



Hand in hand for tomorrow



## Product data sheet

Linear module KLM 100

## 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



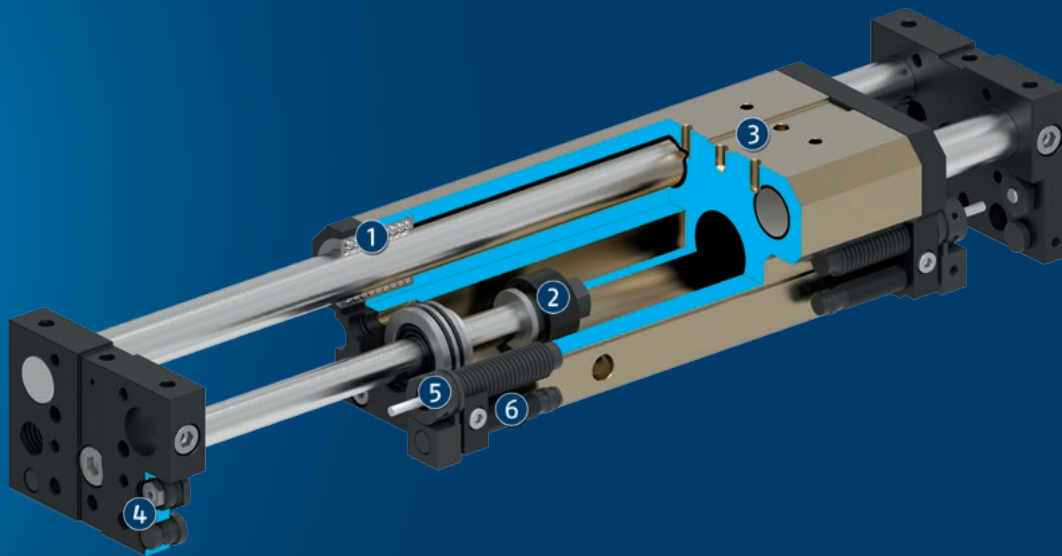
Stroke  
13 .. 300 mm



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

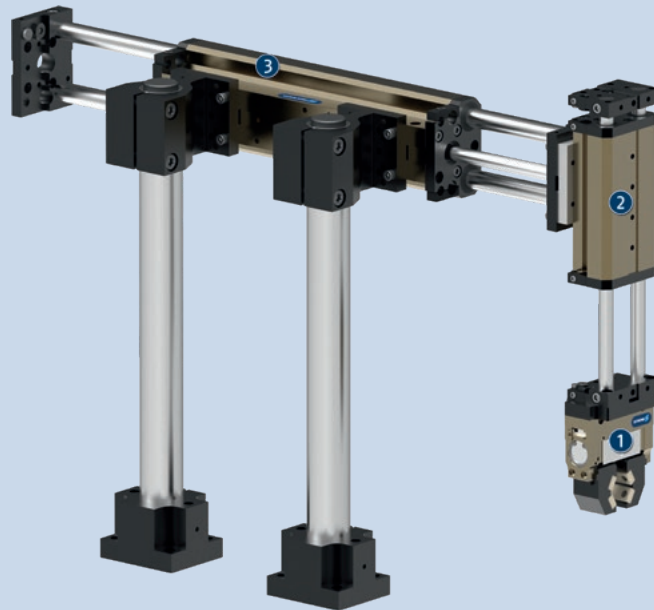
**Repeat accuracy:** is defined as a distribution of the end positions for 100 consecutive cycles.

**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.

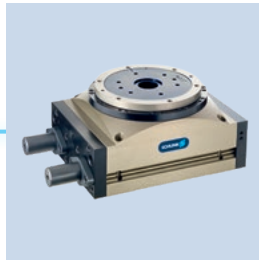
- ① 2-finger parallel gripper KGG with workpiece-specific fingers
- ② Linear module KLM for vertical movement
- ③ Linear module KLM for horizontal movement

## 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



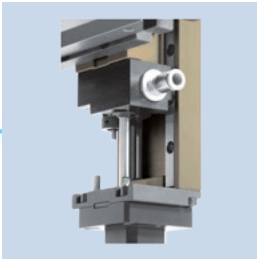
Rotary indexing table



Gripper for small components



Universal gripper



Rod lock



Intermediate stop cylinder



Pillar assembly system



Rotary gripper module



Pressure maintenance valve



Inductive proximity switch

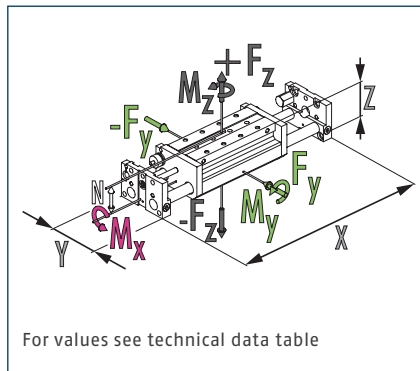
① For more information on these products can be found on the following product pages or at [schunk.com](https://www.schunk.com).

## 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



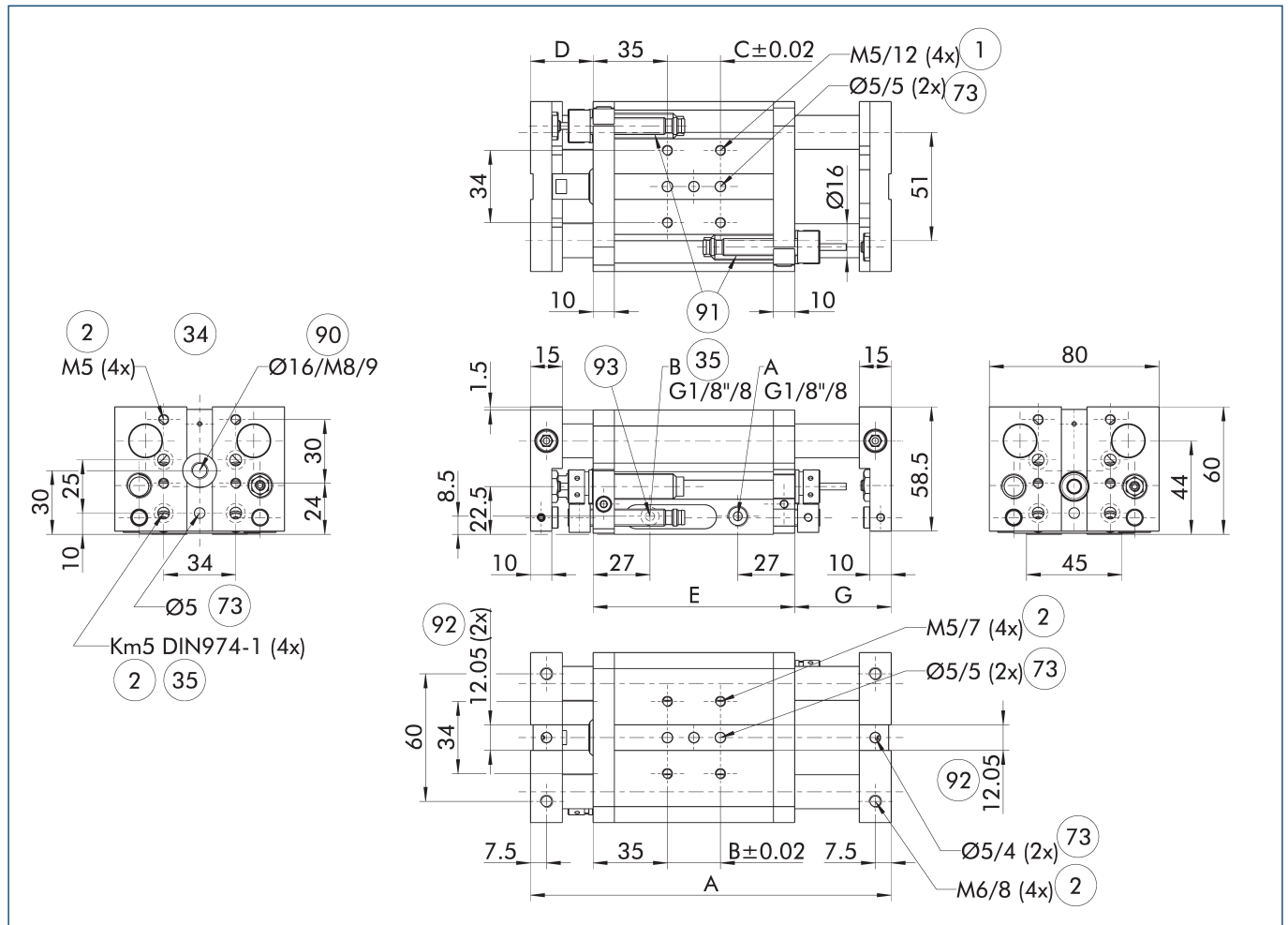
- ① The indicated forces and moments are maximum values for single load. If more than one force and/or torque occurs simultaneously, the case of application can be calculated by using the Toolbox. The force  $F_y$  can only be calculated by using the Toolbox.

### Technical data

| Description                                     |                    | KLM 100-H025         | KLM 100-H050         | KLM 100-H075         | KLM 100-H100         | KLM 100-H125         | KLM 100-H150         |
|-------------------------------------------------|--------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| ID                                              |                    | 0314023              | 0314024              | 0314025              | 0314026              | 0314027              | 0314028              |
| Stroke                                          | [mm]               | 25                   | 50                   | 75                   | 100                  | 125                  | 150                  |
| extend force                                    | [N]                | 294                  | 294                  | 294                  | 294                  | 294                  | 294                  |
| retracted force                                 | [N]                | 226                  | 226                  | 226                  | 226                  | 226                  | 226                  |
| Repeat accuracy                                 | [mm]               | 0.03                 | 0.03                 | 0.03                 | 0.03                 | 0.03                 | 0.03                 |
| Piston diameter                                 | [mm]               | 25                   | 25                   | 25                   | 25                   | 25                   | 25                   |
| Bar diameter                                    | [mm]               | 12                   | 12                   | 12                   | 12                   | 12                   | 12                   |
| 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 <sup>3</sup> ] | 4.9                  | 4.9                  | 4.9                  | 4.9                  | 4.9                  | 4.9                  |
| Overall length                                  | [mm]               | 170                  | 270                  | 270                  | 370                  | 370                  | 470                  |
| 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]               | 2.3                  | 3                    | 3                    | 3.7                  | 3.7                  | 4.4                  |
| 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]               | 170 x 80 x 60        | 270 x 80 x 60        | 270 x 80 x 60        | 370 x 80 x 60        | 370 x 80 x 60        | 470 x 80 x 60        |
| Clearance N (for moment load)                   | [mm]               | 44                   | 44                   | 44                   | 44                   | 44                   | 44                   |
| Moments Mx max./My max./Mz max.                 | [Nm]               | 25.5/32.5/32.5       | 13.5/57.5/57.5       | 13.5/57.5/57.5       | 11.5/58.5/58.5       | 11.5/58.5/58.5       | 7.3/52/52            |
| Forces Fz max.                                  | [N]                | 999                  | 529                  | 592                  | 449                  | 449                  | 284                  |
| <b>Options and their characteristics</b>        |                    |                      |                      |                      |                      |                      |                      |
| Dustproof version                               |                    | KLM 100-H025-SD      | KLM 100-H050-SD      | KLM 100-H075-SD      | KLM 100-H100-SD      | KLM 100-H125-SD      | KLM 100-H150-SD      |
| ID                                              |                    | 0314790              | 0314791              | 0314792              | 0314793              | 0314794              | 0314795              |
| IP protection class                             |                    | 50                   | 50                   | 50                   | 50                   | 50                   | 50                   |
| Rod lock version                                |                    |                      | KLM 100-H050-ASP     | KLM 100-H075-ASP     | KLM 100-H100-ASP     | KLM 100-H125-ASP     | KLM 100-H150-ASP     |
| ID                                              |                    |                      | 0314424              | 0314425              | 0314426              | 0314427              | 0314428              |
| Stroke loss of nominal stroke (on the rod side) | [mm]               |                      | 12                   | 12                   | 12                   | 12                   | 12                   |
| Weight                                          | [kg]               |                      | 3.08                 | 3.08                 | 3.78                 | 3.78                 | 4.48                 |
| Static holding force                            | [N]                |                      | 600                  | 600                  | 600                  | 600                  | 600                  |
| Max. axial play of the clamping                 | [mm]               |                      | 0.3                  | 0.3                  | 0.3                  | 0.3                  | 0.3                  |
| Min. release pressure                           | [bar]              |                      | 3                    | 3                    | 3                    | 3                    | 3                    |

| Description                                     |       | KLM 100-H175         | KLM 100-H200         | KLM 100-H225         |
|-------------------------------------------------|-------|----------------------|----------------------|----------------------|
| ID                                              |       | 0314029              | 0314030              | 0314031              |
| Stroke                                          | [mm]  | 175                  | 200                  | 225                  |
| extend force                                    | [N]   | 294                  | 294                  | 294                  |
| retracted force                                 | [N]   | 226                  | 226                  | 226                  |
| Repeat accuracy                                 | [mm]  | 0.03                 | 0.03                 | 0.03                 |
| Piston diameter                                 | [mm]  | 25                   | 25                   | 25                   |
| Bar diameter                                    | [mm]  | 12                   | 12                   | 12                   |
| Min./nom./max. operating pressure               | [bar] | 3/6/8                | 3/6/8                | 3/6/8                |
| Cylinder volume/10 mm per double stroke         | [cm³] | 4.9                  | 4.9                  | 4.9                  |
| Overall length                                  | [mm]  | 470                  | 570                  | 570                  |
| IP protection class                             |       | 40                   | 40                   | 40                   |
| Min./max. ambient temperature                   | [°C]  | 5/60                 | 5/60                 | 5/60                 |
| Cleanroom class ISO 14644-1:1999                |       | 6                    | 6                    | 6                    |
| Weight                                          | [kg]  | 4.4                  | 5.1                  | 5.1                  |
| Drive concept                                   |       | Piston rod cylinders | Piston rod cylinders | Piston rod cylinders |
| Dimensions X x Y x Z                            | [mm]  | 470 x 80 x 60        | 570 x 80 x 60        | 570 x 80 x 60        |
| Clearance N (for moment load)                   | [mm]  | 44                   | 44                   | 44                   |
| Moments Mx max./My max./Mz max.                 | [Nm]  | 7.3/52/52            | 5/44.5/44.5          | 5/44.5/44.5          |
| ForcesFz max.                                   | [N]   | 284                  | 194                  | 194                  |
| <b>Options and their characteristics</b>        |       |                      |                      |                      |
| Dustproof version                               |       | KLM 100-H175-SD      | KLM 100-H200-SD      | KLM 100-H225-SD      |
| ID                                              |       | 0314796              | 0314797              | 0314798              |
| IP protection class                             |       | 50                   | 50                   | 50                   |
| Rod lock version                                |       | KLM 100-H175-ASP     | KLM 100-H200-ASP     | KLM 100-H225-ASP     |
| ID                                              |       | 0314429              | 0314430              | 0314431              |
| Stroke loss of nominal stroke (on the rod side) | [mm]  | 12                   | 12                   | 12                   |
| Weight                                          | [kg]  | 4.48                 | 5.18                 | 5.18                 |
| Static holding force                            | [N]   | 600                  | 600                  | 600                  |
| Max. axial play of the clamping                 | [mm]  | 0.3                  | 0.3                  | 0.3                  |
| Min. release pressure                           | [bar] | 3                    | 3                    | 3                    |

## Main view

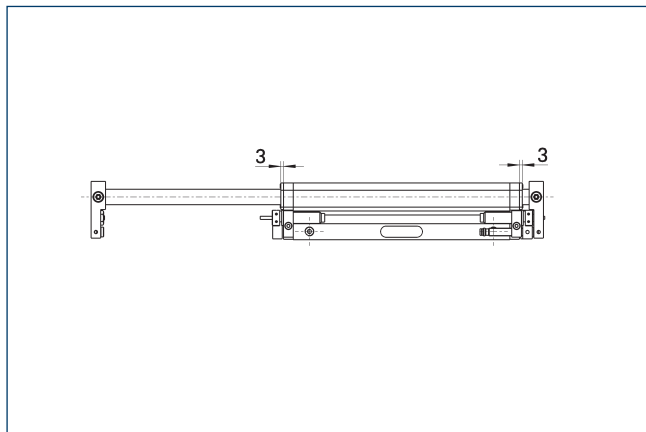


The linear module can be fastened either to the base body or the face plates. The structure can also optionally be fastened to either the face plates or the base body. This view shows the mounting of the module to the base body and the mounting of the structure to the face plates.

- A Main connection - linear unit extended
- B Main connection - linear unit retracted
- ① Connection linear unit
- ② Attachment connection
- ③ On both sides
- ④ Back side
- ⑦ Fit for centering pins
- ⑨ Through-holes in the face plate and thread in the base body (only single sided)
- ⑩ Inductive proximity switch
- ⑪ Fit for centering strip LMZL
- ⑫ Air connection "B" only for stroke 025 at the rear

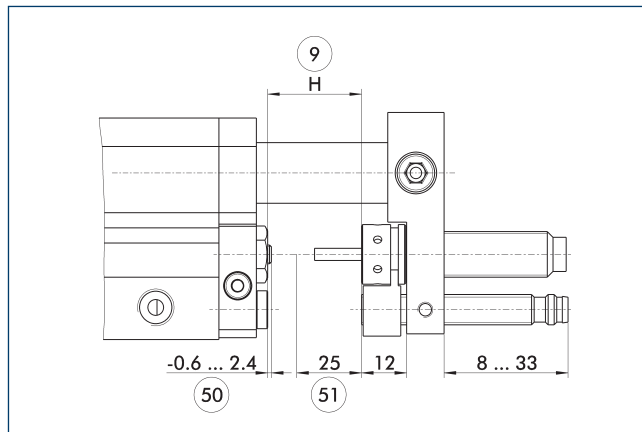
| Description  | ID      | A    | B    | Quantity B | C    | Quantity C | D    | E    | G    |
|--------------|---------|------|------|------------|------|------------|------|------|------|
|              |         | [mm] | [mm] |            | [mm] |            | [mm] | [mm] | [mm] |
| KLM 100-H025 | 0314023 | 170  | 25   | 1          | 25   | 1          | 25   | 95   | 50   |
| KLM 100-H050 | 0314024 | 270  | 25   | 3          | 25   | 3          | 25   | 145  | 100  |
| KLM 100-H075 | 0314025 | 270  | 25   | 3          | 25   | 3          | 25   | 145  | 100  |
| KLM 100-H100 | 0314026 | 370  | 25   | 5          | 25   | 5          | 25   | 195  | 150  |
| KLM 100-H125 | 0314027 | 370  | 25   | 5          | 25   | 5          | 25   | 195  | 150  |
| KLM 100-H150 | 0314028 | 470  | 25   | 7          | 25   | 7          | 25   | 245  | 200  |
| KLM 100-H175 | 0314029 | 470  | 25   | 7          | 25   | 7          | 25   | 245  | 200  |
| KLM 100-H200 | 0314030 | 570  | 25   | 9          | 25   | 9          | 25   | 295  | 250  |
| KLM 100-H225 | 0314031 | 570  | 25   | 9          | 25   | 9          | 25   | 295  | 250  |

## Dustproof version



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

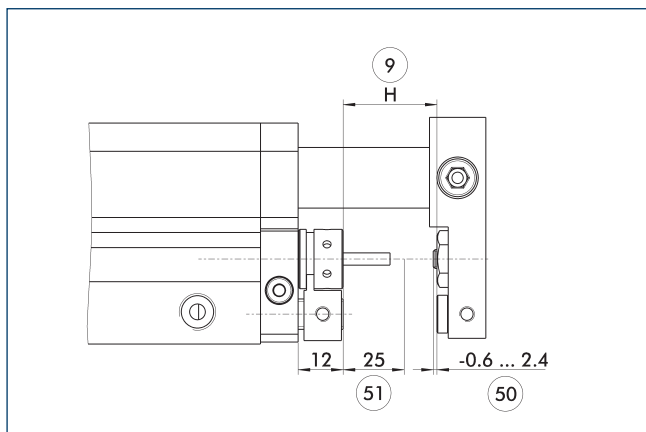
## Fine adjustment



- ⑨ Nominal stroke
- ⑤① Stroke adjustment range
- ⑤① Damping 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.

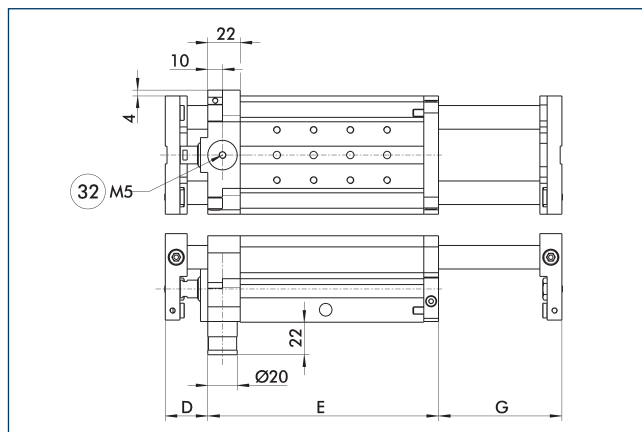
## Fine adjustment



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

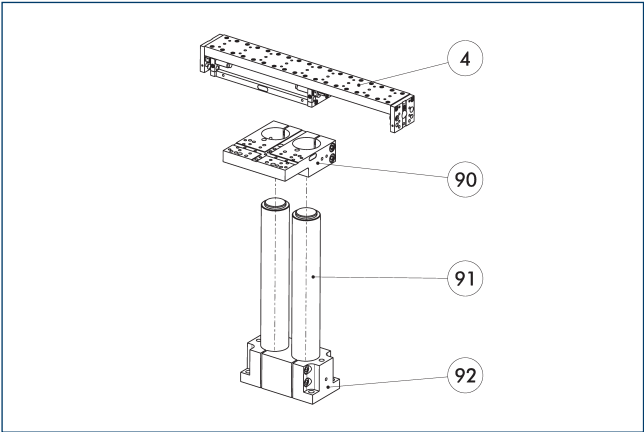


- ③② Pneumatic connection for holding brake

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 100-H050-ASP | 25   | 157  | 88   |
| KLM 100-H075-ASP | 25   | 157  | 88   |
| KLM 100-H100-ASP | 25   | 207  | 138  |
| KLM 100-H125-ASP | 25   | 207  | 138  |
| KLM 100-H150-ASP | 25   | 257  | 198  |
| KLM 100-H175-ASP | 25   | 257  | 198  |
| KLM 100-H200-ASP | 25   | 307  | 238  |
| KLM 100-H225-ASP | 25   | 307  | 238  |

Attachment to a pillar assembly system

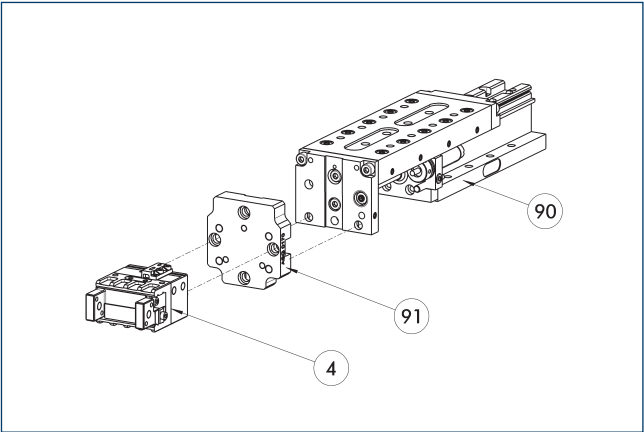


- ④ Linear unit
- ⑨① Pillars, hard-chromium plated, ground
- ⑨② Double socket SOD
- ⑨② Double mounting plate, APDH

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 | Material |
|---------------------------------------|---------|-----------------|----------|
|                                       |         | [mm]            |          |
| Pillar assembly system mounting plate |         |                 |          |
| APDH 85                               | 0313414 | 55              | Aluminum |
| APDV 35                               | 0313896 | 35              | Aluminum |
| APDV 85                               | 0313416 | 55              | Aluminum |
| APEH 35                               | 0313893 | 35              | Aluminum |
| APEH 85                               | 0313413 | 55              | Aluminum |
| APEV 35                               | 0313895 | 35              | Aluminum |
| APEV 85                               | 0313415 | 55              | Aluminum |

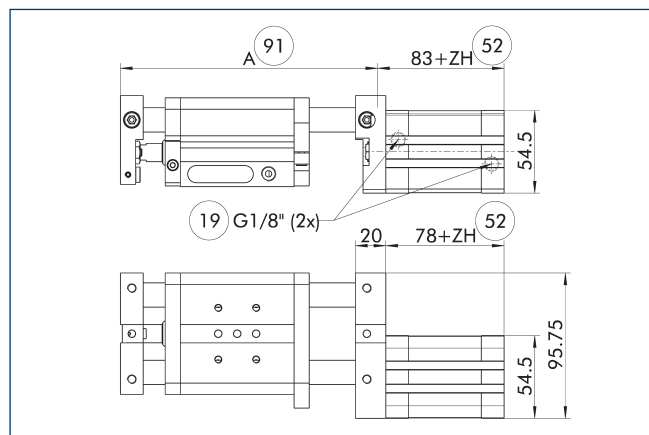
Modular Assembly Automation



- 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



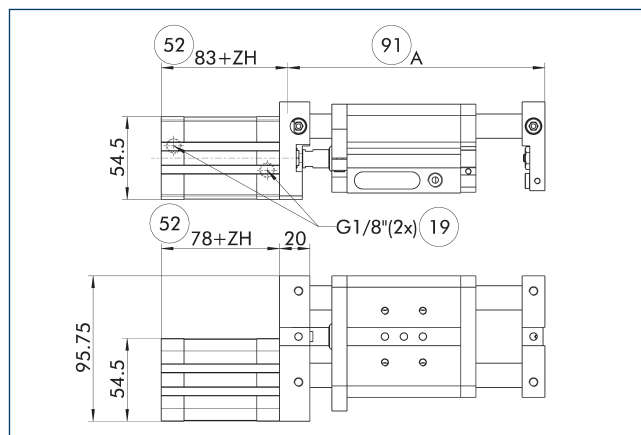
- ①⑨ Air connection
- ⑤② Intermediate stroke
- ⑨① Overall length "A," the variant without intermediate stroke (see measurement chart of stroke variants)

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 | With with 0mm stroke | Weight per mm stroke |
|-------------------|---------------|----------------------|----------------------|
|                   | [N]           | [kg]                 | [kg]                 |
| Intermediate stop |               |                      |                      |
| ZZA105            | 460           | 0.75                 | 0.006                |

① Sample order KLM 100-H100-ZZA105-H30

### Intermediate stop, ZZA on the piston rod side



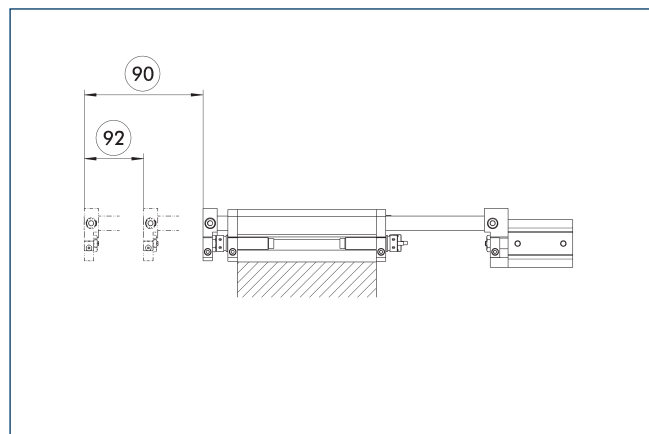
- ①⑨ Air connection
- ⑤② Intermediate stroke
- ⑨① Overall length "A," the variant without intermediate stroke (see measurement chart of stroke variants)

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 | With with 0mm stroke | Weight per mm stroke |
|-------------------|---------------|----------------------|----------------------|
|                   | [N]           | [kg]                 | [kg]                 |
| Intermediate stop |               |                      |                      |
| ZZA 106           | 460           | 0.75                 | 0.006                |

① Sample order KLM 100-H100-ZZA106-H30

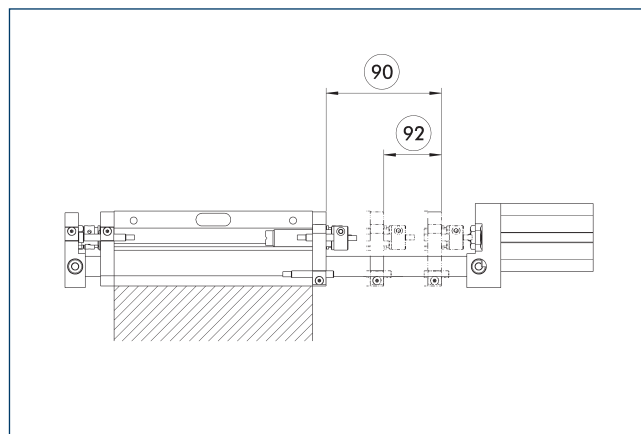
### Design – variant 1



- ⑨① 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  $\pm 3$  mm.

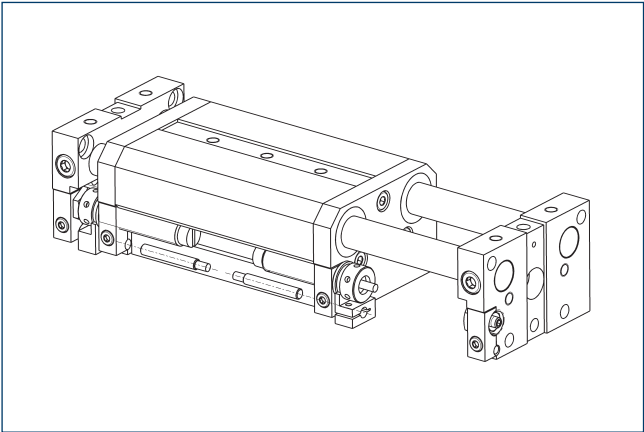
### Design – variant 2



- ⑨① 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  $\pm 3$  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.





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**Greiftechnik**

**Automatisierungstechnik**

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