

Up to 85% higher Service Life due to efficient sealing method.



Feeding through



DDF 2 Rotary Feed-through

Series	Size	Page
DDF 2		348
DDF 2	031	352
DDF 2	040	356
DDF 2	040-1	360
DDF 2	050	364
DDF 2	050-1	368
DDF 2	063	372

Series	Size	Page
DDF 2	080	376
DDF 2	080-1	380
DDF 2	100	384
DDF 2	100-1	388
DDF 2	125	392
DDF 2	160	396



DDF-SE Stationary Rotary Feed-through

Series	Size	Page
DDF-SE		400
DDF-SE	80	404
DDF-SE	120	406

DDF 2

Robot Accessories | Feeding through | Rotary Feed-through

Powerful. Flexible. Energy-efficient.

DDF 2 Rotary Feed-through

For media feed-through of electric signals and pneumatics for use on robots with infinite rotation.

Field of Application

Robot applications with unlimited rotational movement



Advantages – Your benefit

Combined air- and electrical feed-through for extensive supply to your gripper system / tool

ISO flange pattern for easy assembly to most types of robots without needing additional adapter plates

Complete series of 12 sizes for best selection of size

Electric plug contacts for easy change in case of cable break at the robot arm or gripper

Steel shaft adapted power specifications for modern robot types

Three compensation directions in one unit Variant 1: For feeding pneumatic and electric signals, Variant 2: For feeding pneumatics, Variant 3: For feeding electric signals

New, smooth-running and particularly long lasting seals ensure a low starting and continuous torque, so that smaller and more economical drives can be used and particularly gentle rotary movements are possible.



Sizes
Quantity: 12



max. rotational
speed
90 .. 120 1/min



Pneumatic
feed-through



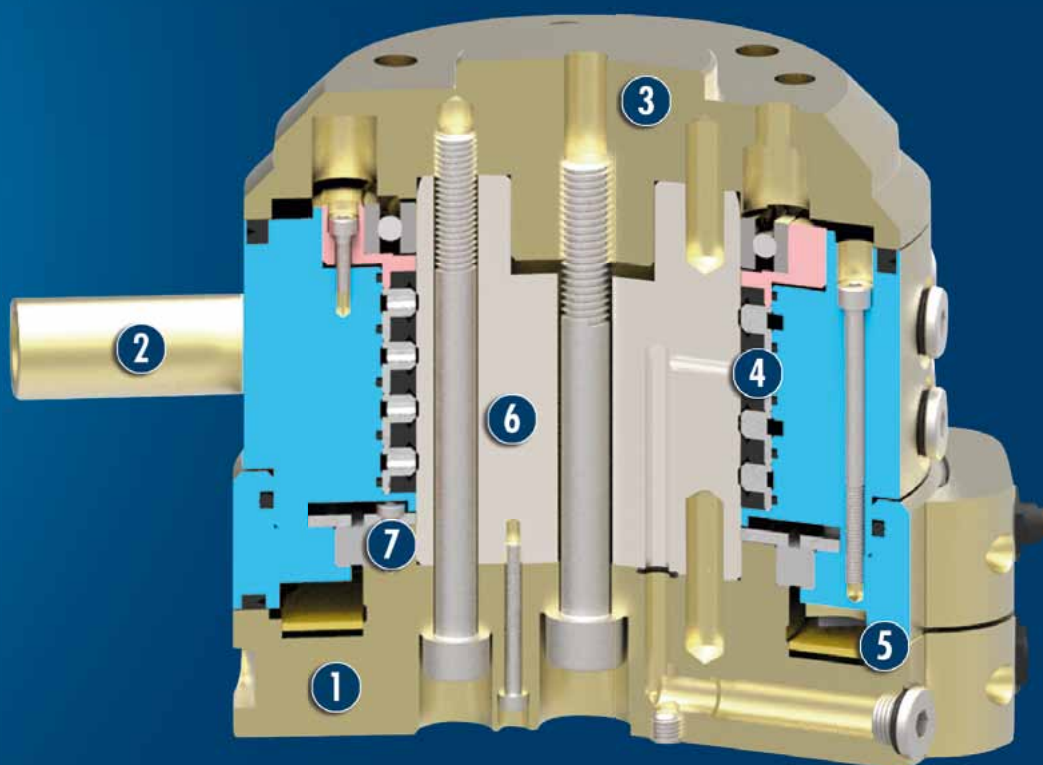
Electric
feed-through
4 .. 10

Functional Description

The DDF 2 facilitates rotation of the robot axis by more than 360°, without hoses and cables twisting around the axis. Integrated air feed-throughs and slip ring contacts reliably supply the tool with power, even at high speeds. The integrated ISO flange is mounted on the robot's manual flange. A ring surrounds the shaft. The ring is connected to a non-rotating part of the robot via a torque

support. When the robot flange turns, the shaft turns in the ring.

A slip ring which is integrated in the shaft and the housing, thereby transmits electrical signals from the fixed housing into the rotating shaft. Electrics and up to four pneumatic lines are fed-through.



- ① **Housing**
Weight-optimized through application of high-strength aluminum alloy
- ② **Torque support**
for torque support at the robot
- ③ **ISO flange**
for easy assembly on the robot flange
- ④ **Pneumatic feed-through**
for supply of grippers, linear units, and other end-effectors
- ⑤ **Slip ring**
for feed-through of up to ten electric signals
- ⑥ **Steel Shaft**
for transmission of the rotary movement
- ⑦ **Rolling-contact bearing**
for transmission of the finger movement without any backlash

CAD data, operating manuals and other current product documents are available at www.schunk.com

General Notes about the Series

Mounting: Standardized ISO 9409 interface (robot-side)

Pass through: Pneumatic and electrical signals

Housing: High-strength, hard-coated aluminum alloy

Scope of delivery: Cable connector, small components for mounting, operating and maintenance instructions, manufacturer's declaration

Warranty: 24 months (details, general terms and conditions and operation manuals can be downloaded at www.schunk.com)

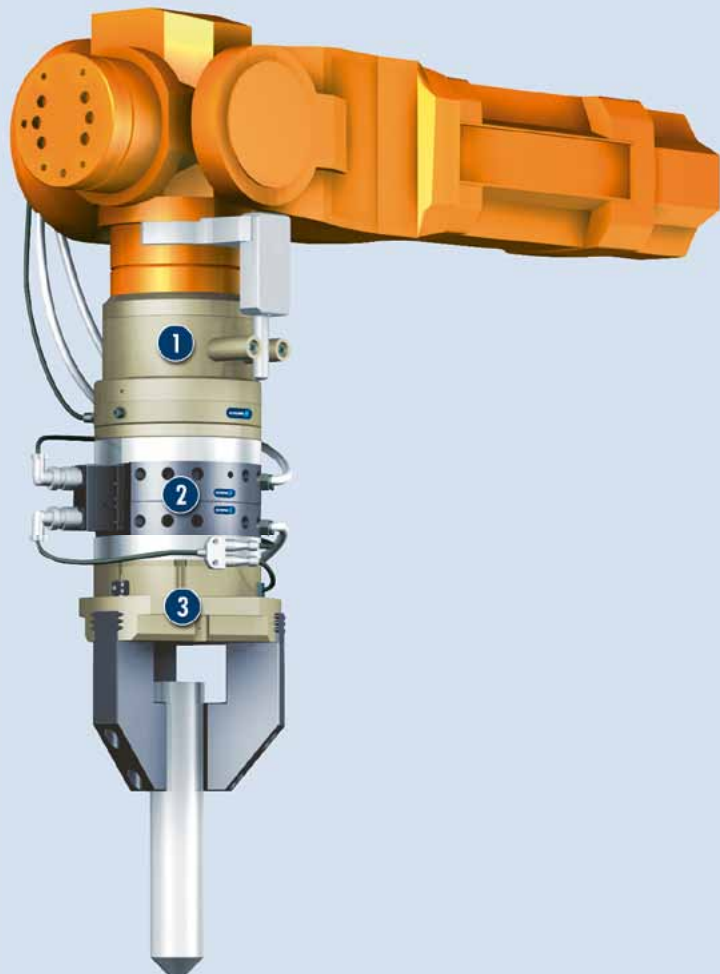
Harsh environmental conditions: Please note that the use in harsh environmental conditions (e.g. in the coolant area, cast and grinding dust) can considerably reduce the service lifetime of the units, and will void warranty. However, in many cases we already have solutions. Please contact us.

Handling weight: The weight of the total load attached to the flange. The design must take into account the permissible forces and moments. Please note that the life span will be reduced if the maximum handling weight is exceeded.

Application example

Insertion tool for assembling small to medium-sized axes. Due to the rotary feed-through, the axes can be turned several times to an unlimited extent (> 360°). Slip ring contacts integrated in the rotary feed-through reliably supply the gripper with power.

- ① DDF 2 Rotary Feed-through
- ② SWS Quick-change System
- ③ PZN-plus 3-Finger Centric Gripper



SCHUNK offers more ...

The following components make the product DDF 2 even more productive – the suitable addition for the highest functionality, flexibility, reliability, and controlled production.



Extension Cable



Adapter plates



Fittings



Quick-change System



Centric Gripper



Parallel Gripper



Compensation unit



Angular Gripper

① Further information regarding the products can be found on the following products pages or at www.schunk.com. Please contact us for further information: SCHUNK technical hotline +49-7133-103-2696

Options and special Information

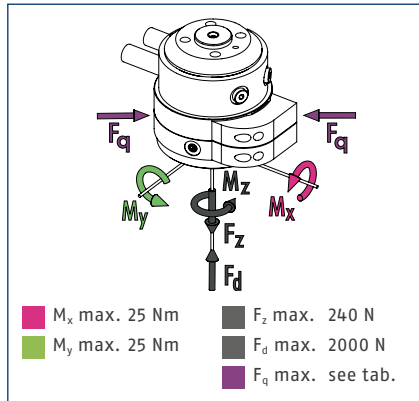
Version with pneumatic and electrical feed-throughs: 2 to 4 pneumatic feed throughs for up to 10 bar and 4 to 10 electrical feed-throughs for 1 A/60 V signals

Version with pneumatic feed-throughs: 2 to 4 pneumatic feed-throughs for up to 10 bar

Version with electrical feed-throughs: 4 to 10 electrical feed-throughs for 1 A/60 V signals

Suitable for pressure and vacuum applications: Please contact us for further information.

Forces and moments



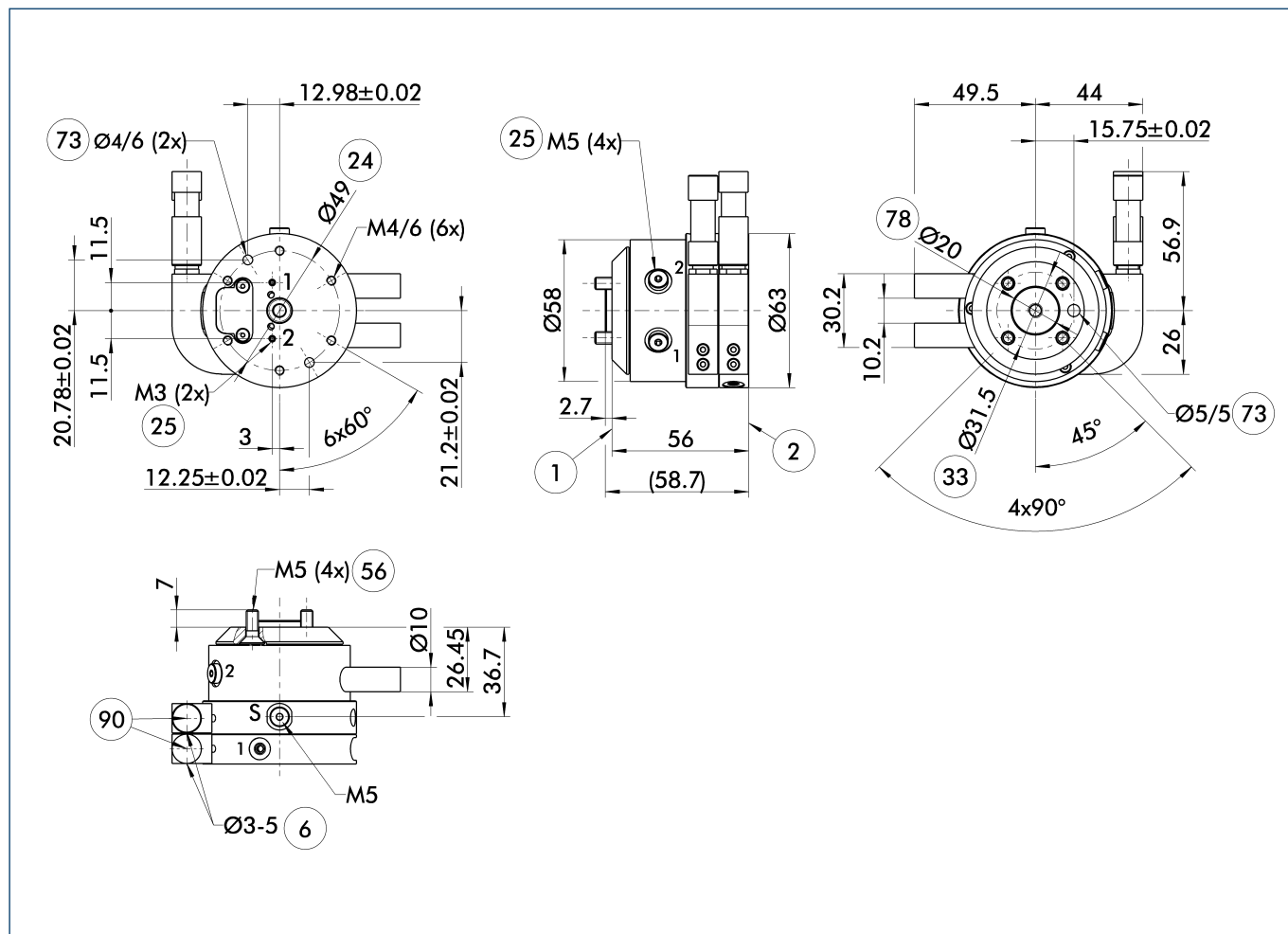
① Maximum allowable static forces and moments which are allowed to act on the rotary feed through.

Technical data

Description		DDF 2-031-P2-E4	DDF 2-031-P2	DDF 2-031-E4
ID		0323034	0323035	0323036
max. payload	[kg]	6	6	6
max. rotational speed	[1/min]	120	120	120
max. rotational speed	[°/s]	720	720	720
Continuous torque	[Nm]	0.8	0.8	0.5
Starting torque	[Nm]	1.3	1.3	0.7
Rotary movement	[°]	> 360	> 360	> 360
Air connection thread pneumatic feed-through		2x M5	2x M5	
max. pressure per connection	[bar]	10	10	
Rate of flow at 6 bar (per channel)	[l/min]	100	100	
Number of electrical feed-throughs		4		4
Voltage	[V]	60		60
Current strength	[A]	1		1
Mass	[kg]	0.5	0.45	0.35
Robot side connection		ISO 9409-1-31.5-4-M5	ISO 9409-1-31.5-4-M5	ISO 9409-1-31.5-4-M5
min. / max. ambient temperature	[°C]	5/60	5/60	5/60
max. dynamic moment M_x^*	[Nm]	15	15	15
max. dynamic moment M_y^*	[Nm]	15	15	15
max. dynamic torsional moment M_z^*	[Nm]	10	10	10
max. lateral force F_q^*	[N]	60	60	60

① *This is the max. total of all loads (acceleration forces and torques, process forces, emergency stops, etc.), which can affect a rotary feed-through, in order to guarantee error-free function.

Main view DDF 2 with electric and pneumatic feed through



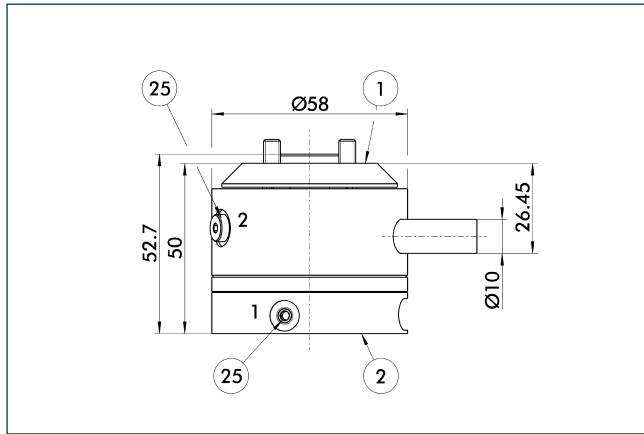
The main view shows the DDF 2 without consideration for following options but with pneumatic and electrical feed-throughs including connector for robot side and tool side. These are included with delivery.

- | | | | |
|----|--------------------------------------|----|---|
| S | Air purge connection (0.5 ... 1 bar) | 33 | DIN ISO-9409 bolt-hole circle diameter |
| 1 | Robot side connection | 56 | Included in delivery |
| 2 | Tool side connection | 73 | Fit for centering pins |
| 6 | Cable diameter to be used | 78 | Fitting for centering |
| 24 | Bolt circle | 90 | Cable connectors/sockets included in the accessory pack |
| 25 | Pneumatic feed-through | | |

DDF 2 031

Robot Accessories | Feeding through | Rotary Feed-through

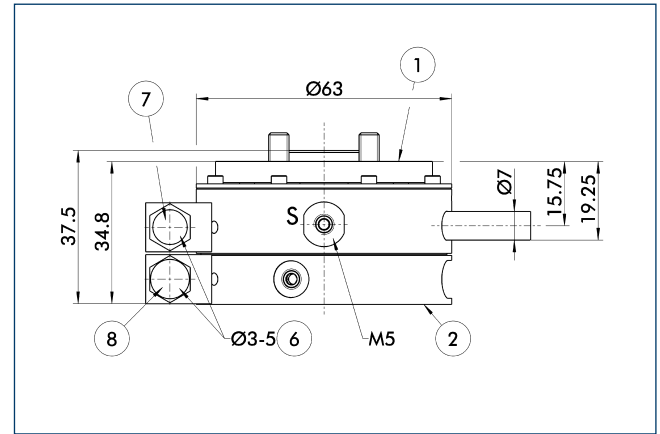
Version DDF 2 with only pneumatic feed through



- ① Robot side connection
- ② Tool side connection
- ②⑤ Pneumatic feed-through

Dimensional changes for the version with "only pneumatic feed through".

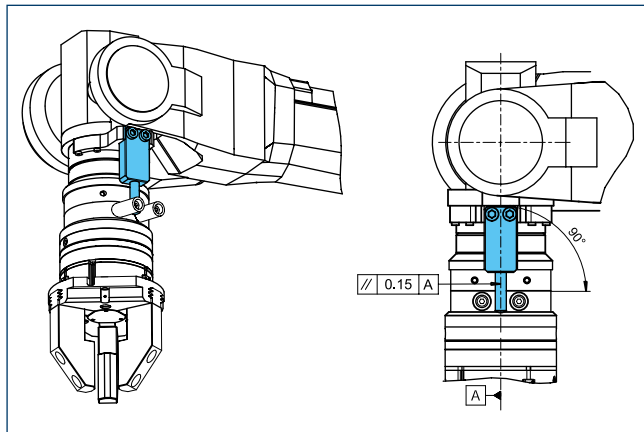
Version DDF 2 with only electrical feed through



- S Air purge connection (0.5 ... 1 bar)
- ① Robot side connection
- ② Tool side connection
- ⑥ Cable diameter to be used
- ⑦ Cable socket in the accessories kit
- ⑧ Cable connector in the accessories kit

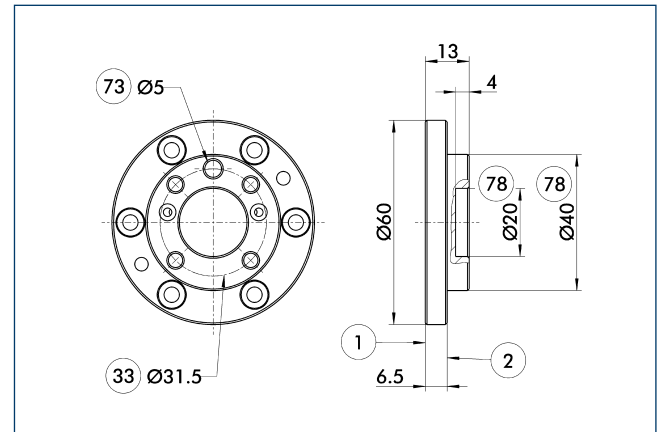
Dimensional changes for the version with "only pneumatic feed through".

Mounting instruction



Design note for customer provided torque support.

DDF 2-031-T adapter plates



- ① Robot side connection
- ② Tool side connection
- ③③ DIN ISO-9409 bolt-hole circle diameter
- ⑦③ Fit for centering pins
- ⑦⑧ Fitting for centering

Tool-side adapter plate with ISO 9409 screw connection pattern.

Description	ID	Height [mm]
Tool-side		
A-DDF 2-031-T	0323220	13

