

# Assembly- and Operating Manual

## DDF-SE

### Rotary feed-through

Translation of the original manual

Hand in hand for tomorrow

## Imprint

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### Technical changes:

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

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Dear Customer,

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

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

Best regards,

Your SCHUNK team

Customer Management

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

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# 1 General

## 1.1 About this manual

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

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

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

In addition to these instructions, the documents listed under ▶ 1.1.4 [ 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.

#### **CAUTION**

**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 Symbol definition

The following symbols are used in this manual:

■ Prerequisite for an action

1. Action 1

2. Action 2

⇒ Intermediate results

⇒ Final results

▶ 1.1.3 [ 6]: chapter number and [page number] in hyperlinks

### 1.1.4 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](https://www.schunk.com/downloads).

### 1.1.5 Sizes

This operating manual applies to the following sizes:

- DDF-SE 80
- DDF-SE 120

## 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

- Rotary feed-through DDF-SE in the version ordered
- Mechanical connection
- Safety information (product-specific instructions available online)

## 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.

### 1.4.1 Sealing kit

#### ID.-No. of the seal kit

Size	ID number
80	0370280
120	0370285

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

contents of the sealing kit, ► 7 [📄 23].

### 1.4.2 Accessory kit

Content of the accessory pack:

- Screws
- Centering sleeves
- O-rings

#### ID.-No. of the accessory pack

Size	ID number
80	5512774
120	5512775

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

## 2 Basic safety notes

### 2.1 Intended use

The rotary feed-through was designed to transfer the energy (electrical signals and air) to the tool during stationary applications with endless rotation.

- The product may only be used within the scope of its technical data, ▶ 3 [14].
- The product is intended for installation in a machine/ automated system. 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.
- Any utilization that exceeds or differs from the appropriate use is regarded as misuse.

### 2.2 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.

### 2.3 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.

## 2.4 Ambient conditions and operating conditions

### Required ambient conditions and operating conditions

Incorrect ambient and operating conditions can make the product unsafe, leading to the risk of serious injuries, considerable material damage and/or a significant reduction to the product's life span.

- Make sure that the product is used only in the context of its defined application parameters, ▶ 3 [14].
- Make sure that the product is a sufficient size for the application.
- Make sure that the environment is free from splash water and vapors as well as from abrasion or processing dust. Exceptions are products that are designed especially for contaminated environments.

## 2.5 Personnel qualification

### Inadequate 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.

<b>Instructed person</b>	Instructed persons were instructed by the operator about the delegated tasks and possible dangers due to improper behaviour.
<b>Service personnel of the manufacturer</b>	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.

## 2.6 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.

## 2.7 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.

## 2.8 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.

## 2.9 Malfunctions

### Behavior in case of malfunctions

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

## 2.10 Disposal

### Handling of disposal

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

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

## 2.11 Fundamental dangers

### General

- Observe safety distances.
- Never deactivate safety 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 Notes on particular risks



### **⚠ 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.
-

### 3 Technical data

#### DDF-SE 80

Designation	DDF-SE 80
Weight [kg]	3.3
Max. rotation speed [min <sup>-1</sup> ]	500
Max. acceleration [m/s <sup>2</sup> ]	20
Continuous torque [Nm]	4
Starting torque (after shutdown) [Nm]	6
Rotary movement	unlimited
Mounting	Threaded holes with centering sleeves
<b>Energy transmission</b>	
Air (compressed air up 10 bar)	4x
Electrical energy (electrical signals; with max. 60 V; 1 A)	6x
Noise emission [dB(A)]	≤ 70

#### DDF-SE 120

Designation	DDF-SE 120
Weight [kg]	9.0
Max. rotation speed [min <sup>-1</sup> ]	300
Max. acceleration [m/s <sup>2</sup> ]	20
Continuous torque [Nm]	13
Starting torque (after shutdown) [Nm]	20
Rotary movement	unlimited
Mounting	Threaded holes with centering sleeves
<b>Energy transmission</b>	
Air (compressed air up 10 bar)	6x
Electrical energy (electrical signals; with max. 60 V; 1 A)	8x
Noise emission [dB(A)]	≤ 70

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

## 4 Assembly



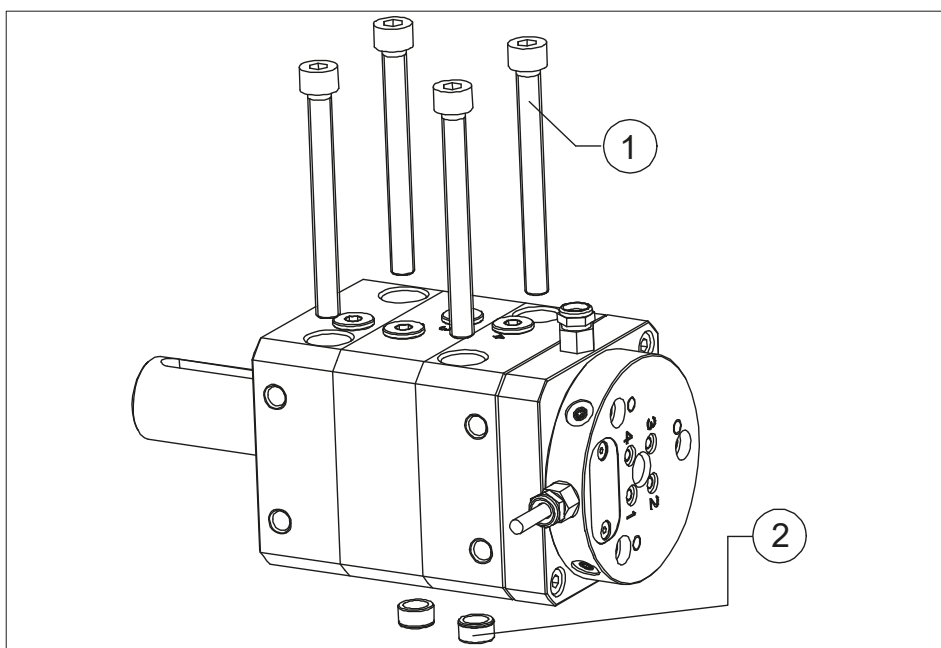
### ⚠ WARNING

#### 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.

### 4.1 Mechanical connection



1 Screws for mounting (in the accessory kit)

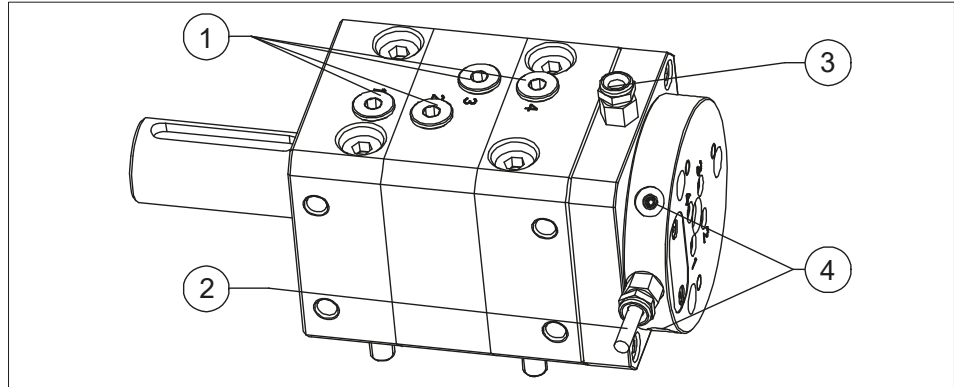
2 Centering sleeve (accessory kit)

- Fasten the product to the machine table using the screws from the accessory kit. To center the product, use the sleeves from the accessory kit.

## 4.2 Pneumatic connection

### NOTE

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



*Air connections*

- |   |                              |
|---|------------------------------|
| 1 | Air connections (stationary) |
| 2 | Tool-sided cable outlet      |
| 3 | Cable outlet                 |
| 4 | Air connections (tool-side)  |

## 4.3 Electrical connection

### NOTE

Observe the maximum electrical energy value. ▶ 3 [14]

Transmission of bus signals is not possible!

### CAUTION

**Material damage due to incorrect bending radii or lack of strain relief!**

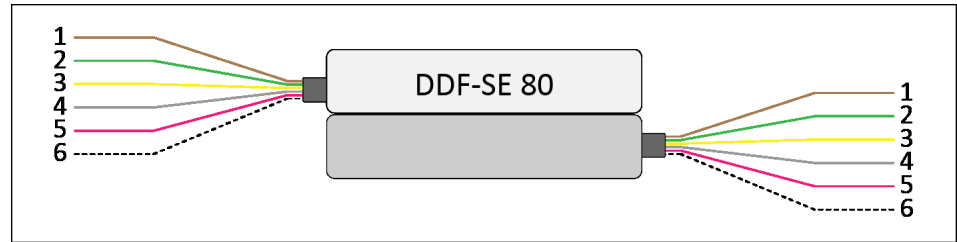
The product may get damaged if the bending radius of the cable is less than the minimum.

- **Static:** 5 times the cable diameter.
- **Dynamic:** 10 times the cable diameter.
- The last cable clip is to be placed 100 – 300 mm before the cable exit.
- Do not use the cable gland on the product as strain relief.

**DDF-SE 80**

**Structure of the control line**

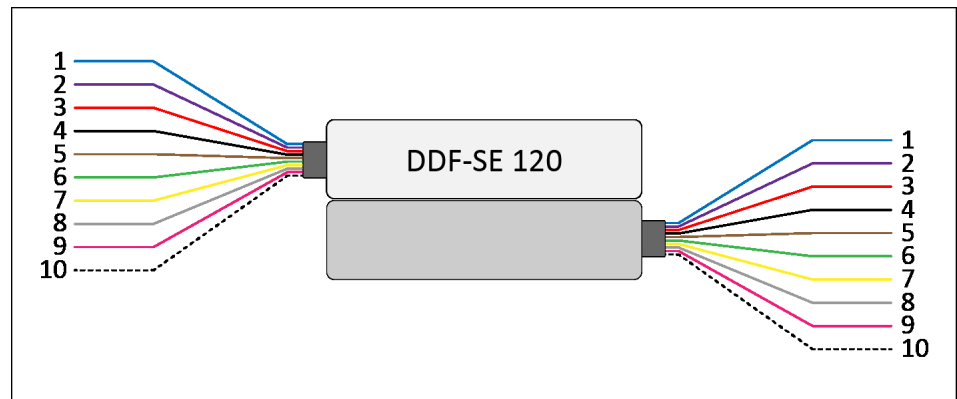
Cable with open wire strands,  
6 wires x 0.14 mm<sup>2</sup>, cable diameter 5 mm, cable length 2 m



1	Brown	4	Grey
2	Green	5	Pink
3	Yellow	6	White

**DDF-SE 120**

Cable with open wire strands,  
10 wires x 0.14 mm<sup>2</sup>, cable diameter 6.4 mm, cable length 3 m  
(white and pink wires are not assigned.)



1	Blue	6	Green
2	Violet	7	Yellow
3	Red	8	Grey
4	Black	9	Pink (not assigned)
5	Brown	10	White (not assigned)

## 5 Troubleshooting

### 5.1 Product is leaking air during standstill

Possible cause	Corrective action
Air connection not installed correctly.	Tighten air connection. ▶ 4.2 [16]
Unused air connections open.	Close unused air connections.

### 5.2 Product is leaking air during operation

Possible cause	Corrective action
Components have come loose e.g. due to overloading.	Send product with a SCHUNK repair order or dismantle product.

### 5.3 Electric signals are not transmitted

Possible cause	Corrective action
Cable connected incorrectly.	Check circular connections and both miniature flat connections on the right seat.
Strands swapped.	Check pin allocation.
Bus signals should be transmitted.	Bus signals can not be transmitted.
Slip ring defective.	Send the product to SCHUNK with a repair order.

## 6 Maintenance

### 6.1 Maintenance and lubrication intervals

#### CAUTION

#### 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 intervals and work

Interval [Mio. cycles]: 1.5

- |                   |  |
|-------------------|--|
| Maintenance work: | <ul style="list-style-type: none"> <li>• Clean all parts thoroughly and check for damage and wear.</li> <li>• Replace all wear parts / seals.</li> <li>• The seals are in the enclosed sealing kit. ▶ 1.4.1 [ 7]</li> <li>• Treat all greased areas with lubricant. ▶ 6.2 [ 20]</li> <li>• Oil or grease bare external steel parts.</li> </ul> |
|-------------------|--|

## 6.2 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
Seals and sealing surfaces	SCHUNK grease 1

Details regarding SCHUNK lubricant designations are available at [schunk.com/lubricants](https://www.schunk.com/lubricants).

The product contains food-compliant lubricants and non-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.**

## 6.3 Dismantling the product

Position of the item numbers ▶ 7 [📄 23]

### CAUTION

See chapter "Basic Safety Notes" ▶ 2 [📄 8]. Do not damage any seals while assembling! Do not touch the slip ring contacts of the electrical feed-through and treat them with the great caution.

1. Remove the compressed air lines.
2. Disconnect the cable connections.
3. Unfasten and remove the screws (45).
4. Remove the safety ring (40).
5. Pull the housing (2) with the ball bearings (42) and the ring (3) from the shaft.
6. Unfasten and remove the screws (48).
7. Pull the protective housing (6) carefully from the tool flange (1).

### CAUTION

The contacts of the slip ring unit must not come into contact with the shaft (1) or be touched.

8. Remove all seals according to the sealing kit list ▶ 1.4.1 [📄 7].
9. Thoroughly clean all parts (except for slip-ring contacts in the cover housing (6)) and check all parts for any defects and wear.
10. Carefully clean the slip ring tracks in the shaft (1) with a clean cloth and lubricate the tracks lightly with a clean cloth and oil.
11. Replace all seals according to sealing kit list ▶ 1.4.1 [📄 7].

## 6.4 Assembling the product



### **⚠ WARNING**

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

The cover may be ejected due to the high spring forces.

- Dismantle the product carefully.

### **Assembly**

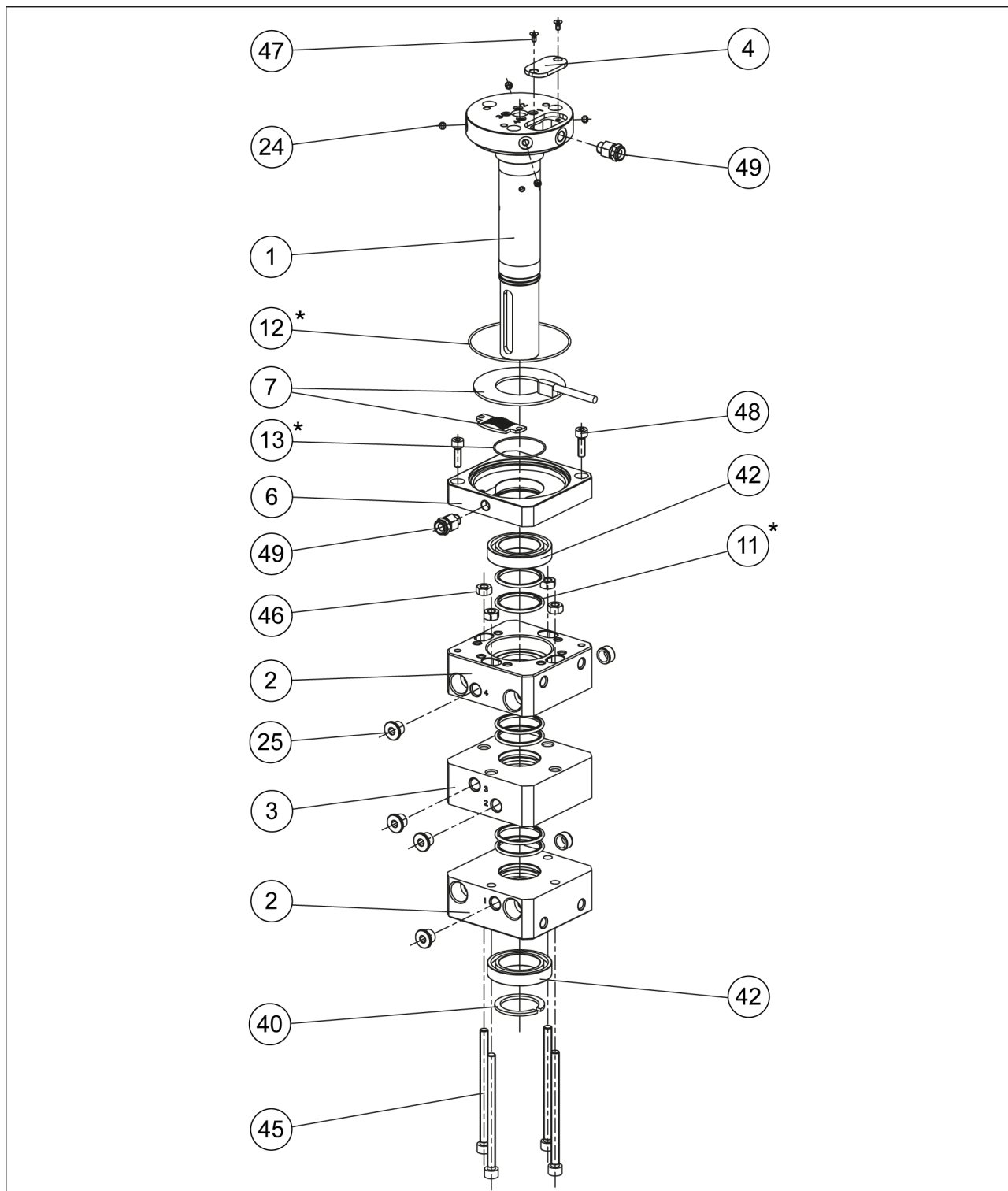
Assembly takes place in the opposite order to disassembly.

Observe the following:

- Unless otherwise specified, secure all screws and nuts with Loctite no. 30243 and tighten with the tightening torque.

## 7 Assembly drawing

The following figure is an example image.  
It serves for illustration and assignment of the spare parts.  
Variations are possible depending on size and variant.



DDF assembly

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

## 8 Translation of the original declaration of incorporation

in terms of the Directive 2006/42/EG, Annex II, Part 1 Section B.

Manufacturer/ Distributor                      SCHUNK SE & Co. KG  
Spanntechnik | Greiftechnik | Automatisierungstechnik  
Bahnhofstr. 106 – 134  
D-74348 Lauffen/Neckar

We hereby declare that the partly completed machine described below

Product designation:                      Rotary feed-through / DDF-SE / electro-pneumatic

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. 1.5.1, No. 1.5.2; No. 1.5.4, No. 1.5.6, No. 1.5.8, No. 1.5.10, No. 1.5.11, No. 1.5.13

The partly completed machinery may not be put into operation until it has been confirmed that the machine into which the partly completed machinery is to be installed complies with the provisions of the Machinery Directive (2006/42/EC). The declaration shall be rendered invalid if modifications are made to the product.

Applied harmonized standards, especially:

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

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

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

*Signature: see original declaration*

Lauffen/Neckar, August 2024

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/	SCHUNK Intec Limited
Distributor	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:	Rotary feed-through / DDF-SE / electro-pneumatic
ID number	0323280, 0323285

The partly completed machine may not be put into operation until it has been confirmed that the machine into which the partly completed machine is to be installed complies with the provisions of the "Supply of Machinery (Safety) Regulations 2008".

Applied harmonized standards, especially:

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

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

Person authorized to compile the technical documentation:  
Marcel Machado, address: refer to manufacturer's address



Lauffen/Neckar, August 2024

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](https://www.schunk.com/SVHC).

*Signature: see original declaration*

Lauffen/Neckar, August 2024

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





**SCHUNK SE & Co. KG**  
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