



Superior Clamping and Gripping



## Product data sheet

Universal linear module Gamma

# Gamma

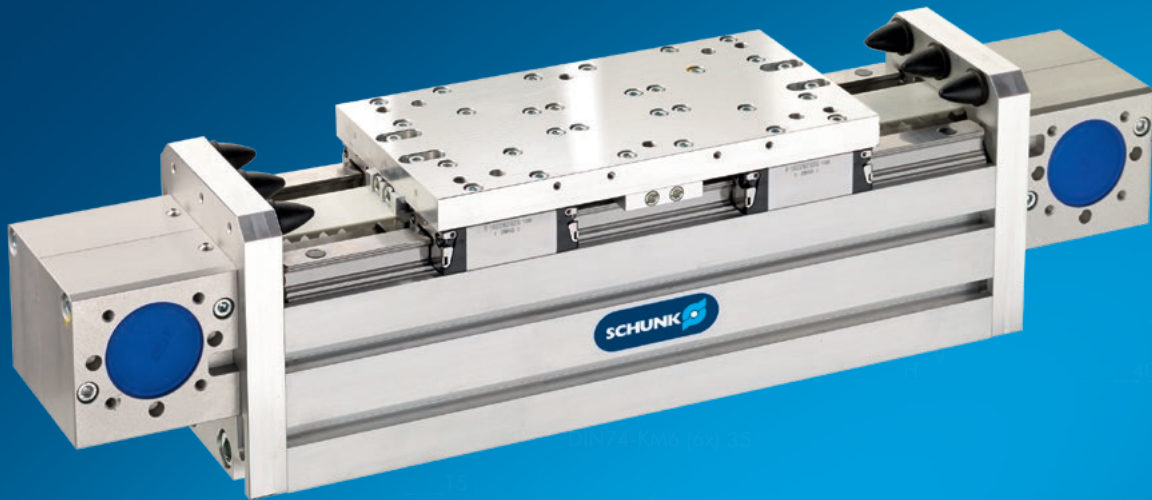
Universal linear module

## Loadable. High Performance. Robust. Universal linear module Gamma

Toothed belt or rack and pinion driven universal linear module with closed profile and double profiled rail guide

### Field of application

Universal linear module with closed profile for high requirements on rigidity, optionally with toothed belt drive for high acceleration and speed or rack and pinion drive for high repeat precision for large strokes.



### Advantages – Your benefits

**Adaptable drive motor** for versatile approach and easy integration into existing control concepts

**Choice of toothed belt or rack and pinion drive** for the optimum drive for your application

**Double-profiled rail guide** for very high force and moment loads

**Can choose between single and double slides** for more flexibility and throughput

**Closed basic profile** for a high stiffness in all load directions

**Compact dimensions** for less interfering contours



Sizes  
Quantity: 5



Max. stroke  
7010 .. 7685 mm



Max. driving force  
1150 .. 10000 N



Repeat accuracy  
 $\pm 0.05$  .. 0.08 mm

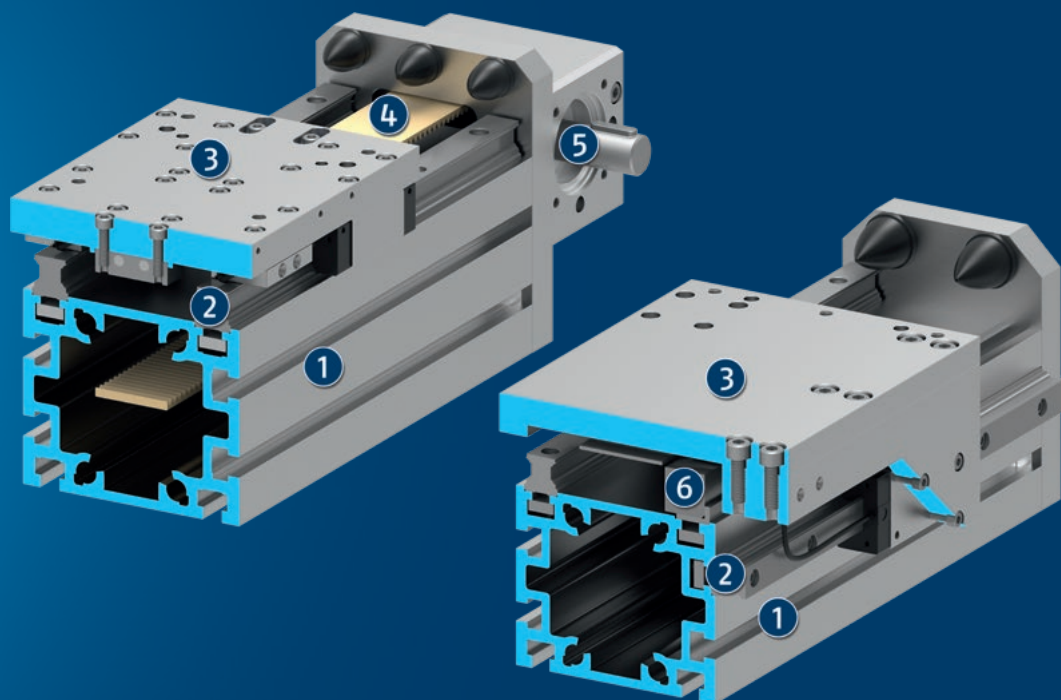


Max. speed  
3.2 .. 5 m/s

## Functional description

The slide is driven by a toothed belt or a gear rack and is precisely guided by a double profiled rail guide. The servomotor is usually connected with the drive shaft on the profile for a toothed belt drive and with the drive

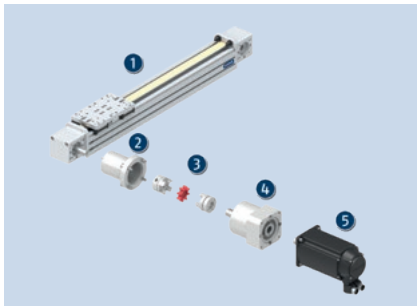
shaft on the slide for a rack and pinion drive.



- ① **Aluminum profile**  
Self-supporting, closed profile
- ② **Profiled rail guide**  
for maximum positioning accuracy and moment loads
- ③ **Aluminum slides**  
for attaching the parts to be moved
- ④ **Toothed belt**  
Transforms the rotational movement into a linear movement
- ⑤ **Drive connection**  
Flanged-on servomotor
- ⑥ **Rack**  
Transforms the rotational movement into a linear movement

## Detailed functional description

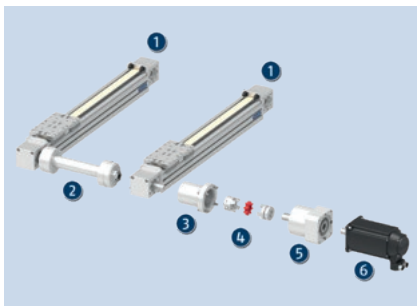
### Toothed belt axis with right-angle-mounted motor



This illustration shows how to mount a motor at a right-angle on a toothed belt axis using an engine cone, a clutch and a transmission.

- 1 Toothed belt drive
- 2 Motor bell
- 3 Coupling
- 4 Gear
- 5 Servomotor

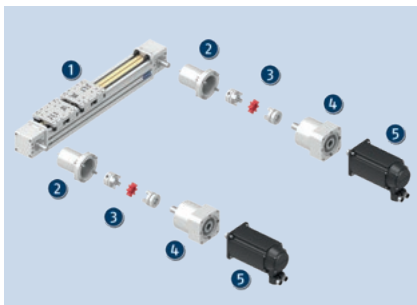
### Synchronized toothed belt axes with connection shafts



A second toothed belt axis can be driven using a connection shaft.

- 1 Toothed belt drive
- 2 Connection shaft
- 3 Motor bell
- 4 Coupling
- 5 Gear
- 6 Servomotor

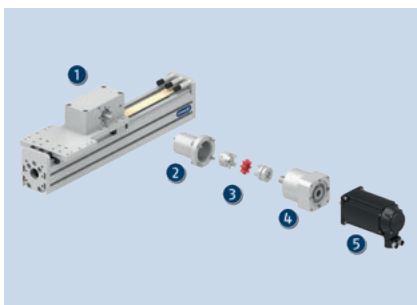
### Rack and pinion axis with double slides



This illustration shows a toothed belt axis with two independently moving slides.

- 1 Toothed belt drive
- 2 Motor bell
- 3 Coupling
- 4 Gear
- 5 Servomotor

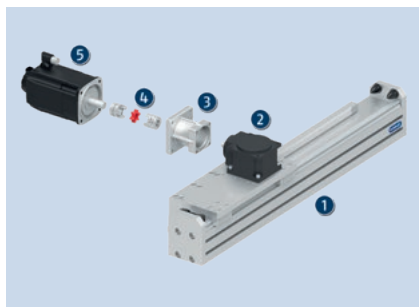
### Toothed belt axes with driven slides



This illustration shows how to mount a motor at a right-angle on a slide of a toothed belt axis using an engine cone and a coupling.

- 1 Toothed belt drive
- 2 Motor bell
- 3 Coupling
- 4 Gear
- 5 Servomotor

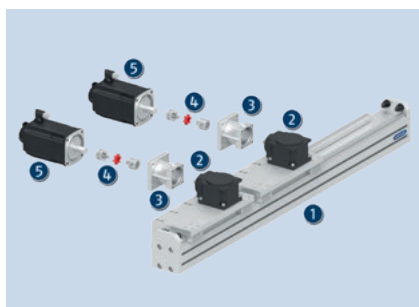
## Rack and pinion axis with right-angle-mounted motor on slide



This illustration shows how to mount a motor at a right-angle on a toothed belt axis with a transmission using a motor flange and a clutch.

- ① Toothed rack axis
- ② Gear
- ③ Motor bell
- ④ Coupling
- ⑤ Servomotor

## Rack and pinion axis with double slides



This illustration shows a rack and pinion axis with two independently moving slides.

- ① Toothed rack axis
- ② Gear
- ③ Motor bell
- ④ Coupling
- ⑤ Servomotor

# Gamma

Universal linear module

## General notes about the series

**Guidance:** Rail guide

**Drive:** servomotors of different providers can be trouble-free adapted

**Profile:** Extruded aluminum profile

**Slide:** Aluminum slides

**Scope of delivery:** Assembly and operating manual with declaration of incorporation

**Warranty:** 24 months

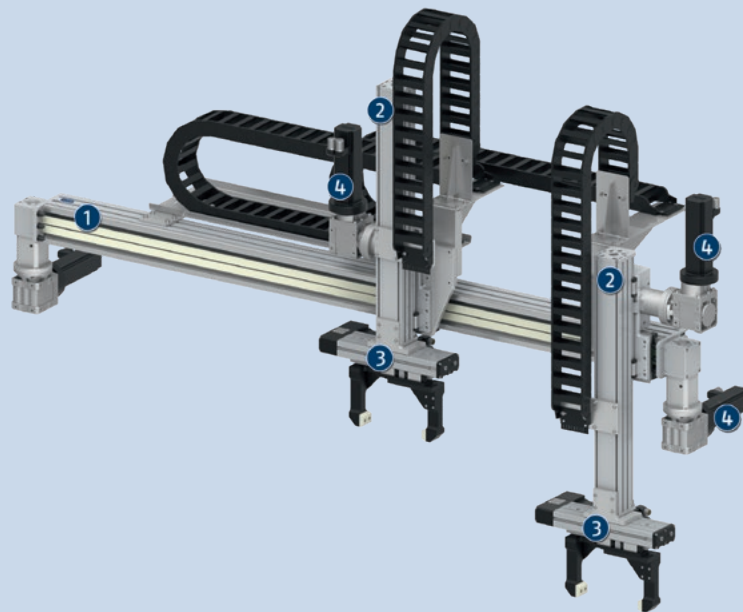
**Ambient conditions:** The modules are mainly designed for the use in clean ambient conditions. Please note that the life time of the modules can shorten if they are used in harsh ambient conditions, and that SCHUNK cannot assume liability in such cases. Please contact us for assistance.

**Max. stroke:** is the maximum permissible stroke. Acceleration and braking distances or possible overrun must be taken into consideration.

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

**Acceleration and speed:** The values specified are the maximum values of the units without loading. The actual accelerations and speeds for your application must be designed separately and can deviate from the maximum values.

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



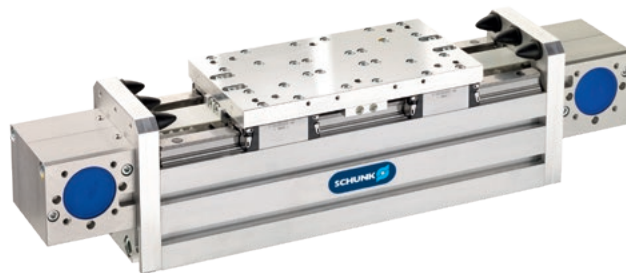
## Application example

Line gantry based on a horizontal toothed belt axis with two independently moving slides for work in a joint machining area.

- ① Linear module with toothed-belt drive Gamma
- ② Linear module with rack and pinion drive Gamma
- ③ Electric long-stroke gripper EGA
- ④ Drive motor

## SCHUNK offers more ...

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



Rotary module, electric



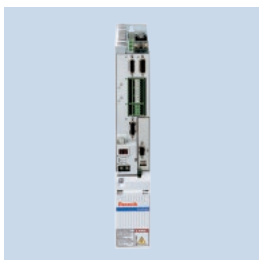
Universal rotary module



Universal gripper



Universal swivel head



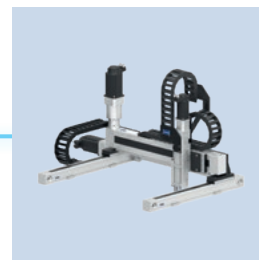
Drive controller



Inductive proximity switches



Drive



Room gantry

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

## Options and special information

**Stroke axis with driven slides:** In this version, the servomotor is fastened to the slide and the profile is moved vertically.

**Flexible in motor and controller selection:** The electrical control is carried out via an adaptable servo drive using common standard controller like Bosch or Siemens.

**Easy integration:** The easy integration into the control system is ensured by the possibility of attaching a common servomotor.

**Complete solutions:** On request, SCHUNK can supply complete solutions including motor, gear, controller, and cables.

**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.

## How to order – Toothed belt drive

G - 160 - ZSS - 50ATL10 - 240 - 1000 - 1620 - AZ1 - 1

**Product series G = Gamma**

**Size (version)**

**Drive**

Z = Toothed belt drive

A = driven slide

**Guidance system**

S = rail guide

**Design version**

S = standard

SD = standard double (horizontal)

H = Stroke axis (vertical)

**Drive version**

Toothed belt width and tooth pitch

**Stroke per revolution**

**Traverse path**

**Overall length**

**Accessories**

EMSEMB = mechanical limit switch (S = Siemens, B = Balluff) attached

E02/E010 = inductive limit switch opener with 2 m/10 m cable attached

ES2/ES10 = inductive limit switch closer with 2 m/10 m cable attached

NS = T-nut

AZ = drive shaft

**Customized design**

0 = Standard

1 = customized (specification in plain text)

**Additional accessories (separate item)**

MGK = motor flange and coupling (according to dimension sheet)



## How to order – Rack and pinion drive

G - 160 - AZSS - M2 - 200 - 1000 - 1630 - NS - 1

**Product series G = Gamma**

**Size (version)**

**Drive**

AZ = rack and pinion drive

**Guidance system**

S = rail guide

**Design version**

S = standard (horizontal)

H = Stroke axis (vertical)

**Drive version**

Pinion module (M2/M3)

**Stroke per revolution**

**Traverse path**

**Overall length**

**Accessories**

EMSEMB = mechanical limit switch (S = Siemens, B = Balluff) attached

E02/E010 = inductive limit switch opener with 2 m/10 m cable attached

ES2/ES10 = inductive limit switch closer with 2 m/10 m cable attached

NS = T-nut

**Customized design**

0 = Standard

1 = customized (specification in plain text)

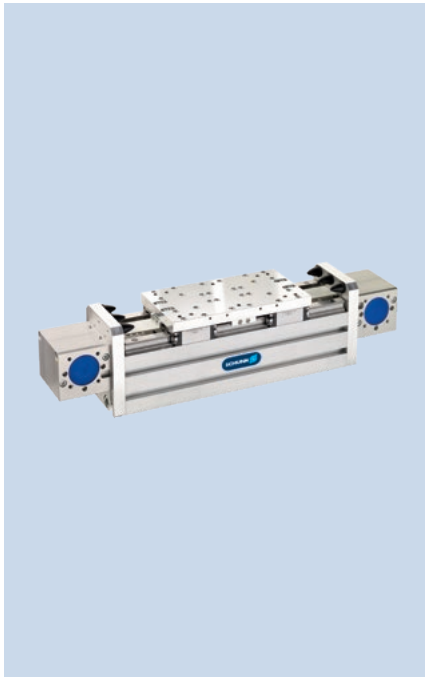
**Additional information**

Gear size and ratio (D55 to D115/i = 5 to i = 15)

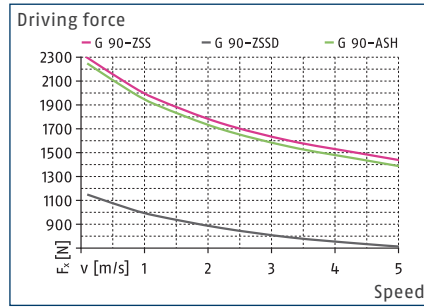
Gear attachment (e.g. BXD)

# Gamma 90

Universal linear module

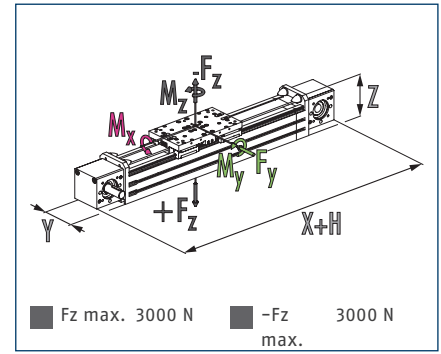


## Max. driving force (toothed belt)\*



\* The specified driving forces are maximum values for modules with toothed-belt drives at a given speed.

## Dimensions and maximum loads



① The indicated forces and moments are maximum values for individual loading. If several forces and/or moments are applied at the same time, the maximum permitted individual values will be lower.

## Technical data toothed belt drives

Description		G 90-ZSS	G 90-ZSSD	G 90-ASH
Max. stroke H	[mm]	7650	7560	7560
Max. driving force	[N]	2300	1150	2300
Repeat accuracy	[mm]	±0.08	±0.08	±0.08
Max. total length	[mm]	8100	8100	8000
Max. speed	[m/s]	5	5	5
Max. acceleration	[m/s <sup>2</sup> ]	60	60	60
Min./max. ambient temperature	[°C]	0/80	0/80	0/80
Dead weight of base including slide	[kg]	10.9	11.5	11
Additional mass per 100 mm stroke	[kg]	1	1	1
Weight of slide	[kg]	2.3	1.9	
Dead weight of slide, long	[kg]	3		
Weight of slide drive	[kg]			6.55
Guidance system		Rail guide	Rail guide	Rail guide
Number of rails		2	2	2
Size of rails		15	15	15
Drive concept		Belt drive	Belt drive	Belt drive
Idle torque	[Nm]	3.2	2.9	3.2
Moment of inertia	[kgm <sup>2</sup> ]	0.00315	0.0022	0.0077
Toothed belt type		32 AT 10	2x16 AT 10	32 AT 10-E
Traverse path per revolution	[mm]	210	200	210
Dimensions X x Y x Z	[mm]	450 x 92 x 107	540 x 92 x 107	440 x 92 x 187
Moments Mx max./My max./Mz max.	[Nm]	500/1200/1000	500/800/700	500/2300/1900
Forces Fy max.	[N]	2500	2500	2500

① Please note that the weight of the slight drive for rack and pinion axes (AZSS/AZSH) includes the weight of the gear unit.

## Technical data for rack and pinion drives

Description		G 90-AZSS	G 90-AZSH
Max. stroke H	[mm]	7600	7600
Max. driving force	[N]	1800	1800
Repeat accuracy	[mm]	±0.05	±0.05
Max. total length	[mm]	8000	8000
Max. speed	[m/s]	3.2	3.2
Max. acceleration	[m/s <sup>2</sup> ]	20	20
Min./max. ambient temperature	[°C]	0/80	0/80
Dead weight of base including slide	[kg]	14.85	15
Additional mass per 100 mm stroke	[kg]	1.3	1.3
Weight of slide drive	[kg]	7.9	8.05
Dead weight of gearbox	[kg]	3.7	3.7
Guidance system		Rail guide	Rail guide
Number of rails		2	2
Size of rails		15	15
Drive concept		Rack and pinion drive	Rack and pinion drive
Idle torque	[Nm]	2.5	2.5
Gear ratio		5/10/15	5/10/15
Serration		Module 2, angled serration	Module 2, angled serration
Number of teeth of pinion		18	18
Traverse path per revolution	[mm]	120	120
Dimensions X x Y x Z	[mm]	400 x 107 x 137	400 x 107 x 175
Moments Mx max./My max./Mz max.	[Nm]	600/1800/1800	600/1800/1800
ForcesFy max.	[N]	3000	3000

① Please note that the weight of the slide drive for rack and pinion axes (AZSS/AZSH) includes the weight of the gear unit.

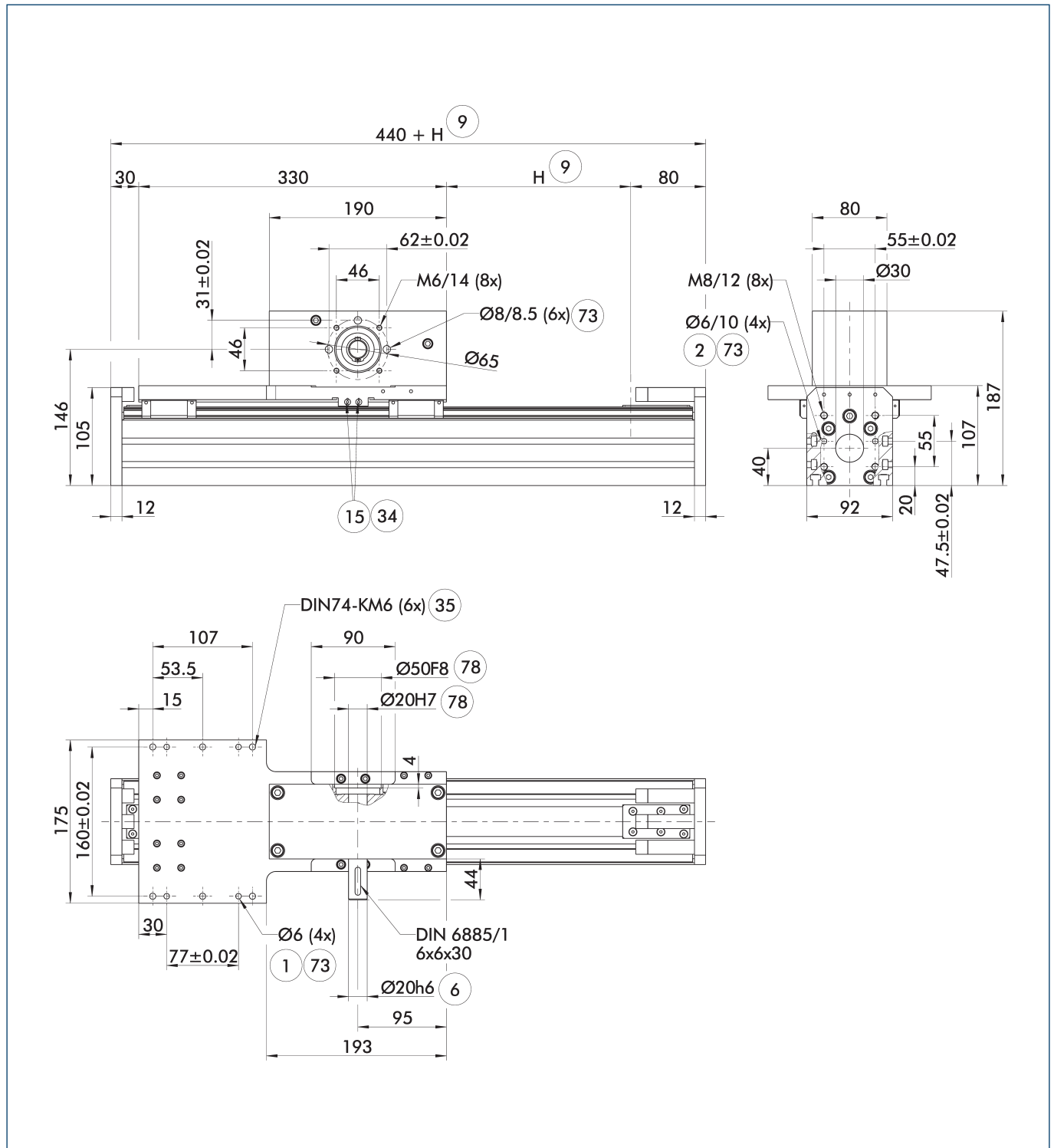




# Gamma 90

Universal linear module

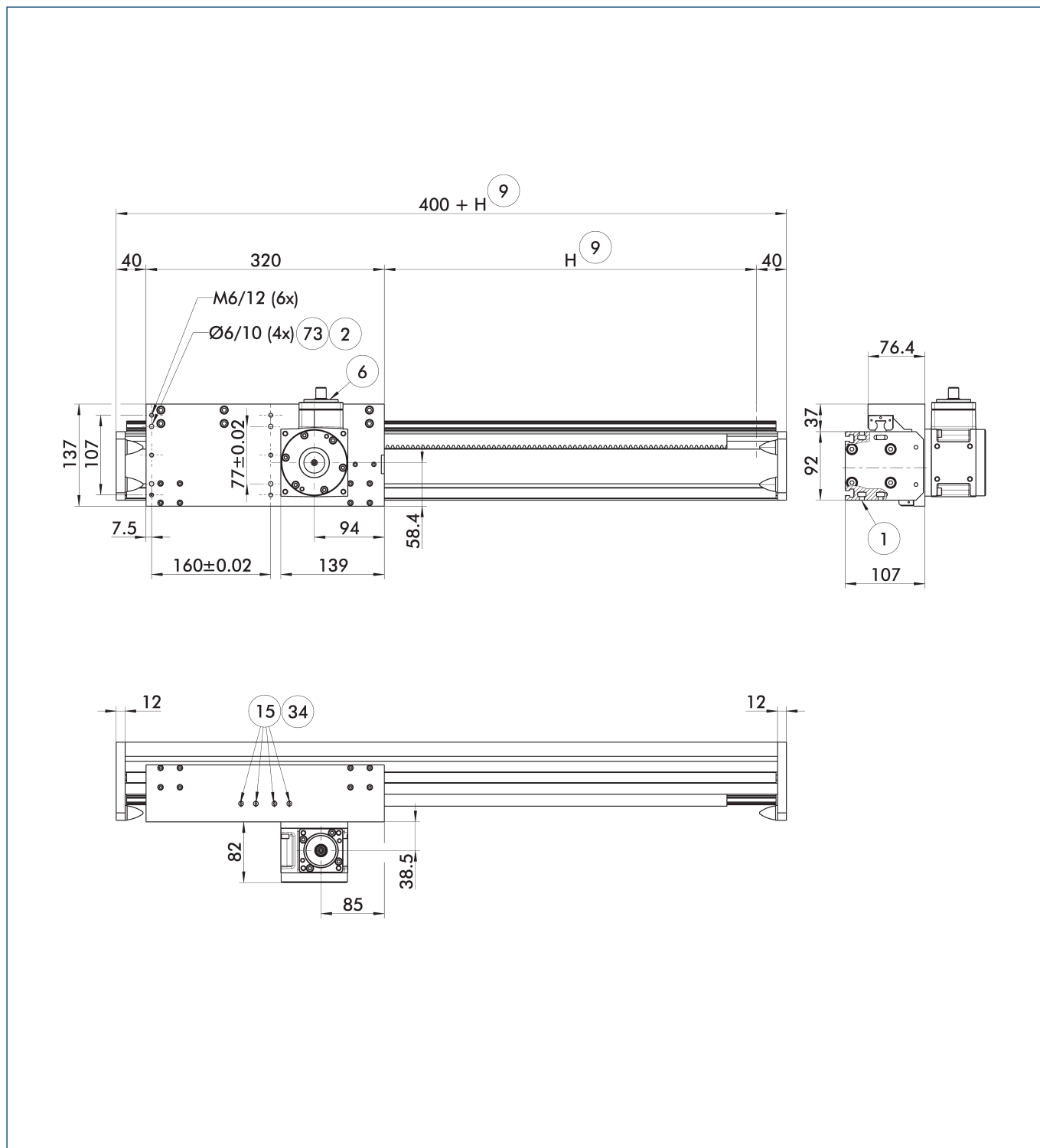
## ASH main view



The drawing shows the unit in standard design, without considering any dimensions of the options described below.

- |                          |                           |
|--------------------------|---------------------------|
| ① Connection linear unit | ③④ On both sides          |
| ② Attachment connection  | ③⑤ Back side              |
| ⑥ Drive connection       | ⑦③ Fit for centering pins |
| ⑨ Nominal stroke         | ⑦⑧ Fit for centering      |
| ⑮ Lubricant connection   |                           |

## AZSS main view



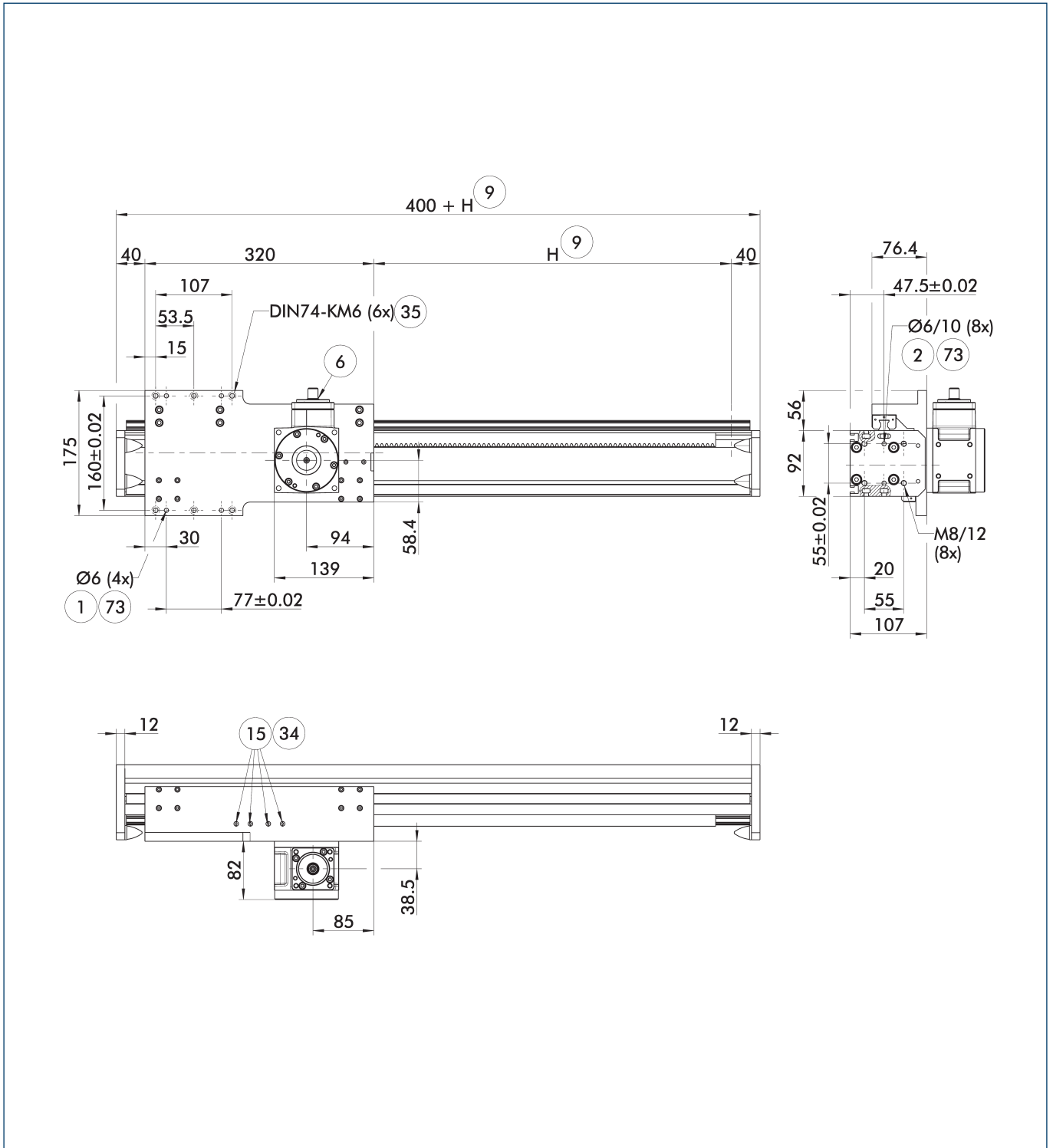
The drawing shows the unit in standard design, without considering any dimensions of the options described below.

- |                            |                             |
|----------------------------|-----------------------------|
| (1) Connection linear unit | (15) Lubricant connection   |
| (2) Attachment connection  | (34) On both sides          |
| (6) Drive connection       | (73) Fit for centering pins |
| (9) Nominal stroke         |                             |

# Gamma 90

Universal linear module

## AZSH main view

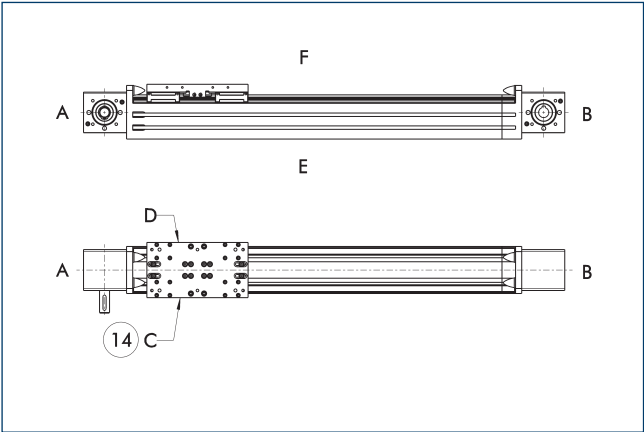


The drawing shows the unit in standard design, without considering any dimensions of the options described below.

- |                          |                          |
|--------------------------|--------------------------|
| ① Connection linear unit | ⑮ Lubricant connection   |
| ② Attachment connection  | ⑳ On both sides          |
| ⑥ Drive connection       | ㉑ Back side              |
| ⑨ Nominal stroke         | ㉒ Fit for centering pins |



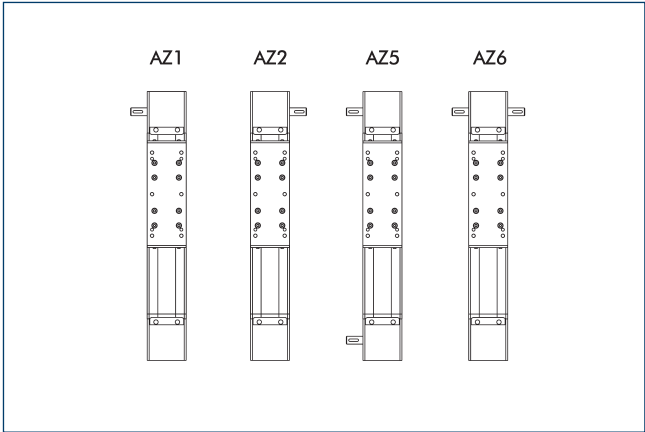
Side definition



14 Limit switch standard position

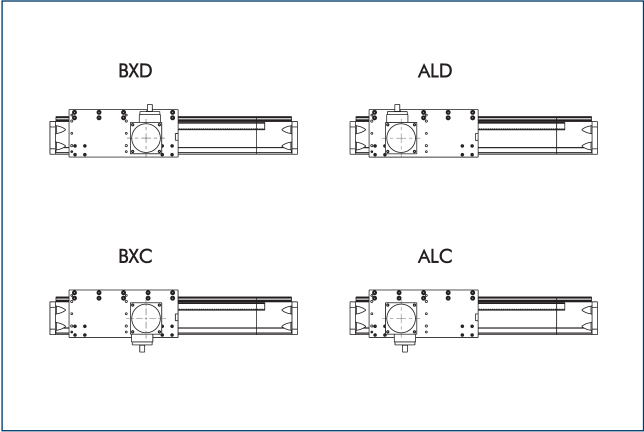
This drawing indicates the definition for the sides. This serves as the basis for all attachments.

Drive shafts in profile (rack and pinion drive)



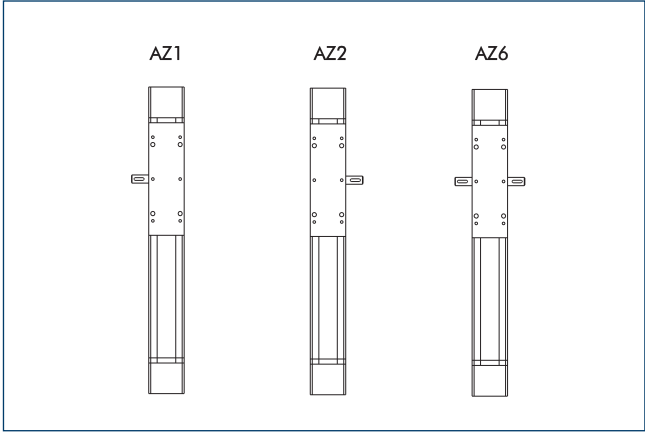
Depending on the axis application, the seat of the drive shaft has to be defined in the order text. Particularly with axis combinations and mechanical synchronization, several drive shafts are required.

Drive shafts at the slide (rack and pinion drive)



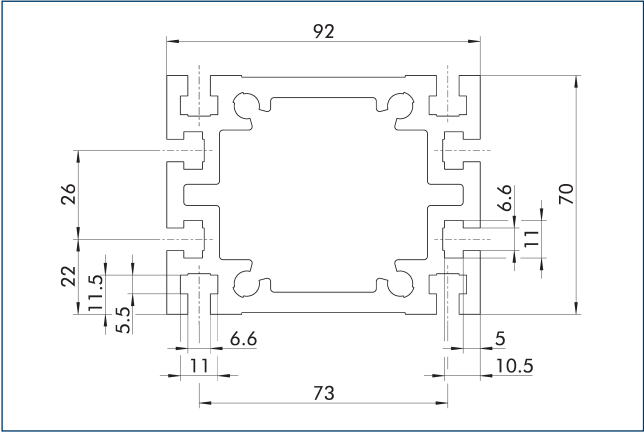
Depending on the axis application, the seat of the drive shaft of the gear has to be defined in the order text.

Drive shafts in slide (rack and pinion drive)



Depending on the axis application, the seat of the drive shaft has to be defined in the order text. Particularly with axis combinations and mechanical synchronization, several drive shafts are required.

Mounting

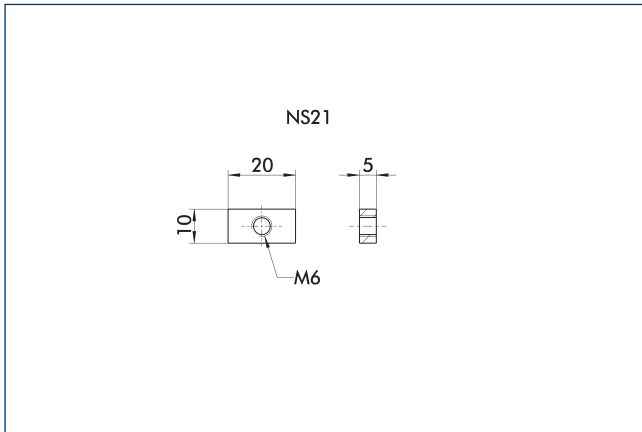


The drawing shows the position of the mounting options.

# Gamma 90

Universal linear module

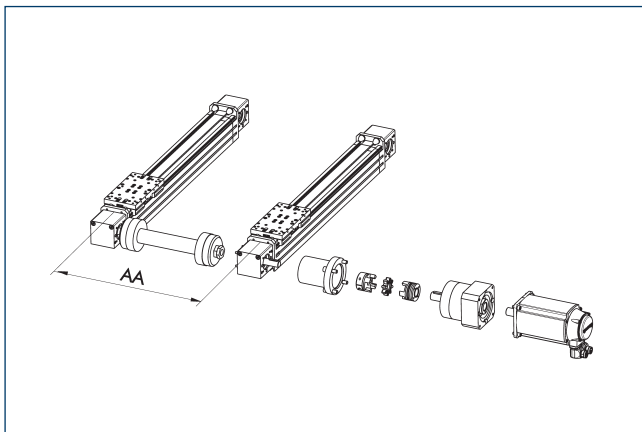
## Fastening elements



The unit can be fixed in place using T-nuts. The exact mounting position is indicated on the adjacent attachment illustration.

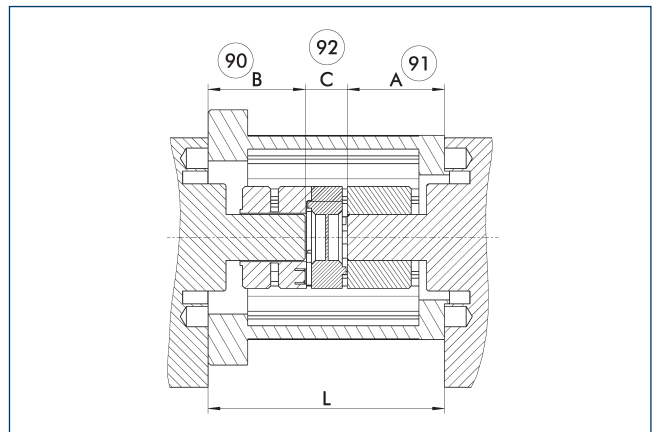
Description	ID	
T-nut		
NS 21-M6	0331441	

## Connection shaft



Description	Connection shaft	Min. AA [mm]
G 90-ZSS	GX4	250
G 90-ZSSD	GX2	240

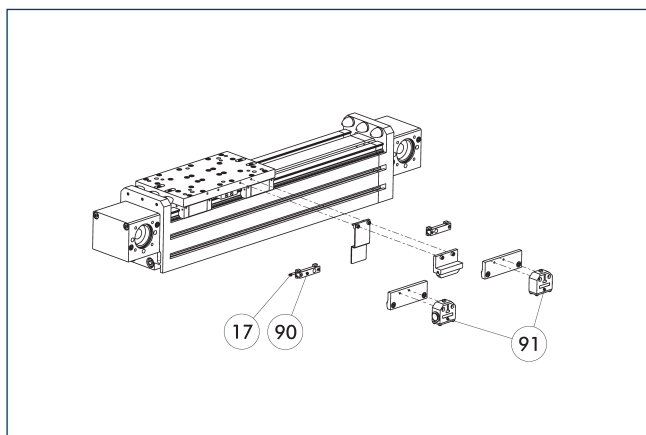
## Motor flange schematic diagram



- ⑨⑩ Length of motor / transmission drive shaft
- ⑨① Length of linear unit drive journal
- ⑨② Clutch length

Different drive solutions can be attached to our axes. SCHUNK offers you the right motor flange and coupling for your drive.

Limit and reference switch



- 17 Cable outlet
- 90 Inductive limit and reference switches
- 91 Mechanical limit switches

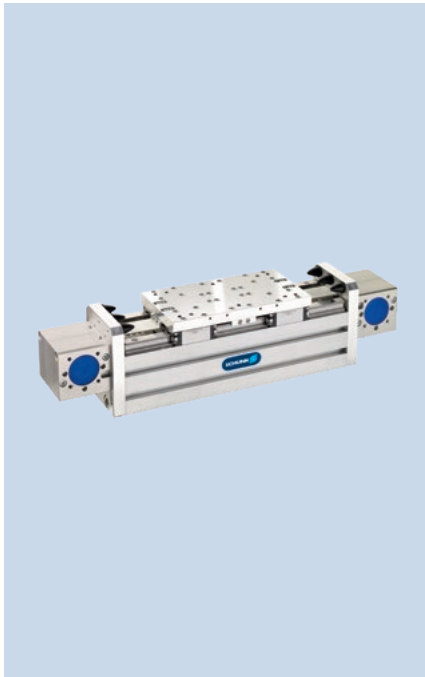
Generally two E0-02 switches are used as limit switches and one ES-02 is used as reference switch.

Description	ID	Often combined
<b>Inductive limit switch</b>		
E0-02	0331410	●
E0-10	0331412	
ES-02	0331411	●
ES-10	0331413	
<b>Mechanical limit switch</b>		
EMB	0331415	●
EMS	0331414	

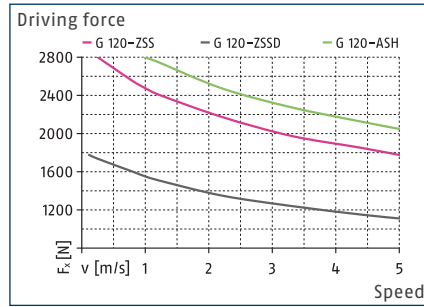
① The positions and dimensions of limit switches, switching lugs, and mounting components may vary depending on the application and the selected limit switches. Please contact us for assistance.

# Gamma 120

Universal linear module

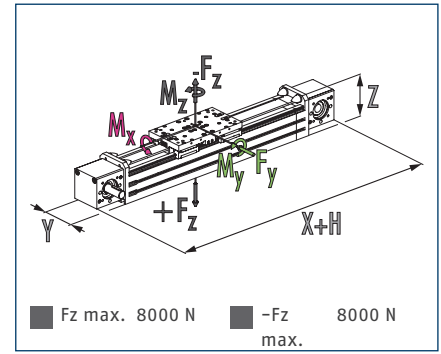


## Max. driving force (toothed belt)\*



\* The specified driving forces are maximum values for modules with toothed-belt drives at a given speed.

## Dimensions and maximum loads



① The indicated forces and moments are maximum values for individual loading. If several forces and/or moments are applied at the same time, the maximum permitted individual values will be lower.

## Technical data toothed belt drives

Description		G 120-ZSS	G 120-ZSSD	G 120-ASH
Max. stroke H	[mm]	7685	7638	7450
Max. driving force	[N]	2800	1800	3200
Repeat accuracy	[mm]	±0.08	±0.08	±0.08
Max. total length	[mm]	8200	8200	8000
Max. speed	[m/s]	5	5	5
Max. acceleration	[m/s <sup>2</sup> ]	60	60	60
Min./max. ambient temperature	[°C]	0/80	0/80	0/80
Dead weight of base including slide	[kg]	19.35	19.4	21.35
Additional mass per 100 mm stroke	[kg]	1.65	1.9	1.65
Weight of slide	[kg]	4.25	3.4	
Dead weight of slide, long	[kg]	5.25		
Weight of slide drive	[kg]			10.25
Guidance system		Rail guide	Rail guide	Rail guide
Number of rails		2	2	2
Size of rails		20	20	20
Drive concept		Belt drive	Belt drive	Belt drive
Idle torque	[Nm]	3	3	3.6
Moment of inertia	[kgm <sup>2</sup> ]	0.0049	0.0039	0.0157
Toothed belt type		40 AT 10-E	2x25 ATL 10	40 AT 10-E
Traverse path per revolution	[mm]	200	200	240
Dimensions X x Y x Z	[mm]	515 x 120 x 147.5	562 x 148 x 159	550 x 120 x 235
Moments Mx max./My max./Mz max.	[Nm]	1200/3000/2500	1200/1300/1100	1200/5000/4200
Forces Fy max.	[N]	6000	6000	6000

① Please note that the weight of the slight drive for rack and pinion axes (AZSS/AZSH) includes the weight of the gear unit.

## Technical data for rack and pinion drives

Description		G 120-AZSS	G 120-AZSH
Max. stroke H	[mm]	7470	7470
Max. driving force	[N]	2200	2200
Repeat accuracy	[mm]	±0.05	±0.05
Max. total length	[mm]	8000	8000
Max. speed	[m/s]	5	5
Max. acceleration	[m/s <sup>2</sup> ]	20	20
Min./max. ambient temperature	[°C]	0/80	0/80
Dead weight of base including slide	[kg]	25.85	26.1
Additional mass per 100 mm stroke	[kg]	2.1	2.1
Weight of slide drive	[kg]	14.5	14.75
Dead weight of gearbox	[kg]	6.3	6.3
Guidance system		Rail guide	Rail guide
Number of rails		2	2
Size of rails		20	20
Drive concept		Rack and pinion drive	Rack and pinion drive
Idle torque	[Nm]	4.8	4.8
Gear ratio		5/10/15	5/10/15
Serration		Module 2, angled serration	Module 2, angled serration
Number of teeth of pinion		30	30
Traverse path per revolution	[mm]	200	200
Dimensions X x Y x Z	[mm]	530 x 149 x 174	530 x 149 x 220
Moments Mx max./My max./Mz max.	[Nm]	1500/4000/4000	1500/4000/4000
Forces Fy max.	[N]	8000	8000

① Please note that the weight of the slide drive for rack and pinion axes (AZSS/AZSH) includes the weight of the gear unit.

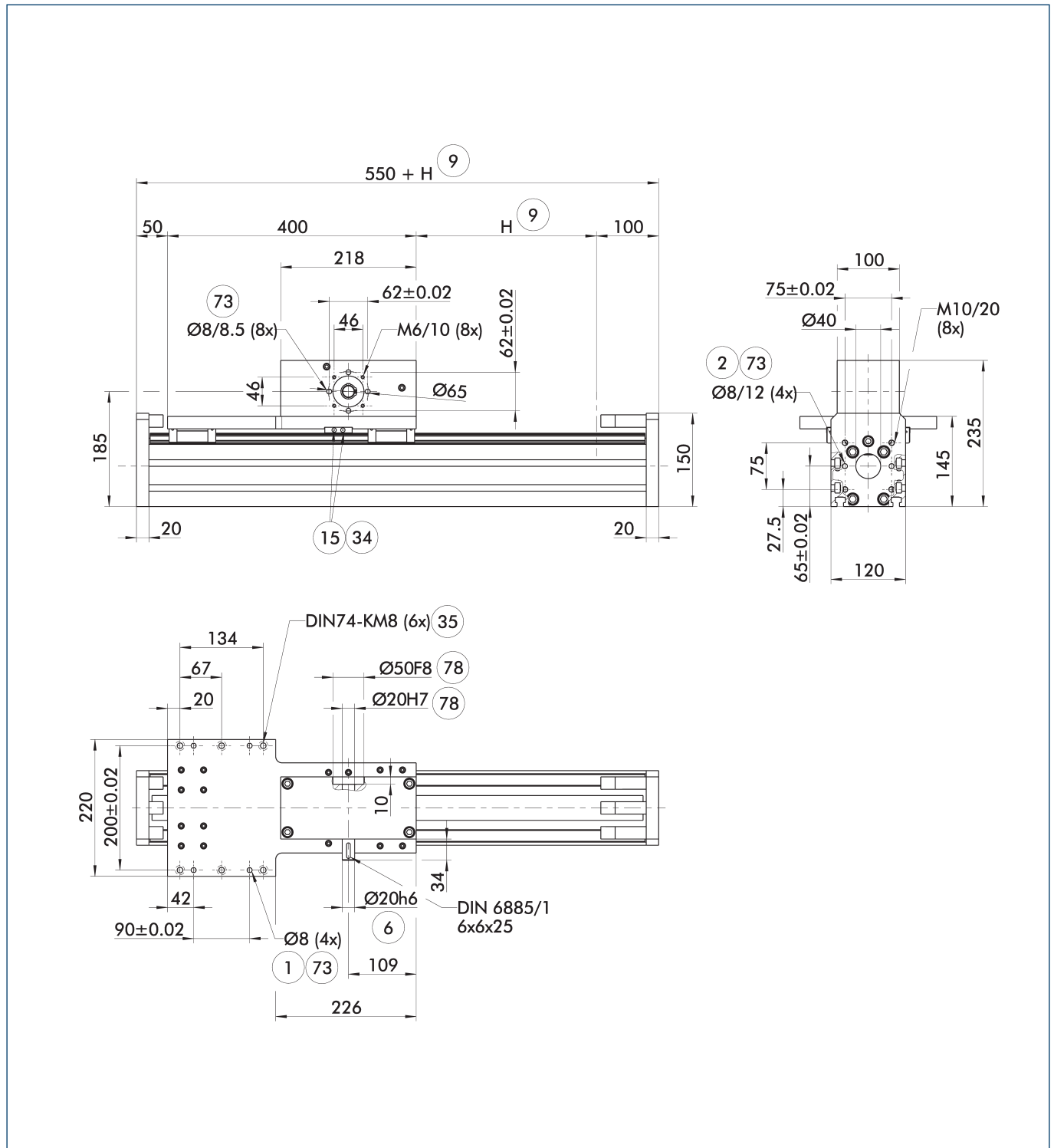




# Gamma 120

Universal linear module

## ASH main view

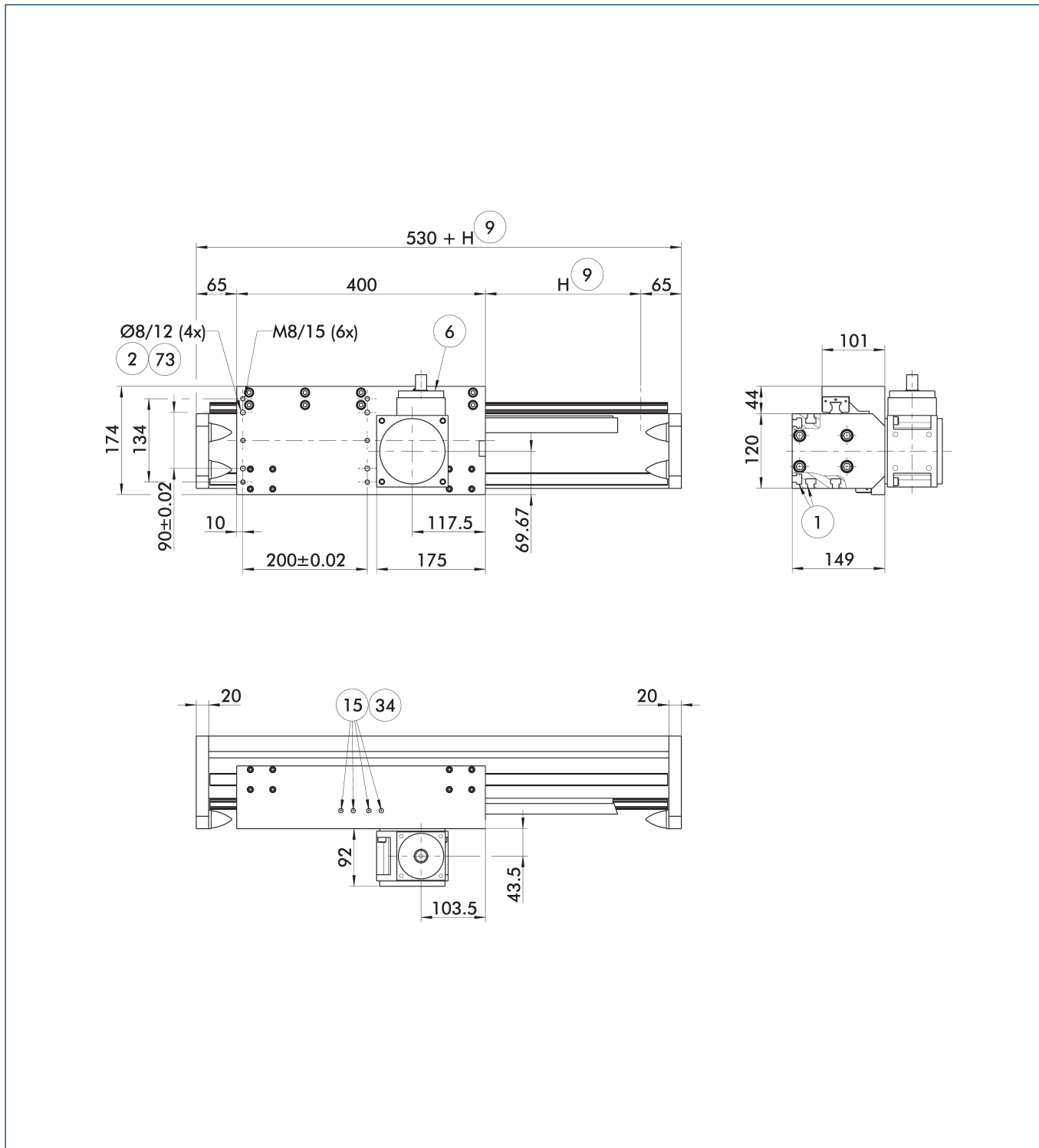


The drawing shows the unit in standard design, without considering any dimensions of the options described below.

- |                          |                           |
|--------------------------|---------------------------|
| ① Connection linear unit | ③④ On both sides          |
| ② Attachment connection  | ③⑤ Back side              |
| ⑥ Drive connection       | ⑦③ Fit for centering pins |
| ⑨ Nominal stroke         | ⑦⑧ Fit for centering      |
| ⑮ Lubricant connection   |                           |



## AZSS main view



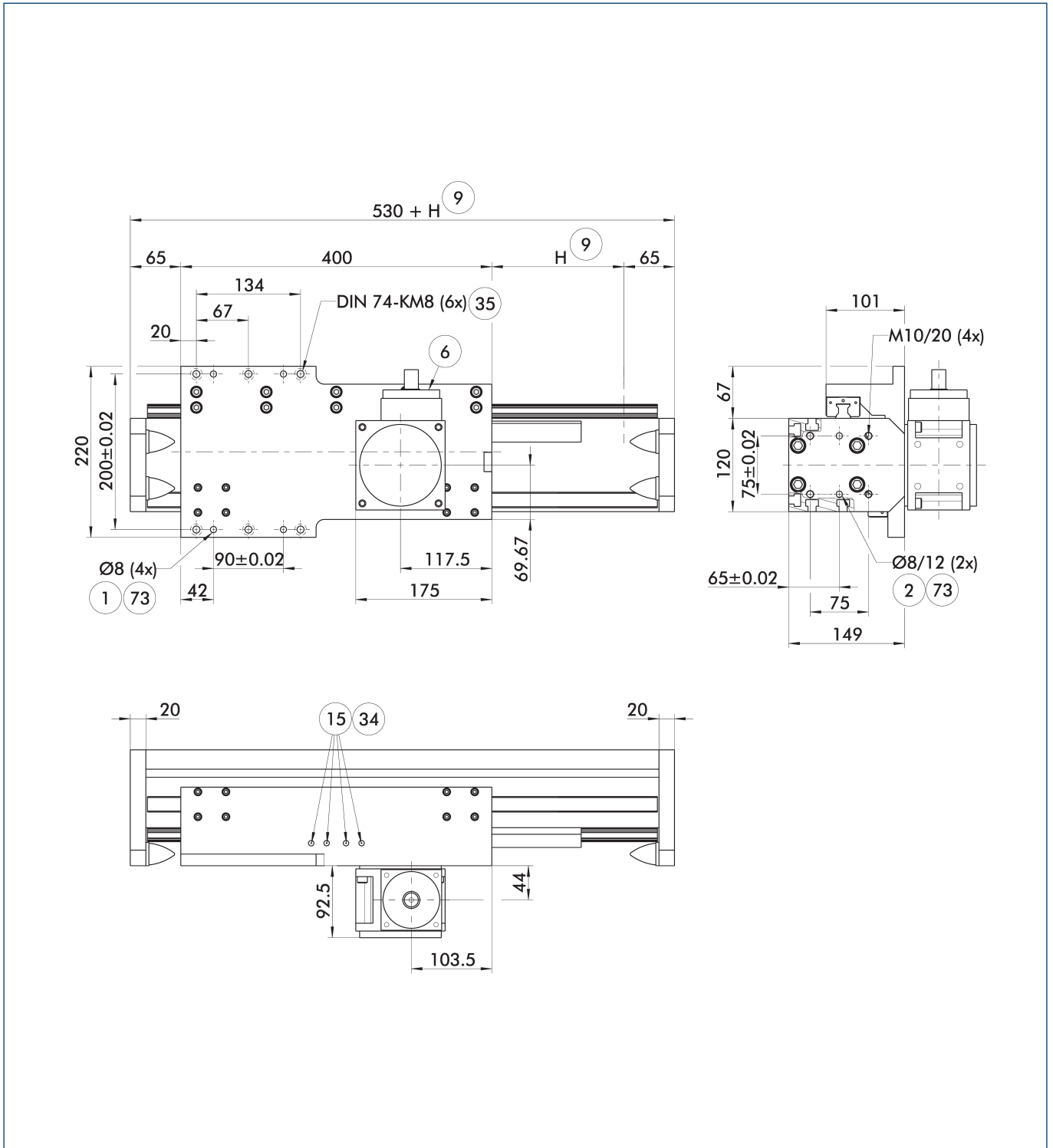
The drawing shows the unit in standard design, without considering any dimensions of the options described below.

- |                          |                          |
|--------------------------|--------------------------|
| ① Connection linear unit | ⑮ Lubricant connection   |
| ② Attachment connection  | ⑳ On both sides          |
| ⑥ Drive connection       | ㉓ Fit for centering pins |
| ⑨ Nominal stroke         |                          |

# Gamma 120

Universal linear module

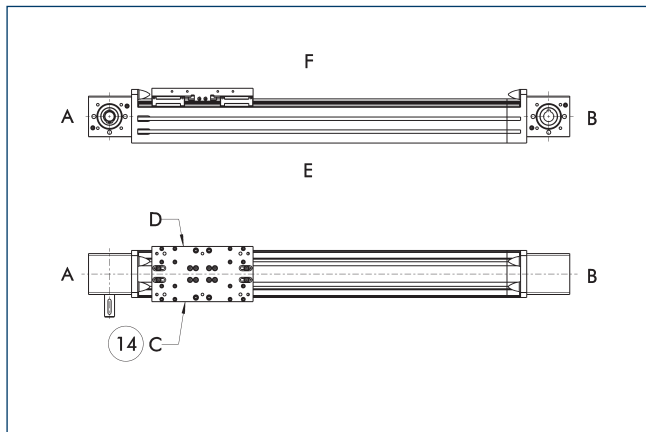
## AZSH main view



The drawing shows the unit in standard design, without considering any dimensions of the options described below.

- |                          |                          |
|--------------------------|--------------------------|
| ① Connection linear unit | ⑮ Lubricant connection   |
| ② Attachment connection  | ⑳ On both sides          |
| ⑥ Drive connection       | ㉑ Back side              |
| ⑨ Nominal stroke         | ㉒ Fit for centering pins |

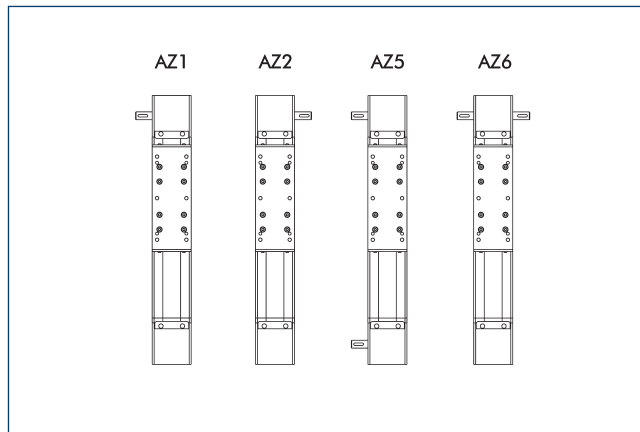
## Side definition



14 Limit switch standard position

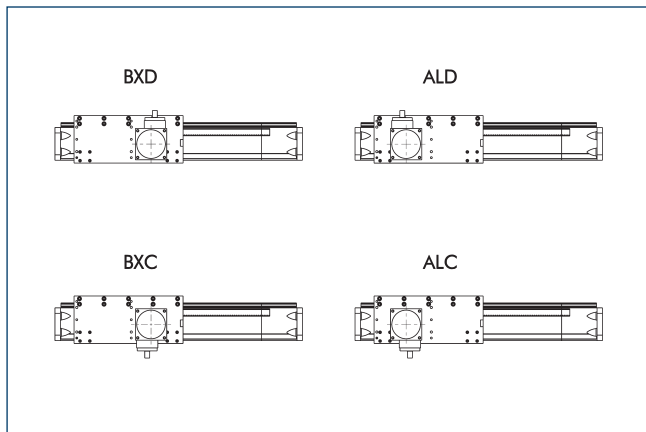
This drawing indicates the definition for the sides. This serves as the basis for all attachments.

## Drive shafts in profile (rack and pinion drive)



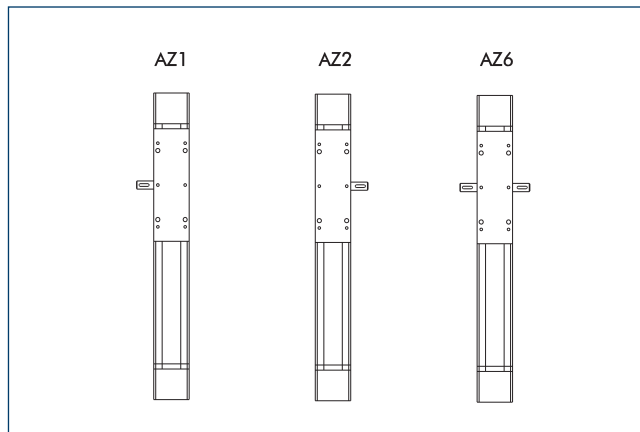
Depending on the axis application, the seat of the drive shaft has to be defined in the order text. Particularly with axis combinations and mechanical synchronization, several drive shafts are required.

## Drive shafts at the slide (rack and pinion drive)



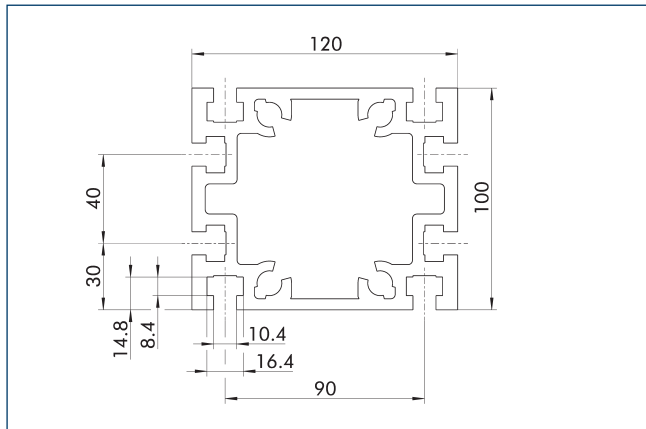
Depending on the axis application, the seat of the drive shaft of the gear has to be defined in the order text.

## Drive shafts in slide (rack and pinion drive)



Depending on the axis application, the seat of the drive shaft has to be defined in the order text. Particularly with axis combinations and mechanical synchronization, several drive shafts are required.

## Mounting

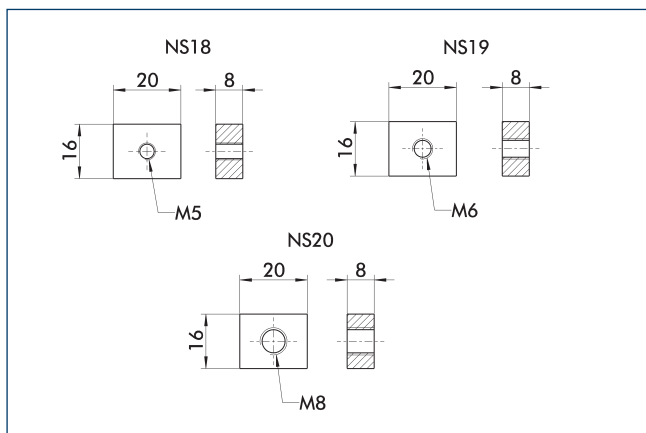


The drawing shows the position of the mounting options.

# Gamma 120

Universal linear module

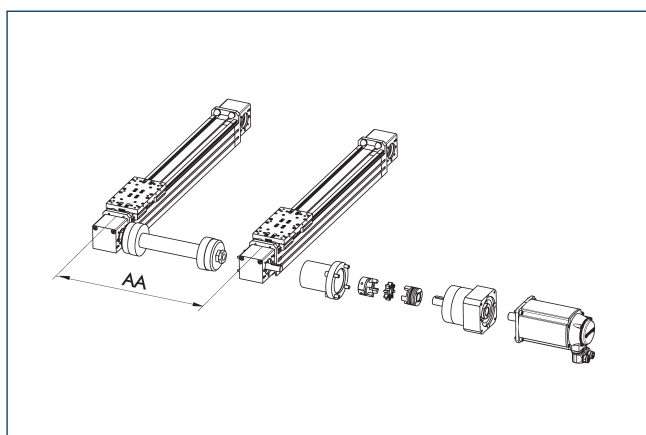
## Fastening elements



The unit can be fixed in place using T-nuts. The exact mounting position is indicated on the adjacent attachment illustration.

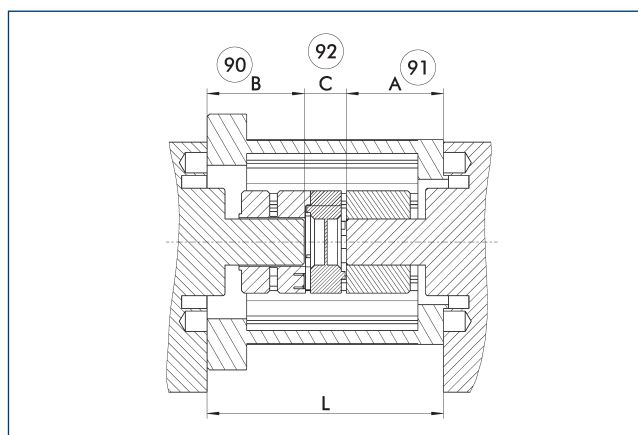
Description	ID	
T-nut		
NS 18-M5	0331438	
NS 19-M6	0331439	
NS 20-M8	0331440	

## Connection shaft



Description	Connection shaft	Min. AA
		[mm]
G 120-ZSS	GX4	280
G 120-ZSSD	GX4	280

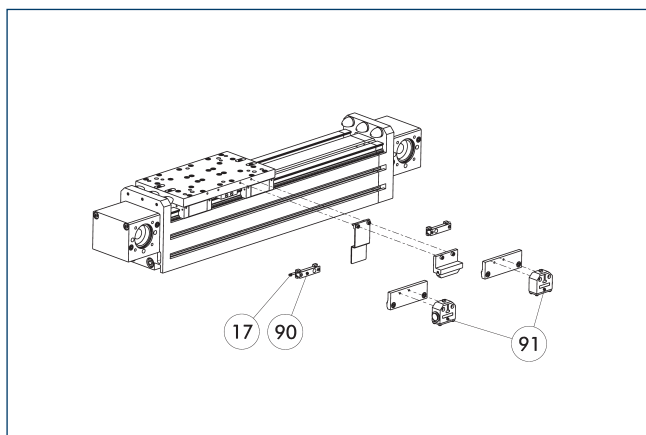
## Motor flange schematic diagram



- ⑨⑩ Length of motor / transmission drive shaft
- ⑨① Length of linear unit drive journal
- ⑨② Clutch length

Different drive solutions can be attached to our axes. SCHUNK offers you the right motor flange and coupling for your drive.

## Limit and reference switch



- ①⑦ Cable outlet
- ①⑨ Inductive limit and reference switches
- ①① Mechanical limit switches

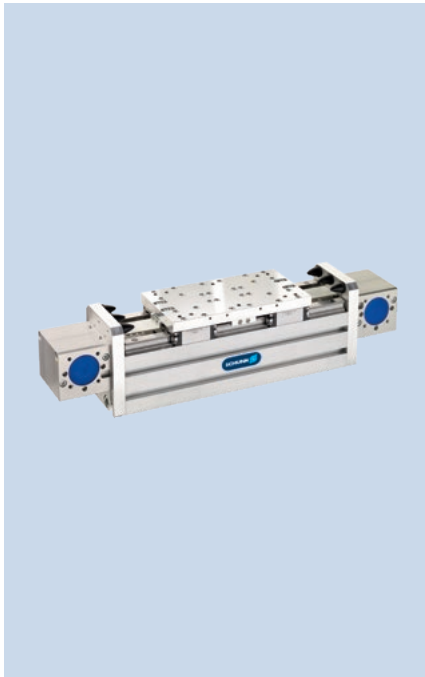
Generally two E0-02 switches are used as limit switches and one ES-02 is used as reference switch.

Description	ID	Often combined
<b>Inductive limit switch</b>		
E0-02	0331410	●
E0-10	0331412	
ES-02	0331411	●
ES-10	0331413	
<b>Mechanical limit switch</b>		
EMB	0331415	●
EMS	0331414	

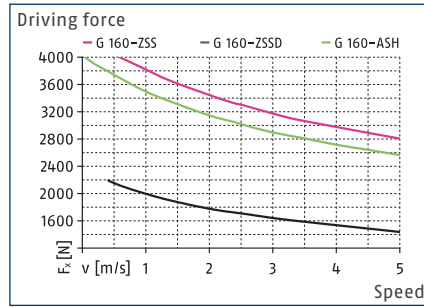
① The positions and dimensions of limit switches, switching lugs, and mounting components may vary depending on the application and the selected limit switches. Please contact us for assistance.

# Gamma 160

Universal linear module

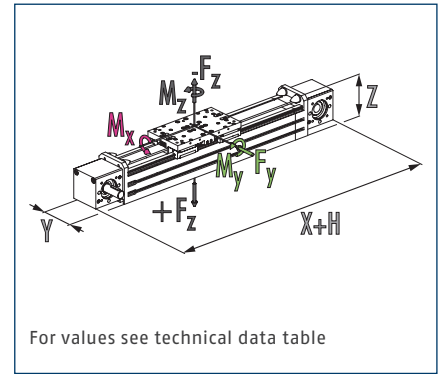


## Max. driving force (toothed belt)\*



\* The specified driving forces are maximum values for modules with toothed-belt drives at a given speed.

## Dimensions and maximum loads



① The indicated forces and moments are maximum values for individual loading. If several forces and/or moments are applied at the same time, the maximum permitted individual values will be lower.

## Technical data toothed belt drives

Description		G 160-ZSS	G 160-ZSSD	G 160-ASH
Max. stroke H	[mm]	7580	7250	7350
Max. driving force	[N]	4000	2200	4000
Repeat accuracy	[mm]	±0.08	±0.08	±0.08
Max. total length	[mm]	8200	8200	8000
Max. speed	[m/s]	5	5	5
Max. acceleration	[m/s <sup>2</sup> ]	60	60	60
Min./max. ambient temperature	[°C]	0/80	0/80	0/80
Dead weight of base including slide	[kg]	26.5	39.8	36.5
Additional mass per 100 mm stroke	[kg]	2.42	2.5	2.42
Weight of slide	[kg]	7.6	7	
Dead weight of slide, long	[kg]	9.8	9.2	
Weight of slide drive	[kg]			16.6
Guidance system		Rail guide	Rail guide	Rail guide
Number of rails		2	2	2
Size of rails		25	25	25
Drive concept		Belt drive	Belt drive	Belt drive
Idle torque	[Nm]	4	4	4
Moment of inertia	[kgm <sup>2</sup> ]	0.018	0.00875	0.0257
Toothed belt type		50 ATL 10	2x32 AT 10	50 AT 10-E
Traverse path per revolution	[mm]	240	210	240
Dimensions X x Y x Z	[mm]	620 x 160 x 170.5	960 x 160 x 170.5	650 x 160 x 260.5
Moments Mx max./My max./Mz max.	[Nm]	1800/5000/4000	1800/5000/4000	1800/8000/7000
Forces Fy max./Fz max./-Fz max.	[N]	10000/16000/16000	10000/16000/16000	10000/16000/16000

① Please note that the weight of the slight drive for rack and pinion axes (AZSS/AZSH) includes the weight of the gear unit.

## Technical data for rack and pinion drives

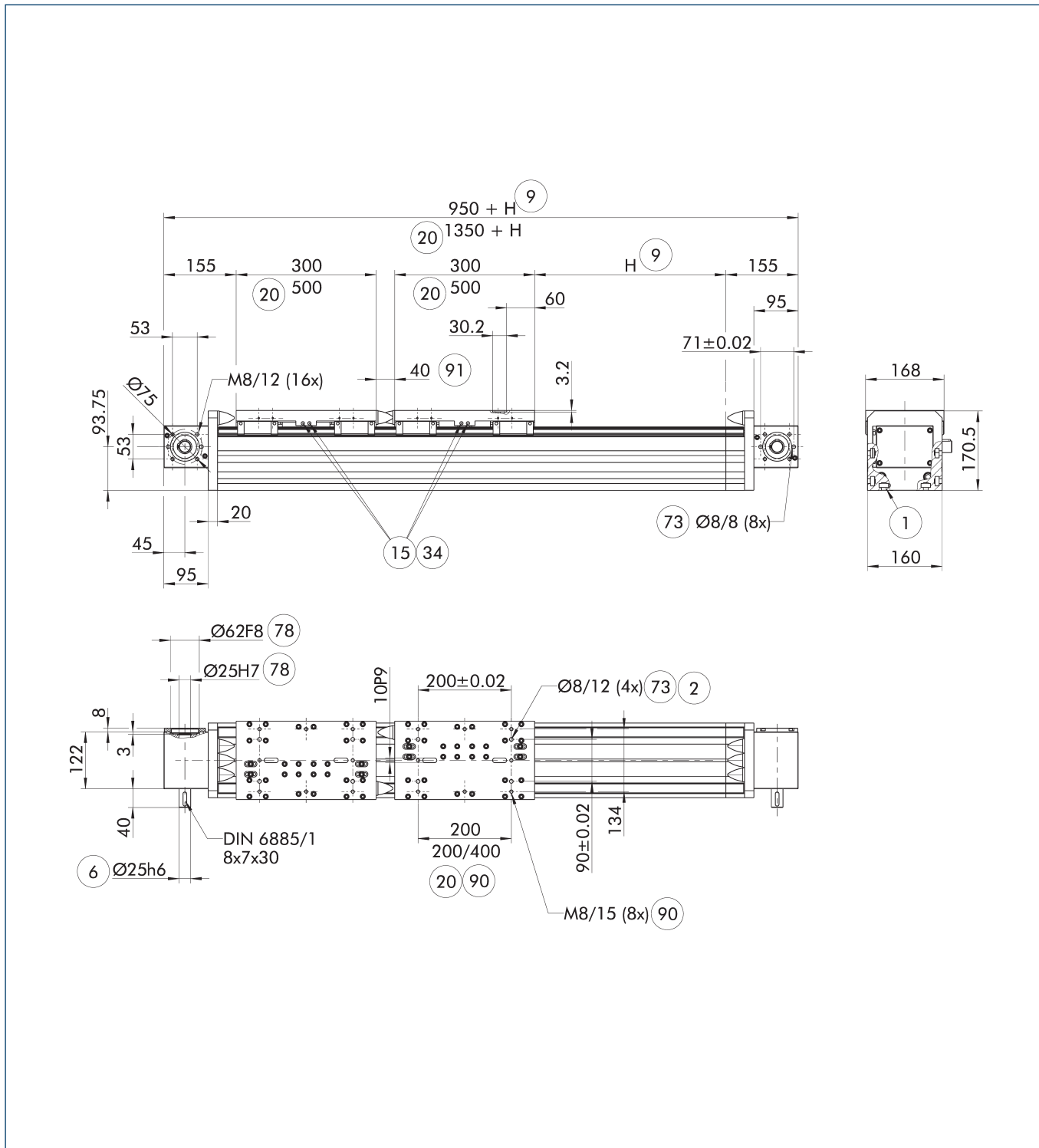
Description		G 160-AZSS-D75	G 160-AZSH-D90
Max. stroke H	[mm]	7370	7370
Max. driving force	[N]	2200	4000
Repeat accuracy	[mm]	±0.05	±0.05
Max. total length	[mm]	8000	8000
Max. speed	[m/s]	5	4.5
Max. acceleration	[m/s <sup>2</sup> ]	20	20
Min./max. ambient temperature	[°C]	0/80	0/80
Dead weight of base including slide	[kg]	33.25	34.05
Additional mass per 100 mm stroke	[kg]	3	3
Weight of slide drive	[kg]	20.2	25.2
Dead weight of gearbox	[kg]	6.3	10.5
Guidance system		Rail guide	Rail guide
Number of rails		2	2
Size of rails		25	25
Drive concept		Rack and pinion drive	Rack and pinion drive
Idle torque	[Nm]	5.8	5.8
Gear ratio		5/10/15	5/10/15
Serration		Module 2, angled serration	Module 2, angled serration
Number of teeth of pinion		30	30
Traverse path per revolution	[mm]	200	200
Dimensions X x Y x Z	[mm]	630 x 173 x 160	630 x 173 x 160
Moments Mx max./My max./Mz max.	[Nm]	2500/7000/7000	2500/7000/7000
Forces Fy max./Fz max./-Fz max.	[N]	12000/12000/12000	12000/12000/12000

① Please note that the weight of the slide drive for rack and pinion axes (AZSS/AZSH) includes the weight of the gear unit.





## ZSSD main view

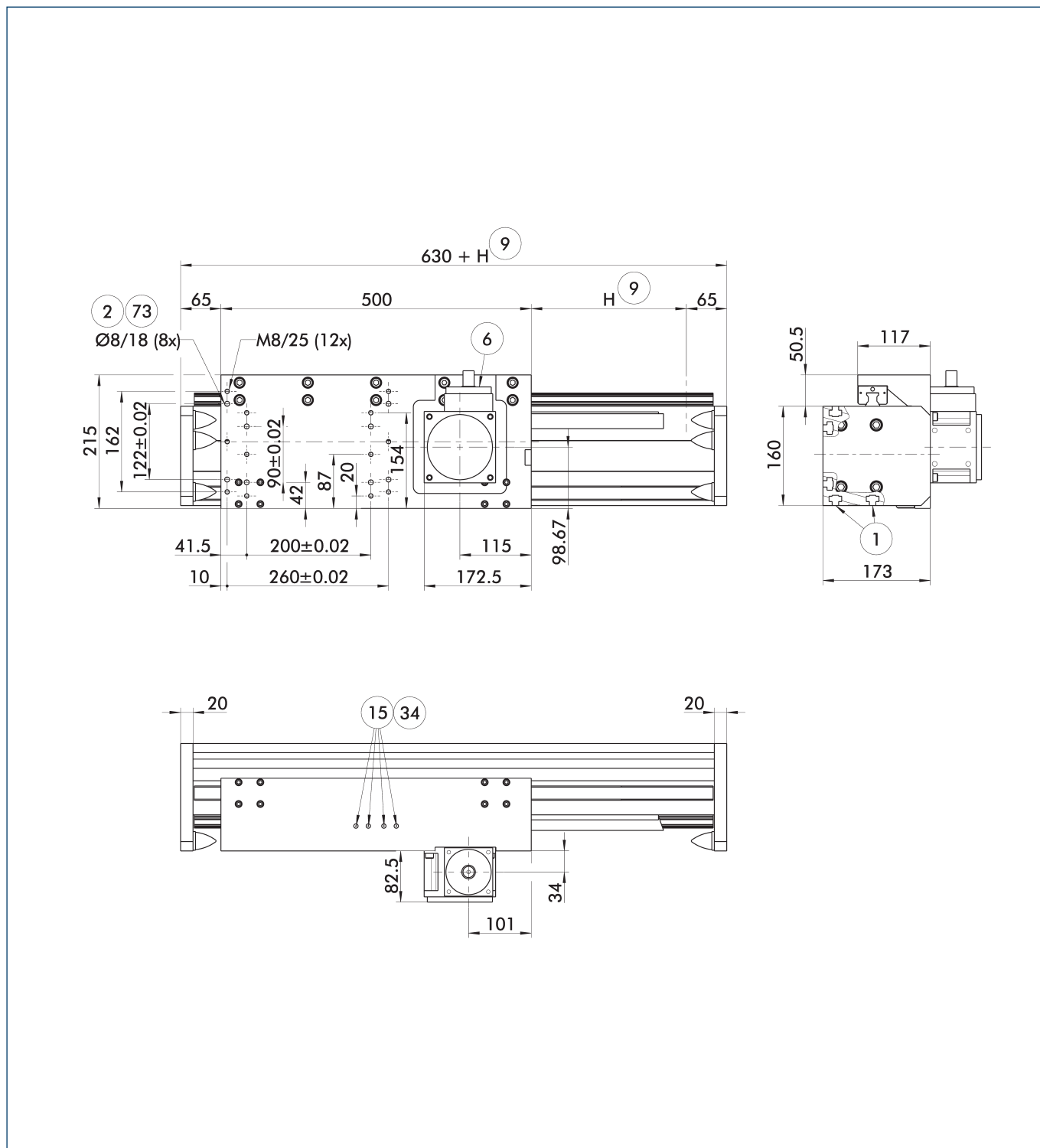


The drawing shows the unit in standard design, without considering any dimensions of the options described below.

- |                          |   |
|--------------------------|---|
| ① Connection linear unit | ③④ On both sides  |
| ② Attachment connection  | ⑦③ Fit for centering pins                                     |
| ⑥ Drive connection       | ⑦⑧ Fit for centering  |
| ⑨ Nominal stroke         | ⑨⑩ Additional screw threads in the case of a long slide plate |
| ⑮ Lubricant connection   | ⑨① Min. distance  |
| ⑳ With long slide plate  |   |



## AZSS main view



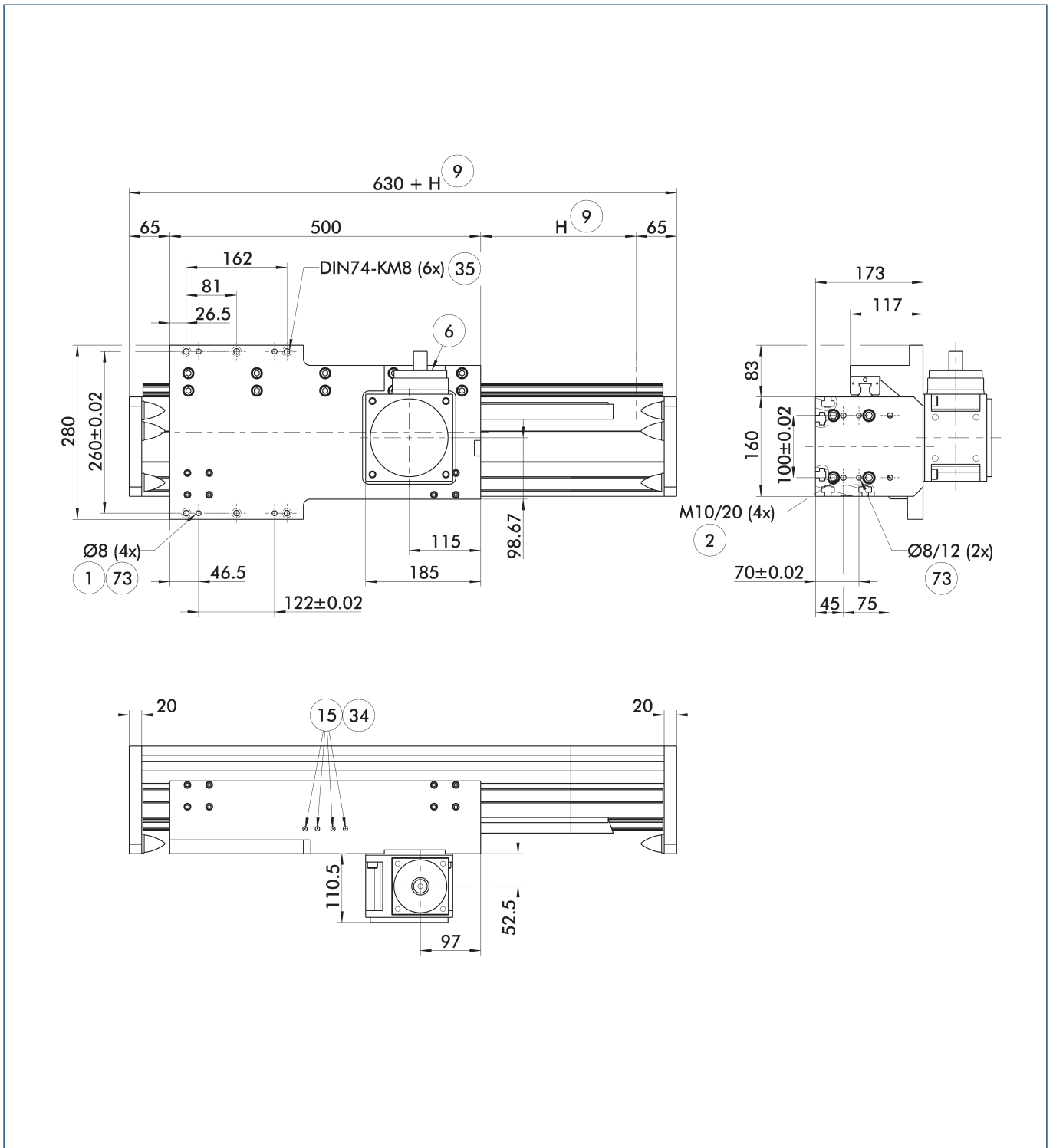
The drawing shows the unit in standard design, without considering any dimensions of the options described below.

- ① Connection linear unit
- ② Attachment connection
- ③ Drive connection
- ④ Nominal stroke
- ⑤ Lubricant connection
- ⑥ On both sides
- ⑦ Fit for centering pins

# Gamma 160

Universal linear module

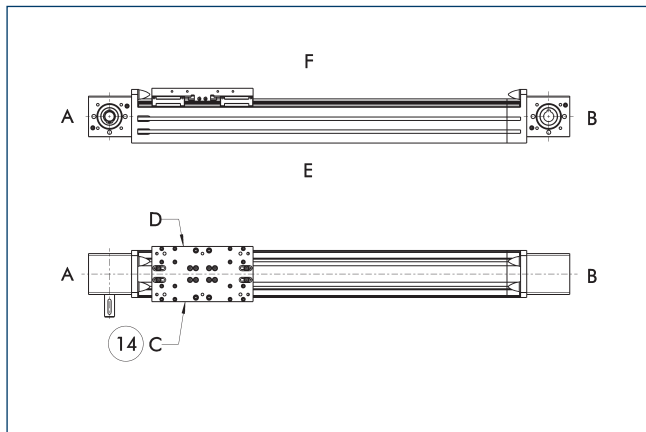
## AZSH main view



The drawing shows the unit in standard design, without considering any dimensions of the options described below.

- |                          |                          |
|--------------------------|--------------------------|
| ① Connection linear unit | ⑮ Lubricant connection   |
| ② Attachment connection  | ⑳ On both sides          |
| ⑥ Drive connection       | ㉑ Back side              |
| ⑨ Nominal stroke         | ㉒ Fit for centering pins |

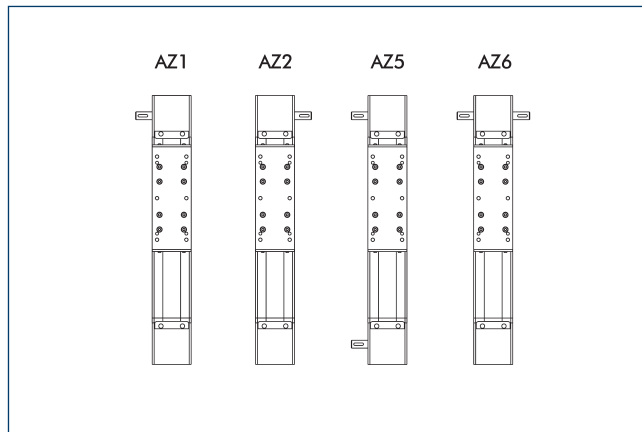
## Side definition



⑭ Limit switch standard position

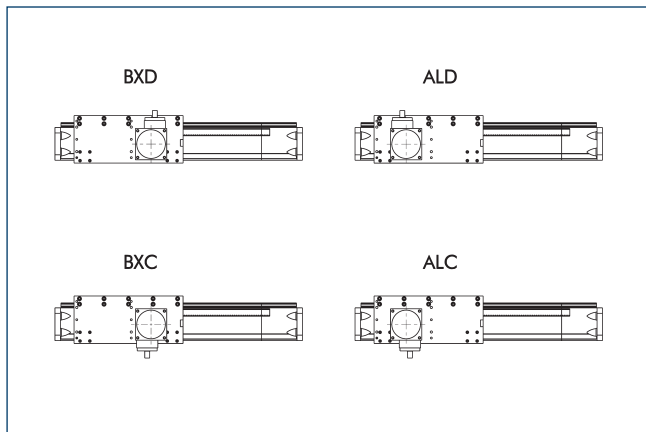
This drawing indicates the definition for the sides. This serves as the basis for all attachments.

## Drive shafts in profile (rack and pinion drive)



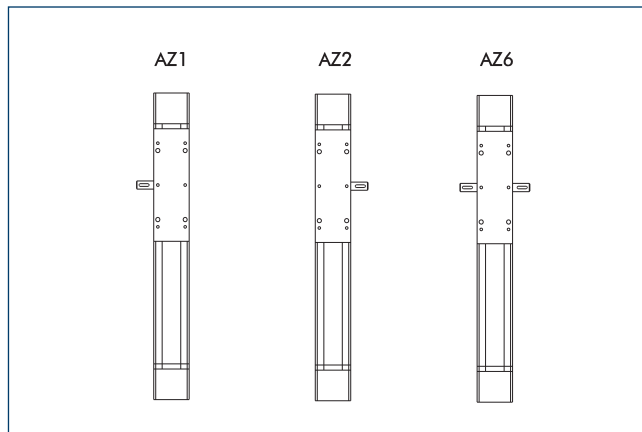
Depending on the axis application, the seat of the drive shaft has to be defined in the order text. Particularly with axis combinations and mechanical synchronization, several drive shafts are required.

## Drive shafts at the slide (rack and pinion drive)



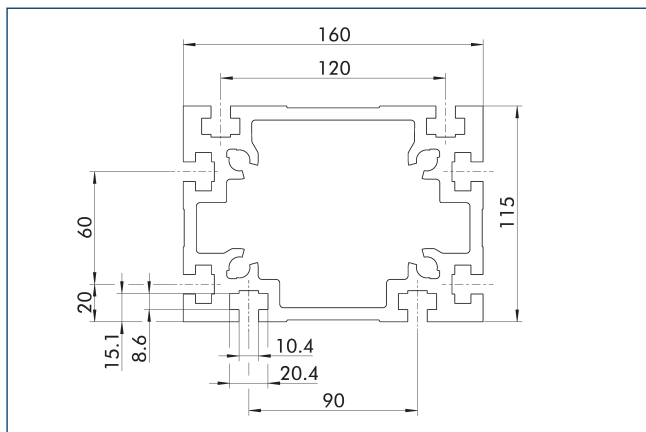
Depending on the axis application, the seat of the drive shaft of the gear has to be defined in the order text.

## Drive shafts in slide (rack and pinion drive)



Depending on the axis application, the seat of the drive shaft has to be defined in the order text. Particularly with axis combinations and mechanical synchronization, several drive shafts are required.

## Mounting

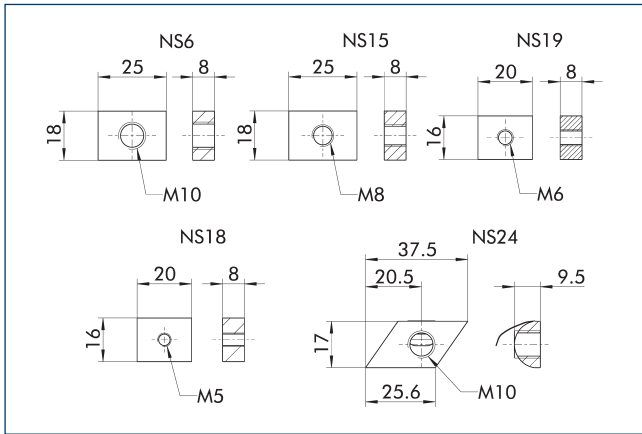


The drawing shows the position of the mounting options.

# Gamma 160

Universal linear module

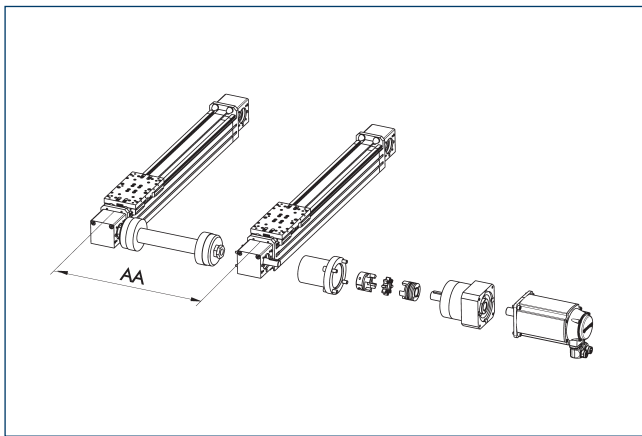
## Fastening elements



The unit can be fixed in place using T-nuts. The exact mounting position is indicated on the adjacent attachment illustration.

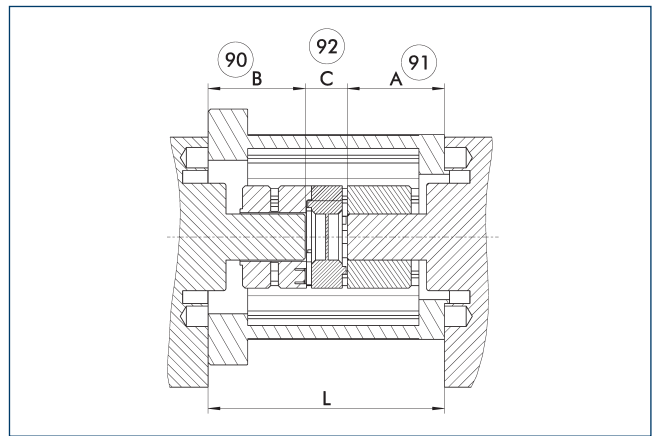
Description	ID	
T-nut		
NS 15-M8	0331433	
NS 18-M5	0331438	
NS 19-M6	0331439	
NS 24-M10	1516296	
NS 6-M10	0331409	

## Connection shaft



Description	Connection shaft	Min. AA [mm]
G 160-ZSS	GX4/GX8	300
G 160-ZSSD	GX4	300

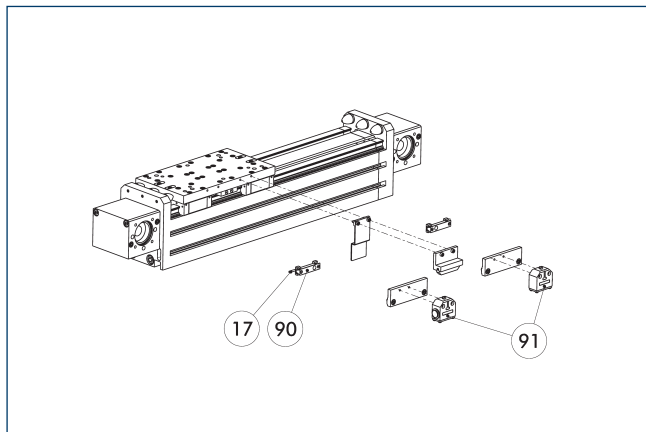
## Motor flange schematic diagram



- ⑨⑩ Length of motor / transmission drive shaft
- ⑨① Length of linear unit drive journal
- ⑨② Clutch length

Different drive solutions can be attached to our axes. SCHUNK offers you the right motor flange and coupling for your drive.

## Limit and reference switch



- ①⑦ Cable outlet
- ①⑨ Inductive limit and reference switches
- ①① Mechanical limit switches

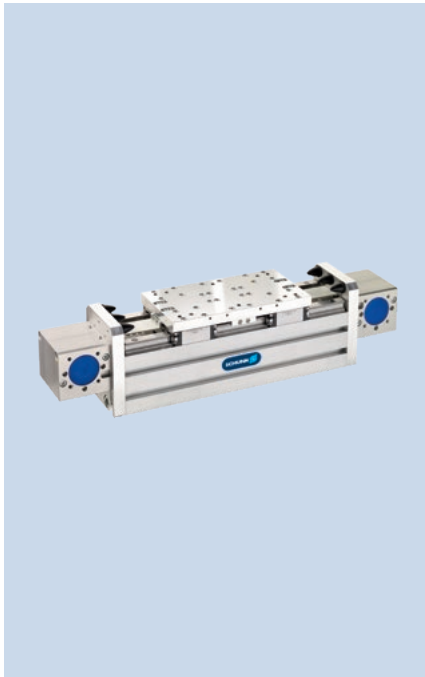
Generally two E0-02 switches are used as limit switches and one ES-02 is used as reference switch.

Description	ID	Often combined
<b>Inductive limit switch</b>		
E0-02	0331410	●
E0-10	0331412	
ES-02	0331411	●
ES-10	0331413	
<b>Mechanical limit switch</b>		
EMB	0331415	●
EMS	0331414	

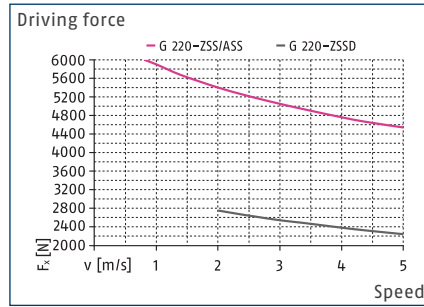
① The positions and dimensions of limit switches, switching lugs, and mounting components may vary depending on the application and the selected limit switches. Please contact us for assistance.

# Gamma 220

Universal linear module

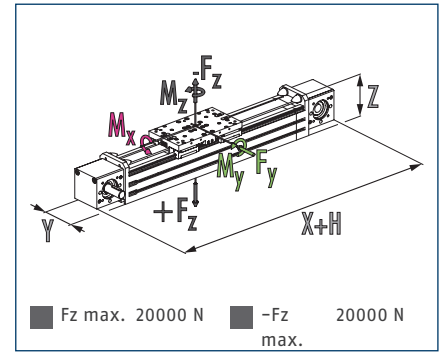


## Max. driving force (toothed belt)\*



\* The specified driving forces are maximum values for modules with toothed-belt drives at a given speed.

## Dimensions and maximum loads



① The indicated forces and moments are maximum values for individual loading. If several forces and/or moments are applied at the same time, the maximum permitted individual values will be lower.

## Technical data toothed belt drives

Description		G 220-ZSS	G 220-ZSSD	G 220-ASS
Max. stroke H	[mm]	7580	7220	7400
Max. driving force	[N]	6000	2800	6000
Repeat accuracy	[mm]	±0.08	±0.08	±0.08
Max. total length	[mm]	8260	8220	8020
Max. speed	[m/s]	5	5	5
Max. acceleration	[m/s <sup>2</sup> ]	60	60	60
Min./max. ambient temperature	[°C]	0/80	0/80	0/80
Dead weight of base including slide	[kg]	47	61.3	63.9
Additional mass per 100 mm stroke	[kg]	4.12	4.1	4.1
Weight of slide	[kg]	10.5	9.3	
Dead weight of slide, long	[kg]	13.2	11.9	
Weight of slide drive	[kg]			31.7
Guidance system		Rail guide	Rail guide	Rail guide
Number of rails		2	2	2
Size of rails		25L	25L	25L
Drive concept		Belt drive	Belt drive	Belt drive
Idle torque	[Nm]	7	5.25	7
Moment of inertia	[kgm <sup>2</sup> ] [kgcm <sup>2</sup> ]	0.033	0.0155	0.0883
Toothed belt type		75 ATL 10	2x40 AT 10	75 AT 10-E
Traverse path per revolution	[mm]	320	240	320
Dimensions X x Y x Z	[mm]	680 x 228 x 195	1000 x 228 x 195	620 x 195 x 390
Moments Mx max./My max./Mz max.	[Nm]	2500/8000/6500	2500/8000/6500	2500/12000/10000
Forces Fy max.	[N]	12000	12000	12000

① Please note that the weight of the slight drive for rack and pinion axes (AZSS/AZSH) includes the weight of the gear unit.



## Technical data for rack and pinion drives

Description		G	G	G	G	G	G
		220-AZSS-2-D90	220-AZSS-2-D115	220-AZSS-3-D90	220-AZSS-3-D115	220-AZSH-2-D90	220-AZSH-2-D115
Max. stroke H	[mm]	7340	7340	7340	7340	7340	7340
Max. driving force	[N]	4000	6000	4000	7500	4000	6000
Repeat accuracy	[mm]	±0.05	±0.05	±0.05	±0.05	±0.05	±0.05
Max. total length	[mm]	8020	8020	8020	8020	8020	8020
Max. speed	[m/s]	4.5	4	4.5	4	4.5	4
Max. acceleration	[m/s <sup>2</sup> ]	20	20	20	20	20	20
Min./max. ambient temperature	[°C]	0/80	0/80	0/80	0/80	0/80	0/80
Dead weight of base including slide	[kg]	49.8	49.8	52.7	52.7	50.8	50.8
Additional mass per 100 mm stroke	[kg]	4.6	4.6	4.8	4.8	4.6	4.6
Weight of slide drive	[kg]	28.45	34.8	30.75	37.05	29.45	35.8
Dead weight of gearbox	[kg]	10.35	16.7	10.35	16.65	10.35	16.7
Guidance system		Rail guide	Rail guide	Rail guide	Rail guide	Rail guide	Rail guide
Number of rails		2	2	2	2	2	2
Size of rails		25L	25L	25L	25L	25L	25L
Drive concept		Rack and pinion drive	Rack and pinion drive	Rack and pinion drive	Rack and pinion drive	Rack and pinion drive	Rack and pinion drive
Idle torque	[Nm]	7.2	7.2	7.2	7.2	7.2	7.2
Gear ratio		5/10/15	5/10/15	5/10/15	5/10/15	5/10/15	5/10/15
Serration		Module 2, angled serration	Module 2, angled serration	Module 3, angled serration	Module 3, angled serration	Module 2, angled serration	Module 2, angled serration
Number of teeth of pinion		30	30	20	20	30	30
Traverse path per revolution	[mm]	200	200	200	200	200	200
Dimensions X x Y x Z	[mm]	680 x 198 x 270	680 x 198 x 270	680 x 208 x 270	680 x 208 x 270	680 x 198 x 330	680 x 198 x 330
Moments Mx max./My max./Mz max.	[Nm]	4000/8000/8000	4000/8000/8000	4000/8000/8000	4000/8000/8000	4000/8000/8000	4000/8000/8000
ForcesFy max.	[N]	20000	20000	20000	20000	20000	20000

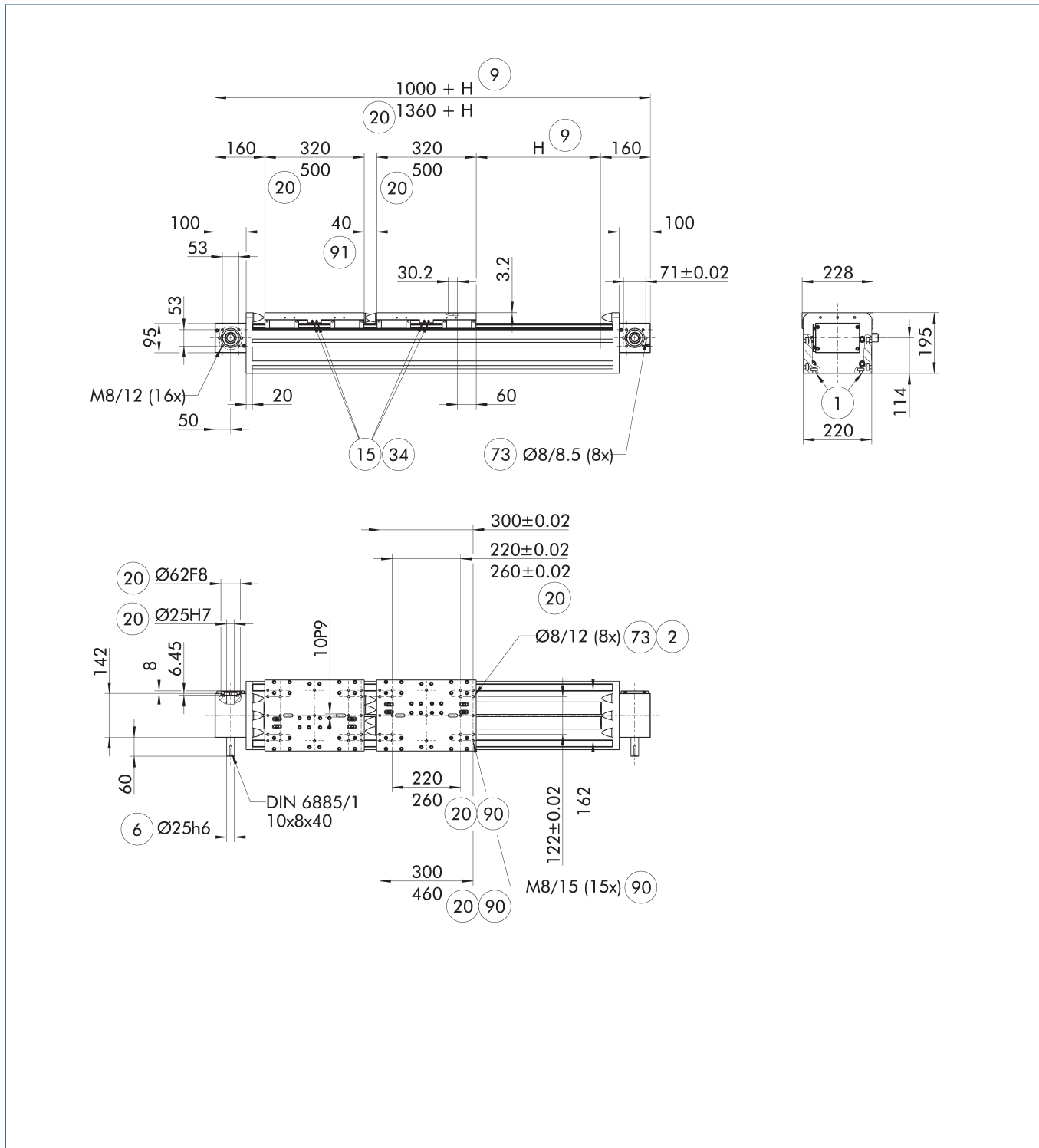
① Please note that the weight of the slight drive for rack and pinion axes (AZSS/AZSH) includes the weight of the gear unit.

Description		G 220-AZSS-3-D90	G 220-AZSH-3-D115
		Max. stroke H	[mm]
Max. driving force	[N]	4000	7500
Repeat accuracy	[mm]	±0.05	±0.05
Max. total length	[mm]	8020	8020
Max. speed	[m/s]	4.5	4
Max. acceleration	[m/s <sup>2</sup> ]	20	20
Min./max. ambient temperature	[°C]	0/80	0/80
Dead weight of base including slide	[kg]	53.9	53.9
Additional mass per 100 mm stroke	[kg]	4.8	4.8
Weight of slide drive	[kg]	31.95	38.25
Dead weight of gearbox	[kg]	10.35	16.65
Guidance system		Rail guide	Rail guide
Number of rails		2	2
Size of rails		25L	25L
Drive concept		Rack and pinion drive	Rack and pinion drive
Idle torque	[Nm]	7.2	7.2
Gear ratio		5/10/15	5/10/15
Serration		Module 3, angled serration	Module 3, angled serration
Number of teeth of pinion		20	20
Traverse path per revolution	[mm]	200	200
Dimensions X x Y x Z	[mm]	680 x 208 x 330	680 x 208 x 330
Moments Mx max./My max./Mz max.	[Nm]	4000/8000/8000	4000/8000/8000
ForcesFy max.	[N]	20000	20000

① Please note that the weight of the slight drive for rack and pinion axes (AZSS/AZSH) includes the weight of the gear unit.



## ZSSD main view



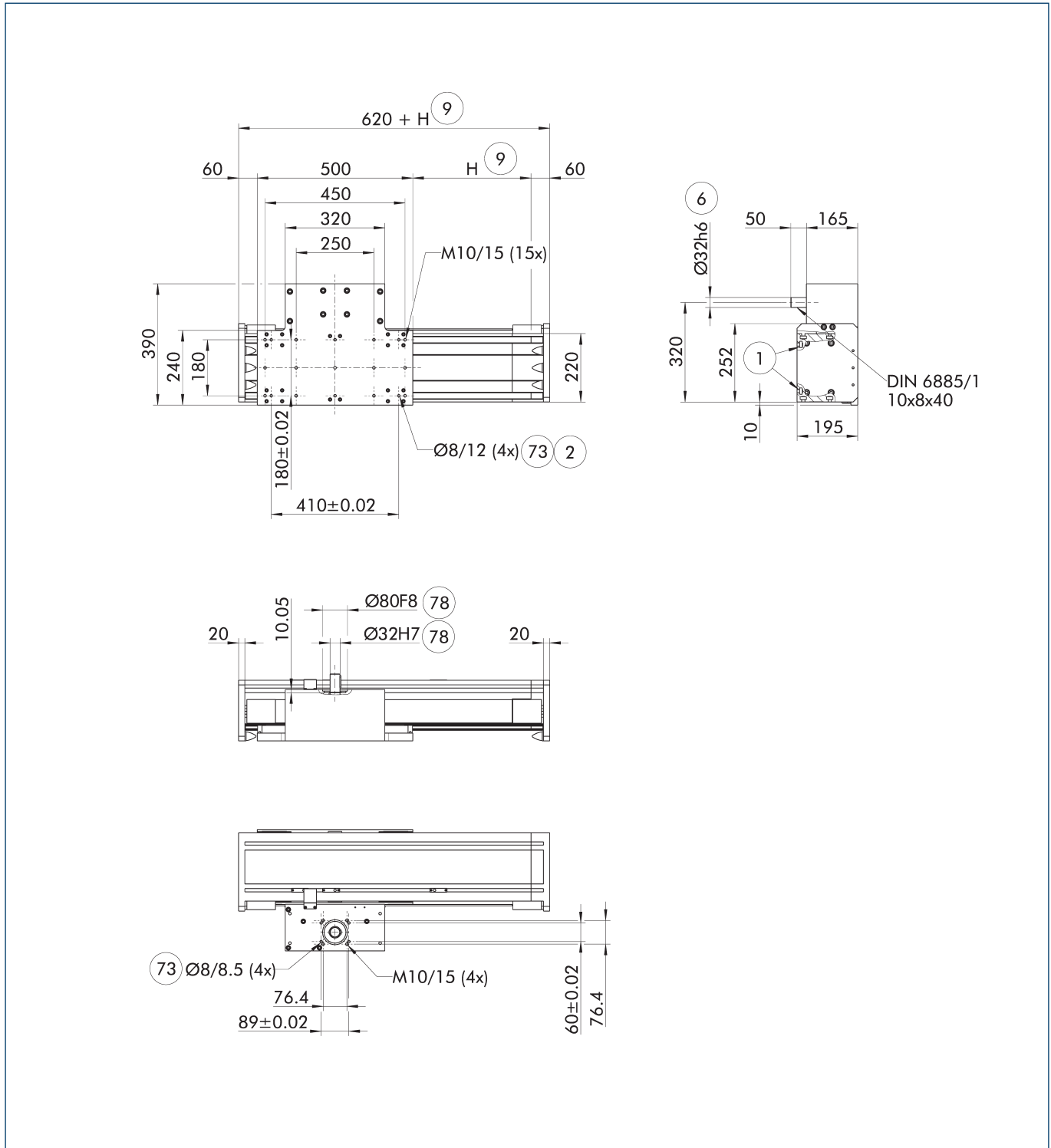
The drawing shows the unit in standard design, without considering any dimensions of the options described below.

- |                          |   |
|--------------------------|---|
| ① Connection linear unit | ③④ On both sides  |
| ② Attachment connection  | ⑦③ Fit for centering pins                                     |
| ⑥ Drive connection       | ⑦⑧ Fit for centering  |
| ⑨ Nominal stroke         | ⑨⑩ Additional screw threads in the case of a long slide plate |
| ⑮ Lubricant connection   | ⑨① Min. distance  |
| ⑳ With long slide plate  |   |

# Gamma 220

Universal linear module

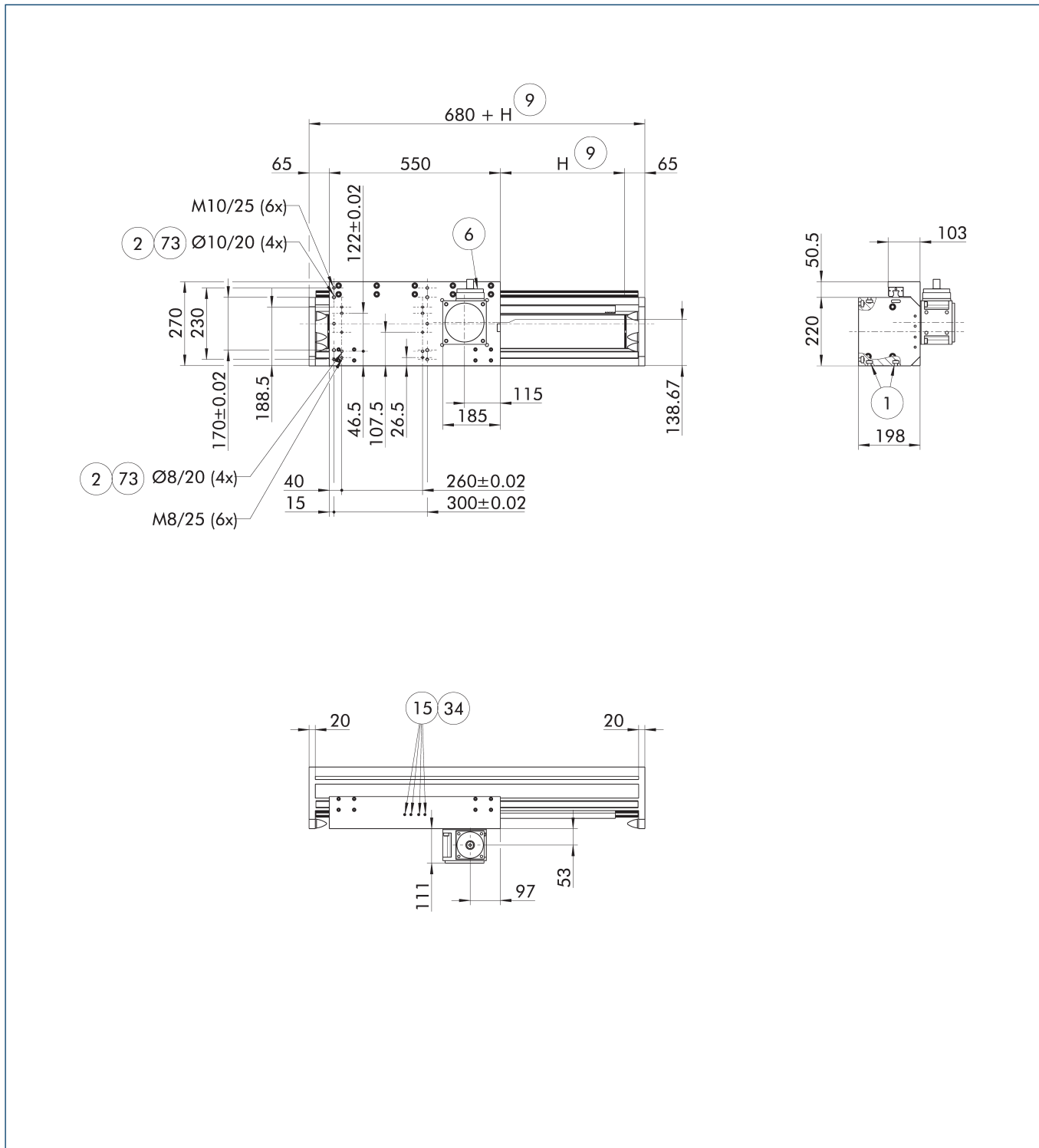
## ASS main view



The drawing shows the unit in standard design, without considering any dimensions of the options described below.

- ① Connection linear unit
- ② Attachment connection
- ③ Nominal stroke
- ⑦ Fit for centering pins
- ⑧ Fit for centering

## Main view AZSS-M2



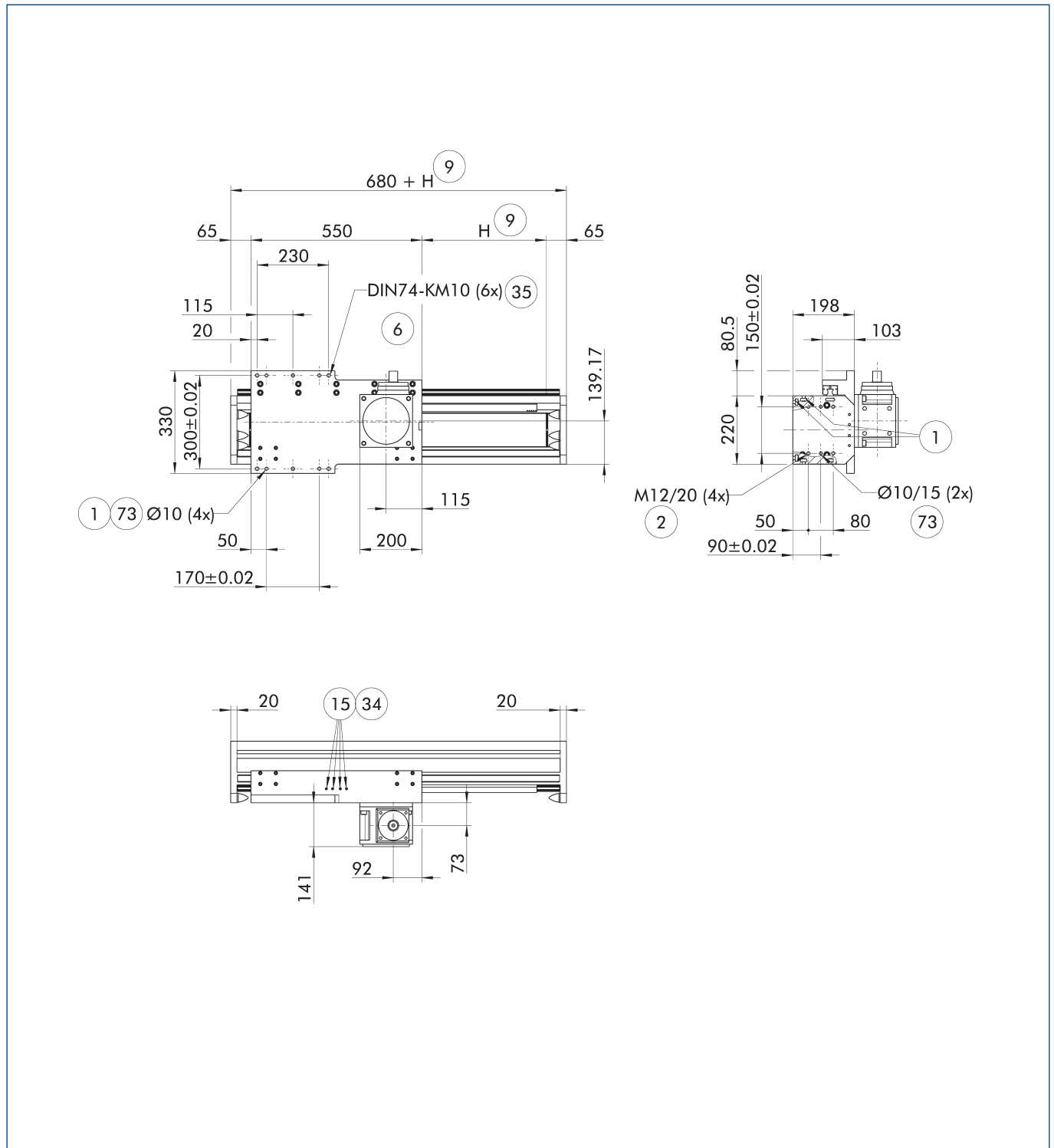
The drawing shows the unit in standard design, without considering any dimensions of the options described below.

- ① Connection linear unit
- ② Attachment connection
- ③ On both sides
- ④ Drive connection
- ⑤ Nominal stroke
- ⑥ Lubricant connection
- ⑦ Fit for centering pins

# Gamma 220

Universal linear module

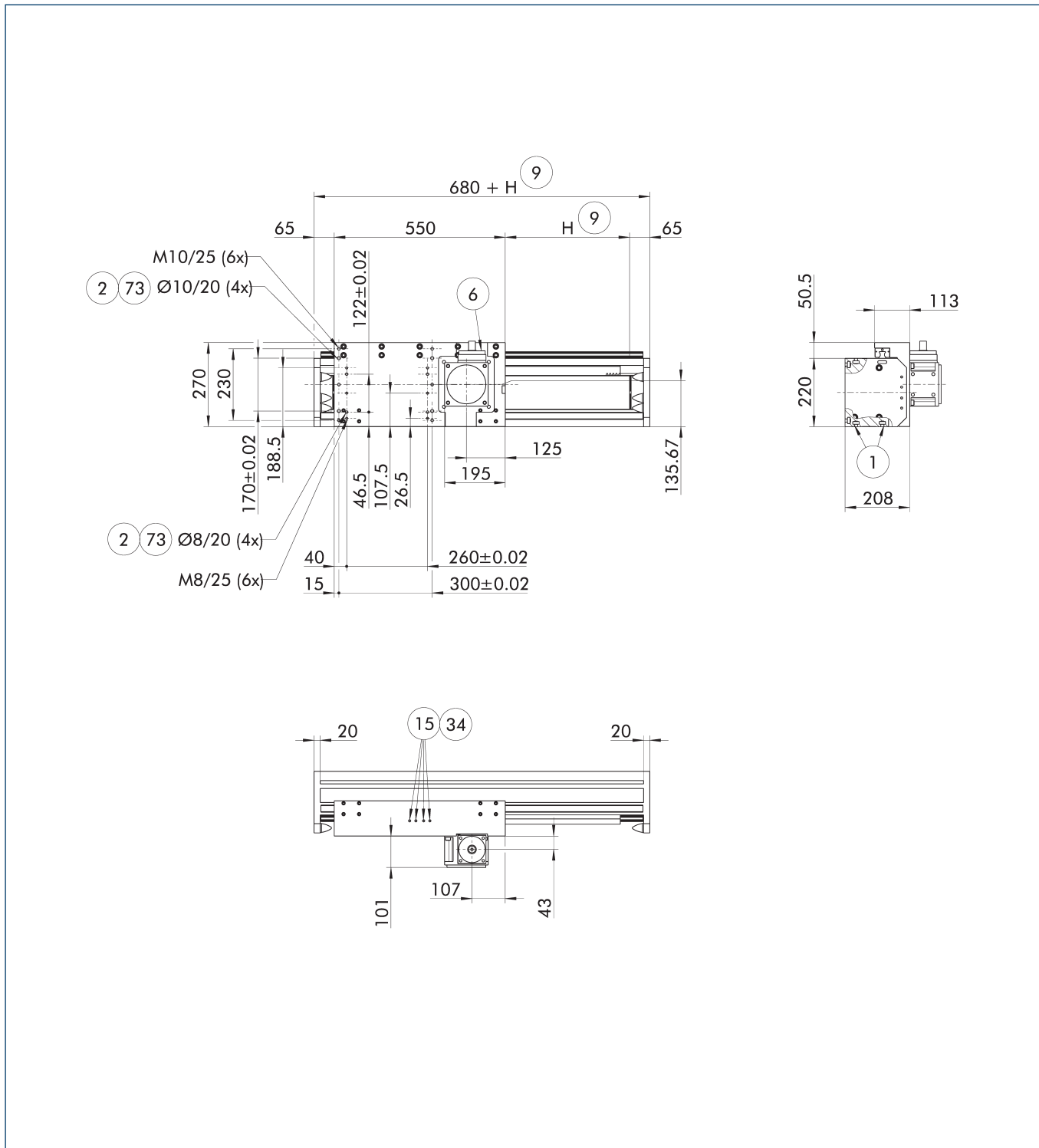
## Main view AZSH-M2



The drawing shows the unit in standard design, without considering any dimensions of the options described below.

- |                          |                          |
|--------------------------|--------------------------|
| ① Connection linear unit | ⑮ Lubricant connection   |
| ② Attachment connection  | ⑳ On both sides          |
| ③ Drive connection       | ㉑ Back side              |
| ④ Nominal stroke         | ㉒ Fit for centering pins |

## Main view AZSS-M3



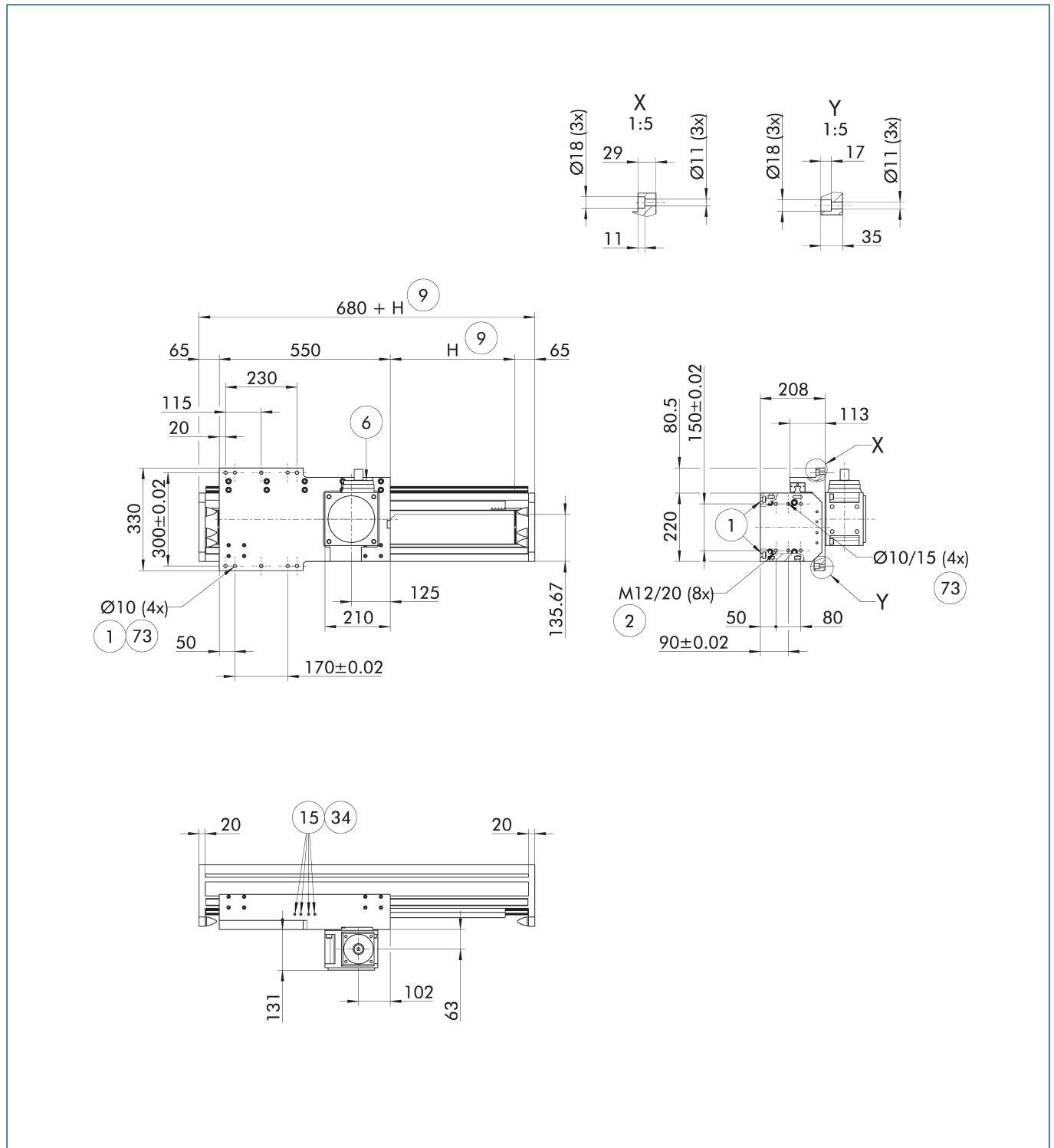
The drawing shows the unit in standard design, without considering any dimensions of the options described below.

- |                          |                          |
|--------------------------|--------------------------|
| ① Connection linear unit | ⑮ Lubricant connection   |
| ② Attachment connection  | ⑳ On both sides          |
| ⑥ Drive connection       | ㉓ Fit for centering pins |
| ⑨ Nominal stroke         |                          |

# Gamma 220

Universal linear module

## Main view AZSH-M3

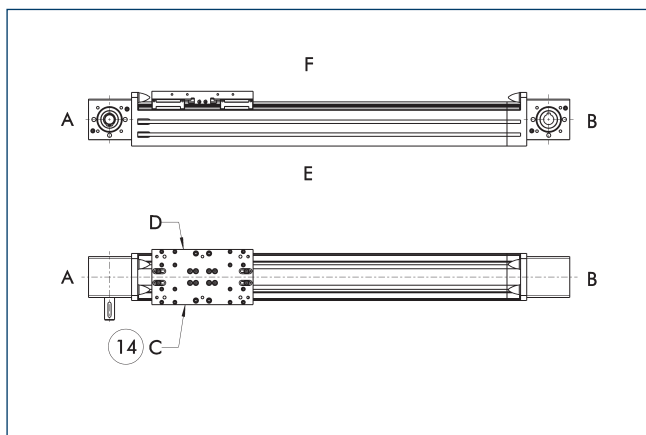


The drawing shows the unit in standard design, without considering any dimensions of the options described below.

- |                          |                          |
|--------------------------|--------------------------|
| ① Connection linear unit | ⑮ Lubricant connection   |
| ② Attachment connection  | ⑳ On both sides          |
| ⑥ Drive connection       | ㉓ Fit for centering pins |
| ⑨ Nominal stroke         |                          |



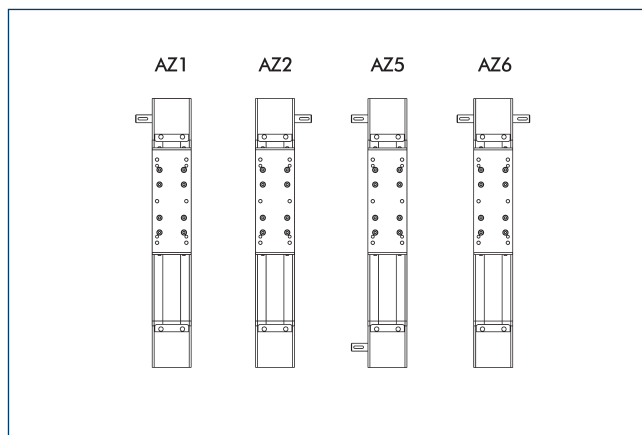
## Side definition



14 Limit switch standard position

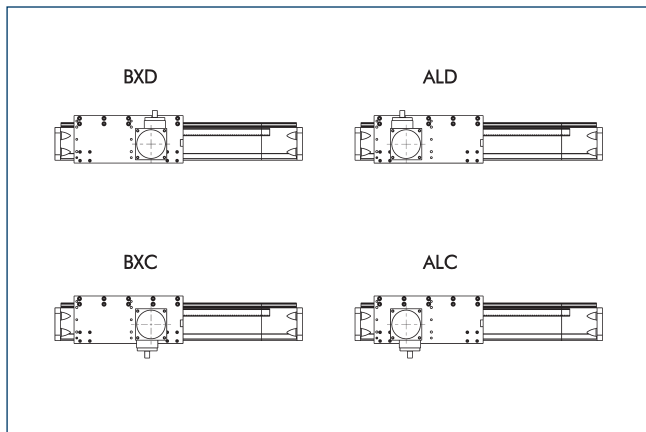
This drawing indicates the definition for the sides. This serves as the basis for all attachments.

## Drive shafts in profile (rack and pinion drive)



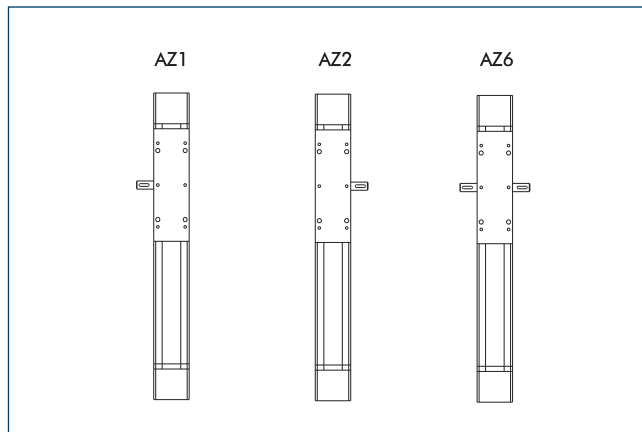
Depending on the axis application, the seat of the drive shaft has to be defined in the order text. Particularly with axis combinations and mechanical synchronization, several drive shafts are required.

## Drive shafts at the slide (rack and pinion drive)



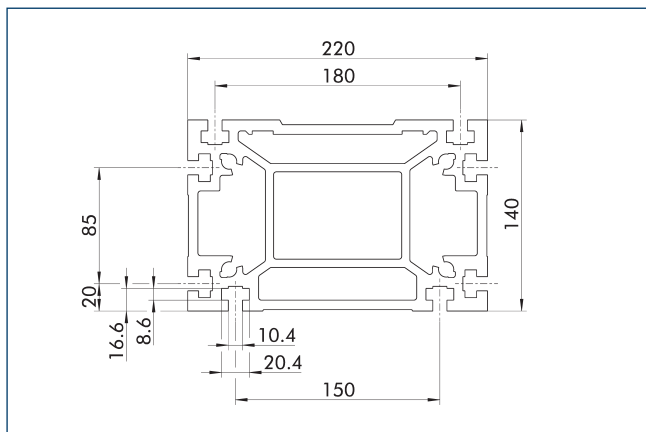
Depending on the axis application, the seat of the drive shaft of the gear has to be defined in the order text.

## Drive shafts in slide (rack and pinion drive)



Depending on the axis application, the seat of the drive shaft has to be defined in the order text. Particularly with axis combinations and mechanical synchronization, several drive shafts are required.

## Mounting

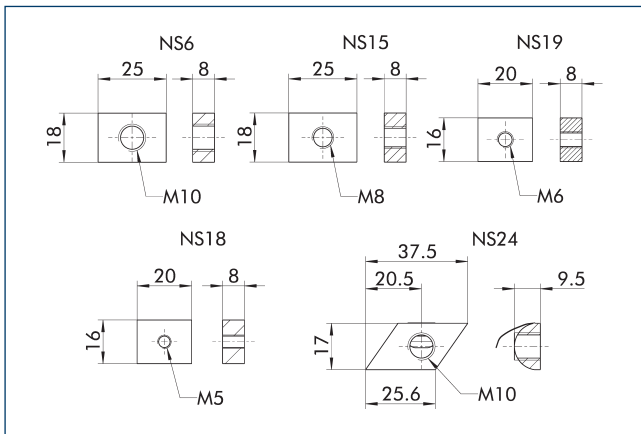


The drawing shows the position of the mounting options.

# Gamma 220

Universal linear module

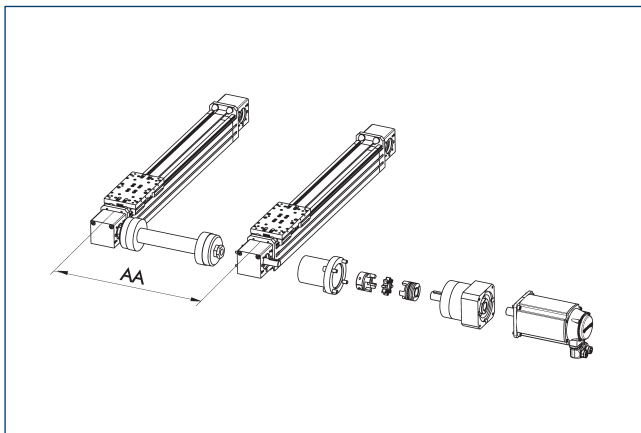
## Fastening elements



The unit can be fixed in place using T-nuts. The exact mounting position is indicated on the adjacent attachment illustration.

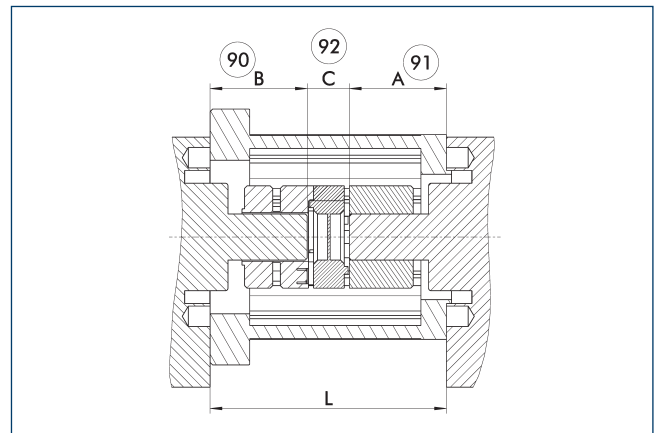
Description	ID	
T-nut		
NS 15-M8	0331433	
NS 18-M5	0331438	
NS 19-M6	0331439	
NS 24-M10	1516296	
NS 6-M10	0331409	

## Connection shaft



Description	Connection shaft	Min. AA [mm]
G 220-ZSS	GX8/GX16	370
G 220-ZSSD	GX4/GX8	350

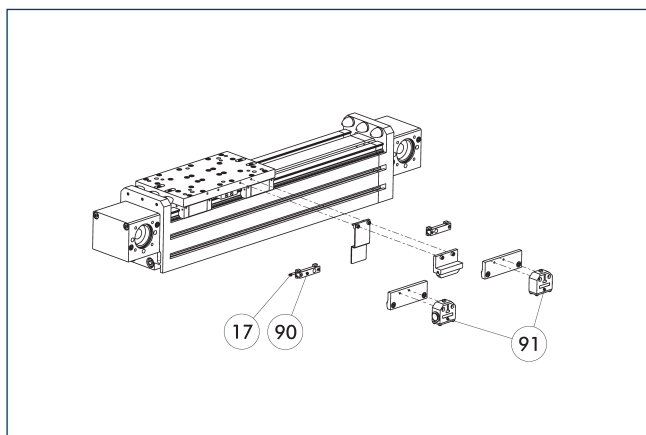
## Motor flange schematic diagram



- ⑨⑩ Length of motor / transmission drive shaft
- ⑨① Length of linear unit drive journal
- ⑨② Clutch length

Different drive solutions can be attached to our axes. SCHUNK offers you the right motor flange and coupling for your drive.

## Limit and reference switch



- 17 Cable outlet  
 90 Inductive limit and reference switches  
 91 Mechanical limit switches

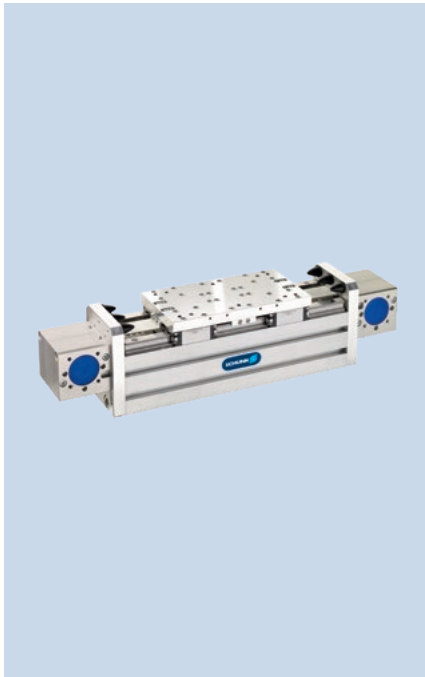
Generally two E0-02 switches are used as limit switches and one ES-02 is used as reference switch.

Description	ID	Often combined
Inductive limit switch		
E0-02	0331410	●
E0-10	0331412	
ES-02	0331411	●
ES-10	0331413	
Mechanical limit switch		
EMB	0331415	●
EMS	0331414	

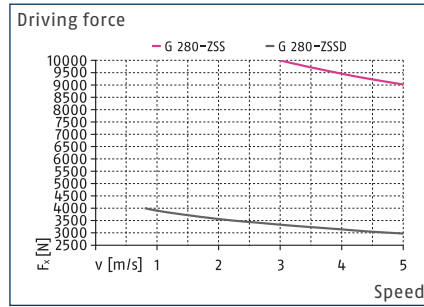
- ⓘ The positions and dimensions of limit switches, switching lugs, and mounting components may vary depending on the application and the selected limit switches. Please contact us for assistance.

# Gamma 280

Universal linear module

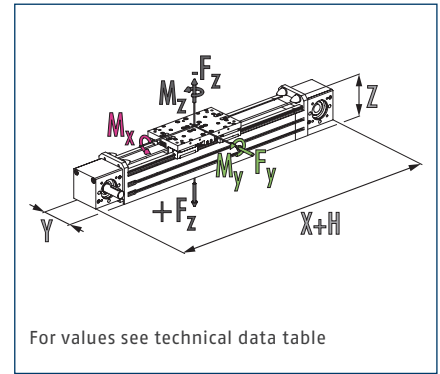


## Max. driving force (toothed belt)\*



\* The specified driving forces are maximum values for modules with toothed-belt drives at a given speed.

## Dimensions and maximum loads



① The indicated forces and moments are maximum values for individual loading. If several forces and/or moments are applied at the same time, the maximum permitted individual values will be lower.

## Technical data toothed belt drives

Description		G 280-ZSS	G 280-ZSSD
Max. stroke H	[mm]	7450	7010
Max. driving force	[N]	10000	4000
Repeat accuracy	[mm]	±0.08	±0.08
Max. total length	[mm]	8370	8270
Max. speed	[m/s]	5	5
Max. acceleration	[m/s <sup>2</sup> ]	60	60
Min./max. ambient temperature	[°C]	0/80	0/80
Dead weight of base including slide	[kg]	91.05	142.75
Additional mass per 100 mm stroke	[kg]	6.15	6.3
Weight of slide	[kg]	19.2	18
Dead weight of slide, long	[kg]	23.8	22.55
Guidance system		Rail guide	Rail guide
Number of rails		2	2
Size of rails		35	35
Drive concept		Belt drive	Belt drive
Idle torque	[Nm]	11	11
Moment of inertia	[kgm <sup>2</sup> ] [kgcm <sup>2</sup> ]	0.12	0.045
Toothed belt type		75 ATS 15	2x50 ATL 10
Traverse path per revolution	[mm]	450	300
Dimensions X x Y x Z	[mm]	920 x 306 x 250	1260 x 306 x 250
Moments Mx max./My max./Mz max.	[Nm]	4000/15000/12000	4000/15000/12000
Forces Fy max./Fz max./-Fz max.	[N]	20000/30000/30000	20000/30000/30000

① Please note that the weight of the slight drive for rack and pinion axes (AZSS/AZSH) includes the weight of the gear unit.

## Technical data for rack and pinion drives

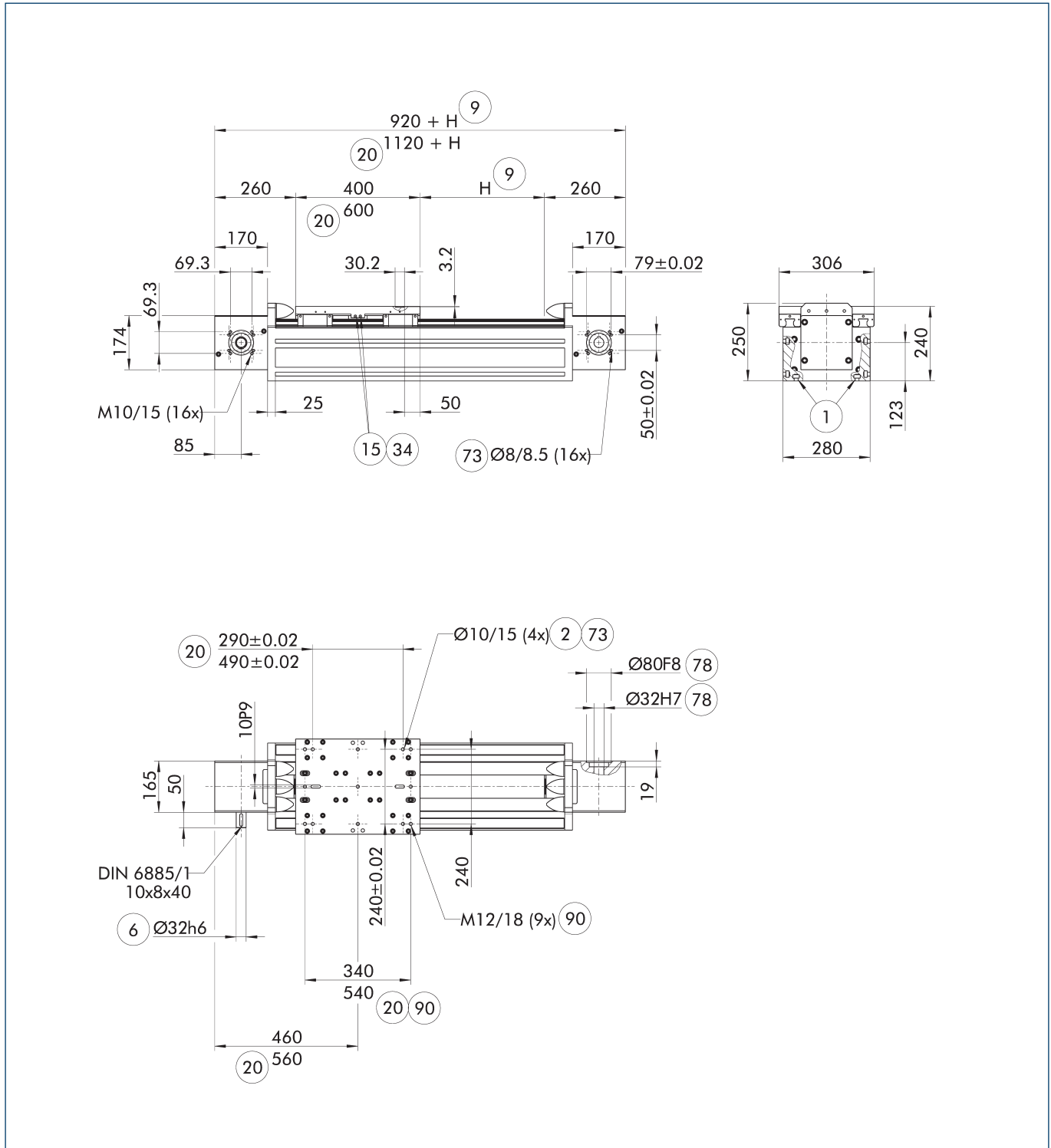
Description		G 280-AZSS-D90	G 280-AZSS-D115
Max. stroke H	[mm]	7250	7250
Max. driving force	[N]	4000	7500
Repeat accuracy	[mm]	±0.05	±0.05
Max. total length	[mm]	8030	8030
Max. speed	[m/s]	4.5	4
Max. acceleration	[m/s <sup>2</sup> ]	20	20
Min./max. ambient temperature	[°C]	0/80	0/80
Dead weight of base including slide	[kg]	84.7	84.7
Additional mass per 100 mm stroke	[kg]	6.95	6.95
Weight of slide drive	[kg]	38.15	44.45
Dead weight of gearbox	[kg]	10.35	16.65
Guidance system		Rail guide	Rail guide
Number of rails		2	2
Size of rails		35	35
Drive concept		Rack and pinion drive	Rack and pinion drive
Idle torque	[Nm]	8.6	8.6
Gear ratio		5/10/15	5/10/15
Serration		Module 3, angled serration	Module 3, angled serration
Number of teeth of pinion		20	20
Traverse path per revolution	[mm]	200	200
Dimensions X x Y x Z	[mm]	780 x 240 x 348	780 x 240 x 348
Moments Mx max./My max./Mz max.	[Nm]	8000/16000/16000	8000/16000/16000
Forces Fy max./Fz max./-Fz max.	[N]	25000/25000/25000	25000/25000/25000

① Please note that the weight of the slight drive for rack and pinion axes (AZSS/AZSH) includes the weight of the gear unit.

# Gamma 280

Universal linear module

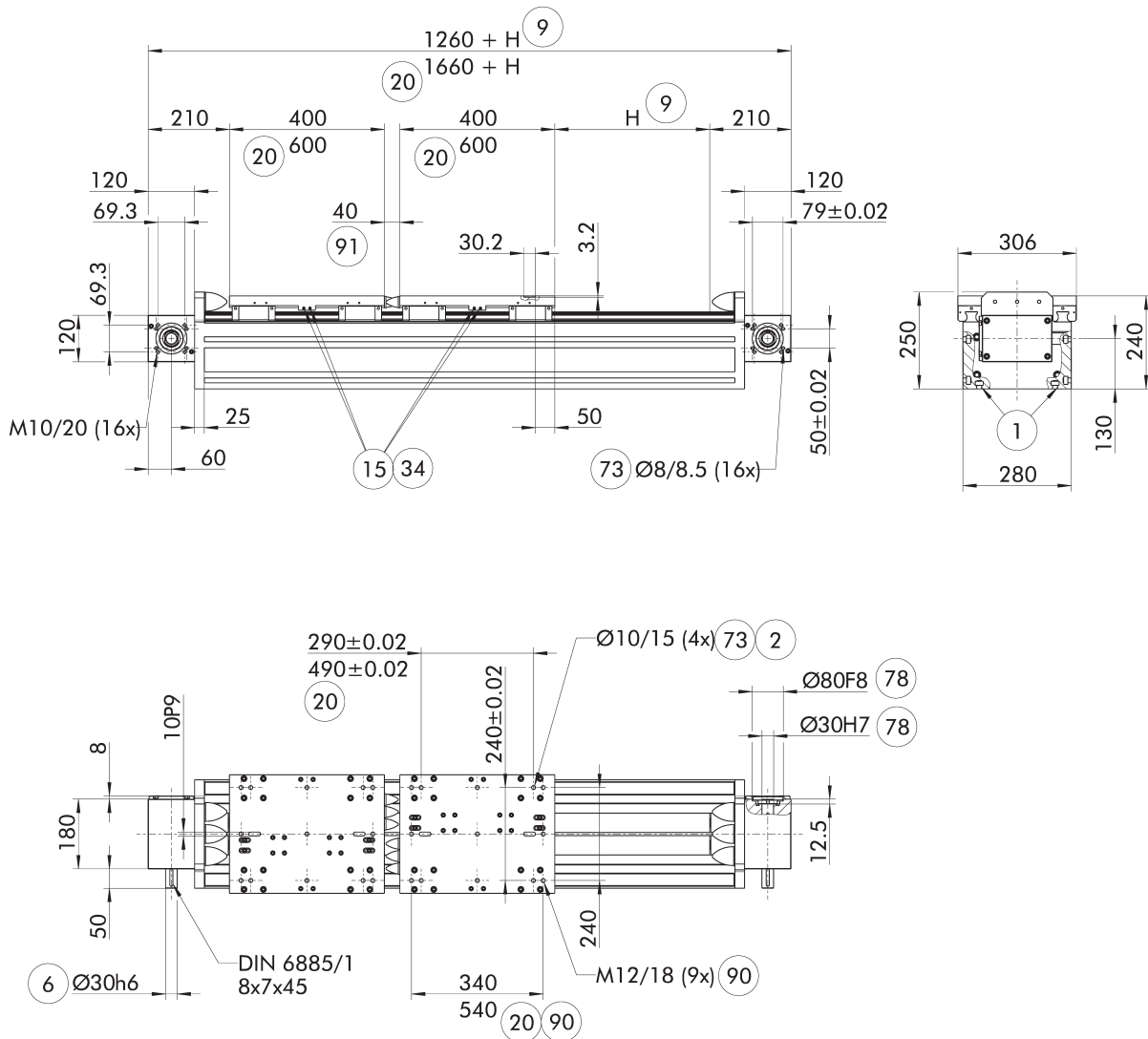
## ZSS main view



The drawing shows the unit in standard design, without considering any dimensions of the options described below.

- ① Connection linear unit
- ② Attachment connection
- ⑥ Drive connection
- ⑨ Nominal stroke
- ⑮ Lubricant connection
- ⑳ With long slide plate
- ⑳ On both sides
- ⑦③ Fit for centering pins
- ⑦⑧ Fit for centering
- ⑨⑩ Additional screw threads in the case of a long slide plate

## ZSSD main view



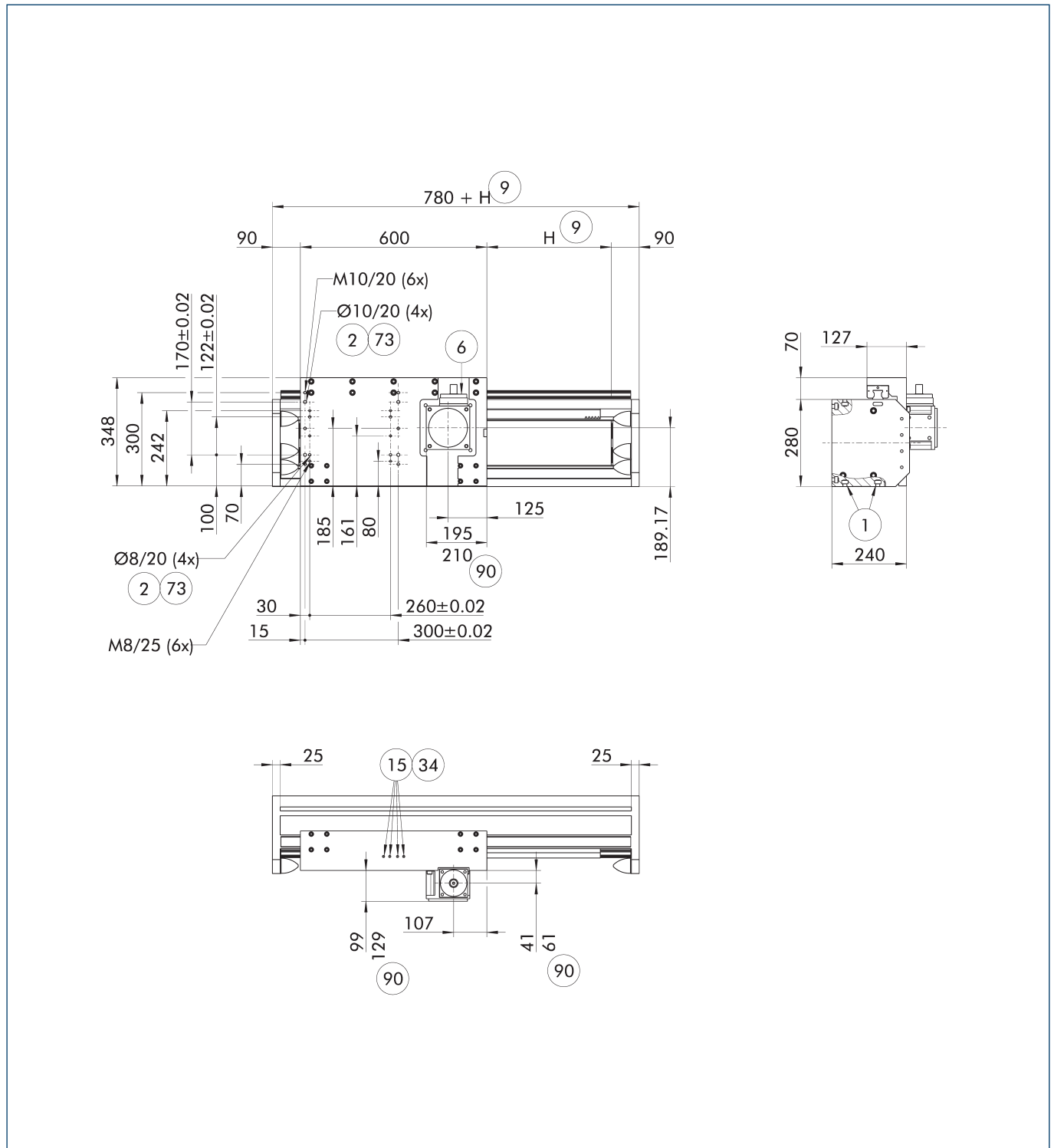
The drawing shows the unit in standard design, without considering any dimensions of the options described below.

- |                          |   |
|--------------------------|---|
| ① Connection linear unit | ③④ On both sides  |
| ② Attachment connection  | ⑦③ Fit for centering pins                                     |
| ⑥ Drive connection       | ⑦⑧ Fit for centering  |
| ⑨ Nominal stroke         | ⑨⑩ Additional screw threads in the case of a long slide plate |
| ⑮ Lubricant connection   | ⑨① Min. distance  |
| ⑳ With long slide plate  |   |

# Gamma 280

Universal linear module

## AZSS main view

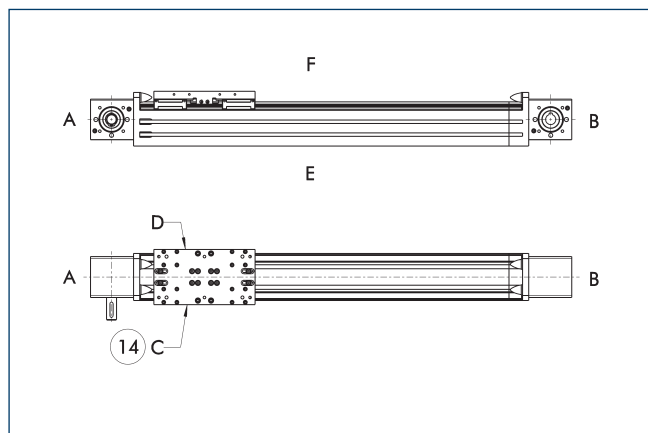


The drawing shows the unit in standard design, without considering any dimensions of the options described below.

- ① Connection linear unit
- ② Attachment connection
- ⑥ Drive connection
- ⑬ Lubricant connection
- ⑳ On both sides
- ㉗ Fit for centering pins



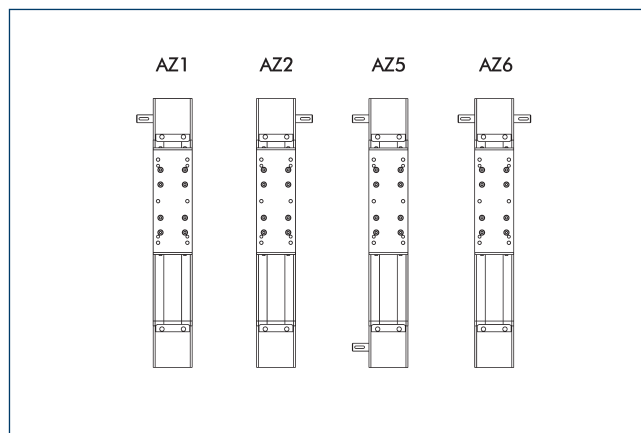
## Side definition



⑭ Limit switch standard position

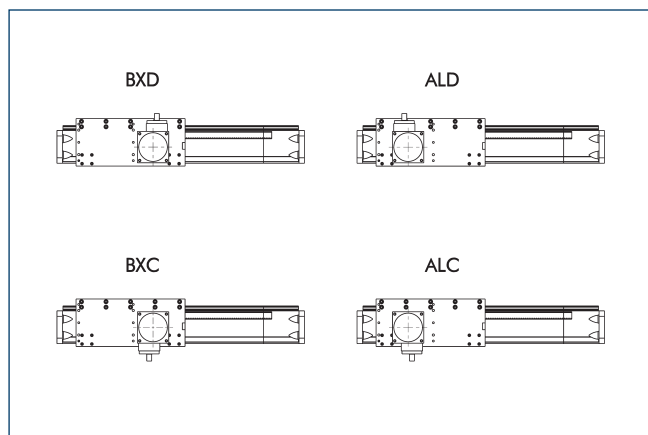
This drawing indicates the definition for the sides. This serves as the basis for all attachments.

## Drive shafts in profile (rack and pinion drive)



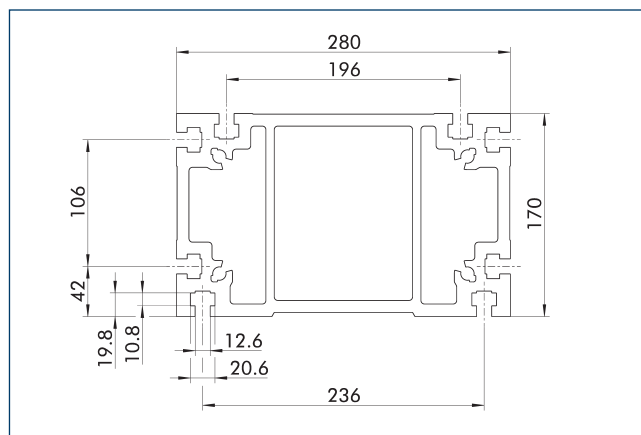
Depending on the axis application, the seat of the drive shaft has to be defined in the order text. Particularly with axis combinations and mechanical synchronization, several drive shafts are required.

## Drive shafts at the slide (rack and pinion drive)



Depending on the axis application, the seat of the drive shaft of the gear has to be defined in the order text.

## Mounting

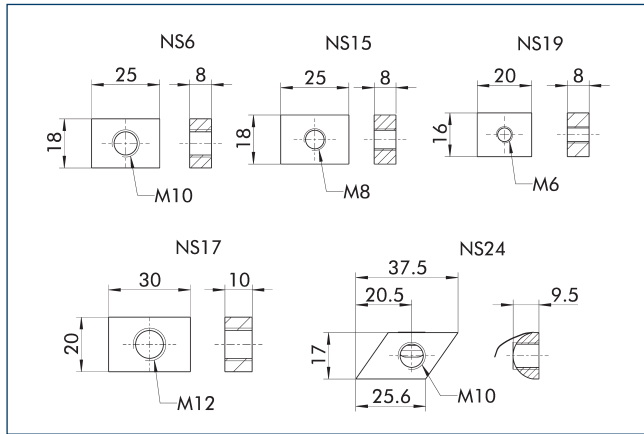


The drawing shows the position of the mounting options.

# Gamma 280

Universal linear module

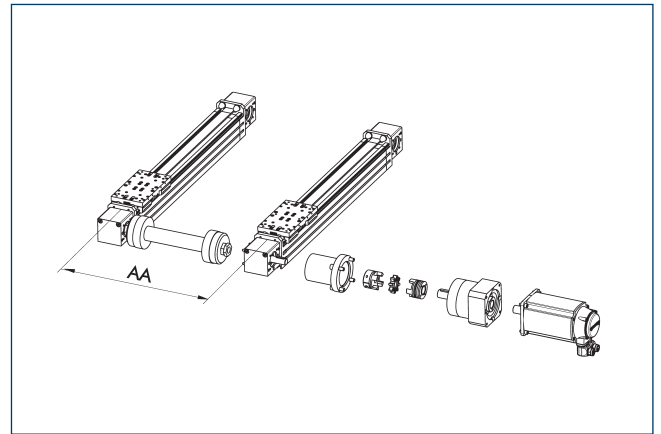
## Fastening elements



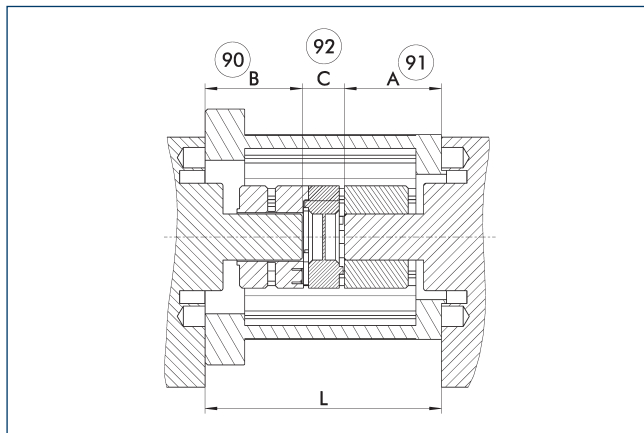
The unit can be fixed in place using T-nuts. The exact mounting position is indicated on the adjacent attachment illustration.

Description	ID	
T-nut		
NS 15-M8	0331433	
NS 18-M5	0331438	
NS 19-M6	0331439	
NS 24-M10	1516296	
NS 6-M10	0331409	

## Connection shaft



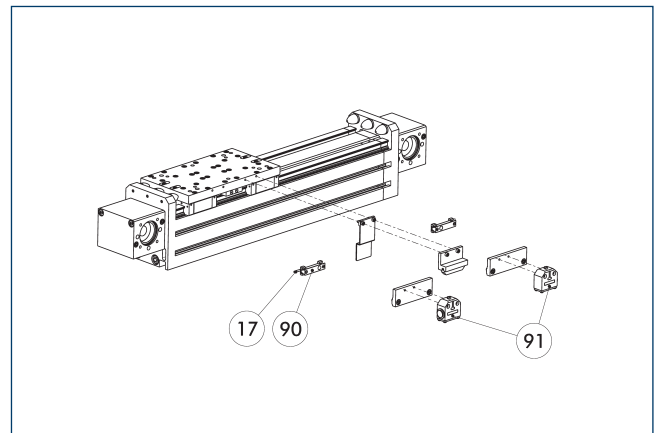
## Motor flange schematic diagram



- 90 Length of motor / transmission drive shaft
- 91 Length of linear unit drive journal
- 92 Clutch length

Different drive solutions can be attached to our axes. SCHUNK offers you the right motor flange and coupling for your drive.

## Limit and reference switch



- 17 Cable outlet
- 90 Inductive limit and reference switches
- 91 Mechanical limit switches

Generally two E0-02 switches are used as limit switches and one ES-02 is used as reference switch.

Description	ID	Often combined
Inductive limit switch		
E0-02	0331410	●
E0-10	0331412	
ES-02	0331411	●
ES-10	0331413	
Mechanical limit switch		
EMB	0331415	●
EMS	0331414	

① The positions and dimensions of limit switches, switching lugs, and mounting components may vary depending on the application and the selected limit switches. Please contact us for assistance.





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