



Superior Clamping and Gripping



## Product Information

Miniature rotary unit PRH

# PRH

Miniature rotary unit

## Precise. Compact. Bus capable.

### PRH universal rotary unit

servo-electric miniature rotary unit with angle > 360°, center bore, and precision gear

#### Field of application

Versatile, highly flexible rotary unit for clean or highly contaminated environments

#### Advantages – Your benefits

**Brushless DC servomotor** for flexible use by controlled position, velocity, and torque

**High torque, velocity, and precision** for fast acceleration and short cycle times at a high precision

**Fully integrated control and power electronics** for creating a decentralized control system

**Versatile actuation options** for simple integration into existing servo-controlled concepts via Profibus-DP, or CAN bus

**High protection class** up to IP65 for the use in heavily contaminated environments

**Compact design** for minimal interfering contours and for use in confined spaces



Sizes  
Quantity: 3



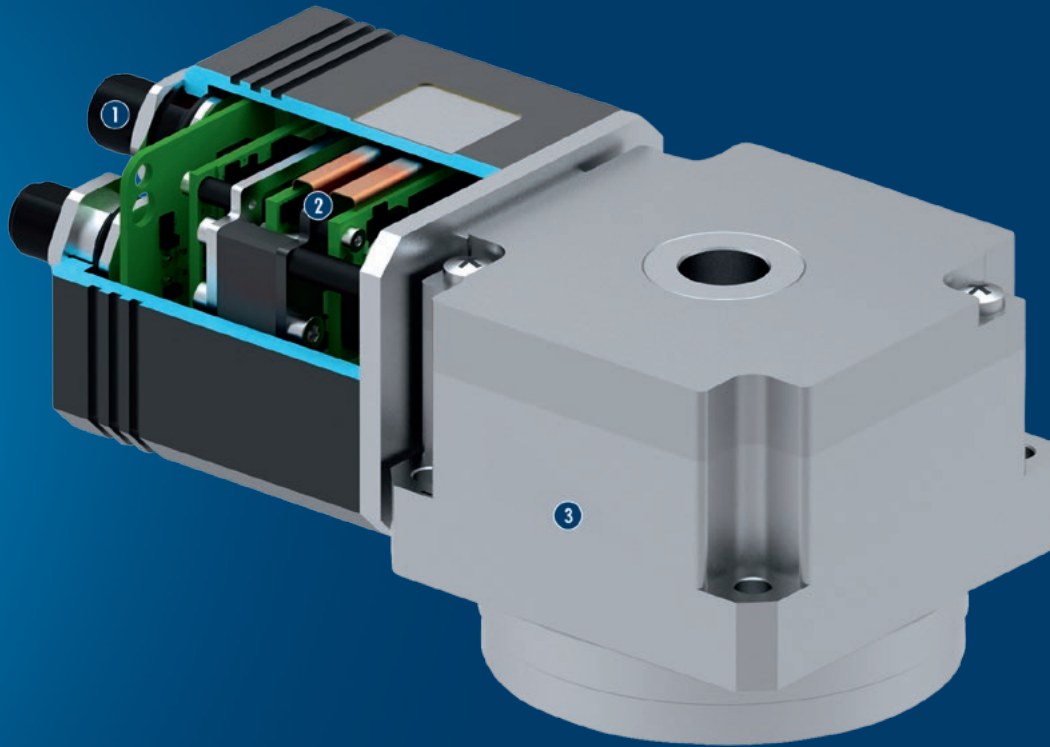
Weight  
0.75 .. 1.55 kg



Axial force

## Functional description

The rotary unit has a Harmonic Drive® precision gear, which is directly driven by a brushless DC-servo drive.



① **Electrical connection**  
for connection of power supply and communication

② **Control electronics**  
Integrated control and power electronics for decentralized control of the servomotor

③ **Drive with gear**  
Harmonic Drive® gear motor

CAD data, operating manuals and other current product documents can be found online.

## General notes about the series

**Housing material:** Aluminum alloy

**Actuation:** servo-electric, via brushless DC servomotor

**Operating principle:** Harmonic drive® gear driven directly via brushless DC servomotor

**Scope of delivery:** DVD with SCHUNK software and assistant for commissioning, includes assembly- and operation manual, declaration of incorporation, functional module for control via Siemens S7-300/400.

**Warranty:** 24 months

**Swiveling times:** are purely the times of the module to rotate from rest position to rest position. Relay switching times or SPC reaction times are not included in the above times and must be taken into consideration when determining cycle times. Load-dependent rest periods may have to be included in the cycle time.

**Repeat accuracy:** Is defined as the spread of the target position after 100 consecutive positioning cycles.

**Middle attached load:** intended to represent a typical load. It is defined as the half of the max. possible mass moment of inertia that can be swiveled without restriction, bouncing or hitting, with a centric load and a vertical rotating axis.

**Nominal Currents:** can be permanently actuated. With regard to all the currents which are ranging above the nominal current up to the maximum current, the notes of the individual product documentation has to be respected.

## Application example

Rotary gripper combination with two sensitive servo-electric parallel grippers for flexible handling of sensitive workpieces

- ① PRH servo-electric rotary module
- ② EVG servo-electric 2-finger parallel gripper



## SCHUNK offers more ...

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



Power- / and data cable



Sensor system



V Sensor Distributor



Cable connector



Electric Parallel Gripper EGP



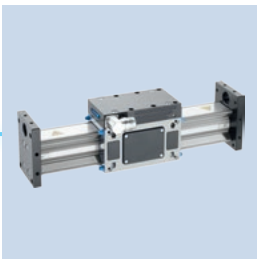
LPE line gantry



Connection service box SSB



Room gantry electric



Linear direct drive



MPG-plus 2-finger parallel gripper



PGN-plus 2-finger parallel gripper



WSG servo-electric 2-finger parallel gripper

① Additional information regarding the products can be found on the following product pages or at [www.schunk.com](http://www.schunk.com). Please contact us for further information: SCHUNK technical hotline +49-7133-103-2696

## Options and special information

**Integrated electronics:** The electrical control of the PRH is carried out by the fully integrated control and power electronics. Hence, the module does not require any additional external control units.

**Variety of interfaces:** There is a varied range of interfaces for communication available, such as USB for parameterisation, four digital inputs for positioning set programming, Profibus-DP and CAN bus to enable the assembly of bus networks. Thus an easy integration into existing control systems is possible.

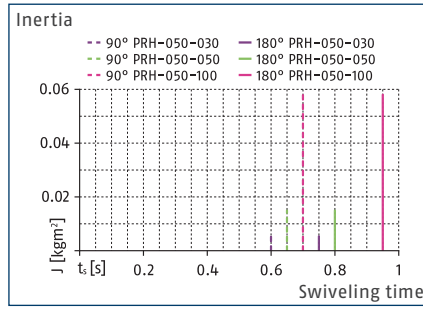
**Unique mechatronic modular system:** For creating combined systems (e.g. Gripping / Rotary Units), further mechatronic products are available.

# PRH 050

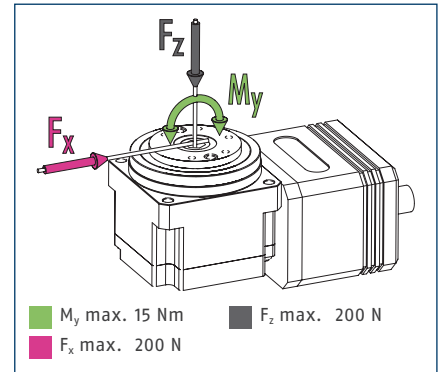
Miniature rotary unit



## Swivel time diagram



## Forces and moments



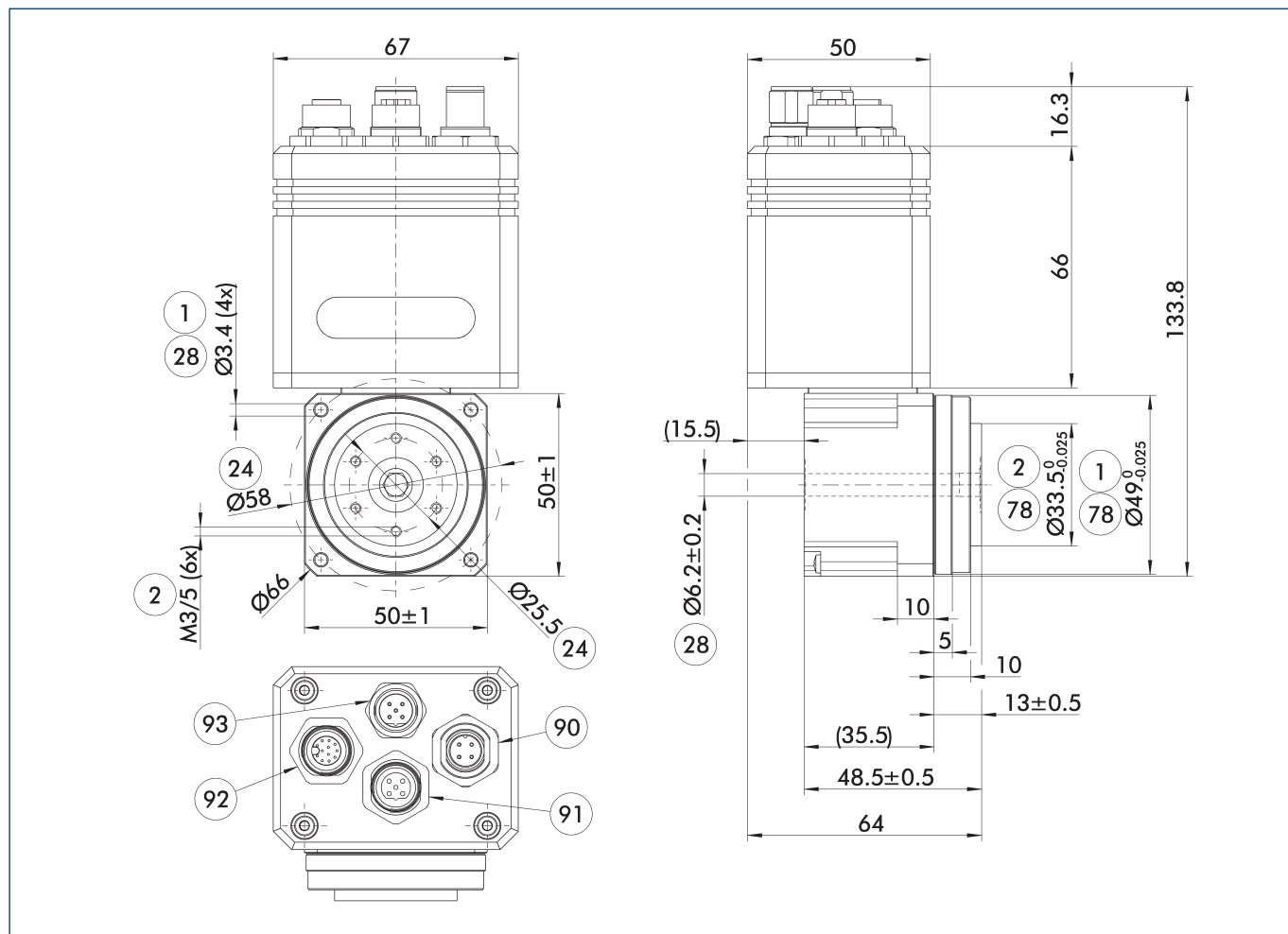
ⓘ Moments and forces may occur simultaneously.

## Technical data

Profibus variant		PRH 050-030-PB-54	PRH 050-050-PB-54	PRH 050-100-PB-54
ID		0306872	0306870	0306875
<b>Mechanical operating data</b>				
Rated/maximum torque	[Nm]	0.75/1.8	1.5/3.3	2/4.8
Rated / maximum speed	[1/min]	117/200	70/120	35/60
Max. permissible mass moment of inertia	[kgm <sup>2</sup> ]	0.005	0.015	0.057
Repeat accuracy	[°]	0.004	0.004	0.004
Axial run-out/run-out accuracy	[mm]	0.01/0.01	0.01/0.01	0.01/0.01
Transmission		30:1	50:1	100:1
<b>General operating data</b>				
Weight	[kg]	0.75	0.75	0.75
min./max. ambient temperature	[°C]	0/40	0/40	0/40
Protection class IP		54	54	54
<b>Electrical operating data</b>				
Nominal voltage	[V]	24	24	24
Nominal current	[A]	1.6	1.7	1.3
max. current	[A]	3	3.3	2.4
<b>Control electronics</b>				
Control electronics		integrated	integrated	integrated
Power supply	[V]	24	24	24
Encoder system		Encoder (incremental)	Encoder (incremental)	Encoder (incremental)
Interface		Profibus, USB (parameterization)	Profibus, USB (parameterization)	Profibus, USB (parameterization)
Profibus interface	[Mbit/s]	12	12	12
USB interface		Device	Device	Device
Number of digital I/O		4/0/-/-	4/0/-/-	4/0/-/-
<b>Options and their characteristics</b>				
CAN-Bus variant		PRH 050-030-CN-54	PRH 050-050-CN-54	PRH 050-100-CN-54
ID		0306873	0306871	0306876
Communication interface		CAN bus, USB (parameterization)	CAN bus, USB (parameterization)	CAN bus, USB (parameterization)
Data rate	[Mbit/s]	1	1	1

ⓘ The peak torques serve as short-term drive reserves when accelerating and delaying.

Main view



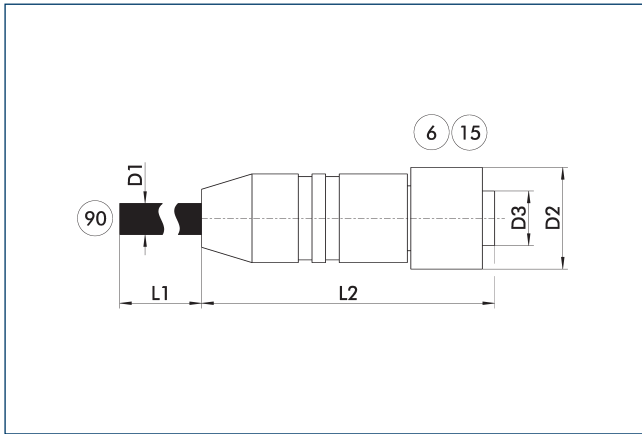
The drawing shows the basic version of the rotary unit without dimensional consideration of the options described below.

- |                          |  |
|--------------------------|--|
| ① Connection swivel unit | ⑨⑩ Connection power supply   |
| ② Attachment connection  | ⑨① Fieldbus output connection  |
| ②④ Bolt circle           | ⑨② Connection service box (SSB), programming cable, sensor distributor |
| ②⑧ Through-hole          | ⑨③ Fieldbus input connection   |
| ⑦⑧ Fit for centering     |  |

# PRH 050

Miniature rotary unit

## Power cable for PRH



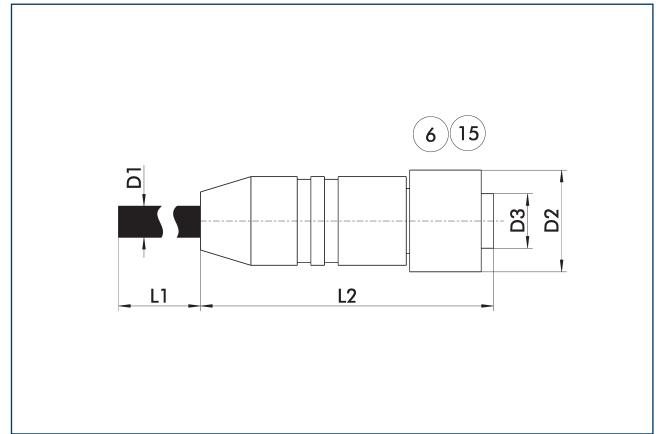
- ⑥ Connection module side
- ①⑤ Socket
- ⑨⑩ Cable end with open wire strands

The power cable is used to connect the PRH to the power supply. On the module side, it is equipped with an M12 connector (socket) and on the other side, open wire strands.

Description	ID	L1	D1	L2	D2	D3
		[m]	[mm]	[mm]	[mm]	
Power cable – cable track compatible						
KA GLN1204-LK-00200-K	0349270	2	5	44	15	M12
KA GLN1204-LK-00500-K	0349271	5	5	44	15	M12
KA GLN1204-LK-01000-K	0349272	10	5	44	15	M12
KA GLN1204-LK-01500-K	0349273	15	5	44	15	M12

- ① Please observe the min. bending radius for cable track-compatible cables or the max. torsion angle for torsion-compatible cables. These are generally 10 times the cable diameter or +/- 180°/m.

## Profibus communication cables



- ⑥ Connection module side
- ①⑤ Socket

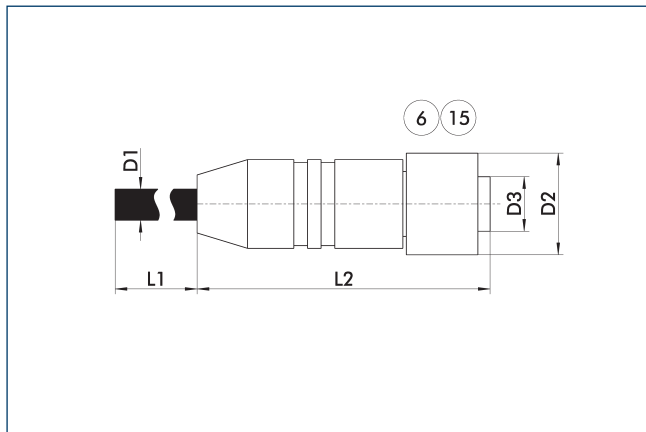
The communication cables are suitable fabricated for the mechatronic SCHUNK products. They have M12 connectors on both sides.

Description	ID	L1	D1	L2	D2	D3
		[m]	[mm]	[mm]	[mm]	
Profibus communication cable – cable track compatible						
KA GGN1204-PB-00150-A	0349750	1.5	8	47	15	M12
KA GGN1204-PB-00300-A	0349751	3	8	47	15	M12
KA GGN1204-PB-00500-A	0349752	5	8	47	15	M12
KA GGN1204-PB-01000-A	0349753	10	8	47	15	M12

- ① Please observe the min. bending radius for cable track-compatible cables or the max. torsion angle for torsion-compatible cables. These are generally 10 times the cable diameter or +/- 180°/m.



CAN Bus communication cables



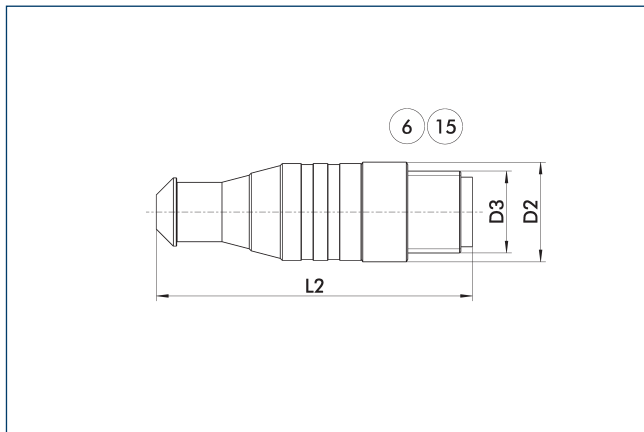
⑥ Connection module side      ⑮ Socket

The communication cables are suitable fabricated for the mechatronic SCHUNK products. They have M12 connectors on both sides.

Description	ID	L1	D1	L2	D2	D3
		[m]	[mm]	[mm]	[mm]	
CAN bus communication cable - cable track compatible						
KA GGN1204-CN-00150-A	0349770	1.5	7	47	15	M12
KA GGN1204-CN-00300-A	0349771	3	7	47	15	M12
KA GGN1204-CN-00500-A	0349772	5	7	47	15	M12
KA GGN1204-CN-01000-A	0349773	10	7	47	15	M12

ⓘ Please observe the min. bending radius for cable track-compatible cables or the max. torsion angle for torsion-compatible cables. These are generally 10 times the cable diameter or +/- 180°/m.

Termination resistor



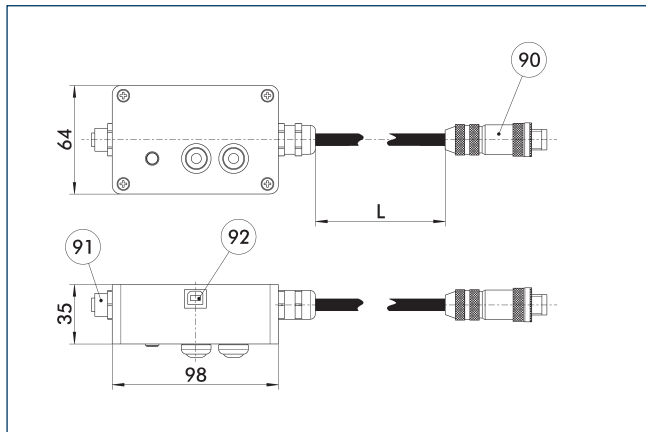
⑥ Connection module side      ⑮ Socket

The terminating resistors are provided for terminating the bus string directly at the SCHUNK module.

Description	ID	L2	D2	D3
		[mm]	[mm]	
Termination resistor - CAN bus				
ST SG1204-CN-A-A	0349660	47	15	M12
Termination resistor - Profibus				
ST SG1204-PB-A-A	0349650	47	15	M12

ⓘ An appropriate terminating resistor must be installed on the last module in the CAN or Profibus string.

Connection service box SSB



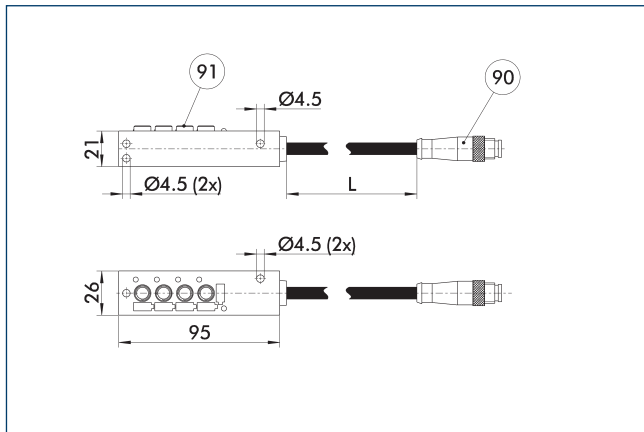
⑨⑩ PRH module connection per M12/12-pin plug connector      ⑨① Sensor distributor connection  
 ⑨② USB connection

With the SCHUNK service box, a connection can be established from PRH to a PC via USB cable. Additionally, for connecting reference sensors, the sensor connector of the PRH can be directly connected to the box.

Description	ID	
Accessories		
SSB	0348800	

ⓘ For connecting the PRH to the PC, a USB cable is included in the PRH scope of delivery. No sensor distributor may be connected to the PRH when using this cable.

V4-M8-M12 sensor distributor for PRH



⑨⑩ PRH module connection per M12/12-pin plug connector      ⑨① Sensor connection M8 (4x)

The PRH sensor distributor can be directly connected to the PRH module. Four sensors with 3-pin M8 plugs can be connected.

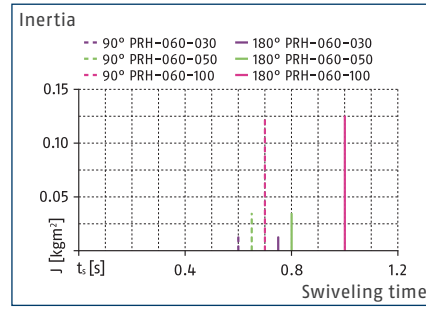
Description	ID	Cable length L
		[m]
Sensor distributor		
V4-M8-M12 PRH	0301755	5

# PRH 060

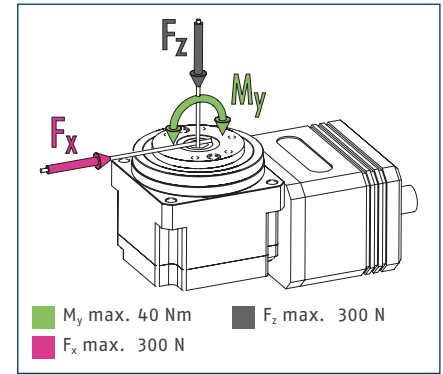
Miniature rotary unit



## Swivel time diagram



## Forces and moments



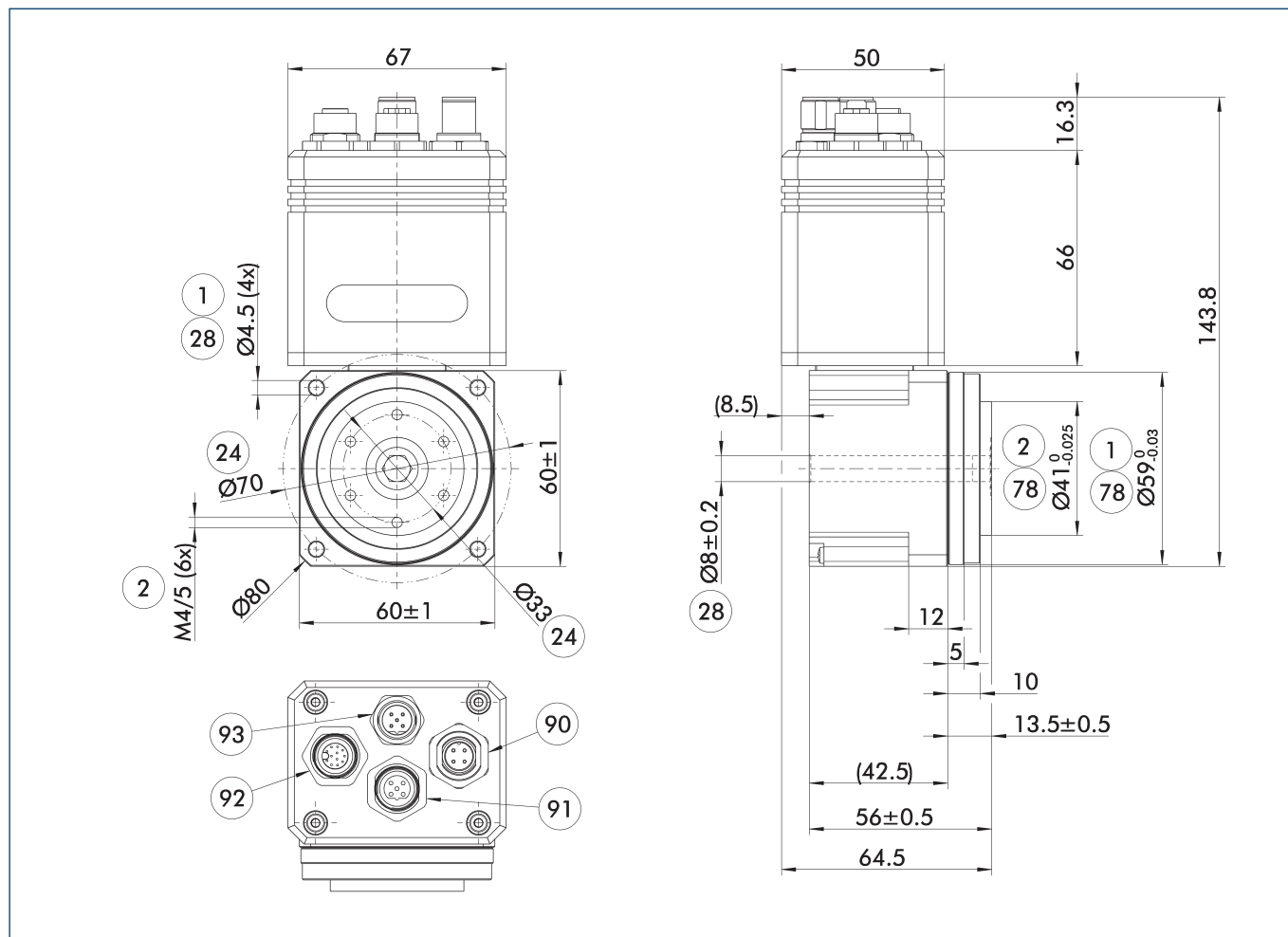
ⓘ Moments and forces may occur simultaneously.

## Technical data

Profibus variant		PRH 060-030-PB-65	PRH 060-050-PB-65	PRH 060-100-PB-65
ID		0306882	0306880	0306885
<b>Mechanical operating data</b>				
Rated/maximum torque	[Nm]	1.8/4.5	2.9/8.3	4.2/11
Rated / maximum speed	[1/min]	117/200	70/120	35/60
Max. permissible mass moment of inertia	[kgm <sup>2</sup> ]	0.012	0.035	0.125
Repeat accuracy	[°]	0.004	0.004	0.004
Axial run-out/run-out accuracy	[mm]	0.01/0.01	0.01/0.01	0.01/0.01
Transmission		30:1	50:1	100:1
<b>General operating data</b>				
Weight	[kg]	0.97	0.97	0.97
min./max. ambient temperature	[°C]	0/40	0/40	0/40
Protection class IP		65	65	65
<b>Electrical operating data</b>				
Nominal voltage	[V]	24	24	24
Nominal current	[A]	3.7	3.5	2.8
max. current	[A]	7.8	8.2	5.6
<b>Control electronics</b>				
Control electronics		integrated	integrated	integrated
Power supply	[V]	24	24	24
Encoder system		Encoder (incremental)	Encoder (incremental)	Encoder (incremental)
Interface		Profibus, USB (parameterization)	Profibus, USB (parameterization)	Profibus, USB (parameterization)
Profibus interface	[Mbit/s]	12	12	12
USB interface		Device	Device	Device
Number of digital I/O		4/0/-/-	4/0/-/-	4/0/-/-
<b>Options and their characteristics</b>				
CAN-Bus variant		PRH 060-030-CN-65	PRH 060-050-CN-65	PRH 060-100-CN-65
ID		0306883	0306881	0306886
Communication interface		CAN bus, USB (parameterization)	CAN bus, USB (parameterization)	CAN bus, USB (parameterization)
Data rate	[Mbit/s]	1	1	1

ⓘ The peak torques serve as short-term drive reserves when accelerating and delaying.

Main view



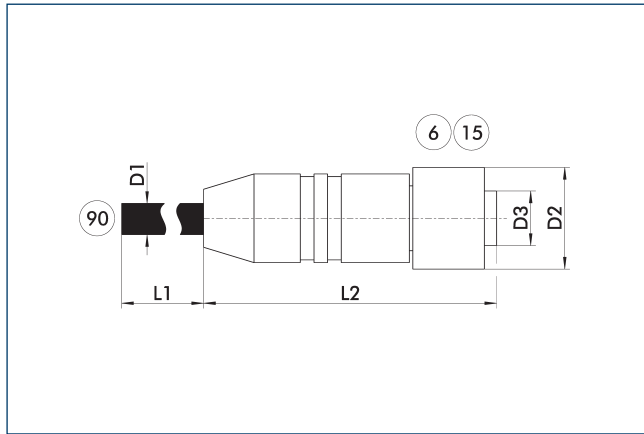
The drawing shows the basic version of the rotary unit without dimensional consideration of the options described below.

- |                          |  |
|--------------------------|--|
| ① Connection swivel unit | ⑨⑩ Connection power supply   |
| ② Attachment connection  | ⑨① Fieldbus output connection  |
| ②④ Bolt circle           | ⑨② Connection service box (SSB), programming cable, sensor distributor |
| ②⑧ Through-hole          | ⑨③ Fieldbus input connection   |
| ⑦⑧ Fit for centering     |  |

# PRH 060

Miniature rotary unit

## Power cable for PRH



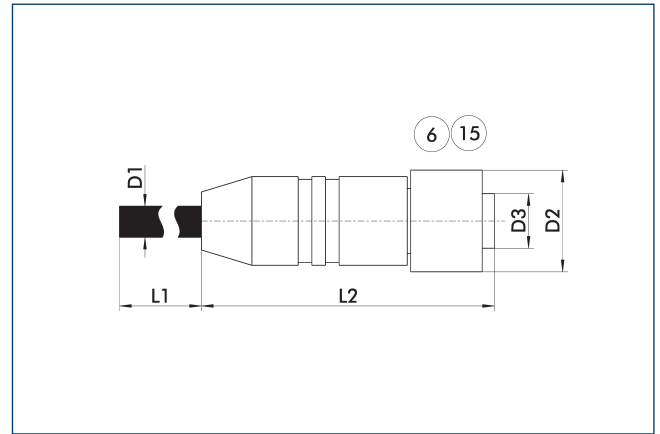
- ⑥ Connection module side
- ①⑤ Socket
- ⑨⑩ Cable end with open wire strands

The power cable is used to connect the PRH to the power supply. On the module side, it is equipped with an M12 connector (socket) and on the other side, open wire strands.

Description	ID	L1	D1	L2	D2	D3
		[m]	[mm]	[mm]	[mm]	
Power cable – cable track compatible						
KA GLN1204-LK-00200-K	0349270	2	5	44	15	M12
KA GLN1204-LK-00500-K	0349271	5	5	44	15	M12
KA GLN1204-LK-01000-K	0349272	10	5	44	15	M12
KA GLN1204-LK-01500-K	0349273	15	5	44	15	M12

- ① Please observe the min. bending radius for cable track-compatible cables or the max. torsion angle for torsion-compatible cables. These are generally 10 times the cable diameter or +/- 180°/m.

## Profibus communication cables



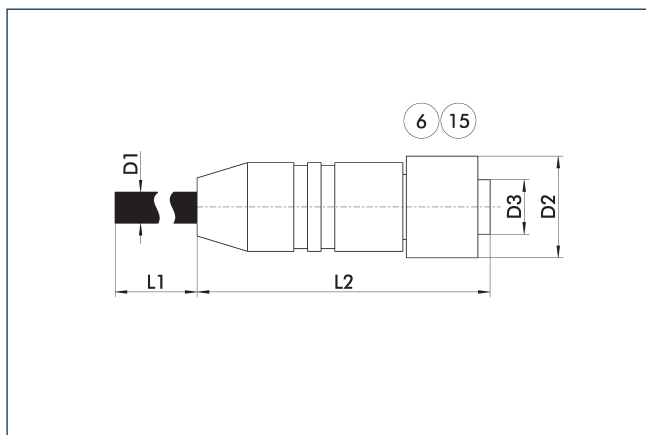
- ⑥ Connection module side
- ①⑤ Socket

The communication cables are suitable fabricated for the mechatronic SCHUNK products. They have M12 connectors on both sides.

Description	ID	L1	D1	L2	D2	D3
		[m]	[mm]	[mm]	[mm]	
Profibus communication cable – cable track compatible						
KA GGN1204-PB-00150-A	0349750	1.5	8	47	15	M12
KA GGN1204-PB-00300-A	0349751	3	8	47	15	M12
KA GGN1204-PB-00500-A	0349752	5	8	47	15	M12
KA GGN1204-PB-01000-A	0349753	10	8	47	15	M12

- ① Please observe the min. bending radius for cable track-compatible cables or the max. torsion angle for torsion-compatible cables. These are generally 10 times the cable diameter or +/- 180°/m.

### CAN Bus communication cables



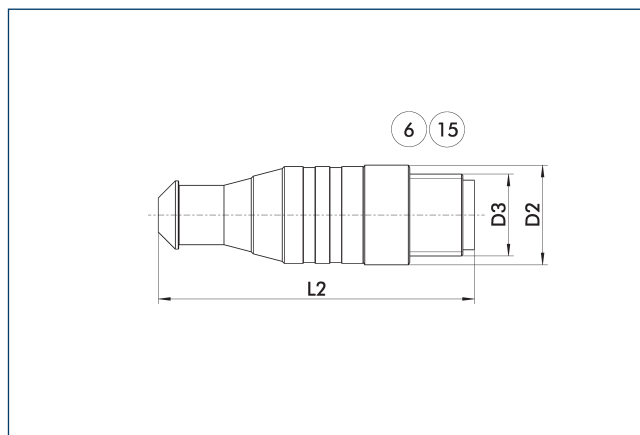
⑥ Connection module side      ⑮ Socket

The communication cables are suitable fabricated for the mechatronic SCHUNK products. They have M12 connectors on both sides.

Description	ID	L1	D1	L2	D2	D3
		[m]	[mm]	[mm]	[mm]	
CAN bus communication cable - cable track compatible						
KA GGN1204-CN-00150-A	0349770	1.5	7	47	15	M12
KA GGN1204-CN-00300-A	0349771	3	7	47	15	M12
KA GGN1204-CN-00500-A	0349772	5	7	47	15	M12
KA GGN1204-CN-01000-A	0349773	10	7	47	15	M12

① Please observe the min. bending radius for cable track-compatible cables or the max. torsion angle for torsion-compatible cables. These are generally 10 times the cable diameter or +/- 180°/m.

### Termination resistor



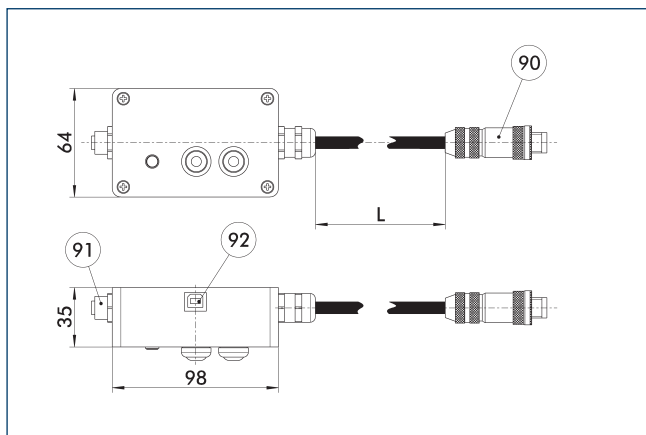
⑥ Connection module side      ⑮ Socket

The terminating resistors are provided for terminating the bus string directly at the SCHUNK module.

Description	ID	L2	D2	D3
		[mm]	[mm]	
Termination resistor - CAN bus				
ST SG1204-CN-A-A	0349660	47	15	M12
Termination resistor - Profibus				
ST SG1204-PB-A-A	0349650	47	15	M12

① An appropriate terminating resistor must be installed on the last module in the CAN or Profibus string.

### Connection service box SSB



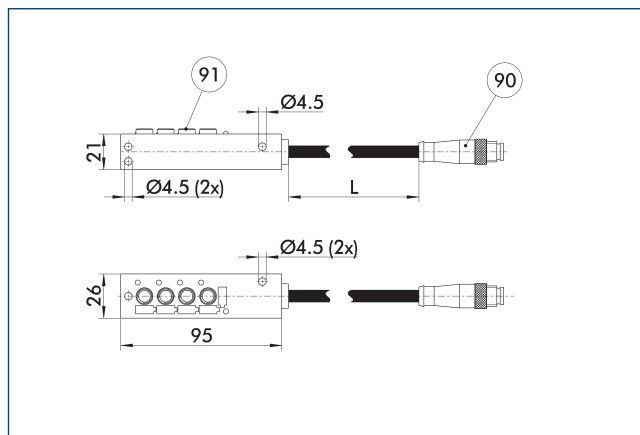
⑨⑩ PRH module connection per M12/12-pin plug connector      ⑨① Sensor distributor connection  
⑨② USB connection

With the SCHUNK service box, a connection can be established from PRH to a PC via USB cable. Additionally, for connecting reference sensors, the sensor connector of the PRH can be directly connected to the box.

Description	ID	
Accessories		
SSB	0348800	

① For connecting the PRH to the PC, a USB cable is included in the PRH scope of delivery. No sensor distributor may be connected to the PRH when using this cable.

### V4-M8-M12 sensor distributor for PRH



⑨⑩ PRH module connection per M12/12-pin plug connector      ⑨① Sensor connection M8 (4x)

The PRH sensor distributor can be directly connected to the PRH module. Four sensors with 3-pin M8 plugs can be connected.

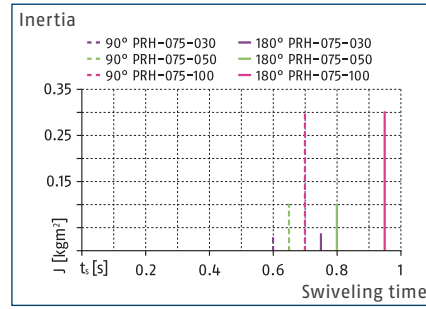
Description	ID	Cable length L
		[m]
Sensor distributor		
V4-M8-M12 PRH	0301755	5

# PRH 075

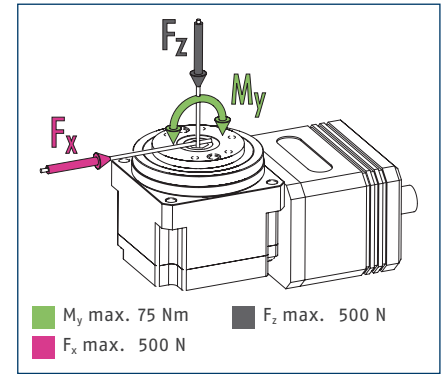
Miniature rotary unit



## Swivel time diagram



## Forces and moments



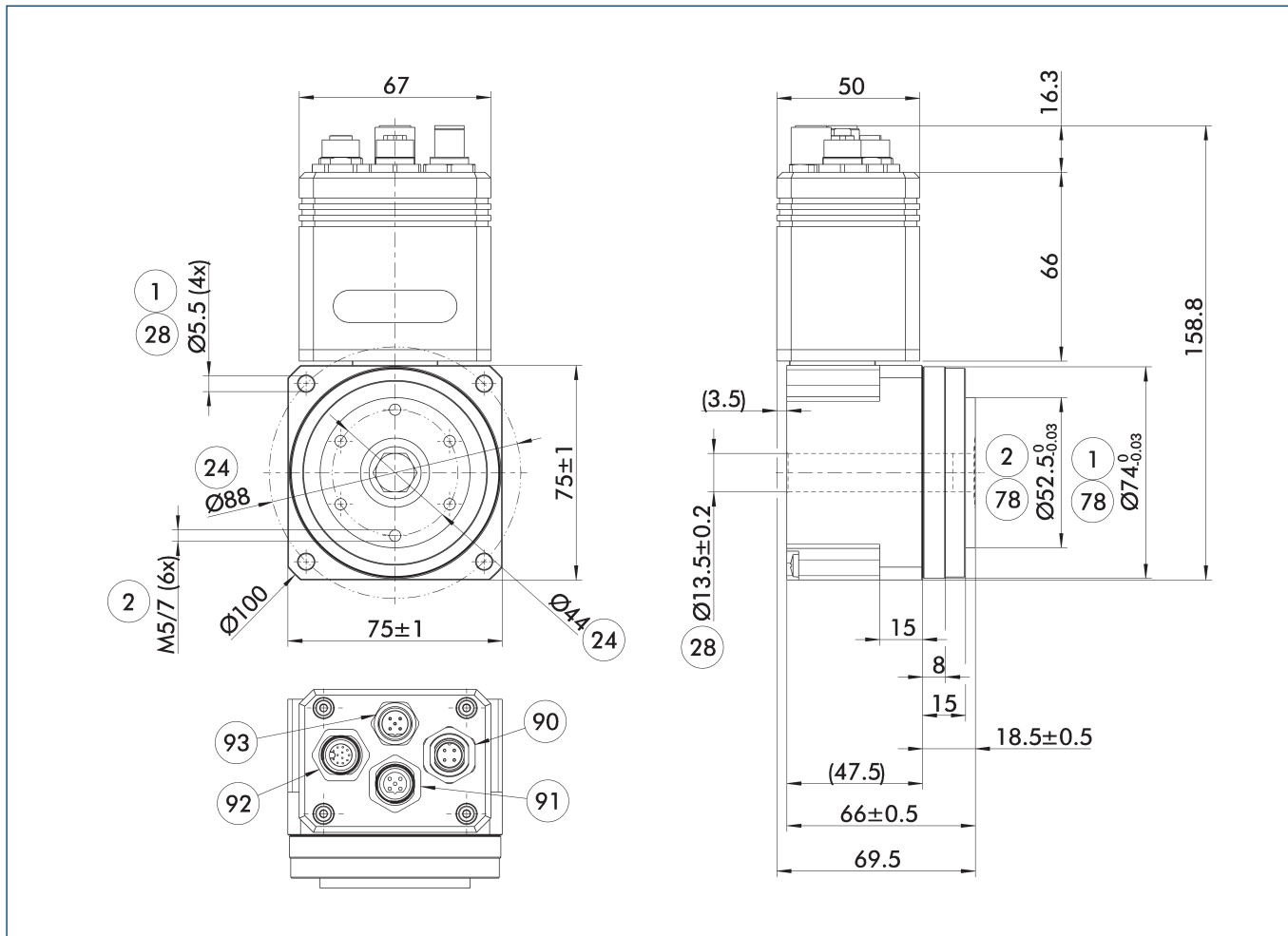
ⓘ Moments and forces may occur simultaneously.

## Technical data

Profibus variant		PRH 075-030-PB-65	PRH 075-050-PB-65	PRH 075-100-PB-65
ID		0306892	0306890	0306895
<b>Mechanical operating data</b>				
Rated/maximum torque	[Nm]	3.5/9	4.7/18	6.8/28
Rated / maximum speed	[1/min]	100/200	60/120	30/60
Max. permissible mass moment of inertia	[kgm <sup>2</sup> ]	0.04	0.1	0.3
Repeat accuracy	[°]	0.004	0.004	0.004
Axial run-out/run-out accuracy	[mm]	0.01/0.01	0.01/0.01	0.01/0.01
Transmission		30:1	50:1	100:1
<b>General operating data</b>				
Weight	[kg]	1.55	1.55	1.55
min./max. ambient temperature	[°C]	0/40	0/40	0/40
Protection class IP		65	65	65
<b>Electrical operating data</b>				
Nominal voltage	[V]	24	24	24
Nominal current	[A]	6.5	5.4	4.4
max. current	[A]	14.8	16.4	12.3
<b>Control electronics</b>				
Control electronics		integrated	integrated	integrated
Power supply	[V]	24	24	24
Encoder system		Encoder (incremental)	Encoder (incremental)	Encoder (incremental)
Interface		Profibus, USB (parameterization)	Profibus, USB (parameterization)	Profibus, USB (parameterization)
Profibus interface	[Mbit/s]	12	12	12
USB interface		Device	Device	Device
Number of digital I/O		4/0/-/-	4/0/-/-	4/0/-/-
<b>Options and their characteristics</b>				
CAN-Bus variant		PRH 075-030-CN-65	PRH 075-050-CN-65	PRH 075-100-CN-65
ID		0306893	0306891	0306896
Communication interface		CAN bus, USB (parameterization)	CAN bus, USB (parameterization)	CAN bus, USB (parameterization)
Data rate	[Mbit/s]	1	1	1

ⓘ The peak torques serve as short-term drive reserves when accelerating and delaying.

Main view



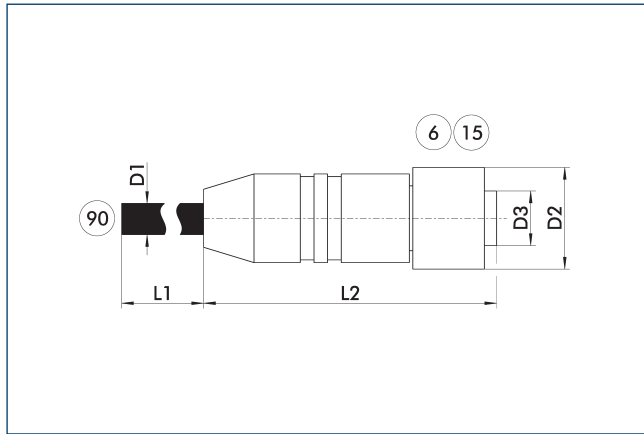
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| ① Connection swivel unit | ⑨⑩ Connection power supply   |
| ② Attachment connection  | ⑨⑪ Fieldbus output connection  |
| ②④ Bolt circle           | ⑨⑫ Connection service box (SSB), programming cable, sensor distributor |
| ②⑧ Through-hole          | ⑨⑬ Fieldbus input connection   |
| ②⑧ Fit for centering     |  |

# PRH 075

Miniature rotary unit

## Power cable for PRH



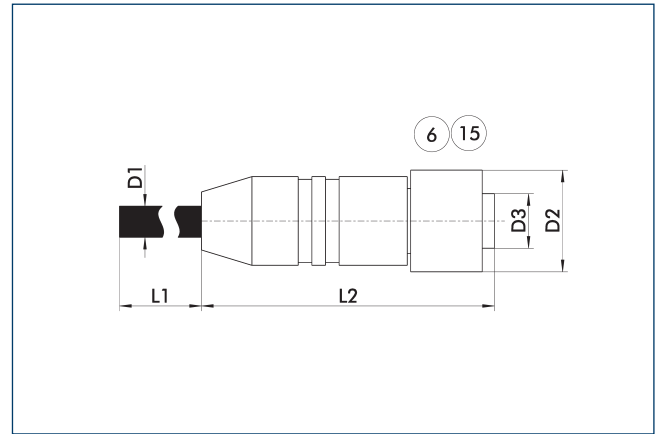
- ⑥ Connection module side
- ①⑤ Socket
- ⑨⑩ Cable end with open wire strands

The power cable is used to connect the PRH to the power supply. On the module side, it is equipped with an M12 connector (socket) and on the other side, open wire strands.

Description	ID	L1	D1	L2	D2	D3
		[m]	[mm]	[mm]	[mm]	
Power cable – cable track compatible						
KA GLN1204-LK-00200-K	0349270	2	5	44	15	M12
KA GLN1204-LK-00500-K	0349271	5	5	44	15	M12
KA GLN1204-LK-01000-K	0349272	10	5	44	15	M12
KA GLN1204-LK-01500-K	0349273	15	5	44	15	M12

- ① Please observe the min. bending radius for cable track-compatible cables or the max. torsion angle for torsion-compatible cables. These are generally 10 times the cable diameter or +/- 180°/m.

## Profibus communication cables



- ⑥ Connection module side
- ①⑤ Socket

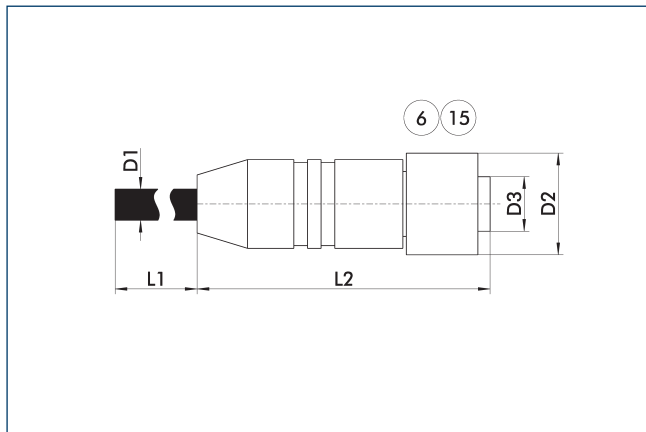
The communication cables are suitable fabricated for the mechatronic SCHUNK products. They have M12 connectors on both sides.

Description	ID	L1	D1	L2	D2	D3
		[m]	[mm]	[mm]	[mm]	
Profibus communication cable – cable track compatible						
KA GGN1204-PB-00150-A	0349750	1.5	8	47	15	M12
KA GGN1204-PB-00300-A	0349751	3	8	47	15	M12
KA GGN1204-PB-00500-A	0349752	5	8	47	15	M12
KA GGN1204-PB-01000-A	0349753	10	8	47	15	M12

- ① Please observe the min. bending radius for cable track-compatible cables or the max. torsion angle for torsion-compatible cables. These are generally 10 times the cable diameter or +/- 180°/m.



**CAN Bus communication cables**



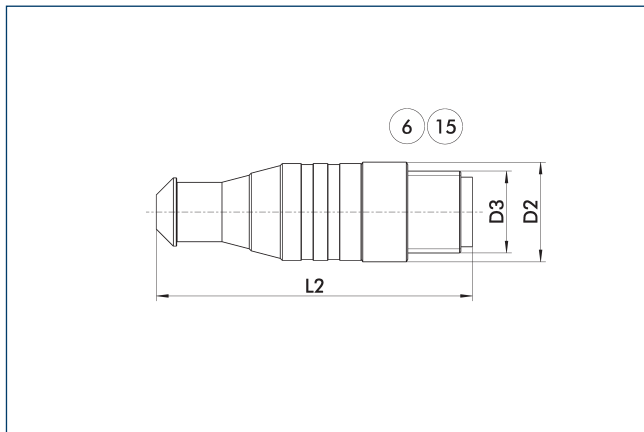
⑥ Connection module side      ⑮ Socket

The communication cables are suitable fabricated for the mechatronic SCHUNK products. They have M12 connectors on both sides.

Description	ID	L1	D1	L2	D2	D3
		[m]	[mm]	[mm]	[mm]	
CAN bus communication cable - cable track compatible						
KA GGN1204-CN-00150-A	0349770	1.5	7	47	15	M12
KA GGN1204-CN-00300-A	0349771	3	7	47	15	M12
KA GGN1204-CN-00500-A	0349772	5	7	47	15	M12
KA GGN1204-CN-01000-A	0349773	10	7	47	15	M12

① Please observe the min. bending radius for cable track-compatible cables or the max. torsion angle for torsion-compatible cables. These are generally 10 times the cable diameter or +/- 180°/m.

**Termination resistor**



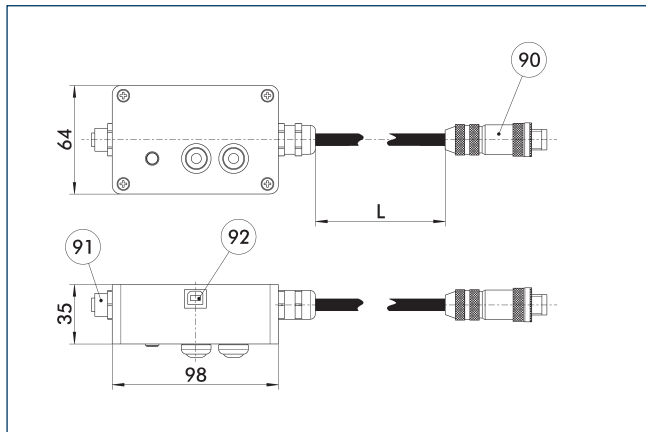
⑥ Connection module side      ⑮ Socket

The terminating resistors are provided for terminating the bus string directly at the SCHUNK module.

Description	ID	L2	D2	D3
		[mm]	[mm]	
Termination resistor - CAN bus				
ST SG1204-CN-A-A	0349660	47	15	M12
Termination resistor - Profibus				
ST SG1204-PB-A-A	0349650	47	15	M12

① An appropriate terminating resistor must be installed on the last module in the CAN or Profibus string.

**Connection service box SSB**



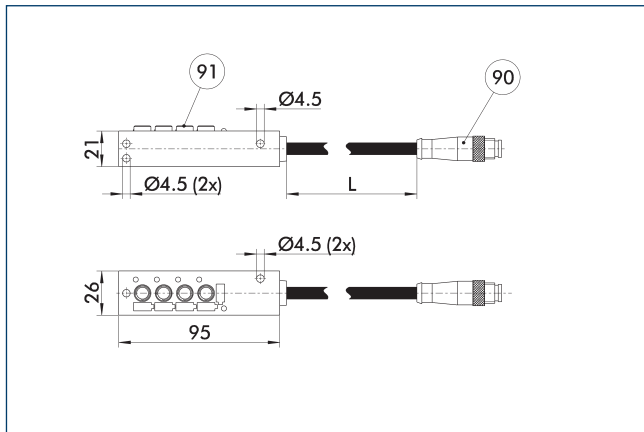
⑨⑩ PRH module connection per M12/12-pin plug connector      ⑨① Sensor distributor connection  
 ⑨② USB connection

With the SCHUNK service box, a connection can be established from PRH to a PC via USB cable. Additionally, for connecting reference sensors, the sensor connector of the PRH can be directly connected to the box.

Description	ID	
Accessories		
SSB	0348800	

① For connecting the PRH to the PC, a USB cable is included in the PRH scope of delivery. No sensor distributor may be connected to the PRH when using this cable.

**V4-M8-M12 sensor distributor for PRH**






⑨⑩ PRH module connection per M12/12-pin plug connector      ⑨① Sensor connection M8 (4x)

The PRH sensor distributor can be directly connected to the PRH module. Four sensors with 3-pin M8 plugs can be connected.

Description	ID	Cable length L
		[m]
Sensor distributor		
V4-M8-M12 PRH	0301755	5

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Jens Lehmann, German goalkeeper legend, SCHUNK brand ambassador since 2012 for precise gripping and safe holding.  
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