



Superior Clamping and Gripping



## Product data sheet

Universal linear module Beta

# Beta

Universal linear module

## Flexible. Modular. Compact. Universal linear module Beta

Universal linear module with optional toothed belt or spindle drive and various guiding options

### Field of application

Universal linear module with optional toothed belt drive for high acceleration and speed or spindle drive for precise positioning given high drive forces.



### Advantages – Your benefits

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

**Optional belt or spindle driven** for the optimum drive for your application

**Various guide options** for optimal adaption to your application

**Cost-effective basic version with basic functions** for simple and cost-effective applications

**Compact dimensions** for less interfering contours

**Integrated cover tape** for versatility and a long tool life

**Fixing via T-nuts or slot nut possible** for flexibility in the integration



Sizes  
Quantity: 11



Max. stroke  
860 .. 7710 mm



Max. driving force  
500 .. 18000 N



Repeat accuracy  
 $\pm 0.03$  .. 0.08 mm

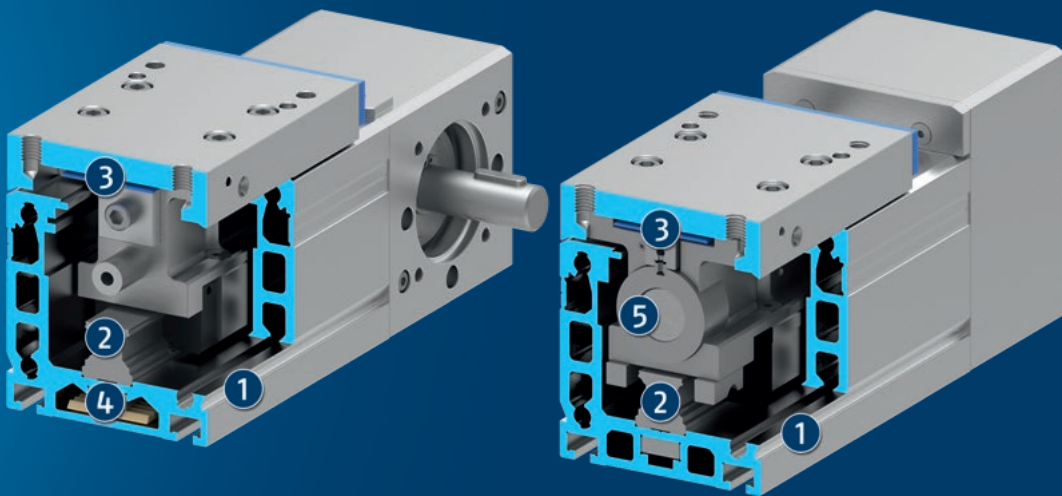


Max. speed  
0.5 .. 8 m/s

## Functional description

The slide is driven by a toothed belt or a ball screw spindle and precisely guided by a (double) profiled rail guide. The cover band runs through the slide and covers the drive and guidance. The servomotor is usually connected to the

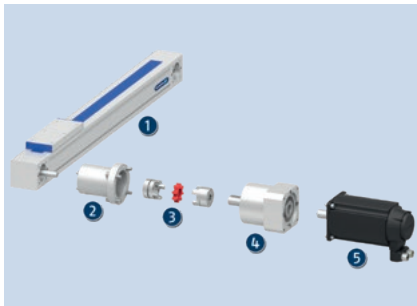
profile via the drive shaft.



- ① **Aluminum profile**  
Self-supporting and robust
- ② **Profiled rail guide**  
for maximum positioning accuracy and moment loads
- ③ **Covering tape made of plastic**  
along the whole guidance length against coarse dirt
- ④ **Toothed belt**  
Transforms the rotational movement into a linear movement
- ⑤ **Ball screw spindle**  
Transforms the rotational movement into a linear movement

## Detailed functional description

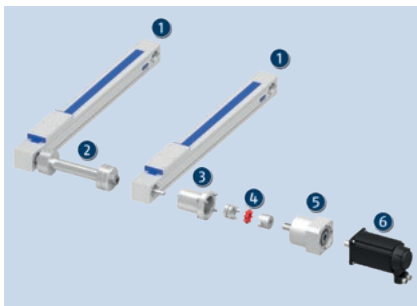
### Toothed belt axis with right-angle-mounted motor



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

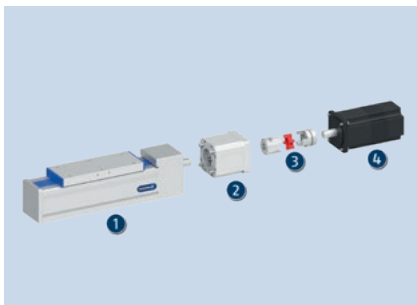
### Synchronized toothed belt axes with connection shafts



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

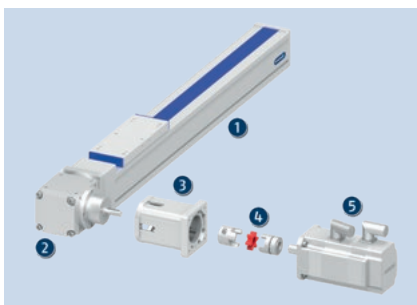
### Spindle axis with axially mounted motor



This illustration shows how to mount a motor axially to a spindle axis using an engine cone and a coupling.

- 1 Spindle axis
- 2 Motor bell
- 3 Coupling
- 4 Servomotor

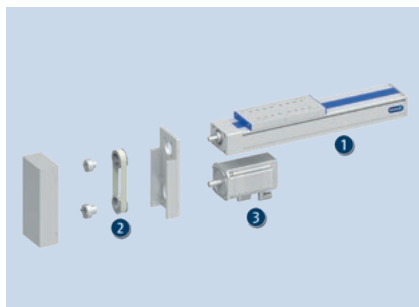
### Spindle axis with right angular mounted motor



The motor can also be mounted at a right angle on a spindle axis using a bevel gear.

- 1 Spindle axis
- 2 Bevel gear
- 3 Motor bell
- 4 Coupling
- 5 Servomotor

## Spindle axis with parallel-mounted motor



In order to save space, the motor can be mounted parallel to the spindle axis using an angle belt drive.

- ① Spindle axis
- ② Angle belt drive
- ③ Servomotor

# Beta

Universal linear module

## General notes about the series

**Operating principle:** Choice of toothed belt or ball screw spindle drive

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

**Profile:** Extruded aluminum profile with plastic cover strip

**Slide:** Aluminum slide with a brush seal

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

**Warranty:** 24 months

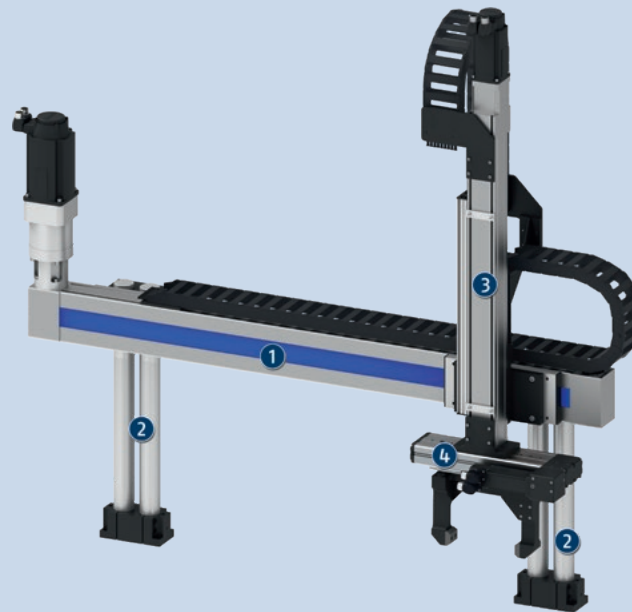
**Ambient conditions:** The modules are mainly designed for the use in clean ambient conditions. Please note that the life time of the modules can shorten if they are used in harsh ambient conditions, and that SCHUNK cannot assume liability in such cases. Please contact us for assistance.

**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.



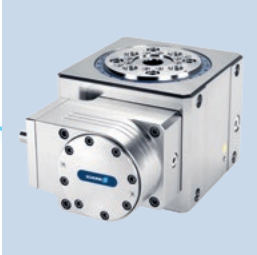
## Application example

Electrically driven 2-axis line gantry with long-stroke gripper and standardized drive technology for loading and unloading machine tools.

- 1 Universal linear module Beta with toothed belt drive
- 2 Pillar assembly system
- 3 Universal linear module Beta with spindle drive
- 4 Electric long-stroke gripper EGA

## 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



Inductive proximity switch



Pillar assembly system



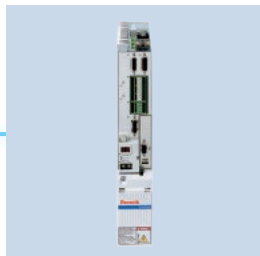
Drive



Room gantry



Angle belt drive



Drive controller

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

**spindle supports:** Spindle supports allow higher moving speeds for longer stroke lengths

**Version with a driven slide:** In this version, the servomotor is fastened to the slide and the profile is vertically moved.

**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

B - 80-C - ZRS - 32AT5-E - 220 - 1000 - 1420 - AK - AZ1 - 1

**Product series B = Beta**

**Size (version)**

**Drive**

Z = Toothed belt drive

A = driven slide

**Guidance system**

R = roller guide

S = rail guide

**Design version**

S = standard

E = basic version

**Drive version**

Toothed belt width and tooth pitch

**Stroke per revolution**

**Traverse path**

The basic version is only available in increments of 100 mm

**Overall length**

**Cover**

AK = cover tape

**Accessories**

BL = mounting strip

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

RM = rhombus 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)

URT = angle belt drive (from dimension sheet)



## How to order – Ball screw spindle drive

B - 80 - SRS - M - 2020 - 1000 - 1430 - 2SA - 2ES2 - 0

**Product series B = Beta**

**Size (version)**

**Drive**

S = Spindle

**Guidance system**

R = roller guide

S = rail guide

**Design version**

S = standard

**Drive type**

M = single nut (ball screw)

MM = double nut (ball screw)

**Drive version**

Diameter and pitch (ball screw)

**Traverse path**

**Overall length**

**Spindle supports (SA)**

(Number)

**Accessories**

BL = mounting strip

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

RM = rhombus nut

**Customized design**

0 = Standard

1 = customized (specification in plain text)

**Additional accessories (separate item)**

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

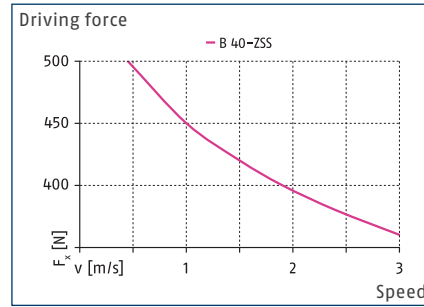
URT = angle belt drive (from dimension sheet)

KRG = directly attached bevel gears

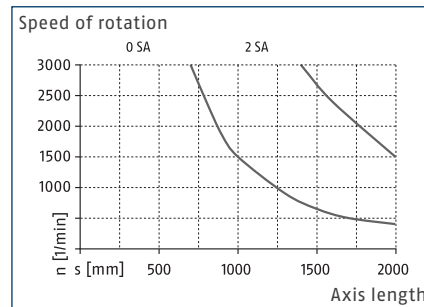
Cover tape is standard for ball screw spindle drive.



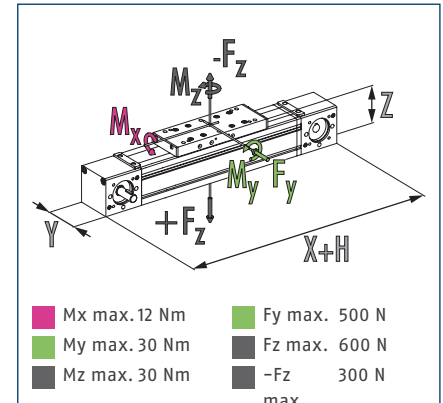
### Max. driving force (toothed belt)\*



### Spindle supports\*\*



### 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

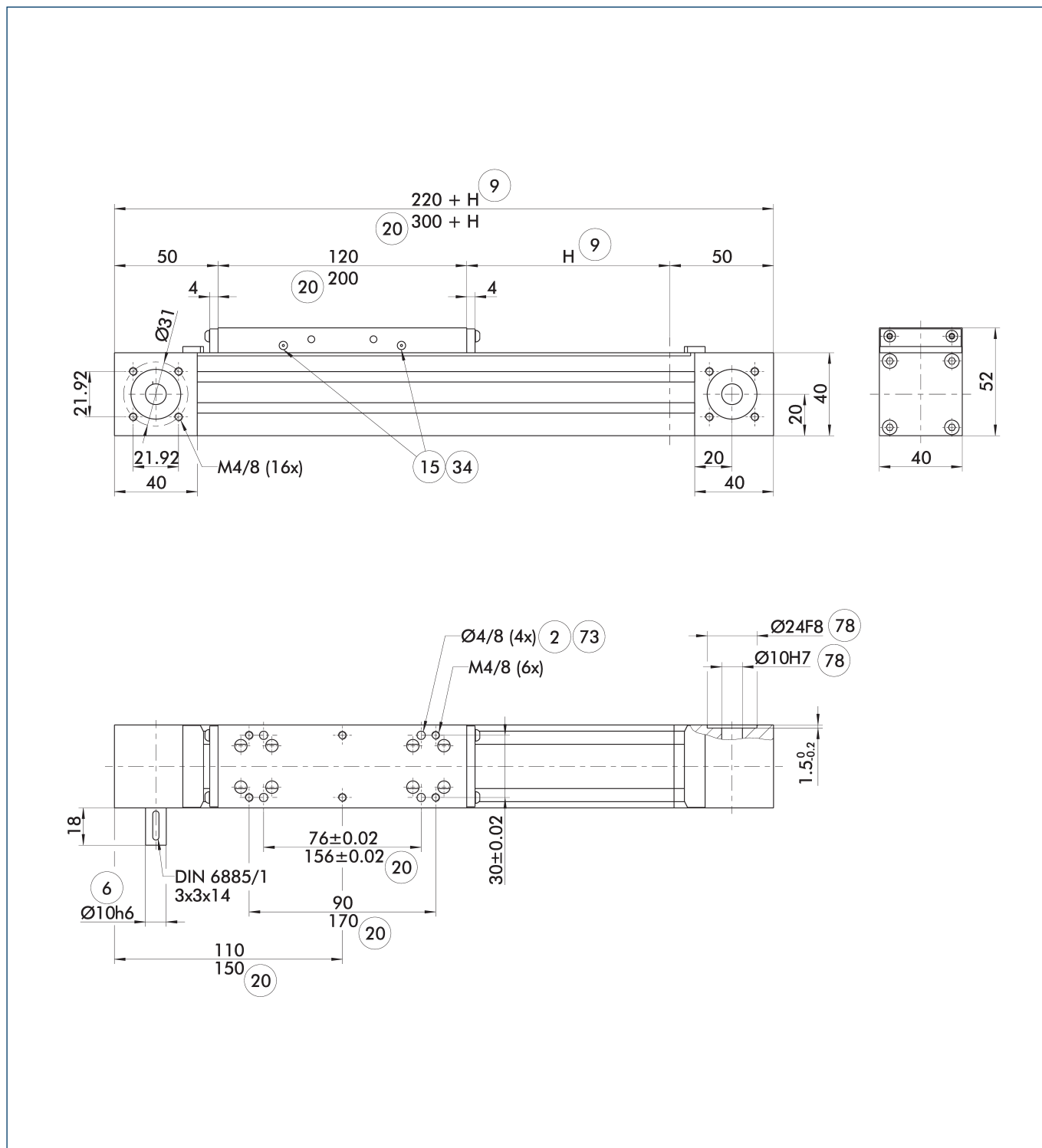
Description		B 40-ZSS	B 40-SSS
Max. stroke H	[mm]	1850	1840
Max. driving force	[N]	500	1000
Repeat accuracy	[mm]	±0.08	±0.03
Max. total length	[mm]	2070	2040
Max. speed	[m/s]	3	0.5
Max. acceleration	[m/s <sup>2</sup> ]	30	20
Min./max. ambient temperature	[°C]	0/80	0/80
Dead weight of base including slide	[kg]	1.7	1.7
Additional mass per 100 mm stroke	[kg]	0.3	0.4
Weight of slide	[kg]	0.3	0.4
Dead weight of slide, long	[kg]	0.5	0.65
Guidance system		Rail guide	Rail guide
Number of rails		1	1
Size of rails		12	12
Drive concept		Belt drive	Spindle drive
Idle torque	[Nm]	0.3	0.4
Moment of inertia	[kgm <sup>2</sup> ]	0.0002	0.0000113
Toothed belt type		16 AT 5-E	
Traverse path per revolution	[mm]	100	
Spindle diameter	[mm]		12
Spindle pitch	[mm]		5/10
Max. spindle speed	[1/min]		3000

① Please note that the long slide plates and the use of spindle supports (SA) reduce the maximum stroke H. SCHUNK standard spindle supports with noise damping (SAG) reduce the maximum stroke by 10 mm for every 2 SAG. Please note that the moment of inertia for spindle axes refers to one meter.

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

\*\* The diagram shows the maximum spindle speed depending on the speed of the spindle supports (SA) and the overall length of the unit.

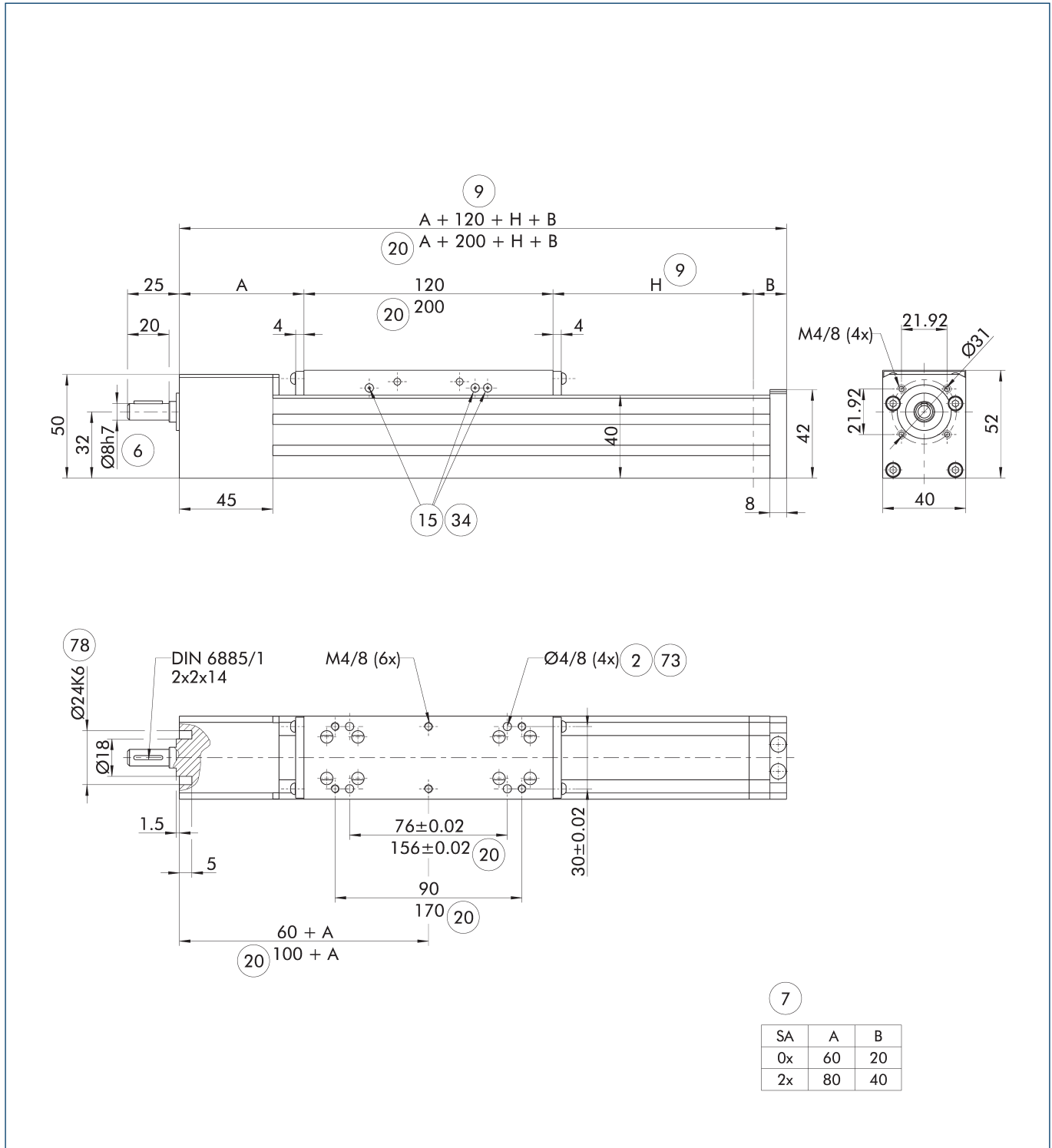
## ZSS main view



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

- |                         |                          |
|-------------------------|--------------------------|
| ② Attachment connection | ⑳ With long slide plate  |
| ⑥ Drive connection      | ⑳ On both sides          |
| ⑨ Nominal stroke        | ⑳ Fit for centering pins |
| ⑮ Lubricant connection  | ⑳ Fit for centering      |

## SSS main view

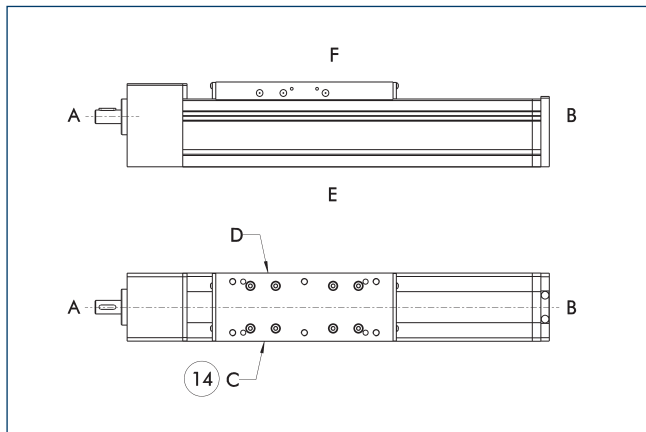


The drawing shows the unit in standard design, without considering any dimensions of the options described below.

① SCHUNK standard spindle supports with noise damping (SAG) reduce the maximum stroke by 10 mm for every 2 SAG.

- ② Attachment connection
- ③ With long slide plate
- ④ Drive connection
- ⑤ On both sides
- ⑥ Number of spindle supports
- ⑦ Fit for centering pins
- ⑧ Nominal stroke
- ⑨ Fit for centering
- ⑩ Lubricant connection

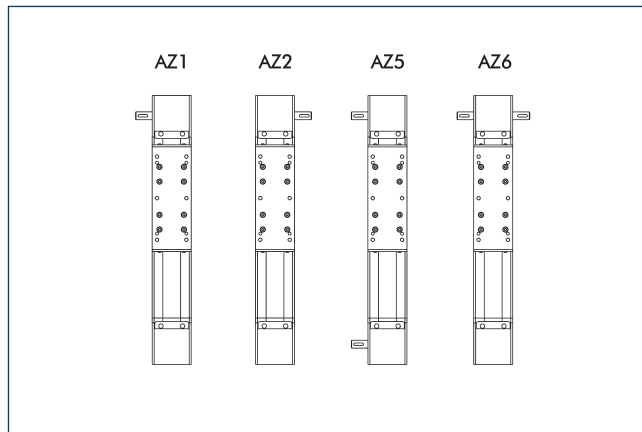
## Side definition



14 Limit switch standard position

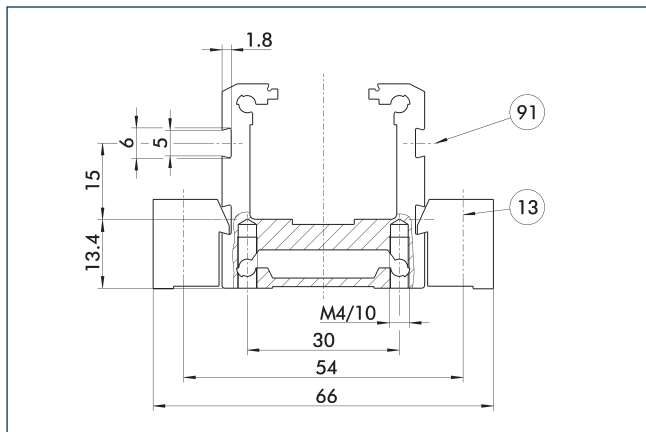
This drawing indicates the definition for the sides. This serves as the basis for all attachments.

## 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.

## Mounting

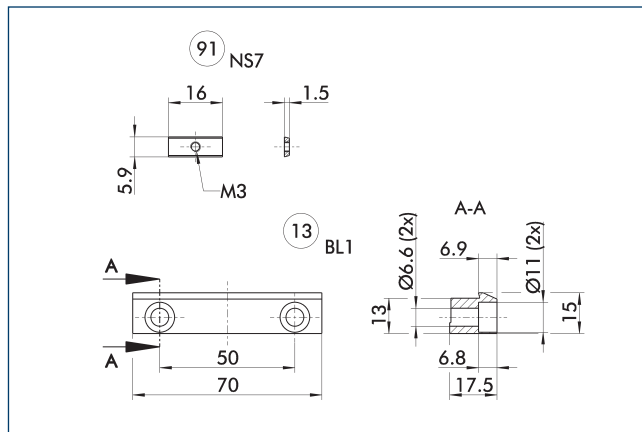


13 Mounting strip

91 Side T-nut

The drawing shows the position of the mounting options.

## Fastening elements



13 Mounting strip

91 Side T-nut

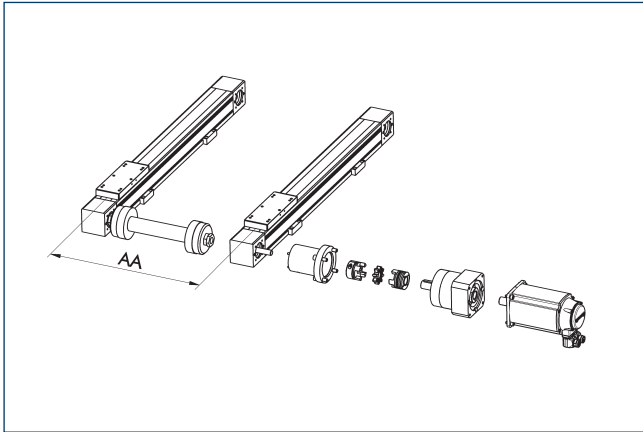
The unit can be secured either by using T-nuts or mounting strips. The exact mounting position is indicated on the adjacent attachment illustration.

Description	ID	
Mounting strip		
BL1-70x15x17.5-01	0331400	
T-nut		
NS 7-M3	0331423	

# Beta 40

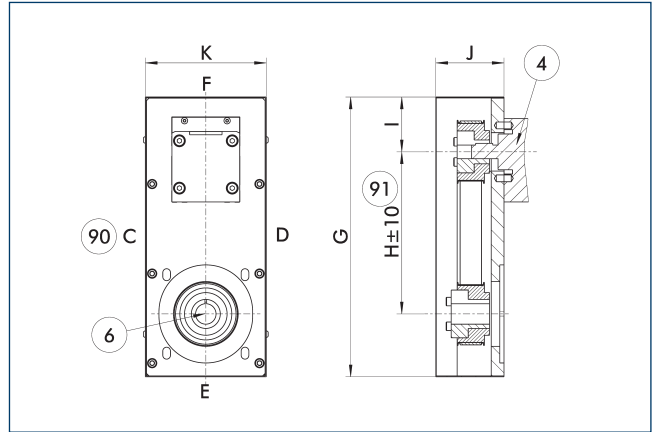
Universal linear module

## Connection shaft



Description	Connection shaft	Min. AA [mm]
B 40-ZSS	GX1	170

## Angle belt drive



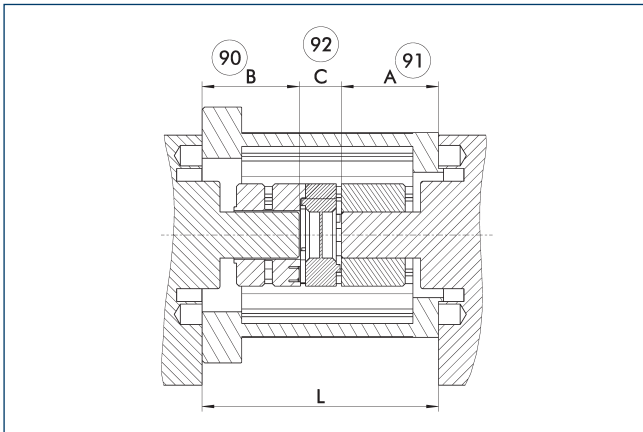
- ④ Linear unit
- ⑥ Drive connection
- ⑨⑩ Attachment direction of angle belt drive
- ⑨① Dependent on transmission ratio and toothed belt design.

The angle belt drive makes it possible to achieve various drive solutions in confined spaces. SCHUNK offers the suitable angle gear for your drive.

Description	G	H	I	J	K
	[mm]	[mm]	[mm]	[mm]	[mm]
B 40-SSS	195	105	41	45	90

- ① Possible transmission ratios:  $i = 1 : 1$ ,  $i = 2 : 1$  and  $i = 3 : 1$

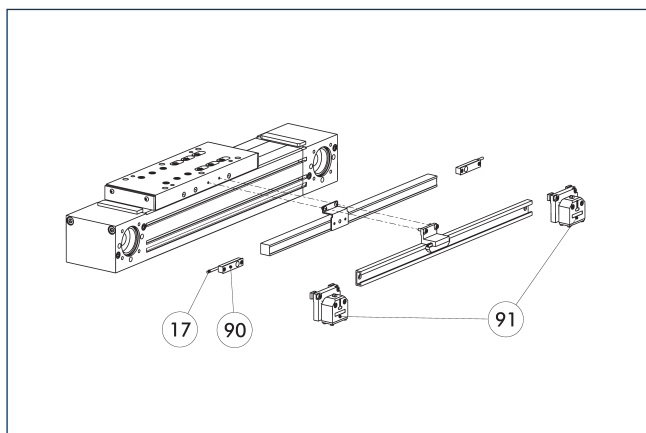
## Motor flange schematic diagram



- 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

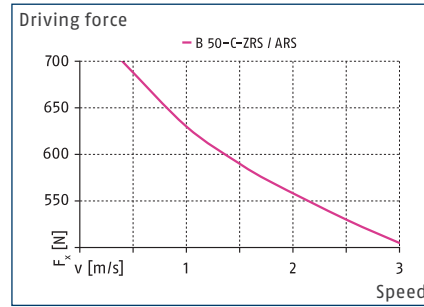
Generally two E0-02 switches are used as limit switches and one ES-02 is used as reference switch.

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	

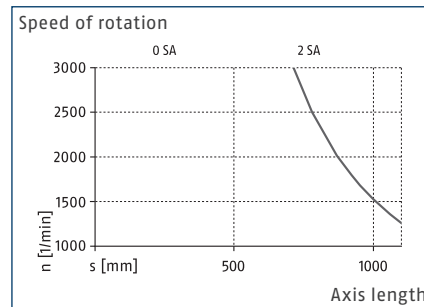
- ① The positions and dimensions of limit switches, switching lugs, and mounting components may vary depending on the application and the selected limit switches. Please contact us for assistance.



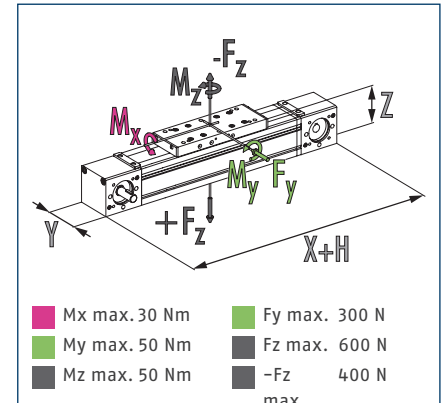
### Max. driving force (toothed belt)\*



### Spindle supports\*\*



### 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

Description		B 50-C-ZRS	B 50-C-ARS	B 50-C-SRS
Max. stroke H	[mm]	7710	7710	860
Max. driving force	[N]	700	700	1000
Repeat accuracy	[mm]	±0.08	±0.08	±0.03
Max. total length	[mm]	8000	8000	1090
Max. speed	[m/s]	3	3	0.5
Max. acceleration	[m/s <sup>2</sup> ]	30	30	20
Min./max. ambient temperature	[°C]	0/80	0/80	0/80
Dead weight of base including slide	[kg]	1.45	3.1	1.5
Additional mass per 100 mm stroke	[kg]	0.35	0.3	0.4
Weight of slide	[kg]	0.45		0.45
Dead weight of slide, long	[kg]	0.6		0.6
Weight of slide drive	[kg]		1.3	
Guidance system		Roller guide	Roller guide	Roller guide
Roll diameter	[mm]	20	20	20
Drive concept		Belt drive	Belt drive	Spindle drive
Idle torque	[Nm]	0.4	1.5	0.3
Moment of inertia	[kgm <sup>2</sup> ]	0.0003	0.0003	0.0000113
Toothed belt type		20 AT 5-E	20 AT 5-E	
Traverse path per revolution	[mm]	110	110	
Spindle diameter	[mm]			12
Spindle pitch	[mm]			5/10
Max. spindle speed	[1/min]			3000

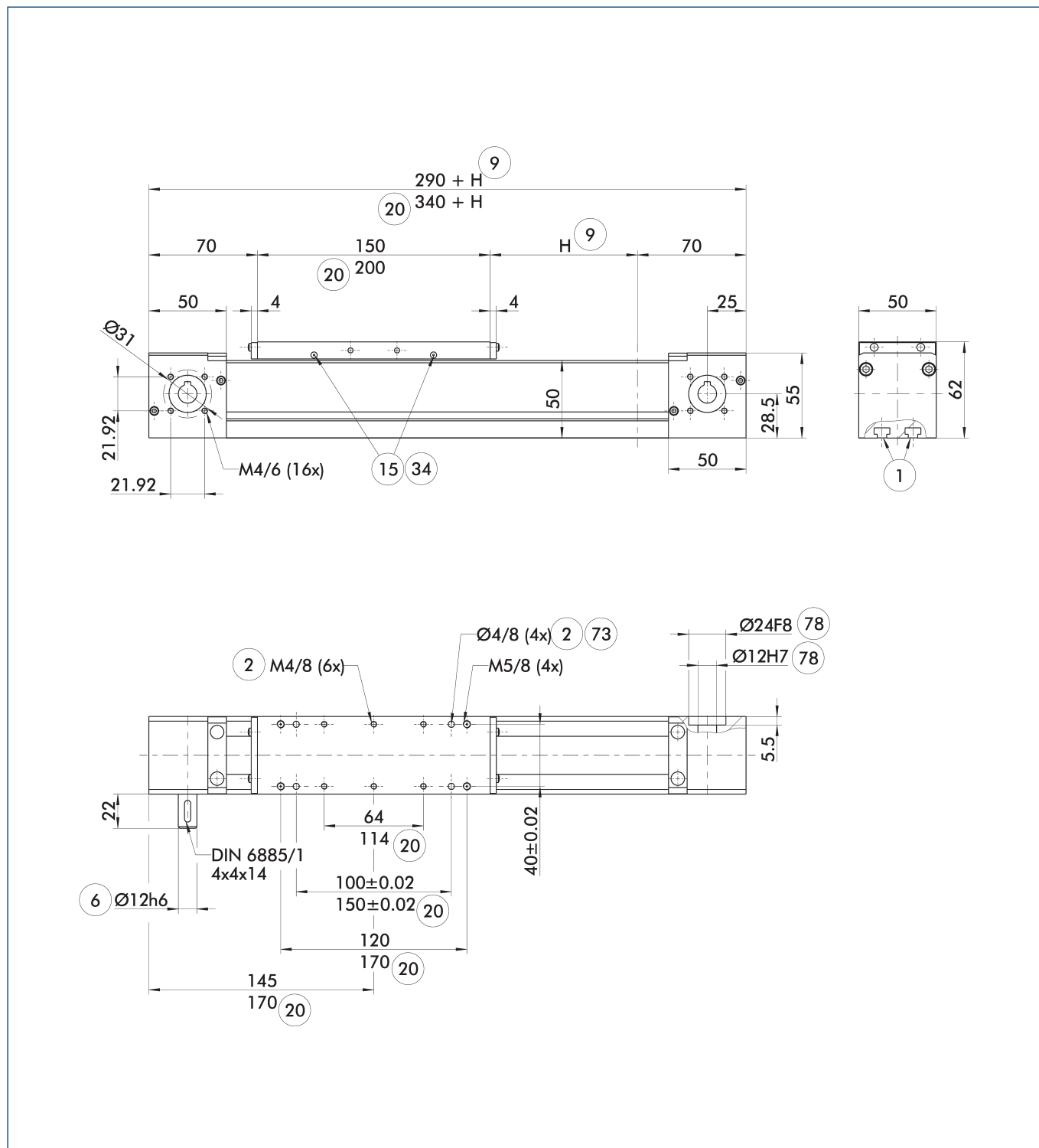
① Please note that the long slide plates and the use of spindle supports (SA) reduce the maximum stroke H. SCHUNK standard spindle supports with noise damping (SAG) reduce the maximum stroke by 10 mm for every 2 SAG. Please note that the moment of inertia for spindle axes refers to one meter.

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

\*\* The diagram shows the maximum spindle speed depending on the speed of the spindle supports (SA) and the overall length of the unit.



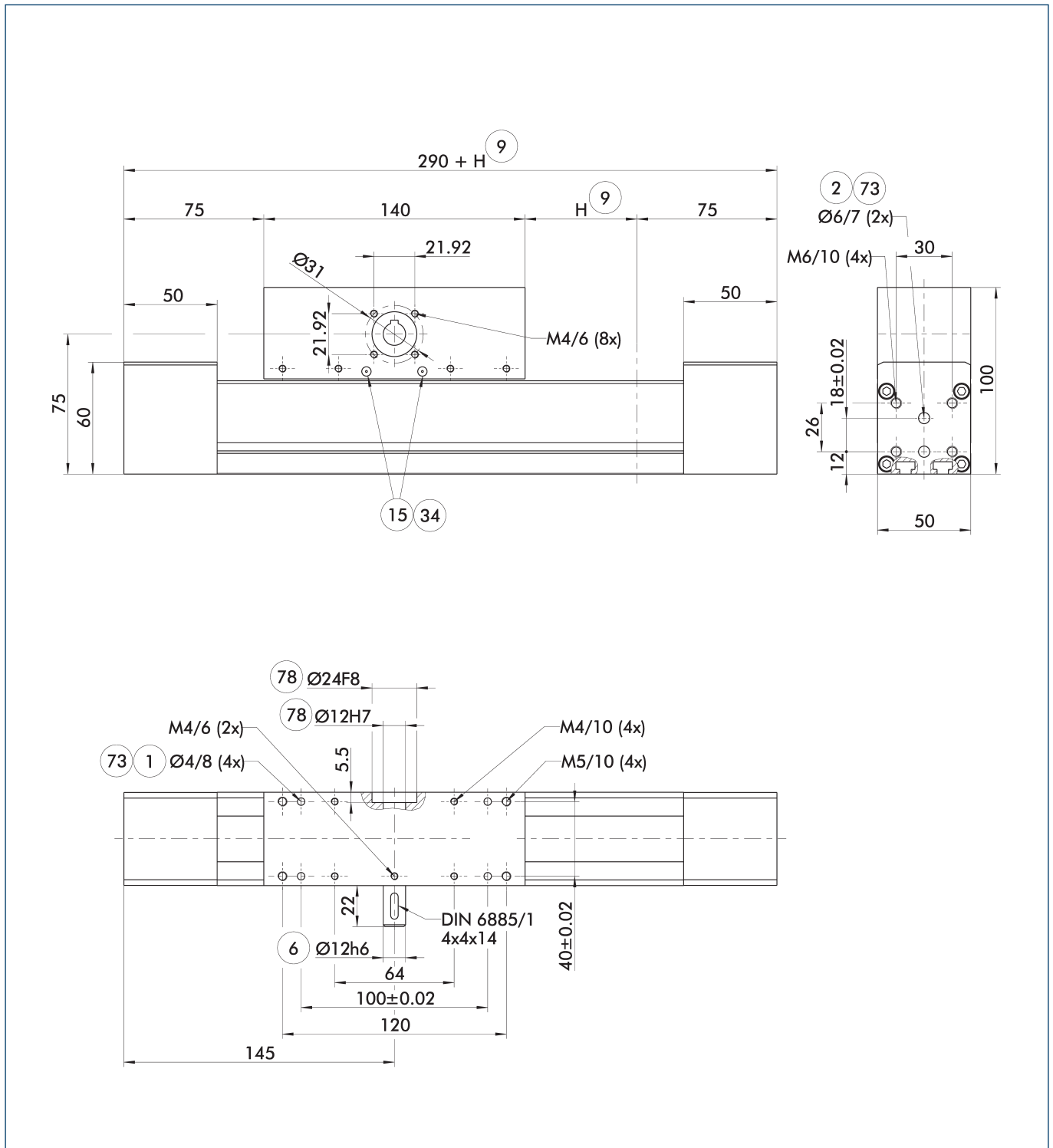
C-ZRS main view



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
- ㉓ On both sides
- ㉗ Fit for centering pins
- ㉘ Fit for centering

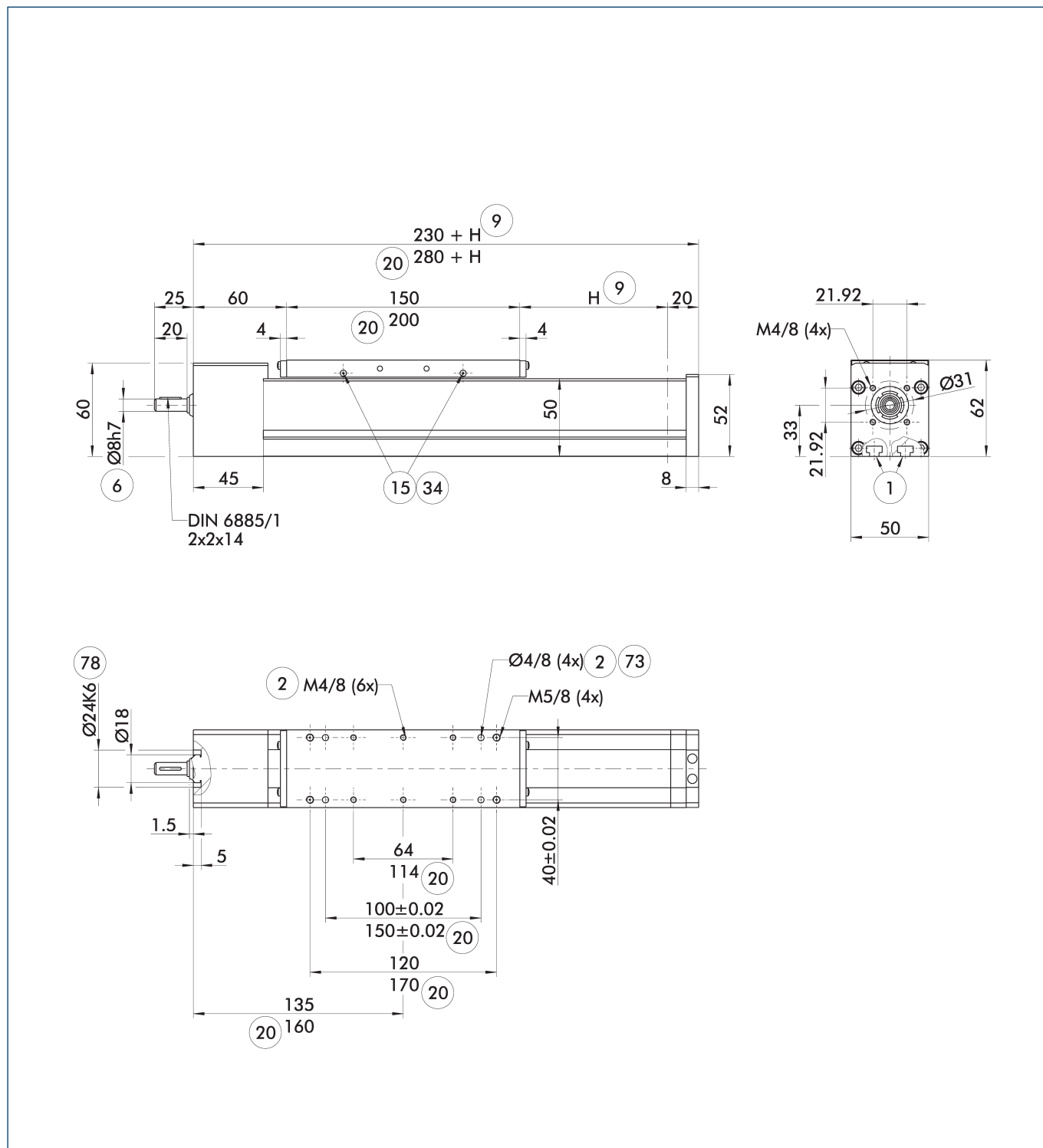
## C-ARS main view



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 Fit for centering pins |
| ⑨ Nominal stroke         | ㉒ Fit for centering      |

## C-SRS main view



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

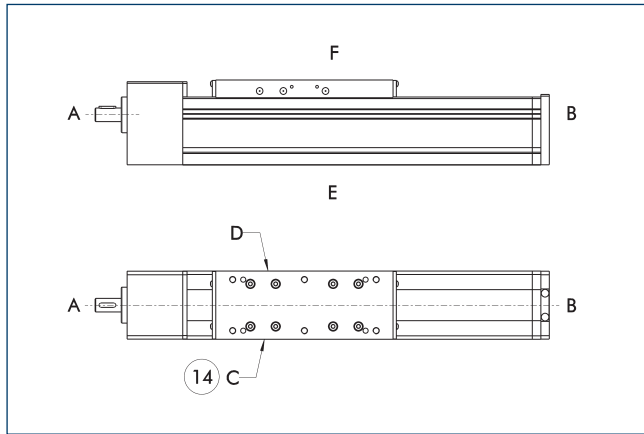
① SCHUNK standard spindle supports with noise damping (SAG) reduce the maximum stroke by 10 mm for every 2 SAG.

- |                          |                           |
|--------------------------|---------------------------|
| ① Connection linear unit | ②⑩ With long side plate   |
| ② Attachment connection  | ③④ On both sides          |
| ⑥ Drive connection       | ⑦⑩ Fit for centering pins |
| ⑨ Nominal stroke         | ⑧⑩ Fit for centering      |
| ⑮ Lubricant connection   |                           |

# Beta 50

Universal linear module

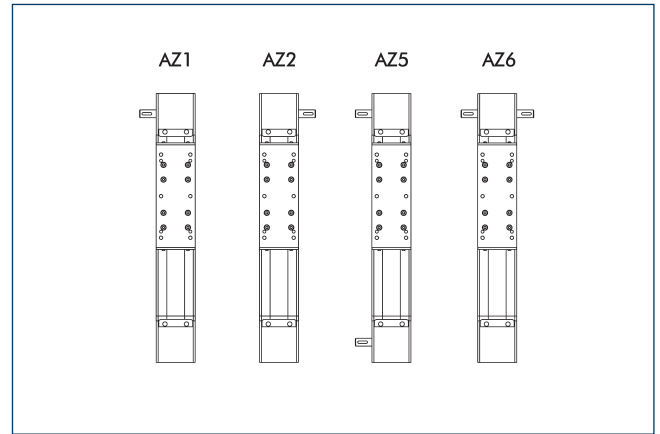
## Side definition



⑭ Limit switch standard position

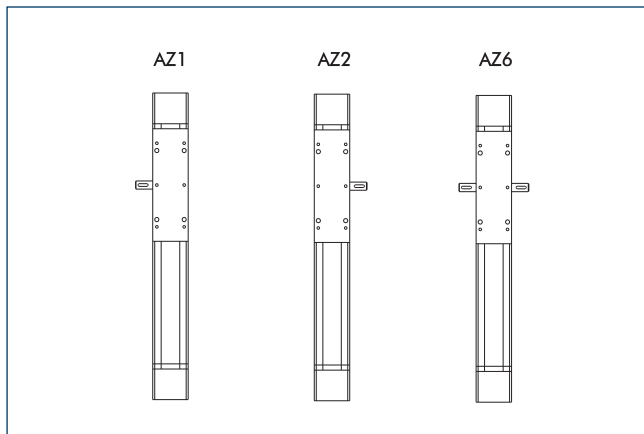
This drawing indicates the definition for the sides. This serves as the basis for all attachments.

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



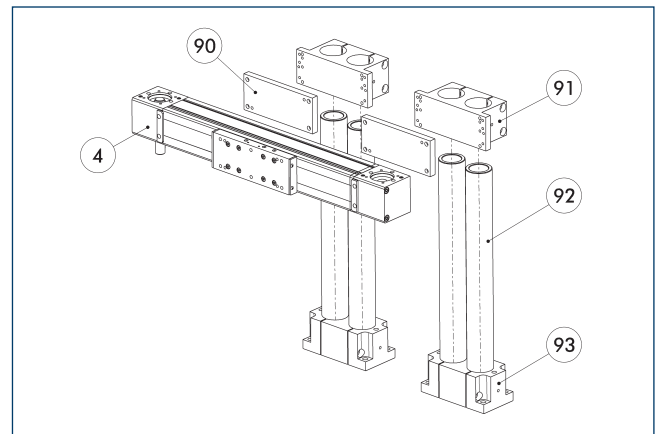
Depending on the axis application, the seat of the drive shaft has to be defined in the order text. Particularly with axis combinations and mechanical synchronization, several drive shafts are required.

## Drive shafts 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.

## Attachment to a pillar assembly system

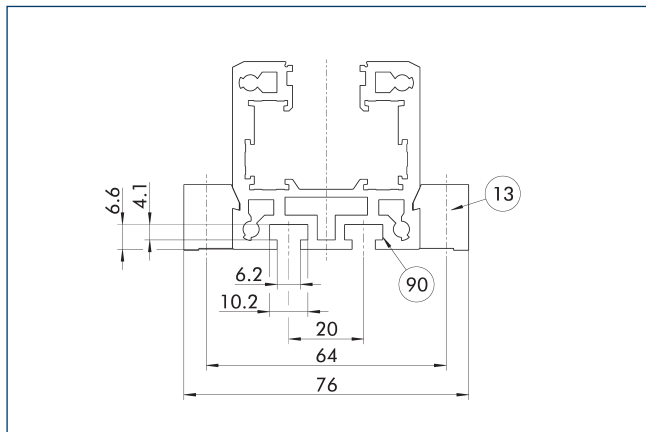


- ④ Linear unit
- ⑨② Pillars, hard-chromium plated, ground
- ⑨① Adapter plate AGH
- ⑨③ Double socket S0D
- ⑨① ADV mounting plate

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			
ADV 55	0313517	55	Aluminum
AEV 55	0313516	55	Aluminum
APDH 85	0313414	55	Aluminum
APEH 85	0313413	55	Aluminum

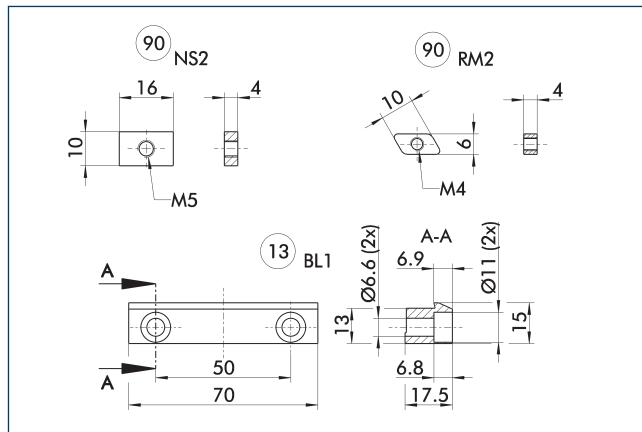
Mounting



13 Mounting strip      90 T-nut at the bottom side

The drawing shows the position of the mounting options.

Fastening elements

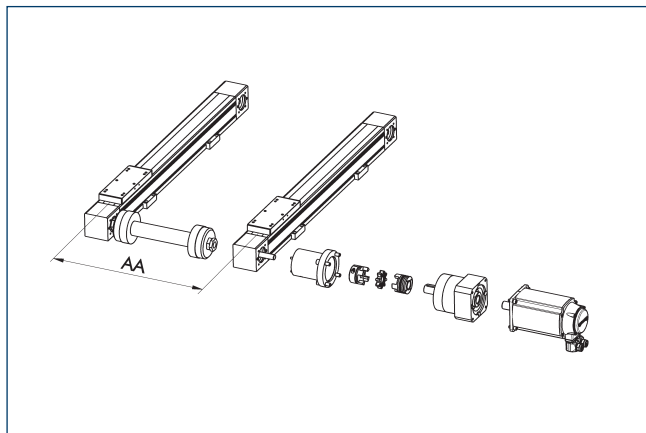


13 Mounting strip      90 T-nut at the bottom side

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

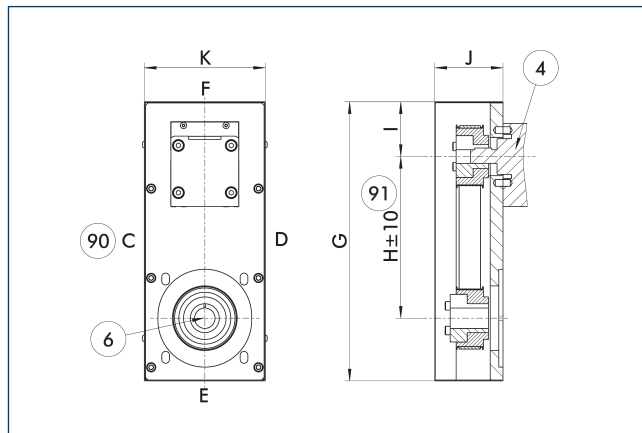
Description	ID	
Mounting strip		
BL1-70x15x17.5-01	0331400	
T-nut		
NS 2-M5	0331405	
RM2-M4	0331425	

Connection shaft



Description	Connection shaft	Min. AA
		[mm]
B 50-C-ZRS	GX1	190

Angle belt drive



4 Linear unit      90 Attachment direction of angle belt drive  
 6 Drive connection      91 Dependent on transmission ratio and toothed belt design.

The angle belt drive makes it possible to achieve various drive solutions in confined spaces. SCHUNK offers the suitable angle gear for your drive.

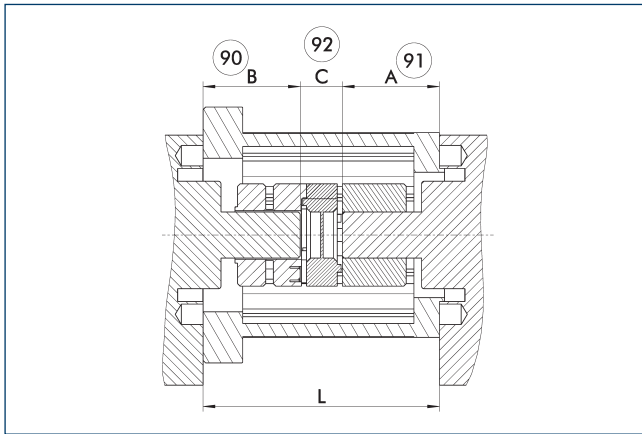
Description	G	H	I	J	K
	[mm]	[mm]	[mm]	[mm]	[mm]
B 50-C-SRS	195	105	41	45	90

① Possible transmission ratios:  $i = 1 : 1$ ,  $i = 2 : 1$  and  $i = 3 : 1$

# Beta 50

Universal linear module

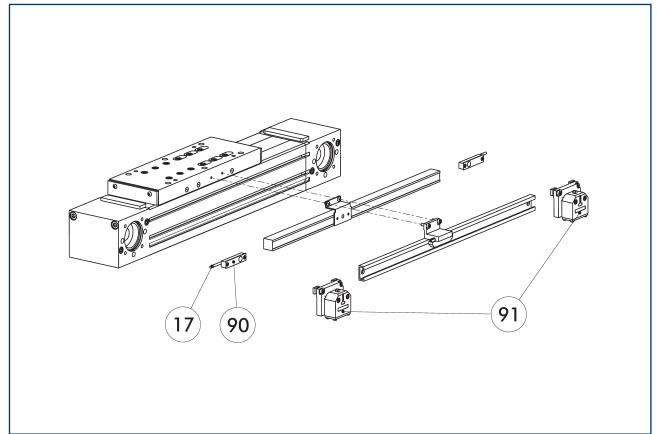
## Motor flange schematic diagram



- 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



- ⑩⑦ Cable outlet
- ⑩⑨ Inductive limit and reference switches
- ⑩① Mechanical limit switches

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

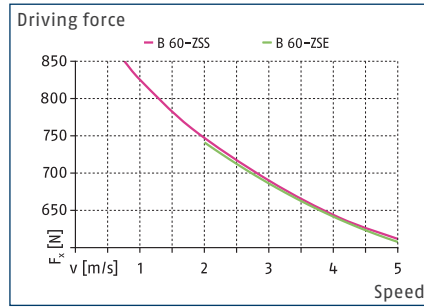
Description	ID	Often combined
<b>Inductive limit switch</b>		
E0-02	0331410	●
E0-10	0331412	
ES-02	0331411	●
ES-10	0331413	
<b>Mechanical limit switch</b>		
EMB	0331415	●
EMS	0331414	

- ⑩ 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.

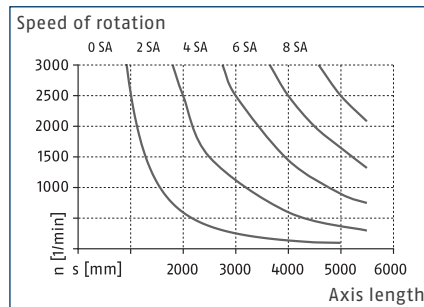




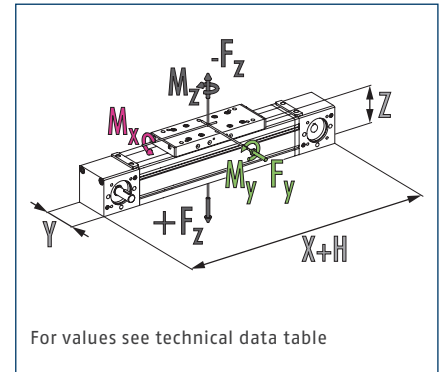
### Max. driving force (toothed belt)\*



### Spindle supports\*\*



### Dimensions and maximum loads



ⓘ 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

Description		B 60-ZSS	B 60-ZSE	B 60-SSS
Max. stroke H	[mm]	7670	7670	5220
Max. driving force	[N]	850	750	4000
Repeat accuracy	[mm]	±0.08	±0.08	±0.03
Max. total length	[mm]	8000	8000	5500
Max. speed	[m/s]	5	5	2.5
Max. acceleration	[m/s <sup>2</sup> ]	30	30	20
Min./max. ambient temperature	[°C]	0/80	0/80	0/80
Dead weight of base including slide	[kg]	4.55	3.1	4.3
Additional mass per 100 mm stroke	[kg]	0.59	0.53	0.8
Weight of slide	[kg]	1.22	0.7	1.5
Dead weight of slide, long	[kg]	1.72		1.8
Guidance system		Rail guide	Rail guide	Rail guide
Number of rails		1	1	1
Size of rails		15	15	15
Drive concept		Belt drive	Belt drive	Spindle drive
Idle torque	[Nm]	1.1	1	0.7
Moment of inertia	[kgm <sup>2</sup> ]	0.0002	0.00114	0.000084
Toothed belt type		25 AT 5-E	25 AT 5-E	
Traverse path per revolution	[mm]	160	160	
Spindle diameter	[mm]			20
Spindle pitch	[mm]			5/10/20/50
Max. spindle speed	[1/min]			3000
Moments Mx max./My max./Mz max.	[Nm]	50/160/100	40/130/80	60/180/120
Forces Fy max./Fz max./-Fz max.	[N]	500/1400/800	400/1150/640	600/1800/1200

ⓘ Please note that the long slide plates and the use of spindle supports (SA) reduce the maximum stroke H.

SCHUNK standard spindle supports with noise damping (SAG) reduce the maximum stroke by 10 mm for every 2 SAG.

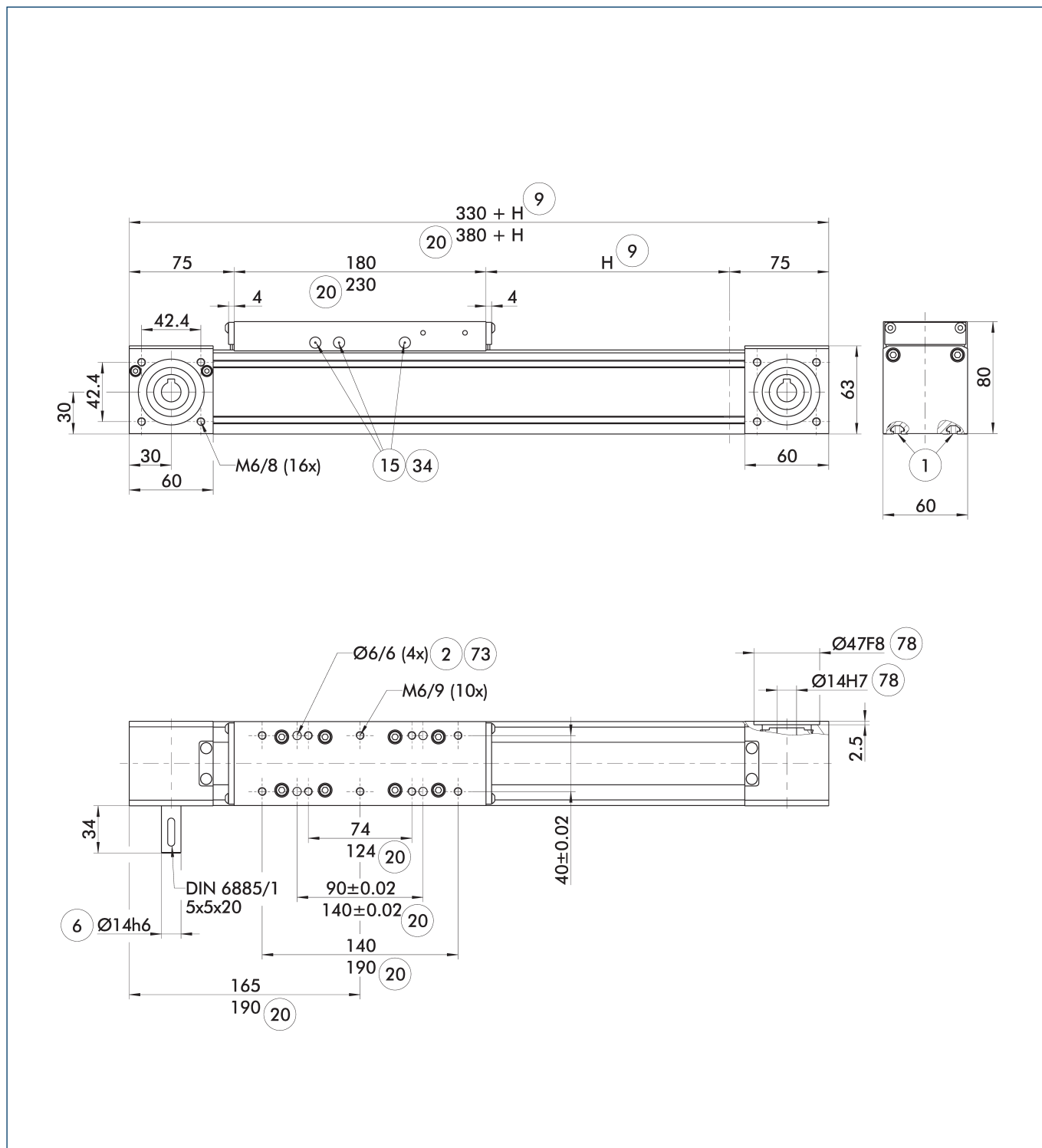
Please note that the moment of inertia for spindle axes refers to one meter.

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

\*\* The diagram shows the maximum spindle speed depending on the speed of the spindle supports (SA) and the overall length of the unit.



## ZSS main view



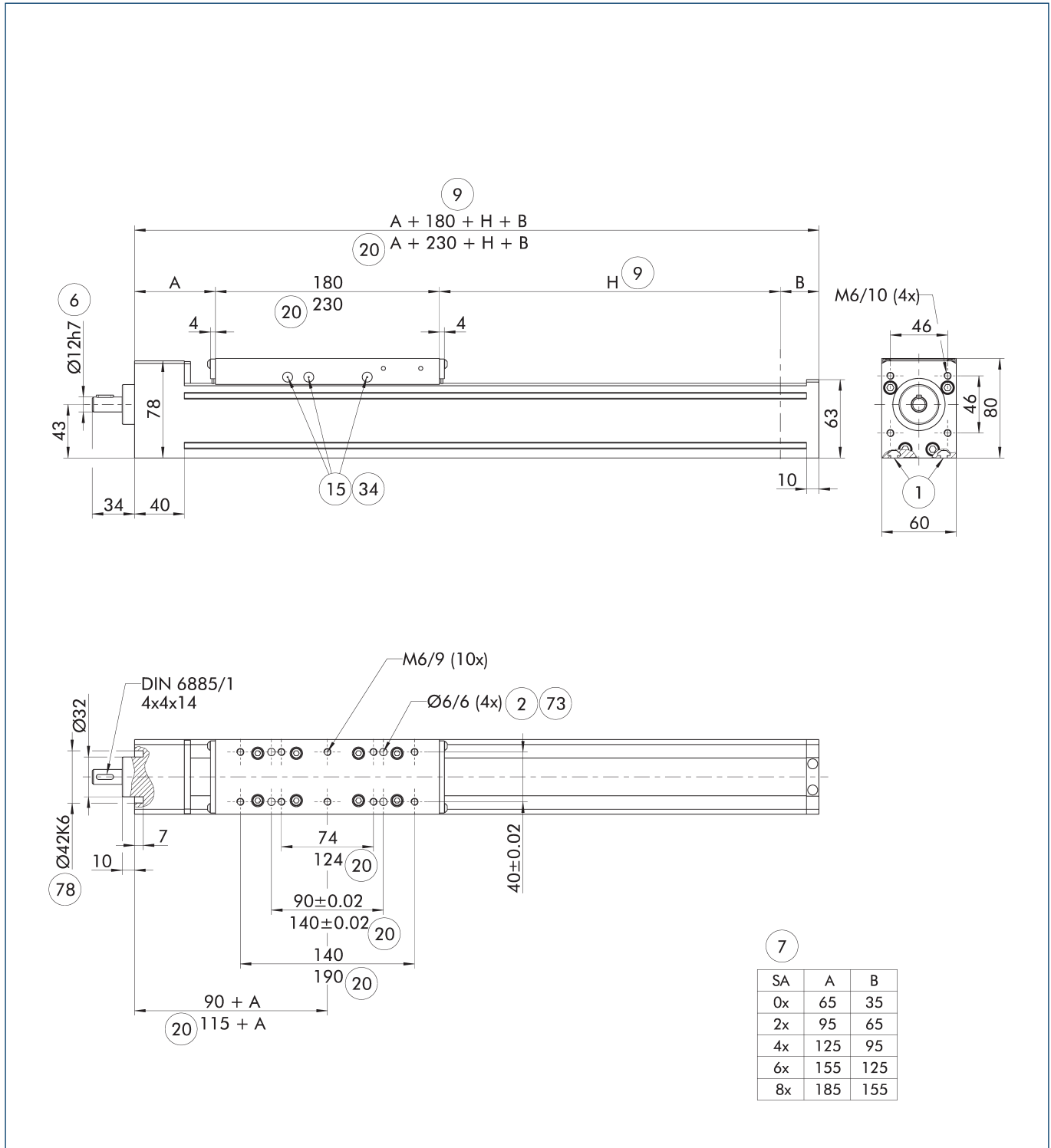
The drawing shows the unit in standard design, without considering any dimensions of the options described below.

- |                          |                           |
|--------------------------|---------------------------|
| ① Connection linear unit | ②② With long slide plate  |
| ② Attachment connection  | ③④ On both sides          |
| ⑥ Drive connection       | ⑦③ Fit for centering pins |
| ⑨ Nominal stroke         | ⑦⑧ Fit for centering      |
| ⑮ Lubricant connection   |                           |

# Beta 60

Universal linear module

## SSS main view

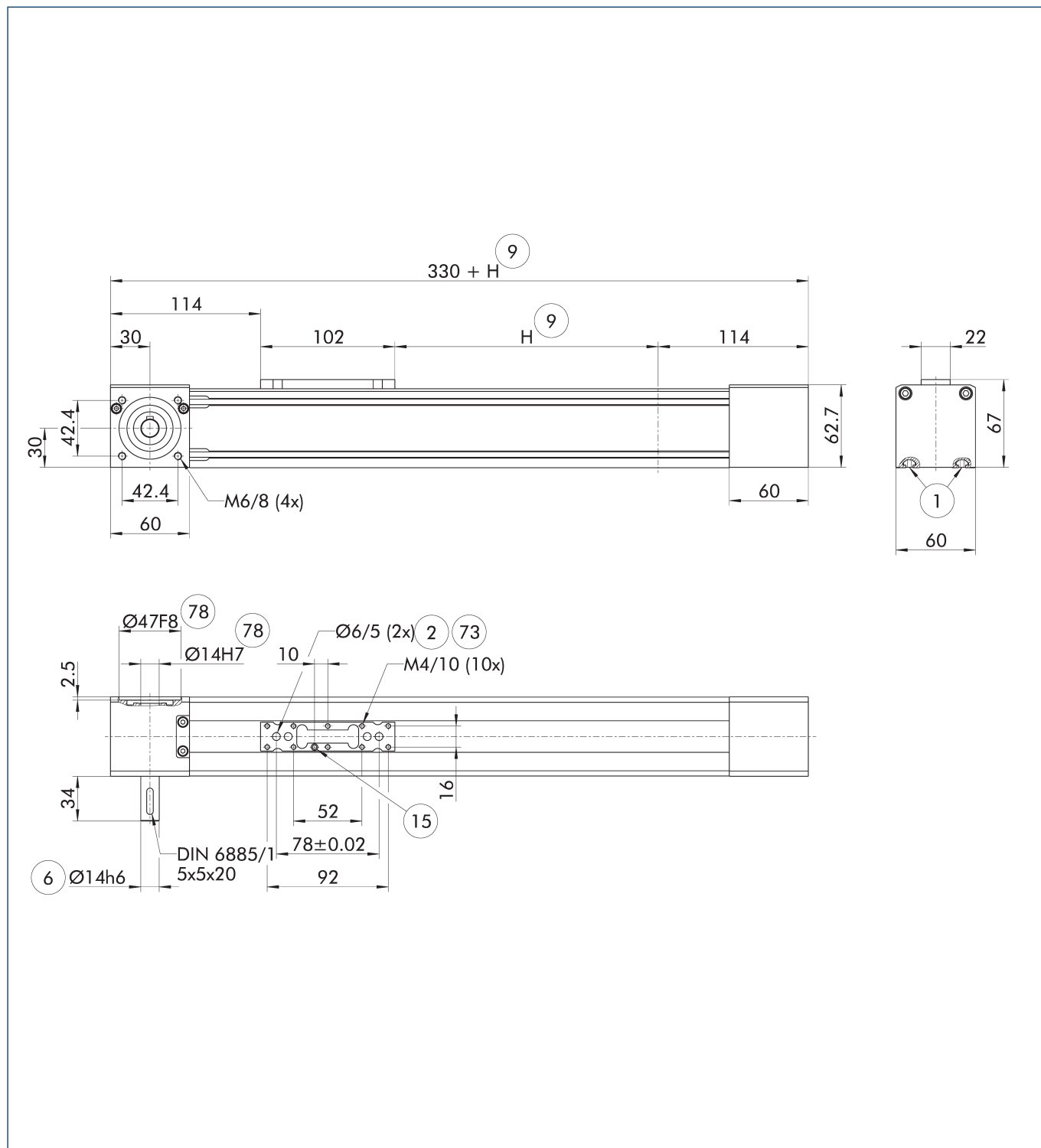


The drawing shows the unit in standard design, without considering any dimensions of the options described below.

① SCHUNK standard spindle supports with noise damping (SAG) reduce the maximum stroke by 10 mm for every 2 SAG.

- ① Connection linear unit
- ② Attachment connection
- ③ Drive connection
- ④ Nominal stroke
- ⑤ Lubricant connection
- ⑥ With long side plate
- ⑦ On both sides
- ⑧ Fit for centering pins
- ⑨ Fit for centering

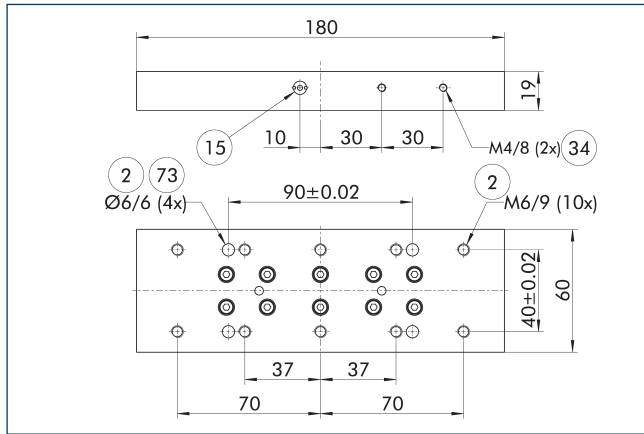
## Main view ZSE



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
- ⑦③ Fit for centering pins
- ⑦⑧ Fit for centering

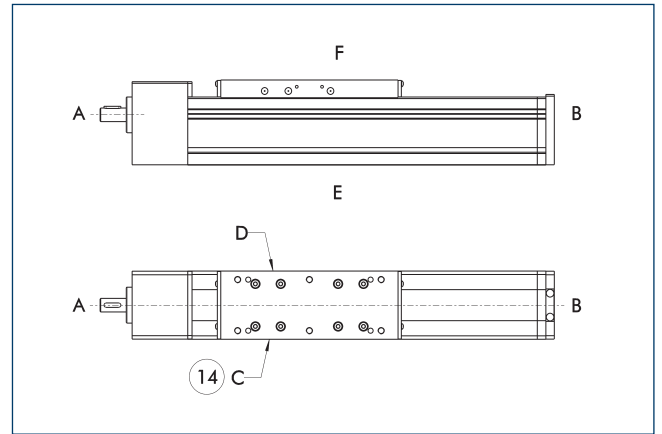
## Slide plate ZSE



- ② Attachment connection
- ③④ On both sides
- ⑮ Lubricant connection
- ⑦③ Fit for centering pins

Optionally, the variant ZSE can be ordered with a mounted slide plate. The drawing shows the position of the mounting possibilities and of the lubrication connection.

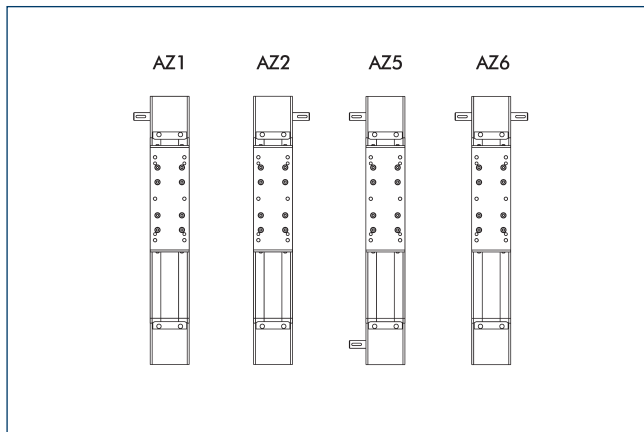
## Side definition



- ⑭ Limit switch standard position

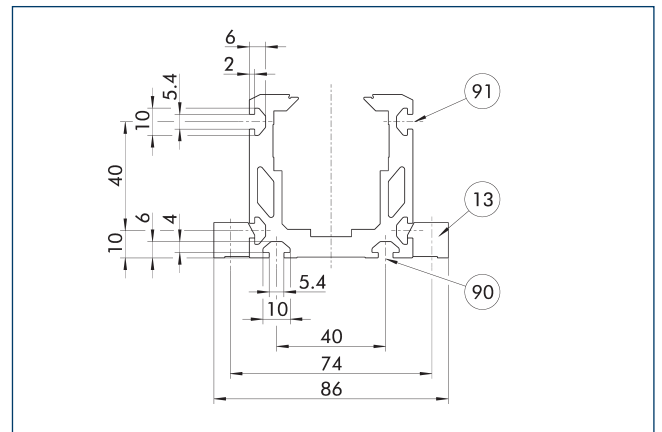
This drawing indicates the definition for the sides. This serves as the basis for all attachments.

## 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.

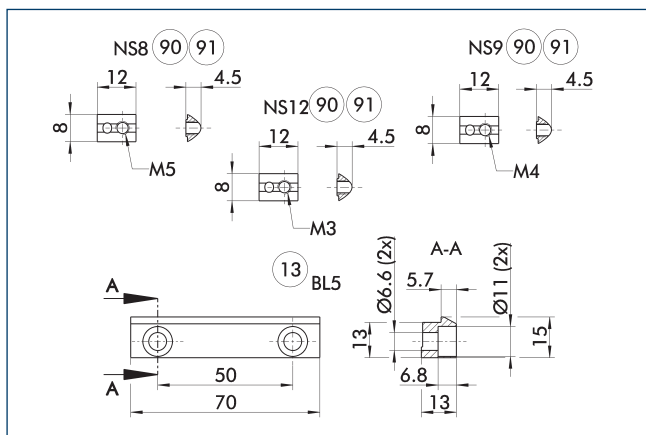
## Mounting



- ⑬ Mounting strip
- ⑨① Side T-nut
- ⑨① T-nut at the bottom side

The drawing shows the position of the mounting options.

## Fastening elements

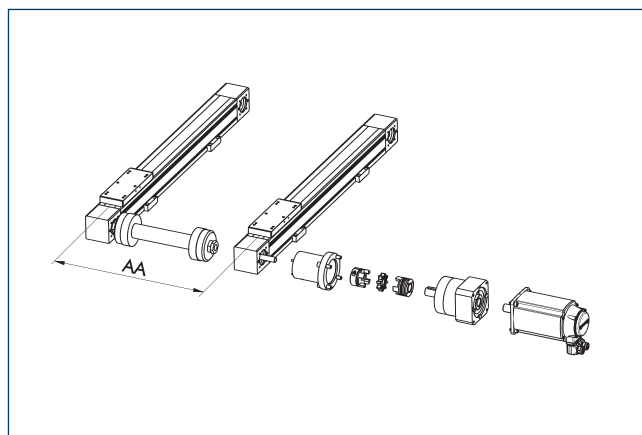


- 13 Mounting strip
- 90 T-nut at the bottom side
- 91 Side T-nut

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

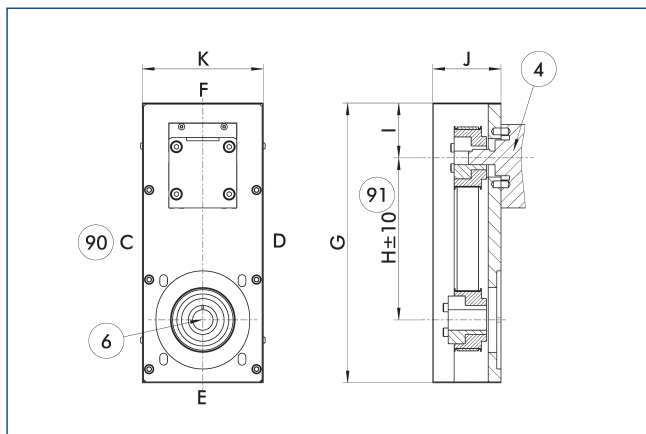
Description	ID
<b>Mounting strip</b>	
BL5-70x15x13-01	0331419
<b>T-nut</b>	
NS 12-M3	0331424
NS 8-M5	0331420
NS 9-M4	0331421

## Connection shaft



Description	Connection shaft	Min. AA [mm]
B 60-ZSS	GX2	205
B 60-ZSE	GX2	205
B 60-SSS	GX2	320

## Angle belt drive



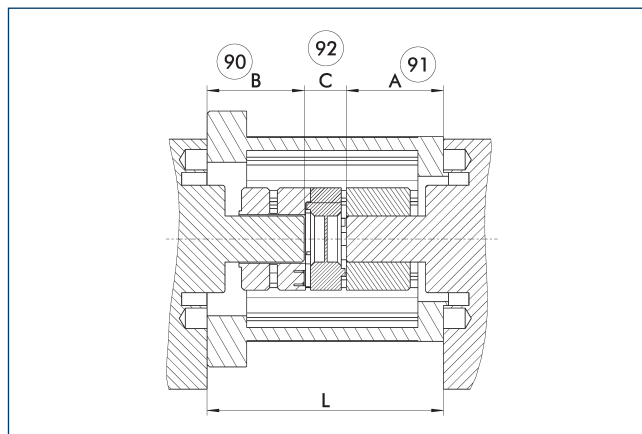
- 4 Linear unit
- 6 Drive connection
- 90 Attachment direction of angle belt drive
- 91 Dependent on transmission ratio and toothed belt design.

The angle belt drive makes it possible to achieve various drive solutions in confined spaces. SCHUNK offers the suitable angle gear for your drive.

Description	G	H	I	J	K
	[mm]	[mm]	[mm]	[mm]	[mm]
B 60-SSS	238	120	46	52	102

① Possible transmission ratios:  $i = 1 : 1$ ,  $i = 2 : 1$  and  $i = 3 : 1$

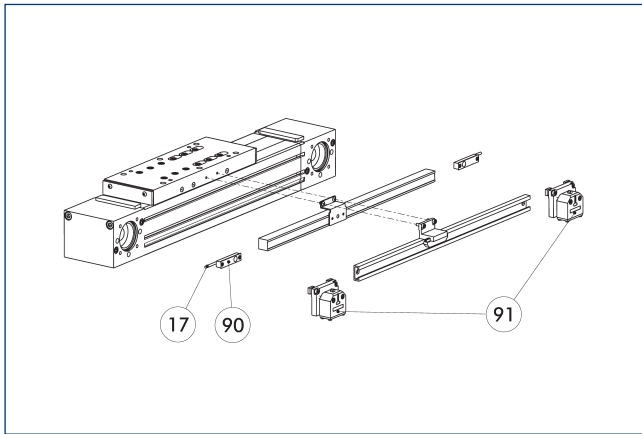
## Motor flange schematic diagram



- 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
- 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.

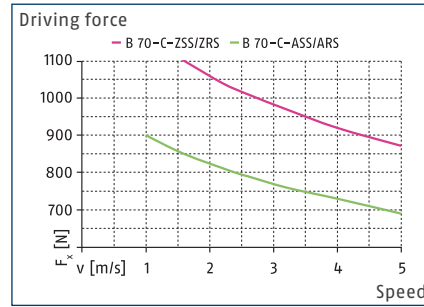
Description	ID	Often combined
<b>Inductive limit switch</b>		
E0-02	0331410	●
E0-10	0331412	
ES-02	0331411	●
ES-10	0331413	
<b>Mechanical limit switch</b>		
EMB	0331415	●
EMS	0331414	

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.

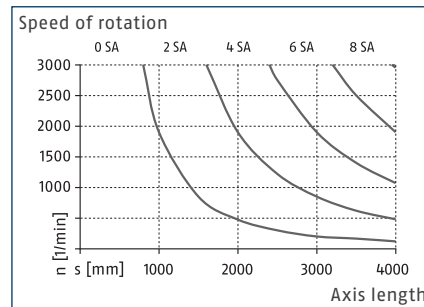




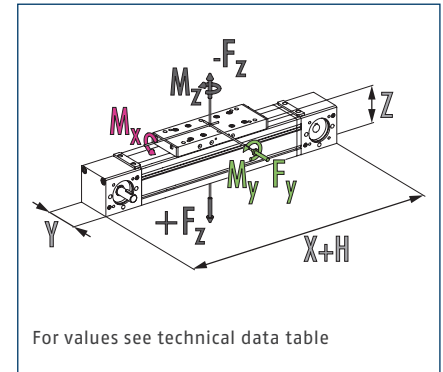
### Max. driving force (toothed belt)\*



### Spindle supports\*\*



### 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

Description		B 70-C-ZSS	B 70-C-ZRS	B 70-C-ASS	B 70-C-ARS	B 70-C-SSS	B 70-C-SRS
Max. stroke H	[mm]	6840	7640	7640	7640	3725	3725
Max. driving force	[N]	1100	1100	900	900	2000	2000
Repeat accuracy	[mm]	±0.08	±0.08	±0.08	±0.08	±0.03	±0.03
Max. total length	[mm]	7200	8000	8000	8000	4000	4000
Max. speed	[m/s]	5	8	5	5	2	2
Max. acceleration	[m/s <sup>2</sup> ]	30	30	30	30	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]	3.4	3.1	7.9	7.5	3.5	3.65
Additional mass per 100 mm stroke	[kg]	0.6	0.45	0.59	0.44	0.71	0.56
Weight of slide	[kg]	1.65	1.3			1.25	1.6
Dead weight of slide, long	[kg]	2.1	1.65			1.6	2.02
Weight of slide drive	[kg]			5.5	5		
Guidance system		Rail guide	Roller guide	Rail guide	Roller guide	Rail guide	Roller guide
Number of rails		1		1		1	
Size of rails		15		15		15	
Roll diameter	[mm]		20		20		20
Drive concept		Belt drive	Belt drive	Belt drive	Belt drive	Spindle drive	Spindle drive
Idle torque	[Nm]	1.2	1.2	1	1	0.4	0.35
Moment of inertia	[kgm <sup>2</sup> ]	0.0002	0.0004	0.0061	0.0061	0.0000332	0.0000332
Toothed belt type		32 AT 5-E	32 AT 5-E	32 AT 5-E	32 AT 5-E		
Traverse path per revolution	[mm]	175	175	220	220		
Spindle diameter	[mm]					16	16
Spindle pitch	[mm]					5/10/20/40	5/10/20/40
Max. spindle speed	[1/min]					3000	3000
Moments M <sub>x</sub> max./M <sub>y</sub> max./M <sub>z</sub> max.	[Nm]	60/180/120	35/120/50	60/180/120	35/120/50	60/180/120	35/120/60
Forces F <sub>y</sub> max./F <sub>z</sub> max./-F <sub>z</sub> max.	[N]	600/1800/1200	300/1000/400	600/1800/1200	300/1000/400	600/1800/1200	300/1000/400

① Please note that the long slide plates and the use of spindle supports (SA) reduce the maximum stroke H.  
 SCHUNK standard spindle supports with noise damping (SAG) reduce the maximum stroke by 10 mm for every 2 SAG.  
 Please note that the moment of inertia for spindle axes refers to one meter.

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

\*\* \*\*The diagram shows the maximum spindle speed depending on the speed of the spindle supports (SA) and the overall length of the unit. Only 6 SA possible with SRS version.

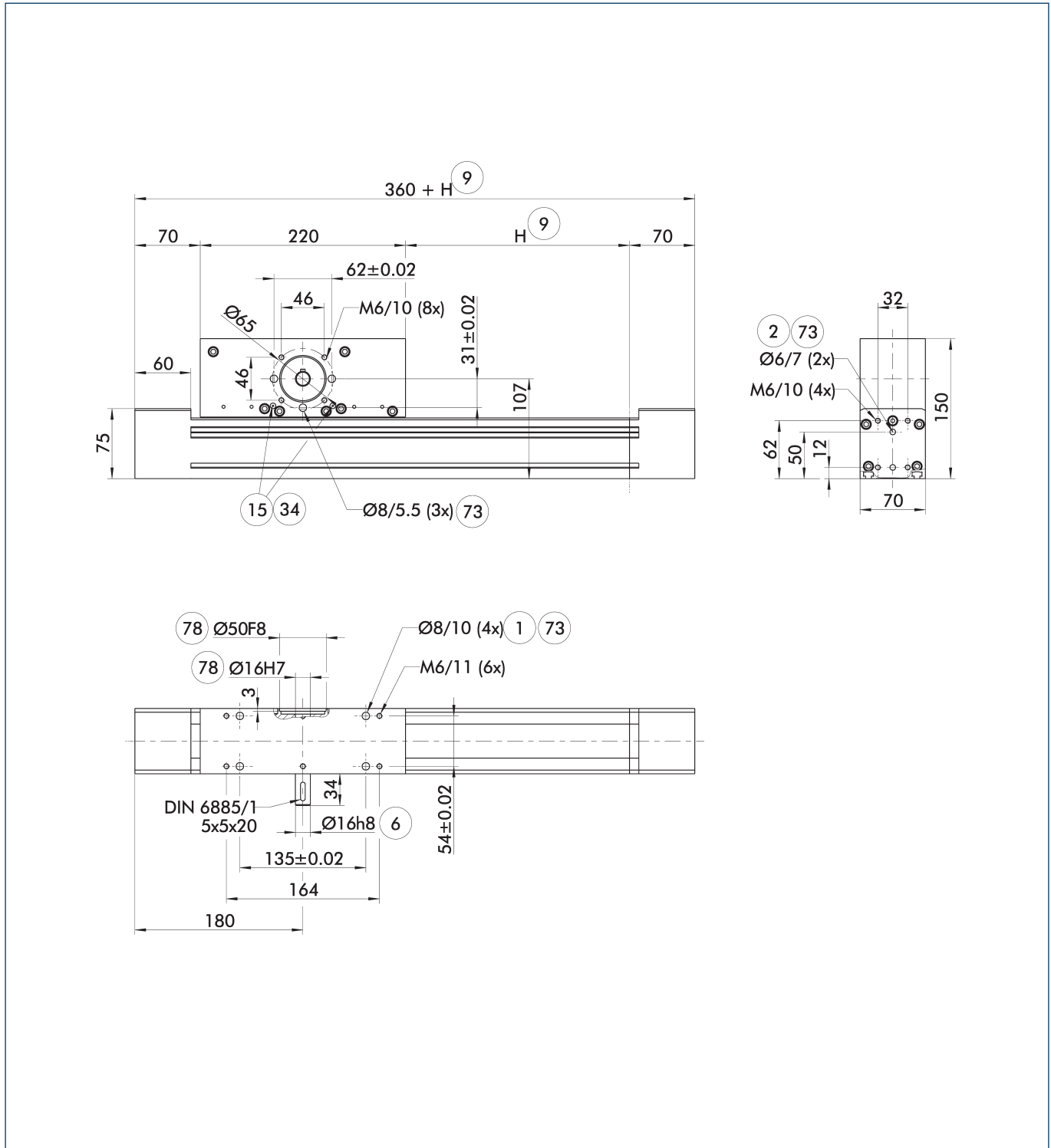




# Beta 70

Universal linear module

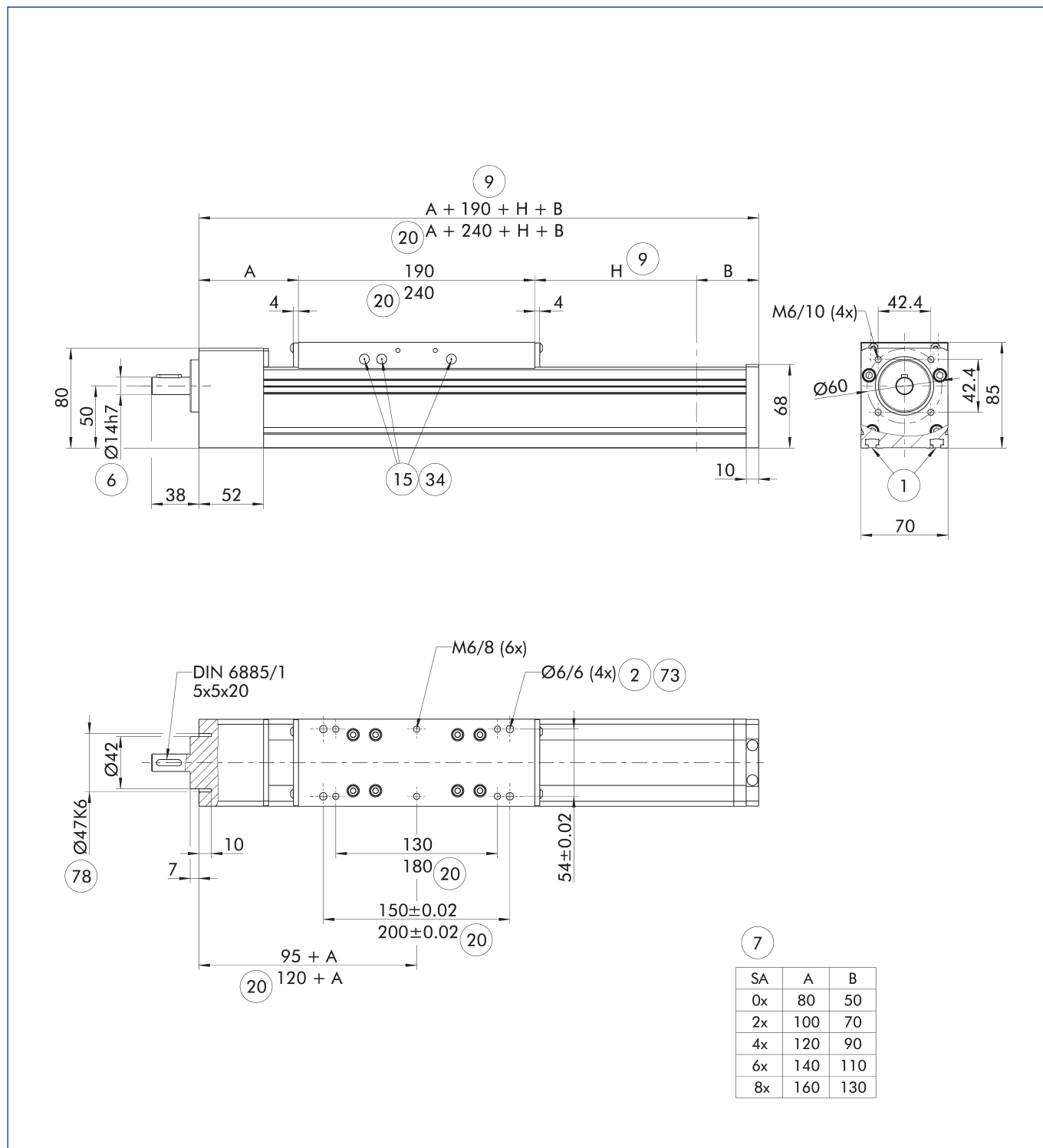
## C-ASSIARS main view



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          |
| ③ Drive connection       | ㉑ Fit for centering pins |
| ④ Nominal stroke         | ㉒ Fit for centering      |

## C-SSS/SRS main view



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

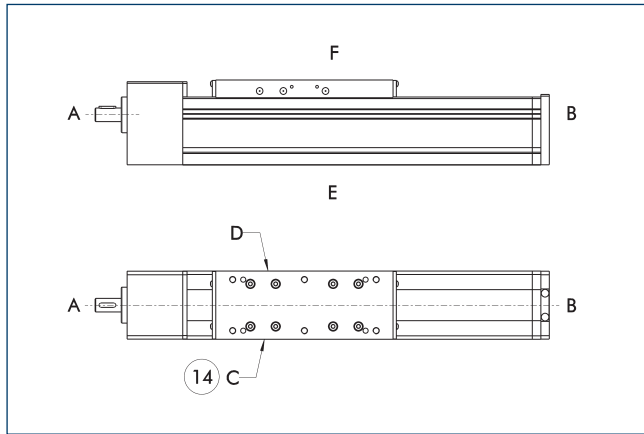
① SCHUNK standard spindle supports with noise damping (SAG) reduce the maximum stroke by 10 mm for every 2 SAG.

- ① Connection linear unit
- ② Attachment connection
- ③ Drive connection
- ④ Number of spindle supports
- ⑤ Nominal stroke
- ⑥ Lubricant connection
- ⑦ With long side plate
- ⑧ On both sides
- ⑨ Fit for centering pins
- ⑩ Fit for centering

# Beta 70

Universal linear module

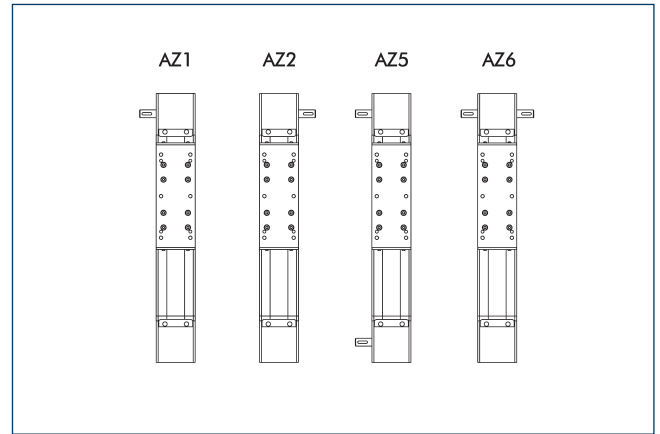
## Side definition



⑭ Limit switch standard position

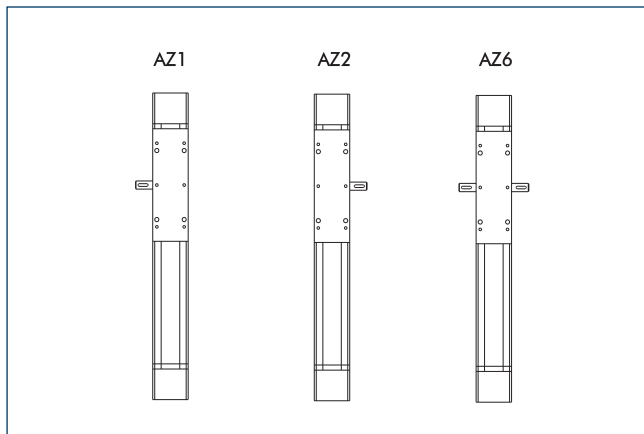
This drawing indicates the definition for the sides. This serves as the basis for all attachments.

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



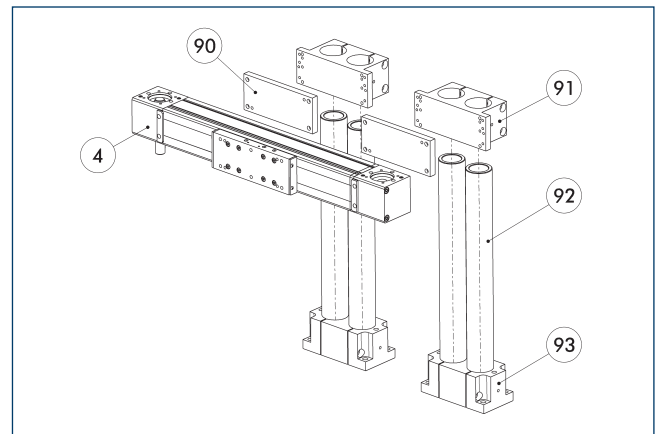
Depending on the axis application, the seat of the drive shaft has to be defined in the order text. Particularly with axis combinations and mechanical synchronization, several drive shafts are required.

## Drive shafts 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.

## Attachment to a pillar assembly system

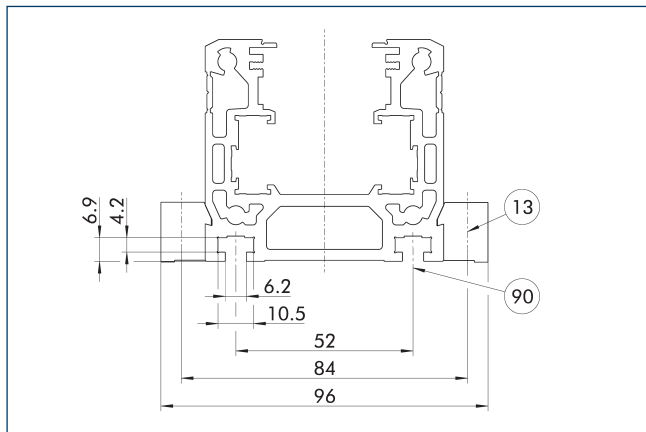


- ④ Linear unit
- ⑨⑩ Adapter plate AGH
- ⑨① ADV mounting plate
- ⑨② Pillars, hard-chromium plated, ground
- ⑨③ Double socket SOD

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			
ADV 55	0313517	55	Aluminum
AEV 55	0313516	55	Aluminum
APDH 85	0313414	55	Aluminum
APEH 85	0313413	55	Aluminum

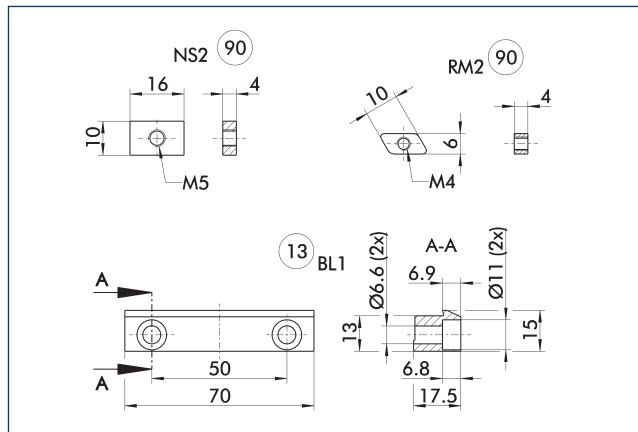
Mounting



13 Mounting strip      90 T-nut at the bottom side

The drawing shows the position of the mounting options.

Fastening elements

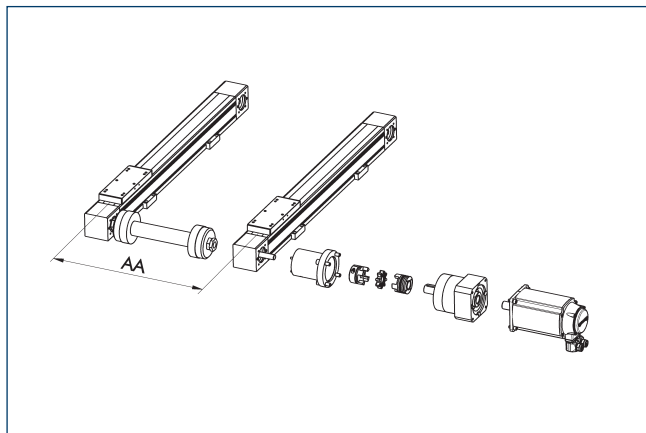


13 Mounting strip      90 T-nut at the bottom side

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

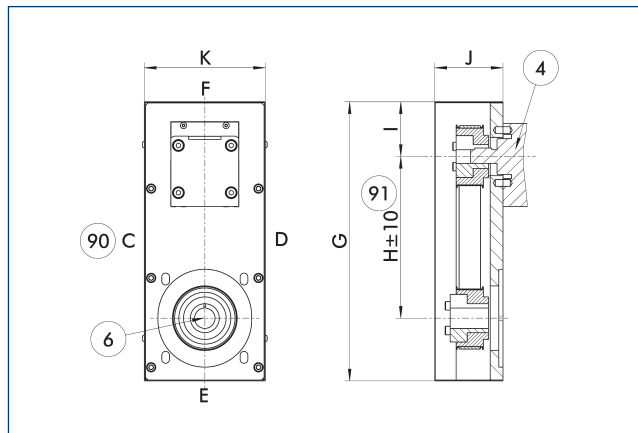
Description	ID	
Mounting strip		
BL1-70x15x17.5-01	0331400	
T-nut		
NS 2-M5	0331405	
RM2-M4	0331425	

Connection shaft



Description	Connection shaft	Min. AA
		[mm]
B 70-C-ZSS	GX2	215
B 70-C-ZRS	GX2	215
B 70-C-SSS	GX2	330
B 70-C-SRS	GX2	330

Angle belt drive



4 Linear unit      90 Attachment direction of angle belt drive  
 6 Drive connection      91 Dependent on transmission ratio and toothed belt design.

The angle belt drive makes it possible to achieve various drive solutions in confined spaces. SCHUNK offers the suitable angle gear for your drive.

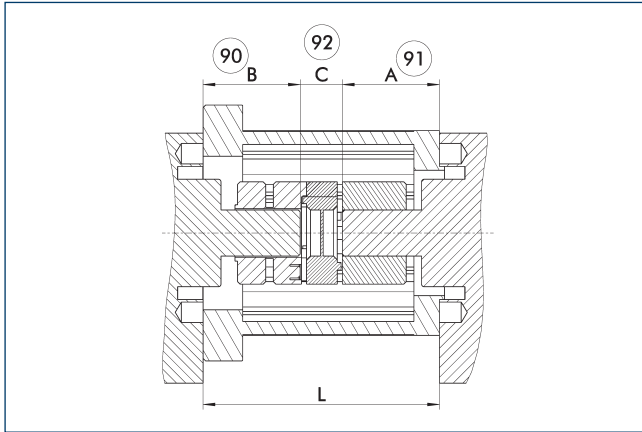
Description	G	H	I	J	K
	[mm]	[mm]	[mm]	[mm]	[mm]
B 70-C-SSS	238	120	46	52	102
B 70-C-SRS	238	120	46	52	102

① Possible transmission ratios:  $i = 1 : 1$ ,  $i = 2 : 1$  and  $i = 3 : 1$

# Beta 70

Universal linear module

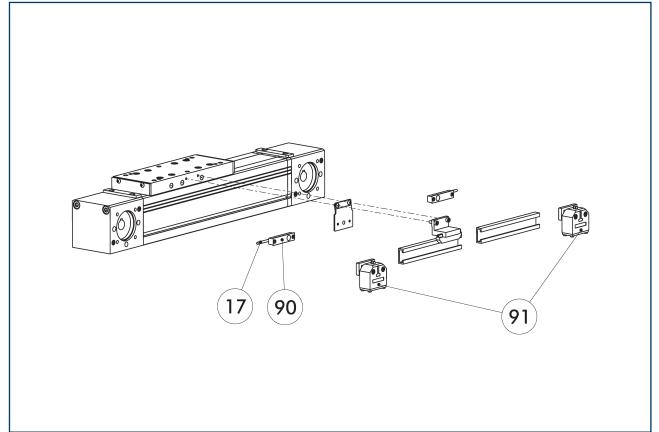
## Motor flange schematic diagram



- 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.

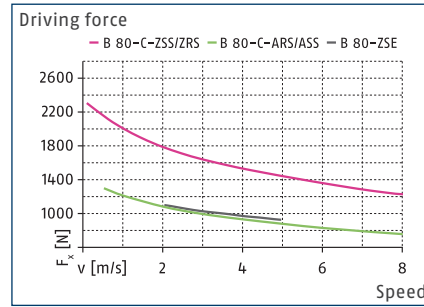
Description	ID	Often combined
<b>Inductive limit switch</b>		
E0-02	0331410	●
E0-10	0331412	
ES-02	0331411	●
ES-10	0331413	
<b>Mechanical limit switch</b>		
EMB	0331415	●
EMS	0331414	

- 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.

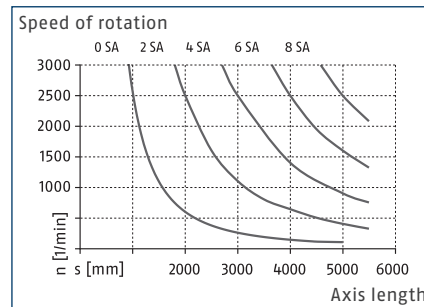




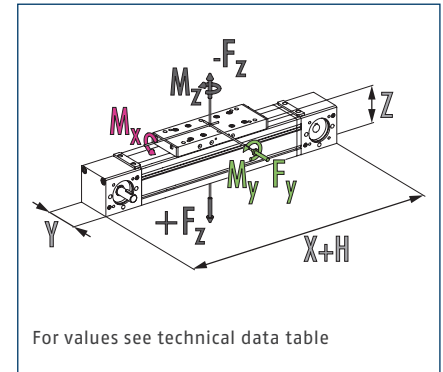
### Max. driving force (toothed belt)\*



### Spindle supports\*\*



### 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

Description		B 80-C-ZSS	B 80-ZSE	B 80-C-ZRS	B 80-C-ASS	B 80-C-ARS	B 80-SSS
Max. stroke H	[mm]	7600	7600	7600	7590	7590	5220
Max. driving force	[N]	2200	1100	2200	1300	1300	4000
Repeat accuracy	[mm]	±0.08	±0.08	±0.08	±0.08	±0.08	±0.03
Max. total length	[mm]	8000	8000	8000	8000	8000	5600
Max. speed	[m/s]	5	5	8	5	8	2.5
Max. acceleration	[m/s <sup>2</sup> ]	40	40	40	40	40	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]	7.8	6.35	5.3	12.1	10.8	6.2
Additional mass per 100 mm stroke	[kg]	0.98	0.89	0.65	0.96	0.63	1.1
Weight of slide	[kg]	2.75	1.36	3			1.9
Dead weight of slide, long	[kg]	3.25		3.7			2.4
Weight of slide drive	[kg]				6.3	6.3	
Guidance system		Rail guide	Rail guide	Roller guide	Rail guide	Roller guide	Rail guide
Number of rails		1	1		1		1
Size of rails		25	20		20		20
Roll diameter	[mm]			24		20	
Drive concept		Belt drive	Belt drive	Belt drive	Belt drive	Belt drive	Spindle drive
Idle torque	[Nm]	1.8	1.4	1.8	1.8	1.8	0.8
Moment of inertia	[kgm <sup>2</sup> ]	0.004	0.0027	0.0042	0.0086	0.0092	0.000084
Toothed belt type		32 AT 10	32 AT 5-E	32 AT 10	32 AT 10-E	32 AT 10-E	
Traverse path per revolution	[mm]	210	220	210	220	220	
Spindle diameter	[mm]						20
Spindle pitch	[mm]						5/10/20/50
Max. spindle speed	[1/min]						3000
Moments M <sub>x</sub> max./M <sub>y</sub> max./M <sub>z</sub> max.	[Nm]	300/500/500	80/200/200	100/300/180	300/500/500	100/300/180	100/250/250
Forces F <sub>y</sub> max./F <sub>z</sub> max./-F <sub>z</sub> max.	[N]	1600/4000/3000	640/2400/1600	1000/2500/1500	1600/4000/3000	1000/2500/1500	800/3000/2000

① Please note that the long slide plates and the use of spindle supports (SA) reduce the maximum stroke H. SCHUNK standard spindle supports with noise damping (SAG) reduce the maximum stroke by 10 mm for every 2 SAG. Please note that the moment of inertia for spindle axes refers to one meter.

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

\*\* The diagram shows the maximum spindle speed depending on the speed of the spindle supports (SA) and the overall length of the unit.



Description		B 80-SRS
Max. stroke H	[mm]	5220
Max. driving force	[N]	4000
Repeat accuracy	[mm]	±0.03
Max. total length	[mm]	5600
Max. speed	[m/s]	2.5
Max. acceleration	[m/s <sup>2</sup> ]	20
Min./max. ambient temperature	[°C]	0/80
Dead weight of base including slide	[kg]	5.4
Additional mass per 100 mm stroke	[kg]	0.7
Weight of slide	[kg]	2.2
Dead weight of slide, long	[kg]	2.8
Guidance system		Roller guide
Roll diameter	[mm]	20
Drive concept		Spindle drive
Idle torque	[Nm]	0.6
Moment of inertia	[kgm <sup>2</sup> ]	0.000084
Spindle diameter	[mm]	20
Spindle pitch	[mm]	5/10/20/50
Max. spindle speed	[1/min]	3000
Moments Mx max./My max./Mz max.	[Nm]	50/180/100
Forces Fy max./Fz max./-Fz max.	[N]	500/1500/800

① Please note that the long slide plates and the use of spindle supports (SA) reduce the maximum stroke H.

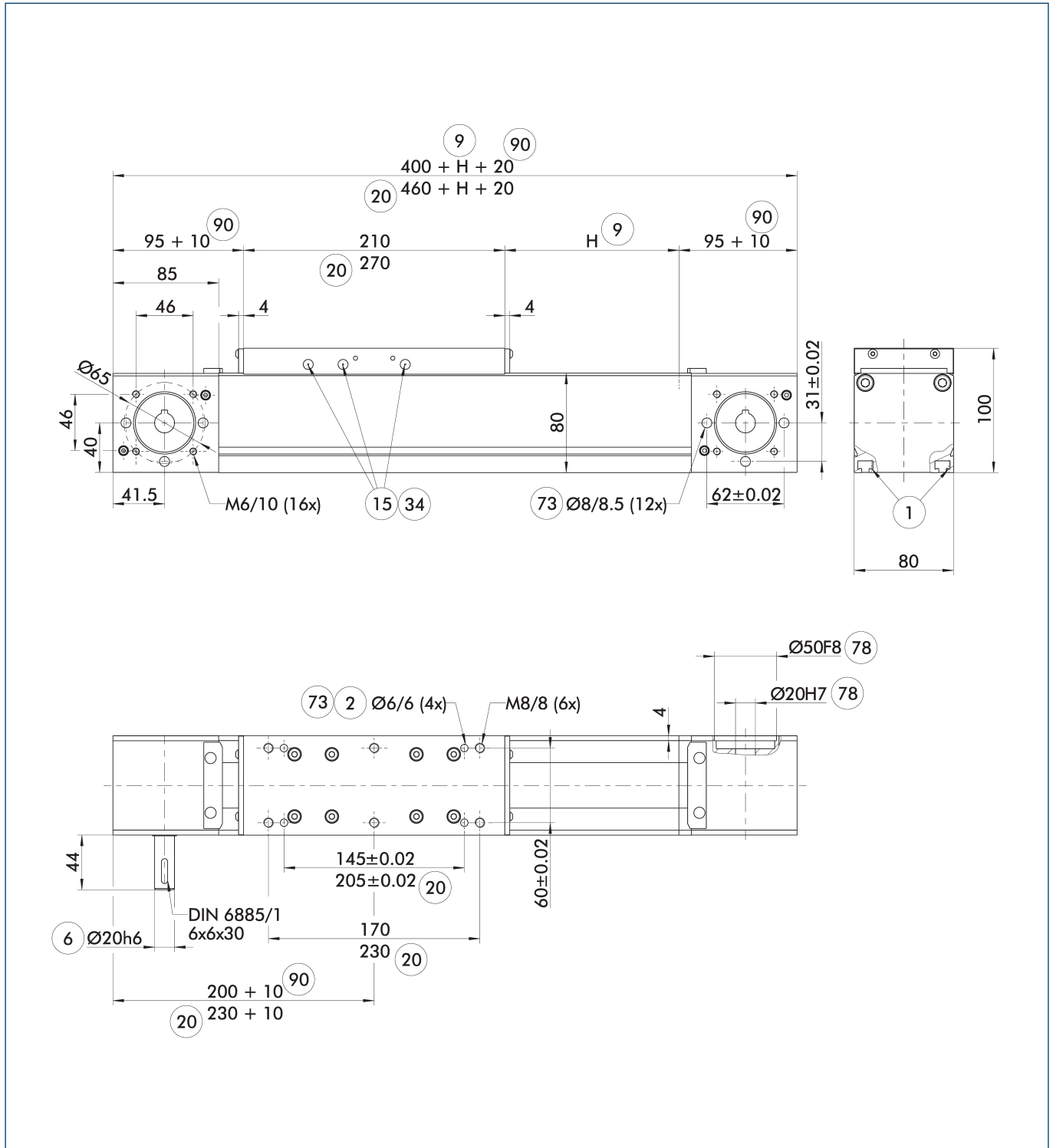
SCHUNK standard spindle supports with noise damping (SAG) reduce the maximum stroke by 10 mm for every 2 SAG.

Please note that the moment of inertia for spindle axes refers to one meter.

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

\*\* The diagram shows the maximum spindle speed depending on the speed of the spindle supports (SA) and the overall length of the unit.

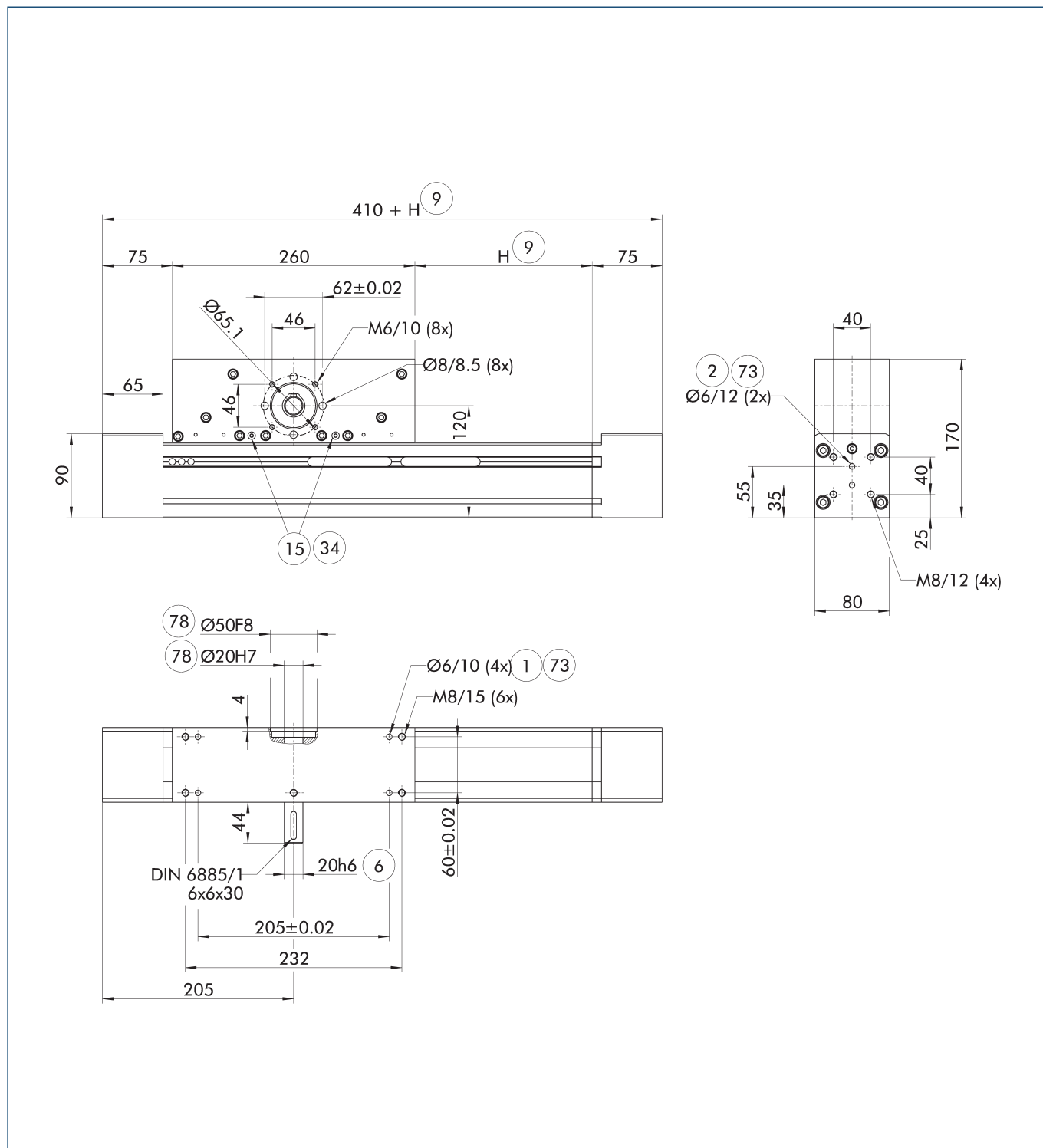
## C-ZSS/ZRS main view



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

- |                          |   |
|--------------------------|---|
| ① Connection linear unit | ②⑩ With long slide plate                        |
| ② Attachment connection  | ③④ On both sides                                |
| ⑥ Drive connection       | ⑦⑩ Fit for centering pins                       |
| ⑨ Nominal stroke         | ⑧⑩ Fit for centering                            |
| ⑬ Lubricant connection   | ⑨⑩ Change of dimension with optional cover tape |

## C-ASSIARS main view



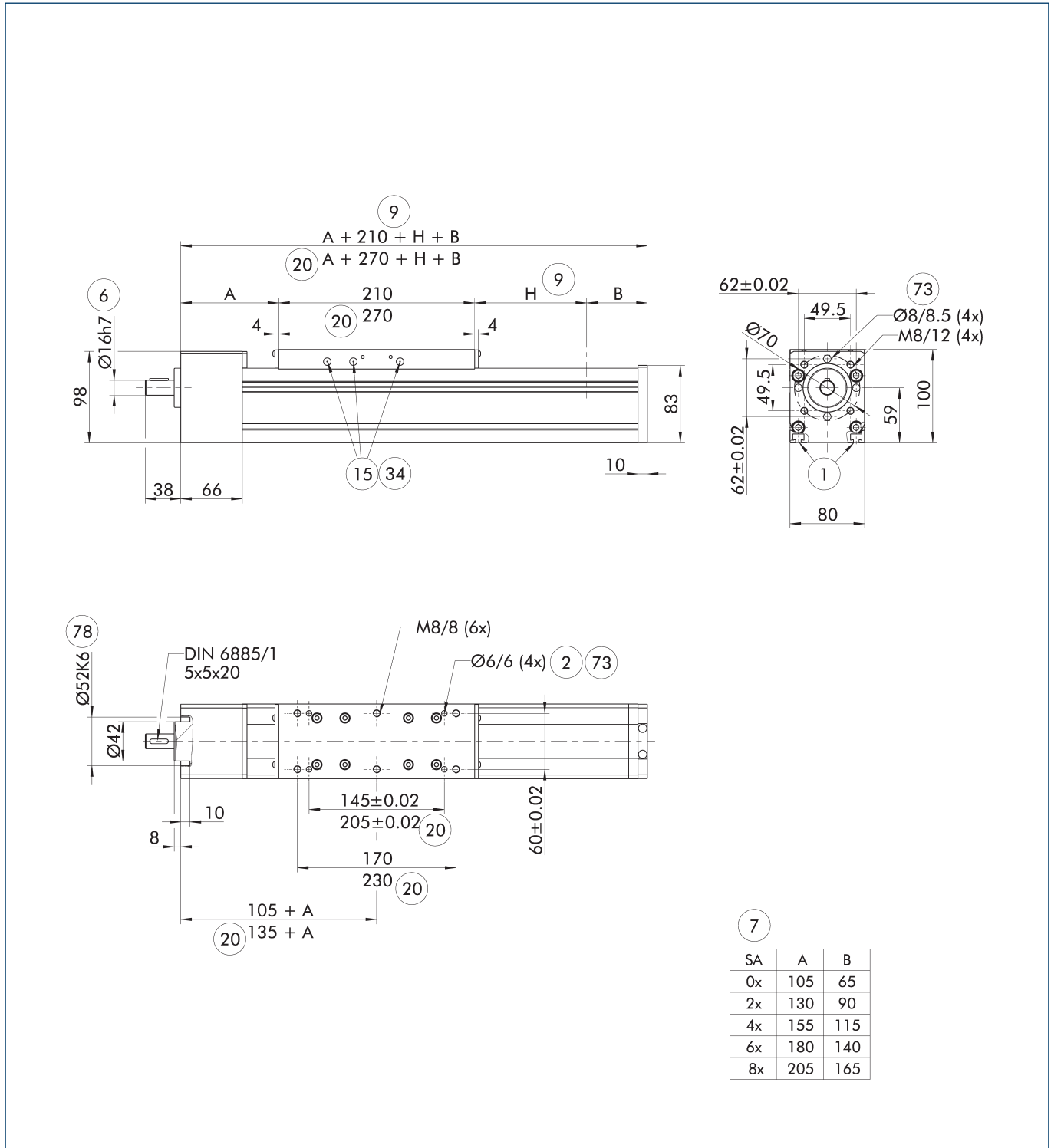
The drawing shows the unit in standard design, without considering any dimensions of the options described below.

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

# Beta 80

Universal linear module

## SSS/SRS main view

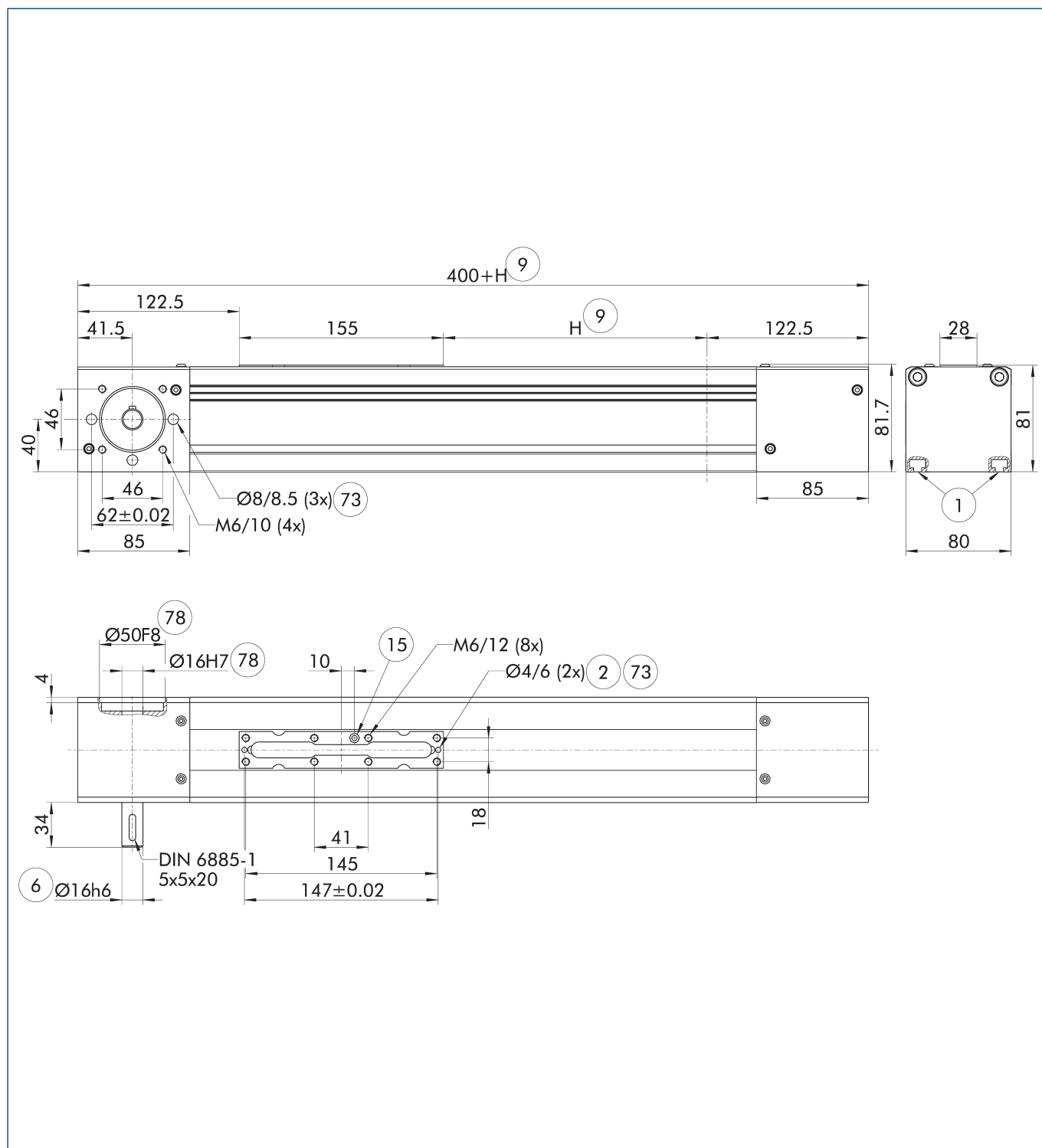


The drawing shows the unit in standard design, without considering any dimensions of the options described below.

① SCHUNK standard spindle supports with noise damping (SAG) reduce the maximum stroke by 10 mm for every 2 SAG.

- ① Connection linear unit
- ② Attachment connection
- ③ Drive connection
- ④ Number of spindle supports
- ⑤ Nominal stroke
- ⑥ Lubricant connection
- ⑦ With long side plate
- ⑧ On both sides
- ⑨ Fit for centering pins
- ⑩ Fit for centering

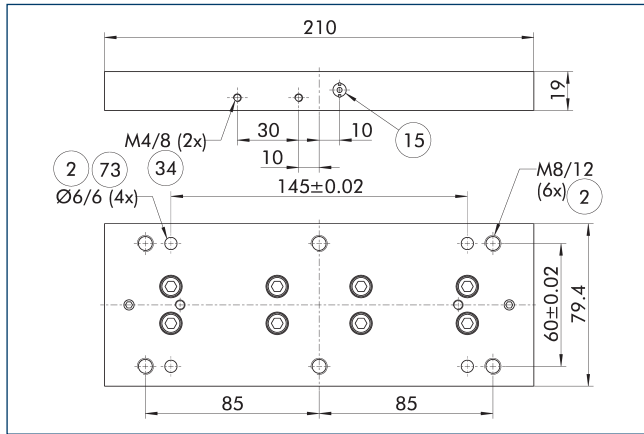
## Main view ZSE



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  | ⑦③ Fit for centering pins |
| ⑥ Drive connection       | ⑦⑧ Fit for centering      |
| ⑨ Nominal stroke         |                           |

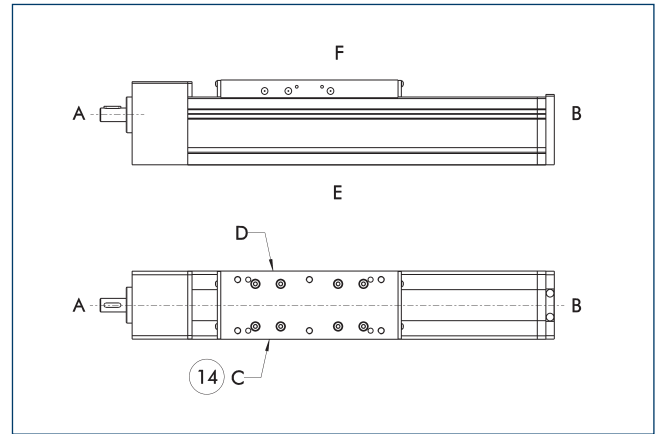
## Slide plate ZSE



- ② Attachment connection
- ③④ On both sides
- ①⑤ Lubricant connection
- ⑦③ Fit for centering pins

Optionally, the variant ZSE can be ordered with a mounted slide plate. The drawing shows the position of the mounting possibilities and of the lubrication connection.

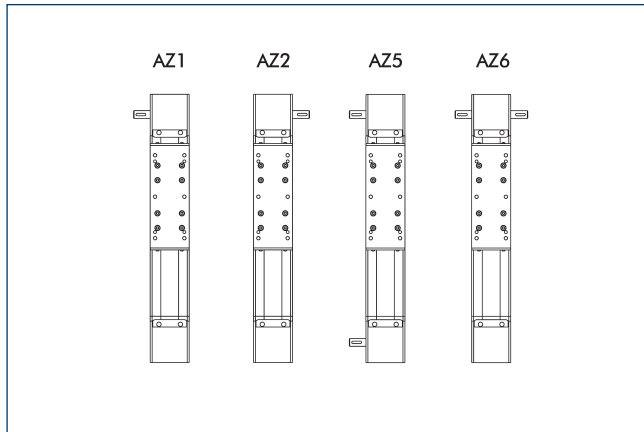
## Side definition



- ①④ Limit switch standard position

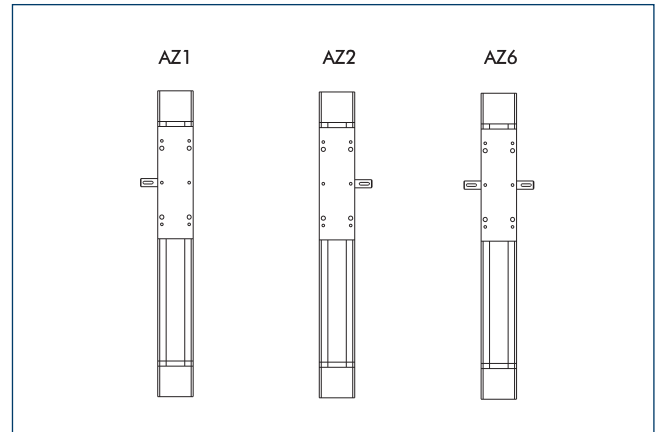
This drawing indicates the definition for the sides. This serves as the basis for all attachments.

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



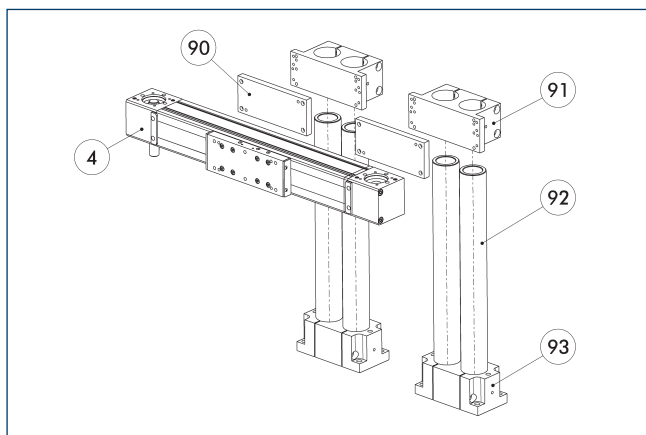
Depending on the axis application, the seat of the drive shaft has to be defined in the order text. Particularly with axis combinations and mechanical synchronization, several drive shafts are required.

## Drive shafts 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.

## Attachment to a pillar assembly system

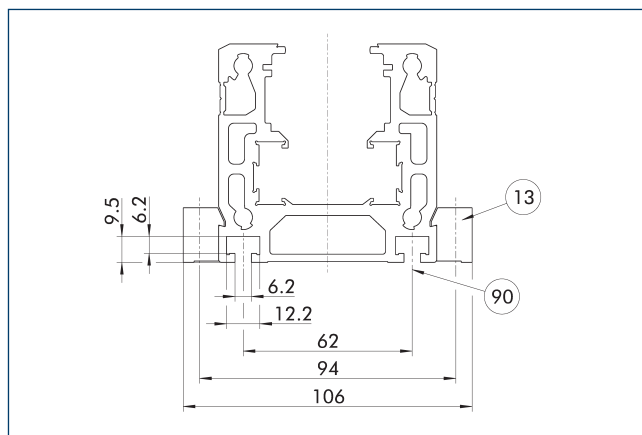


- ④ Linear unit
- ⑨② Pillars, hard-chromium plated, ground
- ⑨① Adapter plate AGH
- ⑨③ Double socket SOD
- ⑨① ADV mounting plate

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.

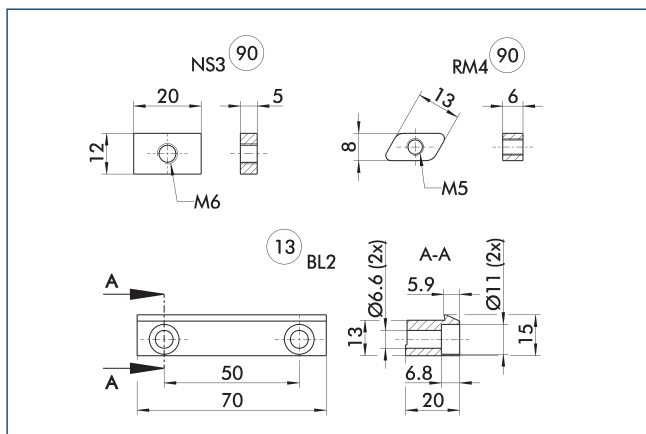
Description	ID	pillar diameter [mm]	Material
Pillar assembly system mounting plate			
ADV 55	0313517	55	Aluminum
AEV 55	0313516	55	Aluminum
APDH 85	0313414	55	Aluminum
APEH 85	0313413	55	Aluminum

## Mounting



- ⑬ Mounting strip
  - ⑨① T-nut at the bottom side
- The drawing shows the position of the mounting options.

## Fastening elements

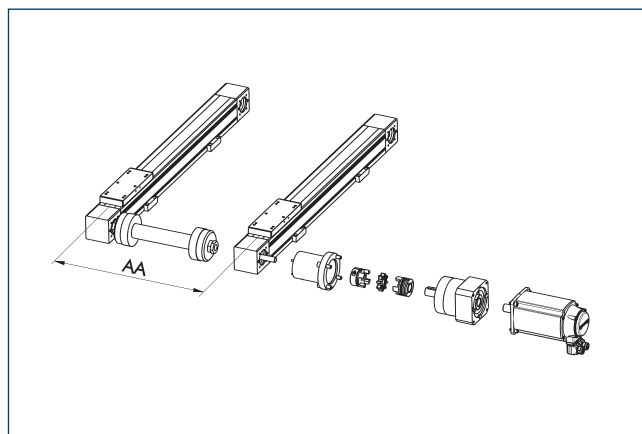


- ⑬ Mounting strip
- ⑨① T-nut at the bottom side

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

Description	ID	
Mounting strip		
BL2-70x15x20-01	0331401	
T-nut		
NS 3-M6	0331406	
RM4-M5	0331426	

## Connection shaft

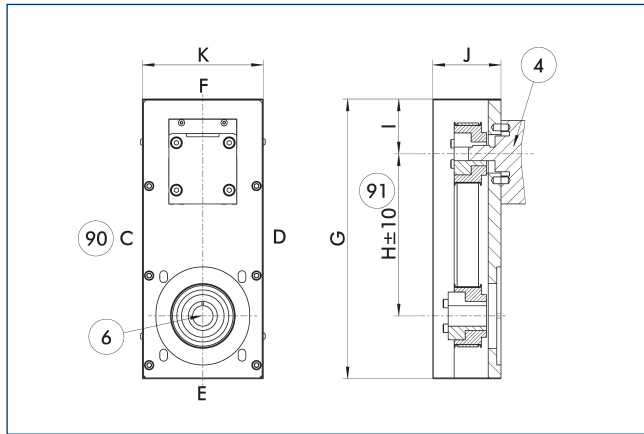


Description	Connection shaft	Min. AA [mm]
B 80-C-ZSS	GX4	270
B 80-ZSE	GX2	225
B 80-C-ZRS	GX4	270
B 80-SSS	GX2	330
B 80-SRS	GX2	330

# Beta 80

Universal linear module

## Angle belt drive



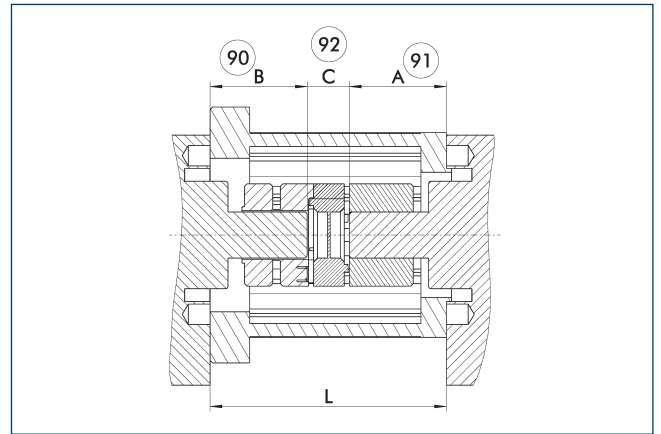
- ④ Linear unit
- ⑥ Drive connection
- ⑨⑩ Attachment direction of angle belt drive
- ⑨① Dependent on transmission ratio and toothed belt design.

The angle belt drive makes it possible to achieve various drive solutions in confined spaces. SCHUNK offers the suitable angle gear for your drive.

Description	G	H	I	J	K
	[mm]	[mm]	[mm]	[mm]	[mm]
B 80-SSS	328	190	64	80	142
B 80-SRS	328	190	64	80	142

① Possible transmission ratios:  $i = 1 : 1$ ,  $i = 2 : 1$  and  $i = 3 : 1$

## Motor flange schematic diagram

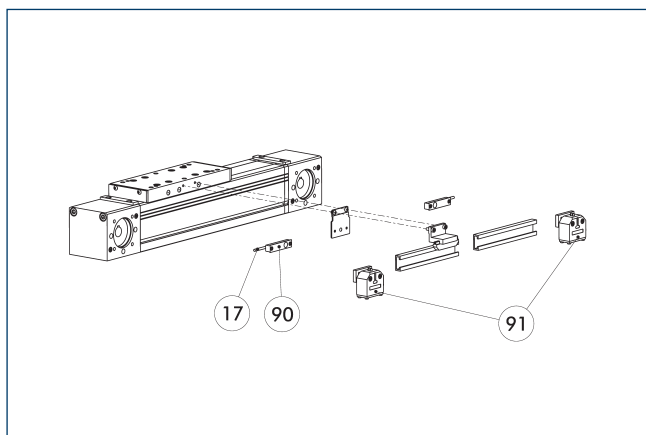


- ⑨⑩ Length of motor / transmission drive shaft
- ⑨① Length of linear unit drive journal
- ⑨② Clutch length

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	

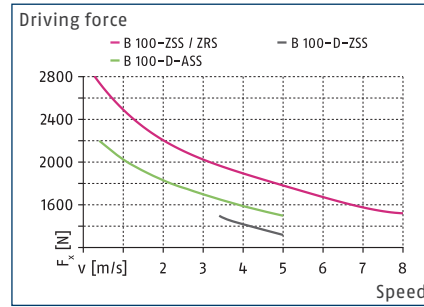
- ① The positions and dimensions of limit switches, switching lugs, and mounting components may vary depending on the application and the selected limit switches. Please contact us for assistance.

# Beta 100

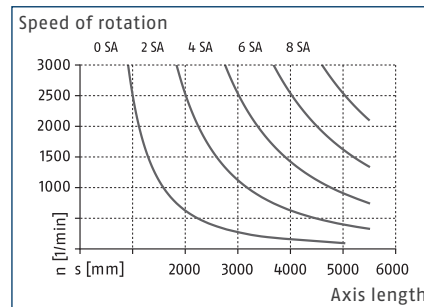
Universal linear module



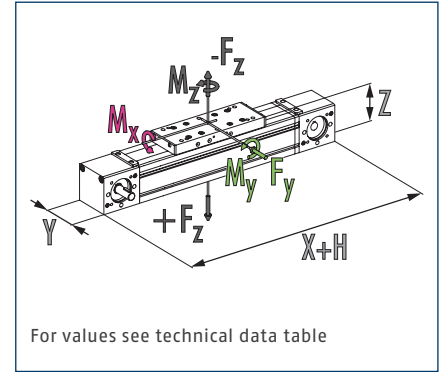
## Max. driving force (toothed belt)\*



## Spindle supports\*\*



## 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

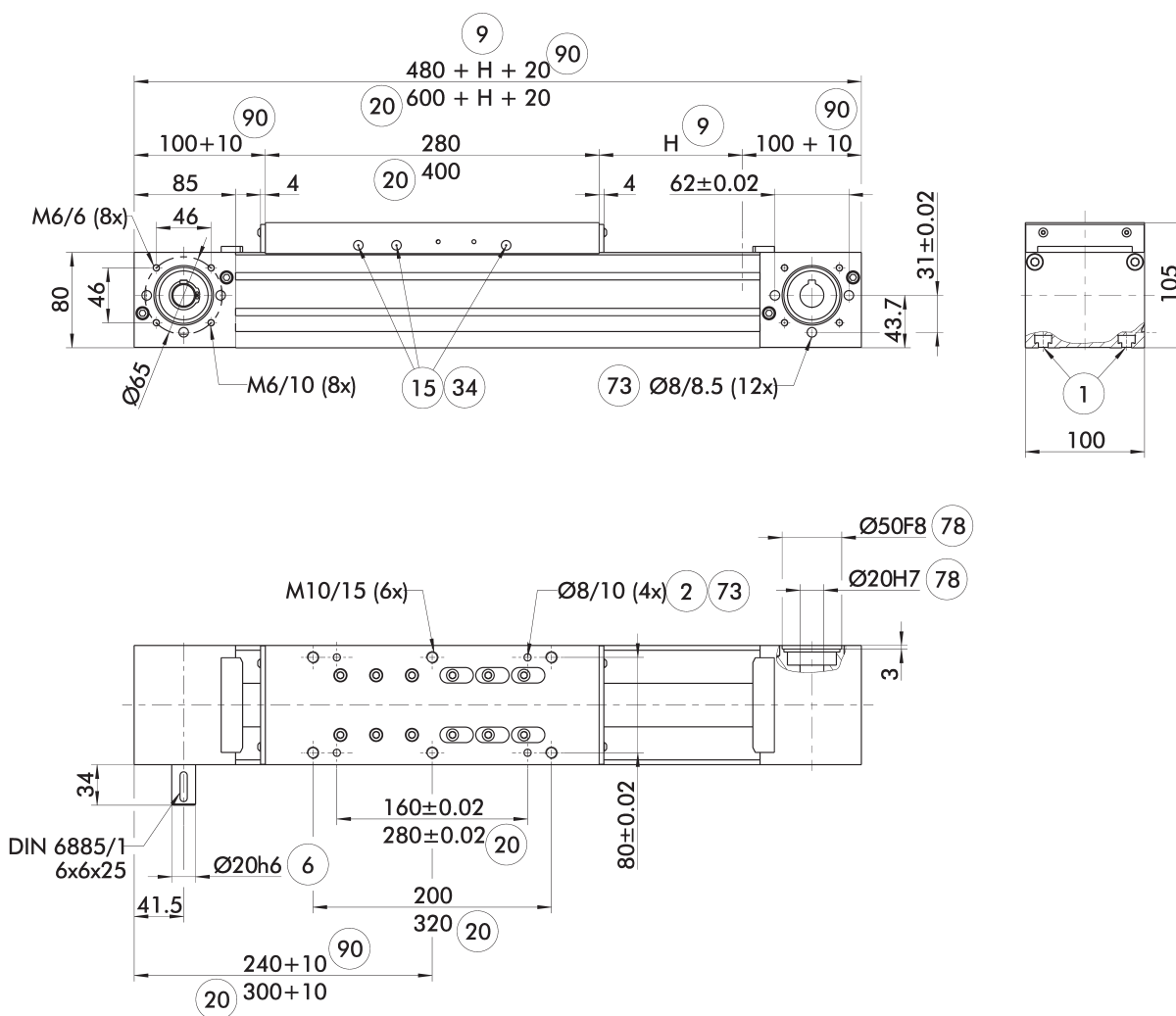
Description		B 100-ZSS	B 100-D-ZSS	B 100-ZRS	B 100-D-ASS	B 100-D-SSS
Max. stroke H	[mm]	7420	7710	7420	7680	5260
Max. driving force	[N]	2800	1500	2800	2200	4000
Repeat accuracy	[mm]	±0.08	±0.08	±0.08	±0.08	±0.03
Max. total length	[mm]	7900	8100	7900	8100	5600
Max. speed	[m/s]	5	5	8	5	2.5
Max. acceleration	[m/s <sup>2</sup> ]	40	60	40	60	20
Min./max. ambient temperature	[°C]	0/80	0/80	0/80	0/80	0/80
Dead weight of base including slide	[kg]	9.1	6.8	9.5	14	6.2
Additional mass per 100 mm stroke	[kg]	1.45	0.75	1.1	0.9	0.75
Weight of slide	[kg]	3.8	3.5	4.1		3.4
Dead weight of slide, long	[kg]	5.43	4.1	5.85		4
Weight of slide drive	[kg]				8.6	
Guidance system		Rail guide	Rail guide	Roller guide	Rail guide	Rail guide
Number of rails		1	2		2	2
Size of rails		20	15		15	15
Roll diameter	[mm]			28		
Drive concept		Belt drive	Belt drive	Belt drive	Belt drive	Spindle drive
Idle torque	[Nm]	2.5	5	2.5	2.5	1.3
Moment of inertia	[kgm <sup>2</sup> ]	0.0126	0.0028	0.013	0.012	0.000084
Toothed belt type		40 AT 10	40 AT 10-E	40 AT 10	40 AT 10-E	
Traverse path per revolution	[mm]	200	160	200	240	
Spindle diameter	[mm]					20
Spindle pitch	[mm]					5/10/20/50
Max. spindle speed	[1/min]					3000
Moments Mx max./My max./Mz max.	[Nm]	200/300/300	350/750/750	200/250/200	350/950/950	350/750/750
Forces Fy max./Fz max./-Fz max.	[N]	1000/3000/2000	1800/4000/3000	1000/2500/1200	1800/4000/3000	1800/4000/3000

① Please note that the long slide plates and the use of spindle supports (SA) reduce the maximum stroke H.  
SCHUNK standard spindle supports with noise damping (SAG) reduce the maximum stroke by 10 mm for every 2 SAG.  
Please note that the moment of inertia for spindle axes refers to one meter.

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

\*\* The diagram shows the maximum spindle speed depending on the speed of the spindle supports (SA) and the overall length of the unit.

## ZSS/ZRS main view



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

- |                          |   |
|--------------------------|---|
| ① Connection linear unit | ②⑩ With long slide plate                        |
| ② Attachment connection  | ③④ On both sides                                |
| ⑥ Drive connection       | ⑦⑩ Fit for centering pins                       |
| ⑨ Nominal stroke         | ⑧⑩ Fit for centering                            |
| ⑮ Lubricant connection   | ⑨⑩ Change of dimension with optional cover tape |

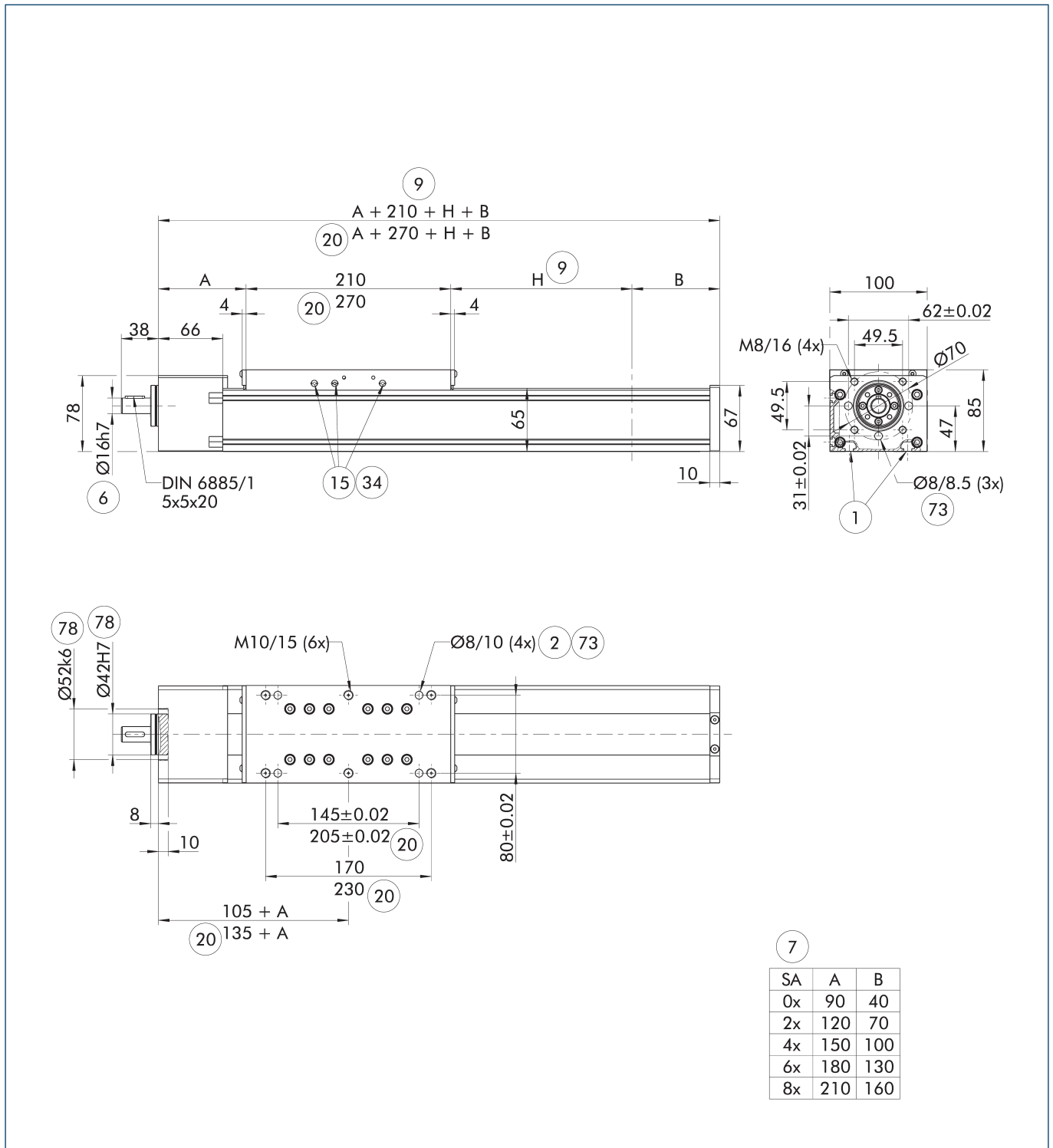




# Beta 100

Universal linear module

## D-SSS main view

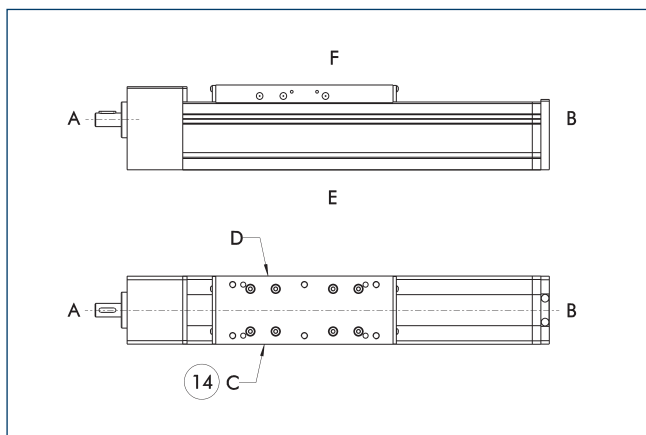


The drawing shows the unit in standard design, without considering any dimensions of the options described below.

① SCHUNK standard spindle supports with noise damping (SAG) reduce the maximum stroke by 10 mm for every 2 SAG.

- ① Connection linear unit
- ② Attachment connection
- ③ Drive connection
- ④ Number of spindle supports
- ⑤ Nominal stroke
- ⑥ Lubricant connection
- ⑦ With long side plate
- ⑧ On both sides
- ⑨ Fit for centering pins
- ⑩ Fit for centering

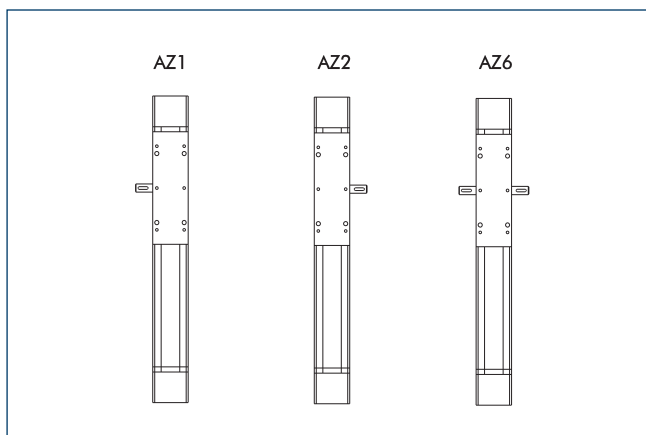
## Side definition



⑭ Limit switch standard position

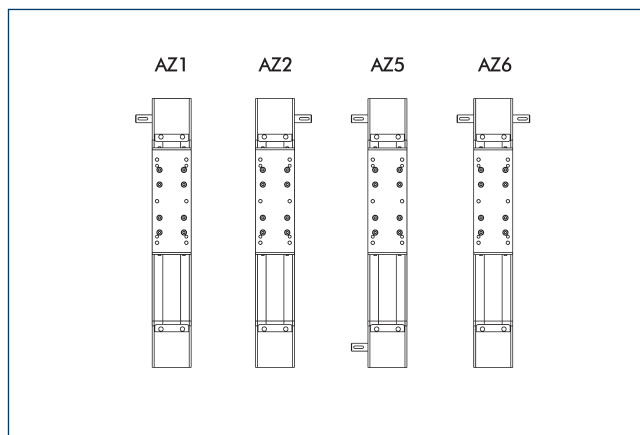
This drawing indicates the definition for the sides. This serves as the basis for all attachments.

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



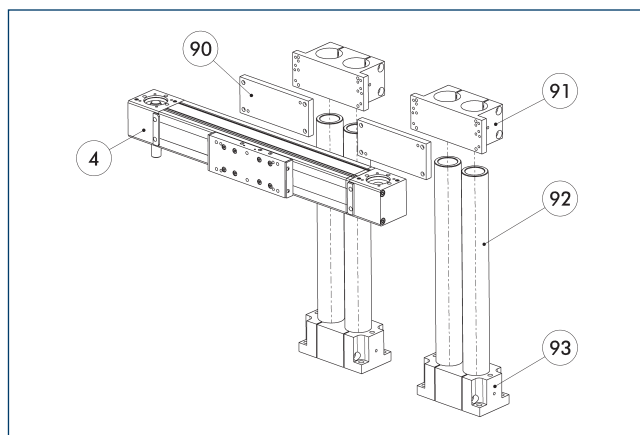
Depending on the axis application, the seat of the drive shaft has to be defined in the order text. Particularly with axis combinations and mechanical synchronization, several drive shafts are required.

## 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.

## Attachment to a pillar assembly system



- ④ Linear unit
- ⑨⑩ Adapter plate AGH
- ⑨① ADV mounting plate
- ⑨② Pillars, hard-chromium plated, ground
- ⑨③ Double socket S0D

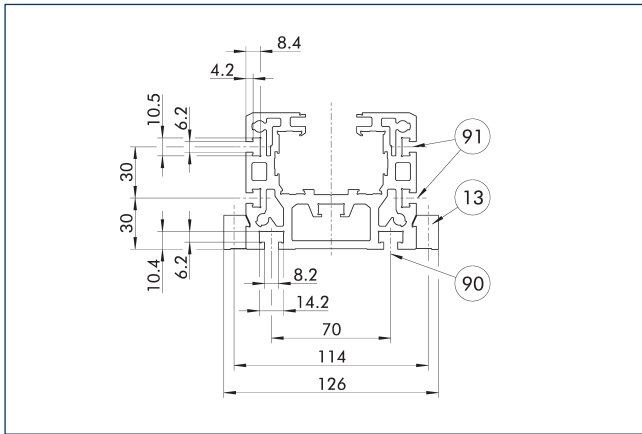
This unit can be attached to the pillar assembly system as standard. See the Kombibox software, which can be found online, for the right arrangement for your application.

Description	ID	pillar diameter [mm]	Material
Pillar assembly system mounting plate			
ADV 55	0313517	55	Aluminum
APDH 85	0313414	55	Aluminum
APDV 85	0313416	55	Aluminum
APEH 85	0313413	55	Aluminum
APEV 85	0313415	55	Aluminum

# Beta 100

Universal linear module

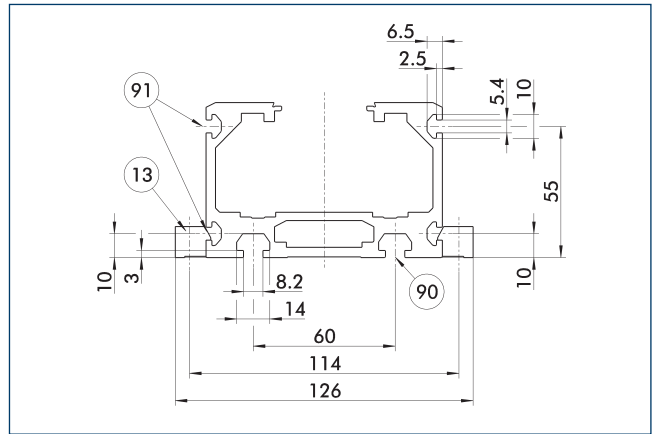
## Mounting



- 13 Mounting strip
- 91 Side T-nut
- 90 T-nut at the bottom side

The drawing shows the position of the mounting options.

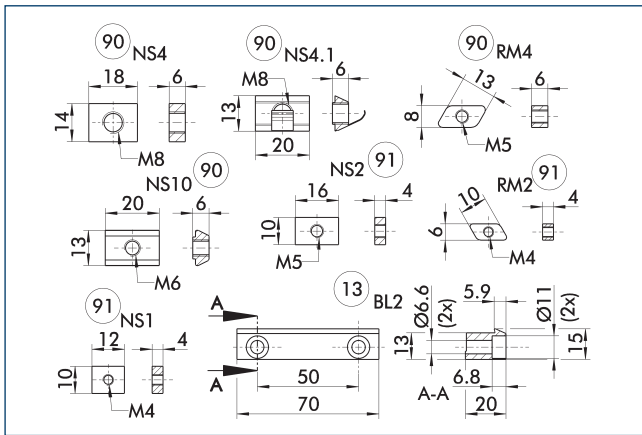
## D-Version attachent



- 13 Mounting strip
- 91 Side T-nut
- 90 T-nut at the bottom side

The drawing shows the position of the mounting options.

## Fastening elements

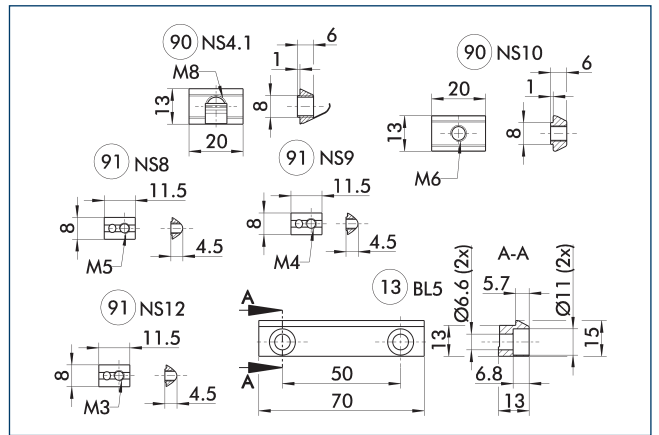


- 13 Mounting strip
- 91 Side T-nut
- 90 T-nut at the bottom side

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

Description	ID	
Mounting strip		
BL2-70x15x20-01	0331401	
T-nut		
NS 10-M6-6	0331422	
NS 1-M4	0331404	
NS 2-M5	0331405	
NS 4.1-M8-6	0331430	
NS 4-M8-6	0331407	
RM2-M4	0331425	
RM4-M5	0331426	

## D-version mounting elements



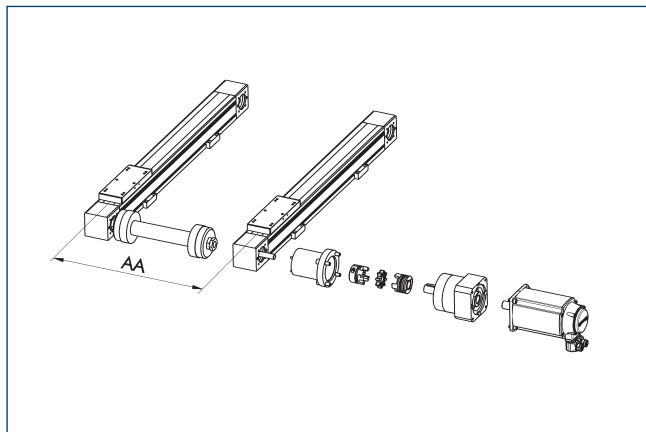
- 13 Mounting strip
- 91 Side T-nut
- 90 T-nut at the bottom side

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

Description	ID	
Mounting strip		
BL5-70x15x13-01	0331419	
T-nut		
NS 10-M6-6	0331422	
NS 12-M3	0331424	
NS 4.1-M8-6	0331430	
NS 8-M5	0331420	
NS 9-M4	0331421	

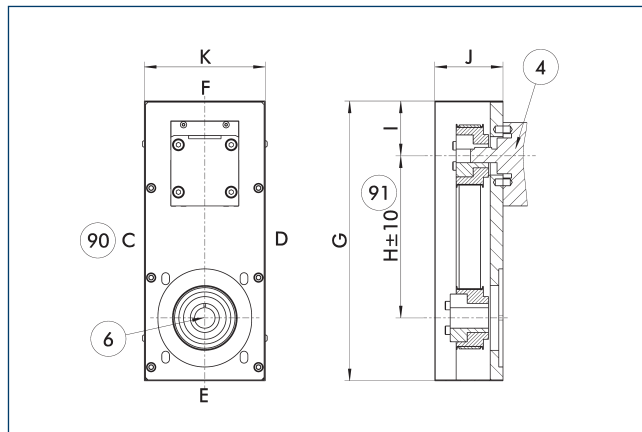


## Connection shaft



Description	Connection shaft	Min. AA [mm]
B 100-ZSS	GX4	270
B 100-D-ZSS	GX4	270
B 100-ZRS	GX4	270
B 100-D-SSS	GX4	290

## Angle belt drive



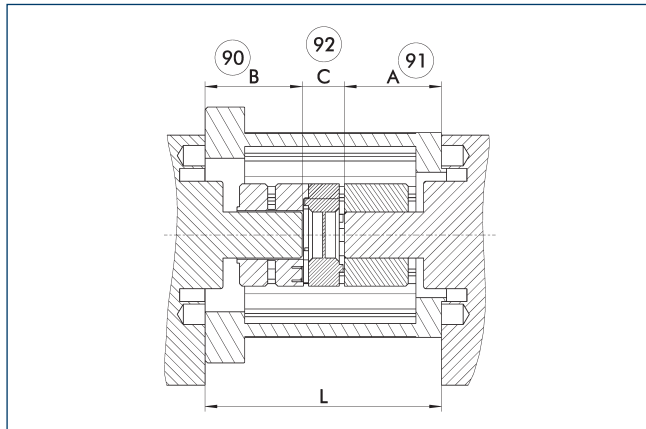
- ④ Linear unit
- ⑥ Drive connection
- ⑨⑩ Attachment direction of angle belt drive
- ⑨⑪ Dependent on transmission ratio and toothed belt design.

The angle belt drive makes it possible to achieve various drive solutions in confined spaces. SCHUNK offers the suitable angle gear for your drive.

Description	G	H	I	J	K
	[mm]	[mm]	[mm]	[mm]	[mm]
B 100-D-SSS	328	190	64	80	142

- ① Possible transmission ratios:  $i = 1 : 1$ ,  $i = 2 : 1$  and  $i = 3 : 1$

## Motor flange schematic diagram



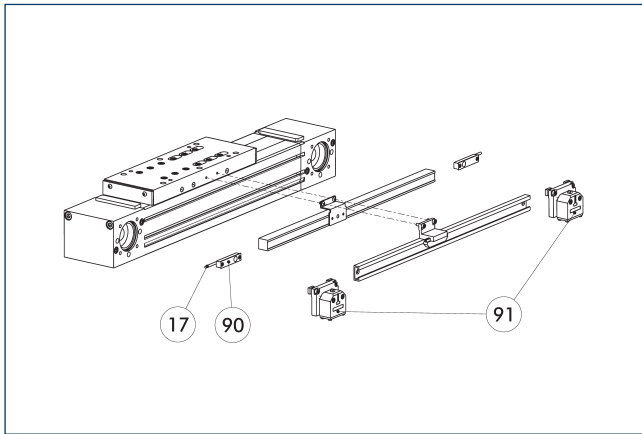
- ⑨⑩ Length of motor / transmission drive shaft
- ⑨⑪ Length of linear unit drive journal
- ⑨⑫ Clutch length

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

# Beta 100

Universal linear module

## 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
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.

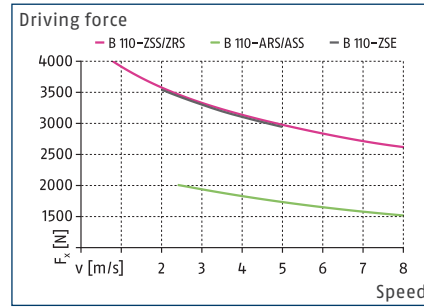


# Beta 110

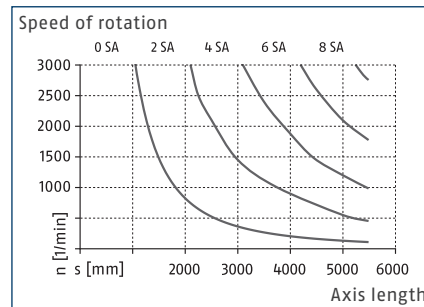
Universal linear module



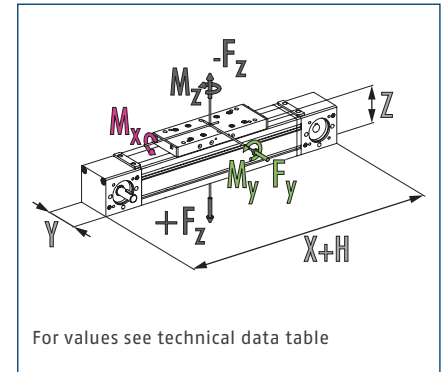
## Max. driving force (toothed belt)\*



## Spindle supports\*\*



## 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

Description		B 110-ZSS	B 110-ZSE	B 110-ZRS	B 110-ASS	B 110-ARS	B 110-SSS
Max. stroke H	[mm]	7520	7520	7520	7440	7440	5120
Max. driving force	[N]	4000	3600	4000	2000	2000	6000
Repeat accuracy	[mm]	±0.08	±0.08	±0.08	±0.08	±0.08	±0.03
Max. total length	[mm]	8100	8100	8100	8100	8100	5600
Max. speed	[m/s]	5	5	8	5	8	2.5
Max. acceleration	[m/s <sup>2</sup> ]	60	60	60	60	60	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]	18	15.75	15.7	29	27	13.5
Additional mass per 100 mm stroke	[kg]	2.1	1.56	1.5	1.4	1.2	1.7
Weight of slide	[kg]	5.2	2.57	4.8			5.3
Dead weight of slide, long	[kg]	8.2		7.5			8.3
Weight of slide drive	[kg]				16	15	
Guidance system		Rail guide	Rail guide	Roller guide	Rail guide	Roller guide	Rail guide
Number of rails		1	1		1		1
Size of rails		25	25		25		25
Roll diameter	[mm]			28		28	
Drive concept		Belt drive	Belt drive	Belt drive	Belt drive	Belt drive	Spindle drive
Idle torque	[Nm]	3.5	3.35	3.5	3.5	3.5	1.5
Moment of inertia	[kgm <sup>2</sup> ]	0.016	0.012	0.018	0.037	0.035	0.000225
Toothed belt type		50 ATL 10	50 ATL 10	50 ATL 10	50 AT 10-E	50 AT 10-E	
Traverse path per revolution	[mm]	300	300	300	300	300	
Spindle diameter	[mm]						25
Spindle pitch	[mm]						5/10/25/50
Max. spindle speed	[1/min]						3000
Moments Mx max./My max./Mz max.	[Nm]	400/800/600	320/640/480	300/600/450	400/800/600	300/600/450	400/800/600
Forces Fy max./Fz max./-Fz max.	[N]	3000/8000/4000	2400/6400/3200	2000/5000/2500	3000/8000/4000	2000/5000/2500	3000/8000/4000

① Please note that the long slide plates and the use of spindle supports (SA) reduce the maximum stroke H. SCHUNK standard spindle supports with noise damping (SAG) reduce the maximum stroke by 10 mm for every 2 SAG. Please note that the moment of inertia for spindle axes refers to one meter.

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

\*\* The diagram shows the maximum spindle speed depending on the speed of the spindle supports (SA) and the overall length of the unit.

Description		B 110-SRS
Max. stroke H	[mm]	5120
Max. driving force	[N]	6000
Repeat accuracy	[mm]	±0.03
Max. total length	[mm]	5600
Max. speed	[m/s]	2.5
Max. acceleration	[m/s <sup>2</sup> ]	20
Min./max. ambient temperature	[°C]	0/80
Dead weight of base including slide	[kg]	12.5
Additional mass per 100 mm stroke	[kg]	1.4
Weight of slide	[kg]	5.8
Dead weight of slide, long	[kg]	9.1
Guidance system		Roller guide
Roll diameter	[mm]	28
Drive concept		Spindle drive
Idle torque	[Nm]	1
Moment of inertia	[kgm <sup>2</sup> ]	0.000225
Spindle diameter	[mm]	25
Spindle pitch	[mm]	5/10/25/50
Max. spindle speed	[1/min]	3000
Moments Mx max./My max./Mz max.	[Nm]	300/600/450
Forces Fy max./Fz max./-Fz max.	[N]	2000/5000/2500

① Please note that the long slide plates and the use of spindle supports (SA) reduce the maximum stroke H.

SCHUNK standard spindle supports with noise damping (SAG) reduce the maximum stroke by 10 mm for every 2 SAG.

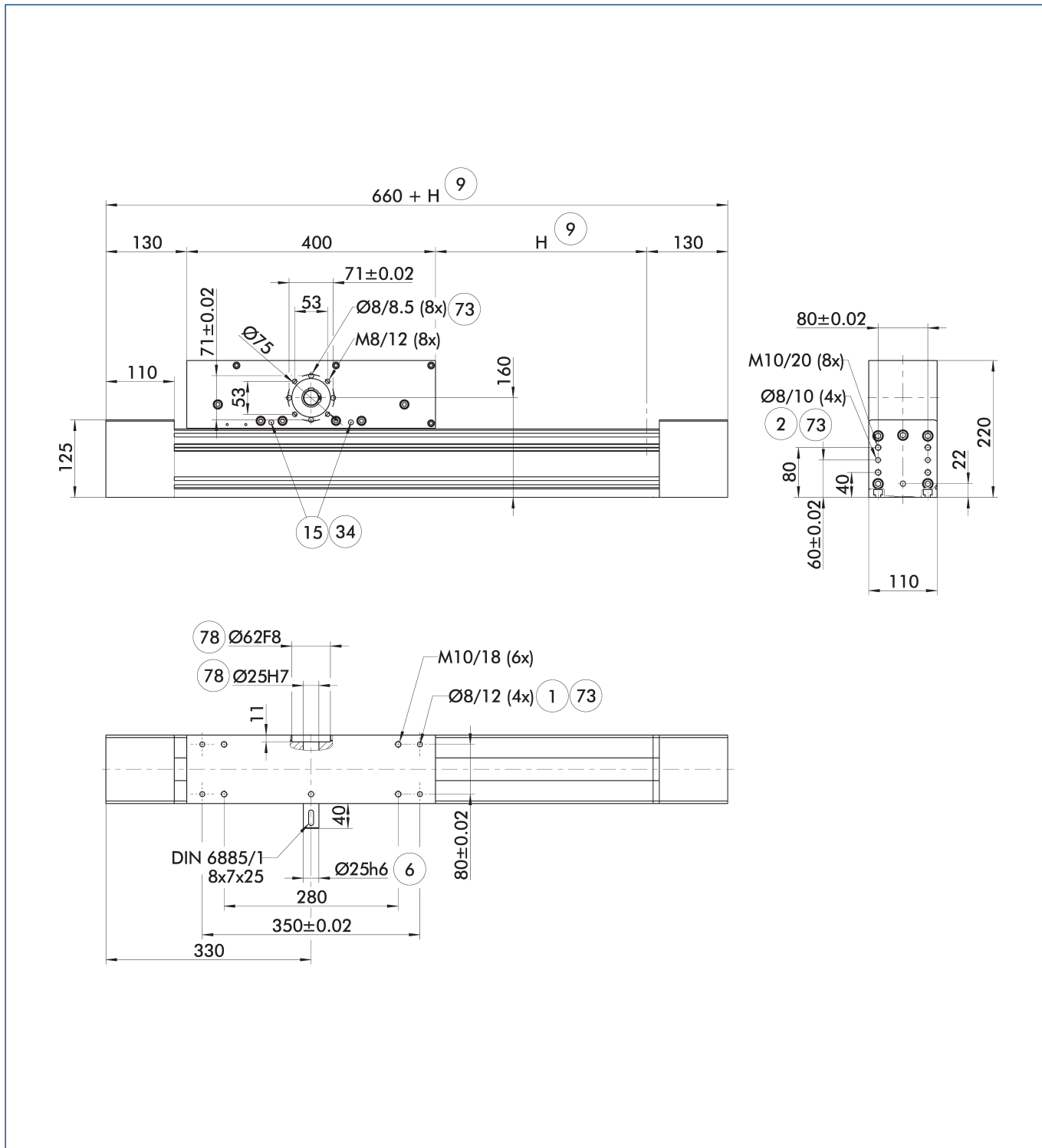
Please note that the moment of inertia for spindle axes refers to one meter.

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

\*\* The diagram shows the maximum spindle speed depending on the speed of the spindle supports (SA) and the overall length of the unit.



## ASS/ARS main view



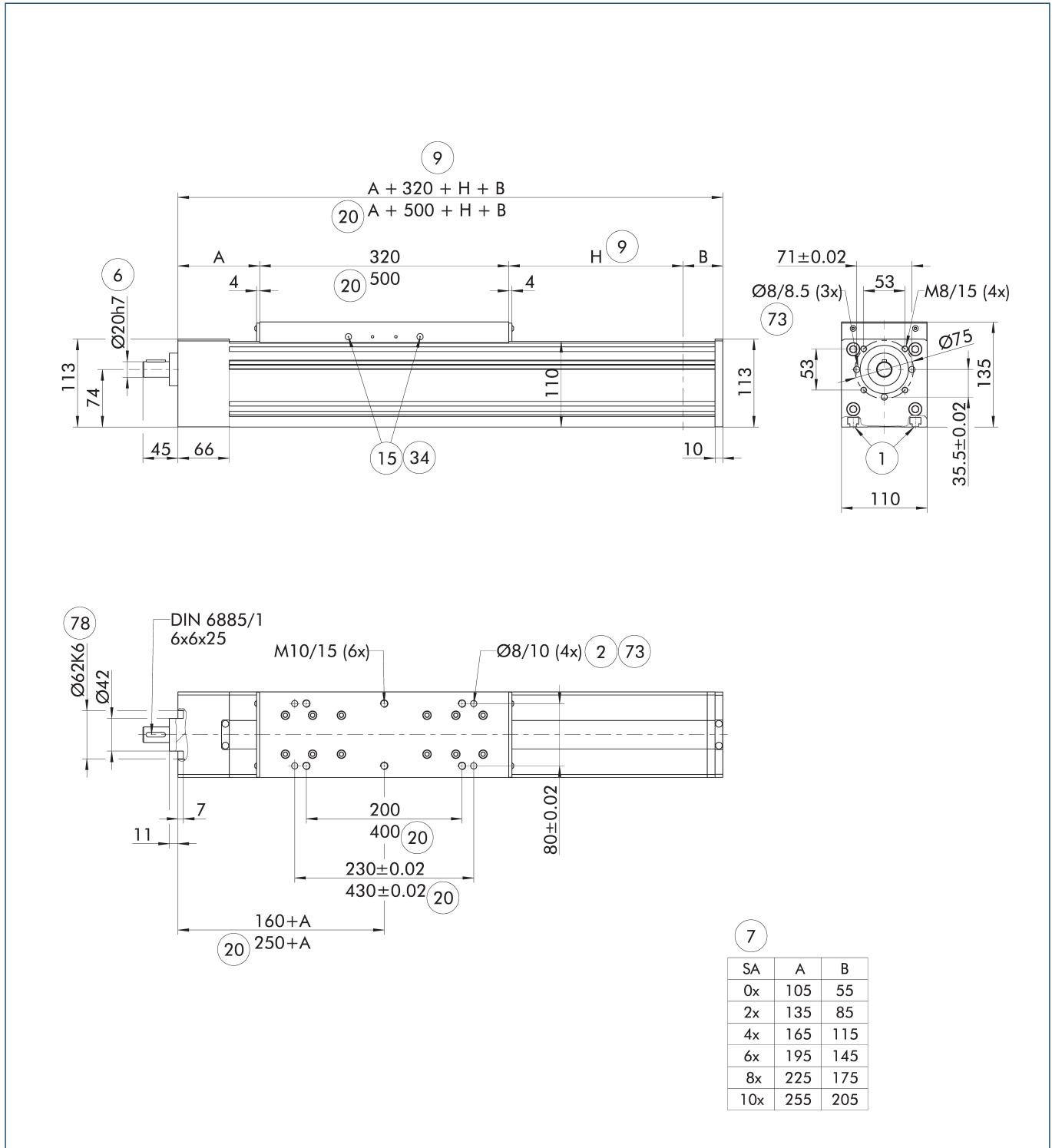
The drawing shows the unit in standard design, without considering any dimensions of the options described below.

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

# Beta 110

Universal linear module

## SSS/SRS main view



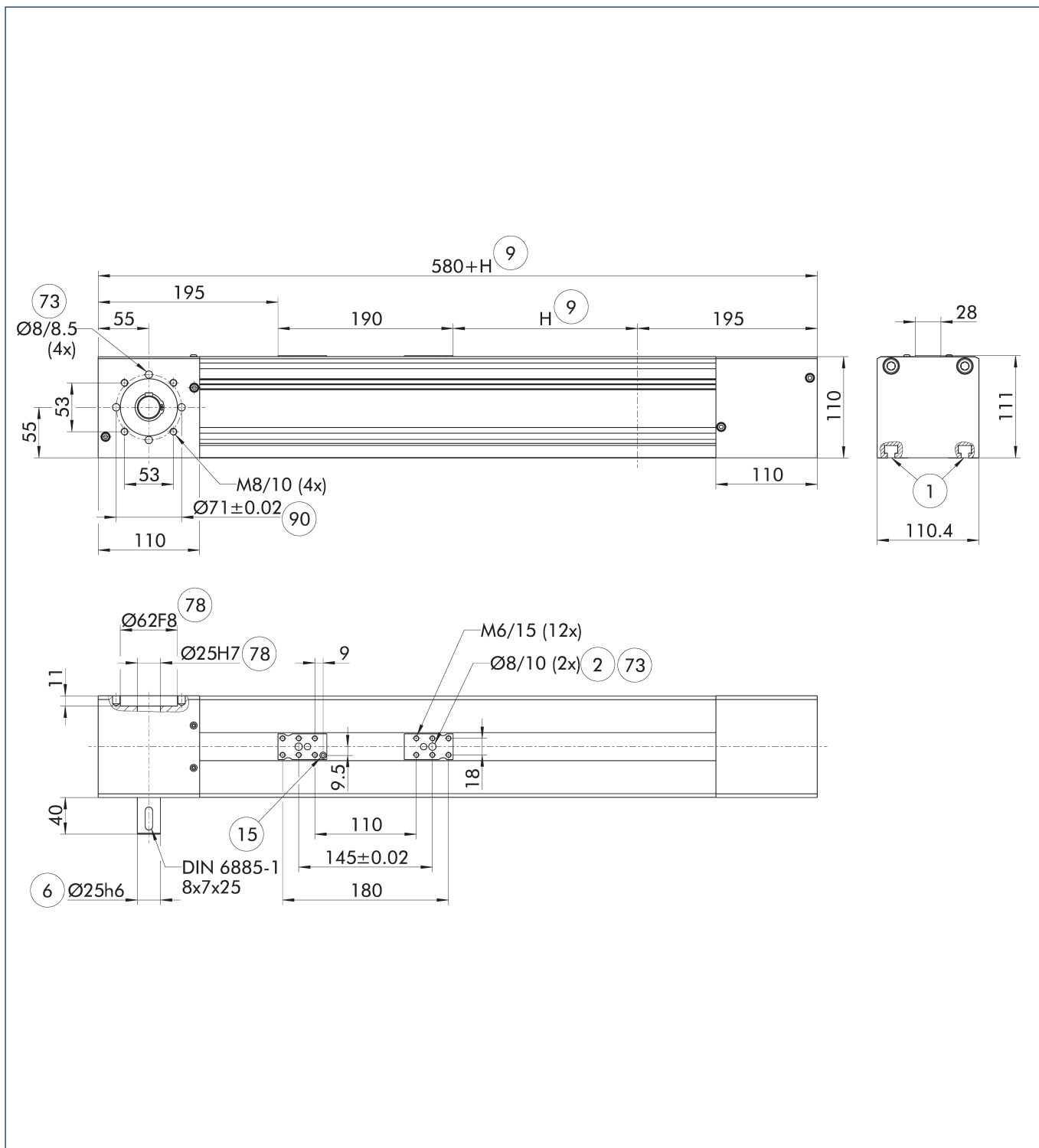
The drawing shows the unit in standard design, without considering any dimensions of the options described below.

① SCHUNK standard spindle supports with noise damping (SAG) reduce the maximum stroke by 10 mm for every 2 SAG.

- ① Connection linear unit
- ② Attachment connection
- ③ Drive connection
- ④ Number of spindle supports
- ⑤ Nominal stroke
- ⑥ Lubricant connection
- ⑦ With long side plate
- ⑧ On both sides
- ⑨ Fit for centering pins
- ⑩ Fit for centering



## Main view ZSE

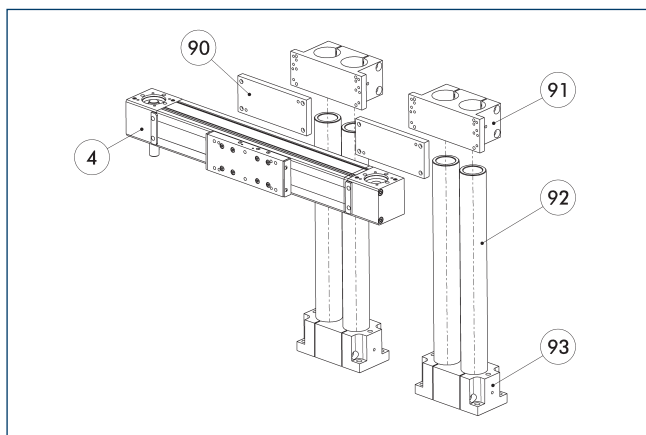


The drawing shows the unit in standard design, without considering any dimensions of the options described below.

- |                          |                           |
|--------------------------|---------------------------|
| ① Connection linear unit | ⑮ Lubricant connection    |
| ② Attachment connection  | ⑦③ Fit for centering pins |
| ⑥ Drive connection       | ⑦⑧ Fit for centering      |
| ⑨ Nominal stroke         | ⑨⑩ Bolt circle            |



## Attachment to a pillar assembly system

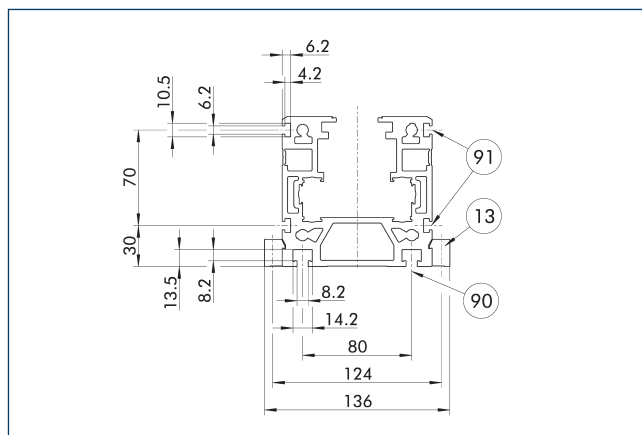


- ④ Linear unit
- ⑨② Pillars, hard-chromium plated, ground
- ⑨① Adapter plate AGH
- ⑨③ Double socket SOD
- ⑨② ADV mounting plate

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			
ADV 55	0313517	55	Aluminum
APDH 85	0313414	55	Aluminum
APDV 85	0313416	55	Aluminum
APEH 85	0313413	55	Aluminum
APEV 85	0313415	55	Aluminum

## Mounting



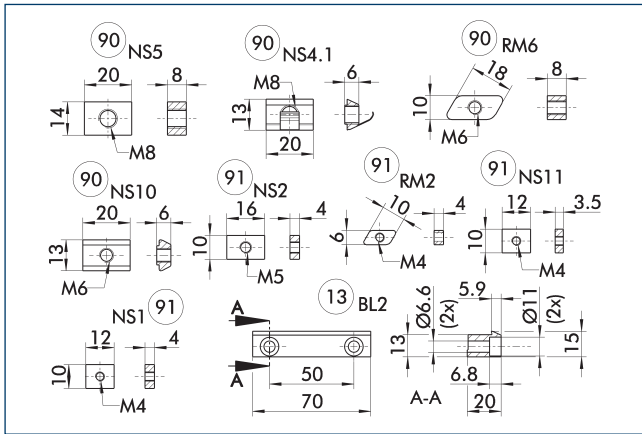
- ⑬ Mounting strip
- ⑨① Side T-nut
- ⑨① T-nut at the bottom side

The drawing shows the position of the mounting options.

# Beta 110

Universal linear module

## Fastening elements

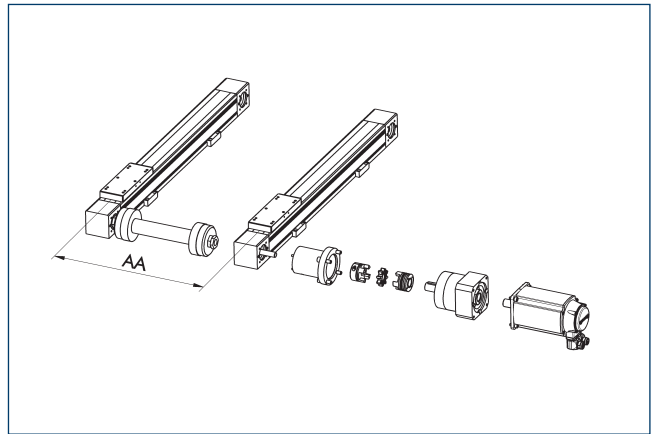


- 13 Mounting strip
- 91 Side T-nut
- 90 T-nut at the bottom side

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

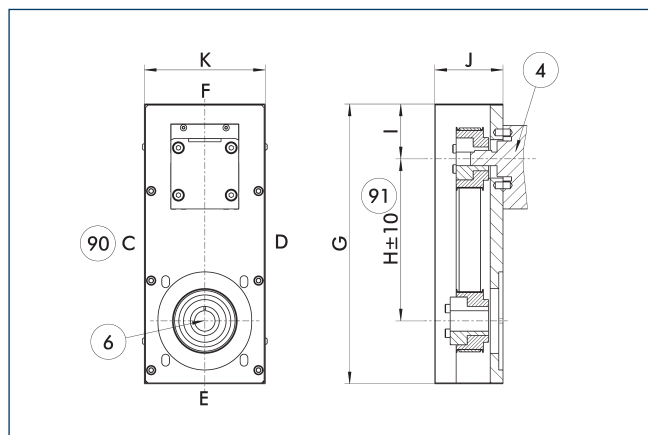
Description	ID	
<b>Mounting strip</b>		
BL2-70x15x20-01	0331401	
<b>T-nut</b>		
NS 10-M6-6	0331422	
NS 11-M4	0331429	
NS 1-M4	0331404	
NS 2-M5	0331405	
NS 4.1-M8-6	0331430	
NS 5-M8-8	0331408	
RM2-M4	0331425	

## Connection shaft



Description	Connection shaft	Min. AA
		[mm]
B 110-ZSS	GX4/GX8	320
B 110-ZSE	GX4/GX8	320
B 110-ZRS	GX4/GX8	320
B 110-SSS	GX4	350
B 110-SRS	GX4	350

## Angle belt drive



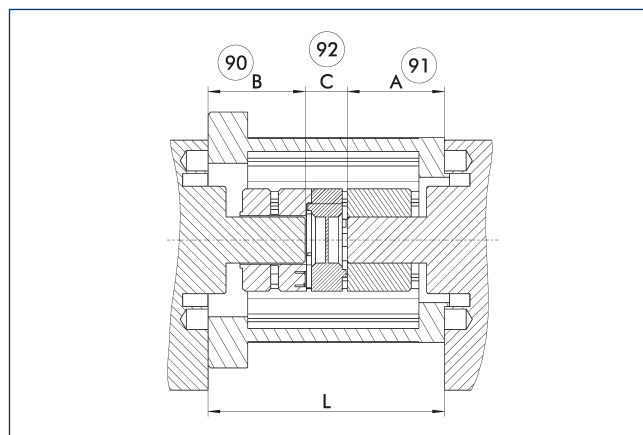
- ④ Linear unit
- ⑥ Drive connection
- ⑨⑩ Attachment direction of angle belt drive
- ⑨⑪ Dependent on transmission ratio and toothed belt design.

The angle belt drive makes it possible to achieve various drive solutions in confined spaces. SCHUNK offers the suitable angle gear for your drive.

Description	G	H	I	J	K
	[mm]	[mm]	[mm]	[mm]	[mm]
B 110-SSS	328	190	64	80	142
B 110-SRS	328	190	64	80	142

① Possible transmission ratios:  $i = 1 : 1$ ,  $i = 2 : 1$  and  $i = 3 : 1$

## Motor flange schematic diagram



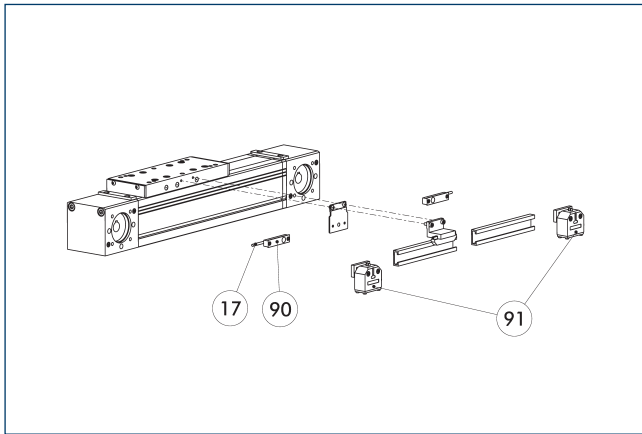
- ⑨⑩ Length of motor / transmission drive shaft
- ⑨⑪ Length of linear unit drive journal
- ⑨⑫ Clutch length

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

# Beta 110

Universal linear module

## 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
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.

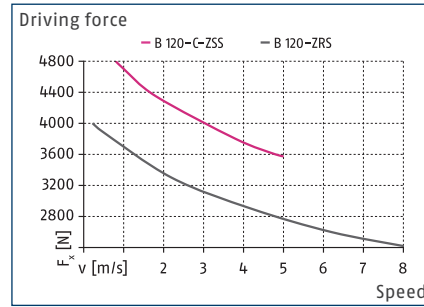


# Beta 120

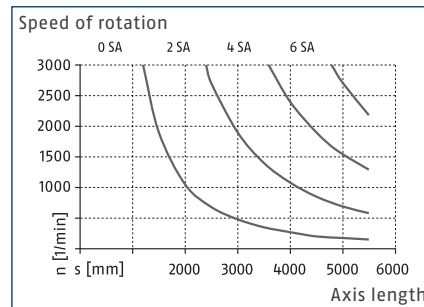
Universal linear module



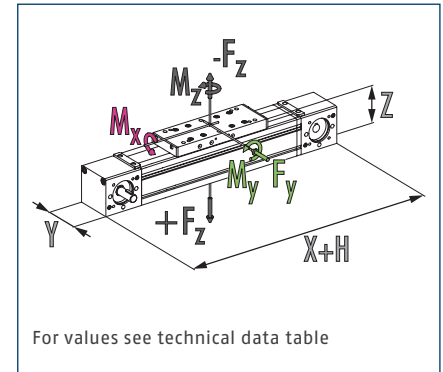
## Max. driving force (toothed belt)\*



## Spindle supports\*\*



## 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

Description		B 120-C-ZSS	B 120-ZRS	B 120-C-SSS
Max. stroke H	[mm]	7500	7520	5120
Max. driving force	[N]	4800	4000	12000
Repeat accuracy	[mm]	±0.08	±0.08	±0.03
Max. total length	[mm]	8100	8100	5600
Max. speed	[m/s]	5	8	3
Max. acceleration	[m/s <sup>2</sup> ]	60	60	20
Min./max. ambient temperature	[°C]	0/80	0/80	0/80
Dead weight of base including slide	[kg]	21	12.5	22
Additional mass per 100 mm stroke	[kg]	2.4	1.3	2.7
Weight of slide	[kg]	8	6	8
Dead weight of slide, long	[kg]	12	9.4	12
Guidance system		Rail guide	Roller guide	Rail guide
Number of rails		1		1
Size of rails		30		30
Roll diameter	[mm]		35	
Drive concept		Belt drive	Belt drive	Spindle drive
Idle torque	[Nm]	4.5	3.2	2
Moment of inertia	[kgm <sup>2</sup> ]	0.021	0.015	0.000639
Toothed belt type		60 ATL 10	50 ATL 10	
Traverse path per revolution	[mm]	300	240	
Spindle diameter	[mm]			32
Spindle pitch	[mm]			5/10/20/40/60
Max. spindle speed	[1/min]			3000
Moments M <sub>x</sub> max./M <sub>y</sub> max./M <sub>z</sub> max.	[Nm]	600/1500/1000	350/700/500	600/1500/1000
Forces F <sub>y</sub> max./F <sub>z</sub> max./-F <sub>z</sub> max.	[N]	4000/12000/6000	2500/6000/3000	4000/12000/6000

① Please note that the long slide plates and the use of spindle supports (SA) reduce the maximum stroke H.

SCHUNK standard spindle supports with noise damping (SAG) reduce the maximum stroke by 10 mm for every 2 SAG.

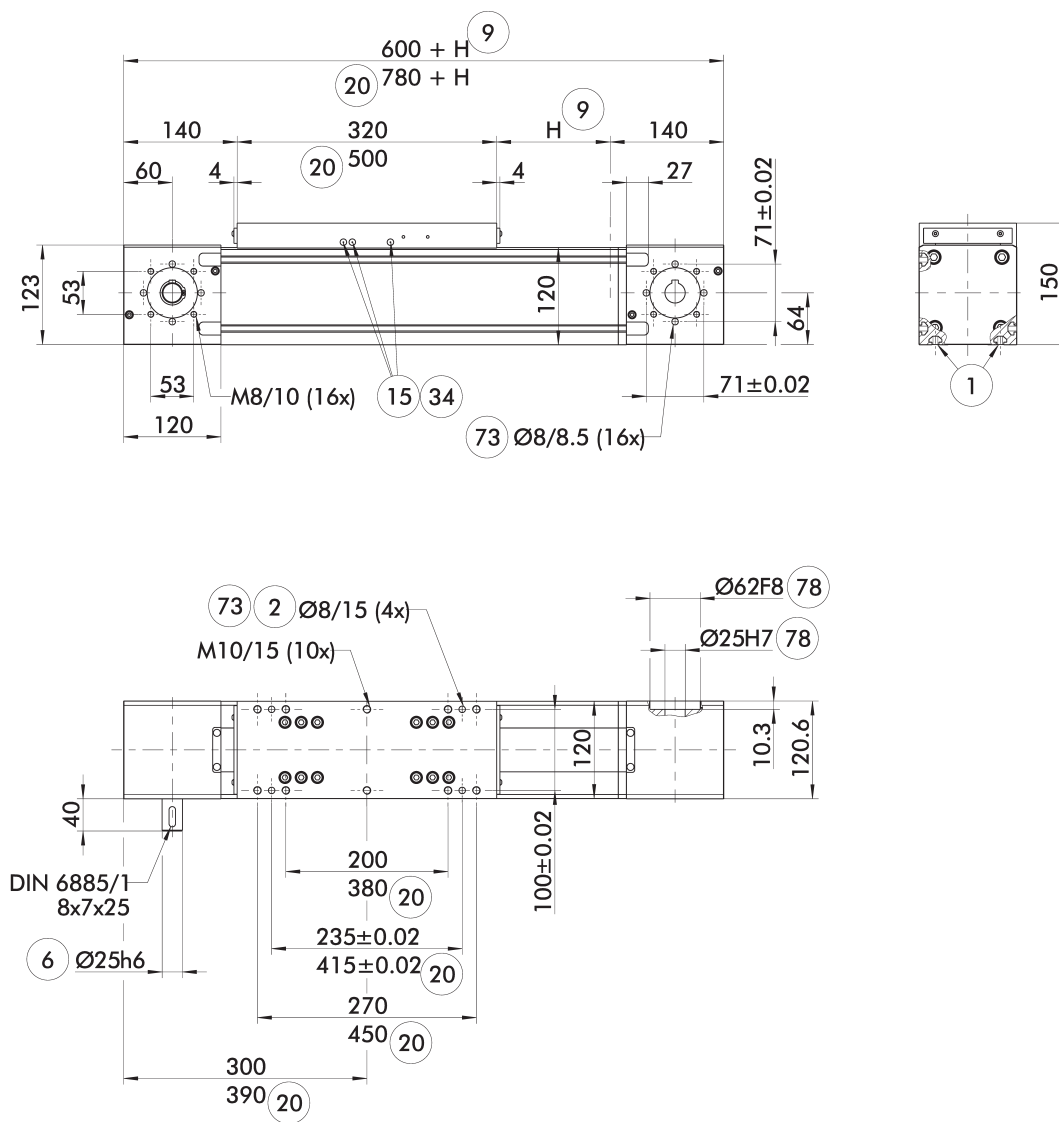
Please note that the moment of inertia for spindle axes refers to one meter.

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

\*\* The diagram shows the maximum spindle speed depending on the speed of the spindle supports (SA) and the overall length of the unit.



C-ZSS main view



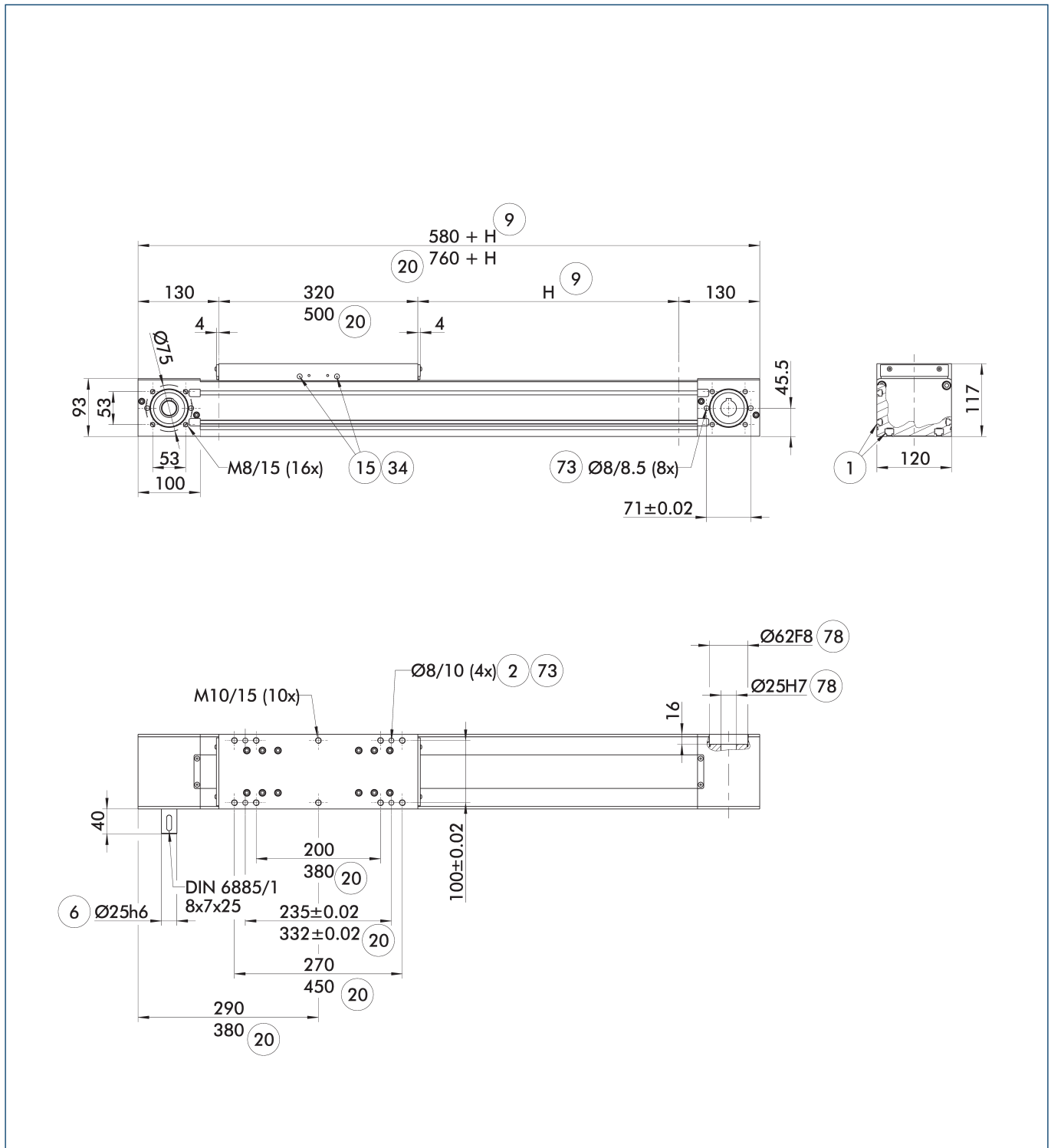
The drawing shows the unit in standard design, without considering any dimensions of the options described below.

- ① Connection linear unit
- ② Attachment connection
- ③ On both sides
- ④ Drive connection
- ⑤ Lubricant connection
- ⑥ With long slide plate
- ⑦ 20
- ⑧ Fit for centering pins
- ⑨ Nominal stroke
- ⑩ Fit for centering

# Beta 120

Universal linear module

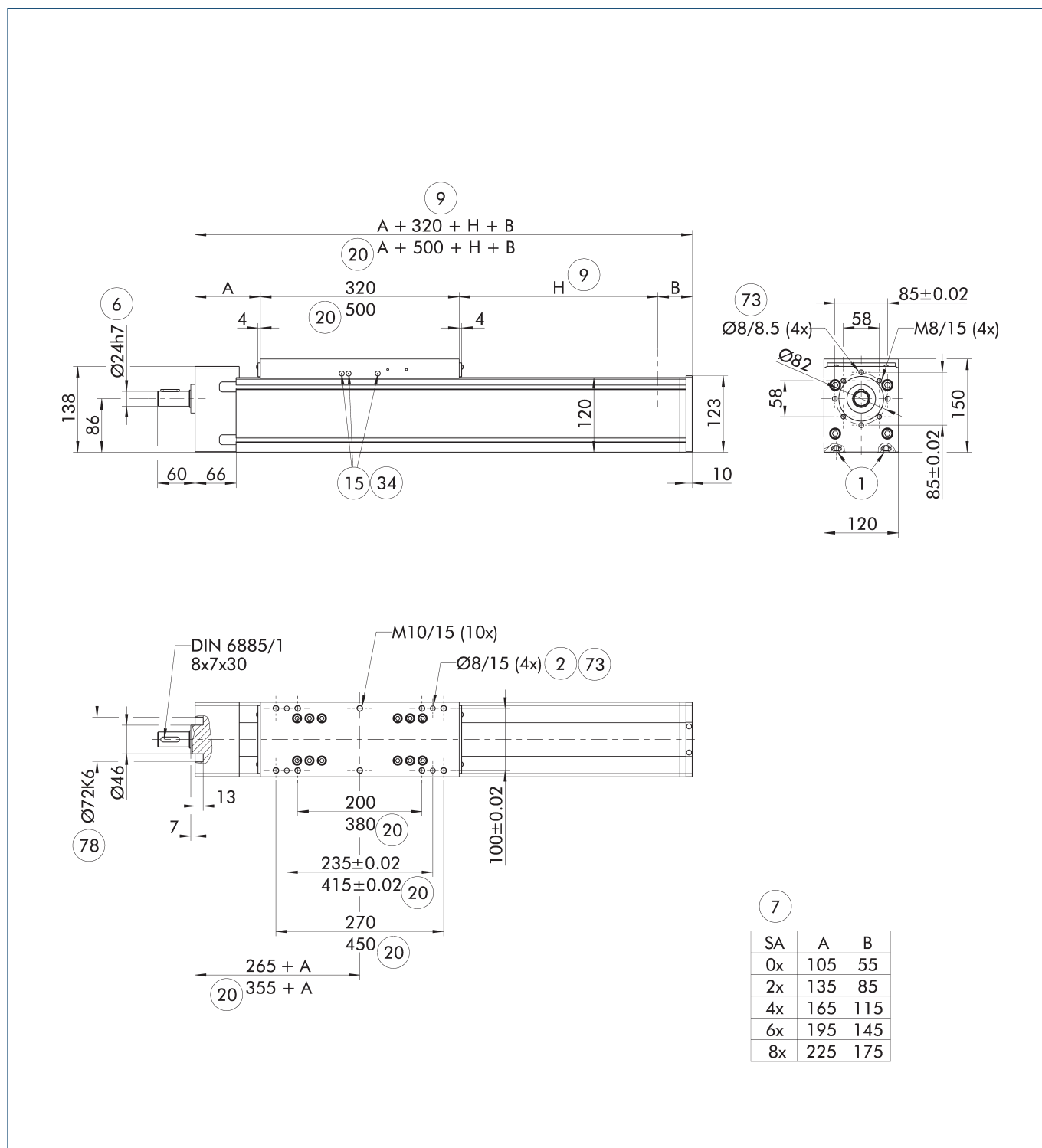
## ZRS main view



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

- |                          |                           |
|--------------------------|---------------------------|
| ① Connection linear unit | ②② With long slide plate  |
| ② Attachment connection  | ③④ On both sides          |
| ⑥ Drive connection       | ⑦③ Fit for centering pins |
| ⑨ Nominal stroke         | ⑦⑧ Fit for centering      |
| ⑮ Lubricant connection   |                           |

## C-SSS main view



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

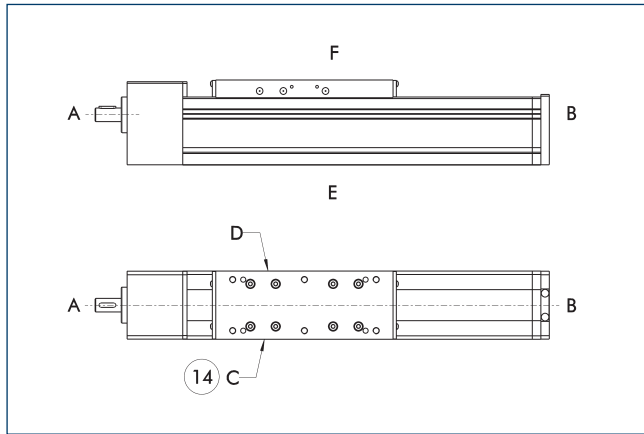
① SCHUNK standard spindle supports with noise damping (SAG) reduce the maximum stroke by 10 mm for every 2 SAG.

- |                              |                          |
|------------------------------|--------------------------|
| ① Connection linear unit     | ⑮ Lubricant connection   |
| ② Attachment connection      | ⑳ With long side plate   |
| ⑥ Drive connection           | ㉓ On both sides          |
| ⑦ Number of spindle supports | ㉗ Fit for centering pins |
| ⑨ Nominal stroke             | ㉘ Fit for centering      |

# Beta 120

Universal linear module

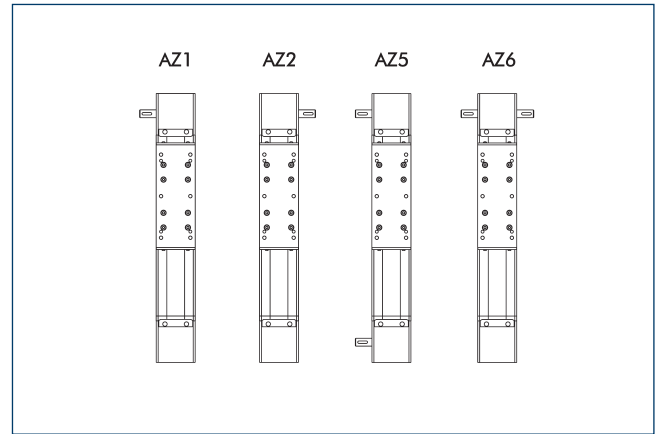
## Side definition



⑭ Limit switch standard position

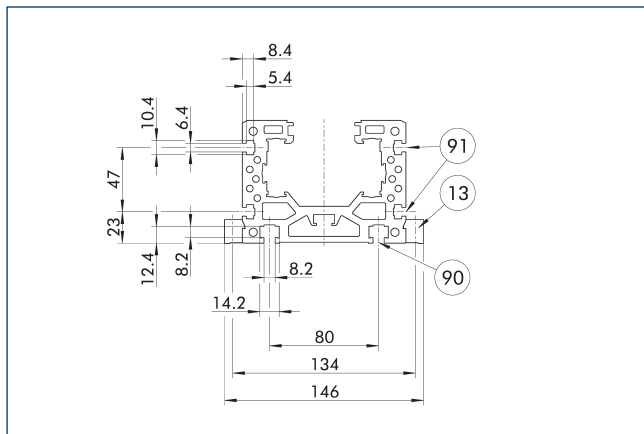
This drawing indicates the definition for the sides. This serves as the basis for all attachments.

## 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.

## Mounting



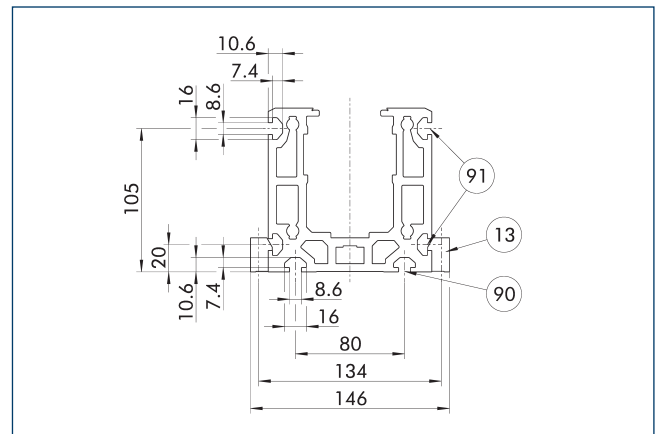
⑬ Mounting strip

⑨① Side T-nut

⑨② T-nut at the bottom side

The drawing shows the position of the mounting options.

## C-Version attachment



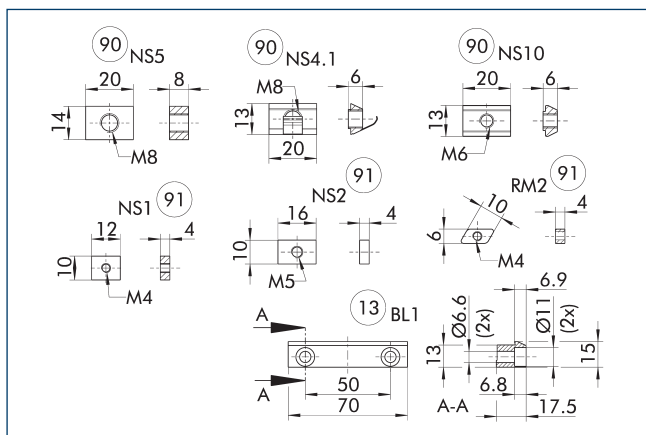
⑬ Mounting strip

⑨① Side T-nut

⑨② T-nut at the bottom side

The drawing shows the position of the mounting options.

## Fastening elements

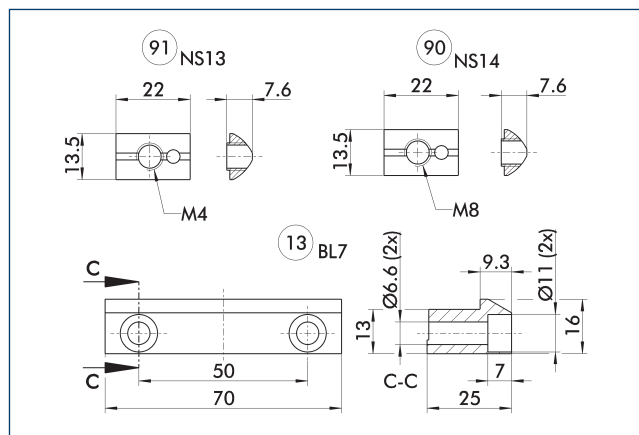


- 13 Mounting strip
- 91 Side T-nut
- 90 T-nut at the bottom side

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

Description	ID	
<b>Mounting strip</b>		
BL1-70x15x17.5-01	0331400	
<b>T-nut</b>		
NS 10-M6-6	0331422	
NS 1-M4	0331404	
NS 2-M5	0331405	
NS 4.1-M8-6	0331430	
NS 5-M8-8	0331408	
RM2-M4	0331425	

## C-version mounting elements

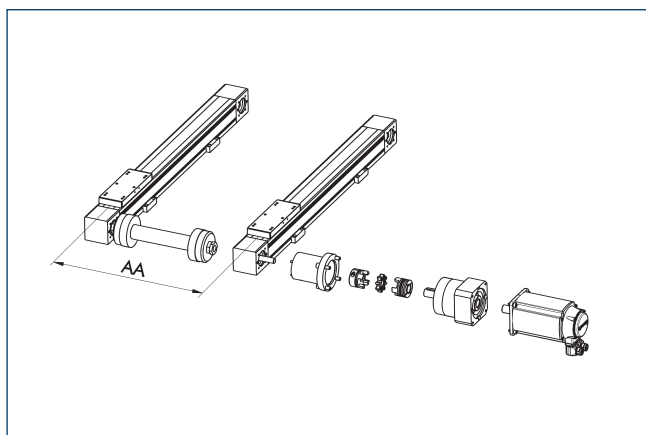


- 13 Mounting strip
- 91 Side T-nut
- 90 T-nut at the bottom side

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

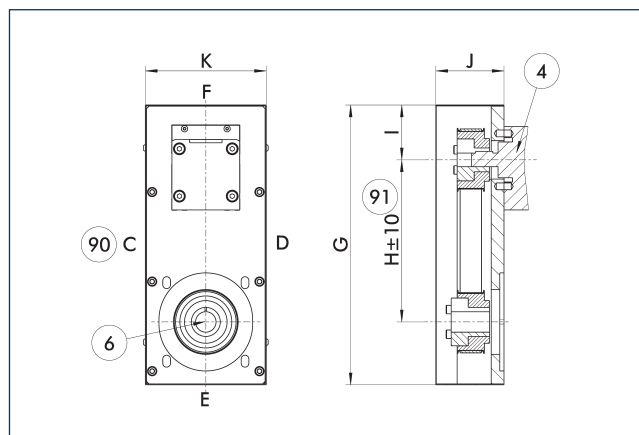
Description	ID	
<b>Mounting strip</b>		
BL7-70x16x25-01	0331435	
<b>T-nut</b>		
NS 13-M4	0331431	
NS 14-M8	0331432	

## Connection shaft



Description	Connection shaft	Min. AA
		[mm]
B 120-C-ZSS	GX4/GX8	300
B 120-ZRS	GX4/GX8	300
B 120-C-SSS	GX4	350

## Angle belt drive



- 4 Linear unit
- 6 Drive connection
- 90 Attachment direction of angle belt drive
- 91 Dependent on transmission ratio and toothed belt design.

The angle belt drive makes it possible to achieve various drive solutions in confined spaces. SCHUNK offers the suitable angle gear for your drive.

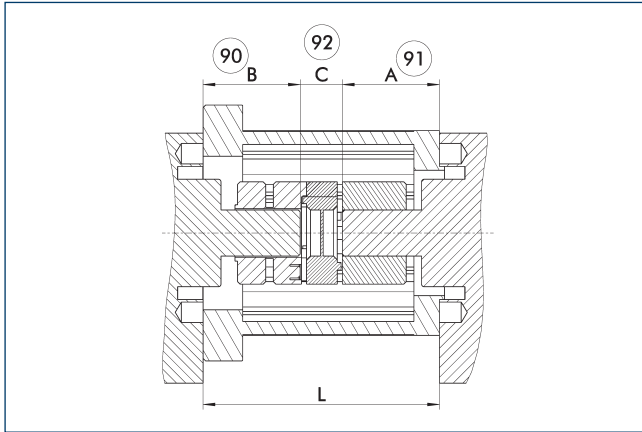
Description	G	H	I	J	K
	[mm]	[mm]	[mm]	[mm]	[mm]
B 120-C-SSS	328	190	64	80	142

① Possible transmission ratios:  $i = 1 : 1$ ,  $i = 2 : 1$  and  $i = 3 : 1$

# Beta 120

Universal linear module

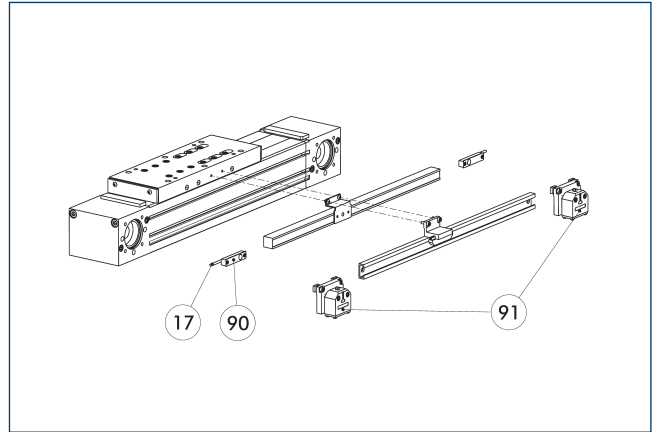
## Motor flange schematic diagram



- 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



- ⑩⑦ Cable outlet
- ⑩⑧ Inductive limit and reference switches
- ⑩⑨ 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	

- ⑩ 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.

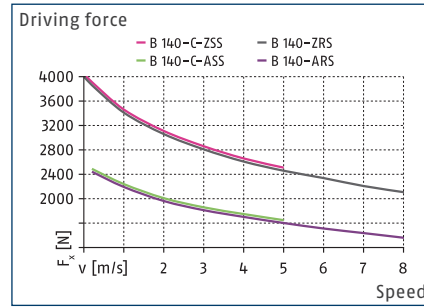


# Beta 140

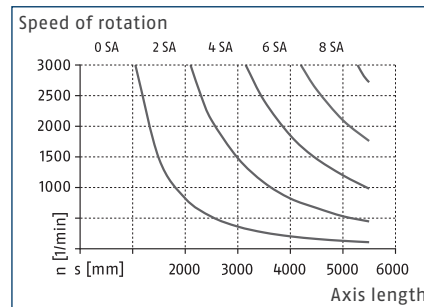
Universal linear module



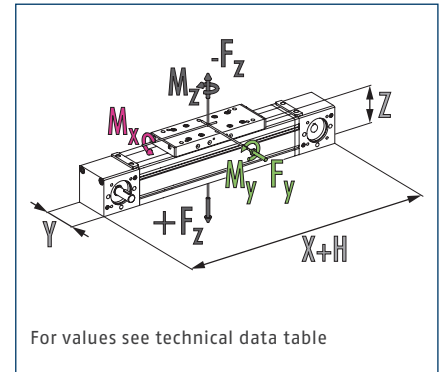
## Max. driving force (toothed belt)\*



## Spindle supports\*\*



## 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

Description		B 140-C-ZSS	B 140-ZRS	B 140-C-ASS	B 140-ARS	B 140-C-SSS
Max. stroke H	[mm]	7470	7540	7550	7470	5120
Max. driving force	[N]	4000	4000	2500	2500	6000
Repeat accuracy	[mm]	±0.08	±0.08	±0.08	±0.08	±0.03
Max. total length	[mm]	8100	8100	8100	8100	5600
Max. speed	[m/s]	5	8	5	8	2.5
Max. acceleration	[m/s <sup>2</sup> ]	60	60	60	60	20
Min./max. ambient temperature	[°C]	0/80	0/80	0/80	0/80	0/80
Dead weight of base including slide	[kg]	15	13.5	30	28	15
Additional mass per 100 mm stroke	[kg]	1.7	1.3	1.5	1.2	1.9
Weight of slide	[kg]	7.5	7			7
Dead weight of slide, long	[kg]	11.7	11			10.9
Weight of slide drive	[kg]			11.7	13	
Weight of slide drive, long	[kg]			14	13	
Guidance system		Rail guide	Roller guide	Rail guide	Roller guide	Rail guide
Number of rails		2		2		2
Size of rails		20		20		20
Roll diameter	[mm]		35		35	
Drive concept		Belt drive	Belt drive	Belt drive	Belt drive	Spindle drive
Idle torque	[Nm]	3.5	3.5	3.5	3.5	1.5
Moment of inertia	[kgm <sup>2</sup> ]	0.02	0.019	0.037	0.035	0.000225
Toothed belt type		50 AT 10-E	50 AT 10-E	50 AT 10-E	50 AT 10-E	
Traverse path per revolution	[mm]	220	220	240	240	
Spindle diameter	[mm]					25
Spindle pitch	[mm]					5/10/25/50
Max. spindle speed	[1/min]					3000
Moments Mx max./My max./Mz max.	[Nm]	600/1200/1200	350/700/500	600/1200/1200	350/700/500	600/1200/1200
Forces Fy max./Fz max./-Fz max.	[N]	3200/7500/5000	2500/5000/3000	3200/7500/5000	2500/5000/3000	3200/7500/5000

① Please note that the long slide plates and the use of spindle supports (SA) reduce the maximum stroke H. SCHUNK standard spindle supports with noise damping (SAG) reduce the maximum stroke by 10 mm for every 2 SAG. Please note that the moment of inertia for spindle axes refers to one meter.

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

\*\* The diagram shows the maximum spindle speed depending on the speed of the spindle supports (SA) and the overall length of the unit.

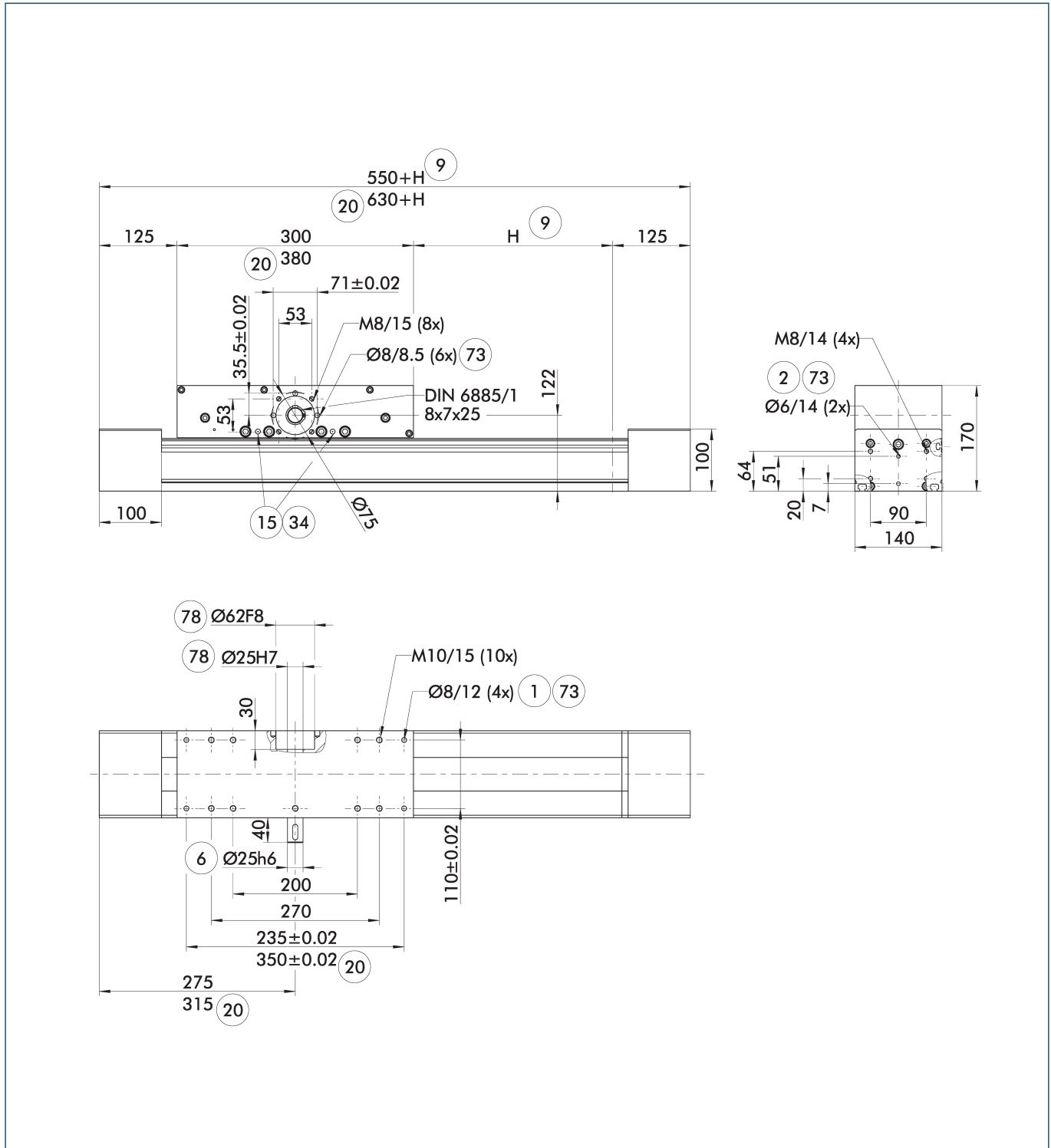




# Beta 140

Universal linear module

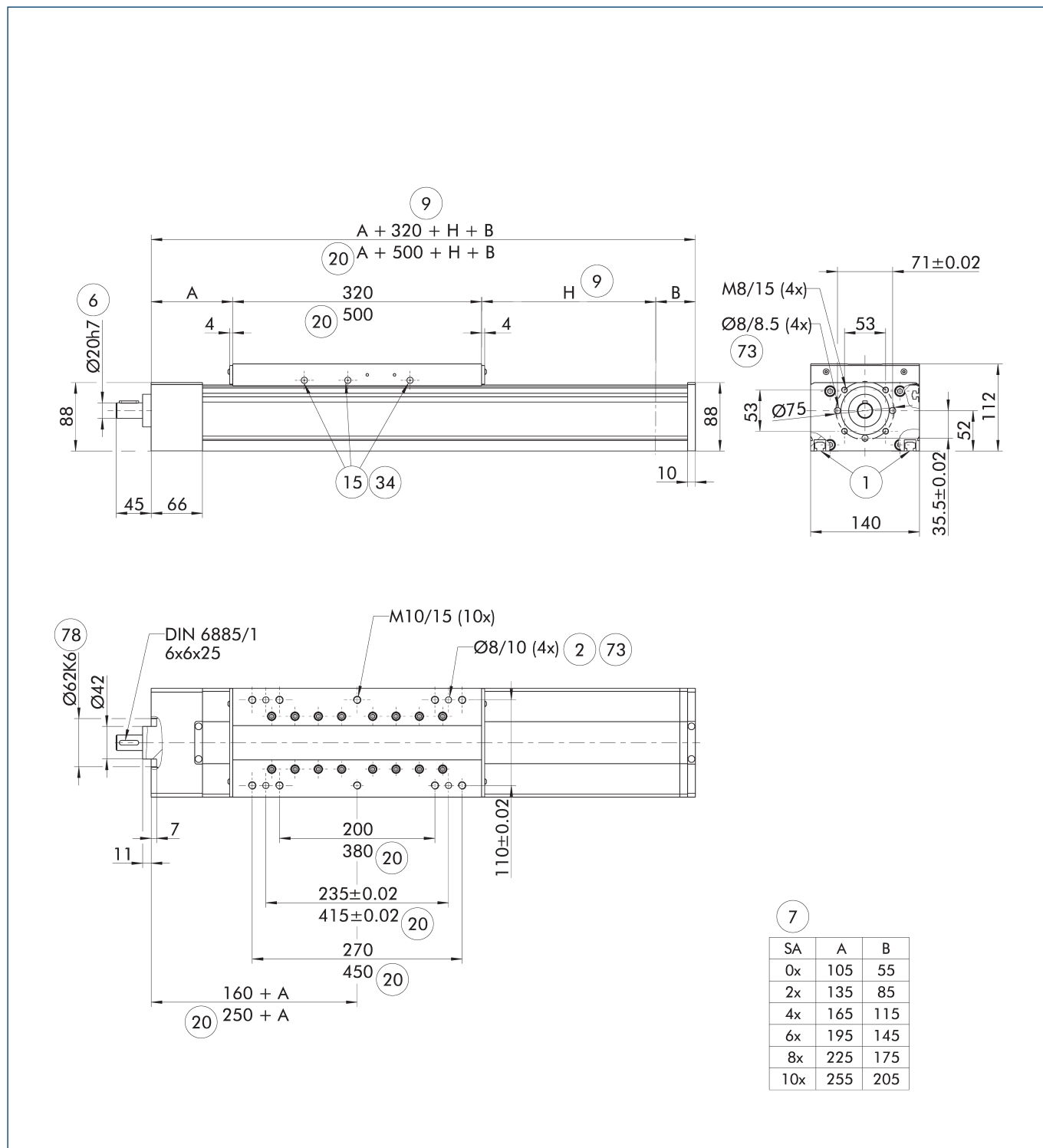
## Main view C-ASS and ARS



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

- |                          |                          |
|--------------------------|--------------------------|
| ① Connection linear unit | ⑳ With long slide plate  |
| ② Attachment connection  | ㉓ On both sides          |
| ⑥ Drive connection       | ㉗ Fit for centering pins |
| ⑨ Nominal stroke         | ㉘ Fit for centering      |
| ⑮ Lubricant connection   |                          |

## C-SSS and SRS main view



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

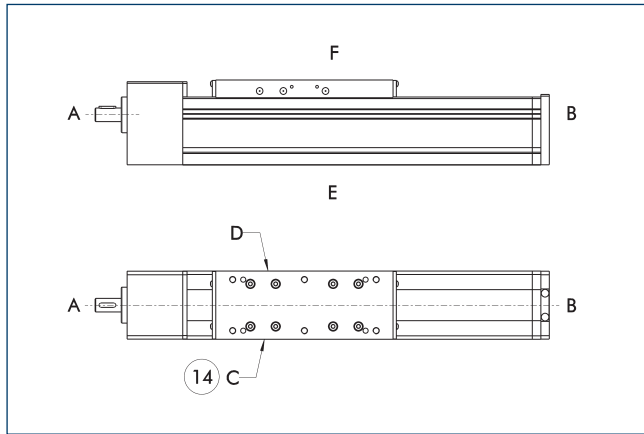
① SCHUNK standard spindle supports with noise damping (SAG) reduce the maximum stroke by 10 mm for every 2 SAG.

- ① Connection linear unit
- ② Attachment connection
- ③ Drive connection
- ④ Nominal stroke
- ⑤ Lubricant connection
- ⑥ With long side plate
- ⑦ On both sides
- ⑧ Fit for centering pins
- ⑨ Fit for centering

# Beta 140

Universal linear module

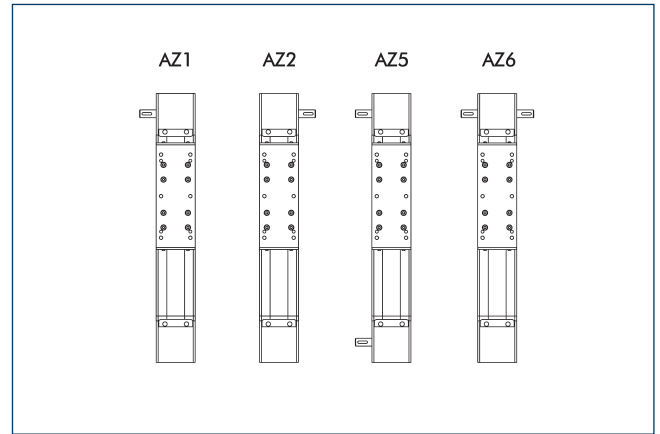
## Side definition



⑭ Limit switch standard position

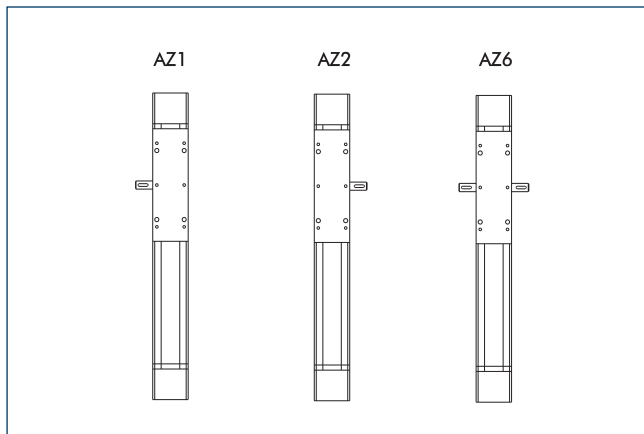
This drawing indicates the definition for the sides. This serves as the basis for all attachments.

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



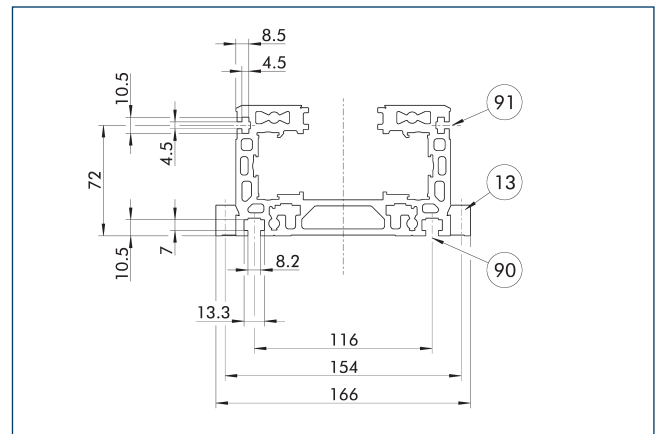
Depending on the axis application, the seat of the drive shaft has to be defined in the order text. Particularly with axis combinations and mechanical synchronization, several drive shafts are required.

## Drive shafts 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



⑬ Mounting strip

⑨① Side T-nut

⑨② T-nut at the bottom side

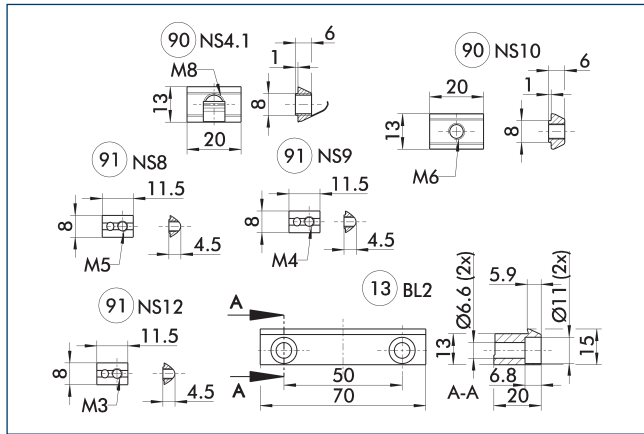
The drawing shows the position of the mounting options.



# Beta 140

Universal linear module

## C-version mounting elements

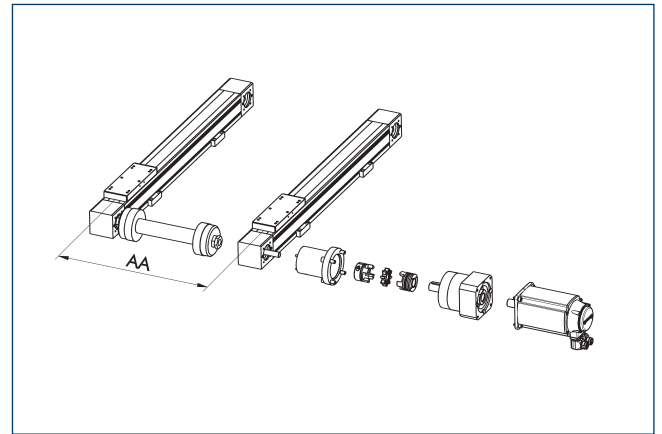


- ⑬ Mounting strip
- ⑨① Side T-nut
- ⑨① T-nut at the bottom side

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

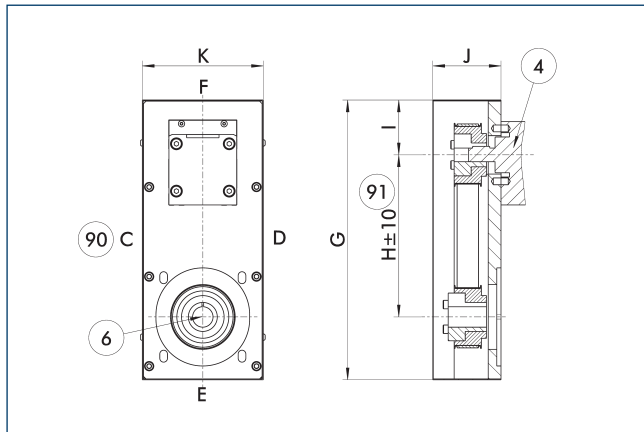
Description	ID
<b>Mounting strip</b>	
BL2-70x15x20-01	0331401
<b>T-nut</b>	
NS 10-M6-6	0331422
NS 12-M3	0331424
NS 4.1-M8-6	0331430
NS 8-M5	0331420
NS 9-M4	0331421

## Connection shaft



Description	Connection shaft	Min. AA
		[mm]
B 140-C-ZSS	GX4/GX8	310
B 140-ZRS	GX4/GX8	310
B 140-C-SSS	GX4	350

## Angle belt drive



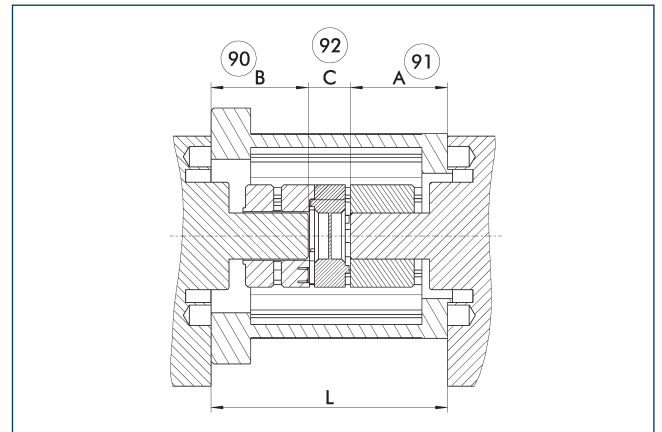
- ④ Linear unit
- ⑥ Drive connection
- ⑨① Attachment direction of angle belt drive
- ⑨① Dependent on transmission ratio and toothed belt design.

The angle belt drive makes it possible to achieve various drive solutions in confined spaces. SCHUNK offers the suitable angle gear for your drive.

Description	G	H	I	J	K
	[mm]	[mm]	[mm]	[mm]	[mm]
B 140-C-SSS	328	190	64	80	142

① Possible transmission ratios:  $i = 1 : 1$ ,  $i = 2 : 1$  and  $i = 3 : 1$

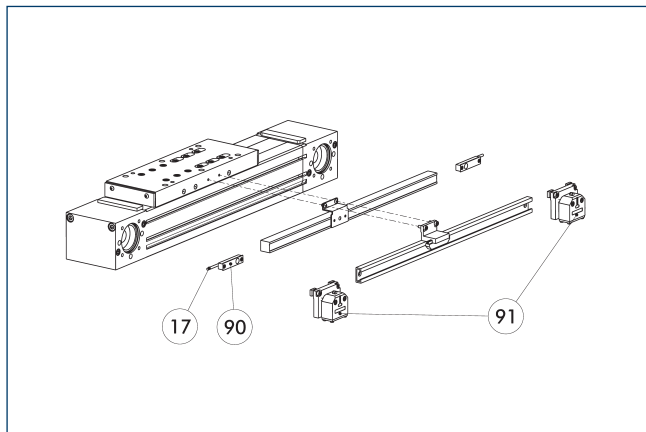
## Motor flange schematic diagram



- ⑨① 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	

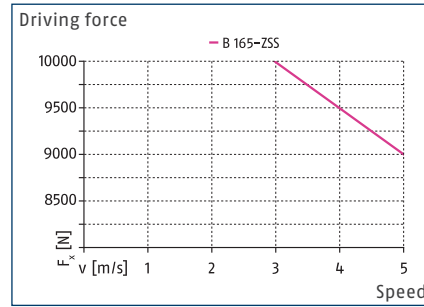
- ⓘ The positions and dimensions of limit switches, switching lugs, and mounting components may vary depending on the application and the selected limit switches. Please contact us for assistance.

# Beta 165

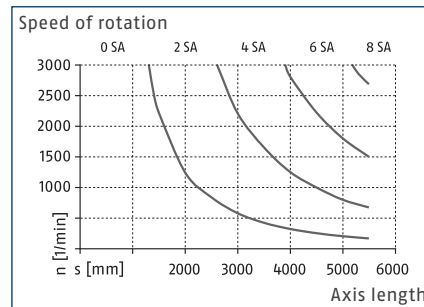
Universal linear module



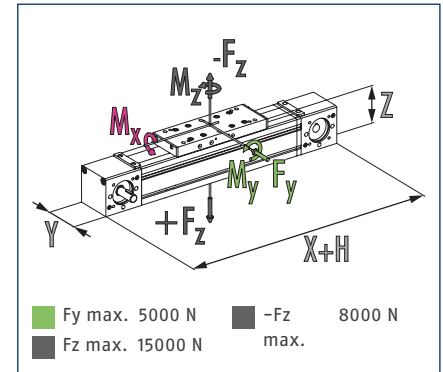
## Max. driving force (toothed belt)\*



## Spindle supports\*\*



## Dimensions and maximum loads



ⓘ 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

Description		B 165-ZSS	B 165-SSS
Max. stroke H	[mm]	6920	5010
Max. driving force	[N]	10000	18000
Repeat accuracy	[mm]	±0.08	±0.03
Max. total length	[mm]	7700	5600
Max. speed	[m/s]	5	2
Max. acceleration	[m/s <sup>2</sup> ]	60	20
Min./max. ambient temperature	[°C]	0/80	0/80
Dead weight of base including slide	[kg]	38.4	33.9
Additional mass per 100 mm stroke	[kg]	3	3.7
Weight of slide	[kg]	11.9	11.5
Dead weight of slide, long	[kg]	17.9	17.25
Guidance system		Rail guide	Rail guide
Number of rails		1	1
Size of rails		35	35
Drive concept		Belt drive	Spindle drive
Idle torque	[Nm]	12	3
Moment of inertia	[kgm <sup>2</sup> ]	0.085	0.00134
Toothed belt type		75 ATS 15	
Traverse path per revolution	[mm]	450	
Spindle diameter	[mm]		40
Spindle pitch	[mm]		5/10/20/40
Max. spindle speed	[1/min]		3000
Moments Mx max./My max./Mz max.	[Nm]	700/1400/1100	800/1800/1400

ⓘ Please note that the long slide plates and the use of spindle supports (SA) reduce the maximum stroke H. SCHUNK standard spindle supports with noise damping (SAG) reduce the maximum stroke by 10 mm for every 2 SAG. Please note that the moment of inertia for spindle axes refers to one meter.

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

\*\* The diagram shows the maximum spindle speed depending on the speed of the spindle supports (SA) and the overall length of the unit.

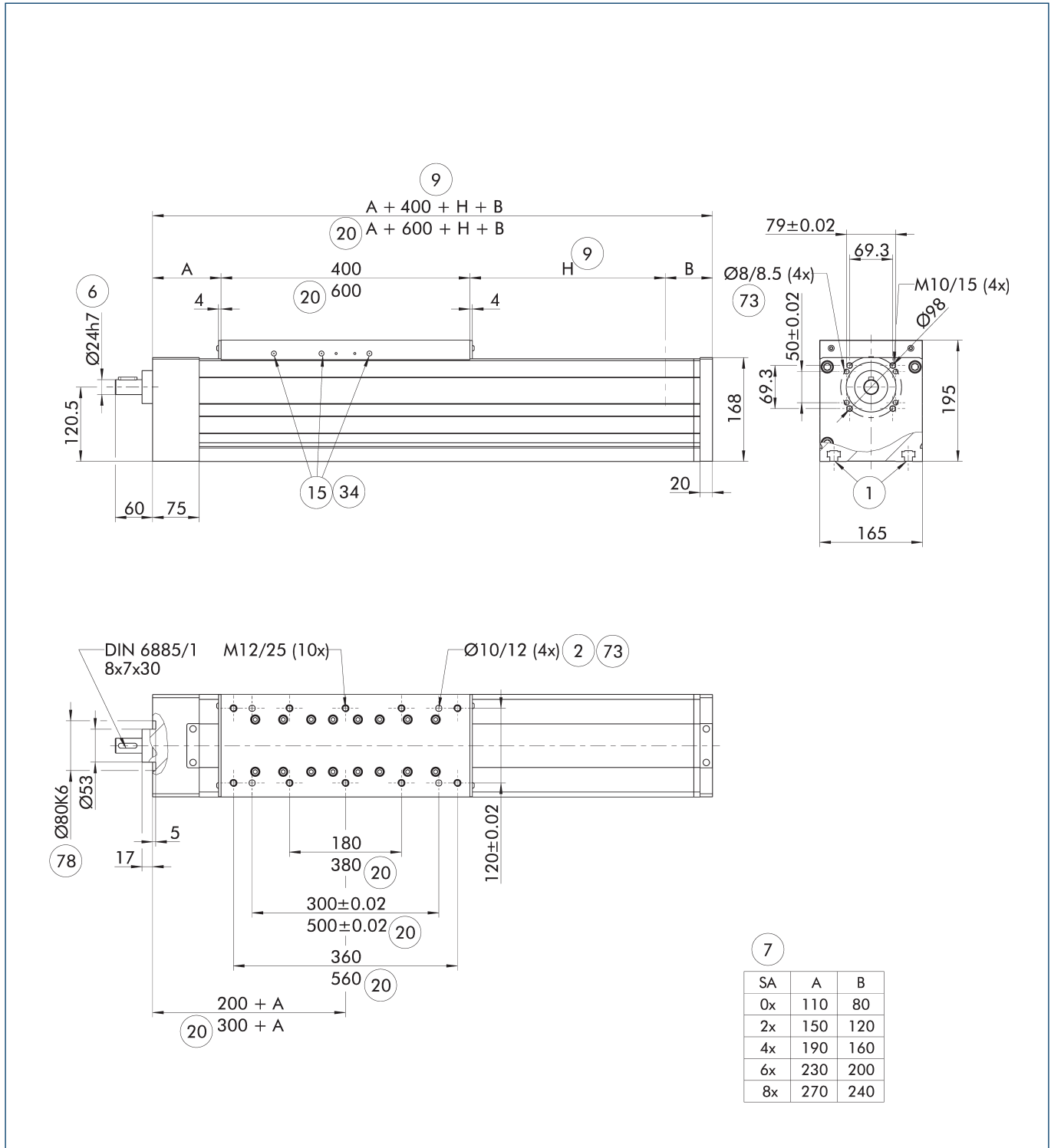




# Beta 165

Universal linear module

## SSS main view

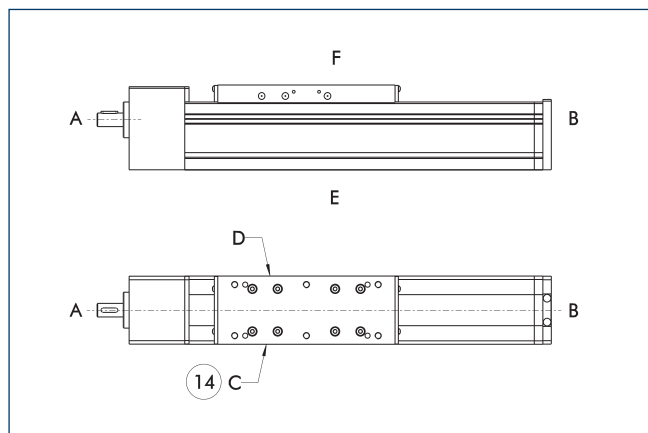


The drawing shows the unit in standard design, without considering any dimensions of the options described below.

① SCHUNK standard spindle supports with noise damping (SAG) reduce the maximum stroke by 10 mm for every 2 SAG.

- ① Connection linear unit
- ② Attachment connection
- ③ Drive connection
- ④ Number of spindle supports
- ⑤ Nominal stroke
- ⑥ Lubricant connection
- ⑦ With long side plate
- ⑧ On both sides
- ⑨ Fit for centering pins
- ⑩ Fit for centering

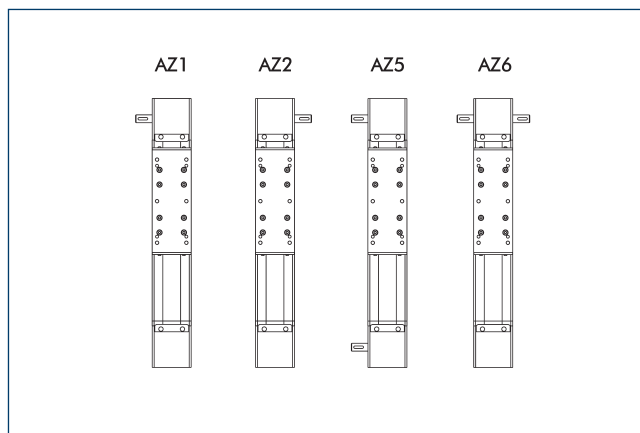
## Side definition



⑭ Limit switch standard position

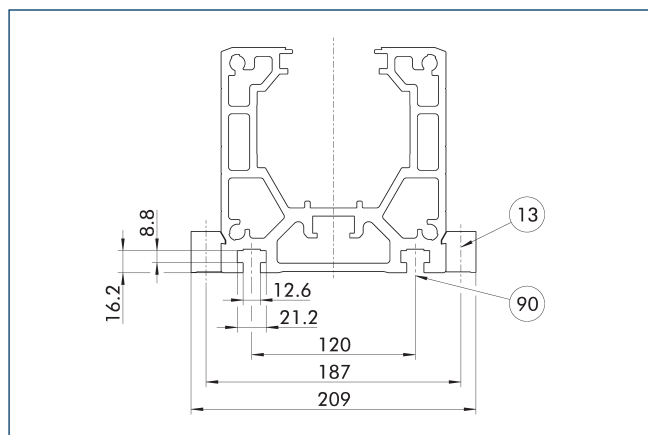
This drawing indicates the definition for the sides. This serves as the basis for all attachments.

## 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.

## Mounting

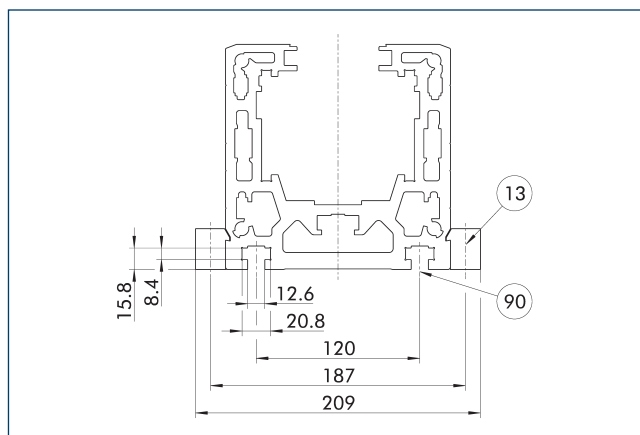


⑬ Mounting strip

⑨⑩ T-nut at the bottom side

The drawing shows the position of the mounting options.

## Attachment S-version



⑬ Mounting strip

⑨⑩ T-nut at the bottom side

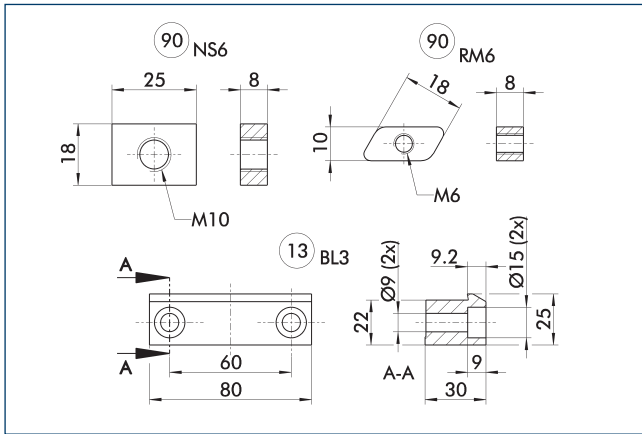
The drawing shows the position of the mounting options.

① The S version of the attachment is used on toothed belt drives as of an overall length of 5,840 mm.

# Beta 165

Universal linear module

## Fastening elements

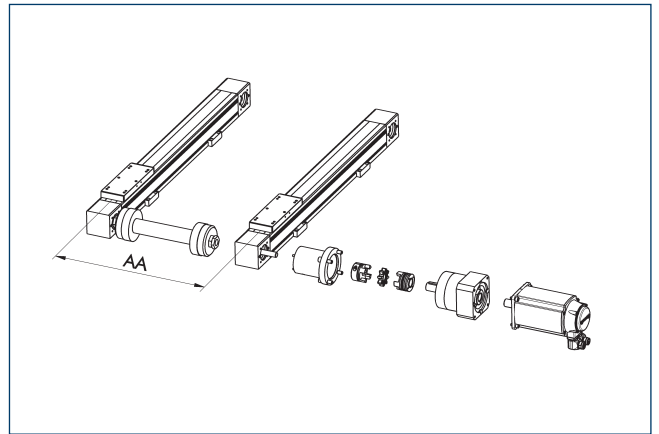


- 13 Mounting strip                      90 T-nut at the bottom side

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

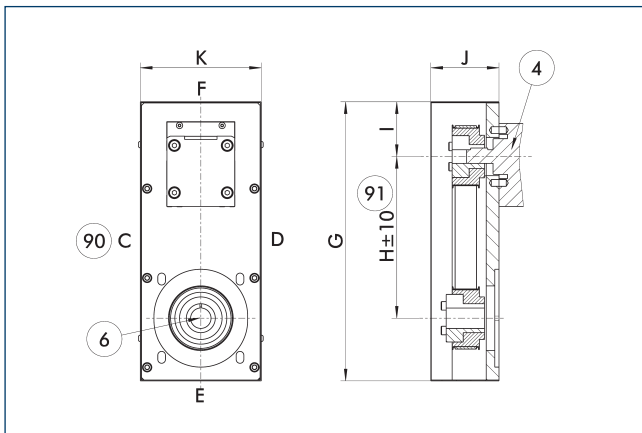
Description	ID
Mounting strip	
BL3-80x25x30-01	0331402
T-nut	
NS 6-M10	0331409
RM6-M6	0331427

## Connection shaft



Description	Connection shaft	Min. AA [mm]
B 165-ZSS	GX16	350
B 165-SSS	GX8	430

## Angle belt drive



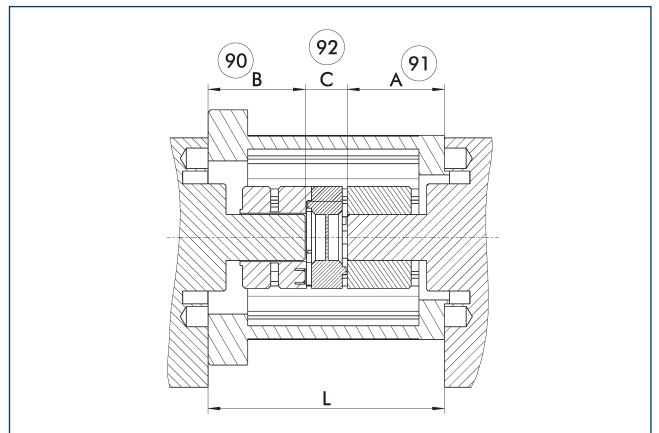
- 4 Linear unit                      90 Attachment direction of angle belt drive  
 6 Drive connection              91 Dependent on transmission ratio and toothed belt design.

The angle belt drive makes it possible to achieve various drive solutions in confined spaces. SCHUNK offers the suitable angle gear for your drive.

Description	G	H	I	J	K
	[mm]	[mm]	[mm]	[mm]	[mm]
B 165-SSS	328	190	64	80	142

① Possible transmission ratios:  $i = 1 : 1$ ,  $i = 2 : 1$  and  $i = 3 : 1$

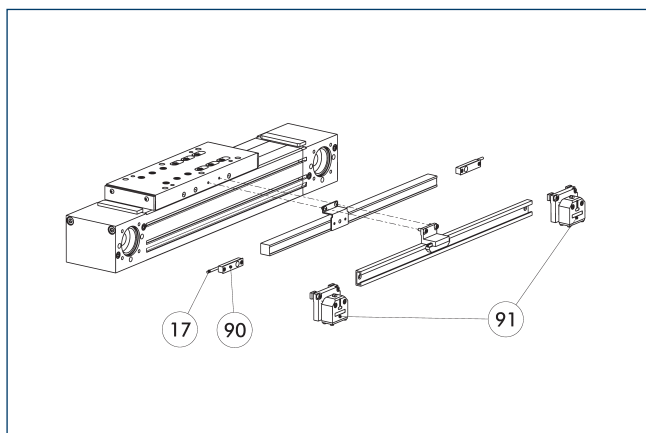
## Motor flange schematic diagram



- 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
- ①⑨ Inductive limit and reference switches
- ①⑩ 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	

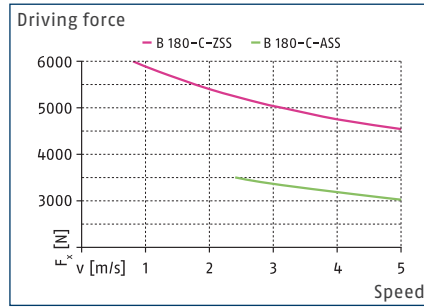
- ① The positions and dimensions of limit switches, switching lugs, and mounting components may vary depending on the application and the selected limit switches. Please contact us for assistance.

# Beta 180

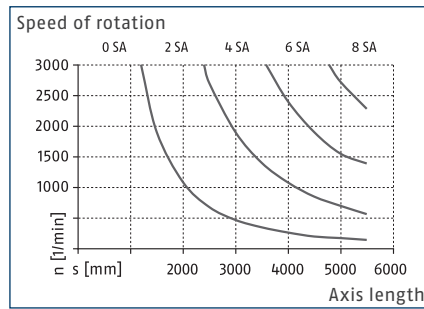
Universal linear module



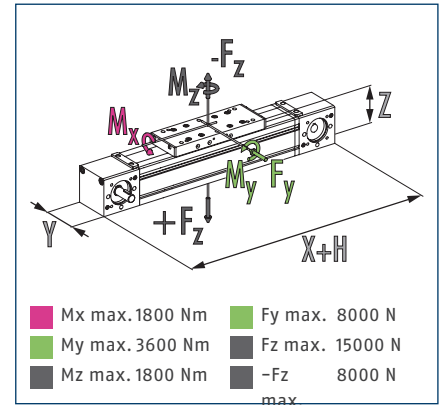
## Max. driving force (toothed belt)\*



## Spindle supports\*\*



## 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

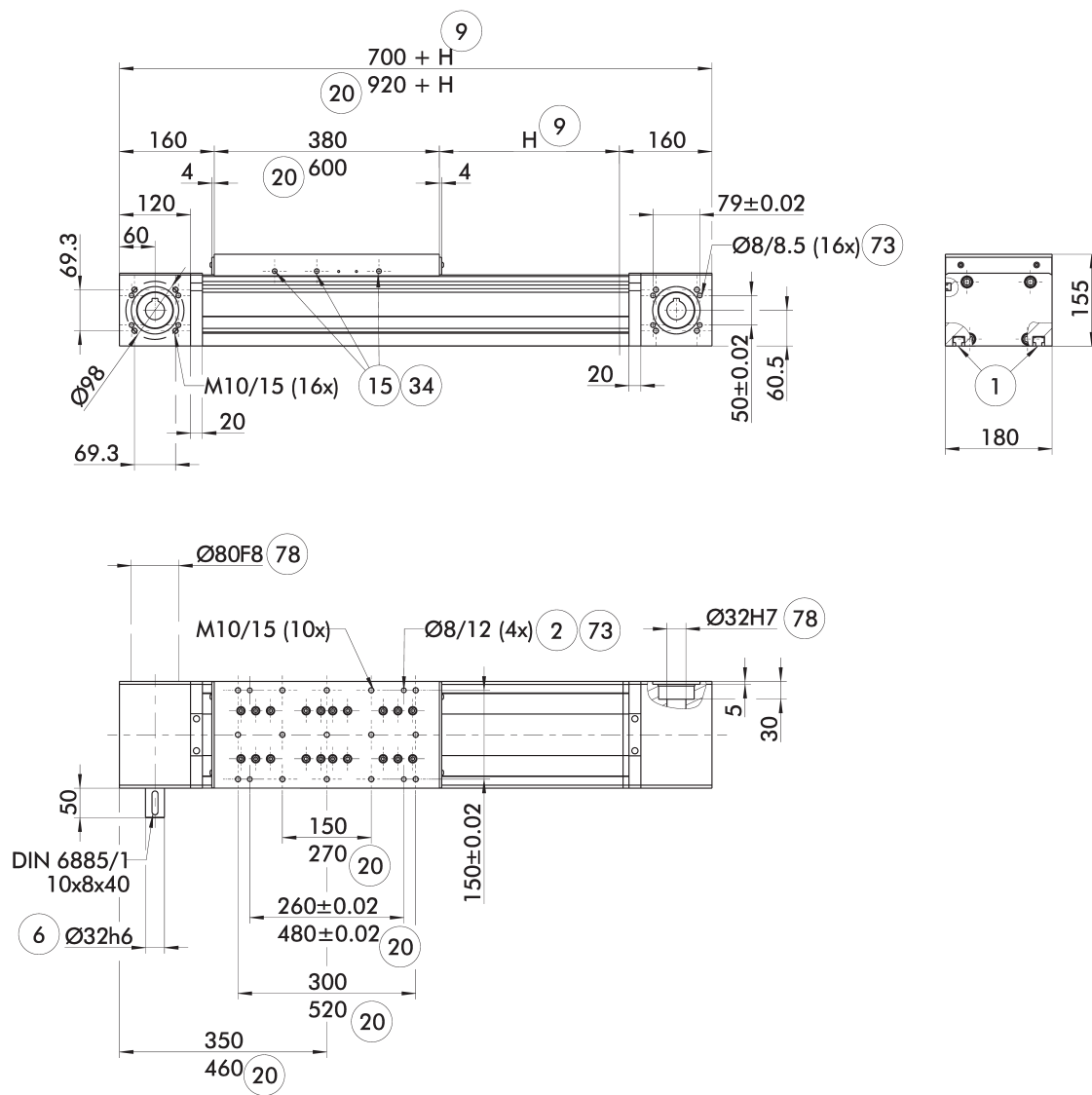
Description		B 180-C-ZSS	B 180-C-ASS	B 180-C-SSS
Max. stroke H	[mm]	5500	5470	5030
Max. driving force	[N]	6000	3500	12000
Repeat accuracy	[mm]	±0.08	±0.08	±0.03
Max. total length	[mm]	6200	6200	5600
Max. speed	[m/s]	5	5	3
Max. acceleration	[m/s <sup>2</sup> ]	60	60	20
Min./max. ambient temperature	[°C]	0/80	0/80	0/80
Dead weight of base including slide	[kg]	39.7	51.5	37
Additional mass per 100 mm stroke	[kg]	2.6	3.6	3
Weight of slide	[kg]	14.65		14.3
Dead weight of slide, long	[kg]	15.75		15.4
Weight of slide drive	[kg]		27.35	
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	Spindle drive
Idle torque	[Nm]	8	8	2.5
Moment of inertia	[kgm <sup>2</sup> ]	0.0465	0.0775	0.000639
Toothed belt type		75 AT 10	75 AT 10	
Traverse path per revolution	[mm]	320	320	
Spindle diameter	[mm]			32
Spindle pitch	[mm]			5/10/20/40/60
Max. spindle speed	[1/min]			3000

① Please note that the long slide plates and the use of spindle supports (SA) reduce the maximum stroke H. SCHUNK standard spindle supports with noise damping (SAG) reduce the maximum stroke by 10 mm for every 2 SAG. Please note that the moment of inertia for spindle axes refers to one meter.

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

\*\* The diagram shows the maximum spindle speed depending on the speed of the spindle supports (SA) and the overall length of the unit.

## C-ZSS main view



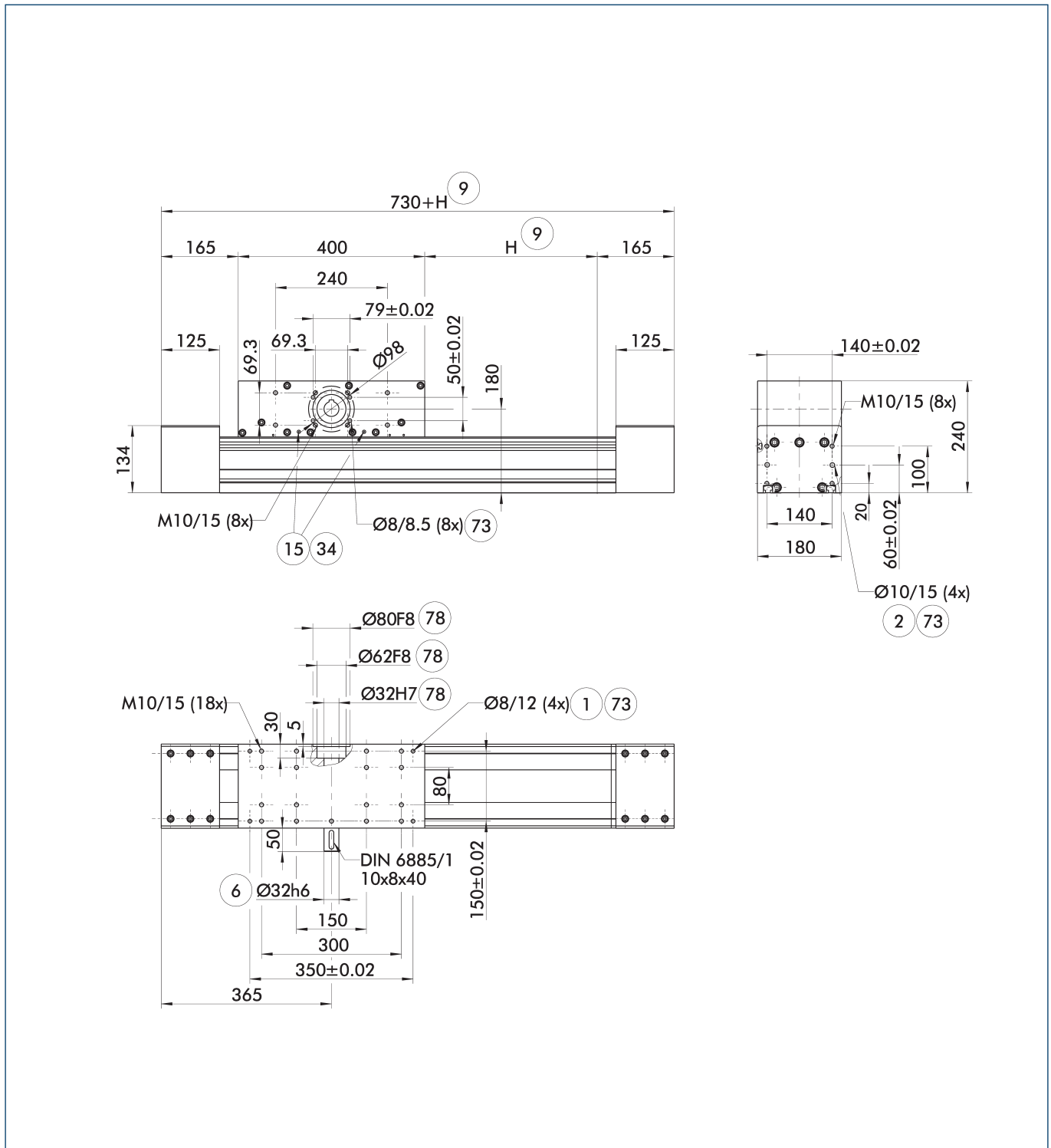
The drawing shows the unit in standard design, without considering any dimensions of the options described below.

- |                          |                           |
|--------------------------|---------------------------|
| ① Connection linear unit | ②⑩ With long slide plate  |
| ② Attachment connection  | ③④ On both sides          |
| ⑥ Drive connection       | ⑦⑩ Fit for centering pins |
| ⑨ Nominal stroke         | ⑧⑩ Fit for centering      |
| ⑮ Lubricant connection   |                           |

# Beta 180

Universal linear module

## C-ASS main view

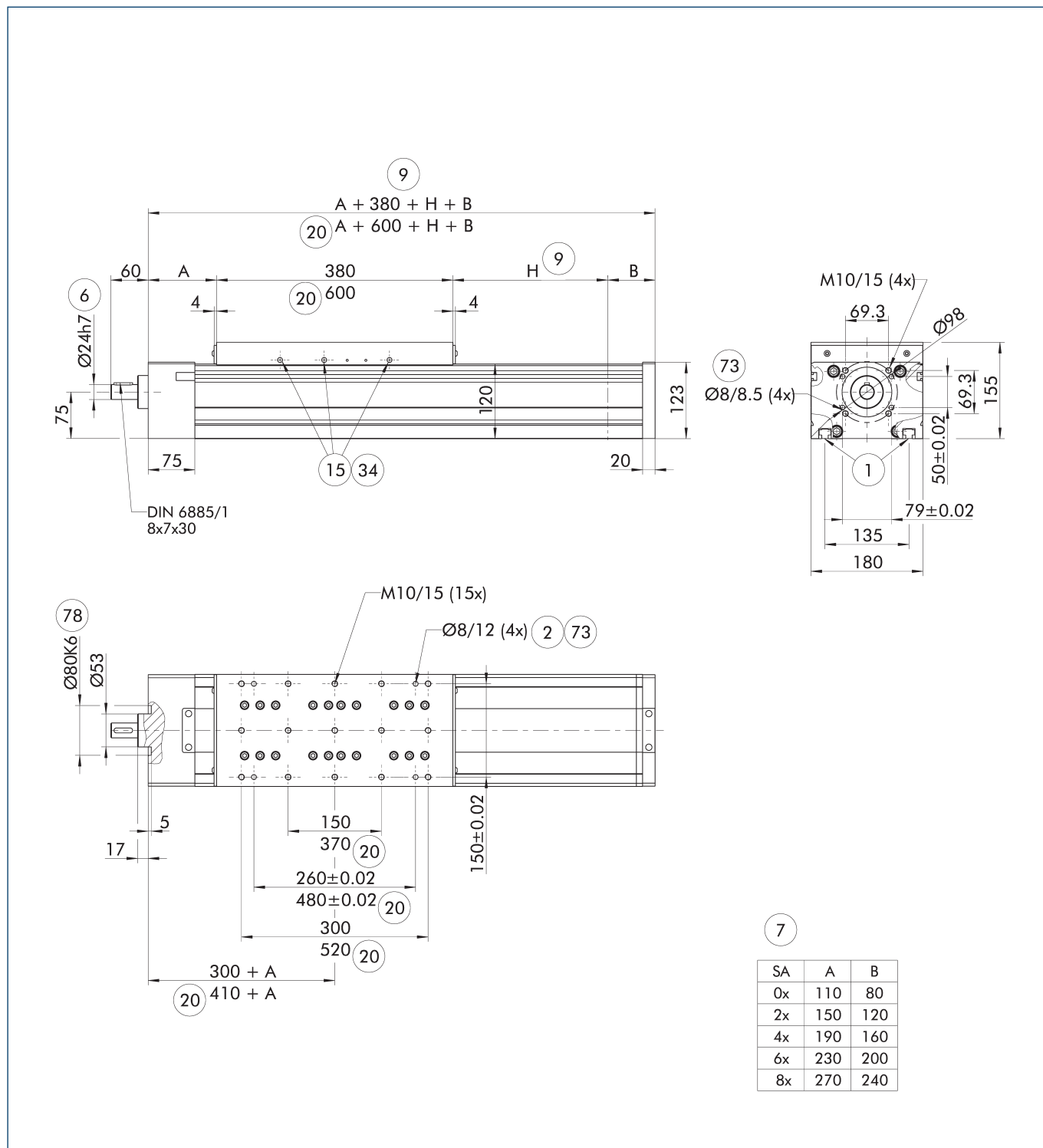


The drawing shows the unit in standard design, without considering any dimensions of the options described below.

- |                            |                             |
|----------------------------|-----------------------------|
| (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         | (78) Fit for centering      |



## C-SSS main view



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

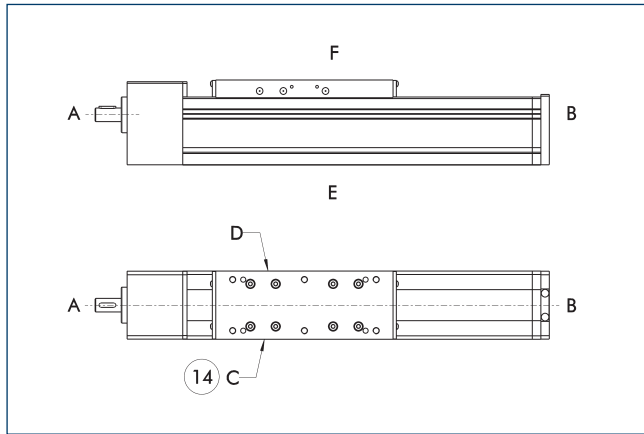
① SCHUNK standard spindle supports with noise damping (SAG) reduce the maximum stroke by 10 mm for every 2 SAG.

- ① Connection linear unit
- ② Attachment connection
- ③ Drive connection
- ④ Number of spindle supports
- ⑤ Nominal stroke
- ⑥ Lubricant connection
- ⑦ With long side plate
- ⑧ On both sides
- ⑨ Fit for centering pins
- ⑩ Fit for centering

# Beta 180

Universal linear module

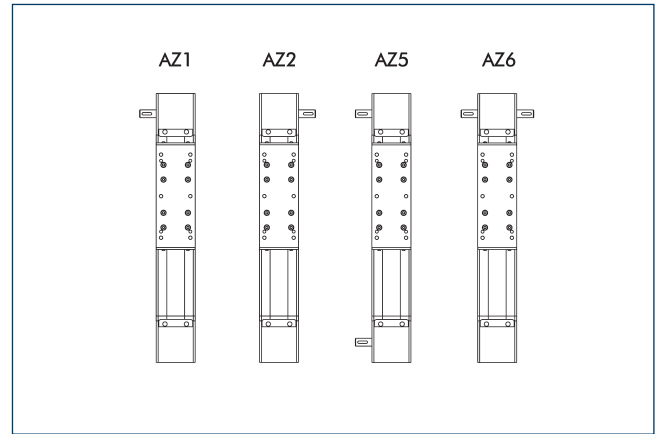
## Side definition



⑭ Limit switch standard position

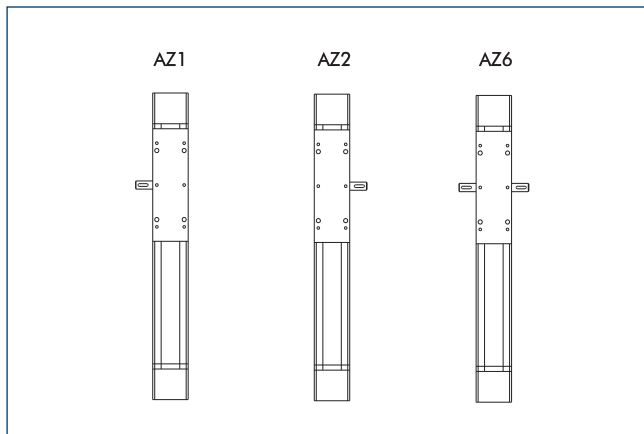
This drawing indicates the definition for the sides. This serves as the basis for all attachments.

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



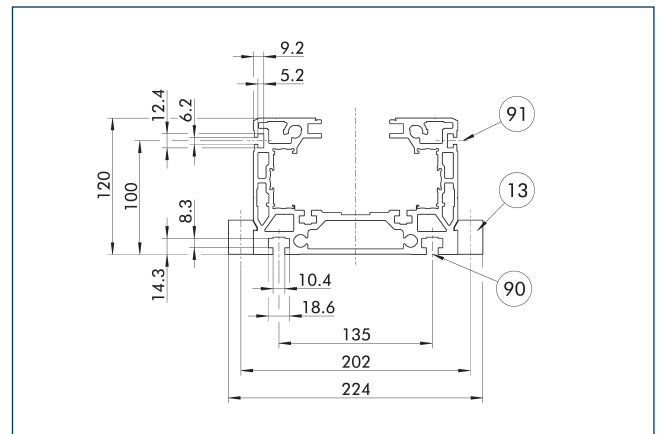
Depending on the axis application, the seat of the drive shaft has to be defined in the order text. Particularly with axis combinations and mechanical synchronization, several drive shafts are required.

## Drive shafts 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



⑬ Mounting strip

⑨⑩ T-nut at the bottom side

⑨① Side T-nut

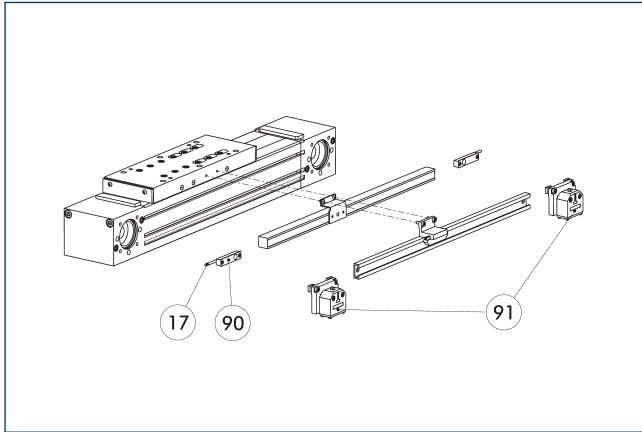
The drawing shows the position of the mounting options.



# Beta 180

Universal linear module

## 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
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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