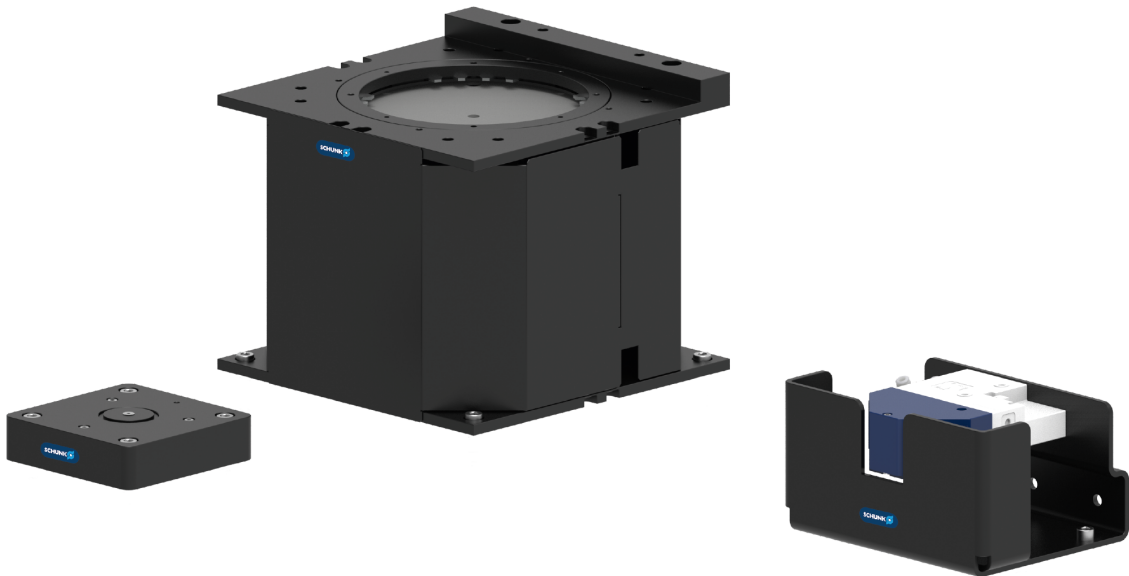


# Assembly and Operating Manual

## AOV-MC

Media changer for orbital sander



Superior Clamping and Gripping

**SCHUNK** ®

## Imprint

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

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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.

In addition to these instructions, the documents listed under ► 1.1.3 [ 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 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](https://www.schunk.com).

### **1.1.4 Components**

This manual applies to the following components:

- Media feeder AOV-MF
- Media checker AOV-MCH
- Media remover AOV-MRA

## **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 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

- Components of the media changer for orbital sander in the version ordered
- Assembly and Operating Manual

## 2 Basic safety notes

### 2.1 Intended use

This product is exclusively intended for the automatic removal and reinsertion of sanding discs with Velcro fastener and for checking the correct change procedure for orbital sanders.

- The product may only be used within the scope of its technical data, ▶ 3 [13].
- When implementing and operating components in safety-related parts of the control systems, the basic safety principles in accordance with DIN EN ISO 13849-2 apply. The proven safety principles in accordance with DIN EN ISO 13849-2 also apply to categories 1, 2, 3 and 4.
- 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

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.

- Inappropriate use includes using the product as a hand 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 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.

## 2.5 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 [□ 13].

## 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.
- Wear ear protection and safety goggles during the machining process.

## 2.8 Transport

### Handling during transport

Incorrect handling during transport can make the product unsafe and risk the danger of serious injuries and considerable material damage.

- During transport and handling, secure the product to prevent it from falling.
- Do not walk under suspended loads.

## 2.9 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.

## 2.10 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.

## 2.11 Fundamental dangers

### General

- Observe safety distances.
- Never deactivate safety installations.
- Install the provided protective product in the danger zone before switching on the product.
- Remove the energy supplies before installation, modification, maintenance, or adjustment work. Ensure there is no residual energy in the system.
- Do not move parts by hand while the energy supply is connected.
- Do not reach into the movement area of the product during operation.

### 2.11.1 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.

### **2.11.2 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.

### **2.11.3 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. Limit/prevent accidental access for people in this area due through technical safety measures. The protective cover and protective fence must be rigid enough to withstand the maximum possible movement energy. EMERGENCY STOP switches must be easily and quickly accessible. Before starting up the machine or automated system, check that the EMERGENCY STOP system is working. Prevent operation of the machine if this protective equipment does not function correctly.

## 2.12 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 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.



### **⚠ CAUTION**

#### **Risk of injury from flying chips and dirt particles**

During operation, flying chips and dirt particles can cause eye injuries.

- Always wear appropriate personal protective equipment, particularly protective goggles.
- Take suitable protective measures to secure the danger zone.

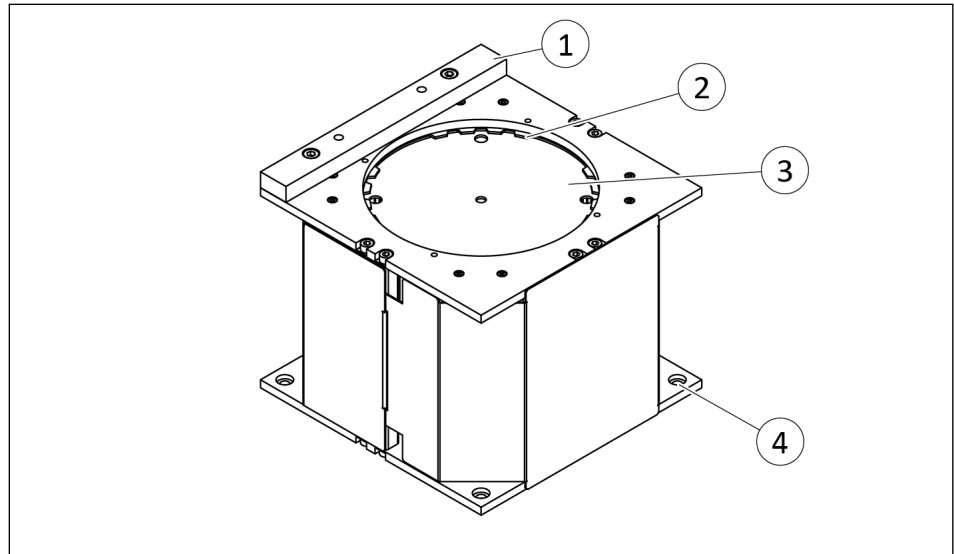
### 3 Technical data

Designation	AOV-MC
Nominal operating pressure [bar]	4.1-6.2
Pressure medium	Compressed air (clean, dry, filtered ( $\leq 5 \mu\text{m}$ ), oil-free)

## 4 Design and description

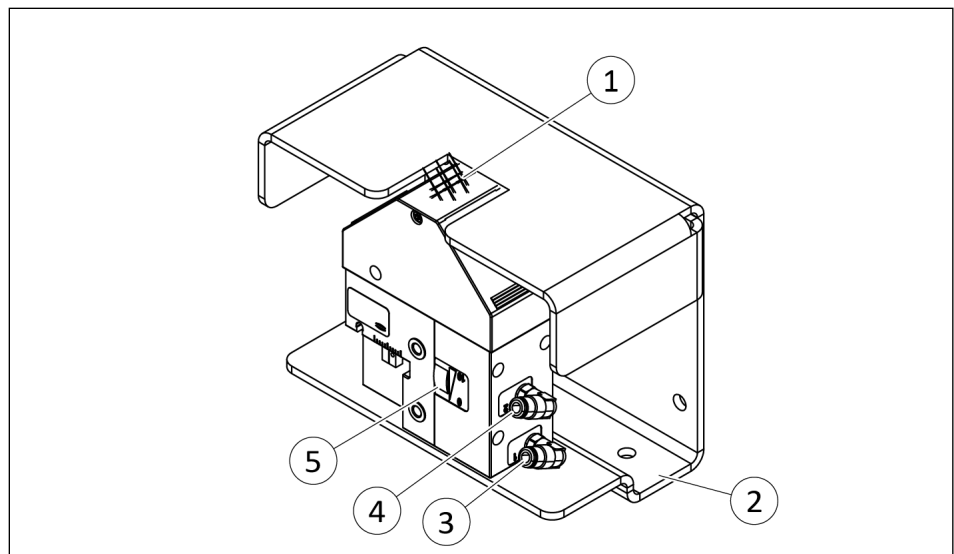
### 4.1 Design

#### Media feeder

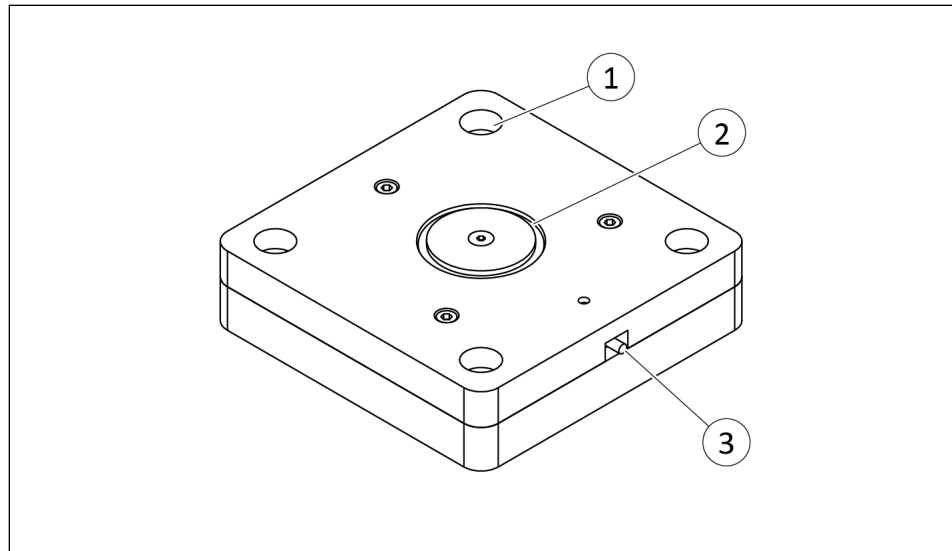


1	Alignment rail
2	Media retaining gasket
3	Media storage
4	Through holes for mounting

#### Media remover



1	Needle gripper
2	Plate with Through holes for mounting
3	"Retract needle" air connection
4	"Extend needle" air connection
5	Needle stroke adjustment

**Media checker**

1	Through holes for mounting
2	Media detection piston
3	Sensor connection

**4.2 Description**

Automatic sanding disc changer for mounting and removing sanding discs and checking the change procedure

## 5 Assembly

### 5.1 Installing and connecting



#### **⚠ WARNING**

##### **Risk of injury from needles!**

The needles on the media remover can cause cuts.

- Avoid contact.
- Wear suitable protective equipment.

- 
1. Mount the components of the product, ▶ 5.2 [17].
  2. Load the media feeder in small stacks with 15-25 sanding discs. The media must be inserted with the Velcro side facing upwards.
  3. Connect media remover to compressed air supply, ▶ 5.3 [18].
  4. Connect media checker, ▶ 5.4 [19].
  5. Teach-in components, ▶ 6 [20].

## 5.2 Mechanical connection

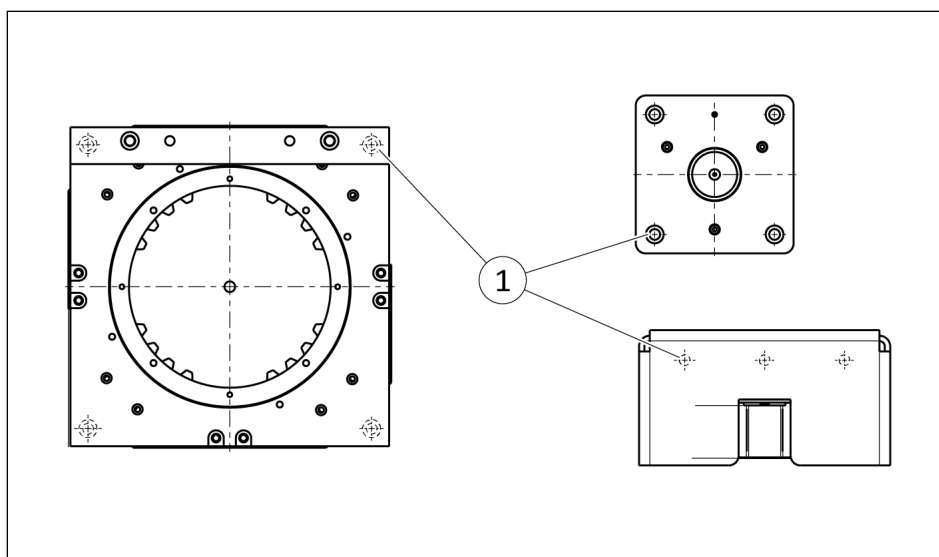
### Evenness of the mounting surface

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

*Requirements for evenness of the mounting surface (Dimensions in mm)*

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

The media checker and the media feeder can be mounted in all orientations. The media remover must be mounted in such a way that the media used can fall down by gravity.

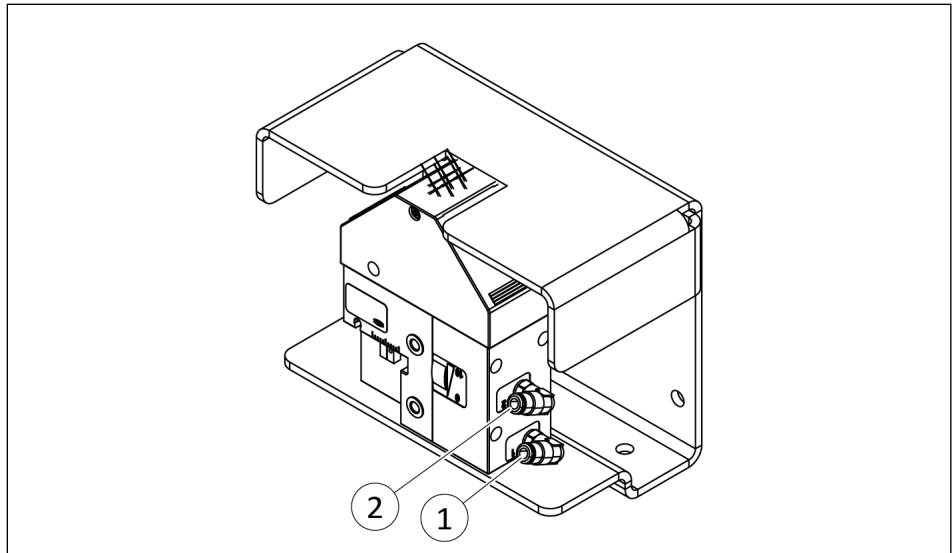


Item	Mounting	AOV-MC		
		MCH	MF	MRA
1	Through hole for mounting	M6		

### 5.3 Pneumatic connection

**NOTE**

- Observe the requirements for the compressed air supply, ▶ 3 [13].
- Use a 5/2 directional control valve to control the two air connections.

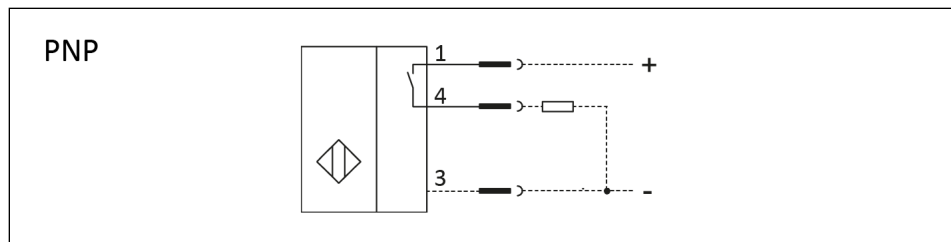


1	"Retract needle" air connection
2	"Extend needle" air connection

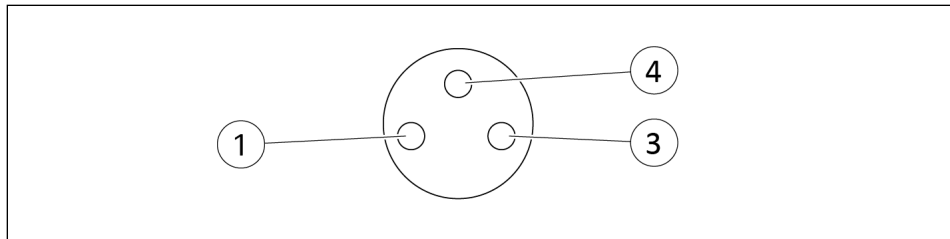
Item	Mounting	AOV-MRA
1	Hose connection [mm]	4
2	Hose connection [mm]	4

## 5.4 Electrical connection

### Proximity switch on the media checker



- Type of switching: PNP
- Switching function: Closer
- Connector: M8



Pin	Wire strand	Designation
1	Brown	+10 to 30 VDC
3	Blue	GND
4	Black	Output

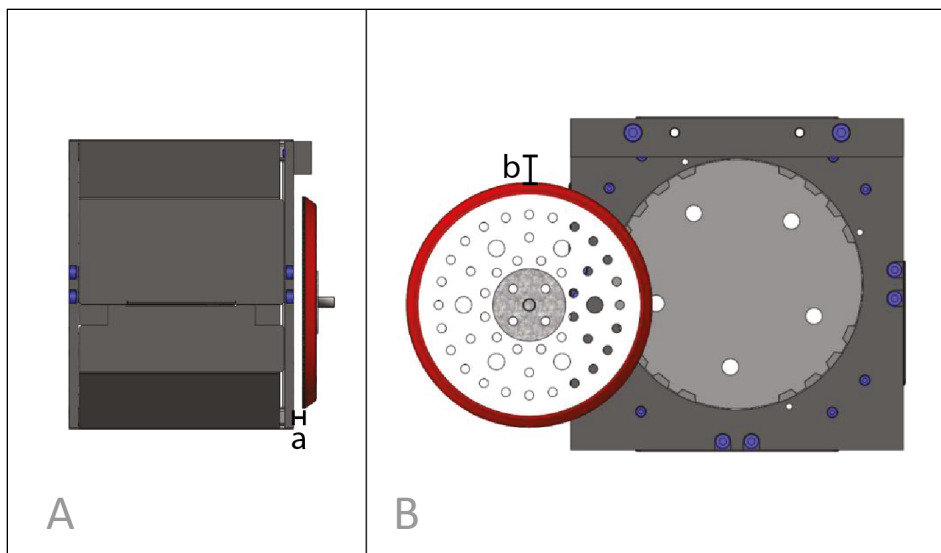
## 6 Start-up

### 6.1 Notes on teaching-in

- While teaching the robot, make sure that the orbital sander is positioned so that it is perpendicular to the appropriate surface of each component of the media changer.
- Determine the disposal process for the sanding discs removed by the media changer. The media remover should be positioned so that the removed media falls by gravity into a designated container.
- SCHUNK recommends defining a common starting position "HOME" for each individual process in order to facilitate the transition between the individual processes.
- Before regular operation, the removal of a freshly used sanding disc must be tested. The friction of a sanding process of 15 seconds or more can cause the Velcro to bind more strongly than a manually applied sanding disc.

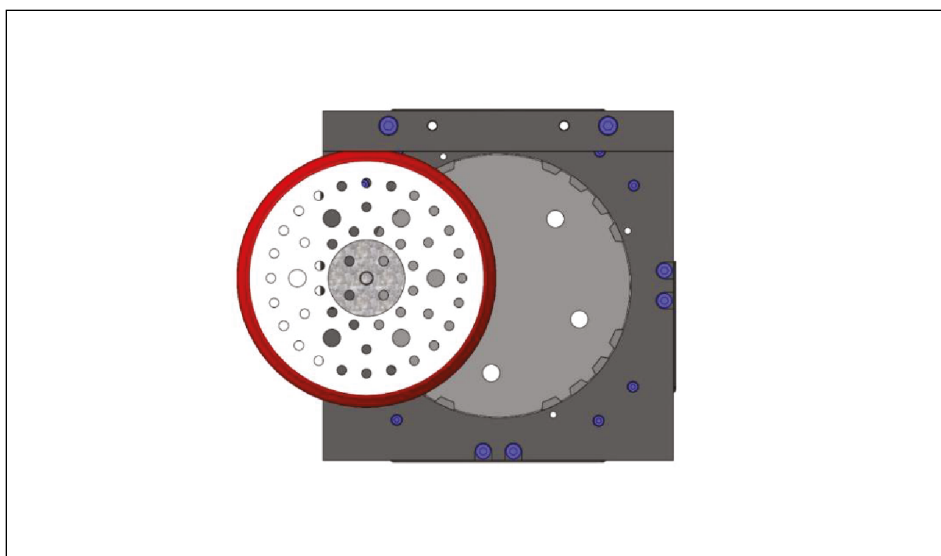
### 6.2 Pick up sanding discs

- Load media feeder In doing so, observe the following:
    - ✓ Removing the debris shield can help with teaching-in, as the sanding disc stack is visible.
    - ✓ Loading several small stacks (approx. 15-25 sanding discs) is better than loading all sanding discs at once.
    - ✓ Stack sanding discs with a curved shape on top of each other in an offset pattern to avoid snagging.
    - ✓ Carefully bend the sanding disc stack by hand so that the discs are level.
  - The sander is in the starting position "HOME".
  - The operating pressure for extending the sander should be set to 4.1 bar.
1. Move the sander over the feeder.
    - ✓ The distance between the backer pad and the media feeder should be approx. 0.6 cm (view A).
    - ✓ The nearest edge of the backer pad should be at a distance b of approx. 1.2-2.5 cm from the alignment rail (view B).



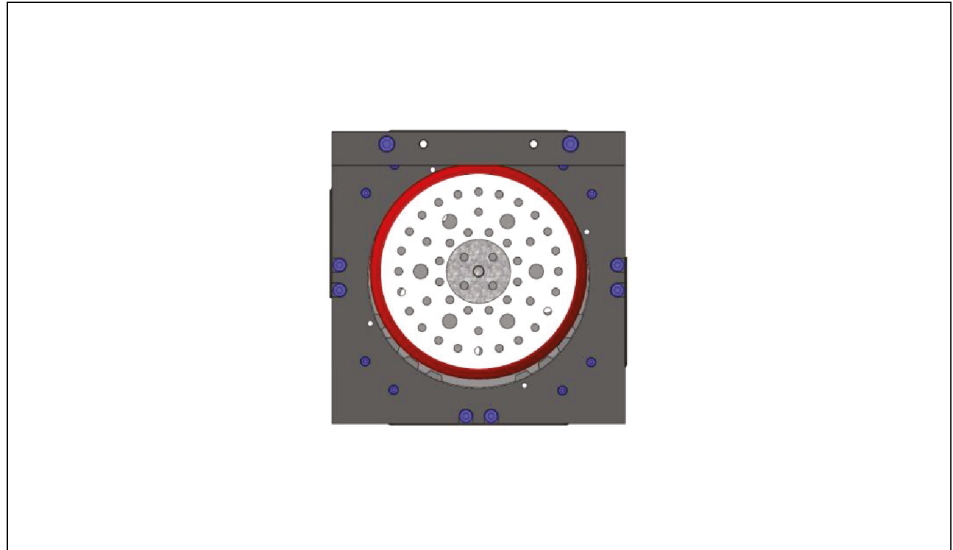
*A = distance between backer pad and feeder, B = distance between edge and alignment rail*

2. Move the sander with the backer pad diagonally in the direction of the alignment rail until the backer pad is pressed carefully against the alignment rail.
  - ✓ Slight resistance can be felt when moving the backer pad manually.



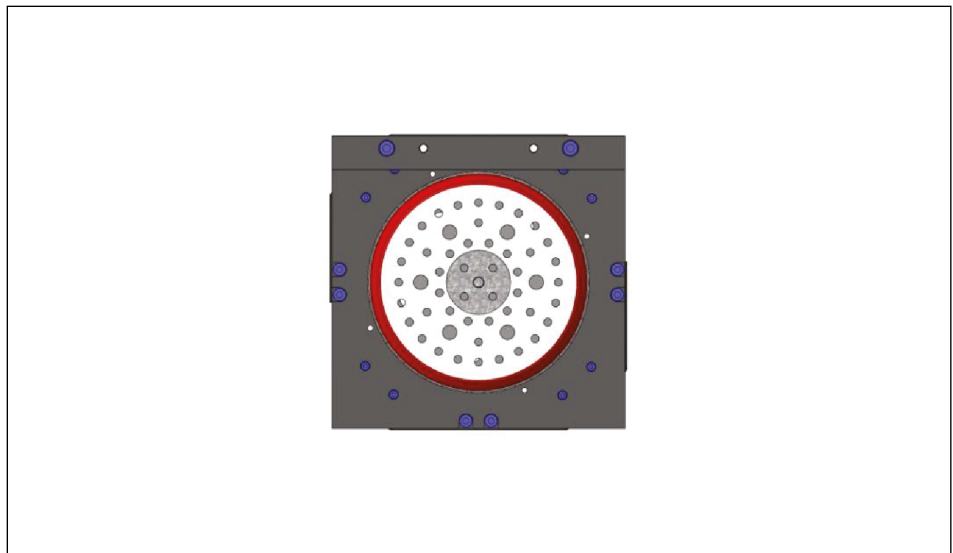
*Backer pad is pressed against alignment rail*

3. Move the sander linearly along the alignment rail until the backer pad is level with the opening.
  - ✓ The orbit pattern of the sander is deflected accordingly.



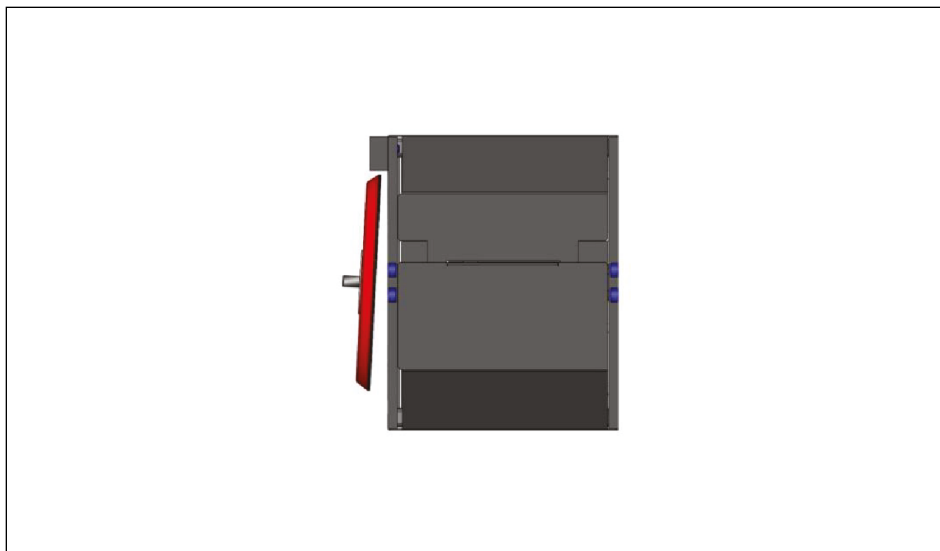
*Orient the backer pad along the alignment rail over the opening*

4. Align the sander exactly over the opening.



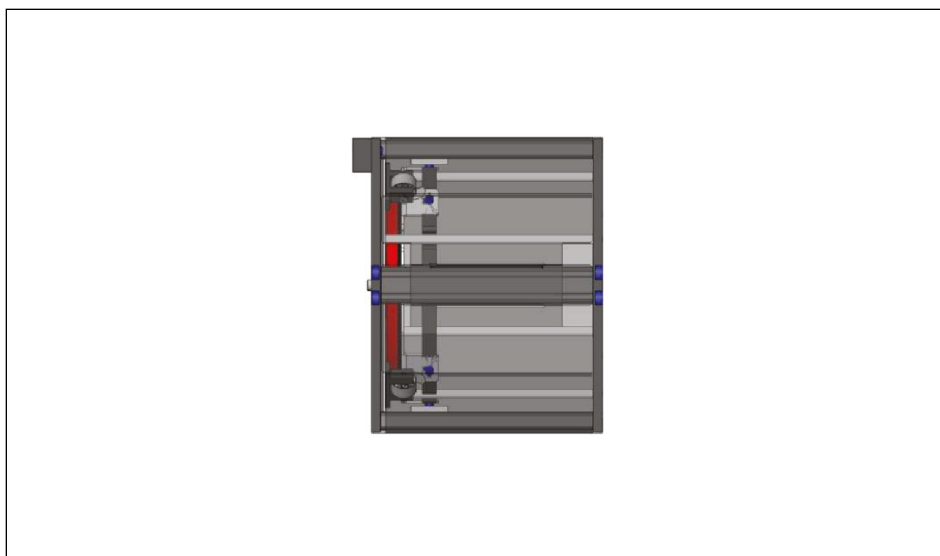
*Align the backer pad exactly over the opening*

5. Check whether the orbit pattern has been deflected accordingly.
  - ✓ A 20° inclination in the direction of the alignment rail improves the pickup process.



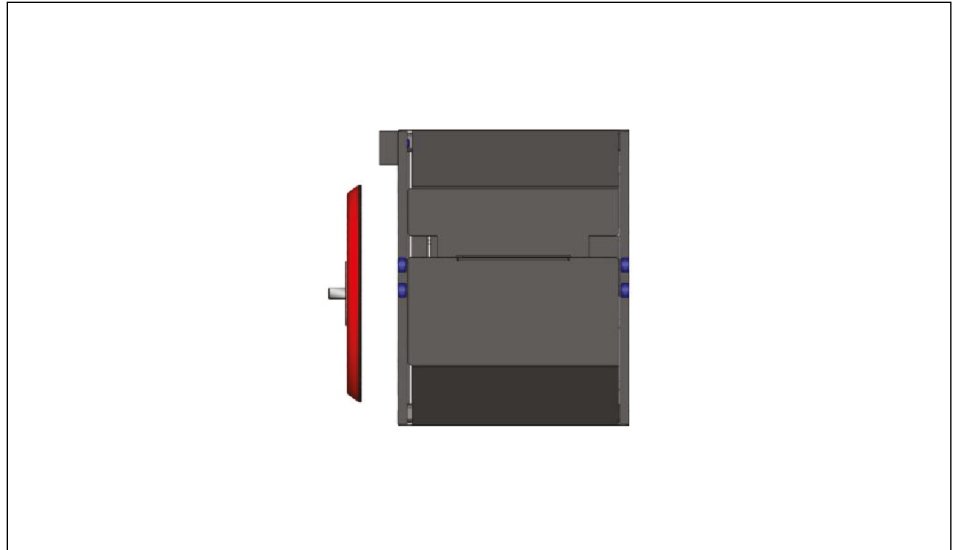
*20° inclination in the direction of the alignment rail*

6. Move the sander at 200 mm/s in the direction of the media feeder until the backer pad passes the rubber seal.
7. During this movement, reduce the inclination until the sander is parallel to the media stack.
  - ✓ The stack of sanding discs is pressed down.
8. Short pause (approx. 500 ms).



*Stack with sanding discs is pressed down, pause briefly in this position*

9. Lift the sander.
  - ✓ The stack in the feeder slides forward for the next pickup.



*Lift the sander*

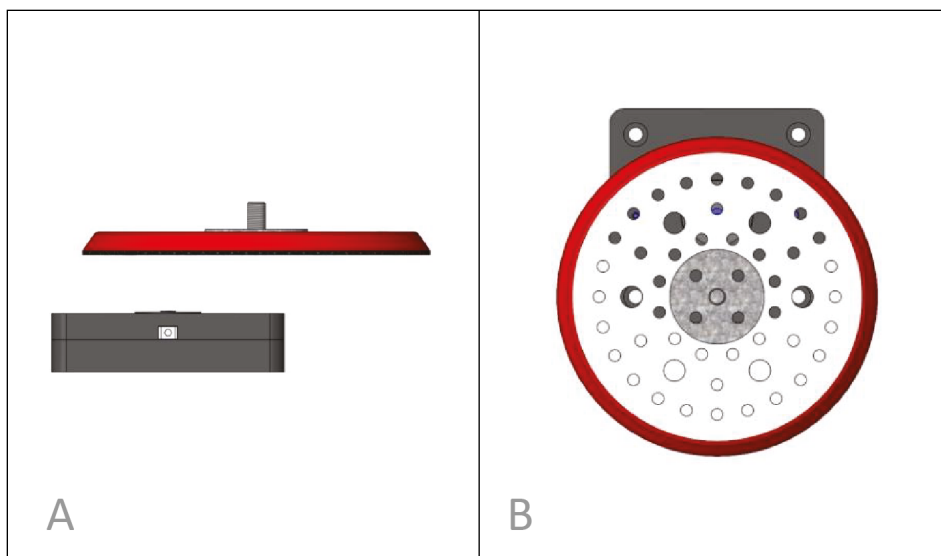
10. **Recommended:** Repeat steps 4 through 9 once to ensure a sanding disc has been picked up.
11. Move the sander to the starting position "HOME".
- ✓ The pickup process is complete.
- ✓ The next process involves checking media presence.

### 6.3 Check for presence of sanding discs

#### NOTE

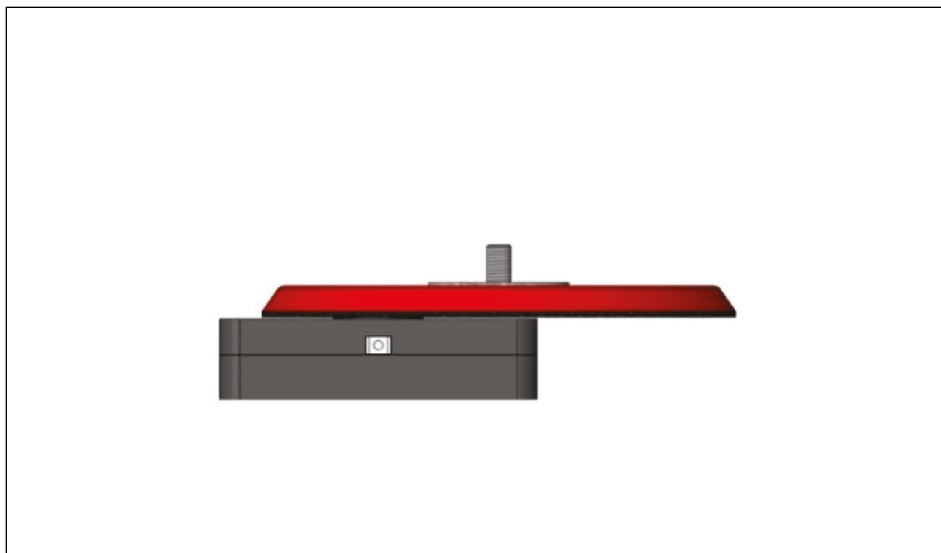
SCHUNK recommends teaching this process without a sanding disc. This makes it possible to test the Velcro function.

- The sander is in the starting position "HOME".
1. Move the backer pad over the media checker.



*A = View from the side, B = View from above*

2. Move the sander in the direction of the media checker until the backer pad makes contact with the Velcro fastener.



*Backer pad and media checker are in contact*

3. Move the sander away from the media checker.
  - ✓ The hard Velcro side on the backer pad and the soft Velcro side on the media checker are separated.
  - ✓ The LED on the sensor lights up



*Move the backer pad away from the media checker*

4. Wait briefly so that the media checker can process the signal.
5. Move the sander to the starting position "HOME".

## 6.4 Remove sanding discs

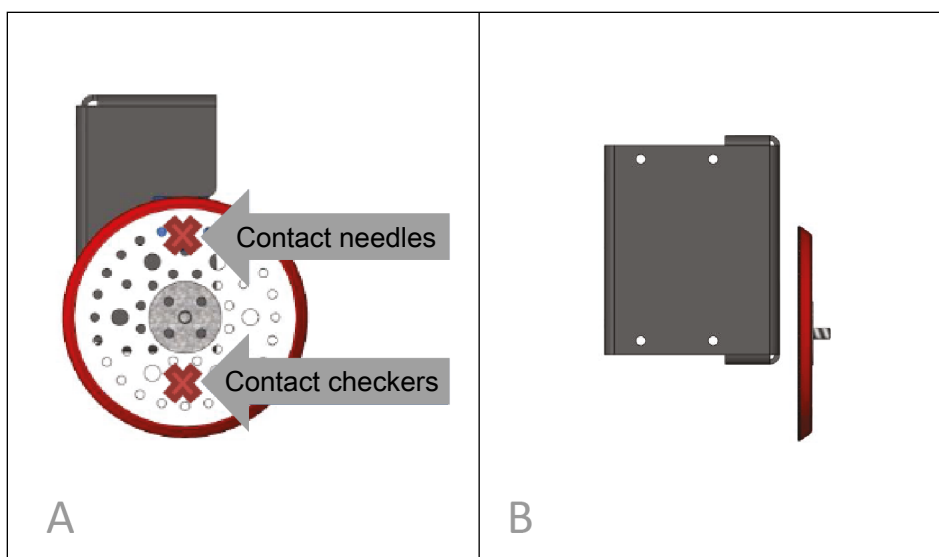


### ⚠ WARNING

#### Risk of injury from needles!

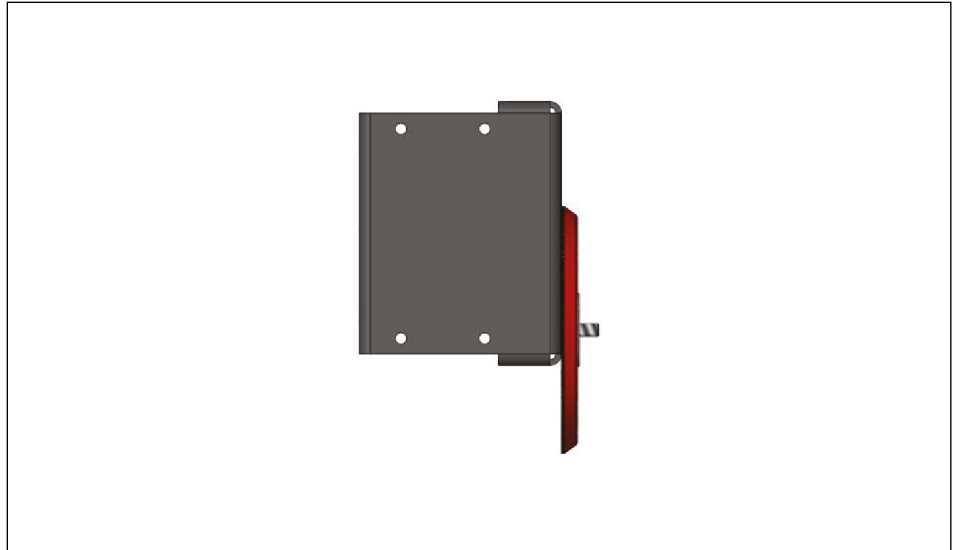
The needles on the media remover can cause cuts.

- Avoid contact.
  - Wear suitable protective equipment.
- 
- Needle stroke is set to 5 mm.
  - The "Retract needles" and "Extend needles" air connections are connected, ▶ 5.3 [18].
  - The operating pressure for extending the sander should be set to 0.7 bar.
  - The sander is in the starting position "HOME".
1. Move the sander over the media remover.
    - ✓ The "contact tester" backer pad side which was in contact with the media checker is sticking out over the media remover. The opposite "Contact needles" side is positioned over the needles.



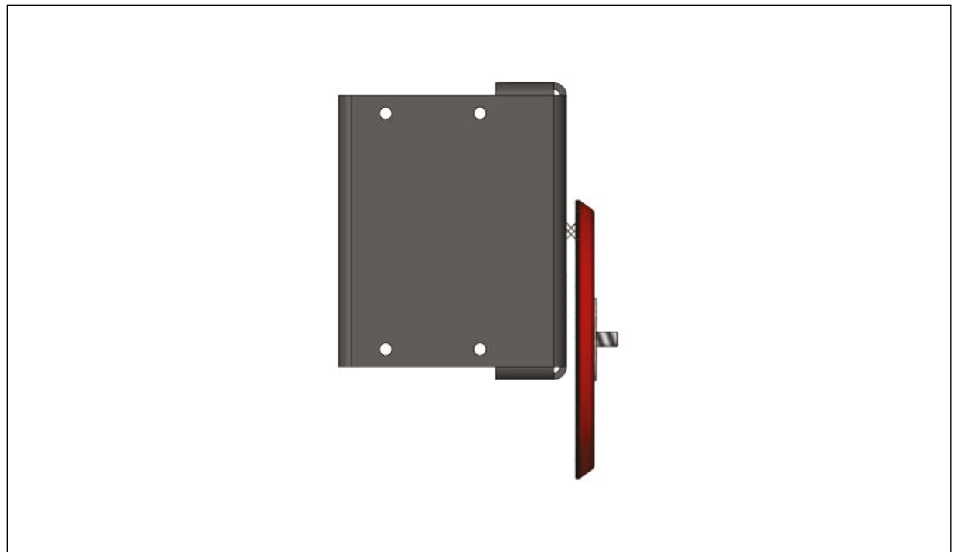
A = View from above, B = View from the side

2. Move the sander towards the media remover until the backer pad touches the remover.

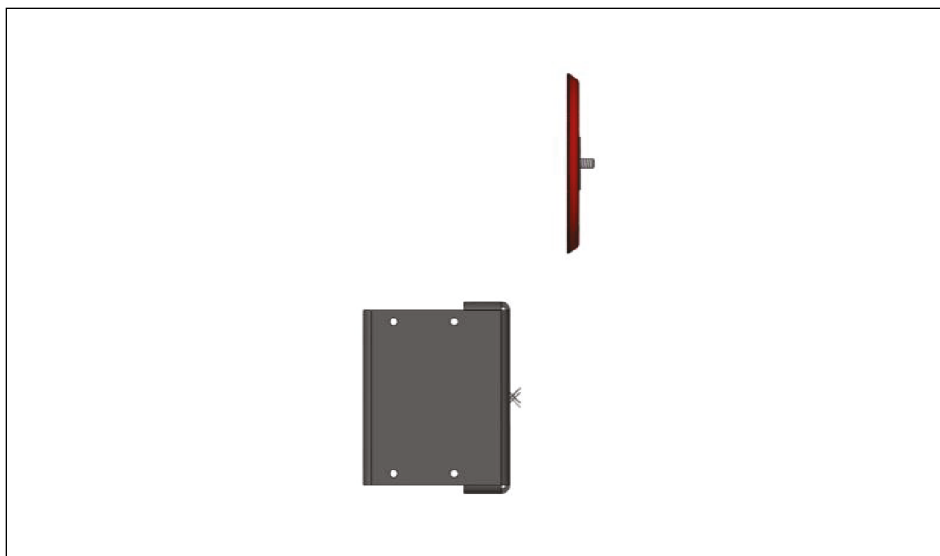


*Backer pad on media remover*

3. Extend needles.
4. Wait briefly. Then lift the sander a few millimeters.
  - ✓ The needles are hooked onto the backer pad.
  - ✓ The orbit height of the sander can change depending on the combination of backer pad and sanding disc.



5. Move the sander diagonally upwards away from the media remover. **IMPORTANT! Damage to the needles is possible! If the angles are too shallow, the needles can get caught and torn out of the attachment.**
  - ✓ The distance between the sander and the media remover must be at least 1.5 times the sanding disc diameter so that the sanding disc is completely removed during regular operation.
  - ✓ The angle at which the sander is moved away from the media remover varies depending on the sanding disc and the design of the backer pad. About  $9^\circ$  is recommended for soft media and up to  $20^\circ$  for hard media.



*Distance for removing the sanding disc*

6. Retract needles.
7. Reset the nominal operating pressure to the preset value.
8. Move the sander to the starting position "HOME".

## 7 Troubleshooting

### 7.1 Sanding discs are not removed correctly

Possible cause	Corrective action
The surface on the backer pad is worn.	Check the backer pad for damage and wear, replace if necessary.
The surface on the backer pad is dirty.	
Sanding disc does not adhere completely to the backer pad.	Add additional step to the process: Newly removed sanding disc is pressed with the sander onto a flat surface to ensure full contact.
The stack in the media feeder is excessively curved.	Stack the sanding discs in the feeder in an offset pattern.
	Remove the stack and carefully bend and straighten by hand.

### 7.2 The sander removes more than one sanding disc

Possible cause	Corrective action
The media feeder was loaded improperly.	Reload media feeder, ► 5.1 [ 16].
The springs in the media feeder are damaged.	Send the product to SCHUNK with a repair order.

### 7.3 The sensor is not issuing a signal

Possible cause	Corrective action
Media detection piston is dirty.	Clean dirt off surface.
The interface is not receiving a signal from the sensor.	Check cable for damage.
	Check that the cable is connected correctly.
Sensor is damaged.	Change sensor.

### 7.4 Sanding discs are not removed

Possible cause	Corrective action
The needles are worn or damaged.	Check needles for damage and replace if necessary. If necessary, readjust needle stroke and reteach removal process, ▶ 6 [□ 20].
Compressed air lines switched.	Check air supply., ▶ 5.3 [□ 18]
Compressed air lines are not installed optimally.	
Pressure drops below minimum.	Observe the requirements for the compressed air supply, ▶ 3 [□ 13].
The needle stroke is not set correctly.	Readjust needle stroke.
Sanding disc and backer pad are interlocked.	Add additional step in the process: sanding over a bar or edge.

## 8 Maintenance

### 8.1 Notes

#### Original spare parts

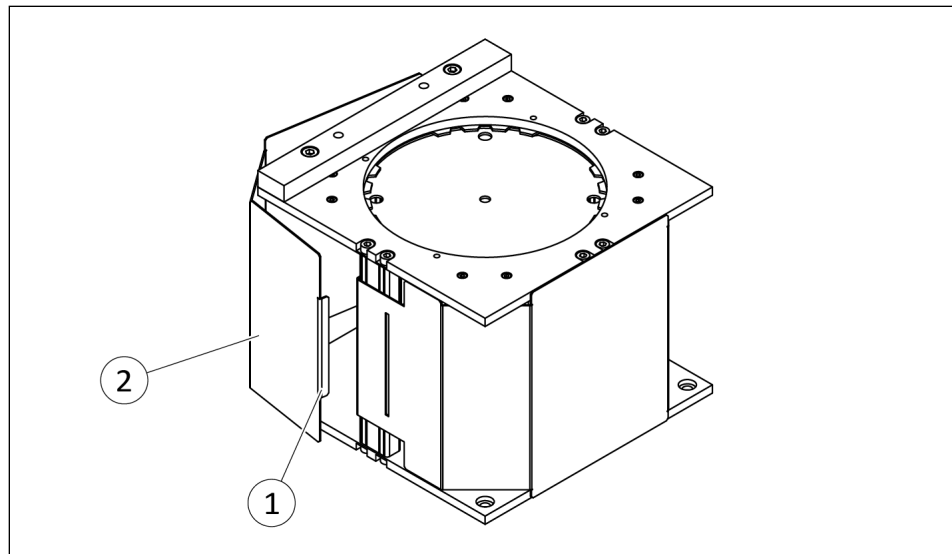
Use only original spare parts of SCHUNK when replacing spare and wear parts.

### 8.2 Maintenance interval

Maintenance interval	Maintenance work
weekly	Check Velcro disc on media checker for damage and wear, replace if necessary, ▶ 8.4 [□ 35].
	Check the needles on the media remover for damage and wear, replace if necessary, ▶ 8.5 [□ 36].
monthly	Check retaining gasket for damage and wear, replace if necessary, ▶ 8.3 [□ 33].
	Check the constant force spring for damage and wear, replace if necessary, ▶ 8.3 [□ 33].
	Check the glide for damage and wear, replace if necessary, ▶ 8.3 [□ 33].
as required	Send damaged products to SCHUNK for repair.

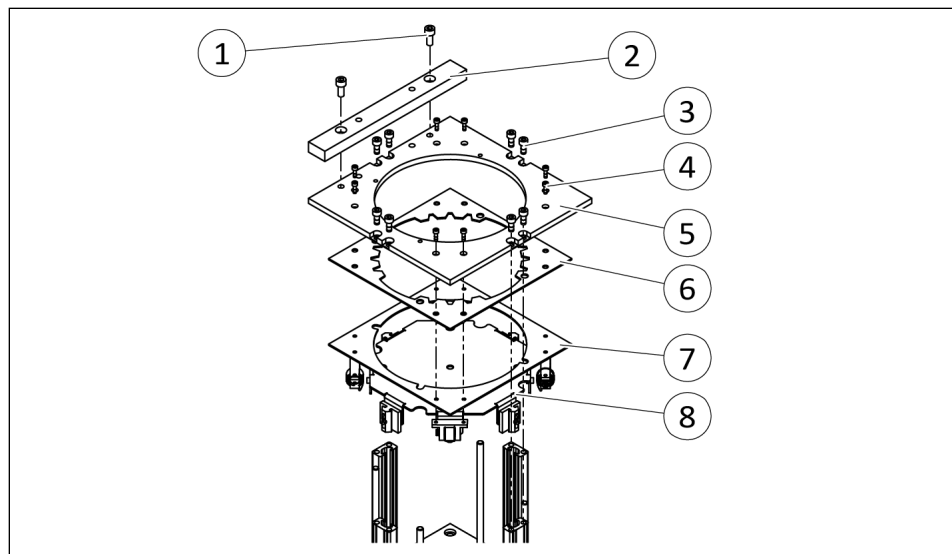
## 8.3 Disassembly and assembly

### Disassembling



*Remove debris shield*

1. Lift tabs (1) and remove debris shield (2).

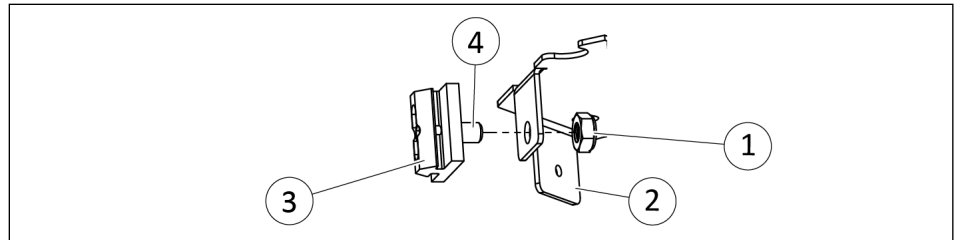


*Disassemble the media feeder*

2. Remove the sanding discs from the media feeder.
3. Loosen the fastening screws (1) and disassemble the alignment rail (2).
4. Loosen the fastening screws (3) and remove the upper plate (5) and feed tray assembly (8) from the media feeder.
5. Loosen the fastening screws (4) and remove the feed tray assembly (8) from the upper plate (5).
6. Check retaining gasket (6) for damage and replace if necessary.
  - ✓ Align the through hole on the retaining gasket (6) with the through hole on the support bracket (7)

### Replace glide

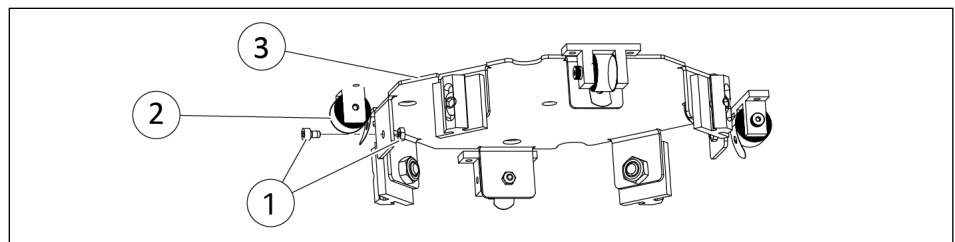
1. Check glide for damage.
2. **If damaged:** Hold nut (1) with a 7/16" wrench and loosen the screw (4) using a 4 mm hexagon socket wrench.
3. Remove damaged glide (3) from feed tray assembly (2).
4. Mount new glide. If damaged, use a new nut if necessary.
5. Leave a small gap between the glide and the feed tray assembly. This makes it easier to insert the feed tray assembly during assembly.



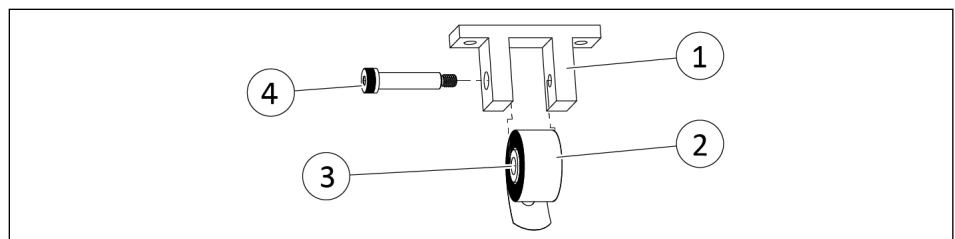
Replace glide

### Replace springs

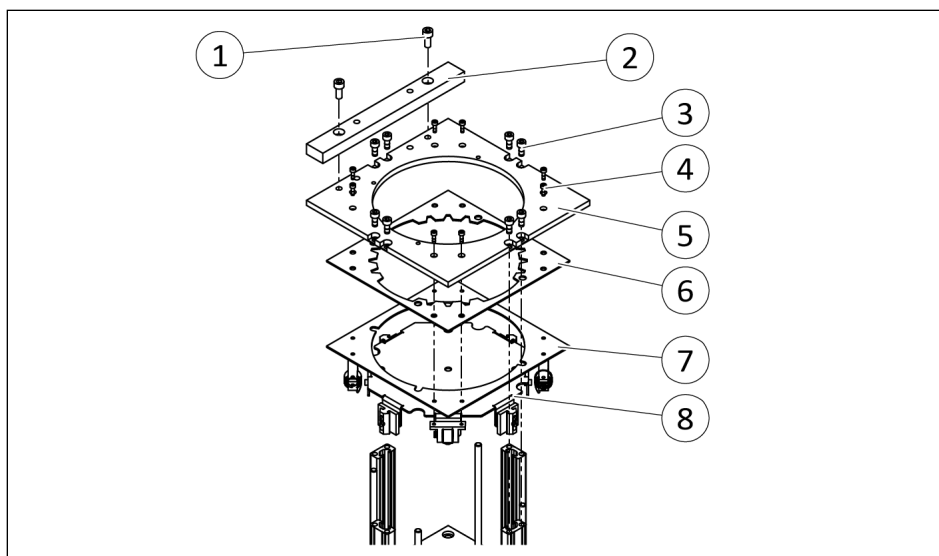
1. Check springs (2) on feed tray assembly (3) for damage.
2. **If damaged:** Hold nut (1) with a 6 mm wrench and undo the screw (1) using a 2.5 mm hexagon socket wrench.
3. Remove spring assembly (2) from feed tray assembly (3).



4. Loosen the fitting screw (4) and remove the spring (2) and spacer (3) from the spring bracket (1).
  5. Insert spacer (3) into new spring (2).
  6. Fasten spring (2) with fitting screw (4) in spring bracket (1).
- ✓ Max. tightening torque: 1.4 Nm

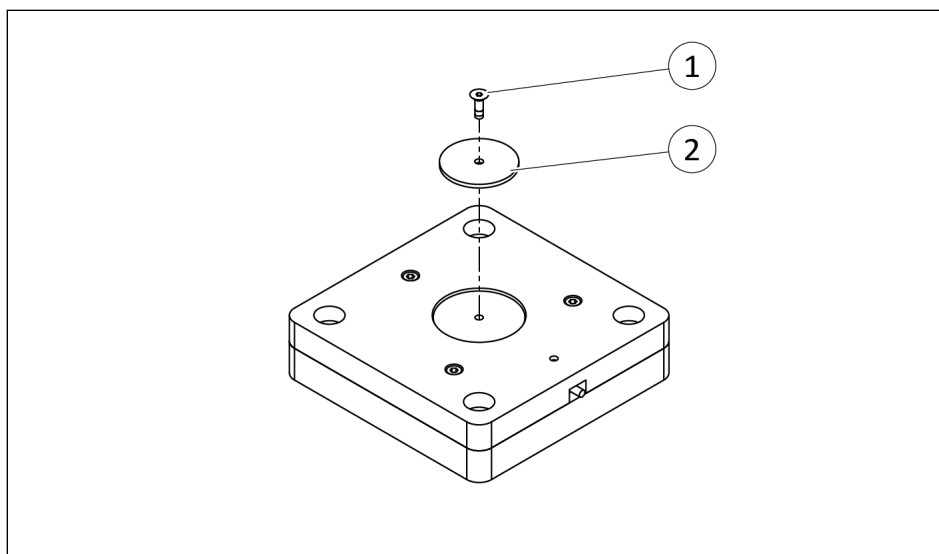


## Assembling



- Assemble product in the reverse order. Observe the following when doing this:
  - ✓ Max. tightening torque of the fastening screw (4): 1.4 Nm
  - ✓ Max. tightening torque of the fastening screw (3): 5.9 Nm
  - ✓ Max. tightening torque of the fastening screw (1): 10.1 Nm

### 8.4 Replace the Velcro disc on the media checker



1. Loosen screw (1) with 2 mm hexagon socket wrench.
2. Remove damaged or worn Velcro disc (2).
3. Clean dirt off surface.
4. Place new Velcro disc (1) and tighten screw (1) with 2 mm hexagon socket wrench.

## 8.5 Replace needles



### **⚠ WARNING**

#### **Risk of injury from needles!**

The needles on the media remover can cause cuts.

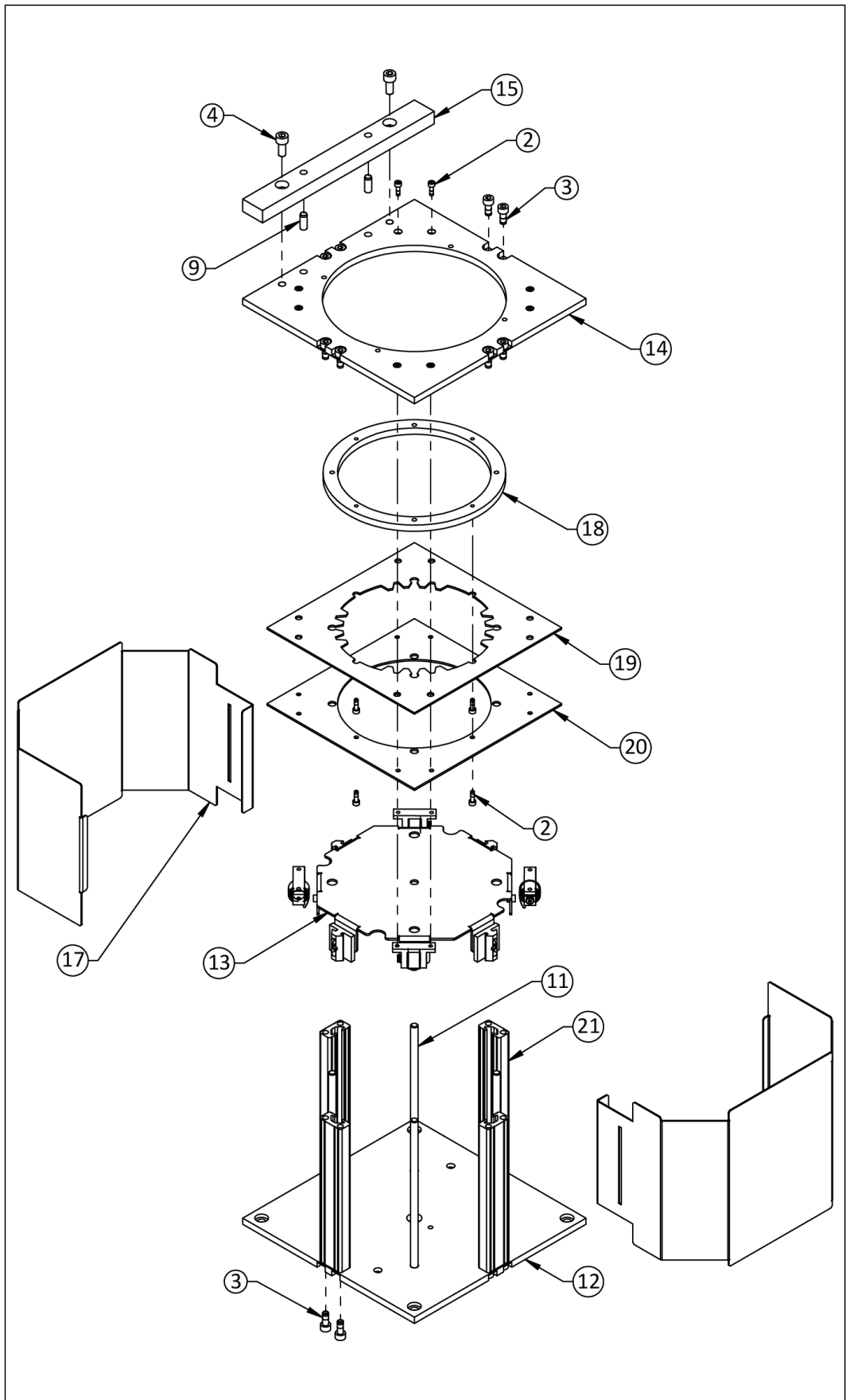
- Avoid contact.
- Wear suitable protective equipment.

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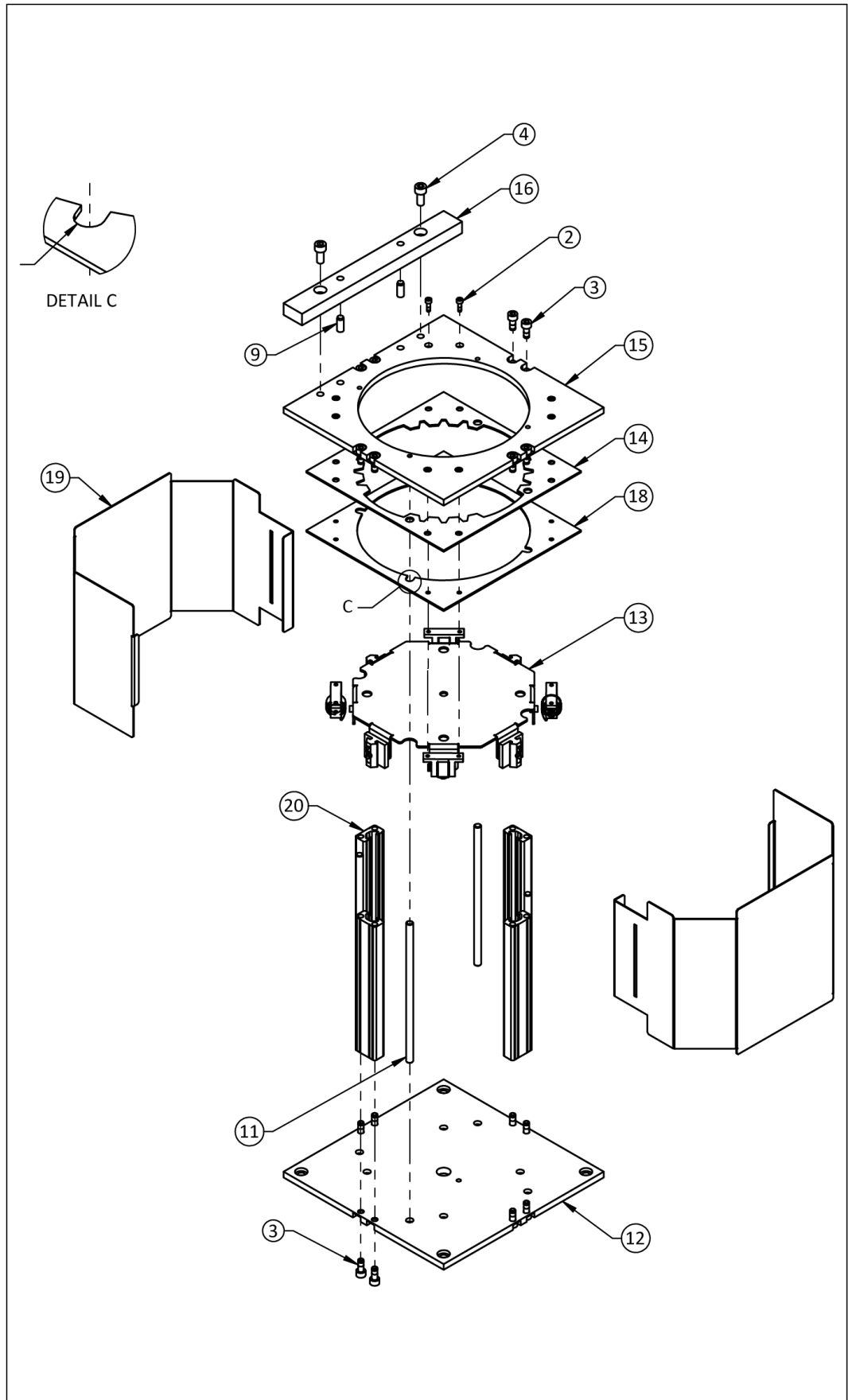
Positions of the item numbers on the graphic "AOV-MRA media remover", ▶ 8.6 [□ 37].

1. Remove the compressed air hose.
2. Disassemble the media remover from the application.
3. Loosen the fastening screws (2) with a 4 mm hexagon socket wrench and remove the needle gripper (4).
4. Follow the instructions in the "Needle Kit" spare parts package.
5. Mount the needle gripper (4).
6. Disassemble the media remover from the application.

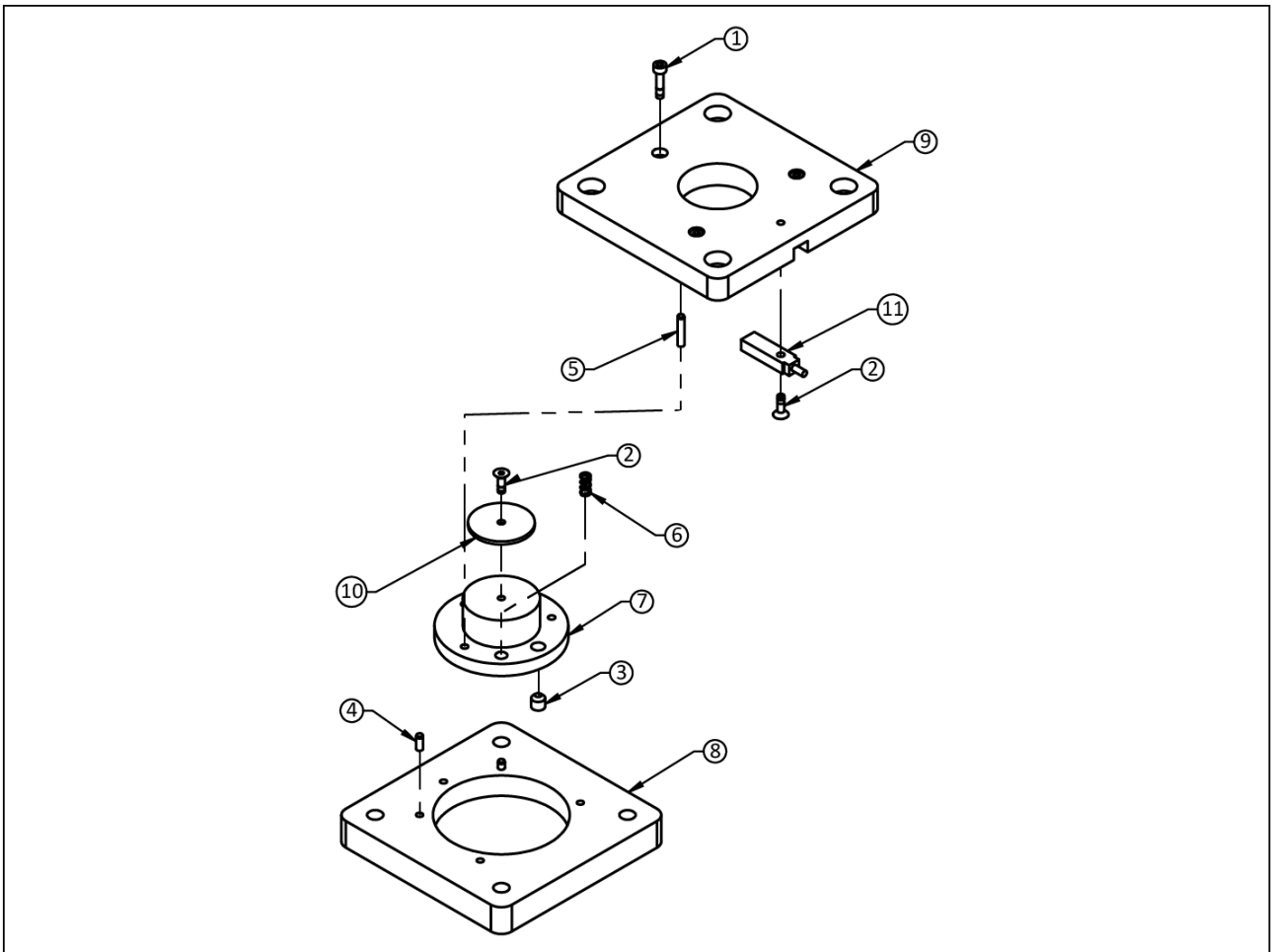
### 8.6 Assembly drawings



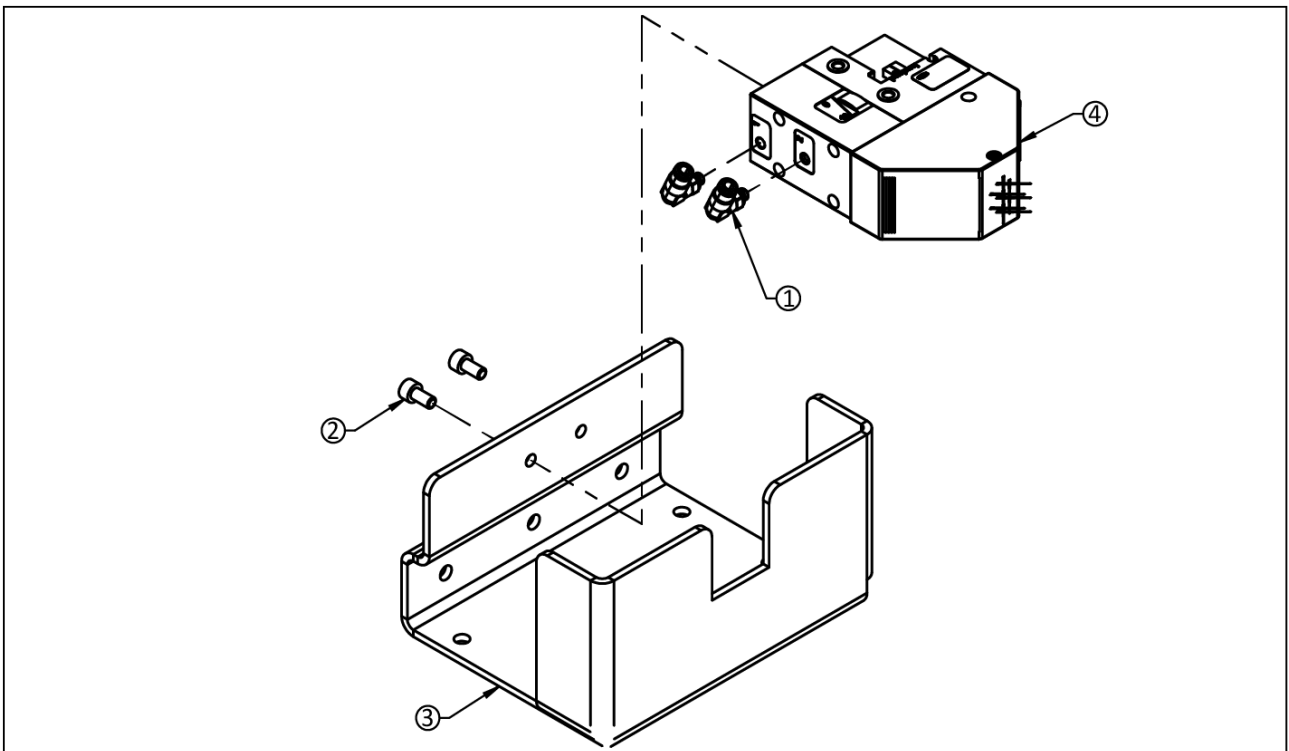
Media feeder AOV-MF5



Media feeder AOV-MF6



Media checker AOV-MCH



Media remover AOV-MRA



## 10 UKCA Declaration of Conformity AOV-MCH

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

We hereby declare on our sole authority that the product meets the requirements of the following directives at the time of the declaration.

The declaration is rendered invalid if modifications are made to the product.

Product designation:        Washer presence detector AOV-MCH

ID number:                      1460790

- **Electromagnetic Compatibility Regulations 2016**

Applied harmonized standards, especially:

EN 61326-2-3:2013            Electrical equipment for measurement, control and laboratory use - EMC requirements – Part 2-3: Particular requirements – Test configuration, operational conditions and performance criteria for transducers with integrated or remote signal conditioning. (IEC 61326-2-3:2012)

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

Person authorized to compile the technical documentation:

Marcel Machado, address: refer to manufacturer's address



Lauffen/Neckar, November 2022

p.p. Ralf Winkler;  
Head of Technology & Engineering,  
Mechanics Gripping Systems



## 12 UKCA Certificate of Conformity AOV-MF5 / -MF6

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

We hereby declare on our sole authority that the product meets the requirements of the following directives at the time of the declaration.

The declaration is rendered invalid if modifications are made to the product.

Product designation:        Washer rack AOV-MF5 / -MF6

ID number:                      1460781, 1460783

2001/95/EC                      General product safety

Applied harmonized standards, especially:

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

Person authorized to compile the technical documentation:

Marcel Machado, address: refer to manufacturer's address



Lauffen/Neckar, November 2022

p.p. Ralf Winkler;  
Head of Technology & Engineering,  
Mechanics Gripping Systems



## 14 UKCA Declaration of Incorporation AOV-MRA

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

Manufacturer/  
Distributor                      SCHUNK Intec Limited  
    Clamping and gripping technology  
    3 Drakes Mews, Crownhill  
    MK8 OER 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:        Washer remover AOV-MRA  
ID number:                      1460797

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 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:  
Marcel Machado, address: refer to manufacturer's address



Lauffen/Neckar, November 2022

p.p. Ralf Winkler;  
Head of Technology & Engineering,  
Mechanics Gripping Systems

## 15 Annex to Declaration of Incorporation

in accordance with 2006/42/EC, Appendix II, no. 1 B

as well as

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

1. Description of the basic safety and health protection requirements, as per 2006/42/EC, Annex I and per the Supply of Machinery (Safety) Regulations 2008, that apply to and are fulfilled for the scope of the incomplete machine:

Product designation	Media remover
Type designation	AOV-MRA

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

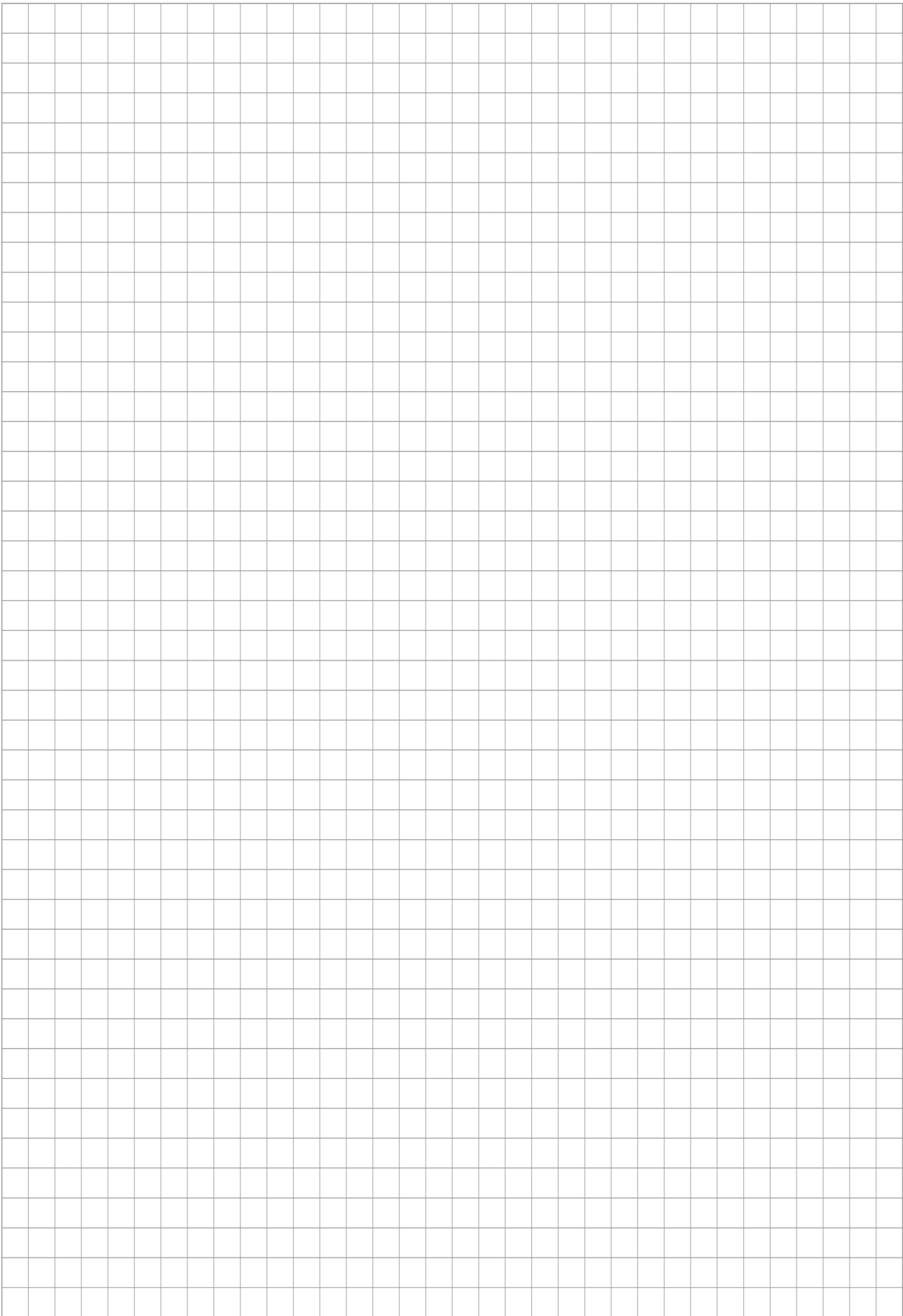
1.1	Essential Requirements		
1.1.1	Definitions		X
1.1.2	Principles of safety integration		X
1.1.3	Materials and products		X
1.1.4	Lighting		X
1.1.5	Design of machinery to facilitate its handling		X
1.1.6	Ergonomics		X
1.1.7	Operating positions		X
1.1.8	Seating		X

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

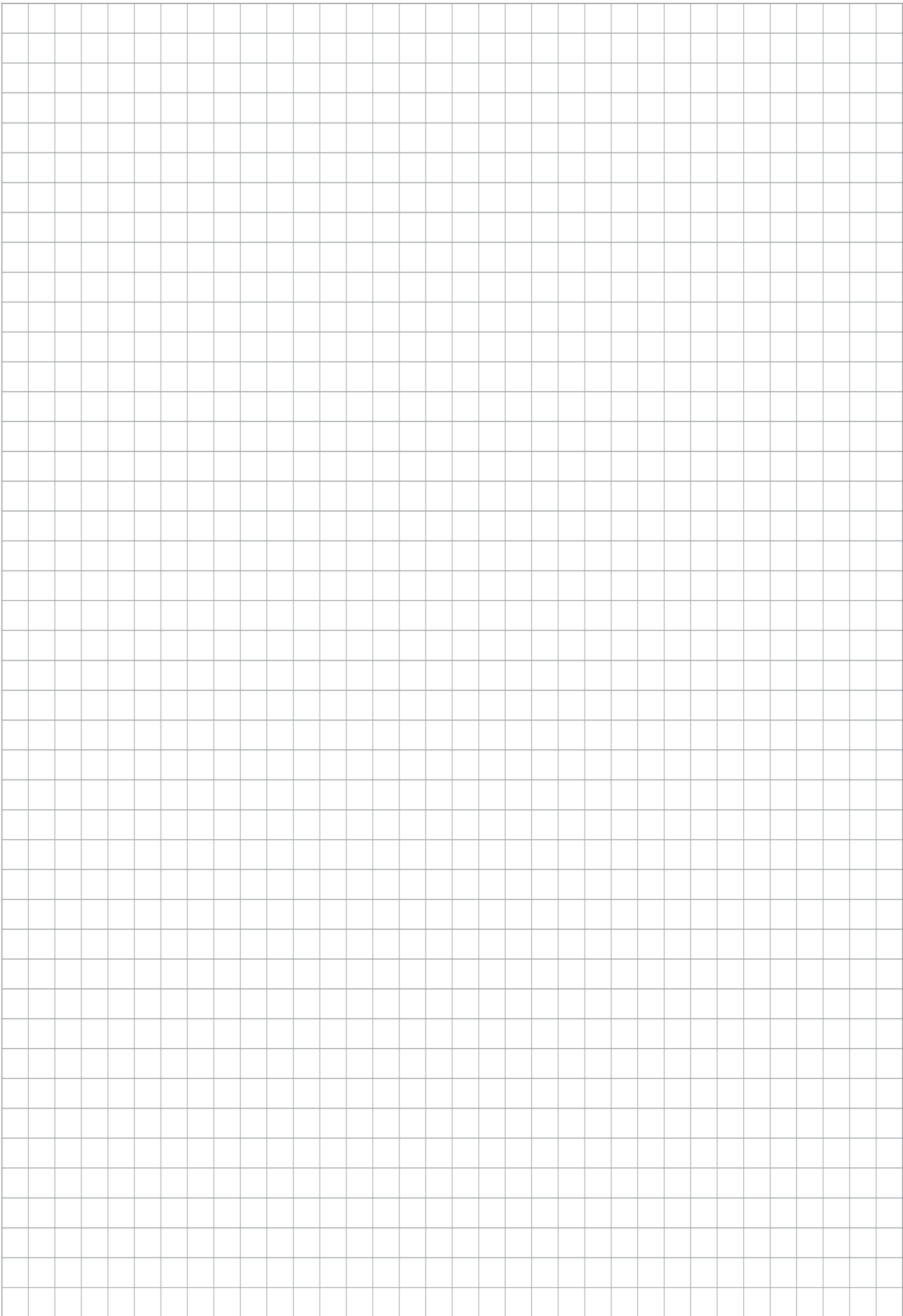
1.3	Protection against mechanical hazards		
1.3.1	Risk of loss of stability		X
1.3.2	Risk of break-up during operation	X	
1.3.3	Risks due to falling or ejected objects		X
1.3.4	Risks due to surfaces, edges or angles	X	

<b>1.3</b>	<b>Protection against mechanical hazards</b>			
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
<b>1.4</b>	<b>Required characteristics of guards and protective devices</b>			
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
<b>1.5</b>	<b>Risks due to other hazards</b>			
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
1.45.6	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		
1.5.13	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
<b>1.6</b>	<b>Maintenance</b>			
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

<b>1.7</b>	<b>Information</b>			
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	
	<b>The classification from Annex 1 is to be supplemented from here forward.</b>			
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		
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		







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**Clamping and gripping technology**

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