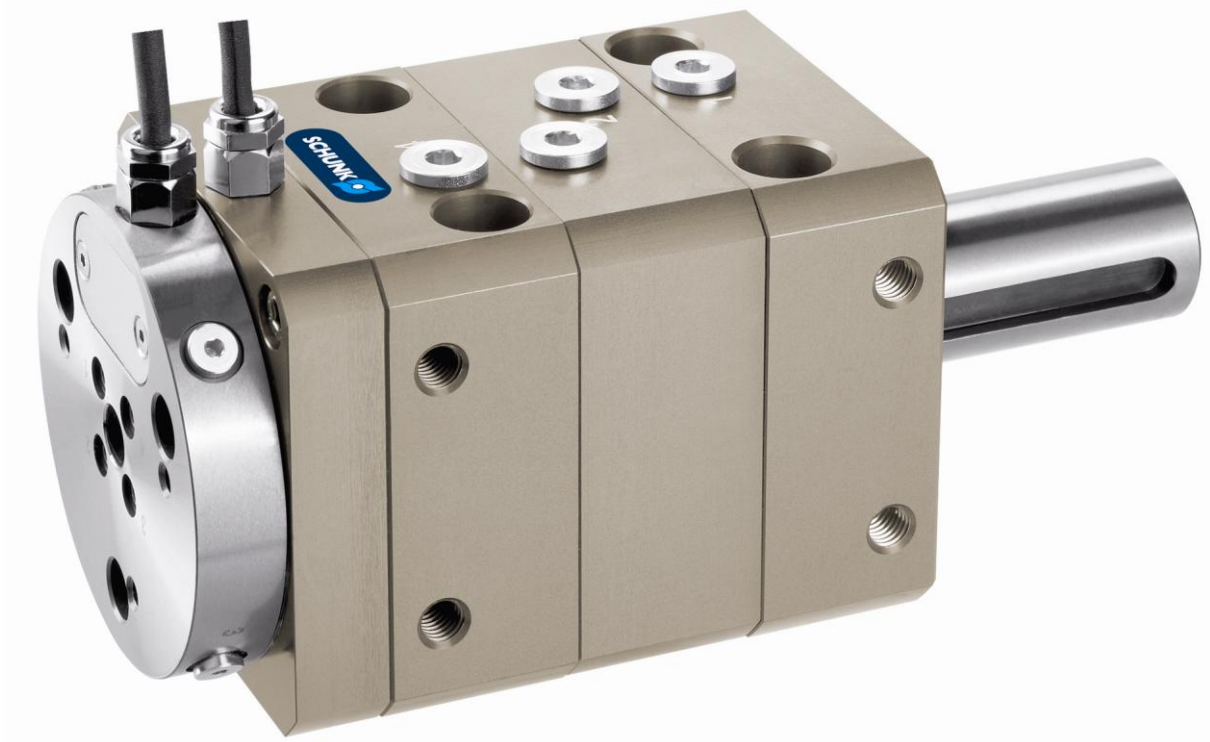


Rotary feed-through DDF-SE 80-120

Assembly- and Operating Manual



Imprint

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Document number: 0389020

Edition: 1.00 |07/02/2014|en

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Dear customer,

congratulations on choosing a SCHUNK product. By choosing SCHUNK, you have opted for the highest precision, top quality and best service.

You are going to increase the process reliability of your production and achieve best machining results – to the customer's complete satisfaction.

SCHUNK products are inspiring.

Our detailed assembly and operation manual will support you.

Do you have further questions? You may contact us at any time – even after purchase.

Kindest Regards

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Reg. No. 003496 QM08



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1 About this manual

This instruction is an integral part of the product and contains important information for a safe and proper assembly, commissioning, operation, maintenance and help for easier trouble shooting.

Before using the product, read and note the instructions, especially the chapter "Basic safety notes".

1.1 Warnings

The following signal words and symbols are used to highlight dangers.

1.1.1 Key words

DANGER	Dangers for persons. Non-compliance will inevitably cause irreversible injury or death.
WARNING	Dangers for persons. Non-compliance may cause irreversible injury or death.
CAUTION	Dangers for persons. Non-observance may cause minor injuries.
NOTICE	Information about avoiding material damage

1.1.2 Symbols



Warning about a danger point



General mandatory sign to prevent material damage

1.2 Applicable documents

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

The documents listed here, can be downloaded on our homepage www.schunk.com

2 Basic safety notes

2.1 Intended use

The rotary feed-through was designed to transfer the energy (electrical signals and air) to the handling module in robotic applications with endless rotation.

The product is intended for installation in a machine/system. The requirements of the applicable guidelines must be observed and complied with.

The product may be used only in the context of its defined application parameters ([☞ 5, Page 10](#)).

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 Not intended use

Use which is not specified as an intended use is for instance when the product is for example used as a pressing tool, stamping tool, lifting tool, guide for tools, cutting tool, tensioning mean, boring tool.

2.3 Environmental and operating conditions

- Make sure that the product has a sufficient size for the application.
- Observe Maintenance and lubrication intervals ([☞ 8.1, Page 15](#)).
- 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.

2.4 Product safety

Dangers arise from the product, if:

- the product is not used in accordance with its intended purpose.
- the product is not installed or maintained properly.
- the safety and installation notes are not observed.

Avoid any manner of working that may interfere with the function and operational safety of the product.

Wear protective equipment.

NOTE

More information are contained in the relevant chapters.

2.4.1 Protective equipment

Provide protective equipment per EC Machinery Directive.

2.4.2 Constructional changes, attachments, or modifications

Additional drill holes, threads, or attachments that are not offered as accessories by SCHUNK may be attached only with permission of SCHUNK.

2.5 Personnel qualification

The assembly, initial commissioning, maintenance, and repair of the product may be performed only by trained specialist personnel. Every person called upon by the operator to work on the product must have read and understood the complete assembly and operating manual, especially the chapter "Basic safety notes" ([☞ 2, Page 5](#)). This applies particularly to personnel only used occasionally, such as maintenance personnel.

2.6 Using personal protective equipment



When using this product, observe the relevant industrial safety regulations and use the personal protective equipment (PPE) required!



- Use protective gloves, safety shoes and safety goggles.
- Observe safe distances.
- Minimal safety requirements for the use of equipment.

2.7 Notes on particular risks

Generally valid:

- Remove the energy supplies before installation, modification, maintenance, or adjustment work.
- Make sure that no residual energy remains in the system.
- Do not move parts by hand when the energy supply is connected.
- Do not reach into the open mechanism or the movement area of the unit.
- Perform maintenance, modifications, and additions outside the danger zone.
- Secure the product during all operations against uncontrolled activation.
- Take a precautionary approach by maintenance and disassembly.
- Only specially trained staff should disassemble the product.

	 WARNING
	<p>Risk of injury from objects falling and being ejected</p> <ul style="list-style-type: none"> • The danger zone must be surrounded by a safety fence during operation.

	 WARNING
	<p>Risk of injury when the machine/system moves unexpectedly due to failure of the energy supply or malfunction of the controller.</p>



WARNING

Risk of injury when the machine/system moves unexpectedly, due to rotating parts, while the movement of the swivel unit, and the moving of gripping jaws.

Remove the energy supplies before starting with assembly and adjustments.

Make sure, that no residual energy remains in the system.

3 Warranty

The warranty is valid for 24 months from the delivery date to the production facility under the following conditions:

- Intended use in 1-shift operation
- Observe the mandatory maintenance and lubrication intervals
- Observe the environmental and operating conditions

Parts touching the work piece and wear parts are not part of the warranty.

4 Scope of delivery

The scope of delivery includes:



- Rotary feed-through DDF-SE in the ordered model.
- Accessory pack

5 Technical data

	DDF-080-SE	DDF-120-SE
Weight [kg]	3.3	9.0
Max. rotation speed [min ⁻¹]	500	300
Max. acceleration [m/s ²]	20	
Continuous torque [Nm]	4	13
Starting torque (after shut-down) [Nm]	5	20
Rotary movement	Unlimited	
Mounting	Threaded holes with centering sleeves	
Energy transmission		
Air (compressed air up 10 bar)	4x	6x
Electrical energy (electrical signals; with max. 60 V; 1 A)	6x	8x
Noise emission [dB(A)]	≤ 70	

Further technical data can be found in the catalog data sheet.
The most recent version applies.

6 Assembly

	 WARNING
	<p>Risk of injury during assembly!</p> <ul style="list-style-type: none"> • Switch off the energy supply.

6.1 Mounting of the DDF-SE

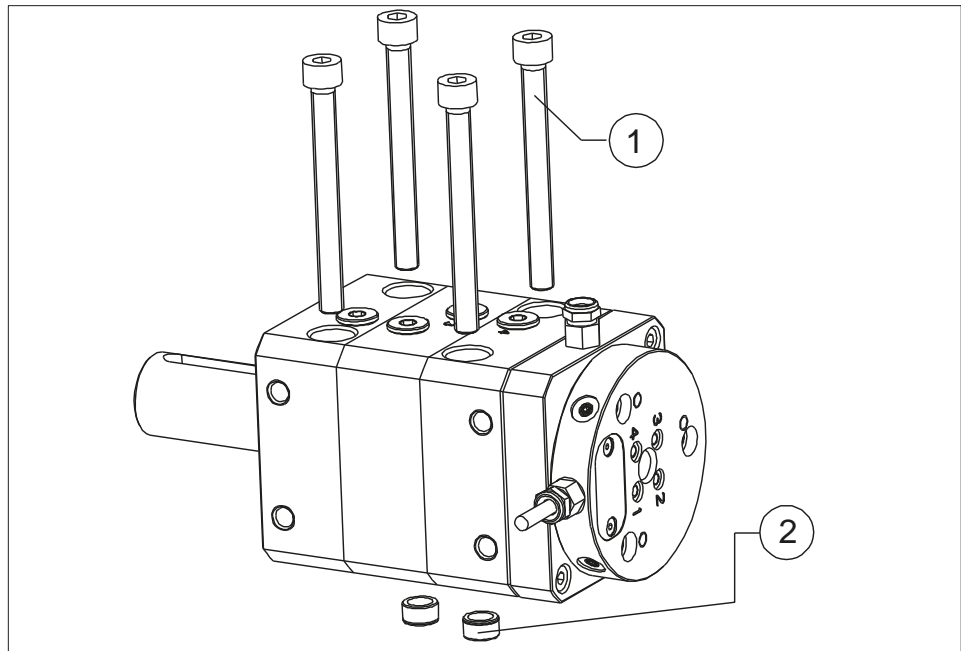




Fig. 1

1	Screws for mounting (in the accessory pack)
2	Centering sleeve (accessory pack)

- 1 The DDF is fastened with the screws from the accessory pack at the machine table. For centering of the DDF, the sleeves from the accessory pack can be used.

6.2 Air connection

	<p>! WARNING</p>
	<p>Risk of injury during connection!</p> <ul style="list-style-type: none"> • Switch off the energy supply.

	<p>NOTICE</p>
	<p>Observe the requirements for the air supply. (↩ 5, Page 10) "Technical Data"</p>

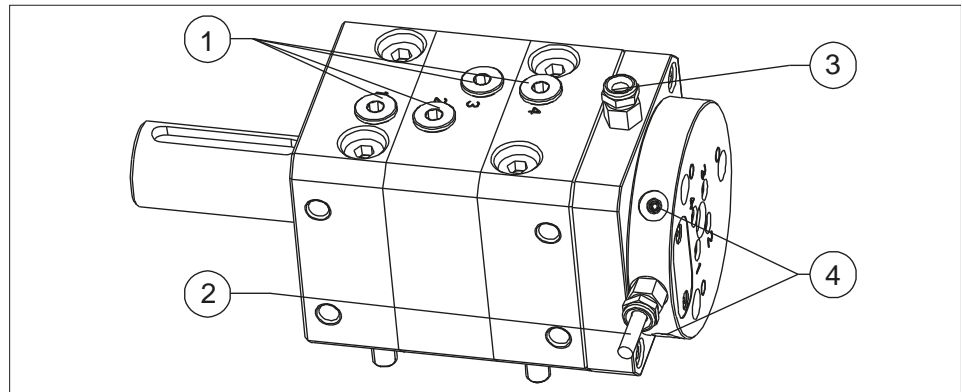




Fig. 2 Air connections

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


6.3 Electrical connection

	 WARNING
	<p>Risk of injury when the machine/system moves unexpectedly! Switch off power supply.</p>

NOTE

Overserve the maximum electrical energy values ([↩ 5, Page 10](#)).
Transmission of bus signals is not possible!

- Overserve the maximum electrical energy values.
- Transmission of bus signals is not possible!

	NOTICE
	<p>The cable must not be constantly moved up to the cable exit (risk of fracture). The last cable clip is to be placed 100 – 300 mm before the cable exit. The minimal bending radius of the cable is 15 x cable Ø. The bending radiuses can be less than the minimum where the cable is laid in such a way that it is rigid. Cable Ø: DDF 80 SE = 5 mm, DDF 120 SE = 6.4 mm</p>

Design of the control line

DDF 80-SE: cable with 6 wires x 0.15 mm²

DDF 120-SE: cable with 8 wires x 0.15 mm²

Color assignment of wire strand:

White and pink is not assigned for DDF 120-SE.

7 Troubleshooting

7.1 Does the DDF let out air when shutdown?

Possible cause	Corrective action
Air connection not installed correctly	Tighten air connection (👉 6.2, Page 12)
Connections that are not in use are not closed	Close connections

7.2 Does the DDF let out air when in operation?


Possible cause	Corrective action
Components have become loose e.g. through over-loading.	Send the module to SCHUNK with a repair order or disassemble module.

7.3 Electric signals are not transmitted?

Possible cause	Corrective action
Cable is not connected correctly	Check if the circular connectors and the miniature flat connectors are plugged in correctly.
Strands swapped	Check, if strands are swapped. Observe Pin-assignment.
Bussignals are to be transmitted	Bus signals can not be transferred.
Collector ring defect	Send the module to SCHUNK with a repair order.

8 Maintenance and Care

8.1 Maintenance and lubrication intervals

	NOTICE
	<p>At ambient temperature above 60°C the lubricants can harden faster.</p> <ul style="list-style-type: none"> • Interval decrease accordingly.

Maintenance- and lubrication interval

Size	DDF-SE
Interval [Mio. cycles]	1.5

8.2 Lubricants/Lubrication points (basic lubrication)


We recommend the lubricants listed.

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


Lubricant point	Lubricant
All seals	Renolit HLT 2

8.3 Disassembly of the module

Position of the position numbers ([👉 9, Page 18](#))



	NOTICE
	Observe chapter “Basic safety notes” (👉 2, Page 5). Do not damage any seals while assembling! Do not touch the slip ring contacts of the electrical feed-through and treat them with great caution.

- 1 Remove compressed air lines.
- 2 Detach cable connections.
- 3 Unscrew 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 Unscrew screws (48).
- 7 Pull the protective housing (6) carefully from the tool flange (1).

	NOTICE
	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 sealing kit list ([👉 10, Page 19](#)).
- 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 lightly lubricate the tracks with a clean cloth and oil.
- 11 Replace all seals according to sealing kit list ([👉 10, Page 19](#)).

8.4 Servicing and assembling the module

	 WARNING
	Risk of injury due to spring forces! The lid is under spring tension. Carefully disassemble the module.

- Maintenance**
- Clean all parts thoroughly and check for damage and wear.
 - Replace all wear parts / seals.
 - The seals are in the enclosed sealing kit. ([👉 10, Page 19](#))
 - Treat all greased areas with lubricant. ([👉 8.2, Page 15](#))
 - Oil or grease bare external steel parts.

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.

9 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.

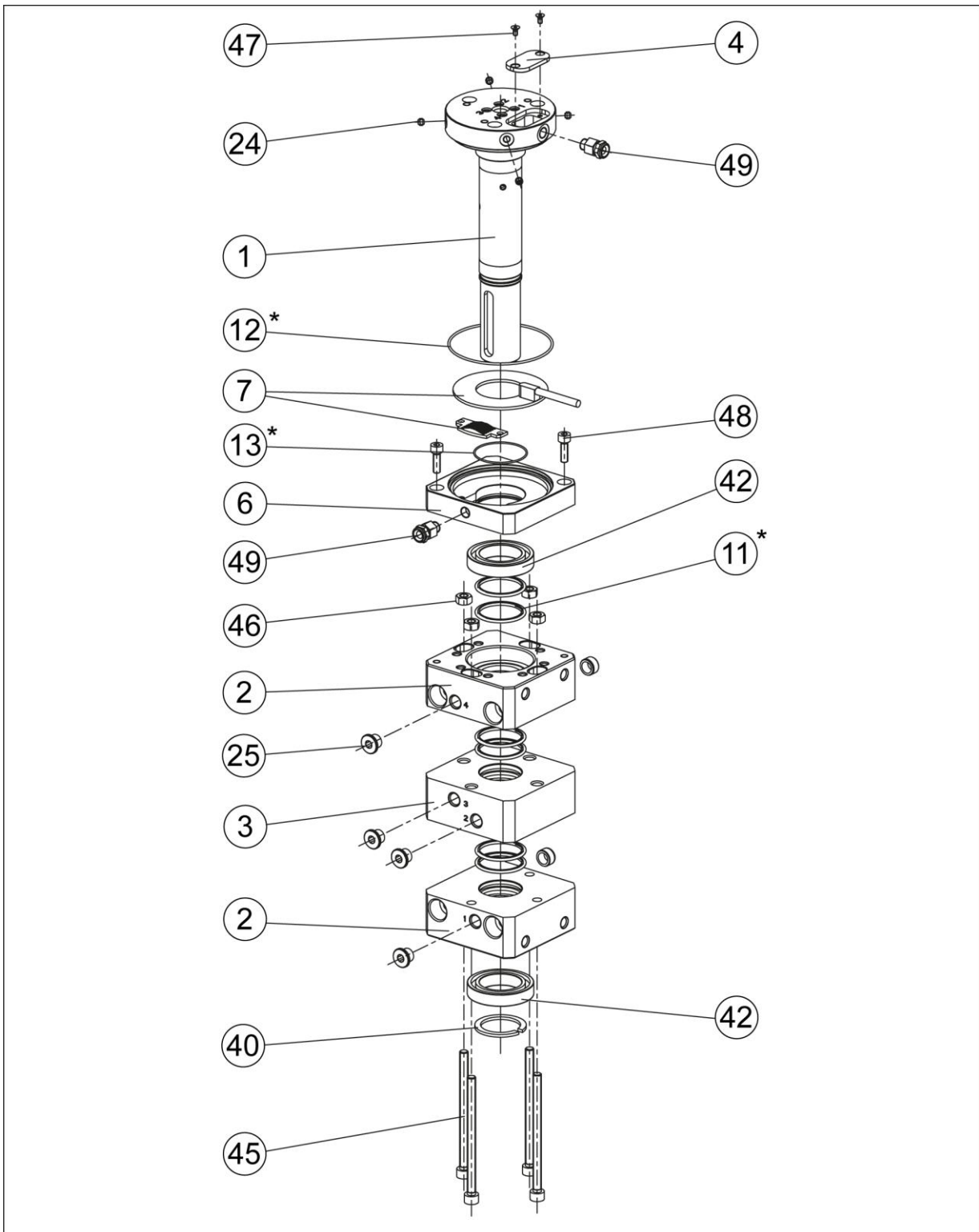


Fig. 3 DDF assembly

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

10 Sealing kit

ID.-No. of the seal kit

Seal kit for	ID number
DDF 80-SE	0370280
DDF 120-SE	0370285

Contents of the seal kit ([👉 9, Page 18](#)).

11 Accessory pack

Content of the accessories pack:

- Screwing
- Centering sleeves
- O-rings

ID.-No. of the accessory pack

Accessory pack for	ID number
DDF 80-SE	5512774
DDF 120-SE	5512775