Assembly and Operating Manual

DDF 2

Rotary feed-through

Translation of the original operating manual

Hand in hand for tomorrow

Imprint

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

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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 ▸ 1.1.2 [🗋 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.

CAUTION

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:

- DDF 2 31
- DDF 2 40
- DDF 2 40-1
- DDF 2 50
- DDF 2 50-1
- DDF 2 63
- DDF 2 80
- DDF 2 80-1
- DDF 2 100
- DDF 2 100-1
- DDF 2 125
- DDF 2 160

1.1.4 Variants

This operating manual applies to the following variations:

- DDF 2, with pneumatic and electrical feed-throughs
- DDF 2 - P, with pneumatic feed-throughs
- DDF 2 - E, with electric feed-throughs

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 2 in the version ordered
- Accessory pack (mechanical connection)
- Accessory pack (electrical connection)
- Safety information (product-specific instructions available online)

1.4 Accessories kit

1.4.1 Mechanical connection components accessory pack

Accessory pack for	ID number
DDF2 31 / 31P	5522696
DDF2 40 / 40P	5522697
DDF2 50 / 50P / 50E	5522697
DDF2 63 / 50-1 / 40-1	5516046
DDF2 80	5516047
DDF2 80-1 / 100-1	5516047
DDF2 100	5516047
DDF2 125	5516049
DDF2 160	5516049

Content of the accessories pack: ▶ 6.5 [🗋 31].

1.4.2 Electrical connections accessory pack

Content:

- Connector and socket

Accessory pack for	ID number
DDF2 31	5516033
DDF2 40	5516033
DDF2 50 / 50E	5516033
DDF2 63 / 50-1 / 40-1	5516034
DDF2 80	5516034
DDF2 80-1 / 100-1	5516035
DDF2 100	5516034
DDF2 125	5516035
DDF2 160	5516049

1.5 Sealing kit

Seal kit for	ID number
DDF2 31	5522796
DDF2 31P	5522797
DDF2 40 / 50	5522799
DDF2 40P / 50P	5522800
DDF2 50E	5522801
DDF2 63 / 40-1 / 50-1	5522802
DDF2 80 / 100	5522805
DDF2 80-1 / 100-1 / 125 / 160	5522808

contents of the sealing kit, ▸ 6.5 [🗋 31].

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 may only be used within the scope of its technical data, ▶ 3 [🗋 15].
- 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 Not intended use

- Any utilization that exceeds or differs from the appropriate use is regarded as misuse.

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 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 [🗋 15].

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.

2.13 Notes on particular risks

⚠ 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!

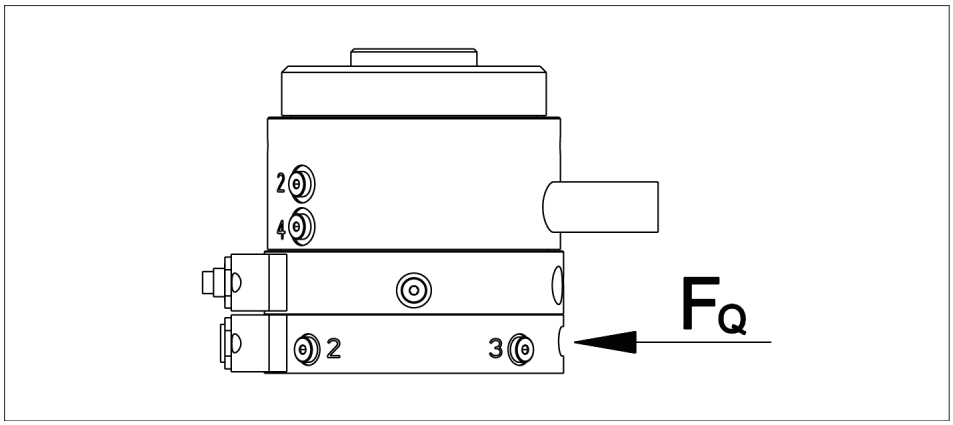
If the power supply is switched on or residual energy remains in the system, components can move unexpectedly and cause serious injuries.

- 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.

3 Technical data

Designation	DDF 2							
	31	40	50	63	80	100	125	160
Weight [kg]	0.5	0.9	0.95	2.2	5.9	6.1	13.9	14.2
Max. rotation speed [min-1]	120	120	120	110	100	100	90	90
Max. rotation speed [°/s]	720	720	720	660	600	600	540	540
Constant torque [Nm]:								
pneumatic and electric	0.8	1.5	1.5	3.0	8.0	8.0	22.0	22.0
pneumatic	0.8	1.5	1.5	3.0	8.0	8.0	22.0	22.0
electric	0.5	1.0	1.0	2.0	3.0	3.0	11.0	10.0
Starting torque [Nm] (after shutdown):								
pneumatic and electric	1.3	2.0	2.0	4.5	10.0	10.0	25.0	25.0
pneumatic	1.3	2.0	2.0	4.5	10.0	10.0	25.0	25.0
electric	0.7	1.3	1.3	2.0	3.5	3.5	12.0	12.0
Rotary movement	∞							
Pressure range for air purge [bar]	0,5 – 1							
Energy transmission								
Air (compressed air up to 10 ba)	2x	2x	2x	4x	4x	4x	4x	4x
Electrical energy electric signals,, with max. 60V; 1A	4x	4x	4x	6x	6x	6x	10x	10x
Noise emission [dB(A)]	≤ 70	≤ 70	≤ 70	≤ 70	≤ 70	≤ 70	≤ 70	≤ 70

Designation	DDF 2			
	40-1	50-1	80-1	100-1
Weight [kg]	2.0	2.1	13.1	13.3
Max. rotation speed [min-1]	110	110	90	90
Max. rotation speed [°/s]	660	660	540	540
Constant torque [Nm]	3.0	3.0	22.0	22.0
Starting torque [Nm] (after shutdown):	4.5	4.5	25.0	25.0
Rotary movement	∞			
Pressure range for air purge [bar]	0,5 – 1			
Energy transmission				
Air (compressed air up to 10 ba)	4x	4x	4x	4x
Electrical energy electric signals,, with max. 60V; 1A	6x	6x	10x	10x
Noise emission [dB(A)]	≤ 70	≤ 70	≤ 70	≤ 70



Maximum lateral force

Designation	DDF 2					
	31 31-P	40 40-P	40-1	50 50-P 50-E	50-1	63
max. lateral force F_Q [N]	60	100	200	100	250	350
max. permissible additionally attached mass [kg]	6	10	20	10	25	35
max. dynamic bending moment [Nm]						
M_x	12	25	55	25	60	85
M_y	12	25	55	25	60	85
M_z	8	20	45	20	50	60

Designation	DDF 2					
	80	80-1	100	100-1	125	160
max. lateral force F_Q [N]	1000	1500	1250	1750	2250	2500
max. permissible additionally attached mass [kg]	100	150	125	175	225	250
max. dynamic bending moment [Nm]						
M_x	250	400	290	450	520	550
M_y	250	400	290	450	520	550
M_z	180	300	200	350	400	400

This is the max. total of all loads (acceleration forces and torques, process forces, emergency stops, etc.), which can affect a rotary feed-through.

Ambient conditions and operating conditions

Designation	DDF 2
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.

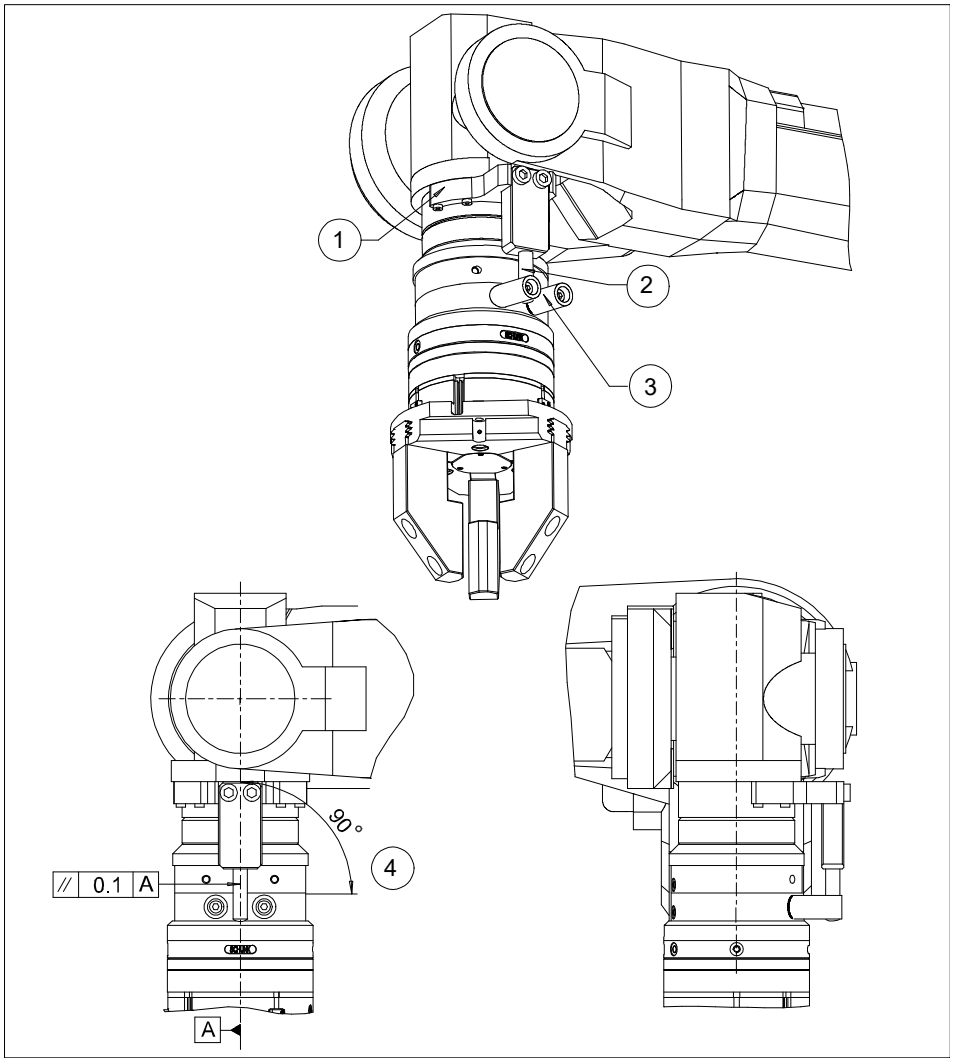
4 Assembly

⚠ 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.



1	The torque support (shaft) must be mounted on the non-moving housing of the robot.
2	Shaft with shaft-Ø ▸ 4.1 [🗋 19]
3	Bracket on the DDF (included in the DDF scope of delivery)

4	The shaft for the torque support (torque pin) should run precisely parallel to the "middle axis" of the DDF and at a "right angle" (90°) to the bracket.

4.1 Mounting the DDF on the robot

Evenness of the mounting surface

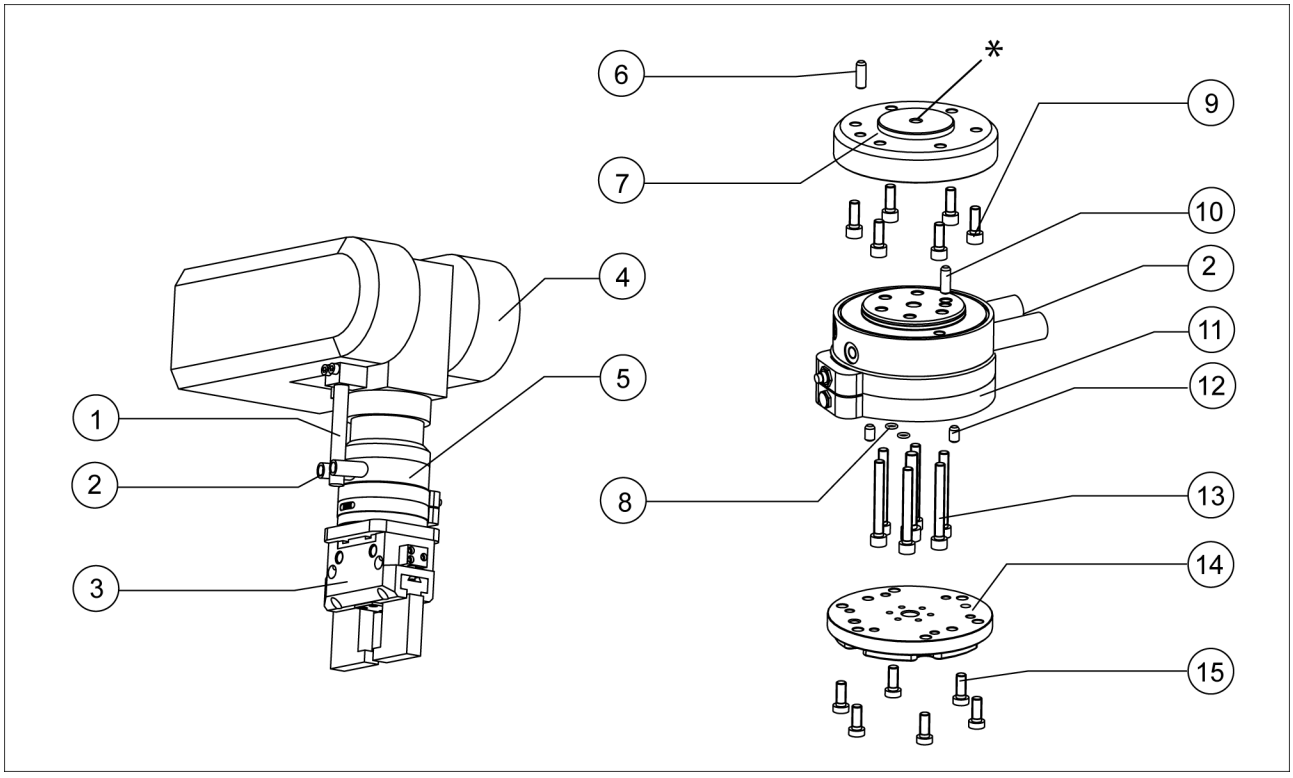
The values apply to the whole mounting surface to which the product is mounted.

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

Tab.: Requirements for evenness of the mounting surface (Dimensions in mm)

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.

Assembly of the DDF



* deduction thread

1	Shaft for torque support
2	DDF bracket
3	Tool, e.g. PGN gripper type from SCHUNK
4	Robot with interface according to DIN ISO 9409
5	Rotary feed-through from SCHUNK
6	Cylindrical pin (in accessory pack)
7	Base with interface according to DIN ISO 9409 for connecting to robot

8	Seals for sealing air ducts between shaft and flange (in accessory pack)
9	Screws for mounting the base on the robot flange (in accessory pack)(number varies depending on the size)
10	Cylindrical pin for positioning the base with shaft
11	Shaft completely pre-assembled
12	Cylindrical pins for positioning the shaft and flange (only in connection with flange (14))
13	Screws for fastening the shaft onto the base (number varies depending on the size)
14	Flange with interface DIN ISO 9409 for tool-mounting (e.g. gripper) (only optional - on special order)
15	Screws for assembly of shaft and flange (only in connection with flange (14))

Type	Shaft-Ø of the torque support
DDF 2 31	Ø 9 mm
DDF 2 40 and 50	Ø 11 mm
DDF 2 40-1 and 50-1	Ø 11 mm
DDF 2 63	Ø 11 mm
DDF 2 80 and 100	Ø 17 mm
DDF 2 80-1 and 100-1	Ø 23 mm
DDF 2 125 and 160	Ø 23 mm

1. Fasten the base (7) on the robot interface with the screws (9) from the accessory pack.The cylindrical pin (6) from the accessory pack can be used for centering the base (7).
2. Insert the cylindrical pin (10) into the base.
3. Place the completely assembled shaft (11) onto the base.
   NOTICE! This pre-assembled unit must not be separated
4. Screw together the shaft (11) and the base (7) with the screws (13).
5. Insert the seals (8 – for sealing the air ducts) and insert the cylindrical pins (12) into the shaft.
6. Fasten the flange (optional, on special order) with the screws (15) onto the shaft (11).

Tab.: Screw tightening torques

Screw	M5	M6	M8	M10	M12
Tightening torque [Nm]	10 Nm	17 Nm	40 Nm	80 Nm	140 Nm

4.2 Connections

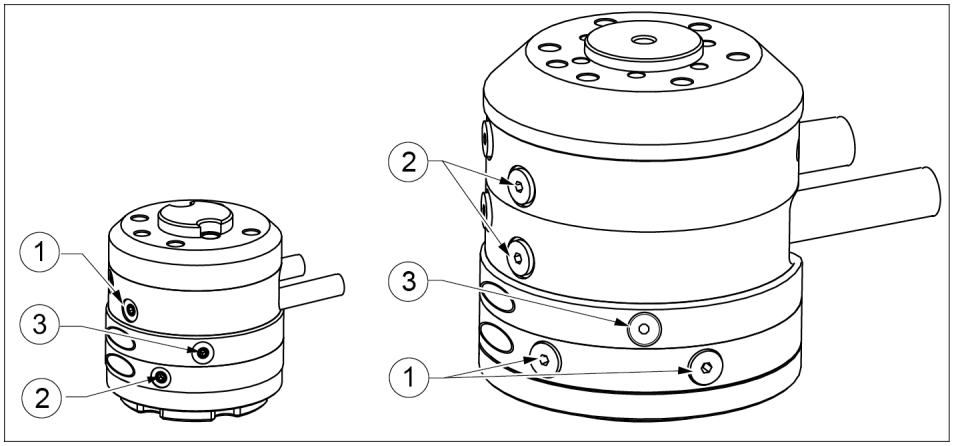
4.2.1 Pneumatic connection

⚠ WARNING

Risk of injury during connection!

- Switch off the energy supply.

The precise positions and options for the pneumatic connections are shown in the SCHUNK catalog.



Pneumatic connections

1	Pneumatic connections on the robot side
2	Pneumatic connections on the tool side
3	Air purge connection

4.2.2 Electrical connection

⚠ WARNING

Risk of injury due to unexpected movements!

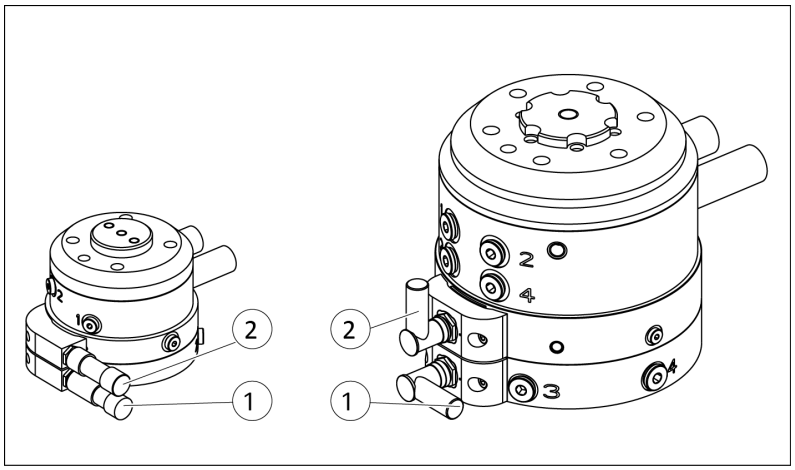
If the power supply is switched on or residual energy remains in the system, components can move unexpectedly and cause serious injuries.

- 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.

NOTE

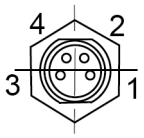
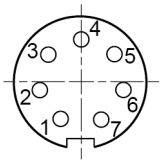
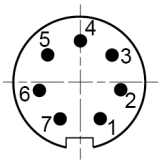
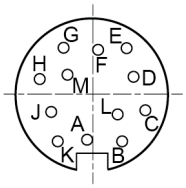
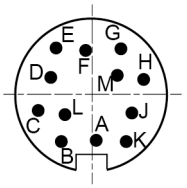
Electrical energy: – max. 60 volts, 1 amp

4.2.2.1 Connector assignment / connection cable

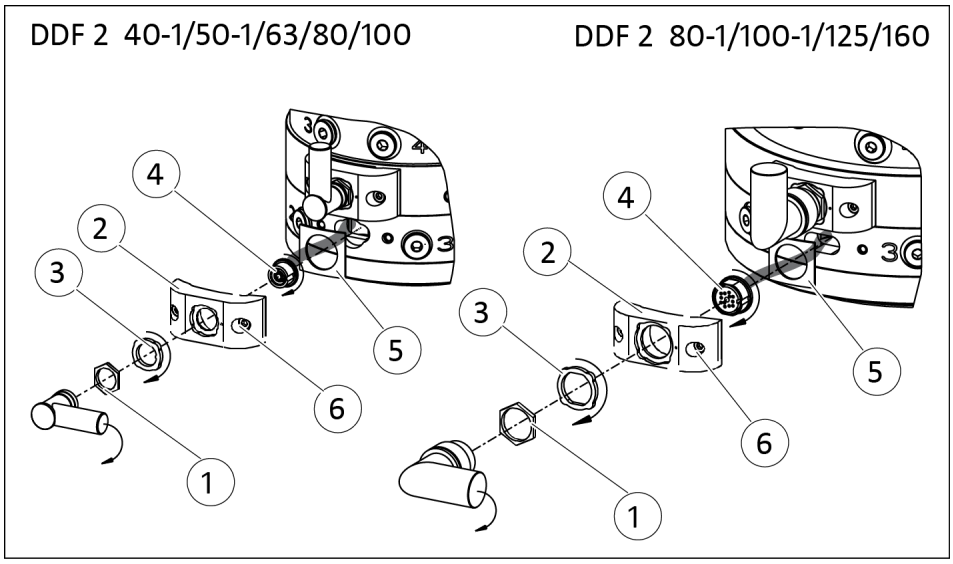


1	Tool side: adapter plate socket
2	Robot side: adapter plate plug

Tab.: Connector assignment, connection cable

Size	Adapter plate socket	Adapter plate plug	Pin no.	Wire strand
DDF 2 31 / 40 / 50			Note: Special cable, please contact SCHUNK.	
DDF 2 40-1 / 50-1 / 63 / 80 / 100			1	White
			2	Brown
			3	Green
			4	Yellow
			5	Grey
			6	Pink
			7	not assigned
DDF 2 80-1 / 100-1 / 125-1 / 125 / 160			A	White
			B	Brown
			C	Green
			D	Yellow
			E	Grey
			F	Pink
			G	Blue
			H	Red
			J	Black
			K	Violet
			L	Grey/Pink, not assigned
			M	Red/Blue, not assigned

4.2.2.2 Repositioning cable outlet



In delivery status the cable outlet is tangentially attached to the tool-side. This position is suitable for SCHUNK cables. If another cable position is required, the cable outlet can be repositioned by turning the flange receptacle.

Turning the flange receptacle

1. If necessary, loosen plugged in cables.
2. Loosen hexagon nut (1) and screws (6).
3. Carefully remove the bracket (2) with ring (3).
4. Pull the flange receptacle (4) carefully out of the rotary feedthrough.
   ATTENTION! Do not tension the cables.
5. Turn ring (3) in the bracket (2) in the desired twisting angle of the flange receptacle (4) (max. possible are 90° steps).
6. Turn the flange receptacle (4) by 90° or 180° and insert it in the bracket (2) with ring (3).
   ATTENTION! Do not turn the cable by more than 360°.
   For the sizes of rotary feed-through 40-1/50-1/63/80/100, the nose of the ring (3) must be in the groove of the flange receptacle (4).
   For the sizes of rotary feed-through 80-1/100-1/125/160, the flattened sides of the flange receptacle must be on the corresponding sides of the ring (3).
7. Slightly tighten the hexagon nut (1) in order to attach the flange receptacle (4) with intermediate ring (3) to the bracket (2).
8. Put the cable carefully into the interior of the rotary feedthrough.
   ATTENTION! Do not bend or clamp the cable.

9. Position the sealing (5) flushly with the bottom side of the rotary feed-through and press the bracket (2) against the rotary feed-through.
10. Glue the screws (6) with screw locking "middle-tight" and tighten them firmly.
11. Firmly tighten the hexagon nut (1).

Turning the flange connector

In order to reposition the cable outlet on the robot-side, the flange connector must be repositioned according to the previously described steps.

5 Troubleshooting

5.1 Product is leaking air during standstill

Possible cause	Corrective action
Air connection not installed correctly.	Tighten air connection. ▶ 4.2.1 [🗋 21]
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 Lubricants/Lubrication points

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

SCHUNK recommends the lubricants listed.

Greasing area	Lubricant
Seals and sealing surfaces	SCHUNK grease 1
Deep groove ball bearing	SCHUNK grease 10

Details regarding SCHUNK lubricant designations are available at **schunk.com/lubricants**.

The product contains food-compliant lubricants as standard. **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.

6.2 Life span of seals and slip rings

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.

Type	Seals	Slip rings
	Revolutions in millions	Revolutions in millions
DDF 2 31	10	6
DDF 2 31P	10	
DDF 2 40	10	6
DDF 2 40P	10	
DDF 2 40-1	10	6
DDF 2 50	10	6
DDF 2 50P	10	
DDF 2 50E		6
DDF 2 50-1	10	6
DDF 2 63	10	6
DDF 2 80	8	5
DDF 2 80-1	6	5
DDF 2 100	8	5
DDF 2 100-1	6	4
DDF 2 125	6	4
DDF 2 160	6	4

Tab.: Life span: Seals/slip rings

6.3 Dismantle product for seal change

6.3.1 Electro-pneumatic and pneumatic feed-through (DDF 2, DDF 2-P)

Position of the item numbers, ▸ 6.5 [🗋 31] et seqq.

Disassembling

1. Remove all compressed air lines.
2. Disconnect the cable connections.
3. Completely unscrew the screws (30).
4. Note: Robot flange (3) and shaft (2) are bolted together (21). Pull the shaft (2) down from the robot flange (3).
5. Unscrew the screws (44).
6. Note: The tool flange (1) and shaft (2) are screwed (22) and bolted (20) together.
   Carefully pull the tool flange (1) out from the shaft (2)
7. Unscrew the screws (22).
8. Carefully pull the tool flange (1) out from the shaft (2).
9. Slide the shaft (2) carefully out of the ring (4).
10. Unscrew the screws (17).
11. Slide the sleeves (10 and 14) with the seals carefully out of the ring (4). Pay attention to the sequence of the sleeves.
12. *For electro-pneumatic feed-through:*
    IMPORTANT! Do not touch the contacts of the slip ring unit on the rotor (70) and do not allow impacts to the components. Carefully remove the rotor (70).
13. Remove all seals according to the sealing kit list, ▸ 1.5 [🗋 8].

6.3.2 Electrical feed-through (DDF 2-E)

Position of the item numbers, ▶ 6.5 [🗋 31] et seqq.

Disassembling

1. Disconnect the cable connections.
2. Completely unscrew the screws (30).
3. Note: Tool flange (1) and robot flange (13) are bolted together (21).
   Carefully pull the tool flange (1) down from the robot flange (13).
4. *For DDF 2-31-E:*completely unscrew the screws (22).
5. Unscrew the screws (47) and remove the clamping disc (38).
6. Unscrew the screws (46) and remove the washer (37).
7. Remove bearing (54), clamping sleeve (36) and sealing ring (104).
8. Unscrew washer (8 or 37).
9. **IMPORTANT! Do not touch the contacts of the slip ring on the rotor (70) and do not allow impacts to the components.**
   Carefully remove the rotor (70).
10. Remove all seals according to the sealing kit list, ▶ 1.5 [🗋 8].

6.4 Servicing and assembling the product

Maintenance

1. Clean all parts thoroughly and check for damage and wear.
2. Replace all wear parts / seals.
   ⇨ The seals are in the enclosed sealing kit. ▸ 1.5 [🗋 8]
3. Treat all greased areas with lubricant. ▸ 6.1 [🗋 26]
4. Oil or grease bare external steel parts.

Assembly

Assembly takes place in the opposite order to disassembly. Observe the following:

CAUTION

Do not damage seals during assembly!

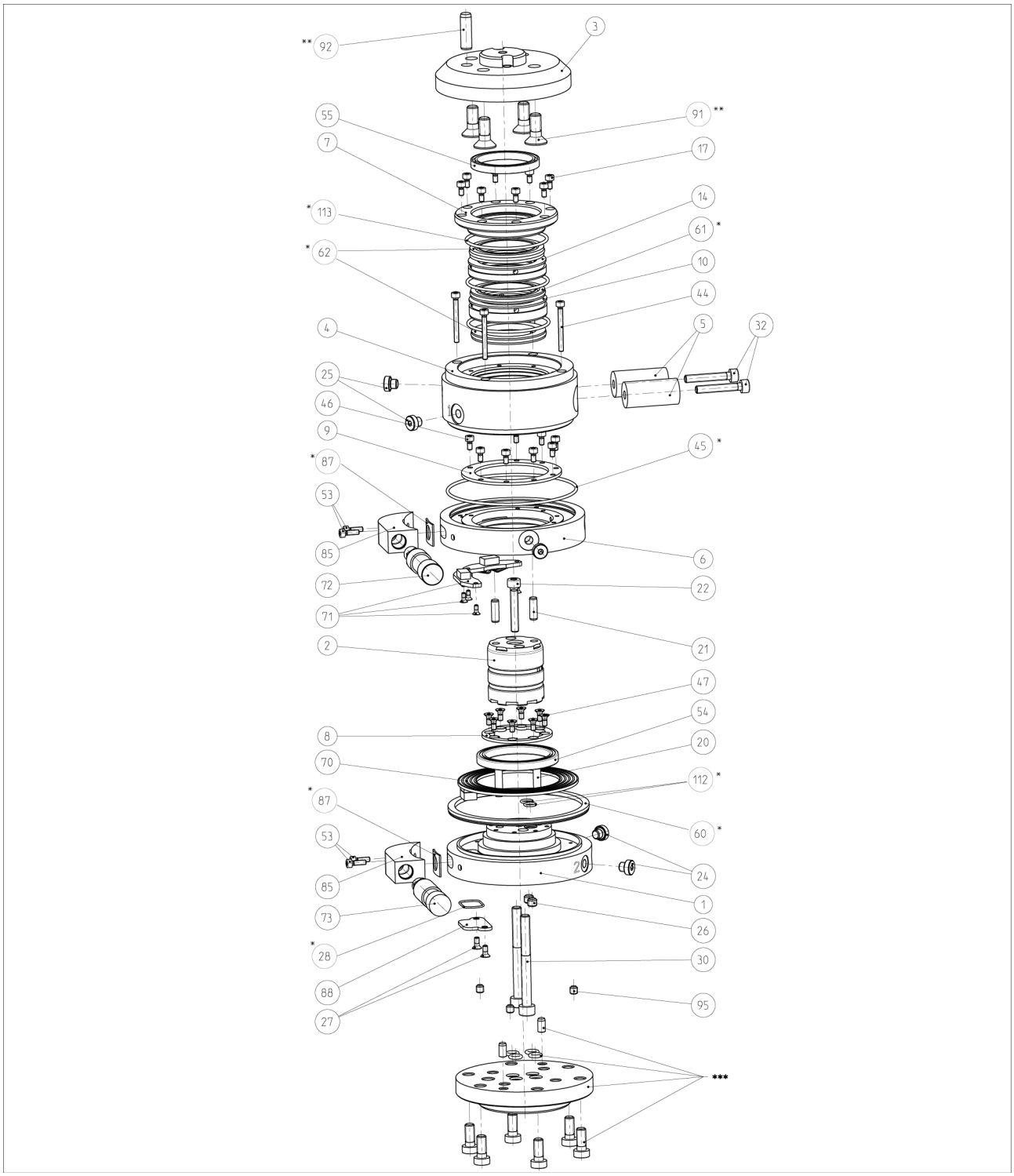
- Unless otherwise specified, secure all screws and nuts with Loctite no. 243 and tighten with the appropriate tightening torque.

Tab.: Screw tightening torques

Screw	M5	M6	M8	M10	M12
Tightening torque [Nm]	10 Nm	17 Nm	40 Nm	80 Nm	140 Nm

6.5 Assembly drawings

6.5.1 Assembly drawing DDF 2 31/40/50



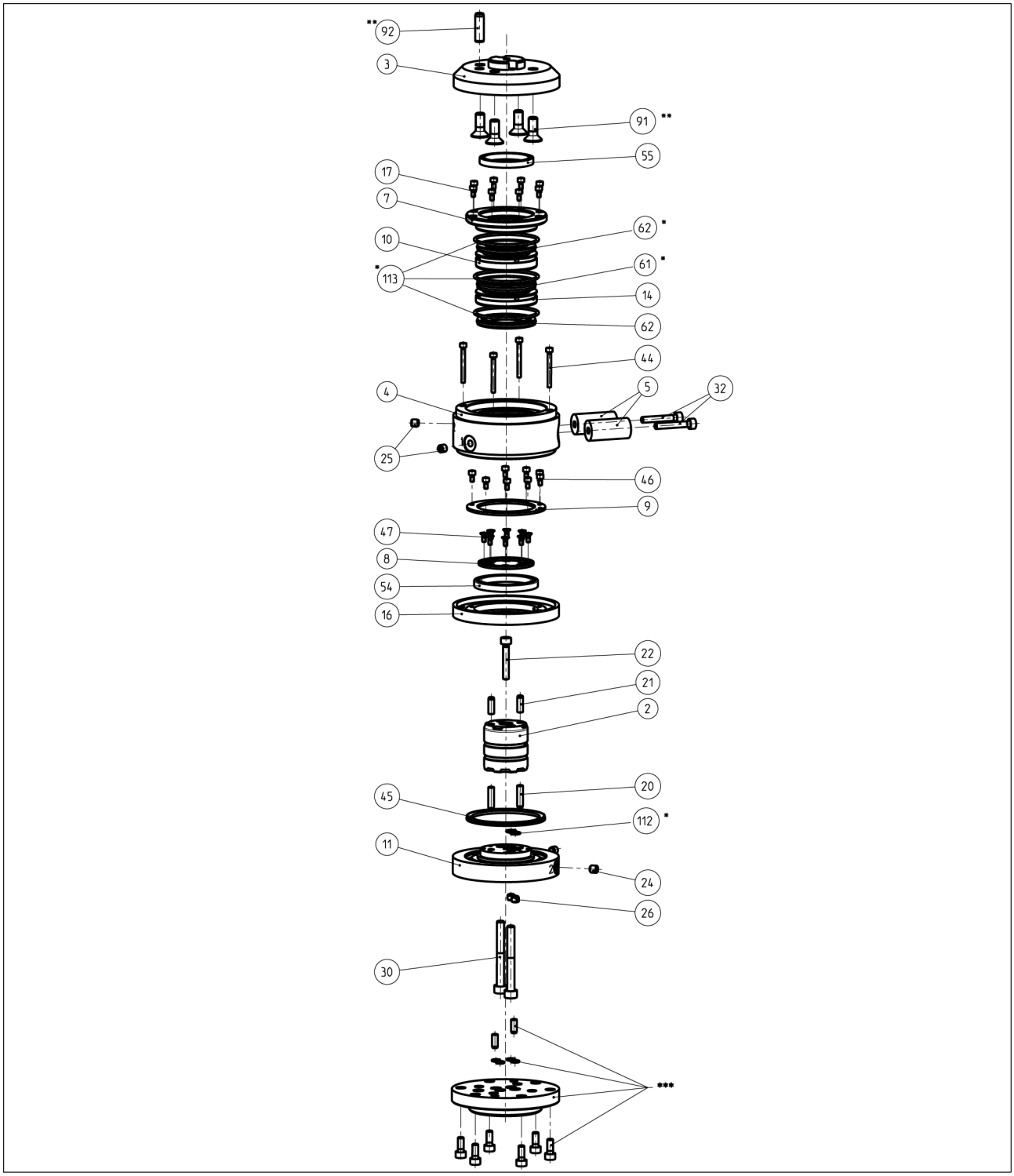
Assembly drawing DDF 2 31/40/50

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

** Contained in accessory pack.

*** Optional – only in connection with item 82

6.5.2 Assembly drawing DDF 2 31P/40P/50P



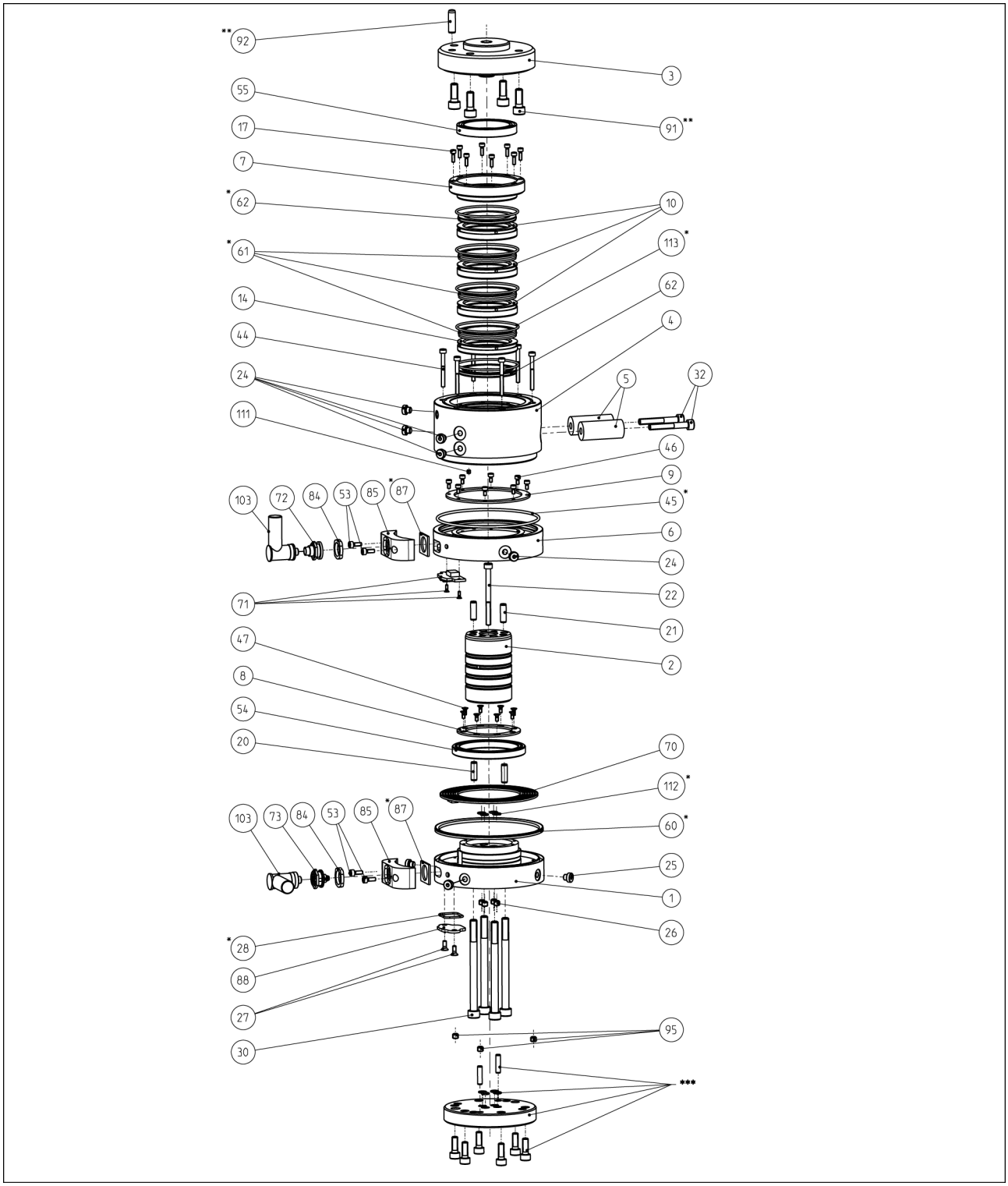
Assembly drawing DDF 2 31P/40P/50P

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

** Contained in accessory pack.

*** Optional – only in connection with item 82

6.5.3 Assembly drawing DDF 2 40-1/50-1/63



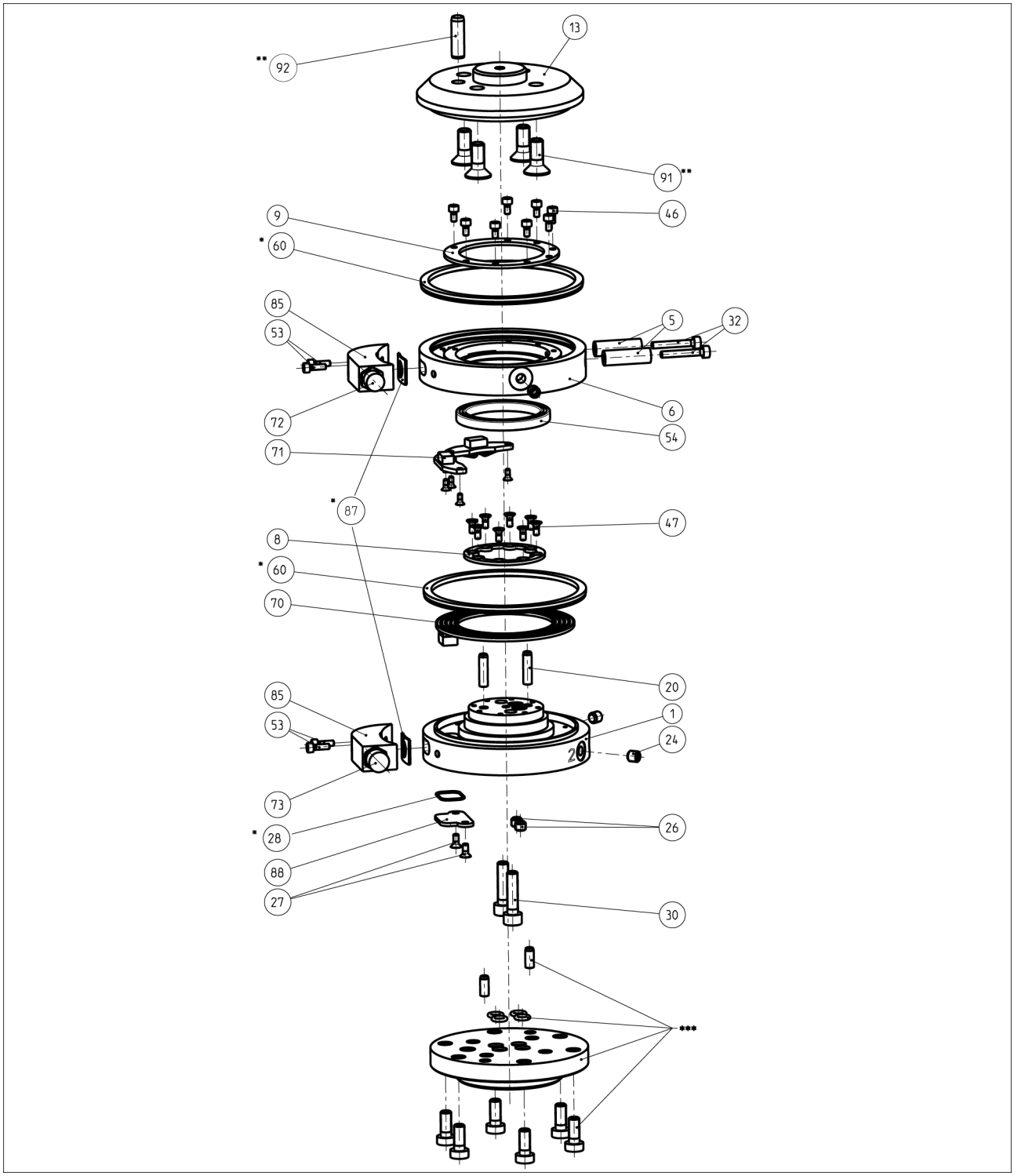
Assembly drawing DDF 2 40-1/50-1/63

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

** Contained in accessory pack.

*** Optional – only in connection with item 82

6.5.4 Assembly drawing DDF 2 50E



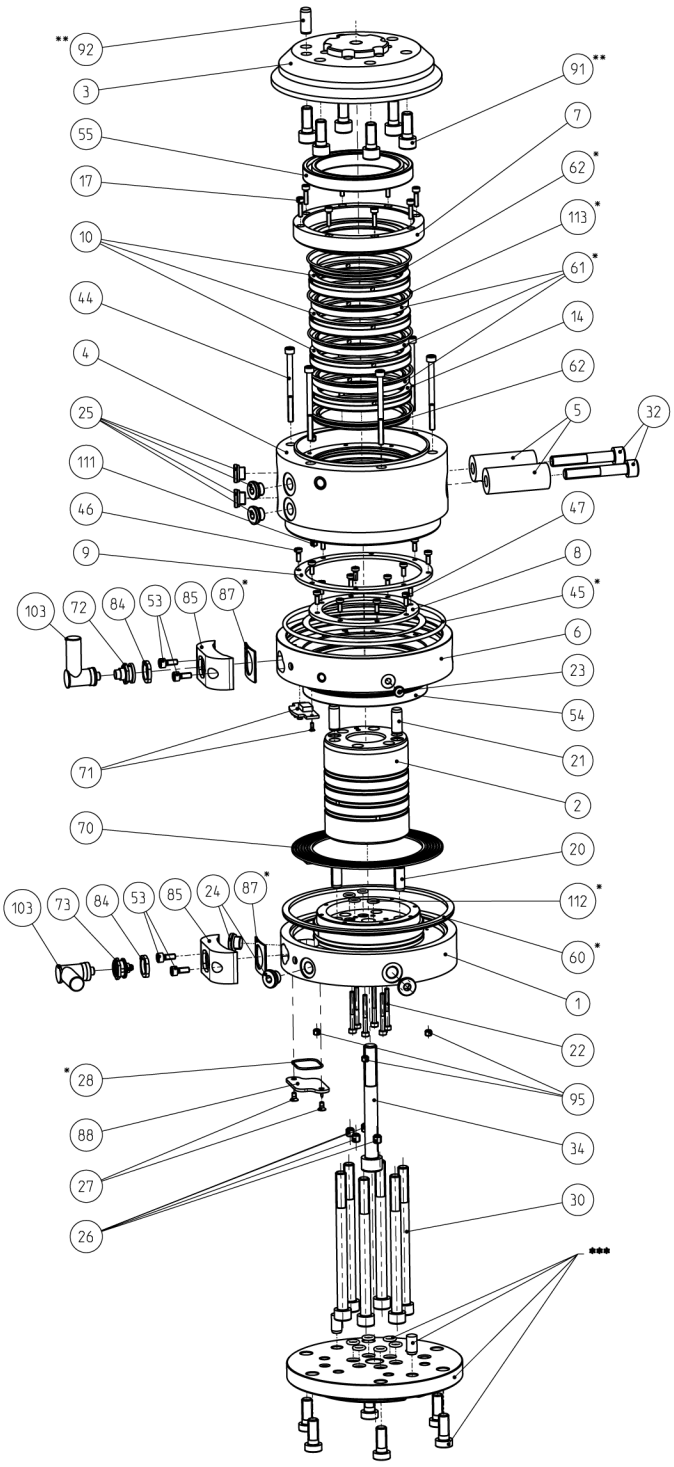
Assembly drawing DDF 2 40E/50E

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

** Contained in accessory pack.

*** Optional – only in connection with item 82

6.5.5 Assembly drawing DDF 2 80/100/125/160/80-1/100-1



Assembly drawing DDF 2 80/100/125/160/80-1/100-1

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

** Contained in accessory pack.

*** Optional – only in connection with item 82

7 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 2 /electro-pneumatic
ID number	0323034–0323036, 0323038, 0323039, 0323046, 0323048, 0323056, 0323058–0323060, 0323068–0323070, 0323070, 0323082, 0323083, 0323092, 0323112–0323115, 0323133, 0323134, 0323137, 0323162, 0323163, 0323173

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

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

Lauffen/Neckar, October 2024

8 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:	Rotary feed-through / DDF 2 / electro-pneumatic
ID number	0323034-0323036, 0323038, 0323039, 0323046, 0323048, 0323056, 0323058-0323060, 0323068-0323070, 0323070, 0323082, 0323083, 0323092, 0323112-0323115, 0323133, 0323134, 0323137, 0323162, 0323163, 0323173

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

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

Lauffen/Neckar, October 2024

9 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

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

Lauffen/Neckar, October 2024

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