Assembly and Operating Manual KGG

Small components 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.

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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
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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.

NOTICE

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 *

The documents labeled with an asterisk (*) can be downloaded from **schunk.com/downloads**.

1.1.3 Sizes

This operating manual applies to the following sizes:

- KGG 60
- KGG 70
- KGG 80
- KGG 100
- KGG 140

1.1.4 Variants

This operating manual applies to the following variations:

- KGG 60-20
- KGG 60-40
- KGG 70-24
- KGG 70-48
- KGG 80-30
- KGG 80-60
- KGG 100-40
- KGG 100-80
- KGG 140-60
- KGG - high-temperature (V/HT)
- KGG with H1 lubricant (H1G)

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

- Small components gripper KGG in the version ordered
- Safety information (product-specific instructions available online)
- Accessory pack

1.3.1 Enclosed pack

Content of the accessories pack: ▶ 7.6 [🗋 44].

Size	ID number
60	5520756
60 – High-temperature (HT)	5520757
70	5522670
70 – High-temperature (HT)	395522670
80	5519008
80 – High-temperature (HT)	5520755
100	5522555
100 – High-temperature (HT)	5520759
140	5520758
140 – High-temperature (HT)	5520759

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.

1.4.1 Seal kit

contents of the sealing kit, ▸ 7.6 [🗋 44].

Size	ID number
60	5516931
70	5516933
80	5516935
100	5516937
140	5516939

Tab.: ID. No. spare part kit "Seal kit"

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 [🗋 14].
- 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 for the gripper fingers

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

- Only change gripper fingers if no residual energy can be released.
- Make sure that the product and the top jaws are a sufficient size for the application.

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 [🗋 14].

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 Notes on particular risks

⚠ DANGER

Risk of fatal injury from suspended loads!

Falling loads can cause serious injuries and even death.

- Stand clear of suspended loads and do not step within their swiveling range.
- Never move loads without supervision.
- Do do not leave suspended loads unattended.
- Wear suitable protective equipment.

⚠ 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 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 from sharp edges and corners!

Sharp edges and corners can cause cuts.

- Use suitable protective equipment.

3 Technical data

Designation	KGG
Pressure medium	Compressed air, compressed air quality according to ISO 8573-1:2010 [7:4:4]
Nominal working pressure [bar]	6
Min. pressure [bar]	2
Max. pressure [bar]	8

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

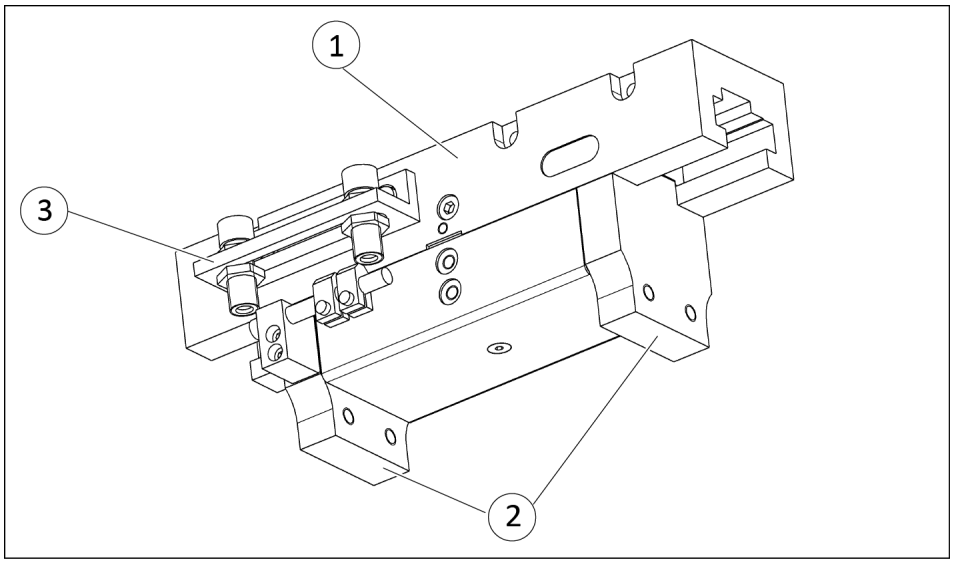
Ambient conditions and operating conditions

Designation	KGG
Ambient temperature [°C] min. max.	 +5 +90
Protection class IP *	40
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.

4 Design and description

4.1 Design



1	Housing	3	Holder for sensors
2	Base jaw		

4.2 Description

The KGG is a narrow 2-finger parallel gripper with long stroke.

Field of application

for universal use in clean environments with light to medium workpiece weights and a large stroke range.

Functional description

The aligned base jaws are actuated with compressed air directly by the fixed piston, which opens and closes them. The base jaws are synchronized by the internal rack and pinion arrangement..

5 Assembly

5.1 Installing and connecting

⚠ 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.

NOTICE

Risk of damage to the gripper!

If the maximum permissible finger weight or the permissible mass moment of inertia of the fingers is exceeded, the gripper can be damaged.

- As a rule, a jaw movement must take place without impact and bouncing.
- To do this, carry out sufficient throttling and/or damping if necessary.
- Observe specifications in the catalog data sheet.

NOTE

- Observe the requirements for the compressed air supply, ▸ 3 [🗋 14].
- In case of compressed air loss (cutting off the energy line), the product loses its dynamic effects and does not remain in a secure position. However, the use of a SDV-P pressure maintenance valve is recommended in this case in order to maintain the dynamic effect for some time.

1. Check the evenness of the mounting surface, ▸ 5.2.1 [🗋 18].
2. Only open the required air connections (main connection or direct connection), ▸ 5.2.2 [🗋 20].
3. Connect the product via the hose-free direct connection.
   - ⇨ Use O-rings from the accessory pack.
   - ⇨ Seal main air connections which are not required with locking screws.

4. OR: Connect compressed air lines to the main air connections "A" and "B".
   ⇨ Screw in air connections (plug connections).
   OR: Screw on throttle valve in order to be able to perform sufficient throttling and/or damping.
5. Screw the product to the machine/system, ▸ 5.2.1 [🗋 18].
   ⇨ If necessary, use appropriate connection elements (adapter plates).
6. Secure the gripper fingers to the base jaws, ▸ 5.2.1 [🗋 18].
7. Connect the sensor, see assembly and operating manual of the sensor.
8. Mount the sensor, ▸ 5.3 [🗋 22].

5.2 Connections

5.2.1 Mechanical connection

⚠ 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.

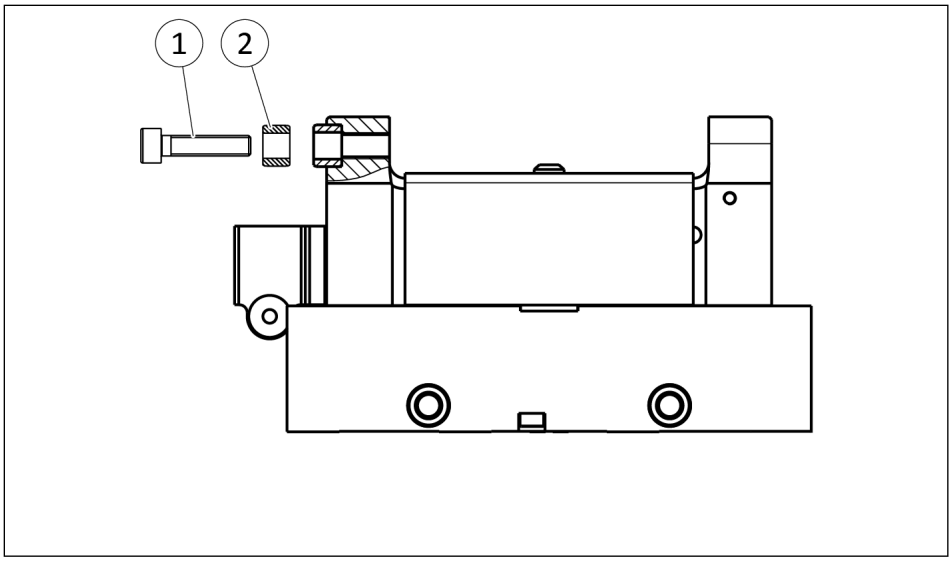
Evenness of the mounting surface

The values apply to the whole mounting surface to which the product is mounted.

Edge length	Permissible unevenness
< 100	< 0.02
> 100	< 0.05

Tab.: Requirements for evenness of the mounting surface (Dimensions in mm)

Connections at the base jaws



Connections to the base jaws

Size	① Thread in base jaws	② Centering sleeve *
60	M3	Ø5
70	M3	Ø5
80	M4	Ø6
100	M5	Ø8
140	M5	Ø8

* Contained in accessory pack.

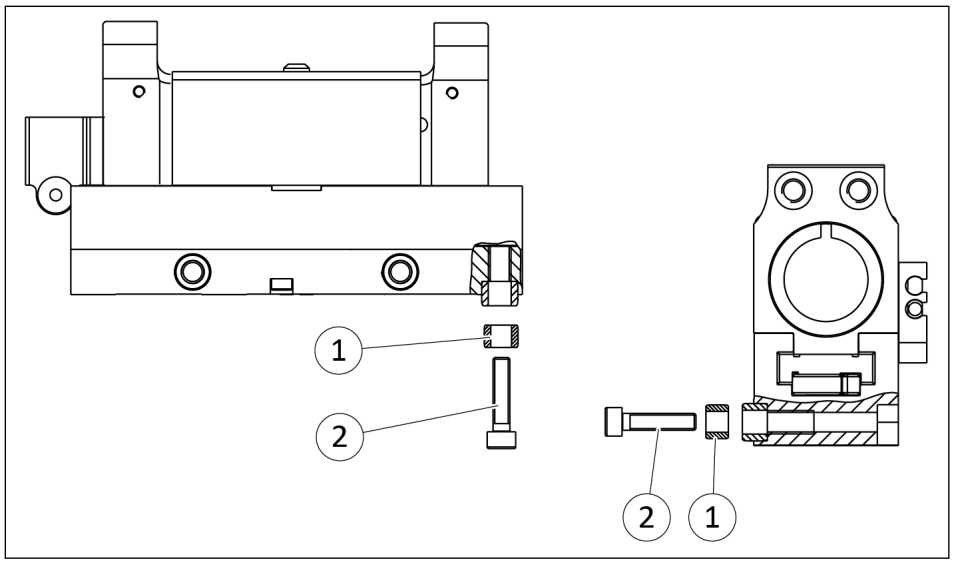
Connections at the housing

The product can be assembled from the top, bottom and laterally.

NOTICE

Material damage due to incorrect assembly!

The maximum depth of engagement of X mm for fastening the gripper on the floor-side and the maximum depth of engagement of Y mm for fastening of the gripper laterally must always be observed.



Connections at the housing

Size	① Centering sleeve *	Top connections ② Thread/Screw-in depth X [mm]	Lateral connections ② Thread/Screw-in depth Y [mm]
60	Ø5	M3 / 6	M3 / 8.4
70	Ø5	M3 / 7.5	M3 / 8.4
80	Ø6	M4 / 7.5	M4 / 7.5
100	Ø8	M5 / 10	M5 / 12
140	Ø8	M5 / 10.7	M5 / 12.9

* Contained in accessory pack.

5.2.2 Air connection

⚠ 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.

NOTICE

Risk of damage to the gripper!

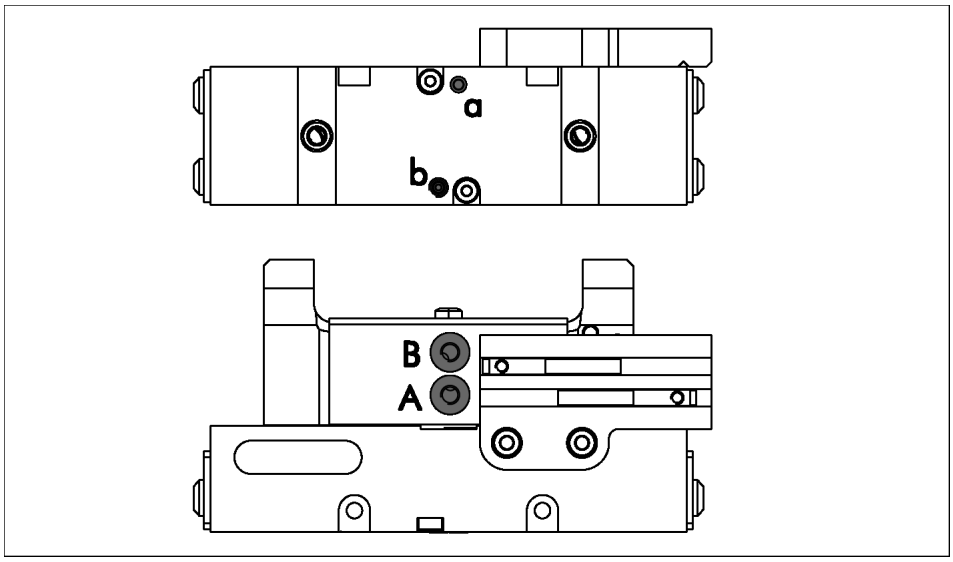
If the maximum permissible finger weight or the permissible mass moment of inertia of the fingers is exceeded, the gripper can be damaged.

- As a rule, a jaw movement must take place without impact and bouncing.
- To do this, carry out sufficient throttling and/or damping if necessary.
- Observe specifications in the catalog data sheet.

NOTICE

Observe the requirements for the air supply, ▸ 3 [🗋 14].

- Open only the air connections that are needed.
- Close unused main air connections using the screw plugs from the enclosed pack.
- For a hose-free direction connection, use the O-rings from the enclosed pack.



Air connections

Size	Hose connection (A = open, B = close)	Hose-free direct connection at the base (a = open, b = close)
60	M3/4	M3
70	M3/4	M3
80	M3/4	M3
100	M3/5	M3
140	M5/6	M3

Tab.: Thread diameter of the air connections

5.3 Mounting the sensor

NOTE

Observe the assembly and operating manual of the sensor for mounting and connecting.

The product is prepared for the use of sensors.

- For the exact type designations of suitable sensors, please see catalog datasheet and ▸ 5.3.1 [🗋 22].
- For technical data for the suitable sensors, see assembly and operating manual and catalog datasheet.
  - The assembly and operating manual and catalog datasheet are included in the scope of delivery for the sensors and are available at schunk.com.
- Information on handling sensors is available at schunk.com or from SCHUNK contact persons.

5.3.1 Overview of sensors

Size	IN 40	RMS 22	MMS 22	MMS 22-A	MMS-P 22	MMS 22-PI1	MMS 22-PI2	MMS 22-IOL
60-20	✓	✓	✓	✓	✓	✓	✓	✓
60-40	✓	✓	✓	⊘	⊘	✓	⊘	⊘
70-24	✓	✓	✓	✓	✓	✓	⊘	✓
70-48	✓	✓	✓	⊘	⊘	✓	⊘	⊘
80-30	✓	✓	✓	⊘	✓	✓	⊘	⊘
80-60	✓	✓	✓	⊘	⊘	✓	⊘	⊘
100-40	✓	✓	✓	⊘	⊘	✓	⊘	⊘
100-80	✓	✓	✓	⊘	⊘	✓	⊘	⊘
140-60	✓	✓	✓	⊘	⊘	✓	⊘	⊘

5.3.2 Switch-off hysteresis for magnetic switches

Sensors MMS 22, MMS 22-PI1, MMS 22-PI2 and MMS-P 22

The smallest detectable difference in stroke is defined in the following table:

For products with X mm nominal stroke per jaw	Min. query range per jaw/ min. queried stroke difference per jaw
X ≤ 5 mm	30 % of the nominal stroke per jaw
X > 5 mm to X ≤ 10 mm	20 % of the nominal stroke per jaw
X > 10 mm	10 % of the nominal stroke per jaw

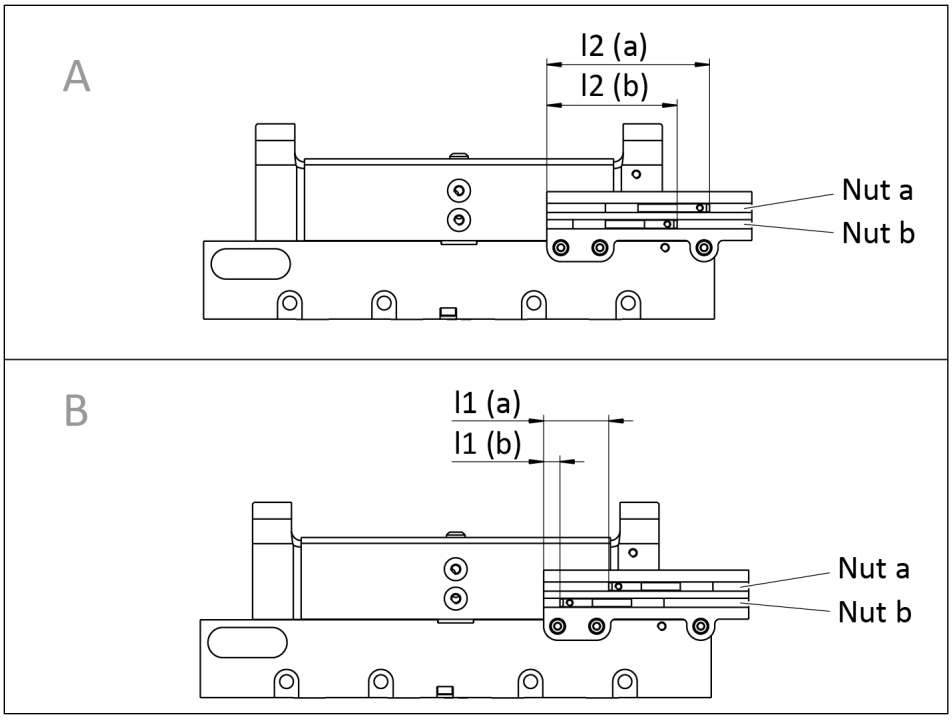
Tab.: The smallest detectable difference in stroke based on the nominal stroke

Example: Product with 7 mm nominal stroke per jaw

7 mm * 20% = 1.4 mm

5.3.3 Setting dimensions for magnetic switches

Measure the setting dimensions l1 (a) and l1 (b) or l2 (a) and l2 (b) from the edge of the bracket to the front of the sensor.



Setting dimensions l1 (a) and l1 (b) or l2 (a) and l2 (b)
(A: view of cable outlet left; B: view of cable outlet right)

Tab.: A: Left cable outlet

Size	Setting dimension [mm]	MMS 22-A	MMS-P 22	MMS 22-PI1	MMS 22-PI2	MMS 22-IOL
60-20	l2 (a)	34	34	37.9	37.9	37.2
60-20	l2 (b)	21	21	24.9	24.9	24.2
60-40	l2 (a)	–	–	*	–	–
60-40	l2 (b)	–	–	*	–	–
70-24	l2 (a)	38	39	41.9	–	41.2
70-24	l2 (b)	21	23	24.9	–	24.2
70-48	l2 (a)	–	–	*	–	–
70-48	l2 (b)	–	–	*	–	–
80-30	l2 (a)	–	38	39.4	–	–
80-30	l2 (b)	–	20	23.9	–	–
80-60	l2 (a)	–	–	*	–	–
80-60	l2 (b)	–	–	*	–	–
100-40	l2 (a)	–	–	*	–	–
100-40	l2 (b)	–	–	*	–	–
100-80	l2 (a)	–	–	*	–	–
100-80	l2 (b)	–	–	*	–	–

Tab.: B: Right cable outlet

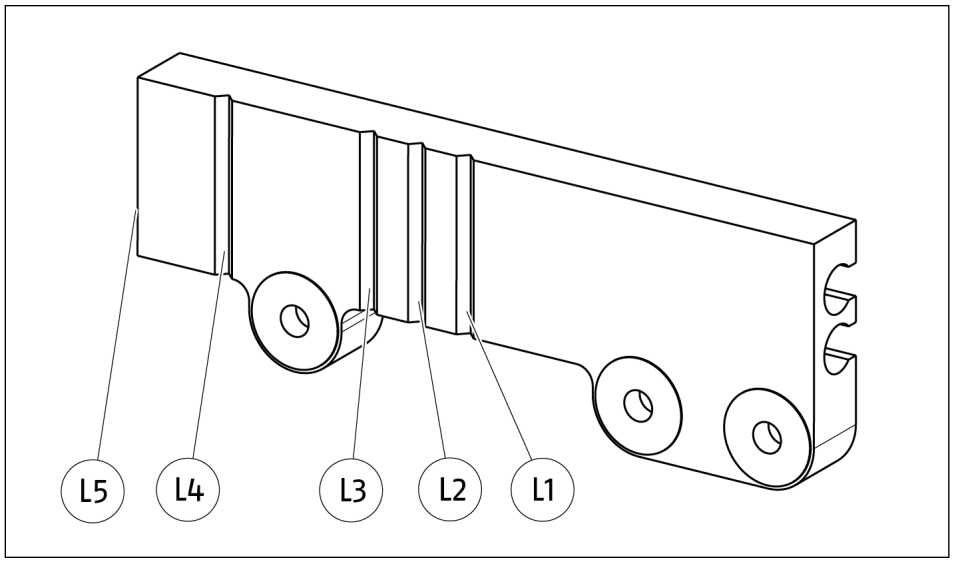
Size	Setting dimension [mm]	MMS 22-A	MMS-P 22	MMS 22-PI1	MMS 22-PI2	MMS 22-IOL
60-20	l2 (a)	14	14	14	14	14
60-20	l2 (b)	1	1	1	1	1
60-40	l2 (a)	–	–	*	–	–
60-40	l2 (b)	–	–	*	–	–
70-24	l2 (a)	18	19	18	–	18
70-24	l2 (b)	1	3	1	–	1
70-48	l2 (a)	–	–	*	–	–
70-48	l2 (b)	–	–	*	–	–
80-30	l2 (a)	–	18	15.5	–	–
80-30	l2 (b)	–	0	0	–	–
80-60	l2 (a)	–	–	*	–	–
80-60	l2 (b)	–	–	*	–	–
100-40	l2 (a)	–	–	*	–	–
100-40	l2 (b)	–	–	*	–	–
100-80	l2 (a)	–	–	*	–	–
100-80	l2 (b)	–	–	*	–	–

* With this size, the magnetic switch MMS 22-PI1 can only be set using the "Optimum Mode" method, ▶ 5.3.8 [🗋 33].

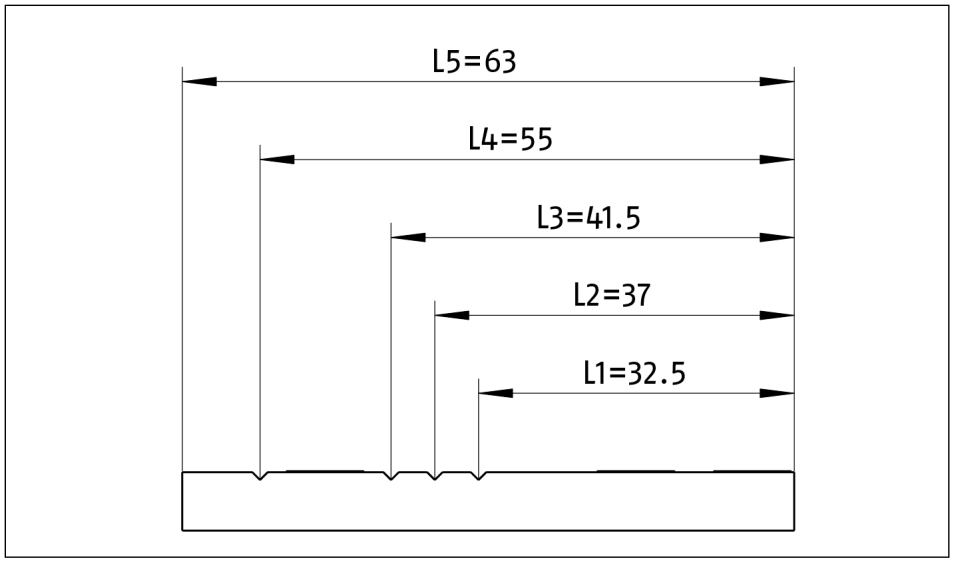
5.3.3.1 Shorten sensor holder

NOTE

The sensor holder can be shortened at the notches, e.g. for smaller sizes to reduce interfering contours. SCHUNK recommends cutting the sensor holder to size according to the following table.



Notches on sensor holder



Dimensioning of the notches

Tab.: Left cable outlet

Size	Groove	MMS 22	MMS 22-A	MMS-P 22	MMS 22-PI1	MMS 22-PI2	MMS 22-IOL
60-20	a	L3	L2	L2	L3	L3	L3
	b	L1	L1	L1	L1	L1	L1
64-40	a	L4	-	-	***	-	-
	b	L2	-	-	***	-	-
70-24	a	L4	L3	L3	L4	-	L3
	b	L1	L1	L1	L1	-	L1

Size	Groove	MMS 22	MMS 22-A	MMS-P 22	MMS 22-PI1	MMS 22-PI2	MMS 22-IOL
70-48	a	L5	-	-	***	-	-
	b	L1	-	-	***	-	-
80-30	a	L4	-	L3	L3	-	-
	b	L1	-	L1	L1	-	-
80-60	a	L5	-	-	***	-	-
	b	L4	-	-	***	-	-
100-40	a	L4	-	-	***	-	-
	b	L2	-	-	***	-	-
100-80	a	**	-	-	***	-	-
	b	L5	-	-	***	-	-

Tab.: Right cable outlet

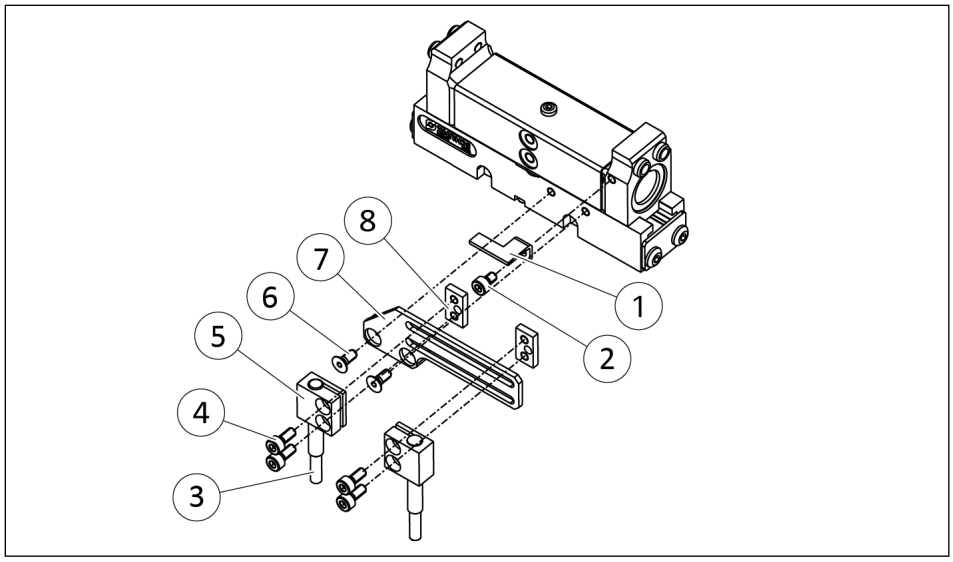
Size	Groove	MMS 22	MMS 22-A	MMS-P 22	MMS 22-PI1	MMS 22-PI2	MMS 22-IOL
60-20	a	L3 *	L2	L2	L2	L2	L2
	b	L1 *	L1	L1	L1	L1	L1
60-40	a	L4 *	-	-	***	-	-
	b	L3 *	-	-	***	-	-
70-24	a	L4	L3	L3	L3	-	L3
	b	L4	L1	L1	L1	-	L1
70-48	a	L5 *	-	-	***	-	-
	b	L5	-	-	***	-	-
80-30	a	L4	-	L3	L2	-	-
	b	L2	-	L1	L1	-	-
80-60	a	L5 *	-	-	***	-	-
	b	L4	-	-	***	-	-
100-40	a	L5	-	-	***	-	-
	b	L3 *	-	-	***	-	-
100-80	a	**	-	-	***	-	-
	b	L5	-	-	***	-	-

- \- not possible
- * with sensor overhang
- ** only "Gripper closed" monitoring possible
- *** With this size, the magnetic switch MMS 22-PI1 can only be set using the "Optimum Mode" method, ▶ 5.3.8 [🗋 33].
  If required, the optional shortening of the sensor holder can be carried out individually based on the determined sensor position.

5.3.4 Mounting inductive proximity switch IN 40

Installing the sensor

1. Remove standard holder.



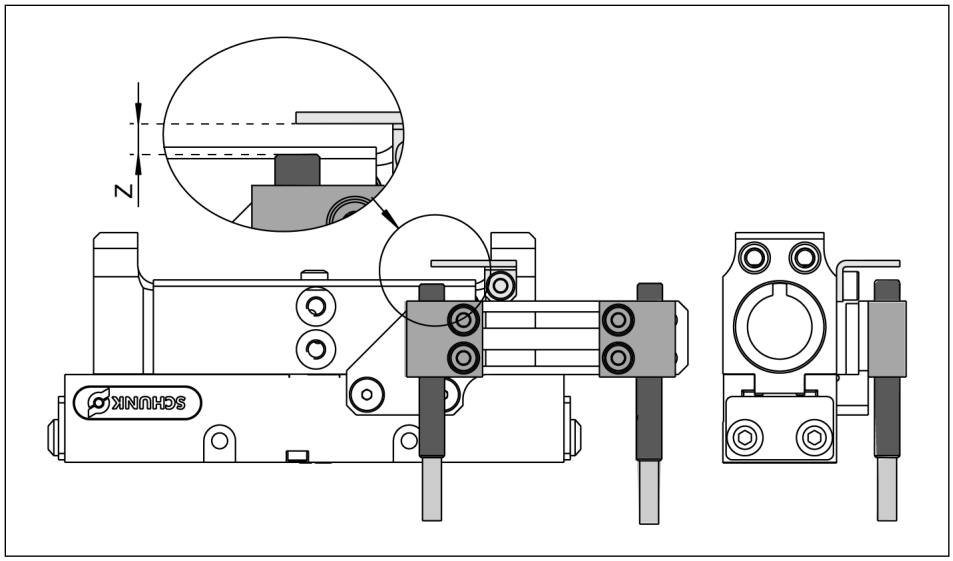
Installing the sensor with mounting kit

2. Fasten the switching lug (1) with screw (2) horizontally on the right gripper finger.
3. Insert sensor (3) from below into holder (5).
4. Insert the screws (4) into the holder (5).
5. Place the holder (5) onto the holder (7) from above and screw the screws (4) to the clamping plate (8).
6. Secure holder (7) to the product with the screws (6).

Adjust the sensor

NOTE

Distance Z, between the control cam and the upper edge of the sensor, must not exceed 0.8 mm.



Distance Z between control cam and upper edge of the sensor

Position "Gripper open" or "Part gripped (I.D. gripping)"

1. Put product in the position in which it is to be set.
2. Gripper open: Slide the holder (5) together with the sensor (3) to the right end of the holder (7). Slowly move the holder (5) to the left so that the sensor switches.
3. Secure the holder (5) in this position with screws (4).
4. Bring the product into position "Gripper open" or "Part gripped (I.D. gripping)" and test the function.

Position "Gripper closed" or "Part gripped (O.D. gripping)"

1. Put product in the position in which it is to be set.
2. Slide the holder (5) together with the sensor (3) to the left end of the holder (7). Slowly move the holder (5) to the right so that the sensor switches.
3. Secure the holder (5) in this position with screws (4).
4. Bring the product into position "Gripper closed" or "Part gripped (O.D. gripping)" and test the function.

5.3.5 Mounting magnetic switch MMS 22 / RMS 22

NOTICE

Risk of damage to the sensor during assembly!

- Observe the maximal tightening torque.

NOTE

Ferromagnetic material changes the switching positions of the sensor. For example: Adapter plate made of ordinary steel.

At ferromagnetic adapter plates:

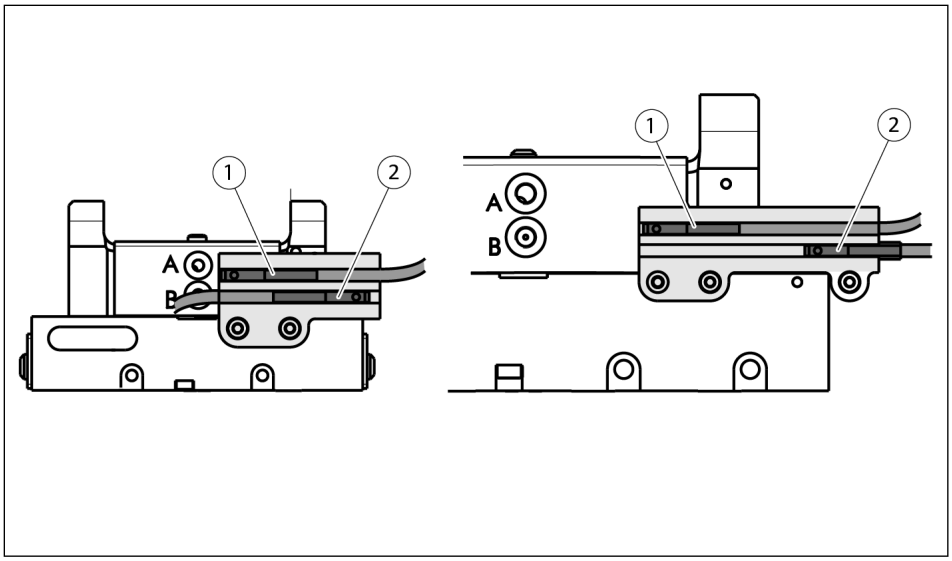
- First mount the product on the adapter plate.
- Then set the position of the magnetic switch.

The RMS sensors have a larger hysteresis than the MMS sensors. This means that short gripper strokes may not be able to be monitored with the RMS sensors.

Positioning the magnetic switch

NOTE

The RMS magnetic switches have two switching points. Make sure that the correct switching point is set.



Position of the magnetic switches

Position "Gripper open" or "Part gripped (I.D. gripping)"

1. Put product in the position in which it is to be set.
2. Slide the sensor 2 (2) from the right into the groove on the holder until it switches.
3. Secure the sensor 2 (2) in this position using the set screw.
4. Bring the product into position "Gripper open" or "Part gripped (I.D. gripping)" and test the function.

Position "Gripper closed" or "Part gripped (0.D. gripping)"

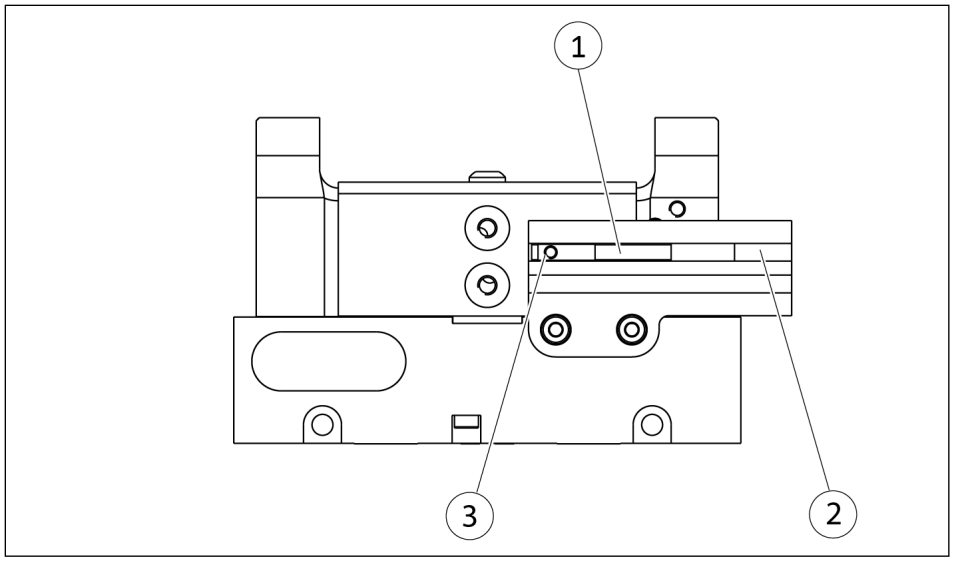
1. Put product in the position in which it is to be set.
2. Slide the sensor 1 (1) from the left into the groove on the holder until it switches.
3. Secure the sensor 1 (1) in this position using the set screw.
4. Bring the product into position "Gripper closed" or "Part gripped (0.D. gripping)" and test the function.

5.3.6 Mounting analog magnetic switch MMS 22-A

NOTICE

Risk of damage to the sensor during assembly!

- Observe the maximal tightening torque.



NOTE

If there is no T-nut available, slide the sensor according to dimension l1 into the groove (2), ▸ 5.3.3 [🗋 23].

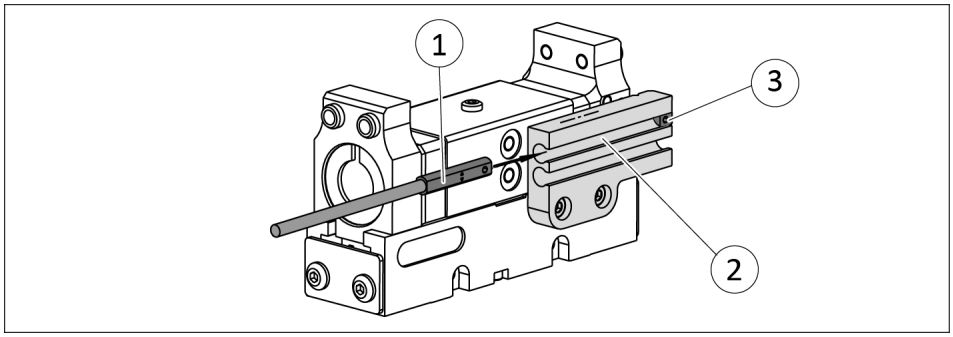
1. Turn the sensor (1) into the groove (2).
   OR: Slide the sensor (1) into the groove (2) until the sensor (1) stops at the T-nut (3).
2. Mount the sensor (1) using the set-screw.
   Tightening torque: 10 Ncm
3. Adjust sensor (1), see Translation of Sensor Assembly and Operating Manual.

5.3.7 Mounting programmable MMS-P 22 magnetic switch

NOTICE

Risk of damage to the sensor during assembly!

- Observe the maximal tightening torque.



NOTE

If there is no T-nut available, slide the sensor according to dimension l1 into the groove (2), ▸ 5.3.3 [🗋 23].

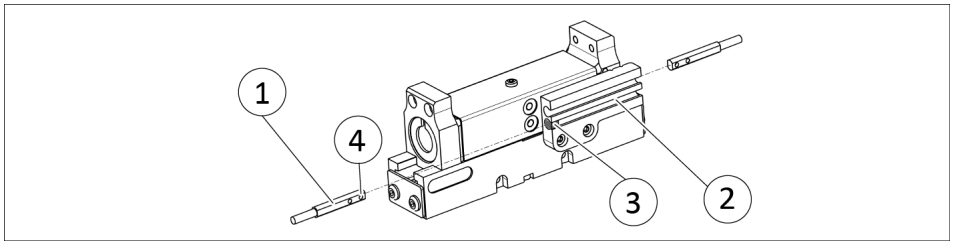
1. Turn the sensor (1) into the groove (2).
   OR: Slide the sensor (1) into the groove (2) until the sensor (1) stops at the T-nut (3).
2. Secure the sensor (1) using the set-screw (4).
   Tightening torque: 10 Ncm
3. Adjust sensor (1), see sensor assembly and operating manual.

5.3.8 Mounting magnetic switch MMS 22-PI1

NOTICE

Risk of damage to the sensor during assembly!

- Observe the maximal tightening torque.



NOTE

The magnetic switch MMS 22-PI1 can be adjusted and taught in two ways.

- "Standard mode" allows for quick installation on the T-nut preset by SCHUNK in the groove or the defined setting dimension "l1."
- In "Optimal Mode", the sensor identifies the optimal position in the groove itself.
  SCHUNK recommends "Optimal Mode" for setting the sensors.

Setting the sensor in "Optimum mode"

1. Put product in the position in which it is to be set.
2. Hold teaching tool to the sensor 1 (1) until the sensor flashes.
3. Slide sensor 1 (1) into the groove (2), until the sensor 1 flashes rapidly.
   ⇨ The optimum position is displayed.
4. Secure the sensor 1 (1) using the set-screw (3).
   Tightening torque: 10 Ncm
5. Hold teaching tool to the sensor 1 (1) to confirm the position.
   ⇨ The sensor 1 (1) has been taught in.
6. Repeat steps for sensor 2.

Alternatively for size 60 – 20, 70 – 24 and 80 – 30:
Setting the sensor in "Standard mode"

NOTE

If there is no T-nut available, slide the sensor according to dimension l1 into the groove (2), ▸ 5.3.3 [🗋 23].

1. Turn the sensor 1 (1) into the groove (2).
   OR: Slide the sensor 1 (1) into the groove (2) until the sensor 1 (1) stops at the T-nut (3).

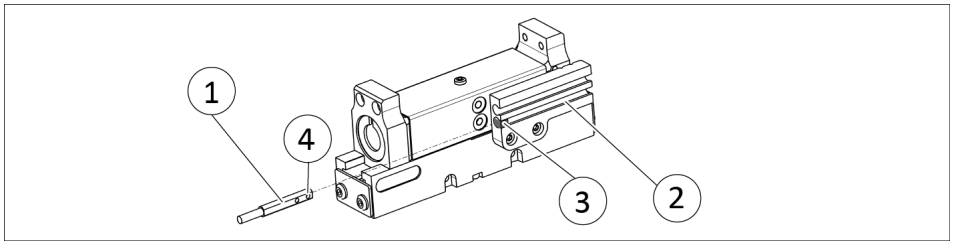
2. Secure the sensor 1 (1) using the set-screw (4).
   Tightening torque: 10 Ncm
3. Adjust sensor 1 (1), see sensor assembly and operating manual.
4. Repeat steps for sensor 2.

5.3.9 Mounting magnetic switch MMS 22-PI1

NOTICE

Risk of damage to the sensor during assembly!

- Observe the maximal tightening torque.



NOTE

If there is no T-nut available, slide the sensor according to dimension l1 into the groove (2), ▸ 5.3.3 [🗋 23].

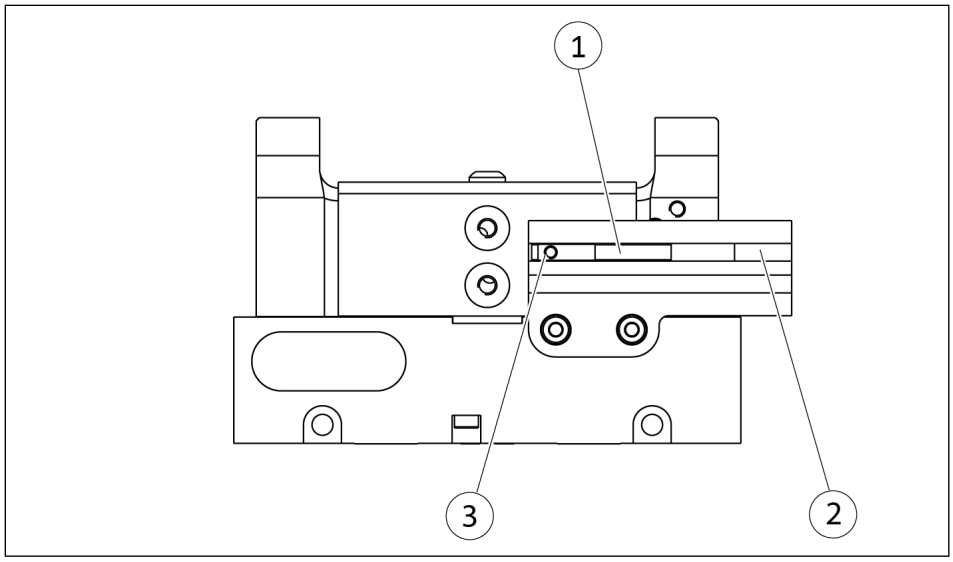
1. Turn the sensor (1) into the groove (2).
   OR: Slide the sensor (1) into the groove (2) until the sensor (1) stops at the T-nut (3).
2. Secure the sensor (1) using the set-screw (4).
   Tightening torque: 10 Ncm
3. Adjust sensor (1), see sensor assembly and operating manual.

5.3.10 Mounting magnetic switch MMS 22-I0L

NOTICE

Risk of damage to the sensor during assembly!

- Observe the maximal tightening torque.



NOTE

If there is no T-nut available, slide the sensor according to dimension l1 into the groove (2), ▸ 5.3.3 [🗋 23].

1. Turn the sensor (1) into the groove (2).
   OR: Slide the sensor (1) into the groove (2) until the sensor (1) stops at the T-nut (3).
2. Mount the sensor (1) using the set-screw.
   Tightening torque: 10 Ncm
3. Adjust sensor (1), see Translation of Sensor Assembly and Operating Manual.

6 Troubleshooting

6.1 Product is not moving

Possible cause	Corrective action
Base jaws jam in housing, e.g. mounting surface is not sufficiently even.	Check the evenness of the mounting surface. ▸ 5.2.1 [🗋 18]
	Loosen the mounting screws of the product and actuate the product again.
Pressure drops below minimum.	Check air supply. ▸ 5.2.2 [🗋 20]
Compressed air lines switched.	Check compressed air lines. ▸ 5.2.2 [🗋 20]
Proximity switch defective or set incorrect.	Readjust or change sensor.
Unused air connections open.	Close unused air connections.
Flow control valve closed.	Open the flow control valve.
Component part defective.	Replace component or send it to SCHUNK for repair.

6.2 Product is not executing the complete stroke

Possible cause	Corrective action
Dirt deposits between cover and piston.	Clean and if necessary re-lubricate.
Dirt deposits between basic jaws and guidance.	Disassemble and clean the product.
Pressure drops below minimum.	Check air supply. ▸ 5.2.2 [🗋 20]
Mounting surface is not sufficiently flat.	Check the evenness of the mounting surface. ▸ 5.2.1 [🗋 18]
Component part defective.	Replace component or send it to SCHUNK for repair.

6.3 Product is opening or closing abruptly

Possible cause	Corrective action
Too little grease in the mechanical guiding areas.	Clean and lubricate product.
Compressed air lines blocked.	Check compressed air lines of damage.
Mounting surface is not sufficiently flat.	Check the evenness of the mounting surface.

6.4 Gripping force is dropping

Possible cause	Corrective action
Compressed air can escape.	Check seals, if necessary, disassemble the product and replace seals.

Possible cause	Corrective action
Too much grease in the mechanical movement space.	Clean and lubricate product.
Pressure drops below minimum.	Check air supply. ▶ 3 [🗋 14]
Component part defective.	Replace component or send it to SCHUNK for repair.

6.5 Product does not achieve the opening and closing times

Possible cause	Corrective action
Compressed air lines are not installed optimally.	If present: Open the flow control couplings on the product to the maximum that the movement of the jaws occurs without bouncing and hitting.
	Check compressed air lines.
	Inner diameters of compressed air lines are of sufficient size in relation to compressed air consumption.
	Keep compressed air lines between the product and directional control valve as short as possible.
	Flow rate of valve is sufficiently large relative to the compressed air consumption.
	NOTICE! The one-way flow control valve must not be removed even if the opening and closing times are not achieved.
	If you still cannot achieve the open and close times in the latest catalog, we recommend the use of quick-air-vent-valves directly at the product.

7 Maintenance

7.1 Notes

⚠ WARNING

Risk of injury from electric shock due to contact with live parts!

- Before starting any work: Disconnect the power supply from the mains and secure against accidental switch-on.
- Work may only be performed by appropriately qualified personnel.

Original spare parts

Use only original spare parts of SCHUNK when replacing spare and wear parts.

7.2 Maintenance intervals

NOTICE

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.

Interval (million cycles)	Maintenance work
2	Treat all grease areas with lubricant, ▸ 7.3 [🗋 40]
2	Clean all parts thoroughly, check for damage and wear, if necessary replace seals, ▸ 7.6 [🗋 44]

7.3 Lubricants/Lubrication points

During maintenance, treat all greased areas with lubricant. Thinly apply lubricant with a lint-free cloth.

SCHUNK recommends the lubricants listed.

Lubricant point	Lubricant
Metallic sliding surfaces	SCHUNK grease 3
Seals and sealing surfaces	SCHUNK grease 1
Bore hole at the piston	SCHUNK grease 1

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.

7.4 Disassembly and assembly

7.4.1 Disassemble

Position of the item numbers ▶ 7.6 [🗋 44]

⚠ 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.

1. Remove the compressed air hose.
2. Unscrew and remove the screws (42) and remove the holder (10) with the proximity switches.
3. Remove the safety rings (64).
4. Remove the covers (6) from the gripper fingers (3) and (23).
5. Remove the O-rings (26) from the covers (6).
6. **KGG 60, 70:** Unscrew the countersunk screws (44).
   KGG 80, 100, 140: Remove the hexagon nuts (63).
7. Unscrew the countersunk screws (44).
8. Remove the hexagon nuts (63).
9. Remove the pistons (5) from the gripper fingers (3) and (23).
10. Remove the seals (27) and (30) from the pistons (5).
11. Guides (2) and housing (1) and (24) are matched to each other. Mark the guides (2) with the respective housing side.
12. Removing the air connections.
13. Loosen the screw (43) and remove the cover (9) and (20) upwards.
14. Carefully pull gripper fingers (3) and (23) sideways out of the housing (1) and (24).
15. **KGG 60, 70:** Loosen the screws (45) and remove the stop plates (15).
16. Loosen the screws (45) and remove the stop plates (15).
17. Loosen the screws (41).
18. Remove the gear racks (8) and (21) and guides (2) from the gripper fingers (3) and (23).
19. Remove the seals (29) from the gripper fingers (3) and (23).

20. Loosen the screws (40) and carefully remove the piston rod (4) and (22) from the housing (1) and (24).
21. Remove the pinion (7) and cylindrical pin (62).
22. **KGG 80,100,140:** Remove the damping (28) from the piston rod (4) and (22).
23. Remove the damping (28) from the piston rod (4) and (22).
24. Remove seals (25) from the recesses in the housing (1) and (24).
25. Completely unscrew and remove the set screw (67) from the piston rod (4) and (22).
26. **KGG 80,100,140:** Completely unscrew and remove the set screw (69) from the piston rod (4) and (22).
27. Completely unscrew and remove the set screw (69) from the piston rod (4) and (22).
28. Completely unscrew and remove the set screw (68) from the housing (1) and (24).

7.4.2 Assembly

Position of the item numbers ▸ 7.6 [🗋 44]

Assembly takes place in the opposite order to disassembly. Observe the following:

- When pushing the gripper fingers (3,23) into the housing (1,24) from the side with the guides (2) and the racks (8,21), you have to make sure that both the racks (8,21) meet the pinion (7) at the same time in order to ensure that the movement of the gripper fingers (3,23) is synchronous.
- Where nothing else is specified, secure all bolts with Adhesives, tighten these with a torque▸ 7.5 [🗋 43].

Adhesive	Item
WEICON 302-41	40, 41, 67 ,68 69 (only KGG 80, 100, 140)
Prominently equivalent adhesives can be used.	

Tab.: Adhesives to secure the screws

7.5 Screw tightening torques

Position of the item numbers, ▶ 7.6 [🗋 44]

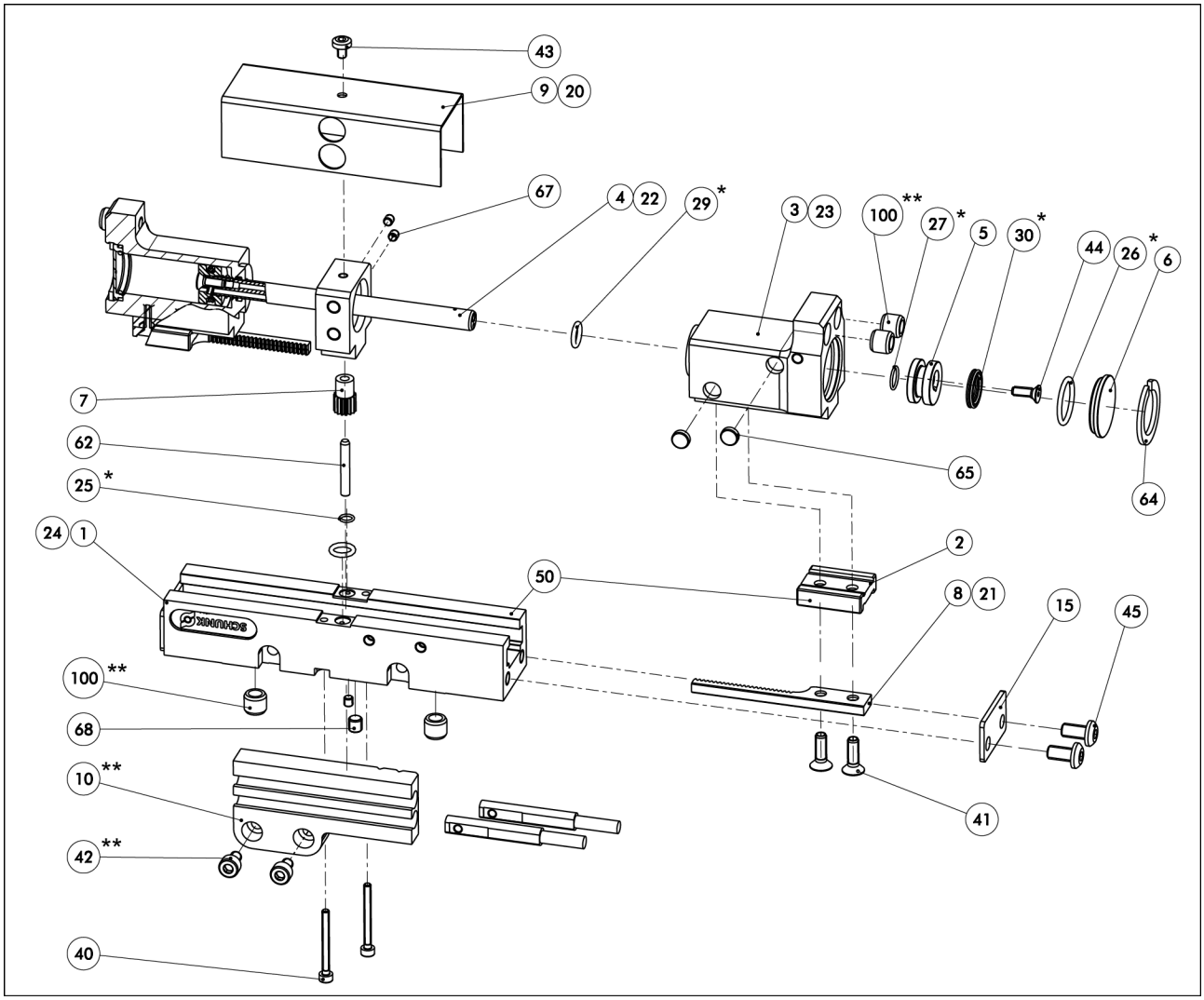
	Item		
Size	40	41	44
60	0.13	0.18	0.56
70	0.38	1.14	1.14
80	0.38	1.30	–
100	0.78	1.30	–
140	2.20	2.20	–

Tab.: Tightening torque for screws [Nm]

7.6 Assembly drawings

The following figures are example images.
They serve for illustration and assignment of the spare parts.
Variations are possible depending on size and variant.

7.6.1 Assembly drawing KGG 60 and KGG 70

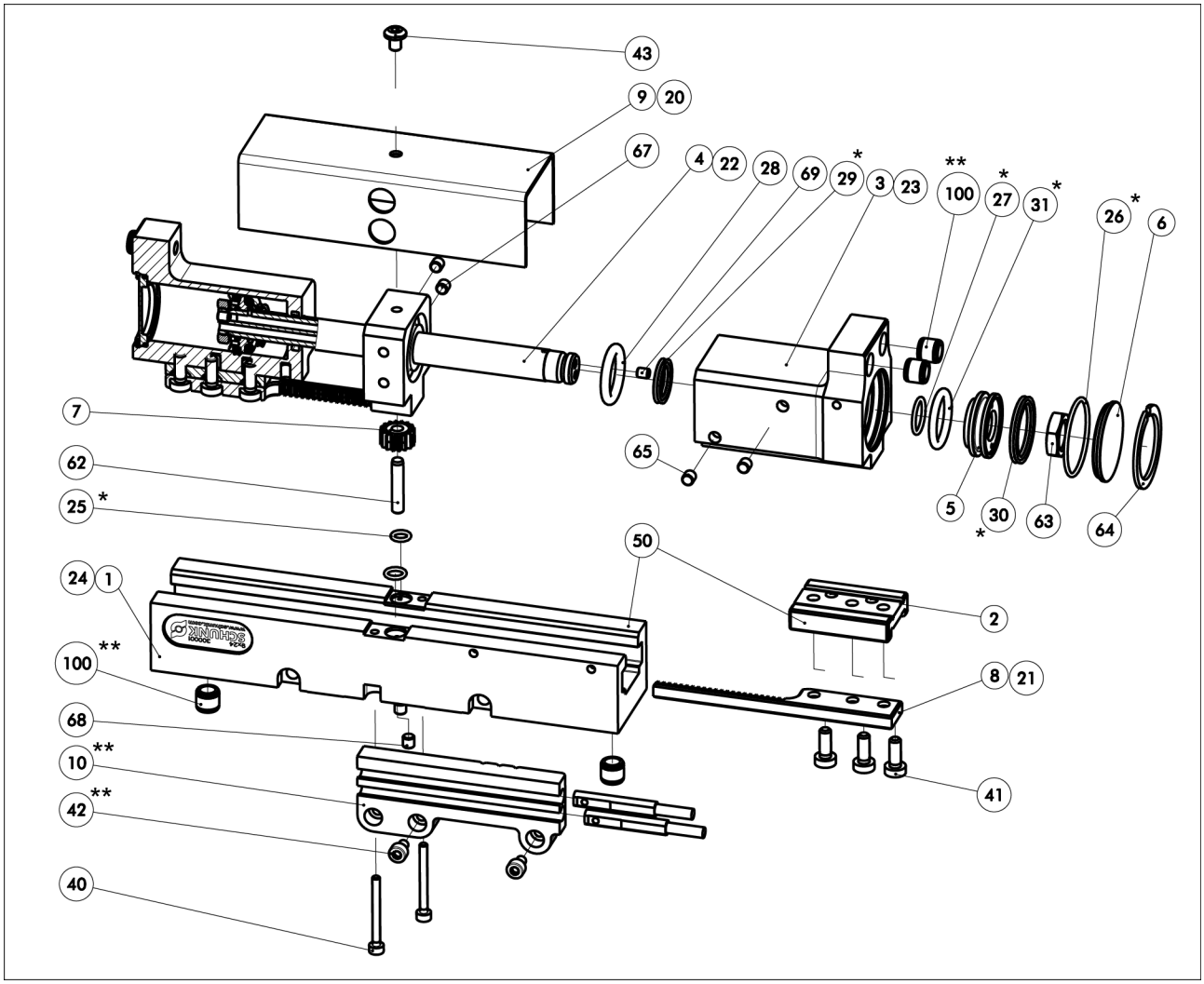


Assembly drawing KGG 60 and KGG 70

* Wearing part, replace during maintenance.
Included in the seal kit. Seal kit can only be ordered completely.

** Contained in accessory pack.

7.6.2 Assembly drawing KGG 80

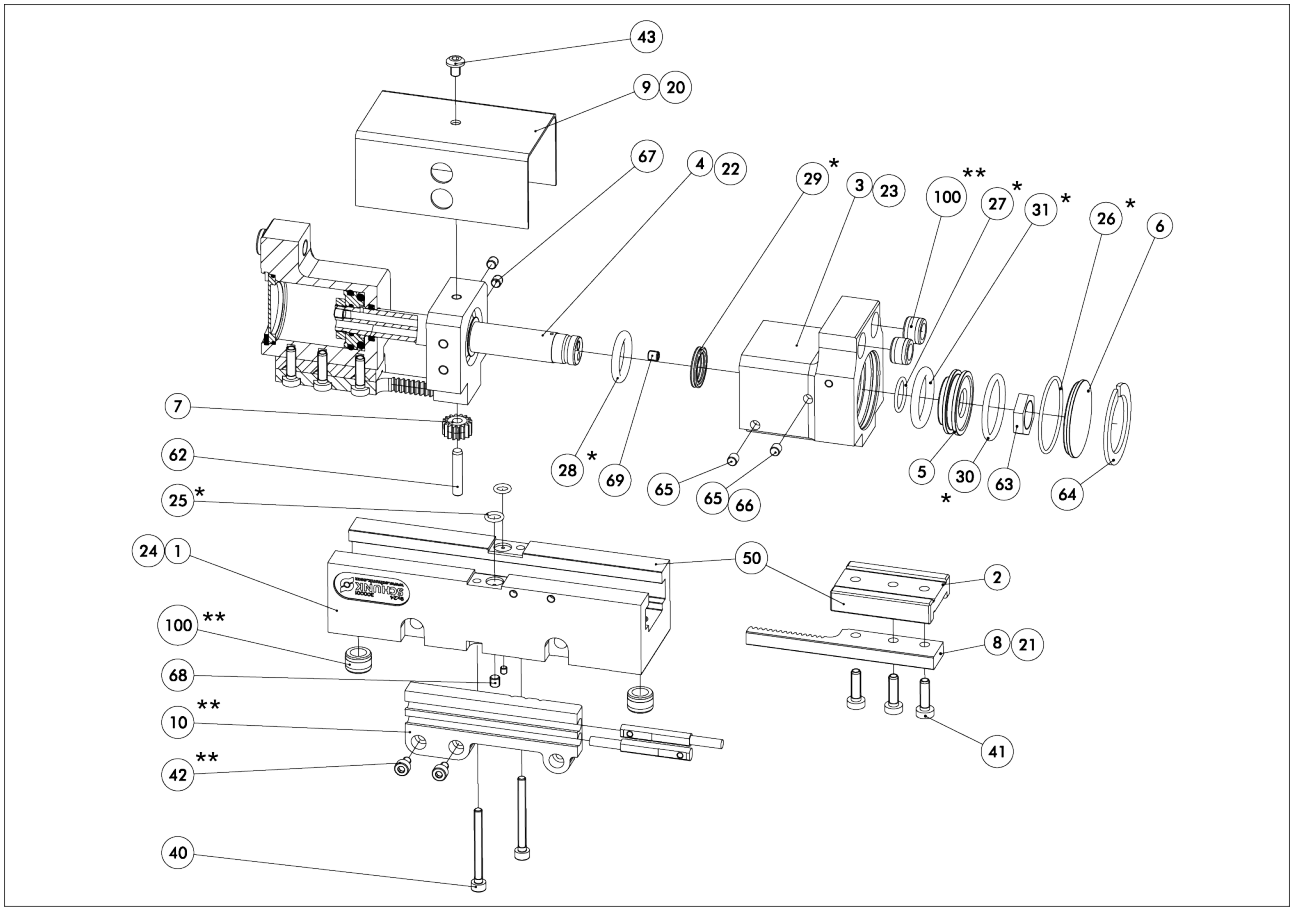


Assembly drawing KGG 80

* Wearing part, replace during maintenance.
Included in the seal kit. Seal kit can only be ordered completely.

** Contained in accessory pack.

7.6.3 Assembly drawing KGG 100 and KGG 140



Assembly drawing KGG 100 and KGG 140

* Wearing part, replace during maintenance.
Included in the seal kit. Seal kit can only be ordered completely.

** Contained in accessory pack.

8 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 Spanntechnik | Greiftechnik | Automatisierungstechnik Bahnhofstr. 106 – 134 D–74348 Lauffen/Neckar

We hereby declare that the partly completed machine described below

Product designation:	Small components gripper / KGG /pneumatic
ID number	0303050 ... 0340311

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, October 2025

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

9 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:	Small components gripper / KGG / pneumatic
ID number	0303050 ... 0340311

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, October 2025

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

10 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, October 2025

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

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