Assembly and Operating Manual
OSE
Swivel unit

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.

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 ▸ 1.1.3 [🗋 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**.

1.1.4 Variants

This operating manual applies to the following variations:

- OSE
- OSE swivel angle 90°, adjustment range of end positions 2° (Variant A)
- OSE swivel angle 180°, adjustment range of end positions 2° (Variant A)
- OSE swivel angle 180°, adjustment range of end positions 90° stepless (Variant B)
- OSE swivel angle 180°, adjustment range of end positions 2°, pneumatic intermediate position (M, Variant C)
- OSE with electrical feed-through (EDF, Variant D)

1.1.5 Sizes

This operating manual applies to the following sizes:

- OSE 14
- OSE 22
- OSE 34
- OSE 40
- OSE 45
- OSE 57
- OSE 63

1.2 Warranty

If the product is used as intended, the warranty is valid for 24 months from the ex-works delivery date under the following conditions:

- Observe the specified maintenance and lubrication intervals
- Observe the ambient conditions and operating conditions

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

1.3 Scope of delivery

The scope of delivery includes

- Swivel unit OSE in the version ordered
- Assembly and Operating Manual
- Accessory pack

1.4 Accessories

A wide range of accessories are available for this product

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

2 Basic safety notes

2.1 Intended use

The product may only be used for swiveling permissible attachment parts or workpieces.

- The product may only be used within the scope of its technical data, ▶ 3 [🗋 17].
- 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. 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.

- 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 [🗋 17].

2.6 Personnel qualification

Inadequate qualifications of the personnel

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

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

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

Trained electrician	Due to their technical training, knowledge and experience, trained electricians are able to work on electrical systems, recognize and avoid possible dangers and know the relevant standards and regulations.
Qualified personnel	Due to its technical training, knowledge and experience, qualified personnel is able to perform the delegated tasks, recognize and avoid possible dangers and knows the relevant standards and regulations.
Instructed person	Instructed persons were instructed by the operator about the delegated tasks and possible dangers due to improper behaviour.
Service personnel of the manufacturer	Due to its technical training, knowledge and experience, service personnel of the manufacturer is able to perform the delegated tasks and to recognize and avoid possible dangers.

2.7 Personal protective equipment

Use of personal protective equipment

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

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

2.8 Notes on safe operation

Incorrect handling of the personnel

Incorrect handling and assembly may impair the product's safety and cause serious injuries and considerable material damage.

- Avoid any manner of working that may interfere with the function and operational safety of the product.
- Use the product as intended.
- Observe the safety notes and assembly instructions.
- Do not expose the product to any corrosive media. This does not apply to products that are designed for special environments.
- Eliminate any malfunction immediately.
- Observe the care and maintenance instructions.
- Observe the current safety, accident prevention and environmental protection regulations regarding the product's application field.

2.9 Transport

Handling during transport

Incorrect handling during transport may impair the product's safety and cause serious injuries and considerable material damage.

- When handling heavy weights, use lifting equipment to lift the product and transport it by appropriate means.
- Secure the product against falling during transportation and handling.
- Stand clear of suspended loads.

2.10 Malfunctions

Behavior in case of malfunctions

- Immediately remove the product from operation and report the malfunction to the responsible departments/persons.
- Order appropriately trained personnel to rectify the malfunction.
- Do not recommission the product until the malfunction has been rectified.
- Test the product after a malfunction to establish whether it still functions properly and no increased risks have arisen.

2.11 Disposal

Handling of disposal

The incorrect handling of disposal may impair the product's safety and cause serious injuries as well as considerable material and environmental harm.

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

2.12 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.

2.12.1 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.

2.12.2 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.

2.12.3 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.

2.12.4 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.

2.13 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.

⚠ WARNING

Risk of injury from sharp edges and corners!

Sharp edges and corners can cause cuts.

- Use suitable protective equipment.

⚠ WARNING

Risk of burns through contact with hot surfaces!

Surfaces of components can heat up severely during operation. Skin contact with hot surfaces causes severe burns to the skin.

- For all work in the vicinity of hot surfaces, wear safety gloves.
- Before carrying out any work, make sure that all surfaces have cooled down to the ambient temperature.

⚠ WARNING

Risk of injury from parts coming loose!

If the shock absorbers are faulty, the product can become damaged. Parts coming loose in this way can lead to injuries.

- Regularly check the components for wear and damage.

⚠ WARNING

Risk of injury if the condition or behavior of the product is undefined!

Cutting off the compressed air supply in an uncontrolled manner could lead to undefined states and behavior. This may cause personal injury or material damage.

- The operator must define suitable emergency stop and restarting strategies.
  - ✓ Emergency stop strategies: e.g. by means of controlled shut down
  - ✓ Restarting strategies: e.g. using pressure build-up valves or suitable valve switching sequences

3 Technical data

Designation	OSE
Pressure medium	Compressed air, compressed air quality according to ISO 8573-1:7 4 4
Nominal working pressure [bar]	6
Min. pressure [bar]	4.5
Max. pressure [bar]	8

Ambient conditions and operating conditions

Designation	OSE
Ambient temperature [°C] min. max.	 +5 +60
Protection class IP *	54
Noise emission [dB(A)]	≤ 70

* For use in dirty ambient conditions (e.g. sprayed water, vapors, abrasion or processing dust) SCHUNK offers corresponding product options as standard. SCHUNK also offers customized solutions for special applications in dirty ambient conditions.

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

4 Assembly and settings

4.1 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

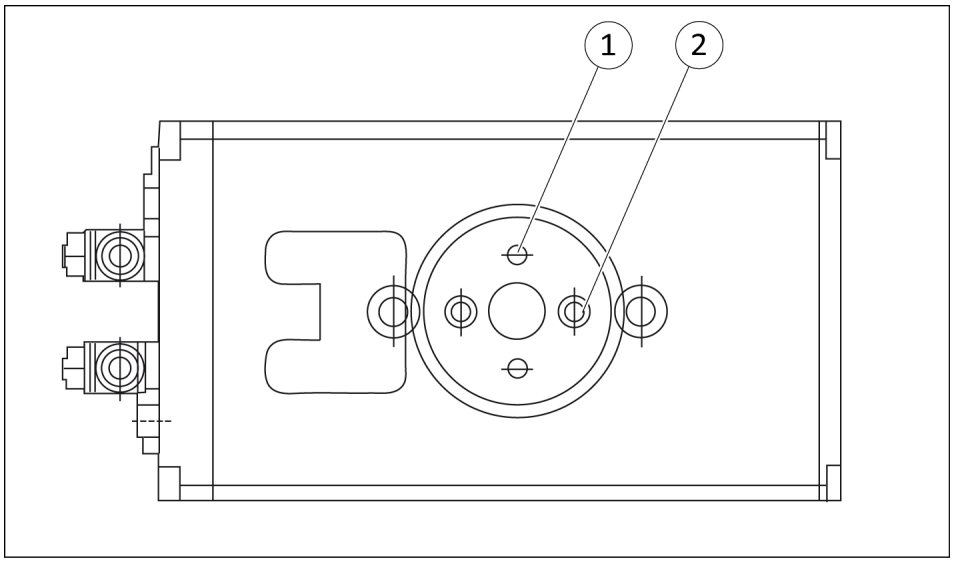
Mounting of the adapter plate

Size 14

The adapter plate is mounted on the internals threads of the pinion with two cylinder screws and two dowel pins.

Size 22 - 63

The adapter plate is mounted on the internals threads of the pinion with two dowelscrews and two cylinder screws.



Example view of mounting the adapter plate

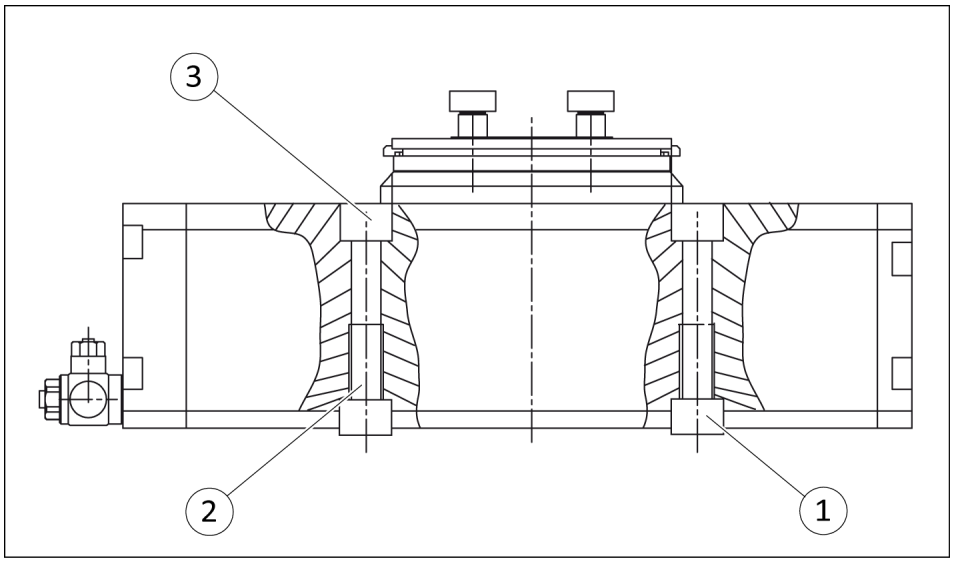
Item	Mounting	OSE 14
1	dowel pin	Ø4
2	cylinder screws	M4
	Max. depth of engagement [mm]	7
	Min. depth of engagement [mm]	4

Item	Mounting	OSE					
		22	34	40	45	57	63
1	cylinder screw	M5	M5	M6	M8	M12	M10
	Max. depth of engagement [mm]	14	14	14	20	36	25
	Max. depth of engagement [mm] Klemmscheibe C	20	20	20	-	-	-
	Minimum screw-in depth [mm]	20	23	23	36	36	35.9
2	Fitting screw	M5	M5	M6	M8	M8	M10
	Max. depth of engagement [mm]	10	10	12	16	10	20
	Max. depth of engagement [mm] Klemmscheibe C	16	16	16	-	-	-
	Minimum screw-in depth [mm]	10	10	12	16	24	20

Variant C - OSE 22-40:

If the clamping disk C is mounted, longer screws and dowel screws have to be used.

Mounting of the product



Example view of mounting the product

Item	Mounting	OSE						
		14	22	34	40	45	57	63
1	Centering sleeve	Ø8	Ø12	Ø12	Ø17	Ø18	Ø18	Ø22
2	internal thread	M5	M8	M8	M10	M12	M12	M16
3	mounting screws	M4	M6	M6	M8	M10	M10	M12
	Max. depth of engagement from locating surface [mm]	25	40	40	65	70	90	100

4.2 Pneumatic connection

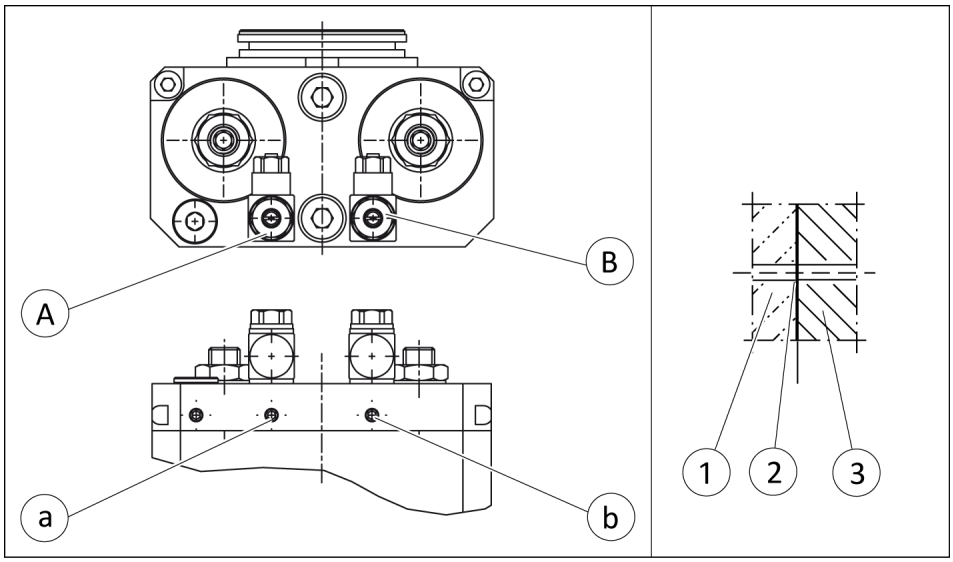
NOTICE

Observe the requirements for the air supply
▶ 3 [🗋 17].

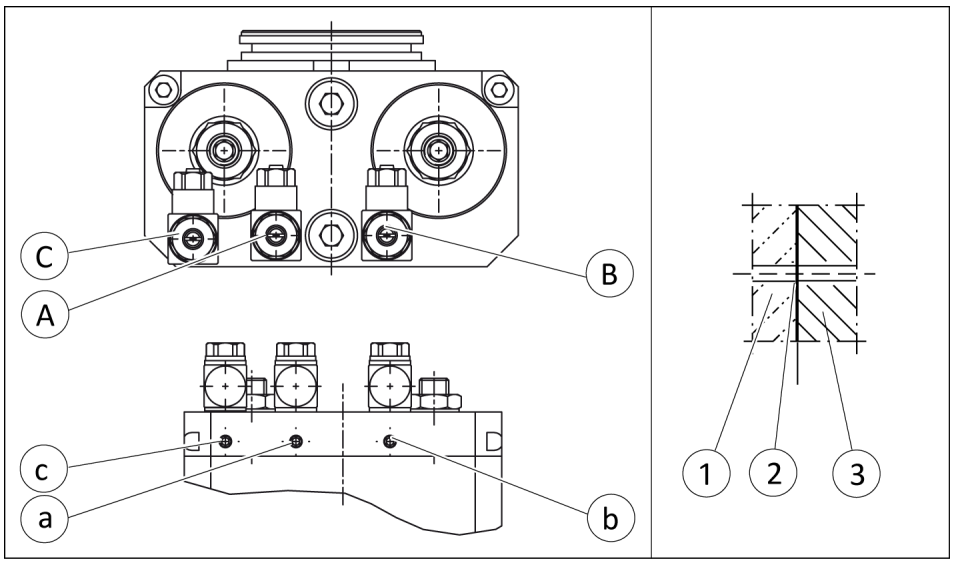
- Open only the air connections that are needed.
- Close unused main air connections using the screw plugs from the enclosed pack.
- For a hose-free direction connection, use the O-rings from the enclosed pack.

4.2.1 OSE 14

air connections



air connections variant without pneumatic center position (M)

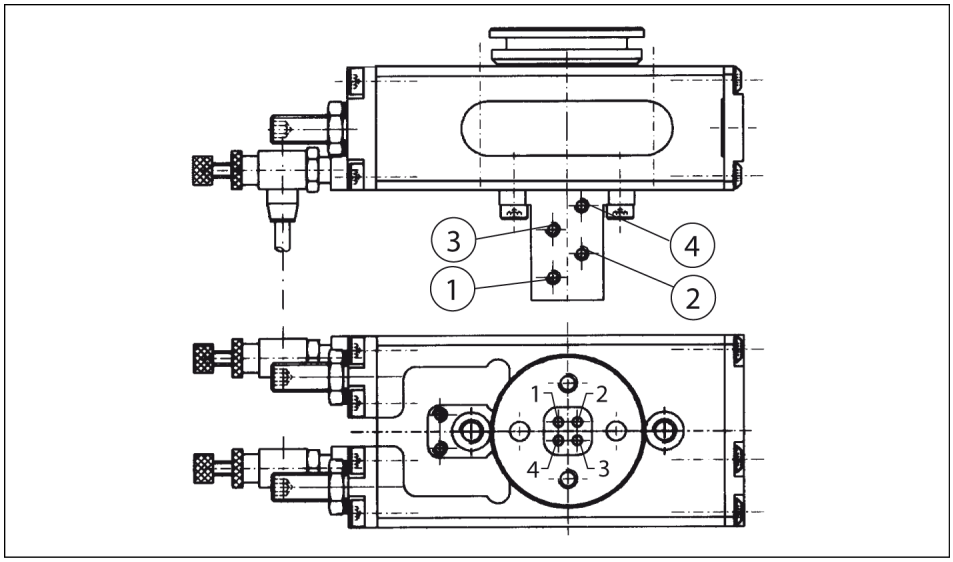


air connections variant pneumatic center position (M)

Designation	Function
Main connections (Hose connection)	
A	swivel 0°/180° end position
B	swivel end position with restricted swivel angle
C	swivel 90° intermediate position
Hose-free direct connection	
a	swivel 0°/180° end position
b	swivel end position with restricted swivel angle
c	swivel 90° intermediate position
1	Attachment
2	O-ring
3	Product

- Use one-way-restrictors for connection.

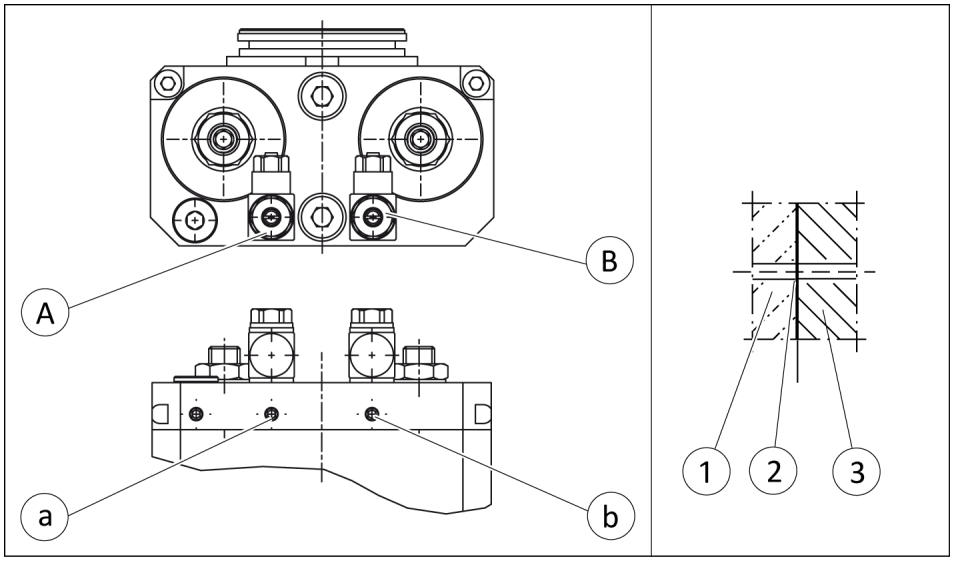
Rotary transmission lead through



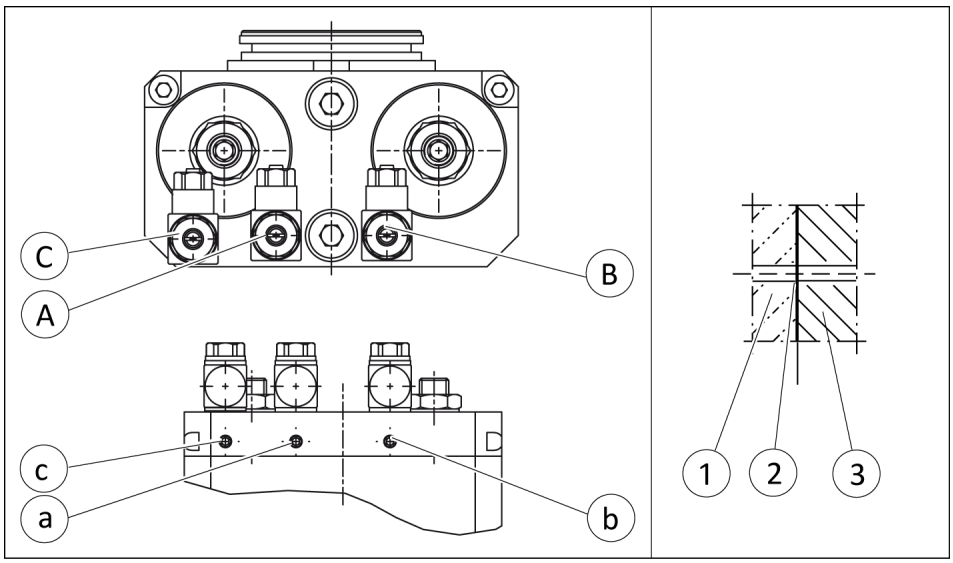
Pinion-view with swivel unit on back stop counterclockwise, connections on the left side.

4.2.2 OSE 22 - 57

air connections



air connections variant without pneumatic center position (M)

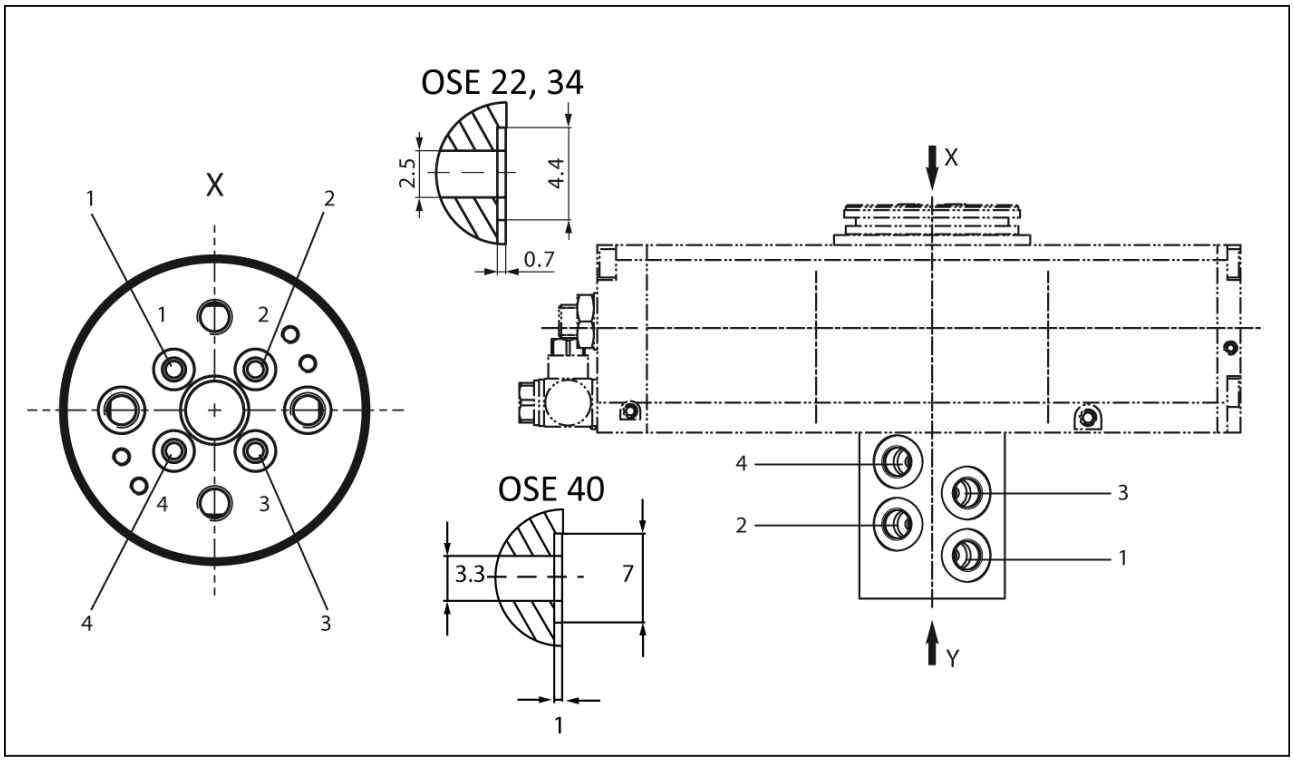


air connections variant pneumatic center position (M)

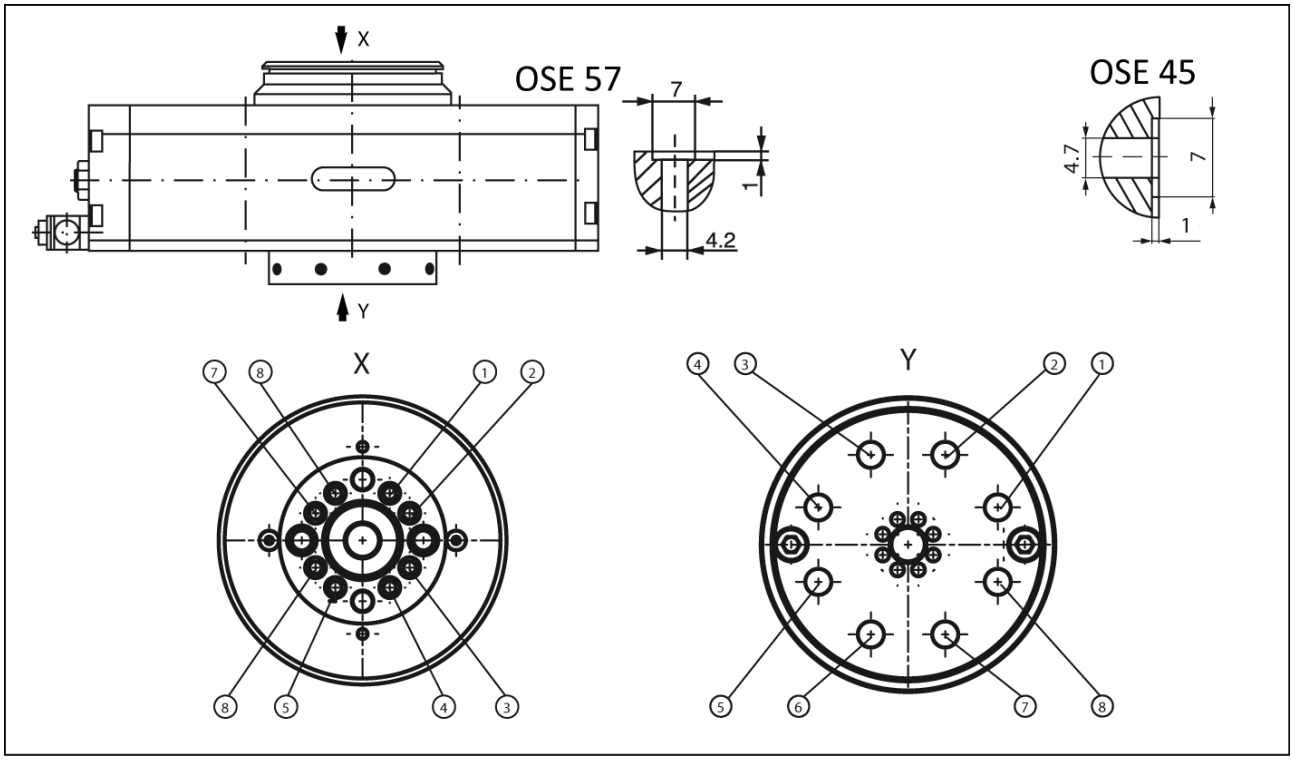
Designation	Function
Main connections (Hose connection)	
A	swivel 0°/180° end position
B	swivel end position with restricted swivel angle
C	swivel 90° intermediate position
Hose-free direct connection	
a	swivel 0°/180° end position
b	swivel end position with restricted swivel angle
c	swivel 90° intermediate position
1	Attachment
2	O-ring
3	Product

1. Use one-way-restrictors for connection.
2. OSE 57: With direct connection on both sides R 1/4" Seal thread with screw plugs from accessory pack.

Rotary transmission lead through



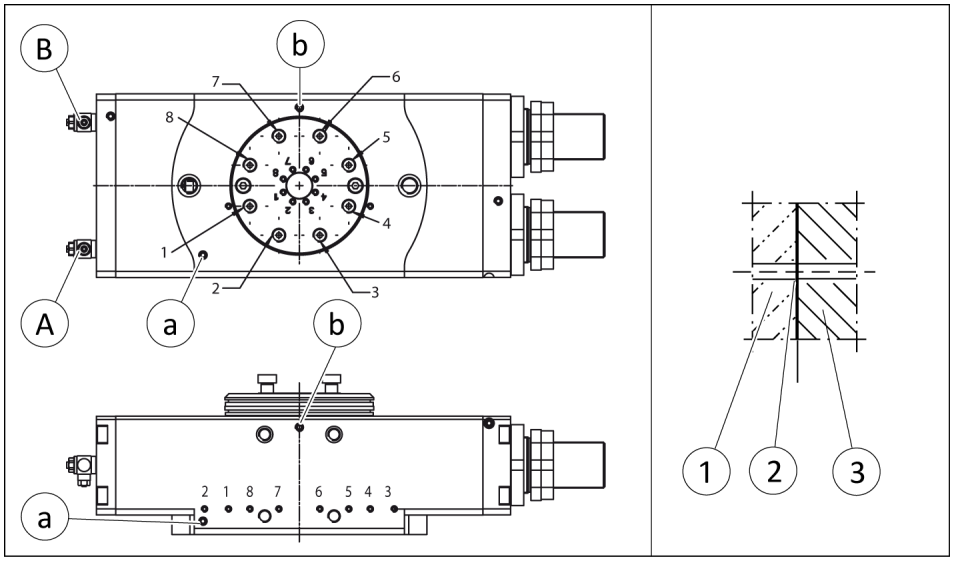
OSE 22 - 40



OSE 45 - 57: Pinion-view with swivel unit on back stop counterclockwise, connections on the left side.

4.2.3 OSE 63

air connections

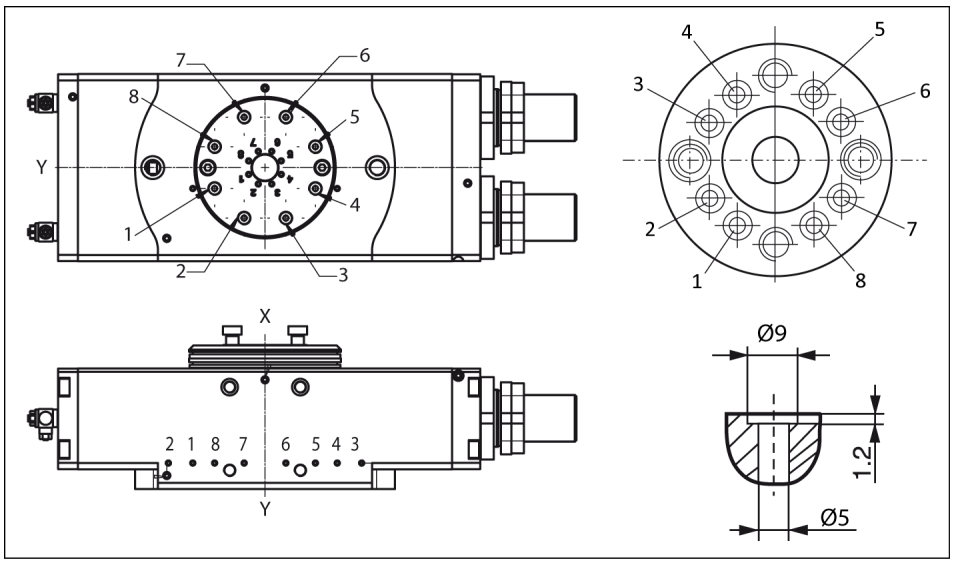


air connections A, B

Designation	Function
A	Main connections (Hose connection)
B	
Hose-free direct connection	
a	Hose-free direct connection at the base, Hose-free direct connection at the side
b	
1	Attachment
2	O-ring
3	Product

1. Use one-way-restrictors for connection.
2. With direct connection on both sides R 1/4" Seal thread with screw plugs from accessory pack.

Rotary transmission lead through



Pinion-view with swivel unit on back stop counterclockwise, connections on the left side.

4.3 Mounting and connecting

NOTICE

Risk of damage to the product!

If the end position is approached too hard, the product may be damaged.

- As a rule, a rotary movement must take place without impact and bouncing.
- To do this, carry out sufficient throttle and dampening.
- Observe specifications in the catalog data sheet.

NOTICE

Material damage due to opened exhaust air throttle valves!

If during first actuation the exhaust throttle valves are open, the product may move in an uncontrolled manner.

- Close the exhaust air throttle valves completely before applying pressure.

1. Screw on swivel unit, ▶ 4.1 [🗋 18].
   ✓ Zentrierhülsen verwenden.
   ✓ Anzugsdrehmoment der Befestigungsschrauben beachten, siehe Tabelle Anzugsdrehmoment.
2. Screw the mounting part to the pinion using two dowel pins and two mounting screws, ▶ 4.1 [🗋 18].
3. Screw throttles into air connections *A* and *B* and connect compressed air lines.
4. Screw screw plugs into any open and unused air connections
5. Adjust the of swivel angle, ▶ 4.4 [🗋 27].
6. Connect sensors, if necessary, ▶ 4.6 [🗋 32].

4.4 Adjusting of swivel angle

Position of the item numbers, ▶ 5.6 [🗋 41].

4.4.1 OSE 14

Adjustment of the end positions

1. Set connection A under pressure until product unit reaches its end position.
2. Loosen counter-nut (72) at B and turn back stop screw (5) until the desired end position is reached.
3. Fasten counter-nut (72) and check end position.
4. Repeat same procedure for 2nd end position.

Adjustment of the 90° intermediate position

1. Loosen the counter-nuts (73) and slightly turn back the spindle (13).
   ✓ Das Ritzel hat in der Zwischenstellung Luft.
2. Actuate connection A until the produkt reaches its end position.
3. Adjust the intermediate position with the spindle (13) at A and fasten the counter-nut (73).
4. Check the adjustment by first actuating connection A and then the connection for the intermediate position. Actuate until the end position is reached.
5. Repeat same procedure for intermediate position B.
6. After adjustment, the rack must not have any more clearance.

NOTE

If the counter-nut (73) is loose, air may stream out of the spindle (13). This is due to design and no defect.

4.4.2 OSE 22-57

Adjustment of the end positions 0° and 180° for variant A and C

1. Set connection A under pressure until product unit reaches its end position.
2. Loosen the counter-nut (72) at B and adjust the end position with the stop screw (5).
3. Fasten counter-nut (72) and check end position.
4. Repeat same procedure for 2nd end position.

Adjustment of the end positions at variant B

1. Actuate connection A until the produkt reaches its end position.
2. Reduce pressure to max. 1 bar.
3. Loosen the counter-nut (72) of the shock absorber's stop spindel (31) at A and turn it out as far as possible.
4. Loosen the safety screw (9) at B and adjust the end position of the adjustment screw (8).
5. Tighten the safety screw (9) and control the end position.
6. Turn the stop screw (31) to the inside until it contacts the piston (2).
7. Turn the stop screw from this position half a rotation back and thighten the counter-nut (72).
8. Repeat same procedure for 2nd end position.

Adjustment of the 90° intermediate position at variant C

1. Loosen the counter-nut (item 73) and turn back the stop spindle slightly (item 13).
   ✓ The pinion has clearance in the intermediate position.
2. Set connection A under pressure until product unit reaches its end position.
3. Actuate the connection for the intermediate position.
4. Adjust the intermediate position by means of the stop spindle (13) at A and thighten the counter-nut (73).
5. Control the adjustment by actuating connection A first and then the connection of the intermediate position as long as the produkt needs to arrive its end position.
6. Repeat same procedure for intermediate position B.
7. After adjustment, the pinion must not have any more clearance in the intermediate position.

NOTE

If the counter-nut is loose (73), air may stream out of the actuation spindle (13). This is due to the design and normal.

4.4.3 OSE 63

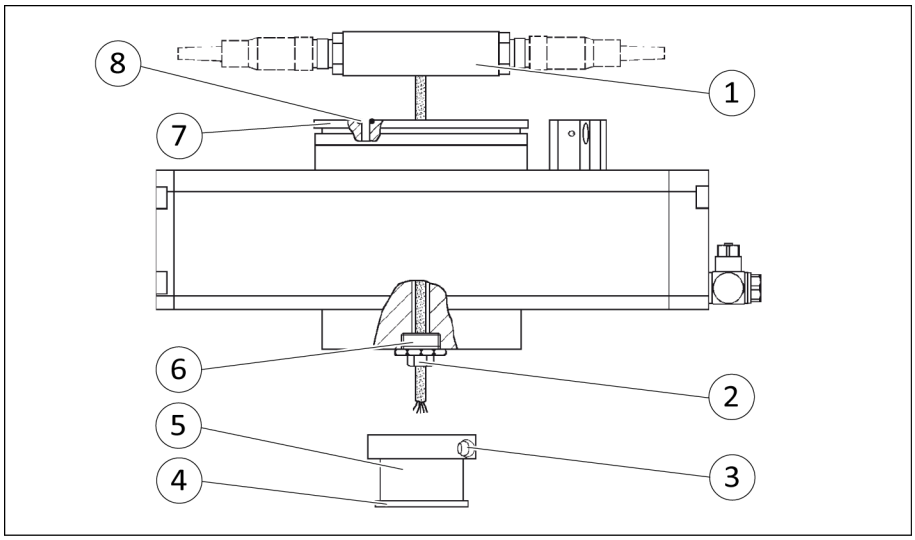
Adjustment of 0° and 180° end positions

1. Set connection A under pressure until product unit reaches its end position.
2. Loosen the counter-nut (53) at B and set the end position by turning the sleeve (10).
3. Fasten counter-nut (53) and check end position.
4. Repeat same procedure for second end stop.

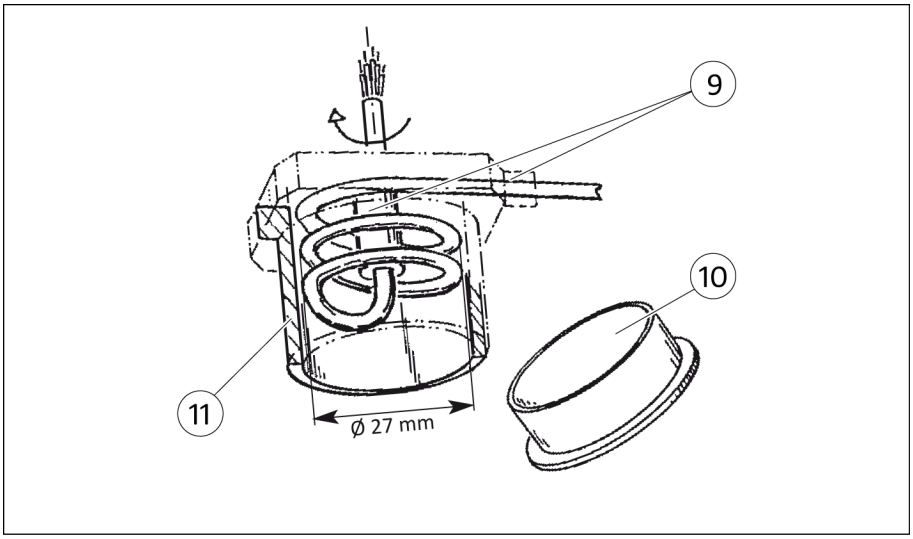
4.5 Installation of electric feed through (EDF)

Assembly

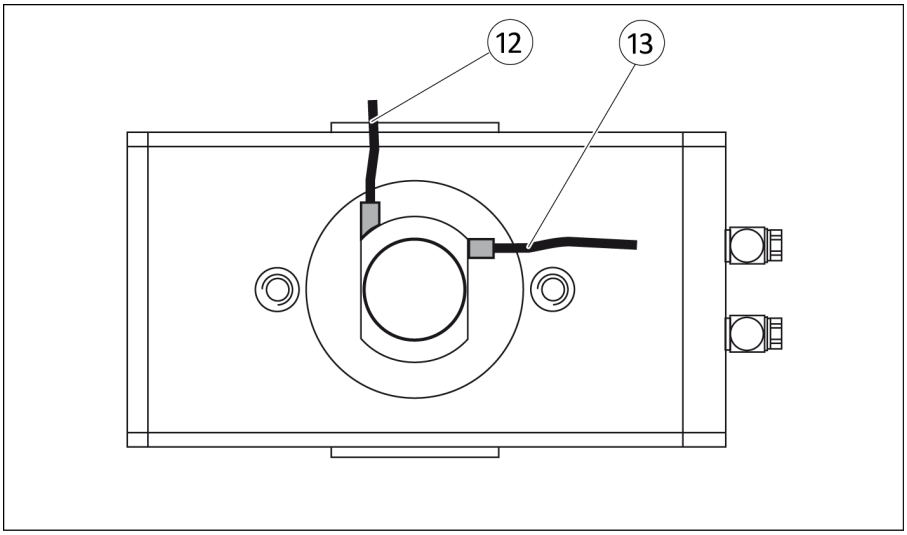
For sizes **22-57** an electric feed through can be installed in the Swivel Unit.



product with EDF



cable spiral



cable exits

1	Connecting plate	8	O-ring
2	Tightening nut	9	Tightening nut
3	Cable exit	10	Cover
4	Cover	11	Cable cover
5	Cable cover	12	Cable exit OSE 45/57
6	Connecting piece	13	Cable exit OSE 34/40
7	Pinion		

1. Draw the cable through the centre bore of the produkt unit until the connecting plate (1) is located just in front of the pinion (7).
2. Place the O-rings (8) in the recess in the air feedthrough in the pinion (7).
3. Draw the cable through fully and align the connecting plate (1) properly on the pinion. (7).
4. Screw in the two fitting screws for positioning the connecting plate (1).
5. Screw the connecting plate (1) to the pinion (7) with the two retaining screws.
6. Remove the fitting screws.
7. Check that the air feed-throughs are sealed.
8. Rotate the prodeuct and place it on the connecting plate (1).
9. Swivel the product counter-clockwise until it reaches the stop.
10. Draw the connecting piece (with the loosely screwed-in locknut (6)) over the cable, screw it fully into the pinion (7). Do not tighten the tightening nuts (2) yet!
11. Align the cable spiral and return it to its original shape.
12. Turn the cable in the produkt until the cable end comes out of the spiral as shown in figure *cable spiral*.
13. Now tighten the tightening nuts (2) fully into the connecting piece (6).
14. Fit the cable cover (5) to the product and draw the cable ends out through the tightening nut bore (2).
    ✓ Note the position of the cable end, see Figure *cable exits*
15. Grease the inside of the cable cover (11) and cable spiral.

NOTE

The outer Ø of the cable spiral must be approx. 27 mm! If necessary, rotate the cable cover to achieve this (+ or - 360°).

16. Fasten the cable cover (11) to the product with two screws.
17. Tighten the tightening nut (9).
18. Check the assembly work by rotating the product.
    ✓ If the spiral does not open, it is mounted incorrectly.
19. Press down the cap (10) on the cable cover (11) and hold it down until the air has escaped and the cable cover (11) is firmly closed by the cap (10).

To disassemble, reverse the sequence described the above.

cable

Cable connection, rotating mounting plate

Designation	OSE				
	22	34	40	45	57
Plug connector for sensor connection	4 x M8	4 x M12	4 x M12	8 x M12	8 x M12
Bending radius	Optimum bending radius for continuous movement: 10 x cable diameter				

4.6 Mounting the sensor

NOTE

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

The product is equipped for the use of sensors.

- For the exact type designations of suitable sensors, please see the catalog data sheet.
- For technical data for the suitable sensors, see Assembly and Operating Manual and catalog data sheet.
  - The Assembly and Operating Manual and catalog data sheet 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.

4.6.1 Assemble the magnetic switch (MMS) OSE 63

NOTICE

Risk of damage to the sensor during assembly!

- Observe a maximum tightening torque of 0.2 Ncm for the set-screws.

1. Actuate a connection until the product has reached one of its end positions.
2. Insert the sensor into the groove.
3. Position the sensor so that the normally open contact responds and the sensor switches.
4. Fix the sensor by tightening the grub screw.
5. Swivel the product into the other end position by actuating the second connection.
6. Proceed in the same way with the second sensor.

4.6.2 Assemble the inductiv proximity switch (IN)

NOTICE

Sensor can be damaged during assembly.

Do not exceed the maximum tightening torque of 100 Ncm for the set screws.

4.6.2.1 OSE 14

1. Insert the sensors into the milled pockets on the upper side of the housing and secured with the locking screw (66).
2. Loosen the thread pin (23-3) on the switching cam (23) by 1/2 turn, so that the cam can be moved.
3. Actuate connection A until the product has reached its end position.
4. Move the switching cam until the sensor at B is actuated
5. Fasten the thread pin (23-3)

Repeat same procedure for the 2nd end / intermediate position.

4.6.2.2 OSE 22 - 40

variant A and B:

1. Adjust the quick action bushing (21a) in a way that the passing control cams have a distance of 0.5 mm.
2. Slightly clamp the bushing with a set-screw (21b).
3. For being able to move the cam, loosen the set-screw at the control cam (23) appr. by half a rotation.
4. Actuate connection A until theproduct arrives at its end position.
5. Move the switching cam until the sensor at B is actuated
6. Turn the pinion out of this position and thighten the set-screw at the control cam.

Adjustment of the other end position is done the same way.

variant C:

1. Mount the control cam in the groove, which emerges from the unscrewing of the clamping disk C (19 or 18) at the pinion.
2. The sensor is supported by the clamping pieces (22) during monitoring of the intermediate position.
3. Adjust the sensor in a way that the passing control cams have a distance of 0.5 mm
4. Clamp the sensor with the screw (75).

4.6.2.3 OSE 45 - 57

variant A and B:

1. Adjust the sleeves (32) in a way that they have a distance of appr. 0.5 mm to the swivelling control cams (23).
2. Slightly jam the sleeve with the set-screw (83).
3. Loosen the set-screw (23-3) with appr. a 1/2 turn at the control cam (23) until the cam can be offset.
4. Actuate connection A until the product has reached its end position.
5. Move the control cam now until the switch is actuated at B.
6. Turn the pinion and tighten the set-screw (23-3).

variant C:

1. A screw (78) and a cam supporting segment (28) are screwed on the cam ring (18). The switching cam is fastened in its groove.
2. For adjustment of the control cam see version A and B.

4.6.2.4 OSE 63

1. Adjust the sleeves (32) in a way that they have a distance of appr. 0.5 mm to the swivelling control cams (94).
2. Slightly jam the sleeve with the set-screw (93).
3. Loosen the set-screw (94-3) with appr. a 1/2 turn at the control cam (94) until the cam can be offset.
4. Actuate connection A until the product has reached its end position.
5. Move the control cam now until the switch is actuated at B.
6. Turn the pinion and tighten the set-screw (94-3).

Adjustment of the other end position is done the same way.

5 Maintenance

5.1 Maintenance and lubrication intervals

NOTICE

Material damage due to hardening lubricants!

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

- Reduce the lubricant intervals accordingly.

Maintenance- and lubrication interval

Designation	Swivel Unit	EDF
Interval [Mio. cycles]	2	2

5.2 Lubricants/Lubrication points (basic lubrication)

SCHUNK recommends the lubricants listed.

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

Lubricant point	Lubricant
The teeth and the pinion	Rivolta F.L.G. GT-2
All seals	Rivolta F.L.G. GT-2
Metallic sliding surfaces	Rivolta F.L.G. GT-2

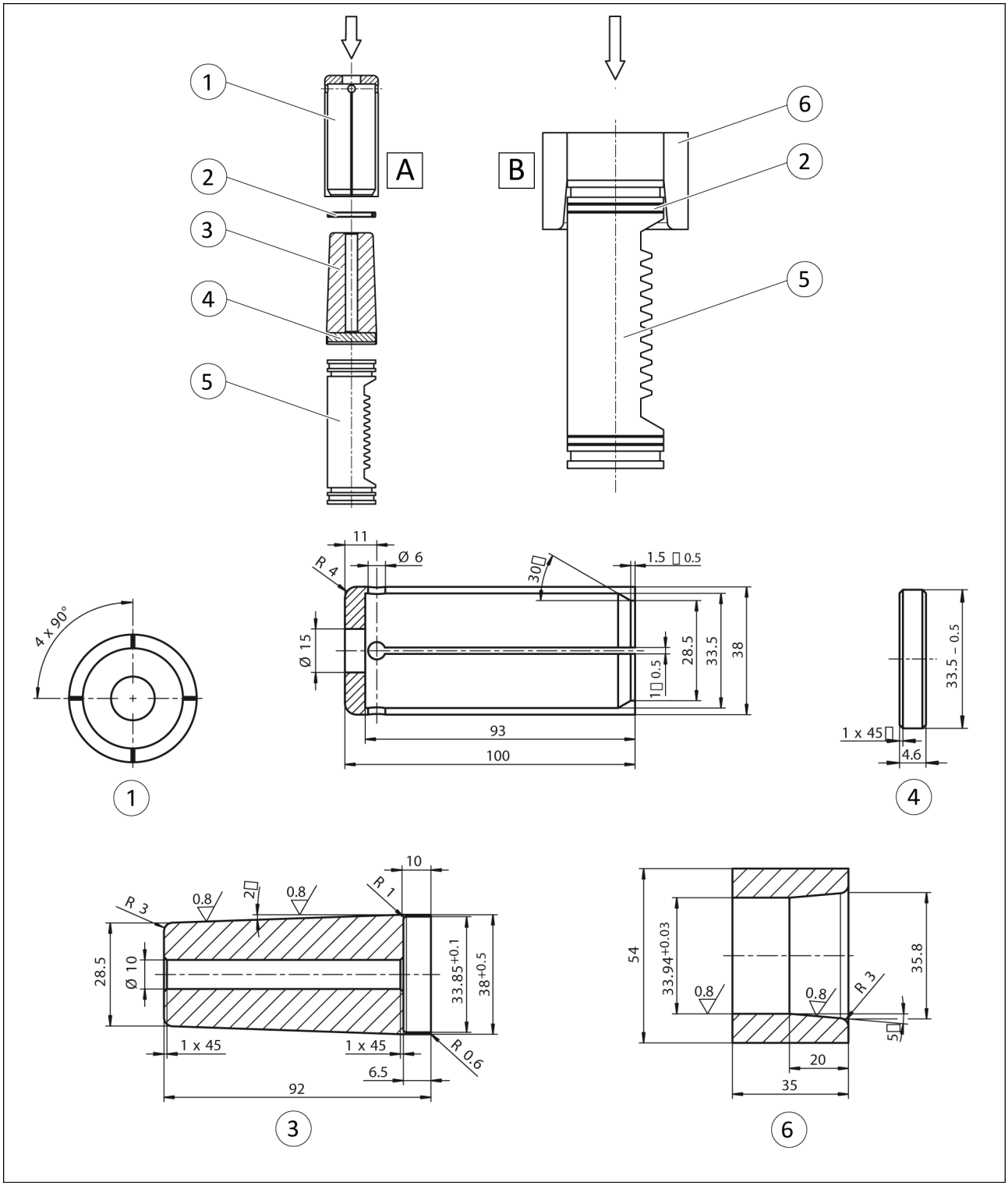
The product contains food-compliant lubricants as standard. Components such as rolling bearings, linear guides, or shock absorbers are not provided with food-compliant lubricants. **The requirements of standard EN 1672-2:2020 are not fully met.**

NOTE

- Change contaminated food-compliant lubricant.
- Observe information in the safety data sheet from the lubricant manufacturer.

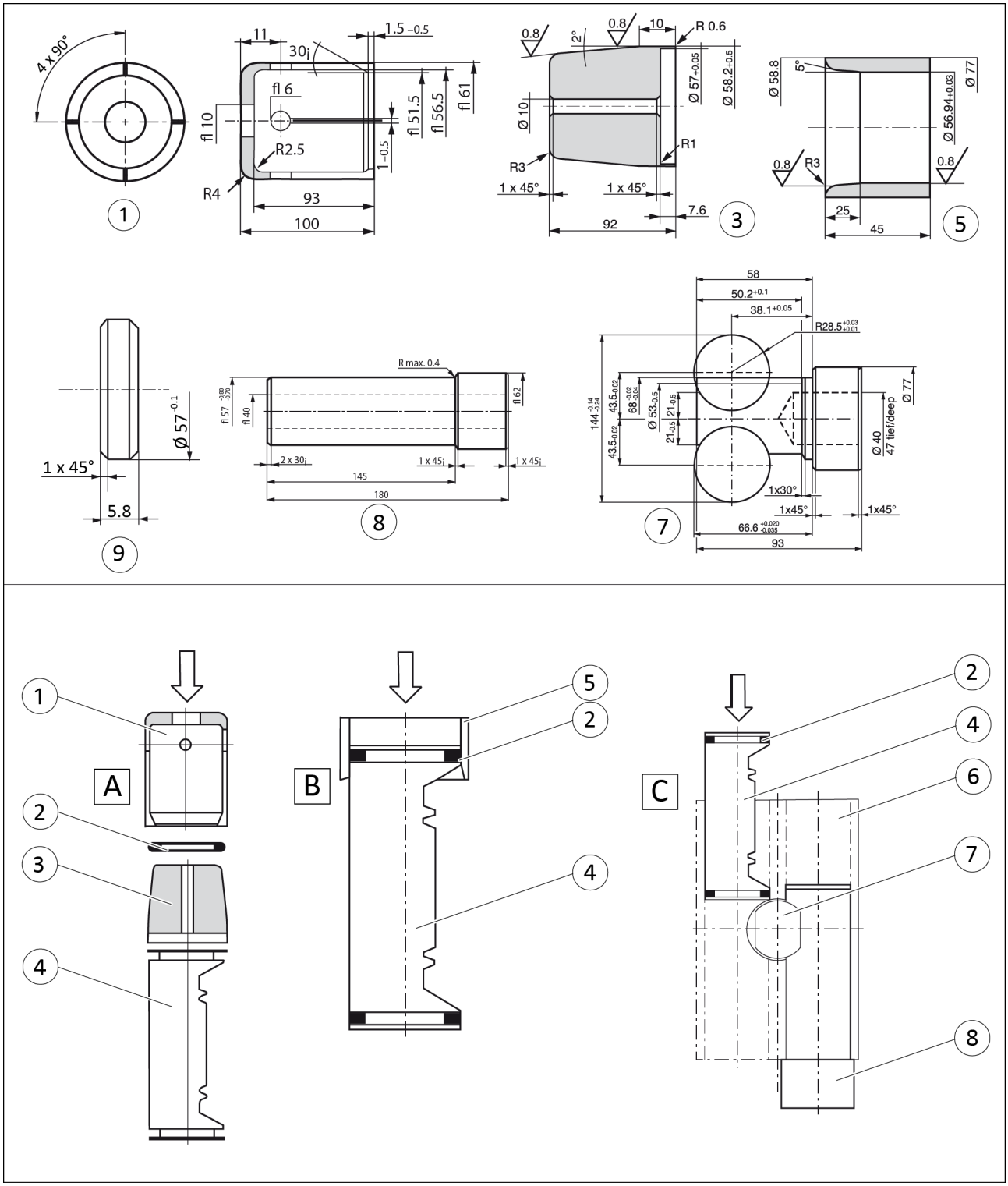
5.3 Assembly of seals and piston

5.3.1 OSE 34 - 40



A	Mounting the seal		B	Calibration of the sealing
1	Expansion sleeve	4	Disc to assemble the piston guiding band at the piston in intermediate position.	
2	Sealing	5	Piston	
3	Assembly taper	6	Calibration sleeve	

5.3.2 OSE 57



A	Mounting the seal	C	Einbau der Kolben	B	Dichtung kalibrieren

1	Expansion sleeve	6	Body
2	Sealing	7	Pin
3	Assembly taper	8	Pin for fixing
4	Piston	9	Disk for seal mounting at the piston for intermediate position
5	Calibration sleeve		

Assembly of the pistons

1. Install the 1st piston (4) as shown in the Figure.
2. Turn the 1st piston (4) 180° and remove the pin (8).
   ✓ Piston 1 (4) now is used as fixing pin.
3. Install the 2nd piston
4. Turn the first piston by 180° and remove the pin. (7).

5.4 Disassemble product

Position of the item numbers, ▸ 5.6 [🗋 41].

5.4.1 OSE 14

Disassemble

1. Remove air connections.
2. Remove covers (3, 4).
3. Mark positions of pinion (14/15) and the piston (2). For versions with air passage, mark also the rotary transmission leadthrough (17).
4. Remove circlip (85).

NOTE

Only versions with integrated air passage: first remove rotary transmission leadthrough (17), then circlip.

5. Draw pinion (14/15) out of housing.
6. Push piston (2) out of housing.
7. Remove all seals.

Remove absorbing spring.

1. Remove cover (3).
2. Remove set screw (33).

Assembly is done in reverse order with set screw (33) being flush screwed in to the back of piston.

5.4.2 OSE 22 - 45

Disassemble

1. Remove air connections.
2. Remove covers (3, 4).
3. Mark positions of pinion (14/15) and the piston (2). For versions with air passage, mark also the rotary transmission leadthrough (17).
4. Remove circlip (85).

NOTE

Only versions with integrated air passage: first remove rotary transmission leadthrough (17), then circlip.

5. Draw pinion (14/15) out of housing.
6. Push piston (2) out of housing.
7. Remove all seals.

Disassembly of the shock absorbers

1. Remove cover (3).
2. Remove the safety ring (86).
3. Take off the shock absorber (30) with the adjusting washer (93/94).

Assembly is done in reverse order

5.4.3 OSE 57

Disassemble

1. Remove air connections.
2. Remove covers (3, 4).
3. Mark positions of pinion (14/15) and the piston (2). For versions with air passage, mark also the rotary transmission leadthrough (17).
4. Disassemble the distribution flange (17) and the safety ring (85).
5. Draw pinion (14/15) out of housing.
6. Push piston (2) out of housing.
7. Remove all seals.

Disassembly of the shock absorbers

1. Remove cover (3).
2. Remove the safety ring (86).
3. Take off the shock absorber (30) with the adjusting washer (93/94).

Assembly is done in reverse order

5.4.4 OSE 63

Disassemble

1. Remove air connections.
2. Remove covers (16, 11).
3. Mark positions of pinion (2) and the piston (5). For versions with air passage, mark also the rotary transmission leadthrough (3).
4. Remove the piston (5) on one side.
5. Remove distributor flange (3) and circlip (52).
6. Draw pinion (2) out of housing.
7. Push piston rod (30) and piston (5) out of housing.
8. Remove all seals.

Disassembly of the shock absorbers

1. Loosen lock nut (54).
2. Screw the shock absorber (32) together with the seal (49) out of the adjustment sleeve (10).
3. Screw the new shock absorber (32) into the adjustment sleeve (10) until it stops.
4. Position the O-ring (49) and tighten the lock nut (54).

5.5 Servicing and assembling the product

Maintenance

- Clean all parts thoroughly and check for damage and wear.
- Replace all wear parts / seals.
- Treat all greased areas with lubricant.

Assembly

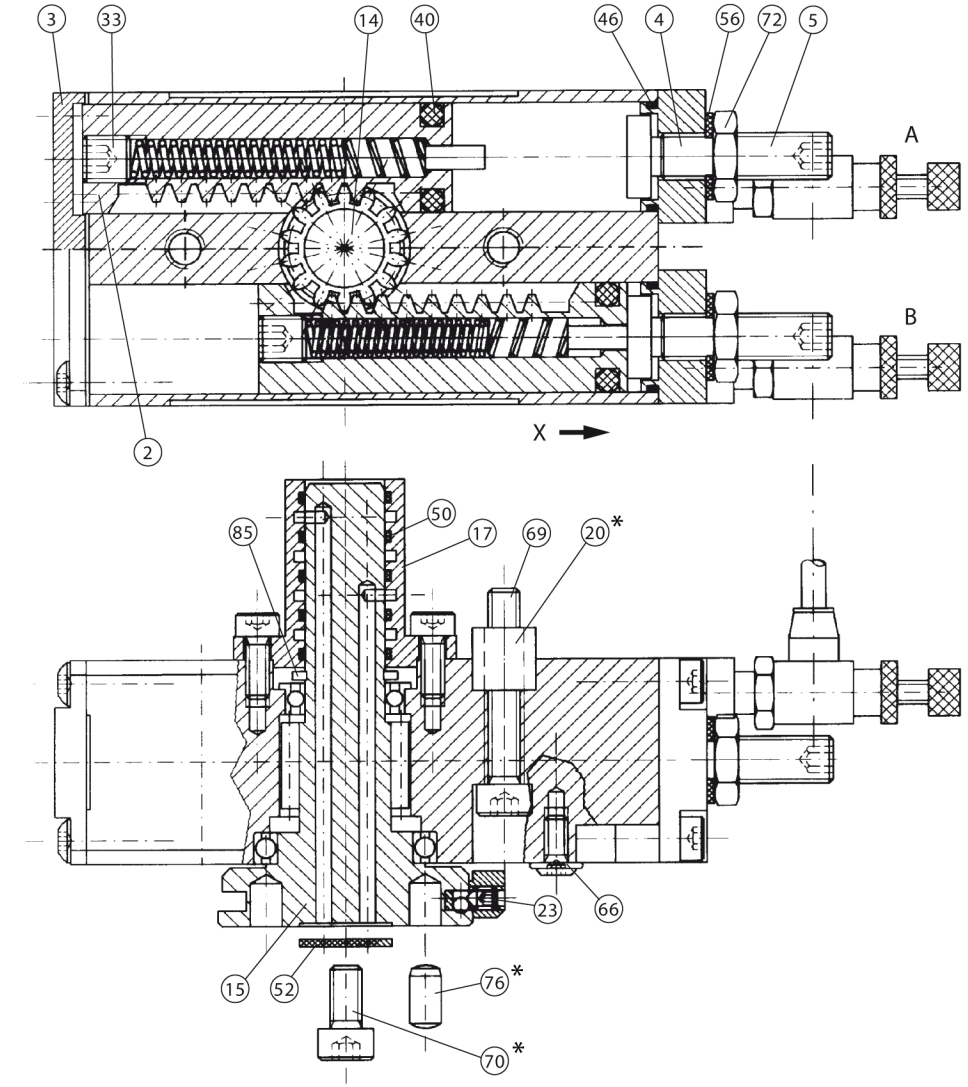
- Assembly takes place in the opposite order to disassembly Carefully assemble the rotary transmission lead through and make sure that no O-rings will be damaged.
- Unless otherwise specified, secure all screws and nuts with Loctite no. 243 and tighten with the appropriate tightening torque.

5.6 Drawings

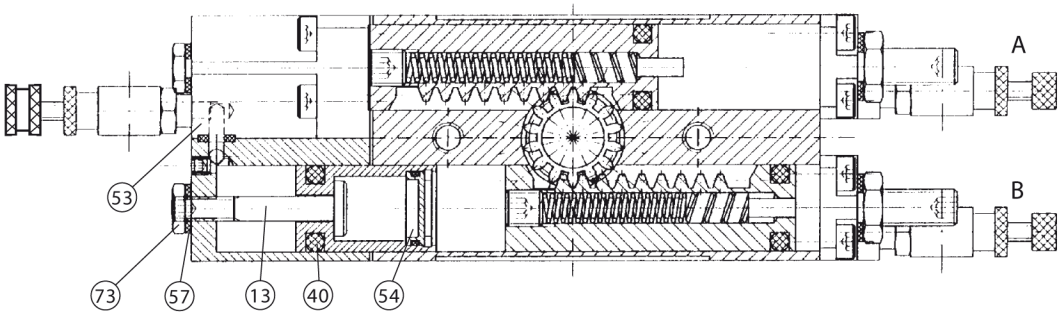
The following figures are example images.
They serve for illustration and assignment of the spare parts.
Variations are possible depending on size and variant.

5.6.1 OSE 14

Unit A / B

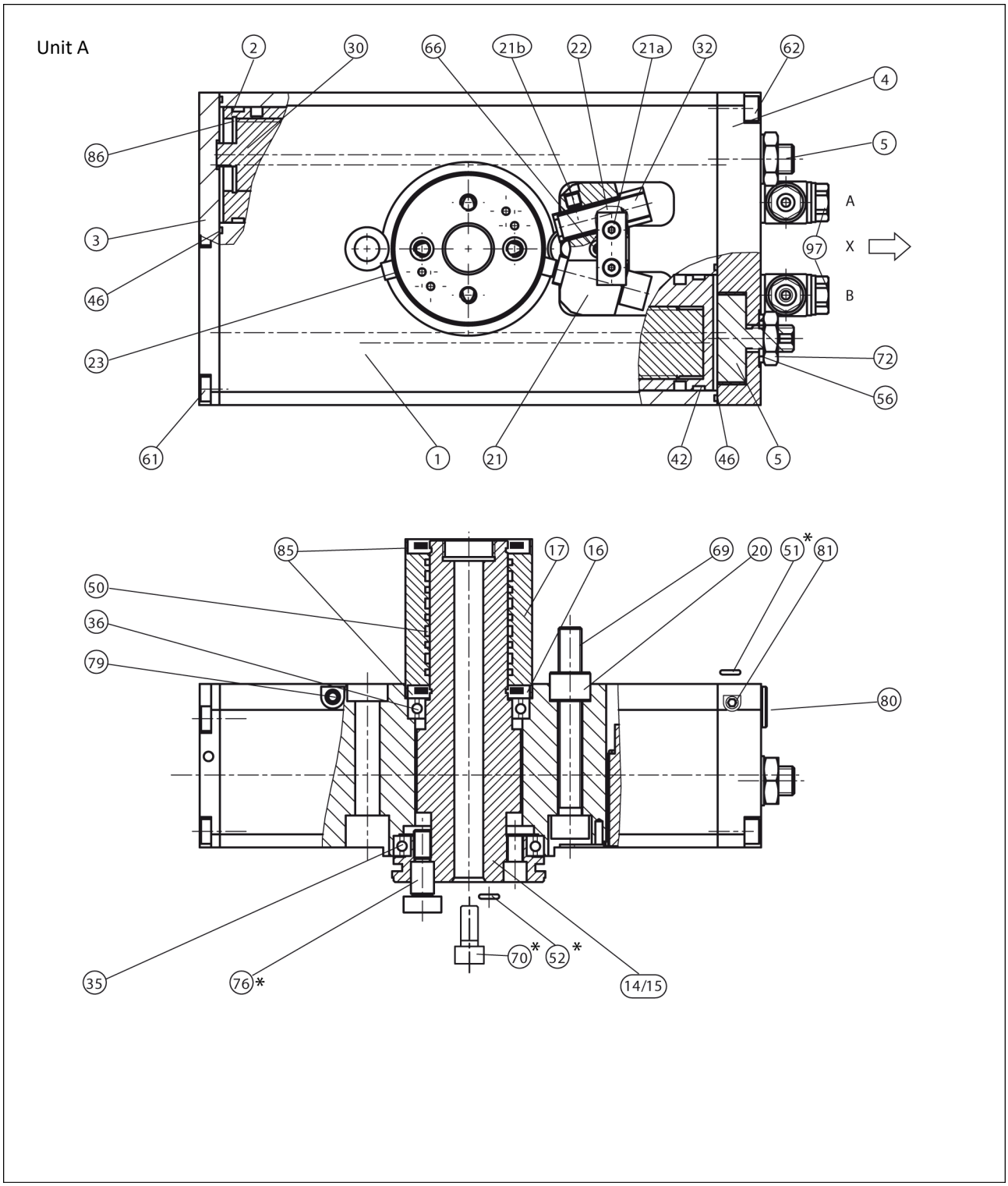


Unit C



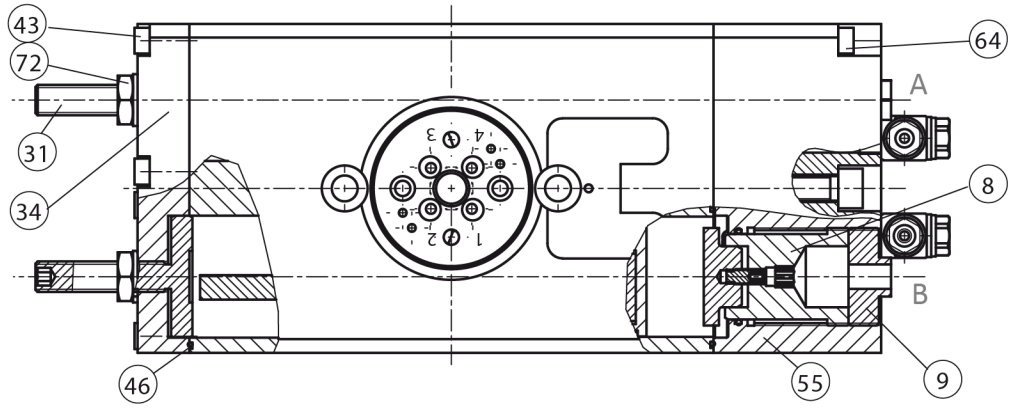
* Contained in accessory pack.

5.6.2 OSE 22-40

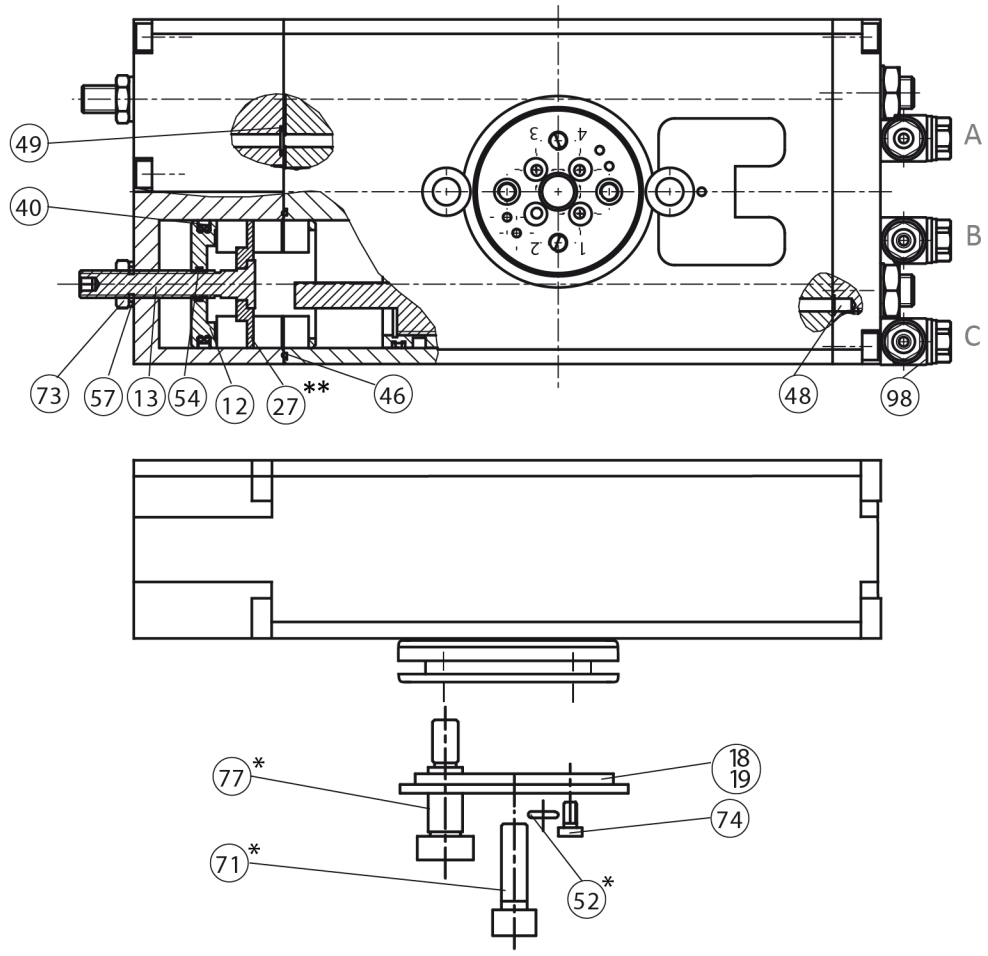


* Contained in accessory pack.

Unit B



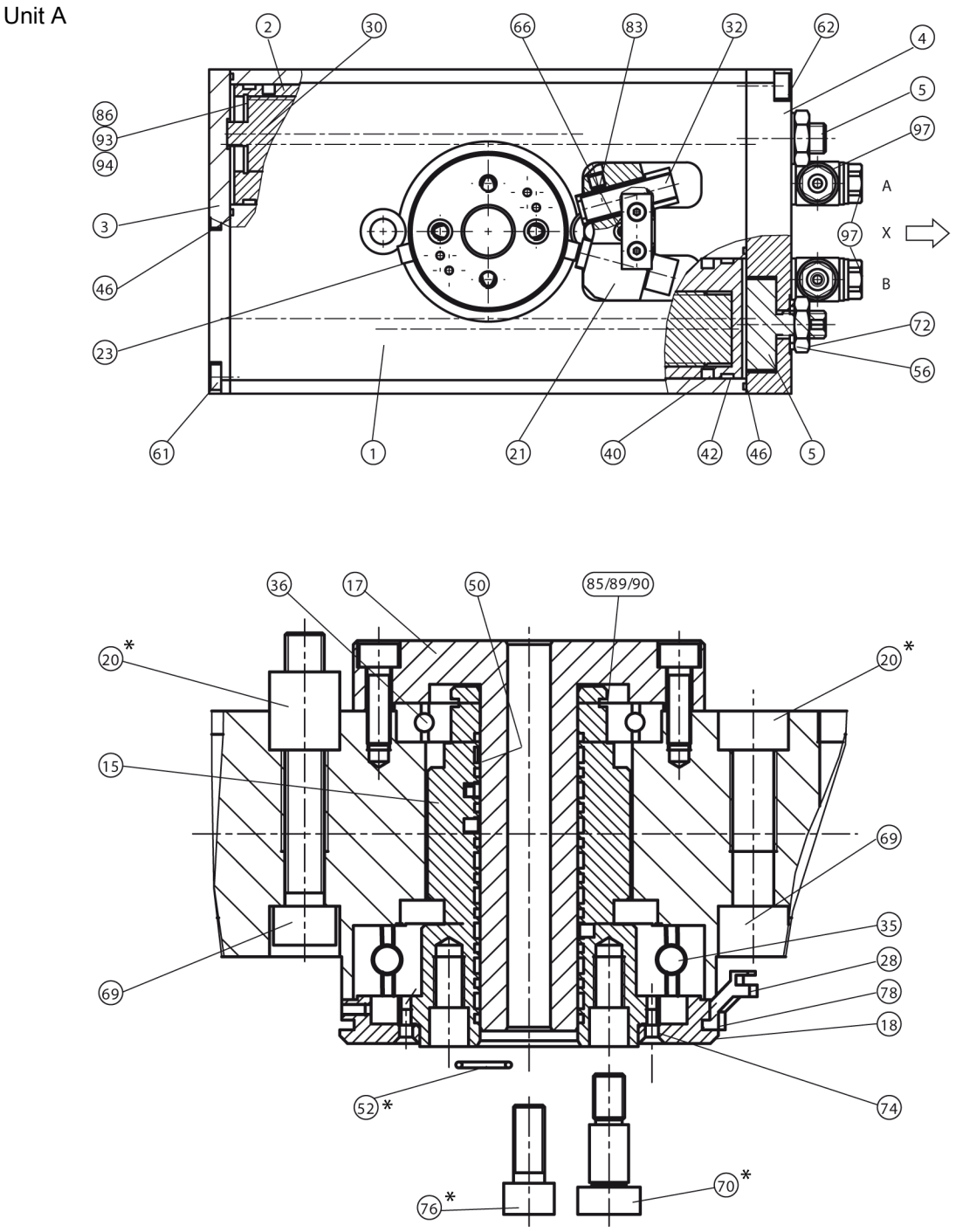
Unit C



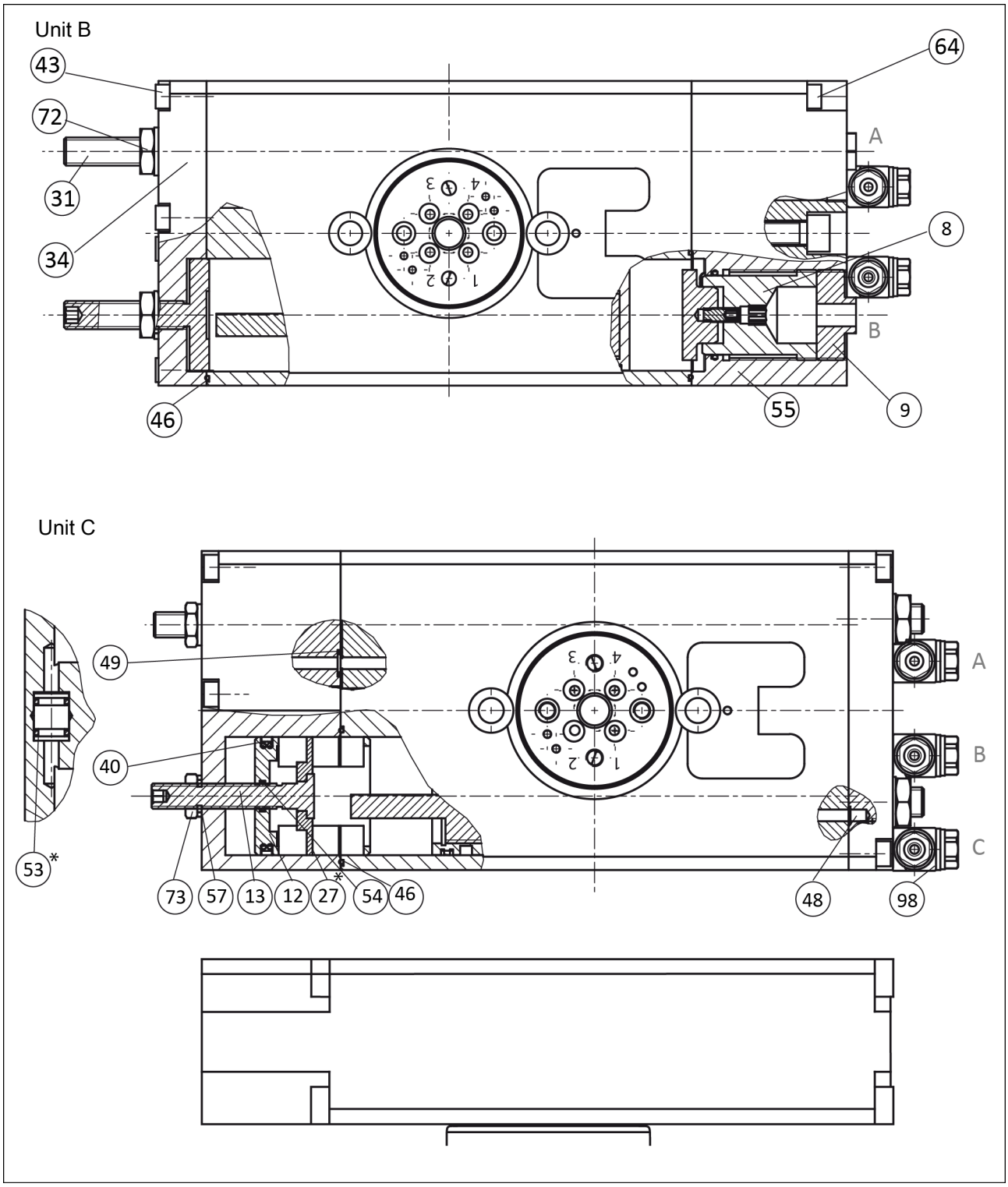
* Contained in accessory pack.

** only for OSE with ID-No. 0354220 / 0354224

5.6.3 OSE 45

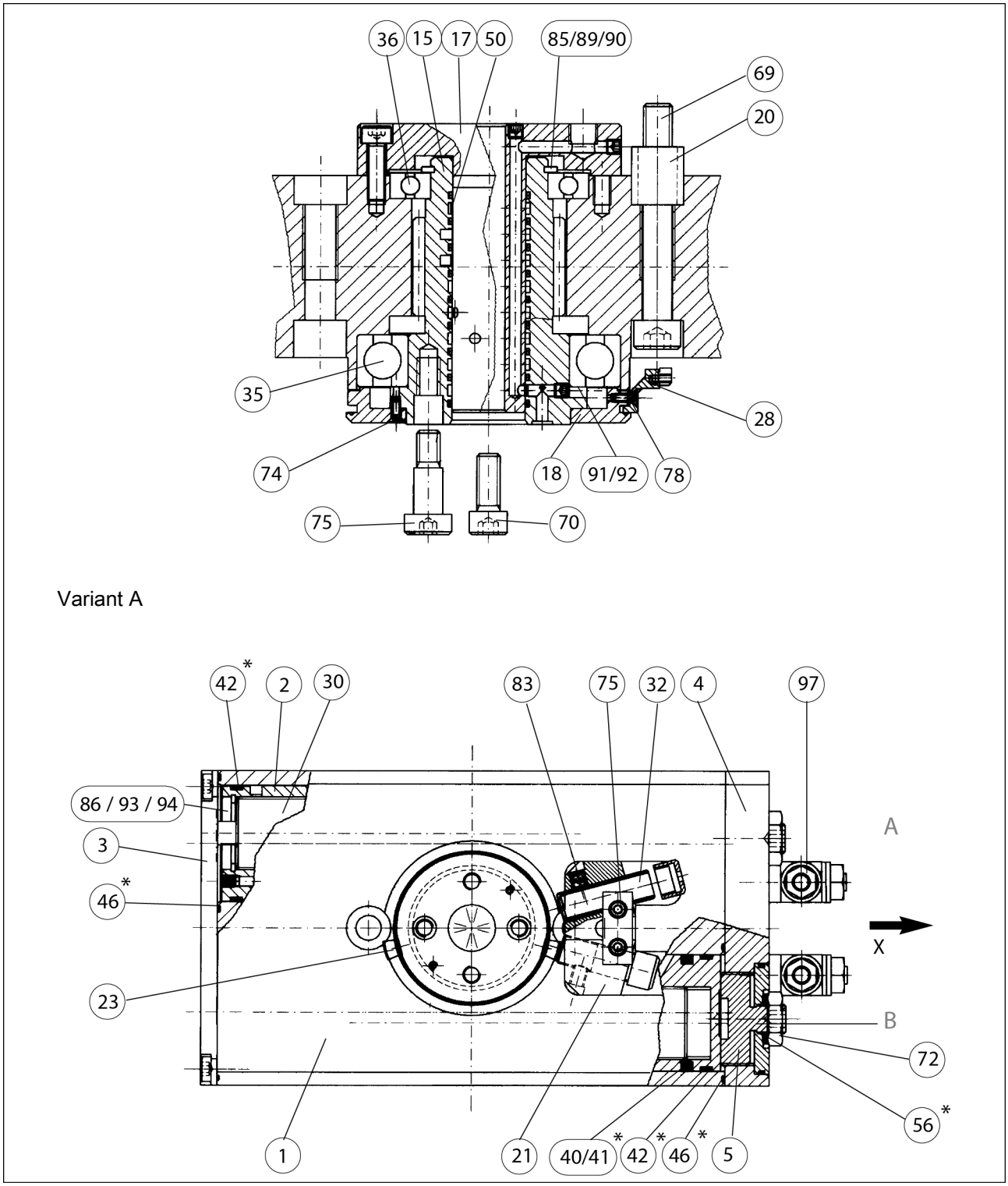


* Contained in accessory pack.



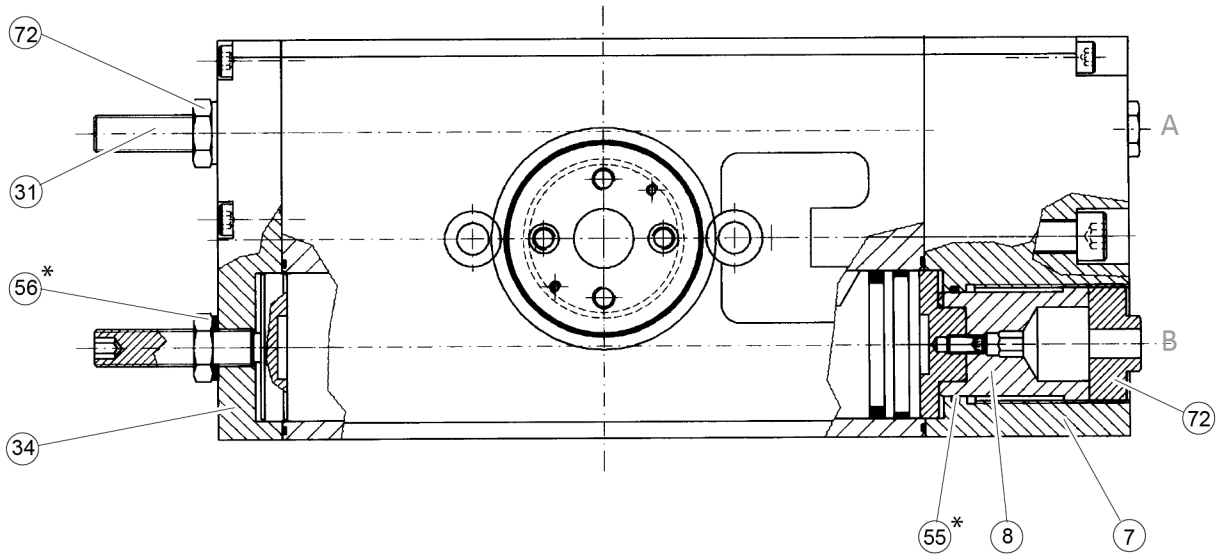
* only for OSE with ID-No. 0354520

5.6.4 OSE 57

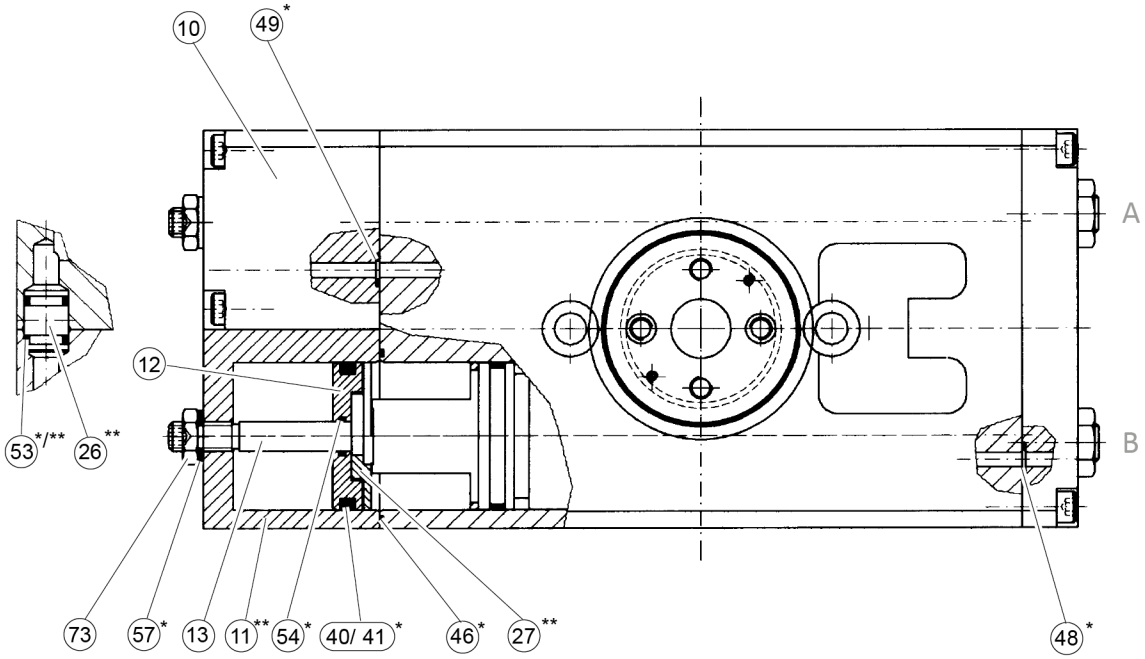


* Wearing part, replace during maintenance.
Included in the seal kit. Seal kit can only be ordered completely.

Variant B



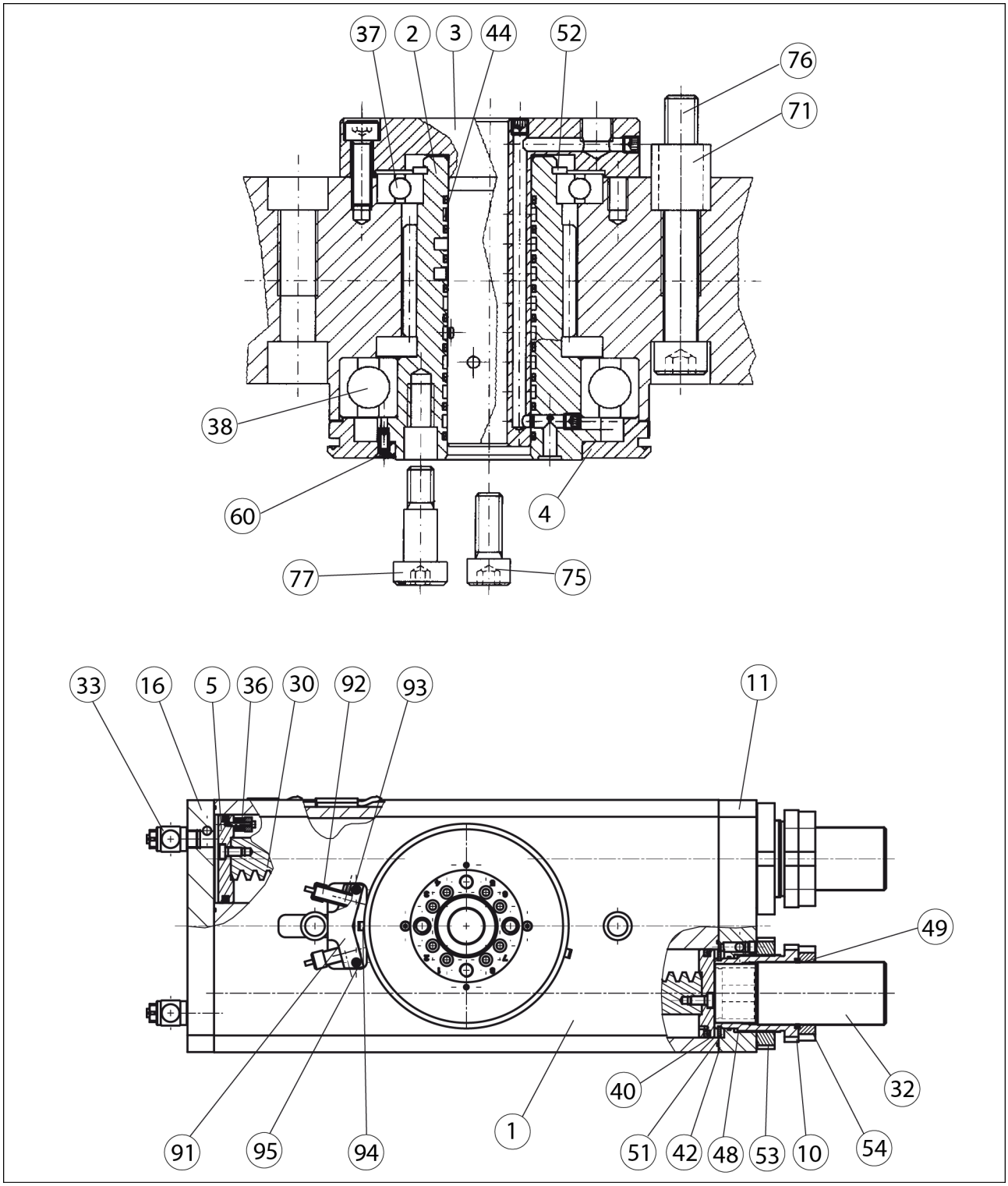
Variant C



* Wearing part, replace during maintenance.

** only for OSE with ID-No. 0354620

5.6.5 OSE 63



OSE 63

6 Translation of the original declaration of incorporation

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

Hersteller/ Inverkehrbringer	SCHUNK GmbH & Co. KG Clamping and gripping technology Bahnhofstr. 106 - 134 D-74348 Lauffen/Neckar

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 directive 2006/42/EC of the European Parliament and of the Council on machinery. The declaration is rendered invalid if modifications are made to the product.

Product designation:	Swivel unit / OSE / pneumatic
ID number	0354100 ... 0354124, 0354200 ... 0354225, 0354300 ... 0354354, 0354400 ... 0354454, 0354500 ... 0354550, 0354600 ... 0354710, 0354800 ... 0354850, 30028094 ... 30028097

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

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:
Robert Leuthner, Address: see manufacturer's address

Signature: see original declaration

Lauffen/Neckar, February 2023

Dr.-Ing. Manuel Baumeister,
Technology & Innovation

7 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:	Swivel unit / OSE / pneumatic
ID number	0354100 ... 0354124, 0354200 ... 0354225, 0354300 ... 0354354, 0354400 ... 0354454, 0354500 ... 0354550, 0354600 ... 0354710, 0354800 ... 0354850, 30028094 ... 30028097

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, February 2023

Dr.-Ing. Manuel Baumeister,
Technology & Innovation

8 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	Swivel unit
Type designation	OSE

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	
1.3.5	Risks related to combined machinery			X
1.3.6	Risks related to variations in operating conditions			X
1.3.7	Risks related to moving parts		X	
1.3.8	Choice of protection against risks arising from moving parts			X
1.3.8.1	Moving transmission parts		X	
1.3.8.2	Moving parts involved in the process			X
1.3.9	Risks of uncontrolled movements			X

1.4	Required characteristics of guards and protective devices			
1.4.1	General requirements			X
1.4.2	Special requirements for guards			X
1.4.2.1	Fixed guards			X
1.4.2.2	Interlocking movable guards			X
1.4.2.3	Adjustable guards restricting access			X
1.4.3	Special requirements for protective devices			X

1.5	Risks due to other hazards			
1.5.1	Electricity supply		X	
1.5.2	Static electricity		X	
1.5.3	Energy supply other than electricity		X	
1.5.4	Errors of fitting		X	
1.5.5	Extreme temperatures			X
1.5.6	Fire			X
1.5.7	Explosion			X
1.5.8	Noise			X
1.5.9	Vibrations			X
1.5.10	Radiation	X		
1.5.11	External radiation	X		
1.5.12	Laser radiation	X		
1.5.13	Emissions of hazardous materials and substances			X
1.5.14	Risk of being trapped in a machine	X		
1.5.15	Risk of slipping, tripping or falling	X		
1.5.16	Lightning			X

1.6	Maintenance			
1.6.1	Machinery maintenance		X	
1.6.2	Access to operating positions and servicing points		X	
1.6.3	Isolation of energy sources		X	
1.6.4	Operator intervention		X	
1.6.5	Cleaning of internal parts		X	

1.7	Information			
1.7.1	Information and warnings on the machinery		X	
1.7.1.1	Information and information devices		X	
1.7.1.2	Warning devices		X	
1.7.2	Warning of residual risks		X	
1.7.3	Marking of machinery	X		
1.7.4	Instructions	X		
1.7.4.1	General principles for the drafting of instructions	X		
1.7.4.2	Contents of the instructions	X		
1.7.4.3	Sales literature	X		

	The classification from Annex 1 is to be supplemented from here forward.			
2	Supplementary essential health and safety requirements for certain categories of machinery			X
2.1	Foodstuffs machinery and machinery for cosmetics or pharmaceutical products			X
2.2	Portable hand-held and/or guided machinery			X
2.2.1	Portable fixing and other impact machinery			X
2.3	Machinery for working wood and material with similar physical characteristics			X
3	Supplementary essential health and safety requirements to offset hazards due to the mobility of machinery		X	
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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Folgen Sie uns I *Follow us*

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