g500-B bevel geared motors

Mains operation
0.06 ... 0.55 kW (efficiency class IE1)
0.75 ... 30 kW (efficiency class IE3)

g500-B bevel geared motors

Contents

List of abbreviations

α	[rad/s²]	Max. permissible angular acceleration
$\eta_{50\,\%}$	[%]	Efficiency
$\eta_{75\,\%}$	[%]	Efficiency
$\eta_{100\,\%}$	[%]	Efficiency
η_a		Efficiency
$\eta_{c=1}$		Efficiency
c		Load capacity
cos ϕ		Power factor
du/dt	[kV/µs]	Insulation resistance
$F_{ax,-}$	[N]	Min. axial force
$F_{ax,+}$	[N]	Max. axial force
$F_{ax,max}$	[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
$F_{rad,max}$	[N]	Max. radial force
f_z		Additional radial force factor
H_{max}	[m]	Site altitude
I_0	[A]	Standstill current
i		Ratio
$I_{in,max}$	[A]	Max. input current
I_{max}	[A]	Max. current consumption
I_{max}	[A]	Max. current
I_{max}	[A]	Max. current consumption
I_{max}	[A]	Max. current
I_{max}	[A]	Max. short-time DC-bus current
I_{max}	[A]	Max. DC-bus current
I_N	[A]	Rated current
$I_{N,\Delta}$	[A]	Rated current
$I_{N,Y}$	[A]	Rated current
J	[kgcm²]	Moment of inertia
J_{MB}	[kgcm²]	Moment of inertia
$KE_{LL\,150\,°C}$	[V /(1000 r/min)]	Voltage constant
$Kt_{0\,150\,°C}$	[Nm/A]	Torque constant
L_{10}	[h]	Bearing service life
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_2	[Nm]	Output torque
M_{22}	[Nm]	Output torque
M_0	[Nm]	Stall torque
$M_{0,max}$	[Nm]	Max. standstill torque
$M_{2,GM}$	[Nm]	Output torque
$M_{2,max}$	[Nm]	Max. output torque
$M_{2,not}$	[Nm]	Emergency off-torque

M_a	[Nm]	Starting torque
$M_{a\_,1}$	[Nm]	Starting torque
$M_{a\_,2}$	[Nm]	Starting torque
M_{av}	[Nm]	Average dynamic torque
M_b	[Nm]	Stalling torque
M_B	[Nm]	Braking torque
M_k	[Nm]	Rated torque
M_{max}	[Nm]	Max. torque
M_N	[Nm]	Rated torque
n_2	[r/min]	Output speed
n_{21}	[r/min]	Output speed
n_{22}	[r/min]	Output speed
$n_{1,max}$	[r/min]	Max. gearbox input speed
$n_{1,max\,50\%}$	[r/min]	Max. gearbox input speed
n_{eto}	[r/min]	Transition speed
n_k	[r/min]	Speed
n_{max}	[r/min]	Max. speed
n_N	[r/min]	Rated speed
P_{max}	[kW]	Max. power input
Q_{BW}	[MJ]	Friction energy
Q_E	[J]	Maximum switching energy
Q_E	[KJ]	Maximum switching energy
R_1	[Ω]	Stator impedance
R_2	[Ω]	Rotor impedance
R	[Ω]	Insulation resistance
R	[Ω]	Min. insulation resistance
$R_{UV\,150\,°C}$	[Ω]	Stator impedance
$R_{UV\,20\,°C}$	[Ω]	Stator impedance
$S_{hü}$	[1/h]	Transition operating frequency
t_1	[ms]	Engagement time
t_2	[ms]	Disengagement time
t_{11}	[ms]	Delay time
t_{12}	[ms]	Rise time
T	[°C]	Max. surface temperature
T	[°C]	Min. ambient temperature for transport
T	[°C]	Max. ambient temperature for transport
T	[°C]	Max. ambient temperature of bearing
T	[°C]	Min. ambient storage temperature
T	[°C]	Ambient temperature
T	[°C]	Operating temperature
T	[°C]	Rated temperature
t	[h]	Service life
T_{opr}		Ambient operating temperature
$T_{opr,max}$	[°C]	Max. ambient operating temperature
$T_{opr,min}$	[°C]	Min. ambient operating temperature
t_{re}	[s]	Recovery time
$t_ü$	[ms]	Overexcitation time
U_Δ	[V]	Voltage range
U_{AC}	[V]	Mains voltage range

List of abbreviations

U_{AC}	[V]	Mains voltage
$U_{in,max}$	[V]	Max. input voltage
$U_{in,min}$	[V]	Min. input voltage
U_{max}	[V]	Max. input voltage
U_{max}	[V]	Max. mains voltage
U_{min}	[V]	Min. mains voltage
$U_{N, \Delta}$	[V]	Rated voltage
$U_{N, AC}$	[V]	Rated voltage
$U_{N, DC}$	[V]	Rated voltage
$U_{N, Y}$	[V]	Rated voltage
z_g		Number of teeth
Z_{ro}	[Ω]	Rotor impedance
Z_{rs}	[Ω]	Impedance
Z_{so}	[Ω]	Stator impedance
z_t		Number of teeth

CCC	China Compulsory Certificate
CE	Communauté Européenne
CEL	China Energy Label
CSA	Canadian Standards Association
CSAULE	Energy Verified Certificate
cURus	Combined certification marks of UL for the USA and Canada
DIN	Deutsches Institut für Normung e.V.
EAC	Customs union Russia / Belarus / Kazakhstan certificate
EMC	Electromagnetic compatibility
EN	European standard
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 information

In combination with three-phase AC 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-stage and 3-stage design with a torque up to 4300 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

Three-phase AC motors as a basis for geared motors

In a power range of 0.06 to 30 kW, Lenze offers mains-operated three-phase AC motors for basic tasks.
These drives come in different efficiency classes and can be used for the versions required for mains operation.

- IE1 motors up to a power of 0.55 kW
- IE3 motors from 0.75 kW to 30 kW

Customer benefit

- Different efficiency classes for the greatest economic benefit
- Saving of space by compact direct mounting to Lenze gearboxes
- Optimum adaptation of the brake reaction by optional holding brakes and service brakes
- Optional overheat control by temperature monitoring

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
				600	g500-B600
				820	g500-B820
				1500	g500-B1500
				2700	g500-B2700
				4300	g500-B4300

g500-B bevel gearbox with m240-P three-phase AC motor

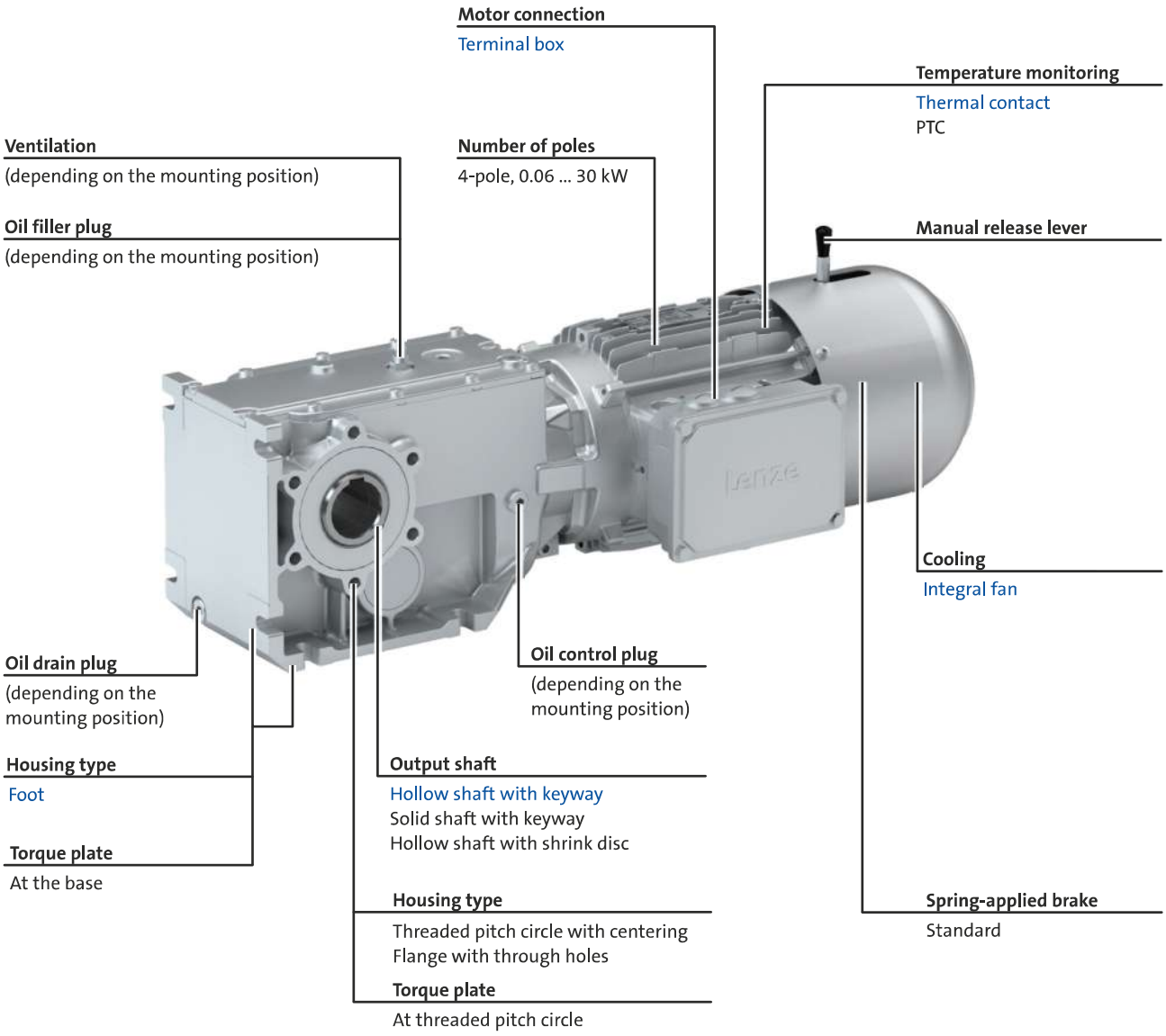
g500-B bevel gearbox with m550-P three-phase AC motor and motec

g500-B bevel gearbox with MCS servo motor

Equipment

Overview

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



Standard design

11 - Detailed information on housing type.

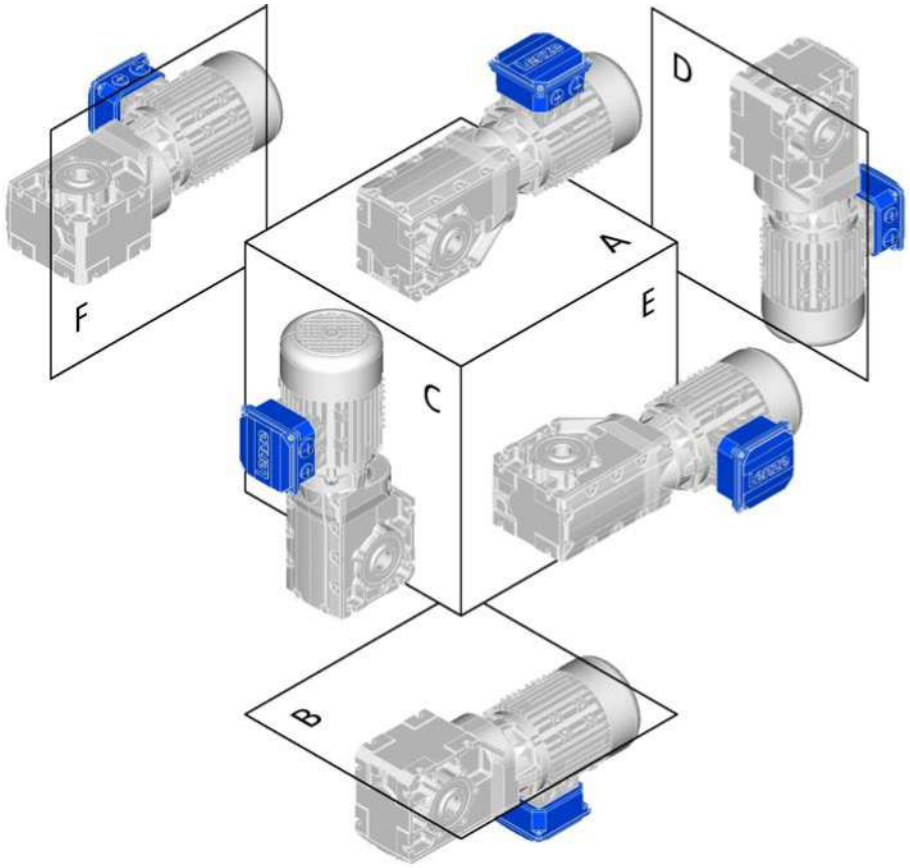
6.5

Equipment

Mounting position, position of system components

- In the following graphics, the terminal box in position 2 is colour-coded.
  If the mounting position (A ... F) changes, the terminal box positions 2 ... 5 are rotated accordingly.
- To reduce the number of different versions, the gearboxes can also be ordered with combined mounting positions:
  - g500-B45 in mounting position ABCDEF
  - g500-B110 ... B450 in mounting position AEF

Mounting positions A ... F



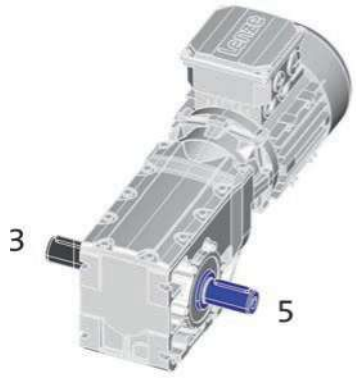
Terminal box positions 2 ... 5

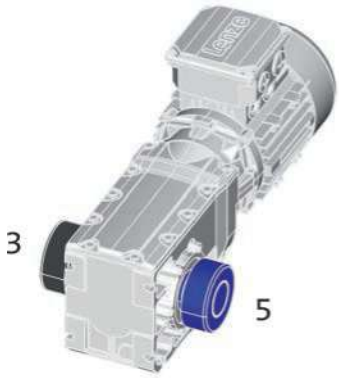
Cable entry positions 1 ... 5

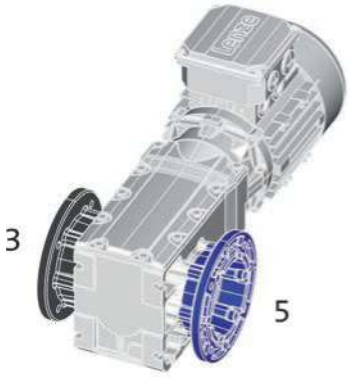
- For details regarding the cable entry see motor chapter/product extensions.

Equipment

Mounting position, position of system components

Solid shaft position 3 or 5


Shrink disc position 3 or 5


Flange position 3 or 5


The geared motor kit

g500-B45 ... B450

Product				
Gearbox	g500-B45	g500-B110	g500-B240	g500-B450
Motor assignment min.	MD□MA□□-063	MD□MA□□-063	MD□MA□□-063	MD□MA□□-063
Motor assignment max.	MD□MA□□-071	m240-P90	m240-P100	m240-P132
Technical data				
Output torque max.	45 Nm	110 Nm	240 Nm	450 Nm
Drive power min.	0.06 kW	0.12 kW	0.12 kW	0.12 kW
Drive power max.	0.55 kW	1.5 kW	3.0 kW	7.5 kW
Dimensions [mm]				
Solid shaft with featherkey	20 x 40	20 x 40	30 x 60	30 x 60
Hollow shaft with keyway	18/20	20/25	30/35	35/40
Hollow shaft with shrink disc	20	20	30/35	35
Output flange	110/120	120/160	160/200	200

► Values printed in bold are standard versions.
Values not printed in bold are possible extensions, some for an additional charge.

Design	
Conformity	**CE** EAC
Approval	**Without**
Degree of protection	**IP55** IP65/IP66
Surface and corrosion protection	**Without** Different types of OKS
Colour	**Not coated** Primed/RAL colours
Hollow shaft	**With keyway (H□□)**
Hollow shaft with shrink disc	Without keyway (S□□)
Solid shaft	With featherkey (V□□)
Shaft material	**Steel** stainless steel
Shaft sealing ring material	**NBR** FKM (Viton)
Driven shaft bearing	**Normal**
Paste for shaft mounting	**Without** Enclosed
Gearbox type	**With foot (□BR)** With foot and centering (□AR) With foot and output flange (□AK)
Lubricant	**Mineral oil** Synthetic oil Food-compatible oil

Design	
Mounting position	**A/B/C/D/E/F** Combined
Power connection	**Terminal box**
Spring-applied brake	**Without** Brake design: Standard brake version: Standard
Feedback	**Without**
Cooling	**Integral fan**
Temperature monitoring	**TKO thermal contact** PTC thermistor

The geared motor kit

g500-B45 ... B450

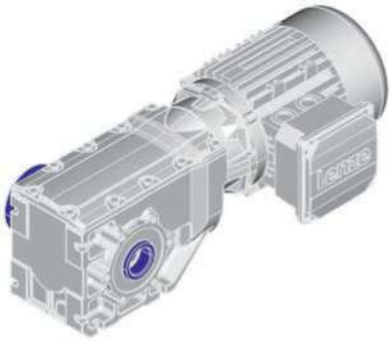
Gearbox design: hollow shaft, with foot

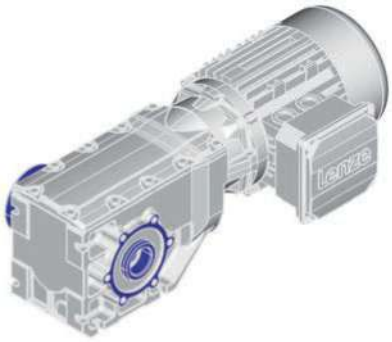

Without centring (HBR)

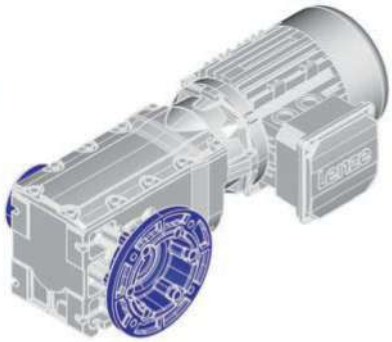

With centering (HAR)


Flange with through holes (HAK)

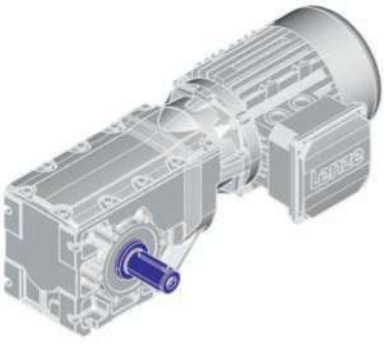
Gearbox design: hollow shaft with shrink disc, with foot

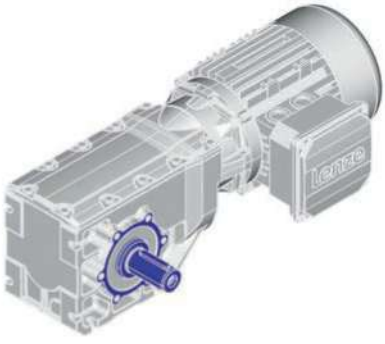

Without centring (SBR)


With centering (SAR)


Flange with through holes (SAK)

Gearbox design: solid shaft, with foot


Without centring (VBR)


With centering (VAR)


Flange with through holes (VAK)

The geared motor kit

g500-B600 ... B4300

Product					
Gearbox	g500-B600	g500-B820	g500-B1500	g500-B2700	g500-B4300
Motor assignment min.	MD□MA□□-063	MD□MA□□-063	MD□MA□□-071	m240-P90	m240-P90
Motor assignment max.	m240-P132	m240-P132	m240-P160	m240-P160	m240-P180
Technical data					
Output torque max.	600 Nm	820 Nm	1500 Nm	2700 Nm	4300 Nm
Drive power min.	0.25 kW	0.25 kW	0.55 kW	1.1 kW	1.1 kW
Drive power max.	7.5 kW	7.5 kW	15 kW	15 kW	30 kW
Dimensions [mm]					
Solid shaft with featherkey	40 x 80	40 x 80	50 x 100	60 x 120	70 x 140
Hollow shaft with keyway	40/45	40/45	50/55	60/70	70/80
Hollow shaft with shrink disc	40	40	50	65	75/80
Output flange	200/250	200/250	250/300	350	400/450

► Values printed in bold are standard versions.
Values not printed in bold are possible extensions, some for an additional charge.

Design	
Conformity	**CE** EAC
Approval	**Without**
Degree of protection	**IP55** IP65/IP66
Surface and corrosion protection	**OKS-S** Different types of OKS
Colour	**Painted in RAL colours** Primed
Hollow shaft	**With keyway (H□□)**
Hollow shaft with shrink disc	Without keyway (S□□)
Solid shaft	With featherkey (V□□)
Shaft material	**Steel** stainless steel
Shaft sealing ring material	**NBR** FKM (Viton)
Driven shaft bearing	**Normal**
Paste for shaft mounting	**Without** Enclosed
Gearbox type	**With foot (□BR)** With foot and centering (□AR) With foot and output flange (□AK)
Lubricant	**Mineral oil** Synthetic oil Food-compatible oil

Design	
Mounting position	**A/B/C/D/E/F**
Power connection	**Terminal box**
Spring-applied brake	**Without** Brake design: Standard brake version: Standard
Feedback	**Without**
Cooling	**Integral fan**
Temperature monitoring	**TKO thermal contact** PTC thermistor

The geared motor kit

g500-B600 ... B4300

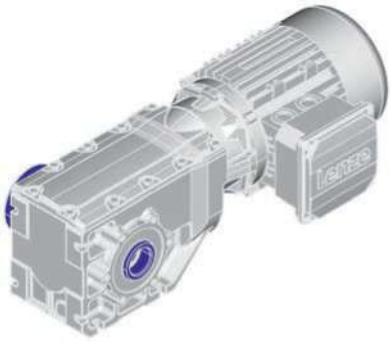
Gearbox design: hollow shaft, with foot

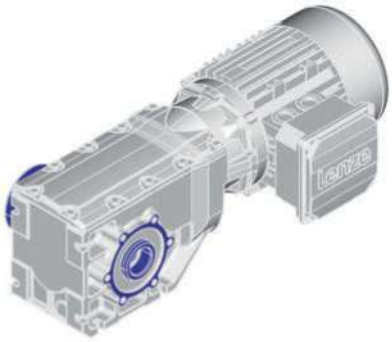

Without centring (HBR)

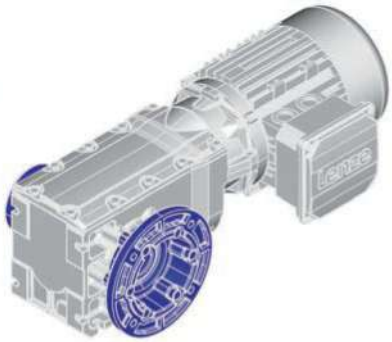

With centering (HAR)


Flange with through holes (HAK)

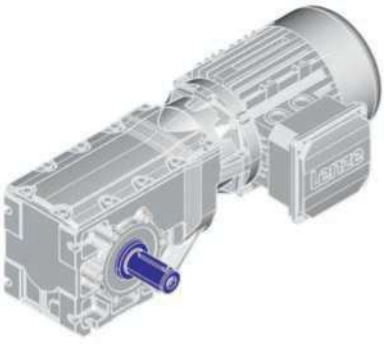
Gearbox design: hollow shaft with shrink disc, with foot

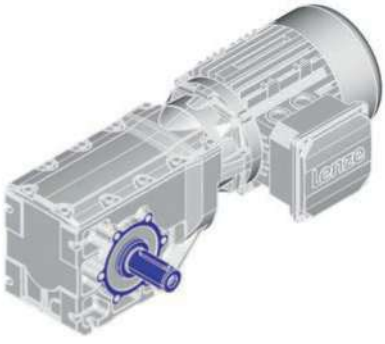

Without centring (SBR)


With centering (SAR)


Flange with through holes (SAK)

Gearbox design: solid shaft, with foot


Without centring (VBR)


With centering (VAR)


Flange with through holes (VAK)

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.

Procedure of a configuration process

Mains operation

1. Define input variables required
2. Determine correction factor
3. Determine gearbox type and efficiency
4. Determine gearbox size on the basis of the forces
5. Calculate required drive power
6. Define load class and intensity
7. Determine application factor k from diagram
8. Determine geared motor based on the data determined from the selection tables
9. Final configuration

Procedure of a configuration process

1 required input variables

Load torque		$M_{L,max}$=	[Nm]
Load speed		$n_{L,max}$=	[r/min]
External moments of inertia		J_{ext}=	[kgcm^2]
Operating time / day		BD =	[h]
Switching operations per h		S_h=	[1/h]

2 determine correction factor

Operating modes and operating time						
S1	ED	[%]	100			
	k_L =		1.0			
S2	ED	[%]	10	30	60	90
	k_L =		1.4 - 1.5	1.15 - 1.2	1.07 - 1.1	1.0 - 1.05
S3	ED	[%]	15	25	40	60
	k_L =		1.4 - 1.5	1.3 - 1.4	1.15 - 1.2	1.05 - 1.1
S6	ED	[%]	15	25	40	60
	k_L =		1.5 - 1.6	1.4 - 1.5	1.3 - 1.4	1.15 - 1.2
Site altitude						
	H	[m]	≤ 1000	≤ 2000	≤ 3000	≤ 4000
	k_H =		1	0.95	0.9	0.85
Ambient temperature						
	T_U =	[°C]	≤ 40	≤ 45	≤ 50	≤ 55
	k_{TU} =		1	0.95	0.9	0.8

Procedure of a configuration process

3 determine gearbox type and efficiency

Gearbox type			Axial gearboxes		Right-angle gearboxes
			Helical gearbox	Shaft-mounted	Bevel gearbox
Product			g500-H	g500-S	g500-B
Gearbox efficiency	2-stage gearboxes	η_G	0.96	0.96	0.96
	3-stage gearboxes	η_G	0.95	0.95	0.95

4 determine gearbox size based on the forces on the output

Transmission element		Gear wheels	Sprockets	Toothed belt pulleys (depending on the initial stress)	Narrow V-belt (depending on the initial stress)
Additional radial force factor	f_z =	≥ 17 teeth = 1.0 < 17 teeth = 1.15	≥ 20 teeth = 1.0 < 20 teeth = 1.25 < 13 teeth = 1.4	With belt tightener = 2.0 - 2.5 Without belt tightener = 2.5 - 3.0	1.5 - 2.0
		Calculation		**Check**	
Radial force	[N]	$F_{rad} = 2000 \times \frac{M_{L,max} \times f_z}{dw}$		$F_{rad} \le f_w \times F_{rad,max}$	
Axial force	[N]			$F_{ax} \le F_{rad,max} \times 0.5$	

d_w= effective diameter [mm] transmission element
f_w= additional load factor

► For permissible radial and axial forces and additional load factor see the "Technical data" chapter

5 calculate drive power

		Calculation	
Drive power required	[kW]	$P_1 = \frac{M_{L,max} \times n_{L,max}}{9549 \times k_L \times k_H \times k_{Tu} \times n_g}$	

k_L= Correction factor - operating mode
k_H= correction factor - installation height
k_{TU}= correction factor - ambient temperature

Procedure of a configuration process

6 calculate intensity and determine duty class

Load class	Load type	Intensity
I	Smooth operation, small or light jolts	$F_I \leq 1.25$
II	Uneven operation, average jolts	$1.25 < F_I \leq 4$
III	Uneven operation, severe jolts and/or **alternating load**	$F_I > 4$

23 - Duty classes

	Calculation	
Intensity	$F_I = \frac{\frac{J_L}{i^2} + J_M + J_B + J_Z}{J_M + J_B + J_Z}$	

i= gearbox ratio
J_L= moment of inertia of the load
J_M= moment of inertia of the motor
J_B= moment of inertia of the brake
J_Z= additional moment of inertia (handwheel, 2nd shaft end ...)

7 determine application factor k from diagram

25 - Load capacity and application factor

Procedure of a configuration process

8 determine geared motor based on the data determined from the selection tables

Selection table		Check
Drive power P_N	[kW]	$P_1 \leq P_N$
Output speed n_2	[r/min]	$n_{L,max} \approx n_2$
Output torque M_2	[Nm]	$M_{L,max} \leq M_2$
Load factor c		$k \leq c$
Order information		**Example**
Number of stages		2
Ratio i		3.267
Product gearbox		g500-H140
Product motor		m240-P80/M4

25 - Load capacity and application factor

Example: structure of a selection table

50 Hz: P_N = 0.75 kW ← Rated power P_N

2-stage gearboxes ← Number of the gear stage

Mains operation 400 V, 50 Hz			i	Product		
n_2 [r/min]	M_2 [Nm]	c		g500	m240	
627	11	5.2	4.600	-H100	-P80/M2	
558	12	4.9	5.167	-H100	-P80/M2	

↑ Output speed n_2 ↑ Output torque M_2 ↑ Load capacity c ↑ Ratio i ↑ Product Gearbox ↑ Product Motor

Procedure of a configuration process

9 Final configuration

More information regarding the final configuration can be found under: **- The modular geared motor system** **- Product extensions for gearboxes, motors**	
Check operating conditions	- Operating temperature (observe lubricant, material of shaft sealing ring) - Degree of protection - Supply voltage - Surface protection required - Approvals - Conformity
Check and define connection dimensions	- Driven shaft - Foot, output flange, centering with threaded pitch circle
Determine mounting position and position of the system blocks	- Mounting position A/B/C/D/E/F or combined - Terminal box position, shaft position, flange position
Select product extensions at the gearbox (differing depending on the gearbox type)	- Torque plate at the base, threaded pitch circle, rubber buffer - Hollow shaft cover, shrink disc cover
Select product extensions at the motor	- Connection type (terminal box, connector) - Brake

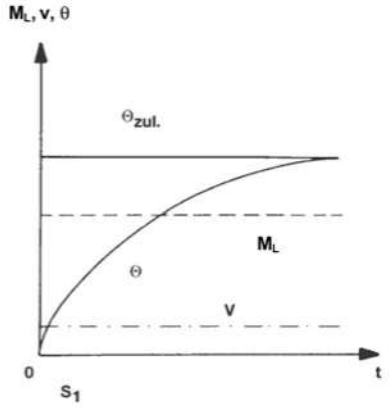
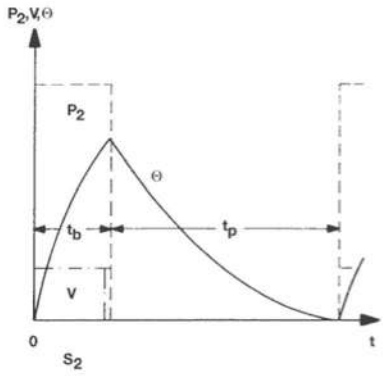
Standards

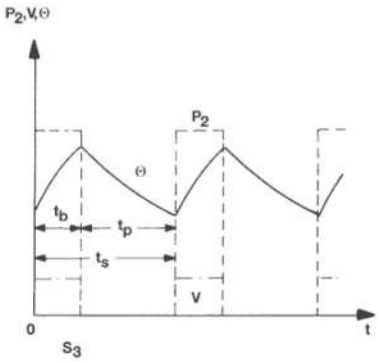
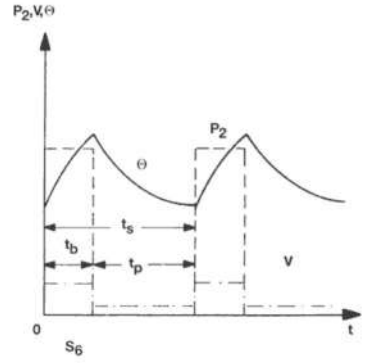
Operating modes

Operating modes S1 ... S10 as specified by EN 60034-1 describe the basic stress of an electrical machine.

In continuous operation a motor reaches its permissible temperature limit if it outputs the rated power dimensioned for continuous operation. However, if the motor is only subjected to load for a short time, the power output by the motor may be greater without the motor reaching its permissible temperature limit. This behaviour is referred to as overload capacity.
Depending on the duration of the load and the resulting temperature rise, the required motor can be selected reduced by the overload capacity.

The most important operating modes

Continuous operation S1	Short-time operation S2
	
Operation with a constant load until the motor reaches the thermal steady state. The motor may be actuated continuously with its rated power.	Operation with constant load; however, the motor does not reach the thermal steady state. During the following standstill, the motor winding cools down to the ambient temperature again. The increase in power depends on the load duration.

Intermittent operation S3	Non-intermittent periodic operation S6
	
Sequence of identical duty cycles comprising operation with a constant load and subsequent standstill. Start-up and braking processes do not have an impact on the winding temperature. The steady-state is not reached. The guide values apply to a cycle duration of 10 minutes. The power increase depends on the cycle duration and on the load period/downtime ratio.	Sequence of identical duty cycles comprising operation with a constant load and subsequent no-load operation. The motor cools down during the no-load phase. Start-up and braking processes do not have an impact on the winding temperature. The steady-state is not reached. The guide values apply to a cycle duration of 10 minutes. The power increase depends on the cycle duration and on the load period/idle time ratio.

Standards

Duty classes

Depending on the load type, the duty classes or impacts are divided as follows:

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

In order to support you in classifying your driven machine regarding the right duty class, the following shows sample applications with the corresponding duty class. Depending on, for instance, the operating frequency, driven machines can also have a higher impact.
In case of uncertainties, please contact your Lenze sales office.

Drive	Duty class
Construction machines	II
Chemical industry	II
Conveyors	II
Fans	II
Plastics industry	II
Wood working	III
Hoists	III
Metal working	III
Food	II
Paper industry	III
Stones	III
Textile industry	II

Standards

Degrees of protection

The degree of protection indicates the suitability of a motor for specific ambient conditions with regard to humidity as well as the protection against contact and the ingress of foreign particles. The degrees of protectionare classified by EN 60529.

The first code number after the code letters IP indicates the protection against the ingress of foreign particles and dust.
The second code number refers to the protection against the ingress of humidity.

Code number 1	Degree of protection	Code number 2	Degree of protection
0	No protection	0	No protection
1	Protection against the ingress of foreign particles d > 50 mm. No protection in the case of deliberate access	1	Protection against vertically dripping water (dripping water).
2	Protection against medium-sized foreign particles, d > 12 mm, keeping away fingers or similar	2	Protection against diagonally falling water (dripping water), 15 ° compared to normal service position.
3	Protection against small foreign particles d > 2.5 mm. Keeping away tools, wires and the like	3	Protection against spraying water, up to 60 ° to the vertical
4	Protection against granular foreign particles, d > 1 mm, keeping away tools, wires and the like	4	Protection against spraying water from all directions.
5	Protection against dust deposits (dust-protected), complete protection against contact.	5	Protection against water jets from all directions.
6	Protection against the ingress of dust (dust-proof), complete protection against contact.	6	Protection against choppy seas or heavy water jets (flood protection).

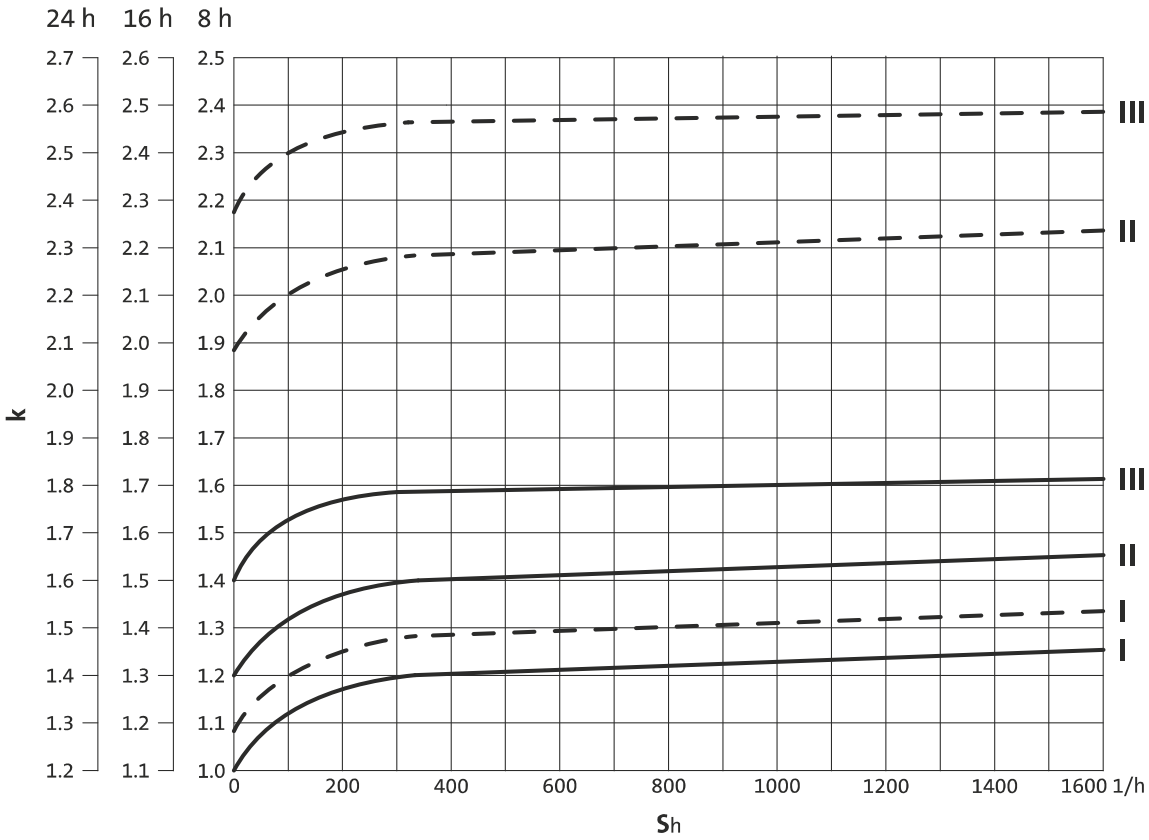
Load capacity and application factor

Load capacity c of gearboxes
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.

Required: c ≥ k

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

Application factor k



► S_h= switchings/h
► ——— Three-phase AC motors MD□MA
— — — Three-phase AC motors m240/m540/m550

6.5

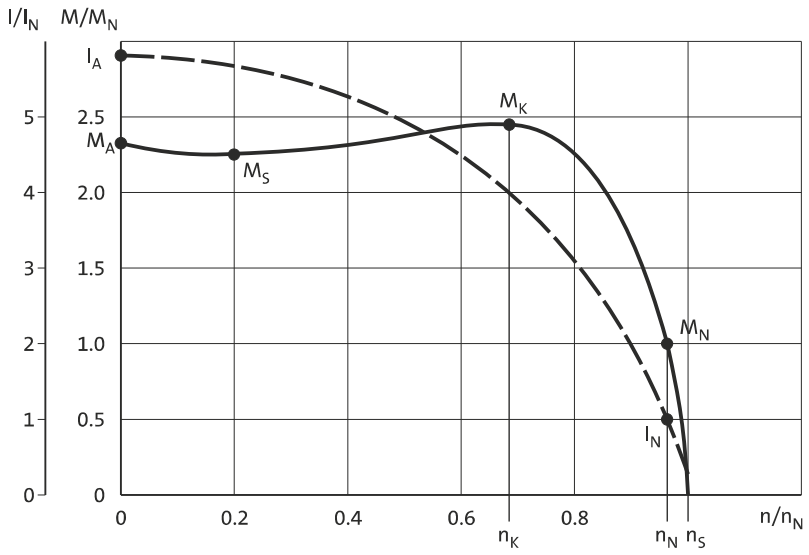
Operational performance of three-phase AC geared motors

The g500 geared motors can be actuated directly on the mains or via an inverter. When actuated in mains operation, the motor runs at a fixed speed, for inverter operation the speed is variable. Thanks to their high degree of protection, the robust three-phase drives can be basically used in a variety of applications.

Mains operation

During mains operation, when switched on, the three-phase AC motor starts up according to the speed-torque characteristic. It passes through this characteristic until it reaches its stable operating point. This operating point has been reached if the load torque or rated torque (M_{rated}) is lower than the starting torque (M_A) and pull-up torque (M_S). The rated speed (n_{rated}) of the drive is always lower than the calculated synchronous speed (n_S). The difference between rated speed and synchronous speed relating to the synchronous speed is referred to as the "slip".

Speed-torque characteristic



Technical data at a glance

The following tables contain the most important data of the gearbox with the motors that can be attached for an approximate dimensioning process of a geared motor. Detailed information can be found in the following chapters.

The data given in the tables apply to
- input speed n_1= 1400 r/min
- application factor c= 1.0

The data for the max. radial force refer to
- solid shaft without flange
- normal storage
- application factor c= 1.3

For further designs see the "Technical data" chapter.

► The rated torque can be gathered from the last digits of the product name e.g. g500-B45 (45 Nm).

In order to calculate the exact ratio, the number of teeth z_g (driven) can be divided by the number of teeth z_t (driving). These are rounded values.

g500-B45, 2-stage gearboxes

Output speed	Max. output torque	Max. drive power	Ratio	Number of teeth		Max. radial force	Backlash	Rated power	
							Standard	Motor	
n_2	$M_{2, max}$	$P_{1, max}$	i	z_g	z_t	$F_{rad,max}$		$P_{N, min}$	$P_{N, max}$
							± 20 %		
[r/min]	[Nm]	[kW]				[N]	[arcmin]	[kW]	[kW]
260	39	1.12	5.411	207	1120	2080	27	0.18	0.55
226	41	1.01	6.222	9	56	2180	26	0.18	0.55
198	43	0.94	7.111	9	64	2280	26	0.18	0.55
172	44	0.83	8.178	45	368	2360	25	0.18	0.55
154	45	0.77	9.101	189	1720	2440	25	0.18	0.55
134	45	0.67	10.466	189	1978	2580	24	0.12	0.55
121	45	0.60	11.640	189	2200	2660	24	0.12	0.55
105	45	0.52	13.386	189	2530	2770	23	0.09	0.55
93.0	45	0.46	15.111	9	136	2840	24	0.09	0.55
81.0	45	0.40	17.378	45	782	2900	23	0.09	0.37
73.0	45	0.36	19.365	63	1220	2950	24	0.09	0.37
63.0	45	0.31	22.270	63	1403	3000	23	0.06	0.37
55.0	45	0.27	25.051	99	2480	3000	23	0.06	0.25
48.0	45	0.24	28.808	99	2852	3000	22	0.06	0.25
42.0	45	0.21	32.593	27	880	3000	23	0.06	0.25
36.0	45	0.18	37.481	27	1012	3000	23	0.06	0.18
32.0	45	0.16	42.222	9	380	3000	23	0.06	0.18
29.0	45	0.15	48.556	9	437	3000	22	0.06	0.12
26.0	45	0.13	53.889	9	485	3000	23	0.06	0.12
23.0	45	0.11	61.972	36	2231	3000	22	0.06	0.12

Technical data at a glance

g500-B110, 2-stage gearboxes

Output speed	Max. output torque	Max. drive power	Ratio	Number of teeth		Max. radial force	Backlash	Rated power	
							Standard	Motor	
n_2	$M_{2, max}$	$P_{1, max}$	i	z_g	z_t	$F_{rad,max}$		$P_{N, min}$	$P_{N, max}$
							± 20 %		
[r/min]	[Nm]	[kW]				[N]	[arcmin]	[kW]	[kW]
278	69	2.12	5.185	27	140	2450	21	0.25	1.50
242	72	1.92	5.963	27	161	2530	21	0.25	1.50
203	77	1.72	7.111	9	64	2620	20	0.25	1.50
176	81	1.57	8.178	45	368	2670	20	0.25	1.50
158	84	1.47	9.101	189	1720	2730	20	0.25	1.50
138	89	1.35	10.466	189	1978	2830	20	0.25	1.50
126	90	1.25	11.449	225	2576	2890	20	0.18	1.50
114	90	1.13	12.698	63	800	2950	20	0.18	1.10
99.0	90	0.98	14.603	63	920	3000	20	0.18	1.10
93.0	92	0.94	15.556	9	140	3000	20	0.25	1.10
81.0	96	0.86	17.889	9	161	3000	20	0.25	0.75
74.0	100	0.82	19.556	9	176	3000	20	0.12	0.75
64.0	104	0.74	22.489	45	1012	3000	19	0.12	0.75
58.0	108	0.69	25.185	27	680	3000	20	0.12	0.75
50.0	110	0.61	28.963	27	782	3000	19	0.12	0.75
44.0	108	0.53	31.919	99	3160	3000	19	0.12	0.37
38.0	110	0.47	36.707	99	3634	3000	19	0.12	0.37
38.0	106	0.44	37.400	5	187	3000	19	0.12	0.37
35.0	100	0.39	40.000	1	40	3000	19	0.12	0.37
31.0	110	0.37	46.000	1	46	3000	19	0.12	0.37
29.0	110	0.36	48.167	6	289	3000	18	0.12	0.37
26.0	69	0.20	52.698	63	3320	3000	19	0.12	0.18
22.0	79	0.20	60.603	63	3818	3000	18	0.12	0.18
22.0	110	0.27	61.045	22	1343	3000	18	0.12	0.25
18.0	110	0.22	76.500	2	153	3000	18	0.12	0.25
14.0	110	0.16	100.786	14	1411	3000	18	0.12	0.18

Technical data at a glance

g500-B240, 2-stage gearboxes

Output speed	Max. output torque	Max. drive power	Ratio	Number of teeth		Max. radial force	Backlash	Rated power	
							Standard	Motor	
n_2	$M_{2, max}$	$P_{1, max}$	i	z_g	z_t	$F_{rad,max}$		$P_{N, min}$	$P_{N, max}$
							± 20 %		
[r/min]	[Nm]	[kW]				[N]	[arcmin]	[kW]	[kW]
406	138	6.18	3.565	108	385	3030	17	0.55	3.00
296	147	4.80	4.889	9	44	3450	17	1.10	3.00
232	156	3.98	6.257	378	2365	3860	17	0.55	3.00
210	179	4.15	6.883	60	413	4070	13	0.55	3.00
185	187	3.82	7.817	60	469	4300	13	0.55	3.00
154	191	3.23	9.440	25	236	4600	13	1.10	3.00
135	204	3.04	10.720	25	268	4740	13	1.10	3.00
120	208	2.75	12.081	210	2537	4860	13	0.55	3.00
106	217	2.53	13.719	210	2881	4980	13	0.55	3.00
97.0	223	2.38	15.008	125	1876	5180	13	0.25	2.20
86.0	240	2.28	16.857	7	118	5440	13	0.25	2.20
76.0	240	2.01	19.143	7	134	5710	12	0.25	2.20
70.0	240	1.86	20.650	20	413	5860	13	0.55	2.20
62.0	240	1.63	23.450	20	469	6070	12	0.55	1.50
54.0	240	1.42	26.878	90	2419	6230	13	0.25	1.50
47.0	240	1.25	30.522	90	2747	6370	12	0.25	1.50
43.0	240	1.14	33.433	30	1003	6500	13	0.25	1.10
38.0	240	1.01	37.967	30	1139	6500	12	0.25	1.10
34.0	240	0.89	43.267	15	649	6500	12	0.12	0.75
30.0	240	0.78	49.133	15	737	6500	12	0.12	0.75
27.0	233	0.69	52.510	100	5251	6500	12	0.12	0.55
24.0	240	0.62	59.630	100	5963	6500	12	0.12	0.55
21.0	178	0.41	67.113	80	5369	6500	12	0.12	0.37
18.0	202	0.41	76.213	80	6097	6500	12	0.12	0.37

Technical data at a glance

g500-B240, 3-stage gearboxes

Output speed	Max. output torque	Max. drive power	Ratio	Number of teeth		Max. radial force	Backlash	Rated power	
							Standard	Motor	
n_2	$M_{2, max}$	$P_{1, max}$	i	z_g	z_t	$F_{rad,max}$		$P_{N, min}$	$P_{N, max}$
							± 20 %		
[r/min]	[Nm]	[kW]				[N]	[arcmin]	[kW]	[kW]
20.0	240	0.56	68.459	630	43129	6500	13	0.12	0.55
18.0	240	0.49	77.741	630	48977	6500	13	0.12	0.55
16.0	240	0.44	87.563	126	11033	6500	13	0.12	0.37
14.0	240	0.39	99.437	126	12529	6500	13	0.12	0.37
12.0	240	0.34	113.673	150	17051	6500	13	0.12	0.37
11.0	240	0.30	129.087	150	19363	6500	13	0.12	0.37
9.00	240	0.26	145.674	420	61183	6500	13	0.12	0.25
8.00	240	0.23	165.426	420	69479	6500	13	0.12	0.25
7.00	240	0.20	188.442	165	31093	6500	13	0.12	0.18
6.00	240	0.17	213.994	165	35309	6500	13	0.12	0.18
6.00	240	0.15	245.178	45	11033	6500	13	0.12	0.18
5.00	240	0.14	278.422	45	12529	6500	13	0.12	0.12
4.00	240	0.12	317.617	60	19057	6500	13	0.12	0.12
4.00	240	0.11	360.683	60	21641	6500	13	0.12	0.12

Technical data at a glance

g500-B450, 3-stage gearboxes

Output speed	Max. output torque	Max. drive power	Ratio	Number of teeth		Max. radial force	Backlash	Rated power	
							Standard	Motor	
n_2	$M_{2, max}$	$P_{1, max}$	i	z_g	z_t	$F_{rad,max}$		$P_{N, min}$	$P_{N, max}$
							± 20 %		
[r/min]	[Nm]	[kW]				[N]	[arcmin]	[kW]	[kW]
295	280	9.12	5.002	480	2401	3760	21	0.55	7.50
215	308	7.31	6.860	50	343	4030	21	1.10	7.50
159	368	6.43	9.315	384	3577	4370	15	0.55	7.50
143	384	6.05	10.328	204	2107	4500	14	0.55	7.50
114	404	5.09	12.775	40	511	4830	15	1.10	5.50
103	422	4.80	14.165	85	1204	5010	14	1.10	5.50
89.0	434	4.25	16.349	192	3139	5280	15	0.55	4.00
81.0	446	3.99	17.885	200	3577	5470	15	0.25	4.00
73.0	450	3.64	19.831	425	8428	5710	14	0.25	4.00
64.0	450	3.15	22.813	16	365	6060	15	0.25	3.00
57.0	450	2.84	25.294	17	430	6340	14	0.25	3.00
52.0	450	2.57	27.945	128	3577	6640	15	0.55	3.00
47.0	450	2.33	30.985	68	2107	6960	14	0.55	2.20
40.0	450	1.96	36.373	576	20951	7520	14	0.25	1.50
36.0	450	1.78	40.330	306	12341	7800	14	0.25	1.50
32.0	450	1.58	45.245	192	8687	7800	14	0.25	1.50
29.0	450	1.42	50.167	6	301	7800	14	0.25	1.50
26.0	450	1.28	56.154	13	730	7800	13	0.25	1.50
23.0	450	1.15	62.262	221	13760	7800	12	0.25	1.10
21.0	450	1.04	68.788	52	3577	7800	13	0.55	1.10
19.0	450	0.94	76.271	221	16856	7800	12	0.55	1.10
16.0	450	0.80	89.534	234	20951	7800	13	0.25	0.75
15.0	450	0.72	99.274	1989	197456	7800	12	0.25	0.75
13.0	450	0.64	111.372	78	8687	7800	13	0.25	0.75
11.0	450	0.57	123.487	39	4816	7800	12	0.25	0.55
10.0	450	0.48	144.128	39	5621	7800	13	0.12	0.55
9.00	450	0.44	159.807	663	105952	7800	12	0.12	0.37
8.00	450	0.40	174.919	260	45479	7800	13	0.12	0.37
7.00	450	0.36	193.948	1105	214312	7800	12	0.12	0.37
6.00	450	0.31	223.563	16	3577	7800	13	0.12	0.37
6.00	450	0.27	247.882	17	4214	7800	12	0.12	0.25

Technical data at a glance

g500-B600, 3-stage gearboxes

Output speed	Max. output torque	Max. drive power	Ratio	Number of teeth		Max. radial force	Backlash	Rated power	
							Standard	Motor	
n_2	$M_{2, max}$	$P_{1, max}$	i	z_g	z_t	$F_{rad,max}$		$P_{N, min}$	$P_{N, max}$
							± 20 %		
[r/min]	[Nm]	[kW]				[N]	[arcmin]	[kW]	[kW]
292	376	12.1	5.067	1242	6293	4600	21	2.20	7.50
213	398	9.33	6.949	1035	7192	5000	19	2.20	7.50
194	462	9.88	7.617	2052	15631	5100	17	2.20	7.50
138	542	8.21	10.741	27	290	5600	15	2.20	7.50
110	553	6.73	13.369	1026	13717	6500	17	1.10	7.50
100	600	6.63	14.730	63	928	6900	14	2.20	7.50
77.0	600	5.12	18.851	1323	24940	7500	14	1.10	5.50
71.0	600	4.68	20.622	45	928	7800	14	1.10	5.50
64.0	600	4.21	22.852	684	15631	8100	16	1.10	4.00
57.0	600	3.79	25.347	95	2408	8300	14	2.20	4.00
56.0	600	3.69	26.061	33	860	8400	13	2.20	4.00
49.0	600	3.23	29.744	3078	91553	8700	16	0.55	4.00
45.0	600	2.96	32.439	57	1849	8900	14	1.10	3.00
40.0	600	2.68	35.740	77	2752	9000	13	2.20	3.00
39.0	600	2.59	36.999	1026	37961	9000	16	0.55	3.00
35.0	600	2.29	41.940	567	23780	9000	14	0.55	2.20
32.0	600	2.10	45.739	1617	73960	9000	13	1.10	2.20
29.0	600	1.92	50.036	55	2752	9000	13	1.10	2.20
26.0	600	1.72	55.447	38	2107	9000	14	1.10	1.50
23.0	600	1.49	63.822	539	34400	9000	13	0.55	1.50
21.0	600	1.42	67.513	189	12760	9000	14	0.25	1.50
20.0	600	1.32	72.170	171	12341	9000	14	0.55	1.50
18.0	600	1.22	78.182	11	860	9000	13	1.10	1.50
18.0	600	1.16	81.937	63	5162	9000	14	0.25	1.10
16.0	600	1.06	89.772	57	5117	9000	14	0.55	1.10
14.0	600	0.94	101.760	693	70520	9000	13	0.55	1.10
12.0	600	0.83	116.175	57	6622	9000	14	0.25	0.75
12.0	600	0.76	126.580	231	29240	9000	12	0.55	0.75
10.0	600	0.68	140.995	190	26789	9000	14	0.25	0.75
9.00	600	0.57	163.810	21	3440	9000	12	0.25	0.55
8.00	600	0.52	178.224	76	13545	9000	14	0.25	0.55
7.00	600	0.47	198.805	77	15308	9000	12	0.25	0.55
6.00	600	0.37	251.299	77	19350	9000	12	0.25	0.37

Technical data at a glance

g500-B820, 3-stage gearboxes

Output speed	Max. output torque	Max. drive power	Ratio	Number of teeth		Max. radial force	Backlash	Rated power	
							Standard	Motor	
n_2	$M_{2, max}$	$P_{1, max}$	i	z_g	z_t	$F_{rad,max}$		$P_{N, min}$	$P_{N, max}$
							± 20 %		
[r/min]	[Nm]	[kW]				[N]	[arcmin]	[kW]	[kW]
298	312	10.2	4.958	24	119	9800	21	2.20	7.50
217	391	9.37	6.800	5	34	10200	20	2.20	7.50
194	424	9.07	7.618	34	259	10700	17	2.20	7.50
173	459	8.78	8.517	60	511	11000	16	2.20	7.50
155	496	8.48	9.520	25	238	11000	20	1.10	7.50
141	528	8.24	10.447	85	888	11000	16	2.20	7.50
126	569	7.93	11.680	25	292	11000	15	2.20	7.50
122	544	7.30	12.143	7	85	11000	19	0.55	7.50
110	619	7.54	13.370	119	1591	11000	16	1.10	7.50
101	653	7.27	14.626	425	6216	11000	16	1.10	7.50
90.0	708	7.05	16.352	125	2044	11000	16	1.10	7.50
79.0	747	6.52	18.655	119	2220	11000	16	0.55	7.50
71.0	820	6.40	20.857	7	146	11000	16	0.55	7.50
64.0	820	5.78	22.853	34	777	11000	15	1.10	5.50
57.0	820	5.16	25.550	20	511	11000	15	1.10	5.50
56.0	820	5.02	26.324	330	8687	11000	12	2.20	5.50
49.0	820	4.41	29.745	51	1517	11000	15	0.55	4.00
45.0	820	4.07	32.291	55	1776	11000	13	2.20	4.00
40.0	820	3.63	36.102	275	9928	11000	14	2.20	4.00
39.0	820	3.54	37.000	1	37	11000	12	0.55	3.00
35.0	820	3.17	41.325	77	3182	11000	13	1.10	3.00
32.0	820	2.90	45.207	275	12432	11000	13	1.10	3.00
29.0	820	2.59	50.543	1375	69496	11000	12	1.10	3.00
25.0	820	2.28	57.662	77	4440	11000	13	0.55	2.20
22.0	820	2.03	64.468	77	4964	11000	12	0.55	2.20
21.0	820	1.86	70.636	11	777	11000	13	1.10	2.20
18.0	820	1.65	78.973	110	8687	11000	12	1.10	1.50
16.0	820	1.42	91.939	33	3034	11000	13	0.55	1.50
14.0	820	1.27	102.790	495	50881	11000	12	0.55	1.50
13.0	820	1.14	114.364	11	1258	11000	13	0.55	1.10
11.0	820	1.02	127.861	165	21097	11000	12	0.55	1.10
10.0	820	0.89	148.000	1	148	11000	13	0.25	1.10
9.00	820	0.80	165.467	15	2482	11000	12	0.25	0.75
8.00	820	0.73	179.618	55	9879	11000	13	0.25	0.75
7.00	820	0.65	200.816	550	110449	11000	12	0.25	0.75
6.00	820	0.56	227.045	22	4995	11000	12	0.25	0.55
6.00	820	0.50	253.841	44	11169	11000	12	0.25	0.55

Technical data at a glance

g500-B1500, 3-stage gearboxes

Output speed	Max. output torque	Max. drive power	Ratio	Number of teeth		Max. radial force	Backlash	Rated power	
							Standard	Motor	
n_2	$M_{2, max}$	$P_{1, max}$	i	z_g	z_t	$F_{rad,max}$		$P_{N, min}$	$P_{N, max}$
							± 20 %		
[r/min]	[Nm]	[kW]				[N]	[arcmin]	[kW]	[kW]
216	837	19.9	6.866	261	1792	12000	16	4.00	22.00
156	1006	17.3	9.516	153	1456	13000	15	4.00	18.50
136	1330	19.9	10.902	3393	36992	14000	12	4.00	22.00
124	1461	19.9	11.985	261	3128	15000	12	4.00	22.00
112	1118	13.8	13.118	3825	50176	15500	15	2.20	15.00
98.0	1500	16.2	15.111	9	136	16000	12	4.00	18.50
88.0	1500	14.6	16.611	18	299	16000	11	4.00	15.00
79.0	1500	13.1	18.598	117	2176	16000	12	2.20	15.00
72.0	1500	12.0	20.444	9	184	16000	11	2.20	11.00
64.0	1500	10.7	22.898	225	5152	16000	11	2.20	11.00
62.0	1500	10.2	23.973	4147	99416	16000	11	4.00	11.00
56.0	1500	9.28	26.353	638	16813	16000	10	4.00	11.00
51.0	1500	8.37	29.206	63	1840	16000	11	1.10	7.50
45.0	1500	7.51	32.547	117	3808	16000	11	2.20	7.50
41.0	1500	6.83	35.778	9	322	16000	11	2.20	7.50
40.0	1500	6.68	36.526	352	12857	16000	10	4.00	7.50
36.0	1500	5.90	40.895	143	5848	16000	11	2.20	5.50
32.0	1500	5.37	44.955	22	989	16000	10	2.20	5.50
31.0	1500	5.19	46.568	81	3772	16000	11	1.10	5.50
28.0	1500	4.63	51.920	351	18224	16000	11	1.10	4.00
26.0	1500	4.22	57.074	27	1541	16000	11	1.10	4.00
25.0	1500	4.12	58.422	1001	58480	16000	10	1.10	4.00
23.0	1500	3.74	64.221	77	4945	16000	10	1.10	4.00
20.0	1500	3.36	71.566	143	10234	16000	10	2.20	4.00
19.0	1500	3.19	74.963	27	2024	16000	11	0.55	3.00
18.0	1500	2.89	82.762	585	48416	16000	11	0.55	2.20
16.0	1500	2.65	90.978	45	4094	16000	11	0.55	2.20
16.0	1500	2.58	93.150	1287	119884	16000	10	1.10	3.00
14.0	1500	2.35	102.396	396	40549	16000	10	1.10	2.20
13.0	1500	2.10	114.166	429	48977	16000	10	1.10	2.20
12.0	1500	1.92	125.498	528	66263	16000	10	1.10	2.20
10.0	1500	1.59	149.949	39	5848	16000	10	0.55	1.50
9.00	1500	1.44	164.833	6	989	16000	10	0.55	1.50
8.00	1500	1.31	181.983	715	130118	16000	10	0.55	1.50
7.00	1500	1.19	200.048	440	88021	16000	10	0.55	1.10
6.00	1500	1.04	230.035	143	32895	16000	10	0.55	1.10
6.00	1500	0.94	252.869	176	44505	16000	10	0.55	1.10

Technical data at a glance

g500-B2700, 3-stage gearboxes

Output speed	Max. output torque	Max. drive power	Ratio	Number of teeth		Max. radial force	Backlash	Rated power	
							Standard	Motor	
n_2	$M_{2, max}$	$P_{1, max}$	i	z_g	z_t	$F_{rad,max}$		$P_{N, min}$	$P_{N, max}$
							± 20 %		
[r/min]	[Nm]	[kW]				[N]	[arcmin]	[kW]	[kW]
214	1446	34.0	6.918	4180	28917	13000	15	7.50	30.00
168	1528	28.3	8.793	4750	41769	14000	14	5.50	30.00
126	2212	30.8	11.713	209	2448	16000	10	5.50	30.00
115	2262	28.6	12.863	1463	18819	16500	10	5.50	30.00
99.0	2380	26.1	14.888	475	7072	17000	10	5.50	30.00
90.0	2429	24.2	16.351	3325	54366	18000	9	5.50	30.00
76.0	2579	21.5	19.542	1197	23392	19000	10	4.00	22.00
66.0	2684	19.7	22.269	171	3808	20100	10	4.00	22.00
60.0	2700	18.0	24.456	57	1394	20500	9	4.00	22.00
55.0	2700	16.5	26.814	1197	32096	21000	10	2.20	18.50
50.0	2700	15.0	29.447	2793	82246	21500	9	2.20	18.50
45.0	2700	13.3	32.873	513	16864	22000	10	4.00	15.00
41.0	2700	12.1	36.102	1197	43214	22700	9	4.00	15.00
35.0	2700	10.3	42.772	189	8084	23000	9	4.00	11.00
32.0	2700	9.38	46.973	1764	82861	24000	8	4.00	11.00
30.0	2700	8.99	48.912	57	2788	25000	9	2.20	7.50
27.0	2700	8.13	54.082	171	9248	26000	10	2.20	7.50
25.0	2700	7.41	59.393	399	23698	27500	9	2.20	7.50
23.0	2700	6.82	64.452	1764	113693	27500	8	2.20	7.50
20.0	2700	6.10	71.951	81	5828	27500	9	4.00	7.50
19.0	2700	5.63	76.862	399	30668	27500	9	1.10	4.00
17.0	2700	5.09	84.940	285	24208	27500	10	1.10	4.00
16.0	2700	4.64	93.283	665	62033	27500	9	1.10	4.00
15.0	2700	4.47	97.481	27	2632	27500	9	2.20	5.50
14.0	2700	4.05	107.056	18	1927	27500	8	2.20	4.00
12.0	2700	3.66	118.370	27	3196	27500	9	2.20	4.00
11.0	2700	3.33	129.996	252	32759	27500	8	2.20	4.00
10.0	2700	2.83	153.185	27	4136	27500	9	1.10	3.00
9.00	2700	2.56	168.230	126	21197	27500	8	1.10	3.00
8.00	2700	2.32	185.911	45	8366	27500	9	1.10	2.20
7.00	2700	2.11	204.170	840	171503	27500	8	1.10	2.20
6.00	2700	1.85	235.000	1	235	27500	9	1.10	2.20
6.00	2700	1.67	258.080	112	28905	27500	8	1.10	1.50

Technical data at a glance

g500-B4300, 3-stage gearboxes

Output speed	Max. output torque	Max. drive power	Ratio	Number of teeth		Max. radial force	Backlash	Rated power	
							Standard	Motor	
n_2	$M_{2, max}$	$P_{1, max}$	i	z_g	z_t	$F_{rad,max}$		$P_{N, min}$	$P_{N, max}$
							± 20 %		
[r/min]	[Nm]	[kW]				[N]	[arcmin]	[kW]	[kW]
269	2160	64.1	5.488	209	1147	13200	14	7.50	30.00
212	2400	56.1	6.976	4275	29822	14000	14	7.50	30.00
161	2700	48.0	9.156	10773	98642	15100	14	4.00	30.00
146	3950	63.5	10.137	6688	67797	15500	9	7.50	30.00
133	4250	62.5	11.080	2090	23157	16000	9	7.50	30.00
115	4300	54.4	12.885	7600	97929	16800	9	7.50	30.00
105	4300	49.7	14.084	2375	33449	17300	9	7.50	30.00
87.0	4300	41.4	16.913	2128	35991	18600	9	4.00	30.00
80.0	4300	37.9	18.486	5985	110639	19300	9	4.00	30.00
70.0	4300	33.3	21.065	855	18011	20400	9	4.00	30.00
64.0	4300	30.3	23.206	2128	49383	21200	9	2.20	22.00
58.0	4300	27.6	25.365	5985	151807	22100	9	2.20	22.00
53.0	4300	25.0	28.013	80	2241	23100	8	5.50	30.00
48.0	4300	22.6	31.097	2565	79763	24300	9	4.00	22.00
42.0	4300	19.7	35.607	1000	35607	25900	8	5.50	22.00
38.0	4300	18.2	38.546	152	5859	26900	9	2.20	7.50
35.0	4300	16.4	42.760	896	38313	28300	8	4.00	18.50
32.0	4300	15.0	46.737	840	39259	29500	8	4.00	18.50
28.0	4300	13.1	53.258	120	6391	31500	8	4.00	15.00
25.0	4300	11.9	58.671	896	52569	33000	8	2.20	11.00
23.0	4300	10.9	64.127	840	53867	34400	8	2.20	11.00
20.0	4300	9.72	71.930	128	9207	36400	8	4.00	11.00
19.0	4300	8.91	78.619	360	28303	37900	8	4.00	11.00
15.0	4300	7.21	97.453	64	6237	40000	8	2.20	7.50
14.0	4300	6.59	106.517	60	6391	40000	8	2.20	7.50
12.0	4300	5.83	118.336	128	15147	40000	8	2.20	5.50
11.0	4300	5.36	129.342	120	15521	40000	8	2.20	5.50
10.0	4300	4.50	153.141	64	9801	40000	8	1.10	4.00
9.00	4300	4.12	167.383	60	10043	40000	8	1.10	4.00
8.00	4300	3.70	185.857	1280	237897	40000	8	1.10	4.00
7.00	4300	3.41	203.143	400	81257	40000	8	1.10	4.00
6.00	4300	2.94	234.932	512	120285	40000	8	1.10	2.20
6.00	4300	2.70	256.781	32	8217	40000	8	1.10	2.20

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	Product	
		g500-H45 ... H450 g500-S130 ... S660 g500-B45 ... B450	g500-H600 ... H3000 g500-S950 ... S4500 g500-B600 ... B4300
Without OKS(uncoated) [1]	• Interior installation, no special corrosion protection required • Paint provided by the customer	Standard	
OKS-G (primed)	• Dependent on subsequent top coat applied	Optional	Optional
OKS-S (small)	• Standard applications • Internal installation in heated buildings • Air humidity up to 90%		Standard
OKS-M (medium)	• Internal installation in non-heated buildings • Covered, protected external installation • Air humidity up to 95%	Optional	Optional
OKS-L (large)	• External installation • Air humidity above 95% • Chemical industry plants • Food industry		
OKS-XL (extra Large) [2]	• External installation • Air humidity above 95 % • Chemical industry plants • Food industry • Coastal areas with moderate salinity		

[1] Aluminium parts are uncoated, fan covers are zinc-coated or primed in grey, cast iron parts primed in grey.
Light colour deviations of the components are possible.
[2] On request

Surface and corrosion protection

Structure of surface coating

Surface and corrosion protection	Corrosivity category	Surface coating	Colour	Coating thickness
	DIN EN ISO 12944-2	Structure		
Without OKS(uncoated)		• Dipping primer of the grey iron parts		30 ... 50 µm
OKS-G (primed)		• Dipping primer of the grey iron parts • 2K PUR priming coat		60 ... 90 µm
OKS-S (small)	Comparable to C1	• Dipping primer of the grey iron parts • 2K-PUR top coat	• Standard: RAL 7012 • Optional: RAL Classic	80 ... 120 µm
OKS-M (medium)	Comparable to C2	• Dipping primer of the grey iron parts • 2K PUR priming coat • 2K-PUR top coat		110 ... 160 µm
OKS-L (large)	Comparable to C3			140 ... 200 µm
OKS-XL (extra Large) [1)]	Comparable to C4	• Dipping primer of the grey iron parts • 2K-EP priming coat (two times) • 2K-PUR top coat		160 ... 240 µm

[1)] On request

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 amount and type of lubricant contained in the gearbox are given on the nameplate.

The following gearboxes are lubricated for life:
- Helical gearbox g500-H45 ... 140
- Shaft-mounted helical gearbox g500-S130
- Bevel gearbox g500-B45 ... 240

Lubricant table

The following lubricants are recommended:

Mode	CLP 220	CLP 460	CLP HC 220
Ambient temperature [°C]	0 ... +40		-25 ... +50
Specification	Mineral oil with EP additives		Synthetic oil (polyalfaolefins basis)
Changing interval	16000 operating hours After 3 years at the latest Oil temperature 70 °C		25000 operating hours After 4 years at the latest Oil temperature 70 °C
Fuchs	Renolin CLP 220 CLP Plus 220	Renolin CLP 460 CLP Plus 460	Renolin Unisyn CLP 220 XT220
Klüber	Klüberoil GEM 1-220 N	Klüberoil GEM 1-460 N	Klübersynth GEM 4-220 N
Shell	Shell Omala S2 G 220 S2 GX 220	Shell Omala S2 G 460 S2 GX 460	Shell Omala S4 GX HD 220

Mode	CLP HC 320	CLP HC 220 USDA H1	CLP PG 460 USDA H1
Ambient temperature [°C]	-25 ... +50	-20 ... +40	
Specification	Synthetic oil (polyalfaolefins basis)		Synthetic oil (polyglycol basis)
Changing interval	25000 operating hours After 4 years at the latest Oil temperature 70 °C	16000 operating hours After 3 years at the latest Oil temperature 70 °C	
Fuchs	Renolin Unisyn CLP 320 XT 320	Cassida Fluid GL 220	Cassida Fluid WG 460
Klüber	Klübersynth GEM 4-320 N	Klüberoil 4 UH1-220 N	Klüberoil UH1 6-460
Shell	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 such as high temperature, reduced circulation of air etc., Lenze recommends the use of FKM (Viton) shaft sealing rings.

Please consider this in your order.

Ventilation

Non-ventilated gearboxes

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

Ventilated gearboxes

The gearbox g500-B240 can be optionally ordered with breather elements.
From g500-B450 onwards, the gearboxes are supplied with a breather element as standard.

Gearbox in combined mounting position

For reducing the number of versions, the gearboxes can also be ordered in a combined mounting position:

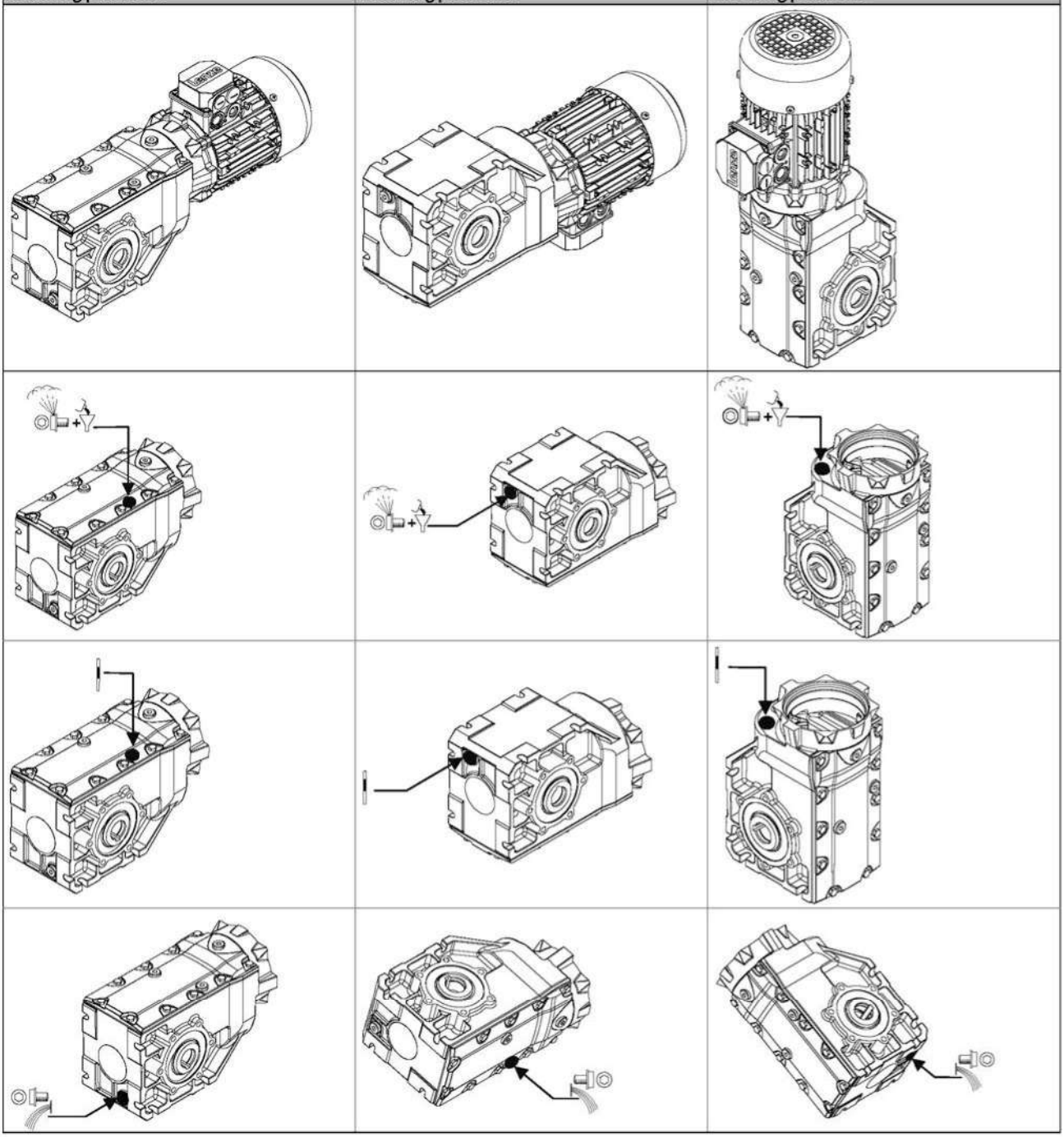
- g500-B45 in mounting position ABCDEF
- g500-B110 ... B450 in mounting position AEF

In these gearboxes, the lubricant amount has been optimised for the use in different mounting positions. If required, the breather elements are loosely enclosed and have to be mounted before commissioning depending on the mounting position.
A gearbox can be used for several mounting positions.

Ventilation

Position of ventilation, sealing elements and oil level check

g500-B240

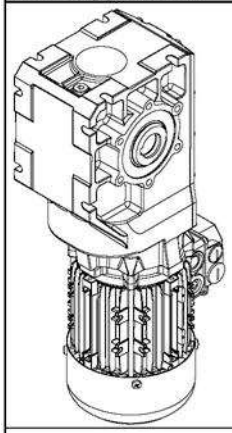
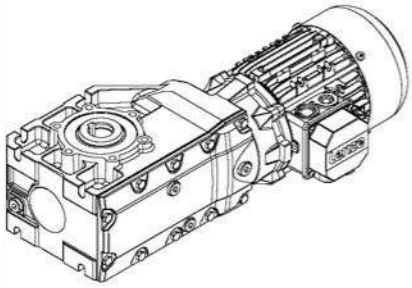
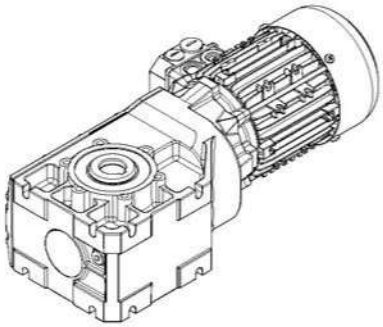
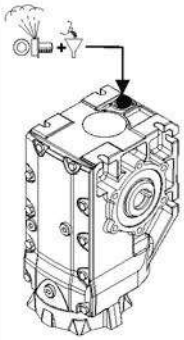
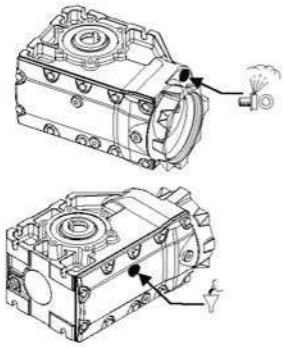
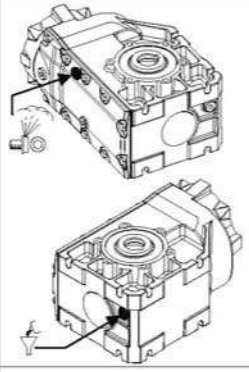
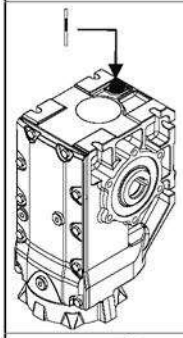
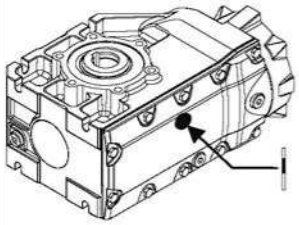
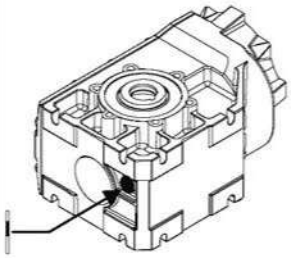
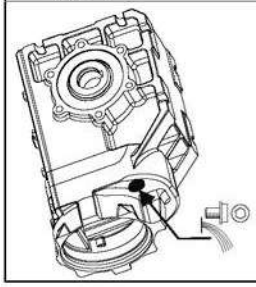
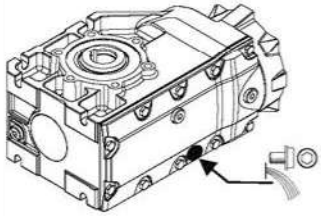
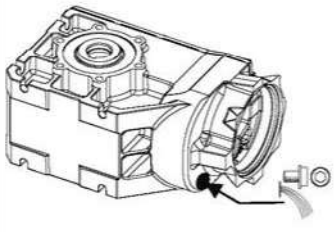
Mounting position A	Mounting position B	Mounting position C
		

	Filling		Drain
	Breathing		Control

Ventilation

Position of ventilation, sealing elements and oil level check

g500-B240

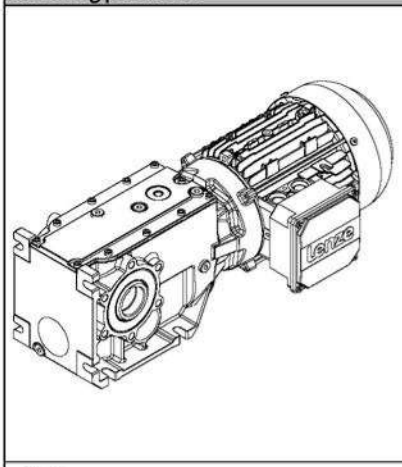
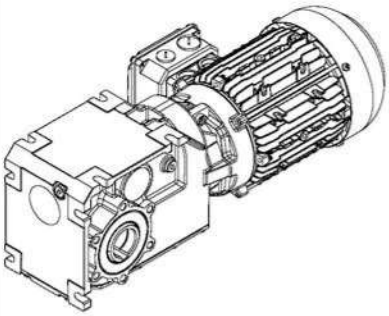
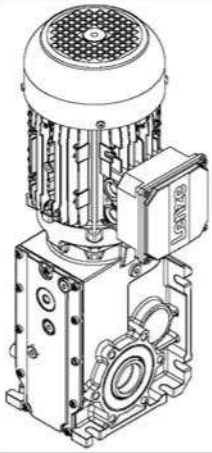
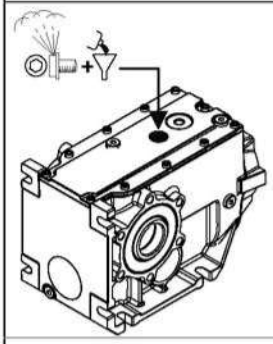
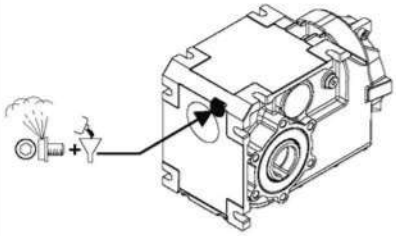
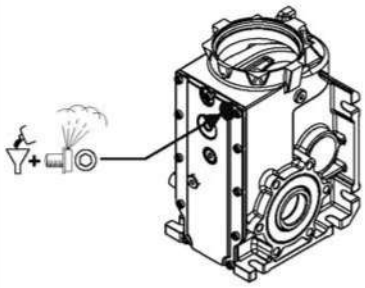
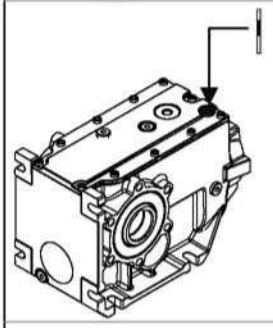
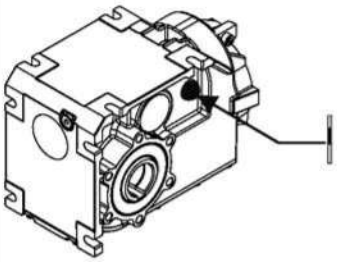
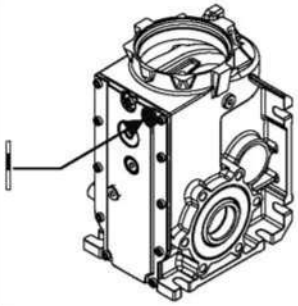
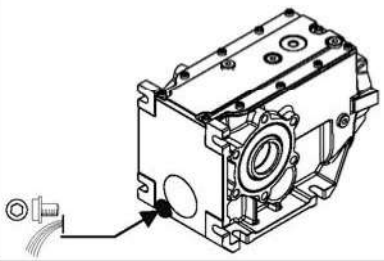
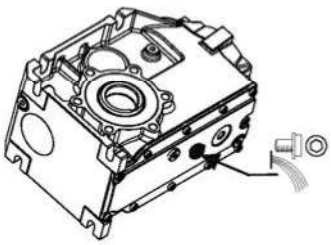
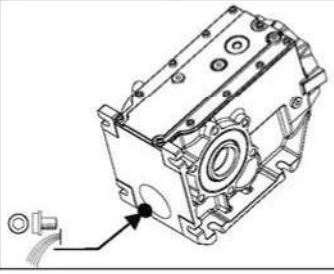
Mounting position D	Mounting position E	Mounting position F
		
		
		
		

	Filling		Drain
	Breathing		Control

Ventilation

Position of ventilation, sealing elements and oil level check

g500-B450

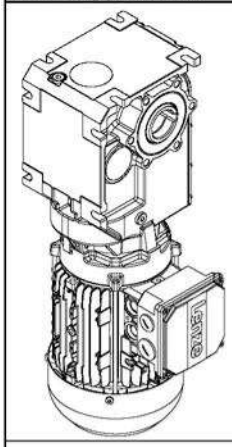
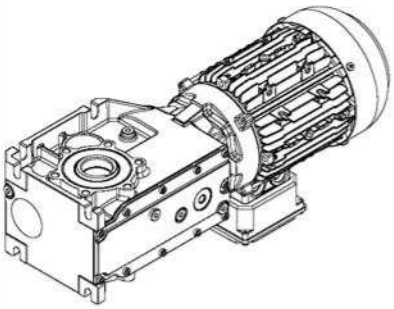
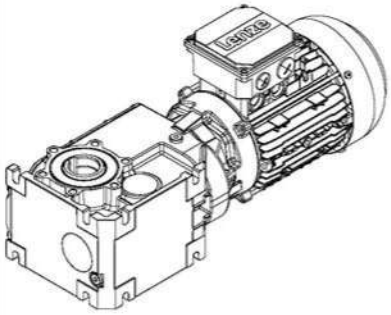
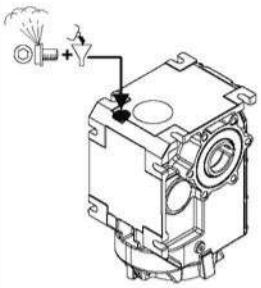
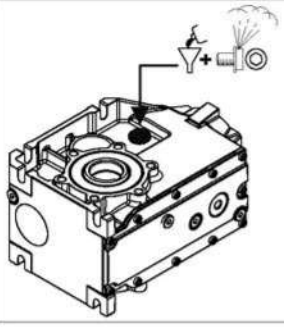
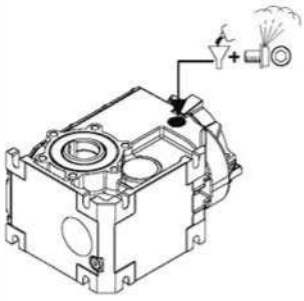
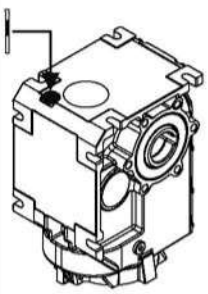
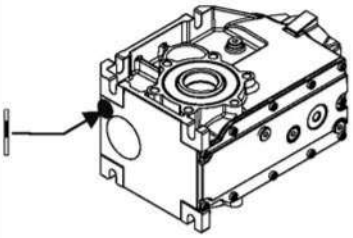
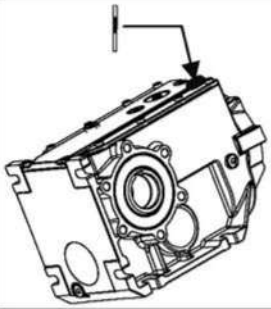
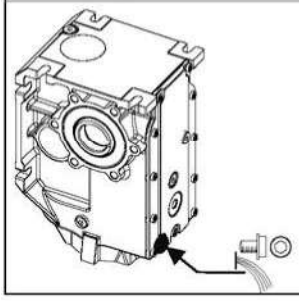
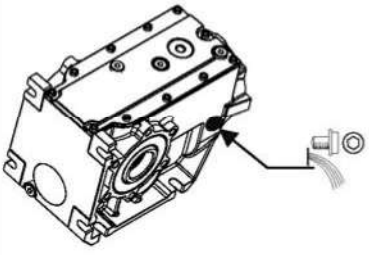
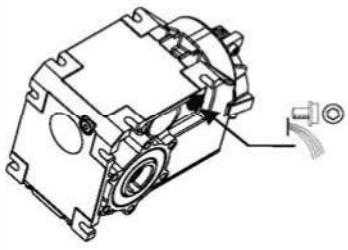
Mounting position A	Mounting position B	Mounting position C
		
		
		
		

	Filling		Drain
	Breathing		Control

Ventilation

Position of ventilation, sealing elements and oil level check

g500-B450

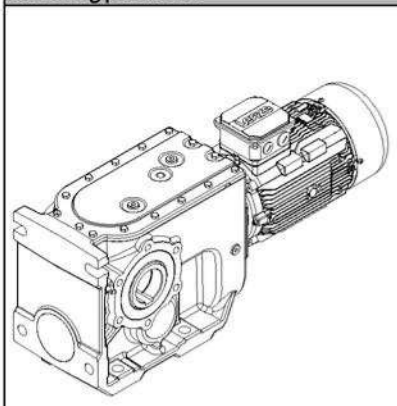
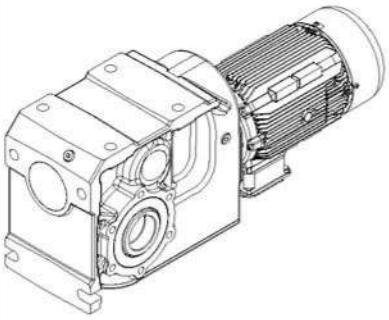
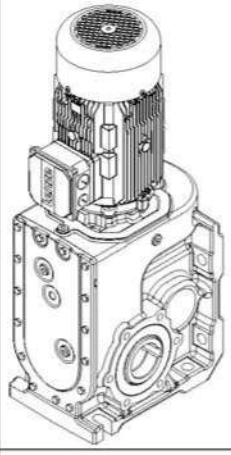
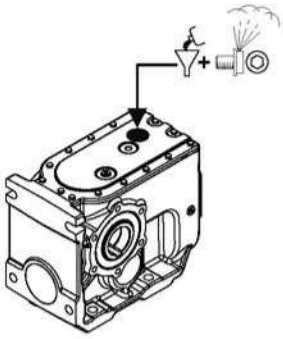
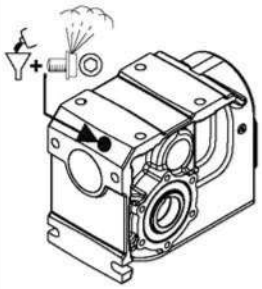
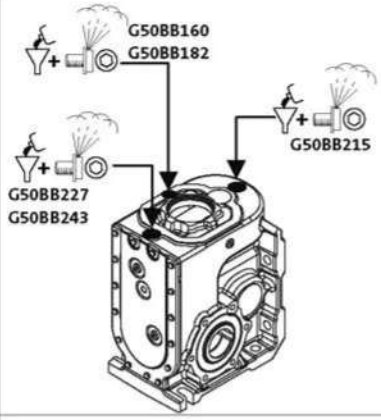
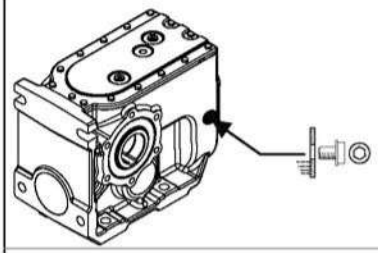
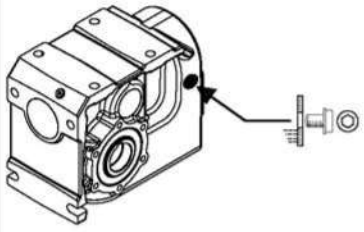
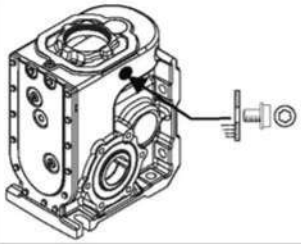
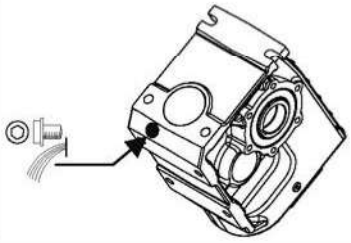
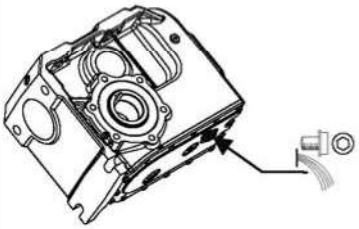
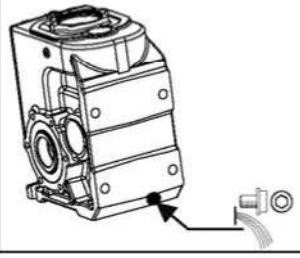
Mounting position D	Mounting position E	Mounting position F
		
		
		
		

	Filling		Drain
	Breathing		Control

Ventilation

Position of ventilation, sealing elements and oil level check

g500-B600 ... B4300

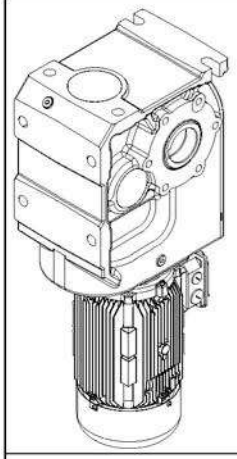
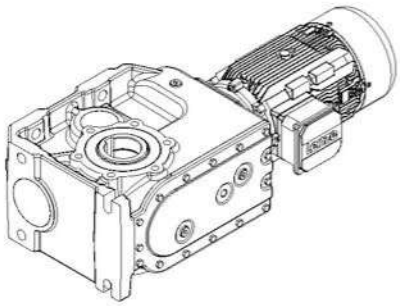
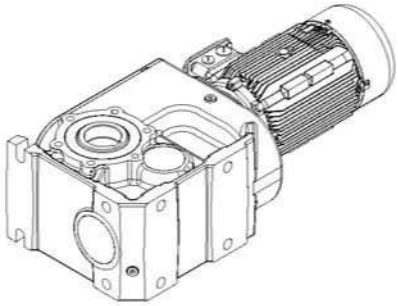
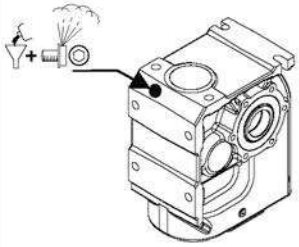
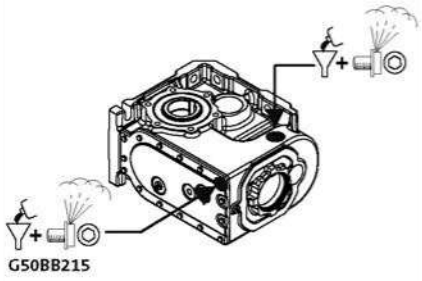
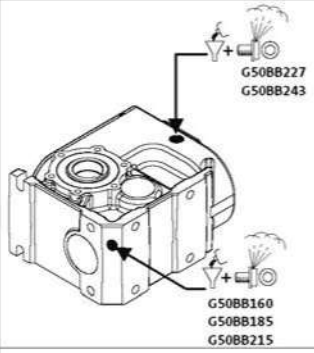
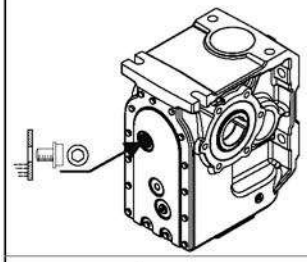
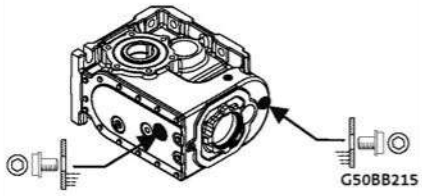
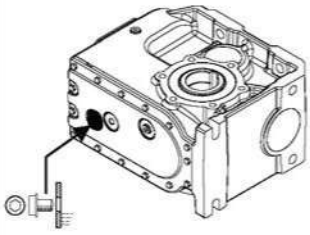
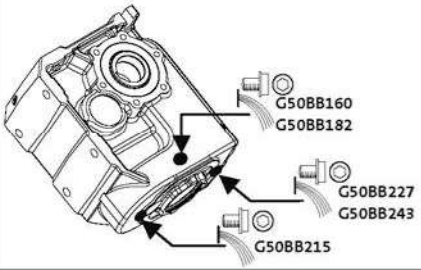
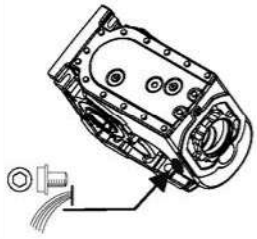
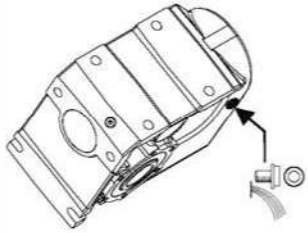
Mounting position A	Mounting position B	Mounting position C
		
		
		
		

	Filling		Drain
	Breathing		Control

Ventilation

Position of ventilation, sealing elements and oil level check

g500-B600 ... B4300

Mounting position D	Mounting position E	Mounting position F
		
		
		
		

	Filling		Drain
	Breathing		Control

Standards and operating conditions

Geared motor data

Product				
Motor			MD□MA□□	m240
Degree of protection				
EN 60529			IP55 [1)] IP65 [1, 3)] IP66 [1, 3)]	
Energy efficiency class				
IEC 60034-30			IE1	IE3
IEC 60034-2-1			Methodology for measuring efficiency	
Conformity				
CE			Low-Voltage Directive	
			2006/95/EC	2014/35/EU
EAC			TP TC 004/2011 (TR CU 004/2011)	
Approval				
CCC			GB Standard 12350-2009	
CSA			CSA 22.2 No. 100	
cURus			UL 1004-1 UL 1004-8 File-No. E210321	
Temperature class				
IEC/EN 60034-1; utilisation			B	
IEC/EN 60034-1; insulation system (enamel-insulated wire)			F	
Min. ambient operating temperature				
	$T_{opr,min}$	[°C]	-20	
Max. ambient temperature for operation				
	$T_{opr,max}$	[°C]	40	
With power reduction	$T_{opr,max}$	[°C]	60 [2)]	
Site altitude				
Current derating at over 1000 m		[%/1000 m]	5.00	
Amsl	H_{max}	[m]	4000	

[1)] Types with deviating degrees of protection:
IP55 with brake (IP54 with manual release lever).
[2)] In case of cURus max. 40 °C are permissible.
[3)] m240 on request.

► In the European Union, the ErP Directive stipulates minimum efficiency levels for three-phase AC motors. Geared three-phase AC motors that do not conform with this Directive do not meet CE requirements and must not be marketed in the European Economic Area. For further information about the ErP Directive, the efficiency regulations in other countries and the Lenze products concerned, please refer to the brochure "International efficiency directives for three-phase AC motors".

Permissible radial and axial forces at output

Permissible radial force

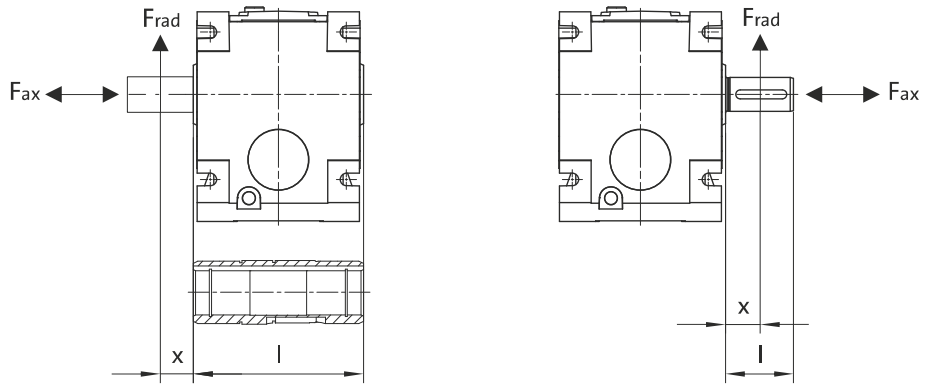
$F_{rad,perm} = f_w \times F_{rad,max}$

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

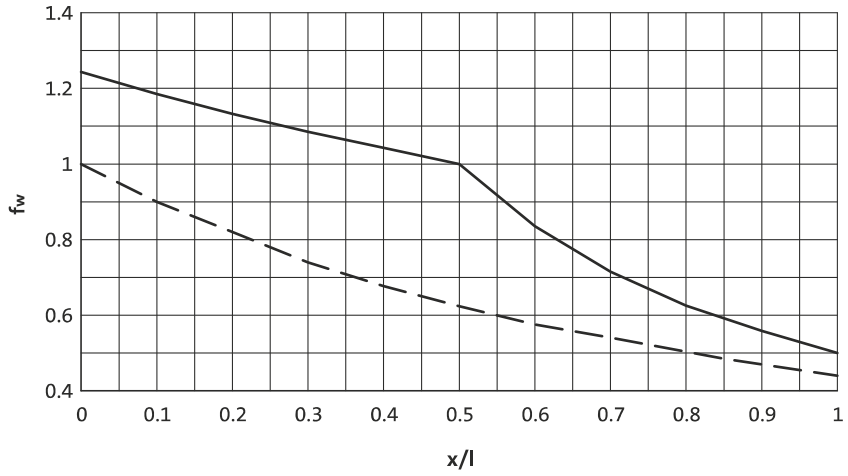
Permissible axial force

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
— — — Hollow shaft

6.5

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.

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

► A hollow shaft with shrink disc requires a check by Lenze.

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

	Max. radial force, Hollow shaft						
	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$
	[N]	[N]	[N]	[N]	[N]	[N]	[N]
g500-B45	2500	2800	3000	3000	3000	3000	3000
g500-B110	3000	3300	3600	3600	3600	3600	3600
g500-B240	4500	5100	6200	7400	7800	7800	7800
g500-B450	5200	5200	5500	7000	9000	9000	9000
g500-B600	5400	5600	6000	8000	9400	9500	9500
g500-B820	5800	6000	7000	9000	9800	10200	10200
g500-B1500	7000	8000	9000	10500	13000	16000	16000
g500-B2700	8200	9400	10600	12200	15000	18000	21900
g500-B4300	9000	10500	12000	15500	21000	27900	35100

	Max. radial force, Solid shaft without flange						
	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$
	[N]	[N]	[N]	[N]	[N]	[N]	[N]
g500-B45	2100	2400	2800	3000	3000	3000	3000
g500-B110	2500	2700	3000	3000	3000	3000	3000
g500-B240	3600	4500	5000	6000	6500	6500	6500
g500-B450	3900	4300	5000	6000	7600	7800	7800
g500-B600	4700	5400	6700	8300	9000	9000	9000
g500-B820	9800	11000	11000	11000	11000	11000	11000
g500-B1500	11500	13000	16000	16000	16000	16000	16000
g500-B2700	12000	14000	16500	20100	22700	25500	27500
g500-B4300	13300	14900	17300	20800	25700	32200	40000

Permissible radial and axial forces at output

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

	Max. radial force, Solid shaft with flange						
	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$	$F_{rad,max}$
	[N]	[N]	[N]	[N]	[N]	[N]	[N]
g500-B45	2100	2400	2800	3000	3000	3000	3000
g500-B110	2500	2700	3000	3000	3000	3000	3000
g500-B240	6000	6500	6500	6500	6500	6500	6500
g500-B450	5100	5600	6400	7700	7800	7800	7800
g500-B600	5300	6000	7300	9000	9000	9000	9000
g500-B820	10200	11000	11000	11000	11000	11000	11000
g500-B1500	12000	13000	15000	16000	16000	16000	16000
g500-B2700	14400	15800	17700	20100	22700	25500	27500
g500-B4300	15800	17800	20800	24800	29500	35100	40000

Selection tables, notes

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.

Rated power Prated of the drive motor depending on the rated frequency

50 Hz: P_N = 0.75 kW

2-stage gearboxes ← **Number of the gear stage of the gearbox**

Mains operation 400 V, 50 Hz			i	Product		
n_2 [r/min]	M_2 [Nm]	c		g500	m2□□	
405	17	4.8	3.565	-B240	40-P80/M4	
278	24	2.8	5.185	-B110	40-P80/M4	

Mains operation
Output speed **n2**
Output torque **M2**

Load capacity c 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**.

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

Ratio i

Product Gearbox

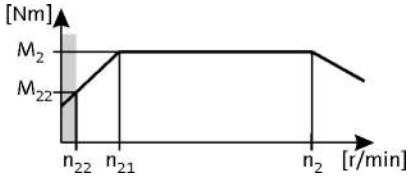
Product Motor

Page number for dimensions

Motor voltages

At 50 Hz, the power and torque values indicated in the selection tables relate to the following motor voltages:
- Up to 3 kW: Δ 230 V / Y 400 V
- FROM 4 kW: Δ 400 V

Selection tables, 4-pole motors

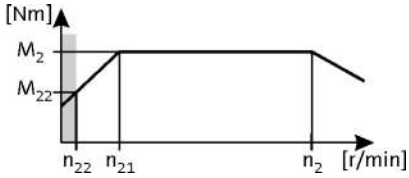


50 Hz: P_N = 0.06 kW
87 Hz: P_N = 0.11 kW

2-stage gearboxes

Mains operation 400 V, 50 Hz			Inverter operation 5 Hz -		- 20 Hz		- 50 Hz (1:10)			- 87 Hz (1:17.4)			i	Product		
n_2 [r/min]	M_2 [Nm]	c	n_{22} [r/min]	M_{22} [Nm]	n_{21} [r/min]	M_2 [Nm]	n_2 [r/min]	M_2 [Nm]	c	n_2 [r/min]	M_2 [Nm]	c		g500	MD□MA□□	
64	9.0	5.3	6.5	8.5	27	9.0	64	9.0	5.3	114	9.0	4.3	22.270	-B45	063-02	
57	10	4.7	5.8	9.6	24	10	57	10	4.7	101	10	4.4	25.051	-B45	063-02	
50	11	4.1	5.0	11	21	11	50	11	4.1	88	11	3.8	28.808	-B45	063-02	
44	12	3.6	4.4	12	18	12	44	12	3.6	78	13	3.4	32.593	-B45	063-02	
38	14	3.1	3.9	14	16	14	38	14	3.1	68	15	2.9	37.481	-B45	063-02	
34	16	2.8	3.4	16	14	16	34	16	2.8	60	17	2.7	42.222	-B45	063-02	
29	19	2.4	3.0	19	12	19	29	19	2.4	52	19	2.4	48.556	-B45	063-02	
26	21	2.2	2.7	21	11	21	26	21	2.2	47	21	2.1	53.889	-B45	063-02	
23	24	1.9	2.3	24	9.7	24	23	24	1.9	41	24	1.8	61.972	-B45	063-02	

Selection tables, 4-pole motors

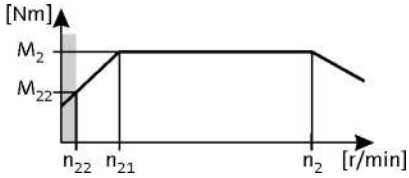


50 Hz: P_N = 0.09 kW
87 Hz: P_N = 0.16 kW

2-stage gearboxes

Mains operation 400 V, 50 Hz			Inverter operation 5 Hz -		- 20 Hz		- 50 Hz (1:10)			- 87 Hz (1:17.4)			i	Product		
n_2 [r/min]	M_2 [Nm]	c	n_{22} [r/min]	M_{22} [Nm]	n_{21} [r/min]	M_2 [Nm]	n_2 [r/min]	M_2 [Nm]	c	n_2 [r/min]	M_2 [Nm]	c		g500	MD□MA□□	
103	8.0	5.7	11	7.8	45	8.0	103	8.0	5.7	186	8.0	4.9	13.386	-B45	063-22	
91	9.0	5.0	9.6	8.8	40	9.0	91	9.0	5.0	164	9.0	4.3	15.111	-B45	063-22	
79	10	4.4	8.3	10	35	10	79	10	4.4	143	10	3.8	17.378	-B45	063-22	
71	11	3.9	7.5	11	31	11	71	11	3.9	128	11	3.4	19.365	-B45	063-22	
62	13	3.4	6.5	13	27	13	62	13	3.4	112	13	2.9	22.270	-B45	063-22	
55	15	3.0	5.8	15	24	15	55	15	3.0	99	15	3.0	25.051	-B45	063-22	
48	17	2.6	5.0	17	21	17	48	17	2.6	86	17	2.6	28.808	-B45	063-22	
42	19	2.3	4.4	19	18	19	42	19	2.3	76	19	2.3	32.593	-B45	063-22	
37	22	2.0	3.9	22	16	22	37	22	2.0	66	22	2.0	37.481	-B45	063-22	
33	25	1.8	3.4	25	14	25	33	25	1.8	59	25	1.8	42.222	-B45	063-22	
28	29	1.6	3.0	28	12	28	28	29	1.6	51	28	1.6	48.556	-B45	063-22	
26	32	1.4	2.7	32	11	31	26	32	1.4	46	31	1.4	53.889	-B45	063-22	
22	37	1.2	2.3	36	9.7	36	22	37	1.2	40	36	1.2	61.972	-B45	063-22	

Selection tables, 4-pole motors

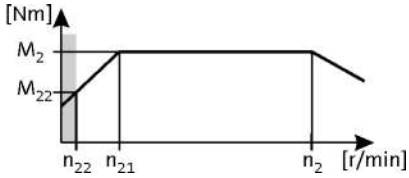


50 Hz: P_N = 0.12 kW
87 Hz: P_N = 0.21 kW

2-stage gearboxes

Mains operation 400 V, 50 Hz			Inverter operation 5 Hz -		- 20 Hz		- 50 Hz (1:10)			- 87 Hz (1:17.4)			i	Product		
n_2 [r/min]	M_2 [Nm]	c	n_{22} [r/min]	M_{22} [Nm]	n_{21} [r/min]	M_2 [Nm]	n_2 [r/min]	M_2 [Nm]	c	n_2 [r/min]	M_2 [Nm]	c		g500	MD□MA□□	
136	8.0	5.6	14	6.2	57	8.0	136	8.0	5.6	242	8.0	4.8	10.466	-B45	063-12	
122	9.0	5.1	13	6.8	52	9.0	122	9.0	5.1	218	9.0	4.3	11.640	-B45	063-12	
107	10	4.4	11	7.9	45	10	107	10	4.4	189	10	3.8	13.386	-B45	063-12	
94	12	3.9	9.6	8.9	40	11	94	12	3.9	168	11	3.3	15.111	-B45	063-12	
82	13	3.4	8.3	10	35	13	82	13	3.4	146	13	2.9	17.378	-B45	063-12	
74	15	3.0	7.5	11	31	15	74	15	3.0	131	15	2.6	19.365	-B45	063-12	
73	15	5.5	7.4	12	31	15	73	15	5.5	130	15	4.7	19.556	-B110	063-12	
64	17	2.6	6.5	13	27	17	64	17	2.6	114	17	2.3	22.270	-B45	063-12	
63	17	5.5	6.4	13	27	17	63	17	5.5	113	17	4.7	22.489	-B110	063-12	
57	19	2.4	5.8	15	24	19	57	19	2.4	101	19	2.3	25.051	-B45	063-12	
57	19	4.6	5.8	15	24	19	57	19	4.6	101	19	3.9	25.185	-B110	063-12	
50	22	2.0	5.0	17	21	22	50	22	2.0	88	22	2.0	28.808	-B45	063-12	
49	22	4.6	5.0	17	21	22	49	22	4.6	88	22	3.9	28.963	-B110	063-12	
45	24	4.0	4.5	19	19	24	45	24	4.0	79	24	3.4	31.919	-B110	063-12	
44	25	1.8	4.4	19	18	24	44	25	1.8	78	24	1.8	32.593	-B45	063-12	
39	28	3.9	4.0	22	16	28	39	28	3.9	69	28	3.4	36.707	-B110	063-12	
38	29	3.7	3.9	22	16	28	38	29	3.7	68	28	3.2	37.400	-B110	063-12	
38	29	1.6	3.9	22	16	28	38	29	1.6	68	28	1.5	37.481	-B45	063-12	
36	31	3.3	3.6	24	15	30	36	31	3.3	63	30	3.2	40.000	-B110	063-12	
34	32	1.4	3.4	25	14	32	34	32	1.4	60	32	1.4	42.222	-B45	063-12	
33	33	4.6	3.4	26	14	33	33	33	4.6	59	33	4.5	43.267	-B240	063-12	
31	35	3.1	3.2	27	13	35	31	35	3.1	55	35	3.0	46.000	-B110	063-12	
30	37	3.0	3.0	28	13	36	30	37	3.0	53	36	2.9	48.167	-B110	063-12	
29	37	1.2	3.0	29	12	36	29	37	1.2	52	36	1.2	48.556	-B45	063-12	
29	38	4.6	3.0	29	12	37	29	38	4.6	52	37	4.5	49.133	-B240	063-12	
27	40	4.0	2.8	31	11	39	27	40	4.0	48	39	3.9	52.510	-B240	063-12	
27	40	1.7	2.8	31	11	40	27	40	1.7	48	40	1.7	52.698	-B110	063-12	
26	41	1.1	2.7	32	11	40	26	41	1.1	47	40	1.1	53.889	-B45	063-12	
24	46	4.0	2.4	35	10	45	24	46	4.0	43	45	3.9	59.630	-B240	063-12	
24	46	1.7	2.4	36	9.9	46	24	46	1.7	42	46	1.7	60.603	-B110	063-12	
23	47	2.4	2.4	36	9.8	46	23	47	2.4	42	46	2.4	61.045	-B110	063-12	
23	47	1.0	2.3	37	9.7	47	23	47	1.0	41	47	1.0	61.972	-B45	063-12	
21	51	3.1	2.2	40	8.9	50	21	51	3.1	38	50	3.2	67.113	-B240	063-12	
19	58	3.1	1.9	45	7.9	57	19	58	3.1	33	57	3.2	76.213	-B240	063-12	
19	58	1.9	1.9	45	7.8	57	19	58	1.9	33	57	1.9	76.500	-B110	063-12	

Selection tables, 4-pole motors



50 Hz: P_N = 0.12 kW
87 Hz: P_N = 0.21 kW

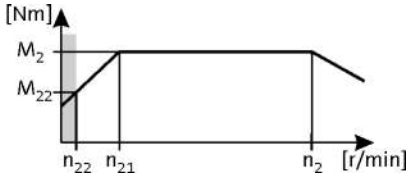
2-stage gearboxes

Mains operation 400 V, 50 Hz			Inverter operation 5 Hz -		- 20 Hz		- 50 Hz (1:10)			- 87 Hz (1:17.4)			i	Product		
n_2 [r/min]	M_2 [Nm]	c	n_{22} [r/min]	M_{22} [Nm]	n_{21} [r/min]	M_2 [Nm]	n_2 [r/min]	M_2 [Nm]	c	n_2 [r/min]	M_2 [Nm]	c		g500	MD□MA□□	
14	77	1.4	1.4	59	6.0	76	14	77	1.4	25	76	1.5	100.786	-B110	063-12	

3-stage gearboxes

Mains operation 400 V, 50 Hz			Inverter operation 5 Hz -		- 20 Hz		- 50 Hz (1:10)			- 87 Hz (1:17.4)			i	Product		
n_2 [r/min]	M_2 [Nm]	c	n_{22} [r/min]	M_{22} [Nm]	n_{21} [r/min]	M_2 [Nm]	n_2 [r/min]	M_2 [Nm]	c	n_2 [r/min]	M_2 [Nm]	c		g500	MD□MA□□	
21	51	4.7	2.1	39	8.8	50	21	51	4.7	37	50	4.6	68.459	-B240	063-12	
18	58	4.2	1.9	45	7.7	57	18	58	4.2	33	57	4.0	77.741	-B240	063-12	
16	65	3.7	1.7	50	6.9	64	16	65	3.7	29	64	3.6	87.563	-B240	063-12	
14	74	3.2	1.5	57	6.0	73	14	74	3.2	26	73	3.1	99.437	-B240	063-12	
13	85	2.8	1.3	65	5.3	83	13	85	2.8	22	83	2.9	113.673	-B240	063-12	
11	96	2.5	1.1	74	4.6	95	11	96	2.5	20	95	2.5	129.087	-B240	063-12	
9.9	110	4.1	1.0	85	4.2	108	9.9	110	4.1	18	108	4.2	144.128	-B450	063-12	
9.8	108	2.2	1.0	84	4.1	107	9.8	108	2.2	17	107	2.3	145.674	-B240	063-12	
8.9	122	3.7	0.9	94	3.8	120	8.9	122	3.7	16	120	3.8	159.807	-B450	063-12	
8.6	123	2.0	0.9	95	3.6	121	8.6	123	2.0	15	121	2.0	165.426	-B240	063-12	
8.1	134	3.4	0.8	103	3.4	131	8.1	134	3.4	15	131	3.4	174.919	-B450	063-12	
7.6	140	1.7	0.8	108	3.2	138	7.6	140	1.7	14	138	1.7	188.442	-B240	063-12	
7.3	148	3.0	0.7	114	3.1	146	7.3	148	3.0	13	146	3.1	193.948	-B450	063-12	
6.7	159	1.5	0.7	123	2.8	157	6.7	159	1.5	12	157	1.5	213.994	-B240	063-12	
6.4	171	2.6	0.6	132	2.7	168	6.4	171	2.6	11	168	2.7	223.563	-B450	063-12	
5.8	183	1.3	0.6	141	2.4	180	5.8	183	1.3	10	180	1.3	245.178	-B240	063-12	
5.7	189	2.4	0.6	146	2.4	186	5.7	189	2.4	10	186	2.4	247.882	-B450	063-12	
5.1	207	1.2	0.5	160	2.2	204	5.1	207	1.2	9.1	204	1.2	278.422	-B240	063-12	
4.5	237	1.0	0.5	182	1.9	233	4.5	237	1.0	8.0	233	1.0	317.617	-B240	063-12	
4.0	269	0.9	0.4	207	1.7	264	4.0	269	0.9	7.0	264	0.9	360.683	-B240	063-12	

Selection tables, 4-pole motors

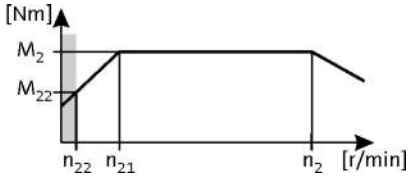


50 Hz: P_N = 0.18 kW
87 Hz: P_N = 0.33 kW

2-stage gearboxes

Mains operation 400 V, 50 Hz			Inverter operation 5 Hz -		- 20 Hz		- 50 Hz (1:10)			- 87 Hz (1:17.4)			i	Product		
n_2 [r/min]	M_2 [Nm]	c	n_{22} [r/min]	M_{22} [Nm]	n_{21} [r/min]	M_2 [Nm]	n_2 [r/min]	M_2 [Nm]	c	n_2 [r/min]	M_2 [Nm]	c		g500	MD□MA□□	
252	6.0	4.7	27	5.0	111	6.0	252	6.0	4.7	457	7.0	3.9	5.411	-B45	063-32	
219	7.0	4.7	23	5.7	96	7.0	219	7.0	4.7	398	8.0	3.9	6.222	-B45	063-32	
192	9.0	4.5	20	6.6	84	9.0	192	9.0	4.5	348	9.0	3.7	7.111	-B45	063-32	
167	10	4.5	18	7.5	73	10	167	10	4.5	303	10	3.7	8.178	-B45	063-32	
150	11	4.1	16	8.4	66	11	150	11	4.1	272	11	3.5	9.101	-B45	063-32	
130	13	3.6	14	9.6	57	13	130	13	3.6	237	13	3.0	10.466	-B45	063-32	
119	14	4.5	13	11	52	14	119	14	4.5	216	14	3.7	11.449	-B110	063-32	
117	14	3.2	13	11	52	14	117	14	3.2	213	14	2.7	11.640	-B45	063-32	
108	15	4.1	11	12	47	15	108	15	4.1	195	15	3.5	12.698	-B110	063-32	
102	16	2.8	11	12	45	16	102	16	2.8	185	16	2.4	13.386	-B45	063-32	
94	17	4.1	9.9	14	41	17	94	17	4.1	170	18	3.5	14.603	-B110	063-32	
90	18	2.5	9.6	14	40	18	90	18	2.5	164	18	2.1	15.111	-B45	063-32	
79	21	2.2	8.3	16	35	21	79	21	2.2	142	21	1.8	17.378	-B45	063-32	
71	23	1.9	7.5	18	31	23	71	23	1.9	128	23	1.6	19.365	-B45	063-32	
70	23	3.5	7.4	18	31	23	70	23	3.5	127	24	2.9	19.556	-B110	063-32	
61	27	1.7	6.5	21	27	27	61	27	1.7	111	27	1.4	22.270	-B45	063-32	
61	27	3.5	6.4	21	27	27	61	27	3.5	110	27	2.9	22.489	-B110	063-32	
55	30	1.5	5.8	23	24	30	55	30	1.5	99	30	1.4	25.051	-B45	063-32	
54	30	2.9	5.8	23	24	30	54	30	2.9	98	30	2.5	25.185	-B110	063-32	
47	34	1.3	5.0	27	21	34	47	34	1.3	86	35	1.2	28.808	-B45	063-32	
47	35	2.9	5.0	27	21	35	47	35	2.9	86	35	2.5	28.963	-B110	063-32	
43	38	2.6	4.5	29	19	38	43	38	2.6	78	39	2.2	31.919	-B110	063-32	
42	39	1.2	4.4	30	18	39	42	39	1.2	76	39	1.1	32.593	-B45	063-32	
37	44	2.5	4.0	34	16	44	37	44	2.5	67	44	2.1	36.707	-B110	063-32	
37	45	2.4	3.9	35	16	45	37	45	2.4	66	45	2.0	37.400	-B110	063-32	
36	45	1.0	3.9	35	16	45	36	45	1.0	66	45	1.0	37.481	-B45	063-32	
34	48	2.1	3.6	37	15	48	34	48	2.1	62	48	2.0	40.000	-B110	063-32	
32	51	0.9	3.4	39	14	51	32	51	0.9	59	51	0.9	42.222	-B45	063-32	
32	52	2.9	3.4	40	14	52	32	52	2.9	57	52	2.8	43.267	-B240	063-32	
30	55	2.0	3.2	42	13	55	30	55	2.0	54	56	1.9	46.000	-B110	063-32	
28	58	1.9	3.0	44	13	58	28	58	1.9	51	58	1.8	48.167	-B110	063-32	
28	59	2.9	3.0	45	12	59	28	59	2.9	50	59	2.8	49.133	-B240	063-32	
26	63	2.6	2.8	48	11	63	26	63	2.6	47	64	2.4	52.510	-B240	063-32	
26	63	1.1	2.8	49	11	63	26	63	1.1	47	64	1.0	52.698	-B110	063-32	
23	71	2.6	2.4	55	10	71	23	71	2.6	42	72	2.4	59.630	-B240	063-32	

Selection tables, 4-pole motors



50 Hz: P_N = 0.18 kW
87 Hz: P_N = 0.33 kW

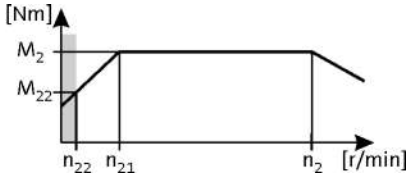
2-stage gearboxes

Mains operation 400 V, 50 Hz			Inverter operation 5 Hz -		- 20 Hz		- 50 Hz (1:10)			- 87 Hz (1:17.4)			i	Product		
n_2 [r/min]	M_2 [Nm]	c	n_{22} [r/min]	M_{22} [Nm]	n_{21} [r/min]	M_2 [Nm]	n_2 [r/min]	M_2 [Nm]	c	n_2 [r/min]	M_2 [Nm]	c		g500	MD□MA□□	
23	73	1.1	2.4	56	9.9	73	23	73	1.1	41	73	1.1	60.603	-B110	063-32	
22	73	1.5	2.4	56	9.8	73	22	73	1.5	41	74	1.5	61.045	-B110	063-32	
20	80	2.0	2.2	62	8.9	80	20	80	2.0	37	81	2.0	67.113	-B240	063-32	
18	91	2.0	1.9	70	7.9	91	18	91	2.0	33	92	2.0	76.213	-B240	063-32	
18	92	1.2	1.9	71	7.8	92	18	92	1.2	32	93	1.2	76.500	-B110	063-32	
14	121	0.9	1.4	93	6.0	121	14	121	0.9	25	122	0.9	100.786	-B110	063-32	

3-stage gearboxes

Mains operation 400 V, 50 Hz			Inverter operation 5 Hz -		- 20 Hz		- 50 Hz (1:10)			- 87 Hz (1:17.4)			i	Product		
n_2 [r/min]	M_2 [Nm]	c	n_{22} [r/min]	M_{22} [Nm]	n_{21} [r/min]	M_2 [Nm]	n_2 [r/min]	M_2 [Nm]	c	n_2 [r/min]	M_2 [Nm]	c		g500	MD□MA□□	
20	80	3.0	2.1	62	8.8	80	20	80	3.0	36	81	2.9	68.459	-B240	063-32	
18	91	2.7	1.9	70	7.7	91	18	91	2.7	32	92	2.5	77.741	-B240	063-32	
16	102	2.4	1.7	79	6.9	102	16	102	2.4	28	103	2.2	87.563	-B240	063-32	
14	116	2.1	1.5	89	6.0	116	14	116	2.1	25	117	2.0	99.437	-B240	063-32	
12	133	1.8	1.3	102	5.3	133	12	133	1.8	22	134	1.8	113.673	-B240	063-32	
11	151	1.6	1.1	116	4.6	151	11	151	1.6	19	152	1.6	129.087	-B240	063-32	
9.5	172	2.6	1.0	133	4.2	172	9.5	172	2.6	17	174	2.6	144.128	-B450	063-32	
9.4	170	1.4	1.0	131	4.1	170	9.4	170	1.4	17	172	1.4	145.674	-B240	063-32	
8.5	191	2.4	0.9	147	3.8	191	8.5	191	2.4	16	193	2.3	159.807	-B450	063-32	
8.3	193	1.2	0.9	149	3.6	193	8.3	193	1.2	15	195	1.2	165.426	-B240	063-32	
7.8	209	2.2	0.8	161	3.4	209	7.8	209	2.2	14	212	2.1	174.919	-B450	063-32	
7.2	220	1.1	0.8	169	3.2	220	7.2	220	1.1	13	222	1.1	188.442	-B240	063-32	
7.0	232	1.9	0.7	179	3.1	232	7.0	232	1.9	13	235	1.9	193.948	-B450	063-32	
6.4	250	1.0	0.7	192	2.8	250	6.4	250	1.0	12	252	1.0	213.994	-B240	063-32	
6.1	267	1.7	0.6	206	2.7	267	6.1	267	1.7	11	270	1.7	223.563	-B450	063-32	
5.6	286	0.8	0.6	220	2.4	286	5.6	286	0.8	10	289	0.8	245.178	-B240	063-32	
5.5	296	1.5	0.6	228	2.4	296	5.5	296	1.5	10	300	1.5	247.882	-B450	063-32	

Selection tables, 4-pole motors

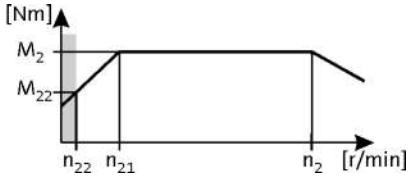


50 Hz: P_N = 0.25 kW
87 Hz: P_N = 0.45 kW

2-stage gearboxes

Mains operation 400 V, 50 Hz			Inverter operation 5 Hz -		- 20 Hz		- 50 Hz (1:10)			- 87 Hz (1:17.4)			i	Product		
n_2 [r/min]	M_2 [Nm]	c	n_{22} [r/min]	M_{22} [Nm]	n_{21} [r/min]	M_2 [Nm]	n_2 [r/min]	M_2 [Nm]	c	n_2 [r/min]	M_2 [Nm]	c		g500	MD□MA□□	
264	9.0	5.6	28	6.6	116	9.0	264	9.0	5.6	478	9.0	4.8	5.185	-B110	063-42	
253	9.0	4.4	27	6.9	111	9.0	253	9.0	4.4	458	9.0	3.7	5.411	-B45	063-42	
230	10	5.6	24	7.6	101	10	230	10	5.6	416	10	4.8	5.963	-B110	063-42	
220	10	3.9	23	7.9	96	10	220	10	3.9	399	10	3.3	6.222	-B45	063-42	
193	12	3.7	20	9.1	84	12	193	12	3.7	349	12	3.1	7.111	-B45	063-42	
193	12	5.6	20	9.1	84	12	193	12	5.6	349	12	4.8	7.111	-B110	063-42	
168	14	3.3	18	10	73	13	168	14	3.3	303	13	2.8	8.178	-B45	063-42	
168	14	5.6	18	10	73	13	168	14	5.6	303	13	4.8	8.178	-B110	063-42	
151	15	3.0	16	12	66	15	151	15	3.0	273	15	2.5	9.101	-B45	063-42	
151	15	5.2	16	12	66	15	151	15	5.2	273	15	4.4	9.101	-B110	063-42	
131	17	2.6	14	13	57	17	131	17	2.6	237	17	2.2	10.466	-B45	063-42	
131	17	5.1	14	13	57	17	131	17	5.1	237	17	4.4	10.466	-B110	063-42	
120	19	4.8	13	15	52	19	120	19	4.8	217	19	4.0	11.449	-B110	063-42	
118	19	2.3	13	15	52	19	118	19	2.3	213	19	2.0	11.640	-B45	063-42	
108	21	4.3	11	16	47	21	108	21	4.3	195	21	3.6	12.698	-B110	063-42	
102	22	2.0	11	17	45	22	102	22	2.0	185	22	1.7	13.386	-B45	063-42	
94	24	3.7	9.9	19	41	24	94	24	3.7	170	24	3.2	14.603	-B110	063-42	
91	25	5.6	9.7	19	40	25	91	25	5.6	165	25	4.8	15.008	-B240	063-42	
91	25	1.8	9.6	19	40	25	91	25	1.8	164	25	1.5	15.111	-B45	063-42	
88	26	3.6	9.3	20	39	26	88	26	3.6	159	26	3.0	15.556	-B110	063-42	
81	28	5.2	8.6	22	36	28	81	28	5.2	147	28	4.4	16.857	-B240	063-42	
79	29	1.6	8.3	22	35	29	79	29	1.6	143	29	1.3	17.378	-B45	063-42	
77	30	3.2	8.1	23	34	29	77	30	3.2	139	29	2.8	17.889	-B110	063-42	
72	32	5.2	7.6	24	31	32	72	32	5.2	130	32	4.4	19.143	-B240	063-42	
71	32	1.4	7.5	25	31	32	71	32	1.4	128	32	1.2	19.365	-B45	063-42	
70	32	3.1	7.4	25	31	32	70	32	3.1	127	32	2.6	19.556	-B110	063-42	
62	37	1.2	6.5	28	27	37	62	37	1.2	111	37	1.0	22.270	-B45	063-42	
61	37	2.8	6.4	29	27	37	61	37	2.8	110	37	2.4	22.489	-B110	063-42	
55	41	1.1	5.8	32	24	41	55	41	1.1	99	41	1.1	25.051	-B45	063-42	
54	42	2.6	5.8	32	24	41	54	42	2.6	99	41	2.2	25.185	-B110	063-42	
51	44	4.3	5.4	34	22	44	51	44	4.3	92	44	3.7	26.878	-B240	063-42	
48	48	0.9	5.0	37	21	47	48	48	0.9	86	47	0.9	28.808	-B45	063-42	
47	48	2.3	5.0	37	21	48	47	48	2.3	86	48	2.0	28.963	-B110	063-42	
45	51	4.3	4.8	39	20	50	45	51	4.3	81	50	3.7	30.522	-B240	063-42	
43	53	2.0	4.5	41	19	53	43	53	2.0	78	53	1.7	31.919	-B110	063-42	

Selection tables, 4-pole motors



50 Hz: P_N = 0.25 kW
87 Hz: P_N = 0.45 kW

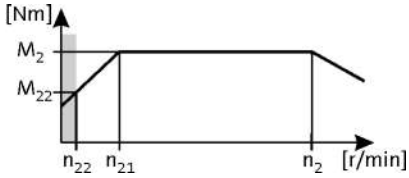
2-stage gearboxes

Mains operation 400 V, 50 Hz			Inverter operation 5 Hz -		- 20 Hz		- 50 Hz (1:10)			- 87 Hz (1:17.4)			i	Product		
n_2 [r/min]	M_2 [Nm]	c	n_{22} [r/min]	M_{22} [Nm]	n_{21} [r/min]	M_2 [Nm]	n_2 [r/min]	M_2 [Nm]	c	n_2 [r/min]	M_2 [Nm]	c		g500	MD□MA□□	
42	54	0.8	4.4	42	18	54	42	54	0.8	76	54	0.8	32.593	-B45	063-42	
41	55	3.7	4.3	43	18	55	41	55	3.7	74	55	3.1	33.433	-B240	063-42	
37	61	1.8	4.0	47	16	60	37	61	1.8	68	60	1.5	36.707	-B110	063-42	
37	62	1.7	3.9	48	16	62	37	62	1.7	66	62	1.5	37.400	-B110	063-42	
36	63	3.7	3.8	48	16	62	36	63	3.7	65	62	3.1	37.967	-B240	063-42	
34	66	1.2	3.6	51	15	66	34	66	1.2	62	66	1.2	40.000	-B110	063-42	
32	72	3.3	3.4	55	14	71	32	72	3.3	57	71	3.2	43.267	-B240	063-42	
30	76	1.2	3.2	59	13	76	30	76	1.2	54	76	1.2	46.000	-B110	063-42	
28	80	1.4	3.0	61	13	79	28	80	1.4	52	79	1.3	48.167	-B110	063-42	
28	81	3.0	3.0	63	12	81	28	81	3.0	51	81	2.9	49.133	-B240	063-42	
26	87	2.7	2.8	67	11	86	26	87	2.7	47	86	2.6	52.510	-B240	063-42	
23	99	2.4	2.4	76	10	98	23	99	2.4	42	98	2.4	59.630	-B240	063-42	
22	101	1.1	2.4	78	9.8	100	22	101	1.1	41	100	1.1	61.045	-B110	063-42	
20	111	1.4	2.2	86	8.9	110	20	111	1.4	37	110	1.4	67.113	-B240	063-42	
18	126	1.4	1.9	97	7.9	125	18	126	1.4	33	125	1.4	76.213	-B240	063-42	
18	127	0.9	1.9	98	7.8	126	18	127	0.9	32	126	0.9	76.500	-B110	063-42	

3-stage gearboxes

Mains operation 400 V, 50 Hz			Inverter operation 5 Hz -		- 20 Hz		- 50 Hz (1:10)			- 87 Hz (1:17.4)			i	Product		
n_2 [r/min]	M_2 [Nm]	c	n_{22} [r/min]	M_{22} [Nm]	n_{21} [r/min]	M_2 [Nm]	n_2 [r/min]	M_2 [Nm]	c	n_2 [r/min]	M_2 [Nm]	c		g500	MD□MA□□	
77	30	5.6	8.1	23	34	29	77	30	5.6	139	29	4.8	17.885	-B450	063-42	
69	33	5.6	7.3	25	30	33	69	33	5.6	125	33	4.8	19.831	-B450	063-42	
60	38	5.2	6.4	29	26	38	60	38	5.2	109	38	4.4	22.813	-B450	063-42	
54	42	5.2	5.7	32	24	42	54	42	5.2	98	42	4.4	25.294	-B450	063-42	
38	60	4.3	4.0	46	17	60	38	60	4.3	68	60	3.7	36.373	-B450	063-42	
34	67	4.3	3.6	51	15	66	34	67	4.3	62	66	4.2	40.330	-B450	063-42	
30	75	3.7	3.2	58	13	74	30	75	3.7	55	74	3.5	45.245	-B450	063-42	
27	83	3.7	2.9	64	12	83	27	83	3.7	49	83	3.5	50.167	-B450	063-42	
24	93	4.8	2.6	72	11	92	24	93	4.8	44	92	4.7	56.154	-B450	063-42	
22	103	4.4	2.3	79	9.6	102	22	103	4.4	40	102	4.2	62.262	-B450	063-42	
20	112	3.7	2.1	86	8.9	111	20	112	3.7	37	111	3.5	67.513	-B600	063-42	
20	110	2.2	2.1	85	8.8	110	20	110	2.2	36	110	2.1	68.459	-B240	063-42	
18	125	1.9	1.9	97	7.7	125	18	125	1.9	32	125	1.9	77.741	-B240	063-42	
17	136	3.2	1.8	104	7.3	135	17	136	3.2	30	135	3.1	81.937	-B600	063-42	
16	141	1.7	1.7	109	6.9	140	16	141	1.7	28	140	1.6	87.563	-B240	063-42	
15	148	3.0	1.6	114	6.7	147	15	148	3.0	28	147	2.9	89.534	-B450	063-42	
14	164	2.7	1.5	127	6.0	163	14	164	2.7	25	163	2.7	99.274	-B450	063-42	
14	160	1.5	1.5	124	6.0	160	14	160	1.5	25	160	1.5	99.437	-B240	063-42	
12	184	2.4	1.3	142	5.4	183	12	184	2.4	22	183	2.5	111.372	-B450	063-42	

Selection tables, 4-pole motors

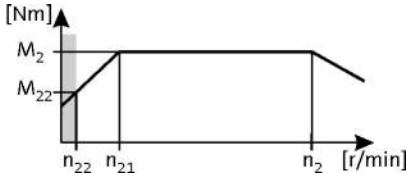


50 Hz: P_N = 0.25 kW
87 Hz: P_N = 0.45 kW

3-stage gearboxes

Mains operation 400 V, 50 Hz			Inverter operation 5 Hz -		- 20 Hz		- 50 Hz (1:10)			- 87 Hz (1:17.4)			i	Product		
n_2 [r/min]	M_2 [Nm]	c	n_{22} [r/min]	M_{22} [Nm]	n_{21} [r/min]	M_2 [Nm]	n_2 [r/min]	M_2 [Nm]	c	n_2 [r/min]	M_2 [Nm]	c		g500	MD□MA□□	
12	183	1.3	1.3	141	5.3	182	12	183	1.3	22	182	1.3	113.673	-B240	063-42	
12	192	3.1	1.2	148	5.2	191	12	192	3.1	21	191	3.1	116.175	-B600	063-42	
11	204	2.2	1.2	157	4.9	203	11	204	2.2	20	203	2.2	123.487	-B450	063-42	
11	208	1.2	1.1	160	4.6	207	11	208	1.2	19	207	1.2	129.087	-B240	063-42	
9.7	233	2.6	1.0	180	4.3	232	9.7	233	2.6	18	232	2.6	140.995	-B600	063-42	
9.5	239	1.9	1.0	184	4.2	237	9.5	239	1.9	17	237	1.9	144.128	-B450	063-42	
9.4	235	1.0	1.0	181	4.1	234	9.4	235	1.0	17	234	1.0	145.674	-B240	063-42	
9.3	245	3.4	1.0	189	4.1	244	9.3	245	3.4	17	244	3.4	148.000	-B820	063-42	
8.6	265	1.7	0.9	204	3.8	263	8.6	265	1.7	16	263	1.7	159.807	-B450	063-42	
8.4	271	2.2	0.9	209	3.7	270	8.4	271	2.2	15	270	2.2	163.810	-B600	063-42	
8.3	267	0.9	0.9	206	3.6	265	8.3	267	0.9	15	265	0.9	165.426	-B240	063-42	
8.3	274	3.0	0.9	211	3.6	272	8.3	274	3.0	15	272	3.0	165.467	-B820	063-42	
7.8	290	1.6	0.8	223	3.4	288	7.8	290	1.6	14	288	1.6	174.919	-B450	063-42	
7.7	295	2.0	0.8	227	3.4	293	7.7	295	2.0	14	293	2.1	178.224	-B600	063-42	
7.6	297	2.8	0.8	229	3.3	296	7.6	297	2.8	14	296	2.8	179.618	-B820	063-42	
7.1	321	1.4	0.7	247	3.1	319	7.1	321	1.4	13	319	1.4	193.948	-B450	063-42	
6.9	329	1.8	0.7	253	3.0	327	6.9	329	1.8	13	327	1.8	198.805	-B600	063-42	
6.8	332	2.5	0.7	256	3.0	331	6.8	332	2.5	12	331	2.5	200.816	-B820	063-42	
6.1	370	1.2	0.6	285	2.7	368	6.1	370	1.2	11	368	1.2	223.563	-B450	063-42	
6.0	376	2.2	0.6	289	2.6	374	6.0	376	2.2	11	374	2.2	227.045	-B820	063-42	
5.5	410	1.1	0.6	316	2.4	408	5.5	410	1.1	10	408	1.1	247.882	-B450	063-42	
5.5	416	1.4	0.6	320	2.4	414	5.5	416	1.4	9.9	414	1.5	251.299	-B600	063-42	
5.4	420	2.0	0.6	324	2.4	418	5.4	420	2.0	9.8	418	2.0	253.841	-B820	063-42	

Selection tables, 4-pole motors

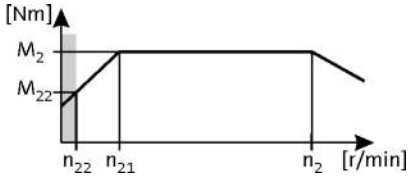


50 Hz: P_N = 0.37 kW
87 Hz: P_N = 0.66 kW

2-stage gearboxes

Mains operation 400 V, 50 Hz			Inverter operation 5 Hz -		- 20 Hz		- 50 Hz (1:10)			- 87 Hz (1:17.4)			i	Product		
n_2 [r/min]	M_2 [Nm]	c	n_{22} [r/min]	M_{22} [Nm]	n_{21} [r/min]	M_2 [Nm]	n_2 [r/min]	M_2 [Nm]	c	n_2 [r/min]	M_2 [Nm]	c		g500	MD□MA□□	
272	12	4.9	28	9.5	116	12	272	12	4.9	486	12	4.1	5.185	-B110	071-32	
261	13	3.0	27	9.9	111	13	261	13	3.0	466	13	2.6	5.411	-B45	071-32	
237	14	4.9	24	11	101	14	237	14	4.9	423	14	4.1	5.963	-B110	071-32	
227	15	2.7	23	11	96	15	227	15	2.7	405	15	2.3	6.222	-B45	071-32	
198	17	2.5	20	13	84	17	198	17	2.5	354	17	2.1	7.111	-B45	071-32	
198	17	4.6	20	13	84	17	198	17	4.6	354	17	3.8	7.111	-B110	071-32	
172	19	2.3	18	15	73	19	172	19	2.3	308	19	1.9	8.178	-B45	071-32	
172	19	4.2	18	15	73	19	172	19	4.2	308	19	3.5	8.178	-B110	071-32	
155	22	2.1	16	17	66	22	155	22	2.1	277	22	1.8	9.101	-B45	071-32	
155	22	3.9	16	17	66	22	155	22	3.9	277	22	3.3	9.101	-B110	071-32	
135	25	1.8	14	19	57	25	135	25	1.8	241	25	1.5	10.466	-B45	071-32	
135	25	3.6	14	19	57	25	135	25	3.6	241	25	3.0	10.466	-B110	071-32	
123	27	3.3	13	21	52	27	123	27	3.3	220	27	2.8	11.449	-B110	071-32	
121	28	1.6	13	21	52	28	121	28	1.6	217	28	1.4	11.640	-B45	071-32	
111	30	3.0	11	23	47	30	111	30	3.0	198	30	2.5	12.698	-B110	071-32	
105	32	1.4	11	25	45	32	105	32	1.4	188	32	1.2	13.386	-B45	071-32	
97	35	2.6	9.9	27	41	35	97	35	2.6	173	35	2.2	14.603	-B110	071-32	
94	36	4.9	9.7	28	40	36	94	36	4.9	168	36	4.1	15.008	-B240	071-32	
93	36	1.3	9.6	28	40	36	93	36	1.3	167	36	1.1	15.111	-B45	071-32	
91	37	2.5	9.3	29	39	37	91	37	2.5	162	37	2.1	15.556	-B110	071-32	
84	40	4.5	8.6	31	36	40	84	40	4.5	150	40	3.8	16.857	-B240	071-32	
81	41	1.1	8.3	32	35	41	81	41	1.1	145	41	0.9	17.378	-B45	071-32	
79	43	2.3	8.1	33	34	43	79	43	2.3	141	43	1.9	17.889	-B110	071-32	
74	46	4.5	7.6	35	31	45	74	46	4.5	132	45	3.8	19.143	-B240	071-32	
73	46	1.0	7.5	36	31	46	73	46	1.0	130	46	0.8	19.365	-B45	071-32	
72	47	2.2	7.4	36	31	46	72	47	2.2	129	46	1.8	19.556	-B110	071-32	
63	53	0.9	6.5	41	27	53	63	53	0.9				22.270	-B45	071-32	
63	54	1.9	6.4	41	27	53	63	54	1.9	112	53	1.6	22.489	-B110	071-32	
56	60	1.8	5.8	46	24	60	56	60	1.8	100	60	1.5	25.185	-B110	071-32	
53	64	3.7	5.4	49	22	64	53	64	3.7	94	64	3.2	26.878	-B240	071-32	
49	69	1.6	5.0	53	21	69	49	69	1.6	87	69	1.3	28.963	-B110	071-32	
46	73	3.3	4.8	56	20	73	46	73	3.3	83	73	2.8	30.522	-B240	071-32	
44	76	1.4	4.5	59	19	76	44	76	1.4	79	76	1.2	31.919	-B110	071-32	
42	80	3.0	4.3	61	18	79	42	80	3.0	75	79	2.5	33.433	-B240	071-32	
38	87	1.3	4.0	67	16	87	38	87	1.3	69	87	1.1	36.707	-B110	071-32	

Selection tables, 4-pole motors



50 Hz: P_N = 0.37 kW
87 Hz: P_N = 0.66 kW

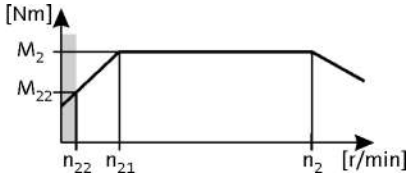
2-stage gearboxes

Mains operation 400 V, 50 Hz			Inverter operation 5 Hz -		- 20 Hz		- 50 Hz (1:10)			- 87 Hz (1:17.4)			i	Product		
n_2 [r/min]	M_2 [Nm]	c	n_{22} [r/min]	M_{22} [Nm]	n_{21} [r/min]	M_2 [Nm]	n_2 [r/min]	M_2 [Nm]	c	n_2 [r/min]	M_2 [Nm]	c		g500	MD□MA□□	
38	89	1.2	3.9	69	16	89	38	89	1.2	67	89	1.0	37.400	-B110	071-32	
37	90	2.7	3.8	70	16	90	37	90	2.7	66	90	2.2	37.967	-B240	071-32	
35	95	1.1	3.6	73	15	95	35	95	1.1	63	95	1.0	40.000	-B110	071-32	
33	103	2.3	3.4	79	14	103	33	103	2.3	58	103	2.2	43.267	-B240	071-32	
31	110	1.0	3.2	84	13	109	31	110	1.0	55	109	1.0	46.000	-B110	071-32	
29	115	1.0	3.0	88	13	114	29	115	1.0	52	114	0.9	48.167	-B110	071-32	
29	117	2.1	3.0	90	12	117	29	117	2.1	51	117	2.0	49.133	-B240	071-32	
27	125	1.9	2.8	96	11	125	27	125	1.9	48	125	1.8	52.510	-B240	071-32	
24	142	1.7	2.4	109	10	142	24	142	1.7	42	142	1.6	59.630	-B240	071-32	
21	160	1.1	2.2	123	8.9	159	21	160	1.1	38	159	1.1	67.113	-B240	071-32	
19	181	1.1	1.9	140	7.9	181	19	181	1.1	33	181	1.1	76.213	-B240	071-32	

3-stage gearboxes

Mains operation 400 V, 50 Hz			Inverter operation 5 Hz -		- 20 Hz		- 50 Hz (1:10)			- 87 Hz (1:17.4)			i	Product		
n_2 [r/min]	M_2 [Nm]	c	n_{22} [r/min]	M_{22} [Nm]	n_{21} [r/min]	M_2 [Nm]	n_2 [r/min]	M_2 [Nm]	c	n_2 [r/min]	M_2 [Nm]	c		g500	MD□MA□□	
79	43	4.9	8.1	33	34	42	79	43	4.9	141	42	4.1	17.885	-B450	071-32	
71	47	4.9	7.3	36	30	47	71	47	4.9	127	47	4.1	19.831	-B450	071-32	
62	54	4.5	6.4	42	26	54	62	54	4.5	111	54	3.8	22.813	-B450	071-32	
56	60	4.5	5.7	46	24	60	56	60	4.5	100	60	3.8	25.294	-B450	071-32	
39	87	3.7	4.0	67	17	86	39	87	3.7	69	86	3.2	36.373	-B450	071-32	
35	96	3.7	3.6	74	15	96	35	96	3.7	63	96	3.6	40.330	-B450	071-32	
31	108	3.2	3.2	83	13	107	31	108	3.2	56	107	3.0	45.245	-B450	071-32	
28	119	3.2	2.9	92	12	119	28	119	3.2	50	119	3.0	50.167	-B450	071-32	
25	134	3.4	2.6	103	11	133	25	134	3.4	45	133	3.2	56.154	-B450	071-32	
23	148	3.0	2.3	114	9.6	148	23	148	3.0	41	148	2.9	62.262	-B450	071-32	
21	161	3.2	2.1	124	8.9	160	21	161	3.2	37	160	3.0	67.513	-B600	071-32	
21	159	1.5	2.1	122	8.8	159	21	159	1.5	37	159	1.5	68.459	-B240	071-32	
18	180	1.3	1.9	139	7.7	180	18	180	1.3	32	180	1.3	77.741	-B240	071-32	
17	195	2.8	1.8	150	7.3	195	17	195	2.8	31	195	2.7	81.937	-B600	071-32	
16	203	1.2	1.7	157	6.9	203	16	203	1.2	29	203	1.1	87.563	-B240	071-32	
16	213	2.1	1.6	164	6.7	213	16	213	2.1	28	213	2.0	89.534	-B450	071-32	
14	236	1.9	1.5	182	6.0	236	14	236	1.9	25	236	1.8	99.274	-B450	071-32	
14	231	1.0	1.5	178	6.0	230	14	231	1.0	25	230	1.0	99.437	-B240	071-32	
13	265	1.7	1.3	204	5.4	265	13	265	1.7	23	265	1.7	111.372	-B450	071-32	
12	264	0.9	1.3	203	5.3	263	12	264	0.9	22	263	0.9	113.673	-B240	071-32	
12	277	2.2	1.2	213	5.2	276	12	277	2.2	22	276	2.2	116.175	-B600	071-32	
11	294	1.5	1.2	226	4.9	293	11	294	1.5	20	293	1.5	123.487	-B450	071-32	
10	336	1.8	1.0	258	4.3	335	10	336	1.8	18	335	1.8	140.995	-B600	071-32	
9.8	343	1.3	1.0	264	4.2	342	9.8	343	1.3	18	342	1.3	144.128	-B450	071-32	

Selection tables, 4-pole motors

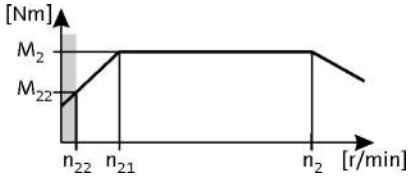


50 Hz: P_N = 0.37 kW
87 Hz: P_N = 0.66 kW

3-stage gearboxes

Mains operation 400 V, 50 Hz			Inverter operation 5 Hz -		- 20 Hz		- 50 Hz (1:10)			- 87 Hz (1:17.4)			i	Product		
n_2 [r/min]	M_2 [Nm]	c	n_{22} [r/min]	M_{22} [Nm]	n_{21} [r/min]	M_2 [Nm]	n_2 [r/min]	M_2 [Nm]	c	n_2 [r/min]	M_2 [Nm]	c		g500	MD□MA□□	
9.5	352	2.3	1.0	271	4.1	352	9.5	352	2.3	17	352	2.3	148.000	-B820	071-32	
8.8	380	1.2	0.9	293	3.8	380	8.8	380	1.2	16	380	1.2	159.807	-B450	071-32	
8.6	390	1.5	0.9	300	3.7	389	8.6	390	1.5	15	389	1.5	163.810	-B600	071-32	
8.5	394	2.1	0.9	303	3.6	393	8.5	394	2.1	15	393	2.1	165.467	-B820	071-32	
8.1	416	1.1	0.8	321	3.4	416	8.1	416	1.1	14	416	1.1	174.919	-B450	071-32	
7.9	424	1.4	0.8	327	3.4	423	7.9	424	1.4	14	423	1.4	178.224	-B600	071-32	
7.8	428	1.9	0.8	329	3.3	427	7.8	428	1.9	14	427	1.9	179.618	-B820	071-32	
7.3	462	1.0	0.7	356	3.1	461	7.3	462	1.0	13	461	1.0	193.948	-B450	071-32	
7.1	473	1.3	0.7	364	3.0	472	7.1	473	1.3	13	472	1.3	198.805	-B600	071-32	
7.0	478	1.7	0.7	368	3.0	477	7.0	478	1.7	13	477	1.7	200.816	-B820	071-32	
6.3	532	0.9	0.6	410	2.7	531	6.3	532	0.9	11	531	0.9	223.563	-B450	071-32	
6.2	540	1.5	0.6	416	2.6	539	6.2	540	1.5	11	539	1.5	227.045	-B820	071-32	
5.6	598	1.0	0.6	461	2.4	597	5.6	598	1.0	10	597	1.0	251.299	-B600	071-32	
5.6	604	1.4	0.6	465	2.4	603	5.6	604	1.4	9.9	603	1.4	253.841	-B820	071-32	

Selection tables, 4-pole motors

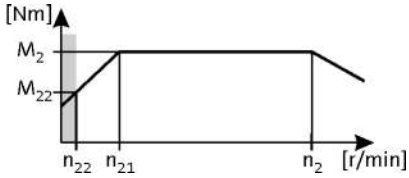


50 Hz: P_N = 0.55 kW
87 Hz: P_N = 1.0 kW

2-stage gearboxes

Mains operation 400 V, 50 Hz			Inverter operation 5 Hz -		- 20 Hz		- 50 Hz (1:10)			- 87 Hz (1:17.4)			i	Product		
n_2 [r/min]	M_2 [Nm]	c	n_{22} [r/min]	M_{22} [Nm]	n_{21} [r/min]	M_2 [Nm]	n_2 [r/min]	M_2 [Nm]	c	n_2 [r/min]	M_2 [Nm]	c		g500	MD□MA□□	
394	13	5.1	41	9.7	168	13	394	13	5.1	706	13	4.3	3.565	-B240	071-42	
271	18	3.8	28	14	116	18	271	18	3.8	485	19	3.1	5.185	-B110	071-42	
260	19	2.0	27	15	111	19	260	19	2.0	465	20	1.7	5.411	-B45	071-42	
236	21	3.4	24	16	101	21	236	21	3.4	422	22	2.8	5.963	-B110	071-42	
226	22	1.8	23	17	96	22	226	22	1.8	404	22	1.5	6.222	-B45	071-42	
225	22	4.5	23	17	96	22	225	22	4.5	402	23	3.7	6.257	-B240	071-42	
204	24	5.1	21	19	87	24	204	24	5.1	365	25	4.3	6.883	-B240	071-42	
198	25	1.7	20	19	84	25	198	25	1.7	354	26	1.4	7.111	-B45	071-42	
198	25	3.1	20	19	84	25	198	25	3.1	354	26	2.5	7.111	-B110	071-42	
180	28	5.1	19	21	77	28	180	28	5.1	322	28	4.3	7.817	-B240	071-42	
172	29	1.5	18	22	73	29	172	29	1.5	308	29	1.3	8.178	-B45	071-42	
172	29	2.8	18	22	73	29	172	29	2.8	308	29	2.3	8.178	-B110	071-42	
154	32	1.4	16	25	66	32	154	32	1.4	276	33	1.2	9.101	-B45	071-42	
154	32	2.6	16	25	66	32	154	32	2.6	276	33	2.2	9.101	-B110	071-42	
134	37	1.2	14	29	57	37	134	37	1.2	240	38	1.0	10.466	-B45	071-42	
134	37	2.4	14	29	57	37	134	37	2.4	240	38	2.0	10.466	-B110	071-42	
123	41	2.2	13	31	52	41	123	41	2.2	220	41	1.8	11.449	-B110	071-42	
121	41	1.1	13	32	52	41	121	41	1.1	216	42	0.9	11.640	-B45	071-42	
116	43	4.5	12	33	50	43	116	43	4.5	208	44	3.7	12.081	-B240	071-42	
111	45	2.0	11	35	47	45	111	45	2.0	198	46	1.7	12.698	-B110	071-42	
105	48	1.0	11	37	45	48	105	48	1.0				13.386	-B45	071-42	
102	49	4.5	11	38	44	49	102	49	4.5	183	49	3.7	13.719	-B240	071-42	
96	52	1.7	9.9	40	41	52	96	52	1.7	172	53	1.4	14.603	-B110	071-42	
94	53	4.2	9.7	41	40	53	94	53	4.2	168	54	3.5	15.008	-B240	071-42	
93	54	0.8	9.6	41	40	54	93	54	0.8				15.111	-B45	071-42	
90	55	1.7	9.3	43	39	55	90	55	1.7	162	56	1.4	15.556	-B110	071-42	
83	60	4.0	8.6	46	36	60	83	60	4.0	149	61	3.3	16.857	-B240	071-42	
79	64	1.5	8.1	49	34	64	79	64	1.5	141	65	1.3	17.889	-B110	071-42	
73	68	3.5	7.6	52	31	68	73	68	3.5	131	69	2.9	19.143	-B240	071-42	
72	69	1.4	7.4	54	31	69	72	69	1.4	129	71	1.2	19.556	-B110	071-42	
68	73	3.3	7.0	57	29	73	68	73	3.3	122	74	2.7	20.650	-B240	071-42	
63	80	1.3	6.4	62	27	80	63	80	1.3	112	81	1.1	22.489	-B110	071-42	
60	83	2.9	6.2	64	26	83	60	83	2.9	107	85	2.4	23.450	-B240	071-42	
56	89	1.2	5.8	69	24	89	56	89	1.2	100	91	1.0	25.185	-B110	071-42	
52	95	2.5	5.4	74	22	95	52	95	2.5	94	97	2.1	26.878	-B240	071-42	

Selection tables, 4-pole motors



50 Hz: P_N = 0.55 kW
87 Hz: P_N = 1.0 kW

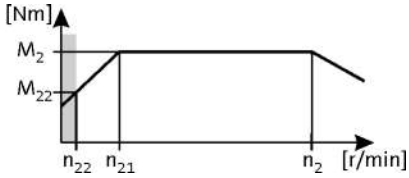
2-stage gearboxes

Mains operation 400 V, 50 Hz			Inverter operation 5 Hz -		- 20 Hz		- 50 Hz (1:10)			- 87 Hz (1:17.4)			i	Product		
n_2 [r/min]	M_2 [Nm]	c	n_{22} [r/min]	M_{22} [Nm]	n_{21} [r/min]	M_2 [Nm]	n_2 [r/min]	M_2 [Nm]	c	n_2 [r/min]	M_2 [Nm]	c		g500	MD□MA□□	
49	103	1.1	5.0	79	21	103	49	103	1.1	87	104	0.9	28.963	-B110	071-42	
46	108	2.2	4.8	84	20	108	46	108	2.2	82	110	1.8	30.522	-B240	071-42	
42	119	2.0	4.3	91	18	119	42	119	2.0	75	121	1.7	33.433	-B240	071-42	
37	135	1.8	3.8	104	16	135	37	135	1.8	66	137	1.5	37.967	-B240	071-42	
33	154	1.6	3.4	118	14	154	33	154	1.6	58	156	1.5	43.267	-B240	071-42	
29	174	1.4	3.0	134	12	174	29	174	1.4	51	177	1.3	49.133	-B240	071-42	
27	186	1.3	2.8	144	11	186	27	186	1.3	48	189	1.2	52.510	-B240	071-42	
24	212	1.1	2.4	163	10	212	24	212	1.1	42	215	1.1	59.630	-B240	071-42	

3-stage gearboxes

Mains operation 400 V, 50 Hz			Inverter operation 5 Hz -		- 20 Hz		- 50 Hz (1:10)			- 87 Hz (1:17.4)			i	Product		
n_2 [r/min]	M_2 [Nm]	c	n_{22} [r/min]	M_{22} [Nm]	n_{21} [r/min]	M_2 [Nm]	n_2 [r/min]	M_2 [Nm]	c	n_2 [r/min]	M_2 [Nm]	c		g500	MD□MA□□	
281	18	5.1	29	14	120	18	281	18	5.1	503	18	4.3	5.002	-B450	071-42	
151	33	5.1	16	26	64	33	151	33	5.1	270	34	4.3	9.315	-B450	071-42	
136	37	5.1	14	28	58	37	136	37	5.1	244	37	4.3	10.328	-B450	071-42	
116	43	4.5	12	33	49	43	116	43	4.5	207	44	3.7	12.143	-B820	071-42	
86	58	4.5	8.9	45	37	58	86	58	4.5	154	59	3.7	16.349	-B450	071-42	
79	64	4.5	8.1	49	34	64	79	64	4.5	141	65	3.8	17.885	-B450	071-42	
75	66	4.5	7.8	51	32	66	75	66	4.5	135	67	3.7	18.655	-B820	071-42	
71	70	4.5	7.3	54	30	70	71	70	4.5	127	72	3.8	19.831	-B450	071-42	
67	74	4.5	7.0	57	29	74	67	74	4.5	121	75	3.7	20.857	-B820	071-42	
62	81	4.2	6.4	62	26	81	62	81	4.2	110	82	3.5	22.813	-B450	071-42	
56	90	4.2	5.7	69	24	90	56	90	4.2	99	91	3.5	25.294	-B450	071-42	
50	99	3.7	5.2	76	22	101	50	99	3.7	90	101	3.1	27.945	-B450	071-42	
47	106	3.7	4.9	81	20	106	47	106	3.7	85	107	3.1	29.744	-B600	071-42	
47	106	3.7	4.9	81	20	106	47	106	3.7	85	107	3.1	29.745	-B820	071-42	
45	110	3.7	4.7	85	19	110	45	110	3.7	81	112	3.1	30.985	-B450	071-42	
39	129	3.4	4.0	99	17	129	39	129	3.4	69	131	2.8	36.373	-B450	071-42	
38	131	3.2	3.9	101	16	131	38	131	3.2	68	133	2.6	36.999	-B600	071-42	
38	131	3.2	3.9	101	16	131	38	131	3.2	68	133	2.6	37.000	-B820	071-42	
35	143	3.1	3.6	110	15	143	35	143	3.1	62	145	3.0	40.330	-B450	071-42	
34	149	3.7	3.5	115	14	149	34	149	3.7	60	151	3.5	41.940	-B600	071-42	
31	161	2.8	3.2	124	13	161	31	161	2.8	56	163	2.6	45.245	-B450	071-42	
28	178	2.5	2.9	137	12	178	28	178	2.5	50	181	2.4	50.167	-B450	071-42	
25	199	2.3	2.6	154	11	199	25	199	2.3	45	203	2.1	56.154	-B450	071-42	
24	205	4.0	2.5	158	10	205	24	205	4.0	44	208	3.8	57.662	-B820	071-42	
23	221	2.0	2.3	170	9.6	221	23	221	2.0	40	225	1.9	62.262	-B450	071-42	
22	227	2.7	2.3	175	9.4	227	22	227	2.7	39	230	2.5	63.822	-B600	071-42	
22	229	3.6	2.2	176	9.3	229	22	229	3.6	39	233	3.4	64.468	-B820	071-42	

Selection tables, 4-pole motors

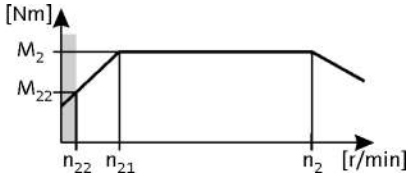


50 Hz: P_N = 0.55 kW
87 Hz: P_N = 1.0 kW

3-stage gearboxes

Mains operation 400 V, 50 Hz			Inverter operation 5 Hz -		- 20 Hz		- 50 Hz (1:10)			- 87 Hz (1:17.4)			i	Product		
n_2 [r/min]	M_2 [Nm]	c	n_{22} [r/min]	M_{22} [Nm]	n_{21} [r/min]	M_2 [Nm]	n_2 [r/min]	M_2 [Nm]	c	n_2 [r/min]	M_2 [Nm]	c		g500	MD□MA□□	
21	240	2.5	2.1	185	8.9	240	21	240	2.5	37	243	2.4	67.513	-B600	071-42	
21	237	1.0	2.1	183	8.8	237	21	237	1.0	37	241	1.0	68.459	-B240	071-42	
20	244	1.8	2.1	188	8.7	244	20	244	1.8	37	248	1.7	68.788	-B450	071-42	
20	256	2.3	2.0	197	8.3	256	20	256	2.3	35	260	2.2	72.170	-B600	071-42	
19	266	3.2	1.9	205	8.0	266	19	266	3.2	34	270	3.0	74.963	-B1500	071-42	
18	271	1.7	1.9	209	7.9	271	18	271	1.7	33	275	1.6	76.271	-B450	071-42	
18	269	0.9	1.9	207	7.7	269	18	269	0.9	32	273	0.8	77.741	-B240	071-42	
17	291	2.1	1.8	224	7.3	291	17	291	2.1	31	296	1.9	81.937	-B600	071-42	
17	294	2.8	1.8	226	7.2	294	17	294	2.8	30	298	2.6	82.762	-B1500	071-42	
16	318	1.4	1.6	245	6.7	318	16	318	1.4	28	323	1.3	89.534	-B450	071-42	
16	319	1.9	1.6	245	6.7	319	16	319	1.9	28	324	1.8	89.772	-B600	071-42	
15	323	2.8	1.6	249	6.6	323	15	323	2.8	28	328	2.6	90.978	-B1500	071-42	
15	326	2.5	1.6	251	6.5	326	15	326	2.5	27	332	2.4	91.939	-B820	071-42	
14	352	1.3	1.5	271	6.0	352	14	352	1.3	25	358	1.2	99.274	-B450	071-42	
14	361	1.7	1.4	278	5.9	361	14	361	1.7	25	367	1.6	101.760	-B600	071-42	
14	365	2.3	1.4	281	5.8	365	14	365	2.3	25	371	2.1	102.790	-B820	071-42	
13	395	1.1	1.3	305	5.4	395	13	395	1.1	23	402	1.1	111.372	-B450	071-42	
12	406	2.0	1.3	313	5.2	406	12	406	2.0	22	412	2.0	114.364	-B820	071-42	
12	413	1.5	1.2	318	5.2	413	12	413	1.5	22	419	1.4	116.175	-B600	071-42	
11	438	1.0	1.2	338	4.9	438	11	438	1.0	20	445	1.0	123.487	-B450	071-42	
11	449	1.3	1.1	346	4.7	449	11	449	1.3	20	457	1.3	126.580	-B600	071-42	
11	454	1.8	1.1	350	4.7	454	11	454	1.8	20	461	1.8	127.861	-B820	071-42	
10	501	1.2	1.0	386	4.3	501	10	501	1.2	18	509	1.2	140.995	-B600	071-42	
9.7	512	0.9	1.0	394	4.2	512	9.7	512	0.9	17	520	0.9	144.128	-B450	071-42	
9.5	526	1.6	1.0	405	4.1	526	9.5	526	1.6	17	534	1.5	148.000	-B820	071-42	
9.4	532	2.8	1.0	410	4.0	532	9.4	532	2.8	17	541	2.8	149.949	-B1500	071-42	
8.6	582	1.0	0.9	448	3.7	582	8.6	582	1.0	15	591	1.0	163.810	-B600	071-42	
8.5	585	2.6	0.9	451	3.6	585	8.5	585	2.6	15	594	2.5	164.833	-B1500	071-42	
8.5	588	1.4	0.9	452	3.6	588	8.5	588	1.4	15	597	1.4	165.467	-B820	071-42	
7.9	633	1.0	0.8	487	3.4	633	7.9	633	1.0	14	643	0.9	178.224	-B600	071-42	
7.8	638	1.3	0.8	491	3.3	638	7.8	638	1.3	14	648	1.3	179.618	-B820	071-42	
7.7	646	2.3	0.8	498	3.3	646	7.7	646	2.3	14	656	2.3	181.983	-B1500	071-42	
7.1	706	0.9	0.7	544	3.0	706	7.1	706	0.9	13	717	0.8	198.805	-B600	071-42	
7.0	710	2.1	0.7	547	3.0	710	7.0	710	2.1	13	721	2.1	200.048	-B1500	071-42	
7.0	713	1.2	0.7	549	3.0	713	7.0	713	1.2	13	724	1.1	200.816	-B820	071-42	

Selection tables, 4-pole motors



50 Hz: P_N = 0.55 kW
87 Hz: P_N = 1.0 kW

3-stage gearboxes

Mains operation 400 V, 50 Hz			Inverter operation 5 Hz -		- 20 Hz		- 50 Hz (1:10)			- 87 Hz (1:17.4)			i	Product		
n_2 [r/min]	M_2 [Nm]	c	n_{22} [r/min]	M_{22} [Nm]	n_{21} [r/min]	M_2 [Nm]	n_2 [r/min]	M_2 [Nm]	c	n_2 [r/min]	M_2 [Nm]	c		g500	MD□MA□□	
6.2	806	1.0	0.6	621	2.6	806	6.2	806	1.0	11	819	1.0	227.045	-B820	071-42	
6.1	817	1.8	0.6	629	2.6	817	6.1	817	1.8	11	830	1.8	230.035	-B1500	071-42	
5.6	898	1.7	0.6	691	2.4	898	5.6	898	1.7	9.9	912	1.6	252.869	-B1500	071-42	
5.5	901	0.9	0.6	694	2.4	901	5.5	901	0.9	9.9	915	0.9	253.841	-B820	071-42	

Selection tables, 4-pole motors

50 Hz: P_N = 0.75 kW

2-stage gearboxes

Mains operation 400 V, 50 Hz			i	Product		
n_2 [r/min]	M_2 [Nm]	c		g500	m2□□	
405	17	4.8	3.565	-B240	40-P80/M4	
278	24	2.8	5.185	-B110	40-P80/M4	
242	28	2.6	5.963	-B110	40-P80/M4	
231	30	4.2	6.257	-B240	40-P80/M4	
210	32	4.8	6.883	-B240	40-P80/M4	
203	34	2.3	7.111	-B110	40-P80/M4	
185	37	4.8	7.817	-B240	40-P80/M4	
177	39	2.1	8.178	-B110	40-P80/M4	
159	43	2.0	9.101	-B110	40-P80/M4	
138	49	1.8	10.466	-B110	40-P80/M4	
126	54	1.7	11.449	-B110	40-P80/M4	
119	57	3.7	12.081	-B240	40-P80/M4	
114	60	1.5	12.698	-B110	40-P80/M4	
105	65	3.4	13.719	-B240	40-P80/M4	
99	69	1.3	14.603	-B110	40-P80/M4	
96	71	3.2	15.008	-B240	40-P80/M4	
93	73	1.3	15.556	-B110	40-P80/M4	
86	79	3.0	16.857	-B240	40-P80/M4	
81	84	1.1	17.889	-B110	40-P80/M4	
75	90	2.7	19.143	-B240	40-P80/M4	
74	92	1.1	19.556	-B110	40-P80/M4	
70	97	2.5	20.650	-B240	40-P80/M4	
64	106	1.0	22.489	-B110	40-P80/M4	
62	111	2.2	23.450	-B240	40-P80/M4	
57	119	0.9	25.185	-B110	40-P80/M4	
54	127	1.9	26.878	-B240	40-P80/M4	
50	137	0.8	28.963	-B110	40-P80/M4	
47	144	1.7	30.522	-B240	40-P80/M4	
43	158	1.5	33.433	-B240	40-P80/M4	
38	179	1.3	37.967	-B240	40-P80/M4	
33	204	1.2	43.267	-B240	40-P80/M4	
29	232	1.0	49.133	-B240	40-P80/M4	
28	248	0.9	52.510	-B240	40-P80/M4	
24	281	0.9	59.630	-B240	40-P80/M4	

Selection tables, 4-pole motors

50 Hz: P_N = 0.75 kW

3-stage gearboxes

Mains operation 400 V, 50 Hz			i	Product		
n_2 [r/min]	M_2 [Nm]	c		g500	m2□□	
289	24	4.8	5.002	-B450	40-P80/M4	
155	44	4.8	9.315	-B450	40-P80/M4	
140	49	4.8	10.328	-B450	40-P80/M4	
119	57	4.2	12.143	-B820	40-P80/M4	
88	77	4.2	16.349	-B450	40-P80/M4	
81	84	4.3	17.885	-B450	40-P80/M4	
77	88	4.2	18.655	-B820	40-P80/M4	
73	93	4.3	19.831	-B450	40-P80/M4	
69	98	4.2	20.857	-B820	40-P80/M4	
63	108	4.0	22.813	-B450	40-P80/M4	
57	119	3.8	25.294	-B450	40-P80/M4	
52	132	3.4	27.945	-B450	40-P80/M4	
49	140	3.5	29.744	-B600	40-P80/M4	
49	140	3.5	29.745	-B820	40-P80/M4	
47	146	3.1	30.985	-B450	40-P80/M4	
40	171	2.6	36.373	-B450	40-P80/M4	
39	174	3.0	36.999	-B600	40-P80/M4	
39	174	3.0	37.000	-B820	40-P80/M4	
36	190	2.4	40.330	-B450	40-P80/M4	
34	198	3.0	41.940	-B600	40-P80/M4	
32	213	2.1	45.245	-B450	40-P80/M4	
29	237	1.9	50.167	-B450	40-P80/M4	
26	265	1.7	56.154	-B450	40-P80/M4	
25	272	3.0	57.662	-B820	40-P80/M4	
23	294	1.5	62.262	-B450	40-P80/M4	
23	301	2.0	63.822	-B600	40-P80/M4	
22	304	2.7	64.468	-B820	40-P80/M4	
21	318	1.9	67.513	-B600	40-P80/M4	
21	324	1.4	68.788	-B450	40-P80/M4	
20	340	1.8	72.170	-B600	40-P80/M4	
19	353	3.0	74.963	-B1500	40-P80/M4	
19	360	1.3	76.271	-B450	40-P80/M4	
18	386	1.6	81.937	-B600	40-P80/M4	
17	390	2.6	82.762	-B1500	40-P80/M4	
16	422	1.1	89.534	-B450	40-P80/M4	
16	423	1.4	89.772	-B600	40-P80/M4	
16	429	2.6	90.978	-B1500	40-P80/M4	

Selection tables, 4-pole motors

50 Hz: P_N = 0.75 kW

3-stage gearboxes

Mains operation 400 V, 50 Hz			i	Product		
n_2 [r/min]	M_2 [Nm]	c		g500	m2□□	
16	433	1.9	91.939	-B820	40-P80/M4	
15	468	1.0	99.274	-B450	40-P80/M4	
14	480	1.3	101.760	-B600	40-P80/M4	
14	485	1.7	102.790	-B820	40-P80/M4	
13	525	0.9	111.372	-B450	40-P80/M4	
13	539	1.5	114.364	-B820	40-P80/M4	
12	548	1.1	116.175	-B600	40-P80/M4	
11	597	1.0	126.580	-B600	40-P80/M4	
11	603	1.4	127.861	-B820	40-P80/M4	
10	665	0.9	140.995	-B600	40-P80/M4	
9.8	698	1.2	148.000	-B820	40-P80/M4	
9.6	707	2.1	149.949	-B1500	40-P80/M4	
8.8	777	1.9	164.833	-B1500	40-P80/M4	
8.7	780	1.1	165.467	-B820	40-P80/M4	
8.0	847	1.0	179.618	-B820	40-P80/M4	
7.9	858	1.8	181.983	-B1500	40-P80/M4	
7.2	943	1.6	200.048	-B1500	40-P80/M4	
7.2	947	0.9	200.816	-B820	40-P80/M4	
6.3	1084	1.4	230.035	-B1500	40-P80/M4	
5.7	1192	1.3	252.869	-B1500	40-P80/M4	

Selection tables, 4-pole motors

50 Hz: P_N = 1.1 kW

2-stage gearboxes

Mains operation 400 V, 50 Hz			i	Product		
n_2 [r/min]	M_2 [Nm]	c		g500	m2□□	
405	25	5.6	3.565	-B240	40-P90/M4	
296	34	4.4	4.889	-B240	40-P90/M4	
279	36	1.9	5.185	-B110	40-P90/M4	
242	41	1.8	5.963	-B110	40-P90/M4	
231	43	3.6	6.257	-B240	40-P90/M4	
210	48	3.8	6.883	-B240	40-P90/M4	
203	49	1.6	7.111	-B110	40-P90/M4	
185	54	3.5	7.817	-B240	40-P90/M4	
177	56	1.4	8.178	-B110	40-P90/M4	
159	63	1.3	9.101	-B110	40-P90/M4	
153	65	2.9	9.440	-B240	40-P90/M4	
138	72	1.2	10.466	-B110	40-P90/M4	
135	74	2.8	10.720	-B240	40-P90/M4	
126	79	1.1	11.449	-B110	40-P90/M4	
120	83	2.5	12.081	-B240	40-P90/M4	
114	88	1.0	12.698	-B110	40-P90/M4	
105	95	2.3	13.719	-B240	40-P90/M4	
99	101	0.9	14.603	-B110	40-P90/M4	
96	104	2.2	15.008	-B240	40-P90/M4	
93	107	0.9	15.556	-B110	40-P90/M4	
86	116	2.1	16.857	-B240	40-P90/M4	
76	132	1.8	19.143	-B240	40-P90/M4	
70	143	1.7	20.650	-B240	40-P90/M4	
62	162	1.5	23.450	-B240	40-P90/M4	
54	186	1.3	26.878	-B240	40-P90/M4	
47	211	1.1	30.522	-B240	40-P90/M4	
43	231	1.0	33.433	-B240	40-P90/M4	
38	262	0.9	37.967	-B240	40-P90/M4	

3-stage gearboxes

Mains operation 400 V, 50 Hz			i	Product		
n_2 [r/min]	M_2 [Nm]	c		g500	m2□□	
289	35	5.9	5.002	-B450	40-P90/M4	
211	47	5.9	6.860	-B450	40-P90/M4	
155	64	5.7	9.315	-B450	40-P90/M4	
152	66	5.9	9.520	-B820	40-P90/M4	
140	71	5.4	10.328	-B450	40-P90/M4	
119	84	5.5	12.143	-B820	40-P90/M4	
113	88	4.6	12.775	-B450	40-P90/M4	
108	92	5.8	13.369	-B600	40-P90/M4	
108	92	5.8	13.370	-B820	40-P90/M4	

Selection tables, 4-pole motors

50 Hz: P_N = 1.1 kW

3-stage gearboxes

Mains operation 400 V, 50 Hz			i	Product		
n_2 [r/min]	M_2 [Nm]	c		g500	m2□□	
102	98	4.3	14.165	-B450	40-P90/M4	
99	101	5.9	14.626	-B820	40-P90/M4	
88	113	3.8	16.349	-B450	40-P90/M4	
88	113	5.9	16.352	-B820	40-P90/M4	
81	123	3.6	17.885	-B450	40-P90/M4	
78	129	5.5	18.655	-B820	40-P90/M4	
77	130	4.6	18.851	-B600	40-P90/M4	
73	137	3.3	19.831	-B450	40-P90/M4	
70	142	4.2	20.622	-B600	40-P90/M4	
69	144	5.5	20.857	-B820	40-P90/M4	
63	158	2.9	22.813	-B450	40-P90/M4	
63	158	3.8	22.852	-B600	40-P90/M4	
63	158	4.8	22.853	-B820	40-P90/M4	
57	175	2.6	25.294	-B450	40-P90/M4	
57	176	4.7	25.550	-B820	40-P90/M4	
52	193	2.3	27.945	-B450	40-P90/M4	
50	202	5.8	29.206	-B1500	40-P90/M4	
49	205	2.9	29.744	-B600	40-P90/M4	
49	205	4.0	29.745	-B820	40-P90/M4	
47	214	2.1	30.985	-B450	40-P90/M4	
45	224	2.7	32.439	-B600	40-P90/M4	
40	251	1.8	36.373	-B450	40-P90/M4	
39	255	2.4	36.999	-B600	40-P90/M4	
39	255	3.2	37.000	-B820	40-P90/M4	
36	278	1.6	40.330	-B450	40-P90/M4	
35	285	2.9	41.325	-B820	40-P90/M4	
35	290	2.1	41.940	-B600	40-P90/M4	
32	312	2.6	45.207	-B820	40-P90/M4	
32	312	1.4	45.245	-B450	40-P90/M4	
32	316	1.9	45.739	-B600	40-P90/M4	
31	322	4.7	46.568	-B1500	40-P90/M4	
29	345	1.7	50.036	-B600	40-P90/M4	
29	346	1.3	50.167	-B450	40-P90/M4	
29	349	2.4	50.543	-B820	40-P90/M4	
28	359	4.0	51.920	-B1500	40-P90/M4	
26	383	1.6	55.447	-B600	40-P90/M4	
26	388	1.2	56.154	-B450	40-P90/M4	

Selection tables, 4-pole motors

50 Hz: P_N = 1.1 kW

3-stage gearboxes

Mains operation 400 V, 50 Hz			i	Product		
n_2 [r/min]	M_2 [Nm]	c		g500	m2□□	
25	394	3.8	57.074	-B1500	40-P90/M4	
25	398	2.1	57.662	-B820	40-P90/M4	
25	403	3.7	58.422	-B1500	40-P90/M4	
23	430	1.1	62.262	-B450	40-P90/M4	
23	441	1.4	63.822	-B600	40-P90/M4	
23	443	3.4	64.221	-B1500	40-P90/M4	
22	445	1.8	64.468	-B820	40-P90/M4	
21	466	1.3	67.513	-B600	40-P90/M4	
21	475	1.0	68.788	-B450	40-P90/M4	
21	488	1.7	70.636	-B820	40-P90/M4	
20	498	1.2	72.170	-B600	40-P90/M4	
19	518	2.9	74.963	-B1500	40-P90/M4	
19	527	0.9	76.271	-B450	40-P90/M4	
19	531	4.0	76.862	-B2700	40-P90/M4	
19	540	1.1	78.182	-B600	40-P90/M4	
18	545	1.5	78.973	-B820	40-P90/M4	
18	566	1.1	81.937	-B600	40-P90/M4	
18	571	2.6	82.762	-B1500	40-P90/M4	
17	587	3.5	84.940	-B2700	40-P90/M4	
16	620	1.0	89.772	-B600	40-P90/M4	
16	628	2.4	90.978	-B1500	40-P90/M4	
16	635	1.3	91.939	-B820	40-P90/M4	
16	643	2.3	93.150	-B1500	40-P90/M4	
16	644	3.5	93.283	-B2700	40-P90/M4	
14	703	0.9	101.760	-B600	40-P90/M4	
14	707	2.1	102.396	-B1500	40-P90/M4	
14	710	1.2	102.790	-B820	40-P90/M4	
13	788	1.9	114.166	-B1500	40-P90/M4	
13	790	1.0	114.364	-B820	40-P90/M4	
12	867	1.7	125.498	-B1500	40-P90/M4	
11	883	0.9	127.861	-B820	40-P90/M4	
9.6	1035	1.5	149.949	-B1500	40-P90/M4	
9.4	1057	4.0	153.141	-B4300	40-P90/M4	
9.4	1058	2.6	153.185	-B2700	40-P90/M4	
8.8	1138	1.3	164.833	-B1500	40-P90/M4	
8.6	1156	3.7	167.383	-B4300	40-P90/M4	
8.6	1162	2.3	168.230	-B2700	40-P90/M4	

Selection tables, 4-pole motors

50 Hz: P_N = 1.1 kW

3-stage gearboxes

Mains operation 400 V, 50 Hz			i	Product		
n_2 [r/min]	M_2 [Nm]	c		g500	m2□□	
7.9	1257	1.2	181.983	-B1500	40-P90/M4	
7.8	1283	3.4	185.857	-B4300	40-P90/M4	
7.8	1284	2.1	185.911	-B2700	40-P90/M4	
7.2	1381	1.1	200.048	-B1500	40-P90/M4	
7.1	1403	3.1	203.143	-B4300	40-P90/M4	
7.1	1410	1.9	204.170	-B2700	40-P90/M4	
6.3	1588	0.9	230.035	-B1500	40-P90/M4	
6.2	1622	2.7	234.932	-B4300	40-P90/M4	
6.1	1623	1.7	235.000	-B2700	40-P90/M4	
5.7	1746	0.9	252.869	-B1500	40-P90/M4	
5.6	1773	2.4	256.781	-B4300	40-P90/M4	
5.6	1782	1.5	258.080	-B2700	40-P90/M4	

Selection tables, 4-pole motors

50 Hz: P_N = 1.5 kW

2-stage gearboxes

Mains operation 400 V, 50 Hz			i	Product		
n_2 [r/min]	M_2 [Nm]	c		g500	m2□□	
403	34	4.1	3.565	-B240	40-P90/L4	
294	46	3.2	4.889	-B240	40-P90/L4	
277	49	1.4	5.185	-B110	40-P90/L4	
241	57	1.3	5.963	-B110	40-P90/L4	
229	59	2.6	6.257	-B240	40-P90/L4	
209	65	2.7	6.883	-B240	40-P90/L4	
202	67	1.1	7.111	-B110	40-P90/L4	
184	74	2.5	7.817	-B240	40-P90/L4	
176	78	1.0	8.178	-B110	40-P90/L4	
158	86	1.0	9.101	-B110	40-P90/L4	
152	90	2.1	9.440	-B240	40-P90/L4	
137	99	0.9	10.466	-B110	40-P90/L4	
134	102	2.0	10.720	-B240	40-P90/L4	
125	109	0.8	11.449	-B110	40-P90/L4	
119	115	1.8	12.081	-B240	40-P90/L4	
105	130	1.7	13.719	-B240	40-P90/L4	
96	142	1.6	15.008	-B240	40-P90/L4	
85	160	1.5	16.857	-B240	40-P90/L4	
75	182	1.3	19.143	-B240	40-P90/L4	
70	196	1.2	20.650	-B240	40-P90/L4	
61	222	1.1	23.450	-B240	40-P90/L4	
53	255	0.9	26.878	-B240	40-P90/L4	
47	289	0.8	30.522	-B240	40-P90/L4	

3-stage gearboxes

Mains operation 400 V, 50 Hz			i	Product		
n_2 [r/min]	M_2 [Nm]	c		g500	m2□□	
287	47	4.3	5.002	-B450	40-P90/L4	
209	65	4.3	6.860	-B450	40-P90/L4	
154	88	4.2	9.315	-B450	40-P90/L4	
151	90	4.3	9.520	-B820	40-P90/L4	
139	98	3.9	10.328	-B450	40-P90/L4	
118	115	4.0	12.143	-B820	40-P90/L4	
112	121	3.3	12.775	-B450	40-P90/L4	
107	127	4.2	13.369	-B600	40-P90/L4	
107	127	4.2	13.370	-B820	40-P90/L4	
101	134	3.1	14.165	-B450	40-P90/L4	
98	139	4.3	14.626	-B820	40-P90/L4	
88	155	2.8	16.349	-B450	40-P90/L4	
88	155	4.3	16.352	-B820	40-P90/L4	
80	170	2.6	17.885	-B450	40-P90/L4	

Selection tables, 4-pole motors

50 Hz: P_N = 1.5 kW

3-stage gearboxes

Mains operation 400 V, 50 Hz			i	Product		
n_2 [r/min]	M_2 [Nm]	c		g500	m2□□	
77	177	4.0	18.655	-B820	40-P90/L4	
76	179	3.4	18.851	-B600	40-P90/L4	
72	188	2.4	19.831	-B450	40-P90/L4	
70	196	3.1	20.622	-B600	40-P90/L4	
69	198	4.0	20.857	-B820	40-P90/L4	
63	216	2.1	22.813	-B450	40-P90/L4	
63	217	2.8	22.852	-B600	40-P90/L4	
63	217	3.5	22.853	-B820	40-P90/L4	
57	240	1.9	25.294	-B450	40-P90/L4	
56	242	3.4	25.550	-B820	40-P90/L4	
51	265	1.7	27.945	-B450	40-P90/L4	
49	277	4.2	29.206	-B1500	40-P90/L4	
48	282	2.1	29.744	-B600	40-P90/L4	
48	282	2.9	29.745	-B820	40-P90/L4	
46	294	1.5	30.985	-B450	40-P90/L4	
44	308	2.0	32.439	-B600	40-P90/L4	
40	345	1.3	36.373	-B450	40-P90/L4	
39	351	1.7	36.999	-B600	40-P90/L4	
39	351	2.3	37.000	-B820	40-P90/L4	
36	382	1.2	40.330	-B450	40-P90/L4	
35	392	2.1	41.325	-B820	40-P90/L4	
34	398	1.5	41.940	-B600	40-P90/L4	
32	429	1.9	45.207	-B820	40-P90/L4	
32	429	1.1	45.245	-B450	40-P90/L4	
31	434	1.4	45.739	-B600	40-P90/L4	
31	442	3.4	46.568	-B1500	40-P90/L4	
29	474	1.3	50.036	-B600	40-P90/L4	
29	476	1.0	50.167	-B450	40-P90/L4	
28	479	1.7	50.543	-B820	40-P90/L4	
28	492	2.9	51.920	-B1500	40-P90/L4	
26	526	1.1	55.447	-B600	40-P90/L4	
26	532	0.9	56.154	-B450	40-P90/L4	
25	541	2.8	57.074	-B1500	40-P90/L4	
25	547	1.5	57.662	-B820	40-P90/L4	
25	554	2.7	58.422	-B1500	40-P90/L4	
23	605	1.0	63.822	-B600	40-P90/L4	
22	609	2.5	64.221	-B1500	40-P90/L4	

Selection tables, 4-pole motors

50 Hz: P_N = 1.5 kW

3-stage gearboxes

Mains operation 400 V, 50 Hz			i	Product		
n_2 [r/min]	M_2 [Nm]	c		g500	m2□□	
22	611	1.3	64.468	-B820	40-P90/L4	
21	640	0.9	67.513	-B600	40-P90/L4	
20	670	1.2	70.636	-B820	40-P90/L4	
20	684	0.9	72.170	-B600	40-P90/L4	
19	711	2.1	74.963	-B1500	40-P90/L4	
19	729	2.9	76.862	-B2700	40-P90/L4	
18	741	0.8	78.182	-B600	40-P90/L4	
18	749	1.1	78.973	-B820	40-P90/L4	
17	785	1.9	82.762	-B1500	40-P90/L4	
17	805	2.6	84.940	-B2700	40-P90/L4	
16	863	1.7	90.978	-B1500	40-P90/L4	
16	872	0.9	91.939	-B820	40-P90/L4	
15	883	1.7	93.150	-B1500	40-P90/L4	
15	884	2.6	93.283	-B2700	40-P90/L4	
14	971	1.6	102.396	-B1500	40-P90/L4	
14	975	0.8	102.790	-B820	40-P90/L4	
13	1082	1.4	114.166	-B1500	40-P90/L4	
11	1190	1.3	125.498	-B1500	40-P90/L4	
9.6	1422	1.1	149.949	-B1500	40-P90/L4	
9.4	1452	2.9	153.141	-B4300	40-P90/L4	
9.4	1452	1.9	153.185	-B2700	40-P90/L4	
8.7	1563	1.0	164.833	-B1500	40-P90/L4	
8.6	1587	2.7	167.383	-B4300	40-P90/L4	
8.5	1595	1.7	168.230	-B2700	40-P90/L4	
7.9	1725	0.9	181.983	-B1500	40-P90/L4	
7.7	1762	2.4	185.857	-B4300	40-P90/L4	
7.7	1763	1.5	185.911	-B2700	40-P90/L4	
7.1	1926	2.2	203.143	-B4300	40-P90/L4	
7.0	1936	1.4	204.170	-B2700	40-P90/L4	
6.1	2227	1.9	234.932	-B4300	40-P90/L4	
6.1	2228	1.2	235.000	-B2700	40-P90/L4	
5.6	2435	1.8	256.781	-B4300	40-P90/L4	
5.6	2447	1.1	258.080	-B2700	40-P90/L4	

Selection tables, 4-pole motors

50 Hz: P_N = 2.2 kW

2-stage gearboxes

Mains operation 400 V, 50 Hz			i	Product		
n_2 [r/min]	M_2 [Nm]	c		g500	m2□□	
406	49	2.8	3.565	-B240	40-P100/M4	
296	67	2.2	4.889	-B240	40-P100/M4	
231	86	1.8	6.257	-B240	40-P100/M4	
210	95	1.9	6.883	-B240	40-P100/M4	
185	108	1.7	7.817	-B240	40-P100/M4	
153	130	1.5	9.440	-B240	40-P100/M4	
135	148	1.4	10.720	-B240	40-P100/M4	
120	167	1.3	12.081	-B240	40-P100/M4	
105	189	1.2	13.719	-B240	40-P100/M4	
96	207	1.1	15.008	-B240	40-P100/M4	
86	233	1.0	16.857	-B240	40-P100/M4	
76	264	0.9	19.143	-B240	40-P100/M4	
70	285	0.8	20.650	-B240	40-P100/M4	

3-stage gearboxes

Mains operation 400 V, 50 Hz			i	Product		
n_2 [r/min]	M_2 [Nm]	c		g500	m2□□	
292	68	4.6	4.958	-B820	40-P100/M4	
289	69	4.1	5.002	-B450	40-P100/M4	
285	70	5.4	5.067	-B600	40-P100/M4	
213	94	4.2	6.800	-B820	40-P100/M4	
211	95	3.3	6.860	-B450	40-P100/M4	
208	96	4.2	6.949	-B600	40-P100/M4	
190	105	4.4	7.617	-B600	40-P100/M4	
190	105	4.0	7.618	-B820	40-P100/M4	
170	118	3.9	8.517	-B820	40-P100/M4	
155	129	2.9	9.315	-B450	40-P100/M4	
152	131	3.8	9.520	-B820	40-P100/M4	
140	143	2.7	10.328	-B450	40-P100/M4	
138	144	3.7	10.447	-B820	40-P100/M4	
135	148	3.7	10.741	-B600	40-P100/M4	
124	161	3.5	11.680	-B820	40-P100/M4	
119	168	3.3	12.143	-B820	40-P100/M4	
113	176	2.3	12.775	-B450	40-P100/M4	
110	181	5.6	13.118	-B1500	40-P100/M4	
108	185	3.0	13.369	-B600	40-P100/M4	
108	185	3.4	13.370	-B820	40-P100/M4	
102	195	2.2	14.165	-B450	40-P100/M4	
99	202	3.2	14.626	-B820	40-P100/M4	
98	203	3.0	14.730	-B600	40-P100/M4	
88	226	1.9	16.349	-B450	40-P100/M4	

Selection tables, 4-pole motors

50 Hz: P_N = 2.2 kW

3-stage gearboxes

Mains operation 400 V, 50 Hz			i	Product		
n_2 [r/min]	M_2 [Nm]	c		g500	m2□□	
88	226	3.1	16.352	-B820	40-P100/M4	
81	247	1.8	17.885	-B450	40-P100/M4	
78	257	5.7	18.598	-B1500	40-P100/M4	
78	257	2.9	18.655	-B820	40-P100/M4	
77	260	2.3	18.851	-B600	40-P100/M4	
73	274	1.6	19.831	-B450	40-P100/M4	
71	282	5.3	20.444	-B1500	40-P100/M4	
70	285	2.1	20.622	-B600	40-P100/M4	
69	288	2.9	20.857	-B820	40-P100/M4	
63	315	1.4	22.813	-B450	40-P100/M4	
63	315	1.9	22.852	-B600	40-P100/M4	
63	315	2.6	22.853	-B820	40-P100/M4	
63	316	4.8	22.898	-B1500	40-P100/M4	
62	320	5.7	23.206	-B4300	40-P100/M4	
57	349	1.3	25.294	-B450	40-P100/M4	
57	350	1.7	25.347	-B600	40-P100/M4	
57	350	5.7	25.365	-B4300	40-P100/M4	
57	353	2.3	25.550	-B820	40-P100/M4	
56	360	1.7	26.061	-B600	40-P100/M4	
55	363	2.3	26.324	-B820	40-P100/M4	
54	370	5.7	26.814	-B2700	40-P100/M4	
52	386	1.2	27.945	-B450	40-P100/M4	
50	403	3.7	29.206	-B1500	40-P100/M4	
49	406	5.7	29.447	-B2700	40-P100/M4	
49	410	1.5	29.744	-B600	40-P100/M4	
49	410	2.0	29.745	-B820	40-P100/M4	
47	428	1.1	30.985	-B450	40-P100/M4	
45	446	1.8	32.291	-B820	40-P100/M4	
45	448	1.3	32.439	-B600	40-P100/M4	
44	449	3.3	32.547	-B1500	40-P100/M4	
41	493	1.2	35.740	-B600	40-P100/M4	
40	494	3.0	35.778	-B1500	40-P100/M4	
40	498	1.7	36.102	-B820	40-P100/M4	
39	511	1.2	36.999	-B600	40-P100/M4	
39	511	1.6	37.000	-B820	40-P100/M4	
38	532	4.1	38.546	-B4300	40-P100/M4	
35	564	2.7	40.895	-B1500	40-P100/M4	

Selection tables, 4-pole motors

50 Hz: P_N = 2.2 kW

3-stage gearboxes

Mains operation 400 V, 50 Hz			i	Product		
n_2 [r/min]	M_2 [Nm]	c		g500	m2□□	
35	570	1.4	41.325	-B820	40-P100/M4	
35	579	1.0	41.940	-B600	40-P100/M4	
32	620	2.4	44.955	-B1500	40-P100/M4	
32	624	1.3	45.207	-B820	40-P100/M4	
32	631	1.0	45.739	-B600	40-P100/M4	
31	643	2.3	46.568	-B1500	40-P100/M4	
30	675	4.0	48.912	-B2700	40-P100/M4	
29	691	0.9	50.036	-B600	40-P100/M4	
29	697	1.2	50.543	-B820	40-P100/M4	
28	717	2.1	51.920	-B1500	40-P100/M4	
27	746	3.5	54.082	-B2700	40-P100/M4	
25	788	1.9	57.074	-B1500	40-P100/M4	
25	796	1.0	57.662	-B820	40-P100/M4	
25	806	1.9	58.422	-B1500	40-P100/M4	
25	810	5.3	58.671	-B4300	40-P100/M4	
24	820	3.3	59.393	-B2700	40-P100/M4	
23	885	4.9	64.127	-B4300	40-P100/M4	
23	886	1.7	64.221	-B1500	40-P100/M4	
22	889	3.0	64.452	-B2700	40-P100/M4	
22	890	0.9	64.468	-B820	40-P100/M4	
21	975	0.8	70.636	-B820	40-P100/M4	
20	988	1.5	71.566	-B1500	40-P100/M4	
19	1035	1.5	74.963	-B1500	40-P100/M4	
19	1061	2.6	76.862	-B2700	40-P100/M4	
18	1142	1.3	82.762	-B1500	40-P100/M4	
17	1172	2.3	84.940	-B2700	40-P100/M4	
16	1256	1.2	90.978	-B1500	40-P100/M4	
16	1285	1.2	93.150	-B1500	40-P100/M4	
16	1287	2.1	93.283	-B2700	40-P100/M4	
15	1345	3.2	97.453	-B4300	40-P100/M4	
15	1345	2.0	97.481	-B2700	40-P100/M4	
14	1413	1.1	102.396	-B1500	40-P100/M4	
14	1470	2.9	106.517	-B4300	40-P100/M4	
14	1477	1.8	107.056	-B2700	40-P100/M4	
13	1576	1.0	114.166	-B1500	40-P100/M4	
12	1633	2.6	118.336	-B4300	40-P100/M4	
12	1634	1.7	118.370	-B2700	40-P100/M4	

Selection tables, 4-pole motors

50 Hz: P_N = 2.2 kW

3-stage gearboxes

Mains operation 400 V, 50 Hz			i	Product		
n_2 [r/min]	M_2 [Nm]	c		g500	m2□□	
12	1732	0.9	125.498	-B1500	40-P100/M4	
11	1785	2.4	129.342	-B4300	40-P100/M4	
11	1794	1.5	129.996	-B2700	40-P100/M4	
9.4	2113	2.0	153.141	-B4300	40-P100/M4	
9.4	2114	1.3	153.185	-B2700	40-P100/M4	
8.6	2310	1.9	167.383	-B4300	40-P100/M4	
8.6	2322	1.2	168.230	-B2700	40-P100/M4	
7.8	2565	1.7	185.857	-B4300	40-P100/M4	
7.8	2566	1.1	185.911	-B2700	40-P100/M4	
7.1	2803	1.5	203.143	-B4300	40-P100/M4	
7.1	2818	1.0	204.170	-B2700	40-P100/M4	
6.2	3242	1.3	234.932	-B4300	40-P100/M4	
6.2	3243	0.8	235.000	-B2700	40-P100/M4	
5.6	3544	1.2	256.781	-B4300	40-P100/M4	

Selection tables, 4-pole motors

50 Hz: P_N = 3.0 kW

2-stage gearboxes

Mains operation 400 V, 50 Hz			i	Product		
n_2 [r/min]	M_2 [Nm]	c		g500	m2□□	
408	67	2.1	3.565	-B240	40-P100/L4	
297	92	1.6	4.889	-B240	40-P100/L4	
232	117	1.3	6.257	-B240	40-P100/L4	
211	129	1.4	6.883	-B240	40-P100/L4	
186	146	1.3	7.817	-B240	40-P100/L4	
154	177	1.1	9.440	-B240	40-P100/L4	
136	201	1.0	10.720	-B240	40-P100/L4	
120	226	0.9	12.081	-B240	40-P100/L4	
106	257	0.8	13.719	-B240	40-P100/L4	

3-stage gearboxes

Mains operation 400 V, 50 Hz			i	Product		
n_2 [r/min]	M_2 [Nm]	c		g500	m2□□	
293	93	3.4	4.958	-B820	40-P100/L4	
291	94	3.0	5.002	-B450	40-P100/L4	
287	95	4.0	5.067	-B600	40-P100/L4	
214	127	3.1	6.800	-B820	40-P100/L4	
212	128	2.4	6.860	-B450	40-P100/L4	
209	130	3.1	6.949	-B600	40-P100/L4	
191	143	3.2	7.617	-B600	40-P100/L4	
191	143	3.0	7.618	-B820	40-P100/L4	
171	159	2.9	8.517	-B820	40-P100/L4	
156	174	2.1	9.315	-B450	40-P100/L4	
153	178	2.8	9.520	-B820	40-P100/L4	
141	193	2.0	10.328	-B450	40-P100/L4	
139	196	2.7	10.447	-B820	40-P100/L4	
135	201	2.7	10.741	-B600	40-P100/L4	
124	219	2.6	11.680	-B820	40-P100/L4	
120	227	2.4	12.143	-B820	40-P100/L4	
114	239	1.7	12.775	-B450	40-P100/L4	
111	246	4.1	13.118	-B1500	40-P100/L4	
109	250	2.2	13.369	-B600	40-P100/L4	
109	250	2.5	13.370	-B820	40-P100/L4	
103	265	1.6	14.165	-B450	40-P100/L4	
99	274	2.4	14.626	-B820	40-P100/L4	
99	276	2.2	14.730	-B600	40-P100/L4	
89	306	1.4	16.349	-B450	40-P100/L4	
89	306	2.3	16.352	-B820	40-P100/L4	
81	335	1.3	17.885	-B450	40-P100/L4	
78	348	4.2	18.598	-B1500	40-P100/L4	
78	349	2.1	18.655	-B820	40-P100/L4	

Selection tables, 4-pole motors

50 Hz: P_N = 3.0 kW

3-stage gearboxes

Mains operation 400 V, 50 Hz			i	Product		
n_2 [r/min]	M_2 [Nm]	c		g500	m2□□	
77	353	1.7	18.851	-B600	40-P100/L4	
73	371	1.2	19.831	-B450	40-P100/L4	
71	383	3.9	20.444	-B1500	40-P100/L4	
71	386	1.6	20.622	-B600	40-P100/L4	
70	391	2.1	20.857	-B820	40-P100/L4	
64	427	1.1	22.813	-B450	40-P100/L4	
64	428	1.4	22.852	-B600	40-P100/L4	
64	428	1.9	22.853	-B820	40-P100/L4	
64	429	3.5	22.898	-B1500	40-P100/L4	
63	435	4.2	23.206	-B4300	40-P100/L4	
57	474	1.0	25.294	-B450	40-P100/L4	
57	475	1.3	25.347	-B600	40-P100/L4	
57	475	4.2	25.365	-B4300	40-P100/L4	
57	478	1.7	25.550	-B820	40-P100/L4	
56	488	1.2	26.061	-B600	40-P100/L4	
55	493	1.7	26.324	-B820	40-P100/L4	
54	502	4.2	26.814	-B2700	40-P100/L4	
52	523	0.9	27.945	-B450	40-P100/L4	
50	547	2.7	29.206	-B1500	40-P100/L4	
49	551	4.2	29.447	-B2700	40-P100/L4	
49	557	1.1	29.744	-B600	40-P100/L4	
49	557	1.5	29.745	-B820	40-P100/L4	
45	605	1.4	32.291	-B820	40-P100/L4	
45	608	1.0	32.439	-B600	40-P100/L4	
45	610	2.5	32.547	-B1500	40-P100/L4	
41	669	0.9	35.740	-B600	40-P100/L4	
41	670	2.2	35.778	-B1500	40-P100/L4	
40	676	1.2	36.102	-B820	40-P100/L4	
39	693	0.9	36.999	-B600	40-P100/L4	
39	693	1.2	37.000	-B820	40-P100/L4	
38	722	3.0	38.546	-B4300	40-P100/L4	
36	766	2.0	40.895	-B1500	40-P100/L4	
35	774	1.1	41.325	-B820	40-P100/L4	
32	842	1.8	44.955	-B1500	40-P100/L4	
32	847	1.0	45.207	-B820	40-P100/L4	
31	872	1.7	46.568	-B1500	40-P100/L4	
30	916	3.0	48.912	-B2700	40-P100/L4	

Selection tables, 4-pole motors

50 Hz: P_N = 3.0 kW

3-stage gearboxes

Mains operation 400 V, 50 Hz			i	Product		
n_2 [r/min]	M_2 [Nm]	c		g500	m2□□	
29	947	0.9	50.543	-B820	40-P100/L4	
28	972	1.5	51.920	-B1500	40-P100/L4	
27	1013	2.6	54.082	-B2700	40-P100/L4	
26	1069	1.4	57.074	-B1500	40-P100/L4	
25	1094	1.4	58.422	-B1500	40-P100/L4	
25	1099	3.9	58.671	-B4300	40-P100/L4	
25	1112	2.4	59.393	-B2700	40-P100/L4	
23	1201	3.6	64.127	-B4300	40-P100/L4	
23	1203	1.3	64.221	-B1500	40-P100/L4	
23	1207	2.2	64.452	-B2700	40-P100/L4	
20	1340	1.1	71.566	-B1500	40-P100/L4	
19	1404	1.1	74.963	-B1500	40-P100/L4	
19	1439	1.9	76.862	-B2700	40-P100/L4	
18	1550	1.0	82.762	-B1500	40-P100/L4	
17	1591	1.7	84.940	-B2700	40-P100/L4	
16	1704	0.9	90.978	-B1500	40-P100/L4	
16	1744	0.9	93.150	-B1500	40-P100/L4	
16	1747	1.6	93.283	-B2700	40-P100/L4	
15	1825	2.4	97.453	-B4300	40-P100/L4	
15	1826	1.5	97.481	-B2700	40-P100/L4	
14	1995	2.2	106.517	-B4300	40-P100/L4	
14	2005	1.4	107.056	-B2700	40-P100/L4	
12	2216	1.9	118.336	-B4300	40-P100/L4	
12	2217	1.2	118.370	-B2700	40-P100/L4	
11	2422	1.8	129.342	-B4300	40-P100/L4	
11	2435	1.1	129.996	-B2700	40-P100/L4	
9.5	2868	1.5	153.141	-B4300	40-P100/L4	
9.5	2869	0.9	153.185	-B2700	40-P100/L4	
8.7	3135	1.4	167.383	-B4300	40-P100/L4	
8.6	3151	0.9	168.230	-B2700	40-P100/L4	
7.8	3481	1.2	185.857	-B4300	40-P100/L4	
7.2	3804	1.1	203.143	-B4300	40-P100/L4	
6.2	4400	1.0	234.932	-B4300	40-P100/L4	
5.7	4809	0.9	256.781	-B4300	40-P100/L4	

Selection tables, 4-pole motors

50 Hz: P_N = 4.0 kW

3-stage gearboxes

Mains operation 400 V, 50 Hz			i	Product		
n_2 [r/min]	M_2 [Nm]	c		g500	m2□□	
289	125	2.5	4.958	-B820	40-P112/M4	
287	126	2.2	5.002	-B450	40-P112/M4	
283	128	2.9	5.067	-B600	40-P112/M4	
211	172	2.3	6.800	-B820	40-P112/M4	
209	173	1.8	6.860	-B450	40-P112/M4	
209	174	4.2	6.866	-B1500	40-P112/M4	
207	176	2.3	6.949	-B600	40-P112/M4	
188	193	2.4	7.617	-B600	40-P112/M4	
188	193	2.2	7.618	-B820	40-P112/M4	
169	215	2.1	8.517	-B820	40-P112/M4	
157	232	4.7	9.156	-B4300	40-P112/M4	
154	236	1.6	9.315	-B450	40-P112/M4	
151	241	4.2	9.516	-B1500	40-P112/M4	
151	241	2.1	9.520	-B820	40-P112/M4	
139	261	1.5	10.328	-B450	40-P112/M4	
137	264	2.0	10.447	-B820	40-P112/M4	
134	272	2.0	10.741	-B600	40-P112/M4	
132	276	4.2	10.902	-B1500	40-P112/M4	
123	295	1.9	11.680	-B820	40-P112/M4	
120	303	4.2	11.985	-B1500	40-P112/M4	
118	307	1.8	12.143	-B820	40-P112/M4	
112	323	1.3	12.775	-B450	40-P112/M4	
109	332	3.4	13.118	-B1500	40-P112/M4	
107	338	1.6	13.369	-B600	40-P112/M4	
107	338	1.8	13.370	-B820	40-P112/M4	
101	358	1.2	14.165	-B450	40-P112/M4	
98	370	1.8	14.626	-B820	40-P112/M4	
97	372	1.6	14.730	-B600	40-P112/M4	
95	382	3.9	15.111	-B1500	40-P112/M4	
88	413	1.1	16.349	-B450	40-P112/M4	
88	413	1.7	16.352	-B820	40-P112/M4	
86	420	3.6	16.611	-B1500	40-P112/M4	
85	428	4.7	16.913	-B4300	40-P112/M4	
80	452	1.0	17.885	-B450	40-P112/M4	
78	467	4.7	18.486	-B4300	40-P112/M4	
77	470	3.2	18.598	-B1500	40-P112/M4	
77	472	1.6	18.655	-B820	40-P112/M4	

Selection tables, 4-pole motors

50 Hz: P_N = 4.0 kW

3-stage gearboxes

Mains operation 400 V, 50 Hz			i	Product		
n_2 [r/min]	M_2 [Nm]	c		g500	m2□□	
76	477	1.3	18.851	-B600	40-P112/M4	
73	494	4.7	19.542	-B2700	40-P112/M4	
72	501	0.9	19.831	-B450	40-P112/M4	
70	517	2.9	20.444	-B1500	40-P112/M4	
70	521	1.2	20.622	-B600	40-P112/M4	
69	527	1.6	20.857	-B820	40-P112/M4	
68	533	4.3	21.065	-B4300	40-P112/M4	
64	563	4.3	22.269	-B2700	40-P112/M4	
63	578	1.0	22.852	-B600	40-P112/M4	
63	578	1.4	22.853	-B820	40-P112/M4	
63	579	2.6	22.898	-B1500	40-P112/M4	
62	587	3.8	23.206	-B4300	40-P112/M4	
60	606	2.5	23.973	-B1500	40-P112/M4	
59	618	4.3	24.456	-B2700	40-P112/M4	
57	641	0.9	25.347	-B600	40-P112/M4	
57	641	3.8	25.365	-B4300	40-P112/M4	
56	646	1.3	25.550	-B820	40-P112/M4	
55	666	1.2	26.324	-B820	40-P112/M4	
55	666	2.3	26.353	-B1500	40-P112/M4	
54	678	3.8	26.814	-B2700	40-P112/M4	
49	738	2.0	29.206	-B1500	40-P112/M4	
49	745	3.6	29.447	-B2700	40-P112/M4	
48	752	1.1	29.745	-B820	40-P112/M4	
46	786	3.2	31.097	-B4300	40-P112/M4	
44	816	1.0	32.291	-B820	40-P112/M4	
44	823	1.8	32.547	-B1500	40-P112/M4	
44	831	3.2	32.873	-B2700	40-P112/M4	
40	905	1.7	35.778	-B1500	40-P112/M4	
40	913	3.0	36.102	-B2700	40-P112/M4	
40	913	0.9	36.102	-B820	40-P112/M4	
39	924	1.6	36.526	-B1500	40-P112/M4	
37	975	2.5	38.546	-B4300	40-P112/M4	
35	1034	1.5	40.895	-B1500	40-P112/M4	
34	1081	4.0	42.760	-B4300	40-P112/M4	
34	1081	2.5	42.772	-B2700	40-P112/M4	
32	1137	1.3	44.955	-B1500	40-P112/M4	
31	1177	1.3	46.568	-B1500	40-P112/M4	

Selection tables, 4-pole motors

50 Hz: P_N = 4.0 kW

3-stage gearboxes

Mains operation 400 V, 50 Hz			i	Product		
n_2 [r/min]	M_2 [Nm]	c		g500	m2□□	
31	1182	3.6	46.737	-B4300	40-P112/M4	
31	1188	2.3	46.973	-B2700	40-P112/M4	
29	1237	2.2	48.912	-B2700	40-P112/M4	
28	1313	1.1	51.920	-B1500	40-P112/M4	
27	1347	3.2	53.258	-B4300	40-P112/M4	
27	1367	2.0	54.082	-B2700	40-P112/M4	
25	1443	1.0	57.074	-B1500	40-P112/M4	
25	1477	1.0	58.422	-B1500	40-P112/M4	
25	1483	2.9	58.671	-B4300	40-P112/M4	
24	1502	1.8	59.393	-B2700	40-P112/M4	
22	1621	2.7	64.127	-B4300	40-P112/M4	
22	1624	0.9	64.221	-B1500	40-P112/M4	
22	1630	1.7	64.452	-B2700	40-P112/M4	
20	1809	0.8	71.566	-B1500	40-P112/M4	
20	1819	2.4	71.930	-B4300	40-P112/M4	
20	1819	1.5	71.951	-B2700	40-P112/M4	
19	1943	1.4	76.862	-B2700	40-P112/M4	
18	1988	2.2	78.619	-B4300	40-P112/M4	
17	2148	1.3	84.940	-B2700	40-P112/M4	
15	2359	1.1	93.283	-B2700	40-P112/M4	
15	2464	1.8	97.453	-B4300	40-P112/M4	
15	2465	1.1	97.481	-B2700	40-P112/M4	
14	2693	1.6	106.517	-B4300	40-P112/M4	
13	2707	1.0	107.056	-B2700	40-P112/M4	
12	2992	1.4	118.336	-B4300	40-P112/M4	
12	2993	0.9	118.370	-B2700	40-P112/M4	
11	3270	1.3	129.342	-B4300	40-P112/M4	
11	3287	0.8	129.996	-B2700	40-P112/M4	
9.4	3872	1.1	153.141	-B4300	40-P112/M4	
8.6	4232	1.0	167.383	-B4300	40-P112/M4	
7.7	4699	0.9	185.857	-B4300	40-P112/M4	
7.1	5136	0.8	203.143	-B4300	40-P112/M4	

Selection tables, 4-pole motors

50 Hz: P_N = 5.5 kW

3-stage gearboxes

Mains operation 400 V, 50 Hz			i	Product		
n_2 [r/min]	M_2 [Nm]	c		g500	m2□□	
296	169	1.9	4.958	-B820	40-P132/M4	
293	170	1.6	5.002	-B450	40-P132/M4	
289	173	2.2	5.067	-B600	40-P132/M4	
215	232	1.7	6.800	-B820	40-P132/M4	
214	234	1.3	6.860	-B450	40-P132/M4	
213	234	3.6	6.866	-B1500	40-P132/M4	
211	237	1.7	6.949	-B600	40-P132/M4	
192	259	1.8	7.617	-B600	40-P132/M4	
192	259	1.6	7.618	-B820	40-P132/M4	
172	290	1.6	8.517	-B820	40-P132/M4	
167	299	5.1	8.793	-B2700	40-P132/M4	
157	317	1.2	9.315	-B450	40-P132/M4	
154	324	3.1	9.516	-B1500	40-P132/M4	
154	324	1.5	9.520	-B820	40-P132/M4	
142	352	1.1	10.328	-B450	40-P132/M4	
140	356	1.5	10.447	-B820	40-P132/M4	
136	366	1.5	10.741	-B600	40-P132/M4	
134	371	3.6	10.902	-B1500	40-P132/M4	
125	398	1.4	11.680	-B820	40-P132/M4	
125	399	5.6	11.713	-B2700	40-P132/M4	
122	408	3.6	11.985	-B1500	40-P132/M4	
121	414	1.3	12.143	-B820	40-P132/M4	
115	435	0.9	12.775	-B450	40-P132/M4	
114	438	5.2	12.863	-B2700	40-P132/M4	
112	447	2.5	13.118	-B1500	40-P132/M4	
110	455	1.2	13.369	-B600	40-P132/M4	
110	455	1.4	13.370	-B820	40-P132/M4	
103	482	0.9	14.165	-B450	40-P132/M4	
100	498	1.3	14.626	-B820	40-P132/M4	
100	502	1.2	14.730	-B600	40-P132/M4	
98	507	4.7	14.888	-B2700	40-P132/M4	
97	515	2.9	15.111	-B1500	40-P132/M4	
90	557	4.4	16.351	-B2700	40-P132/M4	
90	557	1.3	16.352	-B820	40-P132/M4	
88	566	2.7	16.611	-B1500	40-P132/M4	
79	633	2.4	18.598	-B1500	40-P132/M4	
79	635	1.2	18.655	-B820	40-P132/M4	

Selection tables, 4-pole motors

50 Hz: P_N = 5.5 kW

3-stage gearboxes

Mains operation 400 V, 50 Hz			i	Product		
n_2 [r/min]	M_2 [Nm]	c		g500	m2□□	
78	642	0.9	18.851	-B600	40-P132/M4	
75	665	3.9	19.542	-B2700	40-P132/M4	
72	696	2.2	20.444	-B1500	40-P132/M4	
71	702	0.9	20.622	-B600	40-P132/M4	
70	710	1.2	20.857	-B820	40-P132/M4	
70	717	6.0	21.065	-B4300	40-P132/M4	
66	758	3.5	22.269	-B2700	40-P132/M4	
64	778	1.1	22.853	-B820	40-P132/M4	
64	780	1.9	22.898	-B1500	40-P132/M4	
63	790	5.4	23.206	-B4300	40-P132/M4	
61	816	1.8	23.973	-B1500	40-P132/M4	
60	833	3.2	24.456	-B2700	40-P132/M4	
58	864	5.0	25.365	-B4300	40-P132/M4	
57	870	0.9	25.550	-B820	40-P132/M4	
56	897	1.7	26.353	-B1500	40-P132/M4	
55	913	3.0	26.814	-B2700	40-P132/M4	
52	954	4.5	28.013	-B4300	40-P132/M4	
50	995	1.5	29.206	-B1500	40-P132/M4	
50	1003	2.7	29.447	-B2700	40-P132/M4	
47	1059	4.1	31.097	-B4300	40-P132/M4	
45	1108	1.4	32.547	-B1500	40-P132/M4	
45	1119	2.4	32.873	-B2700	40-P132/M4	
41	1213	3.6	35.607	-B4300	40-P132/M4	
41	1218	1.2	35.778	-B1500	40-P132/M4	
41	1229	2.2	36.102	-B2700	40-P132/M4	
40	1244	1.2	36.526	-B1500	40-P132/M4	
38	1313	3.3	38.546	-B4300	40-P132/M4	
36	1393	1.1	40.895	-B1500	40-P132/M4	
34	1456	3.0	42.760	-B4300	40-P132/M4	
34	1457	1.9	42.772	-B2700	40-P132/M4	
33	1531	1.0	44.955	-B1500	40-P132/M4	
32	1586	1.0	46.568	-B1500	40-P132/M4	
31	1592	2.7	46.737	-B4300	40-P132/M4	
31	1600	1.7	46.973	-B2700	40-P132/M4	
30	1666	1.6	48.912	-B2700	40-P132/M4	
28	1814	2.4	53.258	-B4300	40-P132/M4	
27	1842	1.5	54.082	-B2700	40-P132/M4	

Selection tables, 4-pole motors

50 Hz: P_N = 5.5 kW

3-stage gearboxes

Mains operation 400 V, 50 Hz			i	Product		
n_2 [r/min]	M_2 [Nm]	c		g500	m2□□	
25	1998	2.2	58.671	-B4300	40-P132/M4	
25	2023	1.3	59.393	-B2700	40-P132/M4	
23	2184	2.0	64.127	-B4300	40-P132/M4	
23	2195	1.2	64.452	-B2700	40-P132/M4	
20	2449	1.8	71.930	-B4300	40-P132/M4	
20	2450	1.1	71.951	-B2700	40-P132/M4	
19	2677	1.6	78.619	-B4300	40-P132/M4	
15	3319	1.3	97.453	-B4300	40-P132/M4	
15	3320	0.8	97.481	-B2700	40-P132/M4	
14	3627	1.2	106.517	-B4300	40-P132/M4	
12	4030	1.1	118.336	-B4300	40-P132/M4	
11	4404	1.0	129.342	-B4300	40-P132/M4	

Selection tables, 4-pole motors

50 Hz: P_N = 7.5 kW

3-stage gearboxes

Mains operation 400 V, 50 Hz			i	Product		
n_2 [r/min]	M_2 [Nm]	c		g500	m2□□	
295	231	1.4	4.958	-B820	40-P132/L4	
292	233	1.2	5.002	-B450	40-P132/L4	
288	236	1.6	5.067	-B600	40-P132/L4	
266	256	5.5	5.488	-B4300	40-P132/L4	
215	317	1.2	6.800	-B820	40-P132/L4	
213	320	1.0	6.860	-B450	40-P132/L4	
213	320	2.6	6.866	-B1500	40-P132/L4	
211	322	4.5	6.918	-B2700	40-P132/L4	
210	324	1.2	6.949	-B600	40-P132/L4	
209	325	5.1	6.976	-B4300	40-P132/L4	
192	355	1.3	7.617	-B600	40-P132/L4	
192	355	1.2	7.618	-B820	40-P132/L4	
171	397	1.2	8.517	-B820	40-P132/L4	
166	410	3.7	8.793	-B2700	40-P132/L4	
160	427	4.8	9.156	-B4300	40-P132/L4	
157	434	0.9	9.315	-B450	40-P132/L4	
153	443	2.3	9.516	-B1500	40-P132/L4	
153	444	1.1	9.520	-B820	40-P132/L4	
144	472	5.5	10.137	-B4300	40-P132/L4	
140	487	1.1	10.447	-B820	40-P132/L4	
136	500	1.1	10.741	-B600	40-P132/L4	
134	508	2.6	10.902	-B1500	40-P132/L4	
132	516	5.5	11.080	-B4300	40-P132/L4	
125	544	1.1	11.680	-B820	40-P132/L4	
125	546	4.1	11.713	-B2700	40-P132/L4	
122	558	2.6	11.985	-B1500	40-P132/L4	
120	566	1.0	12.143	-B820	40-P132/L4	
114	599	3.8	12.863	-B2700	40-P132/L4	
113	600	5.1	12.885	-B4300	40-P132/L4	
111	611	1.8	13.118	-B1500	40-P132/L4	
109	623	0.9	13.369	-B600	40-P132/L4	
109	623	1.0	13.370	-B820	40-P132/L4	
104	656	5.1	14.084	-B4300	40-P132/L4	
100	681	1.0	14.626	-B820	40-P132/L4	
99	686	0.9	14.730	-B600	40-P132/L4	
98	694	3.4	14.888	-B2700	40-P132/L4	
97	704	2.1	15.111	-B1500	40-P132/L4	

Selection tables, 4-pole motors

50 Hz: P_N = 7.5 kW

3-stage gearboxes

Mains operation 400 V, 50 Hz			i	Product		
n_2 [r/min]	M_2 [Nm]	c		g500	m2□□	
89	762	3.2	16.351	-B2700	40-P132/L4	
89	762	0.9	16.352	-B820	40-P132/L4	
88	774	1.9	16.611	-B1500	40-P132/L4	
86	788	4.8	16.913	-B4300	40-P132/L4	
79	861	4.8	18.486	-B4300	40-P132/L4	
79	867	1.7	18.598	-B1500	40-P132/L4	
78	869	0.9	18.655	-B820	40-P132/L4	
75	911	2.8	19.542	-B2700	40-P132/L4	
71	953	1.6	20.444	-B1500	40-P132/L4	
70	972	0.8	20.857	-B820	40-P132/L4	
69	982	4.4	21.065	-B4300	40-P132/L4	
66	1038	2.6	22.269	-B2700	40-P132/L4	
64	1067	1.4	22.898	-B1500	40-P132/L4	
63	1081	4.0	23.206	-B4300	40-P132/L4	
60	1140	2.4	24.456	-B2700	40-P132/L4	
58	1182	3.6	25.365	-B4300	40-P132/L4	
54	1249	2.2	26.814	-B2700	40-P132/L4	
52	1305	3.3	28.013	-B4300	40-P132/L4	
50	1361	1.1	29.206	-B1500	40-P132/L4	
50	1372	2.0	29.447	-B2700	40-P132/L4	
47	1449	3.0	31.097	-B4300	40-P132/L4	
45	1517	1.0	32.547	-B1500	40-P132/L4	
44	1532	1.8	32.873	-B2700	40-P132/L4	
41	1659	2.6	35.607	-B4300	40-P132/L4	
41	1667	0.9	35.778	-B1500	40-P132/L4	
40	1682	1.6	36.102	-B2700	40-P132/L4	
38	1796	2.4	38.546	-B4300	40-P132/L4	
34	1992	2.2	42.760	-B4300	40-P132/L4	
34	1993	1.4	42.772	-B2700	40-P132/L4	
31	2178	2.0	46.737	-B4300	40-P132/L4	
30	2279	1.2	48.912	-B2700	40-P132/L4	
27	2482	1.7	53.258	-B4300	40-P132/L4	
27	2520	1.1	54.082	-B2700	40-P132/L4	
25	2734	1.6	58.671	-B4300	40-P132/L4	
25	2767	1.0	59.393	-B2700	40-P132/L4	
23	2988	1.4	64.127	-B4300	40-P132/L4	
20	3352	1.3	71.930	-B4300	40-P132/L4	

Selection tables, 4-pole motors

50 Hz: P_N = 7.5 kW

3-stage gearboxes

Mains operation 400 V, 50 Hz			i	Product		
n_2 [r/min]	M_2 [Nm]	c		g500	m2□□	
20	3353	0.8	71.951	-B2700	40-P132/L4	
19	3663	1.2	78.619	-B4300	40-P132/L4	
15	4541	1.0	97.453	-B4300	40-P132/L4	
14	4963	0.9	106.517	-B4300	40-P132/L4	

Selection tables, 4-pole motors

50 Hz: P_N = 11.0 kW

3-stage gearboxes

Mains operation 400 V, 50 Hz			i	Product		
n_2 [r/min]	M_2 [Nm]	c		g500	m2□□	
268	372	5.8	5.488	-B4300	40-P160/M4	
214	466	1.8	6.866	-B1500	40-P160/M4	
213	470	3.1	6.918	-B2700	40-P160/M4	
211	473	5.1	6.976	-B4300	40-P160/M4	
167	597	2.6	8.793	-B2700	40-P160/M4	
161	621	4.3	9.156	-B4300	40-P160/M4	
155	646	1.6	9.516	-B1500	40-P160/M4	
145	688	5.7	10.137	-B4300	40-P160/M4	
135	740	1.8	10.902	-B1500	40-P160/M4	
133	752	5.7	11.080	-B4300	40-P160/M4	
126	795	2.8	11.713	-B2700	40-P160/M4	
123	813	1.8	11.985	-B1500	40-P160/M4	
114	873	2.6	12.863	-B2700	40-P160/M4	
114	875	4.9	12.885	-B4300	40-P160/M4	
112	890	1.3	13.118	-B1500	40-P160/M4	
104	956	4.5	14.084	-B4300	40-P160/M4	
99	1011	2.4	14.888	-B2700	40-P160/M4	
97	1026	1.5	15.111	-B1500	40-P160/M4	
90	1110	2.2	16.351	-B2700	40-P160/M4	
89	1127	1.3	16.611	-B1500	40-P160/M4	
87	1148	3.8	16.913	-B4300	40-P160/M4	
80	1255	3.4	18.486	-B4300	40-P160/M4	
79	1262	1.2	18.598	-B1500	40-P160/M4	
75	1326	1.9	19.542	-B2700	40-P160/M4	
72	1388	1.1	20.444	-B1500	40-P160/M4	
70	1430	3.0	21.065	-B4300	40-P160/M4	
66	1511	1.8	22.269	-B2700	40-P160/M4	
64	1554	1.0	22.898	-B1500	40-P160/M4	
63	1575	2.7	23.206	-B4300	40-P160/M4	
60	1660	1.6	24.456	-B2700	40-P160/M4	
58	1722	2.5	25.365	-B4300	40-P160/M4	
55	1820	1.5	26.814	-B2700	40-P160/M4	
53	1901	2.3	28.013	-B4300	40-P160/M4	
50	1999	1.4	29.447	-B2700	40-P160/M4	
47	2111	2.0	31.097	-B4300	40-P160/M4	
45	2231	1.2	32.873	-B2700	40-P160/M4	
41	2417	1.8	35.607	-B4300	40-P160/M4	

Selection tables, 4-pole motors

50 Hz: P_N = 11.0 kW

3-stage gearboxes

Mains operation 400 V, 50 Hz			i	Product		
n_2 [r/min]	M_2 [Nm]	c		g500	m2□□	
41	2450	1.1	36.102	-B2700	40-P160/M4	
34	2902	1.5	42.760	-B4300	40-P160/M4	
32	3172	1.4	46.737	-B4300	40-P160/M4	
28	3615	1.2	53.258	-B4300	40-P160/M4	
25	3982	1.1	58.671	-B4300	40-P160/M4	
23	4353	1.0	64.127	-B4300	40-P160/M4	
20	4882	0.9	71.930	-B4300	40-P160/M4	
19	5336	0.8	78.619	-B4300	40-P160/M4	

Selection tables, 4-pole motors

50 Hz: P_N = 15.0 kW

3-stage gearboxes

Mains operation 400 V, 50 Hz			i	Product		
n_2 [r/min]	M_2 [Nm]	c		g500	m2□□	
268	508	4.3	5.488	-B4300	40-P160/L4	
213	640	2.3	6.918	-B2700	40-P160/L4	
211	646	3.7	6.976	-B4300	40-P160/L4	
167	814	1.9	8.793	-B2700	40-P160/L4	
161	847	3.2	9.156	-B4300	40-P160/L4	
155	881	1.1	9.516	-B1500	40-P160/L4	
145	938	4.2	10.137	-B4300	40-P160/L4	
133	1026	4.1	11.080	-B4300	40-P160/L4	
114	1193	3.6	12.885	-B4300	40-P160/L4	
112	1214	0.9	13.118	-B1500	40-P160/L4	
104	1304	3.3	14.084	-B4300	40-P160/L4	
99	1378	1.7	14.888	-B2700	40-P160/L4	
87	1565	2.8	16.913	-B4300	40-P160/L4	
80	1711	2.5	18.486	-B4300	40-P160/L4	
75	1809	1.4	19.542	-B2700	40-P160/L4	
70	1950	2.2	21.065	-B4300	40-P160/L4	
66	2061	1.3	22.269	-B2700	40-P160/L4	
63	2148	2.0	23.206	-B4300	40-P160/L4	
60	2264	1.2	24.456	-B2700	40-P160/L4	
58	2348	1.8	25.365	-B4300	40-P160/L4	
55	2482	1.1	26.814	-B2700	40-P160/L4	
50	2726	1.0	29.447	-B2700	40-P160/L4	
47	2878	1.5	31.097	-B4300	40-P160/L4	
45	3043	0.9	32.873	-B2700	40-P160/L4	
41	3341	0.8	36.102	-B2700	40-P160/L4	

Selection tables, 4-pole motors

50 Hz: P_N = 18.5 kW

3-stage gearboxes

Mains operation 400 V, 50 Hz			i	Product		
n_2 [r/min]	M_2 [Nm]	c		g500	m2□□	
266	631	3.4	5.488	-B4300	40-P180/M4	
209	802	3.0	6.976	-B4300	40-P180/M4	
160	1052	2.6	9.156	-B4300	40-P180/M4	
144	1165	3.4	10.137	-B4300	40-P180/M4	
132	1273	3.3	11.080	-B4300	40-P180/M4	
113	1481	2.9	12.885	-B4300	40-P180/M4	
104	1619	2.7	14.084	-B4300	40-P180/M4	
86	1944	2.2	16.913	-B4300	40-P180/M4	
79	2125	2.0	18.486	-B4300	40-P180/M4	
69	2421	1.8	21.065	-B4300	40-P180/M4	
63	2667	1.6	23.206	-B4300	40-P180/M4	
58	2915	1.5	25.365	-B4300	40-P180/M4	
47	3574	1.2	31.097	-B4300	40-P180/M4	

Selection tables, 4-pole motors

50 Hz: P_N = 22.0 kW

3-stage gearboxes

Mains operation 400 V, 50 Hz			i	Product		
n_2 [r/min]	M_2 [Nm]	c		g500	m2□□	
267	748	2.9	5.488	-B4300	40-P180/L4	
210	950	2.5	6.976	-B4300	40-P180/L4	
160	1247	2.2	9.156	-B4300	40-P180/L4	
145	1381	2.9	10.137	-B4300	40-P180/L4	
132	1509	2.8	11.080	-B4300	40-P180/L4	
114	1755	2.5	12.885	-B4300	40-P180/L4	
104	1918	2.2	14.084	-B4300	40-P180/L4	
87	2304	1.9	16.913	-B4300	40-P180/L4	
79	2518	1.7	18.486	-B4300	40-P180/L4	
70	2869	1.5	21.065	-B4300	40-P180/L4	
63	3161	1.4	23.206	-B4300	40-P180/L4	
58	3455	1.2	25.365	-B4300	40-P180/L4	
47	4236	1.0	31.097	-B4300	40-P180/L4	

Selection tables, 4-pole motors

50 Hz: P_N = 30.0 kW

3-stage gearboxes

Mains operation 400 V, 50 Hz			i	Product		
n_2 [r/min]	M_2 [Nm]	c		g500	m2□□	
269	1012	2.1	5.488	-B4300	40-P180/V4	
211	1287	1.9	6.976	-B4300	40-P180/V4	
161	1689	1.6	9.156	-B4300	40-P180/V4	
146	1870	2.1	10.137	-B4300	40-P180/V4	
115	2377	1.8	12.885	-B4300	40-P180/V4	
87	3120	1.4	16.913	-B4300	40-P180/V4	
70	3886	1.1	21.065	-B4300	40-P180/V4	
64	4281	1.0	23.206	-B4300	40-P180/V4	

Dimensions, notes

Notes on the dimensions

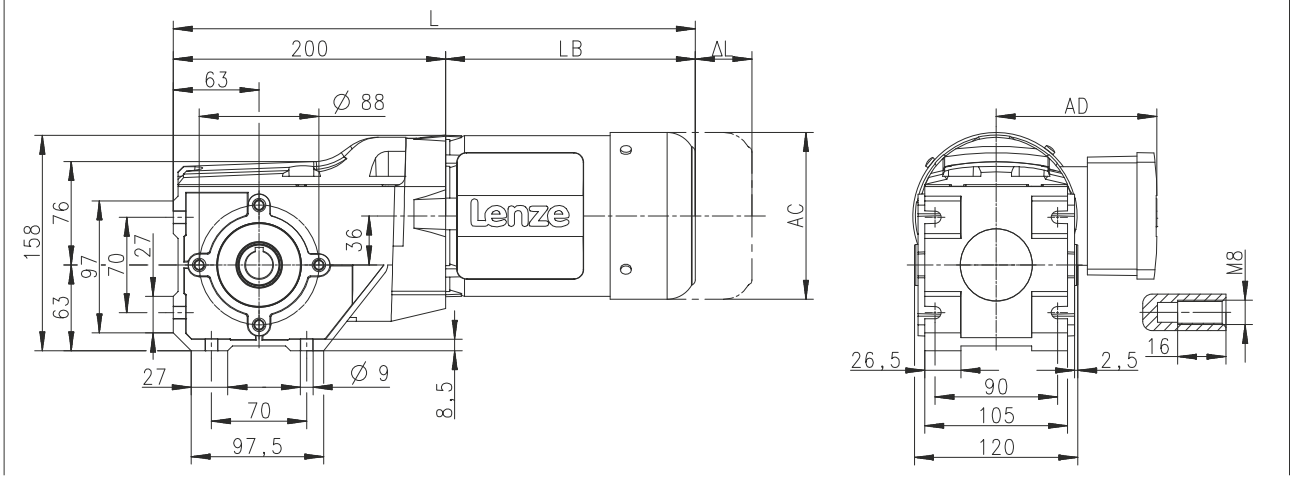
The following legend shows the layout of the dimension sheets.

Product gearbox

g500-B110

Driven shaft design

Abmessungen mit Hohlwelle



Product Motor

			MD□MA□□				
			063-12	063-32	063-42	071-32	071-42
Gesamtlänge	L	[mm]	383			403	
Länge Motor	LB	[mm]	183			203	
Länge Motoranbauten	ΔL	[mm]	170			165	
Motordurchmesser	AC	[mm]	123			139	
Abstand Motor/Anschluss	AD	[mm]	100			109	

Distance of motor centre to the end of terminal box

Total length of the drive without built-on accessories

Motor diameter

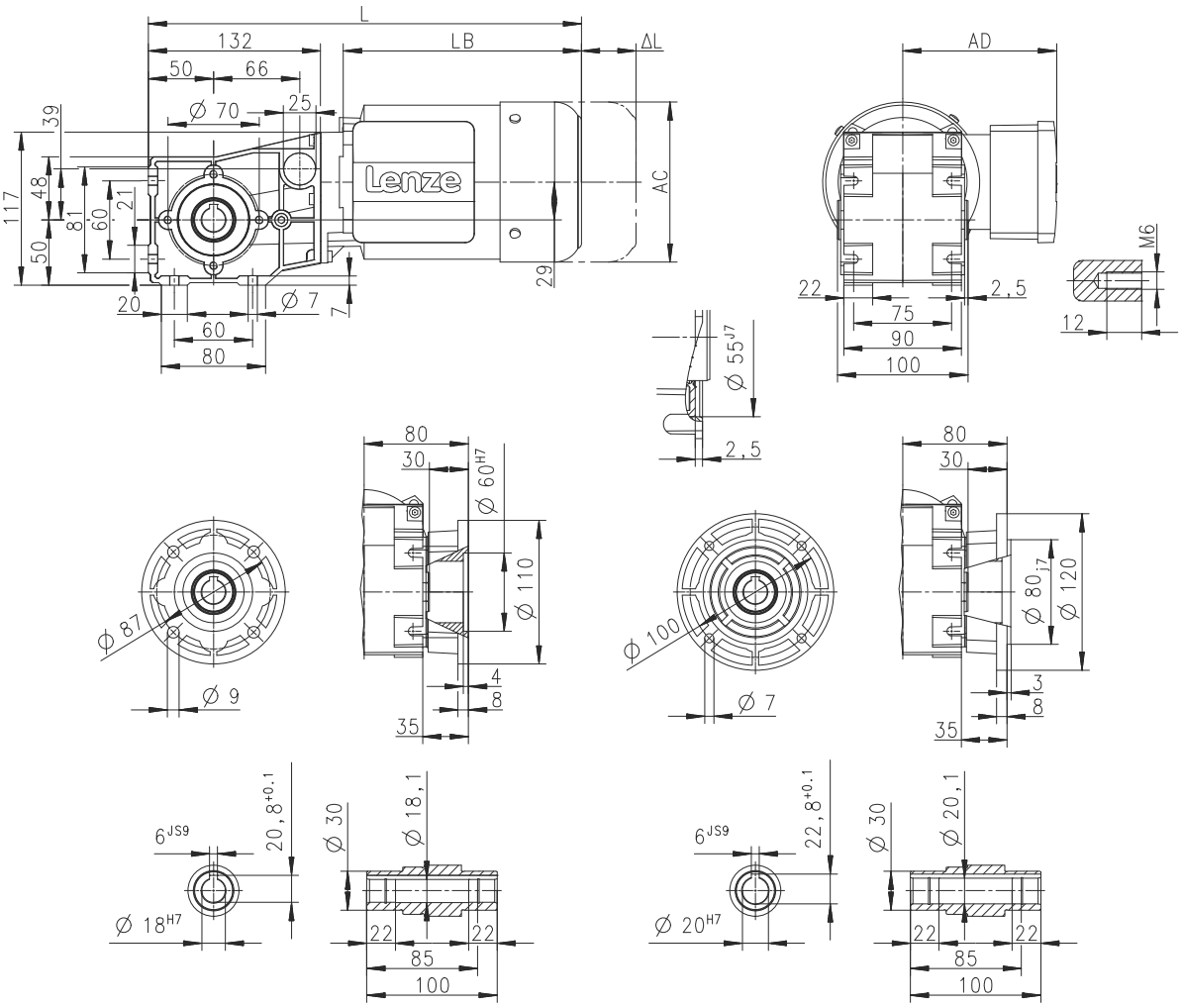
Motor length without built-on accessories

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

Dimensions, 4-pole motors

g500-B45

Dimensions with hollow shaft
Gearbox design: HBR, HAR, HAK



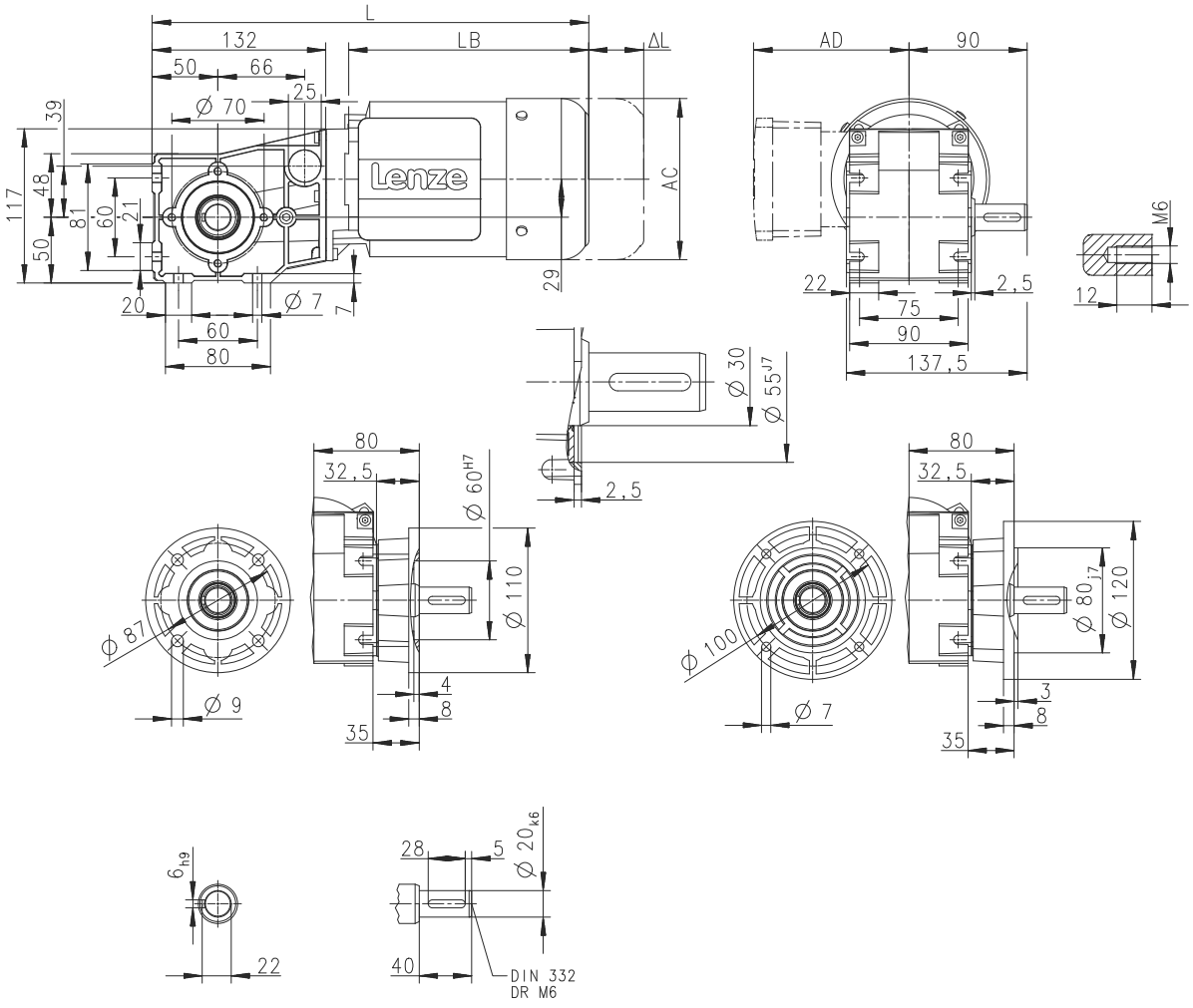
			MD□MA□□						
			063-02	063-12	063-22	063-32	063-42	071-32	071-42
Total length	L	[mm]	305	332	305	332		352	
Motor length	LB	[mm]	156	183	156	183		203	
Length of motor options	Δ L	[mm]	71.0	40.0	71.0	40.0		52.0	
Motor diameter	AC	[mm]	123					139	
Distance motor/connection	AD	[mm]	107					118	

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B45

Dimensions with solid shaft
Gearbox design: VBR, VAR, VAK



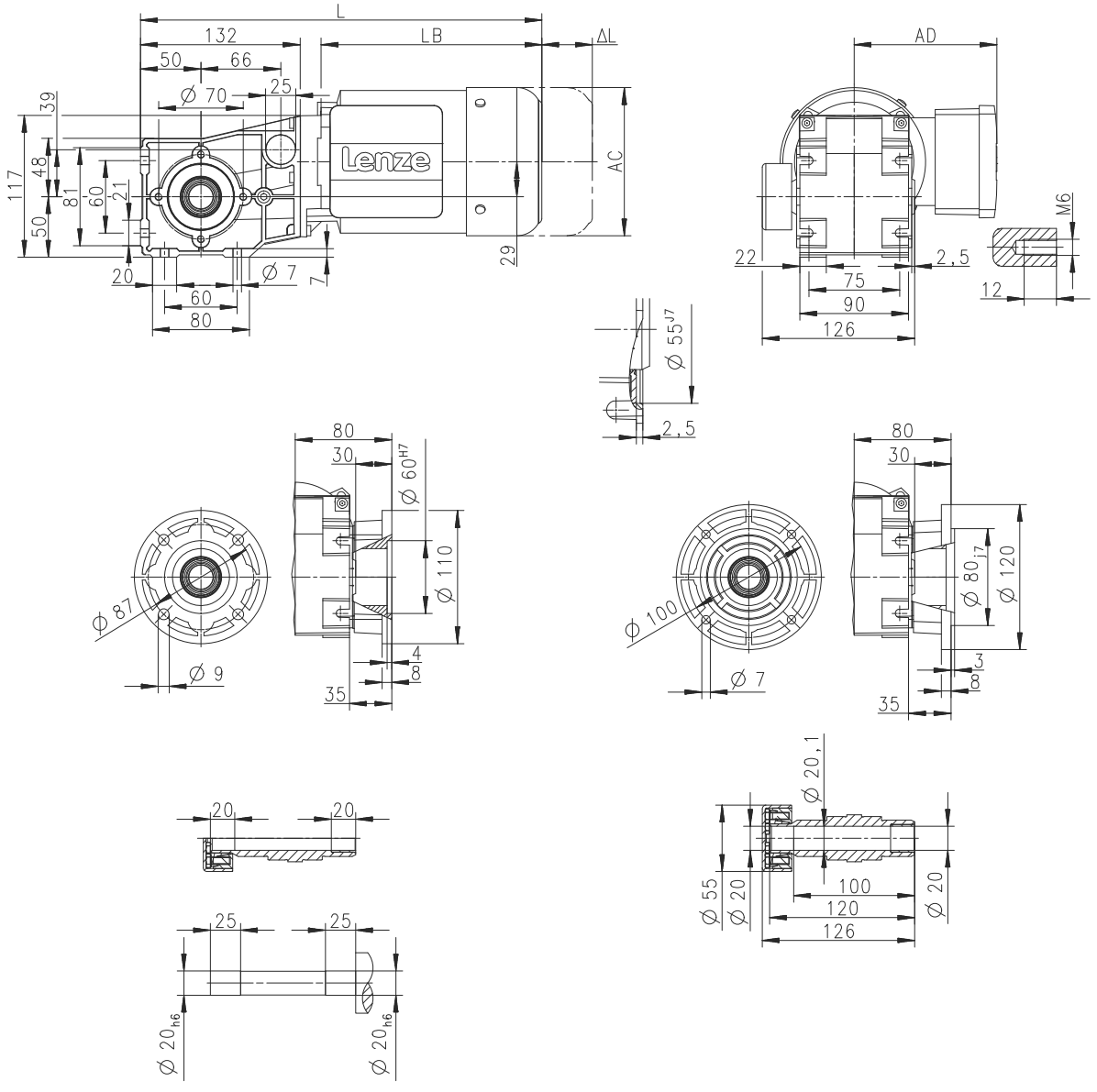
			MD□MA□□						
			063-02	063-12	063-22	063-32	063-42	071-32	071-42
Total length	L	[mm]	305	332	305	332		352	
Motor length	LB	[mm]	156	183	156	183		203	
Length of motor options	Δ L	[mm]	71.0	40.0	71.0	40.0		52.0	
Motor diameter	AC	[mm]	123					139	
Distance motor/connection	AD	[mm]	107					118	

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B45

Dimensions hollow shaft with shrink disc
Gearbox design: SBR, SAR, SAK



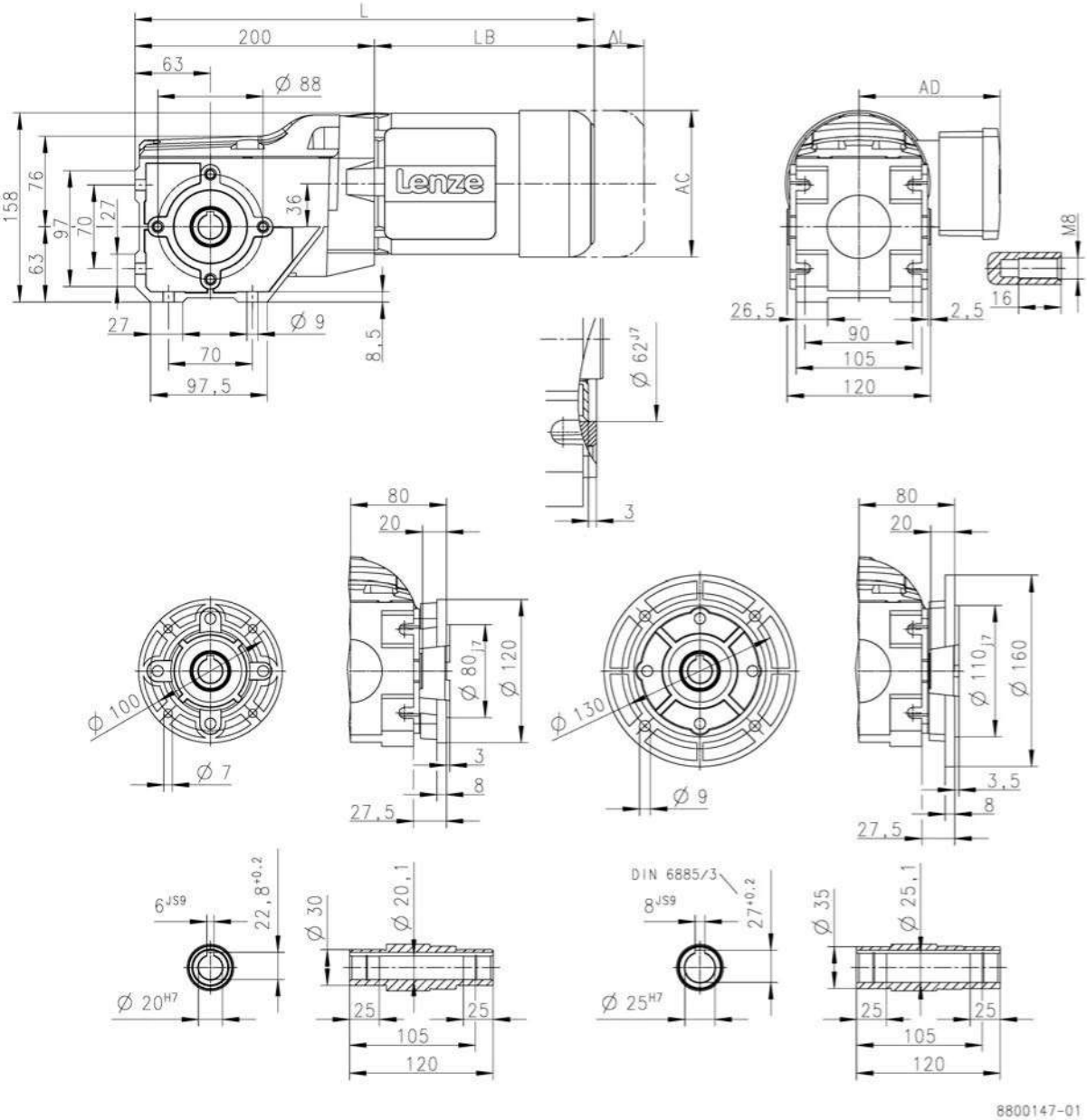
			MD□MA□□						
			063-02	063-12	063-22	063-32	063-42	071-32	071-42
Total length	L	[mm]	305	332	305	332		352	
Motor length	LB	[mm]	156	183	156	183		203	
Length of motor options	Δ L	[mm]	71.0	40.0	71.0	40.0		52.0	
Motor diameter	AC	[mm]	123					139	
Distance motor/connection	AD	[mm]	107					118	

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B110

Dimensions with hollow shaft
Gearbox design: HBR, HAR, HAK



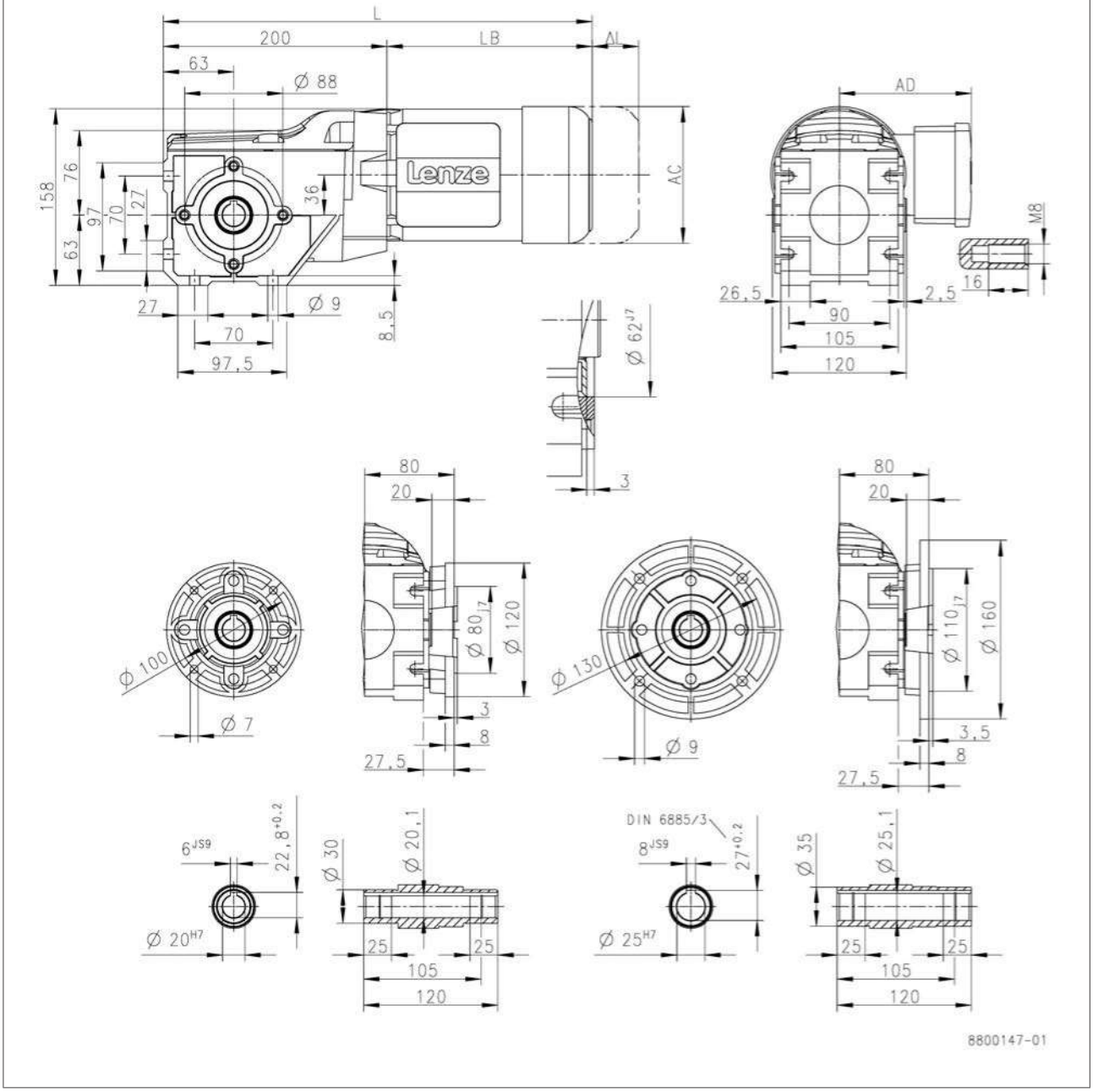
			MD□MA□□				
			063-12	063-32	063-42	071-32	071-42
Total length	L	[mm]	383			403	
Motor length	LB	[mm]	183			203	
Length of motor options	Δ L	[mm]	40.0			52.0	
Motor diameter	AC	[mm]	123			139	
Distance motor/connection	AD	[mm]	107			118	

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B110

Dimensions with hollow shaft
Gearbox design: HBR, HAR, HAK



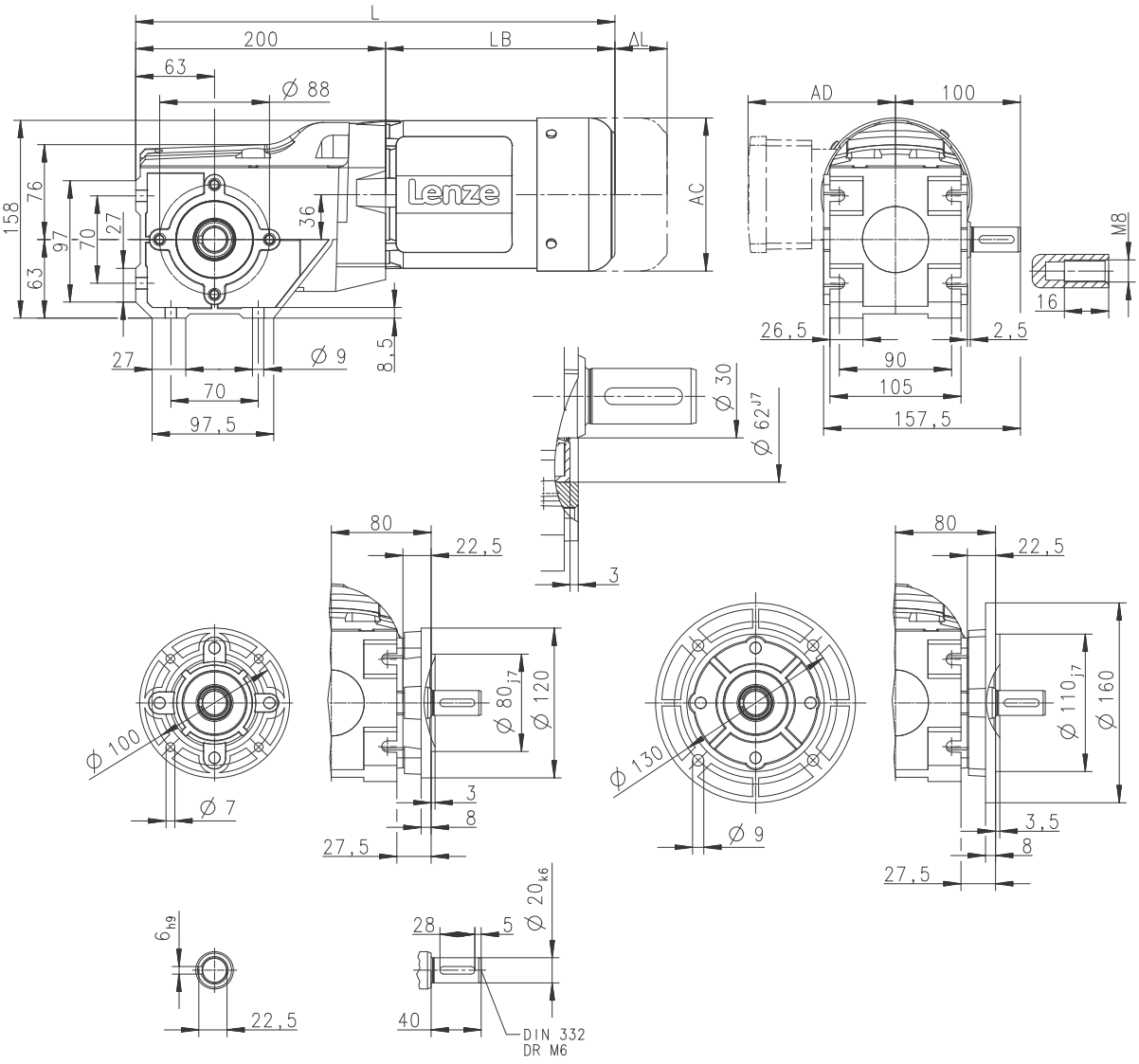
			m240		
			-P80/M4	-P90/M4	-P90/L4
Total length	L	[mm]	425	494	
Motor length	LB	[mm]	225	294	
Length of motor options	Δ L	[mm]	107	92.0	
Motor diameter	AC	[mm]	158	172	
Distance motor/connection	AD	[mm]	148	155	

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B110

Dimensions with solid shaft
Gearbox design: VBR, VAR, VAK



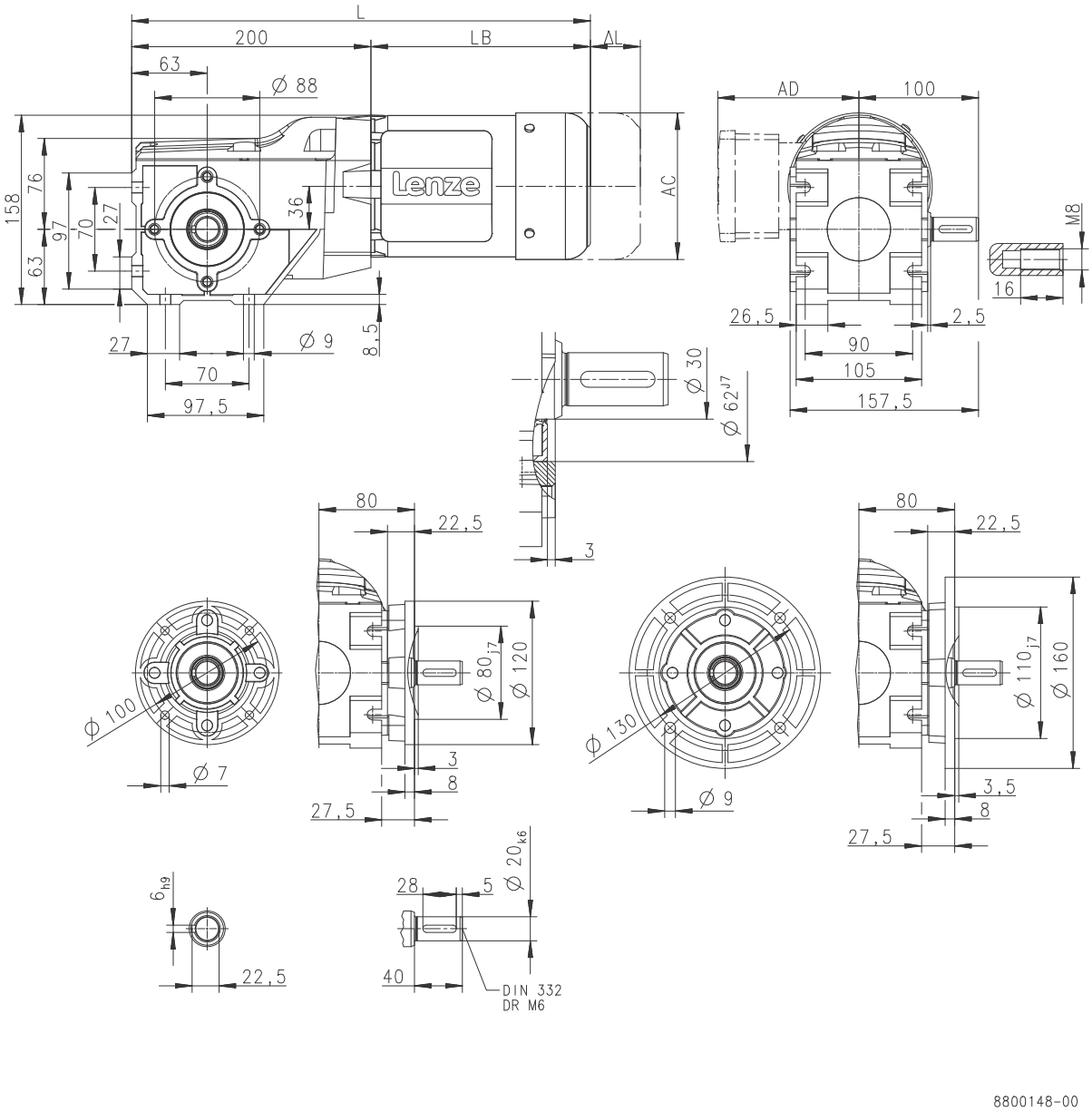
			MD□MA□□				
			063-12	063-32	063-42	071-32	071-42
Total length	L	[mm]	383			403	
Motor length	LB	[mm]	183			203	
Length of motor options	Δ L	[mm]	40.0			52.0	
Motor diameter	AC	[mm]	123			139	
Distance motor/connection	AD	[mm]	107			118	

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B110

Dimensions with solid shaft
Gearbox design: VBR, VAR, VAK



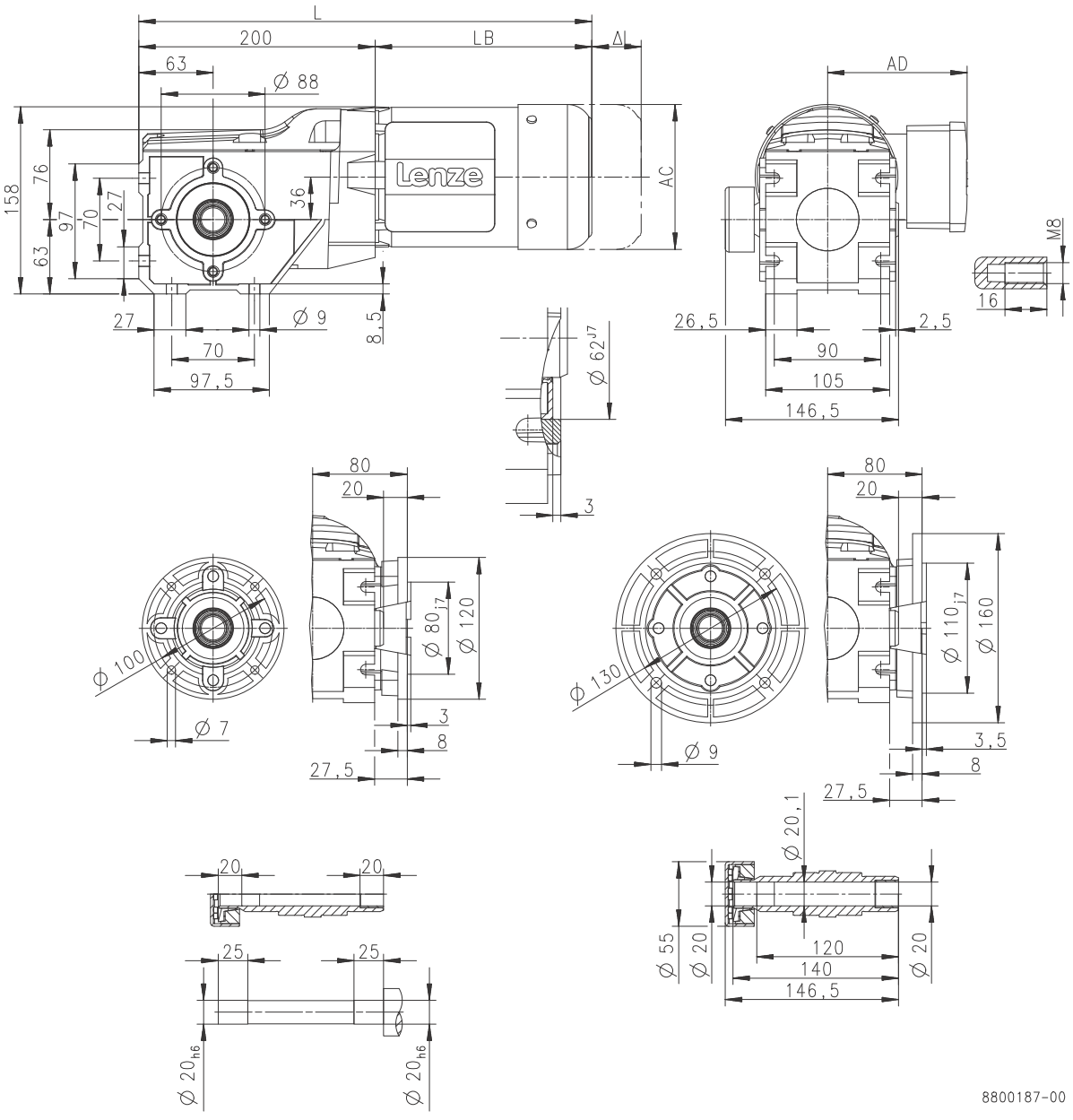
			m240		
			-P80/M4	-P90/M4	-P90/L4
Total length	L	[mm]	425	494	
Motor length	LB	[mm]	225	294	
Length of motor options	Δ L	[mm]	107	92.0	
Motor diameter	AC	[mm]	158	172	
Distance motor/connection	AD	[mm]	148	155	

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B110

Dimensions hollow shaft with shrink disc
Gearbox design: SBR, SAR, SAK



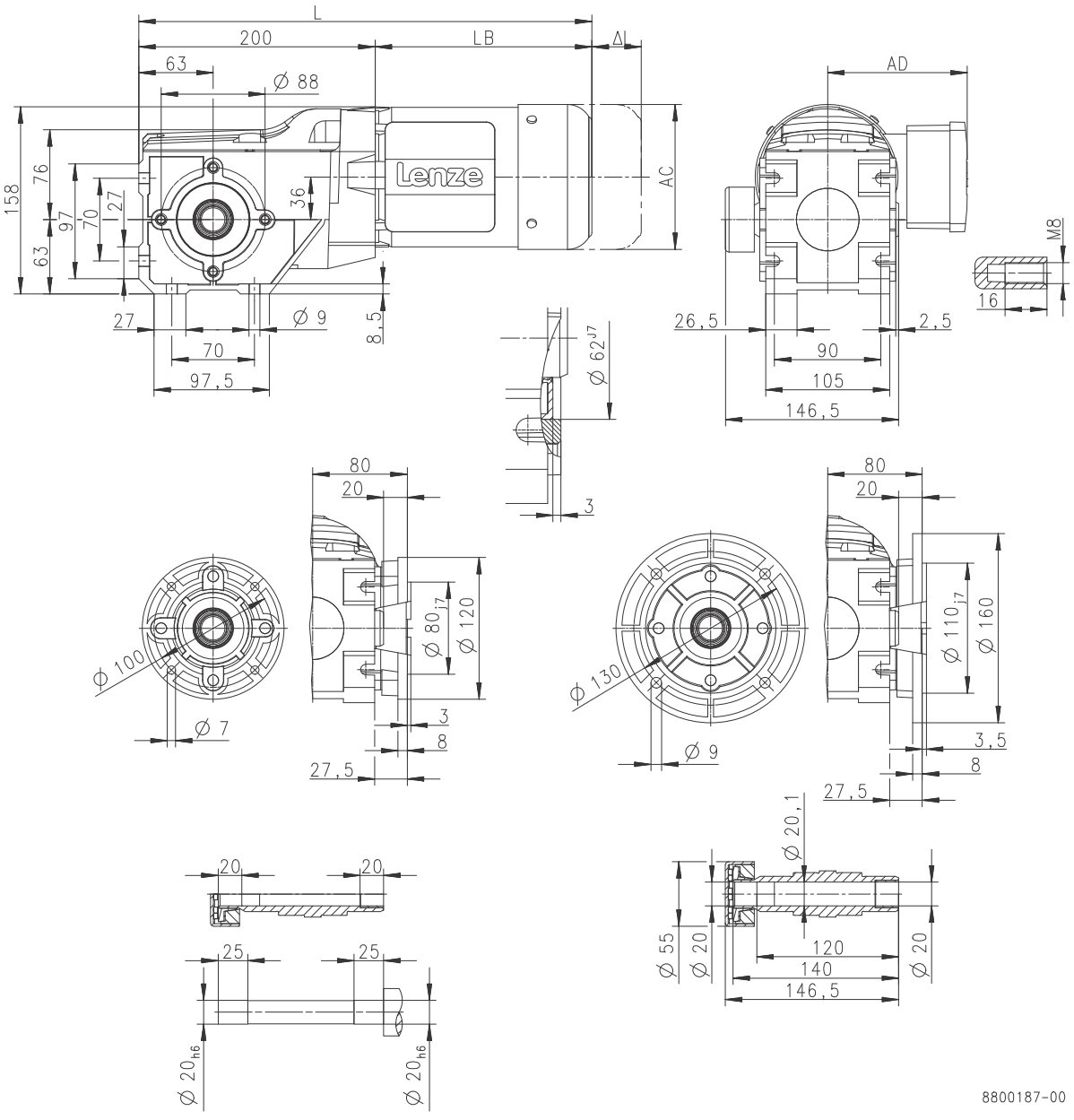
			MD□MA□□				
			063-12	063-32	063-42	071-32	071-42
Total length	L	[mm]	383			403	
Motor length	LB	[mm]	183			203	
Length of motor options	Δ L	[mm]	40.0			52.0	
Motor diameter	AC	[mm]	123			139	
Distance motor/connection	AD	[mm]	107			118	

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B110

Dimensions hollow shaft with shrink disc
Gearbox design: SBR, SAR, SAK



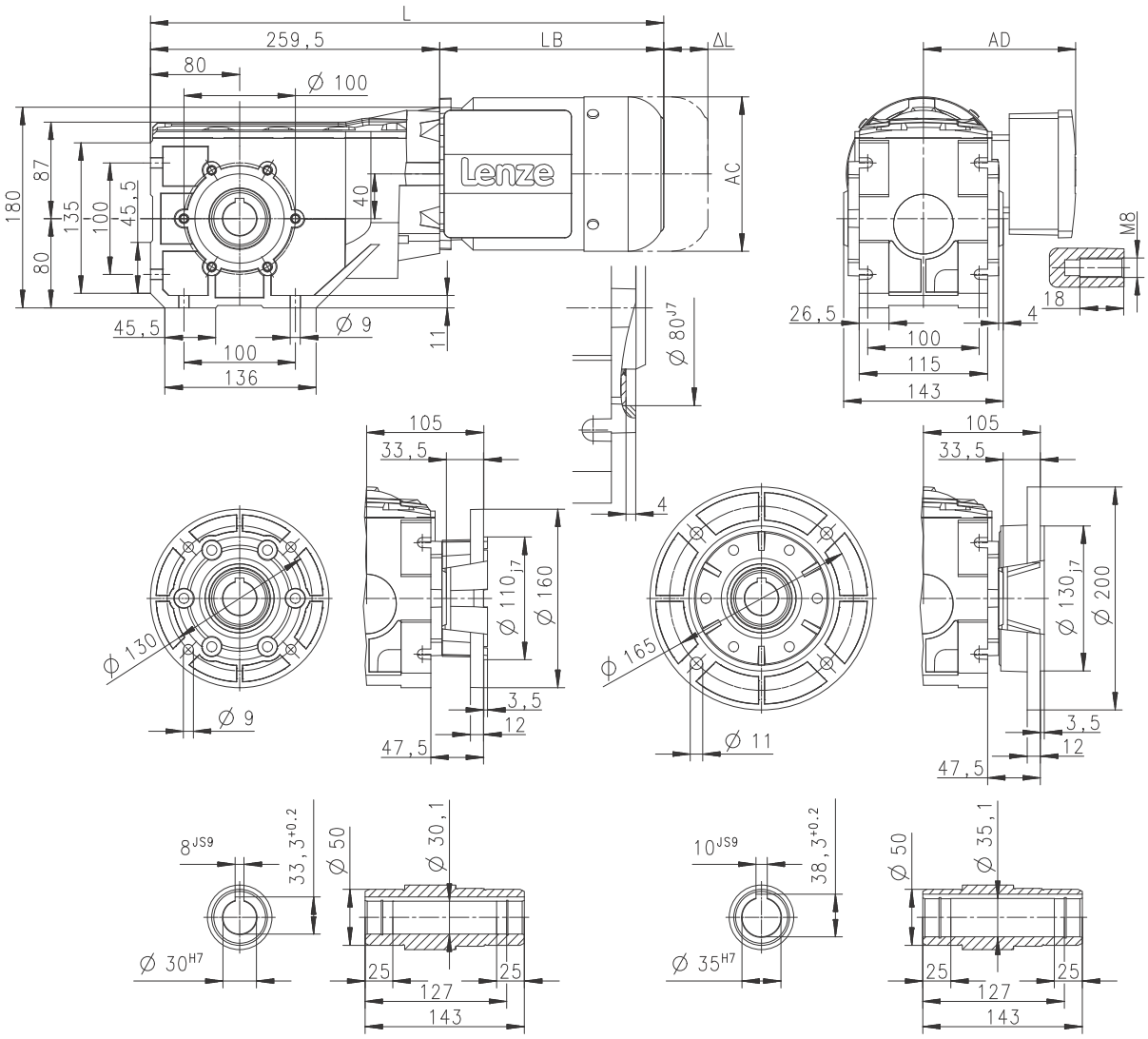
			m240		
			-P80/M4	-P90/M4	-P90/L4
Total length	L	[mm]	425	494	
Motor length	LB	[mm]	225	294	
Length of motor options	Δ L	[mm]	107	92.0	
Motor diameter	AC	[mm]	158	172	
Distance motor/connection	AD	[mm]	148	155	

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B240

Dimensions with hollow shaft
Gearbox design: HBR, HAR, HAK



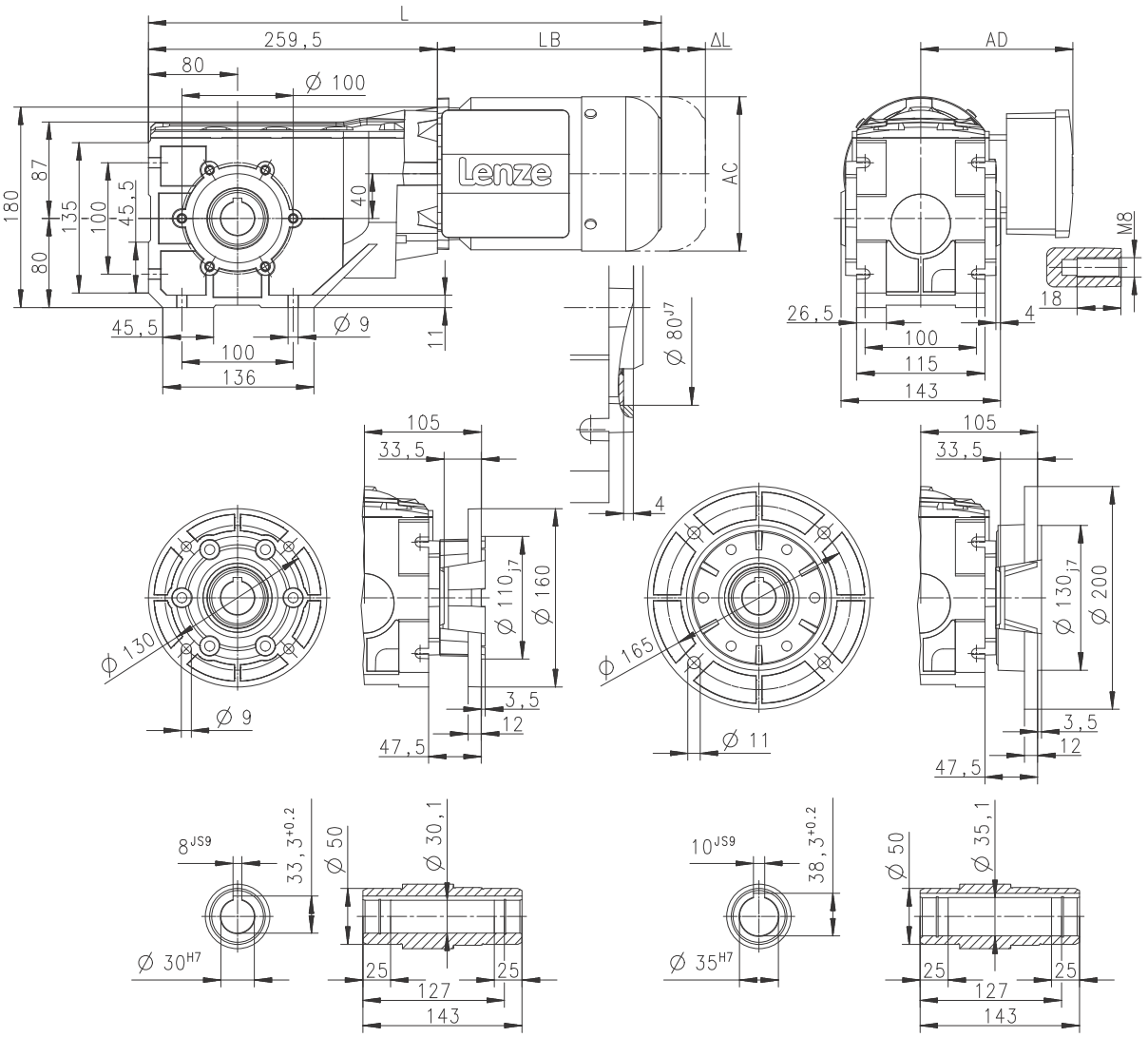
			MD□MA□□				
			063-12	063-32	063-42	071-32	071-42
Total length	L	[mm]	443			463	
Motor length	LB	[mm]	183			203	
Length of motor options	Δ L	[mm]	40.0			52.0	
Motor diameter	AC	[mm]	123			139	
Distance motor/connection	AD	[mm]	107			118	

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B240

Dimensions with hollow shaft
Gearbox design: HBR, HAR, HAK



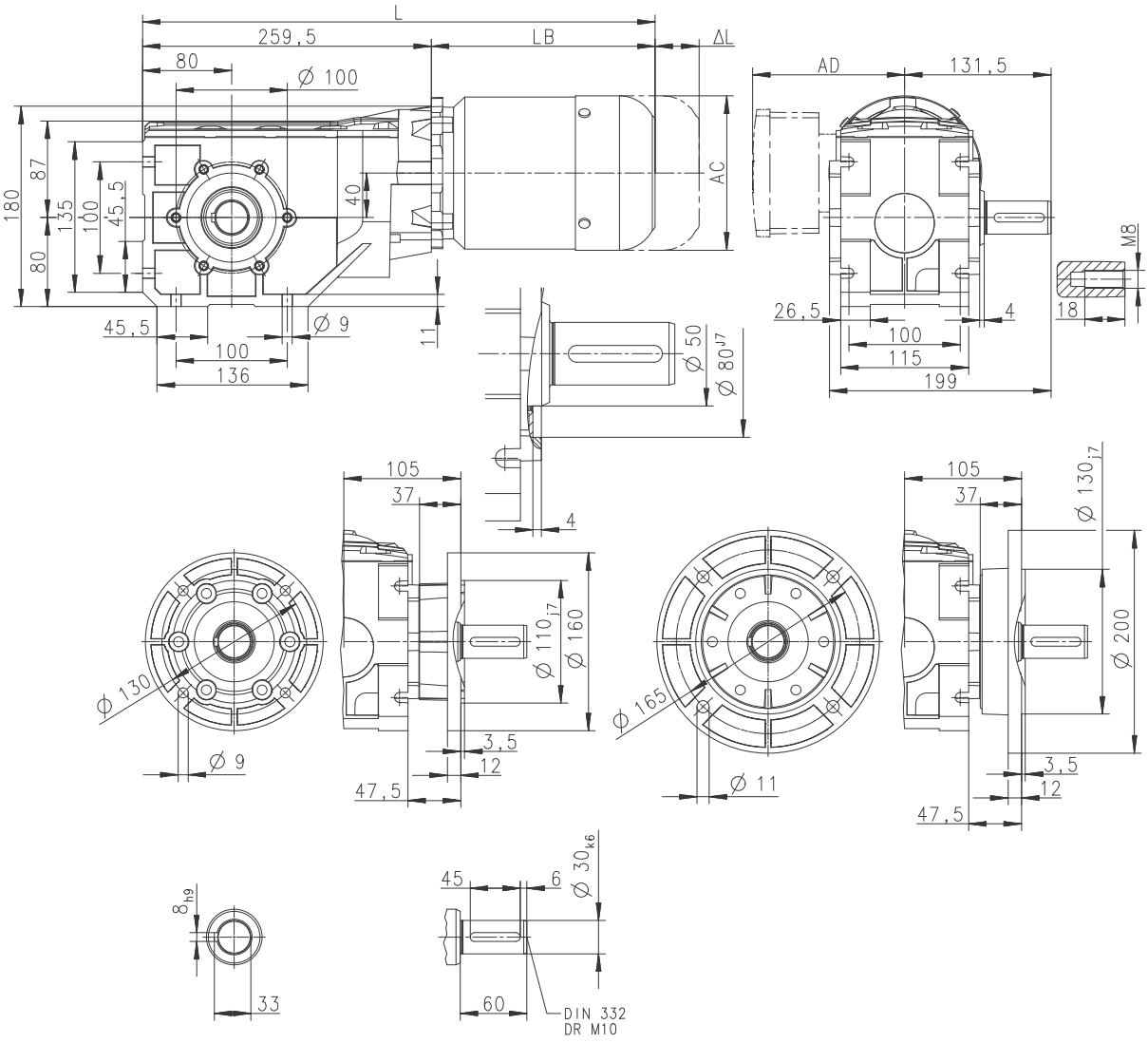
			m240				
			-P80/M4	-P90/M4	-P90/L4	-P100/M4	-P100/L4
Total length	L	[mm]	485	554		616	
Motor length	LB	[mm]	225	294		356	
Length of motor options	Δ L	[mm]	107	92.0		103	
Motor diameter	AC	[mm]	158	172		192	
Distance motor/connection	AD	[mm]	148	155		164	

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B240

Dimensions with solid shaft
Gearbox design: VBR, VAR, VAK



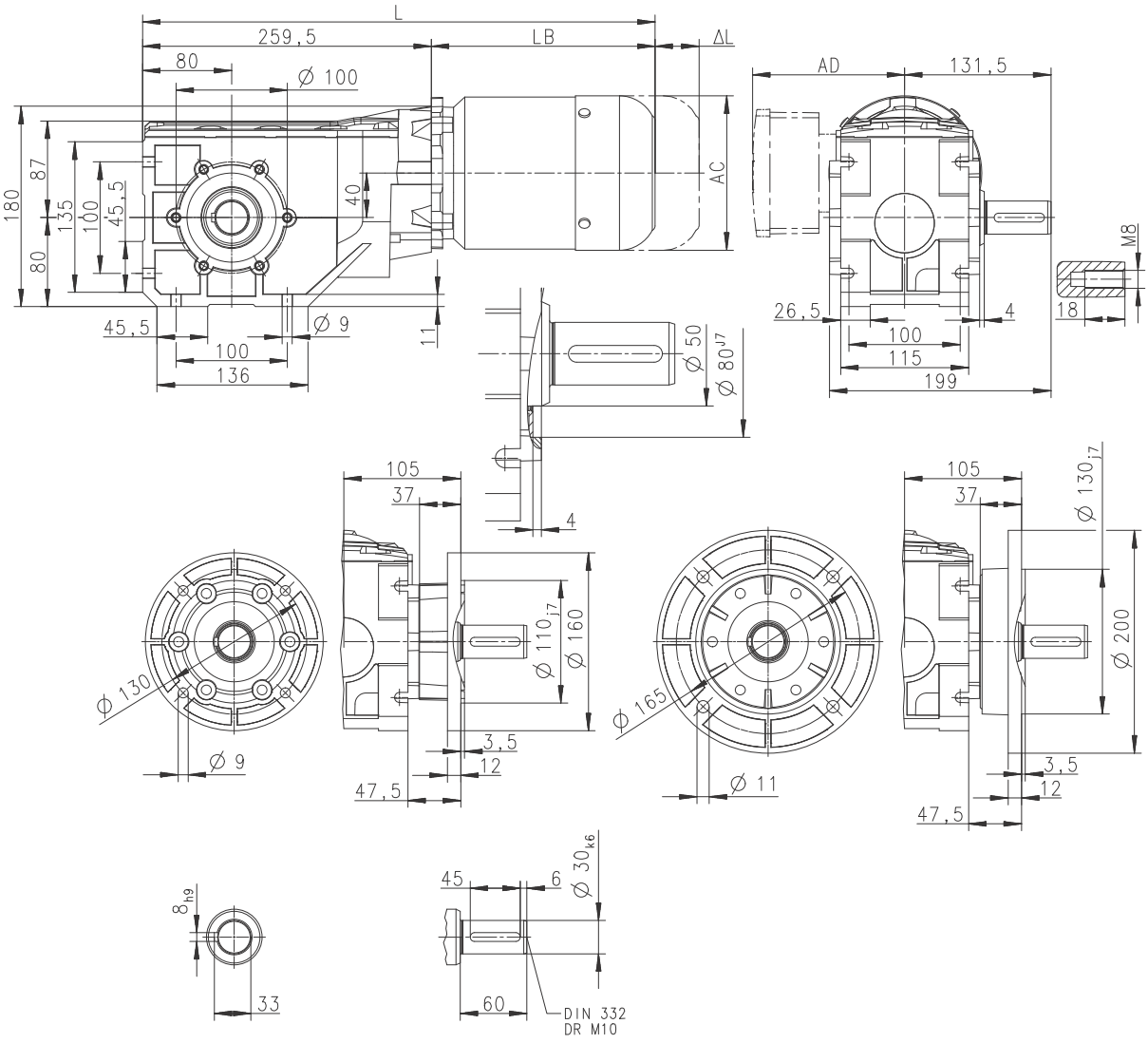
			MD□MA□□				
			063-12	063-32	063-42	071-32	071-42
Total length	L	[mm]	443			463	
Motor length	LB	[mm]	183			203	
Length of motor options	Δ L	[mm]	40.0			52.0	
Motor diameter	AC	[mm]	123			139	
Distance motor/connection	AD	[mm]	107			118	

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B240

Dimensions with solid shaft
Gearbox design: VBR, VAR, VAK



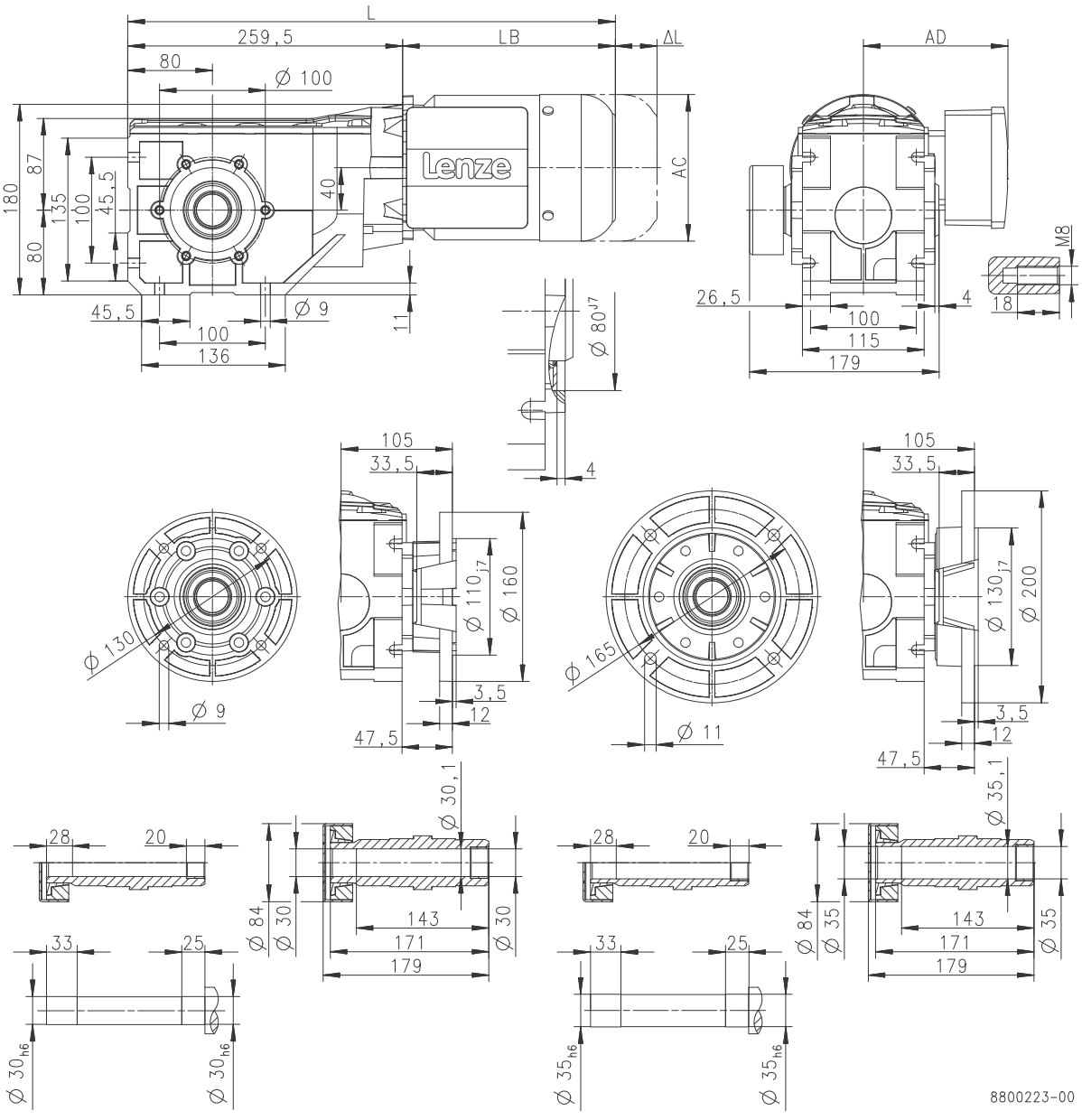
			m240				
			-P80/M4	-P90/M4	-P90/L4	-P100/M4	-P100/L4
Total length	L	[mm]	485	554		616	
Motor length	LB	[mm]	225	294		356	
Length of motor options	Δ L	[mm]	107	92.0		103	
Motor diameter	AC	[mm]	158	172		192	
Distance motor/connection	AD	[mm]	148	155		164	

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B240

Dimensions hollow shaft with shrink disc
Gearbox design: SBR, SAR, SAK



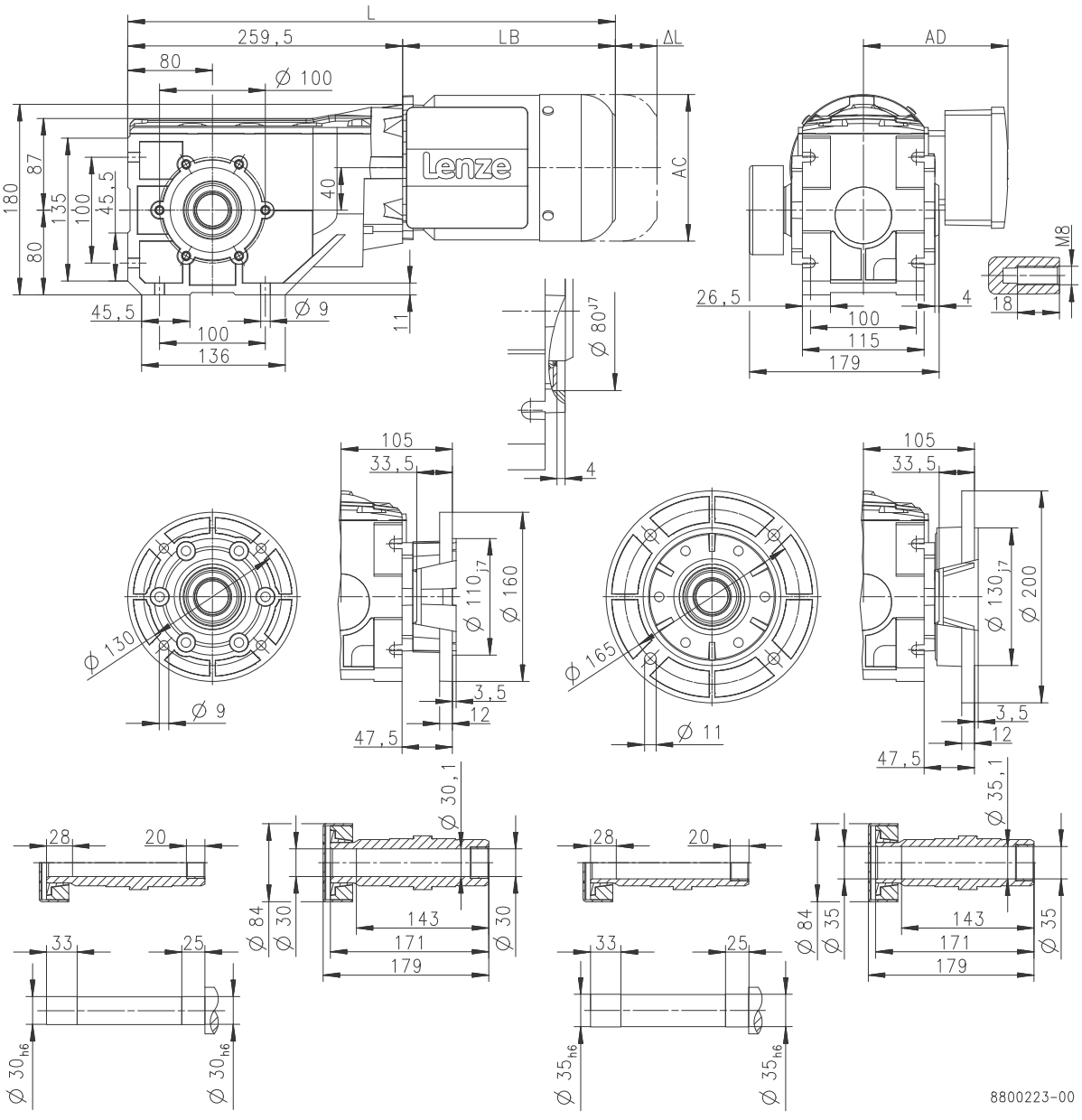
			MD□MA□□				
			063-12	063-32	063-42	071-32	071-42
Total length	L	[mm]	443			463	
Motor length	LB	[mm]	183			203	
Length of motor options	Δ L	[mm]	40.0			52.0	
Motor diameter	AC	[mm]	123			139	
Distance motor/connection	AD	[mm]	107			118	

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B240

Dimensions hollow shaft with shrink disc
Gearbox design: SBR, SAR, SAK



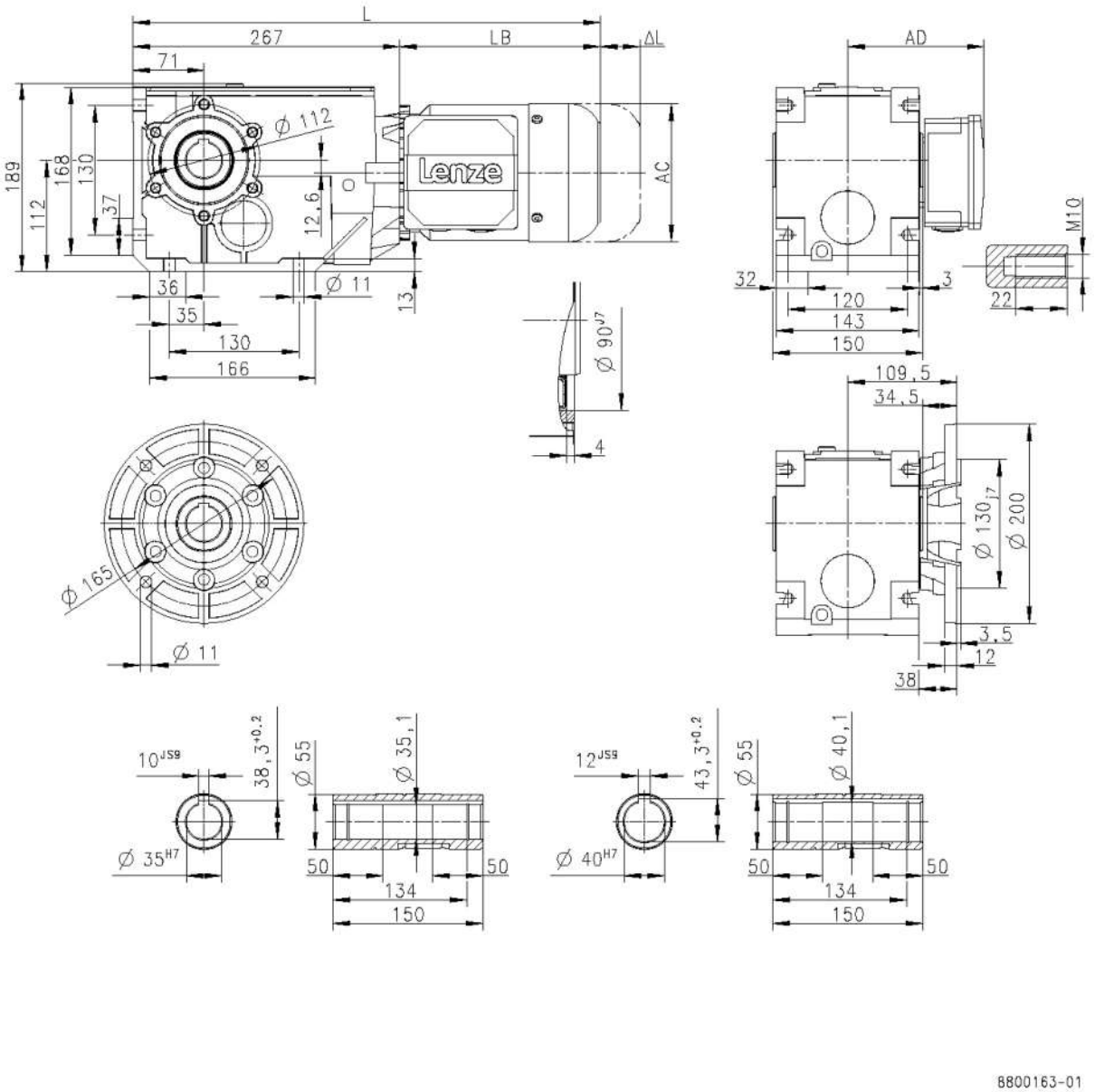
			m240				
			-P80/M4	-P90/M4	-P90/L4	-P100/M4	-P100/L4
Total length	L	[mm]	485	554		616	
Motor length	LB	[mm]	225	294		356	
Length of motor options	Δ L	[mm]	107	92.0		103	
Motor diameter	AC	[mm]	158	172		192	
Distance motor/connection	AD	[mm]	148	155		164	

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B450

Dimensions with hollow shaft
Gearbox design: HBR, HAR, HAK



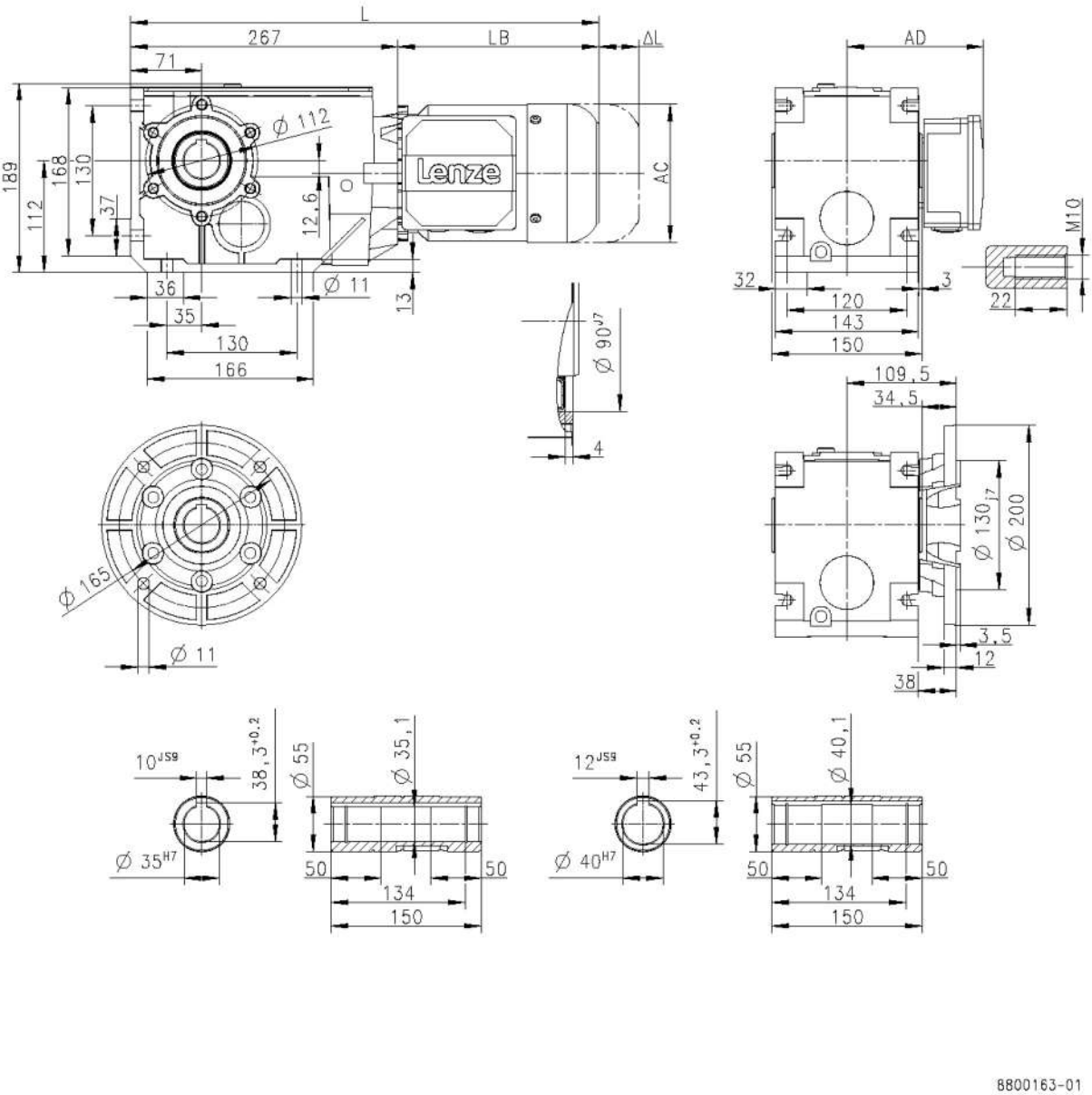
			MD□MA□□				
			063-12	063-32	063-42	071-32	071-42
Total length	L	[mm]	450			470	
Motor length	LB	[mm]	183			203	
Length of motor options	Δ L	[mm]	40.0			52.0	
Motor diameter	AC	[mm]	123			139	
Distance motor/connection	AD	[mm]	107			118	

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B450

Dimensions with hollow shaft
Gearbox design: HBR, HAR, HAK



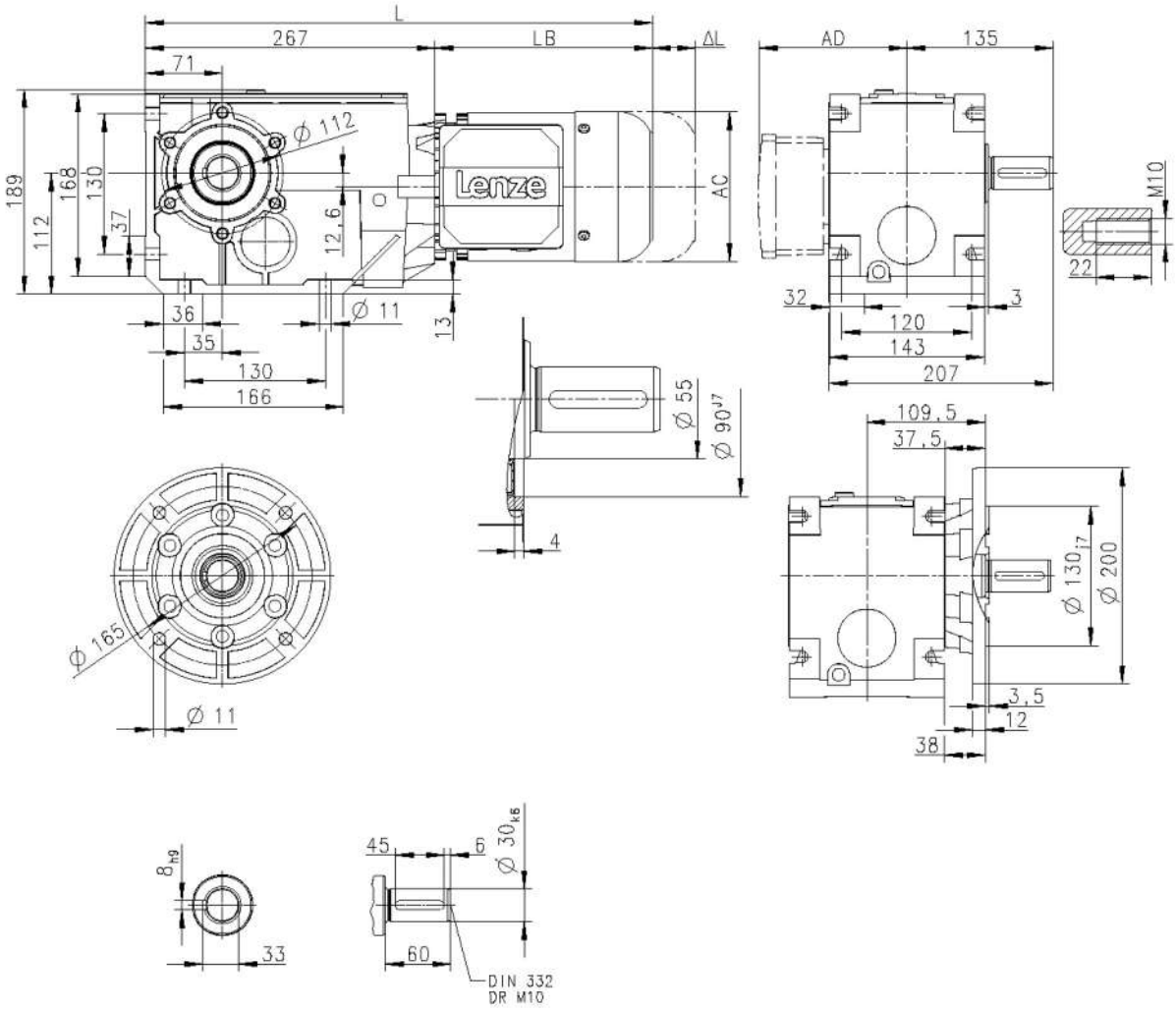
			m240							
			-P80/M4	-P90/M4	-P90/L4	-P100/M4	-P100/L4	-P112/M4	-P132/M4	-P132/L4
Total length	L	[mm]	492	561		623		610	685	
Motor length	LB	[mm]	225	294		356		343	418	
Length of motor options	Δ L	[mm]	107	92.0		103		111	118	
Motor diameter	AC	[mm]	158	172		192		210	281	
Distance motor/connection	AD	[mm]	148	155		164		171	182	

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B450

Dimensions with solid shaft
Gearbox design: VBR, VAR, VAK



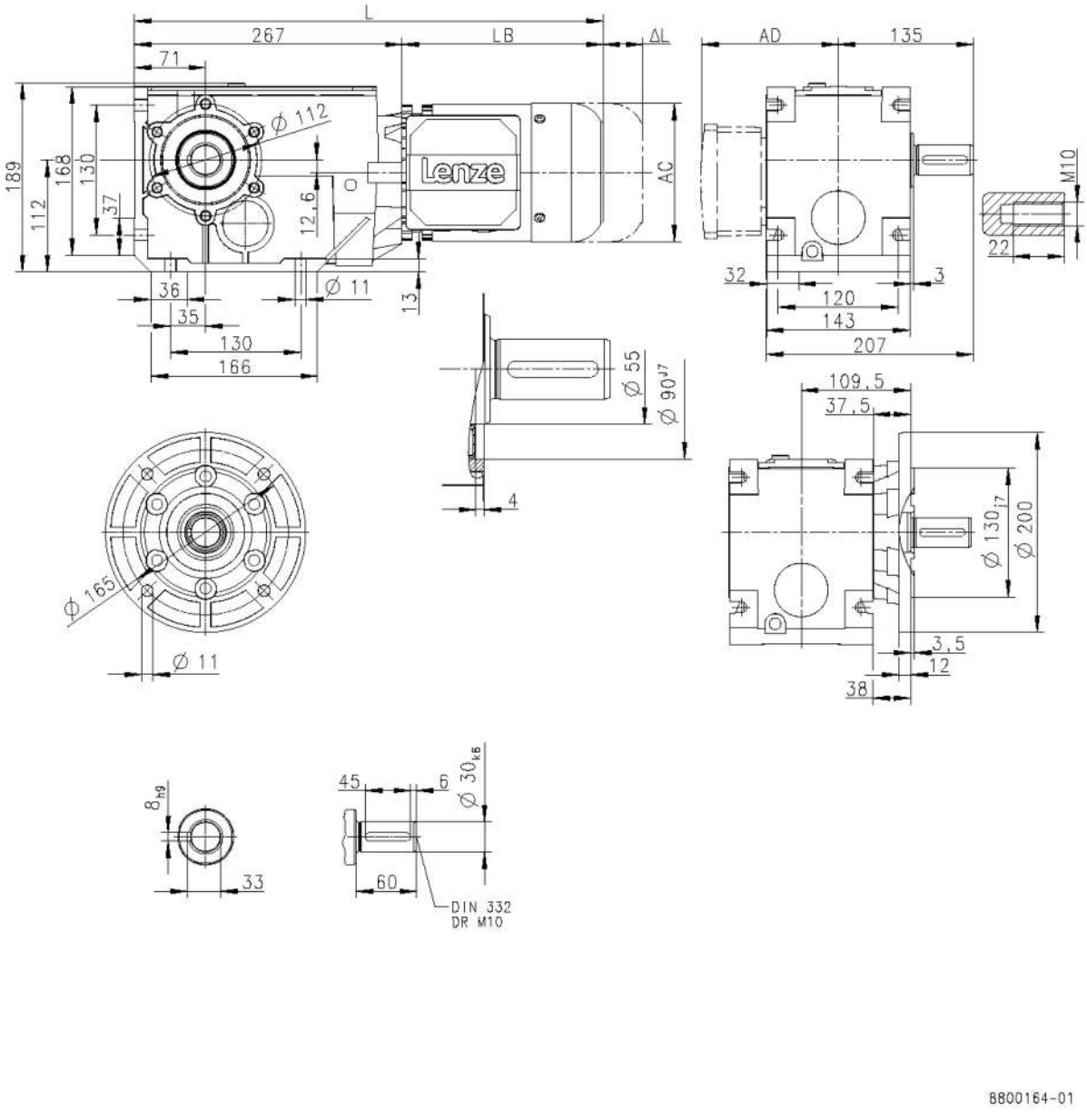
			MD□MA□□				
			063-12	063-32	063-42	071-32	071-42
Total length	L	[mm]	450			470	
Motor length	LB	[mm]	183			203	
Length of motor options	Δ L	[mm]	40.0			52.0	
Motor diameter	AC	[mm]	123			139	
Distance motor/connection	AD	[mm]	107			118	

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B450

Dimensions with solid shaft
Gearbox design: VBR, VAR, VAK



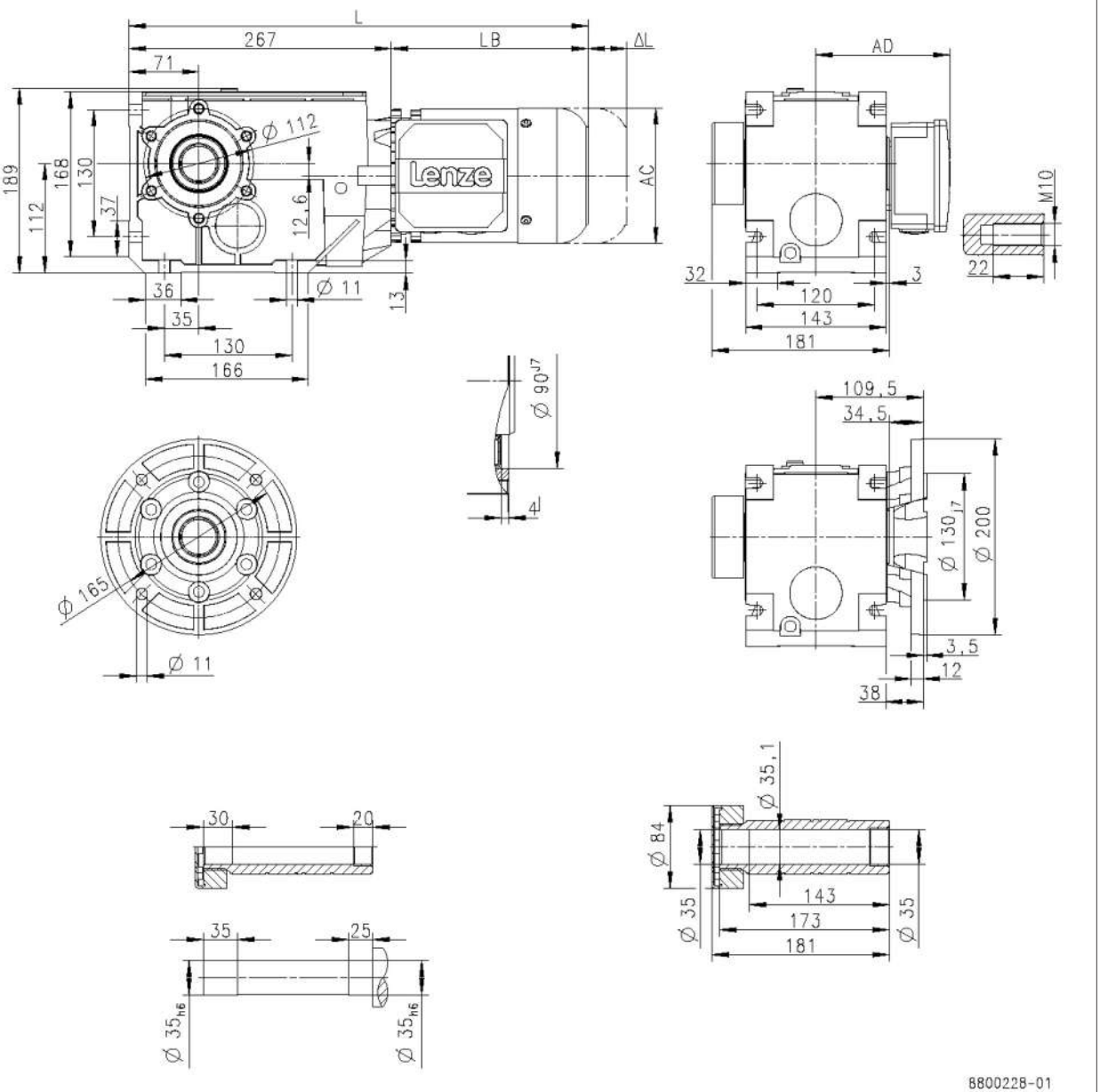
			m240							
			-P80/M4	-P90/M4	-P90/L4	-P100/M4	-P100/L4	-P112/M4	-P132/M4	-P132/L4
Total length	L	[mm]	492	561		623		610	685	
Motor length	LB	[mm]	225	294		356		343	418	
Length of motor options	Δ L	[mm]	107	92.0		103		111	118	
Motor diameter	AC	[mm]	158	172		192		210	281	
Distance motor/connection	AD	[mm]	148	155		164		171	182	

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B450

Dimensions hollow shaft with shrink disc
Gearbox design: SBR, SAR, SAK



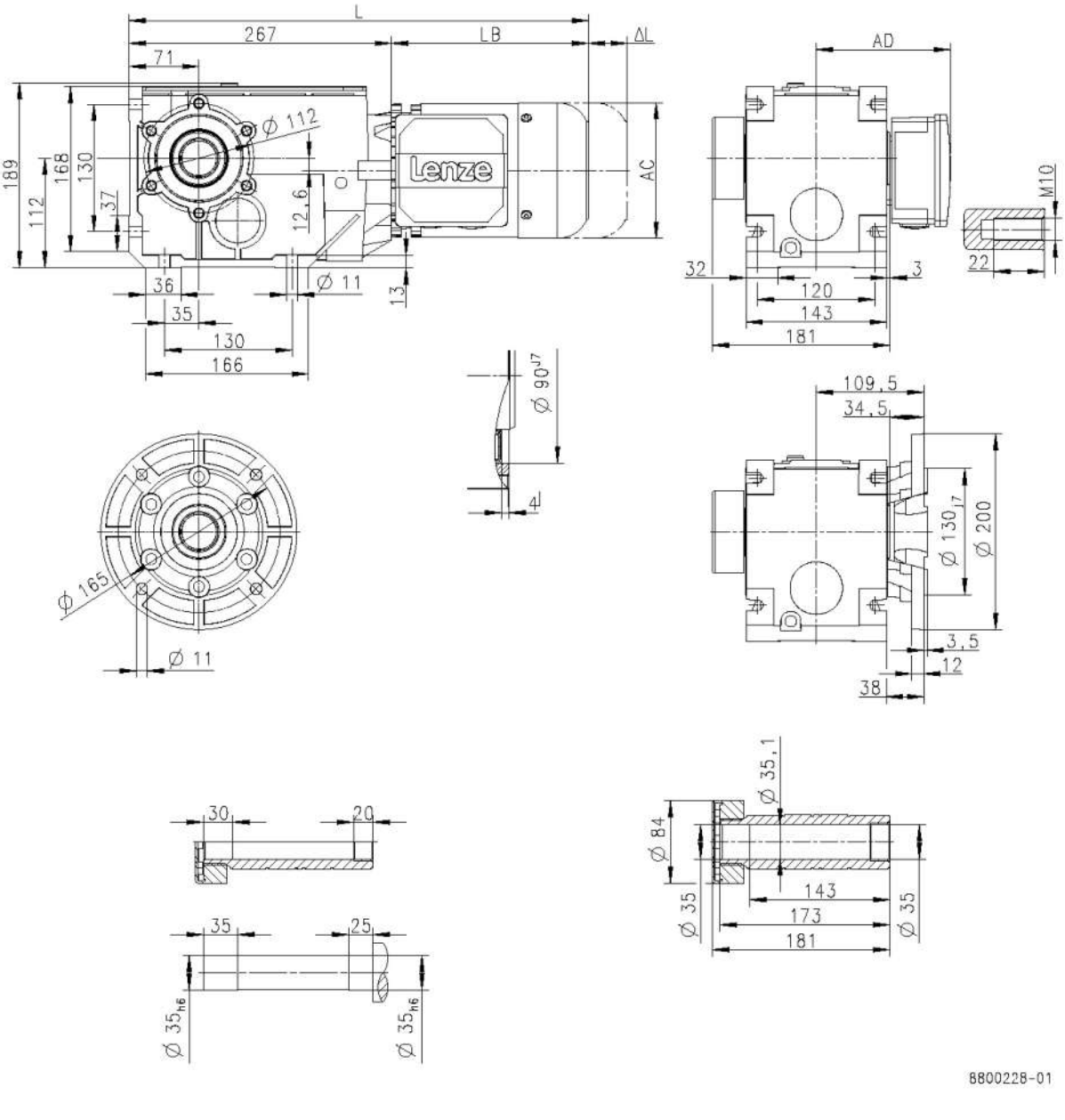
			MD□MA□□				
			063-12	063-32	063-42	071-32	071-42
Total length	L	[mm]	450			470	
Motor length	LB	[mm]	183			203	
Length of motor options	Δ L	[mm]	40.0			52.0	
Motor diameter	AC	[mm]	123			139	
Distance motor/connection	AD	[mm]	107			118	

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B450

Dimensions hollow shaft with shrink disc
Gearbox design: SBR, SAR, SAK



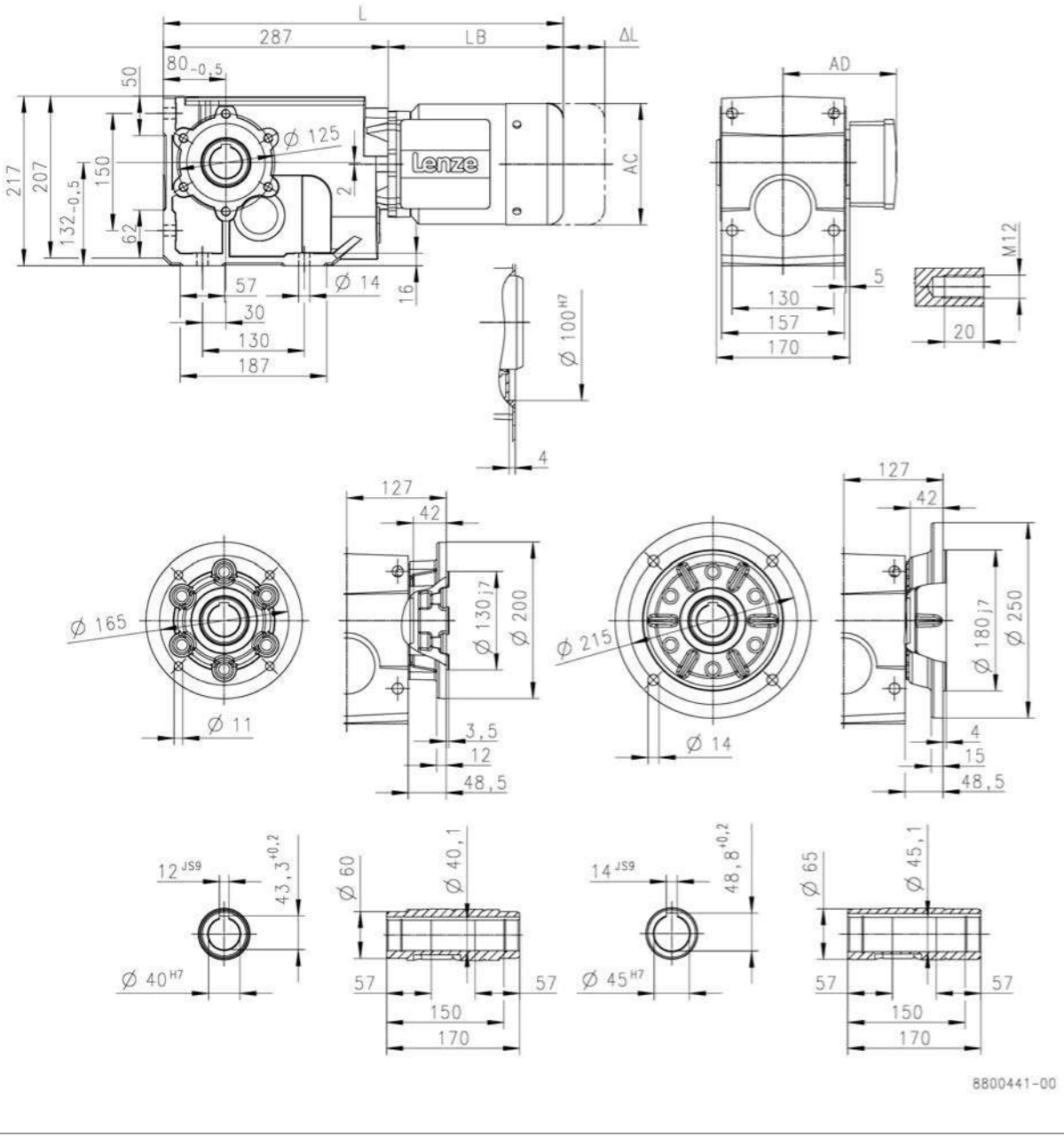
			m240							
			-P80/M4	-P90/M4	-P90/L4	-P100/M4	-P100/L4	-P112/M4	-P132/M4	-P132/L4
Total length	L	[mm]	492	561		623		610	685	
Motor length	LB	[mm]	225	294		356		343	418	
Length of motor options	Δ L	[mm]	107	92.0		103		111	118	
Motor diameter	AC	[mm]	158	172		192		210	281	
Distance motor/connection	AD	[mm]	148	155		164		171	182	

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B600

Dimensions with hollow shaft
Gearbox design: HBR, HAR, HAK



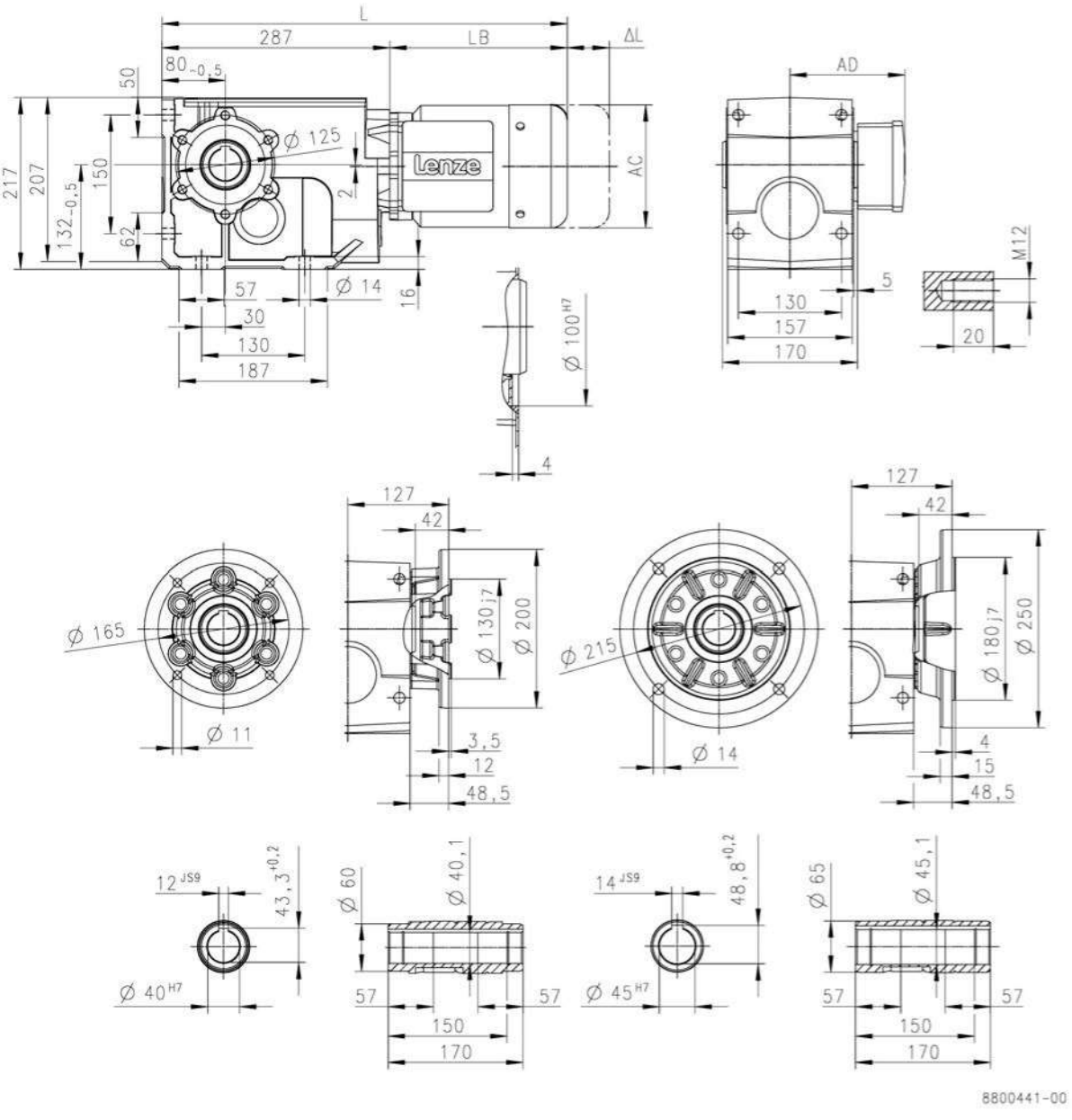
			MD□MA□□		
			063-42	071-32	071-42
Total length	L	[mm]	470	490	
Motor length	LB	[mm]	183	203	
Length of motor options	Δ L	[mm]	40.0	52.0	
Motor diameter	AC	[mm]	123	139	
Distance motor/connection	AD	[mm]	107	118	

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (longest type)

Dimensions, 4-pole motors

g500-B600

Dimensions with hollow shaft
Gearbox design: HBR, HAR, HAK



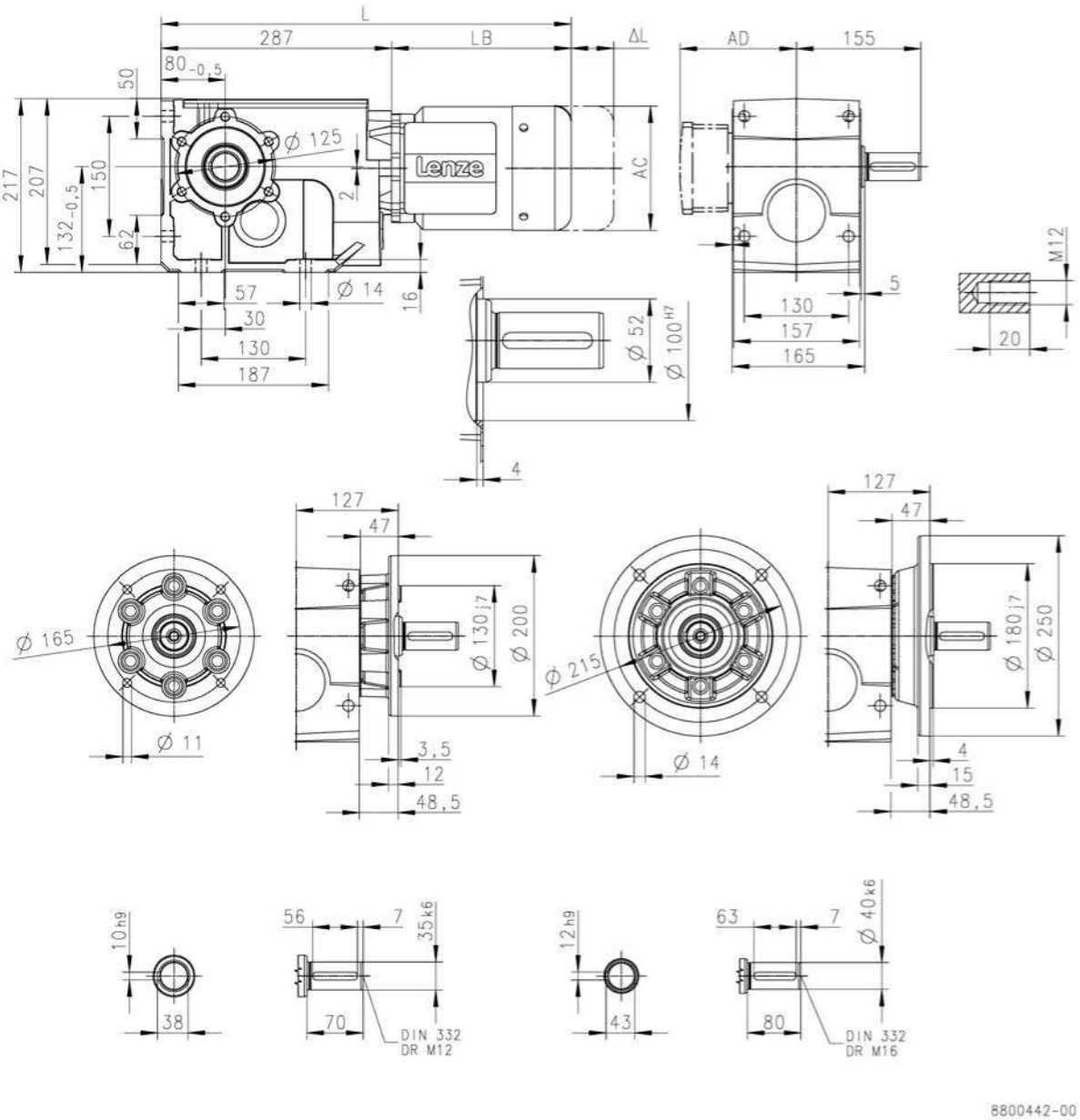
			m240							
			-P80/M4	-P90/M4	-P90/L4	-P100/M4	-P100/L4	-P112/M4	-P132/M4	-P132/L4
Total length	L	[mm]	512	581		643		630	705	
Motor length	LB	[mm]	225	294		356		343	418	
Length of motor options	Δ L	[mm]	107	92.0		103		111	118	
Motor diameter	AC	[mm]	158	172		192		210	281	
Distance motor/connection	AD	[mm]	148	155		164		171	182	

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B600

Dimensions with solid shaft
Gearbox design: VBR, VAR, VAK



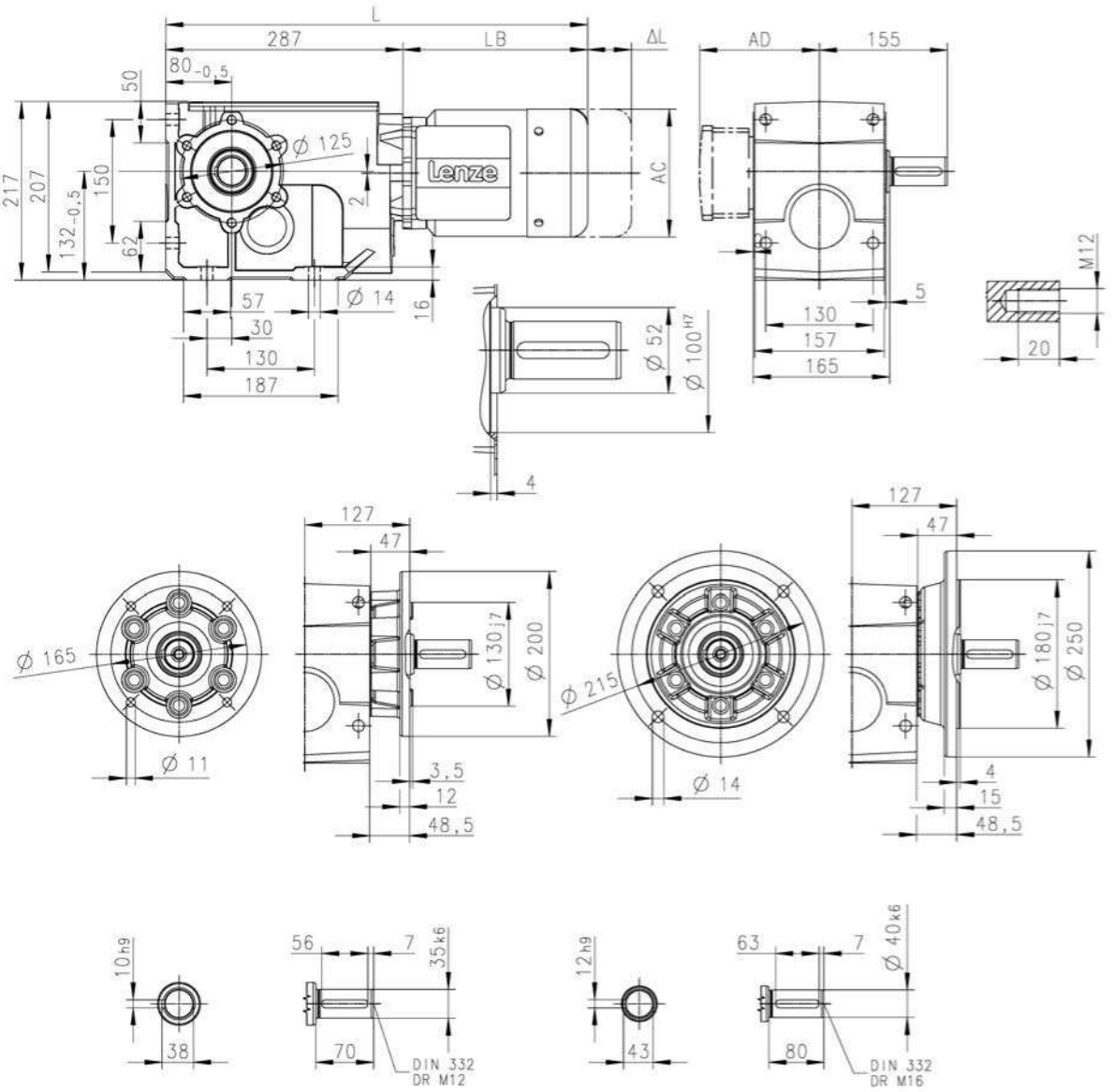
			MD□MA□□		
			063-42	071-32	071-42
Total length	L	[mm]	470	490	
Motor length	LB	[mm]	183	203	
Length of motor options	Δ L	[mm]	40.0	52.0	
Motor diameter	AC	[mm]	123	139	
Distance motor/connection	AD	[mm]	107	118	

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B600

Dimensions with solid shaft
Gearbox design: VBR, VAR, VAK



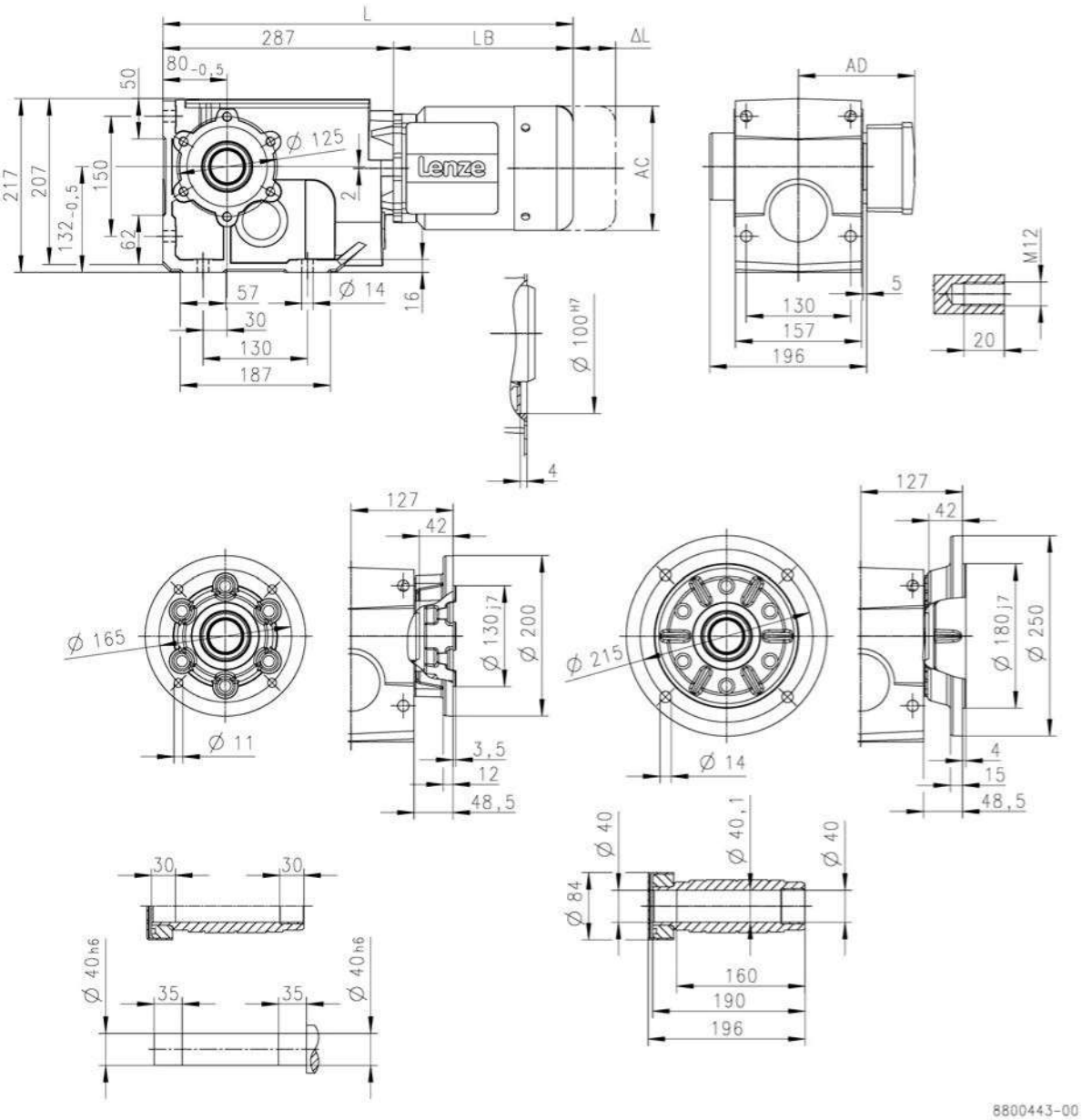
			m240							
			-P80/M4	-P90/M4	-P90/L4	-P100/M4	-P100/L4	-P112/M4	-P132/M4	-P132/L4
Total length	L	[mm]	512	581		643		630	705	
Motor length	LB	[mm]	225	294		356		343	418	
Length of motor options	Δ L	[mm]	107	92.0		103		111	118	
Motor diameter	AC	[mm]	158	172		192		210	281	
Distance motor/connection	AD	[mm]	148	155		164		171	182	

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B600

Dimensions hollow shaft with shrink disc
Gearbox design: SBR, SAR, SAK



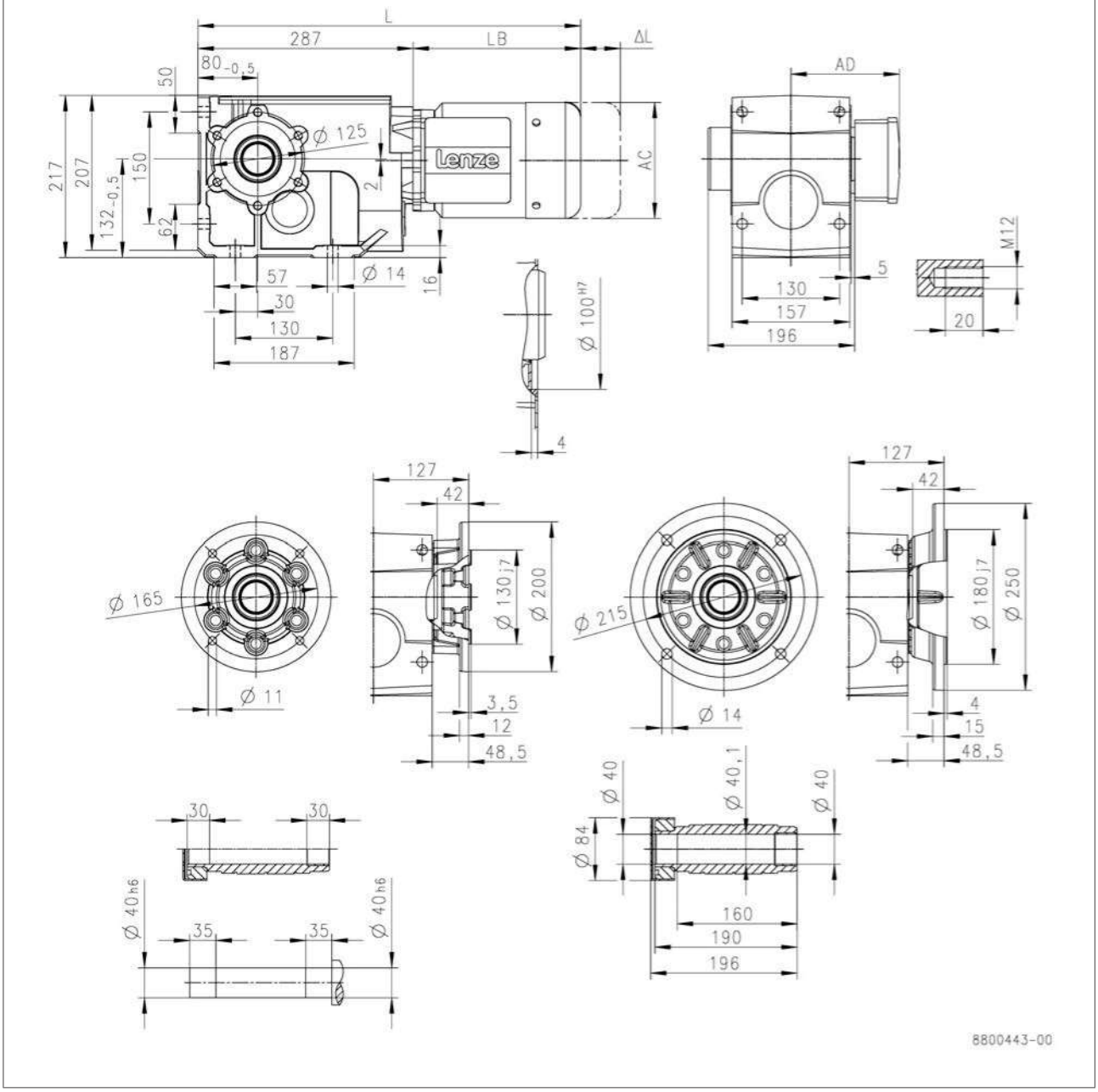
			MD□MA□□		
			063-42	071-32	071-42
Total length	L	[mm]	470	490	
Motor length	LB	[mm]	183	203	
Length of motor options	Δ L	[mm]	40.0	52.0	
Motor diameter	AC	[mm]	123	139	
Distance motor/connection	AD	[mm]	107	118	

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B600

Dimensions hollow shaft with shrink disc
Gearbox design: SBR, SAR, SAK



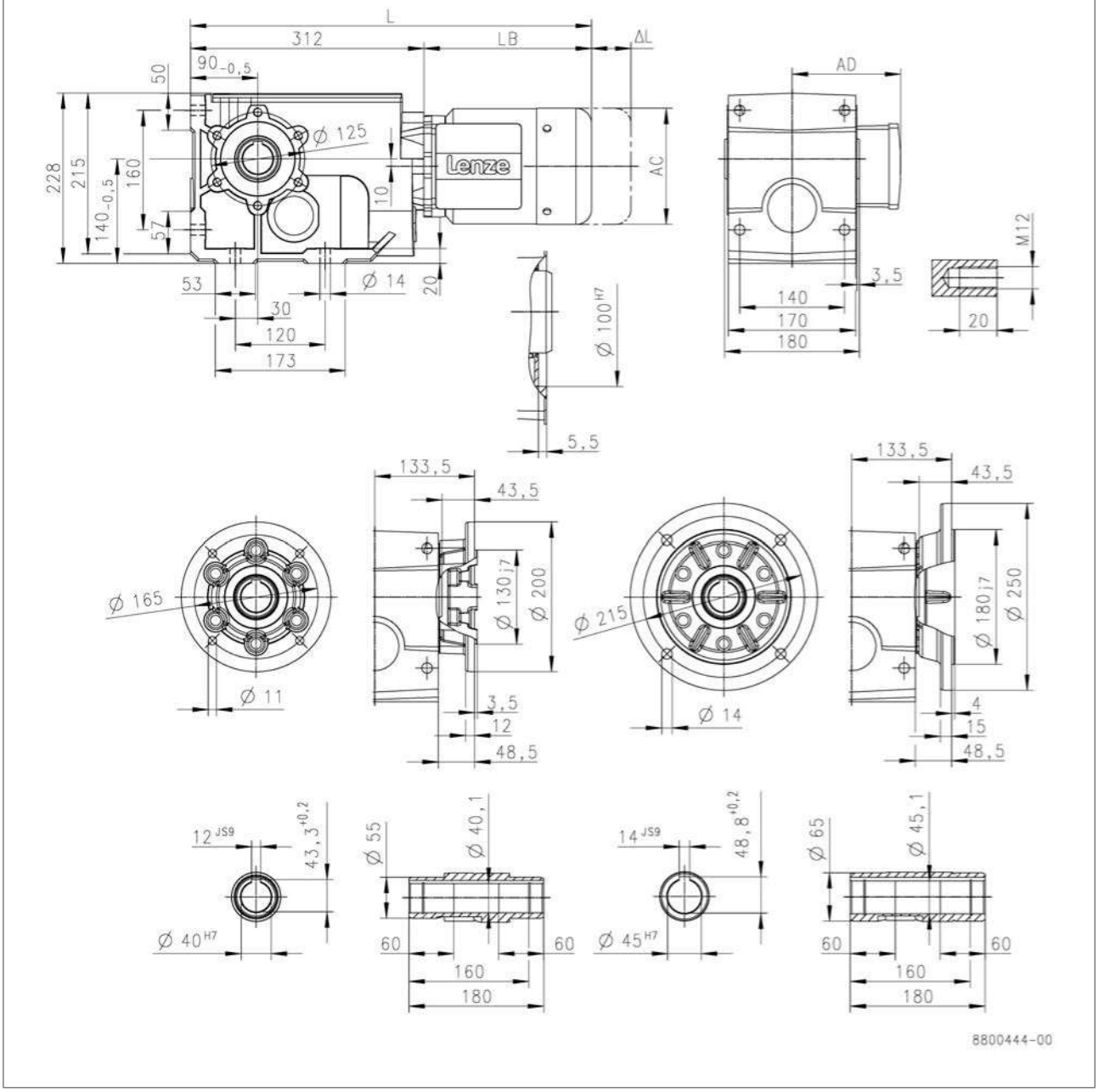
			m240							
			-P80/M4	-P90/M4	-P90/L4	-P100/M4	-P100/L4	-P112/M4	-P132/M4	-P132/L4
Total length	L	[mm]	512	581		643		630	705	
Motor length	LB	[mm]	225	294		356		343	418	
Length of motor options	Δ L	[mm]	107	92.0		103		111	118	
Motor diameter	AC	[mm]	158	172		192		210	281	
Distance motor/connection	AD	[mm]	148	155		164		171	182	

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B820

Dimensions with hollow shaft
Gearbox design: HBR, HAR, HAK



			MD□MA□□		
			063-42	071-32	071-42
Total length	L	[mm]	495	515	
Motor length	LB	[mm]	183	203	
Length of motor options	Δ L	[mm]	40.0	52.0	
Motor diameter	AC	[mm]	123	139	
Distance motor/connection	AD	[mm]	107	118	

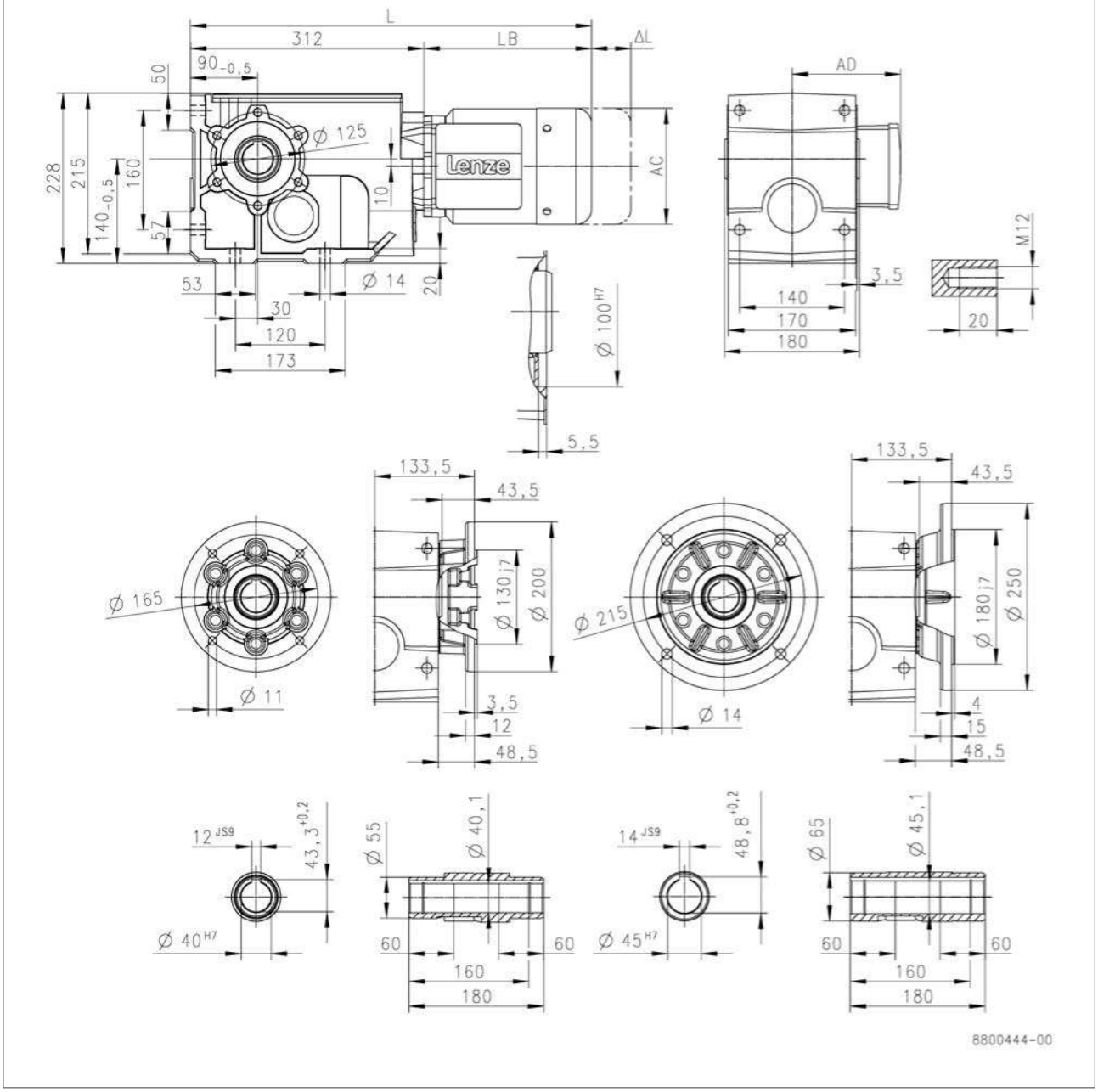
L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

6.5

Dimensions, 4-pole motors

g500-B820

Dimensions with hollow shaft
Gearbox design: HBR, HAR, HAK



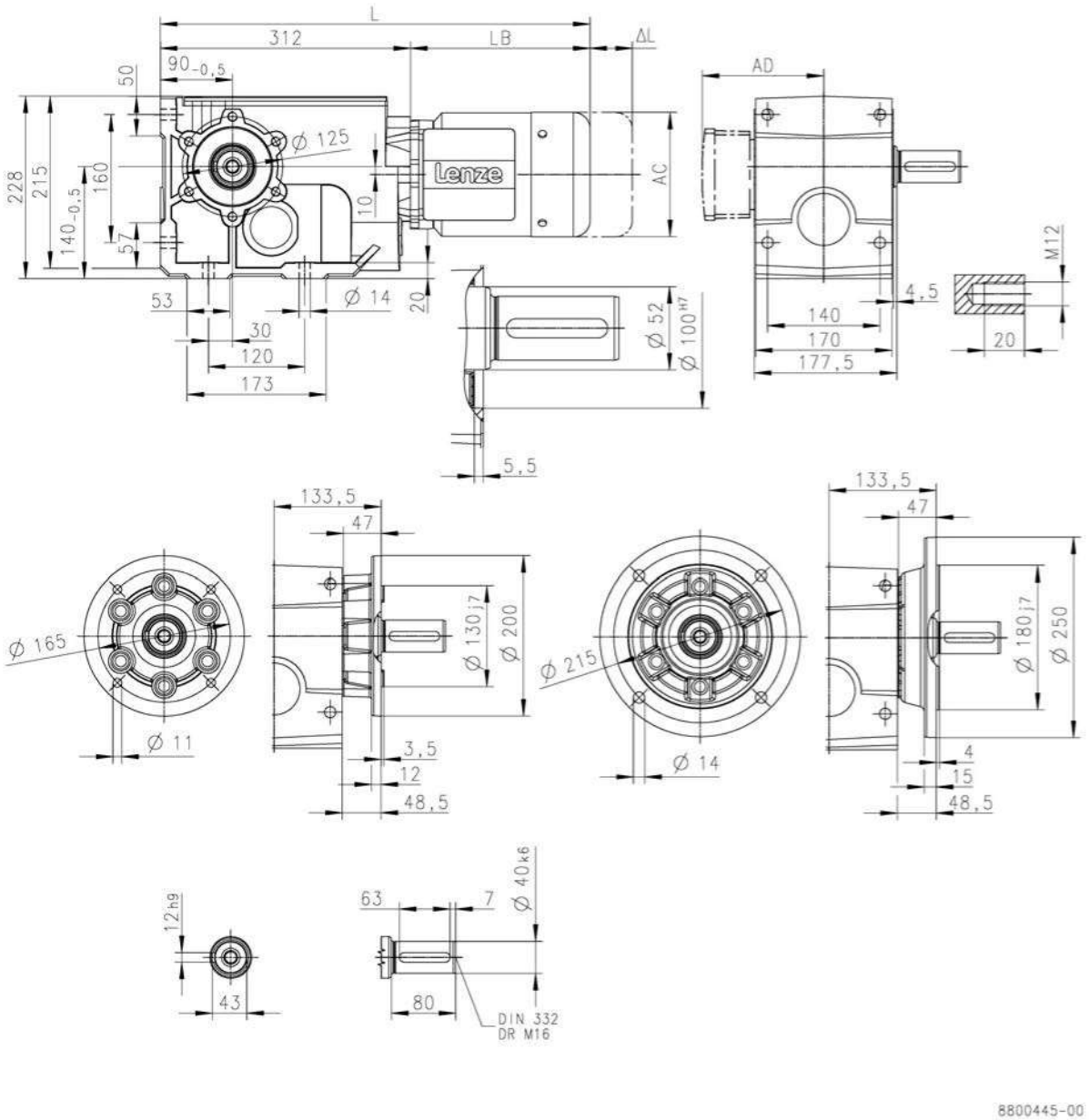
			m240							
			-P80/M4	-P90/M4	-P90/L4	-P100/M4	-P100/L4	-P112/M4	-P132/M4	-P132/L4
Total length	L	[mm]	537	606		668		655	730	
Motor length	LB	[mm]	225	294		356		343	418	
Length of motor options	Δ L	[mm]	107	92.0		103		111	118	
Motor diameter	AC	[mm]	158	172		192		210	281	
Distance motor/connection	AD	[mm]	148	155		164		171	182	

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B820

Dimensions with solid shaft
Gearbox design: VBR, VAR, VAK



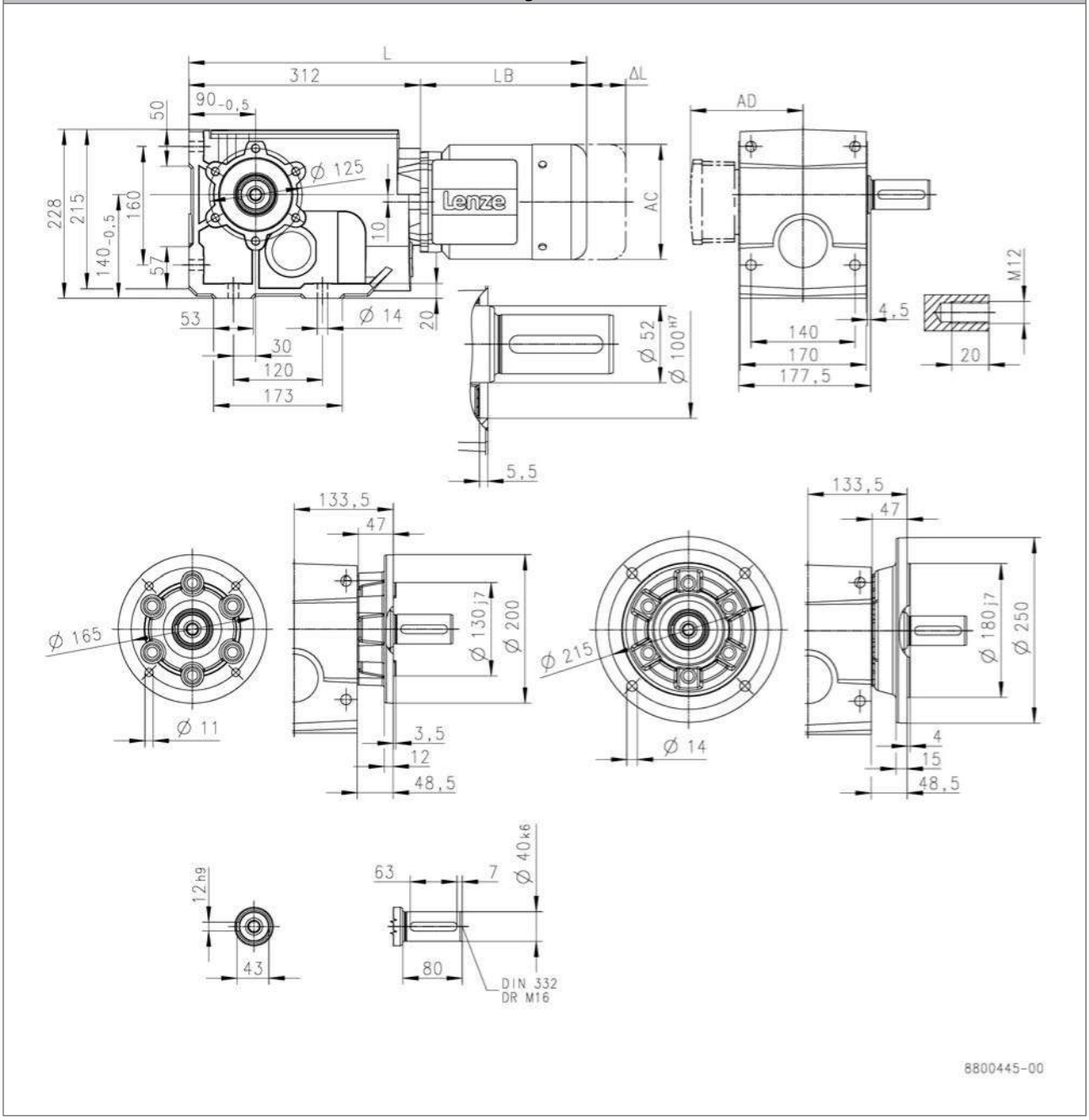
			MD□MA□□		
			063-42	071-32	071-42
Total length	L	[mm]	495	515	
Motor length	LB	[mm]	183	203	
Length of motor options	Δ L	[mm]	40.0	52.0	
Motor diameter	AC	[mm]	123	139	
Distance motor/connection	AD	[mm]	107	118	

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B820

Dimensions with solid shaft
Gearbox design: VBR, VAR, VAK



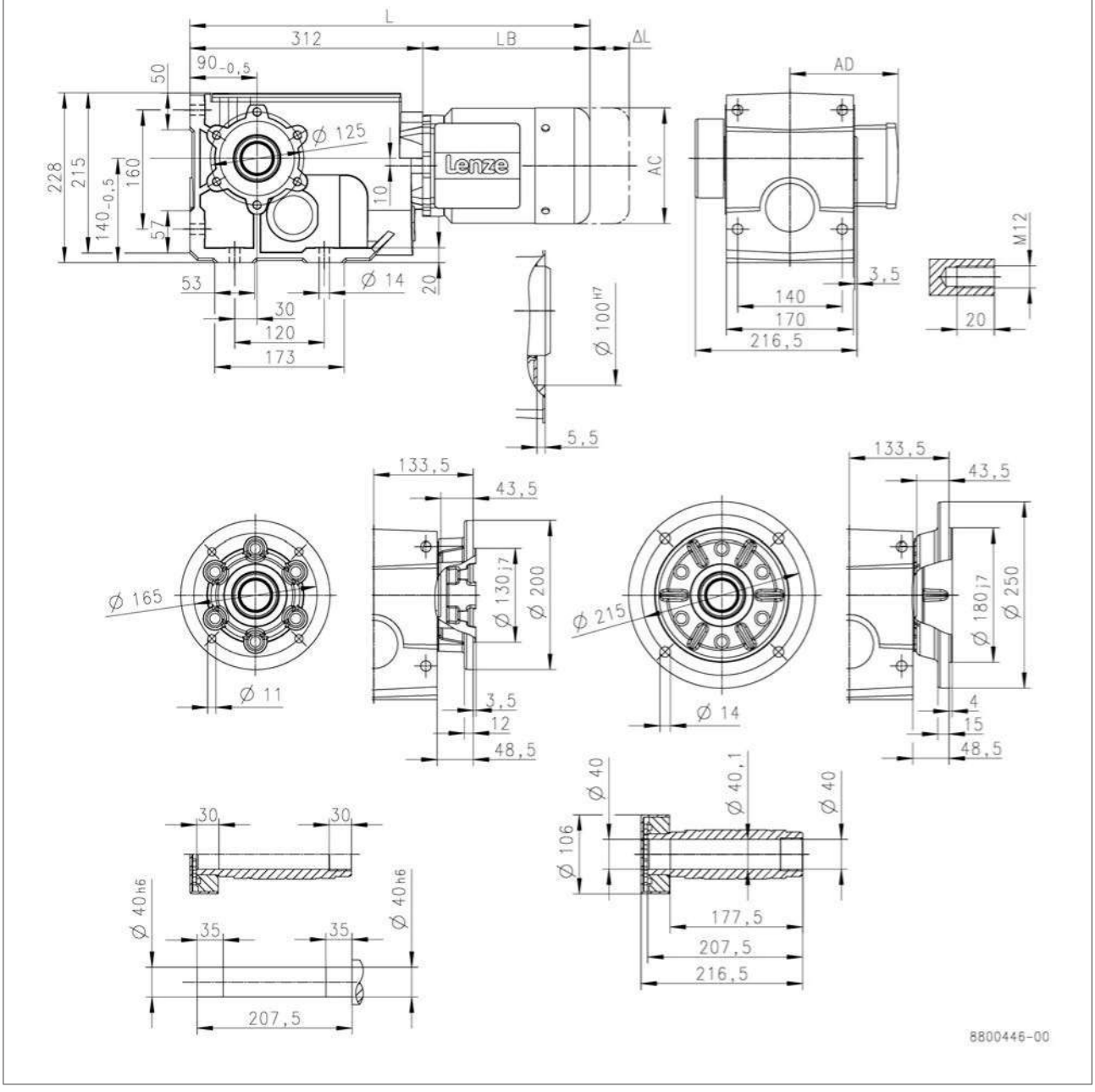
			m240							
			-P80/M4	-P90/M4	-P90/L4	-P100/M4	-P100/L4	-P112/M4	-P132/M4	-P132/L4
Total length	L	[mm]	537	606		668		655	730	
Motor length	LB	[mm]	225	294		356		343	418	
Length of motor options	Δ L	[mm]	107	92.0		103		111	118	
Motor diameter	AC	[mm]	158	172		192		210	281	
Distance motor/connection	AD	[mm]	148	155		164		171	182	

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B820

Dimensions hollow shaft with shrink disc
Gearbox design: SBR, SAR, SAK



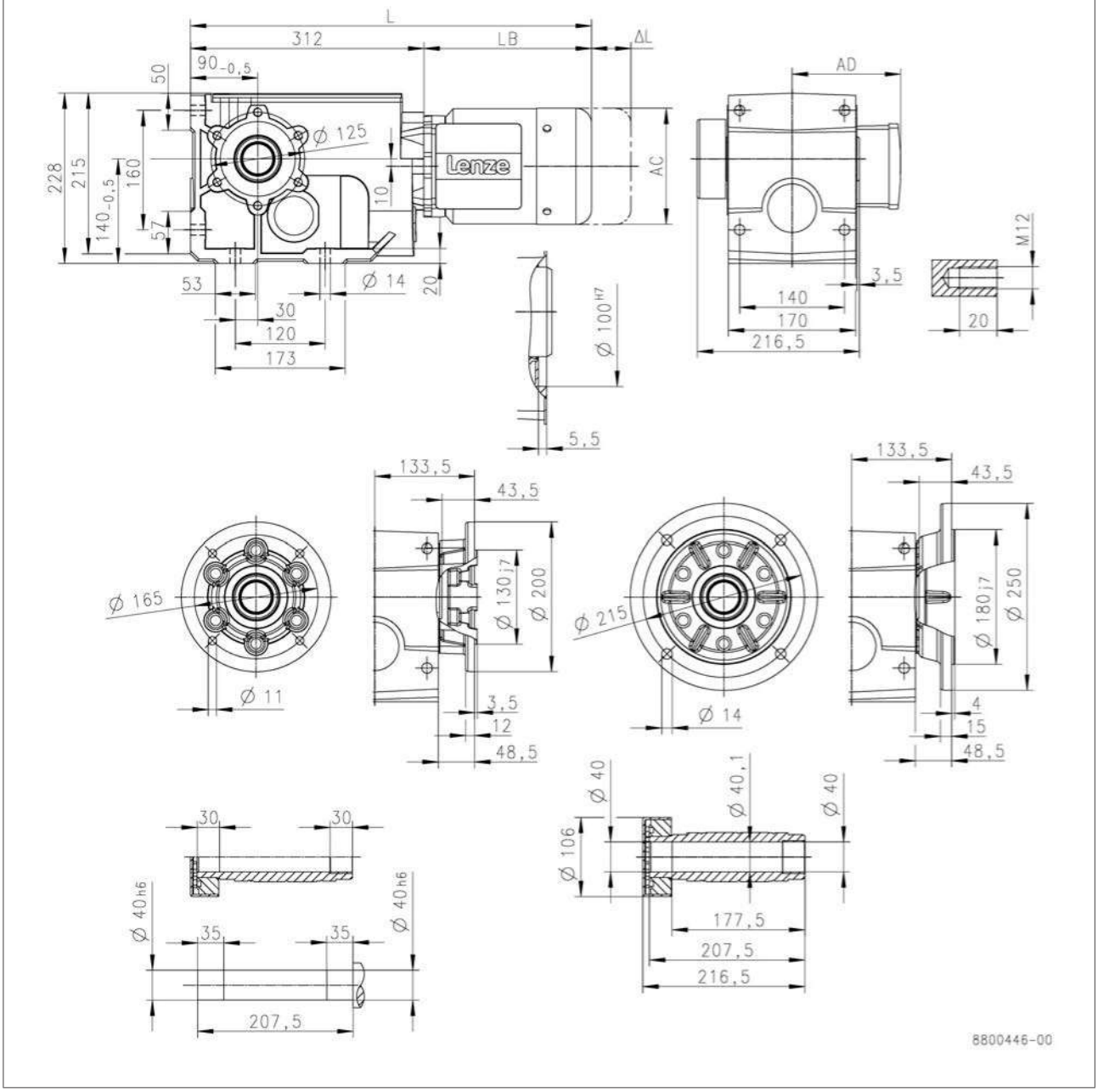
			MD□MA□□		
			063-42	071-32	071-42
Total length	L	[mm]	495	515	
Motor length	LB	[mm]	183	203	
Length of motor options	Δ L	[mm]	40.0	52.0	
Motor diameter	AC	[mm]	123	139	
Distance motor/connection	AD	[mm]	107	118	

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B820

Dimensions hollow shaft with shrink disc
Gearbox design: SBR, SAR, SAK



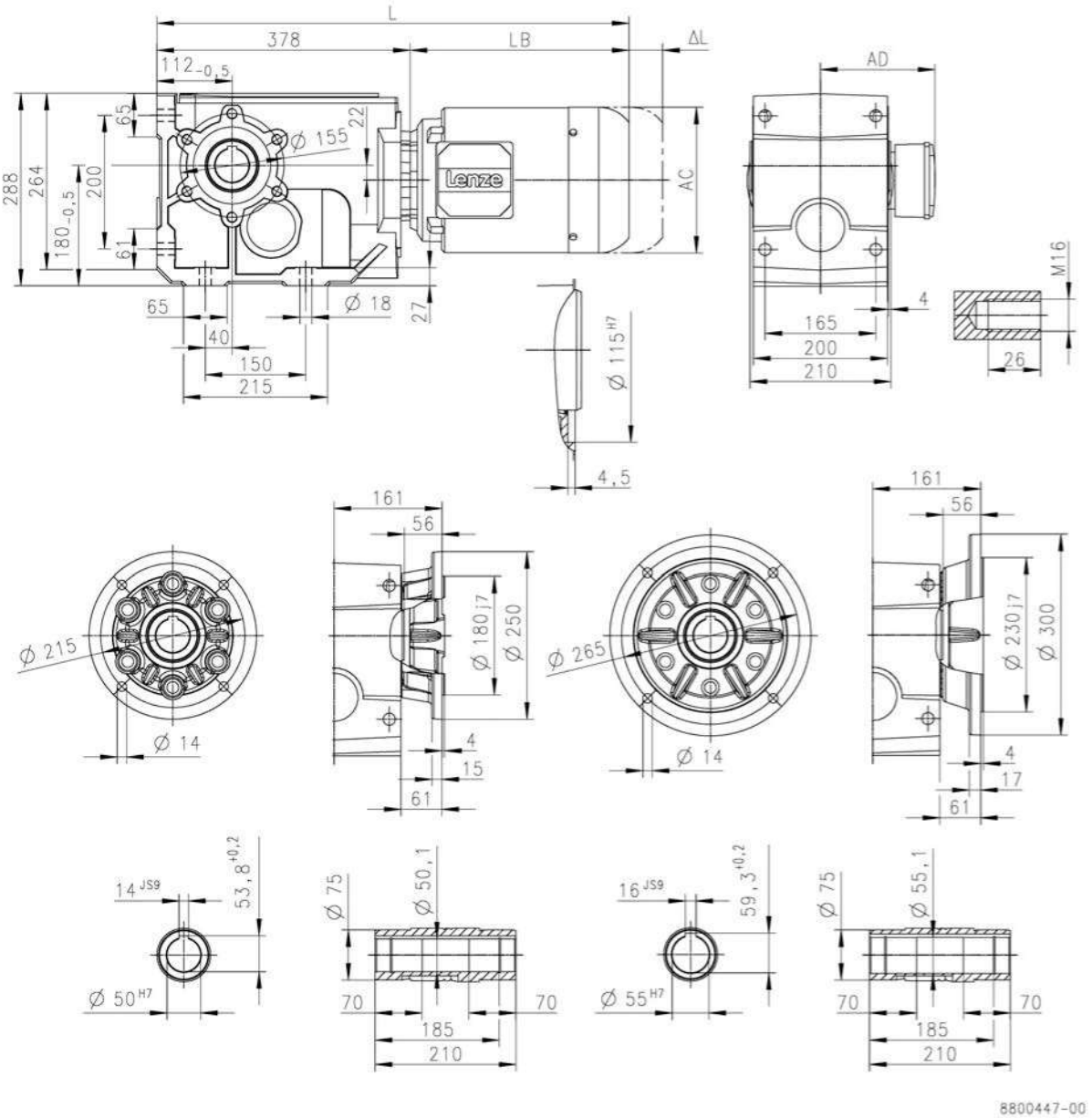
			m240							
			-P80/M4	-P90/M4	-P90/L4	-P100/M4	-P100/L4	-P112/M4	-P132/M4	-P132/L4
Total length	L	[mm]	537	606		668		655	730	
Motor length	LB	[mm]	225	294		356		343	418	
Length of motor options	Δ L	[mm]	107	92.0		103		111	118	
Motor diameter	AC	[mm]	158	172		192		210	281	
Distance motor/connection	AD	[mm]	148	155		164		171	182	

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B1500

Dimensions with hollow shaft
Gearbox design: HBR, HAR, HAK



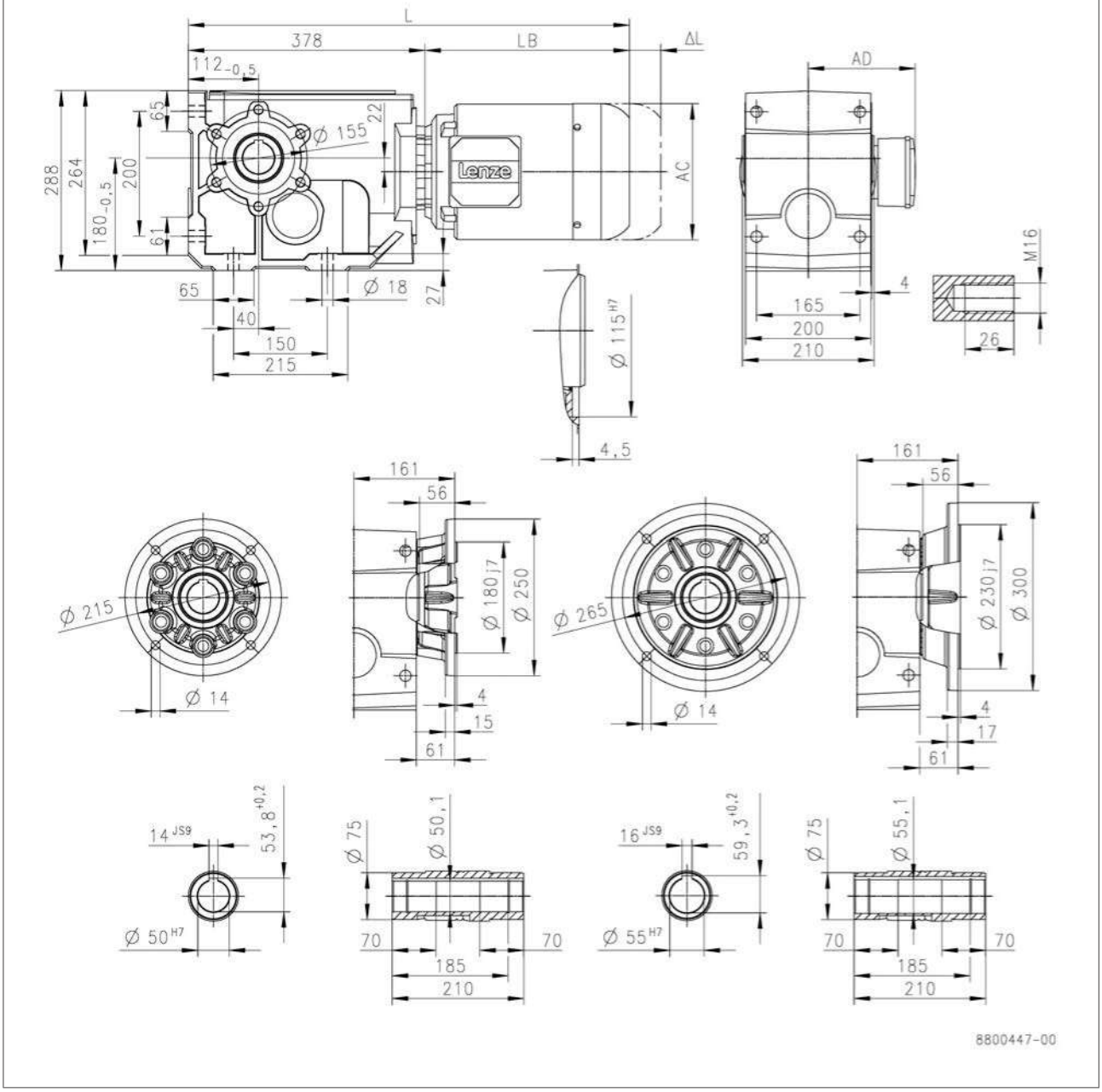
			MD□MA□□	m240				
			071-42	-P80/M4	-P90/M4	-P90/L4	-P100/M4	-P100/L4
Total length	L	[mm]	581	603	672		734	
Motor length	LB	[mm]	203	225	294		356	
Length of motor options	Δ L	[mm]	52.0	107	92.0		103	
Motor diameter	AC	[mm]	139	158	172		192	
Distance motor/connection	AD	[mm]	118	148	155		164	

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B1500

Dimensions with hollow shaft
Gearbox design: HBR, HAR, HAK



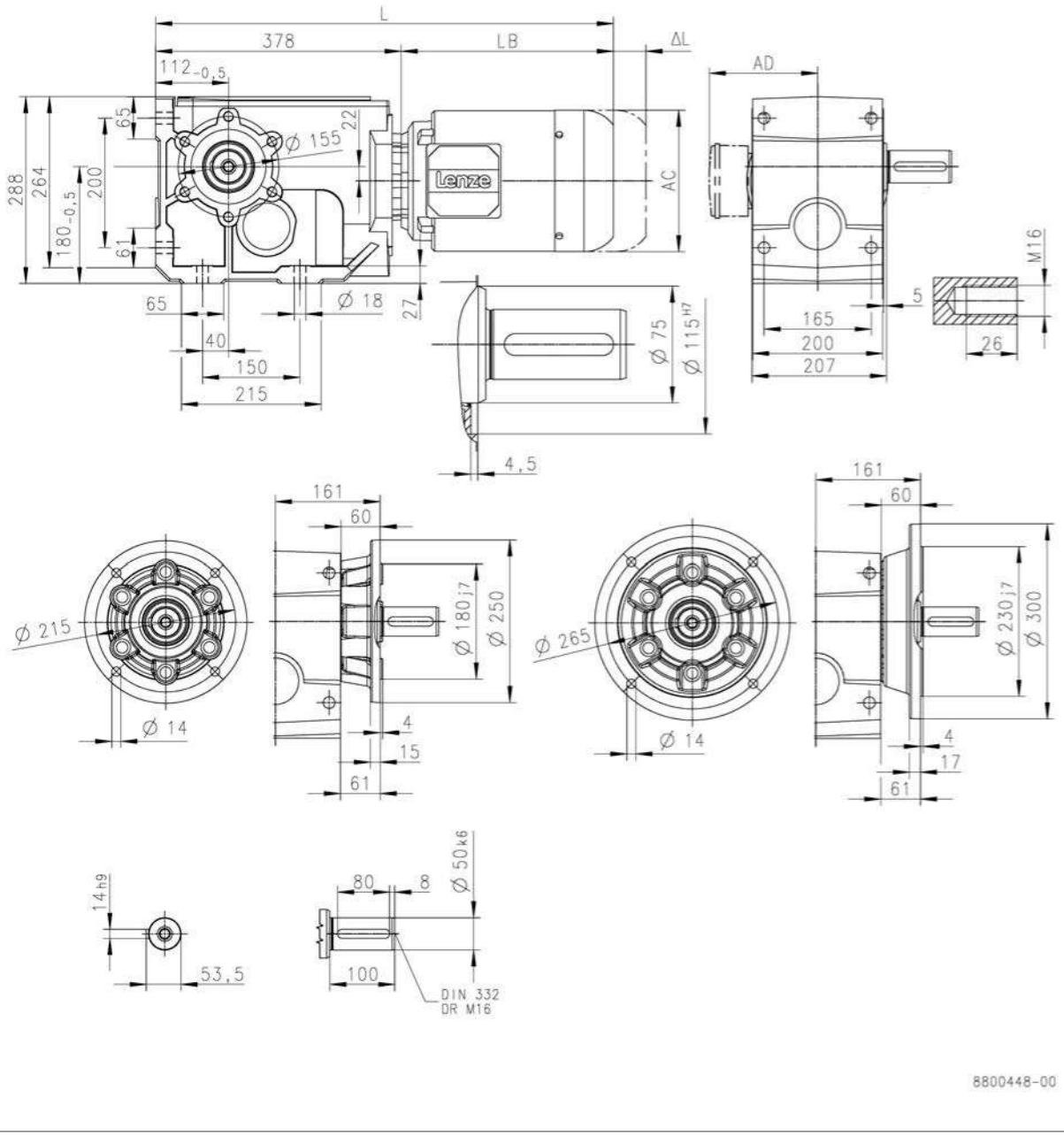
			m240				
			-P112/M4	-P132/M4	-P132/L4	-P160/M4	-P160/L4
Total length	L	[mm]	721	796		947	
Motor length	LB	[mm]	343	418		569	
Length of motor options	Δ L	[mm]	111	118		146	
Motor diameter	AC	[mm]	210	281		313	
Distance motor/connection	AD	[mm]	171	182		231	

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B1500

Dimensions with solid shaft
Gearbox design: VBR, VAR, VAK



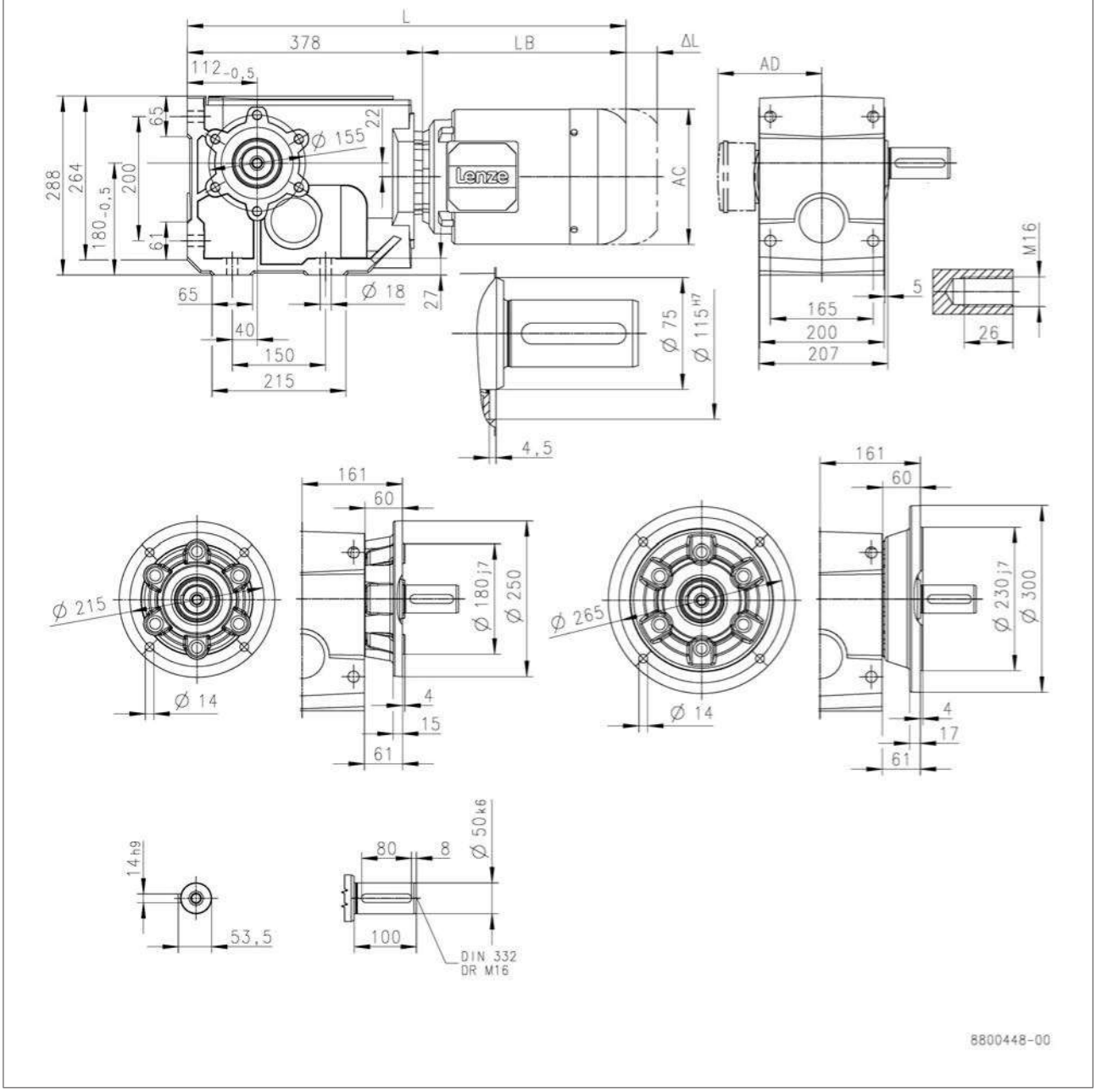
			MD□MA□□	m240				
			071-42	-P80/M4	-P90/M4	-P90/L4	-P100/M4	-P100/L4
Total length	L	[mm]	581	603	672		734	
Motor length	LB	[mm]	203	225	294		356	
Length of motor options	Δ L	[mm]	52.0	107	92.0		103	
Motor diameter	AC	[mm]	139	158	172		192	
Distance motor/connection	AD	[mm]	118	148	155		164	

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B1500

Dimensions with solid shaft
Gearbox design: VBR, VAR, VAK



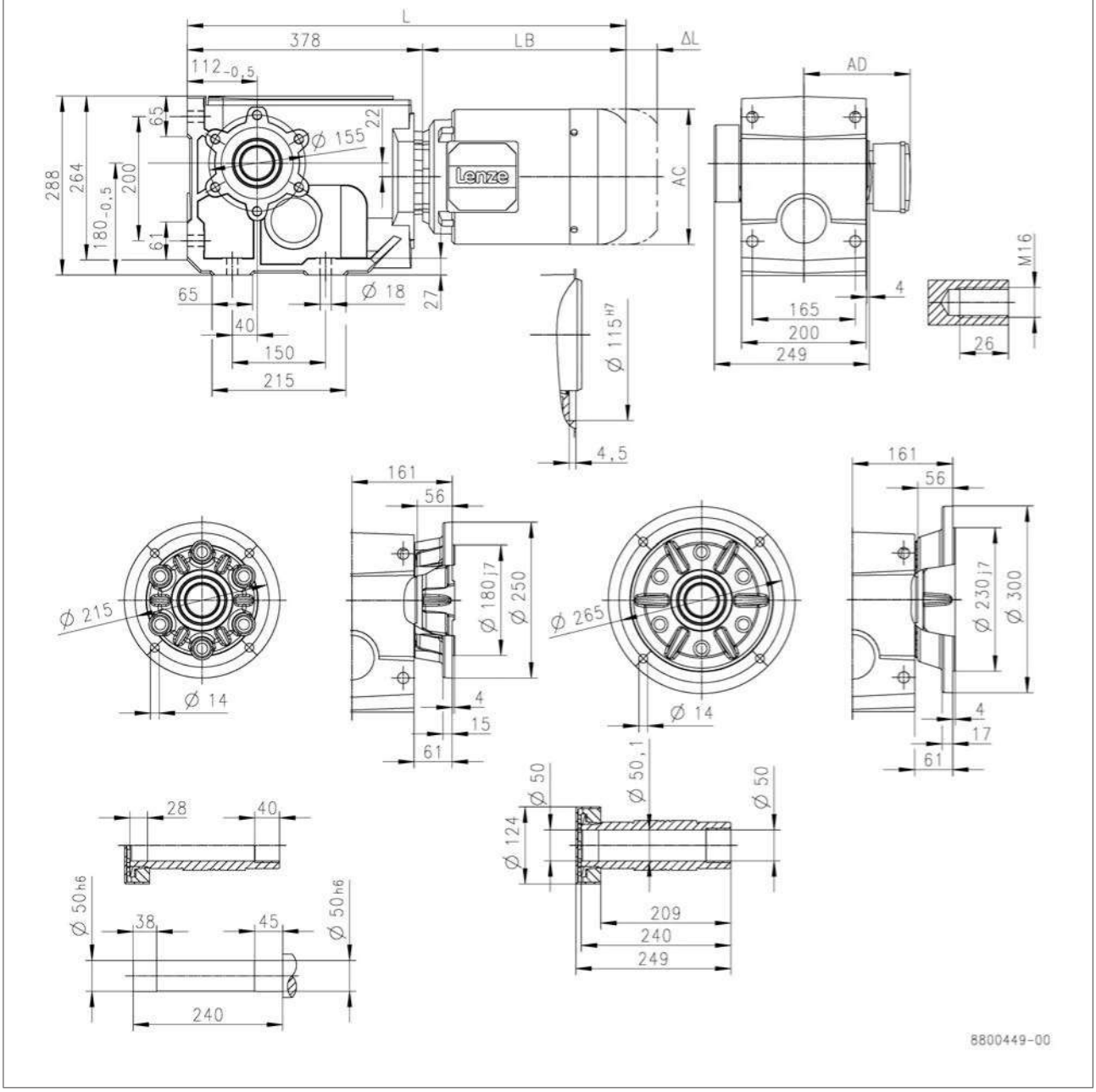
			m240				
			-P112/M4	-P132/M4	-P132/L4	-P160/M4	-P160/L4
Total length	L	[mm]	721	796		947	
Motor length	LB	[mm]	343	418		569	
Length of motor options	Δ L	[mm]	111	118		146	
Motor diameter	AC	[mm]	210	281		313	
Distance motor/connection	AD	[mm]	171	182		231	

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B1500

Dimensions hollow shaft with shrink disc
Gearbox design: SBR, SAR, SAK



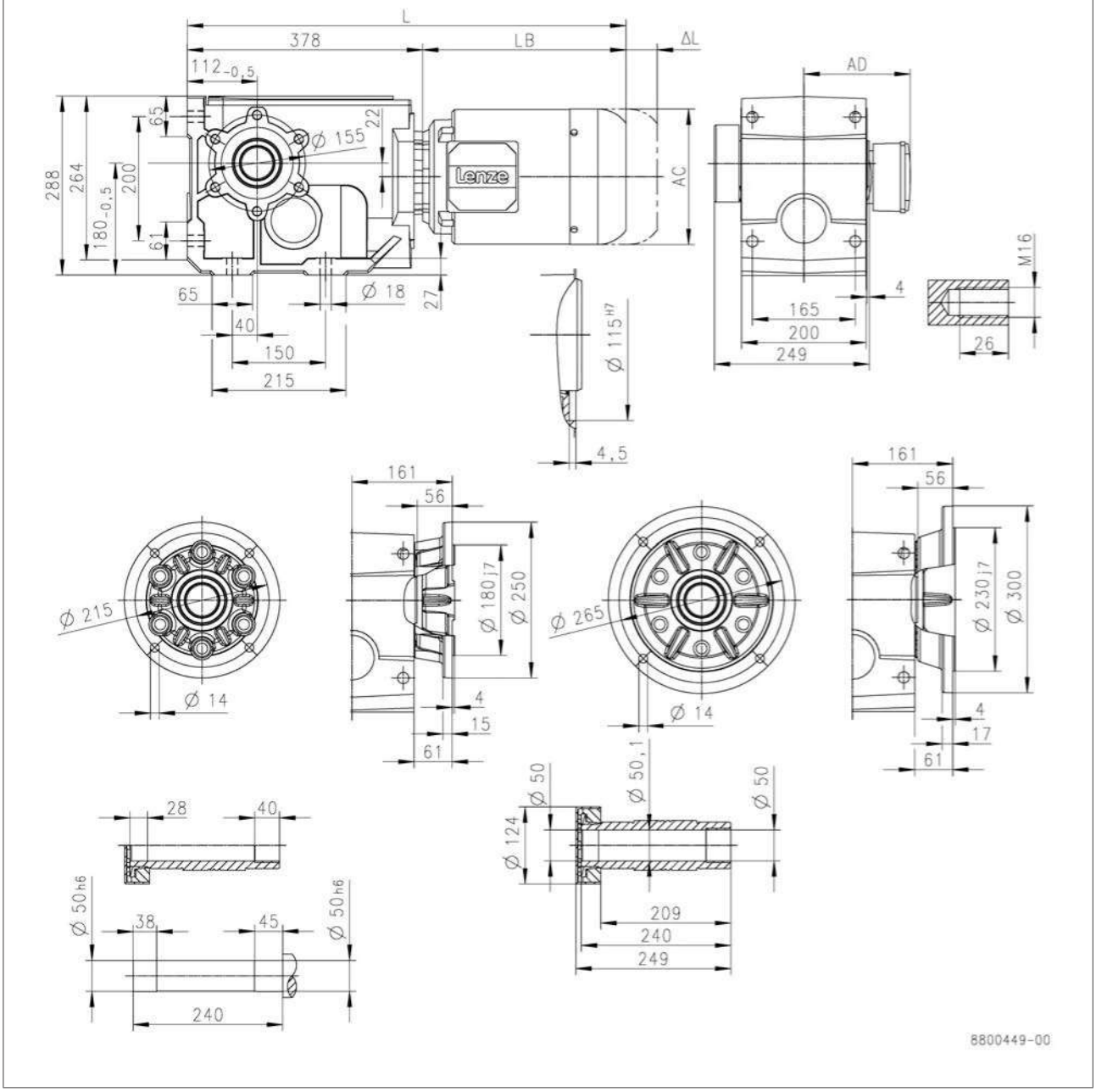
			MD□MA□□	m240				
			071-42	-P80/M4	-P90/M4	-P90/L4	-P100/M4	-P100/L4
Total length	L	[mm]	581	603	672		734	
Motor length	LB	[mm]	203	225	294		356	
Length of motor options	Δ L	[mm]	52.0	107	92.0		103	
Motor diameter	AC	[mm]	139	158	172		192	
Distance motor/connection	AD	[mm]	118	148	155		164	

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B1500

Dimensions hollow shaft with shrink disc
Gearbox design: SBR, SAR, SAK



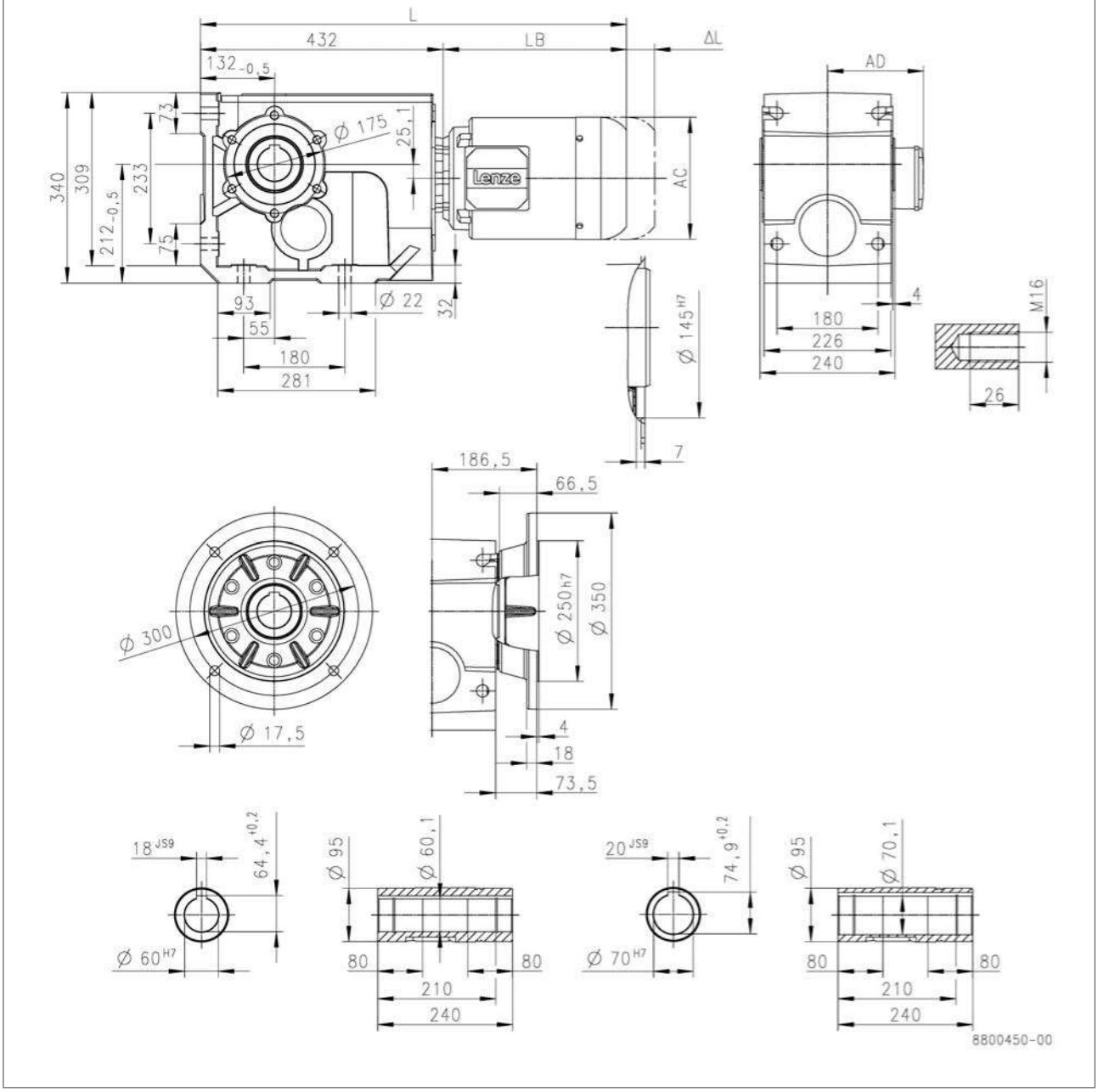
			m240				
			-P112/M4	-P132/M4	-P132/L4	-P160/M4	-P160/L4
Total length	L	[mm]	721	796		947	
Motor length	LB	[mm]	343	418		569	
Length of motor options	Δ L	[mm]	111	118		146	
Motor diameter	AC	[mm]	210	281		313	
Distance motor/connection	AD	[mm]	171	182		231	

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B2700

Dimensions with hollow shaft
Gearbox design: HBR, HAR, HAK



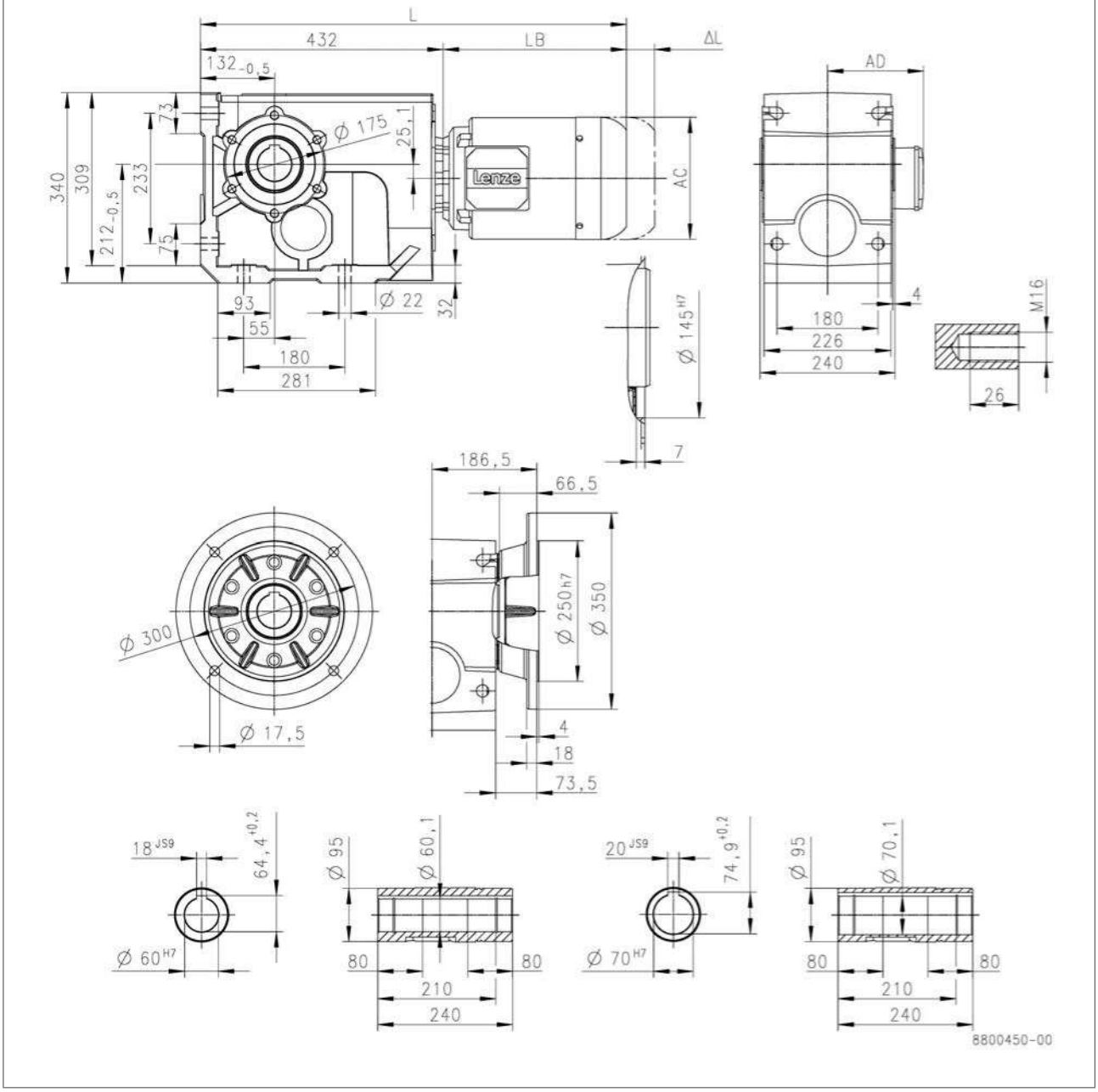
			m240				
			-P90/M4	-P90/L4	-P100/M4	-P100/L4	-P112/M4
Total length	L	[mm]	726		788		775
Motor length	LB	[mm]	294		356		343
Length of motor options	Δ L	[mm]	92.0		103		111
Motor diameter	AC	[mm]	172		192		210
Distance motor/connection	AD	[mm]	155		164		171

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B2700

Dimensions with hollow shaft
Gearbox design: HBR, HAR, HAK



			m240			
			-P132/M4	-P132/L4	-P160/M4	-P160/L4
Total length	L	[mm]	850		1001	
Motor length	LB	[mm]	418		569	
Length of motor options	Δ L	[mm]	118		146	
Motor diameter	AC	[mm]	281		313	
Distance motor/connection	AD	[mm]	182		231	

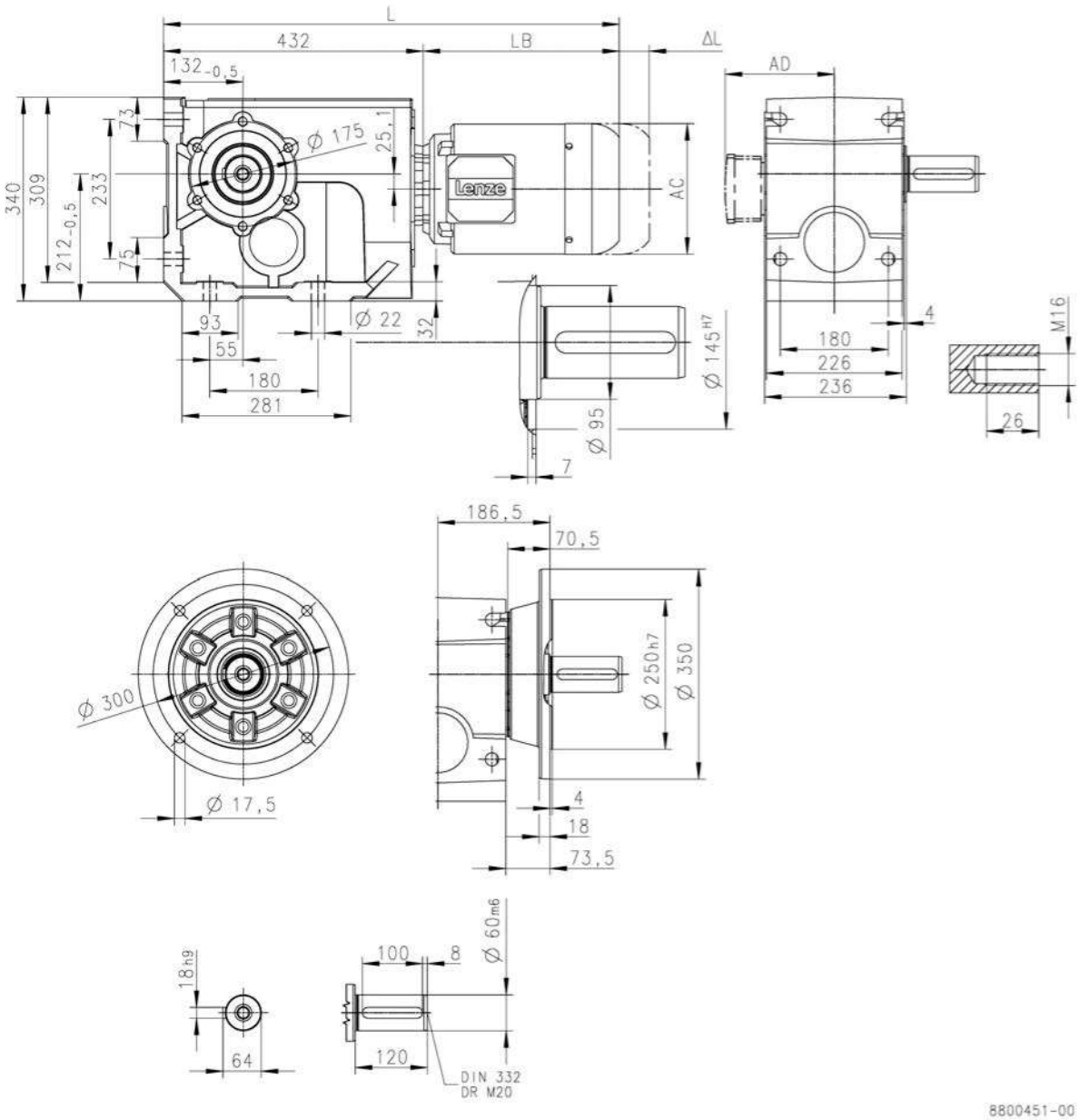
L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

6.5

Dimensions, 4-pole motors

g500-B2700

Dimensions with solid shaft
Gearbox design: VBR, VAR, VAK



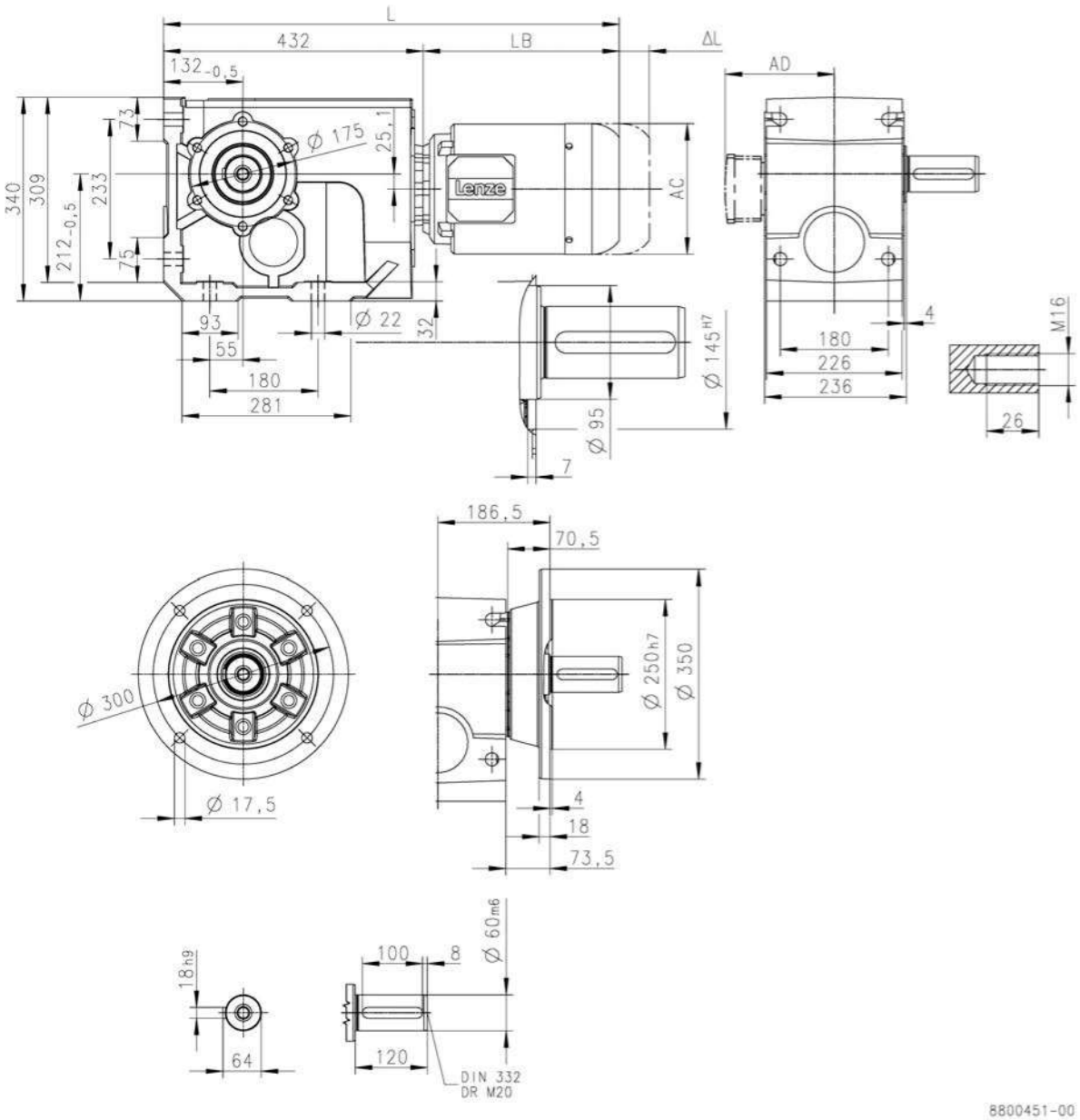
			m240				
			-P90/M4	-P90/L4	-P100/M4	-P100/L4	-P112/M4
Total length	L	[mm]	726		788		775
Motor length	LB	[mm]	294		356		343
Length of motor options	Δ L	[mm]	92.0		103		111
Motor diameter	AC	[mm]	172		192		210
Distance motor/connection	AD	[mm]	155		164		171

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B2700

Dimensions with solid shaft
Gearbox design: VBR, VAR, VAK



			m240			
			-P132/M4	-P132/L4	-P160/M4	-P160/L4
Total length	L	[mm]	850		1001	
Motor length	LB	[mm]	418		569	
Length of motor options	Δ L	[mm]	118		146	
Motor diameter	AC	[mm]	281		313	
Distance motor/connection	AD	[mm]	182		231	

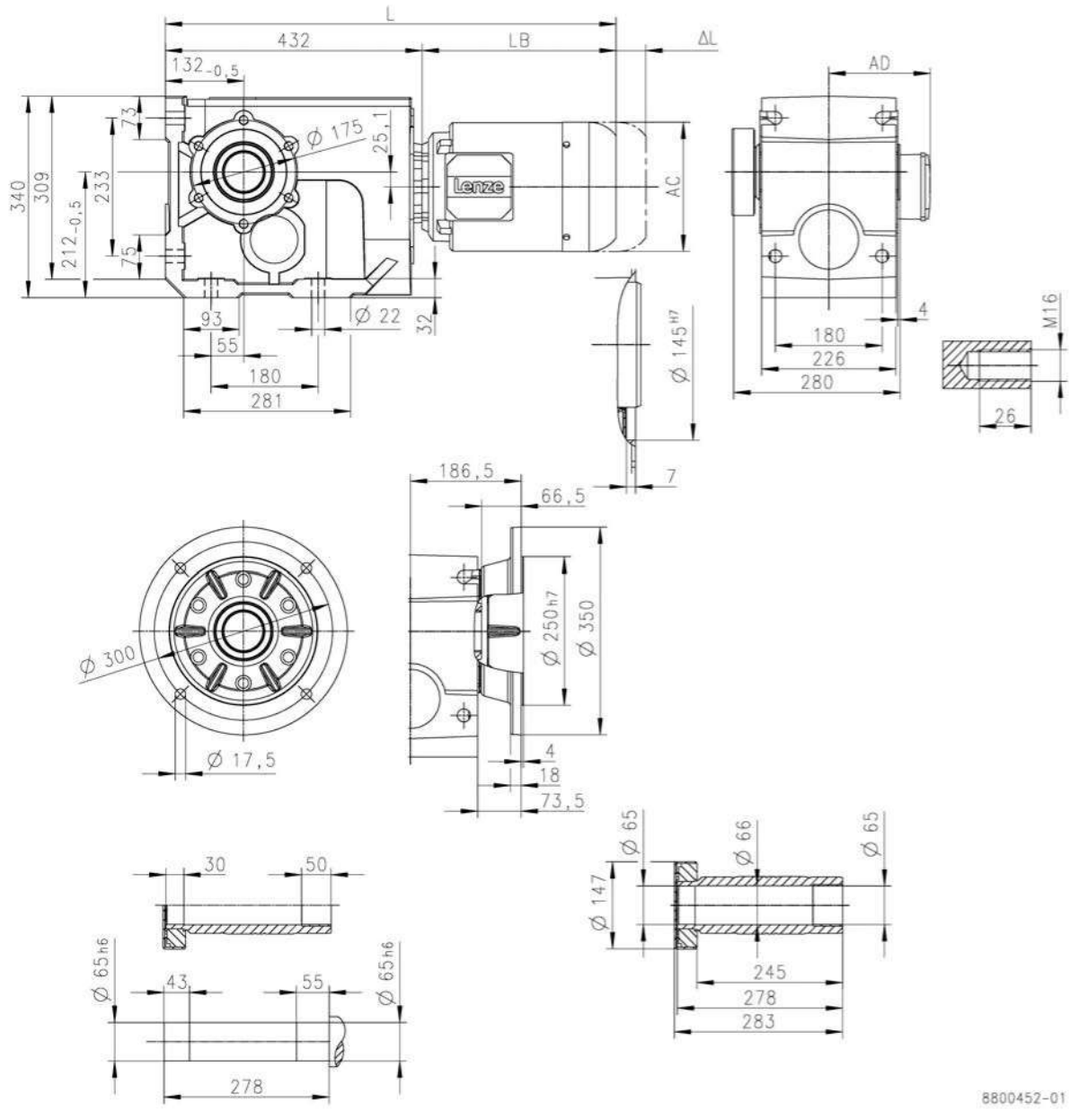
L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

6.5

Dimensions, 4-pole motors

g500-B2700

Dimensions hollow shaft with shrink disc
Gearbox design: SBR, SAR, SAK



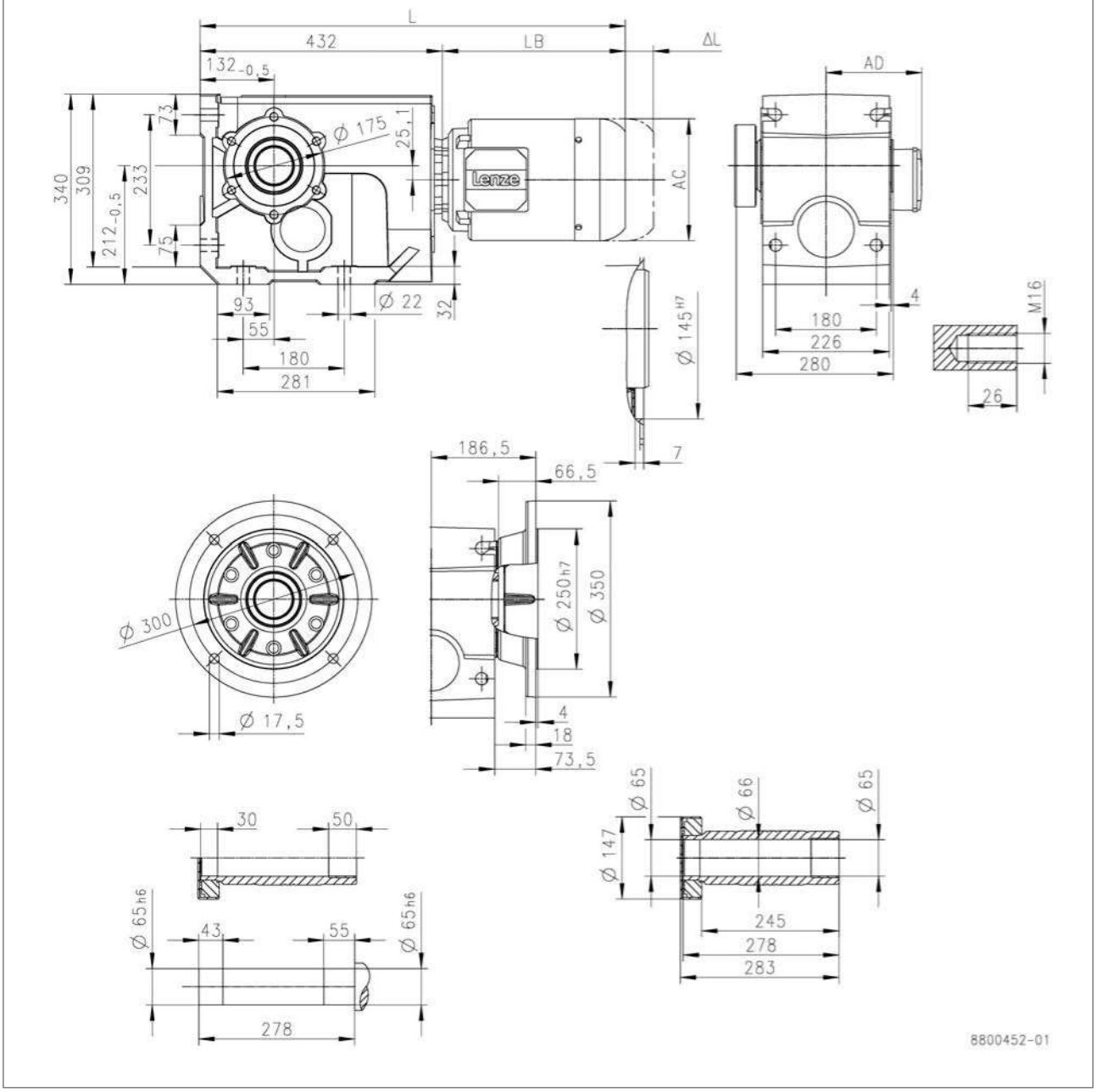
			m240				
			-P90/M4	-P90/L4	-P100/M4	-P100/L4	-P112/M4
Total length	L	[mm]	726		788		775
Motor length	LB	[mm]	294		356		343
Length of motor options	Δ L	[mm]	92.0		103		111
Motor diameter	AC	[mm]	172		192		210
Distance motor/connection	AD	[mm]	155		164		171

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B2700

Dimensions hollow shaft with shrink disc
Gearbox design: SBR, SAR, SAK



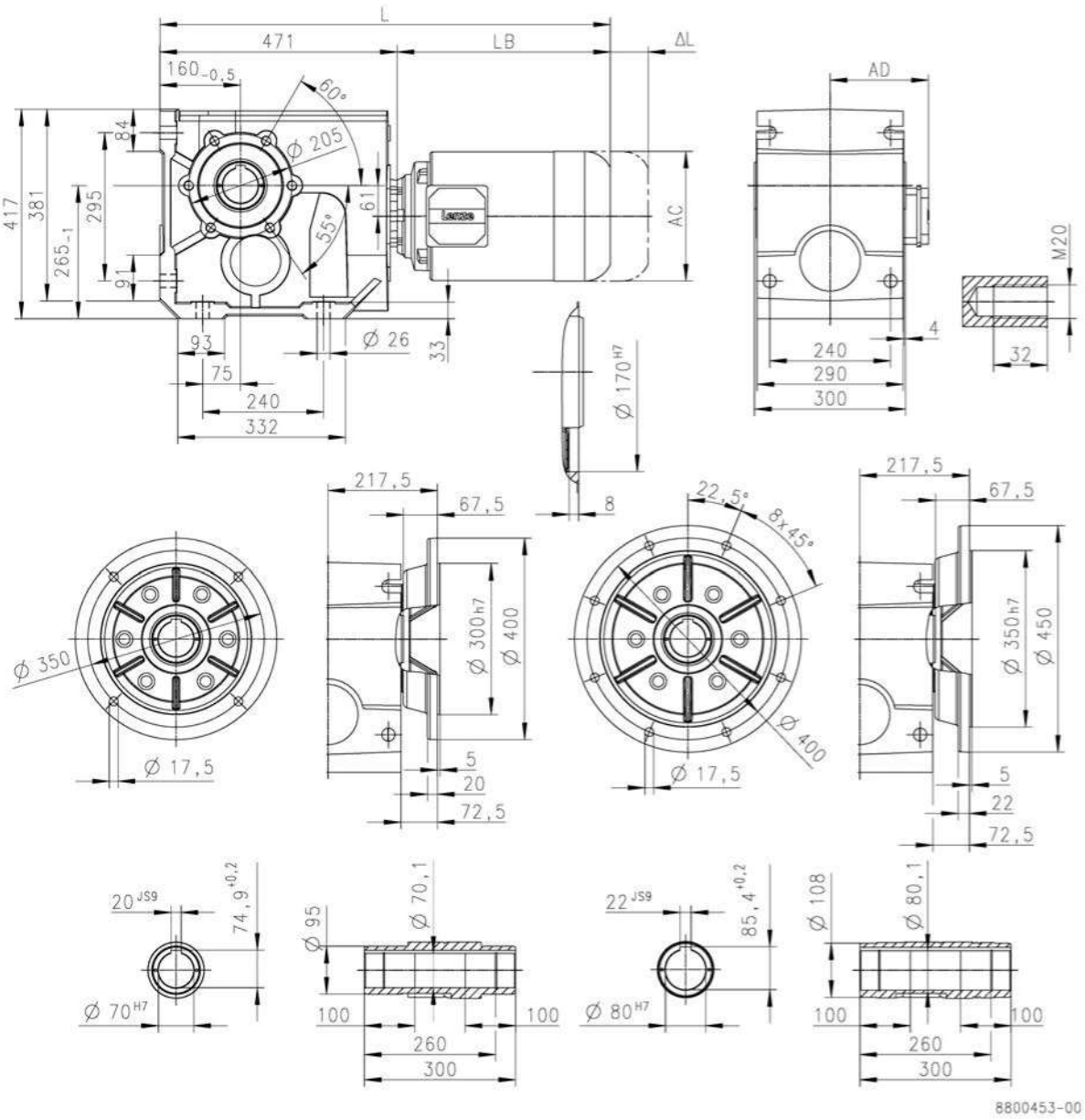
			m240			
			-P132/M4	-P132/L4	-P160/M4	-P160/L4
Total length	L	[mm]	850		1001	
Motor length	LB	[mm]	418		569	
Length of motor options	Δ L	[mm]	118		146	
Motor diameter	AC	[mm]	281		313	
Distance motor/connection	AD	[mm]	182		231	

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B4300

Dimensions with hollow shaft
Gearbox design: HBR, HAR, HAK



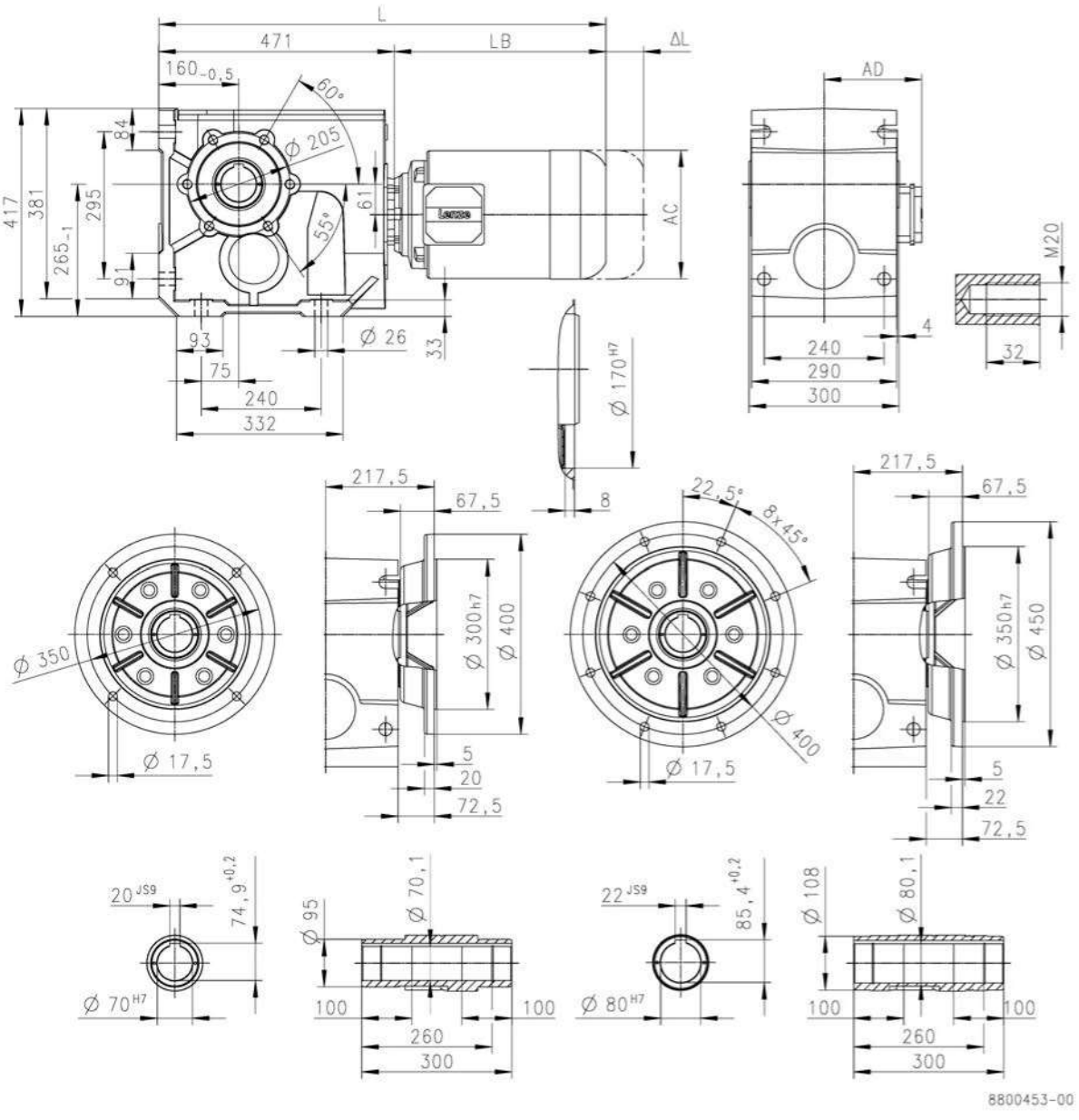
			m240						
			-P90/M4	-P90/L4	-P100/M4	-P100/L4	-P112/M4	-P132/M4	-P132/L4
Total length	L	[mm]	765		827		814	889	
Motor length	LB	[mm]	294		356		343	418	
Length of motor options	Δ L	[mm]	92.0		103		111	118	
Motor diameter	AC	[mm]	172		192		210	281	
Distance motor/connection	AD	[mm]	155		164		171	182	

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B4300

Dimensions with hollow shaft
Gearbox design: HBR, HAR, HAK



			m240				
			-P160/M4	-P160/L4	-P180/M4	-P180/L4	-P180/V4
Total length	L	[mm]	1040		1140		
Motor length	LB	[mm]	569		669		
Length of motor options	Δ L	[mm]	146		107		
Motor diameter	AC	[mm]	313		351		
Distance motor/connection	AD	[mm]	231		282		

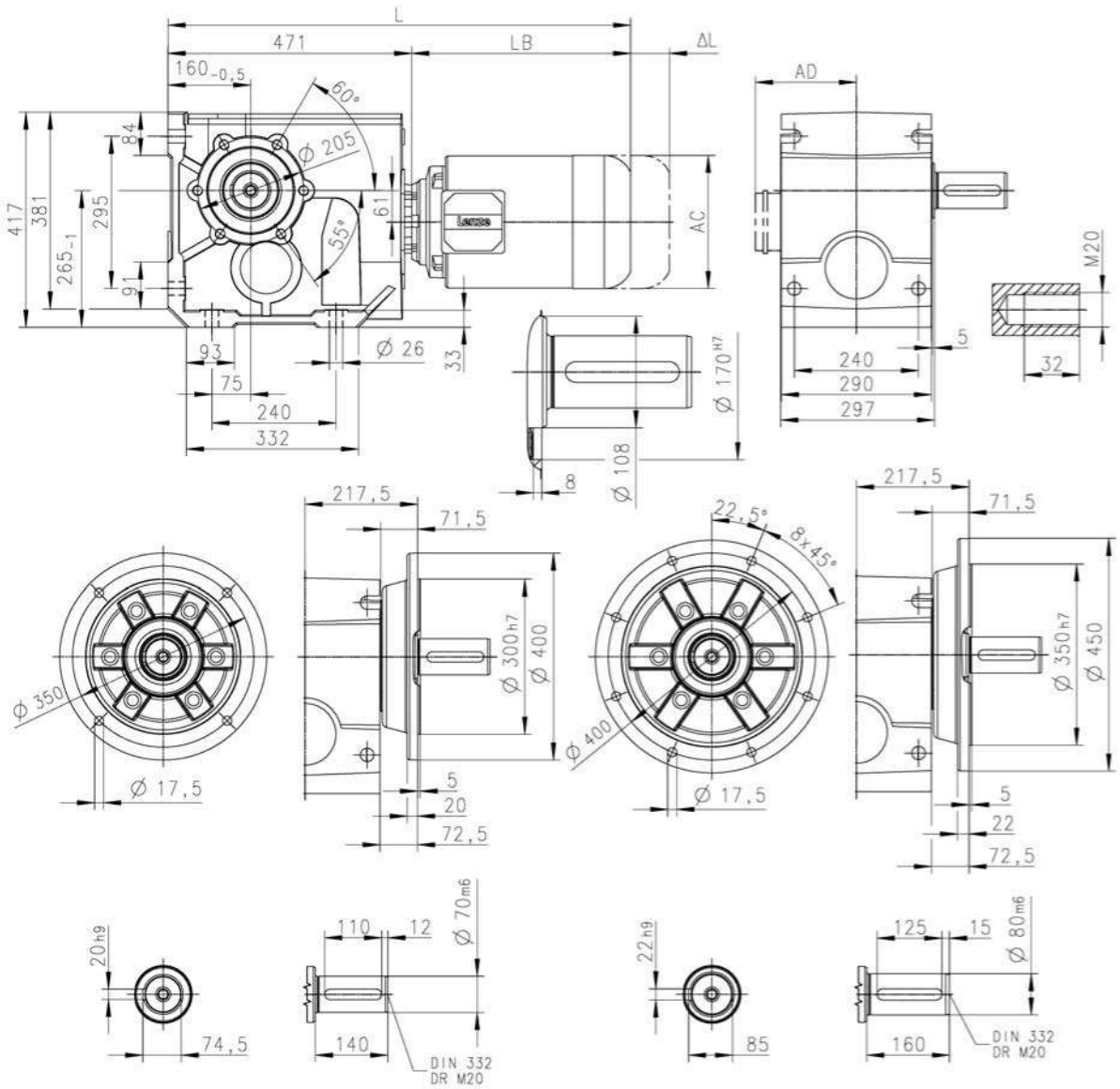
L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

6.5

Dimensions, 4-pole motors

g500-B4300

Dimensions with solid shaft
Gearbox design: VBR, VAR, VAK



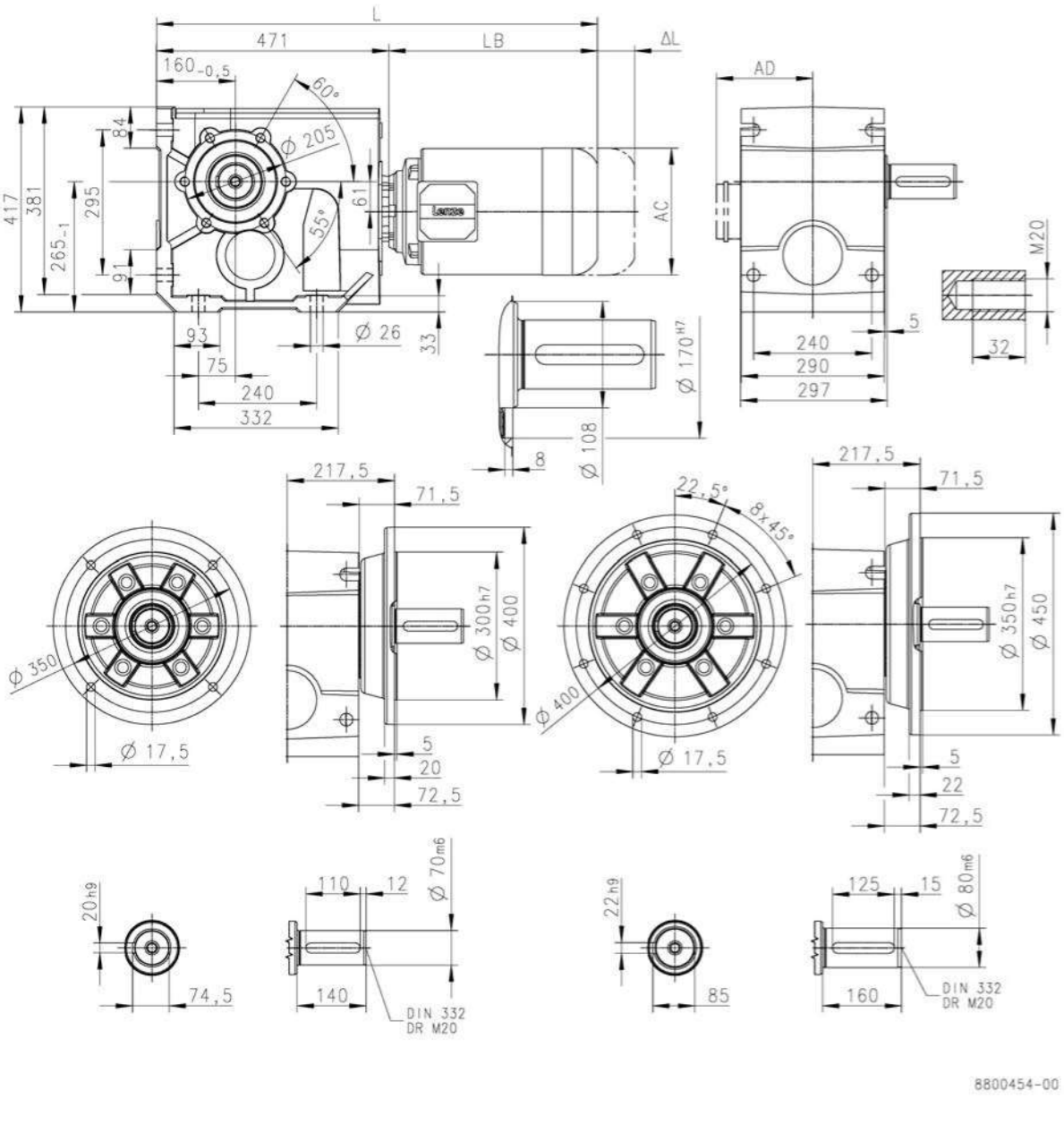
			m240						
			-P90/M4	-P90/L4	-P100/M4	-P100/L4	-P112/M4	-P132/M4	-P132/L4
Total length	L	[mm]	765		827		814	889	
Motor length	LB	[mm]	294		356		343	418	
Length of motor options	Δ L	[mm]	92.0		103		111	118	
Motor diameter	AC	[mm]	172		192		210	281	
Distance motor/connection	AD	[mm]	155		164		171	182	

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B4300

Dimensions with solid shaft
Gearbox design: VBR, VAR, VAK



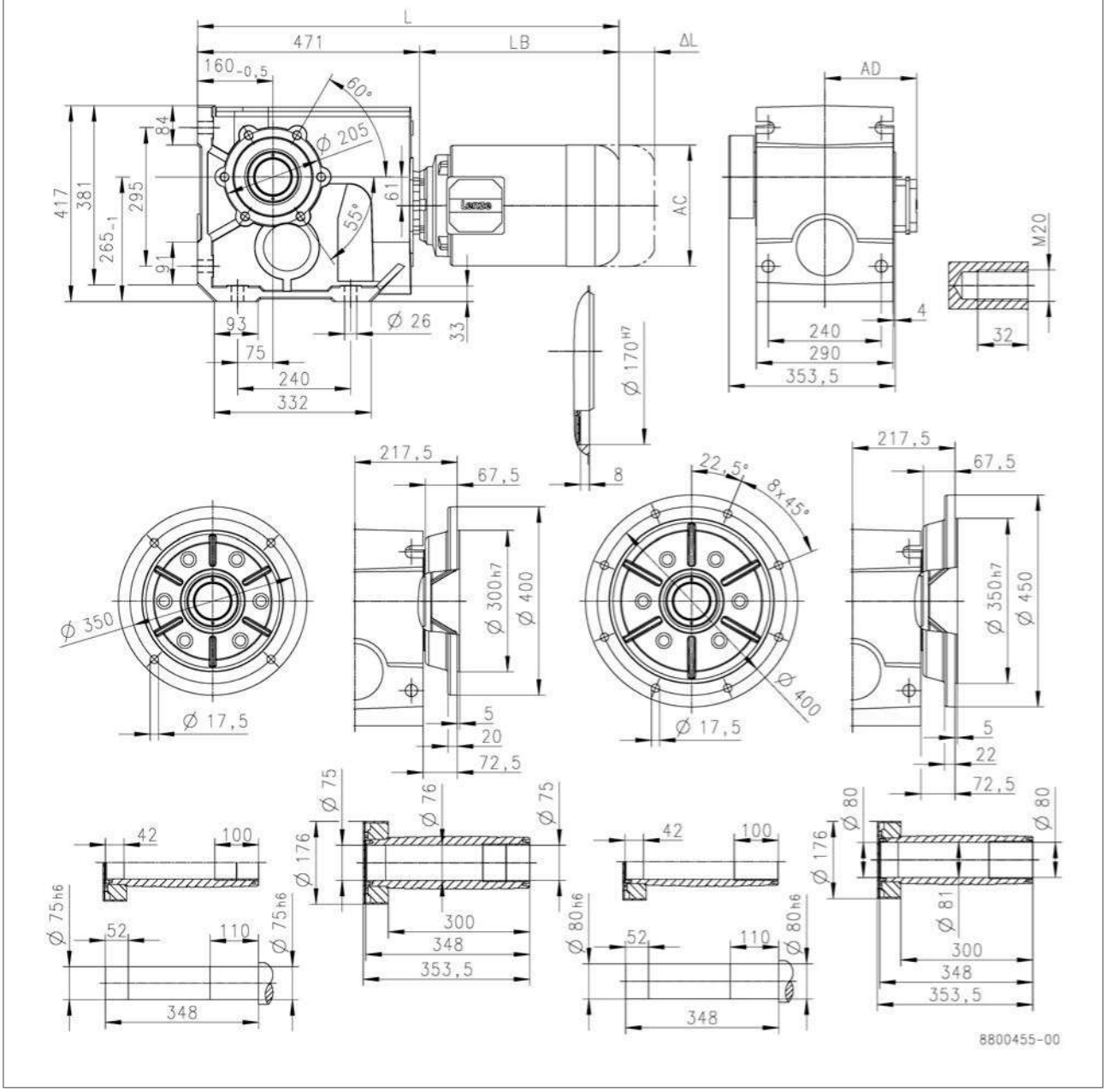
			m240				
			-P160/M4	-P160/L4	-P180/M4	-P180/L4	-P180/V4
Total length	L	[mm]	1040		1140		
Motor length	LB	[mm]	569		669		
Length of motor options	Δ L	[mm]	146		107		
Motor diameter	AC	[mm]	313		351		
Distance motor/connection	AD	[mm]	231		282		

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B4300

Dimensions hollow shaft with shrink disc
Gearbox design: SBR, SAR, SAK



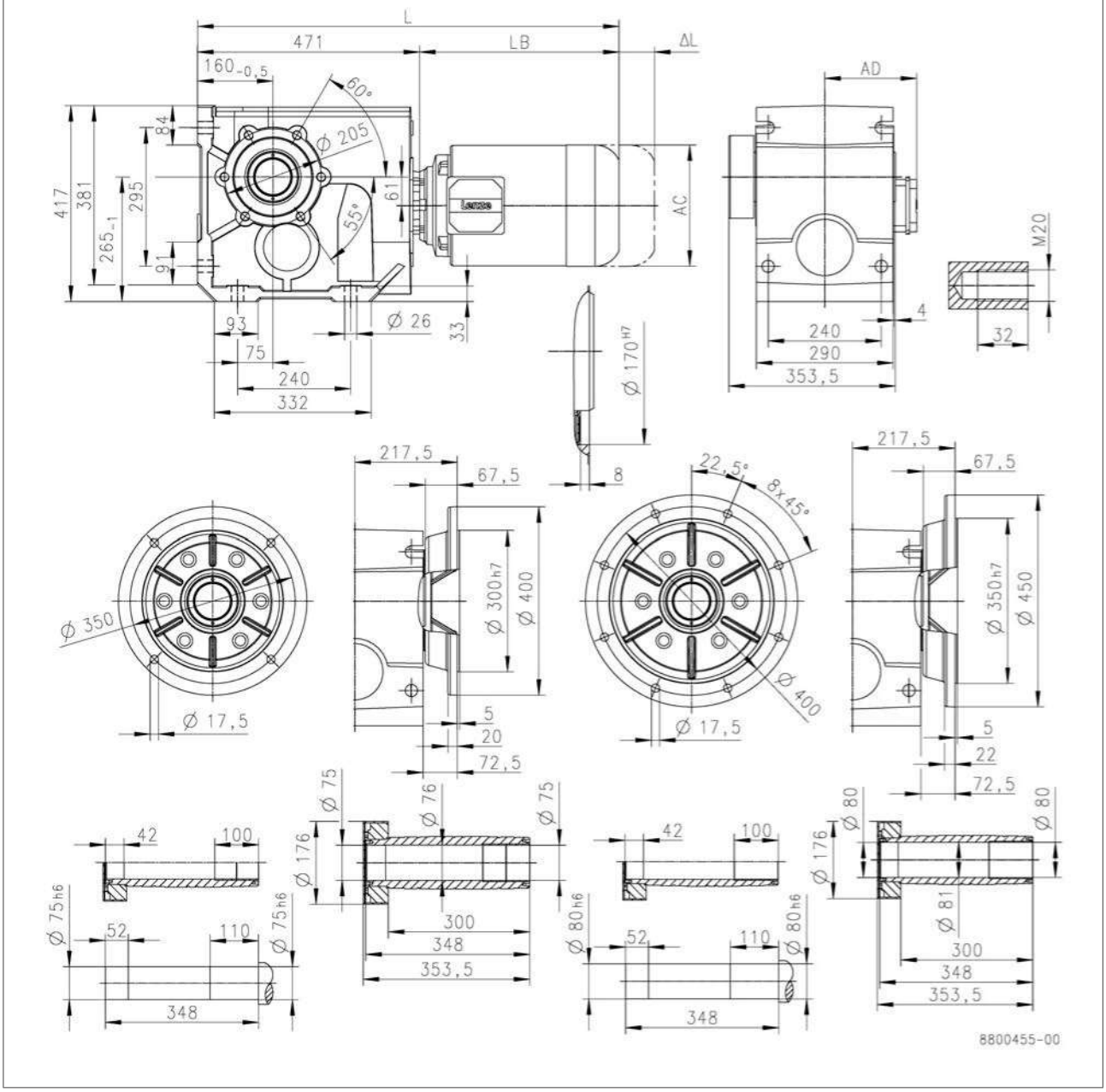
			m240						
			-P90/M4	-P90/L4	-P100/M4	-P100/L4	-P112/M4	-P132/M4	-P132/L4
Total length	L	[mm]	765		827		814	889	
Motor length	LB	[mm]	294		356		343	418	
Length of motor options	Δ L	[mm]	92.0		103		111	118	
Motor diameter	AC	[mm]	172		192		210	281	
Distance motor/connection	AD	[mm]	155		164		171	182	

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Dimensions, 4-pole motors

g500-B4300

Dimensions hollow shaft with shrink disc
Gearbox design: SBR, SAR, SAK



			m240				
			-P160/M4	-P160/L4	-P180/M4	-P180/L4	-P180/V4
Total length	L	[mm]	1040		1140		
Motor length	LB	[mm]	569		669		
Length of motor options	Δ L	[mm]	146		107		
Motor diameter	AC	[mm]	313		351		
Distance motor/connection	AD	[mm]	231		282		

L = length of the motor without built-on accessories
ΔL = additional length of the built-on accessories (with brake)

Weights, 4-pole motors

► Weights with oil capacity for mounting position A, all given as approximate values.
The weights refer to the basic version, observe additional weights!

2-stage gearboxes

Product		Mass
		m
		[kg]
g500-B45	MD□MA□□063-02	6.70
	MD□MA□□063-12	7.30
	MD□MA□□063-22	6.70
	MD□MA□□063-32	7.30
	MD□MA□□063-42	7.60
	MD□MA□□071-32	9.00
	MD□MA□□071-42	9.60
g500-B110	MD□MA□□063-12	8.90
	MD□MA□□063-32	
	MD□MA□□063-42	9.20
	MD□MA□□071-32	10.6
	MD□MA□□071-42	11.2
	m240-P80/M4	19.7
	m240-P90/M4	23.7
	m240-P90/L4	24.7
g500-B240	MD□MA□□063-12	13.2
	MD□MA□□063-32	
	MD□MA□□063-42	13.5
	MD□MA□□071-32	14.9
	MD□MA□□071-42	15.5
	m240-P80/M4	24.0
	m240-P90/M4	28.0
	m240-P90/L4	29.0
	m240-P100/M4	35.0
	m240-P100/L4	40.0

Weights, 4-pole motors

► Weights with oil capacity for mounting position A, all given as approximate values.
The weights refer to the basic version, observe additional weights!

3-stage gearboxes

Product		Mass
		m
		[kg]
g500-B240	MD□MA□□063-12	13.4
	MD□MA□□063-32	
	MD□MA□□063-42	13.7
	MD□MA□□071-32	15.1
	MD□MA□□071-42	15.7
g500-B450	MD□MA□□063-12	16.4
	MD□MA□□063-32	
	MD□MA□□063-42	16.7
	MD□MA□□071-32	18.1
	MD□MA□□071-42	18.7
	m240-P80/M4	27.2
	m240-P90/M4	31.2
	m240-P90/L4	32.2
	m240-P100/M4	38.2
	m240-P100/L4	43.2
	m240-P112/M4	46.2
	m240-P132/M4	67.2
	m240-P132/L4	69.2
g500-B600	MD□MA□□063-42	34.8
	MD□MA□□071-32	36.2
	MD□MA□□071-42	36.8
	m240-P80/M4	45.3
	m240-P90/M4	49.3
	m240-P90/L4	50.3
	m240-P100/M4	56.3
	m240-P100/L4	61.3
	m240-P112/M4	64.3
	m240-P132/M4	85.3
	m240-P132/L4	87.3
g500-B820	MD□MA□□063-42	39.9
	MD□MA□□071-32	41.3
	MD□MA□□071-42	41.9
	m240-P80/M4	50.4
	m240-P90/M4	54.4
	m240-P90/L4	55.4
	m240-P100/M4	61.4

Product		Mass
		m
		[kg]
g500-B820	m240-P100/L4	66.4
	m240-P112/M4	69.4
	m240-P132/M4	90.4
	m240-P132/L4	92.4
g500-B1500	MD□MA□□071-42	72.2
	m240-P80/M4	80.7
	m240-P90/M4	84.7
	m240-P90/L4	85.7
	m240-P100/M4	91.7
	m240-P100/L4	96.7
	m240-P112/M4	99.7
	m240-P132/M4	121
	m240-P132/L4	123
	m240-P160/M4	158
	m240-P160/L4	165
g500-B2700	m240-P90/M4	126
	m240-P90/L4	127
	m240-P100/M4	133
	m240-P100/L4	138
	m240-P112/M4	141
	m240-P132/M4	162
	m240-P132/L4	164
	m240-P160/M4	199
	m240-P160/L4	206
g500-B4300	m240-P90/M4	188
	m240-P90/L4	189
	m240-P100/M4	195
	m240-P100/L4	200
	m240-P112/M4	203
	m240-P132/M4	224
	m240-P132/L4	226
	m240-P160/M4	261
	m240-P160/L4	268
	m240-P180/M4	295
	m240-P180/L4	304
	m240-P180/V4	352

Additional weights for gearboxes

Product			g500-B45	g500-B110	g500-B240	g500-B450	g500-B600
Mass							
Solid shaft	m	[kg]	0.4	0.5	1.4	1.0	1.5
Shrink disc	m	[kg]	0.2	0.2	0.7	0.6	0.6
Flange	m	[kg]	0.3	0.4	0.7	0.9	6.1

Product			g500-B820	g500-B1500	g500-B2700	g500-B4300
Mass						
Solid shaft	m	[kg]	1.9	3.7	6.0	15.5
Shrink disc	m	[kg]	1.2	1.7	2.3	4.3
Flange	m	[kg]	6.1	11.5	15.0	29.0

Additional weights for motors

4-pole motors

Product			MD□MA□□		m240		
			063-12 063-32 063-42	071-32 071-42	-P80/M4	-P90/M4 -P90/L4	-P100/M4 -P100/L4
Brake			06	06 08	08 10		10 12
	m	[kg]	0.9	0.9 1.5	1.5 2.6		2.6 4.2

Product			m240				
			-P112/M4	-P132/M4 -P132/L4	-P160/M4	-P160/L4	-P180/M4 -P180/L4 -P180/V4
Brake			12 14	14 16	16 18	18	18 20
	m	[kg]	4.2 5.8	5.8 8.7	8.7 12.6	12.6	12.6 19.5

Overview

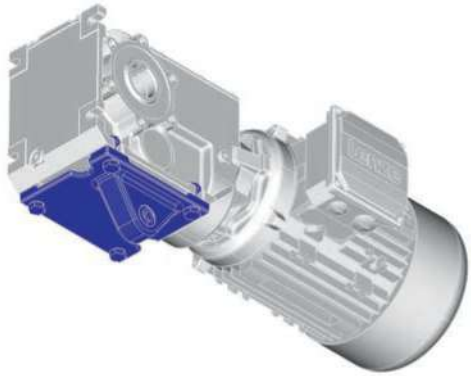
Torque plate

The torque is usually supported via the foot or the flange.
Another simple option are the attachable torque plates. Here, the torque is supported only via one point and is, among other things, suitable for shaft-mounted gearboxes. The supplied rubber buffers provide for a low-tension installation and absorb slight shocks.
The torque plates are available in two versions, for being installed at the existing threaded pitch circle or for the foot at the gearbox.

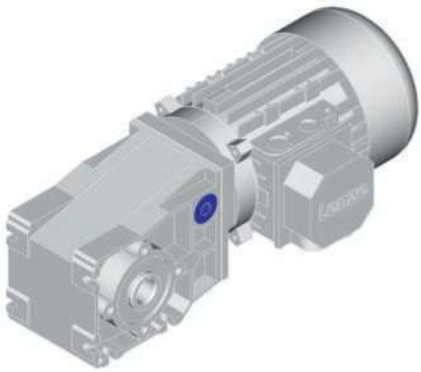
In addition, torque support for the g500-B45 gearbox can be effected via the holding fixture of the housing, which is integrated on both sides, by means of a rubber buffer.
The rubber buffers can be ordered optionally.

Torque plate on threaded pitch circle

Torque plate at housing foot



Rubber buffer for torque plate



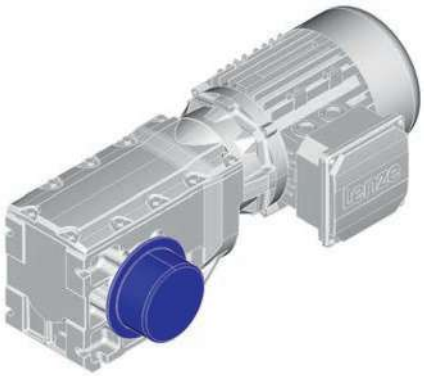
Overview

Shaft cover

The hoseproof hollow shaft 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.

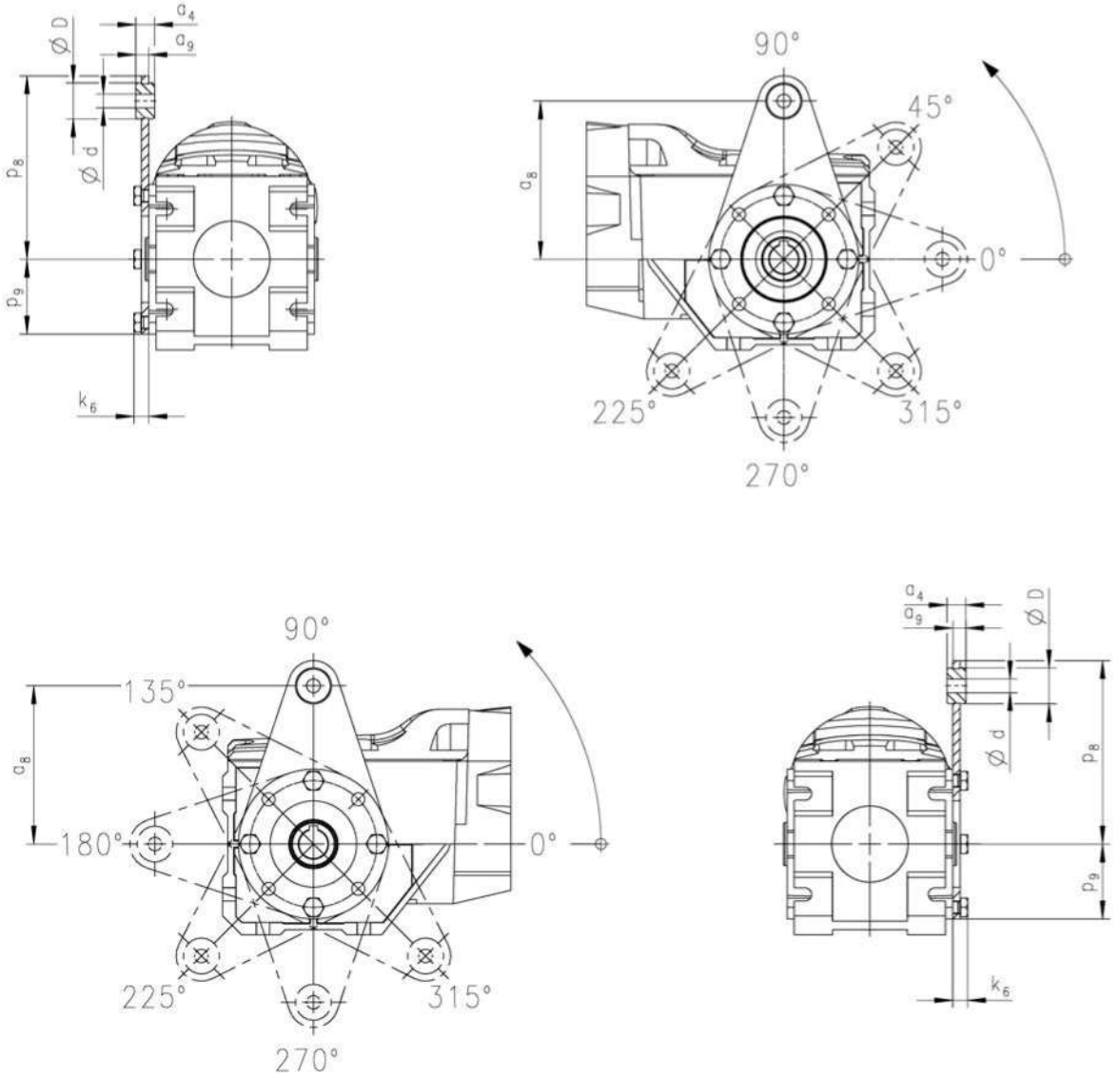
The cover is loosely enclosed and can be mounted on both sides of the hollow shaft bore.

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

Hoseproof hollow shaft cover	Shrink disc cover
	

Torque plate

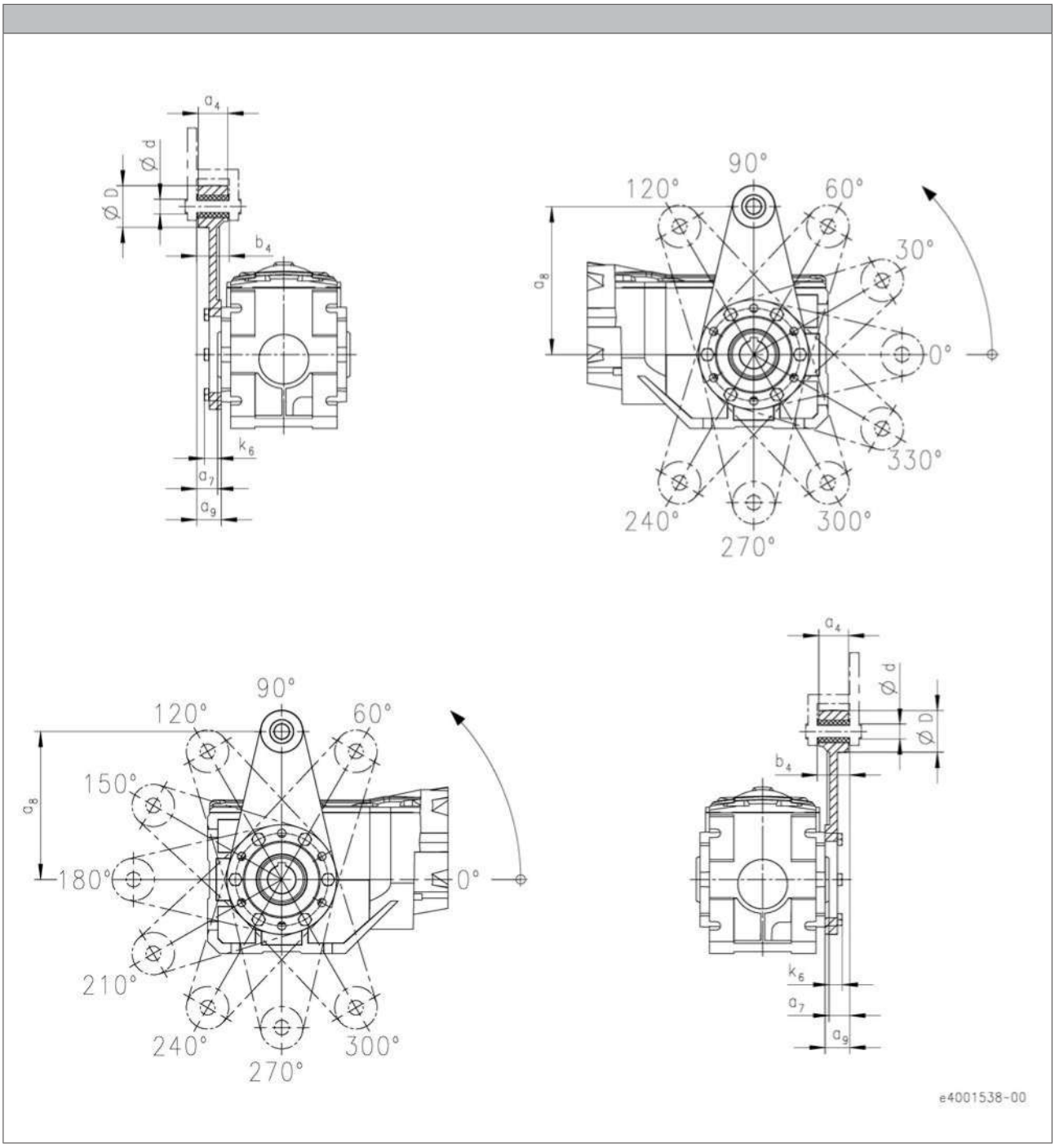
Torque plate on threaded pitch circle



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	0.3
g500-B110	13.0	110	9.0	10.0	25.0	128	54.0	11.0	0.5

Torque plate

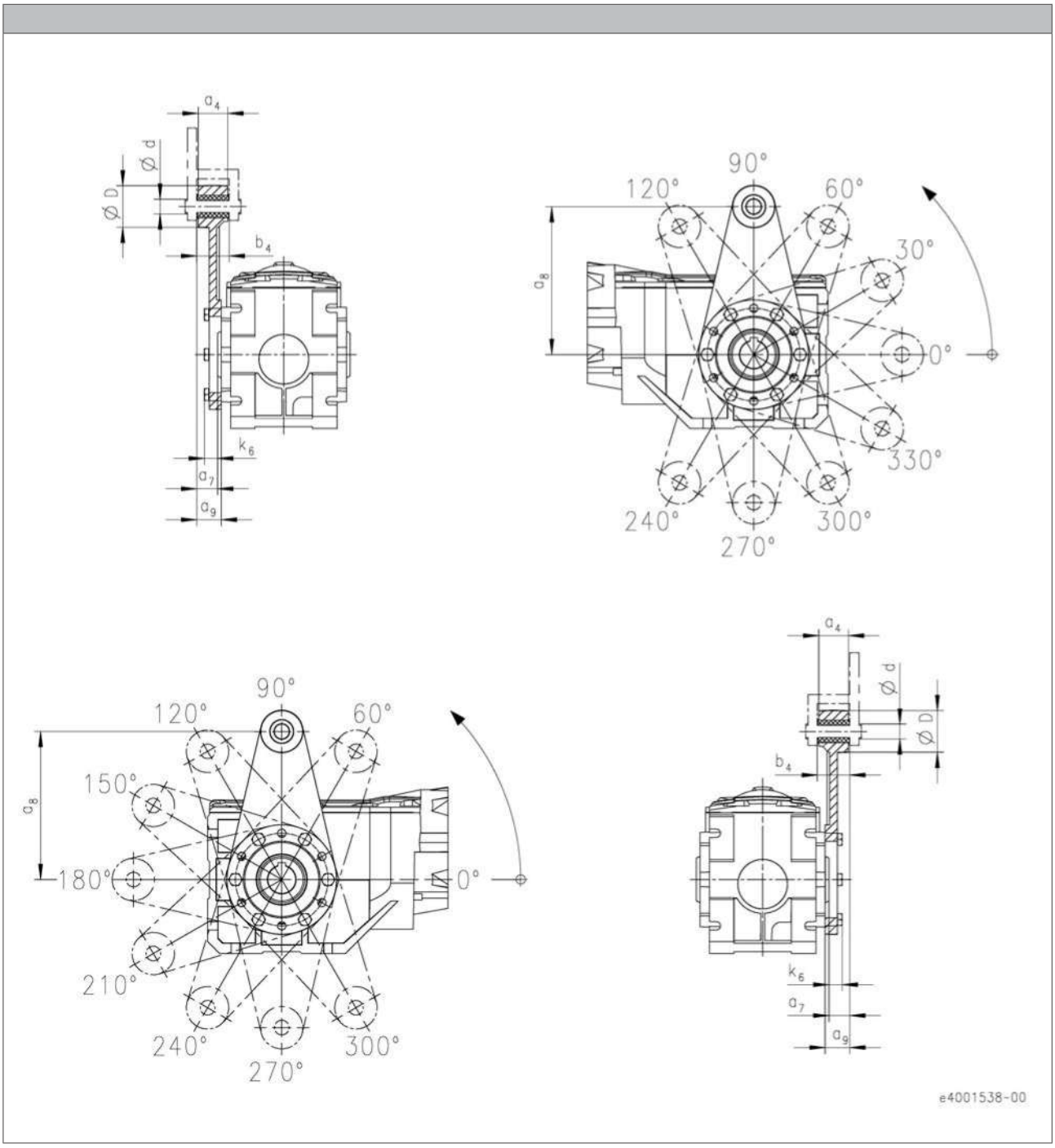
Torque plate on threaded pitch circle



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	1.3
g500-B450	40.0	29.0	200	32.0	44.5	20.0	50.0	18.0	2.5
g500-B600	38.0	26.5	200	31.5	40.0	20.0	50.0	19.0	2.5

Torque plate

Torque plate on threaded pitch circle

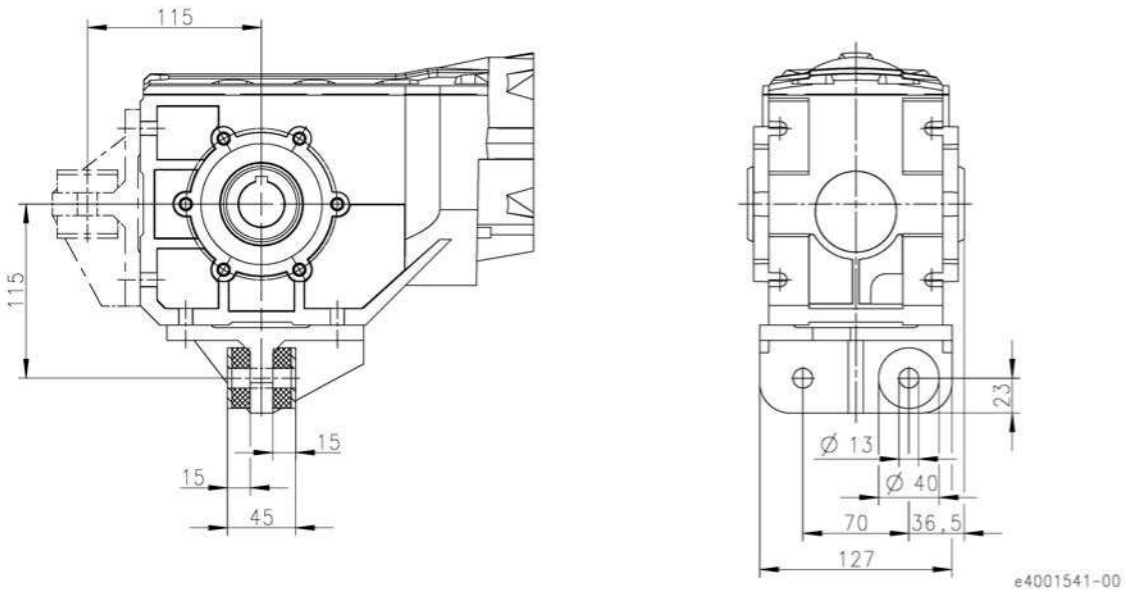


Product	Dimensions								Mass
	a_4	a_7	a_8	a_9	b_4	d	D	k_6	m
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]
g500-B820	38.0	28.0	200	31.5	40.0	20.0	50.0	20.5	2.5
g500-B1500	44.0	32.0	250	36.0	46.0	25.0	65.0	24.0	4.5

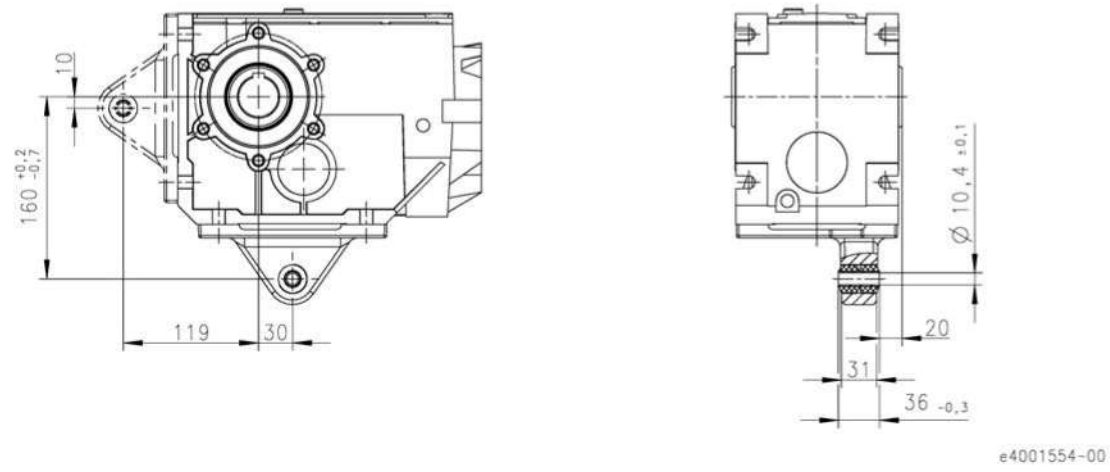
Torque plate

Torque plate at housing foot

g500-B240



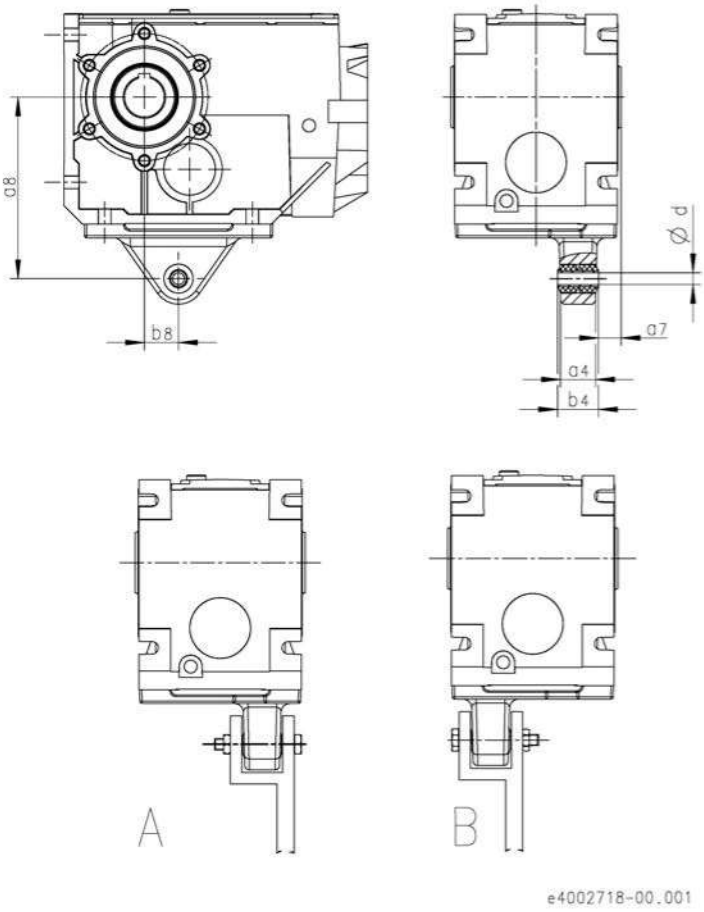
g500-B450



Product	Mass
	m
	[kg]
g500-B240	2.4
g500-B450	1.1

Torque plate

Torque plate at housing foot

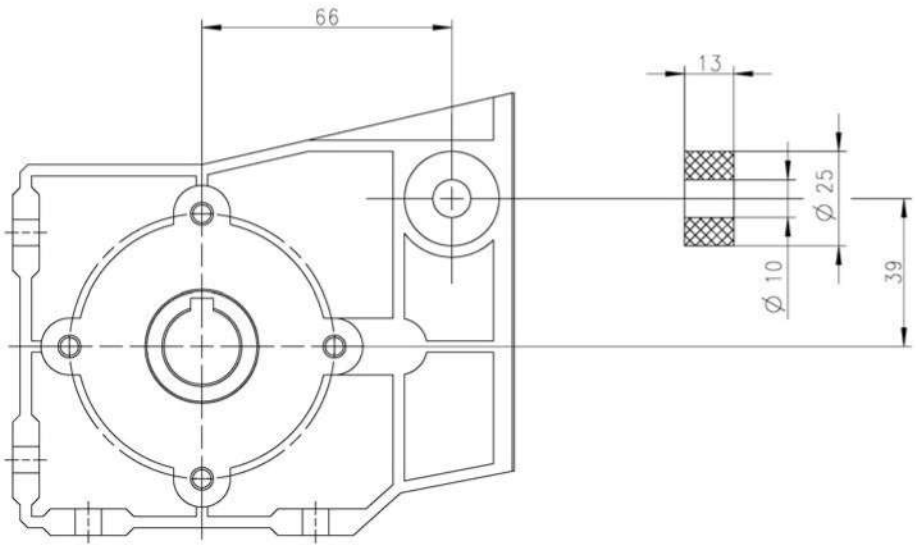


Product	Dimensions						Mass
	d	a_8	b_8	a_4	b_4	a_7	m
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]
g500-B600	16.4	192	40.0	55.0	60.0	18.0	2.8
g500-B820	16.4	200	45.0	55.0	60.0	25.0	3.0
g500-B1500	16.4	250	52.5	55.0	60.0	25.0	4.3
g500-B2700	25.0	300	60.0	72.0	80.0	30.0	10.0
g500-B4300	25.0	350	70.0	92.0	100	40.0	13.0
g500-B8000	40.0	450	74.0	80.0	88.0	57.0	15.0
g500-B13000	40.0	550	60.0	80.0	88.0	7.00	25.0
g500-B20000	70.0	700	50.0	111	120	2.00	64.0

Torque plate

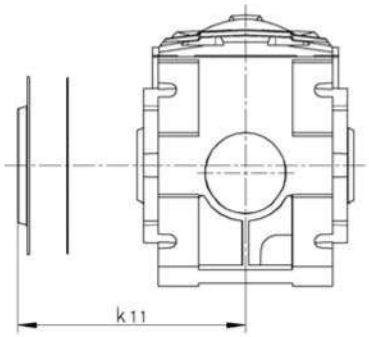
Rubber buffer for torque plate

g500-B45



Shaft cover

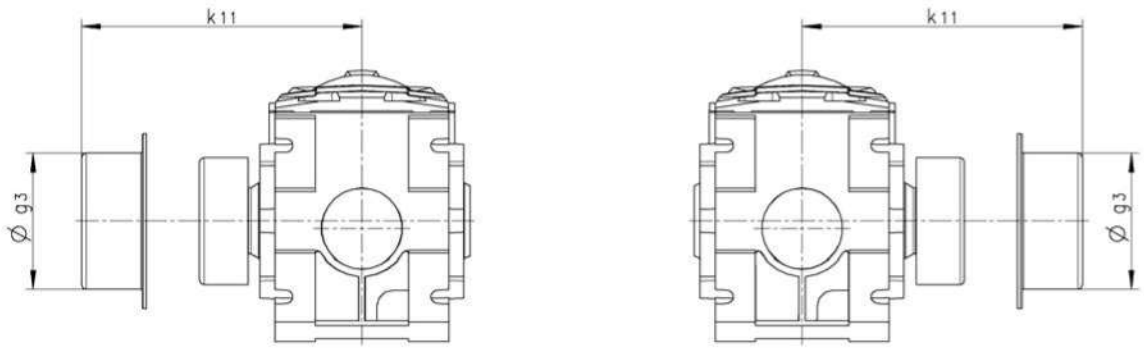
Hoseproof hollow shaft cover



Product	Dimensions	Mass
	k_{11}	m
	[mm]	[kg]
g500-B45	55.0	0.1
g500-B110	65.0	0.1
g500-B240	75.0	0.1
g500-B450	79.5	0.2
g500-B600	90.0	0.3
g500-B820	97.0	0.3
g500-B1500	113	0.6
g500-B2700	131	0.6
g500-B4300	161	0.8
g500-B8000	250	0.5
g500-B13000	313	0.6
g500-B20000	372	0.9

Shaft cover

Shrink disc cover



Product	Dimensions		Mass
	g_3	k_{11}	m
	[mm]	[mm]	[kg]
g500-B45	65.0	87.5	0.1
g500-B110	79.0	97.5	0.1
g500-B240	90.0	111	0.1
g500-B450	90.0	108	0.1
g500-B600	110	124	0.1
g500-B820	110	131	0.1
g500-B1500	128	148	0.2
g500-B2700	155	171	0.3
g500-B4300	188	205	0.4
g500-B8000	218	250	0.5
g500-B13000	258	313	0.6
g500-B20000	310	372	0.9

Gearbox code

Example	G	50	A	B	045	M	H	B	R	2	C	1A

Meaning	Variant
Product family	G
Generation	A
	B
Gearbox type	Bevel gearbox: B
Output torque	45 Nm: 045
	110 Nm: 111
	240 Nm: 124
	450 Nm: 145
	600 Nm: 160
	820 Nm: 182
	1500 Nm: 215
	2700 Nm: 227
	4300 Nm: 243
	8000 Nm: 280
	13000 Nm: 313
	20000 Nm: 320
Type of construction	Geared motor: M
	Gearboxes: N
Shaft type	Solid shaft with feather key: V
	Hollow shaft with keyway: H
	Hollow shaft with shrink disc: S
Housing type	Foot mounting + centering: A
	Foot mounting: B
	Centering: C
Flange mounting	Without flange: R
	Flange with through holes: k
Number of stages	2-stage: 2
	3-stage: 3
Motor mounting	Integrated: C
	IEC motor: N
	NEMA motor: A
	Servo motor: S
Drive size	1A ... □H

6.5

Motor code

Example	M	D	E	MA	XX	063	-	4	2	C1	C

Meaning	Variant	Motor code
Product family		M
Efficiency class	IE1	D
Cooling	Natural ventilation	S
	Integral fan	E
	Blower	F
Internal key		MA
Built-on accessories	Without built-on accessories	XX
	Brake	BR
	Brake + resolver	BS
	Brake + incremental encoder	BI
	Brake + SinCos absolute value encoder	BA
	Resolver	RS
	Incremental encoder	IG
	SinCos absolute value encoder	AG
Size		063
		071
Overall length		0
		1
		- 2
		3
		4
Number of pole pairs	4-pole motors	2
	2-pole motors	1
Internal key		C1
Approval	CE	C
	cURus	U
	CCC	3

Motor code

Example	M	24	A	P	080	M	04	5	E	0	0	W	T

Meaning	Variant	Motor code
Product family		M
		24
Generation		A
Efficiency class	Premium - IE3	P
Size		080
		090
		100
		112
		132
		160
		180
Overall length	Medium	M
	Long	L
	Very long	V
Number of poles	4-pole	04
Degree of protection	IP5□	5
	IP6□	6
Cooling	Integral fan	E
Brake attachment	Without brake	0
	Spring-applied brake	F
Actual value encoder	Without encoder	0
Approval	CE	C
	Without	N
Design type	Internal key	T

Motor data

Motor data

Contents

Rated data for 50 Hz

4-pole motors

Product								
	P_N	n_N	n_{max}	M_N	M_a	M_b	J [1]	m [1]
	[kW]	[r/min]	[r/min]	[Nm]	[Nm]	[Nm]	[kgcm²]	[kg]
MD□MA□□063-02	0.060	1425	4500	0.40	1.30	1.36	3.30	3.90
MD□MA□□063-22	0.090	1375	4500	0.63	1.30	1.39	3.30	3.90
MD□MA□□063-12	0.12	1425	4500	0.80	2.50	2.64	3.30	4.10
MD□MA□□063-32	0.18	1365	4500	1.26	2.50	2.61	3.30	4.10
MD□MA□□063-42	0.25	1370	4500	1.74	3.80	4.10	3.70	4.40
MD□MA□□071-32	0.37	1410	4500	2.51	4.76	5.81	10.7	5.80
MD□MA□□071-42	0.55	1405	4500	3.74	7.85	9.12	12.8	6.40

Product								
	$U_{N,\Delta}$	$I_{N,\Delta}$	$U_{N,Y}$	$I_{N,Y}$	I_a/I_N	cos ϕ	$\eta_{75\,\%}$	$\eta_{100\,\%}$
	± 10 %		± 10 %					
	[V]	[A]	[V]	[A]			[%]	[%]
MD□MA□□063-02	230	0.42	400	0.24	3.5	0.57	59.0	63.0
MD□MA□□063-22	230	0.48	400	0.28	2.9	0.71	63.0	65.0
MD□MA□□063-12	230	0.85	400	0.49	3.1	0.56	58.0	63.0
MD□MA□□063-32	230	1.00	400	0.58	2.7	0.70	63.0	64.0
MD□MA□□063-42	230	1.40	400	0.82	2.9	0.67	65.0	66.0
MD□MA□□071-32	230	1.60	400	0.95	3.3	0.77	73.0	73.0
MD□MA□□071-42	230	2.40	400	1.40	3.5	0.77	74.0	74.0

[1] Without accessories

Motor connection

The three-phase AC motors are designed for operation at a constant mains.
For 50 Hz operation, the motors are operated in Δ configuration at 230 V or in Y configuration at 400 V.

The standard connection is implemented via a terminal box. Furthermore ICN and HAN connectors are provided to quickly carry out commissioning or maintenance operations.

Overview of the connection options

Product	MD□MA□□063-02 MD□MA□□063-22 MD□MA□□063-12 MD□MA□□063-32 MD□MA□□063-42	MD□MA□□071-32 MD□MA□□071-42
Power connection/brake connection		
Terminal box	●	●
ICN connector M23	●	●
HAN 10E connector	●	●
HAN modular connector	●	●
Temperature sensor connection		
Terminal box	●	●
ICN connector M23 [1)]	●	●
HAN 10E connector	●	●
HAN modular connector	●	●

[1)] TKO connection or PTC in the power connection.

Motor connection

Assignment: motor terminal box - built-on accessories

► Depending on the motor version, terminal boxes of different sizes (KK1 ... KK2) are used.

Product	MD□MA□□063-02 MD□MA□□063-22 MD□MA□□063-12 MD□MA□□063-32 MD□MA□□063-42	MD□MA□□071-32 MD□MA□□071-42
Built-on accessories with 1 thermal sensor		
Without	KK1 KK1 + ICN HAN 10 E HAN modular	KK1 KK1 + ICN HAN 10 E HAN modular
Brake	KK2 KK2 + ICN HAN 10 E HAN modular	KK2 KK2 + ICN HAN 10 E HAN modular
Built-on accessories with 2 thermal sensors		
Without	KK2	KK2
Brake (2-pole terminal)	KK2	KK2
Brake (rectifier)	KK2	KK2

Motor connection

Position of cable entry/connector

For geared motors, the position of the cable entry must be selected as a function of the terminal box position.

Terminal box positions 2 ... 5

Cable entry positions 1 ... 5

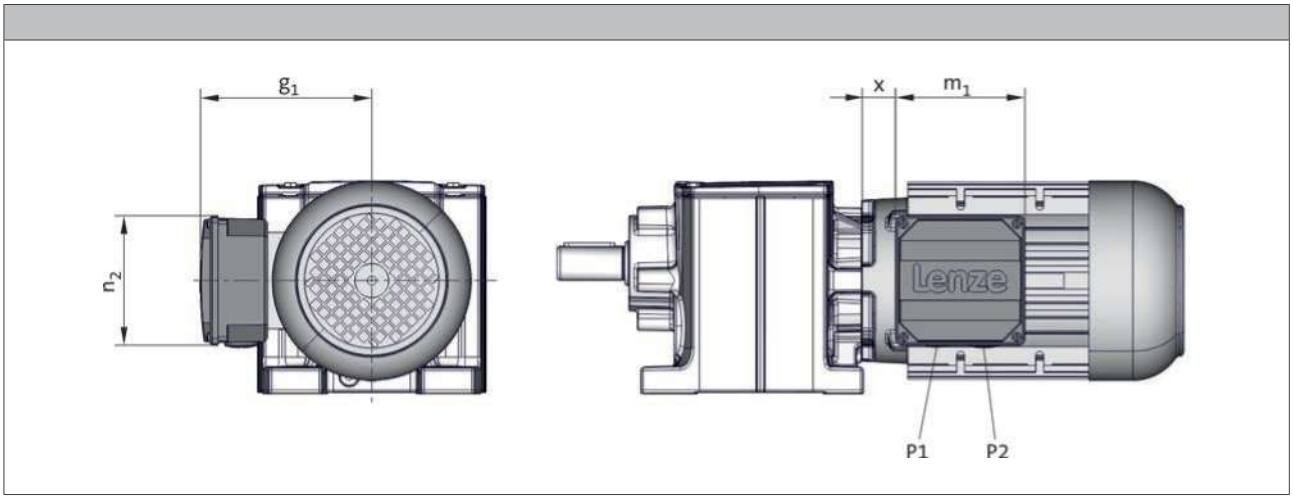
Terminal box position	2	3	4	5
	Cable entry positions			
KK1	1/3/5*	1/2*/4	1/3*/5	1/2/4*
KK2	3+5	2+4	3+5	2+4
	Connector position			
HAN	1/3/5	1/2/4	1/3/5	1/2/4
KK1 + ICN	1/3/5*	1/2*/4	1/3*/5	1/2/4*
KK2 + ICN	3/5*	2*/4	3/5*	2/4*

- If preferred positions are not specified in the order, the cable entry will be positioned as indicated by * on the diagram below.
- If preferred positions are not specified in the order, the connector will be positioned as indicated by * on the diagram below.

Connection via terminal box

Dimensions of KK1

The connection in the terminal box is implemented by means of conventional cable glands.

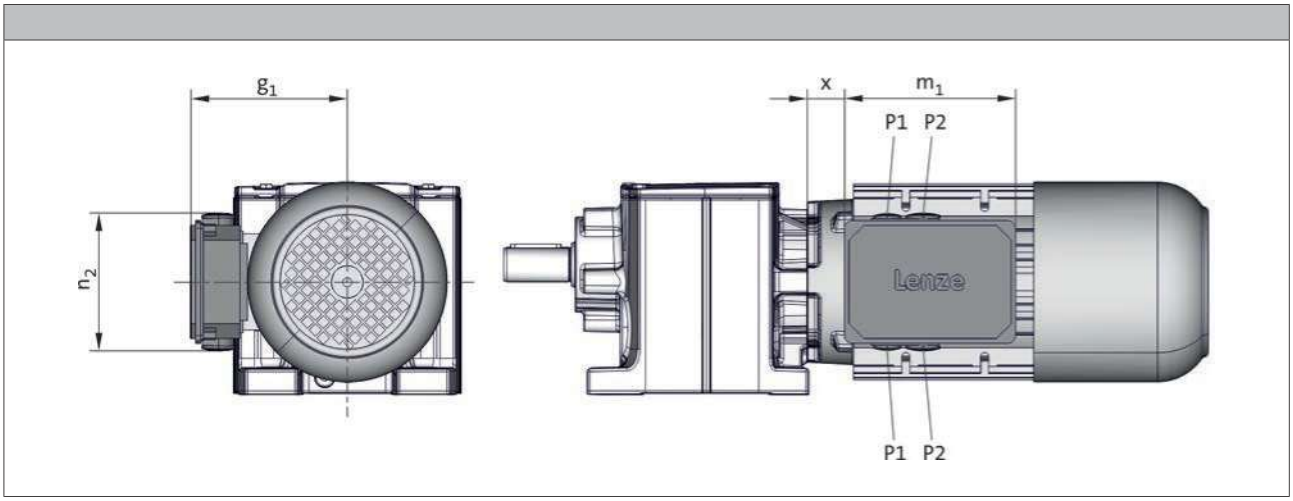


Product			MD□MA□□	
			063-02 063-12 063-22 063-32 063-42	071-42 071-32
Dimensions				
	x	[mm]	17	20
	g_1	[mm]	100	109
	m_1	[mm]	75.0	
	n_2	[mm]	75.0	
	P_1	[mm]	M16x1.5	
	P_2	[mm]	M20x1.5	

Connection via terminal box

Dimensions of KK2

The connection in the terminal box is implemented by means of conventional cable glands.



Product			MD□MA□□	
			063-02 063-12 063-22 063-32 063-42	071-42 071-32
Dimensions				
	x	[mm]	9	11
	g_1	[mm]	107	118
	m_1	[mm]	136	
	n_2	[mm]	103	
	P_1	[mm]	M16x1.5	
	P_2	[mm]	M20x1.5	

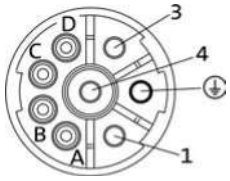
Connections via ICN connectors

The power, brake and temperature monitoring are connected using a connector.

Connection for power, brake and temperature monitoring

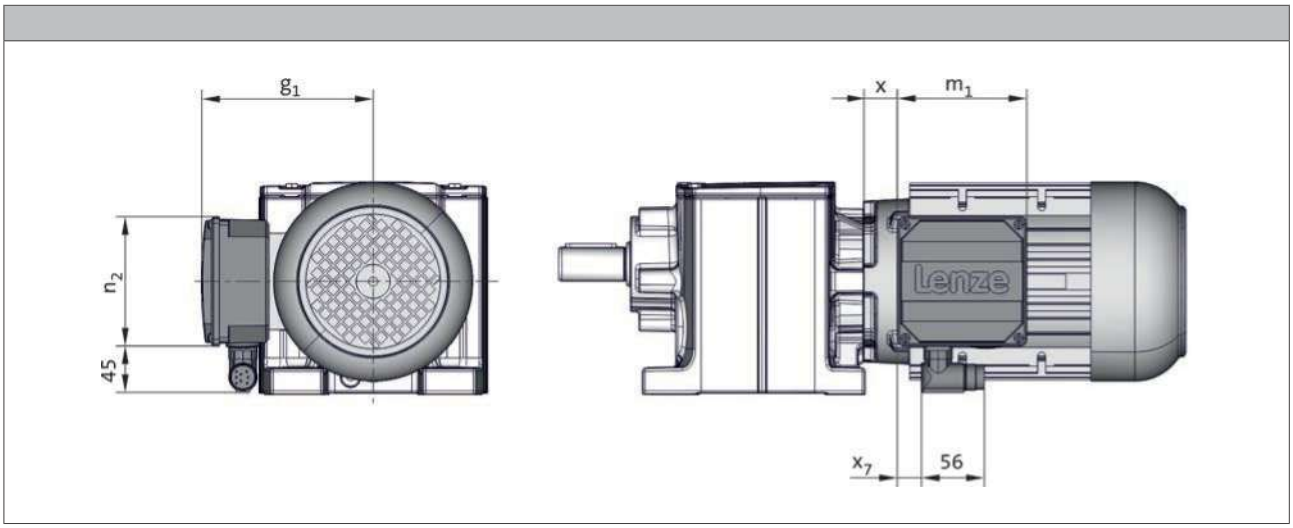
For the power connection of the connector, a max. rated motor current of 16 A is permissible.
The connectors can be rotated by 270° and are equipped with a bayonet catch for SpeedTec connectors. As the connector fixing is also compatible with conventional box nuts, existing mating connectors can still be used without difficulty. The motor connection is determined in the terminal box.

ICN M23 8-pole

Pin assignment			
Contact	Designation	Meaning	
1	U	Phase U power	
PE	PE	PE conductor	
3	W	Phase W power	
4	V	Phase V power	
A	TB1 / TP1 / R1	Thermal sensor: TKO/PTC/ +KTY	
B	TB2 / TP2 / R2	Thermal sensor: TKO/PTC/-KTY	
C	BD1 / BA1	Brake +/AC	
D	BD2 / BA2	Brake -/AC	

Connections via ICN connectors

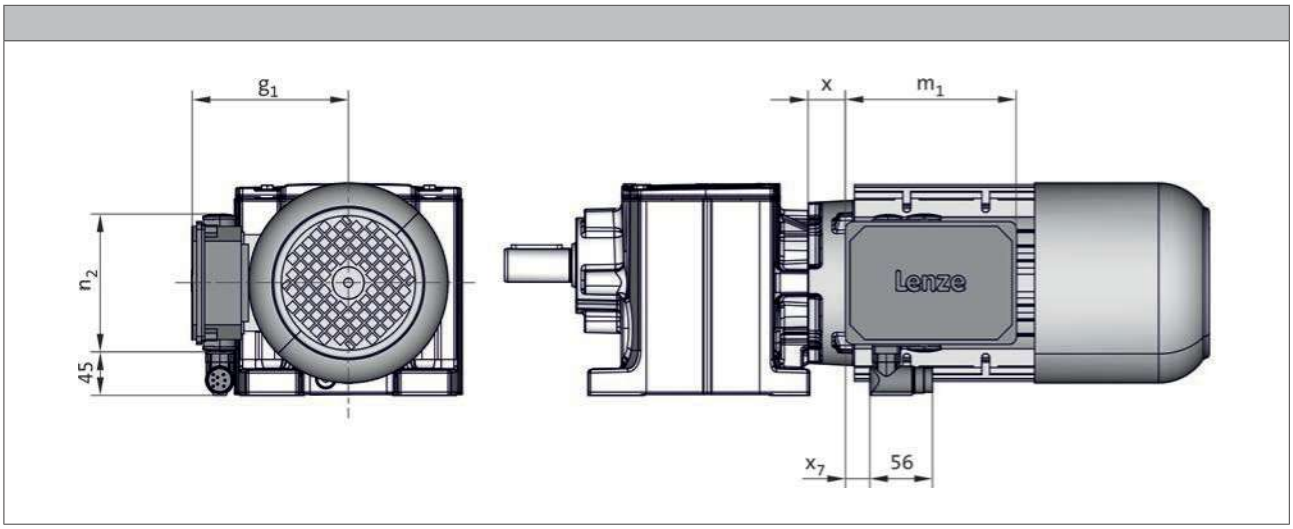
Dimensions KK1+ICN



Product			MD□MA□□	
			063-02 063-12 063-22 063-32 063-42	071-42 071-32
Dimensions				
	x	[mm]	17	20
	g_1	[mm]	100	109
	m_1	[mm]	75.0	
	n_2	[mm]	75.0	
	x_7	[mm]	16	

Connections via ICN connectors

Dimensions KK2+ICN

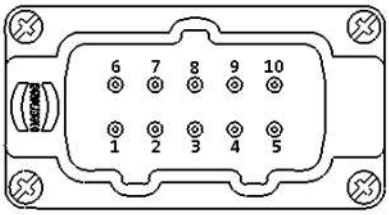


Product			MD□MA□□	
			063-02 063-12 063-22 063-32 063-42	071-42 071-32
Dimensions				
	x	[mm]	9	11
	g_1	[mm]	107	118
	m_1	[mm]	136	
	n_2	[mm]	103	
	x_7	[mm]	16	

Connections via HAN connectors

HAN 10 E

In the case of the rectangular HAN 10E connectors, all six ends of the three winding phases are taken out to the power contacts. The motor circuit is therefore determined in the mating connector.

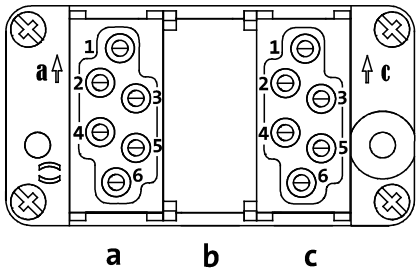
Pin assignment		
Contact	Meaning	
1	Terminal board: U1	
2	Terminal board: V1	
3	Terminal board: W1	
4	Brake +/AC	
5	Brake -/AC	
6	Terminal board: W2	
7	Terminal board: U2	
8	Terminal board: V2	
9	Thermal sensor: +KTY/PTC/TKO	
10	Thermal sensor: KTY/PTC/TKO	

Connections via HAN connectors

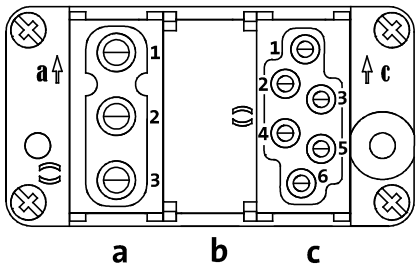
HAN modular

The connector is available with two different power modules (16 A or 40 A), depending on the rated motor current. The motor connection is determined in the terminal box and must be checked before commissioning.

► HAN modular 16 A

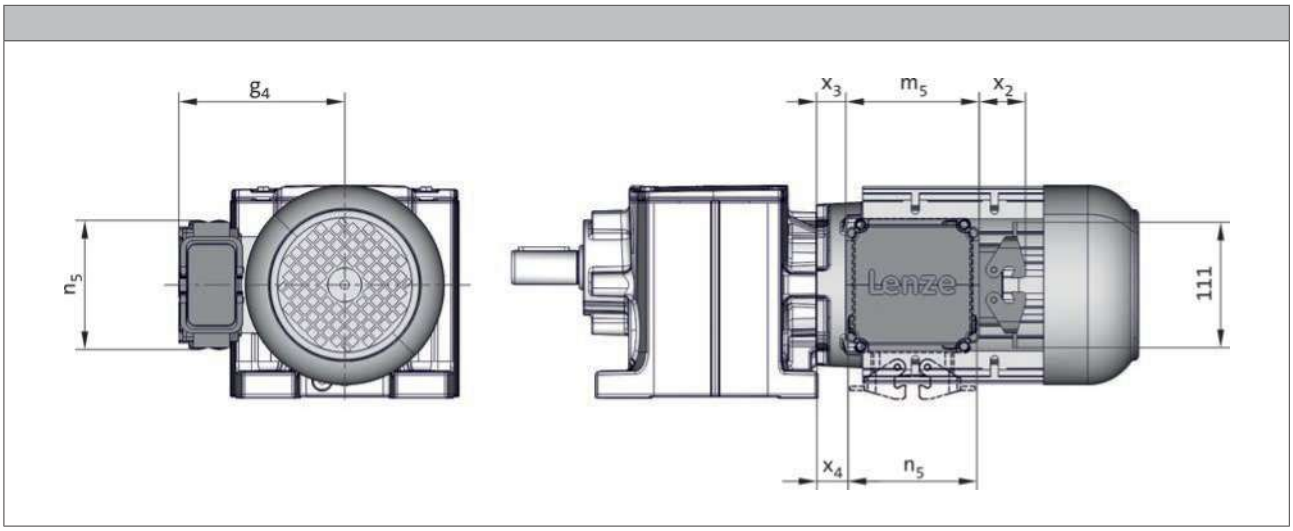
Pin assignment			
Module	Contact	Meaning	
A	1	Terminal board: U1	
	2	Terminal board: V1	
	3	Terminal board: W1	
B		Dummy module	
C	1	Thermal sensor: +KTY/PTC/TKO	
	2	Brake +/AC	
	3	Brake -/AC	
	4	Rectifier: Switching contact	
	5		
	6	Thermal sensor: KTY/PTC/TKO	

► HAN modular 40 A

Pin assignment			
Module	Contact	Meaning	
A	1	Terminal board: U1	
	2	Terminal board: V1	
	3	Terminal board: W1	
B		Dummy module	
C	1	Thermal sensor: +KTY/PTC/TKO	
	2	Brake +/AC	
	3	Brake -/AC	
	4	Rectifier: Switching contact	
	5		
	6	Thermal sensor: KTY/PTC/TKO	

Connections via HAN connectors

Dimensions



Product			MD□MA□□	
			063-02 063-12 063-22 063-32 063-42	071-42 071-32
Dimensions				
	g_4	[mm]	120	129
	x_3	[mm]	1	3
	x_4	[mm]	2	4
	x_2	[mm]	41	
	m_5	[mm]	118	
	n_5	[mm]	102	

Spring-applied brake

The three-phase AC motors can be equipped with a spring-applied brake which is active when the supply voltage has been switched off (closed-circuit principle). In the deenergised state, the brake is applied. This prevents possible movement of the motor shaft with regard to the load after switch-off or in the event of a power failure.
For optimum adaptation of the brake motor to the application, several brake sizes and control variants are provided for each motor.

Versions

- **Standard**
  - 1 x 10^6 repeating switching cycles
  - 1 x 10^6 reversing switching cycles
- **LongLife**
  - 10 x 10^6 repeating switching cycles
  - 15 x 10^6 reversing switching cycles

Braking torques

In addition to the standard braking torque, depending on the brake size, the possibility of choosing between a reduced and an increased braking torque is provided.

- When the braking torque is reduced, great wear reserves can be attained. This is enabled by a reduction of the spring rate.
- In order to obtain a greater braking torque, the spring rate is increased. This is practical, for instance, for hoists, since here the gravity acts as an additional acceleration in the negative direction.

Manual release

By using the manual release lever, the brake can be released manually in deenergised operating state. The manual release makes positioning and maintenance work easier.

Spring-applied brake

Direct connection without rectifier

If the brake is activated directly without a rectifier, a freewheeling diode or a spark suppressor is required for protection against induction peaks.

- Supply voltages
  DC 24 V

Connection via mains voltage with brake rectifier

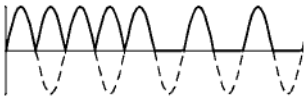
If the brake is not directly supplied with DC voltage, a rectifier is required. This is included in the scope of supply and is located in the terminal box of the motor. The rectifier converts the AC voltage of the connection into DC voltage. The following rectifiers are available:

Rectifier, 6-pole

- Approval UL / CSA
- Supply voltages
  AC 230 V
  AC 400 V
  AC 460 V

Bridge/half-wave rectifier, 6-pole

- Supply voltage / brake coil voltage ratio
  up to the overexcitation time = 1.11
  From the overexcitation time = 2.22
- Supply voltages
  AC 230 V
  AC 400 V



During the switching operation the bridge/half-wave rectifier functions as a bridge rectifier for the overexcitation time $t_{ü}$ and then as a half-wave rectifier. This combination optimises the performance of the brake – depending on the assignment of brake coil voltage and supply voltage:

- **Short-time overexcitation of the brake coil**
  Activating the brake coil for the overexcitation time $t_{ü}$ with twice the rated voltage allows the disengagement time to be reduced. The brake opens more quickly and wear on the friction lining is reduced.
  These features make this activation version particularly suitable for lifting applications. It is therefore only available in combination with a brake with increased braking torque.
- **Holding current reduction (cold brake)**
  By reducing the holding current, the bridge/half-wave rectifier is able to reduce the power input to the open brake. As the brake heats up less, this type of activation is known as "cold brake".

Spring-applied brake

Assignment of 4-pole motors and brakes

Design	Standard	LongLife

Product	Size	Rated torque	Size	Rated torque
	Brake		Brake	
		M_k		M_k
		[Nm]		[Nm]
MD□MA□□063-02 MD□MA□□063-12 MD□MA□□063-22 MD□MA□□063-32 MD□MA□□063-42	06 06	2.50 4.00	06	4.00
MD□MA□□071-32	06 06 08	2.50 4.00 3.50	06 08	4.00 3.50
MD□MA□□071-42	06 06 08 08	2.50 4.00 3.50 8.00	06 08 08	4.00 3.50 8.00

Spring-applied brake

Rated data with reduced braking torque

- In case of the braking torque and the maximum switching energy, the unit for the values (100 ... 3600) is rpm.
- Please enquire for braking torques and maximum switching work values not listed here.

Size			06	08
Power input				
	P_{in}	[kW]	0.020	0.025
Braking torque				
100	M_B	[Nm]	2.50	3.50
1000	M_B	[Nm]	2.30	3.10
1200	M_B	[Nm]	2.30	3.10
1500	M_B	[Nm]	2.20	3.00
1800	M_B	[Nm]	2.10	2.90
3000	M_B	[Nm]	2.00	2.80
3600	M_B	[Nm]	2.00	2.70
Maximum switching energy				
100	Q_E	[KJ]	3.00	7.50
1000	Q_E	[KJ]	3.00	7.50
1200	Q_E	[KJ]	3.00	7.50
1500	Q_E	[KJ]	3.00	7.50
1800	Q_E	[KJ]	3.00	7.50
3000	Q_E	[KJ]	3.00	7.50
3600	Q_E	[KJ]	3.00	7.50
Transition operating frequency				
	$S_{hü}$	[1/h]	79.0	50.0
Moment of inertia				
	J	[kgcm²]	0.15	0.61
Mass				
	m	[kg]	0.90	1.50

Spring-applied brake

Rated data with reduced braking torque

► Activation via half-wave or bridge rectifier

Size			06	08
Friction energy				
	Q_{BW}	[MJ]	113	210
Delay time				
Engaging	t_{11}	[ms]	11.0	14.0
Rise time				
Braking torque	t_{12}	[ms]	13.0	10.0
Engagement time				
	t_1	[ms]	24.0	
Disengagement time				
	t_2	[ms]	35.0	37.0

► Activation via bridge/half-wave rectifier

Design			Holding current reduction (cold brake)	
Size			06	08
Friction energy				
	Q_{BW}	[MJ]	113	210
Overexcitation time				
	$t_ü$	[ms]	300	
Min. rest time				
	t	[ms]	900	
Delay time				
Engaging	t_{11}	[ms]	12.0	22.0
Rise time				
Braking torque	t_{12}	[ms]	14.0	16.0
Engagement time				
	t_1	[ms]	26.0	38.0
Disengagement time				
	t_2	[ms]	35.0	37.0

► The brake response and application times are guide values. The engagement time is 10 times longer with AC-side switching. With the maximum air gap the disengagement time t_2 – depending on the brake and control – is up to 4 times longer than the disengagement time with the rated air gap.

Spring-applied brake

Rated data with standard braking torque

- In case of the braking torque and the maximum switching energy, the unit for the values (100 ... 3600) is rpm.
- Please enquire for braking torques and maximum switching work values not listed here.

Size			06	08
Power input				
	P_{in}	[kW]	0.020	0.025
Braking torque				
100	M_B	[Nm]	4.00	8.00
1000	M_B	[Nm]	3.70	7.20
1200	M_B	[Nm]	3.60	7.00
1500	M_B	[Nm]	3.50	6.80
1800	M_B	[Nm]	3.40	6.70
3000	M_B	[Nm]	3.20	6.30
3600	M_B	[Nm]	3.20	6.10
Maximum switching energy				
100	Q_E	[KJ]	3.00	7.50
1000	Q_E	[KJ]	3.00	7.50
1200	Q_E	[KJ]	3.00	7.50
1500	Q_E	[KJ]	3.00	7.50
1800	Q_E	[KJ]	3.00	7.50
3000	Q_E	[KJ]	3.00	7.50
3600	Q_E	[KJ]	3.00	7.50
Transition operating frequency				
	$S_{hü}$	[1/h]	79.0	50.0
Moment of inertia				
	J	[kgcm²]	0.15	0.61
Mass				
	m	[kg]	0.90	1.50

Spring-applied brake

Rated data with standard braking torque

► Activation via half-wave or bridge rectifier

Size			06	08
Friction energy				
	Q_{BW}	[MJ]	85.0	158
Delay time				
Engaging	t_{11}	[ms]	15.0	
Rise time				
Braking torque	t_{12}	[ms]	13.0	16.0
Engagement time				
	t_1	[ms]	28.0	31.0
Disengagement time				
	t_2	[ms]	45.0	57.0

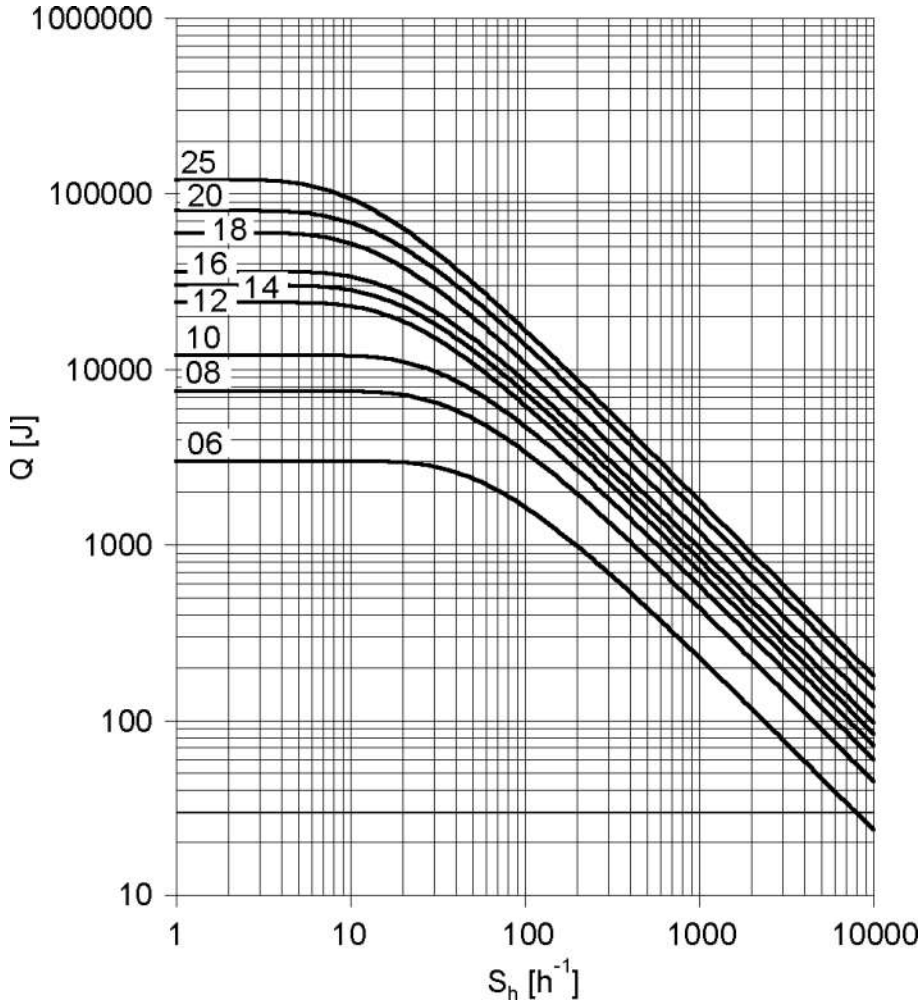
► Activation via bridge/half-wave rectifier

Design			Holding current reduction (cold brake)	
Size			06	08
Friction energy				
	Q_{BW}	[MJ]	85.0	158
Overexcitation time				
	$t_{ü}$	[ms]	300	
Min. rest time				
	t	[ms]	900	
Delay time				
Engaging	t_{11}	[ms]	16.0	25.0
Rise time				
Braking torque	t_{12}	[ms]	14.0	27.0
Engagement time				
	t_1	[ms]	30.0	52.0
Disengagement time				
	t_2	[ms]	45.0	57.0

► The brake response and application times are guide values. The engagement time is 10 times longer with AC-side switching. With the maximum air gap the disengagement time t_2 – depending on the brake and control – is up to 4 times longer than the disengagement time with the rated air gap.

Spring-applied brake

Permissible friction energy



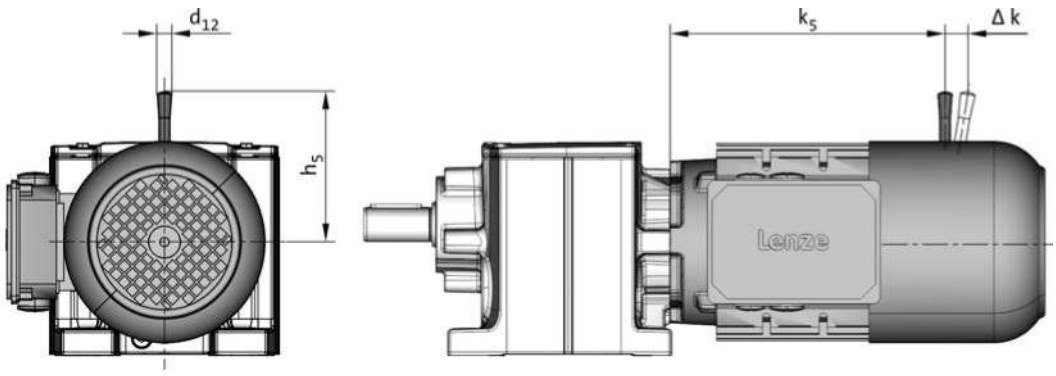
Q =Switching energy per switching cycle
S_h =Operating frequency
Brake size = 06 to 25

Spring-applied brake

Manual release

By using the manual release lever, the brake can be released manually in deenergised operating state. The manual release makes positioning and maintenance work easier.

Manual release lever



Product	Size	Dimensions			
	Brake				
		k_5	Δ k	h_5	d_{12}
		[mm]	[mm]	[mm]	[mm]
MD□MA□□063-02 MD□MA□□063-22	06	185	29	107	13.0
MD□MA□□063-12 MD□MA□□063-32 MD□MA□□063-42	06	169	29	107	13.0
MD□MA□□071-32 MD□MA□□071-42	06 08	182 183	29 27	107 116	13.0 13.0

The following combinations with manual release lever and motor connection in the same position are not possible:

- HAN connector with connection in position 1
- Terminal box of the motor size 071 for brake (M□□MA BR)

Temperature monitoring

To protect the motor against overheating, the following thermal sensors are provided.
The thermal sensors are integrated into the windings. We recommend using an additional motor protection switch.

TKO thermal contacts

The TCO thermal contact (thermal NC contact) is a bimetallic-element switch. The TCO monitors the motor winding temperature; at too high temperatures, the motor relay switches. The motor is disconnected from the mains.

Function	Operating temperature	Min. reset temperature	Max. reset temperature	Max. input current	Max. input voltage
					AC
	T	T_{min}	T_{max}	$I_{in,max}$	$U_{in,max}$
	-5 ... 5				
	[°C]	[°C]	[°C]	[A]	[V]
NC contact	150	90.0	135	2.50	250

PTC thermistor

The PTC thermistor is actuated in connection with a tripping unit. If the motor gets too hot, the motor can be switched off by means of a contactor. In contrast to the thermal contact, quick restart is possible.

Function	Operating temperature	Rated resistance			Standard
		155 °C	-20 °C	140 °C	
	T	R_N	R_N	R_N	
	-5 ... 5				
	[°C]	[Ω]	[Ω]	[Ω]	
Sudden change in resistance	150	550	30.0	250	DIN 44080 DIN VDE 0660 Part 303

Rated data for 50 Hz

4-pole motors

Product							
	P_N	n_N	M_N	M_a	M_b	J [1]	m [1]
	[kW]	[r/min]	[Nm]	[Nm]	[Nm]	[kgcm²]	[kg]
m240-P80/M4	0.75	1443	5.00	14.7	17.7	26.8	15.0
m240-P90/M4	1.10	1445	7.30	22.6	27.7	42.6	19.0
m240-P90/L4	1.50	1435	10.0	35.0	40.0	48.1	20.0
m240-P100/M4	2.20	1446	14.5	31.9	39.2	81.7	26.0
m240-P100/L4	3.00	1453	19.7	51.2	55.2	99.4	31.0
m240-P112/M4	4.00	1435	26.4	84.2	97.3	112	34.0
m240-P132/M4	5.50	1465	36.2	116	156	276	55.0
m240-P132/L4	7.50	1460	49.4	158	222	298	57.0
m240-P160/M4	11.0	1470	71.8	208	273	692	92.0
m240-P160/L4	15.0	1470	97.6	283	371	704	99.0
m240-P180/M4	18.5	1460	121	290	411	1122	126
m240-P180/L4	22.0	1465	143	372	501	1277	135
m240-P180/V4	30.0	1475	194	561	697	2645	183

Product									
	$U_{N,\Delta}$	$I_{N,\Delta}$	$U_{N,Y}$	$I_{N,Y}$	I_a/I_N	cos ϕ	$\eta_{50\,\%}$	$\eta_{75\,\%}$	$\eta_{100\,\%}$
	[V]	[A]	[V]	[A]			[%]	[%]	[%]
m240-P80/M4	230	2.90	400	1.70	6.9	0.78	80.2	82.4	82.5
m240-P90/M4	230	4.20	400	2.40	7.2	0.77	80.8	83.5	84.1
m240-P90/L4	230	5.80	400	3.30	7.5	0.77	81.5	84.2	85.3
m240-P100/M4	230	7.80	400	4.50	8.0	0.83	83.8	85.7	86.7
m240-P100/L4	230	10.9	400	6.30	9.5	0.80	83.9	86.2	87.7
m240-P112/M4	400	8.00			8.8	0.83	87.2	88.3	88.6
m240-P132/M4	400	11.1			8.7	0.79	86.9	89.1	89.6
m240-P132/L4	400	14.8			9.5	0.81	88.0	89.9	90.4
m240-P160/M4	400	22.0			8.1	0.81	90.1	91.6	91.4
m240-P160/L4	400	28.6			8.2	0.83	91.1	92.1	92.1
m240-P180/M4	400	34.1			7.7	0.87	91.3	92.9	92.6
m240-P180/L4	400	39.9			7.7	0.87	92.2	93.2	93.0
m240-P180/V4	400	55.3			8.0	0.86	92.7	93.5	93.6

[1] Without accessories

Motor connection

The three-phase AC motors are designed for operation at a constant mains.
For 50 Hz operation, the motors are operated in Δ configuration at 230/400 V or in Y configuration at 400 V.

They are connected via a terminal box.

Assignment: motor terminal box - built-on accessories

► Depending on the motor version, terminal boxes of different sizes (KKA ... KK4) are used.

Product	m240-P80/M4	m240-P90/M4 m240-P90/L4	m240-P100/M4 m240-P100/L4	m240-P112/M4	m240-P132/M4 m240-P132/L4
Built-on accessories with 1 thermal sensor					
Without	KKA	KKA	KKA	KKA	KKA
Brake	KK2	KK2	KK2	KK2	KK3
Built-on accessories with 2 thermal sensors					
Without	KKA	KKA	KKA	KKA	KKA
Brake (2-pole terminal)	KK2	KK2	KK2	KK2	KK3
Brake (rectifier)	KK3	KK3	KK3	KK3	KK3

Product	m240-P160/M4 m240-P160/L4	m240-P180/M4 m240-P180/L4 m240-P180/V4
Built-on accessories with 1 thermal sensor		
Without	KKA	KKA
Brake	KK4	KK4
Built-on accessories with 2 thermal sensors		
Without	KKA	KKA
Brake (2-pole terminal)	KK4	KK4
Brake (rectifier)	KK4	KK4

Motor connection

Position of the cable entry

For geared motors, the position of the cable entry must be selected as a function of the terminal box position.

Terminal box positions 2 ... 5

Cable entry positions 1 ... 5

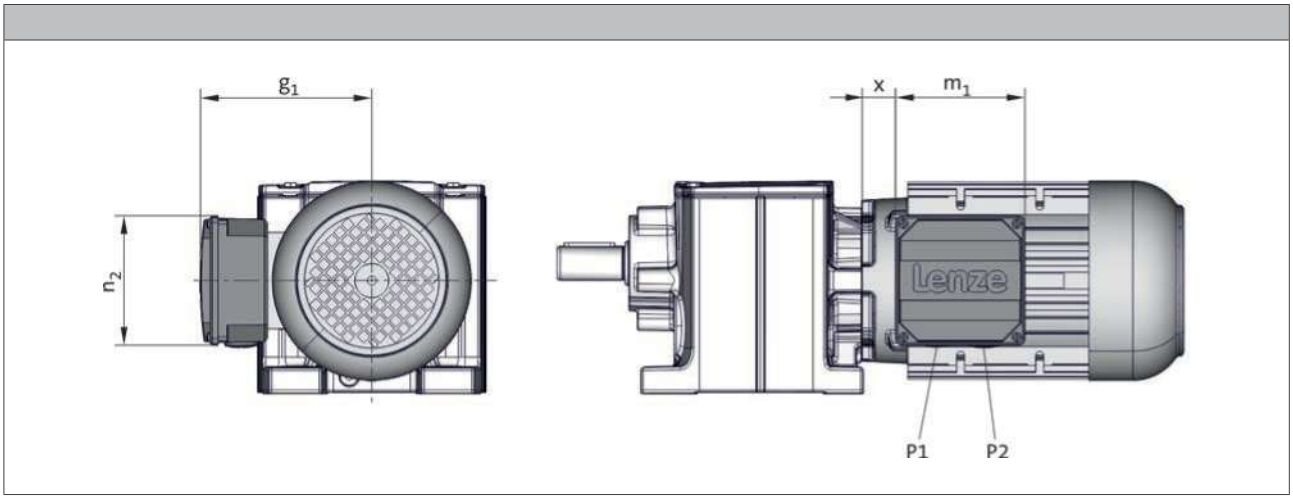
Terminal box position	2	3	4	5
	Cable entry positions			
KKA	1/3/5*	1/2*/4	1/3*/5	1/2/4*
KK2	3+5	2+4	3+5	2+4
KK3	3+5	2+4	3+5	2+4
KK4	3+5	2+4	3+5	2+4

► If preferred positions are not specified in the order, the cable entry will be positioned as indicated by * on the diagram below.

Connection via terminal box

KKA dimensions

The connection in the terminal box is implemented by means of conventional cable glands.

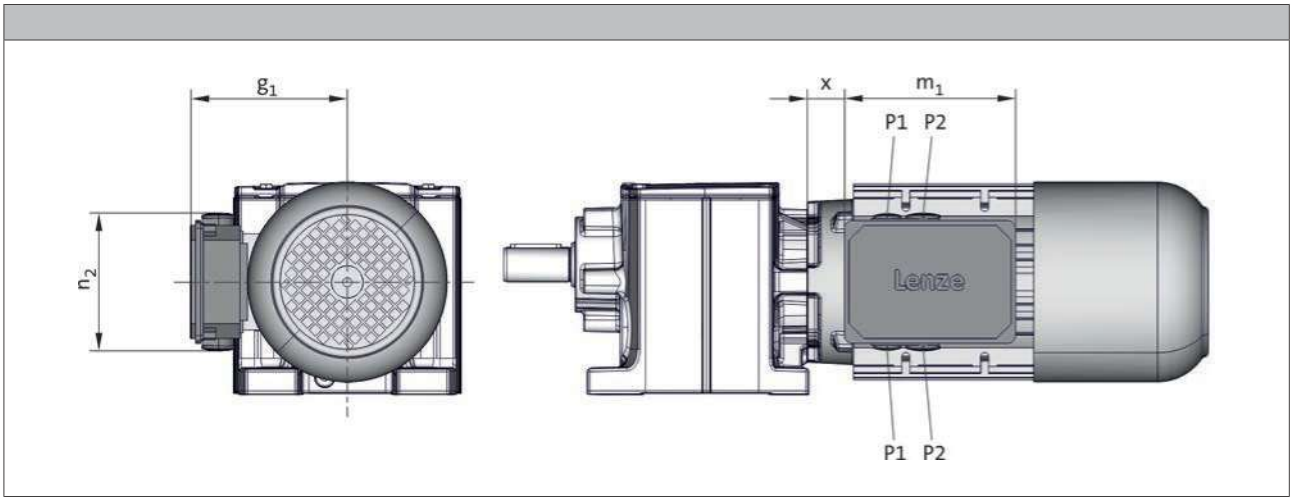


Product			m240						
			-P80/M4	-P90/L4 -P90/M4	-P100/L4 -P100/M4	-P112/M4	-P132/L4 -P132/M4	-P160/L4 -P160/M4	-P180/L4 -P180/M4 -P180/V4
Dimensions									
	x	[mm]	27	40	50	46	66	112	131
	g_1	[mm]	136	146	143	163	180	197	271
	m_1	[mm]	94.0	110			127		181
	n_2	[mm]	94.0	110			127		181
	P_1	[mm]	M20x1.5	M25x1.5		M32x1.5			M40x1.5
	P_2	[mm]	M20x1.5	M25x1.5		M32x1.5			M40x1.5

Connection via terminal box

Dimensions of KK2

The connection in the terminal box is implemented by means of conventional cable glands.

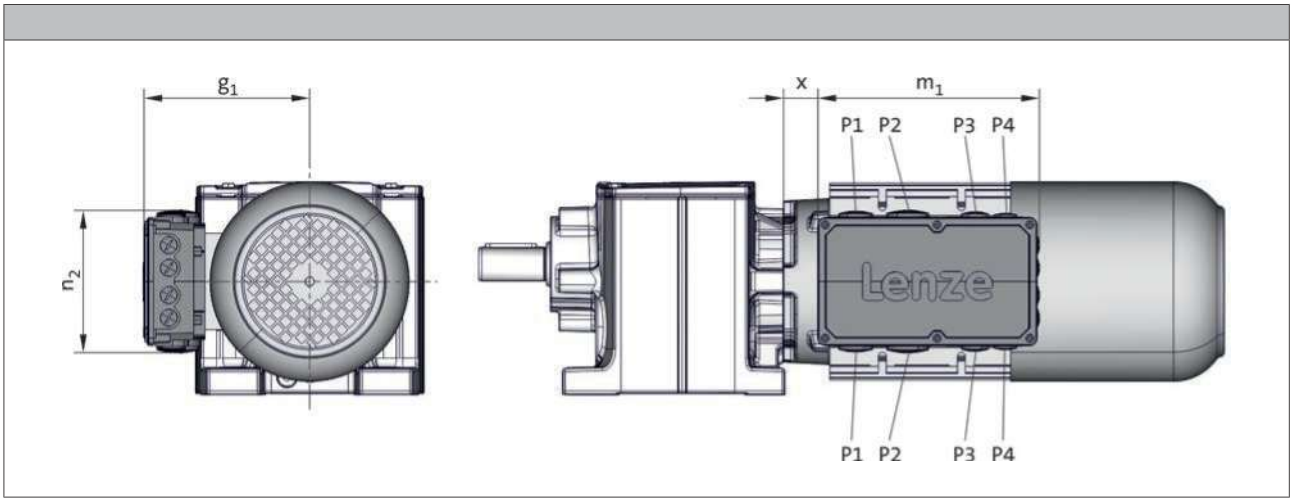


Product			m240			
			-P80/M4	-P90/L4 -P90/M4	-P100/L4 -P100/M4	-P112/M4
Dimensions						
	x	[mm]	20	41	51	47
	g_1	[mm]	137	144	153	161
	m_1	[mm]	152			
	n_2	[mm]	121			
	P_1	[mm]	M20x1.5			
	P_2	[mm]	M25x1.5			

Connection via terminal box

Dimensions of KK4 and KK3

The connection in the terminal box is implemented by means of conventional cable glands.



Product			m240						
			-P80/M4	-P90/L4 -P90/M4	-P100/L4 -P100/M4	-P112/M4	-P132/L4 -P132/M4	-P160/L4 -P160/M4	-P180/L4 -P180/M4 -P180/V4
Dimensions									
	x	[mm]	19	40	50	46	76	104	134
	g_1	[mm]	147	154	163	171	182	231	282
	m_1	[mm]	198					255	
	n_2	[mm]	125					152	
	P_1	[mm]	M25x1.5					M50x1.5	
	P_2	[mm]	M32x1.5					M40x1.5	
	P_3	[mm]	M20x1.5						
	P_4	[mm]	M20x1.5				M16x1.5		

Spring-applied brake

The three-phase AC motors can be equipped with a spring-applied brake which is active when the supply voltage has been switched off (closed-circuit principle). In the deenergised state, the brake is applied. This prevents possible movement of the motor shaft with regard to the load after switch-off or in the event of a power failure.
For optimum adaptation of the brake motor to the application, several brake sizes and control variants are provided for each motor.

Types
- **Standard**
  - 1 x 10^6 repeating switching cycles
  - 1 x 10^6 reversing switching cycles

Control
- DC supply
- AC supply via rectifiers in the terminal box

Degree of protection
- Without manual release IP55
- With manual release IP54

Friction lining
- Asbestos-free, low-wear

Options
- Manual release

Braking torques

In addition to the standard braking torque, depending on the brake size, the possibility of choosing between a reduced and an increased braking torque is provided.
- When the braking torque is reduced, great wear reserves can be attained. This is enabled by a reduction of the spring rate.
- In order to obtain a greater braking torque, the spring rate is increased. This is practical, for instance, for hoists, since here the gravity acts as an additional acceleration in the negative direction.

Manual release

By using the manual release lever, the brake can be released manually in deenergised operating state. The manual release makes positioning and maintenance work easier.

Spring-applied brake

Direct connection without rectifier

If the brake is activated directly without a rectifier, a freewheeling diode or a spark suppressor is required for protection against induction peaks.

- Supply voltages
  DC 24 V

Connection via mains voltage with brake rectifier

If the brake is not directly supplied with DC voltage, a rectifier is required. This is included in the scope of supply and is located in the terminal box of the motor. The rectifier converts the AC voltage of the connection into DC voltage. The following rectifiers are available:

Rectifier, 6-pole

- Supply voltages
  AC 230 V
  AC 400 V

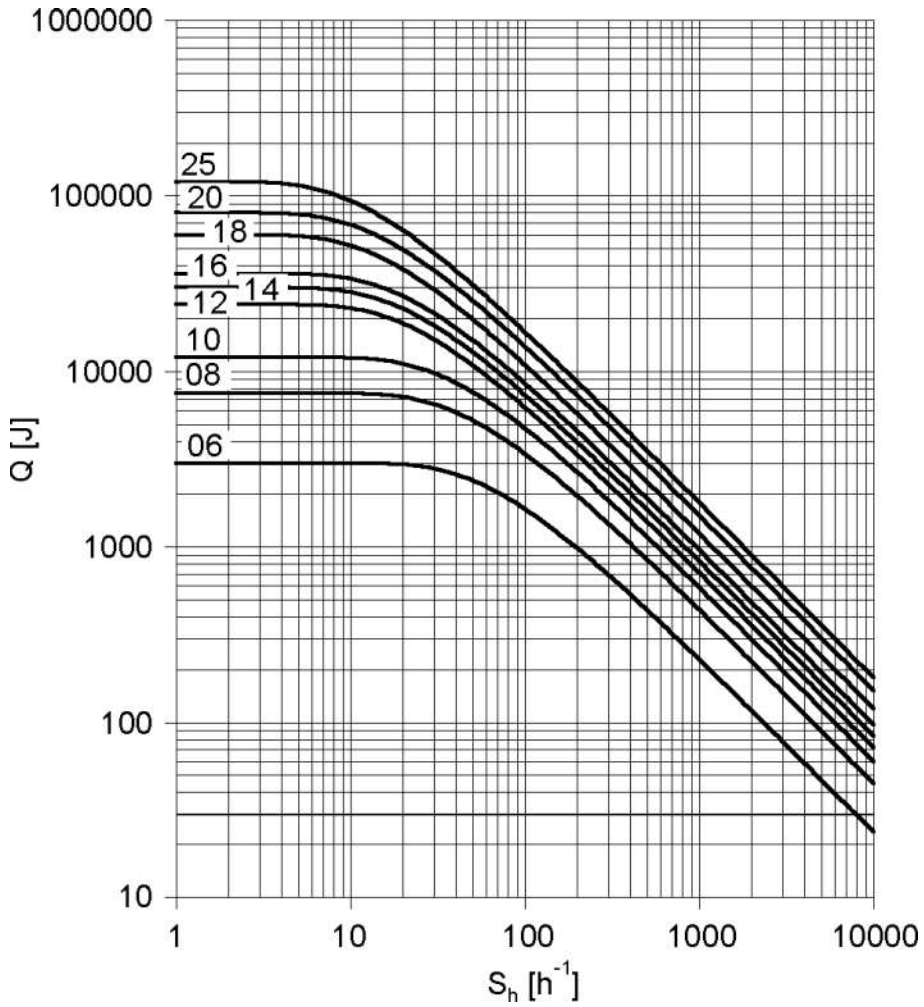
Spring-applied brake

Assignment of 4-pole motors and brakes

Design	Standard		LongLife	
Product	**Size**	**Rated torque**	**Size**	**Rated torque**
	Brake		Brake	
		M_k		M_k
		[Nm]		[Nm]
m240-P80/M4	08 08 10	3.50 8.00 7.00		
m240-P90/M4 m240-P90/L4	08 08 10 10 10	3.50 8.00 7.00 16.0 23.0		
m240-P100/M4	10 10 12 12	7.00 16.0 14.0 32.0		
m240-P100/L4	10 10 12 12 12	7.00 16.0 14.0 32.0 46.0		
m240-P112/M4	12 12 14 14	14.0 32.0 35.0 60.0		
m240-P132/M4	14 14 16 16	35.0 60.0 60.0 80.0		
m240-P132/L4	14 14 16 16 16	35.0 60.0 60.0 80.0 100		
m240-P160/M4	16 16 18 18	60.0 80.0 80.0 150		
m240-P160/L4	18 18 18	80.0 150 200		
m240-P180/M4	18 18 20 20	80.0 150 145 260		
m240-P180/L4	18 18 20 20 20	80.0 150 145 260 315		
m240-P180/V4	18 18 20 20 20 20	80.0 150 145 260 315 400		

Spring-applied brake

Permissible friction energy



Q =Switching energy per switching cycle
S_h =Operating frequency
Brake size = 06 to 25

Spring-applied brake

Rated data with reduced braking torque

- In case of the braking torque and the maximum switching energy, the unit for the values (100 ... 3600) is rpm.
- Please enquire for braking torques and maximum switching work values not listed here.

Size			06	08	10	12	14	16	18	20	25
Power input											
	P_{in}	[kW]	0.020	0.025	0.030	0.040	0.050	0.055	0.085	0.10	0.11
Braking torque											
100	M_B	[Nm]	2.50	3.50	7.00	14.0	35.0	60.0	80.0	145	265
1000	M_B	[Nm]	2.30	3.10	6.10	12.0	30.0	50.0	65.0	115	203
1200	M_B	[Nm]	2.30	3.10	6.00	12.0	29.0	48.0	63.0	112	199
1500	M_B	[Nm]	2.20	3.00	5.80	11.0	28.0	47.0	61.0	109 [1)]	193 [1)]
1800	M_B	[Nm]	2.10	2.90	5.70	11.0	28.0	46.0	60.0 [1)]		
3000	M_B	[Nm]	2.00	2.80	5.30	10.0	26.0 [1)]	43.0 [1)]			
3600	M_B	[Nm]	2.00	2.70	5.20	10.0 [1)]					
Maximum switching energy											
100	Q_E	[KJ]	3.00	7.50	12.0	24.0	30.0	36.0	60.0	80.0	120
1000	Q_E	[KJ]	3.00	7.50	12.0	24.0	30.0	36.0	60.0	80.0	120
1200	Q_E	[KJ]	3.00	7.50	12.0	24.0	30.0	36.0	60.0	80.0	120
1500	Q_E	[KJ]	3.00	7.50	12.0	24.0	30.0	36.0	60.0	24.0 [1)]	36.0 [1)]
1800	Q_E	[KJ]	3.00	7.50	12.0	24.0	30.0	36.0	36.0 [1)]		
3000	Q_E	[KJ]	3.00	7.50	12.0	24.0	18.0 [1)]	11.0 [1)]			
3600	Q_E	[KJ]	3.00	7.50	12.0	7.00 [1)]					
Transition operating frequency											
	$S_{hü}$	[1/h]	79.0	50.0	40.0	30.0	28.0	27.0	20.0	19.0	15.0
Moment of inertia											
	J	[kgcm²]	0.15	0.61	2.00	4.50	6.30	15.0	29.0	73.0	200
Mass											
	m	[kg]	0.90	1.50	2.60	4.20	5.80	8.70	12.6	19.5	31.0

[1)] In the region of the load limit the value for friction energy Q_{BW} can be reduced to 40 %.

Spring-applied brake

Rated data with reduced braking torque

► Activation via half-wave or bridge rectifier

Size			06	08	10	12	14	16	18	20	25
Friction energy											
	Q_{BW}	[MJ]	113	210	264	706	761	966	1542	2322	3522
Delay time											
Engaging	t_{11}	[ms]	11.0	14.0	20.0	21.0	37.0	53.0	32.0	47.0	264
Rise time											
Braking torque	t_{12}	[ms]	13.0	10.0	17.0	19.0	22.0	30.0	20.0	100	120
Engagement time											
	t_1	[ms]	24.0		37.0	40.0	59.0	83.0	52.0	147	384
Disengagement time											
	t_2	[ms]	35.0	37.0	57.0	65.0	148	169	230	207	269

► The brake response and application times are guide values. The engagement time is 10 times longer with AC-side switching. With the maximum air gap the disengagement time t_2 – depending on the brake and control – is up to 4 times longer than the disengagement time with the rated air gap.

Spring-applied brake

Rated data with standard braking torque

- In case of the braking torque and the maximum switching energy, the unit for the values (100 ... 3600) is rpm.
- Please enquire for braking torques and maximum switching work values not listed here.

Size			06	08	10	12	14	16	18	20	25
Power input											
	P_{in}	[kW]	0.020	0.025	0.030	0.040	0.050	0.055	0.085	0.10	0.11
Braking torque											
100	M_B	[Nm]	4.00	8.00	16.0	32.0	60.0	80.0	150	260	400
1000	M_B	[Nm]	3.70	7.20	14.0	27.0	51.0	66.0	121	206	307
1200	M_B	[Nm]	3.60	7.00	14.0	27.0	50.0	65.0	118	201	300
1500	M_B	[Nm]	3.50	6.80	13.0	26.0	48.0	63.0	115	195 [1]	291 [1]
1800	M_B	[Nm]	3.40	6.70	13.0	26.0	47.0	61.0	112 [1]		
3000	M_B	[Nm]	3.20	6.30	12.0	24.0	44.0 [1]	57.0 [1]			
3600	M_B	[Nm]	3.20	6.10	12.0	23.0 [1]					
Maximum switching energy											
100	Q_E	[KJ]	3.00	7.50	12.0	24.0	30.0	36.0	60.0	80.0	120
1000	Q_E	[KJ]	3.00	7.50	12.0	24.0	30.0	36.0	60.0	80.0	120
1200	Q_E	[KJ]	3.00	7.50	12.0	24.0	30.0	36.0	60.0	80.0	120
1500	Q_E	[KJ]	3.00	7.50	12.0	24.0	30.0	36.0	60.0	24.0 [1]	36.0 [1]
1800	Q_E	[KJ]	3.00	7.50	12.0	24.0	30.0	36.0	36.0 [1]		
3000	Q_E	[KJ]	3.00	7.50	12.0	24.0	18.0 [1]	11.0 [1]			
3600	Q_E	[KJ]	3.00	7.50	12.0	7.00 [1]					
Transition operating frequency											
	$S_{hü}$	[1/h]	79.0	50.0	40.0	30.0	28.0	27.0	20.0	19.0	15.0
Moment of inertia											
	J	[kgcm²]	0.15	0.61	2.00	4.50	6.30	15.0	29.0	73.0	200
Mass											
	m	[kg]	0.90	1.50	2.60	4.20	5.80	8.70	12.6	19.5	31.0

[1] In the region of the load limit the value for friction energy Q_{BW} can be reduced to 40 %.

Spring-applied brake

Rated data with standard braking torque

► Activation via half-wave or bridge rectifier

Size			06	08	10	12	14	16	18	20	25
Friction energy											
	Q_{BW}	[MJ]	85.0	158	264	530	571	966	1542	2322	3522
Delay time											
Engaging	t_{11}	[ms]	15.0		28.0		17.0	27.0	33.0	65.0	110
Rise time											
Braking torque	t_{12}	[ms]	13.0	16.0	19.0	25.0		30.0	45.0	100	120
Engagement time											
	t_1	[ms]	28.0	31.0	47.0	53.0	42.0	57.0	78.0	165	230
Disengagement time											
	t_2	[ms]	45.0	57.0	76.0	115	210	220	270	340	390

► The brake response and application times are guide values. The engagement time is 10 times longer with AC-side switching. With the maximum air gap the disengagement time t_2 – depending on the brake and control – is up to 4 times longer than the disengagement time with the rated air gap.

Spring-applied brake

Rated data with increased braking torque

- In case of the braking torque and the maximum switching energy, the unit for the values (100 ... 3600) is rpm.
- Please enquire for braking torques and maximum switching work values not listed here.

Size			10	12	14	16	16	18	20	20	25	25
Power input												
	P_{in}	[kW]	0.030	0.040	0.050	0.055	0.055	0.085	0.10	0.10	0.11	0.11
Braking torque												
100	M_B	[Nm]	23.0	46.0	75.0	100	125	200	315	400	490	600
1000	M_B	[Nm]	20.0	39.0	64.0	83.0	103	162	249	317	376	461
1200	M_B	[Nm]	20.0	39.0	62.0	81.0	101	158	244	309	367	449
1500	M_B	[Nm]	19.0	38.0	60.0	78.0	98.0	153	237 [1)]	300 [1)]	356 [1)]	436 [1)]
1800	M_B	[Nm]	19.0	37.0	59.0	77.0	96.0	150 [1)]				
3000	M_B	[Nm]	17.0	34.0	55.0 [1)]	71.0 [1)]	89.0 [1)]					
3600	M_B	[Nm]	17.0	33.0 [1)]								
Maximum switching energy												
100	Q_E	[KJ]	12.0	24.0	30.0	36.0	36.0	60.0	80.0	80.0	120	120
1000	Q_E	[KJ]	12.0	24.0	30.0	36.0	36.0	60.0	80.0	80.0	120	120
1200	Q_E	[KJ]	12.0	24.0	30.0	36.0	36.0	60.0	80.0	80.0	120	120
1500	Q_E	[KJ]	12.0	24.0	30.0	36.0	36.0	60.0	24.0 [1)]	24.0 [1)]	36.0 [1)]	36.0 [1)]
1800	Q_E	[KJ]	12.0	24.0	30.0	36.0	36.0	36.0 [1)]				
3000	Q_E	[KJ]	12.0	24.0	18.0 [1)]	11.0 [1)]	11.0 [1)]					
3600	Q_E	[KJ]	12.0	7.00 [1)]								
Transition operating frequency												
	$S_{hü}$	[1/h]	40.0	30.0	28.0	27.0	27.0	20.0	19.0	19.0	15.0	15.0
Moment of inertia												
	J	[kgcm²]	2.00	4.50	6.30	15.0	15.0	29.0	73.0	73.0	200	200
Mass												
	m	[kg]	2.60	4.20	5.80	8.70	8.70	12.6	19.5	19.5	31.0	31.0

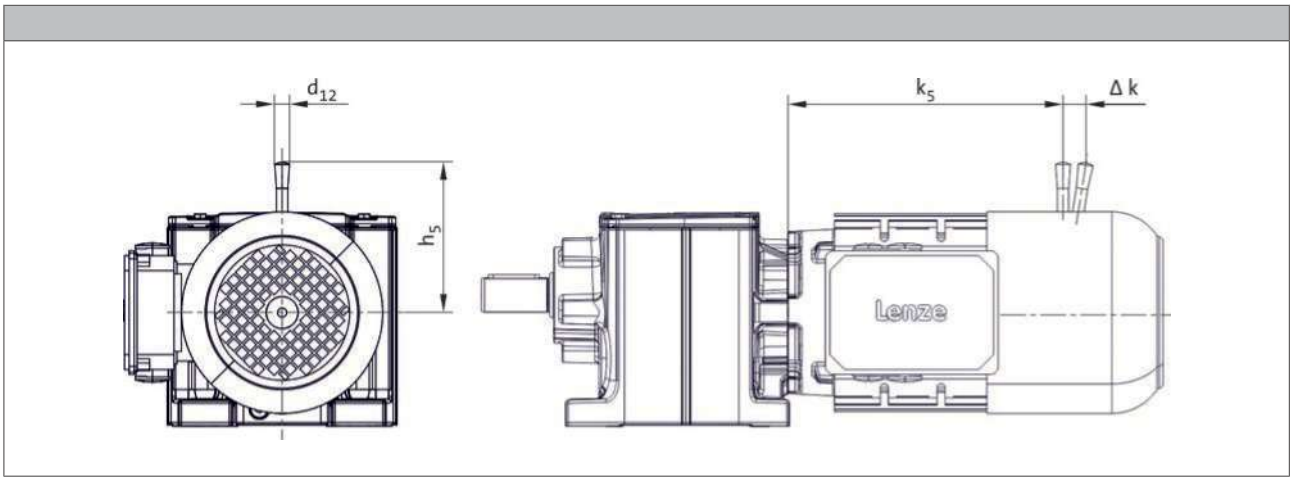
[1)] In the region of the load limit the value for friction energy Q_{BW} can be reduced to 40 %.

- Activation via half-wave or bridge rectifier

Size			10	12	14	16		18	20		25	
Friction energy												
	Q_{BW}	[MJ]	198	353	253	563	241	578	1596	580	2465	1409
Delay time												
Engaging	t_{11}	[ms]	10.0	16.0	11.0	22.0	17.0	24.0	46.0	17.0	77.0	38.0
Rise time												
Braking torque	t_{12}	[ms]	19.0	25.0		30.0		45.0	100		120	
Engagement time												
	t_1	[ms]	29.0	41.0	36.0	52.0	47.0	69.0	146	117	197	158
Disengagement time												
	t_2	[ms]	109	193	308	297	435	356	378	470	451	532

Spring-applied brake

Manual release for 4-pole motors



Product	Size	Dimensions			
	Brake				
		k_5	Δ k	h_5	d_{12}
		[mm]	[mm]	[mm]	[mm]
m240-P80/M4	08 10	243 254	27 28	116 132	13.0 13.0
m240-P90/M4 m240-P90/L4	08 10	291 302	27 28	116 132	13.0 13.0
m240-P100/M4 m240-P100/L4	10 12	355 359	28 37	132 161	13.0 13.0
m240-P112/M4	12 14	366 368	37 41	161 195	13.0 24.0
m240-P132/M4 m240-P132/L4	14 16	428 431	41 55	195 240	24.0 24.0
m240-P160/M4 m240-P160/L4	16 18	512 517	55 59	240 279	24.0 24.0
m240-P180/M4 m240-P180/L4 m240-P180/V4	18 20	574 581	59 74	279 319	24.0 24.0

Temperature monitoring

To protect the motor against overheating, the following thermal sensors are provided.
The thermal sensors are integrated into the windings. We recommend using an additional motor protection switch.

TKO thermal contacts

The TCO thermal contact (thermal NC contact) is a bimetallic-element switch. The TCO monitors the motor winding temperature; at too high temperatures, the motor relay switches. The motor is disconnected from the mains.

Function	Operating temperature	Min. reset temperature	Max. reset temperature	Max. input current	Max. input voltage
					AC
	T	T_{min}	T_{max}	$I_{in,max}$	$U_{in,max}$
	-5 ... 5				
	[°C]	[°C]	[°C]	[A]	[V]
NC contact	150	90.0	135	2.50	250

PTC thermistor

The PTC thermistor is actuated in connection with a tripping unit. If the motor gets too hot, the motor can be switched off by means of a contactor. In contrast to the thermal contact, quick restart is possible.

Function	Operating temperature	Rated resistance			Standard
		155 °C	-20 °C	140 °C	
	T	R_N	R_N	R_N	
	-5 ... 5				
	[°C]	[Ω]	[Ω]	[Ω]	
Sudden change in resistance	150	550	30.0	250	DIN 44080 DIN VDE 0660 Part 303

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