



Hand in hand for tomorrow



Product data sheet

Linear direct axis SLD 2

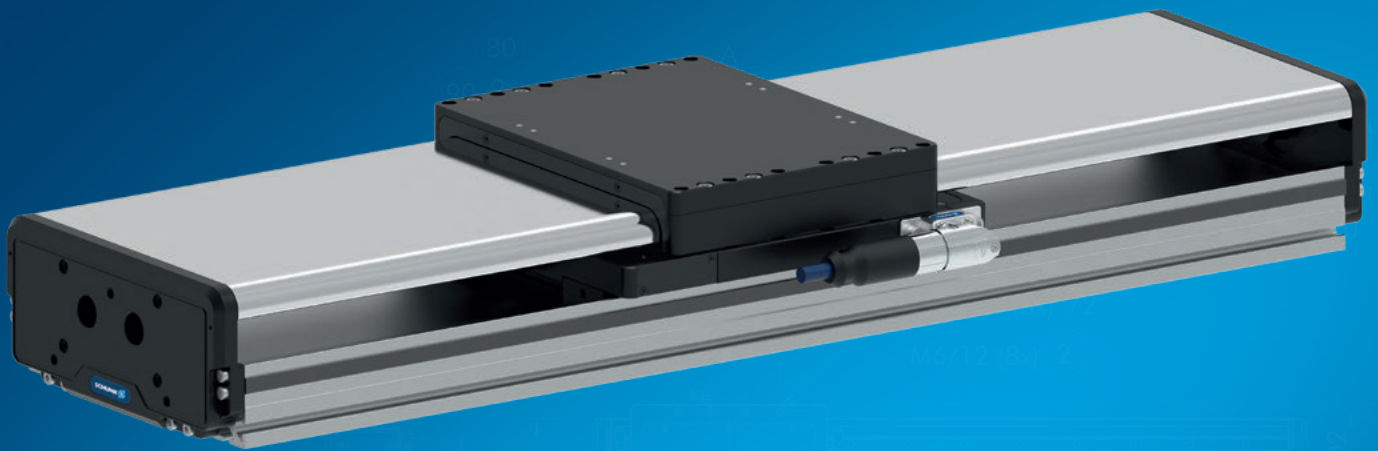
Dynamic. Loadable. Reliable.

Linear direct axis SLD

The dynamic axis all-rounder – perfectly tailored to your application.

Field of application

For use in clean and slightly dirty environments. For faster and precise movements or controlled press-in operation of workpieces in high-speed assembly, measurement and testing technology, electronics, e-mobility technology or in the Life-Science sector.



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

High basic load ratings for high bearing load capacity and service life

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

UL certification for use in the US and Canadian markets

Optional pneumatic safety holding brake as rod lock for high requirements on machines and personal safety

Optionally certified safety devices according to SIL2/PLd for applications with high requirements in the area of machine safety



Sizes
Quantity: 2



Max. stroke
5190 .. 5500 mm



Max. driving force
300 .. 2400 N



Repeat accuracy
0.01 mm

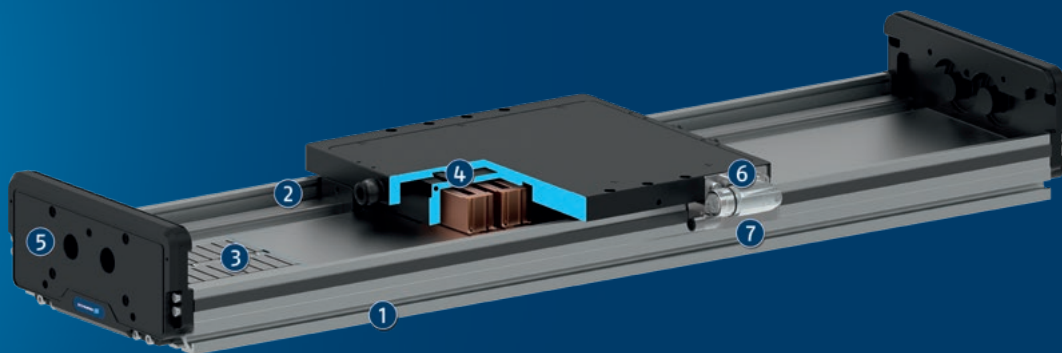


Max. speed
5 m/s

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,

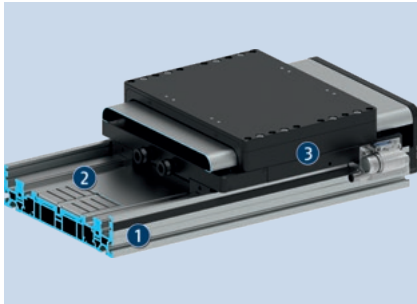
this sets the profile fitted with magnets in motion or moves the slides of the axis.



- ① **Aluminum extruded profile**
Flat and weight-optimized
- ② **Pre-loaded profiled rail guide with recirculating ball-bearing guides**
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**
with integrated shock absorber elements
- ⑥ **Motor plug**
Position right/left can be selected
- ⑦ **Measuring system plug**
Position right/left can be selected

Detailed functional description

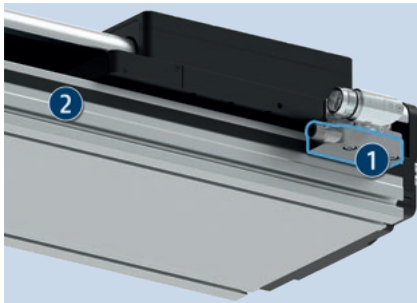
Design of the linear direct axis



The linear direct axis SLD consists of a motor slide with an integrated primary component and a measuring system. The secondary component consists of permanent magnets and is integrated into the aluminum extruded profile of the linear axis.

- ① Aluminum extruded profile
- ② Permanent magnets
- ③ Motor slide

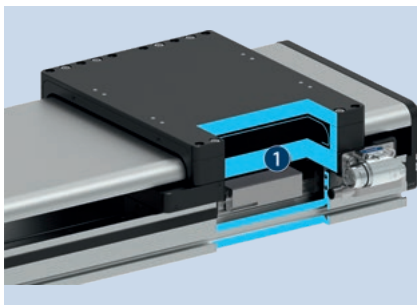
Modular transducer system



The linear module are available with different path measuring systems. The incremental stroke measuring system has a 1Vss interface. The absolute path measuring systems are optionally available with the HIPERFACE®, HIPERFACE DSL® or DRIVE-CLiQ interfaces. Other interfaces are available on request.

- ① Measuring system reading head, fixed on the motor slide
- ② Measuring tape of the measuring system, fixed on the aluminum extruded profile

Pneumatic holding brake



The linear module is optionally available with a safety 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. The holding brake is also suitable for applications in the field of machine safety. Please feel free to contact us.

- ① Holding brake, operated pneumatically

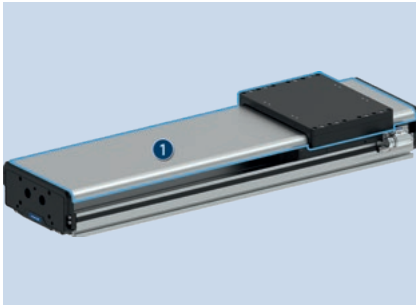
Drag chain



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.

- ① Drag chain

Covering tape



The linear module is optionally equipped with a covering tape. This prevents dirt from entering the inside of the axis and at the same time prevents grease from escaping when the axis is mounted horizontally or vertically.

1 Covering tape

UL certification



The motor of the linear direct axis is UL-certified as standard. The UL safety mark allows for rapid market access to North America and other countries. UL certifications are awarded on a product-by-product basis and are periodically reviewed by UL. Not only the final product is tested, but also the manufacturing of the product.

General notes about the series

Guidance: Rail guide

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

Stroke measuring system: Contactless, magnetic measuring system with incremental and absolute versions; available with 1Vss, HIPERFACE®, HIPERFACE DSL®, and DRIVE-CLiQ interfaces. Other interfaces are available on request.

Profile: Aluminum extruded profile with profiled rail guide

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

Scope of delivery: Accessory kit with centering sleeves, safety information (product-specific instructions are available online)

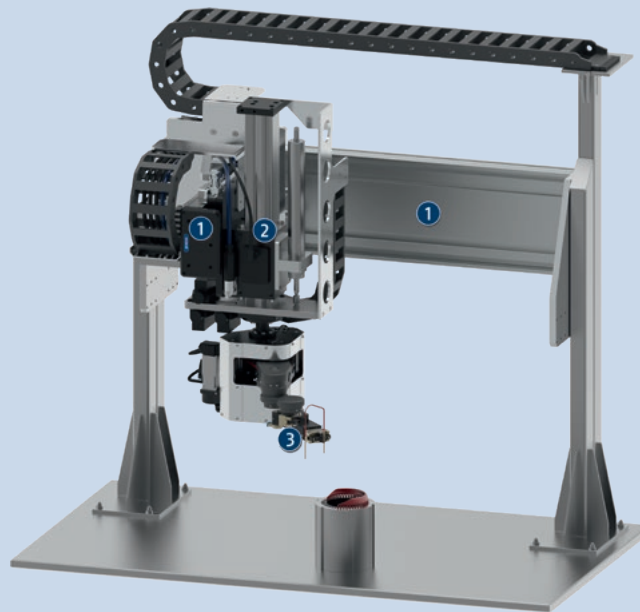
Drive controller: Consultation on parameter settings for drive controllers from BOSCH (EcoDrive CS, IndraDrive and IndraDrive CS) and Siemens (Sinamics S120). Provision of motor data sheets for other drive controllers. Commissioning support on request.

Warranty: 24 months

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

Highly flexible handling unit for fast and precise placement of hairpins in a stator for the automated production of electric motors.

- ① Linear direct axis SLD
- ② Universal linear module LDN

- ③ 2-finger parallel gripper PGN-plus-P

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



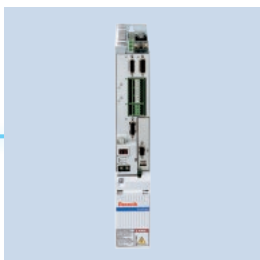
Rotation unit



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 are available with different path measuring systems. The incremental stroke measuring system has a 1Vss interface. The absolute path measuring systems are optionally available with the HIPERFACE®, HIPERFACE DSL® or DRIVE-CLiQ interfaces. Other interfaces are available on request.

Pneumatic holding brake: The linear module is optionally available with a safety 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. The holding brake is also suitable for applications in the field of machine safety. Please feel free to contact us.

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

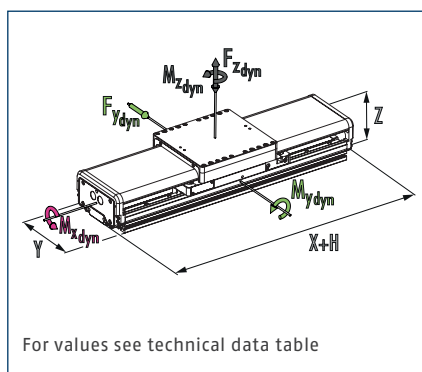
Certified encoder system: All encoder systems are certified according to SIL2/PLd. This means that even demanding applications with high requirements in the area of machine safety can be implemented. Please contact us for further information.

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.

Ordering example

	SLD	1	1	-	H	2	-	L	-	01000	-	1	-	2	BP	-	C	-	G
Series																			
Motor size																			
Number 1: number of magnetic tracks																			
Number 2: motor units																			
Measuring system																			
H: HIPERFACE®																			
L: HIPERFACE DSL®																			
D: DRIVE-CLiQ																			
I: 1VSS																			
Safety																			
N: not certified																			
2 = SIL2/PLd - encoder																			
Outlet motor plug																			
R: right																			
L: left																			
Nominal stroke																			
Number of slides																			
Number of holding brakes																			
Technology																			
NN: without brake																			
BP: Brake pneumatic																			
Optional cover																			
N: without cover																			
C: with cover																			
Optional lubrication adapter																			
N: without lubrication adapter																			
G: with lubrication adapter																			

Dimensions and load data

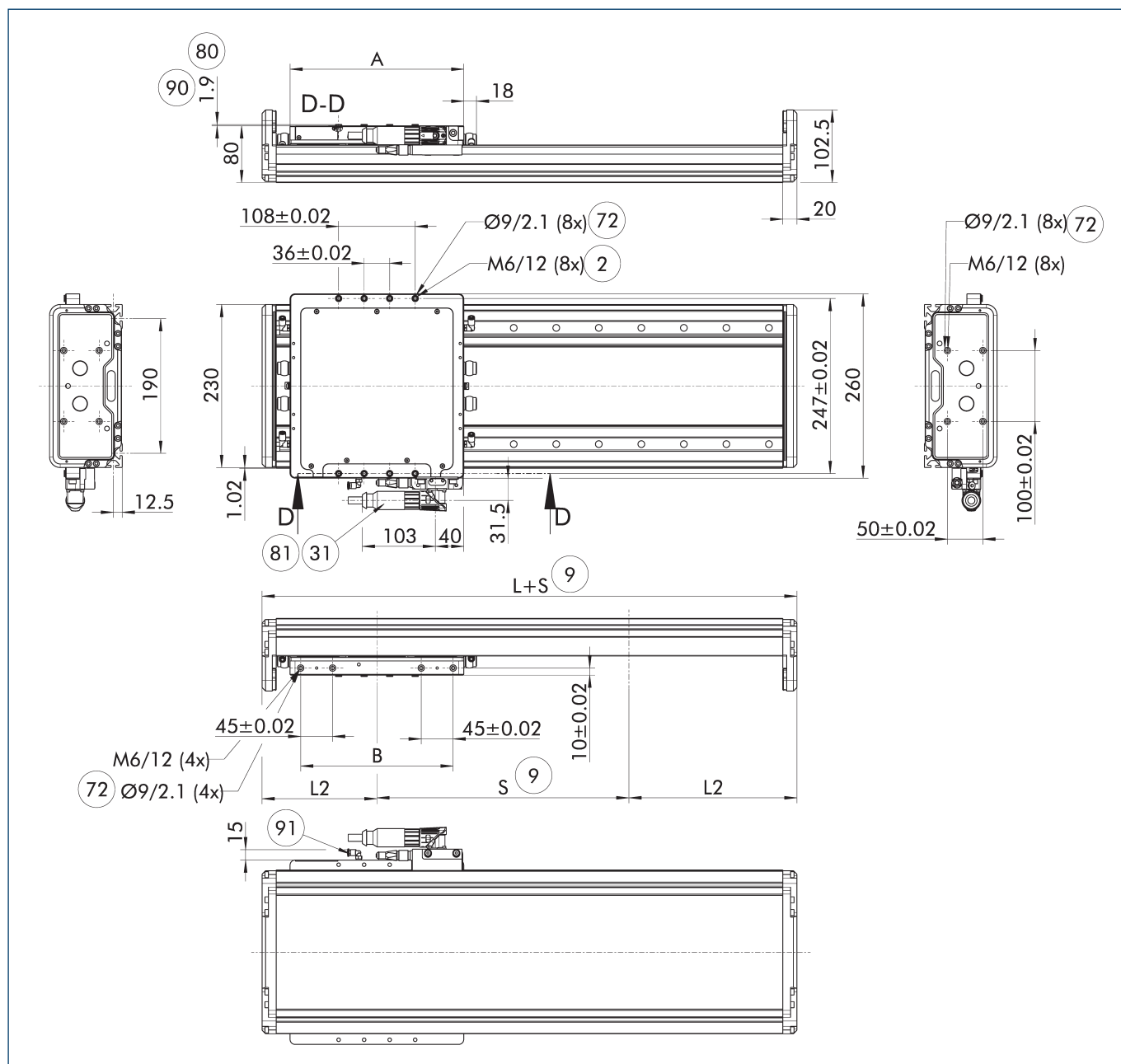


Technical data

Description		SLD 21	SLD 22	SLD 23	SLD 24
Drive concept		Linear direct drive	Linear direct drive	Linear direct drive	Linear direct drive
Max. nominal stroke H	[mm]	5470	5440	5330	5190
Max. driving force	[N]	600	1200	1800	2400
Nominal force	[N]	285	450	665	865
Repeat accuracy	[mm]	0.01	0.01	0.01	0.01
Max. speed	[m/s]	5	5	5	5
Max. acceleration	[m/s ²]	100	100	100	100
Max. current	[A]	12	24	36	48
Max. standstill current (rated current)	[A]	4.1	6.5	9.6	12.5
Min./max. ambient temperature	[°C]	5/40	5/40	5/40	5/40
Weight slide and motor	[kg]	6.78	8.38	12.2	16.5
Weight of end plates	[kg]	1.56	1.56	1.56	1.56
Additional mass per 100 mm stroke	[kg]	1.848	1.848	1.848	1.848
Dimensions X x Y x Z	[mm]	330 x 260 x 102.5	360 x 260 x 102.5	470 x 260 x 102.5	610 x 260 x 102.5
Force F _y dyn	[N]	70794	70794	106190	106190
Force F _z dyn	[N]	70794	70794	106190	106190
Moment M _x dyn	[Nm]	5805	5805	8708	8708
Moment M _y dyn	[Nm]	5876	6761	10654	15610
Moment M _z dyn	[Nm]	5876	6761	10654	15610
Geometrical moment of inertia I _y	[mm ⁴]	464000	464000	464000	464000
Geometrical moment of inertia I _z	[mm ⁴]	17220000	17220000	17220000	17220000
Friction	[N]	60	60	90	90
Options and their characteristics					
Version with cover		SLD 21-C	SLD 22-C	SLD 23-C	SLD 24-C
Weight slide and motor	[kg]	8.28	9.88	13.7	18
Additional mass per 100 mm stroke	[kg]	2.068	2.068	2.068	2.068
Dimensions X x Y x Z	[mm]	330 x 260 x 120	360 x 260 x 120	470 x 260 x 120	610 x 260 x 120

① The specified dynamic forces and moments refer to the nominal service life (L10) based on 100 km. Additional values for service life calculation can be found in our operating manual.

Main view: Version with one motor unit (SLD 21)



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.

- ② Attachment connection
- ⑨ Nominal stroke
- ③① Motor plug
- ⑦② Fit for centering sleeves
- ⑧① Depth of the centering sleeve hole in the counter part

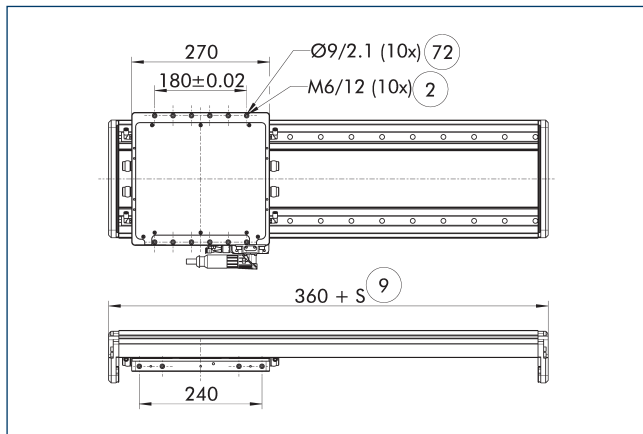
- ⑧① Not included in the scope of delivery
- ⑨① Applies to all centering sleeves
- ⑨① Connection for pneumatic brake

Description	ID	A	B	L	L2
		[mm]	[mm]	[mm]	[mm]
SLD 21		245	215	330	160.5
SLD 22		270	240	360	173
SLD 23		380	350	470	228
SLD 24		520	490	610	298

SLD 2

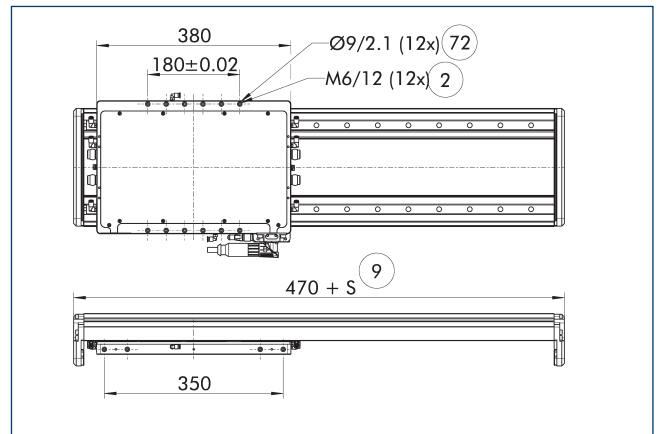
Linear direct axis

Version with two motor units (SLD 22)



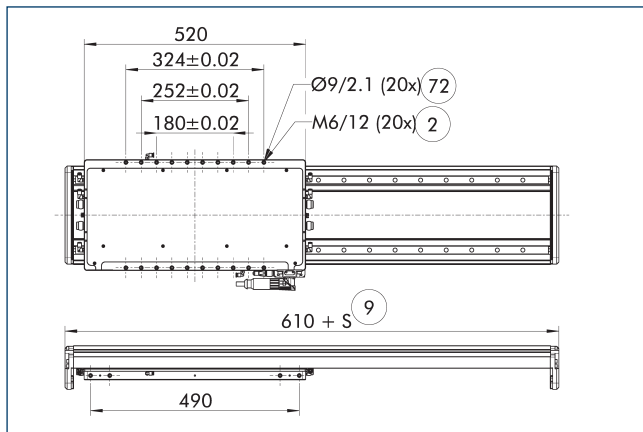
- ② Attachment connection
- ⑦ Fit for centering sleeves
- ⑨ Nominal stroke

Version with three motor units (SLD 23)



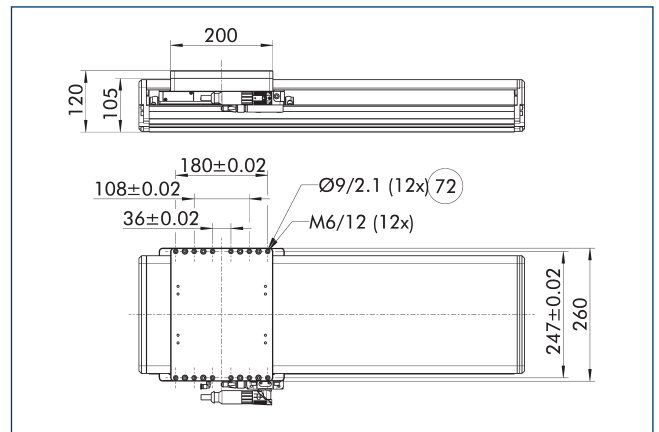
- ② Attachment connection
- ⑦ Fit for centering sleeves
- ⑨ Nominal stroke

Version with four motor units (SLD 24)



- ② Attachment connection
- ⑦ Fit for centering sleeves
- ⑨ Nominal stroke

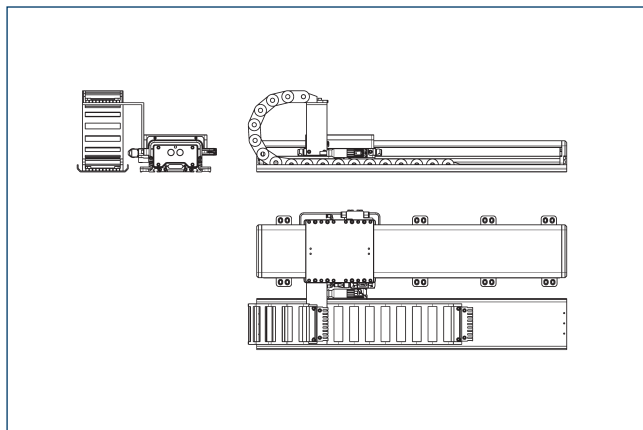
Version with cover



- ⑦ Fit for centering sleeves

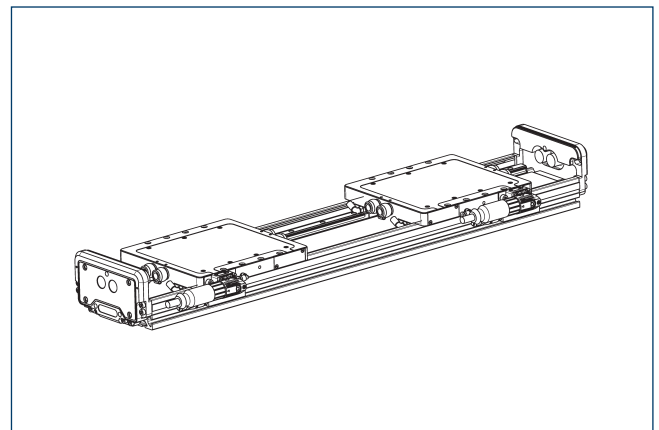
The view shows the height of the SLD axis and the screw connection diagram with the optionally available cover.

Drag chain



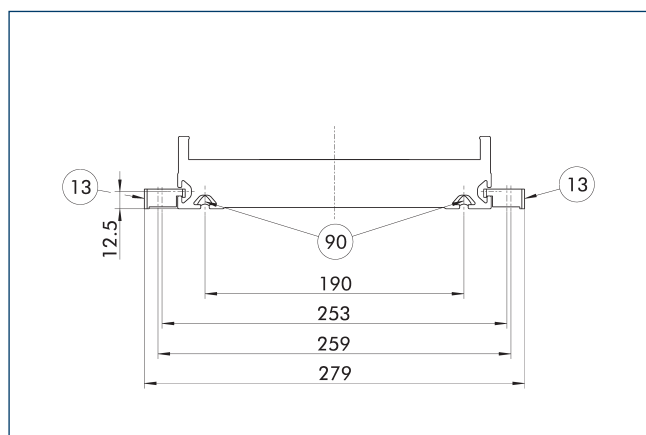
Matching cable tracks are available as accessories for the linear axes. (Similar to illustration). These are adapted to the respective effective stroke, supplied incl. mounting material, and if necessary, pre-assembled.

Second slide



The linear module can be optionally equipped with several active slides. The motor plug outlet is on the left side as standard, but can optionally be selected on the right. Please ask for details.

Mounting

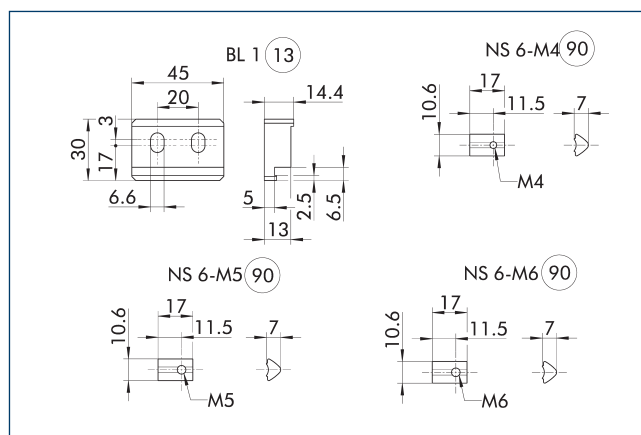


13 Mounting strip

90 T-nut

The drawing shows the position of the mounting options.

Fastening elements



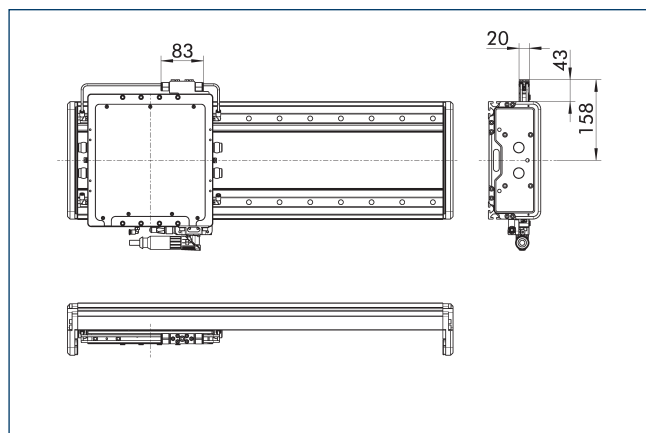
13 Mounting strip

90 T-nut

The unit can be secured either by using T-nuts or mounting strips. The exact mounting position is indicated on the adjacent attachment illustration.

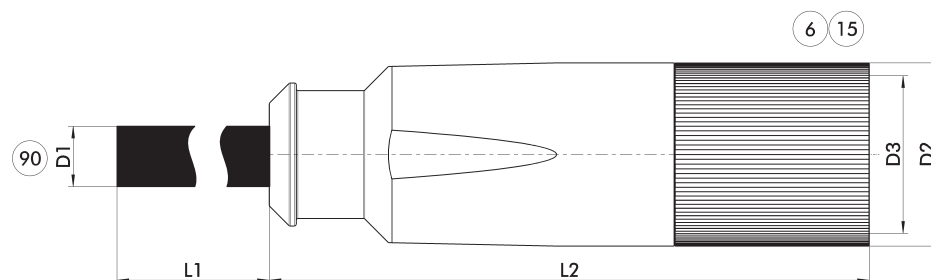
Description	ID	
Mounting strip		
BL1-45x30x14.4-01	1548171	
T-nut		
NS 6-M4	1548130	
NS 6-M5	1548166	
NS 6-M6	1548170	

Lubrication adapter



The view shows the dimensions of the optionally available attachment lubrication adapter.

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.

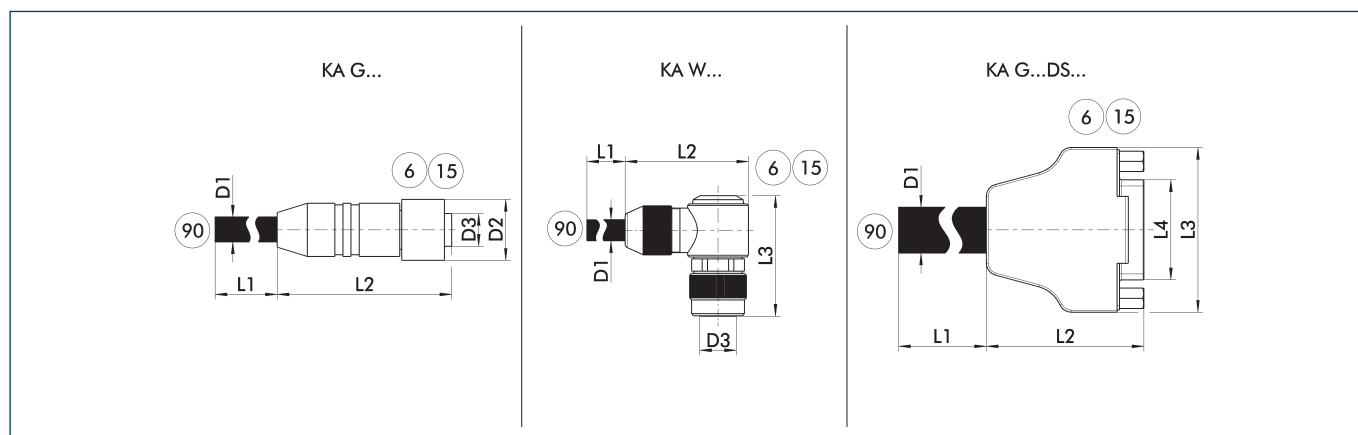
⑥ Connection module side
⑮ Socket

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
Power cable for LDx 400-600/SLD 23,24 to BOSCH IndraDrive A/B						
KA GLT2306-LK-00500-Y	0349568	5	13.2	78.5	27	M23
KA GLT2306-LK-01000-Y	0349569	10	13.2	78.5	27	M23
KA GLT2306-LK-01500-Y	0349570	15	13.2	78.5	27	M23
KA GLT2306-LK-02000-Y	0349571	20	13.2	78.5	27	M23
Power cable for LDx 400-600/SLD 23,24 to BOSCH IndraDrive CS						
KA GLT2306-LK-00500-3	0349540	5	13.2	78.5	27	M23
KA GLT2306-LK-01000-3	0349541	10	13.2	78.5	27	M23
KA GLT2306-LK-01500-3	0349542	15	13.2	78.5	27	M23
KA GLT2306-LK-02000-3	0349543	20	13.2	78.5	27	M23
Power cable for LDx 400-600/SLD 23,24 on Siemens SINAMICS						
KA GGT2306-LK-00100-5	0349114	1	13.2	78.5	27	M23
KA GGT2306-LK-00200-5	0349115	2	13.2	78.5	27	M23
KA GGT2306-LK-00300-5	0349116	3	13.2	78.5	27	M23
Power cable for LDx 400-600/SLD 23,24 on Siemens SINAMICS with DRIVE-CLiQ – cable track compatible						
LDx400-600/SLD 23,24 DQ 05m	1330322	5	13.2	78.5	27	M23
LDx400-600/SLD 23,24 DQ 10m	1330326	10	13.2	78.5	27	M23
LDx400-600/SLD 23,24 DQ 15m	1330329	15	13.2	78.5	27	M23
LDx400-600/SLD 23,24 DQ 20m	1330330	20	13.2	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

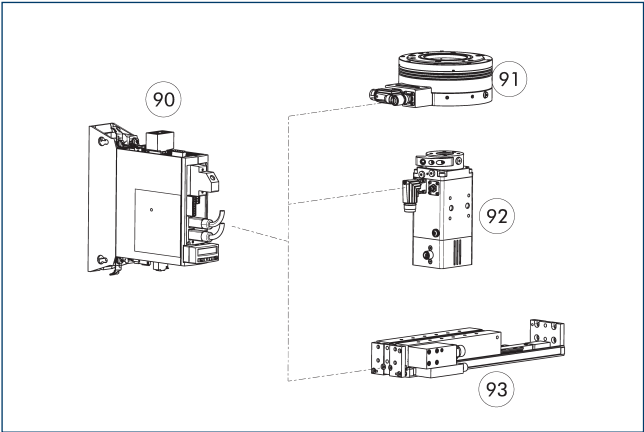
⑨⑩ Prefabricated for connection to the drive controller

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	D3
		[m]	[mm]	[mm]	[mm]	
Encoder cable for BOSCH IndraDrive A/B/Cs and HIPERFACE® encoder interface – drag chain compatible						
KA GWN1208-GK-00500-K	0349125	5	6	50	14.9	M12
KA GWN1208-GK-01000-K	0349126	10	6	50	14.9	M12
KA GWN1208-GK-01500-K	0349127	15	6	50	14.9	M12
KA GWN1208-GK-02000-K	0349128	20	6	50	14.9	M12
Sensor cable for BOSCH Rexroth IndraDrive A/B (Csx01) and 1Vss encoder interface – drag chain suitable						
KA GWN1208-GK-00500-R	0349138	5	7.3	50	14.65	M12
KA GWN1208-GK-01000-R	0349139	10	7.3	50	14.65	M12
KA GWN1208-GK-01500-R	0349140	15	7.3	50	14.65	M12
KA GWN1208-GK-02000-R	0349141	20	7.3	50	14.65	M12
Sensor cable for BOSCH Rexroth IndraDrive A/B (Cxx02)/IndraDrive Cs and 1Vss encoder interface – drag chain suitable						
KA GWN1208-GK-00500-T	0349146	5	7.3	50	14.65	M12
KA GWN1208-GK-01000-T	0349147	10	7.3	50	14.65	M12
KA GWN1208-GK-01500-T	0349148	15	7.3	50	14.65	M12
KA GWN1208-GK-02000-T	0349149	20	7.3	50	14.65	M12
Sensor cable for SIEMENS Sinamics and encoder interface 1Vss – drag chain suitable						
KA GGN1208-GK-00100-U	0349597	1	7.3	50	14.65	M12
KA GGN1208-GK-00200-U	0349598	2	7.3	50	14.65	M12
KA GGN1208-GK-00300-U	0349599	3	7.3	50	14.65	M12
Sensor cable for Siemens SINAMICS and encoder interface DRIVE-CLiQ – cable track compatible						
ELB/SLD – DQ 05m	1327967	5	6	50	14.9	M12
ELB/SLD – DQ 10m	1327968	10	6	50	14.9	M12
ELB/SLD – DQ 15m	1327969	15	6	50	14.9	M12
ELB/SLD – DQ 20m	1327970	20	6	50	14.9	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-W0018	7.6	18	
HCS01.1E-W0028	11.52	28	

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



SCHUNK SE & Co. KG

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