



Hand in hand for tomorrow



Product data sheet

Linear module KLM 300

Modular. Robust. Reliable.

Linear module KLM

Linear module with pneumatic drive and ball bushing guide

Field of application

For use in clean and slightly polluted environments. Simple economic linear movements or, in combination, as multi-axis positioning systems for assembly and handling Technology.



Advantages – Your benefits

Double bearing of the guide shafts in the ball bushing for high load bearing capacity and repeat accuracy < 0.015 mm

Shock absorbers and proximity switches integrated in the projecting surfaces for vibration-free movements and end position monitoring

Strongly dimensioned guide shafts for high rigidity

High basic load ratings in all load directions

Standardized mounting bores for numerous combinations with other components from the modular system

Several intermediate positions possible for maximum flexibility in applications

Rod lock by means of clamping cartridge for safety in case of emergency stops



Sizes
Quantity: 4



Weight
0.5 .. 13.2 kg



Driving force
67 .. 753 N



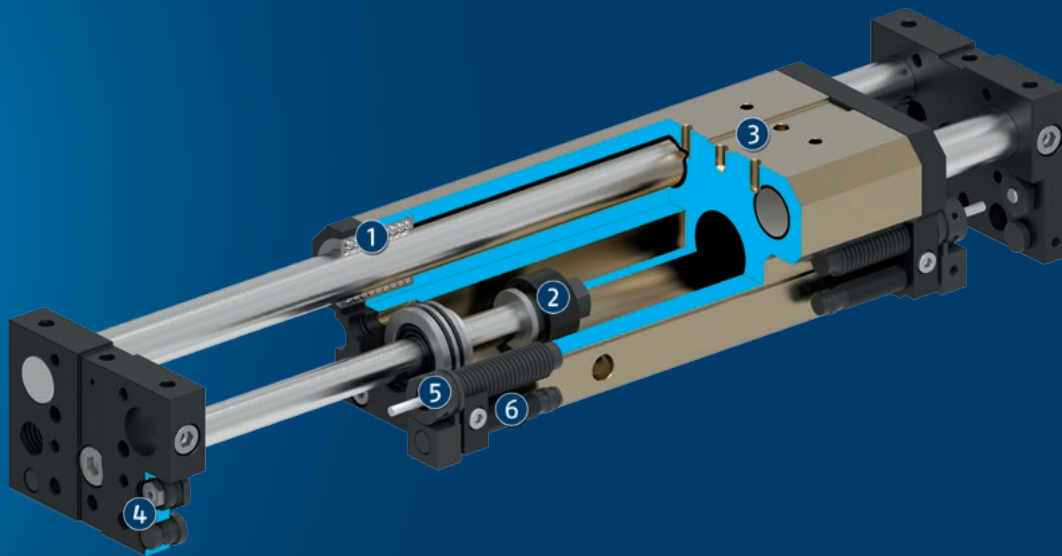
Stroke
13 .. 300 mm



Repeat accuracy
0.02 .. 0.03 mm

Functional description

The linear module is driven via a double-acting pneumatic cylinder which is integrated in the base body, and guided by two opposing guide rods.



- ① **Ball bushing guide**
scope-free at a low friction
- ② **Drive**
Powerful piston rod cylinders
- ③ **Mounting pattern**
Completely integrated in the module system
- ④ **Damping adjustment**
Adjustment of the damping characteristics
- ⑤ **End position adjustability**
Convenient adjustment using the shock absorber threads
- ⑥ **Sensor system**
with sensor driver for convenient adjustment

General notes about the series

Housing material: Aluminum alloy, anodized

Guidance: Ball bushing guide

Actuation: pneumatic, with filtered compressed air as per ISO 8573-1:2010 [7:4:4].

Scope of delivery: Shock absorber and driver for proximity switch

Warranty: 24 months

Service life characteristics: on request

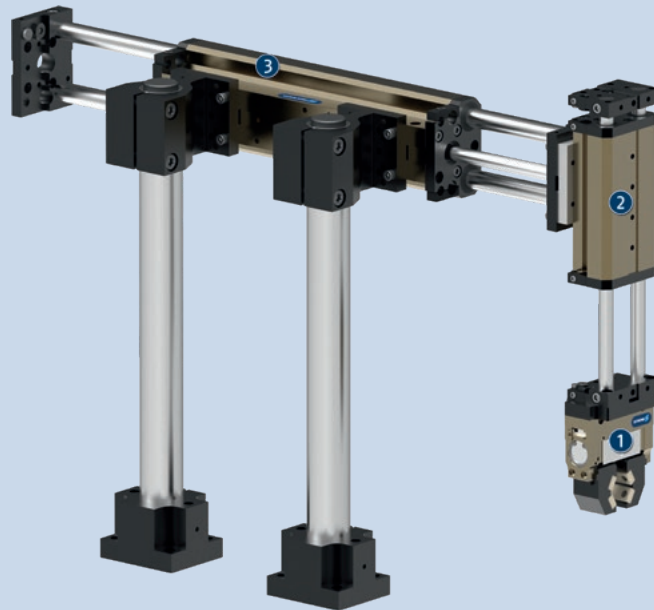
Repeat accuracy: is defined as a distribution of the end positions for 100 consecutive cycles.

Travel times: are pure movement times of the slide or the base body. Valve switching times, hose filling times, or PLC reaction times are not a part of this and are to be considered when cycle times are calculated.

Stroke: is the maximum nominal stroke of the unit. It can be shortened on both sides by the shock absorbers.

Layout or control calculation: For configuration or control calculation of the units, we recommend to use our Toolbox software, which is available online. A control calculation for the selected unit must be carried out to prevent overloading.

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.



Application example

Sorting unit for small components which require an especially long gripper stroke due to their variation in size.

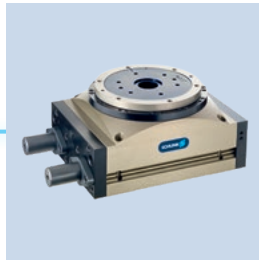
- ① 2-finger parallel gripper KGG with workpiece-specific fingers
- ② Linear module KLM for vertical movement
- ③ Linear module KLM for horizontal movement

SCHUNK offers more ...

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



Vane swivel unit



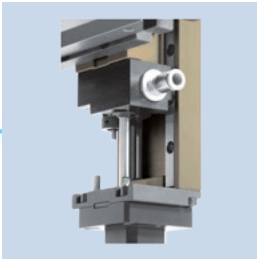
Rotary indexing table



Gripper for small components



Universal gripper



Rod lock



Intermediate stop cylinder



Pillar assembly system



Rotary gripper module



Pressure maintenance valve



Inductive proximity switch

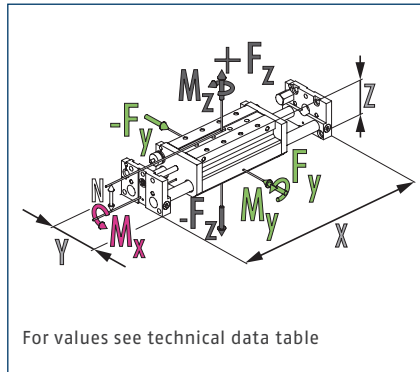
① For more information on these products can be found on the following product pages or at [schunk.com](https://www.schunk.com).

Options and special information

Version rod lock: prevents the structure from falling in the event of a sudden loss of energy. This module can be combined as standard with many elements from the modular system. We can assist you with questions.

Food-grade lubrication: The product contains food-compliant lubricants as standard. The requirements of standard EN 1672-2:2020 are not fully met. The relevant NSF certificates are available at <https://info.nsf.org/USDA/Listings.asp> using the lubricant information in the operating manual. Components such as rolling bearings, linear guides, or shock absorbers are not provided with food-compliant lubricants.

Dimensions and maximum loads



- ① The indicated forces and moments are maximum values for single load. If more than one force and/or torque occurs simultaneously, the case of application can be calculated by using the Toolbox. The force F_y can only be calculated by using the Toolbox.

Technical data

Description		KLM 300-H050	KLM 300-H100	KLM 300-H150	KLM 300-H200	KLM 300-H250	KLM 300-H300
ID		0314550	0314554	0314558	0314562	0314566	0314570
Stroke	[mm]	50	100	150	200	250	300
extend force	[N]	753	753	753	753	753	753
retracted force	[N]	633	633	633	633	633	633
Repeat accuracy	[mm]	0.03	0.03	0.03	0.03	0.03	0.03
Piston diameter	[mm]	40	40	40	40	40	40
Bar diameter	[mm]	16	16	16	16	16	16
Min./nom./max. operating pressure	[bar]	3/6/8	3/6/8	3/6/8	3/6/8	3/6/8	3/6/8
Cylinder volume/10 mm per double stroke	[cm ³]	12.57	12.57	12.57	12.57	12.57	12.57
Overall length	[mm]	324	324	524	524	724	724
IP protection class		40	40	40	40	40	40
Min./max. ambient temperature	[°C]	5/60	5/60	5/60	5/60	5/60	5/60
Cleanroom class ISO 14644-1:1999		6	6	6	6	6	6
Weight	[kg]	6.9	6.8	9.8	9.7	12.7	12.6
Drive concept		Piston rod cylinders	Piston rod cylinders	Piston rod cylinders	Piston rod cylinders	Piston rod cylinders	Piston rod cylinders
Dimensions X x Y x Z	[mm]	324 x 105 x 85	324 x 105 x 85	524 x 105 x 85	524 x 105 x 85	724 x 105 x 85	724 x 105 x 85
Clearance N (for moment load)	[mm]	61	61	61	61	61	61
Moments Mx max./My max./Mz max.	[Nm]	90/200/200	90/200/200	72/350/350	72/350/350	54/415/415	54/415/415
Forces Fz max.	[N]	3120	3120	2490	2490	1870	1870
Options and their characteristics							
Dustproof version		KLM 300-H050-SD	KLM 300-H100-SD	KLM 300-H150-SD	KLM 300-H200-SD	KLM 300-H250-SD	KLM 300-H300-SD
ID		0314552	0314556	0314560	0314564	0314568	0314572
IP protection class		50	50	50	50	50	50
Rod lock version		KLM 300-H050-ASP	KLM 300-H100-ASP	KLM 300-H150-ASP	KLM 300-H200-ASP	KLM 300-H250-ASP	KLM 300-H300-ASP
ID		0314551	0314555	0314559	0314563	0314567	0314571
Stroke loss of nominal stroke (on the rod side)	[mm]	22	22	22	22	22	22
Weight	[kg]	7.4	7.3	10.3	10.2	13.2	13.1
Static holding force	[N]	1000	1000	1000	1000	1000	1000
Max. axial play of the clamping	[mm]	0.25	0.25	0.25	0.25	0.25	0.25
Min. release pressure	[bar]	3	3	3	3	3	3

Technical drawing of the 3000 series hydraulic cylinder, showing three views: front, side, and end view. The drawing includes detailed dimensions and part numbers for various components.

Front View (Top):

- Dimensions: 35, 10, 10, 60, 58, 25 (Ø), 105, 61, 85, 74.
- Part numbers: 91, 1, 73, 2, 34, 90, 73, 2, 35.
- Specifications: M8/14.5 (4x), C±0.02, M6/13 (6x), Ø5/4 (3x), Ø20/M8/9, Ø5 (2x), Ø5.3 (2x), Km5 DIN 974-1 (4x).

Side View (Middle):

- Dimensions: 22, 10.5, 12, 22.5, 22.5, 12, 82, 7.
- Part numbers: 2, 34, 90, 73, 2, 35.
- Specifications: B G1/4"/10, A G1/4"/10, E, G.

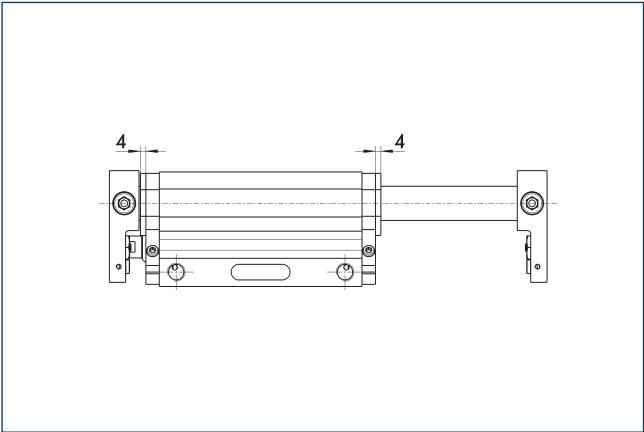
End View (Bottom):

- Dimensions: 60, 11, 12.05, 70, 60, 12.05, 11, 12.05 (2x), 11.
- Part numbers: 73, 92, 73, 2, 35.
- Specifications: Ø5/4 (2x), B±0.02, M6/8 (4x), Ø5/5 (2x), M8/11 (4x), A.

A	Main connection – linear unit extended	(35)	Back side
		(73)	Fit for centering pins
B	Main connection – linear unit retracted	(90)	Through-holes in the face plate and thread in the base body (only single sided)
(1)	Connection linear unit		
(2)	Attachment connection	(91)	Inductive proximity switch
(34)	On both sides	(92)	Fit for centering strip LMZL

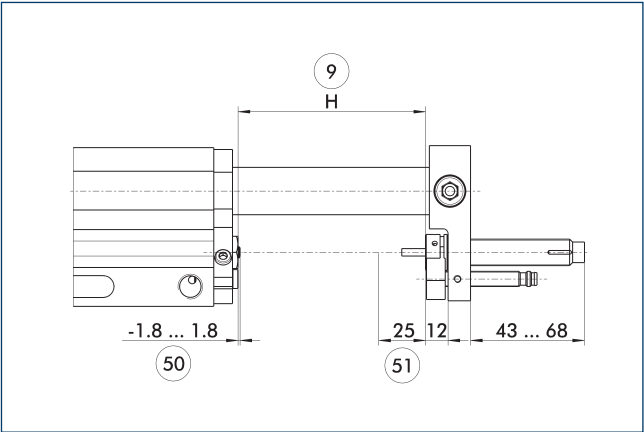
Description	ID	A	B	Quantity B	C	Quantity C	D	E	G
		[mm]	[mm]		[mm]		[mm]	[mm]	[mm]
KLM 300-H050	0314550	324	50	1	25	4	27	170	127
KLM 300-H100	0314554	324	50	1	25	4	27	170	127
KLM 300-H150	0314558	524	50	3	25	8	27	270	227
KLM 300-H200	0314562	524	50	3	25	8	27	270	227
KLM 300-H250	0314566	724	50	5	25	12	27	370	327
KLM 300-H300	0314570	724	50	5	25	12	27	370	327

Dustproof version



The "dustproof" option increases the degree of protection against penetrating substances.

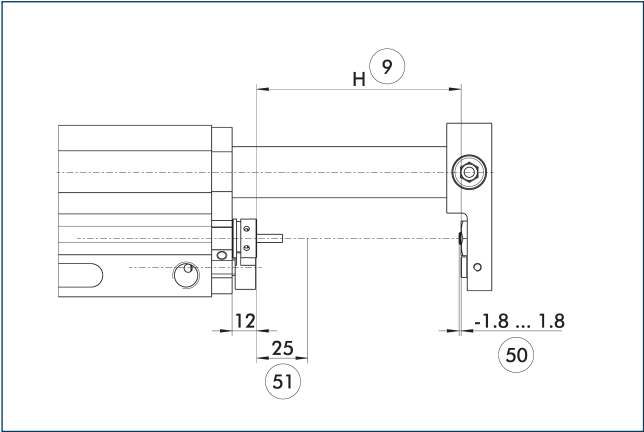
Fine adjustment



9 Nominal stroke
50 Damping stroke adjustment range
51 Stroke adjustment range

Shock absorbers can be mounted either on the base body or on the face plates. This illustration shows the mounting on the face plates and the possibility of stroke fine adjustment.

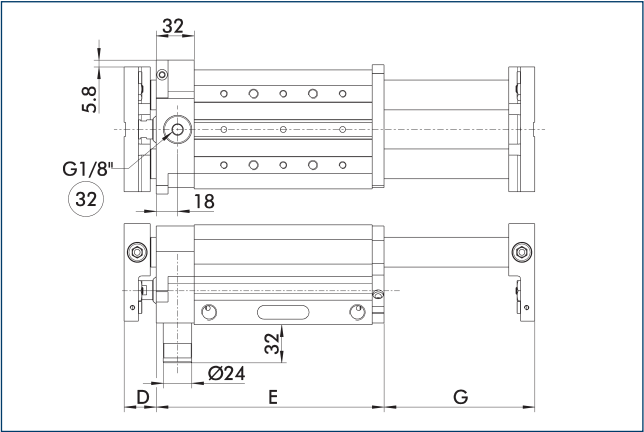
Fine adjustment



9 Nominal stroke
50 Damping stroke adjustment range
51 Stroke adjustment range

Shock absorbers can be mounted either on the base body or on the face plates. This illustration shows the mounting on the base body and the possibility of stroke fine adjustment.

Rod lock

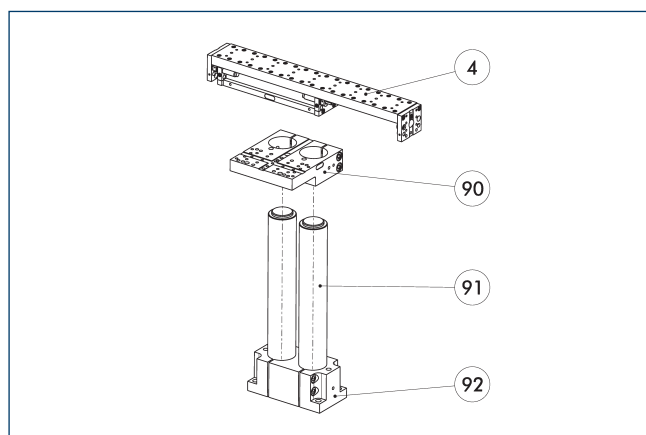


32 Pneumatic connection for holding brake

The rod lock prevents weights from falling in the event of energy loss, such as emergency stop situations. The rod lock can also be retrofitted, but this will reduce the nominal stroke.

Description	D	E	G
	[mm]	[mm]	[mm]
KLM 300-H050-ASP	27	192	105
KLM 300-H100-ASP	27	192	105
KLM 300-H150-ASP	27	292	205
KLM 300-H200-ASP	27	292	205
KLM 300-H250-ASP	27	392	305
KLM 300-H300-ASP	27	392	305

Attachment to a pillar assembly system

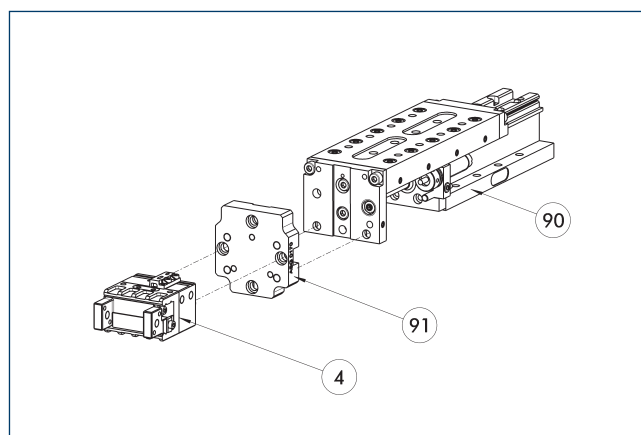


- ④ Linear unit
- ⑨① Pillars, hard-chromium plated, ground
- ⑨② Double mounting plate, APDH
- ⑨② Double socket SOD

This unit can be attached to the pillar assembly system as standard. See the Kombibox software, which can be found online, for the right arrangement for your application.

Description	ID	pillar diameter [mm]	Material
Pillar assembly system mounting plate			
APDH 85	0313414	55	Aluminum
APDV 85	0313416	55	Aluminum
APEH 85	0313413	55	Aluminum
APEV 85	0313415	55	Aluminum

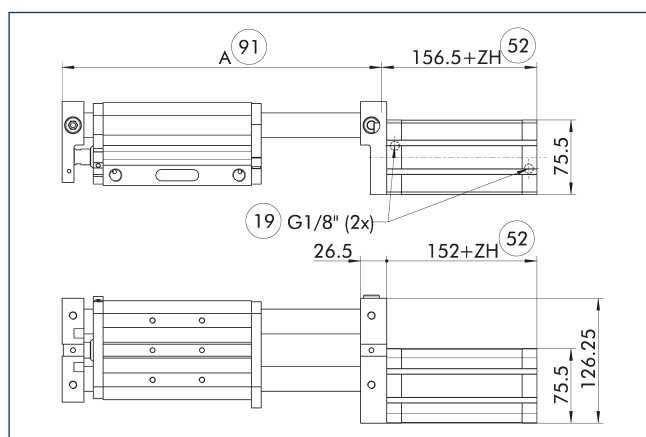
Modular Assembly Automation



- ④ Grippers
- ⑨① ASG adapter plate
- ⑨② Linear module CLM/KLM/LM/ELP/ELM/ELS/HLM

Grippers and linear modules can be combined with standard adapter plates from the modular assembly system. For more information see our main catalog "Modular Assembly Automation".

Intermediate stop, ZZA on the piston side

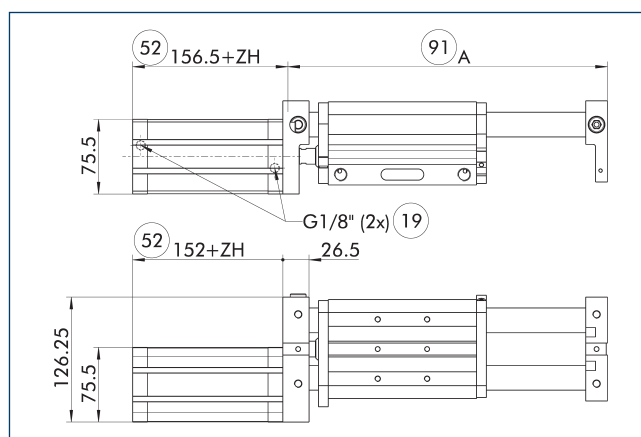


- ①⑨ Air connection
- ⑤② Intermediate stroke
- ⑨① Overall length "A," the variant without intermediate stroke (see measurement chart of stroke variants)

The intermediate position is measured from the respective end position. The intermediate position can be approached from both sides and can proceed in the original stroke direction. The holding force is the piston force of the intermediate stop less the piston force of the linear module.

Description	Holding force [N]	With with 0mm stroke [kg]	Weight per mm stroke [kg]
Intermediate stop			
ZZA 305	1117	2.1	0.011

Intermediate stop, ZZA on the piston rod side



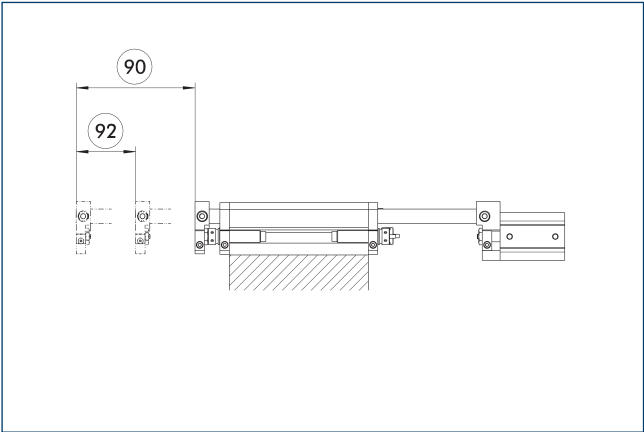
- ①⑨ Air connection
- ⑤② Intermediate stroke
- ⑨① Overall length "A," the variant without intermediate stroke (see measurement chart of stroke variants)

The intermediate position is measured from the respective end position. The intermediate position can be approached from both sides and can proceed in the original stroke direction. The holding force is the piston force of the intermediate stop less the piston force of the linear module.

Description	Holding force [N]	With with 0mm stroke [kg]	Weight per mm stroke [kg]
Intermediate stop			
ZZA 306	1117	2.1	0.011

① Sample order KLM 300-H100-ZZA306-H100

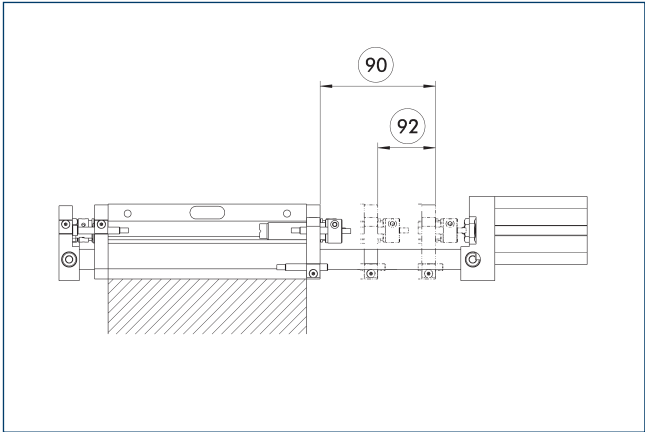
Design – variant 1



90 Nominal stroke 92 Intermediate stroke

The corresponding intermediate stroke (ZH) is calculated by subtracting the intermediate stop cylinder stroke from the nominal stroke of the module. The intermediate stroke adjustment is ± 3 mm.

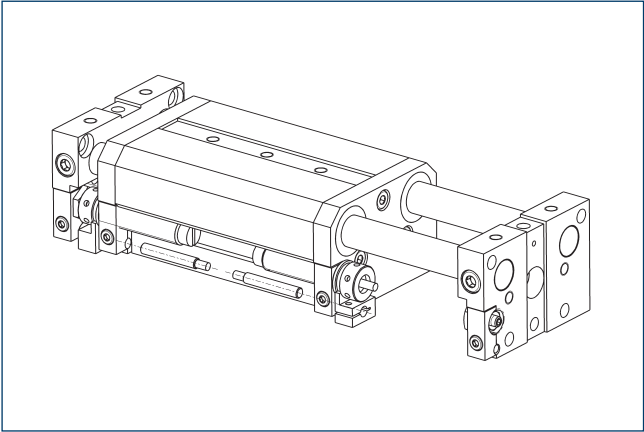
Design – variant 2



90 Nominal stroke 92 Intermediate stroke

The corresponding intermediate stroke (ZH) is calculated by subtracting the intermediate stop cylinder stroke from the nominal stroke of the module. The intermediate stroke adjustment is ± 3 mm.

Inductive proximity switches



Directly mounted end position monitoring.

Description	ID	Often combined
Inductive proximity switch		
NI 30-KT	0313429	
Connection cables		
KA BG08-L 3P-0300-PNP	0301622	●
KA BG08-L 3P-0500-PNP	0301623	
KA BW08-L 3P-0300-PNP	0301594	
KA BW08-L 3P-0500-PNP	0301502	
Cable extension		
KV BW08-SG08 3P-0030-PNP	0301495	
KV BW08-SG08 3P-0100-PNP	0301496	
KV BW08-SG08 3P-0200-PNP	0301497	●

① Two sensors are required per unit for monitoring two positions. On option, extension cables and sensor distributors are available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor system.



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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