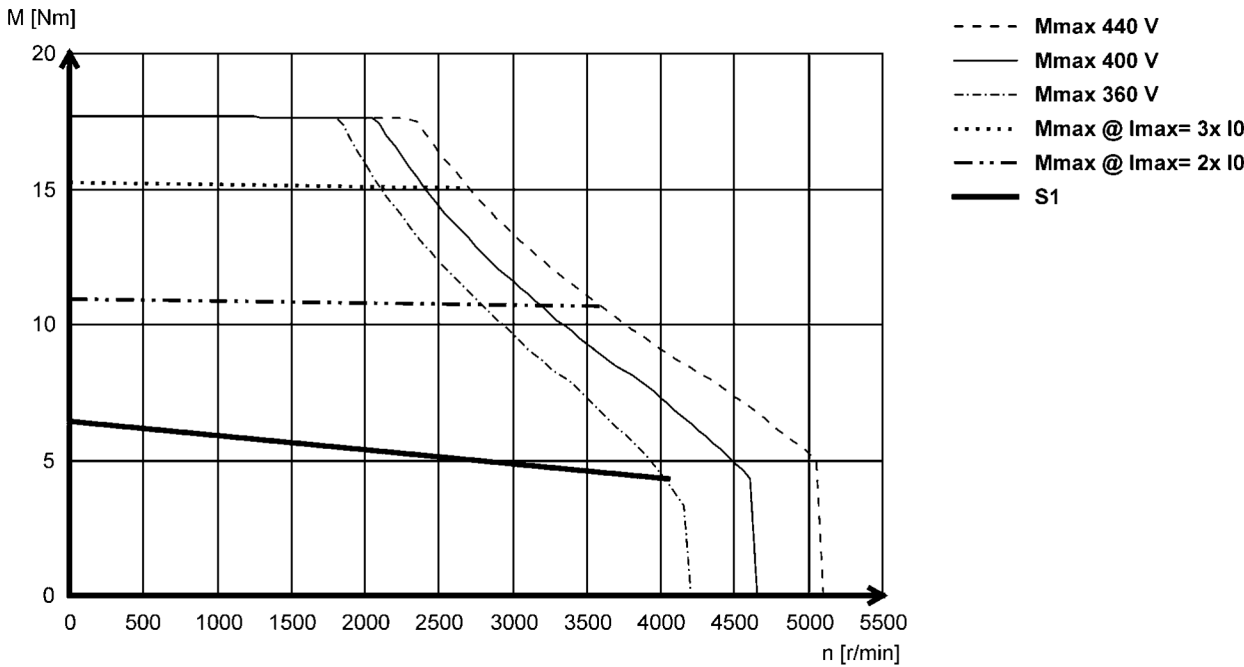
Torque characteristics

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

MCS12D35- (forced ventilated)



MCS12D41- (non-ventilated)



MCS synchronous servo motors

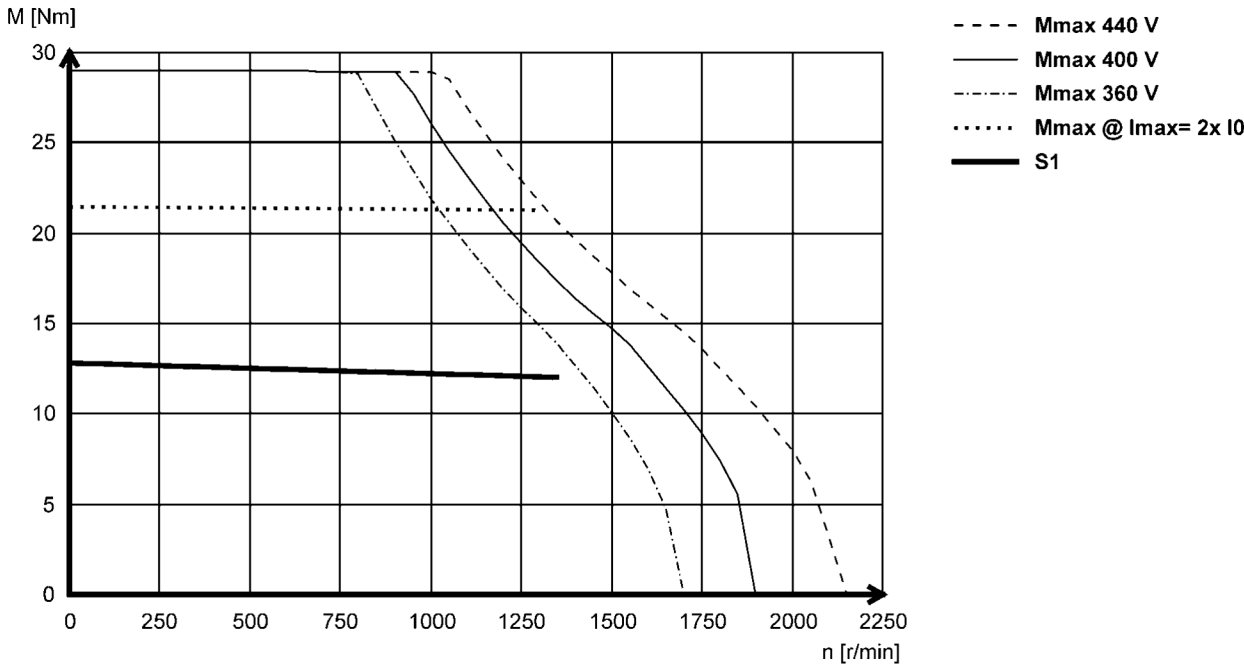
Technical data



Torque characteristics

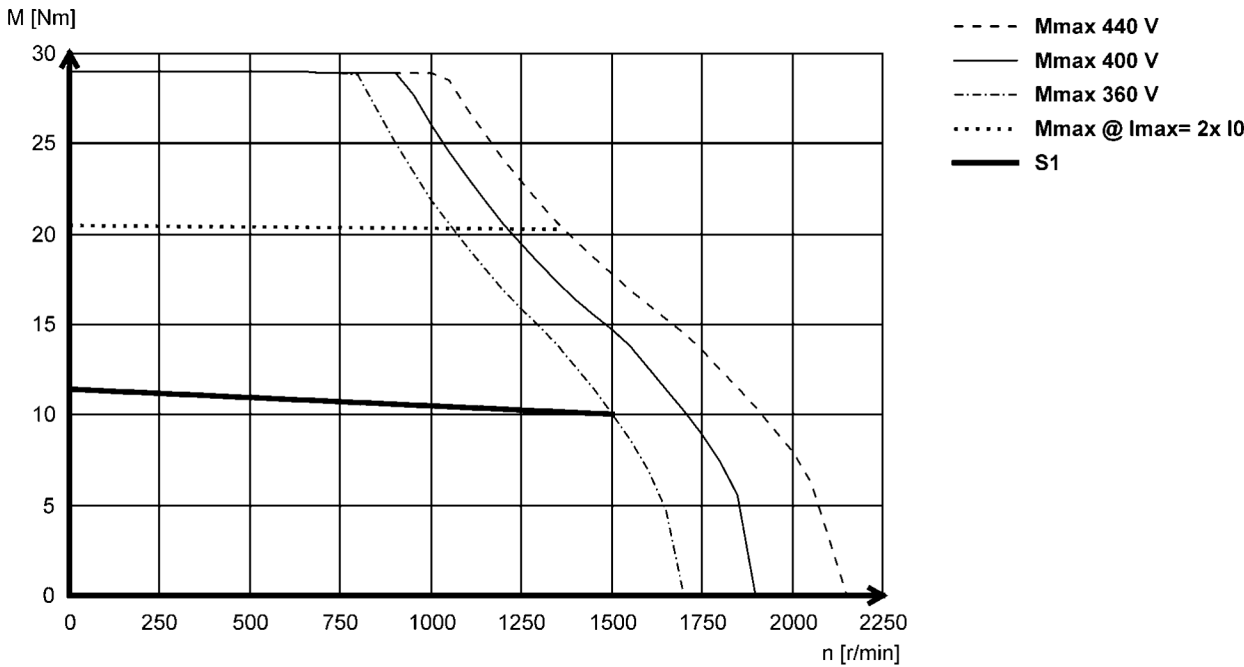
► The data applies to a mains connection voltage of 3 x 400 V.

MCS12H14- (forced ventilated)



5.1

MCS12H15- (non-ventilated)

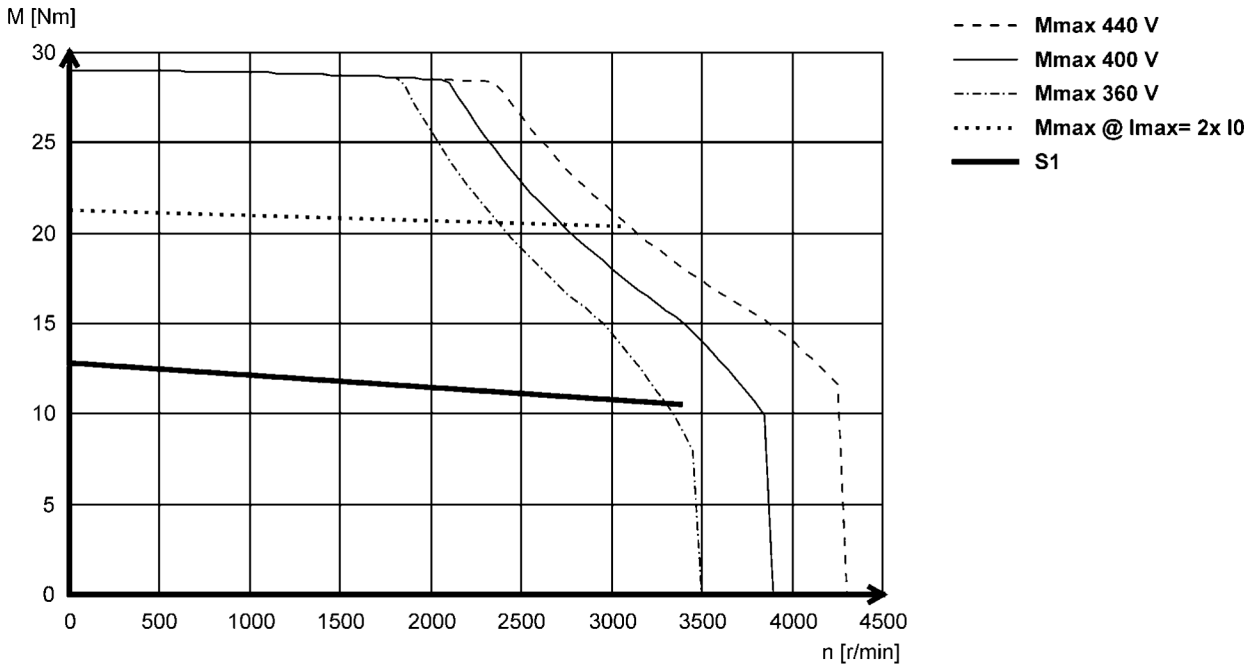




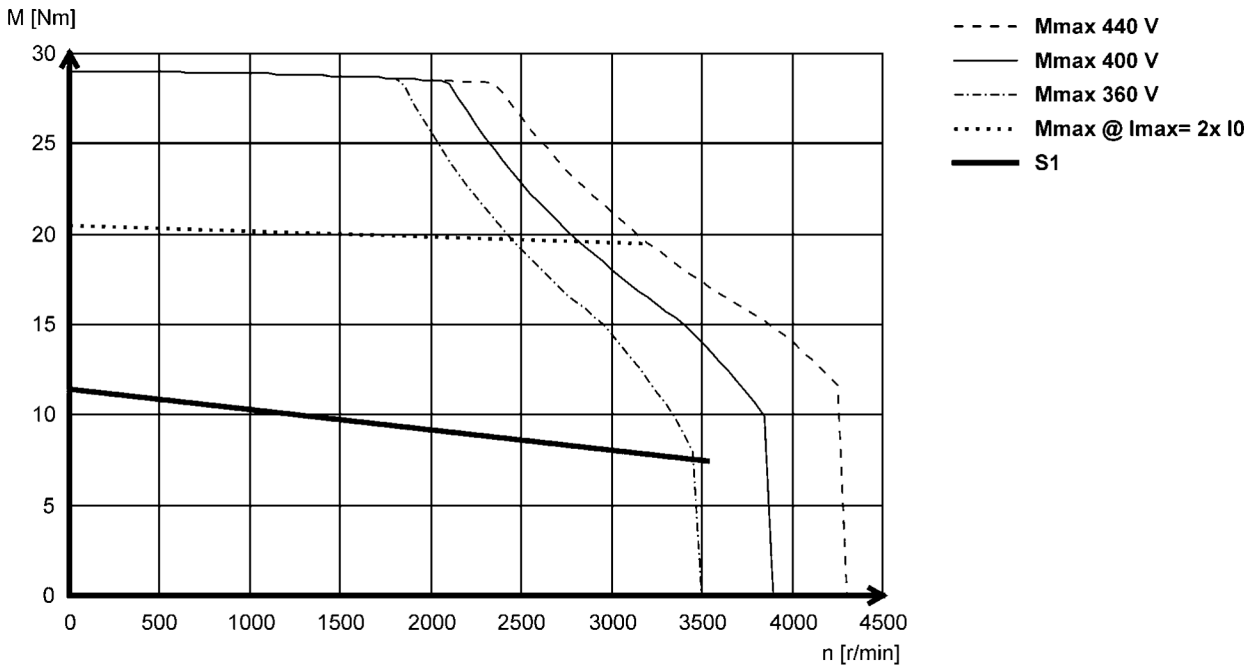
Torque characteristics

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

MCS12H34- (forced ventilated)



MCS12H35- (non-ventilated)



MCS synchronous servo motors

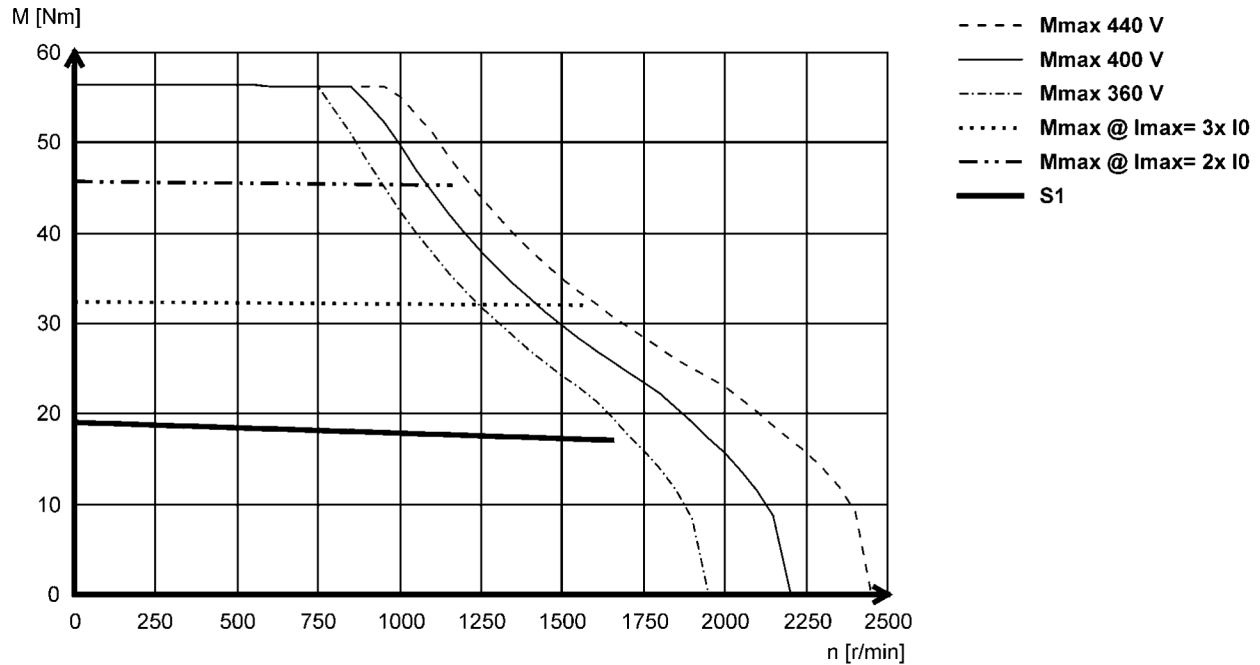
Technical data



Torque characteristics

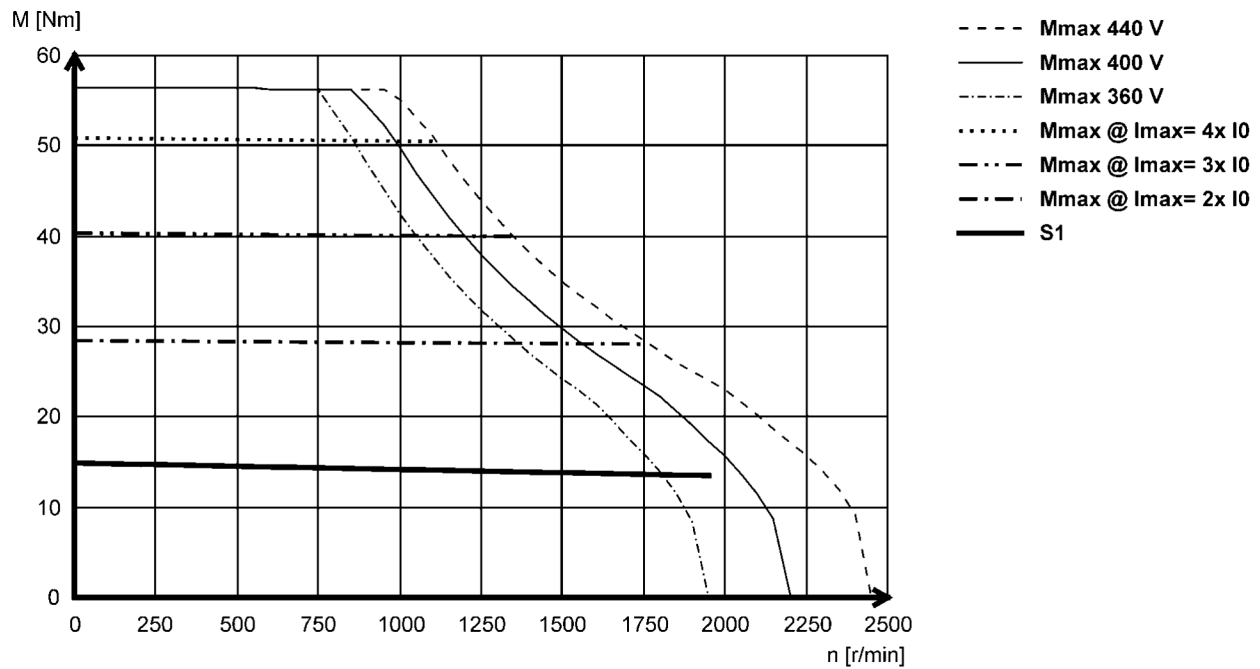
► The data applies to a mains connection voltage of 3 x 400 V.

MCS12L17- (forced ventilated)



5.1

MCS12L20- (non-ventilated)



MCS synchronous servo motors

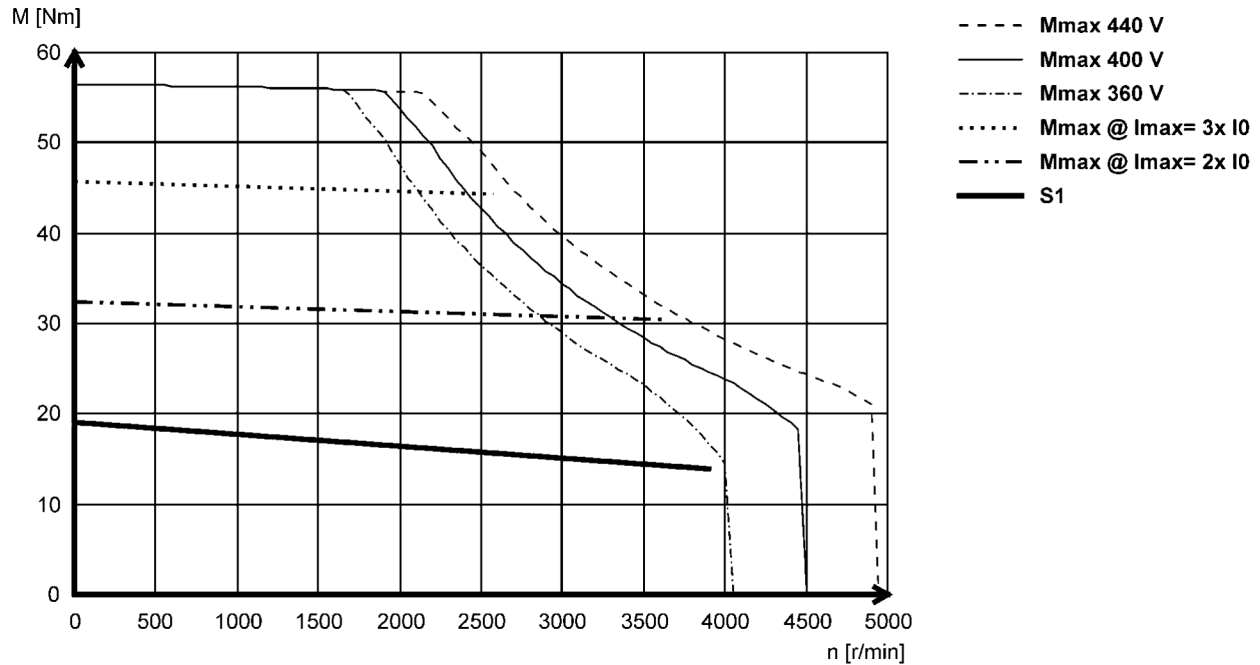
Technical data



Torque characteristics

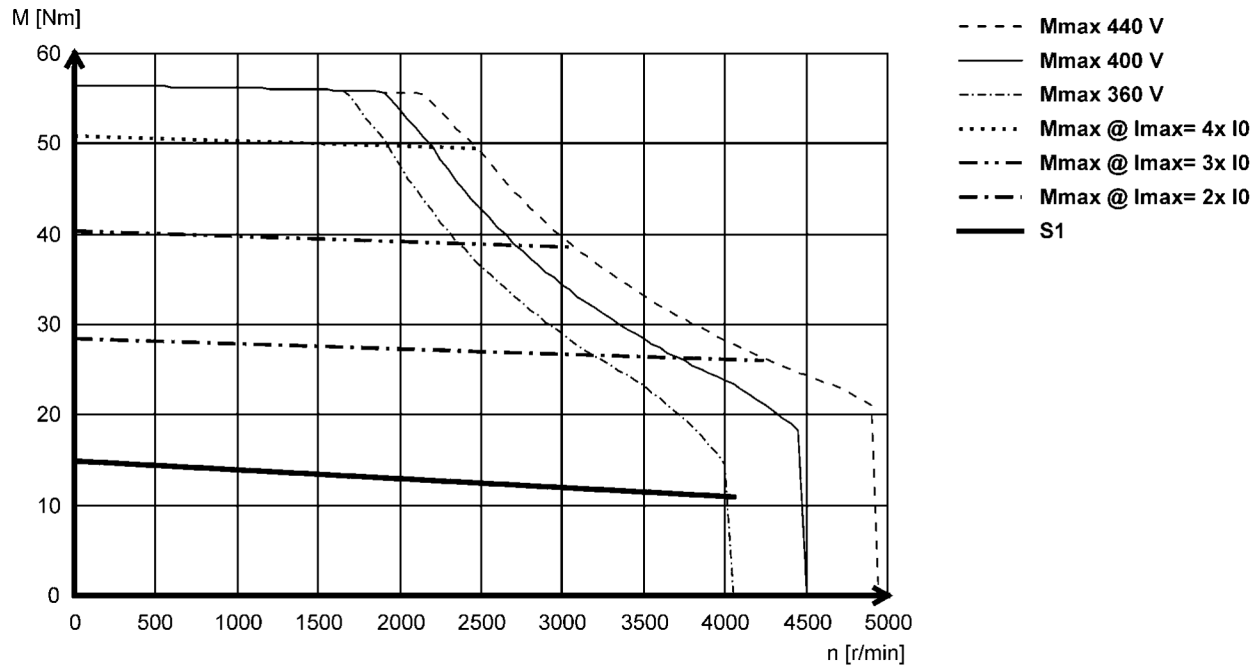
► The data applies to a mains connection voltage of 3 x 400 V.

MCS12L39- (forced ventilated)



5.1

MCS12L41- (non-ventilated)

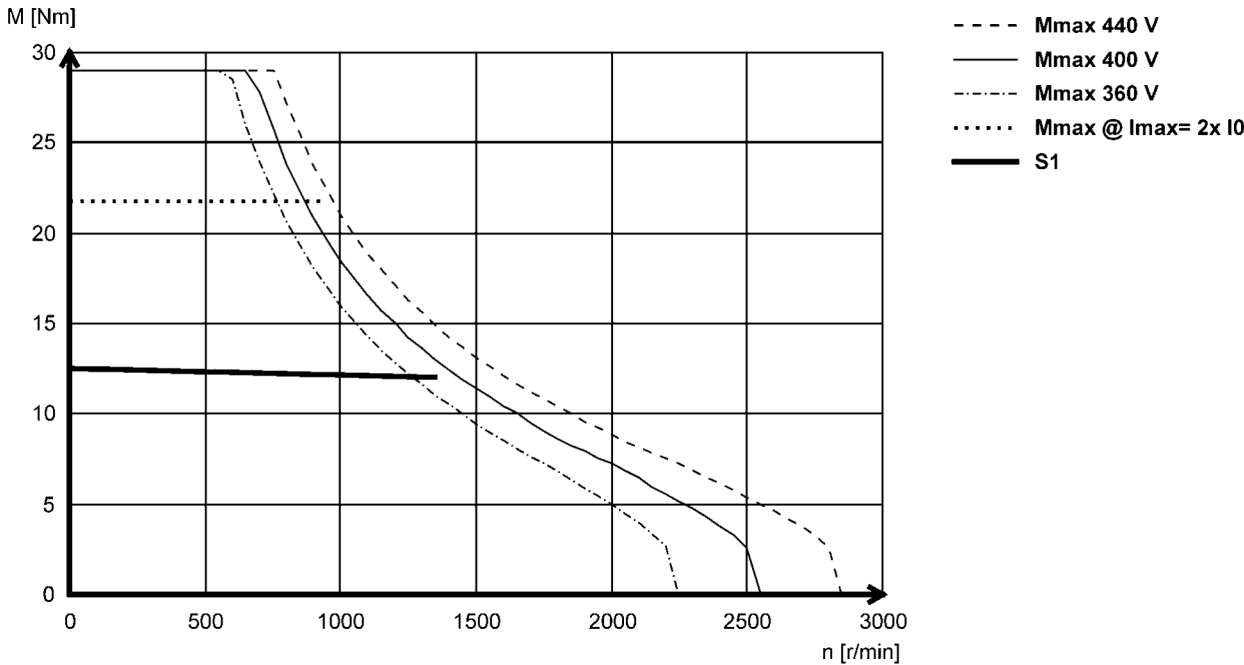




Torque characteristics

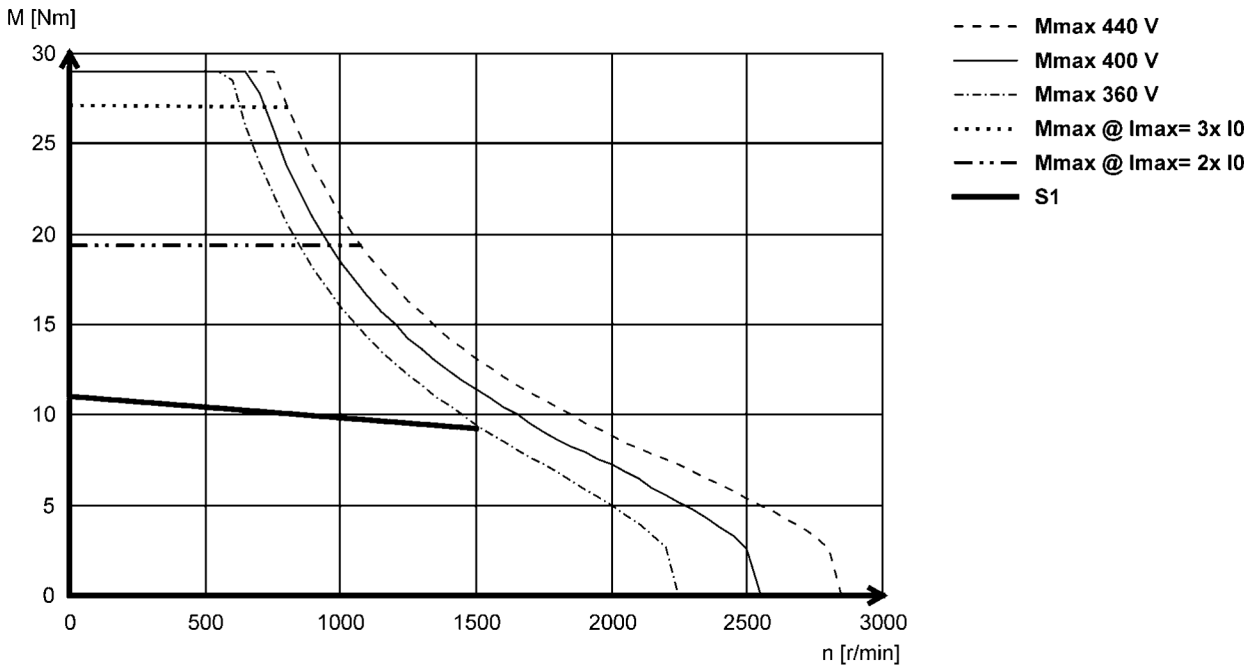
► The data applies to a mains connection voltage of 3 x 400 V.

MCS14D14- (forced ventilated)



5.1

MCS14D15- (non-ventilated)



MCS synchronous servo motors

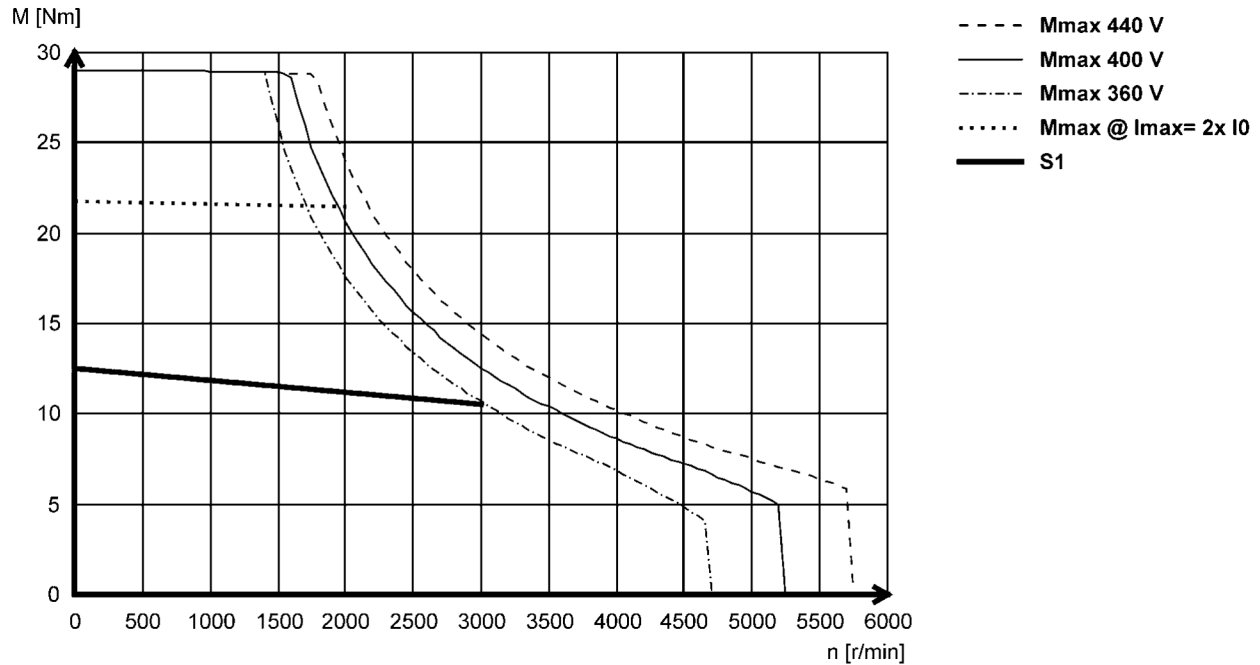
Technical data



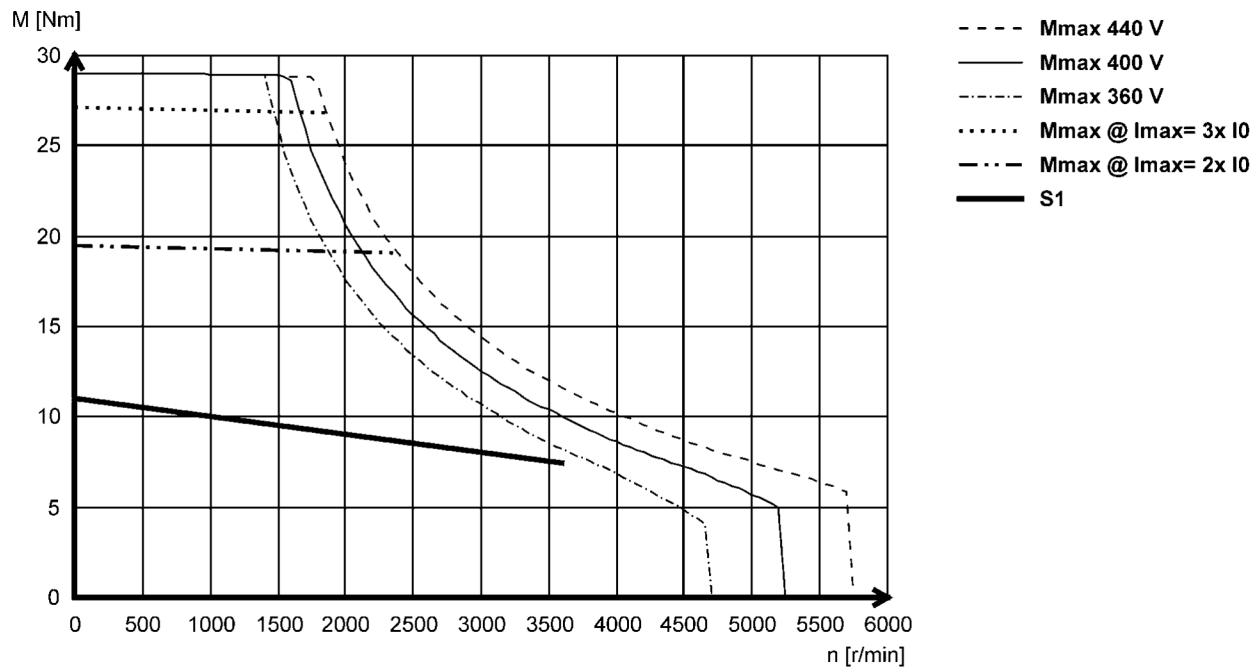
Torque characteristics

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

MCS14D30 (forced ventilated)



MCS14D36- (non-ventilated)



MCS synchronous servo motors

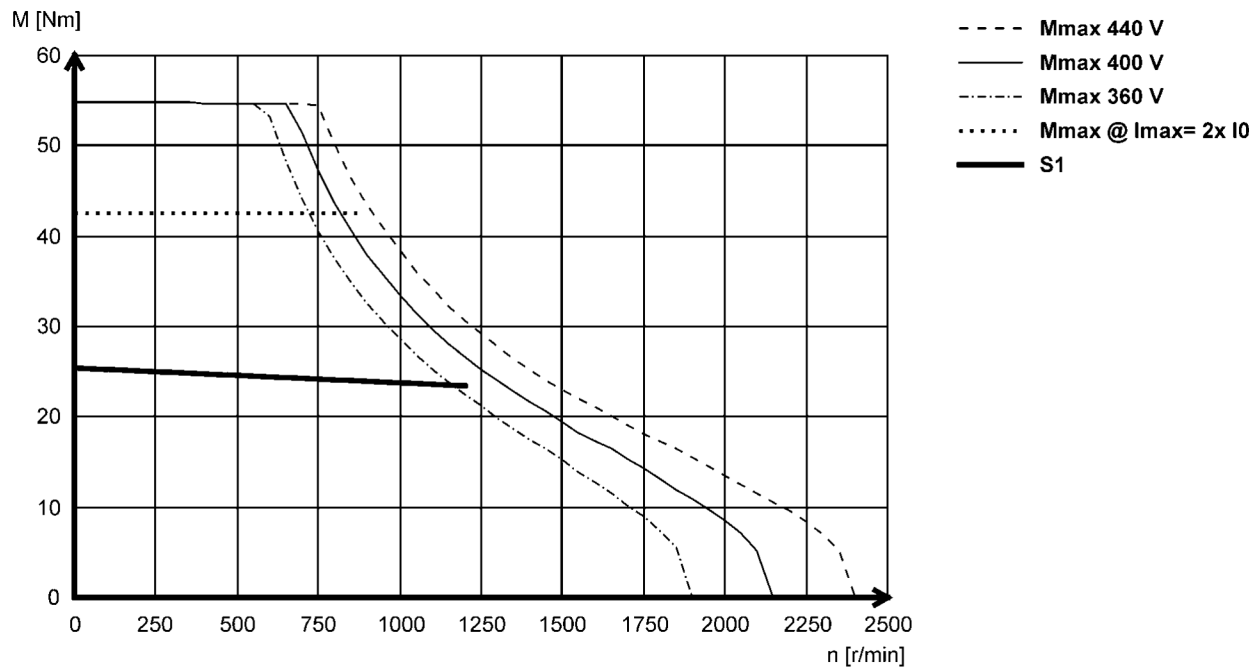
Technical data



Torque characteristics

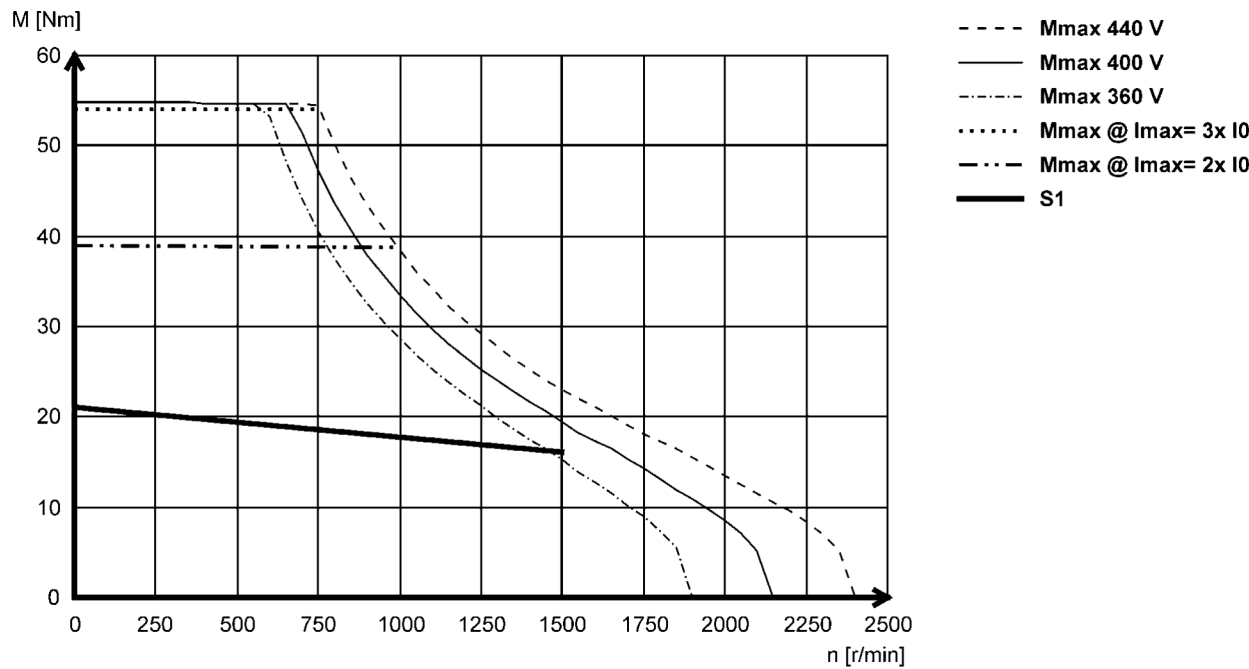
► The data applies to a mains connection voltage of 3 x 400 V.

MCS14H12- (forced ventilated)



5.1

MCS14H15- (non-ventilated)

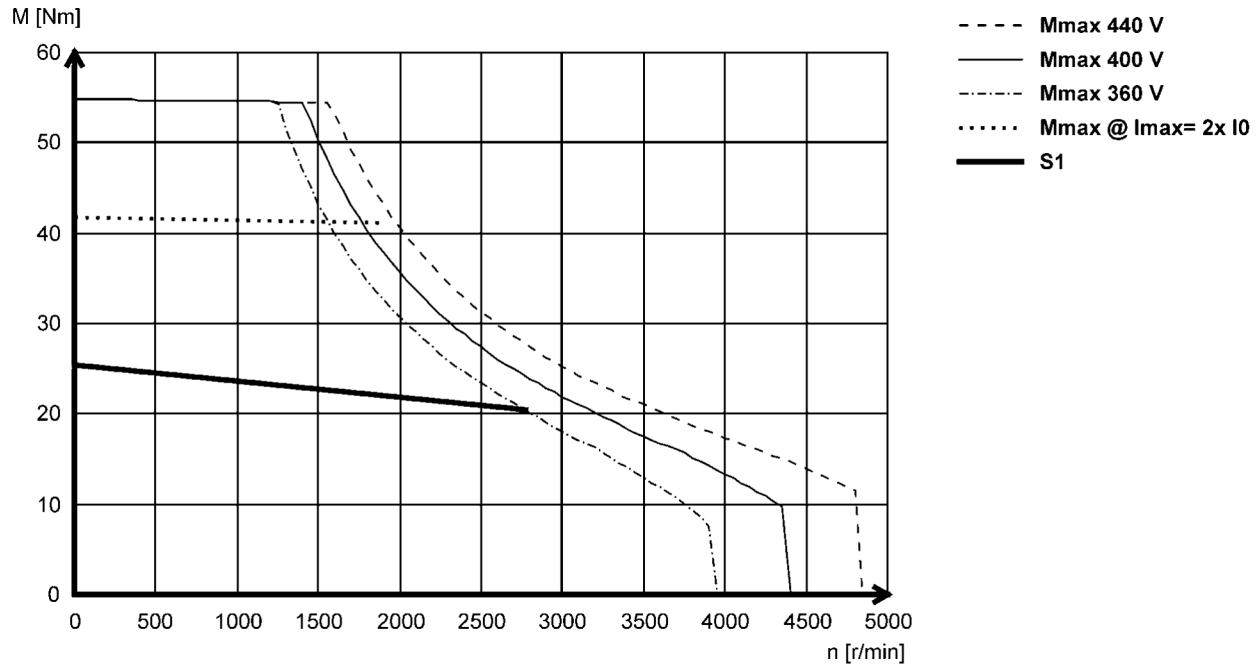




Torque characteristics

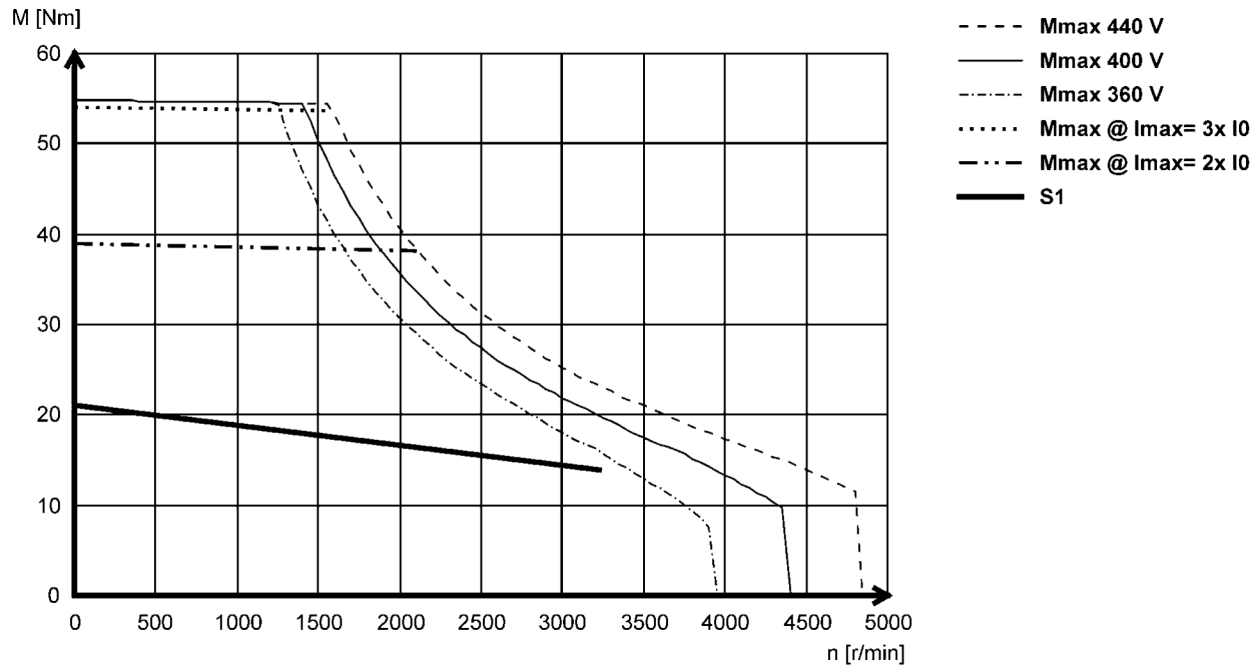
► The data applies to a mains connection voltage of 3 x 400 V.

MCS14H28- (forced ventilated)



5.1

MCS14H32- (non-ventilated)



MCS synchronous servo motors

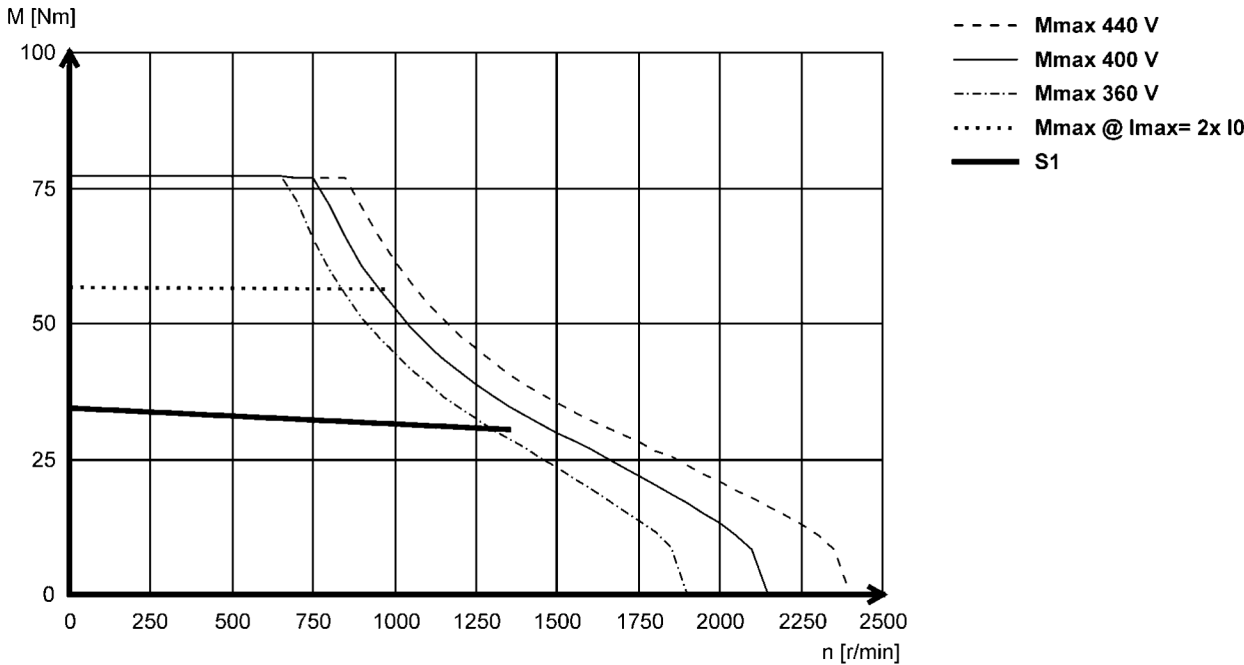
Technical data



Torque characteristics

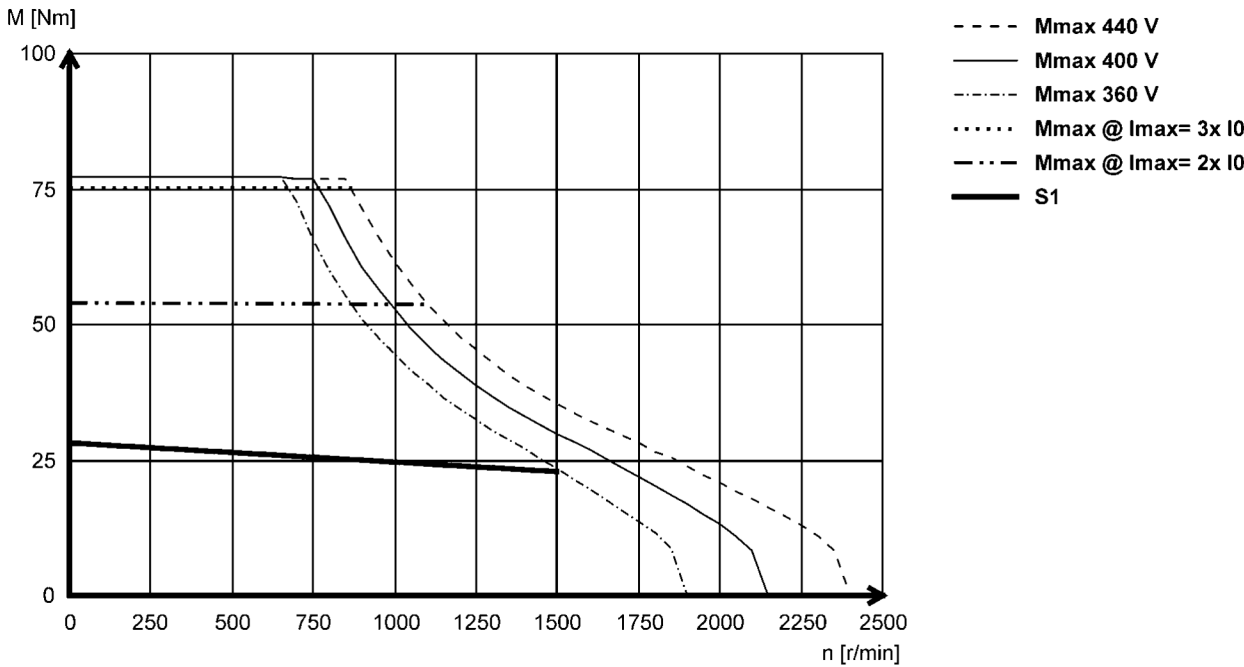
► The data applies to a mains connection voltage of 3 x 400 V.

MCS14L14- (forced ventilated)



5.1

MCS14L15- (non-ventilated)

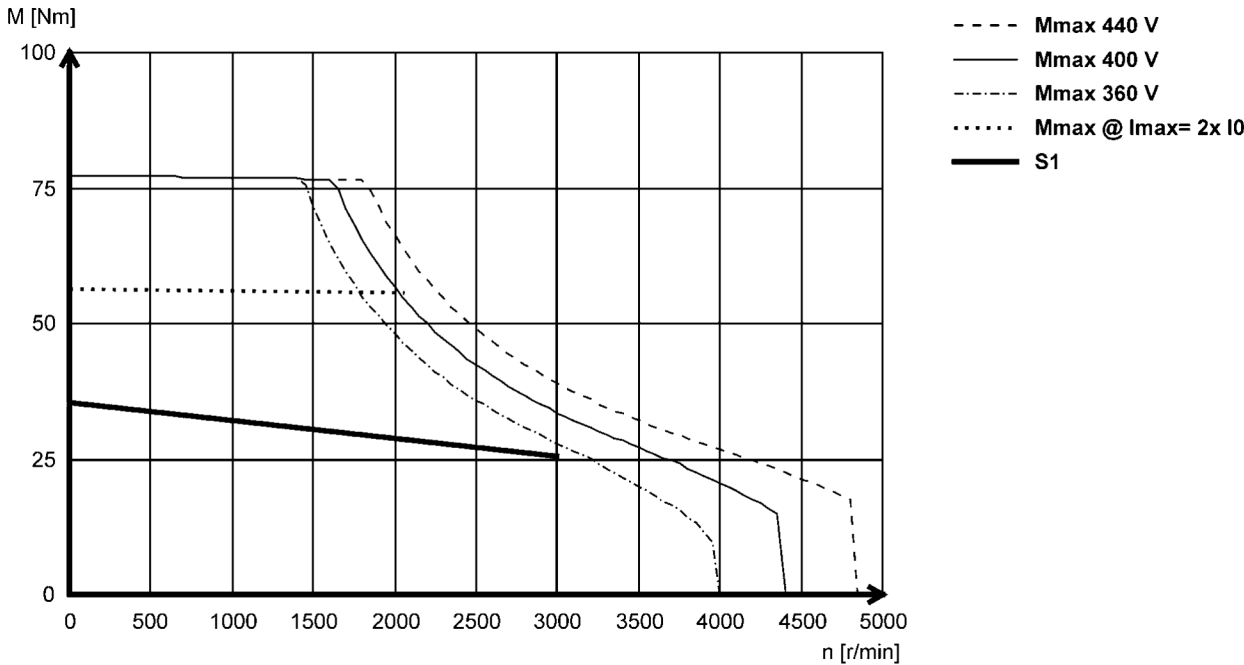




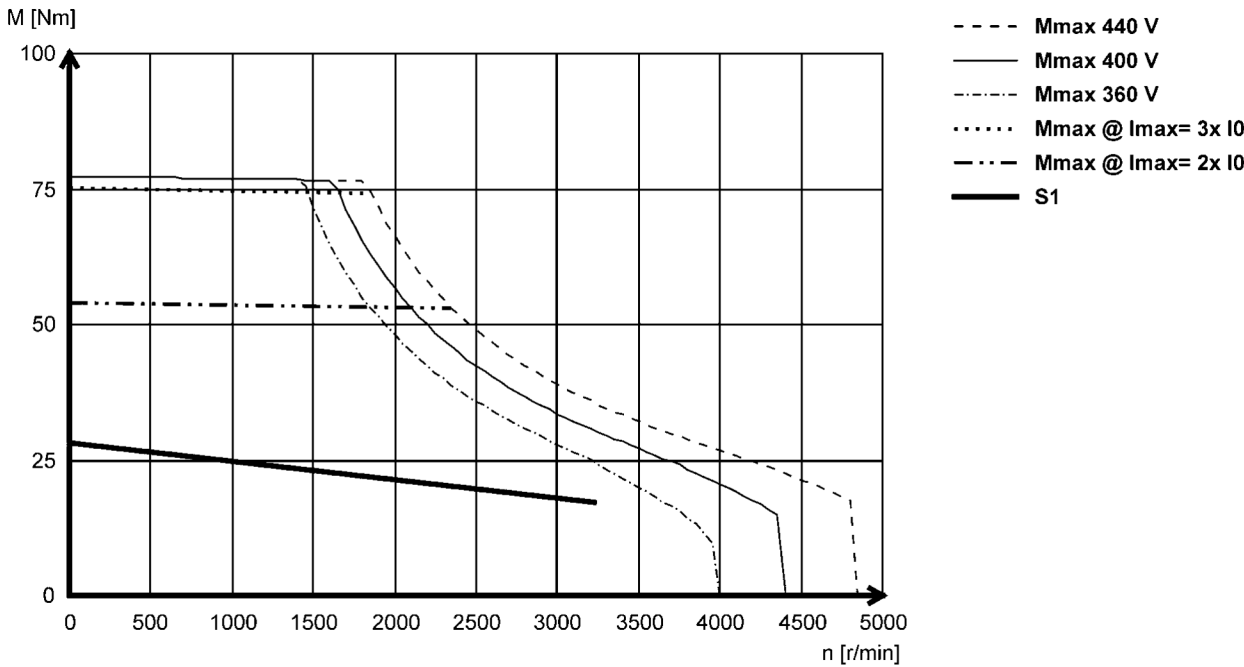
Torque characteristics

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

MCS14L30- (forced ventilated)



MCS14L32- (non-ventilated)

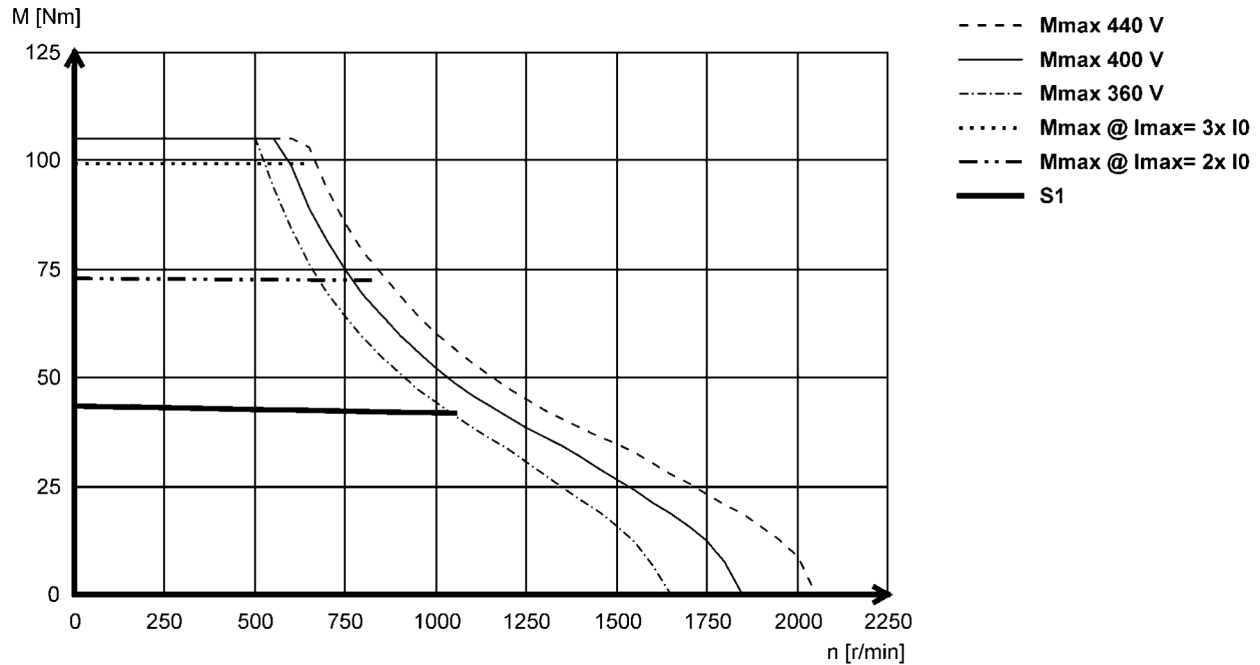




Torque characteristics

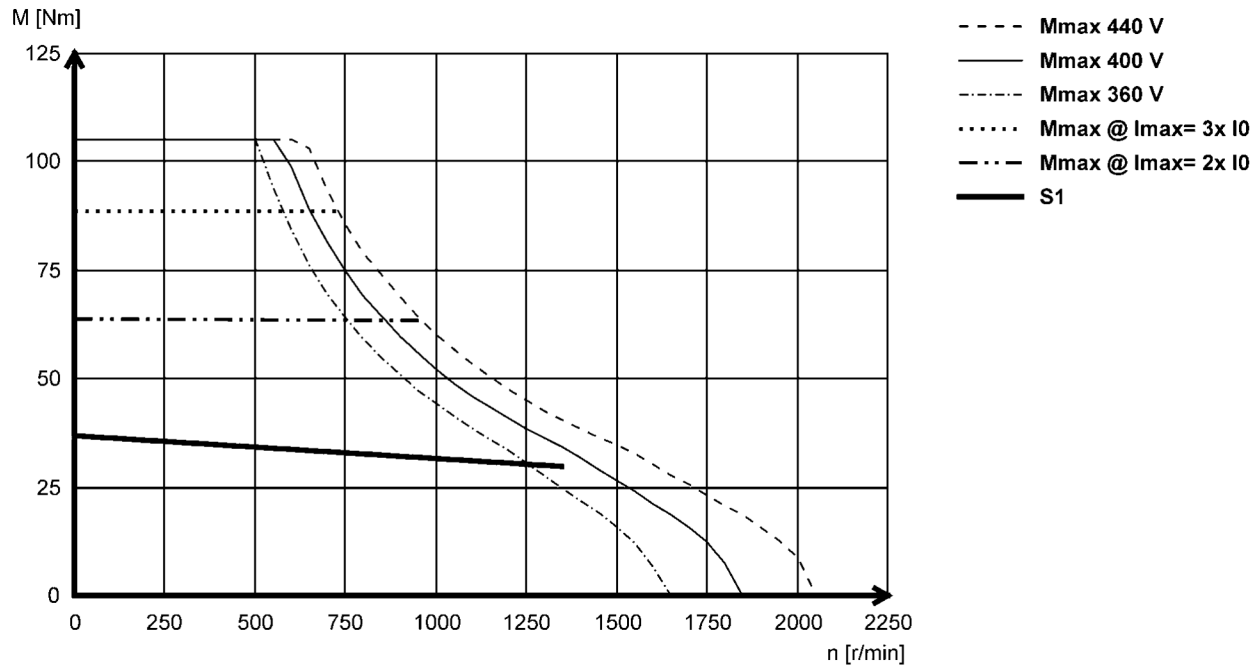
► The data applies to a mains connection voltage of 3 x 400 V.

MCS14P11- (forced ventilated)



5.1

MCS14P14- (non-ventilated)

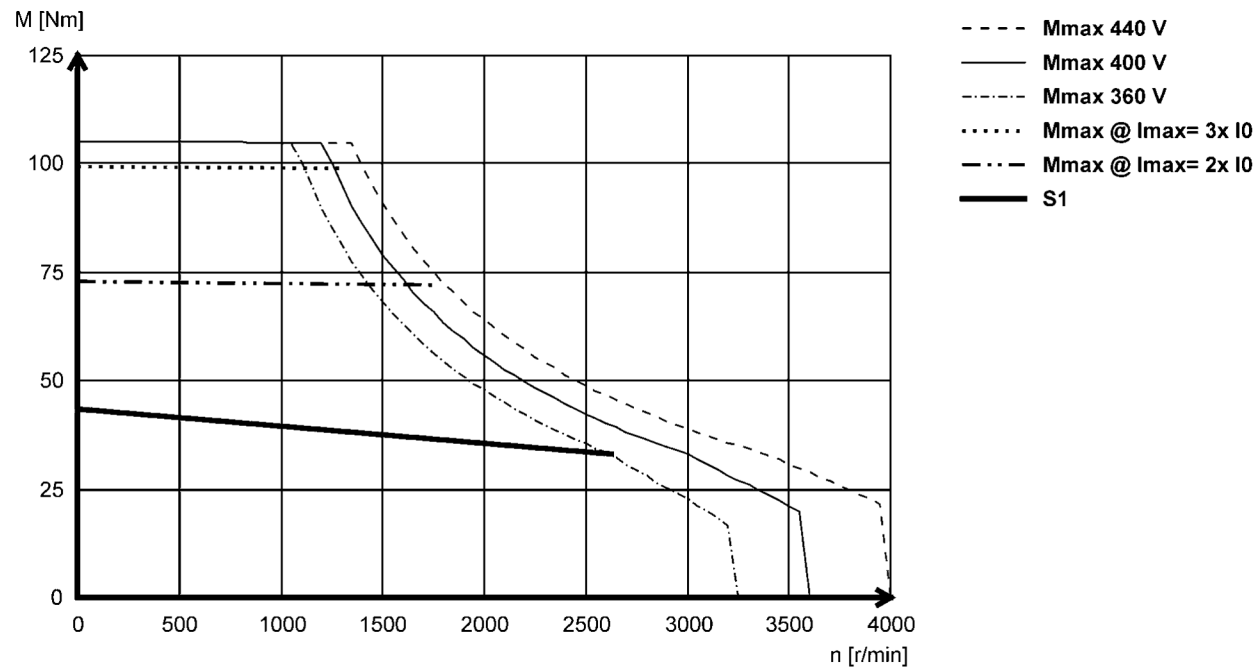




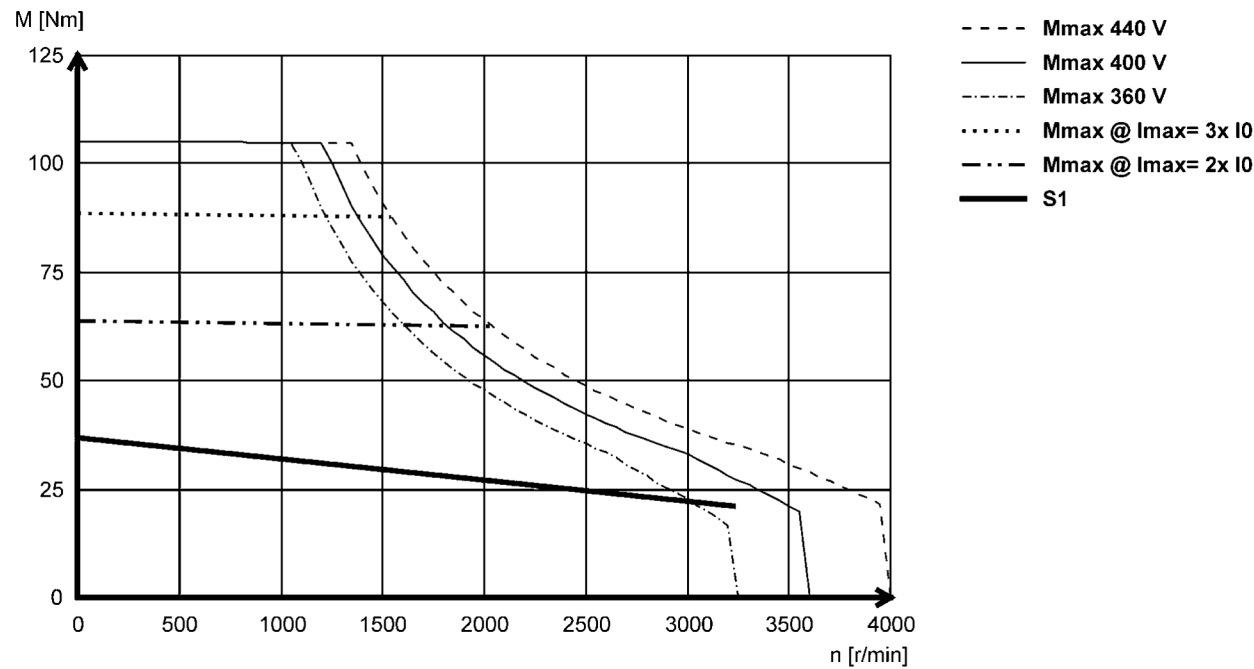
Torque characteristics

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

MCS14P26- (forced ventilated)



MCS14P32- (non-ventilated)



MCS synchronous servo motors

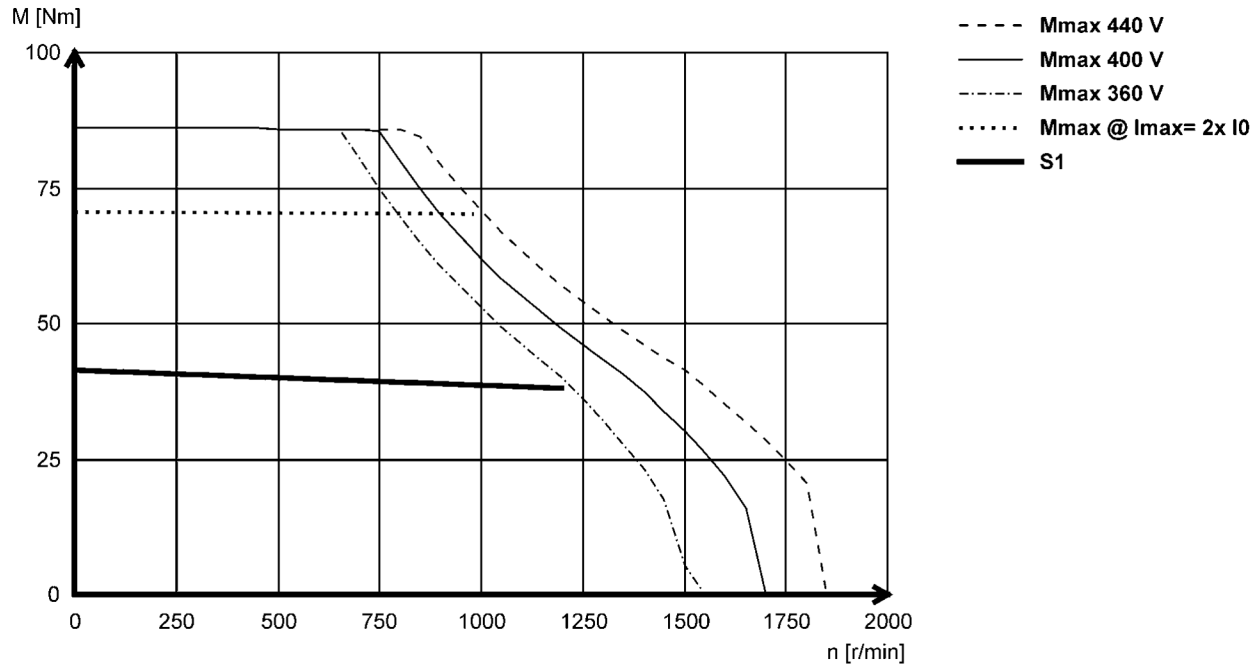
Technical data



Torque characteristics

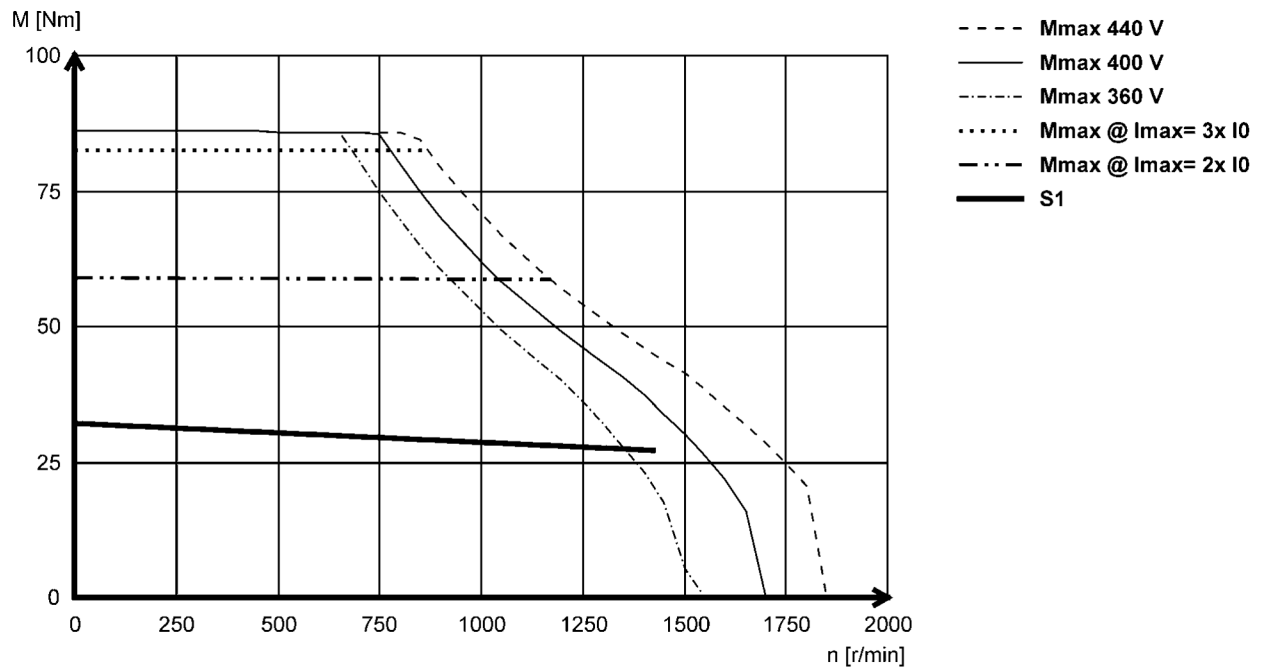
► The data applies to a mains connection voltage of 3 x 400 V.

MCS19F12- (forced ventilated)



5.1

MCS19F14- (non-ventilated)



MCS synchronous servo motors

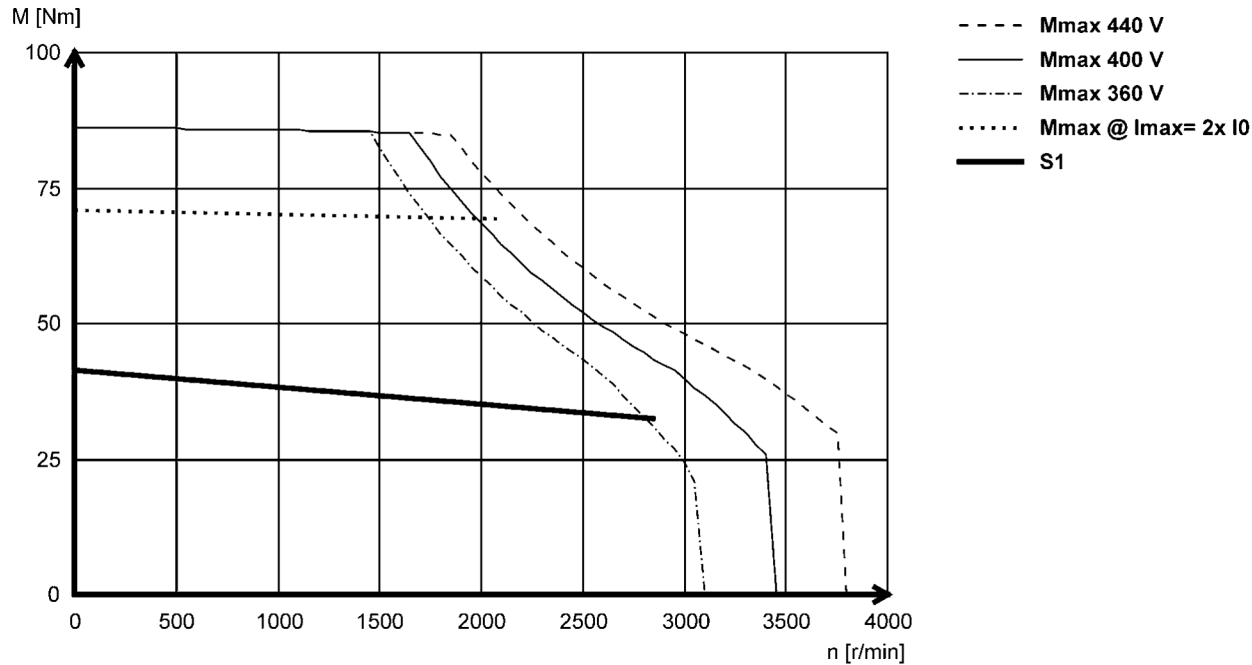
Technical data



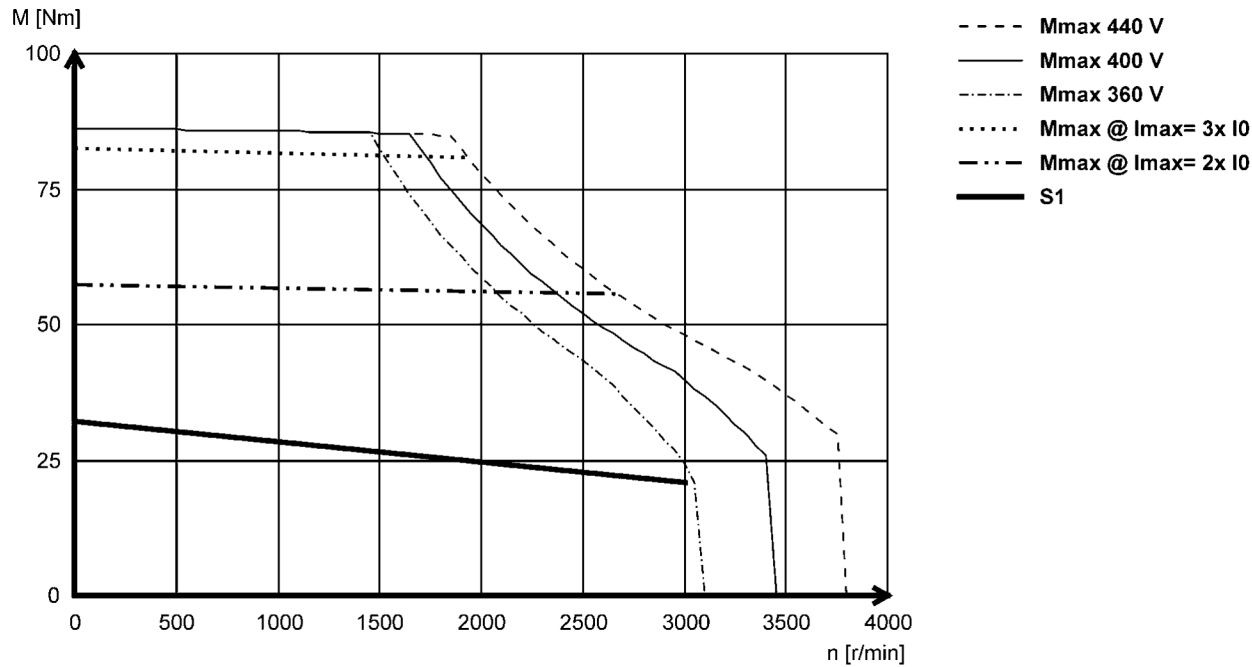
Torque characteristics

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

MCS19F29- (forced ventilated)



MCS19F30- (non-ventilated)



MCS synchronous servo motors

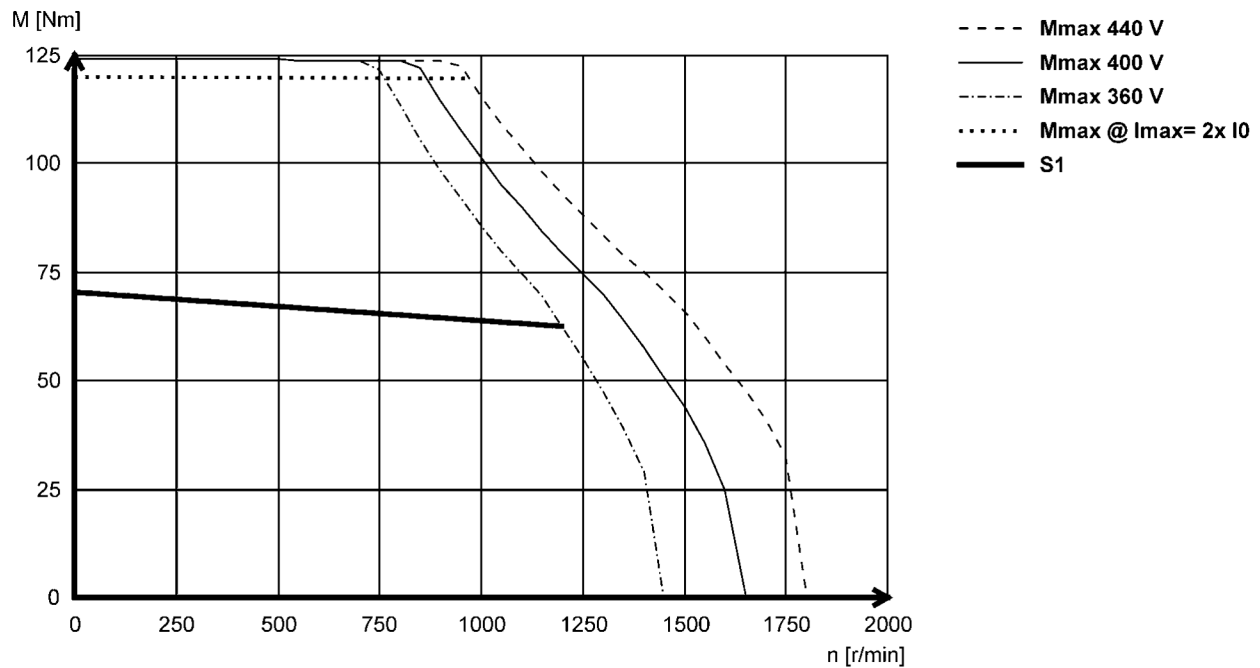
Technical data



Torque characteristics

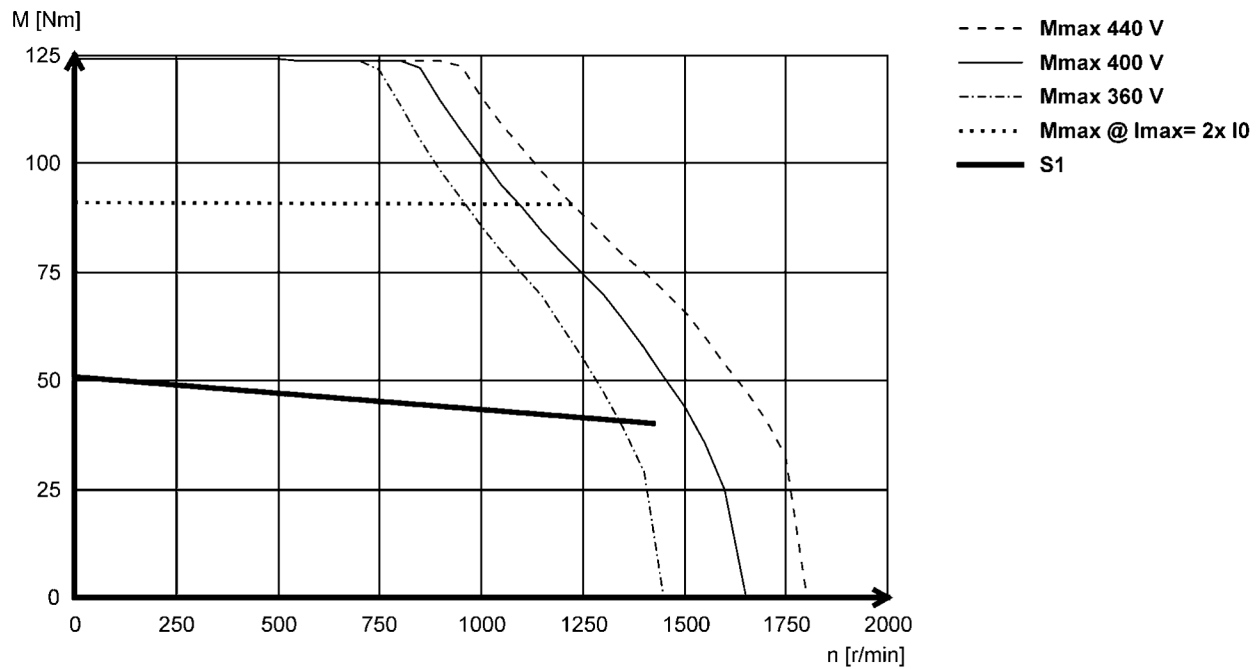
► The data applies to a mains connection voltage of 3 x 400 V.

MCS19J12- (forced ventilated)



5.1

MCS19J14- (non-ventilated)



MCS synchronous servo motors

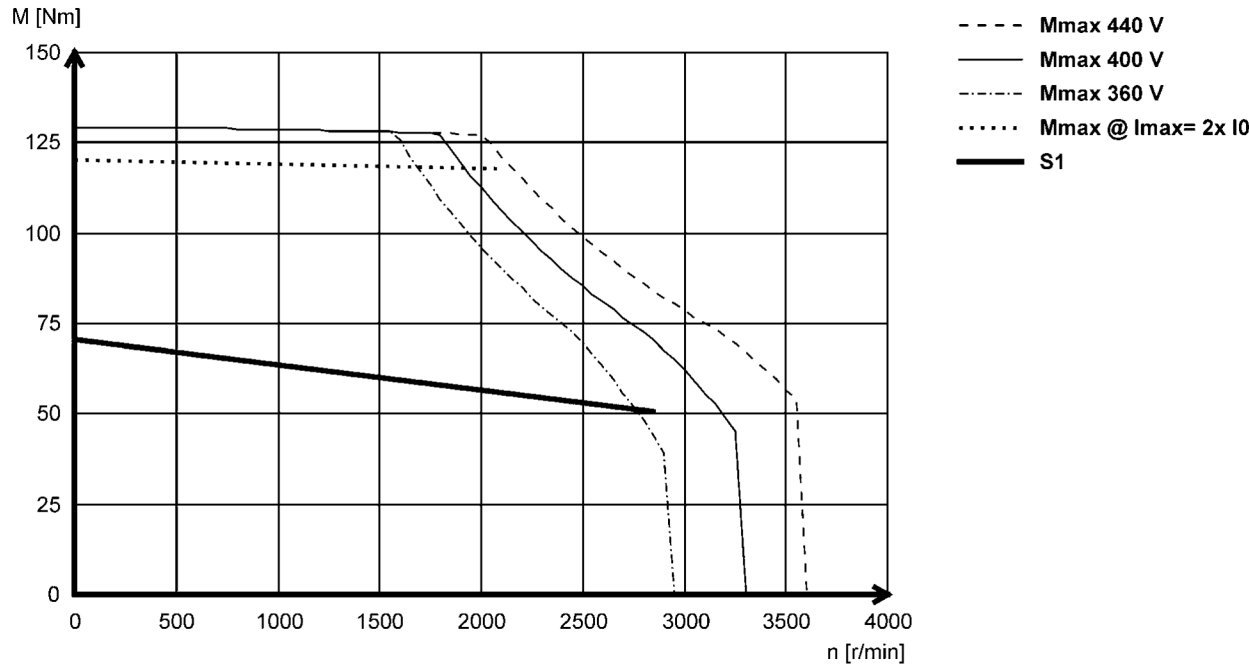
Technical data



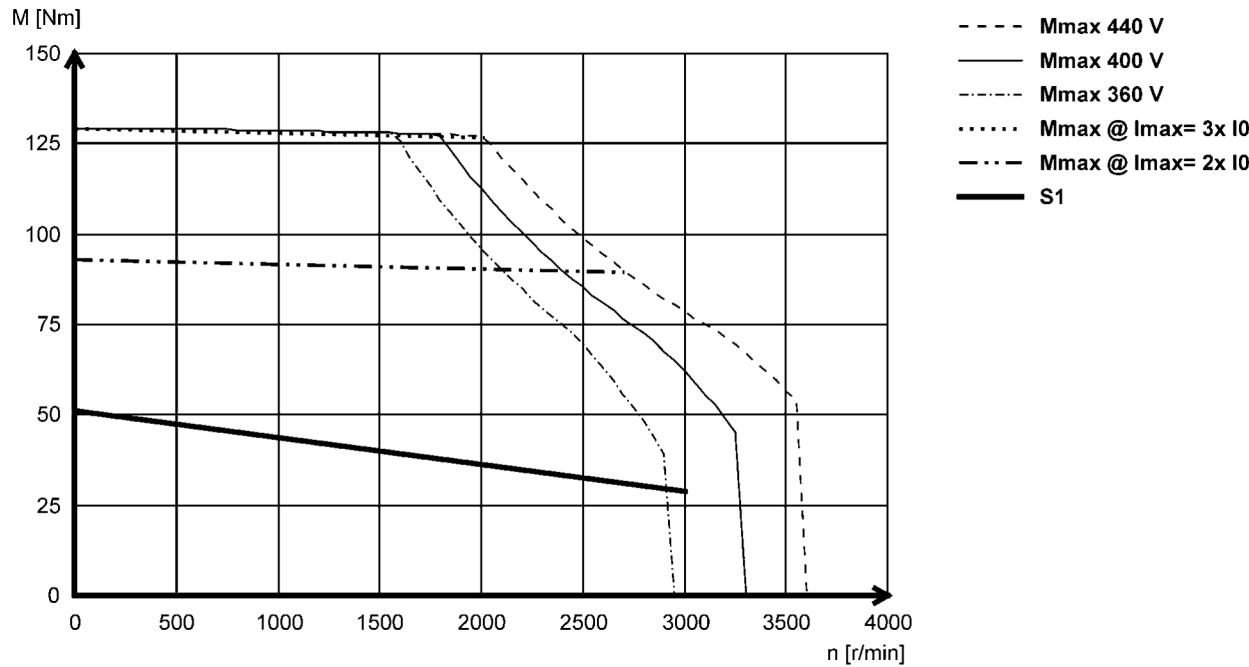
Torque characteristics

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

MCS19J29- (forced ventilated)



MCS19J30- (non-ventilated)



MCS synchronous servo motors

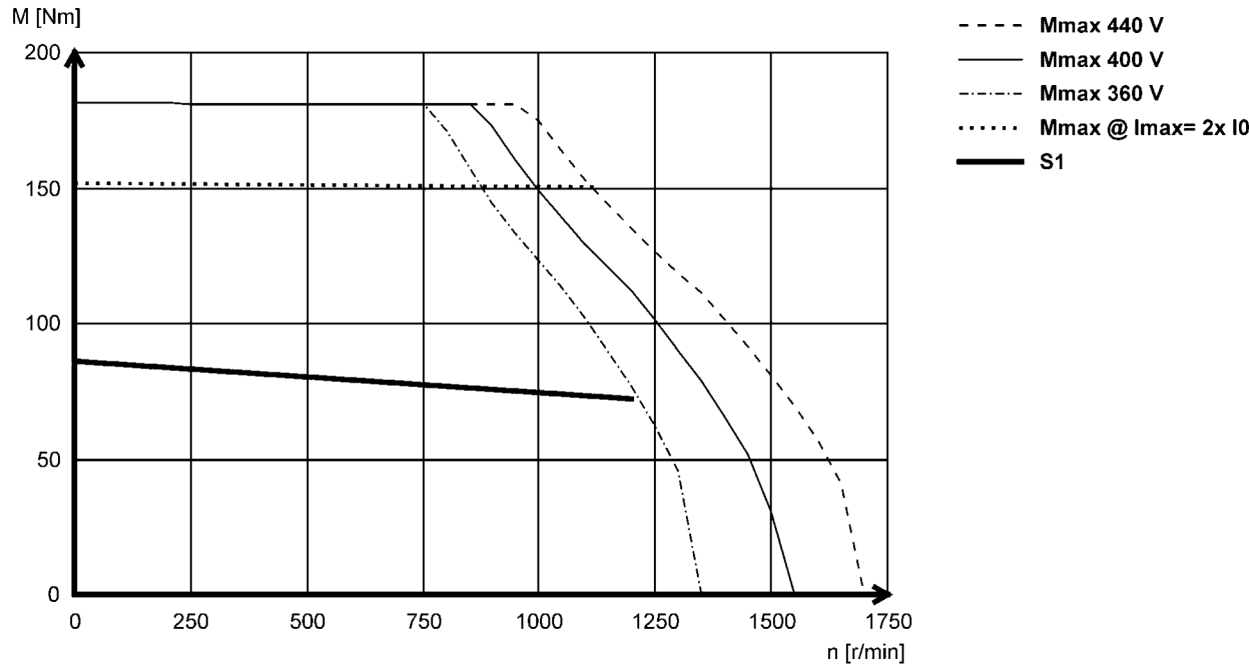
Technical data



Torque characteristics

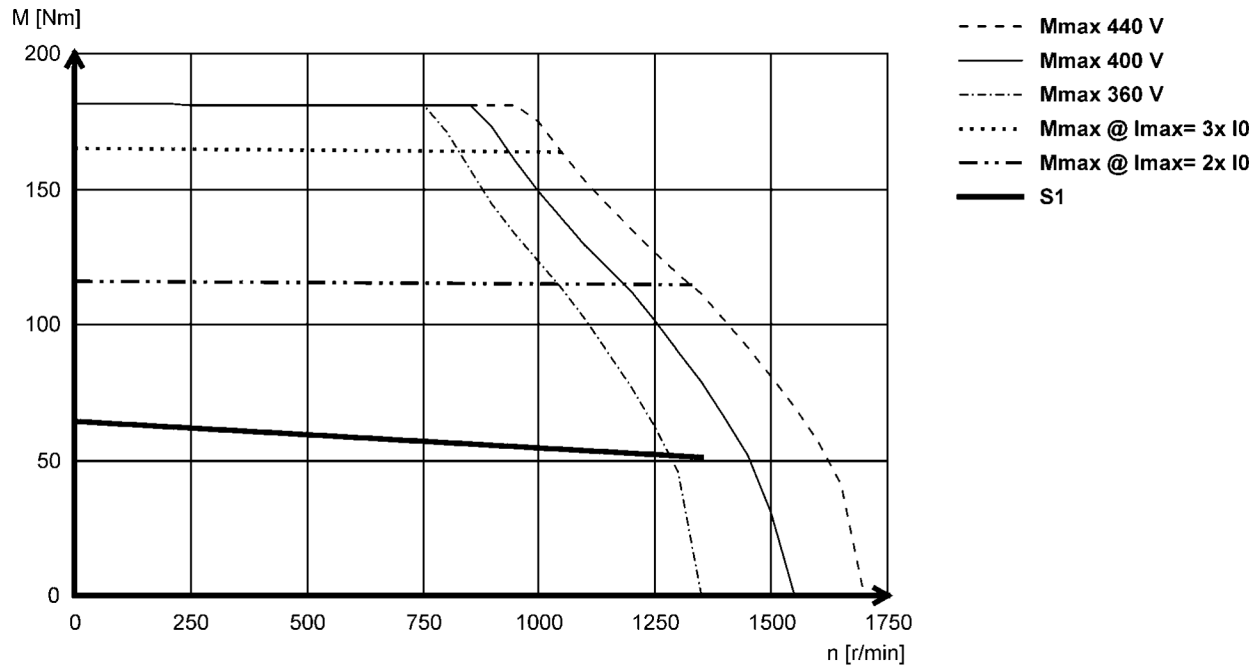
► The data applies to a mains connection voltage of 3 x 400 V.

MCS19P12 (forced ventilated)



5.1

MCS19P14- (non-ventilated)



MCS synchronous servo motors

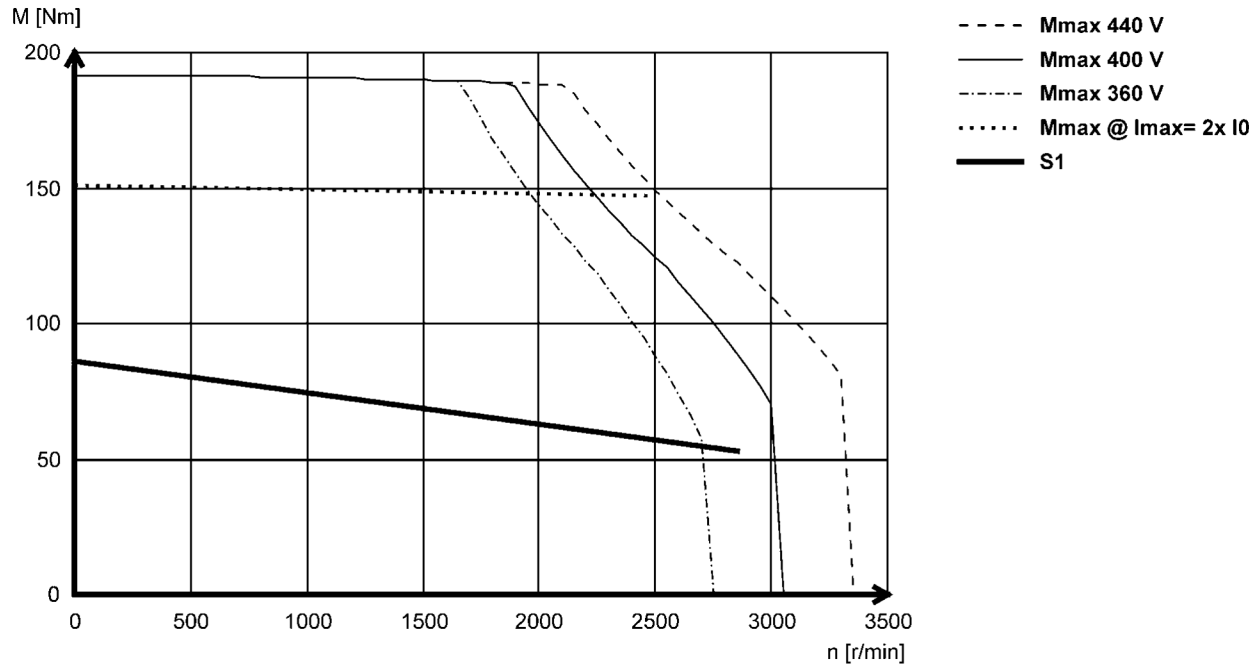
Technical data



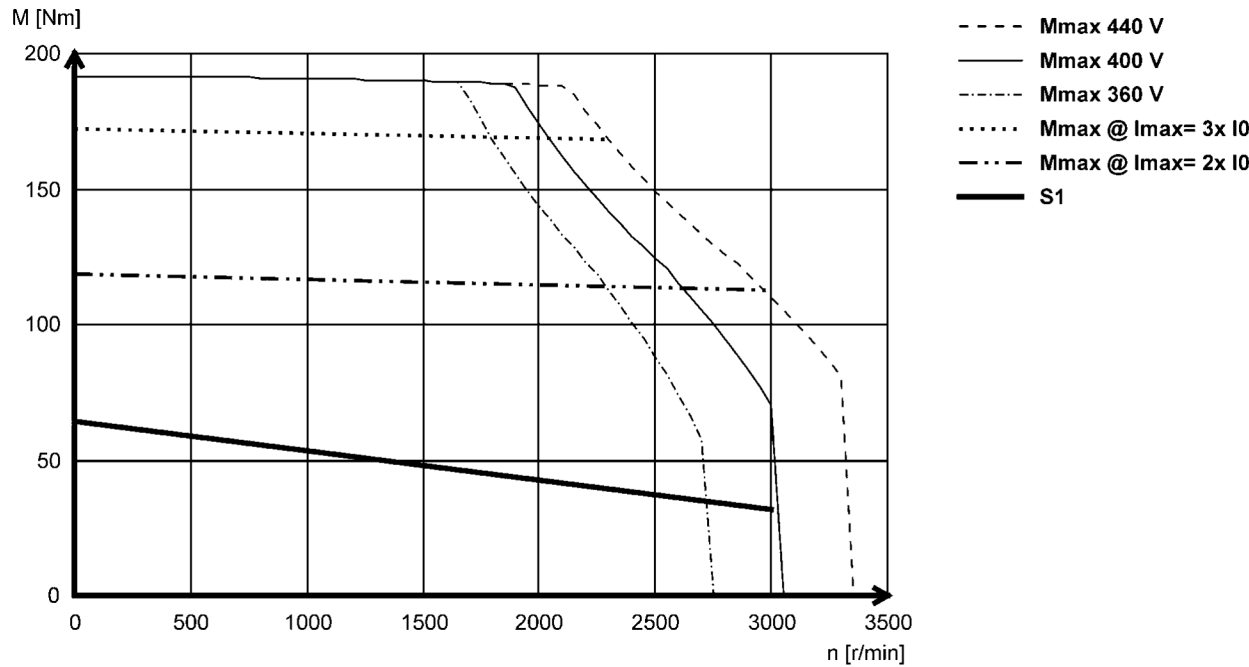
Torque characteristics

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

MCS19P29- (forced ventilated)



MCS19P30- (non-ventilated)

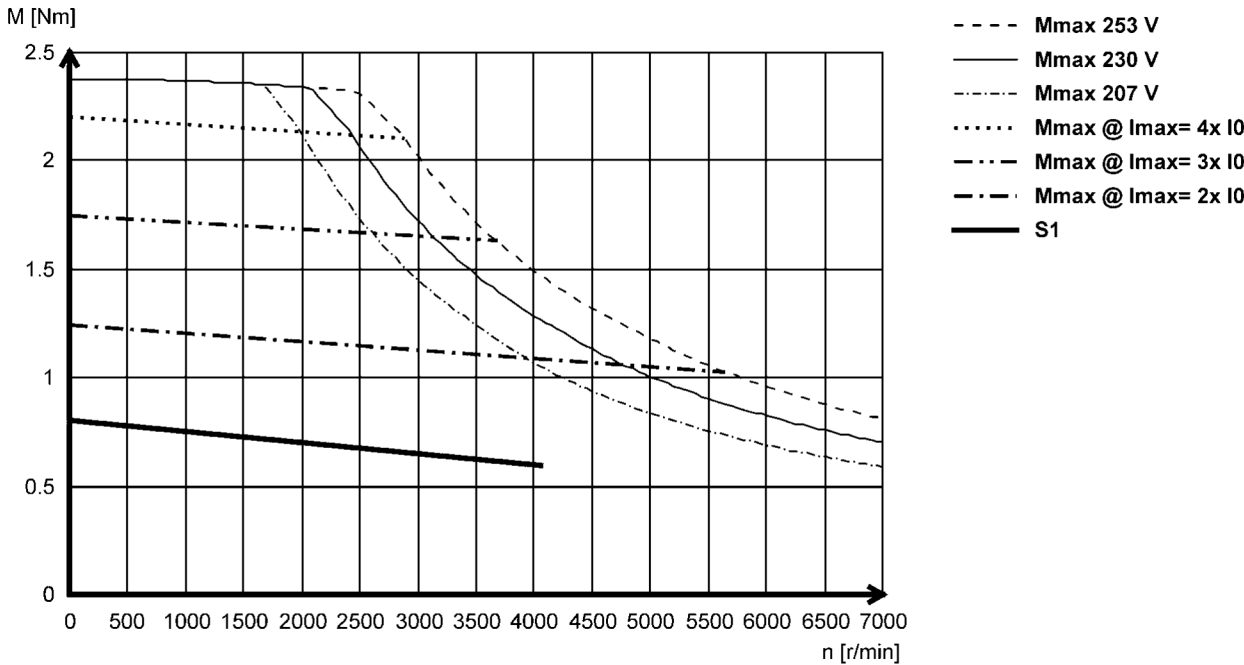




Torque characteristics

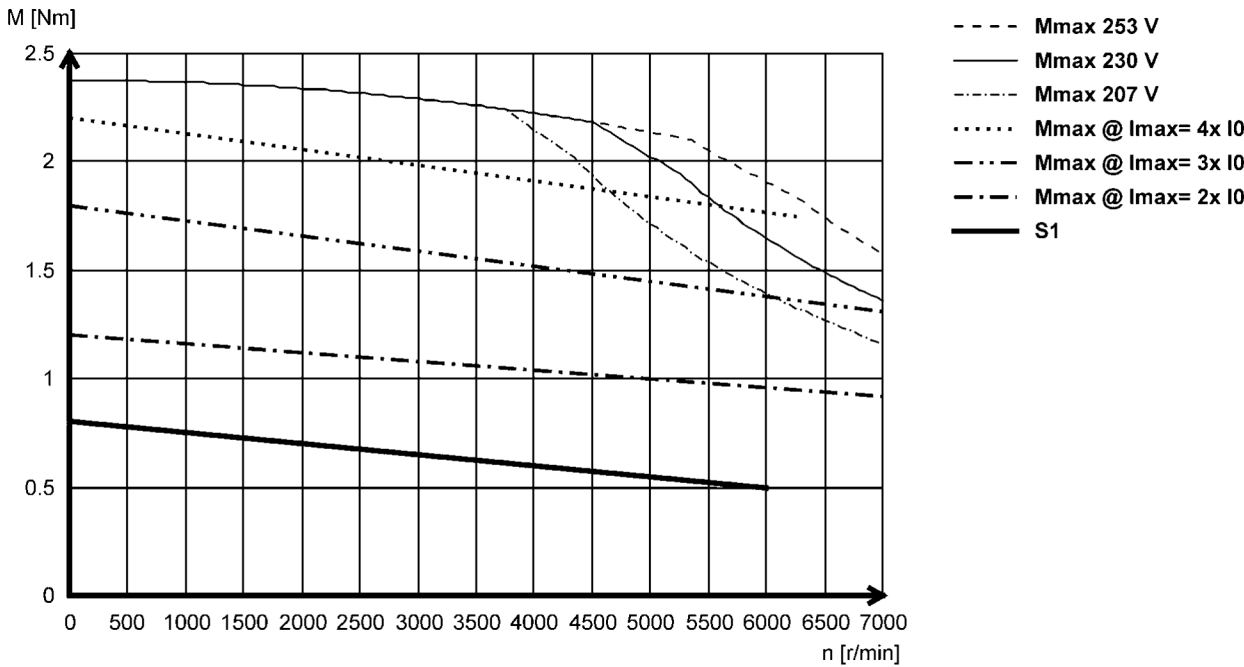
► The data applies to a mains connection voltage of 3 x 230 V.

MCS06C41L (non-ventilated)



5.1

MCS06C60L (non-ventilated)



MCS synchronous servo motors

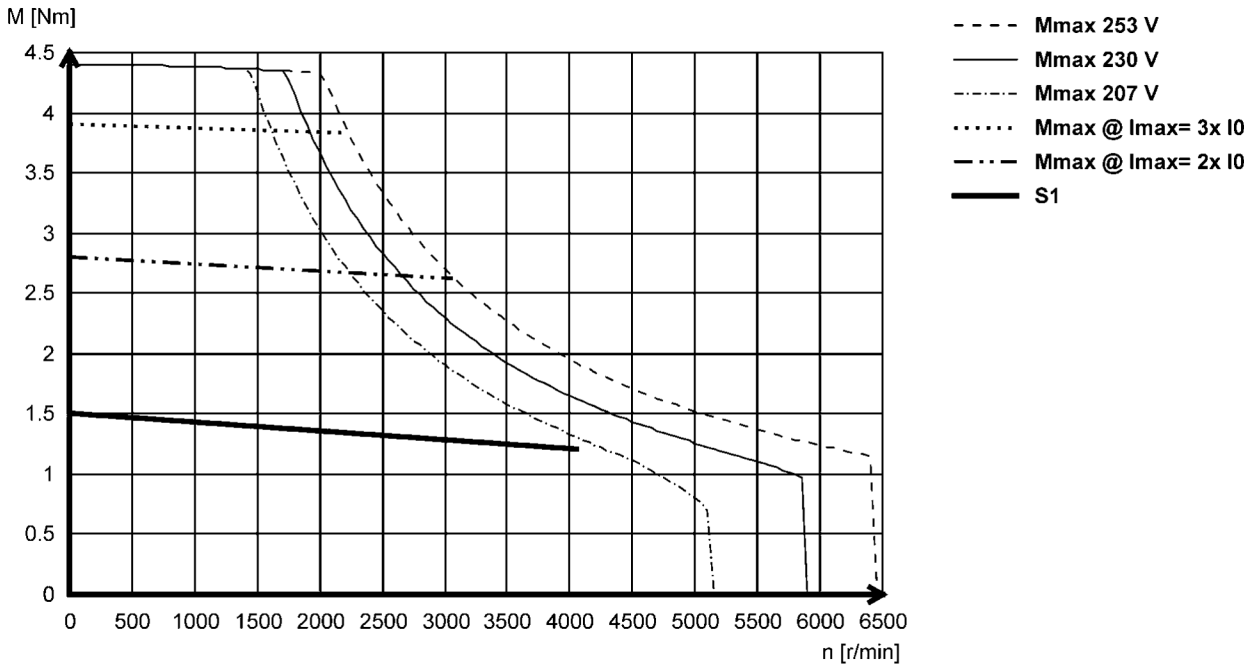
Technical data



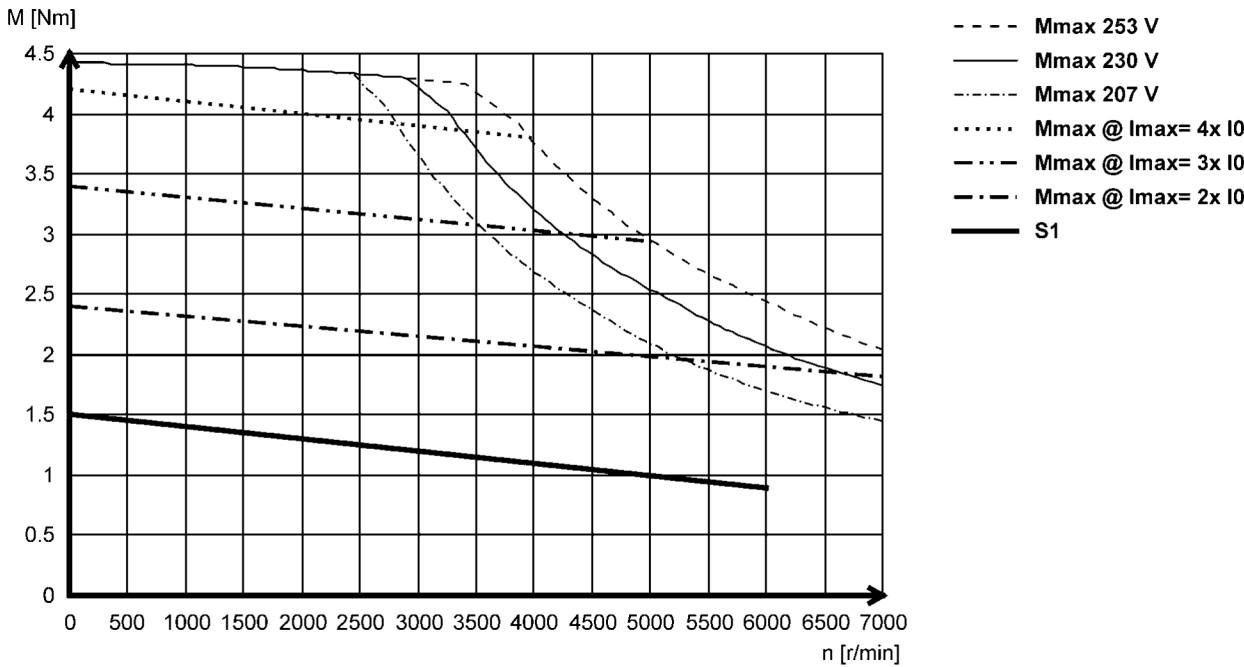
Torque characteristics

► The data applies to a mains connection voltage of 3 x 230 V.

MCS06F41L (non-ventilated)



MCS06F60L (non-ventilated)



MCS synchronous servo motors

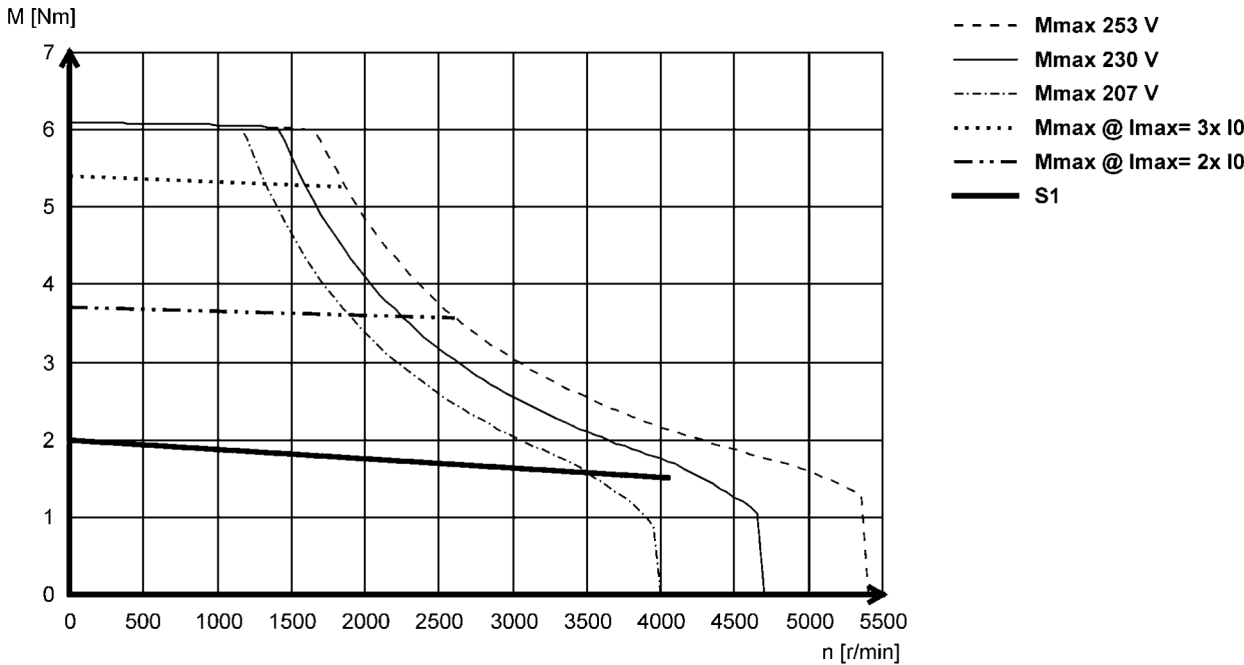
Technical data



Torque characteristics

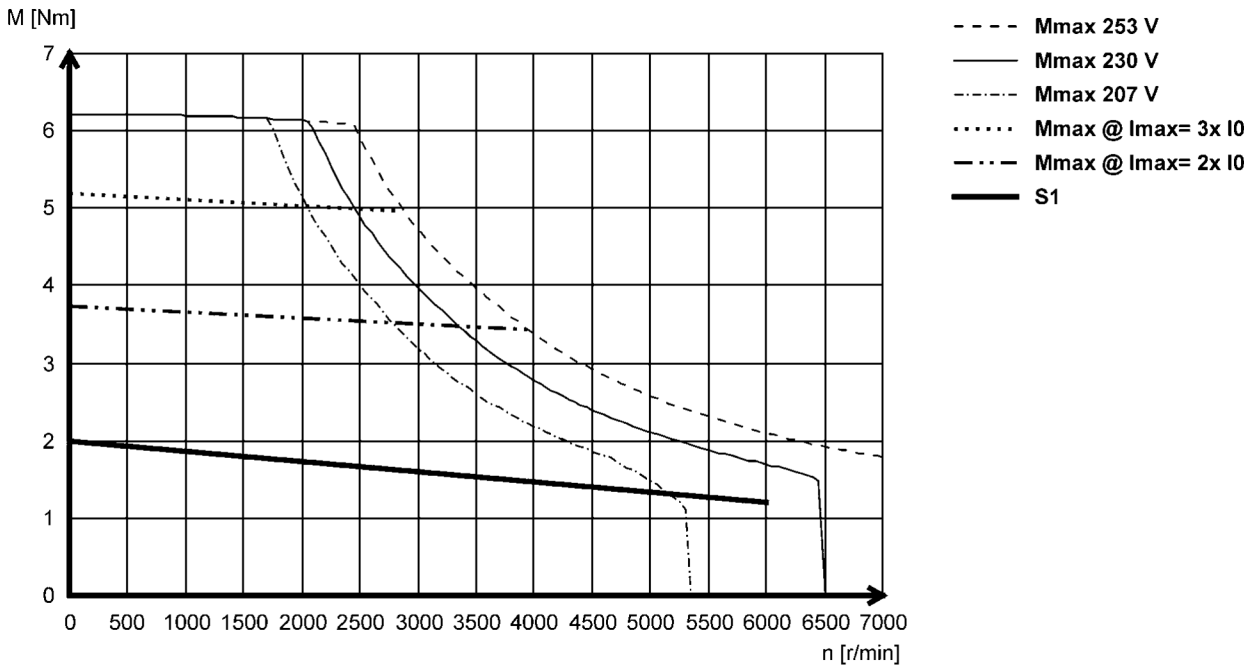
► The data applies to a mains connection voltage of 3 x 230 V.

MCS06I41L (non-ventilated)



5.1

MCS06I60L (non-ventilated)



MCS synchronous servo motors

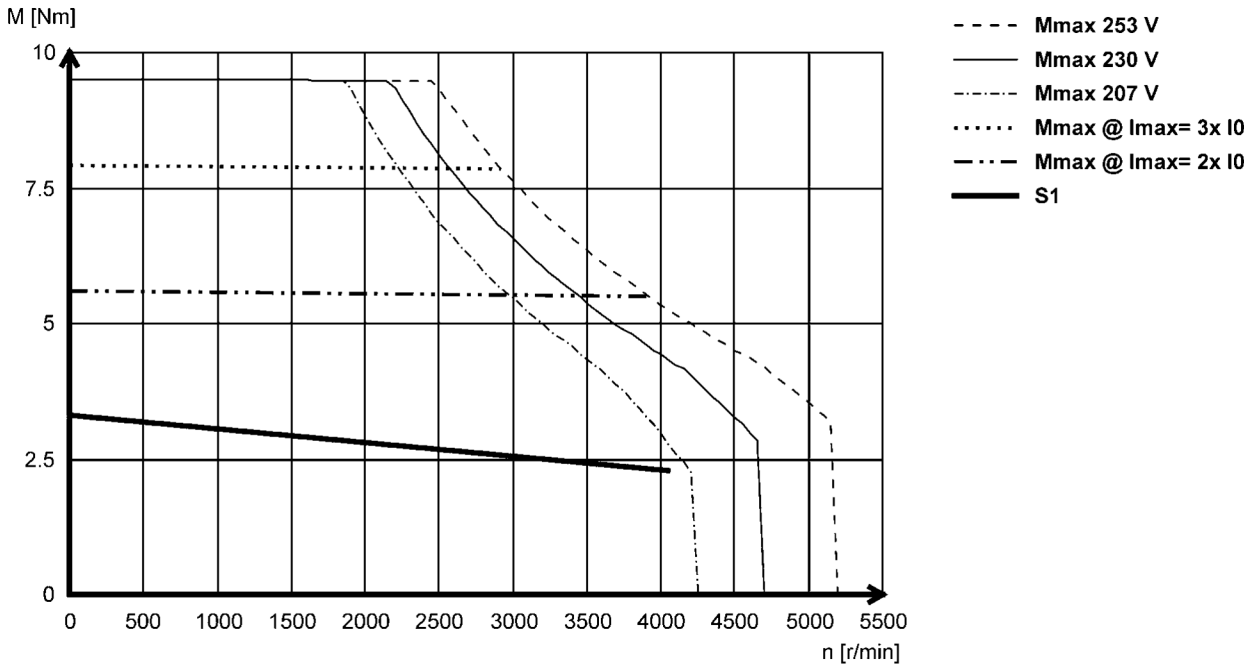
Technical data



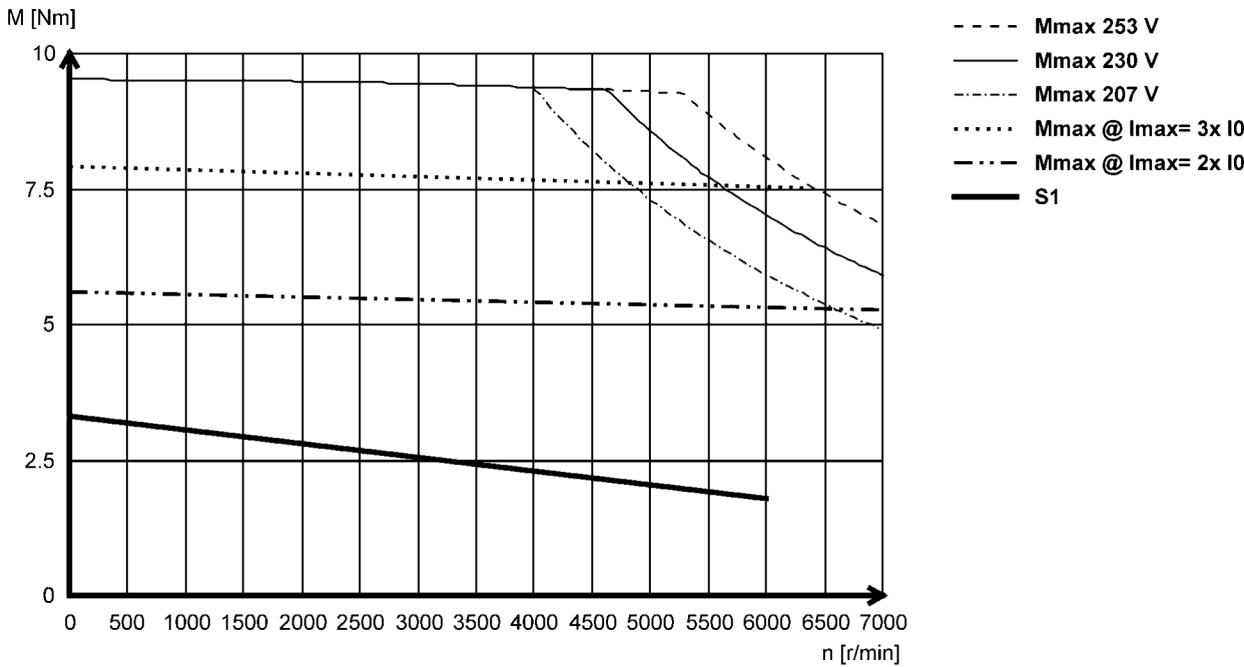
Torque characteristics

► The data applies to a mains connection voltage of 3 x 230 V.

MCS09D41L (non-ventilated)



MCS09D60L (non-ventilated)

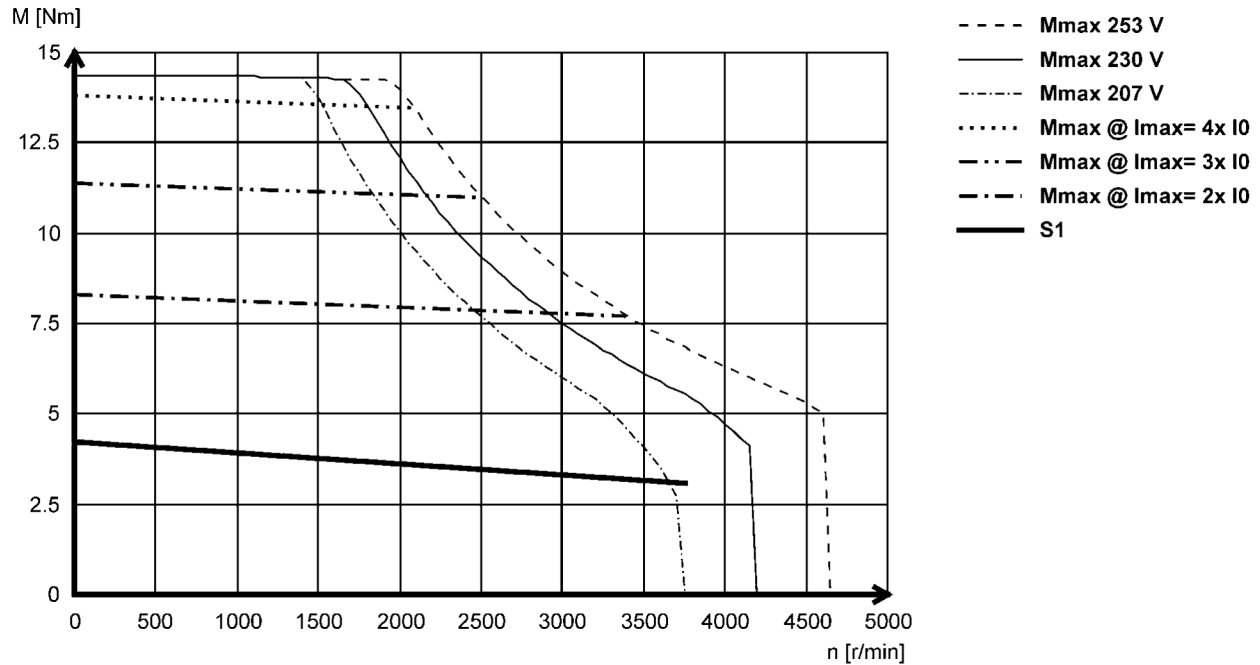




Torque characteristics

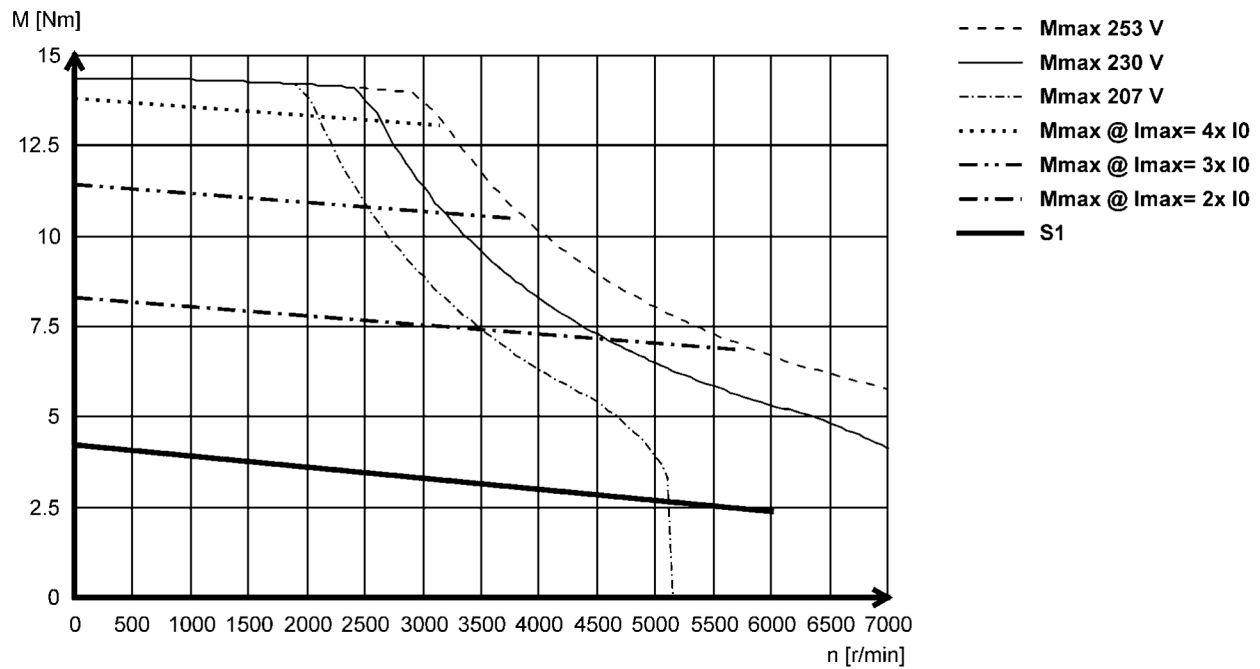
► The data applies to a mains connection voltage of 3 x 230 V.

MCS09F38L (non-ventilated)



5.1

MCS09F60L (non-ventilated)



MCS synchronous servo motors

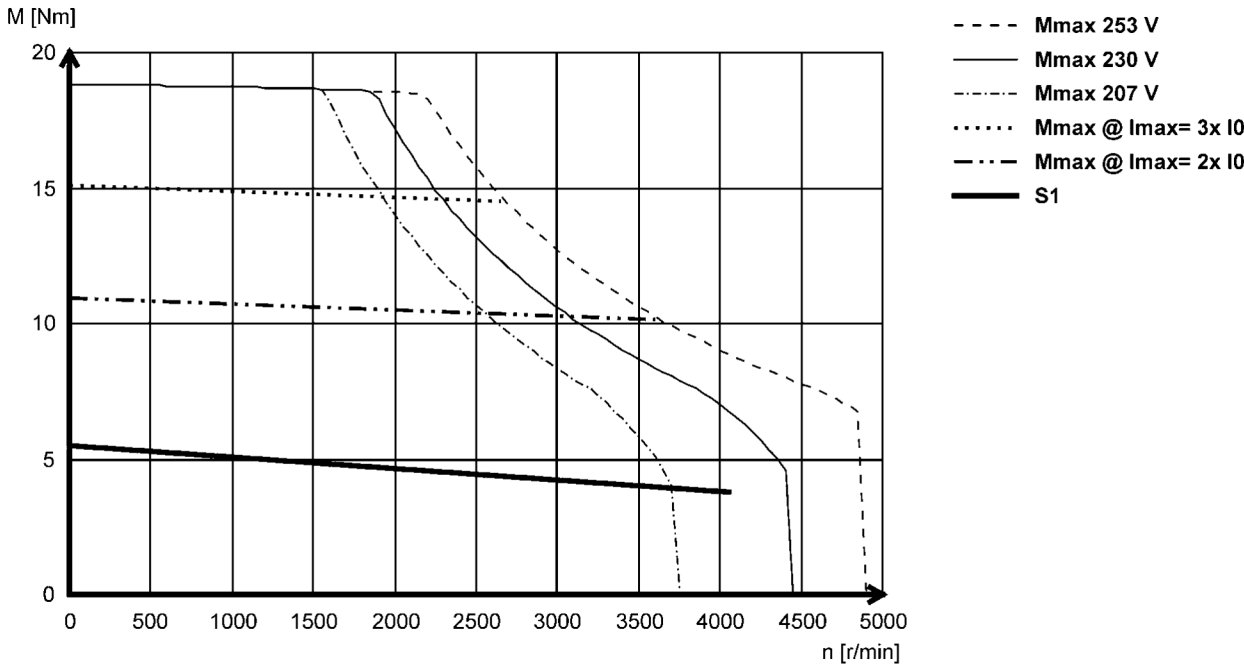
Technical data



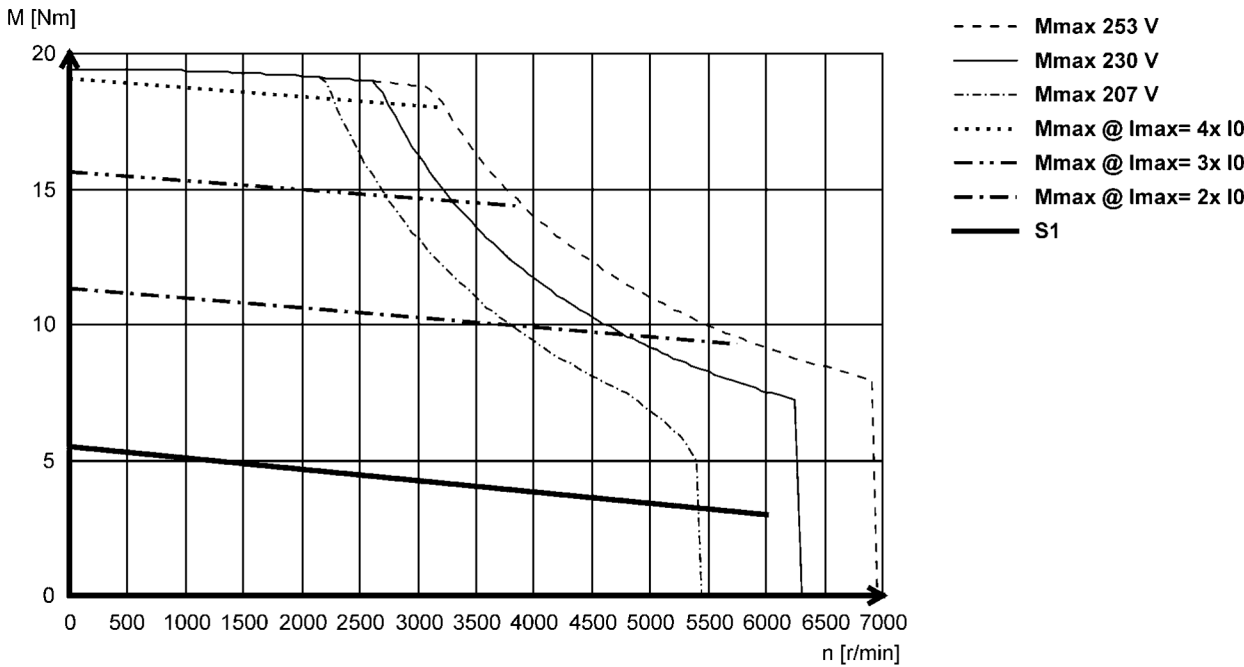
Torque characteristics

► The data applies to a mains connection voltage of 3 x 230 V.

MCS09H41L (non-ventilated)



MCS09H60L (non-ventilated)

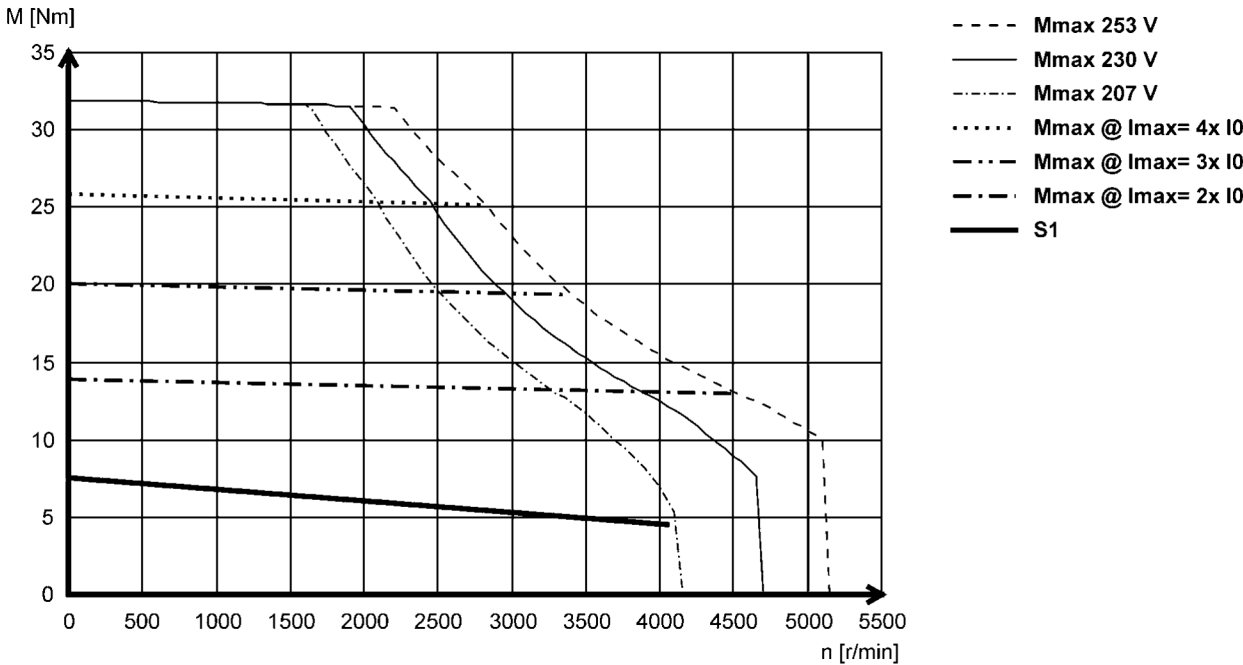




Torque characteristics

► The data applies to a mains connection voltage of 3 x 230 V.

MCS09L41L (non-ventilated)



MCS synchronous servo motors

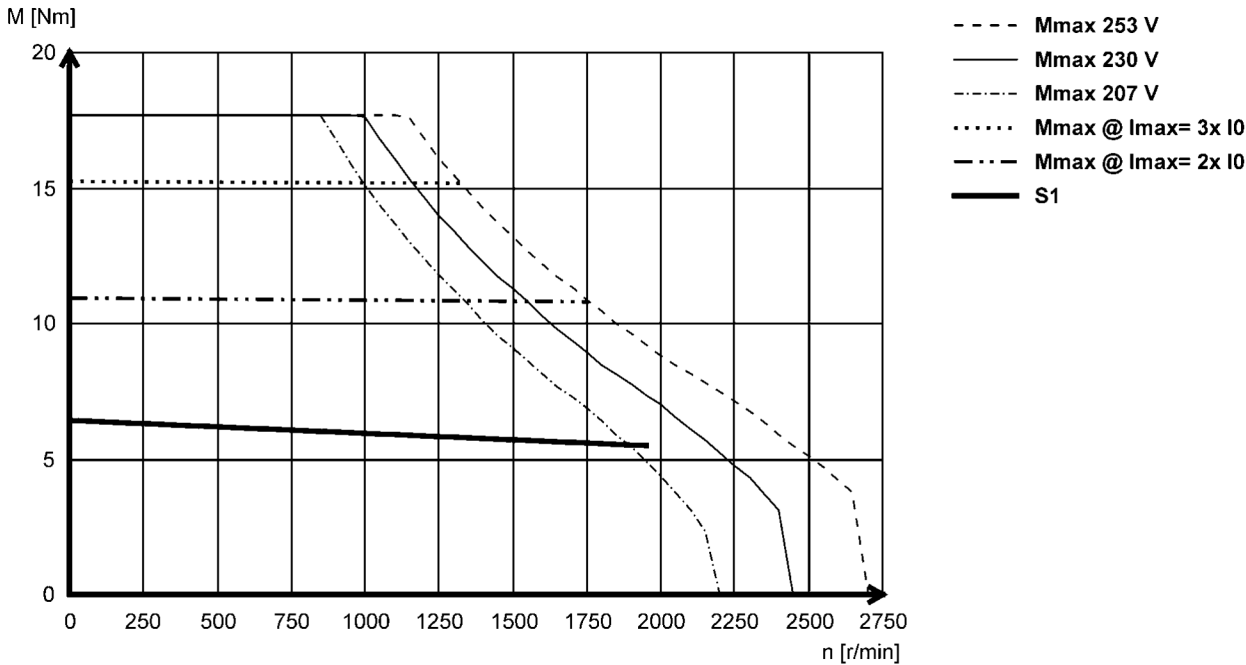
Technical data



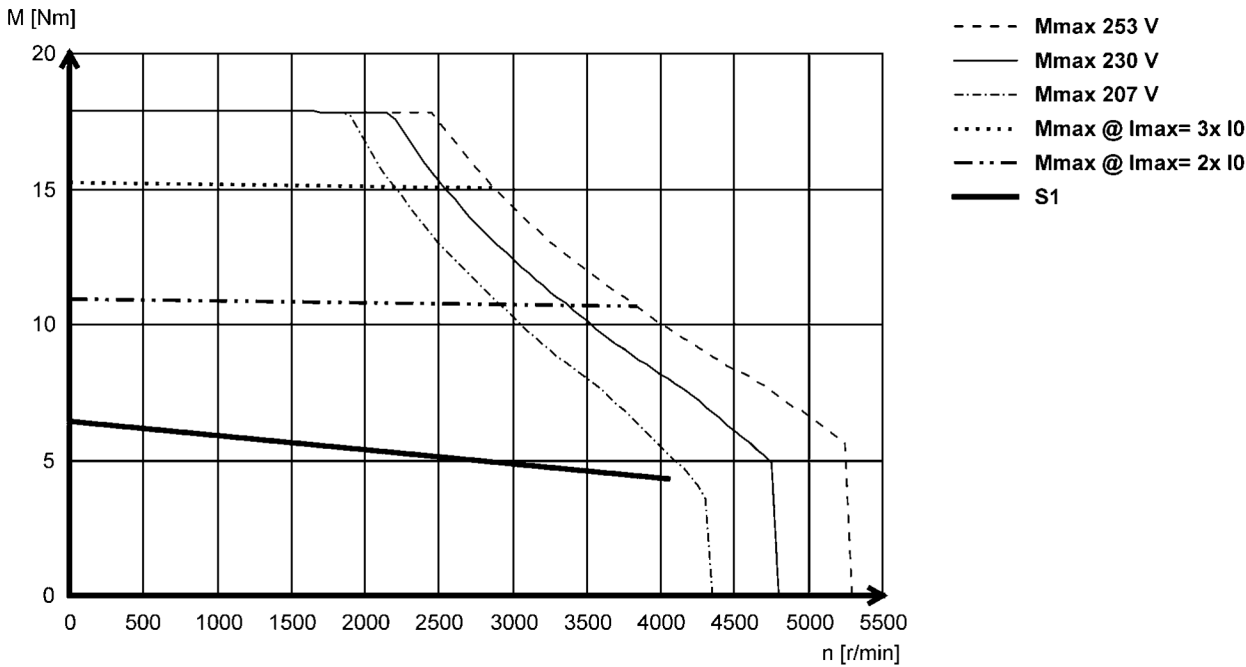
Torque characteristics

► The data applies to a mains connection voltage of 3 x 230 V.

MCS12D20L (non-ventilated)



MCS12D41L (non-ventilated)



MCS synchronous servo motors

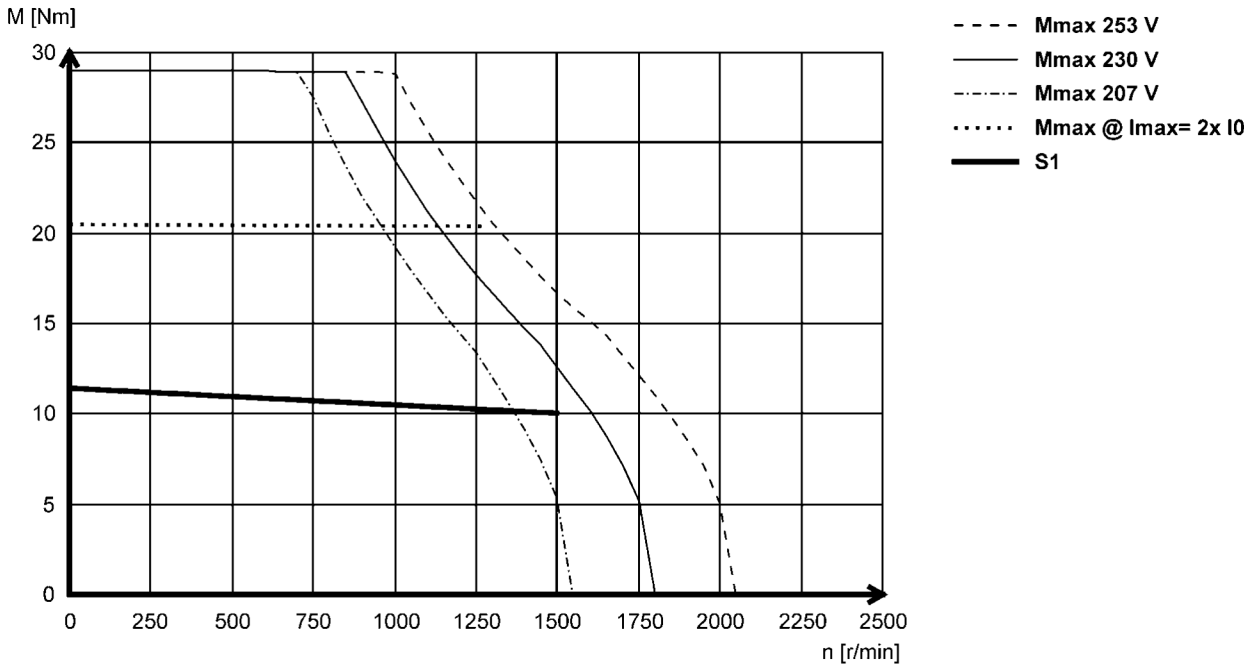
Technical data



Torque characteristics

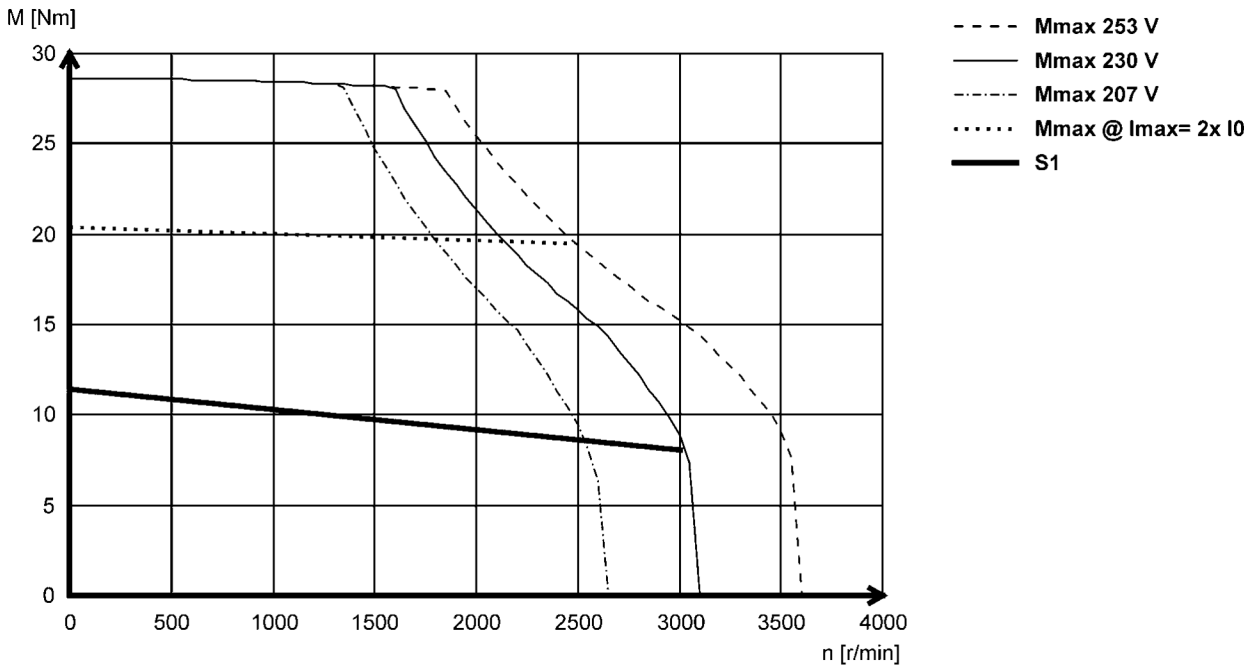
► The data applies to a mains connection voltage of 3 x 230 V.

MCS12H15L (non-ventilated)



5.1

MCS12H30L- (non-ventilated)



MCS synchronous servo motors

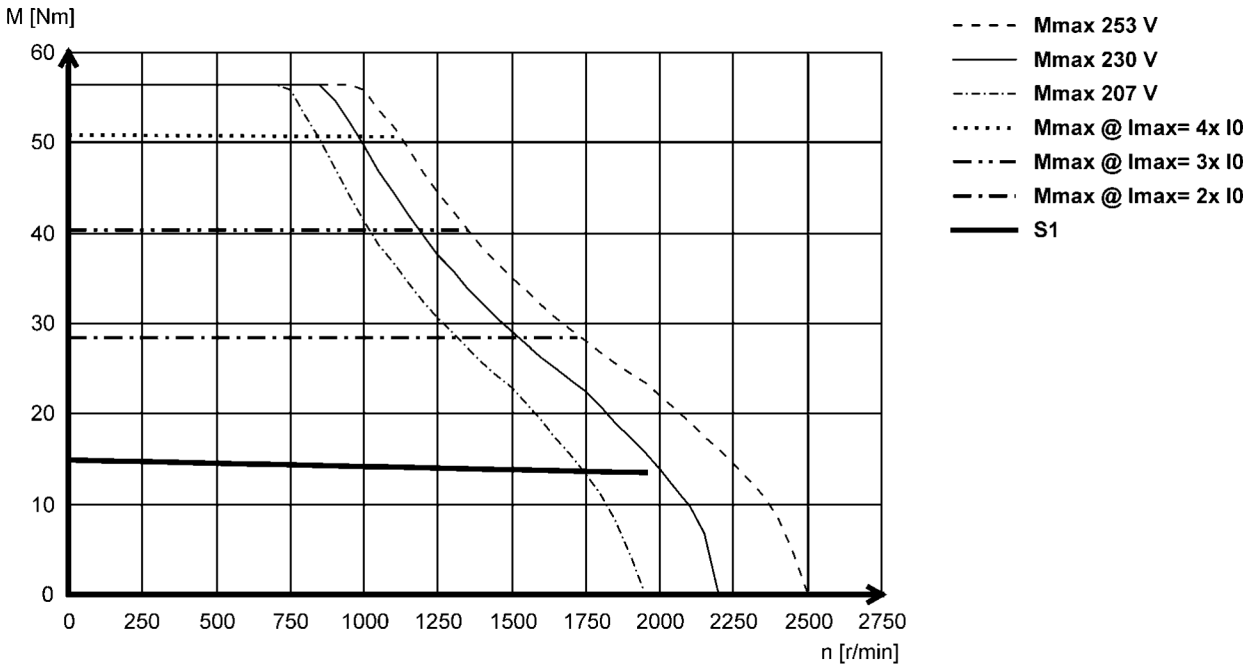
Technical data



Torque characteristics

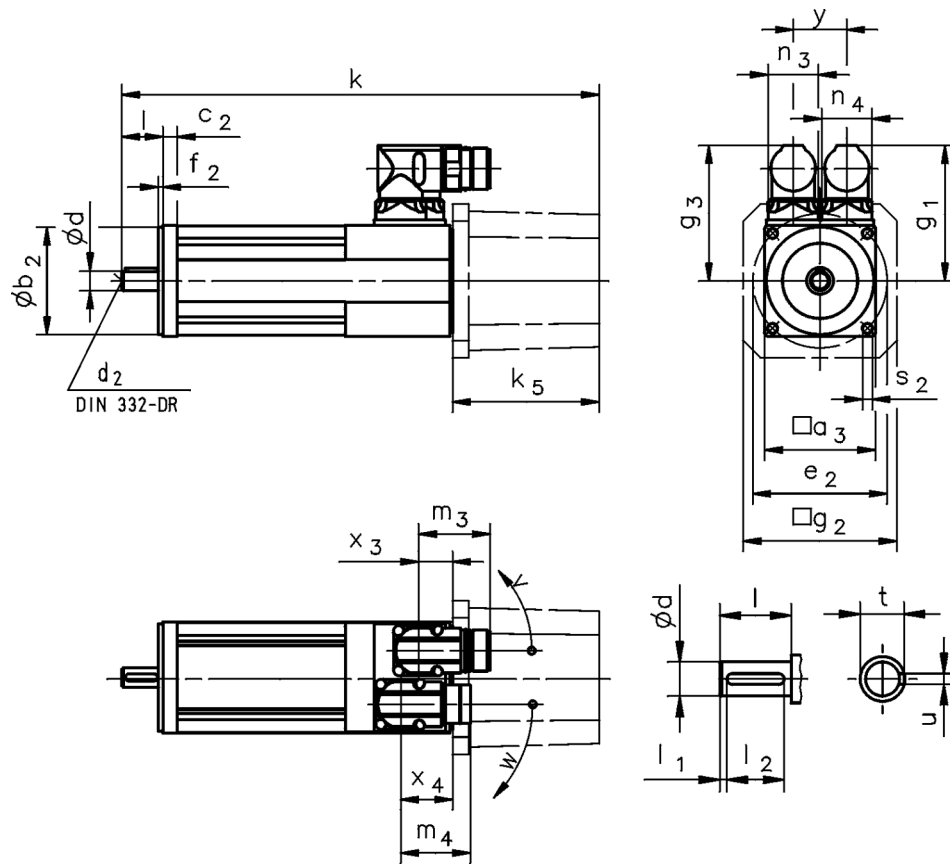
► The data applies to a mains connection voltage of 3 x 230 V.

MCS12L20L (non-ventilated)





Dimensions, self-ventilated



5.1

			MCS06C	MCS06F	MCS06I
R□0 / C40 B0	k	[mm]	155	185	215
R□0 / C40 P□	k	[mm]	174	204	233
SR□ / SV□ / E□□ B0	k	[mm]	237	266	297
SR□ / SV□ / E□□ P□	k	[mm]	255	285	315
SR□ / SV□ / E□□	k ₅	[mm]	82		
	g ₂	[mm]	86		
SKM B0	k	[mm]	190	220	250
SKM P□	k	[mm]	209	239	268
SKM	k ₅	[mm]	35		
	g ₂	[mm]	62		

- Speed / angle sensor: R□□ / C□□ / S□□ / E□□
- Brake: B0 / P□

MCS synchronous servo motors

Technical data



Dimensions, self-ventilated

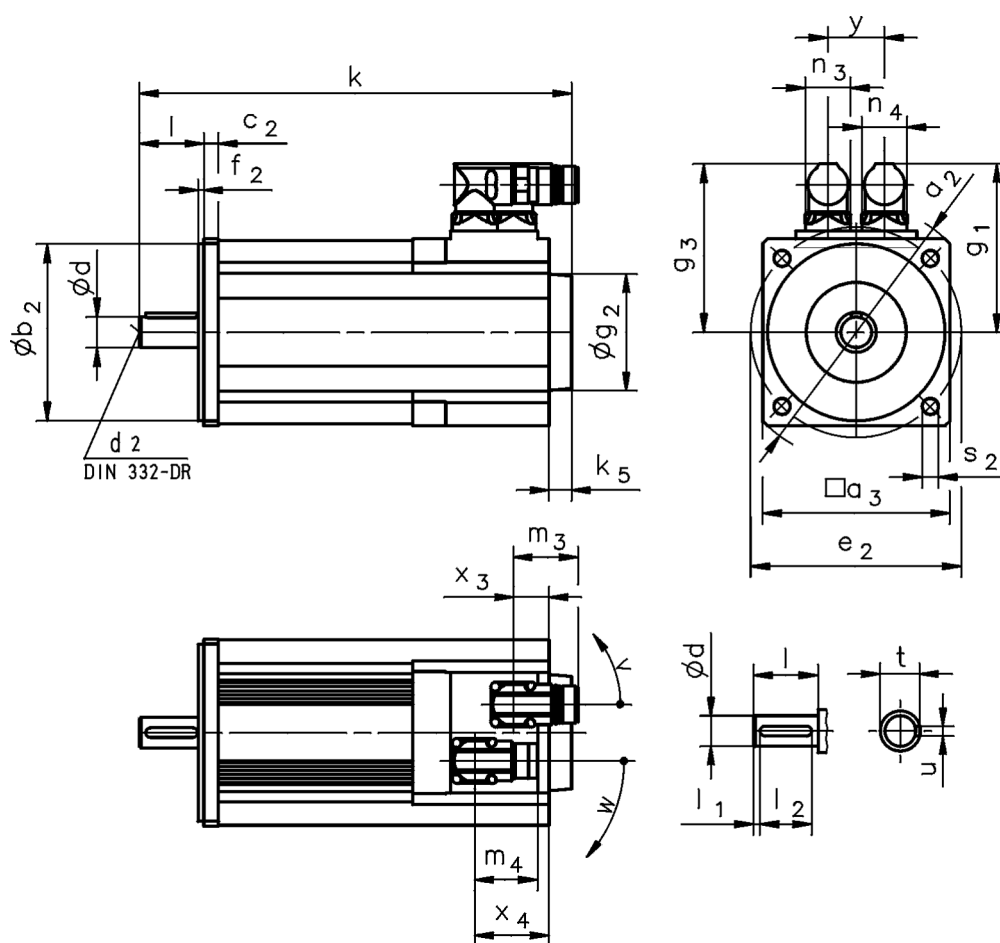
	g ₁	g ₃	x ₃	x ₄	m ₃	m ₄	n ₃	n ₄	y	v	w
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[°]	[°]
MCS06	77	77	19	29	40	40	28	28	30	190	230

	d	d ₂	l	l ₁	l ₂	u	t
	k6		-0.7 ... 0.3				
	[mm]	[mm]		[mm]	[mm]	[mm]	[mm]
MCS06	11	M4	23	2.0	18	4.0	12.5

	a ₃	b ₂	c ₂	e ₂	f ₂	s ₂
		j6				
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
MCS06	62	60	8	75	2.5	5.5



Dimensions, self-ventilated



5.1

			MCS09D	MCS09F	MCS09H	MCS09L	MCS12D	MCS12H	MCS12L
R□0 / C40 B0	k	[mm]	213	233	253	293	228	268	308
R□0 / C40 P□	k	[mm]	233	253	273	313	248	288	328
R□0 / C40	k ₅	[mm]	13				14		
	g ₂	[mm]	67				72		
SR□ / SV□ / E□□ B0	k	[mm]	264	284	304	344	277	317	357
SR□ / SV□ / E□□ P□	k	[mm]	284	304	324	364	297	337	377
SR□ / SV□ / E□□	k ₅	[mm]	64				63		
	g ₂	[mm]	81				89		
SKM B0	k	[mm]	233	253	273	313	248	288	328
SKM P□	k	[mm]	253	273	293	333	268	308	248
SKM	k ₅	[mm]	33				34		
	g ₂	[mm]	67				72		

- Speed / angle sensor: R□□ / C□□ / S□□ / E□□
- Brake: B0 / P□

MCS synchronous servo motors

Technical data



Dimensions, self-ventilated

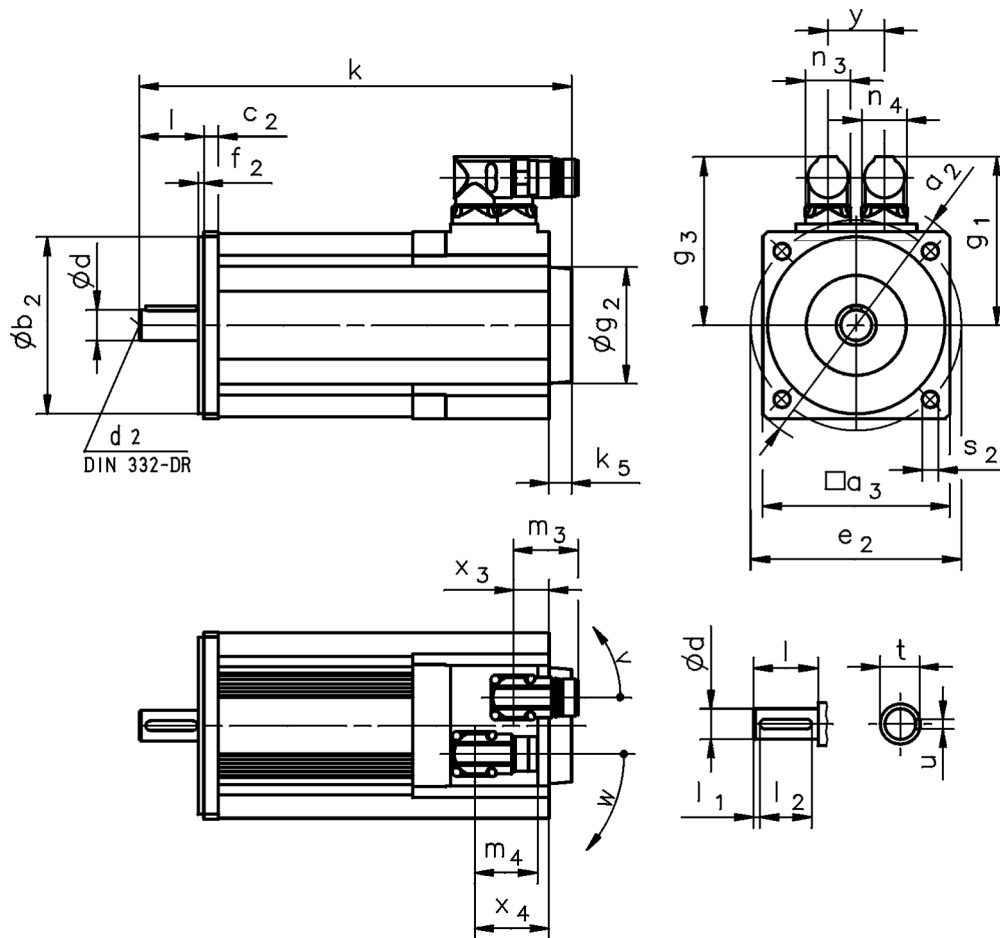
	g ₁	g ₃	x ₃	x ₄	m ₃	m ₄	n ₃	n ₄	y	v	w
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[°]	[°]
MCS09	90	90	20	44	40	40	28	28	35	195	260
MCS12	105	105	22	46							

	d	d ₂	l	l ₁	l ₂	u	t
	k6		-0.7 ... 0.3				
	[mm]	[mm]		[mm]	[mm]	[mm]	[mm]
MCS09	14	M5	30	2.5	25	5.0	16.0
MCS12	19	M6	40	4.0	32	6.0	21.5

	a ₂	a ₃	b ₂	c ₂	e ₂	f ₂	s ₂
	j6						
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
MCS09	120	89	80	8	100	3.0	7.0
MCS12	160	116	110	9	130	3.5	10.0



Dimensions, self-ventilated



			MCS14D	MCS14H	MCS14L	MCS14P	MCS19F	MCS19J	MCS19P
R□□ / C40 B□	k	[mm]	251	291	331	371	280	320	380
R□□ / C40 P□	k	[mm]	279	319	359	399	314	364	424
R□□ / C40	k ₅	[mm]	24				15		
	g ₂	[mm]	78						
SR□ / SV□ / E□□ B□	k	[mm]	301	341	381	421	329	369	429
SR□ / SV□ / E□□ P□	k	[mm]	329	369	409	449	363	413	473
SR□ / SV□ / E□□	k ₅	[mm]	74				64		
	g ₂	[mm]	101						
SKM B□	k	[mm]	269	309	349	389	299	339	399
SKM P□	k	[mm]	297	337	377	417	333	383	443
SKM	k ₅	[mm]	42				34		
	g ₂	[mm]	78						

- Speed / angle sensor: R□□ / C□□ / S□□ / E□□
- Brake: B□ / P□

MCS synchronous servo motors

Technical data



Dimensions, self-ventilated

	g ₁	g ₃	x ₃	x ₄	m ₃	m ₄	n ₃	n ₄	y	v	w
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[°]	[°]
MCS14D15-	117	117	24	48	40	40	28	28	35	195	260
MCS14D36-											
MCS14H15-											
MCS14H32-											
MCS14L15-											
MCS14L32-	146	126	29	36		75		45		180	205
MCS14P14-	117	117	24	48		40		28		195	260
MCS14P32-	146	126	29	36		75		45		180	205
MCS19F14-	142	142	24 51 ¹⁾	48 75 ¹⁾		40		28		195	260
MCS19F30-	171	151	29 56 ¹⁾	36 63 ¹⁾		75		45		180	205
MCS19J14-	142	142	24 51 ¹⁾	48 75 ¹⁾		40		28		195	260
MCS19J30-	171	151	29 56 ¹⁾	36 63 ¹⁾		75		45		180	205
MCS19P14-	142	142	24 51 ¹⁾	48 75 ¹⁾		40		28		195	260
MCS19P30-	171	151	29 56 ¹⁾	36 63 ¹⁾		75		45		180	205

	d	d ₂	l	l ₁	l ₂	u	t
	k6		-0.7 ... 0.3				
	[mm]	[mm]		[mm]	[mm]	[mm]	[mm]
MCS14	24	M8	50	5.0	40	8.0	27.0
MCS19	28	M10	60		50		31.0

	a ₂	a ₃	b ₂	c ₂	e ₂	f ₂	s ₂
			j6				
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
MCS14	188	143	130	13	165	3.5	12.0
MCS19	250	192	180	11	215	4.0	14.0

¹⁾ On version with brake (P□)

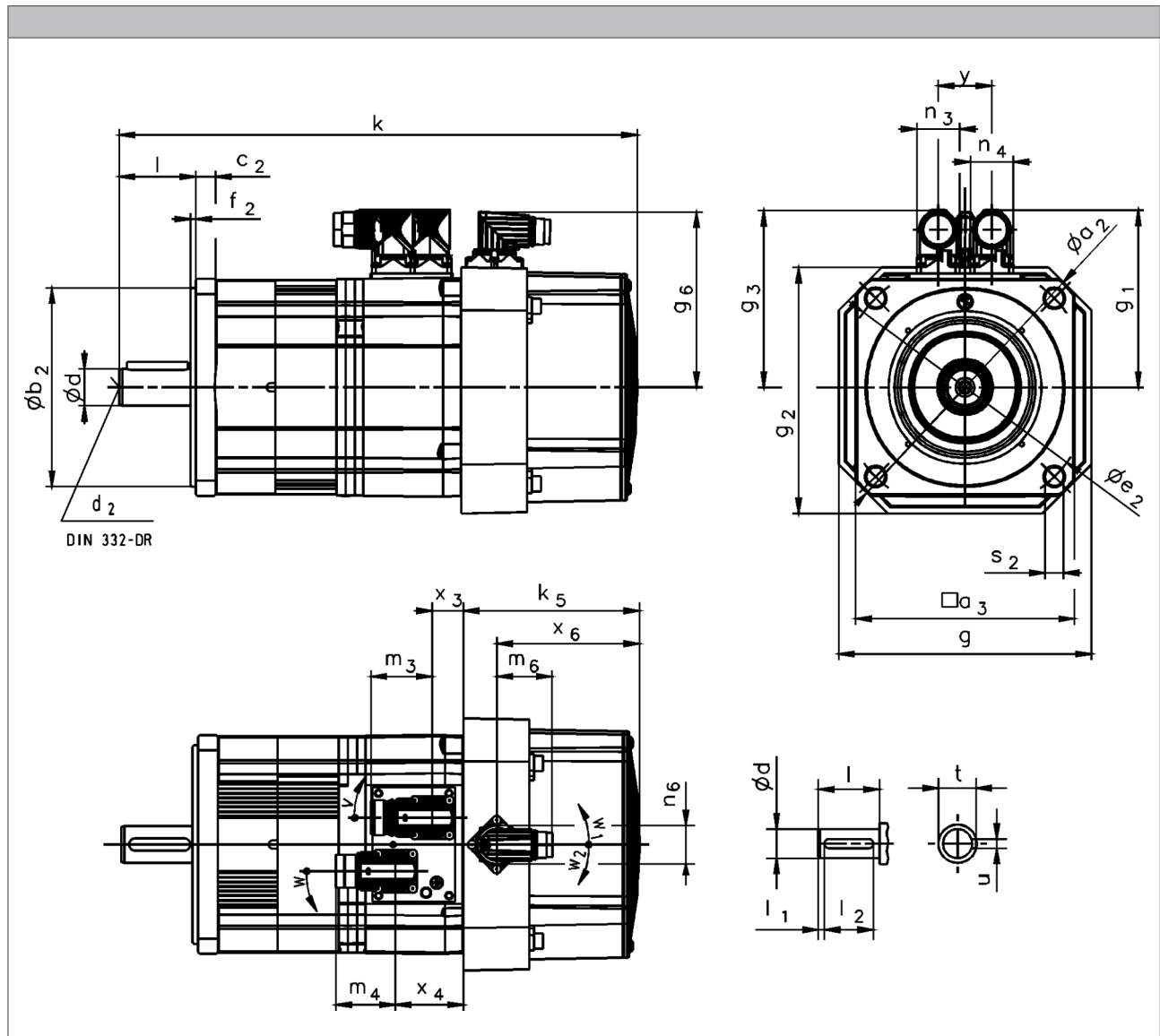
5.1

MCS synchronous servo motors

Technical data



Dimensions, forced ventilated



5.1

			MCS12D	MCS12H	MCS12L	MCS14D	MCS14H	MCS14L	MCS14P	MCS19F	MCS19J	MCS19P
R□□ / C40 B0	k	[mm]	301	341	381	339	379	419	459	387	427	487
R□□ / C40 P□	k	[mm]	321	361	401	368	408	448	488	421	471	531
R□□ / C40	k ₅	[mm]	92			115			126			
S□□ / E□□ B0	k	[mm]	344	384	424	392	432	472	512	425	465	525
S□□ / E□□ P□	k	[mm]	364	404	444	421	461	501	541	459	509	569
S□□ / E□□	k ₅	[mm]	135			169			165			
	g	[mm]	140			167			212			
	g ₂	[mm]	140			163			210			

- Speed / angle sensor: R□□ / C□□ / S□□ / E□□
- Brake: B0 / P□

MCS synchronous servo motors

Technical data



Dimensions, forced ventilated

	g ₁	g ₃	g ₆	x ₃	x ₄	x ₆	m ₃	m ₄	m ₆	n ₃	n ₄	n ₆	y	v	w	w ₁	w ₂	
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[°]	[°]	[°]	[°]	
MCS12D17	105	105	107	16	40	67		40			28							
MCS12D35																		
MCS12H14																		
MCS12H34																		
MCS12L17																		
MCS12L39																		
MCS14D14	117	117	115	20	44	93	40	37	28	45	28	35	160	160	120	130		
MCS14D30																		
MCS14H12																		
MCS14H28	146	126		24	31												75	28
MCS14L14	117	117		20	44												40	45
MCS14L30	146	126		24	31												75	45
MCS14P11	117	117		20	44												40	28
MCS14P26	146	126		24	31												75	45
MCS19F12	142	142	142	19 46 ¹⁾	43 70 ¹⁾	96		40	75	45	28							
MCS19F29	171	151		24 51 ¹⁾	31 58 ¹⁾													
MCS19J12																		
MCS19J29																		
MCS19P12																		
MCS19P29																		

5.1

	d	d ₂	l	l ₁	l ₂	u	t
	k6		-0.7 ... 0.3				
	[mm]	[mm]		[mm]	[mm]	[mm]	[mm]
MCS12	19	M6	40	4.0	32	6.0	21.5
MCS14	24	M8	50	5.0	40	8.0	27.0
MCS19	28	M10	60		50		31.0

	a ₂	a ₃	b ₂	c ₂	e ₂	f ₂	s ₂
	j6						
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
MCS12	160	116	110	9	130	3.5	10.0
MCS14	188	143	130	13	165		12.0
MCS19	250	192	180	11	215	4.0	14.0

¹⁾ On version with brake (P□)

MCS synchronous servo motors

Technical data





Permanent magnet holding brake

The synchronous servo motor 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.

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:

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

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.



Permanent magnet holding brake



Permanent magnet holding brake

Rated data with standard braking torque

	$U_{N, DC}^{3, 5)}$	M_N 20 °C	M_N 120 °C	M_{av} 120 °C	$I_N^{2)}$	J	$t_1^{1)}$	$t_2^{1)}$	$Q_E^{4)}$	m	J_{MB}	J_L/J_{MB}
	[V]	[Nm]	[Nm]	[Nm]	[A]	[kgcm ²]	[ms]	[ms]	[J]	[kg]	[kgcm ²]	
MCS06C	24	2.20	2.00	0.60	0.34	0.12	15.0	30.0	30.0	0.30	0.26	22.1
MCS06F											0.34	16.6
MCS06I											0.42	13.3
MCS09D		8.00	6.00	4.50	0.65	1.07	20.0	40.0	400	0.80	2.17	36.4
MCS09F											2.57	30.5
MCS09H											2.97	26.3
MCS09L											3.87	19.9
MCS12D		12.0	10.0	7.00			13.0	43.0		0.90	5.07	15.0
MCS12H											8.40	8.70
MCS12L											11.7	5.90
MCS14D		22.0	18.0	8.00	0.88	3.20	15.0	150	640	1.90	11.3	10.5
MCS14H											17.4	6.50
MCS14L											26.6	3.90
MCS14P											37.9	2.40
MCS19F		37.0	32.0	15.0	0.93	12.4	96.0	113	2350	3.10	77.4	5.20

Rated data with increased braking torque

	$U_{N, DC}^{3, 5)}$	M_N 20 °C	M_N 120 °C	M_{av} 120 °C	$I_N^{2)}$	J	$t_1^{1)}$	$t_2^{1)}$	$Q_E^{4)}$	m	J_{MB}	J_L/J_{MB}
	[V]	[Nm]	[Nm]	[Nm]	[A]	[kgcm ²]	[ms]	[ms]	[J]	[kg]	[kgcm ²]	
MCS09D	24	12.0	10.0	7.00	0.65	1.07	20.0	40.0	400	0.80	2.17	36.4
MCS09F											2.57	30.5
MCS09H											2.97	26.3
MCS09L											3.87	19.9
MCS12D		24.0	19.0	12.0	0.71	3.13	16.0	90.0	890	1.20	7.10	24.3
MCS12H											10.4	16.3
MCS12L											13.7	12.1
MCS14D		37.0	32.0	15.0	0.93	12.4	96.0	113	2350	3.10	20.5	22.2
MCS14H											26.6	16.9
MCS14L											35.8	12.3
MCS14P											47.1	9.10
MCS19J		100	80.0	43.0	1.29	30.0	30.0	90.0	2100	4.30	135	2.20
MCS19P											190	1.20

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

⁴⁾ Maximum switching energy per emergency stop at $n = 3000$ r/min for at least 2000 emergency stops.

⁵⁾ Voltage tolerance: -10% to $+5\%$



Resolver

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

Speed/angle sensor				RS0	RV0
	1)			RS0	RV0
Product key				RS0	RV03
Resolution				0.80	
Angle			[°]		
Accuracy				-10 ... 10	
			[°]		
Absolute positioning				1 revolution	
Max. speed				8000	
	$n_{\max}$		[r/min]		
Max. input voltage				10.0	
DC	$U_{\text{in,max}}$		[V]		
Max. input frequency				4.00	
	$f_{\text{in,max}}$		[kHz]		
Ratio				0.30	
Stator / rotor		$\pm 5 \%$			
Rotor impedance				51 + j90	
	Z_{ro}		[Ω]		
Stator impedance				102 + j150	
	Z_{so}		[Ω]		
Impedance				44 + j76	
	Z_{rs}		[Ω]		
Min. insulation resistance				10.0	
At DC 500 V	R		[MΩ]		
Number of pole pairs				1	
Max. angle error				-10 ... 10	
			[°]		
Inverter assignment				i700 E84AVTC E94A ECS EVS93	E84AVTC E94A ECS EVS93

1) 6 - Product key > speed/angle sensor

Speed-dependent safety functions

Suitable for safety function			No	Yes
Max. permissible angular acceleration				
MCS06	α	[rad/s ²]		56000
MCS09 ... MCS19 ²⁾	α	[rad/s ²]		19000
Functional safety				
IEC 61508				SIL3
EN 13849-1				Up to Performance Level e

2) 10 - Single encoder concepts with resolvers



Incremental encoder and SinCos absolute value encoder

Encoder type			TTL incremental	SinCos absolute value		
Speed/angle sensor						
	1)		C40	EQI	SRS	SVS
Product key						
			IK4096-5V-T	AM32-5V-E	AS1024-8V-H	AS1024-8V-K2
Encoder type						
			Single-turn	Multi-turn	Single-turn	
Pulses						
			4096	32	1024	
Output signals						
			TTL	1 Vss		
Interfaces						
				EnDat	Hiperface	
Absolute revolutions						
			0	4096	1	
Resolution						
Angle ²⁾		[°]	1.30	0.40		
Accuracy						
		[°]	-1 ... 1	-5 ... 5	-0.8 ... 0.8	
Min. input voltage						
DC	U _{in,min}	[V]	4.50	4.75	7.00	
Max. input voltage						
DC	U _{in,max}	[V]	5.50	5.25	12.0	
Max. speed						
	n _{max}	[r/min]	7324	12000	6000	
Max. current consumption						
	I _{max}	[A]	0.075	0.17	0.080	
Limit frequency						
	f _{max}	[kHz]	500	6.00	200	
Inverter assignment						
			E94P	E94A	E84AVTC E94A ECS EVS93	

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						
MCS06	α	[rad/s ²]				970000
MCS09 ... MCS19	α	[rad/s ²]				240000
Functional safety						
IEC 61508						SIL2
EN 13849-1						Up to Performance Level d



Incremental encoder and SinCos absolute value encoder

Encoder type			SinCos absolute value				
Speed/angle sensor							
			SKM	SRM	SVM	ECN	EQN
Product key			AM128-8V-H	AM1024-8V-H	AM1024-8V-K2	AS2048-5V-E	AM2048-5V-E
Encoder type			Multi-turn			Single-turn	Multi-turn
Pulses							
			128	1024	2048		
Output signals			1 Vss				
Interfaces			Hiperface			EnDat	
Absolute revolutions			4096			1	4096
Resolution			0.40				
Angle		[°]					
Accuracy		[°]	-1.3 ... 1.3	-0.8 ... 0.8	-0.6 ... 0.6		
Min. input voltage							
DC	U _{in,min}	[V]	7.00			4.75	
Max. input voltage							
DC	U _{in,max}	[V]	12.0			5.25	
Max. speed							
	n _{max}	[r/min]	9000	6000	12000		
Max. current consumption							
	I _{max}	[A]	0.060	0.080	0.15	0.25	
Limit frequency							
	f _{max}	[kHz]	200				
Inverter assignment							
			i700 E84AVTC E94A ECS EVS93	E84AVTC E94A ECS EVS93	E94A		

¹⁾ Inverter-dependent.

Speed-dependent safety functions

Suitable for safety function			No	No	Yes	No	No
Max. permissible angular acceleration							
MCS06	α	[rad/s ²]			970000		
MCS09 ... MCS19	α	[rad/s ²]			240000		
Functional safety							
IEC 61508					SIL2		
EN 13849-1					Up to Performance Level d		

MCS synchronous servo motors

Accessories



Blower

Rated data for 50 Hz

		Degree of protection	Number of phases					
				U_{min}	U_{max}	$U_{N, AC}$	P_N	I_N
				[V]	[V]	[V]	[kW]	[A]
MCS12	F10	IP54	1	210	240	230	0.019	0.12
	F50			104	122	115	0.018	0.22
MCS14	F10			210	240	230	0.040	0.25
	F50			104	122	115		0.53
MCS19	F10			210	240	230	0.060	0.26
	F50			104	122	115	0.047	0.45

Rated data for 60 Hz

		Degree of protection	Number of phases					
				U_{min}	U_{max}	$U_{N, AC}$	P_N	I_N
				[V]	[V]	[V]	[kW]	[A]
MCS12	F10	IP54	1	210	240	230	0.019	0.12
	F50			104	122	115	0.018	0.22
MCS14	F10			210	240	230	0.040	0.25
	F50			104	122	115		0.53
MCS19	F10			210	240	230	0.060	0.26
	F50			104	122	115	0.047	0.45

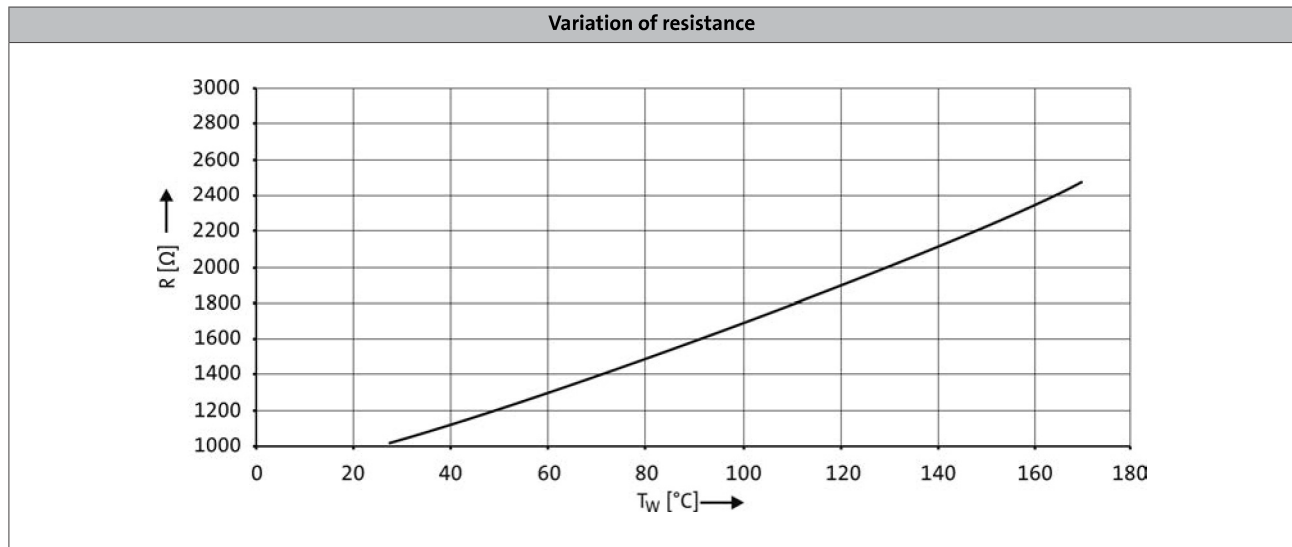


Temperature monitoring

The thermal sensors used in the MCS motors continuously monitor the motor temperature. The temperature signal is transmitted over the system cable of the feedback system to the servo controller. Because of the different physical conditions, there are two temperature monitoring mechanisms on the MCS motors (there is no complete motor protection in either case).

MCS06

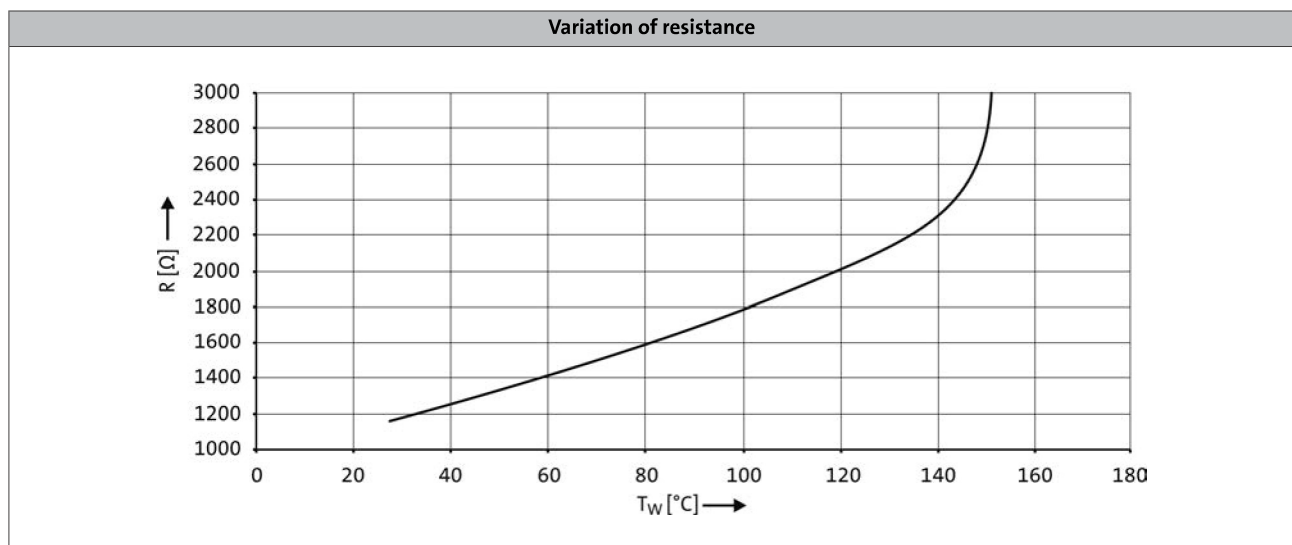
In case of this motor, the winding temperature of one winding phase is monitored with a KTY 83-110 type thermal sensor.



5.1

MCS09 ... 19

These motors are monitored by three thermal sensors (1x KTY 83-110 + 2x PTC 150 °C) connected in series. 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 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.



Terminal box

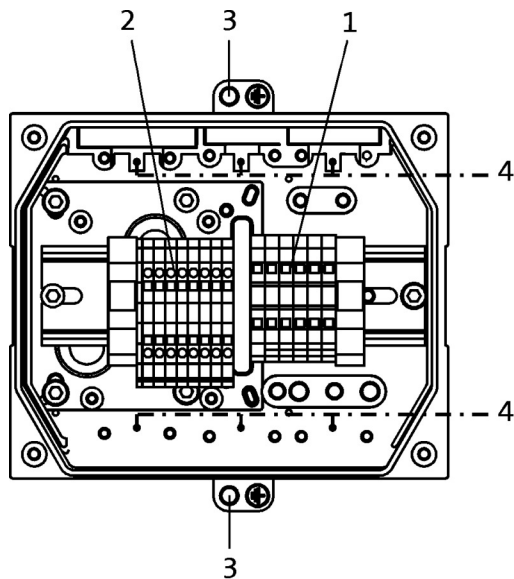
If a servo motor is to be connected to an existing cable or plug connectors are not to be used for other reasons, the connection can also be made via a terminal box.

The terminals are designed as tension spring terminals to ensure here the long-term vibration resistance of the cable contacts with adequate contact pressure required.

The terminal boxes have generously dimensioned space for the customer's own wiring and large surface shield connection areas to ensure a secure EMC-compliant connection. The cable outlet may be to the left or to the right, depending on requirements.

It is not possible to attach a terminal box to the MCS06 or to models with the blower.

Connections



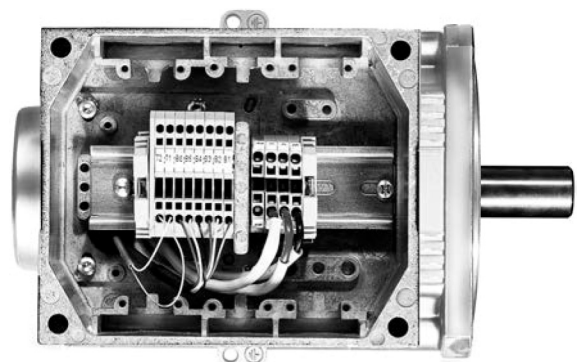
1: Power connection (terminals loadable up to 65 A) + brake connection.

2: Angle/speed sensor connection + thermal sensor connection.

3: PE connection.

4: Large area shield contact.

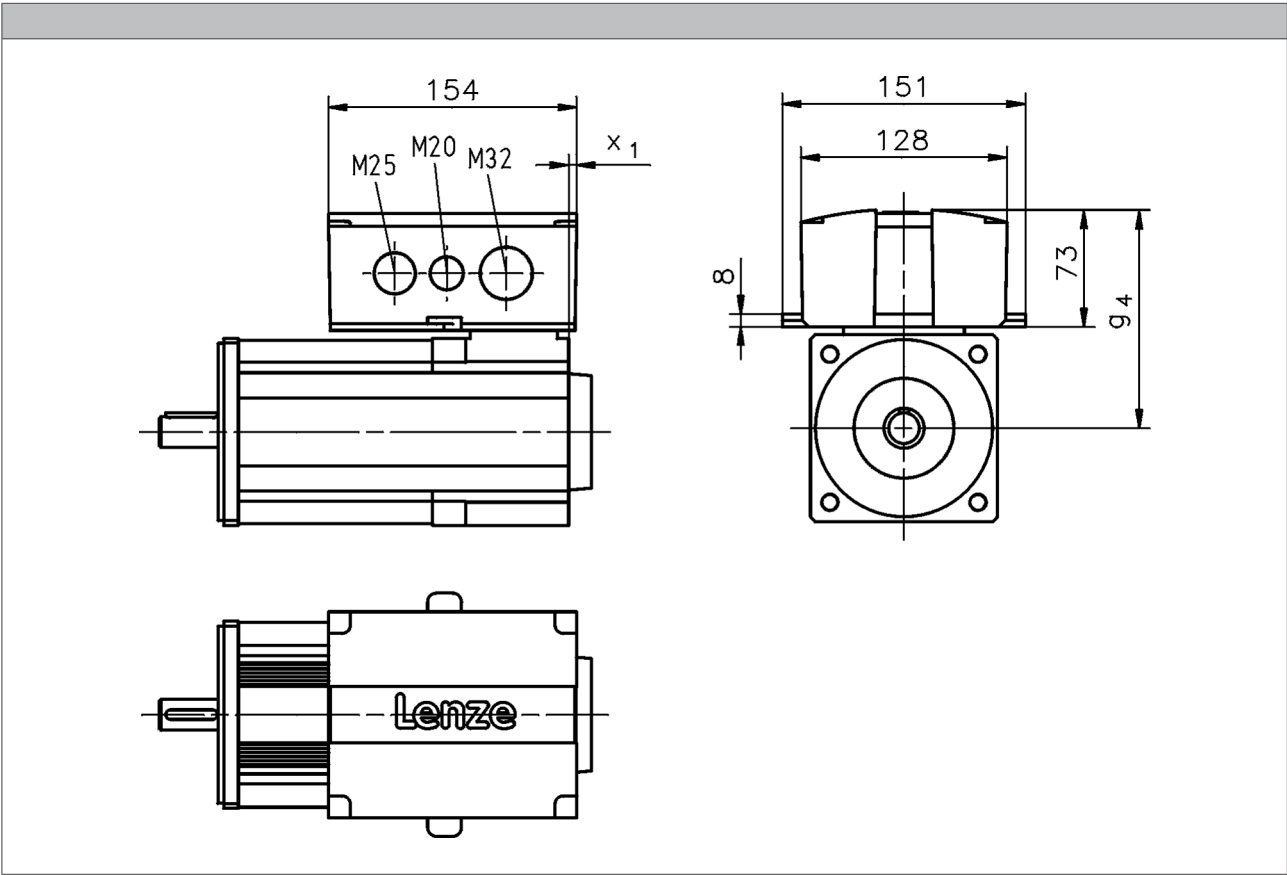
5: Openings for 2x M32, 2x M25, 2x M20 fittings. The openings are plugged and can be opened up as required by the customer.





Terminal box

Dimensions



5.1

	g ₄ [mm]	x ₁ [mm]
MCS09	121	8
MCS12	136	5
MCS14	147	3
MCS19	172	



ICN connector

An ICN connector is used as standard for the electrical connection to the servo motors.

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

► MCS06 to 12

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	

► MCS14 to 19

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	



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		Not assigned
9		
10		
11	+KTY	KTY temperature sensor
12	-KTY	

The diagram shows a circular 12-pin connector. The pins are numbered 1 through 12 in a clockwise direction starting from the top. Pin 1 is labeled '+Ref', pin 2 is '-Ref', pin 3 is '+VCC ETS', pin 4 is '+COS', pin 5 is '-COS', pin 6 is '+SIN', pin 7 is '-SIN', pin 8 is 'Not assigned', pin 9 is 'Not assigned', pin 10 is 'Not assigned', pin 11 is '+KTY', and pin 12 is '-KTY'. A label 'Code 0°' points to the top of the connector. A label 'P' is located near the center of the connector.

- Hiperface incremental encoder and SinCos absolute value encoder

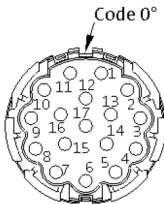
Pin assignment		
Contact	Designation	Meaning
1	B	Track B/+SIN
2	A ⁻	Track A inverse/-COS
3	A	Track A/+COS
4	+U _B	Supply +
5	GND	Mass
6	Z ⁻	Zero track inverse/-RS485
7	Z	Zero track/+RS485
8		Not assigned
9	B ⁻	Track B inverse/-SIN
10		Not assigned
11	+KTY	KTY temperature sensor
12	-KTY	



ICN connector

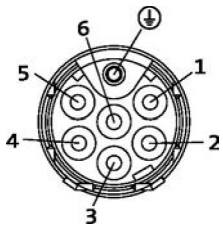
Feedback connection

- 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		

5.1

Blower connection

Pin assignment			
Contact	Designation	Meaning	
PE	PE	PE conductor	
1	U1	Fan	
2	U2		
3		Not assigned	
4			
5			
6			