

Flat. Fast. Reliable.

LDL Flat Linear Module

Flat linear axis with linear motor and profile rail guidance.

Field of Application

For use in clean and slightly polluted environment. For faster and precise moving or controlled press-in operation of workpieces in the high-speed assembly, measurement and testing technology, microelectronics or in the medical technology.



Advantages – Your benefits

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

Low oscillations and high holding force for the shortest positioning times and process stability

Integrated motor and measuring system in the axis minimizes interfering contours and space requirements

Can be fitted with absolute path measuring system less programming effort and time saving when commissioning and in operation

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

Many different variants possible e.g. long slides for special optimization on exactly your application

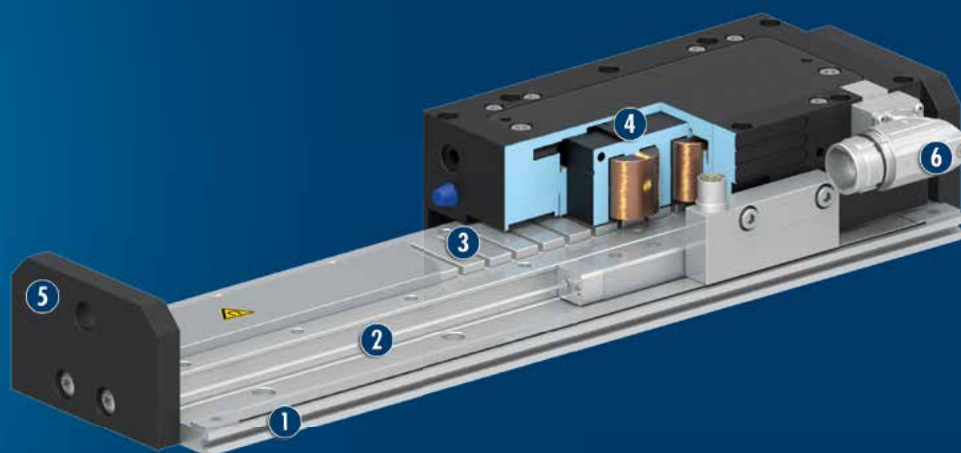
Optionally pneumatic holding brake used as rod lock for process reliability during system downtime

 <p>Sizes Quantity: 1</p>	 <p>max. stroke 3700 .. 3800 mm</p>	 <p>max. driving force 250 .. 500 N</p>	 <p>Repeat accuracy ±0.01 mm</p>	 <p>Maximum speed 4 m/s</p>
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Functional Description

The electric drive consists of a primary part (motor coil) and a secondary part (permanent magnets). Inside the controller the phase and amplitude of the applied electric

current are controlled. This sets the profile, which is fitted with magnets, in motion.



- ① **Aluminum profile**
Flat and weight-optimized
- ② **Pre-loaded profiled rail guide with recirculating ball bearings**
for optimum guidance properties and speeds
- ③ **Integrated secondary parts**
with high performance magnets
- ④ **Compact primary part slide**
with mounting surfaces, guidance adjusted without play and integrated measuring system
- ⑤ **End plates**
for mounting sensors, shock absorbers, and additional attachments
- ⑥ **Motor plug**
Position right/left can be selected

CAD data, operating manuals and other current product documents are available at [schunk.com](https://www.schunk.com)

Detailed Functional Description

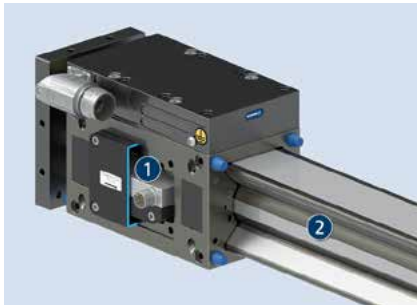
Design of the linear direct axis



The LDx linear direct axes comprise a motor slide with integrated primary part and measuring system. The secondary part is made up of permanent magnets and is countersunk into the axis profile of the linear axis.

- ❶ Axis profile (e.g. steel guide rail or aluminum profile)
- ❷ Permanent magnets with dirt cover

Modular transducer system



The linear module can be supplied with four different path measuring systems. The incremental path measuring system has a 1Vss interface. The absolute path measuring systems come with a choice of interfaces: Hiperface, SSI or DRIVE-CLiQ (on request).

- ❶ Measuring system reading head, fixed on the motor slide
- ❷ Measuring system tape measure, fixed on the aluminum profile

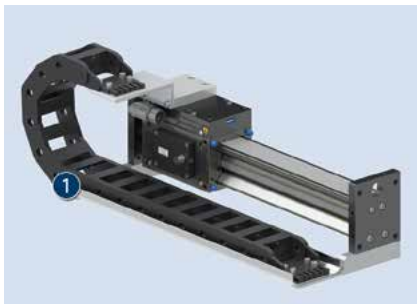
Pneumatic holding brake



The linear module is optionally equipped with a holding brake. This holding brake is pneumatically operated. Its function is activated in a non-ventilated state. The holding brake is used to maintain the position of the linear axis in a currentless state.

- ❶ Holding brake, operated pneumatically

Drag chain



Matching cable tracks are available as accessories for the linear axes. These are tailored to the specific effective stroke of the axis in question, and are supplied incl. mounting material (pre-mounted if necessary).

- ❶ Drag chain

Sample Order

LDN - EL - 0100 - 1 - 0270 - 0500 - LXBV - 111A - SB03 - 0132

Axis version

LDH = Linear direct drive with narrow short-stroke profile
 LDK = Linear direct drive with short-stroke profile
 LDN = Linear direct drive with single X-profile
 LDM = Linear direct drive with double X-profile
 LDT = Linear direct drive with triple X-profile
 LDL = Linear direct drive with flat profile

Guide and motor versions

E = Non-supported version
 U = Supported version

Slide length

S = Standard slide
 L = Long slide

Size

Number of active slides

Useful stroke

Total axis length

Option block 1

Number 1: Motor option
 Number 2: Additional passive slides option
 Number 3: Holding brake in active slide option
 Number 4: Valve option

Option block 2

Number 1: Reference switch option
 Number 2: Limit switch option
 Number 3: Cable track option
 Number 4: Wipers option

Option block 3

Number 1: Shock absorbers option
 Numbers 2-4: Mounting strips

Option block 4, measuring system

Number 1: Path measuring system
 Number 2: Path measuring system type
 Number of 3: Length of cable
 Number 4: Controller interface

General Notes on the Series

Drive: Linear direct drive based on a 3-phase, electronically commutated and permanently excited AC synchronous linear motor

Path measuring system: Contactless, magnetic, measuring system with incremental and absolute variants; with Hiperface, SSI, 1Vss and DRIVE-CLiQ interfaces (on request).

Profile: Aluminum profile with ground profiled rail guide

Slide: Aluminum slide, primary part and measuring system reading head directly integrated

Scope of delivery: Accessory pack with centering sleeves and assembly and operating manual with declaration of incorporation

Drive controller: Bosch Rexroth IndraDrive® and SIEMENS® SINAMICS drive control units supported as standard; matching parameters supplied on DVD, other manufacturers available on request.

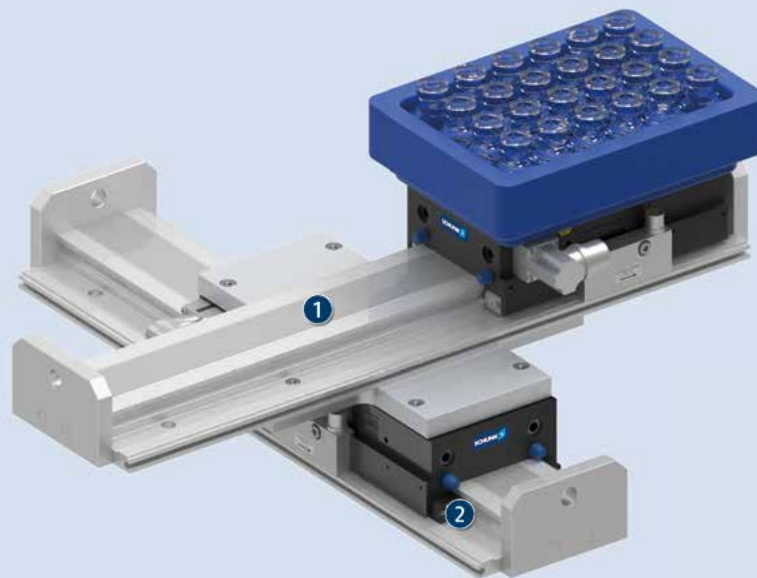
Warranty: 24 months

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

Repeat accuracy: defined as the spread of the target position after 100 consecutive positioning cycles under constant conditions.

Ambient conditions: The modules are mainly designed for the use in clean 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. Please contact us for assistance.

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



Application Example

X-Y cross table for palletizing medicines.

- ❶ LDL Flat Linear Module with a short slide
- ❷ LDL Flat Linear Module with a long slide

SCHUNK offers more ...

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



Drive Controller (e.g. BOSCH Rexroth IndraDrive®)



KA Power and Encoder Cables



ERD Electric Rotary Unit



ERS Electric Rotary Unit



EGP Electric Parallel Gripper



MV Micro Valves



MPG-plus Pneumatic Small Parts Gripper



Drag Chain



Connection Cable for Sensor System



V Sensor Distributor



ZH Centering Sleeves

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

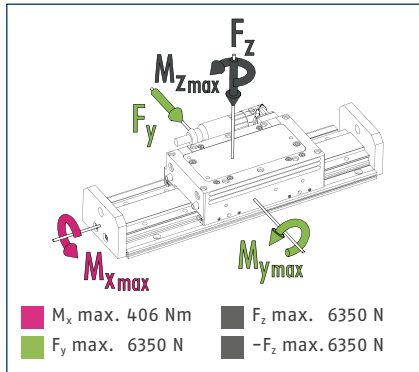
Options and special Information

Modular transducer system: The linear module can be supplied with four different path measuring systems. The incremental path measuring system has a 1Vss interface. The absolute path measuring systems come with a choice of interfaces: Hiperface, SSI or DRIVE-CLiQ (on request).

Pneumatic holding brake: The linear module is optionally equipped with a holding brake. This holding brake is pneumatically operated. Its function is activated in a non-ventilated state. The holding brake is used to maintain the position of the linear axis in a currentless state.

Further motor slides: The linear axis can be equipped with multiple active motor slides. This allows special designs and customized axis solutions.

Moment loading

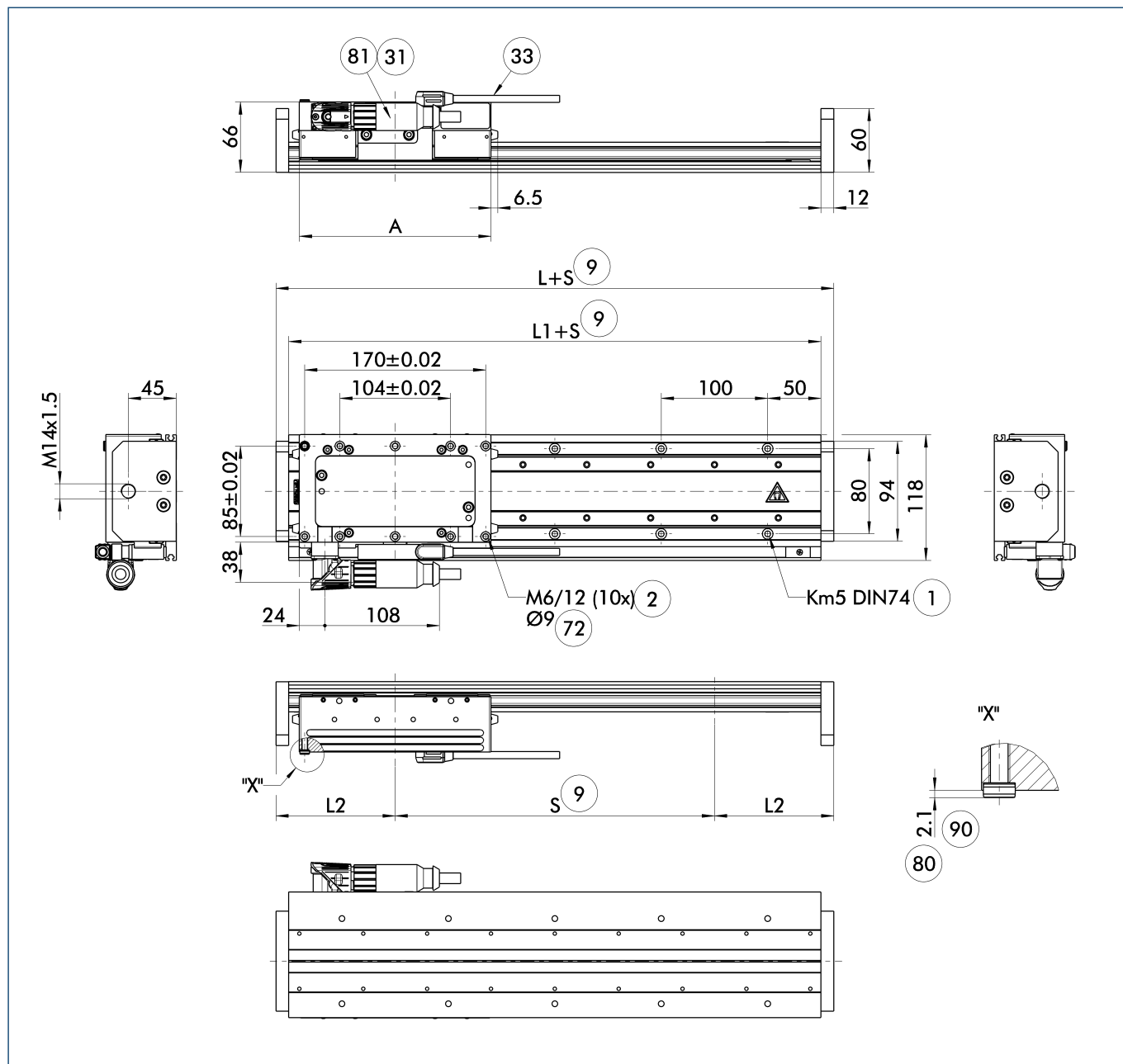


ⓘ The forces and torques shown here are maximum values for static loading.

Technical data

Description		LDL-US-0100	LDL-UL-0200
Drive concept		Linear direct drive	Linear direct drive
Max. stroke	[mm]	3800	3700
Max. driving force	[N]	250	500
Nominal force	[N]	105	180
Max. payload (horizontal)	[kg]	10	20
Repeat accuracy	[mm]	±0.01	±0.01
Max. speed	[m/s]	4	4
Max. acceleration	[m/s ²]	40	40
Max. current	[A]	7.5	15
Max. current at standstill	[A]	1.8	3.1
Min./max. ambient temperature	[°C]	5/40	5/40
Weight of slide/motor	[kg]	1.3/1.43	1.72/2.5
Weight of end plates	[kg]	0.34	0.34
Profile weight per 100 mm of length	[kg]	0.88	0.88
Moments M_y max./ M_z max.	[Nm]	340/340	657/657

Main view

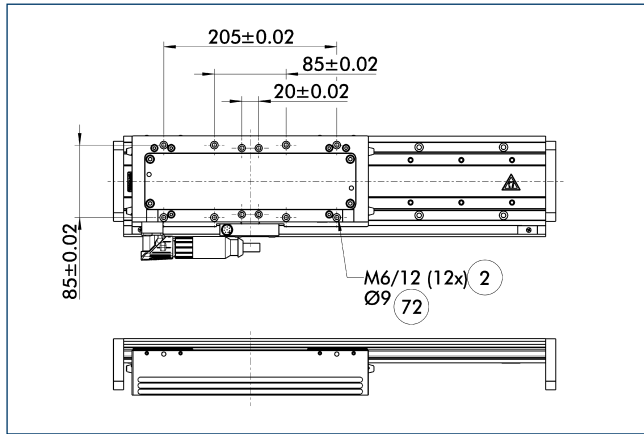


The linear module can be fastened either to the base body or the slide. The structure can also optionally be fastened to either the slide or the base body. This view shows the mounting of the module to the base body and the mounting of the structure to the slide.

- ① Connection linear unit
- ② Attachment connection
- ⑨ Effective stroke
- ③① Motor plug
- ③③ Cable for path measuring system
- ⑦② Fit for centering sleeves
- ⑧② Depth of the centering sleeve hole in the counter part
- ⑧① Not included in the scope of delivery
- ⑧⑨ Applies to all centering sleeves

Description	A	L	L1	L2
	[mm]	[mm]	[mm]	[mm]
LDL-US-0100	180	224	200	112
LDL-UL-0200	280	324	300	162

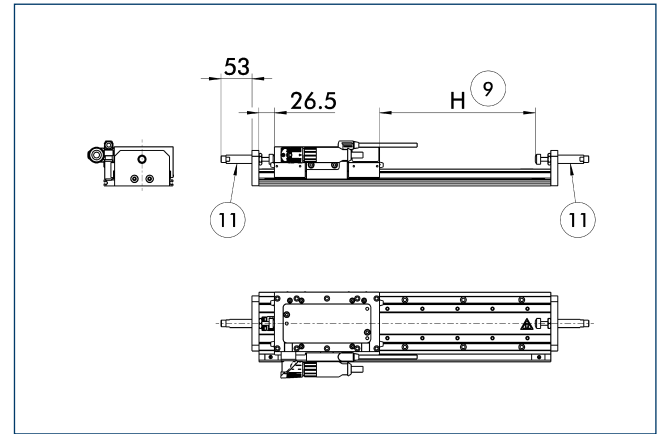
Version with long slide



- ② Attachment connection
- 72 Fit for centering sleeves

The side view shows the dimensional changes when using a long slide.

Version with shock absorbers

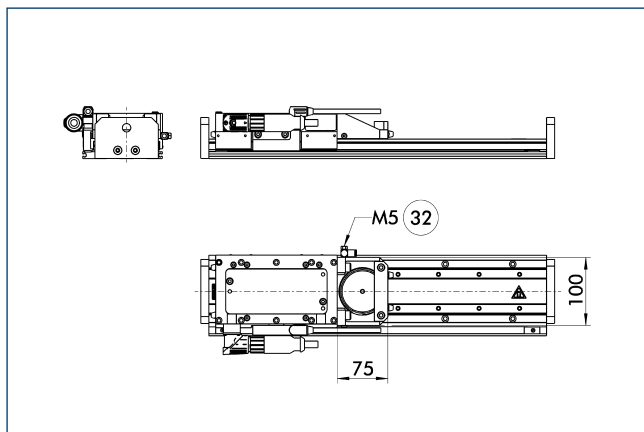


- 9 Effective stroke
- 11 Shock absorber

To prevent any mechanical malfunctions due to a malfunction, the modules can be equipped with hydraulic shock absorbers.

- ⓘ When retrofitted, the nominal stroke reduces.

Pneumatic holding brake

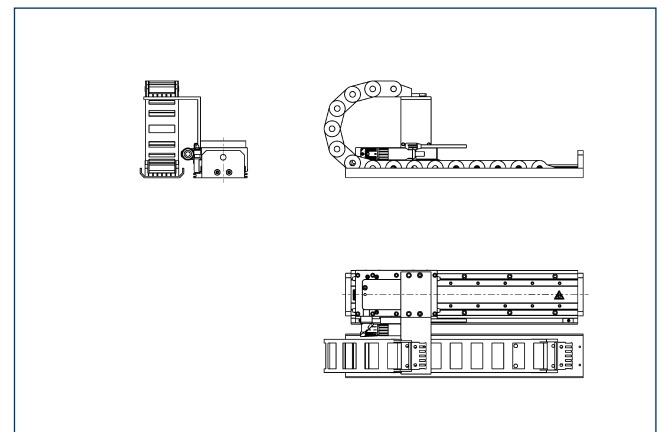


- 32 Pneumatic connection for holding brake

The holding brake holds the slide in a particular position even without energy supply. The holding brake is pneumatically actuated.

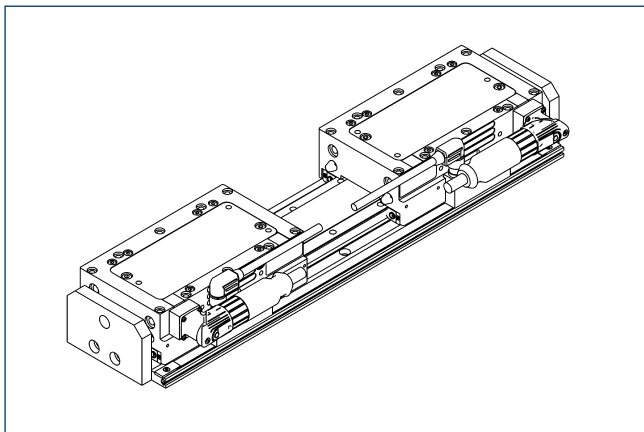
- ⓘ When retrofitted, the nominal stroke reduces.

Drag chain



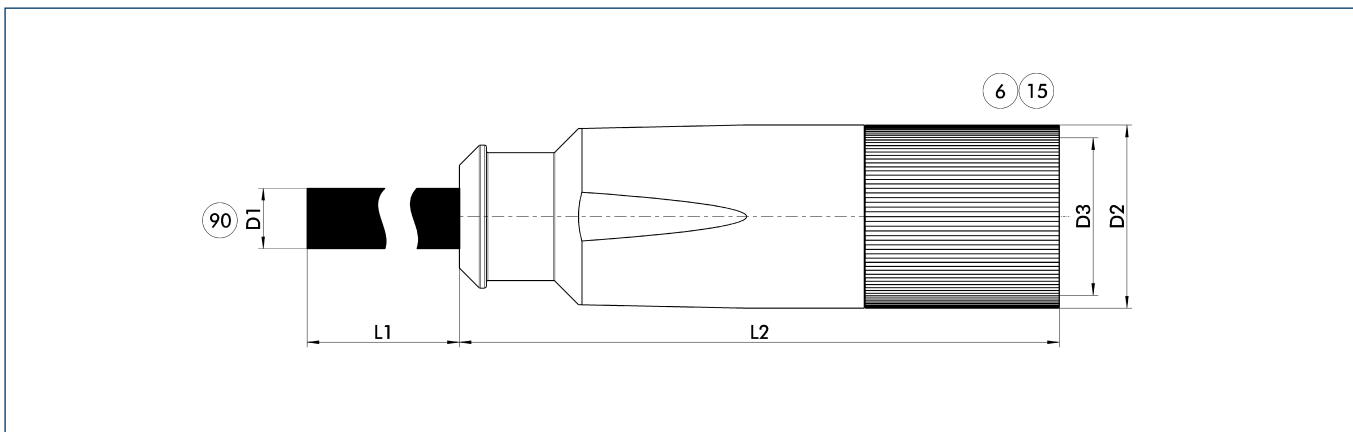
Matching cable tracks are available as accessories for the linear axes. These are tailored to the specific effective stroke of the axis in question, and are supplied incl. mounting material (pre-mounted if necessary).

Second slide



The linear module can be optionally equipped with several active slides. Please contact us for assistance.

Power cable



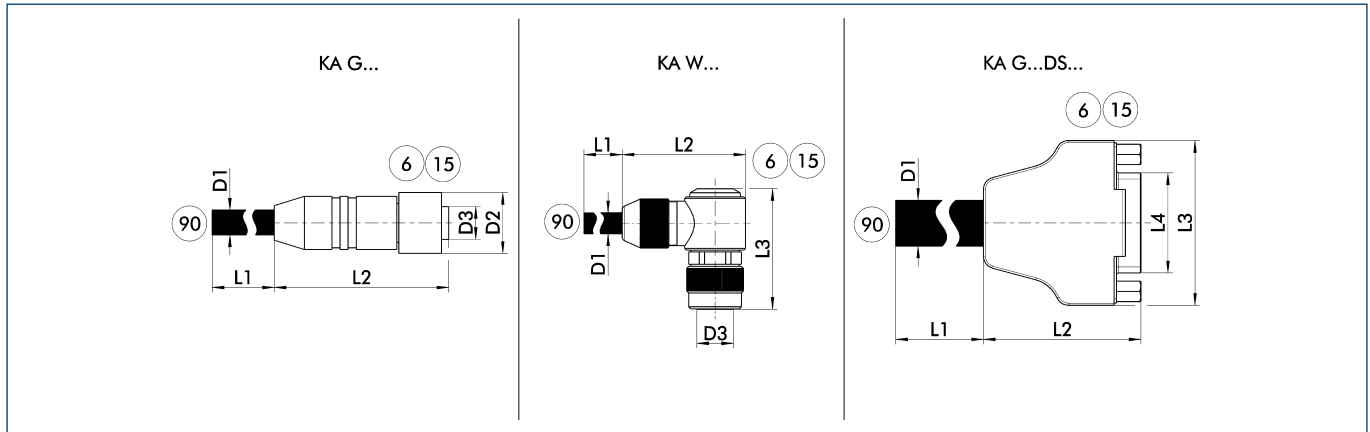
Connection cables such as power cables and encoder cables are specifically designed for connecting SCHUNK products with drive control units. We will gladly help you to select the right connection cables.

- 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 LDx 100-300 at BOSCH Rexroth IndraDrive® A/B						
KA GLT2306-LK-00500-X	0349564	5	10	78.5	27	M23
KA GLT2306-LK-01000-X	0349565	10	10	78.5	27	M23
KA GLT2306-LK-01500-X	0349566	15	10	78.5	27	M23
KA GLT2306-LK-02000-X	0349567	20	10	78.5	27	M23
Power cable for LDx 100-300 at BOSCH Rexroth IndraDrive® CS						
KA GLT2306-LK-00500-2	0349515	5	10	78.5	27	M23
KA GLT2306-LK-01000-2	0349516	10	10	78.5	27	M23
KA GLT2306-LK-01500-2	0349517	15	10	78.5	27	M23
KA GLT2306-LK-02000-2	0349518	20	10	78.5	27	M23
Power cable for LDx 100-300 at SIEMENS® Sinamics						
KA GGT2306-LK-00100-4	0349111	1	10	78.5	27	M23
KA GGT2306-LK-00200-4	0349112	2	10	78.5	27	M23
KA GGT2306-LK-00300-4	0349113	3	10	78.5	27	M23

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

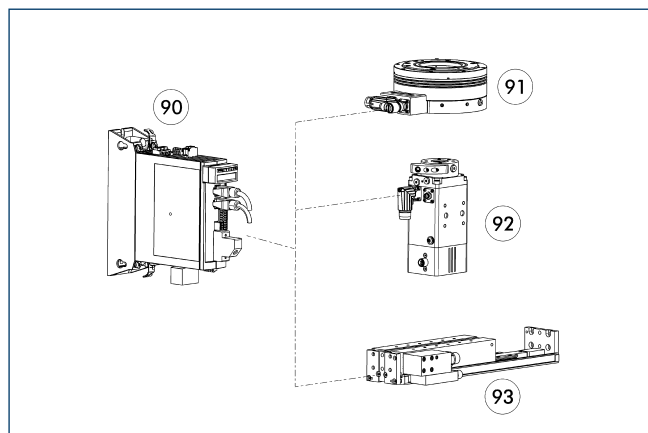
⑥ Connection module side
 ⑮ Socket
 ⑨⑩ Prefabricated for connection to the drive controller

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 SIEMENS® Sinamics and SSI encoder interface							
KA WGN1210-GK-00100-0	0349155	1	6	46	14.65	28.9	M12
KA WGN1210-GK-00200-0	0349156	2	6	46	14.65	28.9	M12
KA WGN1210-GK-00300-0	0349157	3	6	46	14.65	28.9	M12
Encoder cable for BOSCH Rexroth 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
Encoder cable for BOSCH Rexroth IndraDrive® A/B and 1Vss encoder interface							
KA WWN1208-GK-00500-X	0349150	5	7.3	37.5	14.65	30.8	M12
KA WWN1208-GK-01000-X	0349151	10	7.3	37.5	14.65	30.8	M12
KA WWN1208-GK-01500-X	0349152	15	7.3	37.5	14.65	30.8	M12
KA WWN1208-GK-02000-X	0349153	20	7.3	37.5	14.65	30.8	M12
Encoder cable for BOSCH Rexroth IndraDrive® Cs and 1Vss encoder interface							
KA WWN1208-GK-00500-Y	0349142	5	7.3	37.5	14.56	30.8	M12
KA WWN1208-GK-01000-Y	0349143	10	7.3	37.5	14.56	30.8	M12
KA WWN1208-GK-01500-Y	0349144	15	7.3	37.5	14.56	30.8	M12
KA WWN1208-GK-02000-Y	0349145	20	7.3	37.5	14.56	30.8	M12
Encoder cable for SIEMENS® Sinamics and 1Vss encoder interface							
KA WGN1208-GK-00100-Z	0349604	1	7.3	37.5	14.65	30.8	M12
KA WGN1208-GK-00200-Z	0349605	2	7.3	37.5	14.65	30.8	M12
KA WGN1208-GK-00300-Z	0349606	3	7.3	37.5	14.65	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



- 90 Controller
 91 ERS electric rotary module
 92 ERD electric rotary module
 93 ELB compact linear module

The controller can be used for operation of the ERS 560-V and ERD rotary modules, as well as for SCHUNK linear drive axes.

Description	Nominal current [A]	Maximum current [A]
Controller		
HCS01.1E-W0008	2.7	8
HCS01.1E-W0018	7.6	18