High flow rate. Loadable. Bus capable.

Rotary feed-through DDF-I

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

Field of Application

Robot applications and rotary indexing table with unlimited rotational movement

Advantages – Your benefit

Combined pneumatic, vacuum and electrical feed-through for extensive supply to your gripping system / tool

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

Integrated Bus-Technology for secure transmission of bus signals

Steel shaft adapted performance data for modern robot types

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.

Standardized connection for Profibus for easy change in case of cable break at the robot arm or gripper

Sizes	max. rotational speed	Pneumatic feed-through	Electric feed-through
Quantity: 3	120 1/min	1	4

Functional Description

The DDF-I allows infinite rotation of the robot axis, without hoses and cables twisting around the axis. Integrated pneumatic / vacuum feed-throughs and slip ring contacts reliably supply the tool with power, even at high speeds.

Due to their bus technology, valve clusters, sensors, mechatronic components or other actuators downstream of the rotational axis of the DDF-I can be actuated simply and directly.

① **Housing**
weight-optimized through application of high-strength aluminum alloy

② **Torque support**
for safe absorption of the torque

③ **ISO flange**
for easy assembly on the robot flange

④ **Feed-through**
for pneumatics and vacuum, for supplying grippers, stroke units, etc.

⑤ **Electrical transmission**
for secure transmission of signals

⑥ **Center bore**
for feed-through of parts, camera, laser beams, etc.

General Notes to 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: 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 under harsh environmental conditions (e.g. in the coolant area, cast and grinding dust) can considerably reduce the service lifetime of the units, and we will not take over any warranty. However, in many cases we can find a solution. 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

A gripper to handle several components. It can be exchanged by the Quick-change system SWS-I with integrated micro valve technology without having to use any further valve assembly. BUS-technology and air pass through, integrated into the DDF-I, supply the gripper securly with energy.

1. Rotary Feed-through DDF-I
2. Quick-Change System SWS-I
3. Universal Gripper PGN-plus

SCHUNK offers more ...

The following components make the DDF-I even more productive – the perfect complement for highest functionality, flexibility and process reliability.

Quick-Change System SWS

Compensation Unit AGE-XY

Servo-electric 2-Finger Parallel Gripper PG

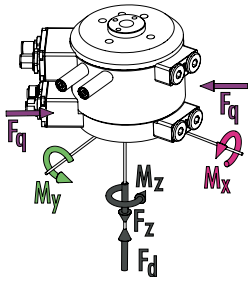
Servo-electric 2-Finger Parallel Gripper WSG

ⓘ 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

DDF-I 040

Feeding through | Rotary Feed-through

Forces and Moments



M_x max. 60 Nm	F_z max. 800 N
M_y max. 60 Nm	F_d max. 4000 N
M_z max. 40 Nm	F_q max. 200 N

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

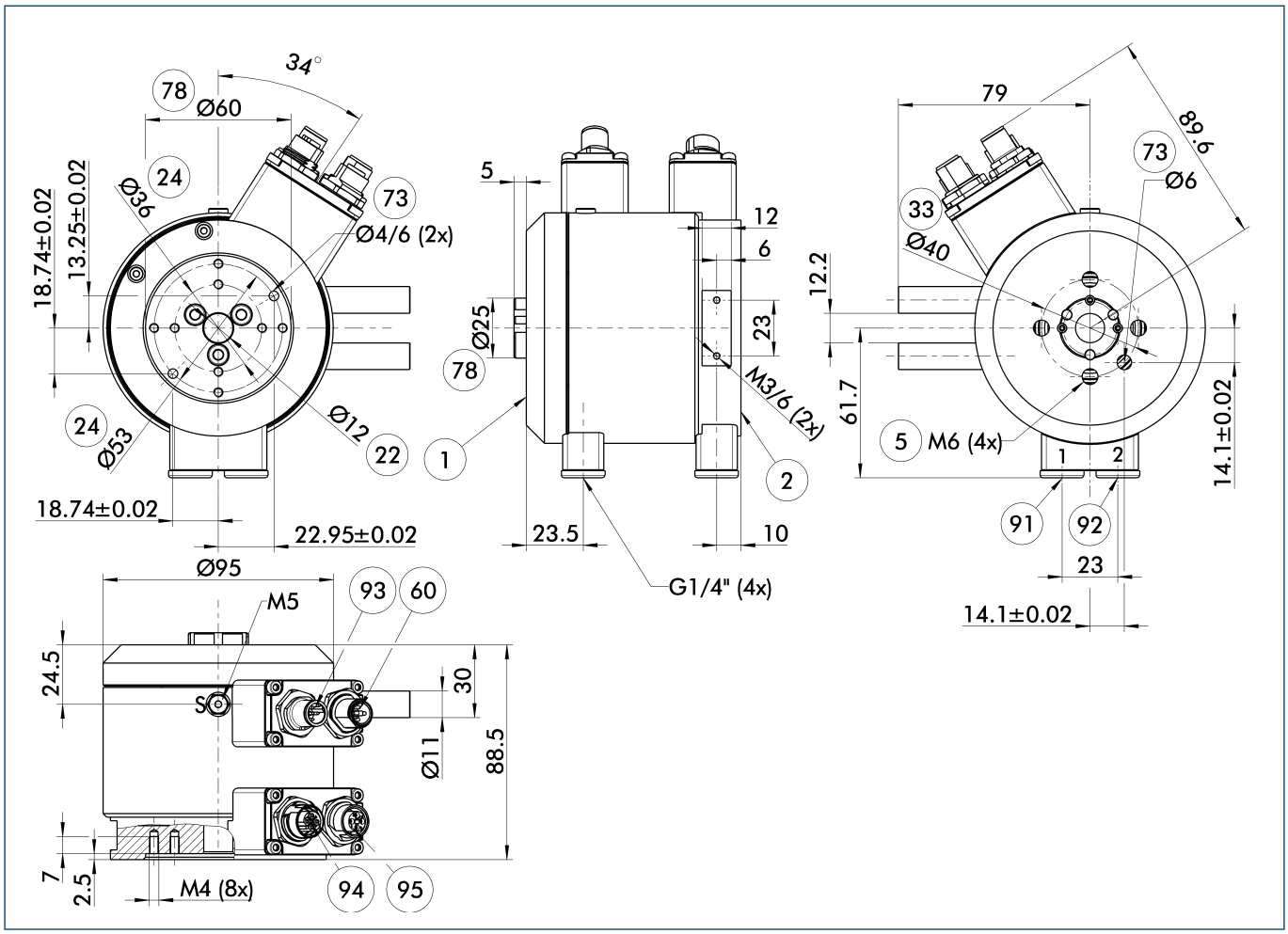
Technical data

Description		DDF-I-040-V1-P1	DDF-I-040-P1
ID		0325040	0325043
max. payload	[kg]	20	20
max. rotational speed	[1/min]	120	120
max. rotational speed	[°/s]	720	720
Continuous torque	[Nm]	2.5	2.5
Starting torque	[Nm]	3.5	3.5
Rotary movement	[°]	> 360	> 360
Weight	[kg]	1.9	1.9
Robot side connection		ISO 9409-1-40-4-M6	ISO 9409-1-40-4-M6
min. / max. ambient temperature	[°C]	5/60	5/60
Number of pneumatic feed-throughs		1	1
Number of fluid feed-throughs		1	
max. pressure per connection	[bar]	10	10
Rate of flow at 6 bar (per channel)	[l/min]	500	1000
Bus signal feed-through (2x)			
Voltage	[V DC]	48	48
Current strength	[A]	0.5	0.5
Supply feed-through (2x)			
Voltage	[V DC]	48	48
Current strength	[A]	4	4

ⓘ Use of the DDF-I in Profibus installations
By design, the usual standards for signal cables in bus installations can be fulfilled to a limited extent. Also, neither the signal runtime nor the dampening of the signal can be defined exactly (see the Operating Manual for details).
The following measures are recommended for optimal transmission of Profibus signals:

- The number of participants downstream of the slip ring should be limited and the cable length kept to a minimum from as early as the system design stage.
- If heavy reflections still occur, the transmission rate should be reduced or special devices installed to prepare the communication signals for transmis-sion using sliding contacts (power rail boosters).

Main view



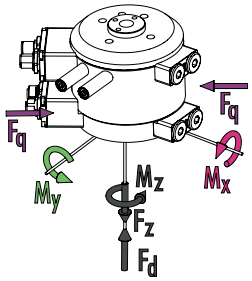
The main view shows the unit in its basic version.

S Air purge connection (0.5 ... 1 bar)
1 Robot side connection
2 Tool side connection
5 Through hole for screwing on with screws
22 Center bore
24 Bolt circle
33 DIN ISO-9409 bolt-hole circle diameter
60 Power connection plug, T-coded
73 Fit for a centering pin
78 Fitting for centering
90 Profibus connection plug, B-coded
91 Vacuum feed-throughs
92 Air feed-through
93 Profibus connection plug, B-coded
94 Profibus socket connector, B-coded
95 Power socket connector, T-coded

DDF-I 050

Feeding through | Rotary Feed-through

Forces and Moments



M_x max. 60 Nm	F_z max. 800 N
M_y max. 60 Nm	F_d max. 4000 N
M_z max. 40 Nm	F_q max. 200 N

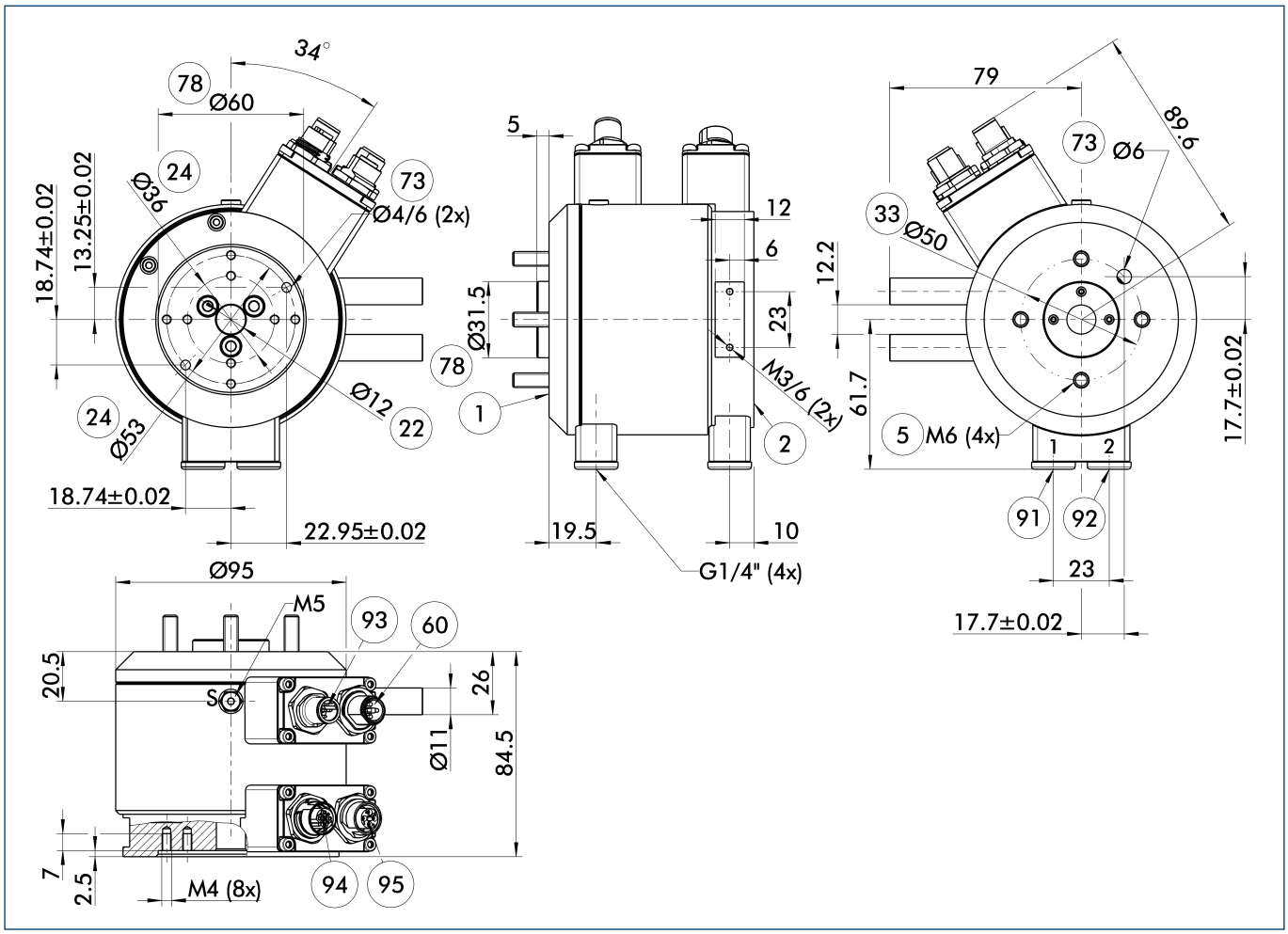
ⓘ This is the max. total of all loads (accelera-tion forces and torques, process forces etc.), which can affect a rotary feed-through, in order to guarantee error-free function.

Technical data

Description		DDF-I-050-V1-P1	DDF-I-050-P1
ID		0325041	0325044
max. payload	[kg]	20	20
max. rotational speed	[1/min]	120	120
max. rotational speed	[°/s]	720	720
Continuous torque	[Nm]	2.5	2.5
Starting torque	[Nm]	3.5	3.5
Rotary movement	[°]	> 360	> 360
Weight	[kg]	1.9	1.9
Robot side connection		ISO 9409-1-50-4-M6	ISO 9409-1-50-4-M6
min. / max. ambient temperature	[°C]	5/60	5/60
Number of pneumatic feed-throughs		1	1
Number of fluid feed-throughs		1	
max. pressure per connection	[bar]	10	10
Rate of flow at 6 bar (per channel)	[l/min]	500	1000
Bus signal feed-through (2x)			
Voltage	[V DC]	48	48
Current strength	[A]	0.5	0.5
Supply feed-through (2x)			
Voltage	[V DC]	48	48
Current strength	[A]	4	4

ⓘ Use of the DDF-I in Profibus installations
By design, the usual standards for signal cables in bus installations can be fulfilled to a limited extent. Also, neither the signal runtime nor the dampening of the signal can be defined exactly (see the Operating Manual for details).
The following measures are recommended for optimal transmission of Profibus signals:
- The number of participants downstream of the slip ring should be limited and the cable length kept to a minimum from as early as the system design stage.
- If heavy reflections still occur, the transmission rate should be reduced or special devices installed to prepare the communication signals for transmis-sion using sliding contacts (power rail boosters).

Main view



The main view shows the unit in its basic version.

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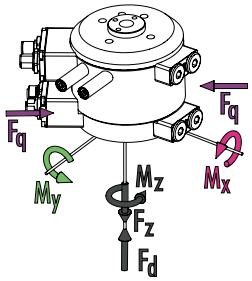
95 Power socket connector, T-coded

DDF-I 063

Feeding through | Rotary Feed-through

Forces and Moments



M_x max. 60 Nm	F_z max. 800 N
M_y max. 60 Nm	F_d max. 4000 N
M_z max. 40 Nm	F_q max. 200 N

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

Technical data

Description		DDF-I-063-V1-P1	DDF-I-063-P1
ID		0325042	0325045
max. payload	[kg]	20	20
max. rotational speed	[1/min]	120	120
max. rotational speed	[°/s]	720	720
Continuous torque	[Nm]	2.5	2.5
Starting torque	[Nm]	3.5	3.5
Rotary movement	[°]	> 360	> 360
Weight	[kg]	1.9	1.9
Robot side connection		ISO 9409-1-63-4-M6	ISO 9409-1-63-4-M6
min. / max. ambient temperature	[°C]	5/60	5/60
Number of pneumatic feed-throughs		1	1
Number of fluid feed-throughs		1	
max. pressure per connection	[bar]	10	10
Rate of flow at 6 bar (per channel)	[l/min]	500	1000
Bus signal feed-through (2x)			
Voltage	[V DC]	48	48
Current strength	[A]	0.5	0.5
Supply feed-through (2x)			
Voltage	[V DC]	48	48
Current strength	[A]	4	4

ⓘ Use of the DDF-I in Profibus installations
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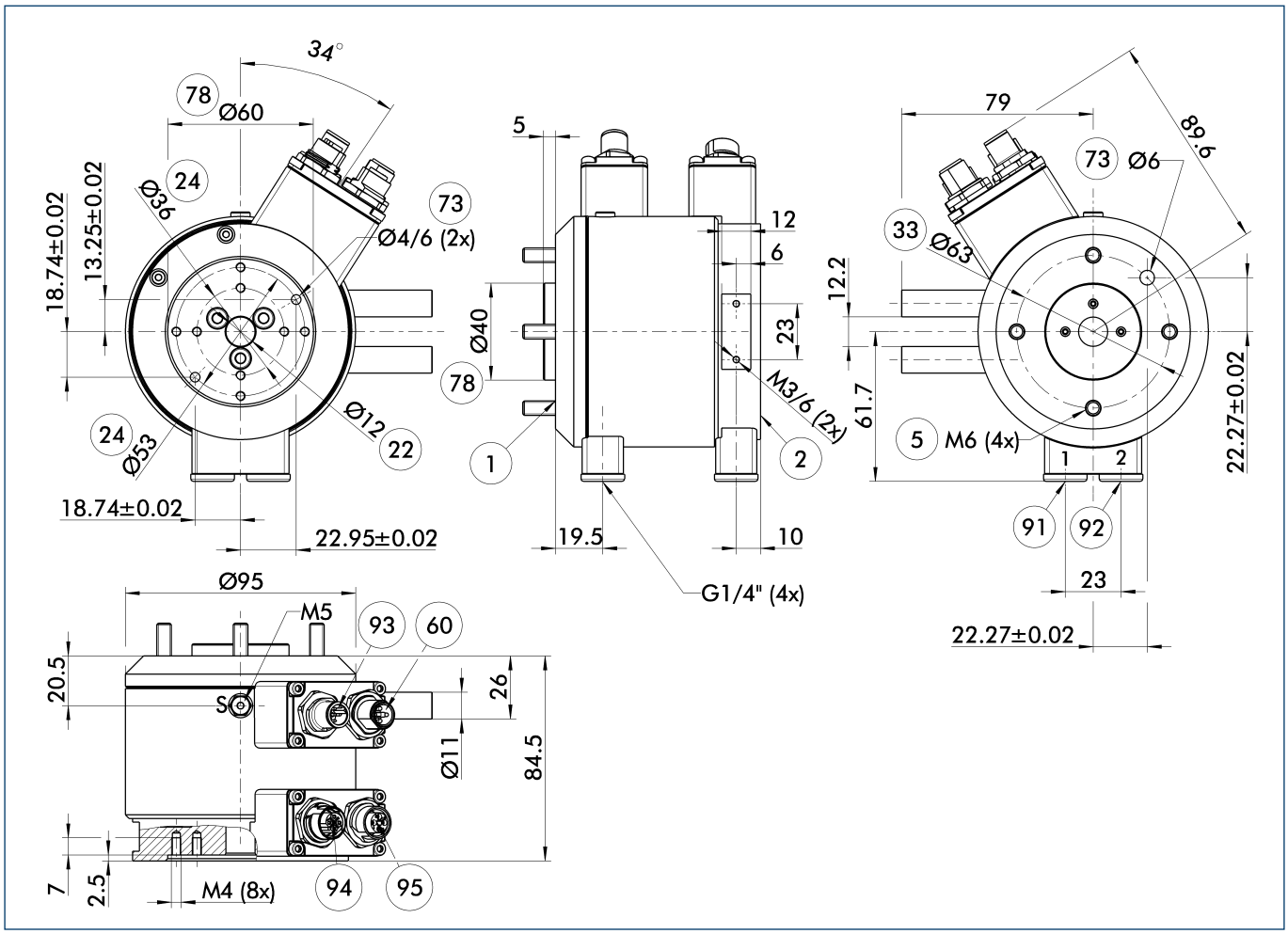
Main view



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