



Superior Clamping and Gripping



## Product Information

Miniature rotary unit ERD

# ERD

Miniature rotary unit

## Fast. Compact. Flexible.

### ERD torque motor

Powerful torque motor with absolute encoder and electric and pneumatic rotary feed-through

#### Field of application

For all applications with exceptional requirements in terms of achievable repeatability, rotary speed, acceleration and tool life.

#### Advantages – Your benefits

**With absolute position measurement system** Less programming effort and time saving when commissioning and in operation

**High dynamics for shorter cycle times** therefore a high productivity is achieved

**Integrated air and electric feed-through** for secure energy supply of the gripping modules

**Almost no wear parts** For long service life and reliability of the system

**No mechanical play between the drive components** for flexible response behavior and high positioning accuracy



Sizes  
Quantity: 3



Weight  
1.2 .. 1.8 kg

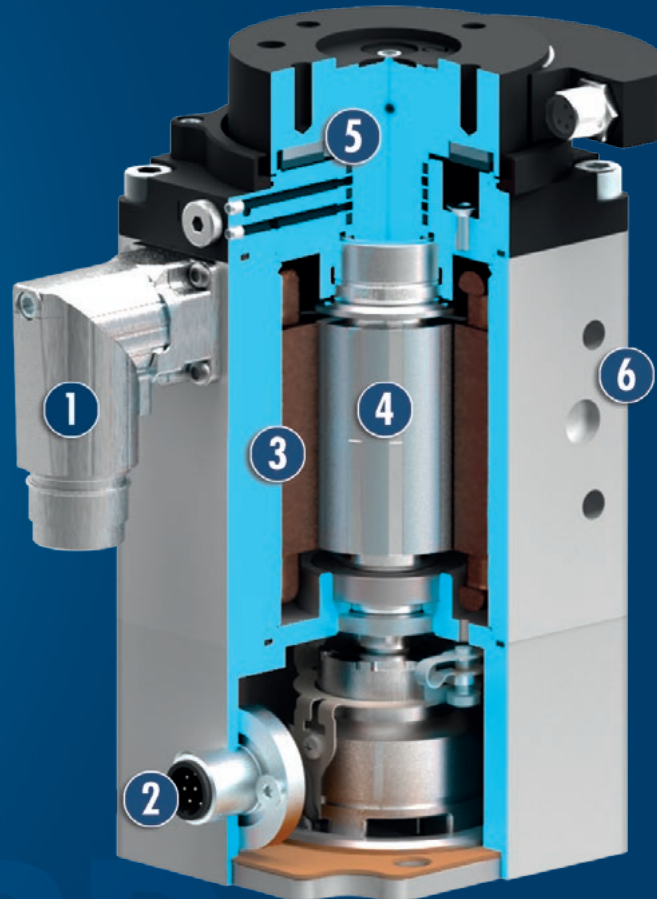


Axial force

## Functional description

The unit is driven by a 3-phase brushless synchronous motor with permanent excitation. As it is a direct drive, it no longer needs mechanical

transmission elements such as gears, eliminating the resulting inaccuracies.



- ① **Motor plug**  
Standard M17 connector for comfortable connection of motor phases and temperature sensor
- ② **Absolute encoder plug**  
Easy connection of encoder cable by default M12 connectors
- ③ **Fixed primary part**  
Stator with 3-phase ferromagnetic core coil
- ④ **Secondary component**  
Iron girder with integrated permanent magnets as rotor
- ⑤ **Energy feed-through**  
Integrated 2-fold air feed-through and optional 2-fold electric feed-through
- ⑥ **Housing**  
Weight-optimized due to the use of high-strength aluminum alloy

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

## General notes about the series

**Housing material:** Aluminum alloy, coated

**Drive:** Torque motor, 3-phase

**Stroke measuring system:** Motor Feedback System for absolute measurement, multiturn version (up to 4,096 revolutions), with HIPERFACE® interface

**Drive controller:** BOSCH Rexroth IndraDrive Cs control unit is supported as standard; matching parameters supplied on DVD, other manufacturers available on request.

**Scope of delivery:** Enclosed accessory pack containing centering sleeve, assembly and operating manual, commissioning DVD for SCHUNK motors

**Warranty:** 24 months

**Swiveling times:** The swiveling times are purely the times when the module moves from rest position to rest position. Delays caused by the PLC or the drive controller are not included and to be taken into consideration when determining cycle times. Load-dependent rest periods may have to be included in the cycle time.

**Layout or control calculation:** Verifying the sizing of the selected unit is necessary, since otherwise overloading can result. Please contact us for assistance.

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

**Ambient conditions:** The modules are particularly designed for the use in clean to slightly contaminated ambient conditions. Please note that the life time of the modules can shorten if they are used in harsh ambient conditions, and that SCHUNK cannot assume liability in such cases.

**Safety notes:** Caution: Magnetic field! This particularly applies for persons with implanted medical devices, such as pacemakers, hearing aids, etc.

**Nominal Currents:** The rated 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

Linear gripper rotary unit for dynamic movement of small components.

- ① ERD miniature rotary module
- ② Stroke module LDK
- ③ MPG-plus 2-finger parallel gripper

## SCHUNK offers more ...

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



Power and encoder cables KS



Controller



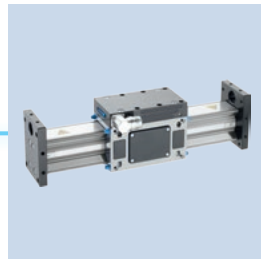
MV micro valves



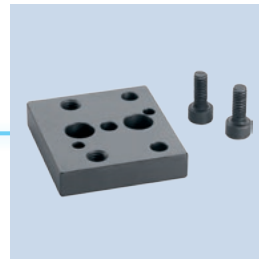
Centering sleeves



Sensor system



Linear direct drive



Adapter plates



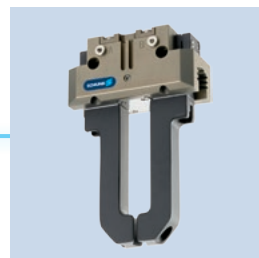
Room gantry electric



Pick & Place Unit



Electric Parallel Gripper EGP



PGN-plus 2-finger parallel gripper



MPG-plus 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

**Pneumatic rotary feed-through:** The ERD rotary module comes with two pneumatic feed-throughs by default. The pneumatic hoses can be connected radially to the rotary table on the output side. Alternatively, hose-free direct connections are also available in the center of the rotary table.

**Electrical rotary feed-through:** For versions with electrical feed-through, a feed-through with up to four electrical signals is possible in addition to the integrated pneumatic feed-through. Connected on the drive side using an M8 connector (4-pin). The rotary table has a radially aligned M8 socket (4-pin) on the output side.

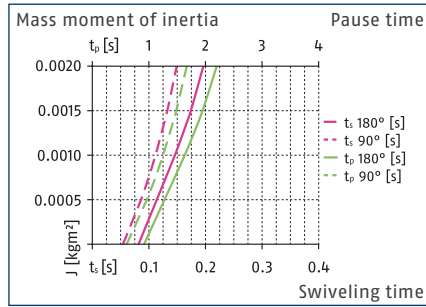
**Connection of power and sensor cables:** The rotary module is connected to the drive controller via separate power and sensor cables. The rotary module includes an M17 plug connector for connecting the power cable and an M12 plug connector for connecting the sensor cable. See the accessory section of the catalog chapter for suitable connecting cables. Special lengths or cable extensions are available on request.

# ERD 04

Miniature rotary unit

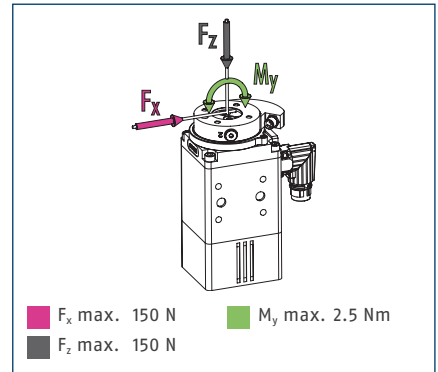


## Swivel time diagram



- Swivel and pause times apply for motions without restricted speeds at max. current. Reducing the max. current increases swivel periods and reduces rest periods. Higher mass moments of inertia are possible. Diagrams only apply for sufficiently rigid designs. Please contact us for assistance with the design of your application.

## Forces and moments



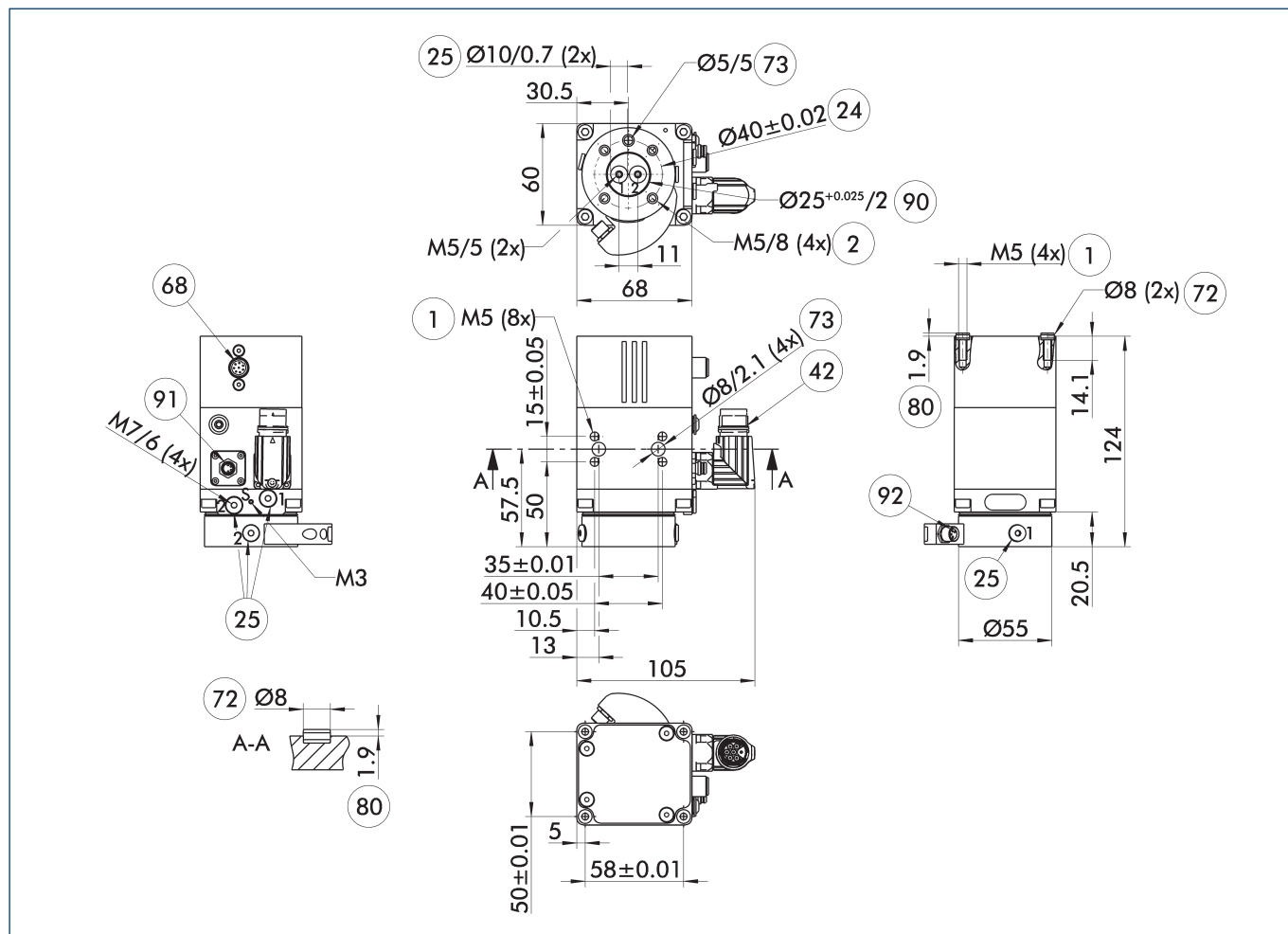
- Moments and forces may occur simultaneously.

## Technical data

Description		ERD 04-40-D-H-N	ERD 04-40-N-H-N
ID		0331220	0331224
<b>General operating data</b>			
Rated/maximum torque	[Nm]	0.4/1.2	0.4/1.2
Max. RPM	[1/min]	600	600
Max. permissible mass moment of inertia	[kgmm <sup>2</sup> ]	500	500
Repeat accuracy	[°]	0.01	0.01
Weight	[kg]	1.2	1.2
Min./max. ambient temperature	[°C]	10/40	10/40
Protection class IP		40	40
<b>Electrical operating data</b>			
Intermediate circuit voltage	[V]	530	530
Rated/maximum current	[A]	0.43/1.29	0.43/1.29
Encoder system		Encoder (absolute)	Encoder (absolute)
Output signal		Hiperface	Hiperface
SIL certification		not certified	not certified
<b>Operating data of the rotary feed-through</b>			
Number of pneumatic feed-throughs		2	2
Max. operating pressure	[bar]	6	6
Number of electrical feed-throughs		2	
Max. voltage (DC)	[V]	60	
Max. current	[A]	1	

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

Main view



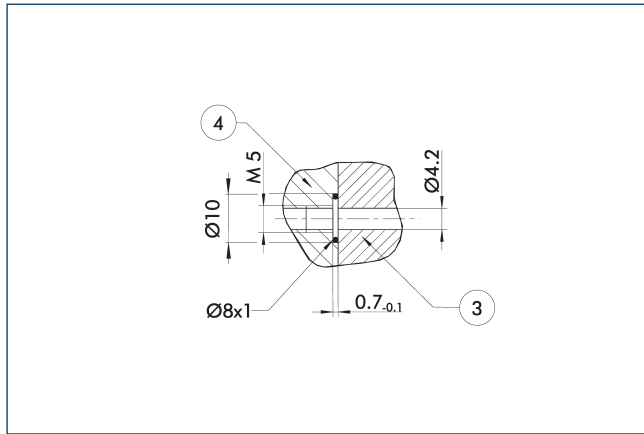
The drawing shows the rotary module with pneumatic and electrical rotary feed-throughs in IP protection class 40.

- 5 Air purge connection (0.5 ... 1 bar)
- 1 Connection swivel unit
- 2 Attachment connection
- 24 Bolt circle
- 25 Fluid feed-through
- 42 Motor plug
- 68 Shaft encoder connection
- 72 Fit for centering sleeves
- 73 Fit for centering pins
- 80 Depth of the centering sleeve hole in the counter part
- 90 Fit for centering
- 91 Input for 4 pole sensor feed-through
- 92 Output for a 4-pin sensor feed-through

# ERD 04

Miniature rotary unit

## Hose-free direct connection M5

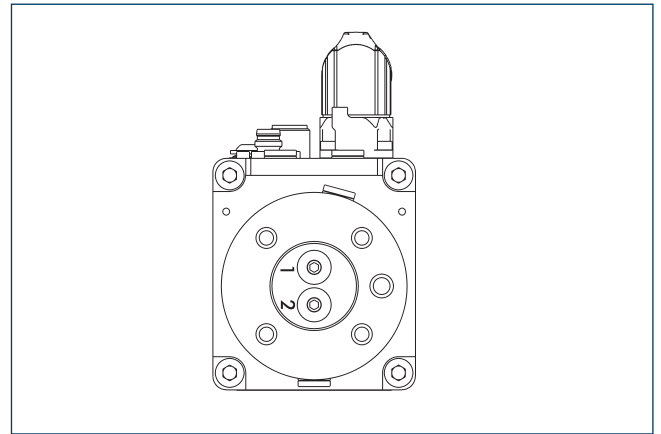


③ Adapter

④ Rotary unit

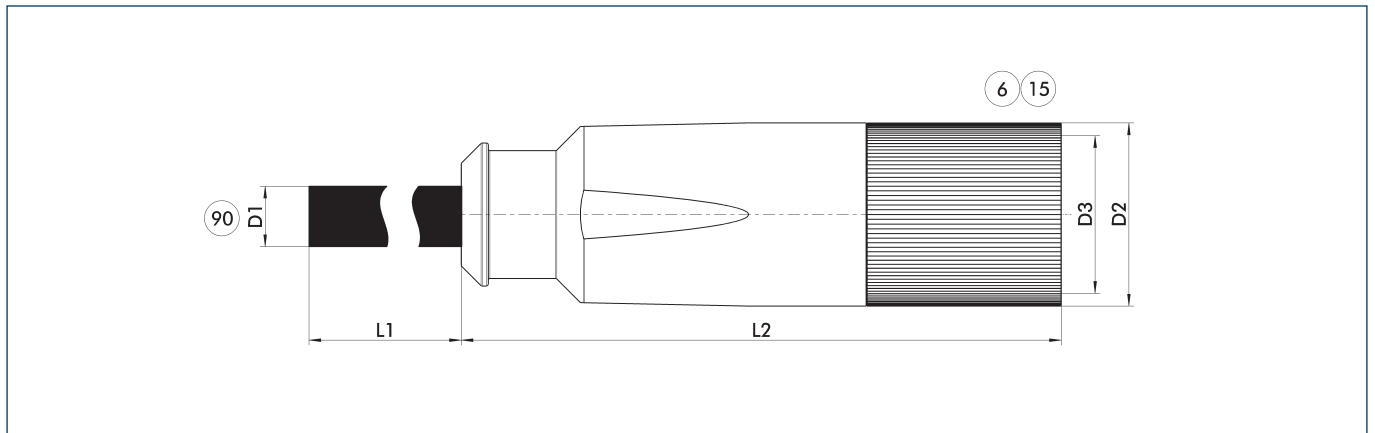
The direct connection is used for supplying compressed air without hoses. Instead, the pressure medium is fed through bore-holes in the mounting plate.

## Without an electrical rotary feed-through



In this option, no sensor signals can be transmitted.

## Power cable



Connection cables such as power cables and encoder cables are specifically designed for connecting SCHUNK products with drive control units. We will gladly help you to select the right connection cables.

⑥ Connection module side  
⑮ Socket

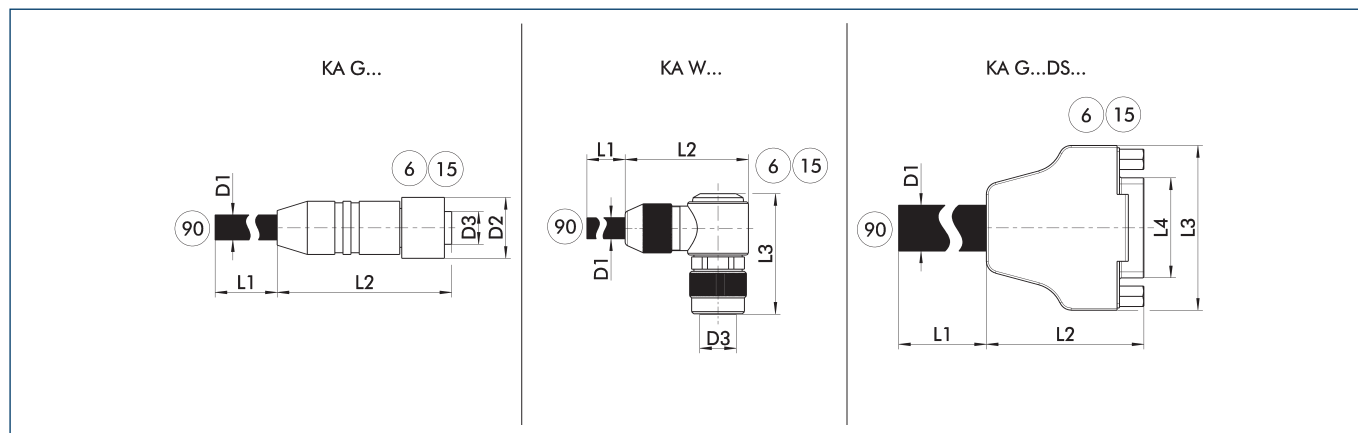
⑨ Prefabricated to connect to the higher-level components

Description	ID	L1 [m]	D1 [mm]	L2 [mm]	D2 [mm]	D3
Power cable for BOSCH Rexroth IndraDrive Cs – cable track-compatible						
KA GLT1706-LK-00500-1	0349104	5	8.5	71	21.2	M17
KA GLT1706-LK-01000-1	0349105	10	8.5	71	21.2	M17
KA GLT1706-LK-01500-1	0349106	15	8.5	71	21.2	M17
KA GLT1706-LK-02000-1	0349107	20	8.5	71	21.2	M17

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.



Encoder cable



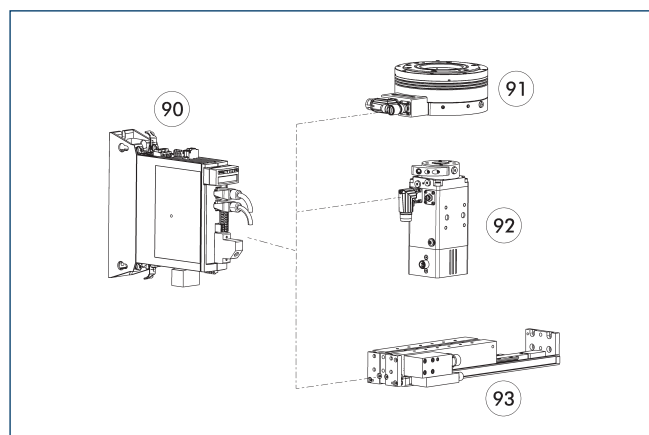
- KA G... encoder cable with straight plug
- KA W... encoder cable with angeled plug
- KA G...DS... Sub D encoder cable
- ⑥ Connection module side
- ①⑤ Socket
- ⑨⑩ Prefabricated for connection to the drive controller

Connection cables such as power cables and encoder cables are specifically designed for connecting SCHUNK products with drive control units. We will gladly help you to select the right connection cables.

Description	ID	L1	D1	L2	D2	L3	D3
		[m]	[mm]	[mm]	[mm]	[mm]	
Encoder cable for BOSCH IndraDrive A/B/Cs and Hiperface encoder interface							
KA WWN1208-GK-00500-K	0349544	5	6	37.5	14.9	30.8	M12
KA WWN1208-GK-01000-K	0349545	10	6	37.5	14.9	30.8	M12
KA WWN1208-GK-01500-K	0349546	15	6	37.5	14.9	30.8	M12
KA WWN1208-GK-02000-K	0349547	20	6	37.5	14.9	30.8	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.

BOSCH Rexroth IndraDrive Cs Drive controller



- ⑨⑩ Controller
- ⑨① ERS Rotary unit
- ⑨② ERD Rotary unit
- ⑨③ ELB Compact linear module

The controller can be used to operate the ERS 560 V and ERD rotary modules for SCHUNK linear motor axes. It is available with the PROFIBUS or multi-Ethernet (Sercos III, PROFINET, EtherCAT, EtherNet/IP) communication interfaces.

Description	Nominal current	Maximum current
	[A]	[A]
Controller		
HCS01.1E-W0008	2.7	8

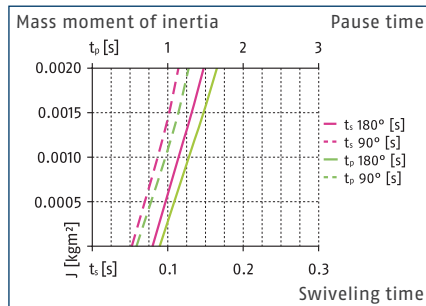
① We will be happy to help you select the right controller. Please contact us for assistance.

# ERD 08

Miniature rotary unit

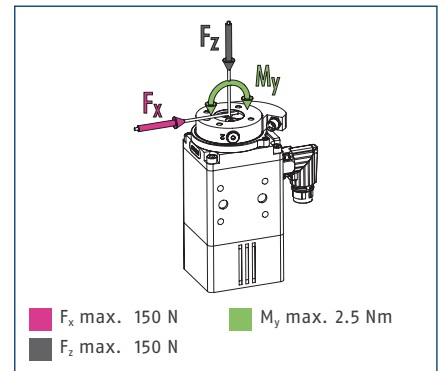


## Swivel time diagram



- ① Swivel and pause times apply for motions without restricted speeds at max. current. Reducing the max. current increases swivel periods and reduces rest periods. Higher mass moments of inertia are possible. Diagrams only apply for sufficiently rigid designs. Please contact us for assistance with the design of your application.

## Forces and moments



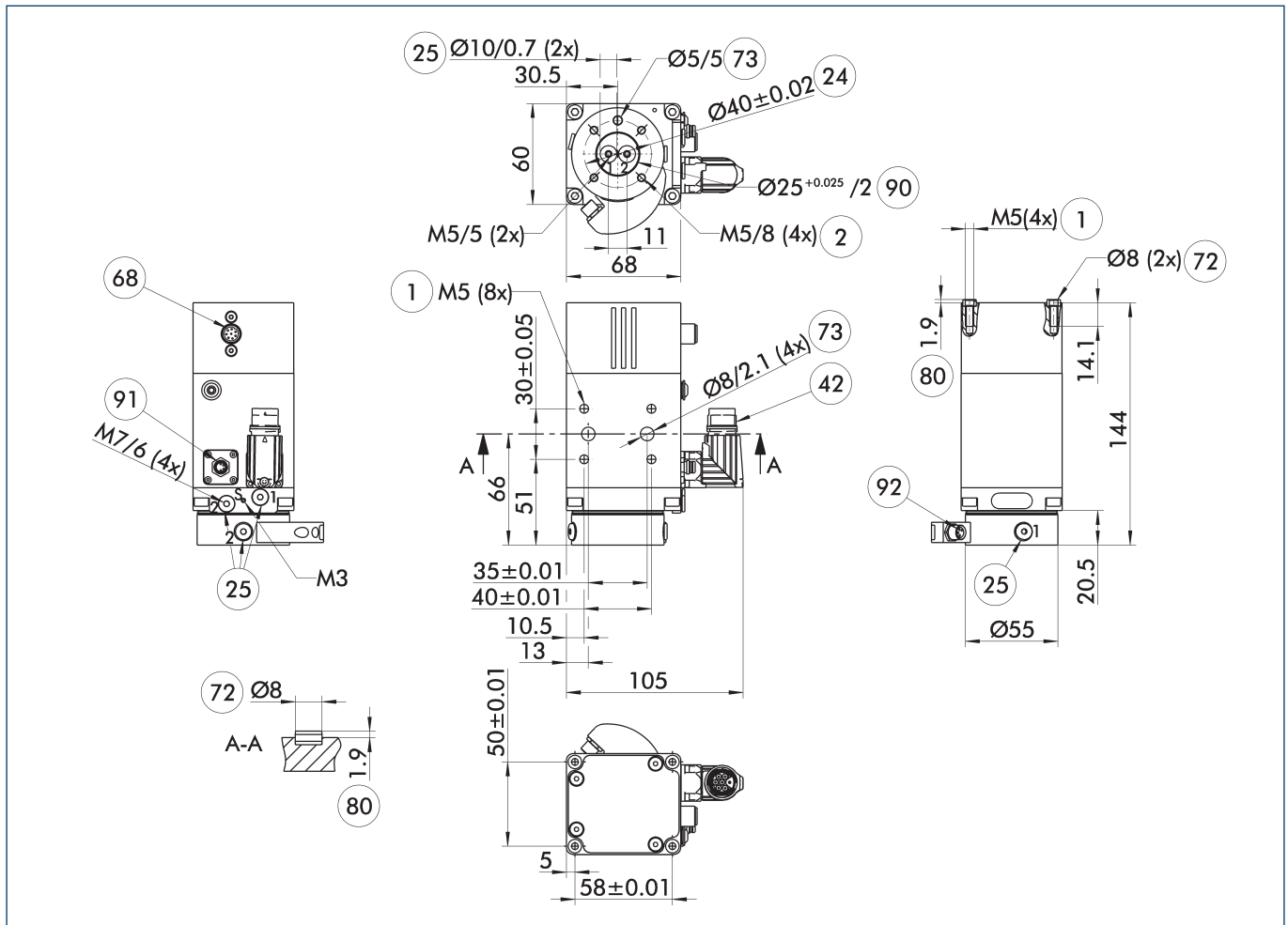
- ① Moments and forces may occur simultaneously.

## Technical data

Description		ERD 08-40-D-H-N	ERD 08-40-N-H-N
ID		0331230	0331234
<b>General operating data</b>			
Rated/maximum torque	[Nm]	0.8/2.4	0.8/2.4
Max. RPM	[1/min]	600	600
Max. permissible mass moment of inertia	[kgmm²]	900	900
Repeat accuracy	[°]	0.01	0.01
Weight	[kg]	1.5	1.5
Min./max. ambient temperature	[°C]	10/40	10/40
Protection class IP		40	40
<b>Electrical operating data</b>			
Intermediate circuit voltage	[V]	530	530
Rated/maximum current	[A]	1.3/3.8	1.3/3.8
Encoder system		Encoder (absolute)	Encoder (absolute)
Output signal		Hiperface	Hiperface
SIL certification		not certified	not certified
<b>Operating data of the rotary feed-through</b>			
Number of pneumatic feed-throughs		2	2
Max. operating pressure	[bar]	6	6
Number of electrical feed-throughs		2	
Max. voltage (DC)	[V]	60	
Max. current	[A]	1	
<b>Options and their characteristics</b>			
Description		ERD 08-54-D-H-N	ERD 08-54-N-H-N
ID		0331238	0331242
Protection class IP		54	54
Weight	[kg]	1.55	1.55
Nominal torque	[Nm]	0.8	0.8

- ① The peak torques serve as short-term drive reserves when accelerating and delaying.

Main view



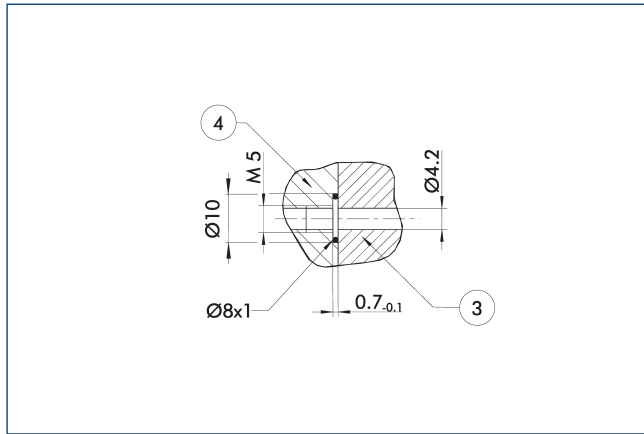
The drawing shows the rotary module with pneumatic and electrical rotary feed-throughs in IP protection class 40.

- 5 Air purge connection (0.5 ... 1 bar)
- ① Connection swivel unit
- ② Attachment connection
- ②④ Bolt circle
- ②⑤ Fluid feed-through
- ④② Motor plug
- ⑥⑧ Shaft encoder connection
- ⑦② Fit for centering sleeves
- ⑦③ Fit for centering pins
- ⑧① Depth of the centering sleeve hole in the counter part
- ⑨① Fit for centering
- ⑨① Input for 4 pole sensor feed-through
- ⑨② Output for a 4-pin sensor feed-through

# ERD 08

Miniature rotary unit

## Hose-free direct connection M5

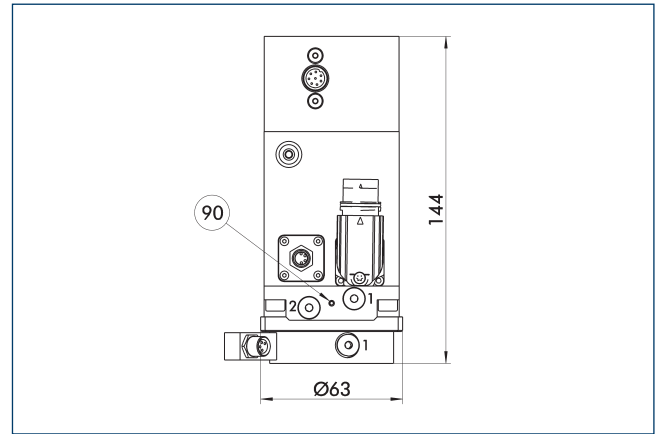


3 Adapter

4 Rotary unit

The direct connection is used for supplying compressed air without hoses. Instead, the pressure medium is fed through bore-holes in the mounting plate.

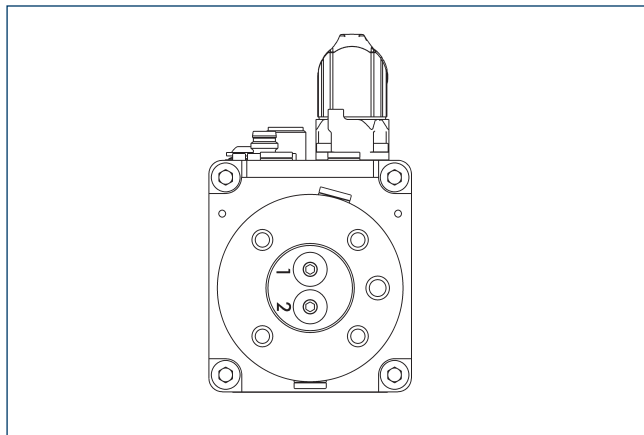
## Protection class IP54



90 M3/6 air purge connection

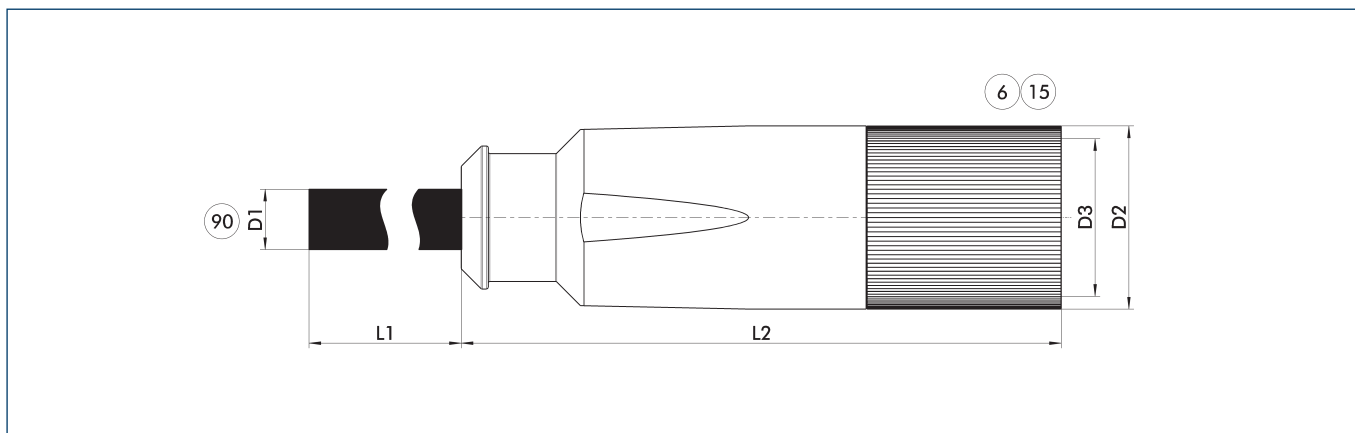
The protection class specified is implemented via an additional set of seals in the module and air purge.

## Without an electrical rotary feed-through



In this option, no sensor signals can be transmitted.

Power cable



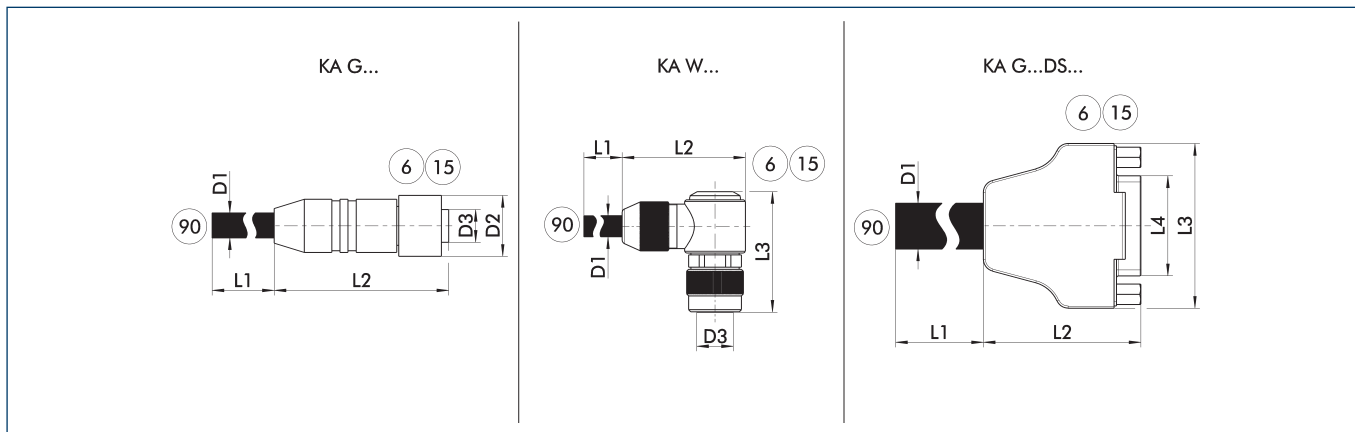
Connection cables such as power cables and encoder cables are specifically designed for connecting SCHUNK products with drive control units. We will gladly help you to select the right connection cables.

- ⑥ Connection module side
- ①⑤ Socket
- ⑨⑩ Prefabricated to connect to the higher-level components

Description	ID	L1 [m]	D1 [mm]	L2 [mm]	D2 [mm]	D3
Power cable for BOSCH Rexroth IndraDrive Cs - cable track-compatible						
KA GLT1706-LK-00500-1	0349104	5	8.5	71	21.2	M17
KA GLT1706-LK-01000-1	0349105	10	8.5	71	21.2	M17
KA GLT1706-LK-01500-1	0349106	15	8.5	71	21.2	M17
KA GLT1706-LK-02000-1	0349107	20	8.5	71	21.2	M17

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.

Encoder cable



- KA G... encoder cable with straight plug
- KA W... encoder cable with angled plug
- KA G...DS... Sub D encoder cable
- ⑥ Connection module side
- ①⑤ Socket
- ⑨⑩ Prefabricated for connection to the drive controller

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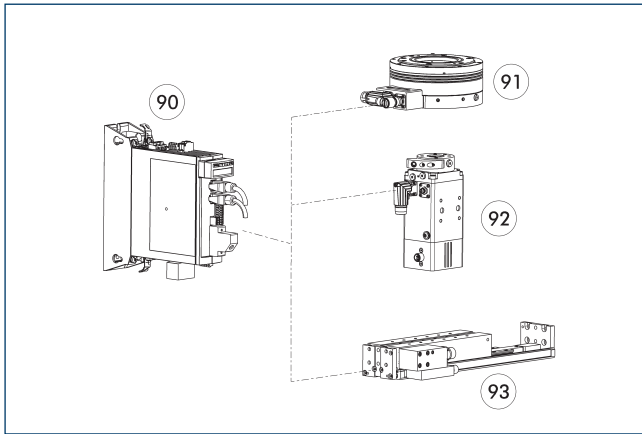
Description	ID	L1 [m]	D1 [mm]	L2 [mm]	D2 [mm]	L3 [mm]	D3
Encoder cable for BOSCH IndraDrive A/B/Cs and Hiperface encoder interface							
KA WWN1208-GK-00500-K	0349544	5	6	37.5	14.9	30.8	M12
KA WWN1208-GK-01000-K	0349545	10	6	37.5	14.9	30.8	M12
KA WWN1208-GK-01500-K	0349546	15	6	37.5	14.9	30.8	M12
KA WWN1208-GK-02000-K	0349547	20	6	37.5	14.9	30.8	M12

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# ERD 08

Miniature rotary unit

## BOSCH Rexroth IndraDrive Cs Drive controller



- 90 Controller
- 91 ERS Rotary unit
- 92 ERD Rotary unit
- 93 ELB Compact linear module

The controller can be used to operate the ERS 560 V and ERD rotary modules for SCHUNK linear motor axes. It is available with the PROFIBUS or multi-Ethernet (Sercos III, PROFINET, EtherCAT, EtherNet/IP) communication interfaces.

Description	Nominal current [A]	Maximum current [A]
<b>Controller</b>		
HCS01.1E-W0008	2.7	8

① We will be happy to help you select the right controller. Please contact us for assistance.

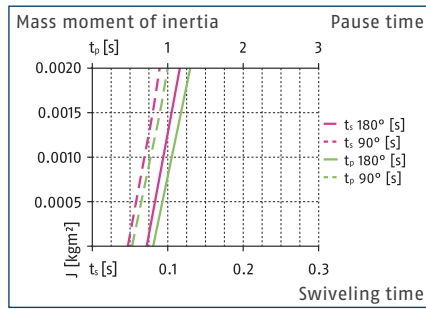


# ERD 12

Miniature rotary unit

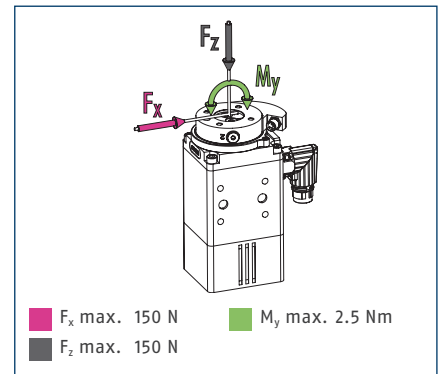


## Swivel time diagram



- ① Swivel and pause times apply for motions without restricted speeds at max. current. Reducing the max. current increases swivel periods and reduces rest periods. Higher mass moments of inertia are possible. Diagrams only apply for sufficiently rigid designs. Please contact us for assistance with the design of your application.

## Forces and moments



- ① Moments and forces may occur simultaneously.

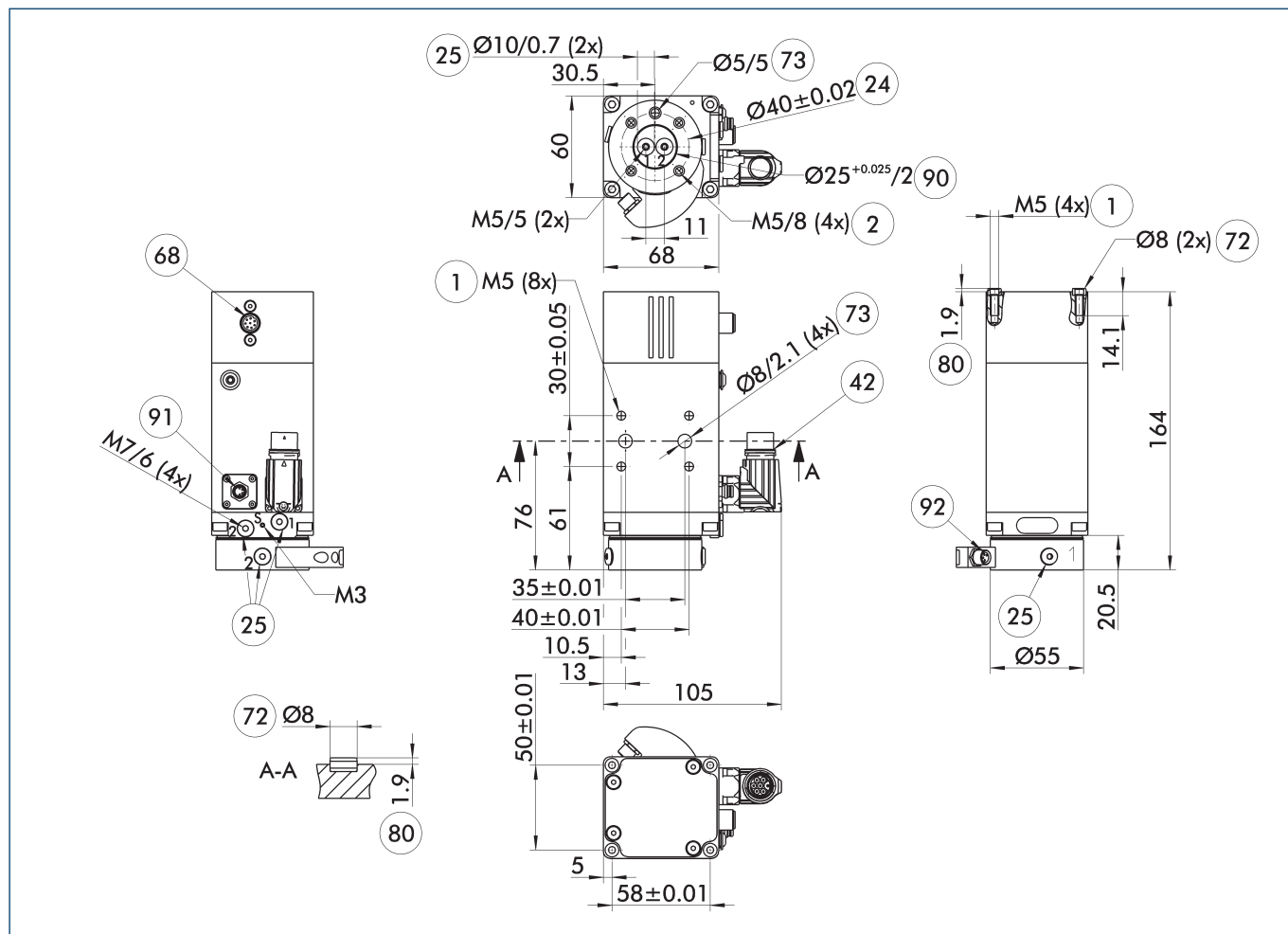
## Technical data

Description		ERD 12-40-D-H-N	ERD 12-40-N-H-N
ID		0331250	0331254
<b>General operating data</b>			
Rated/maximum torque	[Nm]	1.2/3.6	1.2/3.6
Max. RPM	[1/min]	600	600
Max. permissible mass moment of inertia	[kgmm <sup>2</sup> ]	1200	1200
Repeat accuracy	[°]	0.01	0.01
Weight	[kg]	1.8	1.8
Min./max. ambient temperature	[°C]	10/40	10/40
Protection class IP		40	40
<b>Electrical operating data</b>			
Intermediate circuit voltage	[V]	530	530
Rated/maximum current	[A]	1.6/5.1	1.6/5.1
Encoder system		Encoder (absolute)	Encoder (absolute)
Output signal		Hiperface	Hiperface
SIL certification		not certified	not certified
<b>Operating data of the rotary feed-through</b>			
Number of pneumatic feed-throughs		2	2
Max. operating pressure	[bar]	6	6
Number of electrical feed-throughs		2	
Max. voltage (DC)	[V]	60	
Max. current	[A]	1	
<b>Options and their characteristics</b>			
Description		ERD 12-54-D-H-N	ERD 12-54-N-H-N
ID		0331258	0331262
Protection class IP		54	54
Weight	[kg]	1.8	1.8
Nominal torque	[Nm]	1.2	1.2

- ① The peak torques serve as short-term drive reserves when accelerating and delaying.



Main view



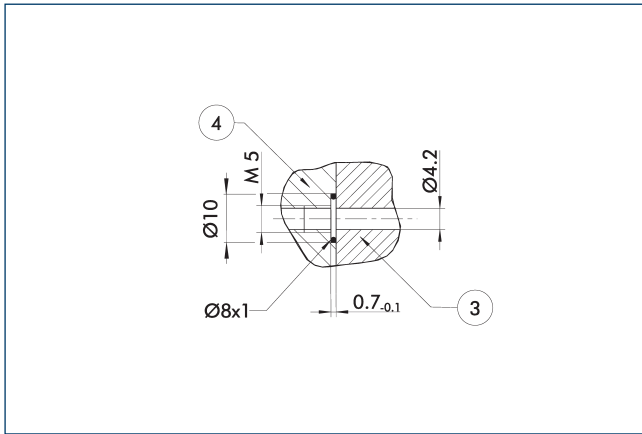
The drawing shows the rotary module with pneumatic and electrical rotary feed-throughs in IP protection class 40.

- S Air purge connection (0.5 ... 1 bar)
- ① Connection swivel unit
- ② Attachment connection
- ②④ Bolt circle
- ②⑤ Fluid feed-through
- ④② Motor plug
- ⑥⑧ Shaft encoder connection
- ⑦② Fit for centering sleeves
- ⑦③ Fit for centering pins
- ⑧① Depth of the centering sleeve hole in the counter part
- ⑨① Fit for centering
- ⑨① Input for 4 pole sensor feed-through
- ⑨② Output for a 4-pin sensor feed-through

# ERD 12

Miniature rotary unit

## Hose-free direct connection M5

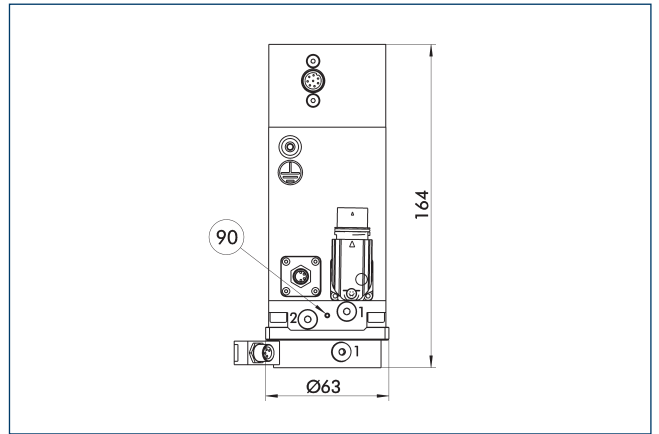


③ Adapter

④ Rotary unit

The direct connection is used for supplying compressed air without hoses. Instead, the pressure medium is fed through bore-holes in the mounting plate.

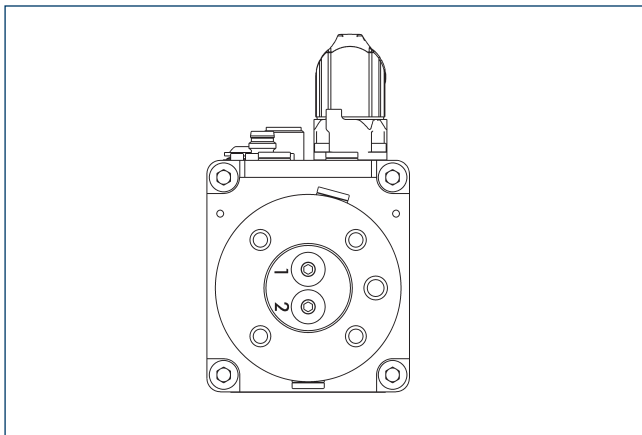
## Protection class IP54



⑨0 M3/6 air purge connection

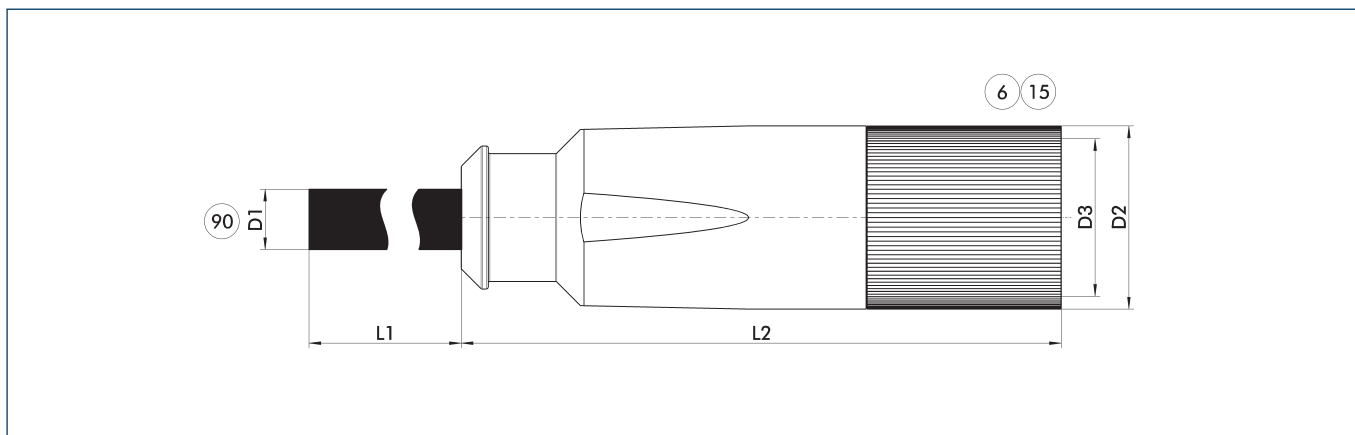
The protection class specified is implemented via an additional set of seals in the module and air purge.

## Without an electrical rotary feed-through



In this option, no sensor signals can be transmitted.

Power cable



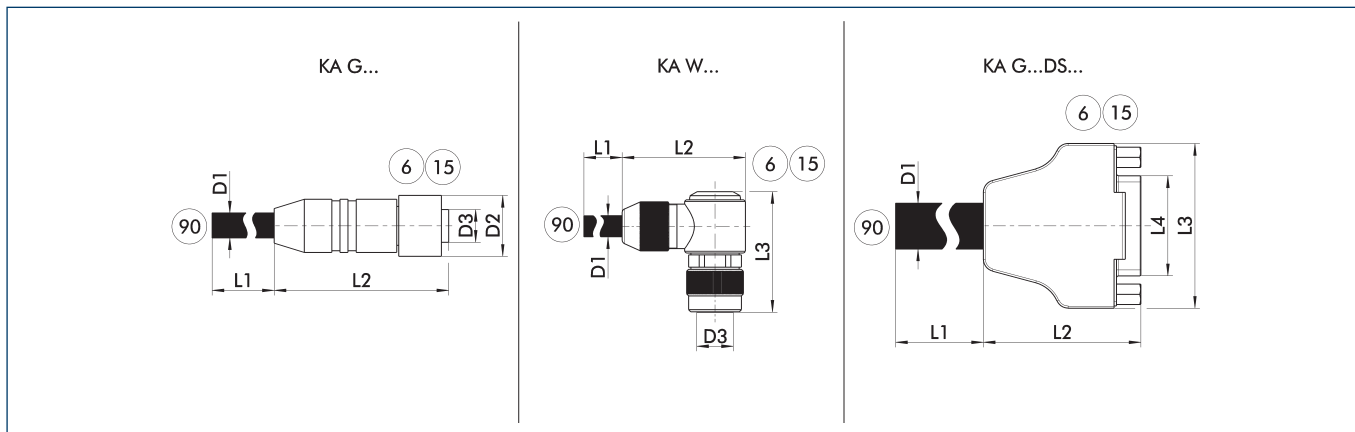
Connection cables such as power cables and encoder cables are specifically designed for connecting SCHUNK products with drive control units. We will gladly help you to select the right connection cables.

- ⑥ Connection module side
- ⑬ Socket
- ⑨⑩ Prefabricated to connect to the higher-level components

Description	ID	L1 [m]	D1 [mm]	L2 [mm]	D2 [mm]	D3
Power cable for BOSCH Rexroth IndraDrive Cs - cable track-compatible						
KA GLT1706-LK-00500-1	0349104	5	8.5	71	21.2	M17
KA GLT1706-LK-01000-1	0349105	10	8.5	71	21.2	M17
KA GLT1706-LK-01500-1	0349106	15	8.5	71	21.2	M17
KA GLT1706-LK-02000-1	0349107	20	8.5	71	21.2	M17

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.

Encoder cable



- KA G... encoder cable with straight plug
- KA W... encoder cable with angled plug
- KA G...DS... Sub D encoder cable
- ⑥ Connection module side
- ⑬ Socket
- ⑨⑩ Prefabricated for connection to the drive controller

Connection cables such as power cables and encoder cables are specifically designed for connecting SCHUNK products with drive control units. We will gladly help you to select the right connection cables.

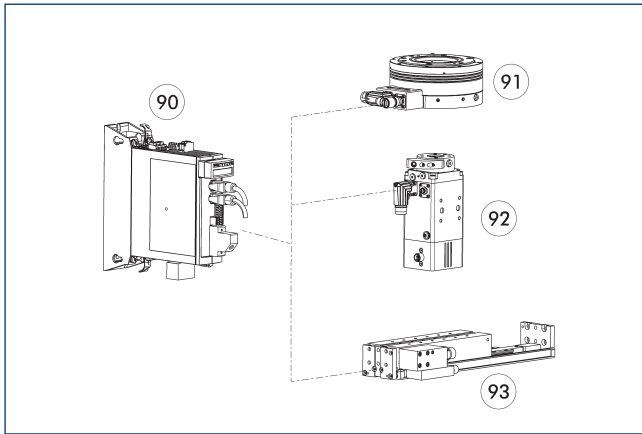
Description	ID	L1 [m]	D1 [mm]	L2 [mm]	D2 [mm]	L3 [mm]	D3
Encoder cable for BOSCH IndraDrive A/B/Cs and Hiperface encoder interface							
KA WWN1208-GK-00500-K	0349544	5	6	37.5	14.9	30.8	M12
KA WWN1208-GK-01000-K	0349545	10	6	37.5	14.9	30.8	M12
KA WWN1208-GK-01500-K	0349546	15	6	37.5	14.9	30.8	M12
KA WWN1208-GK-02000-K	0349547	20	6	37.5	14.9	30.8	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.

# ERD 12

Miniature rotary unit

## BOSCH Rexroth IndraDrive Cs Drive controller



- 90 Controller
- 91 ERS Rotary unit
- 92 ERD Rotary unit
- 93 ELB Compact linear module

The controller can be used to operate the ERS 560 V and ERD rotary modules for SCHUNK linear motor axes. It is available with the PROFIBUS or multi-Ethernet (Sercos III, PROFINET, EtherCAT, EtherNet/IP) communication interfaces.




Description	Nominal current [A]	Maximum current [A]
<b>Controller</b>		
HCS01.1E-W0008	2.7	8

① We will be happy to help you select the right controller. Please contact us for assistance.



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