



Hand in hand for tomorrow



Product data sheet

Flat linear module LDL

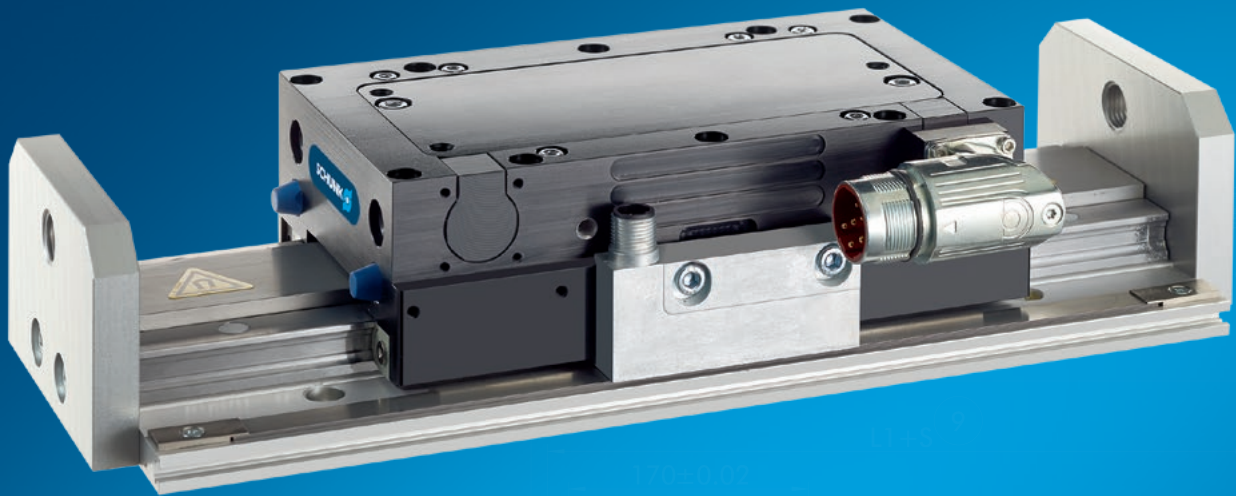
Flat. Fast. Reliable.

Flat linear module LDL

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 stroke 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

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

Optionally certified safety devices according to SIL2/PLd with the HIPERFACE® and DRIVE-CliQ interfaces for applications with high standards in the area of machine safety



Sizes
Quantity: 1



Max. stroke
3700 .. 3800 mm



Max. driving force
250 .. 500 N



Repeat accuracy
 ± 0.01 mm

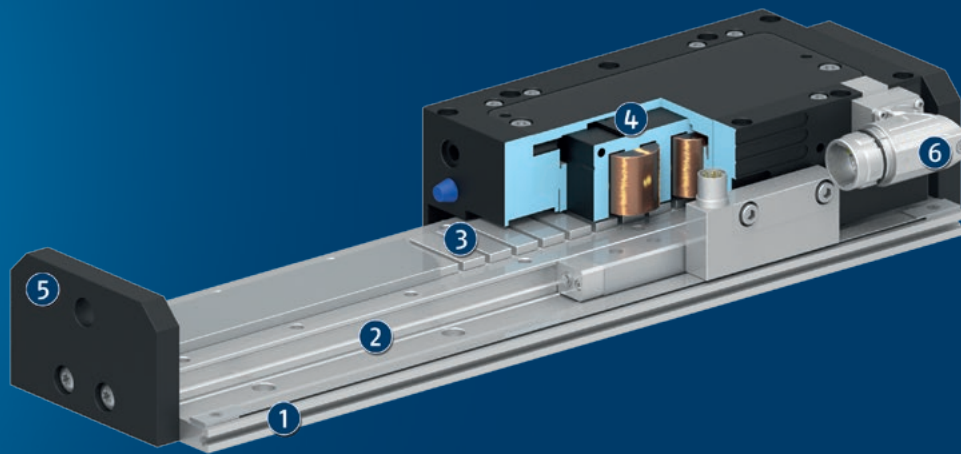


Max. speed
4 m/s

Functional description

The electric drive consists of a primary part (motor coil) and a secondary part (permanent magnets). The phase and the amplitude of the applied electrical current are regulated in the controller. Depending on the application,

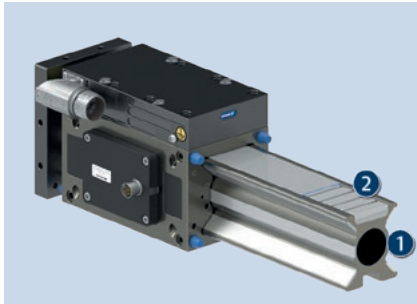
this sets the profile fitted with magnets in motion or moves the slides of the axis.



- ① **Aluminum profile**
Flat and weight-optimized
- ② **Pre-loaded profiled rail guide with recirculating ball bearings**
for optimal guidance properties and speeds
- ③ **Integrated secondary parts**
with high power 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

Detailed functional description

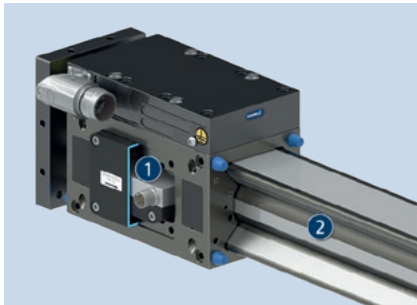
Design of the linear direct axis



The linear direct axes of the product series LDx (illustration corresponds to linear module LDN) comprise a motor slide with integrated primary part and measuring system. The secondary part consists of permanent magnets and is integrated 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

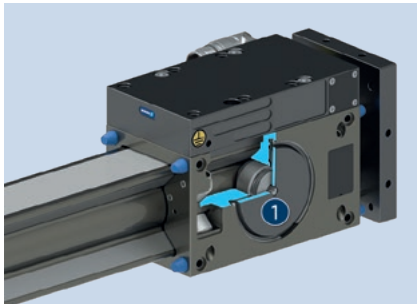
Modular transducer system



The linear module (similar to illustration) is available with three different path measuring systems. The incremental stroke measuring system has a 1Vss interface. The absolute path measuring systems are optionally available with the interfaces: HIPERFACE® or DRIVE-CLiQ.

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

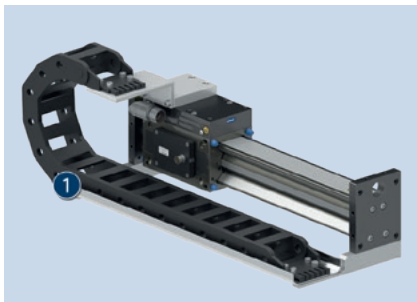
Pneumatic holding brake



On option, the linear module (similar to illustration) is equipped with a holding brake. This holding brake is pneumatically actuated. 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. (Similar to illustration). These are adapted to the respective effective stroke, supplied incl. mounting material, and if necessary, pre-assembled.

- ❶ Drag chain

Ordering example

LDL - EL - 0100 - 270 - 0500 - 1 - 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 motor 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

Guidance and motor versions

E = non-supported version
 U = supported version

Slide length

S = standard slide
 L = Long slide

Size

Nominal stroke

Overall length

Number of active slides

Option group 1

Number 1: Motor option
 Number 2: Additional passive slides option
 Number 3: On option holding brake in active slide
 Number 4: On option valve

Option group 2

Number 1: Reference switch option
 Number 2: Limit switch option
 Number 3: On option drag chain
 Number 4: On option wipers

Option group 3

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

Option group 4 Measuring system

Number 1: stroke measuring system
 Number 2: Position measurement system
 Number 3: Cable length
 Number 4: Controller interface

General notes about the series

Guidance: Roller guide

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

Stroke measuring system: Contactless, magnetic measuring system with incremental and absolute variants; with HIPERFACE®, 1Vss and DRIVE-CLiQ interfaces.

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: 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.

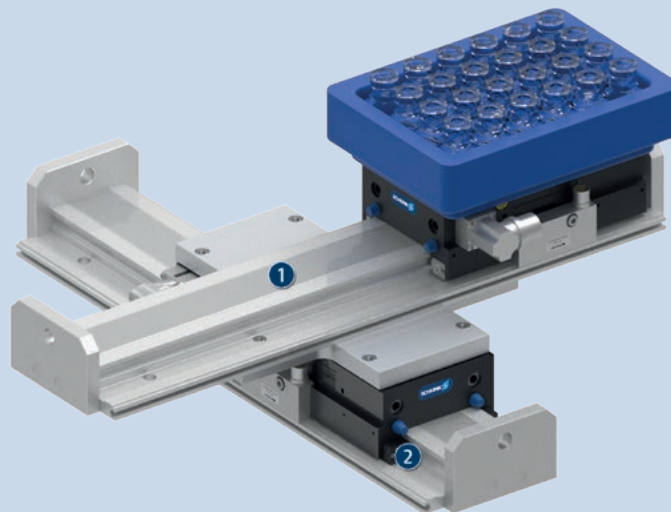
Warranty: 24 months

Service life characteristics: on request

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

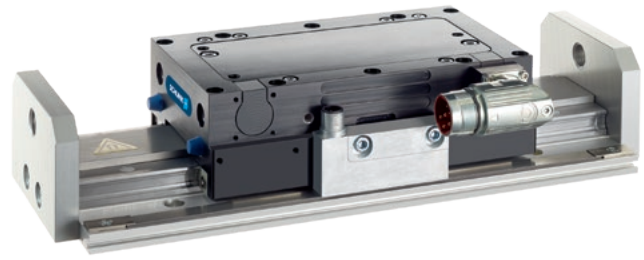
Cross table for palletizing medicines.

① Flat linear module with a short slide LDL

② Flat linear module with a long slide LDL

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



Universal gripper



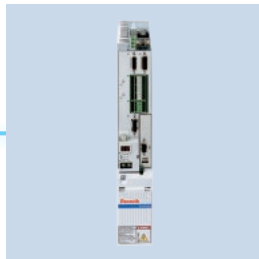
Rotation unit



Rotary gripper module



Power and encoder cables



Drive controller



Drag chain



Pillar assembly system

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

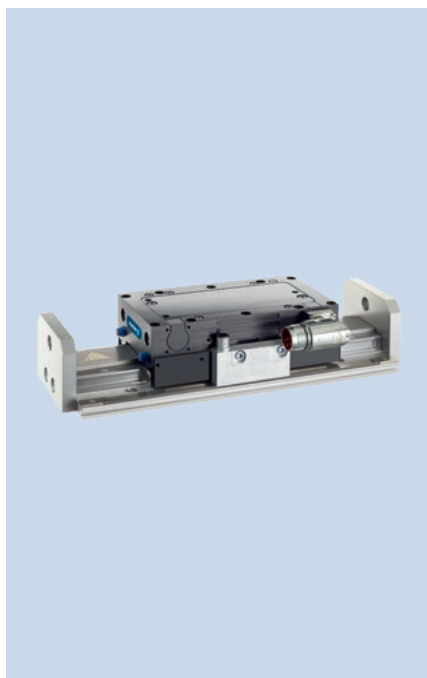
Modular transducer system: The linear module (similar to illustration) is available with three different path measuring systems. The incremental stroke measuring system has a 1Vss interface. The absolute path measuring systems are optionally available with the interfaces: HIPERFACE® or DRIVE-CLiQ.

Pneumatic holding brake: On option, the linear module is available with a holding brake. This holding brake is pneumatically actuated. 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 condition.

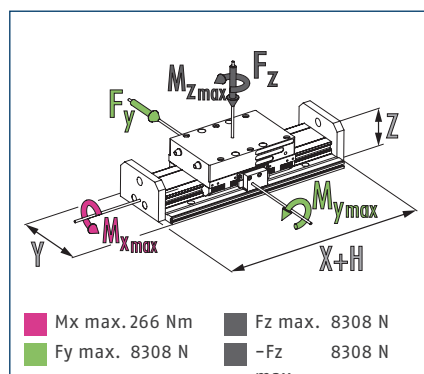
Further motor slides: The linear axis can be equipped with multiple active motor slides. This allows special designs and customized axis solutions.

Certified encoder system: The encoder systems with the HIPERFACE® (optional) and DRIVE-CLiQ interfaces 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 for further information.

NEW: Version with food –compliant lubrication (H1G): on request 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.



Dimensions and maximum loads

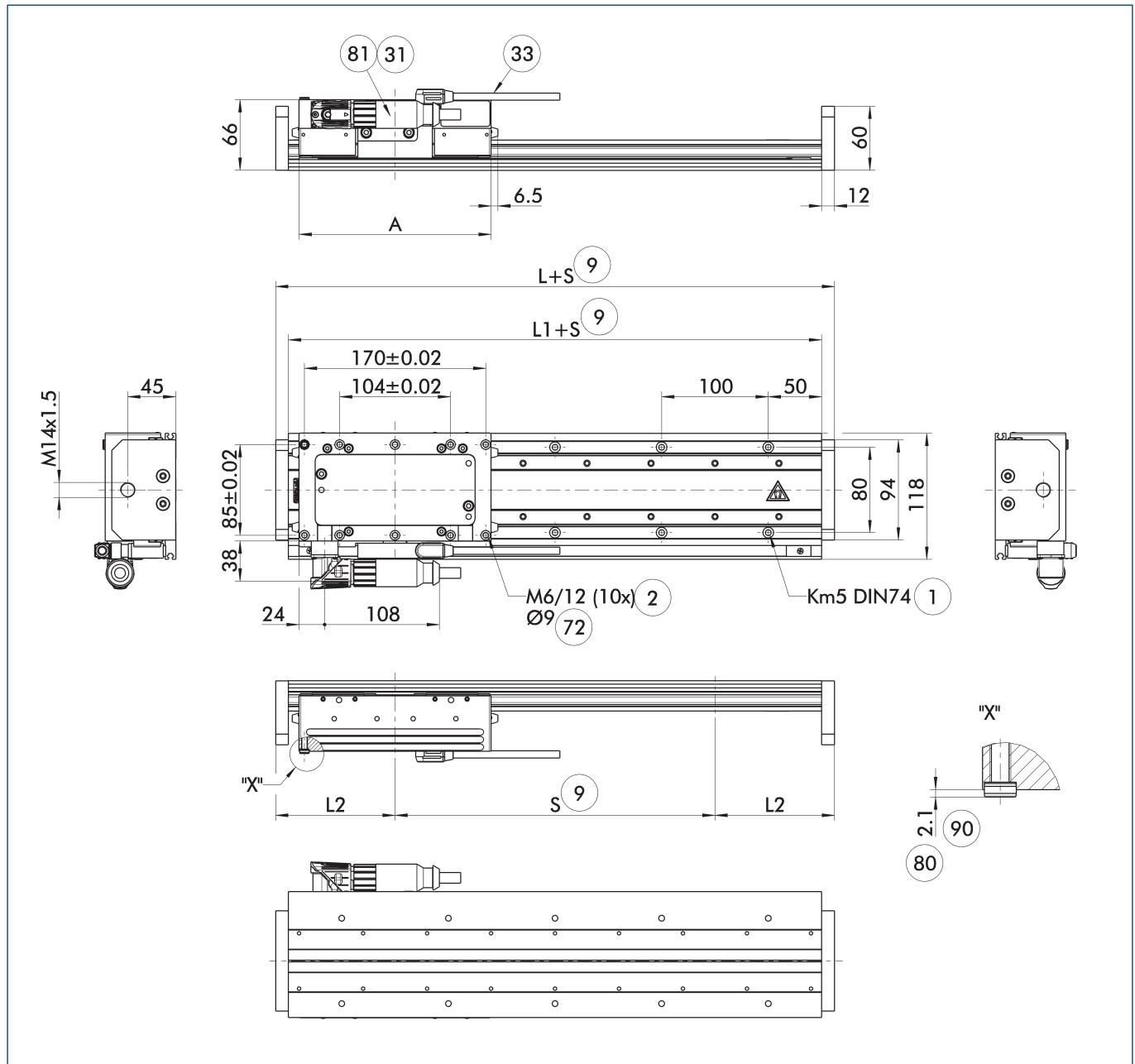


① The forces and torques shown here are maximum values for static loading.

Technical data

Description		LDL-US-0100	LDL-UL-0200
Drive concept		Linear direct drive	Linear direct drive
Max. stroke H	[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. standstill current	[A]	1.8	3.1
Min./max. ambient temperature	[°C]	5/40	5/40
Weight slide and motor	[kg]	2.54	4.07
Weight of end plates	[kg]	0.34	0.34
Additional mass per 100 mm stroke	[kg]	0.88	0.88
Dimensions X x Y x Z	[mm]	224 x 118 x 66	324 x 118 x 66
Moments My max./Mz max.	[Nm]	860/860	444/444

Main view

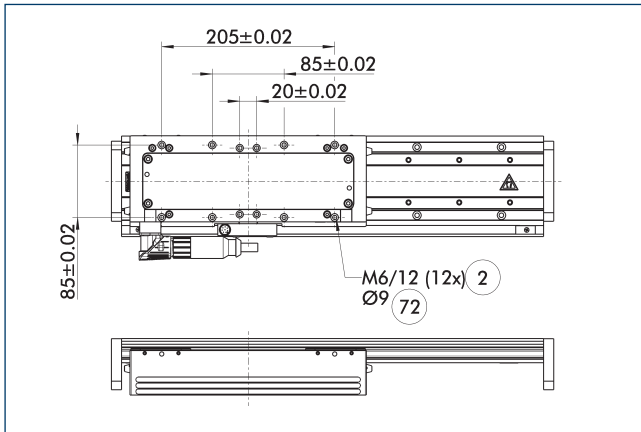


The linear module can be fastened either to the base body or the slide. The structure can also optionally be fastened to either the slide or the base body. This view shows the mounting of the module to the base body and the mounting of the structure to the slide.

- ① Connection linear unit
- ② Attachment connection
- ⑨ Nominal stroke
- ③① Motor plug
- ③③ cable for position 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
- ⑨② 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

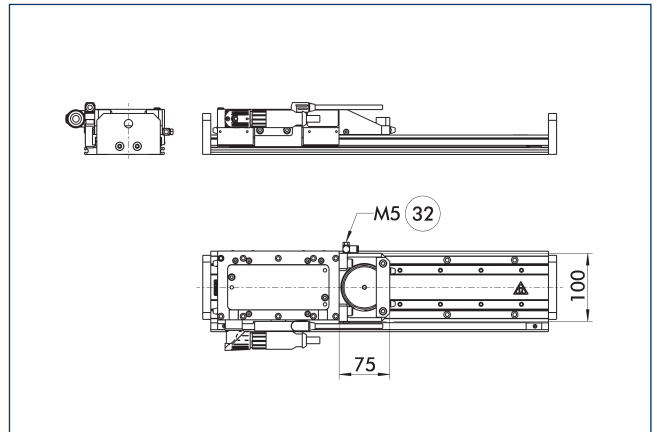


② Attachment connection

72 Fit for centering sleeves

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

Pneumatic holding brake

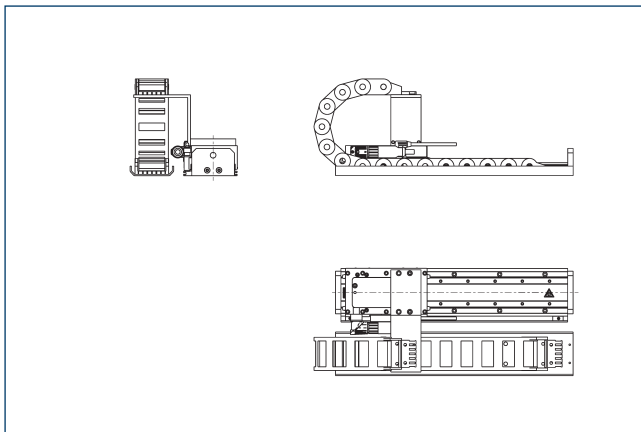


32 Pneumatic connection for holding brake

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

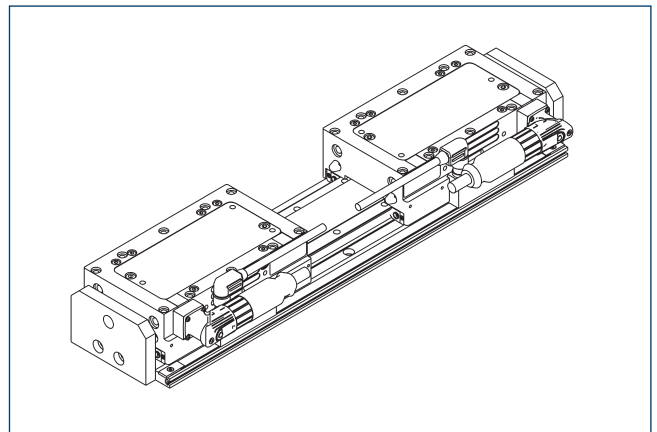
① When retrofitted, the nominal stroke reduces.

Drag chain



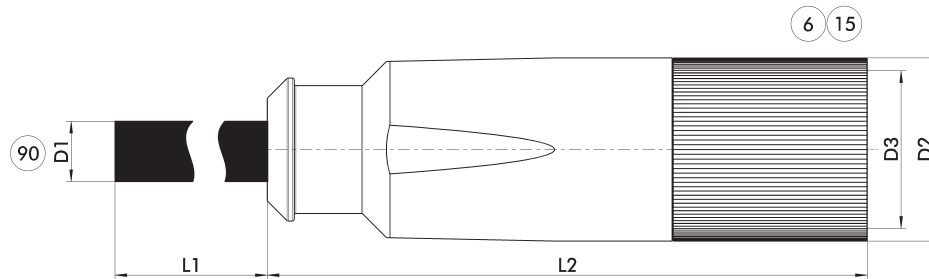
Matching cable tracks are available as accessories for the linear axes. (Similar to illustration). These are adapted to the respective effective stroke, supplied incl. mounting material, and if necessary, pre-assembled.

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.

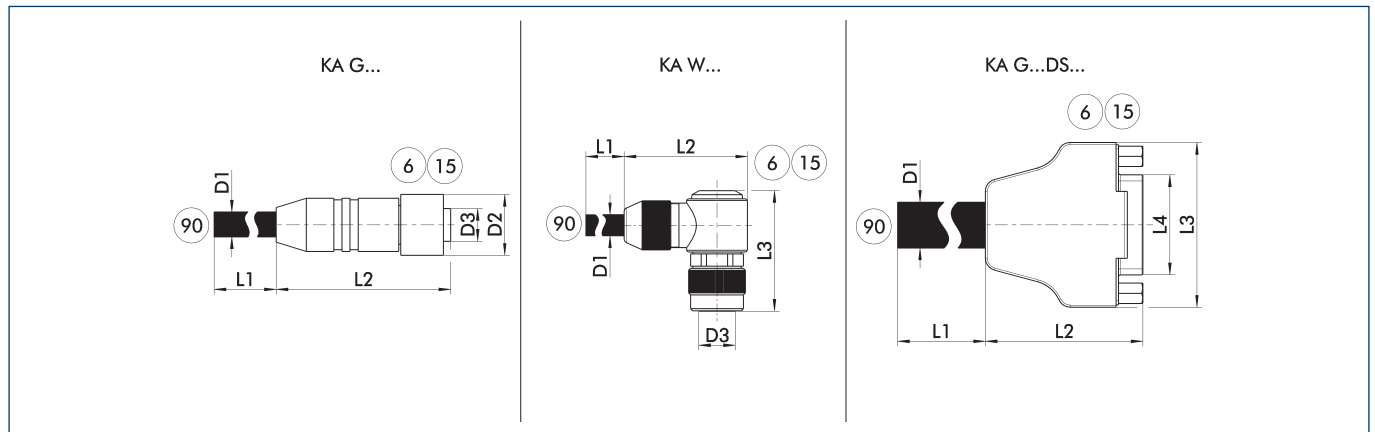
⑥ Connection module side
⑮ Socket

⑨ Prefabricated to connect to the higher-level components

Description	ID	L1	D1	L2	D2	D3
		[m]	[mm]	[mm]	[mm]	
Power cable for LDx 100-300/SLD 11-14,21,22 to BOSCH 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/SLD 11-14,21,22 to BOSCH 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/SLD 11-14,21,22 on 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
Power cable for LDx 100-300/SLD 11-14,21,22 on Siemens SINAMICS with DRIVE-CLiQ – cable track compatible						
LDx100-300/SLD 11-14,21,22 DQ 05m	1315917	5	10	78.5	27	M23
LDx100-300/SLD 11-14,21,22 DQ 10m	1002467	10	10	78.5	27	M23
LDx100-300/SLD 11-14,21,22 DQ 15m	30702114	15	10	78.5	27	M23
LDx100-300/SLD 11-14,21,22 DQ 20m	1342496	20	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

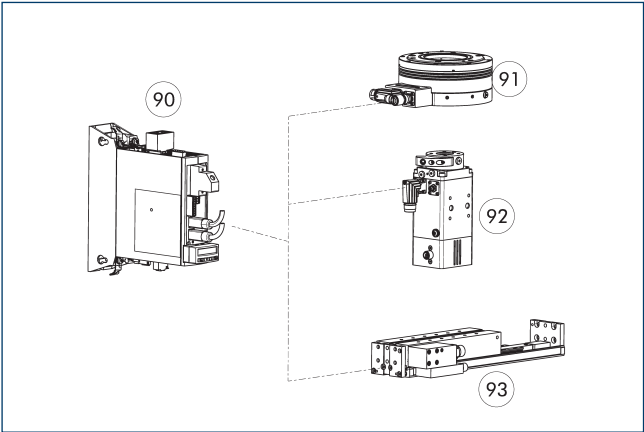
⑨⑩ Prefabricated for connection to the drive controller

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	D1	L2	D2	L3	D3
		[m]	[mm]	[mm]	[mm]	[mm]	
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
Encoder cable for BOSCH 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 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
Sensor cable for Siemens SINAMICS and encoder interface DRIVE-CLiQ – cable track compatible							
LDx – DQ 05m	1311273	5	6	37.5	14.9	30.8	M12
LDx – DQ 10m	1002466	10	6	37.5	14.9	30.8	M12
LDx – DQ 15m	30702180	15	6	37.5	14.9	30.8	M12
LDx – DQ 20m	1327972	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	
HCS01.1E-W0018	7.6	18	

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



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