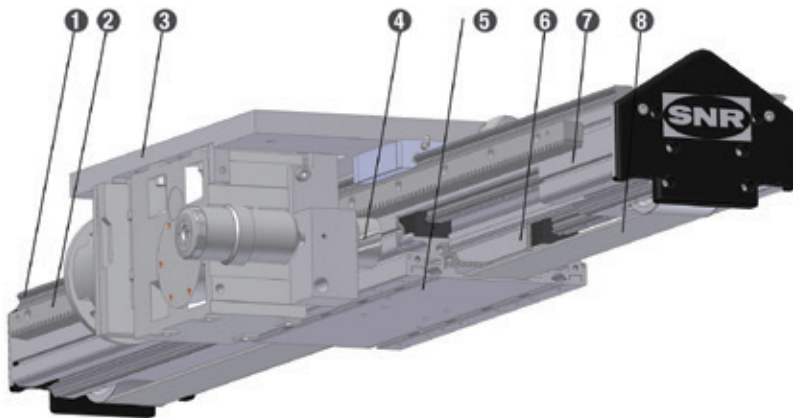


## 5.7.4 AXS\_T Horizontal and vertical Telescopic Axis with rack and pinion drive / toothed belt drive

### 5.7.4.1 Structure

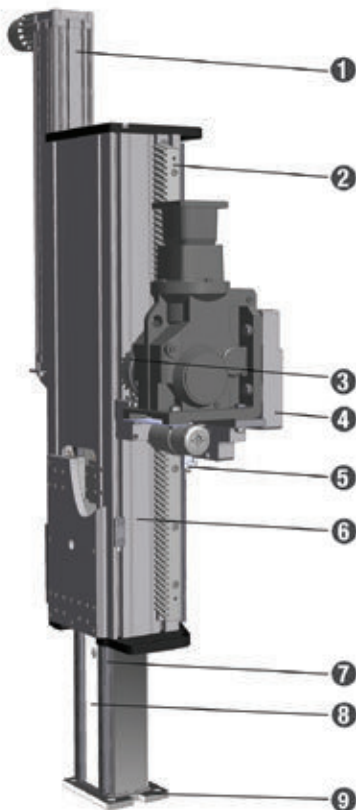
#### Horizontal Telescopic Axis



- ① Guiding level 1
- ② Toothed rack
- ③ Base plate
- ④ Pinion
- ⑤ Slider unit
- ⑥ Guiding level 2
- ⑦ Profile
- ⑧ Toothed belt

Figure 5.34\_\_ Structure AXS\_TH Horizontal Telescopic Axis

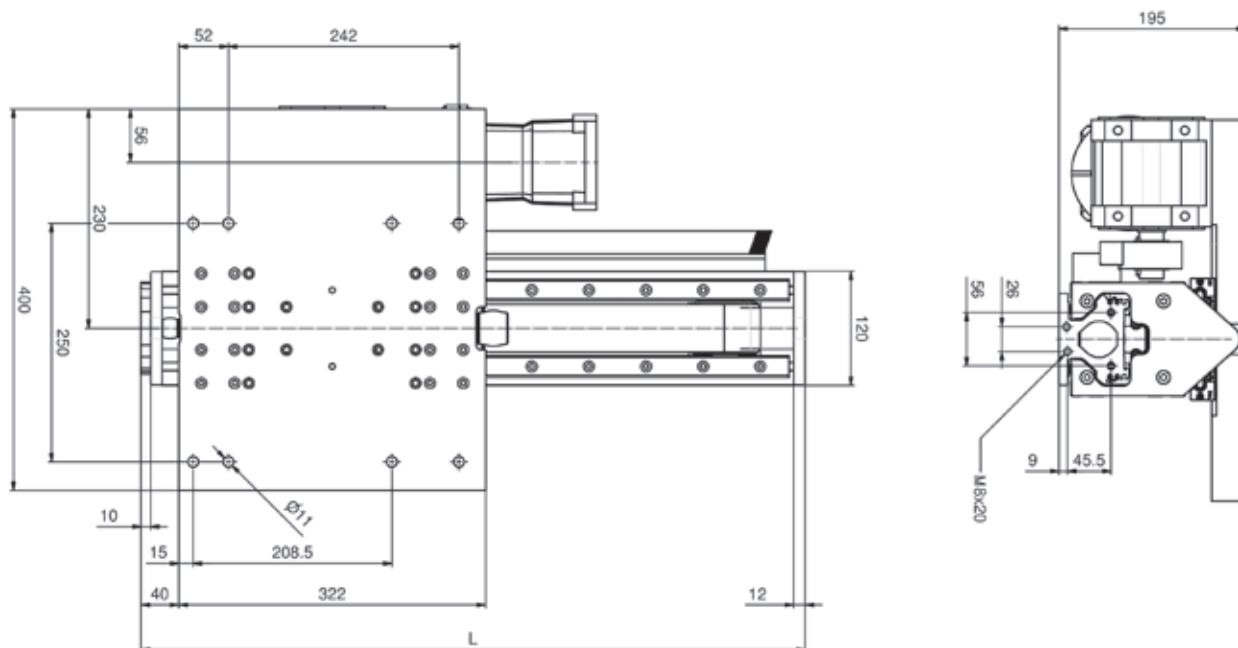
#### Vertical Telescopic Axis



- ① Balance cylinder (optional)
- ② Toothed rack
- ③ Pinion
- ④ Base plate
- ⑤ Guiding level 1
- ⑥ Outer profile
- ⑦ Guiding level 2 (load level)
- ⑧ Inner profile
- ⑨ Load pick-up

Figure 5.35\_\_ Structure AXS\_TV Vertical Telescopic Axis

## AXS120TV Vertical Telescopic Axis



Gearbox dimensions from Chapter 6.2.1, Table 6.17

**S** = Stroke

**L** = S/2 + 397 mm

### Technical data

Guiding system		Guiding level 1	Guiding level 2
		Linear guide D	
Drive element		Toothed rack, module 2	Toothed belt 50AT10
Maximum velocity	m/min	300	
Maximum acceleration	m/s <sup>2</sup>	8	
Allowable dynamic operation load	N	1 500 (up to 2 000 mm stroke) / 900 (> 2 000 mm up to 4 000 mm stroke)	
Stroke per revolution	mm	400	
Idling speed torque	Nm	3,3	
Maximum drive torque at the gearbox output (emergency stop)	Nm	150	
Maximum energy absorption of the shock absorber	Nm	65 (below) / 21 (above)	
Moment of inertia <sup>1</sup>	Kgcm <sup>2</sup>	4,5	
Geometrical moment of inertia (profile) I <sub>y</sub>	cm <sup>4</sup>	661,1	661,1
Geometrical moment of inertia (profile) I <sub>z</sub>	cm <sup>4</sup>	938,6	938,6
Maximum stroke length	m	4,0	
Repeatability	mm	0,05	

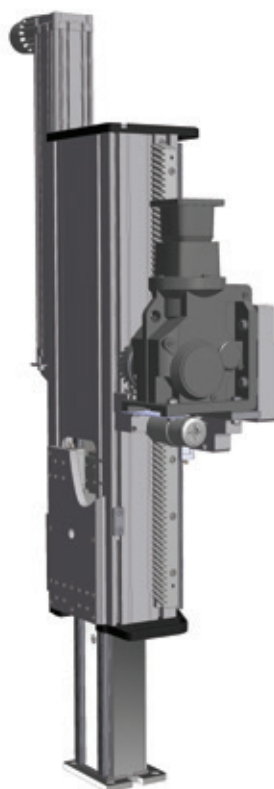
<sup>1</sup> - Moment of inertia without gearbox

### Mass

Guiding system		Guiding level 1	Guiding level 2
		Linear guide D	
Basic value	kg	7,8	4,4
Mass per 100 mm stroke	kg	0,53	0,74
Basic mass including basic value, without gearbox	kg	37,0	

## AXS200TV Vertical Telescopic Axis

For more informations, please contact our NTN-SNR application engineers.



Gearbox dimensions from Chapter 6.2.1, Table 6.17

**S** = Stroke

**L** = S/2 + \_\_\_ mm

### Technical data (IN PREPARATION)

Guiding system		Guiding level 1	Guiding level 2
		Linear guide D	
Drive element			
Maximum velocity	m /min		
Allowable dynamic operation load	N		
Stroke per revolution	mm		
Idling speed torque	Nm		
Maximum drive torque at the gearbox output (emergency stop)	Nm		
Maximum energy absorption from the shock absorber	Nm		
Moment of inertia <sup>1</sup>	Kgcm <sup>2</sup>		
Geometrical moment of inertia (profile) I <sub>y</sub>	cm <sup>4</sup>		
Geometrical moment of inertia (profile) I <sub>z</sub>	cm <sup>4</sup>		
Maximum total length	m		
Repeatability	mm		

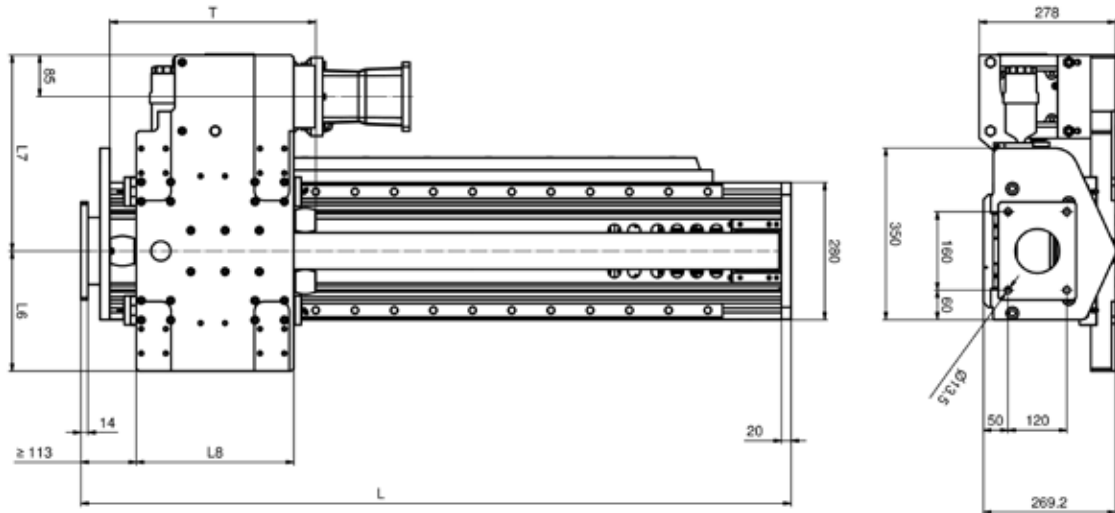
<sup>1</sup> - Moment of inertia without gearbox

### Mass

Guiding system		Linear guide D	Guiding level 1
Basic mass (including slider mass)	kg		
Mass per 100 mm stroke	kg		
Slider mass	kg		

Masses without gearbox

## AXS280TV Vertical Telescopic Axis



Gearbox dimensions from Chapter 6.2.1, Table 6.17

**S** = Stroke                                      **L** = S/2 + T + 80 mm  
 Dimensions L6, L7 and L8 from Chapter 7.3, Table 7.3

### Technical data

Guiding system		D	E	G	H
		Top table for direct combination with			
		AXS280Y	AXS460MP	AXS500MP	AXS280MP
Table length T	mm	420	560	692	420

Guiding system		Guiding level 1		Guiding level 2	
		Linear guide D, E, G and H			
Drive element		Toothed rack, module 4		Toothed belt 75AT10	
Maximum velocity	m/min	360			
Maximum acceleration	m/s <sup>2</sup>	8			
Allowable dynamic operation load	N	7 650 - 10 000 <sup>3</sup>		5 000	
Stroke per revolution	mm	560			
Idling speed torque	Nm	6,0			
Maximum drive torque at the gearbox output (emergency stop)	Nm	340 - 1 100 <sup>3</sup>			
Maximum energy absorption of the shock absorber	Nm	446			
Moment of inertia <sup>1</sup>	Kgcm <sup>2</sup>	55			
Geometrical moment of inertia (profile) I <sub>y</sub>	cm <sup>4</sup>	7 958 <sup>2</sup>			
Geometrical moment of inertia (profile) I <sub>z</sub>	cm <sup>4</sup>	14 654 <sup>2</sup>			
Maximum stroke length	m	3,0			
Repeatability	mm	0,05			

<sup>1</sup> - Moment of inertia without gearbox

<sup>2</sup> - Guiding level 1

<sup>3</sup> - Depending on gearbox version - use our calculation service

### Mass

Guiding system		Linear guide D		Linear guide E		Linear guide G		Linear guide H	
		Guiding level 1	Guiding level 2	Guiding level 1	Guiding level 2	Guiding level 1	Guiding level 2	Guiding level 1	Guiding level 2
Basic value	kg	33,0	15,8	36,1	17,1	37,3	17,5	33,0	15,8
Mass per 100 mm stroke	kg	2,3	0,91	2,3	0,91	2,3	0,91	2,3	0,91
Basic mass including basic value, without gear box	kg	90,4		113,8		110,0		89,6	

### 5.7.4.3 Maximum static load capacity

Type	Guiding system	Guiding level	Load [N]		Load moment [Nm]		
			$F_y$	$F_z$	$M_x$	$M_y$	$M_z$
AXS120TH	D	1	42 500	42 500	1700	7 000	7 000
		2	28 500	28 500	370	2 600	2 600
AXS120TV	D	1	42 500	42 500	1700	7 000	7 000
		2	28 500	28 500	370	2 600	2 600
AXS200TH	D	1	70 000	70 000	5 250	20 000	20 000
		2	33 000	33 000	2 500	9 300	9 300
AXS200TV	D			in preparation			
AXS240TH	D	1	57 000	57 000	5 700	8 300	8 300
		2	42 500	42 500	3 550	3 950	3 950
	E	1	70 000	70 000	7 000	14 000	14 000
		2	42 500	42 500	3 550	7 500	7 500
AXS280TH	D	1	100 000	100 000	12 000	20 000	20 000
2		57 000	57 000	5 400	8 300	8 300	
AXS280TV	D and H	1	70 000	70 000	8 500	8 000	8 000
		2	42 000	42 000	2 100	6 200	6 200
	E	1	70 000	70 000	8 500	13 000	13 000
		2	42 000	42 000	2 100	9 200	9 200
	G	1	70 000	70 000	8 500	14 500	14 500
		2	42 000	42 000	2 100	10 300	10 300

### 5.7.3.4 Dynamic load capacity

The dynamic load capacities of the guiding systems are based on a nominal life time of 50 000 km.

Type	Guiding system	Guiding level	Load [N]		Load moment [Nm]		
			$F_y$	$F_z$	$M_x$	$M_y$	$M_z$
AXS120TH	D	1	16 000	16 000	650	2 650	2 650
		2	12 000	12 000	155	1 100	1 100
AXS120TV	D	1	16 000	16 000	650	2 650	2 650
		2	12 000	12 000	155	1 100	1 100
AXS200TH	D	1	27 000	27 000	2 000	7 700	7 700
		2	12 500	12 500	950	2 500	3 500
AXS200TV	D			in preparation			
AXS240TH	D	1	24 000	24 000	2 400	3 500	3 500
		2	16 000	16 000	1 350	1 500	1 500
	E	1	27 000	27 000	2 700	5 300	5 300
		2	16 000	16 000	1 350	2 850	2 850
AXS280TH	D	1	36 500	36 500	4 400	7 250	7 250
2		24 000	24 000	2 300	3 500	3 500	
AXS280TV	D and H	1	27 000	27 000	3 200	3 000	3 000
		2	16 000	16 000	800	2 300	2 300
	E	1	27 000	27 000	3 200	5 000	5 000
		2	16 000	16 000	800	3 500	3 500
	G	1	27 000	27 000	3 200	5 500	5 500
		2	16 000	16 000	800	3 900	3 900

