



Hand in hand for tomorrow



Product data sheet

Miniature rotary unit ERD 12

Fast. Compact. Flexible.

Torque motor ERD

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 safe energy supply of grippers

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

Optionally certified safety devices according to SIL2/PLd with HIPERFACE®, EnDat 2.2, and DRIVE-CLiQ interfaces (via EnDat 2.2 + signal converter in wiring harness) for applications with increased requirements for machine safety



Sizes
Quantity: 3



Weight
1.2 .. 1.8 kg



Torque
0.4 .. 1.2 Nm



Repeat accuracy
0.01°



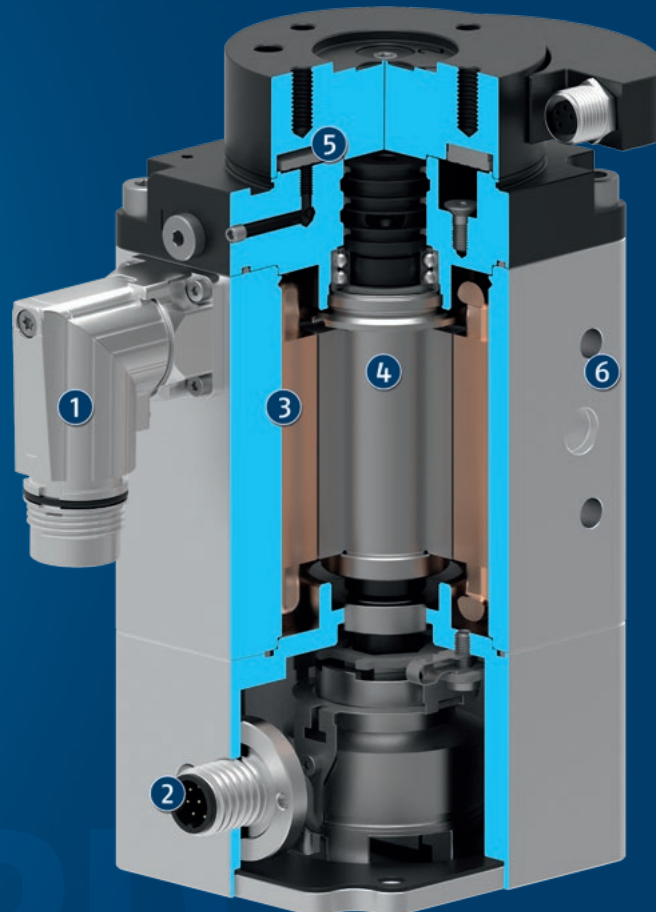
Angle of rotation
>360°

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**
is weight-optimized due to the use of high-strength aluminum alloy

General notes about the series

Housing material: Aluminum alloy, coated

Drive: Torque motor, 3-phase

Stroke measuring system: Absolute path measuring system, multiturn version, with HIPERFACE®, EnDat2.2, and DRIVE-CLiQ interfaces (via EnDat 2.2 + signal converter)

Drive controller: Consultation on parameter settings for drive controllers from BOSCH (EcoDrive CS, IndraDrive and IndraDrive CS) and Siemens (Sinamics S120). Provision of motor data sheets for other drive controllers. Commissioning support 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 primarily designed for the use in clean to slightly contaminated environments. 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.

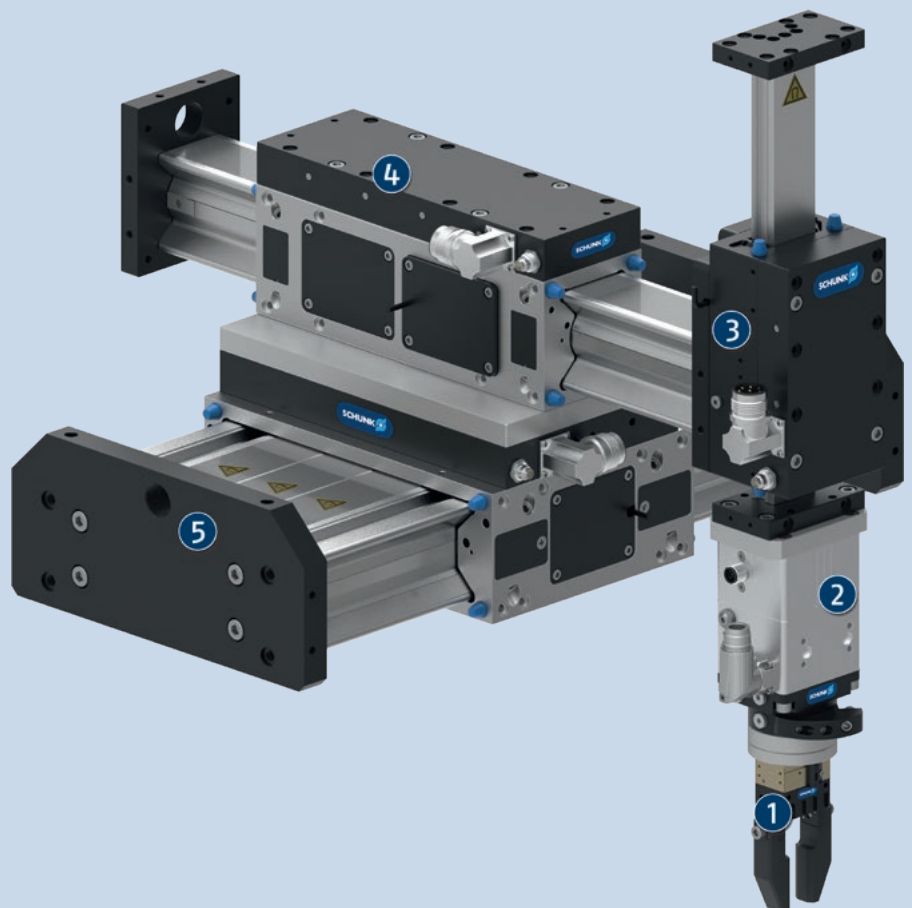
Nominal currents: The rated currents can be permanently actuated. With regard to all the currents which are ranging above the nominal current up to the maximum current, the notes of the individual product documentation has to be respected.

Cleanroom class ISO 14644-1:2015: 2

Application example

Linear gripper rotary unit for dynamic movement of small components.

- ① 2-finger parallel gripper MPG-plus
- ② Miniature rotary module ERD
- ③ Stroke module LDK
- ④ Universal linear module LDN
- ⑤ Universal linear module LDT



SCHUNK offers more ...

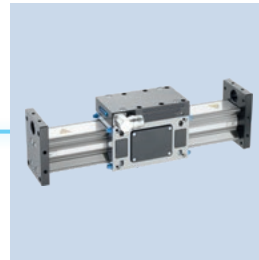
The following components make the product even more productive – the suitable addition for the highest functionality, flexibility, reliability, and controlled production.



Gripper for small components



Gripper for small components



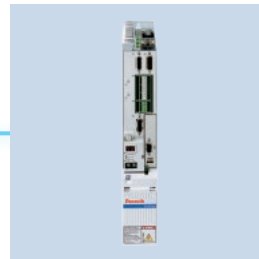
Linear module



Pick & Place Unit



Power and encoder cables



Controller



Room gantry

① For more information on these products can be found on the following product pages or at [schunk.com](https://www.schunk.com).

Options and special information

Pneumatic rotary feed-through: The rotary module ERD 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 encoder 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 matching connecting cables. Customized lengths or cable extensions are available on request.

Certified encoder system: The encoder systems with HIPERFACE® (optional), EnDat 2.2, and DRIVE-CLiQ interfaces (via EnDat 2.2 + signal converter in wiring harness) are certified according to SIL2/PLd. This means that even demanding applications with high requirements in the area of machine safety can be implemented. Please contact us.

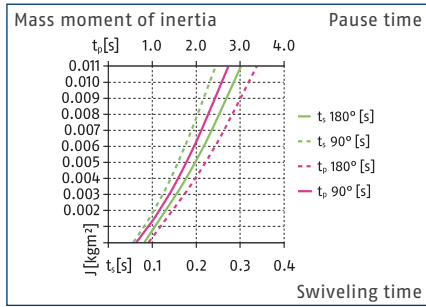
NEW: Version with food –compliant lubrication (H1G): as a solution for an easy entry into medical technology, lab automation, pharmaceutical and food industry. The requirements of EN 1672-2:2020 are not fully met.

Order example ERD

	ERD	-	04	-	40	-	D	-	H	-	N
Series											
Size											
04 = Nominal torque x 10: 0.4 Nm 08 = Nominal torque x 10: 0.8 Nm 12 = Nominal torque x 10: 1.2 Nm											
IP protection class *											
40 54 * tested with water according to DIN EN 60529 (IEC 529/VDE 047 T1)											
Rotary feed-through											
D = with electrical and pneumatic rotary feed-through N = without electrical rotary feed-through											
Encoder interface											
H = HIPERFACE® D = DRIVE-CLiQ (via EnDat 2.2 + signal converter in wiring harness) E = EnDat 2.2											
Safety											
N = not certified 2 = SIL2/PLd - encoder - SIL2 according to EN 62061 and IEC 61508 - PLd according to EN ISO 13849-1											

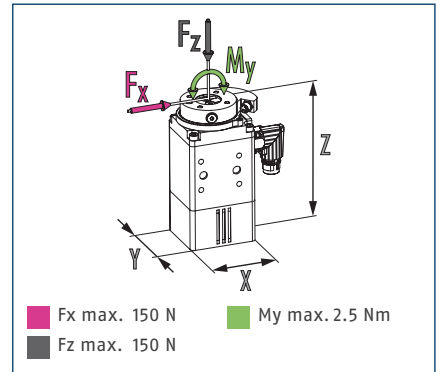


Swivel time diagram



- 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.

Dimensions and maximum loads



- ① Moments and forces may occur simultaneously.

Technical data – with rotary feed-through

Description		ERD 12-40-D-H-N	ERD 12-40-D-D-2	ERD 12-40-D-E-2	ERD 12-40-D-H-2
ID		0331250	1630128	1630146	1484553
General operating data					
Angle of rotation	[°]	>360	>360	>360	>360
Rated/maximum torque	[Nm]	1.2/3.6	1.2/3.6	1.2/3.6	1.2/3.6
Max. rotational speed	[1/min]	600	600	600	600
Max. permissible mass moment of inertia	[kgm ²]	0.011	0.011	0.011	0.011
Repeat accuracy	[°]	0.01	0.01	0.01	0.01
Weight	[kg]	1.8	1.8	1.8	1.8
Min./max. ambient temperature	[°C]	10/40	10/40	10/40	10/40
IP protection class		40	40	40	40
Dimensions X x Y x Z	[mm]	68 x 60 x 164	68 x 60 x 179	68 x 60 x 179	68 x 60 x 164
Electrical operating data					
Intermediate circuit voltage	[V]	530	530	530	530
Rated/maximum current	[A]	1.6/5.1	1.6/5.1	1.6/5.1	1.6/5.1
Encoder system		Encoder (absolute)	Encoder (absolute)	Encoder (absolute)	Encoder (absolute)
Output signal		HIPERFACE®	DRIVE-CLiQ (via EnDat 2.2 + signal converter in cabled design)	EnDat 2.2	HIPERFACE®
SIL certification		not certified	2	2	2
Rotary feed-through operating data					
Number of pneumatic feed-throughs		2	2	2	2
Max. operating pressure	[bar]	6	6	6	6
Number of electrical feed-throughs		4	4	4	4
Max. voltage (DC)	[V]	60	60	60	60
Max. current	[A]	1	1	1	1
Options and their characteristics					
H1 grease version			1632119	1632149	1488663
Version with protection class IP 54		0331258	1632138	1632168	1484557
IP protection class		54	54	54	54
Weight	[kg]	1.8	1.8	1.8	1.8
Nominal torque	[Nm]	1.2	1.2	1.2	1.2
Protection class IP 54/H1 grease version			1632117	1632147	1488687
Weight	[kg]		1.8	1.8	1.8
IP protection class			54	54	54

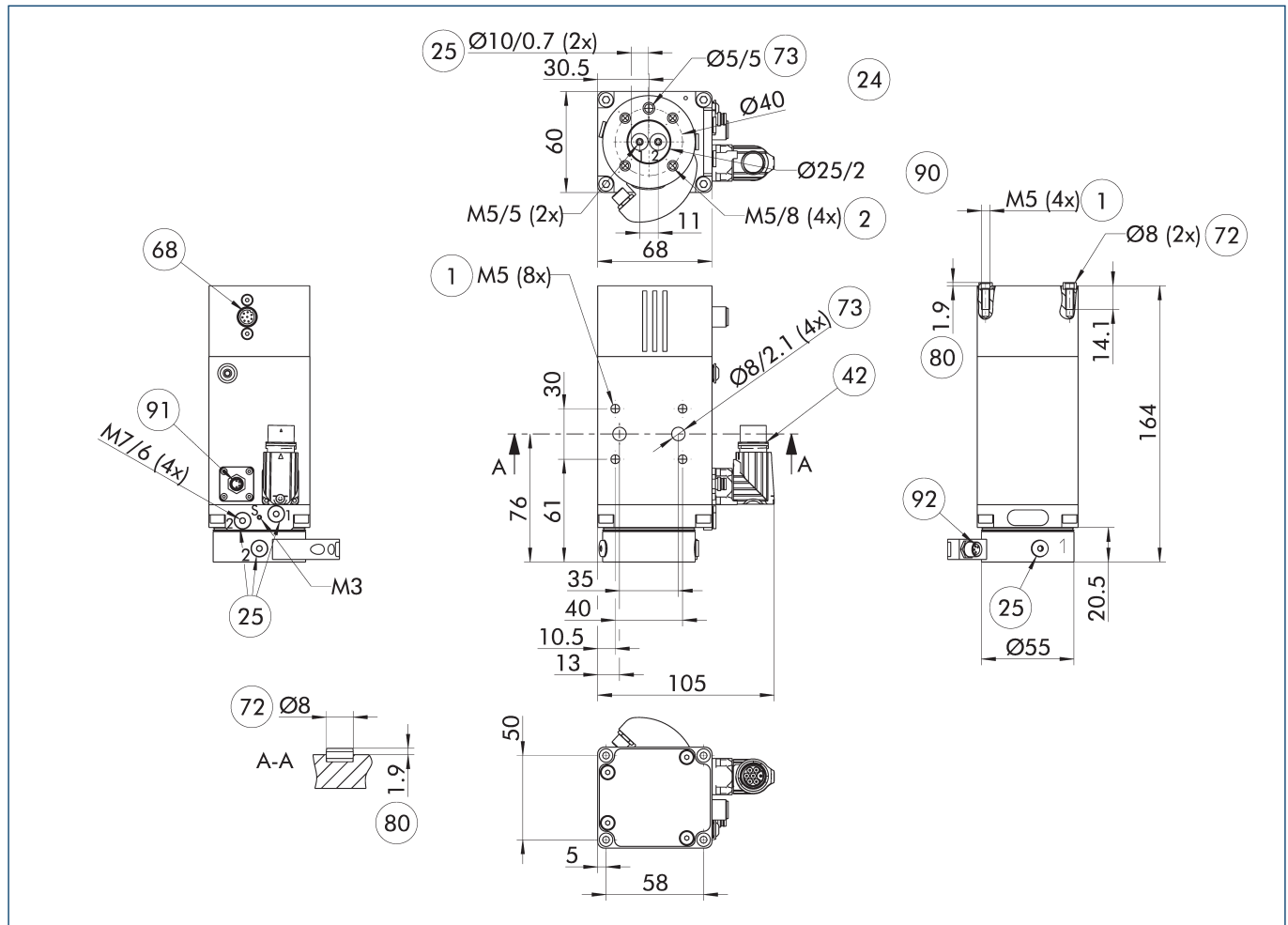
① The peak torques serve as short-term drive reserves when accelerating and delaying.

Technical data – without rotary feed-through

Description		ERD 12-40-N-H-N	ERD 12-40-N-D-2	ERD 12-40-N-E-2	ERD 12-40-N-H-2
ID		0331254	1638129	1630148	1484555
General operating data					
Angle of rotation	[°]	>360	>360	>360	>360
Rated/maximum torque	[Nm]	1.2/3.6	1.2/3.6	1.2/3.6	1.2/3.6
Max. rotational speed	[1/min]	600	600	600	600
Max. permissible mass moment of inertia	[kgm²]	0.011	0.011	0.011	0.011
Repeat accuracy	[°]	0.01	0.01	0.01	0.01
Weight	[kg]	1.8	1.8	1.8	1.8
Min./max. ambient temperature	[°C]	10/40	10/40	10/40	10/40
IP protection class		40	40	40	40
Dimensions X x Y x Z	[mm]	68 x 60 x 164	68 x 60 x 179	68 x 60 x 179	68 x 60 x 164
Electrical operating data					
Intermediate circuit voltage	[V]	530	530	530	530
Rated/maximum current	[A]	1.6/5.1	1.6/5.1	1.6/5.1	1.6/5.1
Encoder system		Encoder (absolute)	Encoder (absolute)	Encoder (absolute)	Encoder (absolute)
Output signal		HIPERFACE®	DRIVE-CLiQ (via EnDat 2.2 + signal converter in cabled design)	EnDat 2.2	HIPERFACE®
SIL certification		not certified	2	2	2
Rotary feed-through operating data					
Number of pneumatic feed-throughs		2	2	2	2
Max. operating pressure	[bar]	6	6	6	6
Options and their characteristics					
H1 grease version			1632118	1632148	1488680
Version with protection class IP 54		0331262	1632137	1632167	1484571
IP protection class		54	54	54	54
Weight	[kg]	1.8	1.8	1.8	1.8
Nominal torque	[Nm]	1.2	1.2	1.2	1.2
Protection class IP 54/H1 grease version			1632116	1632145	1488690
Weight	[kg]		1.8	1.8	1.8
IP protection class			54	54	54

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

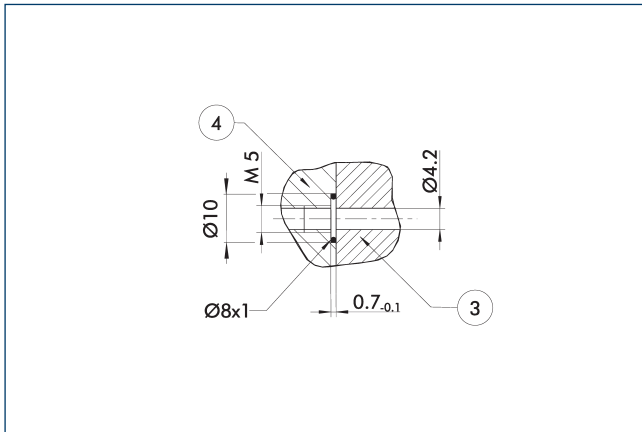
Main view



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

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

Hose-free direct connection M5

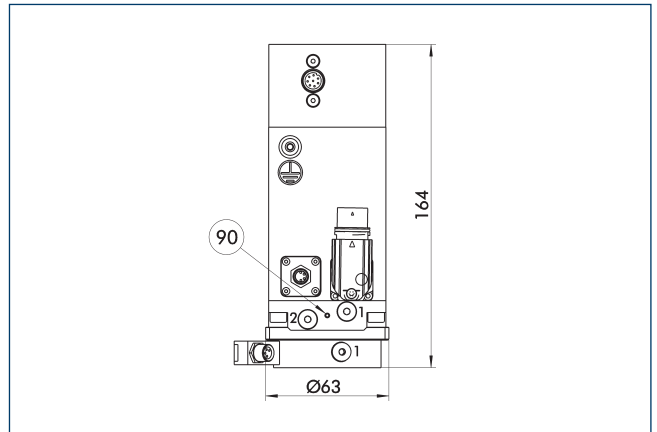


③ Adapter

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.

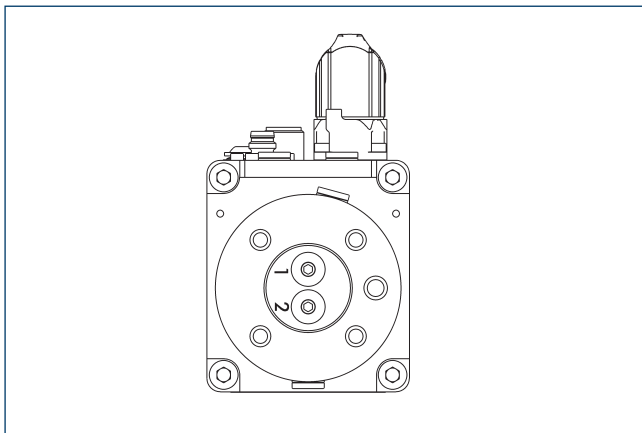
Protection class IP54



⑨⑩ M3/6 air purge connection

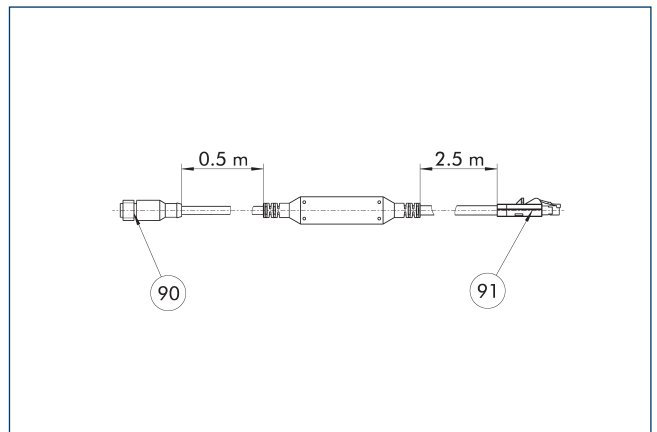
The protection class specified is implemented via an additional set of seals in the module and air purge.

Without an electrical rotary feed-through



In this option, no sensor signals can be transmitted.

Signal converter in wiring harness (EnDat 2.2 in DRIVE-CLIQ)

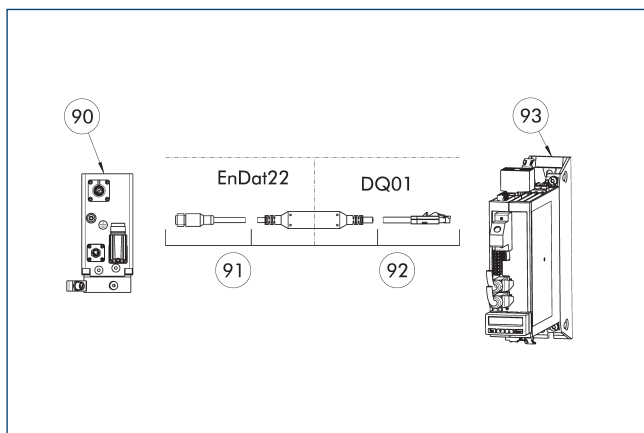


⑨⑩ Socket M12

⑨⑪ Plug RJ45

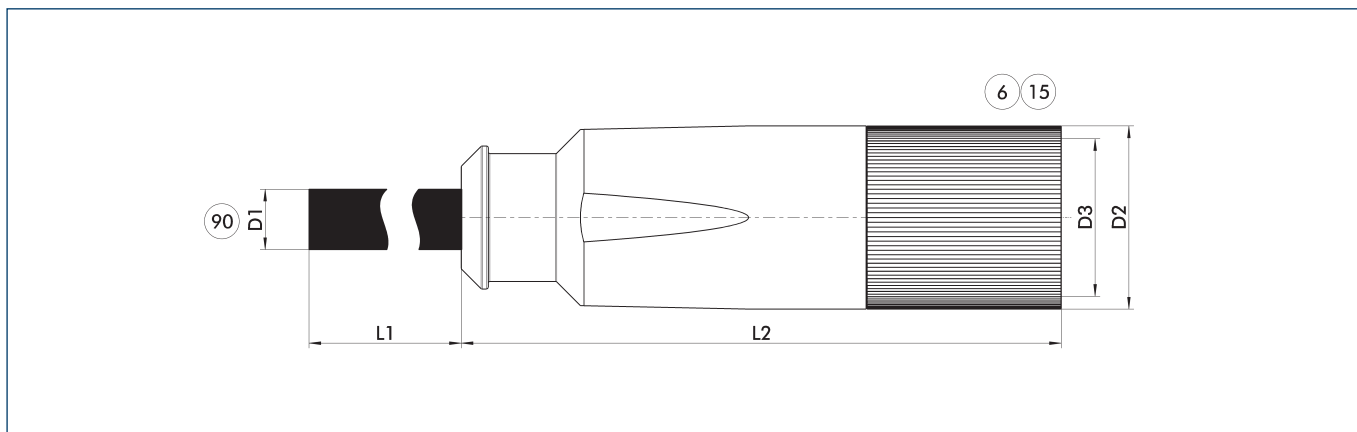
① The signal converter is included in the scope of delivery.

DRIVE-CLiQ interface



- ⑨⑩ Shaft encoder connection for EnDat 2.2
- ⑨① Measuring system cable extension (EnDat 2.2) for connection to signal converter
- ⑨② Signal converter in wiring harness (EnDat 2.2 in DRIVE-CLiQ)
- ⑨③ Drive controller

Power cable



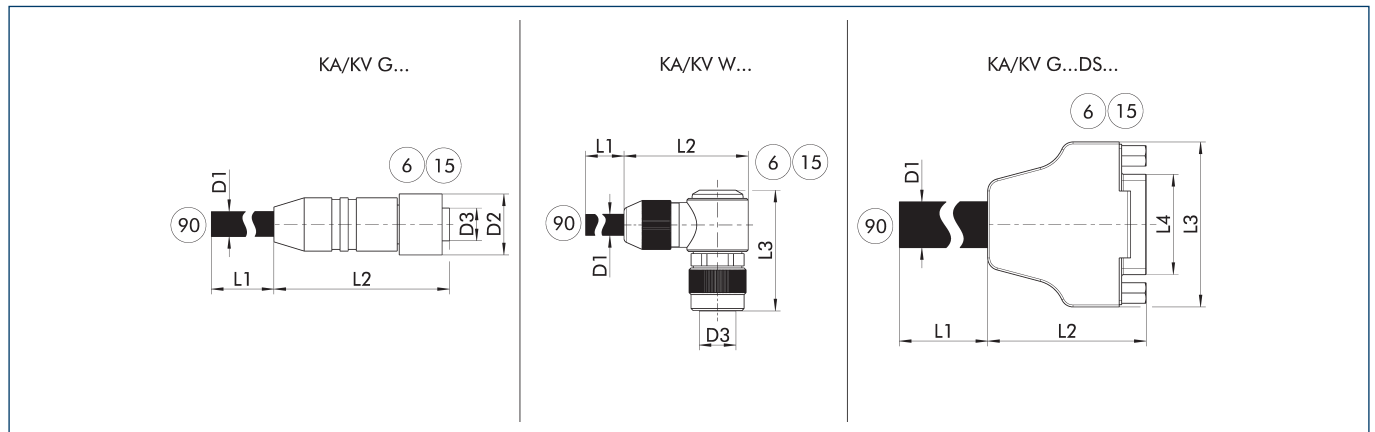
Connection cables such as power cables and encoder cables are specifically designed for connecting SCHUNK products with drive control units. We will gladly help you to select the right connection cables.

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

Description	ID	L1	D1	L2	D2	D3
		[m]	[mm]	[mm]	[mm]	
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
Power cable for Siemens SINAMICS with DRIVE-CLiQ – cable track compatible						
ERD – DQ 05m	1395330	5	8.5	71	21.2	M17
ERD – DQ 10m	1395343	10	8.5	71	21.2	M17
ERD – DQ 15m	1389001	15	8.5	71	21.2	M17
ERD – DQ 20m	1395345	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/KV G... encoder cable with straight plug
 KA/KV W... encoder cable with angled plug
 KA/KV G...DS... Sub D encoder cable

⑥ Connection module side
 ⑮ Socket

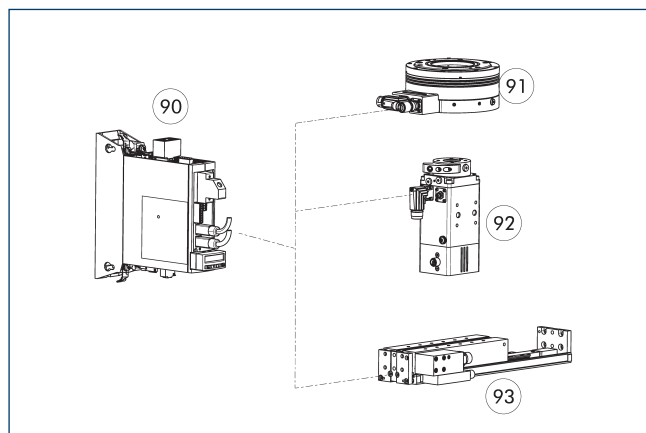
⑨⑩ Prefabricated for connection to the drive controller

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 EnDat 2.2 encoder interface – drag chain compatible							
KA GGT1208-GK-00500-F	1595139	5	6	37.5	14.9	30.8	M12
KA GGT1208-GK-01000-F	1595140	10	6	37.5	14.9	30.8	M12
KA GGT1208-GK-01500-F	1595141	15	6	37.5	14.9	30.8	M12
KA GGT1208-GK-02000-F	1595142	20	6	37.5	14.9	30.8	M12
KA WGT1208-GK-00500-F	1648863	5	6	37.5	14.9	30.8	M12
KA WGT1208-GK-01000-F	1648864	10	6	37.5	14.9	30.8	M12
KA WGT1208-GK-01500-F	1648865	15	6	37.5	14.9	30.8	M12
KA WGT1208-GK-02000-F	1648866	20	6	37.5	14.9	30.8	M12
Encoder cable for BOSCH IndraDrive A/B/Cs and HIPERFACE® encoder interface – drag chain compatible							
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
Sensor cable for Siemens SINAMICS and encoder interface DRIVE-CLiQ (via EnDat 2.2 + signal converter in wiring harness) – drag chain compatible							
KV GGN1208-GK-00150-UL	1648867	1.5	6	37.5	14.9	30.8	M12
KV GGN1208-GK-00200-UL	1489841	2	6	37.5	14.9	30.8	M12
KV GGN1208-GK-00250-UL	1648870	2.5	6	37.5	14.9	30.8	M12
KV GGN1208-GK-00500-UL	1489854	5	6	37.5	14.9	30.8	M12
KV GGN1208-GK-01000-UL	1489855	10	6	37.5	14.9	30.8	M12
KV GGN1208-GK-01500-UL	1489856	15	6	37.5	14.9	30.8	M12
KV GGN1208-GK-02000-UL	1489857	20	6	37.5	14.9	30.8	M12
KV WGN1208-GK-00150-UL	1648868	1.5	6	37.5	14.9	30.8	M12
KV WGN1208-GK-00200-UL	1648869	2	6	37.5	14.9	30.8	M12
KV WGN1208-GK-00250-UL	1648871	2.5	6	37.5	14.9	30.8	M12
KV WGN1208-GK-00500-UL	1648872	5	6	37.5	14.9	30.8	M12
KV WGN1208-GK-01000-UL	1648873	10	6	37.5	14.9	30.8	M12
KV WGN1208-GK-01500-UL	1648874	15	6	37.5	14.9	30.8	M12
KV WGN1208-GK-02000-UL	1648875	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 controller



- 90 Controller
 91 Rotary module ERS/ERT, electric
 92 ERD Rotary unit
 93 Compact linear module ELB

The controller can be used to operate the rotary modules ERS, ERT and ERD as well as 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	Note
	[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.



SCHUNK SE & Co. KG

Spanntechnik

Greiftechnik

Automatisierungstechnik

Bahnhofstr. 106 - 134

D-74348 Lauffen/Neckar

Tel. +49-7133-103-0

Fax +49-7133-103-2399

info@de.schunk.com

schunk.com

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