L-force catalogue

Automation systems
Drive solutions

Controls
Inverters
Motors
Gearboxes
Engineering Tools

Motors: MCS synchronous servo motors

Gearboxes: g500-B bevel gearbox

Lenze
As easy as that.

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		A matter of principle: the right products for every application.	
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Selected portfolio

Additional portfolio

Lenze makes many things easy for you.

With our motivated and committed approach, we work together with you to create the best possible solution and set your ideas in motion - whether you are looking to optimise an existing machine or develop a new one. We always strive to make things easy and seek perfection therein. This is anchored in our thinking, in our services and in every detail of our products. It's as easy as that!

1

Developing ideas

Are you looking to build the best machine possible and already have some initial ideas? Then get these down on paper together with us, starting with small innovative details and stretching all the way to completely new machines. Working together, we will develop an intelligent and sustainable concept that is perfectly aligned with your specific requirements.

2

Drafting concepts

We see welcome challenges in your machine tasks, supporting you with our comprehensive expertise and providing valuable impetus for your innovations. We take a holistic view of the individual motion and control functions here and draw up consistent, end-to-end drive and automation solutions for you - keeping everything as easy as possible and as extensive as necessary.

3

Implementing solutions

Our easy formula for satisfied customers is to establish an active partnership with fast decision-making processes and an individually tailored offer. We have been using this simple principle to meet the ever more specialised customer requirements in the field of mechanical engineering for many years.

4

Manufacturing machines

Functional diversity in perfect harmony: as one of the few full-range providers in the market, we can provide you with precisely those products that you actually need for any machine task – no more and no less. Our L-force product portfolio, a consistent platform for implementing drive and automation tasks, is invaluable in this regard.

5

Ensuring productivity

Productivity, reliability and new performance peaks on a daily basis – these are our key success factors for your machine. After delivery, we offer you cleverly devised service concepts to ensure continued safe operation. The primary focus here is on technical support, based on the excellent application expertise of our highly-skilled and knowledgeable after-sales team.

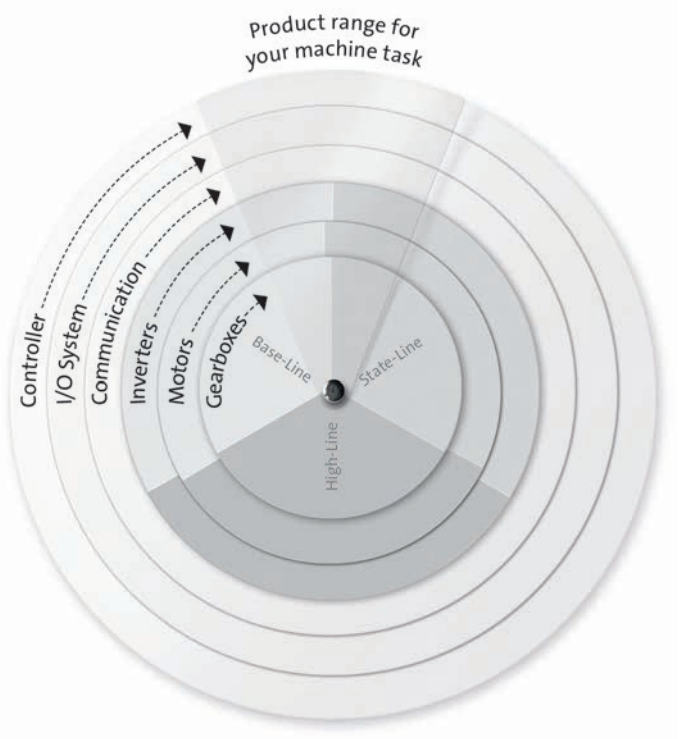
A matter of principle: the right products for every application.

Lenze's extensive L-force product portfolio follows a very simple principle. The functions of our finely scaled products are assigned to the three lines Base-Line, State-Line or High-Line.

But what does this mean for you? It allows you to quickly recognise which products represent the best solution for your own specific requirements.

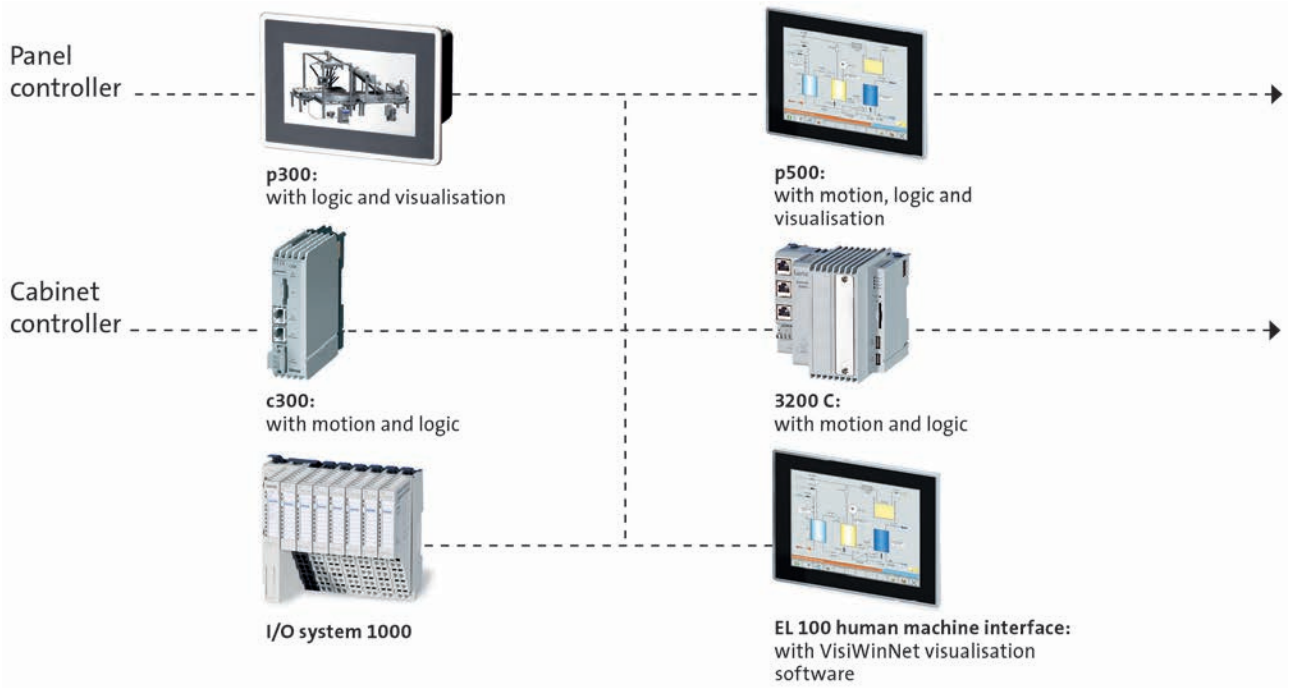
Powerful products with a major impact:
- Easy handling
- High quality and durability
- Reliable technologies in tune with the latest developments

Lenze products undergo the most stringent testing in our own laboratory. This allows us to ensure that you will receive consistently high quality and a long service life. In addition to this, five logistics centres ensure that the Lenze products you select are available for quick delivery anywhere across the globe. It's as easy as that!

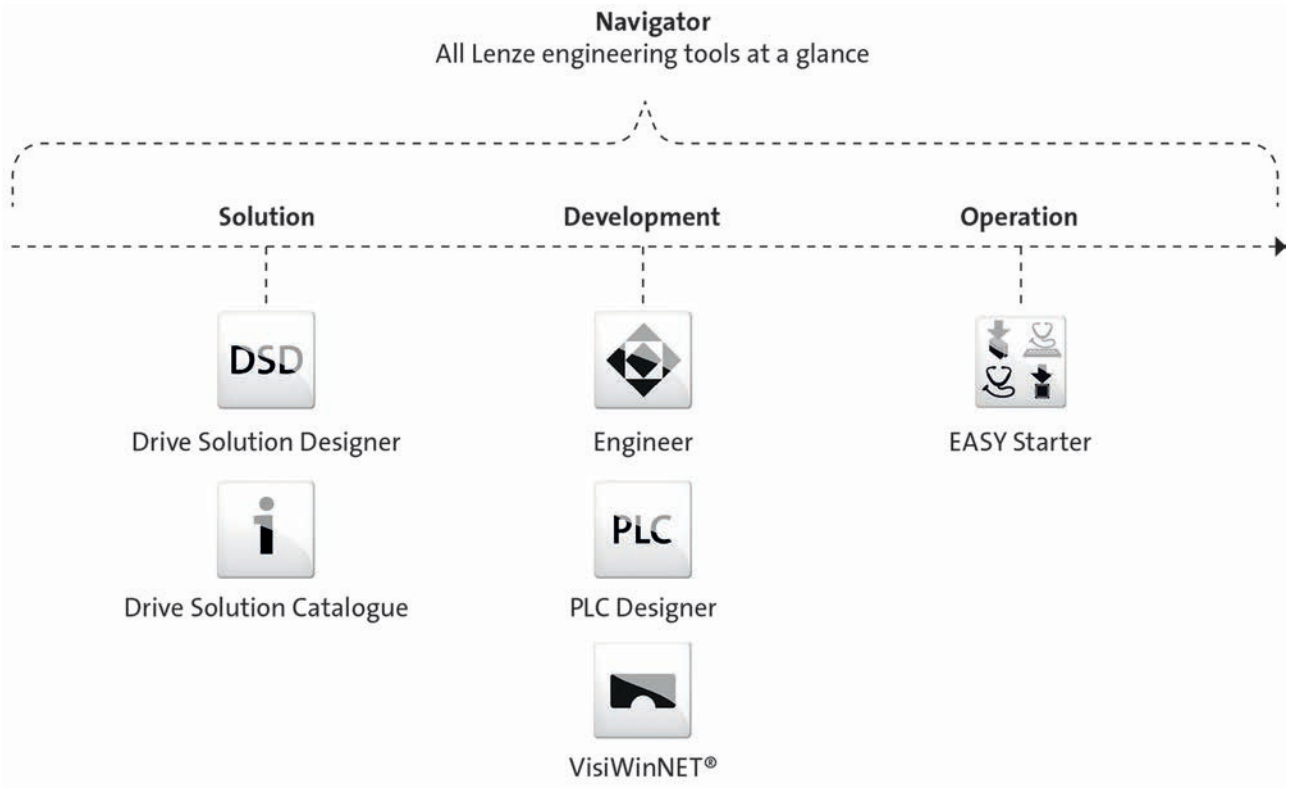


L-force product portfolio

Controls

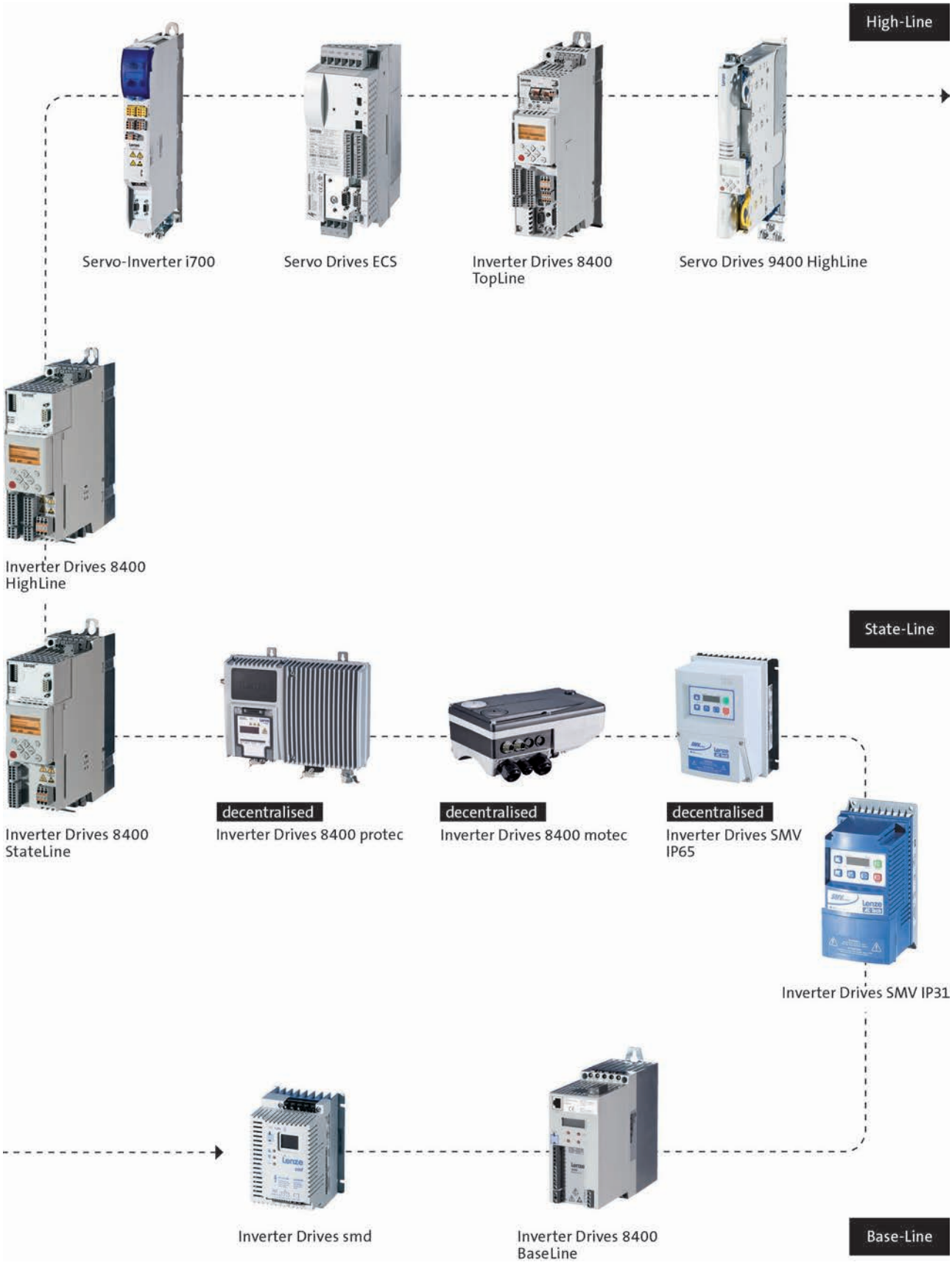


Engineering Tools



L-force product portfolio

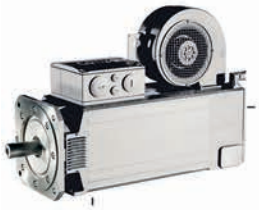
Inverters



L-force product portfolio

Motors

High-Line



MQA asynchronous servo motors

SDSGS synchronous servo motors

MDXKS synchronous servo motors

Synchronous servo motors MCS

Asynchronous servo motors MCA

Asynchronous servo motors SDSGA

State-Line

MF three-phase AC motors

MH three-phase AC motors

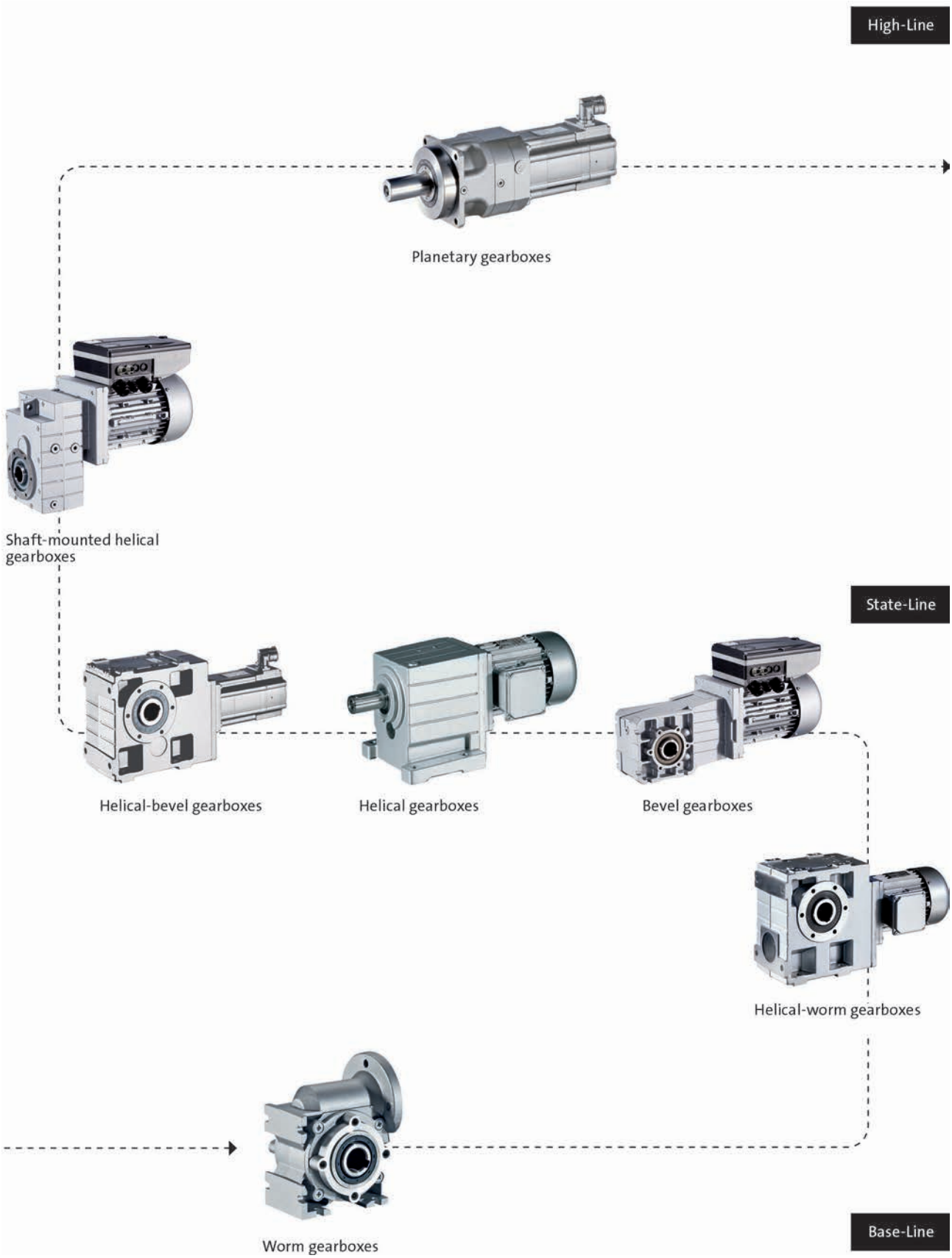
MD three-phase AC motors

Basic MD/MH three-phase AC motors

Base-Line

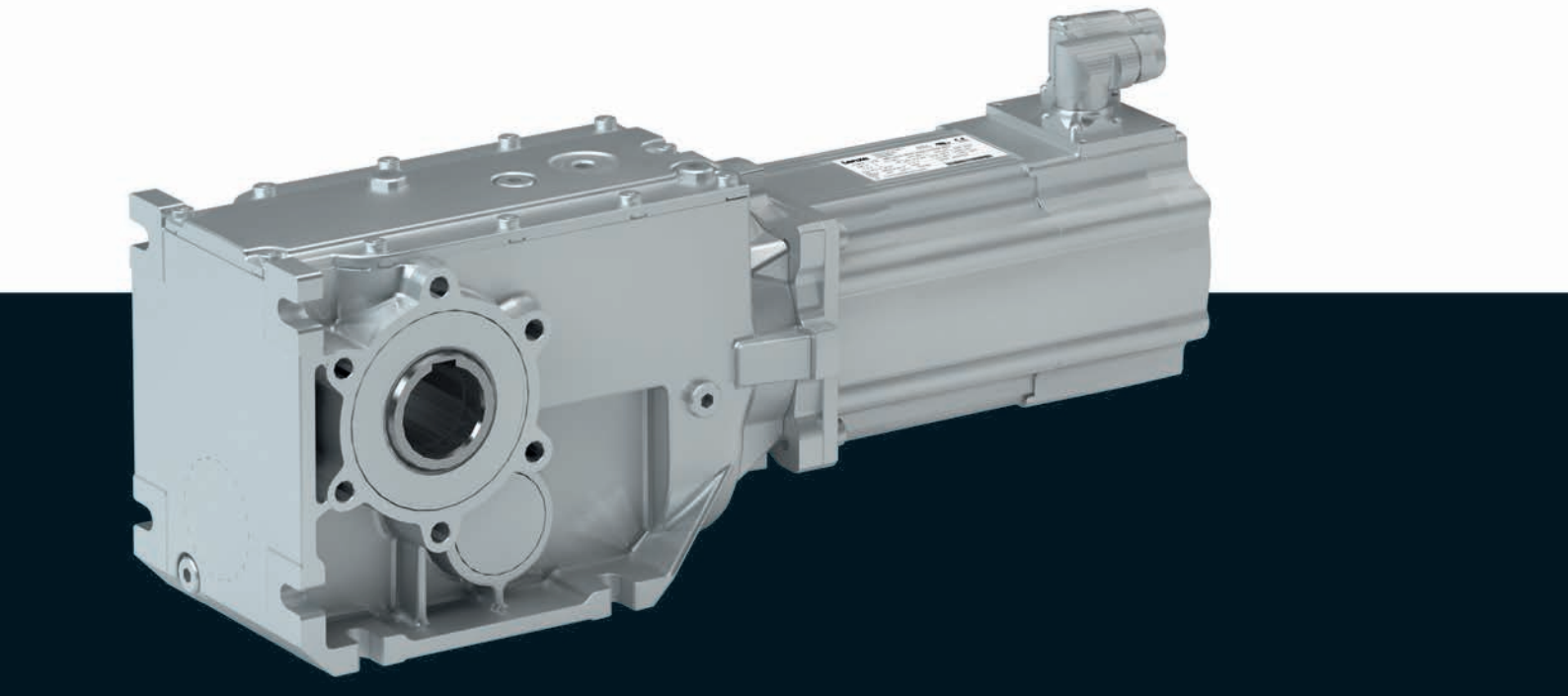
L-force product portfolio

Gearboxes



g500-B bevel geared motors

6 ... 440 Nm (synchronous servo motors)



g500-B bevel geared motors

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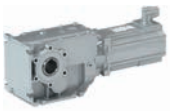

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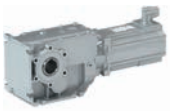
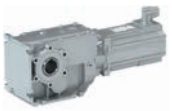
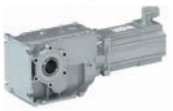




List of abbreviations

c		Load capacity
i		Ratio
J	[kgcm²]	Moment of inertia
m	[kg]	Mass
M_2	[Nm]	Output torque
$M_{2, max}$	[Nm]	Max. output torque
$n_{2, eto}$	[r/min]	Transition speed
$n_{2, th}$	[r/min]	Thermal limit speed

CCC	China Compulsory Certificate
CE	Communauté Européenne
CSA	Canadian Standards Association
cURus	Combined certification marks of UL for the USA and Canada
DIN	Deutsches Institut für Normung e.V.
EMC	Electromagnetic compatibility
EN	European standard
GOST	Certificate for Russian Federation
IEC	International Electrotechnical Commission
IM	International Mounting Code
IP	International Protection Code
NEMA	National Electrical Manufacturers Association
UL	Underwriters Laboratory Listed Product
UR	Underwriters Laboratory Recognized Product
VDE	Verband deutscher Elektrotechniker (Association of German Electrical Engineers)



Product information

In combination with servo motors, our bevel gearboxes form a compact and powerful drive unit. Numerous options at the input and output end provide for the drive to be exactly adapted to your application.

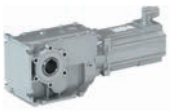
The efficient bevel gearboxes feature high reliable radial forces, closely stepped gear reductions and a low backlash. They are available in 2-pole and 3-pole design with a torque up to 450 Nm and a ratio of up to i= 360.

Versions

- High-efficient right-angle gearbox in a compact design for space-saving installation
- Standardised shaft and flange dimensions for an easy machine integration
- Low backlash and high torsional stiffness provide for exact results in positioning applications
- With MCS synchronous servo motors, rated torque: 0.5 Nm ... 72 Nm

The product name

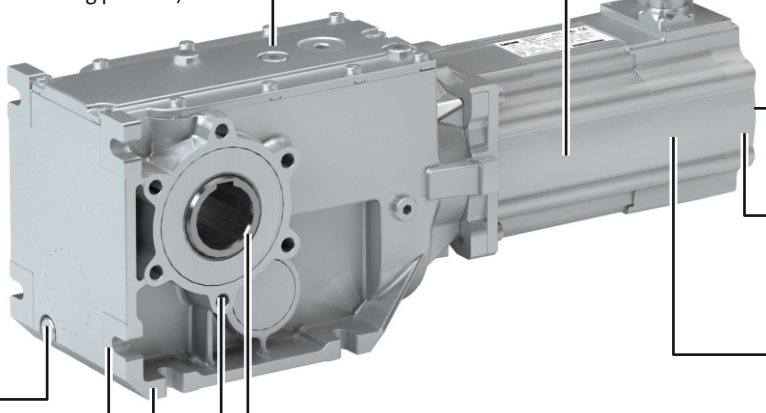
Gearbox type	Product range		Design	Rated torque [Nm]	Product
Bevel gearbox	g500	-	B	45	g500-B45
				110	g500-B110
				240	g500-B240
				450	g500-B450

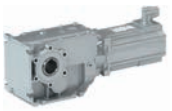


Equipment

Overview

The equipment includes all the options available as standard and all the built-on accessories of the product.





The gearbox kit

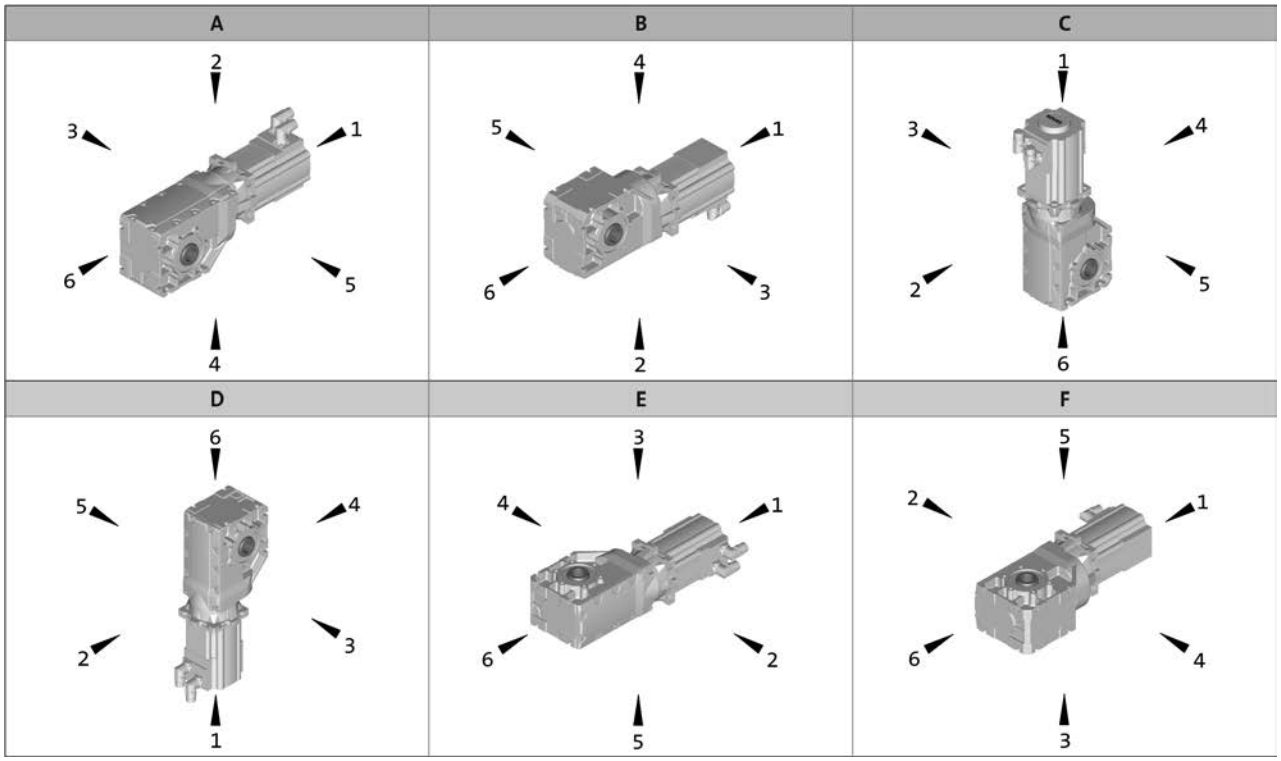
Geared motor

Product	g500-B45	g500-B110	g500-B240	g500-B450
Motor type	Synchronous servo motor			
Servo motor				
0.6 - 1.5 Nm	MCS06			
2.3 - 4.5 Nm		MCS09		
5.5 - 17 Nm			MCS12	
9.2 - 42 Nm				MCS14
Technical data				
Output torque	See selection table			
Output speed	See selection table			
Ratio	See selection table			
Load capacity	See selection table			
Moment of inertia	See selection table			
Mounting position				
Standard	A/B/C/D/E/F			
Combined	ABCDEF	AEF		
Colour	Not coated Primed Paint in various corrosion-protection designs in accordance with RAL colours			
Surface and corrosion protection	Without OKS(uncoated) OKS-G (primed) OKS-S (small) OKS-M (medium) OKS-L (large)			

The gearbox kit

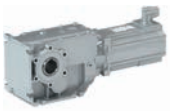
Mounting positions

► Mounting position (A to F) and position of system blocks (1 to 6)



Hollow shaft: 0
Solid shaft: 3, 5, 8 (3+5)
Hollow shaft with shrink disc: 3, 5

Without flange: 0
Flange: 3, 5, 8 (3+5)
Connector / terminal box: 2, 3, 4, 5

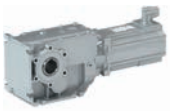


The gearbox kit

Motor details

Product	MCS			
	06C41 06F41 06I41	09D41 09L41 09F38 09H41	12D20 12D41 12H15 12H30 12H35 12L20 12L41	14D15 14D36 14H15 14H32 14L15 14L32 14P14 14P32
Connection type	Plug connectors	Plug connectors Terminal box		
Permanent magnet holding brake				
Rated torque [Nm]	2.2	8.0	12	22
Brake voltage [V]	DC 24			
Feedback	With absolute value encoder With incremental encoder With resolver			
Cooling	Self-ventilated			
Temperature monitoring	KTY83-110 thermal detector	KTY83-110 thermal detector PTC thermistor		
Approval	cURus GOST_R UkrSepro			
Degree of protection	IP54 IP65			

► Further information and installation feasibilities can be found in the Motors chapter.



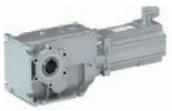
The gearbox kit

Motor details

Connection type
 Plug connectors  Terminal box

Cooling: self-ventilated
 With resolver  With permanent magnet brake  With feedback With feedback and permanent magnet brake

6.7



The gearbox kit

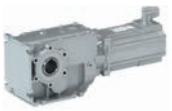
Gearbox details

Product	g500-B45	g500-B110	g500-B240	g500-B450
Driven shaft				
Solid shaft without keyway [mm]				
Solid shaft with featherkey [mm]	20x40		30x60	
Hollow shaft with keyway [mm]	18/20	20/25	30/35	35/40
Hollow shaft with shrink disc [mm]	20		30/35	35
Design	Standard stainless steel			
Gasket	Standard FPM (Viton)			
Bearing	Standard			
Fitting grease	Not enclosed Enclosed			
Housing				
Housing version	With foot With foot and centering			
Output flange				
flange diameter [mm]	110/120	120/160	160/200	200
Lubricant				
Type	CLP 460 [1)] CLP HC 320 CLP HC 220 CLP HC 220 USDA H1			
Oil-level inspection	Without inspection			Without inspection With inspection
Breather element	Without			Standard mounting position: Mounted Combined mounting position: loosely enclosed
Backlash				
Backlash	Standard			
Accessories				
Torque plate	Rubber buffers At threaded pitch circle	At threaded pitch circle	At threaded pitch circle At foot	At foot
Shaft cover	Hollow shaft Shrink disc: Rotating cover Shrink disc: Fixed cover			

6.7

[1)] Not suitable for geared servo motors.

► Further information and installation feasibilities can be found in the Gearboxes chapter.



The gearbox kit

Gearbox details

Solid shaft

Foot mounting
without centring

Foot mounting
With centering

Flange with through holes

Hollow shaft

Foot mounting
without centring

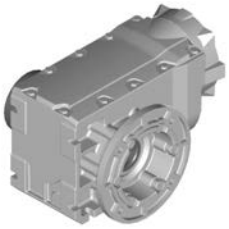
Foot mounting
With centering

Flange with through holes

Hollow shaft with shrink disc

Foot mounting
without centring

Foot mounting
With centering



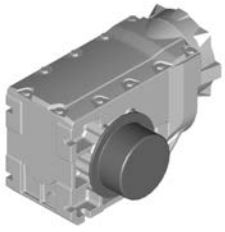
Flange with through holes

Accessories

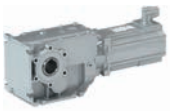
2nd output shaft end

Torque plate
at foot

Torque plate
at threaded pitch circle



Cover
Hollow shaft/shrink disc



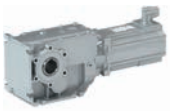
Dimensioning

General information about the data provided in this catalogue

The powers, torques and speeds specified in this catalogue are rounded values and are valid under the following conditions:

- Operating time/day = 8 h (100% OT)
- Duty class I for up to 10 switching operations/h
- Mounting positions and designs in this catalogue
- Standard lubricant
- T_{amb} = 20 °C for gearboxes,
  T_{amb} = 40 °C for motors (in accordance with EN 60034)
- Site altitude < = 1000 m amsl
- The selection tables provide the permissible mechanical powers and torques. For notes on the thermal power limit, see chapter drive dimensioning.
- The rated power specified for motors and geared motors applies to operating mode S1 (in accordance with EN 60034).

Under different operating conditions, the values obtained may vary from those listed here.
In the case of extreme operating conditions, please consult your Lenze sales office.



Dimensioning

Thermal power limit

The thermal power limit, defined by the heat balance, limits the permissible gearbox continuous power. It may be less than the mechanical power ratings listed in the selection tables.

The thermal power limit is affected by:
- the churning losses in the lubricant. These are determined by the mounting position and the circumferential speed of the gears;
- the load and the speed
- the ambient conditions: temperature, air circulation, input or dissipation via shafts and the foundation

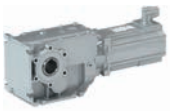
If the following input speeds n_1 are exceeded, please contact Lenze:

Motor frame size	Mounting position A, B, E, F	Mounting position C, D
MCS06 ... 12	4000 r/min	3000 r/min
MCS14	3000 r/min	1500 r/min

► For a short period of time up to 5 min, 30 % higher speeds are permissible

Possible ways of extending the application area

- shaft sealing rings made from FP material/Viton (option)
- reduction in lubricant quantity
- cooling of the geared motor by means of air convection on the machine/system



Dimensioning

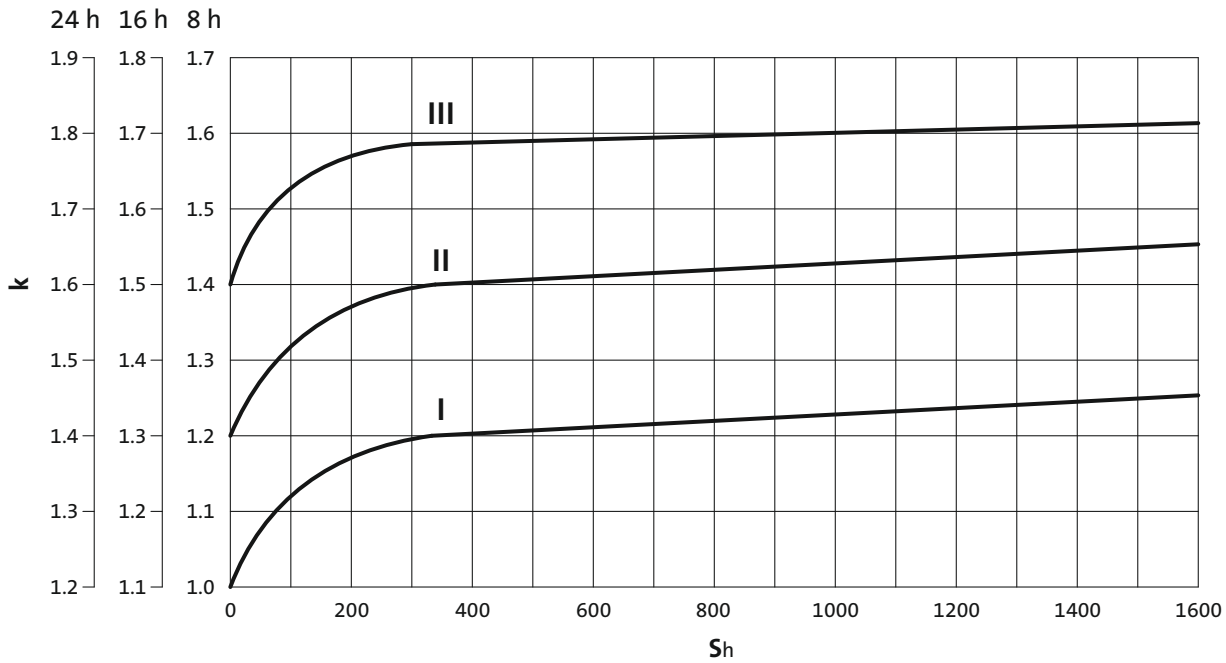
Load capacity and application factor

Load capacity c of gearbox
Rated value for the load capacity of Lenze geared motors.
- c is the ratio of the permissible rated torque of the gearbox to the rated torque supplied by the drive component (e.g. the built-in Lenze motor).
- The value of c must always be greater than the value of the application factor k calculated for the application.

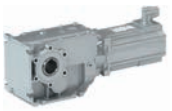
Application factor k (according to DIN 3990)
Takes into account the influence of temporally variable loads which are actually present during the anticipated operating time of gearboxes and geared motors.
k is determined by:
- the type of load
- the load intensity
- temporal influences

Duty class	Load type
I	Smooth operation, small or light jolts
II	Uneven operation, average jolts
III	Uneven operation, severe jolts and/or alternating load

Application factor k



► S_h= switchings/h



Dimensioning

Weights

The values given in the tables consider the following gearbox/motor combination:
- Gearbox with solid shaft including lubricant amount
- Motor with feedback

For versions deviating from this, additional weights have to be considered.

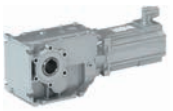
The respective values can be found for:
- Geared motors with feedback
  > Chapter: Geared motors/Technical data
- Motor options: Brake
  > Chapter: Motors/Accessories

Moments of inertia

The given moments of inertia of the gearbox refer to the drive shaft. The influence of the ratio (i^2) has been considered in the data.

When the total moment of inertia of the geared motor is calculated, the values of the geared motors and the brake have to be added.

The respective values can be found for:
- Geared motors with feedback
  > Chapter: Geared motors/Technical data/Selection tables
- Motor options: Brake
  > Chapter: Motors/Accessories



Selection tables, notes

Notes on the selection tables

The selection tables show the available combinations of gearbox type, number of stages, ratio and motor. They are used only to provide basic orientation.
The following legend indicates the structure of the selection tables.

Number of the gear stage of the gearbox

2-stage gearboxes

Inverter operation						i	Product		Cooling	
$M_{2,max}$ [Nm]	$n_{2,th}$ [r/min]	M_2 [Nm]	$n_{2,eto}$ [r/min]	c	J [kgcm²]		g500	MCS		
49	749	6	749	4.5	0.500	5.411	-B45	06F41	Selbst	29
49	749	8	749	3.6	0.600	5.411	-B45	06I41	Selbst	29
50	162	14	162	2.3	0.200	25.051	-B45	06C41	Selbst	29
50	162	29	162	1.1	0.200	25.051	-B45	06F41	Selbst	29

For operating mode S1
Torque **M_2** and
thermal output speed **$n_{2,th}$**

For operating mode S2,S3 und S6
Max. permissible acceleration torque of geared motor **$M_{2,max}$** and
output speed **$n_{2,eto}$**

Moment of inertia of geared motor

Ratio i

Product Gearbox

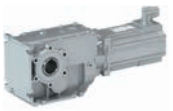
Product Motor

Type of motor cooling

Page number for dimensions

Load capacity of the gearbox
c is the ratio between the permissible rated torque of the gearbox and the rated torque of the three-phase AC motor (converted to the driven shaft).
c must be always higher than the service factor **k** determined for the application **k**.

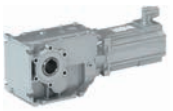
$$c = \frac{M_{2,zul}}{M_{1,N} \cdot i \cdot \eta_{Getr}} > k$$



Selection tables

2-stage gearboxes

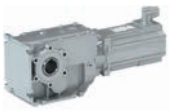
Inverter operation						i	Product		Cooling	
$M_{2, max}$ [Nm]	$n_{2, th}$ [r/min]	M_2 [Nm]	$n_{2, eto}$ [r/min]	c	J [kgcm²]		g500	MCS		
23	749	6	749	4.5	0.500	5.411	-B45	06F41	natural	31
24	387	6	387	5.4	0.300	10.466	-B45	06C41	natural	31
26	651	7	651	4.1	0.500	6.222	-B45	06F41	natural	31
27	348	7	348	4.9	0.200	11.640	-B45	06C41	natural	31
30	570	8	570	3.8	0.400	7.111	-B45	06F41	natural	31
31	303	8	303	4.2	0.200	13.386	-B45	06C41	natural	31
32	749	8	749	3.6	0.600	5.411	-B45	06I41	natural	31
34	495	9	495	3.4	0.400	8.178	-B45	06F41	natural	31
34	268	9	268	3.8	0.200	15.111	-B45	06C41	natural	31
37	651	9	651	3.3	0.600	6.222	-B45	06I41	natural	31
38	445	10	445	3.1	0.400	9.101	-B45	06F41	natural	31
38	445	10	445	5.8	0.500	9.101	-B110	06F41	natural	34
40	233	10	233	3.3	0.200	17.378	-B45	06C41	natural	31
42	570	10	570	3.0	0.500	7.111	-B45	06I41	natural	31
44	495	12	495	2.7	0.500	8.178	-B45	06I41	natural	31
44	387	12	387	2.7	0.300	10.466	-B45	06F41	natural	31
44	387	12	387	5.4	0.500	10.466	-B110	06F41	natural	34
44	209	11	209	2.9	0.200	19.365	-B45	06C41	natural	31
45	445	13	445	2.5	0.400	9.101	-B45	06I41	natural	31
45	387	15	387	2.2	0.400	10.466	-B45	06I41	natural	31
45	348	13	348	2.4	0.300	11.640	-B45	06F41	natural	31
45	348	17	348	1.9	0.400	11.640	-B45	06I41	natural	31
45	303	15	303	2.1	0.300	13.386	-B45	06F41	natural	31
45	303	19	303	1.7	0.400	13.386	-B45	06I41	natural	31
45	268	17	268	1.9	0.300	15.111	-B45	06F41	natural	31
45	268	22	268	1.5	0.400	15.111	-B45	06I41	natural	31
45	233	20	233	1.6	0.300	17.378	-B45	06F41	natural	31
45	233	25	233	1.3	0.400	17.378	-B45	06I41	natural	31
45	209	22	209	1.5	0.300	19.365	-B45	06F41	natural	31
45	209	28	209	1.2	0.300	19.365	-B45	06I41	natural	31
45	182	13	182	2.5	0.200	22.270	-B45	06C41	natural	31
45	182	25	182	1.3	0.300	22.270	-B45	06F41	natural	31
45	182	32	182	1.0	0.400	22.270	-B45	06I41	natural	31
45	162	14	162	2.6	0.200	25.051	-B45	06C41	natural	31
45	162	29	162	1.3	0.200	25.051	-B45	06F41	natural	31
45	162	36	162	1.0	0.300	25.051	-B45	06I41	natural	31
45	141	16	141	2.2	0.200	28.808	-B45	06C41	natural	31
45	141	33	141	1.1	0.200	28.808	-B45	06F41	natural	31
45	124	19	124	2.0	0.200	32.593	-B45	06C41	natural	31
45	108	21	108	1.7	0.200	37.481	-B45	06C41	natural	31



Selection tables

2-stage gearboxes

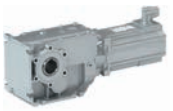
Inverter operation						i	Product		Cooling	
$M_{2, max}$ [Nm]	$n_{2, th}$ [r/min]	M_2 [Nm]	$n_{2, eto}$ [r/min]	c	J [kgcm²]		g500	MCS		
48	354	13	354	5.0	0.500	11.449	-B110	06F41	natural	34
51	180	13	180	5.8	0.200	22.489	-B110	06C41	natural	34
53	319	14	319	4.5	0.400	12.698	-B110	06F41	natural	34
54	445	13	445	4.7	0.600	9.101	-B110	06I41	natural	34
57	161	14	161	5.4	0.200	25.185	-B110	06C41	natural	34
61	277	17	277	3.9	0.400	14.603	-B110	06F41	natural	34
62	387	15	387	4.3	0.600	10.466	-B110	06I41	natural	34
65	260	18	260	3.7	0.400	15.556	-B110	06F41	natural	34
66	140	17	140	4.8	0.200	28.963	-B110	06C41	natural	34
67	354	16	354	4.0	0.600	11.449	-B110	06I41	natural	34
75	319	18	319	3.6	0.500	12.698	-B110	06I41	natural	34
75	226	20	226	3.4	0.400	17.889	-B110	06F41	natural	34
82	445	20	445	3.0	1.400	9.101	-B110	09D41	natural	34
82	207	22	207	3.2	0.300	19.556	-B110	06F41	natural	34
84	412	27	412	2.3	1.800	9.101	-B110	09F38	natural	34
84	399	26	399	5.3	5.700	4.889	-B240	12D20	natural	37
85	108	21	108	3.6	0.200	37.400	-B110	06C41	natural	34
86	277	21	277	3.1	0.500	14.603	-B110	06I41	natural	34
89	599	18	599	6.0	2.700	6.257	-B240	09F38	natural	37
89	387	23	387	2.8	1.400	10.466	-B110	09D41	natural	34
89	358	31	358	2.1	1.800	10.466	-B110	09F38	natural	34
90	354	25	354	2.6	1.400	11.449	-B110	09D41	natural	34
90	328	34	328	2.0	1.800	11.449	-B110	09F38	natural	34
90	319	28	319	2.3	1.300	12.698	-B110	09D41	natural	34
90	295	37	295	1.8	1.700	12.698	-B110	09F38	natural	34
90	277	32	277	2.0	1.300	14.603	-B110	09D41	natural	34
90	257	43	257	1.5	1.700	14.603	-B110	09F38	natural	34
92	260	22	260	3.0	0.400	15.556	-B110	06I41	natural	34
92	260	34	260	1.9	1.200	15.556	-B110	09D41	natural	34
92	260	56	260	1.2	2.000	15.556	-B110	09H41	natural	34
92	241	46	241	1.5	1.600	15.556	-B110	09F38	natural	34
94	180	26	180	2.9	0.300	22.489	-B110	06F41	natural	34
96	226	25	226	2.7	0.400	17.889	-B110	06I41	natural	34
96	226	39	226	1.8	1.200	17.889	-B110	09D41	natural	34
96	226	65	226	1.1	2.000	17.889	-B110	09H41	natural	34
96	210	53	210	1.3	1.600	17.889	-B110	09F38	natural	34
98	421	34	421	4.1	10.000	3.565	-B240	12H15	natural	37
100	207	28	207	2.6	0.400	19.556	-B110	06I41	natural	34
104	180	32	180	2.3	0.400	22.489	-B110	06I41	natural	34
105	161	29	161	2.7	0.300	25.185	-B110	06F41	natural	34



Selection tables

2-stage gearboxes

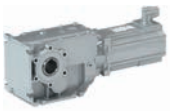
Inverter operation						i	Product		Cooling	
$M_{2, max}$ [Nm]	$n_{2, th}$ [r/min]	M_2 [Nm]	$n_{2, eto}$ [r/min]	c	J [kgcm²]		g500	MCS		
106	108	43	108	1.8	0.300	37.400	-B110	06F41	natural	34
106	108	53	108	1.4	0.400	37.400	-B110	06I41	natural	34
107	312	33	312	4.4	5.200	6.257	-B240	12D20	natural	37
108	161	36	161	2.2	0.400	25.185	-B110	06I41	natural	34
110	140	33	140	2.4	0.300	28.963	-B110	06F41	natural	34
110	140	41	140	1.9	0.400	28.963	-B110	06I41	natural	34
110	84	27	84	3.3	0.200	48.167	-B110	06C41	natural	34
110	84	55	84	1.6	0.300	48.167	-B110	06F41	natural	34
110	84	69	84	1.3	0.300	48.167	-B110	06I41	natural	34
118	283	36	283	4.6	5.700	6.883	-B240	12D20	natural	37
134	250	41	250	4.2	5.500	7.817	-B240	12D20	natural	37
135	614	37	614	3.1	9.000	4.889	-B240	12H30	natural	37
135	307	46	307	3.2	9.000	4.889	-B240	12H15	natural	37
136	68	34	68	5.8	0.200	59.630	-B240	06C41	natural	37
138	547	46	547	2.8	14.000	3.565	-B240	12L20	natural	37
140	121	38	121	4.5	0.400	33.433	-B240	06F41	natural	37
147	399	63	399	2.1	12.000	4.889	-B240	12L20	natural	37
156	480	48	480	2.6	8.500	6.257	-B240	12H30	natural	37
156	312	80	312	1.8	12.000	6.257	-B240	12L20	natural	37
156	240	59	240	2.6	8.500	6.257	-B240	12H15	natural	37
158	151	38	151	4.5	0.500	26.878	-B240	06I41	natural	37
159	107	43	107	4.0	0.400	37.967	-B240	06F41	natural	37
161	207	49	207	3.5	5.100	9.440	-B240	12D20	natural	37
173	212	42	212	4.1	1.500	19.143	-B240	09D41	natural	37
179	283	88	283	1.9	12.000	6.883	-B240	12L20	natural	37
179	218	65	218	2.7	9.000	6.883	-B240	12H15	natural	37
180	133	43	133	4.0	0.500	30.522	-B240	06I41	natural	37
181	94	49	94	4.0	0.300	43.267	-B240	06F41	natural	37
183	182	56	182	3.3	5.000	10.720	-B240	12D20	natural	37
186	196	45	196	3.8	1.400	20.650	-B240	09D41	natural	37
187	250	100	250	1.7	12.000	7.817	-B240	12L20	natural	37
187	192	74	192	2.5	8.800	7.817	-B240	12H15	natural	37
191	207	121	207	1.4	12.000	9.440	-B240	12L20	natural	37
191	159	90	159	2.1	8.400	9.440	-B240	12H15	natural	37
197	121	48	121	3.6	0.500	33.433	-B240	06I41	natural	37
204	182	137	182	1.4	12.000	10.720	-B240	12L20	natural	37
204	140	102	140	2.0	8.300	10.720	-B240	12H15	natural	37
205	82	56	82	3.5	0.300	49.133	-B240	06F41	natural	37
207	161	63	161	3.0	4.700	12.081	-B240	12D20	natural	37
208	248	92	248	1.8	8.000	12.081	-B240	12H30	natural	37



Selection tables

2-stage gearboxes

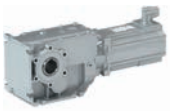
Inverter operation						i	Product		Cooling	
$M_{2, max}$ [Nm]	$n_{2, th}$ [r/min]	M_2 [Nm]	$n_{2, eto}$ [r/min]	c	J [kgcm²]		g500	MCS		
208	161	155	161	1.2	11.000	12.081	-B240	12L20	natural	37
208	124	115	124	1.8	8.000	12.081	-B240	12H15	natural	37
212	173	51	173	3.4	1.400	23.450	-B240	09D41	natural	37
214	250	44	250	3.7	2.100	15.008	-B240	09F38	natural	37
217	142	72	142	2.8	4.700	13.719	-B240	12D20	natural	37
217	142	176	142	1.1	11.000	13.719	-B240	12L20	natural	37
217	109	130	109	1.7	8.000	13.719	-B240	12H15	natural	37
220	77	60	77	3.2	0.300	52.510	-B240	06F41	natural	37
223	200	114	200	1.6	7.900	15.008	-B240	12H30	natural	37
223	130	78	130	2.6	4.600	15.008	-B240	12D20	natural	37
223	130	192	130	1.1	11.000	15.008	-B240	12L20	natural	37
223	100	143	100	1.6	7.900	15.008	-B240	12H15	natural	37
224	107	54	107	3.2	0.400	37.967	-B240	06I41	natural	37
233	77	75	77	2.5	0.400	52.510	-B240	06I41	natural	37
240	240	61	240	2.8	2.300	16.857	-B240	09H41	natural	37
240	240	69	240	2.5	4.400	16.857	-B240	12D41	natural	37
240	240	72	240	2.4	3.200	16.857	-B240	09L41	natural	37
240	223	50	223	3.6	1.900	16.857	-B240	09F38	natural	37
240	212	69	212	2.5	2.300	19.143	-B240	09H41	natural	37
240	212	78	212	2.2	4.400	19.143	-B240	12D41	natural	37
240	212	82	212	2.1	3.200	19.143	-B240	09L41	natural	37
240	196	56	196	3.1	1.900	19.143	-B240	09F38	natural	37
240	196	75	196	2.3	2.200	20.650	-B240	09H41	natural	37
240	196	84	196	2.0	4.300	20.650	-B240	12D41	natural	37
240	196	88	196	1.9	3.100	20.650	-B240	09L41	natural	37
240	182	61	182	2.9	1.800	20.650	-B240	09F38	natural	37
240	178	128	178	1.5	7.700	16.857	-B240	12H30	natural	37
240	173	85	173	2.0	2.200	23.450	-B240	09H41	natural	37
240	173	96	173	1.8	4.300	23.450	-B240	12D41	natural	37
240	173	100	173	1.7	3.100	23.450	-B240	09L41	natural	37
240	171	147	171	1.2	7.600	20.650	-B240	12H35	natural	37
240	160	69	160	2.6	1.800	23.450	-B240	09F38	natural	37
240	157	145	157	1.3	7.700	19.143	-B240	12H30	natural	37
240	151	59	151	2.9	1.300	26.878	-B240	09D41	natural	37
240	151	97	151	1.8	2.100	26.878	-B240	09H41	natural	37
240	151	115	151	1.5	3.000	26.878	-B240	09L41	natural	37
240	145	157	145	1.2	7.600	20.650	-B240	12H30	natural	37
240	140	79	140	2.2	1.700	26.878	-B240	09F38	natural	37
240	133	67	133	2.6	1.300	30.522	-B240	09D41	natural	37
240	133	110	133	1.6	2.100	30.522	-B240	09H41	natural	37



Selection tables

2-stage gearboxes

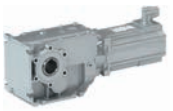
Inverter operation						i	Product		Cooling	
$M_{2, max}$ [Nm]	$n_{2, th}$ [r/min]	M_2 [Nm]	$n_{2, eto}$ [r/min]	c	J [kgcm²]		g500	MCS		
240	133	130	133	1.3	3.000	30.522	-B240	09L41	natural	37
240	128	178	128	1.1	7.600	23.450	-B240	12H30	natural	37
240	123	90	123	2.0	1.700	30.522	-B240	09F38	natural	37
240	121	73	121	2.4	1.300	33.433	-B240	09D41	natural	37
240	121	121	121	1.4	2.100	33.433	-B240	09H41	natural	37
240	121	143	121	1.2	3.000	33.433	-B240	09L41	natural	37
240	116	88	116	2.5	4.400	16.857	-B240	12D20	natural	37
240	116	216	116	1.0	11.000	16.857	-B240	12L20	natural	37
240	112	98	112	1.8	1.700	33.433	-B240	09F38	natural	37
240	107	83	107	2.1	1.200	37.967	-B240	09D41	natural	37
240	107	137	107	1.3	2.000	37.967	-B240	09H41	natural	37
240	107	162	107	1.1	2.900	37.967	-B240	09L41	natural	37
240	102	100	102	2.2	4.400	19.143	-B240	12D20	natural	37
240	99	112	99	1.6	1.600	37.967	-B240	09F38	natural	37
240	94	62	94	3.2	0.400	43.267	-B240	06I41	natural	37
240	94	108	94	2.0	4.300	20.650	-B240	12D20	natural	37
240	89	160	89	1.5	7.700	16.857	-B240	12H15	natural	37
240	83	123	83	1.8	4.300	23.450	-B240	12D20	natural	37
240	82	70	82	2.8	0.400	49.133	-B240	06I41	natural	37
240	78	182	78	1.3	7.700	19.143	-B240	12H15	natural	37
240	73	196	73	1.2	7.600	20.650	-B240	12H15	natural	37
240	68	68	68	2.9	0.300	59.630	-B240	06F41	natural	37
240	68	85	68	2.3	0.400	59.630	-B240	06I41	natural	37
240	64	223	64	1.1	7.600	23.450	-B240	12H15	natural	37



Selection tables

3-stage gearboxes

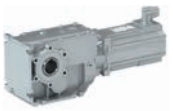
Inverter operation						i	Product		Cooling	
$M_{2, max}$ [Nm]	$n_{2, th}$ [r/min]	M_2 [Nm]	$n_{2, eto}$ [r/min]	c	J [kgcm²]		g500	MCS		
189	437	52	437	3.9	9.800	6.860	-B450	12H30	natural	43
189	219	60	219	5.1	11.000	6.860	-B450	14D15	natural	43
189	219	65	219	3.9	9.800	6.860	-B450	12H15	natural	43
195	46	49	46	4.0	0.200	87.563	-B240	06C41	natural	37
221	390	64	390	3.1	15.000	5.002	-B450	12L20	natural	43
221	41	55	41	3.5	0.200	99.437	-B240	06C41	natural	37
238	100	57	100	5.1	0.600	40.330	-B450	06I41	natural	43
240	36	63	36	3.4	0.200	113.673	-B240	06C41	natural	37
240	36	126	36	1.7	0.300	113.673	-B240	06F41	natural	37
240	31	72	31	3.0	0.200	129.087	-B240	06C41	natural	37
253	284	88	284	2.6	13.000	6.860	-B450	12L20	natural	43
257	161	81	161	4.5	11.000	9.315	-B450	14D15	natural	43
257	161	88	161	4.2	11.000	9.315	-B450	12H15	natural	43
260	65	71	65	5.2	0.700	62.262	-B450	06F41	natural	43
261	300	76	300	3.7	19.000	5.002	-B450	14H15	natural	43
266	90	64	90	4.3	0.500	45.245	-B450	06I41	natural	43
280	300	109	300	2.6	28.000	5.002	-B450	14L15	natural	43
280	270	143	270	2.0	39.000	5.002	-B450	14P14	natural	43
285	145	90	145	4.3	11.000	10.328	-B450	14D15	natural	43
285	145	98	145	3.9	10.000	10.328	-B450	12H15	natural	43
295	81	71	81	4.3	0.500	50.167	-B450	06I41	natural	43
306	109	93	109	4.4	5.000	17.885	-B450	12D20	natural	43
308	219	104	219	3.0	17.000	6.860	-B450	14H15	natural	43
308	219	150	219	2.1	26.000	6.860	-B450	14L15	natural	43
308	197	195	197	1.6	37.000	6.860	-B450	14P14	natural	43
319	53	87	53	4.2	0.600	76.271	-B450	06F41	natural	43
328	111	79	111	4.1	1.400	36.373	-B450	09D41	natural	43
329	28	82	28	5.0	0.200	144.128	-B450	06C41	natural	43
339	98	104	98	4.0	5.000	19.831	-B450	12D20	natural	43
352	235	97	235	3.3	9.200	12.775	-B450	12H30	natural	43
352	117	112	117	3.6	10.000	12.775	-B450	14D15	natural	43
352	117	121	117	3.3	9.200	12.775	-B450	12H15	natural	43
360	148	74	148	4.5	2.200	25.294	-B450	09F38	natural	43
364	100	88	100	4.2	1.400	40.330	-B450	09D41	natural	43
364	25	91	25	4.5	0.200	159.807	-B450	06C41	natural	43
367	65	89	65	4.1	0.800	62.262	-B450	06I41	natural	43
368	209	119	209	2.8	14.000	9.315	-B450	12L20	natural	43
368	161	142	161	2.6	17.000	9.315	-B450	14H15	natural	43
368	161	204	161	1.8	27.000	9.315	-B450	14L15	natural	43
368	145	265	145	1.4	38.000	9.315	-B450	14P14	natural	43



Selection tables

3-stage gearboxes

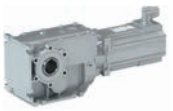
Inverter operation						i	Product		Cooling	
$M_{2, max}$ [Nm]	$n_{2, th}$ [r/min]	M_2 [Nm]	$n_{2, eto}$ [r/min]	c	J [kgcm²]		g500	MCS		
374	45	102	45	3.6	0.400	89.534	-B450	06F41	natural	43
384	189	132	189	2.7	14.000	10.328	-B450	12L20	natural	43
384	145	157	145	2.5	17.000	10.328	-B450	14H15	natural	43
384	145	226	145	1.7	26.000	10.328	-B450	14L15	natural	43
384	131	294	131	1.3	38.000	10.328	-B450	14P14	natural	43
390	212	108	212	3.1	9.100	14.165	-B450	12H30	natural	43
390	178	93	178	3.5	4.700	22.813	-B450	12D41	natural	43
390	106	124	106	3.4	9.900	14.165	-B450	14D15	natural	43
390	106	135	106	3.1	9.100	14.165	-B450	12H15	natural	43
390	86	119	86	3.5	4.700	22.813	-B450	12D20	natural	43
398	134	82	134	4.0	2.000	27.945	-B450	09F38	natural	43
399	23	100	23	4.1	0.200	174.919	-B450	06C41	natural	43
404	153	164	153	2.3	12.000	12.775	-B450	12L20	natural	43
404	117	194	117	2.1	16.000	12.775	-B450	14H15	natural	43
404	117	279	117	1.4	25.000	12.775	-B450	14L15	natural	43
404	106	364	106	1.1	37.000	12.775	-B450	14P14	natural	43
405	59	98	59	3.8	0.700	68.788	-B450	06I41	natural	43
408	90	99	90	3.7	1.300	45.245	-B450	09D41	natural	43
415	41	113	41	3.2	0.400	99.274	-B450	06F41	natural	43
422	138	182	138	2.1	12.000	14.165	-B450	12L20	natural	43
422	106	215	106	2.0	16.000	14.165	-B450	14H15	natural	43
422	106	309	106	1.4	25.000	14.165	-B450	14L15	natural	43
422	95	404	95	1.1	36.000	14.165	-B450	14P14	natural	43
432	160	103	160	3.1	4.700	25.294	-B450	12D41	natural	43
432	77	132	77	3.1	4.700	25.294	-B450	12D20	natural	43
433	178	82	178	3.8	2.600	22.813	-B450	09H41	natural	43
434	184	124	184	2.8	8.500	16.349	-B450	12H30	natural	43
434	119	210	119	1.9	12.000	16.349	-B450	12L20	natural	43
434	92	143	92	3.0	9.300	16.349	-B450	14D15	natural	43
434	92	155	92	2.8	8.500	16.349	-B450	12H15	natural	43
434	92	248	92	1.8	15.000	16.349	-B450	14H15	natural	43
434	92	357	92	1.2	25.000	16.349	-B450	14L15	natural	43
438	178	98	178	3.2	3.500	22.813	-B450	09L41	natural	43
441	121	91	121	3.6	2.000	30.985	-B450	09F38	natural	43
442	21	111	21	3.7	0.200	193.948	-B450	06C41	natural	43
446	197	127	197	2.6	8.300	17.885	-B450	12H35	natural	43
446	168	136	168	2.6	8.300	17.885	-B450	12H30	natural	43
446	109	229	109	1.8	12.000	17.885	-B450	12L20	natural	43
446	84	156	84	2.9	9.100	17.885	-B450	14D15	natural	43
446	84	170	84	2.6	8.300	17.885	-B450	12H15	natural	43



Selection tables

3-stage gearboxes

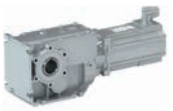
Inverter operation						i	Product		Cooling	
$M_{2, max}$ [Nm]	$n_{2, th}$ [r/min]	M_2 [Nm]	$n_{2, eto}$ [r/min]	c	J [kgcm²]		g500	MCS		
446	84	272	84	1.6	15.000	17.885	-B450	14H15	natural	43
446	84	391	84	1.1	24.000	17.885	-B450	14L15	natural	43
449	53	109	53	3.4	0.700	76.271	-B450	06I41	natural	43
450	160	91	160	3.5	2.600	25.294	-B450	09H41	natural	43
450	160	108	160	3.0	3.500	25.294	-B450	09L41	natural	43
450	155	163	155	2.1	8.000	22.813	-B450	12H35	natural	43
450	151	151	151	2.4	8.300	19.831	-B450	12H30	natural	43
450	145	101	145	3.2	2.400	27.945	-B450	09H41	natural	43
450	145	114	145	2.8	4.500	27.945	-B450	12D41	natural	43
450	145	119	145	2.7	3.300	27.945	-B450	09L41	natural	43
450	139	180	139	1.9	8.000	25.294	-B450	12H35	natural	43
450	132	173	132	2.1	8.000	22.813	-B450	12H30	natural	43
450	131	112	131	2.9	2.400	30.985	-B450	09H41	natural	43
450	131	127	131	2.5	4.500	30.985	-B450	12D41	natural	43
450	131	132	131	2.4	3.300	30.985	-B450	09L41	natural	43
450	126	199	126	1.7	7.800	27.945	-B450	12H35	natural	43
450	119	192	119	1.9	8.000	25.294	-B450	12H30	natural	43
450	114	221	114	1.5	7.800	30.985	-B450	12H35	natural	43
450	111	131	111	2.5	2.200	36.373	-B450	09H41	natural	43
450	111	155	111	2.1	3.100	36.373	-B450	09L41	natural	43
450	107	212	107	1.7	7.800	27.945	-B450	12H30	natural	43
450	103	107	103	3.1	1.800	36.373	-B450	09F38	natural	43
450	100	146	100	2.5	2.200	40.330	-B450	09H41	natural	43
450	100	172	100	2.1	3.100	40.330	-B450	09L41	natural	43
450	98	254	98	1.6	12.000	19.831	-B450	12L20	natural	43
450	97	235	97	1.5	7.800	30.985	-B450	12H30	natural	43
450	93	119	93	3.2	1.800	40.330	-B450	09F38	natural	43
450	90	163	90	2.3	2.100	45.245	-B450	09H41	natural	43
450	90	193	90	1.9	3.000	45.245	-B450	09L41	natural	43
450	86	293	86	1.4	11.000	22.813	-B450	12L20	natural	43
450	83	133	83	2.8	1.700	45.245	-B450	09F38	natural	43
450	81	110	81	3.4	1.300	50.167	-B450	09D41	natural	43
450	81	181	81	2.0	2.100	50.167	-B450	09H41	natural	43
450	81	214	81	1.7	3.000	50.167	-B450	09L41	natural	43
450	77	324	77	1.3	11.000	25.294	-B450	12L20	natural	43
450	76	173	76	2.6	9.100	19.831	-B450	14D15	natural	43
450	76	188	76	2.4	8.300	19.831	-B450	12H15	natural	43
450	76	301	76	1.5	15.000	19.831	-B450	14H15	natural	43
450	76	433	76	1.0	24.000	19.831	-B450	14L15	natural	43
450	75	148	75	2.5	1.700	50.167	-B450	09F38	natural	43



Selection tables

3-stage gearboxes

Inverter operation						i	Product		Cooling	
$M_{2, max}$ [Nm]	$n_{2, th}$ [r/min]	M_2 [Nm]	$n_{2, eto}$ [r/min]	c	J [kgcm²]		g500	MCS		
450	72	123	72	3.0	1.600	56.154	-B450	09D41	natural	43
450	70	146	70	2.8	4.500	27.945	-B450	12D20	natural	43
450	70	358	70	1.1	11.000	27.945	-B450	12L20	natural	43
450	67	165	67	2.3	2.000	56.154	-B450	09F38	natural	43
450	66	199	66	2.3	8.800	22.813	-B450	14D15	natural	43
450	66	217	66	2.1	8.000	22.813	-B450	12H15	natural	43
450	66	347	66	1.3	15.000	22.813	-B450	14H15	natural	43
450	65	136	65	2.7	1.600	62.262	-B450	09D41	natural	43
450	63	162	63	2.5	4.500	30.985	-B450	12D20	natural	43
450	63	397	63	1.0	11.000	30.985	-B450	12L20	natural	43
450	60	183	60	2.0	2.000	62.262	-B450	09F38	natural	43
450	59	150	59	2.4	1.500	68.788	-B450	09D41	natural	43
450	59	221	59	2.0	8.800	25.294	-B450	14D15	natural	43
450	59	240	59	1.9	8.000	25.294	-B450	12H15	natural	43
450	59	384	59	1.2	15.000	25.294	-B450	14H15	natural	43
450	55	203	55	1.9	1.900	68.788	-B450	09F38	natural	43
450	54	265	54	1.7	7.800	27.945	-B450	12H15	natural	43
450	53	167	53	2.2	1.500	76.271	-B450	09D41	natural	43
450	49	225	49	1.7	1.900	76.271	-B450	09F38	natural	43
450	48	294	48	1.5	7.800	30.985	-B450	12H15	natural	43
450	45	128	45	2.9	0.500	89.534	-B450	06I41	natural	43
450	45	196	45	1.9	1.300	89.534	-B450	09D41	natural	43
450	45	323	45	1.1	2.100	89.534	-B450	09H41	natural	43
450	42	264	42	1.4	1.700	89.534	-B450	09F38	natural	43
450	41	141	41	2.6	0.500	99.274	-B450	06I41	natural	43
450	41	217	41	1.7	1.300	99.274	-B450	09D41	natural	43
450	41	358	41	1.0	2.100	99.274	-B450	09H41	natural	43
450	38	292	38	1.3	1.700	99.274	-B450	09F38	natural	43
450	36	127	36	3.2	0.400	111.372	-B450	06F41	natural	43
450	36	159	36	2.6	0.500	111.372	-B450	06I41	natural	43
450	36	243	36	1.7	1.300	111.372	-B450	09D41	natural	43
450	36	402	36	1.0	2.100	111.372	-B450	09H41	natural	43
450	35	293	35	1.5	4.500	56.154	-B450	12D20	natural	43
450	34	328	34	1.3	1.700	111.372	-B450	09F38	natural	43
450	33	141	33	2.9	0.400	123.487	-B450	06F41	natural	43
450	33	176	33	2.3	0.500	123.487	-B450	06I41	natural	43
450	33	270	33	1.5	1.300	123.487	-B450	09D41	natural	43
450	31	325	31	1.4	4.500	62.262	-B450	12D20	natural	43
450	30	364	30	1.1	1.700	123.487	-B450	09F38	natural	43
450	28	164	28	2.5	0.300	144.128	-B450	06F41	natural	43



Selection tables

3-stage gearboxes

Inverter operation						i	Product		Cooling	
$M_{2, max}$ [Nm]	$n_{2, th}$ [r/min]	M_2 [Nm]	$n_{2, eto}$ [r/min]	c	J [kgcm²]		g500	MCS		
450	28	205	28	2.0	0.400	144.128	-B450	06I41	natural	43
450	28	359	28	1.3	4.400	68.788	-B450	12D20	natural	43
450	26	398	26	1.1	4.400	76.271	-B450	12D20	natural	43
450	25	182	25	2.2	0.300	159.807	-B450	06F41	natural	43
450	25	228	25	1.8	0.400	159.807	-B450	06I41	natural	43
450	23	199	23	2.0	0.300	174.919	-B450	06F41	natural	43
450	23	249	23	1.6	0.400	174.919	-B450	06I41	natural	43
450	21	221	21	1.8	0.300	193.948	-B450	06F41	natural	43
450	21	276	21	1.5	0.400	193.948	-B450	06I41	natural	43

Dimensions, notes

Notes on the dimensions

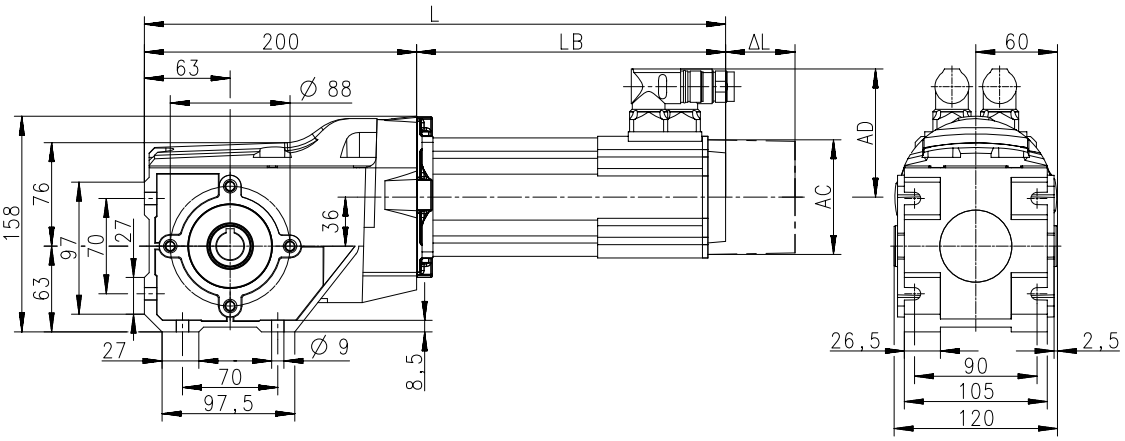
The following legend shows the layout of the dimension sheets.

Product gearbox

g500-B110

Driven shaft design

Abmessungen mit Hohlwelle



Product Motor

Produkt			MCS					
			06C41	06F41	06I41	09D41	09F38	09H41
Abmessungen								
Gesamtlänge	**L**	**[mm]**	~~331~~	361	391	384	404	424
Länge Motor	**LB**	**[mm]**	~~131.4~~	161.4	191.4	183.9	203.9	223.9
Länge Motoranbauten	**Δ L**	**[mm]**	100			71		
Motordurchmesser	**AC**	**[mm]**	86			89		
Abstand Motor/Anschluss	**AD**	**[mm]**	77			89.7		

Distance of motor centre to the end of connector

Total length of the drive without built-on accessories

Motor diameter

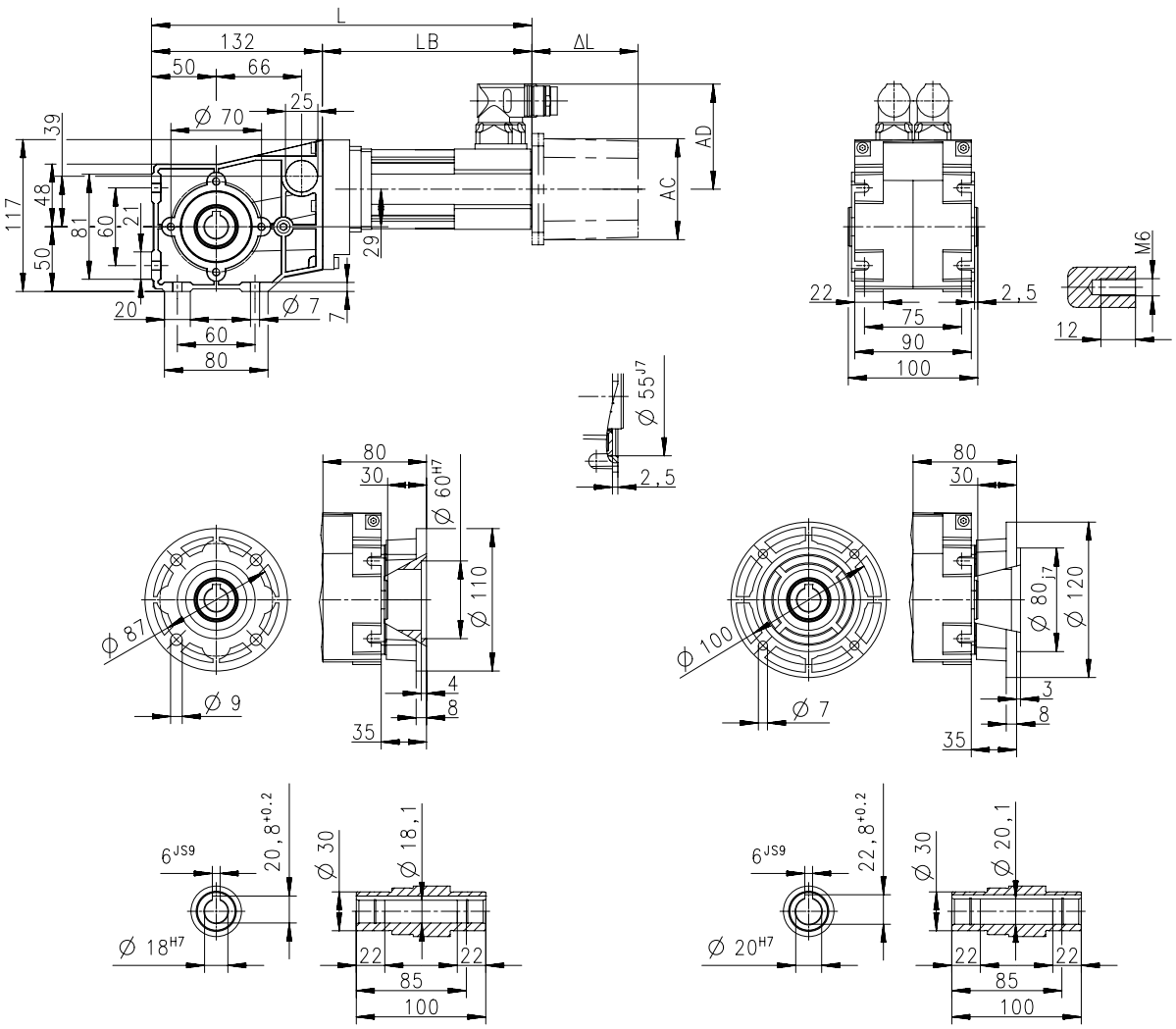
Motor length without built-on accessories

Additional length of the built-on accessories (longest version)

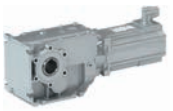
Dimensions, self-ventilated motors

g500-B45

Dimensions with hollow shaft



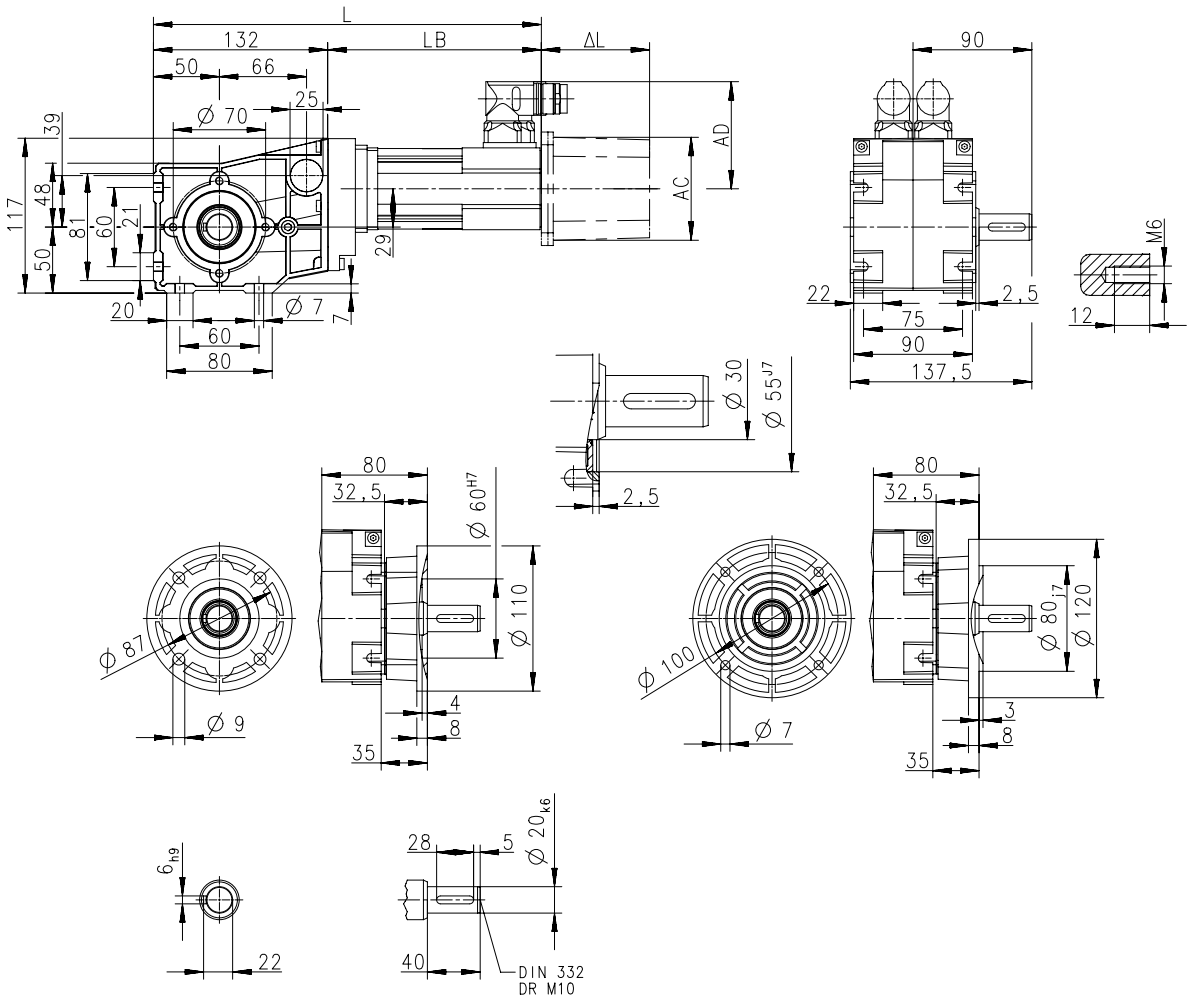
Product			MCS		
			06C41	06F41	06I41
Dimensions					
Total length	**L**	**[mm]**	264	294	324
Motor length	**LB**	**[mm]**	131.4	161.4	191.4
Length of motor options	**Δ L**	**[mm]**	100		
Motor diameter	**AC**	**[mm]**	86		
Distance motor/connection	**AD**	**[mm]**	77		



Dimensions, self-ventilated motors

g500-B45

Dimensions with solid shaft

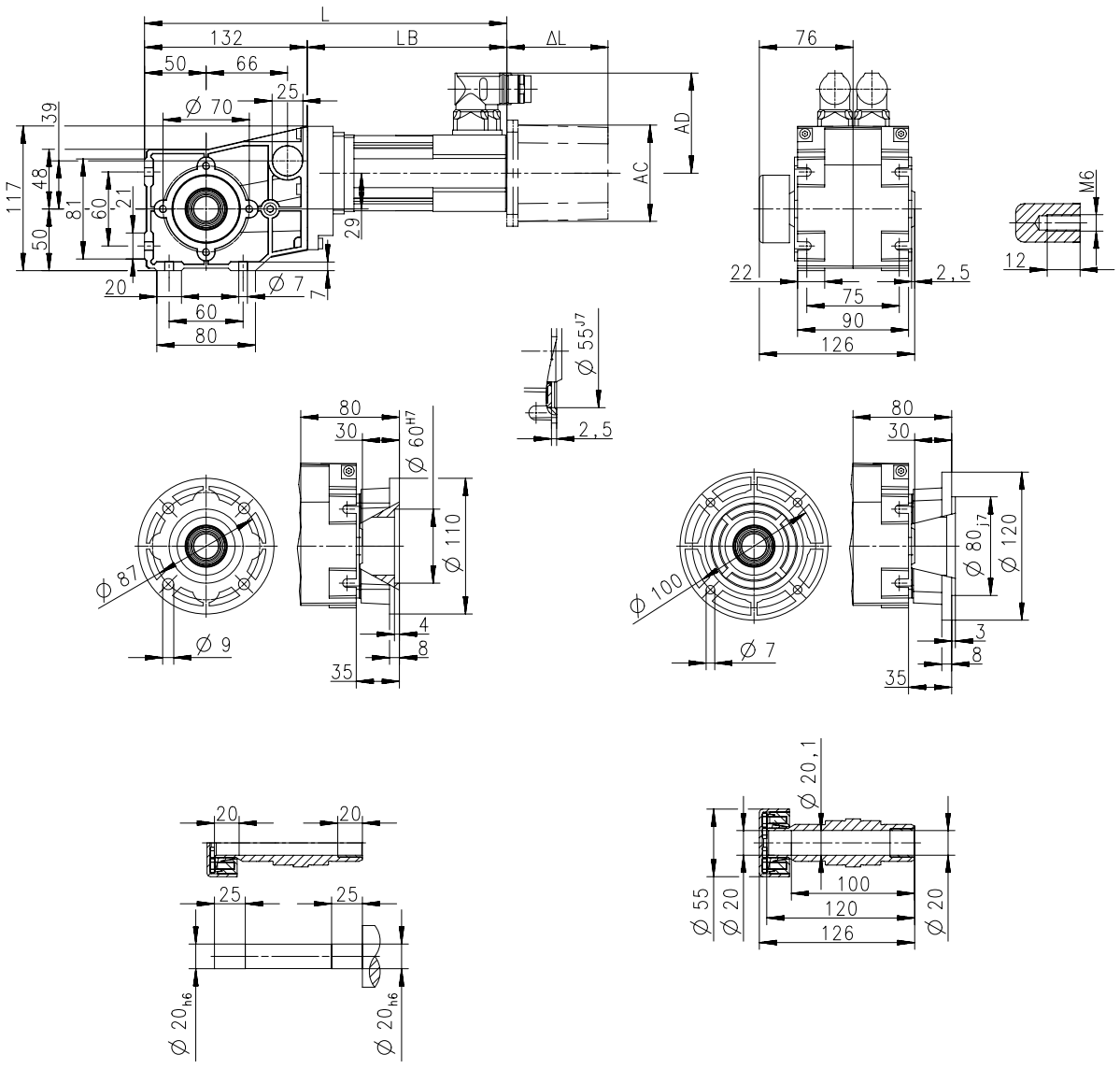


Product			MCS		
			06C41	06F41	06I41
Dimensions					
Total length	**L**	**[mm]**	264	294	324
Motor length	**LB**	**[mm]**	131.4	161.4	191.4
Length of motor options	**Δ L**	**[mm]**	100		
Motor diameter	**AC**	**[mm]**	86		
Distance motor/connection	**AD**	**[mm]**	77		

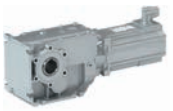
Dimensions, self-ventilated motors

g500-B45

Dimensions with shrink disc



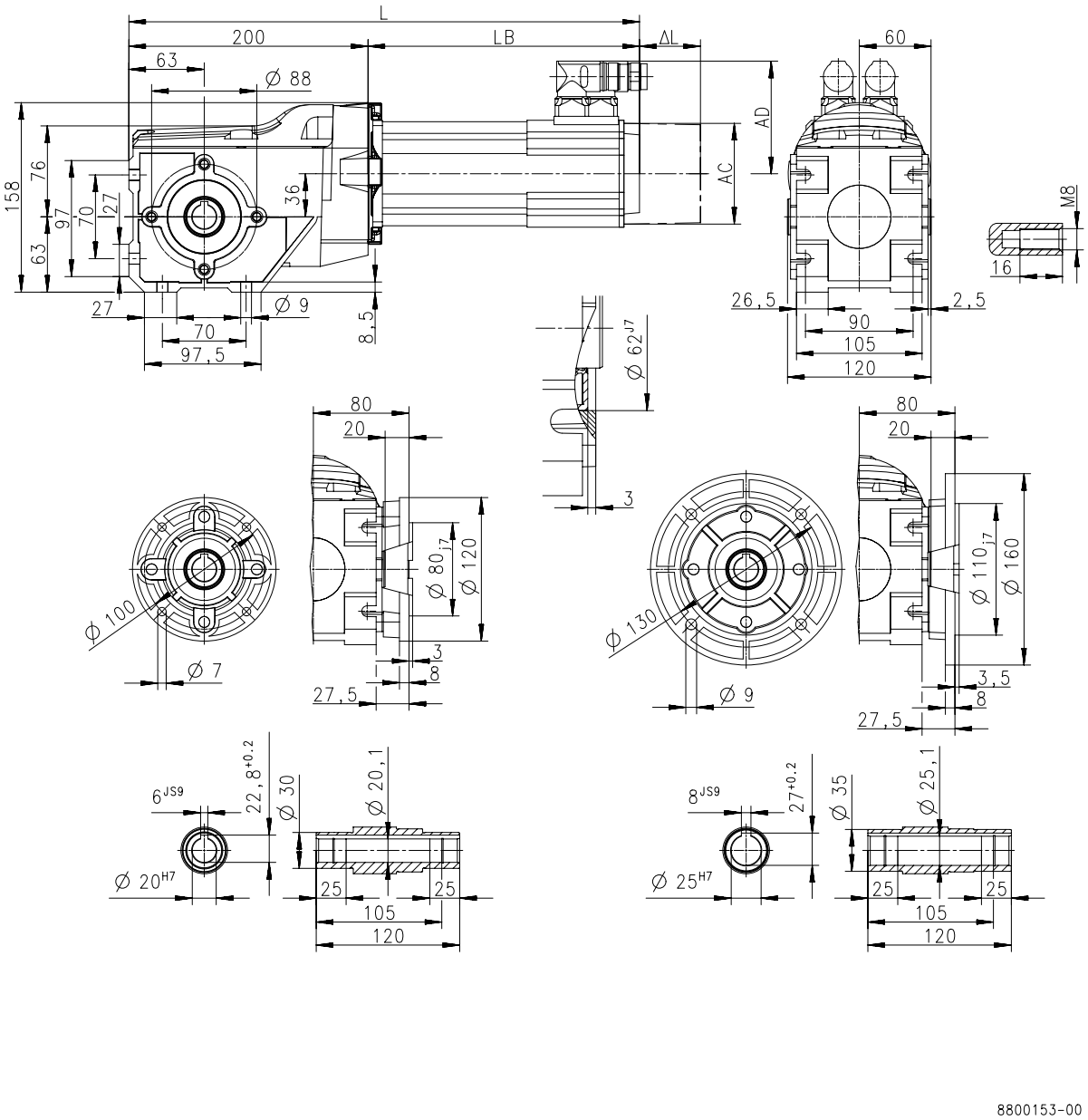
Product			MCS		
			06C41	06F41	06I41
Dimensions					
Total length	**L**	**[mm]**	264	294	324
Motor length	**LB**	**[mm]**	131.4	161.4	191.4
Length of motor options	**Δ L**	**[mm]**	100		
Motor diameter	**AC**	**[mm]**	86		
Distance motor/connection	**AD**	**[mm]**	77		



Dimensions, self-ventilated motors

g500-B110

Dimensions with hollow shaft

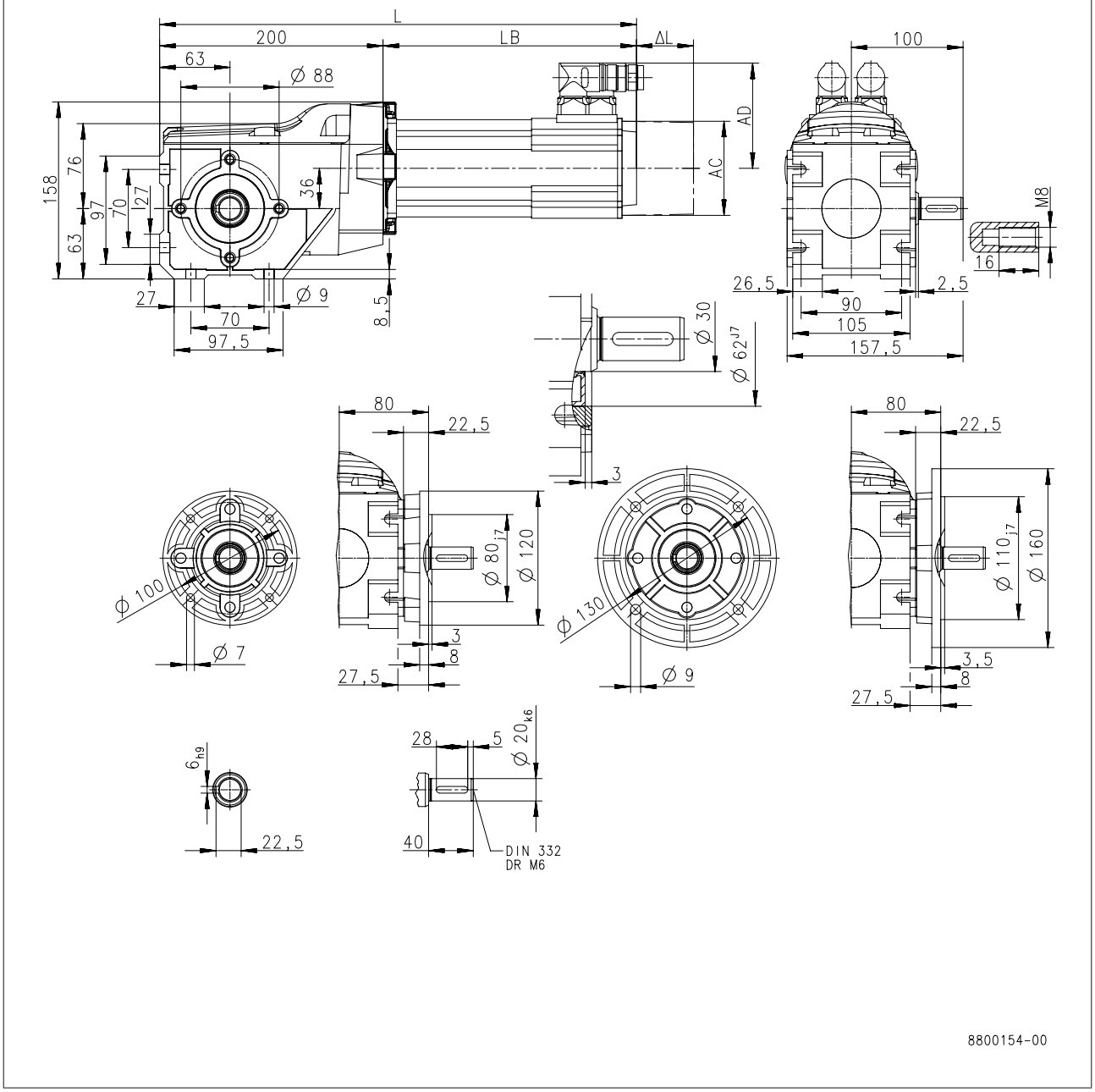


Product			MCS					
			06C41	06F41	06I41	09D41	09F38	09H41
Dimensions								
Total length	**L**	**[mm]**	331	361	391	384	404	424
Motor length	**LB**	**[mm]**	131.4	161.4	191.4	183.9	203.9	223.9
Length of motor options	**Δ L**	**[mm]**	100			71		
Motor diameter	**AC**	**[mm]**	86			89		
Distance motor/connection	**AD**	**[mm]**	77			89.7		

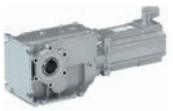
Dimensions, self-ventilated motors

g500-B110

Dimensions with solid shaft



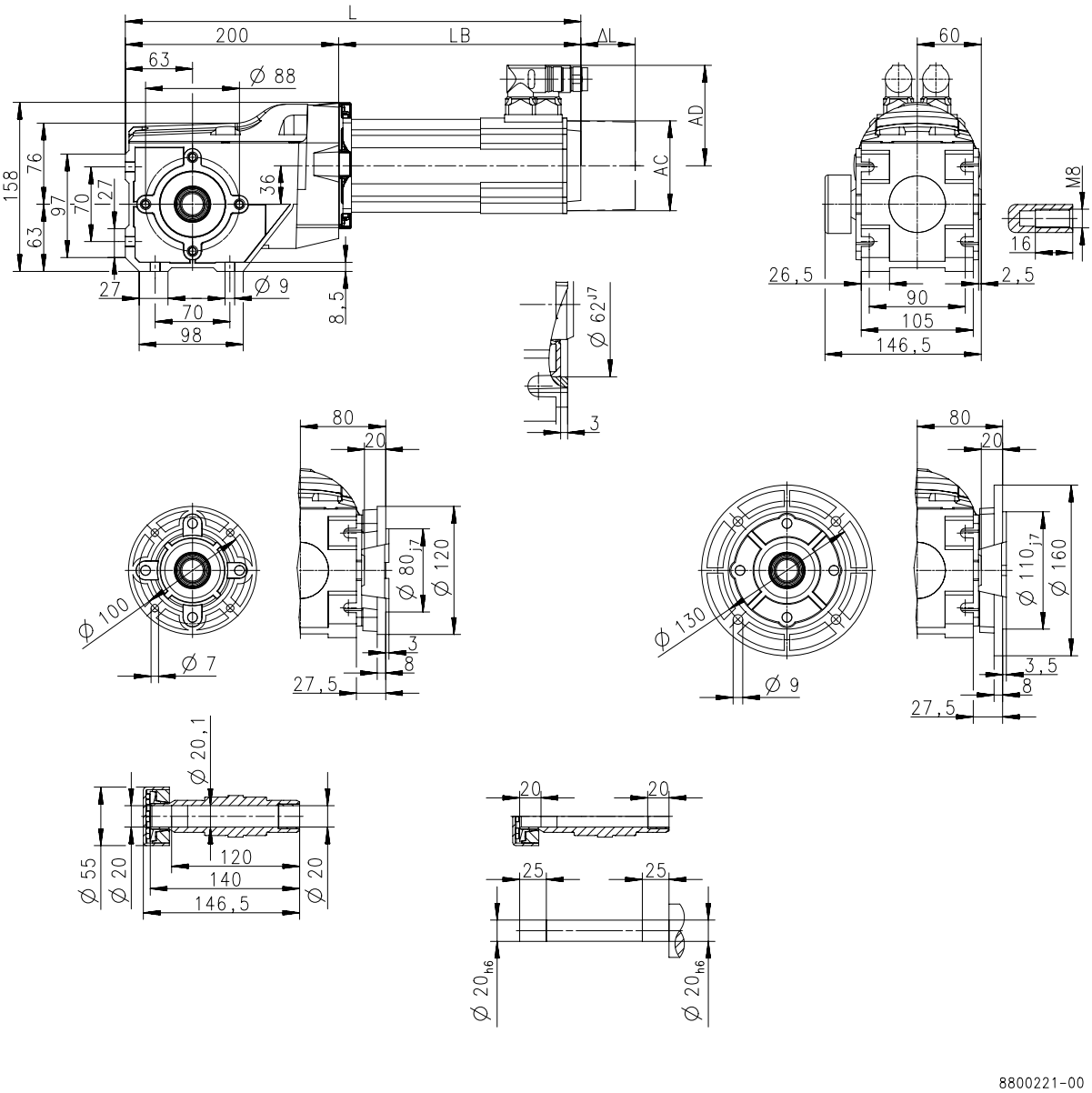
Product			MCS					
			06C41	06F41	06I41	09D41	09F38	09H41
Dimensions								
Total length	**L**	**[mm]**	331	361	391	384	404	424
Motor length	**LB**	**[mm]**	131.4	161.4	191.4	183.9	203.9	223.9
Length of motor options	**Δ L**	**[mm]**	100			71		
Motor diameter	**AC**	**[mm]**	86			89		
Distance motor/connection	**AD**	**[mm]**	77			89.7		



Dimensions, self-ventilated motors

g500-B110

Dimensions with shrink disc

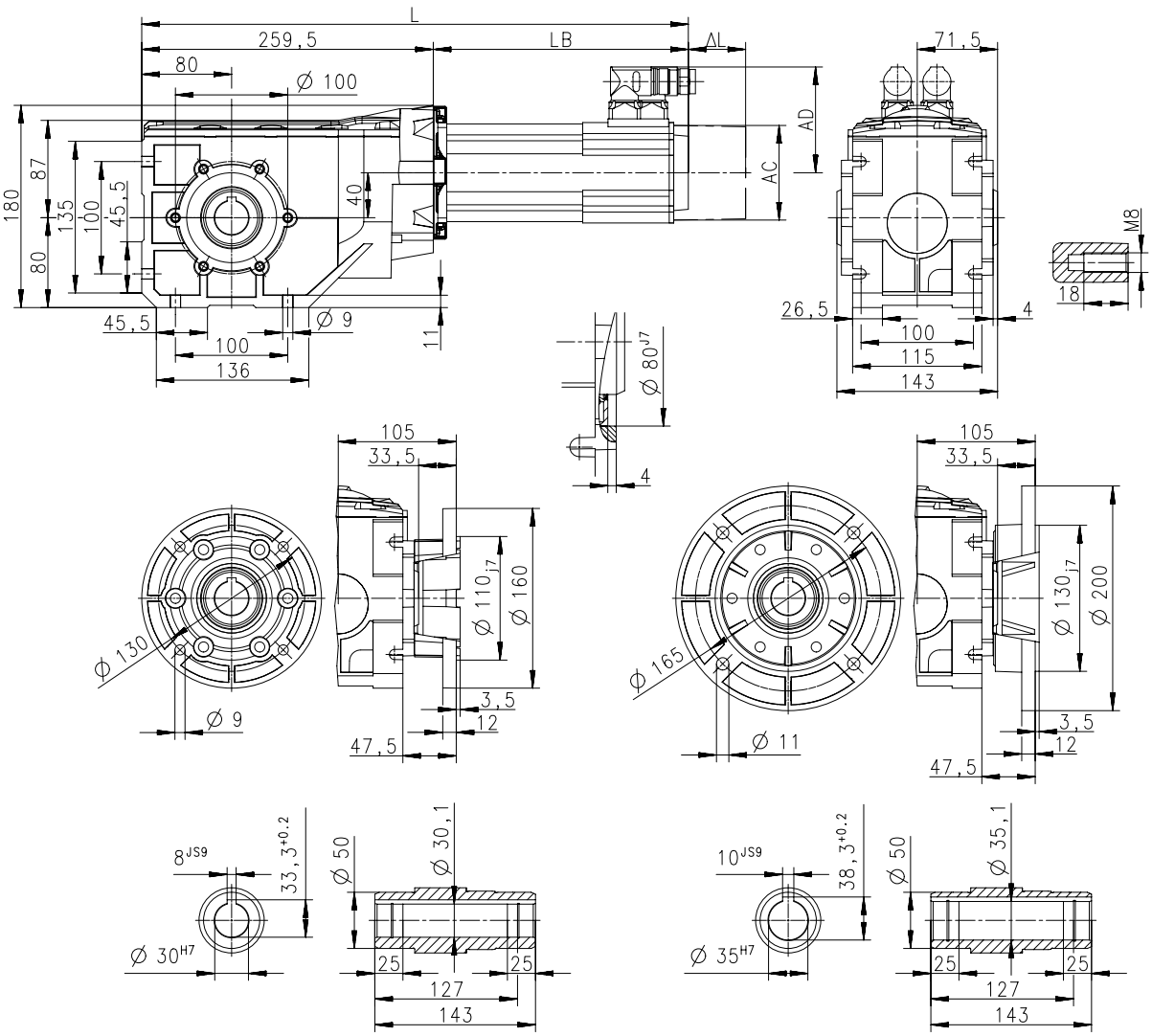


Product			MCS					
			06C41	06F41	06I41	09D41	09F38	09H41
Dimensions								
Total length	**L**	**[mm]**	331	361	391	384	404	424
Motor length	**LB**	**[mm]**	131.4	161.4	191.4	183.9	203.9	223.9
Length of motor options	**Δ L**	**[mm]**	100			71		
Motor diameter	**AC**	**[mm]**	86			89		
Distance motor/connection	**AD**	**[mm]**	77			89.7		

Dimensions, self-ventilated motors

g500-B240

Dimensions with hollow shaft

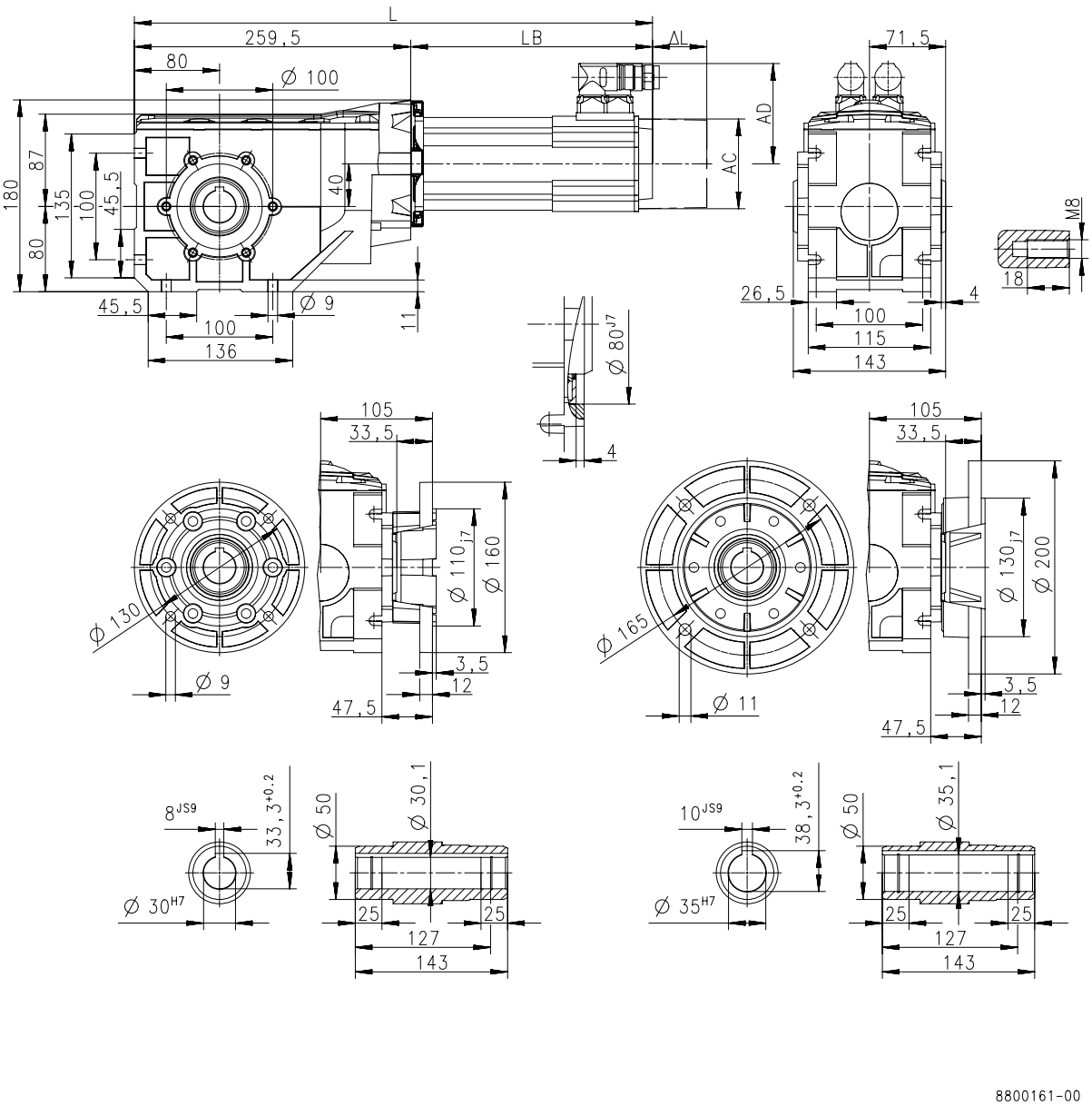


Product			MCS					
			06C41	06F41	06I41	09D41	09F38	09H41
Dimensions								
Total length	**L**	**[mm]**	391	421	451	443	463	483
Motor length	**LB**	**[mm]**	131.4	161.4	191.4	183.9	203.9	223.9
Length of motor options	**Δ L**	**[mm]**	100			71		
Motor diameter	**AC**	**[mm]**	86			89		
Distance motor/connection	**AD**	**[mm]**	77			89.7		

Dimensions, self-ventilated motors

g500-B240

Dimensions with hollow shaft

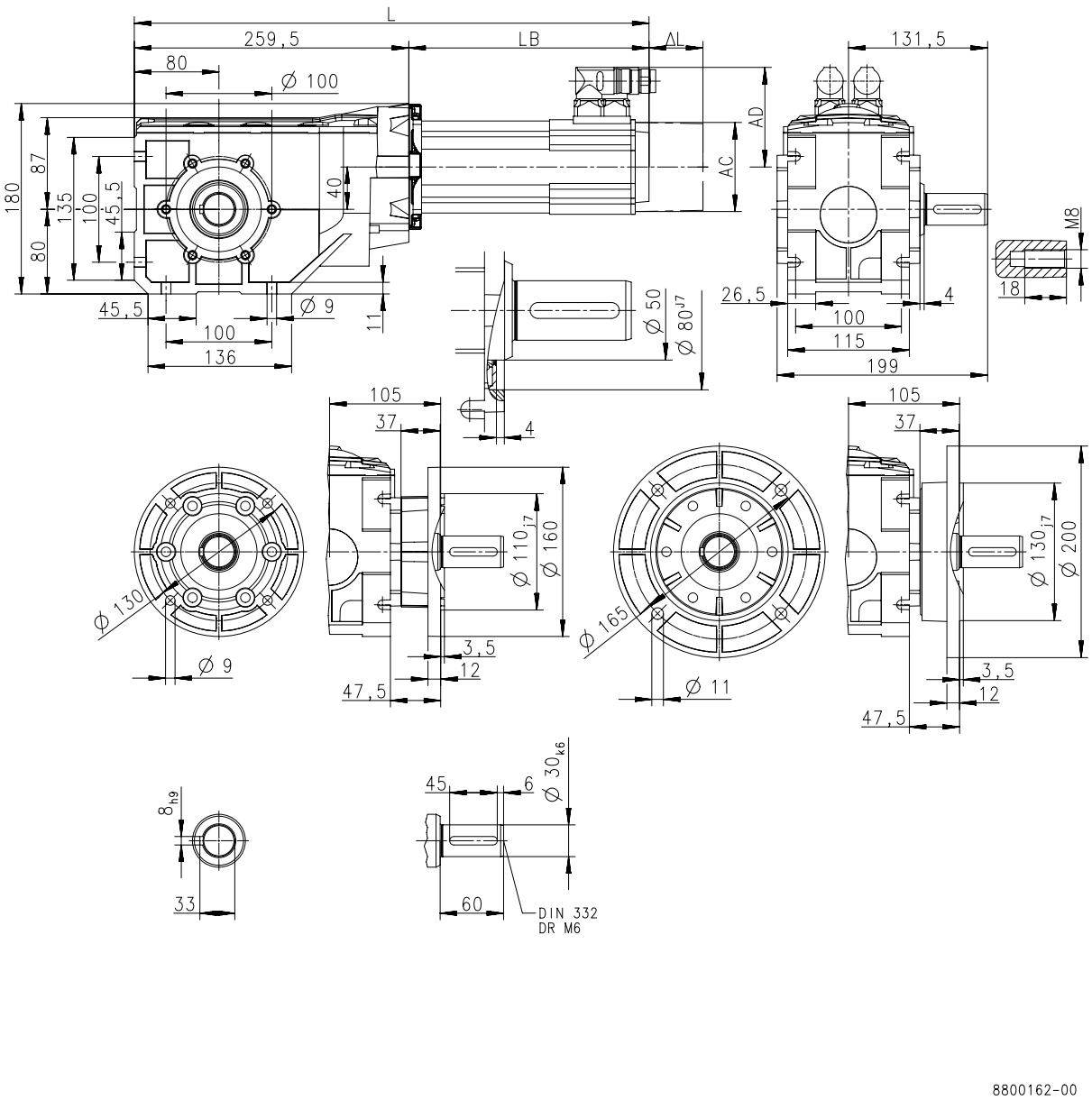


Product			MCS						
			09L41	12D20	12D41	12H15	12H30	12H35	12L20
Dimensions									
Total length	**L**	**[mm]**	523	460		500			540
Motor length	**LB**	**[mm]**	263.9	200.5		240.5			280.5
Length of motor options	**Δ L**	**[mm]**	71	69					
Motor diameter	**AC**	**[mm]**	89	116					
Distance motor/connection	**AD**	**[mm]**	89.7	105					

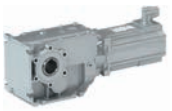
Dimensions, self-ventilated motors

g500-B240

Dimensions with solid shaft



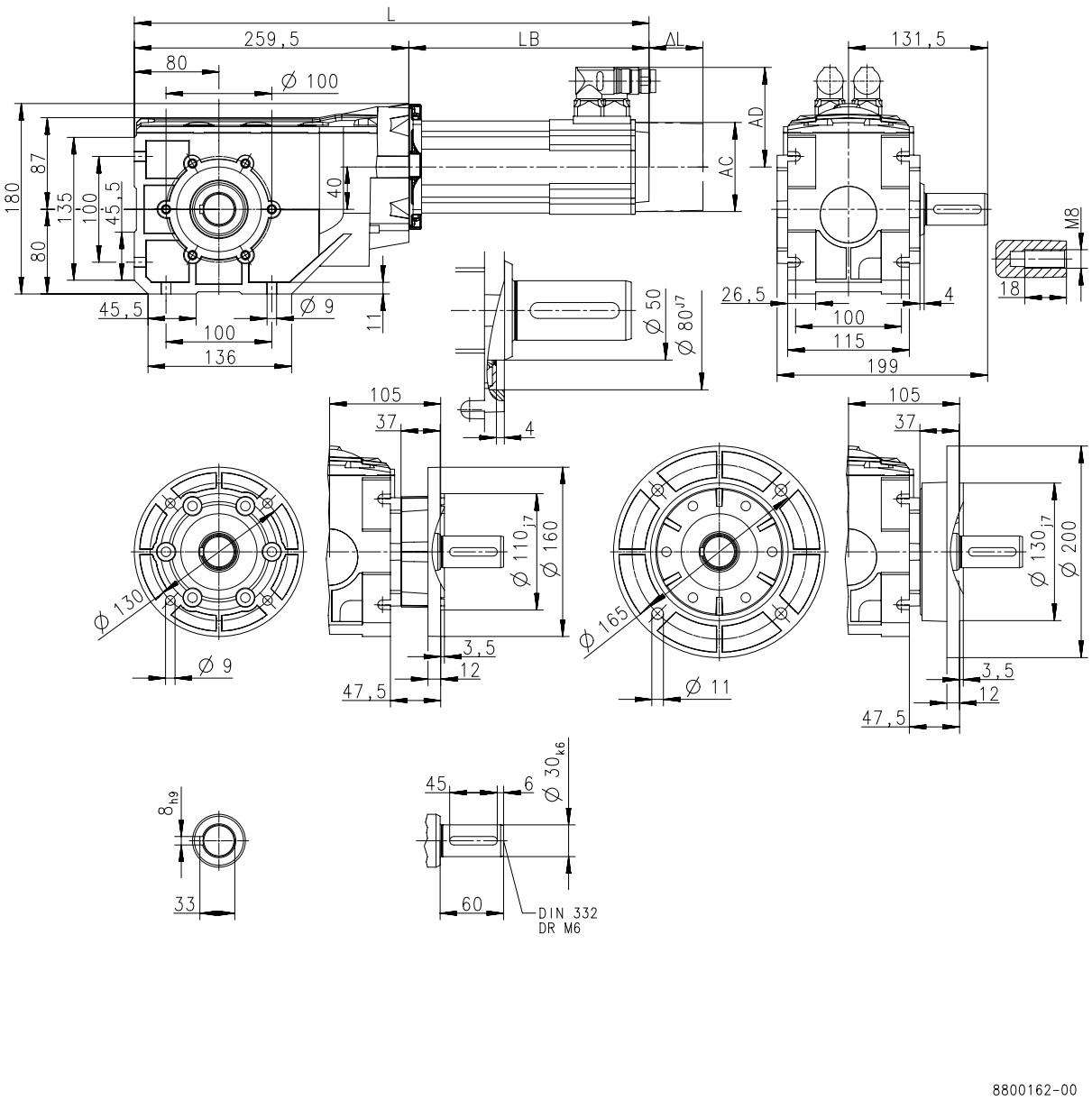
Product			MCS					
			06C41	06F41	06I41	09D41	09F38	09H41
Dimensions								
Total length	**L**	**[mm]**	391	421	451	443	463	483
Motor length	**LB**	**[mm]**	131.4	161.4	191.4	183.9	203.9	223.9
Length of motor options	**Δ L**	**[mm]**	100			71		
Motor diameter	**AC**	**[mm]**	86			89		
Distance motor/connection	**AD**	**[mm]**	77			89.7		



Dimensions, self-ventilated motors

g500-B240

Dimensions with solid shaft

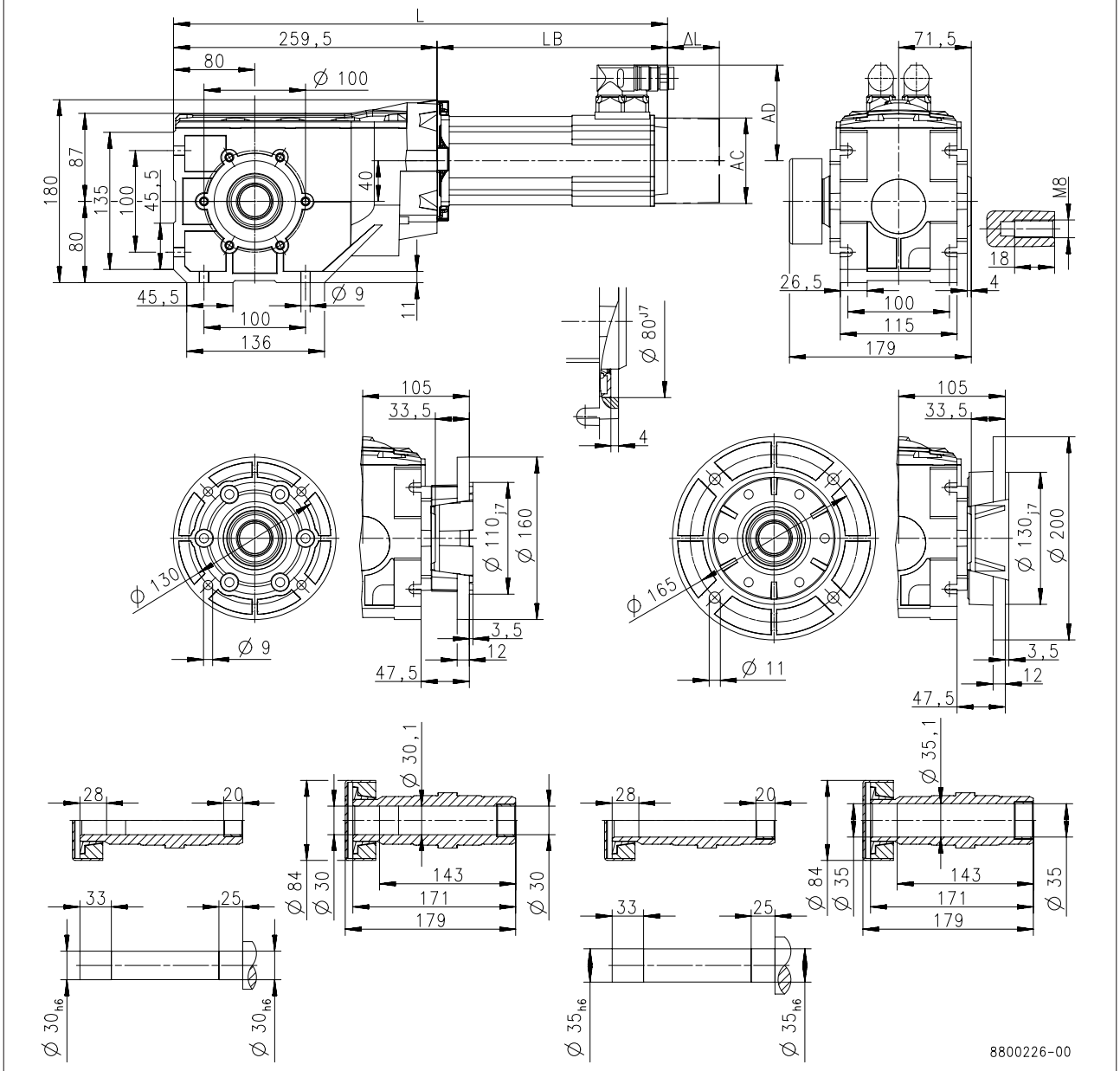


Product			MCS						
			09L41	12D20	12D41	12H15	12H30	12H35	12L20
Dimensions									
Total length	**L**	**[mm]**	523	460		500			540
Motor length	**LB**	**[mm]**	263.9	200.5		240.5			280.5
Length of motor options	**Δ L**	**[mm]**	71	69					
Motor diameter	**AC**	**[mm]**	89	116					
Distance motor/connection	**AD**	**[mm]**	89.7	105					

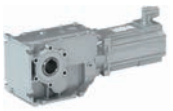
Dimensions, self-ventilated motors

g500-B240

Dimensions with shrink disc



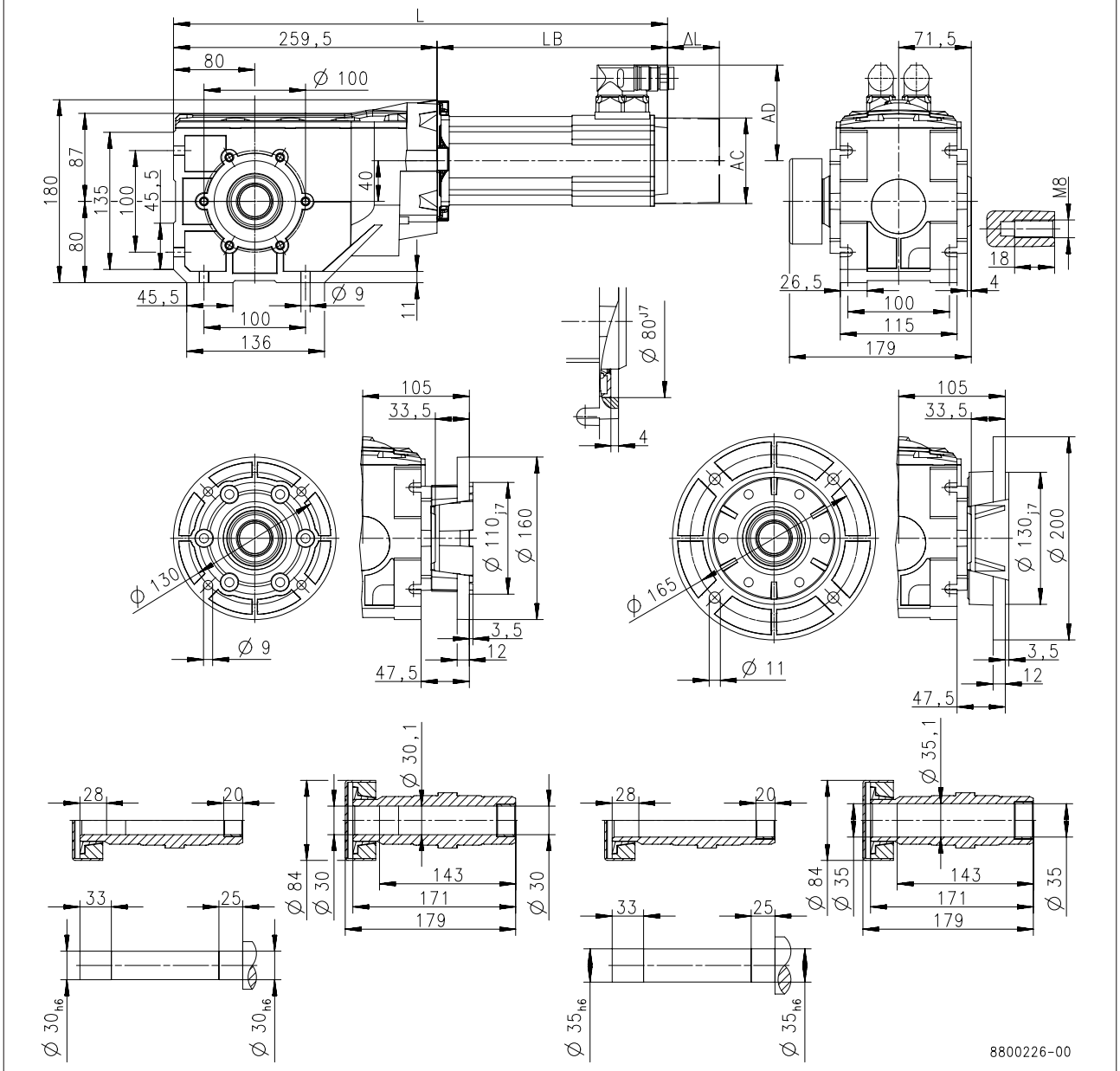
Product			MCS					
			06C41	06F41	06I41	09D41	09F38	09H41
Dimensions								
Total length	**L**	**[mm]**	391	421	451	443	463	483
Motor length	**LB**	**[mm]**	131.4	161.4	191.4	183.9	203.9	223.9
Length of motor options	**Δ L**	**[mm]**	100			71		
Motor diameter	**AC**	**[mm]**	86			89		
Distance motor/connection	**AD**	**[mm]**	77			89.7		



Dimensions, self-ventilated motors

g500-B240

Dimensions with shrink disc

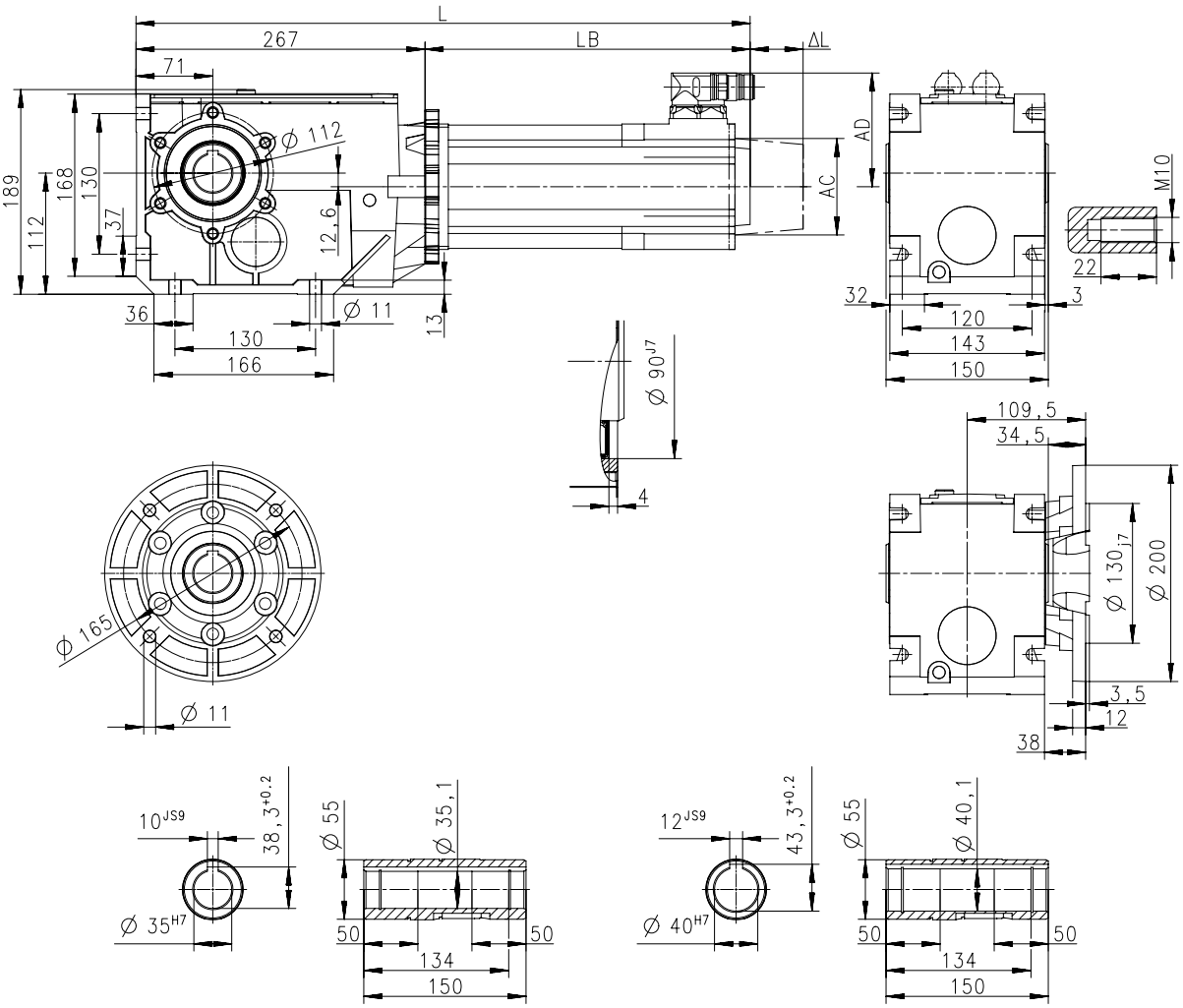


Product			MCS						
			09L41	12D20	12D41	12H15	12H30	12H35	12L20
Dimensions									
Total length	**L**	**[mm]**	523	460		500			540
Motor length	**LB**	**[mm]**	263.9	200.5		240.5			280.5
Length of motor options	**Δ L**	**[mm]**	71	69					
Motor diameter	**AC**	**[mm]**	89	116					
Distance motor/connection	**AD**	**[mm]**	89.7	105					

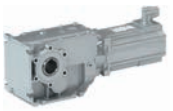
Dimensions, self-ventilated motors

g500-B450

Dimensions with hollow shaft



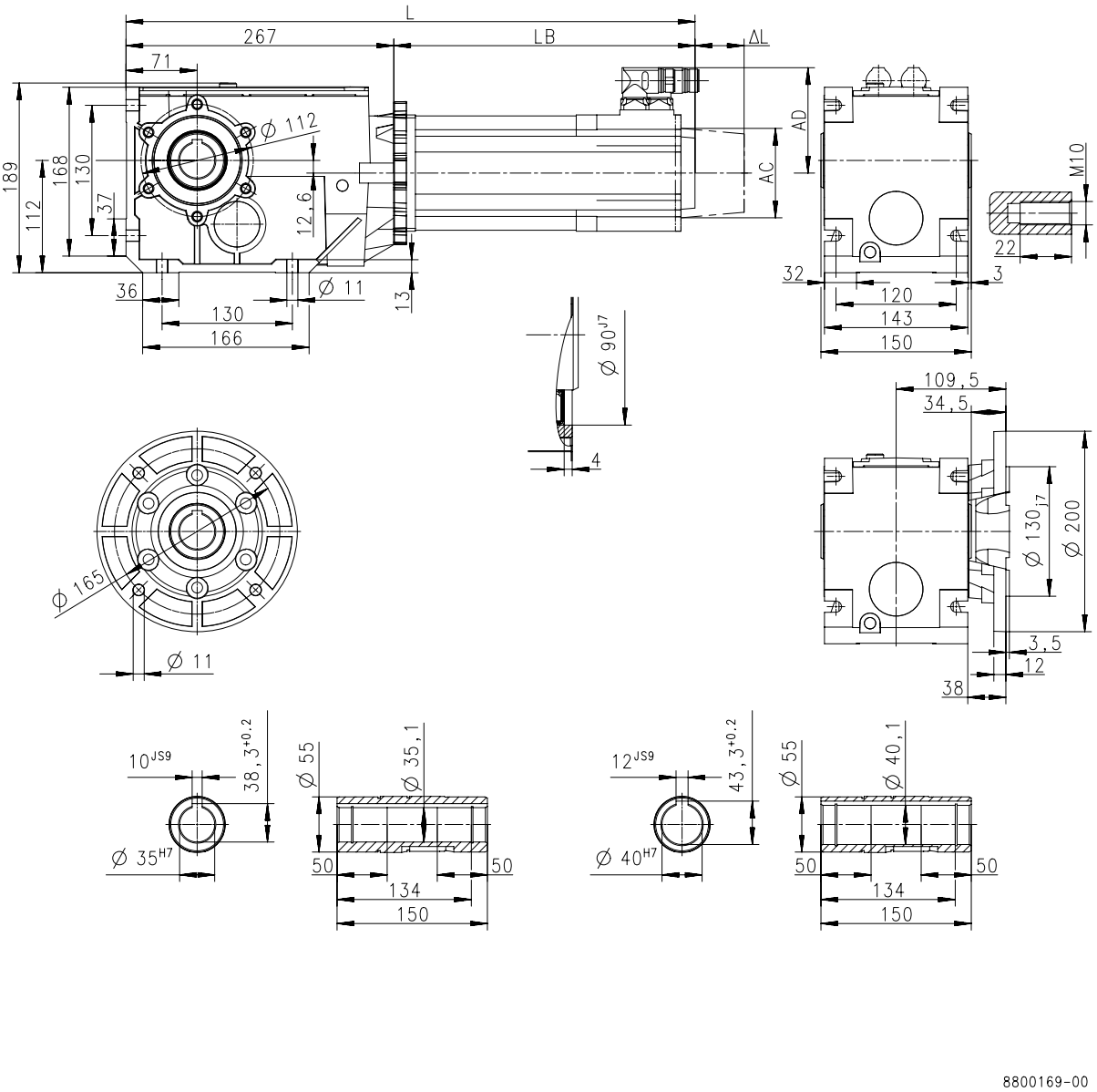
Product			MCS							
			06C41	06F41	06I41	09D41	09F38	09H41	09L41	12D20
Dimensions										
Total length	**L**	**[mm]**	398	428	458	451	471	491	531	468
Motor length	**LB**	**[mm]**	131.4	161.4	191.4	183.9	203.9	223.9	263.9	200.5
Length of motor options	**Δ L**	**[mm]**	100			71				69
Motor diameter	**AC**	**[mm]**	86			89				116
Distance motor/connection	**AD**	**[mm]**	77			89.7				105



Dimensions, self-ventilated motors

g500-B450

Dimensions with hollow shaft

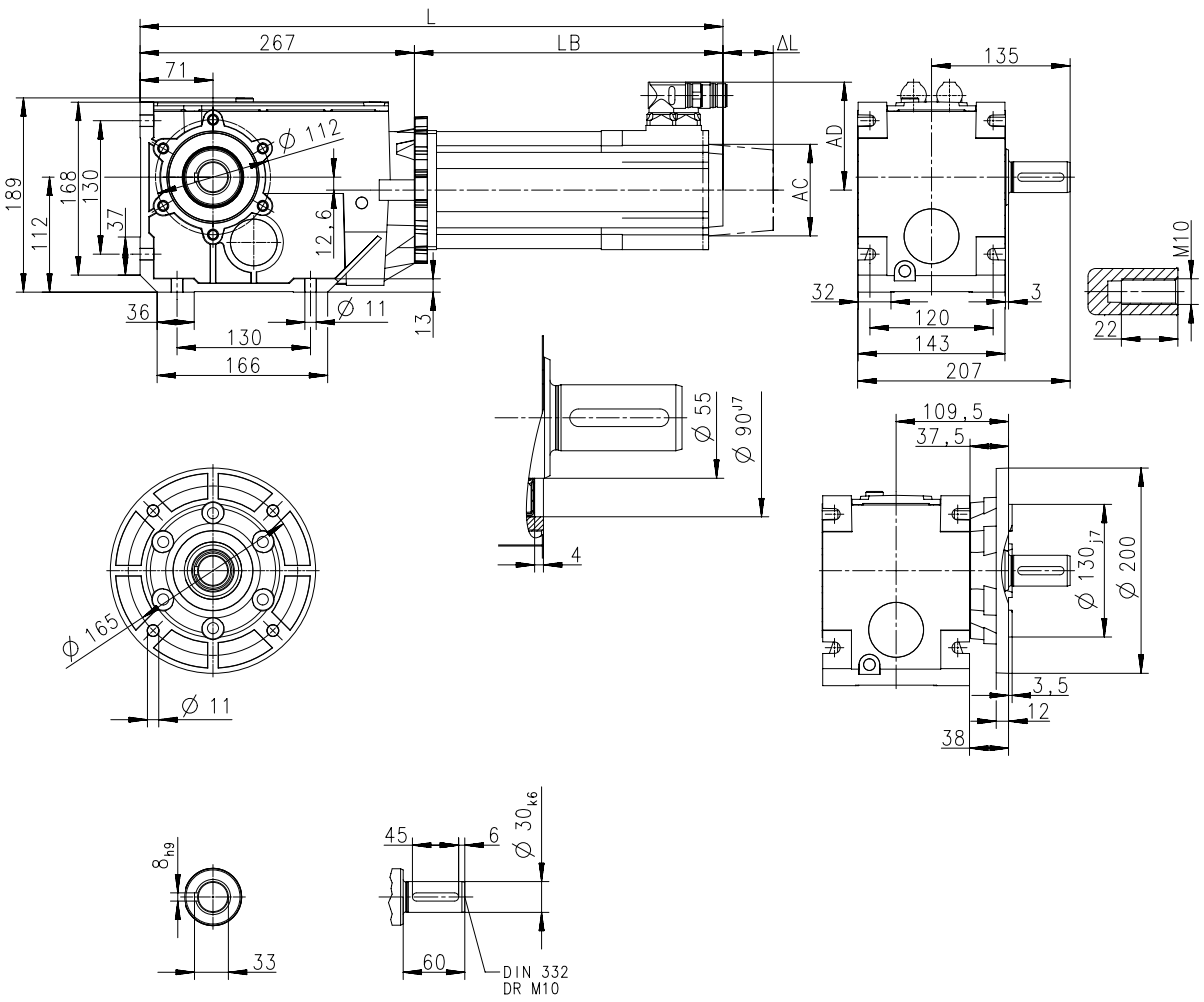


Product			MCS								
			12D41	12H15	12H30	12H35	12L20	14D15	14H15	14L15	14P14
Dimensions											
Total length	**L**	**[mm]**	468	508			548	483	523	563	603
Motor length	**LB**	**[mm]**	200.5	240.5			280.5	216	256	296	336
Length of motor options	**Δ L**	**[mm]**	69					78			
Motor diameter	**AC**	**[mm]**	116					143			
Distance motor/connection	**AD**	**[mm]**	105					116.5			

Dimensions, self-ventilated motors

g500-B450

Dimensions with solid shaft

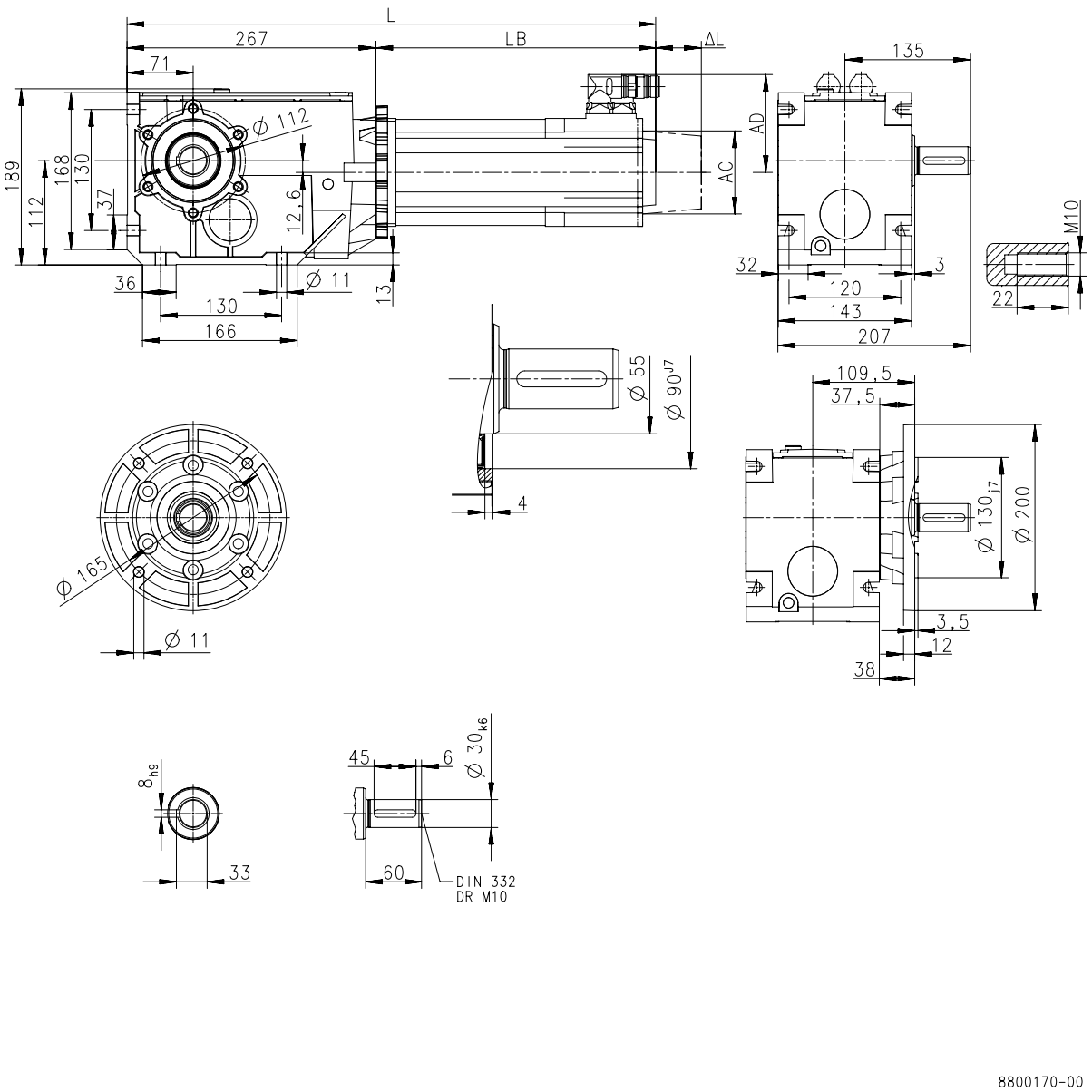


Product			MCS							
			06C41	06F41	06I41	09D41	09F38	09H41	09L41	12D20
Dimensions										
Total length	**L**	**[mm]**	398	428	458	451	471	491	531	468
Motor length	**LB**	**[mm]**	131.4	161.4	191.4	183.9	203.9	223.9	263.9	200.5
Length of motor options	**Δ L**	**[mm]**	100			71				69
Motor diameter	**AC**	**[mm]**	86			89				116
Distance motor/connection	**AD**	**[mm]**	77			89.7				105

Dimensions, self-ventilated motors

g500-B450

Dimensions with solid shaft

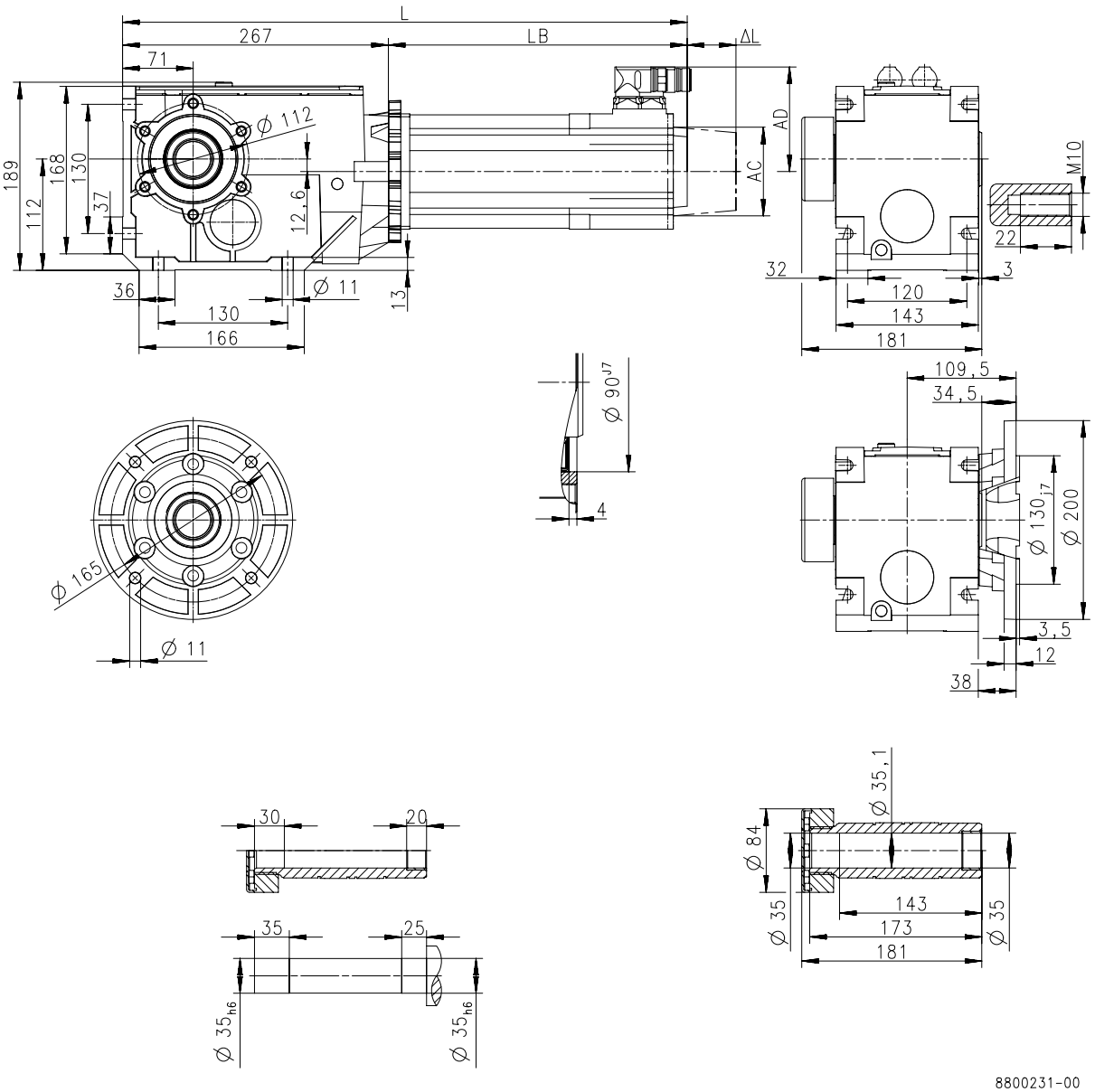


Product			MCS								
			12D41	12H15	12H30	12H35	12L20	14D15	14H15	14L15	14P14
Dimensions											
Total length	**L**	**[mm]**	468	508			548	483	523	563	603
Motor length	**LB**	**[mm]**	200.5	240.5			280.5	216	256	296	336
Length of motor options	**Δ L**	**[mm]**	69					78			
Motor diameter	**AC**	**[mm]**	116					143			
Distance motor/connection	**AD**	**[mm]**	105					116.5			

Dimensions, self-ventilated motors

g500-B450

Dimensions with shrink disc

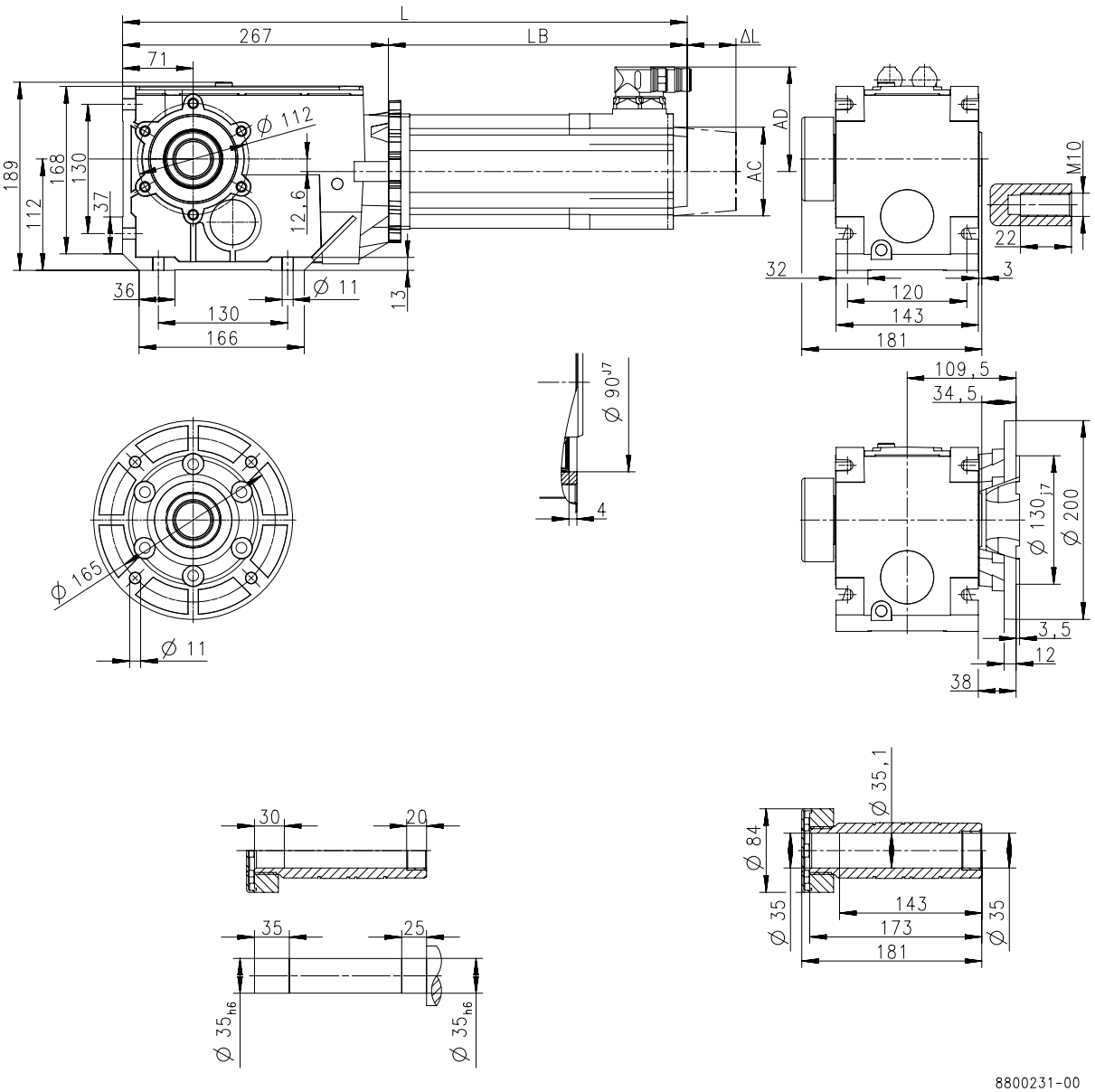


Product			MCS							
			06C41	06F41	06I41	09D41	09F38	09H41	09L41	12D20
Dimensions										
Total length	**L**	**[mm]**	398	428	458	451	471	491	531	468
Motor length	**LB**	**[mm]**	131.4	161.4	191.4	183.9	203.9	223.9	263.9	200.5
Length of motor options	**Δ L**	**[mm]**	100			71				69
Motor diameter	**AC**	**[mm]**	86			89				116
Distance motor/connection	**AD**	**[mm]**	77			89.7				105

Dimensions, self-ventilated motors

g500-B450

Dimensions with shrink disc



Product			MCS								
			12D41	12H15	12H30	12H35	12L20	14D15	14H15	14L15	14P14
Dimensions											
Total length	**L**	**[mm]**	468	508			548	483	523	563	603
Motor length	**LB**	**[mm]**	200.5	240.5			280.5	216	256	296	336
Length of motor options	**Δ L**	**[mm]**	69					78			
Motor diameter	**AC**	**[mm]**	116					143			
Distance motor/connection	**AD**	**[mm]**	105					116.5			

Weights, self-ventilated motors

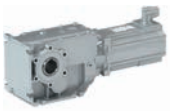
2-stage gearboxes

				MCS									
				06C41	06F41	06I41	09D41	09F38	09H41	09L41	12D20 12D41	12H15 12H30 12H35	12L20
g500	-B45	m	[kg]	5.0	5.4	6.1							
	-B110	m	[kg]	6.6	7.0	7.7	9.0	9.9	11				
	-B240	m	[kg]	10	11	12	13	14	15	16	15	18	21

3-stage gearboxes

				MCS						
				06C41 06F41	06I41	09D41	09F38	09H41	09L41	12D20 12D41
g500	-B240	m	[kg]	11						
	-B450	m	[kg]	14	15	16	17	18	20	18

				MCS					
				12H15 12H30 12H35	12L20	14D15	14H15	14L15	14P14
g500	-B450	m	[kg]	21	24	23	28	32	37

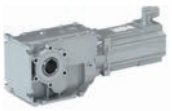


Surface and corrosion protection

For optimum protection of geared motors against ambient conditions, the surface and corrosion protection system (OKS) offers tailor-made solutions.

Various surface coatings combined with other protective measures ensure that the geared motors operate reliably even at high air humidity, in outdoor installations or in the presence of atmospheric impurities. Any colour from the RAL Classic collection can be chosen for the top coat. The geared motors are also available unpainted (no surface and corrosion protection).

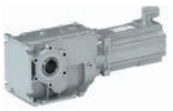
Surface and corrosion protection	Applications	Measures
OKS-G (primed)	• Dependent on subsequent top coat applied	• 2K PUR priming coat (grey) • Zinc-coated screws • Rust-free breather elements Optional measures • Stainless steel nameplate
OKS-S (small)	• Standard applications • Internal installation in heated buildings • Air humidity up to 90%	• Surface coating as per corrosivity category C1 (in line with EN 12944-2) • Zinc-coated screws • Rust-free breather elements Optional measures • Stainless steel nameplate
OKS-M (medium)	• Internal installation in non-heated buildings • Covered, protected external installation • Air humidity up to 95%	• Surface coating as per corrosivity category C2 (in line with EN 12944-2) • Zinc-coated screws • Rust-free breather elements Optional measures • Stainless steel shaft • Stainless steel nameplate • Rust-free shrink disc (on request)
OKS-L (large)	• External installation • Air humidity above 95% • Chemical industry plants • Food industry	• Surface coating as per corrosivity category C3 (in line with EN 12944-2) • Blower cover and B end shield additionally primed • Cable glands with gaskets • Corrosion-resistant brake with cover ring, stainless friction plate, and chrome-plated armature plate (on request) • All screws/screw plugs zinc-coated • Stainless breather elements • Threaded holes that are not used are closed by means of plastic plugs Optional measures • Sealed recesses on motor (on request) • Stainless steel shaft • Stainless steel nameplate • Rust-free shrink disc (on request) • Additional priming coat on cast iron fan • Oil expansion tank and torque plates painted separately and supplied loose



Surface and corrosion protection

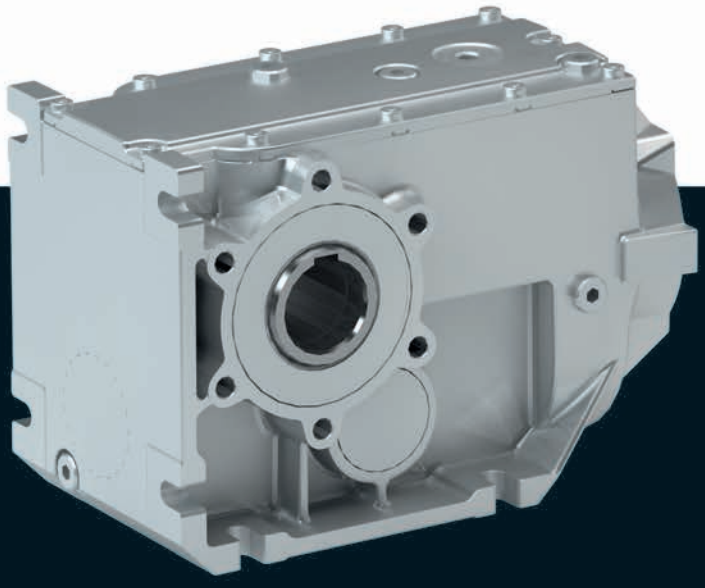
Structure of surface coating

Surface and corrosion protection	Corrosivity category	Surface coating	Colour
	DIN EN ISO 12944-2	Structure	
Without OKS(uncoated)		Dipping primed gearbox	
OKS-G (primed)		Dipping primed gearbox 2K PUR priming coat	
OKS-S (small)	C1	Dipping primed gearbox 2K-PUR top coat	Standard: RAL 7012 Optional: RAL Classic
OKS-M (medium)	C2	Dipping primed gearbox 2K PUR priming coat 2K-PUR top coat	
OKS-L (large)	C3		



g500-B bevel gearboxes

45 to 450 Nm



g500-B bevel gearbox

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	Ventilation	6.7 - 12
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	Additional weights for gearboxes	6.7 - 19
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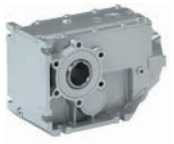
Contents

List of abbreviations

$F_{ax,max}$	[N]	Max. axial force
$F_{rad,max}$	[N]	Max. radial force
i		Ratio
J	[kgcm²]	Moment of inertia
m	[kg]	Mass



Product information

The efficient bevel gearboxes feature high reliable radial forces, closely stepped gear reductions and a low backlash. They are available in 2-pole and 3-pole design with a torque up to 450 Nm and a ratio of up to i= 360.

Versions

- High-efficient right-angle gearbox in a compact design for space-saving installation
- Standardised shaft and flange dimensions for an easy machine integration
- Low backlash and high torsional stiffness provide for exact results in positioning applications

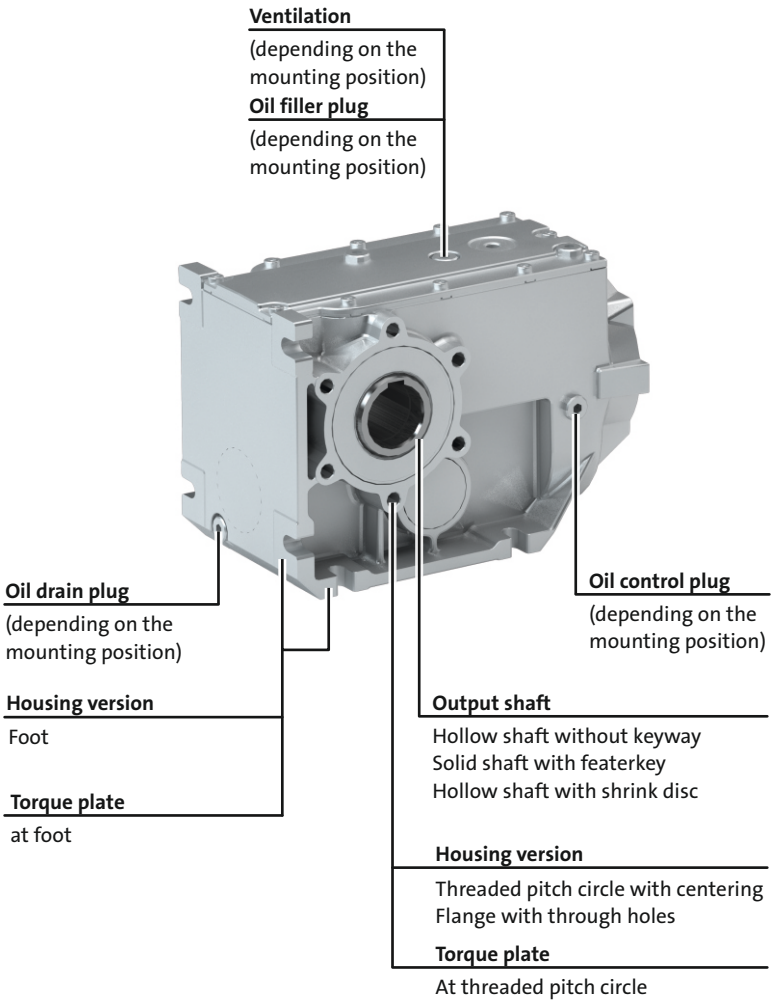
The product name

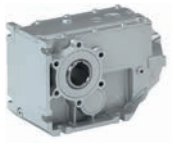
Gearbox type	Product range		Design	Rated torque [Nm]	Product
Bevel gearbox	g500	-	B	45	g500-B45
				110	g500-B110
				240	g500-B240
				450	g500-B450

Equipment

Overview

The equipment includes all the options available as standard and all the built-on accessories of the product.





The gearbox kit

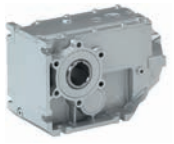
Gearbox details

Product	g500-B45	g500-B110	g500-B240	g500-B450
Driven shaft				
Solid shaft without keyway [mm]				
Solid shaft with featherkey [mm]	20x40		30x60	
Hollow shaft with keyway [mm]	18/20	20/25	30/35	35/40
Hollow shaft with shrink disc [mm]	20		30/35	35
Design	Standard stainless steel			
Gasket	Standard FPM (Viton)			
Bearing	Standard			
Fitting grease	Not enclosed Enclosed			
Housing				
Housing version	With foot With foot and centering			
Output flange				
flange diameter [mm]	110/120	120/160	160/200	200
Lubricant				
Type	CLP 460 [1)] CLP HC 320 CLP HC 220 CLP HC 220 USDA H1			
Oil-level inspection	Without inspection			Without inspection With inspection
Breather element	Without			Standard mounting position: Mounted Combined mounting position: loosely enclosed
Backlash				
Backlash	Standard			
Accessories				
Torque plate	Rubber buffers At threaded pitch circle	At threaded pitch circle	At threaded pitch circle At foot	At foot
Shaft cover	Hollow shaft Shrink disc: Rotating cover Shrink disc: Fixed cover			

6.7

[1)] Not suitable for geared servo motors.

► Further information and installation feasibilities can be found in the Gearboxes chapter.



The gearbox kit

Gearbox details

Solid shaft

Foot mounting
without centring

Foot mounting
With centering

Flange with through holes

Hollow shaft

Foot mounting
without centring

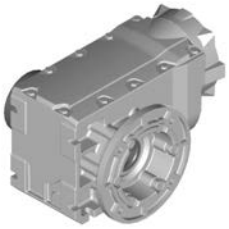
Foot mounting
With centering

Flange with through holes

Hollow shaft with shrink disc

Foot mounting
without centring

Foot mounting
With centering



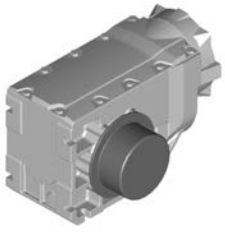
Flange with through holes

Accessories

2nd output shaft end

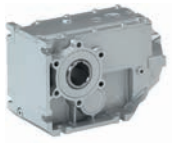
Torque plate
at foot

Torque plate
at threaded pitch circle



Cover
Hollow shaft/shrink disc

6.7

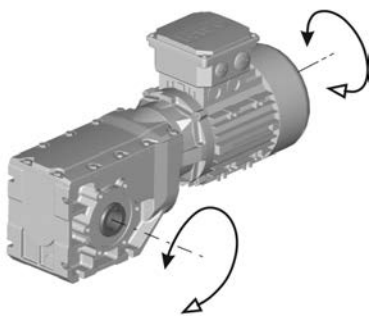
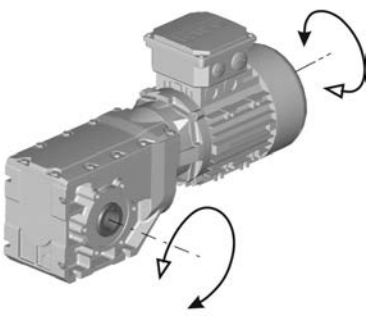


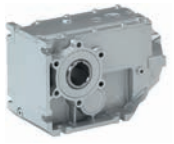
Functions and features

Product	g500-B45	g500-B110	g500-B240	g500-B450
Housing				
Design	Cuboid			
Material	Aluminium			
Solid shaft				
Design	with keyway to DIN 6885			
Tolerance	Shaft diameter ≤ 50 mm: k6 Shaft diameter > 50 mm: m6			
Material	Tempered steel C45 Nirosta X46Cr13			
Hollow shaft				
Design	With keyway Without keyway (for shrink disc)			
Tolerance	Bore H7			
Material	Tempered steel C45 Nirosta X46Cr13			
Toothed parts				
Design	Ground tooth flanks Optimised tooth flank geometry			
Material	Case-hardened steel			
Shaft-hub joint				
	1st and 2nd step: Force-fit 3rd step: positive-fit			
Shaft sealing rings				
Design	With dust lip			
Material	NB / FP			
Bearing				
Design	Ball bearing / tapered-roller bearing depending on size and design			
Lubricants				
	Standard: mineral oil Optional: synthetic oil [1]			
Quantities	Corresponding to mounting position (see nameplate)			
Mechanical efficiency				
2-stage gearboxes [$\eta_{c=1}$]	0.96			
3-stage gearboxes [$\eta_{c=1}$]			0.95	

[1] Standard for geared servo motors.

Direction of rotation

2-stage gearboxes B45 ... B240 3-stage gearbox B450	3-stage gearbox B240
	



Lubricants

Lenze gearboxes and geared motors are ready for operation on delivery and are filled with lubricants specific to both the drive and the design. The mounting position and design specified in the order are key factors in choosing the volume of lubricant.

The lubricants listed in the lubricant table are approved for use in Lenze drives.

Lubricant table

Mode	CLP 460	CLP HC 320	CLP HC 220 USDA H1
Ambient temperature [°C]	0 ... +40	-25 ... +50	-20 ... +40
Specification	Mineral based oil with additives	Synthetic-based oil (synthetic hydrocarbon / poly-alpha-olefin oil)	
Changing interval	16000 operating hours not later than after three years (oil temperature 70 to 80 °C)	25000 operating hours not later than after three years (oil temperature 70 to 80 °C)	16000 operating hours not later than after three years (oil temperature 70 to 80 °C)
Fuchs	Fuchs Renolin CLP 460	Fuchs Renolin Unisyn CLP 320	bremer & leguil Cassida Fluid GL 220
Klüber	Klüberoil GEM1-460 N	Klübersynth GEM4-320 N	Klüberoil 4 UH1-220 N
Shell	Shell Omala S2 G 460	Shell Omala S4 GX HD 320	

► Please contact your Lenze sales office if you are operating at ambient temperatures in areas up to< -20 °C bzw. > or up to +40°C.

Shaft sealing rings

By default, the gearboxes come with NBR shaft sealing rings at the output end. At high speed and unfavourable ambient conditions as high temperature, reduced circulation of air etc., Lenze recommends the use of Viton shaft sealing rings.

Please consider this in your order.

Ventilation

Non-ventilated gearboxes

No ventilation is required for gearboxes g500-B45 to B240.

Ventilated gearboxes

The g500-B450 gearbox is supplied with a breather element as standard.

Gearboxes in combined mounting position

To reduce the number of different versions, the gearboxes can also be ordered with combined mounting positions.
Depending on the gearbox in question, the following combinations are available:
- g500-B45 in combined mounting position ABCDEF
- g500-B110 ... B450 in combined mounting position AEF

The breather elements are supplied loose.

Ventilation

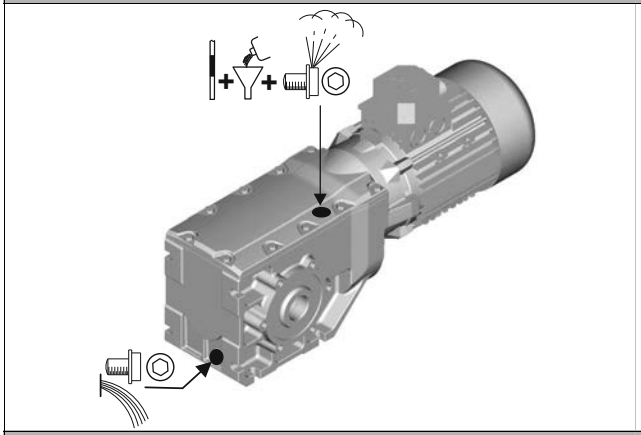
g500-B240

Breather position, oil filling screw and drain plug

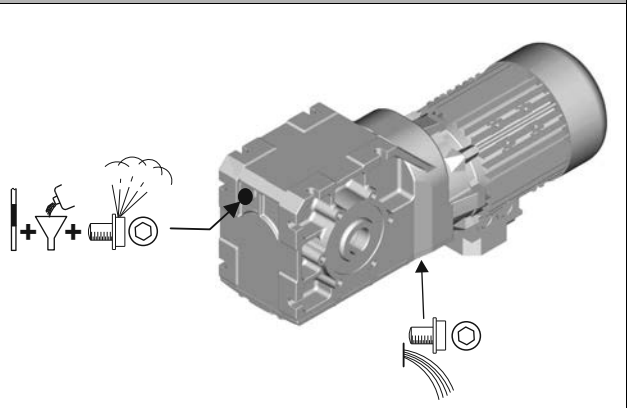
► **A ... F** mounting position

Gearbox g500-B240

A



B



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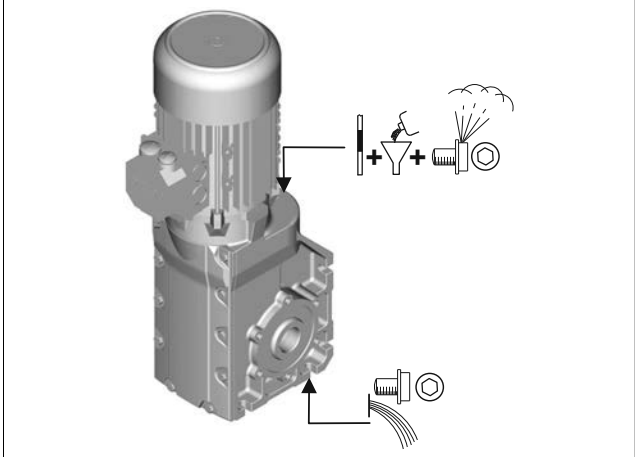

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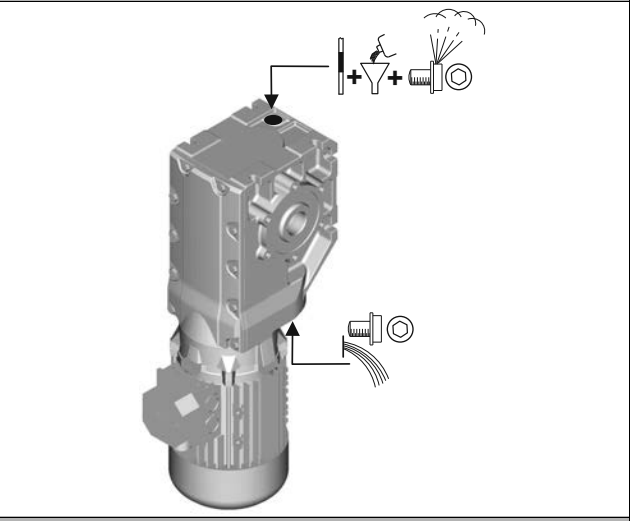
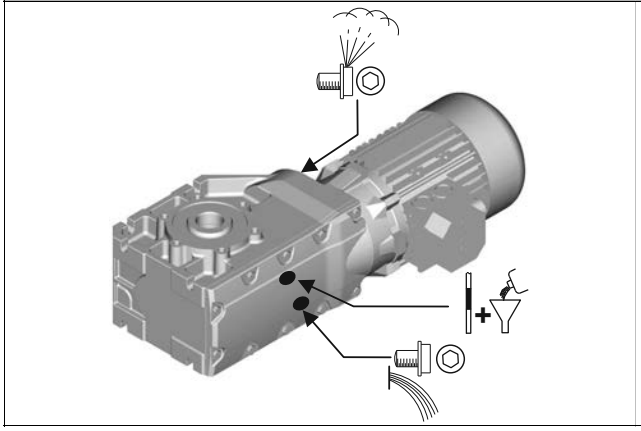
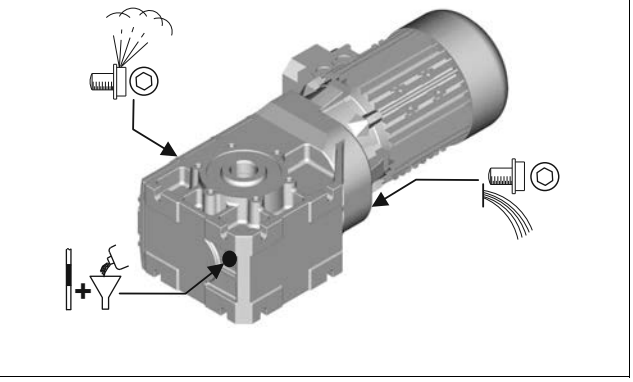


E



F

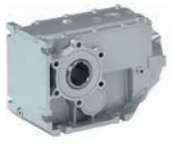


	Filler		Drain
	Breather element		Check

The shown oil bores are optional for gearbox size g500-B240!

EN

6.7



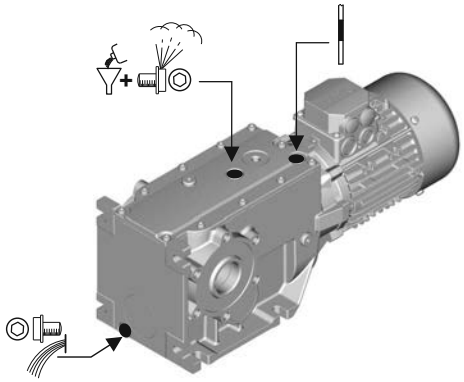
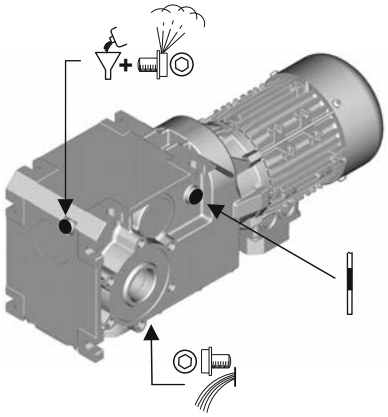
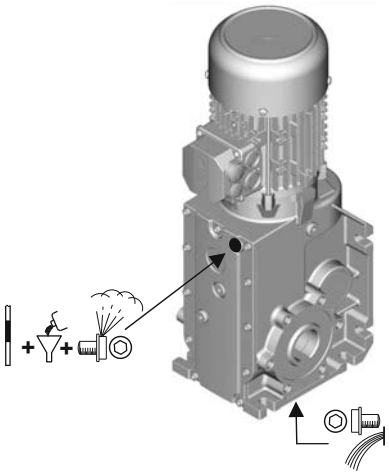
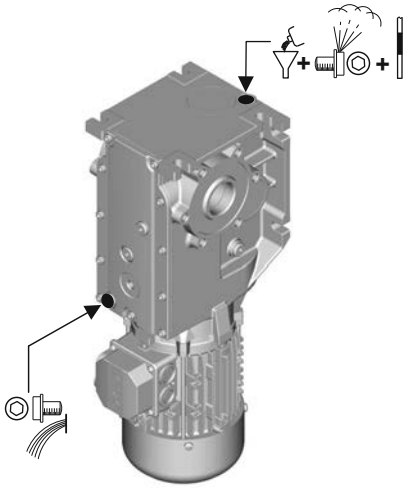
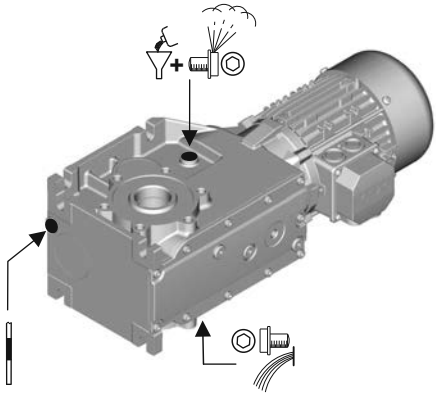
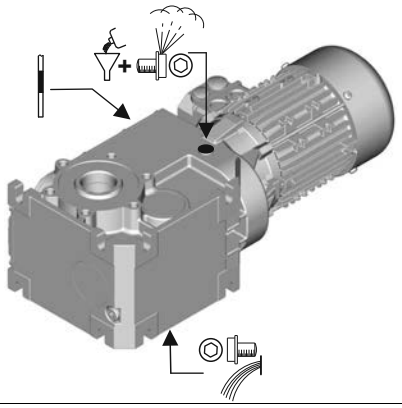
7 Maintenance

Ventilation Maintenance operations

g500-B450

► **A ... F** mounting position

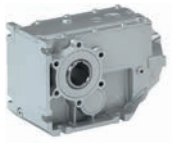
Gearbox g500-B450

A	B
	
C	**D**
	
E	**F**
	

	Filler		Drain
	Breather element		Check

EN

6.7



Permissible radial and axial forces at output

Permissible radial force

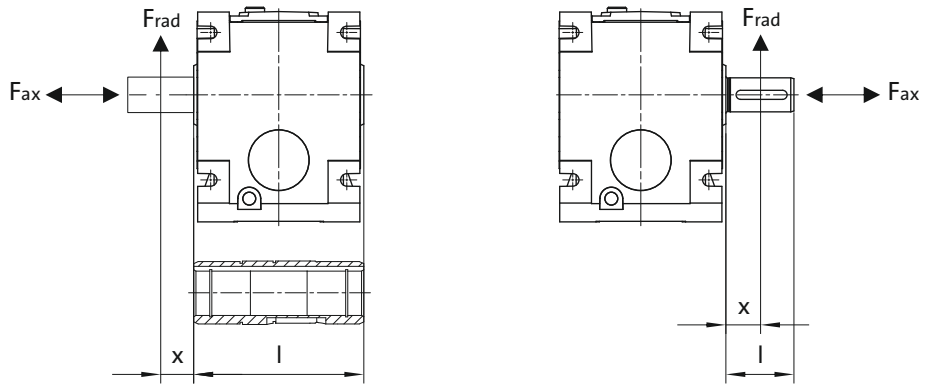
$F_{rad,perm} = f_w \times F_{rad,max}$

► If F_{rad} **and** $F_{ax} \neq 0$, please contact Lenze.

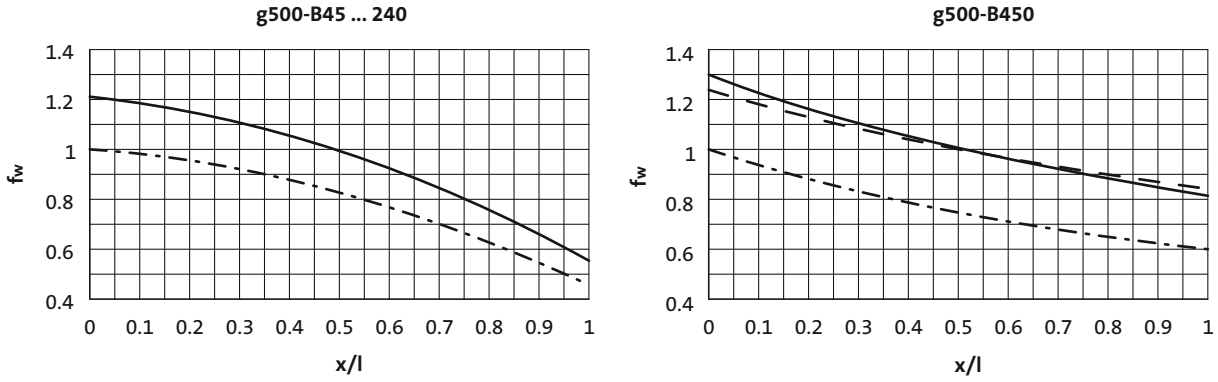
Permissible axial force

If there is no radial force, the maximum permissible axial force is 50 % of the table value $F_{rad,max}$

Application of forces

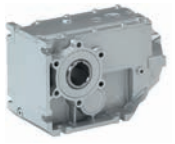


Additional load factor f_w at output shaft



——— Solid shaft
— — — Solid shaft with flange
— · — Hollow shaft

6.7



Permissible radial and axial forces at output

The values given in the table refer to the center shaft end force application point and are minimum values calculated according to the most unfavourable conditions (force application angle, mounting position, direction of rotation). The values were calculated for the motor/gearbox combination with a load capacity of c= 1.3 and an input speed of 1400 rpm.

- ► If the torque is transmitted via the flange face, max 50 % of the radial force $F_{rad,max}$ are permissible.
- ► Neither radial nor axial forces are permissible for the hollow shaft with shrink disc.

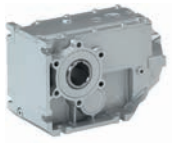
In case of different operating conditions, considerably higher forces can be transmitted. Please contact Lenze.

Product	n_2 [r/min]									
	1000	630	400	250	160	100	63	40	25	≤16

	Max. radial force, Hollow shaft									
	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$
	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]
g500-B45	900	1200	2200	2500	2800	3000	3000	3000	3000	3000
g500-B110	1000	2200	2550	3000	3300	3600	3600	3600	3600	3600
g500-B240	1500	2250	3800	4500	5100	6200	7400	7800	7800	7800
g500-B450	3000	3800	5000	5200	5200	5500	7000	9000	9000	9000

	Max. radial force, Solid shaft without flange									
	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$
	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]
g500-B45	900	1200	1800	2100	2400	2800	3000	3000	3000	3000
g500-B110	1000	1800	2100	2500	2700	3000	3000	3000	3000	3000
g500-B240	1500	2350	3000	3600	4500	5000	6000	6500	6500	6500
g500-B450	1800	2800	3600	4200	5100	6000	7200	7800	7800	7800

	Max. radial force, Solid shaft with flange									
	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$
	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]
g500-B45	900	1200	1800	2100	2400	2800	3000	3000	3000	3000
g500-B110	1000	1800	2100	2500	2700	3000	3000	3000	3000	3000
g500-B240	2400	3600	5200	6000	6500	6500	6500	6500	6500	6500
g500-B450	3000	4000	5500	6200	7000	7500	7800	7800	7800	7800



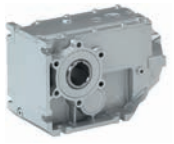
Moments of inertia

- The moments of inertia relate to the drive shaft of the gearbox.
- The total moment of inertia is calculated by adding the values of the gearbox, motor and accessories.

2-stage gearboxes

Product	Ratio	Moment of inertia
	i	J
		[kgcm²]
g500-B45	5.411	0.31
	6.222	0.28
	7.111	0.20
	8.178	0.18
	9.101	0.13
	10.466	0.12
	11.640	0.086
	13.386	0.079
	15.111	0.059
	17.378	0.055
	19.365	0.038
	22.270	0.054
	25.051	0.025
	28.808	0.023
	32.593	0.016
	37.481	0.015
	42.222	0.010
	48.556	0.009
	53.889	0.006
	61.972	0.006
g500-B110	5.185	0.79
	5.963	0.70
	7.111	0.48
	8.178	0.43
	9.101	0.32
	10.466	0.29
	11.449	0.26
	12.698	0.19
	14.603	0.18
	15.556	0.14
	17.889	0.13
	19.556	0.095
	22.489	0.088
	25.185	0.063
	28.963	0.060
	31.919	0.041
	36.707	0.039
	37.400	0.072
	40.000	0.028
	46.000	0.027
	48.167	0.050
	52.698	0.017
	60.603	0.016
	61.045	0.033
	76.500	0.023
	100.786	0.014

Product	Ratio	Moment of inertia
	i	J
		[kgcm²]
g500-B240	3.565	2.97
	4.889	1.74
	6.257	1.15
	6.883	1.67
	7.817	1.51
	9.440	1.05
	10.720	0.97
	12.081	0.73
	13.719	0.68
	15.008	0.59
	16.857	0.45
	19.143	0.42
	20.650	0.34
	23.450	0.32
	26.878	0.21
	30.522	0.20
	33.433	0.15
	37.967	0.15
	43.267	0.096
	49.133	0.092
	52.510	0.070
	59.630	0.067
	67.113	0.045
	76.213	0.043



Moments of inertia

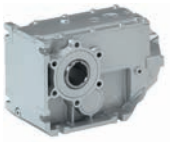
3-stage gearboxes

Product	Ratio	Moment of inertia
	i	J
		[kgcm²]
g500-B240	68.459	0.093
	77.741	0.091
	87.563	0.062
	99.437	0.061
	113.673	0.044
	129.087	0.043
	145.674	0.030
	165.426	0.030
	188.442	0.021
	213.994	0.020
	245.178	0.014
	278.422	0.014
	317.617	0.003
	360.683	0.003

Product	Ratio	Moment of inertia
	i	J
		[kgcm²]
g500-B450	5.002	4.36
	6.860	2.48
	9.315	3.21
	10.328	3.06
	12.775	1.87
	14.165	1.79
	16.349	1.23
	17.885	1.05
	19.831	1.01
	22.813	0.70
	25.294	0.68
	27.945	0.51
	30.985	0.49
	36.373	0.31
	40.330	0.30
	45.245	0.22
	50.167	0.21
	56.154	0.47
	62.262	0.47
	68.788	0.36
	76.271	0.36
	89.534	0.22
	99.274	0.22
	111.372	0.16
	123.487	0.16
	144.128	0.10
	159.807	0.099
	174.919	0.073
	193.948	0.072
	223.563	0.046
	247.882	0.046

Additional weights for gearboxes

Product			g500-B45	g500-B110	g500-B240	g500-B450
Mass						
Solid shaft	m	[kg]	0.4	0.5	1.4	1.3
Shrink disc	m	[kg]	0.2	0.2	0.7	0.6
Flange	m	[kg]	0.3	0.4	0.7	0.9



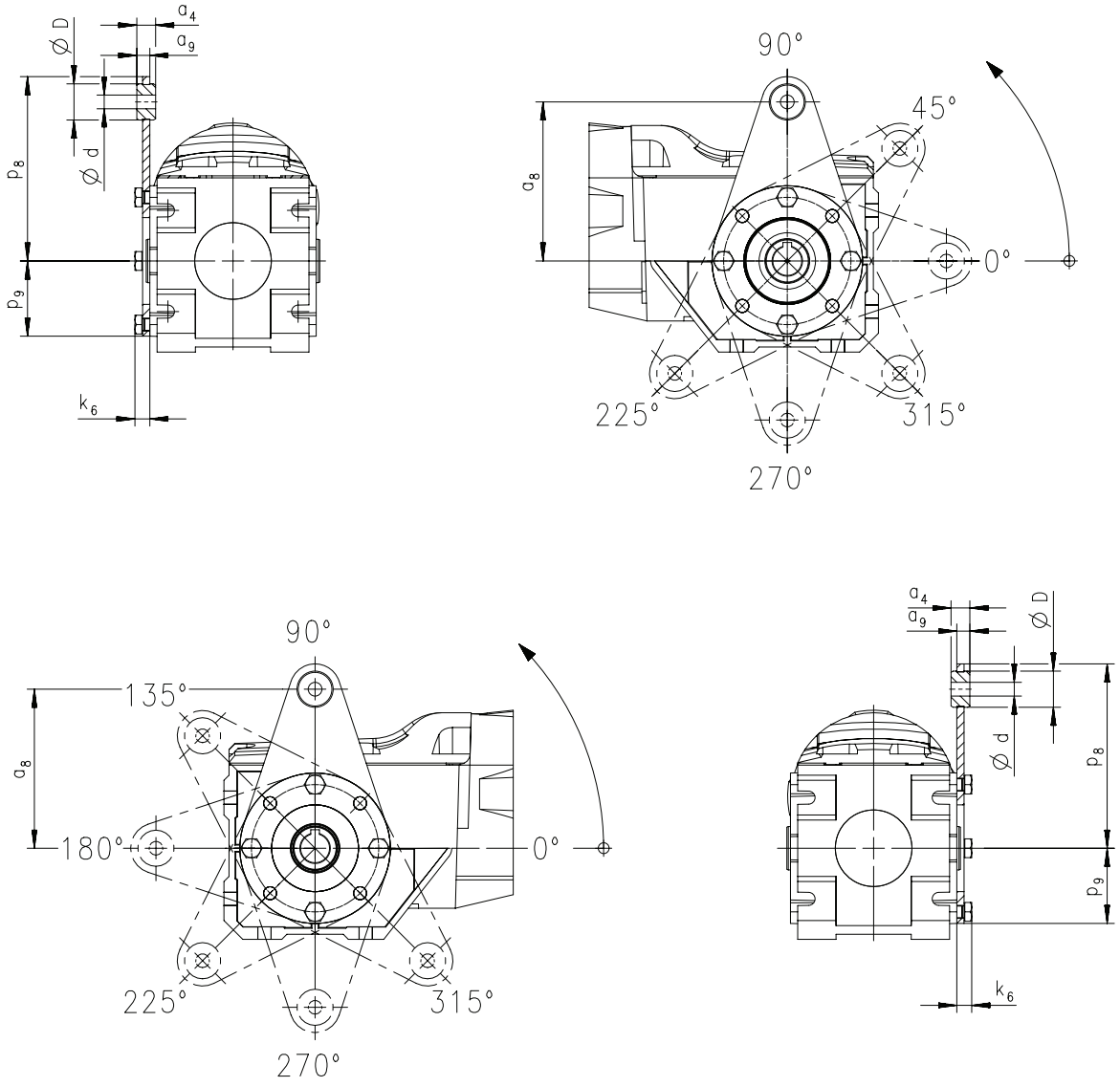
Torque plate

Torque support is usually effected by means of the foot or flange. Another simple possibility is provided by the attachable torque plates. Here, torque support is implemented solely via one point, which, among other things, is suitable for shaft-mounted gearboxes. Supplied rubber buffers provide for mounting with minimum stress and absorb light shocks.
The torque plates are available in two designs, for mounting on the available threaded pitch circle, or for the gearbox foot.

In addition, torque support for the g500-B45 gearbox can be effected via the holding fixture of the housing, which is integrated on both sides, by means of a rubber buffer.
The rubber buffers can be ordered optionally.

Torque plate

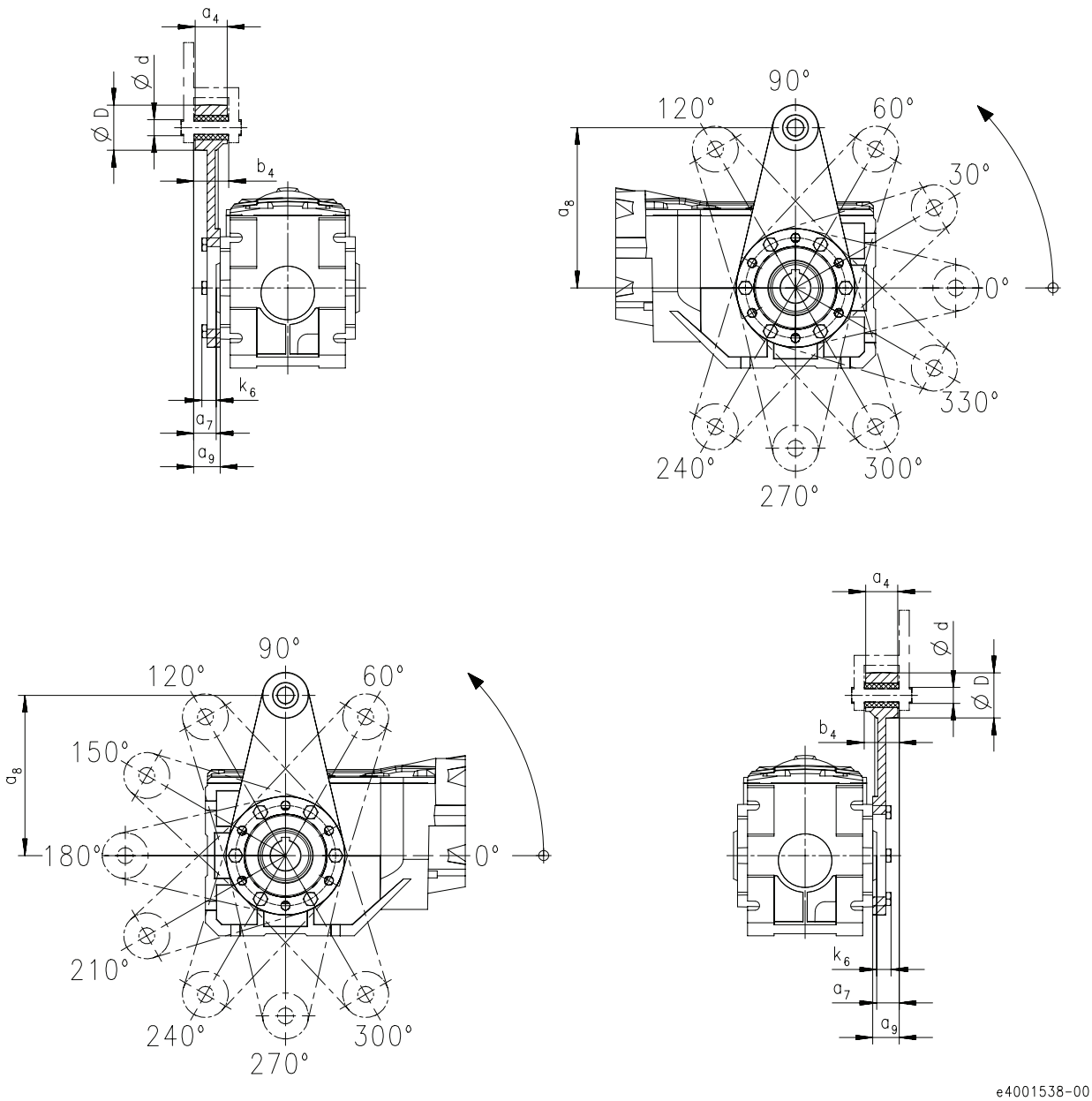
Torque plate on threaded pitch circle



Product	Dimensions								Mass
	a_4	a_8	a_9	d	D	p_8	p_9	k_6	m
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]
g500-B45	12.0	100	8.0	8.0	20.0	115	42.0	9.0	0.30
g500-B110	13.0	110	9.0	10.0	25.0	128	54.0	11.0	0.50

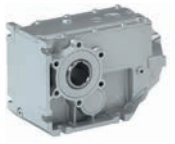
Torque plate

Torque plate on threaded pitch circle



Product	Dimensions								Mass
	a_4	a_7	a_8	a_9	b_4	d	D	k_6	m
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]
- g500-B240	34.0	23.5	160	27.5	38.5	16.0	45.0	15.0	1.30

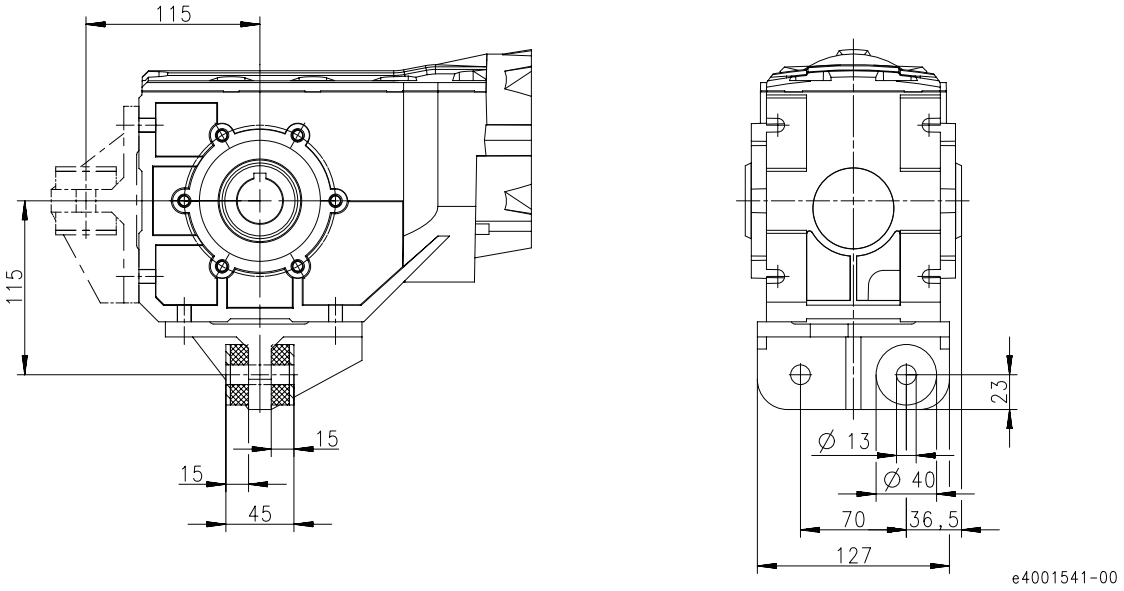
6.7



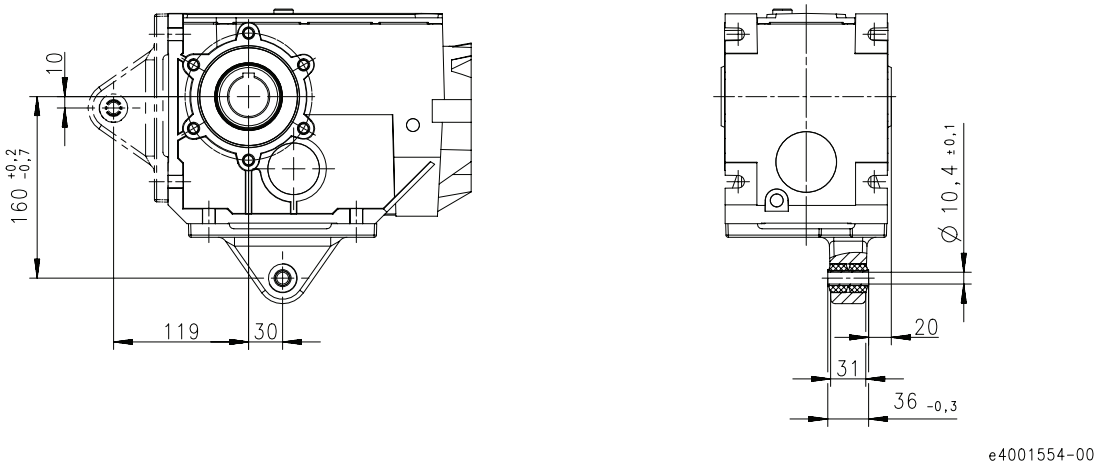
Torque plate

Torque plate at housing foot

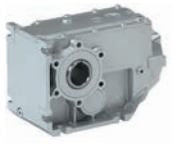
g500-B240



g500-B450



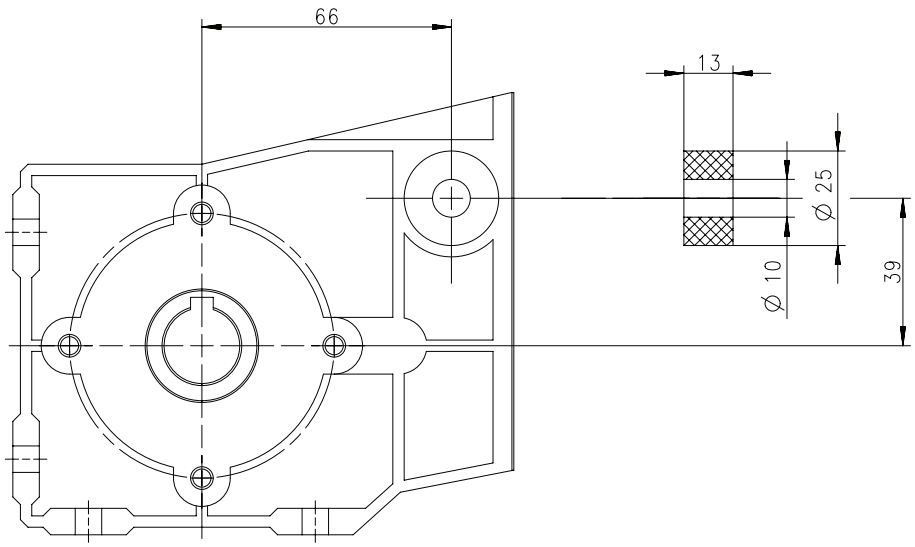
Product	Mass
	m
	[kg]
g500-B240	2.40
g500-B450	1.10

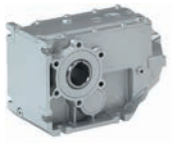


Torque plate

Rubber buffer for torque plate

g500-B45



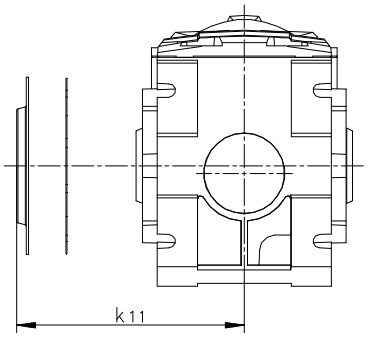


Shaft cover

Hoseproof hollow shaft cover

The cover protects the hollow shaft from objects falling in. It is sealed by a flat gasket between cover and housing. Thus, the hollow shaft is protected from dust and water jets.

The cover is loosely enclosed and can be mounted on both sides of the hollow shaft bore.



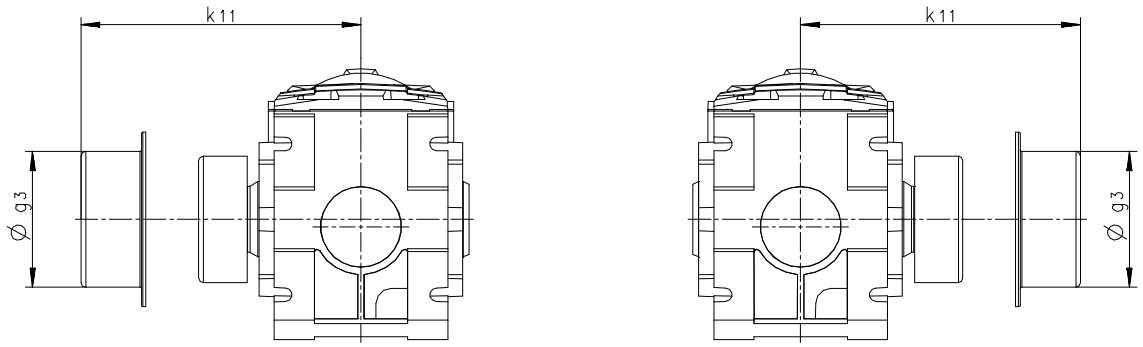
6.7

Product	Dimensions	Mass
	k_{11}	m
	[mm]	[kg]
g500-B45	55.0	0.050
g500-B110	65.0	0.050
g500-B240	75.0	0.10
g500-B450	79.5	0.15

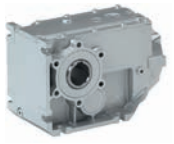
Shaft cover

Shrink disc cover

The cover is provided for the shrink disc to be protected from contact.

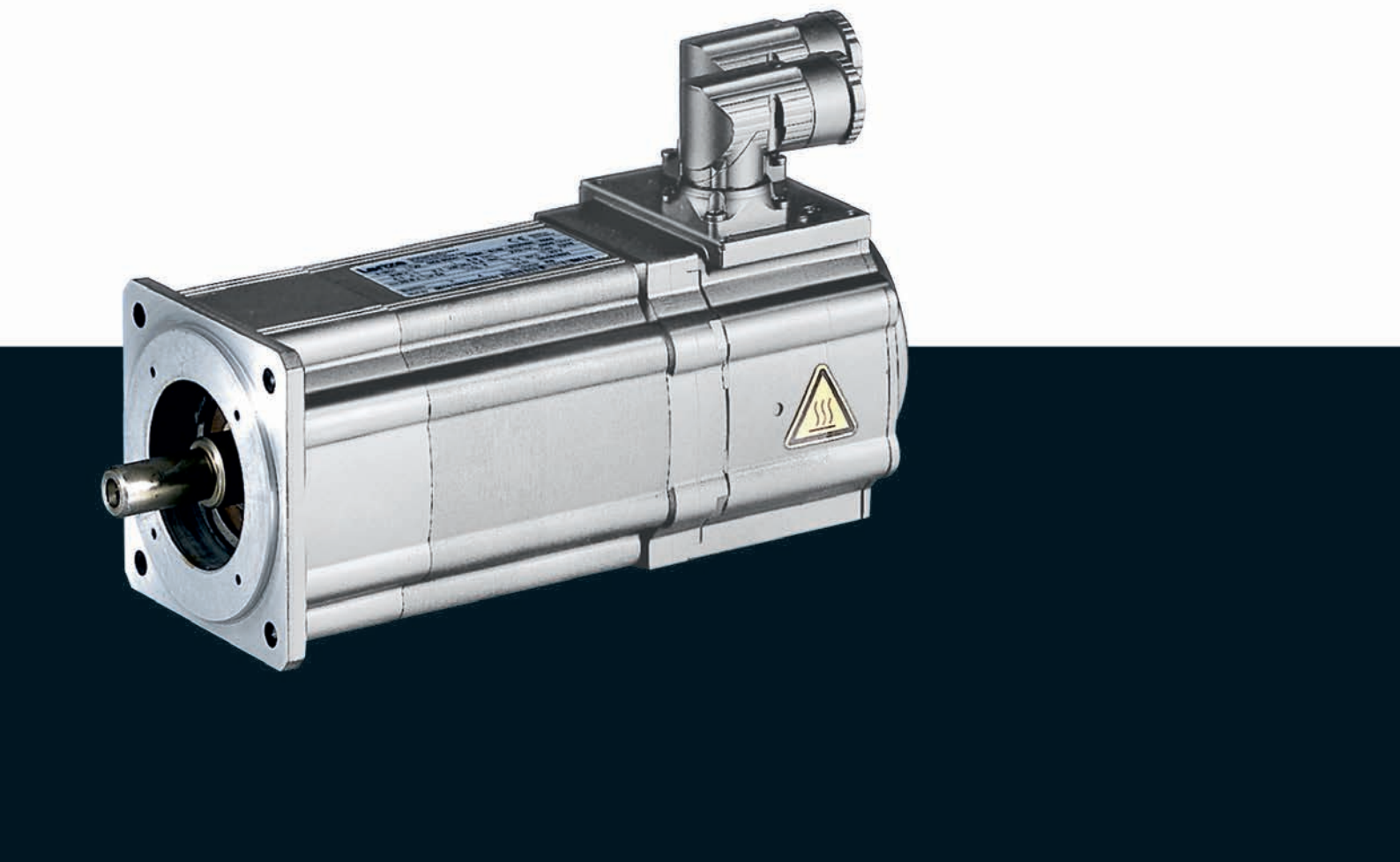


Product	Dimensions		Mass
	g_3	k_{11}	m
	[mm]	[mm]	[kg]
g500-B45	65.0	87.5	0.050
g500-B110	79.0	97.5	0.050
g500-B240	90.0	111	0.050
g500-B450	90.0	108	0.050



MCS synchronous servo motors

0.25 to 190 Nm



MCS synchronous servo motors

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List of abbreviations

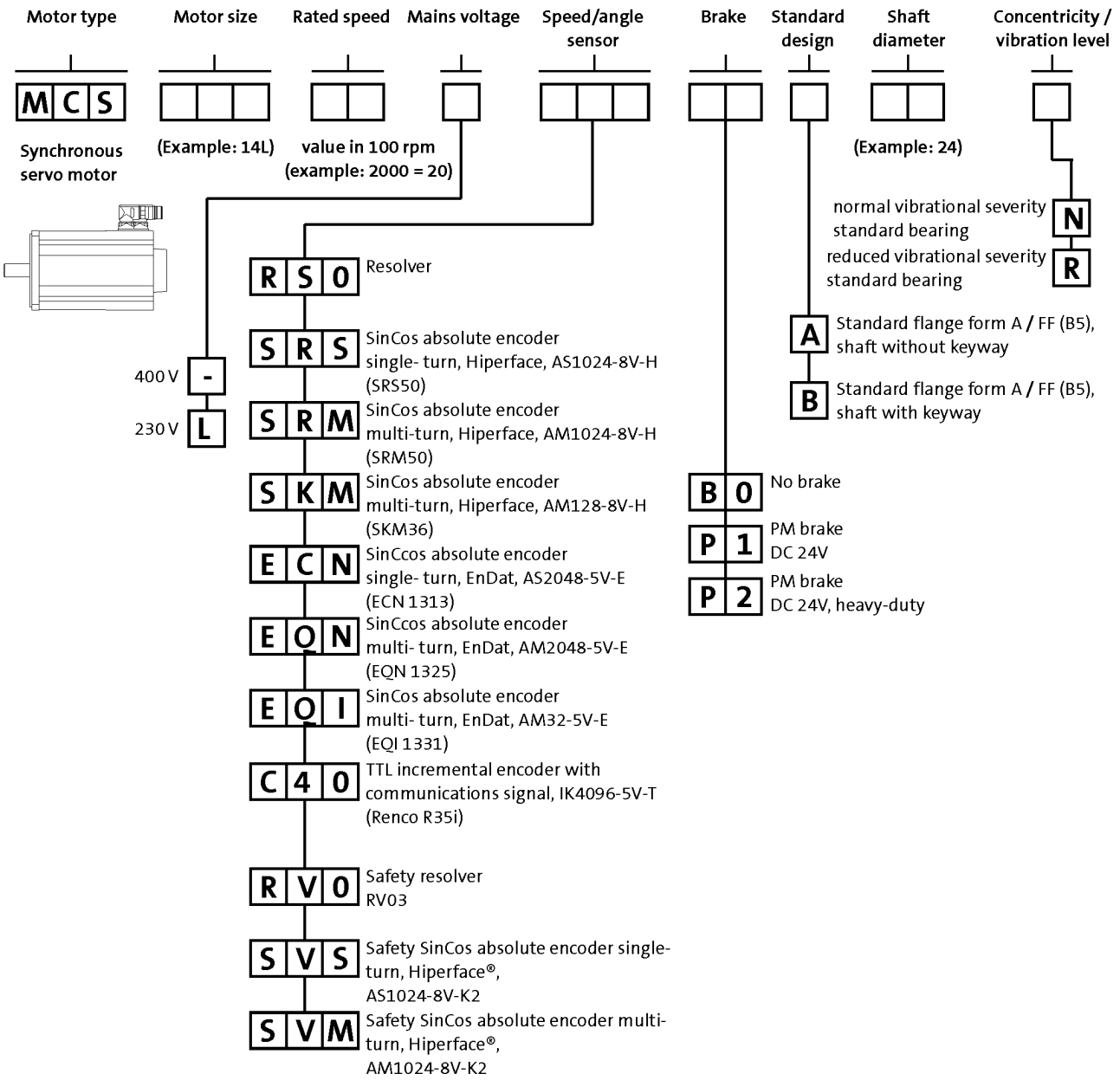
$\eta_{100\,\%}$	[%]	Efficiency
cos ϕ		Power factor
du/dt	[kV/µs]	Insulation resistance
$F_{ax,-}$	[N]	Min. axial force
$F_{ax,+}$	[N]	Max. axial force
$f_{in,max}$	[Hz]	Max. input frequency
f_{max}	[kHz]	Limit frequency
f_{max}	[kHz]	Max. switching frequency
f_N	[Hz]	Rated frequency
F_{rad}	[N]	Max. 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	[kgcm²]	Moment of inertia
J_{MB}	[kgcm²]	Moment of inertia
$KE_{LL\,150\,°C}$	[V /1000 rp]	Voltage constant
$Kt_{0\,150\,°C}$	[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
$R_{UV\,150\,°C}$	[Ω]	Stator impedance
$R_{UV\,20\,°C}$	[Ω]	Stator impedance
$S_{hü}$	[1/h]	Transition operating frequency
T	[°C]	Operating temperature
T	[°C]	Rated temperature
T	[°C]	Max. ambient temperature of bearing
T	[°C]	Max. surface temperature
T	[°C]	Max. ambient temperature for transport
T	[°C]	Min. ambient storage temperature
T	[°C]	Min. ambient temperature for transport
T	[°C]	Ambient temperature
t_1	[ms]	Engagement time
t_2	[ms]	Disengagement time
$T_{opr,max}$	[°C]	Max. ambient operating temperature
$T_{opr,min}$	[°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

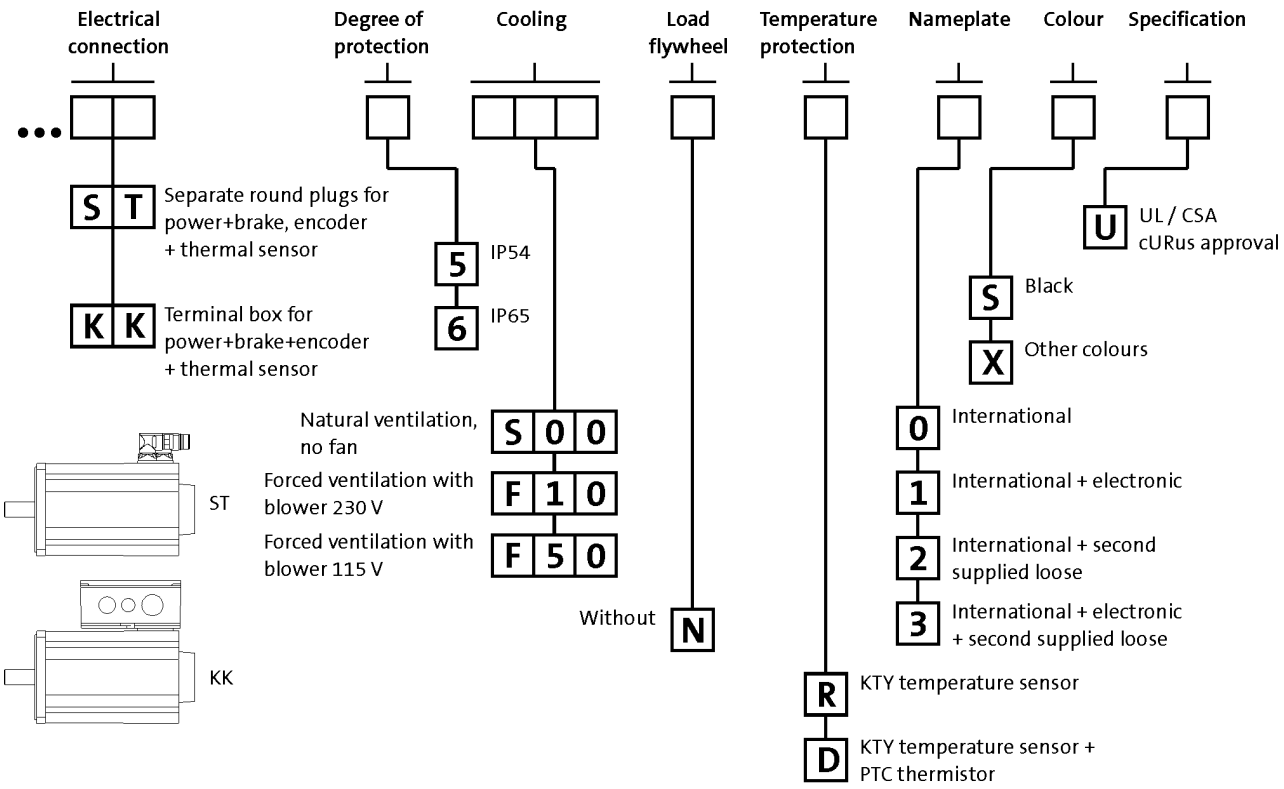
List of abbreviations

CE	Communauté Européenne
CSA	Canadian Standards Association
DIN	Deutsches Institut für Normung e.V.
EMC	Electromagnetic compatibility
EN	European standard
GOST	Certificate for Russian Federation
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)

Product key


Motor type
Motor size
Rated speed
Mains voltage
Speed/angle sensor
Brake
Standard design
Shaft diameter
Concentricity / vibration level
M C S
Synchronous servo motor
(Example: 14L)
value in 100 rpm (example: 2000 = 20)
(Example: 24)
normal vibrational severity standard bearing
N
reduced vibrational severity standard bearing
R
A
Standard flange form A / FF (B5), shaft without keyway
B
Standard flange form A / FF (B5), shaft with keyway
400 V
-
230 V
L
R S 0
Resolver
S R S
SinCos absolute encoder single- turn, Hiperface, AS1024-8V-H (SRS50)
S R M
SinCos absolute encoder multi-turn, Hiperface, AM1024-8V-H (SRM50)
S K M
SinCos absolute encoder multi-turn, Hiperface, AM128-8V-H (SKM36)
E C N
SinCcos absolute encoder single- turn, EnDat, AS2048-5V-E (ECN 1313)
E Q N
SinCcos absolute encoder multi- turn, EnDat, AM2048-5V-E (EQN 1325)
E Q I
SinCos absolute encoder multi- turn, EnDat, AM32-5V-E (EQI 1331)
C 4 0
TTL incremental encoder with communications signal, IK4096-5V-T (Renco R35i)
R V 0
Safety resolver RV03
S V S
Safety SinCos absolute encoder single-turn, Hiperface®, AS1024-8V-K2
S V M
Safety SinCos absolute encoder multi-turn, Hiperface®, AM1024-8V-K2
B 0
No brake
P 1
PM brake DC 24V
P 2
PM brake DC 24V, heavy-duty

Product key


Electrical connection
Degree of protection
Cooling
Load flywheel
Temperature protection
Nameplate
Colour
Specification
S T
Separate round plugs for power+brake, encoder + thermal sensor
K K
Terminal box for power+brake+encoder + thermal sensor
5
IP54
6
IP65
S 0 0
Natural ventilation, no fan
F 1 0
Forced ventilation with blower 230 V
F 5 0
Forced ventilation with blower 115 V
N
Without
ST
KK
U
UL / CSA cURus approval
S
Black
X
Other colours
0
International
1
International + electronic
2
International + second supplied loose
3
International + electronic + second supplied loose
R
KTY temperature sensor
D
KTY temperature sensor + PTC thermistor

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

MCS09 synchronous servo motor

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		
Thermal 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).

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

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

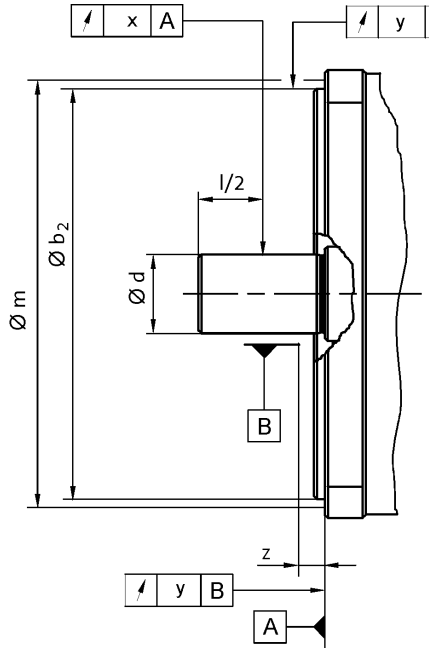
		MCS06	MCS09	MCS12	MCS14	MCS19
Vibrational severity						
IEC/EN 60034-14				A		
Maximum r.m.s. value of the vibration velocity [1)]	[mm/s]			1.60		

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



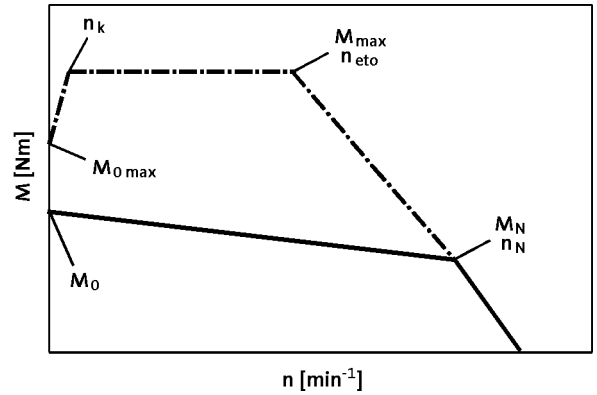
				MCS06	MCS09	MCS12	MCS14	MCS19
Flange size								
				FF75	FF100	FF130	FF165	FF215
Dimensions								
	b_2	j6	[mm]	60	80	110	130	180
	d	k6	[mm]	11	14	19	24	28
Distance								
Measuring diameter	m		[mm]	65.0	85.0	115	135	185
Dial gauge holder for flange check	z	+/- 1	[mm]	10.0				
Concentricity								
IEC 60072				Normal class				
Value	y		[mm]	0.080		0.10		
Linear movement								
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

Graphical display of the operating points



	n_k
	[r/min]
MCS	75.0
MDSKS	100
MDFKS	

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

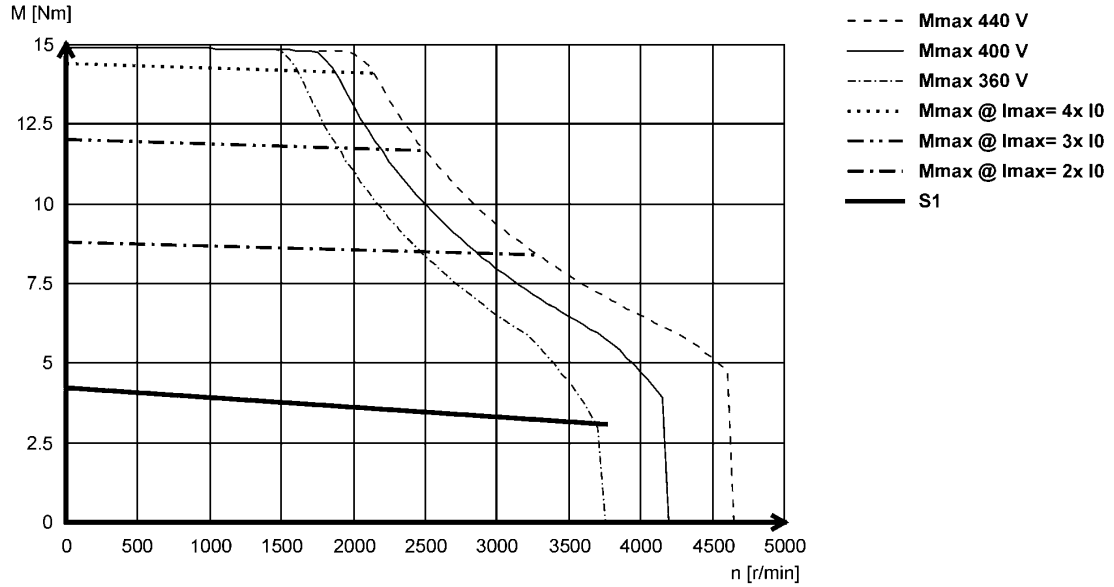
Simply enter this code (e.g. DS_ZT_MCS_0001) as a search string at **www.lenze.de/dsc** and you will be given the information immediately in the form of a PDF format.

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.

Dimensioning

Notes on the torque characteristics

Graph of the torque characteristics



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 (2x I0 to 4x I0).

Characteristics in the Internet

You can find the torque characteristic for inverter-motor combinations on the Internet at **www.lenze.de/dsc**. This lists all useful combinations with the servo inverters 9400, 9300, ECS and Inverter Drives 8400 TopLine. These characteristics are each determined using the factory default settings of the inverters:

- 9400 with variables switching frequency.
  This means that up to 6-fold overcurrent can be applied in borderline cases.
- 9300 and ECS with fixed switching frequency.
- 8400 TopLine with variables switching frequency.

The continuous operation characteristics (S1) show the inverter-independent motor rating values

Further information on the terms switching frequency and factory default settings can be found in the operating manual of the respective servo inverter.

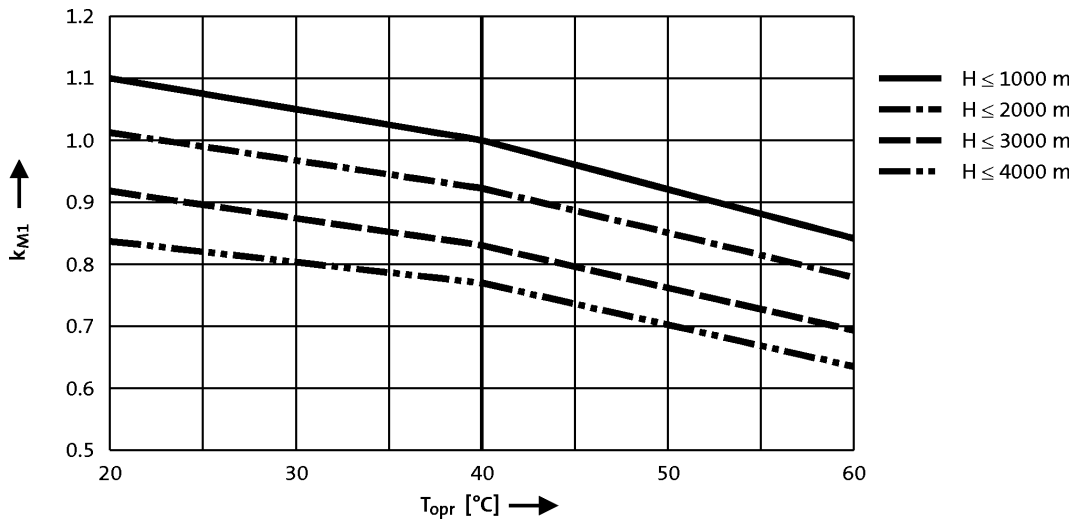
Dimensioning

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

Torque correction factor k_{m1}

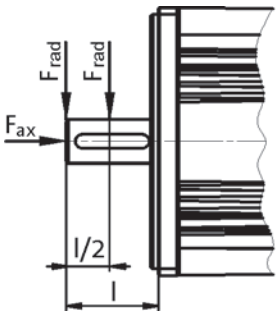


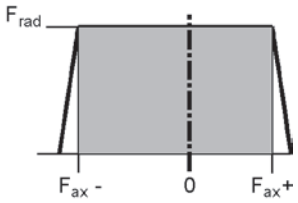
Standards and operating conditions

			MCS	
Cooling type				
			Naturally ventilated	Blower
Enclosure				
EN 60529			IP54 IP65	IP54
Temperature class				
IEC/EN 60034-1; utilisation			F	
IEC/EN 60034-1; insulation system (enamel-insulated wire)			H	
Conformity				
CE			Low-Voltage Directive	
			2006/95/EC	
EAC			TP TC 004/2011 (TR C	
Approval				
			UkrSEPRO	
CSA			CSA 22.2 No. 100	
cURus			UL 1004-1 UL 1004-6 Power Conversion Equipment (File-No. E210321)	
Max. voltage load				
IEC/TS 60034-25			Pulse voltage limiting curve A	
Smooth running				
IEC 60072			Normal class	
Linear movement				
IEC 60072			Normal class	
Concentricity				
IEC 60072			Normal class	
Mechanical ambient conditions (vibration)				
IEC/EN 60721-3-3			3M6	
Min. ambient operating temperature				
Without brake	$T_{opr,min}$	[°C]	-20	-15
With brake	$T_{opr,min}$	[°C]	-10	
Max. ambient temperature for operation				
	$T_{opr,max}$	[°C]	40	
Max. surface temperature				
	T	[°C]	140	110
Mechanical tolerance				
Flange centring diameter			$b_2 \leq 230$ mm = j6 $b_2 > 230$ mm = h6	
Shaft diameter			d ≤ 50 mm = k6 d > 50 mm = m6	
Site altitude				
Amsl	H_{max}	[m]	4000	

Permissible radial and axial forces

Application of forces





Application of force at l/2

Bearing service life L_{10}															
	5000 h			10000 h			20000 h			30000 h			50000 h		
	F_{rad} [N]	$F_{ax,-}$ [N]	$F_{ax,+}$ [N]	F_{rad} [N]	$F_{ax,-}$ [N]	$F_{ax,+}$ [N]	F_{rad} [N]	$F_{ax,-}$ [N]	$F_{ax,+}$ [N]	F_{rad} [N]	$F_{ax,-}$ [N]	$F_{ax,+}$ [N]	F_{rad} [N]	$F_{ax,-}$ [N]	$F_{ax,+}$ [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} [N]	$F_{ax,-}$ [N]	$F_{ax,+}$ [N]	F_{rad} [N]	$F_{ax,-}$ [N]	$F_{ax,+}$ [N]	F_{rad} [N]	$F_{ax,-}$ [N]	$F_{ax,+}$ [N]	F_{rad} [N]	$F_{ax,-}$ [N]	$F_{ax,+}$ [N]	F_{rad} [N]	$F_{ax,-}$ [N]	$F_{ax,+}$ [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	1260	-820	390	1000	-660	230	880	-580	150	740	-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 lifetime.

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]	$KE_{LL\,150\,°C}$	$R_{UV\,20\,°C}$	$R_{UV\,150\,°C}$	L_N	$Kt_{0\,150\,°C}$	n_{max} [2]	m [1]
	[%]	[kgcm²]	[V /1000 rp]	[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.

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]	$KE_{LL\,150\,°C}$	$R_{UV\,20\,°C}$	$R_{UV\,150\,°C}$	L_N	$Kt_{0\,150\,°C}$	n_{max} [2]	m [1]
	[%]	[kgcm²]	[V /1000 rp]	[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.

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]	$KE_{LL\,150\,°C}$	$R_{UV\,20\,°C}$	$R_{UV\,150\,°C}$	L_N	$Kt_{0\,150\,°C}$	n_{max} [2]	m [1]
	[%]	[kgcm²]	[V /1000 rp]	[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.

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]	$KE_{LL\,150\,°C}$	$R_{UV\,20\,°C}$	$R_{UV\,150\,°C}$	L_N	$Kt_{0\,150\,°C}$	n_{max} [2]	m [1]
	[%]	[kgcm²]	[V /1000 rp]	[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.

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]	$KE_{LL\,150\,°C}$	$R_{UV\,20\,°C}$	$R_{UV\,150\,°C}$	L_N	$Kt_{0\,150\,°C}$	n_{max} [2]	m [1]
	[%]	[kgcm²]	[V /1000 rp]	[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.

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]	$KE_{LL\,150\,°C}$	$R_{UV\,20\,°C}$	$R_{UV\,150\,°C}$	L_N	$Kt_{0\,150\,°C}$	n_{max} [2]	m [1]
	[%]	[kgcm²]	[V /1000 rp]	[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.

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]	$KE_{LL\,150\,°C}$	$R_{UV\,20\,°C}$	$R_{UV\,150\,°C}$	L_N	$Kt_{0\,150\,°C}$	n_{max} [2]	m [1]
	[%]	[kgcm²]	[V /1000 rp]	[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.

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										
					n_{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									
					n_{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										
					n_{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									
					n_{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										
					n_{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								
					n_{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									
					n_{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							
					n_{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								
					n_{eto}		-	-								

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

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					
					n_{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							
					n_{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				
					n_{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						
					n_{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			
					n_{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									
					n_{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							
					n_{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								
					n_{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					
					n_{eto}			-	-	-	-					

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

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					
					n_{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			
					n_{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							
					n_{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					
					n_{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					
					n_{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			
					n_{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					
					n_{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	
					n_{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				
					n_{eto}				-	-	-	-				

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

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	
					n_{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					
					n_{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		
					n_{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				
					n_{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	
					n_{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		
					n_{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
					n_{eto}						-	-	-	-	-	-

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

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							
					n_{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					
					n_{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						
					n_{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					
					n_{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						
					n_{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						
					n_{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					
					n_{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			
					n_{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			
					n_{eto}			-	-	-	-			

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

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	
					n_{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		
					n_{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	
					n_{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
					n_{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					
					n_{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		
					n_{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			
					n_{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			
					n_{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	
					n_{eto}				-	-	-	-	-	

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

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									
					n_{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							
					n_{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								
					n_{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					
					n_{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					
					n_{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			
					n_{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							
					n_{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					
					n_{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					
					n_{eto}			-	-	-	-					

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

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			
					n_{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					
					n_{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	
					n_{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				
					n_{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	
					n_{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					
					n_{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		
					n_{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				
					n_{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	
					n_{eto}								-	-	-	

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

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]

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	11.8	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		
					n_{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
					n_{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		
					n_{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
					n_{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		
					n_{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
					n_{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
					n_{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
					n_{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
					n_{eto}			-	-	-	-	-

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

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]

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	11.8	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
					n_{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
					n_{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
					n_{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
					n_{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
					n_{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
					n_{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
					n_{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
					n_{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
					n_{eto}						-	-

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

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							$M_{0,max}$	1.50	4.5	6000	2.4	09F60-
11.1	11.4							M_{max}					
-	-							n_{eto}					
5.5	5.5							M_0					
3.8	3.8							M_N					
19.6	20.1							$M_{0,max}$	1.60	3.4	4050	3.8	09H41-
19.6	20.1							M_{max}					
-	-							n_{eto}					
5.5	5.5							M_0					
3.0	3.0							M_N					
11.4	11.7							$M_{0,max}$	1.90	6.0	6000	3.0	09H60-
11.4	11.7							M_{max}					
-	-							n_{eto}					
7.5	7.5							M_0					
4.5	4.5							M_N					
20.3	20.8							$M_{0,max}$	1.90	4.2	4050	4.5	09L41-
20.3	20.8							M_{max}					
-	-							n_{eto}					
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					$M_{0,max}$	1.90	6.9	5100	3.6	09L51-
10.8	19.1	19.1	19.1					M_{max}					
-	-	-	-					n_{eto}					
								M_0					
								M_N					
								$M_{0,max}$	1.10	2.6	1950	5.5	12D20-
								M_{max}					
								n_{eto}					
6.4	6.4							M_0					
4.3	4.3							M_N					
16.9	17.3							$M_{0,max}$	1.80	4.5	4050	4.3	12D41-
16.9	17.3							M_{max}					
-	-							n_{eto}					
11.4	11.4							M_0					
10.0	10.0							M_N					
28.3	29.0							$M_{0,max}$	1.60	3.8	1500	10.0	12H15-
28.3	29.0							M_{max}					
-	-							n_{eto}					
11.4	11.4							M_0					
7.5	7.5							M_N					
23.5	24.1							$M_{0,max}$	2.80	5.7	3525	7.5	12H35-
23.5	24.1							M_{max}					
-	-							n_{eto}					

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

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	11.8	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]

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
15.0	15.0							M_0					
13.5	13.5							M_N					
40.8	41.9							$M_{0,max}$	2.80	5.9	1950	13.5	12L20-
40.8	41.9							M_{max}					
-	-							n_{eto}					
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				$M_{0,max}$	4.70	10.2	4050	11.0	12L41-
22.2	30.4	49.6	49.6	49.6				M_{max}					
-	-	-	-	-				n_{eto}					
11.0	11.0							M_0					
9.2	9.2							M_N					
28.3	29.0							$M_{0,max}$	1.45	4.5	1500	9.2	14D15-
28.3	29.0							M_{max}					
-	-							n_{eto}					
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					$M_{0,max}$	2.80	7.5	3600	7.5	14D36-
18.5	22.2	22.2	22.2					M_{max}					
-	-	-	-					n_{eto}					
21.0	21.0							M_0					
16.0	16.0							M_N					
42.8	43.9							$M_{0,max}$	2.50	6.6	1500	16.0	14H15-
42.8	43.9							M_{max}					
-	-							n_{eto}					
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				$M_{0,max}$	4.70	11.9	3225	14.0	14H32-
23.2	31.7	51.9	51.9	51.9				M_{max}					
-	-	-	-	-				n_{eto}					
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					$M_{0,max}$	3.60	9.7	1500	23.0	14L15-
43.8	60.0	73.8	73.8					M_{max}					
-	-	-	-					n_{eto}					
	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		$M_{0,max}$	5.80	15.0	3225	17.2	14L32-
	31.3	57.6	73.9	73.9	73.9	73.9		M_{max}					
	-	-	-	-	-	-		n_{eto}					
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				$M_{0,max}$	4.20	10.8	1350	30.0	14P14-
51.2	70.0	105.1	105.1	105.1				M_{max}					
-	-	-	-	-				n_{eto}					

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

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	11.8	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]

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
	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					
56.7	68.3	68.3	68.3					$M_{0,max}$	4.00	8.6	1425	27.0	19F14-
56.7	77.6	86.0	86.0					M_{max}					
-	-	-	-					n_{eto}					
	21.0	32.0	32.0	32.0				M_0					
	19.5	21.0	21.0	21.0				M_N					
	47.2	47.2	47.2	47.2				$M_{0,max}$	6.60	14.0	3000	21.0	19F30-
	38.9	68.3	68.3	68.3				M_{max}					
	-	-	-	-				n_{eto}					
	43.6	51.0	51.0	51.0				M_0					
	40.0	40.0	40.0	40.0				M_N					
	81.1	96.0	96.0	96.0				$M_{0,max}$	6.00	12.3	1425	40.0	19J14-
	81.1	129.0	129.0	129.0				M_{max}					
	-	-	-	-				n_{eto}					
			39.3	51.0	51.0	51.0	51.0	M_0					
			29.0	29.0	29.0	29.0	29.0	M_N					
			73.6	79.5	79.5	79.5	79.5	$M_{0,max}$	9.10	18.5	3000	29.0	19J30-
			110.4	127.6	127.6	127.6	127.6	M_{max}					
			-	-	-	-	-	n_{eto}					
	47.5	64.0	64.0	64.0				M_0					
	46.4	51.0	51.0	51.0				M_N					
	92.7	106.7	106.7	106.7				$M_{0,max}$	7.20	14.3	1350	51.0	19P14-
	92.7	155.5	155.5	155.5				M_{max}					
	-	-	-	-				n_{eto}					
			43.1	58.7	64.0	64.0	64.0	M_0					
			32.0	32.0	32.0	32.0	32.0	M_N					
			79.2	87.6	87.6	87.6	87.6	$M_{0,max}$	10.00	19.0	3000	32.0	19P30-
			118.6	144.3	144.3	144.3	144.3	M_{max}					
			-	-	-	-	-	n_{eto}					

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

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	11.8	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]

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	11.8	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			
					n_{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				
					n_{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	
					n_{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			
					n_{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	
					n_{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				
					n_{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			
					n_{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			
					n_{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
					n_{eto}									-	-	-	-

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

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	11.8	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]

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]

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]

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]

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	3225	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}				2469	1829	1495
19F14-	27.0	1425	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}			1204	746		
19F30-	21.0	3000	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}				2774	2033	1653
19J14-	40.0	1425	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}				1063	839	
19J30-	29.0	3000	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}					2850	2323
19P14-	51.0	1350	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}				1227	996	870
19P30-	32.0	3000	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}					2938	2715

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

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]

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]

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]

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]

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]

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]

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]

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]

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	3225	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]

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]

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]

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.

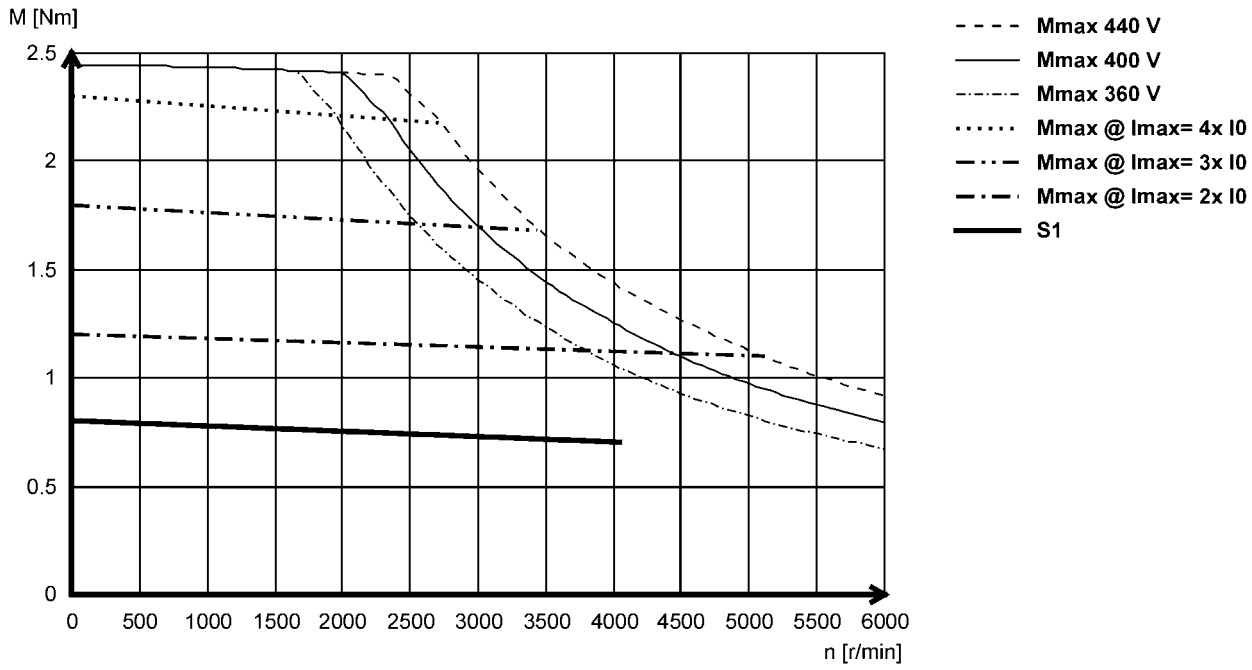
					EVS	9322-E□	9323-E□	9324-E□	9325-E□	9326-E□	9327-E□	9328-E□	9329-E□
					I_N	2.5	3.9	7.0	13.0	23.5	32.0	47.0	59.0
					$I_{0,max}$	3.8	5.9	10.5	19.5	23.5	32.0	47.0	52.0
MCS	**M_N**	**n_N**	**I_N**	**P_N**	I_{max}	3.8	5.9	10.5	19.5	35.3	48.0	70.5	88.5
19P12-	72.0	1200	21.3	9.00	M_0				47.5	86.0	86.0		
					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]

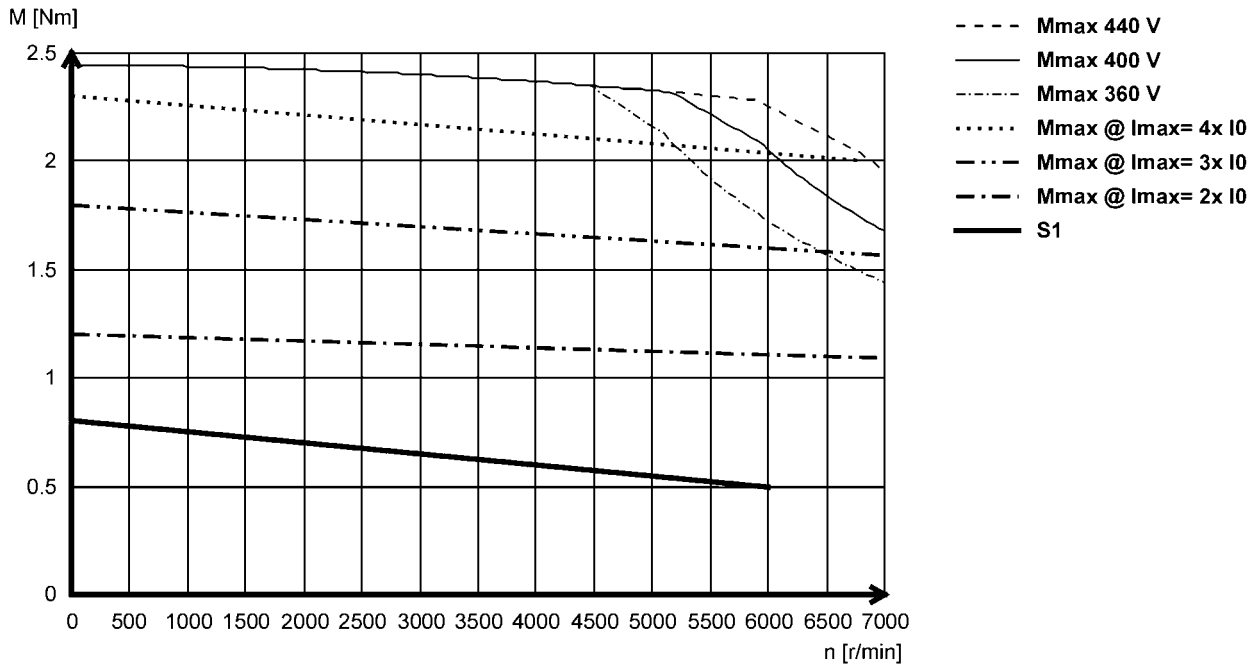
Torque characteristics

- The data applies to a mains connection voltage of 3 x 400 V.
- You can find further torque characteristics at **www.lenze.de/dsc**.

MCS06C41- (non-ventilated)



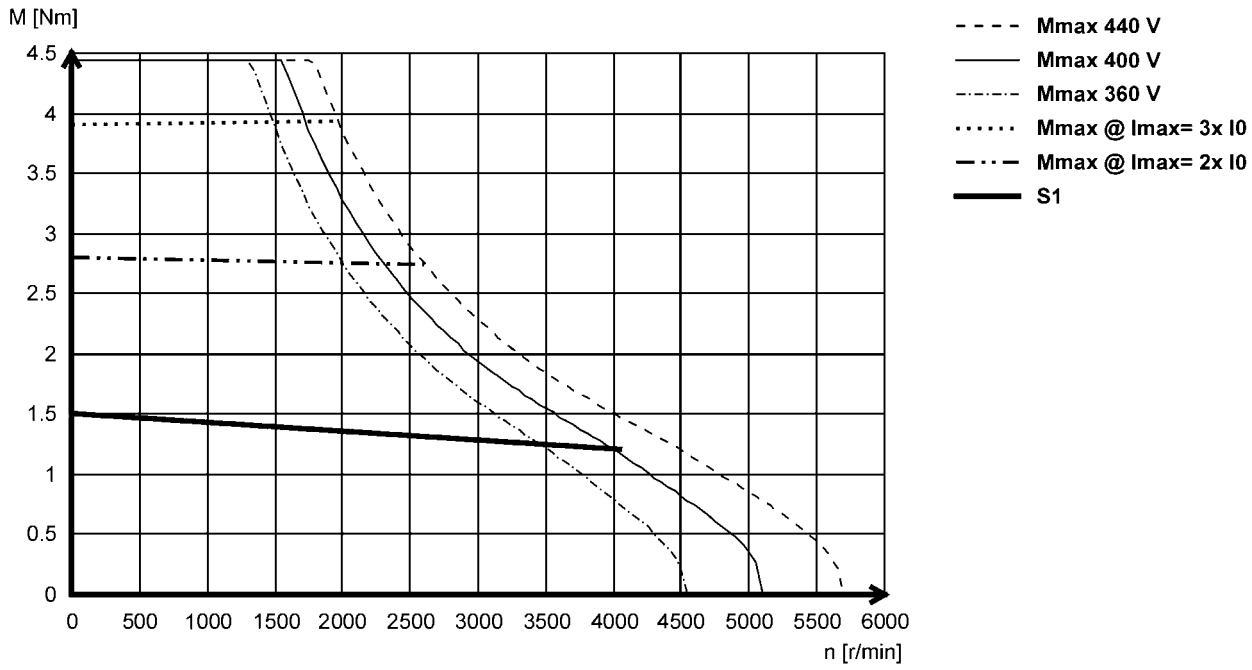
MCS06C60- (non-ventilated)



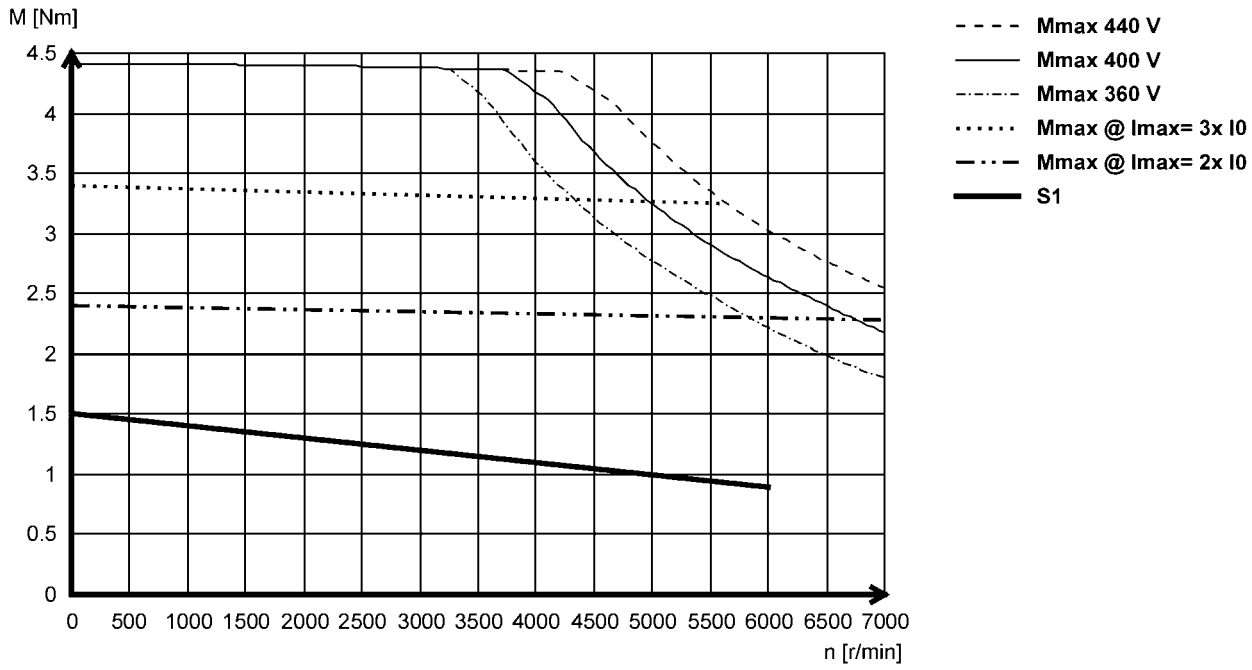
Torque characteristics

- The data applies to a mains connection voltage of 3 x 400 V.
- You can find further torque characteristics at **www.lenze.de/dsc**.

MCS06F41- (non-ventilated)



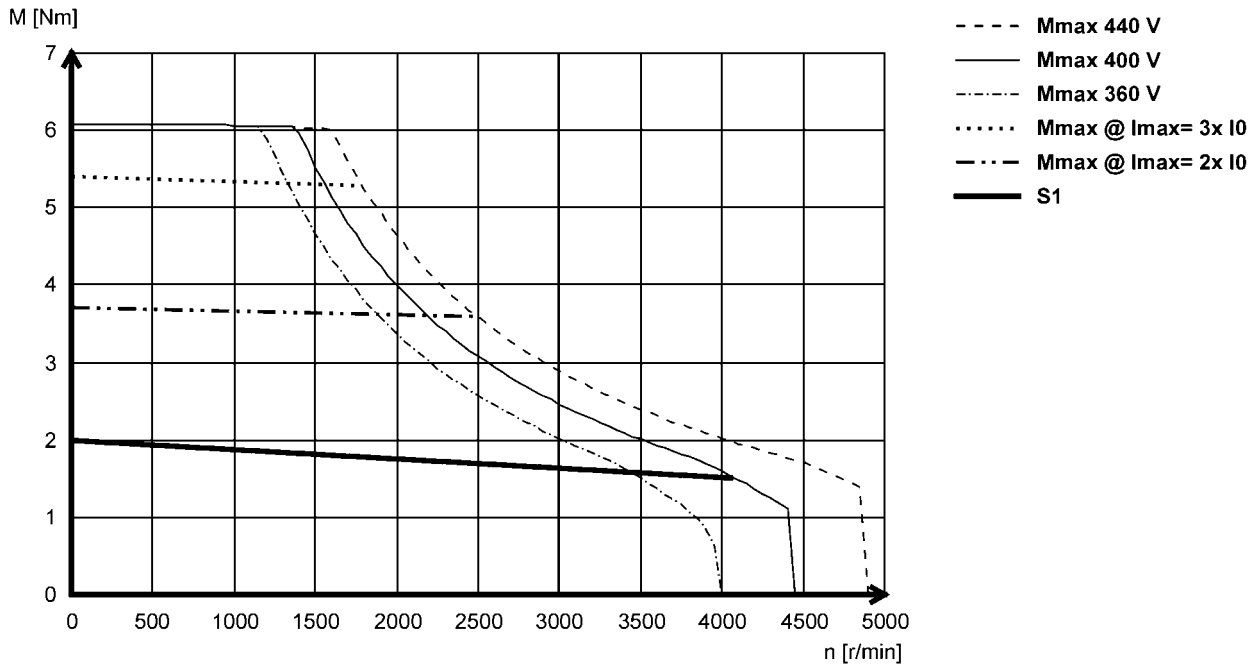
MCS06F60- (non-ventilated)



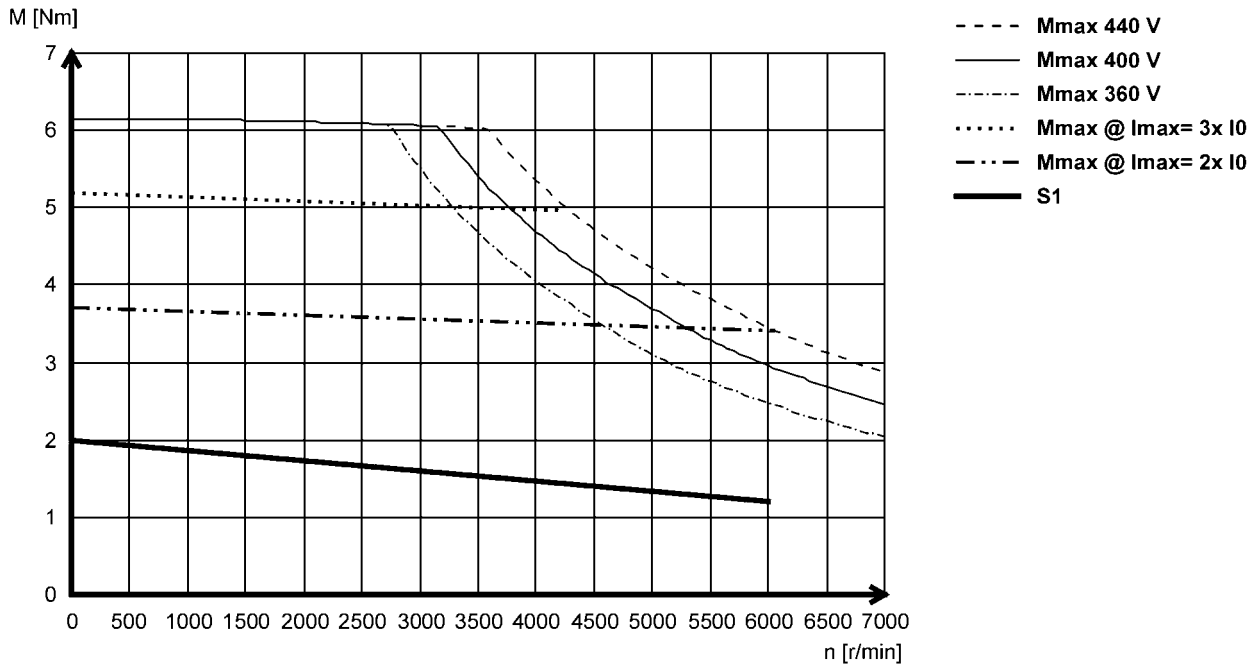
Torque characteristics

- The data applies to a mains connection voltage of 3 x 400 V.
- You can find further torque characteristics at **www.lenze.de/dsc**.

MCS06I41- (non-ventilated)



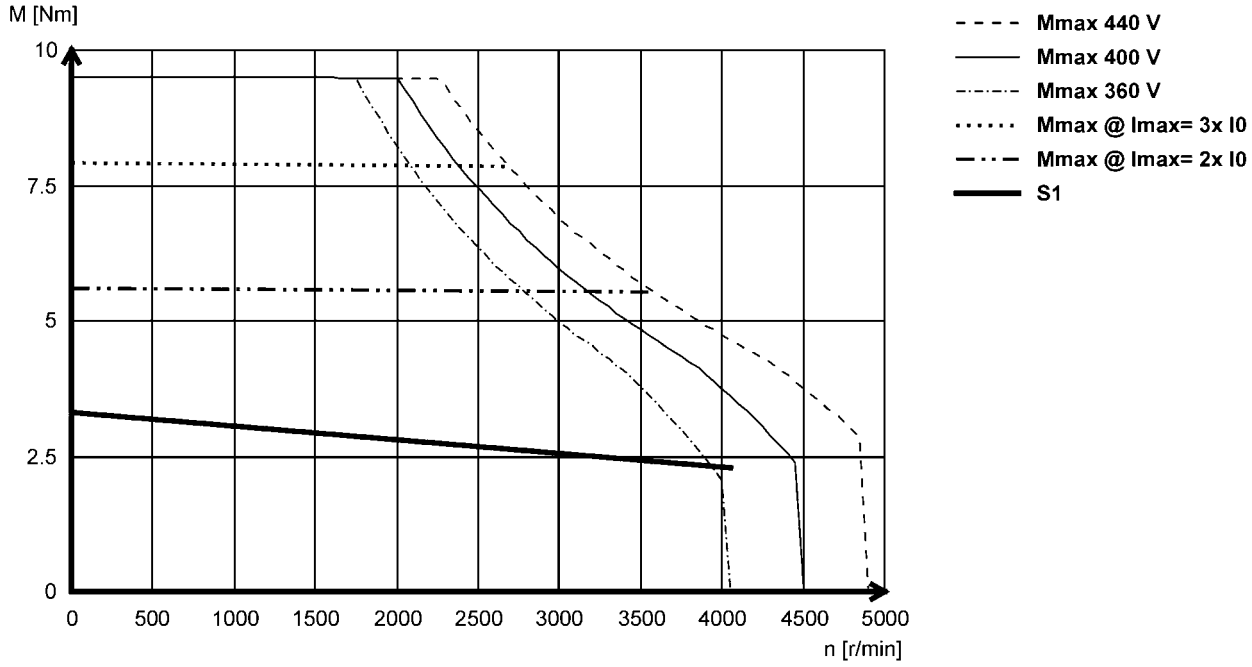
MCS06I60- (non-ventilated)



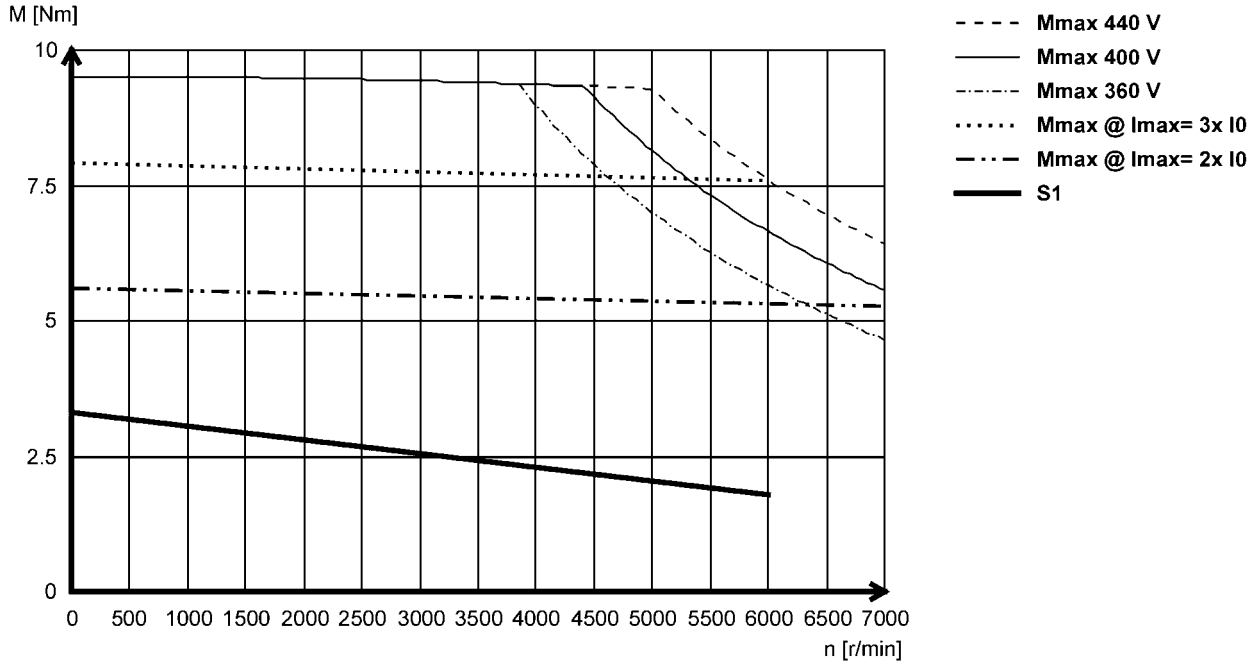
Torque characteristics

- The data applies to a mains connection voltage of 3 x 400 V.
- You can find further torque characteristics at **www.lenze.de/dsc**.

MCS09D41- (non-ventilated)



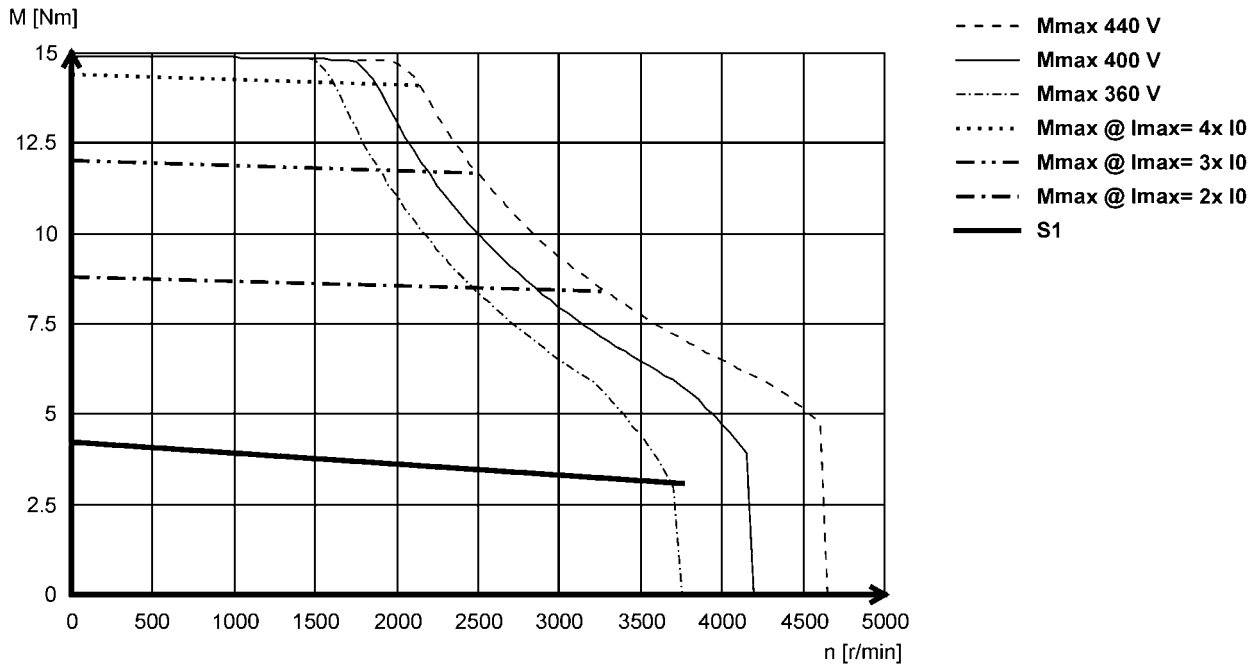
MCS09D60- (non-ventilated)



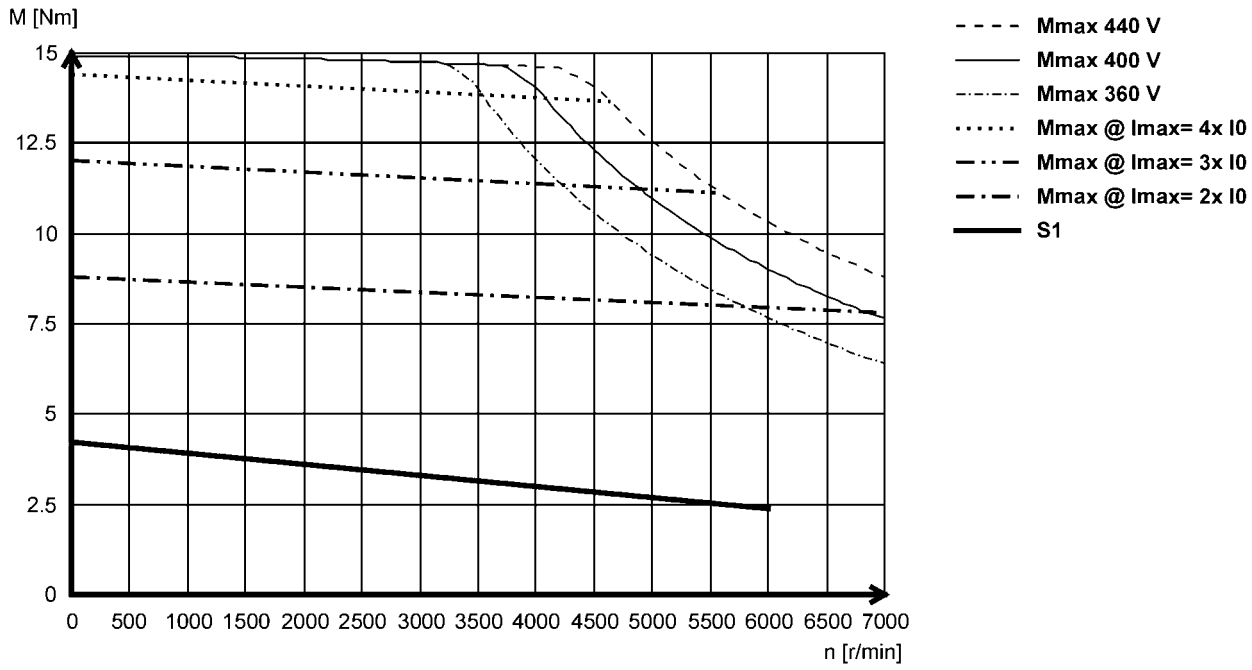
Torque characteristics

- The data applies to a mains connection voltage of 3 x 400 V.
- You can find further torque characteristics at **www.lenze.de/dsc**.

MCS09F38- (non-ventilated)



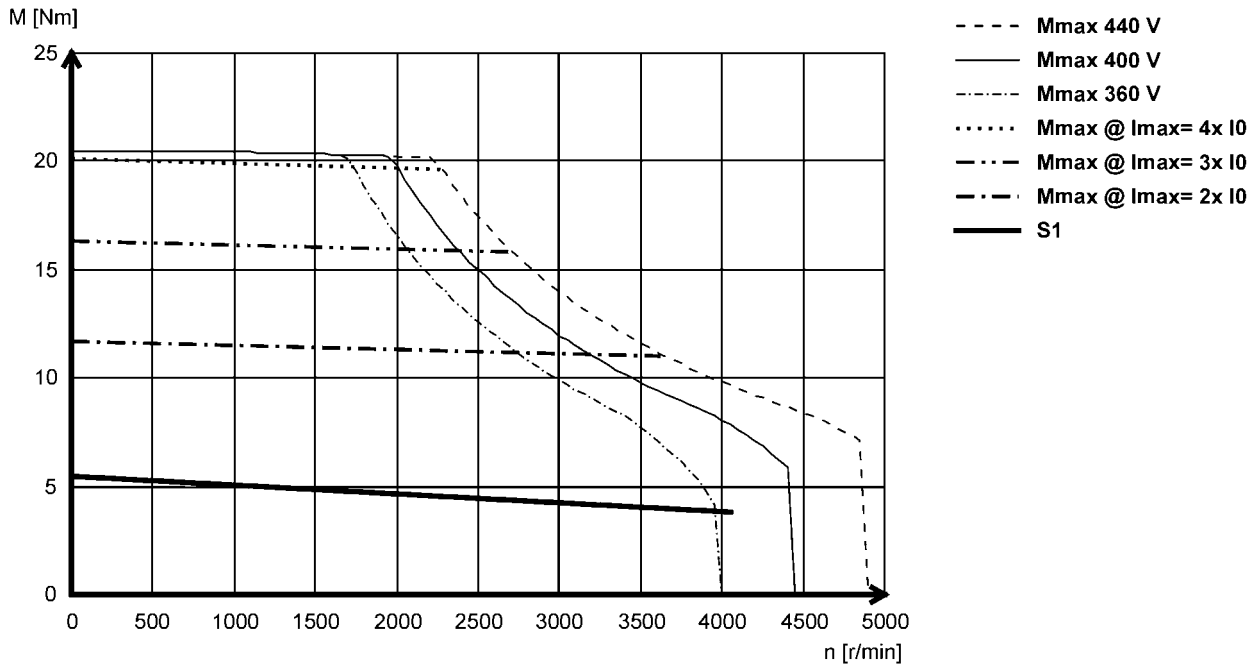
MCS09F60- (non-ventilated)



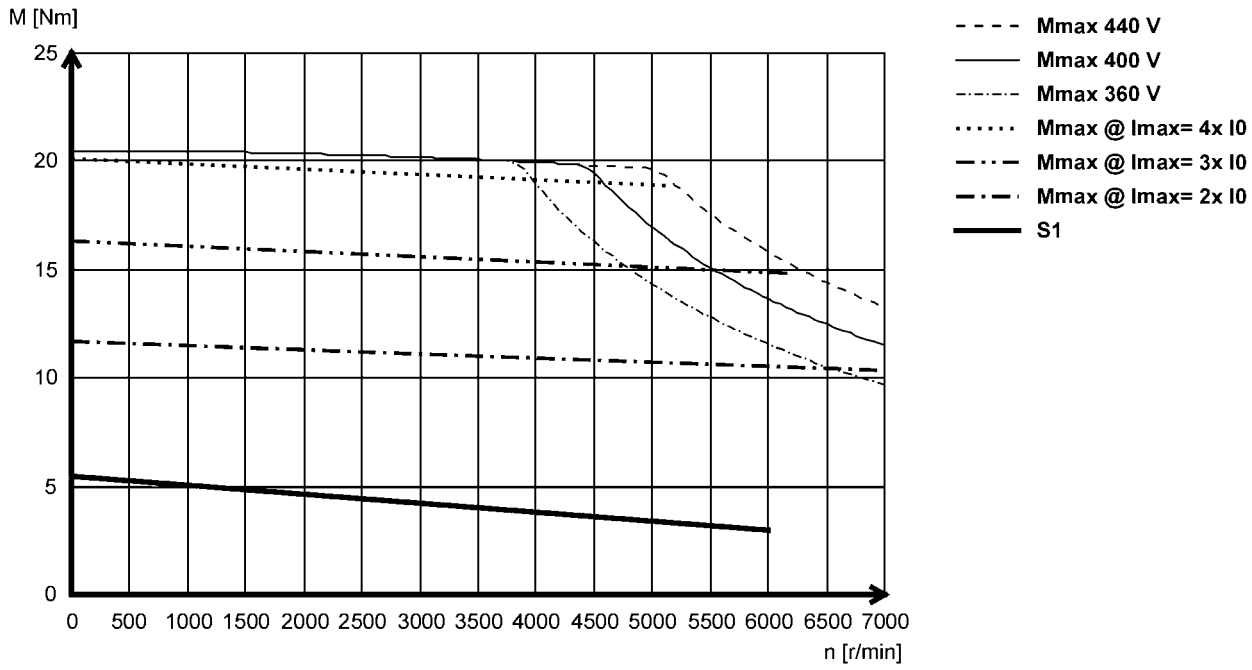
Torque characteristics

- The data applies to a mains connection voltage of 3 x 400 V.
- You can find further torque characteristics at **www.lenze.de/dsc**.

MCS09H41- (non-ventilated)



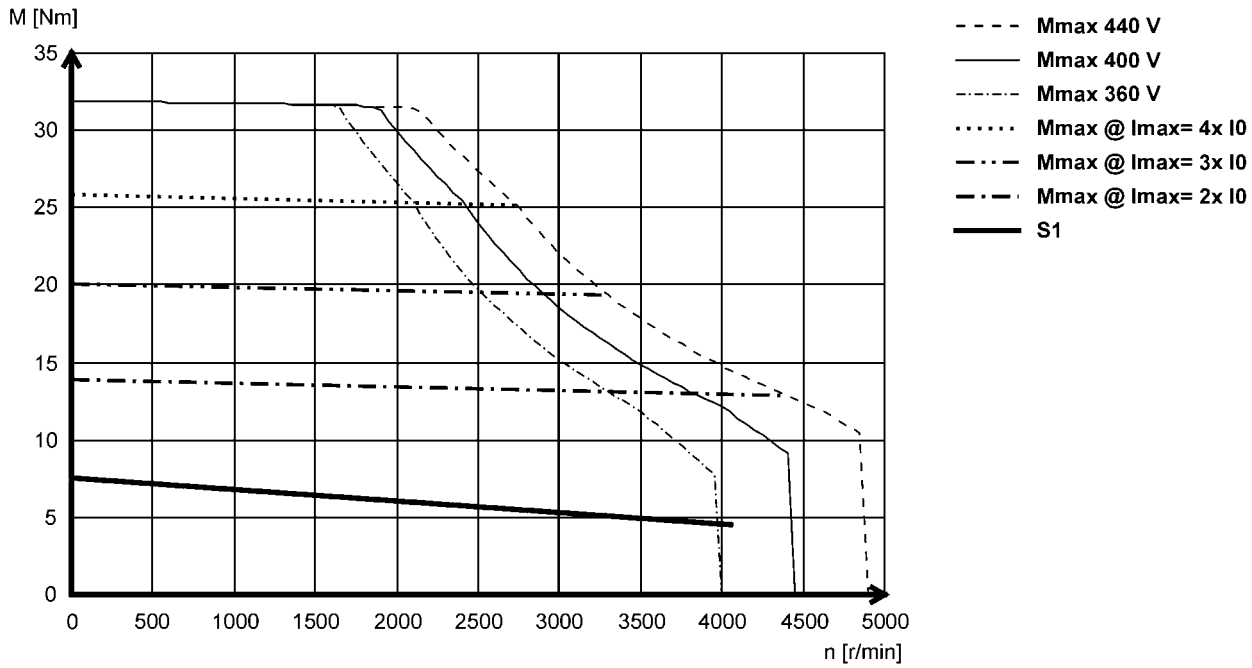
MCS09H60- (non-ventilated)



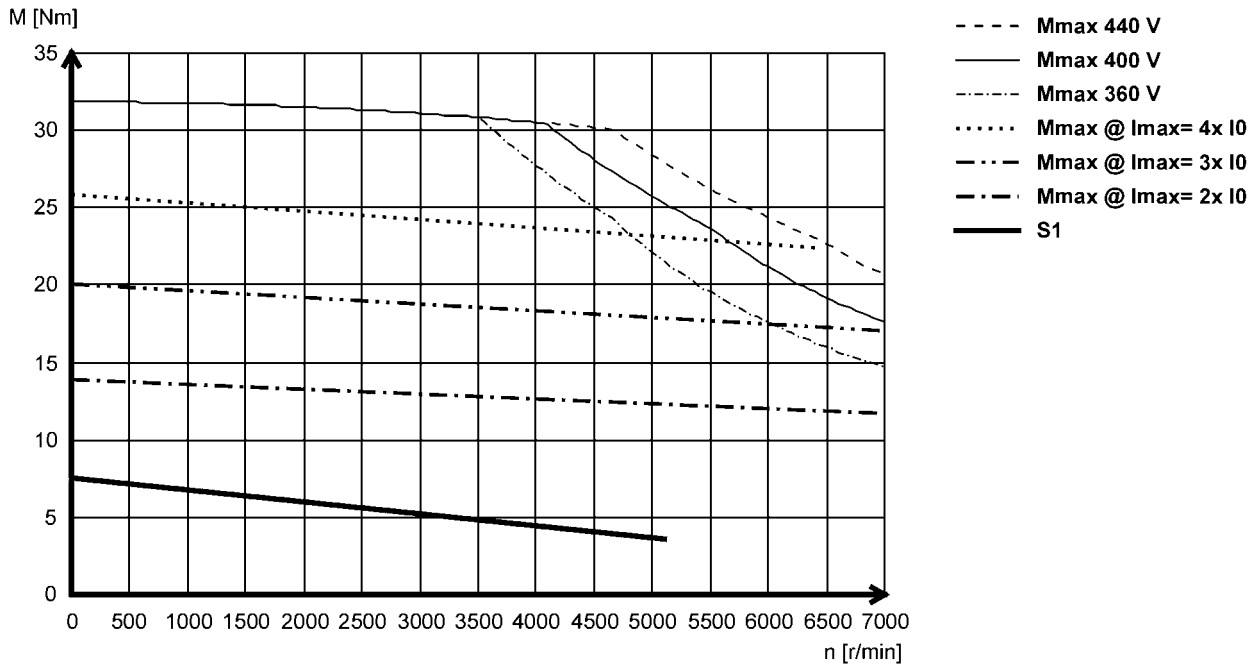
Torque characteristics

- The data applies to a mains connection voltage of 3 x 400 V.
- You can find further torque characteristics at **www.lenze.de/dsc**.

MCS09L41- (non-ventilated)



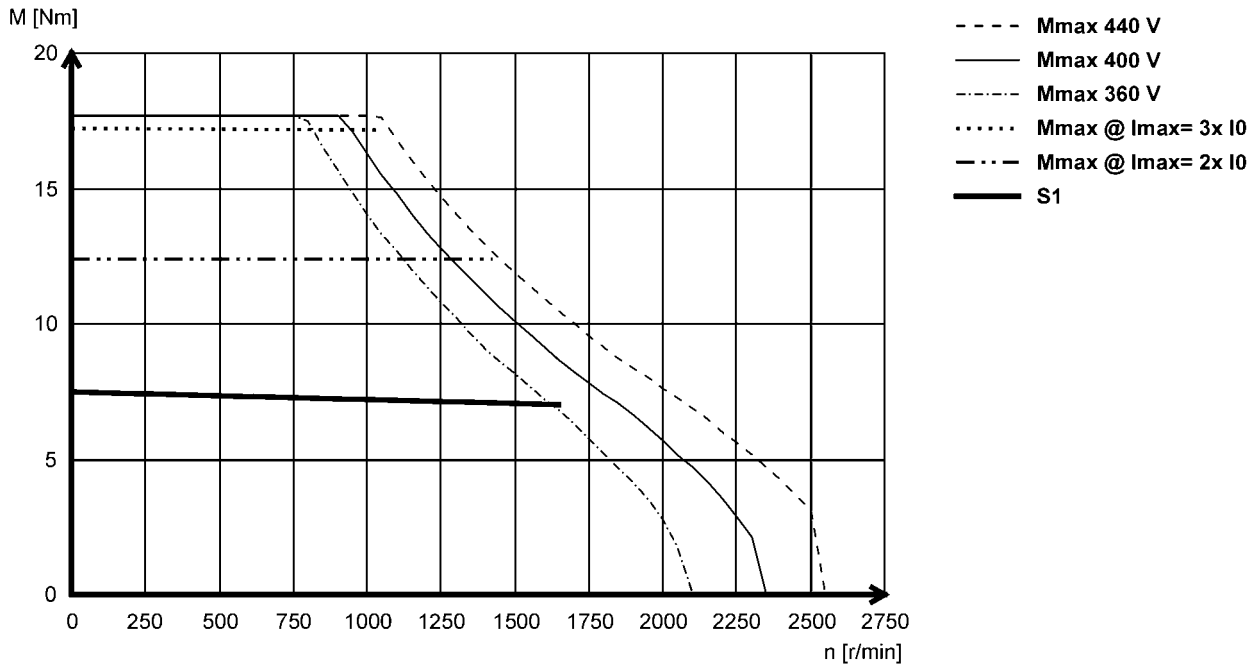
MCS09L51- (non-ventilated)



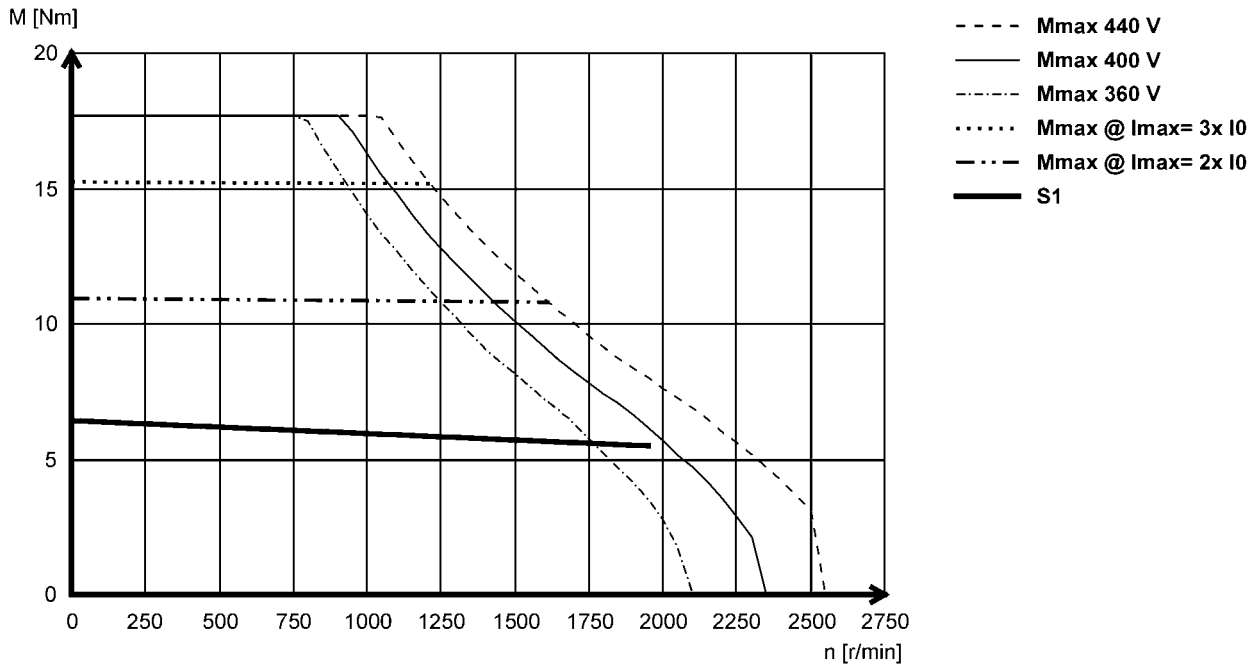
Torque characteristics

- The data applies to a mains connection voltage of 3 x 400 V.
- You can find further torque characteristics at **www.lenze.de/dsc**.

MCS12D17 (forced ventilated)



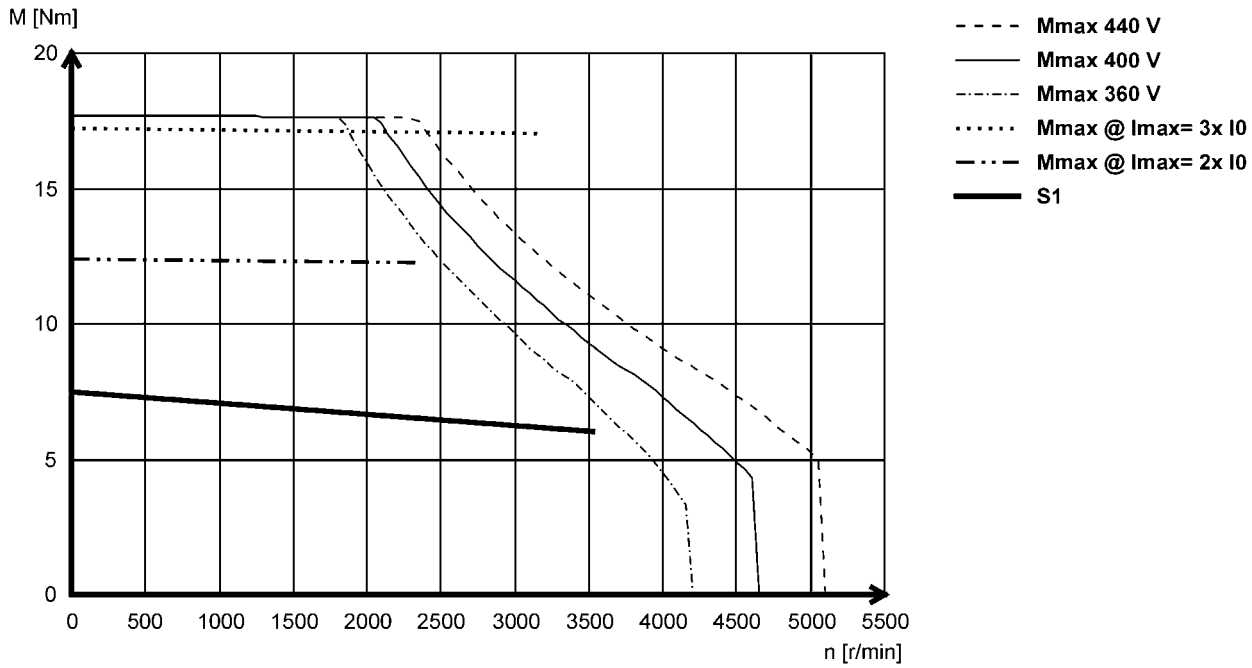
MCS12D20- (non-ventilated)



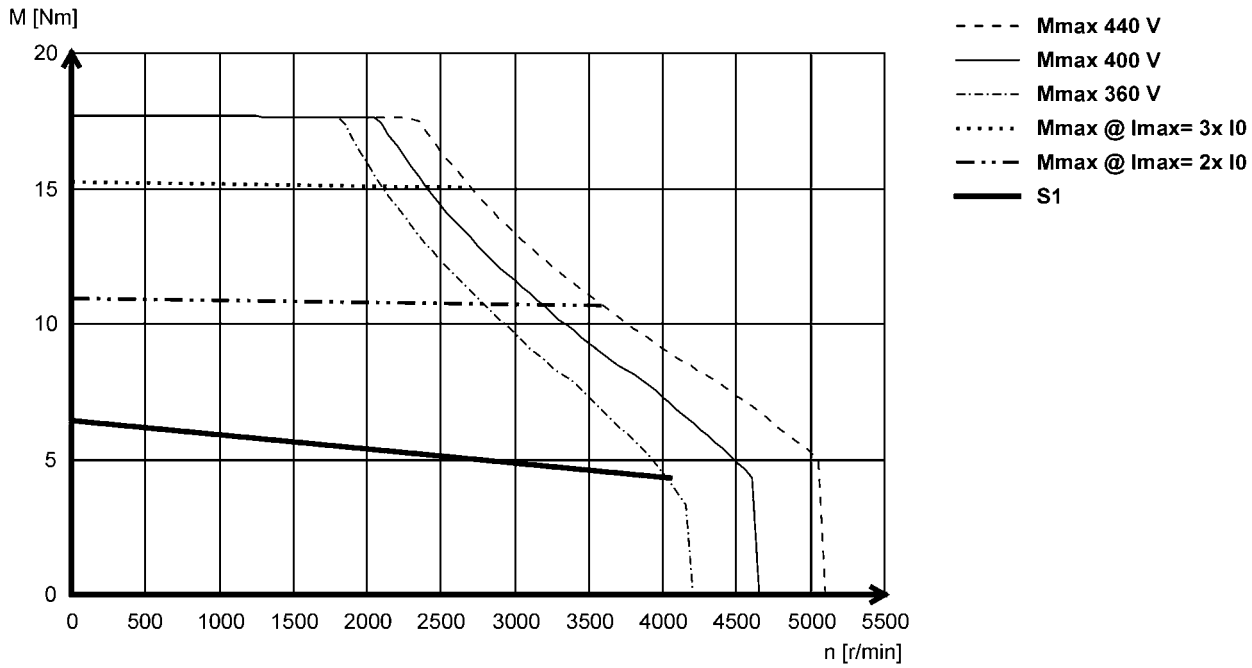
Torque characteristics

- The data applies to a mains connection voltage of 3 x 400 V.
- You can find further torque characteristics at **www.lenze.de/dsc**.

MCS12D35- (forced ventilated)



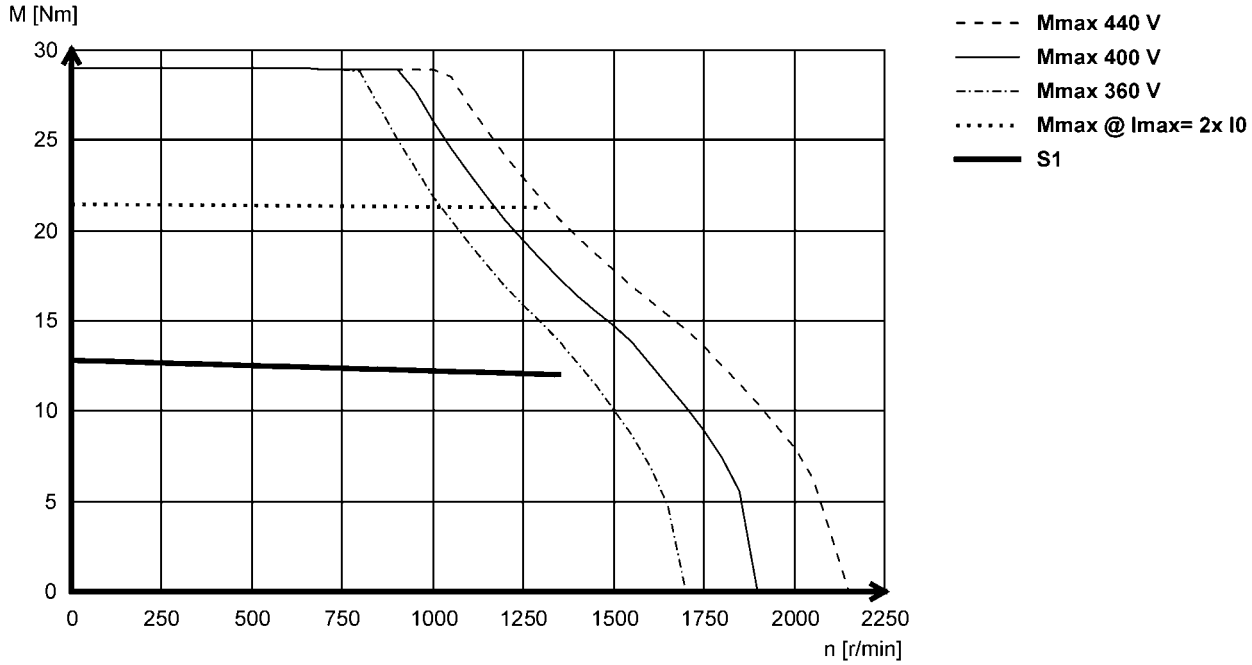
MCS12D41- (non-ventilated)



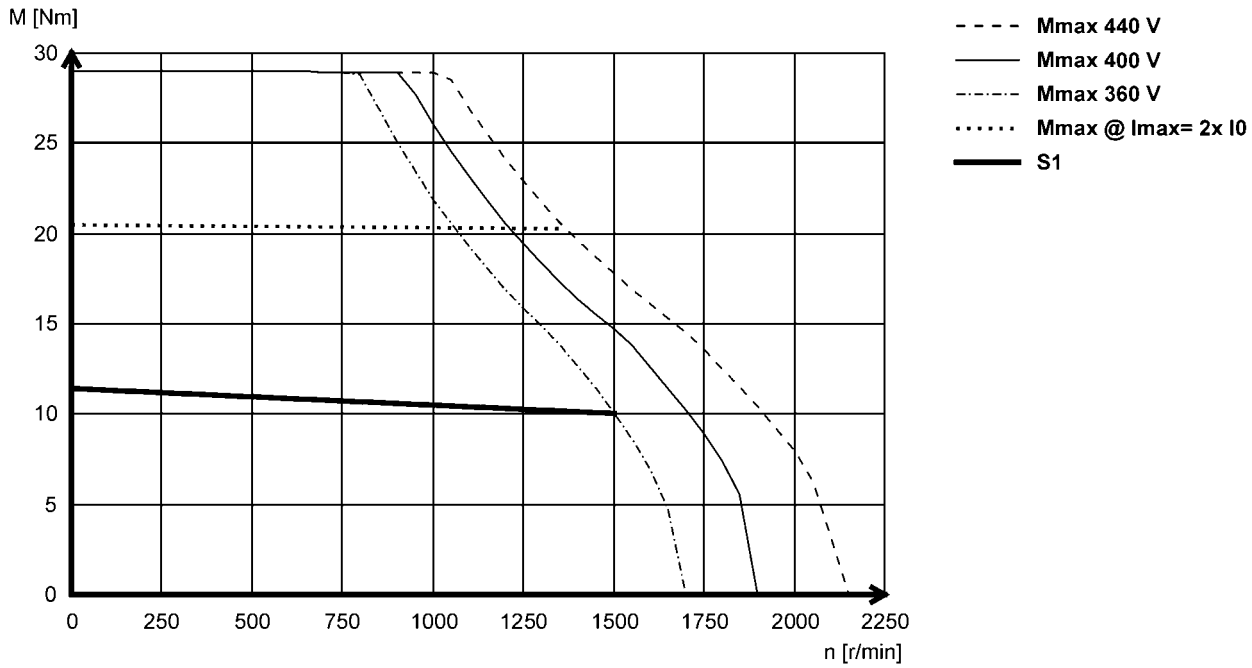
Torque characteristics

- The data applies to a mains connection voltage of 3 x 400 V.
- You can find further torque characteristics at **www.lenze.de/dsc**.

MCS12H14- (forced ventilated)



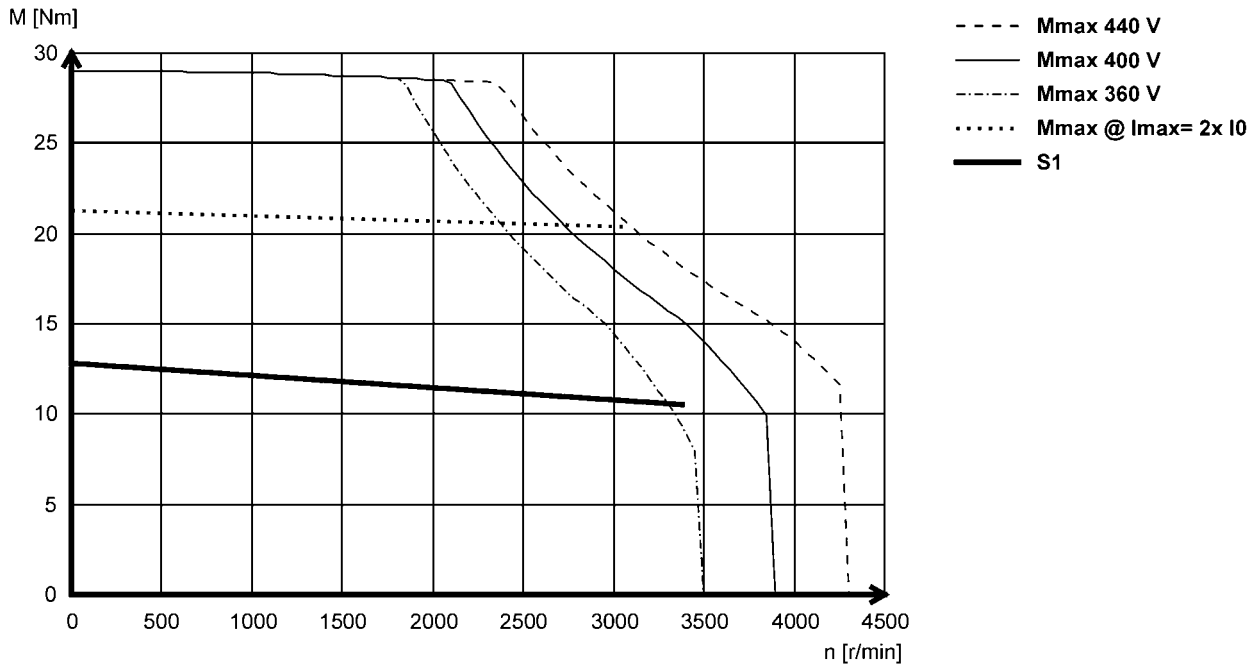
MCS12H15- (non-ventilated)



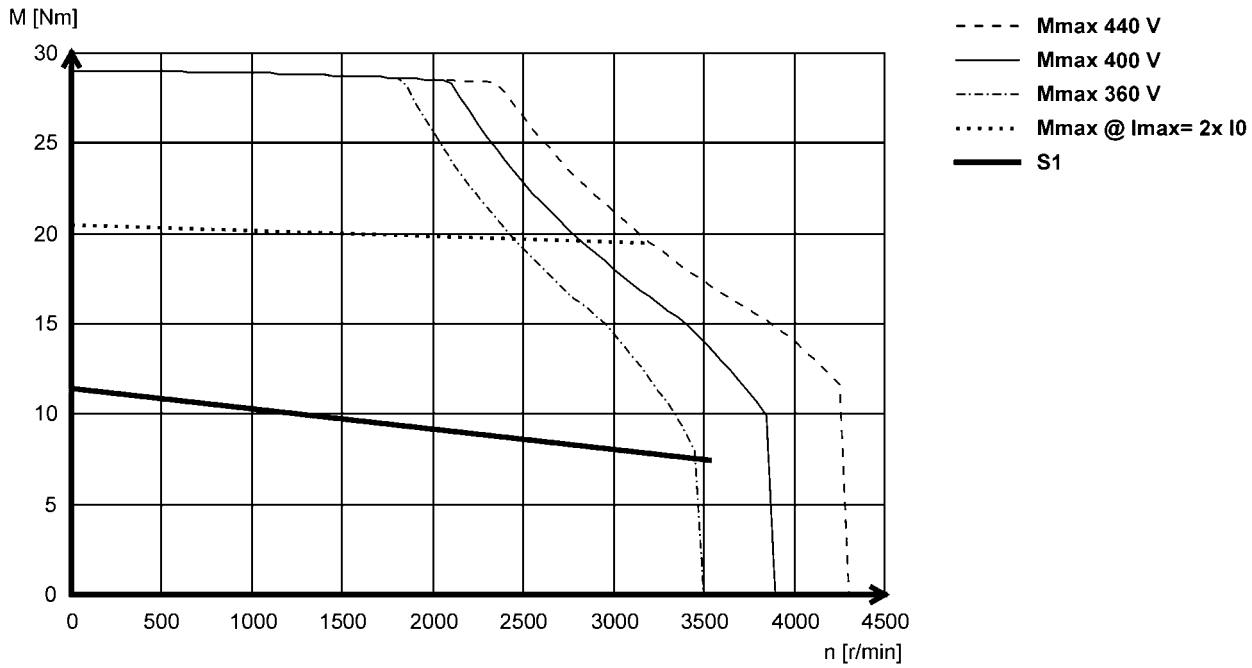
Torque characteristics

- The data applies to a mains connection voltage of 3 x 400 V.
- You can find further torque characteristics at **www.lenze.de/dsc**.

MCS12H34- (forced ventilated)



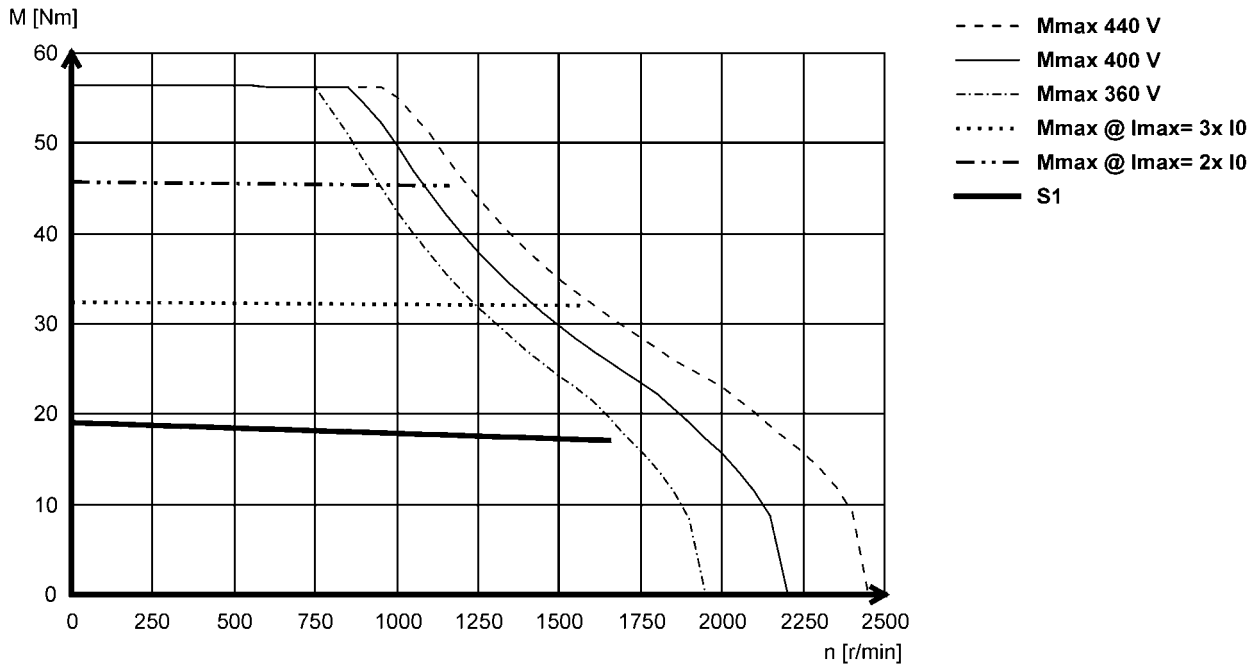
MCS12H35- (non-ventilated)



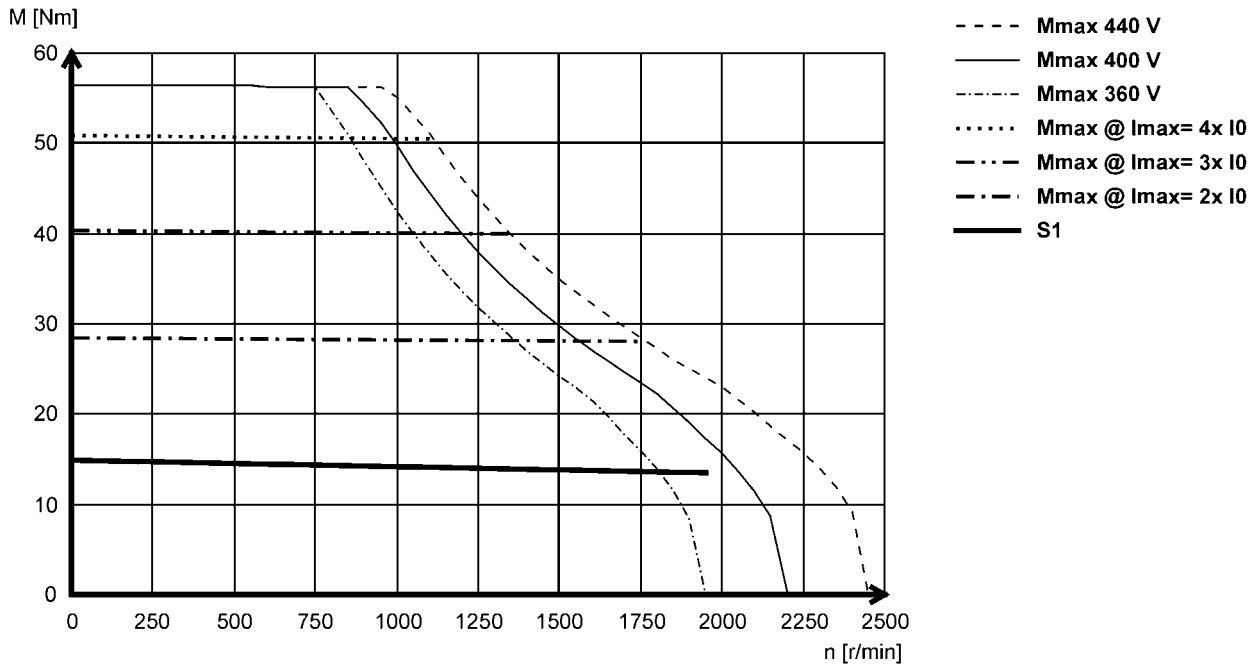
Torque characteristics

- The data applies to a mains connection voltage of 3 x 400 V.
- You can find further torque characteristics at **www.lenze.de/dsc**.

MCS12L17- (forced ventilated)



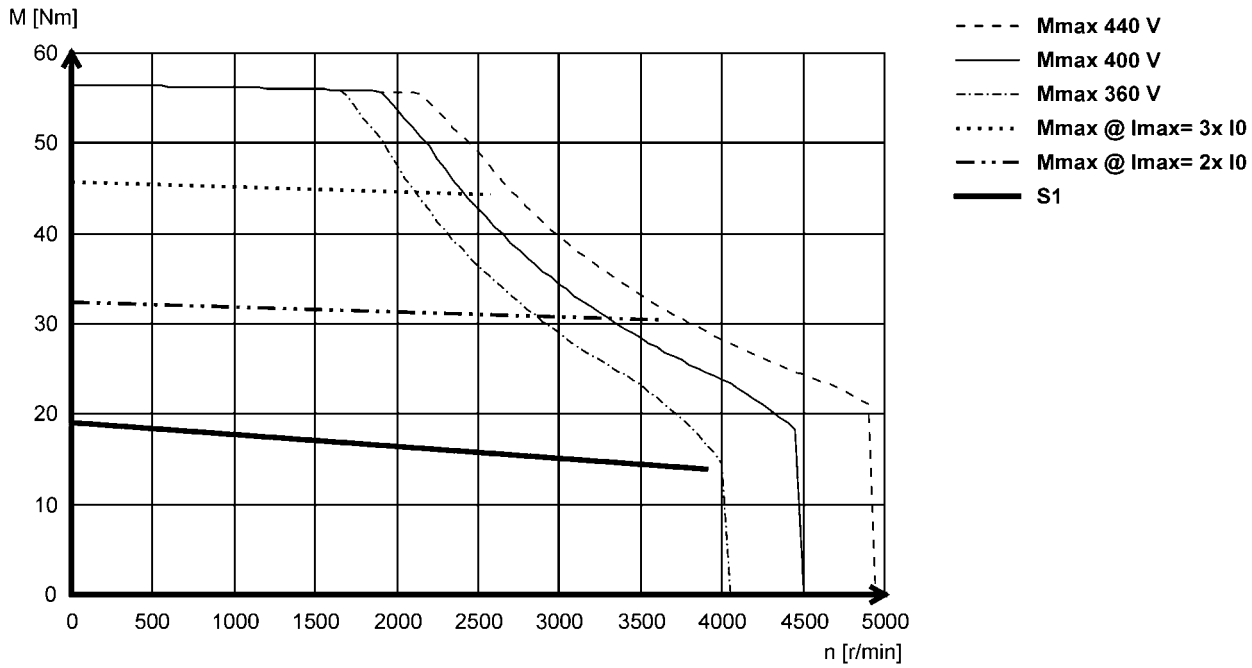
MCS12L20- (non-ventilated)



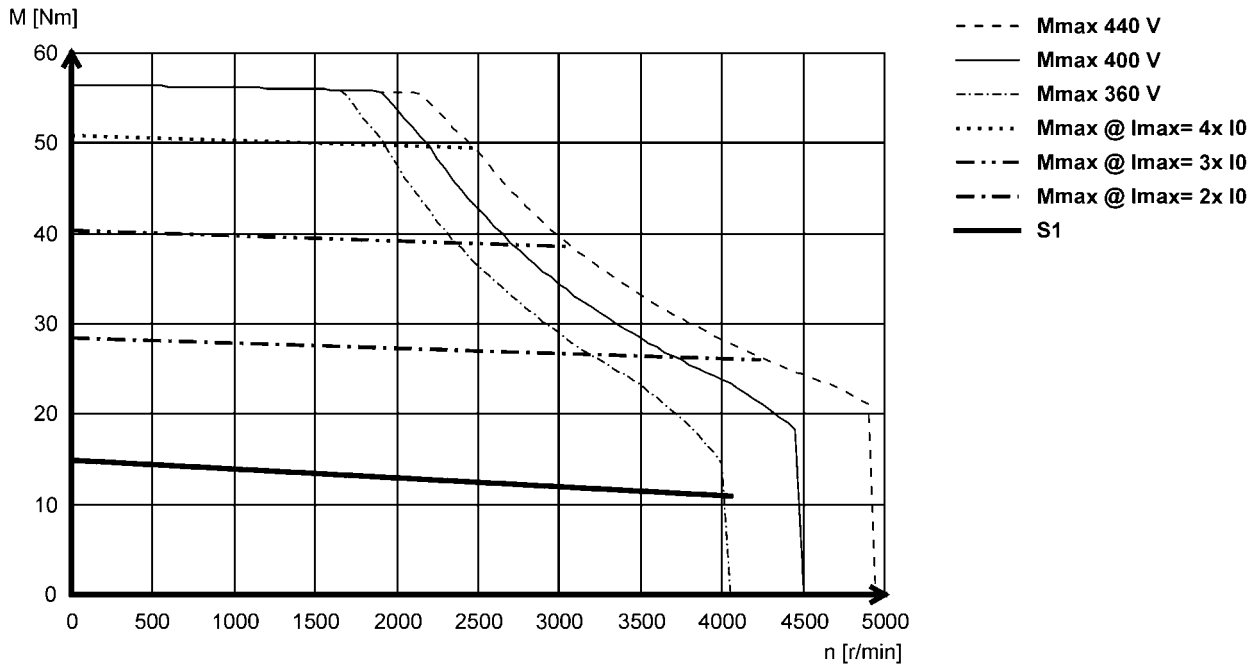
Torque characteristics

- The data applies to a mains connection voltage of 3 x 400 V.
- You can find further torque characteristics at **www.lenze.de/dsc**.

MCS12L39- (forced ventilated)



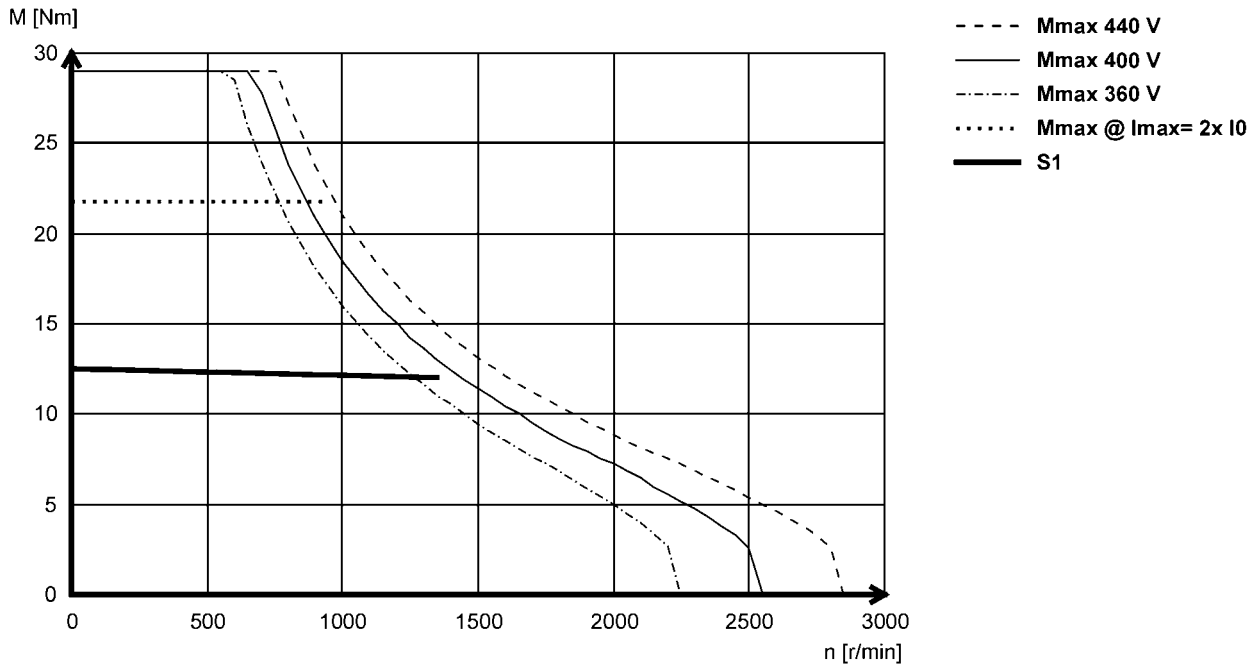
MCS12L41- (non-ventilated)



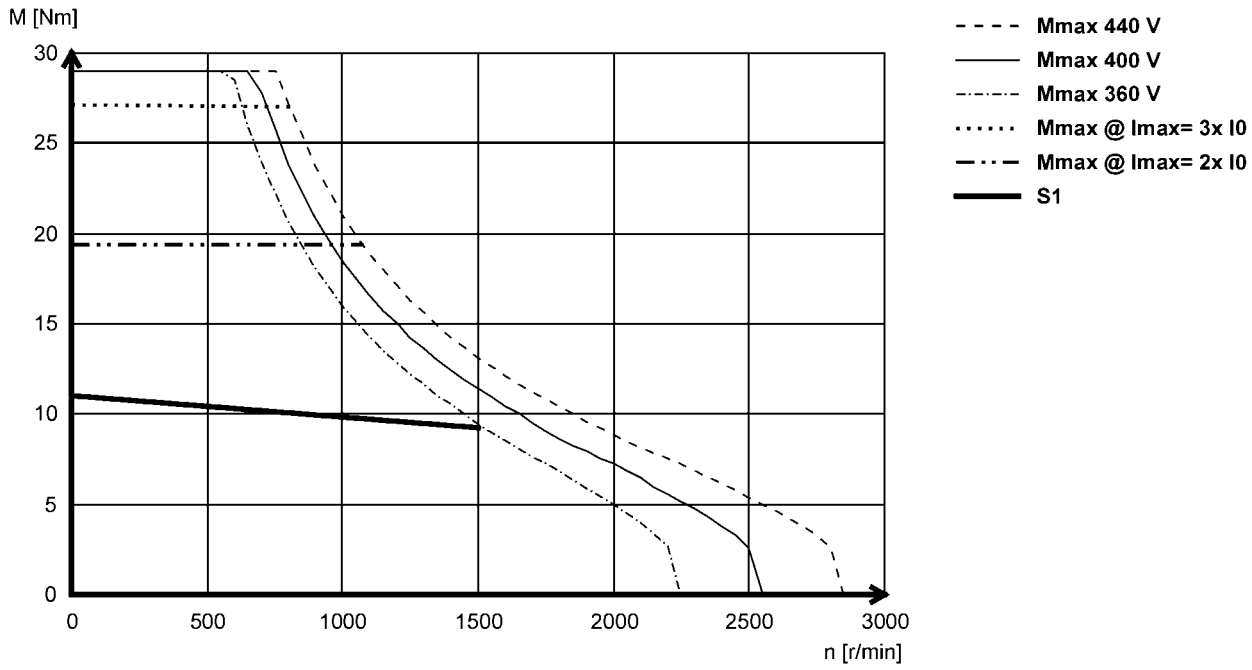
Torque characteristics

- The data applies to a mains connection voltage of 3 x 400 V.
- You can find further torque characteristics at **www.lenze.de/dsc**.

MCS14D14- (forced ventilated)



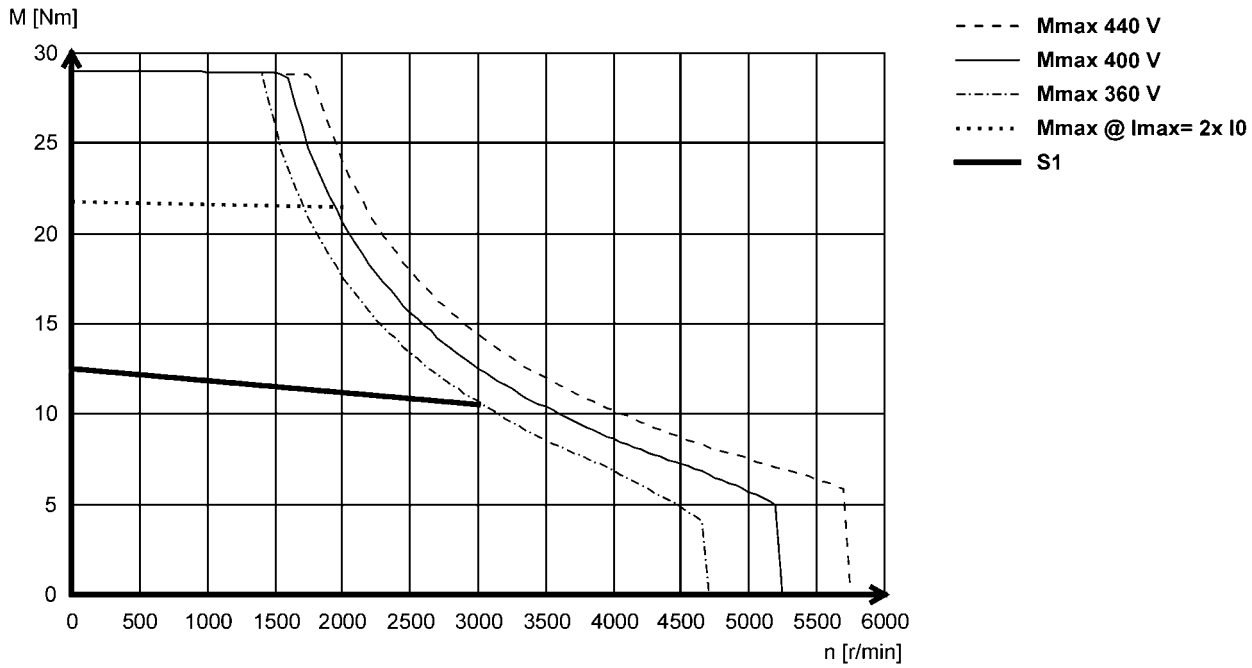
MCS14D15- (non-ventilated)



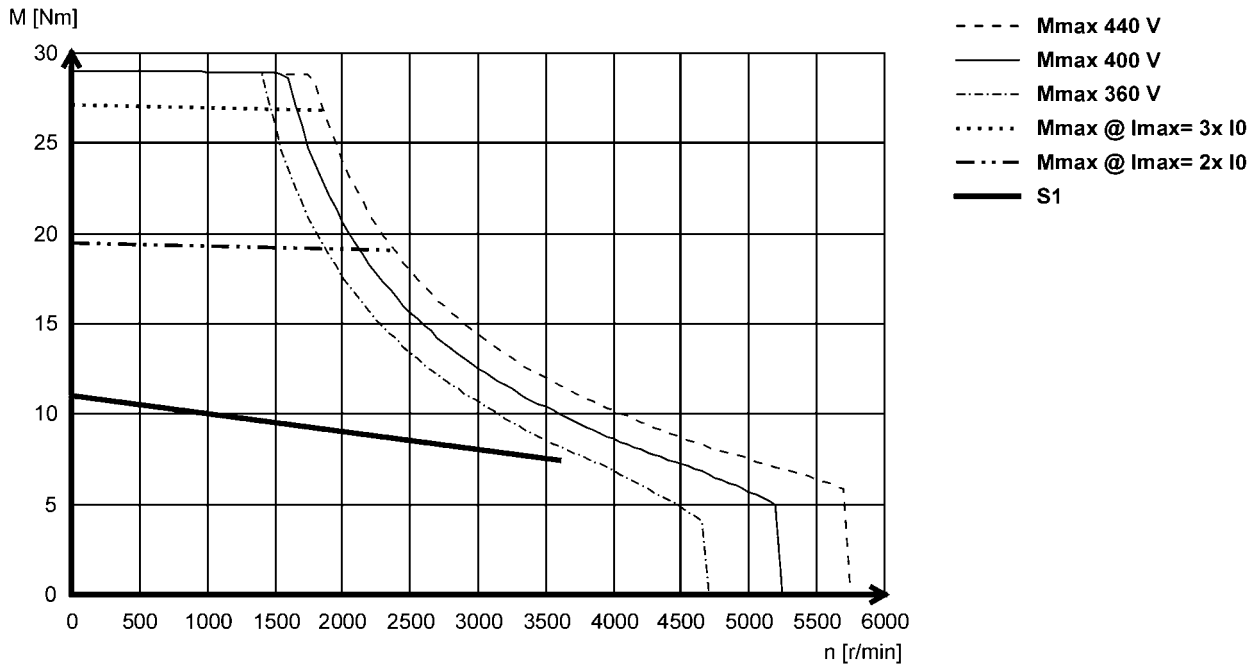
Torque characteristics

- The data applies to a mains connection voltage of 3 x 400 V.
- You can find further torque characteristics at **www.lenze.de/dsc**.

MCS14D30 (forced ventilated)



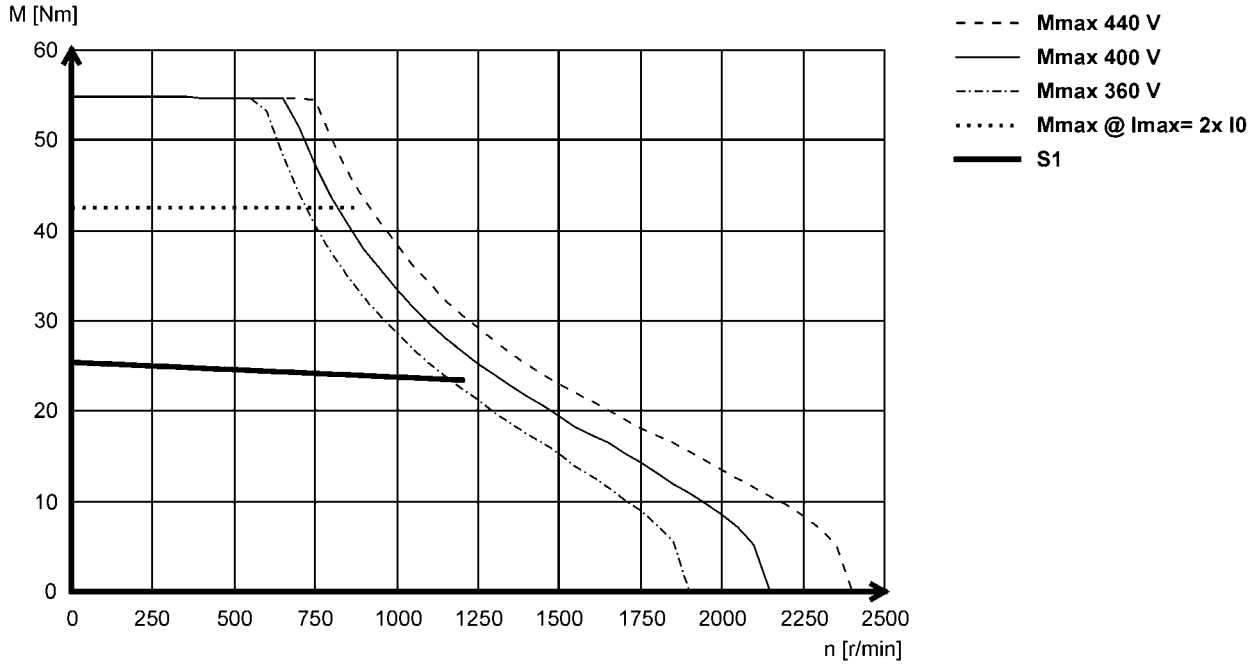
MCS14D36- (non-ventilated)



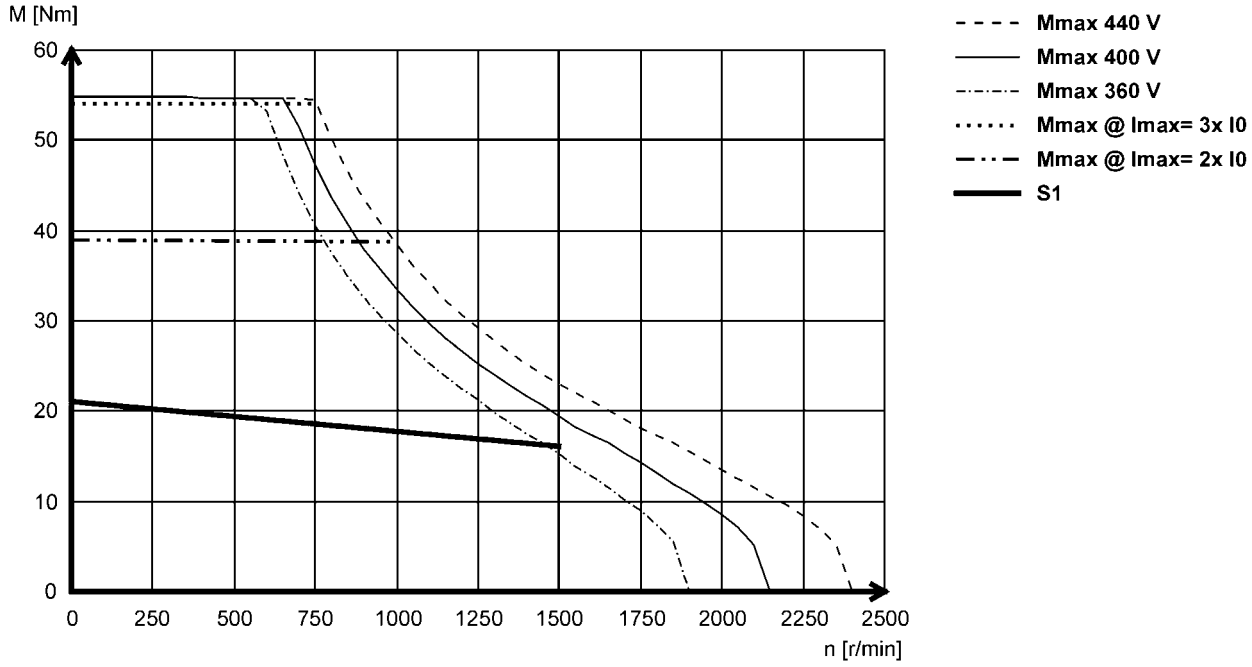
Torque characteristics

- The data applies to a mains connection voltage of 3 x 400 V.
- You can find further torque characteristics at **www.lenze.de/dsc**.

MCS14H12- (forced ventilated)



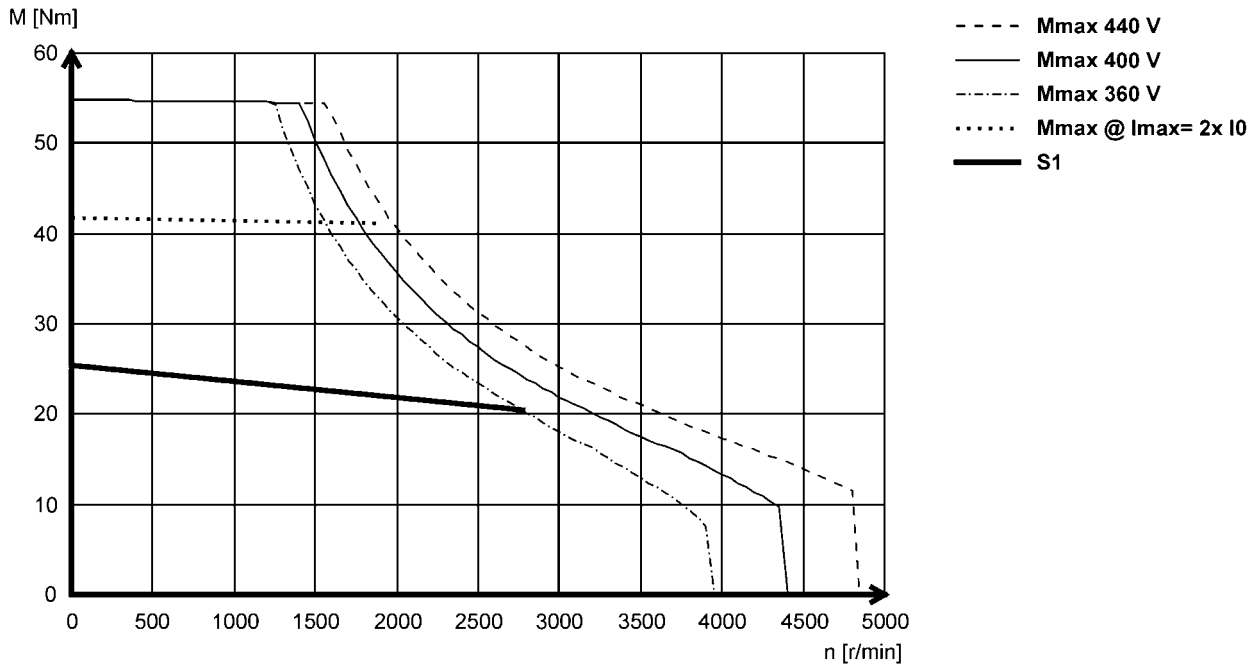
MCS14H15- (non-ventilated)



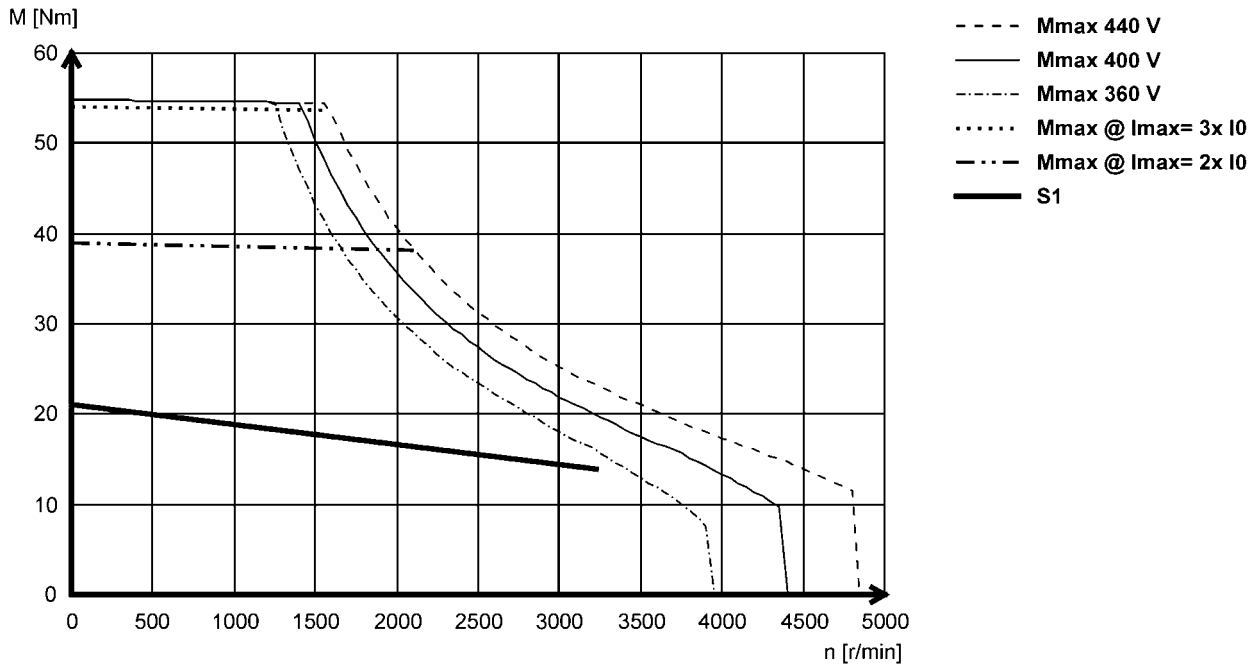
Torque characteristics

- The data applies to a mains connection voltage of 3 x 400 V.
- You can find further torque characteristics at **www.lenze.de/dsc**.

MCS14H28- (forced ventilated)



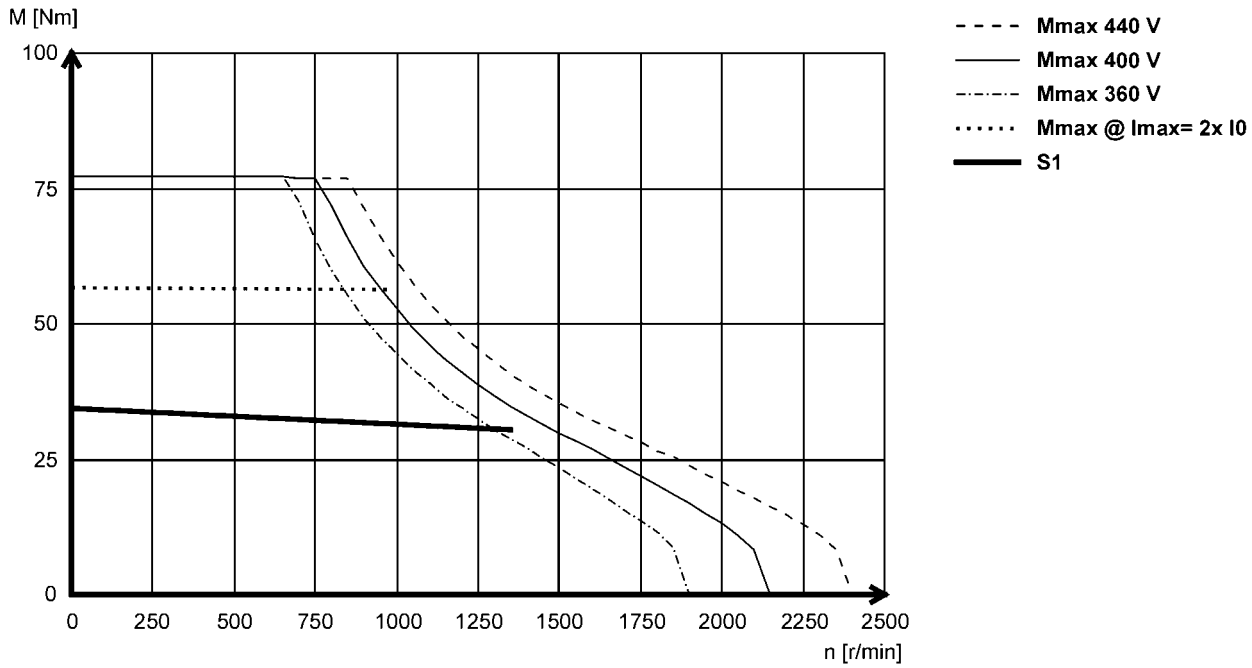
MCS14H32- (non-ventilated)



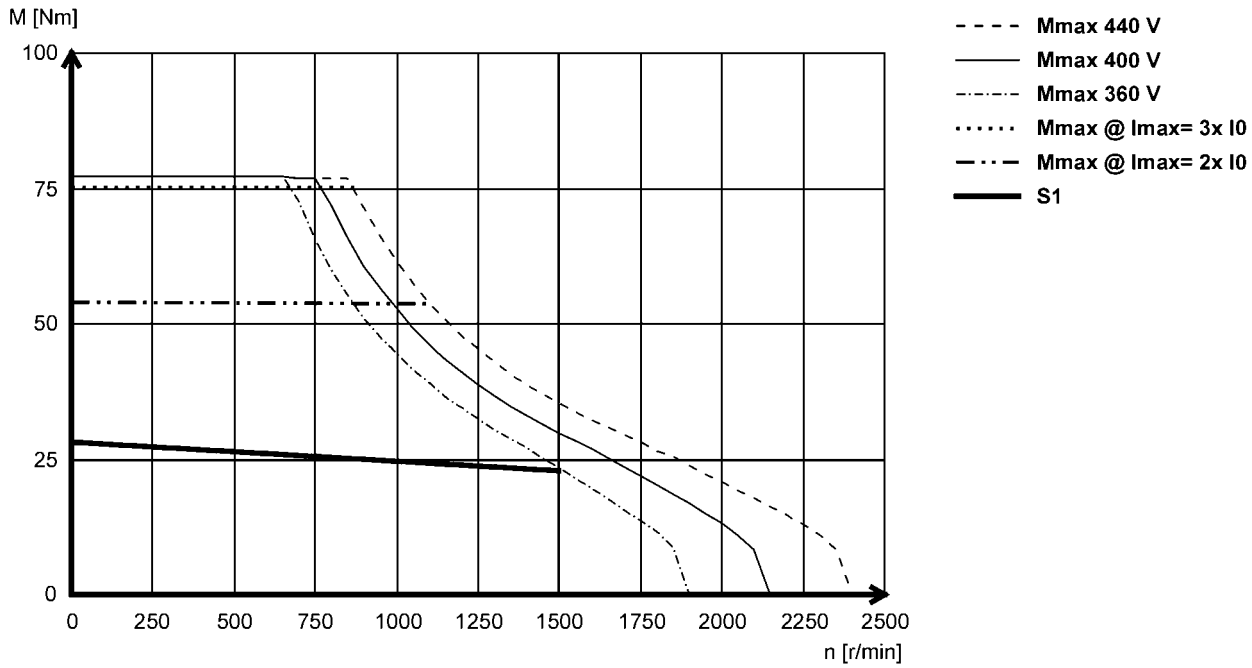
Torque characteristics

- The data applies to a mains connection voltage of 3 x 400 V.
- You can find further torque characteristics at **www.lenze.de/dsc**.

MCS14L14- (forced ventilated)



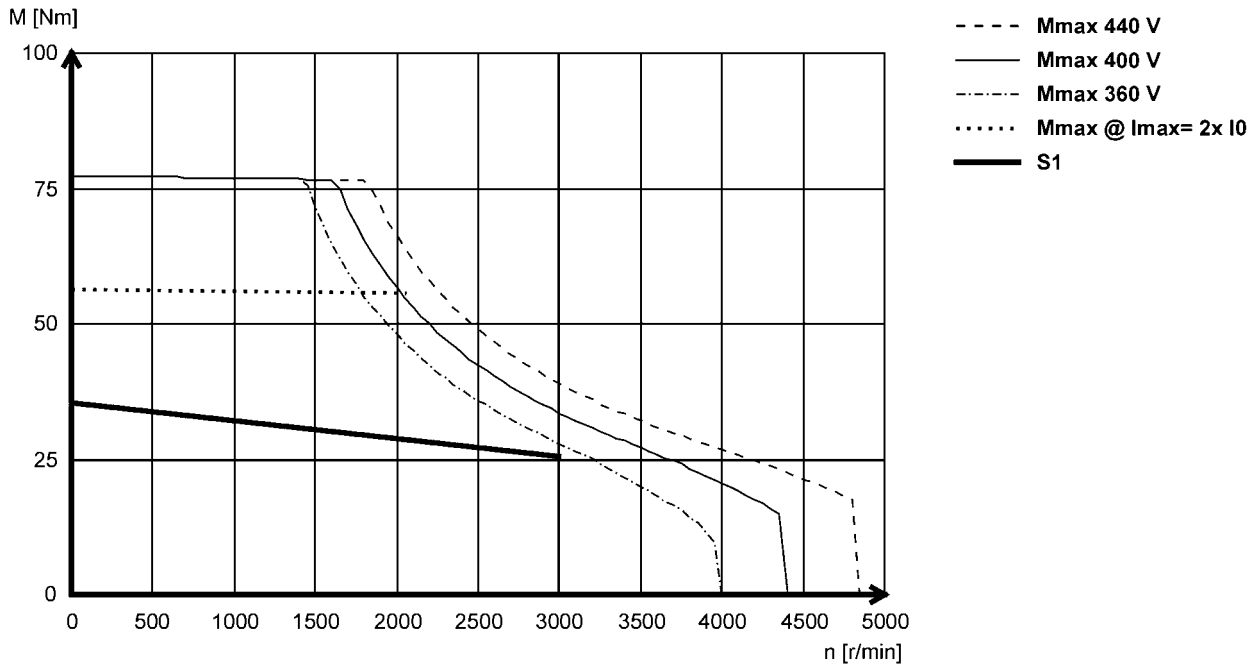
MCS14L15- (non-ventilated)



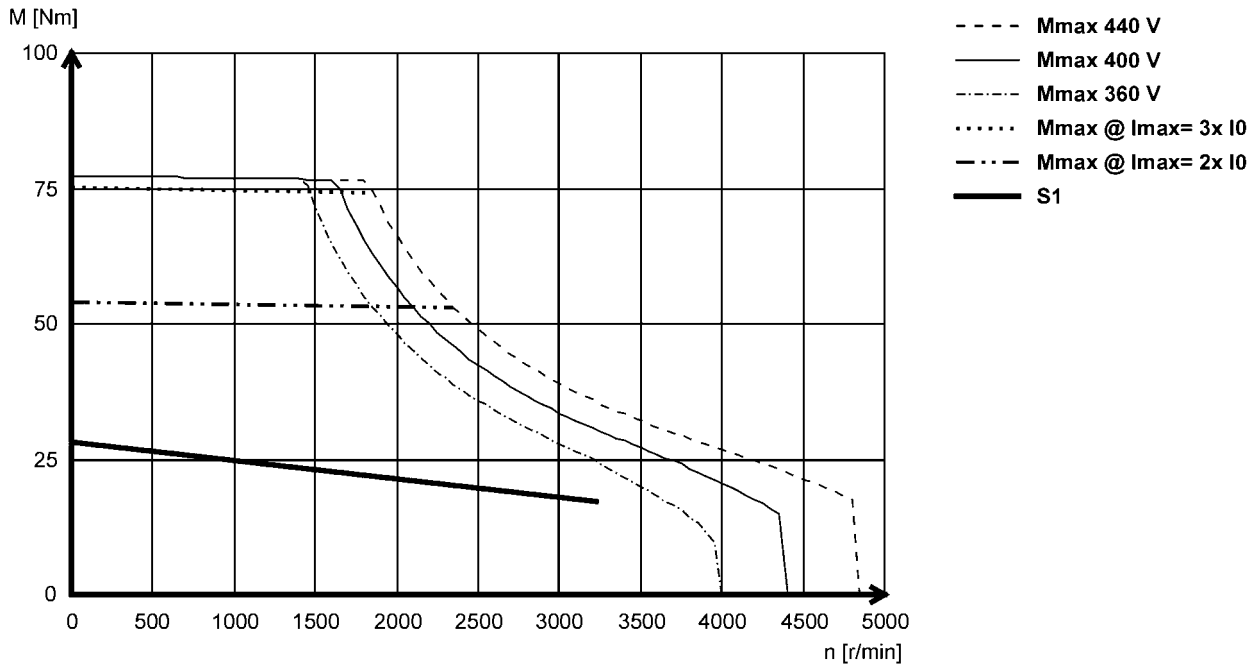
Torque characteristics

- The data applies to a mains connection voltage of 3 x 400 V.
- You can find further torque characteristics at **www.lenze.de/dsc**.

MCS14L30- (forced ventilated)



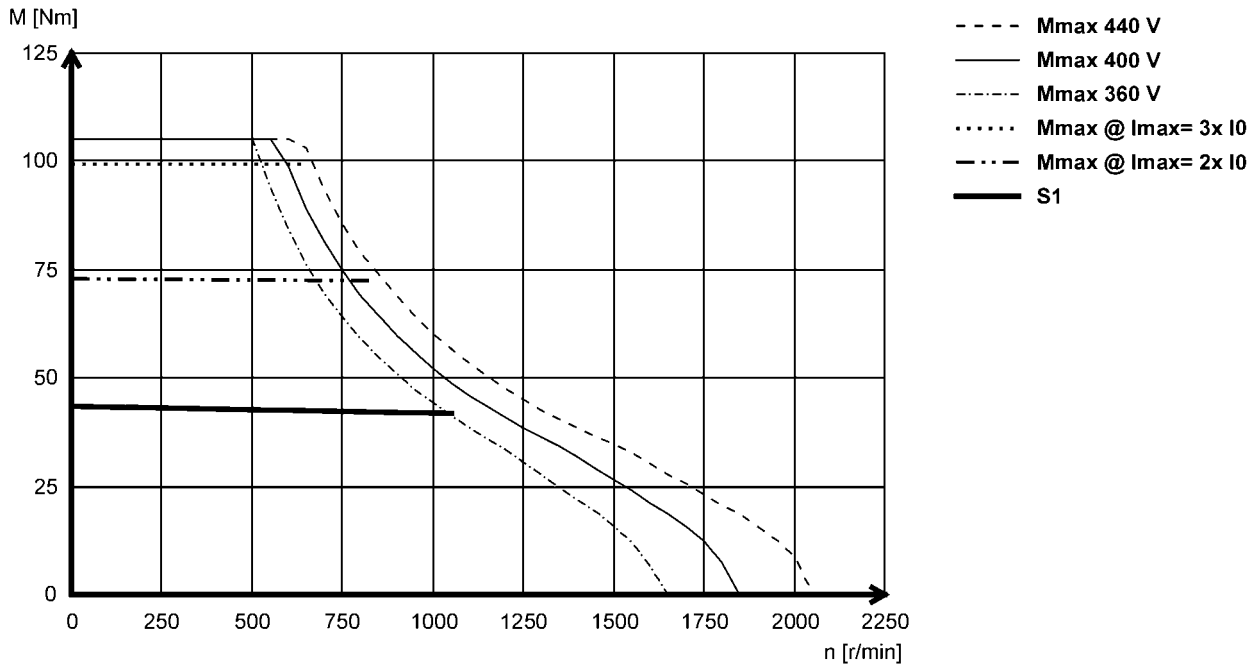
MCS14L32- (non-ventilated)



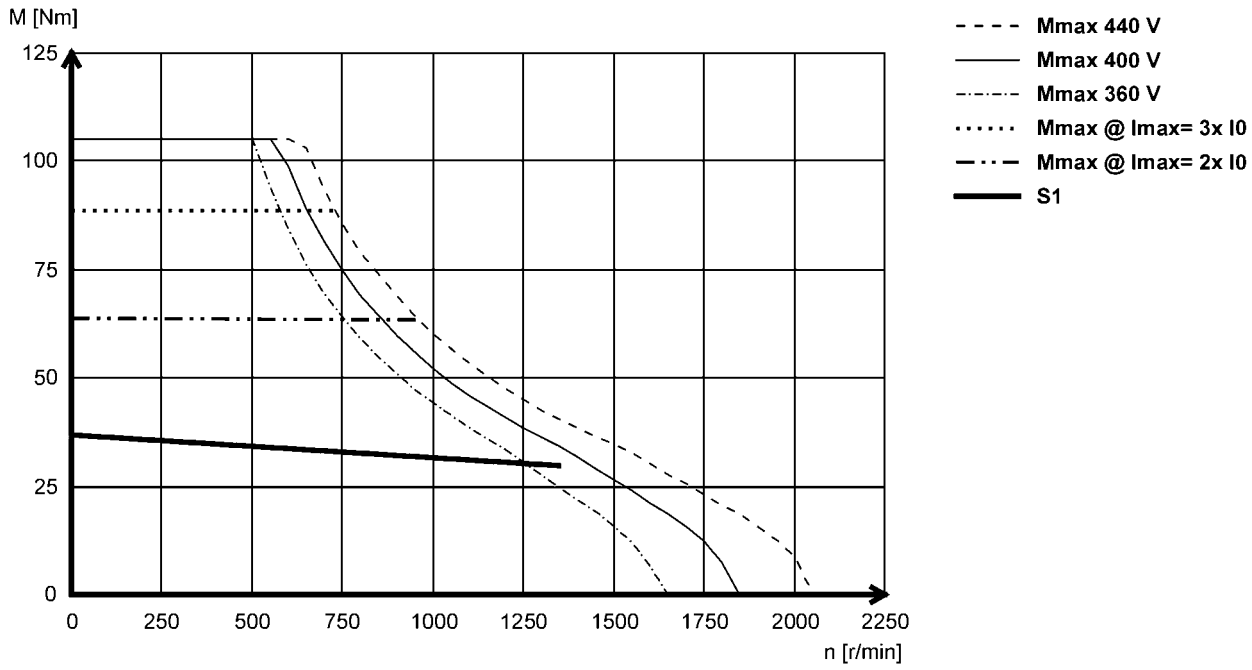
Torque characteristics

- The data applies to a mains connection voltage of 3 x 400 V.
- You can find further torque characteristics at **www.lenze.de/dsc**.

MCS14P11- (forced ventilated)



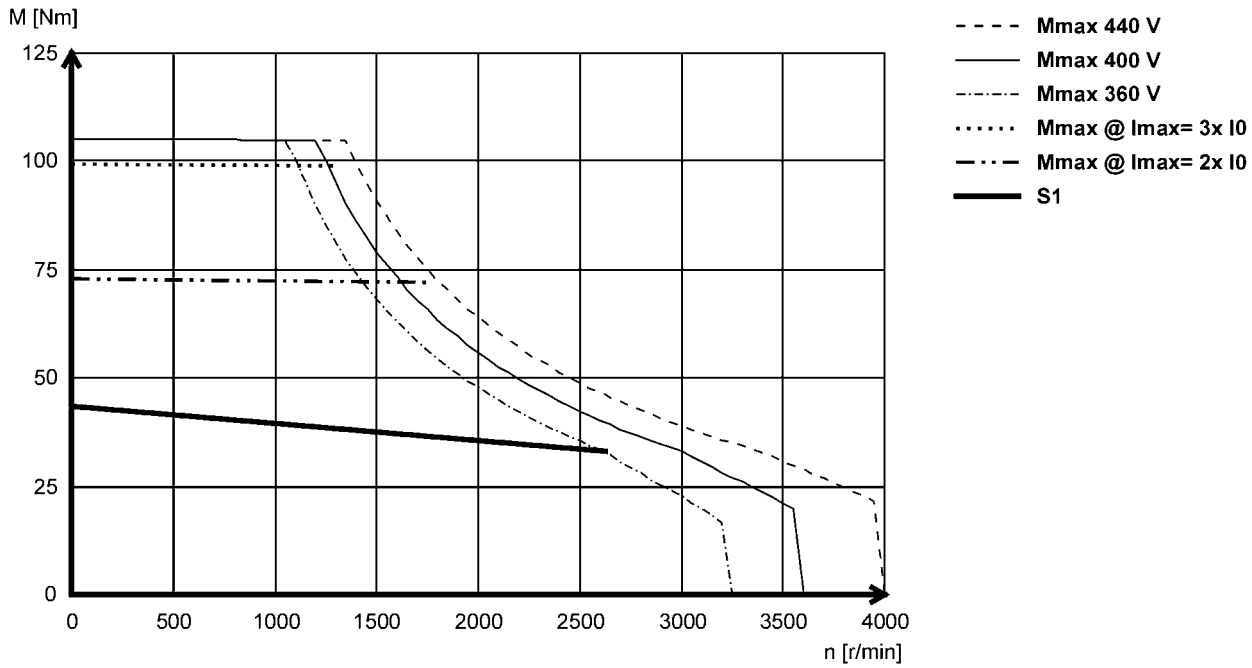
MCS14P14- (non-ventilated)



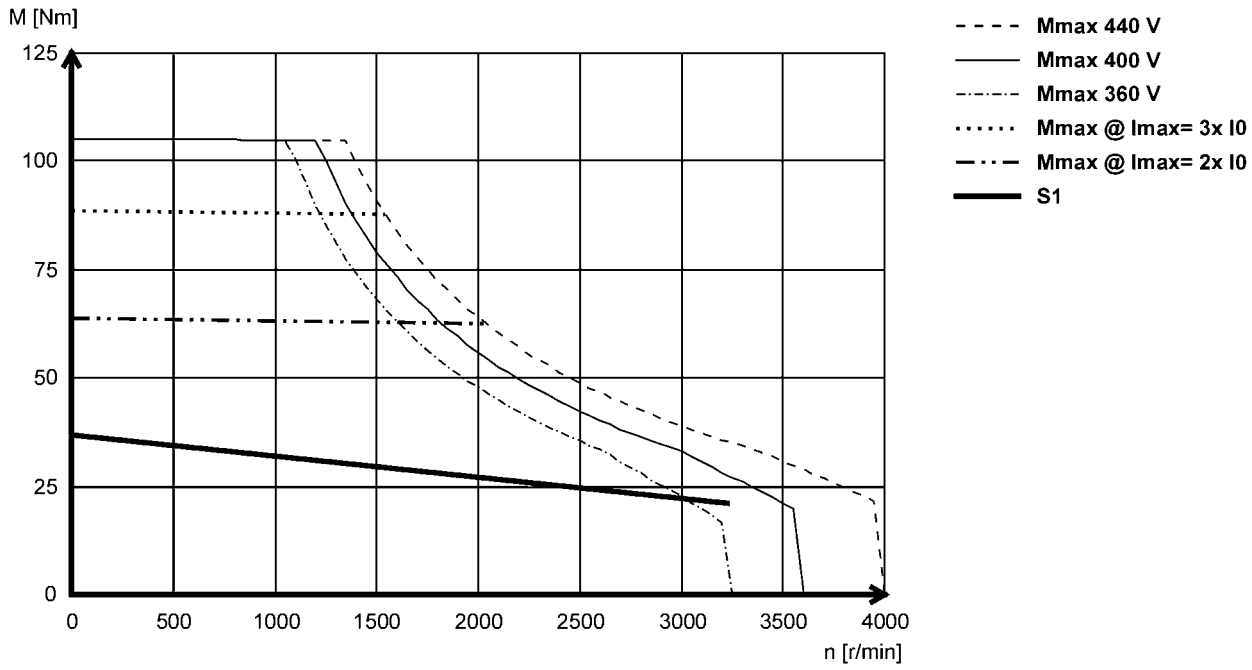
Torque characteristics

- The data applies to a mains connection voltage of 3 x 400 V.
- You can find further torque characteristics at **www.lenze.de/dsc**.

MCS14P26- (forced ventilated)



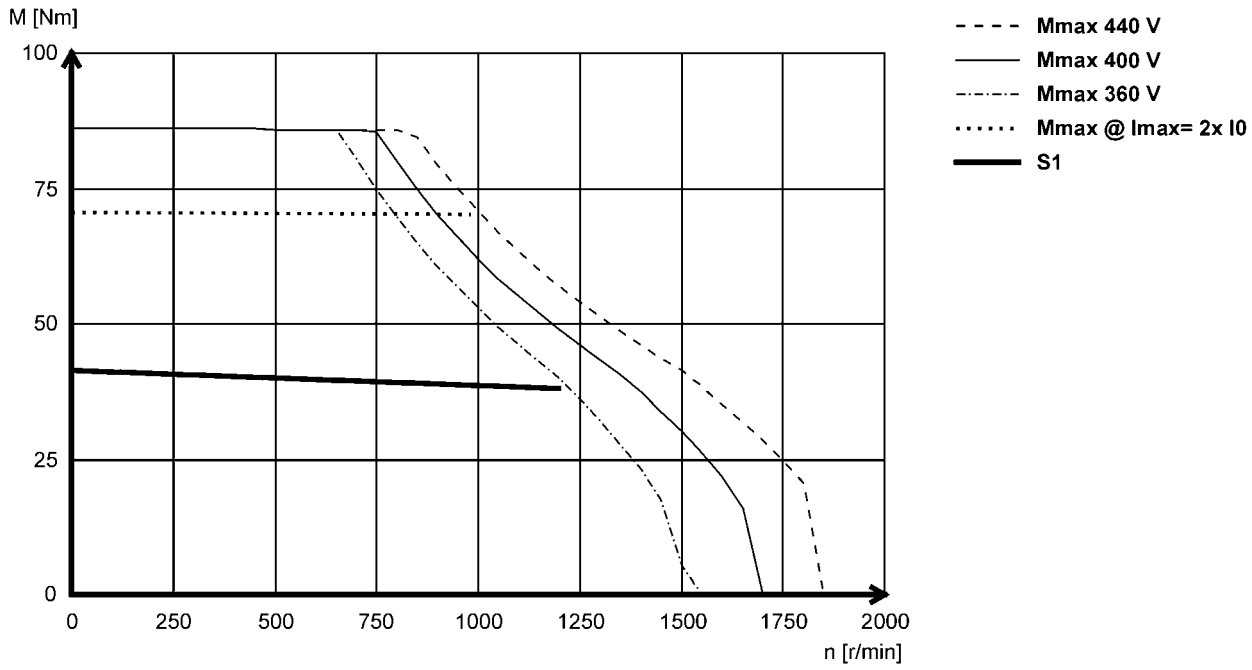
MCS14P32- (non-ventilated)



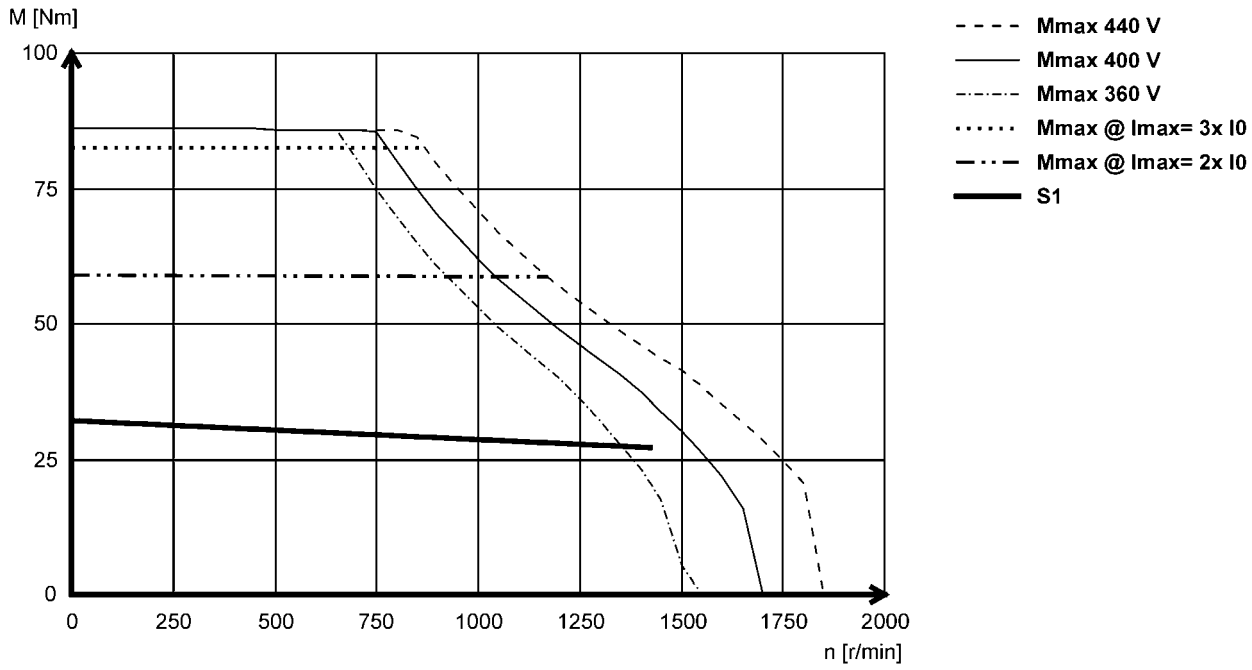
Torque characteristics

- The data applies to a mains connection voltage of 3 x 400 V.
- You can find further torque characteristics at **www.lenze.de/dsc**.

MCS19F12- (forced ventilated)



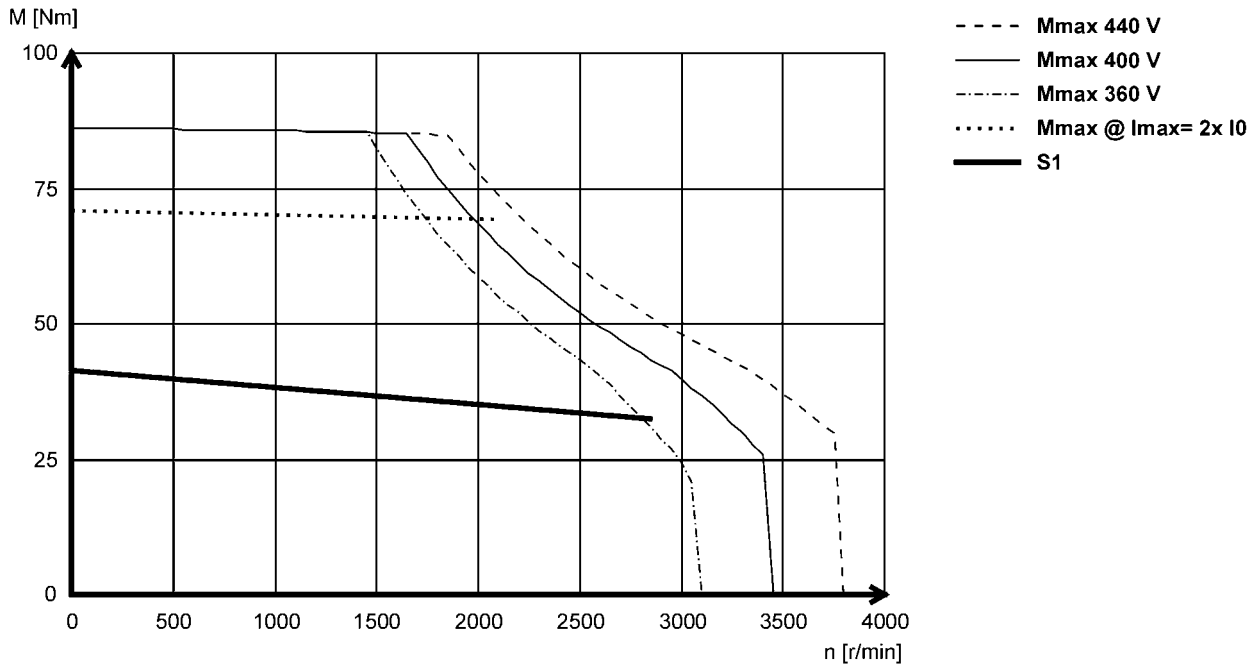
MCS19F14- (non-ventilated)



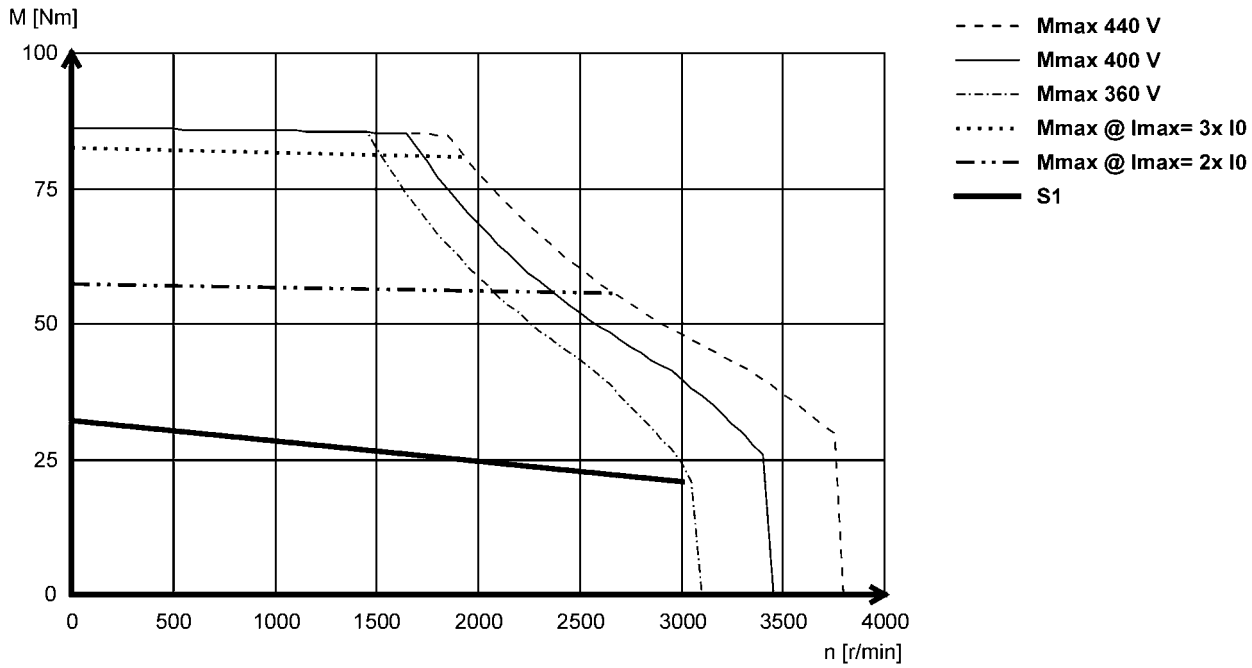
Torque characteristics

- The data applies to a mains connection voltage of 3 x 400 V.
- You can find further torque characteristics at **www.lenze.de/dsc**.

MCS19F29- (forced ventilated)



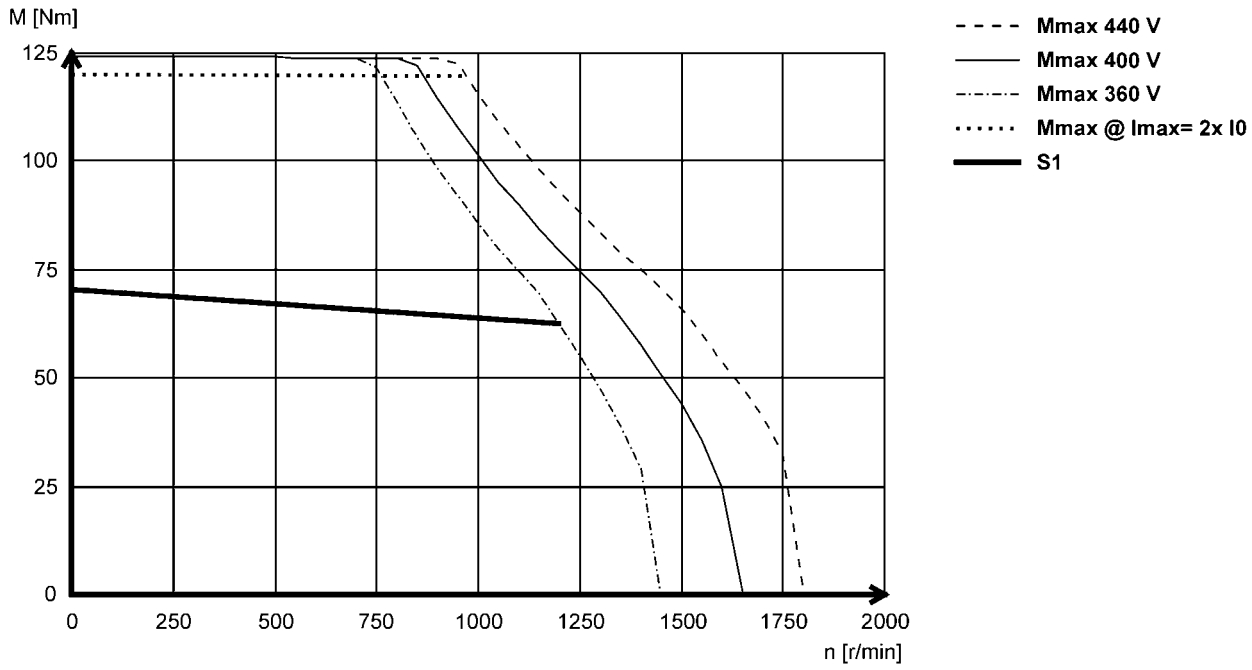
MCS19F30- (non-ventilated)



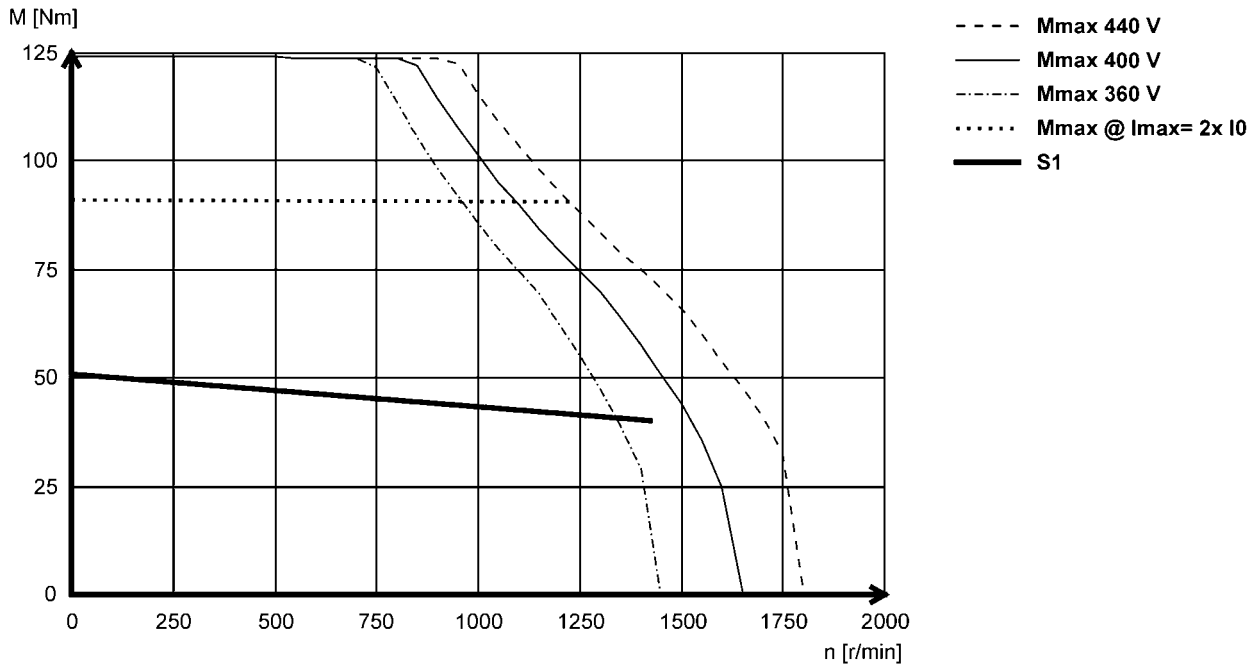
Torque characteristics

- The data applies to a mains connection voltage of 3 x 400 V.
- You can find further torque characteristics at **www.lenze.de/dsc**.

MCS19J12- (forced ventilated)



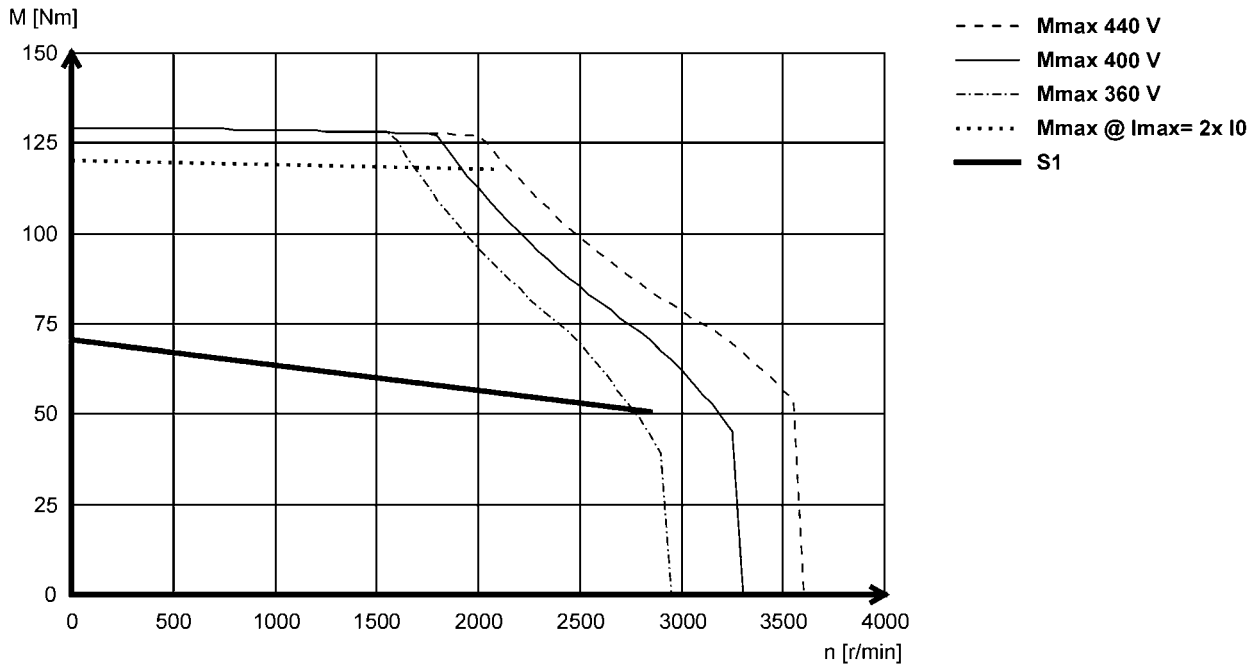
MCS19J14- (non-ventilated)



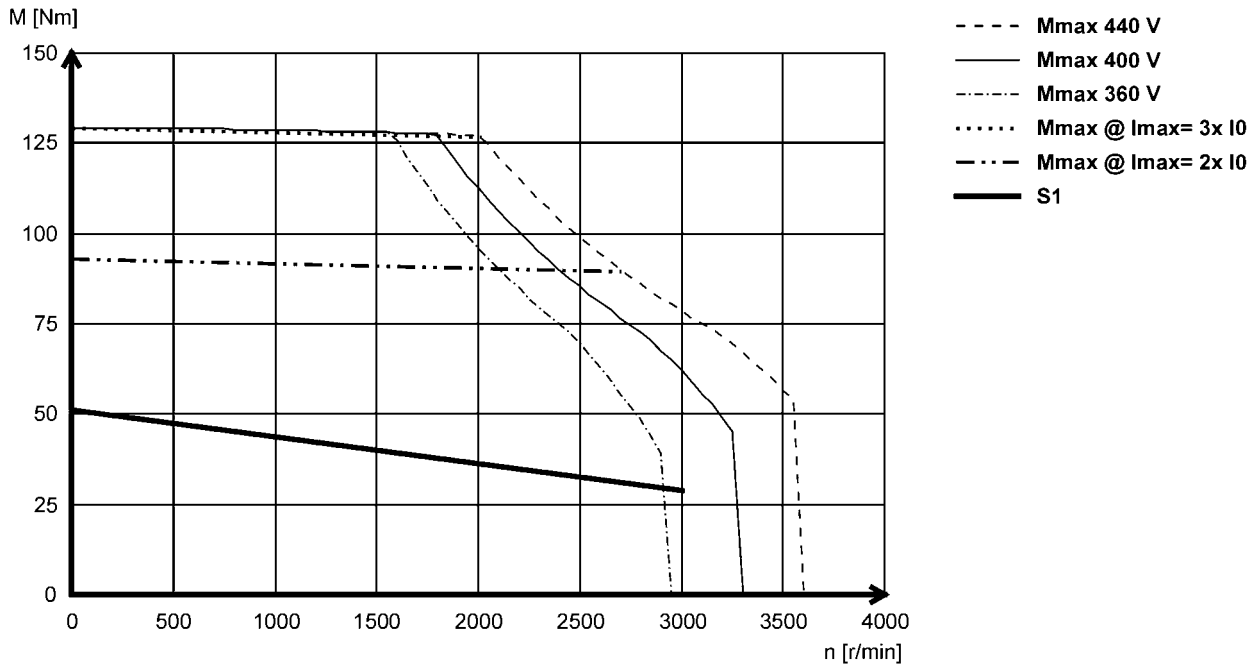
Torque characteristics

- The data applies to a mains connection voltage of 3 x 400 V.
- You can find further torque characteristics at **www.lenze.de/dsc**.

MCS19J29- (forced ventilated)



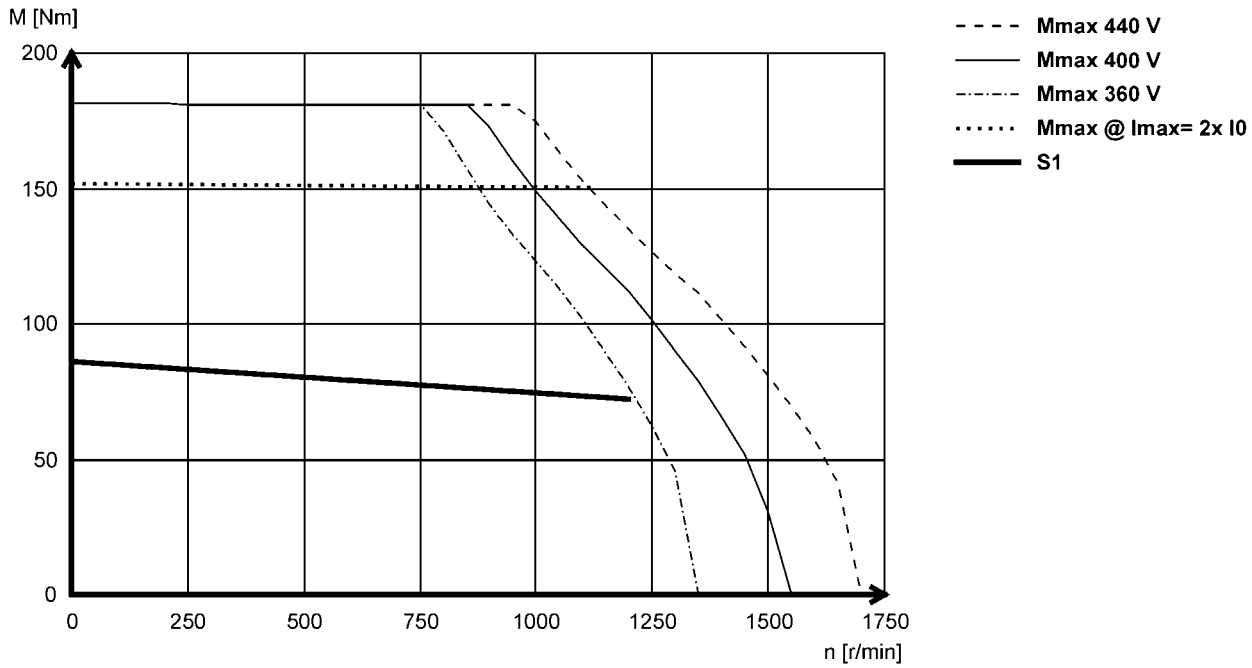
MCS19J30- (non-ventilated)



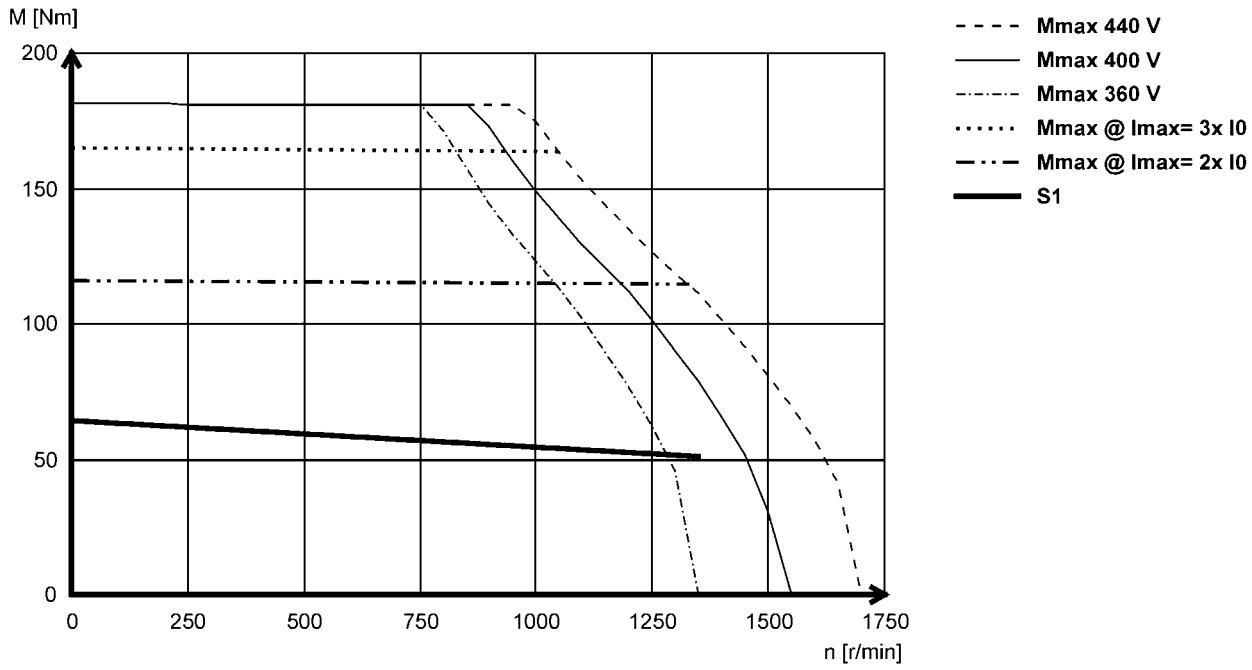
Torque characteristics

- The data applies to a mains connection voltage of 3 x 400 V.
- You can find further torque characteristics at **www.lenze.de/dsc**.

MCS19P12 (forced ventilated)



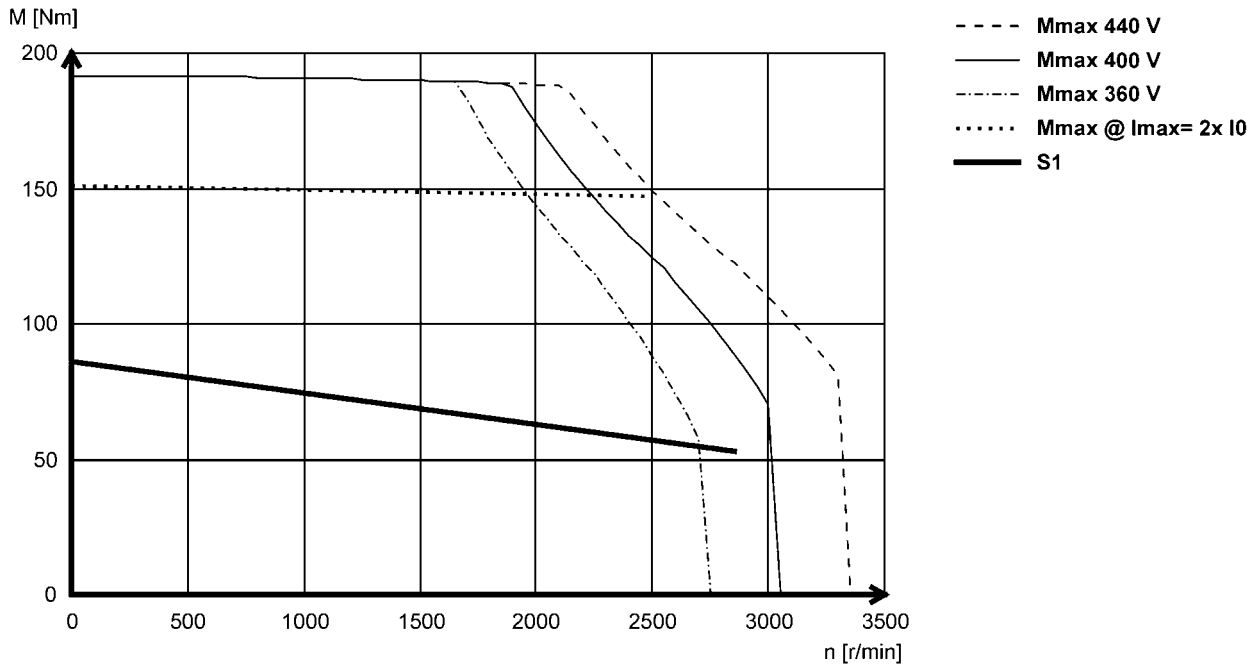
MCS19P14- (non-ventilated)



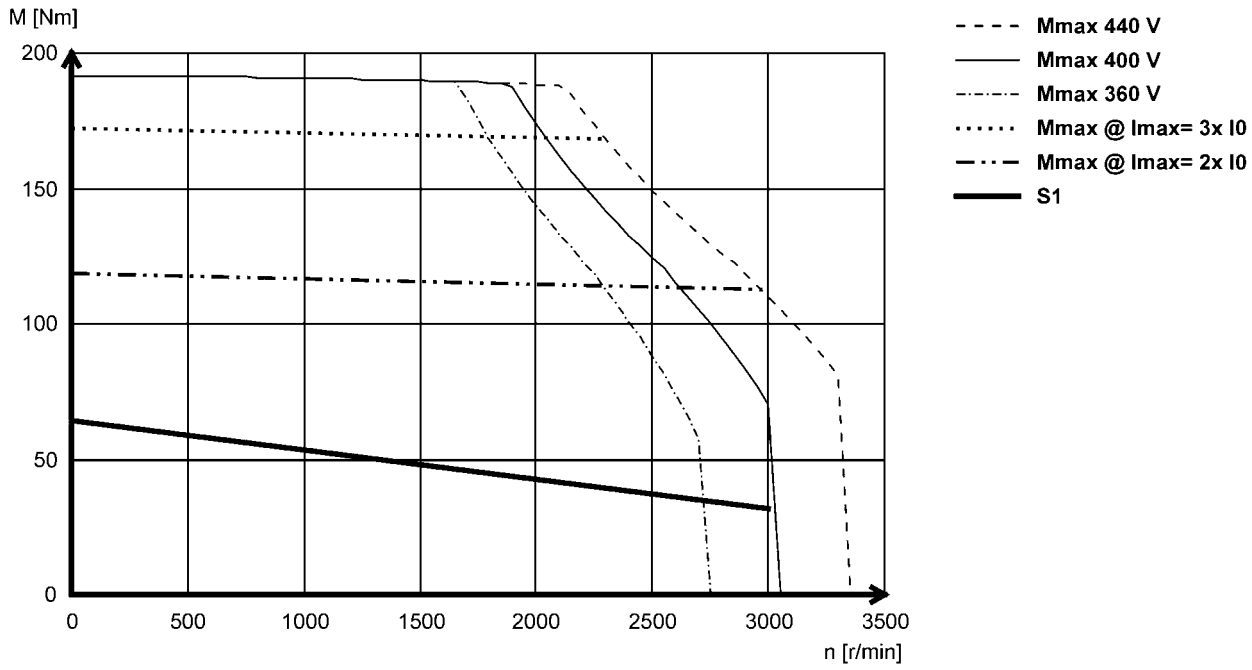
Torque characteristics

- The data applies to a mains connection voltage of 3 x 400 V.
- You can find further torque characteristics at **www.lenze.de/dsc**.

MCS19P29- (forced ventilated)



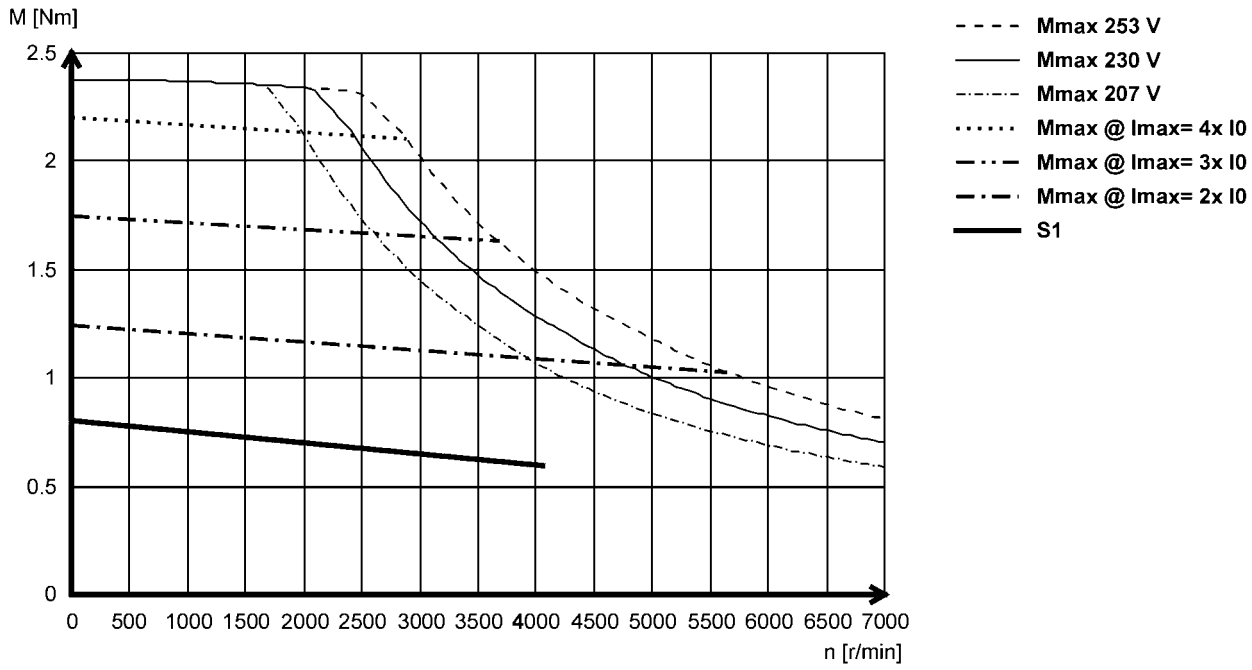
MCS19P30- (non-ventilated)



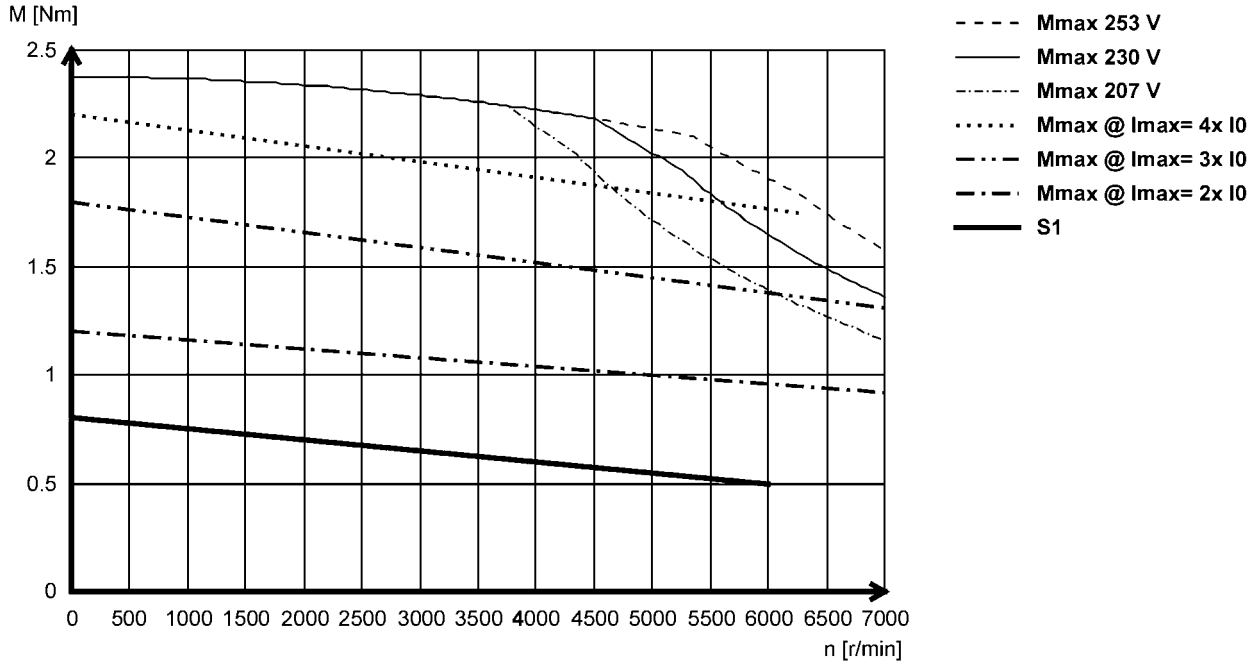
Torque characteristics

- The data applies to a mains connection voltage of 3 x 230 V.
- You can find further torque characteristics at **www.lenze.de/dsc**.

MCS06C41L (non-ventilated)



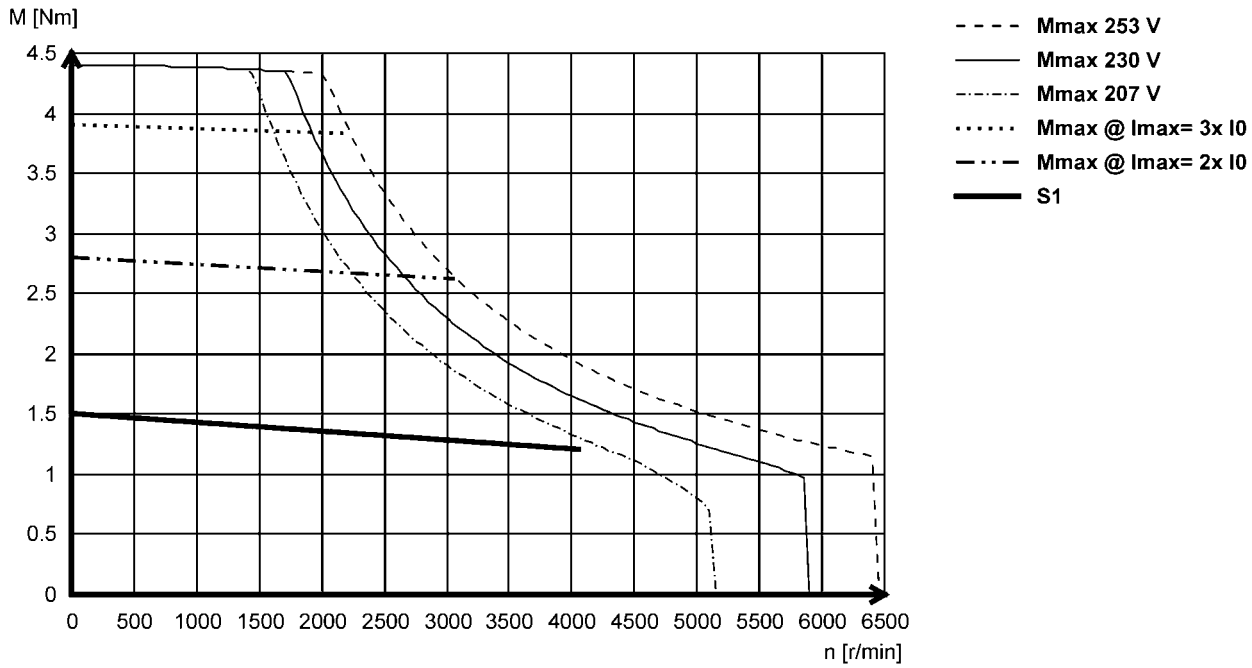
MCS06C60L (non-ventilated)



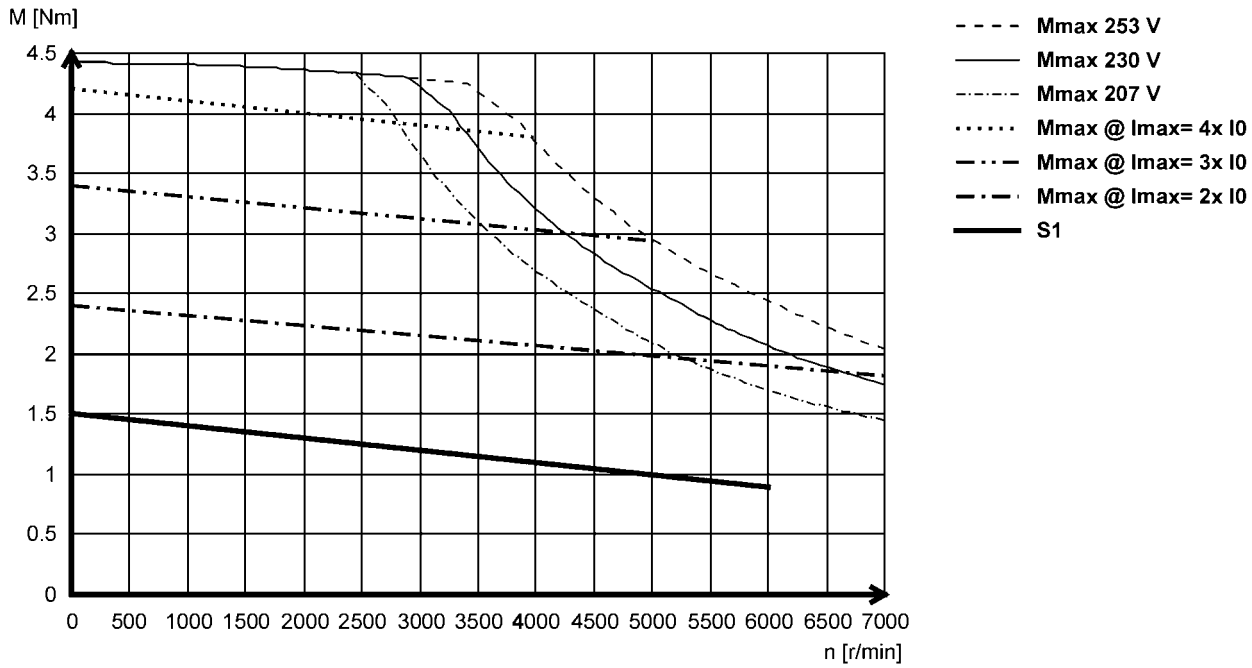
Torque characteristics

- The data applies to a mains connection voltage of 3 x 230 V.
- You can find further torque characteristics at **www.lenze.de/dsc**.

MCS06F41L (non-ventilated)



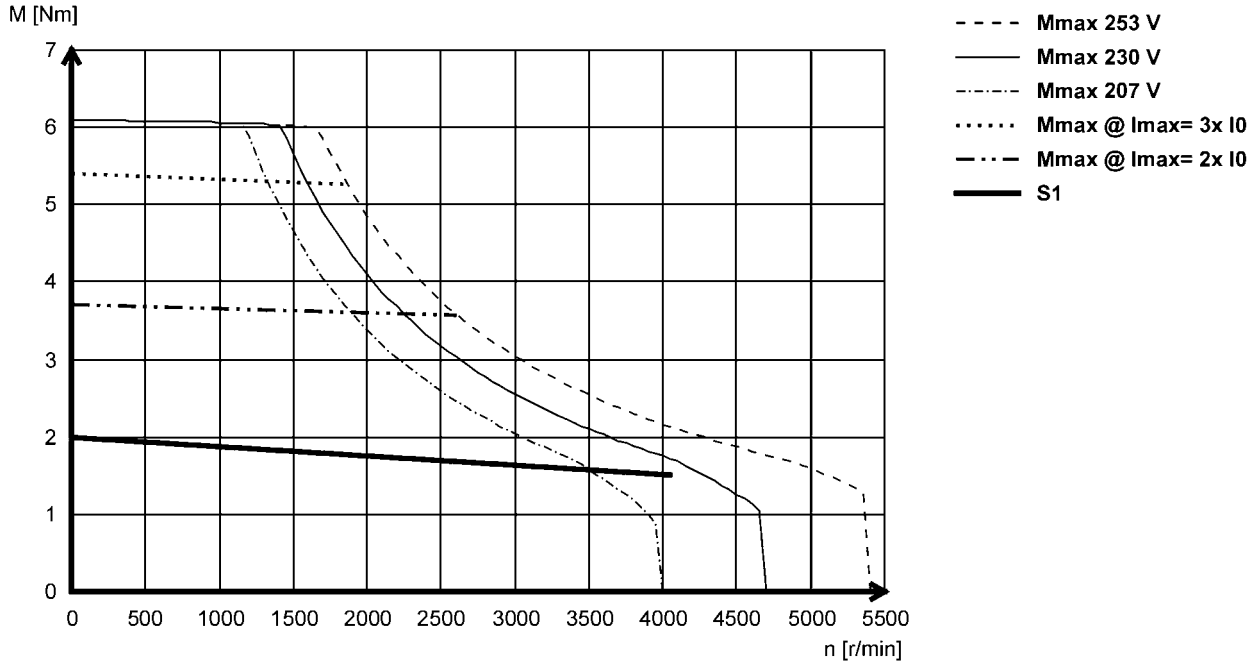
MCS06F60L (non-ventilated)



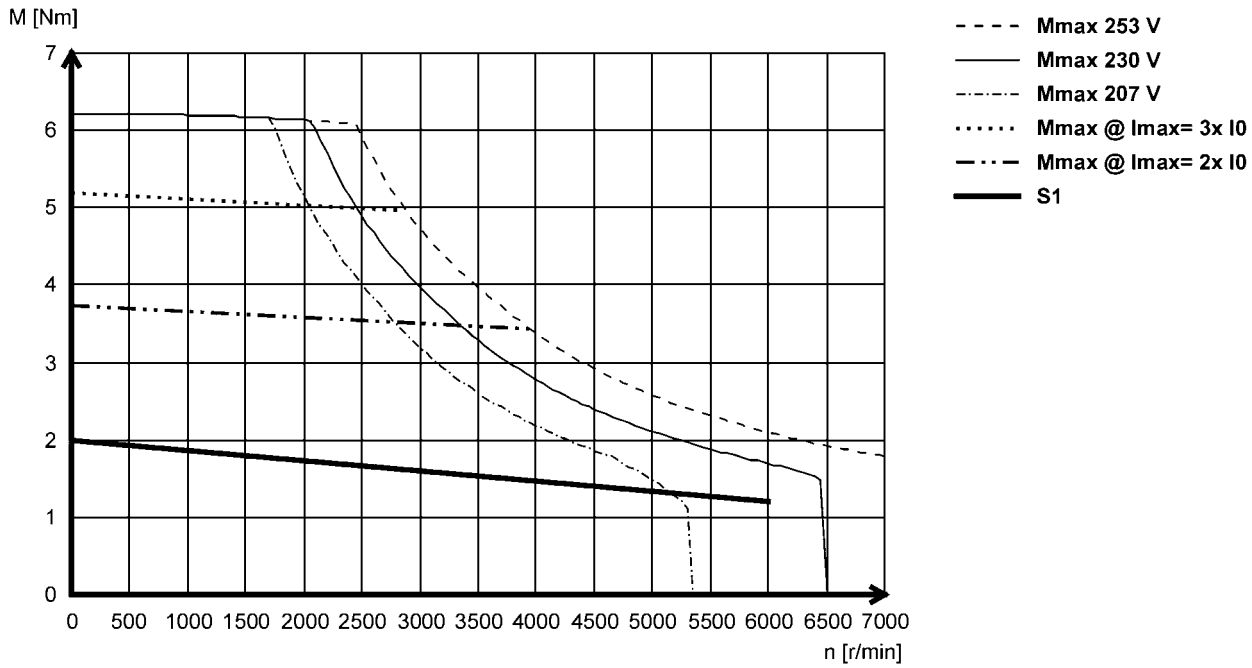
Torque characteristics

- The data applies to a mains connection voltage of 3 x 230 V.
- You can find further torque characteristics at **www.lenze.de/dsc**.

MCS06I41L (non-ventilated)



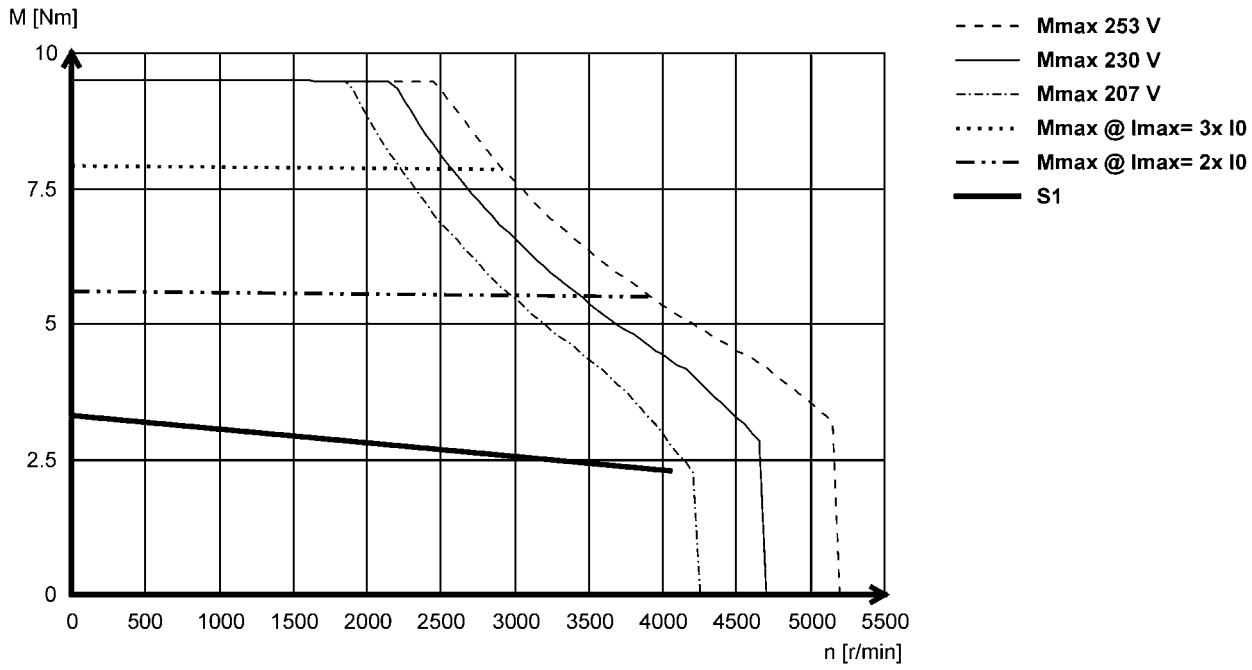
MCS06I60L (non-ventilated)



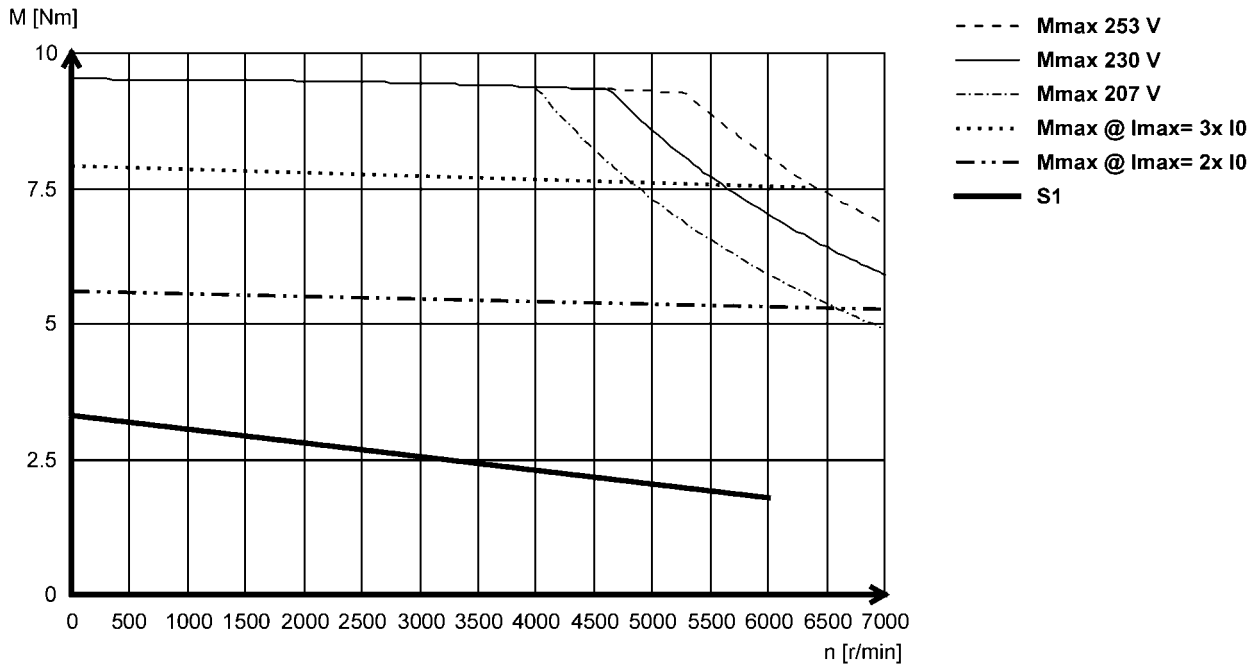
Torque characteristics

- The data applies to a mains connection voltage of 3 x 230 V.
- You can find further torque characteristics at **www.lenze.de/dsc**.

MCS09D41L (non-ventilated)



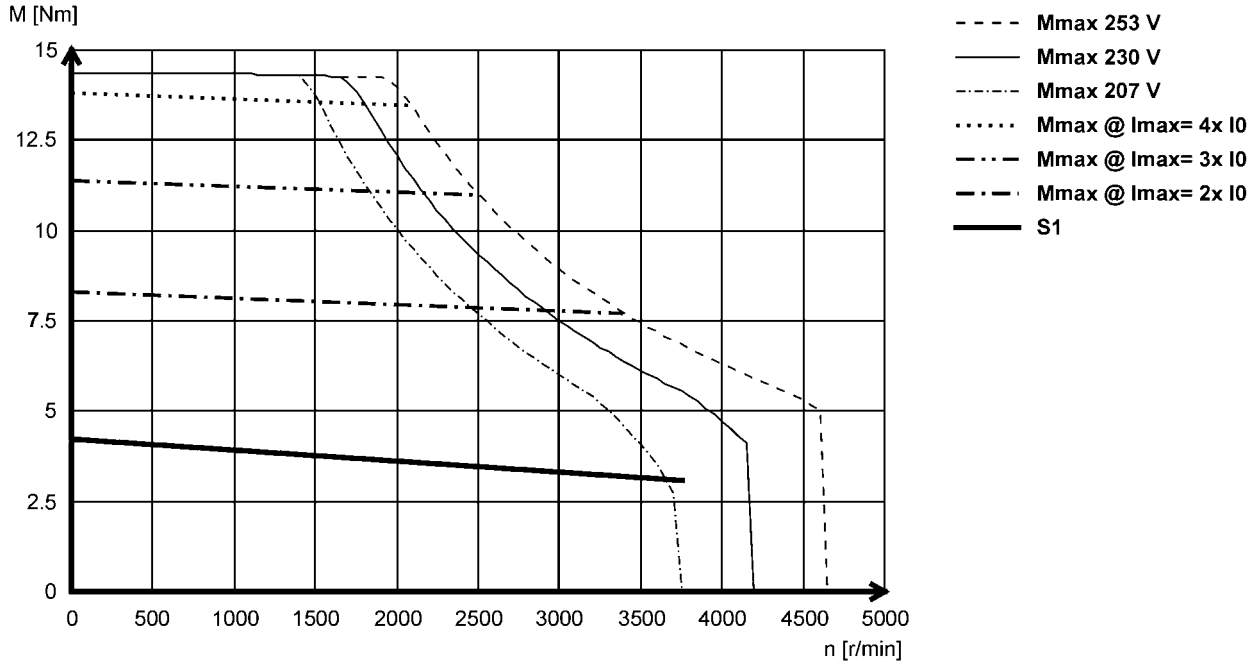
MCS09D60L (non-ventilated)



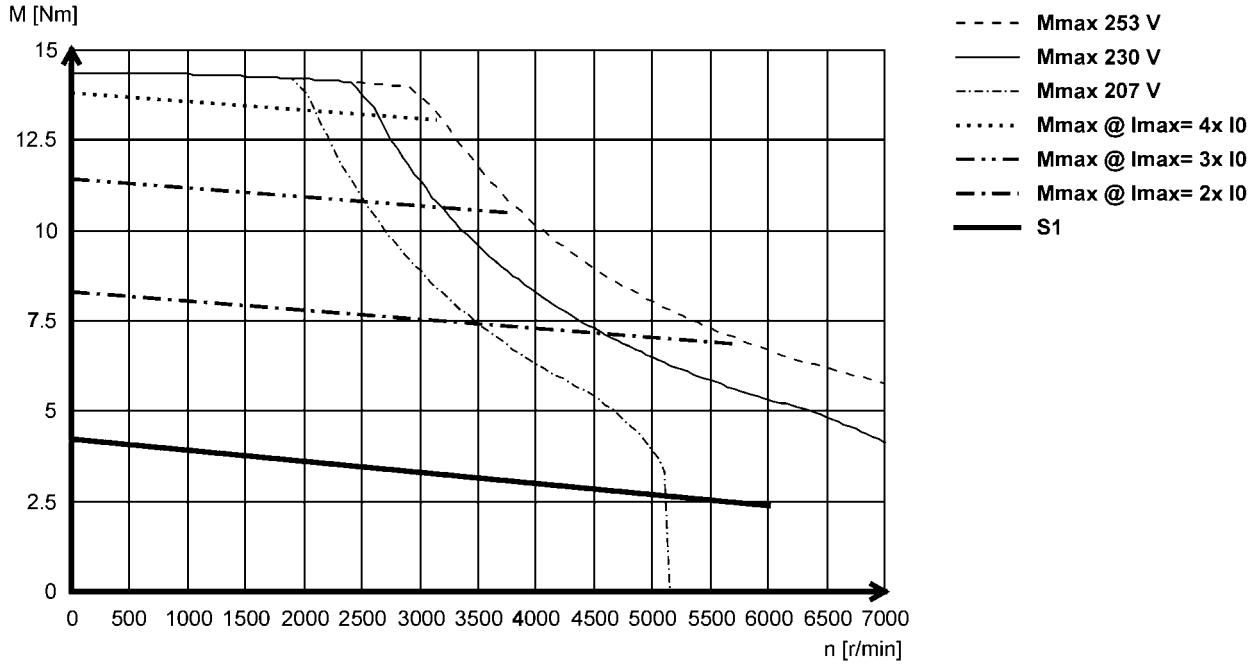
Torque characteristics

- The data applies to a mains connection voltage of 3 x 230 V.
- You can find further torque characteristics at **www.lenze.de/dsc**.

MCS09F38L (non-ventilated)



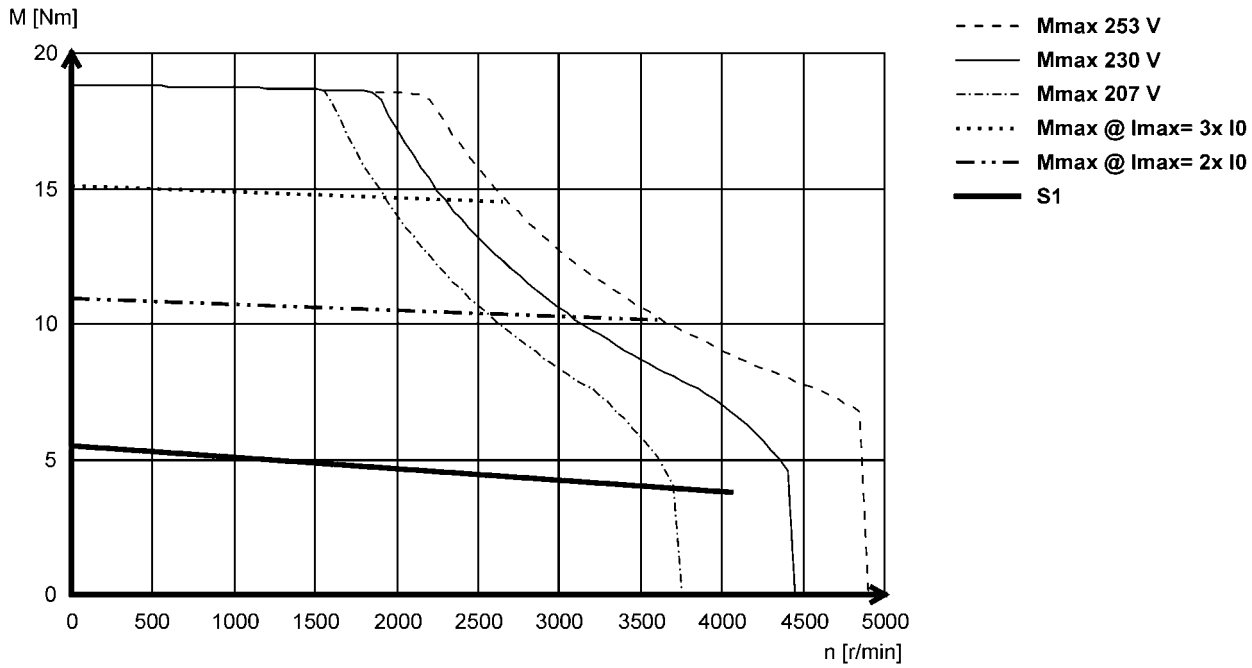
MCS09F60L (non-ventilated)



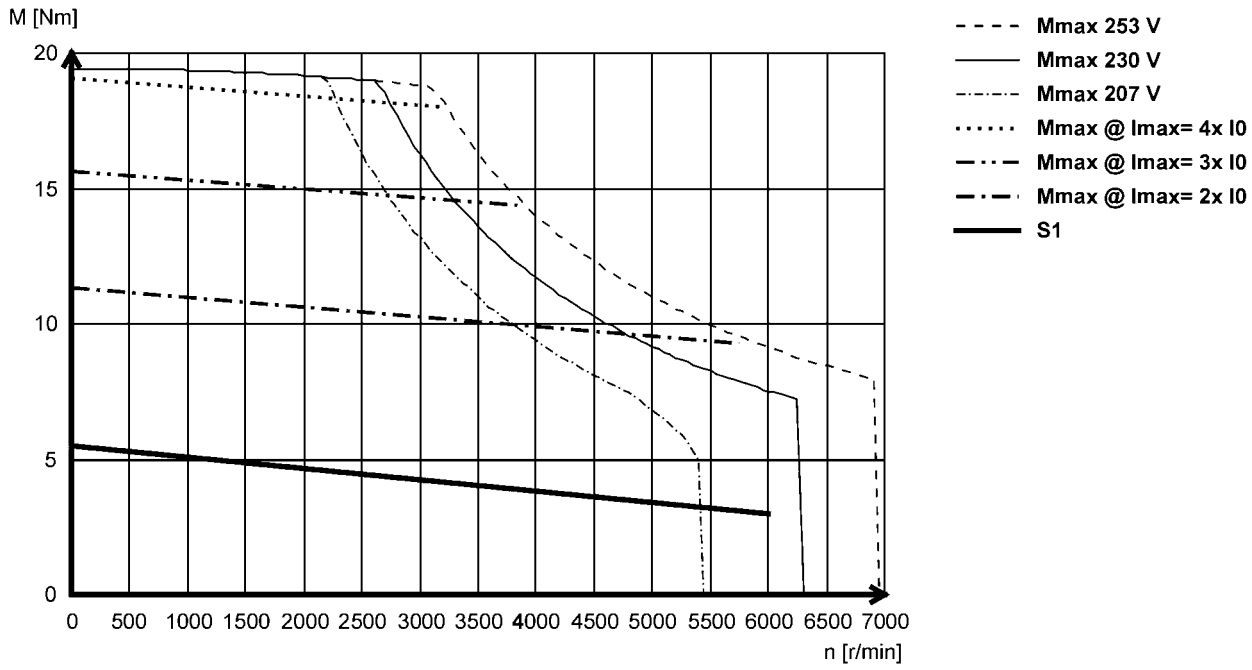
Torque characteristics

- The data applies to a mains connection voltage of 3 x 230 V.
- You can find further torque characteristics at **www.lenze.de/dsc**.

MCS09H41L (non-ventilated)



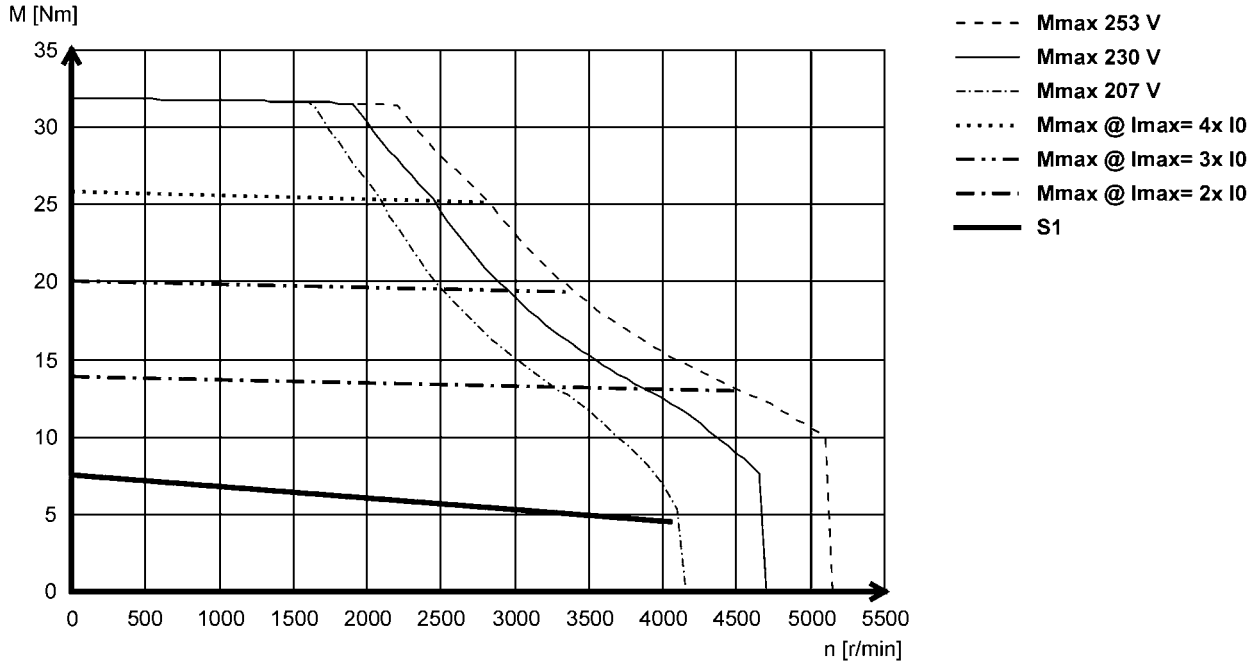
MCS09H60L (non-ventilated)



Torque characteristics

- The data applies to a mains connection voltage of 3 x 230 V.
- You can find further torque characteristics at **www.lenze.de/dsc**.

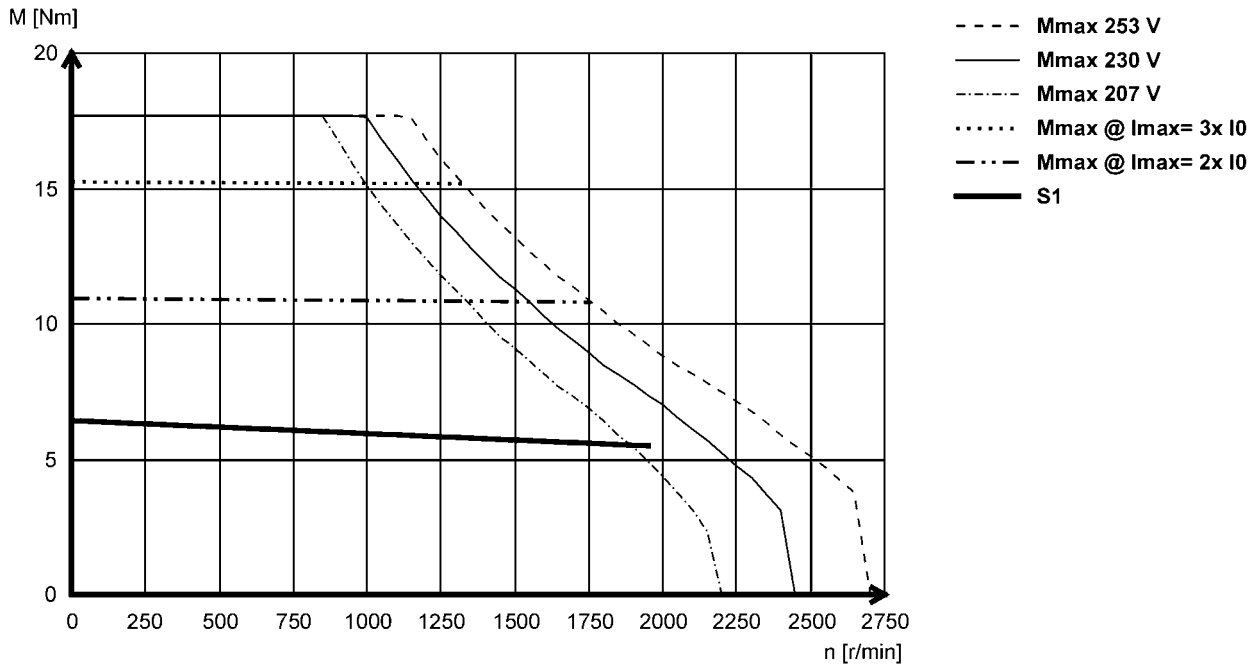
MCS09L41L (non-ventilated)



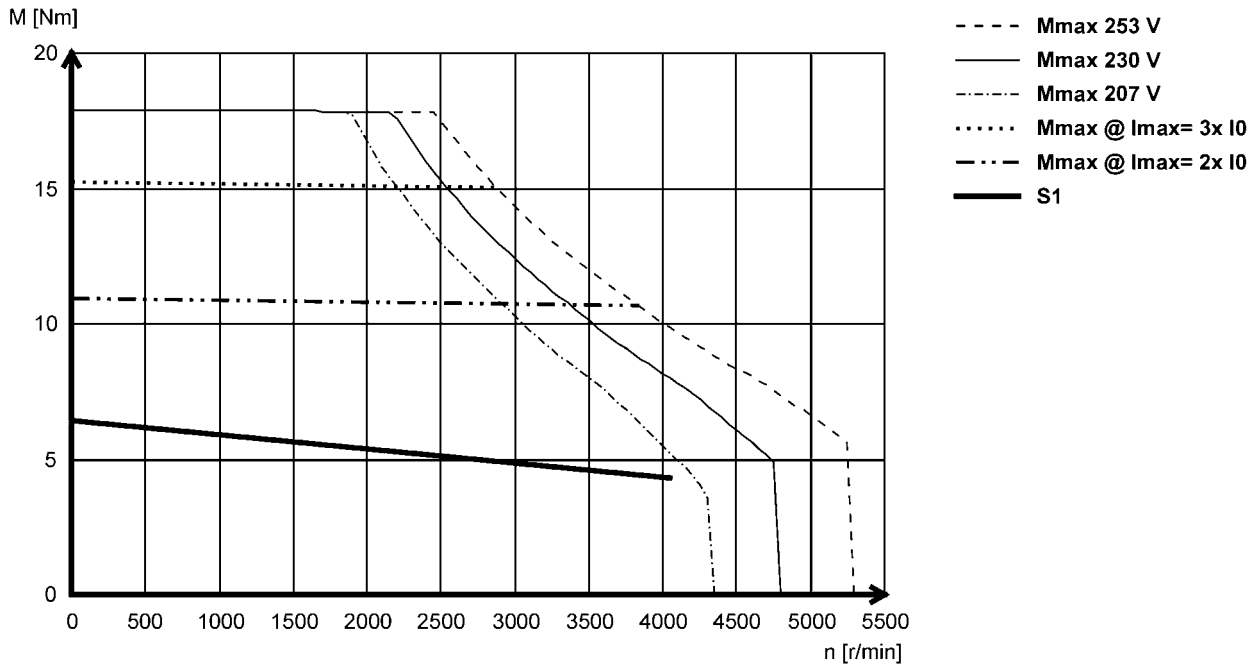
Torque characteristics

- The data applies to a mains connection voltage of 3 x 230 V.
- You can find further torque characteristics at **www.lenze.de/dsc**.

MCS12D20L (non-ventilated)



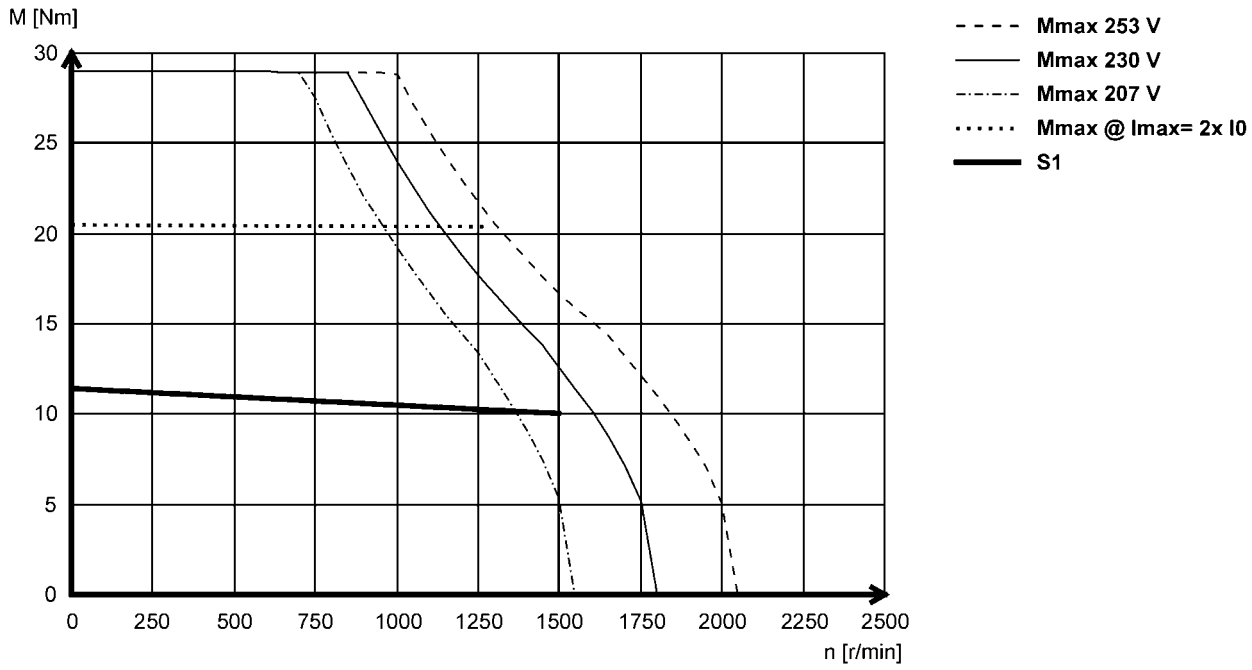
MCS12D41L (non-ventilated)



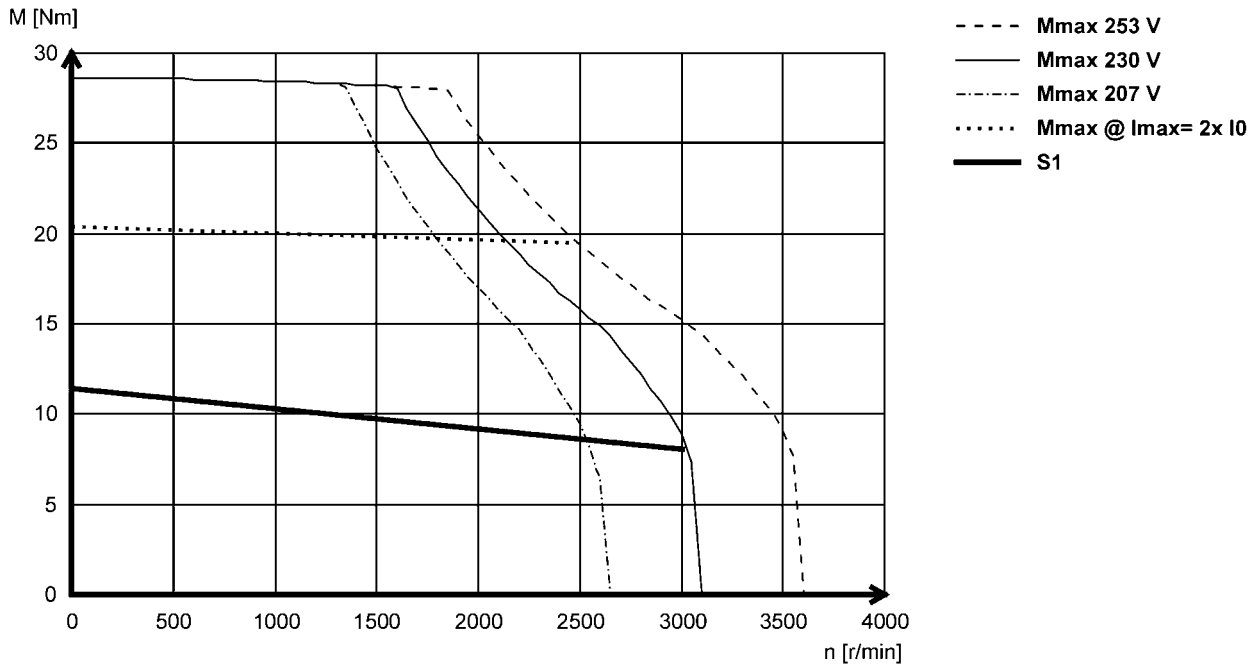
Torque characteristics

- The data applies to a mains connection voltage of 3 x 230 V.
- You can find further torque characteristics at **www.lenze.de/dsc**.

MCS12H15L (non-ventilated)



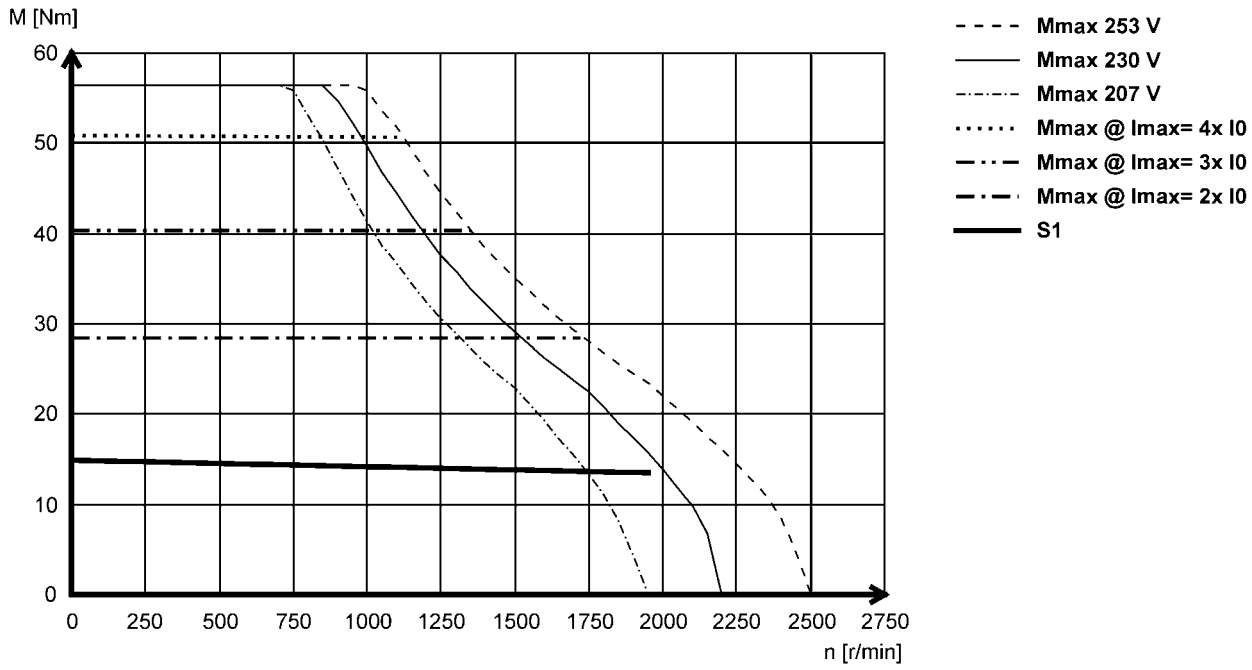
MCS12H30L- (non-ventilated)



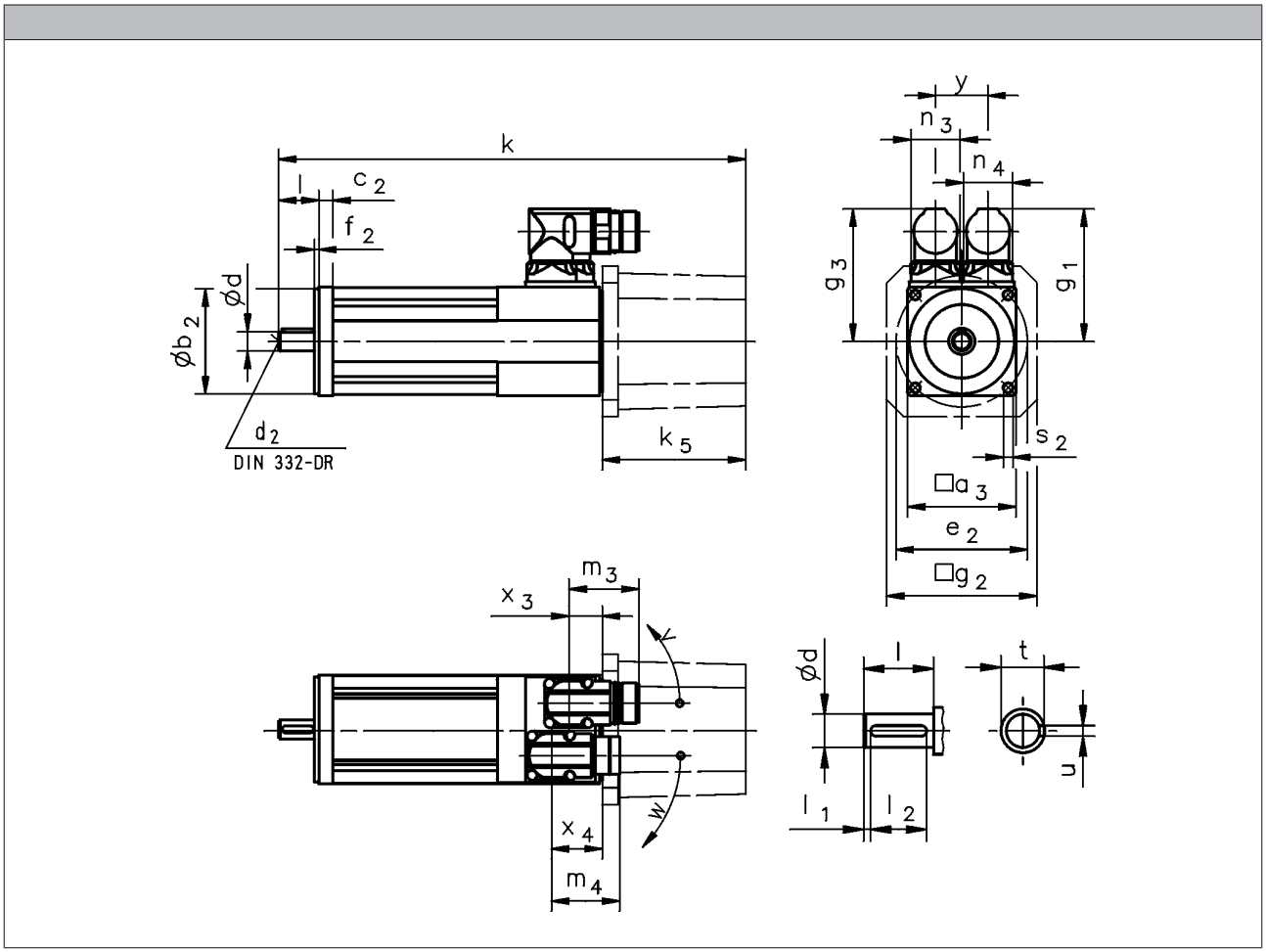
Torque characteristics

- The data applies to a mains connection voltage of 3 x 230 V.
- You can find further torque characteristics at **www.lenze.de/dsc**.

MCS12L20L (non-ventilated)



Dimensions, self-ventilated



			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]	82.0		
	g_2	[mm]	86.0		
SKM BO	k	[mm]	190	220	250
SKM P□	k	[mm]	209	239	268
SKM	k_5	[mm]	35.0		
	g_2	[mm]	62.0		

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

6.11

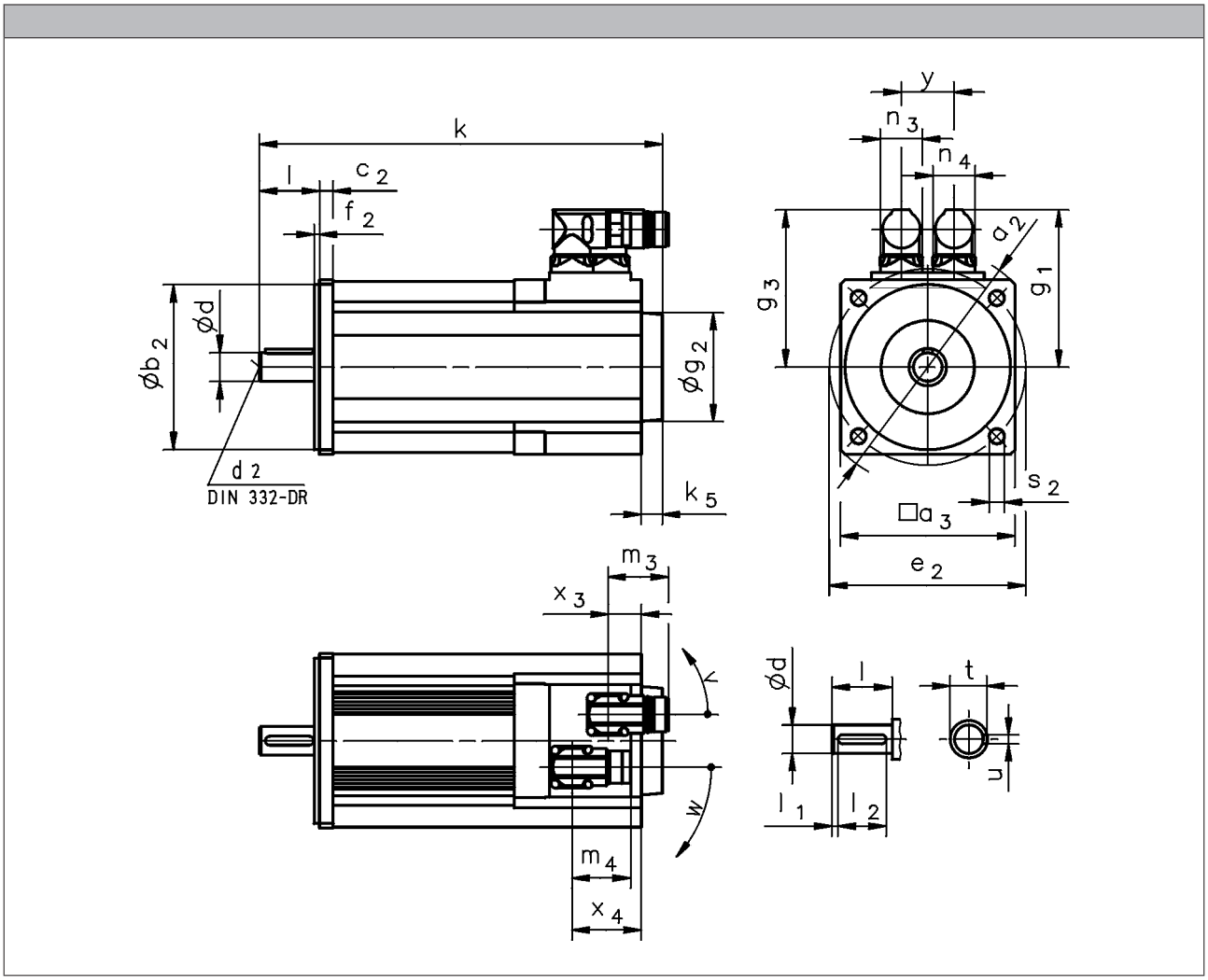
Dimensions, self-ventilated

	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



			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		
S□□ / E□□ B0	k	[mm]	264	284	304	344	277	317	357
S□□ / E□□ P□	k	[mm]	284	304	324	364	297	337	377
S□□ / E□□	k_5	[mm]	64				63		
	g_2	[mm]	81				89		

			MCS14D	MCS14H	MCS14L	MCS14P	MCS19F	MCS19J	MCS19P
R□0 / C40 B0	k	[mm]	251	291	331	371	280	320	380
R□0 / C40 P□	k	[mm]	279	319	359	399	314	364	424
R□0 / C40	k_5	[mm]	24				15		
	g_2	[mm]	78						
S□□ / E□□ B0	k	[mm]	301	341	381	421	329	369	429
S□□ / E□□ P□	k	[mm]	329	369	409	449	363	413	473
S□□ / E□□	k_5	[mm]	74				64		
	g_2	[mm]	101						

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

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							

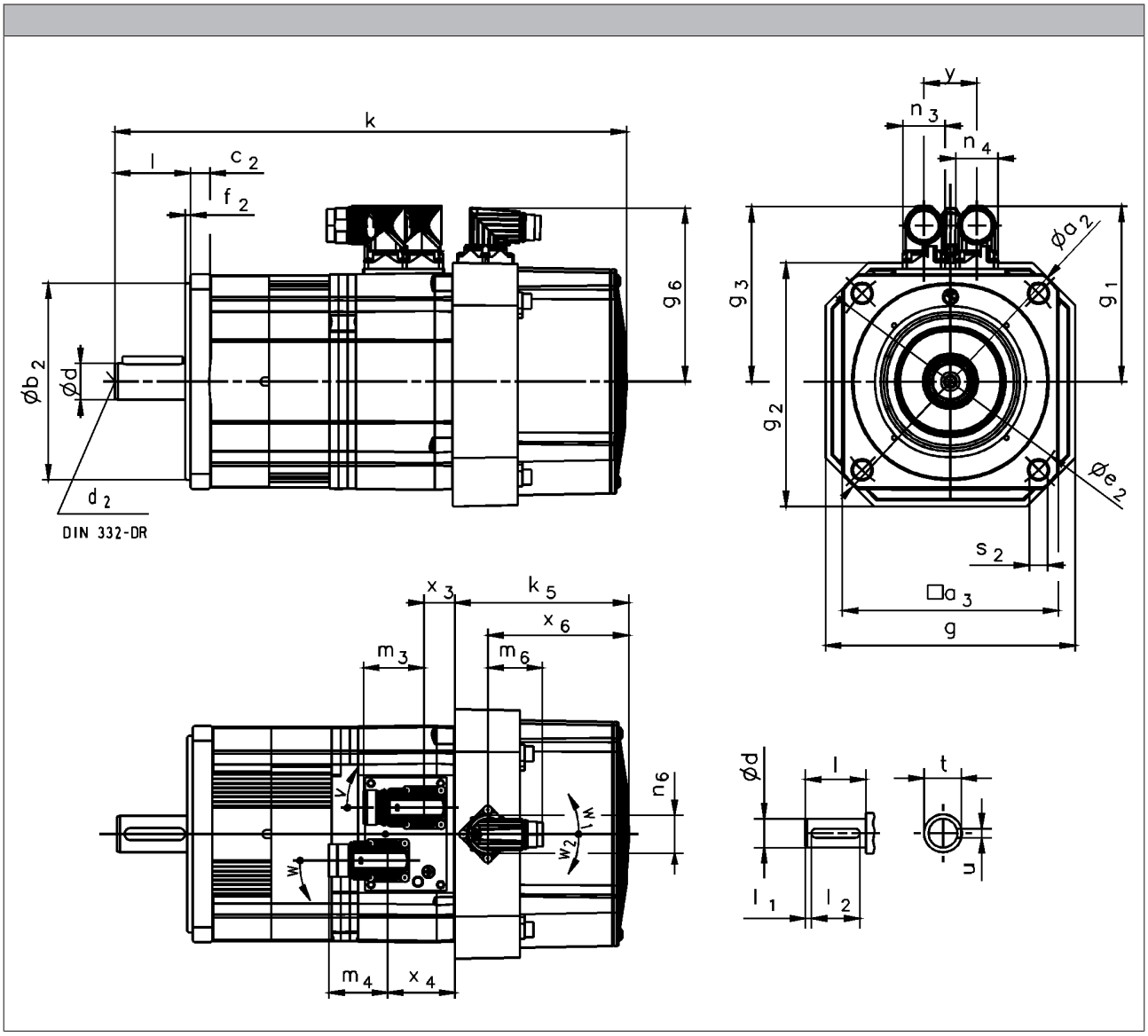
	g_1	g_3	x_3	x_4	m_3	m_4	n_3	n_4	y	v	w
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[°]	[°]
MCS14D15-	117	117	24	48	40	40	28	28	35	195	260
MCS14D36-											
MCS14H15-											
MCS14H32-											
MCS14L15-											
MCS14L32-	146	126	29	36		75		45		180	205
MCS14P14-	117	117	24	48		40		28		195	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]
MCS09	14	M5	30	2.5	25	5.0	16.0
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]
MCS09	120	89	80	8	100	3.0	7.0
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□)

Dimensions, forced ventilated



			MCS12D	MCS12H	MCS12L	MCS14D	MCS14H	MCS14L	MCS14P	MCS19F	MCS19J	MCS19P
R□0 / C40 B0	k	[mm]	301	341	381	339	379	419	459	387	427	487
R□0 / C40 P□	k	[mm]	321	361	401	368	408	448	488	421	471	531
R□0 / 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□

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	40	37	28	28	28	35	160	160	120	130
MCS12D35																	
MCS12H14																	
MCS12H34																	
MCS12L17																	
MCS12L39																	
MCS14D14	117	117	115	20	44	93											
MCS14D30																	
MCS14H12																	
MCS14H28	146	126		24	31			75			45						
MCS14L14	117	117		20	44			40			28						
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			28						
MCS19F29	171	151		24 51 [1]	31 58 [1]			75			45						
MCS19J12																	
MCS19J29																	
MCS19P12																	
MCS19P29																	

	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□)

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:

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

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	M_N	M_{av}	I_N [2]	J	t_1 [1]	t_2 [1]	Q_E [4]	m	J_{MB}	J_L/J_{MB}
		20 °C	120 °C	120 °C								
	[V]	[Nm]	[Nm]	[Nm]	[A]	[kgcm²]	[ms]	[ms]	[J]	[kg]	[kgcm²]	
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	M_N	M_{av}	I_N [2]	J	t_1 [1]	t_2 [1]	Q_E [4]	m	J_{MB}	J_L/J_{MB}
		20 °C	120 °C	120 °C								
	[V]	[Nm]	[Nm]	[Nm]	[A]	[kgcm²]	[ms]	[ms]	[J]	[kg]	[kgcm²]	
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 (± 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 ≤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					
	1)			RS0	RV0
Product key					
				RS0	RV03
Resolution					
Angle			[']	0.80	
Accuracy					
			[']	-10 ... 10	
Absolute positioning					
				1 revolution	
Max. speed					
	n_{max}		[r/min]	8000	
Max. input voltage					
DC	$U_{in,max}$		[V]	10.0	
Max. input frequency					
	$f_{in,max}$		[kHz]	4.00	
Ratio					
Stator / rotor		± 5 %		0.30	
Rotor impedance					
	Z_{ro}		[Ω]	51 + j90	
Stator impedance					
	Z_{so}		[Ω]	102 + j150	
Impedance					
	Z_{rs}		[Ω]	44 + j76	
Min. insulation resistance					
At DC 500 V	R		[MΩ]	10.0	
Number of pole pairs					
				1	
Max. angle error					
			[']	-10 ... 10	
Inverter assignment					
				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/s²]		56000
MCS09 ... MCS19 2)	α	[rad/s²]		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/s²]				970000
MCS09 ... MCS19	α	[rad/s²]				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							
Angle		[°]	0.40				
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			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/s²]			970000		
MCS09 ... MCS19	α	[rad/s²]			240000		
Functional safety							
IEC 61508					SIL2		
EN 13849-1					Up to Performance Level d		

Blowers

Rated data for 50 Hz

		Enclosure	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

		Enclosure	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

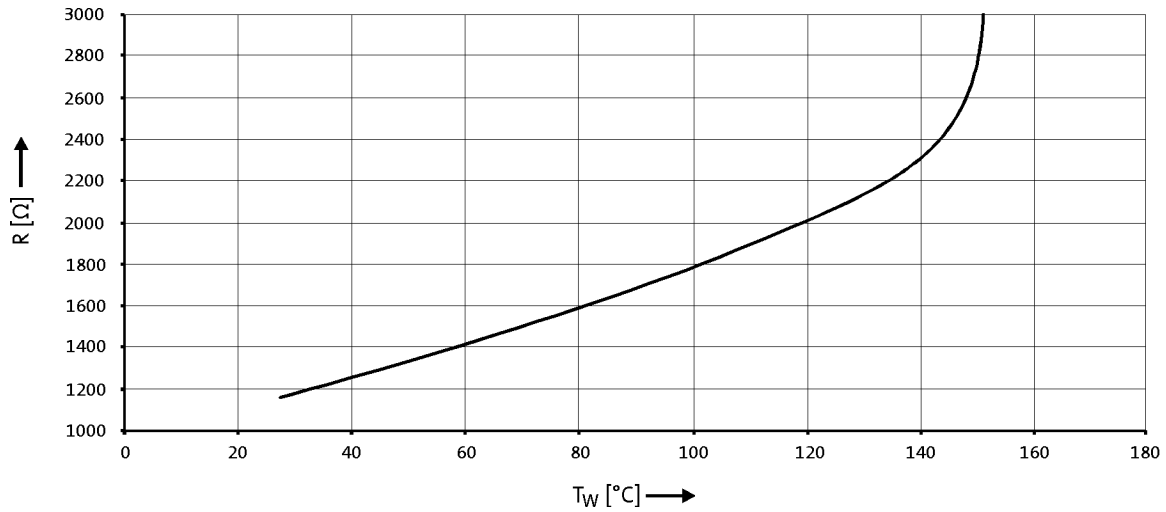
Temperature monitoring

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

MCS09 to 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 the event of overtemperature in one of the winding phases.

Variation of resistance



► If the detector is supplied with a measured current of 1 mA, the above relationship between the temperature and the resistance applies.

Terminal box

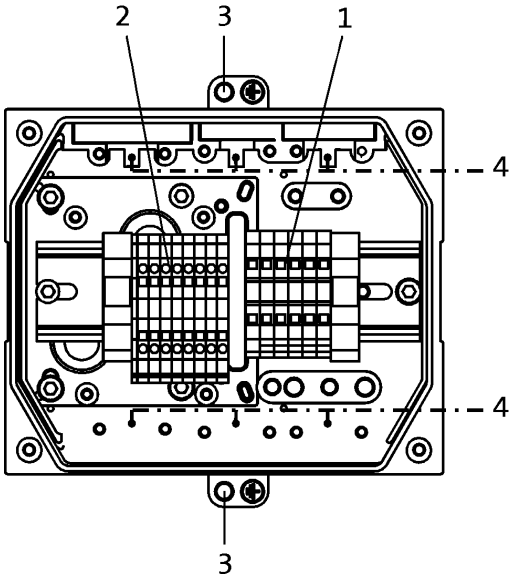
If a servo motor is to be connected to an existing cable or plug connectors are not to be used for other reasons, the connection can also be made via a terminal box.

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



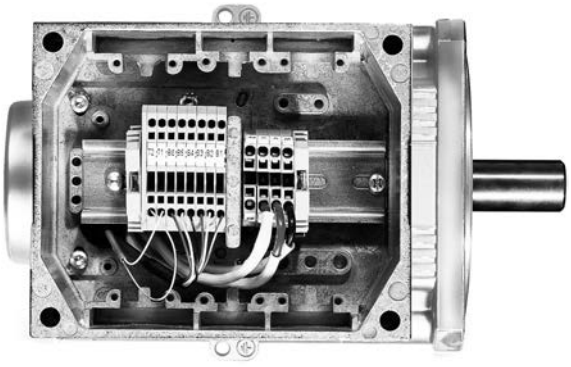
1: Power connection (terminals loadable up to 65 A) + brake connection.

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

3: PE connection.

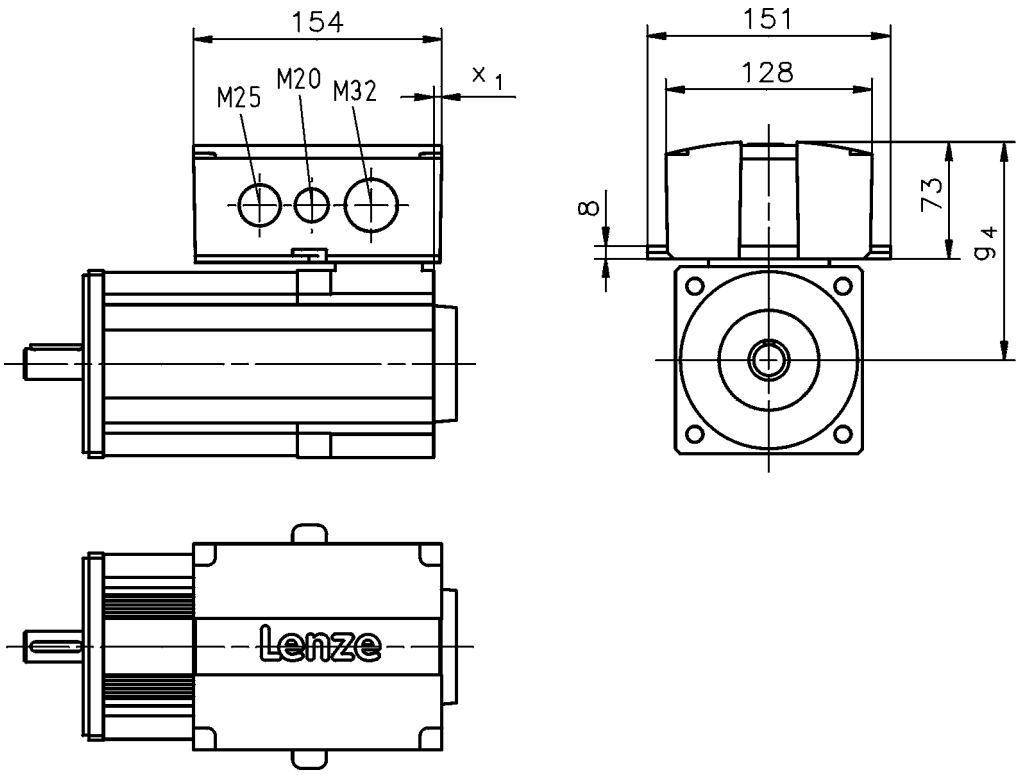
4: Large area shield contact.

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



	g_4	x_1
	[mm]	[mm]
MCS09	121	8
MCS12	136	5
MCS14	147	3
MCS19	172	

ICN connector

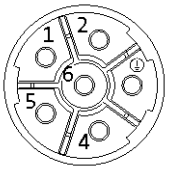
An ICN connector is used as standard for the electrical connection to the servo motors.

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.

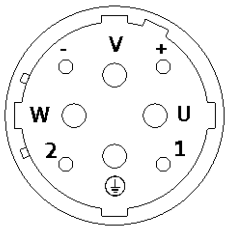
The connectors can be rotated through 270° and are fitted with a bayonet catch for SpeedTec connectors. As the connector fixing is also compatible with conventional union nuts. Existing mating connectors can therefore still be used without difficulty.

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	

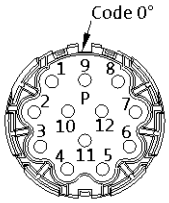
► MCS14 to 19

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	

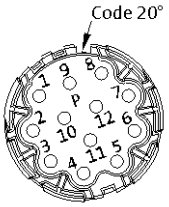
ICN connector

Feedback connection

► Resolver

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

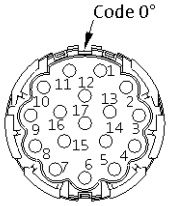
► Hiperface incremental encoder and SinCos absolute value encoder

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

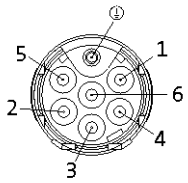
ICN connector

Feedback connection

► SinCos absolute value encoder with EnDat interface

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

Blower connection

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

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