Assembly- and Operating Manual AGM-Z

Compensation unit in Z direction

Translation of the original manual

Hand in hand for tomorrow

Imprint

Technical changes:
We reserve the right to make technical improvements.

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Dear Customer

Dear Customer,

Thank you for putting your trust in 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. We look forward to your challenging questions. We will find a solution!

Best regards,

Your SCHUNK team

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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 the safe, correct use of the product.

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

Personnel must have read and understood this manual before beginning any work. The observance of all safety notes in this manual is the precondition for all safe working.

Besides this manual, other documents which apply are those listed under ▸ 1.1.3 [🗋 6].

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

1.1.1 Illustration of safety notes

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

⚠ DANGER

Danger to individuals!

Ignoring a safety note such as this will certainly lead to irreversible injury and even death.

⚠ WARNING

Danger to individuals!

Ignoring a safety note such as this can lead to irreversible injury and even death.

⚠ CAUTION

Danger to individuals!

Non-observance can cause minor injuries.

NOTICE

Material damage!

Information about avoiding material damage.

1.1.2 Definition of Terms

The term "product" replaces the product name on the title page in this manual.

1.1.3 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**.

1.1.4 Sizes

This manual applies to the following sizes:

- AGM-Z 031
- AGM-Z 040
- AGM-Z 050
- AGM-Z 063
- AGM-Z 080
- AGM-Z 100
- AGM-Z 125
- AGM-Z 160
- AGM-Z 160L

1.2 Warranty

If the product is used as intended, the warranty is valid for 24 months from the date of delivery from the production facility under the following conditions:

- Observance of the specified maintenance and lubrication intervals
- Observance of the ambient conditions and operating conditions

Parts touching the workpiece and wearing parts are not part of the warranty.

1.3 Scope of delivery

The scope of delivery includes:

- Compensation unit in Z direction AGM-Z in the version ordered
- Mechanical connection
- Safety information (product-specific instructions available online)

1.4 Accessories

A wide range of accessories is available for this product.

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

2 Basic safety notes

2.1 Intended use

The product is designed to compensate for process-related misalignment in the Z direction.

- 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 or for attachment to a robot. The applicable guidelines for the machine/automated system must be observed and complied with.
- The product is intended for industrial and industry-oriented use.
- Appropriate use of the product includes compliance with all instructions in this manual.

2.2 Not intended use

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

2.3 Structural 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.

2.4 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 only used within its defined application parameters, ▶ 3 [🗋 14].
- Make sure that the product is a sufficient size for the workpiece.
- 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.

2.5 Personnel qualification

Inadequate qualification of personnel

Work on the product by inadequately qualified personnel can lead to serious injuries and considerable material damage.

- Order all work to be performed only by appropriately qualified personnel.
- Personnel must have read and understood the complete manual before beginning any work on the product.
- Observe national accident prevention regulations and the general safety notes.

The following personnel qualifications are required for the various types of work on 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 have been instructed by the user regarding the tasks entrusted to them and the potential dangers of inappropriate behavior.
Manufacturer's service personnel	The manufacturer's service personnel have the specialized training, knowledge, and experience to perform the work entrusted to them and to recognize and avoid potential dangers.

2.6 Personal protective equipment

Use of personal protective equipment

Personal protective equipment serves to protect staff in the event of a danger that 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.

2.7 Notes on safe operation

Incorrect manner of working by personnel

An incorrect manner of working can make the product unsafe and risk the danger of serious injuries and considerable material damages.

- 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. Products for special ambient conditions are excluded.
- Rectify malfunctions as soon as they occur.
- Observe the care and maintenance instructions.
- Observe the current safety, accident prevention, and environmental protection regulations for the application field of the product.

2.8 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.

2.9 Disposal

Handling of disposal

Incorrect handling during disposal can make the product unsafe and risks serious injuries and considerable material and environmental harm.

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

2.10 Fundamental hazards

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.

Possible electrostatic energy

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

- The operator must ensure that all components and assembly groups are included in the local equipotential bonding in line with the applicable regulations.
- The equipotential bonding must be implemented by a specialist electrician in line with the applicable regulations while paying particular attention to the actual conditions in the working environment.
- The effectiveness of the equipotential bonding must be verified by regular safety measurements.

⚠ WARNING

Risk of injury due to uncontrolled movements!

Incorrect control can cause the product to move in an uncontrolled manner and cause serious injuries.

- Do not reach into the movement area of the product during commissioning, conversion and adjustment work.
- Observe the direction of rotation of the product when designing the control system.

⚠ WARNING

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.

- Before starting any work on the product: Switch off the energy supply and secure against re-connection.
- Ensure that no residual energy remains in the system.

2.10.1 Protection during handling and assembly

Incorrect handling and assembly

Incorrect handling and assembly can make the product unsafe and pose a risk of serious injuries and considerable material damage.

- Order all work to be performed only by appropriately qualified personnel.
- For all work, secure the product against accidental operation.
- Observe the relevant accident prevention regulations.
- Use suitable assembly and transport equipment and take precautions to prevent jamming and crushing.

Incorrect lifting of 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 not leave suspended loads unattended.

2.10.2 Protection during commissioning and operation

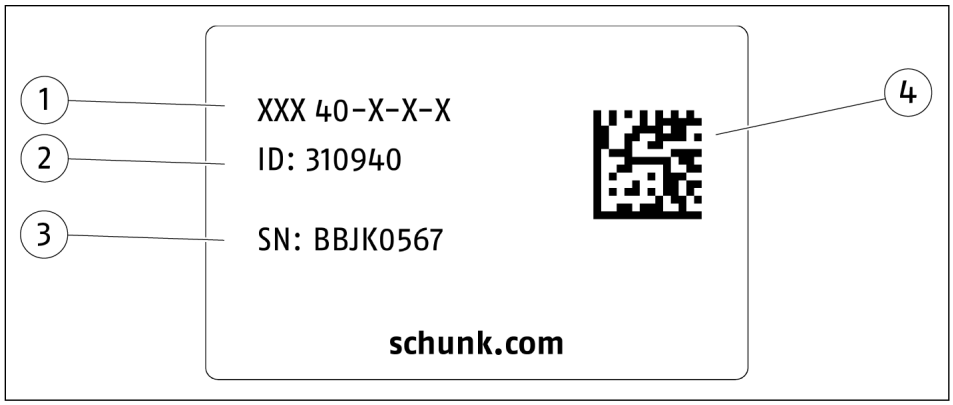
Falling or violently ejected components

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.

3 Technical specifications

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.

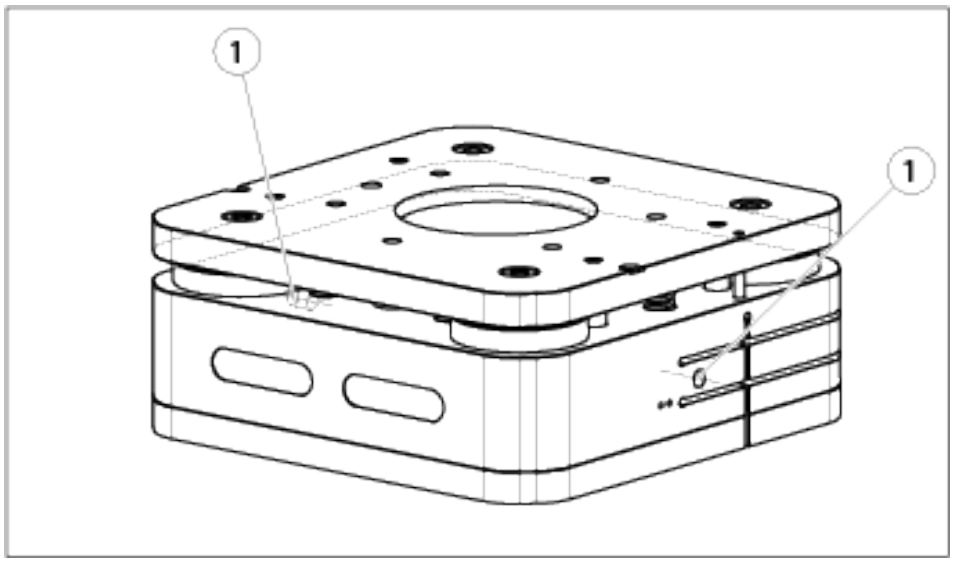
3.2 Basic data

Designation	Value
Pressure medium	Compressed air, compressed air quality according to ISO 8573-1:2010 [7:4:4]
Nominal operating pressure [bar]	6
Ambient temperature [°C] max.	+60
Ambient temperature [°C] min.	+5
Noise emission [dB(A)]	≤70

Size	Weight [kg]	Compensation range in Z direction [mm]
031	0.5	4
040	0.7	4
050	1.0	6
063	1.9	8
080	3.6	10
100	6.0	15
125	9.7	15
160	17.7	15
160L	25.2	20

4 Installation and commissioning

Use the M10 side transport threads (1) or, if necessary, the threads of the ISO screw-on surface



⚠ WARNING

Risk of injury due to the product falling!

During transport and assembly/disassembly, the product may fall and cause injury.

- Secure the product using appropriately dimensioned aids.
- Use transport threads from size 160 onwards.
- Wear suitable protective equipment.

⚠ WARNING

Risk of injury due to unexpected movements of the machine/ system!

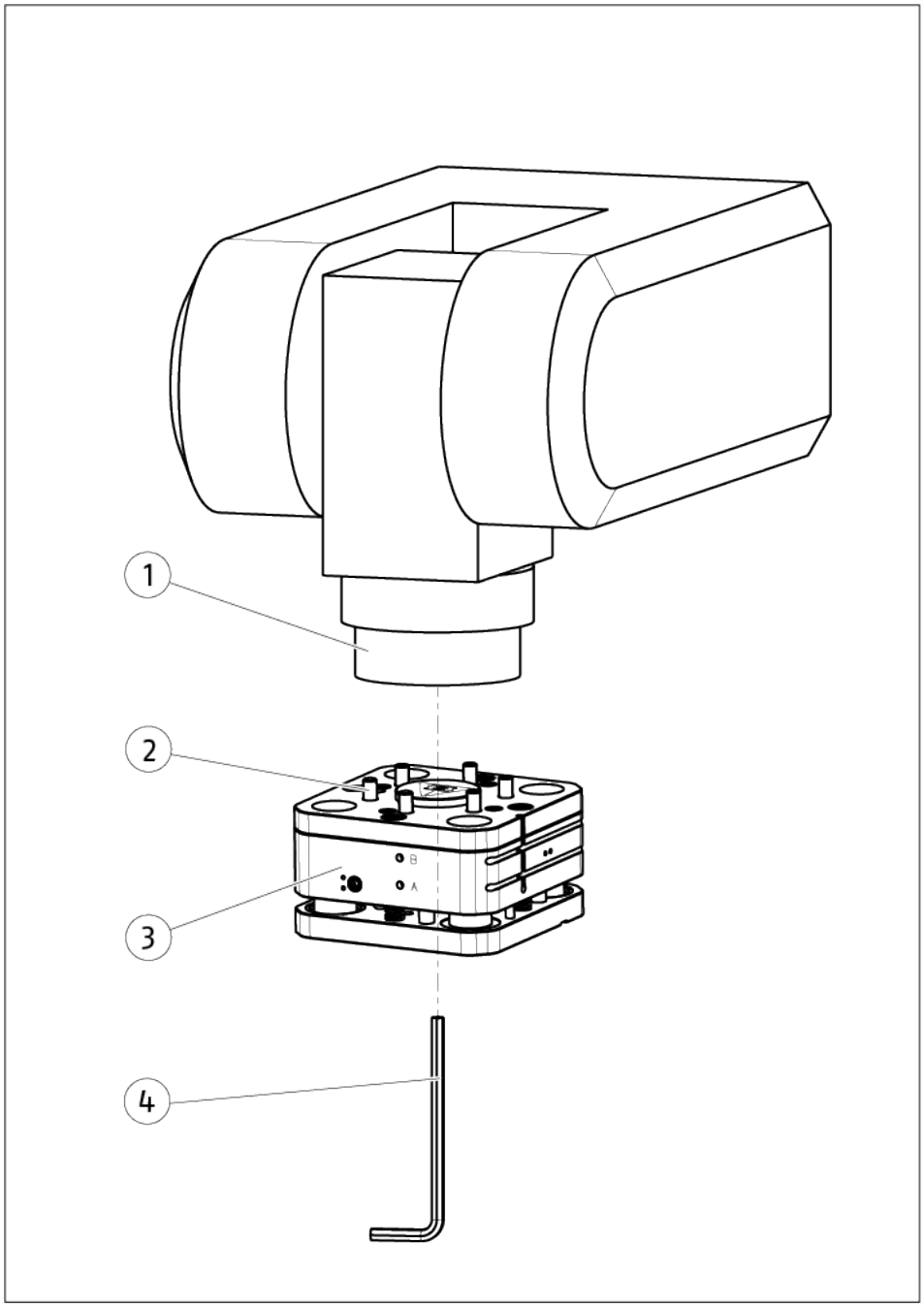
Switch off the power supply.

Ensure that there is no residual energy left in the system.

NOTE

To increase the service life of the unit, it is recommended to retract the unit during fast travel movements and/or with heavy loads.

4.1 Installation example



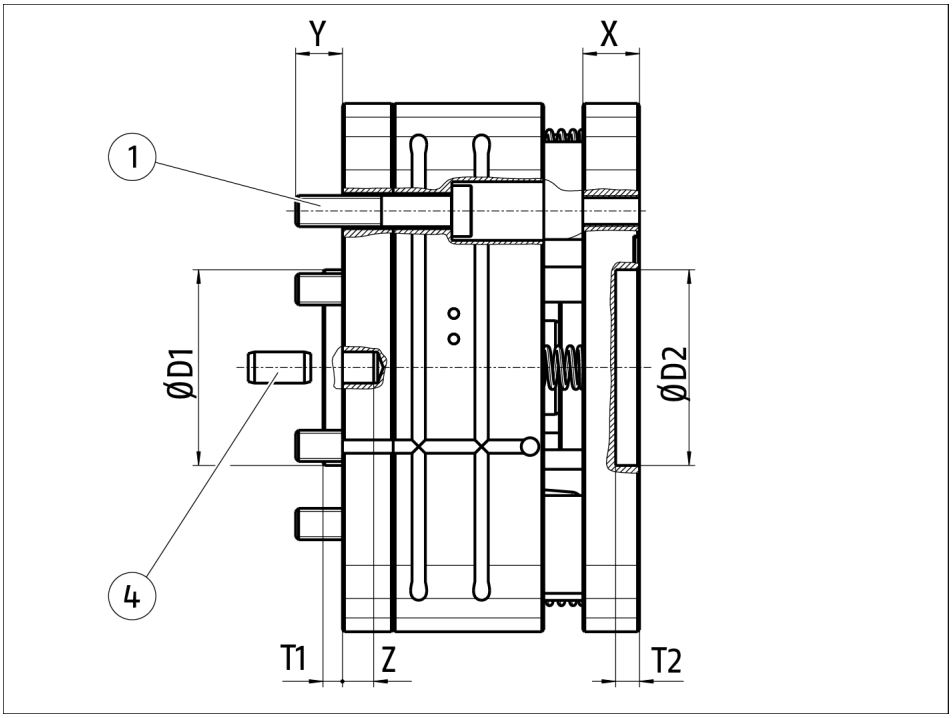
Item	Description	Notes
1	Robot arm	with interface according to DIN ISO 9409
2	Mounting screws	pre-assembled
3	Compensating element AGM-Z	
4	Hexagonal wrench	for fastening the pre-assembled fastening screws (2)

4.2 Attaching the product to the robot

NOTICE

Breakage possible due to incorrect installation!

- Observe the maximum screw-in depth on the robot or tool side, see table: Permissible fastenings, centering, and screw tightening torque.



Size	Robot interface
031	ISO 9409-1-31.5-4-M5
04	ISO 9409-1-40-4-M6
063	ISO 9409-1-63-4-M6
080	ISO 9409-1-80-6-M8
100	ISO 9409-1-100-6-M8
125	ISO 9409-1-125-6-M10
160	ISO 9409-1-160-6-M10
160L	ISO 9409-1-160-6-M10

Size	① Screw Thread Ø	② Cylindrical pin Ø [mm]	ⓧ Max. screw-in depth on tool side [mm]	ⓨ Max. screw-in depth on robot side [mm	ⓩ Ø and depth centering [mm]	Tightening torque [Nm]
031	M5	5	8	7.5	Ø5H7x6	6.1
040	M6	6	9	10.1	Ø6H7x6	10

Size	① Screw Thread Ø	② Cylindrical pin Ø [mm]	ⓧ Max. screw-in depth on tool side [mm]	ⓨ Max. screw-in depth on robot side [mm	ⓩ Ø and depth centering [mm]	Tightening torque [Nm]
050	M6	6	9	9	Ø6H7x6	10
063	M6	6	12	9	Ø6H7x6	10
080	M8	8	14	12	Ø8H7x8	25
100	M8	8	17	12	Ø8H7x8	25
125	M10	10	17	14	Ø10H7x10	49
160	M10	10	17	15	Ø10H7x10	49
160L	M10	10	24	16	Ø10H7x10	49

Size	Ø D1 0 −0.03	Ø D2 +0.02 0	T1	T2
031	20	20	4	3
040	25	25	6	3
050	31.5	31.5	6	4
063	40	40	6	5
080	50	50	6	5
100	63	63	6	6
125	80	80	8	6
160	100	100	8	6
160L	100	100	8	6

Permissible fastenings, centering, and screw tightening torque

The required cylindrical pin (2) is included in the accessory pack. The fastening screws (1) shown are already pre-mounted in the module.

1. The cylindrical pin (2) can be used to center the AGM-Z.
2. AttachAGM-Z to the robot interface by tightening the pre-assembled screws (1), see table: Permissible fastenings, centering, and screw tightening torque.
3. The pneumatic connection and electrical cables are fastened, bundled, and mounted with strain relief to ensure maximum freedom of movement during use.

4.3 Adapter plates

Available adapter plates

Adapter plate	ID number
A-IS0031/IS0040	1600680
A-IS0040/IS0031	1601226
A-IS0040/IS0050	1601228
A-IS0050/IS0040	1601229
A-IS0050/IS0063	1601240
A-IS0063/IS0050	1601241
A-IS0063/IS0080	1601243
A-IS0080/IS0063	1601244
A-IS0080/IS0100	1601245
A-IS0100/IS0080	1601246
A-IS0100/IS0125	1601248
A-IS0125/IS0100	1601249
A-IS0125/IS0160	1601250
A-IS0160/IS0125	1601252
A-IS0160/IS0200	1601254
A-IS0200/IS0160	1601255
A-IS0200/IS0200-12xM16	1601256

4.4 Compressed air connection

NOTICE

Possible damage to the unit!

Exceeding the maximum permissible handling weight or the permissible mass moment of inertia may damage the unit.

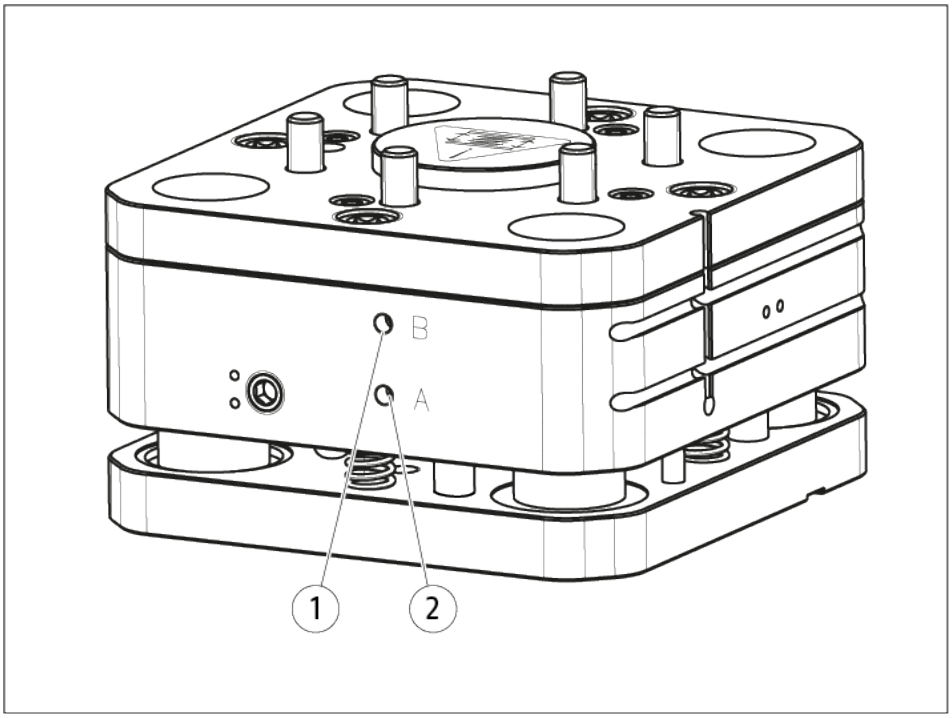
- Compensatory movements must always be performed without impact or rebound.
- To do this, apply sufficient throttling and/or damping.
- Observe the diagrams and information in the catalog data sheet.

NOTICE

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

NOTE

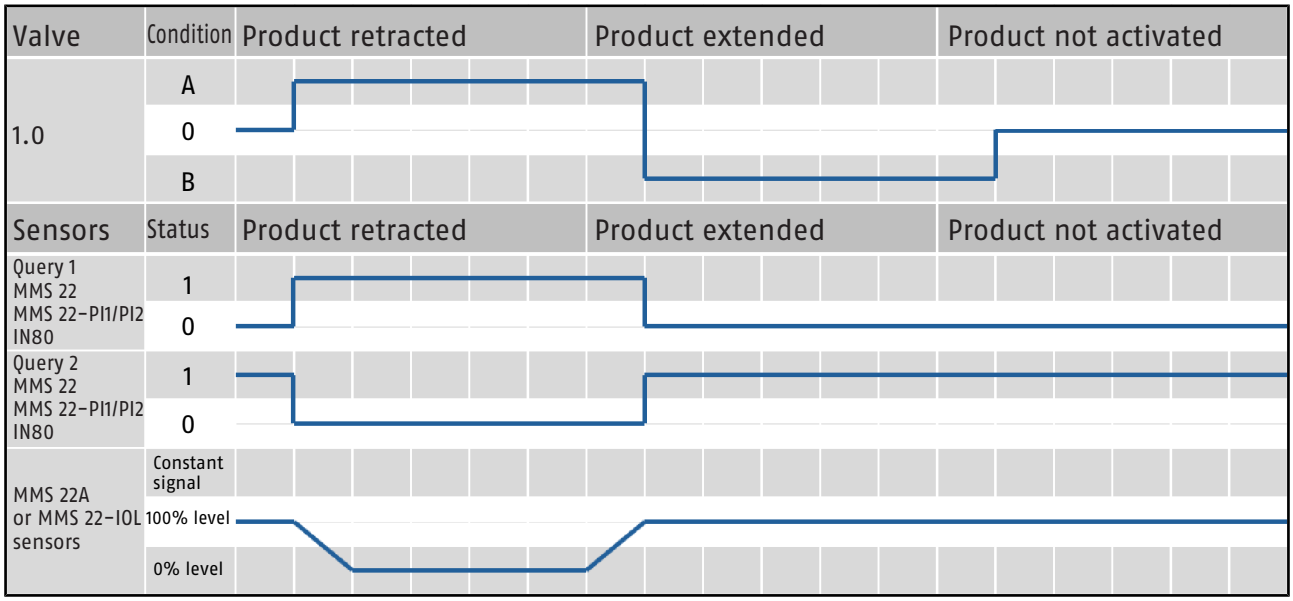
In the event of a pressure drop or emergency stop, the AGM-Z returns to its initial position.



Size	Item ① Connection B, extend Thread Ø	Item ② Connection A, retract Thread Ø
031	M5	M5
040	M5	M5
050	M5	M5
063	M5	M5
080	M5	M5

Size	Item ① Connection B, extend Thread Ø	Item ② Connection A, retract Thread Ø
100	G1/8	G1/8
125	G1/8	G1/8
160	G1/8	G1/8
160L	G1/8	G1/8

Flow chart



4.5 Install sensors

NOTE
When mounting and connecting the sensors, observe the Sensor Assembly and Operating Manual.

The product is prepared for the use of sensors.

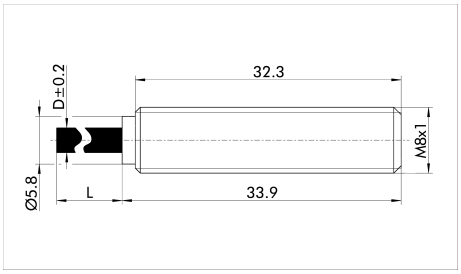
- For exact type designations of suitable sensors, see the catalog data sheet and ▸ 4.5.1 [🗋 23].
- For technical data on the appropriate sensors, see the installation and operating instructions and the catalog data sheet.
  - The installation and operating instructions and the catalog data sheet are included with the sensor and are available at **schunk.com**.
- For information on handling sensors, visit **schunk.com** or contact your SCHUNK representative.

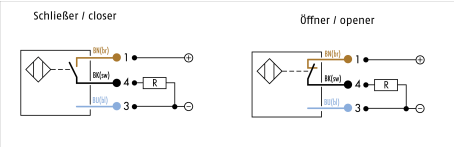
4.5.1 Overview of sensors

Size	IN 80	MMS 22	MMS 22-A	MMS 22-IOL	MMS 22-PI1	MMS 22-PI2
031	✓	✓	✓	✓	✓	✓
040	✓	✓	✓	✓	✓	✓
050	✓	✓	✓	✓	✓	✓
063	✓	✓	✓	✓	✓	✓
080	✓	✓	✓	✓	✓	✓
100	✓	✓	✓	✓	✓	✓
125	✓	✓	✓	✓	✓	✓
160	✓	✓	✓	✓	✓	✓
160L	✓	✓	✓	✓	✓	✓

4.5.2 Mounting the IN 80 inductive proximity switch

Sensor and circuit diagram





The inductive proximity switch used is reverse polarity protected and short-circuit proof.

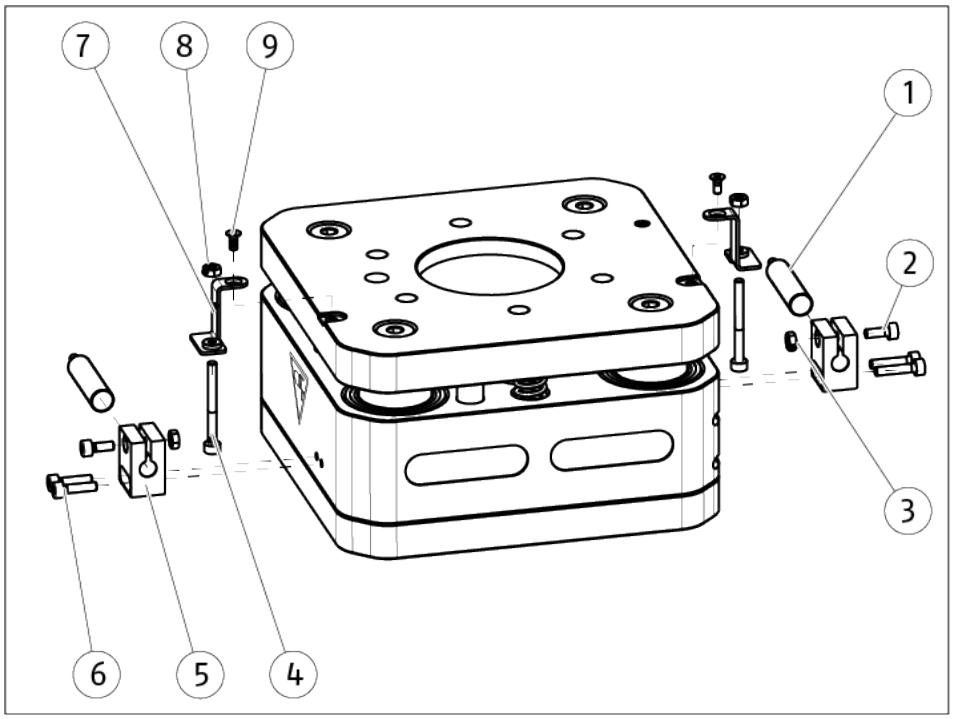
The following must be observed when handling the proximity switch correctly:

- Do not pull on the sensor cable.
- Do not allow the sensor to dangle by the cable.
- Do not overtighten the fastening screw or clamps.
- Observe the permissible bending radius of the cable (☞ catalog specifications).
- Avoid contact of the proximity switches with hard objects and chemicals, especially nitric, chromic and sulphuric acid.

The inductive proximity switch is an electronic component that can react sensitively to high-frequency interference or electromagnetic fields.

- Check the attachment and installation of the cable. The distance to high-frequency interference sources and their supply line must be sufficient.
- The parallel connection of several sensor outputs of the same type (npn, pnp) is permitted, but does not increase the permissible load current.
- It should be noted that the leakage current of the individual sensors (approx. 2 mA) is added together.

To mount the IN proximity switches, the product must be retrofitted with a special mounting kit. This mounting kit is available from SCHUNK. See the catalog for available types.



Assembly of the mounting kit

1. Insert screw (2) and nut (3) into bracket (5) and tighten slightly
2. Secure the bracket (5) to the housing with two screws (6) (tightening torque 20 Ncm).
3. Push the sensor (1) into the holder (5). Then tighten the screw (2) completely to clamp the sensor (1) (tightening torque 20 Ncm).
4. Attach retaining plate (7) to the tool flange with screw (9).
5. Screw in screw (4) to the desired sensing position and lock with nut (8).
6. Repeat the process for the second holder/sensor.

Adjusting the proximity switch

The switching points for the "retracted" and "extended" positions must be set.

Unit extended

1. Move the unit to the "extended" position.
2. Screw in screw (4) on one side until the head is level with the sensor and switches.
3. Lock nut (8) to fix the switching point.
4. Retract and extend the unit again to test the function.

Unit retracted

1. Move the unit to the "retracted" position.
2. Screw in screw (4) on the other side until the head is level with the sensor and switches.
3. Lock nut (8) to fix the switching point.

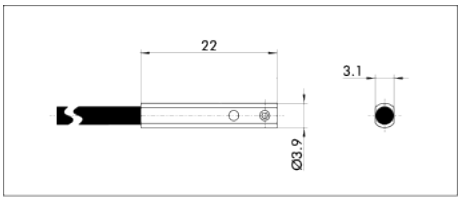
4. Retract and extend the unit again to test its function.

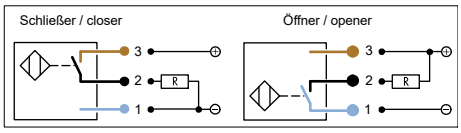
Unit in intermediate position

1. Move the unit to the "Extended" position when queried "Unit Extended" and "Unit Intermediate Position" or to the "Retracted" position when queried "Unit Retracted" and "Unit Intermediate Position".
2. Screw in screw (4) on the free side until the head is level with the sensor and switches.
3. Lock nut (8) to fix the switching point.
4. Retract and extend the unit again (unit in intermediate position) to test the function.

4.5.3 Installing the MMS 22 magnetic switch

Sensor and circuit diagram





NOTICE

Material damage due to an incorrect tightening torque!

If the threaded pin is tightened with an incorrect tightening torque, the product may be damaged.

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

NOTE

Ferromagnetic components change the switching positions of the sensor. Example: Adapter plate made of mild steel.

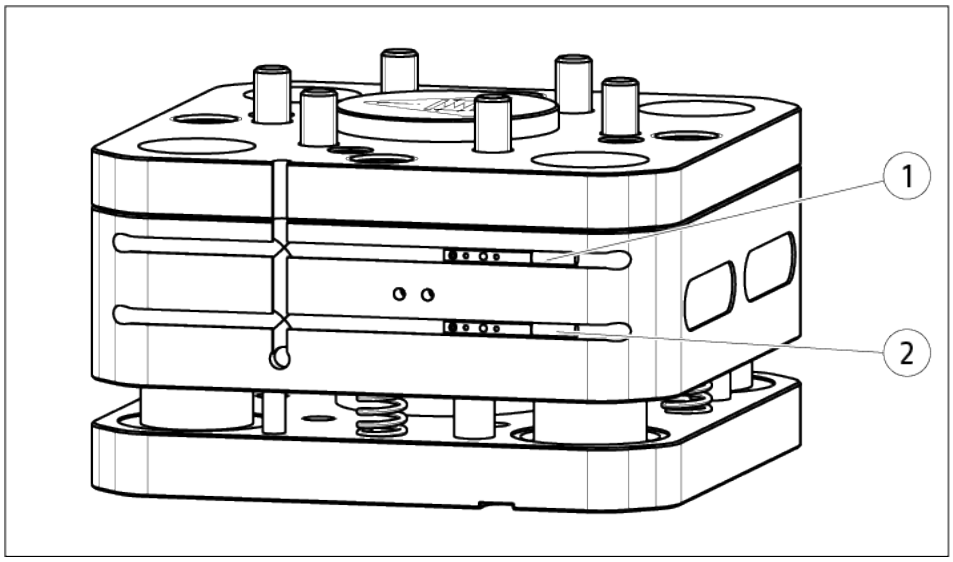
For ferromagnetic adapter plates:

- First mount the product on the adapter plate.
- Then set the switching position of the sensor.

NOTE

- Do not use the sensor as a safety component.
- Do not pull on the cable of the sensor.
- Secure the cable and connection plug so that they are not taught and cannot move during operation.
- Do not exceed the permitted bending radius of the cable.
- Do not allow the sensor to come into contact with hard objects and chemicals (e. g., nitric acid, chromic acid and sulfuric acid).

The switching function is shown in an undamped state.



Item	Designation	Item	Designation
1	Magnetic switch 1 "Run-in state"	2	Magnetic switch 2 "extended state"

Compensation unit retracted

⚠ WARNING

Risk of crushing fingers

Do not insert fingers into the gap.

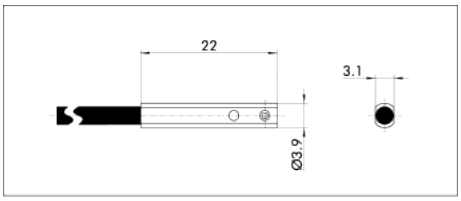
1. Apply pressure to connection A.
   ⇨ AGM-Z is retracted.
2. Push magnetic switch 1 into the profile groove until it switches.
3. Secure magnetic switch 1 in this position with the screw in the magnetic switch.
4. Extend and retractAGM-Z to test its function.

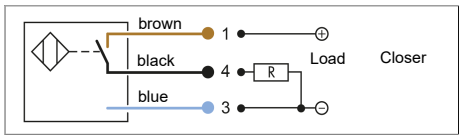
Compensation unit Extended

1. Apply pressure to connection B.
   ⇨ AGM-Z is extended.
2. Push magnetic switch 2 into the profile groove until it switches.
3. Secure magnetic switch 2 in this position with the screw in the magnetic switch.
4. Extend and retractAGM-Z to test the function.

4.5.4 Installing the MMS 22-A magnetic switch

Sensor and circuit diagram

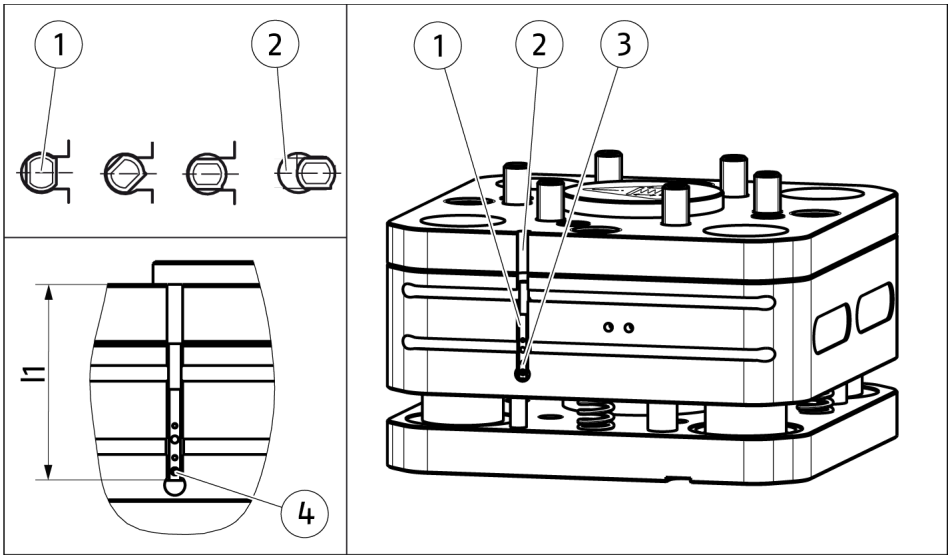




NOTICE

Risk of damage to the sensor during assembly!

- Observe the maximum tightening torque.



NOTE

The slotted nut is set to the dimensions of the PI2 sensor (160L without stop) upon delivery, so the distance must be readjusted for this sensor beforehand.
Loosen the slotted nut, set it to the l1 dimension, and tighten it; see the table below.

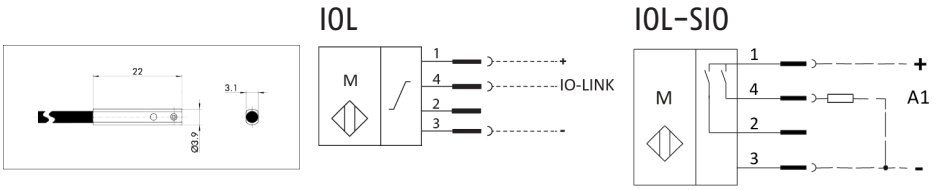
1. Turn the sensor (1) into the groove (2).
   OR: Slide the sensor (1) into the groove (2) until the sensor (1) stops at the T-nut (3).
2. Secure the sensor (1) using the set-screw (4).
   Tightening torque: 10 Ncm
3. Adjust sensor (1), see Translation of Sensor Assembly and Operating Manual.

Size	l1* [mm]
031	25.0
040	22.0

Size	l1* [mm]
050	24.0
063	34.5
080	45.5
100	47.0
125	46.0
160	56.5
160L	82.4

4.5.5 Installing the MMS 22-IOL magnetic switch

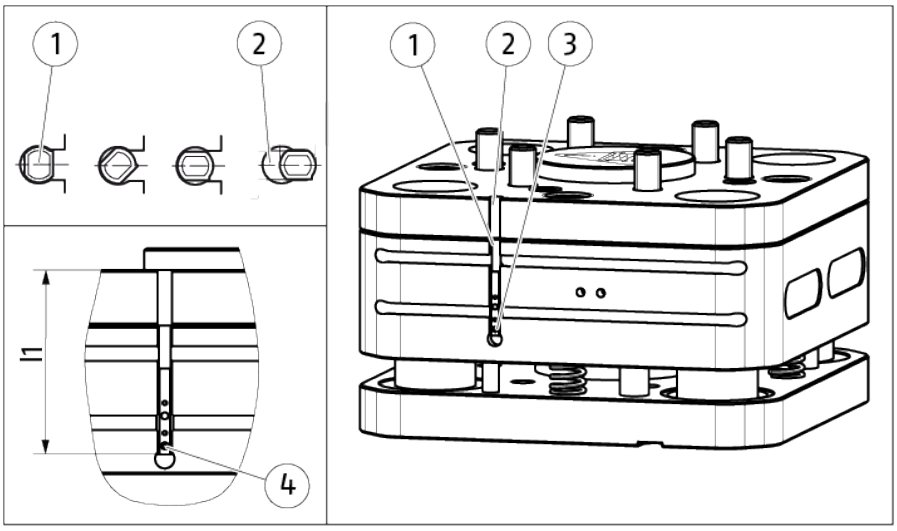
Sensor and circuit diagram



NOTICE

Risk of damage to the sensor during assembly!

- Observe the maximum tightening torque.



NOTE

The slotted nut is set to the dimensions of the PI2 sensor (160L without stop) upon delivery, so the distance must be readjusted for this sensor beforehand.
Loosen the slotted nut, set it to the l1 dimension, and tighten it; see the table below.

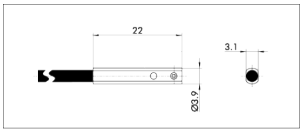
1. Turn the sensor (1) into the groove (2).
   OR: Slide the sensor (1) into the groove (2) until the sensor (1) stops at the T-nut (3).
2. Secure the sensor (1) using the set-screw (4).
   Tightening torque: 10 Ncm
3. Adjust sensor (1), see Translation of Sensor Assembly and Operating Manual.

Size	l1* [mm]
031	23.4
040	25.5
050	23.5

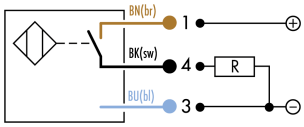
Size	l1* [mm]
063	33.5
080	43.0
100	45.5
125	46.5
160	59.5
160L	82.4

4.5.6 Installing the MMS 22-PI1 programmable magnetic switch

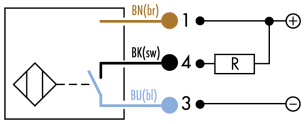
Sensor and circuit diagram



Normally open contact PNP



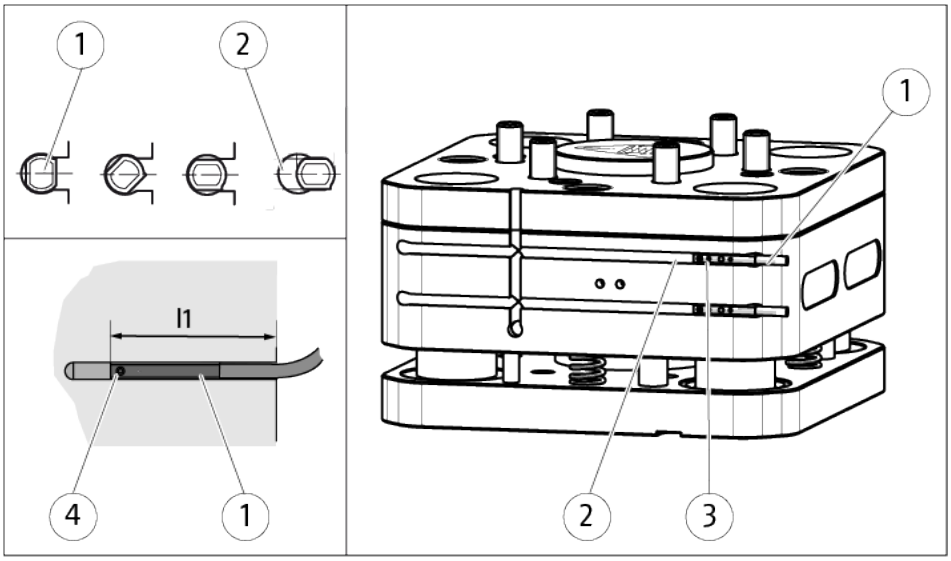
NPN normally open contact



NOTICE

Risk of damage to the sensor during assembly!

- Observe the maximum tightening torque.



NOTE

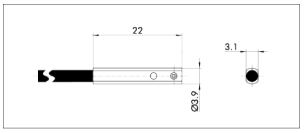
The sensor determines the optimal position in the groove itself.

Adjust the sensor

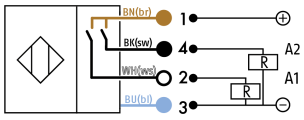
1. Put product in the position in which it is to be set.
2. Hold the teach tool against sensor 1 (1) until it flashes.
3. Push sensor 1 (1) into the groove (2) until sensor 1 flashes rapidly.
   ⇨ The optimal position is displayed.
4. Secure sensor 1 (1) with threaded pin (3).
   Tightening torque: 10 Ncm
5. Hold the teach tool against sensor 1 (1) to confirm the position.
   ⇨ Sensor 1 (1) is now programmed.
6. Repeat the steps for sensor 2.

4.5.7 Installing the MMS 22-PI2 programmable magnetic switch

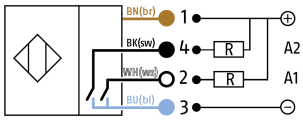
Sensor and circuit diagram



Normally open contact PNP



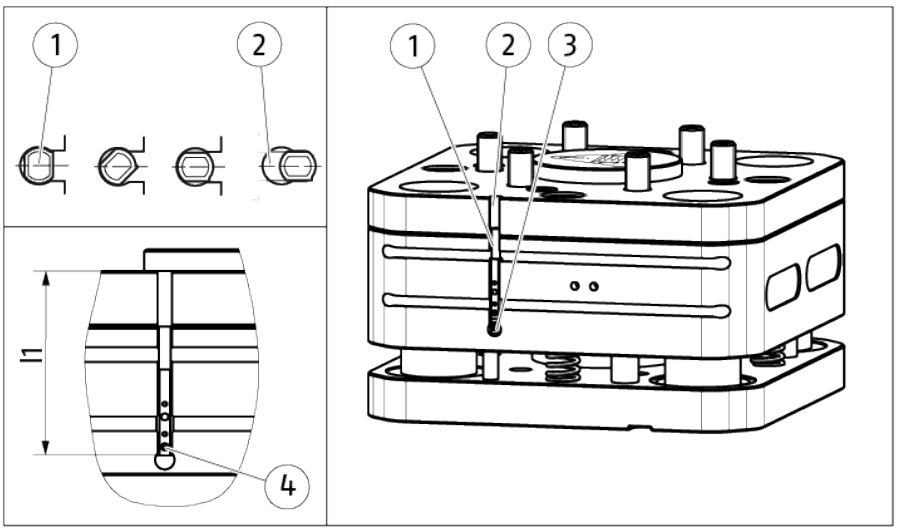
NPN normally open contact



NOTICE

Risk of damage to the sensor during assembly!

- Observe the maximum tightening torque.



NOTE

The slot nut is set to the dimensions of the PI2 sensor upon delivery (160L without stop).
Therefore, the distance does not need to be adjusted for this sensor.

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 Translation of Sensor Assembly and Operating Manual.

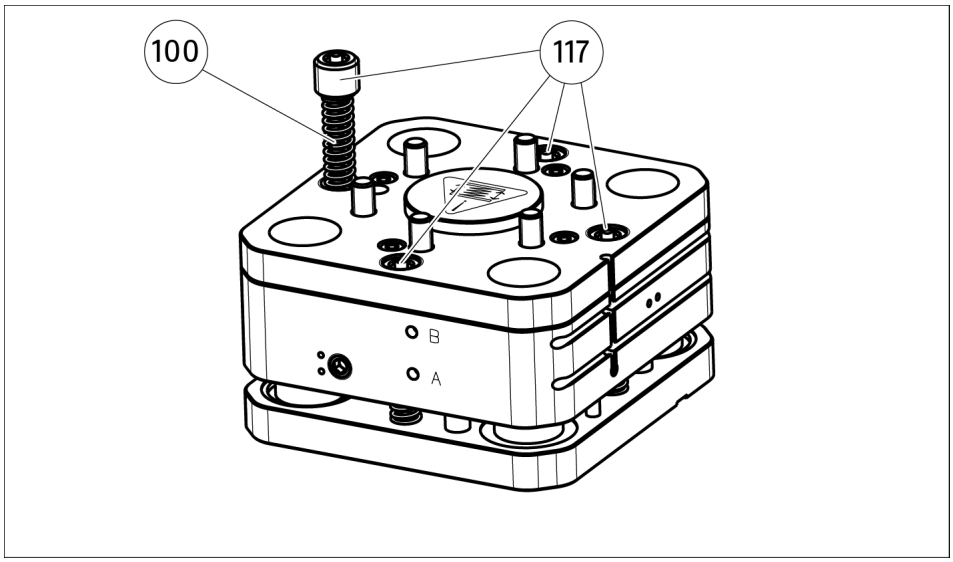
Size	l1* [mm]
031	23.5
040	22.5
050	22.5

Size	l1* [mm]
063	32.5
080	40.5
100	46.2
125	47.0
160	58.5
160L	82.4

4.6 Adjusting the spring tension

The product is delivered with the following spring tension.

Size	Number of springs	min. Spring force [N]	max. Spring force [N]
031	4	28	50
040	4	24	45
050	4	29	65
063	4	80	125
080	4	200	300
100	4	230	700
125	6	680	1000
160	6	900	1350
160L	6	900	1400



Reducing spring tension

The spring tension can be reduced accordingly by removing springs (see table below).

⚠ WARNING

Springs are under tension

Carefully remove the threaded pin.

1. Carefully unscrew the threaded pin (117) and remove the springs (100).
2. Screw the threaded pin (117) back in.

Size	Number of springs	min. Spring force [N]	max. Spring force [N]
031	2	–	–
040	2	6	25

Size	Number of springs	min. Spring force [N]	max. Spring force [N]
050	2	10	50
063	2	35	65
080	2	110	170
100	2	110	350
125	3	335	530
160	3	500	700
160L	3	430	680

5 Troubleshooting

Malfunction / error that occurred	Possible cause / Corrective action
The AGM-Z deflates when stationary	Air connection not installed correctly.
The AGM-Z loses air when in operation	The AGM-Z must be returned to the factory for inspection

6 Maintenance

The product is maintenance-free provided that the ambient and operating conditions are met, ▶ 2.4 [🗋 9].

Although the product is maintenance-free, it should be regularly inspected visually to ensure that it functions properly.

In the case of extreme ambient and operating conditions, such as

- Contaminated environments
- High temperatures
- Operations using compressed air quality that does not meet ISO 8573-1: 7:4:4

the product must be cleaned, checked for damage and wear, relubricated and the seals replaced as required.

This will help achieve a long service life even under extreme ambient and operating conditions.

6.1 lubrication intervals

NOTICE

Material damage due to hardened lubricants!

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

- Reduce maintenance interval accordingly.

6.2 Lubrication

During maintenance, certain parts must be assembled with oil or grease (basic lubrication). All seals must be replaced during each maintenance of AGM-Z. The complete seal set is available from SCHUNK.

6.3 Lubricants/lubrication points (basic lubrication)

During maintenance, treat all greasing areas with lubricant. Apply a thin film of lubricant using a lint-free cloth.

SCHUNK recommends the listed lubricants.

Lubricant point	Lubricant
Seals and sealing surfaces	SCHUNK grease 1
Linear guides	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.

NOTICE

Do not grease the sliding surface between the storage piston (3) and the compensating body (8)! The O-ring (28) must be free of grease!

(Position of the item numbers ▶ 7 [🗋 42])

6.4 Disassemble product

⚠ WARNING

Risk of injury due to spring forces!

Components are under spring tension. When disassembling, components may move unexpectedly and cause serious injury.

- Carefully disassemble the product
- Ensure that there is no residual energy in the system.

NOTICE

Do not damage any seals during reassembly.

The complete seal kit is available from SCHUNK.

Position of the item numbers ▶ 7 [🗋 42]

1. Remove pressure lines and cable connections.
2. Carefully unscrew the threaded pins (117) (caution: preloaded springs) and remove the springs (100).
3. Unscrew the screws (103) and remove the robot flange (1). (Caution: the robot flange (1) is under spring tension).
4. Unscrew the screw (11) and remove the piston (5) from the housing (2).

6.5 Maintain and assemble the product

Maintenance

- Clean all parts thoroughly and check for damage and wear.
- Treat all greased areas with lubricant. ▶ 6.3 [🗋 40]
- Oil or grease bare external steel parts.
- Replace all wear parts / seals.

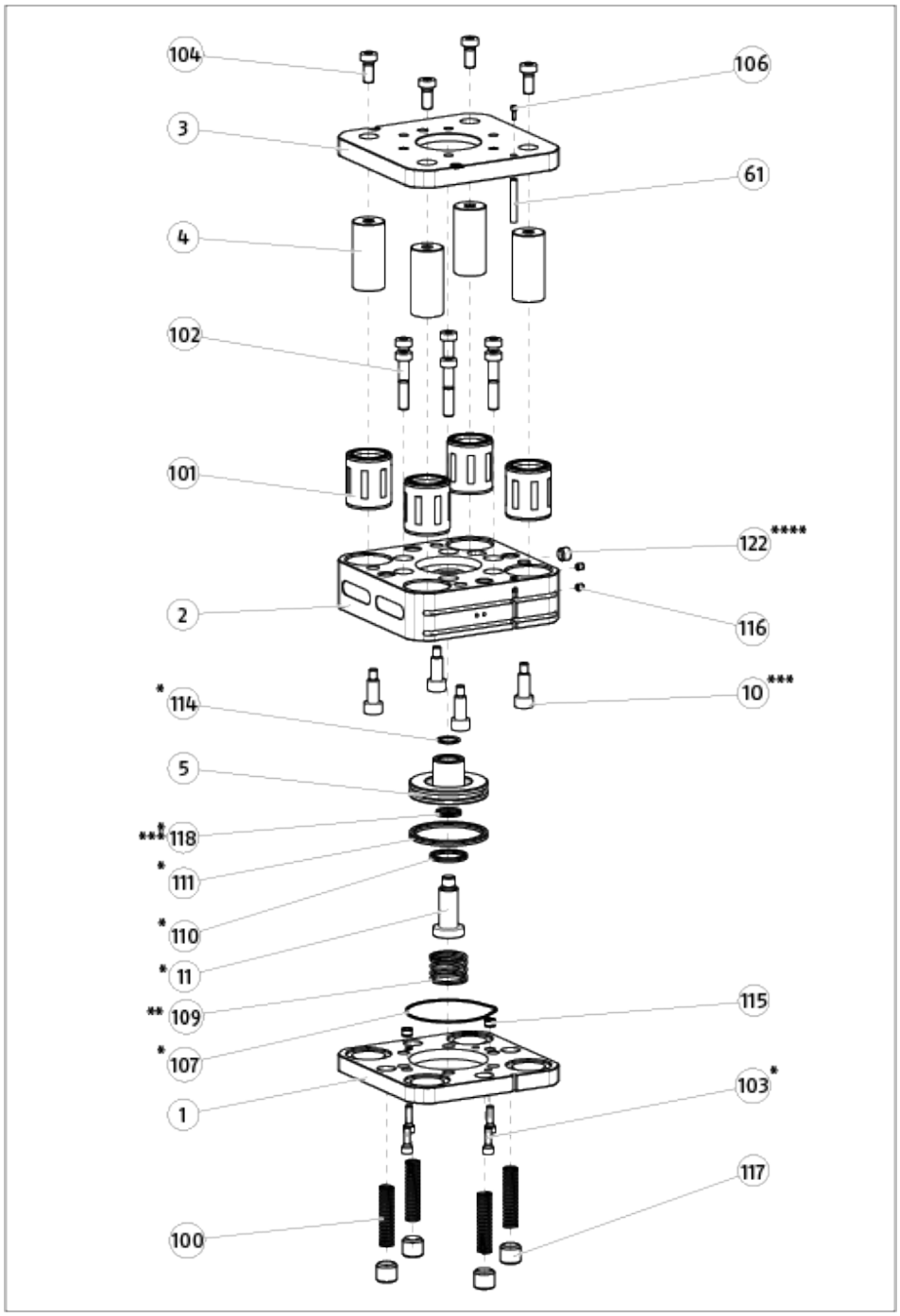
Assembly

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

- Unless otherwise specified, all screws and nuts must be secured with Weicon No. 30243 and tightened to the specified torque.

7 assembly drawing

The following illustration is an example.
It is used as an illustration and for a classification of the individual components.
Deviations possible depending on size and version.



* Wearing part, replace during maintenance. Included in the spare parts package. Spare parts package can only be ordered as a complete set.

** Spring is only installed in size 031

*** Components are installed from size 040

**** Components are installed from size 080 onwards

8 Spare parts package

Size	ID number
031	1581380
040	1581382
050	1581383
063	1581414
080	1581418
100	1581426
125	1581431
160	1581435
160L	1581441

Contents of the spare parts package, ▶ 7 [🗋 42].

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

We hereby declare that the partly completed machine described below

Product designation:	Compensation unit in Z direction / AGM–Z /pneumatic
ID number	1575899, 1575933, 1575965, 1575971, 1575977, 1575979, 1575990, 1575992, 1575993, 1575995
Product designation:	Combination of AGM–XY and AGM–Z – AGM–XYZ
ID number	1591320, 1591324, 1591325, 1591326, 1591328, 1591329, 1591340, 1591342, 1591343, 1591345, 1601257, 1601259, 1601260, 1601261, 1601262, 1601263,1601264, 1601265, 1601266, 1601268
Product designation:	Combination of AGM–W and AGM–Z – AGM–WZ
ID number	1591347, 1591354, 1591355

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 WalterAddress: refer to manufacturer's address

Signature: see original declaration

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

Lauffen/Neckar, June 2025

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:	Compensation unit in Z direction / AGM-Z / pneumatic
ID number	1575899, 1575933, 1575965, 1575971, 1575977, 1575979, 1575990, 1575992, 1575993, 1575995
Product designation:	Combination of AGM-XY and AGM-Z - AGM-XYZ
ID number	1591320, 1591324, 1591325, 1591326, 1591328, 1591329, 1591340, 1591342, 1591343, 1591345, 1601257, 1601259, 1601260, 1601261, 1601262, 1601263,1601264, 1601265, 1601266, 1601268
Product designation:	Combination of AGM-W and AGM-Z - AGM-WZ
ID number	1591347, 1591354, 1591355

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

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

Lauffen/Neckar, June 2025

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

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

Lauffen/Neckar, June 2025

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