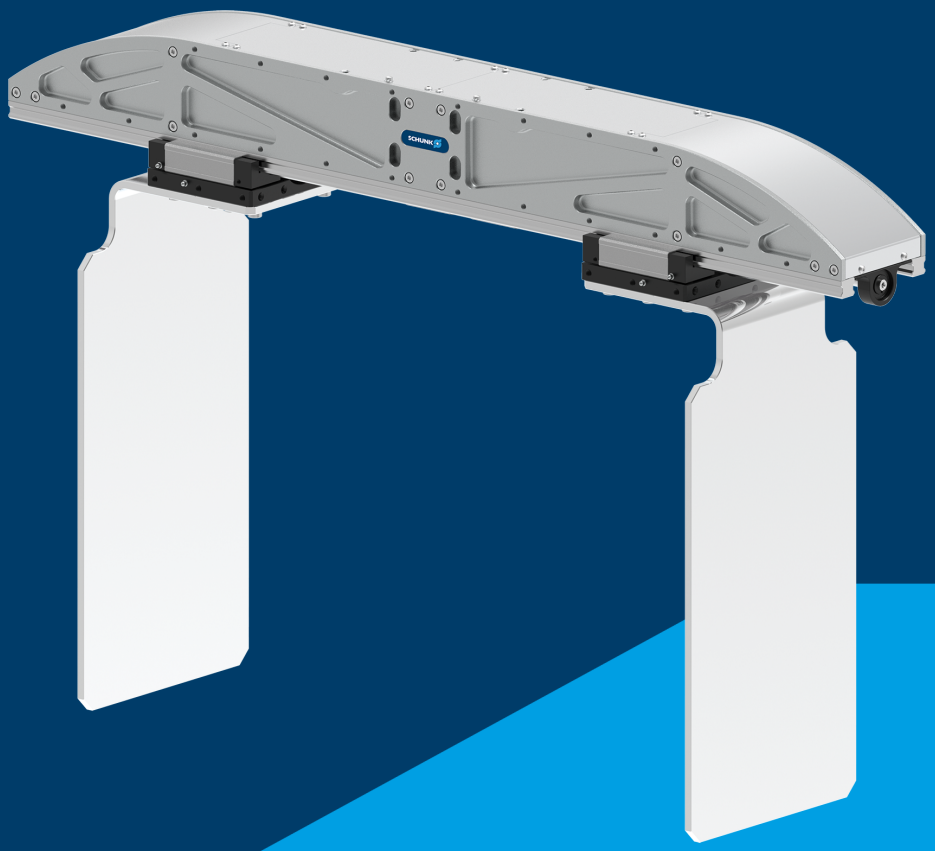


Assembly and Operating Manual
LEG
2-Finger long-stroke gripper

Translation of the original manual

Hand in hand for tomorrow

Imprint

Technical changes:
We reserve the right to make alterations for the purpose of technical improvement.

Document number: 389184

Version: 10.00 | 12/02/2024 | en

Dear Customer,

Thank you for trusting our products and our family-owned company, the leading technology supplier of robots and production machines.

Our team is always available to answer any questions on this product and other solutions. Ask us questions and challenge us. We will find a solution!

Best regards,

Your SCHUNK team

Customer Management
Tel. +49-7133-103-2503
Fax +49-7133-103-2189
cmg@de.schunk.com

Please read the operating manual in full and keep it close to the product.

Table of Contents

1 General

1.1 About this manual

This manual contains important information for a safe and appropriate use of the product.

This manual is an integral part of the product and must be kept accessible for the personnel at all times.

Before starting work, the personnel must have read and understood this operating manual. Prerequisite for safe working is the observance of all safety instructions in this manual.

In addition to these instructions, the documents listed under ▸ 1.1.2 [🗋 6] are applicable.

NOTE: The illustrations in this manual are intended to provide a basic understanding and may deviate from the actual version.

1.1.1 Presentation of Warning Labels

To make risks clear, the following signal words and symbols are used for safety notes.

⚠ DANGER

Dangers for persons!

Non-observance will inevitably cause irreversible injury or death.

⚠ WARNING

Dangers for persons!

Non-observance can lead to irreversible injury and even death.

⚠ CAUTION

Dangers for persons!

Non-observance can cause minor injuries.

CAUTION

Material damage!

Information about avoiding material damage.

1.1.2 Applicable documents

- General terms of business *
- Catalog data sheet of the purchased product *
- Assembly and operating manuals of the accessories *
- Operating manual of the optional servo motor

Die mit Stern (*) gekennzeichneten Unterlagen können unter **schunk.com/downloads** heruntergeladen werden.

1.1.3 Sizes

This operating manual applies to the following sizes:

- LEG 400
- LEG 520
- LEG 760

1.1.4 Variants

This operating manual applies to the following variations:

- LEG... -1..., synchronous with 1 motor
- LEG... -2..., asynchronous with 2 motors
- LEG... -B, without a motor

The respective variant of the product is stated on the name plate, ▶ 3.4 [🗋 18].

1.2 Warranty

If the product is used as intended, the warranty is valid for 24 months from the ex-works delivery date under the following conditions:

- Observe the specified maintenance and lubrication intervals
- Observe the ambient conditions and operating conditions

Parts touching the workpiece and wear parts are not included in the warranty.

1.3 Scope of delivery

The scope of delivery includes

- 2-Finger long-stroke gripper LEG in the version ordered
- Assembly and operating manual for the product including declaration of incorporation
- Accessory pack

Content of the accessory pack:

- 4 x centering sleeves for mounting the product
- 2 x centering sleeves for mounting the finger

Accessory pack for	ID number
LEG 400	5518502
LEG 520	
LEG 760	

Tab.: ID.-No. of the accessory pack

1.4 Accessories

A wide range of accessories are available for this product

For information regarding which accessory articles can be used with the corresponding product variants, see catalog data sheet.

The following accessories are required for the product and may need to be ordered separately:

- Servo motor *
- Motor add-on kit (depending on motor) *
- Cover plate (depending on motor) *
- Peripheral equipment for controlling the motor (depending on motor)
- Cable set (depending on motor)

* Included in the scope of delivery for "with motor" variants

2 Basic safety notes

2.1 Intended use

The product is designed exclusively for gripping and temporarily holding workpieces or objects.

- The product may only be used within the scope of its technical data, ▸ 3 [🗋 16].
- The product is intended for installation in a machine/ automated system. The applicable guidelines for the machine/ automated system must be observed and complied with.
- The product is intended for industrial and industry-oriented use. Its use outside enclosed spaces is only permitted if suitable protective measures are taken against outdoor exposure. The product is not suitable for use in salty air.
- The product can be used within the permissible load limits and technical data for holding workpieces during simple machining operations, but is not a clamping device according to EN 1550:1997+A1:2008.
- Appropriate use of the product includes compliance with all instructions in this manual.
- Any utilization that exceeds or differs from the appropriate use is regarded as misuse.

2.2 Constructional changes

Implementation of structural changes

Modifications, changes or reworking, e.g. additional threads, holes, or safety devices, can damage the product or impair its functionality or safety.

- Structural changes should only be made with the written approval of SCHUNK.

2.3 Spare parts

Use of unauthorized spare parts

Using unauthorized spare parts can endanger personnel and damage the product or cause it to malfunction.

- Use only original spare parts or spares authorized by SCHUNK.

2.4 Gripper fingers

Requirements of the gripper finger

Stored energy can make the product unsafe and risk the danger of serious injuries and considerable material damage.

- Only replace gripper finger if no residual energy can be released.

2.5 Ambient conditions and operating conditions

Required ambient conditions and operating conditions

Incorrect ambient and operating conditions can make the product unsafe, leading to the risk of serious injuries, considerable material damage and/or a significant reduction to the product's life span.

- Make sure that the product is used only in the context of its defined application parameters, ▸ 3 [🗋 16].

2.6 Personnel qualification

Inadequate qualifications of the personnel

If the personnel working with the product is not sufficiently qualified, the result may be serious injuries and significant property damage.

- All work may only be performed by qualified personnel.
- Before working with the product, the personnel must have read and understood the complete assembly and operating manual.
- Observe the national safety regulations and rules and general safety instructions.

The following personal qualifications are necessary for the various activities related to the product:

Trained electrician
Due to their technical training, knowledge and experience, trained electricians are able to work on electrical systems, recognize and avoid possible dangers and know the relevant standards and regulations.

Qualified personnel
Due to its technical training, knowledge and experience, qualified personnel is able to perform the delegated tasks, recognize and avoid possible dangers and knows the relevant standards and regulations.

Instructed person
Instructed persons were instructed by the operator about the delegated tasks and possible dangers due to improper behaviour.

Service personnel of the manufacturer
Due to its technical training, knowledge and experience, service personnel of the manufacturer is able to perform the delegated tasks and to recognize and avoid possible dangers.

2.7 Personal protective equipment

Use of personal protective equipment

Personal protective equipment serves to protect staff against danger which may interfere with their health or safety at work.

- When working on and with the product, observe the occupational health and safety regulations and wear the required personal protective equipment.
- Observe the valid safety and accident prevention regulations.
- Wear protective gloves to guard against sharp edges and corners or rough surfaces.
- Wear heat-resistant protective gloves when handling hot surfaces.
- Wear protective gloves and safety goggles when handling hazardous substances.
- Wear close-fitting protective clothing and also wear long hair in a hairnet when dealing with moving components.

2.8 Notes on safe operation

Incorrect handling of the personnel

Incorrect handling and assembly may impair the product's safety and cause serious injuries and considerable material damage.

- Avoid any manner of working that may interfere with the function and operational safety of the product.
- Use the product as intended.
- Observe the safety notes and assembly instructions.
- Do not expose the product to any corrosive media. This does not apply to products that are designed for special environments.
- Eliminate any malfunction immediately.
- Observe the care and maintenance instructions.
- Observe the current safety, accident prevention and environmental protection regulations regarding the product's application field.

2.9 Transport

Handling during transport

Incorrect handling during transport may impair the product's safety and cause serious injuries and considerable material damage.

- When handling heavy weights, use lifting equipment to lift the product and transport it by appropriate means.

- Secure the product against falling during transportation and handling.
- Stand clear of suspended loads.

2.10 Malfunctions

Behavior in case of malfunctions

- Immediately remove the product from operation and report the malfunction to the responsible departments/persons.
- Order appropriately trained personnel to rectify the malfunction.
- Do not recommission the product until the malfunction has been rectified.
- Test the product after a malfunction to establish whether it still functions properly and no increased risks have arisen.

2.11 Disposal

Handling of disposal

The incorrect handling of disposal may impair the product's safety and cause serious injuries as well as considerable material and environmental harm.

- Follow local regulations on dispatching product components for recycling or proper disposal.

2.12 Fundamental dangers

General

- Observe safety distances.
- Never deactivate safety devices.
- Before commissioning the product, take appropriate protective measures to secure the danger zone.
- Disconnect power sources before installation, modification, maintenance, or calibration. Ensure that no residual energy remains in the system.
- If the energy supply is connected, do not move any parts by hand.
- Do not reach into the open mechanism or movement area of the product during operation.

2.12.1 Protection during handling and assembly

Incorrect handling and assembly

Incorrect handling and assembly may impair the product's safety and cause serious injuries and considerable material damage.

- Have all work carried out by appropriately qualified personnel.
- For all work, secure the product against accidental operation.
- Observe the relevant accident prevention rules.
- Use suitable assembly and transport equipment and take precautions to prevent jamming and crushing.

Incorrect lifting of loads

Falling loads may cause serious injuries and even death.

- Stand clear of suspended loads and do not step into their swiveling range.
- Never move loads without supervision.
- Do not leave suspended loads unattended.

2.12.2 Protection during commissioning and operation

Falling or violently ejected components

Falling and violently ejected components can cause serious injuries and even death.

- Take appropriate protective measures to secure the danger zone.
- Never step into the danger zone during operation.

2.12.3 Protection against dangerous movements

Unexpected movements

Residual energy in the system may cause serious injuries while working with the product.

- Switch off the energy supply, ensure that no residual energy remains and secure against inadvertent reactivation.
- The faulty actuation of conected drives may cause dangerous movements.
- Operating mistakes, faulty parameterization during commissioning or software errors may trigger dangerous movements.
- Never rely solely on the response of the monitoring function to avert danger. Until the installed monitors become effective, it must be assumed that the drive movement is faulty, with its action being dependent on the control unit and the current operating condition of the drive. Perform maintenance work, modifications, and attachments outside the danger zone defined by the movement range.
- To avoid accidents and/or material damage, human access to the movement range of the machine must be restricted. Limit/ prevent accidental access for people in this area due through

technical safety measures. The protective cover and protective fence must be rigid enough to withstand the maximum possible movement energy. EMERGENCY STOP switches must be easily and quickly accessible. Before starting up the machine or automated system, check that the EMERGENCY STOP system is working. Prevent operation of the machine if this protective equipment does not function correctly.

2.12.4 Protection against electric shock

Work on electrical equipment

Touching live parts may result in death.

- Work on the electrical equipment may only be carried out by qualified electricians in accordance with the electrical engineering regulations.
- Lay electrical cables properly, e. g. in a cable duct or a cable bridge. Observe standards.
- Before connecting or disconnecting electrical cables, switch off the power supply and check that the cables are free of voltage. Secure the power supply against being switched on again.
- Before switching on the product, check that the protective earth conductor is correctly attached to all electrical components according to the wiring diagram.
- Check whether covers and protective devices are fitted to prevent contact with live components.
- Do not touch the product's terminals when the power supply is switched on.

Possible electrostatic energy

Components or assembly groups may become electrostatically charged. When the electrostatic charge is touched, the discharge may trigger a shock reaction leading to injuries.

- The operator must ensure that all components and assembly groups are included in the local potential equalisation in accordance with the applicable regulations.
- While paying attention to the actual conditions of the working environment, the potential equalisation must be implemented by a specialist electrician according to the applicable regulations.
- The effectiveness of the potential equalisation must be verified by executing regular safety measurements.

2.13 Notes on particular risks

⚠ DANGER

Danger from electric voltage!

Touching live parts may result in death.

- Switch off the power supply before any assembly, adjustment or maintenance work and secure against being switched on again.
- Only qualified electricians may perform electrical installations.
- Check if de-energized, ground it and hot-wire.
- Cover live parts.

⚠ WARNING

Risk of injury from objects falling and being ejected!

Falling and ejected objects during operation can lead to serious injury or death.

- Take appropriate protective measures to secure the danger zone.

⚠ WARNING

Risk of injury from objects falling in the event of an energy supply failure

In case of an energy supply failure, the gripping force decreases and a secure hold on the gripped workpiece cannot be guaranteed.

- Take suitable protective measures to secure the danger zone.

⚠ WARNING

Risk of injury due to unexpected movements!

If the power supply is switched on or residual energy remains in the system, components can move unexpectedly and cause serious injuries.

- Before starting any work on the product: Switch off the power supply and secure against restarting.
- Make sure, that no residual energy remains in the system.

⚠ WARNING

Risk of injury from crushing and impacts!

Serious injury could occur during movement of the base jaw, due to breakage or loosening of the gripper fingers or if the workpiece is lost.

- Wear suitable protective equipment.
- Do not reach into the open mechanism or the movement area of the product.

⚠ WARNING

Risk of injury due to exposed moving parts!

Rotating and/or linearly moved components may trap/pull in body parts moved linearly and cause severe injuries.

- Make sure that all covers are mounted onto the product.

⚠ WARNING

Risk of injury from sharp edges and corners!

Sharp edges and corners can cause cuts.

- Use suitable protective equipment.

⚠ WARNING

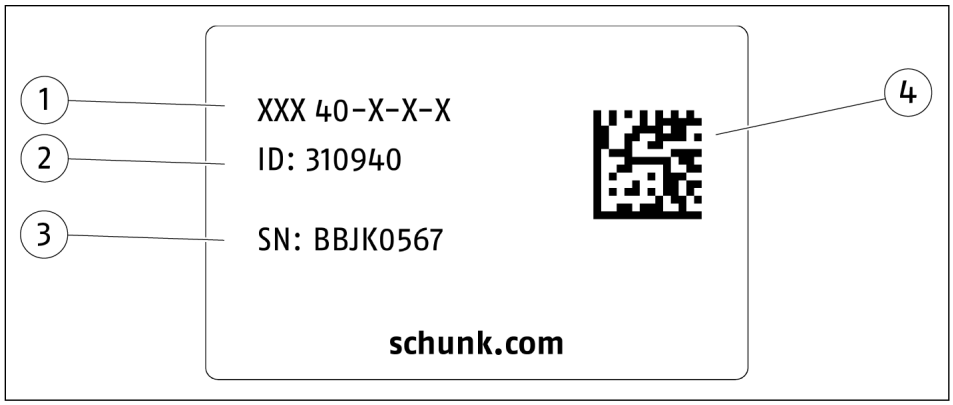
Risk of burns through contact with hot surfaces!

Surfaces of components can heat up severely during operation. Skin contact with hot surfaces causes severe burns to the skin.

- For all work in the vicinity of hot surfaces, wear safety gloves.
- Before carrying out any work, make sure that all surfaces have cooled down to the ambient temperature.

3 Technical data

3.1 Name plate



1	Product designation
2	ID
3	Serial number
4	Data matrix code

Scan code or enter serial number on the web and get all the product information: operating manuals, spare parts packages, software updates and much more.

For further information, visit **schunk.com/serialisierung**

A separate app may be required for scanning with a mobile phone.

3.2 Basic data

Size	LEG					
	400		520		760	
	-1*	-2*	-1*	-2*	-1*	-2*
General operating data						
Stroke per finger [mm]	101	101	161	161	281	281
Gripping force [N] Min. Max.	 300 1050	 300 1500	 300 1050	 300 1500	 300 1050	 300 1050
Max. speed (gripping) [mm/s]	10	10	10	10	10	10
Max. speed (positioning) [mm/s]	276	276	276	276	276	276
Max. acceleration [mm/s²]	1500	1500	1500	1500	1500	1500
Linear travel per revolution [mm/revolution] **	54/13	54/13	54/13	54/13	54/13	54/13
Max. permissible motor torque [Nm]	1.0	0.75	1.0	0.75	1.0	0.75

Size	LEG					
	400		520		760	
	-1*	-2*	-1*	-2*	-1*	-2*
Repeat accuracy	0.05	0.05	0.05	0.05	0.05	0.05
Weight [kg]	5.4	5.4	6.4	6.4	7.9	7.9
Version with a motor						
Motor type	MSM 031B	MSM 031B	MSK 030B	MSK 030B	MSK 030B	MSK 030B
Weight [kg]	6.9	8.3	8.2	9.9	9.7	11.4

* -1: Synchronous version (1 motor)
-2: Asynchronous version (2 motors)

** Specification in:
stroke per finger in mm per number of motor revolutions

More technical data is included in the catalog data sheet. Whichever is the latest version.

NOTE

In the basic version, the motor is not included in the scope of delivery. This can be ordered as an accessory from SCHUNK.

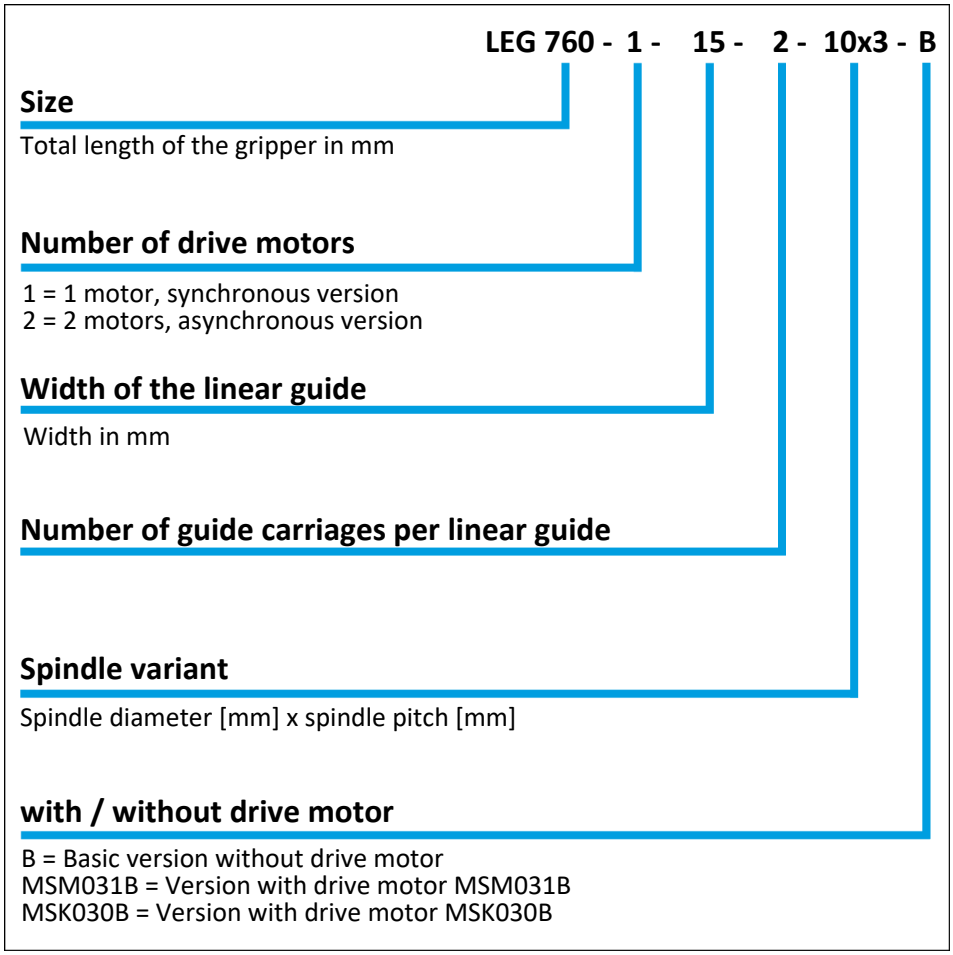
- Observe additional electrical operating data of the installed motor.

3.3 Ambient conditions and operating conditions

Size	LEG					
	400		520		760	
	-1	-2	-1	-2	-1	-2
Ambient temperature [°C] Min. Max.				+5 +55		
Protection class IP *, DIN EN 60529				20		
Noise emission [dB(A)]				≤ 70		

* For use in dirty ambient conditions (e.g. sprayed water, vapors, abrasion or processing dust) SCHUNK offers corresponding product options as standard. SCHUNK also offers customized solutions for special applications in dirty ambient conditions.

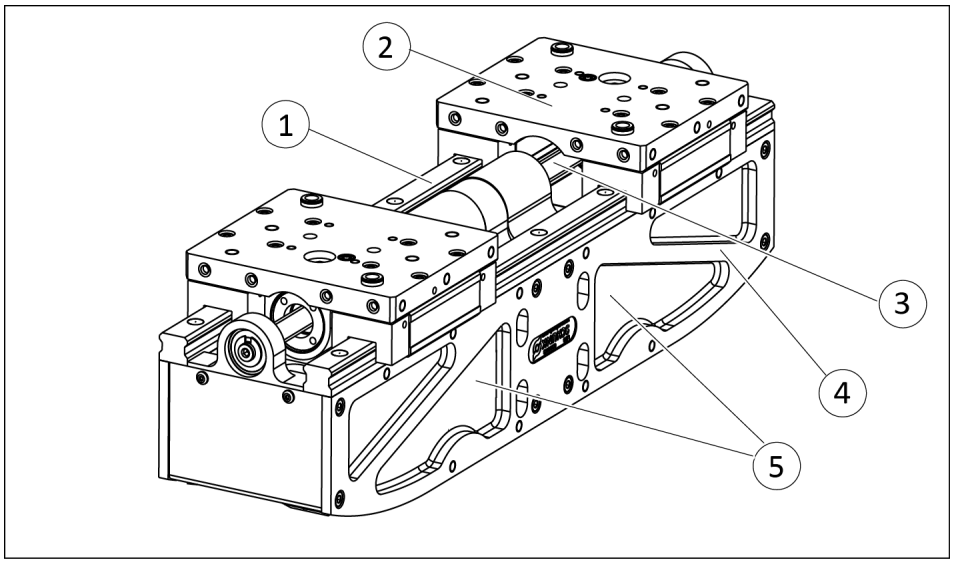
3.4 Type key



Type key

4 Design and description

4.1 Design



2-Finger long-stroke gripper

1	Linear ball guide
2	Base jaw
3	Ball-screw spindle drive
4	Housing
5	Room for adaptable servo motors 1 motor: synchronous version / 2 motors: asynchronous version

4.2 Description

Electric 2-finger parallel gripper with lightweight profile rail guide and adaptable servo motor

Two ball-screw spindle drives, which move the base jaw, are driven by one or two servo motors via a toothed belt.

Asynchronous version: Each jaw can be moved independently thanks to two servo motors.

Synchronous version: One servo motor drives the right-to-left and left-to-right spindles synchronized with a clutch.

5 Assembly

5.1 Installing and connecting

⚠ DANGER

Risk of injury due to electric shock!

Contact with live parts can result in death.

- The electrical connections may only be made by qualified electricians.
- Secure danger zone with suitable protective measures.
- Only connect load and logic voltage of the motor at the end of assembly.
- Only connect voltage supply of the actuation after leaving the danger zone.

⚠ WARNING

Risk of injury due to unexpected movements!

If the power supply is switched on or residual energy remains in the system, components can move unexpectedly and cause serious injuries.

- Before starting any work on the product: Switch off the power supply and secure against restarting.
- Make sure, that no residual energy remains in the system.

⚠ WARNING

Risk of injury due to improperly carried out assembly!

Improperly carried out assembly work can lead to severe injuries and property damage.

- Before beginning work, ensure sufficient assembly clearance.
- Secure components from falling down or over.
- Ensure that all work has been carried out in accordance with the specifications in these instructions.
- Observe tightening torques.

Overview

1. **Only for variant "B" (basis version):** mount the servo motor on the product, ▸ 5.3 [🗋 23].
2. Screw the product to the machine/system, ▸ 5.2.1 [🗋 21].
   ⇨ If necessary, use appropriate connection elements (adapter plates).
3. Secure the gripper fingers to the base jaws, ▸ 5.2.1 [🗋 21].
   ⇨ Observe the maximal tightening torque, admissible screw-in depth and, if necessary, strength class.
4. Connect servo motor electrically, ▸ 5.2.2 [🗋 22].

5.2 Connections

5.2.1 Mechanical connection

5.2.1.1 Connections on the housing

NOTE
The current catalog data sheet contains all dimensions for mounting the product.

The following versions are possible for mounting the product to customer-specific extensions:

Customized adapter plate

- Mounting with a customer-specific adapter plate:
  Here, the product is mounted using an adapter plate.
  The adapter plate and the mounting material must be provided by the customer.

ISO adapter flange

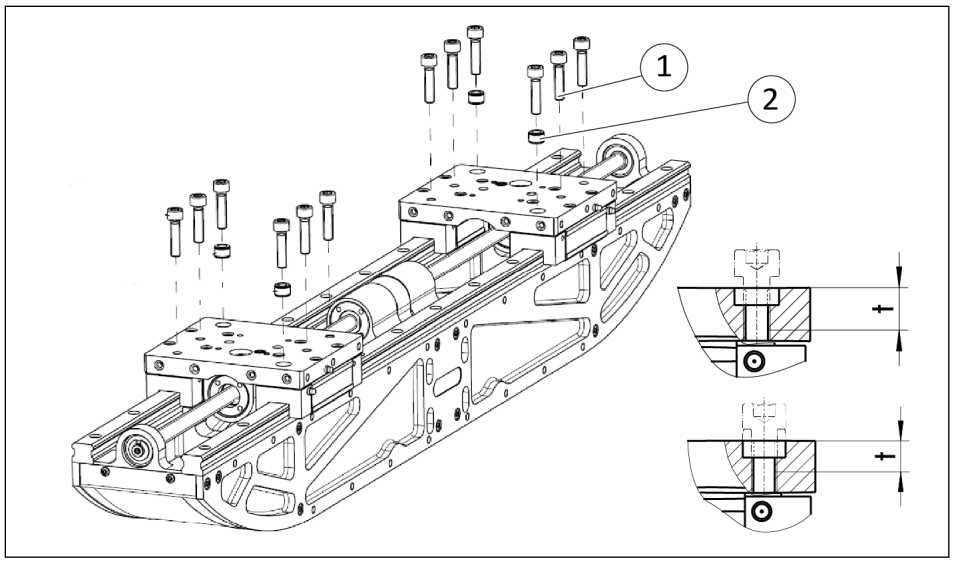
- Mounting with an adapter flange according to DIN ISO 9409-1:
  Here, the product is mounted using an adapter flange with ISO flange dimensions.
  The adapter flange can be ordered as an accessory from SCHUNK; see catalog data sheet. All required screws and centering elements are included with the corresponding adapter flange and the accessory pack of the product.

For mounting the product, SCHUNK recommends the use of an adapter flange in accordance with ISO 9409-1.

The connection dimensions of ISO flange are contained in the catalog.

5.2.1.2 Connections to the base jaws

NOTE
The current catalog data sheet contains all dimensions for mounting the gripper fingers.



Connections at the base jaws

Item	Mounting	LEG		
		400	520	760
1	Thread in base jaws	M6	M6	M6
	Required number of screws per base jaw [piece]	6	6	6
	Max. depth of engagement from locating surface [mm] t	10,5 < t < 11,5	10,5 < t < 11,5	10,5 < t < 11,5
	Max. tightening torque [Nm]	18	18	18
2 *	Centering sleeve [mm]	Ø 10	Ø 10	Ø 10

*) contained in accessory pack

5.2.2 Electrical connection

NOTE

- Information on the electrical connections can be found in the operating instructions of the servo motor, regulator and control unit.
- Observe the maximum electrical energy values, see servo motor operating manual.

5.3 Mount servo motors

NOTE

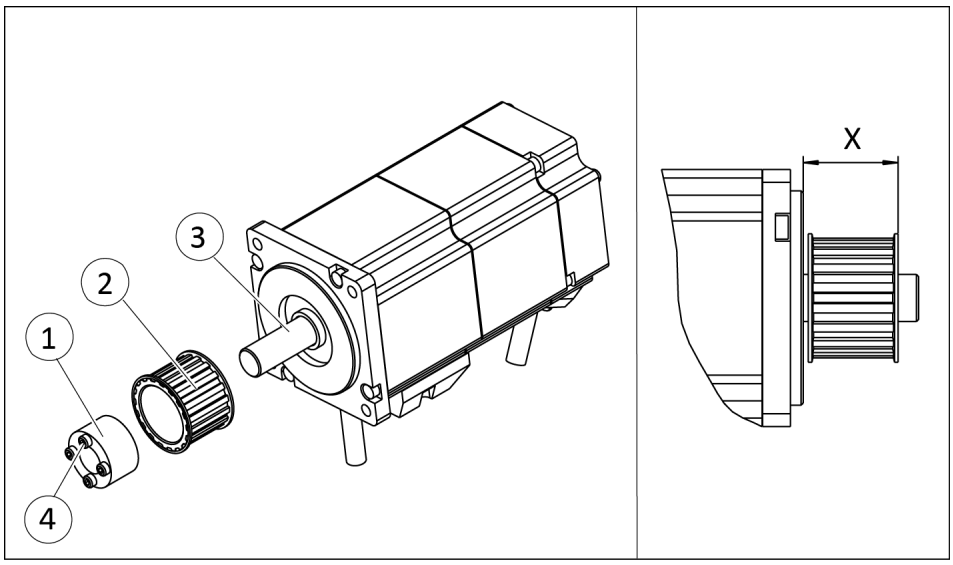
Depending on the version (synchronous or asynchronous), one or two servo motors can be mounted to the product.
The servo motor and the attachments described in the following are not included in the scope of delivery for variant "B" (basic version). The motor add-on kit and a cover plate can be ordered as an accessory from SCHUNK, see catalog data sheet.

When selecting an appropriate motor, the following other criteria must also be considered in addition to the flange dimensions.

Size	LEG					
	400		520		760	
	-1	-2	-1	-2	-1	-2
Required motor torque [Nm]	≥ 1.0	≥ 0.75	≥ 1.0	≥ 0.75	≥ 1.0	≥ 0.75
Max. Speed of rotation [RPM]	≤ 4000	≤ 4000	≤ 4000	≤ 4000	≤ 4000	≤ 4000

5.3.1 Mount belt pulleys

LEG 400, variant with servo motor MSM031B



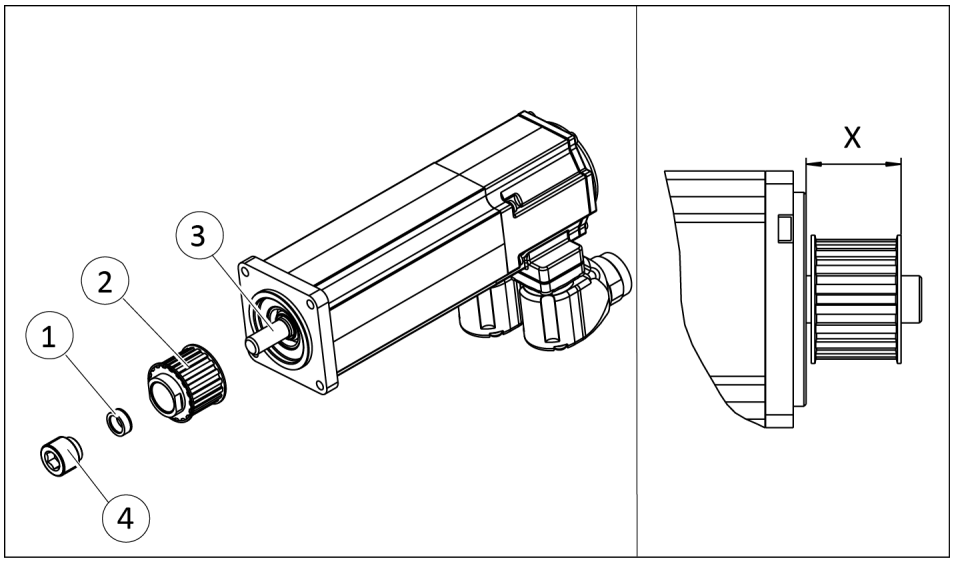
Mount belt pulleys at LEG 400 with servo motor MSM031B

Motor add-on kit Description	Distance "X" [mm]	Tightening torque Screw (4) [Nm]
MAS-LEG 11-050-070-M04	22.2	1.2

1. Insert clamping element (1) into the belt pulley (2).

2. Slide belt pulley (2) onto the motor shaft (3) and set distance "X", see previous table.
3. Tighten four screws (4) to tightening torque, see previous table.
4. **For asynchronous version:** Carry out previous steps for the second motor.

LEG 400, 520, 760



Mount belt pulleys

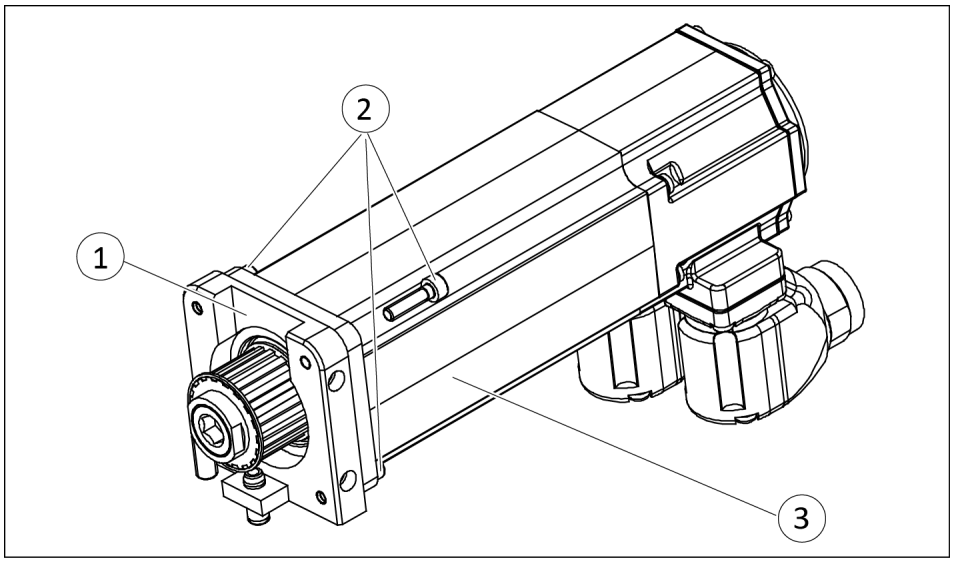
Motor add-on kit Description	Distance "X" [mm]	Tightening torque Threaded ring (4) [Nm]
LEG 400		
MAS-LEG 09-050-070-M05	21.0	20.0
LEG 520		
MAS-LEG 09-050-070-M04	20.7	20.0
MAS-LEG 09-050-070-M05	22.2	20.0
MAS-LEG 09-040-063-M05	20.7	20.0
LEG 760		
MAS-LEG 09-050-070-M04	20.7	20.0
MAS-LEG 09-050-070-M05	22.2	20.0
MAS-LEG 09-040-063-M05	20.7	20.0

1. Insert clamping element (1) into the belt pulley (2).
2. Twist threaded ring (4) in slightly.
3. Slide belt pulley (2) onto the motor shaft (3) and set distance "X", see previous table.
4. Tighten threaded ring (4) with tightening torque, see previous table.
5. **For asynchronous version:** Carry out previous steps for the second motor.

5.3.2 Mount motor adapter

Motor add-on kit Description	Centering Ø [mm]	Bolt pitch circle Ø [mm]	Thread (4 x)
MAS-LEG 11-050-070-M04	50 H7	70	M4
MAS-LEG 09-050-070-M04	40 H7	63	M4
MAS-LEG 09-040-063-M05	40 H7	63	M5
MAS-LEG 09-050-070-M05	50 H7	70	M5

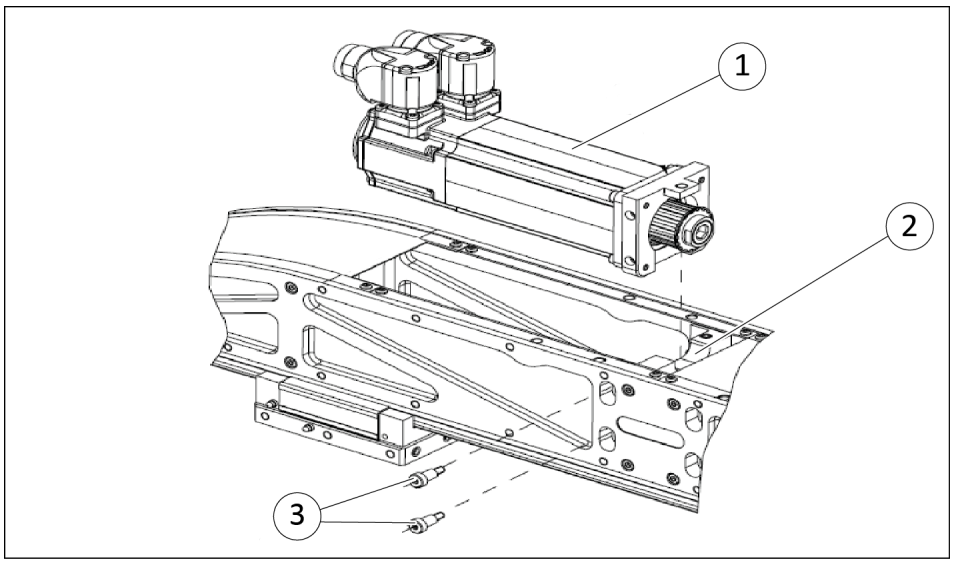
Tab.: Flange dimension of the motor adapter



Mount motor adapter

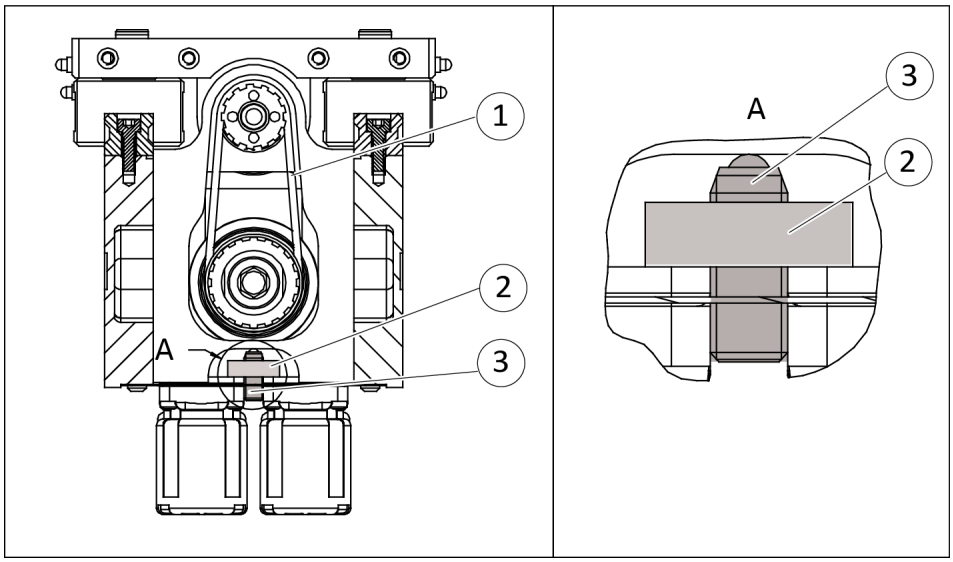
1. Mount motor adapter (1) with four screws (2) to the motor (3).
2. **For asynchronous version:** Carry out previous steps for the second motor.

5.3.3 Mount servo motor to the product



Insert motor

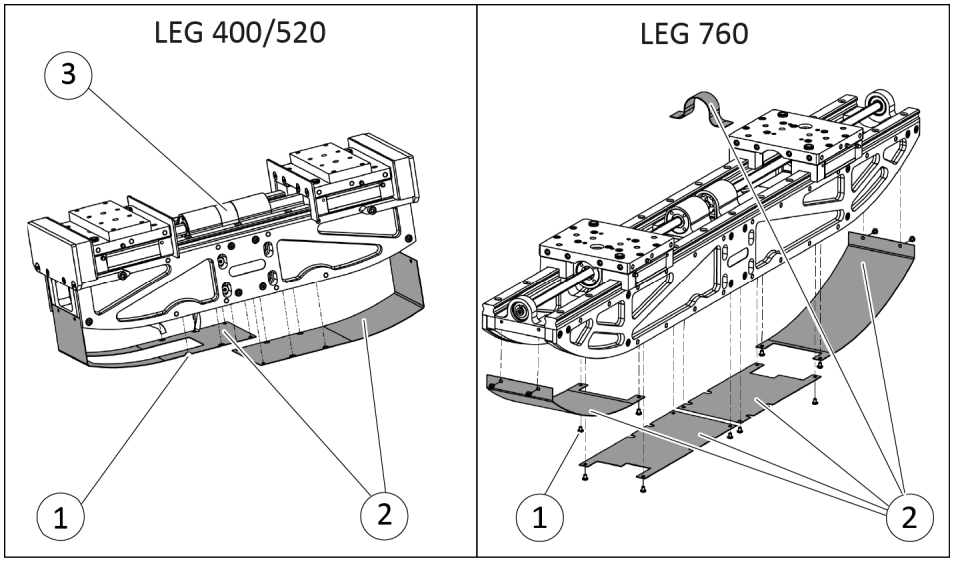
1. Insert pre-assembled motor with motor adapter (1) into the gripper (2).
2. Slide toothed belt over the belt pulley.
3. Loosely tighten four fitting screws (3).



Pre-load toothed belt

4. Screw spring-loaded pressure piece (3) into the clip (2) of the motor adapter.
5. In order to pre-tension the toothed belt (1), screw in the pressure piece (3) until the ball of the pressure piece is half submerged.
   ⇨ The toothed belt is pre-loaded.
6. Firmly tighten all fitting screws.
7. Unscrew spring-loaded pressure piece (3) back out of the clip (2) of the motor adapter and screw into the threaded hole provided.
8. **For asynchronous version:** Carry out previous steps for the second motor.

5.3.4 Mount the covers



Mount the cover plate

1. **Only for LEG 400, 520:** attach cover (3).
2. Fasten all covers (2) with screws (1).

6 Commissioning

⚠ WARNING

Risk of injury due to moving parts!

When moving the gripper fingers, body parts may get squashed/ hit causing severe injuries.

- Only have the product commissioned by specialist personnel.
- Observe position and direction of movement of the gripper fingers.
- In case of a reference loss of the motor/regulator, e.g. after power failure, proceed with particular caution.

CAUTION

Material damage due to motor power too high!

Components might break.

- Do not exceed the permissible motor powers.
- Decrease the motor power accordingly.

CAUTION

Material damage caused by excessive running speed!

Components might become damaged due to impacts if the workpiece collides or in the end stop.

- Observe maximum permissible running speed, ▸ 3 [🗋 16].
- Observe maximum permissible motor torque, ▸ 3 [🗋 16].
- In normal operation, avoid moving to the limit stop.

Information on gripping force

- The gripping force is set using the drive torque of the motor. Where applicable, the input torque is to be converted into an actuating current.
- A multitude of factors impact the gripping force, for instance impact speed, flexibility and mass of the gripper fingers.
- SCHUNK recommends the use of a load cell in order to set the gripping force precisely.
- The "Technical data" chapter contains additional information. ▸ 3 [🗋 16]

Information on running speed

- **Position and size of the workpiece known – prepositioning:** If the position and size of the workpiece is known precisely, the gripper fingers can be moved to a sufficient safety

distance to the workpiece with the maximum permitted speed (prepositioning). From this point onwards, the maximum permissible speed must be used for gripping.

- **Position and size of the workpiece not known:**
  The precise position of the gripping position, e.g. owing to large component tolerances or an inaccurate storage place in the predecessor process, then the complete stroke in the gripping direction has to be traveled at the maximum permissible speed for gripping.

7 Troubleshooting

7.1 Product does not move

Possible cause	Corrective action
No jaw movement, motor turns.	Check the belts.
	Check spindle.
Motor not turning over.	Check electrical connection.
	Check the ease of movement of the spindle.
	Check belt tension.
Minimum input torque not reached.	Check the values in the control.
Position reference set incorrectly or lost.	Reference it again.
Direction of the closing / opening movement.	Check specified values.
Wrong motor left in the control unit.	Check the values in the control.
Motor defective.	Check motor and replace if necessary.
Actuation defective.	Check actuation hardware and software.
Component part defective.	Replace component or send it to SCHUNK for repair.

7.2 The gripping force drops

Possible cause	Corrective action
Spindle defective.	Send the product to SCHUNK with a repair order. Send the product to SCHUNK with a repair order.

7.3 The product does not travel through the entire stroke

Possible cause	Corrective action
Dirt deposits between basic jaws and guidance.	Disassemble and clean the product.
Component part defective.	Send product with a SCHUNK repair order or dismantle product.

If a repair is required, please contact SCHUNK gripping systems service (tel. +49-7133-103-2333, e-mail: service.greifsysteme@de.schunk.com).

8 Maintenance

8.1 Observation of the maintenance and lubrication intervals

CAUTION

Material damage due to hardening lubricants!

Lubricants harden more quickly at temperatures above 60°C, leading to possible product damage.

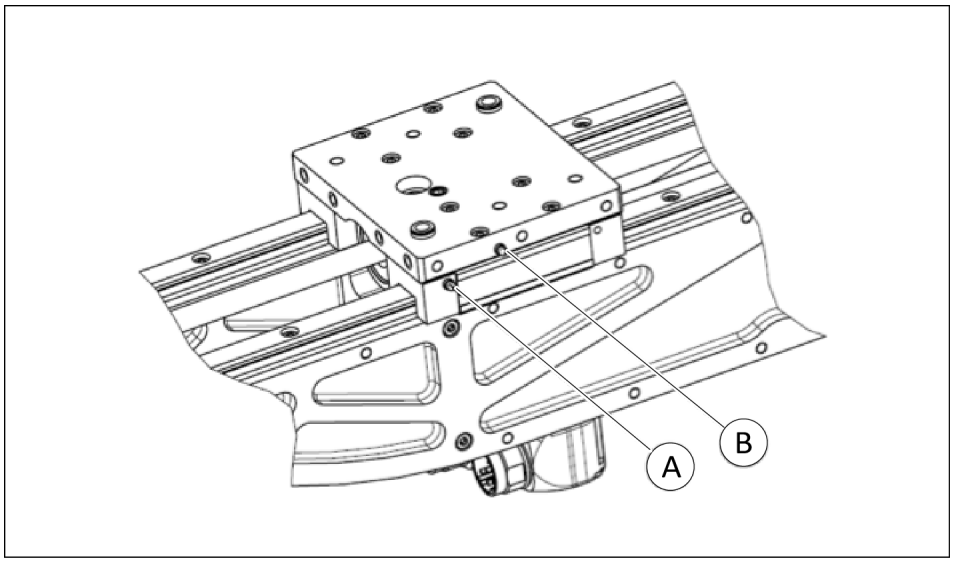
- Reduce the lubricant intervals accordingly.

Maintenance interval for LEG 400 – 760	Maintenance work
1 million cycles	Treat all grease areas with lubricant, ▶ 8.2 [🗋 32].
daily	For short gripping strokes (<30 mm): Travel an entire stroke.
regulary	Dry clean all parts thoroughly, check for damage and wear. Remove coarse contamination like chips and debris Oil or grease external steel parts.

8.2 Lubricants/Lubrication points (basic lubrication)

SCHUNK recommends the lubricants listed.

Provably equivalent lubricants can also be used. If different lubricants are used than the recommended ones, a compatibility test must be carried out.



Greasing areas per slide

Item	Lubricant point	Lubricant
A	Linear ball guide (2x for each base jaw)	SCHUNK grease 10
B	Spindle (1x for each base jaw)	SCHUNK grease 10

Details regarding SCHUNK lubricant designations are available at **schunk.com/lubricants**.

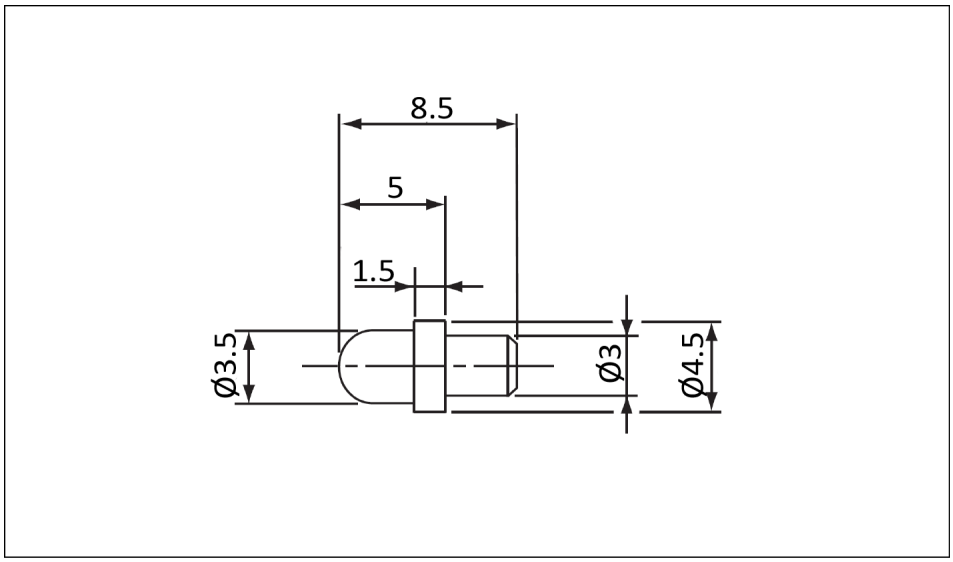
The product contains food-compliant lubricants as standard.
The requirements of standard EN 1672-2:2020 are not fully met.

NOTE

- Change contaminated food-compliant lubricant.
- Observe information in the safety data sheet from the lubricant manufacturer.

NOTE

Lubrication nipples of type PB 107 (SCHUNK ID 9951856) are installed at the factory.



Dimensions of lubrication nipple

8.3 Lubricate product

⚠ WARNING

Risk of injury due to moving parts!

When moving the gripper fingers, body parts may get squashed/ hit causing severe injuries.

- Do not interfere with moving parts during operation.
- Observe position and direction of movement of the gripper fingers.

- Apply the spindle and linear ball guides with grease using the grease nipples, ▸ 8.2 [🗋 32].
  - ⇨ While lubricating, completely open and close the gripper alternately.

9 Translation of the original declaration of incorporation

in terms of the Directive 2006/42/EG, Annex II, Part 1 Section B.

Manufacturer/ Distributor	SCHUNK SE & Co. KG Toolholding and Workholding | Gripping Technology | Automation Technology Bahnhofstr. 106 – 134 D–74348 Lauffen/Neckar

We hereby declare that the partly completed machine described below

Product designation:	2–Finger long–stroke gripper / LEG /pneumatic
ID number	0308040, 0308041, 0308042, 0308043, 0308050, 0308051, 0308052, 0308053, 0308060, 0308061, 0308062, 0308063

meets the following basic occupational health and safety of the Machinery Directive 2006/42/EC:

No. 1.1.1, No. 1.1.2, No. 1.1.3, No. 1.1.5, No. 1.3.2, No. 1.5.3, No. 1.5.4, No. 1.5.6, No. 1.5.8, No. 1.5.10, No. 1.5.11, No. 1.5.13

The partly completed machinery may not be put into operation until it has been confirmed that the machine into which the partly completed machinery is to be installed complies with the provisions of the Machinery Directive (2006/42/EC). The declaration shall be rendered invalid if modifications are made to the product.

Applied harmonized standards, especially:

EN ISO 12100:2010	Safety of machinery – General principles for design – Risk assessment and risk reduction

The special technical documentation according to Annex VII, Part B, belonging to the partly completed machine, has been created.

Person authorized to compile the technical documentation:
Stefanie Walter, Address: see manufacturer's address

Signature: see original declaration

Lauffen/Neckar, February 2024

Dr.–Ing. Manuel Baumeister,
Head of Systems Engineering,
Technology & Innovation

10 UKCA declaration of incorporation

in accordance with the Supply of Machinery (Safety) Regulations 2008.

Manufacturer/ Distributor	SCHUNK Intec Limited Clamping and gripping technology 3 Drakes Mews, Crownhill MK8 0ER Milton Keynes

We hereby declare that on the date of the declaration the following partly completed machine complied with all basic safety and health regulations found in the
"Supply of Machinery (Safety) Regulations 2008".
The declaration shall be rendered invalid if modifications are made to the product.

Product designation:	2-Finger long-stroke gripper / LEG / pneumatic
ID number	0308040, 0308041, 0308042, 0308043, 0308050, 0308051, 0308052, 0308053, 0308060, 0308061, 0308062, 0308063

The partly completed machine may not be put into operation until it has been confirmed that the machine into which the partly completed machine is to be installed complies with the provisions of the "Supply of Machinery (Safety) Regulations 2008".

Applied harmonized standards, especially:

EN ISO 12100:2010	Safety of machinery - General principles for design - Risk assessment and risk reduction

The special technical documentation according to Annex VII, Part B, belonging to the partly completed machine, has been created.

Person authorized to compile the technical documentation:
Marcel Machado, address: refer to manufacturer's address

Lauffen/Neckar, February 2024

Dr.-Ing. Manuel Baumeister,
Head of Systems Engineering,
Technology & Innovation

11 Information on the RoHS Directive, REACH Regulation and Substances of Very High Concern (SVHC)

RoHS Directive

SCHUNK products are classified as "large-scale stationary installations" or as "large-scale stationary industrial tools" within the meaning of Directive 2011/65/EU and its extension 2015/863/EU "on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)", or fulfill their intended function only as part of one. Therefore products from SCHUNK do not fall within the scope of the directive at this time.

REACH Regulation

Products from SCHUNK fully comply with the regulations of Regulation (EC) No. 1907/2006 "concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)" and its amendment 2022/477. SCHUNK attaches great importance to completely avoiding chemicals of concern to humans and the environment wherever possible.

Only in rare exceptional cases do SCHUNK products contain SVHC substances on the candidate list with a mass content above 0.1%. In accordance with Article. 33 (1) of Regulation (EC) No. 1907/2006, SCHUNK complies with its duty to "communicate information on substances in articles" and lists the components concerned and the substances used in an overview that can be viewed at **schunk.com\SVHC**.

Signature: see original declaration

Lauffen/Neckar, February 2024

Dr.-Ing. Manuel Baumeister,
Head of Systems Engineering,
Technology & Innovation

SCHUNK SE & Co. KG
Toolholding and Workholding | Gripping Technology | Automation Technology

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