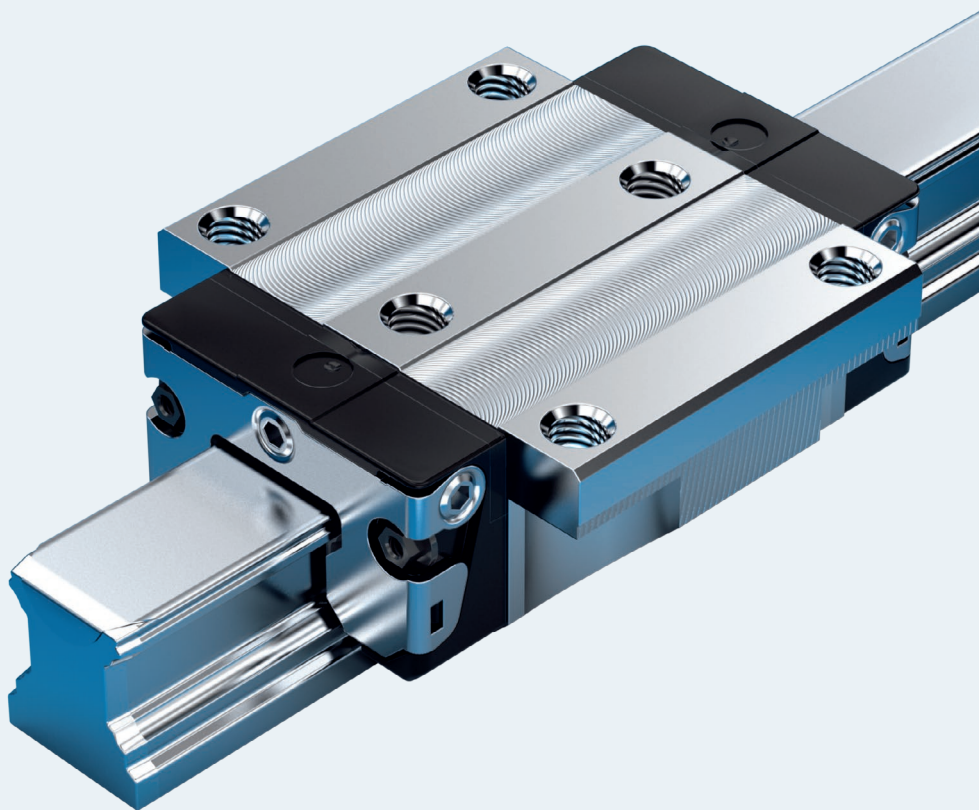
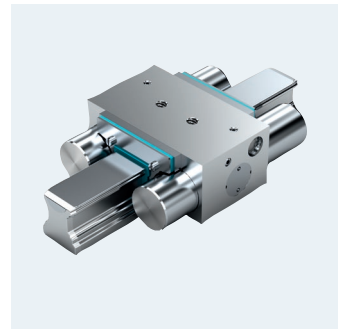
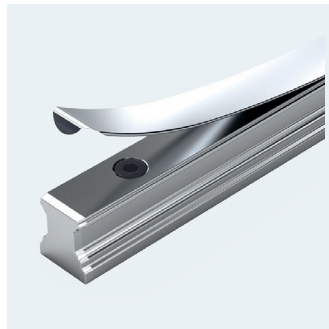

















Ball rail systems

Ball runner blocks, ball rails, accessories



Product overview, ball runner blocks with load capacities and moments

Ball runner block		Page	Size	15	20	25	30	35	45	55	65				
				Load capacities (N) and load moments (Nm)											
Standard, heavy-duty, ball runner block ⁷⁾ made of steel ³⁾ Resist NR ⁴⁾ Resist CR ⁶⁾		FNS R1651 ³⁾⁶⁾ R2001 ⁴⁾	48 ³⁾ 99 ⁴⁾	106 ⁶⁾	C ¹⁾	9 860	23 400	28 600	36 500	51 800	86 400	109 000	172 000		
					C ²⁾	8 850	22 200	26 700	34 800	49 400	82 400	-	-		
			SNS R1622 ³⁾⁶⁾ R2011 ⁴⁾	54 ³⁾ 99 ⁴⁾	106 ⁶⁾	C ₀ ¹⁾	12 700	29 800	35 900	48 100	80 900	132 000	174 000	280 000	
						C ₀ ²⁾	10 800	27 700	32 300	44 700	75 200	123 000	-	-	
				SNH R1621 ³⁾⁶⁾	60 ³⁾	106 ⁶⁾	M _t ¹⁾	95	300	410	630	1 110	2 330	3 480	6 810
							M _t ²⁾	85	280	380	600	1 060	2 220	-	-
	M _{t0} ¹⁾						120	380	510	830	1 740	3 560	5 550	11 100	
	M _{t0} ²⁾						100	350	460	780	1 620	3 320	-	-	
				106 ⁶⁾	M _L ¹⁾	68	200	290	440	720	1 540	2 320	4 560		
					M _L ²⁾	62	190	270	420	700	1 480	-	-		
					M _{Lo} ¹⁾	87	260	360	580	1 130	2 350	3 690	7 400		
					M _{Lo} ²⁾	76	240	330	540	1 060	2 210	-	-		
		FLS R1653 ³⁾⁶⁾ R2002 ⁴⁾	50 ³⁾ 99 ⁴⁾	106 ⁶⁾	C ¹⁾	12 800	29 600	37 300	46 000	66 700	111 000	139 000	223 000		
					C ²⁾	11 500	28 200	34 800	43 800	63 600	106 000	-	-		
			SLS R1623 ³⁾⁶⁾ R2012 ⁴⁾	56 ³⁾ 99 ⁴⁾	106 ⁶⁾	C ₀ ¹⁾	18 400	41 800	52 500	66 900	116 000	190 000	245 000	404 000	
						C ₀ ²⁾	15 600	38 800	47 300	62 200	108 000	177 000	-	-	
				SLH R1624 ³⁾⁶⁾	62 ³⁾	106 ⁶⁾	M _t ¹⁾	120	380	530	800	1 440	3 010	4 410	8 810
							M _t ²⁾	110	360	500	760	1 370	2 870	-	-
	M _{t0} ¹⁾	180					540	750	1 160	2 500	5 120	7 780	16 000		
	M _{t0} ²⁾	150					500	670	1 080	2 320	4 770	-	-		
				106 ⁶⁾	M _L ¹⁾	120	340	530	740	1 290	2 730	3 960	8 160		
					M _L ²⁾	110	330	500	710	1 230	2 630	-	-		
					M _{Lo} ¹⁾	180	490	740	1 080	2 240	4 660	6 990	14 800		
					M _{Lo} ²⁾	150	460	670	1 010	2 090	4 370	-	-		
Standard ball runner block ⁷⁾ made of steel ³⁾ Resist NR ⁴⁾ Resist CR ⁶⁾		FKS R1665 ³⁾⁶⁾ R2000 ⁴⁾	52 ³⁾ 99 ⁴⁾	106 ⁶⁾	C ¹⁾	6 720	15 400	19 800	25 600	36 600	-	-	-		
					C ²⁾	6 030	14 700	18 500	24 400	34 900	-	-	-		
			SKS R1666 ³⁾⁶⁾ R2010 ⁴⁾	58 ³⁾ 99 ⁴⁾	106 ⁶⁾	C ₀ ¹⁾	7 340	16 500	21 200	28 900	49 300	-	-	-	
						C ₀ ²⁾	6 230	15 300	19 100	26 900	45 800	-	-	-	
						106 ⁶⁾	M _t ¹⁾	65	200	280	440	790	-	-	-
							M _t ²⁾	58	190	260	420	750	-	-	-
	M _{t0} ¹⁾						71	210	300	500	1 060	-	-	-	
	M _{t0} ²⁾						60	200	270	470	980	-	-	-	
				106 ⁶⁾	M _L ¹⁾	29	83	130	200	340	-	-	-		
					M _L ²⁾	27	81	120	200	330	-	-	-		
					M _{Lo} ¹⁾	32	89	140	230	460	-	-	-		
					M _{Lo} ²⁾	28	84	130	220	430	-	-	-		
	FNN R1693 ³⁾⁶⁾⁸⁾	64 ³⁾	106 ⁶⁾	C ¹⁾	-	14 500	28 600	-	-	-	-	-			
				C ₀ ¹⁾	-	24 400	35 900	-	-	-	-	-			
		SNN R1694 ³⁾⁶⁾⁸⁾	68 ³⁾	106 ⁶⁾	M _t ¹⁾	-	190	410	-	-	-	-	-		
					M _{t0} ¹⁾	-	310	510	-	-	-	-	-		
					M _L ¹⁾	-	100	290	-	-	-	-	-		
					M _{Lo} ¹⁾	-	165	360	-	-	-	-	-		
	FKN R1663 ³⁾⁶⁾⁸⁾	66 ³⁾	106 ⁶⁾	C ¹⁾	-	9 600	19 800	-	-	-	-	-			
				C ₀ ¹⁾	-	13 600	21 200	-	-	-	-	-			
		SKN R1664 ³⁾⁶⁾⁸⁾	70 ³⁾	106 ⁶⁾	M _t ¹⁾	-	120	280	-	-	-	-	-		
					M _{t0} ¹⁾	-	170	300	-	-	-	-	-		
					M _L ¹⁾	-	40	130	-	-	-	-	-		
					M _{Lo} ¹⁾	-	58	140	-	-	-	-	-		
Super steel ball runner blocks ³⁾ Resist CR ⁶⁾		FKS 1661 ³⁾⁶⁾	88 ³⁾	107 ⁶⁾	C ¹⁾	3 900	10 100	11 400	15 800	21 100	-	-	-		
					F _{max} ¹⁾	1 500	3 900	4 400	6 100	8 100	-	-	-		
		SKS 1662 ³⁾⁶⁾	90 ³⁾	107 ⁶⁾	M _t ¹⁾	39	130	170	270	450	-	-	-		
					M _{tmax} ¹⁾	15	50	65	105	175	-	-	-		




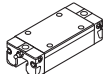


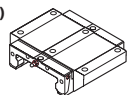
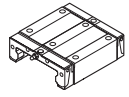
Ball runner block		Page	Size	15	20	25	30	35	45	55	65	
				Load capacities (N) and load moments (Nm)								
High-speed steel ball runner blocks ⁷⁾		FNS R2001 ... 9.	85	C ¹⁾	6 880	16 300	20 000	25 500	36 200	-	-	-
		C ₀ ¹⁾		8 860	20 800	25 100	33 500	56 500	-	-	-	
		SNS R2011 ... 9.	85	M _t ¹⁾	66	210	280	440	780	-	-	-
				M _{t0} ¹⁾	85	270	360	580	1 210	-	-	-
				M _L ¹⁾	47	140	200	310	510	-	-	-
				M _{L0} ¹⁾	61	180	250	400	790	-	-	-
		FLS R2002 ... 9.	85	C ¹⁾	8 930	20 700	26 000	32 100	46 600	-	-	-
				C ₀ ¹⁾	12 800	29 200	36 600	46 700	81 100	-	-	-
		SLS R2012... 9.	85	M _t ¹⁾	86	260	370	560	1 000	-	-	-
				M _{t0} ¹⁾	120	370	520	810	1 740	-	-	-
M _L ¹⁾				85	240	370	520	900	-	-	-	
M _{L0} ¹⁾				120	340	520	750	1 560	-	-	-	
Aluminum ball runner blocks ⁷⁾		FNS R1631	94	C ¹⁾	9 860	23 400	28 600	36 500	51 800	-	-	-
		C ²⁾		8 850	22 200	26 700	34 800	49 400	-	-	-	
		SNS R1632	96	F _{max} ^{1) 2)}	3 000	7 200	8 800	12 200	16 200	-	-	-
				M _t ¹⁾	95	300	410	630	1 110	-	-	-
				M _t ²⁾	85	280	380	600	1 060	-	-	-
				M _{tmax} ^{1) 2)}	29	92	125	210	345	-	-	-
				M _L ¹⁾	68	200	290	440	720	-	-	-
				M _L ²⁾	62	190	270	420	700	-	-	-
M _{Lmax} ^{1) 2)}	16	50	70	110	170	-	-	-				

Determination of the dynamic load capacities and moments is based on a travel life of 100,000 m per ISO 14728-1. Often only 50,000 m are actually stipulated. For comparison: Multiply values **C**, **M_t** and **M_L** by 1.26 according to the table.

- 1) Ball runner blocks **without** ball chain.
- 2) Ball runner blocks **with** ball chain.
- 3) Steel: All steel parts made of carbon steel.
- 4) Resist NR Size 15 – 35: Ball runner block body made of corrosion-resistant steel per EN 10088.
- 5) Resist NR II: All steel parts made of corrosion-resistant steel per EN 10088.
- 6) Resist CR: Ball runner block body made of steel with matte-silver hard-chrome plated corrosion-resistant coating.
- 7) BSHP ball runner block
- 8) BSHP ball runner block, size 25 only

Refer to the product description for the abbreviations of the formats

Product overview, ball runner blocks with load capacities and moments












Ball runner block	Page	Size	Load capacities (N) and load moments (Nm)								
			15	20 20/40	25 25/70	30	35 35/90	45	55	65	
Resist NR II ball runner blocks⁵⁾⁷⁾  FNS R2001 ... 0.  SNS R2011 ... 0.	102	C	1) 5 100	12 300	15 000	20 800	27 600	-	-	-	
			2) 4 700	11 400	14 000	19 300	27 600	-	-	-	
		C₀	1) 9 300	16 900	21 000	28 700	37 500	-	-	-	
			2) 8 400	15 000	18 900	25 800	37 500	-	-	-	
	103	M_t	1) 63	205	270	460	760	-	-	-	
			2) 58	190	250	425	760	-	-	-	
		M_{t0}	1) 90	215	295	500	805	-	-	-	
			2) 81	190	265	450	805	-	-	-	
		M_L	1) 34	110	150	245	375	-	-	-	
			2) 31	100	140	225	375	-	-	-	
	M_{Lo}	1) 49	115	165	265	390	-	-	-		
		2) 44	100	150	240	390	-	-	-		
	 FLS R2002 ... 0.  SLS R2012 ... 0.	102	C	1) 8 500	16 000	20 000	26 300	36 500	-	-	-
				2) 7 600	15 200	18 100	25 000	34 800	-	-	-
C₀			1) 14 000	24 400	31 600	40 100	56 200	-	-	-	
			2) 12 100	22 500	27 400	37 300	52 500	-	-	-	
103		M_t	1) 82	265	365	590	1025	-	-	-	
			2) 73	250	330	560	975	-	-	-	
		M_{t0}	1) 132	310	450	695	1 210	-	-	-	
			2) 118	295	410	660	1 150	-	-	-	
		M_L	1) 64	190	290	420	710	-	-	-	
			2) 58	180	265	400	675	-	-	-	
M_{Lo}		1) 104	230	350	495	840	-	-	-		
		2) 93	215	320	470	805	-	-	-		
 FKS R2000 ... 0.  SKS R2010 ... 0.		102	C	1) 4 500	8 200	10 500	14 500	19 300	-	-	-
				2) 3 900	8 200	9 200	14 500	19 300	-	-	-
	C₀		1) 5 600	9 400	12 600	17 200	22 400	-	-	-	
			2) 4 600	9 400	10 500	17 200	22 400	-	-	-	
	103	M_t	1) 44	125	195	320	545	-	-	-	
			2) 37	125	175	320	545	-	-	-	
		M_{t0}	1) 55	115	180	295	485	-	-	-	
			2) 48	115	160	295	485	-	-	-	
		M_L	1) 16	45	70	110	170	-	-	-	
			2) 13	45	60	110	170	-	-	-	
	M_{Lo}	1) 19	40	65	105	150	-	-	-		
		2) 16	40	55	105	150	-	-	-		
	Wide steel ball runner blocks³⁾⁷⁾ Resist CR⁶⁾⁷⁾  BNS R1671³⁾⁶⁾  CNS R1672³⁾⁶⁾	126 ³⁾	C	1) -	14 900	36 200	-	70 700	-	-	-
				2) -	13 700	33 700	-	-	-	-	-
C₀			1) -	20 600	50 200	-	126 000	-	-	-	
			2) -	18 200	45 200	-	-	-	-	-	
130 ³⁾		M_t	1) -	340	1350	-	3 500	-	-	-	
			2) -	310	1 260	-	-	-	-	-	
		M_{t0}	1) -	470	1 870	-	6 240	-	-	-	
			2) -	410	1 680	-	-	-	-	-	
		M_L	1) -	140	490	-	1 470	-	-	-	
			2) -	130	460	-	-	-	-	-	
M_{Lo}		1) -	190	680	-	2 620	-	-	-		
		2) -	170	620	-	-	-	-	-		

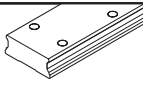
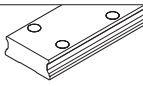
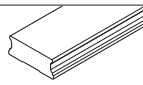
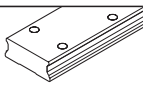
Determination of the dynamic load capacities and moments is based on a travel life of 100,000 m per ISO 14728-1. Often only 50,000 m are actually stipulated. For comparison: Multiply values **C**, **M_t** and **M_L** by 1.26 according to the table.

- 1) Ball runner blocks **without** ball chain.
- 2) Ball runner blocks **with** ball chain.
- 3) Steel: All steel parts made of carbon steel.
- 4) Resist NR size 15 – 35: Ball runner block body made of corrosion-resistant steel per EN 10088.
- 5) Resist NR II: All steel parts made of corrosion-resistant steel per EN 10088.
- 6) Resist CR: Ball runner block body made of steel with matte-silver hard-chrome plated corrosion-resistant coating.
- 7) BSHP ball runner block
- 8) BSHP ball runner block size 25 only

Refer to the product description for the abbreviations of the formats

Product overview, ball guide rails with rail lengths

Ball guide rails		Page	Size								
			15	20	25	30	35	45	55	65	
		Rail length (mm)									
Standard steel ball guide rails³⁾		SNS / SNO R1605 .3. .. / R1605 .B. .. For mounting from above, with cover strip and strip clamps	110	3 836	3 836	3 836	3 836	3 836	3 776	3 836	3 746
		SNS / SNO R1605 .6. .. / R1605 .D. .. For mounting from above, with cover strip and screw-down protective caps	112	3 836	3 836	3 836	3 836	3 836	3 776	3 836	3 746
		SNS / SNO R1605 .0. .. / R1605 .C. .. For mounting from above with plastic caps	114	3 836	3 836	3 836	3 836	3 836	3 776	3 836	3 746
		SNS R1606 .5. .. For mounting from above, for steel mounting hole plugs	116	-	-	3 836	3 836	3 836	3 776	3 836	3 746
		SNS R1607 .0. .. Can be screwed on from below	118	3 836	3 836	3 836	3 836	3 836	3 776	3 836	3 746
Resist NR II standard ball guide rails¹⁾		SNS R2045 .3. .. For mounting from above, with cover strip and strip clamps	120	1 856	3 836	3 836	3 836	3 836	-	-	-
		SNS R2045 .0. .. For mounting from above with plastic caps	121	1 856	3 836	3 836	3 836	3 836	-	-	-
		SNS R2047 .0. .. Can be screwed on from below	121	1 856	3 836	3 836	3 836	3 836	-	-	-
Resist CR standard ball guide rails²⁾		SNS R1645 .3. .. For mounting from above, with cover strip and strip clamps	122	3 836	3 836	3 836	3 836	3 836	3 776	3 836	3 746
		SNS R1645 .0. .. For mounting from above with plastic caps	123	3 836	3 836	3 836	3 836	3 836	3 776	3 836	3 746
		SNS R1647 .0. .. For mounting from below	123	3 836	3 836	3 836	3 836	3 836	3 776	3 836	3 746

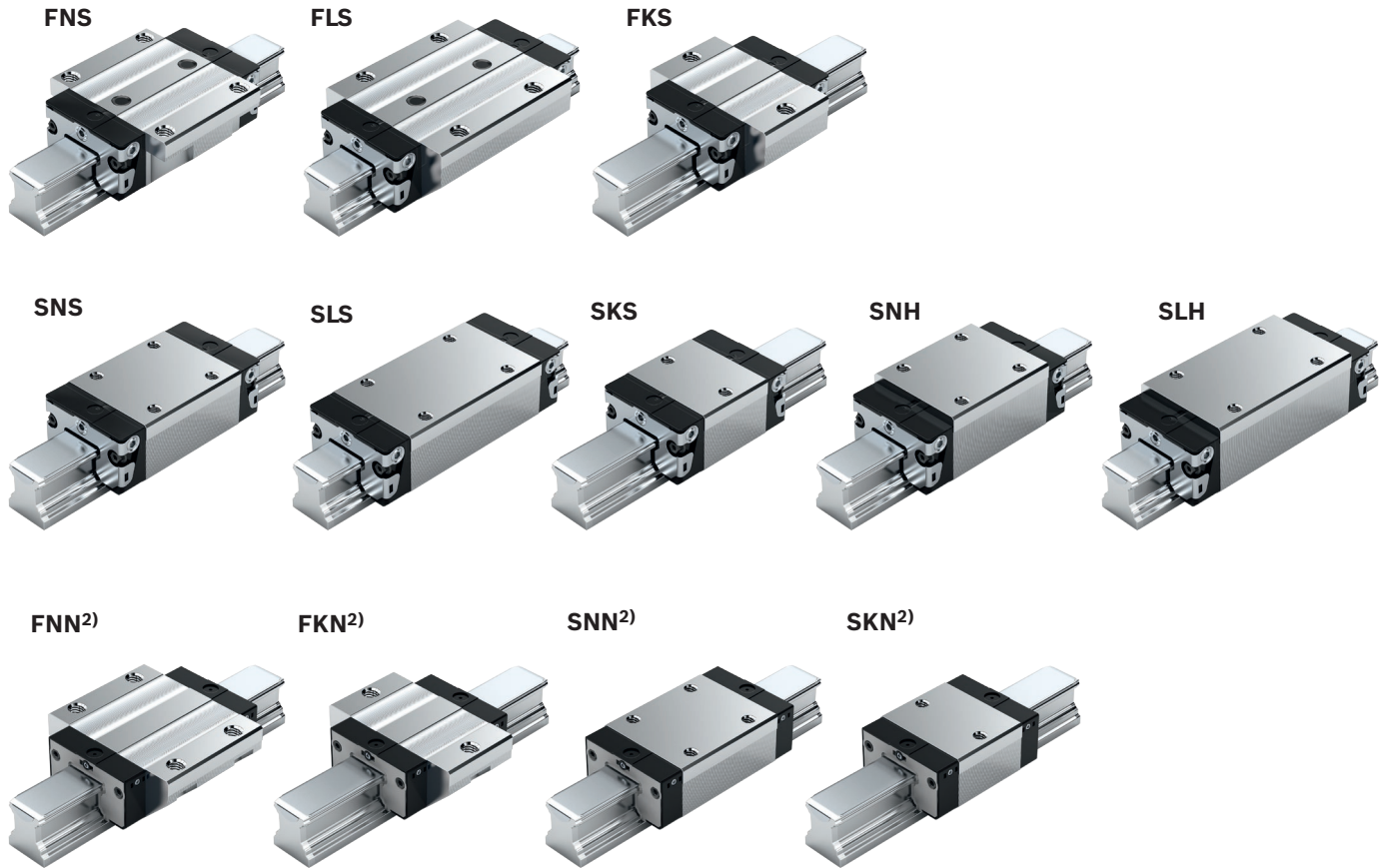
Ball guide rails		Page	Size		
			20/40	25/70	35/90
		Rail length (mm)			
Wide steel ball guide rails 	BNS R1675 .0. ... For mounting from above with plastic caps	134	3 836	3 836	3 836
	 BNS R1676 .5. ... For mounting from above, for steel mounting hole plugs	136	–	3 836	3 836
	 BNS R1677 .0. ... For mounting from below	137	3 836	3 836	3 836
Wide Resist CR ball guide rails²⁾ 	BNS R1673 .0. ... For mounting from above with plastic caps	134	3 836	3 836	3 836

- 1) Resist NR II: Guide rail made of corrosion-resistant steel per EN 10088
- 2) Resist CR: Ball guide rail made of steel with matte-silver hard-chrome plated corrosion-resistant coating
- 3) Sizes 20 and 25: Length up to 5816 mm (one-piece) can be supplied on request
 Sizes 30 and 35: Length up to 5836 mm (one-piece) can be supplied on request
 Size 45: Length up to 5771 mm (one-piece) can be supplied on request

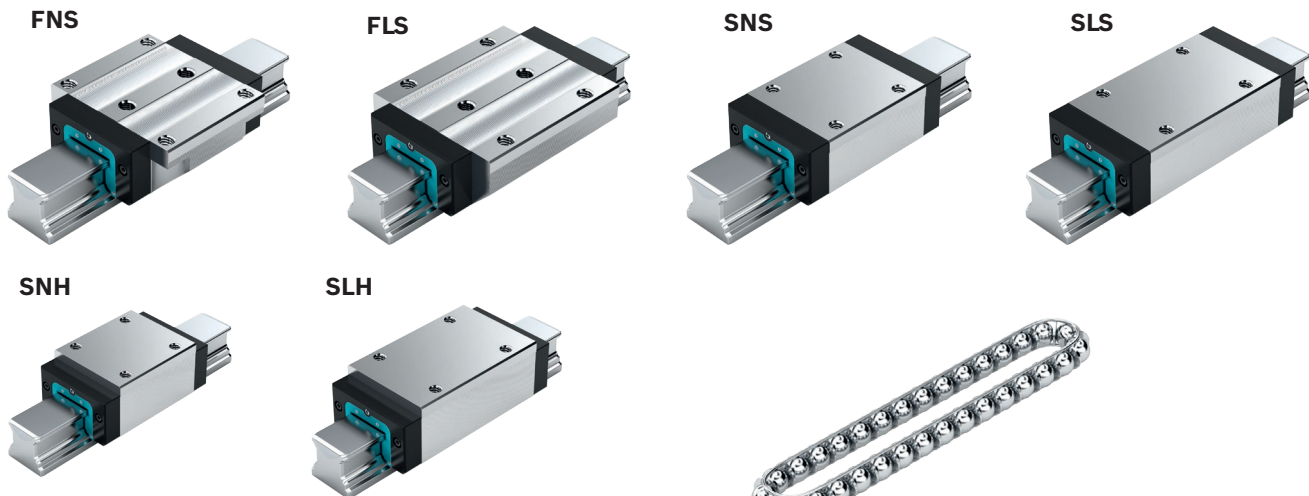
Refer to the product description for the abbreviations of the formats

Overview of formats

Standard steel ball runner blocks¹⁾ BSHP up to size 45



Heavy-duty ball runner blocks²⁾ BSHP from size 55 onwards



- 1) With ball chain
- 2) Without ball chain

Ball chain (optional)

- ▶ Optimizes noise levels

Order example

Ordering ball runner blocks

The part number is composed of the code numbers for the individual options. Each option (gray background) has its own code number (white background). The following ordering example applies to all ball runner blocks.

Explanation of option “Ball runner block with size”

The design style of the ball runner block – in this example, a standard ball runner block FNS – is specified on the respective product page. Coding in the part number:



Order example

Options: FNS

- ▶ FNS ball runner block
- ▶ Size 30
- ▶ Preload class C1
- ▶ Accuracy class H
- ▶ With standard seal, without ball chain

Part number: R1651 713 20

Options and part numbers

Size	Ball runner block with size	Preload class				Accuracy class						Seal with ball runner blocks					
		C0	C1	C2	C3	N	H	P	XP	SP	UP	without ball chain			with ball chain		
											SS	LS ¹⁾	DS	SS	LS ¹⁾	DS	
15	R1651 1	9				4	3	-	-	-	-	20	21	-	22	23	-
			1			4	3	2	8	1	9	20	21	-	22	23	-
				2		-	3	2	8	1	9	20	21	-	22	23	-
					3	-	-	-	8	1	9	20	21	-	22	23	-
20	R1651 8	9				4	3	-	-	-	-	20	21	-	22	23	-
			1			4	3	2	8	1	9	20	21	22	22	23	2Y
				2		-	3	2	8	1	9	20	21	22	22	23	2Y
					3	-	-	-	8	1	9	20	21	22	22	23	2Y
25	R1651 2	9				4	3	-	-	-	-	20	21	-	22	23	-
			1			4	3	2	8	1	9	20	21	22	22	23	2Y
				2		-	3	2	8	1	9	20	21	22	22	23	2Y
					3	-	-	-	8	1	9	20	21	22	22	23	2Y
30	R1651 7	9				4	3	-	-	-	-	20	21	-	22	23	-
				1		4	3	2	8	1	9	20	21	22	22	23	2Y
					2	-	3	2	8	1	9	20	21	22	22	23	2Y
					3	-	-	-	8	1	9	20	21	22	22	23	2Y
35	R1651 3	9				4	3	-	-	-	-	20	21	-	22	23	-
			1			4	3	2	8	1	9	20	21	22	22	23	2Y
				2		-	3	2	8	1	9	20	21	22	22	23	2Y
					3	-	-	-	8	1	9	20	21	22	22	23	2Y
45	R1651 4	9				4	3	-	-	-	-	20	-	-	22	-	-
			1			4	3	2	8	1	9	20	-	22	22	-	2Y
				2		-	3	2	8	1	9	20	-	22	22	-	2Y
					3	-	-	-	8	1	9	20	-	22	22	-	2Y
e.g.	R1651 7		1			3					20						

Preload classes

- C0 = Without preload (clearance)
- C1 = Moderate preload
- C2 = Average preload
- C3 = High preload

Seals

- SS = standard seal
- LS = low-friction seal
- DS = double-lipped seal

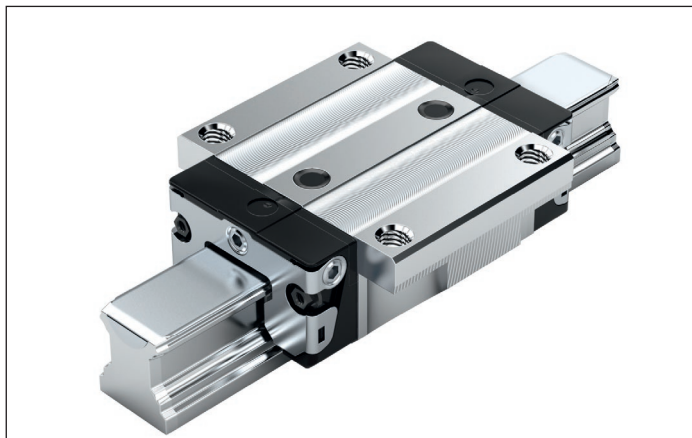
Key

- Gray digits
- = No preferred variant/combination (Some delivery times may be longer)

Definition of ball runner block format

Criterion	Designation	Abbreviation (example)		
		F	N	S
Width	Flange	F		
	Slimline	S		
	Wide	B		
	Compact	C		
Length	Normal		N	
	Long		L	
	Short		K	
Height	Standard height			S
	High			H
	Low			N

FNS – Flange, normal, standard height R1651 ... 2.

**Dynamic characteristics**Travel speed: $v_{\max} = 5 \text{ m/s}$ Acceleration: $a_{\max} = 500 \text{ m/s}^2$ (If $F_{\text{comb}} > 2.8 \cdot F_{\text{pr}}$: $a_{\max} = 50 \text{ m/s}^2$)**Note on lubrication**

► Pre-lubricated

Note

For all SNS/SNO ball guide rails.

Options and part numbers

Size	Ball runner block with size	Preload class				Accuracy class						Seal with ball runner blocks						
		C0	C1	C2	C3	N	H	P	XP	SP	UP	without ball chain			with ball chain			
												SS	LS ¹⁾	DS	SS	LS ¹⁾	DS	
15	R1651 1	9				4	3	-	-	-	-	20	21	-	22	23	-	-
			1			4	3	2	8	1	9	20	21	-	22	23	-	-
				2		-	3	2	8	1	9	20	21	-	22	23	-	-
					3	-	-	-	8	1	9	20	21	-	22	23	-	-
20	R1651 8	9				4	3	-	-	-	-	20	21	-	22	23	-	-
			1			4	3	2	8	1	9	20	21	2Z	22	23	2Y	-
				2		-	3	2	8	1	9	20	21	2Z	22	23	2Y	-
					3	-	-	-	8	1	9	20	21	2Z	22	23	2Y	-
25	R1651 2	9				4	3	-	-	-	-	20	21	-	22	23	-	-
			1			4	3	2	8	1	9	20	21	2Z	22	23	2Y	-
				2		-	3	2	8	1	9	20	21	2Z	22	23	2Y	-
					3	-	-	-	8	1	9	20	21	2Z	22	23	2Y	-
30	R1651 7	9				4	3	-	-	-	-	20	21	-	22	23	-	-
			1			4	3	2	8	1	9	20	21	2Z	22	23	2Y	-
				2		-	3	2	8	1	9	20	21	2Z	22	23	2Y	-
					3	-	-	-	8	1	9	20	21	2Z	22	23	2Y	-
35	R1651 3	9				4	3	-	-	-	-	20	21	-	22	23	-	-
			1			4	3	2	8	1	9	20	21	2Z	22	23	2Y	-
				2		-	3	2	8	1	9	20	21	2Z	22	23	2Y	-
					3	-	-	-	8	1	9	20	21	2Z	22	23	2Y	-
45	R1651 4	9				4	3	-	-	-	-	20	-	-	22	-	-	-
			1			4	3	2	8	1	9	20	-	2Z	22	-	2Y	-
				2		-	3	2	8	1	9	20	-	2Z	22	-	2Y	-
					3	-	-	-	8	1	9	20	-	2Z	22	-	2Y	-
e.g.	R1651 7		1			3						20						

1) With accuracy classes N and H and XP in preload class C1 only.

Order example

Options:

- FNS ball runner block
- Size 30
- Preload class C1
- Accuracy class H
- With standard seal, without ball chain

Part number:

R1651 713 20

Preload classes

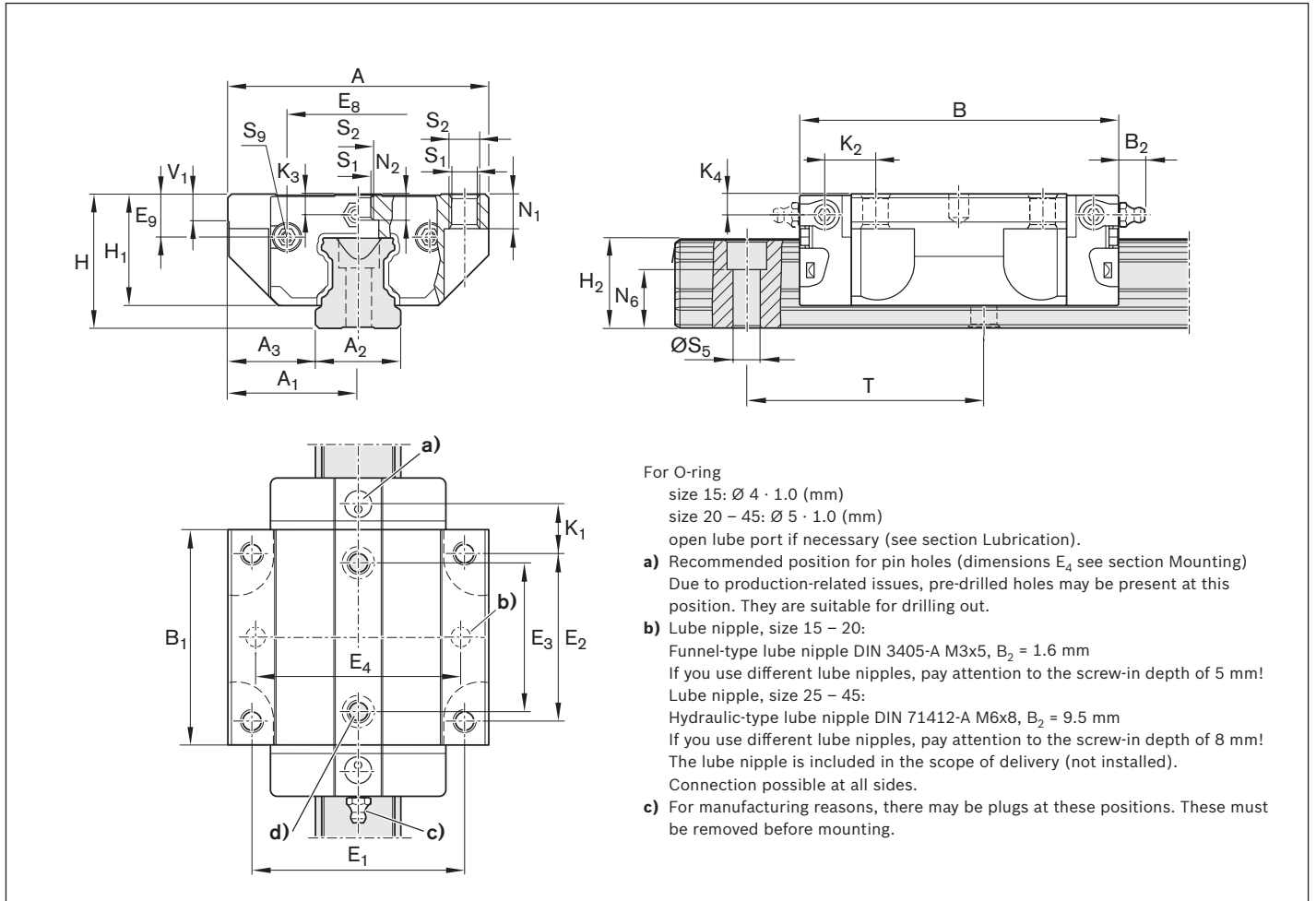
C0 = Without preload (clearance)
 C1 = Moderate preload
 C2 = Average preload
 C3 = High preload

Seals

SS = standard seal
 LS = low-friction seal
 DS = double-lipped seal

Key

Gray digits
 = No preferred variant/combination
 (Some delivery times may be longer)



Size	Dimensions (mm)																		
	A	A ₁	A ₂	A ₃	B ^{+0.5}	B ₁	E ₁	E ₂	E ₃	E ₈	E ₉	H	H ₁	H ₂ ¹⁾	H ₂ ²⁾	K ₁	K ₂	K ₃	K ₄
15	47	23.5	15	16.0	58.2	39.2	38	30	26	24.55	6.70	24	19.90	16.30	16.20	8.00	9.6	3.20	3.20
20	63	31.5	20	21.5	75.0	49.6	53	40	35	32.50	7.30	30	25.35	20.75	20.55	11.80	11.8	3.35	3.35
25	70	35.0	23	23.5	86.2	57.8	57	45	40	38.30	11.50	36	29.90	24.45	24.25	12.45	13.6	5.50	5.50
30	90	45.0	28	31.0	97.7	67.4	72	52	44	48.40	14.60	42	35.35	28.55	28.35	14.00	15.7	6.05	6.05
35	100	50.0	34	33.0	110.5	77.0	82	62	52	58.00	17.35	48	40.40	32.15	31.85	14.50	16.0	6.90	6.90
45	120	60.0	45	37.5	137.6	97.0	100	80	60	69.80	20.90	60	50.30	40.15	39.85	17.30	19.3	8.20	8.20

Size	Dimensions (mm)										Weight (kg)	Load capacities ³⁾ (N)		Load moments ³⁾ (Nm)			
	N ₁	N ₂	N ₆ ^{±0.5}	S ₁	S ₂	S ₅	S ₉	T	V ₁	m		C	C ₀	M _t	M _{t0}	M _L	M _{L0}
15	5.2	4.40	10.3	4.3	M5	4.5	M2.5x3.5	60	5.0	0.20	9 860	12 700	95	120	68	87	
20	7.7	5.20	13.2	5.3	M6	6.0	M3x5	60	6.0	0.45	23 400	29 800	300	380	200	260	
25	9.3	7.00	15.2	6.7	M8	7.0	M3x5	60	7.5	0.65	28 600	35 900	410	510	290	360	
30	11.0	7.90	17.0	8.5	M10	9.0	M3x5	80	7.0	1.10	36 500	48 100	630	830	440	580	
35	12.0	10.15	20.5	8.5	M10	9.0	M3x5	80	8.0	1.60	51 800	80 900	1 110	1 740	720	1 130	
45	15.0	12.40	23.5	10.4	M12	14.0	M4x7	105	10.0	3.00	86 400	132 000	2 330	3 560	1 540	2 350	

1) Dimension H₂ with cover strip

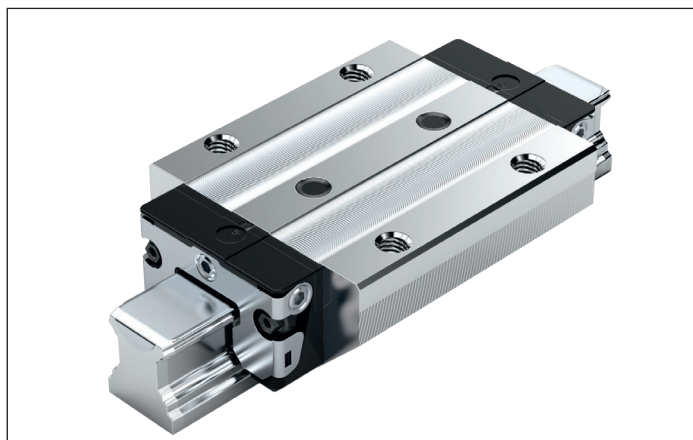
2) Dimension H₂ without cover strip

3) Load capacities and load moments for ball runner blocks **without** ball chain. Load capacities and load moments for ball runner blocks **with** ball chain 12

Determination of the dynamic load capacities and load moments is based on a 100,000 m travel life according to DIN ISO14728-1.

Often only 50,000 m are actually stipulated. For comparison: Multiply values **C**, **M_t** and **M_L** by 1.26 according to the table.

FLS – Flange, long, standard height R1653 ... 2.

**Dynamic characteristics**Travel speed: $v_{\max} = 5 \text{ m/s}$ Acceleration: $a_{\max} = 500 \text{ m/s}^2$ (If $F_{\text{comb}} > 2.8 \cdot F_{\text{pr}}$: $a_{\max} = 50 \text{ m/s}^2$)**Note on lubrication**

▶ Pre-lubricated

Note

For all SNS/SNO ball guide rails.

Options and part numbers

Size	Ball runner block with size	Preload class				Accuracy class						Seal with ball runner blocks						
		C0	C1	C2	C3	N	H	P	XP	SP	UP	without ball chain			with ball chain			
												SS	LS ¹⁾	DS	SS	LS ¹⁾	DS	
15	R1653 1	9				4	3	–	–	–	–	20	21	–	22	23	–	–
			1			4	3	2	8	1	9	20	21	–	22	23	–	–
				2		–	3	2	8	1	9	20	21	–	22	23	–	–
					3	–	–	–	8	1	9	20	21	–	22	23	–	–
20	R1653 8	9				4	3	–	–	–	–	20	21	–	22	23	–	–
			1			4	3	2	8	1	9	20	21	2Z	22	23	2Y	–
				2		–	3	2	8	1	9	20	21	2Z	22	23	2Y	–
					3	–	–	–	8	1	9	20	21	2Z	22	23	2Y	–
25	R1653 2	9				4	3	–	–	–	–	20	21	–	22	23	–	–
			1			4	3	2	8	1	9	20	21	2Z	22	23	2Y	–
				2		–	3	2	8	1	9	20	21	2Z	22	23	2Y	–
					3	–	–	–	8	1	9	20	21	2Z	22	23	2Y	–
30	R1653 7	9				4	3	–	–	–	–	20	21	–	22	23	–	–
			1			4	3	2	8	1	9	20	21	2Z	22	23	2Y	–
				2		–	3	2	8	1	9	20	21	2Z	22	23	2Y	–
					3	–	–	–	8	1	9	20	21	2Z	22	23	2Y	–
35	R1653 3	9				4	3	–	–	–	–	20	21	–	22	23	–	–
			1			4	3	2	8	1	9	20	21	2Z	22	23	2Y	–
				2		–	3	2	8	1	9	20	21	2Z	22	23	2Y	–
					3	–	–	–	8	1	9	20	21	2Z	22	23	2Y	–
45	R1653 4	9				4	3	–	–	–	–	20	–	–	22	–	–	–
			1			4	3	2	8	1	9	20	–	2Z	22	–	–	2Y
				2		–	3	2	8	1	9	20	–	2Z	22	–	–	2Y
					3	–	–	–	8	1	9	20	–	2Z	22	–	–	2Y
e.g.	R1653 7		1				3											20

1) With accuracy classes N and H and XP in preload class C1 only.

Order example

Options:

- ▶ FLS ball runner block
- ▶ Size 30
- ▶ Preload class C1
- ▶ Accuracy class H
- ▶ With standard seal, without ball chain

Part number:

R1653 713 20

Preload classes

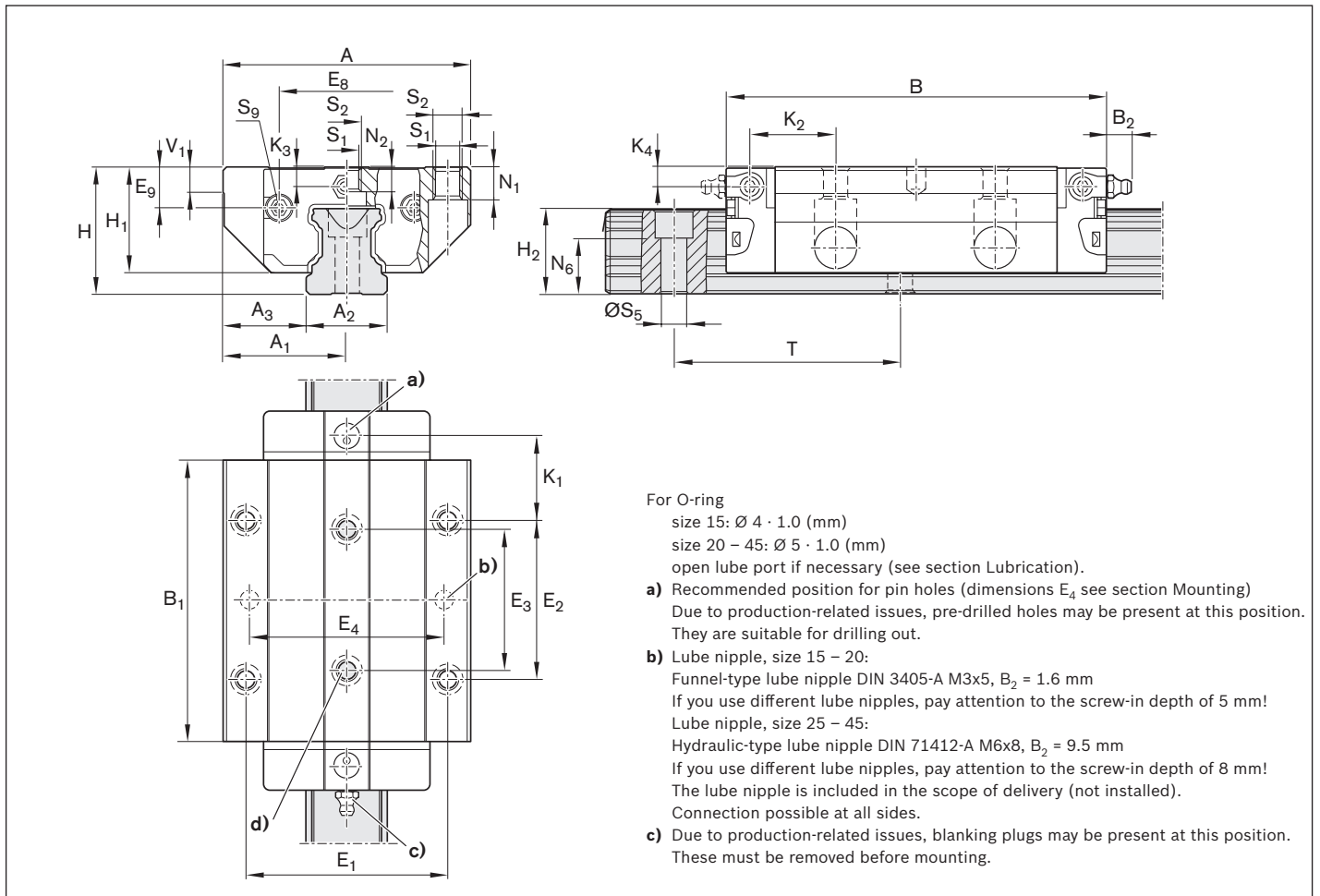
C0 = Without preload (clearance)
 C1 = Moderate preload
 C2 = Average preload
 C3 = High preload

Seals

SS = standard seal
 LS = low-friction seal
 DS = double-lipped seal

Key

Gray digits
 = No preferred variant/combination
 (Some delivery times may be longer)



Size	Dimensions (mm)																		
	A	A ₁	A ₂	A ₃	B ^{+0.5}	B ₁	E ₁	E ₂	E ₃	E ₈	E ₉	H	H ₁	H ₂ ¹⁾	H ₂ ²⁾	K ₁	K ₂	K ₃	K ₄
15	47	23.5	15	16.0	72.6	53.6	38	30	26	24.55	6.70	24	19.90	16.30	16.20	15.20	16.80	3.20	3.20
20	63	31.5	20	21.5	91.0	65.6	53	40	35	32.50	7.30	30	25.35	20.75	20.55	19.80	19.80	3.35	3.35
25	70	35.0	23	23.5	107.9	79.5	57	45	40	38.30	11.50	36	29.90	24.45	24.25	23.30	24.45	5.50	5.50
30	90	45.0	28	31.0	119.7	89.4	72	52	44	48.40	14.60	42	35.35	28.55	28.35	25.00	26.70	6.05	6.05
35	100	50.0	34	33.0	139.0	105.5	82	62	52	58.00	17.35	48	40.40	32.15	31.85	28.75	30.25	6.90	6.90
45	120	60.0	45	37.5	174.1	133.5	100	80	60	69.80	20.90	60	50.30	40.15	39.85	35.50	37.50	8.20	8.20

Size	Dimensions (mm)										Weight (kg)	Load capacities ³⁾ (N)		Load moments ³⁾ (Nm)			
	N ₁	N ₂	N ₆ ^{+0.5}	S ₁	S ₂	S ₅	S ₉	T	V ₁	m		C	C ₀	M _t	M _{t0}	M _L	M _{L0}
15	5.2	4.40	10.3	4.3	M5	4.5	M2.5x3.5	60	5.0	0.30	12 800	18 400	120	180	120	180	
20	7.7	5.20	13.2	5.3	M6	6.0	M3x5	60	6.0	0.55	29 600	41 800	380	540	340	490	
25	9.3	7.00	15.2	6.7	M8	7.0	M3x5	60	7.5	0.90	37 300	52 500	530	750	530	740	
30	11.0	7.90	17.0	8.5	M10	9.0	M3x5	80	7.0	1.50	46 000	66 900	800	1 160	740	1 080	
35	12.0	10.15	20.5	8.5	M10	9.0	M3x5	80	8.0	2.25	66 700	116 000	1 440	2 500	1 290	2 240	
45	15.0	12.40	23.5	10.4	M12	14.0	M4x7	105	10.0	4.30	111 000	190 000	3 010	5 120	2 730	4 660	

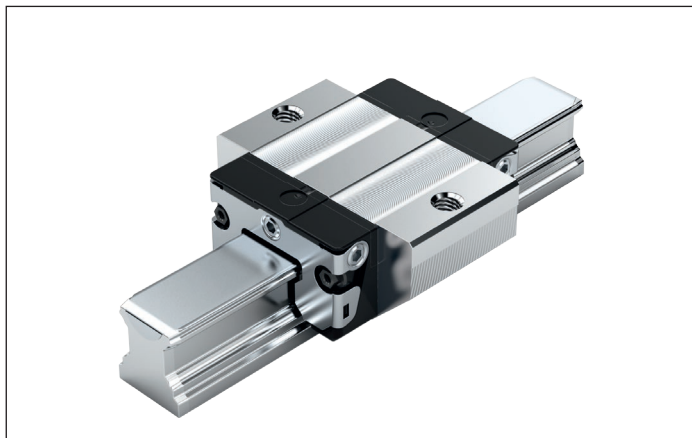
1) Dimension H₂ with cover strip

2) Dimension H₂ without cover strip

3) Load capacities and load moments for ball runner blocks **without** ball chain. Load capacities and load moments for ball runner blocks **with** ball chain 12

Determination of the dynamic load capacities and load moments is based on a 100,000 m travel life according to DIN ISO14728-1. Often only 50,000 m are actually stipulated. For comparison: Multiply values **C**, **M_t** and **M_L** by 1.26 according to the table.

FKS – Flange, short, standard height R1665 ... 2.

**Dynamic characteristics**Travel speed: $v_{\max} = 5 \text{ m/s}$ Acceleration: $a_{\max} = 500 \text{ m/s}^2$ (If $F_{\text{comb}} > 2.8 \cdot F_{\text{pr}}$: $a_{\max} = 50 \text{ m/s}^2$)**Note on lubrication**

- ▶ Pre-lubricated

Note

For all SNS/SNO ball guide rails.

Options and part numbers

Size	Ball runner block with size	Preload class		Accuracy class		Seal with ball runner blocks					
		C0	C1	N	H	without ball chain			with ball chain		
						SS	LS	DS	SS	LS	DS
15	R1665 1	9		4	3	20	21	–	22	23	–
			1	4	3	20	21	–	22	23	–
20	R1665 8	9		4	3	20	21	–	22	23	–
			1	4	3	20	21	2Z	22	23	2Y
25	R1665 2	9		4	3	20	21	–	22	23	–
			1	4	3	20	21	2Z	22	23	2Y
30	R1665 7	9		4	3	20	21	–	22	23	–
			1	4	3	20	21	2Z	22	23	2Y
35	R1665 3	9		4	3	20	21	–	22	23	–
			1	4	3	20	21	2Z	22	23	2Y
e.g.	R1665 7		1		3	20					

Order example

Options:

- ▶ FKS ball runner block
- ▶ Size 30
- ▶ Preload class C1
- ▶ Accuracy class H
- ▶ With standard seal, without ball chain

Part number:

R1665 713 20

Preload classes

C0 = Without preload (clearance)

C1 = Moderate preload

Seals

SS = standard seal

LS = low-friction seal

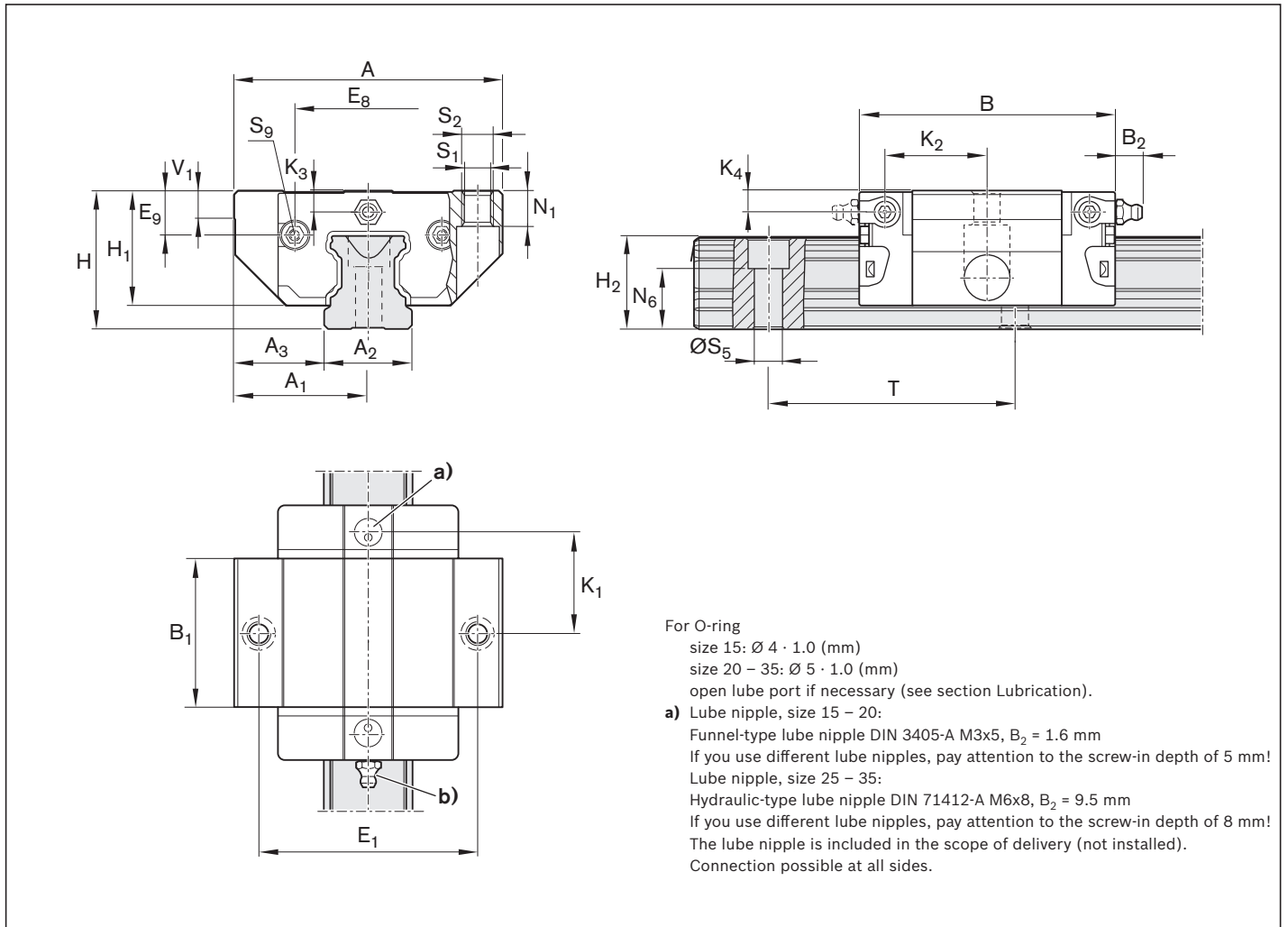
DS = double-lipped seal

Key

Gray digits

= No preferred variant/combination

(Some delivery times may be longer)




Size	Dimensions (mm)																	
	A	A ₁	A ₂	A ₃	B ^{+0.5}	B ₁	E ₁	E ₈	E ₉	H	H ₁	H ₂ ¹⁾	H ₂ ²⁾	K ₁	K ₂	K ₃	K ₄	
15	47	23.5	15	16.0	44.7	25.7	38	24.55	6.70	24	19.90	16.30	16.20	16.25	17.85	3.20	3.20	
20	63	31.5	20	21.5	57.3	31.9	53	32.50	7.30	30	25.35	20.75	20.55	22.95	22.95	3.35	3.35	
25	70	35.0	23	23.5	67.0	38.6	57	38.30	11.50	36	29.90	24.45	24.25	25.35	26.50	5.50	5.50	
30	90	45.0	28	31.0	75.3	45.0	72	48.40	14.60	42	35.35	28.55	28.35	28.80	30.50	6.05	6.05	
35	100	50.0	34	33.0	84.9	51.4	82	58.00	17.35	48	40.40	32.15	31.85	32.70	34.20	6.90	6.90	

Size	Dimensions (mm)										Weight (kg)	Load capacities ³⁾ (N)		Load moments ³⁾ (Nm)			
	N ₁	N ₆ ^{±0.5}	S ₁	S ₂	S ₅	S ₉	T	V ₁	m	C		C ₀	M _t	M _{t0}	M _L	M _{L0}	
15	5.2	10.3	4.3	M5	4.5	M2.5x3.5	60	5.0	0.15	6 720	7 340	65	71	29	32		
20	7.7	13.2	5.3	M6	6.0	M3x5	60	6.0	0.30	15 400	16 500	200	210	83	89		
25	9.3	15.2	6.7	M8	7.0	M3x5	60	7.5	0.50	19 800	21 200	280	300	130	140		
30	11.0	17.0	8.5	M10	9.0	M3x5	80	7.0	0.80	25 600	28 900	440	500	200	230		
35	12.0	20.5	8.5	M10	9.0	M3x5	80	8.0	1.20	36 600	49 300	790	1 060	340	460		

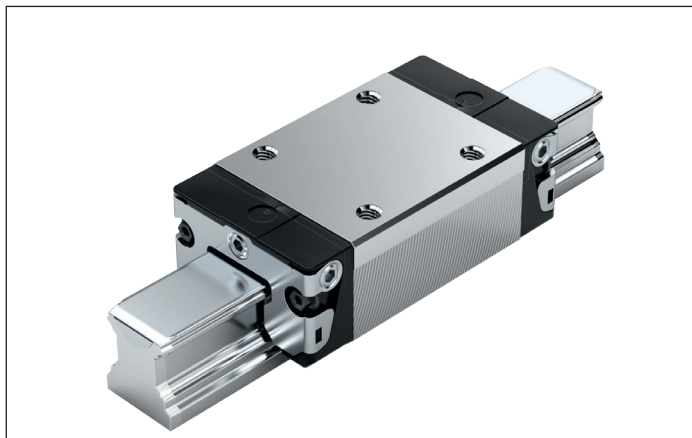
1) Dimension H₂ with cover strip

2) Dimension H₂ without cover strip

3) Load capacities and load moments for ball runner blocks **without** ball chain. Load capacities and load moments for ball runner blocks **with** ball chain.  12

Determination of the dynamic load capacities and load moments is based on a 100,000 m travel life according to DIN ISO14728-1. Often only 50,000 m are actually stipulated. For comparison: Multiply values **C**, **M_t** and **M_L** by 1.26 according to the table.

SNS – slimline, normal, standard height R1622 ... 2.

**Dynamic characteristics**Travel speed: $v_{\max} = 5 \text{ m/s}$ Acceleration: $a_{\max} = 500 \text{ m/s}^2$ (If $F_{\text{comb}} > 2.8 \cdot F_{\text{pr}}$: $a_{\max} = 50 \text{ m/s}^2$)**Note on lubrication**

► Pre-lubricated

Note

For all SNS/SNO ball guide rails.

Options and part numbers

Size	Ball runner block with size	Preload class				Accuracy class				Seal with ball runner blocks					
		C0	C1	C2	C3	N	H	P	XP	without ball chain			with ball chain		
										SS	LS ¹⁾	DS	SS	LS ¹⁾	DS
15	R1622 1	9				4	3	–	–	20	21	–	22	23	–
			1			4	3	2	8	20	21	–	22	23	–
				2		–	3	2	8	20	21	–	22	23	–
					3	–	–	–	8	20	21	–	22	23	–
20	R1622 8	9				4	3	–	–	20	21	–	22	23	–
			1			4	3	2	8	20	21	2Z	22	23	2Y
				2		–	3	2	8	20	21	2Z	22	23	2Y
					3	–	–	–	8	20	21	2Z	22	23	2Y
25	R1622 2	9				4	3	–	–	20	21	–	22	23	–
			1			4	3	2	8	20	21	2Z	22	23	2Y
				2		–	3	2	8	20	21	2Z	22	23	2Y
					3	–	–	–	8	20	21	2Z	22	23	2Y
30	R1622 7	9				4	3	–	–	20	21	–	22	23	–
			1			4	3	2	8	20	21	2Z	22	23	2Y
				2		–	3	2	8	20	21	2Z	22	23	2Y
					3	–	–	–	8	20	21	2Z	22	23	2Y
35	R1622 3	9				4	3	–	–	20	21	–	22	23	–
			1			4	3	2	8	20	21	2Z	22	23	2Y
				2		–	3	2	8	20	21	2Z	22	23	2Y
					3	–	–	–	8	20	21	2Z	22	23	2Y
45	R1622 4	9				4	3	–	–	20	–	–	22	–	–
			1			4	3	2	8	20	–	2Z	22	–	2Y
				2		–	3	2	8	20	–	2Z	22	–	2Y
					3	–	–	–	8	20	–	2Z	22	–	2Y
e.g.	R1622 7		1				3			20					

1) With accuracy classes N and H and XP in preload class C1 only.

Order example

Options:

- SNS ball runner blocks
- Size 30
- Preload class C1
- Accuracy class H
- With standard seal, without ball chain

Part number:

R1622 713 20

Preload classes

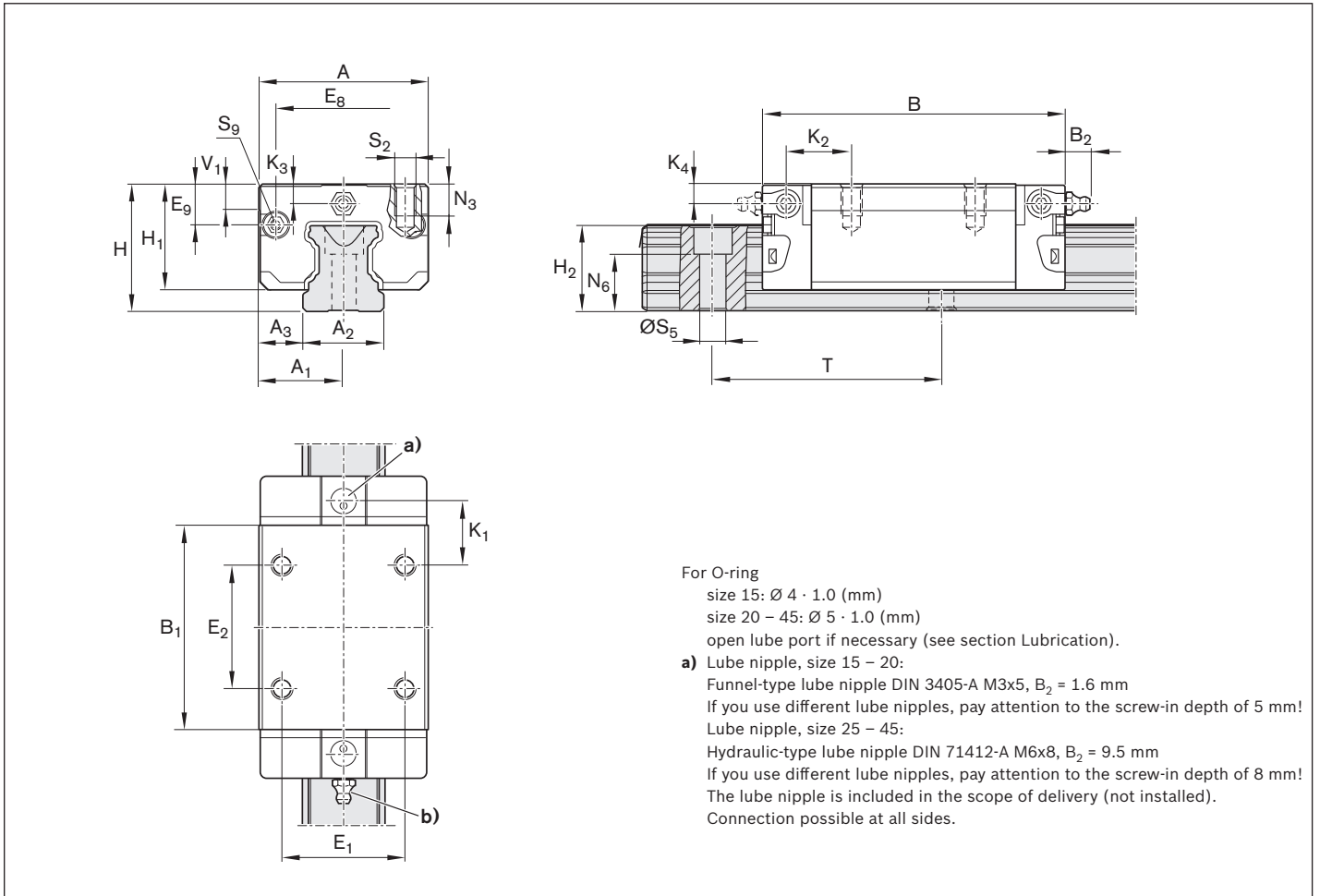
C0 = Without preload (clearance)
 C1 = Moderate preload
 C2 = Average preload
 C3 = High preload

Seals

SS = standard seal
 LS = low-friction seal
 DS = double-lipped seal

Key

Gray digits
 = No preferred variant/combination
 (Some delivery times may be longer)



For O-ring

size 15: $\varnothing 4 \cdot 1.0$ (mm)

size 20 – 45: $\varnothing 5 \cdot 1.0$ (mm)

open lube port if necessary (see section Lubrication).

a) Lube nipple, size 15 – 20:

Funnel-type lube nipple DIN 3405-A M3x5, $B_2 = 1.6$ mm

If you use different lube nipples, pay attention to the screw-in depth of 5 mm!

Lube nipple, size 25 – 45:

Hydraulic-type lube nipple DIN 71412-A M6x8, $B_2 = 9.5$ mm

If you use different lube nipples, pay attention to the screw-in depth of 8 mm!


The lube nipple is included in the scope of delivery (not installed).
Connection possible at all sides.

Size	Dimensions (mm)																	
	A	A ₁	A ₂	A ₃	B ^{+0.5}	B ₁	E ₁	E ₂	E ₈	E ₉	H	H ₁	H ₂ ¹⁾	H ₂ ²⁾	K ₁	K ₂	K ₃	K ₄
15	34	17	15	9.5	58.2	39.2	26	26	24.55	6.70	24	19.90	16.30	16.20	10.00	11.60	3.20	3.20
20	44	22	20	12.0	75.0	49.6	32	36	32.50	7.30	30	25.35	20.75	20.55	13.80	13.80	3.35	3.35
25	48	24	23	12.5	86.2	57.8	35	35	38.30	11.50	36	29.90	24.45	24.25	17.45	18.60	5.50	5.50
30	60	30	28	16.0	97.7	67.4	40	40	48.40	14.60	42	35.35	28.55	28.35	20.00	21.70	6.05	6.05
35	70	35	34	18.0	110.5	77.0	50	50	58.00	17.35	48	40.40	32.15	31.85	20.50	22.00	6.90	6.90
45	86	43	45	20.5	137.6	97.0	60	60	69.80	20.90	60	50.30	40.15	39.85	27.30	29.30	8.20	8.20

Size	Dimensions (mm)								Weight (kg)	Load capacities ³⁾ (N)		Load moments ³⁾ (Nm)			
	N ₃	N ₆ ^{±0.5}	S ₂	S ₅	S ₉	T	V ₁	m		C	C ₀	M _t	M _{t0}	M _L	M _{L0}
15	6.0	10.3	M4	4.5	M2.5x3.5	60	5.0	0.15	9 860	12 700	95	120	68	87	
20	7.5	13.2	M5	6.0	M3x5	60	6.0	0.35	23 400	29 800	300	380	200	260	
25	9.0	15.2	M6	7.0	M3x5	60	7.5	0.50	28 600	35 900	410	510	290	360	
30	12.0	17.0	M8	9.0	M3x5	80	7.0	0.85	36 500	48 100	630	830	440	580	
35	13.0	20.5	M8	9.0	M3x5	80	8.0	1.25	51 800	80 900	1 110	1 740	720	1 130	
45	18.0	23.5	M10	14.0	M4x7	105	10.0	2.40	86 400	132 000	2 330	3 560	1 540	2 350	

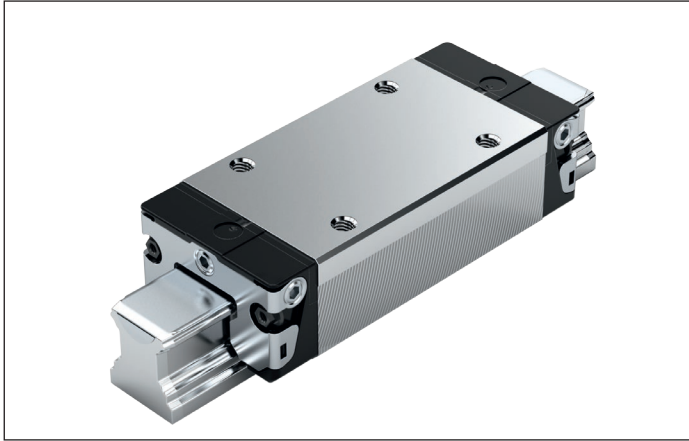
1) Dimension H₂ with cover strip

2) Dimension H₂ without cover strip

3) Load capacities and load moments for ball runner blocks **without** ball chain. Load capacities and load moments for ball runner blocks **with** ball chain.  12

Determination of the dynamic load capacities and load moments is based on a 100,000 m travel life according to DIN ISO14728-1. Often only 50,000 m are actually stipulated. For comparison: Multiply values **C**, **M_t** and **M_L** by 1.26 according to the table.

SLS – slimline, long, standard height R1623 ... 2.

**Dynamic characteristics**Travel speed: $v_{\max} = 5 \text{ m/s}$ Acceleration: $a_{\max} = 500 \text{ m/s}^2$ (If $F_{\text{comb}} > 2.8 \cdot F_{\text{pr}}$: $a_{\max} = 50 \text{ m/s}^2$)**Note on lubrication**

► Pre-lubricated

Note

For all SNS/SNO ball guide rails.

Options and part numbers

Size	Ball runner block with size	Preload class				Accuracy class				Seal with ball runner blocks						
		C0	C1	C2	C3	N	H	P	XP	without ball chain			with ball chain			
										SS	LS ¹⁾	DS	SS	LS ¹⁾	DS	
15	R1623 1	9				4	3	–	–	20	21	–	22	23	–	–
			1			4	3	2	8	20	21	–	22	23	–	–
				2		–	3	2	8	20	21	–	22	23	–	–
					3	–	–	–	8	20	21	–	22	23	–	–
20	R1623 8	9				4	3	–	–	20	21	–	22	23	–	–
			1			4	3	2	8	20	21	2Z	22	23	2Y	–
				2		–	3	2	8	20	21	2Z	22	23	2Y	–
					3	–	–	–	8	20	21	2Z	22	23	2Y	–
25	R1623 2	9				4	3	–	–	20	21	–	22	23	–	–
			1			4	3	2	8	20	21	2Z	22	23	2Y	–
				2		–	3	2	8	20	21	2Z	22	23	2Y	–
					3	–	–	–	8	20	21	2Z	22	23	2Y	–
30	R1623 7	9				4	3	–	–	20	21	–	22	23	–	–
			1			4	3	2	8	20	21	2Z	22	23	2Y	–
				2		–	3	2	8	20	21	2Z	22	23	2Y	–
					3	–	–	–	8	20	21	2Z	22	23	2Y	–
35	R1623 3	9				4	3	–	–	20	21	–	22	23	–	–
			1			4	3	2	8	20	21	2Z	22	23	2Y	–
				2		–	3	2	8	20	21	2Z	22	23	2Y	–
					3	–	–	–	8	20	21	2Z	22	23	2Y	–
45	R1623 4	9				4	3	–	–	20	–	–	22	–	–	–
			1			4	3	2	8	20	–	2Z	22	–	2Y	–
				2		–	3	2	8	20	–	2Z	22	–	2Y	–
					3	–	–	–	8	20	–	2Z	22	–	2Y	–
e.g.	R1623 7		1				3			20						

1) With accuracy classes N and H and XP in preload class C1 only.

Order example

Options:

- SLS ball runner blocks
- Size 30
- Preload class C1
- Accuracy class H
- With standard seal, without ball chain

Part number:

R1623 713 20

Preload classes

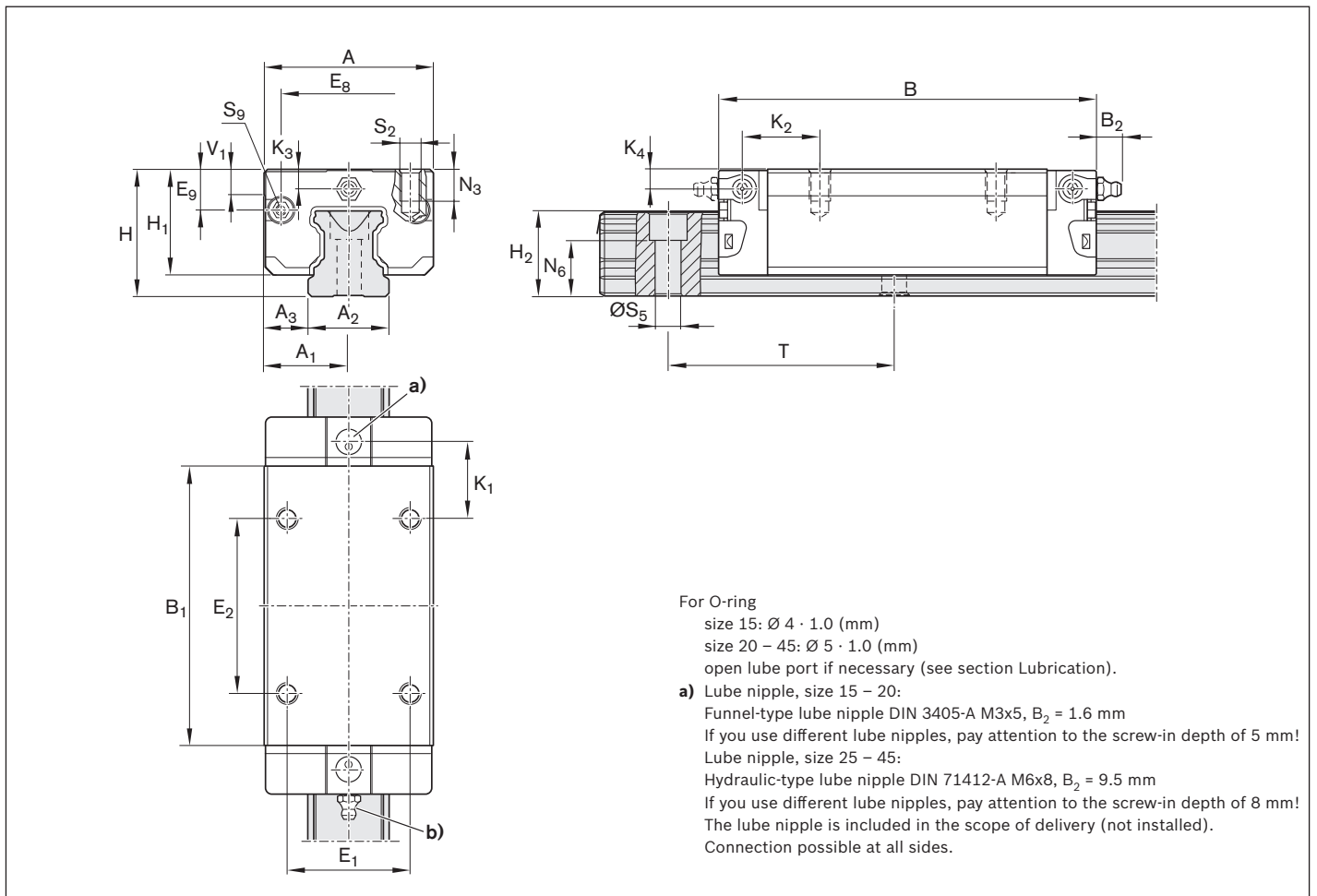
C0 = Without preload (clearance)
 C1 = Moderate preload
 C2 = Average preload
 C3 = High preload

Seals

SS = standard seal
 LS = low-friction seal
 DS = double-lipped seal

Key

Gray digits
 = No preferred variant/combination
 (Some delivery times may be longer)




Size	Dimensions (mm)																		
	A	A ₁	A ₂	A ₃	B ^{+0.5}	B ₁	E ₁	E ₂	E ₈	E ₉	H	H ₁	H ₂ ¹⁾	H ₂ ²⁾	K ₁	K ₂	K ₃	K ₄	
15	34	17	15	9.5	72.6	53.6	26	26	24.55	6.70	24	19.90	16.30	16.20	17.20	18.80	3.20	3.20	
20	44	22	20	12.0	91.0	65.6	32	50	32.50	7.30	30	25.35	20.75	20.55	14.80	14.80	3.35	3.35	
25	48	24	23	12.5	107.9	79.5	35	50	38.30	11.50	36	29.90	24.45	24.25	20.80	21.95	5.50	5.50	
30	60	30	28	16.0	119.7	89.4	40	60	48.40	14.60	42	35.35	28.55	28.35	21.00	22.70	6.05	6.05	
35	70	35	34	18.0	139.0	105.5	50	72	58.00	17.35	48	40.40	32.15	31.85	23.75	25.25	6.90	6.90	
45	86	43	45	20.5	174.1	133.5	60	80	69.80	20.90	60	50.30	40.15	39.85	35.50	37.50	8.20	8.20	

Size	Dimensions (mm)									Weight (kg)	Load capacities ³⁾ (N)		Load moments ³⁾ (Nm)			
	N ₃	N ₆ ^{±0.5}	S ₂	S ₅	S ₉	T	V ₁	m	C		C ₀	M _t	M _{t0}	M _L	M _{L0}	
15	6.0	10.3	M4	4.5	M2.5x3.5	60	5.0	0.20	12 800	18 400	120	180	120	180		
20	7.5	13.2	M5	6.0	M3x5	60	6.0	0.45	29 600	41 800	380	540	340	490		
25	9.0	15.2	M6	7.0	M3x5	60	7.5	0.65	37 300	52 500	530	750	530	740		
30	12.0	17.0	M8	9.0	M3x5	80	7.0	1.10	46 000	66 900	800	1 160	740	1 080		
35	13.0	20.5	M8	9.0	M3x5	80	8.0	1.70	66 700	116 000	1 440	2 500	1 290	2 240		
45	18.0	23.5	M10	14.0	M4x7	105	10.0	3.20	111 000	190 000	3 010	5 120	2 730	4 660		

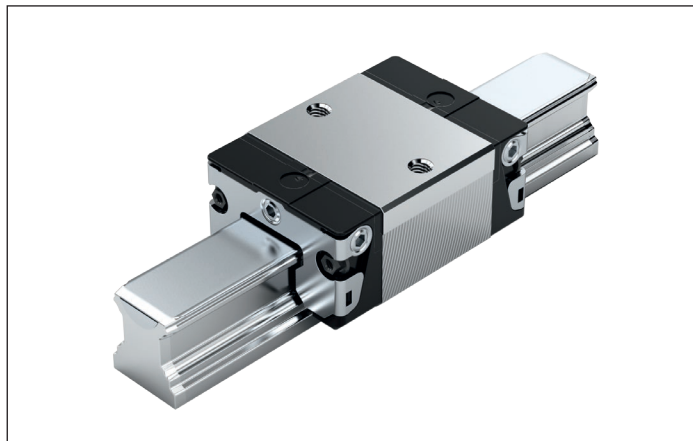
1) Dimension H₂ with cover strip

2) Dimension H₂ without cover strip

3) Load capacities and load moments for ball runner blocks **without** ball chain. Load capacities and load moments for ball runner blocks **with** ball chain.  12

Determination of the dynamic load capacities and load moments is based on a 100,000 m travel life according to DIN ISO14728-1. Often only 50,000 m are actually stipulated. For comparison: Multiply values **C**, **M_t** and **M_L** by 1.26 according to the table.

SKS – slimline short standard height R1666 ... 2.

**Dynamic characteristics**Travel speed: $v_{\max} = 5 \text{ m/s}$ Acceleration: $a_{\max} = 500 \text{ m/s}^2$ (If $F_{\text{comb}} > 2.8 \cdot F_{\text{pr}}$: $a_{\max} = 50 \text{ m/s}^2$)**Note on lubrication**

► Pre-lubricated

Note

For all SNS/SNO ball guide rails.

Options and part numbers

Size	Ball runner block with size	Preload class		Accuracy class		Seal with ball runner blocks					
		C0	C1	N	H	without ball chain			with ball chain		
						SS	LS	DS	SS	LS	DS
15	R1666 1	9		4	3	20	21	–	22	23	–
			1	4	3	20	21	–	22	23	–
20	R1666 8	9		4	3	20	21	–	22	23	–
			1	4	3	20	21	2Z	22	23	2Y
25	R1666 2	9		4	3	20	21	–	22	23	–
			1	4	3	20	21	2Z	22	23	2Y
30	R1666 7	9		4	3	20	21	–	22	23	–
			1	4	3	20	21	2Z	22	23	2Y
35	R1666 3	9		4	3	20	21	–	22	23	–
			1	4	3	20	21	2Z	22	23	2Y
e.g.	R1666 7		1		3	20					

Order example

Options:

- SKS ball runner block
- Size 30
- Preload class C1
- Accuracy class H
- With standard seal, without ball chain

Part number:

R1666 713 20

Preload classes

C0 = Without preload (clearance)

C1 = Moderate preload

Seals

SS = standard seal

LS = low-friction seal

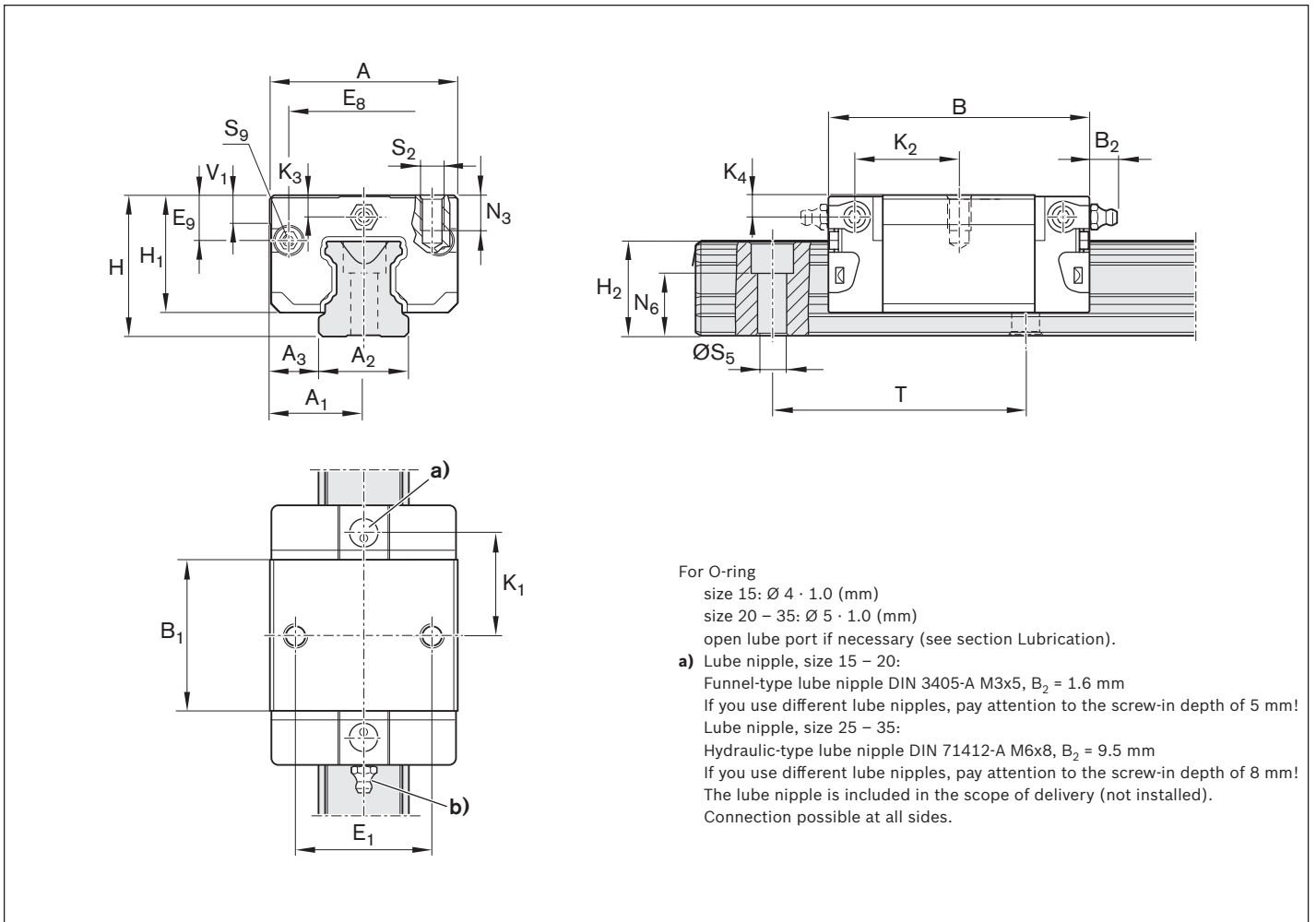
DS = double-lipped seal

Key

Gray digits


= No preferred variant/combination

(Some delivery times may be longer)



Size	Dimensions (mm)																	
	A	A ₁	A ₂	A ₃	B ^{+0.5}	B ₁	E ₁	E ₈	E ₉	H	H ₁	H ₂ ¹⁾	H ₂ ²⁾	K ₁	K ₂	K ₃	K ₄	
15	34	17	15	9.5	44.7	25.7	26	24.55	6.70	24	19.90	16.30	16.20	16.25	17.85	3.20	3.20	
20	44	22	20	12.0	57.3	31.9	32	32.50	7.30	30	25.35	20.75	20.55	22.95	22.95	3.35	3.35	
25	48	24	23	12.5	67.0	38.6	35	38.30	11.50	36	29.90	24.45	24.25	25.35	26.50	5.50	5.50	
30	60	30	28	16.0	75.3	45.0	40	48.40	14.60	42	35.35	28.55	28.35	28.80	30.50	6.05	6.05	
35	70	35	34	18.0	84.9	51.4	50	58.00	17.35	48	40.40	32.15	31.85	32.70	34.20	6.90	6.90	

Size	Dimensions (mm)								Weight (kg)	Load capacities ³⁾ (N)		Load moments ³⁾ (Nm)			
	N ₃	N ₆ ^{±0.5}	S ₂	S ₅	S ₉	T	V ₁	m		C	C ₀	M _t	M _{t0}	M _L	M _{L0}
15	6.0	10.3	M4	4.5	M2.5x3.5	60	5.0	0.10	6 720	7 340	65	71	29	32	
20	7.5	13.2	M5	6.0	M3x5	60	6.0	0.25	15 400	16 500	200	210	83	89	
25	9.0	15.2	M6	7.0	M3x5	60	7.5	0.35	19 800	21 200	280	300	130	140	
30	12.0	17.0	M8	9.0	M3x5	80	7.0	0.60	25 600	28 900	440	500	200	230	
35	13.0	20.5	M8	9.0	M3x5	80	8.0	0.90	36 600	49 300	790	1 060	340	460	

- 1) Dimension H₂ with cover strip
- 2) Dimension H₂ without cover strip
- 3) Load capacities and load moments for ball runner blocks **without** ball chain. Load capacities and load moments for ball runner blocks **with** ball chain.  12

Determination of the dynamic load capacities and load moments is based on a 100,000 m travel life according to DIN ISO14728-1. Often only 50,000 m are actually stipulated. For comparison: Multiply values **C**, **M_t** and **M_L** by 1.26 according to the table.

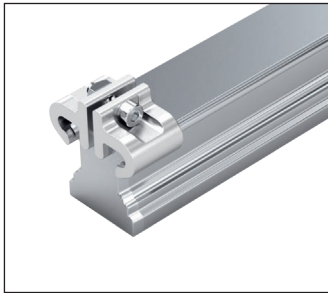
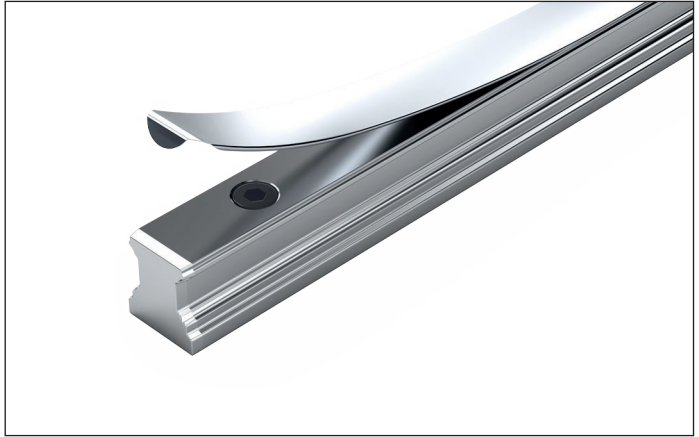
Product description

Characteristic features

- ▶ Top rigidity in all load directions
- ▶ High torque load capacity

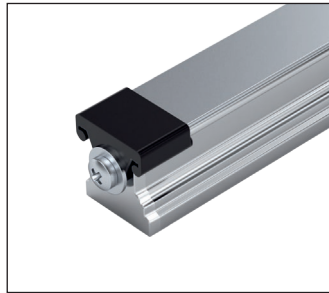
Proven cover strip for ball guide rail mounting holes

- ▶ **One** cover for all the holes saves time and costs
- ▶ Made of corrosion-resistant spring steel per EN 10088
- ▶ Easy, secure mounting
- ▶ Clip on and fasten



Ball guide rails with aluminum cover strip and strip clamps

- ▶ Without threaded holes at the end faces (not required)

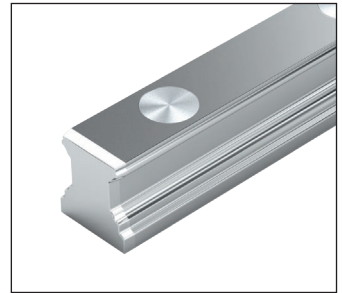


Ball guide rails with cover strip and screwed down plastic protective caps

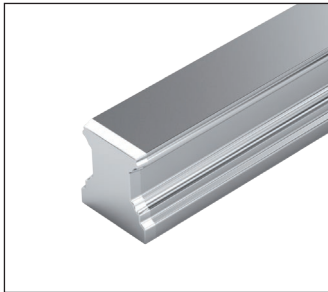
- ▶ With threaded holes at the end faces



Ball guide rails with plastic mounting hole plugs



Ball guide rails with steel mounting hole plugs



Ball guide rails for mounting from below

Definition of ball guide rail format

Criterion	Designation	Code (example)		
		S	N	S
Width	Slimline	S		
	Wide	B		
Length	Normal	N		
Height	Standard height	S		
	No base groove	O		

Ordering guide rails with the recommended lengths

Ordering ball guide rails in recommended lengths

The procedure shown in the following ordering examples applies to all ball guide rails. Recommended rail lengths are more cost effective.

From the desired length to the recommended length

$$L = \left(\frac{L_W}{T} \right)^* \cdot T - 4$$

* Round up quotient L_W/T to the nearest whole number!

Calculation example

$$L = \left(\frac{1660}{80 \text{ mm}} \right) \cdot 80 \text{ mm} - 4 \text{ mm}$$

$$L = 21 \cdot 80 \text{ mm} - 4 \text{ mm}$$

$$L = 1676 \text{ mm}$$

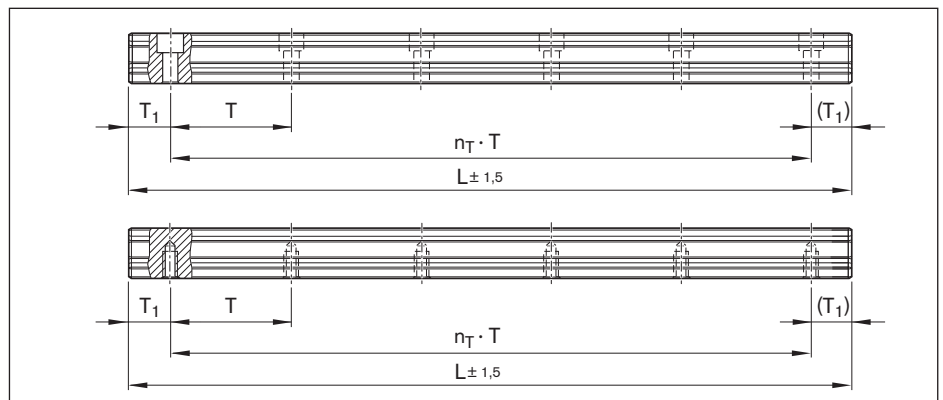
Notes on ordering examples

If preferred dimension T_{1S} is not used, it is possible to choose between:

- ▶ End space T_1 between T_{1S} and $T_{1 \text{ min.}}$
- ▶ As an alternative, it is possible to choose end spaces T_1 to $T_{1 \text{ max.}}$

Options and part numbers											
Size	Ball guide rail with size	Accuracy class					Number of sections, rail length L (mm), ...		Pitch T (mm)	Recommended rail length in accordance with formula $L = n_B \cdot T - 4 \text{ mm}$	
		N	H	P	SP	UP	One-piece	Composite			Maximum number of holes n_B
15	R1605 13	4	3	2	1	9	31, ...	3, ...	60	64	
20	R1605 83	4	3	2	1	9	31, ...	3, ...	60	64	
25	R1605 23	4	3	2	1	9	31, ...	3, ...	60	64	
30	R1605 73	4	3	2	1	9	31, ...	3, ...	80	48	
35	R1605 33	4	3	2	1	9	61, ...	6, ...	80	48	
45	R1605 43	4	3	2	1	9	61, ...	6, ...	105	36	
55	R1605 53	4	3	2	1	9	61, ...	6, ...	120	32	
65	R1605 63	4	3	2	1	9	61, ...	6, ...	150	25	
e.g.	R1605 73	3					31, 1676				

Excerpt from table with part numbers and recommended rail lengths for ordering example



Basis: Number of holes

$$L = n_B \cdot T - 4 \text{ mm}$$

Basis: Number of pitches

$$L = n_T \cdot T + 2 \cdot T_{1S}$$

L = Recommended rail length (mm)

L_W = Desired length of rail (mm)

T = Pitch (mm)

T_{1S} = Preferred dimension (mm)

n_B = Number of holes (-)

n_T = Number of pitches (-)

Ordering example 1 (to L_{max})

- ▶ Ball guide rail SNS size 30 with cover strip and strip clamps
- ▶ Accuracy class H
- ▶ Calculated rail length 1676 mm, ($20 \cdot T$, preferred dimension $T_{1S} = 38 \text{ mm}$; number of holes $n_B = 21$)

Ordering data

Material number, rail length (mm)

$T_1 / n_T \cdot T / T_1$ (mm)

R1605 733 31, 1676 mm

38 / 20 · 80 / 38 mm

Ordering example 2 (above L_{max})

- ▶ Ball guide rail SNS size 30 with cover strip and strip clamps
- ▶ Accuracy class H
- ▶ Calculated rail length 5116 mm, 2 sections ($63 \cdot T$, preferred dimension $T_{1S} = 38 \text{ mm}$; number of holes $n_B = 64$)

Ordering data

Material number with number of sections, rail length (mm)

$T_1 / n_T \cdot T / T_1$ (mm)

R1605 733 32, 5116 mm

38 / 63 · 80 / 38 mm

In the case of rail lengths above L_{max} , sections approved by Rexroth are joined together.

SNS/SNO with cover strip and strip clamps



R1605 .3. ../ R1605 .B. ..

For mounting from above, with cover strip made of corrosion-resistant spring steel per EN 10088 and strip clamps made of aluminum (without threaded mounting holes on end face)

Notes

- ▶ Secure the cover strip!
- ▶ Strip clamps are supplied.
- ▶ Follow the mounting instructions!
Send for the publications “Mounting Instructions for Ball Rail Systems” and “Mounting Instructions for the Cover Strip.”
- ▶ Composite guide rails also available.

Further SNS/SNO ball guide rails and accessories are available.

- ▶ Cover strip, protective caps (see accessories for ball guide rails)

SNO R1605 .B. ball guide rails .. with flat underside for mounting on components made of cast mineral materials

- ▶ In size 25 – 45 and accuracy class P and SP available on request.

Options and part numbers

Size	Ball guide rail with size	Accuracy class					Number of sections, rail length L (mm),		Pitch T (mm)	Recommended rail length in accordance with formula $L = n_B \cdot T - 4 \text{ mm}$		
		N	H	P	SP	UP	One-piece	Composite		Maximum number of holes n_B		
15	R1605 13	4	3	2	1	9	31,	3.,	60	64		
20	R1605 83	4	3	2	1	9	31,	3.,	60	64		
25	R1605 23	4	3	2	1	9	31,	3.,	60	64		
30	R1605 73	4	3	2	1	9	31,	3.,	80	48		
35	R1605 33	4	3	2	1	9	61,	6.,	80	48		
45	R1605 43	4	3	2	1	9	61,	6.,	105	36		
55	R1605 53	4	3	2	1	9	61,	6.,	120	32		
65	R1605 63	4	3	2	1	9	61,	6.,	150	25		
e.g.	R1605 73	3					31, 1676					

Ordering example 1 (to L_{max})

Options:

- ▶ Ball guide rail SNS
- ▶ Size 30
- ▶ Accuracy class H
- ▶ One-piece
- ▶ Rail length
L = 1676 mm

Part number:

R1605 733 31, 1676 mm

Ordering example 2 (above L_{max})

Options:

- ▶ Ball guide rail SNS
- ▶ Size 30
- ▶ Accuracy class H
- ▶ **2 sections**
- ▶ Rail length
L = 5116 mm

Part number:

R1605 733 32, 5116 mm

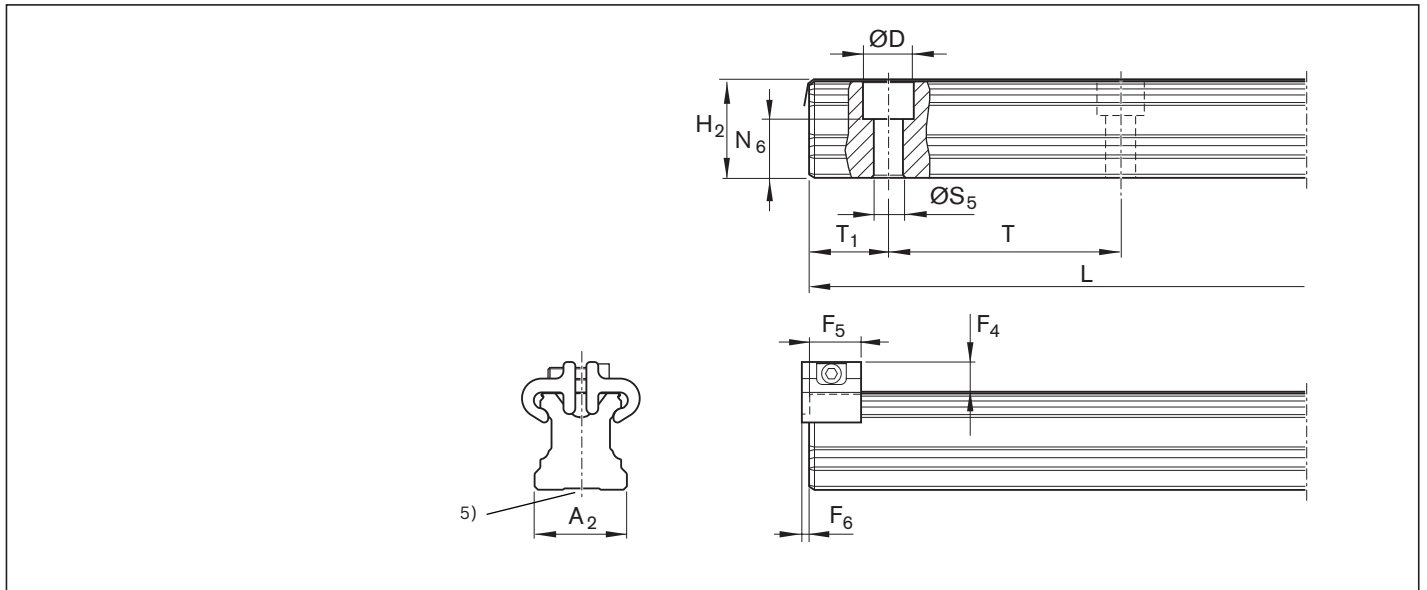
Ordering example 3 (to L_{max} , with smooth base surface)

Options:

- ▶ SNO ball guide rail
- ▶ Size 30
- ▶ Accuracy class H
- ▶ One-piece
- ▶ Rail length
L = 1676 mm

Part number:

R1605 7B3 31, 1676 mm



Size	Dimensions (mm)														Weight m (kg/m)
	A ₂	D	F ₄ ³⁾	F ₅	F ₆	H ₂ ¹⁾	L _{max} ²⁾	N ₆ ^{±0.5}	S ₅	T	T _{1 min}	T _{1S} ⁴⁾	T _{1 max}		
15	15	7.4	7.3	12	2.0	16.30	3 836	10.3	4.5	60	12	28.0	50	1.4	
20	20	9.4	7.1	12	2.0	20.75	3 836	13.2	6.0	60	13	28.0	50	2.4	
25	23	11.0	8.2	13	2.0	24.45	3 836	15.2	7.0	60	13	28.0	50	3.2	
30	28	15.0	8.7	13	2.0	28.55	3 836	17.0	9.0	80	16	38.0	68	5.0	
35	34	15.0	11.7	16	2.2	32.15	3 836	20.5	9.0	80	16	38.0	68	6.8	
45	45	20.0	12.5	18	2.2	40.15	3 776	23.5	14.0	105	18	50.5	89	10.5	
55	53	24.0	14.0	17	3.2	48.15	3 836	29.0	16.0	120	20	58.0	102	16.2	
65	63	26.0	15.0	17	3.2	60.15	3 746	38.5	18.0	150	21	73.0	130	22.4	

- 1) Dimension H₂ with cover strip
Size 15 with 0.1 mm cover strip
Size 20 – 30 with 0.2 mm cover strip
Size 35 – 65 with 0.3 mm cover strip
- 2) One-piece ball guide rails are available for size 20 – 45 in accuracy classes N, H and P with size 20 – 25 up to 5816 mm being available on request.
Size 30 – 35 up to 5836 mm available on request.
Size 45 up to 5771 mm available on request.
- 3) Dimension F₄ with cover strip
- 4) Preferred dimension T_{1S} with tolerances ± 0.75 is recommended.
- 5) SNO ball guide rails with smooth base surface (without base groove).

SNS/SNO with cover strip and protective caps

**R1605 .6. .. / R1605 .D. ..**

For mounting from above, with cover strip made of corrosion-resistant spring steel per EN 10088 and screw-down plastic protective end caps (with threaded mounting holes on end face)

Notes

- ▶ Secure the cover strip!
- ▶ Protective caps with screws and washers included in scope of supply.
- ▶ Follow the mounting instructions!
Send for the publications “Mounting Instructions for Ball Rail Systems” and “Mounting Instructions for the Cover Strip.”
- ▶ Composite guide rails also available.

Further SNS/SNO ball guide rails and accessories

- ▶ Cover strip, protective caps (see accessories for ball guide rails)

SNO R1605 .D. ball guide rails .. with flat underside for mounting on components made of cast mineral materials

- ▶ In size 25 – 45 and accuracy class P and SP available on request.

Options and part numbers

Size	Ball guide rail with size	Accuracy class					Number of sections, rail length L (mm), ...		Hole spacing T (mm)	Recommended rail length in accordance with formula $L = n_B \cdot T - 4 \text{ mm}$	
		N	H	P	SP	UP	One-piece	Composite		Maximum number of holes n_B	
15	R1605 16	4	3	2	1	9	31, ...	3., ...	60	64	
20	R1605 86	4	3	2	1	9	31, ...	3., ...	60	64	
25	R1605 26	4	3	2	1	9	31, ...	3., ...	60	64	
30	R1605 76	4	3	2	1	9	31, ...	3., ...	80	48	
35	R1605 36	4	3	2	1	9	61, ...	6., ...	80	48	
45	R1605 46	4	3	2	1	9	61, ...	6., ...	105	36	
55	R1605 56	4	3	2	1	9	61, ...	6., ...	120	32	
65	R1605 66	4	3	2	1	9	61, ...	6., ...	150	25	
e.g.	R1605 76	3						31, 1676			

**Ordering example 1
(to L_{\max})**

Options:

- ▶ Ball guide rail SNS
- ▶ Size 30
- ▶ Accuracy class H
- ▶ One-piece
- ▶ Rail length
L = 1676 mm

Part number:

R1605 763 31, 1676 mm

**Ordering example 2
(above L_{\max})**

Options:

- ▶ Ball guide rail SNS
- ▶ Size 30
- ▶ Accuracy class H
- ▶ **2 sections**
- ▶ Rail length
L = 5116 mm

Part number:

R1605 763 32, 5116 mm

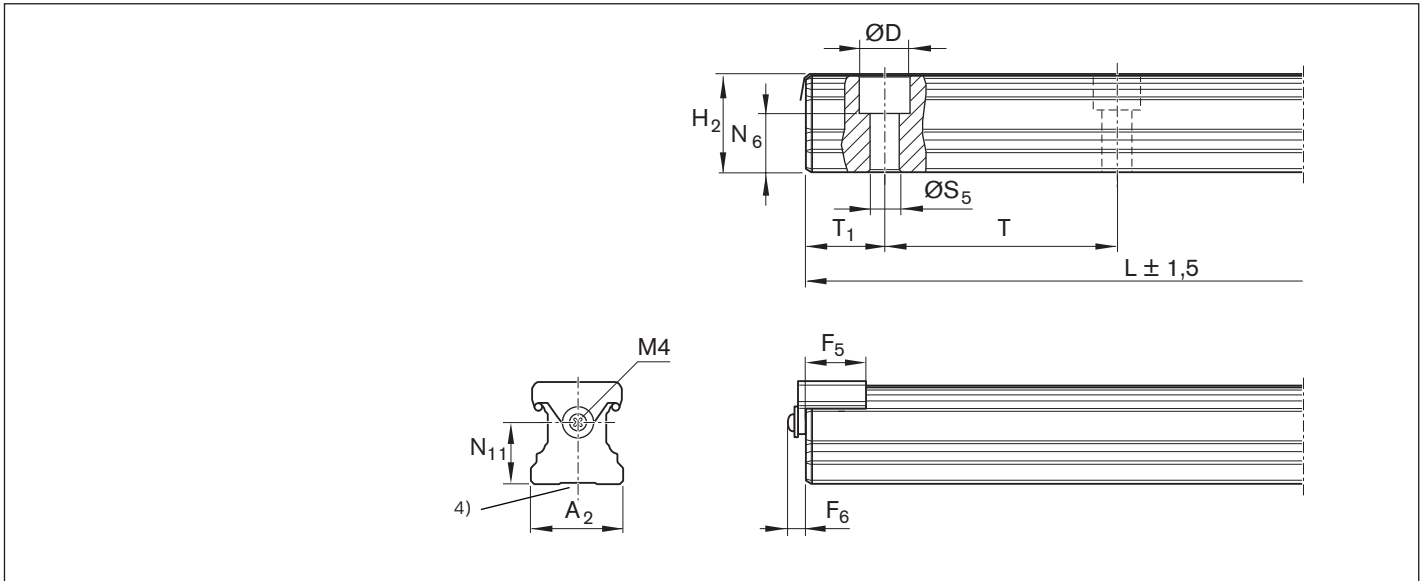
**Ordering example 3
(to L_{\max} , with smooth base surface)**

Options:

- ▶ SNO ball guide rail
- ▶ Size 30
- ▶ Accuracy class H
- ▶ One-piece
- ▶ Rail length
L = 1676 mm

Part number:

R1605 7D3 31, 1676 mm



Size	Dimensions (mm)														Weight m (kg/m)
	A ₂	D	F ₅	F ₆	H ₂ ¹⁾	L _{max} ²⁾	N ₆ ^{±0,5}	N ₁₁	S ₅	T	T _{1 min} ³⁾	T _{1 S}	T _{1 max}		
15	15	7.4	14.0	6.5	16.30	3 836	10.3	9.8	4.5	60	12	28.0	50	1.4	
20	20	9.4	14.0	6.5	20.75	3 836	13.2	13.0	6.0	60	13	28.0	50	2.4	
25	23	11.0	15.2	6.5	24.45	3 836	15.2	15.0	7.0	60	13	28.0	50	3.2	
30	28	15.0	15.2	7.0	28.55	3 836	17.0	18.0	9.0	80	16	38.0	68	5.0	
35	34	15.0	18.0	7.0	32.15	3 836	20.5	22.0	9.0	80	16	38.0	68	6.8	
45	45	20.0	20.0	7.0	40.15	3 776	23.5	30.0	14.0	105	18	50.5	89	10.5	
55	53	24.0	20.0	7.0	48.15	3 836	29.0	30.0	16.0	120	20	58.0	102	16.2	
65	63	26.0	20.0	7.0	60.15	3 746	38.5	40.0	18.0	150	21	73.0	130	22.4	

- 1) Dimension H₂ with cover strip
 Size 15 with 0.1 mm cover strip
 Size 20 – 30 with 0.2 mm cover strip
 Size 35 – 65 with 0.3 mm cover strip
- 2) One-piece ball guide rails are available for size 20 – 45 in accuracy classes N, H and P with size 20 – 25 up to 5816 mm being available on request.
 Size 30 – 35 up to 5836 mm available on request.
 Size 45 up to 5771 mm available on request.
- 3) If T_{1 min} is fallen short of, no thread is possible on the end face. Secure the cover strip.
- 4) SNO ball guide rails with smooth base surface (without base groove).

SNS/SNO with plastic protective caps

**R1605 .0. .. / R1605 .C. ..****For mounting from above with plastic caps****Notes**

- ▶ Plastic mounting hole plugs included in scope of supply.
- ▶ Follow the mounting instructions!
Please ask for the “Mounting Instructions for Ball Rail Systems”.

- ▶ Composite guide rails also available.

Further ball guide rails SNS and accessories

- ▶ Corrosion-resistant Resist NR and Resist CR ball guide rails
- ▶ For plastic caps, refer to the accessories for ball guide rails

SNO R1605 .C. ball guide rails .. with flat underside for mounting on components made of cast mineral materials

- ▶ In size 25 – 45 and accuracy class P and SP available on request.

Options and part numbers

Size	Ball guide rail with size	Accuracy class					Number of sections, rail length L (mm), ...		Hole spacing T (mm)	Recommended rail length in accordance with formula $L = n_B \cdot T - 4 \text{ mm}$	
		N	H	P	SP	UP	One-piece	Composite		Maximum number of holes n_B	
15	R1605 10	4	3	2	1	9	31, ...	3, ...	60	64	
20	R1605 80	4	3	2	1	9	31, ...	3, ...	60	64	
25	R1605 20	4	3	2	1	9	31, ...	3, ...	60	64	
30	R1605 70	4	3	2	1	9	31, ...	3, ...	80	48	
35	R1605 30	4	3	2	1	9	31, ...	3, ...	80	48	
45	R1605 40	4	3	2	1	9	31, ...	3, ...	105	36	
55	R1605 50	4	3	2	1	9	31, ...	3, ...	120	32	
65	R1605 60	4	3	2	1	9	31, ...	3, ...	150	25	
e.g.	R1605 70	3					31, 1676				

Ordering example 1 (to L_{\max})

Options:

- ▶ Ball guide rail SNS
- ▶ Size 30
- ▶ Accuracy class H
- ▶ One-piece
- ▶ Rail length
L = 1676 mm

Part number:

R1605 703 31, 1676 mm

Ordering example 2 (above L_{\max})

Options:

- ▶ Ball guide rail SNS
- ▶ Size 30
- ▶ Accuracy class H
- ▶ **2 sections**
- ▶ Rail length
L = 5116 mm

Part number:

R1605 703 32, 5116 mm

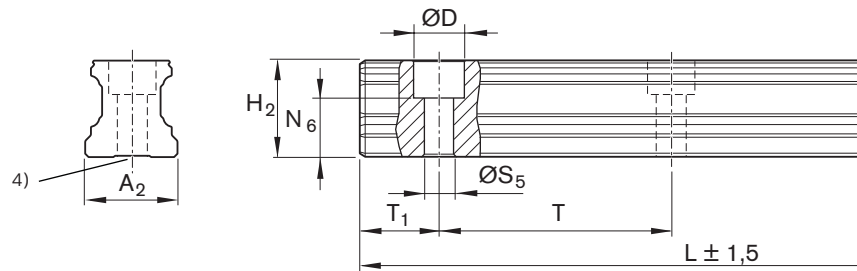
Ordering example 3 (to L_{\max} , with smooth base surface)

Options:

- ▶ SNO ball guide rail
- ▶ Size 30
- ▶ Accuracy class H
- ▶ One-piece
- ▶ Rail length
L = 1676 mm

Part number:

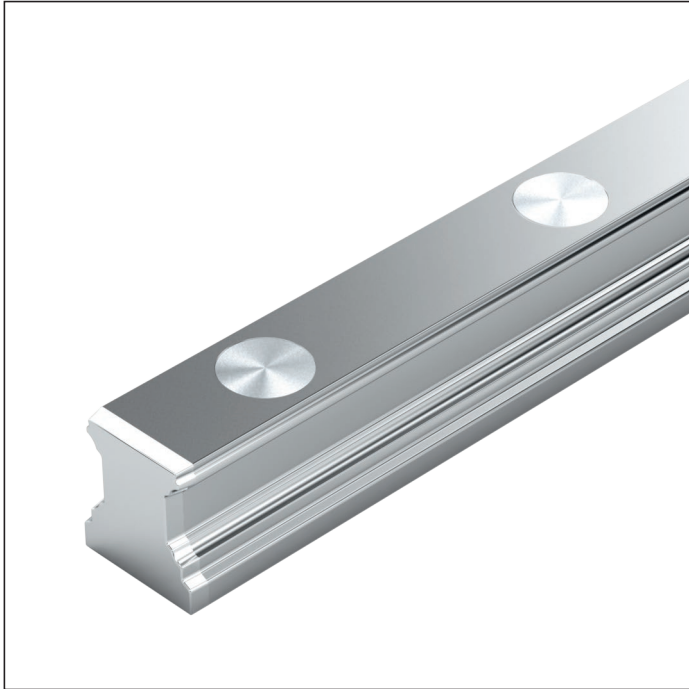
R1605 7C3 31, 1676 mm



Size	Dimensions (mm)										Weight m (kg/m)
	A ₂	D	H ₂ ¹⁾	L _{max} ²⁾	N ₆ ^{±0.5}	S ₅	T	T _{1 min}	T _{1S} ³⁾	T _{1 max}	
15	15	7.4	16.20	3 836	10.3	4.5	60	10	28.0	50	1.4
20	20	9.4	20.55	3 836	13.2	6.0	60	10	28.0	50	2.4
25	23	11.0	24.25	3 836	15.2	7.0	60	10	28.0	50	3.2
30	28	15.0	28.35	3 836	17.0	9.0	80	12	38.0	68	5.0
35	34	15.0	31.85	3 836	20.5	9.0	80	12	38.0	68	6.8
45	45	20.0	39.85	3 776	23.5	14.0	105	16	50.5	89	10.5
55	53	24.0	47.85	3 836	29.0	16.0	120	18	58.0	102	16.2
65	63	26.0	59.85	3 746	38.5	18.0	150	20	73.0	130	22.4

- 1) Dimension H₂ without cover strip
- 2) One-piece ball guide rails are available for size 20 – 45 in accuracy classes N, H and P with size 20 – 25 up to 5816 mm being available on request. Size 30 – 35 up to 5836 mm available on request. Size 45 up to 5771 mm available on request.
- 3) Preferred dimension T_{1S} with tolerances ± 0.75 is recommended.
- 4) SNO ball guide rails with smooth base surface (without base groove).

SNS with steel mounting hole plugs



R1606 .5. ...

For mounting from above for steel caps

Notes

- ▶ Steel mounting hole plugs not included in scope of supply.
- ▶ Follow the mounting instructions!
Please ask for the “Mounting Instructions for Ball Rail Systems”.
- ▶ Composite guide rails also available.

Further ball guide rails SNS and accessories

- ▶ For steel caps and mounting device for steel caps, see accessories for ball guide rails

Options and part numbers

Size	Ball guide rail with size	Accuracy class				Number of sections, rail length L (mm), ...		Hole spacing T (mm)	Recommended rail length in accordance with formula $L = n_B \cdot T - 4$ mm	
		N	H	P	SP	One-piece	Composite		Maximum number of holes n_B	
25	R1606 25	4	3	2	1	31, ...	3., ...	60	64	
30	R1606 75	4	3	2	1	31, ...	3., ...	80	48	
35	R1606 35	4	3	2	1	31, ...	3., ...	80	48	
45	R1606 45	4	3	2	1	31, ...	3., ...	105	36	
55	R1606 55	4	3	2	1	31, ...	3., ...	120	32	
65	R1606 65	4	3	2	1	31, ...	3., ...	150	25	
e.g.	R1606 75	3			31, 1676					

Ordering example 1 (to L_{max})

Options:

- ▶ Ball guide rail SNS
- ▶ Size 30
- ▶ Accuracy class H
- ▶ One-piece
- ▶ Rail length
L = 1676 mm

Part number:

R1606 753 31, 1676 mm

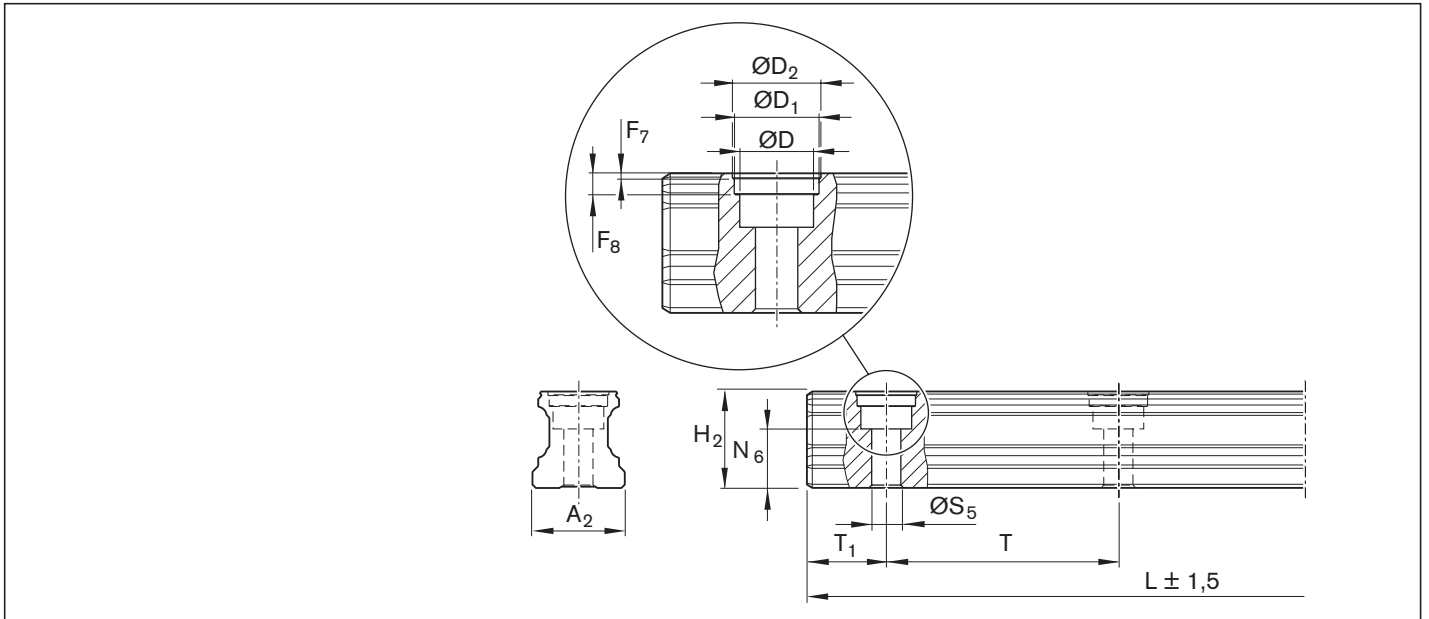
Ordering example 2 (above L_{max})

Options:

- ▶ Ball guide rail SNS
- ▶ Size 30
- ▶ Accuracy class H
- ▶ **2 sections**
- ▶ Rail length
L = 5116 mm

Part number:

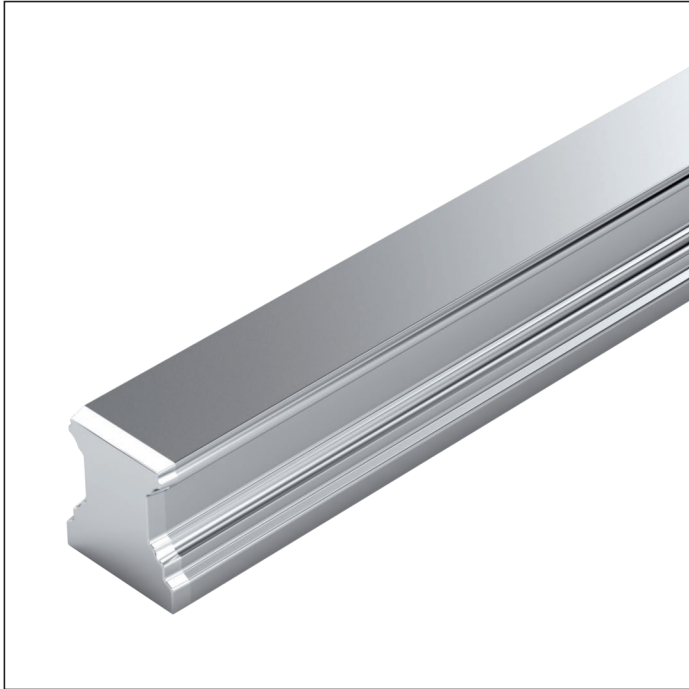
R1606 753 32, 5116 mm



Size	Dimensions (mm)															Weight m (kg/m)
	A ₂	D	D ₁	D ₂	F ₇	F ₈	H ₂ ¹⁾	L _{max} ²⁾	N ₆ ^{±0.5}	S ₅	T	T _{1 min}	T _{1S} ³⁾	T _{1 max}		
25	23	11.0	12.55	13.0	0.90	3.7	24.25	3 836	15.2	7.0	60	13	28.0	50	3.2	
30	28	15.0	17.55	18.0	0.90	3.6	28.35	3 836	17.0	9.0	80	16	38.0	68	5.0	
35	34	15.0	17.55	18.0	0.90	3.6	31.85	3 836	20.5	9.0	80	16	38.0	68	6.8	
45	45	20.0	22.55	23.0	1.45	8.0	39.85	3 776	23.5	14.0	105	18	50.5	89	10.5	
55	53	24.0	27.55	28.0	1.45	8.0	47.85	3 836	29.0	16.0	120	20	58.0	102	16.2	
65	63	26.0	29.55	30.0	1.45	8.0	59.85	3 746	38.5	18.0	150	21	73.0	130	22.4	

- 1) Dimension H₂ without cover strip
- 2) One-piece ball guide rails are available for size 25 – 45 in accuracy classes N, H and P with size 25 up to 5816 mm being available on request.
Size 30 – 35 up to 5836 mm available on request.
Size 45 up to 5771 mm available on request.
- 3) Preferred dimension T_{1S} with tolerances ± 0.75 is recommended.

SNS for mounting from below



R1607 .0. ..

For mounting from below

Notes

- ▶ Follow the mounting instructions!
Please ask for the “Mounting Instructions for Ball Rail Systems”.
- ▶ Composite guide rails also available.

Further ball guide rails SNS and accessories

- ▶ Corrosion-resistant Resist NR and Resist CR ball guide rails

Options and part numbers

Size	Ball guide rail with size	Accuracy class					Number of sections, rail length L (mm),		Hole spacing T (mm)	Recommended rail length in accordance with formula $L = n_B \cdot T - 4 \text{ mm}$		
		N	H	P	SP	UP	One-piece	Composite		Maximum number of holes n_B		
15	R1607 10	4	3	2	1	9	31,	3.,	60	64		
20	R1607 80	4	3	2	1	9	31,	3.,	60	64		
25	R1607 20	4	3	2	1	9	31,	3.,	60	64		
30	R1607 70	4	3	2	1	9	31,	3.,	80	48		
35	R1607 30	4	3	2	1	9	31,	3.,	80	48		
45	R1607 40	4	3	2	1	9	31,	3.,	105	36		
55	R1607 50	4	3	2	1	9	31,	3.,	120	32		
65	R1607 60	4	3	2	1	9	31,	3.,	150	25		
e.g.	R1607 70	3					31, 1676					

Ordering example 1 (to L_{max})

Options:

- ▶ Ball guide rail SNS
- ▶ Size 30
- ▶ Accuracy class H
- ▶ One-piece
- ▶ Rail length
L = 1676 mm

Part number:

R1607 703 31, 1676 mm

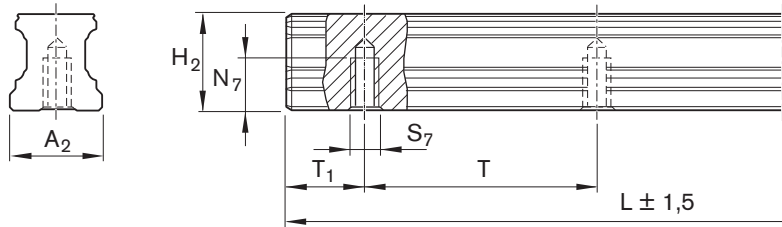
Ordering example 2 (above L_{max})

Options:

- ▶ Ball guide rail SNS
- ▶ Size 30
- ▶ Accuracy class H
- ▶ **2 sections**
- ▶ Rail length
L = 5116 mm

Part number:

R1607 703 32, 5116 mm



Size	Dimensions (mm)									Weight m (kg/m)
	A ₂	H ₂ ¹⁾	L _{max} ²⁾	N ₇	S ₇	T	T _{1min}	T _{1S} ³⁾	T _{1max}	
15	15	16.20	3 836	7.5	M5	60	10	28.0	50	1.4
20	20	20.55	3 836	9.0	M6	60	10	28.0	50	2.4
25	23	24.25	3 836	12.0	M6	60	10	28.0	50	3.2
30	28	28.35	3 836	15.0	M8	80	12	38.0	68	5.0
35	34	31.85	3 836	15.0	M8	80	12	38.0	68	6.8
45	45	39.85	3 776	19.0	M12	105	16	50.5	89	10.5
55	53	47.85	3 836	22.0	M14	120	18	58.0	102	16.2
65	63	59.85	3 746	25.0	M16	150	20	73.0	130	22.4

- 1) Dimension H₂ without cover strip
- 2) One-piece ball guide rails are available for size 20 – 45 in accuracy classes N, H and P with size 20 – 25 up to 5816 mm being available on request.
Size 30 – 35 up to 5836 mm available on request.
Size 45 up to 5771 mm available on request.
- 3) Preferred dimension T_{1S} with tolerances ± 0.75 is recommended.

Product description

General information about Resist NR II ball guide rails

Refer to the next few pages for the material numbers. For the recommended rail lengths, dimensions and weights, refer to the corresponding standard steel ball guide rails. Observe the chapter entitled “Mounting Information”!

Send for the publications “Mounting Instructions for Ball Rail Systems” and “Mounting Instructions for the Cover Strip.”

Accessories: For cover strips, strip clamps and caps ... for ball guide rails, see the “Accessories for ball guide rails” chapter.

Corrosion resistance and conditions of use

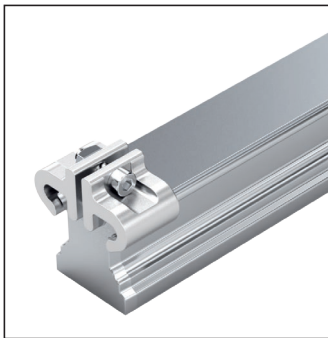
Ball guide rails Resist NR II and all steel parts are made of corrosion-resistant steel per EN 10088, with aluminum strip clamps. They are specifically intended for use in applications involving aqueous media, very dilute acids, alkalis or salt solutions. These guides are particularly suitable for use in relative humidities above 70 % and temperatures above 30 °C. These conditions can be found in particular in cleaning systems, electroplating and pickling plants, steam degreasing plants and in refrigerating machines. Since they have built-in corrosion protection, ball rail systems Resist NR II are also ideal for use in clean rooms and for general printed circuit board assembly. Other application areas include the pharmaceuticals and food industries.

For the recommended ball runner blocks for Resist NR II ball guide rails, see the “Resist NR II ball runner blocks” chapter Combining different accuracy classes

When you combine ball guide rails and ball runner blocks of different accuracy classes, the tolerances change for dimensions H and A3 (see “Accuracy classes and their tolerances.”)

Ball guide rails, Resist NR II

R2045 .3. ..., SNS for mounting from above with cover strip and strip clamps



Options and part numbers

Size	Ball guide rail with size	Accuracy class			Number of sections, rail length L (mm),	
		N	H	P	One-piece	Composite
15 ¹⁾	R2045 13	4	3	2	31,	3.,
20	R2045 83	4	3	2	31,	3.,
25	R2045 23	4	3	2	31,	3.,
30	R2045 73	4	3	2	31,	3.,
35	R2045 33	4	3	2	61,	6.,
e.g.	R2045 73	3			31, 1676	

1) Maximum rail length 1856 mm, maximum number of holes n_b 30

Installation information

- ▶ Secure the cover strip!
- ▶ Strip clamps are supplied.
- ▶ Composite guide rails also available.

Ordering example 1 (to L_{max})

Options:

- ▶ NR II, SNS ball guide rail
- ▶ Size 30
- ▶ Accuracy class H
- ▶ One-piece
- ▶ Rail length
L = 1676 mm

Part number:

R2045 733 31, 1676 mm

Ordering example 2 (above L_{max})

Options:

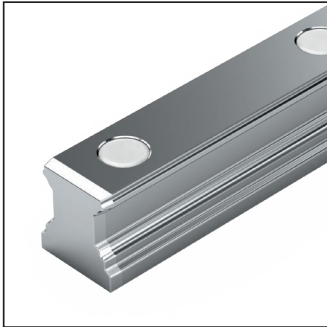
- ▶ NR II, SNS ball guide rail
- ▶ Size 30
- ▶ Accuracy class H
- ▶ **2 sections**
- ▶ Rail length
L = 5116 mm

Part number:

R2045 733 32, 5116 mm

Ball guide rails, Resist NR II

R2045 .0. ..., SNS for mounting from above with plastic caps



Options and part numbers

Size	Ball guide rail with size	Accuracy class			Number of sections, rail length L (mm),	
		N	H	P	One-piece	Composite
15 ¹⁾	R2045 10	4	3	2	31,	3.,
20	R2045 80	4	3	2	31,	3.,
25	R2045 20	4	3	2	31,	3.,
30	R2045 70	4	3	2	31,	3.,
35	R2045 30	4	3	2	31,	3.,
e.g.	R2045 70	3			31, 1676	

1) Maximum rail length 1856 mm, maximum number of holes n_B 30

Installation information

- ▶ Plastic mounting hole plugs included in scope of supply.
- ▶ Composite guide rails also available.

Ordering example 1 (to L_{max})

Options:

- ▶ NR II, SNS ball guide rail
- ▶ Size 30
- ▶ Accuracy class H
- ▶ One-piece
- ▶ Rail length
L = 1676 mm

Part number:

R2045 703 31, 1676 mm

Ordering example 2 (above L_{max})

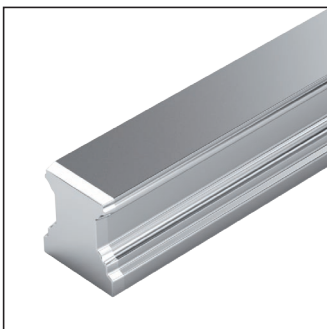
Options:

- ▶ NR II, SNS ball guide rail
- ▶ Size 30
- ▶ Accuracy class H
- ▶ **2 sections**
- ▶ Rail length
L = 5116 mm

Part number:

R2045 703 **32**, 5116 mm

R2047 .0. ..., SNS for mounting from below



Options and part numbers

Size	Ball guide rail with size	Accuracy class			Number of sections, rail length L (mm),	
		N	H	P	One-piece	Composite
15 ¹⁾	R2047 10	4	3	2	31,	3.,
20	R2047 80	4	3	2	31,	3.,
25	R2047 20	4	3	2	31,	3.,
30	R2047 70	4	3	2	31,	3.,
35	R2047 30	4	3	2	31,	3.,
e.g.	R2047 70	3			32, 5116	

1) Maximum rail length 1856 mm, maximum number of holes n_B 30

Installation information

- ▶ Composite guide rails also available.

Ordering example 1 (to L_{max})

Options:

- ▶ NR II, SNS ball guide rail
- ▶ Size 30
- ▶ Accuracy class H
- ▶ One-piece
- ▶ Rail length
L = 1676 mm

Part number:

R2047 703 31, 1676 mm

Ordering example 2 (above L_{max})

Options:

- ▶ NR II, SNS ball guide rail
- ▶ Size 30
- ▶ Accuracy class H
- ▶ **2 sections**
- ▶ Rail length
L = 5116 mm

Part number:

R2047 703 **32**, 5116 mm

Product description

General notes on ball guide rails in Resist CR

Refer to the next few pages for the material numbers. For the recommended rail lengths, dimensions and weights, refer to the corresponding standard steel ball guide rails. Observe the chapter entitled “Mounting Information”!

Send for the publications “Mounting Instructions for Ball Rail Systems” and “Mounting Instructions for the Cover Strip.”

Accessories: For cover strips, strip clamps and caps ... for ball guide rails, see the “Accessories for ball guide rails” chapter

Corrosion-resistant coating Resist CR

Ball guide rail made of steel with matte-silver hard-chrome plated corrosion-resistant coating.

Ball guide rails with coated end faces

- ▶ End faces, chamfers and thread on the end face coated; material numbers: – R16.. ... 41 or R16.. ... 71
- ▶ Composite ball guide rails are chamfered on both sides at the joints.

Recommended ball runner blocks for Resist CR ball guide rails of accuracy class H and preload classes C0 and C1

Size 15 – 65: Accuracy class H, preload class C0

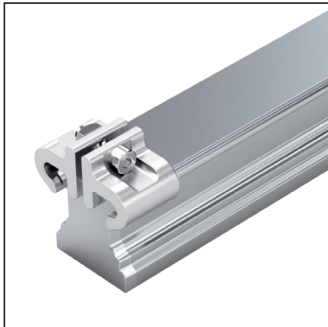
Size 30 – 65: Accuracy class H, preload class C1

Combining different accuracy classes

When you combine ball guide rails and ball runner blocks of different accuracy classes, the tolerances change for dimensions H and A3 (see the chapter entitled “Accuracy classes and their tolerances.”)

Ball guide rails, Resist CR

R1645 .3. ..., SNS for mounting from above with cover strip and strip clamps



Options and part numbers

Size	Ball guide rail with size	Accuracy class	Number of sections, rail length L (mm), ...	
			One-piece Coated end faces	Composite Coated end faces
		H		
15	R1645 13	3	41, ...	4., ...
20	R1645 83	3	41, ...	4., ...
25	R1645 23	3	41, ...	4., ...
30	R1645 73	3	41, ...	4., ...
35	R1645 33	3	71, ...	7., ...
45	R1645 43	3	71, ...	7., ...
55	R1645 53	3	71, ...	7., ...
65	R1645 63	3	71, ...	7., ...
e.g.	R1645 73	3	31, 1676	

Installation information

- ▶ Secure the cover strip!
- ▶ Strip clamps are supplied.
- ▶ Composite guide rails also available.

Ordering example 1 (to L_{max})

Options:

- ▶ Ball guide rail CR, SNS
- ▶ Size 30
- ▶ Accuracy class H
- ▶ One-piece
- ▶ Coated end faces
- ▶ Rail length
L = 1676 mm

Part number:

R1645 733 41, 1676 mm

Ordering example 2 (above L_{max})

Options:

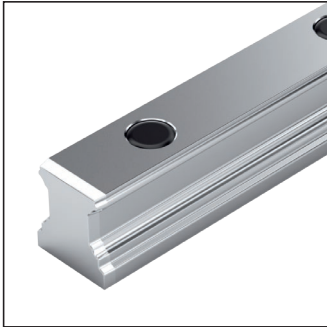
- ▶ Ball guide rail CR, SNS
- ▶ Size 30
- ▶ Accuracy class H
- ▶ **2 sections**
- ▶ Coated end faces
- ▶ Rail length
L = 5116 mm

Part number:

R1645 733 42, 5116 mm

Ball guide rails, Resist CR

R1645 .0. ..., SNS for mounting from above with plastic caps



Options and part numbers

Size	Ball guide rail with size	Accuracy class	Number of sections, rail length L (mm), ...	
			One-piece Coated end faces	Composite Coated end faces
15	R1645 10	3	41, ...	4, ...
20	R1645 80	3	41, ...	4, ...
25	R1645 20	3	41, ...	4, ...
30	R1645 70	3	41, ...	4, ...
35	R1645 30	3	41, ...	4, ...
45	R1645 40	3	41, ...	4, ...
55	R1645 50	3	41, ...	4, ...
65	R1645 60	3	41, ...	4, ...
e.g.	R1645 70	3	31, 1676	

Installation information

- ▶ Plastic mounting hole plugs included in scope of supply.
- ▶ Composite guide rails also available.

Ordering example 1 (to L_{max})

Options:

- ▶ Ball guide rail CR, SNS
- ▶ Size 30
- ▶ Accuracy class H
- ▶ One-piece
- ▶ Coated end faces
- ▶ Rail length
L = 1676 mm

Part number:

R1645 703 41, 1676 mm

Ordering example 2 (above L_{max})

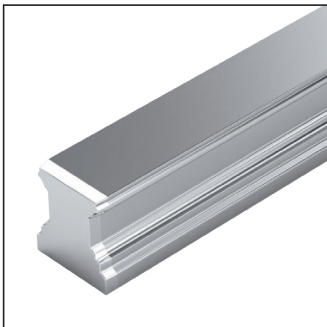
Options:

- ▶ Ball guide rail CR, SNS
- ▶ Size 30
- ▶ Accuracy class H
- ▶ **2 sections**
- ▶ Coated end faces
- ▶ Rail length
L = 5116 mm

Part number:

R1645 703 **42**, 5116 mm

R1647 .0. ..., SNS for mounting from below



Options and part numbers

Size	Ball guide rail with size	Accuracy class	Number of sections, rail length L (mm), ...	
			One-piece Coated end faces	Composite Coated end faces
15	R1647 10	3	41, ...	4, ...
20	R1647 80	3	41, ...	4, ...
25	R1647 20	3	41, ...	4, ...
30	R1647 70	3	41, ...	4, ...
35	R1647 30	3	41, ...	4, ...
45	R1647 40	3	41, ...	4, ...
55	R1647 50	3	41, ...	4, ...
65	R1647 60	3	41, ...	4, ...
e.g.	R1647 70	3		42, 5116

Installation information

- ▶ Composite guide rails also available.

Ordering example 1 (to L_{max})

Options:

- ▶ Ball guide rail CR, SNS
- ▶ Size 30
- ▶ Accuracy class H
- ▶ One-piece
- ▶ Coated end faces
- ▶ Rail length
L = 1676 mm

Part number:

R1647 703 41, 1676 mm

Ordering example 2 (above L_{max})

Options:

- ▶ Ball guide rail CR, SNS
- ▶ Size 30
- ▶ Accuracy class H
- ▶ **2 sections**
- ▶ Coated end faces
- ▶ Rail length
L = 5116 mm

Part number:

R1647 703 **42**, 5116 mm