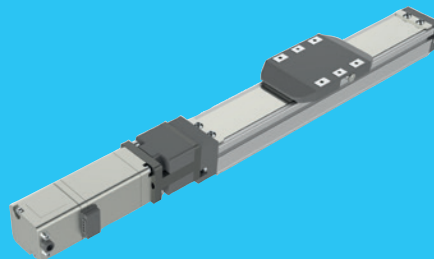
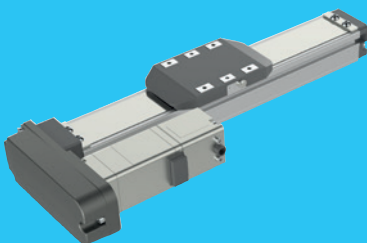
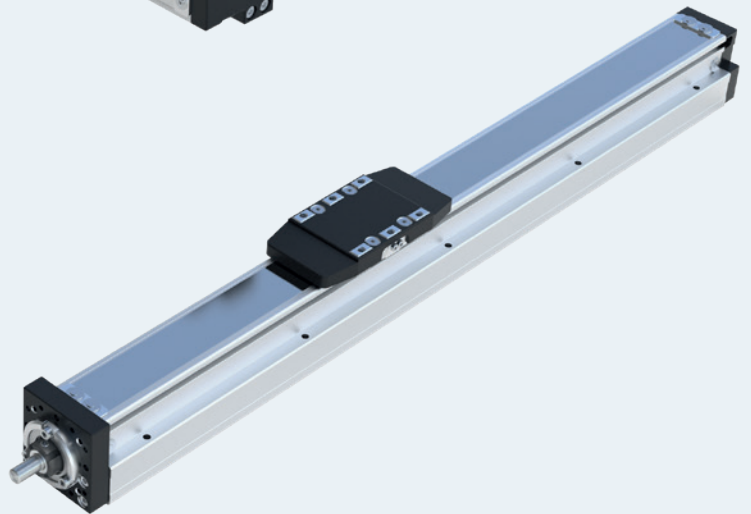


# Small Modules Screw driven – SMS



# Identification system for short product names

Example		SM	S	-	040	-	P12	-	100
System	=	S <u>mall</u> <u>M</u> odules							
Drive	=	S <u>crew</u> drive (ball screw assembly)							
Size	=	030 / <u>040</u> / 050 / 080 / 120							
Lead	=	<u>P</u> (lead <u>12</u> mm)							
Maximum travel range	=	s <sub>max</sub> (maximum travel range <u>100</u> mm)							

Changes/additions at a glance

- ▶ Chapter "Connection elements for multi-axis systems" added

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# Product description

## Characteristic features

Rexroth SMS systems meet the precision and load-bearing capacity requirements of numerous popular applications and complement the tried-and-tested portfolio of high-performance linear axes.

## Structural design

- ▶ Ready-to-install module configurations in predefined lengths available ex stock
- ▶ Five matched sizes based on an ultra-compact aluminum profile with integrated guideways
- ▶ Carriage driven via ball screw assembly
- ▶ Protection of the installation elements by magnetically fixed sealing strip made of stainless steel
- ▶ In usual Rexroth quality and precision with a repeatability up to  $\pm 0.005$  mm

## Attachments (range of accessories)

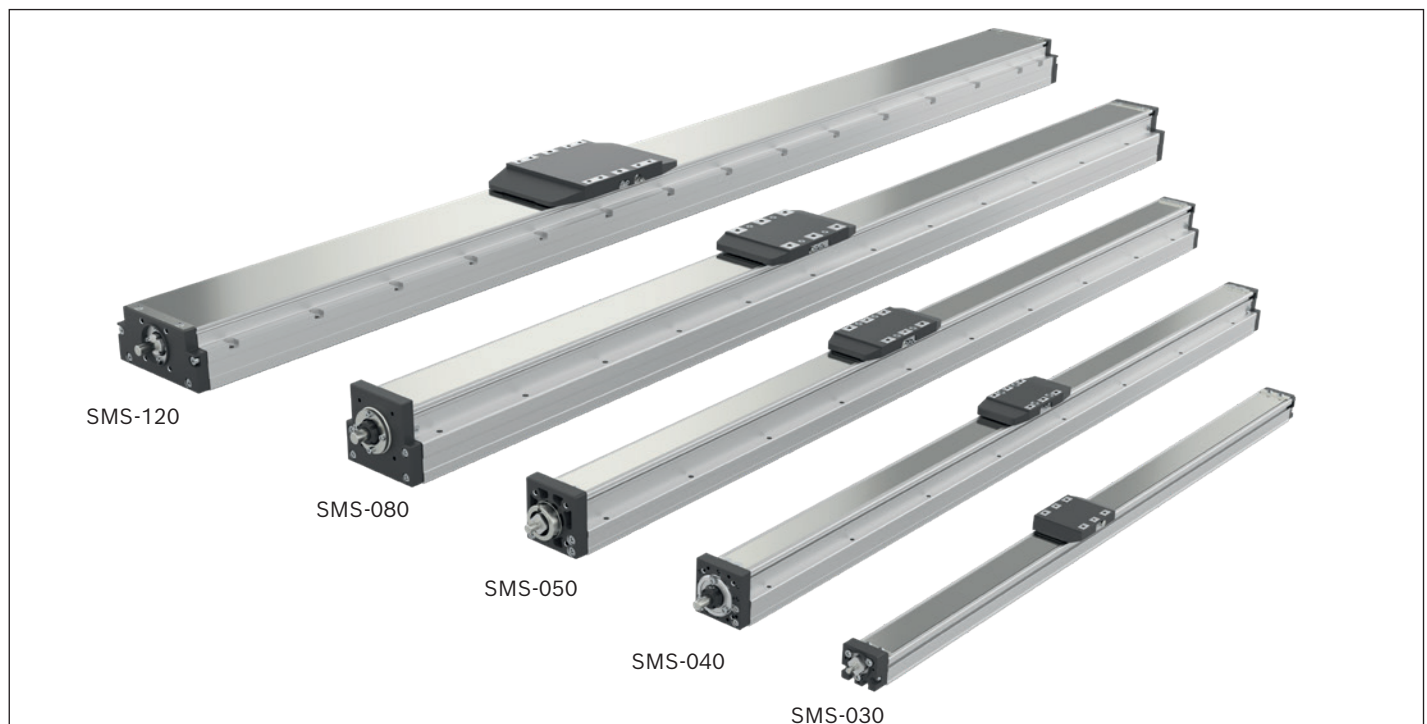
- ▶ Motor attachment either with flange and coupling or with belt side drive
- ▶ Optionally with Rexroth servo motor MSM

## Further highlights

- ▶ Simple product selection with fewer application parameters
- ▶ Online ordering via Rexroth Store and other digital marketplaces
- ▶ Exact handling with very good positioning accuracy
- ▶ Economical solution of simple positioning tasks with excellent price/performance ratio

## Application areas

- ▶ Pick and place
- ▶ Handling
- ▶ Placement systems, palletizers
- ▶ Feed units
- ▶ Motion units



**Installation position**

The installation position is basically variable.

For overhead mounting, please also note:

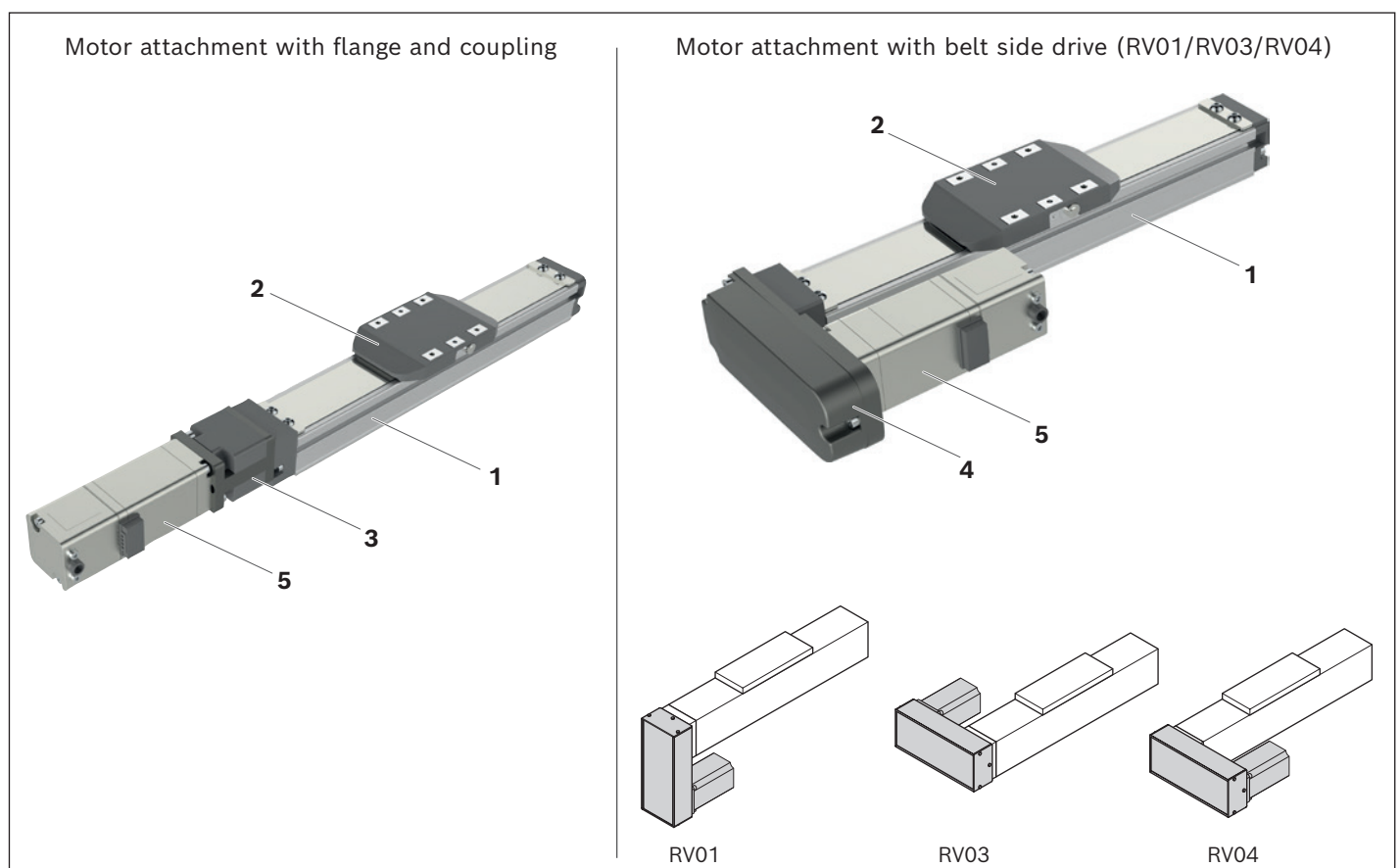
- All available fastening bores must be used.
- The maximum moved external load must not exceed 50% of the horizontal application (see chapter "Technical data").

**Form of delivery**

SMS systems come fully assembled.

**Range of accessories**

Structure of flange and coupling or with belt side drive (RV01/RV03/RV04) are available in the range of accessories.



- 1 Frame SMS
- 2 Carriage
- 3 Flange and coupling
- 4 Belt side drive
- 5 Motor

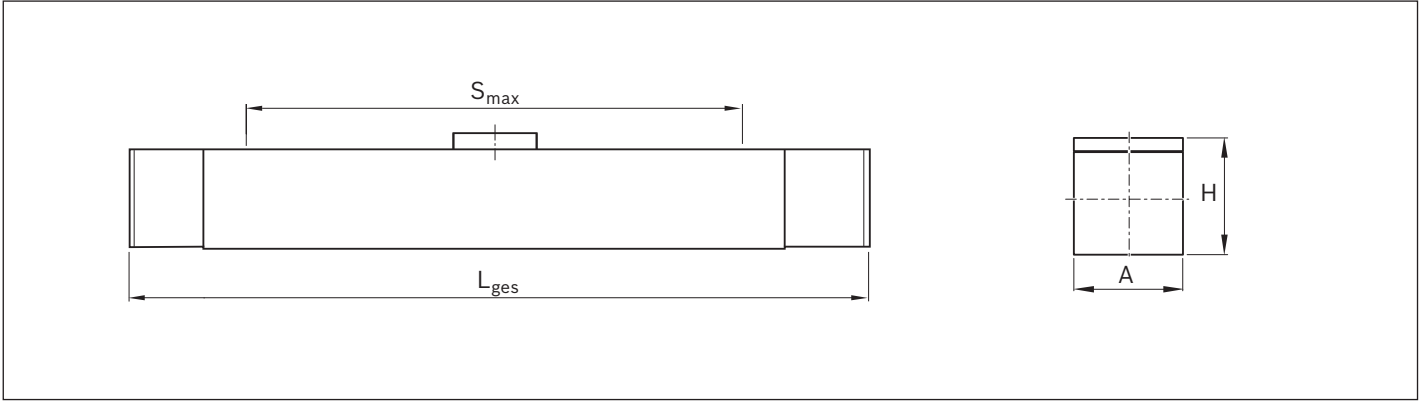
**Lubrication**

SMS systems are delivered with initial greasing.

**Documentation**

Each SMS system is supplied with the accompanying documentation.

Product overview



SMS	A	H	Dimensions (mm)								
-030	30	30	$S_{max}$	50	100	150	200	300	400	500	–
			$L_{total}$	165	215	265	315	415	515	615	–
-040	44	52	$S_{max}$	100	200	300	400	500	600	800	1 000
			$L_{total}$	261	361	461	561	661	761	961	1 161
-050	54	60	$S_{max}$	100	200	300	400	500	600	800	1 000
			$L_{total}$	263	363	463	563	663	763	963	1 163
-080	82	78	$S_{max}$	100	200	400	600	800	1 000	1 200	–
			$L_{total}$	318	418	618	818	1 018	1 218	1 418	–
-120	120	76	$S_{max}$	100	200	400	600	800	1 000	1 200	–
			$L_{total}$	339	439	639	839	1 039	1 239	1 439	–



## Structural design

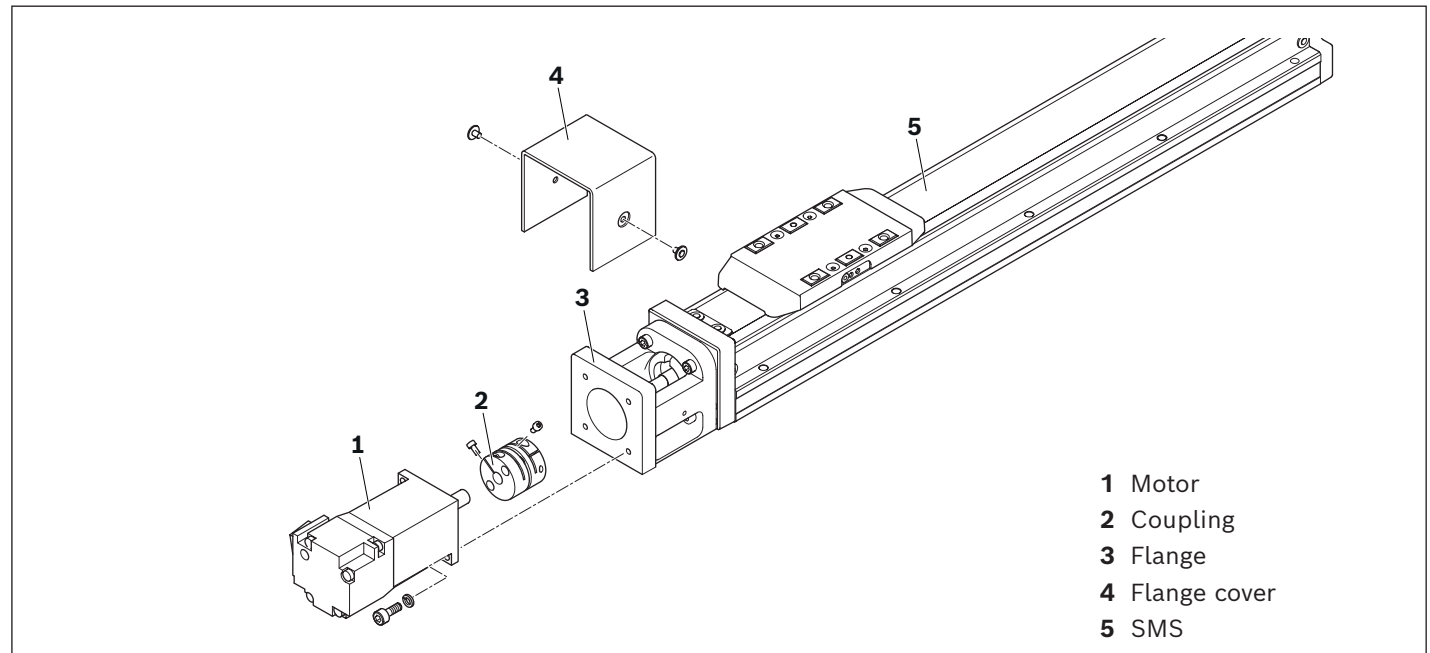
### Structure of flange and coupling

A motor with flange and coupling can be attached to all SMS systems with ball screw assembly.

The flange serves to fasten the motor to the SMS system and acts as a closed housing for the coupling.

The coupling transmits the motor drive torque free of distortive stresses to the drive shaft of the SMS system.

Standard couplings compensate for the system's thermal expansion.

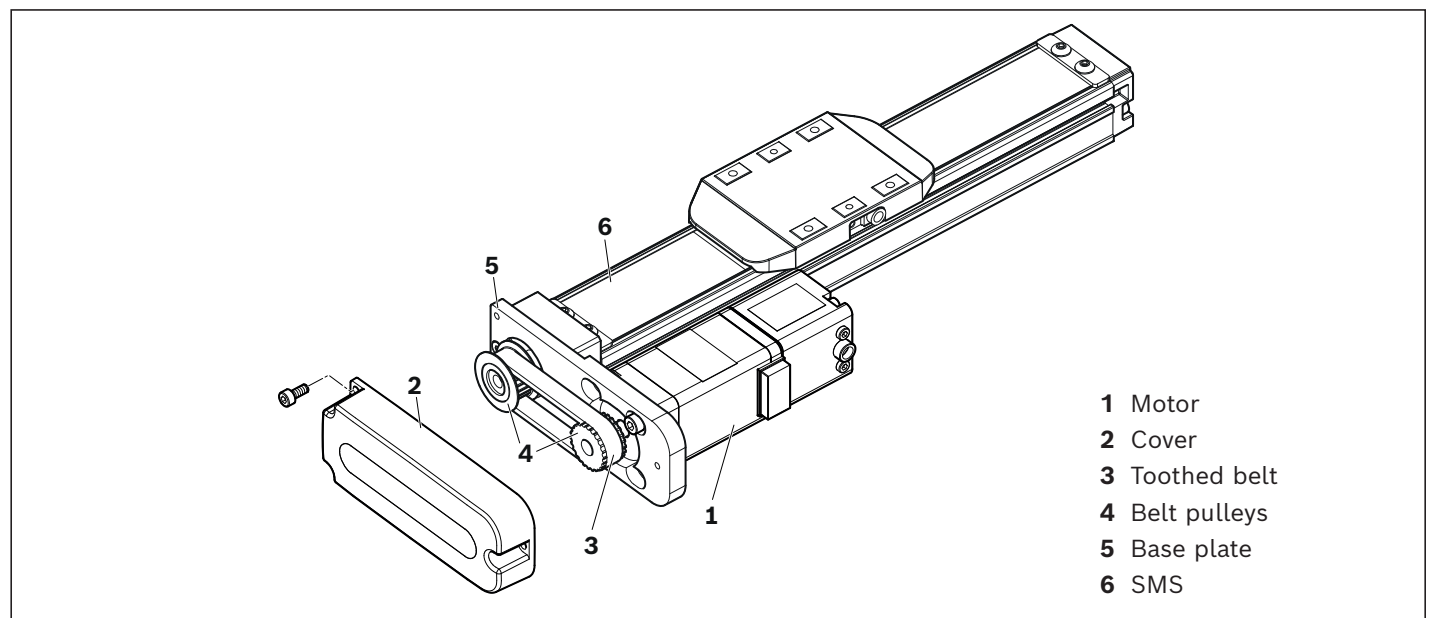


### Structure of belt side drive

A motor can be attached using a belt side drive to all SMS systems with ball screw assembly.

This makes the overall system length shorter than the motor attachment with flange and coupling.

The belt side drive serves as protection for the belt and as a motor bracket. Gear ratio  $i = 1$ .



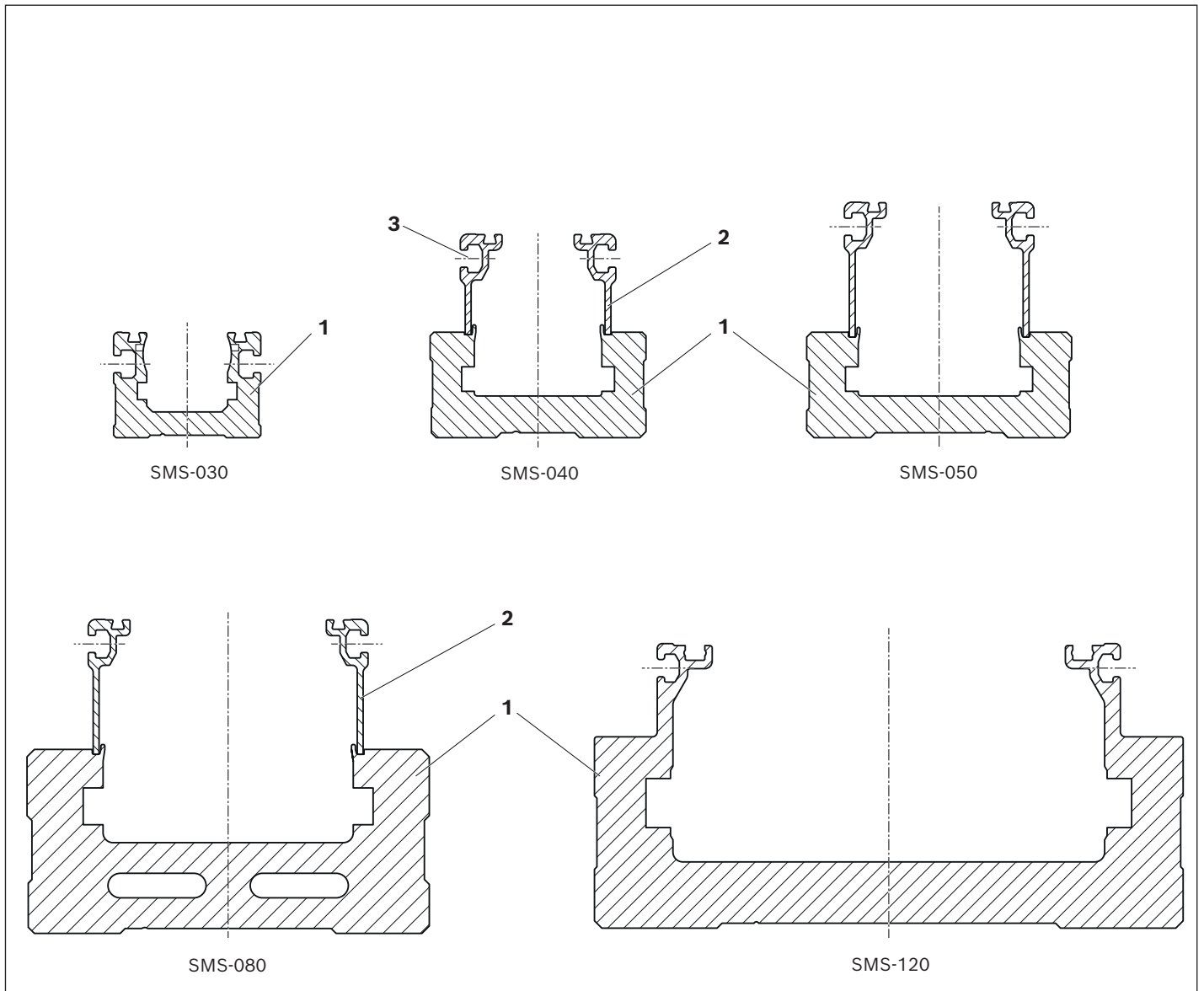


**Frame**

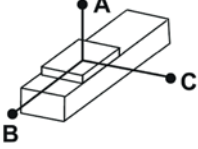
SMS -030 and 120: Frame (1) made of aluminum profile

SMS -040 until 080: Frame (1) and side cover(2) made of aluminum profile

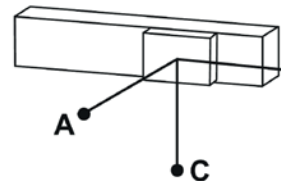
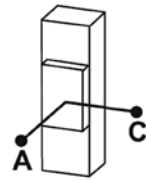
SMS all sizes: slot (3) for switch attachment on both sides



# Technical data

Size	Max. travel range	Max. speed	Weight		Max. acceleration	BASA	Horizontal application <sup>4)</sup>		Max. permissible overhang <sup>3)</sup> (mm)		
	$s_{\max}$ (mm)	$v_{\max}$ (m/s)	(kg)		$a_{\max}$ (m/s <sup>2</sup> )	$\varnothing d_0 \times P$ (mm)	Motor Power <sup>1)</sup>	Moved external load <sup>2)</sup>			
							W	$m_{\text{ex max}}$ (kg)	A	B	C
<b>-030</b>	50	0,48	0,220		1,5	6 x 8	30	6	117	17	18
	100	0,48	0,270					8	84	12	12
	150	0,48	0,330					10	64	9	9
	200	0,43	0,370								
	300	0,32	0,480								
	400	0,24	0,600								
<b>-040</b>	500	0,16	0,719		3,6	10 x 12	50 / 100	8	250	58	71
	100	0,72	1,000					12	160	36	44
	200	0,72	1,350					100	134	29	36
	300	0,72	1,710								
	400	0,72	2,070								
	500	0,66	2,430								
	600	0,54	2,790								
	800	0,30	3,510					20	87	18	23
<b>-050</b>	1 000	0,20	4,240		3,0	12 x 10	100	10	404	78	95
	100	0,60	1,570					18	209	39	47
	200	0,60	1,890								
	300	0,60	2,280								
	400	0,60	2,530					24	148	26	32
	500	0,60	2,730								
	600	0,50	3,060								
	800	0,30	3,870								
<b>-080</b>	1 000	0,18	5,390		3,0	16 x 10	200 / 400	40	312	58	82
	100	0,60	3,860					65	174	30	43
	200	0,60	4,570					80	132	22	31
	400	0,60	5,920					88	115	19	27
	600	0,60	7,280				400	20	247	95	110
	800	0,45	8,530					30	157	58	68
	1 000	0,26	9,850					40	112	40	47
	1 200	0,18	11,530					30	2 321	459	591
	100	1,20	3,860					50	1 358	265	342
	200	1,20	4,570					88	736	140	180
	400	1,20	5,920					15			
	600	1,20	7,280								
	800	0,90	8,530								
	1 000	0,53	9,850								
	1 200	0,36	11,530								
<b>-120</b>	100	0,60	4,820		3,0	16 x 10	400	25	415	259	230
	200	0,60	5,520					30	341	211	189
	400	0,60	6,920					9,6	16 x 32		
	600	0,60	8,320								
	800	0,50	9,720								
	1 000	0,33	11,120								
	1 200	0,25	12,520								
	100	1,92	4,820								
	200	1,92	5,520								
	400	1,92	6,920								
	600	1,92	8,320								
	800	1,60	9,720								
	1 000	1,06	11,120								
	1 200	0,80	12,520								

The service life of the SMS axes is 10 000 km if the product is used under the specified conditions.

	Wall mounting				Vertical application				Max. drive torque
	Moved external load <sup>2)</sup>	Max. permissible overhang <sup>3)</sup> (mm)			Motor-Power <sup>1)</sup>	Moved external load <sup>2)</sup>	Max. permissible overhang <sup>3)</sup> (mm)		
									
	m <sub>ex max</sub> (kg)	A	B	C	W	m <sub>ex max</sub> (kg)	A	C	M <sub>mech</sub> (Nm)
	6	18	17	117	30	1	120	120	1,1
	8	12	12	84		2	60	60	
	10	9	9	64		–	–	–	
	8	71	58	250	50 / 100	2	253	253	1,1
	12	44	36	160	100	3,5	144	144	
	14	36	29	134					
	20	23	18	87	–	–	–	–	
	10	95	78	404	100	1	859	859	1,1
	18	47	39	209		3	286	286	
	24	32	26	148		5	171	171	
	40	82	58	312	200 / 400	8	351	351	2,2
	65	43	30	174	400	15	187	187	
	80	31	22	132		21	133	133	
	88	27	19	115					
	20	110	95	247	200 / 400	3	660	660	
	30	68	58	157	400	5	396	396	
	40	47	40	112		8	247	247	
	30	634	478	2 321	400	10	1 546	1 546	3,1
	50	367	277	1 358		14	1 107	1 107	
	88	194	146	736		22	702	702	
	15	508	527	847		3	2 220	2 220	
	25	296	306	496		5	1 332	1 332	
	30	243	251	408		8	832	832	

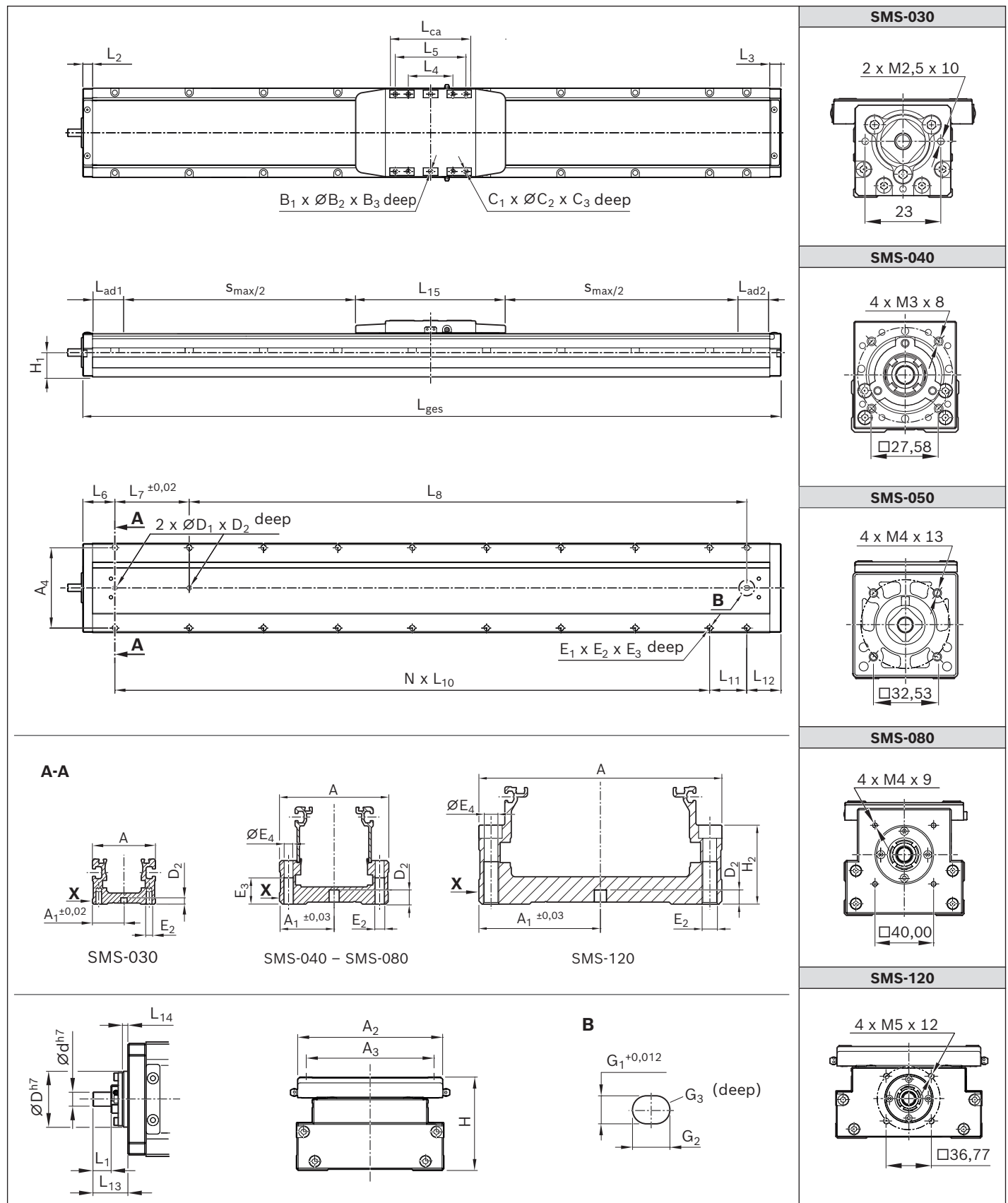
<sup>1)</sup> Motor power for horizontal application and wall mounting

<sup>2)</sup> Max. permissible payload

<sup>3)</sup> In the case of a combined overhang, observe the chapter „material numbers/ordering examples“

<sup>4)</sup> Observe the information on the installation provided in chapter "Product description".

## Dimension drawings



X = reference edge

SMS	A	A <sub>1</sub>	A <sub>2</sub>	A <sub>3</sub>	A <sub>4</sub>	B <sub>1</sub>	B <sub>2</sub> <sup>H7</sup>	B <sub>3</sub>	C <sub>1</sub>	C <sub>2</sub>	C <sub>3</sub>	D <sub>h7</sub>	d <sub>h7</sub>	D <sub>1</sub> <sup>H7</sup>	D <sub>2</sub>	E <sub>2</sub>	E <sub>3</sub>	E <sub>4</sub>	G <sub>1</sub>	G <sub>2</sub>	G <sub>3</sub>
-030	30	15.0	42.3	33.5	24	2	2	3.0	4	M3	7.0	19	4	3	3	M3	6	–	3	4	3
-040	44	21.7	42.6	35.0	36	2	3	4.5	4	M4	9.5	32	7	4	5	M4	10	3.4	4	5	5
-050	54	26.7	52.5	42.0	45	2	3	6.0	4	M5	11.0	30	7	5	7	M5	13	4.4	5	7	7
-080	82	40.7	81.0	65.0	68	2	5	8.0	4	M6	13.0	40	10	5	9	M6	15	5.4	5	7	9
-120	120	60.0	118.0	104.0	108	2	6	10.0	8	M6	17.0	40	10	6	7	M8	16	6.8	6	8	7

SMS	H	H <sub>1</sub>	H <sub>2</sub>	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	L <sub>5</sub>	L <sub>6</sub>	L <sub>7</sub>	L <sub>10</sub>	L <sub>12</sub>	L <sub>13</sub>	L <sub>14</sub>	L <sub>15</sub> TT total	L <sub>ca</sub>	L <sub>ad1</sub>	L <sub>ad2</sub>
-030	30	17.0	–	8.0	13	8	31	–	23	100	100	18	13.0	1.5	70.2	40	11.9	11.9
-040	52	23.5	21.5	14.0	11	10	40	–	36	100	100	50	24.1	5.0	90.0	50	25.0	25.0
-050	60	27.7	21.5	11.3	13	10	52	–	38	100	100	50	26.3	1.5	116.0	65	12.5	11.5
-080	78	41.5	37.5	13.0	13	15	75	–	38	100	100	80	25.0	3.9	135.0	90	26.5	28.5
-120	76	32.5	39.0	17.9	13	15	60	95	43	100	100	46	19.9	2.0	201.5	110	5.75	3.75

-030	S <sub>max</sub>	50	100	150	200	300	400	500	–
	L <sub>total</sub>	165	215	265	315	415	515	615	–
	L <sub>8</sub>	24	74	124	174	274	374	474	–
	L <sub>11</sub>	24	74	24	74	74	74	74	–
	N	1	1	2	2	3	4	5	–
	E <sub>1</sub>	6	6	8	8	10	12	14	–
-040	S <sub>max</sub>	100	200	300	400	500	600	800	1 000
	L <sub>total</sub>	261	361	461	561	661	761	961	1 161
	L <sub>8</sub>	75	175	275	375	475	575	775	975
	L <sub>11</sub>	75	75	75	75	75	75	75	75
	N	1	2	3	4	5	6	8	10
	E <sub>1</sub>	6	8	10	12	14	16	20	24
-050	S <sub>max</sub>	100	200	300	400	500	600	800	1 000
	L <sub>total</sub>	263	363	463	563	663	763	963	1 163
	L <sub>8</sub>	75	175	275	375	475	575	775	975
	L <sub>11</sub>	75	75	75	75	75	75	75	75
	N	1	2	3	4	5	6	8	10
	E <sub>1</sub>	6	8	10	12	14	16	20	24
-080	S <sub>max</sub>	100	200	400	600	800	1 000	1 200	–
	L <sub>total</sub>	318	418	618	818	1 018	1 218	1 418	–
	L <sub>8</sub>	100	200	400	600	800	1 000	1 200	–
	L <sub>11</sub>	100	100	100	100	100	100	100	–
	N	1	2	4	6	8	10	12	–
	E <sub>1</sub>	6	8	12	16	20	24	27	–
-120	S <sub>max</sub>	100	200	400	600	800	1 000	1 200	–
	L <sub>total</sub>	339	439	639	839	1 039	1 239	1 439	–
	L <sub>8</sub>	150	250	450	650	850	1 050	1 250	–
	L <sub>11</sub>	50	50	50	50	50	50	50	–
	N	2	3	5	7	9	11	13	–
	E <sub>1</sub>	8	10	14	18	22	26	30	–

Notes: Dimensions in mm. Diagrams are in different scales.  
Exact contours and dimensions can be found in the CAD model.

# Material numbers/ordering examples

SMS	Description	Material number
<b>-030</b>	SMS-030-P8-50	R02681C001
	SMS-030-P8-100	R02681C002
	SMS-030-P8-150	R02681C003
	SMS-030-P8-200	R02681C004
	SMS-030-P8-300	R02681C006
	SMS-030-P8-400	R02681C008
	SMS-030-P8-500	R02681C010
<b>-040</b>	SMS-040-P12-100	R02681D002
	SMS-040-P12-200	R02681D004
	SMS-040-P12-300	R02681D006
	SMS-040-P12-400	R02681D008
	SMS-040-P12-500	R02681D010
	SMS-040-P12-600	R02681D012
	SMS-040-P12-800	R02681D016
<b>-050</b>	SMS-040-P12-1000	R02681D020
	SMS-050-P10-100	R02681E002
	SMS-050-P10-200	R02681E004
	SMS-050-P10-300	R02681E006
	SMS-050-P10-400	R02681E008
	SMS-050-P10-500	R02681E010
	SMS-050-P10-600	R02681E012
<b>-080</b>	SMS-050-P10-800	R02681E016
	SMS-050-P10-1000	R02681E020
	SMS-080-P10-100	R02681H002
	SMS-080-P10-200	R02681H004
	SMS-080-P10-400	R02681H008
	SMS-080-P10-600	R02681H012
	SMS-080-P10-800	R02681H016
	SMS-080-P10-1000	R02681H020
	SMS-080-P10-1200	R02681H024
	SMS-080-P20-100	R02681H052
	SMS-080-P20-200	R02681H054
	SMS-080-P20-400	R02681H058
	SMS-080-P20-600	R02681H062
	SMS-080-P20-800	R02681H066
<b>-120</b>	SMS-080-P20-1000	R02681H070
	SMS-080-P20-1200	R02681H074
	SMS-120-P10-100	R02681L002
	SMS-120-P10-200	R02681L004
	SMS-120-P10-400	R02681L008
	SMS-120-P10-600	R02681L012
	SMS-120-P10-800	R02681L016
	SMS-120-P10-1000	R02681L020
	SMS-120-P10-1200	R02681L024
	SMS-120-P32-100	R02681L052
	SMS-120-P32-200	R02681L054
	SMS-120-P32-400	R02681L058
	SMS-120-P32-600	R02681L062
	SMS-120-P32-800	R02681L066
	SMS-120-P32-1000	R02681L070
	SMS-120-P32-1200	R02681L074

## Ordering example (freely selected)

**System** = Small Modules

**Drive** = Screw drive (ball screw assembly)

**Size** = 080

**Lead** = P (lead 10 mm)

**Maximum travel range** =  $s_{max}$  (maximum travel range 1 200 mm)

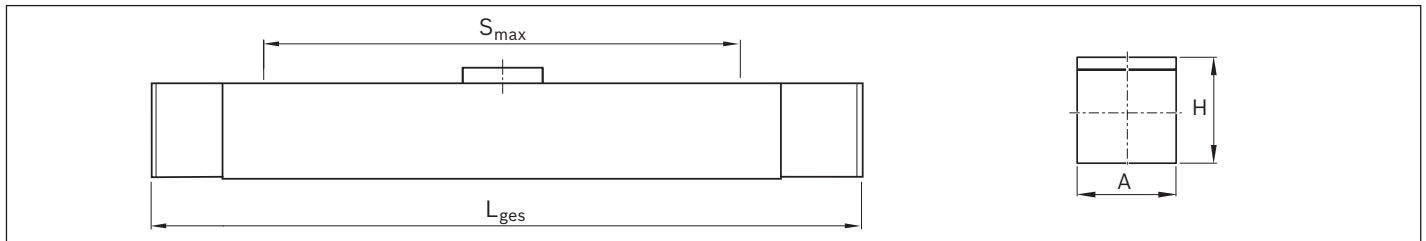
SM S - 080 - P10 - 1200

➡ **SMS-080-P10-1200** with  
material number:  
R02681H024

**Selection example via installation space; given data:**

**A:** up to 50 mm; **H:** up to 55 mm; **L<sub>total</sub>** ≤ 1000 mm; travel range **S<sub>max</sub>** from 650 to 700 mm.

On the basis of the given data, the chapter "Product overview" results in the SMS-040 with the description **SMS-040-P12-800** and material number **R02681D016**.



SMS	A	H	Dimensions (mm)									
-030	30	30	S <sub>max</sub>	50	100	150	200	300	400	500	–	–
			L <sub>total</sub>	165	215	265	315	415	515	615	–	–
<b>-040</b>	<b>44</b>	<b>52</b>	S <sub>max</sub>	100	200	300	400	500	600	<b>800</b>	<b>1 000</b>	–
			L <sub>total</sub>	261	361	461	561	661	761	<b>961</b>	<b>1 161</b>	–
-050	54	60	S <sub>max</sub>	100	200	300	400	500	600	800	1 000	–
			L <sub>total</sub>	263	363	463	563	663	763	963	1 163	–
-080	82	78	S <sub>max</sub>	100	200	400	600	800	1 000	1 200	–	–
			L <sub>total</sub>	318	418	618	818	1 018	1 218	1 418	–	–
-120	120	76	S <sub>max</sub>	100	200	400	600	800	1 000	1 200	–	–
			L <sub>total</sub>	339	439	639	839	1 039	1 239	1 439	–	–

**Selection example via dynamic specifications; given data:**

Horizontal application; payload **m<sub>ex</sub>** = 14 kg (fastened at the carriage);

Load center of gravity **A** = 60 mm, **B** = 15 mm, **C** = 0 mm; travel range **s<sub>max</sub>** = 500 mm;

On the basis of the given data, the chapter "Technical Data" results in the SMS-040 with the description **SMS-040-P12-500** and material number **R02681D010**.

Size	Max. travel range	Max. speed	Weight	Max. acceleration	BASA	Horizontal application <sup>4)</sup> Motor Power <sup>1)</sup>	Moved external load <sup>2)</sup>	Max. permissible overhang <sup>3)</sup> (mm)			
	s <sub>max</sub> (mm)	v <sub>max</sub> (m/s)	(kg)	a <sub>max</sub> (m/s <sup>2</sup> )	Ø d <sub>0</sub> x P (mm)	W	m <sub>ex max</sub> (kg)	A	B	C	
-030	50	0,48	0,220	1,5	6 x 8	30	6	117	17	18	
	100	0,48	0,270				8	84	12	12	
	150	0,48	0,330				10	64	9	9	
	200	0,43	0,370								
	300	0,32	0,480								
	400	0,24	0,600								
<b>-040</b>	500	0,16	0,719	3,6	10 x 12	50 / 100	8	250	58	71	
	100	0,72	1,000				14	134	29	36	
	200	0,72	1,350								
	300	0,72	1,710								
	400	0,72	2,070			100	14	134	29	36	
	500	0,66	2,430								
	600	0,54	2,790								
	800	0,30	3,510								
	1 000	0,20	4,240								

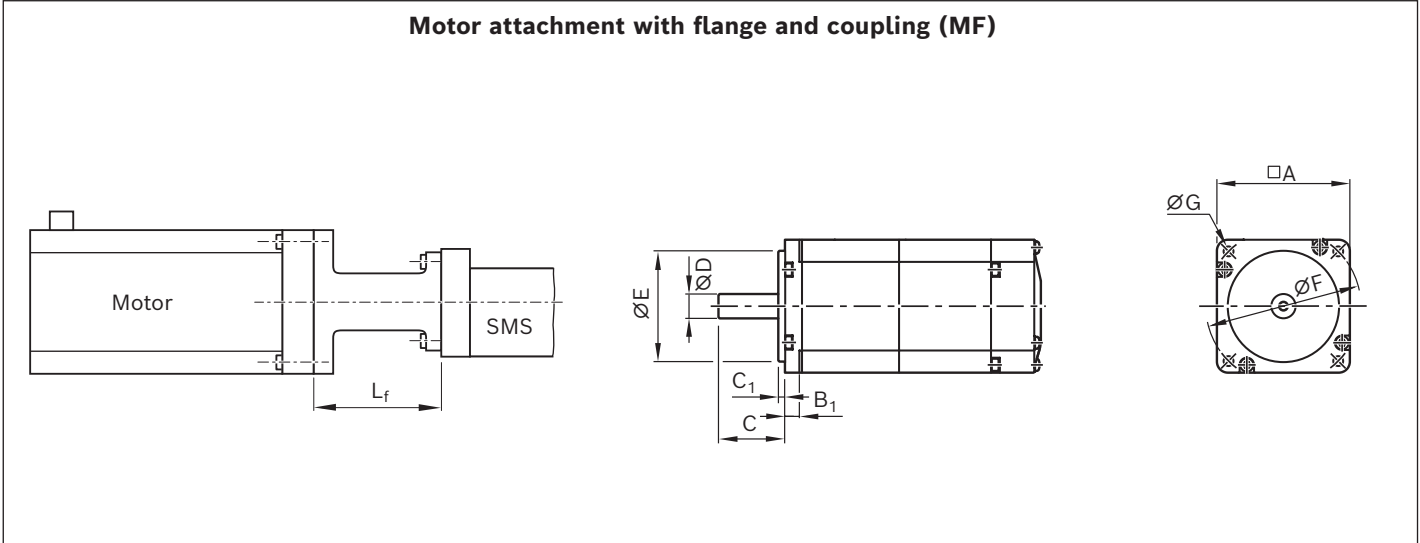
**Verifying the given data with the catalog data:**

$$\frac{A_{\text{actual}}}{A_{\text{Catalog}}} + \frac{B_{\text{actual}}}{B_{\text{Catalog}}} + \frac{C_{\text{actual}}}{C_{\text{Catalog}}} \leq 1 \quad \frac{60}{134} + \frac{15}{29} + \frac{0}{36} = 0.97 \leq 1$$

The check results in a sum value of less than 1. So the overhang from the application is possible.

Accessories

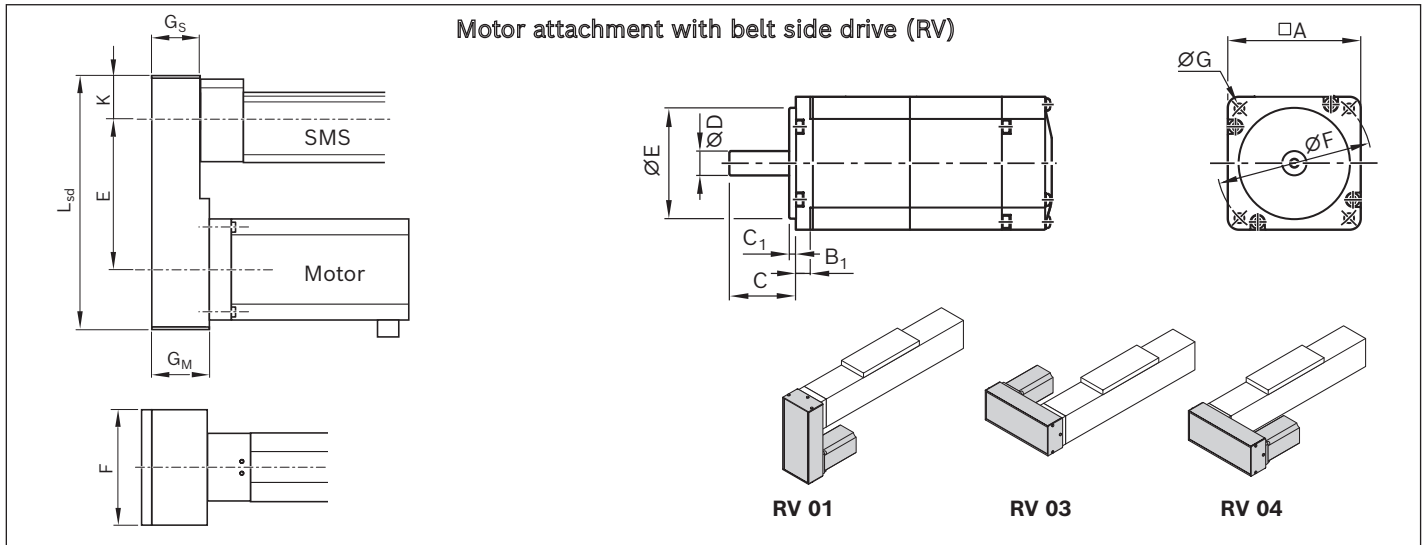
Motor attachment dimension drawings



SMS	$L_f$ (mm)
-030	33.0
-040	53.0
-050	57.5
-080	60.0
-120	55.0

SMS	Motor attachment		Weight (kg)	Motor Rexroth	Suitable third-party motor	Dimensions (mm)							
		Material number				A	$B_1$	C	$C_1$	$\varnothing D$	$\varnothing E$	$\varnothing F$	$\varnothing G$
-030	MF	R02680A001	0.026	–	Mitsubishi HG-AK0336 (30W) Yaskawa SGMMV-A3A2A2(1/C) (30W)	25	5.4	16	2.5	5	20	28	M3
-040	MF	R02680A002	0.129	–	Mitsubishi HG-KR053(B) (50W) Yaskawa SGMJV-A5AAA2(1/C) (50W) Delta ECMA-C1040F(E/F)S (50W) Mitsubishi HG-KR13(B) (100W) Yaskawa SGMJV-01AAA2(1/C) (100W) Delta ECMA-C20401(E/F) (100W)	40	5.0	25	2.5	8	30	46	4.5
-040	MF	R02680A006		MSM 019 A/B	Panasonic MSMD5A2G1U/V (50W) Panasonic MSMD012G1U/V (100W)	38	6.0	25	3.0	8	30	45	3.4
-050	MF	R02680A003	0.224	–	Mitsubishi HG-KR13(B) (100W) Yaskawa SGMJV-01AAA2(1/C) (100W) Delta ECMA-C20401(E/F) (100W)	40	5.0	25	2.5	8	30	46	4.5
-050	MF	R02680A007		MSM 019B	Panasonic MSMD012G1U/V (100W)	38	6.0	25	3.0	8	30	45	3.4
-080	MF	R02680A004	0.418	–	Mitsubishi HG-KR23(B) (200W) Yaskawa SGMJV-02AAA2(1/C) (200W) Delta ECMA-C20602F(E/F)S (200W) Mitsubishi HR-KR43(B) (400W) Yaskawa SGMJV-04AAA2(1/C) (400W) Delta ECMA-C20604F(E/F)S (400W)	60	7.0	30	3.0	14	50	70	5.8
-080	MF	R02680A008		MSM 031B	Panasonic MHMD022G1U/V (200W)	60	6.5	30	3.0	11	50	70	4.5
-080	MF	R02680A009		MSM 031C	Panasonic MHMD042G1U/V (400W)	60	6.5	30	3.0	14	50	70	4.5
-120	MF	R02680A005	0.384	–	Mitsubishi HR-KR43(B) (400W) Yaskawa SGMJV-04AAA2(1/C) (400W) Delta ECMA-C20604F(E/F)S (400W)	60	7.0	30	3.0	14	50	70	5.8
-120	MF	R02680A010		MSM 031C	Panasonic MHMD042G1U/V (400W)	60	6.5	30	3.0	14	50	70	4.5



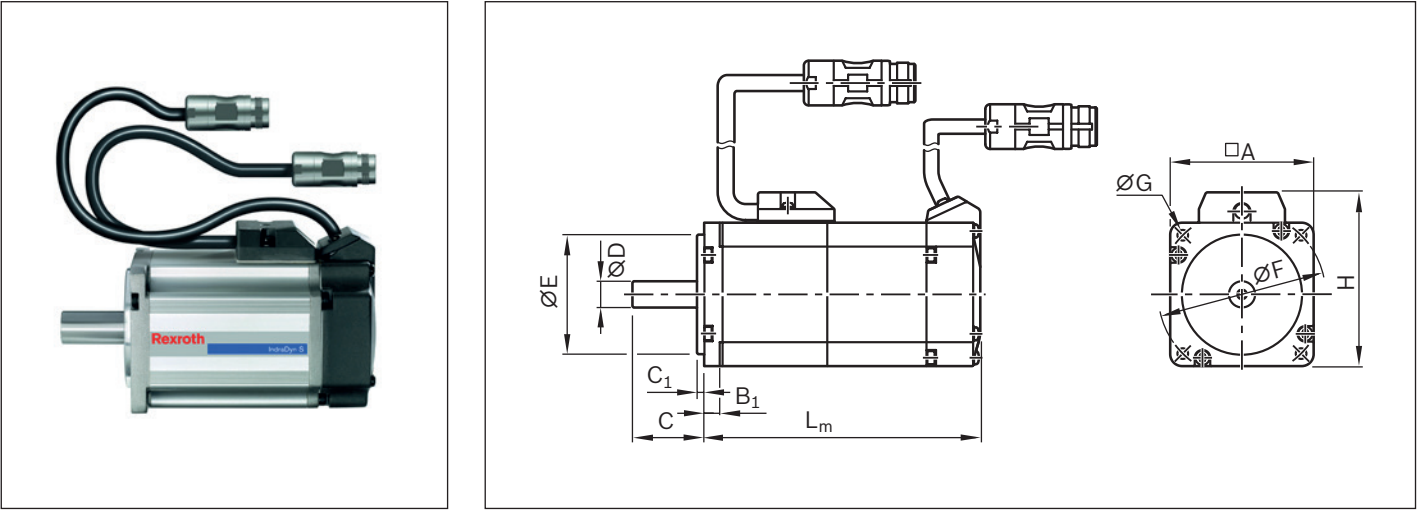


SMS	RV	Dimensions (mm)					
		E	F	G <sub>s</sub>	G <sub>m</sub>	K	L <sub>sd</sub>
-030	RV01/03/04	40	30	18.0	20.0	14.50	79.50
-040	RV01/03/04	53	43	35.0	35.0	21.50	98.50
-050	RV01/03/04	58	52	37.0	35.0	25.00	105.00
-080	RV01/03/04	80	62	46.5	46.5	31.00	146.00
-120	RV01	80	62	41.5	47.0	31.00	146.00
	RV03/04	100	62	31.5	37.0	46.75	181.75

SMS	Motor attachment <sup>1)</sup>		Weight (kg)	Motor		Dimensions (mm)							
		Material number		Rexroth	Suitable third-party motor	A	B <sub>1</sub>	C	C <sub>1</sub>	ØD	ØE	ØF	ØG
-030	RV01	R02680B002	0.056	–	Mitsubishi HG-AK0336 (30W) Yaskawa SGMJV-A3A2A2(1/C) (30W)	25	5.4	16	2.5	5	20	28	M3
-030	RV03/04	R02680B001		–	Mitsubishi HG-AK0336 (30W) Yaskawa SGMJV-A3A2A2(1/C) (30W)	25	5.4	16	2.5	5	20	28	M3
-040	RV01/03/04	R02680B003	0.216	–	Mitsubishi HG-KR053(B) (50W) Yaskawa SGMJV-A5AAA2(1/C) (50W) Delta ECMA-C1040F(E/F)S (50W) Mitsubishi HG-KR13(B) (100W) Yaskawa SGMJV-01AAA2(1/C) (100W) Delta ECMA-C20401(E/F) (100W)	40	5	25	2.5	8	30	46	4.5
-040	RV01/03/04	R02680B008		MSM 019 A/B	Panasonic MSMD5A2G1U/V (50W) Panasonic MSMD012G1U/V (100W)	38	6.0	25	3.0	8	30	45	3.4
-050	RV01/03/04	R02680B004	0.269	–	Mitsubishi HG-KR13(B) (100W) Yaskawa SGMJV-01AAA2(1/C) (100W) Delta ECMA-C20401(E/F) (100W)	40	5.0	25	2.5	8	30	46	4.5
-050	RV01/03/04	R02680B009		MSM 019B	Panasonic MSMD012G1U/V (100W)	38	6.0	25	3.0	8	30	45	3.4
-080	RV01/03/04	R02680B005	0.600	–	Mitsubishi HG-KR23(B) (200W) Yaskawa SGMJV-02AAA2(1/C) (200W) Delta ECMA-C20602F(E/F)S (200W) Mitsubishi HR-KR43(B) (400W) Yaskawa SGMJV-04AAA2(1/C) (400W) Delta ECMA-C20604F(E/F)S (400W)	60	7.0	30	3.0	14	50	70	5.8
-080	RV01/03/04	R02680B010		MSM 031B	Panasonic MHMD022G1U/V (200W)	60	6.5	30	3.0	11	50	70	4.5
-080	RV01/03/04	R02680B011		MSM 031C	Panasonic MHMD042G1U/V (400W)	60	6.5	30	3.0	14	50	70	4.5
-120	RV01	R02680B007	0.635	–	Mitsubishi HR-KR43(B) (400W) Yaskawa SGMJV-04AAA2(1/C) (400W) Delta ECMA-C20604F(E/F)S (400W)	60	7.0	30	3.0	14	50	70	5.8
-120	RV03/04	R02680B006	0.662	–	Mitsubishi HR-KR43(B) (400W) Yaskawa SGMJV-04AAA2(1/C) (400W) Delta ECMA-C20604F(E/F)S (400W)	60	7.0	30	3.0	14	50	70	5.8
-120	RV01	R02680B013	0.635	MSM 031C	Panasonic MHMD042G1U/V (400W)	60	6.5	30	3.0	14	50	70	4.5
-120	RV03/04	R02680B012	0.662	MSM 031C	Panasonic MHMD042G1U/V (400W)	60	6.5	30	3.0	14	50	70	4.5

1) gear ratio i = 1

IndraDyn S - Servo motors MSM



Motor code	Dimensions (mm)											
	□ A	B <sub>1</sub>	C	C <sub>1</sub>	∅ D	∅ E	∅ F	∅ G	H	L <sub>m</sub>		
					h6	h7	Brake without	with				
MSM 019A-0 300	38	6.0	25	3	8	30	45	3.4	51	72.0	102.0	
MSM 019B-0 300	38	6.0	25	3	8	30	45	3.4	51	92.0	122.0	
MSM 031B-0 300	60	6.5	30	3	11	50	70	4.5	73	79.0	115.5	
MSM 031C-0 300	60	6.5	30	3	14	50	70	4.5	73	98.5	135.0	

Version

- ▶ Plain shaft without shaft seal
- ▶ M5 multi-turn absolute encoder (20-bit, absolute encoder function only available with backup battery)
- ▶ Cooling system: natural convection
- ▶ IP54 protection class (shaft IP40)
- ▶ With or without holding brake
- ▶ M17 metal round connector

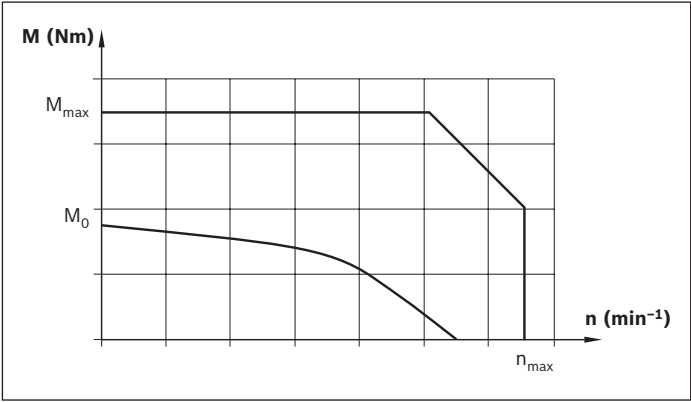
Note

Motors are available with control units and controllers. For more information on motors, controllers and control systems, please refer to the following Rexroth catalogs:

- ▶ Drive system Rexroth IndraDrive R999000018
- ▶ Automation Systems and Control Components, R999000026

Motor data									Motor connection Cables	Holding brake	Type code	Material number
$n_{\max}$ ( $\text{min}^{-1}$ )	$M_0$ (Nm)	$M_{\max}$ (Nm)	$M_{\text{br}}$ (Nm)	$J_{\text{m}}$ ( $\text{kgm}^2$ )	$J_{\text{br}}$ ( $\text{kgm}^2$ )	$m_{\text{m}}$ (kg)	$m_{\text{br}}$ (kg)					
5 000	0.16	0.48	0.29	0.0000025	0.0000002	0.32	0.21	2	N		MSM 019A-0 300-NN-M5-MH0	R911344209
									Y		MSM 019A-0 300-NN-M5-MH1	R911344210
5 000	0.32	0.95	0.29	0.0000051	0.0000002	0.47	0.21	2	N		MSM 019B-0 300-NN-M5-MH0	R911344211
									Y		MSM 019B-0 300-NN-M5-MH1	R911344212
5 000	0.64	1.91	1.27	0.0000140	0.0000018	0.82	0.48	2	N		MSM 031B-0 300-NN-M5-MH0	R911344213
									Y		MSM 031B-0 300-NN-M5-MH1	R911344214
5 000	1.30	3.80	1.27	0.0000260	0.0000018	1.20	0.50	2	N		MSM 031C-0 300-NN-M5-MH0	R911344215
									Y		MSM 031C-0 300-NN-M5-MH1	R911344216

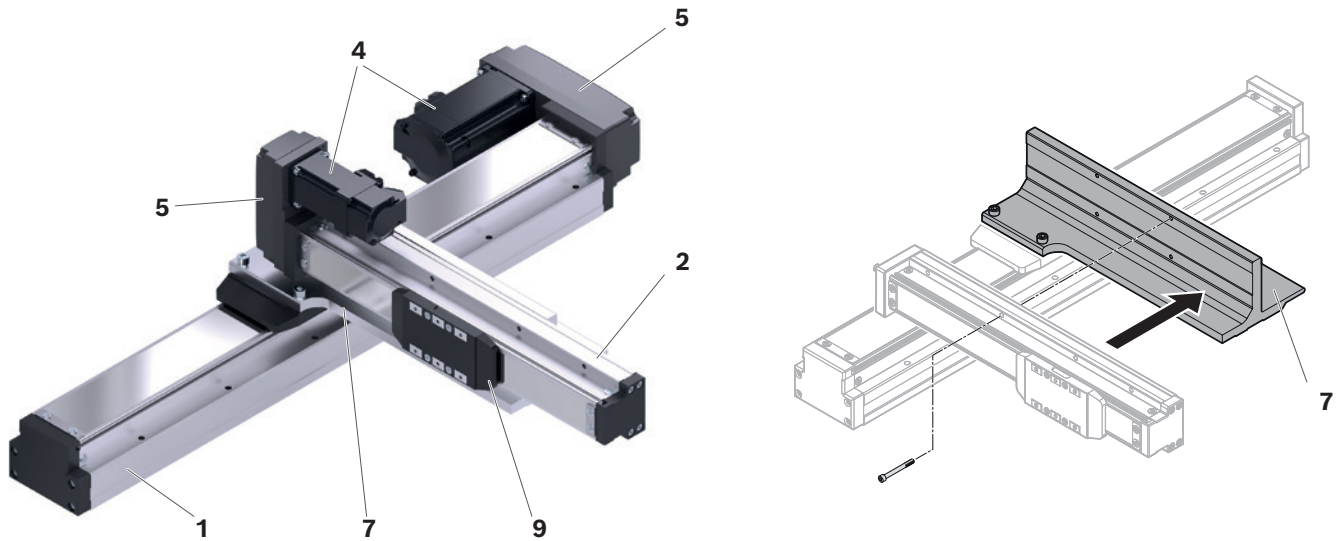
Motor characteristic  
(Schematic)



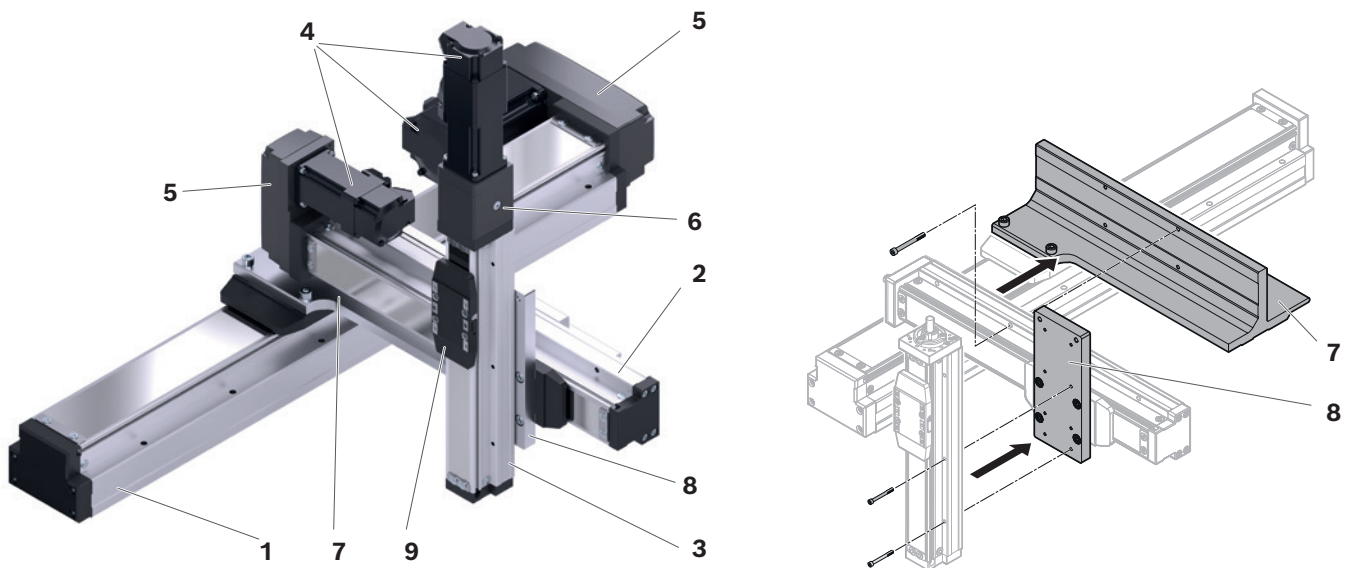
## Connection elements for multi-axis systems

- |   |   |
|---|---|
| 1 X-axis                                | 6 Motor attachment with flange and coupling |
| 2 Y-axis                                | 7 Angle bracket                             |
| 3 Z-axis                                | 8 Connection plate                          |
| 4 Motor                                 | 9 Carriage                                  |
| 5 Motor attachment with belt side drive |   |

### X-Y combination of axes

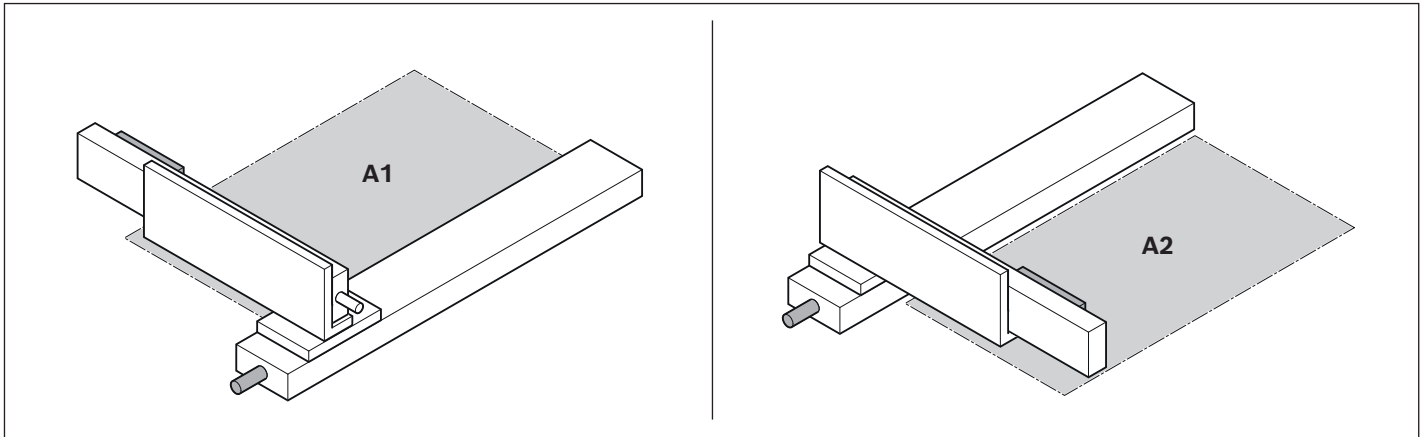


### X-Y-Z combination of axes



### Travel range

Travel ranges A1 or A2 can be selected.



### Maximum travel range

The travel ranges of the individual axes determine the maximum travel range of the multi-axis system as travel range limits without stroke reserves.

Any excess travel required as a safety distance in the end positions of the individual axes depends on the application and must therefore be taken into account accordingly by the user.

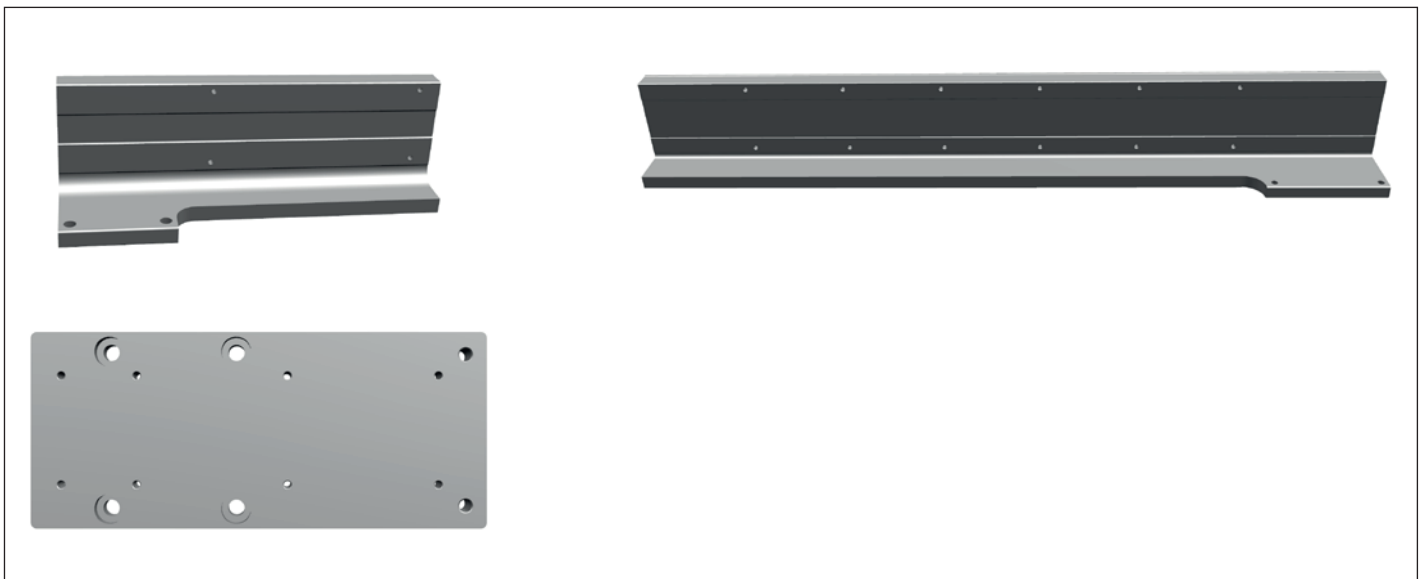
Therefore, the effectively usable working range is usually smaller than the maximum available travel range.

### Angle bracket / connection plate




Angle brackets for mounting of the y-axis are available for the travel ranges (A1 or A2) in various sizes/lengths.

Connection plate available for mounting the z-axis on the y-axis.

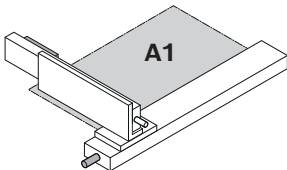

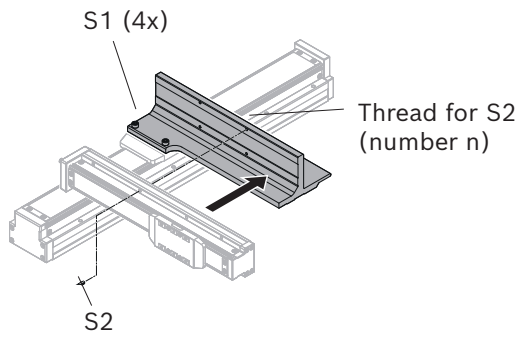
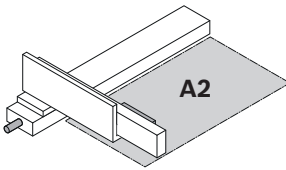

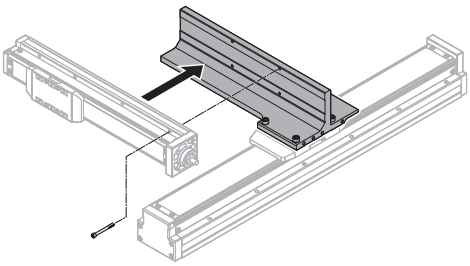
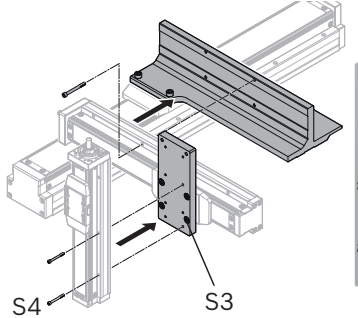
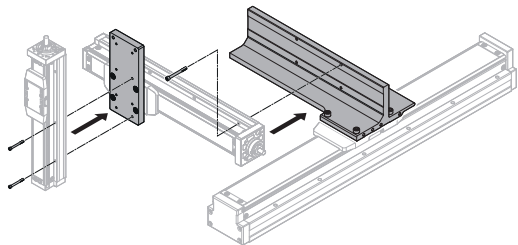
3D CAD data ➡ Additional information




Angle brackets / connection plates

Angle bracket							
Version	Y stroke (mm)	Material no.	 (KG)	 S1 <sup>3)</sup>	 S2 <sup>3)</sup>	Number (n)	
2D1	100	R02680C003 <sup>1)</sup>	0.63	4 x M5 x 18	M3 x 30	4	
		R02680C004 <sup>2)</sup>					
2D2	100	R02680C005 <sup>1)</sup>	1.05	4 x M6 x 22	M4 x 30	4	
		R02680C007 <sup>2)</sup>					
	200	R02680C006 <sup>1)</sup>	1.54		M4 x 30	6	
		R02680C008 <sup>2)</sup>					
2D3	100	R02680C009 <sup>1)</sup>	1.87	4 x M6 x 30	M5 x 45	4	
		R02680C011 <sup>2)</sup>					
	200	R02680C010 <sup>1)</sup>	2.58		M5 x 45	6	
		R02680C012 <sup>2)</sup>					
2D4	100	R02680C013 <sup>1)</sup>	3.69	4 x M6 x 30	M6 x 50	6	
		R02680C015 <sup>2)</sup>					
	200	R02680C014 <sup>1)</sup>	4.67		M6 x 50	8	
		R02680C016 <sup>2)</sup>					
	400	R02680C021 <sup>1)</sup>	6.68		M6 x 50	12	
		R02680C023 <sup>2)</sup>					
	600	R02680C022 <sup>1)</sup>	8.67		M6 x 50	16	
		R02680C024 <sup>2)</sup>					
3D1	100	R02680C005 <sup>1)</sup>	1.05	4 x M6 x 22	M4 x 30	4	
		R02680C007 <sup>2)</sup>					
	200	R02680C006 <sup>1)</sup>	1.54		M4 x 30	6	
		R02680C008 <sup>2)</sup>					
3D2	100	R02680C009 <sup>1)</sup>	1.87	4 x M6 x 30	M5 x 45	4	
		R02680C011 <sup>2)</sup>					
	200	R02680C010 <sup>1)</sup>	2.58		M5 x 45	6	
		R02680C012 <sup>2)</sup>					
	400	R02680C017 <sup>1)</sup>	3.99		M5 x 45	10	
		R02680C019 <sup>2)</sup>					
	600	R02680C018 <sup>1)</sup>	5.41		M5 x 45	14	
		R02680C020 <sup>2)</sup>					
Connection plates							
				S3 <sup>3)</sup>	S4 <sup>3)</sup>		
3D1	-	R02680C001	0.31	4 x M5 x 18	M3 x 30	8	
3D2	-	R02680C002	2.24	4 x M6 20	M4 x 30	10	

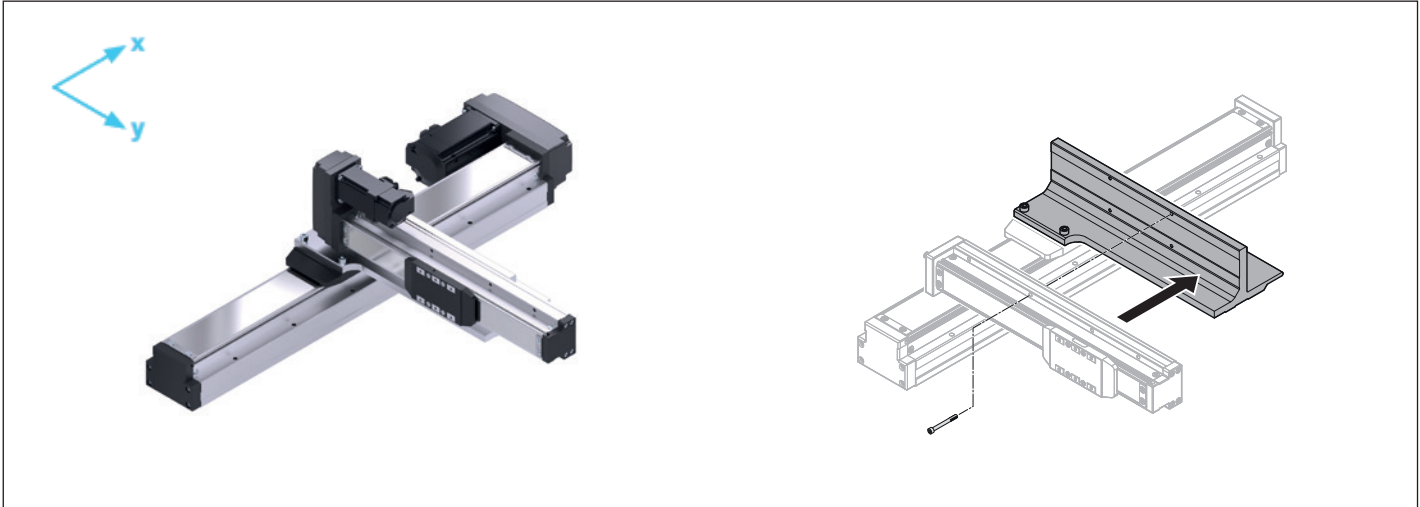
1) Bracket version for travel range "A1"  
2) Bracket version for travel range "A2"  
3) Recommended cylinder head screws (not included with delivery) with hex socket according to EN ISO 4762 / DIN 912; strength class 8.8

Bracket version	
Travel range A1	Travel range A2
 <p>A1</p>  <p>Drill holes for S1</p>  <p>S1 (4x)</p> <p>Thread for S2 (number n)</p> <p>S2</p>	 <p>A2</p>  
 <p>S4</p> <p>S3</p> <p>Thread for S4 (number n)</p> <p>Drill holes for S3</p>	

-  - S1: for the fastener of the angle bracket on the x-axis
- S2: for the fastener of the y-axis on the angle bracket
- S3: for the fastener of the connection plate on the y-axis
- S4: for the fastener of the z-axis on the connection plate

Product selection 2D cantilever

X-Y combination of axes



Technical data

Type	X-axis					Y-axis					
	SMS size	s <sub>max</sub>  (mm)	BASA d <sub>0</sub> x P  (mm)	Motor output  (W)	v <sub>max</sub>  (m/s)	SMS size	s <sub>max</sub>  (mm)	BASA d <sub>0</sub> x P  (mm)	Motor output  (W)	v <sub>max</sub>  (m/s)	m <sub>ex max</sub> <sup>1)</sup>  (kg)
2D1	-050	100, 200, 300, 400, 500, 600, 800, 1 000	12 x 10	100	0.30	-040	100	10 x 12	50	0.72	2.6
2D2	-080	100, 200, 400, 600, 800, 1 000, 1 200	16 x 20	200	1.20	-050	100	12 x 10	100	0.60	9.8
							200	12 x 10	100	0.60	3.3
2D3	-120	100, 200, 400, 600, 800, 1 000, 1 200	16 x 32	400	1.92	-080	100	16 x 10	200	0.60	19.8
							200	16 x 10	200	0.60	9.8
	-120	100, 200, 400, 600, 800, 1 000, 1 200	16 x 32	400	1.92	-080	100	16 x 20	200	1.20	19.8
							200	16 x 20	200	1.20	9.8
2D4	-120	100, 200, 400, 600, 800, 1 000, 1 200	16 x 10	400	0.60	-120	100	16 x 10	400	0.60	63.1
							200	16 x 10	400	0.60	39.7
							400	16 x 10	400	0.60	20.4
							600	16 x 10	400	0.60	8.1
			16 x 32	400	1.92	-120	100	16 x 32	400	1.92	17.1
							200	16 x 32	400	1.92	7.2

<sup>1)</sup> The moved external load is valid for a horizontal installation position of the X-axis.  
If you want to mount the X-axis on a wall, contact Bosch Rexroth.



**Type selection based on a customer requirement with the following given data:**

X-Y travel range:  $X_{\max} = 1000 \text{ mm}$ ;  $Y_{\max} = 200 \text{ mm}$ ; travel range A2

X-Y dynamics:  $v_x \leq 1.5 \text{ m/s}$ ;  $v_y \leq 0.5 \text{ m/s}$ ;

External load on y-axis:  $m_{\text{ex}} \leq 8.0 \text{ kg}$ ;

**⇒ Type 2D3 selected (data in gray)**

Type	X-axis					Y-axis					
	SMS size	$s_{\max}$ (mm)	BASA $d_0 \times P$ (mm)	Motor output (W)	$v_{\max}$ (m/s)	SMS size	$s_{\max}$ (mm)	BASA $d_0 \times P$ (mm)	Motor output (W)	$v_{\max}$ (m/s)	$m_{\text{ex max}}$ (kg)
2D3	-120	100, 200, 400, 600, 800, 1 000, 1 200	16 x 32	400	1.92	-080	100	16 x 10	200	0.60	19.8
							200	16 x 10	200	0.60	9.8
	-120	100, 200, 400, 600, 800, 1 000, 1 200	16 x 32	400	1.92	-080	100	16 x 20	200	1.20	19.8
							200	16 x 20	200	1.20	9.8

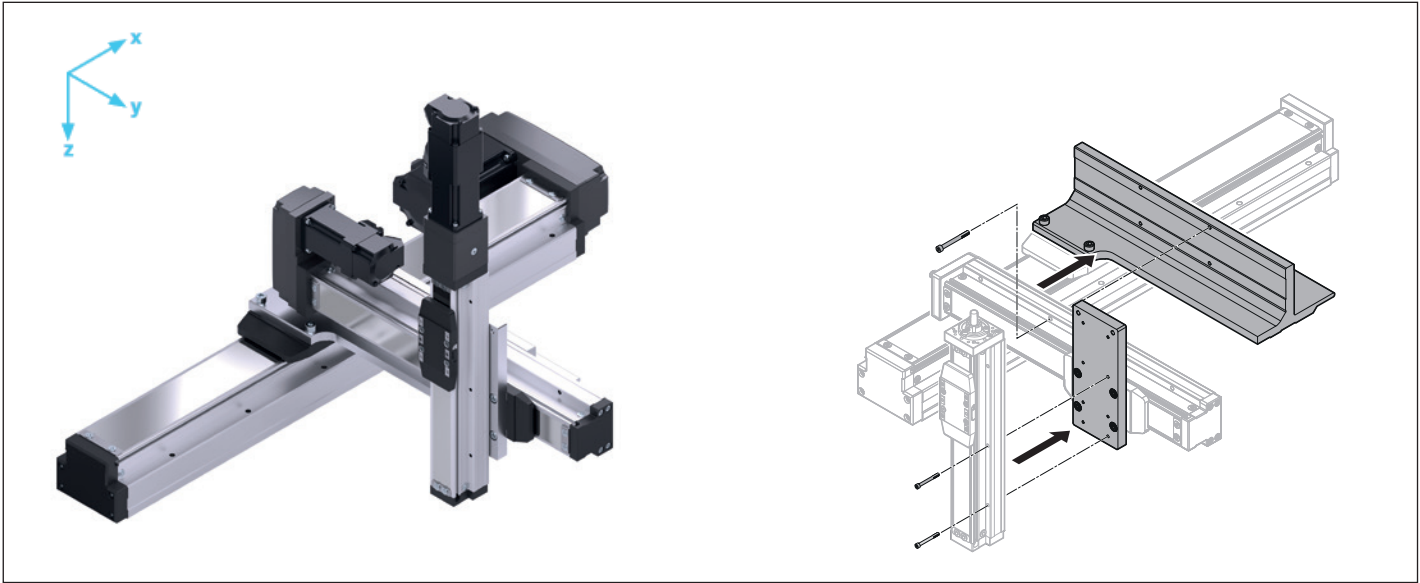
**Ordering example type 2D3**

Type 2D3 consists of the following individual components:

Component	Material number	
X-axis	R02681L070	⇒ "Material numbers" table, page 14
Y-axis	R02681H004	
Angle bracket	R02680C012	Travel range A2 ⇒ Table Mat. No. Angle bracket Page 22
X-axis motor attachment	R02680B012 / RV04	Suitable motor attachment (RV) ⇒ Page 16/17
Y-axis motor attachment	R02680B010 / RV03	
Motor x-axis	R911344215 / MSM031C (without brake)	Suitable motor ⇒ Page 18/19
Motor y-axis	R911344213 / MSM031B (without brake)	

Product selection 3D cantilever

X-Y-Z combination of axes



Technical data

Type	X-axis					Y-axis					Z-axis					
	SMS size	s <sub>max</sub>	BASA d <sub>0</sub> x P	Motor output	v <sub>max</sub>	SMS size	s <sub>max</sub>	BASA d <sub>0</sub> x P	Motor output	v <sub>max</sub>	SMS size	s <sub>max</sub>	BASA d <sub>0</sub> x P	Motor output	v <sub>max</sub>	m <sub>ex max</sub> <sup>1)</sup>
3D1	-080	100, 200, 400, 600, 800, 1 000, 1 200	16 x 20	200	1.20	-050	100	12 x 10	100	0.60	-040	100	10 x 12	50	0.72	2.0
							200	12 x 10	100	0.60	-040	100	10 x 12	50	0.72	0.3
3D2	-120	100, 200, 400, 600, 800, 1 000, 1 200	16 x 10	400	0.60	-080	100, 200, 400, 600	16 x 10	200	0.60	-050	100, 200, 300	12 x 10	100	0.60	5.0

<sup>1)</sup> The moved external load is valid for a horizontal installation position of the X-axis.  
If you want to mount the X-axis on a wall, contact Bosch Rexroth.

**Type selection based on a customer requirement with the following given data:**

X-Y-Z travel range:  $X_{\max} = 1000 \text{ mm}$ ;  $Y_{\max} = 400 \text{ mm}$ ;  $Z_{\max} = 300 \text{ mm}$ ; travel range A1

X-Y-Z dynamics:  $v_x \leq 0.5 \text{ m/s}$ ;  $v_y \leq 0.5 \text{ m/s}$ ;  $v_z \leq 0.3 \text{ m/s}$

External load on z-axis:  $m_{\text{ex}} \leq 4.0 \text{ kg}$ ;

➡ **Type 3D2 selected (data in gray)**

Type	X-axis					Y-axis					Z-axis					
	SMS size	$s_{\max}$ (mm)	BASA $d_0 \times P$ (mm)	Motor output (W)	$v_{\max}$ (m/s)	SMS size	$s_{\max}$ (mm)	BASA $d_0 \times P$ (mm)	Motor output (W)	$v_{\max}$ (m/s)	SMS size	$s_{\max}$ (mm)	BASA $d_0 \times P$ (mm)	Motor output (W)	$v_{\max}$ (m/s)	$m_{\text{ex max}}$ (kg)
<b>3D2</b>	<b>-120</b>	100, 200, 400, 600, 800, 1 000, 1 200	16 x 10	400	0.60	<b>-080</b>	100, 200, 400, 600	16 x 10	200	0.60	<b>-050</b>	100, 200, 300	12 x 10	100	0.60	5.0

**Ordering example type 3D2**

Type 3D2 consists of the following individual components:

Component	Material number	
X-axis	R02681L020	➡ "Material numbers" table, page 14
Y-axis	R02681H008	
Z-axis	R02681E006	
Angle bracket	R02680C017	Travel range A1 ➡ Table Mat. No. Angle bracket Page 22
Connection plate	R02680C002	➡ Table Mat. No. Connection plate Page 22
X-axis motor attachment	R02680B012 / RV04	Suitable motor attachment (MF / RV) ➡ Page 16/17
Y-axis motor attachment	R02680B010 / RV03	
Z-axis motor attachment	R02680A007 / MF	
Motor x-axis	R911344215 / MSM031C (without brake)	Suitable motor ➡ Page 18/19
Motor y-axis	R911344213 / MSM031B (without brake)	
Motor z-axis	R911344212 / MSM019B (with brake)	

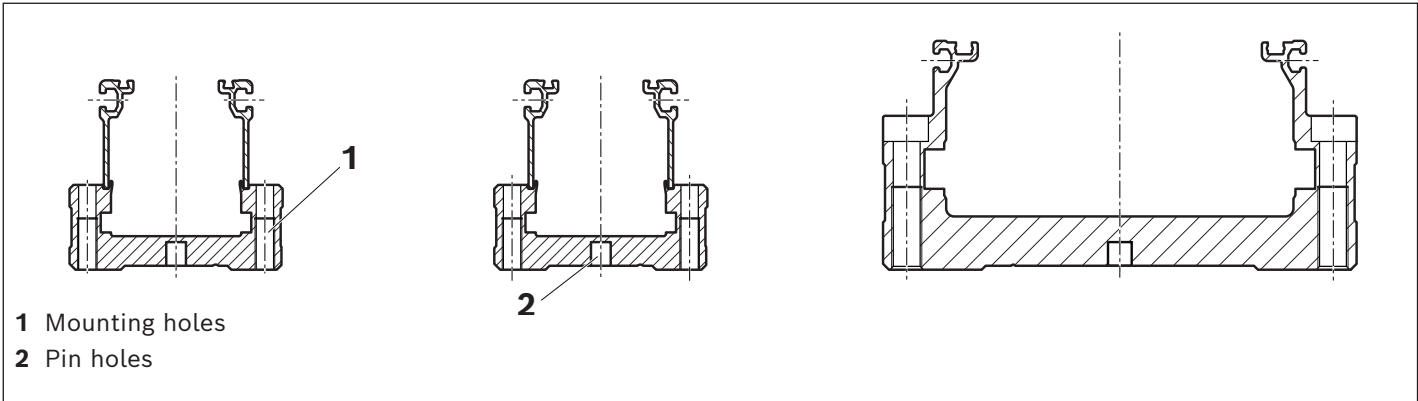
# Additional information

Mounting / switch mounting / operating conditions / lubrication / online information

## Mounting

- SMS-030 from below
- SMS-040 to SMS-120 either from above or below

For further information, please refer to dimension drawings



## Switch mounting

At SMS axes, it is possible to add a switching system.  
There are threaded holes on both sides of the carriage for attaching a switching bracket.  
There are T-slots on both sides of the main frame for mounting the switch, suitable for square nuts DIN 562-M3.

Technical drawing of a switch mounting on an SMS axis. The drawing shows the switch bracket (D) mounted on the carriage (B) of the SMS axis (A). The switch is secured with a screw (M). The drawing also shows the dimensions of the switch bracket and the T-slots on the main frame.

Exemplary switch mounting

Photograph showing an SMS axis with a switch mounted on the carriage.

SMS	Dimensions (mm)			
	A	B	C	M
-030	5,75	-	15,0	M 2,5 x 5 deep
-040	5,50	4	36,5	M 2 x 6 deep
-050	8,60	5	43,0	M 2,5 x 6 deep
-080	10,0	8	59,0	M 3 x 5 deep
-120	12,0	8	53,0	M 3 x 8 deep

D = lubrication hole (on both sides)

## Operating conditions

### Normal operating conditions

Ambient temperature	0 °C ... 40 °C
Soiling	Not permissible

### Required and supplementary documentation

For further instructions and information, please refer to the documentation for this product.

PDF files of these documents can be found on the Internet.

If you are unsure about using this product, please contact Bosch Rexroth.

## Lubrication

### Note on lubrication

SMS systems come with initial Tribol GR 100-2 PD greasing and are only designed for grease lubrication using a manual grease gun.

Maintenance is limited to relubrication of the integrated guideway and the ball screw drive.

**⚠ Do not use lubricants with solid particles (e.g. graphite or MoS<sub>2</sub> additives).**

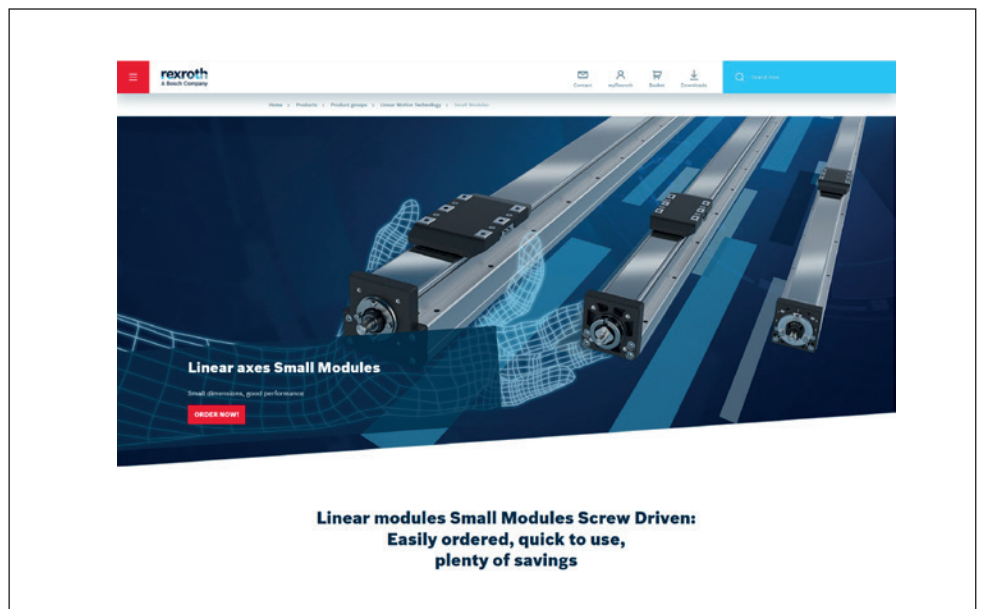
► Recommended lubricant: Tribol GR 100-2 PD

Relubrication intervals/relubrication quantities ➡ "Instructions SMS" R320103227

## Online information

### Homepage SMS

[www.boschrexroth.com/small-modules](http://www.boschrexroth.com/small-modules)



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