8LVB gear motors

User's manual

Version: **1.0 (2018-02-05)**
Model no.: **MAMOT8-ENG**

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1 General information

1.1 Manual history

Version	Date	Comment
1.00	2018-02-05	First edition

Information:

B&R makes every effort to keep user's manuals as current as possible. New versions are made available in electronic form on the B&R website at www.br-automation.com. Check regularly whether you have the latest version.

1.2 About this user's manual

This user manual describes the product, informs you how to use it and warns of possible dangers.

The personnel responsible for installation, operation, fault rectification, maintenance and cleaning must read and understand this manual before starting any work. The machine documentation must also be taken into account; the product described here is a component of this. This, along with observing all specifications and safety guidelines, will ensure safe operation and a long service life.

As a component of the machine, this manual is to be made freely accessible and stored in the immediate vicinity of the machine.

In addition to the information in this manual, local accident prevention regulations and national industrial safety regulations apply.

Information:

This user's manual is not intended for end customers! It is the responsibility of the machine manufacturer or system provider to provide the safety guidelines relevant to end customers in the operating instructions for the end customer in the respective local language.

1.3 Safety

This chapter provides you with safety-related information about working with the product.

Safety guidelines relevant to certain phases of the product's service life have been documented in the relevant chapters in this manual.

1.3.1 Organization of safety notices

Safety notices in this manual are organized as follows:

Safety notice	Description
Danger!	Disregarding these safety guidelines and notices can be life-threatening.
Warning!	Disregarding these safety guidelines and notices can result in severe injury or substantial damage to property.
Caution!	Disregarding these safety guidelines and notices can result in injury or damage to property.
Note:	This information is important for preventing errors.

1.3.2 Intended use

B&R motors and gear motors are components designed for installation in electrical systems or machines. They were designed, developed and manufactured for general industrial use. They are intended to be operated in covered rooms and under normal climatic conditions, which is usually the case in modern production halls. When used in residential areas, commercial areas or small businesses, additional filtering measures are required or must be provided by the user. The motors are only permitted to be used with servo drives that are operated on grounded, three-phase industrial power systems (TN, TT power system).

Use in accordance with the intended purpose is prohibited until:

- It has been determined that the machine complies with the provisions of EC directive 2006/42/EC (Machinery Directive) and EMC Directive 2014/30/EU.
- All values specified on the type plate and in the user's manual (e.g. connection and environmental conditions) have been observed.

1.3.3 Reasonably foreseeable misuse

Use of this product in areas with fatal risks or dangers is prohibited!

> **Danger!**
>
> **Severe personal injury and damage to property due to failure!**
>
> **When used without ensuring exceptionally high safety measures, death, injury, severe physical impairments or other serious losses are possible.**
>
> **Do not use the product in the following areas, as well as other areas associated with fatal risks or dangers:**
>
> - **Explosive areas**
> - **Monitoring nuclear reactions in nuclear power plants**
> - **Flight control systems and air traffic control**
> - **Managing mass transport systems**
> - **Medical life support systems**
> - **Controlling weapons systems**
>
> **In special cases – use in non-commercial installations – with additional requirements (e.g. protection of children's fingers), these requirements must be satisfied during setup on the system side.**

1.3.4 General sources of danger

Tampering of protection or safety devices

Protective and/or safety devices protect you and other persons from dangerous voltage, rotating or moving elements and hot surfaces.

> **Danger!**
>
> **Personal injury and property damage caused by tampering of protective equipment!**
>
> **If protective or safety devices are removed or put out of operation, there is no longer any personal protection and serious personal injury and property damage can occur.**
>
> - **Do not remove any safety devices.**
> - **Do not put any safety devices out of operation.**
> - **Always use all safety devices during short-term test and trial operations!**

Dangerous voltage

To operate the motors, dangerous voltage must be applied to certain parts.

Danger!

Risk of injury due to electric shock!

There is an immediate risk of fatal injury in case of contact with live parts.

If connections are connected or disconnected in the wrong order or under voltage, arcs can arise and persons and contacts can be damaged.

Even if the motor does not turn or is driven externally as a generator, the control and power connections can still conduct voltage!

- **Never touch the connectors when the power is on.**
- **Never disconnect or connect electrical connections to the motor and servo drive under voltage!**
- **Do not remain in the dangerous zone during operation; secure the danger zone from access by unauthorized persons.**
- **Always operate the motor with all of its safety features. You should also do this during short-term testing and trial operations!**
- **Keep all covers and switch cabinet doors closed during operation and for as long as the machine has not been disconnected from the mains.**
- **Before working on motors, gearboxes or servo drives or in the danger zone of your machine, disconnect them completely from the power system and secure them against being switched on again by other persons or automatic systems.**
- **Note the discharging time of an intermediate circuit, if present.**
- **Only connect the measuring instruments in the absence of current and voltage!**

Danger due to electromagnetic fields

Electromagnetic fields are generated by the operation of electrical power engineering equipment such as transformers, drives and motors.

Danger!

Danger to health due to electromagnetic fields!

The functionality of a heart pacemaker can be impaired by electromagnetic fields to such an extent that the wearer experiences harm to his or her health, possibly with a fatal outcome.

- **Persons with pacemakers are not allowed to be in endangered areas.**
- **Warn staff by providing information, warnings, and safety identification.**
- **Secure the danger zone by means of barriers.**
- **Reduce electromagnetic fields at their source (using shielding, for example).**

Dangerous motion

By rotating and positioning motions of the motors, machine elements are moved or driven and loads conveyed.

After switching on the machine, movements of the motor shaft must always be expected! For this reason, higher-level safety precautions need to be put in place to ensure that personnel and machines are protected. This type of protection can be achieved, for example, by using stable mechanical protective equipment such as protective covers, protective fences, protective gates or photoelectric sensors.

In the immediate vicinity of the machine, provide sufficient and easily accessible emergency stop switches to stop the machine as quickly as possible in the event of an accident.

Danger!

Danger of injury due to rotating or moving elements and loads!

By rotating or moving elements, body parts can be drawn in or severed or subjected to impacts.

- **Do not remain in a dangerous area during operation and secure it from access by unauthorized persons.**
- **Before working on the machine, secure it against unwanted movements. Any holding brake present is not suitable for this!**
- **Keep all covers and switch cabinet doors closed during operation and for as long as the machine has not been disconnected from the mains.**
- **Always operate the motor with all of its safety features. You should also do this during short-term testing and trial operations!**
- **Motors can be started automatically via remote control! If appropriate, a corresponding warning symbol must be applied, and protective measures must be implemented to prevent entry into the high-risk area.**

Warning!

Danger of injury due to incorrect control or a defect.

Improper control of motors or a defect can result in injuries and unintended and hazardous movements of motors.

Such incorrect behavior can be triggered by:

- **Incorrect installation or mishandling of components**
- **Improper or incomplete wiring**
- **Defective devices (servo drive, motor, position encoder, cables, brake)**
- **Incorrect control (e.g. caused by software error)**

Risk due to hot surfaces

Due to the loss of power from the motor and friction in the gearbox, these components as well as their environment can reach a temperature of more than 100°C.

The resulting heat is released to the environment via the housing and the flange.

Warning!

Risk of burns due to hot surfaces!

Touching hot surfaces (e.g. motor and gearbox housings, as well as connected components), can lead to very severe burns due to the very high temperature of these parts.

- **Do not remain in a dangerous area during operation and secure it from access by unauthorized persons.**
- **Never touch the motor or gearbox housing as well as adjacent surfaces during nominal load operation.**
- **Be aware of hot surfaces also during downtime.**
- **Allow motor and gearbox to cool sufficiently before working on it. Because even after shutting down, there is still a risk of burning for a prolonged period of time.**
- **Always operate the motor or gearbox with all safety devices. You should also do this during short-term testing and trial operations!**

1.3.5 Provisions and safety guidelines

To ensure proper commissioning and safe operation, be sure to observe the following:

- General safety regulations
- Applicable industrial safety regulations
- National accident prevention regulations (e.g. VBG 4) for working with high-voltage systems

- National, local and plant-specific regulations for your end product
- Relevant regulations for electrical installations (e.g. cable cross-section, fuses, protective conductor connection). The values provided in chapter "Technical data" must also be taken into account here.

The operator is solely responsible for these and all other regulations applicable at the place of use.

1.3.6 Responsibilities of the operator

The operator is the person who uses the motor for commercial purposes or who provides it for use by a 3rd party while carrying legal product responsibility for the protection of the user, personnel or other 3rd parties.

The operator is obligated

- to know and implement applicable industrial safety regulations
- to know and implement national, local and plant-specific regulations
- to conduct a risk assessment to identify hazards related to on-site working conditions
- to create documentation with safety guidelines for operation of the finished system (with motors, gears, servo drives, etc.)
- to periodically verify that his own operating instructions and manuals correspond to the current status of applicable regulations
- to clearly define and assign responsibilities for installation, operation, troubleshooting, maintenance and cleaning
- to ensure that relevant personnel have read and understood this user's manual
- to provide personnel with regular training and inform them of hazards
- to provide personnel with the necessary protective equipment

1.3.7 Qualified personnel

All tasks such as the transport, installation, commissioning and servicing of devices are only permitted to be carried out by qualified personnel. These are persons who are familiar with the transport, mounting, installation, commissioning and operation of devices who also have the appropriate qualifications (e.g. IEC 60364). National accident prevention regulations must be observed.

The safety notices, information on connection conditions (type plate and documentation) and limit values specified in the technical data are to be read carefully before installation and commissioning and must always be observed.

1.3.8 Safety notices

A "hot surface" warning sticker is provided with the product. Attach it to the assembled product so that it is visible at all times.

“Hot surface” warning sticker

1.3.9 Protective equipment

Always wear suitable safety clothing and equipment for your personal protection.

1.4 8LVB gear motors

Directly mounting gearboxes on the motors reduces weight, saves space and decreases moving masses.

8LVB gear motors

Motor/Gearbox combination (consisting of individual components, no 8LVB)

Equipped with either a resolver or a highly advanced EnDat 2.2 interface, these motor assemblies can meet the highest demands. With their low moment of inertia, motor/gearbox combinations from the 8LVB series are designed to be highly dynamic and are characterized by excellent self-acceleration properties.

As standard, these combinations come equipped with IP54 protection. By providing the highest performance in the smallest amount of space, they are among the most compact systems on the market.

8LVB motor/gearbox combinations are recommended for a wide range of applications and provide an optimal price/performance ratio in power ranges up to 1 kW. With gearboxes in the 8GM series (M - gearbox mounted directly on the motor), there is the option of choosing between standard gearbox series 8GM40 and 8GM50. The 8GM50 series is optimized for increased radial and axial forces. Gearboxes in the standard series are 1-stage for gear ratios i = 3, 4, 5, 8 and 10 with a backlash <8-15 arcminutes. In addition, these gearboxes are also available with a two-stage design with an optional smooth shaft.

Highlights

- The integrated design reduces weight, saves space and decreases moving mass
- Highly dynamic drives with low moment of inertia
- High torque in the smallest amount of space possible
- High degree of positioning precision due to the high-resolution absolute encoder system and low level of backlash
- Maximum power density
- Complete integration in the B&R system environment
- Power range up to 1 kW for 80 VDC and 320 VDC DC bus voltage
- 300° swivel double angular built-in connector and single-cable solution (hybrid)
- Robust industrial connectors with optimal EMC shielding
- Fast and easy locking of the connector

1.4.1 Standards and guidelines

The motors are intended for use in commercial plants and subject to the following standards and guidelines:

Standards

EN 60034- 1	Rotating electrical machines - measurement and operating behavior
EN 60034- 5	Degrees of protection provided by the integral design of rotating electrical machines
EN 60034- 6	Rotating electrical machines - Cooling types
EN 60034- 7	Rotating electrical machines - Classification of types of construction, mounting arrangements
EN 60034- 11	Rotating electrical machines - Thermal protection

Guidelines

Low voltage directive 2014/35/EU	The motors correspond to the low voltage directive (conformity).
EMC directive 2014/30/EU	To operate the motor in accordance with its intended use, it must comply with the protection requirements of the EMC directive. Proper installation (e.g. spatial separation of signal lines and power cables, shielded lines and cables) is the responsibility of the plant installer and system provider. If operating with a power converter, then the EMC guidelines of the power converter, encoder and brake manufacturers must be observed.
RoHS Directive 2011/65/EU	The motors in this series comply with the RoHS Directive (2011/65/EU) for the assessment of electrical and electronic products with respect to the restriction of hazardous substances.

Note:

National, local and plant-specific regulations must also be taken into account!

1.4.2 Type plate

The type plate clearly identifies each motor. The serial number ensures traceability.

Note:

- **The type plate must be visible at all times.**
- **The type plate is not permitted to be removed from the motor.**

1.4.2.1 Embedded parameter chip

All relevant mechanical and electrical information and data is stored in the EnDat encoder used for B&R motors. This means that the user does not have to configure settings on the servo drive. As soon as the encoder is connected to the servo drive and the power is applied to the electronics, the motor is automatically identified. The motor sends its nominal parameters and limit parameters to the servo drive. The drive then automatically determines the current limits and current control parameters required for optimal control of the motor. The only things that the user has to optimize are the speed and position controllers. The integrated commissioning environment in B&R Automation Studio™ provides all necessary support.

In addition to assistance during commissioning, routine service work is also simplified, and motors can be exchanged without having to take extra time to set parameters.

2 Technical data

2.1 General description

2.1.1 Cooling / Construction type

The 8LVB motor/gearbox combinations are self-cooling and extremely compact due to motor/gearbox direct mounting.

2.1.2 Sizes (c)

The 8LVB motor/gearbox combination is available in three different sizes (1, 2, 3). They have different dimensions and power data. These different sizes are indicated by a number represented by (c) in the model number. The larger the number, the larger the flange dimensions and power data for the respective motor.

	Available sizes		
Cooling / Construction type	**1**	**2**	**3**
B	Yes	Yes	Yes

2.1.3 Lengths (d)

The motor integrated in the 8LVB motor/gearbox combination is available in 2 different lengths. They have different power data with identical flange dimensions. The various lengths are differentiated by a number (d) in the order key.

	Available sizes		
Length	**1**	**2**	**3**
2	---	Yes	---
3	Yes	Yes	Yes

2.2 Motor encoder systems

General

Motors in the 8LV series are available with EnDat encoders as well as resolvers. The encoder system is listed as part of the model number in the form of a 2-digit code (**ee**).

Analog and digital transfer

A resolver is an analog encoder system. Resolvers are particularly robust against vibrations and high operating temperatures. A disadvantage is the low accuracy of 6-10 arcmin. Furthermore, no multi-turn variant with resolvers is possible.

Digital encoders use a serial transfer protocol. This protocol is called EnDat. The EnDat protocol is a developed standard that incorporates the advantages of absolute and incremental position measurement and also offers a read/write parameter memory in the encoder. The embedded parameter chip is stored by B&R in this encoder memory. This data and the B&R ACOPOS systems form a plug-and-play drive solution. Absolute positioning can be used within a revolution with the single-turn variants. A homing procedure is not required because of the absolute position measurement. For applications where the motor covers several revolutions for positioning, a multi-turn encoder that can save up to 65535 revolutions can be used. A solution with a single-turn encoder variant with a homing procedure is also possible.

2.2.1 Resolver

General information

RE-15-1-J04 resolvers are used in the motors.

Technical data

	Encoder type / Order code (ee)
	R0
Precision	10 angular minutes
Vibration during operation 10 < f ≤ 500 Hz	≤500 m/s²
Shock during operation Duration 11 ms	≤1,000 m/s²

2.2.2 EnDat 2.2 encoder

For the advanced, fully digital EnDat 2.2 protocol, the positions are generated directly in the encoder and communicated serially with the drive system. This transfer is very robust in relation to disturbances and is even certified for safety applications.

General information

Digital drive systems and position control loops require fast and highly secure transfer of data obtained from position measuring instruments. In addition, other data such as drive-specific characteristics, correction tables, etc. should also be available. To ensure a high level of system security, measuring instruments must be integrated in routines for detecting errors and be able to perform diagnostics.

The EnDat interface from HEIDENHAIN is a digital, bidirectional interface for measuring instruments. It is able to output position values from incremental and absolute measuring instruments and can also read and update information on the measuring instrument or store new data there. Because it relies on serial data transfer, only 4 signal lines are needed. Data is transferred synchronously to the clock signal defined by the subsequent electronics. The type of transfer used (e.g. for position values, parameters, diagnostics, etc.) is selected using mode commands sent to the measuring instrument by the subsequent electronics.

EnDat 2.2 encoders - Technical data

	Encoder type / Order code (ee)		
	B1	B8	B9
Operating principle	Inductive		
EnDat protocol	EnDat 2.2		
Single-turn / Multi-turn	M	S	M
Battery-backed	Yes	---	
Revolutions	65536	1	4096
Resolution [bits single-turn / bits multi-turn]	18/16	19/0	19/12
Precision ["]	120		
Switching frequency ≥ [kHz]	Digital pos. in the encoder		
Vibration during operation - Stator Max [m/s2]	300	400	
Vibration during operation - Rotor Max [m/s2]	300	600	
Max. shock during operation [m/s2]	1000	2000	
Manufacturer's product ID	EBI 1135	ECI 1119 FS	EQI 1131 FS
Manufacturer's website	www.heidenhain.de		

2.3 Options for motor/gearbox combinations

We deliver 8LVB series motor/gearbox combinations as follows:

- With various motor encoders
- With various gear ratios
- With 1- or 2-stage gearboxes
- With or without a holding brake
- Keyed or smooth shaft end
- With various nominal speeds
- Available with double angular built-in connector or single-cable solution (hybrid)

2.3.1 Motor encoder (ee)

Encoders are listed as part of the model number in the form of a 2-digit code (**ee**).

Size/Length	Code for order key (ee) / Availability of motor encoders			
	R0	B1	B8	B9
8LVx**13**	Yes	Yes	---	---
8LVx**22**	Yes	Yes	Yes	Yes
8LVx**23**	Yes	Yes	Yes	Yes
8LVx**33**	Yes	Yes	Yes	Yes

2.3.2 Available gear ratios (iii)

The code (**iii**) in the model number contains the gear ratio.

Planetary gearboxes for direct motor mounting - Order code (iii)		
Gearbox series	**1-stage:**	**2-stage:**
8GM40	003, 004, 005, 008, 010	009, 012, 015, 016, 020, 025, 032, 040, 064, 100
8GM50	003, 004, 005, 008, 010	009, 012, 015, 016, 020, 025, 032, 040, 064, 100

2.3.3 Gearbox series, holding brake, shaft end (jj)

The code(**jj**) with the corresponding device options can be found in the following table:

Gearbox series 8GM40	Motor option Holding brake	Output Shaft end	Code for order key (jj)
	---	Smooth	S0
	---	With key	S1
	Yes	Smooth	S4
	Yes	With key	S5

Gearbox series 8GM50	Motor option Holding brake	Output Shaft end	Code for order key (jj)
	---	Smooth	L0
	---	With key	L1
	Yes	Smooth	L4
	Yes	With key	L5

2.3.3.1 Available motor / gearbox combinations

	8GM40			8GM50		
Gearbox size	**40**	**60**	**80**	**50**	**70**	**90**
Motor						
8LVB13 n = 1500 rpm	Yes	---	---	Yes	---	---
8LVB13 n = 1500 rpm with brake	Yes	---	---	Yes	---	---
8LVB13 n = 3000 rpm	Yes	---	---	Yes	---	---
8LVB13 n = 3000 rpm with brake	Yes	---	---	Yes	---	---
8LVB22 n = 1500 rpm	---	Yes	---	---	Yes	---
8LVB22 n = 1500 rpm with brake	---	Yes	---	---	Yes	---
8LVB22 n = 3000 rpm	---	Yes	---	---	Yes	---
8LVB22 n = 3000 rpm with brake	---	Yes	---	---	Yes	---
8LVB23 n = 950 rpm	---	Yes	---	---	Yes	---
8LVB23 n = 950 rpm with brake	---	Yes	---	---	Yes	---
8LVB23 n = 1500 rpm	---	Yes	---	---	Yes	---
8LVB23 n = 1500 rpm with brake	---	Yes	---	---	Yes	---
8LVB23 n = 3000 rpm	---	Yes	---	---	Yes	---
8LVB23 n = 3000 rpm with brake	---	Yes	---	---	Yes	---
8LVB33 n = 500 rpm	---	---	Yes	---	---	Yes
8LVB33 n = 500 rpm with brake	---	---	Yes	---	---	Yes
8LVB33 n = 1500 rpm	---	---	Yes	---	---	Yes
8LVB33 n = 1500 rpm with brake	---	---	Yes	---	---	Yes
8LVB33 n = 2100 rpm	---	---	Yes	---	---	Yes
8LVB33 n = 2100 rpm with brake	---	---	Yes	---	---	Yes

2.3.3.2 Holding brake

Motors in the 8LV series can be delivered with a holding brake. It is used to hold the motor shaft when no power is applied to the motor.

Operating principle

The holding brake is controlled by the ACOPOS servo drive. It uses permanent magnets that are demagnetized when 24 VDC is applied to a magnet winding. This releases the brake.

This brake is designed as a holding brake and is not permitted to be used for operational braking! Under these conditions, the brake has a service life of approximately 5,000,000 switching cycles (opening and closing the brake is one cycle).

Loaded braking during an emergency stop is permitted but reduces its service life. The required brake holding torque is determined based on the actual load torque. It is recommended to take into account a safety factor of 2 for the load torque.

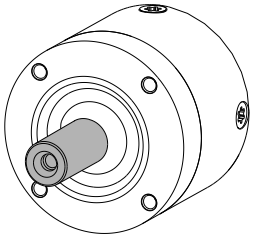
Technical data for the standard holding brake

	Motor size		
	1	**2**	**3**
Holding torque M_{Br} [Nm]	0.35	2.2	3.2
Connected load P_{On} [W]	8	8.4	13.4
Maximum speed nmax [rpm]	6000	12000	12000
Supply current I_{On} [A]	0.33	0.35	0.56
Supply voltage U_{On} [V]	24 VDC +6% / -10%	24 VDC +6% / -10%	24 VDC +6% / -10%
Moment of inertia J_{Br} [kgcm²]	0.013	0.07	0.38
Mass m_{Br} [kg]	0.1	0.16	0.29

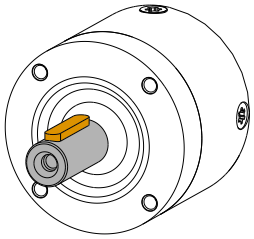
2.3.3.3 Design of the shaft end

The motor/gearbox combinations from the 8LVB series can be delivered with a smooth or keyed shaft end.

Smooth shaft end
A smooth shaft end is used for a force-fit shaft-hub connection and guarantees a backlash-free connection between the shaft and hub as well as a high degree of operating smoothness. The end of the shaft has a threaded center hole.



Keyed shaft end
A keyed shaft end is used for a form-fit torque transfer with low demands on the shaft-hub connection and for handling torque in a constant direction.
The keyways of the gear units of the 8LVB series conform to keyway form N1 in accordance with DIN 6885-1. The end of the shaft has a threaded center hole that can be used to mount machine actuators with shaft end cover plates.

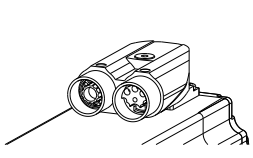


2.3.4 Nominal speed / Connection type (nn)

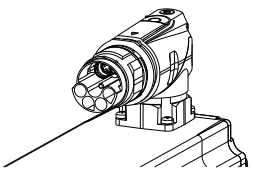
The first position (**n**n) of the two-position code (**nn**) is the **nominal speed**. The second position (n**n**) is the **connection type**.

The **nominal speed** (**n**n) of the motor is specified as the speed class in the order key. Speed class is broken up into steps of 500 [rpm] and begins at 80 VDC operation at A = 500 [rpm]. (Deviations include nominal speed 950 [rpm] as class B = 1000 [rpm] and nominal speed 2100 [rpm] as class D = 2000 [rpm].)

The **connection type** (n**n**) of the motor in represented in the order key with n**W** for double angular built-in connector and n**S** for single-cable solution (hybrid).



Double angular built-in connector (n**W**)



Single-cable solution (n**S**)

Available combinations

	Available nominal speeds n_N [rpm] at 80 VDC operation				
	500	**950**	**1500**	**2100**	**3000**
	Code for nominal speed class (nn) (code for nominal speed class and connection type)				
Size/Length	**An (AW/AS)**	**Bn (BW/BS)**	**Cn (CW/CS)**	**Dn (DW/DS)**	**Fn (FW/FS)**
8LVB**13**	---	---	Yes	---	Yes
8LVB**22**	---	---	Yes	---	Yes
8LVB**23**	---	Yes	Yes	---	Yes
8LVB**33**	Yes	---	Yes	Yes	---

Example: The 2-position code (**nn**) for **nominal speed 1500 n_N [rpm]** is either **CW** or **CS** for the **double angular built-in connector** or **single-cable solution (hybrid)**, respectively.

2.4 8LVB - Order key

Order key

8LV	b	c	d	.	ee	iii	jj	nn	ll

Cooling type / construction (See section "Cooling types")

B...Motor with gearbox directmounting, selfcooled

Sizes (See section "Sizes")
Valid values: **1,2,3**

Lengths (See section "Lengths")
valid values: **2,3**

Encoder system (See section "Motor encoder systems")
R0...Resolver
B1...Endat 2.2 Multiturn, 16 - lines
B8...Endat 2.2 Singleturn
B9...Endat 2.2 Multiturn

Gear ratios and number of stages (See section "Available ratios")

iii...z.B. 003 corresponds to a gear ratio of i = 3
Valid vaues e.g.: **003, 012, 100**

Gear box series with motor option and shaft end

(See section "Gear box series, Holding brake, Shaft end")
Valid values (examples): **S0, L1**

Nominal speed / connection type (see section "Nominal speed"/ "Connection type")

Speed classes:
An...500 rpm
Bn...1000 rpm (corresponds to 950 rpm)
Cn...1500 rpm
Dn...2000 rpm (corresponds to 2100 rpm)
Fn...3000 rpm

Connection type:
nW...angled swivel connector
nS...angled single-cable solution (hybrid)

Valid values: **AW, BS, FW**

Special options
00...No special options

Additional motor options or special motor options must be arranged with B&R

2.4.1 Example order 1

A servo gear motor of type **8LVB 13** with a rated speed of 1500 rpm was selected for an application. The motor should be equipped with a holding brake and an EnDat encoder (B1). The gearbox should have a gear ratio of i = 010 and the shaft end should have a key. The connection type should be a double angular built-in connector.

The code for the encoder system (ee) is B1.

The code for the gear ratio (iii) is 010.

The code for standard gearboxes with a keyed output shaft is S5.

The code for the motor brake here is 5 (already included in S5!).

The code for nominal speed (n**n**) 1500 rpm is C.

The code for the double angular built-in connector connection type (n**n**) is W.

The model number for the required motor/gearbox combination is **8LVB13.B1010S5CW00**.

2.4.2 Example order 2

A servo gear motor of type **8LVB 33** with a nominal speed of 2100 rpm was selected for an application. The motor should not be equipped with a holding brake. It should be equipped with EnDat encoder B8. The gearbox should have a gear ratio of i = 020 and a smooth shaft end. Gearbox 8GM50 was selected. The connection type should be a single-cable solution (hybrid).

The code for the encoder system (ee) is B8.

The code for the gear ratio (iii) is 020.

The code for gearbox 8GM50 with a smooth output shaft is L0.

The code for the option without a motor brake is 0 here (already included in L0!).

The code for the nominal speed (n**n**) 2100 rpm is D (2100 rpm is assigned to speed class D = 2000 rpm).

The code for the angled single-cable solution (hybrid) connection type (n**n**) is S.

The model number for the required motor/gearbox combination is **8LVB33.R0020L0DS00**.

2.5 Gear motors - General data

General information	Cooling type B
CE certification	Yes
C-UR-US listed	Yes
UL file number	PRHZ2.E235396 [1]

Electrical characteristics	
DC bus voltage on the ACOPOSmicro	80VDC [2]
Connection type - Conventional line connection / encoder connection	ytec circular connector from Intercontec
Connection type - Single-cable solution (hybrid)	htec circular connector from Intercontec

Thermal characteristics and operating conditions	
Thermal motor protection in accordance with EN 60034-11	Size 1: No, size 2 and 3: KTY 83-110, operation of the motor in accordance with 60K characteristic curve
Ambient temperature during operation	-15°C to +40°C
Max. ambient temperature during operation	+50°C [3]
Reduction of the nominal current and stall current at temperatures above 40°C	-10% per 10°C temperature increase above 40°C
Reduction of the nominal current and stall current at installation elevations over 1000 m above sea level	-10% per 1000 m
Maximum installation elevation	2000 m [4]
Rating class, operating mode in accordance with EN 60034-1	S1 - Continuous operation
EN 60034-5 protection (IP code)	IP54 [5]
Construction and mounting arrangement type in accordance with EN 60034-7 (IM code)	Horizontal (IM3001) Vertical, motor hangs on the machine (IM3011) Vertical, motor stands on the machine (IM3031)

Mechanical characteristics	
Roller bearing, dynamic load ratings and nominal service life	Based on DIN ISO 281
Key and keyway in accordance with DIN 6885-1	Form A keys, form N1 keyway
Smooth rotation of shaft end, coaxial properties and mounting flange plane in accordance with DIN 42955	Tolerance R

Storage and transport conditions	
Storage temperature	-20 to +60°C
Relative humidity during storage	Max. 90%, non-condensing
Transport temperature	-20 to +60°C
Relative humidity during transport	Max. 90%, non-condensing

2.5.1 Limiting the output torque of the motor to M_{K0}

For certain gear motors, it is necessary to limit the driving torque of the motor in the application during **continuous operation (S1 characteristic curve**. The dt60K curve must be observed for this. This is required due to the worsened thermal connection resulting from the gearbox mounting. Limit values are listed in the individual technical data records!

2.5.2 Limiting the peak torque of the motor to M_{Kmax}

For certain gear ratios, it is necessary to**limit the peak torque of the motor in the application** in order to prevent an overload of the gear motor. The limit values are specified for the fatigue strength of the gearbox. The limit values are specified in the individual technical data records!

[1] Only valid for the motor without gearbox.
[2] Permitted DC bus voltage on the ACOPOS single-phase: 320 VDC
[3] Continuous operation at ambient temperatures ranging from +40°C to max. +50°C is possible, but this will result in a shorter service life.
[4] Requirements that go beyond this must be arranged with B&R.
[5] The protection ratings are only achieved if the power and signal connections are installed properly.

2.5.3 Formula symbols

Term	Symbol	Unit	Description
Nominal speed	n_N	rpm	Nominal speed of the motor
Nominal torque	M_N	Nm	The nominal torque is output by the motor ($n = n_N$) when the nominal current is being drawn. This is possible for any length of time if the environmental conditions are correct.
Nominal power	P_N	kW	The nominal power is output by the motor when $n = n_N$. This is possible for any length of time if the environmental conditions are correct.
Nominal current	I_N	A	The nominal current is the RMS value for the phase current (current in the motor supply line) when generating the nominal torque at the nominal speed. This is possible for any length of time if the environmental conditions are correct.
Stall torque	M_0	Nm	The stall torque is output by the motor at the speed n_0 and when the stall current is being applied. This is possible for any length of time if the environmental conditions are correct. Speed n0 must be high enough so that the winding temperature in all windings is uniform and steady (n_0= 50 rpm for B&R motors). The continuous torque is reduced when the motor is at a complete standstill.
Stall current	I_0	A	The stall current is the RMS value of the phase current (current in the motor supply line) for the generation of the stall torque at the speed n_0. This is possible for any length of time if the environmental conditions are correct. Speed n_0 must be high enough so that the winding temperature in all windings is uniform and steady (n_0= 50 rpm for B&R motors).
Peak torque	M_{max}	Nm	The peak torque is briefly output by the motor when the peak current is being drawn.
Peak current	I_{max}	A	The peak current is the RMS value of the phase current (current in the motor supply line) for generating the peak torque. This is only permitted to be drawn for a short time. The peak current is determined by the magnetic circuit. Exceeding this value for a short time can cause irreversible demagnetization of the magnet material.
Max. angular acceleration	a	rad/s²	Maximum acceleration of the motor without a load or brake. Value for the dynamics of the motor (corresponds to Mmax/J).
Maximum speed	n_{max}	rpm	Maximum motor speed. This is a mechanical condition (centrifugal force, bearing wear).
Average speed	n_{Avg}	rpm	Average speed for one cycle
Torque constant	K_t	Nm/A	The torque constant determines the torque generated by the motor with 1 A RMS phase current. This value applies at a motor temperature of 20°C. If the temperature increases, the torque constant is reduced (typically down to 10%). If the current increases, the torque constant is reduced (typically starting at twice the value of the nominal current).
Voltage constant	K_E	V/1000 rpm	The voltage constant specifies the RMS value (phase-phase) of the reverse voltage induced by the motor at a speed of 1000 rpm (EMF). This value applies at a motor temperature of 20°C. When the temperature increases, the voltage constant is reduced (usually down to 5%). If the current increases, the voltage constant is reduced (typically starting at twice the value of the nominal current).
Stator resistance	R_{2ph}	Ohm	Resistance measured in ohms between two motor connections (phase-phase) at 20°C winding temperature. On B&R motors, the windings use a star connection.
Stator inductance	L_{2ph}	mH	Winding inductance measured between two motor connections. Stator inductance depends on the rotor position.
Electrical time constant	t_{el}	ms	Corresponds to 1/5 of the time needed for the stator current to stabilize in constant operating conditions.
Thermal time constant	t_{therm}	min.	Corresponds to 1/5 of the time needed for the motor temperature to stabilize in constant operating conditions.
Moment of inertia	J	kgcm²	Moment of inertia for a motor without holding brake
Ground	m	kg	Mass of motor without holding brake

2.5.4 Power dissipation

Power from the motors is dissipated via the motor flange and surface of the motor. The following factors are important to ensure optimal heat dissipation:

- Thermally open installation
- Free convection

The motor data specified for the nominal operating point apply to a motor installed in a thermally open system. The dimensions of the flange plates used for measurement can be found in the following table.

Generally speaking: the larger the flange, the better the heat dissipation.

Size	Dimensions [mm]	Material
8LVx1, 8LVx2, 8LVx3	250x250x6	Aluminum

2.6 8LVB13-8GM40 - Technical data

Model number	8LVB13. ee003SjCn00	8LVB13. ee003SjFn00	8LVB13. ee004SjCn00	8LVB13. ee004SjFn00	8LVB13. ee005SjCn00	8LVB13. ee005SjFn00
Motor						
Nominal speed n_N [rpm]	1500	3000	1500	3000	1500	3000
Number of pole pairs	4					
Nominal torque M_n [Nm]	0.34	0.32	0.34	0.32	0.34	0.32
Nominal current I_N [A]	0.8	1.4	0.8	1.4	0.8	1.4
Stall torque M_0 [Nm]	0.36					
Stall current I_0 [A]	0.9	1.6	0.9	1.6	0.9	1.6
Maximum torque M_{max} [Nm]	1					
Maximum current I_{max} [A]	2.8	5.2	2.8	5.2	2.8	5.2
Maximum speed n_{max} [rpm]	6600					
Torque constant K_T [Nm/A]	0.42	0.23	0.42	0.23	0.42	0.23
Voltage constant K_E [V/1000 rpm]	25.13	13.61	25.13	13.61	25.13	13.61
Stator resistance R_{2ph} [Ω]	17.4	5.8	17.4	5.8	17.4	5.8
Stator inductance L_{2ph} [mH]	30.7	10.2	30.7	10.2	30.7	10.2
Electrical time constant t_{el} [ms]	1.76					
Thermal time constant t_{therm} [min]	15					
Moment of inertia J [kgcm²]	0.03					
Holding brake						
Holding torque of the brake M_{Br} [Nm]	0.35					
Moment of inertia for the brake J_{Br} [kgcm²]	0.013					
Gearbox						
Number of gear stages	1					
Gear ratio i	3		4		5	
Nominal output torque T_{2N} [Nm]	4.5		6			
Max. output torque T_{2max} [Nm]	7		10			
Emergency stop torque T_{2stop} [Nm]	9		12			
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	5000					
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	5000					
Max. backlash J_t [arcmin]	15					
Torsional rigidity C_{t21} [Nm/arcmin]	1					
Max. radial force Fr_{max} [N] for 30,000 h	160					
Max. radial force Fr_{max} [N] for 20,000 h	200					
Max. axial force Fa_{max} [N] for 30,000 h	160					
Max. axial force Fa_{max} [N] for 20,000 h	200					
Operating noise L_{PA} [dB(A)]	58					
Efficiency at full load ŋ [%]	96					
Moment of inertia J_1 [kgcm²]	0.027		0.01		0.008	
Shared values						
Max. permitted output torque M_{K0} [Nm]	0.836		1.12		1.39	
Max. permitted peak torque M_{Kmax} [Nm]	3		4		5	
Motor mass (without brake) [kg]	0.6					
Brake mass [kg]	0.1					
Gearbox mass [kg]	0.25					
Recommendations						
ACOPOS 8Vxxxx.xx...	1010.50					
ACOPOSmicro 80VD100Px.xxxx-01	C00X					
ACOPOS P3 8EIxxxx...	2X2M					
Cross section for B&R motor cables [mm²]	0.75					

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB13. ee008SjCn00	8LVB13. ee008SjFn00	8LVB13. ee010SjCn00	8LVB13. ee010SjFn00	8LVB13. ee009SjCn00	8LVB13. ee009SjFn00
Motor						
Nominal speed n_N [rpm]	1500	3000	1500	3000	1500	3000
Number of pole pairs	4					
Nominal torque M_n [Nm]	0.34	0.32	0.34	0.32	0.34	0.32
Nominal current I_N [A]	0.8	1.4	0.8	1.4	0.8	1.4
Stall torque M_0 [Nm]	0.36					
Stall current I_0 [A]	0.9	1.6	0.9	1.6	0.9	1.6
Maximum torque M_{max} [Nm]	1					
Maximum current I_{max} [A]	2.8	5.2	2.8	5.2	2.8	5.2
Maximum speed n_{max} [rpm]	6600					
Torque constant K_T [Nm/A]	0.42	0.23	0.42	0.23	0.42	0.23
Voltage constant K_E [V/1000 rpm]	25.13	13.61	25.13	13.61	25.13	13.61
Stator resistance R_{2ph} [Ω]	17.4	5.8	17.4	5.8	17.4	5.8
Stator inductance L_{2ph} [mH]	30.7	10.2	30.7	10.2	30.7	10.2
Electrical time constant t_{el} [ms]	1.76					
Thermal time constant t_{therm} [min]	15					
Moment of inertia J [kgcm²]	0.03					
Holding brake						
Holding torque of the brake M_{Br} [Nm]	0.35					
Moment of inertia for the brake J_{Br} [kgcm²]	0.013					
Gearbox						
Number of gear stages	1				2	
Gear ratio i	8		10		9	
Nominal output torque T_{2N} [Nm]	4.5		3.5		16.5	
Max. output torque T_{2max} [Nm]	7		5.5		27	
Emergency stop torque T_{2stop} [Nm]	9		7		33	
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	5000					
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	5000					
Max. backlash J_t [arcmin]	15				19	
Torsional rigidity C_{t21} [Nm/arcmin]	1				1.1	
Max. radial force Fr_{max} [N] for 30,000 h	160					
Max. radial force Fr_{max} [N] for 20,000 h	200					
Max. axial force Fa_{max} [N] for 30,000 h	160					
Max. axial force Fa_{max} [N] for 20,000 h	200					
Operating noise L_{PA} [dB(A)]	58					
Efficiency at full load η [%]	96				94	
Moment of inertia J_1 [kgcm²]	0.006		0.005		0.026	
Shared values						
Max. permitted output torque M_{K0} [Nm]	2.23		2.79		2.51	
Max. permitted peak torque M_{Kmax} [Nm]	5				9	
Motor mass (without brake) [kg]	0.6					
Brake mass [kg]	0.1					
Gearbox mass [kg]	0.25				0.35	
Recommendations						
ACOPOS 8Vxxxx.xx...	1010.50					
ACOPOSmicro 80VD100Px.xxxx-01	C00X					
ACOPOS P3 8EIxxxx...	2X2M					
Cross section for B&R motor cables [mm²]	0.75					

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB13. ee012SjCn00	8LVB13. ee012SjFn00	8LVB13. ee015SjCn00	8LVB13. ee015SjFn00	8LVB13. ee016SjCn00	8LVB13. ee016SjFn00
Motor						
Nominal speed n_N [rpm]	1500	3000	1500	3000	1500	3000
Number of pole pairs	4					
Nominal torque M_n [Nm]	0.34	0.32	0.34	0.32	0.34	0.32
Nominal current I_N [A]	0.8	1.4	0.8	1.4	0.8	1.4
Stall torque M_0 [Nm]	0.36					
Stall current I_0 [A]	0.9	1.6	0.9	1.6	0.9	1.6
Maximum torque M_{max} [Nm]	1					
Maximum current I_{max} [A]	2.8	5.2	2.8	5.2	2.8	5.2
Maximum speed n_{max} [rpm]	6600					
Torque constant K_T [Nm/A]	0.42	0.23	0.42	0.23	0.42	0.23
Voltage constant K_E [V/1000 rpm]	25.13	13.61	25.13	13.61	25.13	13.61
Stator resistance R_{2ph} [Ω]	17.4	5.8	17.4	5.8	17.4	5.8
Stator inductance L_{2ph} [mH]	30.7	10.2	30.7	10.2	30.7	10.2
Electrical time constant t_{el} [ms]	1.76					
Thermal time constant t_{therm} [min]	15					
Moment of inertia J [kgcm²]	0.03					
Holding brake						
Holding torque of the brake M_{Br} [Nm]	0.35					
Moment of inertia for the brake J_{Br} [kgcm²]	0.013					
Gearbox						
Number of gear stages	2					
Gear ratio i	12		15		16	
Nominal output torque T_{2N} [Nm]	20		18		20	
Max. output torque T_{2max} [Nm]	32		30		32	
Emergency stop torque T_{2stop} [Nm]	40		36		40	
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	5000					
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	5000					
Max. backlash J_t [arcmin]	19					
Torsional rigidity C_{t21} [Nm/arcmin]	1.1					
Max. radial force Fr_{max} [N] for 30,000 h	160					
Max. radial force Fr_{max} [N] for 20,000 h	200					
Max. axial force Fa_{max} [N] for 30,000 h	160					
Max. axial force Fa_{max} [N] for 20,000 h	200					
Operating noise L_{PA} [dB(A)]	58					
Efficiency at full load η [%]	94					
Moment of inertia J_1 [kgcm²]	0.025		0.019		0.01	
Shared values						
Max. permitted output torque M_{K0} [Nm]	3.35		4.18		4.46	
Max. permitted peak torque M_{Kmax} [Nm]	12		15		16	
Motor mass (without brake) [kg]	0.6					
Brake mass [kg]	0.1					
Gearbox mass [kg]	0.35					
Recommendations						
ACOPOS 8Vxxxx.xx...	1010.50					
ACOPOSmicro 80VD100Px.xxxx-01	C00X					
ACOPOS P3 8EIxxxx...	2X2M					
Cross section for B&R motor cables [mm²]	0.75					

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB13. ee020SjCn00	8LVB13. ee020SjFn00	8LVB13. ee025SjCn00	8LVB13. ee025SjFn00	8LVB13. ee032SjCn00	8LVB13. ee032SjFn00
Motor						
Nominal speed n_N [rpm]	1500	3000	1500	3000	1500	3000
Number of pole pairs	4					
Nominal torque M_n [Nm]	0.34	0.32	0.34	0.32	0.34	0.32
Nominal current I_N [A]	0.8	1.4	0.8	1.4	0.8	1.4
Stall torque M_0 [Nm]	0.36					
Stall current I_0 [A]	0.9	1.6	0.9	1.6	0.9	1.6
Maximum torque M_{max} [Nm]	1					
Maximum current I_{max} [A]	2.8	5.2	2.8	5.2	2.8	5.2
Maximum speed n_{max} [rpm]	6600					
Torque constant K_T [Nm/A]	0.42	0.23	0.42	0.23	0.42	0.23
Voltage constant K_E [V/1000 rpm]	25.13	13.61	25.13	13.61	25.13	13.61
Stator resistance R_{2ph} [Ω]	17.4	5.8	17.4	5.8	17.4	5.8
Stator inductance L_{2ph} [mH]	30.7	10.2	30.7	10.2	30.7	10.2
Electrical time constant t_{el} [ms]	1.76					
Thermal time constant t_{therm} [min]	15					
Moment of inertia J [kgcm²]	0.03					
Holding brake						
Holding torque of the brake M_{Br} [Nm]	0.35					
Moment of inertia for the brake J_{Br} [kgcm²]	0.013					
Gearbox						
Number of gear stages	2					
Gear ratio i	20		25		32	
Nominal output torque T_{2N} [Nm]	20		18		20	
Max. output torque T_{2max} [Nm]	32		30		32	
Emergency stop torque T_{2stop} [Nm]	40		36		40	
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	5000					
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	5000					
Max. backlash J_t [arcmin]	19					
Torsional rigidity C_{t21} [Nm/arcmin]	1.1					
Max. radial force Fr_{max} [N] for 30,000 h	160					
Max. radial force Fr_{max} [N] for 20,000 h	200					
Max. axial force Fa_{max} [N] for 30,000 h	160					
Max. axial force Fa_{max} [N] for 20,000 h	200					
Operating noise L_{PA} [dB(A)]	58					
Efficiency at full load η [%]	94					
Moment of inertia J_1 [kgcm²]	0.008				0.006	
Shared values						
Max. permitted output torque M_{K0} [Nm]	5.58		6.97		8.92	
Max. permitted peak torque M_{Kmax} [Nm]	20		18		20	
Motor mass (without brake) [kg]	0.6					
Brake mass [kg]	0.1					
Gearbox mass [kg]	0.35					
Recommendations						
ACOPOS 8Vxxxx.xx...	1010.50					
ACOPOSmicro 80VD100Px.xxxx-01	C00X					
ACOPOS P3 8EIxxxx...	2X2M					
Cross section for B&R motor cables [mm²]	0.75					

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

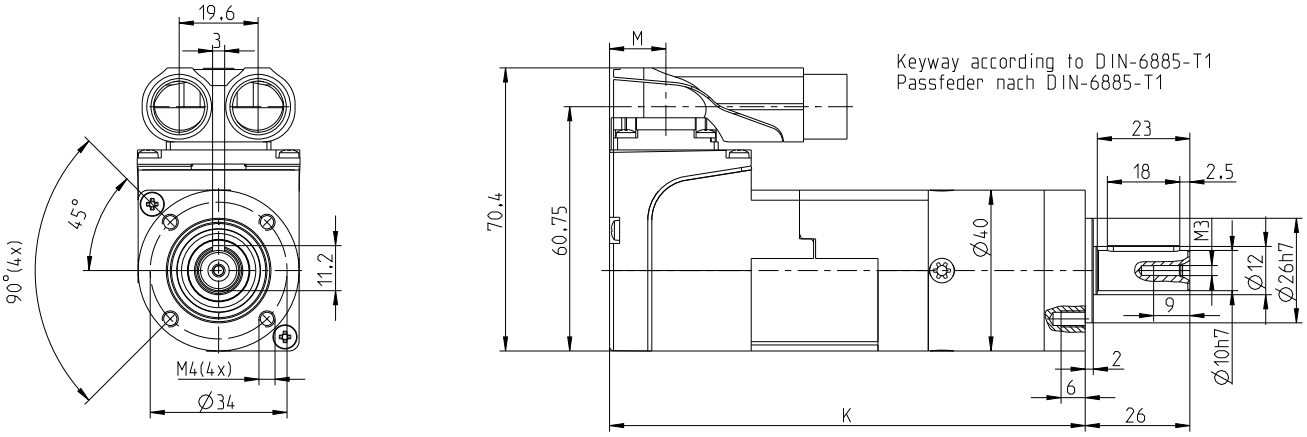
Model number	8LVB13. ee040SjCn00	8LVB13. ee040SjFn00	8LVB13. ee064SjCn00	8LVB13. ee064SjFn00	8LVB13. ee100SjCn00	8LVB13. ee100SjFn00
Motor						
Nominal speed n_N [rpm]	1500	3000	1500	3000	1500	3000
Number of pole pairs	4					
Nominal torque M_n [Nm]	0.34	0.32	0.34	0.32	0.34	0.32
Nominal current I_N [A]	0.8	1.4	0.8	1.4	0.8	1.4
Stall torque M_0 [Nm]	0.36					
Stall current I_0 [A]	0.9	1.6	0.9	1.6	0.9	1.6
Maximum torque M_{max} [Nm]	1					
Maximum current I_{max} [A]	2.8	5.2	2.8	5.2	2.8	5.2
Maximum speed n_{max} [rpm]	6600					
Torque constant K_T [Nm/A]	0.42	0.23	0.42	0.23	0.42	0.23
Voltage constant K_E [V/1000 rpm]	25.13	13.61	25.13	13.61	25.13	13.61
Stator resistance R_{2ph} [Ω]	17.4	5.8	17.4	5.8	17.4	5.8
Stator inductance L_{2ph} [mH]	30.7	10.2	30.7	10.2	30.7	10.2
Electrical time constant t_{el} [ms]	1.76					
Thermal time constant t_{therm} [min]	15					
Moment of inertia J [kgcm²]	0.03					
Holding brake						
Holding torque of the brake M_{Br} [Nm]	0.35					
Moment of inertia for the brake J_{Br} [kgcm²]	0.013					
Gearbox						
Number of gear stages	2					
Gear ratio i	40		64		100	
Nominal output torque T_{2N} [Nm]	18		7.5		5	
Max. output torque T_{2max} [Nm]	29		12		8	
Emergency stop torque T_{2stop} [Nm]	36		15		10	
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	5000					
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	5000					
Max. backlash J_t [arcmin]	19					
Torsional rigidity C_{t21} [Nm/arcmin]	1.1					
Max. radial force Fr_{max} [N] for 30,000 h	160					
Max. radial force Fr_{max} [N] for 20,000 h	200					
Max. axial force Fa_{max} [N] for 30,000 h	160					
Max. axial force Fa_{max} [N] for 20,000 h	200					
Operating noise L_{PA} [dB(A)]	58					
Efficiency at full load η [%]	94					
Moment of inertia J_1 [kgcm²]	0.005				0.006	
Shared values						
Max. permitted output torque M_{K0} [Nm]	11.15		7.5		5	
Max. permitted peak torque M_{Kmax} [Nm]	18		7.5		5	
Motor mass (without brake) [kg]	0.6					
Brake mass [kg]	0.1					
Gearbox mass [kg]	0.35					
Recommendations						
ACOPOS 8Vxxxx.xx...	1010.50					
ACOPOSmicro 80VD100Px.xxxx-01	C02X	C00X				
ACOPOS P3 8EIxxxx...	2X2M					
Cross section for B&R motor cables [mm²]	0.75					

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

2.6.1 8LVB13-8GM40 - Dimensions



Double angular built-in connector

EnDat/Resolver feedback			Extension of K depending on motor option
	K	M	Holding brake
Gear motor	**Encoder: R0, B1**	**Encoder: R0, B1**	
8LVB13 1-stage 8GM40	118.2	14	28
8LVB13 2-stage 8GM40	131.2	14	28

2.7 8LVB13-8GM50 - Technical data

Model number	8LVB13. ee003LjCn00	8LVB13. ee003LjFn00	8LVB13. ee004LjCn00	8LVB13. ee004LjFn00	8LVB13. ee005LjCn00	8LVB13. ee005LjFn00
Motor						
Nominal speed n_N [rpm]	1500	3000	1500	3000	1500	3000
Number of pole pairs	4					
Nominal torque M_n [Nm]	0.34	0.32	0.34	0.32	0.34	0.32
Nominal current I_N [A]	0.8	1.4	0.8	1.4	0.8	1.4
Stall torque M_0 [Nm]	0.36					
Stall current I_0 [A]	0.9	1.6	0.9	1.6	0.9	1.6
Maximum torque M_{max} [Nm]	1					
Maximum current I_{max} [A]	2.8	5.2	2.8	5.2	2.8	5.2
Maximum speed n_{max} [rpm]	6600					
Torque constant K_T [Nm/A]	0.42	0.23	0.42	0.23	0.42	0.23
Voltage constant K_E [V/1000 rpm]	25.13	13.61	25.13	13.61	25.13	13.61
Stator resistance R_{2ph} [Ω]	17.4	5.8	17.4	5.8	17.4	5.8
Stator inductance L_{2ph} [mH]	30.7	10.2	30.7	10.2	30.7	10.2
Electrical time constant t_{el} [ms]	1.76					
Thermal time constant t_{therm} [min]	15					
Moment of inertia J [kgcm²]	0.03					
Holding brake						
Holding torque of the brake M_{Br} [Nm]	0.35					
Moment of inertia for the brake J_{Br} [kgcm²]	0.013					
Gearbox						
Number of gear stages	1					
Gear ratio i	3		4		5	
Nominal output torque T_{2N} [Nm]	4.5		6			
Max. output torque T_{2max} [Nm]	7		10			
Emergency stop torque T_{2stop} [Nm]	9		12			
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	5000					
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	5000					
Max. backlash J_t [arcmin]	15					
Torsional rigidity C_{t21} [Nm/arcmin]	1					
Max. radial force Fr_{max} [N] for 30,000 h	600					
Max. radial force Fr_{max} [N] for 20,000 h	700					
Max. axial force Fa_{max} [N] for 30,000 h	800					
Max. axial force Fa_{max} [N] for 20,000 h	1000					
Operating noise L_{PA} [dB(A)]	58					
Efficiency at full load ŋ [%]	96					
Moment of inertia J_1 [kgcm²]	0.027		0.01		0.008	
Shared values						
Max. permitted output torque M_{K0} [Nm]	0.836		1.12		1.39	
Max. permitted peak torque M_{Kmax} [Nm]	3		4		5	
Motor mass (without brake) [kg]	0.6					
Brake mass [kg]	0.1					
Gearbox mass [kg]	0.6					
Recommendations						
ACOPOS 8Vxxxx.xx...	1010.50					
ACOPOSmicro 80VD100Px.xxxx-01	C00X					
ACOPOS P3 8EIxxxx...	2X2M					
Cross section for B&R motor cables [mm²]	0.75					

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB13. ee008LjCn00	8LVB13. ee008LjFn00	8LVB13. ee010LjCn00	8LVB13. ee010LjFn00	8LVB13. ee009LjCn00	8LVB13. ee009LjFn00
Motor						
Nominal speed n_N [rpm]	1500	3000	1500	3000	1500	3000
Number of pole pairs	4					
Nominal torque M_n [Nm]	0.34	0.32	0.34	0.32	0.34	0.32
Nominal current I_N [A]	0.8	1.4	0.8	1.4	0.8	1.4
Stall torque M_0 [Nm]	0.36					
Stall current I_0 [A]	0.9	1.6	0.9	1.6	0.9	1.6
Maximum torque M_{max} [Nm]	1					
Maximum current I_{max} [A]	2.8	5.2	2.8	5.2	2.8	5.2
Maximum speed n_{max} [rpm]	6600					
Torque constant K_T [Nm/A]	0.42	0.23	0.42	0.23	0.42	0.23
Voltage constant K_E [V/1000 rpm]	25.13	13.61	25.13	13.61	25.13	13.61
Stator resistance R_{2ph} [Ω]	17.4	5.8	17.4	5.8	17.4	5.8
Stator inductance L_{2ph} [mH]	30.7	10.2	30.7	10.2	30.7	10.2
Electrical time constant t_{el} [ms]	1.76					
Thermal time constant t_{therm} [min]	15					
Moment of inertia J [kgcm²]	0.03					
Holding brake						
Holding torque of the brake M_{Br} [Nm]	0.35					
Moment of inertia for the brake J_{Br} [kgcm²]	0.013					
Gearbox						
Number of gear stages	1				2	
Gear ratio i	8		10		9	
Nominal output torque T_{2N} [Nm]	5				12	
Max. output torque T_{2max} [Nm]	8				19	
Emergency stop torque T_{2stop} [Nm]	10				24	
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	5000					
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	5000					
Max. backlash J_t [arcmin]	15				19	
Torsional rigidity C_{t21} [Nm/arcmin]	1				1.1	
Max. radial force Fr_{max} [N] for 30,000 h	600					
Max. radial force Fr_{max} [N] for 20,000 h	700					
Max. axial force Fa_{max} [N] for 30,000 h	800					
Max. axial force Fa_{max} [N] for 20,000 h	1000					
Operating noise L_{PA} [dB(A)]	58					
Efficiency at full load η [%]	96				94	
Moment of inertia J_1 [kgcm²]	0.006		0.005		0.026	
Shared values						
Max. permitted output torque M_{K0} [Nm]	2.23		2.79	2.78	2.51	
Max. permitted peak torque M_{Kmax} [Nm]	5		8		9	
Motor mass (without brake) [kg]	0.6					
Brake mass [kg]	0.1					
Gearbox mass [kg]	0.6				0.8	
Recommendations						
ACOPOS 8Vxxxx.xx...	1010.50					
ACOPOSmicro 80VD100Px.xxxx-01	C00X					
ACOPOS P3 8EIxxxx...	2X2M					
Cross section for B&R motor cables [mm²]	0.75					

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB13. ee012LjCn00	8LVB13. ee012LjFn00	8LVB13. ee015LjCn00	8LVB13. ee015LjFn00	8LVB13. ee016LjCn00	8LVB13. ee020LjCn00
Motor						
Nominal speed n_N [rpm]	1500	3000	1500	3000	1500	
Number of pole pairs	4					
Nominal torque M_n [Nm]	0.34	0.32	0.34	0.32	0.34	
Nominal current I_N [A]	0.8	1.4	0.8	1.4	0.8	
Stall torque M_0 [Nm]	0.36					
Stall current I_0 [A]	0.9	1.6	0.9	1.6	0.9	
Maximum torque M_{max} [Nm]	1					
Maximum current I_{max} [A]	2.8	5.2	2.8	5.2	2.8	
Maximum speed n_{max} [rpm]	6600					
Torque constant K_T [Nm/A]	0.42	0.23	0.42	0.23	0.42	
Voltage constant K_E [V/1000 rpm]	25.13	13.61	25.13	13.61	25.13	
Stator resistance R_{2ph} [Ω]	17.4	5.8	17.4	5.8	17.4	
Stator inductance L_{2ph} [mH]	30.7	10.2	30.7	10.2	30.7	
Electrical time constant t_{el} [ms]	1.76					
Thermal time constant t_{therm} [min]	15					
Moment of inertia J [kgcm²]	0.03					
Holding brake						
Holding torque of the brake M_{Br} [Nm]	0.35					
Moment of inertia for the brake J_{Br} [kgcm²]	0.013					
Gearbox						
Number of gear stages	2					
Gear ratio i	12		15		16	20
Nominal output torque T_{2N} [Nm]	15		13		15	
Max. output torque T_{2max} [Nm]	24		21		24	
Emergency stop torque T_{2stop} [Nm]	30		26		30	
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	5000					
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	5000					
Max. backlash J_t [arcmin]	19					
Torsional rigidity C_{t21} [Nm/arcmin]	1.1					
Max. radial force Fr_{max} [N] for 30,000 h	600					
Max. radial force Fr_{max} [N] for 20,000 h	700					
Max. axial force Fa_{max} [N] for 30,000 h	800					
Max. axial force Fa_{max} [N] for 20,000 h	1000					
Operating noise L_{PA} [dB(A)]	58					
Efficiency at full load η [%]	94					
Moment of inertia J_1 [kgcm²]	0.025		0.019		0.01	0.008
Shared values						
Max. permitted output torque M_{K0} [Nm]	3.35		4.18		4.46	5.58
Max. permitted peak torque M_{Kmax} [Nm]	12		13		15	
Motor mass (without brake) [kg]	0.6					
Brake mass [kg]	0.1					
Gearbox mass [kg]	0.8					
Recommendations						
ACOPOS 8Vxxxx.xx...	1010.50					
ACOPOSmicro 80VD100Px.xxxx-01	C00X					
ACOPOS P3 8EIxxxx...	2X2M					
Cross section for B&R motor cables [mm²]	0.75					

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB13.ee020LjFn00	8LVB13.ee025LjCn00	8LVB13.ee025LjFn00	8LVB13.ee032LjCn00	8LVB13.ee032LjFn00
Motor					
Nominal speed n_N [rpm]	3000	1500	3000	1500	3000
Number of pole pairs	4				
Nominal torque M_n [Nm]	0.32	0.34	0.32	0.34	0.32
Nominal current I_N [A]	1.4	0.8	1.4	0.8	1.4
Stall torque M_0 [Nm]	0.36				
Stall current I_0 [A]	1.6	0.9	1.6	0.9	1.6
Maximum torque M_{max} [Nm]	1				
Maximum current I_{max} [A]	5.2	2.8	5.2	2.8	5.2
Maximum speed n_{max} [rpm]	6600				
Torque constant K_T [Nm/A]	0.23	0.42	0.23	0.42	0.23
Voltage constant K_E [V/1000 rpm]	13.61	25.13	13.61	25.13	13.61
Stator resistance R_{2ph} [Ω]	5.8	17.4	5.8	17.4	5.8
Stator inductance L_{2ph} [mH]	10.2	30.7	10.2	30.7	10.2
Electrical time constant t_{el} [ms]	1.76				
Thermal time constant t_{therm} [min]	15				
Moment of inertia J [kgcm²]	0.03				
Holding brake					
Holding torque of the brake M_{Br} [Nm]	0.35				
Moment of inertia for the brake J_{Br} [kgcm²]	0.013				
Gearbox					
Number of gear stages	2				
Gear ratio i	20	25		32	
Nominal output torque T_{2N} [Nm]	15	13		15	
Max. output torque T_{2max} [Nm]	24	21		24	
Emergency stop torque T_{2stop} [Nm]	30	26		30	
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	5000				
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	5000				
Max. backlash J_t [arcmin]	19				
Torsional rigidity C_{t21} [Nm/arcmin]	1.1				
Max. radial force Fr_{max} [N] for 30,000 h	600				
Max. radial force Fr_{max} [N] for 20,000 h	700				
Max. axial force Fa_{max} [N] for 30,000 h	800				
Max. axial force Fa_{max} [N] for 20,000 h	1000				
Operating noise L_{PA} [dB(A)]	58				
Efficiency at full load ŋ [%]	94				
Moment of inertia J_1 [kgcm²]	0.008			0.006	
Shared values					
Max. permitted output torque M_{K0} [Nm]	5.58	6.97		8.92	
Max. permitted peak torque M_{Kmax} [Nm]	15	13		15	
Motor mass (without brake) [kg]	0.6				
Brake mass [kg]	0.1				
Gearbox mass [kg]	0.8				
Recommendations					
ACOPOS 8Vxxxx.xx...	1010.50				
ACOPOSmicro 80VD100Px.xxxx-01	C00X				
ACOPOS P3 8EIxxxx...	2X2M				
Cross section for B&R motor cables [mm²]	0.75				

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

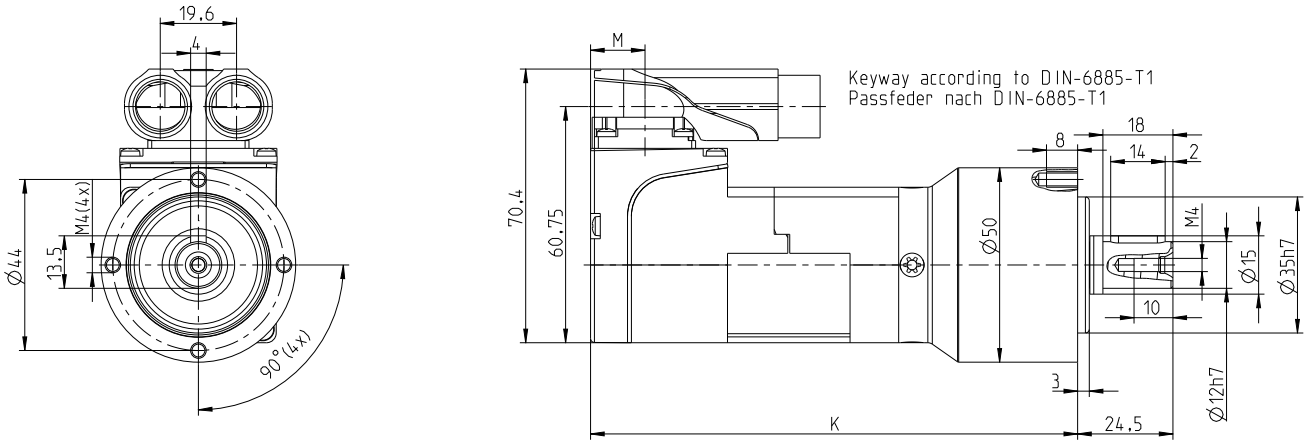
Model number	8LVB13. ee040LjCn00	8LVB13. ee040LjFn00	8LVB13. ee064LjCn00	8LVB13. ee064LjFn00	8LVB13. ee100LjCn00	8LVB13. ee100LjFn00
Motor						
Nominal speed n_N [rpm]	1500	3000	1500	3000	1500	3000
Number of pole pairs	4					
Nominal torque M_n [Nm]	0.34	0.32	0.34	0.32	0.34	0.32
Nominal current I_N [A]	0.8	1.4	0.8	1.4	0.8	1.4
Stall torque M_0 [Nm]	0.36					
Stall current I_0 [A]	0.9	1.6	0.9	1.6	0.9	1.6
Maximum torque M_{max} [Nm]	1					
Maximum current I_{max} [A]	2.8	5.2	2.8	5.2	2.8	5.2
Maximum speed n_{max} [rpm]	6600					
Torque constant K_T [Nm/A]	0.42	0.23	0.42	0.23	0.42	0.23
Voltage constant K_E [V/1000 rpm]	25.13	13.61	25.13	13.61	25.13	13.61
Stator resistance R_{2ph} [Ω]	17.4	5.8	17.4	5.8	17.4	5.8
Stator inductance L_{2ph} [mH]	30.7	10.2	30.7	10.2	30.7	10.2
Electrical time constant t_{el} [ms]	1.76					
Thermal time constant t_{therm} [min]	15					
Moment of inertia J [kgcm²]	0.03					
Holding brake						
Holding torque of the brake M_{Br} [Nm]	0.35					
Moment of inertia for the brake J_{Br} [kgcm²]	0.013					
Gearbox						
Number of gear stages	2					
Gear ratio i	40		64		100	
Nominal output torque T_{2N} [Nm]	13		7.5		5	
Max. output torque T_{2max} [Nm]	21		12		8	
Emergency stop torque T_{2stop} [Nm]	26		15		10	
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	5000					
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	5000					
Max. backlash J_t [arcmin]	19					
Torsional rigidity C_{t21} [Nm/arcmin]	1.1					
Max. radial force Fr_{max} [N] for 30,000 h	600					
Max. radial force Fr_{max} [N] for 20,000 h	700					
Max. axial force Fa_{max} [N] for 30,000 h	800					
Max. axial force Fa_{max} [N] for 20,000 h	1000					
Operating noise L_{PA} [dB(A)]	58					
Efficiency at full load η [%]	94					
Moment of inertia J_1 [kgcm²]	0.005				0.006	
Shared values						
Max. permitted output torque M_{K0} [Nm]	11.15		7.5		5	
Max. permitted peak torque M_{Kmax} [Nm]	13		7.5		5	
Motor mass (without brake) [kg]	0.6					
Brake mass [kg]	0.1					
Gearbox mass [kg]	0.8					
Recommendations						
ACOPOS 8Vxxxx.xx...	1010.50					
ACOPOSmicro 80VD100Px.xxxx-01	C00X					
ACOPOS P3 8EIxxxx...	2X2M					
Cross section for B&R motor cables [mm²]	0.75					

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

2.7.1 8LVB13-8GM50 - Dimensions



Double angular built-in connector

EnDat/Resolver feedback			Extension of K depending on motor option
	K	M	Holding brake
Gear motor	**Encoder: R0, B1**	**Encoder: R0, B1**	
8LVB13 1-stage 8GM50	125.2	14	28
8LVB13 2-stage 8GM50	137.7	14	28

2.8 8LVB22-8GM40 - Technical data

Model number	8LVB22. ee003SjCn00	8LVB22. ee003SjFn00	8LVB22. ee004SjCn00	8LVB22. ee004SjFn00	8LVB22. ee005SjCn00	8LVB22. ee005SjFn00
Motor						
Nominal speed n_N [rpm]	1500	3000	1500	3000	1500	3000
Number of pole pairs	4					
Nominal torque M_n [Nm]	0.67	0.65	0.67	0.65	0.67	0.65
Nominal current I_N [A]	1.61	2.9	1.61	2.9	1.61	2.9
Stall torque M_0 [Nm]	0.68					
Stall current I_0 [A]	1.64	3	1.64	3	1.64	3
Maximum torque M_{max} [Nm]	2					
Maximum current I_{max} [A]	5.6	10.3	5.6	10.3	5.6	10.3
Maximum speed n_{max} [rpm]	6600					
Torque constant K_T [Nm/A]	0.42	0.23	0.42	0.23	0.42	0.23
Voltage constant K_E [V/1000 rpm]	25.13	13.61	25.13	13.61	25.13	13.61
Stator resistance R_{2ph} [Ω]	6.02	2	6.02	2	6.02	2
Stator inductance L_{2ph} [mH]	12.2	4.1	12.2	4.1	12.2	4.1
Electrical time constant t_{el} [ms]	2.03	2.05	2.03	2.05	2.03	2.05
Thermal time constant t_{therm} [min]	35					
Moment of inertia J [kgcm²]	0.14					
Holding brake						
Holding torque of the brake M_{Br} [Nm]	2.2					
Moment of inertia for the brake J_{Br} [kgcm²]	0.12					
Gearbox						
Number of gear stages	1					
Gear ratio i	3		4		5	
Nominal output torque T_{2N} [Nm]	12		16			
Max. output torque T_{2max} [Nm]	20		26			
Emergency stop torque T_{2stop} [Nm]	24		32			
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4500					
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	4450		4500			
Max. backlash J_t [arcmin]	12		10		12	
Torsional rigidity C_{t21} [Nm/arcmin]	2.3					
Max. radial force Fr_{max} [N] for 30,000 h	340					
Max. radial force Fr_{max} [N] for 20,000 h	400					
Max. axial force Fa_{max} [N] for 30,000 h	450					
Max. axial force Fa_{max} [N] for 20,000 h	500					
Operating noise L_{PA} [dB(A)]	58					
Efficiency at full load ŋ [%]	96					
Moment of inertia J_1 [kgcm²]	0.119		0.047		0.036	
Shared values						
Max. permitted output torque M_{K0} [Nm]	1.58		2.11		2.63	
Max. permitted peak torque M_{Kmax} [Nm]	6		8		10	
Motor mass (without brake) [kg]	1.05					
Brake mass [kg]	0.16					
Gearbox mass [kg]	0.6					
Recommendations						
ACOPOS 8Vxxxx.xx...	1010.50	1016.50	1010.50	1016.50	1010.50	1016.50
ACOPOSmicro 80VD100Px.xxxx-01	C00X					
ACOPOS P3 8EIxxxx...	2X2M	4X5M	2X2M	4X5M	2X2M	4X5M
Cross section for B&R motor cables [mm²]	0.75					

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB22. ee008SjCn00	8LVB22. ee008SjFn00	8LVB22. ee010SjCn00	8LVB22. ee010SjFn00	8LVB22. ee009SjCn00	8LVB22. ee009SjFn00
Motor						
Nominal speed n_N [rpm]	1500	3000	1500	3000	1500	3000
Number of pole pairs	4					
Nominal torque M_n [Nm]	0.67	0.65	0.67	0.65	0.67	0.65
Nominal current I_N [A]	1.61	2.9	1.61	2.9	1.61	2.9
Stall torque M_0 [Nm]	0.68					
Stall current I_0 [A]	1.64	3	1.64	3	1.64	3
Maximum torque M_{max} [Nm]	2					
Maximum current I_{max} [A]	5.6	10.3	5.6	10.3	5.6	10.3
Maximum speed n_{max} [rpm]	6600					
Torque constant K_T [Nm/A]	0.42	0.23	0.42	0.23	0.42	0.23
Voltage constant K_E [V/1000 rpm]	25.13	13.61	25.13	13.61	25.13	13.61
Stator resistance R_{2ph} [Ω]	6.02	2	6.02	2	6.02	2
Stator inductance L_{2ph} [mH]	12.2	4.1	12.2	4.1	12.2	4.1
Electrical time constant t_{el} [ms]	2.03	2.05	2.03	2.05	2.03	2.05
Thermal time constant t_{therm} [min]	35					
Moment of inertia J [kgcm²]	0.14					
Holding brake						
Holding torque of the brake M_{Br} [Nm]	2.2					
Moment of inertia for the brake J_{Br} [kgcm²]	0.12					
Gearbox						
Number of gear stages	1				2	
Gear ratio i	8		10		9	
Nominal output torque T_{2N} [Nm]	15		12		44	
Max. output torque T_{2max} [Nm]	24		19		71	
Emergency stop torque T_{2stop} [Nm]	30		24		88	
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4500					
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	4500					
Max. backlash J_t [arcmin]	10		12			
Torsional rigidity C_{t21} [Nm/arcmin]	2.3				2.5	
Max. radial force Fr_{max} [N] for 30,000 h	340					
Max. radial force Fr_{max} [N] for 20,000 h	400					
Max. axial force Fa_{max} [N] for 30,000 h	450					
Max. axial force Fa_{max} [N] for 20,000 h	500					
Operating noise L_{PA} [dB(A)]	58					
Efficiency at full load η [%]	96				94	
Moment of inertia J_1 [kgcm²]	0.025		0.02		0.115	
Shared values						
Max. permitted output torque M_{K0} [Nm]	4.21		5.27		4.74	
Max. permitted peak torque M_{Kmax} [Nm]	15				18	
Motor mass (without brake) [kg]	1.05					
Brake mass [kg]	0.16					
Gearbox mass [kg]	0.6				0.8	
Recommendations						
ACOPOS 8Vxxxx.xx...	1010.50	1016.50	1010.50	1016.50	1010.50	1016.50
ACOPOSmicro 80VD100Px.xxxx-01	C00X					
ACOPOS P3 8EIxxxx...	2X2M	4X5M	2X2M	4X5M	2X2M	4X5M
Cross section for B&R motor cables [mm²]	0.75					

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB22. ee012SjCn00	8LVB22. ee012SjFn00	8LVB22. ee015SjCn00	8LVB22. ee015SjFn00	8LVB22. ee016SjCn00	8LVB22. ee016SjFn00
Motor						
Nominal speed n_N [rpm]	1500	3000	1500	3000	1500	3000
Number of pole pairs	4					
Nominal torque M_n [Nm]	0.67	0.65	0.67	0.65	0.67	0.65
Nominal current I_N [A]	1.61	2.9	1.61	2.9	1.61	2.9
Stall torque M_0 [Nm]	0.68					
Stall current I_0 [A]	1.64	3	1.64	3	1.64	3
Maximum torque M_{max} [Nm]	2					
Maximum current I_{max} [A]	5.6	10.3	5.6	10.3	5.6	10.3
Maximum speed n_{max} [rpm]	6600					
Torque constant K_T [Nm/A]	0.42	0.23	0.42	0.23	0.42	0.23
Voltage constant K_E [V/1000 rpm]	25.13	13.61	25.13	13.61	25.13	13.61
Stator resistance R_{2ph} [Ω]	6.02	2	6.02	2	6.02	2
Stator inductance L_{2ph} [mH]	12.2	4.1	12.2	4.1	12.2	4.1
Electrical time constant t_{el} [ms]	2.03	2.05	2.03	2.05	2.03	2.05
Thermal time constant t_{therm} [min]	35					
Moment of inertia J [kgcm²]	0.14					
Holding brake						
Holding torque of the brake M_{Br} [Nm]	2.2					
Moment of inertia for the brake J_{Br} [kgcm²]	0.12					
Gearbox						
Number of gear stages	2					
Gear ratio i	12		15		16	
Nominal output torque T_{2N} [Nm]	44					
Max. output torque T_{2max} [Nm]	71					
Emergency stop torque T_{2stop} [Nm]	88					
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4500					
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	4500					
Max. backlash J_t [arcmin]	12					
Torsional rigidity C_{t21} [Nm/arcmin]	2.5					
Max. radial force Fr_{max} [N] for 30,000 h	340					
Max. radial force Fr_{max} [N] for 20,000 h	400					
Max. axial force Fa_{max} [N] for 30,000 h	450					
Max. axial force Fa_{max} [N] for 20,000 h	500					
Operating noise L_{PA} [dB(A)]	58					
Efficiency at full load η [%]	94					
Moment of inertia J_1 [kgcm²]	0.111		0.035		0.042	
Shared values						
Max. permitted output torque M_{K0} [Nm]	6.32		7.9		8.43	
Max. permitted peak torque M_{Kmax} [Nm]	24		30		32	
Motor mass (without brake) [kg]	1.05					
Brake mass [kg]	0.16					
Gearbox mass [kg]	0.8					
Recommendations						
ACOPOS 8Vxxxx.xx...	1010.50	1016.50	1010.50	1016.50	1010.50	1016.50
ACOPOSmicro 80VD100Px.xxxx-01	C00X					
ACOPOS P3 8EIxxxx...	2X2M	4X5M	2X2M	4X5M	2X2M	4X5M
Cross section for B&R motor cables [mm²]	0.75					

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB22. ee020SjCn00	8LVB22. ee020SjFn00	8LVB22. ee025SjCn00	8LVB22. ee025SjFn00	8LVB22. ee032SjCn00	8LVB22. ee032SjFn00
Motor						
Nominal speed n_N [rpm]	1500	3000	1500	3000	1500	3000
Number of pole pairs	4					
Nominal torque M_n [Nm]	0.67	0.65	0.67	0.65	0.67	0.65
Nominal current I_N [A]	1.61	2.9	1.61	2.9	1.61	2.9
Stall torque M_0 [Nm]	0.68					
Stall current I_0 [A]	1.64	3	1.64	3	1.64	3
Maximum torque M_{max} [Nm]	2					
Maximum current I_{max} [A]	5.6	10.3	5.6	10.3	5.6	10.3
Maximum speed n_{max} [rpm]	6600					
Torque constant K_T [Nm/A]	0.42	0.23	0.42	0.23	0.42	0.23
Voltage constant K_E [V/1000 rpm]	25.13	13.61	25.13	13.61	25.13	13.61
Stator resistance R_{2ph} [Ω]	6.02	2	6.02	2	6.02	2
Stator inductance L_{2ph} [mH]	12.2	4.1	12.2	4.1	12.2	4.1
Electrical time constant t_{el} [ms]	2.03	2.05	2.03	2.05	2.03	2.05
Thermal time constant t_{therm} [min]	35					
Moment of inertia J [kgcm²]	0.14					
Holding brake						
Holding torque of the brake M_{Br} [Nm]	2.2					
Moment of inertia for the brake J_{Br} [kgcm²]	0.12					
Gearbox						
Number of gear stages	2					
Gear ratio i	20		25		32	
Nominal output torque T_{2N} [Nm]	44		40		44	
Max. output torque T_{2max} [Nm]	71		64		71	
Emergency stop torque T_{2stop} [Nm]	88		80		88	
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4500					
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	4500					
Max. backlash J_t [arcmin]	12		15		12	
Torsional rigidity C_{t21} [Nm/arcmin]	2.5					
Max. radial force Fr_{max} [N] for 30,000 h	340					
Max. radial force Fr_{max} [N] for 20,000 h	400					
Max. axial force Fa_{max} [N] for 30,000 h	450					
Max. axial force Fa_{max} [N] for 20,000 h	500					
Operating noise L_{PA} [dB(A)]	58					
Efficiency at full load η [%]	94					
Moment of inertia J_1 [kgcm²]	0.033		0.035		0.024	
Shared values						
Max. permitted output torque M_{K0} [Nm]	10.53		13.17		16.9	
Max. permitted peak torque M_{Kmax} [Nm]	40				44	
Motor mass (without brake) [kg]	1.05					
Brake mass [kg]	0.16					
Gearbox mass [kg]	0.8					
Recommendations						
ACOPOS 8Vxxxx.xx...	1010.50	1016.50	1010.50	1016.50	1010.50	1016.50
ACOPOSmicro 80VD100Px.xxxx-01	C00X					
ACOPOS P3 8EIxxxx...	2X2M	4X5M	2X2M	4X5M	2X2M	4X5M
Cross section for B&R motor cables [mm²]	0.75					

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

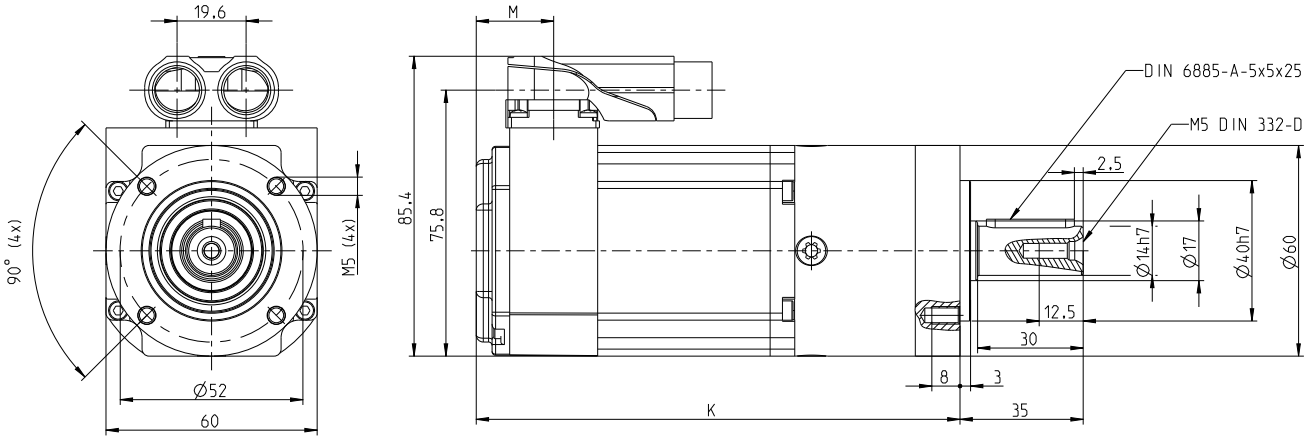
Model number	8LVB22. ee040SjCn00	8LVB22. ee040SjFn00	8LVB22. ee064SjCn00	8LVB22. ee064SjFn00	8LVB22. ee100SjCn00	8LVB22. ee100SjFn00
Motor						
Nominal speed n_N [rpm]	1500	3000	1500	3000	1500	3000
Number of pole pairs	4					
Nominal torque M_n [Nm]	0.67	0.65	0.67	0.65	0.67	0.65
Nominal current I_N [A]	1.61	2.9	1.61	2.9	1.61	2.9
Stall torque M_0 [Nm]	0.68					
Stall current I_0 [A]	1.64	3	1.64	3	1.64	3
Maximum torque M_{max} [Nm]	2					
Maximum current I_{max} [A]	5.6	10.3	5.6	10.3	5.6	10.3
Maximum speed n_{max} [rpm]	6600					
Torque constant K_T [Nm/A]	0.42	0.23	0.42	0.23	0.42	0.23
Voltage constant K_E [V/1000 rpm]	25.13	13.61	25.13	13.61	25.13	13.61
Stator resistance R_{2ph} [Ω]	6.02	2	6.02	2	6.02	2
Stator inductance L_{2ph} [mH]	12.2	4.1	12.2	4.1	12.2	4.1
Electrical time constant t_{el} [ms]	2.03	2.05	2.03	2.05	2.03	2.05
Thermal time constant t_{therm} [min]	35					
Moment of inertia J [kgcm²]	0.14					
Holding brake						
Holding torque of the brake M_{Br} [Nm]	2.2					
Moment of inertia for the brake J_{Br} [kgcm²]	0.12					
Gearbox						
Number of gear stages	2					
Gear ratio i	40		64		100	
Nominal output torque T_{2N} [Nm]	40		18		15	
Max. output torque T_{2max} [Nm]	64		30		24	
Emergency stop torque T_{2stop} [Nm]	80		36		30	
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4500					
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	4500					
Max. backlash J_t [arcmin]	12					
Torsional rigidity C_{t21} [Nm/arcmin]	2.5					
Max. radial force Fr_{max} [N] for 30,000 h	340					
Max. radial force Fr_{max} [N] for 20,000 h	400					
Max. axial force Fa_{max} [N] for 30,000 h	450					
Max. axial force Fa_{max} [N] for 20,000 h	500					
Operating noise L_{PA} [dB(A)]	58					
Efficiency at full load η [%]	94					
Moment of inertia J_1 [kgcm²]	0.024				0.02	
Shared values						
Max. permitted output torque M_{K0} [Nm]	21.1		18		15	
Max. permitted peak torque M_{Kmax} [Nm]	40		18		15	
Motor mass (without brake) [kg]	1.05					
Brake mass [kg]	0.16					
Gearbox mass [kg]	0.8					
Recommendations						
ACOPOS 8Vxxxx.xx...	1010.50	1016.50	1010.50	1016.50	1010.50	1016.50
ACOPOSmicro 80VD100Px.xxxx-01	C00X					
ACOPOS P3 8EIxxxx...	2X2M	4X5M	2X2M	4X5M	2X2M	4X5M
Cross section for B&R motor cables [mm²]	0.75					

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

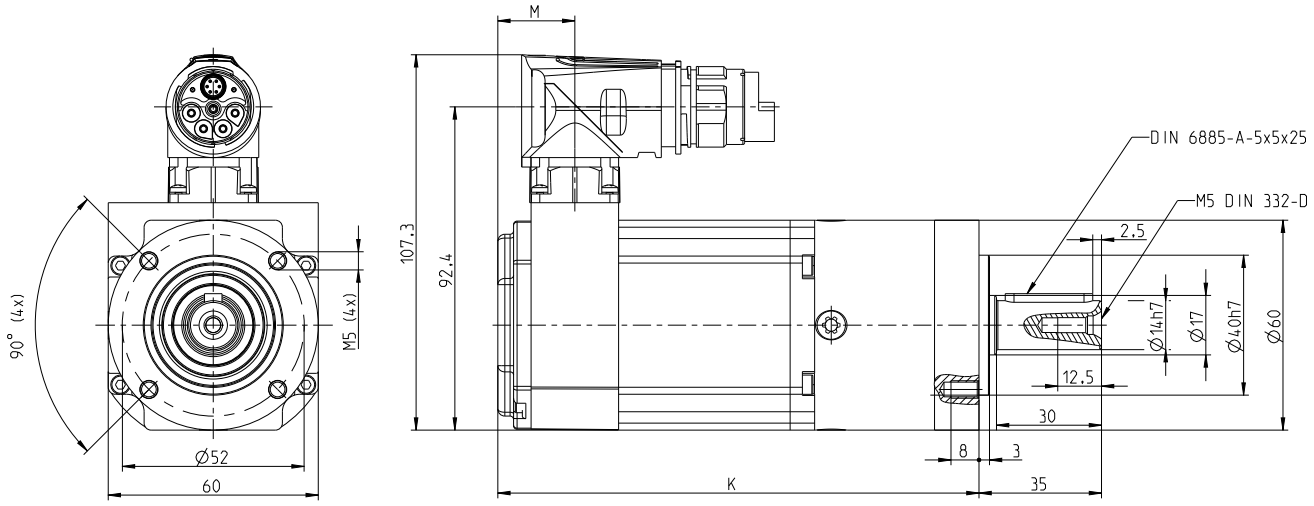
Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

2.8.1 8LVB22-8GM40 - Dimensions



Double angular built-in connector



Single-cable solution

EnDat/Resolver feedback					Extension of K depending on motor option
	K	K	M	M	Holding brake
Gear motor	Encoder: R0, B1	Encoder: B8, B9	Encoder: R0, B1	Encoder: B8, B9	
8LVB22 1-stage 8GM40	132.5	137.5	17	22	33.5
8LVB22 2-stage 8GM40	144.5	149.5	17	22	33.5

IMPORTANT: Dimensions K and M depend on the length of the encoder cover.

2.9 8LVB22-8GM50 - Technical data

Model number	8LVB22. ee003LjCn00	8LVB22. ee003LjFn00	8LVB22. ee004LjCn00	8LVB22. ee004LjFn00	8LVB22. ee005LjCn00	8LVB22. ee005LjFn00
Motor						
Nominal speed n_N [rpm]	1500	3000	1500	3000	1500	3000
Number of pole pairs	4					
Nominal torque M_n [Nm]	0.67	0.65	0.67	0.65	0.67	0.65
Nominal current I_N [A]	1.61	2.9	1.61	2.9	1.61	2.9
Stall torque M_0 [Nm]	0.68					
Stall current I_0 [A]	1.64	3	1.64	3	1.64	3
Maximum torque M_{max} [Nm]	2					
Maximum current I_{max} [A]	5.6	10.3	5.6	10.3	5.6	10.3
Maximum speed n_{max} [rpm]	6600					
Torque constant K_T [Nm/A]	0.42	0.23	0.42	0.23	0.42	0.23
Voltage constant K_E [V/1000 rpm]	25.13	13.61	25.13	13.61	25.13	13.61
Stator resistance R_{2ph} [Ω]	6.02	2	6.02	2	6.02	2
Stator inductance L_{2ph} [mH]	12.2	4.1	12.2	4.1	12.2	4.1
Electrical time constant t_{el} [ms]	2.03	2.05	2.03	2.05	2.03	2.05
Thermal time constant t_{therm} [min]	35					
Moment of inertia J [kgcm²]	0.14					
Holding brake						
Holding torque of the brake M_{Br} [Nm]	2.2					
Moment of inertia for the brake J_{Br} [kgcm²]	0.12					
Gearbox						
Number of gear stages	1					
Gear ratio i	3		4		5	
Nominal output torque T_{2N} [Nm]	12		16			
Max. output torque T_{2max} [Nm]	19		26			
Emergency stop torque T_{2stop} [Nm]	24		32			
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4500					
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	4100		4500			
Max. backlash J_t [arcmin]	10					
Torsional rigidity C_{t21} [Nm/arcmin]	2.3					
Max. radial force Fr_{max} [N] for 30,000 h	900					
Max. radial force Fr_{max} [N] for 20,000 h	1050					
Max. axial force Fa_{max} [N] for 30,000 h	1000					
Max. axial force Fa_{max} [N] for 20,000 h	1350					
Operating noise L_{PA} [dB(A)]	58					
Efficiency at full load ŋ [%]	96					
Moment of inertia J_1 [kgcm²]	0.141		0.06		0.044	
Shared values						
Max. permitted output torque M_{K0} [Nm]	1.58		2.11		2.63	
Max. permitted peak torque M_{Kmax} [Nm]	6		8		10	
Motor mass (without brake) [kg]	1.05					
Brake mass [kg]	0.16					
Gearbox mass [kg]	1.2					
Recommendations						
ACOPOS 8Vxxxx.xx...	1010.50	1016.50	1010.50	1016.50	1010.50	1016.50
ACOPOSmicro 80VD100Px.xxxx-01	C00X					
ACOPOS P3 8EIxxxx...	2X2M	4X5M	2X2M	4X5M	2X2M	4X5M
Cross section for B&R motor cables [mm²]	0.75					

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB22.ee008LjCn00	8LVB22.ee008LjFn00	8LVB22.ee010LjCn00	8LVB22.ee010LjFn00	8LVB22.ee009LjCn00
Motor					
Nominal speed n_N [rpm]	1500	3000	1500	3000	1500
Number of pole pairs	4				
Nominal torque M_n [Nm]	0.67	0.65	0.67	0.65	0.67
Nominal current I_N [A]	1.61	2.9	1.61	2.9	1.61
Stall torque M_0 [Nm]	0.68				
Stall current I_0 [A]	1.64	3	1.64	3	1.64
Maximum torque M_{max} [Nm]	2				
Maximum current I_{max} [A]	5.6	10.3	5.6	10.3	5.6
Maximum speed n_{max} [rpm]	6600				
Torque constant K_T [Nm/A]	0.42	0.23	0.42	0.23	0.42
Voltage constant K_E [V/1000 rpm]	25.13	13.61	25.13	13.61	25.13
Stator resistance R_{2ph} [Ω]	6.02	2	6.02	2	6.02
Stator inductance L_{2ph} [mH]	12.2	4.1	12.2	4.1	12.2
Electrical time constant t_{el} [ms]	2.03	2.05	2.03	2.05	2.03
Thermal time constant t_{therm} [min]	35				
Moment of inertia J [kgcm²]	0.14				
Holding brake					
Holding torque of the brake M_{Br} [Nm]	2.2				
Moment of inertia for the brake J_{Br} [kgcm²]	0.12				
Gearbox					
Number of gear stages	1				2
Gear ratio i	8		10		9
Nominal output torque T_{2N} [Nm]	15				33
Max. output torque T_{2max} [Nm]	24				53
Emergency stop torque T_{2stop} [Nm]	30				66
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4500				
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	4500				
Max. backlash J_t [arcmin]	10				12
Torsional rigidity C_{t21} [Nm/arcmin]	2.3				2.5
Max. radial force Fr_{max} [N] for 30,000 h	900				
Max. radial force Fr_{max} [N] for 20,000 h	1050				
Max. axial force Fa_{max} [N] for 30,000 h	1000				
Max. axial force Fa_{max} [N] for 20,000 h	1350				
Operating noise L_{PA} [dB(A)]	58				
Efficiency at full load η [%]	96				94
Moment of inertia J_1 [kgcm²]	0.028		0.022		0.117
Shared values					
Max. permitted output torque M_{K0} [Nm]	4.21		5.27		4.74
Max. permitted peak torque M_{Kmax} [Nm]	15				18
Motor mass (without brake) [kg]	1.05				
Brake mass [kg]	0.16				
Gearbox mass [kg]	1.2				1.5
Recommendations					
ACOPOS 8Vxxxx.xx...	1010.50	1016.50	1010.50	1016.50	1010.50
ACOPOSmicro 80VD100Px.xxxx-01	C00X				
ACOPOS P3 8EIxxxx...	2X2M	4X5M	2X2M	4X5M	2X2M
Cross section for B&R motor cables [mm²]	0.75				

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB22.ee009LjFn00	8LVB22.ee012LjCn00	8LVB22.ee012LjFn00	8LVB22.ee015LjCn00
Motor				
Nominal speed n_N [rpm]	3000	1500	3000	1500
Number of pole pairs	4			
Nominal torque M_n [Nm]	0.65	0.67	0.65	0.67
Nominal current I_N [A]	2.9	1.61	2.9	1.61
Stall torque M_0 [Nm]	0.68			
Stall current I_0 [A]	3	1.64	3	1.64
Maximum torque M_{max} [Nm]	2			
Maximum current I_{max} [A]	10.3	5.6	10.3	5.6
Maximum speed n_{max} [rpm]	6600			
Torque constant K_T [Nm/A]	0.23	0.42	0.23	0.42
Voltage constant K_E [V/1000 rpm]	13.61	25.13	13.61	25.13
Stator resistance R_{2ph} [Ω]	2	6.02	2	6.02
Stator inductance L_{2ph} [mH]	4.1	12.2	4.1	12.2
Electrical time constant t_{el} [ms]	2.05	2.03	2.05	2.03
Thermal time constant t_{therm} [min]	35			
Moment of inertia J [kgcm²]	0.14			
Holding brake				
Holding torque of the brake M_{Br} [Nm]	2.2			
Moment of inertia for the brake J_{Br} [kgcm²]	0.12			
Gearbox				
Number of gear stages	2			
Gear ratio i	9	12		15
Nominal output torque T_{2N} [Nm]	33			
Max. output torque T_{2max} [Nm]	53			
Emergency stop torque T_{2stop} [Nm]	66			
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4500			
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	4500			
Max. backlash J_t [arcmin]	12			
Torsional rigidity C_{t21} [Nm/arcmin]	2.5			
Max. radial force Fr_{max} [N] for 30,000 h	900			
Max. radial force Fr_{max} [N] for 20,000 h	1050			
Max. axial force Fa_{max} [N] for 30,000 h	1000			
Max. axial force Fa_{max} [N] for 20,000 h	1350			
Operating noise L_{PA} [dB(A)]	58			
Efficiency at full load ŋ [%]	94			
Moment of inertia J_1 [kgcm²]	0.117	0.112		0.036
Shared values				
Max. permitted output torque M_{K0} [Nm]	4.74	6.32		7.9
Max. permitted peak torque M_{Kmax} [Nm]	18	24		30
Motor mass (without brake) [kg]	1.05			
Brake mass [kg]	0.16			
Gearbox mass [kg]	1.5			
Recommendations				
ACOPOS 8Vxxxx.xx...	1016.50	1010.50	1016.50	1010.50
ACOPOSmicro 80VD100Px.xxxx-01	C00X			
ACOPOS P3 8EIxxxx...	4X5M	2X2M	4X5M	2X2M
Cross section for B&R motor cables [mm²]	0.75			

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB22.ee016LjCn00	8LVB22.ee016LjFn00	8LVB22.ee020LjCn00	8LVB22.ee020LjFn00
Motor				
Nominal speed n_N [rpm]	1500	3000	1500	3000
Number of pole pairs	4			
Nominal torque M_n [Nm]	0.67	0.65	0.67	0.65
Nominal current I_N [A]	1.61	2.9	1.61	2.9
Stall torque M_0 [Nm]	0.68			
Stall current I_0 [A]	1.64	3	1.64	3
Maximum torque M_{max} [Nm]	2			
Maximum current I_{max} [A]	5.6	10.3	5.6	10.3
Maximum speed n_{max} [rpm]	6600			
Torque constant K_T [Nm/A]	0.42	0.23	0.42	0.23
Voltage constant K_E [V/1000 rpm]	25.13	13.61	25.13	13.61
Stator resistance R_{2ph} [Ω]	6.02	2	6.02	2
Stator inductance L_{2ph} [mH]	12.2	4.1	12.2	4.1
Electrical time constant t_{el} [ms]	2.03	2.05	2.03	2.05
Thermal time constant t_{therm} [min]	35			
Moment of inertia J [kgcm²]	0.14			
Holding brake				
Holding torque of the brake M_{Br} [Nm]	2.2			
Moment of inertia for the brake J_{Br} [kgcm²]	0.12			
Gearbox				
Number of gear stages	2			
Gear ratio i	16		20	
Nominal output torque T_{2N} [Nm]	33			
Max. output torque T_{2max} [Nm]	53			
Emergency stop torque T_{2stop} [Nm]	66			
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4500			
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	4500			
Max. backlash J_t [arcmin]	12			
Torsional rigidity C_{t21} [Nm/arcmin]	2.5			
Max. radial force Fr_{max} [N] for 30,000 h	900			
Max. radial force Fr_{max} [N] for 20,000 h	1050			
Max. axial force Fa_{max} [N] for 30,000 h	1000			
Max. axial force Fa_{max} [N] for 20,000 h	1350			
Operating noise L_{PA} [dB(A)]	58			
Efficiency at full load ŋ [%]	94			
Moment of inertia J_1 [kgcm²]	0.043		0.034	
Shared values				
Max. permitted output torque M_{K0} [Nm]	8.43		10.53	
Max. permitted peak torque M_{Kmax} [Nm]	32		33	
Motor mass (without brake) [kg]	1.05			
Brake mass [kg]	0.16			
Gearbox mass [kg]	1.5			
Recommendations				
ACOPOS 8Vxxxx.xx...	1010.50	1016.50	1010.50	1016.50
ACOPOSmicro 80VD100Px.xxxx-01	C00X			
ACOPOS P3 8EIxxxx...	2X2M	4X5M	2X2M	4X5M
Cross section for B&R motor cables [mm²]	0.75			

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB22.ee025LjCn00	8LVB22.ee025LjFn00	8LVB22.ee032LjCn00	8LVB22.ee032LjFn00	8LVB22.ee040LjCn00
Motor					
Nominal speed n_N [rpm]	1500	3000	1500	3000	1500
Number of pole pairs	4				
Nominal torque M_n [Nm]	0.67	0.65	0.67	0.65	0.67
Nominal current I_N [A]	1.61	2.9	1.61	2.9	1.61
Stall torque M_0 [Nm]	0.68				
Stall current I_0 [A]	1.64	3	1.64	3	1.64
Maximum torque M_{max} [Nm]	2				
Maximum current I_{max} [A]	5.6	10.3	5.6	10.3	5.6
Maximum speed n_{max} [rpm]	6600				
Torque constant K_T [Nm/A]	0.42	0.23	0.42	0.23	0.42
Voltage constant K_E [V/1000 rpm]	25.13	13.61	25.13	13.61	25.13
Stator resistance R_{2ph} [Ω]	6.02	2	6.02	2	6.02
Stator inductance L_{2ph} [mH]	12.2	4.1	12.2	4.1	12.2
Electrical time constant t_{el} [ms]	2.03	2.05	2.03	2.05	2.03
Thermal time constant t_{therm} [min]	35				
Moment of inertia J [kgcm²]	0.14				
Holding brake					
Holding torque of the brake M_{Br} [Nm]	2.2				
Moment of inertia for the brake J_{Br} [kgcm²]	0.12				
Gearbox					
Number of gear stages	2				
Gear ratio i	25		32		40
Nominal output torque T_{2N} [Nm]	30		33		30
Max. output torque T_{2max} [Nm]	48		53		48
Emergency stop torque T_{2stop} [Nm]	60		66		60
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4500				4000
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	4500				4000
Max. backlash J_t [arcmin]	12				15
Torsional rigidity C_{t21} [Nm/arcmin]	2.5				
Max. radial force Fr_{max} [N] for 30,000 h	900				
Max. radial force Fr_{max} [N] for 20,000 h	1050				
Max. axial force Fa_{max} [N] for 30,000 h	1000				
Max. axial force Fa_{max} [N] for 20,000 h	1350				
Operating noise L_{PA} [dB(A)]	58				
Efficiency at full load ŋ [%]	94				
Moment of inertia J_1 [kgcm²]	0.035		0.024		
Shared values					
Max. permitted output torque M_{K0} [Nm]	13.17		16.9		21.1
Max. permitted peak torque M_{Kmax} [Nm]	30		33		30
Motor mass (without brake) [kg]	1.05				
Brake mass [kg]	0.16				
Gearbox mass [kg]	1.5				
Recommendations					
ACOPOS 8Vxxxx.xx...	1010.50	1016.50	1010.50	1016.50	1010.50
ACOPOSmicro 80VD100Px.xxxx-01	C00X				
ACOPOS P3 8EIxxxx...	2X2M	4X5M	2X2M	4X5M	2X2M
Cross section for B&R motor cables [mm²]	0.75				

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

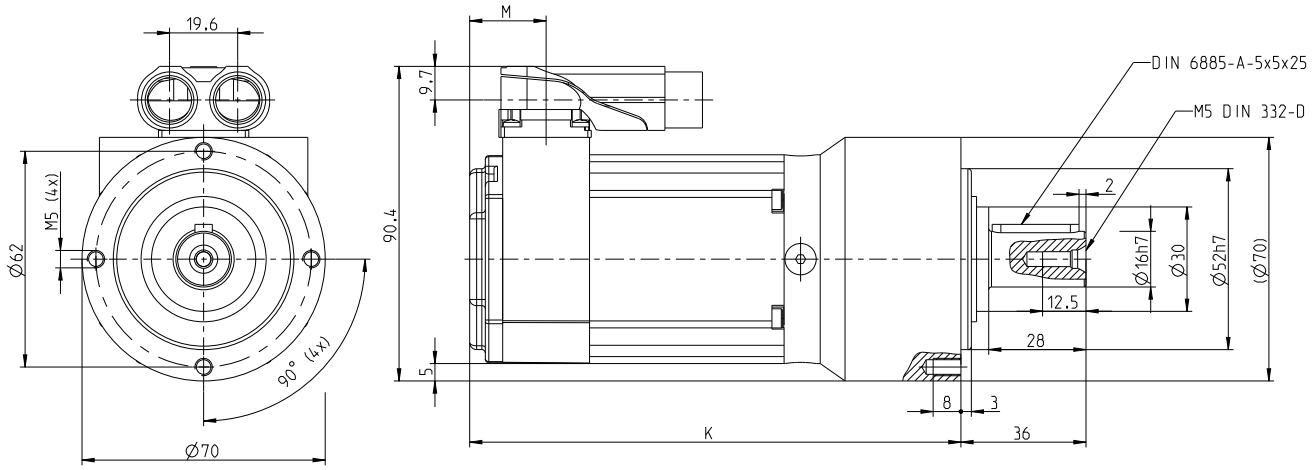
Model number	8LVB22.ee040LjFn00	8LVB22.ee064LjCn00	8LVB22.ee064LjFn00	8LVB22.ee100LjCn00	8LVB22.ee100LjFn00
Motor					
Nominal speed n_N [rpm]	3000	1500	3000	1500	3000
Number of pole pairs	4				
Nominal torque M_n [Nm]	0.65	0.67	0.65	0.67	0.65
Nominal current I_N [A]	2.9	1.61	2.9	1.61	2.9
Stall torque M_0 [Nm]	0.68				
Stall current I_0 [A]	3	1.64	3	1.64	3
Maximum torque M_{max} [Nm]	2				
Maximum current I_{max} [A]	10.3	5.6	10.3	5.6	10.3
Maximum speed n_{max} [rpm]	6600				
Torque constant K_T [Nm/A]	0.23	0.42	0.23	0.42	0.23
Voltage constant K_E [V/1000 rpm]	13.61	25.13	13.61	25.13	13.61
Stator resistance R_{2ph} [Ω]	2	6.02	2	6.02	2
Stator inductance L_{2ph} [mH]	4.1	12.2	4.1	12.2	4.1
Electrical time constant t_{el} [ms]	2.05	2.03	2.05	2.03	2.05
Thermal time constant t_{therm} [min]	35				
Moment of inertia J [kgcm²]	0.14				
Holding brake					
Holding torque of the brake M_{Br} [Nm]	2.2				
Moment of inertia for the brake J_{Br} [kgcm²]	0.12				
Gearbox					
Number of gear stages	2				
Gear ratio i	40	64		100	
Nominal output torque T_{2N} [Nm]	30	18		15	
Max. output torque T_{2max} [Nm]	48	29		24	
Emergency stop torque T_{2stop} [Nm]	60	36		30	
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4000			4500	
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	4000			4500	
Max. backlash J_t [arcmin]	15			12	
Torsional rigidity C_{t21} [Nm/arcmin]	2.5				
Max. radial force Fr_{max} [N] for 30,000 h	900				
Max. radial force Fr_{max} [N] for 20,000 h	1050				
Max. axial force Fa_{max} [N] for 30,000 h	1000				
Max. axial force Fa_{max} [N] for 20,000 h	1350				
Operating noise L_{PA} [dB(A)]	58				
Efficiency at full load ŋ [%]	94				
Moment of inertia J_1 [kgcm²]	0.024			0.02	
Shared values					
Max. permitted output torque M_{K0} [Nm]	21.1	18		15	
Max. permitted peak torque M_{Kmax} [Nm]	30	18		15	
Motor mass (without brake) [kg]	1.05				
Brake mass [kg]	0.16				
Gearbox mass [kg]	1.5				
Recommendations					
ACOPOS 8Vxxxx.xx...	1016.50	1010.50	1016.50	1010.50	1016.50
ACOPOSmicro 80VD100Px.xxxx-01	C00X				
ACOPOS P3 8EIxxxx...	4X5M	2X2M	4X5M	2X2M	4X5M
Cross section for B&R motor cables [mm²]	0.75				

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

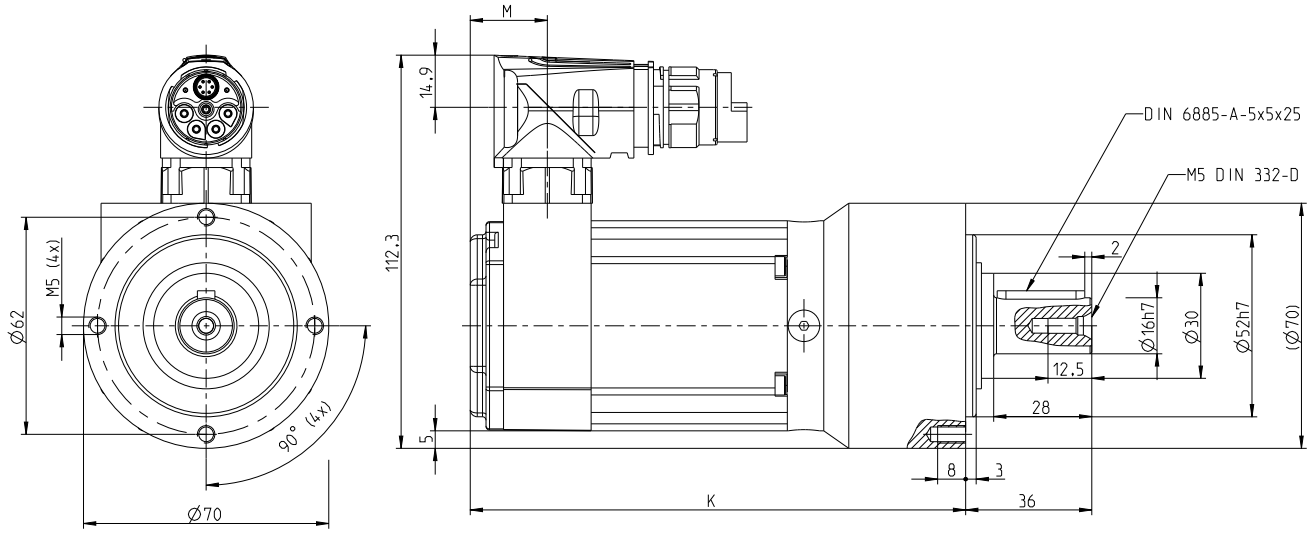
Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

2.9.1 8LVB22-8GM50 - Dimensions



Double angular built-in connector



Single-cable solution

EnDat/Resolver feedback					Extension of K depending on motor option
	K	K	M	M	Holding brake
Gear motor	Encoder: R0, B1	Encoder: B8, B9	Encoder: R0, B1	Encoder: B8, B9	
8LVB22 1-stage 8GM50	136.5	141.5	17	22	33.5
8LVB22 2-stage 8GM50	149.5	154.5	17	22	33.5

IMPORTANT: Dimensions K and M depend on the length of the encoder cover.

2.10 8LVB23-8GM40 - Technical data

Model number	8LVB23.ee003SjCn00	8LVB23.ee003SjFn00	8LVB23.ee004SjCn00	8LVB23.ee004SjFn00
Motor				
Nominal speed n_N [rpm]	1500	3000	1500	3000
Number of pole pairs	4			
Nominal torque M_n [Nm]	1.33	1.3	1.33	1.3
Nominal current I_N [A]	3.2	5.8	3.2	5.8
Stall torque M_0 [Nm]	1.35			
Stall current I_0 [A]	3.25	6	3.25	6
Maximum torque M_{max} [Nm]	4			
Maximum current I_{max} [A]	11.2	20.7	11.2	20.7
Maximum speed n_{max} [rpm]	6600			
Torque constant K_T [Nm/A]	0.42	0.23	0.42	0.23
Voltage constant K_E [V/1000 rpm]	25.13	13.61	25.13	13.61
Stator resistance R_{2ph} [Ω]	2.6	0.83	2.6	0.83
Stator inductance L_{2ph} [mH]	6.3	2	6.3	2
Electrical time constant t_{el} [ms]	2.42	2.41	2.42	2.41
Thermal time constant t_{therm} [min]	38			
Moment of inertia J [kgcm²]	0.26			
Holding brake				
Holding torque of the brake M_{Br} [Nm]	2.2			
Moment of inertia for the brake J_{Br} [kgcm²]	0.12			
Gearbox				
Number of gear stages	1			
Gear ratio i	3		4	
Nominal output torque T_{2N} [Nm]	12		16	
Max. output torque T_{2max} [Nm]	20		26	
Emergency stop torque T_{2stop} [Nm]	24		32	
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4500			
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	4450		4500	
Max. backlash J_t [arcmin]	12		10	
Torsional rigidity C_{t21} [Nm/arcmin]	2.3			
Max. radial force Fr_{max} [N] for 30,000 h	340			
Max. radial force Fr_{max} [N] for 20,000 h	400			
Max. axial force Fa_{max} [N] for 30,000 h	450			
Max. axial force Fa_{max} [N] for 20,000 h	500			
Operating noise L_{PA} [dB(A)]	58			
Efficiency at full load ŋ [%]	96			
Moment of inertia J_1 [kgcm²]	0.119		0.047	
Shared values				
Max. permitted output torque M_{K0} [Nm]	3.14		4.18	
Max. permitted peak torque M_{Kmax} [Nm]	12		16	
Motor mass (without brake) [kg]	1.45			
Brake mass [kg]	0.16			
Gearbox mass [kg]	0.6			
Recommendations				
ACOPOS 8Vxxxx.xx...	1016.50	1090 1)	1016.50	1090 1)
ACOPOSmicro 80VD100Px.xxxx-01	C00X			
ACOPOS P3 8EIxxxx...	4X5M	8X8M	4X5M	8X8M
Cross section for B&R motor cables [mm²]	0.75			

1) The mains input voltage is permitted up to a maximum of 3x 230 VAC ±10%.

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB23.ee005SjCn00	8LVB23.ee005SjFn00	8LVB23.ee008SjCn00	8LVB23.ee008SjFn00
Motor				
Nominal speed n_N [rpm]	1500	3000	1500	3000
Number of pole pairs	4			
Nominal torque M_n [Nm]	1.33	1.3	1.33	1.3
Nominal current I_N [A]	3.2	5.8	3.2	5.8
Stall torque M_0 [Nm]	1.35			
Stall current I_0 [A]	3.25	6	3.25	6
Maximum torque M_{max} [Nm]	4			
Maximum current I_{max} [A]	11.2	20.7	11.2	20.7
Maximum speed n_{max} [rpm]	6600			
Torque constant K_T [Nm/A]	0.42	0.23	0.42	0.23
Voltage constant K_E [V/1000 rpm]	25.13	13.61	25.13	13.61
Stator resistance R_{2ph} [Ω]	2.6	0.83	2.6	0.83
Stator inductance L_{2ph} [mH]	6.3	2	6.3	2
Electrical time constant t_{el} [ms]	2.42	2.41	2.42	2.41
Thermal time constant t_{therm} [min]	38			
Moment of inertia J [kgcm²]	0.26			
Holding brake				
Holding torque of the brake M_{Br} [Nm]	2.2			
Moment of inertia for the brake J_{Br} [kgcm²]	0.12			
Gearbox				
Number of gear stages	1			
Gear ratio i	5		8	
Nominal output torque T_{2N} [Nm]	16		15	
Max. output torque T_{2max} [Nm]	26		24	
Emergency stop torque T_{2stop} [Nm]	32		30	
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4500			
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	4500			
Max. backlash J_t [arcmin]	12		10	
Torsional rigidity C_{t21} [Nm/arcmin]	2.3			
Max. radial force Fr_{max} [N] for 30,000 h	340			
Max. radial force Fr_{max} [N] for 20,000 h	400			
Max. axial force Fa_{max} [N] for 30,000 h	450			
Max. axial force Fa_{max} [N] for 20,000 h	500			
Operating noise L_{PA} [dB(A)]	58			
Efficiency at full load ŋ [%]	96			
Moment of inertia J_1 [kgcm²]	0.036		0.025	
Shared values				
Max. permitted output torque M_{K0} [Nm]	5.23		8.4	
Max. permitted peak torque M_{Kmax} [Nm]	16		15	
Motor mass (without brake) [kg]	1.45			
Brake mass [kg]	0.16			
Gearbox mass [kg]	0.6			
Recommendations				
ACOPOS 8Vxxxx.xx...	1016.50	1090 1)	1016.50	1090 1)
ACOPOSmicro 80VD100Px.xxxx-01	C00X			
ACOPOS P3 8EIxxxx...	4X5M	8X8M	4X5M	8X8M
Cross section for B&R motor cables [mm²]	0.75			

1) The mains input voltage is permitted up to a maximum of 3x 230 VAC ±10%.

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB23.ee010SjCn00	8LVB23.ee010SjFn00	8LVB23.ee009SjCn00	8LVB23.ee009SjFn00
Motor				
Nominal speed n_N [rpm]	1500	3000	1500	3000
Number of pole pairs	4			
Nominal torque M_n [Nm]	1.33	1.3	1.33	1.3
Nominal current I_N [A]	3.2	5.8	3.2	5.8
Stall torque M_0 [Nm]	1.35			
Stall current I_0 [A]	3.25	6	3.25	6
Maximum torque M_{max} [Nm]	4			
Maximum current I_{max} [A]	11.2	20.7	11.2	20.7
Maximum speed n_{max} [rpm]	6600			
Torque constant K_T [Nm/A]	0.42	0.23	0.42	0.23
Voltage constant K_E [V/1000 rpm]	25.13	13.61	25.13	13.61
Stator resistance R_{2ph} [Ω]	2.6	0.83	2.6	0.83
Stator inductance L_{2ph} [mH]	6.3	2	6.3	2
Electrical time constant t_{el} [ms]	2.42	2.41	2.42	2.41
Thermal time constant t_{therm} [min]	38			
Moment of inertia J [kgcm²]	0.26			
Holding brake				
Holding torque of the brake M_{Br} [Nm]	2.2			
Moment of inertia for the brake J_{Br} [kgcm²]	0.12			
Gearbox				
Number of gear stages	1		2	
Gear ratio i	10		9	
Nominal output torque T_{2N} [Nm]	12		44	
Max. output torque T_{2max} [Nm]	19		71	
Emergency stop torque T_{2stop} [Nm]	24		88	
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4500			
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	4500			
Max. backlash J_t [arcmin]	12			
Torsional rigidity C_{t21} [Nm/arcmin]	2.3		2.5	
Max. radial force Fr_{max} [N] for 30,000 h	340			
Max. radial force Fr_{max} [N] for 20,000 h	400			
Max. axial force Fa_{max} [N] for 30,000 h	450			
Max. axial force Fa_{max} [N] for 20,000 h	500			
Operating noise L_{PA} [dB(A)]	58			
Efficiency at full load ŋ [%]	96		94	
Moment of inertia J_1 [kgcm²]	0.02		0.115	
Shared values				
Max. permitted output torque M_{K0} [Nm]	10.46		9.41	
Max. permitted peak torque M_{Kmax} [Nm]	15		32	
Motor mass (without brake) [kg]	1.45			
Brake mass [kg]	0.16			
Gearbox mass [kg]	0.6		0.8	
Recommendations				
ACOPOS 8Vxxxx.xx...	1016.50	1090 1)	1016.50	1090 1)
ACOPOSmicro 80VD100Px.xxxx-01	C00X			
ACOPOS P3 8EIxxxx...	4X5M	8X8M	4X5M	8X8M
Cross section for B&R motor cables [mm²]	0.75			

1) The mains input voltage is permitted up to a maximum of 3x 230 VAC ±10%.

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB23.ee012SjCn00	8LVB23.ee012SjFn00	8LVB23.ee015SjCn00	8LVB23.ee015SjFn00
Motor				
Nominal speed n_N [rpm]	1500	3000	1500	3000
Number of pole pairs	4			
Nominal torque M_n [Nm]	1.33	1.3	1.33	1.3
Nominal current I_N [A]	3.2	5.8	3.2	5.8
Stall torque M_0 [Nm]	1.35			
Stall current I_0 [A]	3.25	6	3.25	6
Maximum torque M_{max} [Nm]	4			
Maximum current I_{max} [A]	11.2	20.7	11.2	20.7
Maximum speed n_{max} [rpm]	6600			
Torque constant K_T [Nm/A]	0.42	0.23	0.42	0.23
Voltage constant K_E [V/1000 rpm]	25.13	13.61	25.13	13.61
Stator resistance R_{2ph} [Ω]	2.6	0.83	2.6	0.83
Stator inductance L_{2ph} [mH]	6.3	2	6.3	2
Electrical time constant t_{el} [ms]	2.42	2.41	2.42	2.41
Thermal time constant t_{therm} [min]	38			
Moment of inertia J [kgcm²]	0.26			
Holding brake				
Holding torque of the brake M_{Br} [Nm]	2.2			
Moment of inertia for the brake J_{Br} [kgcm²]	0.12			
Gearbox				
Number of gear stages	2			
Gear ratio i	12		15	
Nominal output torque T_{2N} [Nm]	44			
Max. output torque T_{2max} [Nm]	71			
Emergency stop torque T_{2stop} [Nm]	88			
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4500			
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	4500			
Max. backlash J_t [arcmin]	12			
Torsional rigidity C_{t21} [Nm/arcmin]	2.5			
Max. radial force Fr_{max} [N] for 30,000 h	340			
Max. radial force Fr_{max} [N] for 20,000 h	400			
Max. axial force Fa_{max} [N] for 30,000 h	450			
Max. axial force Fa_{max} [N] for 20,000 h	500			
Operating noise L_{PA} [dB(A)]	58			
Efficiency at full load ŋ [%]	94			
Moment of inertia J_1 [kgcm²]	0.111		0.035	
Shared values				
Max. permitted output torque M_{K0} [Nm]	12.5		15.7	
Max. permitted peak torque M_{Kmax} [Nm]	44			
Motor mass (without brake) [kg]	1.45			
Brake mass [kg]	0.16			
Gearbox mass [kg]	0.8			
Recommendations				
ACOPOS 8Vxxxx.xx...	1016.50	1090 1)	1016.50	1090 1)
ACOPOSmicro 80VD100Px.xxxx-01	C00X			
ACOPOS P3 8EIxxxx...	4X5M	8X8M	4X5M	8X8M
Cross section for B&R motor cables [mm²]	0.75			

1) The mains input voltage is permitted up to a maximum of 3x 230 VAC ±10%.

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB23.ee016SjCn00	8LVB23.ee016SjFn00	8LVB23.ee020SjCn00	8LVB23.ee020SjFn00
Motor				
Nominal speed n_N [rpm]	1500	3000	1500	3000
Number of pole pairs	4			
Nominal torque M_n [Nm]	1.33	1.3	1.33	1.3
Nominal current I_N [A]	3.2	5.8	3.2	5.8
Stall torque M_0 [Nm]	1.35			
Stall current I_0 [A]	3.25	6	3.25	6
Maximum torque M_{max} [Nm]	4			
Maximum current I_{max} [A]	11.2	20.7	11.2	20.7
Maximum speed n_{max} [rpm]	6600			
Torque constant K_T [Nm/A]	0.42	0.23	0.42	0.23
Voltage constant K_E [V/1000 rpm]	25.13	13.61	25.13	13.61
Stator resistance R_{2ph} [Ω]	2.6	0.83	2.6	0.83
Stator inductance L_{2ph} [mH]	6.3	2	6.3	2
Electrical time constant t_{el} [ms]	2.42	2.41	2.42	2.41
Thermal time constant t_{therm} [min]	38			
Moment of inertia J [kgcm²]	0.26			
Holding brake				
Holding torque of the brake M_{Br} [Nm]	2.2			
Moment of inertia for the brake J_{Br} [kgcm²]	0.12			
Gearbox				
Number of gear stages	2			
Gear ratio i	16		20	
Nominal output torque T_{2N} [Nm]	44			
Max. output torque T_{2max} [Nm]	71			
Emergency stop torque T_{2stop} [Nm]	88			
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4500			
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	4500			
Max. backlash J_t [arcmin]	12			
Torsional rigidity C_{t21} [Nm/arcmin]	2.5			
Max. radial force Fr_{max} [N] for 30,000 h	340			
Max. radial force Fr_{max} [N] for 20,000 h	400			
Max. axial force Fa_{max} [N] for 30,000 h	450			
Max. axial force Fa_{max} [N] for 20,000 h	500			
Operating noise L_{PA} [dB(A)]	58			
Efficiency at full load ŋ [%]	94			
Moment of inertia J_1 [kgcm²]	0.042		0.033	
Shared values				
Max. permitted output torque M_{K0} [Nm]	16.7		20.9	
Max. permitted peak torque M_{Kmax} [Nm]	44			
Motor mass (without brake) [kg]	1.45			
Brake mass [kg]	0.16			
Gearbox mass [kg]	0.8			
Recommendations				
ACOPOS 8Vxxxx.xx...	1016.50	1090 [1)]	1016.50	1090 [1)]
ACOPOSmicro 80VD100Px.xxxx-01	C00X			
ACOPOS P3 8EIxxxx...	4X5M	8X8M	4X5M	8X8M
Cross section for B&R motor cables [mm²]	0.75			

1) The mains input voltage is permitted up to a maximum of 3x 230 VAC ±10%.

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB23.ee025SjCn00	8LVB23.ee025SjFn00	8LVB23.ee040SjCn00	8LVB23.ee040SjFn00
Motor				
Nominal speed n_N [rpm]	1500	3000	1500	3000
Number of pole pairs	4			
Nominal torque M_n [Nm]	1.33	1.3	1.33	1.3
Nominal current I_N [A]	3.2	5.8	3.2	5.8
Stall torque M_0 [Nm]	1.35			
Stall current I_0 [A]	3.25	6	3.25	6
Maximum torque M_{max} [Nm]	4			
Maximum current I_{max} [A]	11.2	20.7	11.2	20.7
Maximum speed n_{max} [rpm]	6600			
Torque constant K_T [Nm/A]	0.42	0.23	0.42	0.23
Voltage constant K_E [V/1000 rpm]	25.13	13.61	25.13	13.61
Stator resistance R_{2ph} [Ω]	2.6	0.83	2.6	0.83
Stator inductance L_{2ph} [mH]	6.3	2	6.3	2
Electrical time constant t_{el} [ms]	2.42	2.41	2.42	2.41
Thermal time constant t_{therm} [min]	38			
Moment of inertia J [kgcm²]	0.26			
Holding brake				
Holding torque of the brake M_{Br} [Nm]	2.2			
Moment of inertia for the brake J_{Br} [kgcm²]	0.12			
Gearbox				
Number of gear stages	2			
Gear ratio i	25		40	
Nominal output torque T_{2N} [Nm]	40			
Max. output torque T_{2max} [Nm]	64			
Emergency stop torque T_{2stop} [Nm]	80			
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4500			
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	4500			
Max. backlash J_t [arcmin]	15		12	
Torsional rigidity C_{t21} [Nm/arcmin]	2.5			
Max. radial force Fr_{max} [N] for 30,000 h	340			
Max. radial force Fr_{max} [N] for 20,000 h	400			
Max. axial force Fa_{max} [N] for 30,000 h	450			
Max. axial force Fa_{max} [N] for 20,000 h	500			
Operating noise L_{PA} [dB(A)]	58			
Efficiency at full load ŋ [%]	94			
Moment of inertia J_1 [kgcm²]	0.035		0.024	
Shared values				
Max. permitted output torque M_{K0} [Nm]	26.1		40	
Max. permitted peak torque M_{Kmax} [Nm]	40			
Motor mass (without brake) [kg]	1.45			
Brake mass [kg]	0.16			
Gearbox mass [kg]	0.8			
Recommendations				
ACOPOS 8Vxxxx.xx...	1016.50	1090 1)	1016.50	1090 1)
ACOPOSmicro 80VD100Px.xxxx-01	C00X			
ACOPOS P3 8EIxxxx...	4X5M	8X8M	4X5M	8X8M
Cross section for B&R motor cables [mm²]	0.75			

1) The mains input voltage is permitted up to a maximum of 3x 230 VAC ±10%.

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB23.ee064SjCn00	8LVB23.ee064SjFn00	8LVB23.ee100SjCn00	8LVB23.ee100SjFn00
Motor				
Nominal speed n_N [rpm]	1500	3000	1500	3000
Number of pole pairs	4			
Nominal torque M_n [Nm]	1.33	1.3	1.33	1.3
Nominal current I_N [A]	3.2	5.8	3.2	5.8
Stall torque M_0 [Nm]	1.35			
Stall current I_0 [A]	3.25	6	3.25	6
Maximum torque M_{max} [Nm]	4			
Maximum current I_{max} [A]	11.2	20.7	11.2	20.7
Maximum speed n_{max} [rpm]	6600			
Torque constant K_T [Nm/A]	0.42	0.23	0.42	0.23
Voltage constant K_E [V/1000 rpm]	25.13	13.61	25.13	13.61
Stator resistance R_{2ph} [Ω]	2.6	0.83	2.6	0.83
Stator inductance L_{2ph} [mH]	6.3	2	6.3	2
Electrical time constant t_{el} [ms]	2.42	2.41	2.42	2.41
Thermal time constant t_{therm} [min]	38			
Moment of inertia J [kgcm²]	0.26			
Holding brake				
Holding torque of the brake M_{Br} [Nm]	2.2			
Moment of inertia for the brake J_{Br} [kgcm²]	0.12			
Gearbox				
Number of gear stages	2			
Gear ratio i	64		100	
Nominal output torque T_{2N} [Nm]	18		15	
Max. output torque T_{2max} [Nm]	30		24	
Emergency stop torque T_{2stop} [Nm]	36		30	
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4500			
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	4500			
Max. backlash J_t [arcmin]	12	15	12	
Torsional rigidity C_{t21} [Nm/arcmin]	2.5			
Max. radial force Fr_{max} [N] for 30,000 h	340			
Max. radial force Fr_{max} [N] for 20,000 h	400			
Max. axial force Fa_{max} [N] for 30,000 h	450			
Max. axial force Fa_{max} [N] for 20,000 h	500			
Operating noise L_{PA} [dB(A)]	58			
Efficiency at full load ŋ [%]	94			
Moment of inertia J_1 [kgcm²]	0.024		0.02	
Shared values				
Max. permitted output torque M_{K0} [Nm]	18		15	
Max. permitted peak torque M_{Kmax} [Nm]	18		15	
Motor mass (without brake) [kg]	1.45			
Brake mass [kg]	0.16			
Gearbox mass [kg]	0.8			
Recommendations				
ACOPOS 8Vxxxx.xx...	1016.50	1090 1)	1016.50	1090 1)
ACOPOSmicro 80VD100Px.xxxx-01	C00X			
ACOPOS P3 8EIxxxx...	4X5M	8X8M	4X5M	8X8M
Cross section for B&R motor cables [mm²]	0.75			

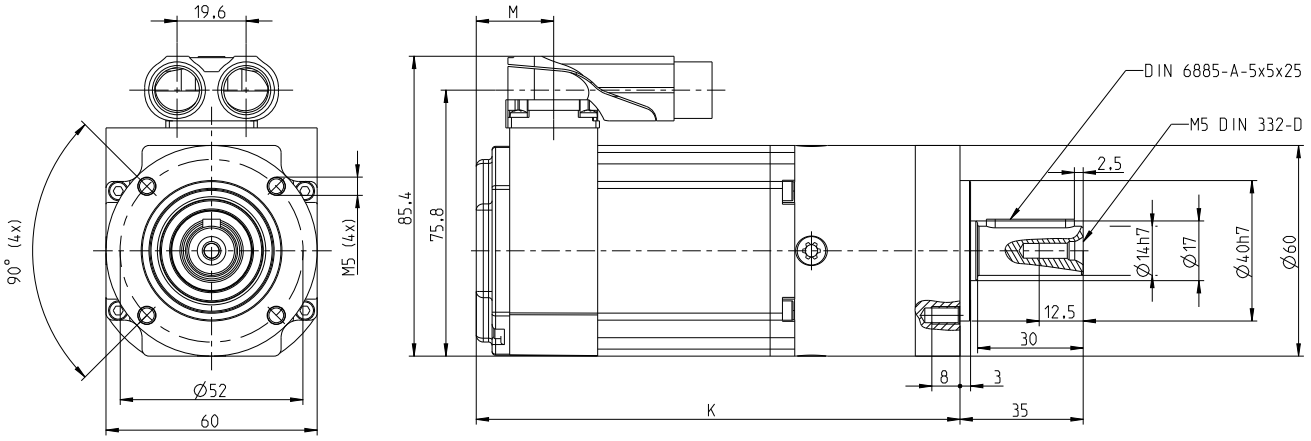
1) The mains input voltage is permitted up to a maximum of 3x 230 VAC ±10%.

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

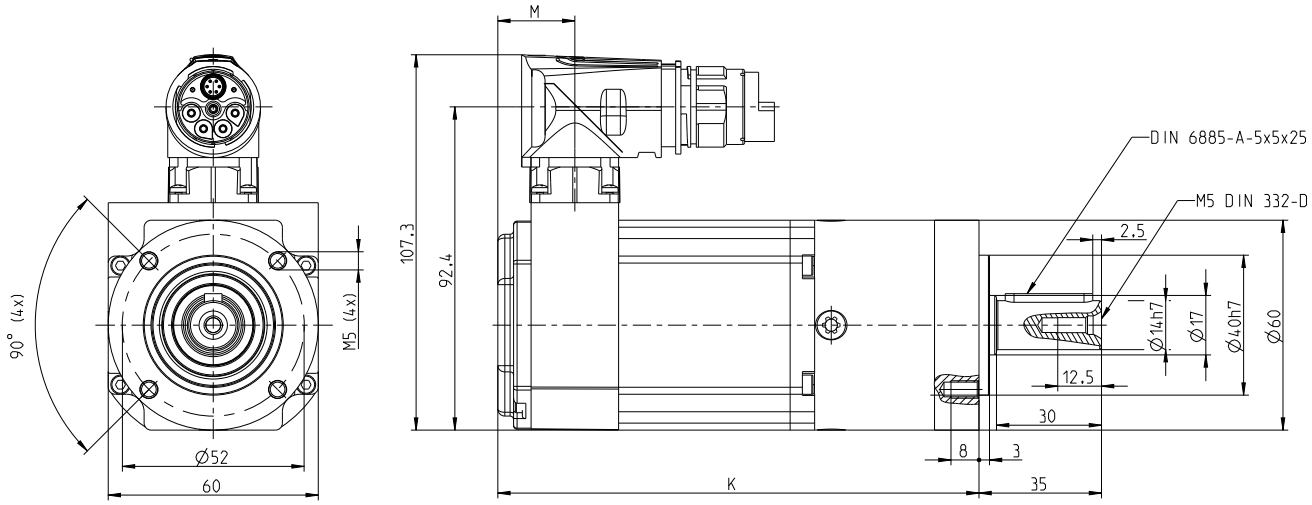
Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

2.10.1 8LVB23-8GM40 - Dimensions



Double angular built-in connector



Single-cable solution

EnDat/Resolver feedback					Extension of K depending on motor option
	K	K	M	M	Holding brake
Gear motor	Encoder: R0, B1	Encoder: B8, B9	Encoder: R0, B1	Encoder: B8, B9	
8LVB23 1-stage 8GM40	153	158	17	22	33.5
8LVB23 2-stage 8GM40	165	170	17	22	33.5

IMPORTANT: Dimensions K and M depend on the length of the encoder cover.

2.11 8LVB23-8GM50 - Technical data

Model number	8LVB23.ee003LjCn00	8LVB23.ee003LjFn00	8LVB23.ee004LjCn00	8LVB23.ee004LjFn00
Motor				
Nominal speed n_N [rpm]	1500	3000	1500	3000
Number of pole pairs	4			
Nominal torque M_n [Nm]	1.33	1.3	1.33	1.3
Nominal current I_N [A]	3.2	5.8	3.2	5.8
Stall torque M_0 [Nm]	1.35			
Stall current I_0 [A]	3.25	6	3.25	6
Maximum torque M_{max} [Nm]	4			
Maximum current I_{max} [A]	11.2	20.7	11.2	20.7
Maximum speed n_{max} [rpm]	6600			
Torque constant K_T [Nm/A]	0.42	0.23	0.42	0.23
Voltage constant K_E [V/1000 rpm]	25.13	13.61	25.13	13.61
Stator resistance R_{2ph} [Ω]	2.6	0.83	2.6	0.83
Stator inductance L_{2ph} [mH]	6.3	2	6.3	2
Electrical time constant t_{el} [ms]	2.42	2.41	2.42	2.41
Thermal time constant t_{therm} [min]	38			
Moment of inertia J [kgcm²]	0.26			
Holding brake				
Holding torque of the brake M_{Br} [Nm]	2.2			
Moment of inertia for the brake J_{Br} [kgcm²]	0.12			
Gearbox				
Number of gear stages	1			
Gear ratio i	3		4	
Nominal output torque T_{2N} [Nm]	12		16	
Max. output torque T_{2max} [Nm]	19		26	
Emergency stop torque T_{2stop} [Nm]	24		32	
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4500			
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	4100		4500	
Max. backlash J_t [arcmin]	10			
Torsional rigidity C_{t21} [Nm/arcmin]	2.3			
Max. radial force Fr_{max} [N] for 30,000 h	900			
Max. radial force Fr_{max} [N] for 20,000 h	1050			
Max. axial force Fa_{max} [N] for 30,000 h	1000			
Max. axial force Fa_{max} [N] for 20,000 h	1350			
Operating noise L_{PA} [dB(A)]	58			
Efficiency at full load ŋ [%]	96			
Moment of inertia J_1 [kgcm²]	0.141		0.06	
Shared values				
Max. permitted output torque M_{K0} [Nm]	3.14		4.18	
Max. permitted peak torque M_{Kmax} [Nm]	12		16	
Motor mass (without brake) [kg]	1.45			
Brake mass [kg]	0.16			
Gearbox mass [kg]	1.2			
Recommendations				
ACOPOS 8Vxxxx.xx...	1016.50	1090 1)	1016.50	1090 1)
ACOPOSmicro 80VD100Px.xxxx-01	C00X			
ACOPOS P3 8EIxxxx...	4X5M	8X8M	4X5M	8X8M
Cross section for B&R motor cables [mm²]	0.75			

1) The mains input voltage is permitted up to a maximum of 3x 230 VAC ±10%.

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB23.ee005LjCn00	8LVB23.ee005LjFn00	8LVB23.ee008LjCn00	8LVB23.ee008LjFn00
Motor				
Nominal speed n_N [rpm]	1500	3000	1500	3000
Number of pole pairs	4			
Nominal torque M_n [Nm]	1.33	1.3	1.33	1.3
Nominal current I_N [A]	3.2	5.8	3.2	5.8
Stall torque M_0 [Nm]	1.35			
Stall current I_0 [A]	3.25	6	3.25	6
Maximum torque M_{max} [Nm]	4			
Maximum current I_{max} [A]	11.2	20.7	11.2	20.7
Maximum speed n_{max} [rpm]	6600			
Torque constant K_T [Nm/A]	0.42	0.23	0.42	0.23
Voltage constant K_E [V/1000 rpm]	25.13	13.61	25.13	13.61
Stator resistance R_{2ph} [Ω]	2.6	0.83	2.6	0.83
Stator inductance L_{2ph} [mH]	6.3	2	6.3	2
Electrical time constant t_{el} [ms]	2.42	2.41	2.42	2.41
Thermal time constant t_{therm} [min]	38			
Moment of inertia J [kgcm²]	0.26			
Holding brake				
Holding torque of the brake M_{Br} [Nm]	2.2			
Moment of inertia for the brake J_{Br} [kgcm²]	0.12			
Gearbox				
Number of gear stages	1			
Gear ratio i	5		8	
Nominal output torque T_{2N} [Nm]	16		15	
Max. output torque T_{2max} [Nm]	26		24	
Emergency stop torque T_{2stop} [Nm]	32		30	
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4500			
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	4500			
Max. backlash J_t [arcmin]	10			
Torsional rigidity C_{t21} [Nm/arcmin]	2.3			
Max. radial force Fr_{max} [N] for 30,000 h	900			
Max. radial force Fr_{max} [N] for 20,000 h	1050			
Max. axial force Fa_{max} [N] for 30,000 h	1000			
Max. axial force Fa_{max} [N] for 20,000 h	1350			
Operating noise L_{PA} [dB(A)]	58			
Efficiency at full load ŋ [%]	96			
Moment of inertia J_1 [kgcm²]	0.044		0.028	
Shared values				
Max. permitted output torque M_{K0} [Nm]	5.23		8.4	
Max. permitted peak torque M_{Kmax} [Nm]	16		15	
Motor mass (without brake) [kg]	1.45			
Brake mass [kg]	0.16			
Gearbox mass [kg]	1.2			
Recommendations				
ACOPOS 8Vxxxx.xx...	1016.50	1090 1)	1016.50	1090 1)
ACOPOSmicro 80VD100Px.xxxx-01	C00X			
ACOPOS P3 8EIxxxx...	4X5M	8X8M	4X5M	8X8M
Cross section for B&R motor cables [mm²]	0.75			

1) The mains input voltage is permitted up to a maximum of 3x 230 VAC ±10%.

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB23.ee010LjCn00	8LVB23.ee010LjFn00	8LVB23.ee009LjCn00	8LVB23.ee009LjFn00
Motor				
Nominal speed n_N [rpm]	1500	3000	1500	3000
Number of pole pairs	4			
Nominal torque M_n [Nm]	1.33	1.3	1.33	1.3
Nominal current I_N [A]	3.2	5.8	3.2	5.8
Stall torque M_0 [Nm]	1.35			
Stall current I_0 [A]	3.25	6	3.25	6
Maximum torque M_{max} [Nm]	4			
Maximum current I_{max} [A]	11.2	20.7	11.2	20.7
Maximum speed n_{max} [rpm]	6600			
Torque constant K_T [Nm/A]	0.42	0.23	0.42	0.23
Voltage constant K_E [V/1000 rpm]	25.13	13.61	25.13	13.61
Stator resistance R_{2ph} [Ω]	2.6	0.83	2.6	0.83
Stator inductance L_{2ph} [mH]	6.3	2	6.3	2
Electrical time constant t_{el} [ms]	2.42	2.41	2.42	2.41
Thermal time constant t_{therm} [min]	38			
Moment of inertia J [kgcm²]	0.26			
Holding brake				
Holding torque of the brake M_{Br} [Nm]	2.2			
Moment of inertia for the brake J_{Br} [kgcm²]	0.12			
Gearbox				
Number of gear stages	1		2	
Gear ratio i	10		9	
Nominal output torque T_{2N} [Nm]	15		33	
Max. output torque T_{2max} [Nm]	25	24	53	
Emergency stop torque T_{2stop} [Nm]	-	30	66	
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4000	4500		
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	4000	4500		
Max. backlash J_t [arcmin]	12	10	12	
Torsional rigidity C_{t21} [Nm/arcmin]	2.3		2.5	
Max. radial force Fr_{max} [N] for 30,000 h	900			
Max. radial force Fr_{max} [N] for 20,000 h	1050			
Max. axial force Fa_{max} [N] for 30,000 h	1000			
Max. axial force Fa_{max} [N] for 20,000 h	1350			
Operating noise L_{PA} [dB(A)]	58			
Efficiency at full load ŋ [%]	96		94	
Moment of inertia J_1 [kgcm²]	0.022		0.117	
Shared values				
Max. permitted output torque M_{K0} [Nm]	10.46		9.41	
Max. permitted peak torque M_{Kmax} [Nm]	15		33	
Motor mass (without brake) [kg]	1.45			
Brake mass [kg]	0.16			
Gearbox mass [kg]	1.2		1.5	
Recommendations				
ACOPOS 8Vxxxx.xx...	1016.50	1090 1)	1016.50	1090 1)
ACOPOSmicro 80VD100Px.xxxx-01	C00X			
ACOPOS P3 8EIxxxx...	4X5M	8X8M	4X5M	8X8M
Cross section for B&R motor cables [mm²]	0.75			

1) The mains input voltage is permitted up to a maximum of 3x 230 VAC ±10%.

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB23.ee012LjCn00	8LVB23.ee012LjFn00	8LVB23.ee015LjCn00	8LVB23.ee015LjFn00
Motor				
Nominal speed n_N [rpm]	1500	3000	1500	3000
Number of pole pairs	4			
Nominal torque M_n [Nm]	1.33	1.3	1.33	1.3
Nominal current I_N [A]	3.2	5.8	3.2	5.8
Stall torque M_0 [Nm]	1.35			
Stall current I_0 [A]	3.25	6	3.25	6
Maximum torque M_{max} [Nm]	4			
Maximum current I_{max} [A]	11.2	20.7	11.2	20.7
Maximum speed n_{max} [rpm]	6600			
Torque constant K_T [Nm/A]	0.42	0.23	0.42	0.23
Voltage constant K_E [V/1000 rpm]	25.13	13.61	25.13	13.61
Stator resistance R_{2ph} [Ω]	2.6	0.83	2.6	0.83
Stator inductance L_{2ph} [mH]	6.3	2	6.3	2
Electrical time constant t_{el} [ms]	2.42	2.41	2.42	2.41
Thermal time constant t_{therm} [min]	38			
Moment of inertia J [kgcm²]	0.26			
Holding brake				
Holding torque of the brake M_{Br} [Nm]	2.2			
Moment of inertia for the brake J_{Br} [kgcm²]	0.12			
Gearbox				
Number of gear stages	2			
Gear ratio i	12		15	
Nominal output torque T_{2N} [Nm]	33			
Max. output torque T_{2max} [Nm]	53			
Emergency stop torque T_{2stop} [Nm]	66			
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4500		4000	4500
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	4500		4000	4500
Max. backlash J_t [arcmin]	12		15	12
Torsional rigidity C_{t21} [Nm/arcmin]	2.5			
Max. radial force Fr_{max} [N] for 30,000 h	900			
Max. radial force Fr_{max} [N] for 20,000 h	1050			
Max. axial force Fa_{max} [N] for 30,000 h	1000			
Max. axial force Fa_{max} [N] for 20,000 h	1350			
Operating noise L_{PA} [dB(A)]	58			
Efficiency at full load ŋ [%]	94			
Moment of inertia J_1 [kgcm²]	0.112		0.036	
Shared values				
Max. permitted output torque M_{K0} [Nm]	12.5		15.7	
Max. permitted peak torque M_{Kmax} [Nm]	33			
Motor mass (without brake) [kg]	1.45			
Brake mass [kg]	0.16			
Gearbox mass [kg]	1.5			
Recommendations				
ACOPOS 8Vxxxx.xx...	1016.50	1090 1)	1016.50	1090 1)
ACOPOSmicro 80VD100Px.xxxx-01	C00X			
ACOPOS P3 8EIxxxx...	4X5M	8X8M	4X5M	8X8M
Cross section for B&R motor cables [mm²]	0.75			

1) The mains input voltage is permitted up to a maximum of 3x 230 VAC ±10%.

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB23.ee016LjCn00	8LVB23.ee016LjFn00	8LVB23.ee020LjCn00	8LVB23.ee020LjFn00
Motor				
Nominal speed n_N [rpm]	1500	3000	1500	3000
Number of pole pairs	4			
Nominal torque M_n [Nm]	1.33	1.3	1.33	1.3
Nominal current I_N [A]	3.2	5.8	3.2	5.8
Stall torque M_0 [Nm]	1.35			
Stall current I_0 [A]	3.25	6	3.25	6
Maximum torque M_{max} [Nm]	4			
Maximum current I_{max} [A]	11.2	20.7	11.2	20.7
Maximum speed n_{max} [rpm]	6600			
Torque constant K_T [Nm/A]	0.42	0.23	0.42	0.23
Voltage constant K_E [V/1000 rpm]	25.13	13.61	25.13	13.61
Stator resistance R_{2ph} [Ω]	2.6	0.83	2.6	0.83
Stator inductance L_{2ph} [mH]	6.3	2	6.3	2
Electrical time constant t_{el} [ms]	2.42	2.41	2.42	2.41
Thermal time constant t_{therm} [min]	38			
Moment of inertia J [kgcm²]	0.26			
Holding brake				
Holding torque of the brake M_{Br} [Nm]	2.2			
Moment of inertia for the brake J_{Br} [kgcm²]	0.12			
Gearbox				
Number of gear stages	2			
Gear ratio i	16		20	
Nominal output torque T_{2N} [Nm]	33			
Max. output torque T_{2max} [Nm]	53			
Emergency stop torque T_{2stop} [Nm]	66			
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4500			
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	4500			
Max. backlash J_t [arcmin]	12			
Torsional rigidity C_{t21} [Nm/arcmin]	2.5			
Max. radial force Fr_{max} [N] for 30,000 h	900			
Max. radial force Fr_{max} [N] for 20,000 h	1050			
Max. axial force Fa_{max} [N] for 30,000 h	1000			
Max. axial force Fa_{max} [N] for 20,000 h	1350			
Operating noise L_{PA} [dB(A)]	58			
Efficiency at full load ŋ [%]	94			
Moment of inertia J_1 [kgcm²]	0.043		0.034	
Shared values				
Max. permitted output torque M_{K0} [Nm]	16.7		20.9	
Max. permitted peak torque M_{Kmax} [Nm]	33			
Motor mass (without brake) [kg]	1.45			
Brake mass [kg]	0.16			
Gearbox mass [kg]	1.5			
Recommendations				
ACOPOS 8Vxxxx.xx...	1016.50	1090 1)	1016.50	1090 1)
ACOPOSmicro 80VD100Px.xxxx-01	C00X			
ACOPOS P3 8EIxxxx...	4X5M	8X8M	4X5M	8X8M
Cross section for B&R motor cables [mm²]	0.75			

1) The mains input voltage is permitted up to a maximum of 3x 230 VAC ±10%.

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB23.ee025LjCn00	8LVB23.ee025LjFn00	8LVB23.ee032LjCn00	8LVB23.ee032LjFn00
Motor				
Nominal speed n_N [rpm]	1500	3000	1500	3000
Number of pole pairs	4			
Nominal torque M_n [Nm]	1.33	1.3	1.33	1.3
Nominal current I_N [A]	3.2	5.8	3.2	5.8
Stall torque M_0 [Nm]	1.35			
Stall current I_0 [A]	3.25	6	3.25	6
Maximum torque M_{max} [Nm]	4			
Maximum current I_{max} [A]	11.2	20.7	11.2	20.7
Maximum speed n_{max} [rpm]	6600			
Torque constant K_T [Nm/A]	0.42	0.23	0.42	0.23
Voltage constant K_E [V/1000 rpm]	25.13	13.61	25.13	13.61
Stator resistance R_{2ph} [Ω]	2.6	0.83	2.6	0.83
Stator inductance L_{2ph} [mH]	6.3	2	6.3	2
Electrical time constant t_{el} [ms]	2.42	2.41	2.42	2.41
Thermal time constant t_{therm} [min]	38			
Moment of inertia J [kgcm²]	0.26			
Holding brake				
Holding torque of the brake M_{Br} [Nm]	2.2			
Moment of inertia for the brake J_{Br} [kgcm²]	0.12			
Gearbox				
Number of gear stages	2			
Gear ratio i	25		32	
Nominal output torque T_{2N} [Nm]	30		33	
Max. output torque T_{2max} [Nm]	48		53	
Emergency stop torque T_{2stop} [Nm]	60		66	
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4500			
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	4500			
Max. backlash J_t [arcmin]	12			
Torsional rigidity C_{t21} [Nm/arcmin]	2.5			
Max. radial force Fr_{max} [N] for 30,000 h	900			
Max. radial force Fr_{max} [N] for 20,000 h	1050			
Max. axial force Fa_{max} [N] for 30,000 h	1000			
Max. axial force Fa_{max} [N] for 20,000 h	1350			
Operating noise L_{PA} [dB(A)]	58			
Efficiency at full load ŋ [%]	94			
Moment of inertia J_1 [kgcm²]	0.035		0.024	
Shared values				
Max. permitted output torque M_{K0} [Nm]	26.1		33	
Max. permitted peak torque M_{Kmax} [Nm]	30		33	
Motor mass (without brake) [kg]	1.45			
Brake mass [kg]	0.16			
Gearbox mass [kg]	1.5			
Recommendations				
ACOPOS 8Vxxxx.xx...	1016.50	1090 1)	1016.50	1090 1)
ACOPOSmicro 80VD100Px.xxxx-01	C00X			
ACOPOS P3 8EIxxxx...	4X5M	8X8M	4X5M	8X8M
Cross section for B&R motor cables [mm²]	0.75			

1) The mains input voltage is permitted up to a maximum of 3x 230 VAC ±10%.

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB23.ee040LjCn00	8LVB23.ee040LjFn00	8LVB23.ee064LjCn00	8LVB23.ee064LjFn00
Motor				
Nominal speed n_N [rpm]	1500	3000	1500	3000
Number of pole pairs	4			
Nominal torque M_n [Nm]	1.33	1.3	1.33	1.3
Nominal current I_N [A]	3.2	5.8	3.2	5.8
Stall torque M_0 [Nm]	1.35			
Stall current I_0 [A]	3.25	6	3.25	6
Maximum torque M_{max} [Nm]	4			
Maximum current I_{max} [A]	11.2	20.7	11.2	20.7
Maximum speed n_{max} [rpm]	6600			
Torque constant K_T [Nm/A]	0.42	0.23	0.42	0.23
Voltage constant K_E [V/1000 rpm]	25.13	13.61	25.13	13.61
Stator resistance R_{2ph} [Ω]	2.6	0.83	2.6	0.83
Stator inductance L_{2ph} [mH]	6.3	2	6.3	2
Electrical time constant t_{el} [ms]	2.42	2.41	2.42	2.41
Thermal time constant t_{therm} [min]	38			
Moment of inertia J [kgcm²]	0.26			
Holding brake				
Holding torque of the brake M_{Br} [Nm]	2.2			
Moment of inertia for the brake J_{Br} [kgcm²]	0.12			
Gearbox				
Number of gear stages	2			
Gear ratio i	40		64	
Nominal output torque T_{2N} [Nm]	30		18	
Max. output torque T_{2max} [Nm]	48		29	
Emergency stop torque T_{2stop} [Nm]	60		36	
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4000			
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	4000			
Max. backlash J_t [arcmin]	15			
Torsional rigidity C_{t21} [Nm/arcmin]	2.5			
Max. radial force Fr_{max} [N] for 30,000 h	900			
Max. radial force Fr_{max} [N] for 20,000 h	1050			
Max. axial force Fa_{max} [N] for 30,000 h	1000			
Max. axial force Fa_{max} [N] for 20,000 h	1350			
Operating noise L_{PA} [dB(A)]	58			
Efficiency at full load ŋ [%]	94			
Moment of inertia J_1 [kgcm²]	0.024			
Shared values				
Max. permitted output torque M_{K0} [Nm]	30		18	
Max. permitted peak torque M_{Kmax} [Nm]	30		18	
Motor mass (without brake) [kg]	1.45			
Brake mass [kg]	0.16			
Gearbox mass [kg]	1.5			
Recommendations				
ACOPOS 8Vxxxx.xx...	1016.50	1090 1)	1016.50	1090 1)
ACOPOSmicro 80VD100Px.xxxx-01	C00X			
ACOPOS P3 8EIxxxx...	4X5M	8X8M	4X5M	8X8M
Cross section for B&R motor cables [mm²]	0.75			

1) The mains input voltage is permitted up to a maximum of 3x 230 VAC ±10%.

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB23.ee100LjCn00	8LVB23.ee100LjFn00
Motor		
Nominal speed n_N [rpm]	1500	3000
Number of pole pairs	4	
Nominal torque M_n [Nm]	1.33	1.3
Nominal current I_N [A]	3.2	5.8
Stall torque M_0 [Nm]	1.35	
Stall current I_0 [A]	3.25	6
Maximum torque M_{max} [Nm]	4	
Maximum current I_{max} [A]	11.2	20.7
Maximum speed n_{max} [rpm]	6600	
Torque constant K_T [Nm/A]	0.42	0.23
Voltage constant K_E [V/1000 rpm]	25.13	13.61
Stator resistance R_{2ph} [Ω]	2.6	0.83
Stator inductance L_{2ph} [mH]	6.3	2
Electrical time constant t_{el} [ms]	2.42	2.41
Thermal time constant t_{therm} [min]	38	
Moment of inertia J [kgcm²]	0.26	
Holding brake		
Holding torque of the brake M_{Br} [Nm]	2.2	
Moment of inertia for the brake J_{Br} [kgcm²]	0.12	
Gearbox		
Number of gear stages	2	
Gear ratio i	100	
Nominal output torque T_{2N} [Nm]	15	
Max. output torque T_{2max} [Nm]	24	
Emergency stop torque T_{2stop} [Nm]	30	
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4500	
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	4500	
Max. backlash J_t [arcmin]	12	
Torsional rigidity C_{t21} [Nm/arcmin]	2.5	
Max. radial force Fr_{max} [N] for 30,000 h	900	
Max. radial force Fr_{max} [N] for 20,000 h	1050	
Max. axial force Fa_{max} [N] for 30,000 h	1000	
Max. axial force Fa_{max} [N] for 20,000 h	1350	
Operating noise L_{PA} [dB(A)]	58	
Efficiency at full load η [%]	94	
Moment of inertia J_1 [kgcm²]	0.02	
Shared values		
Max. permitted output torque M_{K0} [Nm]	15	
Max. permitted peak torque M_{Kmax} [Nm]	15	
Motor mass (without brake) [kg]	1.45	
Brake mass [kg]	0.16	
Gearbox mass [kg]	1.5	
Recommendations		
ACOPOS 8Vxxxx.xx...	1016.50	1090 [1]
ACOPOSmicro 80VD100Px.xxxx-01	C00X	
ACOPOS P3 8EIxxxx...	4X5M	8X8M
Cross section for B&R motor cables [mm²]	0.75	

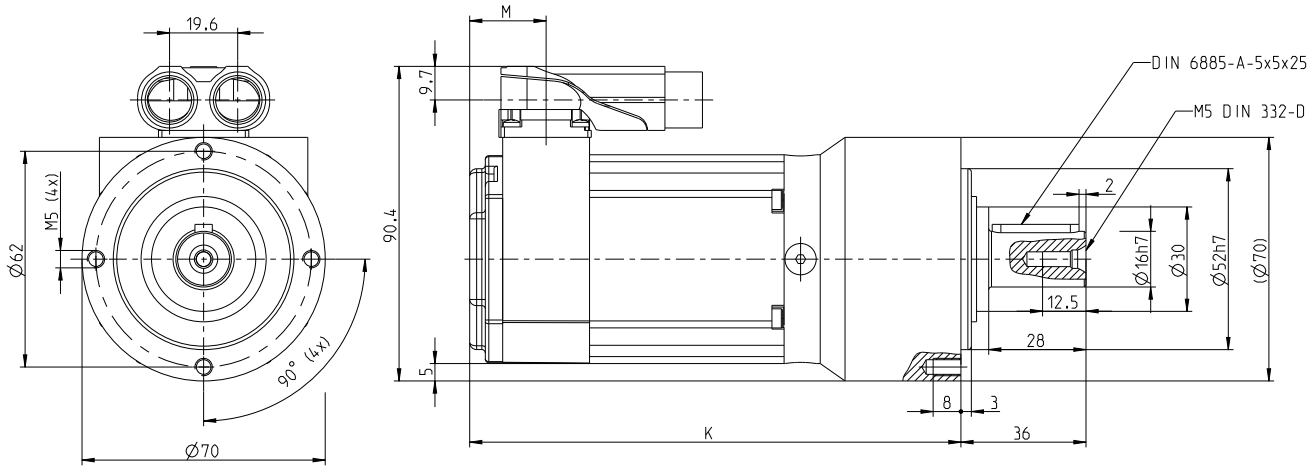
1) The mains input voltage is permitted up to a maximum of 3x 230 VAC ±10%.

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

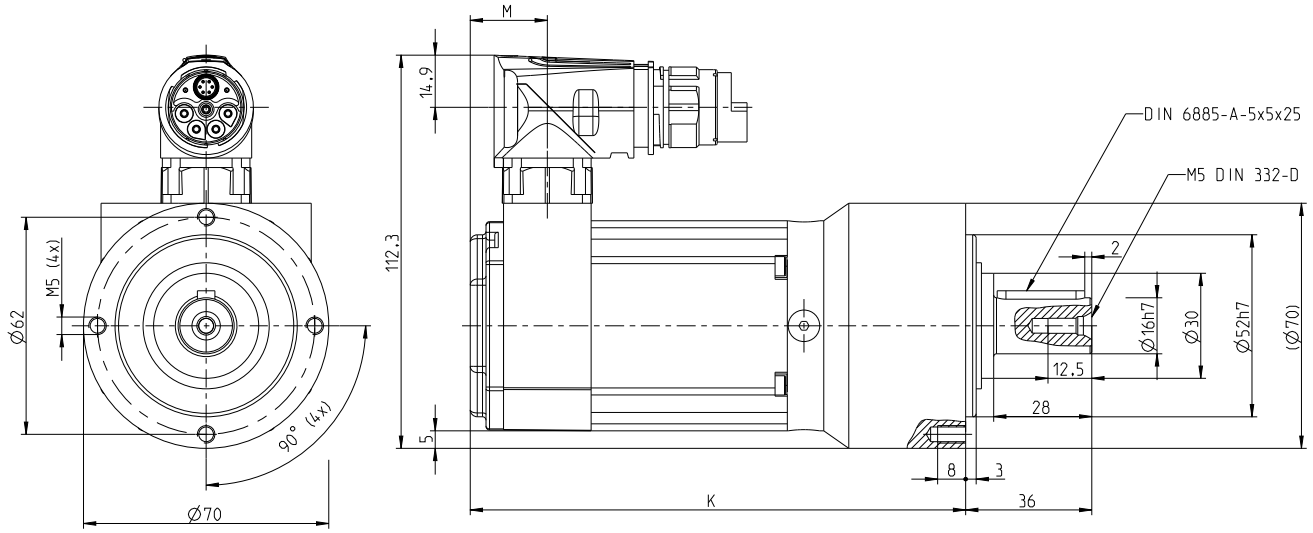
Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

2.11.1 8LVB23-8GM50 - Dimensions



Double angular built-in connector



Single-cable solution

EnDat/Resolver feedback					Extension of K depending on motor option
	K	K	M	M	Holding brake
Gear motor	Encoder: R0, B1	Encoder: B8, B9	Encoder: R0, B1	Encoder: B8, B9	
8LVB23 1-stage 8GM50	157	162	17	22	33.5
8LVB23 2-stage 8GM50	170	175	17	22	33.5

IMPORTANT: Dimensions K and M depend on the length of the encoder cover.

2.12 8LVB33-8GM40 - Technical data

Model number	8LVB33.ee003SjAn00	8LVB33.ee003SjCn00	8LVB33.ee003SjDn00	8LVB33.ee004SjAn00	8LVB33.ee004SjCn00
Motor					
Nominal speed n_N [rpm]	500	1500	2100	500	1500
Number of pole pairs	4				
Nominal torque M_n [Nm]	2.57	2.5	2.45	2.57	2.5
Nominal current I_N [A]	2.18	6	7.3	2.18	6
Stall torque M_0 [Nm]	2.6				
Stall current I_0 [A]	2.2	6.3	7.9	2.2	6.3
Maximum torque M_{max} [Nm]	7.2				
Maximum current I_{max} [A]	7.6	20.4	26	7.6	20.4
Maximum speed n_{max} [rpm]	6600				
Torque constant K_T [Nm/A]	1.18	0.42	0.33	1.18	0.42
Voltage constant K_E [V/1000 rpm]	71.21	25.13	19.9	71.21	25.13
Stator resistance R_{2ph} [Ω]	6.24	0.808	0.503	6.24	0.808
Stator inductance L_{2ph} [mH]	24.12	3.3	2	24.12	3.3
Electrical time constant t_{el} [ms]	3.9	4.08	3.98	3.9	4.08
Thermal time constant t_{therm} [min]	34				
Moment of inertia J [kgcm²]	0.95				
Holding brake					
Holding torque of the brake M_{Br} [Nm]	0	3.2		0	3.2
Moment of inertia for the brake J_{Br} [kgcm²]	0.12	0.38		0.12	0.38
Gearbox					
Number of gear stages	1				
Gear ratio i	3			4	
Nominal output torque T_{2N} [Nm]	40			50	
Max. output torque T_{2max} [Nm]	64			80	
Emergency stop torque T_{2stop} [Nm]	80			100	
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4000				
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	3150			2900	
Max. backlash J_t [arcmin]	7				
Torsional rigidity C_{t21} [Nm/arcmin]	6				
Max. radial force Fr_{max} [N] for 30,000 h	650				
Max. radial force Fr_{max} [N] for 20,000 h	750				
Max. axial force Fa_{max} [N] for 30,000 h	900				
Max. axial force Fa_{max} [N] for 20,000 h	1000				
Operating noise L_{PA} [dB(A)]	60				
Efficiency at full load ŋ [%]	96				
Moment of inertia J_1 [kgcm²]	0.661			0.243	
Shared values					
Max. permitted output torque M_{K0} [Nm]	6			8.1	
Max. permitted peak torque M_{Kmax} [Nm]	21.6			28.2	28.8
Motor mass (without brake) [kg]	2.45				
Brake mass [kg]	3.02	0.29		3.02	0.29
Gearbox mass [kg]	1.3				
Recommendations					
ACOPOS 8Vxxxx.xx...	1016.50	1090 [1)]		1016.50	1090 [1)]
ACOPOSmicro 80VD100Px.xxxx-01	C02X	C00X		C02X	C00X
ACOPOS P3 8EIxxxx...	4X5M	8X8M		4X5M	8X8M
Cross section for B&R motor cables [mm²]	0.75				

1) The mains input voltage is permitted up to a maximum of 3x 230 VAC ±10%.

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB33.ee004SjDn00	8LVB33.ee005SjAn00	8LVB33.ee005SjCn00	8LVB33.ee005SjDn00
Motor				
Nominal speed n_N [rpm]	2100	500	1500	2100
Number of pole pairs	4			
Nominal torque M_n [Nm]	2.45	2.57	2.5	2.45
Nominal current I_N [A]	7.3	2.18	6	7.3
Stall torque M_0 [Nm]	2.6			
Stall current I_0 [A]	7.9	2.2	6.3	7.9
Maximum torque M_{max} [Nm]	7.2			
Maximum current I_{max} [A]	26	7.6	20.4	26
Maximum speed n_{max} [rpm]	6600			
Torque constant K_T [Nm/A]	0.33	1.18	0.42	0.33
Voltage constant K_E [V/1000 rpm]	19.9	71.21	25.13	19.9
Stator resistance R_{2ph} [Ω]	0.503	6.24	0.808	0.503
Stator inductance L_{2ph} [mH]	2	24.12	3.3	2
Electrical time constant t_{el} [ms]	3.98	3.9	4.08	3.98
Thermal time constant t_{therm} [min]	34			
Moment of inertia J [kgcm²]	0.95			
Holding brake				
Holding torque of the brake M_{Br} [Nm]	3.2	0	3.2	
Moment of inertia for the brake J_{Br} [kgcm²]	0.38	0.12	0.38	
Gearbox				
Number of gear stages	1			
Gear ratio i	4	5		
Nominal output torque T_{2N} [Nm]	50			
Max. output torque T_{2max} [Nm]	80			
Emergency stop torque T_{2stop} [Nm]	100			
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4000			
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	2900	3600		
Max. backlash J_t [arcmin]	7			
Torsional rigidity C_{t21} [Nm/arcmin]	6			
Max. radial force Fr_{max} [N] for 30,000 h	650			
Max. radial force Fr_{max} [N] for 20,000 h	750			
Max. axial force Fa_{max} [N] for 30,000 h	900			
Max. axial force Fa_{max} [N] for 20,000 h	1000			
Operating noise L_{PA} [dB(A)]	60			
Efficiency at full load ŋ [%]	96			
Moment of inertia J_1 [kgcm²]	0.243	0.196		
Shared values				
Max. permitted output torque M_{K0} [Nm]	8.1	10.1		
Max. permitted peak torque M_{Kmax} [Nm]	28.8	36		
Motor mass (without brake) [kg]	2.45			
Brake mass [kg]	0.29	3.02	0.29	
Gearbox mass [kg]	1.3			
Recommendations				
ACOPOS 8Vxxxx.xx...	1090 [1)]	1016.50	1090 [1)]	
ACOPOSmicro 80VD100Px.xxxx-01	C00X	C02X	C00X	
ACOPOS P3 8EIxxxx...	8X8M	4X5M	8X8M	
Cross section for B&R motor cables [mm²]	0.75			

1) The mains input voltage is permitted up to a maximum of 3x 230 VAC ±10%.

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB33.ee008SjAn00	8LVB33.ee008SjCn00	8LVB33.ee008SjDn00	8LVB33.ee010SjAn00	8LVB33.ee010SjCn00
Motor					
Nominal speed n_N [rpm]	500	1500	2100	500	1500
Number of pole pairs	4				
Nominal torque M_n [Nm]	2.57	2.5	2.45	2.57	2.5
Nominal current I_N [A]	2.18	6	7.3	2.18	6
Stall torque M_0 [Nm]	2.6				
Stall current I_0 [A]	2.2	6.3	7.9	2.2	6.3
Maximum torque M_{max} [Nm]	7.2				
Maximum current I_{max} [A]	7.6	20.4	26	7.6	20.4
Maximum speed n_{max} [rpm]	6600				
Torque constant K_T [Nm/A]	1.18	0.42	0.33	1.18	0.42
Voltage constant K_E [V/1000 rpm]	71.21	25.13	19.9	71.21	25.13
Stator resistance R_{2ph} [Ω]	6.24	0.808	0.503	6.24	0.808
Stator inductance L_{2ph} [mH]	24.12	3.3	2	24.12	3.3
Electrical time constant t_{el} [ms]	3.9	4.08	3.98	3.9	4.08
Thermal time constant t_{therm} [min]	34				
Moment of inertia J [kgcm²]	0.95				
Holding brake					
Holding torque of the brake M_{Br} [Nm]	0	3.2		0	3.2
Moment of inertia for the brake J_{Br} [kgcm²]	0.12	0.38		0.12	0.38
Gearbox					
Number of gear stages	1				
Gear ratio i	8			10	
Nominal output torque T_{2N} [Nm]	50			33	
Max. output torque T_{2max} [Nm]	80			53	
Emergency stop torque T_{2stop} [Nm]	100			66	
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4000				
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	4000				
Max. backlash J_t [arcmin]	7			8	
Torsional rigidity C_{t21} [Nm/arcmin]	6				
Max. radial force Fr_{max} [N] for 30,000 h	650				
Max. radial force Fr_{max} [N] for 20,000 h	750				
Max. axial force Fa_{max} [N] for 30,000 h	900				
Max. axial force Fa_{max} [N] for 20,000 h	1000				
Operating noise L_{PA} [dB(A)]	60				
Efficiency at full load ŋ [%]	96				
Moment of inertia J_1 [kgcm²]	0.148			0.1	
Shared values					
Max. permitted output torque M_{K0} [Nm]	16.1			20.1	
Max. permitted peak torque M_{Kmax} [Nm]	50			33	
Motor mass (without brake) [kg]	2.45				
Brake mass [kg]	3.02	0.29		3.02	0.29
Gearbox mass [kg]	1.3				
Recommendations					
ACOPOS 8Vxxxx.xx...	1016.50	1090 1)		1016.50	1090 1)
ACOPOSmicro 80VD100Px.xxxx-01	C02X	C00X		C02X	C00X
ACOPOS P3 8EIxxxx...	4X5M	8X8M		4X5M	8X8M
Cross section for B&R motor cables [mm²]	0.75				

1) The mains input voltage is permitted up to a maximum of 3x 230 VAC ±10%.

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB33.ee010SjDn00	8LVB33.ee009SjAn00	8LVB33.ee009SjCn00	8LVB33.ee009SjDn00
Motor				
Nominal speed n_N [rpm]	2100	500	1500	2100
Number of pole pairs	4			
Nominal torque M_n [Nm]	2.45	2.57	2.5	2.45
Nominal current I_N [A]	7.3	2.18	6	7.3
Stall torque M_0 [Nm]	2.6			
Stall current I_0 [A]	7.9	2.2	6.3	7.9
Maximum torque M_{max} [Nm]	7.2			
Maximum current I_{max} [A]	26	7.6	20.4	26
Maximum speed n_{max} [rpm]	6600			
Torque constant K_T [Nm/A]	0.33	1.18	0.42	0.33
Voltage constant K_E [V/1000 rpm]	19.9	71.21	25.13	19.9
Stator resistance R_{2ph} [Ω]	0.503	6.24	0.808	0.503
Stator inductance L_{2ph} [mH]	2	24.12	3.3	2
Electrical time constant t_{el} [ms]	3.98	3.9	4.08	3.98
Thermal time constant t_{therm} [min]	34			
Moment of inertia J [kgcm²]	0.95			
Holding brake				
Holding torque of the brake M_{Br} [Nm]	3.2	0	3.2	
Moment of inertia for the brake J_{Br} [kgcm²]	0.38	0.12	0.38	
Gearbox				
Number of gear stages	1	2		
Gear ratio i	10	9		
Nominal output torque T_{2N} [Nm]	33	130		
Max. output torque T_{2max} [Nm]	53	208		
Emergency stop torque T_{2stop} [Nm]	66	260		
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4000			
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	4000	3550		
Max. backlash J_t [arcmin]	8	9		
Torsional rigidity C_{t21} [Nm/arcmin]	6	6.5		
Max. radial force Fr_{max} [N] for 30,000 h	650			
Max. radial force Fr_{max} [N] for 20,000 h	750			
Max. axial force Fa_{max} [N] for 30,000 h	900			
Max. axial force Fa_{max} [N] for 20,000 h	1000			
Operating noise L_{PA} [dB(A)]	60			
Efficiency at full load ŋ [%]	96	94		
Moment of inertia J_1 [kgcm²]	0.1	0.631		
Shared values				
Max. permitted output torque M_{K0} [Nm]	20.1	18.1		
Max. permitted peak torque M_{Kmax} [Nm]	38	64.8		
Motor mass (without brake) [kg]	2.45			
Brake mass [kg]	0.29	3.02	0.29	
Gearbox mass [kg]	1.3	1.8		
Recommendations				
ACOPOS 8Vxxxx.xx...	1090 [1)]	1016.50	1090 [1)]	
ACOPOSmicro 80VD100Px.xxxx-01	C00X	C02X	C00X	
ACOPOS P3 8EIxxxx...	8X8M	4X5M	8X8M	
Cross section for B&R motor cables [mm²]	0.75			

1) The mains input voltage is permitted up to a maximum of 3x 230 VAC ±10%.

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB33.ee012SjAn00	8LVB33.ee012SjCn00	8LVB33.ee012SjDn00	8LVB33.ee015SjAn00	8LVB33.ee015SjCn00
Motor					
Nominal speed n_N [rpm]	500	1500	2100	500	1500
Number of pole pairs	4				
Nominal torque M_n [Nm]	2.57	2.5	2.45	2.57	2.5
Nominal current I_N [A]	2.18	6	7.3	2.18	6
Stall torque M_0 [Nm]	2.6				
Stall current I_0 [A]	2.2	6.3	7.9	2.2	6.3
Maximum torque M_{max} [Nm]	7.2				
Maximum current I_{max} [A]	7.6	20.4	26	7.6	20.4
Maximum speed n_{max} [rpm]	6600				
Torque constant K_T [Nm/A]	1.18	0.42	0.33	1.18	0.42
Voltage constant K_E [V/1000 rpm]	71.21	25.13	19.9	71.21	25.13
Stator resistance R_{2ph} [Ω]	6.24	0.808	0.503	6.24	0.808
Stator inductance L_{2ph} [mH]	24.12	3.3	2	24.12	3.3
Electrical time constant t_{el} [ms]	3.9	4.08	3.98	3.9	4.08
Thermal time constant t_{therm} [min]	34				
Moment of inertia J [kgcm²]	0.95				
Holding brake					
Holding torque of the brake M_{Br} [Nm]	0	3.2		0	3.2
Moment of inertia for the brake J_{Br} [kgcm²]	0.12	0.38		0.12	0.38
Gearbox					
Number of gear stages	2				
Gear ratio i	12			15	
Nominal output torque T_{2N} [Nm]	120			110	
Max. output torque T_{2max} [Nm]	192			176	
Emergency stop torque T_{2stop} [Nm]	240			220	
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4000				
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	4000				
Max. backlash J_t [arcmin]	9				
Torsional rigidity C_{t21} [Nm/arcmin]	6.5				
Max. radial force Fr_{max} [N] for 30,000 h	650				
Max. radial force Fr_{max} [N] for 20,000 h	750				
Max. axial force Fa_{max} [N] for 30,000 h	900				
Max. axial force Fa_{max} [N] for 20,000 h	1000				
Operating noise L_{PA} [dB(A)]	60				
Efficiency at full load ŋ [%]	94				
Moment of inertia J_1 [kgcm²]	0.611			0.601	
Shared values					
Max. permitted output torque M_{K0} [Nm]	24.2			30.2	
Max. permitted peak torque M_{Kmax} [Nm]	86.4			108	
Motor mass (without brake) [kg]	2.45				
Brake mass [kg]	3.02	0.29		3.02	0.29
Gearbox mass [kg]	1.8				
Recommendations					
ACOPOS 8Vxxxx.xx...	1016.50	1090 1)		1016.50	1090 1)
ACOPOSmicro 80VD100Px.xxxx-01	C02X	C00X		C02X	C00X
ACOPOS P3 8EIxxxx...	4X5M	8X8M		4X5M	8X8M
Cross section for B&R motor cables [mm²]	0.75				

1) The mains input voltage is permitted up to a maximum of 3x 230 VAC ±10%.

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB33.ee015SjDn00	8LVB33.ee016SjAn00	8LVB33.ee016SjCn00	8LVB33.ee016SjDn00
Motor				
Nominal speed n_N [rpm]	2100	500	1500	2100
Number of pole pairs	4			
Nominal torque M_n [Nm]	2.45	2.57	2.5	2.45
Nominal current I_N [A]	7.3	2.18	6	7.3
Stall torque M_0 [Nm]	2.6			
Stall current I_0 [A]	7.9	2.2	6.3	7.9
Maximum torque M_{max} [Nm]	7.2			
Maximum current I_{max} [A]	26	7.6	20.4	26
Maximum speed n_{max} [rpm]	6600			
Torque constant K_T [Nm/A]	0.33	1.18	0.42	0.33
Voltage constant K_E [V/1000 rpm]	19.9	71.21	25.13	19.9
Stator resistance R_{2ph} [Ω]	0.503	6.24	0.808	0.503
Stator inductance L_{2ph} [mH]	2	24.12	3.3	2
Electrical time constant t_{el} [ms]	3.98	3.9	4.08	3.98
Thermal time constant t_{therm} [min]	34			
Moment of inertia J [kgcm²]	0.95			
Holding brake				
Holding torque of the brake M_{Br} [Nm]	3.2	2.2	3.2	
Moment of inertia for the brake J_{Br} [kgcm²]	0.38	0.12	0.38	
Gearbox				
Number of gear stages	2			
Gear ratio i	15	16		
Nominal output torque T_{2N} [Nm]	110	120		
Max. output torque T_{2max} [Nm]	176	192		
Emergency stop torque T_{2stop} [Nm]	220	240		
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4000			
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	4000			
Max. backlash J_t [arcmin]	9	12		
Torsional rigidity C_{t21} [Nm/arcmin]	6.5			
Max. radial force Fr_{max} [N] for 30,000 h	650			
Max. radial force Fr_{max} [N] for 20,000 h	750			
Max. axial force Fa_{max} [N] for 30,000 h	900			
Max. axial force Fa_{max} [N] for 20,000 h	1000			
Operating noise L_{PA} [dB(A)]	60			
Efficiency at full load ŋ [%]	94			
Moment of inertia J_1 [kgcm²]	0.601	0.223		
Shared values				
Max. permitted output torque M_{K0} [Nm]	30.2	32.2		
Max. permitted peak torque M_{Kmax} [Nm]	108	115.2		
Motor mass (without brake) [kg]	2.45			
Brake mass [kg]	0.29	3.02	0.29	
Gearbox mass [kg]	1.8			
Recommendations				
ACOPOS 8Vxxxx.xx...	1090 [1)]	1016.50	1090 [1)]	
ACOPOSmicro 80VD100Px.xxxx-01	C00X	C02X	C00X	
ACOPOS P3 8EIxxxx...	8X8M	4X5M	8X8M	
Cross section for B&R motor cables [mm²]	0.75			

1) The mains input voltage is permitted up to a maximum of 3x 230 VAC ±10%.

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB33.ee020SjAn00	8LVB33.ee020SjCn00	8LVB33.ee020SjDn00	8LVB33.ee025SjAn00	8LVB33.ee025SjCn00
Motor					
Nominal speed n_N [rpm]	500	1500	2100	500	1500
Number of pole pairs	4				
Nominal torque M_n [Nm]	2.57	2.5	2.45	2.57	2.5
Nominal current I_N [A]	2.18	6	7.3	2.18	6
Stall torque M_0 [Nm]	2.6				
Stall current I_0 [A]	2.2	6.3	7.9	2.2	6.3
Maximum torque M_{max} [Nm]	7.2				
Maximum current I_{max} [A]	7.6	20.4	26	7.6	20.4
Maximum speed n_{max} [rpm]	6600				
Torque constant K_T [Nm/A]	1.18	0.42	0.33	1.18	0.42
Voltage constant K_E [V/1000 rpm]	71.21	25.13	19.9	71.21	25.13
Stator resistance R_{2ph} [Ω]	6.24	0.808	0.503	6.24	0.808
Stator inductance L_{2ph} [mH]	24.12	3.3	2	24.12	3.3
Electrical time constant t_{el} [ms]	3.9	4.08	3.98	3.9	4.08
Thermal time constant t_{therm} [min]	34				
Moment of inertia J [kgcm²]	0.95				
Holding brake					
Holding torque of the brake M_{Br} [Nm]	0	3.2		0	3.2
Moment of inertia for the brake J_{Br} [kgcm²]	0.12	0.38		0.12	0.38
Gearbox					
Number of gear stages	2				
Gear ratio i	20			25	
Nominal output torque T_{2N} [Nm]	120			110	
Max. output torque T_{2max} [Nm]	192			176	
Emergency stop torque T_{2stop} [Nm]	240			220	
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4000				
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	4000				
Max. backlash J_t [arcmin]	9			12	
Torsional rigidity C_{t21} [Nm/arcmin]	6.5				
Max. radial force Fr_{max} [N] for 30,000 h	650				
Max. radial force Fr_{max} [N] for 20,000 h	750				
Max. axial force Fa_{max} [N] for 30,000 h	900				
Max. axial force Fa_{max} [N] for 20,000 h	1000				
Operating noise L_{PA} [dB(A)]	60				
Efficiency at full load ŋ [%]	94				
Moment of inertia J_1 [kgcm²]	0.186				
Shared values					
Max. permitted output torque M_{K0} [Nm]	40.3			50.3	
Max. permitted peak torque M_{Kmax} [Nm]	120			110	
Motor mass (without brake) [kg]	2.45				
Brake mass [kg]	3.02	0.29		3.02	0.29
Gearbox mass [kg]	1.8				
Recommendations					
ACOPOS 8Vxxxx.xx...	1016.50	1090 1)		1016.50	1090 1)
ACOPOSmicro 80VD100Px.xxxx-01	C02X	C00X		C02X	C00X
ACOPOS P3 8EIxxxx...	4X5M	8X8M		4X5M	8X8M
Cross section for B&R motor cables [mm²]	0.75				

1) The mains input voltage is permitted up to a maximum of 3x 230 VAC ±10%.

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB33.ee025SjDn00	8LVB33.ee032SjAn00	8LVB33.ee032SjCn00	8LVB33.ee032SjDn00
Motor				
Nominal speed n_N [rpm]	2100	500	1500	2100
Number of pole pairs	4			
Nominal torque M_n [Nm]	2.45	2.57	2.5	2.45
Nominal current I_N [A]	7.3	2.18	6	7.3
Stall torque M_0 [Nm]	2.6			
Stall current I_0 [A]	7.9	2.2	6.3	7.9
Maximum torque M_{max} [Nm]	7.2			
Maximum current I_{max} [A]	26	7.6	20.4	26
Maximum speed n_{max} [rpm]	6600			
Torque constant K_T [Nm/A]	0.33	1.18	0.42	0.33
Voltage constant K_E [V/1000 rpm]	19.9	71.21	25.13	19.9
Stator resistance R_{2ph} [Ω]	0.503	6.24	0.808	0.503
Stator inductance L_{2ph} [mH]	2	24.12	3.3	2
Electrical time constant t_{el} [ms]	3.98	3.9	4.08	3.98
Thermal time constant t_{therm} [min]	34			
Moment of inertia J [kgcm²]	0.95			
Holding brake				
Holding torque of the brake M_{Br} [Nm]	3.2	0	3.2	
Moment of inertia for the brake J_{Br} [kgcm²]	0.38	0.12	0.38	
Gearbox				
Number of gear stages	2			
Gear ratio i	25	32		
Nominal output torque T_{2N} [Nm]	110	120		
Max. output torque T_{2max} [Nm]	176	192		
Emergency stop torque T_{2stop} [Nm]	220	240		
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4000			
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	4000			
Max. backlash J_t [arcmin]	12	9		
Torsional rigidity C_{t21} [Nm/arcmin]	6.5			
Max. radial force Fr_{max} [N] for 30,000 h	650			
Max. radial force Fr_{max} [N] for 20,000 h	750			
Max. axial force Fa_{max} [N] for 30,000 h	900			
Max. axial force Fa_{max} [N] for 20,000 h	1000			
Operating noise L_{PA} [dB(A)]	60			
Efficiency at full load ŋ [%]	94			
Moment of inertia J_1 [kgcm²]	0.186	0.148		
Shared values				
Max. permitted output torque M_{K0} [Nm]	50.3	64.4		
Max. permitted peak torque M_{Kmax} [Nm]	110	120		
Motor mass (without brake) [kg]	2.45			
Brake mass [kg]	0.29	3.02	0.29	
Gearbox mass [kg]	1.8			
Recommendations				
ACOPOS 8Vxxxx.xx...	1090 [1)]	1016.50	1090 [1)]	
ACOPOSmicro 80VD100Px.xxxx-01	C00X	C02X	C00X	
ACOPOS P3 8EIxxxx...	8X8M	4X5M	8X8M	
Cross section for B&R motor cables [mm²]	0.75			

1) The mains input voltage is permitted up to a maximum of 3x 230 VAC ±10%.

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB33.ee040SjAn00	8LVB33.ee040SjCn00	8LVB33.ee040SjDn00	8LVB33.ee064SjAn00	8LVB33.ee064SjCn00
Motor					
Nominal speed n_N [rpm]	500	1500	2100	500	1500
Number of pole pairs	4				
Nominal torque M_n [Nm]	2.57	2.5	2.45	2.57	2.5
Nominal current I_N [A]	2.18	6	7.3	2.18	6
Stall torque M_0 [Nm]	2.6				
Stall current I_0 [A]	2.2	6.3	7.9	2.2	6.3
Maximum torque M_{max} [Nm]	7.2				
Maximum current I_{max} [A]	7.6	20.4	26	7.6	20.4
Maximum speed n_{max} [rpm]	6600				
Torque constant K_T [Nm/A]	1.18	0.42	0.33	1.18	0.42
Voltage constant K_E [V/1000 rpm]	71.21	25.13	19.9	71.21	25.13
Stator resistance R_{2ph} [Ω]	6.24	0.808	0.503	6.24	0.808
Stator inductance L_{2ph} [mH]	24.12	3.3	2	24.12	3.3
Electrical time constant t_{el} [ms]	3.9	4.08	3.98	3.9	4.08
Thermal time constant t_{therm} [min]	34				
Moment of inertia J [kgcm²]	0.95				
Holding brake					
Holding torque of the brake M_{Br} [Nm]	0	3.2		0	3.2
Moment of inertia for the brake J_{Br} [kgcm²]	0.12	0.38		0.12	0.38
Gearbox					
Number of gear stages	2				
Gear ratio i	40			64	
Nominal output torque T_{2N} [Nm]	110			50	
Max. output torque T_{2max} [Nm]	176			80	
Emergency stop torque T_{2stop} [Nm]	220			100	
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4000				
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	4000				
Max. backlash J_t [arcmin]	12			9	
Torsional rigidity C_{t21} [Nm/arcmin]	6.5				
Max. radial force Fr_{max} [N] for 30,000 h	650				
Max. radial force Fr_{max} [N] for 20,000 h	750				
Max. axial force Fa_{max} [N] for 30,000 h	900				
Max. axial force Fa_{max} [N] for 20,000 h	1000				
Operating noise L_{PA} [dB(A)]	60				
Efficiency at full load ŋ [%]	94				
Moment of inertia J_1 [kgcm²]	0.148				
Shared values					
Max. permitted output torque M_{K0} [Nm]	80.5			50	
Max. permitted peak torque M_{Kmax} [Nm]	110			50	
Motor mass (without brake) [kg]	2.45				
Brake mass [kg]	3.02	0.29		3.02	0.29
Gearbox mass [kg]	1.8				
Recommendations					
ACOPOS 8Vxxxx.xx...	1016.50	1090 1)		1016.50	1090 1)
ACOPOSmicro 80VD100Px.xxxx-01	C02X	C00X		C02X	C00X
ACOPOS P3 8EIxxxx...	4X5M	8X8M		4X5M	8X8M
Cross section for B&R motor cables [mm²]	0.75				

1) The mains input voltage is permitted up to a maximum of 3x 230 VAC ±10%.

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB33.ee064SjDn00	8LVB33.ee100SjAn00	8LVB33.ee100SjCn00	8LVB33.ee100SjDn00
Motor				
Nominal speed n_N [rpm]	2100	500	1500	2100
Number of pole pairs	4			
Nominal torque M_n [Nm]	2.45	2.57	2.5	2.45
Nominal current I_N [A]	7.3	2.18	6	7.3
Stall torque M_0 [Nm]	2.6			
Stall current I_0 [A]	7.9	2.2	6.3	7.9
Maximum torque M_{max} [Nm]	7.2			
Maximum current I_{max} [A]	26	7.6	20.4	26
Maximum speed n_{max} [rpm]	6600			
Torque constant K_T [Nm/A]	0.33	1.18	0.42	0.33
Voltage constant K_E [V/1000 rpm]	19.9	71.21	25.13	19.9
Stator resistance R_{2ph} [Ω]	0.503	6.24	0.808	0.503
Stator inductance L_{2ph} [mH]	2	24.12	3.3	2
Electrical time constant t_{el} [ms]	3.98	3.9	4.08	3.98
Thermal time constant t_{therm} [min]	34			
Moment of inertia J [kgcm²]	0.95			
Holding brake				
Holding torque of the brake M_{Br} [Nm]	3.2	0	3.2	
Moment of inertia for the brake J_{Br} [kgcm²]	0.38	0.12	0.38	
Gearbox				
Number of gear stages	2			
Gear ratio i	64	100		
Nominal output torque T_{2N} [Nm]	50	38		
Max. output torque T_{2max} [Nm]	80	61		
Emergency stop torque T_{2stop} [Nm]	100	76		
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4000			
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	4000			
Max. backlash J_t [arcmin]	9	12		
Torsional rigidity C_{t21} [Nm/arcmin]	6.5			
Max. radial force Fr_{max} [N] for 30,000 h	650			
Max. radial force Fr_{max} [N] for 20,000 h	750			
Max. axial force Fa_{max} [N] for 30,000 h	900			
Max. axial force Fa_{max} [N] for 20,000 h	1000			
Operating noise L_{PA} [dB(A)]	60			
Efficiency at full load ŋ [%]	94			
Moment of inertia J_1 [kgcm²]	0.148	0.1		
Shared values				
Max. permitted output torque M_{K0} [Nm]	50	38		
Max. permitted peak torque M_{Kmax} [Nm]	50	38		
Motor mass (without brake) [kg]	2.45			
Brake mass [kg]	0.29	3.02	0.29	
Gearbox mass [kg]	1.8			
Recommendations				
ACOPOS 8Vxxxx.xx...	1090 1)	1016.50	1090 1)	
ACOPOSmicro 80VD100Px.xxxx-01	C00X	C02X	C00X	
ACOPOS P3 8EIxxxx...	8X8M	4X5M	8X8M	
Cross section for B&R motor cables [mm²]	0.75			

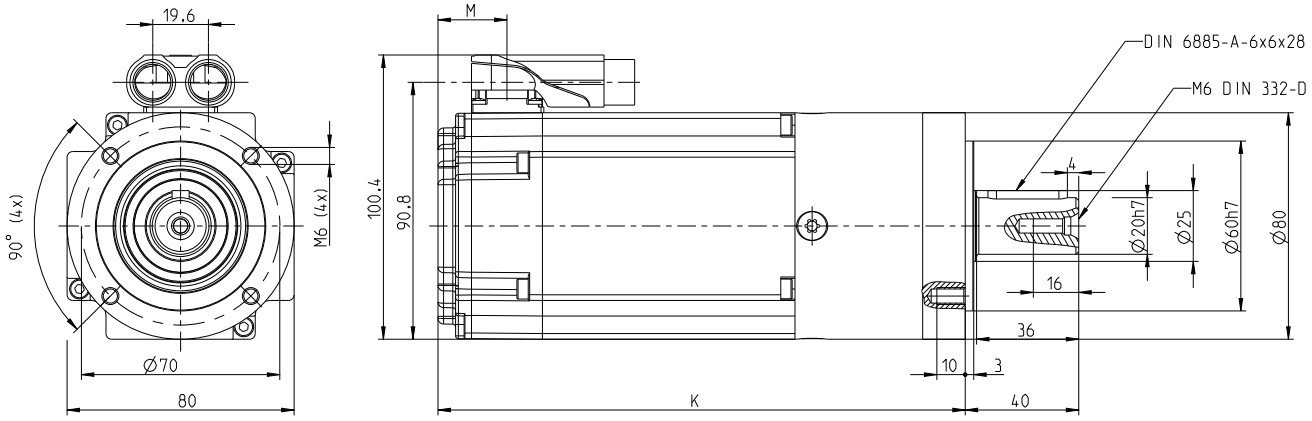
1) The mains input voltage is permitted up to a maximum of 3x 230 VAC ±10%.

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

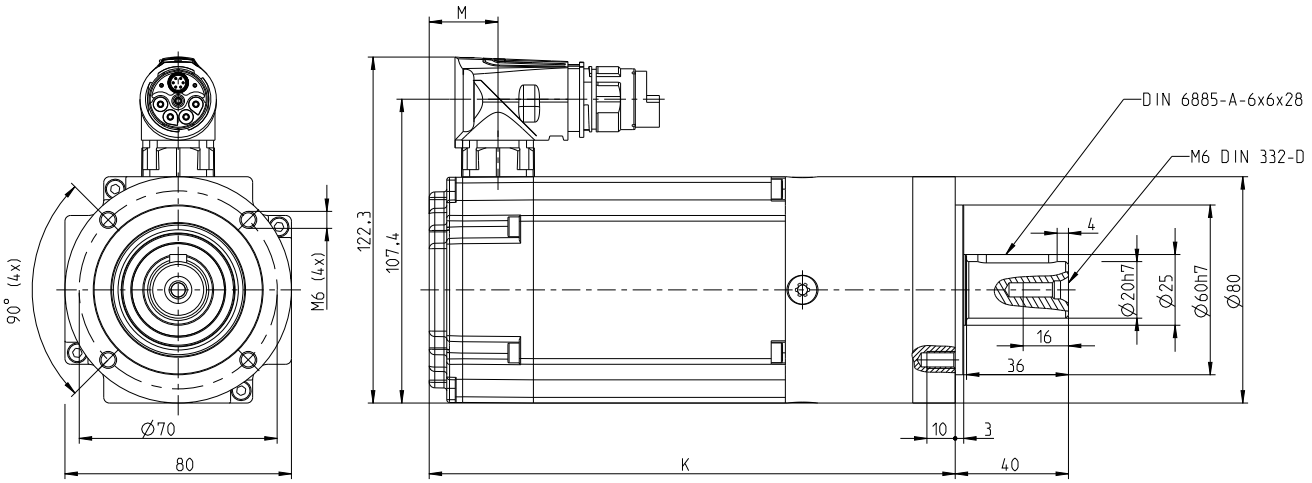
Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

2.12.1 8LVB33-8GM40 - Dimensions



Double angular built-in connector



Single-cable solution

EnDat/Resolver feedback					Extension of K depending on motor option
	K	K	M	M	Holding brake
Gear motor	Encoder: R0, B1	Encoder: B8, B9	Encoder: R0, B1	Encoder: B8, B9	
8LVB33 1-ary 8GM40	179	186	17.5	24.5	36
8LVB33 2-stage 8GM40	196.5	203.5	17.5	24.5	36

IMPORTANT: Dimensions K and M depend on the length of the encoder cover.

2.13 8LVB33-8GM50 - Technical data

Model number	8LVB33.ee003LjAn00	8LVB33.ee003LjCn00	8LVB33.ee003LjDn00	8LVB33.ee004LjAn00	8LVB33.ee004LjCn00
Motor					
Nominal speed n_N [rpm]	500	1500	2100	500	1500
Number of pole pairs	4				
Nominal torque M_n [Nm]	2.57	2.5	2.45	2.57	2.5
Nominal current I_N [A]	2.18	6	7.3	2.18	6
Stall torque M_0 [Nm]	2.6				
Stall current I_0 [A]	2.2	6.3	7.9	2.2	6.3
Maximum torque M_{max} [Nm]	7.2				
Maximum current I_{max} [A]	7.6	20.4	26	7.6	20.4
Maximum speed n_{max} [rpm]	6600				
Torque constant K_T [Nm/A]	1.18	0.42	0.33	1.18	0.42
Voltage constant K_E [V/1000 rpm]	71.21	25.13	19.9	71.21	25.13
Stator resistance R_{2ph} [Ω]	6.24	0.808	0.503	6.24	0.808
Stator inductance L_{2ph} [mH]	24.12	3.3	2	24.12	3.3
Electrical time constant t_{el} [ms]	3.9	4.08	3.98	3.9	4.08
Thermal time constant t_{therm} [min]	34				
Moment of inertia J [kgcm²]	0.95				
Holding brake					
Holding torque of the brake M_{Br} [Nm]	0	3.2		0	3.2
Moment of inertia for the brake J_{Br} [kgcm²]	0.12	0.38		0.12	0.38
Gearbox					
Number of gear stages	1				
Gear ratio i	3			4	
Nominal output torque T_{2N} [Nm]	40			50	
Max. output torque T_{2max} [Nm]	64			80	
Emergency stop torque T_{2stop} [Nm]	80			100	
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	3850			4000	
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	2600			3000	
Max. backlash J_t [arcmin]	7				
Torsional rigidity C_{t21} [Nm/arcmin]	6				
Max. radial force Fr_{max} [N] for 30,000 h	1300				
Max. radial force Fr_{max} [N] for 20,000 h	1500				
Max. axial force Fa_{max} [N] for 30,000 h	1500				
Max. axial force Fa_{max} [N] for 20,000 h	2000				
Operating noise L_{PA} [dB(A)]	60				
Efficiency at full load ŋ [%]	96				
Moment of inertia J_1 [kgcm²]	0.711			0.293	
Shared values					
Max. permitted output torque M_{K0} [Nm]	6			8.1	
Max. permitted peak torque M_{Kmax} [Nm]	21.6			28.8	
Motor mass (without brake) [kg]	2.45				
Brake mass [kg]	3.02	0.29		3.02	0.29
Gearbox mass [kg]	2.2				
Recommendations					
ACOPOS 8Vxxxx.xx...	1016.50	1090 [1]		1016.50	1090 [1]
ACOPOSmicro 80VD100Px.xxxx-01	C02X	C00X		C02X	C00X
ACOPOS P3 8EIxxxx...	4X5M	8X8M		4X5M	8X8M
Cross section for B&R motor cables [mm²]	0.75				

1) The mains input voltage is permitted up to a maximum of 3x 230 VAC ±10%.

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB33.ee004LjDn00	8LVB33.ee005LjAn00	8LVB33.ee005LjCn00	8LVB33.ee005LjDn00
Motor				
Nominal speed n_N [rpm]	2100	500	1500	2100
Number of pole pairs	4			
Nominal torque M_n [Nm]	2.45	2.57	2.5	2.45
Nominal current I_N [A]	7.3	2.18	6	7.3
Stall torque M_0 [Nm]	2.6			
Stall current I_0 [A]	7.9	2.2	6.3	7.9
Maximum torque M_{max} [Nm]	7.2			
Maximum current I_{max} [A]	26	7.6	20.4	26
Maximum speed n_{max} [rpm]	6600			
Torque constant K_T [Nm/A]	0.33	1.18	0.42	0.33
Voltage constant K_E [V/1000 rpm]	19.9	71.21	25.13	19.9
Stator resistance R_{2ph} [Ω]	0.503	6.24	0.808	0.503
Stator inductance L_{2ph} [mH]	2	24.12	3.3	2
Electrical time constant t_{el} [ms]	3.98	3.9	4.08	3.98
Thermal time constant t_{therm} [min]	34			
Moment of inertia J [kgcm²]	0.95			
Holding brake				
Holding torque of the brake M_{Br} [Nm]	3.2	0	3.2	
Moment of inertia for the brake J_{Br} [kgcm²]	0.38	0.12	0.38	
Gearbox				
Number of gear stages	1			
Gear ratio i	4	5		
Nominal output torque T_{2N} [Nm]	50			
Max. output torque T_{2max} [Nm]	80			
Emergency stop torque T_{2stop} [Nm]	100			
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4000			
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	3000	3900		
Max. backlash J_t [arcmin]	7			
Torsional rigidity C_{t21} [Nm/arcmin]	6			
Max. radial force Fr_{max} [N] for 30,000 h	1300			
Max. radial force Fr_{max} [N] for 20,000 h	1500			
Max. axial force Fa_{max} [N] for 30,000 h	1500			
Max. axial force Fa_{max} [N] for 20,000 h	2000			
Operating noise L_{PA} [dB(A)]	60			
Efficiency at full load ŋ [%]	96			
Moment of inertia J_1 [kgcm²]	0.293	0.226		
Shared values				
Max. permitted output torque M_{K0} [Nm]	8.1	10.1		
Max. permitted peak torque M_{Kmax} [Nm]	28.8	36		
Motor mass (without brake) [kg]	2.45			
Brake mass [kg]	0.29	3.02	0.29	
Gearbox mass [kg]	2.2			
Recommendations				
ACOPOS 8Vxxxx.xx...	1090 1)	1016.50	1090 1)	
ACOPOSmicro 80VD100Px.xxxx-01	C00X	C02X	C00X	
ACOPOS P3 8EIxxxx...	8X8M	4X5M	8X8M	
Cross section for B&R motor cables [mm²]	0.75			

1) The mains input voltage is permitted up to a maximum of 3x 230 VAC ±10%.

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB33.ee008LjAn00	8LVB33.ee008LjCn00	8LVB33.ee008LjDn00
Motor			
Nominal speed n_N [rpm]	500	1500	2100
Number of pole pairs		4	
Nominal torque M_n [Nm]	2.57	2.5	2.45
Nominal current I_N [A]	2.18	6	7.3
Stall torque M_0 [Nm]		2.6	
Stall current I_0 [A]	2.2	6.3	7.9
Maximum torque M_{max} [Nm]		7.2	
Maximum current I_{max} [A]	7.6	20.4	26
Maximum speed n_{max} [rpm]		6600	
Torque constant K_T [Nm/A]	1.18	0.42	0.33
Voltage constant K_E [V/1000 rpm]	71.21	25.13	19.9
Stator resistance R_{2ph} [Ω]	6.24	0.808	0.503
Stator inductance L_{2ph} [mH]	24.12	3.3	2
Electrical time constant t_{el} [ms]	3.9	4.08	3.98
Thermal time constant t_{therm} [min]		34	
Moment of inertia J [kgcm²]		0.95	
Holding brake			
Holding torque of the brake M_{Br} [Nm]	0	3.2	
Moment of inertia for the brake J_{Br} [kgcm²]	0.12	0.38	
Gearbox			
Number of gear stages		1	
Gear ratio i		8	
Nominal output torque T_{2N} [Nm]		50	
Max. output torque T_{2max} [Nm]		80	
Emergency stop torque T_{2stop} [Nm]		100	
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1		3500	
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1		3500	
Max. backlash J_t [arcmin]		8	
Torsional rigidity C_{t21} [Nm/arcmin]		6	
Max. radial force Fr_{max} [N] for 30,000 h		1300	
Max. radial force Fr_{max} [N] for 20,000 h		1500	
Max. axial force Fa_{max} [N] for 30,000 h		1500	
Max. axial force Fa_{max} [N] for 20,000 h		2000	
Operating noise L_{PA} [dB(A)]		60	
Efficiency at full load η [%]		96	
Moment of inertia J_1 [kgcm²]		0.158	
Shared values			
Max. permitted output torque M_{K0} [Nm]		16.1	
Max. permitted peak torque M_{Kmax} [Nm]		50	
Motor mass (without brake) [kg]		2.45	
Brake mass [kg]	3.02	0.29	
Gearbox mass [kg]		2.2	
Recommendations			
ACOPOS 8Vxxxx.xx...	1016.50	1090 [1)]	
ACOPOSmicro 80VD100Px.xxxx-01	C02X	C00X	
ACOPOS P3 8EIxxxx...	4X5M	8X8M	
Cross section for B&R motor cables [mm²]		0.75	

1) The mains input voltage is permitted up to a maximum of 3x 230 VAC ±10%.

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB33. ee009LjAn00	8LVB33. ee009LjCn00	8LVB33. ee009LjDn00	8LVB33. ee010LjAn00	8LVB33. ee010LjCn00	8LVB33. ee010LjDn00
Motor						
Nominal speed n_N [rpm]	500	1500	2100	500	1500	2100
Number of pole pairs	4					
Nominal torque M_n [Nm]	2.57	2.5	2.45	2.57	2.5	2.45
Nominal current I_N [A]	2.18	6	7.3	2.18	6	7.3
Stall torque M_0 [Nm]	2.6					
Stall current I_0 [A]	2.2	6.3	7.9	2.2	6.3	7.9
Maximum torque M_{max} [Nm]	7.2					
Maximum current I_{max} [A]	7.6	20.4	26	7.6	20.4	26
Maximum speed n_{max} [rpm]	6600					
Torque constant K_T [Nm/A]	1.18	0.42	0.33	1.18	0.42	0.33
Voltage constant K_E [V/1000 rpm]	71.21	25.13	19.9	71.21	25.13	19.9
Stator resistance R_{2ph} [Ω]	6.24	0.808	0.503	6.24	0.808	0.503
Stator inductance L_{2ph} [mH]	24.12	3.3	2	24.12	3.3	2
Electrical time constant t_{el} [ms]	3.9	4.08	3.98	3.9	4.08	3.98
Thermal time constant t_{therm} [min]	34					
Moment of inertia J [kgcm²]	0.95					
Holding brake						
Holding torque of the brake M_{Br} [Nm]	0	3.2		2.2	3.2	
Moment of inertia for the brake J_{Br} [kgcm²]	0.12	0.38		0.12	0.38	
Gearbox						
Number of gear stages	2			1		
Gear ratio i	9			10		
Nominal output torque T_{2N} [Nm]	97			38		
Max. output torque T_{2max} [Nm]	155			61		
Emergency stop torque T_{2stop} [Nm]	194			76		
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4000			3500		4000
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	4000			3500		4000
Max. backlash J_t [arcmin]	9			8		7
Torsional rigidity C_{t21} [Nm/arcmin]	6.5			6		
Max. radial force Fr_{max} [N] for 30,000 h	1300					
Max. radial force Fr_{max} [N] for 20,000 h	1500					
Max. axial force Fa_{max} [N] for 30,000 h	1500					
Max. axial force Fa_{max} [N] for 20,000 h	2000					
Operating noise L_{PA} [dB(A)]	60					
Efficiency at full load η [%]	94			96		
Moment of inertia J_1 [kgcm²]	0.641			0.11		
Shared values						
Max. permitted output torque M_{K0} [Nm]	18.1			20.1		
Max. permitted peak torque M_{Kmax} [Nm]	64.8			38		
Motor mass (without brake) [kg]	2.45					
Brake mass [kg]	3.02	0.29		3.02	0.29	
Gearbox mass [kg]	2.9			2.2		
Recommendations						
ACOPOS 8Vxxxx.xx...	1016.50	1090 [1]		1016.50	1090 [1]	
ACOPOSmicro 80VD100Px.xxxx-01	C02X	C00X		C02X	C00X	
ACOPOS P3 8EIxxxx...	4X5M	8X8M		4X5M	8X8M	
Cross section for B&R motor cables [mm²]	0.75					

1) The mains input voltage is permitted up to a maximum of 3x 230 VAC ±10%.

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB33.ee012LjAn00	8LVB33.ee012LjCn00	8LVB33.ee012LjDn00	8LVB33.ee015LjAn00	8LVB33.ee015LjCn00
Motor					
Nominal speed n_N [rpm]	500	1500	2100	500	1500
Number of pole pairs	4				
Nominal torque M_n [Nm]	2.57	2.5	2.45	2.57	2.5
Nominal current I_N [A]	2.18	6	7.3	2.18	6
Stall torque M_0 [Nm]	2.6				
Stall current I_0 [A]	2.2	6.3	7.9	2.2	6.3
Maximum torque M_{max} [Nm]	7.2				
Maximum current I_{max} [A]	7.6	20.4	26	7.6	20.4
Maximum speed n_{max} [rpm]	6600				
Torque constant K_T [Nm/A]	1.18	0.42	0.33	1.18	0.42
Voltage constant K_E [V/1000 rpm]	71.21	25.13	19.9	71.21	25.13
Stator resistance R_{2ph} [Ω]	6.24	0.808	0.503	6.24	0.808
Stator inductance L_{2ph} [mH]	24.12	3.3	2	24.12	3.3
Electrical time constant t_{el} [ms]	3.9	4.08	3.98	3.9	4.08
Thermal time constant t_{therm} [min]	34				
Moment of inertia J [kgcm²]	0.95				
Holding brake					
Holding torque of the brake M_{Br} [Nm]	0	3.2		0	3.2
Moment of inertia for the brake J_{Br} [kgcm²]	0.12	0.38		0.12	0.38
Gearbox					
Number of gear stages	2				
Gear ratio i	12			15	
Nominal output torque T_{2N} [Nm]	90			0	82
Max. output torque T_{2max} [Nm]	144			0	131
Emergency stop torque T_{2stop} [Nm]	180			164	
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4000				
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	4000				
Max. backlash J_t [arcmin]	9				
Torsional rigidity C_{t21} [Nm/arcmin]	6.5				
Max. radial force Fr_{max} [N] for 30,000 h	1300				
Max. radial force Fr_{max} [N] for 20,000 h	1500				
Max. axial force Fa_{max} [N] for 30,000 h	1500				
Max. axial force Fa_{max} [N] for 20,000 h	2000				
Operating noise L_{PA} [dB(A)]	60				
Efficiency at full load ŋ [%]	94				
Moment of inertia J_1 [kgcm²]	0.621			0.601	
Shared values					
Max. permitted output torque M_{K0} [Nm]	24.2			30.2	
Max. permitted peak torque M_{Kmax} [Nm]	86.4			82	
Motor mass (without brake) [kg]	2.45				
Brake mass [kg]	3.02	0.29		3.02	0.29
Gearbox mass [kg]	2.9				
Recommendations					
ACOPOS 8Vxxxx.xx...	1016.50	1090 1)		1016.50	1090 1)
ACOPOSmicro 80VD100Px.xxxx-01	C02X	C00X		C02X	C00X
ACOPOS P3 8EIxxxx...	4X5M	8X8M		4X5M	8X8M
Cross section for B&R motor cables [mm²]	0.75				

1) The mains input voltage is permitted up to a maximum of 3x 230 VAC ±10%.

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB33.ee015LjDn00	8LVB33.ee016LjAn00	8LVB33.ee016LjCn00	8LVB33.ee016LjDn00
Motor				
Nominal speed n_N [rpm]	2100	500	1500	2100
Number of pole pairs	4			
Nominal torque M_n [Nm]	2.45	2.57	2.5	2.45
Nominal current I_N [A]	7.3	2.18	6	7.3
Stall torque M_0 [Nm]	2.6			
Stall current I_0 [A]	7.9	2.2	6.3	7.9
Maximum torque M_{max} [Nm]	7.2			
Maximum current I_{max} [A]	26	7.6	20.4	26
Maximum speed n_{max} [rpm]	6600			
Torque constant K_T [Nm/A]	0.33	1.18	0.42	0.33
Voltage constant K_E [V/1000 rpm]	19.9	71.21	25.13	19.9
Stator resistance R_{2ph} [Ω]	0.503	6.24	0.808	0.503
Stator inductance L_{2ph} [mH]	2	24.12	3.3	2
Electrical time constant t_{el} [ms]	3.98	3.9	4.08	3.98
Thermal time constant t_{therm} [min]	34			
Moment of inertia J [kgcm²]	0.95			
Holding brake				
Holding torque of the brake M_{Br} [Nm]	3.2	0	3.2	
Moment of inertia for the brake J_{Br} [kgcm²]	0.38	0.12	0.38	
Gearbox				
Number of gear stages	2			
Gear ratio i	15	16		
Nominal output torque T_{2N} [Nm]	82	90		
Max. output torque T_{2max} [Nm]	131	144		
Emergency stop torque T_{2stop} [Nm]	164	180		
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4000			
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	4000			
Max. backlash J_t [arcmin]	9			
Torsional rigidity C_{t21} [Nm/arcmin]	6.5			
Max. radial force Fr_{max} [N] for 30,000 h	1300			
Max. radial force Fr_{max} [N] for 20,000 h	1500			
Max. axial force Fa_{max} [N] for 30,000 h	1500			
Max. axial force Fa_{max} [N] for 20,000 h	2000			
Operating noise L_{PA} [dB(A)]	60			
Efficiency at full load ŋ [%]	94			
Moment of inertia J_1 [kgcm²]	0.601	0.223		
Shared values				
Max. permitted output torque M_{K0} [Nm]	30.2	32.2		
Max. permitted peak torque M_{Kmax} [Nm]	82	90		
Motor mass (without brake) [kg]	2.45			
Brake mass [kg]	0.29	3.02	0.29	
Gearbox mass [kg]	2.9			
Recommendations				
ACOPOS 8Vxxxx.xx...	1090 1)	1016.50	1090 1)	
ACOPOSmicro 80VD100Px.xxxx-01	C00X	C02X	C00X	
ACOPOS P3 8EIxxxx...	8X8M	4X5M	8X8M	
Cross section for B&R motor cables [mm²]	0.75			

1) The mains input voltage is permitted up to a maximum of 3x 230 VAC ±10%.

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB33.ee020LjAn00	8LVB33.ee020LjCn00	8LVB33.ee020LjDn00	8LVB33.ee025LjAn00	8LVB33.ee025LjCn00
Motor					
Nominal speed n_N [rpm]	500	1500	2100	500	1500
Number of pole pairs	4				
Nominal torque M_n [Nm]	2.57	2.5	2.45	2.57	2.5
Nominal current I_N [A]	2.18	6	7.3	2.18	6
Stall torque M_0 [Nm]	2.6				
Stall current I_0 [A]	2.2	6.3	7.9	2.2	6.3
Maximum torque M_{max} [Nm]	7.2				
Maximum current I_{max} [A]	7.6	20.4	26	7.6	20.4
Maximum speed n_{max} [rpm]	6600				
Torque constant K_T [Nm/A]	1.18	0.42	0.33	1.18	0.42
Voltage constant K_E [V/1000 rpm]	71.21	25.13	19.9	71.21	25.13
Stator resistance R_{2ph} [Ω]	6.24	0.808	0.503	6.24	0.808
Stator inductance L_{2ph} [mH]	24.12	3.3	2	24.12	3.3
Electrical time constant t_{el} [ms]	3.9	4.08	3.98	3.9	4.08
Thermal time constant t_{therm} [min]	34				
Moment of inertia J [kgcm²]	0.95				
Holding brake					
Holding torque of the brake M_{Br} [Nm]	0	3.2		0	3.2
Moment of inertia for the brake J_{Br} [kgcm²]	0.12	0.38		0.12	0.38
Gearbox					
Number of gear stages	2				
Gear ratio i	20			25	
Nominal output torque T_{2N} [Nm]	90			82	
Max. output torque T_{2max} [Nm]	144			131	
Emergency stop torque T_{2stop} [Nm]	180			164	
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4000				
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	4000				
Max. backlash J_t [arcmin]	9				
Torsional rigidity C_{t21} [Nm/arcmin]	6.5				
Max. radial force Fr_{max} [N] for 30,000 h	1300				
Max. radial force Fr_{max} [N] for 20,000 h	1500				
Max. axial force Fa_{max} [N] for 30,000 h	1500				
Max. axial force Fa_{max} [N] for 20,000 h	2000				
Operating noise L_{PA} [dB(A)]	60				
Efficiency at full load ŋ [%]	94				
Moment of inertia J_1 [kgcm²]	0.186				
Shared values					
Max. permitted output torque M_{K0} [Nm]	40.3			50.3	
Max. permitted peak torque M_{Kmax} [Nm]	90			82	
Motor mass (without brake) [kg]	2.45				
Brake mass [kg]	3.02	0.29		3.02	0.29
Gearbox mass [kg]	2.9				
Recommendations					
ACOPOS 8Vxxxx.xx...	1016.50	1090 1)		1016.50	1090 1)
ACOPOSmicro 80VD100Px.xxxx-01	C02X	C00X		C02X	C00X
ACOPOS P3 8EIxxxx...	4X5M	8X8M		4X5M	8X8M
Cross section for B&R motor cables [mm²]	0.75				

1) The mains input voltage is permitted up to a maximum of 3x 230 VAC ±10%.

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB33.ee025LjDn00	8LVB33.ee032LjAn00	8LVB33.ee032LjCn00	8LVB33.ee032LjDn00
Motor				
Nominal speed n_N [rpm]	2100	500	1500	2100
Number of pole pairs	4			
Nominal torque M_n [Nm]	2.45	2.57	2.5	2.45
Nominal current I_N [A]	7.3	2.18	6	7.3
Stall torque M_0 [Nm]	2.6			
Stall current I_0 [A]	7.9	2.2	6.3	7.9
Maximum torque M_{max} [Nm]	7.2			
Maximum current I_{max} [A]	26	7.6	20.4	26
Maximum speed n_{max} [rpm]	6600			
Torque constant K_T [Nm/A]	0.33	1.18	0.42	0.33
Voltage constant K_E [V/1000 rpm]	19.9	71.21	25.13	19.9
Stator resistance R_{2ph} [Ω]	0.503	6.24	0.808	0.503
Stator inductance L_{2ph} [mH]	2	24.12	3.3	2
Electrical time constant t_{el} [ms]	3.98	3.9	4.08	3.98
Thermal time constant t_{therm} [min]	34			
Moment of inertia J [kgcm²]	0.95			
Holding brake				
Holding torque of the brake M_{Br} [Nm]	3.2	0	3.2	
Moment of inertia for the brake J_{Br} [kgcm²]	0.38	0.12	0.38	
Gearbox				
Number of gear stages	2			
Gear ratio i	25	32		
Nominal output torque T_{2N} [Nm]	82	90		
Max. output torque T_{2max} [Nm]	131	144		
Emergency stop torque T_{2stop} [Nm]	164	180		
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4000			
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	4000			
Max. backlash J_t [arcmin]	9			
Torsional rigidity C_{t21} [Nm/arcmin]	6.5			
Max. radial force Fr_{max} [N] for 30,000 h	1300			
Max. radial force Fr_{max} [N] for 20,000 h	1500			
Max. axial force Fa_{max} [N] for 30,000 h	1500			
Max. axial force Fa_{max} [N] for 20,000 h	2000			
Operating noise L_{PA} [dB(A)]	60			
Efficiency at full load ŋ [%]	94			
Moment of inertia J_1 [kgcm²]	0.186	0.148		
Shared values				
Max. permitted output torque M_{K0} [Nm]	50.3	64.4		
Max. permitted peak torque M_{Kmax} [Nm]	82	90		
Motor mass (without brake) [kg]	2.45			
Brake mass [kg]	0.29	3.02	0.29	
Gearbox mass [kg]	2.9			
Recommendations				
ACOPOS 8Vxxxx.xx...	1090 1)	1016.50	1090 1)	
ACOPOSmicro 80VD100Px.xxxx-01	C00X	C02X	C00X	
ACOPOS P3 8EIxxxx...	8X8M	4X5M	8X8M	
Cross section for B&R motor cables [mm²]	0.75			

1) The mains input voltage is permitted up to a maximum of 3x 230 VAC ±10%.

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB33.ee040LjAn00	8LVB33.ee040LjCn00	8LVB33.ee040LjDn00	8LVB33.ee064LjAn00	8LVB33.ee064LjCn00
Motor					
Nominal speed n_N [rpm]	500	1500	2100	500	1500
Number of pole pairs	4				
Nominal torque M_n [Nm]	2.57	2.5	2.45	2.57	2.5
Nominal current I_N [A]	2.18	6	7.3	2.18	6
Stall torque M_0 [Nm]	2.6				
Stall current I_0 [A]	2.2	6.3	7.9	2.2	6.3
Maximum torque M_{max} [Nm]	7.2				
Maximum current I_{max} [A]	7.6	20.4	26	7.6	20.4
Maximum speed n_{max} [rpm]	6600				
Torque constant K_T [Nm/A]	1.18	0.42	0.33	1.18	0.42
Voltage constant K_E [V/1000 rpm]	71.21	25.13	19.9	71.21	25.13
Stator resistance R_{2ph} [Ω]	6.24	0.808	0.503	6.24	0.808
Stator inductance L_{2ph} [mH]	24.12	3.3	2	24.12	3.3
Electrical time constant t_{el} [ms]	3.9	4.08	3.98	3.9	4.08
Thermal time constant t_{therm} [min]	34				
Moment of inertia J [kgcm²]	0.95				
Holding brake					
Holding torque of the brake M_{Br} [Nm]	0	3.2		0	3.2
Moment of inertia for the brake J_{Br} [kgcm²]	0.12	0.38		0.12	0.38
Gearbox					
Number of gear stages	2				
Gear ratio i	40			64	
Nominal output torque T_{2N} [Nm]	82			50	
Max. output torque T_{2max} [Nm]	131			80	
Emergency stop torque T_{2stop} [Nm]	164			100	
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4000				
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	4000				
Max. backlash J_t [arcmin]	9				
Torsional rigidity C_{t21} [Nm/arcmin]	6.5				
Max. radial force Fr_{max} [N] for 30,000 h	1300				
Max. radial force Fr_{max} [N] for 20,000 h	1500				
Max. axial force Fa_{max} [N] for 30,000 h	1500				
Max. axial force Fa_{max} [N] for 20,000 h	2000				
Operating noise L_{PA} [dB(A)]	60				
Efficiency at full load ŋ [%]	94				
Moment of inertia J_1 [kgcm²]	0.148				
Shared values					
Max. permitted output torque M_{K0} [Nm]	80.5			50	
Max. permitted peak torque M_{Kmax} [Nm]	82			50	
Motor mass (without brake) [kg]	2.45				
Brake mass [kg]	3.02	0.29		3.02	0.29
Gearbox mass [kg]	2.9				
Recommendations					
ACOPOS 8Vxxxx.xx...	1016.50	1090 1)		1016.50	1090 1)
ACOPOSmicro 80VD100Px.xxxx-01	C02X	C00X		C02X	C00X
ACOPOS P3 8EIxxxx...	4X5M	8X8M		4X5M	8X8M
Cross section for B&R motor cables [mm²]	0.75				

1) The mains input voltage is permitted up to a maximum of 3x 230 VAC ±10%.

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

Model number	8LVB33.ee064LjDn00	8LVB33.ee100LjAn00	8LVB33.ee100LjCn00	8LVB33.ee100LjDn00
Motor				
Nominal speed n_N [rpm]	2100	500	1500	2100
Number of pole pairs	4			
Nominal torque M_n [Nm]	2.45	2.57	2.5	2.45
Nominal current I_N [A]	7.3	2.18	6	7.3
Stall torque M_0 [Nm]	2.6			
Stall current I_0 [A]	7.9	2.2	6.3	7.9
Maximum torque M_{max} [Nm]	7.2			
Maximum current I_{max} [A]	26	7.6	20.4	26
Maximum speed n_{max} [rpm]	6600			
Torque constant K_T [Nm/A]	0.33	1.18	0.42	0.33
Voltage constant K_E [V/1000 rpm]	19.9	71.21	25.13	19.9
Stator resistance R_{2ph} [Ω]	0.503	6.24	0.808	0.503
Stator inductance L_{2ph} [mH]	2	24.12	3.3	2
Electrical time constant t_{el} [ms]	3.98	3.9	4.08	3.98
Thermal time constant t_{therm} [min]	34			
Moment of inertia J [kgcm²]	0.95			
Holding brake				
Holding torque of the brake M_{Br} [Nm]	3.2	0	3.2	
Moment of inertia for the brake J_{Br} [kgcm²]	0.38	0.12	0.38	
Gearbox				
Number of gear stages	2			
Gear ratio i	64	100		
Nominal output torque T_{2N} [Nm]	50	38		
Max. output torque T_{2max} [Nm]	80	61		
Emergency stop torque T_{2stop} [Nm]	100	76		
Max. average drive speed $n_{1N50\%}$ [rpm] at 50% T_{2N} and S1	4000			
Max. average drive speed $n_{1N100\%}$ [rpm] at 100% T_{2N} and S1	4000			
Max. backlash J_t [arcmin]	9			
Torsional rigidity C_{t21} [Nm/arcmin]	6.5			
Max. radial force Fr_{max} [N] for 30,000 h	1300			
Max. radial force Fr_{max} [N] for 20,000 h	1500			
Max. axial force Fa_{max} [N] for 30,000 h	1500			
Max. axial force Fa_{max} [N] for 20,000 h	2000			
Operating noise L_{PA} [dB(A)]	60			
Efficiency at full load ŋ [%]	94			
Moment of inertia J_1 [kgcm²]	0.148	0.1		
Shared values				
Max. permitted output torque M_{K0} [Nm]	50		38	
Max. permitted peak torque M_{Kmax} [Nm]	50		38	
Motor mass (without brake) [kg]	2.45			
Brake mass [kg]	0.29	3.02	0.29	
Gearbox mass [kg]	2.9			
Recommendations				
ACOPOS 8Vxxxx.xx...	1090 1)	1016.50	1090 1)	
ACOPOSmicro 80VD100Px.xxxx-01	C00X	C02X	C00X	
ACOPOS P3 8EIxxxx...	8X8M	4X5M	8X8M	
Cross section for B&R motor cables [mm²]	0.75			

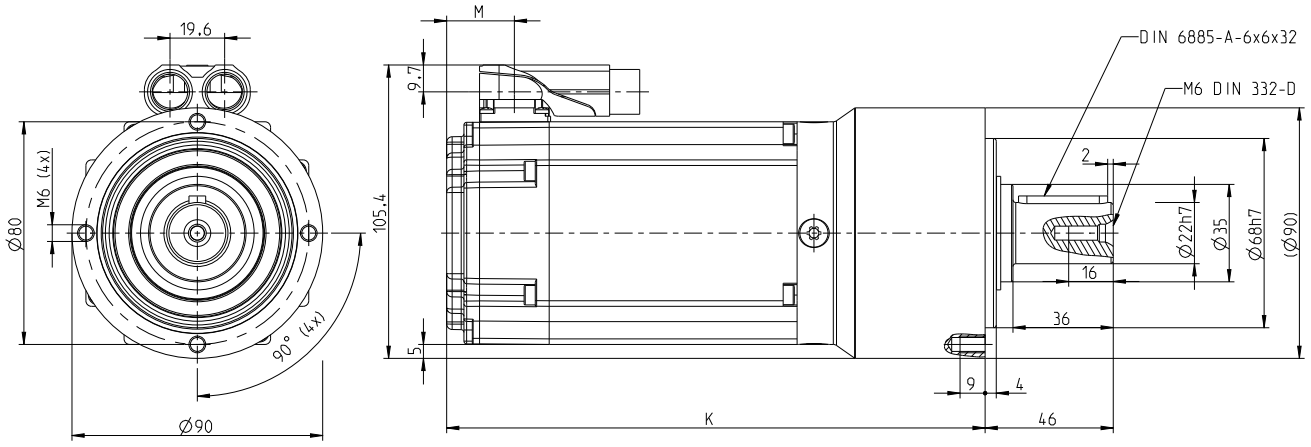
1) The mains input voltage is permitted up to a maximum of 3x 230 VAC ±10%.

Nominal output torque T_{2N}: values for shaft key, for swelling load.
Max. output torque T_{2max}: values for shaft key, for swelling load. Permissible for 30,000 revolutions of the output shaft.
Emergency stop torque $T_{2emergency}$: 1000-times permissible
Max. axial / radial force Fa/Fr_{max}: with respect to the center of the output shaft and a output shaft rotation speed of n_2 = 100 min^{-1}.
Max. permissible driving torque M_{K0}:permissible torque for continuous operation of the device at speed n_N (S1 motor operation)
Max. permissible peak torque M_{Kmax}: maximum permissible continuous torque of the device.

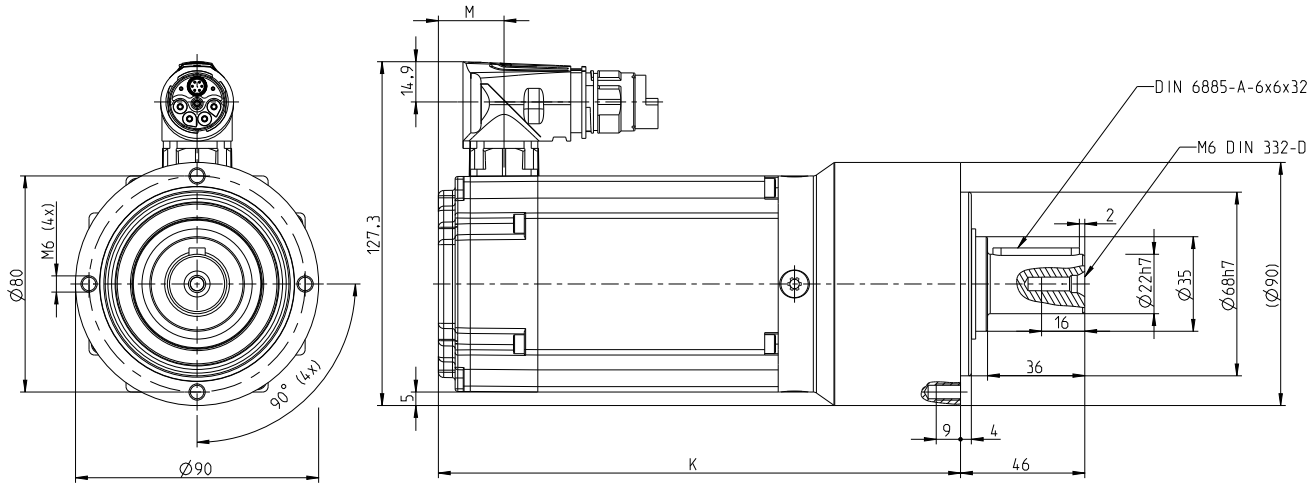
Servo drive: The recommended servo drive / inverter module is designed for 1.1x the stall current. If more than double the amount is needed during the acceleration phase, the next larger servo drive should be selected. This recommendation is only a guideline; detailed inspection of the corresponding speed/torque characteristic curve can result in deviations of the servo drive size (larger or smaller).
ACOPOSmulti: Operating this device with ACOPOSmulti inverter module is not possible due to the high DC bus voltage when powered from the mains.

NOTE cable: The suitable cables can be found in the catalog (Book 1) chapter ACOPOSmicro servo drive.

2.13.1 8LVB33-8GM50 - Dimensions



Double angular built-in connector



Single-cable solution

EnDat/Resolver feedback					Extension of K depending on motor option
	K	K	M	M	Holding brake
Gear motor	Encoder: R0, B1	Encoder: B8, B9	Encoder: R0, B1	Encoder: B8, B9	
8LVB33 1-stage 8GM50	186.5	193.5	17.5	24.5	36
8LVB33 2-stage 8GM50	204.5	211.5	17.5	24.5	36

IMPORTANT: Dimensions K and M depend on the length of the encoder cover.

3 Transport and storage

During transport and storage, the product must be protected against undue stress (mechanical loads, temperature, moisture, corrosive atmospheres, etc.).

If necessary, also protect existing electrostatically sensitive components such as the encoders in motors against electrostatic discharge (ESD).

Never use attachment parts (cable connection, terminal boxes, fans, etc.) for securing during transport or as supporting surfaces.

Caution!

Damage to property due to excessive radial or axial forces on the shaft.

Excessive radial or axial forces on the shaft can damage the bearing and impair the effect of any holding brake present to such an extent that the braking effect is non-existent or reduced. Similarly, encoder errors or damage to the gearbox can occur as a result.

- **Transport and store the product only in its original packaging and lying on the housing.**
- **Avoid pressure and impact on the shaft end and housing.**
- **Do not use the shaft for securing during transport.**
- **Transport and lift heavy output shaft components separately and not mounted on the shaft end.**

3.1 Transport

Check product deliveries immediately for transport damage and report any damage immediately to the carrier. In the event of damage, discontinue use where applicable.

Danger!

Danger of injury due to loads!

Suspended loads can lead to personal injury or death if they fall down. Heavy loads can tilt and trap people or severely injure them.

Failure to comply with instructions, guidelines and regulations or use of unsuitable or damaged tools and equipment can result in serious injury and/or material damage.

- **Motors should only be lifted without any additional load from other products (e.g. connection elements).**
- **Only use permitted lifting, transport and aids with sufficient lifting capacity.**
- **Never stand in the danger zone or under suspended loads.**
- **Secure the product against dropping and tilting.**
- **Wear safety shoes, protective clothing and a safety helmet.**
- **Comply with the national and local regulations.**

Environmental conditions for transport

- Dry; dust-, frost- and vibration-free
- Room temperature between -20°C and +60°C
- Max. relative humidity 90%, (non-condensing)
- Well ventilated and free from drafts
- The air in the room must be free of aggressive or hazardous gases.

3.2 Storage

Caution!

Damage caused by degraded material properties.

Storage for long periods of time or storage under improper conditions can cause certain materials to age prematurely, to have degraded properties and to become damaged. Damaged components can then result in further damage.

Recommendations to avoid damage during storage:

- **Reduce the storage time to a minimum and do not exceed the maximum storage time of 2 years.**
- **Rotate the motor shaft a few turns at least every 6 months either by hand or at a low speed (max. 50 rpm). Bearing noise can occur during the run-in phase, which is perfectly normal and is not a sign of bearing damage.**
- **Apply a preservative coating to unprotected components such as the shaft end.**
- **Avoid contact corrosion.**
- **Use the original packaging.**
- **Use covers to protect against dust.**
- **Check the seals for damage when the item is issued or prior to use.**

Storage conditions

- Dry; dust-, frost- and vibration-free
- Room temperature between -20°C and +60°C
- Max. relative humidity 90%, (non-condensing)
- Well ventilated and free from drafts
- The air in the room must be free of aggressive or hazardous gases.

4 Installation conditions

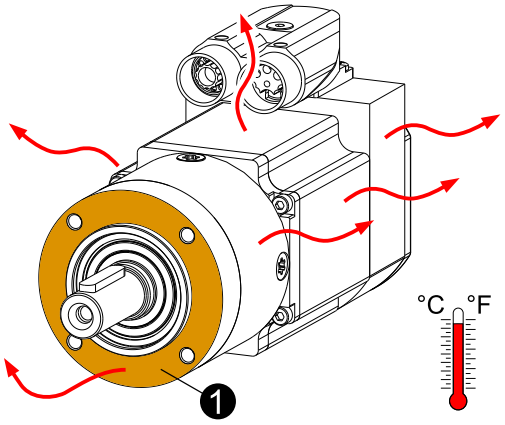
Before every commissioning procedure, the motor must be checked by qualified personnel. The check must include the proper condition in terms of mounting and installation, the installation conditions and safe operation.

Thermal characteristics and operating conditions	
Thermal motor protection in accordance with EN 60034-11	Size 1: No, size 2 and 3: KTY 83-110, operation of the motor in accordance with 60K characteristic curve
Ambient temperature during operation	-15°C to +40°C
Max. ambient temperature during operation	+50°C [3]
Reduction of the nominal current and stall current at temperatures above 40°C	-10% per 10°C temperature increase above 40°C
Reduction of the nominal current and stall current at installation elevations over 1000 m above sea level	-10% per 1000 m
Maximum installation elevation	2000 m [4]
Rating class, operating mode in accordance with EN 60034-1	S1 - Continuous operation
EN 60034-5 protection (IP code)	IP54 [5]
Construction and mounting arrangement type in accordance with EN 60034-7 (IM code)	Horizontal (IM3001) Vertical, motor hangs on the machine (IM3011) Vertical, motor stands on the machine (IM3031)

4.1 Flange installation and cooling

Ensure unobstructed air circulation and cooling so that no heat accumulation can build up on the motor.

Attach the motor with the **motor flange** (1), which also serves as a **cooling surface**, directly on the machine.



The following points must be observed:

- The opposite side of the mounting flange is not permitted to be thermally insulated. Heat from the gear motor must be allowed to dissipate sufficiently.
- Air circulation must not be impeded. There must be sufficient cooling air on the motor/gearbox housing.
- Exceeding the specified maximum values for motor/gearbox temperature is not permitted.

It is important to note the following:

- Power or heat from the motors is dissipated via the mounting flange and surface of the motor housing.
- The motor and gearbox can heat up each other or be heated up due to external heat sources.

[3] Continuous operation at ambient temperatures ranging from +40°C to max. +50°C is possible, but this will result in a shorter service life.
[4] Requirements that go beyond this must be arranged with B&R.
[5] The protection ratings are only achieved if the power and signal connections are installed properly.

Caution!

Personal injury and damage to property due to failure or overheating of the drive.

If the maximum permissible operating temperature is exceeded, an arising drive defect with consequential damage is very probable.

The cause of a defect could be a defective seal (lubricant loss) or insufficient lubrication due to overheating, for example.

- **For safety reasons, switch off the machine if the maximum permissible temperature is exceeded.**
- **Ensure unobstructed air circulation and cooling so that no heat accumulation can build up in the drive or machine.**
- **Have damaged gaskets replaced only by B&R.**

4.2 Load due to radial and axial force

Radial and axial forces (F_r, F_a) applied to the shaft end during operation and installation must observe the conditions listed below.

Simultaneously **loading the shaft** end with the maximum values of $\mathbf{F_r}$ and $\mathbf{F_a}$ is not permitted! Contact B&R if this occurs.

Radial force

Radial force F_r on the shaft end is a function of the loads during installation (e.g. belt tension on pulleys) and operation (e.g. load torque on the pinion). The maximum radial force F_r depends on the shaft end type, bearing type, average speed, the position where the radial force is applied and the desired service life of the bearings.

Axial force, shift in shaft position caused by axial force

Axial force F_a on the shaft end is a function of the loads during installation (e.g. stress caused by mounting) and operation (e.g. thrust caused by slanted tooth pinions). The maximum axial force F_a depends on the bearing type and the desired lifespan of the bearings.

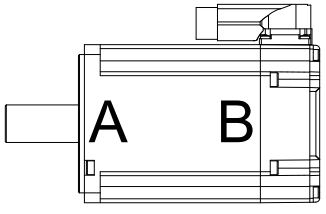
8LVB1 (with/without holding brake)
8LVB2 (with holding brake)

The **fixed bearing** is secured on the **B flange** with a retaining ring. The floating bearing is preloaded on the A flange with a spring in the direction of the B flange. Axial forces in the direction of the A flange can cause the spring bias to be overcome, which shifts the shaft by the amount of axial backlash in the bearing (approx. 0.1 - 0.2 mm). This shift can cause problems on motors with holding brakes or all motors with inductive encoder systems. As a result, no axial force in excess of the calculated values is permitted in the direction of the A flange when using these motor (see "Determining permissible values of F_r and F_a).

8LVB2 (without holding brake)
8LVB3 (with/without holding brake)

The **fixed bearing** is secured on the **A flange** with a retaining ring. The floating bearing is preloaded on the B flange with a spring in the direction of the A flange. Axial forces in the direction of the B flange can cause the spring bias to be overcome, which shifts the shaft by the amount of axial backlash in the bearing (approx. 0.1 - 0.2 mm). This shift can cause problems on motors with holding brakes or all motors with inductive encoder systems. As a result, no axial force in excess of the calculated values is permitted in the direction of the B flange when using these motor (see "Determining permissible values of F_r and F_a).

A and B flange position



Overdetermined bearing

Avoid an overdetermined bearing when attaching drive elements onto the output shaft! The necessarily occurring tolerances cause additional forces on the output shaft bearing. This can damage or significantly reduce the service life of the bearing!

5 Installation and connection

5.1 Before installation

Read this user's manual completely before performing any work activities.

In addition, take into account the technical documentation for all other machine components as well as the finished machine.

5.2 Safety

Assembly is only permitted to be carried out in a voltage-free condition and only by qualified personnel[2)]. Before installation, voltage to the control cabinet must be switched off and prevented from being switched on again.

Only use appropriate equipment and tools. Protect yourself with safety equipment.

Warning!

Personal injury and damage to property caused by unauthorized conversions!

As a result of unauthorized modifications to the product, the performance and limit values can be negatively affected and dangers can arise. Due to this, severe property damage and injuries cannot be excluded.

Therefore, unauthorized conversions are prohibited!

- **Do not carry out any unauthorized modifications or alterations to the product.**
- **If necessary, contact B&R.**

5.2.1 General sources of danger

Tampering of protection or safety devices

Protective and/or safety devices protect you and other persons from dangerous voltage, rotating or moving elements and hot surfaces.

Danger!

Personal injury and property damage caused by tampering of protective equipment!

If protective or safety devices are removed or put out of operation, there is no longer any personal protection and serious personal injury and property damage can occur.

- **Do not remove any safety devices.**
- **Do not put any safety devices out of operation.**
- **Always use all safety devices during short-term test and trial operations!**

Dangerous voltage

To operate the motors, dangerous voltage must be applied to certain parts.

2) The definition of "qualified personnel" can be found in section "Safety" of chapter "General information".

Danger!

Risk of injury due to electric shock!

There is an immediate risk of fatal injury in case of contact with live parts.

If connections are connected or disconnected in the wrong order or under voltage, arcs can arise and persons and contacts can be damaged.

Even if the motor does not turn or is driven externally as a generator, the control and power connections can still conduct voltage!

- **Never touch the connectors when the power is on.**
- **Never disconnect or connect electrical connections to the motor and servo drive under voltage!**
- **Do not remain in the dangerous zone during operation; secure the danger zone from access by unauthorized persons.**
- **Always operate the motor with all of its safety features. You should also do this during short-term testing and trial operations!**
- **Keep all covers and switch cabinet doors closed during operation and for as long as the machine has not been disconnected from the mains.**
- **Before working on motors, gearboxes or servo drives or in the danger zone of your machine, disconnect them completely from the power system and secure them against being switched on again by other persons or automatic systems.**
- **Note the discharging time of an intermediate circuit, if present.**
- **Only connect the measuring instruments in the absence of current and voltage!**

Danger due to electromagnetic fields

Electromagnetic fields are generated by the operation of electrical power engineering equipment such as transformers, drives and motors.

Danger!

Danger to health due to electromagnetic fields!

The functionality of a heart pacemaker can be impaired by electromagnetic fields to such an extent that the wearer experiences harm to his or her health, possibly with a fatal outcome.

- **Persons with pacemakers are not allowed to be in endangered areas.**
- **Warn staff by providing information, warnings, and safety identification.**
- **Secure the danger zone by means of barriers.**
- **Reduce electromagnetic fields at their source (using shielding, for example).**

Dangerous motion

By rotating and positioning motions of the motors, machine elements are moved or driven and loads conveyed.

After switching on the machine, movements of the motor shaft must always be expected! For this reason, higher-level safety precautions need to be put in place to ensure that personnel and machines are protected. This type of protection can be achieved, for example, by using stable mechanical protective equipment such as protective covers, protective fences, protective gates or photoelectric sensors.

In the immediate vicinity of the machine, provide sufficient and easily accessible emergency stop switches to stop the machine as quickly as possible in the event of an accident.

Danger!

Danger of injury due to rotating or moving elements and loads!

By rotating or moving elements, body parts can be drawn in or severed or subjected to impacts.

- **Do not remain in a dangerous area during operation and secure it from access by unauthorized persons.**
- **Before working on the machine, secure it against unwanted movements. Any holding brake present is not suitable for this!**
- **Keep all covers and switch cabinet doors closed during operation and for as long as the machine has not been disconnected from the mains.**
- **Always operate the motor with all of its safety features. You should also do this during short-term testing and trial operations!**
- **Motors can be started automatically via remote control! If appropriate, a corresponding warning symbol must be applied, and protective measures must be implemented to prevent entry into the high-risk area.**

Danger!

Danger of injury due to loads!

Suspended loads can lead to personal injury or death if they fall down. Heavy loads can tilt and trap people or severely injure them.

Failure to comply with instructions, guidelines and regulations or use of unsuitable or damaged tools and equipment can result in serious injury and/or material damage.

- **Motors should only be lifted without any additional load from other products (e.g. connection elements).**
- **Only use permitted lifting, transport and aids with sufficient lifting capacity.**
- **Never stand in the danger zone or under suspended loads.**
- **Secure the product against dropping and tilting.**
- **Wear safety shoes, protective clothing and a safety helmet.**
- **Comply with the national and local regulations.**

Warning!

Danger of injury due to incorrect control or a defect.

Improper control of motors or a defect can result in injuries and unintended and hazardous movements of motors.

Such incorrect behavior can be triggered by:

- **Incorrect installation or mishandling of components**
- **Improper or incomplete wiring**
- **Defective devices (servo drive, motor, position encoder, cables, brake)**
- **Incorrect control (e.g. caused by software error)**

Risk due to hot surfaces

Due to the loss of power from the motor and friction in the gearbox, these components as well as their environment can reach a temperature of more than 100°C.

The resulting heat is released to the environment via the housing and the flange.

Warning!

Risk of burns due to hot surfaces!

Touching hot surfaces (e.g. motor and gearbox housings, as well as connected components), can lead to very severe burns due to the very high temperature of these parts.

- **Do not remain in a dangerous area during operation and secure it from access by unauthorized persons.**
- **Never touch the motor or gearbox housing as well as adjacent surfaces during nominal load operation.**
- **Be aware of hot surfaces also during downtime.**
- **Allow motor and gearbox to cool sufficiently before working on it. Because even after shutting down, there is still a risk of burning for a prolonged period of time.**
- **Always operate the motor or gearbox with all safety devices. You should also do this during short-term testing and trial operations!**

5.2.2 Noise emissions

Take into account the health of personnel in proximity to the machine.

Warning!

Hearing damage due to noise levels.

During operation, the motor can exceed the permissible workplace noise level and also cause hearing damage.

- **Implement suitable noise reduction measures (e.g. housings, covers or other sound-insulating measures).**
- **Take into account applicable industrial safety regulations.**

5.3 Shaft end and bearing

The motor shaft is supported on both sides with grease-lubricated grooved ball bearings. Protect the gear motor from damage due to excessive radial and axial forces!

Under all circumstances, avoid the following loads on the front shaft end or the rear motor housing cover:

- Excessive pressure
- Impacts
- Hammer blows

Caution!

Damage due to excessive axial forces!

The bearings and the gearbox can be damaged by excessive axial forces (e.g. by impacting or pressing) on the shaft.

- **Do not hit the gear motor or the output shaft with the hammer. The blow of a hammer certainly exceeds the permissible thresholds.**
- **Also, avoid impact and excessive pressure on the gear motor and the output shaft.**

Overdetermined bearing

Avoid an overdetermined bearing when attaching drive elements onto the output shaft! The necessarily occurring tolerances cause additional forces on the output shaft bearing. This can damage or significantly reduce the service life of the bearing!

Lifting and transporting

The weight of attachment elements (gear wheels, pulleys, couplings, etc.) can have a harmful effect on the bearing during lifting and transportation from the motor. Take into account these radial and axial loads during these operations!

Installing and removing attachment elements

Always install and remove the attachment elements (gears, pulleys, couplings, etc.) at the shaft end without any axial load on the motor bearings and all other parts installed in the motor. For this, use suitable clamping sets, pressure sleeves, other tensioning elements, retractors, etc. The centering hole on the face side of the shaft end can be used for this work.

Pay attention to balanced connection elements or corresponding assembly.

Secure the attachments against unintended loosening after installation and before operation.

5.4 Installing in the system

Before working on motors, gearboxes or servo drives or in the danger zone of your machine, disconnect them completely from the power system and secure them against being switched on again by other persons or automatic systems.

Inspection

Before installation, inspect the components to determine whether they are suitable and undamaged.

Inspect the gear motor for leaks or leaking lubricant.

Warning!

Personal injury and property damage due to damaged or unsuitable machine components!

Operating a machine with damaged or unsuitable components is a safety risk and can lead to failures. Severe property damage and injuries cannot be excluded.

- **Never operate a machine with a damaged motor or gearbox or any other damaged component.**
- **Never install a damaged component in a machine.**
- **Do not use motors or gearboxes that have already been overloaded during operation.**
- **Before installation, ensure that the motor or gearbox is suitable for the machine.**
- **It is better not to carry out short-term test and trial operations with damaged or inappropriate machine components.**
- **Label damaged or non-operational components in a readily visible location and clearly.**

Cleaning

Clean anti-corrosive agents and dirt off the output shaft and flange of the motor as well as the opposite side of the shaft and flange.

Caution!

Damage to property caused by improper cleaning.

Contact with cleaning agents can damage oil seals, sealing lips and gaskets.

- **Only use suitable and material-friendly cleaning agents.**
- **Ensure that oil seals, sealing lips and gaskets do not come into contact with cleaning agents.**

Installing the gear motor

Attach the gear motor with the mounting flange, which also serves as a cooling surface, directly to the machine. For this, the gear motor must be screwed to the machine via the threaded holes provided in the flange. Apply tightening torque in accordance with the standard when tightening the screws and use a screw locking mechanism. Attach and remove gears, pulleys, couplings, etc. on the output shaft only with suitable clamping sets, pressure sleeves, etc.

5.5 Connecting and disconnecting the motor

Observe the following safety guidelines and instructions when connecting and disconnecting the motor:

The protective conductor must be connected via the power connection or motor plug.

Danger!

Personal injury and property damage due to missing ground potential!

If there is no proper grounding potential on the motor housing or servo drive, fault currents can lead to serious personal injury and property damage.

- **Properly (also during short-term test and trial operation!) connect the motor housing and the servo drive to the grounding potential (PE rail).**

Danger!

Personal injury and property damage due to direct mains connection!

Connecting the motor directly to the mains leads to severe personal injury and property damage.

- **The is only permitted to be used with servo drives that are operated on grounded, three-phase industrial power systems (TN, TT power mains).**

Danger!

Risk of injury due to electric shock!

There is an immediate risk of fatal injury in case of contact with live parts.

If connections are connected or disconnected in the wrong order or under voltage, arcs can arise and persons and contacts can be damaged.

Even if the motor does not turn or is driven externally as a generator, the control and power connections can still conduct voltage!

- **Never touch the connectors when the power is on.**
- **Never disconnect or connect electrical connections to the motor and servo drive under voltage!**
- **Do not remain in the dangerous zone during operation; secure the danger zone from access by unauthorized persons.**
- **Always operate the motor with all of its safety features. You should also do this during short-term testing and trial operations!**
- **Keep all covers and switch cabinet doors closed during operation and for as long as the machine has not been disconnected from the mains.**
- **Before working on motors, gearboxes or servo drives or in the danger zone of your machine, disconnect them completely from the power system and secure them against being switched on again by other persons or automatic systems.**
- **Note the discharging time of an intermediate circuit, if present.**
- **Only connect the measuring instruments in the absence of current and voltage!**

Warning!

Risk of burns due to hot surfaces!

Touching hot surfaces (e.g. motor and gearbox housings, as well as connected components), can lead to very severe burns due to the very high temperature of these parts.

- **Do not remain in a dangerous area during operation and secure it from access by unauthorized persons.**
- **Never touch the motor or gearbox housing as well as adjacent surfaces during nominal load operation.**
- **Be aware of hot surfaces also during downtime.**
- **Allow motor and gearbox to cool sufficiently before working on it. Because even after shutting down, there is still a risk of burning for a prolonged period of time.**
- **Always operate the motor or gearbox with all safety devices. You should also do this during short-term testing and trial operations!**

5.5.1 Cables and connectors

5.5.1.1 Cables from other manufacturers

Caution!

Damage caused by voltage rise!

Cables from other manufacturers can have a negative effect on voltage rise on the winding. The winding can become damaged as a result of voltage rise.

- **If non-B&R cables are used, you must provide documented evidence of conformity with voltage class A in accordance with EN 60034-25.**
- **Without documented evidence, no claim for warranty is possible for winding damage resulting from voltage rise on the winding.**

5.5.1.2 Connectors from other manufacturers

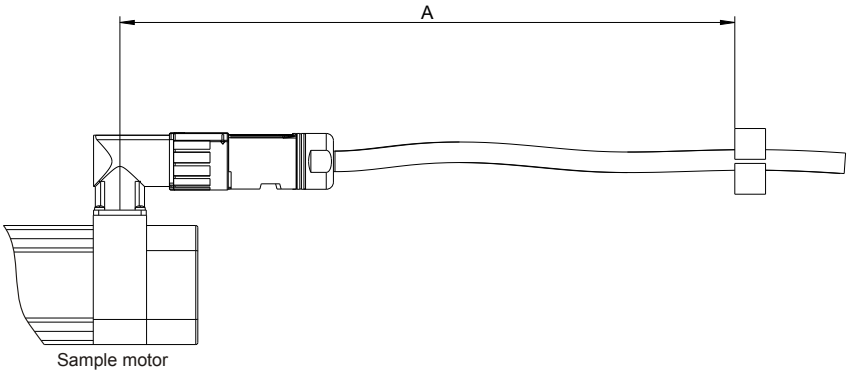
Note:

Disturbances caused by electrical or electromagnetic effects!

When using connectors from other manufacturers, EMC faults cannot be excluded.

- **Use B&R connectors to ensure compliance with the EMC limit values of the connection.**
- **Ensure proper assembly and that cable shields are connected correctly.**

5.5.1.3 Cable support



- Cable support: A = max. 300 mm along longitudinal axis of connector
- The connection must be free of force and torque.
- Movement relative to the connector is not permitted!

Information:

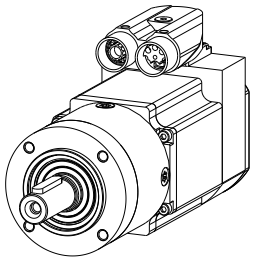
For additional technical data and order data for the cables, see the current user's manual for the ACOPOS system being used. These are available in the Downloads section of the B&R website www.br-automation.com.

5.5.1.4 Cable bend radius

For the exact cable bend radius values, see the corresponding cable specifications.

5.5.2 Connection sequence

Double angular built-in connector



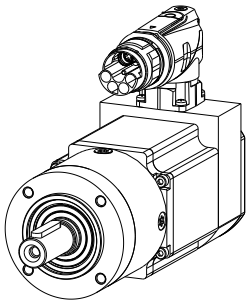
Connecting

1. Connect the orange power connector.
2. Connect the green encoder connector.

Disconnecting

1. Disconnect the green encoder connector.
2. Disconnect the orange power connector.

Single-cable solution (hybrid)



Connecting

1. Connect the connector to the motor.

Disconnecting

1. Disconnect the connector to the motor.

5.5.3 Ensure proper connections

Caution!

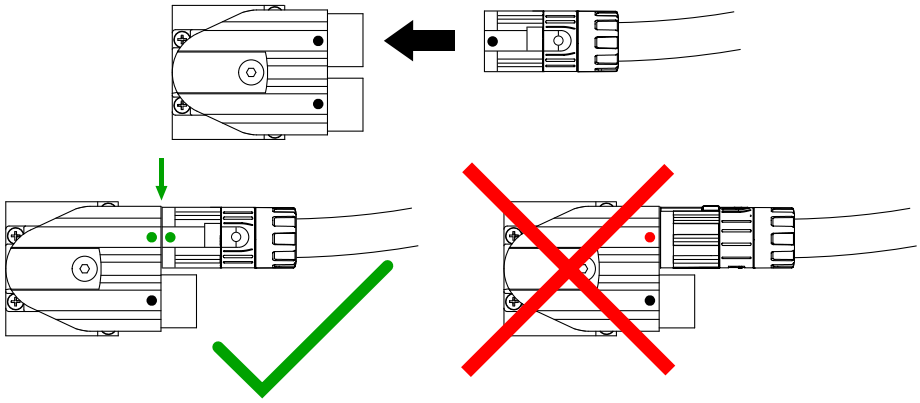
Damage due to improper connector installation!

Misalignment and subsequent pulling can cause disturbances and damage to the motor!

- **Ensure that connectors are installed and connected properly.**

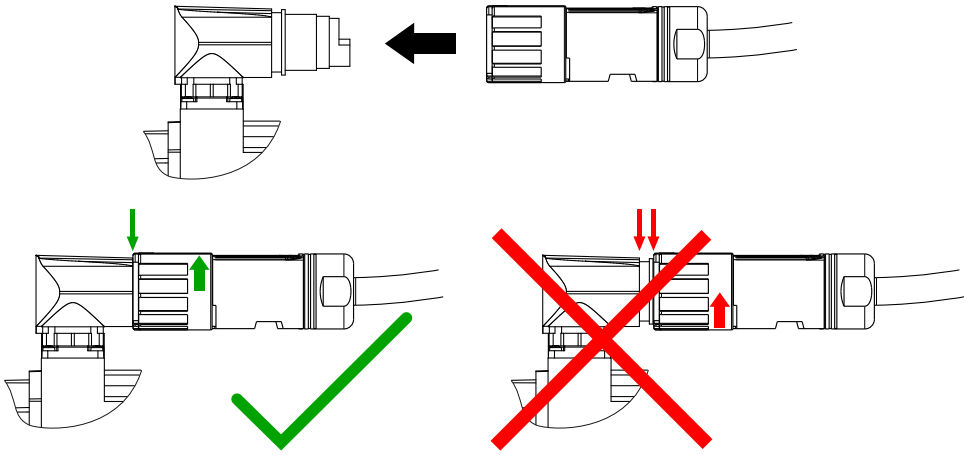
5.5.3.1 Double angular built-in connector

The double angular built-in connector is equipped with a self-locking quick-release fastener. During installation, make sure that the connectors are fully connected and locked.



5.5.3.2 Single-cable solution (hybrid)

The single-cable solution (hybrid) is equipped with a quick-release fastener. During installation, make sure that the connectors are tightly connected and locked.



Caution!

Damage due to improper connector installation!

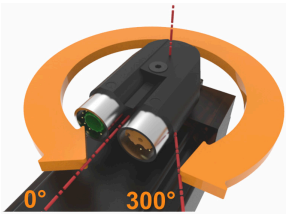
If the connector is not fully connected to the motor connection with the single-cable solution (hybrid), contact problems and subsequent operating failures will result.

- **Completely connect the connector to the motor connection without a gap and then lock the connector.**

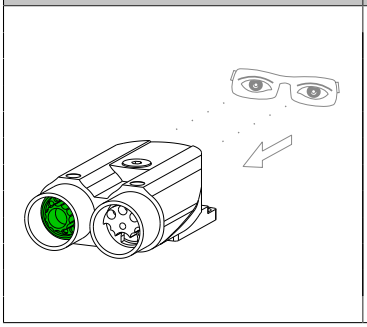
5.5.4 Connection type

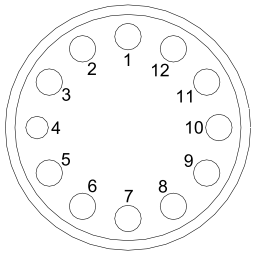
5.5.4.1 Double angular built-in connector

- 300° swivel double angular built-in connector
- Quick-release self-locking connector system
- Robust industrial connectors with optimal EMC shielding
- Robust metal housing



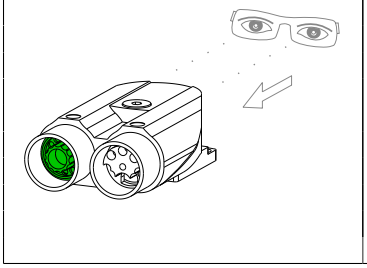
5.5.4.1.1 Resolver connection - Pinout

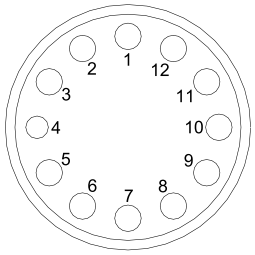




Pin	Description	Function
1	---	---
2	---	---
3	---	---
4	---	---
5	---	---
6	R1	Reference signal inverted
7	---	---
8	S4	Sinus output signal
9	S2	Sinus output signal inverted
10	S3	Cosine output signal inverted
11	S1	Cosine output signal inverted
12	R2	Reference signal

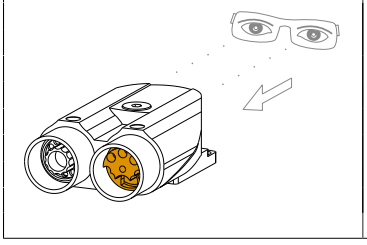
5.5.4.1.2 EnDat 2.2 connection - Pinout

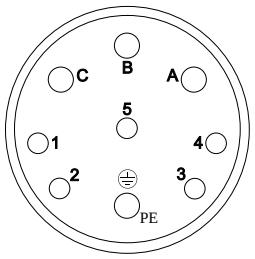




Pin	Description	Function
1	U+	Encoder supply +12.5 V
2	D	Data output
3	D\	Data output inverted
4	T	Clock input
5	T\	Clock input inverted
6	COM (12)	Battery supply 0 V
7	COM (1)	Encoder supply 0 V
8	---	---
9	---	---
10	---	---
11	---	---
12	VBATT	Battery supply

5.5.4.1.3 Pinout power connection.





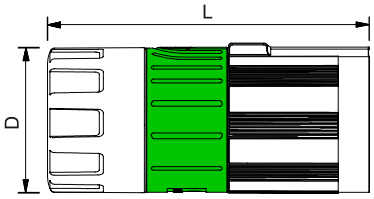
Pin	Description	Function
A	U	Motor connection U
B	V	Motor connection V
C	W	Motor connection W
PE	PE	Grounding
1	T+	Temperature +
2	T-	Temperature -
3	B+	Brake +
4	B-	Brake -

5.5.4.1.4 ytec connector - Dimensions

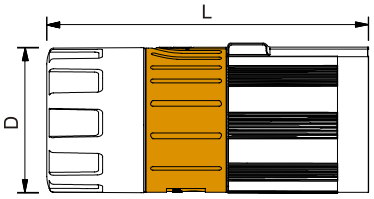
The ytec connectors made by Intercontec, compatible with the **double angular built-in connector**, have the same dimensions and can be distinguished by the colors green and orange. The connection to the motor is made without tools.

ytec Connectors	Color	L	D
Encoder connectors	Green	42 mm	18.7 mm
Power connectors	Orange	42 mm	18.7 mm

Encoder connectors

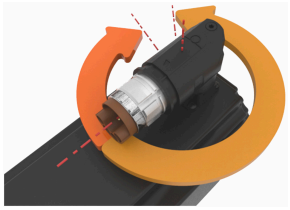


Power connectors



5.5.4.2 Single-cable solution (hybrid)

- 300° swivel connector
- Encoder and power conductor in one cable
- Quick-release self-locking connector system
- Robust industrial connectors with optimal EMC shielding
- Robust metal housing

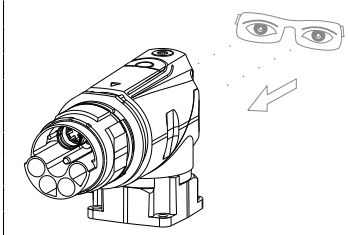


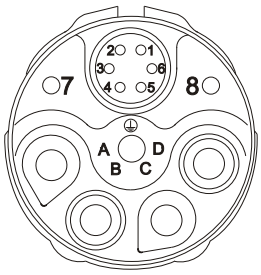
Note:

The following conditions must be met by the drives in order to operate a motor with a hybrid connector.

- **For ACOPOSmulti: The cable cover must be designed for operation with a hybrid cable (cable cutout present, delivered 2015 or later)**
- **For ACOPOSmulti with SafeMOTION: The configured operating system version (NC version) must be set to V2.48.0 or later; the Safety Release must be V1.9 or later.**
- **For all drives: The configured operating system version (NC version) must be set to V2.42.2 or later.**

5.5.4.2.1 Single-cable solution (hybrid) - Pinout



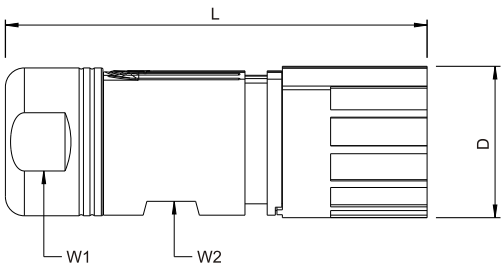


Pin	Signal
A	Motor connection U
B	Motor connection V
C	Motor connection W
D	---
7	Brake -
8	Brake +
PE	Grounding
1	Up
2	Ground
3	Data
4	Data inverted
5	Clock input
6	Clock input inverted

5.5.4.2.2 htec connector - Dimensions

The htec connector from Intercontec can be connected without tools.

htec connector



htec connector	Length (1)	Diameter (D)	W1	W2
Encoder connectors	77.8 mm	27.9 mm	25 mm	24 mm

6 Commissioning and operation

6.1 Before commissioning and operation

Read this user's manual completely before starting any commissioning activities or operation.

In addition, take into account the technical documentation for all other machine components (e.g. servo drive) as well as the finished machine.

6.2 Safety

Commissioning is only permitted to be carried out by qualified personnel[1)].

Only use appropriate equipment and tools. Protect yourself with safety equipment.

Caution!

Severe personal injury and property damage due to failure of the servo drive!

If the servo drive fails, an uncontrolled motor can cause damage.

Electronic devices are never completely failsafe!

- **Ensure that the motor is brought into a safe state if the servo drive fails.**

6.2.1 General sources of danger

Tampering of protection or safety devices

Protective and/or safety devices protect you and other persons from dangerous voltage, rotating or moving elements and hot surfaces.

Danger!

Personal injury and property damage caused by tampering of protective equipment!

If protective or safety devices are removed or put out of operation, there is no longer any personal protection and serious personal injury and property damage can occur.

- **Do not remove any safety devices.**
- **Do not put any safety devices out of operation.**
- **Always use all safety devices during short-term test and trial operations!**

Dangerous voltage

To operate the motors, dangerous voltage must be applied to certain parts.

[1)] The definition of "qualified personnel" can be found in section "Safety" of chapter "General information".

Danger!

Risk of injury due to electric shock!

There is an immediate risk of fatal injury in case of contact with live parts.

If connections are connected or disconnected in the wrong order or under voltage, arcs can arise and persons and contacts can be damaged.

Even if the motor does not turn or is driven externally as a generator, the control and power connections can still conduct voltage!

- **Never touch the connectors when the power is on.**
- **Never disconnect or connect electrical connections to the motor and servo drive under voltage!**
- **Do not remain in the dangerous zone during operation; secure the danger zone from access by unauthorized persons.**
- **Always operate the motor with all of its safety features. You should also do this during short-term testing and trial operations!**
- **Keep all covers and switch cabinet doors closed during operation and for as long as the machine has not been disconnected from the mains.**
- **Before working on motors, gearboxes or servo drives or in the danger zone of your machine, disconnect them completely from the power system and secure them against being switched on again by other persons or automatic systems.**
- **Note the discharging time of an intermediate circuit, if present.**
- **Only connect the measuring instruments in the absence of current and voltage!**

Danger due to electromagnetic fields

Electromagnetic fields are generated by the operation of electrical power engineering equipment such as transformers, drives and motors.

Danger!

Danger to health due to electromagnetic fields!

The functionality of a heart pacemaker can be impaired by electromagnetic fields to such an extent that the wearer experiences harm to his or her health, possibly with a fatal outcome.

- **Persons with pacemakers are not allowed to be in endangered areas.**
- **Warn staff by providing information, warnings, and safety identification.**
- **Secure the danger zone by means of barriers.**
- **Reduce electromagnetic fields at their source (using shielding, for example).**

Dangerous motion

By rotating and positioning motions of the motors, machine elements are moved or driven and loads conveyed.

After switching on the machine, movements of the motor shaft must always be expected! For this reason, higher-level safety precautions need to be put in place to ensure that personnel and machines are protected. This type of protection can be achieved, for example, by using stable mechanical protective equipment such as protective covers, protective fences, protective gates or photoelectric sensors.

In the immediate vicinity of the machine, provide sufficient and easily accessible emergency stop switches to stop the machine as quickly as possible in the event of an accident.

Danger!

Danger of injury due to rotating or moving elements and loads!

By rotating or moving elements, body parts can be drawn in or severed or subjected to impacts.

- **Do not remain in a dangerous area during operation and secure it from access by unauthorized persons.**
- **Before working on the machine, secure it against unwanted movements. Any holding brake present is not suitable for this!**
- **Keep all covers and switch cabinet doors closed during operation and for as long as the machine has not been disconnected from the mains.**
- **Always operate the motor with all of its safety features. You should also do this during short-term testing and trial operations!**
- **Motors can be started automatically via remote control! If appropriate, a corresponding warning symbol must be applied, and protective measures must be implemented to prevent entry into the high-risk area.**

Danger!

Danger of injury due to loads!

Suspended loads can lead to personal injury or death if they fall down. Heavy loads can tilt and trap people or severely injure them.

Failure to comply with instructions, guidelines and regulations or use of unsuitable or damaged tools and equipment can result in serious injury and/or material damage.

- **Motors should only be lifted without any additional load from other products (e.g. connection elements).**
- **Only use permitted lifting, transport and aids with sufficient lifting capacity.**
- **Never stand in the danger zone or under suspended loads.**
- **Secure the product against dropping and tilting.**
- **Wear safety shoes, protective clothing and a safety helmet.**
- **Comply with the national and local regulations.**

Warning!

Danger of injury due to incorrect control or a defect.

Improper control of motors or a defect can result in injuries and unintended and hazardous movements of motors.

Such incorrect behavior can be triggered by:

- **Incorrect installation or mishandling of components**
- **Improper or incomplete wiring**
- **Defective devices (servo drive, motor, position encoder, cables, brake)**
- **Incorrect control (e.g. caused by software error)**

Risk due to hot surfaces

Due to the loss of power from the motor and friction in the gearbox, these components as well as their environment can reach a temperature of more than 100°C.

The resulting heat is released to the environment via the housing and the flange.

Warning!

Risk of burns due to hot surfaces!

Touching hot surfaces (e.g. motor and gearbox housings, as well as connected components), can lead to very severe burns due to the very high temperature of these parts.

- **Do not remain in a dangerous area during operation and secure it from access by unauthorized persons.**
- **Never touch the motor or gearbox housing as well as adjacent surfaces during nominal load operation.**
- **Be aware of hot surfaces also during downtime.**
- **Allow motor and gearbox to cool sufficiently before working on it. Because even after shutting down, there is still a risk of burning for a prolonged period of time.**
- **Always operate the motor or gearbox with all safety devices. You should also do this during short-term testing and trial operations!**

6.2.2 Reversing operation

Warning!

Personal injury and damage to property due to shaft breakage!

The shaft key can become dislodged during heavy reversing operation. In extreme cases, this can cause the shaft end to break, which can lead to severe damage!

- **It is therefore preferable to use a smooth shaft during heavy reversing operation.**

6.2.3 Freely rotating motors

With freely rotating motors, remove any existing shaft keys (or mounting screws or other mounting elements) before operation or implement measures to prevent their ejection. Any shaft protection sleeve present, such as used for transport and storage, is not appropriate protection and must also be removed.

Warning!

Personal injury and damage to property due to ejected elements!

With freely rotating motors, an existing shaft key (or mounting screws or other mounting elements) can be ejected and cause personal injury and damage to property.

- **Remove or secure shaft keys (or mounting screws or other assembly elements) before operation (even during short-term testing and trial operations!).**
- **Any shaft protection sleeve present, such as used for transport and storage, is not appropriate protection and must also be removed.**

6.2.4 Holding brake

The motors can be equipped with an optional holding brake. It is only used to hold the motor shaft in place when no power is applied to the motor.

The maximum motor torque far exceeds the holding torque of the brake.

Danger!

Personal injury and damage to property due to non-intended use of the holding brake!

If the holding brake is used differently than intended, functional failures and accidents involving personal injury or damage to property are possible.

- **Do not use the holding brake for braking under normal operating conditions! It is not intended for normal braking.**
- **Do not use the holding brake to protect personnel! The holding brake does not provide protection for personnel!**
- **Do not use the holding brake to hold loads! They do not ensure a securing function (e.g. against lowering in the case of lifted loads).**
- **Do not load motors with holding brakes axially either during assembly or during operation. It is especially important to prevent axial forces in the direction of the B flange since these forces can cause the brake to fail!**

Note:

Loaded braking during an emergency stop is permitted but reduces its service life.

For further information about the holding brake, see chapter "Technical data".

6.2.5 Gearbox damage caused by overheating

Caution!

Damage caused by exceeding the maximum permissible gearbox temperature!

If the maximum permissible gearbox temperature is exceeded, damage to the gearbox and gaskets is very probable.

- **Sufficient lubrication is not ensured during overheating.**
- **Overheating can damage gaskets. Damage to gaskets leads to loss of lubrication and subsequent overheating.**

Switch off the machine if the maximum permissible temperature is exceeded.

- **If necessary, contact B&R.**
- **Have damaged gaskets replaced only by B&R.**

6.3 Verification

6.3.1 To verify before commissioning

Before commissioning, ensure that

- the drive is undamaged and the motor is not in the danger zone of other equipment.
- the motor is properly aligned and attached.
- the screws are correctly tightened.
- unused connecting threads on the bearing shield of the flange are closed.
- all components attached to the output shaft are secured against unintentional release.
- shaft keys and other mounting elements were removed on freely rotating motors. They can be ejected due to centrifugal force.
- all the necessary protective equipment (mechanical, thermal, electrical) is installed.
- the motor connections are made properly.
- the protective ground conductor system is designed properly and verified.
- the wires do not touch the motor surface.
- the drive is free (release the brake, if necessary).
- the emergency stop functions have been checked.
- the fan (if present) is connected properly and its functionality checked.

Warning!

Personal injury and property damage due to damaged or unsuitable machine components!

Operating a machine with damaged or unsuitable components is a safety risk and can lead to failures. Severe property damage and injuries cannot be excluded.

- **Never operate a machine with a damaged motor or gearbox or any other damaged component.**
- **Never install a damaged component in a machine.**
- **Do not use motors or gearboxes that have already been overloaded during operation.**
- **Before installation, ensure that the motor or gearbox is suitable for the machine.**
- **It is better not to carry out short-term test and trial operations with damaged or inappropriate machine components.**
- **Label damaged or non-operational components in a readily visible location and clearly.**

6.3.2 To verify during commissioning

During commissioning, check that

- the functionality of all motor attachments (protective equipment, encoder, brake, cooling, etc.) has been verified.
- the operating conditions (see chapter "Installation conditions") are observed.
- the brake (if present) is released.
- all electrical attachments and connections are properly designed and secured.
- all protective measures have been implemented in order to prevent contact with voltage-carrying components, hot surfaces and rotating or moving parts and assemblies. Also check whether these protective measures are working properly.
- all output elements have been installed and set up in accordance with the manufacturer's specifications.
- Measures are in place to ensure that the maximum permissible speed n_{max} of the motor cannot be exceeded. The maximum permissible speed n_q is the maximum speed that is permissible for short-time duty.

6.3.3 During operation

During operation, be aware of the following signs that can indicate a malfunction:

- Unusual noises
- Unusual vibrations
- Unusual odors
- Smoke generation
- Unusual temperature development
- Increased power consumption
- Lubricant outlet
- The monitoring or safety device responds

If possible, switch off the machine as soon as possible in order to avoid damage or accidents. Always ensure the safety of other persons as well as your own safety during shutdowns and causal investigation!

In the case of shutdowns, please inform the responsible specialized personnel immediately.

6.4 Faults during operation

In the following table, you can find possible error sources broken down by malfunction as well as information about how to fix them.

Disturbance	Possible error source	Correction
Motor will not start	Controller enable missing	Activate controller enable
	Controller error, encoder error	Read error log on inverter/controller, correct error
	Power supply not present	Check connection and power supply
	Rotating field	Check phase sequence, replace connection line if necessary
	Brake will not release	Check triggering, connections and power supply
	Brake defective	Please contact B&R.
Runs noisily	Insufficient shielding in connection lines	Check shielding connection and grounding
	Controller parameters too high	Optimize controller parameters
Vibrations	Coupling element or machine not properly balanced	Adjust balance
	Power transmission system misaligned	Realign power transmission system
	Mounting screws loose	Check and tighten screw connections
Noise during operation	Foreign bodies in the motor	Please contact B&R.
	Bearing damage	Please contact B&R.
	Damage to gearing on gearbox	Please contact B&R.
The gear motor becomes too warm - the temperature monitoring responds	Power transmission system overloaded	Check motor load and compare with data on type plate
	Insufficient heat dissipation	Ensure sufficient heat dissipation.
	Brake not releasing sufficiently, causing friction	Please contact B&R.
Current consumption too high - motor torque too low	Rest angle is incorrect	Check rest angle and adjust as needed
Gearbox lubricant leaks out	Seal defective	Please contact B&R.

If necessary, contact B&R.

For this, the following information should be provided:

- Order description and serial number (see type plate)
- Type and extent of fault
- Circumstances under which the fault occurred
- Application data (cycle of torque, speed and forces over time, environmental conditions)

7 Inspection and maintenance

Various operating conditions (e.g. operating mode, temperature, speed, load, mounting orientation), can have a significant impact on the service life of lubricants, seals and bearings.

Depending on the degree of pollution present, carry out periodic cleaning in order to ensure the removal of heat loss, among other things.

The following tasks are the responsibility of the operator:

- A maintenance plan and the documentation of inspections and maintenance work is created.
- Gear motors and cooling air-supplying construction are checked for dirt, moisture and leaks.
- Gear motors and cooling air-supplying construction are cleaned.
- Checking cables and connectors for damage.
- All safety devices are tested for safe operation.

7.1 Safety

Assembly is only permitted to be carried out in a voltage-free condition and only by qualified personnel[2)]. Before installation, voltage to the control cabinet must be switched off and prevented from being switched on again.

Only use appropriate equipment and tools. Protect yourself with safety equipment.

Warning!

Personal injury and damage to property caused by unauthorized conversions!

As a result of unauthorized modifications to the product, the performance and limit values can be negatively affected and dangers can arise. Due to this, severe property damage and injuries cannot be excluded.

Therefore, unauthorized conversions are prohibited!

- **Do not carry out any unauthorized modifications or alterations to the product.**
- **If necessary, contact B&R.**

7.1.1 General sources of danger

Tampering of protection or safety devices

Protective and/or safety devices protect you and other persons from dangerous voltage, rotating or moving elements and hot surfaces.

Danger!

Personal injury and property damage caused by tampering of protective equipment!

If protective or safety devices are removed or put out of operation, there is no longer any personal protection and serious personal injury and property damage can occur.

- **Do not remove any safety devices.**
- **Do not put any safety devices out of operation.**
- **Always use all safety devices during short-term test and trial operations!**

Dangerous voltage

To operate the motors, dangerous voltage must be applied to certain parts.

2) The definition of "qualified personnel" can be found in section "Safety" of chapter "General information".

Danger!

Risk of injury due to electric shock!

There is an immediate risk of fatal injury in case of contact with live parts.

If connections are connected or disconnected in the wrong order or under voltage, arcs can arise and persons and contacts can be damaged.

Even if the motor does not turn or is driven externally as a generator, the control and power connections can still conduct voltage!

- **Never touch the connectors when the power is on.**
- **Never disconnect or connect electrical connections to the motor and servo drive under voltage!**
- **Do not remain in the dangerous zone during operation; secure the danger zone from access by unauthorized persons.**
- **Always operate the motor with all of its safety features. You should also do this during short-term testing and trial operations!**
- **Keep all covers and switch cabinet doors closed during operation and for as long as the machine has not been disconnected from the mains.**
- **Before working on motors, gearboxes or servo drives or in the danger zone of your machine, disconnect them completely from the power system and secure them against being switched on again by other persons or automatic systems.**
- **Note the discharging time of an intermediate circuit, if present.**
- **Only connect the measuring instruments in the absence of current and voltage!**

Danger due to electromagnetic fields

Electromagnetic fields are generated by the operation of electrical power engineering equipment such as transformers, drives and motors.

Danger!

Danger to health due to electromagnetic fields!

The functionality of a heart pacemaker can be impaired by electromagnetic fields to such an extent that the wearer experiences harm to his or her health, possibly with a fatal outcome.

- **Persons with pacemakers are not allowed to be in endangered areas.**
- **Warn staff by providing information, warnings, and safety identification.**
- **Secure the danger zone by means of barriers.**
- **Reduce electromagnetic fields at their source (using shielding, for example).**

Dangerous motion

By rotating and positioning motions of the motors, machine elements are moved or driven and loads conveyed.

After switching on the machine, movements of the motor shaft must always be expected! For this reason, higher-level safety precautions need to be put in place to ensure that personnel and machines are protected. This type of protection can be achieved, for example, by using stable mechanical protective equipment such as protective covers, protective fences, protective gates or photoelectric sensors.

In the immediate vicinity of the machine, provide sufficient and easily accessible emergency stop switches to stop the machine as quickly as possible in the event of an accident.

Danger!

Danger of injury due to rotating or moving elements and loads!

By rotating or moving elements, body parts can be drawn in or severed or subjected to impacts.

- **Do not remain in a dangerous area during operation and secure it from access by unauthorized persons.**
- **Before working on the machine, secure it against unwanted movements. Any holding brake present is not suitable for this!**
- **Keep all covers and switch cabinet doors closed during operation and for as long as the machine has not been disconnected from the mains.**
- **Always operate the motor with all of its safety features. You should also do this during short-term testing and trial operations!**
- **Motors can be started automatically via remote control! If appropriate, a corresponding warning symbol must be applied, and protective measures must be implemented to prevent entry into the high-risk area.**

Danger!

Danger of injury due to loads!

Suspended loads can lead to personal injury or death if they fall down. Heavy loads can tilt and trap people or severely injure them.

Failure to comply with instructions, guidelines and regulations or use of unsuitable or damaged tools and equipment can result in serious injury and/or material damage.

- **Motors should only be lifted without any additional load from other products (e.g. connection elements).**
- **Only use permitted lifting, transport and aids with sufficient lifting capacity.**
- **Never stand in the danger zone or under suspended loads.**
- **Secure the product against dropping and tilting.**
- **Wear safety shoes, protective clothing and a safety helmet.**
- **Comply with the national and local regulations.**

Warning!

Danger of injury due to incorrect control or a defect.

Improper control of motors or a defect can result in injuries and unintended and hazardous movements of motors.

Such incorrect behavior can be triggered by:

- **Incorrect installation or mishandling of components**
- **Improper or incomplete wiring**
- **Defective devices (servo drive, motor, position encoder, cables, brake)**
- **Incorrect control (e.g. caused by software error)**

Risk due to hot surfaces

Due to the loss of power from the motor and friction in the gearbox, these components as well as their environment can reach a temperature of more than 100°C.

The resulting heat is released to the environment via the housing and the flange.

Warning!

Risk of burns due to hot surfaces!

Touching hot surfaces (e.g. motor and gearbox housings, as well as connected components), can lead to very severe burns due to the very high temperature of these parts.

- **Do not remain in a dangerous area during operation and secure it from access by unauthorized persons.**
- **Never touch the motor or gearbox housing as well as adjacent surfaces during nominal load operation.**
- **Be aware of hot surfaces also during downtime.**
- **Allow motor and gearbox to cool sufficiently before working on it. Because even after shutting down, there is still a risk of burning for a prolonged period of time.**
- **Always operate the motor or gearbox with all safety devices. You should also do this during short-term testing and trial operations!**

7.2 Motor bearing and holding brake

Motor bearing

In the case of trouble-free operation, we recommend changing the motor bearing after approx. 20,000 operating hours as a general maintenance guideline (calculated bearing mission time L_{h10}: 20,000 operating hours).

Holding brake

Over time, exposure to moisture and contamination can reduce the braking torque. The application should therefore check the braking torque from time to time using the brake test function with the safety factor required for the application.

If the brake is no longer achieving the necessary torque, a refresh cycle can help it achieve the necessary torque again.

- The brake test function in the ACOPOS servo drive used must be enabled.
- During a refresh cycle, the motor is allowed to turn one revolution at a speed of 50 rpm with the brake engaged. This cleans the brake pads and generally helps the brake to once again achieve the torque it needs.
- After the refresh cycle, the brake should be tested again.
- If the brake is still not achieving the necessary torque after 5 refresh cycles, the motor must be replaced.

Replace the motor when the brake no longer reaches its required torque.

If necessary, contact B&R. Repairs to the motor and brake are only permitted to be carried out by B&R!

Note:

The motors can be equipped with an optional holding brake. It is used to hold the motor shaft when no power is applied to the motor. The maximum motor torque far exceeds the holding torque of the brake.

Danger!

Personal injury and damage to property due to non-intended use of the holding brake!

If the holding brake is used differently than intended, functional failures and accidents involving personal injury or damage to property are possible.

- **Do not use the holding brake for braking under normal operating conditions! It is not intended for normal braking.**
- **Do not use the holding brake to protect personnel! The holding brake does not provide protection for personnel!**
- **Do not use the holding brake to hold loads! They do not ensure a securing function (e.g. against lowering in the case of lifted loads).**
- **Do not load motors with holding brakes axially either during assembly or during operation. It is especially important to prevent axial forces in the direction of the B flange since these forces can cause the brake to fail!**

Note:

Loaded braking during an emergency stop is permitted but reduces its service life.

7.3 Gearbox

Caution!

Damage caused by exceeding the maximum permissible gearbox temperature!

If the maximum permissible gearbox temperature is exceeded, damage to the gearbox and gaskets is very probable.

- **Sufficient lubrication is not ensured during overheating.**
- **Overheating can damage gaskets. Damage to gaskets leads to loss of lubrication and subsequent overheating.**

Switch off the machine if the maximum permissible temperature is exceeded.

- **If necessary, contact B&R.**
- **Have damaged gaskets replaced only by B&R.**

Warning!

Risk of burns due to hot lubricant!

Contact with hot lubricants is very likely to cause severe burns.

For gearboxes, the gearbox lubricant is liquid when hot!

- **Do not open the gearbox yourself.**
- **If necessary, contact B&R.**

Gearbox seal

Check the tightness of the gearbox seal every six months or every 2,500 hours (whichever occurs first).

Lubricant

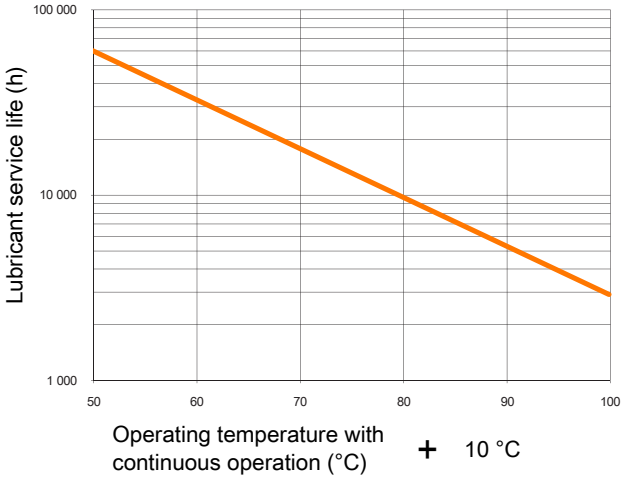
The lubricant in the gearbox reduces friction and wear and is therefore an important factor in terms of a long gear service life.

Do not mix the factory-made lubricant filling with other lubricants; refilling should always be carried out by B&R.

Lubricant service life

The permissible service life of the lubricant of the gearbox can be determined as follows.

- For this, measure the surface temperature in the maximum load condition at the center of the gearbox housing. A thermally constant temperature is achieved at temperature rises of less than 2°C / hour. Never exceed the maximum permissible gearing temperature! Ensure safe handling of the temperature measuring tools and comply with the instructions and safety advice in the Assembly section.
- Add 10°C to the measured temperature. This provides the gearbox core temperature.
- Using the calculated temperature value and the diagram below, you determine the lubricant service life in hours.



Note:

When measuring the temperature, be aware of the conditions that prevail during operation. Even small deviations in the application or environmental conditions can have a negative effect on the temperature measurement.

8 Disposal

Separation of materials

It is necessary to separate different materials so the device can undergo an environmentally friendly recycling process. Disposal must comply with applicable legal regulations.

Component	Disposal	Note
Motors	Electronic recycling	A magnetized rotor must never be transported or delivered outside the stator!
Gearbox (without oil)	Metal waste	
Waste oil (gearbox)	Special waste	
Modules, cables	Electronic recycling	
Batteries	Special waste	Danger of fire: Do not store batteries together with conductive materials during disposal.
Cardboard/Paper packaging	Paper/Cardboard recycling	

8.1 Safety

8.1.1 Protective equipment

Always wear suitable safety clothing and equipment for your personal protection.

8.1.2 Rotor with rare earth magnets

In B&R motors, rotors are installed with rare earth magnets with high magnetic energy densities.

Warning!

Personal injury and property damage due to rare earth magnets!

The motors must not be separated into individual parts.

A magnetized rotor must never be transported or delivered outside the stator!

- **Due to the surrounding magnetic fields, the functionality of a pacemaker can be impaired in such a way that it can lead to bodily harm or even death of the carrier.**
- **The surrounding magnetic fields can affect or destroy electronic and mechanical measuring instruments.**
- **The strong magnetic attractive force can lead to uncontrolled movements of the magnet or the attraction of other objects. Personal injury due to impacts or trapping is possible. If magnets are splintered during collision, personal injury cannot be ruled out.**
- **In potentially explosive atmospheres, a spark generated by magnets can lead to serious explosions and cause personal injury and property damage.**