

2-finger angular/parallel gripper GAP 16 – 32

Assembly and Operating Manual



Imprint

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Dear customer,

congratulations on choosing a SCHUNK product. By choosing SCHUNK, you have opted for the highest precision, top quality and best service.

You are going to increase the process reliability of your production and achieve best machining results – to the customer's complete satisfaction.

SCHUNK products are inspiring.

Our detailed assembly and operation manual will support you.

Do you have further questions? You may contact us at any time – even after purchase.

Kindest Regards

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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.

Illustrations in this manual are provided for basic understanding and may differ from the actual product design.

In addition to these instructions, the documents listed under ([👉 1.1.2, Page 6](#)) are applicable.

1.1.1 Presentation of Warning Labels

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

	<p>⚠ DANGER</p> <p>Danger for persons! Non-observance will inevitably cause irreversible injury or death.</p>
	<p>⚠ WARNING</p> <p>Dangers for persons! Non-observance can lead to irreversible injury and even death.</p>
	<p>⚠ CAUTION</p> <p>Dangers for persons! Non-observance can cause minor injuries.</p>
	<p>NOTICE</p> <p>Material damage! Information about avoiding material damage.</p>

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 marked with an asterisk (*) can be downloaded on our homepage www.schunk.com.

1.1.3 Sizes

This operating manual applies to the following sizes:

- GAP 16
- GAP 20
- GAP 28
- GAP 32

1.1.4 Variants

This operating manual applies to the following variations:

- GAP without gripping force maintenance, *GAP...*
- GAP with gripping force maintenance, *GAP...-AS*
- GAP with end positioning dampening of the base jaw, *GAP...-S*

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:

- Intended use in 1-shift operation
- Observe the mandatory maintenance and lubrication intervals
- Observe the environmental and operating conditions

Parts touching the work piece and wear parts are not part of the warranty.

1.3 Scope of delivery

The scope of delivery includes

- 2-finger angular/parallel gripper GAP in the version ordered
- Accessory pack

1.3.1 Accessories kit

Content of the accessories pack:

- 6 x centering sleeves for mounting
- 2 x O-rings for hose-free direct connection
- 2 x locking screws for hose connections

ID.-No. of the accessory pack

GAP			
16	20	28	32
5522430	5521287	5521317	5521348

1.4 Accessories

A wide range of accessories are available for this product

For information about which accessories can be used with the appropriate product version see catalog.

ID.-No. of the seal kit

GAP			
16	20	28	32
0314639	0314609	0314619	0314629

Contents of the sealing kit, ([🔗 6.5, Page 29](#)).

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, Page 16](#)).
- The product is intended for installation in a machine/system. The applicable guidelines must be observed and complied with.
- The product is intended for industrial use.
- Appropriate use of the product includes compliance with all instructions in this manual.

2.2 Not intended use

It is not intended use if the product is used, for example, as a pressing tool, stamping tool, lifting gear, guide for tools, cutting tool, clamping device or a drilling tool.

- Any utilization that exceeds or differs from the appropriate use is regarded as misuse.

2.3 Constructional changes

Implementation of structural changes

By conversions, changes, and reworking, e.g. additional threads, holes, or safety devices can impair the functioning or safety of the product or damage it.

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

2.4 Spare parts

Use of unauthorised spare parts

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

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

2.5 Gripper fingers

Requirements for the gripper fingers

Stored energy within the product creates the risk of serious injuries and significant property damage.

- Arrange the gripper fingers in a way that the product reaches either the position "open" or "closed" in a de-energized state.
- Only exchange the gripper fingers when no residual energy remains in the product.

2.6 Environmental 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 and the top jaws are a sufficient size for the application.
- Observe maintenance and lubrication intervals, ([👉 6.2, Page 27](#)).
- Make sure that the environment is free from splash water and vapors as well as from abrasion or processing dust. Exceptions are products that are designed especially for contaminated environments.
- Make sure that the product is not exposed to excessive vibrations and/or strokes.
- Ensure that no strong magnetic fields impair the function of the product.

Contact your SCHUNK partner if the product is to be used in strong magnetic fields.

2.7 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.

2.8 Personal protective equipment

Using personal protective equipment

Not wearing personal protective equipment while working with the product, may result in dangers that impact the personnel's safety and health.

- While working with the product, observe the health and safety regulations and wear the required personal safety equipment.
- Observe the valid safety and accident prevention regulations.
- In case of sharp edges and corners and rough surfaces, wear protection gloves.
- In case of hot surfaces, wear heat-resistant protection gloves.
- When dealing with hazardous substances, wear protection gloves and goggles.
- In case of moving parts, wear tight protection clothes.

2.9 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.

2.10 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.

2.11 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.

2.12 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.

2.13 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.

2.13.1 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.

2.13.2 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.

2.13.3 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.
- 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. Restrict unintentional access by persons to this range e.g. via a protective cover, protective fence or photoelectric barrier. 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. Check the function of the EMERGENCY STOP before starting up the machine or system. If this protective equipment is not working properly, prevent the operation of the machine.

2.14 Notes on particular risks

	<p>⚠ DANGER</p> <p>Risk of fatal injury from suspended loads! Falling loads can cause serious injuries and even death.</p> <ul style="list-style-type: none"> • Stand clear of suspended loads and do not step within their swiveling range. • Never move loads without supervision. • Do not leave suspended loads unattended. • Wear suitable protective equipment.
	<p>⚠ WARNING</p> <p>Risk of injury from objects falling and being ejected! Falling and ejected objects during operation can lead to serious injury or death.</p> <ul style="list-style-type: none"> • Take appropriate protective measures to secure the danger zone.
	<p>⚠ WARNING</p> <p>Risk of injury due to sudden movements! If the energy supply is switched on or if residual energy is still present in the system, this can cause components to move unexpectedly, which may result in serious injuries.</p> <ul style="list-style-type: none"> • Switch off energy supply and secure against re-connection. • Ensure that no residual energy remains in the system.
	<p>⚠ WARNING</p> <p>Risk of injury from crushing and impacts! Death or serious injury could occur during the base jaw procedure and when breaking or loosening the gripper fingers.</p> <ul style="list-style-type: none"> • 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.

**! WARNING****Risk of injury due to spring forces!**

Parts are under spring tension on modules which clamp using spring force or which have gripping force maintenance. While disassembling it is possible that the gripper's parts move uncontrollably and cause serious injuries.

- Disassemble the product cautiously.
- Make sure that no residual energy remains in the system.

**! WARNING****Risk of injury from objects falling during energy supply failure**

Products with a mechanical gripping force maintenance can, during energy supply failure, still move independently in the direction specified by the mechanical gripping force maintenance.

- Secure the end positions of the product with SCHUNK SDV-P pressure maintenance valves.

3 Technical data

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

3.1 Basic data

Designation	GAP			
	16	20	28	32
Opening angle per jaw [°]	30 / 60 / 90			
Parallel stroke per jaw [mm]	1.0	1.0	1.5	2.0
Closing / opening force *	56.0	92.0	180.0	250.0
Max. permissible finger length [mm]	32	40	50	65
Max. permissible mass moment of inertia per jaw [kgcm ²]	1.0	3.12	7.45	14.87
IP rating	40			
Min. ambient temperature [°C]	5			
Max. ambient temperature [°C]	60			
Noise emission [dB(A)]	≤ 70			
Pressure medium	Compressed air, compressed air quality according to ISO 8573-1:7 4 4			
Min. pressure [bar]*	2.5			
Max. pressure [bar]*	7			
Nominal working pressure [bar]	6			

* Deviating values for variants with maintenance of gripping force.

3.2 Variant with maintenance of gripping force

Deviating values for the variants with maintenance of gripping force

Designation	GAP			
	16-AS	20-AS	28-AS	32-AS
Closing / opening force	90	150	270	430
Min. spring force [N]	14	58	90	180
Min. pressure [bar]	4.5			
Max. pressure [bar]	6.5			

4 Assembly

4.1 Installing and connecting



NOTICE

Damage to the gripper is possible!

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

- A jaw movement always has to be without jerks and bounce.
- You must therefore implement sufficient reduction and/or damping.
- Observe the diagrams and information in the catalog data sheet.

- 1 Check the flatness of the mounting surface, [\(☞ 4.2.1, Page 18\)](#).
- 2 Connect the product via the hose-free direct connection, [\(☞ 4.2.2, Page 20\)](#).
 - ⇒ Screw throttles in the main air connections *A* and *B*.
- 3 OR: Connect supply lines to the main air connections *A* and *B*, [\(☞ 4.2.2, Page 20\)](#).
 - ⇒ Unscrew locking screws.
 - ⇒ Screw on air connections
 - ⇒ OR: Screw on air throttle in order to be able to perform sufficient throttling and/or dampening.
- 4 Screw the product to the machine/system, [\(☞ 4.2.1, Page 18\)](#).
 - ⇒ Use suitable connecting elements (adapter plates) if necessary.
 - ⇒ Observe the permissible depth of engagement.
 - ⇒ Observe the tightening torque for the mounting screws.
- 5 Connect the sensor, see Sensor Assembly and Operating Manual.
- 6 Install the sensor, [\(☞ 4.4, Page 22\)](#).

4.2 Connections

4.2.1 Mechanical connection

NOTE

When mounting the product and when mounting loads, do not allow impermissible forces and moments to be exerted, see catalog data sheet.

Select a suitable tightening torque when assembling the product or loads on the product in accordance with the generally accepted guidelines for screw connections.

Secure all screw connections using a suitable chemical screw lock.

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

Requirements for levelness of the mounting surface (Dimensions in mm)

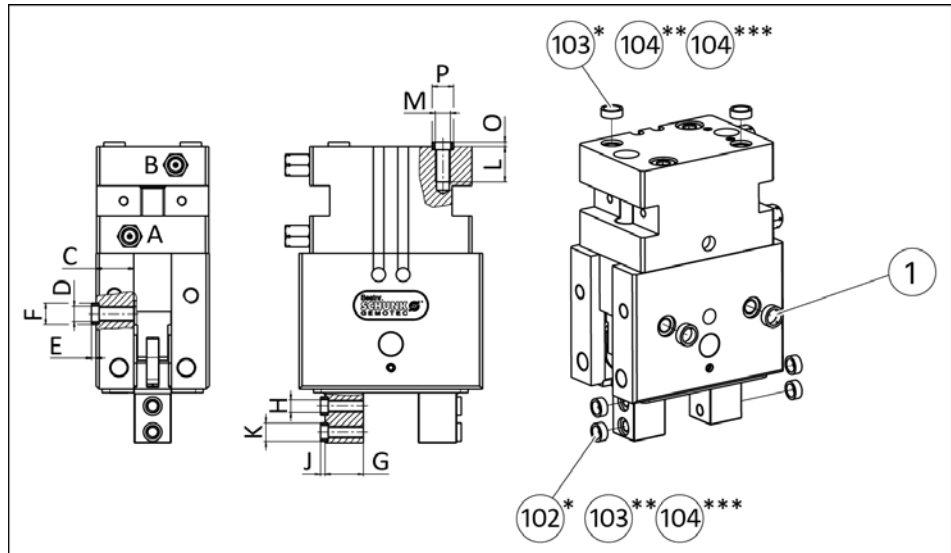
Diameter	Permissible unevenness
< 100	< 0.02
> 100	< 0.05

The connection geometries are above and at the side of the product. See catalog for dimensions to position the mounting holes

NOTE

- When fastening the product from the rear or side, use the holes drilled for fastening purposes.
- Fasten the product by means of the drilled holes provided for the purpose.

Mounting



* GAP 16-20 / ** GAP 28 / *** GAP 32

Item	GAP 16	GAP 20	GAP 28	GAP 32
(102) *	ZH 500 (4x)		-	
(103) *	ZH 600 (2x)		ZH 600 (4x)	-
(104) *	ZH 700 (2x)			ZH 700 (6x)
C [mm]	6.5	9.5	12.0	11.0
D	M5	M5	M5	M5
E [mm]	1.5	1.5	1.5	1.5
F	Ø7H7	Ø7H7	Ø7H7	Ø7H7
G [mm]	8.0	10.0	12.5	15.5
H	M3	M3	M4	M5
J [mm]	1.5	1.5	1.5	1.5
K	Ø5H7	Ø5H7	Ø6H7	Ø7H7
L [mm]	8.0	9.0	11.5	11.5
M	M4	M4	M5	M5
O [mm]	1.5	1.5	1.5	1.5
P	Ø6H7	Ø6H7	Ø7H7	Ø7H7

* Included in the scope of delivery of the product

4.2.2 Pneumatic connection



NOTICE

Damage to the gripper is possible!

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

- A jaw movement always has to be without jerks and bounce.
- You must therefore implement sufficient reduction and/or damping.
- Observe the diagrams and information in the catalog data sheet.

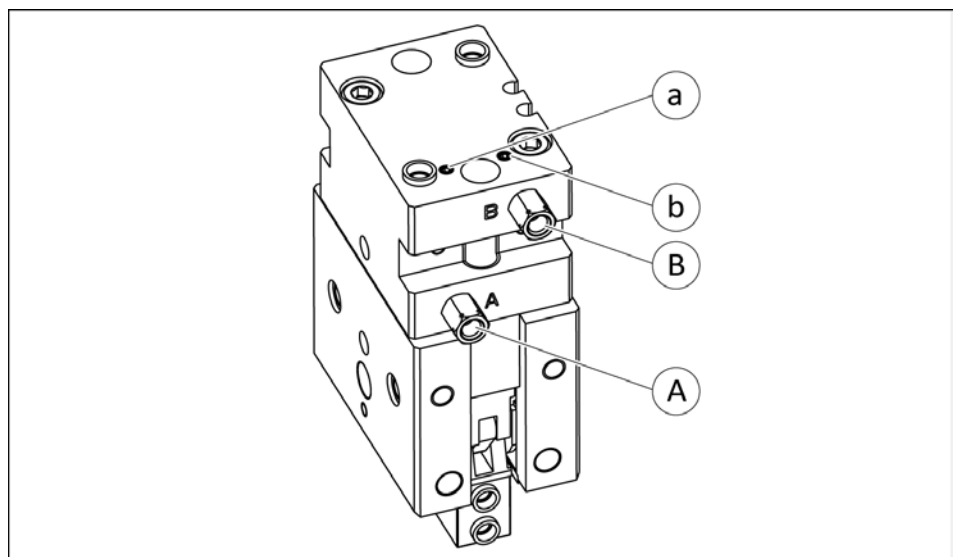
NOTE

When the direct connections *a* and *b* are used, throttling is necessary:

- Screw the throttles in the main air connections *A* and *B* of the housing.

NOTE

Observe the requirements for the compressed air supply, ([☞ 3, Page 16](#)).



Pneumatic connection

Item	Description	GAP 16	GAP 20	GAP 28	GAP 32
A *	Opens gripper	M3	M5		
B *	Closes gripper				
a *	Opens gripper , direct connection	Connection dimensions and geometries, see catalog			
b *	Closes gripper, direct connection				

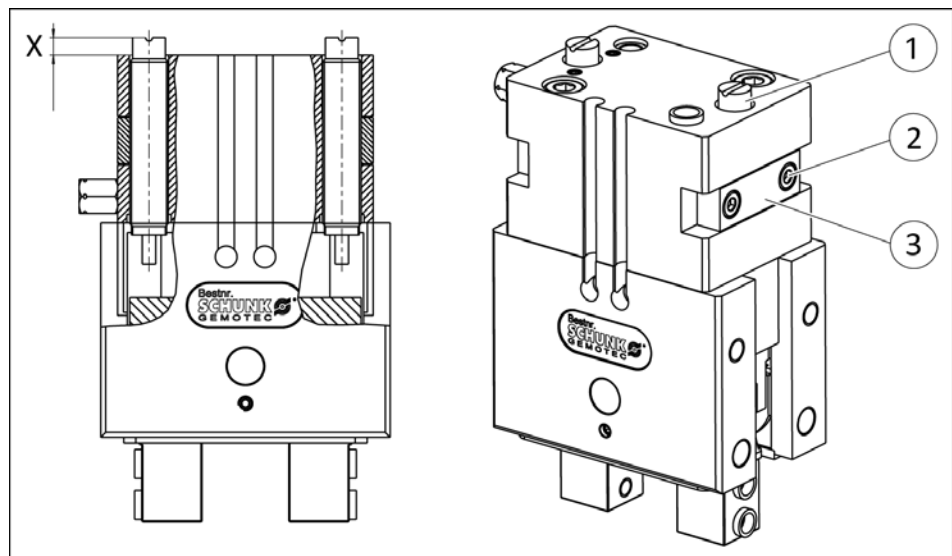
* provision by customer

- Only open the air connections required.
- Seal air connections not required using the locking screws from the enclosed pack.
- For hose-free direct connections use the two O-rings from the enclosed pack.

4.3 Adjusts absorber, only variants with end position dampening

NOTE

Do not use absorber to limit the gripper stroke.
Set both absorbers to the same dimension.



Adjust absorber

- 1 Unscrew cylinder screws (3).
- 2 Loosen clamping piece (2), if necessary.
- 3 Set both absorbers (1) to dimension X.

NOTE

Secure all cylinder screws using a suitable chemical screw lock.

- 4 Screw cylinder screws (3) tight.

Tightening torque for attachment screws

Size	GAP 16	GAP 20	GAP 28	GAP 32
Tightening torque [Nm]	0.6	0.8	1.5	3.0

Dimension X for absorber setting - maximum absorber stroke

	GAP 16-...-S			GAP 20-...-S		
	30	60	90	30	60	90
Dimension X	-7.2	-4.6	-2.1	-10.6	-7.4	-3.9

	GAP 16-...-S			GAP 20-...-S		
	30	60	90	30	60	90
[mm]						

	GAP 28-...-S			GAP 32-...-S		
	30	60	90	30	60	90
Dimension X [mm]	-3.9	-0.3	3.6	-6.4	-2	2.8

4.4 Mounting the sensor

NOTE

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

The product is prepared for using sensors

- Exact type designation of the compatible sensors, see catalog.
- Technical data of the matching sensors, see assembly and operating manual and data sheet.
 - The assembly and operating manual and the catalogue data sheet are included in the scope of delivery and can be downloaded from www.schunk.com.
- If you require further information on sensor operation, contact your SCHUNK contact person or download information from our homepage.

4.4.1 Overview of sensors

Designation	GAP			
	16	20	28	32
Magnetic switch MMS 22	X	X	X	X

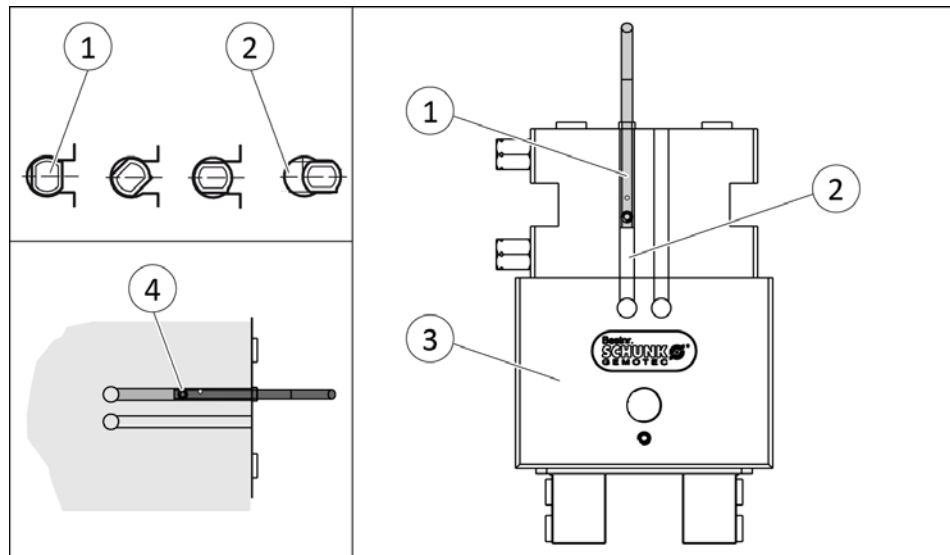
4.4.2 Mounting MMS 22 magnetic switch



NOTICE

Risk of damage to the sensor during assembly!

- Observe a maximum tightening torque of 10 Ncm for the set-screws.



Gripper position opened or part gripped (I.D. gripping)

- 1 Put product in the position in which it is to be set.
- 2 Turn the sensor 1 (1) into the groove (2).
OR: Push the sensor 1 (1) into the groove (2) until sensor 1 (1) stops at the housing (3).
- 3 Pull the sensor 1 (1) back again slowly until it switches.
- 4 Secure the sensor 1 (1) using the set-screw (4).
⇒ Tightening torque: 10 Ncm
- 5 Close the product and open it again in order to test its function.
- 6 Repeat steps for sensor 2.

Gripper position closed or part gripped (O.D gripping)

- 1 Put product in the position in which it is to be set.
- 2 Turn the sensor 1 (1) into the groove (2).
OR: Slide sensor 1 (1) into the groove (2) in the direction of the housing middle (3), until the sensor 1 (1) switches.
- 3 Secure the sensor 1 (1) using the set-screw (4).
⇒ Tightening torque: 10 Ncm
- 4 Close the product and open it again in order to test its function.
- 5 Repeat steps for sensor 2.

5 Troubleshooting

5.1 Product does not move

Possible cause	Corrective action
Base jaws jam in housing, possible cause: bolting surface not sufficiently level.	Check the evenness of the bolting surface., (☞ 4.2.1, Page 18)
	Loosen the mounting screws of the product and actuate the product again.
Pressure drops below minimum.	Check air supply., (☞ 4.2.2, Page 20)
Compressed air lines switched.	Check compressed air lines.
Proximity switch defective or set incorrect.	Readjust or change sensor.
Component part defective.	Replace component or send it to SCHUNK for repair.

5.2 Product does not execute a complete stroke

Possible cause	Corrective action
Variant GAP...-S Damper turned in too far (piston does not reach end position).	Adjusting damping., (☞ 4.3, Page 21)
Dirt deposits in the mechanical elements.	Clean and lubricate product., (☞ 6, Page 27)
Dirt deposits between the housing and base jaws.	Disassemble and clean the product.
Pressure drops below minimum.	Check air supply., Link Luftanschlüsse
Screw-on surface is not sufficiently flat.	Check the evenness of the bolting surface., (☞ 4.2.1, Page 18)
Component part defective.	Send product with a SCHUNK repair order or dismantle product.

5.3 Product opens or closes jerkily

Possible cause	Corrective action
Too little grease in the mechanical guiding areas.	Clean and lubricate product. (☞ 6, Page 27)
Compressed air lines blocked.	Check compressed air lines of damage.
Screw-on surface is not sufficiently flat.	Check the evenness of the bolting surface.
One-way flow control valve is missing or adjusted incorrectly.	Install and adjust one-way flow control valve.

5.4 The gripping force is dropping

Possible cause	Corrective action
Compressed air can escape.	Check seals, if necessary, disassemble the product and replace seals.
Too much grease in the mechanical movement space.	Clean and lubricate product. (☞ 6, Page 27)
Pressure drops below minimum.	Check air supply. (☞ 4.2.2, Page 20)
Component part defective.	Replace component or send it to SCHUNK for repair.

5.5 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 module 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.

Possible cause	Corrective action
	<p>NOTICE! The throttle check valve must not be removed, even if the product has not reached the opening and closing times.</p> <p>If you still cannot achieve the open and close times mentioned in the latest catalog, we recommend the use of quick-air-vent-valves directly at the gripper.</p>
Loading too large.	Check permissible weight and length of the gripper fingers.

6 Maintenance

6.1 Notes

original spare parts

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

NOTE

Use suitable devices and aids for assembly of the springs (154)(for variant AS) and (124).

6.2 Maintenance intervals

Interval [Mio. cycles] for GAP 16-32	Maintenance work
2	Clean the product dry without a degreasing agent, check for damage and wear, if necessary replace seals and wearing parts, (☞ 6.4, Page 28) .
2	Treat all grease areas with lubricant, (☞ 6.3, Page 28) .

For extreme ambient and application conditions, shortened maintenance cycles can ensure the lifespan is maintained.



NOTICE

Damage caused by insufficient lubricant!

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

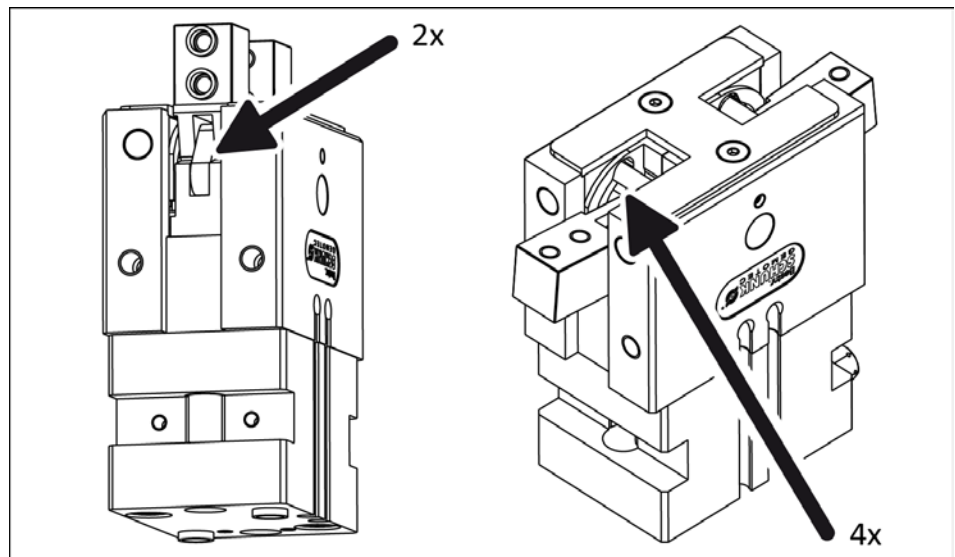
- Reduce the lubricant intervals accordingly.

6.3 Lubricants/Lubrication points (basic lubrication)

SCHUNK recommends the lubricants listed.

Lubricant point	Lubricant
Lever mechanism and connecting members	Renolit CA-LZ
All seals *	Isoflex-Topas NCA 52
Bore hole at the piston *	

* only after disassembling the product



Greasing areas, lever mechanism and connecting members

If the product gets dirty, wipe it carefully with a soft cloth. Do not use solvents.

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

6.4 Disassembly and assembly

6.4.1 Variant with maintenance of gripping force

Position of the position numbers, ([👉 6.5, Page 29](#))



⚠️ WARNING

Risk of injury due to unexpected movements!

If the power supply is switched on or residual energy is still 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.
- Ensure that no residual energy is present in the system.



! WARNING

Risk of injury due to spring forces!

For products with gripping force maintenance, parts are under spring tension. During disassembly parts may move unexpectedly and cause serious injuries

- Disassemble the product cautiously.
- Make sure that no residual energy remains in the system.

- 1 Remove the compressed air line.
- 2 Carefully clamp the product between the base body (51) and the base body (21).
- 3 Remove screws (57) and (157).
- 4 Slowly unclamp springs.
- 5 Remove housing.
- 6 If applicable, disassemble the product further, [\(☞ 6.5, Page 29\)](#).

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

- Unless otherwise specified, secure all screws and nuts with Loctite no. 243 and tighten with the appropriate tightening torque.

6.4.2 Variant without maintenance of gripping force

Position of the position numbers, [\(☞ 6.5, Page 29\)](#)

- 1 Remove the compressed air lines.
- 2 Unfasten screws (46) and (143).
- 3 Remove base body (41).
- 4 If applicable, disassemble the product further, [\(☞ 6.5, Page 29\)](#).

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

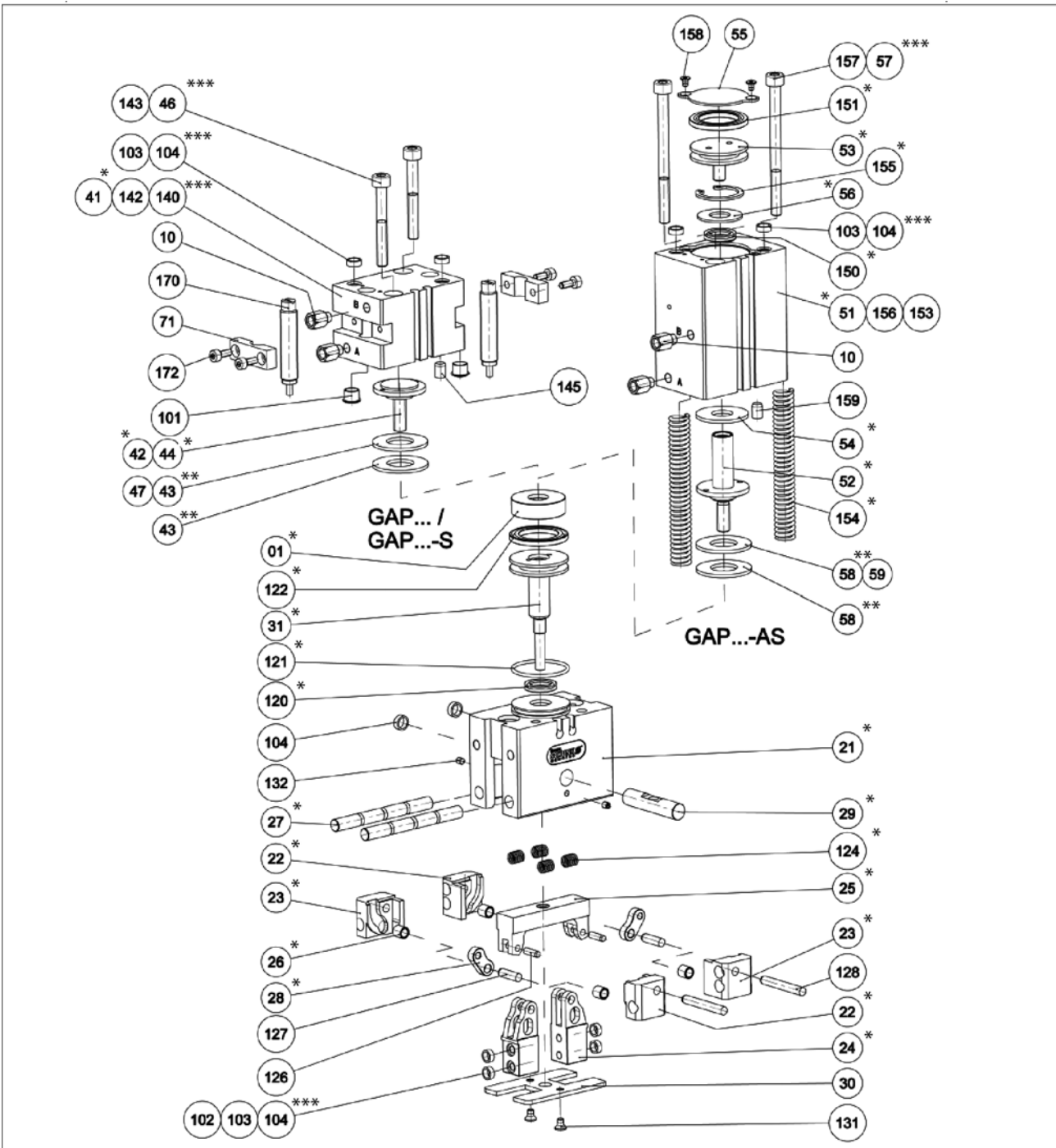
- Unless otherwise specified, secure all screws and nuts with Loctite no. 243 and tighten with the appropriate tightening torque.

6.5 Assembly drawing

The following figure is an example image.

It serves for illustration and assignment of the spare parts.

Variations are possible depending on size and variant.



Assembly drawing

- * Wearing part, replace during maintenance.
- ** Orientation of the magnets (43);(58): Orientation towards south Pole gripper head
- *** According to size

7 Translation of original declaration of incorporation

in terms of the Directive 2006/42/EG, Annex II, Part 1.B of the European Parliament and of the Council on machinery.

Manufacturer/
Distributor

SCHUNK GmbH & Co. KG Spann- und Greiftechnik
Bahnhofstr. 106 – 134
D-74348 Lauffen/Neckar

We hereby declare that on the date of the declaration the following incomplete machine complied with all basic safety and health regulations found in the directive 2006/42/EC of the European Parliament and of the Council on machinery. The declaration is rendered invalid if modifications are made to the product.

Product designation: 2-finger angular/parallel gripper / GAP 16 – 32
ID number 0314600 ... 0314628

The incomplete machine may not be put into operation until conformity of the machine into which the incomplete machine is to be installed with the provisions of the Machinery Directive (2006/42/EC) is confirmed.

Applied harmonized standards, especially:

DIN EN ISO 12100: Safety of machinery - General principles for design -
2011-03 Risk assessment and risk reduction

The manufacturer agrees to forward on demand the relevant technical documentation for the partly completed machinery in electronic form to national authorities.

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

Person authorized to compile the technical documentation:
Robert Leuthner, Address: see manufacturer's address

Signature: see original declaration

Lauffen/Neckar, February 2017

p.p. Ralf Winkler,
Manager for development
of gripping system components

8 Annex to Declaration of Incorporation

according 2006/42/EG, Annex II, No. 1 B

1. Description of the essential health and safety requirements pursuant to 2006/42/EC, Annex I that are applicable and that have been fulfilled with:

Product designation	2-finger angular/parallel gripper
Type designation	GAP
ID number	0314600 ... 0314628

To be provided by the System Integrator for the overall machine	↓
Fulfilled for the scope of the incomplete machine	↓
Not relevant	↓

1.1	Essential Requirements			
1.1.1	Definitions		X	
1.1.2	Principles of safety integration		X	
1.1.3	Materials and products		X	
1.1.4	Lighting		X	
1.1.5	Design of machinery to facilitate its handling		X	
1.1.6	Ergonomics		X	
1.1.7	Operating positions			X
1.1.8	Seating			X

1.2	Control Systems			
1.2.1	Safety and reliability of control systems		X	
1.2.2	Control devices		X	
1.2.3	Starting		X	
1.2.4	Stopping		X	
1.2.4.1	Normal stop		X	
1.2.4.2	Operational stop		X	
1.2.4.3	Emergency stop		X	
1.2.4.4	Assembly of machinery		X	
1.2.5	Selection of control or operating modes		X	
1.2.6	Failure of the power supply			X

1.3	Protection against mechanical hazards			
1.3.1	Risk of loss of stability			X
1.3.2	Risk of break-up during operation			X
1.3.3	Risks due to falling or ejected objects			X
1.3.4	Risks due to surfaces, edges or angles		X	
1.3.5	Risks related to combined machinery			X
1.3.6	Risks related to variations in operating conditions			X
1.3.7	Risks related to moving parts		X	
1.3.8	Choice of protection against risks arising from moving parts			X
1.3.8.1	Moving transmission parts		X	
1.3.8.2	Moving parts involved in the process			X
1.3.9	Risks of uncontrolled movements			X
1.4	Required characteristics of guards and protective devices			
1.4.1	General requirements			X
1.4.2	Special requirements for guards			X
1.4.2.1	Fixed guards			X
1.4.2.2	Interlocking movable guards			X
1.4.2.3	Adjustable guards restricting access			X
1.4.3	Special requirements for protective devices			X
1.5	Risks due to other hazards			
1.5.1	Electricity supply		X	
1.5.2	Static electricity		X	
1.5.3	Energy supply other than electricity		X	
1.5.4	Errors of fitting		X	
1.5.5	Extreme temperatures			X
1.5.6	Fire			X
1.5.7	Explosion			X
1.5.8	Noise			X
1.5.9	Vibrations			X
1.5.10	Radiation	X		
1.5.11	External radiation	X		
1.5.12	Laser radiation	X		

1.5	Risks due to other hazards			
1.5.13	Emissions of hazardous materials and substances			X
1.5.14	Risk of being trapped in a machine	X		
1.5.15	Risk of slipping, tripping or falling	X		
1.5.16	Lightning			X
1.6	Maintenance			
1.6.1	Machinery maintenance		X	
1.6.2	Access to operating positions and servicing points		X	
1.6.3	Isolation of energy sources		X	
1.6.4	Operator intervention		X	
1.6.5	Cleaning of internal parts		X	
1.7	Information			
1.7.1	Information and warnings on the machinery		X	
1.7.1.1	Information and information devices		X	
1.7.1.2	Warning devices		X	
1.7.2	Warning of residual risks		X	
1.7.3	Marking of machinery	X		
1.7.4	Instructions	X		
1.7.4.1	General principles for the drafting of instructions	X		
1.7.4.2	Contents of the instructions	X		
1.7.4.3	Sales literature	X		
	The classification from Annex 1 is to be supplemented from here forward.			
2	Supplementary essential health and safety requirements for certain categories of machinery			X
2.1	Foodstuffs machinery and machinery for cosmetics or pharmaceutical products			X
2.2	Portable hand-held and/or guided machinery			X
2.2.1	Portable fixing and other impact machinery			X
2.3	Machinery for working wood and material with similar physical characteristics			X
3	Supplementary essential health and safety requirements to offset hazards due to the mobility of machinery		X	

	The classification from Annex 1 is to be supplemented from here forward.		
4	Supplementary essential health and safety requirements to offset hazards due to lifting operations		X
5	Supplementary essential health and safety requirements for machinery intended for underground work		X
6	Supplementary essential health and safety requirements for machinery presenting particular hazards due to the lifting of persons		X

