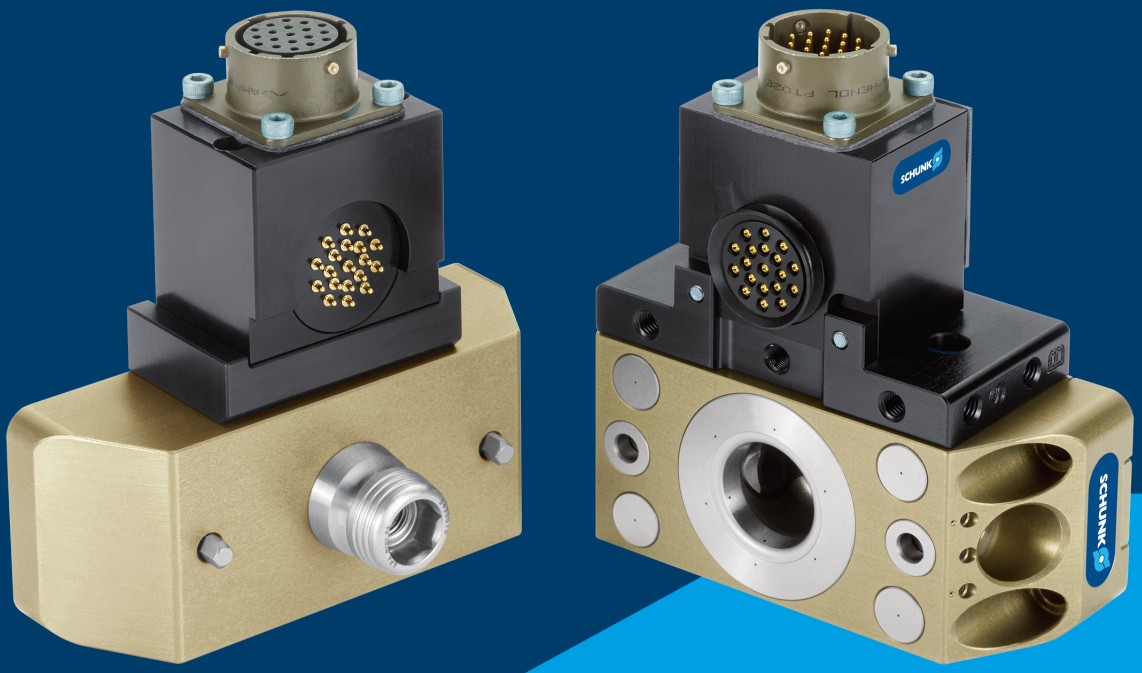


Assembly and Operating Manual

NSR-A

Pallet Changing System

Translation of Original Operating Manual

Hand in hand for tomorrow

Imprint

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

Document number: 389722

Version: 09.00 | 25/11/2025 | en

Dear Customer,

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

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

Best regards,

Your SCHUNK team

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

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

Table of Contents

1 General

1.1 About this manual

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

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

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

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

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

1.1.1 Presentation of Warning Labels

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

⚠ DANGER

Dangers for persons!

Non-observance will inevitably cause irreversible injury or death.

⚠ WARNING

Dangers for persons!

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

⚠ CAUTION

Dangers for persons!

Non-observance can cause minor injuries.

NOTICE

Material damage!

Information about avoiding material damage.

1.1.2 Applicable documents

- General terms of business *
- Catalog data sheet of the purchased product *

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

1.1.3 Sizes

This operating manual applies to the following sizes:

- NSR-A 100
- NSR-A 160

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 applicable documents, ▸ 1.1.2 [🗋 6]
- Observe the ambient conditions and operating conditions
- Observe the maximum number of clamping cycles ▸ 3 [🗋 17]
- Observance of the specified care and maintenance instructions ▸ 7 [🗋 56]

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

1.3 Scope of delivery

The scope of delivery includes

- Pallet changing system in the ordered size (NSR-A 100 or NSR-A 160)
- Assembly and Operating Manual
- Accessory pack

1.3.1 Accessory pack for NSR-100

Content of the accessory pack:

- 2 fitting screws 8f7 / M6
- 3 mounting screws, M6 x 25, DIN 912/12.9
- 2 O-rings, DIN 3771 NBR 10, Ø 3 x 1.5

Accessory pack for	ID number
NSR-A 100	9987230

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

1.3.2 Accessory pack for NSR-160

Content of the accessory pack:

- 1 fitting screws 10f7 / M8
- 1 fitting screw 10f7 / M8 x 45
- 3 mounting screws, M8 x45, DIN 912/12.9
- 2 O-rings, DIN 3771 NBR 70, Ø 4.5 x 1.5

Accessory pack for	ID number
NSR-A 160	9987687

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

1.4 Accessories

(for separate orders, see catalog or data sheets)

- Pallet adapter
  for NSR-A 100:
  – PKL 100, 90° adapter with sword bolt
  – PKL 100, straight 0° adapter with sword bolt

  for NSR-A 160:
  – PKL 160, 90° adapter with sword bolt
  – PKL 160, straight 0° adapter with sword bolt
- Clamping bolt
- Pneumatic feed-through modules
- Electrical feed-through modules
- Magnetic switchMMS 22...-SA (query "locking and unlocking")
- Inductive proximity switch IN 50 (Query "Clamping bolt presence")
- Adapter plates for attaching the pneumatic or electrical feed-through modules
- Seal set

NOTE

The seal kit for the NSR-A 100 can be ordered under ID 0471962.

2 Basic safety notes

2.1 Intended use

The pallet changing system is intended for pallet handling with a robot or similar suitable technical devices for the automated loading of machine tools or other suitable technical devices.

It may only be used within the framework of its technical data. The maximum technical specifications must not be exceeded!

The product is designed for industrial use.

To use this unit as intended, it is also essential to observe the technical data and installation and operation notes in this manual and to comply with the maintenance intervals.

2.2 Inappropriate use

The pallet changing system for handling pallets is not being used as intended if, for example:

- it is used for turning applications without consulting SCHUNK.
- it is used in working environments that are not permissible,
- people are working on machines or technical equipment that do not comply with the EC Machinery Directive 2006/42/EC, disregarding the applicable safety regulations and
- the technical data specified by the manufacturer are exceeded.

2.3 Constructional changes

Implementation of structural changes

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

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

2.4 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 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 is used only in the context of its defined application parameters, ▶ 3 [🗋 17].
- 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.

2.6 Personnel qualification

Inadequate qualifications of the personnel

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

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

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

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

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

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

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

2.7 Personal protective equipment

Use of personal protective equipment

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

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

2.8 Organizational measures

Obeying the rules

The operator must employ suitable organizational measures and instructions in order to ensure that the relevant safety rules are obeyed by the persons asked to operate, maintain and repair the product.

Monitoring the behavior of personnel

The operator must at least occasionally check that the personnel are behaving in a safety-conscious manner and are aware of the potential hazards.

Danger signs

The operator must ensure that the signs concerning safety and hazards on the machine where the product is mounted are clearly legible and are observed.

Faults

If a malfunction occurs in the product and endangers safety, or if a problem is suspected due to production behavior, the machine on which the product is mounted must be stopped immediately and remain shut down until the malfunction has been located and remedied. Only allow specialists to remedy malfunctions.

Spare parts

Only use original SCHUNK spare parts.

Environmental regulations

The applicable environmental regulations must be observed for all maintenance and repair work.

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.

2.9.1 Handling

During automated loading or unloading, particularly with high loading weights, always work with the handling system at reduced speed. The handling system must be positioned and fastened precisely to guarantee that the connection is not offset.

Check the approach position of the pallet handling at regular intervals. The position of the handling system can change slightly, particularly with high loading weights or when the clamping pallet is bearing the loading weight significantly towards the front. In the event of eccentricity on the coupling interfaces, the relevant traveling axes of the handling system must be adjusted. The pallet changing system must lie flush with the pallet adapter with no tilt angle and eccentricity when joining.

A rigid handling system must be used with high loading weights.

For the automated coupling process, it is recommended to use the air purge to clean the coupling interface.

The pallet handling should be moved out of the machining area once pallet loading is complete. On leaving the machining area, the clamping system must be positioned such as to prevent dirt from entering the interface.

Maintenance specifications

Follow the maintenance and care instructions. These instructions are based on a normal working environment. If the pallet

changing system is to be operated in an environment with abrasive dusts or corrosive or aggressive fumes or fluids, prior approval must be obtained from SCHUNK.

Safety during assembly and servicing

During assembly, connection, adjustment, commissioning and testing, make sure that no accidental operation of the pallet changing system by the fitter or other persons is possible.

Avoid any unsafe manner of working.

2.9.2 Holding force and screw strength

The holding force of the pallet changing system is essentially limited by the tightness of the screw connection which connects the clamping pin to the pallet adapter or the device. This is why only screws of strength class 12.9 may be used for the screw connection.

Only original SCHUNK clamping pins may be used.

If the clamping pin is to be used in customer-specific devices, a sufficiently dimensioned pallet adapter or a sufficiently thick mounting material is provided.

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. 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.

2.13.4 Protection against electric shock

Possible electrostatic energy

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

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

2.14 Notes on particular risks

⚠ WARNING

Risk of injury due to falling heavy components!

If the clamping pin is loosened erroneously or as a result of negligence, the device, pallet or workpiece may fall down and cause severe injuries.

- During operation, loosening the clamping pin as a result of negligence is to be excluded using appropriate counter measures, e.g. by disconnecting the energy supply after locking or by using check valve or switches.
- Check the screw fitting of the clamping pin in the pallet adapter at regular intervals to ensure that it is secure.
- Ensure that in pallet handling setup mode, only one operator is working on the robot system.
- Do not step under raised loads in the robot or automation system (clamping pallet connected).

⚠ WARNING

Risk of injury to operating personnel due to movement of robot arm!

Uncontrolled movements during the setup of the pallet changing system and during operation may cause severe injury.

- During setup of the pallet changing system, accidental actuation of the robot arm must be prevented by means of suitable countermeasures.
- Ensure that the machines and equipment fulfill the minimum requirements of the EC Machinery Directive 2006/42/EC; specifically, they must have effective technical measures to protect against potential mechanical hazards.

⚠ WARNING

Risk of injury from an independent, uncontrolled movement of components clamped with spring force!

After actuating an "emergency stop" or after switching off or a failure to the energy supply, this components clamped with spring force may move uncontrolled into their end positions and cause severe injury.

- Wait for the system to shut down completely.
- Do not reach into the clamping module.
- Use pressure maintenance valves.

⚠ CAUTION

Risk of injury due to compressed air hoses coming loose when connected improperly!

- Use check valves or safety switches.
- Ensure that the danger zone is surrounded by a protective enclosure during operation.

⚠ CAUTION

Risk of injury due to contaminated working environment!

Contamination, escaping cooling lubricant or oil pose slipping sources and can cause falls.

- Ensure that the working environment is clean before starting assembly and installation work.
- Wear suitable safety boots.
- Follow the safety and accident-prevention regulations when operating the pallet changing system, especially when working with machine tools and other technical equipment.

⚠ CAUTION

Risk of burns due to workpieces with high temperatures.

- Wear protective gloves when removing the workpieces.
- Automatic loading is preferred.

⚠ CAUTION

Danger from noise generation

Physical and mental stress by noise generation during the working process.

- Wear hearing protection.

3 Technical data

3.1 Basic data

Designation	NSR-A	
	100	160
Max. bending moment Mxy *1	75 Nm *2	600 Nm *3
Max. bending moment Mz *1	200 Nm	1,600 Nm
Locking force	4.0 kN	15.0 kN
Pull-in stroke	0.3 mm	1.0 mm
Repeatability [mm]	< 0.02 mm	< 0.02 mm
Actuating pressure	6 bar	
Minimum pressure to unlock	5 bar	
Installation position	Any	
Operating temperature	15°C – 60°C	
Required level of cleanliness	IP 30 in accordance with DIN EN 60529	
Noise emission [dB(A)]	≤ 70 dB (A)	
Pressure medium*4	Compressed air, compressed air quality in accordance with ISO 8573-1:6 4 4	

*1 max. torque when fastening the clamping pin with cylindrical screw M8 with NSR-A 100 or M16 with NSR-A 160 – DIN EN ISO 4762/12.9 and full support on the module flat surface.
The directions of force for the maximum permissible torque are shown in the illustration in the "Coupling Interface" chapter ▸ 4.4 [🗋 29].

*2 **Alternatively,** the clamping pin can be screwed to the pallet or device using an **M6** screw. In this case, ensure that the maximum bending moments are reduced to 50 Nm. An **M8** screw is the **preferable** option.

*3 **Alternatively,** the clamping pin can be screwed to the pallet or device using an **M12** screw. In this case, ensure that the maximum bending moments are reduced to 400 Nm. An **M16** screw is the **preferable** option.

*4 A **separate maintenance unit** must be used for the air supply. The pallet change system is prepared for use with **non-oiled compressed air**.

Maximum clamping cycles with NSR-A 100, NSR-A 160

Length of warranty	24 Months
Maximum clamping cycle number	500 000 Cycles

Tab.: Warranty and maximum clamping cycles

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

3.2 Calculation of permissible transport load

The pallet changing system is limited to a maximum permissible torque at the coupling interface. The dynamic load when using the robot system for handling results in acceleration and deceleration forces that have to be taken into consideration for the transport load.

To operate the pallet changing system for dynamic handling, it is essential for the maximum acceleration of the machine to be known.

The acceleration has an effect even in the case of an abrupt deceleration e. g. when the emergency stop switch is actuated.

Inclusion of the acceleration values is of crucial importance for the operational safety of the pallet changing system and the entire robot and palletizing system. If it is not taken into account, it can result in accidents and damage to the whole system.

3.2.1 Determining the permissible transport load with NSR-A 100

Missing information or specifications can be requested from the manufacturer.

Maximum permissible torque for NSR-A 100: **M_{xy} = 75 Nm**

Legend		
M	Torque	Nm
F	Force	N
l	Effective lever length from the coupling interface between the changeover head and pallet adapter to the center of gravity of the load.	m
m	Mass	kg
g	Acceleration due to gravity	m / s^2
m_{total}	$m_{pallet\ adapter} + m_{clamping\ pallet} + m_{transport\ load}$	kg
a	Maximum acceleration of robot arm	m / s^2

Determination of formula values:

$m_{pallet\ adapter,\ type:\ PKL\ mini\ 100\ (aluminum)}$ = 0.3 kg

$m_{clamping\ pallet,\ type:\ PAL\ A\ 399\ x\ 159\ (aluminum)}$ = 5.1 kg

$m_{transport\ load}$ = 50 kg (example value)

l = 100 mm = 0.10 m (example value)

$$a = 3\frac{m}{s^2}$$

Calculating the acceleration force:

$$\mathbf{F = m_{ges.} \cdot g + m_{ges.} \cdot a}$$

$$F = (0.3\ kg + 5.1\ kg + 50\ kg) \cdot 9.81 \frac{m}{s^2} + (0.3\ kg + 5.1\ kg + 50\ kg) \cdot 3 \frac{m}{s^2}$$

$$F = 55.4\ kg \cdot 9.81 \frac{m}{s^2} + 55.4\ kg \cdot 3 \frac{m}{s^2}$$

$$F = 543.5\ N + 166.2\ N$$

$$\mathbf{F = 709.7\ N}$$

$$\mathbf{M = F \cdot l}$$

$$M = 709.7\ N \cdot 0.10\ m$$

$$\mathbf{M = 70.97\ Nm}$$

Maximum permissible moment load M_{xy} for NSR-A 100:

M_{xy} = 75 Nm

Result of calculation:
Taking into account the robot acceleration, the loading weight obtained in the calculation example is permissible.

A higher loading weight requires a shortening of the effective lever length from the coupling interface to the center of gravity of the load, or a reduction in the robot acceleration.

For every change to the technical data, a calculation must be performed.

3.2.2 Determining the permissible transport load with NSR-A 160

Missing information or specifications can be requested from the manufacturer.

Maximum permissible torque for NSR-A 160: **M_{xy} = 600 Nm**

Legend		
M	Torque	Nm
F	Force	N
l	Effective lever length from the coupling interface between the changeover head and pallet adapter to the center of gravity of the load.	m
m	Mass	kg
g	Acceleration due to gravity	m / s²
m_{total}	$m_{\text{pallet adapter}} + m_{\text{clamping pallet}} + m_{\text{transport load}}$	kg
a	Maximum acceleration of robot arm	m / s²

Determination of formula values:

$m_{\text{pallet adapter, type: PKL 160 (aluminum)}} = 1.5\ kg$

$m_{\text{clamping pallet, type: PAL A 399 x 399 (aluminum)}} = 11\ \text{kg}$

$m_{\text{Transport load}} = 200\ \text{kg}$ (example value)

$l = 220\ \text{mm} = 0.22\ \text{m}$ (example value)

$$a = 3\,\frac{m}{s^2}$$

Calculating the acceleration force:

$$\mathbf{F = m_{ges.} \cdot g + m_{ges.} \cdot a}$$

$$F = (1.5\ \text{kg} + 11\ \text{kg} + 200\ \text{kg}) \cdot 9.81\,\frac{m}{s^2} + (1.5\ \text{kg} + 11\ \text{kg} + 200\ \text{kg}) \cdot 3\,\frac{m}{s^2}$$

$$F = 212.5\ \text{kg} \cdot 9.81\,\frac{m}{s^2} + 212.5\ \text{kg} \cdot 3\,\frac{m}{s^2}$$

$F = 2084.63\ \text{N} + 637.5\ \text{N}$

$F = 2722.13\ \text{N}$

$M = F \cdot l$

$M = 2722.13\ \text{N} \cdot 0.22\ \text{m}$

$M = 598.87\ \text{Nm}$

Maximum permissible moment load M_{xy} for NSR-A 160:

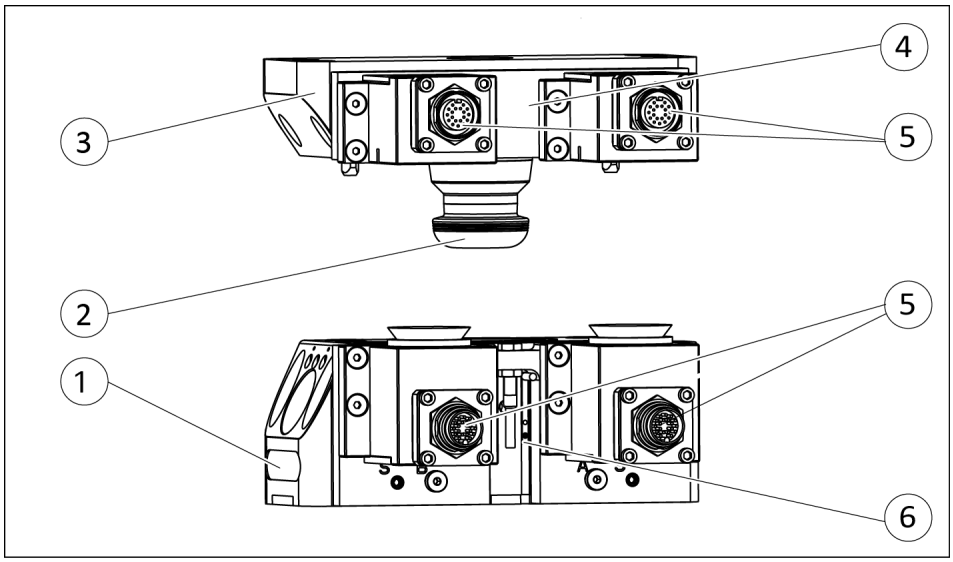
$M_{xy} = 600\ \text{Nm}$

Result of calculation:
Taking into account the robot acceleration, the loading weight obtained in the calculation example is permissible.

A higher loading weight requires a shortening of the effective lever length from the coupling interface to the center of gravity of the load, or a reduction in the robot acceleration.

For every change to the technical data, a calculation must be performed.

4 Design and Description



Design (size NSR-A 100 / 160)

1	Changeover head
2	Clamping pins
3	Pallet adapter
4	Adapter plate (separate accessories)
5	Optional module (separate accessories)
6	Sensors

With the NSR-A pneumatic pallet-change system, machine tools can be automatically loaded with pallets.

The pallet-change system is made up of a changeover head (1) and a pallet adapter (3) with clamping pin (2). The changeover head mounted to the robot couples the pallet adapter, which is mounted on the customer's clamping pallets.

In the changeover head, a pneumatically driven locking piston creates a secure form-fit connection to the clamping pin.

Monitoring the system state with sensors

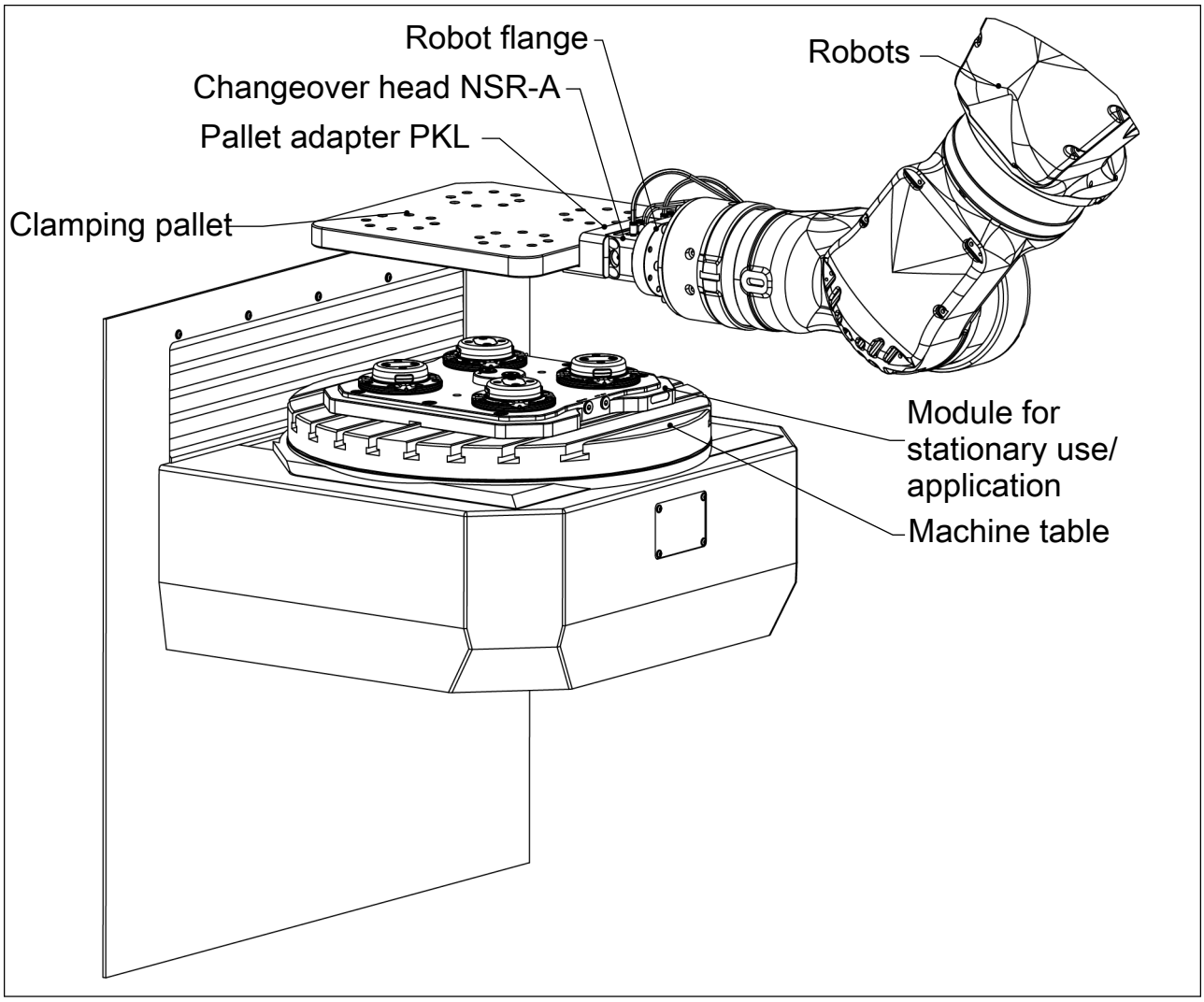
The pallet changing system NSR-A is prepared for monitoring the system state.

- Monitoring "pallet-change system unlocked" and "pallet-change system locked" with 2 magnetic switches MMS 22...-SA (to be ordered separately)
- Monitoring "pallet adapter available" with a proximity switch IN 50 (to be ordered separately)

For more information on the sensors, see ▸ 5.7 [🗋 48].

4.1 Application example for automated pallet loading

The pallet changing system, with the handling system, is the interface between the machine work area and pallet rack.

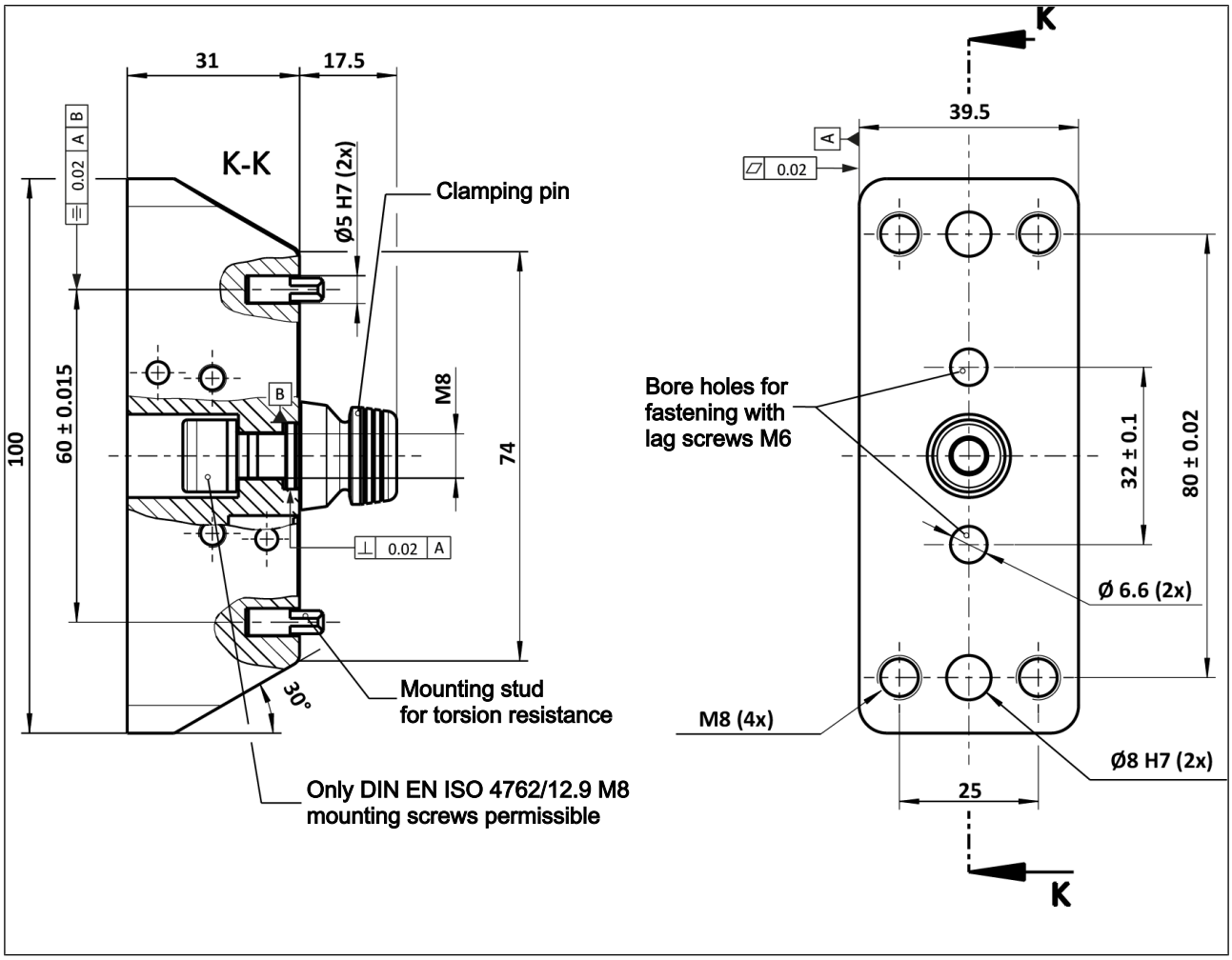


Application example for automated pallet loading

4.2 Pallet adapter for NSR-A 100

The PKL 100 pallet adapter was designed as a pallet changing interface for the NSR-A 100 pallet changing system.

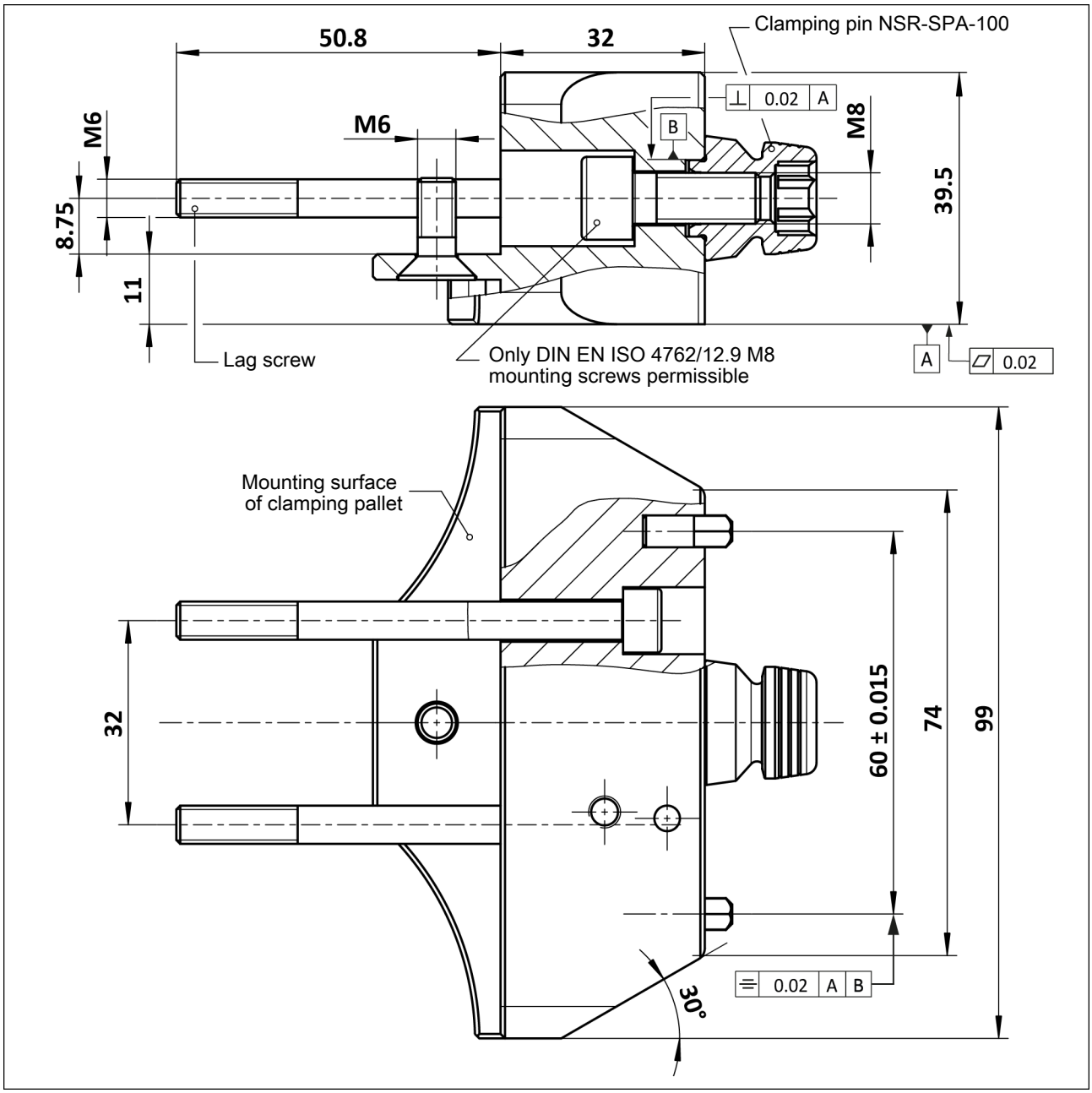
The pallet adapter provides the connection to the clamping pallet. The pallet adapter has a locating surface and four mounting screws for adapting the clamping pallet.



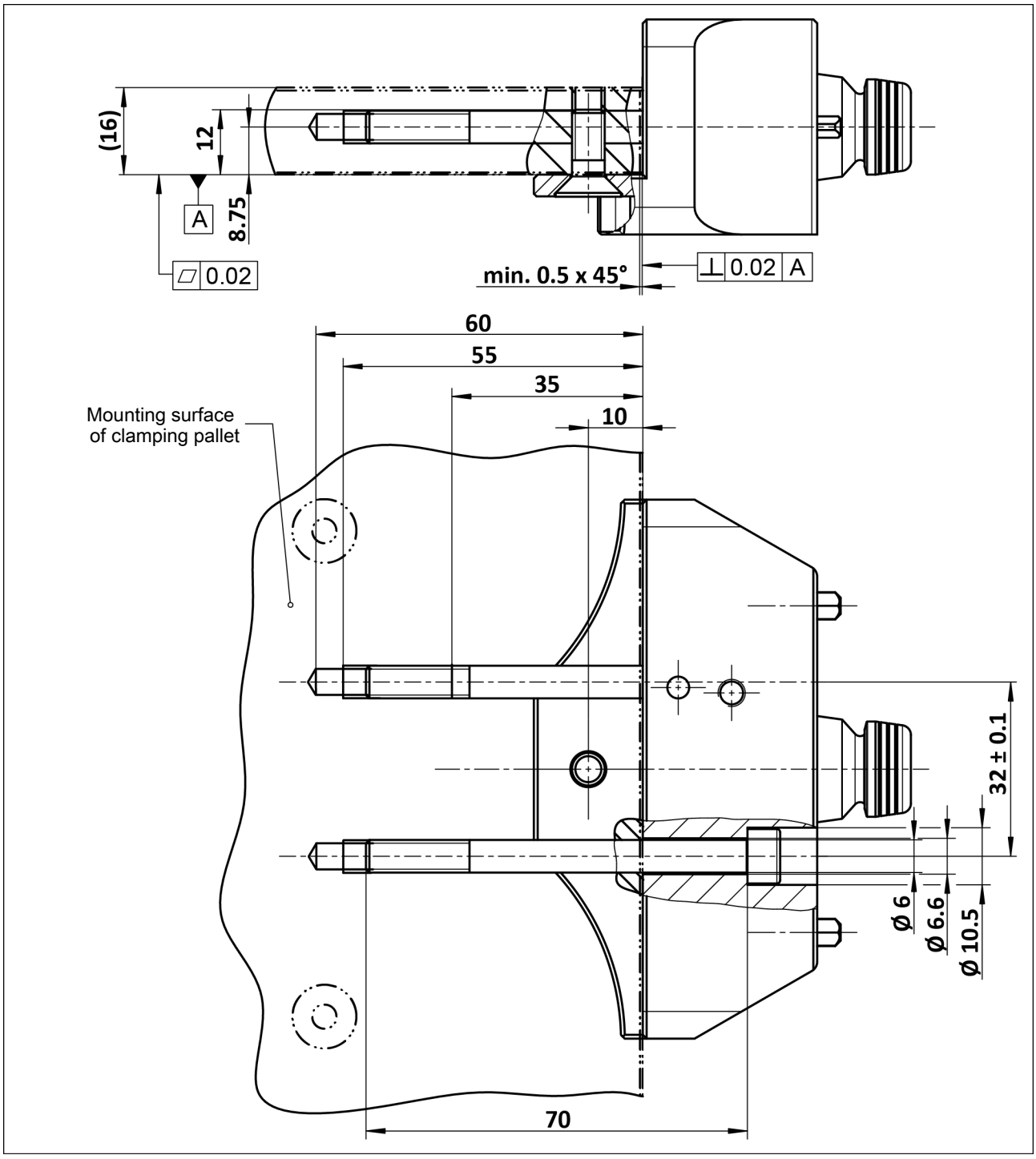
Pallet adapter PKL 100 – 0°

Two long cylindrical screws act as lag screws and guarantee a high holding force and rigidity with heavy loading weights. The connection interface between the clamping pallet and pallet adapter is shown in the "Connection interface between the clamping pallet and pallet adapter" illustration.

Alternatively, the clamping pallets can be attached with two lag screws.



Pallet adapter PKL 100 – 90°



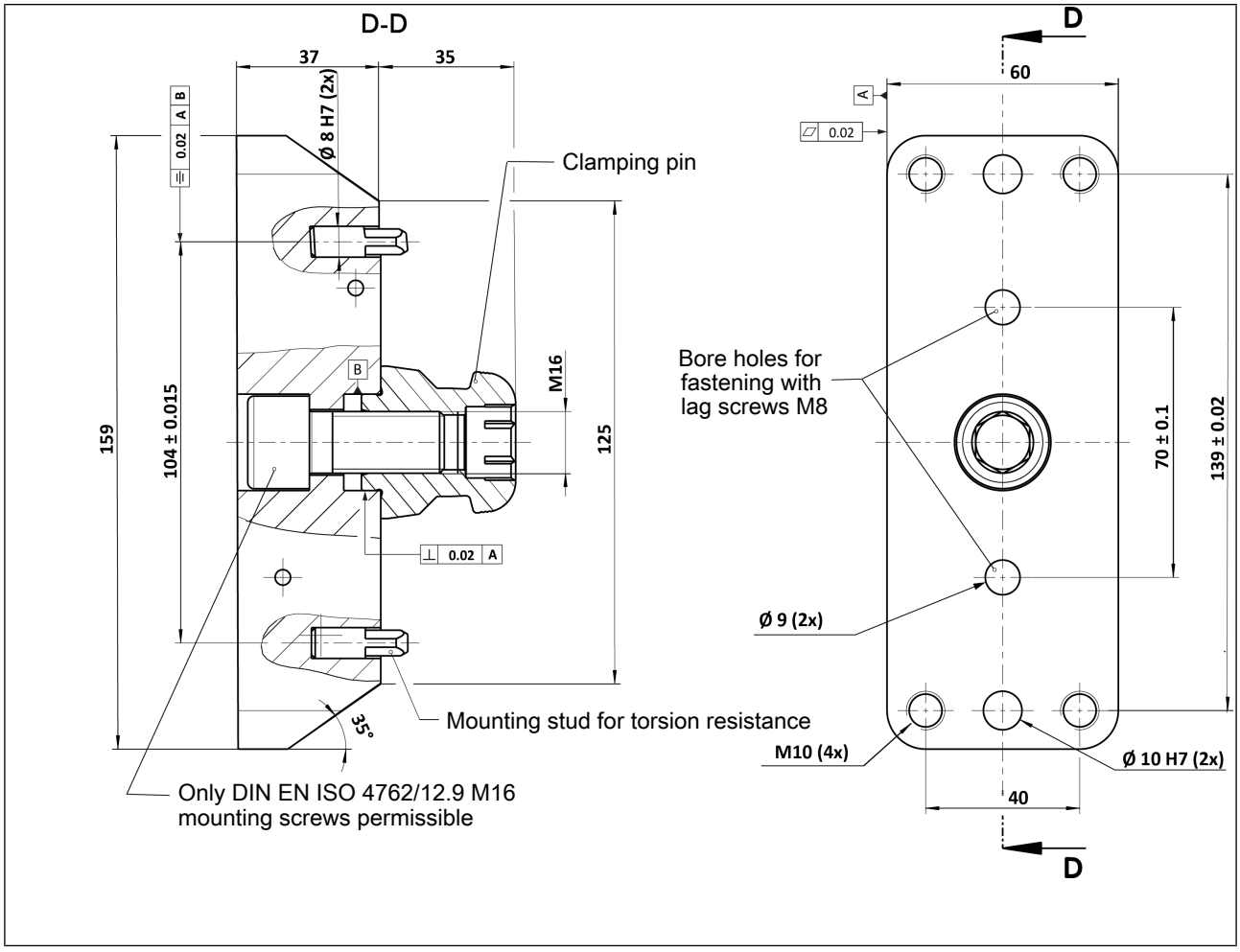
Connection interface between the clamping pallet and pallet adapter

4.3 Pallet adapter for NSR-A 160

The PKL 160 pallet adapter was designed as a pallet changing interface for the NSR-A 160 pallet changing system.

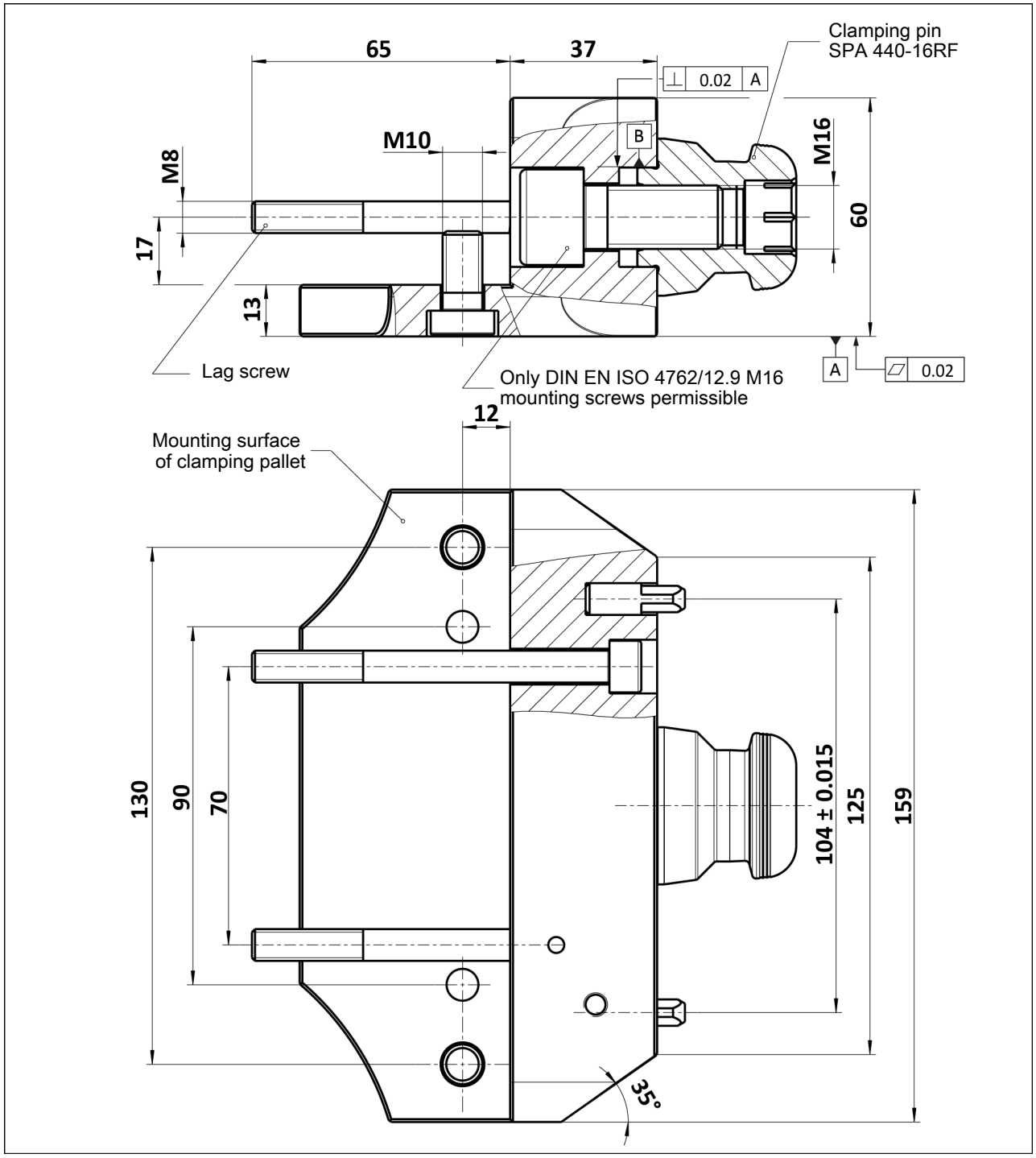
External mold inclines are used for position orientation free from play when joining with the pallet changing system. The pallet adapter provides the connection to the clamping pallet. The pallet adapter has a locating surface and four mounting screws for adapting the clamping pallet.

Alternatively, the clamping pallets can be attached with two lag screws.

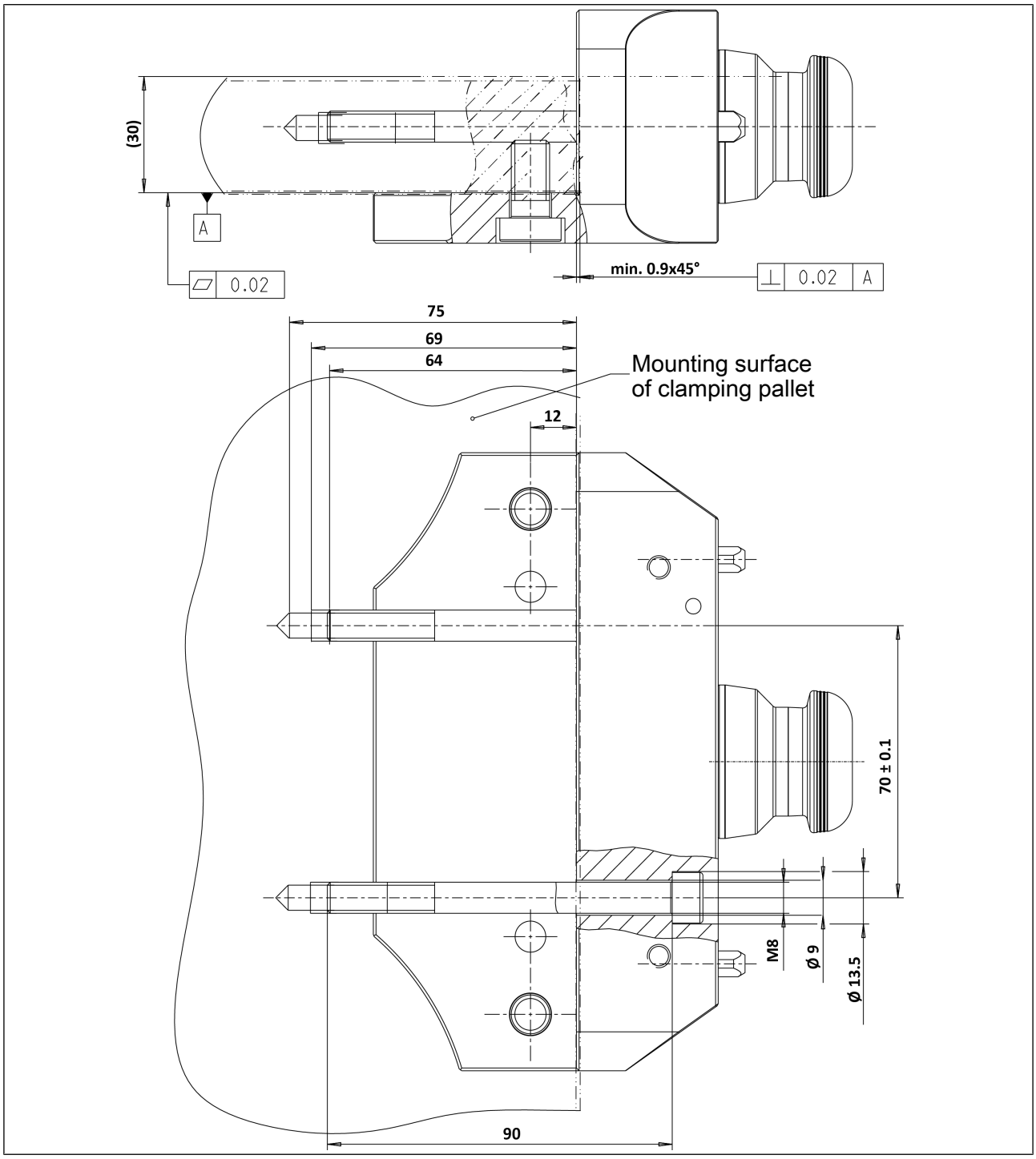


Pallet adapter PKL 160 - 0°

Two long cylindrical screws act as lag screws and guarantee a high holding force and rigidity with heavy loading weights. The connection interface between the clamping pallet and pallet adapter is shown in the "Connection interface between the clamping pallet and pallet adapter" illustration.



Pallet adapter PKL 160- 90°



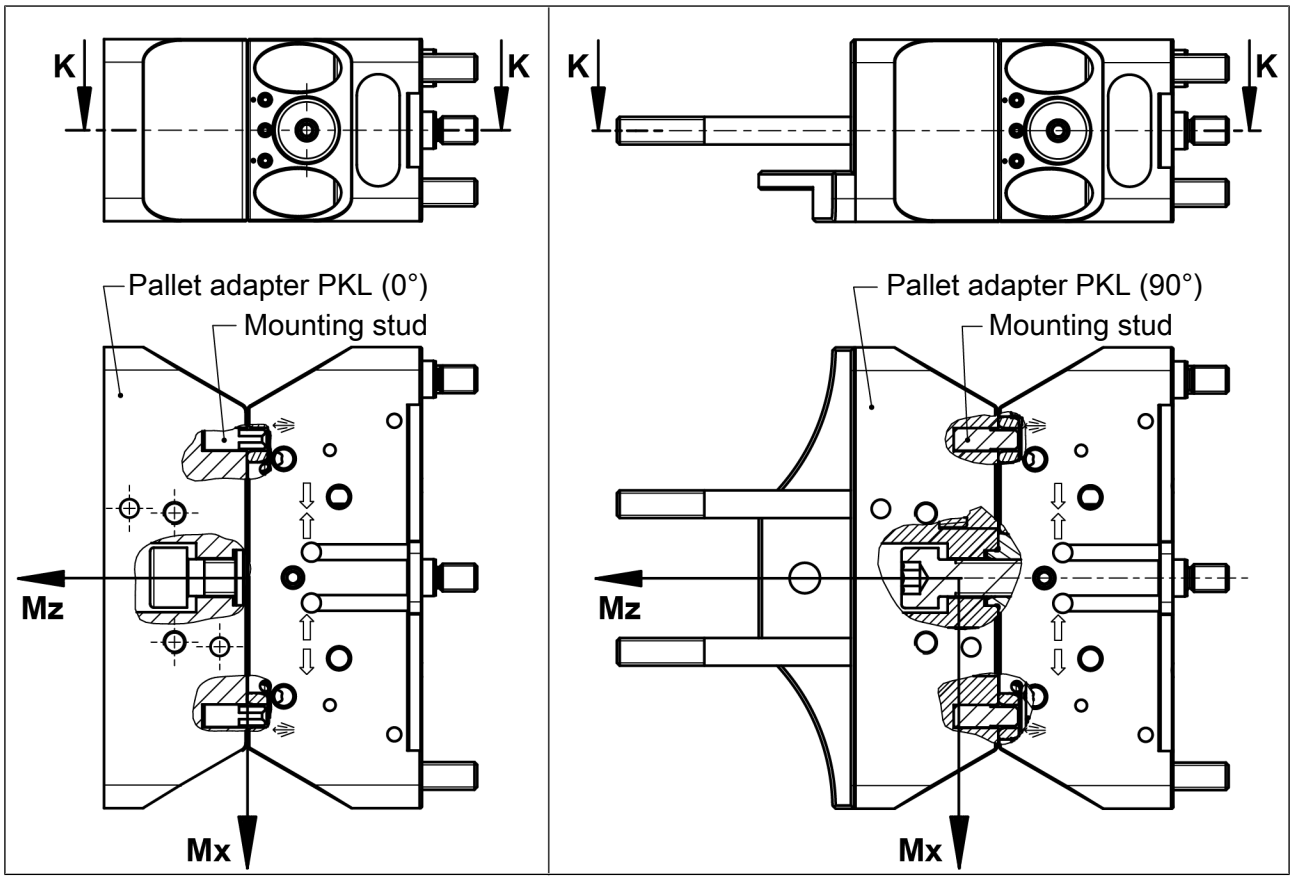
Connection interface between the clamping pallet and pallet adapter

4.4 Coupling interface for NSR-A 100 and NSR-A 160

Proof against over rotation

The pallet changing system NSR-A has a proof against over rotation which uses mounting studs.

The pallet adapter engages in the fitted bushings of the changeover head via the mounting studs when joining.



Torsion resistance for pallet adapter PKL (0°) and PKL (90°), without adapter plate

NOTE

- Only an original SCHUNK clamping pin may be used on the coupling interface with the designated mounting screws.
- Check the screw fitting of the clamping pin at regular intervals to ensure that it is secure. Observe the tightening torque. ▸ 5.5 [🗋 45]
- The pallet adapter must lie fully flat on the contact points of the pallet changing system. Design changes to the pallet adapter made by the operator are only permissible with the approval of SCHUNK.

5 Assembly

5.1 Assembly requirements

Before beginning assembly, request SCHUNK installation drawings

Provide air bleed screw for the piston chamber

When connecting the pallet changing system, it should be noted that it is only possible to completely ventilate the piston chamber via the air connections during the locking procedure. The relevant valves or shut-off valves should therefore be equipped with load relief. This also applies to the locked connection. If the locked connection is not used, the relevant side of the piston must be able to ventilate.

When disconnecting hose lines, the relevant openings must be secured with seal plugs to prevent ingress of dirt or cooling lubricant.

Observe tolerances when linking pallet changing systems

If there is a coupling interface of 2 linked pallet changing systems, make sure that the flatness and height deviation of the locating surfaces between the pallet changing systems lies within 0.01 mm, based on a length of 100 mm.

Observe hose nominal diameters when linking pallet-change systems

If several pallet-change systems are activated via shared hose lines, feed lines with the following minimum cross-sections must be used:

Number of pallet changing systems	Minimum nominal hose width
1	4 mm
2 – 4	6 mm
5	8 mm

5.2 Unpacking and transporting

NOTICE

Material damage due to improper transport!

Improper transport may cause packaging material to fall down and topple.

- When unloading, unpacking and transporting on site, do so carefully and observe the symbols and information on the packaging.
- Only use the intended back stop points.

⚠ WARNING

Risk of injury due to dropping the pallet changing system during transport!

- Transport with care.
- Use a crane and/or a trolley for transporting the system.
- Wear personal protective equipment.

⚠ CAUTION

Risk of injury due to sharp edges and rough or slippery surfaces!

- Wear personal protective equipment, particularly protective gloves.

1. Carefully lift the pallet changing system out of the packaging with suitable lifting equipment.
2. Check that the delivery is complete and that there is no transport damage. Report every defect to SCHUNK immediately.
3. Carefully transport the pallet changing system to the deployment side using a suitable aid, e. g. a trolley.

5.3 Installing and connecting

Assembly, dismantling and modification work on the pallet changing system may only be carried out by specialist personnel.

⚠ WARNING

Risk of injury due to unexpected movements!

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

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

⚠ WARNING

Risk of injury due to crushing!

- Install the pallet changing system with care.
- Do not place any limbs into the gap or between the clamping pallets and the machine.

NOTICE

Material damage due to incorrect tightening torques

During assembly, observe tightening torques, ▸ 5.5 [🗋 45]

NOTE

- Observe the requirements for the compressed air supply, ▸ 3 [🗋 17].
- In case of compressed air loss (cutting off the energy line), the components lose their dynamic effects and do not remain in a secure position. However, the use of a SDV-P pressure maintenance valve is recommended in this case in order to maintain the dynamic effect for some time. Product variants are also offered with mechanical gripping force via springs, which also ensure a minimum clamping force in the event of a pressure drop.

Overview of assembly

1. Connect the pallet changing system in accordance with pneumatic circuit diagram, ▸ 5.4.6 [🗋 43] or ▸ 5.4.7 [🗋 44].
   - ⇨ Seal air connections not required using the locking screws from the accessory pack.
   - ⇨ Screw on air connections.

2. Screw changeover head with the robot flange.
3. Screw clamping pin into the pallet adapter.
4. Tighten pallet adapter with the customer's clamping pallet.
5. Observe tightening torques for the mounting screws, ▸ 5.5 [🗋 45].
6. Installing the sensors, ▸ 5.7 [🗋 48].
7. Test function of the pallet changing system and connect and disconnect transport load, ▸ 5.8 [🗋 53].

NOTE

- Only mount original SCHUNK clamping pins on the pallet adapter with the prescribed mounting screw. Observe the tightening torque. Clamping pins are available from SCHUNK as a spare part.
- Check the screw fitting of the clamping pin at regular intervals to ensure that it is secure.
- For customer-specific pallet adapters produced by the customer, full support at the flat surface of the changeover head must be guaranteed,▸ 5.6 [🗋 46] .

The hoses and cables required for the energy supply for the pallet changing system must be laid and protected suitably on the pallet handling.

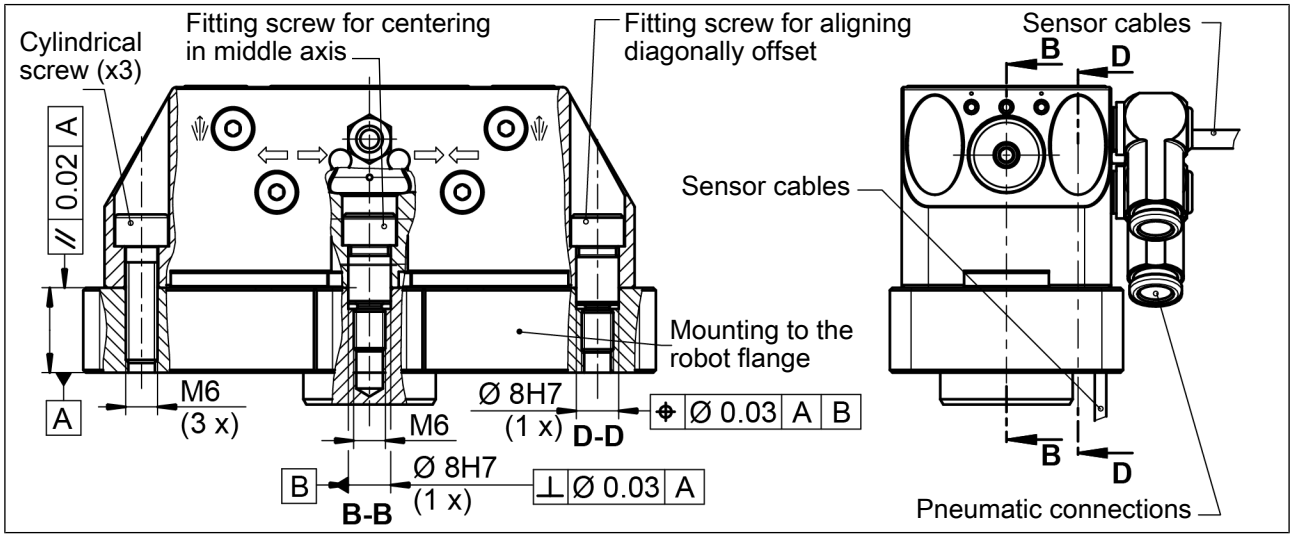
For more information and drawings on the connections, see the next chapter entitled "Connections" ,▸ 5.4 [🗋 34].

5.4 Connections

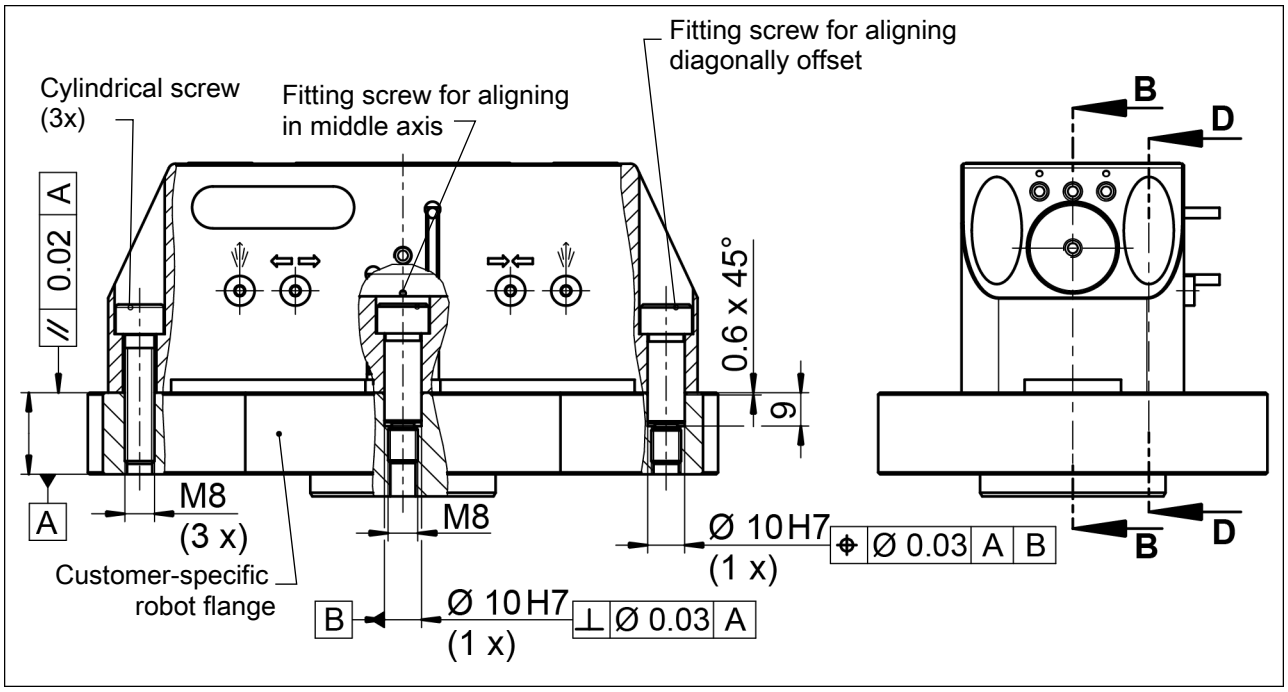
5.4.1 Connections to the changeover head on version "without adapter plate"

The changeover head is fixed in the installation space with 5 screws. The screws must be tightened with the specified torque ▸ 5.5 [🗋 45].

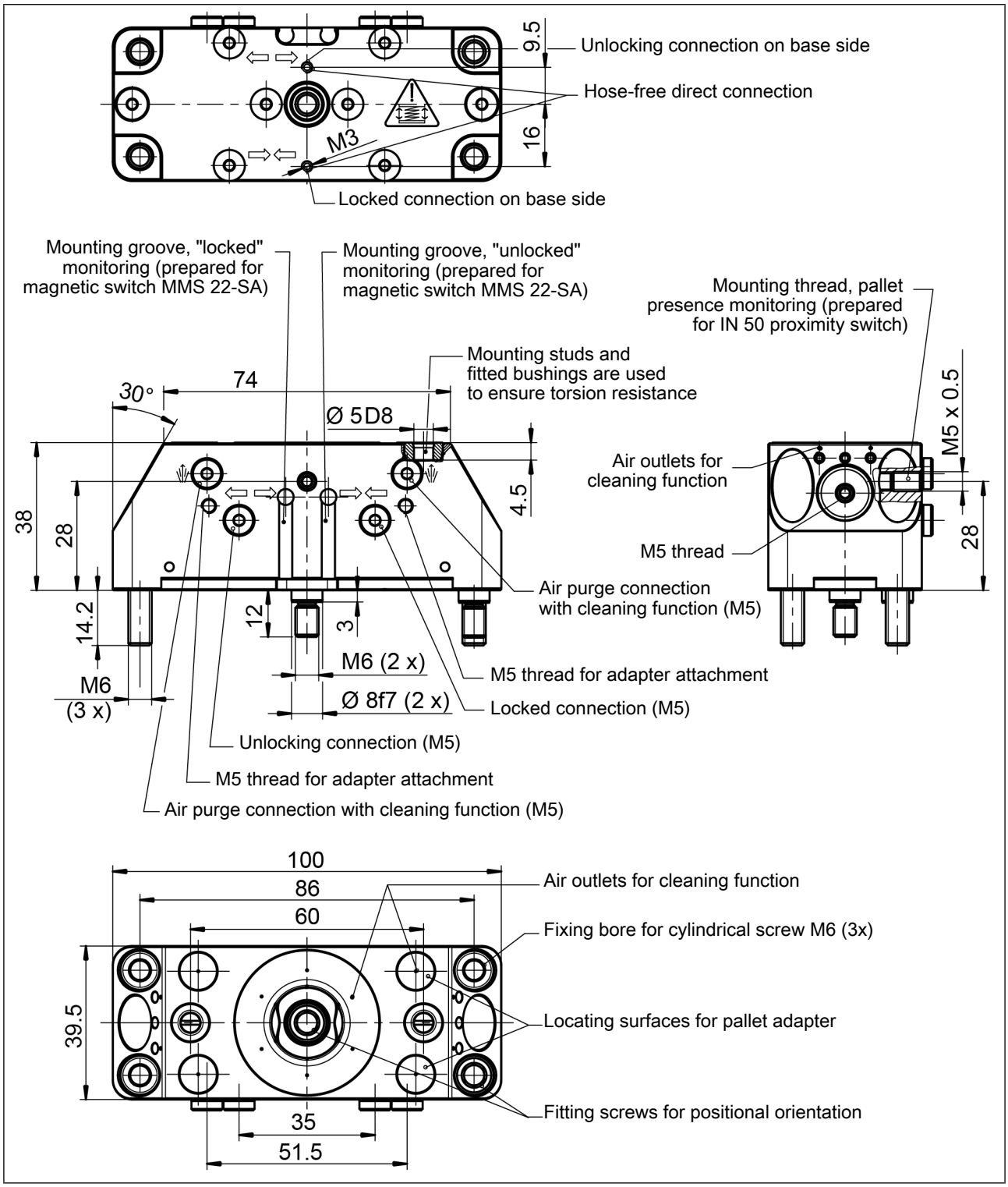
Two mounting screws are used as fitting screws for precise positioning on the robot flange. Precise alignment and positioning of the changeover head requires that the fitting bores on the opposite side are precisely positioned in the robot flange.



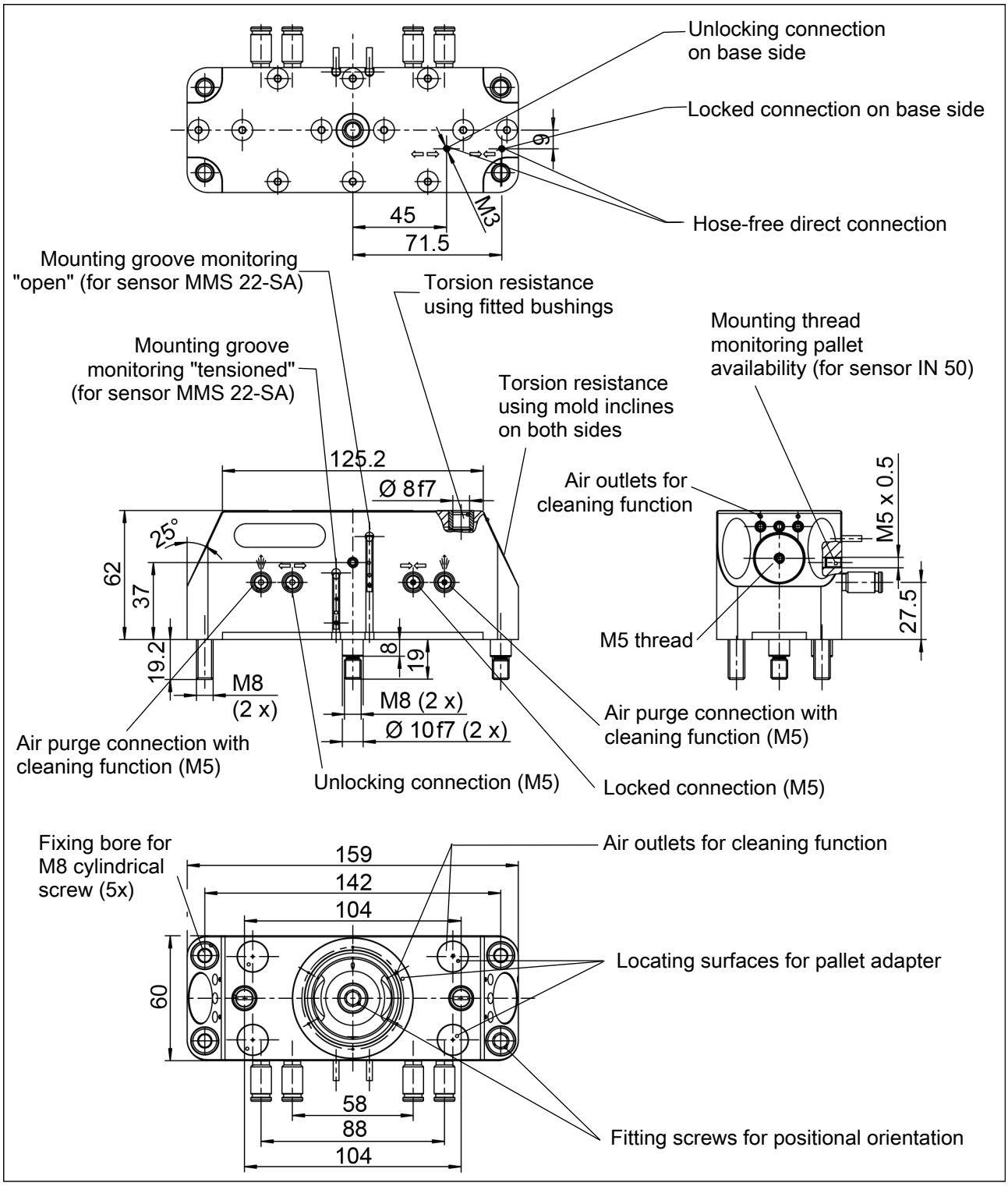
Mounting to robot flange for NSR-A 100



Mounting to robot flange for NSR-A 160



Mounting and connections for NSR-A 100



Mounting and connections for NSR-A 160

The air connection takes place via the M5 coupling holes at the side as standard. Straight or angled pneumatic screw connections can be fitted for the air supply.

There is an alternative connection option via two M3 connections on the base side for unlocking and locking. In this case, the side connections must be sealed off with the two M5 locking screws (already fitted when delivered). If this connection version is

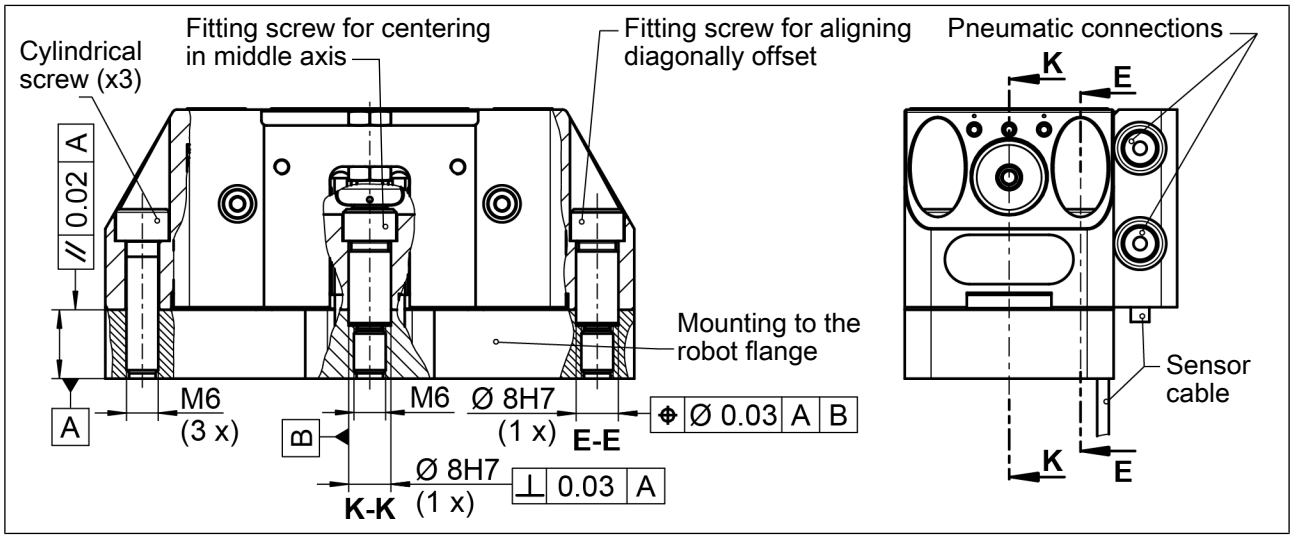
chosen, the hose-free direct connections on the base side must each be sealed with an O-ring. In the customer-specific attachment flange, recessed O-ring seats are required for this. Machine the axial sealing O-ring seat according to the following dimensions:
Ø 5.5 $^{+0.1}$ x 0.7 $^{+0.05}$.
The accessory pack contains O-rings (see Assembly drawing, item 19) for sealing the bottom hose-free direct connections.

When the locked connection is used, the spring-actuated locking procedure is actively supported with air pressure. If the locked connection is not used, the relevant side of the piston must be able to ventilate.

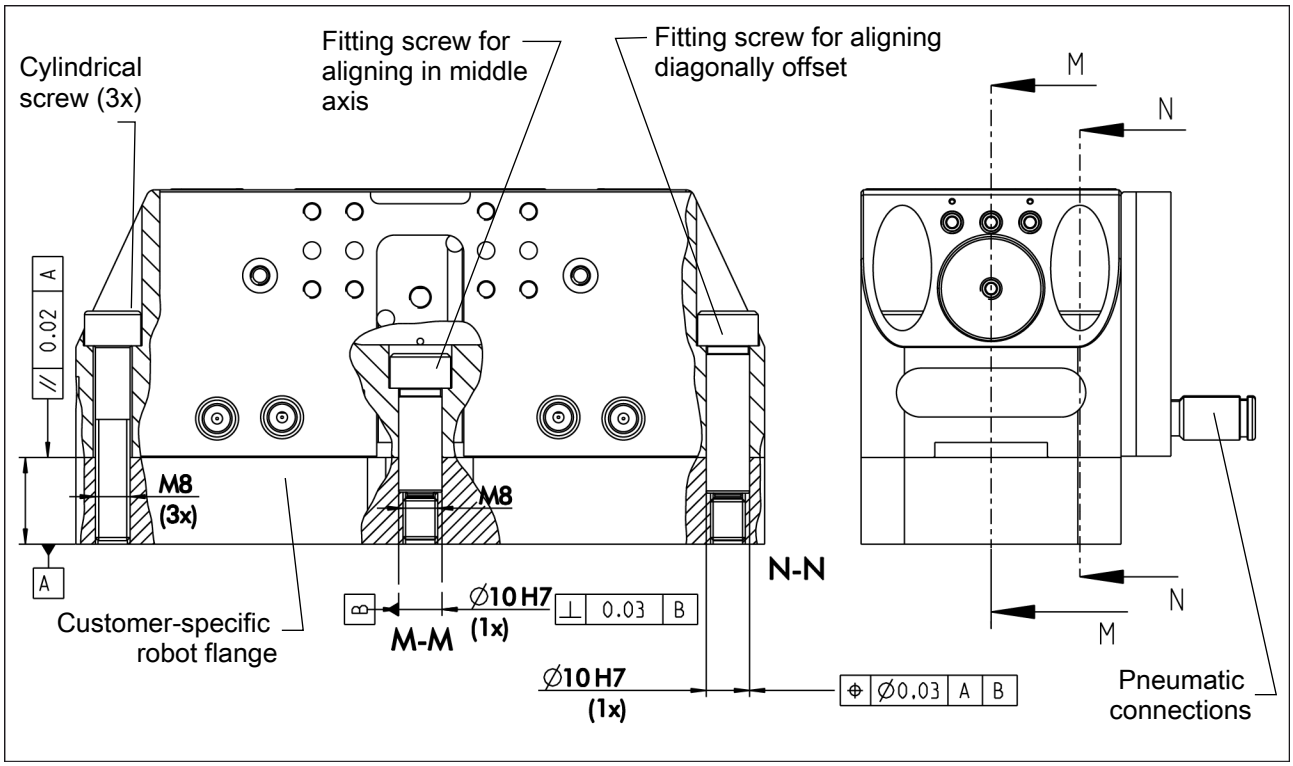
In the dynamic work process, SCHUNK always recommends switching on the locked connection.

5.4.2 Connections to the changeover head on version "with adapter plate"

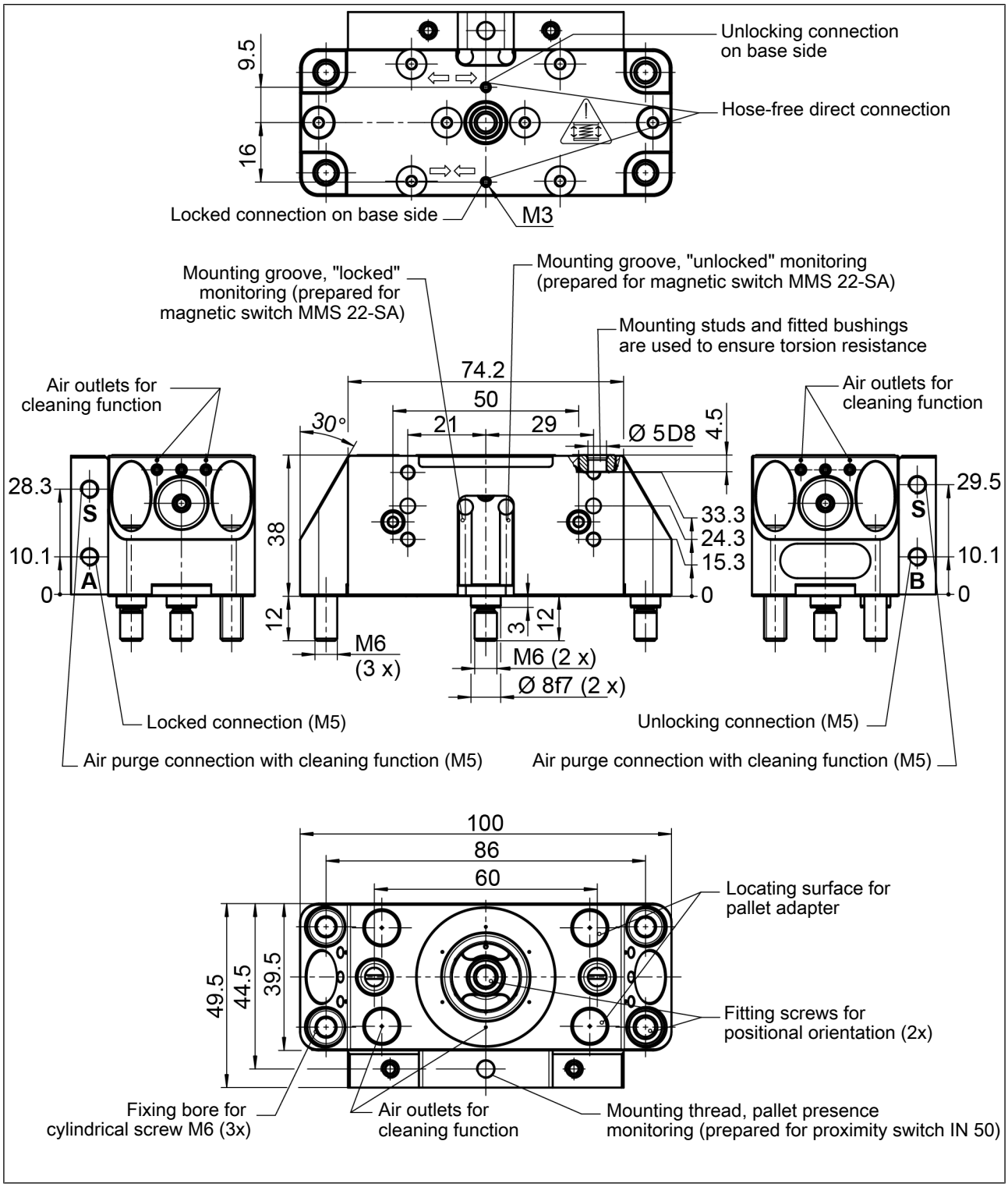
The changeover head has two threads for mounting adapter plates for connecting pneumatic or electrical feed-through modules. These modules are accessories and must be ordered separately.



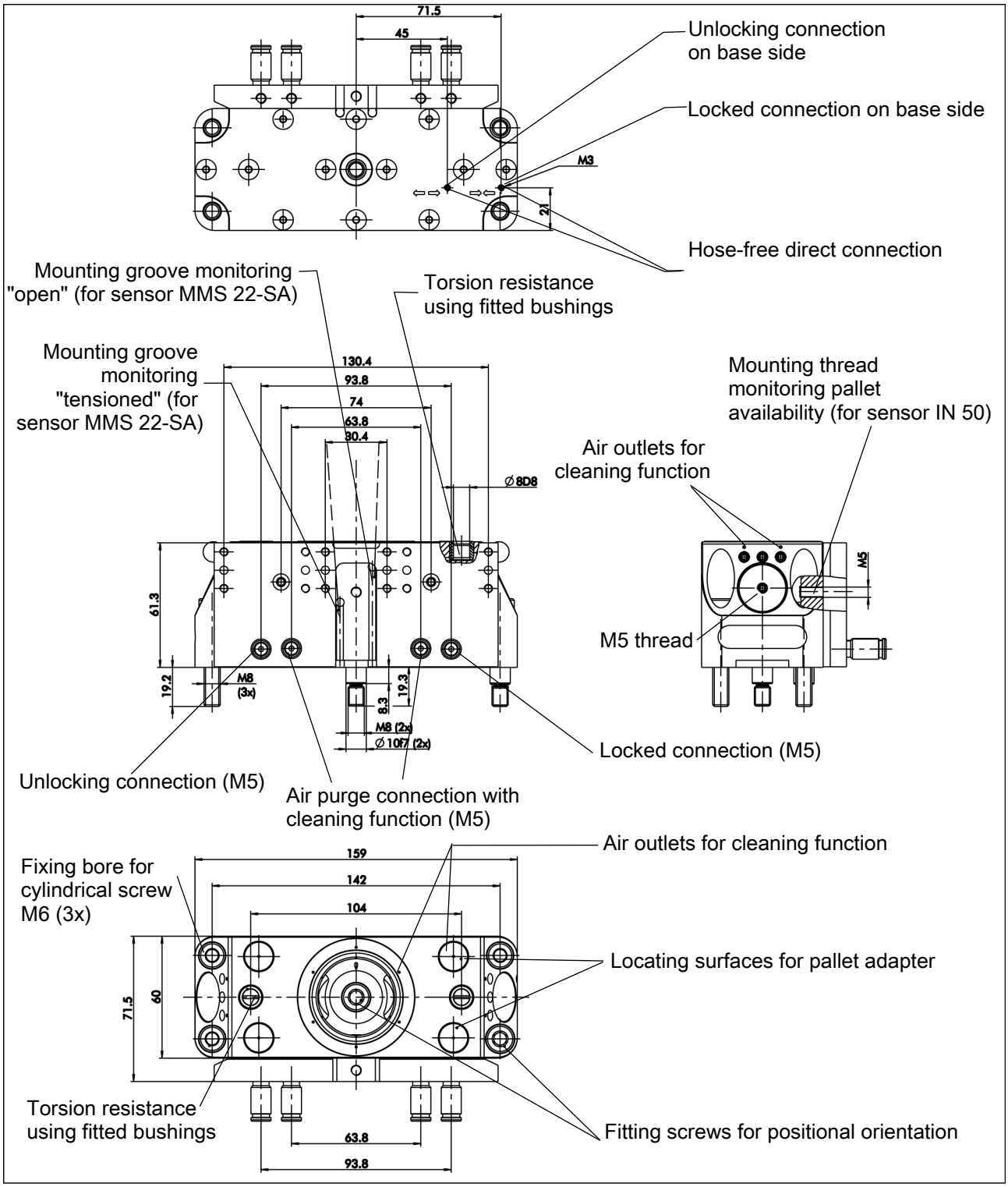
Mounting to robot flange with adapter plate for pneumatic or electrical feed-through modules for NSR-A 100



Mounting to robot flange with adapter plate for pneumatic or electrical feed-through modules NSR-A 160



Mounting and connections: electronic and pneumatic modules for NSR-A 100



Mounting and connections: electronic and pneumatic modules NSR-A 160

5.4.3 Unlocking connection

The clamping system is unlocked if compressed air is constantly applied to the unlocking connection of the pallet changing system. The clamping pallet can be removed or inserted on the clamping station.

There is the option of controlling the clamping system either via the M5 air connection hole on the side or a hose-free direct connection on the base side. The air connection that is not connected must be sealed air-tight with an M5 locking screw or an M3 set-screw (on the bottom) (see chapter "Assembly Drawings" ▶ 7.3 [🗋 58]).

5.4.4 Locked connection

The pallet changing system has a locked connection.

When compressed air is applied, it supports the spring-actuated locking procedure actively with air pressure to increase the pull-in force even further. **In the dynamic work process, switching on the locked connection is always recommended.**

There is the option of controlling the pallet changing system either via the M5 air connection hole on the side or a hose-free direct connection on the base side. The air connection that is not connected must be sealed air-tight with an M5 locking screw or an M3 set-screw (on the bottom) (see chapter "Assembly Drawings" ▶ 7.3 [🗋 58]).

NOTE

On a dynamically operated handling system, the pallet changing system can only lift loads if the locked function has been switched on beforehand.

5.4.5 Air purge connection with cleaning function

Air purge connection without adapter plate

For interface cleaning, the pallet changing system has two side air purge connections with M5 connection thread.

The positively driven air flow is released on the centering and locating surfaces of the clamping system. The pallet changing system therefore has a cleaning function on all contact surfaces of the entire coupling interface.

The air supply for the air purge function is supplied via two hose lines on a connected system of channels. The use of two pressure lines increases the air outlet volume. If the air purge function is only controlled with one hose line, the open air connection must be sealed with a M5 locking screw (see chapter "Assembly Drawings" ▶ 7.3 [🗋 58]).

It is advisable to use the air purge function if the changeover head approaches the pallet adapter. In doing so, the two system components to be coupled are cleaned of dirt and chips.

When actuating the pallet changing system, observe the following:

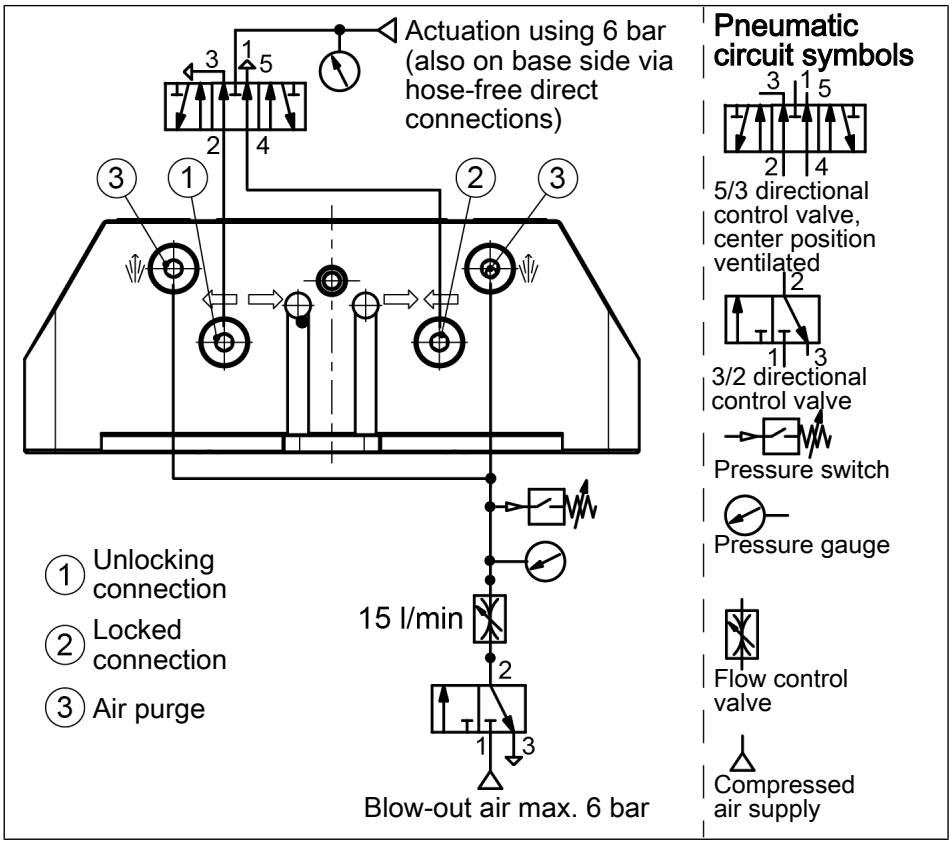
- Maximum pressure of the air purge: 6 bar
- The air purge must be switched off again before the pallet changing system is locked fully in the robot module, as otherwise an air cushion can form.

Air purge connection with adapter plate

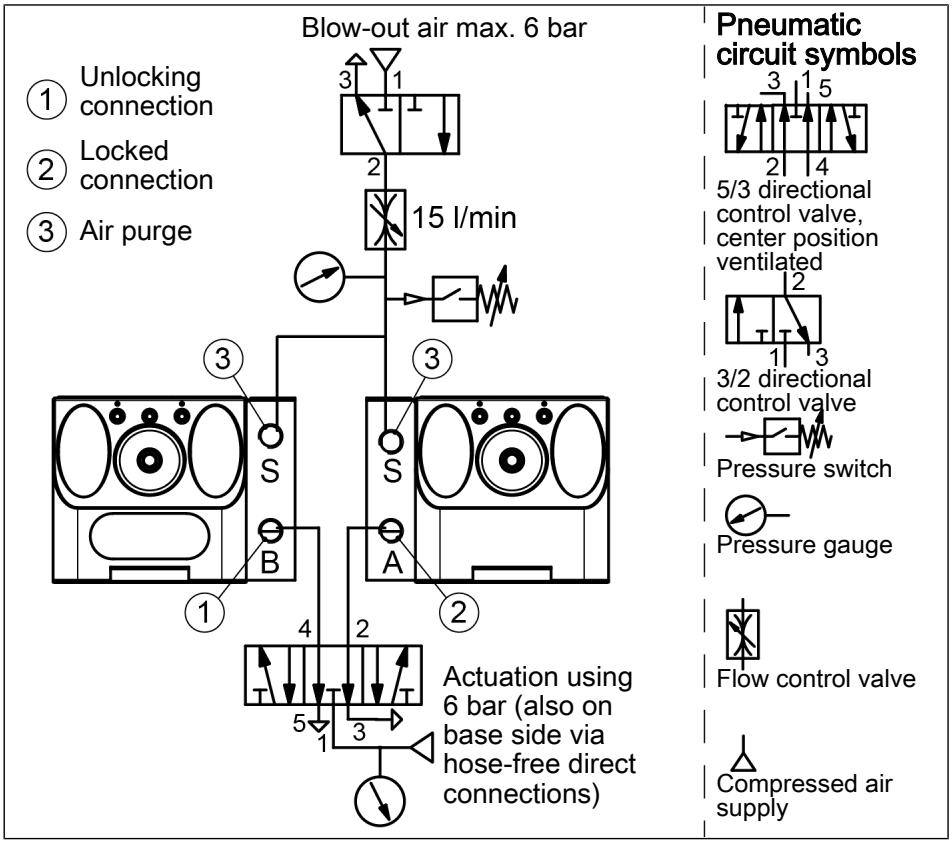
If the adapter plate (for connecting pneumatic or electrical feed-through modules) is connected, the pallet-change system has two side air purge connections with M5 connection threads on the adapter plate. Both connections on the adapter plate are marked with the letter **"S"**. See drawing "Mounting and connections: electronic and pneumatic modules" .

5.4.6 Pneumatic circuit diagram NSR-A 100

Pneumatic circuit diagram without adapter plate

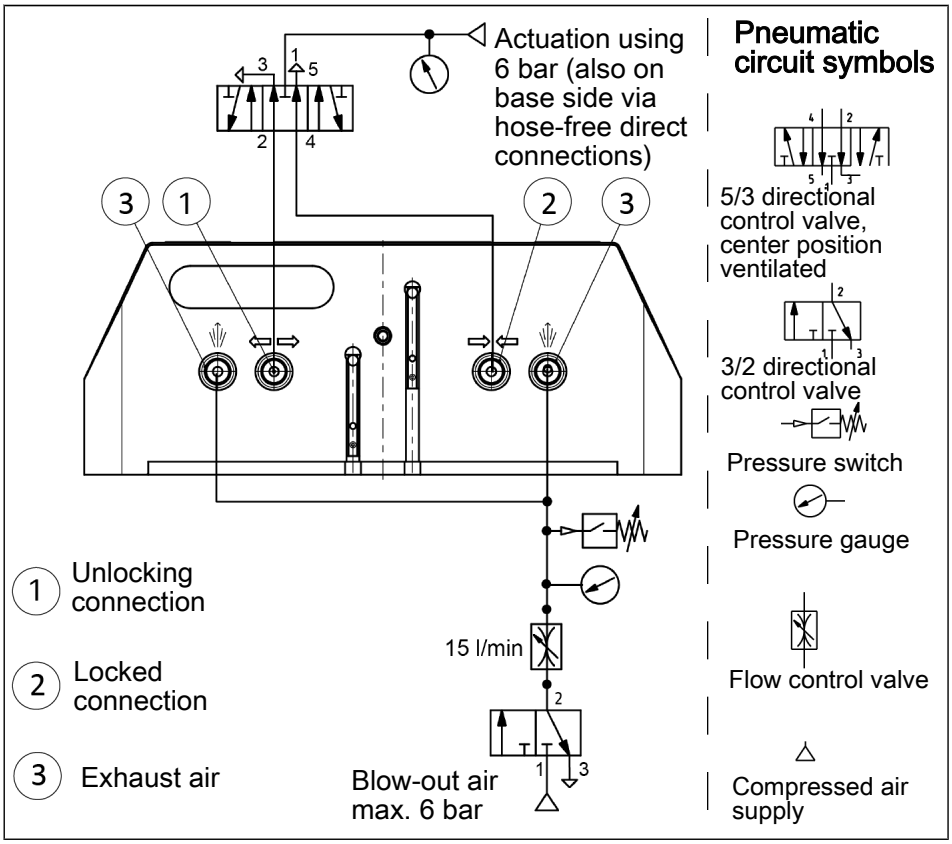


Pneumatic circuit diagram with adapter plate

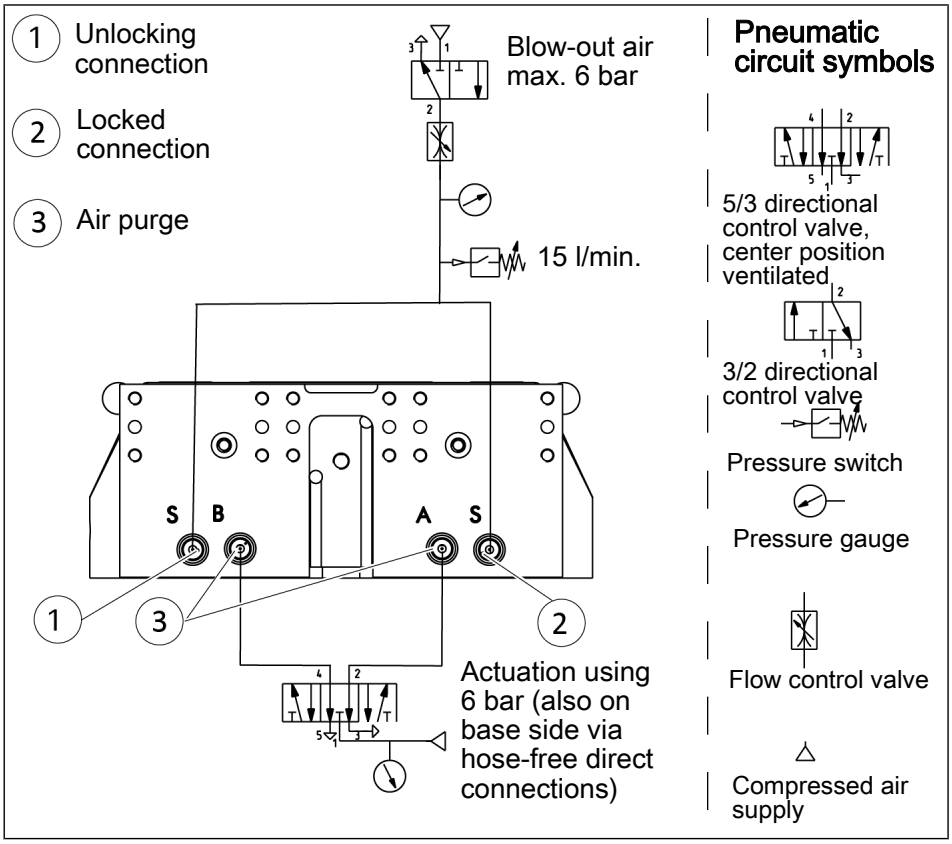


5.4.7 Pneumatic circuit diagram NSR-A 160

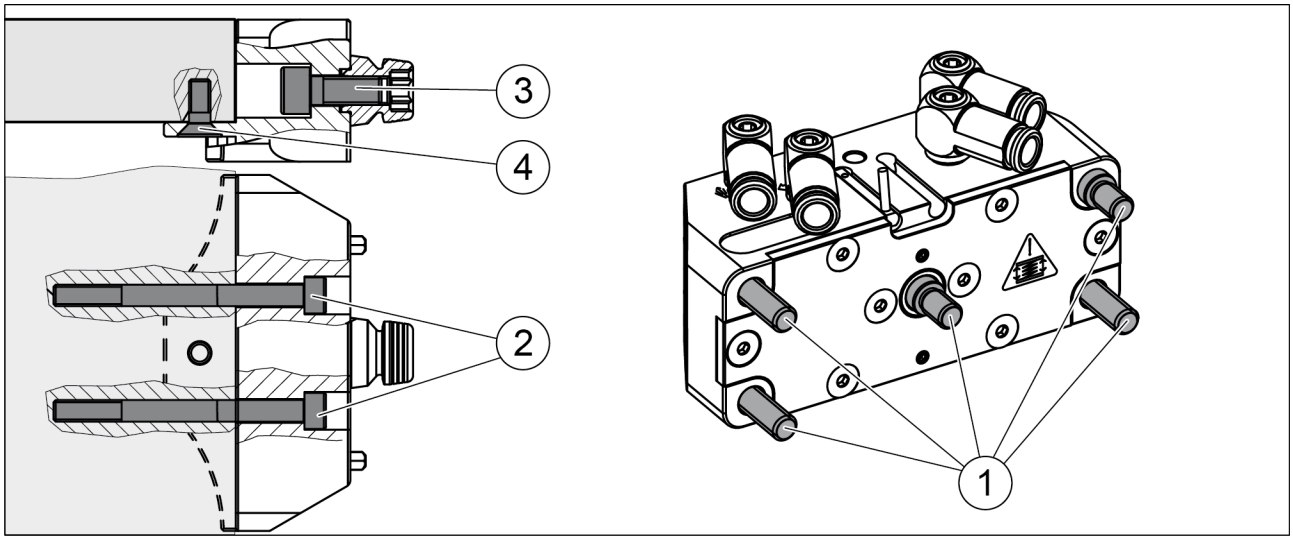
Pneumatic circuit diagram without adapter plate



Pneumatic circuit diagram with adapter plate



5.5 Screw tightening torques



Screws on pallet changing system

5.5.1 Screw tightening torques for NSR-A 100

Item	Mounting	Strength class	Thread	Tightening torque [Nm]
1	Quick-change head/ robot flange	12.9	M6	15
2	Lag screws Pallet adapter / clamping pallet	12.9	M6	15
3	Clamping pin / pallet adapter	12.9	M8 *	32
4	Countersunk screws Pallet adapter / clamping pallet	10.9	M6	13

*) Alternative attachment option, ▶ 3 [🗋 17].

5.5.2 Screw tightening torques for NSR-A 160

Item	Mounting	Strength class	Thread	Tightening torque [Nm]
1	Quick-change head/ robot flange	12.9	M8	32
2	Lag screws Pallet adapter / clamping pallet	10.9	M8	28
3	Clamping pin / pallet adapter	12.9	M16 *	262
4	Cheese-head screw Pallet adapter / clamping pallets	10.9	M10	72

*) Alternative attachment option, ▶ 3 [🗋 17].

5.6 Tolerances and installation conditions for clamping pins in customer-specific pallet adapters

NOTICE

Material damage caused by installing incorrectly dimensioned components!

The holding force of the pallet changing system is essentially limited by the tightness of the screw connection which connects the clamping pin to the pallet adapter. Installing the clamping pin with the incorrect components, e.g. mounting screws that are too short can lead to significant material damage.

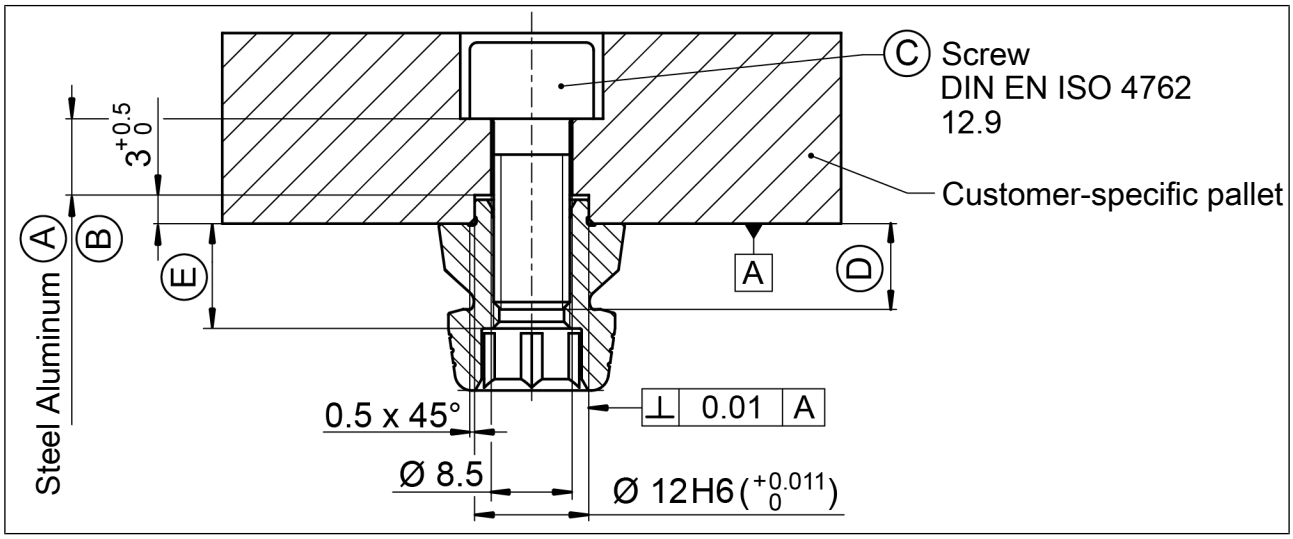
- Only original SCHUNK clamping pins may be used. These are available from SCHUNK as a spare part.
- Install the clamping pin with a screw of strength class 12.9. It is imperative that the tightening torque is strictly adhered to. ▸ 5.5 [🗋 45].
- If the clamping pin is to be used in customer-specific pallet adapters, the customer must provide a sufficiently dimensioned depth of engagement in the clamping pin or a sufficiently thick mounting material in the adapter strip.
- The installation dimensions are based on different adapter strip materials for the customer-specific pallet adapter and must be observed.

Check the screw fitting of the clamping pin at regular intervals to ensure that it is secure.

Note

Only the complete pallet adapter coupling can be replaced in the pallet coupling change interface. Replacing only the clamping pin would mean that the required complete flat work surface would not be achieved at the change interface.

5.6.1 Installation condition for clamping pin for NSR-A 100

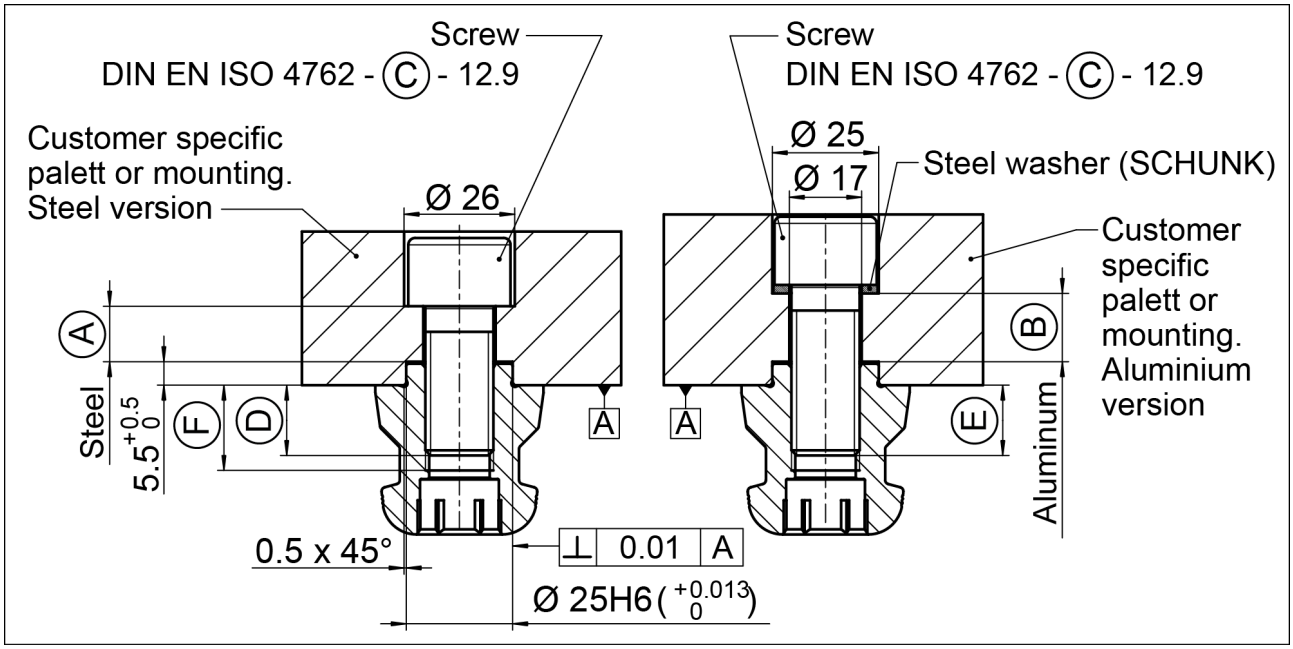


Tolerances and installation conditions for clamping pins when installing in a customer-specific pallet adapter

A	B	C	D	E
> 8	> 13	M8 *	> 9	11

*) Alternative attachment option, ▶ 3 [🗋 17].

5.6.2 Installation condition for clamping pin for NSR-A 160



Tolerances and installation conditions for clamping pins when installing in a customer-specific pallet adapter

A	B	C	D	E	F
> 13	> 16	M16 *	> 16	> 16	20

Note: If the clamping pin is installed in an aluminum adapter strip, it is essential to install a steel washer under the screw head of the cylindrical screw DIN EN 4762 M16 12.9. The steel washer can be ordered from SCHUNK.

*) Alternative attachment option, ▸ 3 [🗋 17].

5.7 Installing the sensors

NOTE

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

The product is prepared for the use of sensors.

- For the exact type designations of suitable sensors, please see catalog datasheet and ▸ 5.7.1 [🗋 48].
- For technical data for the suitable sensors, see assembly and operating manual and catalog datasheet.
  - The assembly and operating manual and catalog datasheet are included in the scope of delivery for the sensors and are available at **schunk.com**. .
- Information on handling sensors is available at **schunk.com** or from SCHUNK contact persons.

5.7.1 Overview of compatible sensors

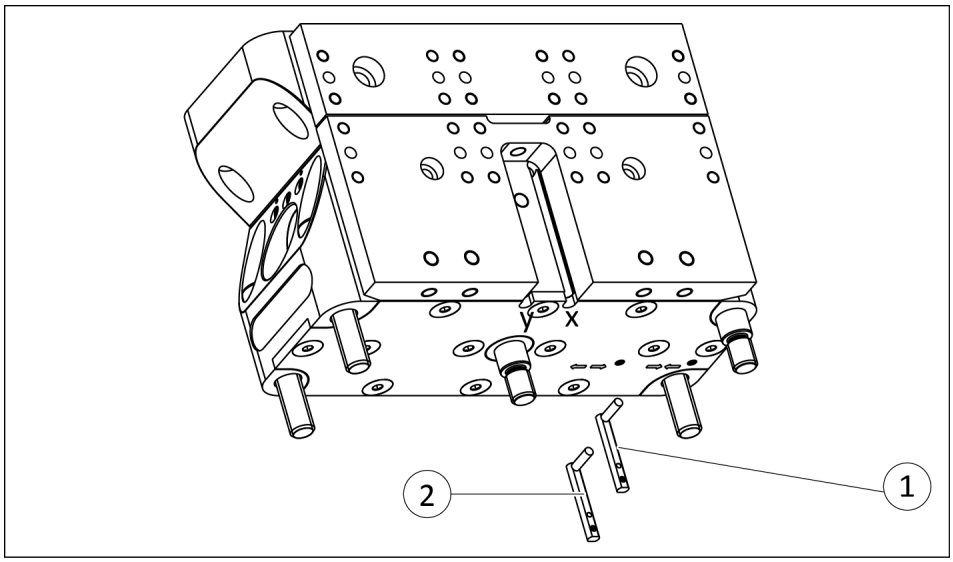
Designation	NSR-A 100	NSR-A 160
Magnetic switch MMS 22...-SA	x	x
Inductive proximity switch IN 50	x	x

5.7.2 Mount magnet sensor MMS 22...-SA

NOTICE

Risk of damage to the sensor during assembly!

- Observe the maximal tightening torque.



Assembling the sensor MMS 22...-SA

The sensors can be set to the following queries:

Query "pallet changing system unlocked"

1. Put the pallet changing system in the "unlocked" position.
2. Slide sensor (1) to the stop in the long groove "x".
3. Pull the sensor (1) back again slowly until it switches.
4. Secure the sensor using the set-screw.
   Tightening torque: 10 Ncm
5. Adjust sensor, see Sensor Assembly and Operating Manual.
6. Query "unlocked" position and test functionality.

Query "pallet change system locked"

1. Clamp the pallet to be clamped.
2. Slide sensor (2) to the stop in the short groove "y".
   ⇨ The sensor switches.
3. Pull the sensor (2) back again slowly until it reaches the switching position, but still switches.
4. Secure the sensor using the set-screw.
   Tightening torque: 10 Ncm
5. Adjust sensor, see Sensor Assembly and Operating Manual.
6. Query "locked" position and test functionality.

NOTE

The switching point of the sensor (2) may experience slight shifting when clamping with or without a locked connection.

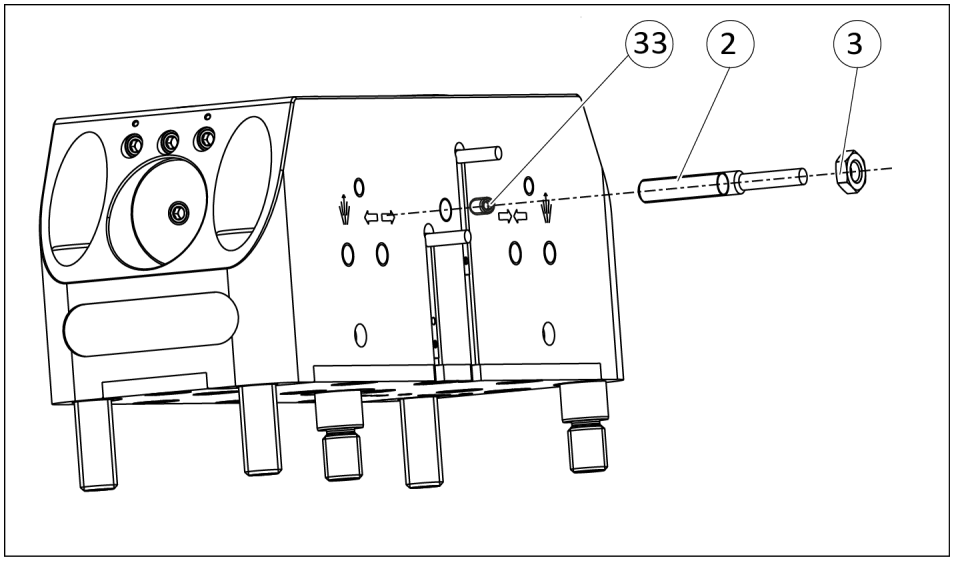
5.7.3 Mounting inductive proximity switch IN 50

NOTICE

Risk of damage to the sensor during assembly!

- Observe the maximal tightening torque.

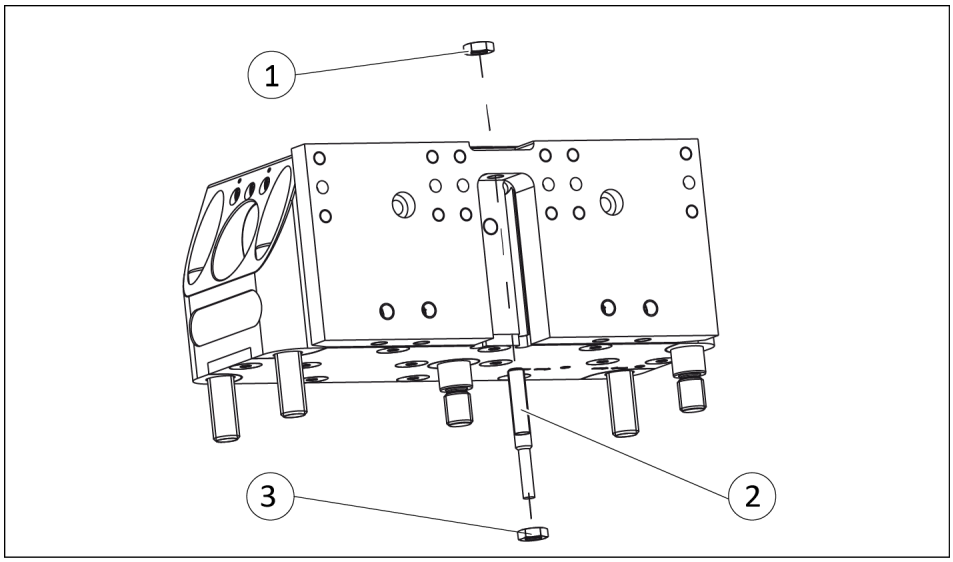
Mounting the sensor for the "without adapter plates" version
The IN 50 inductive proximity switch is used to detect the presence of the clamping bolt in the pallet adapter.



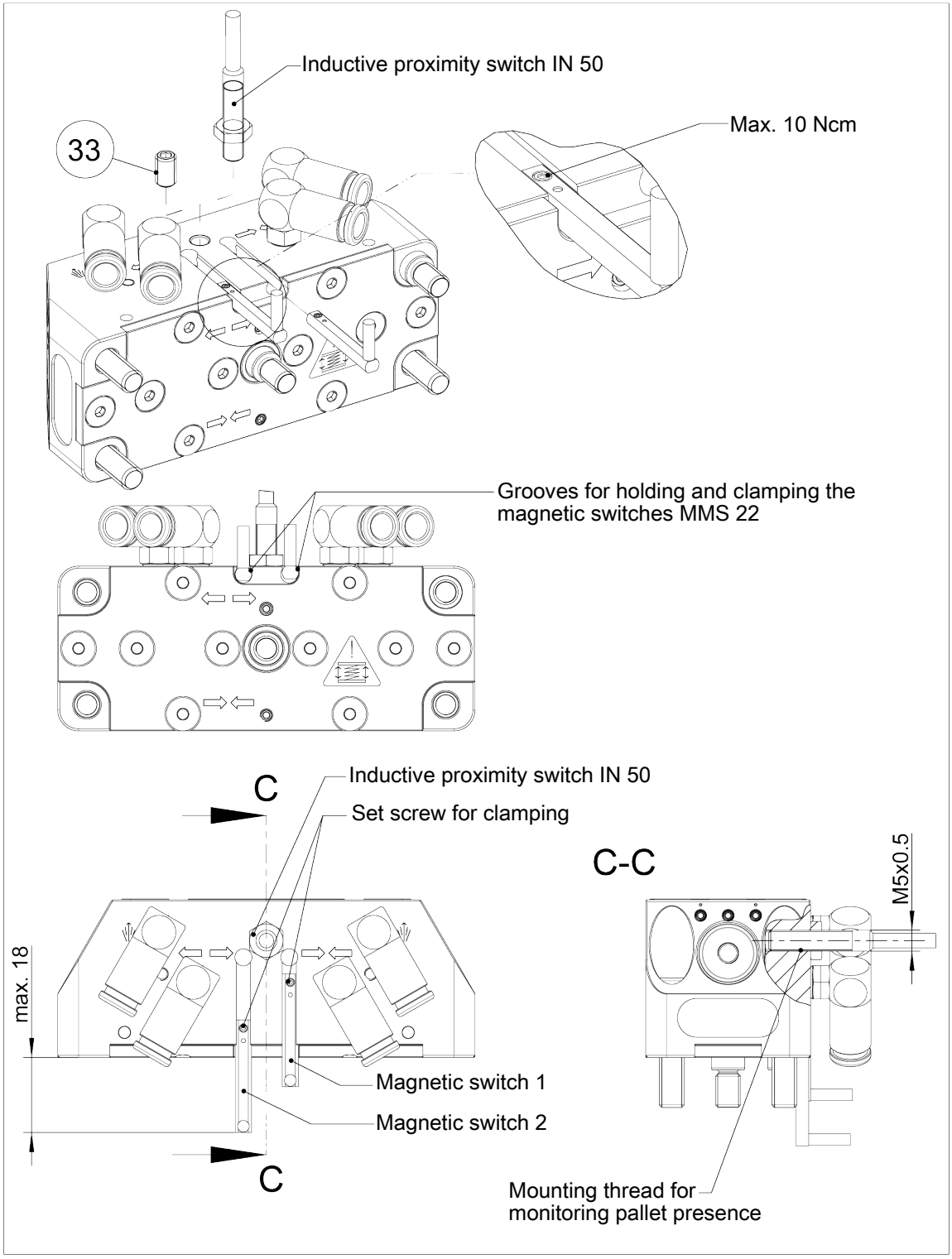
1. Remove the threaded pin (33).
2. Screw in the sensor (2).
3. Set the switching point so that the proximity switch switches when the pallet is present.
4. Secure the sensor with the lock nut (3).
5. Adjust the sensor; see the sensor installation and operating instructions.
6. Check the "clamping bolt present" position and test the function.

NOTE
Set the switching point of the proximity switch so that the signal for detecting the clamping bolt is only triggered when the clamping bolt is completely in the locking chamber.

Mounting the sensor for the "with adapter plates" version
When using adapter plates, the presence of the pallet adapter is queried.



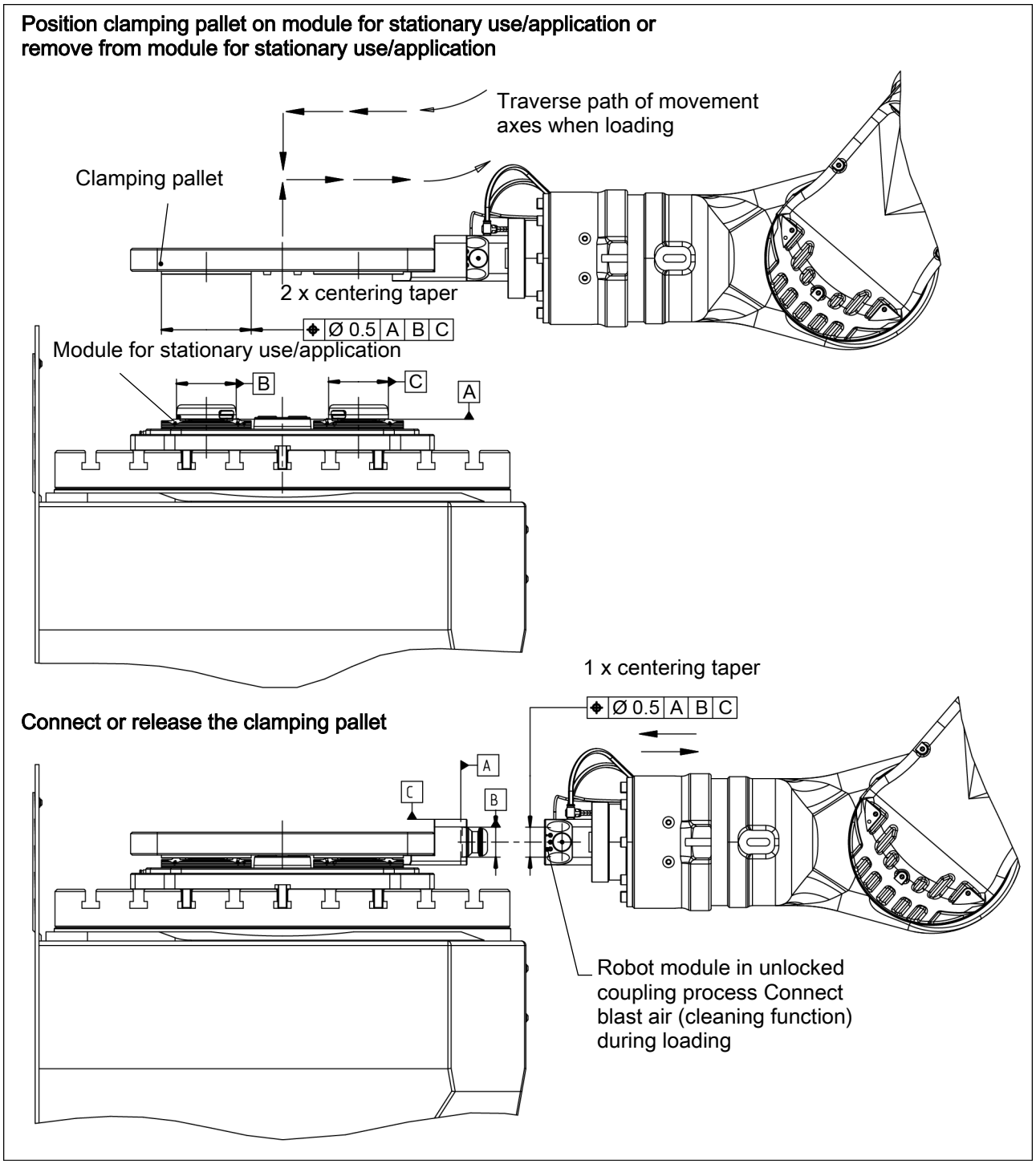
1. Secure the sensor (2) to the adapter plate with the nut (1).
2. Secure the sensor with the lock nut (3).
3. Adjust the sensor, see the sensor installation and operating instructions.
4. Check the "pallet adapter present" position and test the function.


Inductive proximity switch IN 50
33
Max. 10 Ncm
Grooves for holding and clamping the magnetic switches MMS 22
C
Inductive proximity switch IN 50
Set screw for clamping
C-C
M5x0.5
max. 18
Magnetic switch 1
Magnetic switch 2
C
Mounting thread for monitoring pallet presence

5.8 Connection and disconnection of transport loads

The following must be taken into account during automated connection and disconnection of transport loads:

- Approach the coupling interface between changeover head and clamping pin in the pallet adapter in advance with no tilt angle and eccentricity.
- Check that the traverse path is collision-free through the entire machining area.
- Work at a reduced travel speed when loading.
- Ensure a correctly aligned traverse path for connecting and disconnecting the clamping pallet.
- The loading handling should have overload protection.
- The operating conditions of the clamping station and the pallet changing system must be monitored with suitable sensors to help prevent collisions and incorrect controlling.



Automated connection and disconnection of transport loads

6 Troubleshooting

The clamping point does not unlock

Possible cause	Measures to remedy
Faulty air connections	Check the air supply
Pressure below minimum	Check operating pressure (min. 5 bar)
Breakage of a component (e.g., due to overload)	Replace module or send to SCHUNK for repair
Tensile load on clamping bolt too high	Reduce the load weight

The clamping point does not unlock properly

Possible cause	Measures to remedy
Minimum pressure not reached	Check operating pressure (min. 5 bar)
Minimum hose diameter not reached	For the required hose diameter, see the chapter "General installation instructions"
The locking connection is still under pressure	Vent the connection

The clamping point no longer unlocks quietly

Possible cause	Measures to remedy
The clamping surfaces on the clamping slides and clamping bolt are dirty	Remove the clamping bolt and clean the clamping surfaces on the clamping slides and clamping bolt

7 Maintenance

The pallet changing system is designed for low-maintenance operation, so that opening and disassembling the clamping modules is only necessary in exceptional cases.

⚠ CAUTION

Risk of injury and material damage when disassembling the changeover head!

The spring-tensioned cover may move uncontrollably when being opened, causing injuries as well as damage to the clamping module.

- Only have the cover removed by trained specialist personnel. In cases of doubt, send the pallet-change system to SCHUNK for repair.

7.1 Maintenance intervals

Maintenance interval Clamping cycles for NSR-A 100, 160	Maintenance work
1000 or after 2 weeks	Check the function of the pallet changing system, ▸ 7.2 [🗋 57].
50,000	Visually inspect the robot coupling and the associated PKL pallet coupling for possible damage.
	Leak test During a leak test, the air and plug connections as well as the entire clamping system must be checked for leaks and significant compressed air loss. Check the robot coupling for leaks in both module positions. To determine the tightness of the entire clamping system, no pallet coupling should be connected. If the clamping system is leaking, check the entire pneumatic system (e.g., with Metaflux leak detection spray).

Maintenance interval Clamping cycles for NSR-A 100, 160	Maintenance work
100,000	Check the screw connections between the interchangeable head and the robot flange, as well as from the pallet adapter to the clamping pallet, for a secure hold ▸ 5.5 [🗋 45]).
Replace	Replace seals, ▸ 7.3 [🗋 58].
After a collision	After a collision (e.g., when coupling or uncoupling the transport load), it is essential to carry out a visual inspection for possible damage to the components. The aim is to detect damage such as cracks. If damage or signs of malfunction are visible on the components of the robot and pallet coupling, they must not be put back into operation. They may only be put back into operation once the damage has been repaired, e.g., by replacing the damaged unit.

7.2 Information on error-free function

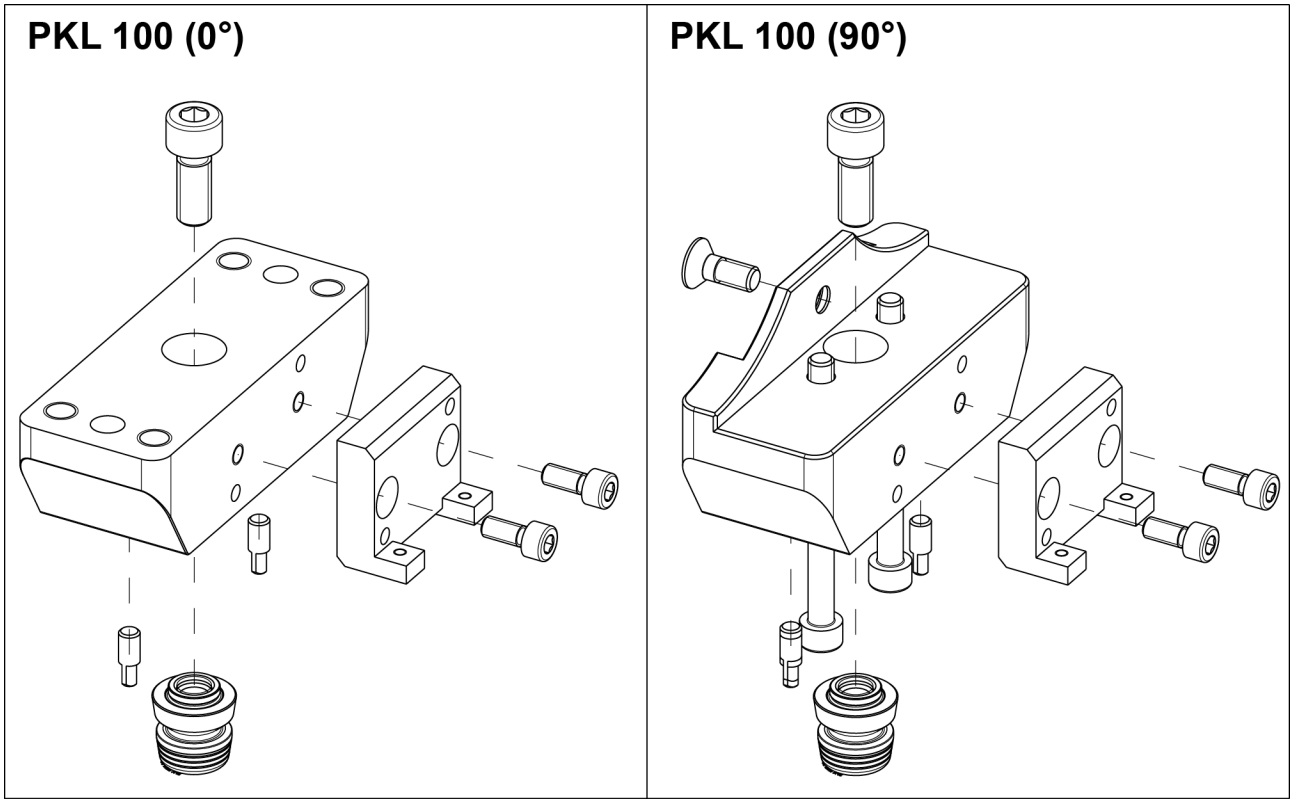
To ensure the pallet changing system operates perfectly, the following instructions are to be observed:

- Pressure medium: compressed air - Observe the requirements for the compressed air supply, ▸ 3 [🗋 17].
- Make sure that the contact surfaces of the interface are always clean.
- Always ensure that no chips enter the interface.
- Only use high-quality cooling emulsions with anti-corrosive additives during processing.
- Particularly with the clamping pin axis aligned vertically, it may be possible that the interface fills up with cooling emulsion. If this is the case, initiate the unlocking process and dry out the interface in actuated state.

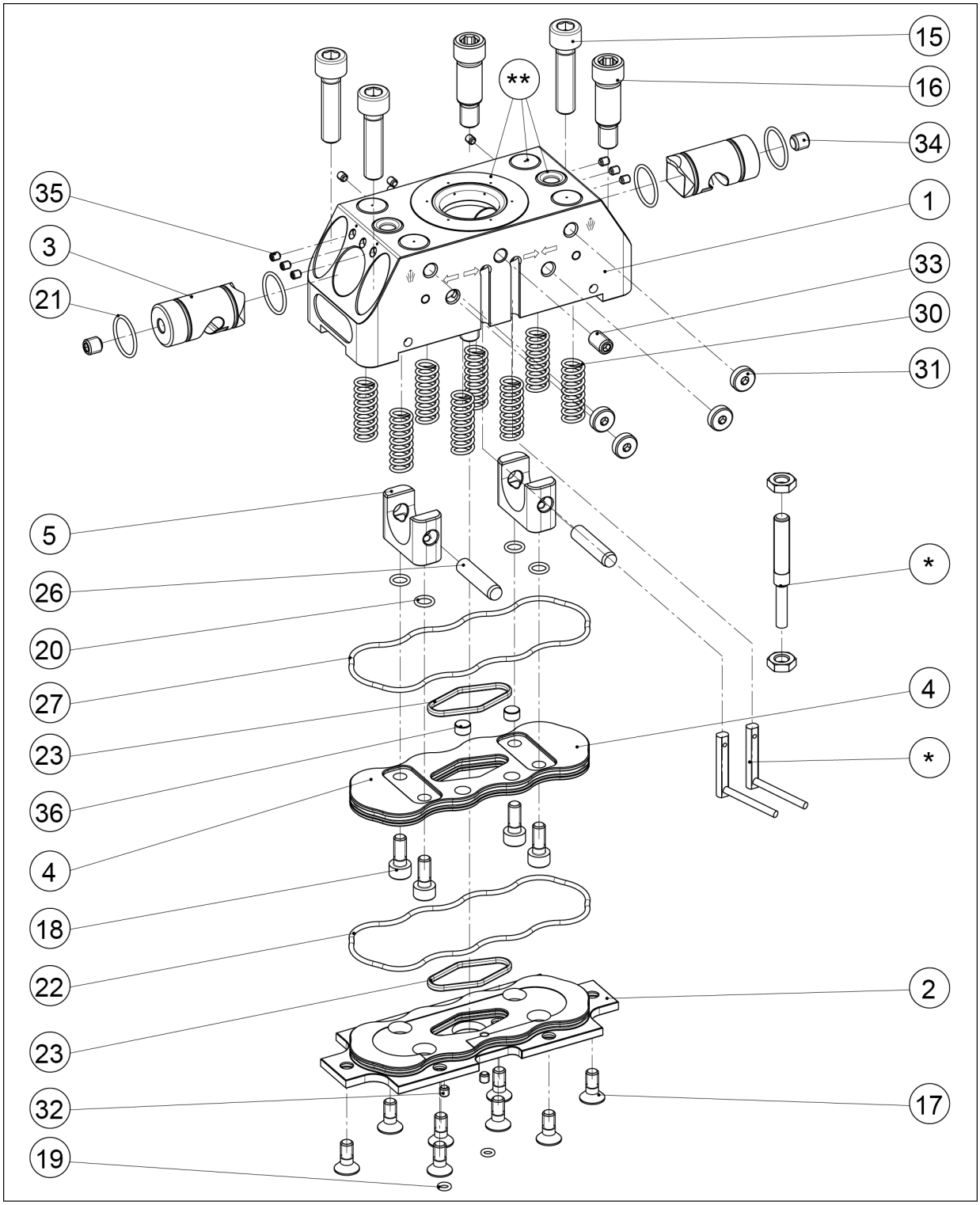
- Check the pallet changing system at regular intervals. The system is functioning correctly if the clamping slides move smoothly at minimum system pressure (5 bar).

7.3 Assembly drawings

7.3.1 Assembly drawings NSR-A 100



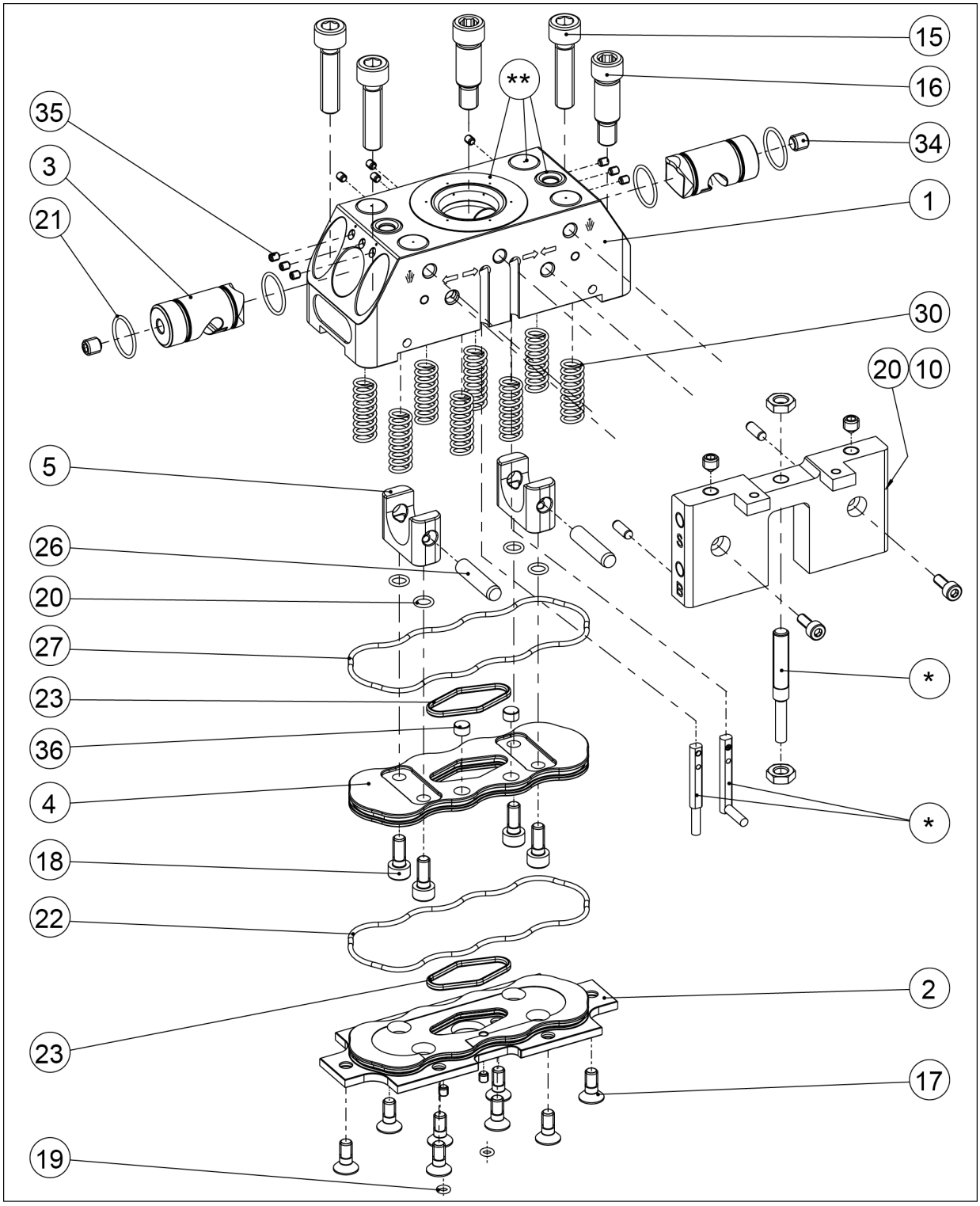
Without adapter plate



* Sensor system is available to order separately as an accessory

** Components are inseparably joined

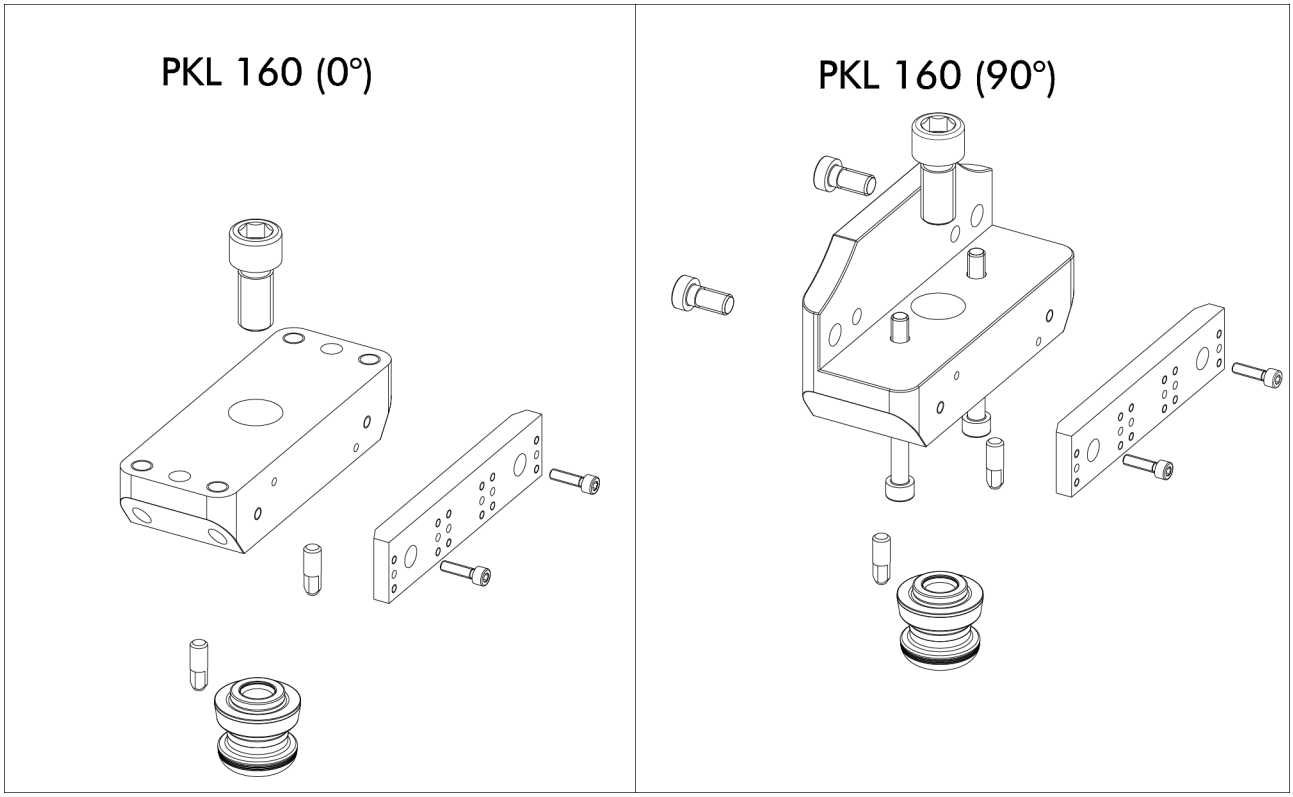
Adapter plate



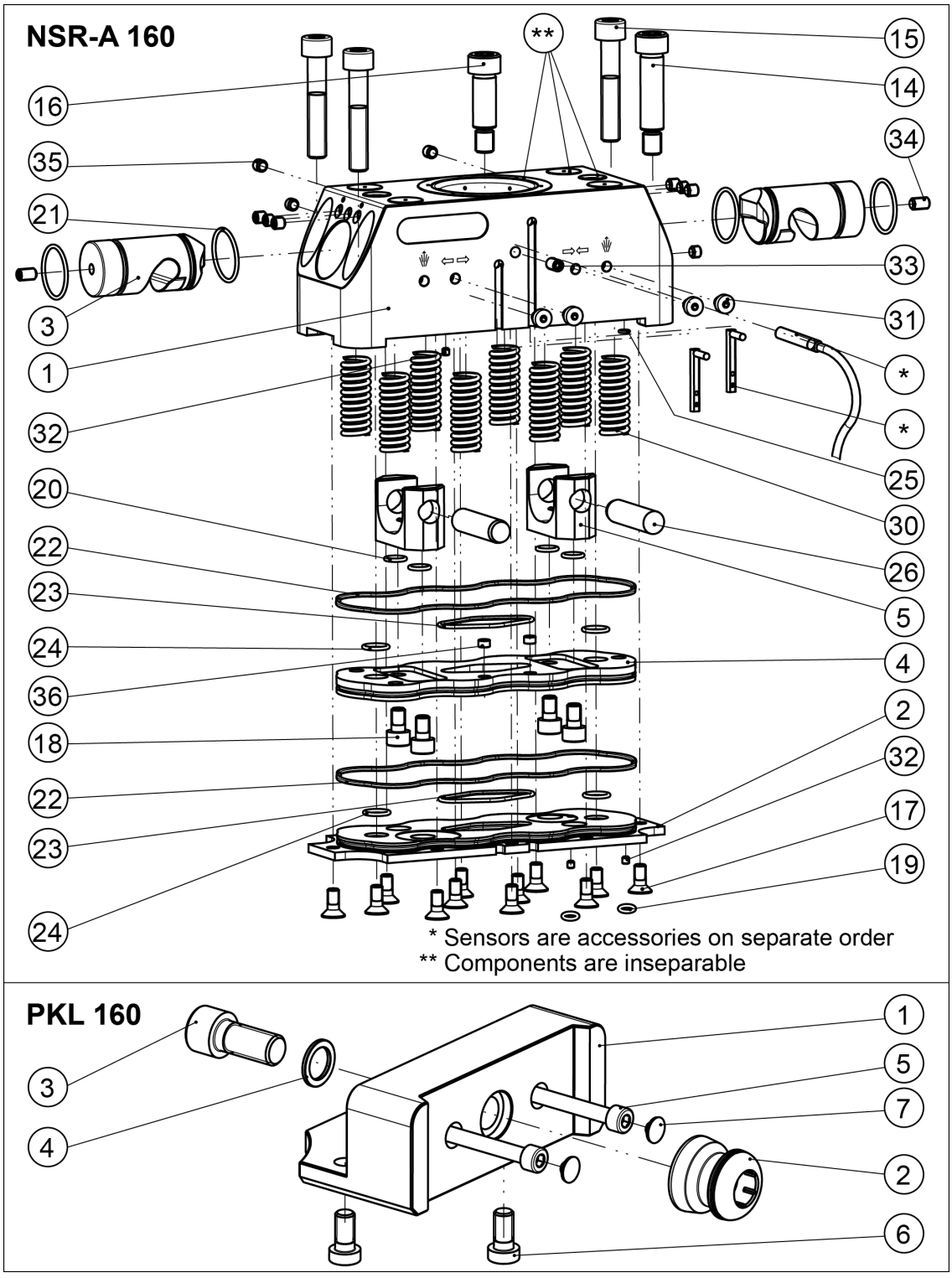
* Sensor system is available to order separately as an accessory

** Components are inseparably joined

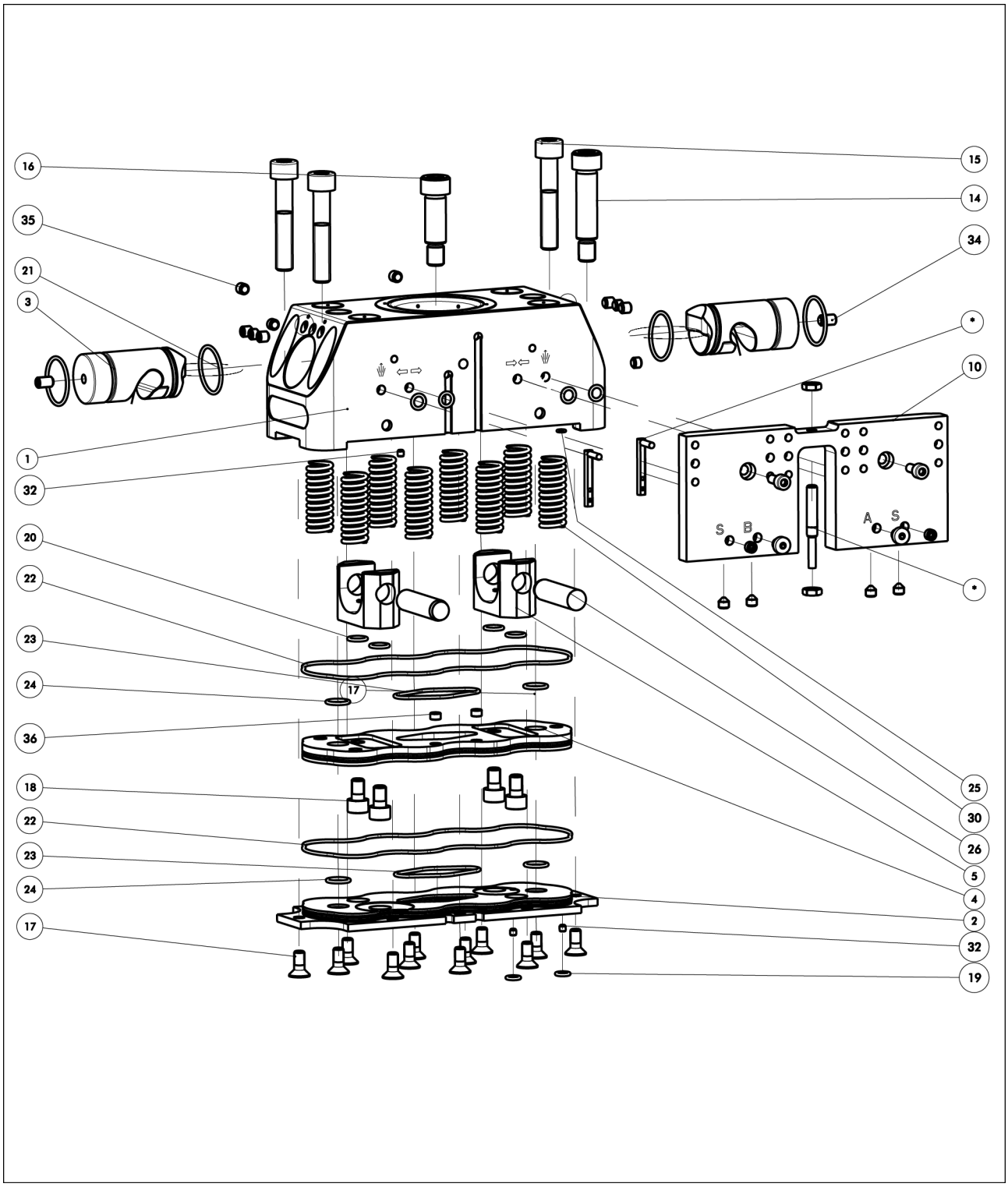
7.3.2 Assembly drawings NSR-A 160



Without adapter plate



Adapter plate



* Sensor system is available to order separately as an accessory

* Components are inseparably joined

8 Translation of original EC 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:	Pallet Changing System NSR–A
ID number	0303179, 0303180, 0303170, 0303167, 0303196, 0303160

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
EN ISO 4414:2010	Hydraulic fluid power – General rules and safety requirements for pneumatic systems and their components
	Other related technical standards and specifications
VDI 3035:2008–05	Design of machine tools, production lines and peripheral equipment for the use of metalworking fluids

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

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

Signature: see original declaration

Lauffen/Neckar, November 2025

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

9 UKCA declaration of incorporation

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

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

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

Product designation:	Pallet Changing System / NSR-A /
ID number	0303179, 0303180, 0303170, 0303167, 0303196, 0303160

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
EN ISO 4414:2010	Hydraulic fluid power – General rules and safety requirements for pneumatic systems and their components
	Other related technical standards and specifications
VDI 3035:2008-05	Design of machine tools, production lines and peripheral equipment for the use of metalworking fluids

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

Signature: see original declaration

Lauffen/Neckar, November 2025

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

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

RoHS Directive

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

REACH Regulation

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

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

Signature: see original declaration

Lauffen/Neckar, November 2025

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

SCHUNK SE & Co. KG
Spanntechnik | Greiftechnik | Automatisierungstechnik

Bahnhofstr. 106 – 134
D-74348 Lauffen/Neckar
Tel. +49-7133-103-0
info@de.schunk.com
schunk.com

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