

g7xx-B and g8xx-B + m850 bevel planetary geared servo motor



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About this document

Document description

This document addresses to all persons who want to carry out any configurations with the products described.

The data and information compiled in this document serve to support you in the dimensioning and selection processes and in carrying out the electrical and mechanical installation. You will receive information regarding product extensions and accessories.

- The document includes safety instructions which must be observed.
- All persons working on and with the drives must have the documentation at hand during work and observe the information and notes relevant for it.
- The documentation must always be complete and in a perfectly readable state.



Further documents



Information and tools with regard to the Lenze products can be found on the Internet:

www.lenze.com → Downloads



Notations and conventions

This document uses the following conventions to distinguish different types of information.

Numeric notation		
Decimal separator	Point	Generally shown as a decimal point. Example: 1 234.56
Warning		
UL warning	UL	Are used in English and French.
UR warning	UR	
Text		
Engineering tools	» «	Software, Example: »Engineer«, »EASY Starter«
Icons		
Page reference		Refers to another page with additional information. Example:  16 = see page 16
Documentation reference		Refers to another documentation with additional information. Example:  EDKxxx = see documentation EDKxxx

Layout of the safety instructions

DANGER!

Indicates an extremely hazardous situation. Failure to comply with this instruction will result in severe irreparable injury and even death.

WARNING!

Indicates an extremely hazardous situation. Failure to comply with this instruction may result in severe irreparable injury and even death.

CAUTION!

Indicates a hazardous situation. Failure to comply with this instruction may result in slight to medium injury.

NOTICE

Indicates a material hazard. Failure to comply with this instruction may result in material damage.



Product information

Product description

When used in combination with servo motors, our bevel planetary gearboxes form a compact, powerful drive unit. Numerous options at the input and output ends ensure that the drive can be easily and precisely adjusted to suit your application.

The bevel planetary gearboxes are the ideal solution for demanding, dynamic tasks. With their high reliability, long service life and outstanding scalability, they provide everything you need to manage demanding machine tasks.

The bevel planetary gearboxes are available as standard and precision gearboxes.

General differences between precision gearboxes and standard gearboxes:

- Reduced backlash
- Higher radial and axial forces
- Higher degree of protection

Synchronous servo motors as a basis for geared motors

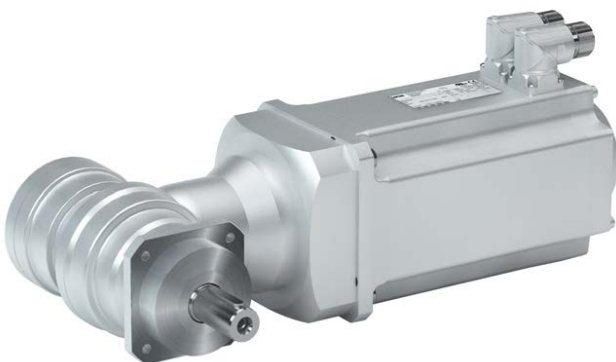
In a power range of 2.0 to 9.2 kW, Lenze offers servo motors with a scalable modular design.

The drives are designed for the open-loop or closed-loop controlled servo inverter operation.

Medium dynamics and simple controllability due to favorable mass inertia ratio of the load to the motor characterize this motor.

Customer benefit

- Easy assembly and easy servicing by connectors with bayonet lock and swivel connector boxes
- Reduced cabling by One Cable Technology (OCT) in connection with a digital absolute value encoder
- Easy controllability by an advantageous ratio of the mass inertia of the load and that of the motor
- Optimal smooth running characteristics for exact work results
- Space-saving thanks to compact direct attachment
- High efficiency
- Suitable for any mounting position
- Can be used universally for a wide range of machine tasks due to the market-oriented modular system



g850-B150 bevel planetary gearbox with m850 synchronous servo motor-S120



g860-B70 bevel planetary gearbox with m850 synchronous servo motor-S120



Identification of the products

When listing the technical data of the various variants, the easily legible product names are used. This also applies to the assignment of product extensions.

Product name g7x0 standard gearbox

Gearbox type	Product range		Version	Rated torque [Nm]	Product
Bevel planetary gearbox	g700	-	B	44	g700-B44
				130	g700-B130
				260	g700-B260
	g720	-	B	44	g720-B44
				130	g720-B130
				260	g720-B260
	g730	-	B	33	g730-B33
				97	g730-B97
				195	g730-B195
	g780	-	B	44	g780-B44
				130	g780-B130
				260	g780-B260

Product name g8x0 precision gearbox

Gearbox type	Product range		Version	Rated torque [Nm]	Product
Bevel planetary gearbox	g850	-	B	77	g850-B77
				150	g850-B150
				300	g850-B300
				800	g850-B800
	g860	-	B	45	g870-B45
				70	g870-B70
				140	g870-B140
				320	g870-B320
	g880	-	B	62	g880-B62
				130	g880-B130
				310	g880-B310
				625	g880-B625

Product name m850 synchronous servo motor

Product series		Design	Flange height		Overall length	Rated speed	Motor
			mm			rpm	
m850	-	S (synchronous)	40	/	S (short)	9000	m850-S40/S9000
					L (long)	9000	m850-S40/L9000
			60		S (short)	6000	m850-S60/S6000
					L (long)	6000	m850-S60/L6000
			80		S (short)	5500	m850-S80/S5500
					L (long)	5500	m850-S80/L5500
			120		S (short)	3960	m850-S120/S3960
					M (medium)	3960	m850-S120/M3960
					L (long)	3960	m850-S120/L3960
					S (short)	3240	m850-S140/S3240
			140		M (medium)	3240	m850-S140/M3240
					L (long)	3240	m850-S140/L3240
			190		S (short)	3000	m850-S190/S3000
					M (medium)	3000	m850-S190/M3000
					L (long)	2520	m850-S190/L2520



Designs

Standard gearboxes



g700-B

- Basic gearboxes
- Good price/performance ratio
- Permanently high speeds



g720-B

- Reinforced deep-groove ball bearings
- Flange at the output end
- Broad ratio range



g730-B

- Reinforced deep-groove ball bearings
- Reinforced housing



g780-B

- Robust taper roller bearings
- Protection against dust and water jets
- Degree of protection IP65

Gearbox		g700-B	g720-B	g730-B	g780-B
Rated torque	Nm	5 ... 260	14 ... 260	5 ... 195	14 ... 260
Max. backlash	'	11 ... 28	11 ... 21	11 ... 25	11 ... 18
Static radial force	rated	200 ... 2000	1500 ... 4000	1300 ... 4000	900 ... 3800
Static axial force	rated	240 ... 3800	1950 ... 3800	1000 ... 5900	1200 ... 5200
Tooth system		straight toothed			
Output flange		FT	FF	FT	FF

Precision gearbox



g850-B

- Spiral arc toothing
- 2-stage gearbox with additional planetary stage
- Very low backlash



g860-B

- Spiral arc toothing
- Hollow shaft version with shrink disc
- Very low backlash



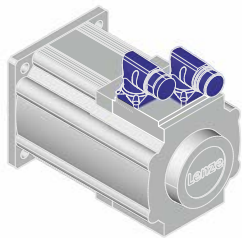
g880-B

- Spiral arc toothing
- 2-stage gearbox with additional planetary stage
- Flange output shaft

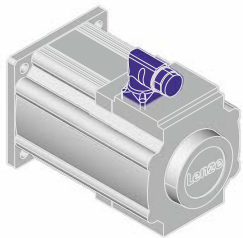
Gearbox		g850-B	g860-B	g880-B
Rated torque	Nm	22 ... 800	22 ... 320	22 ... 625
Max. backlash	'	3 ... 5	5	3 ... 5
Static radial force	rated	3200 ... 12500	2700 ... 10000	2400 ... 12000
Static axial force	rated	4300 ... 15000	4300 ... 14500	4200 ... 9500
Tooth system		Spiral-arc toothing		
Output flange		FF		



Models at the output
Motor connection

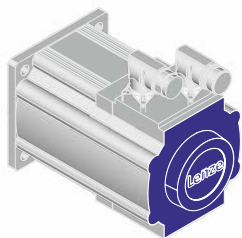


ICN connector

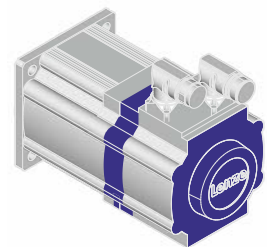


ICN hybrid connector for One Cable
Technology (OCT)

Cooling: Self-ventilated



Feedback



Feedback and brake



Information on project planning

Safety instructions

Basic safety instructions

Disregarding the following basic safety instructions and safety information may lead to severe personal injury and damage to property!

- Only use the product as directed.
- Never commission the product in the event of visible damage.
- Never modify the product technically.
- Never commission the product before assembly has been completed.
- Never operate the product without the required covers.
- Connect/disconnect all pluggable connections only in deenergized condition!
- Only remove the product from the installation in the deenergized state.
- The product can – depending on their degree of protection – have live, movable or rotating parts during or after operation. Surfaces can be hot.
- Observe the specifications of the corresponding documentation. This is the condition for safe and trouble-free operation and the achievement of the specified product features.
- The procedural notes and circuit details given in the associated documentation are suggestions and their transferability to the respective application has to be checked. The manufacturer of the product does not take responsibility for the suitability of the process and circuit proposals.
- All work with and on the product may only be carried out by qualified personnel. IEC 60364 and CENELEC HD 384 define the qualifications of these persons:
 - They are familiar with installing, mounting, commissioning, and operating the product.
 - They have the corresponding qualifications for their work.
 - They know and can apply all regulations for the prevention of accidents, directives, and laws applicable at the place of use.

Application as directed

- The product is a professional equipment intended for use by trades, specific professions or industry and not for sale to the general public. IEC 60050 [IEV 161-05-05]
- To prevent personal injury and damage to property, higher-level safety and protection systems must be used!
- All transport locks must be removed.
- Mounted eye bolts on the motor are not suitable for transporting geared motors.
- The product may only be operated under the specified operating conditions and in the specified mounting positions.
- The product may only be operated on the inverter.
- Built-in brakes must not be used as safety brakes.
- The product must not be operated in private areas, in potentially explosive atmospheres and in areas with harmful gases, oils, acids and radiation.



Residual hazards

Even if notes given are taken into consideration and protective measures are implemented, the occurrence of residual risks cannot be fully prevented.

The user must take the residual hazards mentioned into consideration in the risk assessment for his/her machine/system.

If the above is disregarded, this can lead to severe injuries to persons and damage to property!

Product

Observe the warning labels on the product!



Dangerous electrical voltage:

Before working on the product, make sure there is no voltage applied to the power terminals!
After mains disconnection, the power terminals will still carry the hazardous electrical voltage for the time given next to the symbol!



Electrostatic sensitive devices:

Before working on the product, the staff must ensure to be free of electrostatic charge!



High leakage current:

Carry out fixed installation and PE connection in compliance with:
EN 61800-5-1 / EN 60204-1



Hot surface:

Use personal protective equipment or wait until the device has cooled down!

Protection of persons

- The power terminals may carry voltage in the switched-off state or when the motor is stopped.
 - Before working, check whether all power terminals are deenergized.
- Voltages may occur on the drive components (e.g. capacitive, caused by inverter supply).
 - Careful earthing in the marked positions of the components must be carried out.
- There is a risk of burns from hot surfaces.
 - Provide protection against accidental contact.
 - Use personal protective equipment or wait until the device has cooled down.
 - Prevent contact with flammable substances.
- There is a risk of injury due to rotating parts.
 - Before working on the drive system, ensure that the motor is at a standstill.
- There is a risk of accidental start-up or electric shock.

Motor protection

- Installed temperature sensors are no full protection for the machine.
 - If necessary, limit the maximum current. Parameterize the inverter so that it will be switched off after some seconds of operation with $I > I_{rated}$, especially if there is a risk of blocking.
 - Integrated overload protection does not prevent overloading under all conditions.
- The fuses are no motor protection.
 - Use a current-dependent motor protection switch.
 - Use the built-in temperature sensors.



Gearbox protection

- Excessive vibration accelerations and resonances will damage the gearbox.
 - Do not operate the gearbox at vibration accelerations $> 2 \text{ g}$ (20 m/s^2) of the machine.
 - Do not operate the gearbox in the resonance range of the machine.
- Excessive torques will damage the gearboxes.
 - Do not exceed the output torques specified on the nameplate.
- Excessive input speeds lead to increased temperatures.
 - Do not exceed the input speeds specified on the nameplate.
- Avoid excessive lateral forces on the gearbox shaft.
 - Align the shafts of the gearbox and driven machine exactly with each other.
- Machine elements can be damaged by a lack of lubricant.
 - Mount the gearbox only in the mounting position indicated on the nameplate.
 - When changing the lubricant, use the lubricant type and quantity specified on the nameplate.



Drive dimensioning

In order to carry out an accurate drive dimensioning process, you can use our configuring software, the »EASY System Designer«.

With the »EASY System Designer«, you can design the drive both quickly and to a high quality. The software contains profound and proven expertise with regard to drive applications and mechatronic drive components.

Please get in touch with your Lenze representative.

Workflow

S1 operation		S2, S3 and S6 operation	
1	Check operating conditions	1	Check operating conditions
2	Define required input variables	2	Define required input variables
3	Determine correction factor	3	Determine correction factor
4	Determine gearbox on the basis of the acting forces	4	Determine gearbox on the basis of the acting forces
5	Determine required gearbox load capacity	5	Determine gearbox efficiency
6	Calculate required drive power	6	Determine required gearbox load capacity
7	Check and select geared motor	7	Calculate required drive power
8	Final configuration	8	Check and select geared motor
		9	Check servo motor based on the motor torque characteristic
		10	Final configuration

Check operating conditions

Check
Approvals
Conformities
Supply voltage
Degree of protection
Ambient temperature
Surface protection

► Standards and operating conditions [29](#)

► Surface and corrosion protection [21](#)

Define required input variables

Necessary input variables	Note	Symbol	Unit
Operating time/day		BD	h
Mean speed utilization of the geared motor	Relating to the load speed n_L		%
Ambient temperature		T_V	°C
Site altitude Amsl		H	m
Radial force		F_{rad}	rated
Axial force		F_{ax}	rated
Transmission element at the output	Gear wheels, sprockets ...		
Effective diameter of the transmission element		d_w	mm
Load torque	Only with S1, S2, S3, and S6 operating modes	M_L	Nm
Load speed	Only with S1, S2, S3, and S6 operating modes	n_L	rpm
Short-time maximum torque	Emergency off, quick stop, occasional high starting duty	$M_{L,max}$	Nm
Runtime with maximum torque		t_L	%



Determine correction factor

Operating modes S1, S2, S3, S6, and operating time							
Operating mode S1		Operating mode S2		Operating mode S3		Operating mode S6	
ED	k_L	ED	k_L	ED	k_L	ED	k_L
%		min		%		%	
100	1.0	10	1.4 - 1.5	15	1.4 - 1.5	15	1.5 - 1.6
		30	1.15 - 1.2	25	1.3 - 1.4	25	1.4 - 1.5
		60	1.07 - 1.1	40	1.15 - 1.2	40	1.3 - 1.4
		90	1.0 - 1.05	60	1.05 - 1.1	60	1.15 - 1.2

► Operating modes of the motor 173

Ambient temperature and installation height		
Ambient temperature	Installation height amsl	
	≤ 1000 m	≤ 2000 m
	Correction factor	
T_U	k_H	k_H
≤ 20 °C	1.10	1.04
30 °C	1.05	1.00
40 °C	1.00	0.95
50 °C	0.80	0.76
60 °C	0.60	0.57

Mean speed utilisation					
Daily operating time	Mean speed utilisation relating to the load speed n_L				
	100 %	80 %	60 %	50 %	25 %
	Correction factor				
	k_N	k_N	k_N	k_N	k_N
1.0 h	1.29	1.33	1.38	1.42	1.55
2.0 h	1.15	1.20	1.25	1.29	1.42
3.0 h	1.08	1.12	1.17	1.21	1.34
4.0 h	1.02	1.06	1.12	1.15	1.29
5.5 h	0.96	1.00	1.06	1.09	1.22
8.0 h	0.89	0.93	0.99	1.02	1.15
12.0 h	0.81	0.85	0.91	0.94	1.08
16.0 h	0.76	0.80	0.85	0.89	1.02
22.0 h	0.71	0.76	0.81	0.85	0.98
24.0 h	0.68	0.72	0.78	0.81	0.94

Mean speed					
Operating mode S2		Operating mode S3		Operating mode S6	
ED	k_M	ED	k_M	ED	k_M
min		%		%]	
10	0.16	15	0.15	15	1.00
30	0.50	25	0.25	25	
60	1.00	40	0.40	40	
90		60	0.60	60	



Determine product on the basis of the forces

Transmission element			Gear wheels	Sprockets	Toothed belt pulleys (depending on the pretension)	Narrow V-belt (depending on the pretension)
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	F_{rad}	N	$F_{rad} = 2000 \times \frac{M_{L,max} \times f_z}{dw}$		$F_{rad} \leq f_w \times F_{rad,max}$	
Axial force	F_{ax}	N			$F_{ax} \leq F_{rad,max} \times 0.5$	

dw Effective diameter of transmission element in mm

f_w Additional load factor

► [Radial forces and axial forces](#) 35

Determine gearbox efficiency

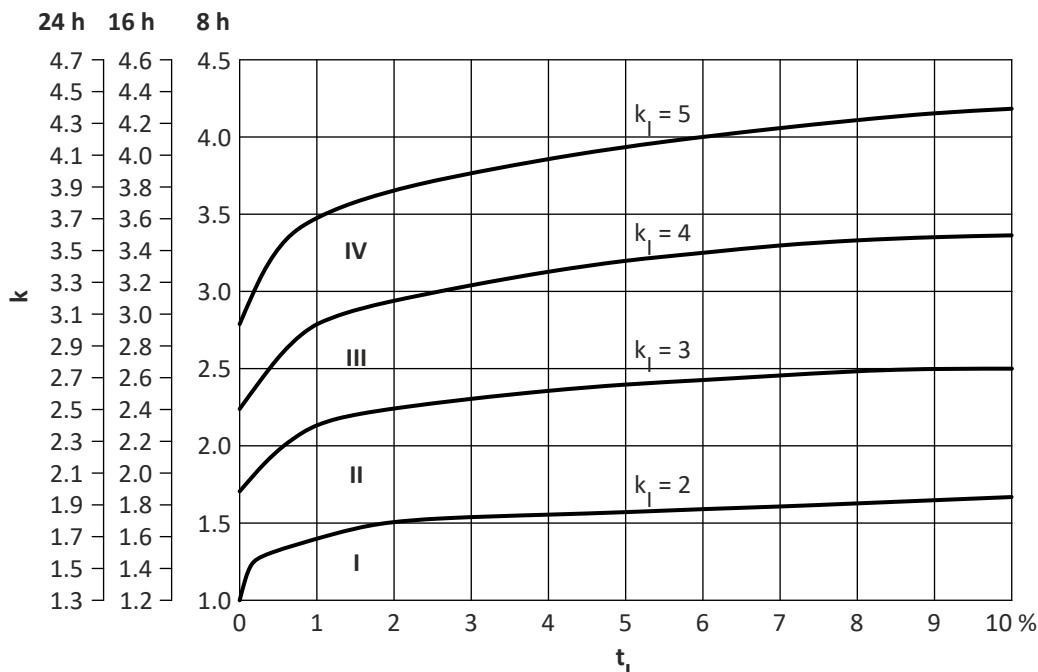
Gearboxes	Gearbox stages		
	1-stage	2-stage	3-stage
	Gearbox efficiency		
	η_{c1}	η_{c1}	η_{c1}
g700-B	0.95	0.94	0.88
g720-B	0.95	0.94	0.88
g730-B	0.95	0.94	-
g780-B	0.94	0.93	-
g850-B	0.95	0.94	-
g860-B	0.95	-	-
g880-B	0.94	0.93	-



Determination of the required gearbox load capacity

Define the required load factor at runtime t_L		
Runtime $t_L \leq 10\%$	Take the load factor k from diagram into account	
Runtime $t_L > 10\%$	Take intensity k_I from calculation into account	
Calculate intensity		
no alternating load	$k_I = M_{L,max} / M_L$	$k_I =$
at alternating load	$k_I = M_{L,max} / M_L \times 1.4$	$k_I =$

Load factor k



Operating mode S1

Calculation of the required drive power			
	Calculation	Result	Unit
Output torque	$M_R \geq M_L / (k_L \times k_H)$	$M_R =$	Nm
Output speed	$n_R \geq n_L / k_E$	$n_R =$	rpm
Drive power	$P_R \geq M_R \times n_R / 9549$	$P_R =$	kW

Check geared servo motor and determine from the selection table			
	Check	Selection	Unit
Drive power	$P_1 \geq P_R$	$P_1 =$	kW
Output torque	$M_2 \geq M_L$	$M_2 =$	Nm
Output speed	$n_{2,th} \geq n_L$	$n_{2,th} =$	rpm
Load capacity of the geared motor	$c \geq k$ $c \geq k_I$	$c =$	
Short-time maximum torque			
no alternating load	$M_{2,max} \geq M_{L,max}$	$M_{2,max} =$	Nm
at alternating load	$M_{2,max} \times 1.5 \geq M_{L,max}$	$M_{2,max} =$	Nm
Ratio		$i =$	

► Selection tables 36



Operating modes S2, S3, and S6

Calculation of the required drive power			
	Calculation	Result	Unit
Output torque	$M_R \geq M_L / (k_L \times k_H)$	$M_R =$	Nm
Output speed	$n_R \geq (n_L \times k_M) / (k_E \times k_{rated})$	$n_R =$	rpm
Drive power	$P_R \geq M_R \times n_R / 9549$	$p_R =$	kW

Check geared servo motor and determine from the selection table			
	Check	Selection	Unit
Drive power	$P_1 \geq P_R$	$p_1 =$	kW
Output torque	$M_2 \geq M_L$	$M_2 =$	Nm
Output speed	$n_2 \geq n_L$	$n_2 =$	rpm
Load capacity of the geared motor	$c \geq k$ $c \geq k_l$	$c =$	
Short-time maximum torque			
no alternating load	$M_{2,max} \geq M_{L,max}$	$M_{2,max} =$	Nm
at alternating load	$M_{2,max} \times 1.5 \geq M_{L,max}$	$M_{2,max} =$	Nm
Ratio		$i =$	

► Selection tables [36](#)

Check servo motor based on the motor torque characteristic		
Gearbox efficiency	$\eta_G = \eta_{c1} - (c - 1) \times 0.01$	$\eta_G =$
All operating points (●)		$i \times n_L$
below the maximum torque characteristic of the servo motor/ inverter combination here, $M_{L,max}$ must be considered		$M_L / (i \times \eta_G)$
Thermally effective operating point (○)		$(i \times n_L \times k_M) / (k_E \times k_{rated})$
below the S1 torque characteristic of the servo motor		$M_L / (k_L \times k_H \times i \times \eta_G)$

► Torque characteristics [165](#)



Final configuration

	Check
Connection dimensions	Output shaft Output flange
Product extensions	Connector Brake Feedback Temperature monitoring

More information about the final configuration:

► [The modular system](#) 31

► [Product extensions](#) 145

Surface and corrosion protection

Depending on the ambient conditions, the surface and corrosion protection system (called OKS) offers tailor-made solutions for optimum protection.

Various surface coatings ensure that the motors operate reliably even at high air humidity, in outdoor installation or in the presence of atmospheric impurities. Any color from the "RAL Classic" collection can be chosen for the top coat.



The OKS-XL (extra Large) version requires a check by your responsible Lenze subsidiary.

Surface and corrosion protection (called OKS)	Applications	Type
without OKS (unpainted)	- Indoor installation, no special corrosion protection necessary - Painting by customer	Standard
OKS-G (primed)	Dependent on subsequent top coat applied	Optional
OKS-S (small)	- Standard applications - Internal installation in heated buildings - Air humidity up to 90 %	
OKS-M (medium)	- Internal installation in non-heated buildings - Covered, protected external installation - Air humidity up to 95 %	
OKS-L (large)	- External installation - Air humidity above 95 % - Chemical industrial plants - Food industry	

Surface and corrosion protection	Corrosivity category	Surface coating	Color	Coating thickness
	DIN EN ISO 12944-2	Design		
OKS-G (primed)		2K PUR priming coat		60 ... 90 µm
OKS-S (small)	Comparable to C1	2K-PUR top coat	- Standard: RAL 7012 - Optional: RAL Classic	80 ... 120 µm
OKS-M (medium)	Comparable to C2	2K PUR priming coat		110 ... 160 µm
OKS-L (large)	Comparable to C3	2K-PUR top coat		140 ... 200 µm
OKS-XL (extra large)	Comparable to C4	2K-EP priming coat (two times) 2K-PUR top coat		160 ... 240 µm

Lubricants



The g7x0 and g8x0 planetary gearbox series are lubricated for life.



Mechanical installation

Important notes

- Install the product according to the information in the chapter "Standards and operating conditions".
 - ▶ [Standards and operating conditions](#)  29
- The technical data and the data regarding the supply conditions can be found on the nameplate and in this documentation.
- Ambient media – especially chemically aggressive ones – may damage shaft sealing rings, lacquers and plastics.
- Lenze offers special surface and corrosion protection in this case.



Transport

- Ensure appropriate handling.
- Make sure that all component parts are securely mounted. Secure or remove loose component parts.
- Only use safely fixed transport aids (e.g., eye bolts or support plates).
- Do not damage any components during transport.
- Avoid electrostatic discharges on electronic components and contacts.
- Avoid impacts.
- Check the carrying capacity of the hoists and load handling devices. The weights can be found in the shipping documents.
- Secure the load against tipping and falling down.
- Standing beneath suspended loads is prohibited.



Installation

Mounting surfaces

- The mounting surfaces must be plane, torsionally rigid and free from vibrations.
- The mounting areas must be suited to absorb the forces and torques generated during operation.
- Ensure an unhindered ventilation.
- For versions with a fan, keep a minimum distance of 10 % from the outside diameter of the fan cover in intake direction.



Electrical installation

Important notes

DANGER!

Risk of injury and risk of burns from dangerous voltage

Power terminals may also carry voltage in the switched-off state or when the motor is stopped and may cause life-threatening cardiac arrhythmia and serious burns.

- ▶ Disconnect the product from the mains.
- ▶ Check that the power terminals are deenergized before starting work.

-
- When working on energized products, comply with the applicable national accident prevention regulations.
 - The electrical installation must be carried out according to the appropriate regulations (e.g. cable cross-sections, fuses, PE connection).
 - The manufacturer of the system or machine is responsible for adherence to the limits required in connection with EMC legislation.

Operation on an external inverter

A max. pulse voltage amplitude of $U_{pk} = 1560 \text{ V}$ at the motor terminals must not be exceeded.

Here, the minimum pulse rise time must be $t_r = 0.1 \text{ }\mu\text{s}$.

If it cannot be ruled out that the permissible voltage peaks will be exceeded or that the minimum pulse rise time will not be reached, the following measures must be initiated:

- Reduction of the DC-bus voltage (threshold for brake chopper voltage)
- Use of filters, chokes
- Use of special motor cables



Preparation



The notes for the electrical connection can be found in the enclosed mounting instructions.

EMC-compliant wiring



The EMC-compliant wiring is described in detail in the documentation of the Lenze inverters.



Technical data

Notes regarding the given data

The power values, torques and speeds specified in the configuration are rounded values and apply to

- Operating time per day = 8 hrs (100 % ED)
- Duty class up to 10 switching operations per hour
- Ambient temperature T_V and max. permissible thermal output speed $n_{2,th}$
 - $T_V = -20 \dots +40 \text{ }^\circ\text{C}$
 - $n_{2,th}$ is valid for $T_V = +20 \text{ }^\circ\text{C}$
- Site altitude ≤ 1000 m above mean sea level
- The selection tables indicate the mechanically permissible power levels and torques.
- The ratings apply to the operating mode S1 (acc. to EN 60034).

Selection tables

The selection tables represent the available combinations of gearbox, number of stages, ratio and motor. They only serve as a rough overview.

The following legend shows an example of the layout of the selection tables:

Example

Inverter mains connection 400 V, self-ventilated motors
0.25 kW

Explanation

Voltage of inverter mains connection, motor cooling type
Rated motor power

Inverter operation							Geared motor		Number of stages	Mass
M ₂	n ₂	c	M _{2,max}	n _{2,th}	J	i	g700-	MCS	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
1.7	1350	2.4	11.0	124	0.213	3.000	P20	06C41-	1	2.7
2.5	810	4.8	14.0	124	0.205	5.000	P20	06C41-	1	2.7
3.5	579	5.0	25.0	124	0.209	7.000	P44	06C41-	1	3.2
4.0	579	2.1	8.5	124	0.203	7.000	P20	06C41-	1	2.7

										Mass
										Number of gear stages
										Motor product name
										Gearbox product name
										Ratio
										Moment of inertia
										With feedback, without brake
										Max. permissible output speed in S1 operation
										Max. permissible acceleration torque
										Dependent on inverter
										Load capacity of the gearbox
										c is the ratio of permissible rated torque of the gearbox to the rated torque of the motor (converted to the driven shaft).
										c must always be higher than the application factor detected for the application k.
										$c = \frac{M_{2,zul}}{M_{1,N} \times i \times \eta_{Getr}} > k$
										Output speed
										Output torque

Technical data

Notes regarding the given data



Basic dimensions

In the basic dimensions, the total lengths (L) of the drive with resolver are given.

Note the extra length (ΔL) of the product extensions.

► [Additional lengths](#)  143



Standards and operating conditions

Conformities and approvals

More information and certificates of approval can be found under

[g7x0-B/g8x0-B + m850 bevel planetary geared motors \(Lenze.com\)](https://www.lenze.com/g7x0-B/g8x0-B+m850-bevel-planetary-g geared-motors)

Europe					
Country	Conformity/ approval	Law/standard	Description	Special feature	Product representation
European Union	CE	2006/42/EC	Machinery Directive	Only for safety-relevant components	CE mark
		2011/65/EU	RoHS	-	
		2014/30/EU	EMC Directive		
		2014/35/EU	Low-Voltage Directive		
Great Britain	UKCA	S.I. 2008/1597	The Supply of Machinery (Safety) Regulations 2008	Only for safety-relevant components	UKCA mark
		S.I. 2012/3032	The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012	-	
		S.I. 2016/1091	The Electromagnetic Compatibility Regulations 2016		
		S.I. 2016/1101	The Electrical Equipment (Safety) Regulations 2016		
America					
Country	Conformity/ approval	Law/standard	Description	Special feature	Product representation
Canada	CSA	CSA 22.1 No. 100	CSA Standard for Motors and Generators	S120, S140, S190	cULus mark
USA	UL	UL 1004-1	UL Standard for Rotating Electrical Machines	S40 ,S60, S80	cURus mark
				S120, S140, S190	cULus mark
Asia					
Country	Conformity/ approval	Law/standard	Description	Special feature	Product representation
China	-	GB 30253	Minimum allowable values of energy efficiency and energy efficiency grades for permanent magnet synchronous motors	-	CEL mark
		GB/T 26572	Requirements on concentration limits for certain restricted substances in electrical and electronic products		EFUP mark

Technical data

Standards and operating conditions
Protection of persons and device protection



Protection of persons and device protection

Degree of protection			
EN	EN IEC 60529,EN IEC 60034-5	IP54	Specification applies to the ready-to-use mounted state for S120, S140, S190
		IP65	
		IP65/IP21 (IP65 except for AS side, here IP21)	Specification applies to the ready-to-use mounted state for S40, S60, S80
Insulation resistance			
Overvoltage category II	EN IEC 60664-1	II	0 ... 2000 m amsl, S40, S60, S80. Use a surge protection device for a high level of protection against overvoltage.
Overvoltage category III		III	0 ... 2000 m amsl, S120, S140, S190
Temperature class			
-	EN IEC 60034-1	F (155 °C)	Insulation system
Permissible voltage			
-	IEC 60034-18-41	IVIC C	At 500 V
	IEC/TS 60034-25:2007	Of the pulse voltage	
IVIC B	IEC 60034-18-41	S40, S60, S80	At 500 V
IVIC C		S120, S140, S190	

EMC data

Noise emission		
-	EN IEC 60034-1	A final overall assessment of the drive system is indispensable
Noise immunity		
-	EN IEC 60034-1	A final overall assessment of the drive system is indispensable

Environmental conditions

Climate			
Storage	EN 60721-3-1:1997	1K3 (-20 ... +40 °C)	> 3 months
		1K3 (-20 ... +60 °C)	< 3 months
Transport	EN 60721-3-2:1997	2K3 (-20 ... +70 °C)	
Operation	EN 60721-3-3:1995 + A2:1997	3K3 (-10 ... +40 °C)	Operation, without brake
		3K3 (-15 ... +40 °C)	Operation without brake, externally cooled
		3K3 (-20 ... +40 °C)	Operation without brake, self-ventilated
			Operation, without brake
Installation altitude			
0 ... 1000 m amsl	-	Without current derating	
1000 ... 2000 m. amsl		Reduce rated output current by 5 %/1000 m	
Air humidity			
-	-	Average relative humidity 85 %	Without condensation



Bevel gearbox g700-B

The modular system

g700-B bevel planetary gearbox with m850 synchronous servo motor

Gearbox		g700-B20	g700-B44	g700-B130	g700-B260
Min. motor assignment		m850-S40S	m850-S40S	m850-S60S	m850-S60L
Max. motor assignment		m850-S40L	m850-S60L	m850-S120S	m850-S140M
Technical data					
Max. output torque	Nm	20	44	130	260
Mounting position		Any			
Color		Unpainted 40/60/80 Primed 120/140/190 RAL9005 120/140/190			
Surface and corrosion protection		Without 40/60/80 OKS-G 120/140/190			
Output shaft					
Solid shaft with featherkey	mm	10 x 23	14 x 30	20 x 36	25 x 50
Smooth solid shaft	mm	10 x 23	14 x 30	20 x 36	25 x 50
Shaft material		Steel			
Shaft sealing ring material		NBR			
Gearbox design		Without foot with centering			
Gearbox stages		1/2/3	1/2/3	1/2/3	1/2/3
Output flange	mm	40	60	80	120
Lubricant		Standard Food grade			
Cooling		Self-ventilated			
Motor connection		Connector			
Holding brake		Without With			
Feedback					
Without functional safety		Digital absolute value encoder for One Cable Technology (OCT) Resolver (except 40) Absolute value encoder (except 40)			
With functional safety			Digital absolute value encoder for One Cable Technology (OCT) Resolver (except 40) Absolute value encoder (except 40)		
Temperature monitoring		PT1000 thermal sensor 40/60/80 PT1000 thermal sensor and 2x PTC thermistor 120/140/190			



Gearbox data

g700-B20, 1-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/'
3	4.5	21	0
4	6.0	21	1
5	7.5	21	1
7	8.5	21	1
8	6.0	21	1
10	5.0	21	1

g700-B20, 2-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/'
9	16.5	25	1
12	20.0	25	1
20	20.0	25	1
25	18.0	25	1
32	20.0	25	1
40	18.0	25	1
64	7.5	25	1

g700-B20, 3-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/'
60	20.0	28	1
80	20.0	28	1
100	20.0	28	1
120	18.0	28	1
160	20.0	28	1
200	18.0	28	1

g700-B44, 1-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/'
3	14.0	16	2
4	19.0	16	2
5	24.0	16	2
7	25.0	16	2
8	18.0	16	2
10	15.0	16	2



g700-B44, 2-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/°
9	44.0	18	3
12	44.0	18	3
15	44.0	18	3
16	44.0	18	3
20	44.0	18	3
32	44.0	18	3
25	40.0	18	3
40	40.0	18	3
64	18.0	18	3

g700-B44, 3-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/°
60	44.0	21	3
80	44.0	21	3
100	44.0	21	3
120	44.0	21	3
160	44.0	21	3
200	40.0	21	3
256	44.0	21	3
320	40.0	21	3

g700-B130, 1-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/°
3	40.0	13	4
4	53.0	13	6
5	67.0	13	7
7	65.0	13	8
8	50.0	13	8
10	38.0	13	8

g700-B130, 2-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/°
9	130	15	8
12	120	15	10
15	110	15	10
16	120	15	10
20	120	15	10
25	110	15	10
32	120	15	10
40	110	15	10
64	50.0	15	8

Technical data

Bevel gearbox g700-B
Gearbox data



g700-B130, 3-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/'
60	110	17	10
80	120	17	10
100	120	17	10
120	110	17	10
160	120	17	10
200	110	17	10
256	120	17	10
320	110	17	10

g700-B260, 1-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/'
3	80.0	11	10
4	105	11	14
5	130	11	16
7	135	11	17
10	95.0	11	17
8	120	11	18

g700-B260, 2-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/'
9	210	13	19
12	260	13	21
15	230	13	21
16	260	13	22
25	230	13	21
20	260	13	22
32	260	13	22
40	230	13	22
64	120	13	19

g700-B260, 3-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/'
60	260	15	22
80	260	15	22
100	260	15	22
120	230	15	22
160	260	15	22



Radial forces and axial forces

Gearbox			g700-B20	g700-B20	g700-B20	g700-B44	g700-B44	g700-B44	g700-B130	g700-B130	g700-B130	g700-B260
Number of stages	z		1	2	3	1	2	3	1	2	3	1
Bearing service life 20000 h												
Speed		rpm	100	100	100	100	100	100	100	100	100	100
Radial force	F _{rad}	N	200	200	200	400	400	400	750	750	750	1750
Axial force	F _{ax}	N	200	200	200	500	500	500	1000	1000	1000	2500
Bearing service life 30000 h												
Speed		rpm	100	100	100	100	100	100	100	100	100	100
Radial force	F _{rad}	N	160	160	160	340	340	340	650	650	650	1500
Axial force	F _{ax}	N	160	160	160	450	450	450	900	900	900	2100
Max. radial force	F _{rad, max}	N	200	200	200	700	700	700	1250	1250	1250	2000
Max. axial force	F _{ax, max}	N	240	240	240	800	800	800	1600	1600	1600	3800

Gearbox			g700-B260					g700-B260				
Number of stages	z		2					3				
Bearing service life 20000 h												
Speed		rpm	100					100				
Radial force	F _{rad}	N	1750					1750				
Axial force	F _{ax}	N	2500					2500				
Bearing service life 30000 h												
Speed		rpm	100					100				
Radial force	F _{rad}	N	1500					1500				
Axial force	F _{ax}	N	2100					2100				
Max. radial force	F _{rad, max}	N	2000					2000				
Max. axial force	F _{ax, max}	N	3800					3800				

Technical data

Bevel gearbox g700-B

Selection tables

Inverter power supply 400 V, self-ventilated motors



Selection tables

Inverter power supply 400 V, self-ventilated motors

0.11 kW

Inverter operation								Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \max}$	$n_{2, th}$	J	i	g700-	m850-	z	m
Nm	rpm		Nm	rpm	rpm	kgcm ²					kg
0.3	3000	4.0	4.5	3333	1500	0.079	3	B20	S40/S9000	1	1.0
1.0	900	4.6	5.0	1000	450	0.062	10	B20	S40/S9000	1	1.0
2.6	281	5.7	20.0	313	141	0.062	32	B20	S40/S9000	2	1.1
3.8	225	4.2	18.0	250	113	0.062	40	B20	S40/S9000	2	1.1
5.3	113	5.5	44.0	125	56.0	0.261	80	B44	S40/S9000	3	2.6
5.6	150	3.2	20.0	167	75.0	0.077	60	B20	S40/S9000	3	1.2
5.8	141	1.3	7.5	156	70.0	0.062	64	B20	S40/S9000	2	1.1
5.9	141	3.0	18.0	156	70.0	0.252	64	B44	S40/S9000	2	2.4
7.8	90.0	4.5	44.0	100	45.0	0.261	100	B44	S40/S9000	3	2.6
8.1	113	2.5	20.0	125	56.0	0.063	80	B20	S40/S9000	3	1.2
9.8	90.0	2.0	20.0	100	45.0	0.063	100	B20	S40/S9000	3	1.2
10.0	75.0	3.8	44.0	83	38.0	0.252	120	B44	S40/S9000	3	2.6
11.0	75.0	1.6	18.0	83	38.0	0.077	120	B20	S40/S9000	3	1.2
15.0	56.3	1.4	20.0	63	28.0	0.062	160	B20	S40/S9000	3	1.2
15.0	56.3	3.0	44.0	63	28.0	0.252	160	B44	S40/S9000	3	2.6
17.0	45.0	1.1	18.0	50	23.0	0.062	200	B20	S40/S9000	3	1.2
17.0	45.0	2.4	40.0	50	23.0	0.252	200	B44	S40/S9000	3	2.6
21.0	35.2	2.1	44.0	39	18.0	0.252	256	B44	S40/S9000	3	2.6
24.0	28.1	1.7	40.0	31	14.0	0.252	320	B44	S40/S9000	3	2.6



Technical data

Bevel gearbox g700-B

Selection tables

Inverter power supply 400 V, self-ventilated motors

0.2 kW

Inverter operation								Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \max}$	$n_{2, th}$	J	i	g700-	m850-	z	m
Nm	rpm		Nm	rpm	rpm	kgcm ²					kg
0.6	3000	2.3	4.5	3333	1500	0.103	3	B20	S40/L9000	1	1.2
0.7	2250	4.1	6.0	2500	1125	0.095	4	B20	S40/L9000	1	1.2
0.9	1800	4.4	7.5	2000	900	0.089	5	B20	S40/L9000	1	1.2
1.2	1286	5.0	8.5	1429	643	0.087	7	B20	S40/L9000	1	1.2
1.3	1000	5.2	16.5	1111	500	0.102	9	B20	S40/L9000	2	1.3
1.5	1125	3.9	6.0	1250	563	0.086	8	B20	S40/L9000	1	1.2
1.7	750	5.9	20.0	833	375	0.102	12	B20	S40/L9000	2	1.3
1.9	900	2.7	5.0	1000	450	0.086	10	B20	S40/L9000	1	1.2
3.0	450	5.2	20.0	500	225	0.088	20	B20	S40/L9000	2	1.3
4.3	360	3.8	18.0	400	180	0.087	25	B20	S40/L9000	2	1.3
4.5	281	5.8	44.0	313	141	0.276	32	B44	S40/L9000	2	2.6
5.7	281	3.3	20.0	313	141	0.086	32	B20	S40/L9000	2	1.3
6.2	225	5.0	40.0	250	113	0.276	40	B44	S40/L9000	2	2.6
7.5	225	2.4	18.0	250	113	0.086	40	B20	S40/L9000	2	1.3
8.9	150	4.0	44.0	167	75.0	0.286	60	B44	S40/L9000	3	2.8
10.0	141	1.7	18.0	156	70.0	0.276	64	B44	S40/L9000	2	2.6
11.0	150	1.9	20.0	167	75.0	0.101	60	B20	S40/L9000	3	1.4
13.0	113	3.1	44.0	125	56.0	0.285	80	B44	S40/L9000	3	2.8
14.0	113	1.4	20.0	125	56.0	0.087	80	B20	S40/L9000	3	1.4
17.0	90.0	1.2	20.0	100	45.0	0.087	100	B20	S40/L9000	3	1.4
17.0	90.0	2.6	44.0	100	45.0	0.285	100	B44	S40/L9000	3	2.8
20.0	75.0	2.2	44.0	83	38.0	0.276	120	B44	S40/L9000	3	2.8
26.0	56.3	1.7	44.0	63	28.0	0.276	160	B44	S40/L9000	3	2.8
30.0	45.0	1.3	40.0	50	23.0	0.276	200	B44	S40/L9000	3	2.8
37.0	35.2	1.2	44.0	39	18.0	0.276	256	B44	S40/L9000	3	2.8

Technical data

Bevel gearbox g700-B

Selection tables

Inverter power supply 400 V, self-ventilated motors



0.325 kW

Inverter operation								Geared motor		Number of stages	Mass
M ₂	n ₂	c	M _{2, max}	n _{2, max}	n _{2, th}	J	i	g700-	m850-	z	m
Nm	rpm		Nm	rpm	rpm	kgcm ²					kg
1.6	1500	5.7	19.0	2500	750	0.486	4	B44	S60/S6000	1	3.2
2.0	1200	5.7	24.0	2000	600	0.474	5	B44	S60/S6000	1	3.2
2.9	857	5.5	25.0	1429	429	0.463	7	B44	S60/S6000	1	3.2
3.4	750	4.8	18.0	1250	375	0.461	8	B44	S60/S6000	1	3.2
4.2	500	5.3	44.0	833	250	0.585	12	B44	S60/S6000	2	3.4
4.5	600	3.3	15.0	1000	300	0.459	10	B44	S60/S6000	1	3.2
5.6	400	4.7	44.0	667	200	0.470	15	B44	S60/S6000	2	3.4
6.2	375	4.4	44.0	625	188	0.479	16	B44	S60/S6000	2	3.4
8.1	300	3.8	44.0	500	150	0.469	20	B44	S60/S6000	2	3.4
11.0	240	3.2	40.0	400	120	0.469	25	B44	S60/S6000	2	3.4
14.0	188	2.8	44.0	313	94.0	0.460	32	B44	S60/S6000	2	3.4
18.0	150	2.3	40.0	250	75.0	0.460	40	B44	S60/S6000	2	3.4
20.0	100	4.2	110	117	50.0	1.423	60	B130	S60/S6000	3	7.0
26.0	100	1.7	44.0	167	50.0	0.470	60	B44	S60/S6000	3	3.6
26.0	93.8	2.0	50.0	109	47.0	1.137	64	B130	S60/S6000	2	6.5
30.0	75.0	3.5	120	88	38.0	1.175	80	B130	S60/S6000	3	7.0
34.0	75.0	1.3	44.0	125	38.0	0.469	80	B44	S60/S6000	3	3.6
41.0	60.0	1.1	44.0	100	30.0	0.469	100	B44	S60/S6000	3	3.6
41.0	60.0	2.9	120	70	30.0	1.174	100	B130	S60/S6000	3	7.0
49.0	50.0	2.3	110	58	25.0	1.429	120	B130	S60/S6000	3	7.0
63.0	37.5	1.9	120	44	19.0	1.136	160	B130	S60/S6000	3	7.0
74.0	30.0	1.5	110	35	15.0	1.136	200	B130	S60/S6000	3	7.0
92.0	23.4	1.3	120	27	12.0	1.137	256	B130	S60/S6000	3	7.0
106	18.8	1.0	110	22	9.0	1.137	320	B130	S60/S6000	3	7.0



Technical data

Bevel gearbox g700-B

Selection tables

Inverter power supply 400 V, self-ventilated motors

0.55 kW

Inverter operation								Geared motor		Number of stages	Mass
M ₂	n ₂	c	M _{2, max}	n _{2, max}	n _{2, th}	J	i	g700-	m850-	z	m
Nm	rpm		Nm	rpm	rpm	kgcm ²					kg
2.4	2000	3.8	14.0	3333	1000	0.788	3	B44	S60/L6000	1	3.7
3.3	1500	3.2	19.0	2500	750	0.679	4	B44	S60/L6000	1	3.7
4.1	1200	3.2	24.0	2000	600	0.667	5	B44	S60/L6000	1	3.7
5.8	857	3.0	25.0	1429	429	0.656	7	B44	S60/L6000	1	3.7
6.6	667	3.7	44.0	1111	333	0.781	9	B44	S60/L6000	2	3.9
6.7	750	2.7	18.0	1250	375	0.654	8	B44	S60/L6000	1	3.7
7.7	600	4.5	38.0	700	300	1.323	10	B130	S60/L6000	1	6.4
8.3	600	1.8	15.0	1000	300	0.652	10	B44	S60/L6000	1	3.7
9.4	500	3.0	44.0	833	250	0.778	12	B44	S60/L6000	2	3.9
12.0	400	2.6	44.0	667	200	0.663	15	B44	S60/L6000	2	3.9
13.0	375	2.4	44.0	625	188	0.672	16	B44	S60/L6000	2	3.9
16.0	240	5.3	110	280	120	1.367	25	B130	S60/L6000	2	7.0
17.0	300	2.1	44.0	500	150	0.662	20	B44	S60/L6000	2	3.9
20.0	240	1.8	40.0	400	120	0.662	25	B44	S60/L6000	2	3.9
22.0	188	4.5	120	219	94.0	1.330	32	B130	S60/L6000	2	7.0
26.0	188	1.5	44.0	313	94.0	0.653	32	B44	S60/L6000	2	3.9
30.0	150	3.4	110	175	75.0	1.329	40	B130	S60/L6000	2	7.0
32.0	150	1.3	40.0	250	75.0	0.653	40	B44	S60/L6000	2	3.9
46.0	93.8	1.1	50.0	109	47.0	1.330	64	B130	S60/L6000	2	7.0
47.0	100	2.3	110	117	50.0	1.616	60	B130	S60/L6000	3	7.5
48.0	93.8	2.5	120	102	47.0	2.268	64	B260	S60/L6000	2	16
62.0	75.0	1.9	120	88	38.0	1.368	80	B130	S60/L6000	3	7.5
76.0	60.0	1.6	120	70	30.0	1.367	100	B130	S60/L6000	3	7.5
87.0	50.0	1.3	110	58	25.0	1.622	120	B130	S60/L6000	3	7.5
114	37.5	1.1	120	44	19.0	1.329	160	B130	S60/L6000	3	7.5

Technical data

Bevel gearbox g700-B

Selection tables

Inverter power supply 400 V, self-ventilated motors



1 kW

Inverter operation								Geared motor		Number of stages	Mass
M ₂	n ₂	c	M _{2, max}	n _{2, max}	n _{2, th}	J	i	g700-	m850-	z	m
Nm	rpm		Nm	rpm	rpm	kgcm ²					kg
4.6	1833	3.4	40.0	2333	917	2.673	3	B130	S80/S5500	1	7.6
5.8	1375	4.7	53.0	1750	688	2.404	4	B130	S80/S5500	1	7.6
7.1	1100	5.1	67.0	1400	550	2.373	5	B130	S80/S5500	1	7.6
9.7	786	5.5	65.0	1000	393	2.329	7	B130	S80/S5500	1	7.6
11.0	611	5.6	130	778	306	2.632	9	B130	S80/S5500	2	8.2
12.0	688	3.9	50.0	875	344	2.320	8	B130	S80/S5500	1	7.6
14.0	550	5.9	95.0	650	275	3.220	10	B260	S80/S5500	1	15
14.0	458	5.4	120	583	229	2.609	12	B130	S80/S5500	2	8.2
16.0	550	2.4	38.0	700	275	2.310	10	B130	S80/S5500	1	7.6
19.0	367	4.6	110	467	183	2.605	15	B130	S80/S5500	2	8.2
21.0	344	4.5	120	438	172	2.396	16	B130	S80/S5500	2	8.2
28.0	275	3.8	120	350	138	2.355	20	B130	S80/S5500	2	8.2
28.0	220	5.9	230	260	110	3.407	25	B260	S80/S5500	2	17
38.0	220	2.8	110	280	110	2.354	25	B130	S80/S5500	2	8.2
39.0	172	5.2	260	203	86.0	3.261	32	B260	S80/S5500	2	17
50.0	172	2.4	120	219	86.0	2.317	32	B130	S80/S5500	2	8.2
56.0	138	3.7	230	163	69.0	3.258	40	B260	S80/S5500	2	17
61.0	138	1.8	110	175	69.0	2.316	40	B130	S80/S5500	2	8.2
83.0	91.7	2.9	260	108	46.0	4.081	60	B260	S80/S5500	3	19
89.0	91.7	1.2	110	117	46.0	2.603	60	B130	S80/S5500	3	8.7
91.0	85.9	1.3	120	102	43.0	3.255	64	B260	S80/S5500	2	17
117	68.8	1.0	120	88	34.0	2.355	80	B130	S80/S5500	3	8.7
118	68.8	2.2	260	81	34.0	3.411	80	B260	S80/S5500	3	19
145	55.0	1.8	260	65	28.0	3.405	100	B260	S80/S5500	3	19
167	45.8	1.4	230	54	23.0	4.063	120	B260	S80/S5500	3	19
220	34.4	1.2	260	41	17.0	3.257	160	B260	S80/S5500	3	19



Technical data

Bevel gearbox g700-B

Selection tables

Inverter power supply 400 V, self-ventilated motors

1.2 kW

Inverter operation								Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \max}$	$n_{2, th}$	J	i	g700-	m850-	z	m
Nm	rpm		Nm	rpm	rpm	kgcm ²					kg
5.9	1833	2.7	40.0	2333	917	3.203	3	B130	S80/L5500	1	8.3
7.4	1375	3.8	53.0	1750	688	2.934	4	B130	S80/L5500	1	8.3
9.2	1100	4.1	67.0	1400	550	2.903	5	B130	S80/L5500	1	8.3
13.0	786	4.5	65.0	1000	393	2.859	7	B130	S80/L5500	1	8.3
14.0	611	4.6	130	778	306	3.162	9	B130	S80/L5500	2	8.9
15.0	688	3.2	50.0	875	344	2.850	8	B130	S80/L5500	1	8.3
18.0	550	4.8	95.0	650	275	3.750	10	B260	S80/L5500	1	16
19.0	458	4.4	120	583	229	3.139	12	B130	S80/L5500	2	8.9
20.0	550	2.0	38.0	700	275	2.840	10	B130	S80/L5500	1	8.3
26.0	367	3.7	110	467	183	3.135	15	B130	S80/L5500	2	8.9
28.0	344	3.6	120	438	172	2.926	16	B130	S80/L5500	2	8.9
36.0	275	3.1	120	350	138	2.885	20	B130	S80/L5500	2	8.9
39.0	220	4.8	230	260	110	3.937	25	B260	S80/L5500	2	18
48.0	220	2.3	110	280	110	2.884	25	B130	S80/L5500	2	8.9
53.0	172	4.2	260	203	86.0	3.791	32	B260	S80/L5500	2	18
62.0	172	1.9	120	219	86.0	2.847	32	B130	S80/L5500	2	8.9
73.0	138	3.0	230	163	69.0	3.788	40	B260	S80/L5500	2	18
76.0	138	1.5	110	175	69.0	2.846	40	B130	S80/L5500	2	8.9
109	91.7	2.3	260	108	46.0	4.611	60	B260	S80/L5500	3	20
110	91.7	1.0	110	117	46.0	3.133	60	B130	S80/L5500	3	9.4
113	85.9	1.1	120	102	43.0	3.785	64	B260	S80/L5500	2	18
146	68.8	1.8	260	81	34.0	3.941	80	B260	S80/L5500	3	20
179	55.0	1.5	260	65	28.0	3.935	100	B260	S80/L5500	3	20
207	45.8	1.1	230	54	23.0	4.593	120	B260	S80/L5500	3	20

Technical data

Bevel gearbox g700-B

Selection tables

Inverter power supply 400 V, self-ventilated motors



2 kW

Inverter operation							Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \text{th}}$	J	i	g700-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
13.0	1320	3.8	80.0	660	9.346	3	B260	S120/S3960	1	19
14.0	1320	1.3	40.0	660	7.773	3	B130	S120/S3960	1	11
17.0	990	4.2	105	495	8.776	4	B260	S120/S3960	1	19
18.0	990	1.9	53.0	495	7.504	4	B130	S120/S3960	1	11
21.0	792	4.6	130	396	8.574	5	B260	S120/S3960	1	19
23.0	792	2.0	67.0	396	7.473	5	B130	S120/S3960	1	11
29.0	566	4.2	135	283	8.405	7	B260	S120/S3960	1	19
32.0	566	2.0	65.0	283	7.429	7	B130	S120/S3960	1	11
35.0	495	3.3	120	248	8.373	8	B260	S120/S3960	1	19
35.0	440	3.8	210	220	9.273	9	B260	S120/S3960	2	21
36.0	495	1.4	50.0	248	7.420	8	B130	S120/S3960	1	11
40.0	440	2.2	130	220	7.732	9	B130	S120/S3960	2	12
43.0	330	4.8	260	165	9.208	12	B260	S120/S3960	2	21
45.0	396	2.1	95.0	198	8.320	10	B260	S120/S3960	1	19
54.0	330	2.1	120	165	7.709	12	B130	S120/S3960	2	12
61.0	264	3.4	230	132	9.187	15	B260	S120/S3960	2	21
64.0	248	3.6	260	124	8.688	16	B260	S120/S3960	2	21
67.0	264	1.6	110	132	7.705	15	B130	S120/S3960	2	12
71.0	248	1.7	120	124	7.496	16	B130	S120/S3960	2	12
84.0	198	2.9	260	99.0	8.515	20	B260	S120/S3960	2	21
89.0	198	1.3	120	99.0	7.455	20	B130	S120/S3960	2	12
110	158	2.1	230	79.0	8.507	25	B260	S120/S3960	2	21
141	124	1.8	260	62.0	8.361	32	B260	S120/S3960	2	21
175	99.0	1.3	230	50.0	8.358	40	B260	S120/S3960	2	21
253	66.0	1.0	260	33.0	9.181	60	B260	S120/S3960	3	23

2.9 kW

Inverter operation							Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \text{th}}$	J	i	g700-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
24.0	1080	2.3	80.0	540	18.546	3	B260	S140/S3240	1	40
32.0	810	2.6	105	405	17.976	4	B260	S140/S3240	1	40
40.0	648	2.7	130	324	17.774	5	B260	S140/S3240	1	40
56.0	463	2.4	135	231	17.605	7	B260	S140/S3240	1	40
65.0	405	1.9	120	203	17.573	8	B260	S140/S3240	1	40
71.0	360	2.3	210	180	18.473	9	B260	S140/S3240	2	42
80.0	324	1.2	95.0	162	17.520	10	B260	S140/S3240	1	40
91.0	270	2.7	260	135	18.408	12	B260	S140/S3240	2	42
120	216	1.9	230	108	18.387	15	B260	S140/S3240	2	42
128	203	2.0	260	101	17.888	16	B260	S140/S3240	2	42
158	162	1.6	260	81.0	17.715	20	B260	S140/S3240	2	42
196	130	1.2	230	65.0	17.707	25	B260	S140/S3240	2	42
250	101	1.0	260	51.0	17.561	32	B260	S140/S3240	2	42



Technical data

Bevel gearbox g700-B

Selection tables

Inverter power supply 400 V, self-ventilated motors

3.1 kW

Inverter operation							Geared motor		Number of stages	Mass
M ₂	n ₂	c	M _{2, max}	n _{2, th}	J	i	g700-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
21.0	1320	2.5	80.0	660	15.246	3	B260	S120/M3960	1	21
28.0	990	2.7	105	495	14.676	4	B260	S120/M3960	1	21
34.0	792	3.0	130	396	14.474	5	B260	S120/M3960	1	21
48.0	566	2.7	135	283	14.305	7	B260	S120/M3960	1	21
56.0	495	2.1	120	248	14.273	8	B260	S120/M3960	1	21
61.0	440	2.4	210	220	15.173	9	B260	S120/M3960	2	23
70.0	396	1.4	95.0	198	14.220	10	B260	S120/M3960	1	21
77.0	330	3.1	260	165	15.108	12	B260	S120/M3960	2	23
103	264	2.2	230	132	15.087	15	B260	S120/M3960	2	23
109	248	2.3	260	124	14.588	16	B260	S120/M3960	2	23
138	198	1.9	260	99.0	14.415	20	B260	S120/M3960	2	23
170	158	1.4	230	79.0	14.407	25	B260	S120/M3960	2	23
218	124	1.2	260	62.0	14.261	32	B260	S120/M3960	2	23

3.7 kW

Inverter operation							Geared motor		Number of stages	Mass
M ₂	n ₂	c	M _{2, max}	n _{2, th}	J	i	g700-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
26.0	1320	2.0	80.0	660	21.046	3	B260	S120/L3960	1	24
34.0	990	2.3	105	495	20.476	4	B260	S120/L3960	1	24
42.0	792	2.4	130	396	20.274	5	B260	S120/L3960	1	24
60.0	566	2.3	135	283	20.105	7	B260	S120/L3960	1	24
68.0	495	1.8	120	248	20.073	8	B260	S120/L3960	1	24
76.0	440	2.0	210	220	20.973	9	B260	S120/L3960	2	26
85.0	396	1.1	95.0	198	20.020	10	B260	S120/L3960	1	24
97.0	330	2.6	260	165	20.908	12	B260	S120/L3960	2	26
127	264	1.8	230	132	20.887	15	B260	S120/L3960	2	26
135	248	1.9	260	124	20.388	16	B260	S120/L3960	2	26
167	198	1.6	260	99.0	20.215	20	B260	S120/L3960	2	26
207	158	1.1	230	79.0	20.207	25	B260	S120/L3960	2	26

4.8 kW

Inverter operation							Geared motor		Number of stages	Mass
M ₂	n ₂	c	M _{2, max}	n _{2, th}	J	i	g700-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
40.0	1080	1.4	80.0	540	32.946	3	B260	S140/M3240	1	45
53.0	810	1.6	105	405	32.376	4	B260	S140/M3240	1	45
67.0	648	1.7	130	324	32.174	5	B260	S140/M3240	1	45
93.0	463	1.5	135	231	32.005	7	B260	S140/M3240	1	45
106	405	1.1	120	203	31.973	8	B260	S140/M3240	1	45
118	360	1.4	210	180	32.873	9	B260	S140/M3240	2	47
158	270	1.7	260	135	32.808	12	B260	S140/M3240	2	47
197	216	1.2	230	108	32.787	15	B260	S140/M3240	2	47
211	203	1.2	260	101	32.288	16	B260	S140/M3240	2	47

Technical data

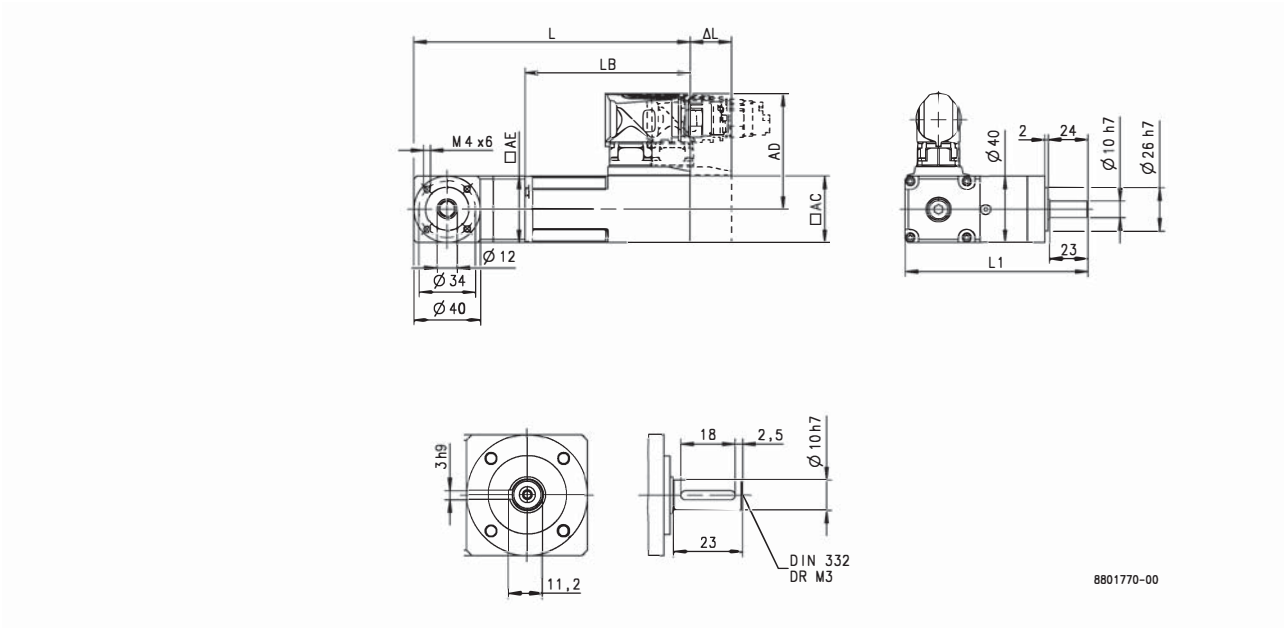
Bevel gearbox g700-B
Basic dimensions



Basic dimensions

g700-B20 with m850

Gearbox design: Solid shaft, without foot with centering



Motor			m850-	
			S40/L9000	S40/S9000
Total length	L	mm	182	157
Motor length	LB	mm	124	99
Motor diameter	AC	mm	40	40
Motor/connection distance	AD	mm	70	70
Gearbox diameter	AE	mm	40	40

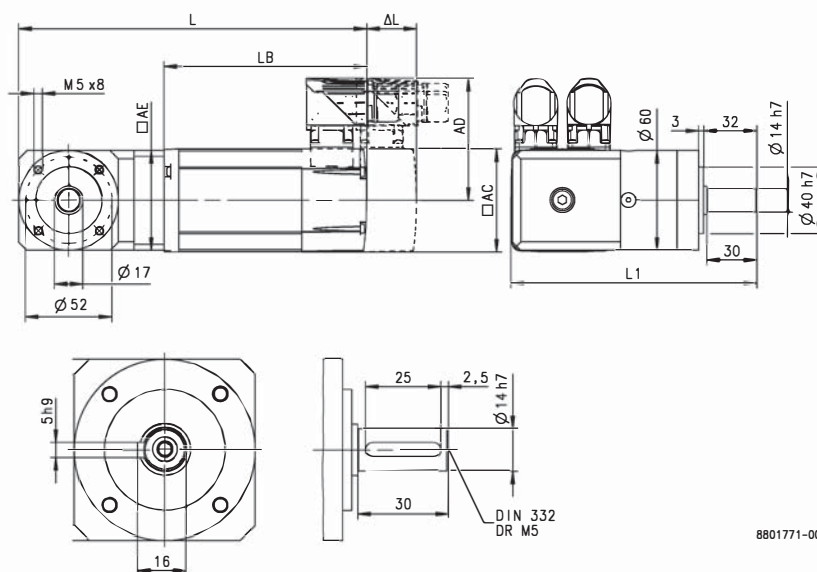


Technical data

Bevel gearbox g700-B
Basic dimensions

g700-B44 with m850

Gearbox design: Solid shaft, without foot with centering



Motor			m850-	
			S60/L6000	S60/S6000
Total length	L	mm	221.8	191.8
Motor length	LB	mm	152	122
Motor diameter	AC	mm	60	60
Motor/connection distance	AD	mm	73.4	73.4
Gearbox diameter	AE	mm	60	60

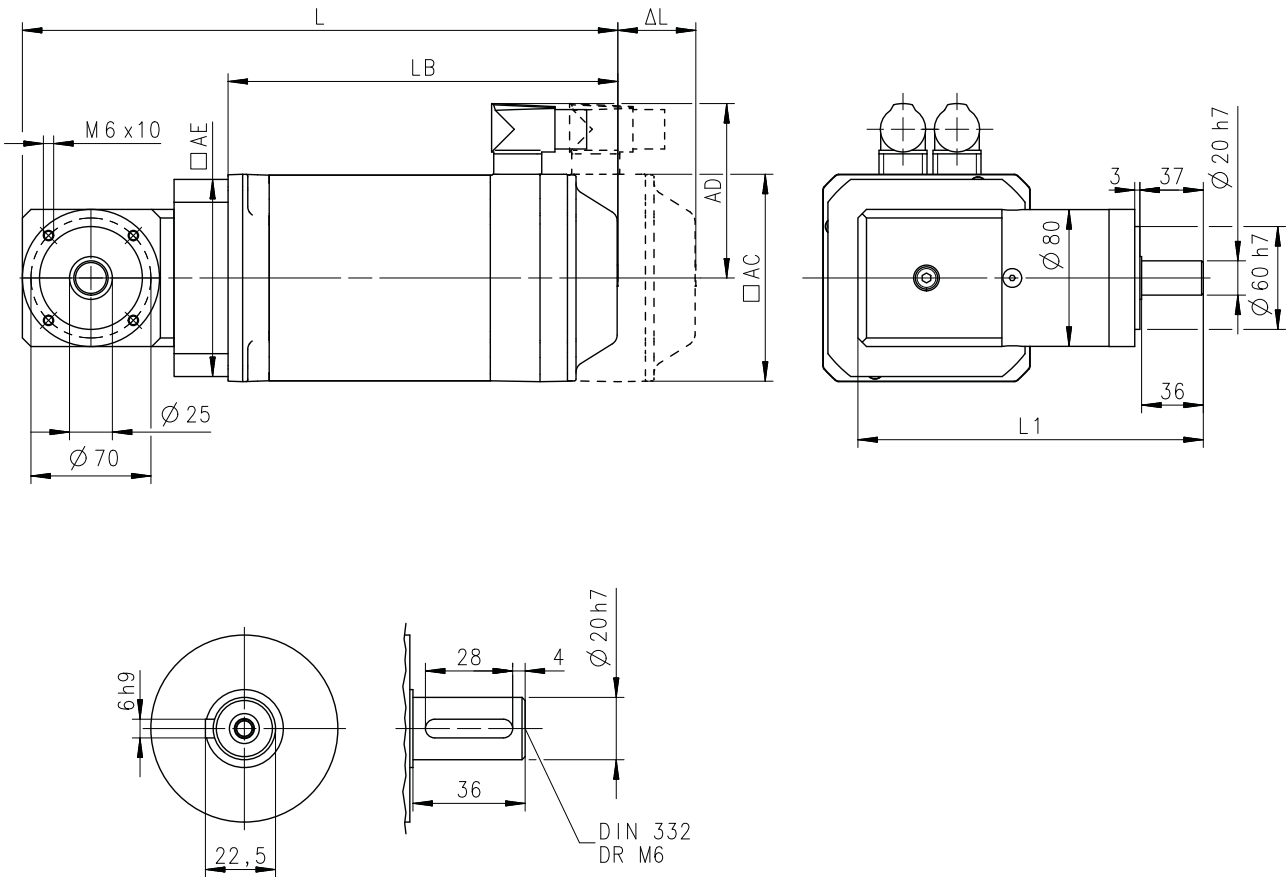
Technical data

Bevel gearbox g700-B
Basic dimensions



g700-B130 with m850

Gearbox design: Solid shaft, without foot with centering, 1-stage



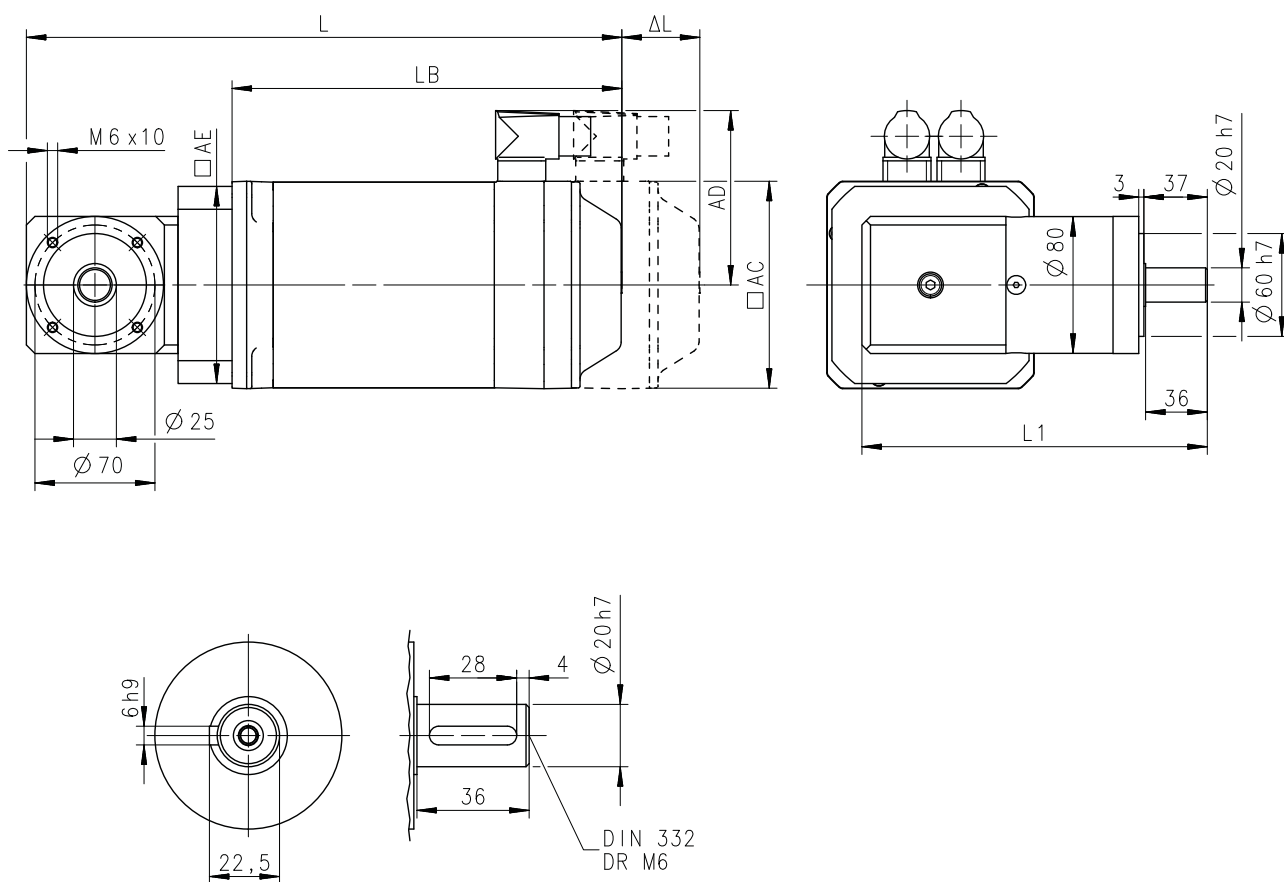
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Motor			m850-				
			S60/L6000	S80/L5500	S80/S5500	S120/L3960	S120/S3960
Total length	L	mm	233.4	286.4	244.4	385	309
Motor length	LB	mm	152	178	158	265	189
Motor diameter	AC	mm	60	80	80	121	121
Motor/connection distance	AD	mm	73.4	83.4	83.4	102	102
Gearbox diameter	AE	mm	80	80	80	115	115



g700-B130 with m850

Gearbox design: Solid shaft, without foot with centering, 2-stage



8801026-00

Motor			m850-					
			S60/L6000	S60/S6000	S80/L5500	S80/S5500	S120/L3960	S120/S3960
Total length	L	mm	251.3	221.3	304.3	262.3	385	309
Motor length	LB	mm	152	122	178	158	265	189
Motor diameter	AC	mm	60	60	80	80	121	121
Motor/connection distance	AD	mm	73.4	73.4	83.4	83.4	102	102
Gearbox diameter	AE	mm	80	80	80	80	115	115

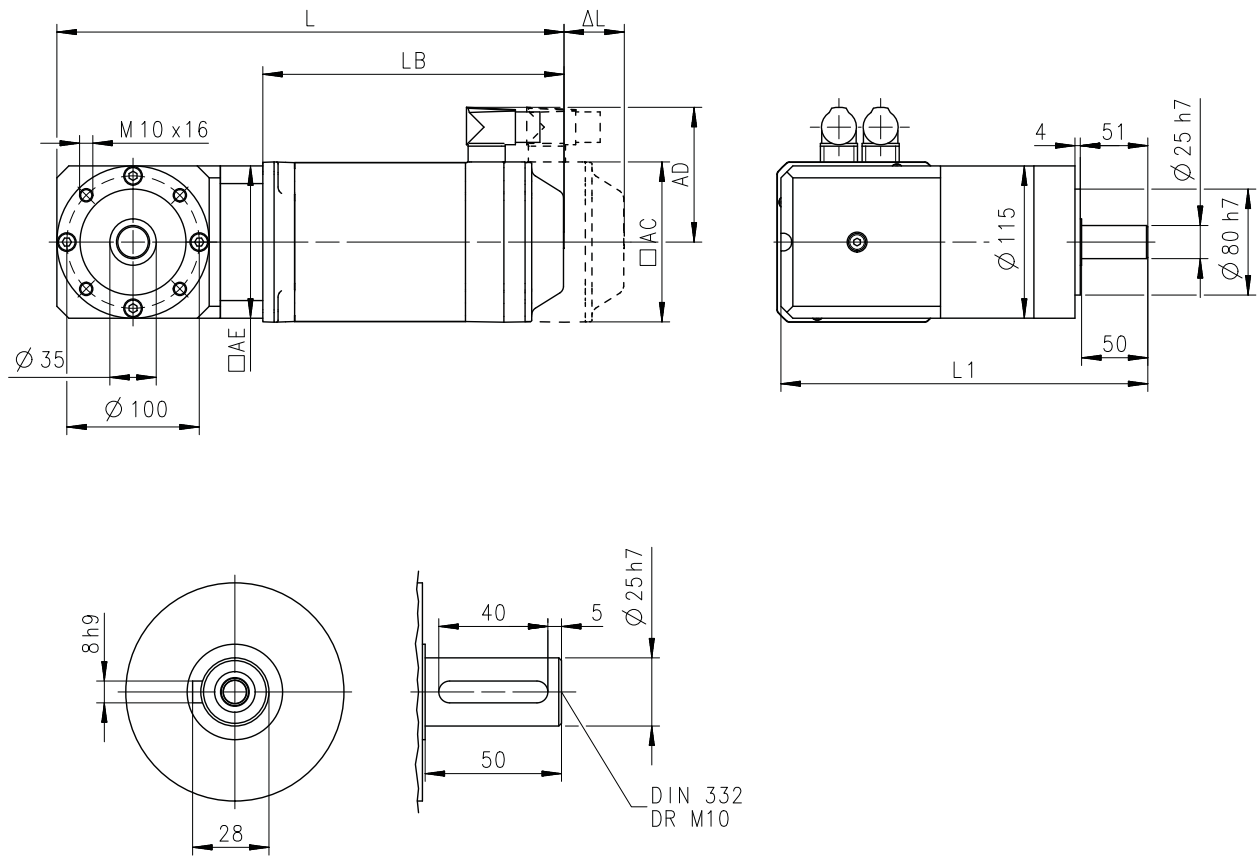
Technical data

Bevel gearbox g700-B
Basic dimensions



g700-B260 with m850

Gearbox design: Solid shaft, without foot with centering, 1-stage



8801027-00

Motor			m850-							
			S80/L5500	S80/S5500	S120/L3960	S120/M3960	S120/S3960	S140/L3240	S140/M3240	S140/S3240
Total length	L	mm	296.2	254.2	410.5	372.5	334.5	417.5	377.5	337.5
Motor length	LB	mm	178	158	265	227	189	262	222	182
Motor diameter	AC	mm	80	80	121	121	121	142	142	142
Motor/connection distance	AD	mm	83.4	83.4	102	102	102	135	114	114
Gearbox diameter	AE	mm	115	115	115	115	115	140	140	140

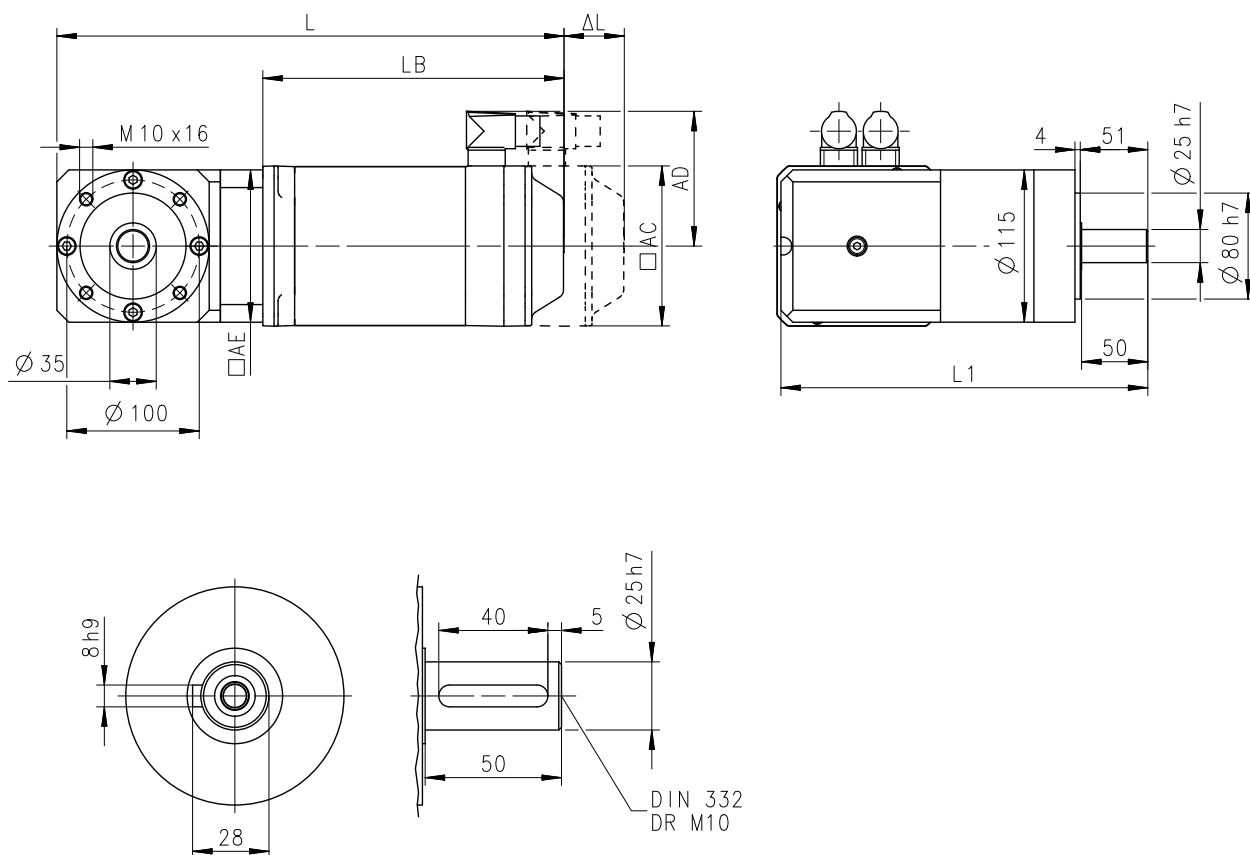


Technical data

Bevel gearbox g700-B
Basic dimensions

g700-B260 with m850

Gearbox design: Solid shaft, without foot with centering, 2-stage



8801027-00

Motor			m850-								
			S60/ L6000	S80/ L5500	S80/ S5500	S120/ L3960	S120/ M3960	S120/ S3960	S140/ L3240	S140/ M3240	S140/ S3240
Total length	L	mm	275.9	323.9	281.9	410.5	372.5	334.5	417.5	377.5	337.5
Motor length	LB	mm	152	178	158	265	227	189	262	222	182
Motor diameter	AC	mm	60	80	80	121	121	121	142	142	142
Motor/connection distance	AD	mm	73.4	83.4	83.4	102	102	102	135	114	114
Gearbox diameter	AE	mm	115	115	115	115	115	115	140	140	140

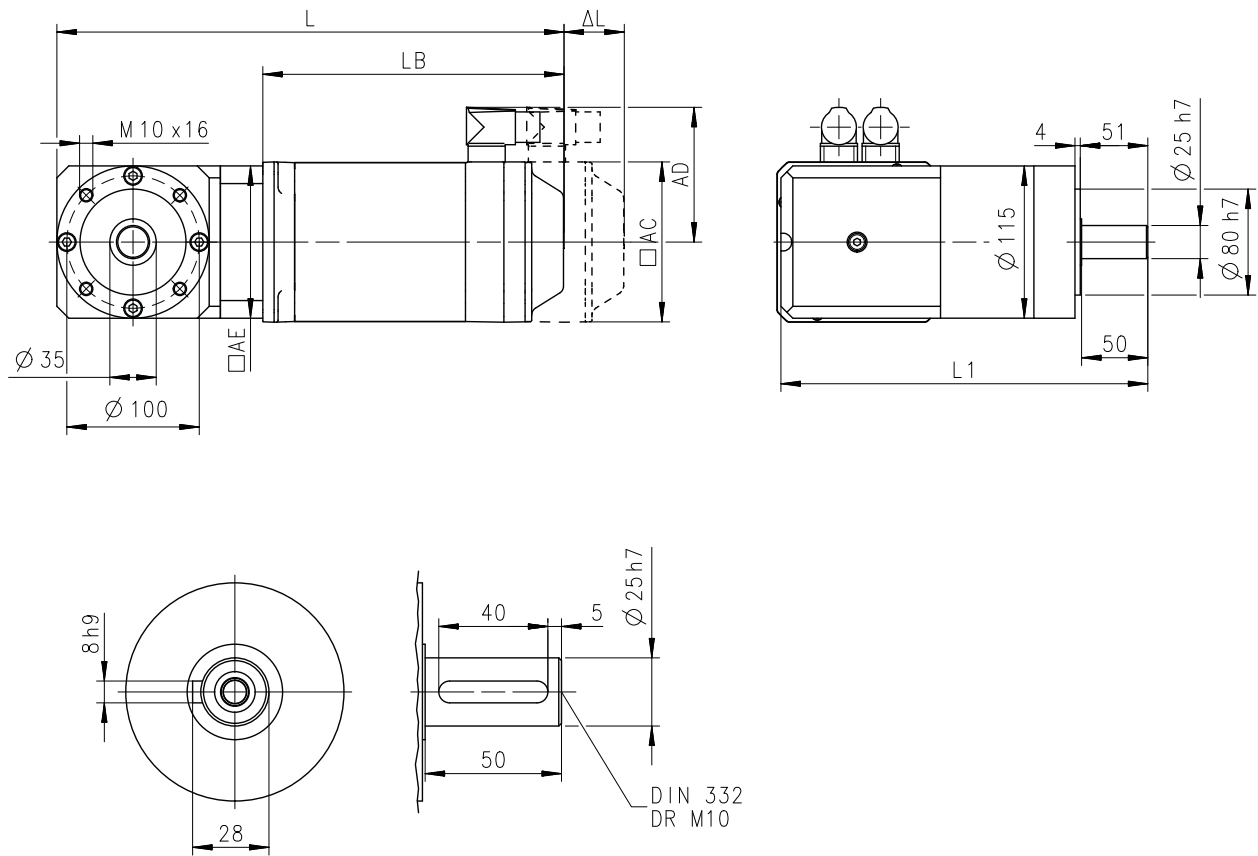
Technical data

Bevel gearbox g700-B
Basic dimensions



g700-B260 with m850

Gearbox design: Solid shaft, without foot with centering, 3-stage



8801027-00

Motor			m850-		
			S80/L5500	S80/S5500	S120/S3960
Total length	L	mm	351.4	309.4	334.5
Motor length	LB	mm	178	158	189
Motor diameter	AC	mm	80	80	121
Motor/connection distance	AD	mm	83.4	83.4	102
Gearbox diameter	AE	mm	115	115	115



Bevel gearbox g720-B

The modular system

g720-B bevel planetary gearbox with m850 synchronous servo motor

Gearbox		g720-B44	g720-B130	g720-B260
Min. motor assignment		m850-S40S	m850-S60S	m850-S60L
Max. motor assignment		m850-S60L	m850-S120S	m850-S140M
Technical data				
Max. output torque	Nm	44	130	260
Mounting position		Any		
Color		Unpainted 40/60/80 Primed 120/140/190 RAL9005 120/140/190		
Surface and corrosion protection		Without 40/60/80 OKS-G 120/140/190		
Output shaft				
Solid shaft with featherkey	mm	16 x 28	20 x 36	25 x 50
Smooth solid shaft	mm	16 x 28	20 x 36	25 x 50
Shaft material		Steel		
Shaft sealing ring material		NBR		
Gearbox design		Without foot with centering		
Gearbox stages		1/2/3	1/2/3	1/2/3
Output flange	mm	70	80	120
Lubricant		Standard Food grade		
Cooling		Self-ventilated		
Motor connection		Connector		
Holding brake		Without With		
Feedback				
Without functional safety		Digital absolute value encoder for One Cable Technology (OCT) Resolver (except 40) Absolute value encoder (except 40)		
With functional safety		Digital absolute value encoder for One Cable Technology (OCT) Resolver (except 40) Absolute value encoder (except 40)		
Temperature monitoring		PT1000 thermal sensor 40/60/80 PT1000 thermal sensor and 2x PTC thermistor 120/140/190		



Gearbox data

g720-B44, 1-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/'
3	14.0	16	2
4	19.0	16	3
5	24.0	16	3
7	25.0	16	3
8	18.0	16	3
10	15.0	16	3

g720-B44, 2-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/'
9	44.0	18	3
12	44.0	18	4
15	44.0	18	4
16	44.0	18	4
20	44.0	18	4
32	44.0	18	4
25	40.0	18	4
40	40.0	18	4
64	18.0	18	3

g720-B44, 3-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/'
60	44.0	21	4
80	44.0	21	4
100	44.0	21	4
120	44.0	21	4
160	44.0	21	4
200	40.0	21	4
256	44.0	21	4
320	40.0	21	4

g720-B130, 1-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/'
3	40.0	13	5
4	53.0	13	7
5	67.0	13	8
7	65.0	13	9
8	50.0	13	9
10	38.0	13	9



g720-B130, 2-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/'
9	130	15	9
12	120	15	12
15	110	15	12
16	120	15	13
20	120	15	13
25	110	15	13
32	120	15	13
40	110	15	13
64	50.0	15	10

g720-B130, 3-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/'
60	110	17	13
80	120	17	13
100	120	17	13
120	110	17	13
160	120	17	13
200	110	17	13
256	120	17	13
320	110	17	13

g720-B260, 1-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/'
3	80.0	11	10
4	105	11	13
5	130	11	14
7	135	11	15
10	95.0	11	15
8	120	11	15

g720-B260, 2-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/'
9	210	13	16
12	260	13	18
15	230	13	18
16	260	13	19
25	230	13	19
20	260	13	19
32	260	13	19
40	230	13	19
64	120	13	17

Technical data

Bevel gearbox g720-B
Radial forces and axial forces



g720-B260, 3-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/'
60	260	15	19
80	260	15	19
100	260	15	19
120	230	15	19
160	260	15	19
200	230	15	19
256	260	15	19
320	230	15	19

Radial forces and axial forces

Gearbox			g720-B44	g720-B44	g720-B44	g720-B130	g720-B130	g720-B130	g720-B260	g720-B260	g720-B260
Number of stages	z		1	2	3	1	2	3	1	2	3
Bearing service life 20000 h											
Speed		rpm	100	100	100	100	100	100	100	100	100
Radial force	F_{rad}	N	900	900	900	2050	2050	2050	2950	2950	2950
Axial force	F_{ax}	N	1000	1000	1000	2500	2500	2500	2500	2500	2500
Bearing service life 30000 h											
Speed		rpm	100	100	100	100	100	100	100	100	100
Radial force	F_{rad}	N	700	700	700	1700	1700	1700	2400	2400	2400
Axial force	F_{ax}	N	800	800	800	2000	2000	2000	2100	2100	2100
Max. radial force	$F_{\text{rad, max}}$	N	1500	1500	1500	2500	2500	2500	4000	4000	4000
Max. axial force	$F_{\text{ax, max}}$	N	1950	1950	1950	3800	3800	3800	3800	3800	3800



Technical data

Bevel gearbox g720-B

Selection tables

Inverter power supply 400 V, self-ventilated motors

Selection tables

Inverter power supply 400 V, self-ventilated motors

0.11 kW

Inverter operation								Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \max}$	$n_{2, th}$	J	i	g720-	m850-	z	m
Nm	rpm		Nm	rpm	rpm	kgcm ²					kg
5.3	113	5.5	44.0	125	56.0	0.261	80	B44	S40/S9000	3	2.8
5.9	141	3.0	18.0	156	70.0	0.252	64	B44	S40/S9000	2	2.6
7.8	90.0	4.5	44.0	100	45.0	0.261	100	B44	S40/S9000	3	2.8
10.0	75.0	3.8	44.0	83	38.0	0.252	120	B44	S40/S9000	3	2.8
15.0	56.3	3.0	44.0	63	28.0	0.252	160	B44	S40/S9000	3	2.8
17.0	45.0	2.4	40.0	50	23.0	0.252	200	B44	S40/S9000	3	2.8
21.0	35.2	2.1	44.0	39	18.0	0.252	256	B44	S40/S9000	3	2.8
24.0	28.1	1.7	40.0	31	14.0	0.252	320	B44	S40/S9000	3	2.8

0.2 kW

Inverter operation								Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \max}$	$n_{2, th}$	J	i	g720-	m850-	z	m
Nm	rpm		Nm	rpm	rpm	kgcm ²					kg
4.5	281	5.8	44.0	313	141	0.276	32	B44	S40/L9000	2	2.8
6.2	225	5.0	40.0	250	113	0.276	40	B44	S40/L9000	2	2.8
8.9	150	4.0	44.0	167	75.0	0.286	60	B44	S40/L9000	3	3.0
10.0	141	1.7	18.0	156	70.0	0.276	64	B44	S40/L9000	2	2.8
13.0	113	3.1	44.0	125	56.0	0.285	80	B44	S40/L9000	3	3.0
17.0	90.0	2.6	44.0	100	45.0	0.285	100	B44	S40/L9000	3	3.0
20.0	75.0	2.2	44.0	83	38.0	0.276	120	B44	S40/L9000	3	3.0
26.0	56.3	1.7	44.0	63	28.0	0.276	160	B44	S40/L9000	3	3.0
30.0	45.0	1.3	40.0	50	23.0	0.276	200	B44	S40/L9000	3	3.0
37.0	35.2	1.2	44.0	39	18.0	0.276	256	B44	S40/L9000	3	3.0

Technical data

Bevel gearbox g720-B

Selection tables

Inverter power supply 400 V, self-ventilated motors



0.325 kW

Inverter operation								Geared motor		Number of stages	Mass
M ₂	n ₂	c	M _{2, max}	n _{2, max}	n _{2, th}	J	i	g720-	m850-	z	m
Nm	rpm		Nm	rpm	rpm	kgcm ²					kg
1.6	1500	5.7	19.0	2500	750	0.493	4	B44	S60/S6000	1	3.4
2.0	1200	5.7	24.0	2000	600	0.478	5	B44	S60/S6000	1	3.4
2.9	857	5.5	25.0	1429	429	0.466	7	B44	S60/S6000	1	3.4
3.4	750	4.8	18.0	1250	375	0.463	8	B44	S60/S6000	1	3.4
4.2	500	5.4	44.0	833	250	0.585	12	B44	S60/S6000	2	3.6
4.5	600	3.3	15.0	1000	300	0.460	10	B44	S60/S6000	1	3.4
5.6	400	4.7	44.0	667	200	0.471	15	B44	S60/S6000	2	3.6
6.2	375	4.4	44.0	625	188	0.479	16	B44	S60/S6000	2	3.6
8.1	300	3.8	44.0	500	150	0.470	20	B44	S60/S6000	2	3.6
11.0	240	3.2	40.0	400	120	0.469	25	B44	S60/S6000	2	3.6
14.0	188	2.8	44.0	313	94.0	0.460	32	B44	S60/S6000	2	3.6
18.0	150	2.3	40.0	250	75.0	0.460	40	B44	S60/S6000	2	3.6
20.0	100	4.2	110	117	50.0	1.424	60	B130	S60/S6000	3	8.0
26.0	100	1.7	44.0	167	50.0	0.470	60	B44	S60/S6000	3	3.8
26.0	93.8	2.0	50.0	109	47.0	1.137	64	B130	S60/S6000	2	7.6
30.0	75.0	3.5	120	88	38.0	1.175	80	B130	S60/S6000	3	8.0
34.0	75.0	1.3	44.0	125	38.0	0.469	80	B44	S60/S6000	3	3.8
41.0	60.0	1.1	44.0	100	30.0	0.469	100	B44	S60/S6000	3	3.8
41.0	60.0	2.9	120	70	30.0	1.174	100	B130	S60/S6000	3	8.0
49.0	50.0	2.3	110	58	25.0	1.430	120	B130	S60/S6000	3	8.0
63.0	37.5	1.9	120	44	19.0	1.136	160	B130	S60/S6000	3	8.0
74.0	30.0	1.5	110	35	15.0	1.136	200	B130	S60/S6000	3	8.0
92.0	23.4	1.3	120	27	12.0	1.137	256	B130	S60/S6000	3	8.0
106	18.8	1.0	110	22	9.0	1.137	320	B130	S60/S6000	3	8.0



Technical data

Bevel gearbox g720-B

Selection tables

Inverter power supply 400 V, self-ventilated motors

0.55 kW

Inverter operation								Geared motor		Number of stages	Mass
M ₂	n ₂	c	M _{2, max}	n _{2, max}	n _{2, th}	J	i	g720-	m850-	z	m
Nm	rpm		Nm	rpm	rpm	kgcm ²					kg
2.4	2000	3.8	14.0	3333	1000	0.801	3	B44	S60/L6000	1	3.9
3.3	1500	3.2	19.0	2500	750	0.686	4	B44	S60/L6000	1	3.9
4.1	1200	3.2	24.0	2000	600	0.671	5	B44	S60/L6000	1	3.9
5.8	857	3.0	25.0	1429	429	0.659	7	B44	S60/L6000	1	3.9
6.6	667	3.7	44.0	1111	333	0.782	9	B44	S60/L6000	2	4.1
6.7	750	2.7	18.0	1250	375	0.656	8	B44	S60/L6000	1	3.9
7.7	600	4.6	38.0	700	300	1.334	10	B130	S60/L6000	1	7.5
8.3	600	1.8	15.0	1000	300	0.653	10	B44	S60/L6000	1	3.9
9.4	500	3.0	44.0	833	250	0.778	12	B44	S60/L6000	2	4.1
12.0	400	2.6	44.0	667	200	0.664	15	B44	S60/L6000	2	4.1
13.0	375	2.4	44.0	625	188	0.672	16	B44	S60/L6000	2	4.1
16.0	240	5.3	110	280	120	1.369	25	B130	S60/L6000	2	8.1
17.0	300	2.1	44.0	500	150	0.663	20	B44	S60/L6000	2	4.1
20.0	240	1.8	40.0	400	120	0.662	25	B44	S60/L6000	2	4.1
22.0	188	4.6	120	219	94.0	1.331	32	B130	S60/L6000	2	8.1
26.0	188	1.5	44.0	313	94.0	0.653	32	B44	S60/L6000	2	4.1
30.0	150	3.4	110	175	75.0	1.330	40	B130	S60/L6000	2	8.1
30.0	100	5.5	260	108	50.0	3.094	60	B260	S60/L6000	3	19
32.0	150	1.3	40.0	250	75.0	0.653	40	B44	S60/L6000	2	4.1
46.0	93.8	1.1	50.0	109	47.0	1.330	64	B130	S60/L6000	2	8.1
47.0	100	2.3	110	117	50.0	1.617	60	B130	S60/L6000	3	8.6
48.0	93.8	2.5	120	102	47.0	2.268	64	B260	S60/L6000	2	17
49.0	75.0	4.2	260	81	38.0	2.425	80	B260	S60/L6000	3	19
61.0	75.0	2.0	120	88	38.0	1.368	80	B130	S60/L6000	3	8.6
68.0	60.0	3.4	260	65	30.0	2.418	100	B260	S60/L6000	3	19
76.0	60.0	1.6	120	70	30.0	1.367	100	B130	S60/L6000	3	8.6
87.0	50.0	1.3	110	58	25.0	1.623	120	B130	S60/L6000	3	8.6
89.0	50.0	2.6	230	54	25.0	3.076	120	B260	S60/L6000	3	19
114	37.5	1.1	120	44	19.0	1.329	160	B130	S60/L6000	3	8.6
117	37.5	2.2	260	41	19.0	2.270	160	B260	S60/L6000	3	19
139	30.0	1.7	230	33	15.0	2.270	200	B260	S60/L6000	3	19
173	23.4	1.5	260	25	12.0	2.268	256	B260	S60/L6000	3	19
202	18.8	1.1	230	20	9.0	2.268	320	B260	S60/L6000	3	19

Technical data

Bevel gearbox g720-B

Selection tables

Inverter power supply 400 V, self-ventilated motors



1 kW

Inverter operation								Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \max}$	$n_{2, th}$	J	i	g720-	m850-	z	m
Nm	rpm		Nm	rpm	rpm	kgcm ²					kg
4.6	1833	3.4	40.0	2333	917	2.802	3	B130	S80/S5500	1	8.7
5.8	1375	4.7	53.0	1750	688	2.494	4	B130	S80/S5500	1	8.7
7.1	1100	5.1	67.0	1400	550	2.419	5	B130	S80/S5500	1	8.7
9.7	786	5.5	65.0	1000	393	2.353	7	B130	S80/S5500	1	8.7
11.0	611	5.6	130	778	306	2.644	9	B130	S80/S5500	2	9.3
12.0	688	3.9	50.0	875	344	2.339	8	B130	S80/S5500	1	8.7
14.0	550	5.9	95.0	650	275	3.223	10	B260	S80/S5500	1	16
14.0	458	5.4	120	583	229	2.619	12	B130	S80/S5500	2	9.3
16.0	550	2.4	38.0	700	275	2.321	10	B130	S80/S5500	1	8.7
19.0	367	4.6	110	467	183	2.610	15	B130	S80/S5500	2	9.3
21.0	344	4.5	120	438	172	2.401	16	B130	S80/S5500	2	9.3
28.0	275	3.8	120	350	138	2.359	20	B130	S80/S5500	2	9.3
28.0	220	5.9	230	260	110	3.407	25	B260	S80/S5500	2	18
38.0	220	2.8	110	280	110	2.356	25	B130	S80/S5500	2	9.3
39.0	172	5.2	260	203	86.0	3.261	32	B260	S80/S5500	2	18
50.0	172	2.4	120	219	86.0	2.318	32	B130	S80/S5500	2	9.3
56.0	138	3.7	230	163	69.0	3.258	40	B260	S80/S5500	2	18
61.0	138	1.8	110	175	69.0	2.317	40	B130	S80/S5500	2	9.3
83.0	91.7	2.9	260	108	46.0	4.081	60	B260	S80/S5500	3	20
89.0	91.7	1.2	110	117	46.0	2.604	60	B130	S80/S5500	3	9.8
91.0	85.9	1.3	120	102	43.0	3.255	64	B260	S80/S5500	2	18
116	68.8	1.0	120	88	34.0	2.355	80	B130	S80/S5500	3	9.8
118	68.8	2.2	260	81	34.0	3.412	80	B260	S80/S5500	3	20
145	55.0	1.8	260	65	28.0	3.405	100	B260	S80/S5500	3	20
167	45.8	1.4	230	54	23.0	4.063	120	B260	S80/S5500	3	20
220	34.4	1.2	260	41	17.0	3.257	160	B260	S80/S5500	3	20



Technical data

Bevel gearbox g720-B

Selection tables

Inverter power supply 400 V, self-ventilated motors

1.2 kW

Inverter operation								Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \max}$	$n_{2, th}$	J	i	g720-	m850-	z	m
Nm	rpm		Nm	rpm	rpm	kgcm ²					kg
5.9	1833	2.7	40.0	2333	917	3.332	3	B130	S80/L5500	1	9.4
7.4	1375	3.8	53.0	1750	688	3.024	4	B130	S80/L5500	1	9.4
9.2	1100	4.1	67.0	1400	550	2.949	5	B130	S80/L5500	1	9.4
13.0	786	4.5	65.0	1000	393	2.883	7	B130	S80/L5500	1	9.4
14.0	611	4.6	130	778	306	3.174	9	B130	S80/L5500	2	10.0
15.0	688	3.2	50.0	875	344	2.869	8	B130	S80/L5500	1	9.4
18.0	550	4.8	95.0	650	275	3.753	10	B260	S80/L5500	1	16
19.0	550	2.0	38.0	700	275	2.851	10	B130	S80/L5500	1	9.4
19.0	458	4.4	120	583	229	3.149	12	B130	S80/L5500	2	10.0
26.0	367	3.7	110	467	183	3.140	15	B130	S80/L5500	2	10.0
28.0	344	3.6	120	438	172	2.931	16	B130	S80/L5500	2	10.0
36.0	275	3.1	120	350	138	2.889	20	B130	S80/L5500	2	10.0
39.0	220	4.8	230	260	110	3.937	25	B260	S80/L5500	2	18
48.0	220	2.3	110	280	110	2.886	25	B130	S80/L5500	2	10.0
53.0	172	4.2	260	203	86.0	3.791	32	B260	S80/L5500	2	18
61.0	172	2.0	120	219	86.0	2.848	32	B130	S80/L5500	2	10.0
73.0	138	3.0	230	163	69.0	3.788	40	B260	S80/L5500	2	18
76.0	138	1.5	110	175	69.0	2.847	40	B130	S80/L5500	2	10.0
109	91.7	2.3	260	108	46.0	4.611	60	B260	S80/L5500	3	20
110	91.7	1.0	110	117	46.0	3.134	60	B130	S80/L5500	3	10
113	85.9	1.1	120	102	43.0	3.785	64	B260	S80/L5500	2	18
146	68.8	1.8	260	81	34.0	3.942	80	B260	S80/L5500	3	20
179	55.0	1.5	260	65	28.0	3.935	100	B260	S80/L5500	3	20
207	45.8	1.1	230	54	23.0	4.593	120	B260	S80/L5500	3	20

Technical data

Bevel gearbox g720-B

Selection tables

Inverter power supply 400 V, self-ventilated motors



2 kW

Inverter operation							Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, th}$	J	i	g720-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
13.0	1320	3.8	80.0	660	9.378	3	B260	S120/S3960	1	19
14.0	1320	1.3	40.0	660	7.902	3	B130	S120/S3960	1	12
17.0	990	4.2	105	495	8.794	4	B260	S120/S3960	1	19
18.0	990	1.9	53.0	495	7.594	4	B130	S120/S3960	1	12
21.0	792	4.6	130	396	8.586	5	B260	S120/S3960	1	19
23.0	792	2.0	67.0	396	7.519	5	B130	S120/S3960	1	12
29.0	566	4.2	135	283	8.411	7	B260	S120/S3960	1	19
32.0	566	2.0	65.0	283	7.453	7	B130	S120/S3960	1	12
35.0	495	3.3	120	248	8.377	8	B260	S120/S3960	1	19
35.0	440	3.8	210	220	9.276	9	B260	S120/S3960	2	21
36.0	495	1.4	50.0	248	7.439	8	B130	S120/S3960	1	12
40.0	440	2.2	130	220	7.744	9	B130	S120/S3960	2	13
43.0	330	4.8	260	165	9.210	12	B260	S120/S3960	2	21
45.0	396	2.1	95.0	198	8.323	10	B260	S120/S3960	1	19
54.0	330	2.1	120	165	7.719	12	B130	S120/S3960	2	13
61.0	264	3.4	230	132	9.188	15	B260	S120/S3960	2	21
64.0	248	3.6	260	124	8.689	16	B260	S120/S3960	2	21
67.0	264	1.6	110	132	7.710	15	B130	S120/S3960	2	13
71.0	248	1.7	120	124	7.501	16	B130	S120/S3960	2	13
84.0	198	2.9	260	99.0	8.515	20	B260	S120/S3960	2	21
89.0	198	1.3	120	99.0	7.459	20	B130	S120/S3960	2	13
110	158	2.1	230	79.0	8.507	25	B260	S120/S3960	2	21
141	124	1.8	260	62.0	8.361	32	B260	S120/S3960	2	21
175	99.0	1.3	230	50.0	8.358	40	B260	S120/S3960	2	21
253	66.0	1.0	260	33.0	9.181	60	B260	S120/S3960	3	23

2.9 kW

Inverter operation							Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, th}$	J	i	g720-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
24.0	1080	2.3	80.0	540	18.578	3	B260	S140/S3240	1	40
32.0	810	2.6	105	405	17.994	4	B260	S140/S3240	1	40
40.0	648	2.7	130	324	17.786	5	B260	S140/S3240	1	40
56.0	463	2.4	135	231	17.611	7	B260	S140/S3240	1	40
65.0	405	1.9	120	203	17.577	8	B260	S140/S3240	1	40
71.0	360	2.3	210	180	18.476	9	B260	S140/S3240	2	42
80.0	324	1.2	95.0	162	17.523	10	B260	S140/S3240	1	40
91.0	270	2.7	260	135	18.410	12	B260	S140/S3240	2	42
120	216	1.9	230	108	18.388	15	B260	S140/S3240	2	42
128	203	2.0	260	101	17.889	16	B260	S140/S3240	2	42
158	162	1.6	260	81.0	17.715	20	B260	S140/S3240	2	42
196	130	1.2	230	65.0	17.707	25	B260	S140/S3240	2	42
250	101	1.0	260	51.0	17.561	32	B260	S140/S3240	2	42



Technical data

Bevel gearbox g720-B

Selection tables

Inverter power supply 400 V, self-ventilated motors

3.1 kW

Inverter operation							Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \text{th}}$	J	i	g720-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
21.0	1320	2.5	80.0	660	15.278	3	B260	S120/M3960	1	22
28.0	990	2.7	105	495	14.694	4	B260	S120/M3960	1	22
34.0	792	3.0	130	396	14.486	5	B260	S120/M3960	1	22
48.0	566	2.7	135	283	14.311	7	B260	S120/M3960	1	22
56.0	495	2.1	120	248	14.277	8	B260	S120/M3960	1	22
61.0	440	2.4	210	220	15.176	9	B260	S120/M3960	2	24
70.0	396	1.4	95.0	198	14.223	10	B260	S120/M3960	1	22
77.0	330	3.1	260	165	15.110	12	B260	S120/M3960	2	24
103	264	2.2	230	132	15.088	15	B260	S120/M3960	2	24
109	248	2.3	260	124	14.589	16	B260	S120/M3960	2	24
138	198	1.9	260	99.0	14.415	20	B260	S120/M3960	2	24
170	158	1.4	230	79.0	14.407	25	B260	S120/M3960	2	24
218	124	1.2	260	62.0	14.261	32	B260	S120/M3960	2	24

3.7 kW

Inverter operation							Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \text{th}}$	J	i	g720-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
26.0	1320	2.0	80.0	660	21.078	3	B260	S120/L3960	1	25
34.0	990	2.3	105	495	20.494	4	B260	S120/L3960	1	25
42.0	792	2.4	130	396	20.286	5	B260	S120/L3960	1	25
60.0	566	2.3	135	283	20.111	7	B260	S120/L3960	1	25
68.0	495	1.8	120	248	20.077	8	B260	S120/L3960	1	25
76.0	440	2.0	210	220	20.976	9	B260	S120/L3960	2	27
85.0	396	1.1	95.0	198	20.023	10	B260	S120/L3960	1	25
97.0	330	2.6	260	165	20.910	12	B260	S120/L3960	2	27
127	264	1.8	230	132	20.888	15	B260	S120/L3960	2	27
135	248	1.9	260	124	20.389	16	B260	S120/L3960	2	27
167	198	1.6	260	99.0	20.215	20	B260	S120/L3960	2	27
207	158	1.1	230	79.0	20.207	25	B260	S120/L3960	2	27

4.8 kW

Inverter operation							Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \text{th}}$	J	i	g720-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
40.0	1080	1.4	80.0	540	32.978	3	B260	S140/M3240	1	45
53.0	810	1.6	105	405	32.394	4	B260	S140/M3240	1	45
67.0	648	1.7	130	324	32.186	5	B260	S140/M3240	1	45
93.0	463	1.5	135	231	32.011	7	B260	S140/M3240	1	45
106	405	1.1	120	203	31.977	8	B260	S140/M3240	1	45
118	360	1.4	210	180	32.876	9	B260	S140/M3240	2	47
158	270	1.7	260	135	32.810	12	B260	S140/M3240	2	47
197	216	1.2	230	108	32.788	15	B260	S140/M3240	2	47
211	203	1.2	260	101	32.289	16	B260	S140/M3240	2	47

Technical data

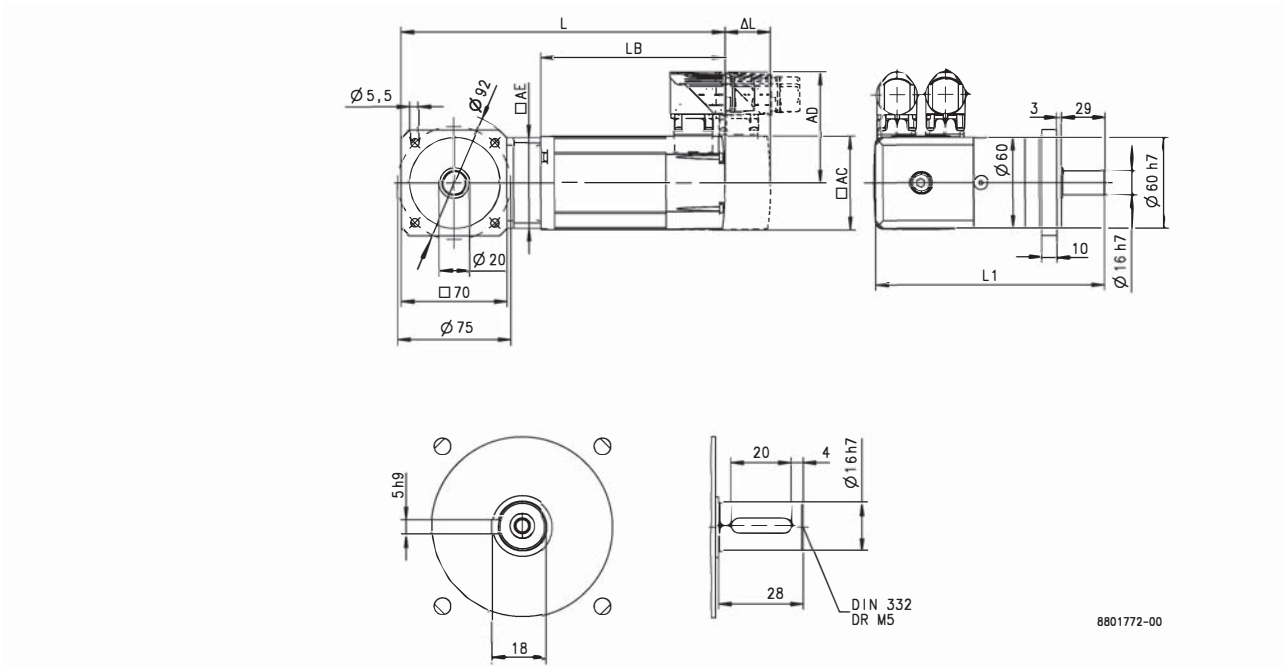
Bevel gearbox g720-B
Basic dimensions



Basic dimensions

g720-B44 with m850

Gearbox design: Solid shaft, without foot with centering



Motor			m850-	
			S60/L6000	S60/S6000
Total length	L	mm	230.2	200.2
Motor length	LB	mm	152	122
Motor diameter	AC	mm	60	60
Motor/connection distance	AD	mm	73.4	73.4
Gearbox diameter	AE	mm	60	60



Gearbox design: Solid shaft, without foot with centering, 1-stage

8801028-00

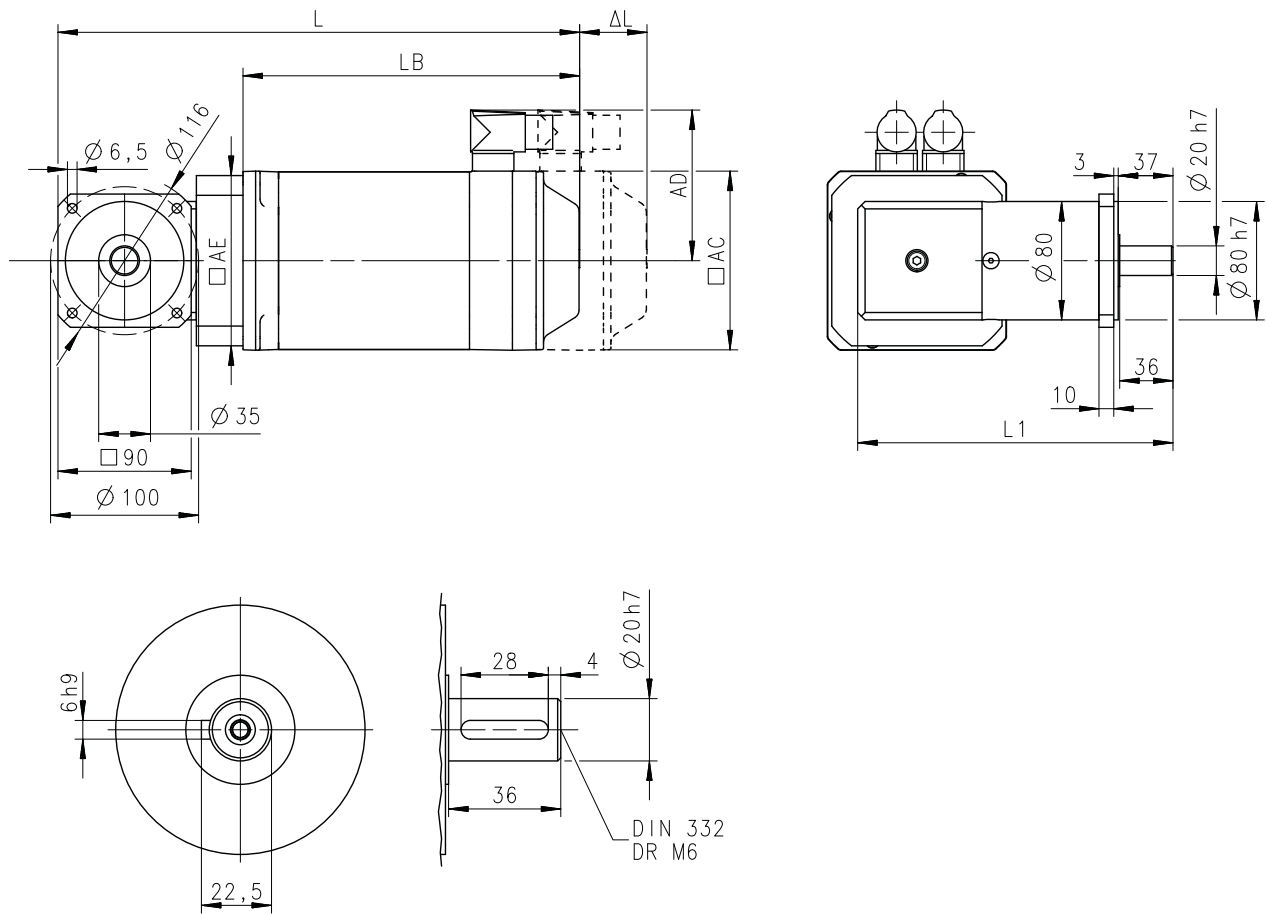
Technical data

Bevel gearbox g720-B
Basic dimensions



g720-B130 with m850

Gearbox design: Solid shaft, without foot with centering, 2-stage



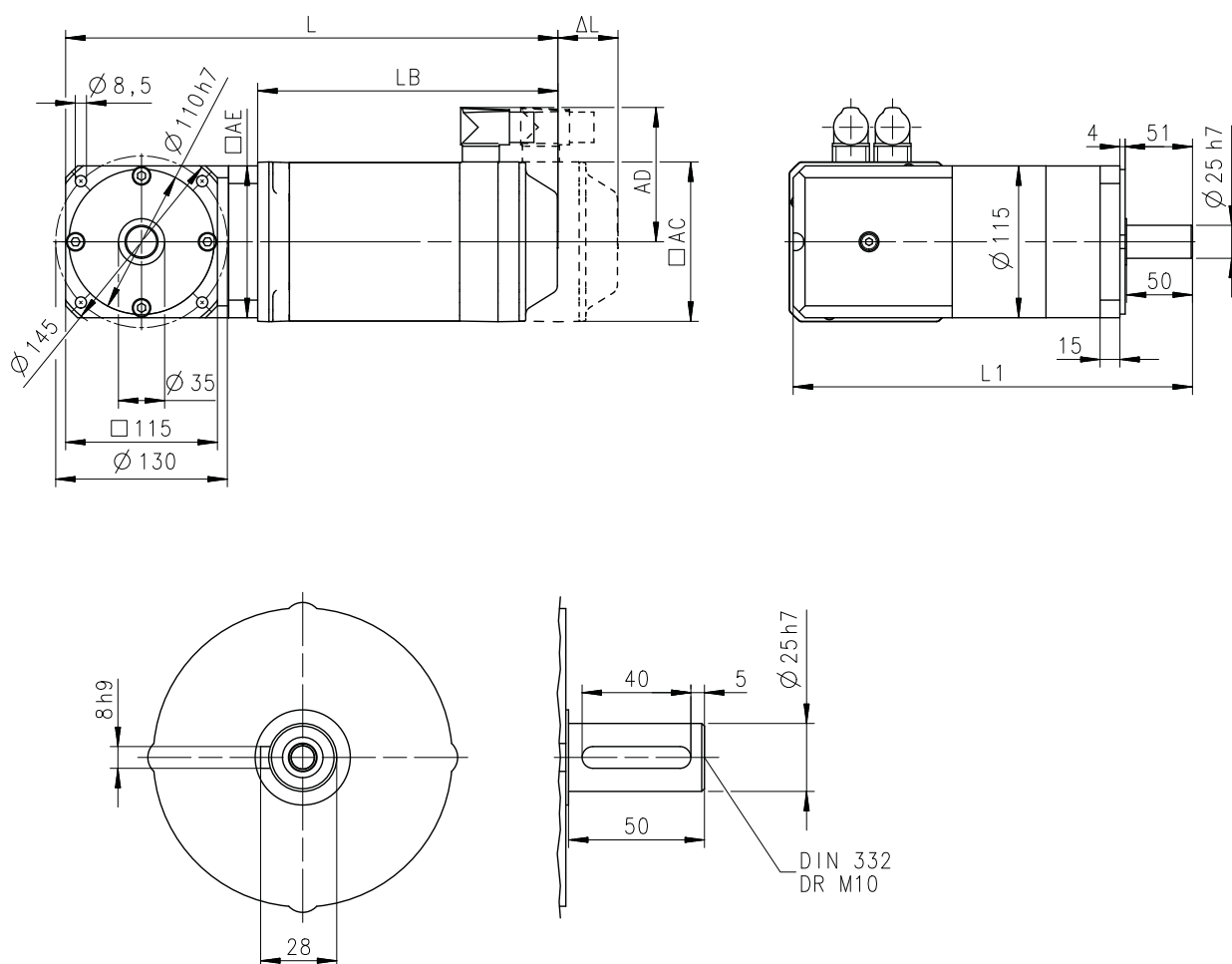
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Motor			m850-					
			S60/L6000	S60/S6000	S80/L5500	S80/S5500	S120/L3960	S120/S3960
Total length	L	mm	262.3	232.3	315.3	273.3	385	309
Motor length	LB	mm	152	122	178	158	265	189
Motor diameter	AC	mm	60	60	80	80	121	121
Motor/connection distance	AD	mm	73.4	73.4	83.4	83.4	102	102
Gearbox diameter	AE	mm	80	80	80	80	115	115



g720-B260 with m850

Gearbox design: Solid shaft, without foot with centering, 1-stage



8801029-00

Motor			m850-							
			S80/L5500	S80/S5500	S120/L3960	S120/M3960	S120/S3960	S140/L3240	S140/M3240	S140/S3240
Total length	L	mm	321.2	279.2	410.5	372.5	334.5	417.5	377.5	337.5
Motor length	LB	mm	178	158	265	227	189	262	222	182
Motor diameter	AC	mm	80	80	121	121	121	142	142	142
Motor/connection distance	AD	mm	83.4	83.4	102	102	102	135	114	114
Gearbox diameter	AE	mm	115	115	115	115	115	140	140	140

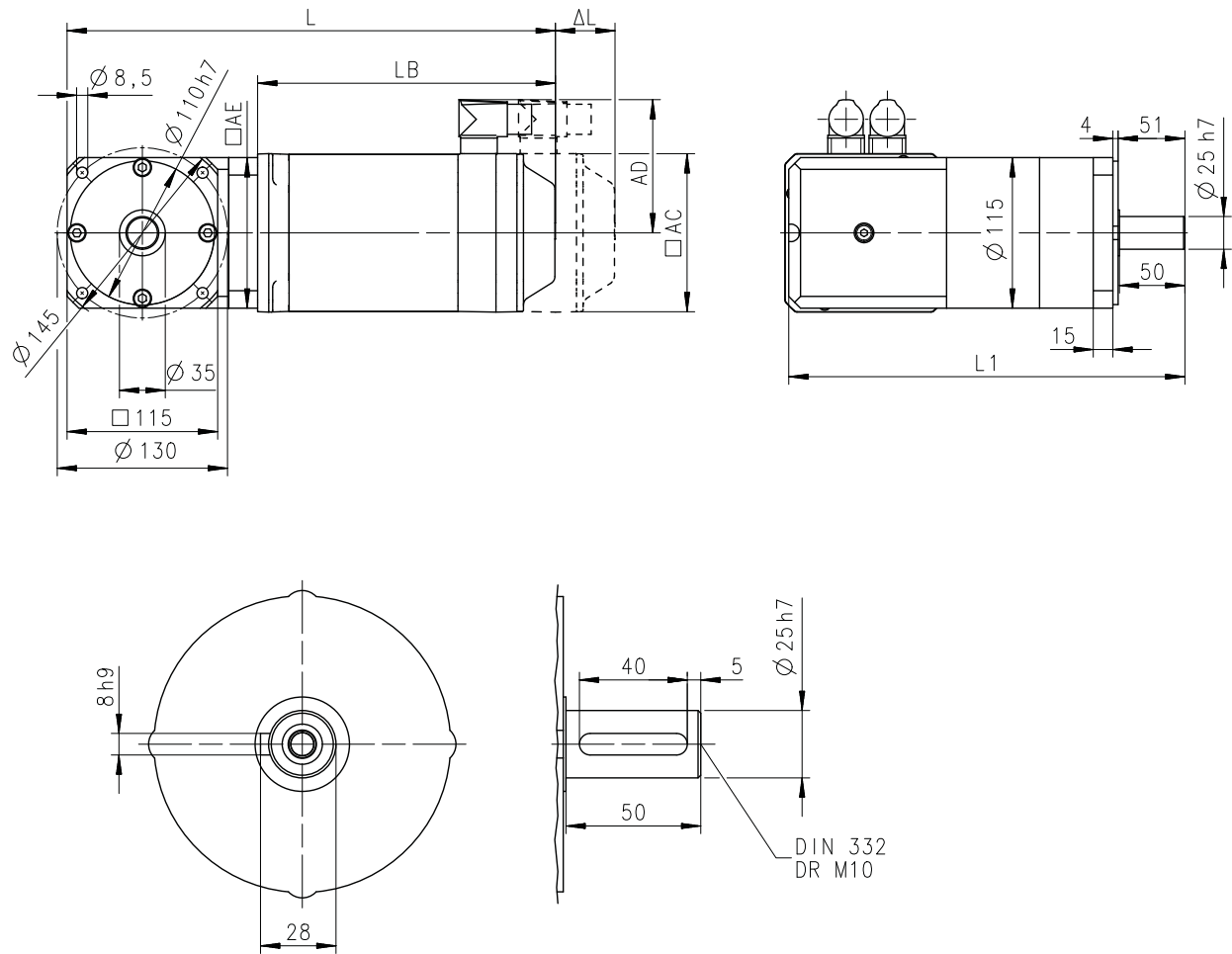
Technical data

Bevel gearbox g720-B
Basic dimensions



g720-B260 with m850

Gearbox design: Solid shaft, without foot with centering, 2-stage



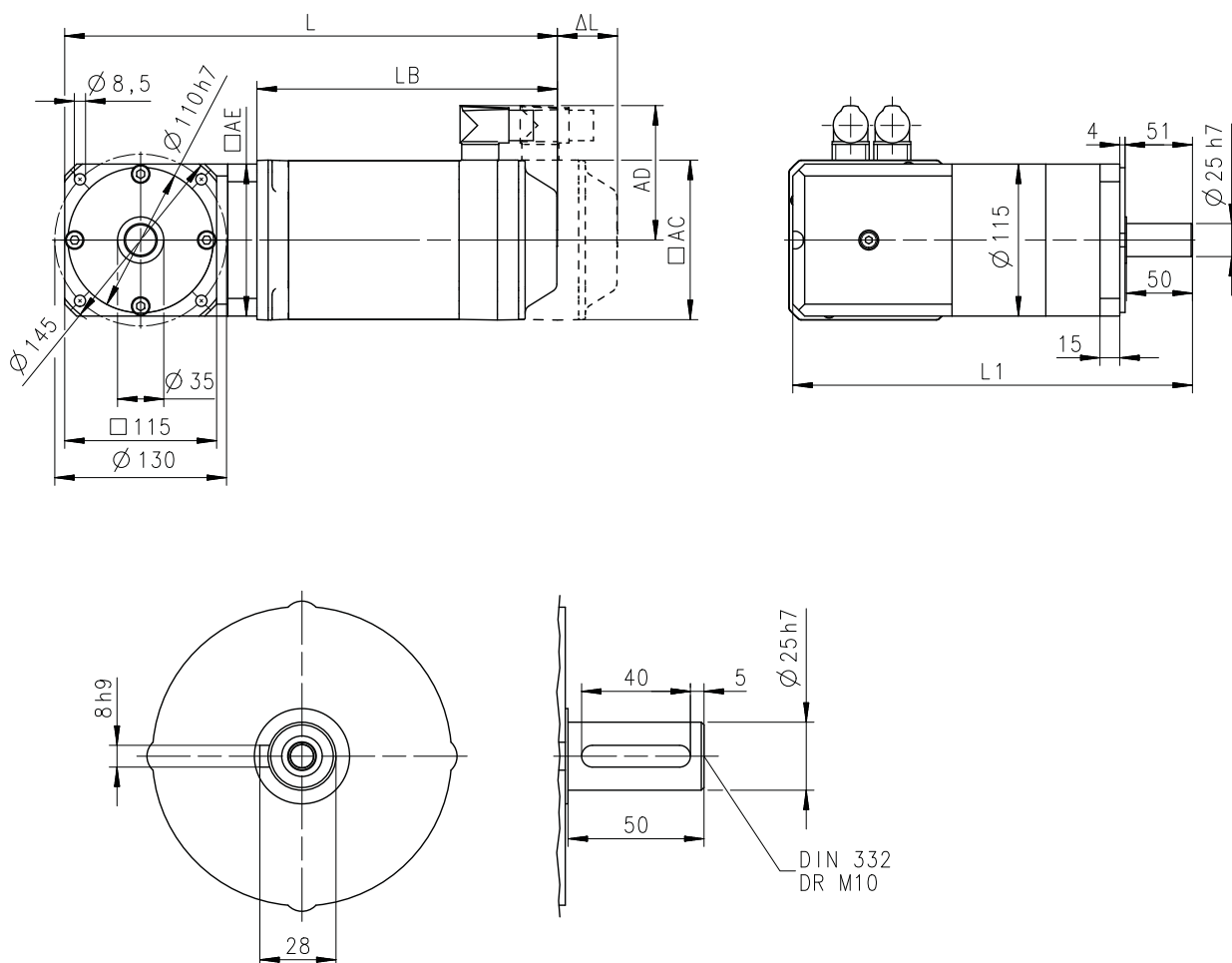
8801029-00

Motor			m850-								
			S60/ L6000	S80/ L5500	S80/ S5500	S120/ L3960	S120/ M3960	S120/ S3960	S140/ L3240	S140/ M3240	S140/ S3240
Total length	L	mm	300.9	348.9	306.9	410.5	372.5	334.5	417.5	377.5	337.5
Motor length	LB	mm	152	178	158	265	227	189	262	222	182
Motor diameter	AC	mm	60	80	80	121	121	121	142	142	142
Motor/connection distance	AD	mm	73.4	83.4	83.4	102	102	102	135	114	114
Gearbox diameter	AE	mm	115	115	115	115	115	115	140	140	140



g720-B260 with m850

Gearbox design: Solid shaft, without foot with centering, 3-stage



8801029-00

Motor			m850-			
			S60/L6000	S80/L5500	S80/S5500	S120/S3960
Total length	L	mm	328.4	376.4	334.4	334.5
Motor length	LB	mm	152	178	158	189
Motor diameter	AC	mm	60	80	80	121
Motor/connection distance	AD	mm	73.4	83.4	83.4	102
Gearbox diameter	AE	mm	115	115	115	115

Technical data

Bevel gearbox g730-B
The modular system



Bevel gearbox g730-B

The modular system

g730-B bevel planetary gearbox with m850 synchronous servo motor

Gearbox		g730-B15	g730-B33	g730-B97	g730-B195
Min. motor assignment		m850-S40S	m850-S40L	m850-S60L	m850-S80S
Max. motor assignment		m850-S40L	m850-S60L	m850-S80L	m850-S140M
Technical data					
Max. output torque	Nm	15	33	97	195
Mounting position		Any			
Color		Unpainted 40/60/80 Primed 120/140/190 RAL9005 120/140/190			
Surface and corrosion protection		Without 40/60/80 OKS-G 120/140/190			
Output shaft					
Solid shaft with featherkey	mm	12 x 18	16 x 28	22 x 36	32 x 58
Smooth solid shaft	mm	12 x 18	16 x 28	22 x 36	32 x 58
Shaft material		Steel			
Shaft sealing ring material		NBR			
Gearbox design		Without foot with centering			
Gearbox stages		1/2	1/2	1/2	1/2
Output flange	mm	50	70	90	120
Lubricant		Standard Food grade			
Cooling		Self-ventilated			
Motor connection		Connector			
Holding brake		Without With			
Feedback					
Without functional safety		Digital absolute value encoder for One Cable Technology (OCT) Resolver (except 40) Absolute value encoder (except 40)			
With functional safety			Digital absolute value encoder for One Cable Technology (OCT) Resolver (except 40) Absolute value encoder (except 40)		
Temperature monitoring		PT1000 thermal sensor 40/60/80 PT1000 thermal sensor and 2x PTC thermistor 120/140/190			



Gearbox data

g730-B15, 1-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/'
3	4.5	21	0
4	6.0	21	1
5	7.5	21	1
7	8.5	21	1
8	6.0	21	1
10	5.0	21	1

g730-B15, 2-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/'
9	12.0	25	1
12	15.0	25	1
15	13.0	25	1
16	15.0	25	1
20	15.0	25	1
25	13.0	25	1
32	15.0	25	1
40	13.0	25	1
64	7.5	25	1

g730-B33, 1-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/'
3	14.0	16	2
4	19.0	16	3
5	24.0	16	4
7	25.0	16	4
8	18.0	16	4
10	15.0	16	4

g730-B33, 2-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/'
9	33.0	18	5
12	33.0	18	5
15	33.0	18	5
16	33.0	18	6
25	30.0	18	6
20	33.0	18	6
32	33.0	18	6
40	30.0	18	6
64	18.0	18	5
100	15.0	18	4

Technical data

Bevel gearbox g730-B
Gearbox data



g730-B97, 1-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/°
3	40.0	13	5
4	53.0	13	8
5	67.0	13	9
7	65.0	13	10
8	50.0	13	10
10	38.0	13	11

g730-B97, 2-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/°
9	97.0	15	10
12	90.0	15	14
15	82.0	15	15
16	90.0	15	15
20	90.0	15	15
25	82.0	15	15
32	90.0	15	16
40	82.0	15	16
64	50.0	15	12
100	38.0	15	10

g730-B195, 1-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/°
3	80.0	11	13
4	105	11	20
5	130	11	25
7	135	11	28
10	95.0	11	26
8	120	11	28

g730-B195, 2-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/°
9	157	13	32
15	172	13	38
12	195	13	39
20	195	13	42
16	195	13	41
25	172	13	40
32	195	13	43
40	172	13	40
64	120	13	32
100	95.0	13	22



Radial forces and axial forces

Gearbox			g730-B15	g730-B15	g730-B33	g730-B33	g730-B97	g730-B97	g730-B195	g730-B195
Number of stages	z		1	2	1	2	1	2	1	2
Bearing service life 20000 h										
Speed		rpm	100	100	100	100	100	100	100	100
Radial force	F_{rad}	N	800	800	1050	1050	1900	1900	2500	2500
Axial force	F_{ax}	N	1000	1000	1350	1350	2000	2000	4000	4000
Bearing service life 30000 h										
Speed		rpm	100	100	100	100	100	100	100	100
Radial force	F_{rad}	N	700	700	900	900	1700	1700	2150	2150
Axial force	F_{ax}	N	800	800	1000	1000	1500	1500	3000	3000
Max. radial force	$F_{rad, max}$	N	1300	1300	1650	1650	3100	3100	4000	4000
Max. axial force	$F_{ax, max}$	N	1000	1000	2100	2100	3800	3800	5900	5900

Technical data

Bevel gearbox g730-B

Selection tables

Inverter power supply 400 V, self-ventilated motors



Selection tables

Inverter power supply 400 V, self-ventilated motors

0.11 kW

Inverter operation								Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \max}$	$n_{2, th}$	J	i	g730-	m850-	z	m
Nm	rpm		Nm	rpm	rpm	kgcm ²					kg
0.8	1000	4.6	12.0	1111	500	0.079	9	B15	S40/S9000	2	1.6
1.0	900	4.6	5.0	1000	450	0.062	10	B15	S40/S9000	1	1.4
2.2	360	4.8	13.0	400	180	0.063	25	B15	S40/S9000	2	1.6
3.0	281	4.4	15.0	313	141	0.062	32	B15	S40/S9000	2	1.6
4.1	225	3.1	13.0	250	113	0.062	40	B15	S40/S9000	2	1.6
5.8	141	1.3	7.5	156	70.0	0.062	64	B15	S40/S9000	2	1.6
5.8	141	3.1	18.0	156	70.0	0.249	64	B33	S40/S9000	2	3.1
7.8	90.0	1.9	15.0	100	45.0	0.248	100	B33	S40/S9000	2	3.1

0.2 kW

Inverter operation								Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \max}$	$n_{2, th}$	J	i	g730-	m850-	z	m
Nm	rpm		Nm	rpm	rpm	kgcm ²					kg
0.6	3000	3.7	4.5	3333	1500	0.106	3	B15	S40/L9000	1	1.5
0.7	2250	4.1	6.0	2500	1125	0.094	4	B15	S40/L9000	1	1.5
0.9	1800	4.4	7.5	2000	900	0.089	5	B15	S40/L9000	1	1.5
1.2	1286	5.0	8.5	1429	643	0.087	7	B15	S40/L9000	1	1.5
1.5	1125	3.9	6.0	1250	563	0.087	8	B15	S40/L9000	1	1.5
1.7	1000	2.6	12.0	1111	500	0.103	9	B15	S40/L9000	2	1.8
1.7	750	5.7	15.0	833	375	0.102	12	B15	S40/L9000	2	1.8
1.9	900	2.7	5.0	1000	450	0.086	10	B15	S40/L9000	1	1.5
2.4	600	4.5	13.0	667	300	0.102	15	B15	S40/L9000	2	1.8
2.5	563	4.7	15.0	625	281	0.092	16	B15	S40/L9000	2	1.8
3.4	450	3.9	15.0	500	225	0.088	20	B15	S40/L9000	2	1.8
3.8	360	5.1	30.0	400	180	0.277	25	B33	S40/L9000	2	3.3
4.7	360	2.8	13.0	400	180	0.087	25	B15	S40/L9000	2	1.8
5.2	281	4.5	33.0	313	141	0.273	32	B33	S40/L9000	2	3.3
6.0	281	2.5	15.0	313	141	0.086	32	B15	S40/L9000	2	1.8
6.8	225	3.8	30.0	250	113	0.273	40	B33	S40/L9000	2	3.3
7.3	225	1.8	13.0	250	113	0.086	40	B15	S40/L9000	2	1.8
10.0	141	1.8	18.0	156	70.0	0.273	64	B33	S40/L9000	2	3.3
14.0	90.0	1.1	15.0	100	45.0	0.272	100	B33	S40/L9000	2	3.3



Technical data

Bevel gearbox g730-B

Selection tables

Inverter power supply 400 V, self-ventilated motors

0.325 kW

Inverter operation								Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \max}$	$n_{2, th}$	J	i	g730-	m850-	z	m
Nm	rpm		Nm	rpm	rpm	kgcm ²					kg
2.9	857	5.5	25.0	1429	429	0.458	7	B33	S60/S6000	1	3.8
3.3	667	5.1	33.0	1111	333	0.564	9	B33	S60/S6000	2	4.1
3.4	750	4.8	18.0	1250	375	0.457	8	B33	S60/S6000	1	3.8
4.5	600	3.3	15.0	1000	300	0.456	10	B33	S60/S6000	1	3.8
4.8	500	4.0	33.0	833	250	0.564	12	B33	S60/S6000	2	4.1
6.2	400	3.6	33.0	667	200	0.462	15	B33	S60/S6000	2	4.1
6.8	375	3.3	33.0	625	188	0.466	16	B33	S60/S6000	2	4.1
8.8	300	2.9	33.0	500	150	0.461	20	B33	S60/S6000	2	4.1
11.0	240	2.4	30.0	400	120	0.461	25	B33	S60/S6000	2	4.1
14.0	188	2.1	33.0	313	94.0	0.457	32	B33	S60/S6000	2	4.1
15.0	150	4.6	82.0	175	75.0	1.137	40	B97	S60/S6000	2	7.6
17.0	150	1.7	30.0	250	75.0	0.457	40	B33	S60/S6000	2	4.1
26.0	93.8	2.0	50.0	109	47.0	1.137	64	B97	S60/S6000	2	7.6
35.0	60.0	1.1	38.0	70	30.0	1.127	100	B97	S60/S6000	2	7.6

0.55 kW

Inverter operation								Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \max}$	$n_{2, th}$	J	i	g730-	m850-	z	m
Nm	rpm		Nm	rpm	rpm	kgcm ²					kg
2.4	2000	3.9	14.0	3333	1000	0.760	3	B33	S60/L6000	1	4.3
3.1	1500	4.2	19.0	2500	750	0.661	4	B33	S60/L6000	1	4.3
4.0	1200	3.9	24.0	2000	600	0.655	5	B33	S60/L6000	1	4.3
5.8	857	3.0	25.0	1429	429	0.651	7	B33	S60/L6000	1	4.3
6.7	750	2.7	18.0	1250	375	0.650	8	B33	S60/L6000	1	4.3
7.2	667	2.8	33.0	1111	333	0.757	9	B33	S60/L6000	2	4.6
7.7	600	4.6	38.0	700	300	1.338	10	B97	S60/L6000	1	7.3
8.2	600	1.8	15.0	1000	300	0.649	10	B33	S60/L6000	1	4.3
10.0	500	2.2	33.0	833	250	0.757	12	B33	S60/L6000	2	4.6
12.0	400	2.0	33.0	667	200	0.655	15	B33	S60/L6000	2	4.6
13.0	375	1.9	33.0	625	188	0.659	16	B33	S60/L6000	2	4.6
13.0	300	5.4	90.0	350	150	1.373	20	B97	S60/L6000	2	8.1
16.0	300	1.6	33.0	500	150	0.654	20	B33	S60/L6000	2	4.6
18.0	240	4.0	82.0	280	120	1.369	25	B97	S60/L6000	2	8.1
20.0	240	1.4	30.0	400	120	0.654	25	B33	S60/L6000	2	4.6
24.0	188	3.5	90.0	219	94.0	1.331	32	B97	S60/L6000	2	8.1
26.0	188	1.2	33.0	313	94.0	0.650	32	B33	S60/L6000	2	4.6
26.0	150	5.3	172	163	75.0	2.273	40	B195	S60/L6000	2	18
32.0	150	2.6	82.0	175	75.0	1.330	40	B97	S60/L6000	2	8.1
46.0	93.8	1.1	50.0	109	47.0	1.330	64	B97	S60/L6000	2	8.1
48.0	93.8	2.5	120	102	47.0	2.269	64	B195	S60/L6000	2	18
68.0	60.0	1.4	95.0	65	30.0	2.231	100	B195	S60/L6000	2	18

Technical data

Bevel gearbox g730-B

Selection tables

Inverter power supply 400 V, self-ventilated motors



1 kW

Inverter operation								Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \max}$	$n_{2, th}$	J	i	g730-	m850-	z	m
Nm	rpm		Nm	rpm	rpm	kgcm ²					kg
4.4	1833	4.3	40.0	2333	917	2.808	3	B97	S80/S5500	1	8.5
5.8	1375	4.7	53.0	1750	688	2.507	4	B97	S80/S5500	1	8.5
7.1	1100	5.1	67.0	1400	550	2.426	5	B97	S80/S5500	1	8.5
9.7	786	5.5	65.0	1000	393	2.360	7	B97	S80/S5500	1	8.5
12.0	688	3.9	50.0	875	344	2.344	8	B97	S80/S5500	1	8.5
13.0	611	3.4	97.0	778	306	2.645	9	B97	S80/S5500	2	9.3
14.0	550	5.9	95.0	650	275	3.261	10	B195	S80/S5500	1	17
16.0	550	2.4	38.0	700	275	2.325	10	B97	S80/S5500	1	8.5
16.0	458	4.1	90.0	583	229	2.620	12	B97	S80/S5500	2	9.3
21.0	367	3.4	82.0	467	183	2.611	15	B97	S80/S5500	2	9.3
23.0	344	3.4	90.0	438	172	2.402	16	B97	S80/S5500	2	9.3
30.0	275	2.9	90.0	350	138	2.360	20	B97	S80/S5500	2	9.3
33.0	220	4.5	172	260	110	3.412	25	B195	S80/S5500	2	19
39.0	220	2.1	82.0	280	110	2.356	25	B97	S80/S5500	2	9.3
44.0	172	3.9	195	203	86.0	3.264	32	B195	S80/S5500	2	19
49.0	172	1.8	90.0	219	86.0	2.318	32	B97	S80/S5500	2	9.3
60.0	138	2.8	172	163	69.0	3.260	40	B195	S80/S5500	2	19
61.0	138	1.4	82.0	175	69.0	2.317	40	B97	S80/S5500	2	9.3
91.0	85.9	1.3	120	102	43.0	3.256	64	B195	S80/S5500	2	19

1.2 kW

Inverter operation								Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \max}$	$n_{2, th}$	J	i	g730-	m850-	z	m
Nm	rpm		Nm	rpm	rpm	kgcm ²					kg
5.7	1833	3.5	40.0	2333	917	3.338	3	B97	S80/L5500	1	9.2
7.4	1375	3.8	53.0	1750	688	3.037	4	B97	S80/L5500	1	9.2
9.2	1100	4.1	67.0	1400	550	2.956	5	B97	S80/L5500	1	9.2
13.0	786	4.5	65.0	1000	393	2.890	7	B97	S80/L5500	1	9.2
13.0	611	5.8	157	722	306	4.748	9	B195	S80/L5500	2	20
15.0	688	3.2	50.0	875	344	2.874	8	B97	S80/L5500	1	9.2
17.0	611	2.7	97.0	778	306	3.175	9	B97	S80/L5500	2	10.0
18.0	550	4.8	95.0	650	275	3.791	10	B195	S80/L5500	1	17
19.0	550	2.0	38.0	700	275	2.855	10	B97	S80/L5500	1	9.2
21.0	458	3.3	90.0	583	229	3.150	12	B97	S80/L5500	2	10.0
21.0	367	5.9	172	433	183	4.632	15	B195	S80/L5500	2	20
28.0	367	2.8	82.0	467	183	3.141	15	B97	S80/L5500	2	10.0
30.0	344	2.7	90.0	438	172	2.932	16	B97	S80/L5500	2	10.0
31.0	275	5.0	195	325	138	3.953	20	B195	S80/L5500	2	20
39.0	275	2.3	90.0	350	138	2.890	20	B97	S80/L5500	2	10.0
43.0	220	3.6	172	260	110	3.942	25	B195	S80/L5500	2	20
48.0	220	1.7	82.0	280	110	2.886	25	B97	S80/L5500	2	10.0
58.0	172	3.2	195	203	86.0	3.794	32	B195	S80/L5500	2	20
60.0	172	1.5	90.0	219	86.0	2.848	32	B97	S80/L5500	2	10.0
75.0	138	1.1	82.0	175	69.0	2.847	40	B97	S80/L5500	2	10.0
76.0	138	2.3	172	163	69.0	3.790	40	B195	S80/L5500	2	20
113	85.9	1.1	120	102	43.0	3.786	64	B195	S80/L5500	2	20



Technical data

Bevel gearbox g730-B

Selection tables

Inverter power supply 400 V, self-ventilated motors

2 kW

Inverter operation							Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, th}$	J	i	g730-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
13.0	1320	3.8	80.0	660	9.748	3	B195	S120/S3960	1	20
14.0	1320	1.7	40.0	660	7.908	3	B97	S120/S3960	1	12
17.0	990	4.2	105	495	8.992	4	B195	S120/S3960	1	20
18.0	990	1.9	53.0	495	7.607	4	B97	S120/S3960	1	12
21.0	792	4.6	130	396	8.709	5	B195	S120/S3960	1	20
23.0	792	2.0	67.0	396	7.526	5	B97	S120/S3960	1	12
29.0	566	4.2	135	283	8.489	7	B195	S120/S3960	1	20
32.0	566	2.0	65.0	283	7.460	7	B97	S120/S3960	1	12
35.0	495	3.3	120	248	8.436	8	B195	S120/S3960	1	20
36.0	495	1.4	50.0	248	7.444	8	B97	S120/S3960	1	12
38.0	440	2.8	157	220	9.318	9	B195	S120/S3960	2	22
41.0	440	1.3	97.0	220	7.745	9	B97	S120/S3960	2	13
45.0	396	2.1	95.0	198	8.361	10	B195	S120/S3960	1	20
48.0	330	3.6	195	165	9.233	12	B195	S120/S3960	2	22
54.0	330	1.6	90.0	165	7.720	12	B97	S120/S3960	2	13
65.0	264	2.6	172	132	9.202	15	B195	S120/S3960	2	22
67.0	264	1.2	82.0	132	7.711	15	B97	S120/S3960	2	13
68.0	248	2.7	195	124	8.701	16	B195	S120/S3960	2	22
71.0	248	1.3	90.0	124	7.502	16	B97	S120/S3960	2	13
88.0	198	1.0	90.0	99.0	7.460	20	B97	S120/S3960	2	13
89.0	198	2.2	195	99.0	8.523	20	B195	S120/S3960	2	22
109	158	1.6	172	79.0	8.512	25	B195	S120/S3960	2	22
140	124	1.4	195	62.0	8.364	32	B195	S120/S3960	2	22

2.9 kW

Inverter operation							Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, th}$	J	i	g730-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
24.0	1080	2.3	80.0	540	18.948	3	B195	S140/S3240	1	41
32.0	810	2.6	105	405	18.192	4	B195	S140/S3240	1	41
40.0	648	2.7	130	324	17.909	5	B195	S140/S3240	1	41
56.0	463	2.4	135	231	17.689	7	B195	S140/S3240	1	41
64.0	405	1.9	120	203	17.636	8	B195	S140/S3240	1	41
72.0	360	1.7	157	180	18.518	9	B195	S140/S3240	2	43
80.0	324	1.2	95.0	162	17.561	10	B195	S140/S3240	1	41
96.0	270	2.0	195	135	18.433	12	B195	S140/S3240	2	43
119	216	1.5	172	108	18.402	15	B195	S140/S3240	2	43
126	203	1.5	195	101	17.901	16	B195	S140/S3240	2	43
158	162	1.2	195	81.0	17.723	20	B195	S140/S3240	2	43

Technical data

Bevel gearbox g730-B

Selection tables

Inverter power supply 400 V, self-ventilated motors



3.1 kW

Inverter operation							Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \text{th}}$	J	i	g730-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
21.0	1320	2.5	80.0	660	15.648	3	B195	S120/M3960	1	23
28.0	990	2.7	105	495	14.892	4	B195	S120/M3960	1	23
34.0	792	3.0	130	396	14.609	5	B195	S120/M3960	1	23
48.0	566	2.7	135	283	14.389	7	B195	S120/M3960	1	23
56.0	495	2.2	120	248	14.336	8	B195	S120/M3960	1	23
63.0	440	1.8	157	220	15.218	9	B195	S120/M3960	2	25
70.0	396	1.4	95.0	198	14.261	10	B195	S120/M3960	1	23
81.0	330	2.3	195	165	15.133	12	B195	S120/M3960	2	25
103	264	1.7	172	132	15.102	15	B195	S120/M3960	2	25
110	248	1.8	195	124	14.601	16	B195	S120/M3960	2	25
138	198	1.4	195	99.0	14.423	20	B195	S120/M3960	2	25
168	158	1.0	172	79.0	14.412	25	B195	S120/M3960	2	25

3.7 kW

Inverter operation							Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \text{th}}$	J	i	g730-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
26.0	1320	2.0	80.0	660	21.448	3	B195	S120/L3960	1	26
34.0	990	2.3	105	495	20.692	4	B195	S120/L3960	1	26
42.0	792	2.4	130	396	20.409	5	B195	S120/L3960	1	26
60.0	566	2.3	135	283	20.189	7	B195	S120/L3960	1	26
68.0	495	1.8	120	248	20.136	8	B195	S120/L3960	1	26
76.0	440	1.5	157	220	21.018	9	B195	S120/L3960	2	28
85.0	396	1.1	95.0	198	20.061	10	B195	S120/L3960	1	26
102	330	1.9	195	165	20.933	12	B195	S120/L3960	2	28
126	264	1.4	172	132	20.902	15	B195	S120/L3960	2	28
134	248	1.5	195	124	20.401	16	B195	S120/L3960	2	28
167	198	1.2	195	99.0	20.223	20	B195	S120/L3960	2	28

4.8 kW

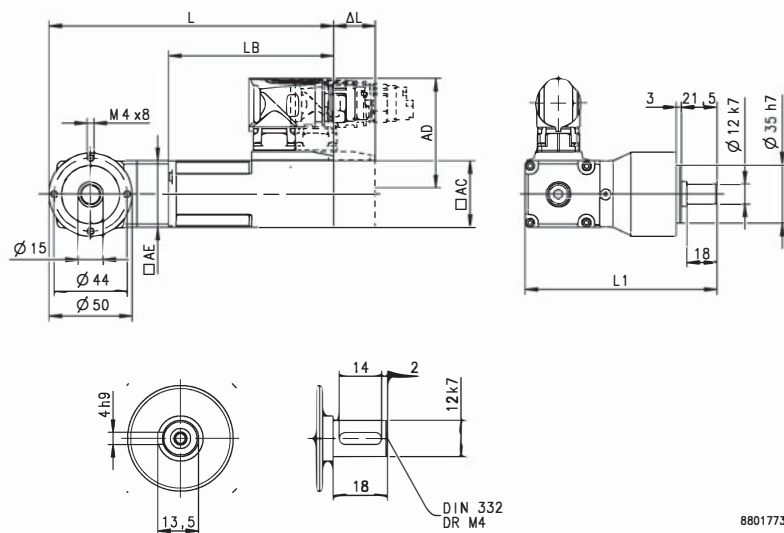
Inverter operation							Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \text{th}}$	J	i	g730-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
40.0	1080	1.4	80.0	540	33.348	3	B195	S140/M3240	1	46
53.0	810	1.6	105	405	32.592	4	B195	S140/M3240	1	46
67.0	648	1.7	130	324	32.309	5	B195	S140/M3240	1	46
93.0	463	1.5	135	231	32.089	7	B195	S140/M3240	1	46
105	405	1.1	120	203	32.036	8	B195	S140/M3240	1	46
118	360	1.0	157	180	32.918	9	B195	S140/M3240	2	48
158	270	1.2	195	135	32.833	12	B195	S140/M3240	2	48



Basic dimensions

g730-B15 with m850

Gearbox design: Solid shaft, without foot with centering



8801773-00

Motor			m850-	
			S40/L9000	S40/S9000
Total length	L	mm	188.9	163.9
Motor length	LB	mm	124	99
Motor diameter	AC	mm	40	40
Motor/connection distance	AD	mm	70	70
Gearbox diameter	AE	mm	40	40

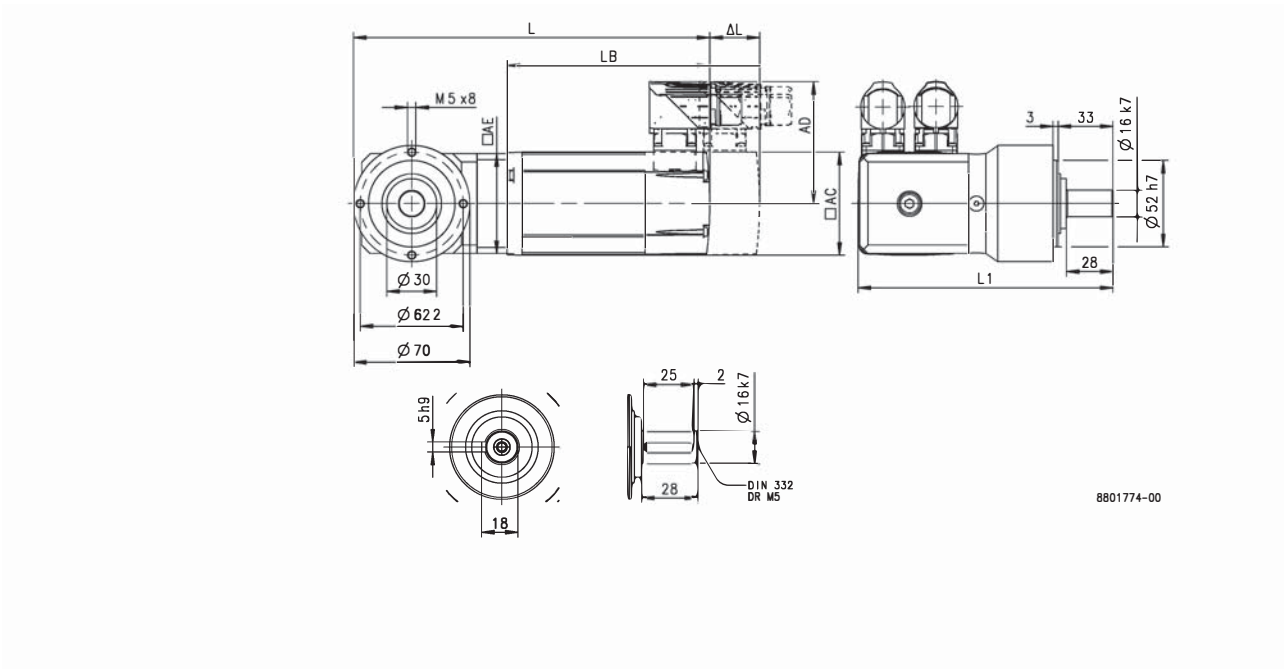
Technical data

Bevel gearbox g730-B
Basic dimensions



g730-B33 with m850

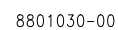
Gearbox design: Solid shaft, without foot with centering



Motor			m850-	
			S60/L6000	S60/S6000
Total length	L	mm	226.1	196.1
Motor length	LB	mm	152	122
Motor diameter	AC	mm	60	60
Motor/connection distance	AD	mm	73.4	73.4
Gearbox diameter	AE	mm	60	60



Gearbox design: Solid shaft, without foot with centering, 1-stage

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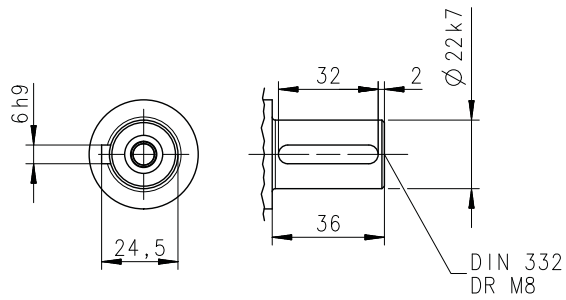
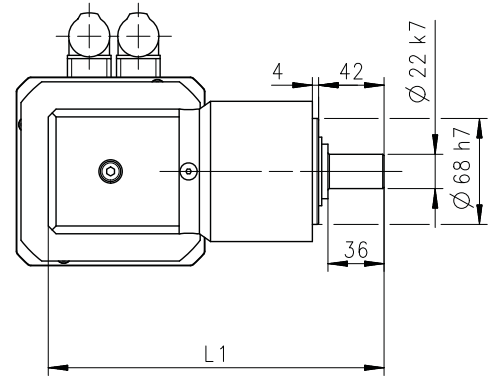
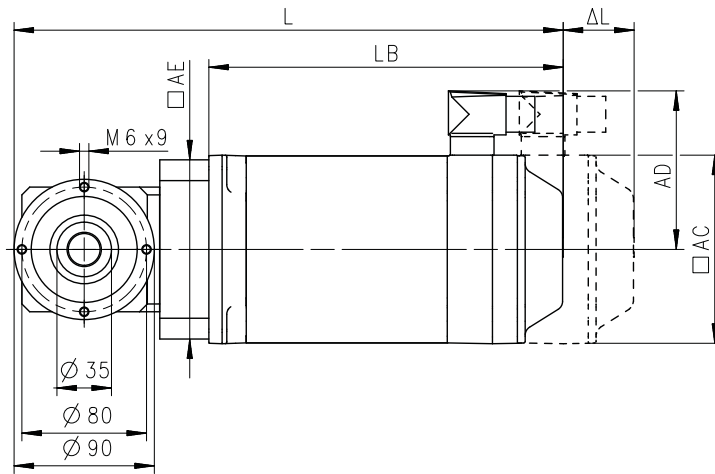
Technical data

Bevel gearbox g730-B
Basic dimensions



g730-B97 with m850

Gearbox design: Solid shaft, without foot with centering, 2-stage



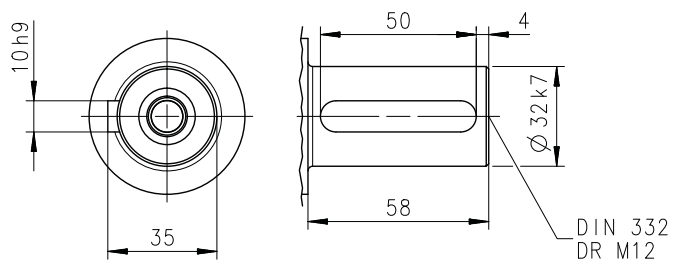
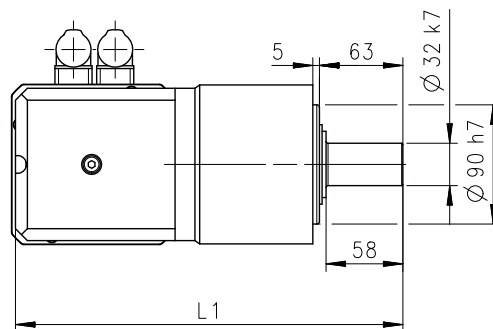
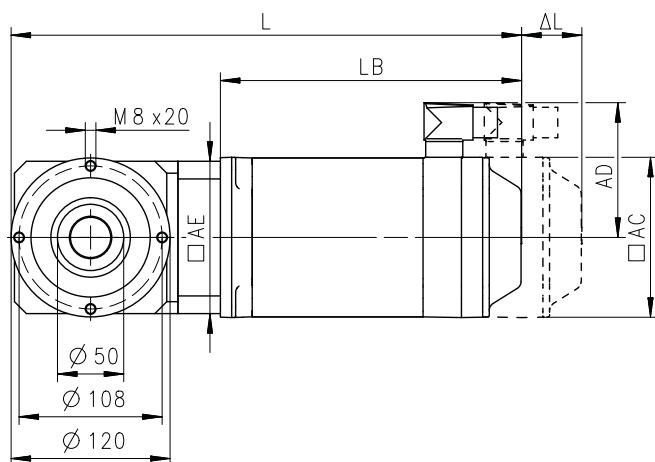
8801030-00

Motor			m850-				
			S60/L6000	S60/S6000	S80/L5500	S80/S5500	S120/S3960
Total length	L	mm	258.6	228.6	311.6	269.6	309
Motor length	LB	mm	152	122	178	158	189
Motor diameter	AC	mm	60	60	80	80	121
Motor/connection distance	AD	mm	73.4	73.4	83.4	83.4	102
Gearbox diameter	AE	mm	80	80	80	80	115



g730-B195 with m850

Gearbox design: Solid shaft, without foot with centering, 1-stage



8801031-00

Motor			m850-							
			S80/L5500	S80/S5500	S120/L3960	S120/M3960	S120/S3960	S140/L3240	S140/M3240	S140/S3240
Total length	L	mm	298.4	256.4	410.5	372.5	334.5	417.5	377.5	337.5
Motor length	LB	mm	178	158	265	227	189	262	222	182
Motor diameter	AC	mm	80	80	121	121	121	142	142	142
Motor/connection distance	AD	mm	83.4	83.4	102	102	102	135	114	114
Gearbox diameter	AE	mm	115	115	115	115	115	140	140	140

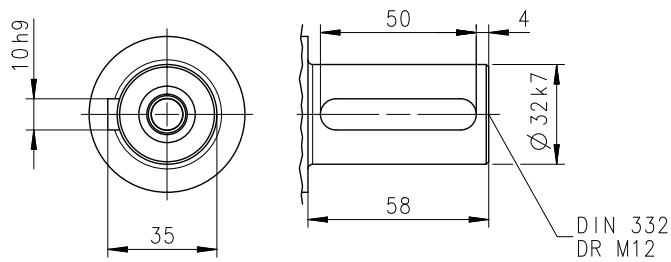
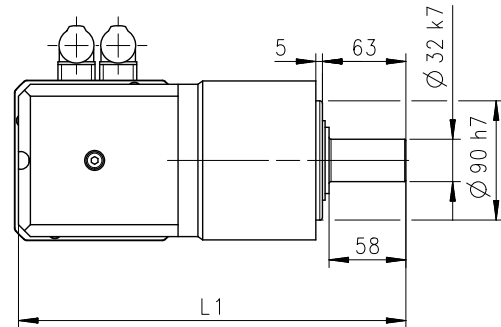
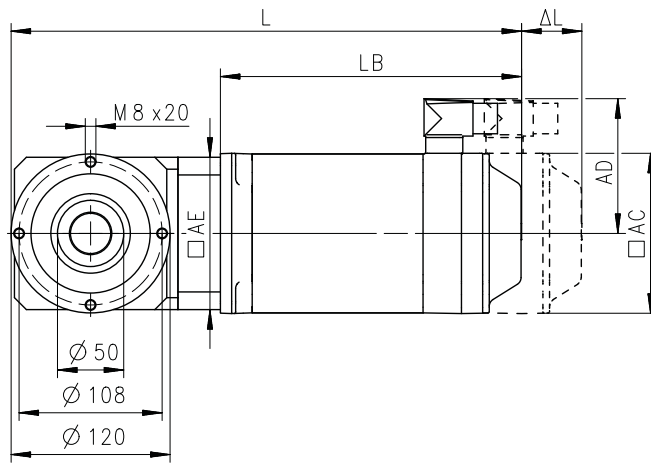
Technical data

Bevel gearbox g730-B
Basic dimensions



g730-B195 with m850

Gearbox design: Solid shaft, without foot with centering, 2-stage



8801031-00

Motor			m850-							
			S60/L6000	S80/L5500	S80/S5500	S120/L3960	S120/M3960	S120/S3960	S140/M3240	S140/S3240
Total length	L	mm	277.9	325.9	283.9	410.5	372.5	334.5	377.5	337.5
Motor length	LB	mm	152	178	158	265	227	189	222	182
Motor diameter	AC	mm	60	80	80	121	121	121	142	142
Motor/connection distance	AD	mm	73.4	83.4	83.4	102	102	102	114	114
Gearbox diameter	AE	mm	115	115	115	115	115	115	140	140



Bevel gearbox g780-B

The modular system

g780-B bevel planetary gearbox with m850 synchronous servo motor

Gearbox		g780-B44	g780-B130	g780-B260
Min. motor assignment		m850-S40S	m850-S60S	m850-S60L
Max. motor assignment		m850-S60L	m850-S120S	m850-S140M
Technical data				
Max. output torque	Nm	44	130	260
Mounting position		Any		
Color		Unpainted 40/60/80 Primed 120/140/190 RAL9005 120/140/190		
Surface and corrosion protection		Without 40/60/80 OKS-G 120/140/190		
Output shaft				
Flange output shaft with dowel hole	mm	20 x 4	31.5 x 6	40 x 6
Gearbox design		Without foot with centering		
Gearbox stages		1/2	1/2	1/2
Output flange	mm	60	90	110
Lubricant		Synthetic Food grade Compatible with low temperatures		
Cooling		Self-ventilated		
Motor connection		Connector		
Holding brake		Without With		
Feedback				
Without functional safety		Digital absolute value encoder for One Cable Technology (OCT) Resolver (except 40) Absolute value encoder (except 40)		
With functional safety		Digital absolute value encoder for One Cable Technology (OCT) Resolver (except 40) Absolute value encoder (except 40)		
Temperature monitoring		PT1000 thermal sensor 40/60/80 PT1000 thermal sensor and 2x PTC thermistor 120/140/190		

Technical data

Bevel gearbox g780-B
Gearbox data



Gearbox data

g780-B44, 1-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/'
3	14.0	16	3
4	19.0	16	5
5	24.0	16	6
7	25.0	16	6
8	18.0	16	6
10	15.0	16	6

g780-B44, 2-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/'
9	44.0	18	8
12	44.0	18	10
15	44.0	18	9
16	44.0	18	11
20	44.0	18	11
32	44.0	18	11
25	40.0	18	12
40	40.0	18	12
64	18.0	18	7
100	15.0	18	5

g780-B130, 1-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/'
3	40.0	13	6
4	53.0	13	11
5	67.0	13	14
7	65.0	13	16
8	50.0	13	17
10	38.0	13	18



g780-B130, 2-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/°
9	130	15	17
12	120	15	30
15	110	15	31
16	120	15	35
20	120	15	36
25	110	15	36
32	120	15	38
40	110	15	36
64	50.0	15	20
100	38.0	15	16

g780-B260, 1-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/°
3	80.0	11	16
4	105	11	26
5	130	11	34
7	135	11	40
10	95.0	11	36
8	120	11	41

g780-B260, 2-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/°
9	210	13	50
12	260	13	70
15	230	13	68
16	260	13	78
25	230	13	74
20	260	13	81
32	260	13	83
40	230	13	75
64	120	13	50
100	95.0	13	30

Technical data

Bevel gearbox g780-B
Radial forces and axial forces



Radial forces and axial forces

Gearbox			g780-B44	g780-B44	g780-B130	g780-B130	g780-B260	g780-B260
Number of stages	z		1	2	1	2	1	2
Bearing service life 20000 h								
Speed		rpm	100	100	100	100	100	100
Radial force	F_{rad}	N	550	550	1400	1400	2400	2400
Axial force	F_{ax}	N	1200	1200	3000	3000	3300	3300
Bearing service life 30000 h								
Speed		rpm	100	100	100	100	100	100
Radial force	F_{rad}	N	500	500	1200	1200	2100	2100
Axial force	F_{ax}	N	1200	1200	3000	3000	3300	3300
Max. radial force	$F_{rad, max}$	N	900	900	2200	2200	3800	3800
Max. axial force	$F_{ax, max}$	N	1200	1200	3300	3300	5200	5200



Technical data

Bevel gearbox g780-B

Selection tables

Inverter power supply 400 V, self-ventilated motors

Selection tables

Inverter power supply 400 V, self-ventilated motors

0.11 kW

Inverter operation								Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \max}$	$n_{2, th}$	J	i	g780-	m850-	z	m
Nm	rpm		Nm	rpm	rpm	kgcm ²					kg
5.8	141	3.1	18.0	156	70.0	0.252	64	B44	S40/S9000	2	2.8
7.7	90.0	2.0	15.0	100	45.0	0.250	100	B44	S40/S9000	2	2.8

0.2 kW

Inverter operation								Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \max}$	$n_{2, th}$	J	i	g780-	m850-	z	m
Nm	rpm		Nm	rpm	rpm	kgcm ²					kg
4.5	281	6.0	44.0	313	141	0.277	32	B44	S40/L9000	2	3.0
6.1	225	5.1	40.0	250	113	0.277	40	B44	S40/L9000	2	3.0
10.0	141	1.8	18.0	156	70.0	0.276	64	B44	S40/L9000	2	3.0
13.0	90.0	1.1	15.0	100	45.0	0.274	100	B44	S40/L9000	2	3.0

0.325 kW

Inverter operation								Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \max}$	$n_{2, th}$	J	i	g780-	m850-	z	m
Nm	rpm		Nm	rpm	rpm	kgcm ²					kg
1.6	1500	5.8	19.0	2500	750	0.532	4	B44	S60/S6000	1	3.4
2.0	1200	5.8	24.0	2000	600	0.503	5	B44	S60/S6000	1	3.4
2.9	857	5.6	25.0	1429	429	0.478	7	B44	S60/S6000	1	3.4
3.4	750	5.0	18.0	1250	375	0.473	8	B44	S60/S6000	1	3.4
4.2	500	5.4	44.0	833	250	0.590	12	B44	S60/S6000	2	3.8
4.5	600	3.3	15.0	1000	300	0.466	10	B44	S60/S6000	1	3.4
5.6	400	4.8	44.0	667	200	0.473	15	B44	S60/S6000	2	3.8
6.1	375	4.5	44.0	625	188	0.482	16	B44	S60/S6000	2	3.8
8.1	300	3.9	44.0	500	150	0.471	20	B44	S60/S6000	2	3.8
11.0	240	3.3	40.0	400	120	0.470	25	B44	S60/S6000	2	3.8
14.0	188	2.8	44.0	313	94.0	0.461	32	B44	S60/S6000	2	3.8
17.0	150	2.3	40.0	250	75.0	0.461	40	B44	S60/S6000	2	3.8
25.0	93.8	2.0	50.0	109	47.0	1.138	64	B130	S60/S6000	2	7.2
34.0	60.0	1.1	38.0	70	30.0	1.129	100	B130	S60/S6000	2	7.2

Technical data

Bevel gearbox g780-B

Selection tables

Inverter power supply 400 V, self-ventilated motors



0.55 kW

Inverter operation								Geared motor		Number of stages	Mass
M ₂	n ₂	c	M _{2, max}	n _{2, max}	n _{2, th}	J	i	g780-	m850-	z	m
Nm	rpm		Nm	rpm	rpm	kgcm ²					kg
2.4	2000	3.9	14.0	3333	1000	0.870	3	B44	S60/L6000	1	3.9
3.3	1500	3.2	19.0	2500	750	0.725	4	B44	S60/L6000	1	3.9
4.1	1200	3.2	24.0	2000	600	0.696	5	B44	S60/L6000	1	3.9
5.8	857	3.1	25.0	1429	429	0.671	7	B44	S60/L6000	1	3.9
6.6	750	2.8	18.0	1250	375	0.666	8	B44	S60/L6000	1	3.9
6.6	667	3.8	44.0	1111	333	0.790	9	B44	S60/L6000	2	4.3
7.7	600	4.6	38.0	700	300	1.370	10	B130	S60/L6000	1	7.2
8.1	600	1.9	15.0	1000	300	0.659	10	B44	S60/L6000	1	3.9
9.4	500	3.0	44.0	833	250	0.783	12	B44	S60/L6000	2	4.3
12.0	400	2.7	44.0	667	200	0.666	15	B44	S60/L6000	2	4.3
13.0	375	2.5	44.0	625	188	0.675	16	B44	S60/L6000	2	4.3
16.0	300	2.2	44.0	500	150	0.664	20	B44	S60/L6000	2	4.3
16.0	240	5.4	110	280	120	1.375	25	B130	S60/L6000	2	7.7
20.0	240	1.8	40.0	400	120	0.663	25	B44	S60/L6000	2	4.3
22.0	188	4.6	120	219	94.0	1.334	32	B130	S60/L6000	2	7.7
26.0	188	1.6	44.0	313	94.0	0.654	32	B44	S60/L6000	2	4.3
30.0	150	3.4	110	175	75.0	1.332	40	B130	S60/L6000	2	7.7
31.0	150	1.3	40.0	250	75.0	0.654	40	B44	S60/L6000	2	4.3
46.0	93.8	1.1	50.0	109	47.0	1.331	64	B130	S60/L6000	2	7.7
48.0	93.8	2.5	120	102	47.0	2.270	64	B260	S60/L6000	2	17
67.0	60.0	1.4	95.0	65	30.0	2.232	100	B260	S60/L6000	2	17

1 kW

Inverter operation								Geared motor		Number of stages	Mass
M ₂	n ₂	c	M _{2, max}	n _{2, max}	n _{2, th}	J	i	g780-	m850-	z	m
Nm	rpm		Nm	rpm	rpm	kgcm ²					kg
4.6	1833	3.4	40.0	2333	917	3.183	3	B130	S80/S5500	1	8.4
5.8	1375	4.8	53.0	1750	688	2.714	4	B130	S80/S5500	1	8.4
7.1	1100	5.2	67.0	1400	550	2.560	5	B130	S80/S5500	1	8.4
9.7	786	5.6	65.0	1000	393	2.425	7	B130	S80/S5500	1	8.4
10.0	611	5.7	130	778	306	2.686	9	B130	S80/S5500	2	8.9
12.0	688	4.0	50.0	875	344	2.394	8	B130	S80/S5500	1	8.4
14.0	458	5.5	120	583	229	2.643	12	B130	S80/S5500	2	8.9
16.0	550	2.4	38.0	700	275	2.357	10	B130	S80/S5500	1	8.4
19.0	367	4.6	110	467	183	2.626	15	B130	S80/S5500	2	8.9
21.0	344	4.5	120	438	172	2.415	16	B130	S80/S5500	2	8.9
28.0	275	3.8	120	350	138	2.368	20	B130	S80/S5500	2	8.9
28.0	220	6.0	230	260	110	3.422	25	B260	S80/S5500	2	18
37.0	220	2.8	110	280	110	2.362	25	B130	S80/S5500	2	8.9
39.0	172	5.3	260	203	86.0	3.270	32	B260	S80/S5500	2	18
50.0	172	2.4	120	219	86.0	2.321	32	B130	S80/S5500	2	8.9
56.0	138	3.8	230	163	69.0	3.264	40	B260	S80/S5500	2	18
61.0	138	1.8	110	175	69.0	2.319	40	B130	S80/S5500	2	8.9
90.0	85.9	1.3	120	102	43.0	3.257	64	B260	S80/S5500	2	18



Technical data

Bevel gearbox g780-B

Selection tables

Inverter power supply 400 V, self-ventilated motors

1.2 kW

Inverter operation								Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \max}$	$n_{2, th}$	J	i	g780-	m850-	z	m
Nm	rpm		Nm	rpm	rpm	kgcm ²					kg
5.9	1833	2.8	40.0	2333	917	3.713	3	B130	S80/L5500	1	9.1
7.4	1375	3.9	53.0	1750	688	3.244	4	B130	S80/L5500	1	9.1
9.2	1100	4.2	67.0	1400	550	3.090	5	B130	S80/L5500	1	9.1
13.0	786	4.5	65.0	1000	393	2.955	7	B130	S80/L5500	1	9.1
14.0	611	4.6	130	778	306	3.216	9	B130	S80/L5500	2	9.6
15.0	688	3.2	50.0	875	344	2.924	8	B130	S80/L5500	1	9.1
18.0	550	4.9	95.0	650	275	3.856	10	B260	S80/L5500	1	17
19.0	550	2.0	38.0	700	275	2.887	10	B130	S80/L5500	1	9.1
19.0	458	4.5	120	583	229	3.173	12	B130	S80/L5500	2	9.6
26.0	367	3.8	110	467	183	3.156	15	B130	S80/L5500	2	9.6
28.0	344	3.7	120	438	172	2.945	16	B130	S80/L5500	2	9.6
36.0	275	3.1	120	350	138	2.898	20	B130	S80/L5500	2	9.6
39.0	220	4.8	230	260	110	3.952	25	B260	S80/L5500	2	19
48.0	220	2.3	110	280	110	2.892	25	B130	S80/L5500	2	9.6
53.0	172	4.3	260	203	86.0	3.800	32	B260	S80/L5500	2	19
61.0	172	2.0	120	219	86.0	2.851	32	B130	S80/L5500	2	9.6
73.0	138	3.0	230	163	69.0	3.794	40	B260	S80/L5500	2	19
75.0	138	1.5	110	175	69.0	2.849	40	B130	S80/L5500	2	9.6
112	85.9	1.1	120	102	43.0	3.787	64	B260	S80/L5500	2	19

2 kW

Inverter operation							Geared motor		Number of stages	Mass
M ₂	n ₂	c	M _{2, max}	n _{2, th}	J	i	g780-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
13.0	1320	3.9	80.0	660	10.414	3	B260	S120/S3960	1	20
14.0	1320	1.3	40.0	660	8.283	3	B130	S120/S3960	1	12
17.0	990	4.3	105	495	9.369	4	B260	S120/S3960	1	20
18.0	990	1.9	53.0	495	7.814	4	B130	S120/S3960	1	12
21.0	792	4.6	130	396	8.958	5	B260	S120/S3960	1	20
23.0	792	2.0	67.0	396	7.660	5	B130	S120/S3960	1	12
29.0	566	4.3	135	283	8.601	7	B260	S120/S3960	1	20
32.0	566	2.1	65.0	283	7.525	7	B130	S120/S3960	1	12
35.0	495	3.3	120	248	8.523	8	B260	S120/S3960	1	20
35.0	440	3.8	210	220	9.392	9	B260	S120/S3960	2	22
36.0	495	1.4	50.0	248	7.494	8	B130	S120/S3960	1	12
40.0	440	2.2	130	220	7.786	9	B130	S120/S3960	2	12
43.0	330	4.9	260	165	9.274	12	B260	S120/S3960	2	22
45.0	396	2.1	95.0	198	8.426	10	B260	S120/S3960	1	20
54.0	330	2.2	120	165	7.743	12	B130	S120/S3960	2	12
60.0	264	3.4	230	132	9.230	15	B260	S120/S3960	2	22
63.0	248	3.6	260	124	8.725	16	B260	S120/S3960	2	22
66.0	264	1.7	110	132	7.726	15	B130	S120/S3960	2	12
71.0	248	1.7	120	124	7.515	16	B130	S120/S3960	2	12
84.0	198	2.9	260	99.0	8.538	20	B260	S120/S3960	2	22
88.0	198	1.4	120	99.0	7.468	20	B130	S120/S3960	2	12
109	158	1.0	110	79.0	7.462	25	B130	S120/S3960	2	12
109	158	2.1	230	79.0	8.522	25	B260	S120/S3960	2	22
140	124	1.9	260	62.0	8.370	32	B260	S120/S3960	2	22
173	99.0	1.3	230	50.0	8.364	40	B260	S120/S3960	2	22

Technical data

Bevel gearbox g780-B

Selection tables

Inverter power supply 400 V, self-ventilated motors



2.9 kW

Inverter operation							Geared motor		Number of stages	Mass
M ₂	n ₂	c	M _{2, max}	n _{2, th}	J	i	g780-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
24.0	1080	2.3	80.0	540	19.614	3	B260	S140/S3240	1	41
32.0	810	2.6	105	405	18.569	4	B260	S140/S3240	1	41
39.0	648	2.8	130	324	18.158	5	B260	S140/S3240	1	41
56.0	463	2.4	135	231	17.801	7	B260	S140/S3240	1	41
64.0	405	1.9	120	203	17.723	8	B260	S140/S3240	1	41
70.0	360	2.3	210	180	18.592	9	B260	S140/S3240	2	43
79.0	324	1.2	95.0	162	17.626	10	B260	S140/S3240	1	41
91.0	270	2.7	260	135	18.474	12	B260	S140/S3240	2	43
119	216	1.9	230	108	18.430	15	B260	S140/S3240	2	43
126	203	2.1	260	101	17.925	16	B260	S140/S3240	2	43
156	162	1.7	260	81.0	17.738	20	B260	S140/S3240	2	43
193	130	1.2	230	65.0	17.722	25	B260	S140/S3240	2	43
248	101	1.1	260	51.0	17.570	32	B260	S140/S3240	2	43

3.1 kW

Inverter operation							Geared motor		Number of stages	Mass
M ₂	n ₂	c	M _{2, max}	n _{2, th}	J	i	g780-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
21.0	1320	2.5	80.0	660	16.314	3	B260	S120/M3960	1	22
28.0	990	2.8	105	495	15.269	4	B260	S120/M3960	1	22
34.0	792	3.0	130	396	14.858	5	B260	S120/M3960	1	22
48.0	566	2.8	135	283	14.501	7	B260	S120/M3960	1	22
56.0	495	2.2	120	248	14.423	8	B260	S120/M3960	1	22
60.0	440	2.5	210	220	15.292	9	B260	S120/M3960	2	24
69.0	396	1.4	95.0	198	14.326	10	B260	S120/M3960	1	22
76.0	330	3.2	260	165	15.174	12	B260	S120/M3960	2	24
103	264	2.2	230	132	15.130	15	B260	S120/M3960	2	24
108	248	2.4	260	124	14.625	16	B260	S120/M3960	2	24
136	198	1.9	260	99.0	14.438	20	B260	S120/M3960	2	24
168	158	1.4	230	79.0	14.422	25	B260	S120/M3960	2	24
215	124	1.2	260	62.0	14.270	32	B260	S120/M3960	2	24

3.7 kW

Inverter operation							Geared motor		Number of stages	Mass
M ₂	n ₂	c	M _{2, max}	n _{2, th}	J	i	g780-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
25.0	1320	2.1	80.0	660	22.114	3	B260	S120/L3960	1	25
34.0	990	2.3	105	495	21.069	4	B260	S120/L3960	1	25
42.0	792	2.5	130	396	20.658	5	B260	S120/L3960	1	25
59.0	566	2.3	135	283	20.301	7	B260	S120/L3960	1	25
68.0	495	1.8	120	248	20.223	8	B260	S120/L3960	1	25
75.0	440	2.0	210	220	21.092	9	B260	S120/L3960	2	27
84.0	396	1.1	95.0	198	20.126	10	B260	S120/L3960	1	25
97.0	330	2.6	260	165	20.974	12	B260	S120/L3960	2	27
126	264	1.8	230	132	20.930	15	B260	S120/L3960	2	27
134	248	1.9	260	124	20.425	16	B260	S120/L3960	2	27
166	198	1.6	260	99.0	20.238	20	B260	S120/L3960	2	27
205	158	1.1	230	79.0	20.222	25	B260	S120/L3960	2	27



Technical data

Bevel gearbox g780-B

Selection tables

Inverter power supply 400 V, self-ventilated motors

4.8 kW

Inverter operation							Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, th}$	J	i	g780-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
39.0	1080	1.4	80.0	540	34.014	3	B260	S140/M3240	1	46
53.0	810	1.6	105	405	32.969	4	B260	S140/M3240	1	46
66.0	648	1.7	130	324	32.558	5	B260	S140/M3240	1	46
92.0	463	1.5	135	231	32.201	7	B260	S140/M3240	1	46
105	405	1.1	120	203	32.123	8	B260	S140/M3240	1	46
117	360	1.4	210	180	32.992	9	B260	S140/M3240	2	48
156	270	1.7	260	135	32.874	12	B260	S140/M3240	2	48
195	216	1.2	230	108	32.830	15	B260	S140/M3240	2	48
208	203	1.3	260	101	32.325	16	B260	S140/M3240	2	48
258	162	1.0	260	81.0	32.138	20	B260	S140/M3240	2	48

Technical data

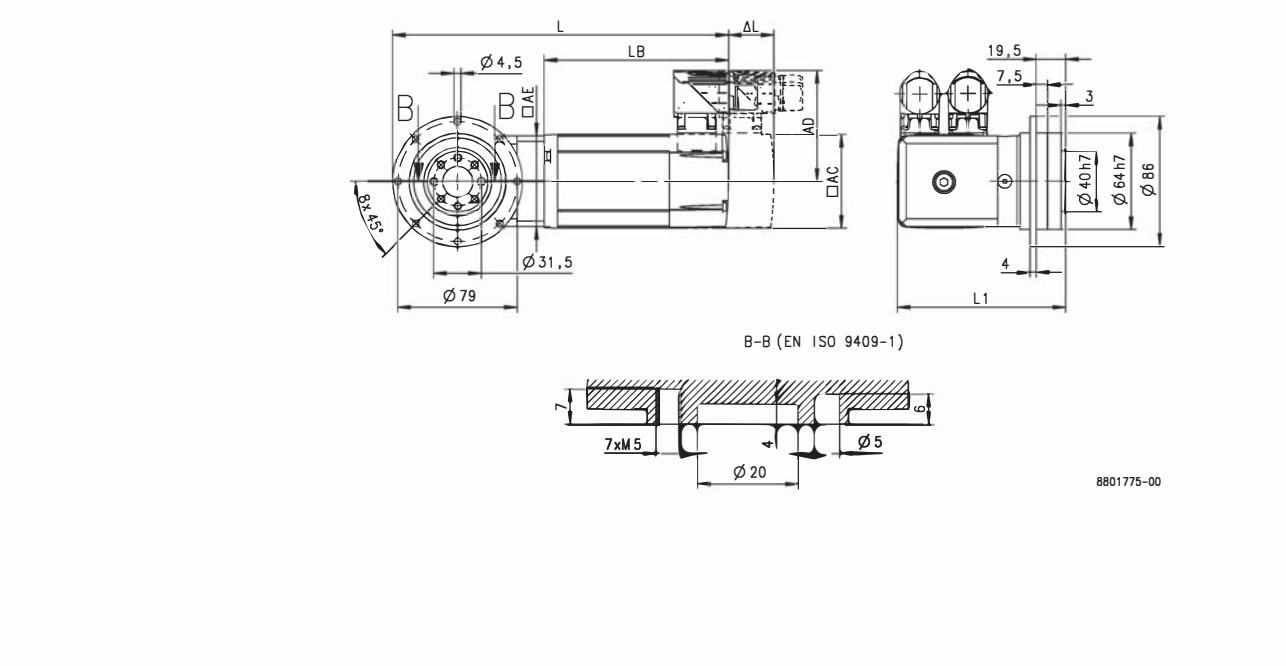
Bevel gearbox g780-B
Basic dimensions



Basic dimensions

g780-B44 with m850

Gearbox design: Solid shaft, without foot with centering

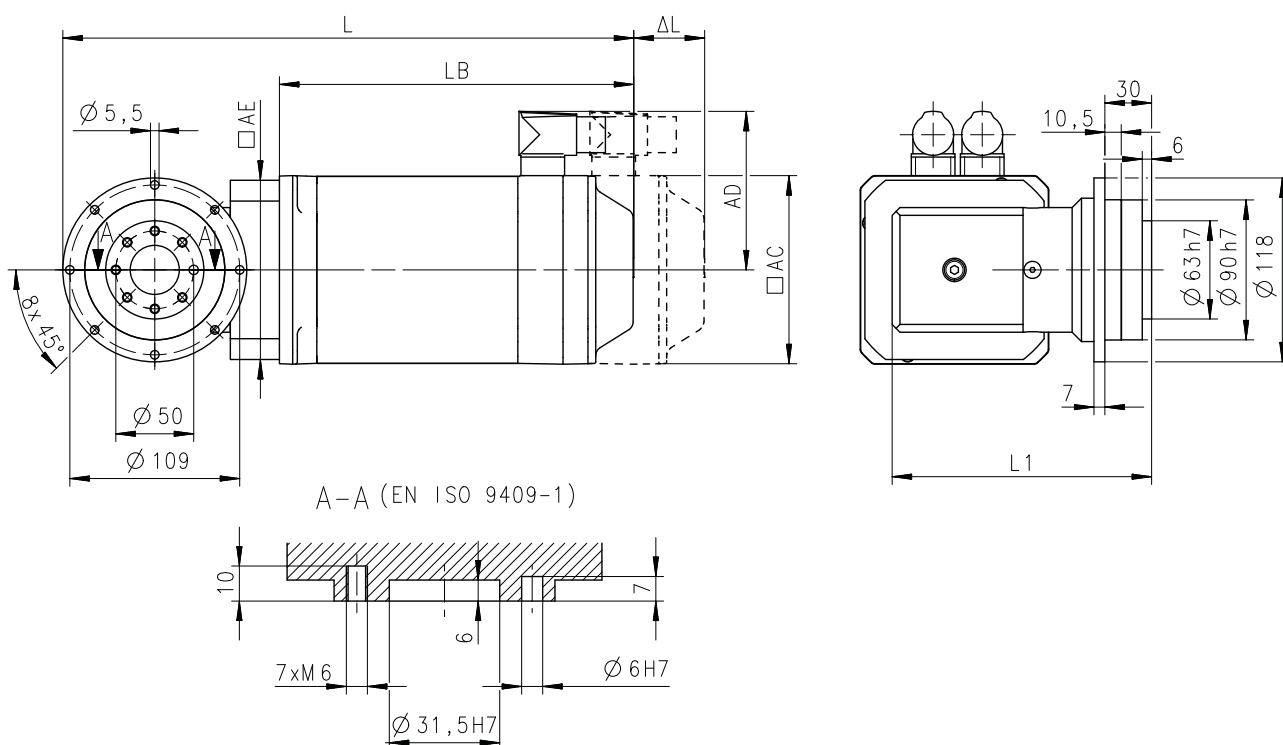


Motor			m850-	
			S60/L6000	S60/S6000
Total length	L	mm	200.6	170.6
Motor length	LB	mm	152	122
Motor diameter	AC	mm	60	60
Motor/connection distance	AD	mm	73.4	73.4
Gearbox diameter	AE	mm	60	60



g780-B130 with m850

Gearbox design: Flange output shaft, without foot with centering, 1-stage



8801032-00

Motor			m850-				
			S60/L6000	S80/L5500	S80/S5500	S120/L3960	S120/S3960
Total length	L	mm	208.3	261.3	219.3	385	309
						149	149
Motor length	LB	mm	152	178	158	265	189
Motor diameter	AC	mm	60	80	80	121	121
Motor/connection distance	AD	mm	73.4	83.4	83.4	102	102
Gearbox diameter	AE	mm	80	80	80	115	115

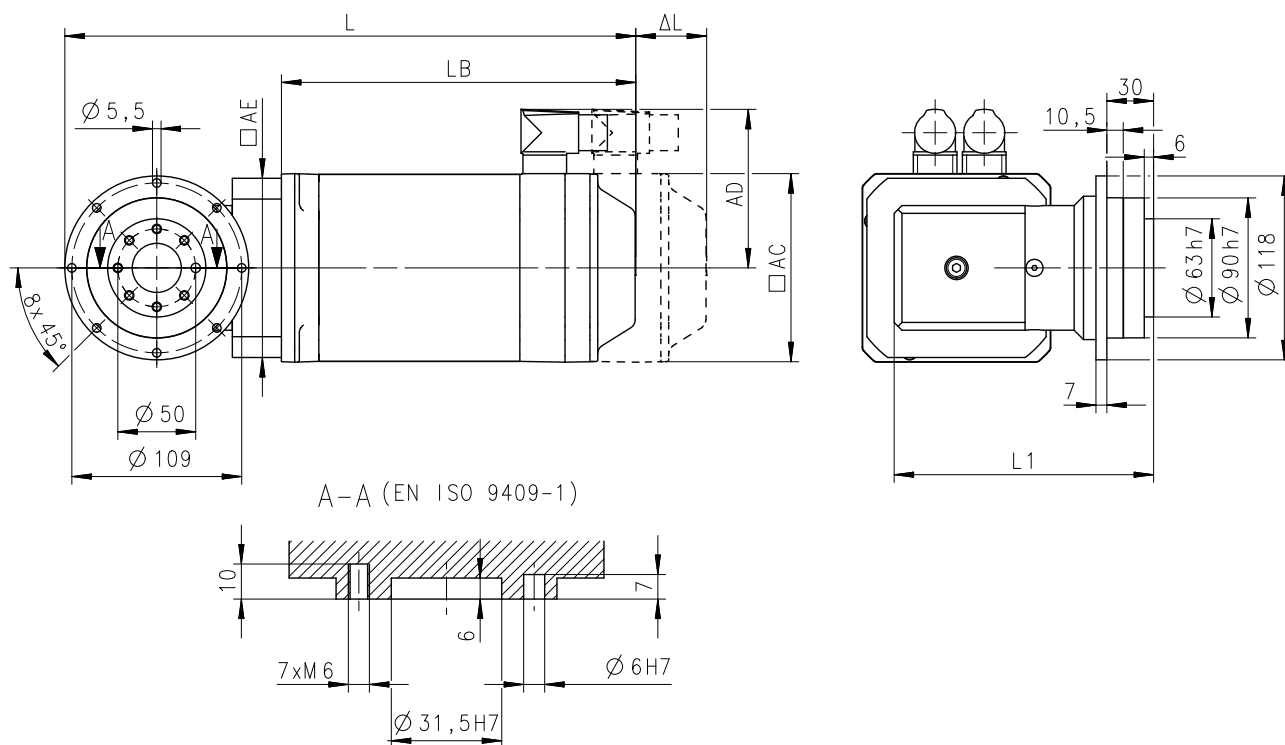
Technical data

Bevel gearbox g780-B
Basic dimensions



g780-B130 with m850

Gearbox design: Flange output shaft, without foot with centering, 2-stage



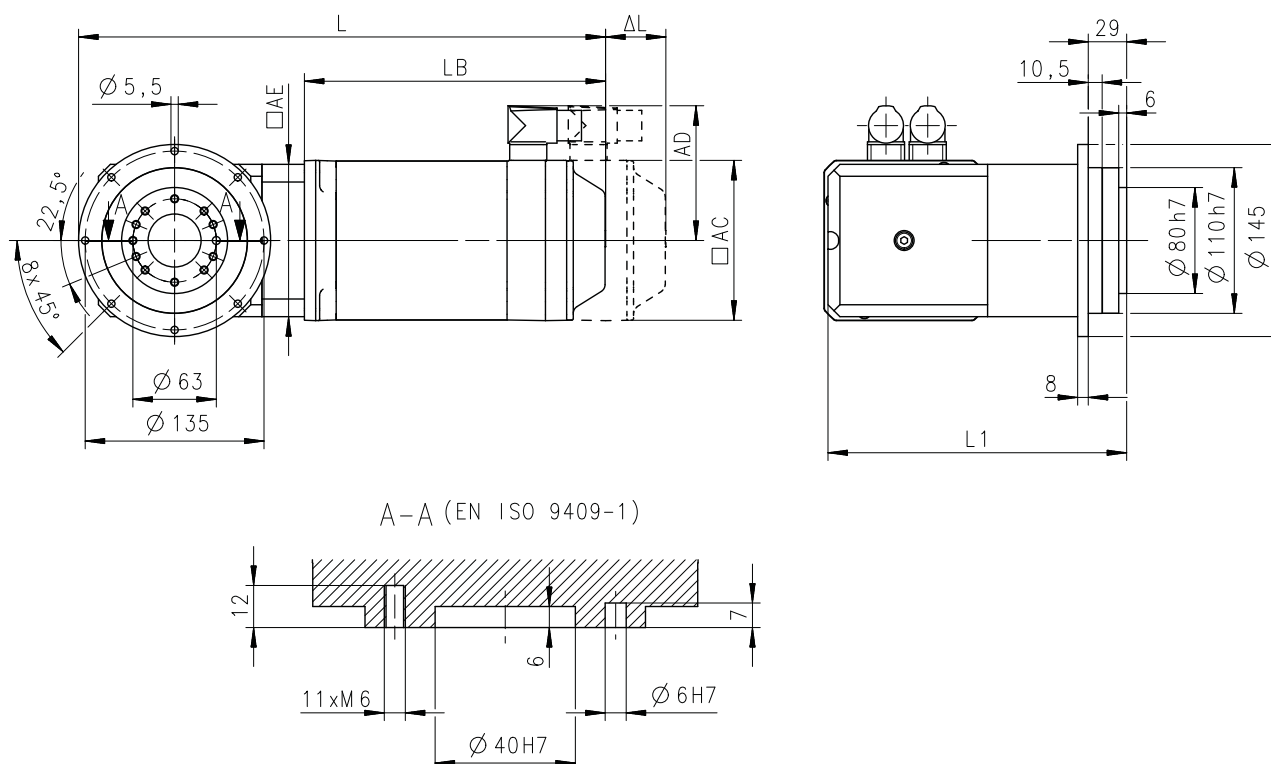
8801032-00

Motor			m850-					
			S60/L6000	S60/S6000	S80/L5500	S80/S5500	S120/L3960	S120/S3960
Total length	L	mm	226	196	279	237	385	309
Motor length	LB	mm	152	122	178	158	265	189
Motor diameter	AC	mm	60	60	80	80	121	121
Motor/connection distance	AD	mm	73.4	73.4	83.4	83.4	102	102
Gearbox diameter	AE	mm	80	80	80	80	115	115



g780-B260 with m850

Gearbox design: Flange output shaft, without foot with centering, 1-stage



8801033-00

Motor			m850-						
			S80/L5500	S120/L3960	S120/M3960	S120/S3960	S140/L3240	S140/M3240	S140/S3240
Total length	L	mm	271.1	410.5	372.5	334.5	417.5	377.5	337.5
Motor length	LB	mm	178	265	227	189	262	222	182
Motor diameter	AC	mm	80	121	121	121	142	142	142
Motor/connection distance	AD	mm	83.4	102	102	102	135	114	114
Gearbox diameter	AE	mm	115	115	115	115	140	140	140

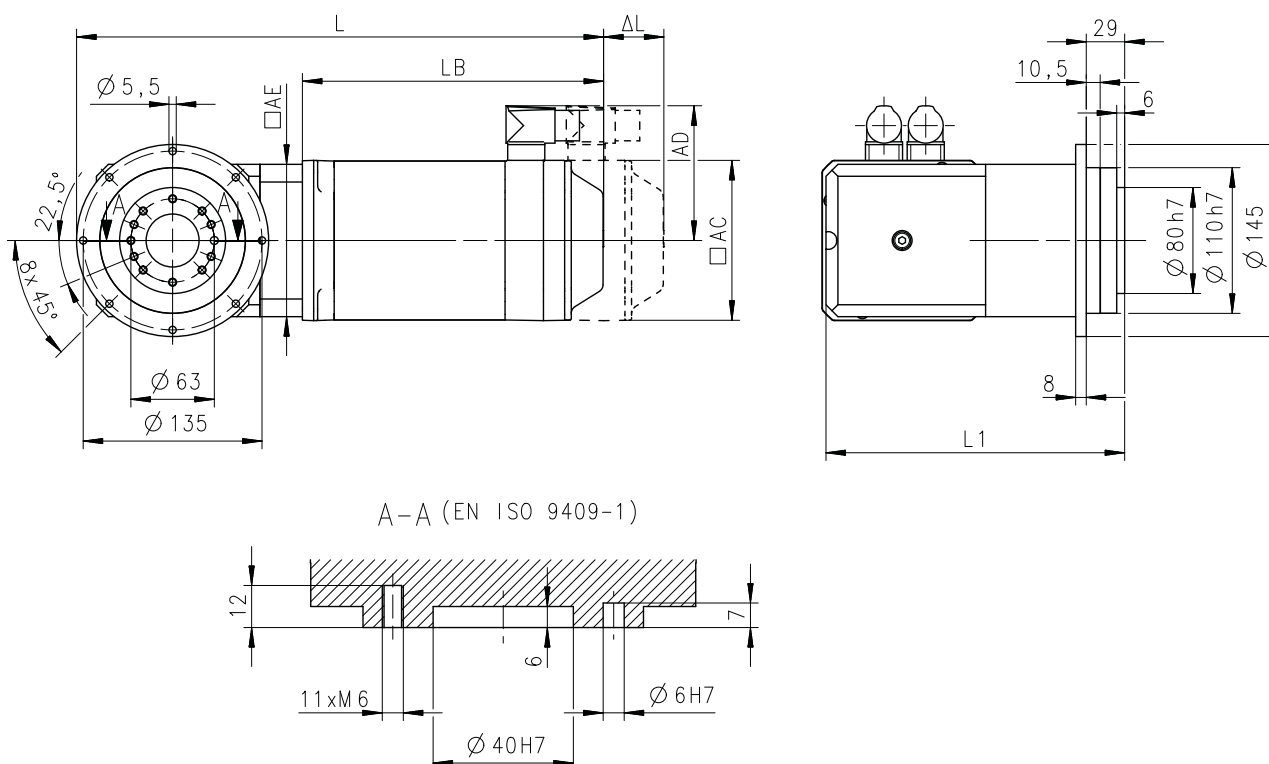
Technical data

Bevel gearbox g780-B
Basic dimensions



g780-B260 with m850

Gearbox design: Flange output shaft, without foot with centering, 2-stage



8801033-00

Motor			m850-								
			S60/ L6000	S80/ L5500	S80/ S5500	S120/ L3960	S120/ M3960	S120/ S3960	S140/ L3240	S140/ M3240	S140/ S3240
Total length	L	mm	250.1	298.1	256.1	410.5	372.5	334.5	417.5	377.5	337.5
Motor length	LB	mm	152	178	158	265	227	189	262	222	182
Motor diameter	AC	mm	60	80	80	121	121	121	142	142	142
Motor/connection distance	AD	mm	73.4	83.4	83.4	102	102	102	135	114	114
Gearbox diameter	AE	mm	115	115	115	115	115	115	140	140	140



Bevel gearbox g850-B

The modular system

g850-B bevel planetary gearbox with m850 synchronous servo motor

Gearbox		g850-B77	g850-B150	g850-B300	g850-B800
Min. motor assignment		m850-S60S	m850-S60S	m850-S80S	m850-S120S
Max. motor assignment		m850-S120S	m850-S140S	m850-S190S	m850-S190L
Technical data					
Max. output torque	Nm	77	150	300	800
Mounting position		Any			
Color		Unpainted 40/60/80 Primed 120/140/190 RAL9005 120/140/190			
Surface and corrosion protection		Without 40/60/80 OKS-G 120/140/190			
Output shaft					
Solid shaft with featherkey	mm	16 x 28	22 x 36	32 x 58	40 x 80
Smooth solid shaft	mm	16 x 28	22 x 36	32 x 58	40 x 80
Shaft material		Steel			
Shaft sealing ring material		NBR			
Gearbox design		Without foot with centering			
Gearbox stages		1/2	1/2	1/2	1/2
Output flange	mm	70	90	115	142
Lubricant		Standard Food grade			
Cooling		Self-ventilated			
Motor connection		Connector			
Holding brake		Without With			
Feedback					
Without functional safety		Digital absolute value encoder for One Cable Technology (OCT) Resolver (except 40) Absolute value encoder (except 40)			
With functional safety		Digital absolute value encoder for One Cable Technology (OCT) Resolver (except 40) Absolute value encoder (except 40)			
Temperature monitoring		PT1000 thermal sensor 40/60/80 PT1000 thermal sensor and 2x PTC thermistor 120/140/190			



Gearbox data

g850-B77, 1-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/'
4	45.0	5	2
5	42.0	5	2
7	28.0	5	2
8	27.0	5	2
10	22.0	5	2

g850-B77, 2-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/'
16	77.0	5	3
20	77.0	5	3
25	65.0	5	3
28	60.0	5	3
32	77.0	5	3
35	65.0	5	3
40	65.0	5	3
50	65.0	5	3
100	27.0	5	2

g850-B150, 1-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/'
4	90.0	5	6
5	75.0	5	6
7	51.0	5	6
8	50.0	5	5
10	40.0	5	5

g850-B150, 2-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/'
16	150	5	8
20	150	5	8
25	140	5	7
28	112	5	7
32	108	5	7
35	140	5	7
40	135	5	7
50	110	5	6
64	80.0	5	6
100	60.0	5	6



g850-B300, 1-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/°
4	160	5	14
5	140	5	13
7	91.0	5	12
8	90.0	5	11
10	75.0	5	10

g850-B300, 2-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/°
16	300	5	17
20	300	5	17
25	260	5	16
28	204	5	15
32	200	5	15
35	255	5	15
40	250	5	14
50	200	5	14
64	150	5	14

g850-B800, 1-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/°
4	320	5	34
5	280	5	33
7	189	5	30
8	180	5	28
10	160	5	26

g850-B800, 2-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/°
16	640	5	43
20	800	5	43
25	700	5	41
28	364	5	39
32	360	5	38
35	455	5	37
40	450	5	36
50	375	5	36
64	450	5	35

Technical data

Bevel gearbox g850-B
Radial forces and axial forces



Radial forces and axial forces

Gearbox			g850-B77	g850-B77	g850-B150	g850-B150	g850-B300	g850-B300	g850-B800	g850-B800
Number of stages	z		1	2	1	2	1	2	1	2
Bearing service life 20000 h										
Speed		rpm	100	100	100	100	100	100	100	100
Radial force	F_{rad}	N	3200	3200	5200	5500	6000	6000	12500	12500
Axial force	F_{ax}	N	4300	4400	5900	6400	7000	8000	14500	15000
Bearing service life 30000 h										
Speed		rpm	100	100	100	100	100	100	100	100
Radial force	F_{rad}	N	3200	3200	5200	4800	6000	5400	10900	11400
Axial force	F_{ax}	N	3700	3900	5200	5700	6100	7000	12000	13200
Max. radial force	$F_{rad, max}$	N	3200	3200	5200	5500	6000	6000	12500	12500
Max. axial force	$F_{ax, max}$	N	4300	4400	5900	6400	7000	8000	14500	15000



Technical data

Bevel gearbox g850-B

Selection tables

Inverter power supply 400 V, self-ventilated motors

Selection tables

Inverter power supply 400 V, self-ventilated motors

0.325 kW

Inverter operation								Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \max}$	$n_{2, th}$	J	i	g850-	m850-	z	m
Nm	rpm		Nm	rpm	rpm	kgcm ²					kg
21.0	120	3.2	65.0	200	51.0	0.718	50	B77	S60/S6000	2	5.4
27.0	60.0	1.0	27.0	100	27.0	0.718	100	B77	S60/S6000	2	5.4
36.0	60.0	1.7	60.0	100	30.0	0.955	100	B150	S60/S6000	2	6.8

0.55 kW

Inverter operation								Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \max}$	$n_{2, th}$	J	i	g850-	m850-	z	m
Nm	rpm		Nm	rpm	rpm	kgcm ²					kg
5.5	857	4.3	28.0	1429	352	0.945	7	B77	S60/L6000	1	5.0
6.4	750	3.7	27.0	1250	303	0.931	8	B77	S60/L6000	1	5.0
7.7	600	2.1	22.0	1000	244	0.913	10	B77	S60/L6000	1	5.0
12.0	375	3.6	77.0	625	122	1.055	16	B77	S60/L6000	2	5.9
15.0	300	3.1	77.0	500	103	1.002	20	B77	S60/L6000	2	5.9
16.0	240	5.2	140	400	103	1.238	25	B150	S60/L6000	2	7.3
20.0	240	2.7	65.0	400	86.0	1.001	25	B77	S60/L6000	2	5.9
20.0	214	4.4	112	357	86.0	1.180	28	B150	S60/L6000	2	7.3
21.0	214	2.7	60.0	357	79.0	0.941	28	B77	S60/L6000	2	5.9
24.0	188	2.4	77.0	313	71.0	0.928	32	B77	S60/L6000	2	5.9
24.0	188	3.7	108	313	75.0	1.166	32	B150	S60/L6000	2	7.3
24.0	171	4.4	140	286	70.0	1.178	35	B150	S60/L6000	2	7.3
26.0	171	2.2	65.0	286	66.0	0.941	35	B77	S60/L6000	2	5.9
28.0	150	4.4	135	250	61.0	1.165	40	B150	S60/L6000	2	7.3
30.0	150	2.0	65.0	250	59.0	0.928	40	B77	S60/L6000	2	5.9
37.0	120	1.8	65.0	200	48.0	0.911	50	B77	S60/L6000	2	5.9
38.0	120	2.9	110	200	49.0	1.149	50	B150	S60/L6000	2	7.3
47.0	93.8	1.7	80.0	156	45.0	1.164	64	B150	S60/L6000	2	7.3

Technical data

Bevel gearbox g850-B

Selection tables

Inverter power supply 400 V, self-ventilated motors



1 kW

Inverter operation								Geared motor		Number of stages	Mass
M ₂	n ₂	c	M _{2, max}	n _{2, max}	n _{2, th}	J	i	g850-	m850-	z	m
Nm	rpm		Nm	rpm	rpm	kgcm ²					kg
5.8	1375	4.8	90.0	2500	483	2.787	4	B150	S80/S5500	1	8.2
6.2	1375	3.3	45.0	2500	475	2.295	4	B77	S80/S5500	1	6.2
7.5	1100	3.8	75.0	2000	410	2.620	5	B150	S80/S5500	1	8.2
7.9	1100	2.7	42.0	2000	405	2.233	5	B77	S80/S5500	1	6.2
11.0	786	2.3	28.0	1429	330	2.169	7	B77	S80/S5500	1	6.2
11.0	786	3.0	51.0	1429	325	2.487	7	B150	S80/S5500	1	8.2
12.0	688	2.0	27.0	1250	284	2.155	8	B77	S80/S5500	1	6.2
12.0	688	2.5	50.0	1250	279	2.452	8	B150	S80/S5500	1	8.2
15.0	550	1.1	22.0	1000	233	2.138	10	B77	S80/S5500	1	6.2
15.0	550	2.0	40.0	1000	233	2.413	10	B150	S80/S5500	1	8.2
20.0	344	4.8	300	625	127	4.097	16	B300	S80/S5500	2	12
23.0	344	3.4	150	625	123	2.287	16	B150	S80/S5500	2	8.5
25.0	344	2.0	77.0	625	110	2.280	16	B77	S80/S5500	2	7.1
25.0	275	4.8	300	500	117	3.919	20	B300	S80/S5500	2	12
29.0	275	3.4	150	500	112	2.228	20	B150	S80/S5500	2	8.5
31.0	275	1.7	77.0	500	93.0	2.226	20	B77	S80/S5500	2	7.1
34.0	220	3.9	260	400	95.0	3.911	25	B300	S80/S5500	2	12
37.0	220	1.5	65.0	400	80.0	2.225	25	B77	S80/S5500	2	7.1
37.0	220	2.8	140	400	92.0	2.225	25	B150	S80/S5500	2	8.5
40.0	196	1.4	60.0	357	74.0	2.166	28	B77	S80/S5500	2	7.1
41.0	196	3.0	204	357	78.0	3.775	28	B300	S80/S5500	2	12
42.0	196	2.4	112	357	79.0	2.167	28	B150	S80/S5500	2	8.5
46.0	172	1.3	77.0	313	65.0	2.153	32	B77	S80/S5500	2	7.1
47.0	172	2.0	108	313	69.0	2.153	32	B150	S80/S5500	2	8.5
49.0	172	2.5	200	313	68.0	3.738	32	B300	S80/S5500	2	12
50.0	157	1.2	65.0	286	63.0	2.165	35	B77	S80/S5500	2	7.1
52.0	157	2.4	140	286	65.0	2.165	35	B150	S80/S5500	2	8.5
52.0	157	3.0	255	286	64.0	3.771	35	B300	S80/S5500	2	12
54.0	138	4.1	250	250	59.0	3.735	40	B300	S80/S5500	2	12
57.0	138	1.1	65.0	250	56.0	2.152	40	B77	S80/S5500	2	7.1
58.0	138	2.3	135	250	56.0	2.152	40	B150	S80/S5500	2	8.5
72.0	110	1.5	110	200	46.0	2.136	50	B150	S80/S5500	2	8.5
74.0	110	2.7	200	200	48.0	3.694	50	B300	S80/S5500	2	12
92.0	85.9	1.6	150	156	43.0	3.731	64	B300	S80/S5500	2	12



Technical data

Bevel gearbox g850-B

Selection tables

Inverter power supply 400 V, self-ventilated motors

1.2 kW

Inverter operation								Geared motor		Number of stages	Mass
M ₂	n ₂	c	M _{2, max}	n _{2, max}	n _{2, th}	J	i	g850-	m850-	z	m
Nm	rpm		Nm	rpm	rpm	kgcm ²					kg
7.4	1375	3.9	90.0	2500	462	3.317	4	B150	S80/L5500	1	8.9
7.8	1375	2.7	45.0	2500	455	2.825	4	B77	S80/L5500	1	6.9
9.6	1100	3.1	75.0	2000	394	3.150	5	B150	S80/L5500	1	8.9
9.9	1100	2.2	42.0	2000	389	2.763	5	B77	S80/L5500	1	6.9
13.0	786	1.9	28.0	1429	323	2.699	7	B77	S80/L5500	1	6.9
13.0	786	2.4	51.0	1429	317	3.017	7	B150	S80/L5500	1	8.9
15.0	688	1.6	27.0	1250	277	2.685	8	B77	S80/L5500	1	6.9
15.0	688	2.0	50.0	1250	272	2.982	8	B150	S80/L5500	1	8.9
19.0	550	1.7	40.0	1000	229	2.943	10	B150	S80/L5500	1	8.9
27.0	344	3.9	300	625	120	4.627	16	B300	S80/L5500	2	13
30.0	344	2.7	150	625	117	2.817	16	B150	S80/L5500	2	9.2
31.0	344	1.6	77.0	625	106	2.810	16	B77	S80/L5500	2	7.8
34.0	275	3.9	300	500	111	4.449	20	B300	S80/L5500	2	13
37.0	275	2.8	150	500	107	2.758	20	B150	S80/L5500	2	9.2
38.0	275	1.4	77.0	500	90.0	2.756	20	B77	S80/L5500	2	7.8
45.0	220	3.2	260	400	92.0	4.441	25	B300	S80/L5500	2	13
46.0	220	1.2	65.0	400	78.0	2.755	25	B77	S80/L5500	2	7.8
48.0	220	2.3	140	400	88.0	2.755	25	B150	S80/L5500	2	9.2
49.0	196	1.2	60.0	357	73.0	2.696	28	B77	S80/L5500	2	7.8
52.0	196	1.9	112	357	77.0	2.697	28	B150	S80/L5500	2	9.2
54.0	196	2.4	204	357	76.0	4.305	28	B300	S80/L5500	2	13
56.0	172	1.1	77.0	313	63.0	2.683	32	B77	S80/L5500	2	7.8
58.0	172	1.6	108	313	67.0	2.683	32	B150	S80/L5500	2	9.2
60.0	172	2.1	200	313	66.0	4.268	32	B300	S80/L5500	2	13
64.0	157	1.9	140	286	63.0	2.695	35	B150	S80/L5500	2	9.2
66.0	157	2.5	255	286	62.0	4.301	35	B300	S80/L5500	2	13
71.0	138	3.3	250	250	58.0	4.265	40	B300	S80/L5500	2	13
72.0	138	1.9	135	250	55.0	2.682	40	B150	S80/L5500	2	9.2
89.0	110	1.2	110	200	45.0	2.666	50	B150	S80/L5500	2	9.2
91.0	110	2.2	200	200	47.0	4.224	50	B300	S80/L5500	2	13
114	85.9	1.3	150	156	43.0	4.261	64	B300	S80/L5500	2	13

Technical data

Bevel gearbox g850-B

Selection tables

Inverter power supply 400 V, self-ventilated motors



2 kW

Inverter operation							Geared motor		Number of stages	Mass
M ₂	n ₂	c	M _{2, max}	n _{2, th}	J	i	g850-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
17.0	990	4.0	160	323	12.375	4	B300	S120/S3960	1	17
18.0	990	1.3	45.0	387	7.395	4	B77	S120/S3960	1	9.5
18.0	990	1.9	90.0	388	7.887	4	B150	S120/S3960	1	12
22.0	792	3.3	140	262	11.866	5	B300	S120/S3960	1	17
23.0	792	1.1	42.0	335	7.333	5	B77	S120/S3960	1	9.5
23.0	792	1.5	75.0	340	7.720	5	B150	S120/S3960	1	12
30.0	566	2.6	91.0	203	11.451	7	B300	S120/S3960	1	17
31.0	566	1.2	51.0	283	7.587	7	B150	S120/S3960	1	12
34.0	495	2.2	90.0	177	11.379	8	B300	S120/S3960	1	17
41.0	396	1.8	75.0	146	11.267	10	B300	S120/S3960	1	17
71.0	248	1.3	150	96.0	7.387	16	B150	S120/S3960	2	12
72.0	248	1.9	300	98.0	7.919	16	B300	S120/S3960	2	16
76.0	198	4.1	800	62.0	12.712	20	B800	S120/S3960	2	28
88.0	198	1.3	150	88.0	7.328	20	B150	S120/S3960	2	12
90.0	198	1.9	300	90.0	7.741	20	B300	S120/S3960	2	16
101	158	3.4	700	50.0	12.082	25	B800	S120/S3960	2	28
109	158	1.1	140	76.0	7.325	25	B150	S120/S3960	2	12
112	158	1.5	260	78.0	7.733	25	B300	S120/S3960	2	16
118	141	2.7	364	50.0	11.588	28	B800	S120/S3960	2	28
122	141	1.2	204	68.0	7.597	28	B300	S120/S3960	2	16
134	124	2.2	360	43.0	11.482	32	B800	S120/S3960	2	28
148	113	2.7	455	40.0	11.562	35	B800	S120/S3960	2	28
151	113	1.2	255	56.0	7.593	35	B300	S120/S3960	2	16
167	99.0	2.7	450	36.0	11.463	40	B800	S120/S3960	2	28
173	99.0	1.5	250	50.0	7.557	40	B300	S120/S3960	2	16
202	79.2	1.9	375	30.0	11.324	50	B800	S120/S3960	2	28
264	61.9	1.7	450	26.0	11.447	64	B800	S120/S3960	2	28

2.9 kW

Inverter operation							Geared motor		Number of stages	Mass
M ₂	n ₂	c	M _{2, max}	n _{2, th}	J	i	g850-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
32.0	810	1.1	90.0	337	18.365	4	B150	S140/S3240	1	33
32.0	810	2.4	160	287	21.575	4	B300	S140/S3240	1	38
40.0	648	2.0	140	239	21.066	5	B300	S140/S3240	1	38
53.0	463	1.6	91.0	194	20.651	7	B300	S140/S3240	1	38
61.0	405	1.3	90.0	168	20.579	8	B300	S140/S3240	1	38
73.0	324	1.0	75.0	140	20.467	10	B300	S140/S3240	1	38
123	203	2.5	640	63.0	22.087	16	B800	S140/S3240	2	49
128	203	1.1	300	82.0	18.397	16	B300	S140/S3240	2	37
154	162	2.5	800	53.0	21.912	20	B800	S140/S3240	2	49
160	162	1.1	300	76.0	18.219	20	B300	S140/S3240	2	37
196	130	2.0	700	44.0	21.282	25	B800	S140/S3240	2	49
209	116	1.6	364	47.0	20.788	28	B800	S140/S3240	2	49
237	101	1.3	360	40.0	20.682	32	B800	S140/S3240	2	49
262	92.6	1.6	455	38.0	20.762	35	B800	S140/S3240	2	49
296	81.0	1.5	450	33.0	20.663	40	B800	S140/S3240	2	49
357	64.8	1.1	375	28.0	20.524	50	B800	S140/S3240	2	49



Technical data

Bevel gearbox g850-B

Selection tables

Inverter power supply 400 V, self-ventilated motors

3.1 kW

Inverter operation							Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \text{th}}$	J	i	g850-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
28.0	990	1.2	90.0	344	13.787	4	B150	S120/M3960	1	14
28.0	990	2.6	160	292	18.275	4	B300	S120/M3960	1	20
35.0	792	2.1	140	243	17.766	5	B300	S120/M3960	1	20
46.0	566	1.7	91.0	195	17.351	7	B300	S120/M3960	1	20
53.0	495	1.4	90.0	169	17.279	8	B300	S120/M3960	1	20
64.0	396	1.2	75.0	141	17.167	10	B300	S120/M3960	1	20
106	248	2.7	640	64.0	18.787	16	B800	S120/M3960	2	31
111	248	1.2	300	84.0	13.819	16	B300	S120/M3960	2	18
132	198	2.7	800	54.0	18.612	20	B800	S120/M3960	2	31
139	198	1.2	300	78.0	13.641	20	B300	S120/M3960	2	18
170	158	2.2	700	45.0	17.982	25	B800	S120/M3960	2	31
182	141	1.7	364	48.0	17.488	28	B800	S120/M3960	2	31
206	124	1.4	360	41.0	17.382	32	B800	S120/M3960	2	31
228	113	1.7	455	38.0	17.462	35	B800	S120/M3960	2	31
258	99.0	1.8	450	34.0	17.363	40	B800	S120/M3960	2	31
311	79.2	1.2	375	29.0	17.224	50	B800	S120/M3960	2	31
407	61.9	1.1	450	25.0	17.347	64	B800	S120/M3960	2	31

3.7 kW

Inverter operation							Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \text{th}}$	J	i	g850-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
34.0	990	2.2	160	279	24.075	4	B300	S120/L3960	1	23
42.0	792	1.8	140	234	23.566	5	B300	S120/L3960	1	23
56.0	566	1.4	91.0	192	23.151	7	B300	S120/L3960	1	23
64.0	495	1.2	90.0	165	23.079	8	B300	S120/L3960	1	23
133	248	2.2	640	61.0	24.587	16	B800	S120/L3960	2	34
135	248	1.0	300	78.0	19.619	16	B300	S120/L3960	2	21
167	198	2.2	800	51.0	24.412	20	B800	S120/L3960	2	34
169	198	1.0	300	73.0	19.441	20	B300	S120/L3960	2	21
207	158	1.8	700	42.0	23.782	25	B800	S120/L3960	2	34
222	141	1.4	364	47.0	23.288	28	B800	S120/L3960	2	34
251	124	1.2	360	40.0	23.182	32	B800	S120/L3960	2	34
277	113	1.4	455	37.0	23.262	35	B800	S120/L3960	2	34
313	99.0	1.4	450	33.0	23.163	40	B800	S120/L3960	2	34

Technical data

Bevel gearbox g850-B

Selection tables

Inverter power supply 400 V, self-ventilated motors



4.8 kW

Inverter operation							Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \text{th}}$	J	i	g850-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
51.0	810	3.3	320	255	50.983	4	B800	S140/M3240	1	58
53.0	810	1.5	160	252	35.975	4	B300	S140/M3240	1	43
65.0	648	2.6	280	206	48.407	5	B800	S140/M3240	1	58
66.0	648	1.2	140	218	35.466	5	B300	S140/M3240	1	43
88.0	463	2.1	189	167	45.572	7	B800	S140/M3240	1	58
101	405	1.7	180	146	45.805	8	B800	S140/M3240	1	58
120	324	1.3	160	124	45.190	10	B800	S140/M3240	1	58
208	203	1.5	640	54.0	36.487	16	B800	S140/M3240	2	54
260	162	1.5	800	44.0	36.312	20	B800	S140/M3240	2	54
322	130	1.2	700	38.0	35.682	25	B800	S140/M3240	2	54

5 kW

Inverter operation							Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \text{th}}$	J	i	g850-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
59.0	750	2.9	320	250	81.683	4	B800	S190/S3000	1	70
61.0	750	1.3	160	244	68.350	4	B300	S190/S3000	1	55
75.0	600	1.1	140	213	67.842	5	B300	S190/S3000	1	55
75.0	600	2.3	280	202	79.107	5	B800	S190/S3000	1	70
101	429	1.9	189	166	76.272	7	B800	S190/S3000	1	70
115	375	1.6	180	144	76.505	8	B800	S190/S3000	1	70
138	300	1.2	160	122	75.890	10	B800	S190/S3000	1	70
238	188	1.4	640	52.0	68.891	16	B800	S190/S3000	2	66
298	150	1.4	800	43.0	68.715	20	B800	S190/S3000	2	66
368	120	1.1	700	37.0	68.086	25	B800	S190/S3000	2	66

5.9 kW

Inverter operation							Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \text{th}}$	J	i	g850-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
65.0	810	2.6	320	245	65.483	4	B800	S140/L3240	1	63
66.0	810	1.2	160	237	50.475	4	B300	S140/L3240	1	48
82.0	648	2.1	280	198	62.907	5	B800	S140/L3240	1	63
110	463	1.7	189	164	60.072	7	B800	S140/L3240	1	63
125	405	1.4	180	143	60.305	8	B800	S140/L3240	1	63
150	324	1.1	160	121	59.690	10	B800	S140/L3240	1	63
259	203	1.2	640	50.0	50.987	16	B800	S140/L3240	2	59
324	162	1.2	800	41.0	50.812	20	B800	S140/L3240	2	59

7.5 kW

Inverter operation							Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \text{th}}$	J	i	g850-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
91.0	750	2.0	320	231	137.883	4	B800	S190/M3000	1	79
113	600	1.6	280	187	135.307	5	B800	S190/M3000	1	79
151	429	1.3	189	160	132.472	7	B800	S190/M3000	1	79
173	375	1.0	180	138	132.705	8	B800	S190/M3000	1	79



Technical data

Bevel gearbox g850-B

Selection tables

Inverter power supply 400 V, self-ventilated motors

9.2 kW

Inverter operation							Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \text{th}}$	J	i	g850-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
133	630	1.4	320	216	213.883	4	B800	S190/L2520	1	91
165	504	1.1	280	174	211.307	5	B800	S190/L2520	1	91

Technical data

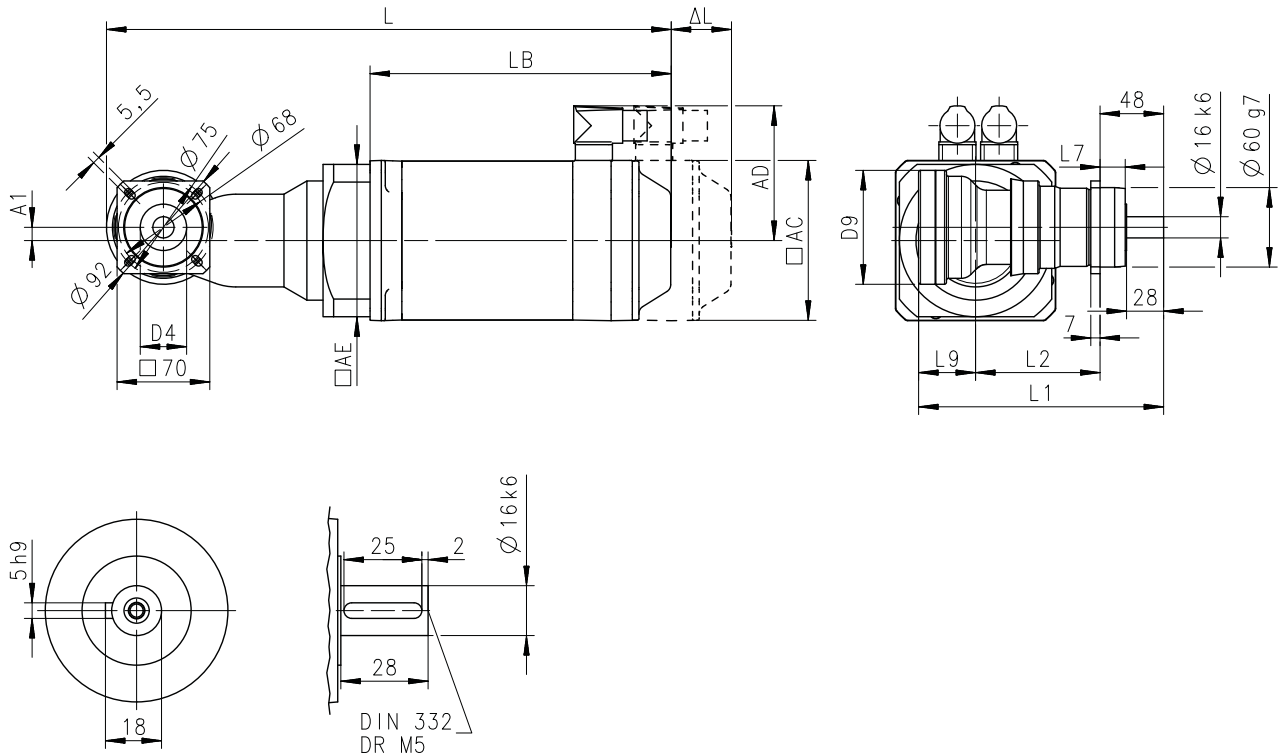
Bevel gearbox g850-B
Basic dimensions



Basic dimensions

g850-B77 with m850

Gearbox design: Solid shaft, without foot with centering, 1-stage



8801058-00

Motor			m850-				
			S60/L6000	S80/L5500	S80/S5500	S120/L3960	S120/S3960
Total length	L	mm	224.5	282	240	464	388
Motor length	LB	mm	152	178	158	265	189
Motor diameter	AC	mm	60	80	80	121	121
Motor/connection distance	AD	mm	73.4	83.4	83.4	102	102
Gearbox diameter	AE	mm	70	90	90	115	115

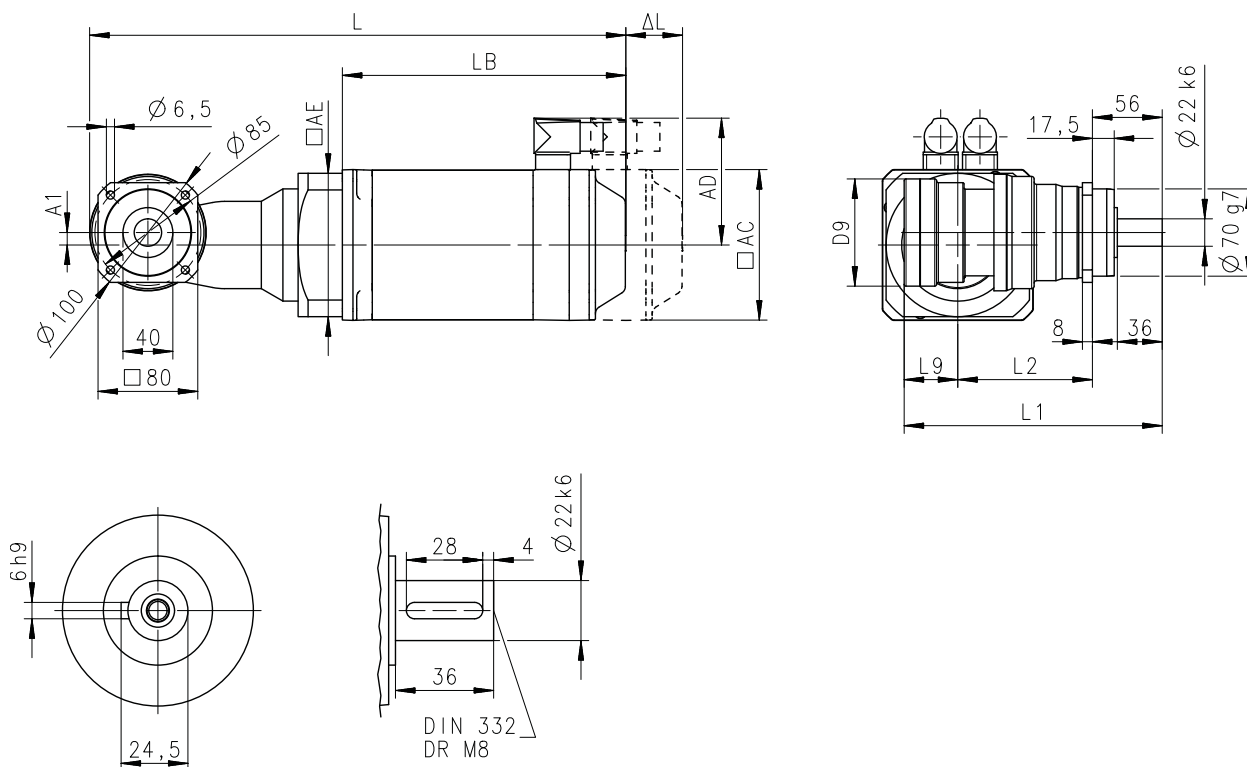


Technical data

Bevel gearbox g850-B
Basic dimensions

g850-B150 with m850

Gearbox design: Solid shaft, without foot with centering, 1-stage



8801059-00

Motor			m850-							
			S80/L5500	S80/S5500	S120/L3960	S120/M3960	S120/S3960	S140/L3240	S140/M3240	S140/S3240
Total length	L	mm	296	254	478.5	440.5	402.5	485	445	405
					165	165	165	165	165	165
Motor length	LB	mm	178	158	265	227	189	262	222	182
Motor diameter	AC	mm	80	80	121	121	121	142	142	142
Motor/connection distance	AD	mm	83.4	83.4	102	102	102	135	114	114
Gearbox diameter	AE	mm	90	90	115	115	115	142	142	142

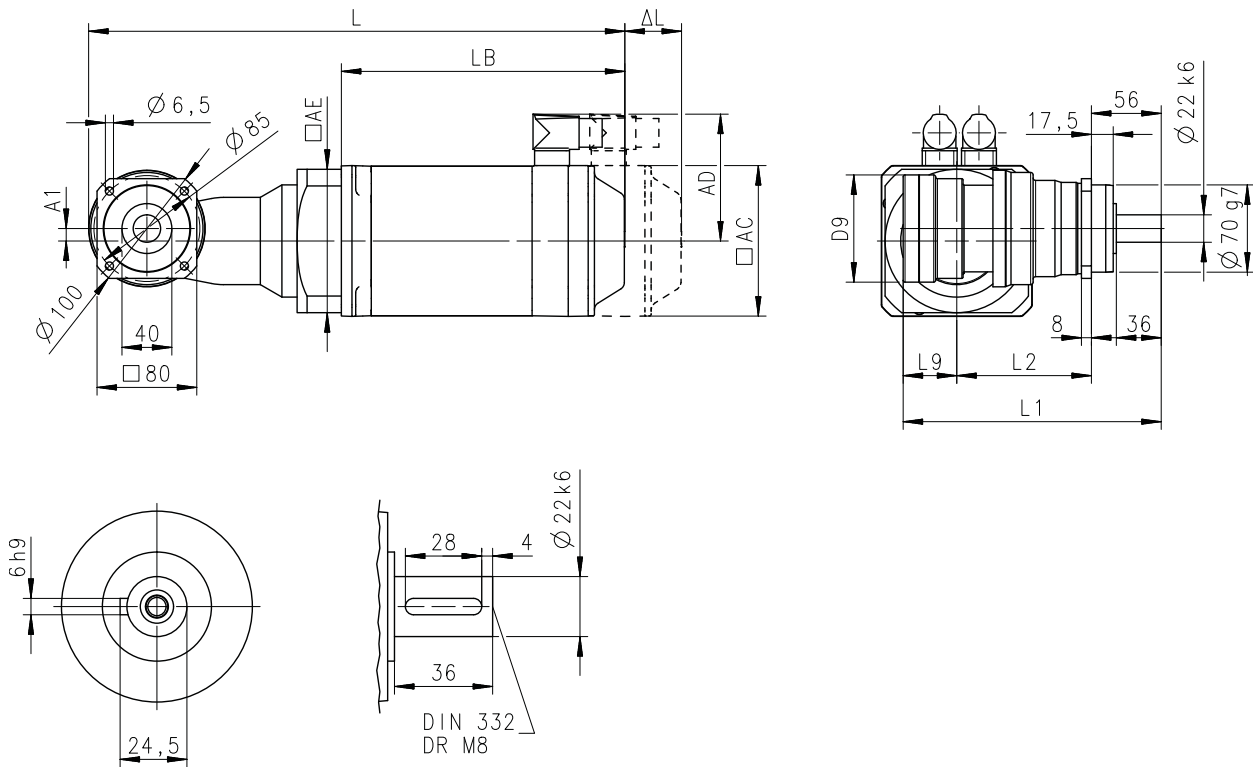
Technical data

Bevel gearbox g850-B
Basic dimensions



g850-B150 with m850

Gearbox design: Solid shaft, without foot with centering, 2-stage



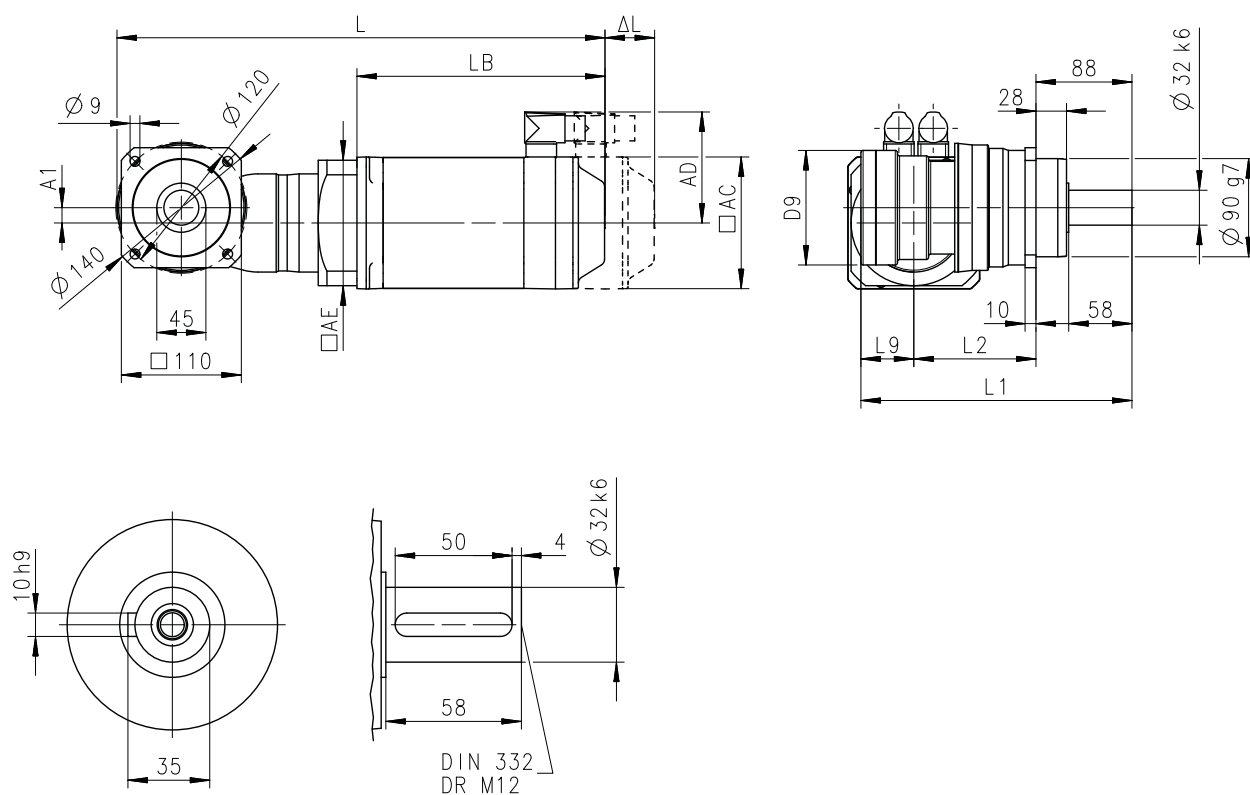
8801059-00

Motor			m850-				
			S60/L6000	S60/S6000	S80/L5500	S80/S5500	S120/S3960
Total length	L	mm	286	256	343.5	301.5	391.5
Motor length	LB	mm	152	122	178	158	189
Motor diameter	AC	mm	60	60	80	80	121
Motor/connection distance	AD	mm	73.4	73.4	83.4	83.4	102
Gearbox diameter	AE	mm	70	70	90	90	115



g850-B300 with m850

Gearbox design: Solid shaft, without foot with centering, 1-stage



8801060-00

Motor			m850-								
			S120/ L3960	S120/ M3960	S120/ S3960	S140/ L3240	S140/ M3240	S140/ S3240	S190/ L2520	S190/ M3000	S190/ S3000
Total length	L	mm	512.5	474.5	436.5	519.5	479.5	439.5	593.5	529.5	481.5
Gearbox length	L1	mm	218	218	218	218	218	218	218	218	218
Motor length	LB	mm	265	227	189	262	222	182	316	252	204
Motor diameter	AC	mm	121	121	121	142	142	142	190	190	190
Motor/connection distance	AD	mm	102	102	102	135	114	114	158	158	137
Gearbox diameter	AE	mm	120	120	120	142	142	142	190	190	190

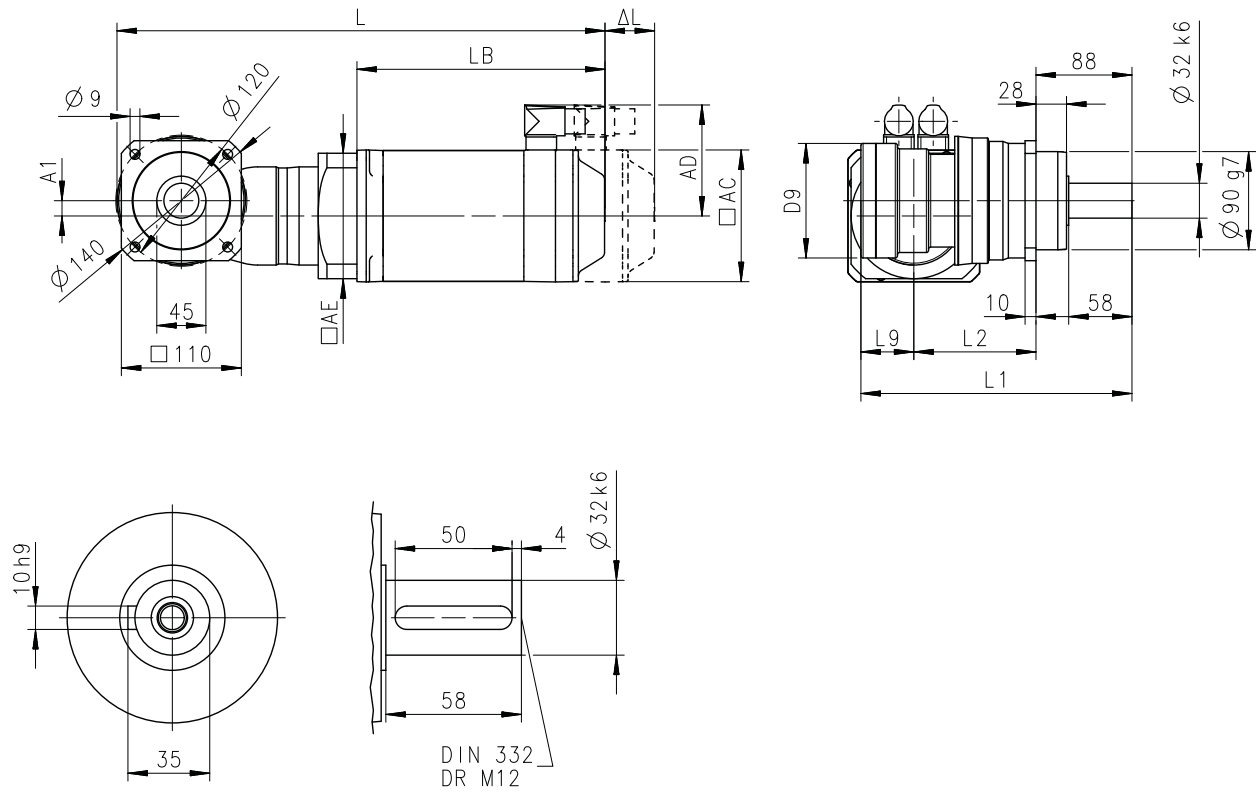
Technical data

Bevel gearbox g850-B
Basic dimensions



g850-B300 with m850

Gearbox design: Solid shaft, without foot with centering, 2-stage



8801060-00

Motor			m850-						
			S80/L5500	S80/S5500	S120/L3960	S120/M3960	S120/S3960	S140/M3240	S140/S3240
Total length	L	mm	347.5	305.5	484.9	446.9	408.9	451.4	411.4
Motor length	LB	mm	178	158	265	227	189	222	182
Motor diameter	AC	mm	80	80	121	121	121	142	142
Motor/connection distance	AD	mm	83.4	83.4	102	102	102	114	114
Gearbox diameter	AE	mm	90	90	115	115	115	142	142

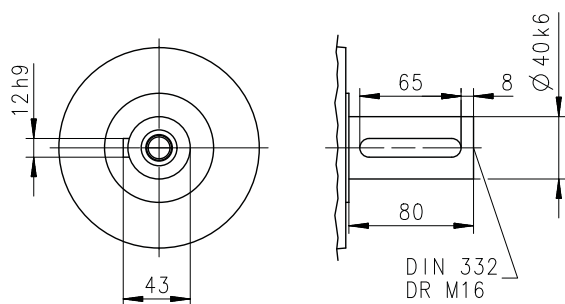
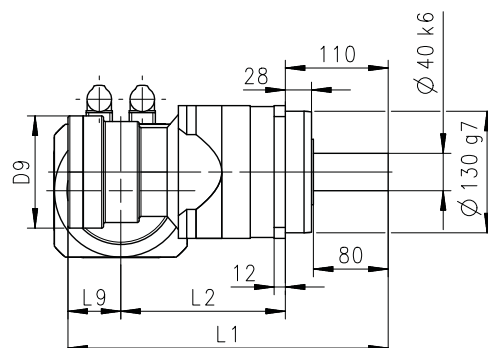
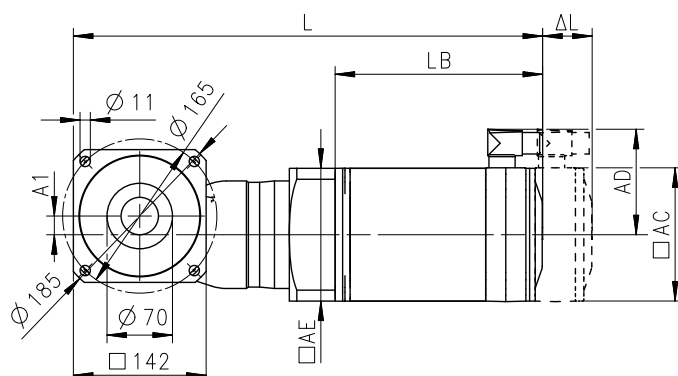


Technical data

Bevel gearbox g850-B
Basic dimensions

g850-B800 with m850

Gearbox design: Solid shaft, without foot with centering, 1-stage



8801061-00

Motor			m850-				
			S140/L3240	S140/M3240	S190/L2520	S190/M3000	S190/S3000
Total length	L	mm	580	540	644	580	532
Motor length	LB	mm	262	222	316	252	204
Motor diameter	AC	mm	142	142	190	190	190
Motor/connection distance	AD	mm	135	114	158	158	137
Gearbox diameter	AE	mm	142	142	190	190	190

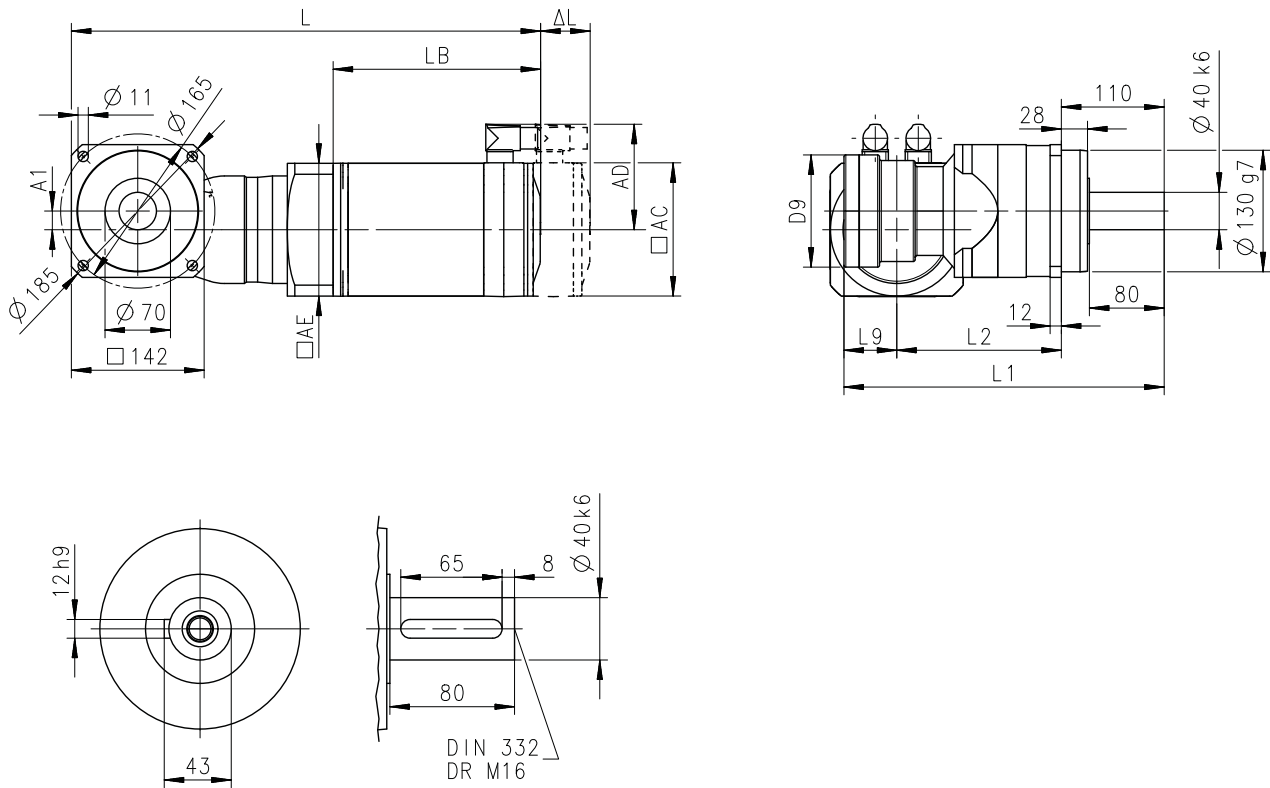
Technical data

Bevel gearbox g850-B
Basic dimensions



g850-B800 with m850

Gearbox design: Solid shaft, without foot with centering, 2-stage



8801061-00

Motor			m850-								
			S120/ L3960	S120/ M3960	S120/ S3960	S140/ L3240	S140/ M3240	S140/ S3240	S190/ L2520	S190/ M3000	S190/ S3000
Total length	L	mm	523.5	485.5	447.5	530.5	490.5	450.5	604.5	540.5	492.5
Motor length	LB	mm	265	227	189	262	222	182	316	252	204
Motor diameter	AC	mm	121	121	121	142	142	142	190	190	190
Motor/connection distance	AD	mm	102	102	102	135	114	114	158	158	137
Gearbox diameter	AE	mm	120	120	120	142	142	142	190	190	190



Bevel gearbox g860-B

The modular system

g860-B bevel planetary gearbox with m850 synchronous servo motor

Gearbox		g860-B45	g860-B70	g860-B140	g860-B320
Min. motor assignment		m850-S60L	m850-S80S	m850-S120S	m850-S140M
Max. motor assignment		m850-S120S	m850-S140S	m850-S140L	m850-S190L
Technical data					
Max. output torque	Nm	45	70	140	320
Mounting position		Any			
Color		Unpainted 40/60/80 Primed 120/140/190 RAL9005 120/140/190			
Surface and corrosion protection		Without 40/60/80 OKS-G 120/140/190			
Output shaft					
Single-sided hollow shaft on output drive	mm	15 x 20	20 x 25	30 x 30	40 x 35
Two-sided hollow shaft on output drive	mm	15 x 20 on both sides	20 x 25 on both sides	30 x 30 on both sides	40 x 35 on both sides
Shaft material		Steel			
Shaft sealing ring material		NBR			
Gearbox design		Without foot with centering			
Gearbox stages		1	1	1	1
Output flange	mm	70	90	115	142
Lubricant		Standard Food grade			
Cooling		Self-ventilated			
Motor connection		Connector			
Holding brake		Without With			
Feedback					
Without functional safety		Digital absolute value encoder for One Cable Technology (OCT) Resolver (except 40) Absolute value encoder (except 40)			
With functional safety		Digital absolute value encoder for One Cable Technology (OCT) Resolver (except 40) Absolute value encoder (except 40)			
Temperature monitoring		PT1000 thermal sensor 40/60/80 PT1000 thermal sensor and 2x PTC thermistor 120/140/190			



Gearbox data

g860-B45, 1-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	
4	45.0	5	-
5	42.0	5	-
7	28.0	5	-
8	27.0	5	-
10	22.0	5	-

g860-B70, 1-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	
4	70.0	5	-
5	70.0	5	-
7	51.0	5	-
8	50.0	5	-
10	40.0	5	-

g860-B140, 1-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	
4	140	5	-
5	140	5	-
7	91.0	5	-
8	90.0	5	-
10	75.0	5	-

g860-B320, 1-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	
4	320	5	-
5	280	5	-
7	189	5	-
8	180	5	-
10	160	5	-



Radial forces and axial forces

Gearbox			g860-B45	g860-B70	g860-B140	g860-B320
Number of stages	z		1	1	1	1
Bearing service life 20000 h						
Speed		rpm	100	100	100	100
Radial force	F_{rad}	N	2700	4000	6500	10000
Axial force	F_{ax}	N	4300	5900	7000	14500
Bearing service life 30000 h						
Speed		rpm	100	100	100	100
Radial force	F_{rad}	N	2700	4000	6500	10000
Axial force	F_{ax}	N	3700	5200	6100	12000
Max. radial force	$F_{rad, max}$	N	2700	4000	6500	10000
Max. axial force	$F_{ax, max}$	N	4300	5900	7000	14500

Technical data

Bevel gearbox g860-B

Selection tables

Inverter power supply 400 V, self-ventilated motors



Selection tables

Inverter power supply 400 V, self-ventilated motors

0.55 kW

Inverter operation								Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \max}$	$n_{2, th}$	J	i	g860-	m850-	z	m
Nm	rpm		Nm	rpm	rpm	kgcm ²					kg
5.5	857	4.3	28.0	1429	338	0.949	7	B45	S60/L6000	1	5.0
6.4	750	3.7	27.0	1250	296	0.934	8	B45	S60/L6000	1	5.0
7.7	600	2.1	22.0	1000	237	0.915	10	B45	S60/L6000	1	5.0

1 kW

Inverter operation								Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \max}$	$n_{2, th}$	J	i	g860-	m850-	z	m
Nm	rpm		Nm	rpm	rpm	kgcm ²					kg
5.8	1375	4.8	70.0	2500	484	2.817	4	B70	S80/S5500	1	8.2
6.2	1375	3.3	45.0	2500	462	2.472	4	B45	S80/S5500	1	6.2
7.5	1100	3.9	70.0	2000	394	2.640	5	B70	S80/S5500	1	8.2
7.9	1100	2.8	42.0	2000	390	2.241	5	B45	S80/S5500	1	6.2
11.0	786	2.3	28.0	1429	319	2.174	7	B45	S80/S5500	1	6.2
11.0	786	3.0	51.0	1429	317	2.496	7	B70	S80/S5500	1	8.2
12.0	688	2.0	27.0	1250	278	2.158	8	B45	S80/S5500	1	6.2
12.0	688	2.5	50.0	1250	272	2.459	8	B70	S80/S5500	1	8.2
15.0	550	1.1	22.0	1000	227	2.140	10	B45	S80/S5500	1	6.2
15.0	550	2.1	40.0	1000	229	2.418	10	B70	S80/S5500	1	8.2

1.2 kW

Inverter operation								Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \max}$	$n_{2, th}$	J	i	g860-	m850-	z	m
Nm	rpm		Nm	rpm	rpm	kgcm ²					kg
7.4	1375	3.9	70.0	2500	466	3.347	4	B70	S80/L5500	1	8.9
7.8	1375	2.7	45.0	2500	443	3.002	4	B45	S80/L5500	1	6.9
9.6	1100	3.1	70.0	2000	381	3.170	5	B70	S80/L5500	1	8.9
9.8	1100	2.2	42.0	2000	375	2.771	5	B45	S80/L5500	1	6.9
13.0	786	1.9	28.0	1429	313	2.704	7	B45	S80/L5500	1	6.9
13.0	786	2.4	51.0	1429	310	3.026	7	B70	S80/L5500	1	8.9
15.0	688	1.6	27.0	1250	271	2.688	8	B45	S80/L5500	1	6.9
15.0	688	2.0	50.0	1250	266	2.989	8	B70	S80/L5500	1	8.9
18.0	550	1.7	40.0	1000	225	2.948	10	B70	S80/L5500	1	8.9



Technical data

Bevel gearbox g860-B

Selection tables

Inverter power supply 400 V, self-ventilated motors

2 kW

Inverter operation							Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \text{th}}$	J	i	g860-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
17.0	990	4.1	140	314	12.611	4	B140	S120/S3960	1	16
18.0	990	1.3	45.0	375	7.572	4	B45	S120/S3960	1	9.5
18.0	990	1.9	70.0	403	7.917	4	B70	S120/S3960	1	12
22.0	792	1.1	42.0	325	7.341	5	B45	S120/S3960	1	9.5
22.0	792	3.3	140	252	12.017	5	B140	S120/S3960	1	16
23.0	792	1.5	70.0	336	7.740	5	B70	S120/S3960	1	12
30.0	566	2.6	91.0	203	11.528	7	B140	S120/S3960	1	16
31.0	566	1.2	51.0	283	7.596	7	B70	S120/S3960	1	12
34.0	495	2.2	90.0	174	11.438	8	B140	S120/S3960	1	16
41.0	396	1.8	75.0	144	11.305	10	B140	S120/S3960	1	16

2.9 kW

Inverter operation							Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \text{th}}$	J	i	g860-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
32.0	810	1.1	70.0	360	18.395	4	B70	S140/S3240	1	33
32.0	810	2.5	140	286	21.811	4	B140	S140/S3240	1	37
40.0	648	2.0	140	230	21.217	5	B140	S140/S3240	1	37
53.0	463	1.6	91.0	194	20.728	7	B140	S140/S3240	1	37
61.0	405	1.3	90.0	167	20.638	8	B140	S140/S3240	1	37
73.0	324	1.0	75.0	135	20.505	10	B140	S140/S3240	1	37

3.1 kW

Inverter operation							Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \text{th}}$	J	i	g860-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
28.0	990	1.2	70.0	367	13.817	4	B70	S120/M3960	1	14
28.0	990	2.7	140	290	18.511	4	B140	S120/M3960	1	18
34.0	792	2.2	140	233	17.917	5	B140	S120/M3960	1	18
46.0	566	1.7	91.0	195	17.428	7	B140	S120/M3960	1	18
53.0	495	1.4	90.0	168	17.338	8	B140	S120/M3960	1	18
64.0	396	1.2	75.0	137	17.205	10	B140	S120/M3960	1	18

3.7 kW

Inverter operation							Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \text{th}}$	J	i	g860-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
34.0	990	2.2	140	280	24.311	4	B140	S120/L3960	1	21
42.0	792	1.8	140	225	23.717	5	B140	S120/L3960	1	21
56.0	566	1.4	91.0	192	23.228	7	B140	S120/L3960	1	21
64.0	495	1.2	90.0	165	23.138	8	B140	S120/L3960	1	21

Technical data

Bevel gearbox g860-B

Selection tables

Inverter power supply 400 V, self-ventilated motors



4.8 kW

Inverter operation							Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \text{th}}$	J	i	g860-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
51.0	810	3.3	320	252	49.005	4	B320	S140/M3240	1	58
53.0	810	1.5	140	259	36.211	4	B140	S140/M3240	1	42
65.0	648	1.2	140	208	35.617	5	B140	S140/M3240	1	42
65.0	648	2.6	280	196	46.352	5	B320	S140/M3240	1	58
88.0	463	2.1	189	167	44.125	7	B320	S140/M3240	1	58
103	405	1.7	180	146	43.668	8	B320	S140/M3240	1	58
129	324	1.2	160	123	43.034	10	B320	S140/M3240	1	58

5 kW

Inverter operation							Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \text{th}}$	J	i	g860-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
59.0	750	2.9	320	246	79.705	4	B320	S190/S3000	1	70
60.0	750	1.3	140	253	68.109	4	B140	S190/S3000	1	54
74.0	600	1.1	140	203	67.515	5	B140	S190/S3000	1	54
75.0	600	2.3	280	192	77.052	5	B320	S190/S3000	1	70
101	429	1.9	189	166	74.825	7	B320	S190/S3000	1	70
118	375	1.5	180	144	74.368	8	B320	S190/S3000	1	70
147	300	1.1	160	121	73.734	10	B320	S190/S3000	1	70

5.9 kW

Inverter operation							Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \text{th}}$	J	i	g860-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
65.0	810	1.2	140	247	50.711	4	B140	S140/L3240	1	47
65.0	810	2.6	320	240	63.505	4	B320	S140/L3240	1	63
82.0	648	2.1	280	188	60.852	5	B320	S140/L3240	1	63
110	463	1.7	189	164	58.625	7	B320	S140/L3240	1	63
128	405	1.4	180	142	58.168	8	B320	S140/L3240	1	63

7.5 kW

Inverter operation							Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \text{th}}$	J	i	g860-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
91.0	750	2.0	320	224	135.905	4	B320	S190/M3000	1	79
113	600	1.6	280	177	133.252	5	B320	S190/M3000	1	79
151	429	1.3	189	160	131.025	7	B320	S190/M3000	1	79
177	375	1.0	180	138	130.568	8	B320	S190/M3000	1	79

9.2 kW

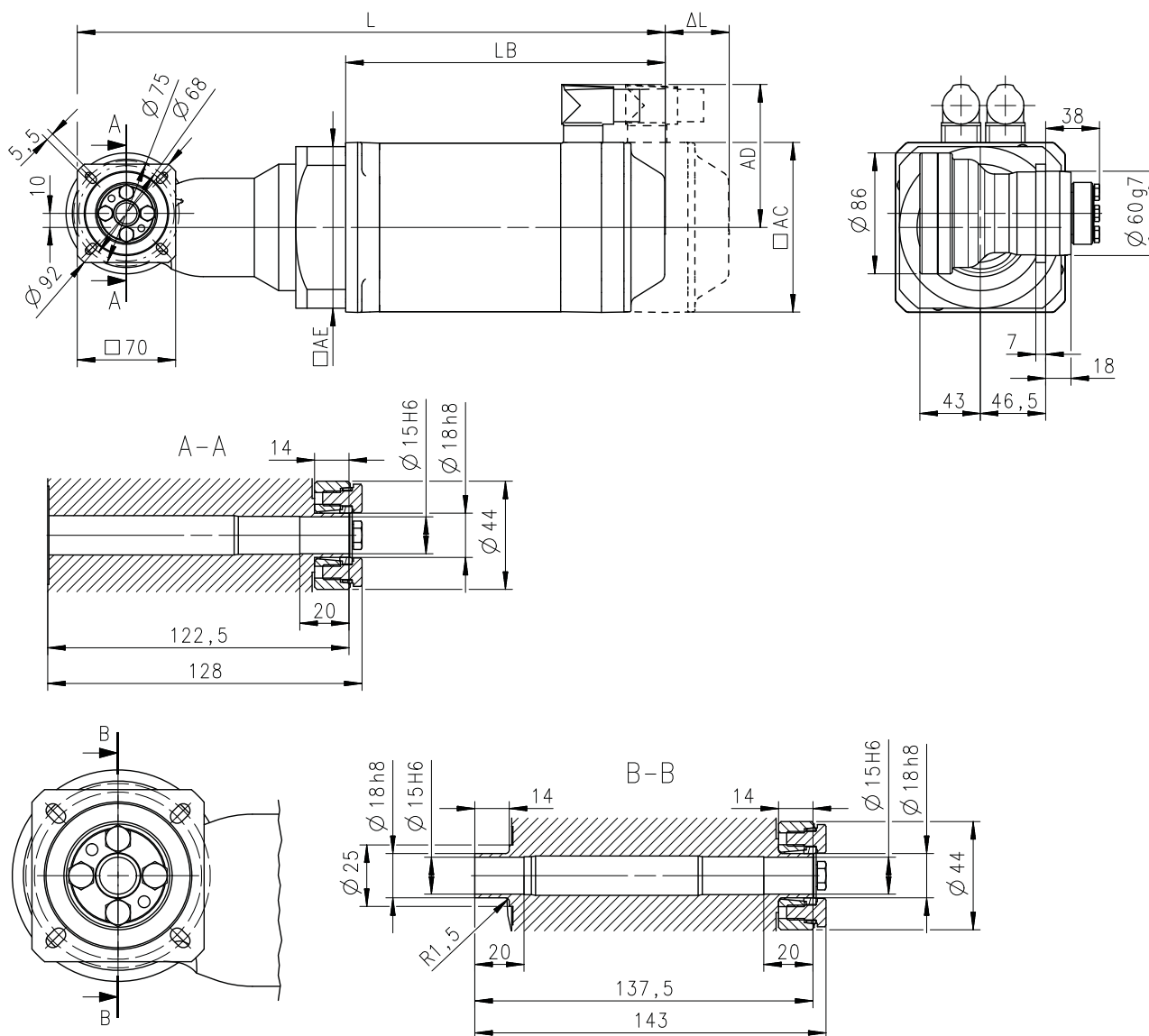
Inverter operation							Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \text{th}}$	J	i	g860-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
133	630	1.4	320	206	211.905	4	B320	S190/L2520	1	91
165	504	1.1	280	164	209.252	5	B320	S190/L2520	1	91



Basic dimensions

g860-B45 with m850

Gearbox design: Hollow shaft, without foot with centering, 1-stage



8801066-00

Motor			m850-				
			S60/L6000	S80/L5500	S80/S5500	S120/L3960	S120/S3960
Total length	L	mm	227.5	282	240	464	388
Motor length	LB	mm	152	178	158	265	189
Motor diameter	AC	mm	60	80	80	121	121
Motor/connection distance	AD	mm	73.4	83.4	83.4	102	102
Gearbox diameter	AE	mm	70	90	90	115	115

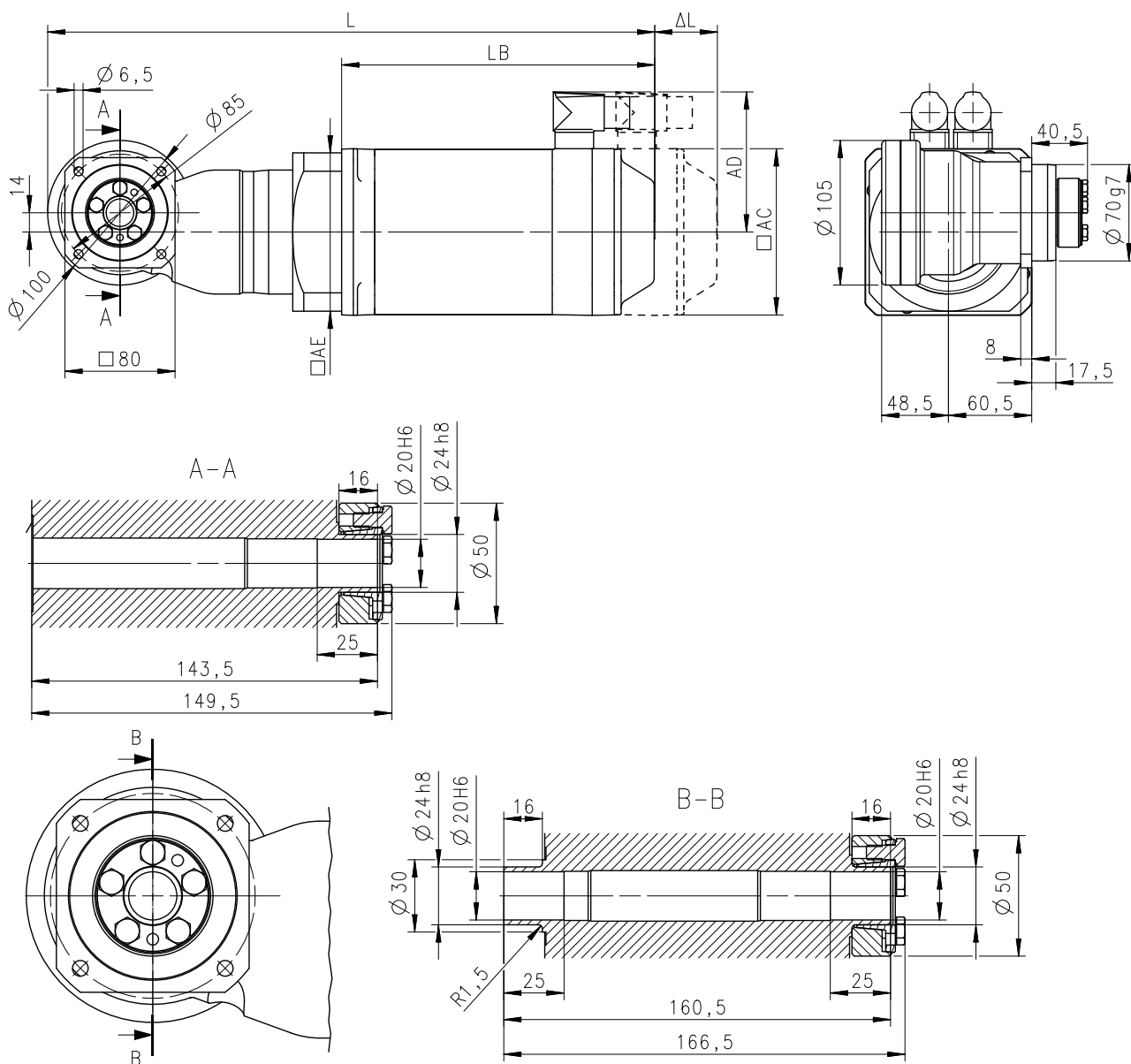
Technical data

Bevel gearbox g860-B
Basic dimensions



g860-B70 with m850

Gearbox design: Hollow shaft, without foot with centering, 1-stage



8801067-00

Motor			m850-							
			S80/L5500	S80/S5500	S120/L3960	S120/M3960	S120/S3960	S140/L3240	S140/M3240	S140/S3240
Total length	L	mm	296	254	478.5	440.5	402.5	485	445	405
Motor length	LB	mm	178	158	265	227	189	262	222	182
Motor diameter	AC	mm	80	80	121	121	121	142	142	142
Motor/connection distance	AD	mm	83.4	83.4	102	102	102	135	114	114
Gearbox diameter	AE	mm	90	90	115	115	115	142	142	142

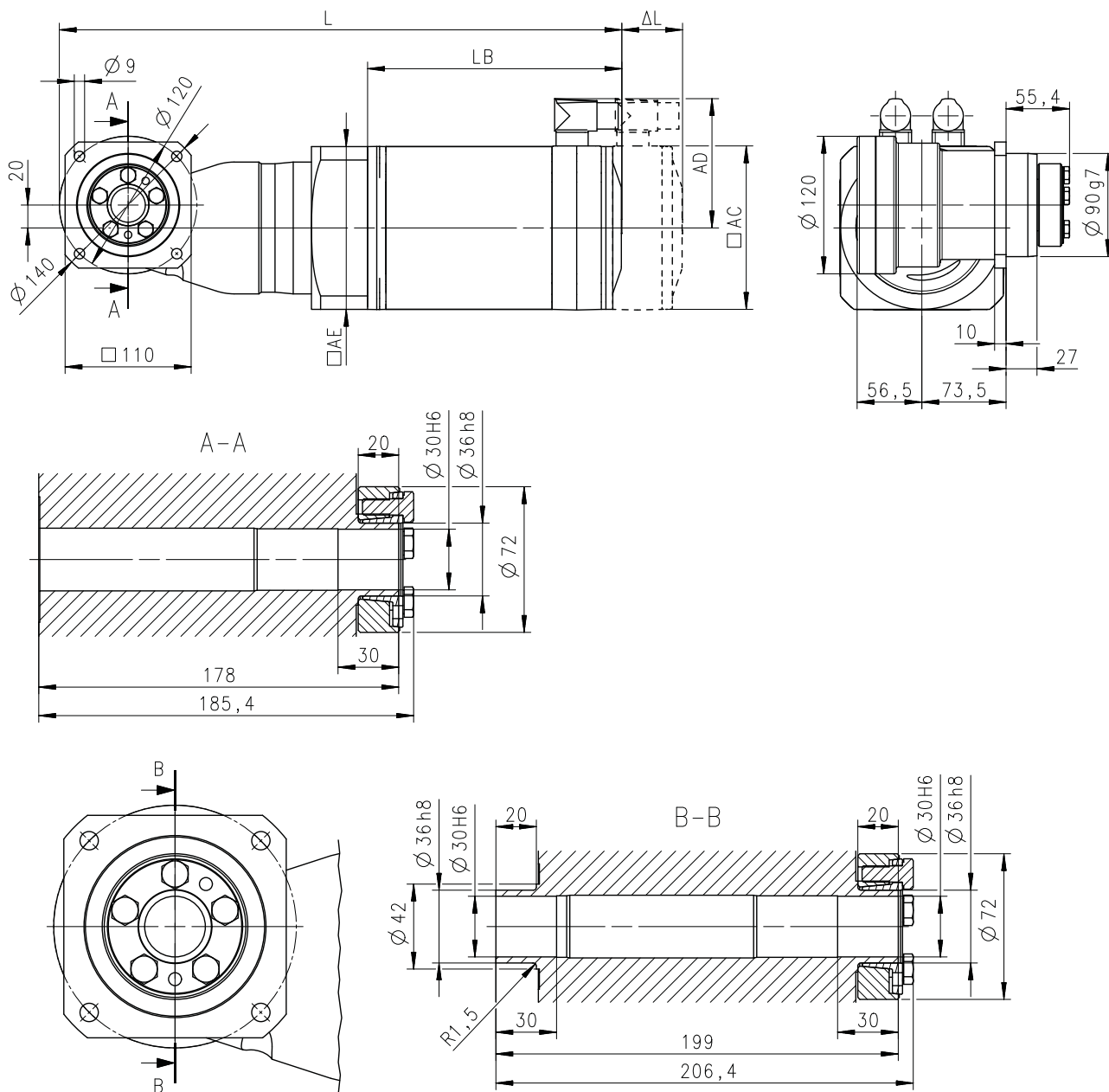


Technical data

Bevel gearbox g860-B
Basic dimensions

g860-B140 with m850

Gearbox design: Hollow shaft, without foot with centering, 1-stage



8801068-00

Motor			m850-								
			S120/ L3960	S120/ M3960	S120/ S3960	S140/ L3240	S140/ M3240	S140/ S3240	S190/ L2520	S190/ M3000	S190/ S3000
Total length	L	mm	512.5	474.5	436.5	519.5	479.5	439.5	593.5	529.5	481.5
Gearbox length	L1	mm	178	178	178	178	178	178	178	178	178
Motor length	LB	mm	265	227	189	262	222	182	316	252	204
Motor diameter	AC	mm	121	121	121	142	142	142	190	190	190
Motor/connection distance	AD	mm	102	102	102	135	114	114	158	158	137
Gearbox diameter	AE	mm	120	120	120	142	142	142	190	190	190

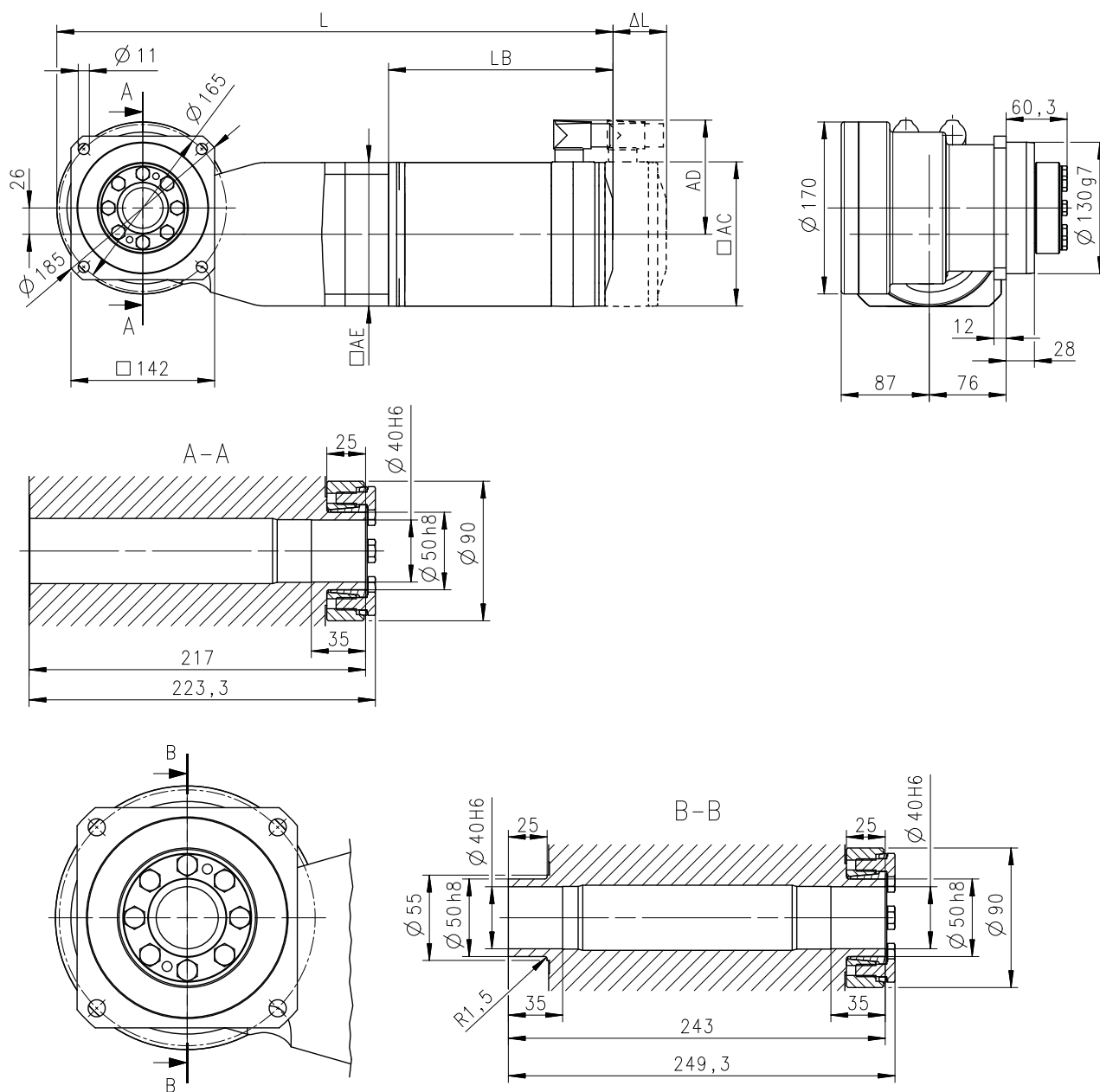
Technical data

Bevel gearbox g860-B
Basic dimensions



g860-B320 with m850

Gearbox design: Hollow shaft, without foot with centering, 1-stage



8801069-00

Motor			m850-				
			S140/L3240	S140/M3240	S190/L2520	S190/M3000	S190/S3000
Total length	L	mm	580	540	644	580	532
Gearbox length	L1	mm	217	217	217	217	217
Motor length	LB	mm	262	222	316	252	204
Motor diameter	AC	mm	142	142	190	190	190
Motor/connection distance	AD	mm	135	114	158	158	137
Gearbox diameter	AE	mm	142	142	190	190	190



Bevel gearbox g880-B

The modular system

g880-B bevel planetary gearbox with m850 synchronous servo motor

Gearbox		g880-B62	g880-B130	g880-B310	g880-B625
Min. motor assignment		m850-S60L	m850-S60L	m850-S80S	m850-S120S
Max. motor assignment		m850-S120S	m850-S120L	m850-S190S	m850-S190L
Technical data					
Max. output torque	Nm	62	130	310	625
Mounting position		Any			
Color		Unpainted 40/60/80 Primed 120/140/190 RAL9005 120/140/190			
Surface and corrosion protection		Without 40/60/80 OKS-G 120/140/190			
Output shaft					
Flange output shaft	mm	20 x 4.5	31.5 x 6.5 x 36	40 x 6.5	50 x 6.5
Flange output shaft with dowel hole	mm	20 x 4.5	31.5 x 6.5	40 x 6.5	50 x 6.5
Shaft material		Steel			
Shaft sealing ring material		NBR			
Gearbox design		Without foot with centering			
Gearbox stages		1/2	1/2	1/2	1/2
Output flange	mm	70	90	110	140
Lubricant		Standard Food grade			
Cooling		Self-ventilated			
Motor connection		Connector			
Holding brake		Without With			
Feedback					
Without functional safety		Digital absolute value encoder for One Cable Technology (OCT) Resolver (except 40) Absolute value encoder (except 40)			
With functional safety		Digital absolute value encoder for One Cable Technology (OCT) Resolver (except 40) Absolute value encoder (except 40)			
Temperature monitoring		PT1000 thermal sensor 40/60/80 PT1000 thermal sensor and 2x PTC thermistor 120/140/190			



Gearbox data

g880-B62, 1-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	
4	45.0	5	-
5	42.0	5	-
7	28.0	5	-
8	27.0	5	-
10	22.0	5	-

g880-B62, 2-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/'
16	62.0	5	7
20	62.0	5	7
25	60.0	5	7
28	62.0	5	6
32	62.0	5	6
35	60.0	5	6
40	60.0	5	6
50	60.0	5	6

g880-B130, 1-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	
4	90.0	5	-
5	75.0	5	-
7	51.0	5	-
8	50.0	5	-
10	40.0	5	-

g880-B130, 2-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/'
16	130	5	21
20	130	5	21
25	120	5	19
28	112	5	18
32	108	5	18
35	123	5	17
40	123	5	17
50	110	5	17
70	78.0	5	16
100	59.0	5	15



g880-B310, 1-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	
4	160	5	-
5	140	5	-
7	91.0	5	-
8	90.0	5	-
10	75.0	5	-

g880-B310, 2-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/'
16	310	5	44
20	300	5	44
25	255	5	42
28	204	5	40
32	200	5	39
35	255	5	38
40	250	5	38
50	200	5	37
70	175	5	36
100	140	5	34

g880-B625, 1-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	
4	320	5	-
5	280	5	-
7	189	5	-
8	180	5	-
10	160	5	-

g880-B625, 2-stage gearboxes

Ratio	Max. output torque	Max. backlash	Torsional stiffness
		Standard	
i	$M_{2, \max}$		
	Nm	'	Nm/'
16	625	5	111
20	560	5	111
25	540	5	106
28	364	5	102
32	360	5	98
35	455	5	96
40	450	5	94
50	375	5	93
70	355	5	90

Technical data

Bevel gearbox g880-B
Radial forces and axial forces



Radial forces and axial forces

Gearbox			g880-B62	g880-B62	g880-B130	g880-B130	g880-B310	g880-B310	g880-B625	g880-B625
Number of stages	z		1	2	1	2	1	2	1	2
Bearing service life 20000 h										
Speed		rpm	100	100	100	100	100	100	100	100
Radial force	F_{rad}	N	2400	2150	4400	3950	5500	4900	12000	12000
Axial force	F_{ax}	N	4200	4300	7200	8200	9500	9500	8500	8500
Bearing service life 30000 h										
Speed		rpm	100	100	100	100	100	100	100	100
Radial force	F_{rad}	N	2100	1900	3900	3500	4800	4350	11000	11000
Axial force	F_{ax}	N	3700	3800	6300	7200	8400	8400	7500	7500
Max. radial force	$F_{rad, max}$	N	2400	2150	4400	3950	5500	4900	12000	12000
Max. axial force	$F_{ax, max}$	N	4200	4300	7200	8200	9500	9500	8500	8500



Technical data

Bevel gearbox g880-B

Selection tables

Inverter power supply 400 V, self-ventilated motors

Selection tables

Inverter power supply 400 V, self-ventilated motors

0.55 kW

Inverter operation								Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \max}$	$n_{2, th}$	J	i	g880-	m850-	z	m
Nm	rpm		Nm	rpm	rpm	kgcm ²					kg
6.2	750	3.8	27.0	1250	323	0.934	8	B62	S60/L6000	1	5.3
7.3	600	2.2	22.0	1000	262	0.915	10	B62	S60/L6000	1	5.3
11.0	375	4.9	62.0	625	150	1.055	16	B62	S60/L6000	2	5.7
14.0	300	4.0	62.0	500	125	0.998	20	B62	S60/L6000	2	5.7
16.0	240	5.3	120	400	113	1.242	25	B130	S60/L6000	2	7.3
19.0	240	3.2	60.0	400	102	0.997	25	B62	S60/L6000	2	5.7
19.0	214	4.4	112	357	99.0	1.183	28	B130	S60/L6000	2	7.3
21.0	214	3.0	62.0	357	91.0	0.940	28	B62	S60/L6000	2	5.7
23.0	188	2.7	62.0	313	80.0	0.927	32	B62	S60/L6000	2	5.7
23.0	188	3.8	108	313	88.0	1.168	32	B130	S60/L6000	2	7.3
24.0	171	4.4	123	286	85.0	1.180	35	B130	S60/L6000	2	7.3
26.0	171	2.3	60.0	286	77.0	0.939	35	B62	S60/L6000	2	5.7
28.0	150	2.1	60.0	250	68.0	0.926	40	B62	S60/L6000	2	5.7
29.0	150	3.8	123	250	71.0	1.166	40	B130	S60/L6000	2	7.3
34.0	120	1.8	60.0	200	54.0	0.910	50	B62	S60/L6000	2	5.7
36.0	120	2.3	110	200	57.0	1.150	50	B130	S60/L6000	2	7.3
44.0	85.7	1.8	78.0	143	43.0	1.148	70	B130	S60/L6000	2	7.3
54.0	60.0	1.1	59.0	100	30.0	1.148	100	B130	S60/L6000	2	7.3

Technical data

Bevel gearbox g880-B

Selection tables

Inverter power supply 400 V, self-ventilated motors



1 kW

Inverter operation								Geared motor		Number of stages	Mass
M ₂	n ₂	c	M _{2, max}	n _{2, max}	n _{2, th}	J	i	g880-	m850-	z	m
Nm	rpm		Nm	rpm	rpm	kgcm ²					kg
6.2	1375	3.4	45.0	2500	491	2.309	4	B62	S80/S5500	1	6.5
7.5	1100	3.9	75.0	2000	406	2.751	5	B130	S80/S5500	1	9.3
7.8	1100	2.8	42.0	2000	414	2.242	5	B62	S80/S5500	1	6.5
10.0	786	2.4	28.0	1429	348	2.174	7	B62	S80/S5500	1	6.5
11.0	786	3.1	51.0	1429	340	2.553	7	B130	S80/S5500	1	9.3
12.0	688	2.1	27.0	1250	304	2.159	8	B62	S80/S5500	1	6.5
12.0	688	2.6	50.0	1250	298	2.503	8	B130	S80/S5500	1	9.3
14.0	550	1.2	22.0	1000	253	2.140	10	B62	S80/S5500	1	6.5
14.0	550	2.2	40.0	1000	252	2.446	10	B130	S80/S5500	1	9.3
23.0	344	3.5	130	625	137	2.296	16	B130	S80/S5500	2	8.5
24.0	344	2.6	62.0	625	140	2.280	16	B62	S80/S5500	2	6.9
27.0	275	4.0	300	500	108	3.940	20	B310	S80/S5500	2	12
30.0	275	2.1	62.0	500	118	2.223	20	B62	S80/S5500	2	6.9
30.0	275	2.9	130	500	116	2.234	20	B130	S80/S5500	2	8.5
34.0	220	4.0	255	400	99.0	3.924	25	B310	S80/S5500	2	12
36.0	220	1.7	60.0	400	97.0	2.222	25	B62	S80/S5500	2	6.9
37.0	220	2.9	120	400	105	2.229	25	B130	S80/S5500	2	8.5
40.0	196	1.6	62.0	357	87.0	2.164	28	B62	S80/S5500	2	6.9
41.0	196	2.4	112	357	93.0	2.170	28	B130	S80/S5500	2	8.5
41.0	196	3.1	204	357	87.0	3.786	28	B310	S80/S5500	2	12
44.0	172	1.4	62.0	313	77.0	2.151	32	B62	S80/S5500	2	6.9
46.0	172	2.1	108	313	83.0	2.155	32	B130	S80/S5500	2	8.5
48.0	172	2.6	200	313	77.0	3.746	32	B310	S80/S5500	2	12
49.0	157	1.2	60.0	286	74.0	2.164	35	B62	S80/S5500	2	6.9
52.0	157	2.4	123	286	79.0	2.167	35	B130	S80/S5500	2	8.5
52.0	157	3.1	255	286	72.0	3.778	35	B310	S80/S5500	2	12
54.0	138	1.1	60.0	250	66.0	2.151	40	B62	S80/S5500	2	6.9
58.0	138	2.1	123	250	67.0	2.153	40	B130	S80/S5500	2	8.5
60.0	138	2.6	250	250	62.0	3.740	40	B310	S80/S5500	2	12
68.0	110	1.2	110	200	54.0	2.137	50	B130	S80/S5500	2	8.5
71.0	110	2.2	200	200	52.0	3.698	50	B310	S80/S5500	2	12
94.0	78.6	1.9	175	143	39.0	3.694	70	B310	S80/S5500	2	12
119	55.0	1.2	140	100	28.0	3.693	100	B310	S80/S5500	2	12



Technical data

Bevel gearbox g880-B

Selection tables

Inverter power supply 400 V, self-ventilated motors

1.2 kW

Inverter operation								Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \max}$	$n_{2, th}$	J	i	g880-	m850-	z	m
Nm	rpm		Nm	rpm	rpm	kgcm ²					kg
7.4	1375	3.9	90.0	2500	454	3.521	4	B130	S80/L5500	1	10.0
7.8	1375	2.7	45.0	2500	473	2.839	4	B62	S80/L5500	1	7.2
9.6	1100	3.2	75.0	2000	395	3.281	5	B130	S80/L5500	1	10.0
9.7	1100	2.3	42.0	2000	401	2.772	5	B62	S80/L5500	1	7.2
13.0	786	1.9	28.0	1429	342	2.704	7	B62	S80/L5500	1	7.2
13.0	786	2.5	51.0	1429	332	3.083	7	B130	S80/L5500	1	10.0
14.0	688	1.7	27.0	1250	297	2.689	8	B62	S80/L5500	1	7.2
15.0	688	2.1	50.0	1250	292	3.033	8	B130	S80/L5500	1	10.0
17.0	550	1.8	40.0	1000	249	2.976	10	B130	S80/L5500	1	10.0
27.0	344	4.0	310	625	120	4.660	16	B310	S80/L5500	2	12
30.0	344	2.1	62.0	625	136	2.810	16	B62	S80/L5500	2	7.6
30.0	344	2.8	130	625	132	2.826	16	B130	S80/L5500	2	9.2
36.0	275	3.2	300	500	104	4.470	20	B310	S80/L5500	2	12
37.0	275	1.7	62.0	500	116	2.753	20	B62	S80/L5500	2	7.6
38.0	275	2.3	130	500	113	2.764	20	B130	S80/L5500	2	9.2
44.0	220	1.4	60.0	400	95.0	2.752	25	B62	S80/L5500	2	7.6
45.0	220	3.2	255	400	96.0	4.454	25	B310	S80/L5500	2	12
47.0	220	2.3	120	400	103	2.759	25	B130	S80/L5500	2	9.2
49.0	196	1.3	62.0	357	86.0	2.694	28	B62	S80/L5500	2	7.6
51.0	196	1.9	112	357	92.0	2.700	28	B130	S80/L5500	2	9.2
52.0	196	2.5	204	357	85.0	4.316	28	B310	S80/L5500	2	12
54.0	172	1.1	62.0	313	76.0	2.681	32	B62	S80/L5500	2	7.6
57.0	172	1.7	108	313	81.0	2.685	32	B130	S80/L5500	2	9.2
59.0	172	2.1	200	313	75.0	4.276	32	B310	S80/L5500	2	12
64.0	157	1.9	123	286	79.0	2.697	35	B130	S80/L5500	2	9.2
65.0	157	2.5	255	286	70.0	4.308	35	B310	S80/L5500	2	12
71.0	138	1.7	123	250	66.0	2.683	40	B130	S80/L5500	2	9.2
74.0	138	2.1	250	250	61.0	4.270	40	B310	S80/L5500	2	12
88.0	110	1.8	200	200	51.0	4.228	50	B310	S80/L5500	2	12
116	78.6	1.5	175	143	39.0	4.224	70	B310	S80/L5500	2	12

Technical data

Bevel gearbox g880-B

Selection tables

Inverter power supply 400 V, self-ventilated motors



2 kW

Inverter operation							Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, th}$	J	i	g880-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
18.0	990	1.3	45.0	411	7.409	4	B62	S120/S3960	1	9.8
18.0	990	1.9	90.0	392	8.091	4	B130	S120/S3960	1	13
22.0	792	1.1	42.0	356	7.342	5	B62	S120/S3960	1	9.8
22.0	792	1.5	75.0	354	7.851	5	B130	S120/S3960	1	13
22.0	792	3.3	140	252	12.225	5	B310	S120/S3960	1	17
30.0	566	1.2	51.0	283	7.653	7	B130	S120/S3960	1	13
30.0	566	2.7	91.0	207	11.634	7	B310	S120/S3960	1	17
33.0	495	2.2	90.0	178	11.519	8	B310	S120/S3960	1	17
34.0	495	1.0	50.0	248	7.603	8	B130	S120/S3960	1	13
40.0	396	1.9	75.0	146	11.357	10	B310	S120/S3960	1	17
70.0	248	1.4	130	118	7.396	16	B130	S120/S3960	2	12
71.0	248	1.9	310	103	7.952	16	B310	S120/S3960	2	15
86.0	198	1.1	130	99.0	7.334	20	B130	S120/S3960	2	12
88.0	198	1.6	300	89.0	7.762	20	B310	S120/S3960	2	15
107	158	1.1	120	79.0	7.329	25	B130	S120/S3960	2	12
109	158	1.6	255	79.0	7.746	25	B310	S120/S3960	2	15
117	141	2.7	364	59.0	11.605	28	B625	S120/S3960	2	24
120	141	1.2	204	71.0	7.608	28	B310	S120/S3960	2	15
131	124	2.3	360	51.0	11.497	32	B625	S120/S3960	2	24
135	124	1.0	200	62.0	7.568	32	B310	S120/S3960	2	15
146	113	2.7	455	48.0	11.577	35	B625	S120/S3960	2	24
150	113	1.2	255	57.0	7.600	35	B310	S120/S3960	2	15
163	99.0	2.3	450	41.0	11.476	40	B625	S120/S3960	2	24
169	99.0	1.0	250	50.0	7.562	40	B310	S120/S3960	2	15
192	79.2	1.9	375	34.0	11.329	50	B625	S120/S3960	2	24
252	56.6	1.4	355	27.0	11.317	70	B625	S120/S3960	2	24

2.9 kW

Inverter operation							Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, th}$	J	i	g880-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
32.0	810	1.1	90.0	348	18.569	4	B130	S140/S3240	1	34
32.0	810	2.5	160	268	22.135	4	B310	S140/S3240	1	38
40.0	648	2.0	140	230	21.425	5	B310	S140/S3240	1	38
52.0	463	1.6	91.0	196	20.834	7	B310	S140/S3240	1	38
59.0	405	1.3	90.0	168	20.719	8	B310	S140/S3240	1	38
71.0	324	1.1	75.0	141	20.557	10	B310	S140/S3240	1	38
123	203	2.5	625	87.0	22.149	16	B625	S140/S3240	2	45
126	203	1.2	310	91.0	18.430	16	B310	S140/S3240	2	36
156	162	2.0	560	65.0	21.960	20	B625	S140/S3240	2	45
191	130	2.1	540	55.0	21.313	25	B625	S140/S3240	2	45
207	116	1.6	364	56.0	20.805	28	B625	S140/S3240	2	45
231	101	1.4	360	48.0	20.697	32	B625	S140/S3240	2	45
259	92.6	1.6	455	46.0	20.777	35	B625	S140/S3240	2	45
289	81.0	1.4	450	39.0	20.676	40	B625	S140/S3240	2	45
340	64.8	1.1	375	32.0	20.529	50	B625	S140/S3240	2	45



Technical data

Bevel gearbox g880-B

Selection tables

Inverter power supply 400 V, self-ventilated motors

3.1 kW

Inverter operation							Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \text{th}}$	J	i	g880-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
28.0	990	1.2	90.0	355	13.991	4	B130	S120/M3960	1	15
28.0	990	2.7	160	273	18.835	4	B310	S120/M3960	1	20
34.0	792	2.2	140	233	18.125	5	B310	S120/M3960	1	20
46.0	566	1.7	91.0	198	17.534	7	B310	S120/M3960	1	20
52.0	495	1.4	90.0	169	17.419	8	B310	S120/M3960	1	20
61.0	396	1.2	75.0	142	17.257	10	B310	S120/M3960	1	20
106	248	2.7	625	88.0	18.849	16	B625	S120/M3960	2	27
110	248	1.2	310	93.0	13.852	16	B310	S120/M3960	2	18
136	198	1.0	300	80.0	13.662	20	B310	S120/M3960	2	18
136	198	2.2	560	66.0	18.660	20	B625	S120/M3960	2	27
167	158	2.2	540	56.0	18.013	25	B625	S120/M3960	2	27
168	158	1.0	255	79.0	13.646	25	B310	S120/M3960	2	18
180	141	1.7	364	57.0	17.505	28	B625	S120/M3960	2	27
201	124	1.5	360	49.0	17.397	32	B625	S120/M3960	2	27
225	113	1.7	455	46.0	17.477	35	B625	S120/M3960	2	27
252	99.0	1.5	450	39.0	17.376	40	B625	S120/M3960	2	27
296	79.2	1.3	375	33.0	17.229	50	B625	S120/M3960	2	27

3.7 kW

Inverter operation							Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \text{th}}$	J	i	g880-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
34.0	990	1.0	90.0	338	19.791	4	B130	S120/L3960	1	18
34.0	990	2.2	160	261	24.635	4	B310	S120/L3960	1	23
42.0	792	1.8	140	225	23.925	5	B310	S120/L3960	1	23
55.0	566	1.4	91.0	193	23.334	7	B310	S120/L3960	1	23
63.0	495	1.2	90.0	166	23.219	8	B310	S120/L3960	1	23
133	248	2.2	625	86.0	24.649	16	B625	S120/L3960	2	30
134	248	1.0	310	88.0	19.652	16	B310	S120/L3960	2	20
166	198	1.8	560	64.0	24.460	20	B625	S120/L3960	2	30
203	158	1.8	540	54.0	23.813	25	B625	S120/L3960	2	30
219	141	1.4	364	56.0	23.305	28	B625	S120/L3960	2	30
245	124	1.2	360	48.0	23.197	32	B625	S120/L3960	2	30
274	113	1.4	455	46.0	23.277	35	B625	S120/L3960	2	30
306	99.0	1.2	450	38.0	23.176	40	B625	S120/L3960	2	30
360	79.2	1.0	375	33.0	23.029	50	B625	S120/L3960	2	30

Technical data

Bevel gearbox g880-B

Selection tables

Inverter power supply 400 V, self-ventilated motors



4.8 kW

Inverter operation							Geared motor		Number of stages	Mass
M ₂	n ₂	c	M _{2, max}	n _{2, th}	J	i	g880-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
51.0	810	3.3	320	268	51.793	4	B625	S140/M3240	1	57
53.0	810	1.5	160	237	36.535	4	B310	S140/M3240	1	43
65.0	648	1.2	140	208	35.825	5	B310	S140/M3240	1	43
65.0	648	2.6	280	220	48.925	5	B625	S140/M3240	1	57
87.0	463	2.1	189	181	46.510	7	B625	S140/M3240	1	57
96.0	405	1.8	180	157	46.007	8	B625	S140/M3240	1	57
116	324	1.4	160	133	45.320	10	B625	S140/M3240	1	57
208	203	1.5	625	81.0	36.549	16	B625	S140/M3240	2	50
258	162	1.2	560	60.0	36.360	20	B625	S140/M3240	2	50
315	130	1.3	540	52.0	35.713	25	B625	S140/M3240	2	50

5 kW

Inverter operation							Geared motor		Number of stages	Mass
M ₂	n ₂	c	M _{2, max}	n _{2, th}	J	i	g880-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
59.0	750	3.0	320	263	82.493	4	B625	S190/S3000	1	69
60.0	750	1.3	160	230	68.910	4	B310	S190/S3000	1	56
74.0	600	1.1	140	203	68.200	5	B310	S190/S3000	1	56
74.0	600	2.4	280	217	79.625	5	B625	S190/S3000	1	69
100	429	1.9	189	180	77.210	7	B625	S190/S3000	1	69
110	375	1.6	180	156	76.707	8	B625	S190/S3000	1	69
133	300	1.2	160	132	76.020	10	B625	S190/S3000	1	69
238	188	1.4	625	79.0	68.952	16	B625	S190/S3000	2	63
294	150	1.1	560	58.0	68.764	20	B625	S190/S3000	2	63
360	120	1.1	540	51.0	68.117	25	B625	S190/S3000	2	63

5.9 kW

Inverter operation							Geared motor		Number of stages	Mass
M ₂	n ₂	c	M _{2, max}	n _{2, th}	J	i	g880-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
65.0	810	1.2	160	224	51.035	4	B310	S140/L3240	1	48
65.0	810	2.7	320	258	66.293	4	B625	S140/L3240	1	62
81.0	648	2.1	280	213	63.425	5	B625	S140/L3240	1	62
108	463	1.7	189	179	61.010	7	B625	S140/L3240	1	62
120	405	1.5	180	154	60.507	8	B625	S140/L3240	1	62
144	324	1.1	160	131	59.820	10	B625	S140/L3240	1	62
259	203	1.2	625	78.0	51.049	16	B625	S140/L3240	2	55
391	130	1.0	540	50.0	50.213	25	B625	S140/L3240	2	55

7.5 kW

Inverter operation							Geared motor		Number of stages	Mass
M ₂	n ₂	c	M _{2, max}	n _{2, th}	J	i	g880-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
90.0	750	2.0	320	244	138.693	4	B625	S190/M3000	1	78
112	600	1.6	280	204	135.825	5	B625	S190/M3000	1	78
150	429	1.3	189	175	133.410	7	B625	S190/M3000	1	78
165	375	1.1	180	151	132.907	8	B625	S190/M3000	1	78



Technical data

Bevel gearbox g880-B

Selection tables

Inverter power supply 400 V, self-ventilated motors

9.2 kW

Inverter operation							Geared motor		Number of stages	Mass
M_2	n_2	c	$M_{2, \max}$	$n_{2, \text{th}}$	J	i	g880-	m850-	z	m
Nm	rpm		Nm	rpm	kgcm ²					kg
132	630	1.4	320	229	214.693	4	B625	S190/L2520	1	90
163	504	1.1	280	194	211.825	5	B625	S190/L2520	1	90

Technical data

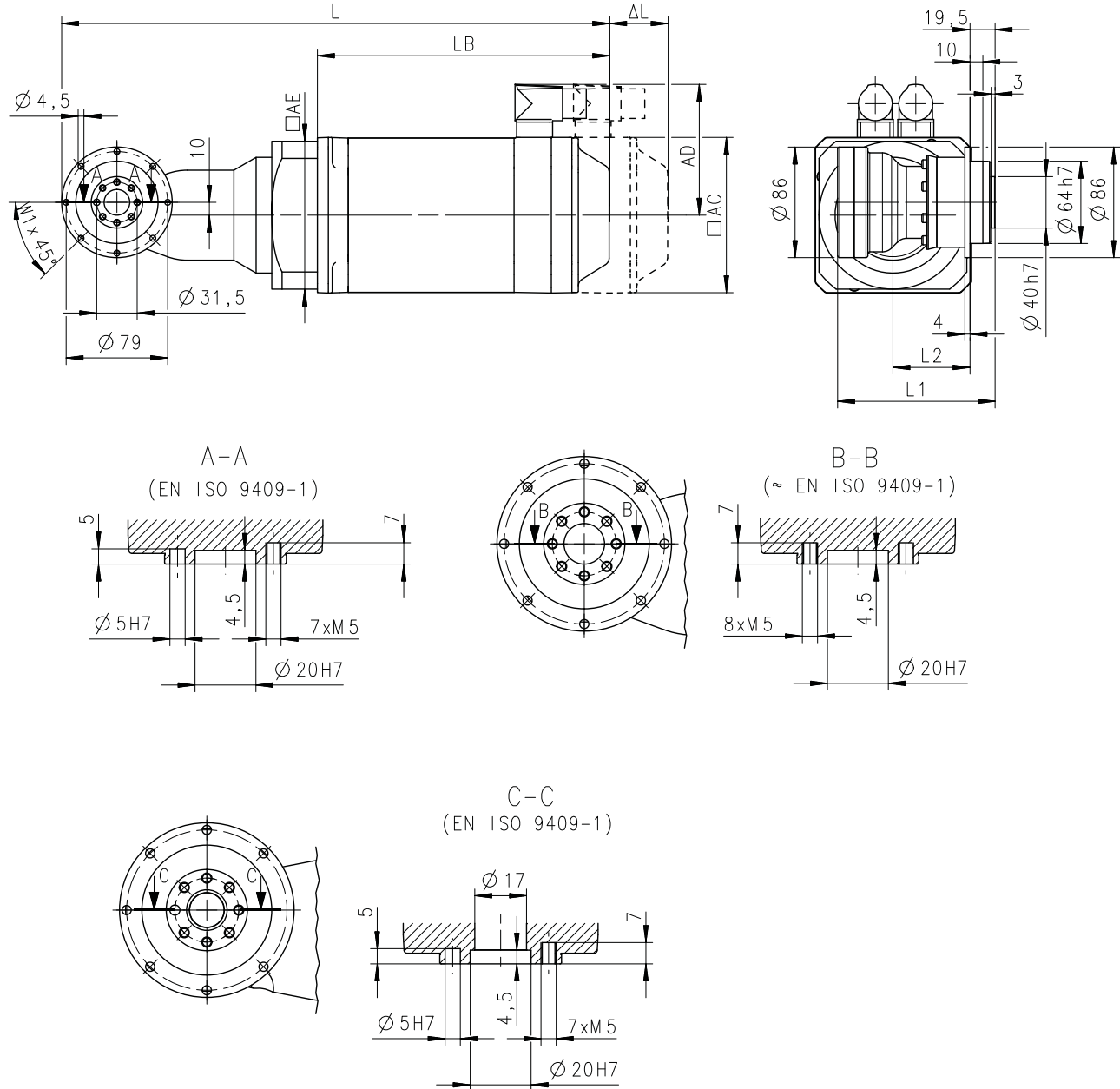
Bevel gearbox g880-B
Basic dimensions



Basic dimensions

g880-B62 with m850

Gearbox design: Flange output shaft, without foot with centering, 1-stage



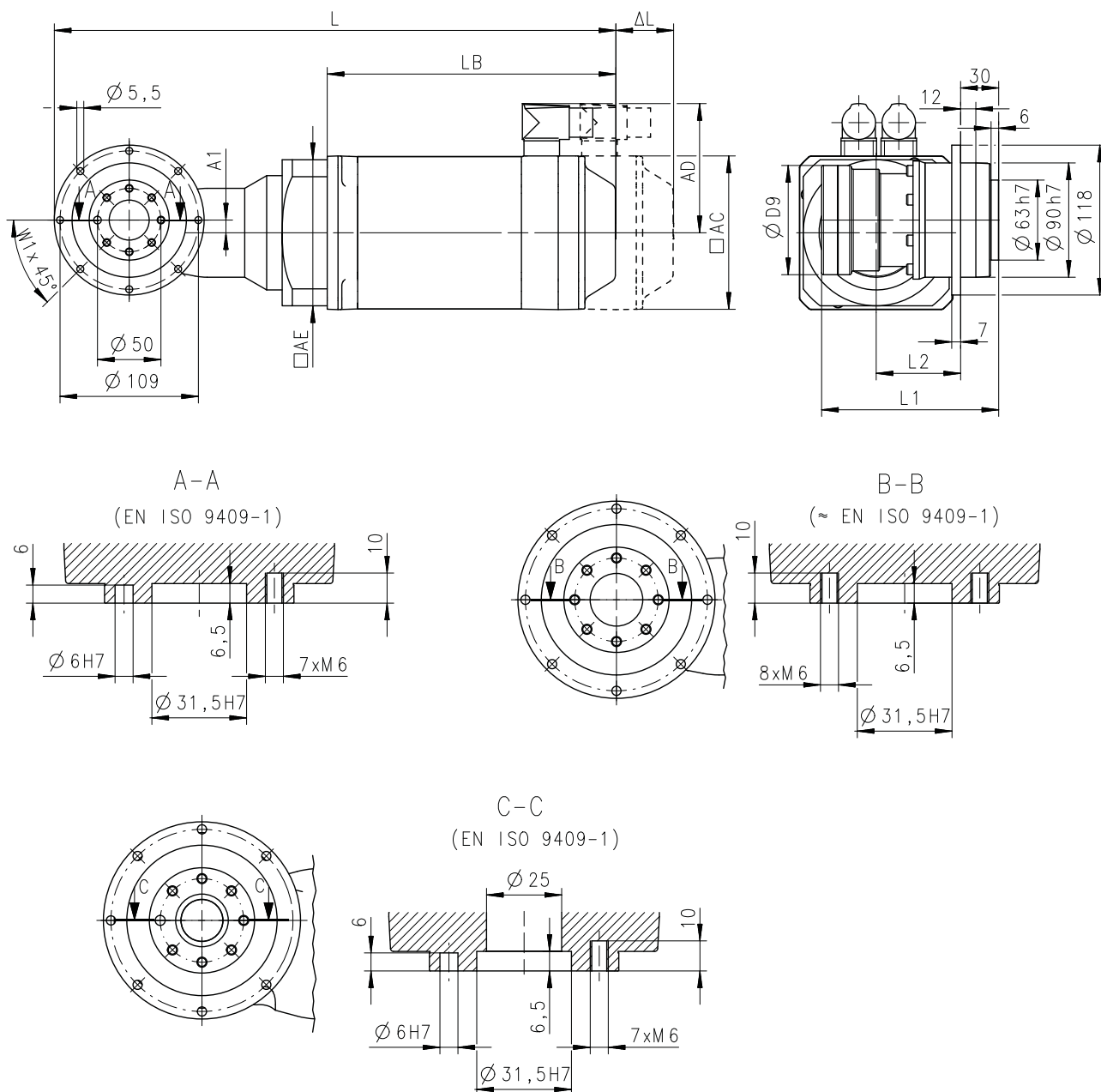
8801062-00

Motor			m850-				
			S60/L6000	S80/L5500	S80/S5500	S120/L3960	S120/S3960
Total length	L	mm	223	277.5	235.5	464	388
Motor length	LB	mm	152	178	158	265	189
Motor diameter	AC	mm	60	80	80	121	121
Motor/connection distance	AD	mm	73.4	83.4	83.4	102	102
Gearbox diameter	AE	mm	70	90	90	115	115



g880-B130 with m850

Gearbox design: Flange output shaft, without foot with centering, 1-stage



8801063-00

Motor			m850-							
			S80/L5500	S80/S5500	S120/L3960	S120/M3960	S120/S3960	S140/L3240	S140/M3240	S140/S3240
Total length	L	mm	289	247	485	447	409	491.5	451.5	411.5
Motor length	LB	mm	178	158	265	227	189	262	222	182
Motor diameter	AC	mm	80	80	121	121	121	142	142	142
Motor/connection distance	AD	mm	83.4	83.4	102	102	102	135	114	114
Gearbox diameter	AE	mm	90	90	115	115	115	142	142	142

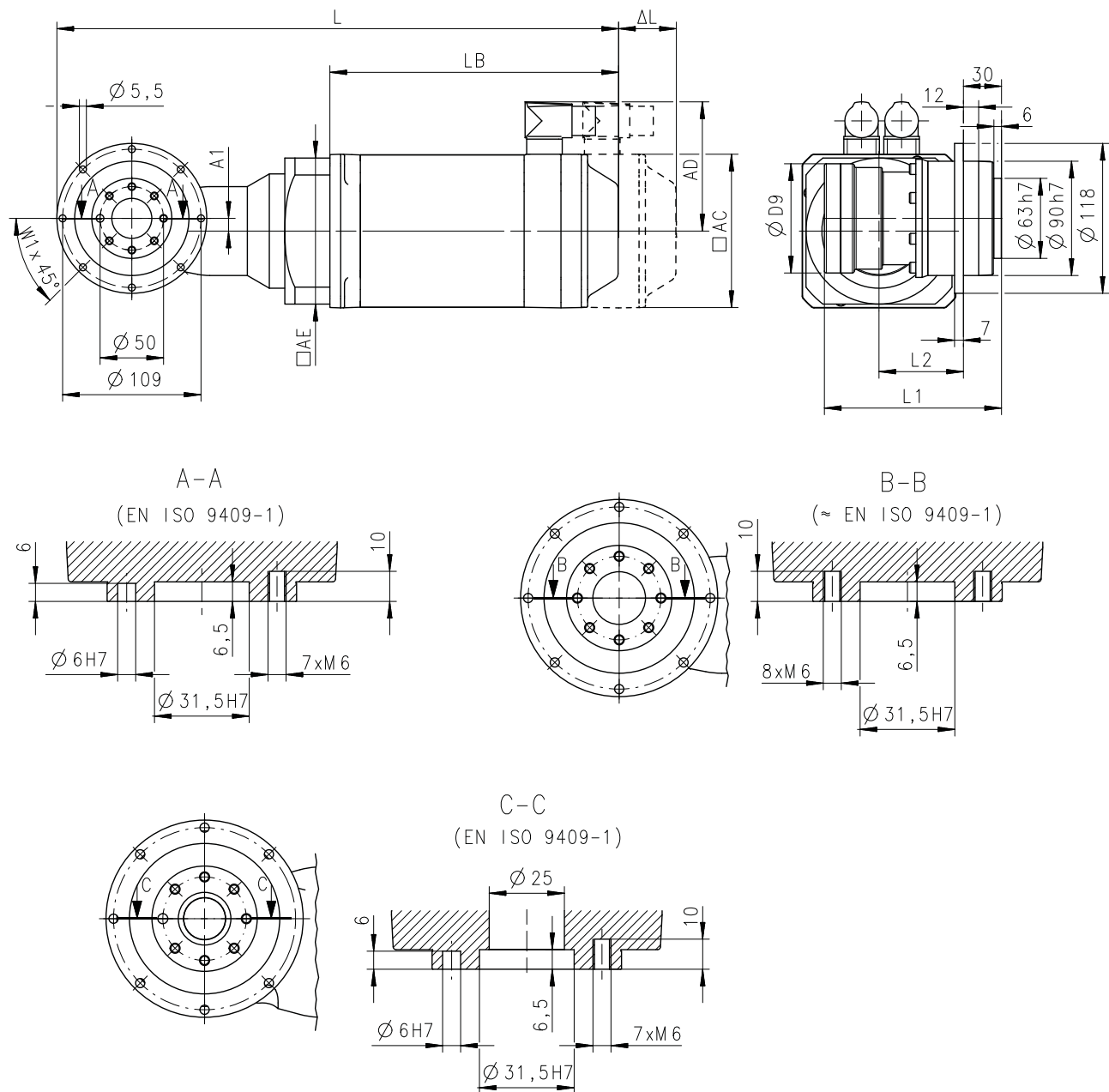
Technical data

Bevel gearbox g880-B
Basic dimensions



g880-B130 with m850

Gearbox design: Flange output shaft, without foot with centering, 2-stage



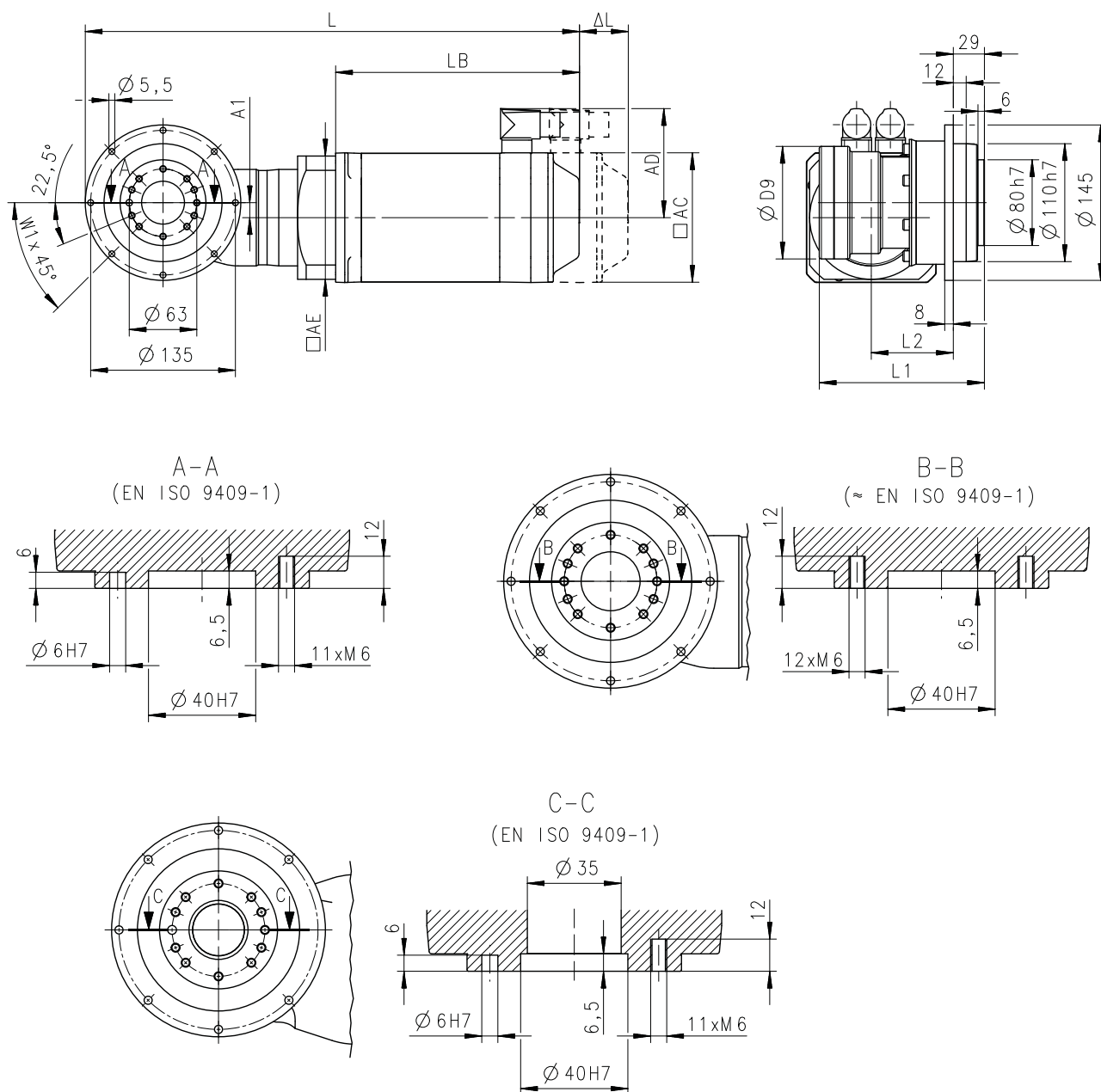
8801063-00

Motor			m850-			
			S60/L6000	S80/L5500	S80/S5500	S120/S3960
Total length	L	mm	247.5	302	260	404
Motor length	LB	mm	152	178	158	189
Motor diameter	AC	mm	60	80	80	121
Motor/connection distance	AD	mm	73.4	83.4	83.4	102
Gearbox diameter	AE	mm	70	90	90	115



g880-B310 with m850

Gearbox design: Flange output shaft, without foot with centering, 1-stage



8801064-00

Motor			m850-							
			S80/L5500	S80/S5500	S120/L3960	S120/M3960	S120/S3960	S140/L3240	S140/M3240	S140/S3240
Total length	L	mm	312	270	498.5	460.5	422.5	497.5	457.5	417.5
Motor length	LB	mm	178	158	265	227	189	262	222	182
Motor diameter	AC	mm	80	80	121	121	121	142	142	142
Motor/connection distance	AD	mm	83.4	83.4	102	102	102	135	114	114
Gearbox diameter	AE	mm	90	90	115	115	115	142	142	142

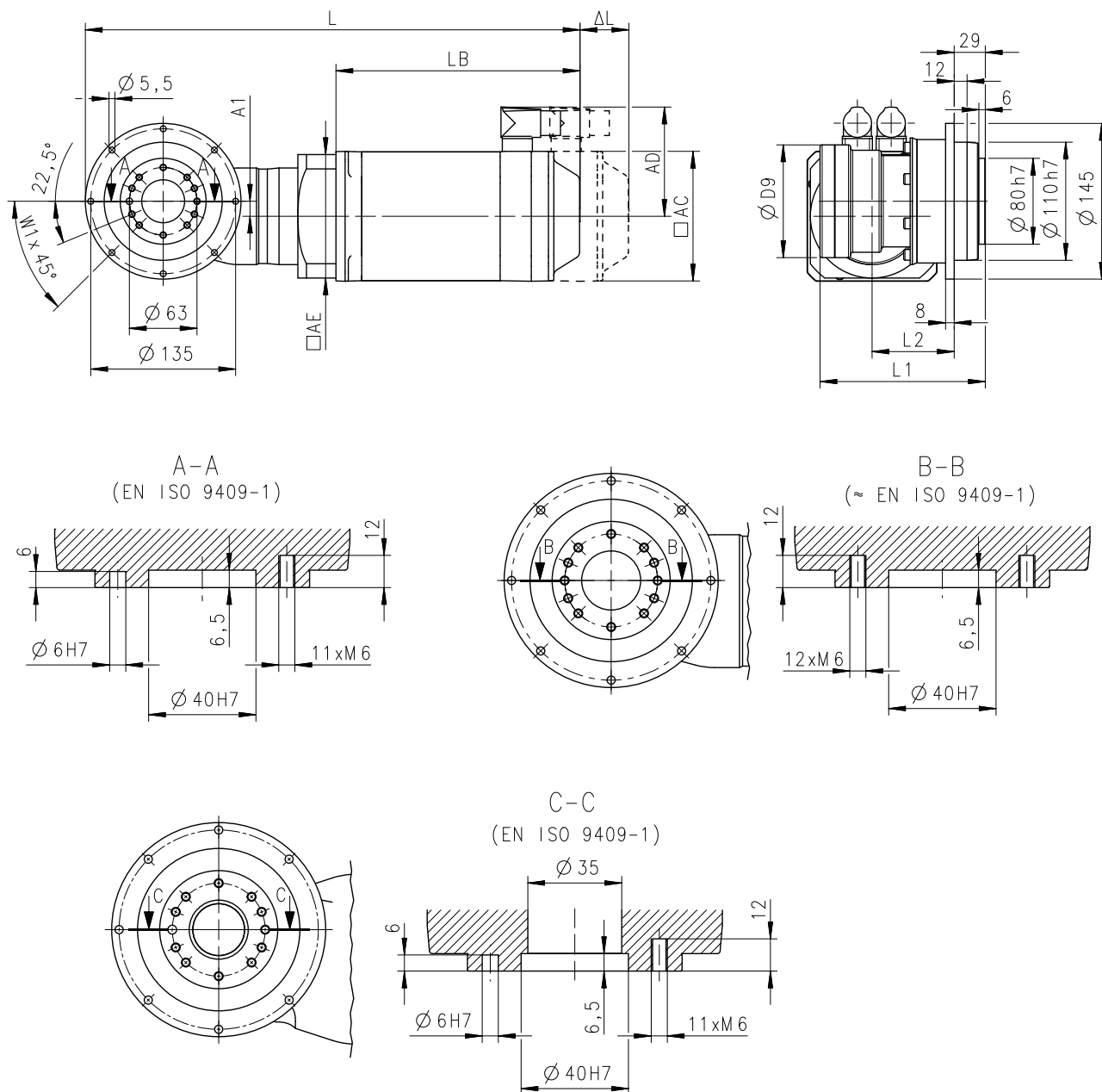
Technical data

Bevel gearbox g880-B
Basic dimensions



g880-B310 with m850

Gearbox design: Flange output shaft, without foot with centering, 2-stage



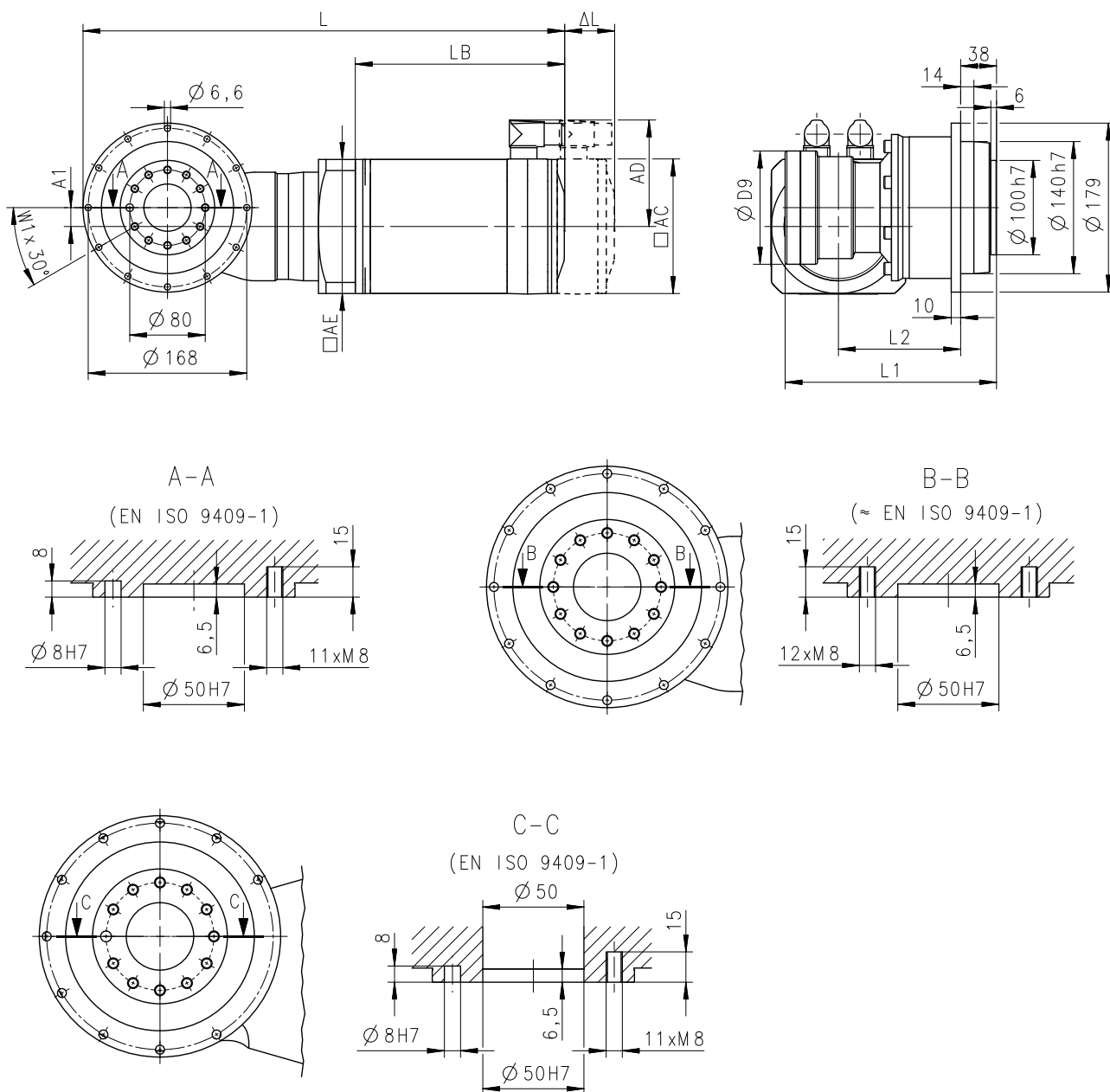
8801064-00

Motor			m850-								
			S120/ L3960	S120/ M3960	S120/ S3960	S140/ L3240	S140/ M3240	S140/ S3240	S190/ L2520	S190/ M3000	S190/ S3000
Total length	L	mm	525	487	449	505	465	425	606	542	494
Motor length	LB	mm	265	227	189	262	222	182	316	252	204
Motor diameter	AC	mm	121	121	121	142	142	142	190	190	190
Motor/connection distance	AD	mm	102	102	102	135	114	114	158	158	137
Gearbox diameter	AE	mm	120	120	120	142	142	142	190	190	190



g880-B625 with m850

Gearbox design: Flange output shaft, without foot with centering, 1-stage



8801065-00

Motor			m850-				
			S140/L3240	S140/M3240	S190/L2520	S190/M3000	S190/S3000
Total length	L	mm	584.5	544.5	648.5	584.5	536.5
Motor length	LB	mm	262	222	316	252	204
Motor diameter	AC	mm	142	142	190	190	190
Motor/connection distance	AD	mm	135	114	158	158	137
Gearbox diameter	AE	mm	142	142	190	190	190

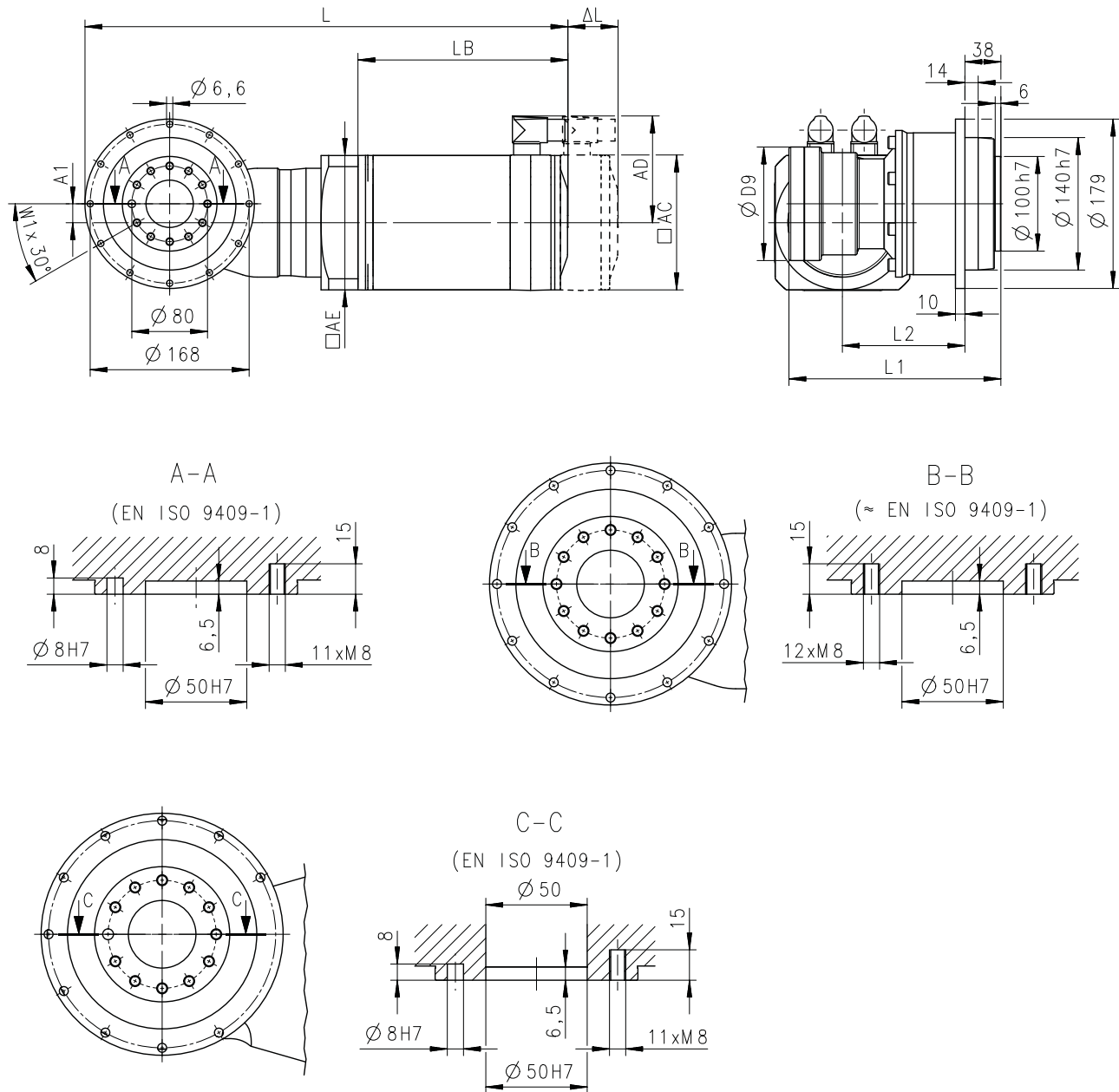
Technical data

Bevel gearbox g880-B
Basic dimensions



g880-B625 with m850

Gearbox design: Flange output shaft, without foot with centering, 2-stage



8801065-00

Motor			m850-								
			S120/ L3960	S120/ M3960	S120/ S3960	S140/ L3240	S140/ M3240	S140/ S3240	S190/ L2520	S190/ M3000	S190/ S3000
Total length	L	mm	542	504	466	549	509	469	623	559	511
Motor length	LB	mm	265	227	189	262	222	182	316	252	204
Motor diameter	AC	mm	121	121	121	142	142	142	190	190	190
Motor/connection distance	AD	mm	102	102	102	135	114	114	158	158	137
Gearbox diameter	AE	mm	120	120	120	142	142	142	190	190	190



Additional lengths

Motors

Motor			m850-		
			S40/S9000 S40/L9000	S60/S6000 S60/L6000	S80/S5500 S80/L5500
Spring-applied holding brake	Δ L	mm	36	34	42

Motor			m850-		
			S120/S3960 S120/M3960 S120/L3960	S140/S3240 S140/M3240 S140/L3240	S190/S3000 S190/M3000 S190/L2520
Spring-applied holding brake	Δ L	mm	46	53	68



Additional weights

Holding brake

Motor			m850-S40/ S9000	m850-S40/ L9000	m850-S60/ S6000	m850-S60/ L6000	m850-S80/ L5500	m850-S80/ S5500
Weight	m	kg	0.085	0.085	0.2	0.2	0.4	0.4

Motor			m850-S120/ L3960	m850-S120/ S3960	m850-S120/ M3960	m850-S140/ M3240	m850-S140/ L3240	m850-S140/ S3240
Weight	m	kg	2.0	2.0	2.0	3.0	3.0	3.0

Motor			m850-S190/S3000	m850-S190/M3000	m850-S190/L2520
Weight	m	kg	6.70	6.70	6.70



Product extensions

Motor connection

Connection via connector

The electrical connection to the servo motors is made via M23 or M40 plug connectors as standard.

The connection is made via two connectors:

- For power and brake
- For feedback and temperature monitoring

Alternatively, Lenze offers a One Cable Technology (OCT).

The connectors can be rotated by 270 ° and are provided with a bayonet catch. Since the catch of the connector is also compatible with conventional box nuts, existing mating connectors with a screw plug can continue to be used without any problems.



Preassembled Lenze system cables are available for fast and error-free connection of Lenze motors to Lenze inverters.

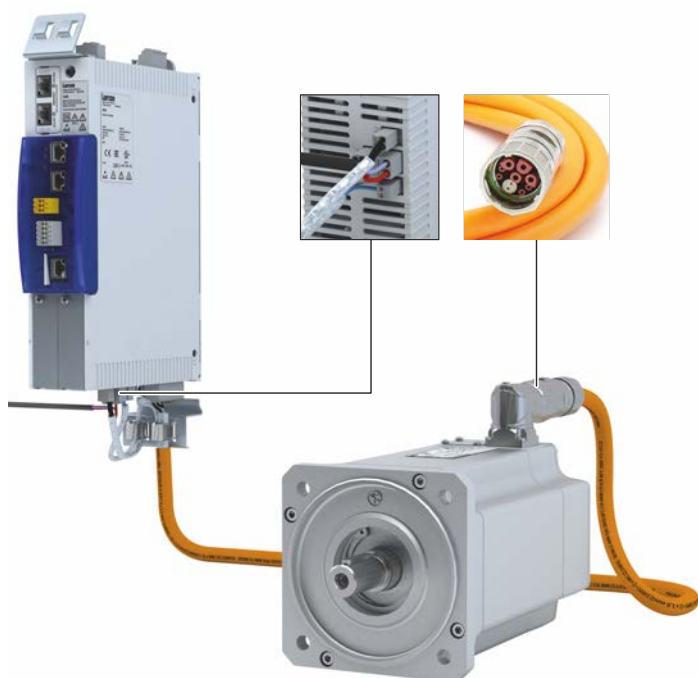
Details and data can be found in the "Accessories" brochure on the Internet.

One Cable Technology (OCT)

With the help of digital absolute value encoders and the HIPERFACE DSL® open motor feedback protocol, the motor supports the use of future-oriented One Cable Technology (OCT).

Advantages

- All the wiring required is carried out in just one connector.
- The use of system cables merges the servo and feedback cables.
- Connection cables, cable variance, and connection costs are thus reasonably minimized.
- The motor temperature is transmitted digitally together with the encoder signal. An additional connection for a motor temperature sensor is not required.
- Speed-dependent safety functions can be realized by using the safety-rated digital absolute value encoder.



Product extensions

Motor connection
Connection via connector



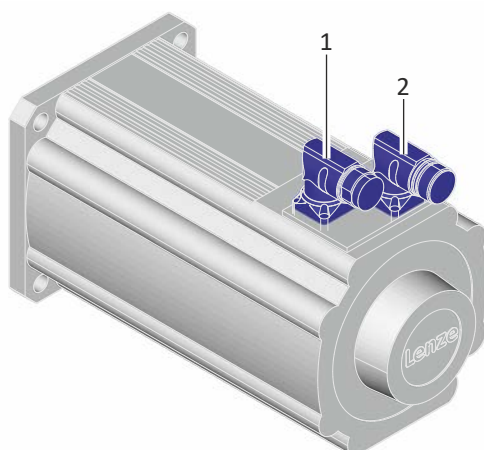
The M23 connector for One Cable Technology (OCT) has been changed; the change can be recognized by the color of the connector:

- Old connector: Blue
- New connector: Red

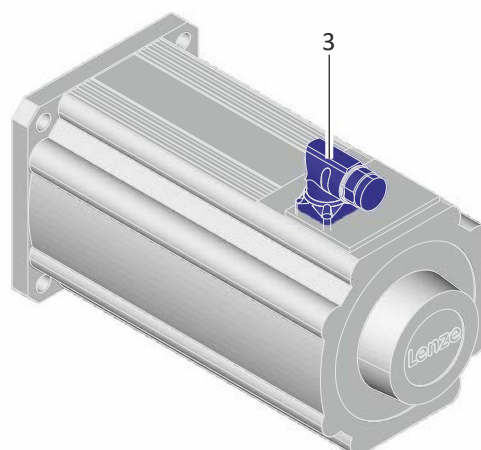
Only motor/system cable connectors of the same color can be plugged in.

Position of the connections

Standard connection



One Cable Technology (OCT)



Assignment motor - connector m850-S40 ... m850-S80

Position	Meaning	Position	Meaning
1	M23 connector, 6-pole • Feedback connection • Connection of temperature monitoring	3	For One Cable Technology (OCT) M23 connector • Power connection • Brake connection • PE connection • Digital absolute value encoder connection • Temperature monitoring connection
2	M23 connector • Power connection • Brake connection • PE connection		

Standard connection: Power and brake

One Cable Technology (OCT): Power, brake, feedback and temperature monitoring connection

Motor	Connector	Motor	Connector	Motor	Connector
m850-S40/S9000	M23	m850-S60/S6000	M23	m850-S80/S5500	M23
m850-S40/L9000	M23	m850-S60/L6000	M23	m850-S80/L5500	M23

Assignment motor - connector m850-S120 ... m850-S190

Position	Meaning	Position	Meaning
1	M23 connector, 6-pole M40 connector, 8-pole • Power connection • Brake connection • PE connection	3	For One Cable Technology (OCT) M23 connector M40 connector • Power connection • Brake connection • PE connection • Digital absolute value encoder connection • Temperature monitoring connection
2	M23 connector • Feedback connection • Temperature monitoring connection		

Standard connection: Power and brake

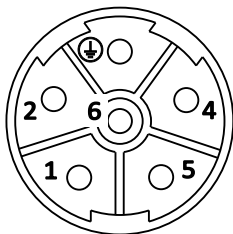
One Cable Technology (OCT): Power, brake, feedback and temperature monitoring connection

Motor	Connector	Motor	Connector	Motor	Connector
m850-S120/S3960	M23	m850-S140/S3240	M23	m850-S190/S3000	M23
m850-S120/M3960	M23	m850-S140/M3240	M23	m850-S190/M3000	M40
m850-S120/L3960	M23	m850-S140/L3240	M40	m850-S190/L2520	M40



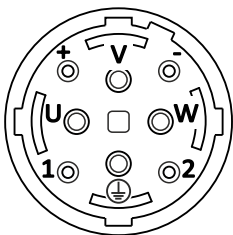
Standard connection

Connection of power and brake
ICN-M23 connector assignment
6-pole



M23 6-pole		
Contact	Name	Meaning
PE	PE	PE conductor
1	BD1	DC +/AC brake
2	BD2	DC -/AC brake
4	U	Power phase U
5	V	Power phase V
6	W	Power phase W

M40 connector assignment for motor cables
8-pole



M40 8-pole		
Contact	Name	Meaning
+	BD1	Holding brake +
-	BD2	Holding brake -
PE	PE	PE conductor
U	U	Power phase U
V	V	Power phase V
W	W	Power phase W
1		Not assigned
2		Not assigned

Product extensions

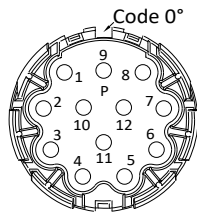
Motor connection
Connection via connector



Feedback and temperature monitoring connection

ICN-M23 connector assignment

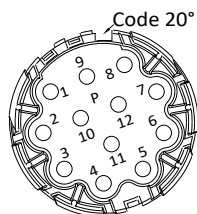
Resolver



M23 for resolvers		
Contact	Name	Meaning
1	+Ref	Transformer windings
2	-Ref	Transformer windings
3	+VCC ETS	Supply: Electronic nameplate (Only for motors and inverters that support this function)
4	+COS	Cosine stator windings
5	-COS	Cosine stator windings
6	+SIN	Sine stator windings
7	-SIN	Sine stator windings
8		Not assigned
9		Not assigned
10	Schirm	Encoder housing shield
11	+	Temperature monitoring: PT1000
12	-	Temperature monitoring: PT1000

ICN-M23 connector assignment

Incremental and SinCos absolute value encoder Hiperface®



ICN M23 for encoders		
Contact	Name	Meaning
1	B	Track B / +SIN
2	A ⁻	Track A inverse / -COS
3	A	Track A / + COS
4	+UB	Supply +
5	GND	Mass
6	Z ⁻	Zero track inverse / -RS485
7	Z	Zero track / + RS485
8		Not assigned
9	B ⁻	Track B inverse/-SIN
10	Schirm	Encoder housing shield
11	+	Temperature monitoring: PT1000
12	-	Temperature monitoring: PT1000



One Cable Technology (OCT)

Power, brake, feedback and temperature monitoring connection

M23 connector assignment for OCT motor cables



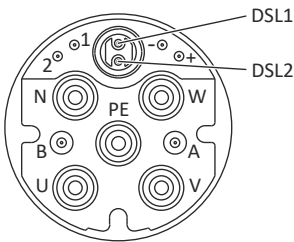
M23_OCT		
Contact	Name	Meaning
A	BD1	Holding brake +
B	BD2	Holding brake -
C		Not assigned
D		Not assigned
H	VCC/Daten +	VCC/data +
L	GND/Daten -	GND/data -
PE	PE	PE
U	U	Power phase U
V	V	Power phase V
W	W	Power phase W

Product extensions

Motor connection
Connection via connector



M40 connector assignment for OCT motor cables



M40_OCT		
Contact	Name	Meaning
-		Not assigned
+		Not assigned
1		Not assigned
2		Not assigned
A	BD1	Holding brake +
B	BD2	Holding brake -
DSL1	+	VCC/data +
DSL2	-	GND/data -
N		Not assigned
PE	PE	PE
U	U	Power phase U
V	V	Power phase V
W	W	Power phase W



Brakes

Optionally the motors can be ordered with a spring-applied brake as holding brake.

⚠ CAUTION!

They may not be used as safety elements (particularly with hoist axes) without additional measures being implemented.

The brakes used are not fail-safe brakes in the sense that prospective disruptive factors, e.g. oil ingress, can lead to a reduction in torque!

- ▶ The brakes must only be used as holding brakes for holding the axes at a standstill or in the deenergised state.
- ▶ The brake must not be used as a service brake.

⚠ CAUTION!

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

Motor supply cables

If long motor supply cables are used, pay attention to the ohmic voltage drop along the cable and compensate for it with a higher voltage at the input end of the cable.

The following applies to Lenze system cables:

$U[V] = U_B[V] + 0.08 \frac{[V]}{[A] \times [m]} \times l_{Lg}[m] \times I_B[A]$	U	V	Resulting supply voltage
	U _B	V	Rated voltage of the brake
	l _{Lg}	m	Cable length
	I _B	A	Rated current of the brake

NOTICE

- ▶ The brakes become active when the supply voltage has been switched off (closed-circuit principle).
- ▶ When using the brakes purely as holding brakes, virtually no wear occurs on the friction surfaces.
- ▶ The friction surfaces must always be free from oil and grease because even small amounts of grease or oil will considerably reduce the braking torque.

NOTICE

In case of travel axes, the compliance of the permissible ratio of mass inertia load/brake motor (J_L/J_{MB}) ensures that the permissible maximum switching energy of the brake will not be exceeded and at least the values given for the emergency stop functions from the given speed (see rated data) are applied.

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



To simplify matters, the friction energy per switching cycle can be calculated using the formula below and must not exceed the limit value for emergency stops, which depends on the switching rate:

$Q = \frac{1}{2} \times J_{ges} \times \left(2\pi \times \frac{\Delta n}{60} \right)^2 \times \frac{M_N}{M_N - M_L}$	Q	J	Friction energy
	J_{total}	kgm ²	Total mass inertia (motor + load)
	Δn	rpm	Differential speed
	M_N	Nm	Rated torque of the brake
	M_L	nM	Load torque



The shortest operating times of the brakes are achieved by DC switching of the voltage and an external suppressor circuit (varistor or spark suppressor).

Without suppressor circuit, the operating times may increase. A varistor/ spark suppressor limits the breaking voltage peaks. It must be ensured that the power limit of the suppressor circuit is not exceeded. This limit depends on the brake current, brake voltage, disengagement time and the switching operations per time unit.

Furthermore the suppressor circuit is necessary for interference suppression and for increasing the service life of the relay contacts (external, is not integrated into the motor).



It is not possible to readjust the brake.



Permanent magnet brakes

Rated data

NOTICE

Engagement and disengagement times apply to rated voltage ($\pm 0\%$) and suppressor circuit of the brakes with a varistor with DC switching. Without a suppressor circuit, the times may be longer.

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

Requirements with regard to the DC 24 V brake: smoothed DC voltage, ripple $\leq 1\%$.

Maximum switching energy per emergency stop with $n = 3000$ rpm for at least 2000 emergency stops.

Motor			m850-S40/ S9000	m850-S40/ L9000	m850-S60/ S6000	m850-S60/ L6000	m850-S80/ S5500	m850-S80/ L5500
Supply voltage range	V _{in}	V	21.6 ... 26.4					
Supply voltage	V _{rated}	V	24					
Bemessungsdrehmoment								
At 20 °C	M _{rated}	Nm	0.4		2		4.5	
At 120 °C	M _{rated}	Nm	0.35		1.8		4	
Rated current	I _{rated}	A	0.33		0.46		0.5	
Engagement time t1	t ₁	ms	9		20		15	
Disengagement time t2	t ₂	ms	10		38		40	
Friction energy	Q _E	kJ	0.001					
Weight	m	kg	0.085		0.2		0.4	
Massenträgheitsmoment								
Brake	J	kgcm ²	0.0143		0.0691		0.185	
Brake motor	J _{MB}	kgcm ²	0.055	0.079	0.319	0.512	1.68	2.2
Load/brake motor ratio	J _L /J _{MB}		13263	9234	3620	2255	970	741

Product extensions

Brakes
Spring-applied brakes



Spring-applied brakes

Rated data

NOTICE

Engagement and disengagement times apply to rated voltage ($\pm 0\%$) and suppressor circuit of the brakes with a varistor with DC switching. Without a suppressor circuit, the times may be longer.

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

Requirements with regard to the DC 24 V brake: smoothed DC voltage, ripple $\leq 1\%$.

Maximum switching energy for each emergency stop with $n = 3000$ rpm for a maximum of 3-6 emergency stops per hour.

Motor			m850-S120/ S3960	m850-S120/ M3960	m850-S120/ L3960	m850-S140/ S3240	m850-S140/ M3240	m850-S140/ L3240
Supply voltage range	V _{in}	V	21.6 ... 26.4					
Supply voltage	V _{rated}	V	24					
Bemessungsdrehmoment								
At 20 °C	M _{rated}	Nm	20			34		
At 120 °C	M _{rated}	Nm	18			32		
Rated current	I _{rated}	A	1.2			1.4		
Engagement time t1	t ₁	ms	30			50		
Disengagement time t2	t ₂	ms	110			150		
Friction energy	Q _E	kJ	3.1					
Weight	m	kg	2.0			3.0		
Massenträgheitsmoment								
Brake	J	kgcm ²	0.75			2.01		
Brake motor	J _{MB}	kgcm ²	7.5	13.3	19.2	18.1	32.5	46.9
Load/brake motor ratio	J _L /J _{MB}		74	47	32	34	19	13

Motor			m850-S190/S3000	m850-S190/M3000	m850-S190/L2520
Supply voltage range	V _{in}	V	21.6 ... 26.4		
Supply voltage	V _{rated}	V	24		
Bemessungsdrehmoment					
At 20 °C	M _{rated}	Nm	102		
At 120 °C	M _{rated}	Nm	100		
Rated current	I _{rated}	A	2.1		
Engagement time t1	t ₁	ms	40		
Disengagement time t2	t ₂	ms	230		
Friction energy	Q _E	kJ	5.7		
Weight	m	kg	6.70		
Massenträgheitsmoment					
Brake	J	kgcm ²	10.42		
Brake motor	J _{MB}	kgcm ²	72.6	128.9	204.3
Load/brake motor ratio	J _L /J _{MB}		15	8	5



Feedback

For speed control with a servo inverter, the servo motor can be equipped with the following feedback systems:

m850-S40 ... m850-S80

Inverter	Feedback without functional safety		
	Resolver (only m850-S60, m850-S80)	Absolute value encoder (only m850-S60, m850-S80)	Digital absolute value encoder for OCT
i950 servo inverter	RS2	AM128-8V-H	AM17-8V-D
i750 servo inverter	RS2	AM128-8V-H	AM17-8V-D
8400 TopLine Inverter Drives	RS2	AM128-8V-H	-
9400 HighLine Servo Drives	RS2	AM128-8V-H	-

Inverter	Feedback with functional safety		
	Resolver (only m850-S60, m850-S80)	Absolute value encoder (only m850-S60, m850-S80)	Digital absolute value encoder for OCT (only m850-S60, m850-S80)
i950 servo inverter	RV22	AM128-8V-K2	AM17-8V-D2
9400 HighLine Servo Drives	RV22	AM128-8V-K2	-

m850-S120 ... m850-S190

Inverter	Feedback without functional safety		
	Resolver	Absolute value encoder	Digital absolute value encoder for OCT
i950 servo inverter	RS0	AM128-8V-H	AM20-8V-D
i750 servo inverter	RS0	AM128-8V-H	AM20-8V-D
8400 TopLine Inverter Drives	RS0	AM128-8V-H	-
9400 HighLine Servo Drives	RS0	AM128-8V-H	-

Inverter	Feedback with functional safety		
	Resolver	Absolute value encoder	Digital absolute value encoder for OCT
i950 servo inverter	RV03	AM128-8V-K2	AM20-8V-D2
9400 HighLine Servo Drives	RV03	AM128-8V-K2	-

Feedbacks in the environment of functional safety

Motors can perform speed-dependent safety functions for safe speed and/or safe relative position monitoring in a drive system by Lenze inverters or Controllers. In case of inverters, these functions are implemented by integrable safety modules and in case of Controllers by the additionally required Safety Controller.

When planning systems/installations of this kind, always observe the following:

- When using just one single feedback system in the environment of these safety applications, the applicable safety engineering standard EN 61800-5-2 (adjustable speed electrical power drive systems - Part: 5-2: Safety requirements - Functional) stipulates special requirements for the connection between feedback system and motor shaft.
- This is due to the fact that two-channel safety systems at this point in the mechanical system are actually designed as single-channel systems. If this mechanical connection is designed with considerable overdimensioning, the standard permits exclusion of the fault "encoder-shaft breakage" or "encoder-shaft slip". As such, the permissible angular acceleration limit values must not be exceeded for the individual drive solutions.

You can find the limit values in the corresponding feedback data of the individual motor ranges.



Speed-dependent safety functions

Examples of speed-dependent safety functions:

- Safe stop 1 (SS1)
- Safe operational stop (SOS)
- Safely limited speed (SLS)
- Safe maximum speed (SMS)
- Safe direction (SDI)
- Operation mode selector (OMS) with confirmation (ES)
- Safe speed monitor (SSM)
- Safely limited increment (SLI)

Resolver

The stator-supplied, 2-pole resolver with two stator windings shifted by 90 degrees and a rotor winding with a transformer winding can record both the speed and the rotor position, just like a single-turn absolute value encoder. The rotor position can be determined within one mechanical motor revolution after a voltage failure.

Feedback type			Resolver			
Feedback			RS0	RS2	RV03	RV22
Speed-dependent safety functions			Nein	Nein	Ja	Ja
Design			Mounting			
Resolution - angle		'	0.8	0.8	0.8	0.8
Min. accuracy		'	-10	-10	-10	-10
Max. accuracy		'	10	10	10	10
Absolute positioning			1 revolution	1 revolution	1 revolution	1 revolution
Max. speed	$n_{\max}$	rpm	8000	20000	8000	20000
Max. DC input voltage	$V_{\text{in,max}}$	V	10	7	10	7
Max. input frequency	$f_{\text{in,max}}$	kHz	4	10	4	10
Ratio stator/rotor			0.3	0.5	0.3	0.5
Min ratio tolerance		%	-5	-10	-5	-10
Max ratio tolerance		%	5	10	5	10
Rotor impedance	Z_{ro}	Ω	51+j90	86+j120	51+j90	86+j120
Stator impedance	Z_{so}	Ω	102+j150	140+j273	102+j150	140+j273
Impedance	Z_{rs}	Ω	44+j76	70+j106	44+j76	70+j106
Min. insulation resistance at DC 500 V	R_{min}	M Ω	10	10	10	10
Number of pole pairs			1	1	1	1
Max. angle error Min		'	-10	-10	-10	-10
Max. angle error Max		'	10	10	10	10

Speed-dependent safety functions

Feedback			RV03	RV22
Max. permissible angular acceleration	α	rad/s ²	19000	200000
Functional safety				
EN IEC 61800-5-2/EN IEC 61508			SIL3	
EN IEC 61800-5-2/EN IEC 62061				SIL2
EN ISO 13849-1			Up to Performance Level e	Up to Performance Level d



Absolute value encoder

Absolute value encoders can detect the speed, the rotor position, and the machine position with a very high resolution. They are used for the positioning of dynamic applications and do not require homing.



In conjunction with the AMxx-8V-D digital absolute value encoder, the motor supports the HIPERFACE DSL® open motor feedback protocol for One Cable Technology (OCT).

Feedback type			Digital absolute value encoder				SinCos absolute value encoder	
Feedback			AM17-8V-D	AM17-8V-D2	AM20-8V-D	AM20-8V-D2	AM128-8V-H	AM128-8V-K2
Speed-dependent safety functions			Nein	Ja	Nein	Ja	Nein	Ja
Design			Mounting	Mounting	Mounting	Mounting	Mounting	Mounting
Encoder type			Multi-turn	Multi-turn	Multi-turn	Multi-turn	Multi-turn	Multi-turn
Resolution		bit	-	-	20	20	-	-
Pulses			-	-	-	-	128	128
Output signals			Digital	Digital	Digital	Digital	SinCos 1 Vss	SinCos 1 Vss
Interfaces			Hiperface	Hiperface	Hiperface	Hiperface	Hiperface	Hiperface
Absolute revolution			4096	4096	4096	4096	4096	4096
Resolution - angle			-	-	0.02	0.02	0.4	0.4
Min. accuracy		'	-	-	-	-	-1.3	-1.3
Max. accuracy		'	-	-	-	-	1.3	1.3
Fehlergrenze Positionswert								
System accuracy			-	-	1.7	1.7	-	-
Integral nonlinearity			-	-	1	1	-	-
Min. DC input voltage	$V_{in,min}$	V	7	7	-	-	7	7
Max. DC input voltage	$V_{in,max}$	V	12	12	-	-	12	12
Max. current consumption	I_{max}	A	0.15	0.15	0.15	0.15	0.06	0.06
Limit frequency	f_{max}	kHz	-	-	-	-	200	200

Speed-dependent safety functions

Feedback			AM17-8V-D2	AM20-8V-D2	AM128-8V-K2
Max. permissible angular acceleration	α	rad/s ²	240000	240000	240000
Functional safety					
EN IEC 61800-5-2/EN IEC 61508				SIL2	SIL2
EN IEC 61800-5-2/EN IEC 62061			SIL2		
EN ISO 13849-1			Up to Performance Level d		



Temperature monitoring

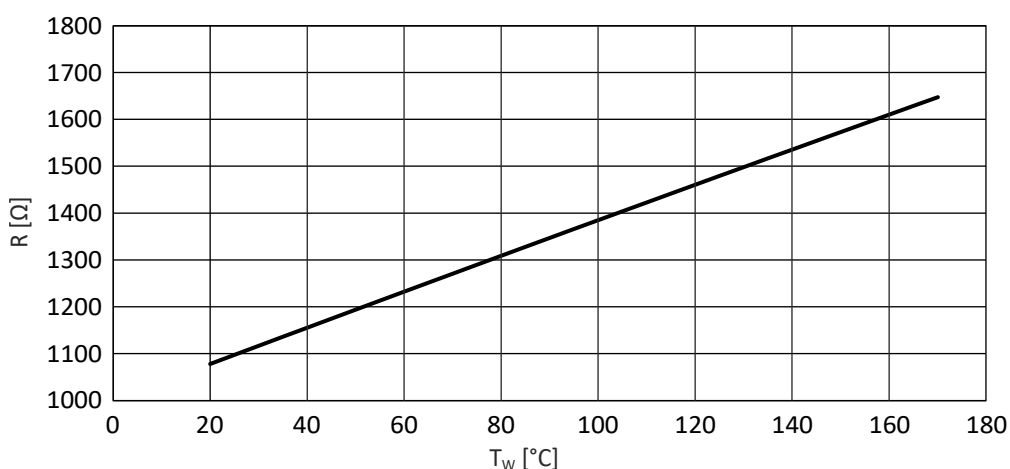
Thermal detectors PT1000

The thermal sensors used continuously monitor the motor temperature. The temperature information is transferred to the inverter using the system cable of the feedback system. **This is not a full motor protection!**

The motors are monitored via three thermal sensors connected in series (1x PT1000 + 2x PTC 150 °C). This makes it possible to determine the motor temperature in the permissible operating range and at the same time execute the overtemperature response configured in the inverter in one of the winding strands.



When supplying the thermal sensors with a measurement current of 1 mA, the connection between the temperature and the resistance measured applies.



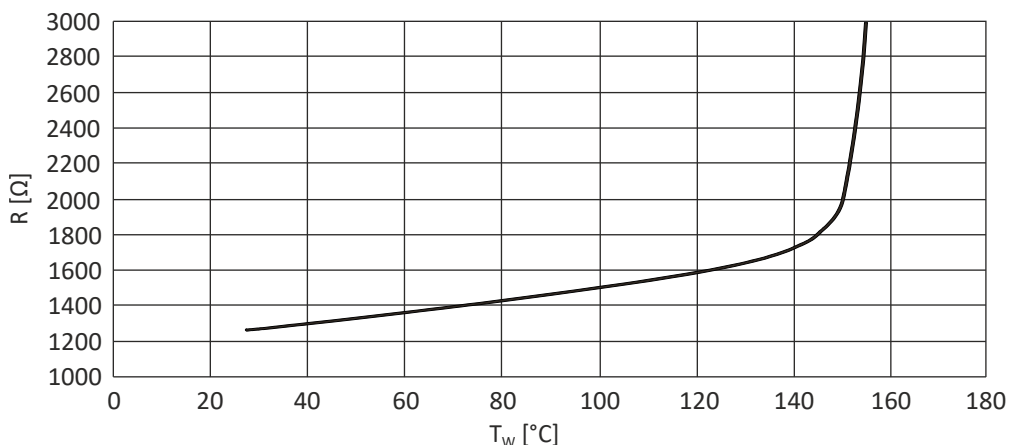
R Resistance
T_w Winding temperature



The three thermal sensors connected in series are identified on the nameplate by the short designation "PT1k+2PTC".



When supplying the thermal sensors with a measurement current of 1 mA, the connection between the temperature and the resistance measured applies.



R Resistance
T_w Winding temperature



Product codes

Planetary and bevel planetary gearbox product code g7□0

Example		G	7	5	A	P	113	M	V	C	R	1	C00
Portfolio segment	Gearbox	G											
Product	7		7										
Product type	0			0									
	2			2									
	3			3									
	5			5									
	8			8									
Product generation	A				A								
Product type	bevel planetary gearbox					B							
	Planetary gearbox					P							
torque (Examples)	44 Nm						044						
	97 Nm						097						
	130 Nm						113						
	195 Nm						119						
Type of construction	Geared motor							M					
	Gearbox							N					
Output shaft	Output shaft with featherkey								V				
	Smooth output shaft								G				
	Flanged output shaft with dowel hole								E				
Housing type	Without foot with centering									C			
Flange mounting	Without flange										R		
	Flange with through holes										K		
Number of stages	1-stage											1	
	2-stage											2	
	3-stage											3	
Motor mounting	Motor integrated												C00
	IEC adapter with jaw coupling												Nxx Txx
	NEMA adapter with jaw coupling												Axx
	Servo motor-adapter with plug-in hollow shaft												Sxx



Planetary and bevel planetary gearbox product code g8□0

Example		G	8	4	A	P	040	M	V	C	R	1	C00
Portfolio segment	Gearbox	G											
Product	8		8										
Product type	2			2									
	4			4									
	5			5									
	6			6									
	7			7									
	8			8									
Product generation	A				A								
Product type	bevel planetary gearbox					B							
	Planetary gearbox					P							
torque (Examples)	40 Nm						040						
	80 Nm						080						
	130 Nm						113						
	300 Nm						130						
	1000 Nm						210						
	1800 Nm						218						
Type of construction	Geared motor							M					
	Gearbox							N					
Output shaft	Output shaft with featherkey								V				
	Smooth output shaft								G				
	Toothed output shaft								Z				
	Flanged output shaft								F				
	Flanged output shaft with dowel hole								E				
	Flanged hollow output shaft with dowel hole								K				
	Shrink disc								S				
	Hollow shaft								H				
Housing type	Without foot with centering									C			
Flange mounting	Without flange										R		
	Flange with through holes										N		
Number of stages	1-stage											1	
	2-stage											2	
Motor mounting	Motor integrated												C00
	IEC adapter with jaw coupling												Nxx Txx
	NEMA adapter with jaw coupling												Axx
	Servo motor-adapter with plug-in hollow shaft												Sxx



Product ID m850 synchronous servo motor

Example		M	8	5	A	S	120	S	25	5	S	0	R	C	C	0
Meaning	Variant	Product ID														
Portfolio segment		M														
Product family	8		8													
Product level	5			5												
Product generation	1				A											
Product type	Synchronous servo motor					S										
Flange height	40						40									
	60						60									
	80						80									
	120						120									
	140						140									
	190						190									
Motor length	Short							S								
	Medium							M								
	Long							L								
Speed	25 x 100 rpm								25							
	30 x 100 rpm								30							
	32 x 100 rpm								32							
	40 x 100 rpm								40							
	55 x 100 rpm								55							
	60 x 100 rpm								60							
	90 x 100 rpm								90							
Degree of protection	IP5x									5						
	IP6x									6						
Cooling	No cooling										S					
Brake mounting	No brake											0				
	Spring-applied brake											F				
	Permanent magnet brake											P				
encoder mounting	Resolver												R			
	Absolute value encoder												A			
	Digital absolute value encoder												D			
	Hiperface DSL®															
Product approval	CE													C		
	CE; cULus													L		
	CE; cURus													V		
Internal key	40, 60, 80														V	
	120, 140, 190														C	
																0

Motor data

Rated data

Inverter mains connection 400 V, Self-ventilated motors



Motor data

Rated data

Inverter mains connection 400 V, Self-ventilated motors

Motor			m850-S40/ S9000	m850-S40/ L9000	m850-S60/ S6000	m850-S60/ L6000	m850-S80/ S5500	m850-S80/ L5500
Standstill torque	M_0	Nm	0.180	0.350	0.700	1.50	2.80	3.50
Rated torque	M_{rated}	Nm	0.120	0.210	0.500	0.900	1.70	2.10
Max. torque	M_{max}	Nm	0.72	1.4	2.6	5.8	10.5	13.4
Rated speed	n_{rated}	rpm	9000	9000	6000	6000	5500	5500
Max. speed	n_{max}	rpm	10000	10000	10000	10000	10000	10000
Rated power	P_{rated}	kW	0.11	0.2	0.325	0.55	1	1.2
Standstill current	I_0	A	0.800	1.60	0.900	1.90	3.50	4.20
Rated current	I_{rated}	A	0.700	1.20	0.700	1.20	2.30	2.80
Max. current	I_{max}	A	3.20	6.40	6.40	13.2	13.2	15.6
Rated voltage	V_{rated}	V	149	134	310	318	282	292
Rated frequency	f_{rated}	Hz	300	300	300	300	275	275
Moment of inertia	J	kgcm ²	0.03	0.054	0.22	0.413	1.40	1.93
Efficiency	η		0.64	0.73	0.84	0.85	0.87	0.88
Torque constant	$K_{t0\ 150}$ °C	Nm/A	0.23	0.22	0.78	0.79	0.8	0.83
Voltage constant	$K_{E\ LL\ 150}$ °C	V/ (1000/ min)	12.32	11.98	45.25	43.62	45.59	47.82
Stator terminal resistance	$R_{UV\ 20}$ °C	Ω	25.6	8.6	26.4	9.8	4.6	2.8
Stator terminal resistance	$R_{UV\ 150}$ °C	Ω	38.579	12.96	39.785	14.769	6.932	4.22
Stator inductance	L	mH	4.87	2.3	16.14	8.48	4.74	3.74
Weight	m	kg	0.5	0.7	1.45	2	3.2	3.85



Motor data

Rated data
Inverter mains connection 400 V, Self-ventilated motors

Motor			m850-S120/ S3960	m850-S120/ M3960	m850-S120/ L3960	m850-S140/ S3240	m850-S140/ M3240	m850-S140/ L3240
Standstill torque	M_0	Nm	6.50	11.0	15.0	11.0	21.0	28.0
Rated torque	M_{rated}	Nm	4.80	7.40	9.00	8.50	14.0	17.4
Max. torque	M_{max}	Nm	14.5	29.0	44.0	26.0	53.5	80.0
Rated speed	n_{rated}	rpm	3960	3960	3960	3240	3240	3240
Max. speed	n_{max}	rpm	6000	6000	6000	6000	6000	6000
Rated power	P_{rated}	kW	2	3.1	3.7	2.9	4.8	5.9
Standstill current	I_0	A	5.50	8.80	12.1	7.40	14.0	18.0
Rated current	I_{rated}	A	4.30	6.40	7.80	6.30	10.0	12.2
Max. current	I_{max}	A	15.0	28.0	42.0	23.0	45.5	66.0
Rated voltage	V_{rated}	V	330	330	320	340	330	330
Rated frequency	f_{rated}	Hz	330	330	330	270	270	270
Moment of inertia	J	kgcm ²	6.50	12.4	18.2	15.7	30.1	44.6
Efficiency	η		0.902	0.914	0.914	0.879	0.915	0.926
Torque constant	$K_{t_{0\ 150}}$ °C	Nm/A	1.18	1.25	1.24	1.49	1.50	1.56
Voltage constant	$K_{E_{LL\ 150}}$ °C	V/ (1000/ min)	68.99	73.1	72.93	86.81	88.36	90.67
Stator terminal resistance	$R_{UV\ 20}$ °C	Ω	2.24	1.02	0.63	1.436	0.562	0.366
Stator terminal resistance	$R_{UV\ 150}$ °C	Ω	3.376	1.537	0.949	2.164	0.847	0.552
Stator inductance	L	mH	11.5	6.73	4.58	9.90	5.22	3.76
Weight	m	kg	6.5	9.25	12.0	9.50	14.5	19.5

Motor data

Rated data

Inverter mains connection 400 V, Self-ventilated motors



Motor			m850-S190/S3000	m850-S190/M3000	m850-S190/L2520
Standstill torque	M_0	Nm	27.0	46.0	67.0
Rated torque	M_{rated}	Nm	16.0	24.0	35.0
Max. torque	M_{max}	Nm	71.0	120	200
Rated speed	n_{rated}	rpm	3000	3000	2520
Max. speed	n_{max}	rpm	4500	4500	4500
Rated power	P_{rated}	kW	5	7.5	9.2
Standstill current	I_0	A	16.0	26.8	30.8
Rated current	I_{rated}	A	10.3	15.4	17.7
Max. current	I_{max}	A	64.0	87.0	112
Rated voltage	V_{rated}	V	340	330	345
Rated frequency	f_{rated}	Hz	250	250	210
Moment of inertia	J	kgcm ²	60.8	117	193
Efficiency	η		0.905	0.919	0.929
Torque constant	$K_{t0.150}$ °C	Nm/A	1.69	1.72	2.18
Voltage constant	$K_{E_{LL150}}$ °C	V/ (1000/ min)	99.24	101.13	124.86
Stator terminal resistance	R_{UV20} °C	Ω	0.452	0.196	0.16
Stator terminal resistance	R_{UV150} °C	Ω	0.681	0.295	0.241
Stator inductance	L	mH	5.46	2.90	2.76
Weight	m	kg	19.8	28.5	41.0



Torque characteristics



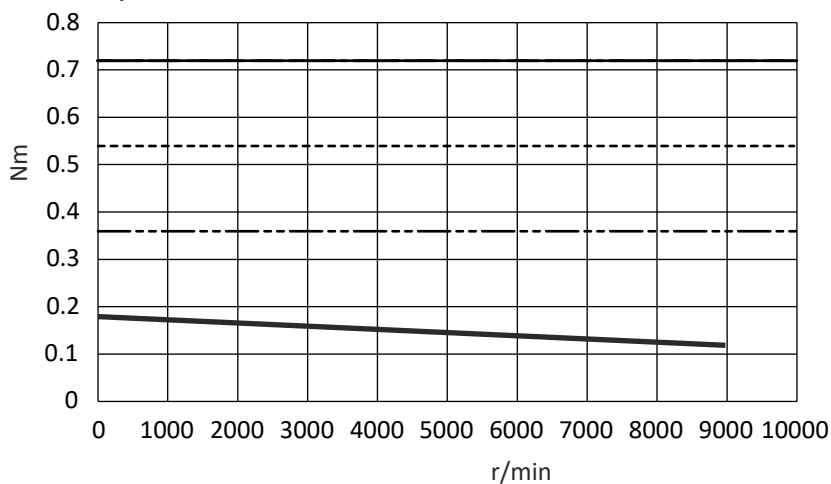
The torque/speed characteristic for your motor/inverter combination can be found on the Internet:

<http://www.lenze.com> → Product Finder → M-n characteristics



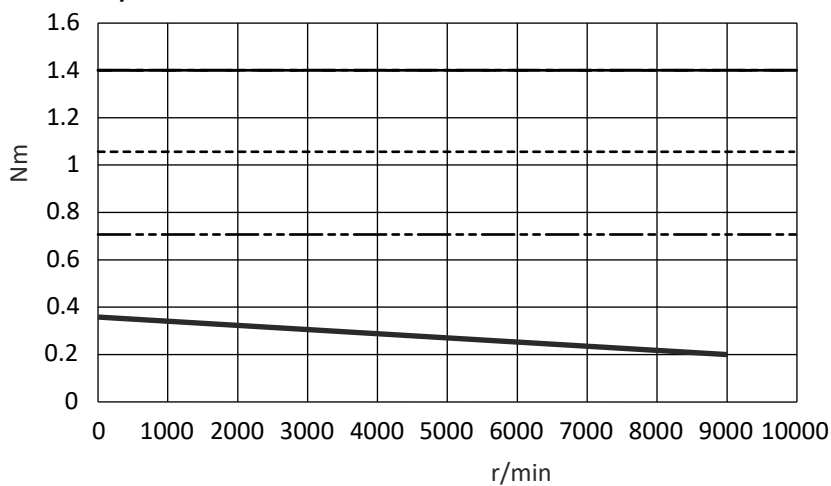
The following data apply to a mains voltage 3 x 400 V of the inverter.

m850-S40/S9000



- - - $M_{max} = 440 \text{ V}$
 — $M_{max} = 400 \text{ V}$
 — $M_{max} = 360 \text{ V}$
 - - - $M_{max} @ I_{max} = 3 \times I_0$
 - - - $M_{max} @ I_{max} = 2 \times I_0$
 — S1

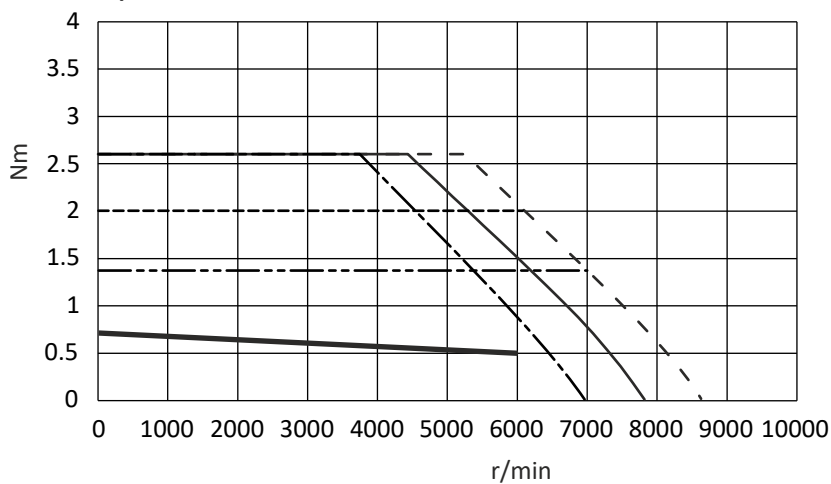
m850-S40/L9000



- - - $M_{max} = 440 \text{ V}$
 — $M_{max} = 400 \text{ V}$
 — $M_{max} = 360 \text{ V}$
 - - - $M_{max} @ I_{max} = 3 \times I_0$
 - - - $M_{max} @ I_{max} = 2 \times I_0$
 — S1

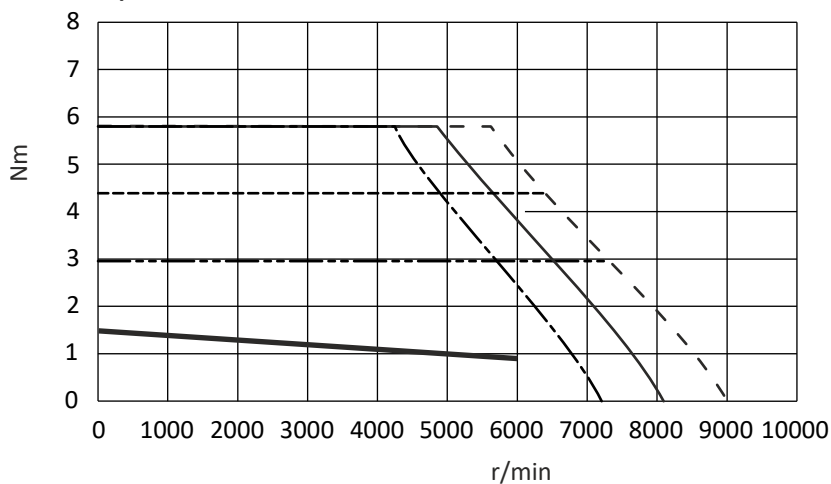


m850-S60/S6000



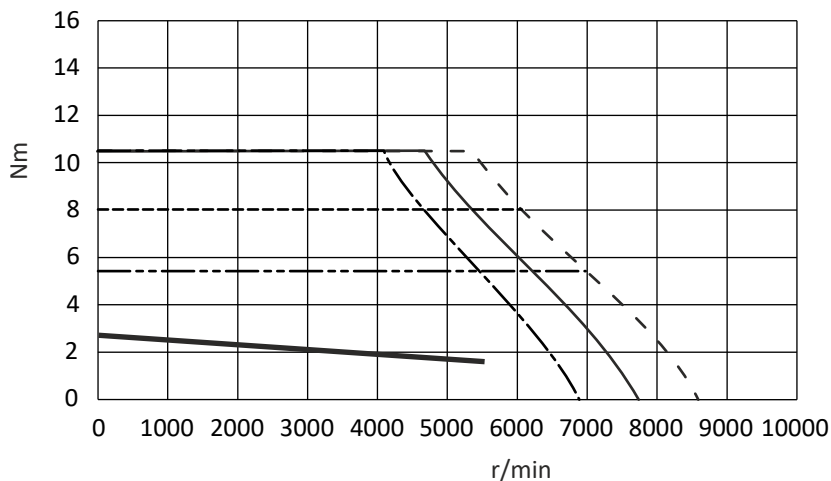
- $M_{\max} = 440 \text{ V}$
- $M_{\max} = 400 \text{ V}$
- · - $M_{\max} = 360 \text{ V}$
- $M_{\max} @ I_{\max} = 3 \times I_0$
- · - $M_{\max} @ I_{\max} = 2 \times I_0$
- S1

m850-S60/L6000



- $M_{\max} = 440 \text{ V}$
- $M_{\max} = 400 \text{ V}$
- · - $M_{\max} = 360 \text{ V}$
- $M_{\max} @ I_{\max} = 3 \times I_0$
- · - $M_{\max} @ I_{\max} = 2 \times I_0$
- S1

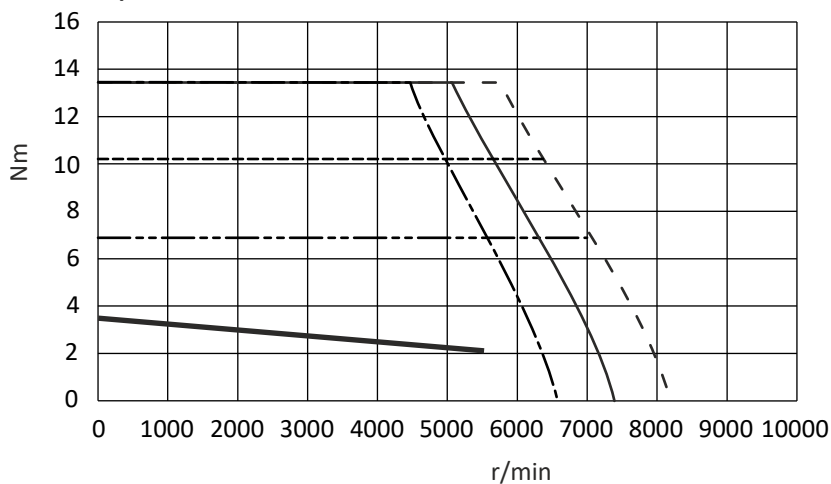
m850-S80/S5500



- $M_{\max} = 440 \text{ V}$
- $M_{\max} = 400 \text{ V}$
- · - $M_{\max} = 360 \text{ V}$
- $M_{\max} @ I_{\max} = 3 \times I_0$
- · - $M_{\max} @ I_{\max} = 2 \times I_0$
- S1

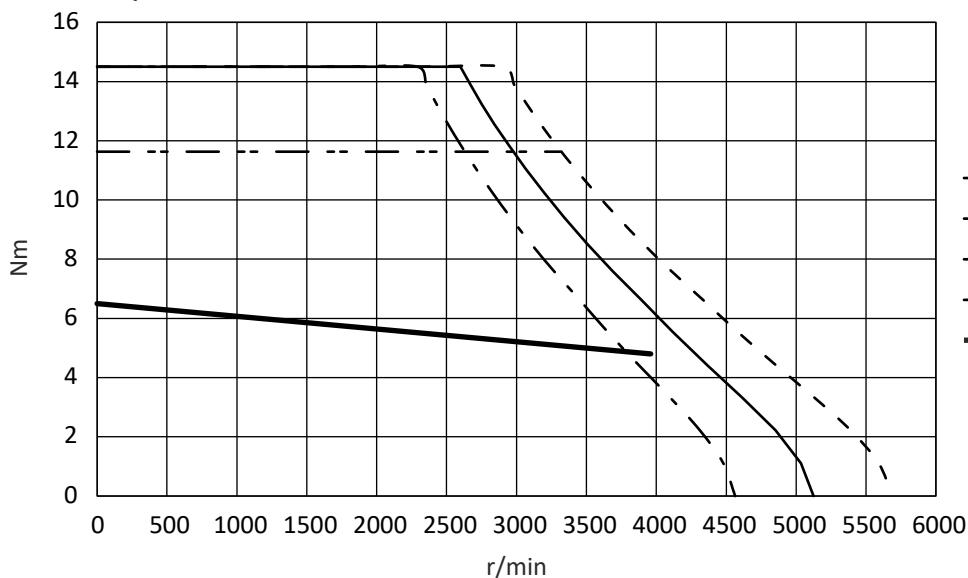


m850-S80/L5500



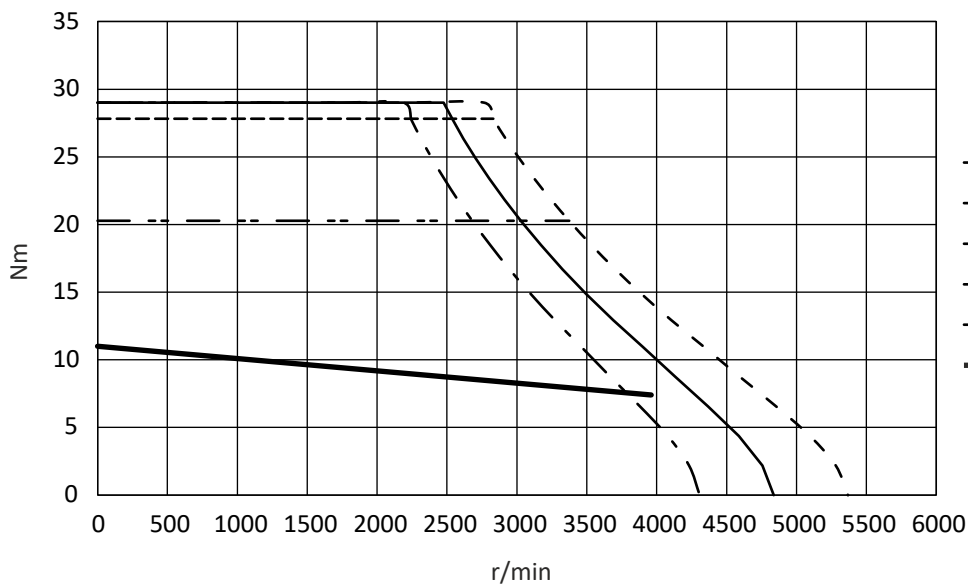
- $M_{\max} = 440 \text{ V}$
- $M_{\max} = 400 \text{ V}$
- - - $M_{\max} = 360 \text{ V}$
- $M_{\max} @ I_{\max} = 3x I_0$
- - - $M_{\max} @ I_{\max} = 2x I_0$
- S1

m850-S120/S3960



- $M_{\max} = 440 \text{ V}$
- $M_{\max} = 400 \text{ V}$
- - - $M_{\max} = 360 \text{ V}$
- $M_{\max} @ I_{\max} = 2x I_0$
- S1

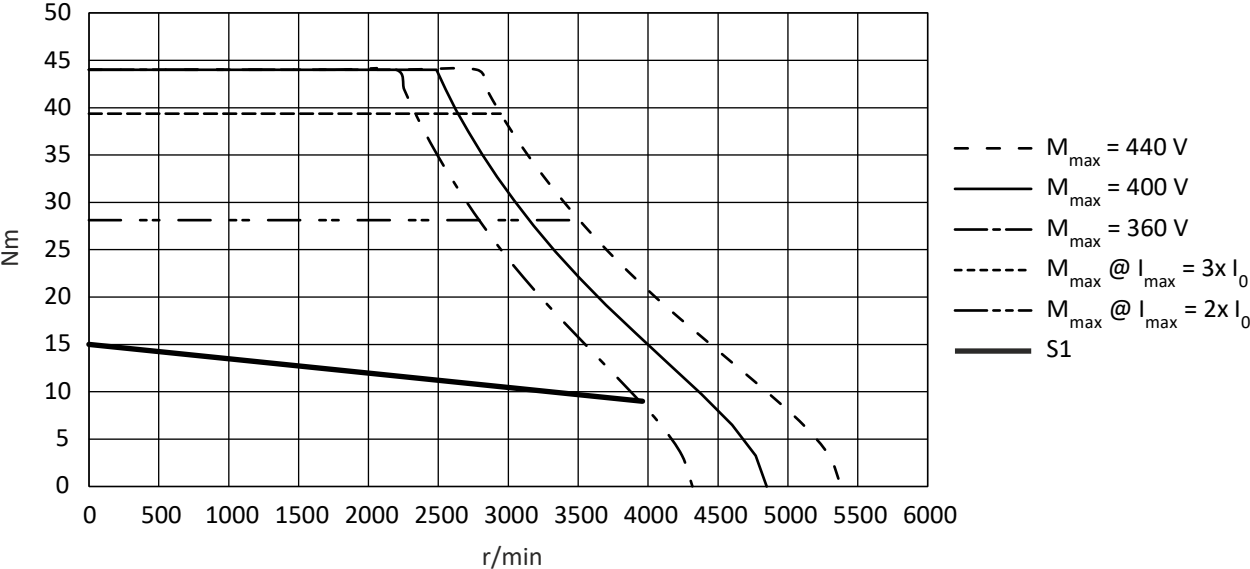
m850-S120/M3960



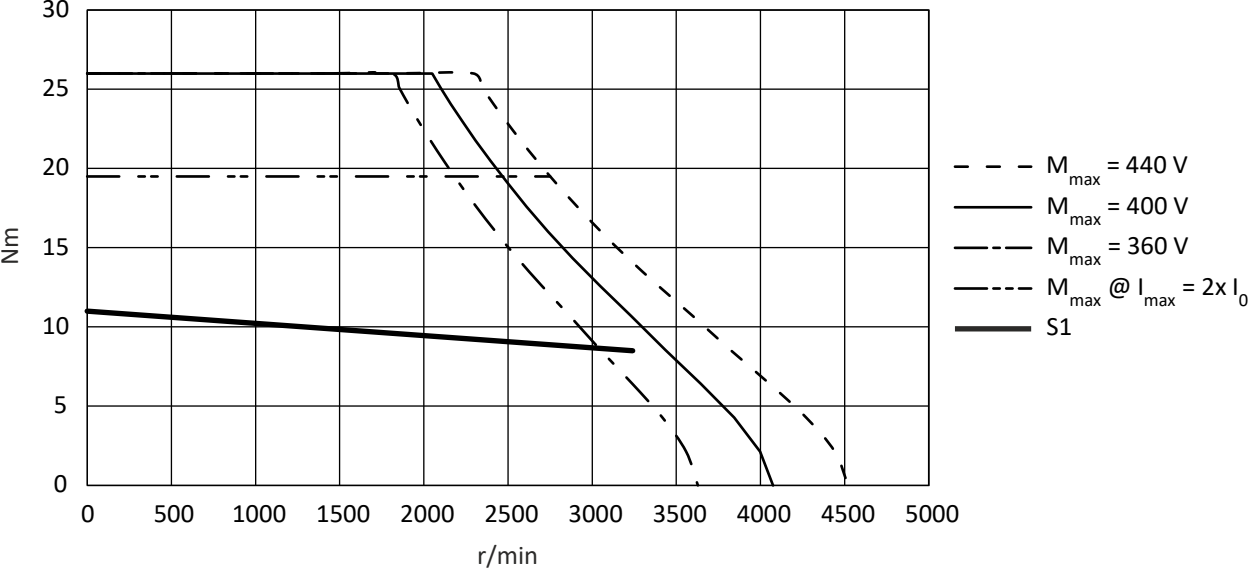
- $M_{\max} = 440 \text{ V}$
- $M_{\max} = 400 \text{ V}$
- - - $M_{\max} = 360 \text{ V}$
- $M_{\max} @ I_{\max} = 3x I_0$
- - - $M_{\max} @ I_{\max} = 2x I_0$
- S1



m850-S120/L3960

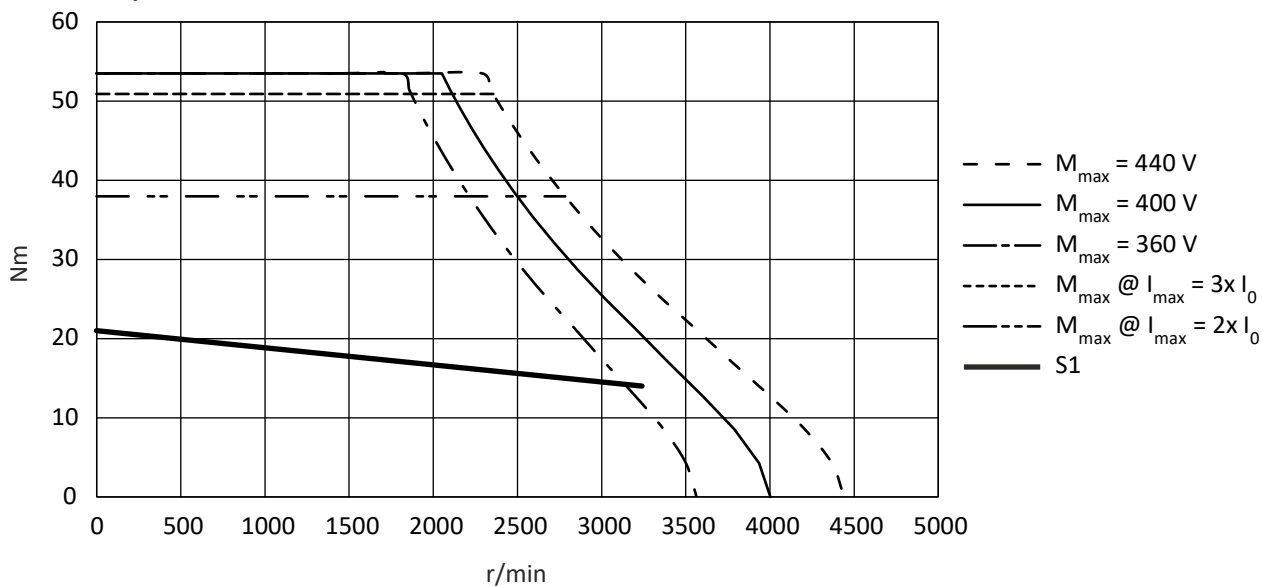


m850-S140/S3240

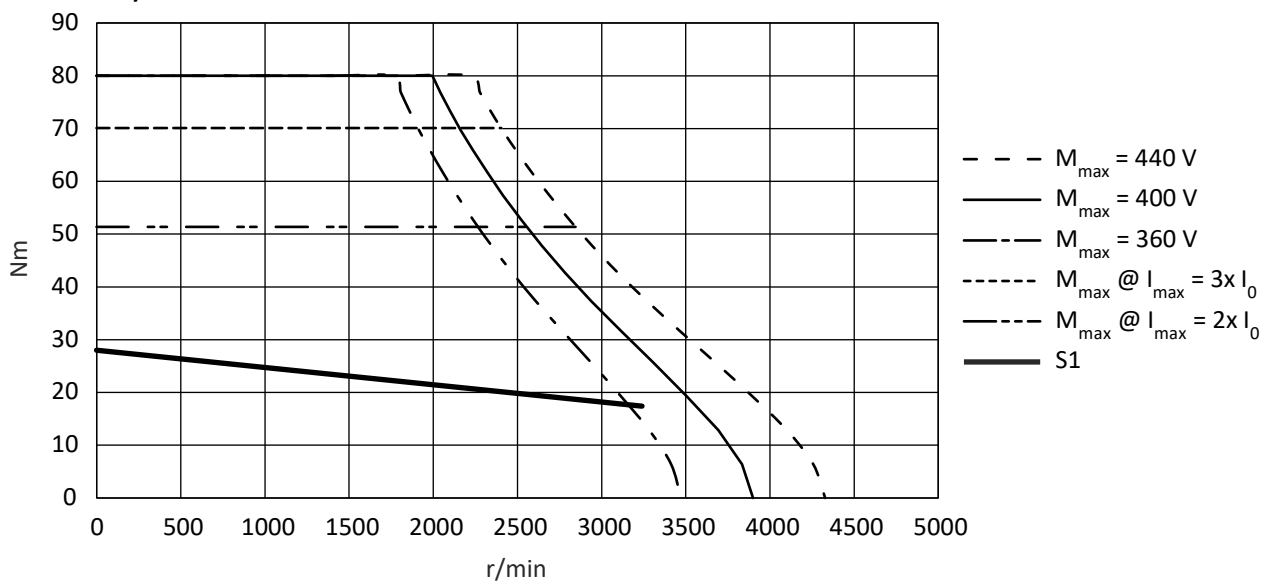




m850-S140/M3240

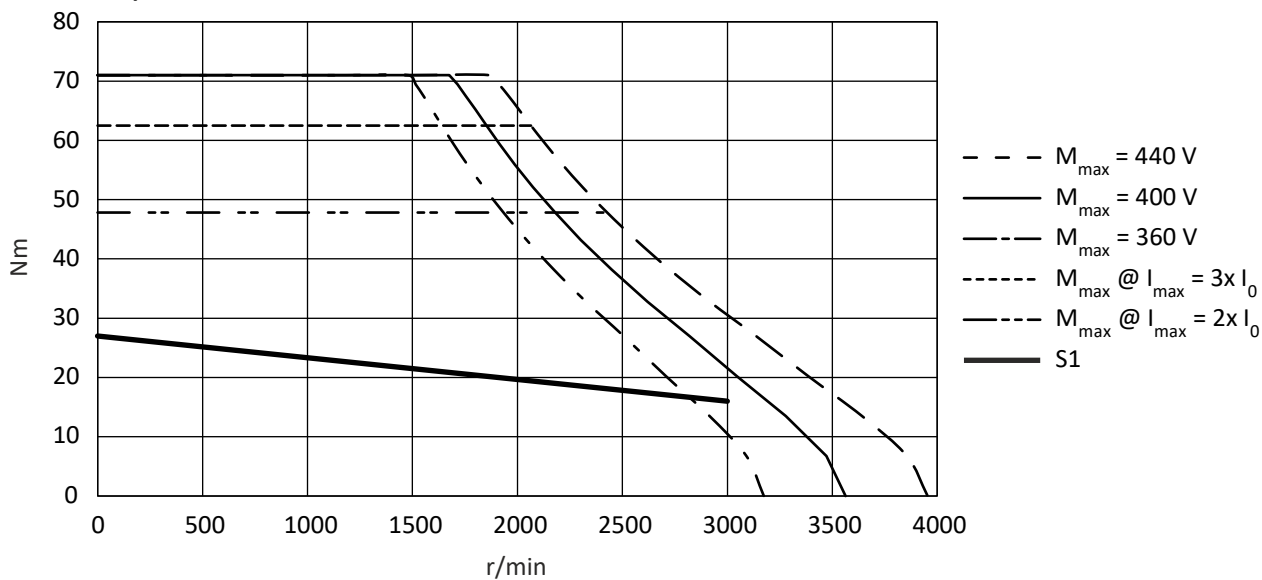


m850-S140/L3240

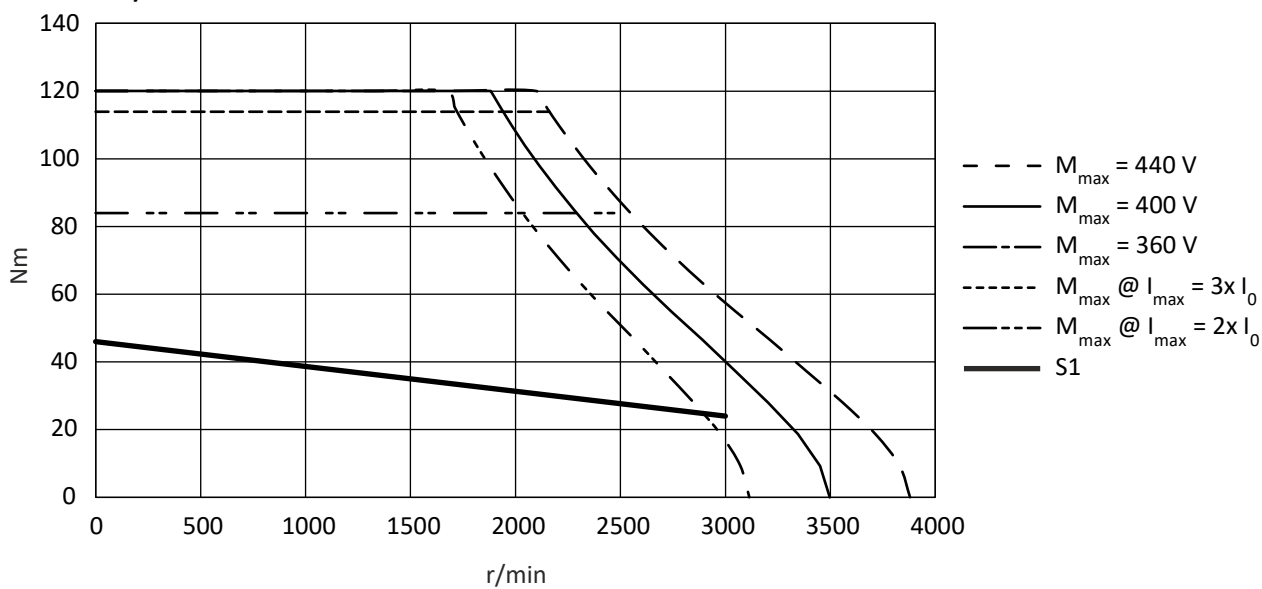




m850-S190/S3000

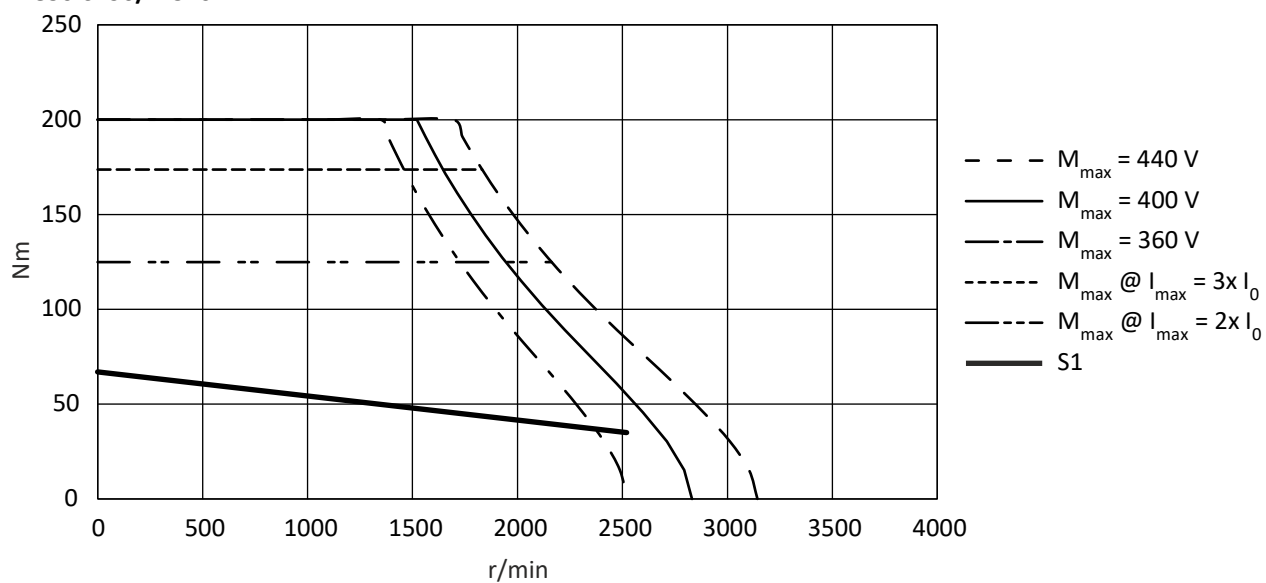


m850-S190/M3000





m850-S190/L2520





Environmental notes and recycling

Lenze has been certified to the worldwide environmental management standard for many years (DIN EN ISO 14001). As part of our environmental policy and the associated climate responsibility, please note the following information on hazardous ingredients and the recycling of Lenze products and their packaging:



Lenze products are partly subject to the EU Directive on the restriction of certain hazardous substances in electrical and electronic equipment 2011/65/EU: RoHS Directive [UKCA: S.I. 2012/3032 - The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012] . This is documented accordingly in the EU declaration of conformity and with the CE mark.



The crossed-out wheeled bin symbol is located on the equipment. This information indicates that used electrical and electronic products must not be disposed of with normal household waste.

The EU Directive 2012/19/EU: Directive on waste electrical and electronic equipment (WEEE) [UKCA: S.I. 2013/3113 - The Waste Electrical and Electronic Equipment Regulations 2013] , which has been transposed into national law by the respective EU member states, applies to the disposal of equipment. As a customer, you have the option of disposing of the electrical and electronic equipment that you have purchased from us and that is subject to WEEE via the Lenze branch in your country.

Lenze addresses in Europe: <https://www.lenze.com/en-de/company/global-presence>

Some Lenze products contain batteries/rechargeable batteries in accordance with EU Directive 2006/66/EC: Battery Directive [UKCA: S.I. 2009/890 - The Waste Batteries and Accumulators Regulations 2009] . Any batteries/rechargeable batteries included are designed to last the life of the product and do not need to be replaced or otherwise removed by the end user.



Lenze products are usually sold with cardboard or plastic packaging. This packaging complies with EU Directive 94/62/EC: Directive on packaging and packaging waste [UKCA: S.I. 1997/648 - The Producer Responsibility Obligations (Packaging Waste) Regulations 1997] . The required disposal route is indicated by material-specific labels with the "recycling triangle". Example: "21 - other cardboard"

REACH

Lenze products are subject to REGULATION (EC) No 1907/2006: REACH Regulation [UKCA: S.I. 2008/2852 - The REACH Enforcement Regulations 2008] . When used as intended, exposure of substances to humans, animals and the environment is excluded.

Lenze products are industrial electrical and electronic products and are disposed of professionally. Both the mechanical and electrical components such as electric motors, gearboxes or inverters contain valuable raw materials that can be recycled and reused. Proper recycling and thus maintaining the highest possible level of recyclability is therefore important and sensible from an economic and ecological point of view.

- Coordinate professional disposal with your waste disposal company.
- Separate mechanical and electrical components, packaging, hazardous waste (e.g. gear oils) and batteries/rechargeable batteries wherever possible.
- Dispose of the separated waste in an environmentally sound and proper manner (no household waste or municipal bulky waste).

What?	Material	Disposal instructions
Pallets	Wood	Return to manufacturers, freight forwarders or reusable materials collection system
Packaging material	Paper, cardboard, pasteboard, plastics	Collect and dispose of separately
Products		
Electronic devices	Metal, plastics, circuit boards, heatsinks	As electronic waste give to professional disposer for recycling
Gearbox	Oil	Drain oil and dispose of separately
	Casting, steel, aluminium	Dispose as metal scrap
Motors	Casting, copper, rotors, magnets, potting compound	As engine scrap give to professional disposer for recycling
Dry-cell batteries/rechargeable batteries		As used batteries give to professional disposer for recycling



Further information on Lenze's environmental and climate responsibility and on the topic of energy efficiency can be found on the Internet:

www.Lenze.com → search word: "Sustainability"



Appendix

Good to know

Operating modes of the motor

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.

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

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.
P Power t Time t_L Idle time θ Temperature	P_V Power loss t_B Load period t_S Cycle duration

Enclosures

The protection class indicates the suitability of a product for specific ambient conditions with regard to humidity as well as the protection against contact and the ingress of foreign particles. The protection classes are classified in the EN 60034-5/ EN IEC 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 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 the like.	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 or the like.	3	Protection against spraying water, up to 60° from vertical.
4	Protection against granular foreign particles, $d > 1$ mm, keeping away tools, wire or 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).

