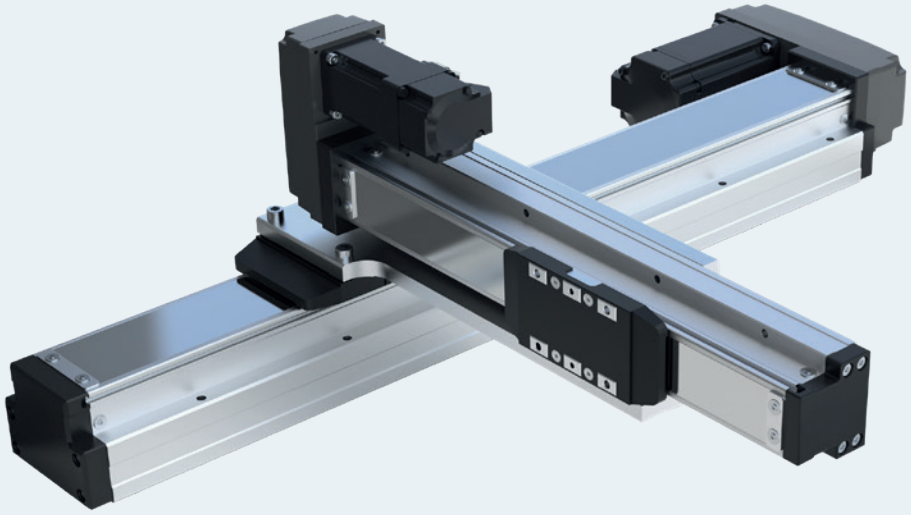
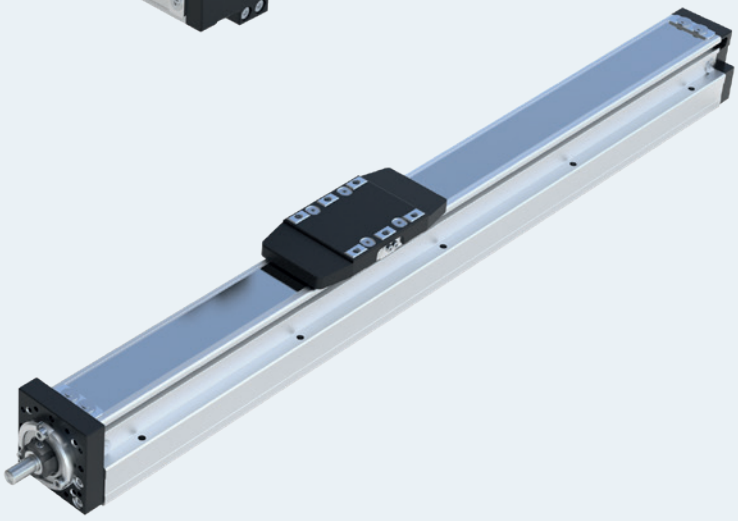
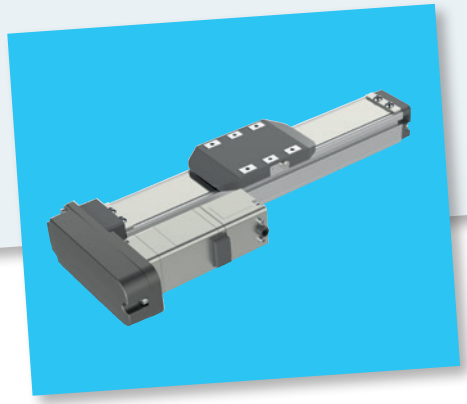
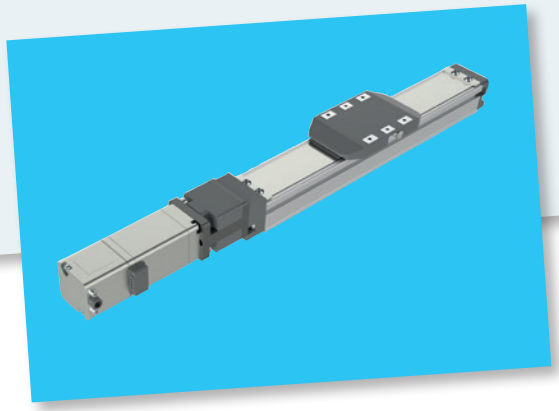
rexroth
A Bosch Company

Small Modules Screw driven – SMS









www.boschrexroth.com

Identification system for short product names

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

Changes/additions at a glance

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

- Images of Phoenix products are © Phoenix Contact GmbH & Co. KG / 2025-03
  Source: Internet: http://www.phoenixcontact.com

Contents

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 ± 0.005 mm

Attachments (range of accessories)

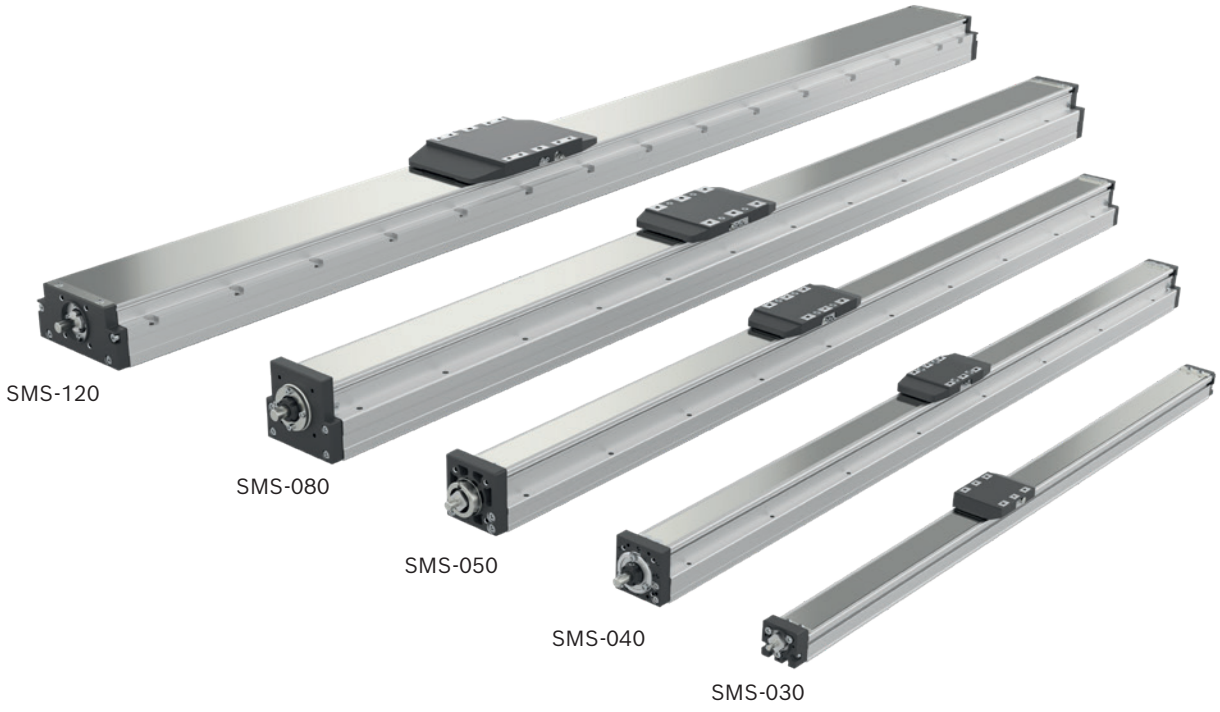
- Motor attachment either with flange and coupling or with belt side drive
- Optionally with Rexroth servo motor MSM or
- Stepper Motors:
  Compact stepper motors with integrated controller and a magnetic incremental encoder prepared for Rexroth multi-positioning operation. With the multi-Ethernet interface and the EtherCAT communication profile, the motors can be easily connected to any industrial EtherCAT controller.
  Extremely simple and fast commissioning: almost all parameters are preset in the stepper motor controller at the factory; only the maximum travel range and the lead screw pitch need to be set during commissioning. Cost-effective drive package tailored to the respective SMS size.
  Integrated motion controller eliminates wiring effort and reduces control cabinet volume.
- Optionally available with switch set

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


SMS-120
SMS-080
SMS-050
SMS-040
SMS-030

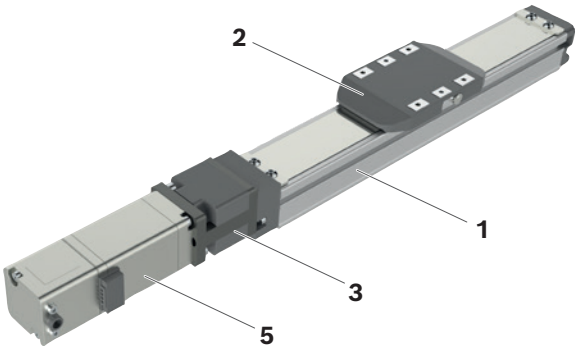
Product description

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").

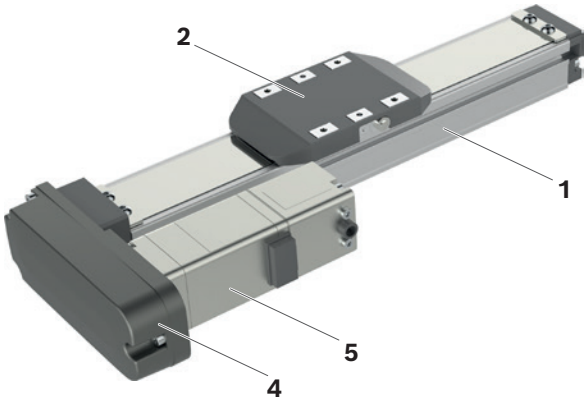
Form of delivery
SMS systems come fully assembled.

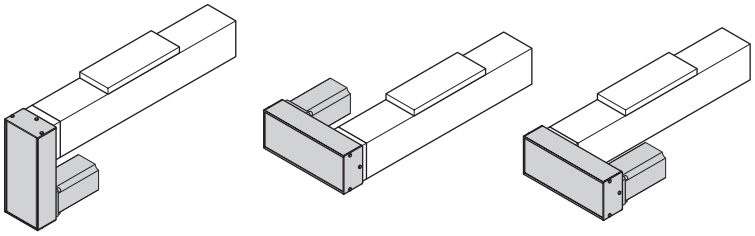
Range of accessories
Structure of flange and coupling or with belt side drive (RV01/RV03/RV04) are available in the range of accessories.

Motor attachment with flange and coupling



Motor attachment with belt side drive (RV01/RV03/RV04)



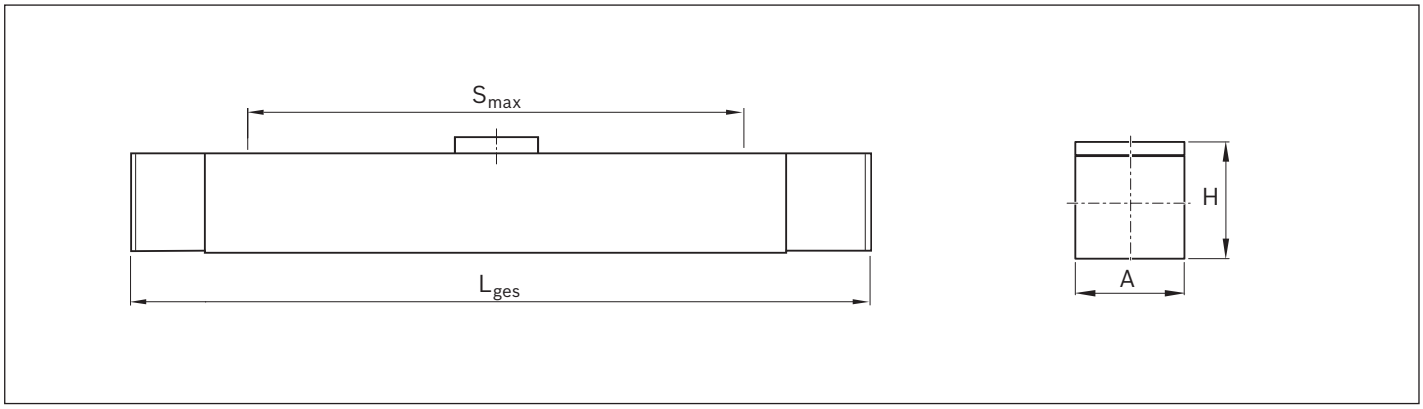


RV01 RV03 RV04

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

Lubrication
SMS systems are delivered with initial greasing.

Product overview

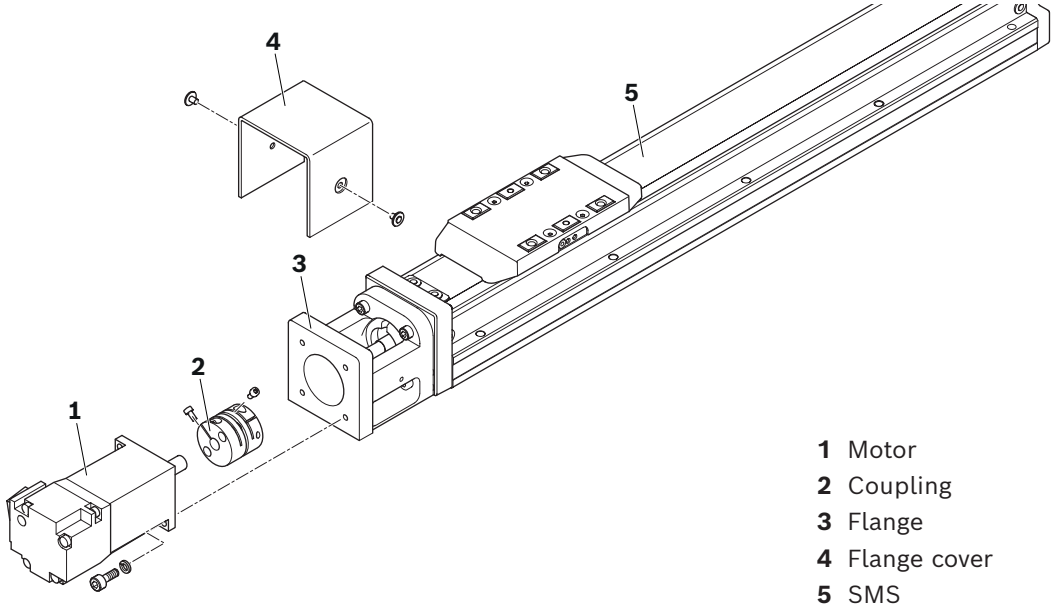


SMS	A	H	Dimensions (mm)								
-030	30	30	S_{max}	50	100	150	200	300	400	500	–
			L_{total}	165	215	265	315	415	515	615	–
-040	44	52	S_{max}	100	200	300	400	500	600	800	1 000
			L_{total}	261	361	461	561	661	761	961	1 161
-050	54	60	S_{max}	100	200	300	400	500	600	800	1 000
			L_{total}	263	363	463	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

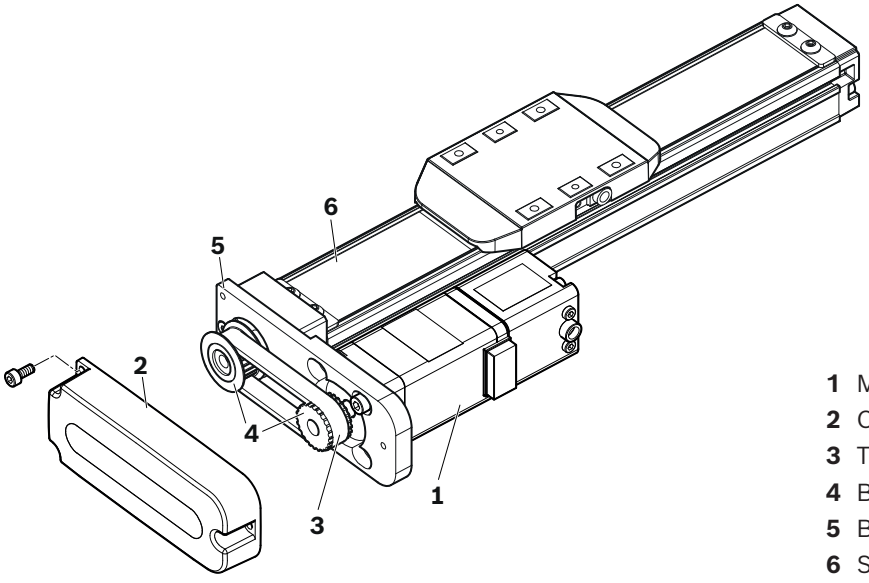
A motor with flange and coupling can be attached to all SMS systems with ball screw assembly.
The flange serves to fasten the motor to the SMS system and acts as a closed housing for the coupling.
The coupling transmits the motor drive torque free of distortive stresses to the drive shaft of the SMS system.
Standard couplings compensate for the system's thermal expansion.



1 Motor
2 Coupling
3 Flange
4 Flange cover
5 SMS

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.



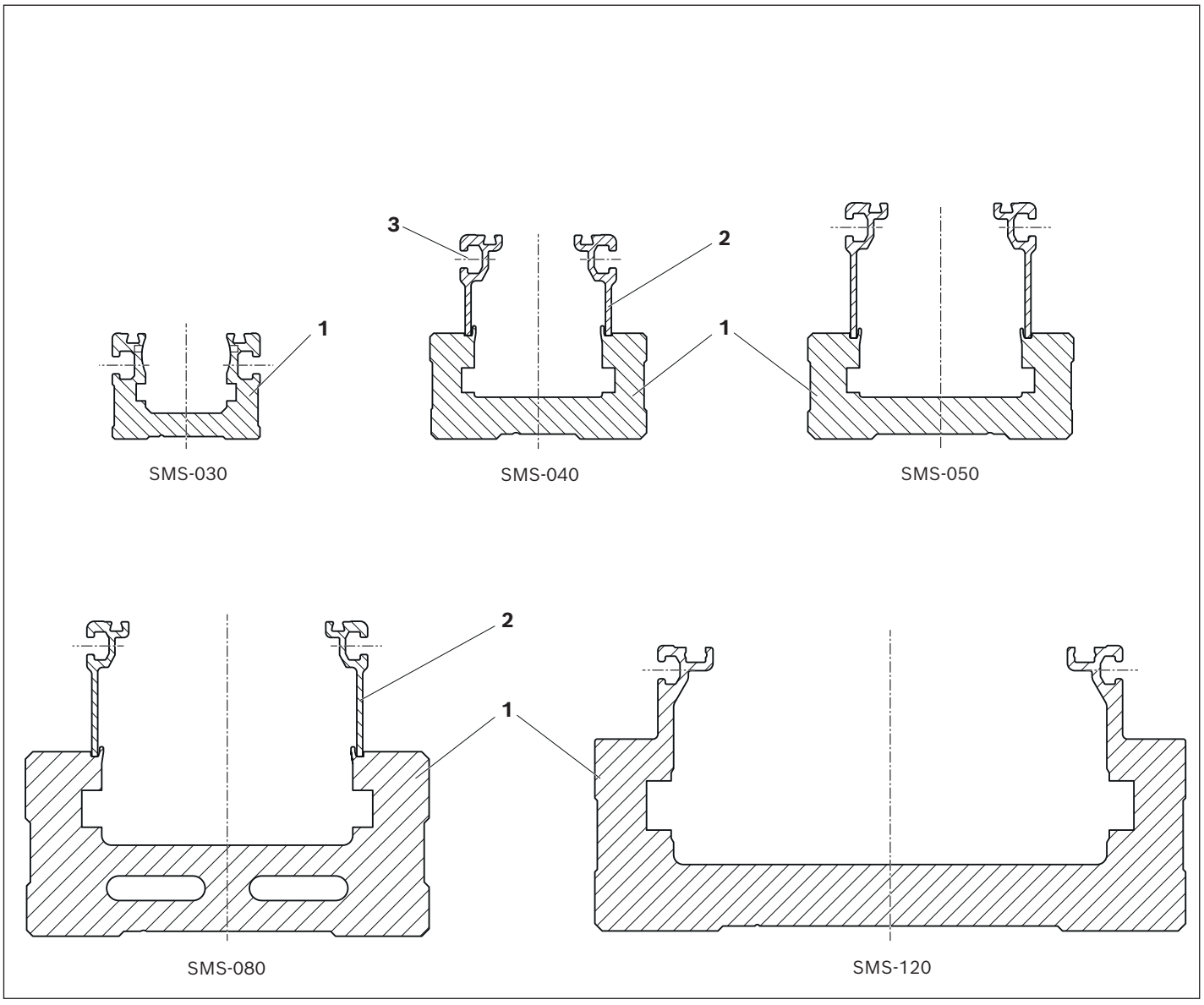
1 Motor
2 Cover
3 Toothed belt
4 Belt pulleys
5 Base plate
6 SMS

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

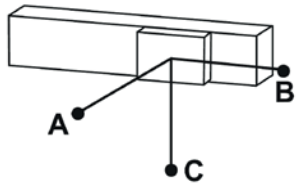
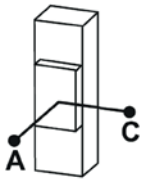
SMS all sizes: slot (3) for switch attachment on both sides



Technical data SMS with servomotors

Size	Max. travel range	Max. speed	Weight	Max. acceleration	BASA	Horizontal application[4] Motor Power[1]	Moved external load[2]	Max. permissible overhang[3] (mm)		
	s_{max} (mm)	v_{max} (m/s)	(kg)	a_{max} (m/s²)	Ø d_0 x P (mm)	W	$m_{ex\ max}$ (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							
	150	0.48	0.330				8	84	12	12
	200	0.43	0.370							
	300	0.32	0.480				10	64	9	9
	400	0.24	0.600							
	500	0.16	0.719							
-040	100	0.72	1.000	3.6	10 x 12	50 / 100	8	250	58	71
	200	0.72	1.350							
	300	0.72	1.710				12	160	36	44
	400	0.72	2.070							
	500	0.66	2.430			100	14	134	29	36
	600	0.54	2.790							
	800	0.30	3.510				20	87	18	23
	1 000	0.20	4.240							
-050	100	0.60	1.570	3.0	12 x 10	100	10	404	78	95
	200	0.60	1.890							
	300	0.60	2.280				18	209	39	47
	400	0.60	2.530							
	500	0.60	2.730				24	148	26	32
	600	0.50	3.060							
	800	0.30	3.870							
	1 000	0.18	5.390							
-080	100	0.60	3.860	3.0	16 x 10	200 / 400	40	312	58	82
	200	0.60	4.570							
	400	0.60	5.920				65	174	30	43
	600	0.60	7.280							
	800	0.45	8.530				80	132	22	31
	1 000	0.26	9.850							
	1 200	0.18	11.530			400	88	115	19	27
	100	1.20	3.860	6.0	16 x 20	200 / 400	20	247	95	110
	200	1.20	4.570							
	400	1.20	5.920				30	157	58	68
	600	1.20	7.280							
	800	0.90	8.530				40	112	40	47
	1 000	0.53	9.850							
	1 200	0.36	11.530							
-120	100	0.60	4.820	3.0	16 x 10	400	30	2 321	459	591
	200	0.60	5.520							
	400	0.60	6.920				50	1 358	265	342
	600	0.60	8.320							
	800	0.50	9.720				88	736	140	180
	1 000	0.33	11.120							
	1 200	0.25	12.520							
	100	1.92	4.820	9.6	16 x 32		15	708	448	397
	200	1.92	5.520							
	400	1.92	6.920				25	415	259	230
	600	1.92	8.320							
	800	1.60	9.720				30	341	211	189
	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[2]	Max. permissible overhang[3] (mm)			Motor-Power[1]	Moved external load[2]	Max. permissible overhang[3] (mm)		
								
$m_{ex\ max}$ (kg)	A	B	C	W	$m_{ex\ max}$ (kg)	A	C	M_{mech} (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	

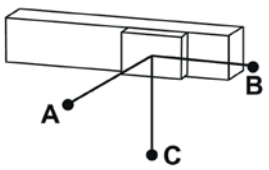
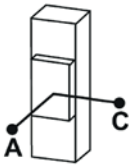
[1] Motor power for horizontal application and wall mounting
[2] Max. permissible payload
[3] In the case of a combined overhang, observe the chapter „material numbers/ordering examples“
[4] Observe the information on the installation provided in chapter "Product description".

Technical data SMS with stepper motors

Size	Max. travel range	Max. speed	Weight		Max. acceleration	BASA	Stepper-motor	Horizontal application[3]			
								Moved external load[1]	Max. permissible overhang[2] (mm)		
	s_{max} (mm)	v_{max} (m/s)	(kg)		a_{max} (m/s2)	Ø d_0 x P (mm)		$m_{ex\ max}$ (kg)	A	B	C
-030	50	0.20	0.220		1.5	6 x 8	ISS0420073	6	117	17	18
	100	0.20	0.270								
	150	0.20	0.330					8	84	12	12
	200	0.20	0.370								
	300	0.20	0.480					10	64	9	9
	400	0.20	0.600								
	500	0.16	0.719								
-040	100	0.20	1.000		3.6	10 x 12	ISS0570106	8	250	58	71
	200	0.20	1.350								
	300	0.20	1.710					12	160	36	44
	400	0.20	2.070								
	500	0.20	2.430					14	134	29	36
	600	0.20	2.790								
	800	0.20	3.510					20	87	18	23
	1 000	0.20	4.240								
-050	100	0.17	1.570		3.0	12 x 10		10	404	78	95
	200	0.17	1.890								
	300	0.17	2.280					18	209	39	47
	400	0.17	2.530								
	500	0.17	2.730					24	148	26	32
	600	0.17	3.060								
	800	0.17	3.870								
	1 000	0.17	5.390								
-080	100	0.07	3.860		3.0	16 x 10	ISS0860156	40	312	58	82
	200	0.07	4.570								
	400	0.07	5.920					65	174	30	43
	600	0.07	7.280								
	800	0.07	8.530					80	132	22	31
	1 000	0.07	9.850								
	1 200	0.07	11.530					88	115	19	27
	100	0.13	3.860		6.0	16 x 20		20	247	95	110
	200	0.13	4.570								
	400	0.13	5.920					30	157	58	68
	600	0.13	7.280								
	800	0.13	8.530					40	112	40	47
	1 000	0.13	9.850								
	1 200	0.13	11.530								
-120	100	0.07	4.820		3.0	16 x 10		30	2 321	459	591
	200	0.07	5.520								
	400	0.07	6.920					50	1 358	265	342
	600	0.07	8.320								
	800	0.07	9.720					88	736	140	180
	1 000	0.07	11.120								
	1 200	0.07	12.520								
	100	0.21	4.820		9.6	16 x 32		10	1070	680	600
	200	0.21	5.520								
	400	0.21	6.920					15	708	448	397
	600	0.21	8.320								
	800	0.21	9.720								
	1 000	0.21	11.120					17	620	390	345
	1 200	0,21	12,520								

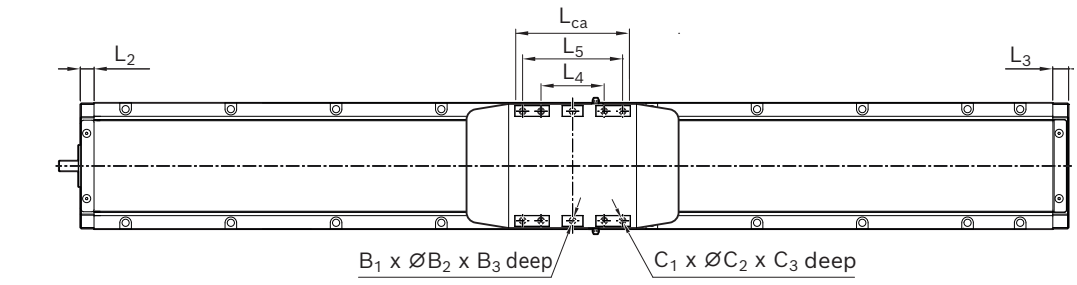
The service life of the SMS axes is 10 000 km if the product is used under the specified conditions.

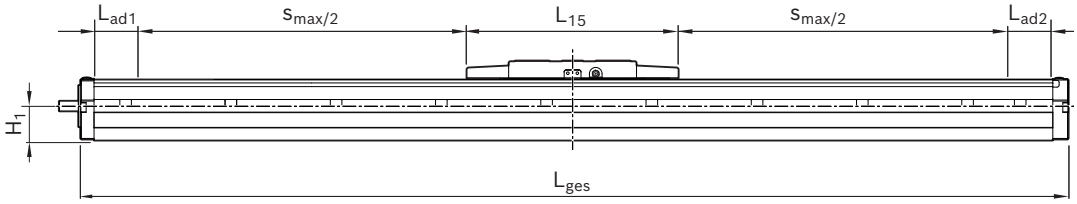
Note: The technical data applies to the combination of SMS axes with ISS stepper motors at an operating voltage of 24V DC. Operating voltage < 24V DC: The specified performance data for the SMS/stepper motor combination are not achieved.
Operating voltage > 24V DC: The SMS/stepper motor combination can achieve higher performance data.

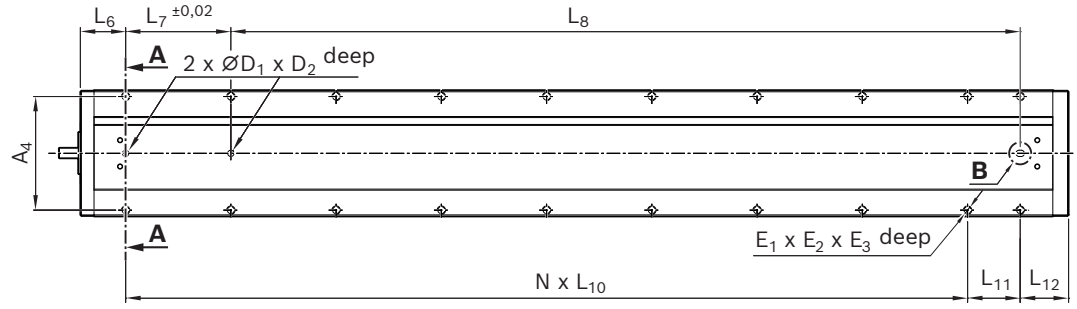
Wall mounting				**Vertical application**			**Max. drive torque**
Moved external load[1)]	**Max. permissible overhang[2)]** (mm)			**Moved external load[1)]**	**Max. permissible overhang[2)]** (mm)		
							
$m_{ex\ max}$ (kg)	**A**	**B**	**C**	$m_{ex\ max}$ (kg)	**A**	**C**	M_{mech} (Nm)
6	18	17	117	1	120	120	1.1
8	12	12	84	2	60	60	
10	9	9	64	–	–	–	
8	71	58	250	2	253	253	1.1
12	44	36	160	3,5	144	144	
14	36	29	134				
20	23	18	87	–	–	–	
10	95	78	404	1	859	859	1.1
18	47	39	209	3	286	286	
24	32	26	148	5	171	171	
40	82	58	312	8	351	351	2.2
65	43	30	174	15	187	187	
80	31	22	132	17	140	140	
88	27	19	115				
20	110	95	247	3	660	660	
30	68	58	157	5	396	396	
40	47	40	112	8	247	247	
30	634	478	2 321	10	1 543	1 543	3.1
50	367	277	1 358	14	1 104	1 104	
88	194	146	736	17	860	860	
10	600	680	1070	2	3 000	3 000	
15	397	448	708	3	2 220	2 220	
17	345	390	620	4	1 550	1 550	

[1)] Max. permissible payload
[2)] In the case of a combined overhang, observe the chapter „material numbers/ordering examples“
[3)] Observe the information on the installation provided in chapter "Product description".

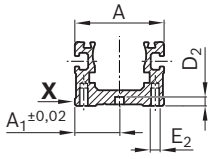
Dimension drawings



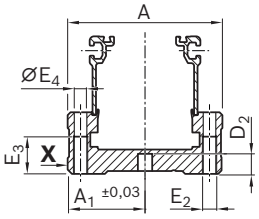




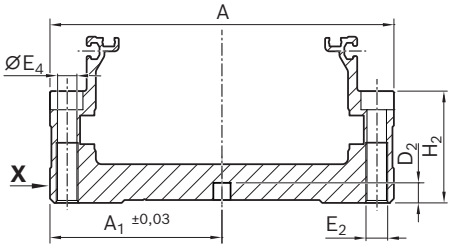
A-A



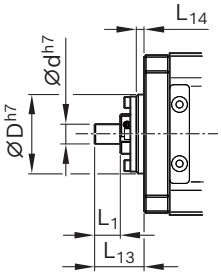
SMS-030

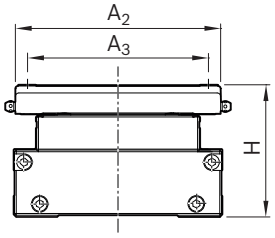


SMS-040 – SMS-080

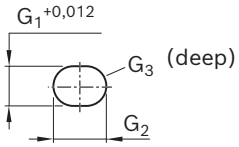


SMS-120

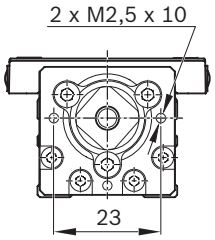




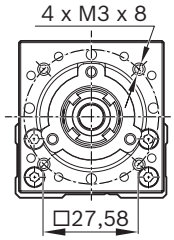
B



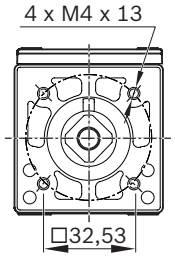
SMS-030



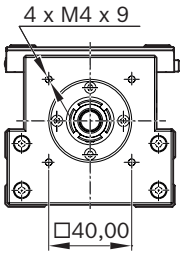
SMS-040



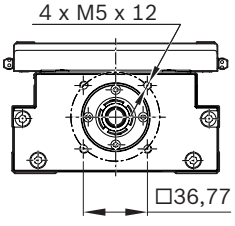
SMS-050



SMS-080



SMS-120



X = reference edge

SMS	A	A_1	A_2	A_3	A_4	B_1	B_2^{H7}	B_3	C_1	C_2	C_3	D_{h7}	d_{h7}	D_1^{H7}	D_2	E_2	E_3	E_4	G_1	G_2	G_3
-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_1	H_2	L_1	L_2	L_3	L_4	L_5	L_6	L_7	L_{10}	L_{12}	L_{13}	L_{14}	L_{15} TT total	L_{ca}	L_{ad1}	L_{ad2}
-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_{max}	50	100	150	200	300	400	500	–
	L_{total}	165	215	265	315	415	515	615	–
	L_8	24	74	124	174	274	374	474	–
	L_{11}	24	74	24	74	74	74	74	–
	N	1	1	2	2	3	4	5	–
	E_1	6	6	8	8	10	12	14	–
-040	S_{max}	100	200	300	400	500	600	800	1 000
	L_{total}	261	361	461	561	661	761	961	1 161
	L_8	75	175	275	375	475	575	775	975
	L_{11}	75	75	75	75	75	75	75	75
	N	1	2	3	4	5	6	8	10
	E_1	6	8	10	12	14	16	20	24
-050	S_{max}	100	200	300	400	500	600	800	1 000
	L_{total}	263	363	463	563	663	763	963	1 163
	L_8	75	175	275	375	475	575	775	975
	L_{11}	75	75	75	75	75	75	75	75
	N	1	2	3	4	5	6	8	10
	E_1	6	8	10	12	14	16	20	24
-080	S_{max}	100	200	400	600	800	1 000	1 200	–
	L_{total}	318	418	618	818	1 018	1 218	1 418	–
	L_8	100	200	400	600	800	1 000	1 200	–
	L_{11}	100	100	100	100	100	100	100	–
	N	1	2	4	6	8	10	12	–
	E_1	6	8	12	16	20	24	27	–
-120	S_{max}	100	200	400	600	800	1 000	1 200	–
	L_{total}	339	439	639	839	1 039	1 239	1 439	–
	L_8	150	250	450	650	850	1 050	1 250	–
	L_{11}	50	50	50	50	50	50	50	–
	N	2	3	5	7	9	11	13	–
	E_1	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
-030	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
-040	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
	SMS-040-P12-1000	R02681D020
-050	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
	SMS-050-P10-800	R02681E016
	SMS-050-P10-1000	R02681E020
-080	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
	SMS-080-P20-1000	R02681H070
	SMS-080-P20-1200	R02681H074
-120	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

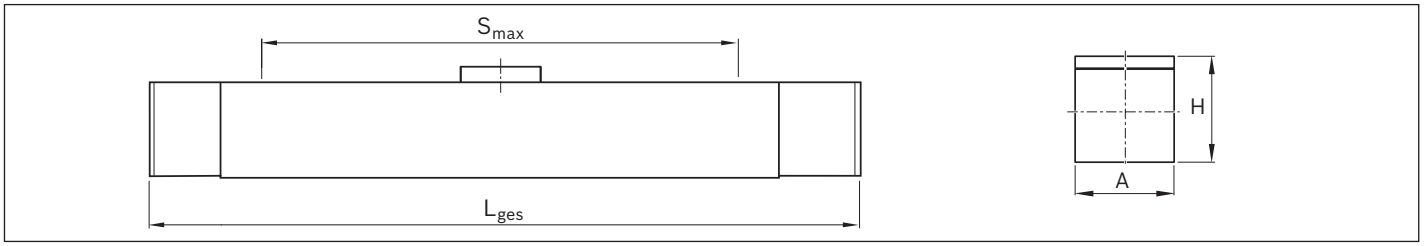
Ordering example (freely selected)		**SM**	**S**	**-**	**080**	**-**	**P10**	**-**	**1200**
System	= **S**mall **M**odules								
Drive	= **S**crew drive (ball screw assembly)								
Size	= **080**								
Lead	= **P** (lead **10** mm)								
Maximum travel range	= s_{max} (maximum travel range **1 200** mm)								

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; $L_{total} \leq 1000$ mm; travel range S_{max} 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_{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

Selection example via dynamic specifications; given data:

Horizontal application; payload m_{ex} = 14 kg (fastened at the carriage);

Load center of gravity **A** = 60 mm, **B** = 15 mm, **C** = 0 mm; travel range s_{max} = 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[4] Motor Power[1]	Moved external load[2]	Max. permissible overhang[3] (mm)		
	s_{max} (mm)	v_{max} (m/s)	(kg)		a_{max} (m/s²)	Ø d_0 x P (mm)	W	$m_{ex\ max}$ (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								
	150	0,48	0,330								
	200	0,43	0,370					8	84	12	12
	300	0,32	0,480								
	400	0,24	0,600					10	64	9	9
	500	0,16	0,719								
-040	100	0,72	1,000		3,6	10 x 12	50 / 100	8	250	58	71
	200	0,72	1,350								
	300	0,72	1,710								
	400	0,72	2,070					14	134	29	36
	500	0,66	2,430				100	14	134	29	36
	600	0,54	2,790								
	800	0,30	3,510					20	87	18	23
	1 000	0,20	4,240								

Verifying the given data with the catalog data:

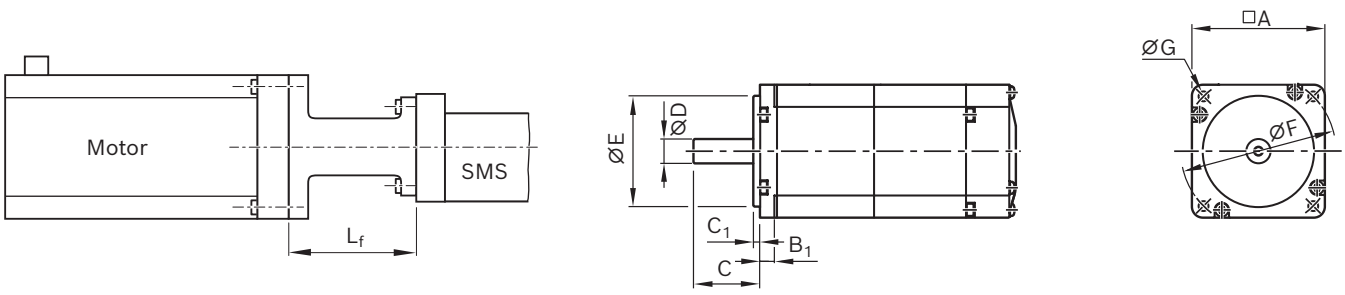
$$\frac{A_{actual}}{A_{Catalog}} + \frac{B_{actual}}{B_{Catalog}} + \frac{C_{actual}}{C_{Catalog}} \leq 1 \qquad \frac{60}{134} + \frac{15}{29} + \frac{0}{36} = 0.97 \leq 1$$

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

Accessories

Motor attachment Servomotore

Motor attachment with flange and coupling (MF)

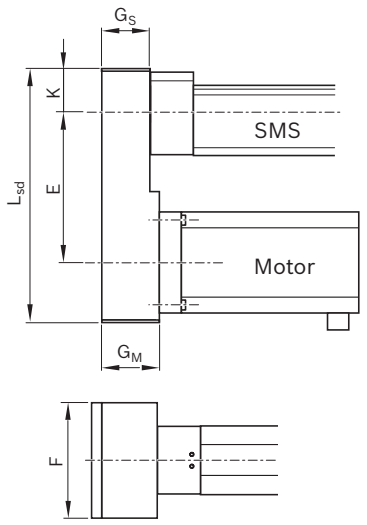


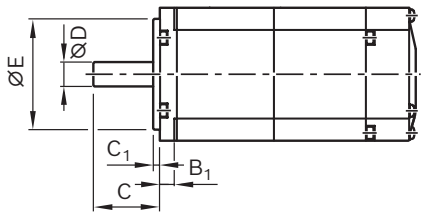
SMS	L_f (mm)
-030	33.0
-040	53.0
-050	57.5
-080	60.0
-120	55.0

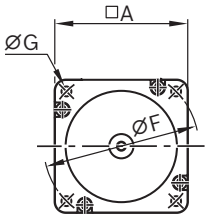
SMS	Motor attachment			Motor		Dimensions (mm)							
		Material number	Weight (kg)	Rexroth	Suitable third-party motor	□A	B_1	C	C_1	ØD	ØE	ØF	ØG[1]
-030	MF	R02680A001	0.026	–	Mitsubishi HG-AK0336 (30W) Yaskawa SGMMV-A3A2A2(1/C) (30W)	25	0	16	2.5	5	20	28	M3
-040	MF	R02680A002	0.129	–	Mitsubishi HG-KR053(B)(50W) 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 HG-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

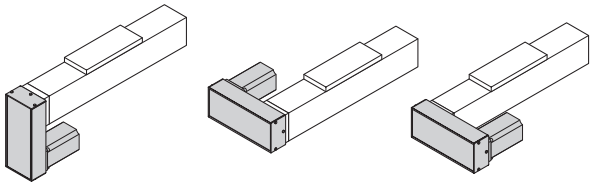
[1] ØG with thread M = motor design B14, ØG with through hole = motor design B5

Motor attachment with belt side drive (RV)









RV 01 **RV 03** **RV 04**

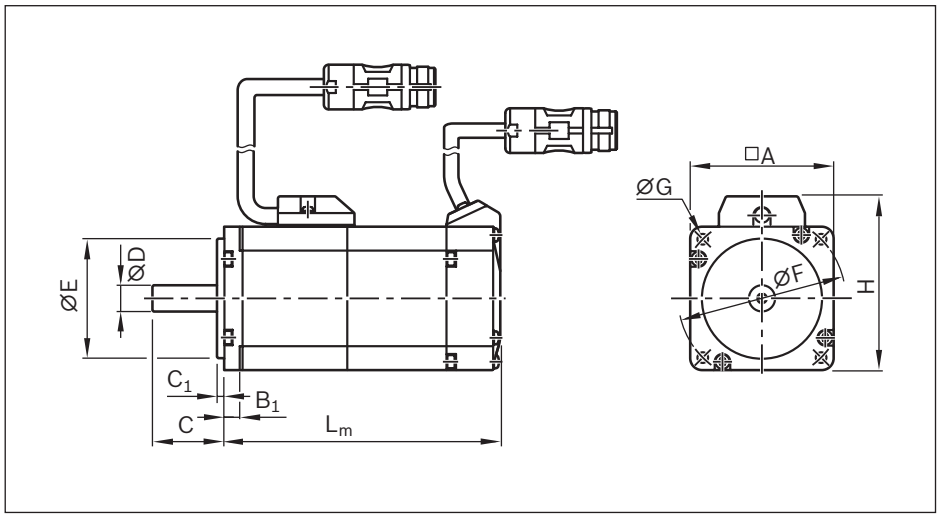
SMS	RV	Dimensions (mm)					
		E	F	G_S	G_M	K	L_{sd}
-030	RV01/03/04	40	30	18.0	20.0	14.50	79.50
-040	RV01/03/04	53	43	35.0	35.0	21.50	98.50
-050	RV01/03/04	58	52	37.0	35.0	25.00	105.00
-080	RV01/03/04	80	62	46.5	46.5	31.00	146.00
-120	RV01	80	62	41.5	47.0	31.00	146.00
	RV03/04	100	62	31.5	37.0	46.75	181.75

SMS	Motor attachment[1]			Motor		Dimensions (mm)							
		Material number	Weight (kg)	Rexroth	Suitable third-party motor	□A	B_1	C	C_1	ØD	ØE	ØF	ØG[2]
-030	RV01	R02680B002	0.056	–	Mitsubishi HG-AK0336 (30W) Yaskawa SGMMV-A3A2A2(1/C) (30W)	25	0	16	2.5	5	20	28	M3
-030	RV03/04	R02680B001		–	Mitsubishi HG-AK0336 (30W) Yaskawa SGMMV-A3A2A2(1/C) (30W)	25	0	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 HG-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

[2] ØG with thread M = motor design B14, ØG with through hole = motor design B5

IndraDyn S - Servo motors MSM



Motor code	Dimensions (mm)											
	□ A	B_1	C	C_1	Ø D h6	ØE h7	ØF	ØG	H	L_m Brake without	L_m Brake 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
- Motor connection: 2 cables

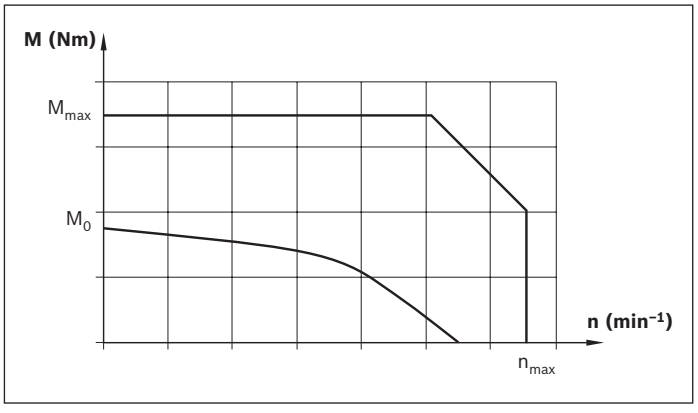
Note

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

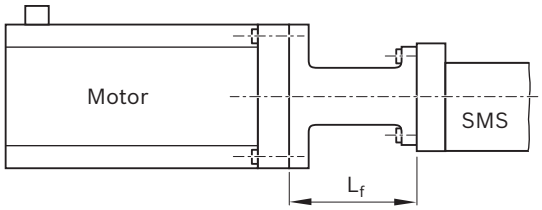
Motor data											
n_{max} (min^{-1})	M_0 (Nm)	M_{max} (Nm)	M_{br} (Nm)	J_m (kgm^2)	J_{br} (kgm^2)	m_m (kg)	m_{br} (kg)	Motor output (W)	Holding brake	Type code	Material number
5 000	0.16	0.48	0.29	0.0000025	0.0000002	0.32	0.21	50	N	MSM 019A-0 300-NN-M5-MH0	R911344209
									Y	MSM 019A-0 300-NN-M5-MH1	R911344210
5 000	0.32	0.95	0.29	0.0000051	0.0000002	0.47	0.21	100	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	200	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	400	N	MSM 031C-0 300-NN-M5-MH0	R911344215
									Y	MSM 031C-0 300-NN-M5-MH1	R911344216

Motor characteristic
(Schematic)



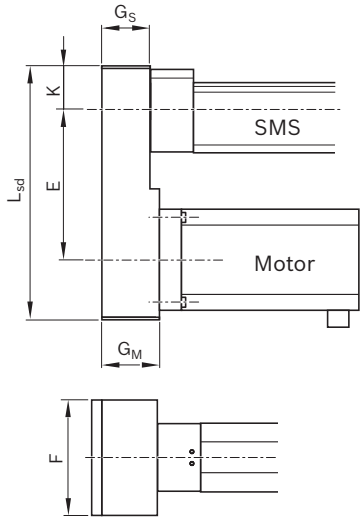
Motor attachment stepper motors

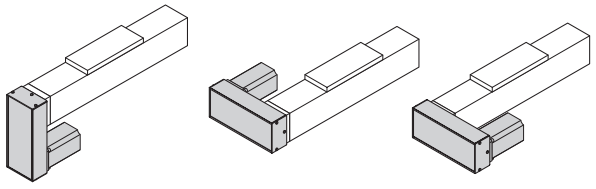
Motor attachment with flange and coupling (MF)



SMS	Motor attachment			Motor	L_f (mm)
		Material number	Weight (kg)		
-030	MF	R02680A020	0,046	ISS0420073	43.5
-040	MF	R02680A021	0,169	ISS0570106	53.0
-050	MF	R02680A022	0,224		53.5
-080	MF	R02680A023	0,530	ISS0860156	60.0
-120	MF	R02680A024	0,496		67.0

Motor attachment with belt side drive (RV)

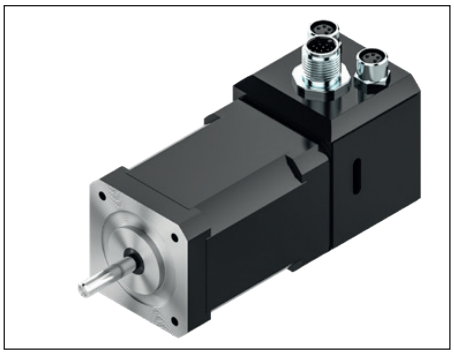




RV 01 **RV 03** **RV 04**

SMS	Motor attachment[1)]			Motor	Dimensions (mm)					
		Material number	Weight (kg)		E	F	G_S	G_M	K	L_{sd}
-030	RV03/RV04	R02680B020	0.1	ISS0420073	45	42	25.0	29.0	14.50	84.5
	RV01	R02680B026	0.1		45	42	25.0	29.0	14.50	84.5
-040	RV01/03/04	R02680B021	0.3	ISS0570106	64	57	35.0	35.0	21.50	115.5
-050	RV01/03/04	R02680B022	0.3		67	60	37.0	37.0	25.00	125.0
-080	RV01/03/04	R02680B023	0.6	ISS0860156	94	87	46.5	54.5	31.00	168.0
-120	RV03/RV04	R02680B024	0.6		120	85	40.5	43.0	46.75	225.0
	RV01	R02680B025	0.4		95	85	37.5	43.0	31.00	178.0

Stepper motors



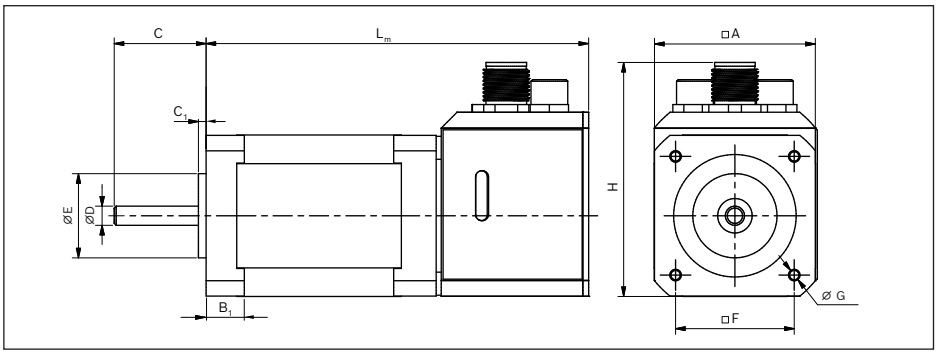


Figure shows stepper motor ISS0420073

SMS	Stepper motors	Dimensions (mm)									
		□A	B_1	C	C_1	ØD	ØE	□F	ØG	H	L_m
-030	ISS0420073	42.0	–	24.00	2.00	5.00 $^{0}_{-0.012}$	22.00 $^{0}_{-0.05}$	31.00	M3	61	100
-040	ISS0570106	56.4	5.0	20.60	1.60	6.35 $^{0}_{-0.013}$	38.10 ±0.05	47.14	5.0	65	106
-050											
-080	ISS0860156	85.85	8.5	31.75	1.52	12.00 $^{0}_{-0.012}$	73.00 ±0.05	69.60	5.5	106	156
-120											

Standard use:
SMS modules with ISSxx stepper motors for multi-positioning tasks, i.e., relative or absolute movement of the SMS modules to two or more target positions. The travel cycles have fixed acceleration/deceleration ramps and optionally fixed or cycle-dependent travel speeds.
The performance spectrum of the travel cycles can be found technical data. The specified data refers to a supply voltage of 24 VDC.
For ease of use, the ISSxx stepper motors with EtherCAT interface are almost completely pre-parameterized at the factory. For final motor parameterization, only the maximum stroke and lead screw pitch must be set from the controller via the EtherCAT fieldbus.
In automatic mode, referencing to the mechanical stop of the SMS modules can be initiated via an EtherCAT command. After successful referencing, absolute or relative movement can be performed by specifying the target position and issuing a start command. This means that the motor's internal drive controller moves the SMS table to the target position using the specified travel profile.

For further information see SMS instructions R320103227

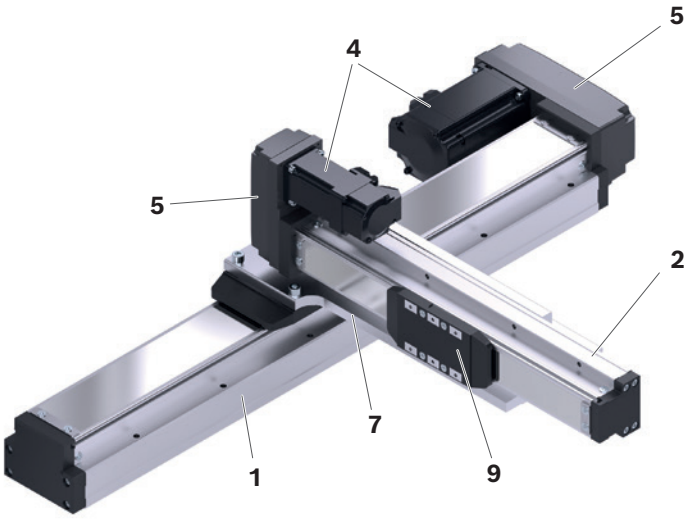
	Motortype		
	ISS0420073	**ISS0570106**	**ISS0860156**
Motor specification			
Material number	R348706901	R348707001	R348707101
Nominal voltage (VDC)	4,2	3,4	2,6
Nominal current (A)	1,5	3	5,5
Step angle (full step)	1,8°		
Number of phases	2		
Holding torque (Nm)	0,8	1,89	7
Insulation class	B		
Power voltage (VDC)	12 - 30	12 - 48	
Control voltage (VDC) (optional)	12 - 30	12 - 48	
Weight (kg)	0,6	1,12	3,28
Protection class	IP40		
Operating temperature	+5 - +40°C		
Storage temperature	-25 - +55°C		
Relative humidity	5% - 85% non-condensing		
CE mark	EN IEC 61800-3:2018; EN 61800-5-1:2007/A11:2021		
Motor Encoder Specification			
Model	Incremental		
Measuring principle	Magnetic		
Resolution	4096 PPR		
Regulator/controller specification			
Fieldbus interface	EtherCAT		
Operating mode	Position/speed or torque setpoint		
Protective functions	Overcurrent, over/under voltage, overtemperature		
Digital inputs	3x non-isolated 5-24VDC PNP	2x non-isolated 5-24VDC PNP	4x non-isolated 5-24VDC PNP
Digital outputs	2x non-isolated; Open Drain, PNP 24 VDC, 100 mA	1x non-isolated; Open Drain, PNP 24 VDC, 100 mA	2x non-isolated; Open Drain, PNP 24 VDC, 100 mA
Parameterization/programming	USB Interface		
Software	DLStudio (*)		
Motor connection 1 (Power + IOs)	M12 male 17Pin	M8 Male 4Pin	M12, Male 5Pin
Motor connection 2 (EtherCAT)	M8 Female 4Pin		
Motor connection 3 (EtherCAT)	M8 Female 4Pin		
Motor connection 4 (IOs)	–	M8 Male 8Pin	M12, Male 12Pin

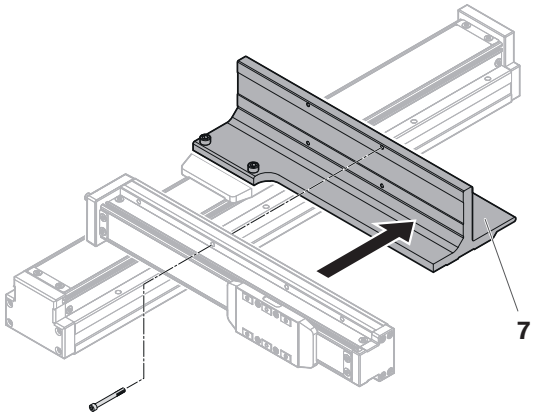
* not necessary for standard applications

Connection elements for multi-axis systems

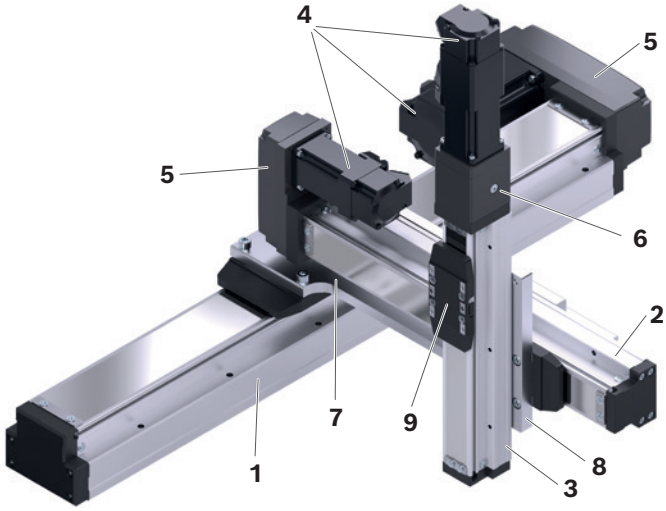
1 X-axis
2 Y-axis
3 Z-axis
4 Motor
5 Motor attachment with belt side drive
6 Motor attachment with flange and coupling
7 Angle bracket
8 Connection plate
9 Carriage

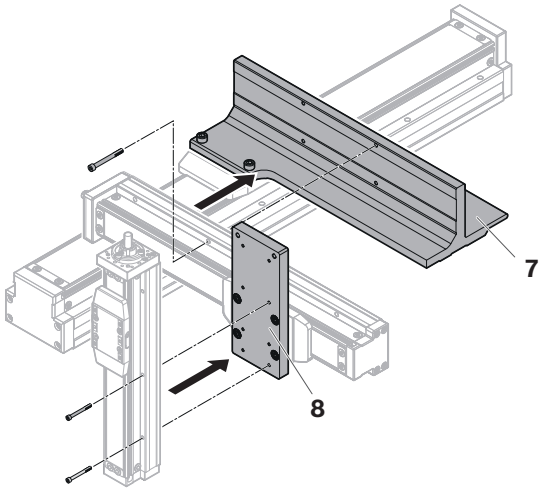
X-Y combination of axes



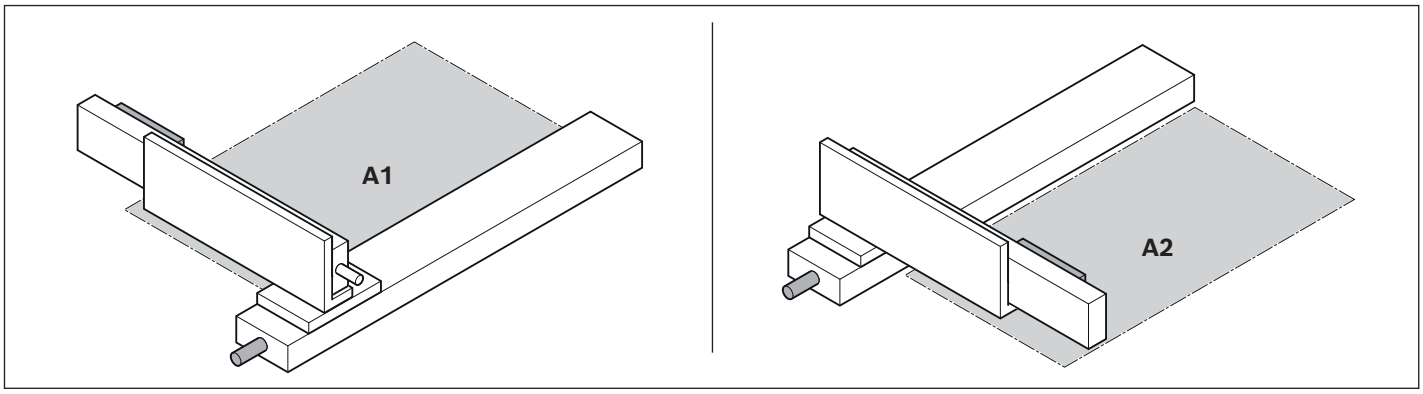


X-Y-Z combination of axes





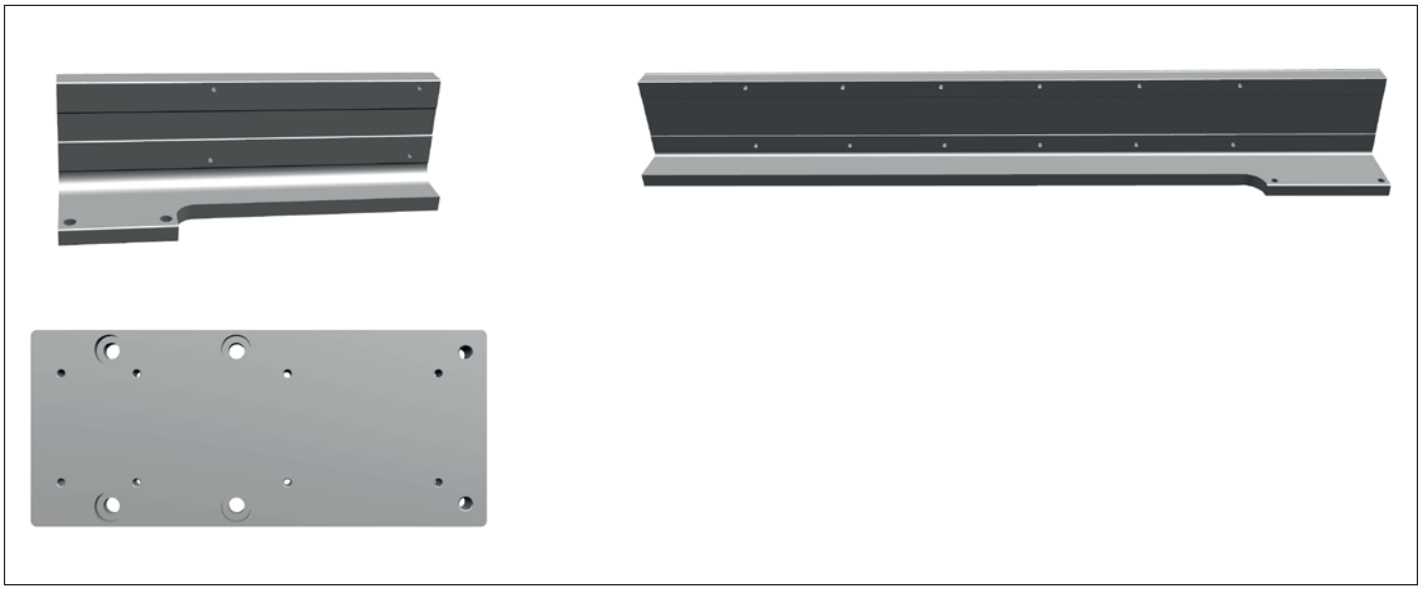
Travel range
Travel ranges A1 or A2 can be selected.



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.

Installation position
The multi-axis systems are designed for use in a horizontal installation position on a flat surface.

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

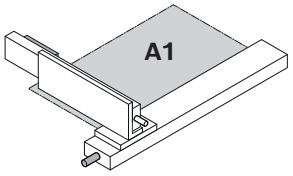
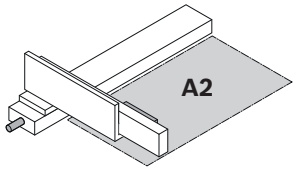
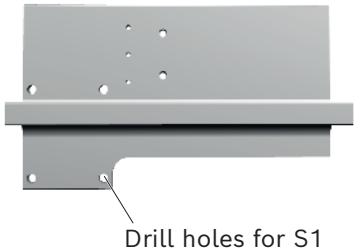
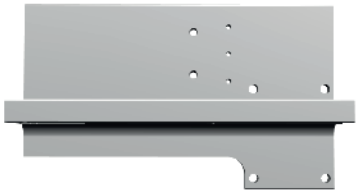
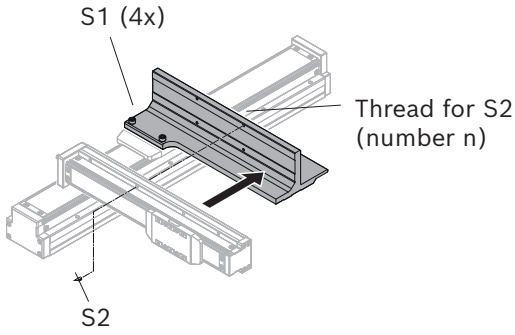
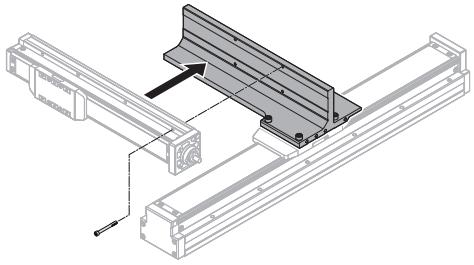
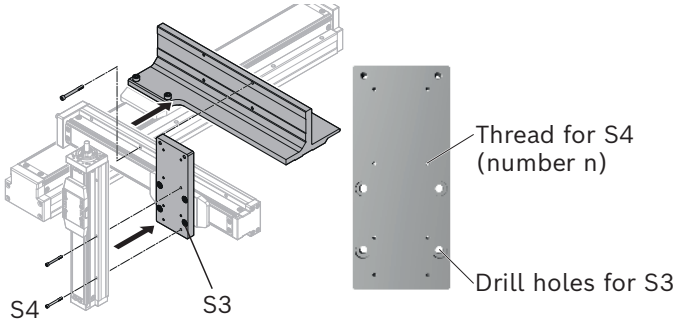
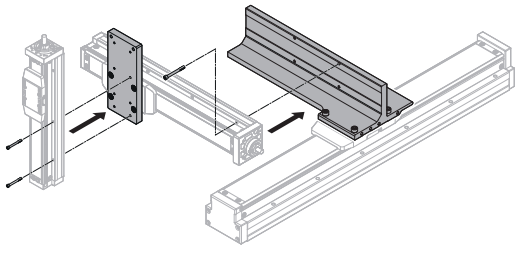
Version	Y stroke (mm)	Material no.	(KG)	S1[3]	S2[3]	Number (n)
2D1	100	R02680C003[1]	0.63	4 x M5 x 18	M3 x 30	4
		R02680C004[2]				
2D2	100	R02680C005[1]	1.05	4 x M6 x 22	M4 x 30	4
		R02680C007[2]				
	200	R02680C006[1]	1.54		M4 x 30	6
		R02680C008[2]				
2D3	100	R02680C009[1]	1.87	4 x M6 x 30	M5 x 45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

Connection plates

				S3[3]	S4[3]	
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

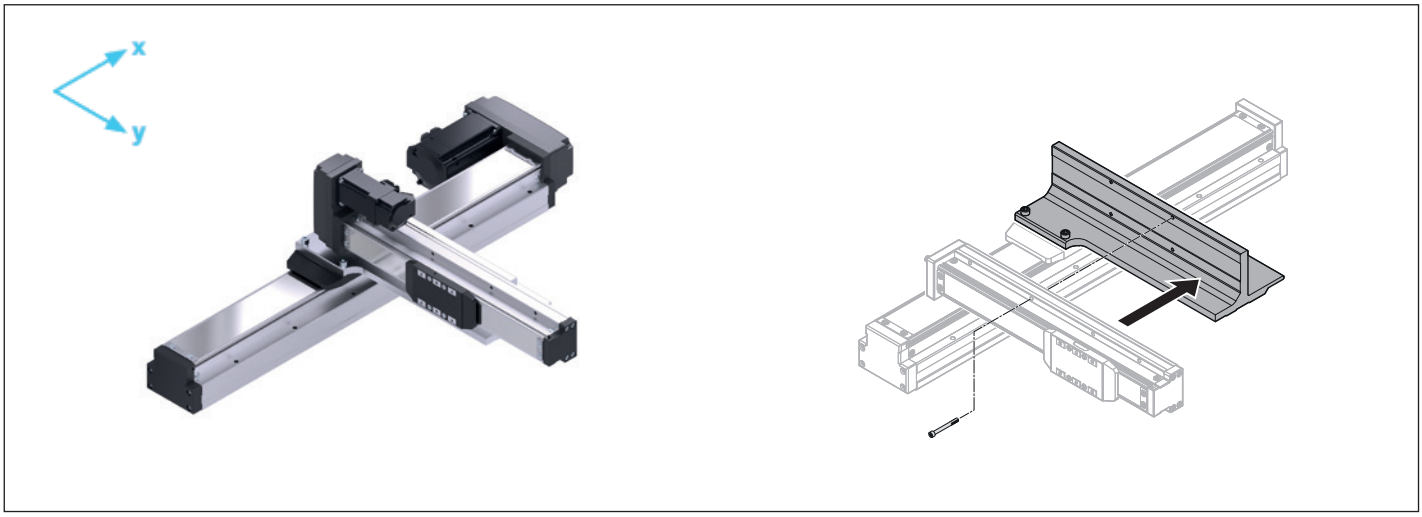
Travel range A1	**Travel range A2**
	
	
	
	

- 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 / 3D

2D cantilever with servomotors

X-Y combination of axes



Technical data

Type	X-axis					Y-axis					
	SMS size	s_{max} (mm)	BASA d_0 x P (mm)	Motor output (W)	v_{max} (m/s)	SMS size	s_{max} (mm)	BASA d_0 x P (mm)	Motor output (W)	v_{max} (m/s)	$m_{ex\ max}$ [1] (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

[1] 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 mm; Y_{max} = 200 mm; travel range A2

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

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

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

Type	X-axis					Y-axis					
	SMS size	s_{max} (mm)	BASA d_0 x P (mm)	Motor output (W)	v_{max} (m/s)	SMS size	s_{max} (mm)	BASA d_0 x P (mm)	Motor output (W)	v_{max} (m/s)	$m_{ex\ max}$ (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

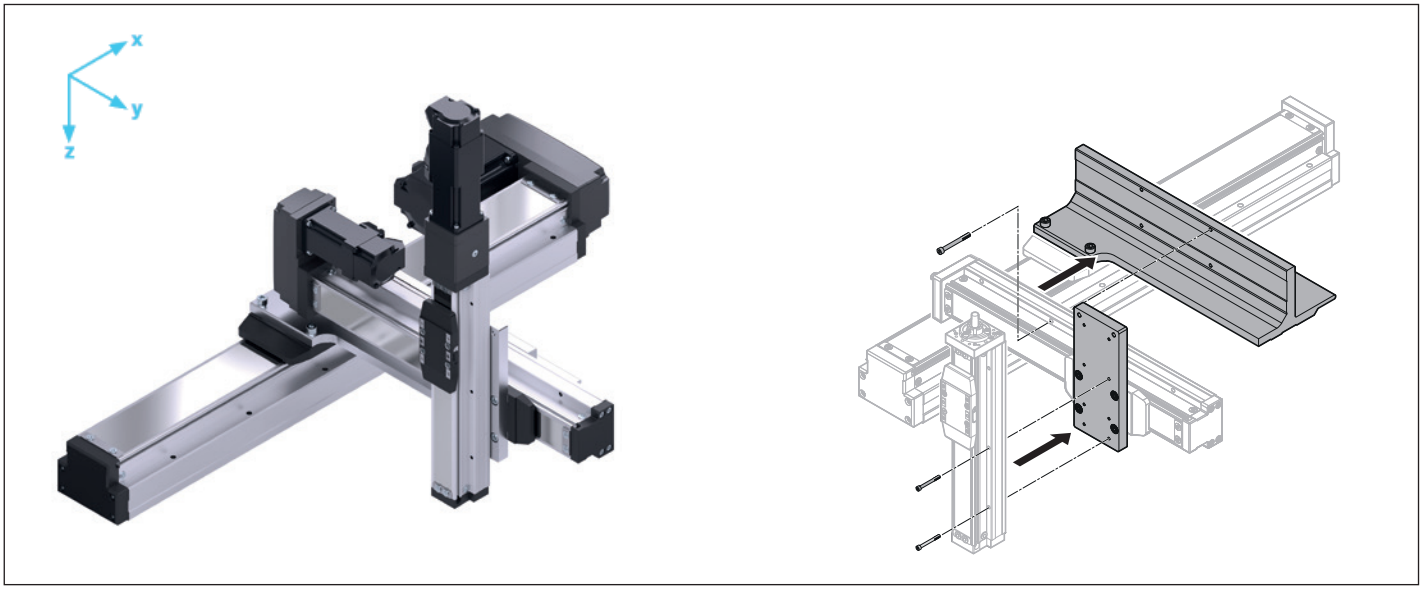
Ordering example type 2D3

Type 2D3 consists of the following individual components:

Component	Material number	
X-axis	R02681L070	➠ "Material numbers" table, page 16
Y-axis	R02681H004	
Angle bracket	R02680C012	Travel range A2 ➠ Table Mat. No. Angle bracket Page 28
X-axis motor attachment	R02680B012 / RV04	Suitable motor attachment (RV) ➠ Page 19
Y-axis motor attachment	R02680B010 / RV03	
Motor x-axis	R911344215 / MSM031C (without brake)	Suitable motor ➠ Page 20
Motor y-axis	R911344213 / MSM031B (without brake)	

3D cantilever with servomotors

X-Y-Z combination of axes



Technical data

Type	X-axis					Y-axis					Z-axis					
	SMS size	s_{max} (mm)	BASA d_0 x P (mm)	Motor output (W)	v_{max} (m/s)	SMS size	s_{max} (mm)	BASA d_0 x P (mm)	Motor output (W)	v_{max} (m/s)	SMS size	s_{max} (mm)	BASA d_0 x P (mm)	Motor output (W)	v_{max} (m/s)	$m_{ex\ max}$[1] (kg)
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

[1] 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 mm; Y_{max} = 400 mm; Z_{max} = 300 mm; travel range A1

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

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

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

Type	X-axis					Y-axis					Z-axis					
	SMS size	s_{max} (mm)	BASA d_0 x P (mm)	Motor output (W)	v_{max} (m/s)	SMS size	s_{max} (mm)	BASA d_0 x P (mm)	Motor output (W)	v_{max} (m/s)	SMS size	s_{max} (mm)	BASA d_0 x P (mm)	Motor output (W)	v_{max} (m/s)	$m_{ex\ max}$ (kg)
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

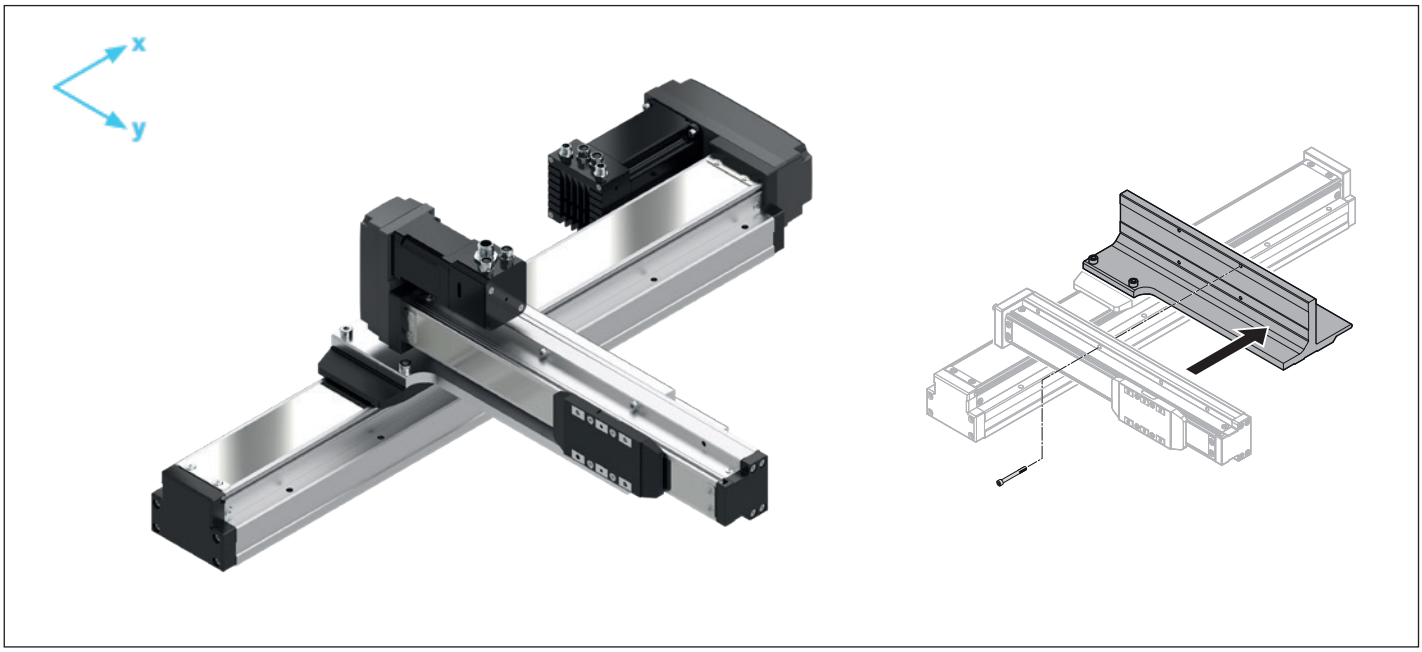
Ordering example type 3D2

Type 3D2 consists of the following individual components:

Component	Material number	
X-axis	R02681L020	➠ "Material numbers" table, page 16
Y-axis	R02681H008	
Z-axis	R02681E006	
Angle bracket	R02680C017	Travel range A1 ➠ Table Mat. No. Angle bracket Page 28
Connection plate	R02680C002	➠ Table Mat. No. Connection plate Page 28
X-axis motor attachment	R02680B012 / RV04	Suitable motor attachment (MF / RV) ➠ Page 18/19
Y-axis motor attachment	R02680B010 / RV03	
Z-axis motor attachment	R02680A007 / MF	
Motor x-axis	R911344215 / MSM031C (without brake)	Suitable motor ➠ Page 20
Motor y-axis	R911344213 / MSM031B (without brake)	
Motor z-axis	R911344212 / MSM019B (with brake)	

2D cantilever with stepper motors

X-Y Achskombination



Typ	X-Achse					Y-Achse					
	SMS Größe	s_{max} (mm)	BASA d_0 x P (mm)	Motor-type	v_{max} (m/s)	SMS Größe	s_{max} (mm)	BASA d_0 x P (mm)	Motor-type	v_{max} (m/s)	$m_{ex\ max}$ [1] (kg)
2D1	**-50**	100, 200, 300, 400, 500, 600, 800, 1 000	12 x 10	ISS057	0.17	**-40**	100	10 x 12	ISS057	0.17	2.6
2D2	**-80**	100, 200, 400, 600, 800, 1 000, 1 200	16 x 20	ISS086	0.13	**-50**	100	12 x 10	ISS057	0.13	9.8
							200				3.3
2D3	**-120**	100, 200, 400, 600, 800, 1 000, 1 200	16 x 32	ISS086	0.21	**-80**	100	16 x 10	ISS086	0.07	6.8
	-120	100, 200, 400, 600, 800, 1 000, 1 200	16 x 32	ISS086	0.21	**-80**	100	16 x 20	ISS086	0.13	6.8
2D4	**-120**	100, 200, 400, 600, 800, 1 000, 1 200	16 x 10	ISS086	0.07	**-120**	100	16 x 10	ISS086	0.07	63.1
							200				39.7
							400				20.4
							600				8.1
			16 x 32	ISS086	0.21	**-120**	100	16 x 32	ISS086	0.21	4.1

[1] 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 mm; Y_{max} = 100 mm; travel range A2

X-Y-dynamics: $v_x \leq 0{,}20$ m/s; $v_y \leq 0{,}10$ m/s;

External load on y-axis: $m_{ex} \leq 5{,}0$ kg;

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

Type	X-axis					Y-axis					
	SMS size	s_{max} (mm)	BASA d_0 x P (mm)	Motor-type	v_{max} (m/s)	SMS size	s_{max} (mm)	BASA d_0 x P (mm)	Motor-type	v_{max} (m/s)	$m_{ex\ max}$ (kg)
2D3	-120	100, 200, 400, 600, 800, 1 000, 1 200	16 x 32	ISS086	0.21	-80	100	16 x 10	ISS086	0.07	6.8
	-120	100, 200, 400, 600, 800, 1 000, 1 200	16 x 32	ISS086	0.21	-80	100	16 x 20	ISS086	0.13	6.8

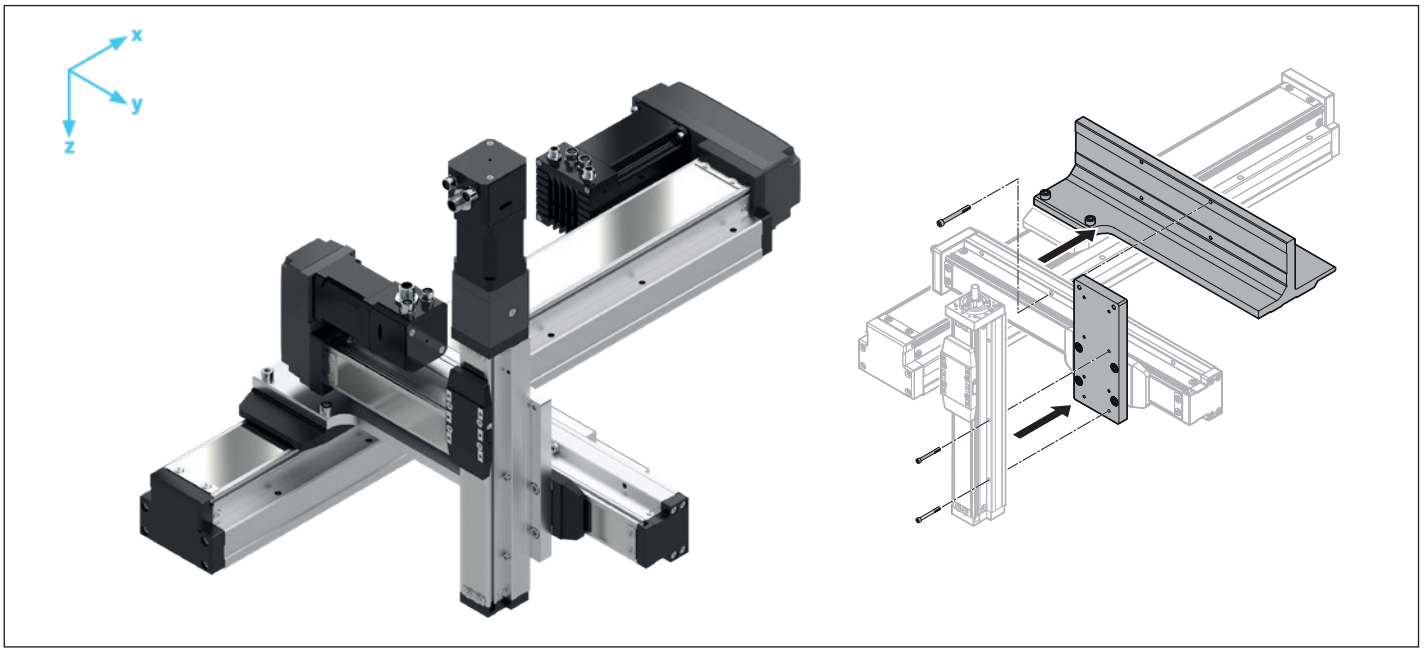
Ordering example type 2D3

Type 2D3 consists of the following individual components:

Component	Material number	
X-axis	R02681L070	➠ "Material numbers" table, page 16
Y-axis	R02681H052	
Angle bracket	R02680C011	Travel range A2 ➠ Table Mat. No. Angle bracket Page 28
X-axis motor attachment	R02680B024 / RV04	Suitable motor attachment (RV) ➠ Seite 23
Y-axis motor attachment	R02680B023 / RV03	
Motor x-axis	R348707101 / ISS0860156 (without brake)	Suitable motor ➠ Seite 25
Motor y-axis	R348707101 / ISS0860156 (without brake)	

3D cantilever with stepper motors

X-Y-Z Achskombination



Typ	X-Achse					Y-Achse					Z-Achse					
	SMS Größe	s_{max} (mm)	BASA d_0 x P (mm)	Motor-type	v_{max} (m/s)	SMS Größe	s_{max} (mm)	BASA d_0 x P (mm)	Motor-type	v_{max} (m/s)	SMS Größe	s_{max} (mm)	BASA d_0 x P (mm)	Motor-type	v_{max} (m/s)	$m_{ex\ max}$ [1] (kg)
3D1	**-80**	100, 200, 400, 600, 800, 1 000, 1 200	16 x 20	ISS086	0,13	**-50**	100	12 x 10	ISS057	0,13	**-40**	100	10 x 12	ISS057	0,17	2,0
							200	12 x 10								0,3
3D2	**-120**	100, 200, 400, 600, 800, 1 000, 1 200	16 x 10	ISS086	0,07	**-80**	100 200 400 600	16 x 10	ISS086	0,07	**-50**	100 200 300	12 x 10	ISS057	0,13	5,0

[1] 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 mm; Y_{max} = 400 mm; Z_{max} = 300 mm; travel range A1

X-Y-Z-dynamics: $v_x \leq 0.05$ m/s; $v_y \leq 0.05$ m/s; $v_z \leq 0.10$ m/s

External load on z-axis: $m_{ex} \leq 4.5$ kg;

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

Type	X-axis					Y-axis					Z-axis					
	SMS size	s_{max} (mm)	BASA d_0 x P (mm)	Motor-type	v_{max} (m/s)	SMS size	s_{max} (mm)	BASA d_0 x P (mm)	Motor-type	v_{max} (m/s)	SMS size	s_{max} (mm)	BASA d_0 x P (mm)	Motor-type	v_{max} (m/s)	$m_{ex\ max}$ (kg)
3D2	**-120**	100, 200, 400, 600, 800, 1 000, 1 200	16 x 10	ISS086	0,07	**-80**	100 200 400 600	16 x 10	ISS086	0,07	**-50**	100 200 300	12 x 10	ISS057	0,13	5,0

Ordering example type 3D2

Type 3D2 consists of the following individual components:

Komponente	Materialnummer	
X-axis	R02681L020	➠ "Material numbers" table, page 16
Y-axis	R02681H008	
Z-axis	R02681E006	
Angle bracket	R02680C017	Travel range A1 ➠ Table Mat. No. Angle bracket Page 28
Connection plate	R02680C002	➠ Table Mat. No. Connection plate Page 28
X-axis motor attachment	R02680B024 / RV04	Suitable motor attachment (MF / RV) ➠ Page 22/23
Y-axis motor attachment	R02680B023 / RV03	
Z-axis motor attachment	R02680A022 / MF	
Motor x-axis	R348707101 / ISS0860156 (without brake)	Suitable motor ➠ Page 25
Motor y-axis	R348707101 / ISS0860156 (without brake)	
Motor z-axis	R348707001 / ISS0570106 (without brake)	

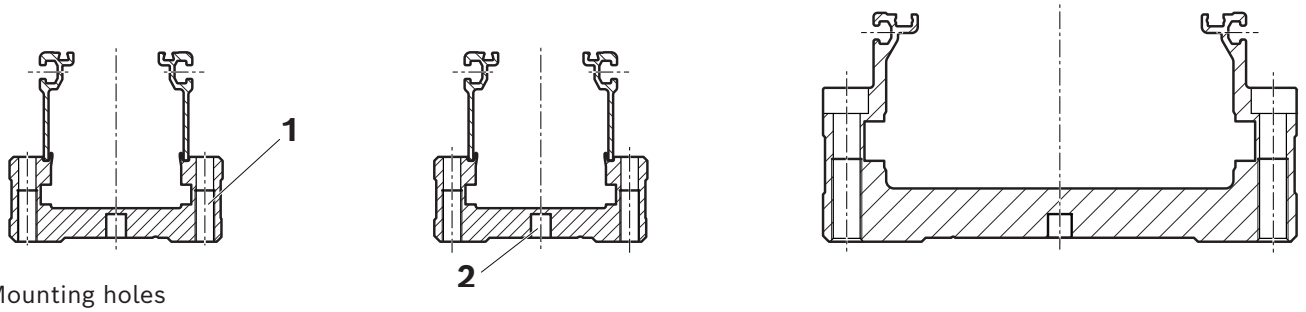
Additional information

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

Mounting

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

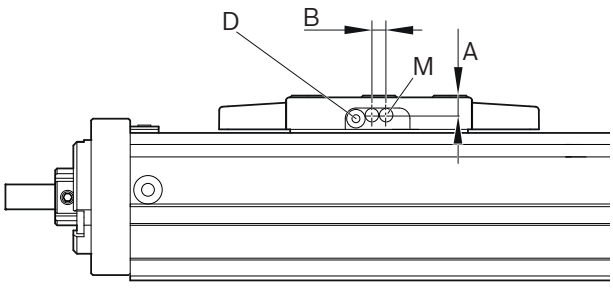
For further information, please refer to dimension drawings

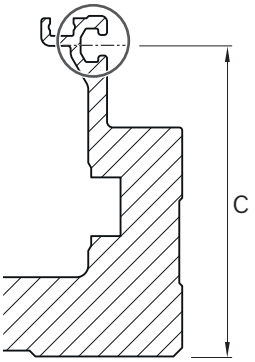


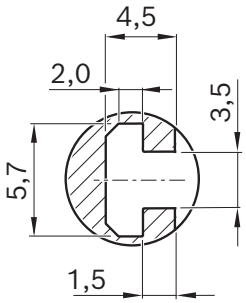
1 Mounting holes
2 Pin holes

Switch mounting

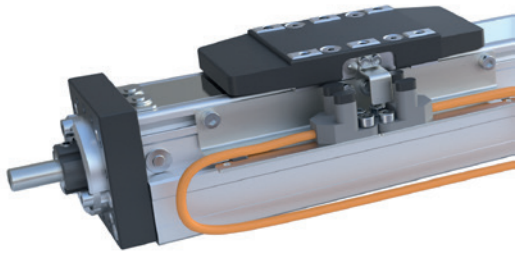
At SMS axes, it is possible to add a switching system.
There are threaded holes on both sides of the carriage for attaching a switching bracket.
There are T-slots on both sides of the main frame for mounting the switch, suitable for square nuts DIN 562-M3.







Exemplary switch mounting

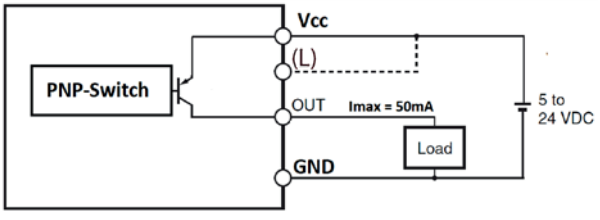


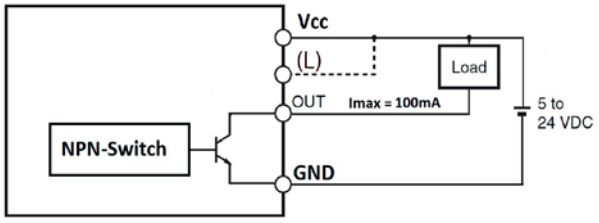
SMS	**Dimensions** (mm)			
	A	**B**	**C**	**M**
-030	5,75	-	15,0	M 2,5 x 5 deep
-040	5,50	4	36,5	M 2 x 6 deep
-050	8,60	5	43,0	M 2,5 x 6 deep
-080	10,0	8	59,0	M 3 x 5 deep
-120	12,0	8	53,0	M 3 x 8 deep

D = lubrication hole (on both sides)

Switch		
SMS	**Material number** Mounting material (3 mounting brackets, 2 switching flags, screws, nuts and washers)	Sensors PNP/NPN photoelectric sensors with 1.0m connection cable
-030	R02680D001	PNP: R02680D006 (1x) NPN: R02680D007 (1x)
-040	R02680D002	
-050	R02680D003	
-080	R02680D004	
-120	R02680D005	

Wiring note

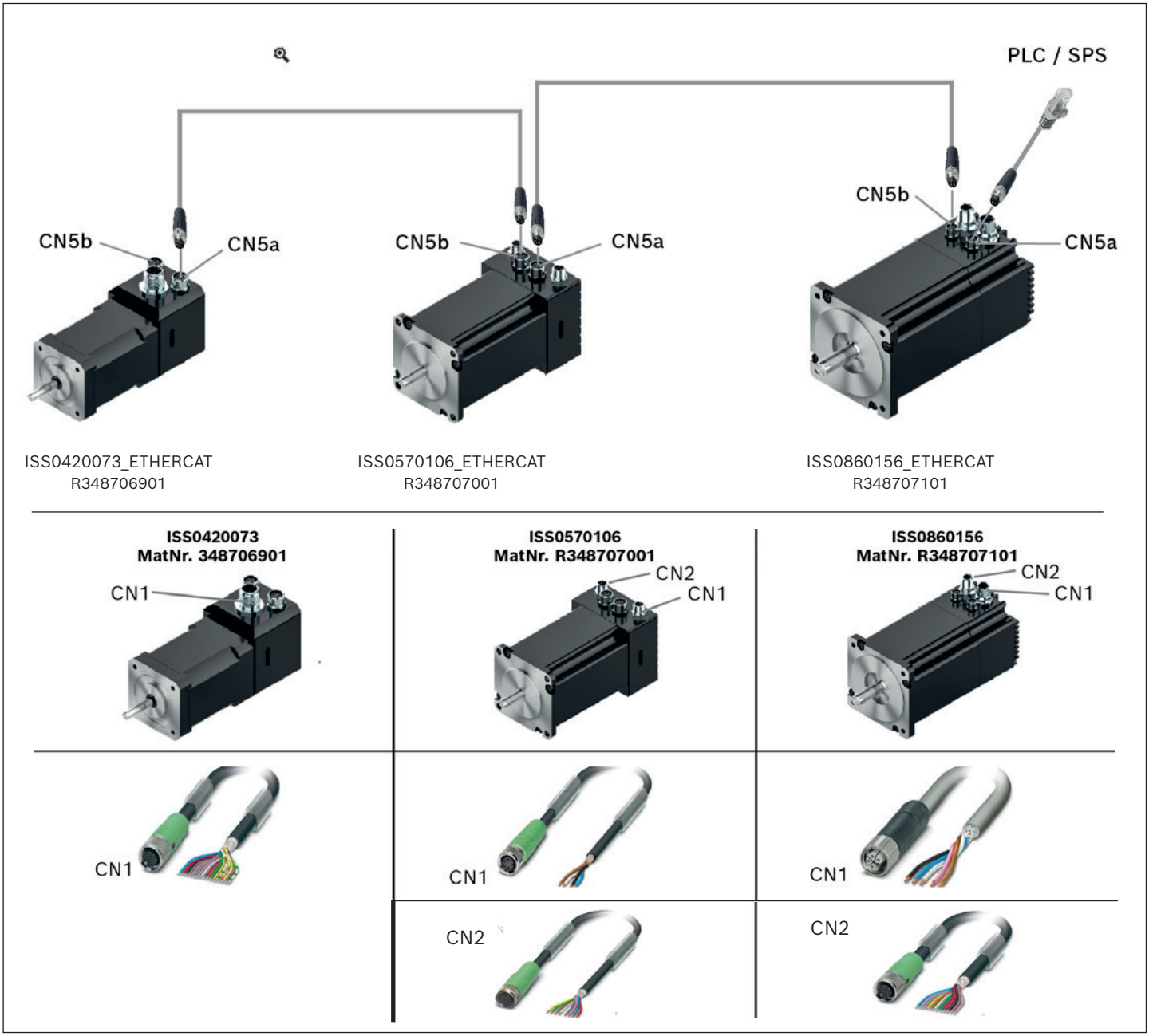




The sensor supports the switching functions of normally closed (NC) and normally open (NO).
For further information, see the SMS manual, chapter "Switching System".

Stepper motor cable

Size	Motor-Type (ETHERCAT)	EtherCAT-Cable Cable 1	Cable 2	Cable 3	Kabel 4:	Power and Logic-Cable	Kabel 5:	IO-Cable
-30	ISS0420073 R348706901	PLC- to 1st motor 5 meter RJ45 -> CN5A	motor to motor 1 meter CN5B -> CN5A	motor to motor 2 meter CN5B -> CN5A	R348121405	Power-/Logic-/IO-Cable 5 meter w/o plug -> CN1	–	–
-40	ISS0570106 R348707001				R348121505	Power-/Logic-Cable 5 meter w/o plug -> CN1	R348121605	IO-Cable 5 meter w/o plug -> CN2
-50								
-80	ISS0860156 R348707101	R348122105	R348121905	R348122005	R348121705	Power-/Logic-Cable 5 meter w/o plug -> CN1	R348121805	IO-Cable 5 meter w/o plug -> CN2
-120								



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_2 additives).**

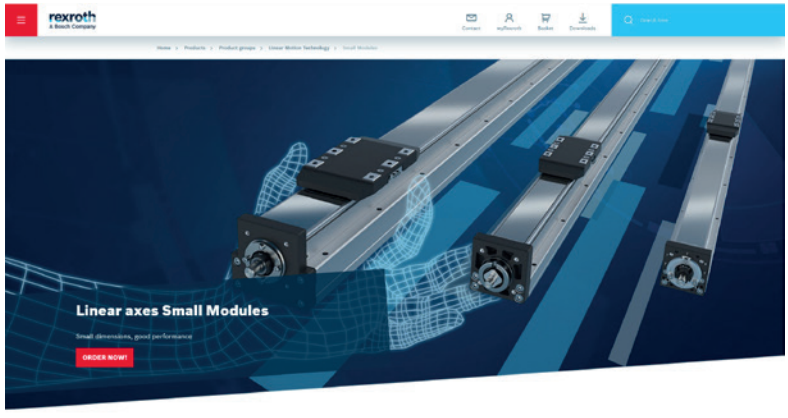
- Recommended lubricant: Tribol GR 100-2 PD

Relubrication intervals/relubrication quantities ➠ "Instructions SMS" R320103227

Online information

Homepage SMS

www.boschrexroth.com/small-modules



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