

# Ball Rail Systems Resist NRII

R310EN 2225 (2011.04)

The Drive & Control Company





# Ball Rail Systems Resist NRII

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# Product Description, Ball Rail Systems Resist NR II

## General notes

- For further information, additional technical data, accessories, lubrication and maintenance notes, see the main catalog Ball Rail Systems R310..2202.
- For Ball Rail Systems for areas of the food industry, see catalog Ball Rail Systems NRFG R310..2226.
- **Combinations of different accuracy classes**  
Combining ball guide rails and runner blocks of different accuracy classes results in different tolerances for dimensions H and  $A_3$ . See “Accuracy Classes and their Tolerances” in the main catalog Ball Rail Systems R310..2226.
- **Combinations of different materials**  
Combining ball guide rails and runner blocks of different materials results in different load capacities, permissible loads and load moments. The lower value should be used in each case. Please refer to the main catalog Ball Rail Systems R310..2202.


## Intended use

- The Ball Rail System Resist NR II is a linear guide capable of absorbing forces from all transverse directions and moments about all axes. The Ball Rail System Resist NR II is intended exclusively for guiding and positioning tasks when installed in a machine.
- The product is intended exclusively for professional use and not for private use.
- Use for the intended purpose also includes the requirement that users must have read and understood the related documentation completely, in particular the “Safety instructions”.
- Use of the product in any other way than as described under “Intended use” is considered to be misuse and is therefore not permitted.
- Bosch Rexroth AG will not accept any liability for injury or damage caused by misuse of the product. The risks associated with any misuse of the product shall be borne by the user alone.

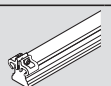
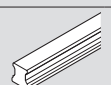
## General safety instructions

- The safety rules and regulations of the country in which the product is used must be complied with.
- All applicable accident prevention and environmental regulations must be adhered to.
- The product may only be used when it is in technically perfect condition.
- The technical data and environmental conditions stated in the product documentation must be complied with.
- The product must not be put into service until it has been verified that the final product (for example a machine or system) into which the product has been installed complies with the country-specific requirements, safety regulations and standards for the application.
- Rexroth Ball Rail Systems may not be used in zones with potentially explosive atmospheres as defined in the ATEX directive 94/9/EC.
- Rexroth Ball Rail Systems must never be altered or modified. The user may only perform the work described in the “Quick User Guide” or the “Mounting Instructions for Ball Rail Systems”. The product must never be disassembled.

## Product Overview, Ball Runner Blocks with Load Capacities and Moments

Ball runner blocks		Page	Size	15	20	25	30	35
				Load capacities (N) and load moments (Nm)				
Standard, Ball Runner Blocks made of Resist NR II <sup>4)</sup>	FNS R2001	6	C <sup>1)</sup>	5 100	12 300	15 000	20 800	27 600
			C <sup>2)</sup>	4 700	11 400	14 000	19 300	27 600
		C <sub>0</sub> <sup>1)</sup>	9 300	16 900	21 000	28 700	37 500	
		C <sub>0</sub> <sup>2)</sup>	8 400	15 000	18 900	25 800	37 500	
	SNS R2011	12	M <sub>t</sub> <sup>1)</sup>	63	205	270	460	760
			M <sub>t</sub> <sup>2)</sup>	58	190	250	425	760
			M <sub>t0</sub> <sup>1)</sup>	90	215	295	500	805
			M <sub>t0</sub> <sup>2)</sup>	81	190	265	450	805
		M <sub>L</sub> <sup>1)</sup>	34	110	150	245	375	
		M <sub>L</sub> <sup>2)</sup>	31	100	140	225	375	
		M <sub>Lo</sub> <sup>1)</sup>	49	115	165	265	390	
		M <sub>Lo</sub> <sup>2)</sup>	44	100	150	240	390	
	FLS R2002	8	C <sup>1)</sup>	8 500	16 000	20 000	26 300	36 500
			C <sup>2)</sup>	7 600	15 200	18 100	25 000	34 800
C <sub>0</sub> <sup>1)</sup>			14 000	24 400	31 600	40 100	56 200	
C <sub>0</sub> <sup>2)</sup>			12 100	22 500	27 400	37 300	52 500	
SLS R2012		14	M <sub>t</sub> <sup>1)</sup>	82	265	365	590	1 025
			M <sub>t</sub> <sup>2)</sup>	73	250	330	560	975
			M <sub>t0</sub> <sup>1)</sup>	132	310	450	695	1 210
			M <sub>t0</sub> <sup>2)</sup>	118	295	410	660	1 150
M <sub>L</sub> <sup>1)</sup>	64	190	290	420	710			
M <sub>L</sub> <sup>2)</sup>	58	180	265	400	675			
M <sub>Lo</sub> <sup>1)</sup>	104	230	350	495	840			
M <sub>Lo</sub> <sup>2)</sup>	93	215	320	470	805			
FKS R2000	10	C <sup>1)</sup>	4 500	8 200	10 500	14 500	19 300	
		C <sup>2)</sup>	3 900	8 200	9 200	14 500	19 300	
		C <sub>0</sub> <sup>1)</sup>	5 600	9 400	12 600	17 200	22 400	
		C <sub>0</sub> <sup>2)</sup>	4 600	9 400	10 500	17 200	22 400	
	SKS R2010	16	M <sub>t</sub> <sup>1)</sup>	44	125	195	320	545
			M <sub>t</sub> <sup>2)</sup>	37	125	175	320	545
			M <sub>t0</sub> <sup>1)</sup>	55	115	180	295	485
			M <sub>t0</sub> <sup>2)</sup>	48	115	160	295	485
M <sub>L</sub> <sup>1)</sup>	16	45	70	110	170			
M <sub>L</sub> <sup>2)</sup>	13	45	60	110	170			
M <sub>Lo</sub> <sup>1)</sup>	19	40	65	105	150			
M <sub>Lo</sub> <sup>2)</sup>	16	40	55	105	150			

## Product Overview, Ball Guide Rails with Rail Lengths

Ball guide rails		Page	Size	15	20	25	30	35
				Rail length (mm)				
Standard Ball Guide Rails Resist NR II <sup>3)</sup>		SNS R2045 .3 ..	20	1 856	3 836	3 836	3 836	3 836
		For mounting from above, with cover strip and strip clamps						
		SNS R2045 .0 ..	22	1 856	3 836	3 836	3 836	3 836
For mounting from above, with plastic mounting hole plugs								
	SNS R2047 .0 ..	24	1 856	3 836	3 836	3 836	3 836	
	For mounting from below							

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<sub>t</sub>** and **M<sub>L</sub>** from the table by 1.26.

- 1) Load capacities for Ball Runner Block **without** ball chain.
- 2) Load capacities for Ball Runner Block **with** ball chain.
- 3) Resist NR II: All steel parts made of corrosion-resistant steel per EN 10088.

Standard Ball Runner Blocks, Resist NR II

## Product Description

### Characteristic features

Ball Runner Blocks Resist NR II made of corrosion-resistant steel<sup>1)</sup> are used particularly in applications involving water-based media. They are also suitable for environments with a relative humidity of over 70% and temperatures above 30 °C.

Since they have built-in corrosion protection, ball runner blocks Resist NR II are also ideal for use in the semiconductor industry, machine tools, and especially wherever corrosion protection is required. Other application areas include the general packaging industry.

Ball runner blocks with corrosion-resistant coatings can also be replaced by Resist NR II runner blocks.

Where special conditions of use are involved, please consult us.

### Highlights

- All metal parts made of corrosion-resistant steel
- Available in five common sizes
- Excellent dynamic characteristics:  
Travel speed:  $v_{\max} = 5 \text{ m/s}$   
Acceleration:  $a_{\max} = 500 \text{ m/s}^2$
- Same load capacities in all four main load directions
- Available in accuracy classes N, H and P, up to preload class C2 (preload = 8% C)
- Long-term lubrication, up to several years
- Minimum quantity lubrication system with integrated reservoir for oil lubrication
- Lube ports with metal threads on all sides
- Available with ball chain as an option

### Further highlights

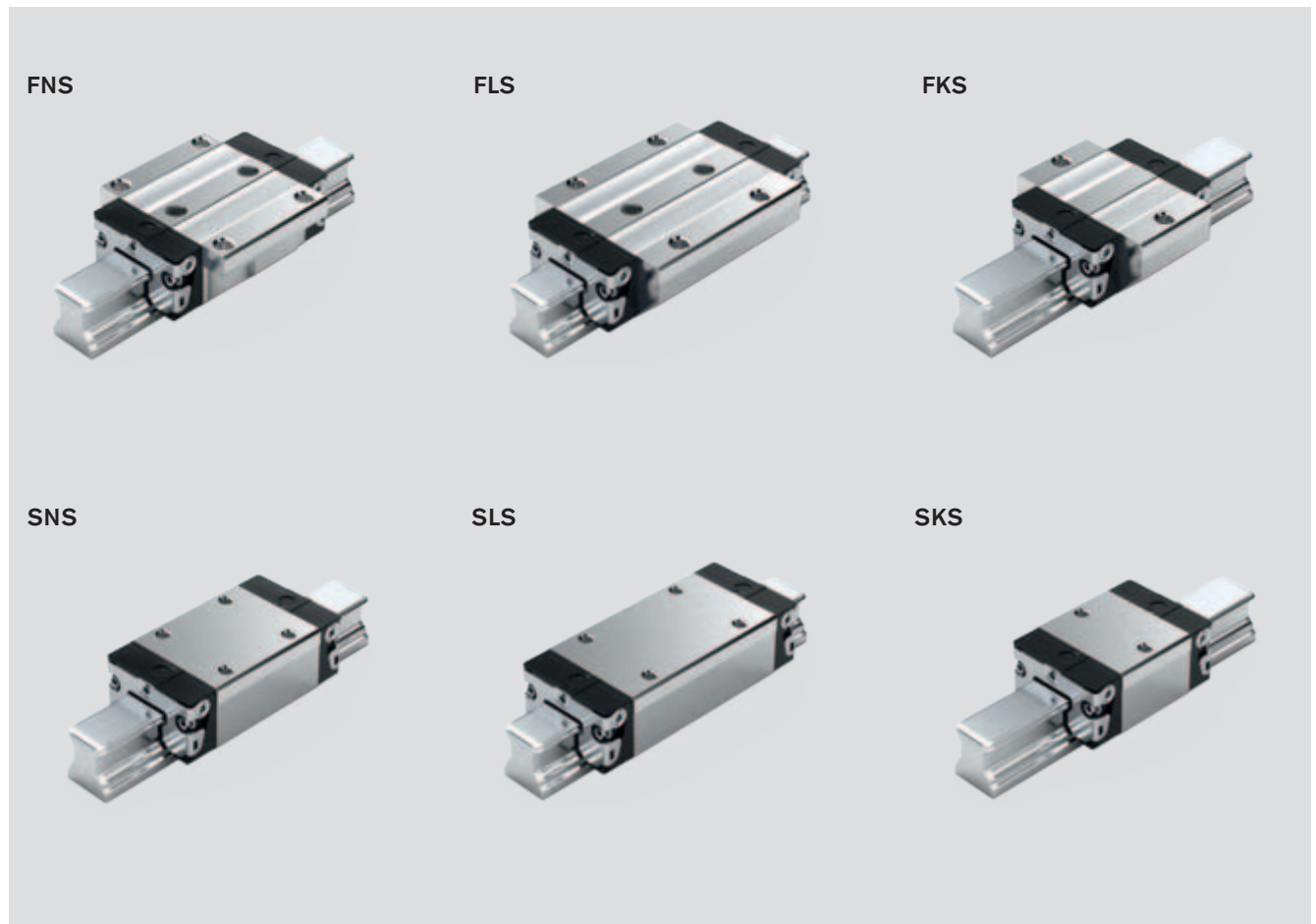
- Limitless interchangeability; all ball guide rail versions can be combined at will with all ball runner block versions within each accuracy class
- Optimum system rigidity through preloaded O-arrangement
- Existing range of accessories fully utilizable
- Attachments can be bolted to the ball runner blocks from above or below<sup>2)</sup>
- Improved rigidity under lift-off and side loading conditions when additional mounting screws are used in the two holes provided at the center of the runner block<sup>2)</sup>
- Mounting threads provided on end faces for fixing of all add-on elements
- High rigidity in all load directions – permits applications with just one runner block per rail
- Integrated all-round sealing
- Optimized entry-zone geometry and high number of balls per track minimizes variation in elastic deflection
- Smooth, light running thanks to optimized ball recirculation and ball or ball chain guidance
- Ball Guide Rails Resist NR II are available with or without cover strip and for mounting from above or below

1) Resist NR II:

Ball runner block body, ball guide rail and all steel parts made from corrosion-resistant steel per EN 10088

2) depends on type

Overview of Standard Ball Runner Block models in Resist NR II



**Ball chain (optional)**  
 – Optimizes noise levels

Definition Ball Runner Block design style		Code (example)		
		F	N	S
Width	Flanged	F	N	S
	Slimline			
	Wide			
	Compact			
Length	Normal	N	S	
	Long			
	Short			
Height	Standard height	N	S	
	High			
	Low			

Standard Ball Runner Blocks, Resist NR II

# FNS – Flanged, normal, standard height

R2001 ... 0.

## 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

- Not pre-lubricated
- No preservative oil

## Note

Can be used on all Ball Guide Rails  
SNS



## Options and part numbers

Size	Ball runner block with size	Preload class			Accuracy class			Seal for ball runner block					
		C0	C1	C2	N	H	P	without ball chain			with ball chain		
							SS	LS <sup>1)</sup>	DS	SS	LS <sup>1)</sup>	DS	
15	R2001 1	9	1	2	4	3	–	04	05	–	06	07	–
					4	3	2	04	05	–	06	07	–
					–	3	2	04	–	–	06	–	–
20	R2001 8	9	1	2	4	3	–	04	05	–	06	07	–
					4	3	2	04	05	0X	06	07	0W
					–	3	2	04	–	0X	06	–	0W
25	R2001 2	9	1	2	4	3	–	04	05	–	06	07	–
					4	3	2	04	05	0X	06	07	0W
					–	3	2	04	–	0X	06	–	0W
30	R2001 7	9	1	2	4	3	–	04	05	–	06	07	–
					4	3	2	04	05	0X	06	07	0W
					–	3	2	04	–	0X	06	–	0W
35	R2001 3	9	1	2	4	3	–	04	05	–	06	07	–
					4	3	2	04	05	0X	06	07	0W
					–	3	2	04	–	0X	06	–	0W

## Ordering example

Options:

- Ball Runner Block NR II, FNS
- Size 30
- Preload class C1
- Accuracy class H
- With standard seal, without ball chain

Part number: R2001 713 04

e.g. R2001 7 | | 1 | | 3 | | 04

1) Only with accuracy classes N and H

## Preload classes

C0 = without preload

C1 = preload 2% C

C2 = preload 8% C

## Seals

SS = standard seal

LS = low-friction seal

DS = double-lipped seal

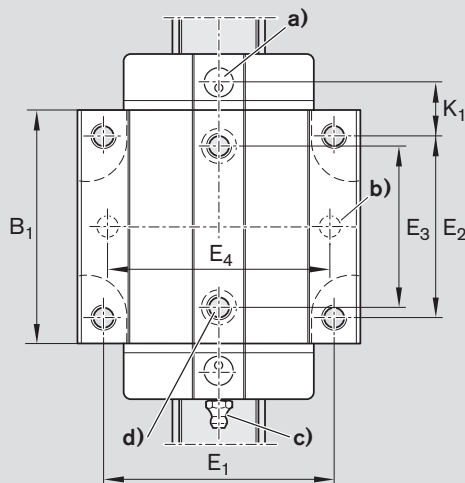
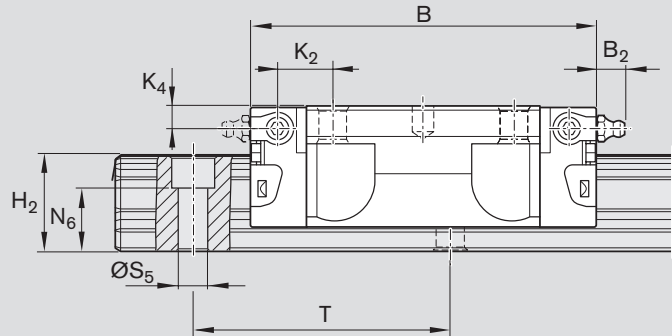
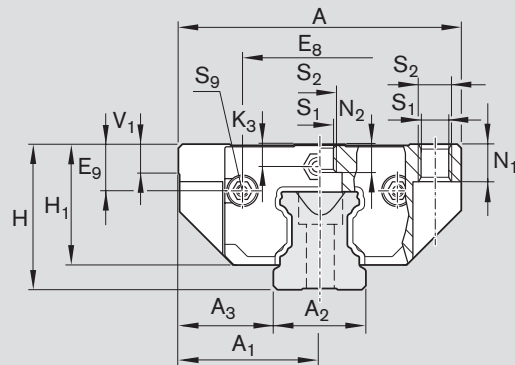
## Key to table

Gray numbers

= version/combination not preferred  
(longer delivery times in some cases)



## Ball Runner Blocks FNS



- a) For O-ring  
 Size 15:  $\text{Ø } 4 \cdot 1.0$  (mm)  
 Size 20 - 35:  $\text{Ø } 5 \cdot 1.0$  (mm)  
 Open lube bore as required ( $\varnothing$  R310..2202).
- b) Recommended position for pin holes (dimensions  $E_4$   $\varnothing$  R310..2202).  
 Due to manufacturing reasons, there may be rough-drilled holes at the recommended positions. These may be bored open to accommodate the locating pins.
- c) Lube nipple, size 15 - 20:  
 Funnel-type lube nipple DIN 3405-A M3x5,  $B_2 = 1.6$  mm  
 If another lube nipple is used: observe the screw-in depth of 5 mm!  
 Lube nipple, size 25 - 35:  
 Hydraulic-type lube nipple DIN 71412-A M6x8,  $B_2 = 9.5$  mm  
 If another lube nipple is used: observe the screw-in depth of 8 mm!  
 Lube nipples are provided (unmounted).  
 Connection possible at all sides.
- d) For manufacturing reasons, there may be plugs at these positions.  
 These must be removed before mounting.

Size	Dimensions (mm)																		
	A	A <sub>1</sub>	A <sub>2</sub>	A <sub>3</sub>	B	B <sub>1</sub>	E <sub>1</sub>	E <sub>2</sub>	E <sub>3</sub>	E <sub>8</sub>	E <sub>9</sub>	H	H <sub>1</sub>	H <sub>2</sub> <sup>1)</sup>	H <sub>2</sub> <sup>2)</sup>	K <sub>1</sub>	K <sub>2</sub>	K <sub>3</sub>	K <sub>4</sub>
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

Size	Dimensions (mm)										Weight (kg)	Load capacities <sup>3)</sup> (N)		Load moments <sup>3)</sup> (Nm)			
	N <sub>1</sub>	N <sub>2</sub>	N <sub>6</sub> <sup>±0.5</sup>	S <sub>1</sub>	S <sub>2</sub>	S <sub>5</sub>	S <sub>9</sub>	T	V <sub>1</sub>	C		C <sub>0</sub>	M <sub>t</sub>	M <sub>t0</sub>	M <sub>L</sub>	M <sub>L0</sub>	
15	5.2	4.40	10.3	4.3	M5	4.5	M2.5x3.5	60	5.0	0.20	5 100	9 300	63	90	34	49	
20	7.7	5.20	13.2	5.3	M6	6.0	M3x5	60	6.0	0.45	12 300	16 900	205	215	110	115	
25	9.3	7.00	15.2	6.7	M8	7.0	M3x5	60	7.5	0.65	15 000	21 000	270	295	150	165	
30	11.0	7.90	17.0	8.5	M10	9.0	M3x5	80	7.0	1.10	20 800	28 700	460	500	245	265	
35	12.0	10.15	20.5	8.5	M10	9.0	M3x5	80	8.0	1.60	27 600	37 500	760	805	375	390	

1) Dimension H<sub>2</sub> with cover strip

2) Dimension H<sub>2</sub> without cover strip

3) Load capacities and moments for Ball Runner Block **without** ball chain. Load capacities and moments for Ball Runner Block **with** ball chain  $\varnothing$  5  
 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<sub>t</sub>** and **M<sub>L</sub>** from the table by 1.26.

Standard Ball Runner Blocks, Resist NR II

## FLS – Flanged, long, standard height

R2002 ... 0.

### Dynamic characteristics

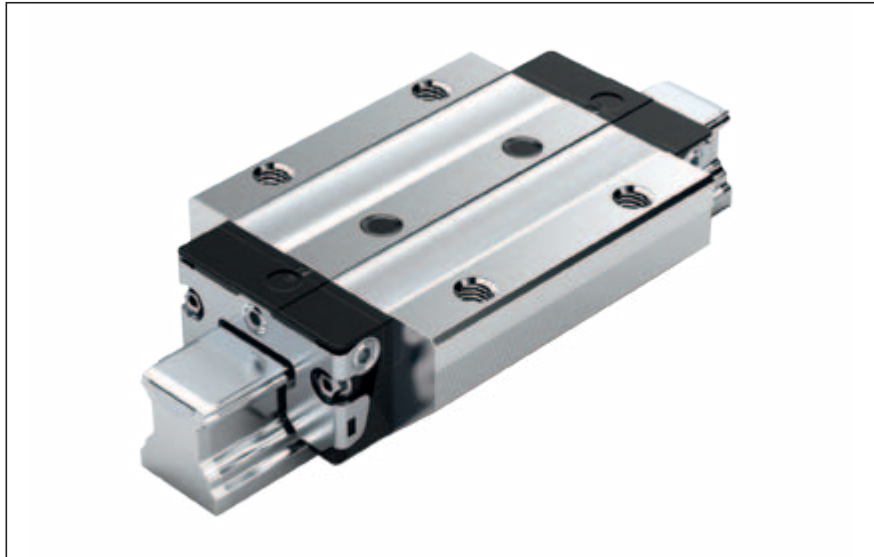
Travel speed:  $v_{\max} = 5 \text{ m/s}$ Acceleration:  $a_{\max} = 500 \text{ m/s}^2$ (If  $F_{\text{comb}} > 2.8 \cdot F_{\text{pr}}$ :  $a_{\max} = 50 \text{ m/s}^2$ )

### Note on lubrication

- Not pre-lubricated
- No preservative oil

### Note

Can be used on all Ball Guide Rails  
SNS.



### Options and part numbers

Size	Ball runner block with size	Preload class			Accuracy class			Seal for ball runner block					
		C0	C1	C2	N	H	P	without ball chain			with ball chain		
								SS	LS <sup>1)</sup>	DS	SS	LS <sup>1)</sup>	DS
15	R2002 1	9	1	2	4	3	–	04	05	–	06	07	–
					4	3	2	04	05	–	06	07	–
					–	3	2	04	–	–	06	–	–
20	R2002 8	9	1	2	4	3	–	04	05	–	06	07	–
					4	3	2	04	05	0X	06	07	0W
					–	3	2	04	–	0X	06	–	0W
25	R2002 2	9	1	2	4	3	–	04	05	–	06	07	–
					4	3	2	04	05	0X	06	07	0W
					–	3	2	04	–	0X	06	–	0W
30	R2002 7	9	1	2	4	3	–	04	05	–	06	07	–
					4	3	2	04	05	0X	06	07	0W
					–	3	2	04	–	0X	06	–	0W
35	R2002 3	9	1	2	4	3	–	04	05	–	06	07	–
					4	3	2	04	05	0X	06	07	0W
					–	3	2	04	–	0X	06	–	0W

### Ordering example

Options:

- Ball Runner Block NR II, FLS
- Size 30
- Preload class C1
- Accuracy class H
- With standard seal, without ball chain

Part number: R2002 713 04

e.g. R2002 7 | | 1 | | 3 | | 04

1) Only with accuracy classes N and H

### Preload classes

C0 = without preload

C1 = preload 2% C

C2 = preload 8% C

### Seals

SS = standard seal

LS = low-friction seal

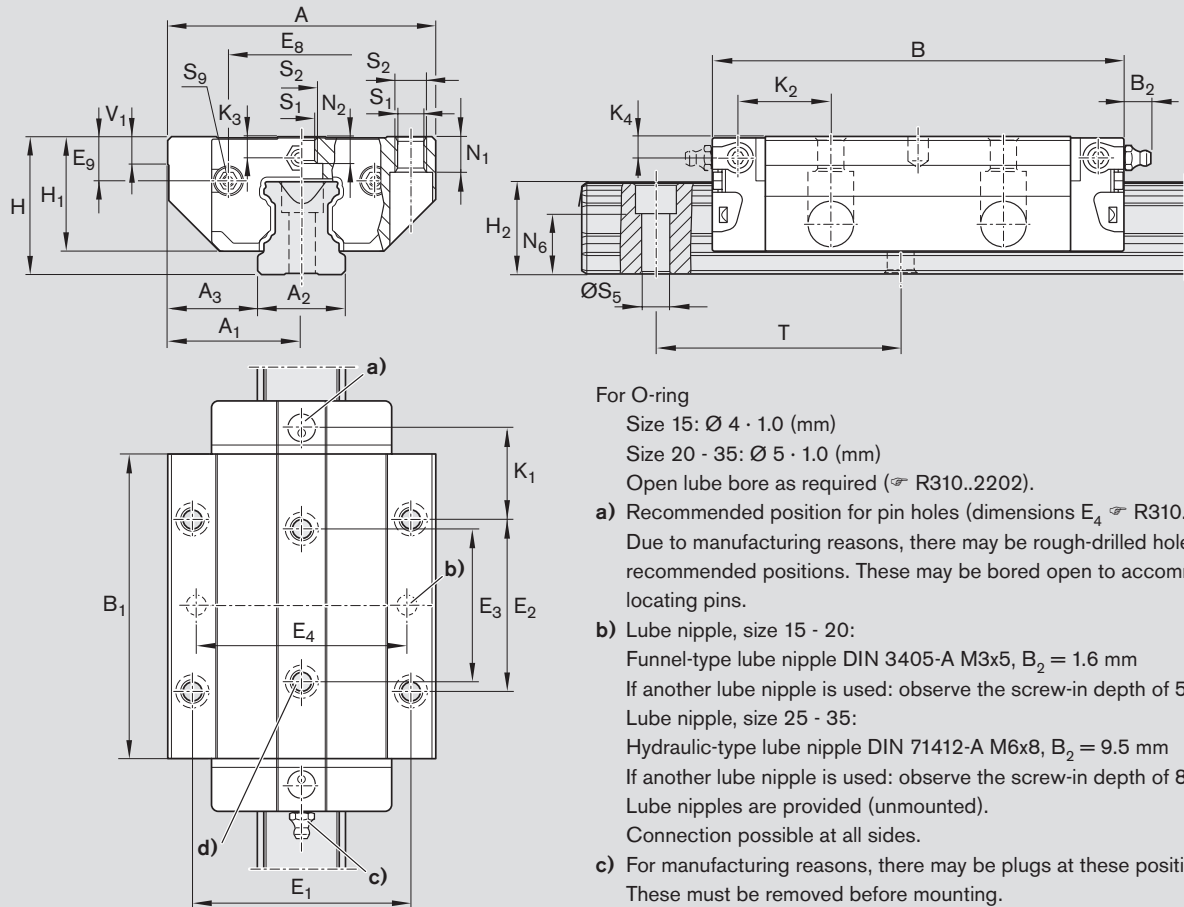
DS = double-lipped seal

### Key to table

Gray numbers

= version/combination not preferred  
(longer delivery times in some cases)

**Ball Runner Blocks FLS**



For O-ring

Size 15:  $\text{Ø} 4 \cdot 1.0$  (mm)

Size 20 - 35:  $\text{Ø} 5 \cdot 1.0$  (mm)

Open lube bore as required (☞ R310..2202).

- a) Recommended position for pin holes (dimensions  $E_4$  ☞ R310..2202). Due to manufacturing reasons, there may be rough-drilled holes at the recommended positions. These may be bored open to accommodate the locating pins.
- b) Lube nipple, size 15 - 20:  
Funnel-type lube nipple DIN 3405-A M3x5,  $B_2 = 1.6$  mm  
If another lube nipple is used: observe the screw-in depth of 5 mm!  
Lube nipple, size 25 - 35:  
Hydraulic-type lube nipple DIN 71412-A M6x8,  $B_2 = 9.5$  mm  
If another lube nipple is used: observe the screw-in depth of 8 mm!  
Lube nipples are provided (unmounted).  
Connection possible at all sides.
- c) For manufacturing reasons, there may be plugs at these positions. These must be removed before mounting.

Size	Dimensions (mm)																		
	A	A <sub>1</sub>	A <sub>2</sub>	A <sub>3</sub>	B	B <sub>1</sub>	E <sub>1</sub>	E <sub>2</sub>	E <sub>3</sub>	E <sub>8</sub>	E <sub>9</sub>	H	H <sub>1</sub>	H <sub>2</sub> <sup>1)</sup>	H <sub>2</sub> <sup>2)</sup>	K <sub>1</sub>	K <sub>2</sub>	K <sub>3</sub>	K <sub>4</sub>
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

Size	Dimensions (mm)										Weight (kg)	Load capacities <sup>3)</sup> (N)		Load moments <sup>3)</sup> (Nm)			
	N <sub>1</sub>	N <sub>2</sub>	N <sub>6</sub> <sup>±0.5</sup>	S <sub>1</sub>	S <sub>2</sub>	S <sub>5</sub>	S <sub>9</sub>	T	V <sub>1</sub>	C		C <sub>0</sub>	M <sub>t</sub>	M <sub>t0</sub>	M <sub>L</sub>	M <sub>L0</sub>	
15	5.2	4.40	10.3	4.3	M5	4.5	M2.5x3.5	60	5.0	0.30	8 500	14 000	82	132	64	104	
20	7.7	5.20	13.2	5.3	M6	6.0	M3x5	60	6.0	0.55	16 000	24 400	265	310	190	230	
25	9.3	7.00	15.2	6.7	M8	7.0	M3x5	60	7.5	0.90	20 000	31 600	365	450	290	350	
30	11.0	7.90	17.0	8.5	M10	9.0	M3x5	80	7.0	1.50	26 300	40 100	590	695	420	495	
35	12.0	10.15	20.5	8.5	M10	9.0	M3x5	80	8.0	2.25	36 500	56 200	1 025	1 210	710	840	

1) Dimension H<sub>2</sub> with cover strip

2) Dimension H<sub>2</sub> without cover strip

3) Load capacities and moments for Ball Runner Block **without** ball chain. Load capacities and moments for Ball Runner Block **with** ball chain ☞ 5  
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<sub>t</sub>** and **M<sub>L</sub>** from the table by 1.26.

Standard Ball Runner Blocks, Resist NR II

## FKS – Flanged, short, standard height

R2000 ... 0.

### Dynamic characteristics

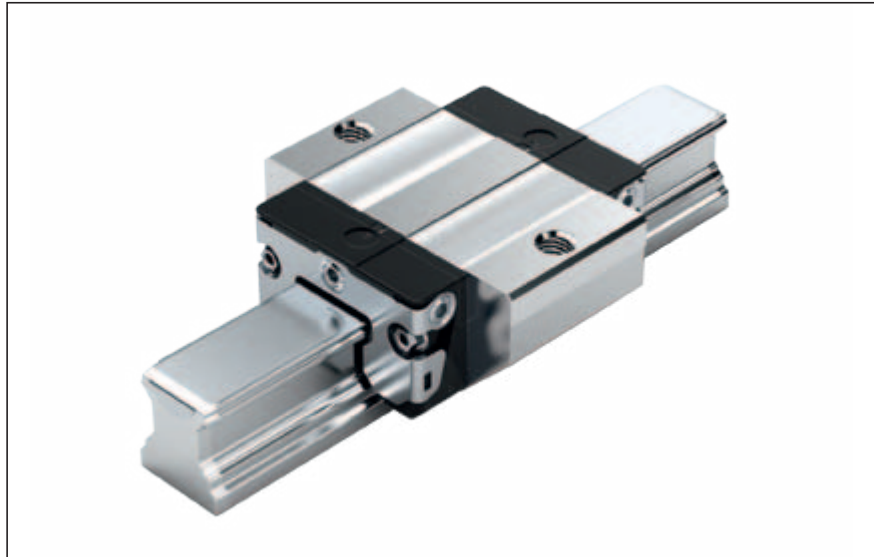
Travel speed:  $v_{\max} = 5 \text{ m/s}$ Acceleration:  $a_{\max} = 500 \text{ m/s}^2$ (If  $F_{\text{comb}} > 2.8 \cdot F_{\text{pr}}$ :  $a_{\max} = 50 \text{ m/s}^2$ )

### Note on lubrication

- Not pre-lubricated
- No preservative oil

### Note

Can be used on all Ball Guide Rails  
SNS.



### Options and part numbers

Size	Ball runner block with size	Preload class		Accuracy class		Seal for ball runner block					
		C0	C1	N	H	without ball chain			with ball chain		
						SS	LS	DS	SS	LS	DS
15	R2000 1	9		4	3	04	05	–	06	07	–
			1	4	3	04	05	–	06	07	–
20	R2000 8	9		4	3	04	05	–	06	07	–
			1	4	3	04	05	0X	06	07	0W
25	R2000 2	9		4	3	04	05	–	06	07	–
			1	4	3	04	05	0X	06	07	0W
30	R2000 7	9		4	3	04	05	–	06	07	–
			1	4	3	04	05	0X	06	07	0W
35	R2000 3	9		4	3	04	05	–	06	07	–
			1	4	3	04	05	0X	06	07	0W
e.g.	R2000 7		1		3	04					

### Ordering example

Options:

- Ball Runner Block NR II, FKS
- Size 30
- Preload class C1
- Accuracy class H
- With standard seal, without ball chain

Part number: R2000 713 04

### Preload classes

- C0 = without preload
- C1 = preload 2% C

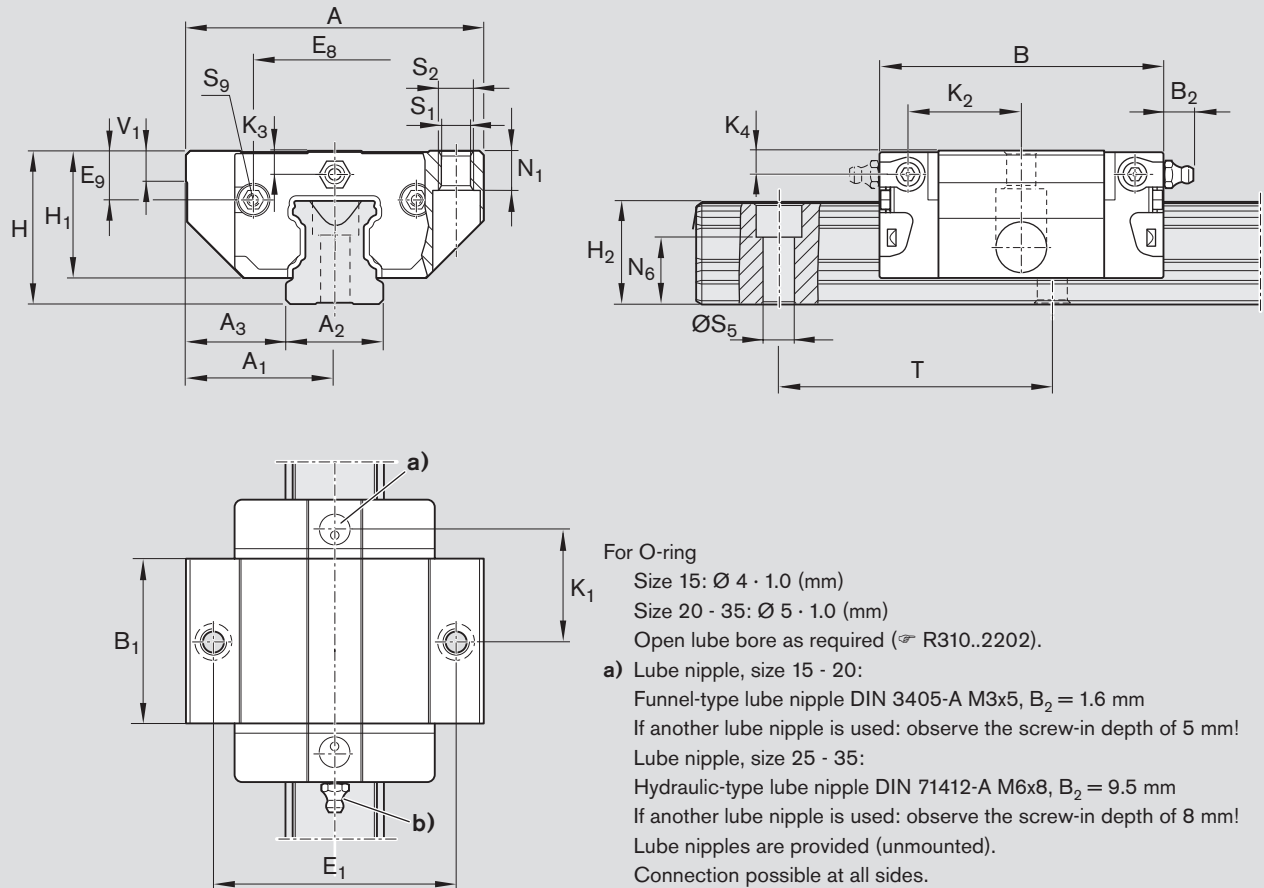
### Seals

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

### Key to table

- Gray numbers = version/combination not preferred (longer delivery times in some cases)

## Ball Runner Blocks FKS



Size	Dimensions (mm)																
	A	A <sub>1</sub>	A <sub>2</sub>	A <sub>3</sub>	B	B <sub>1</sub>	E <sub>1</sub>	E <sub>8</sub>	E <sub>9</sub>	H	H <sub>1</sub>	H <sub>2</sub> <sup>1)</sup>	H <sub>2</sub> <sup>2)</sup>	K <sub>1</sub>	K <sub>2</sub>	K <sub>3</sub>	K <sub>4</sub>
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 <sup>3)</sup> (N)		Load moments <sup>3)</sup> (Nm)			
	N <sub>1</sub>	N <sub>6</sub> <sup>±0.5</sup>	S <sub>1</sub>	S <sub>2</sub>	S <sub>5</sub>	S <sub>9</sub>	T	V <sub>1</sub>	C		C <sub>0</sub>	M <sub>t</sub>	M <sub>t0</sub>	M <sub>L</sub>	M <sub>L0</sub>	
15	5.2	10.3	4.3	M5	4.5	M2.5x3.5	60	5.0	0.15	4 500	5 600	44	55	16	19	
20	7.7	13.2	5.3	M6	6.0	M3x5	60	6.0	0.30	8 200	9 400	125	115	45	40	
25	9.3	15.2	6.7	M8	7.0	M3x5	60	7.5	0.50	10 500	12 600	195	180	70	65	
30	11.0	17.0	8.5	M10	9.0	M3x5	80	7.0	0.80	14 500	17 200	320	295	110	105	
35	12.0	20.5	8.5	M10	9.0	M3x5	80	8.0	1.20	19 300	22 400	545	485	170	150	

1) Dimension H<sub>2</sub> with cover strip

2) Dimension H<sub>2</sub> without cover strip

3) Load capacities and moments for Ball Runner Block **without** ball chain. Load capacities and moments for Ball Runner Block **with** ball chain ☞ 5  
 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<sub>t</sub>** and **M<sub>L</sub>** from the table by 1.26.

Standard Ball Runner Blocks, Resist NR II

## SNS – Slimline, normal, standard height

R2011 ... 0.

### Dynamic characteristics

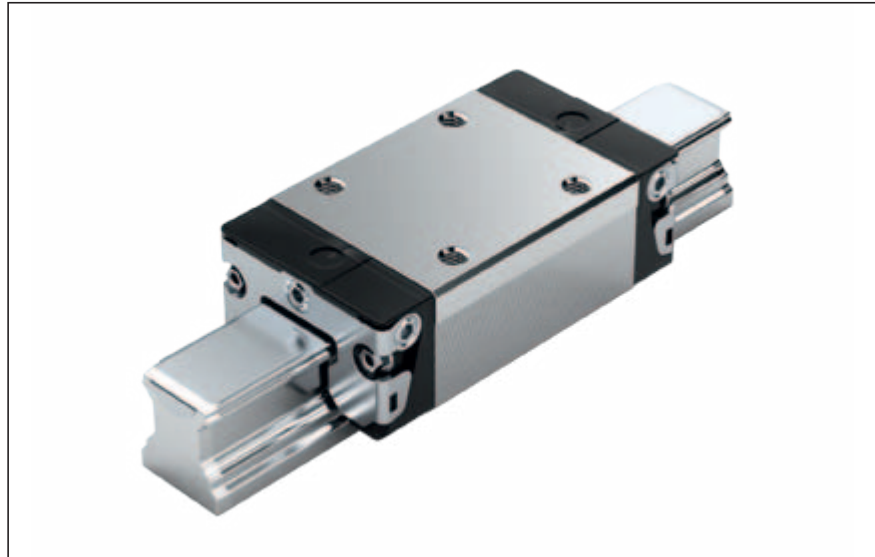
Travel speed:  $v_{\max} = 5 \text{ m/s}$ Acceleration:  $a_{\max} = 500 \text{ m/s}^2$ (If  $F_{\text{comb}} > 2.8 \cdot F_{\text{pr}}$ :  $a_{\max} = 50 \text{ m/s}^2$ )

### Note on lubrication

- Not pre-lubricated
- No preservative oil

### Note

Can be used on all Ball Guide Rails SNS.



### Options and part numbers

Size	Ball runner block with size	Preload class			Accuracy class			Seal for ball runner block					
		C0	C1	C2	N	H	P	without ball chain			with ball chain		
								SS	LS <sup>1)</sup>	DS	SS	LS <sup>1)</sup>	DS
15	R2011 1	9	1	2	4	3	–	04	05	–	06	07	–
					4	3	2	04	05	–	06	07	–
					–	3	2	04	–	–	06	–	–
20	R2011 8	9	1	2	4	3	–	04	05	–	06	07	–
					4	3	2	04	05	0X	06	07	0W
					–	3	2	04	–	0X	06	–	0W
25	R2011 2	9	1	2	4	3	–	04	05	–	06	07	–
					4	3	2	04	05	0X	06	07	0W
					–	3	2	04	–	0X	06	–	0W
30	R2011 7	9	1	2	4	3	–	04	05	–	06	07	–
					4	3	2	04	05	0X	06	07	0W
					–	3	2	04	–	0X	06	–	0W
35	R2011 3	9	1	2	4	3	–	04	05	–	06	07	–
					4	3	2	04	05	0X	06	07	0W
					–	3	2	04	–	0X	06	–	0W

e.g. | R2011 7 | | 1 | | 3 | | 04

1) Only with accuracy classes N and H

### Ordering example

Options:

- Ball Runner Block NR II, SNS
- Size 30
- Preload class C1
- Accuracy class H
- With standard seal, without ball chain

Part number: R2011 713 04

### Preload classes

- C0 = without preload
- C1 = preload 2% C

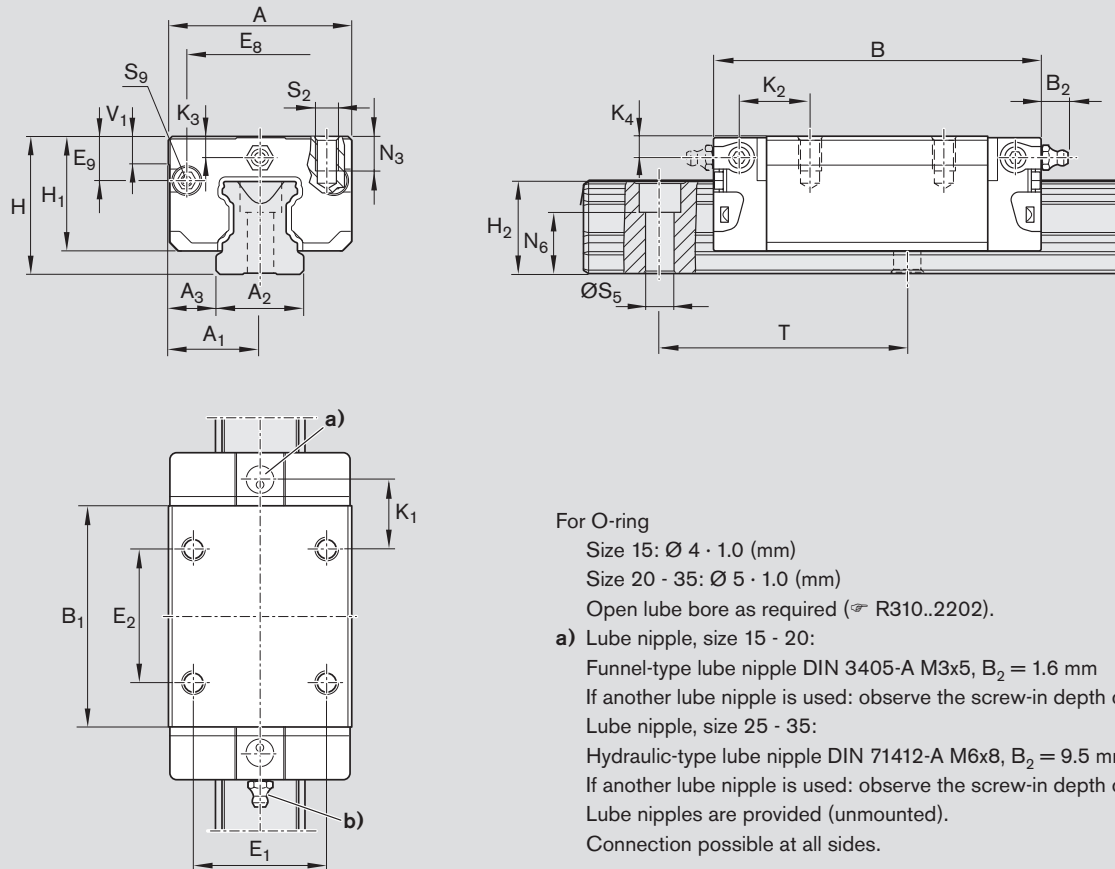
### Seals

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

### Key to table

- Gray numbers = version/combination not preferred (longer delivery times in some cases)

## Ball Runner Blocks SNS



For O-ring

Size 15:  $\text{Ø} 4 \cdot 1.0$  (mm)Size 20 - 35:  $\text{Ø} 5 \cdot 1.0$  (mm)

Open lube bore as required (☞ R310..2202).

a) Lube nipple, size 15 - 20:

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

If another lube nipple is used: observe the screw-in depth of 5 mm!

Lube nipple, size 25 - 35:

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

If another lube nipple is used: observe the screw-in depth of 8 mm!

Lube nipples are provided (unmounted).

Connection possible at all sides.

Size	Dimensions (mm)																		
	A	A <sub>1</sub>	A <sub>2</sub>	A <sub>3</sub>	B	B <sub>1</sub>	E <sub>1</sub>	E <sub>2</sub>	E <sub>8</sub>	E <sub>9</sub>	H	H <sub>1</sub>	H <sub>2</sub> <sup>1)</sup>	H <sub>2</sub> <sup>2)</sup>	K <sub>1</sub>	K <sub>2</sub>	K <sub>3</sub>	K <sub>4</sub>	
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	

Size	Dimensions (mm)									Weight (kg)	Load capacities <sup>3)</sup> (N)		Load moments <sup>3)</sup> (Nm)			
	N <sub>3</sub>	N <sub>6</sub> <sup>±0.5</sup>	S <sub>2</sub>	S <sub>5</sub>	S <sub>9</sub>	T	V <sub>1</sub>	C	C <sub>0</sub>		M <sub>t</sub>	M <sub>t0</sub>	M <sub>L</sub>	M <sub>L0</sub>		
15	6.0	10.3	M4	4.5	M2.5x3.5	60	5.0	0.15	5 100	9 300	63	90	34	49		
20	7.5	13.2	M5	6.0	M3x5	60	6.0	0.35	12 300	16 900	205	215	110	115		
25	9.0	15.2	M6	7.0	M3x5	60	7.5	0.50	15 000	21 000	270	295	150	165		
30	12.0	17.0	M8	9.0	M3x5	80	7.0	0.85	20 800	28 700	460	500	245	265		
35	13.0	20.5	M8	9.0	M3x5	80	8.0	1.25	27 600	37 500	760	805	375	390		

1) Dimension H<sub>2</sub> with cover strip2) Dimension H<sub>2</sub> without cover strip

3) Load capacities and moments for Ball Runner Block **without** ball chain. Load capacities and moments for Ball Runner Block **with** ball chain ☞ 5  
 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<sub>t</sub>** and **M<sub>L</sub>** from the table by 1.26.

Standard Ball Runner Blocks, Resist NR II

# SLS – Slimline, long, standard height

R2012 ... 0.

## 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

- Not pre-lubricated
- No preservative oil

## Note

Can be used on all Ball Guide Rails  
SNS.



## Options and part numbers

Size	Ball runner block with size	Preload class			Accuracy class			Seal for ball runner block					
		C0	C1	C2	N	H	P	without ball chain			with ball chain		
								SS	LS <sup>1)</sup>	DS	SS	LS <sup>1)</sup>	DS
15	R2012 1	9	1	2	4	3	–	04	05	–	06	07	–
					4	3	2	04	05	–	06	07	–
					–	3	2	04	–	–	06	–	–
20	R2012 8	9	1	2	4	3	–	04	05	–	06	07	–
					4	3	2	04	05	0X	06	07	0W
					–	3	2	04	–	0X	06	–	0W
25	R2012 2	9	1	2	4	3	–	04	05	–	06	07	–
					4	3	2	04	05	0X	06	07	0W
					–	3	2	04	–	0X	06	–	0W
30	R2012 7	9	1	2	4	3	–	04	05	–	06	07	–
					4	3	2	04	05	0X	06	07	0W
					–	3	2	04	–	0X	06	–	0W
35	R2012 3	9	1	2	4	3	–	04	05	–	06	07	–
					4	3	2	04	05	0X	06	07	0W
					–	3	2	04	–	0X	06	–	0W

## Ordering example

Options:

- Ball Runner Block NR II, SLS
- Size 30
- Preload class C1
- Accuracy class H
- With standard seal, without ball chain

Part number: R2012 713 04

e.g. R2012 7 | 1 | 3 | 04

1) Only with accuracy classes N and H

## Preload classes

C0 = without preload

C1 = preload 2% C

C2 = preload 8% C

## Seals

SS = standard seal

LS = low-friction seal

DS = double-lipped seal

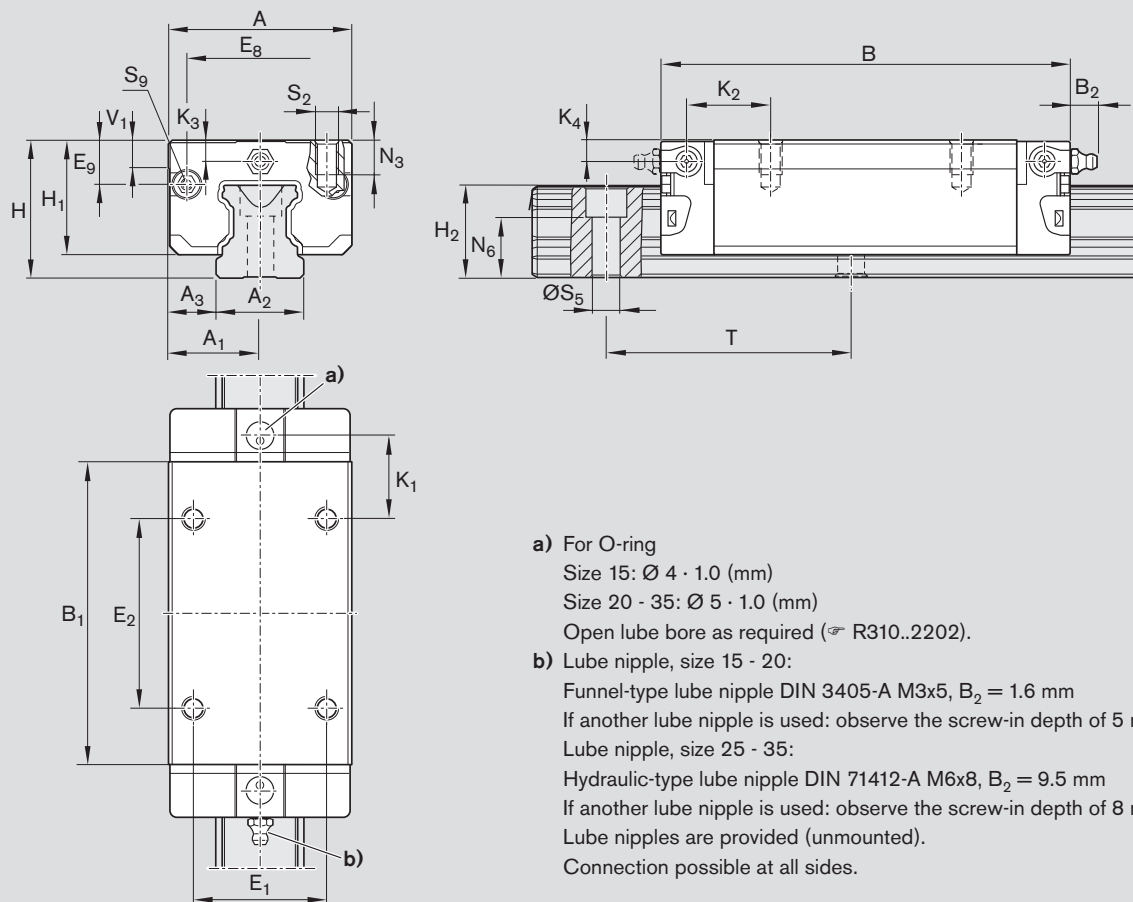
## Key to table

Gray numbers

= version/combination not preferred  
(longer delivery times in some cases)



## Ball Runner Blocks SLS



- a) For O-ring  
 Size 15:  $\text{Ø } 4 \cdot 1.0$  (mm)  
 Size 20 - 35:  $\text{Ø } 5 \cdot 1.0$  (mm)  
 Open lube bore as required (☞ R310..2202).
- b) Lube nipple, size 15 - 20:  
 Funnel-type lube nipple DIN 3405-A M3x5,  $B_2 = 1.6$  mm  
 If another lube nipple is used: observe the screw-in depth of 5 mm!  
 Lube nipple, size 25 - 35:  
 Hydraulic-type lube nipple DIN 71412-A M6x8,  $B_2 = 9.5$  mm  
 If another lube nipple is used: observe the screw-in depth of 8 mm!  
 Lube nipples are provided (unmounted).  
 Connection possible at all sides.

Size	Dimensions (mm)																	
	A	A <sub>1</sub>	A <sub>2</sub>	A <sub>3</sub>	B	B <sub>1</sub>	E <sub>1</sub>	E <sub>2</sub>	E <sub>8</sub>	E <sub>9</sub>	H	H <sub>1</sub>	H <sub>2</sub> <sup>1)</sup>	H <sub>2</sub> <sup>2)</sup>	K <sub>1</sub>	K <sub>2</sub>	K <sub>3</sub>	K <sub>4</sub>
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

Size	Dimensions (mm)								Weight (kg)	Load capacities <sup>3)</sup> (N)		Load moments <sup>3)</sup> (Nm)			
	N <sub>3</sub>	N <sub>6</sub> <sup>±0.5</sup>	S <sub>2</sub>	S <sub>5</sub>	S <sub>9</sub>	T	V <sub>1</sub>	C		C <sub>0</sub>	M <sub>t</sub>	M <sub>t0</sub>	M <sub>L</sub>	M <sub>L0</sub>	
15	6.0	10.3	M4	4.5	M2.5x3.5	60	5.0	0.20	8 500	14 000	82	132	64	104	
20	7.5	13.2	M5	6.0	M3x5	60	6.0	0.45	16 000	24 400	265	310	190	230	
25	9.0	15.2	M6	7.0	M3x5	60	7.5	0.65	20 000	31 600	365	450	290	350	
30	12.0	17.0	M8	9.0	M3x5	80	7.0	1.10	26 300	40 100	590	695	420	495	
35	13.0	20.5	M8	9.0	M3x5	80	8.0	1.70	36 500	56 200	1 025	1 210	710	840	

1) Dimension H<sub>2</sub> with cover strip

2) Dimension H<sub>2</sub> without cover strip

3) Load capacities and moments for Ball Runner Block **without** ball chain. Load capacities and moments for Ball Runner Block **with** ball chain ☞ 5  
 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<sub>t</sub>** and **M<sub>L</sub>** from the table by 1.26.

Standard Ball Runner Blocks, Resist NR II

# SKS – Slimline, short, standard height

R2010 ... 0.

## 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

- Not pre-lubricated
- No preservative oil

## Note

Can be used on all Ball Guide Rails  
SNS.



## Options and part numbers

Size	Ball runner block with size	Preload class		Accuracy class		Seal for ball runner block					
		C0	C1	N	H	without ball chain			with ball chain		
						SS	LS	DS	SS	LS	DS
15	R2010 1	9		4	3	04	05	–	06	07	–
			1	4	3	04	05	–	06	07	–
20	R2010 8	9		4	3	04	05	–	06	07	–
			1	4	3	04	05	0X	06	07	0W
25	R2010 2	9		4	3	04	05	–	06	07	–
			1	4	3	04	05	0X	06	07	0W
30	R2010 7	9		4	3	04	05	–	06	07	–
			1	4	3	04	05	0X	06	07	0W
35	R2010 3	9		4	3	04	05	–	06	07	–
			1	4	3	04	05	0X	06	07	0W
e.g.	R2010 7		1		3	04					

## Ordering example

Options:

- Ball Runner Block NR II, SKS
- Size 30
- Preload class C1
- Accuracy class H
- With standard seal, without ball chain

Part number: R2010 713 04

## Preload classes

- C0 = without preload
- C1 = preload 2% C

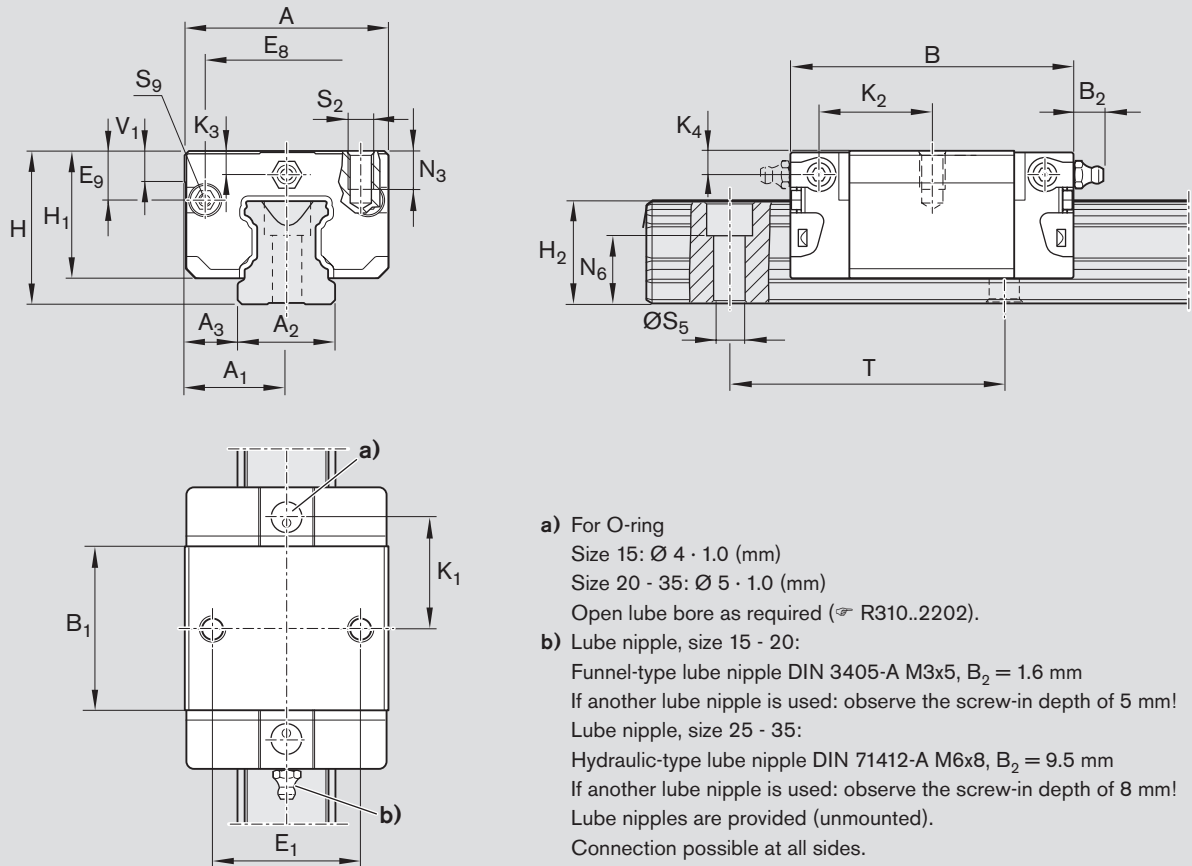
## Seals

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

## Key to table

- Gray numbers = version/combination not preferred (longer delivery times in some cases)

## Ball Runner Blocks SKS



- a) For O-ring  
 Size 15:  $\text{Ø } 4 \cdot 1.0$  (mm)  
 Size 20 - 35:  $\text{Ø } 5 \cdot 1.0$  (mm)  
 Open lube bore as required ( $\varnothing$  R310..2202).
- b) Lube nipple, size 15 - 20:  
 Funnel-type lube nipple DIN 3405-A M3x5,  $B_2 = 1.6$  mm  
 If another lube nipple is used: observe the screw-in depth of 5 mm!  
 Lube nipple, size 25 - 35:  
 Hydraulic-type lube nipple DIN 71412-A M6x8,  $B_2 = 9.5$  mm  
 If another lube nipple is used: observe the screw-in depth of 8 mm!  
 Lube nipples are provided (unmounted).  
 Connection possible at all sides.

Size	Dimensions (mm)																
	A	A <sub>1</sub>	A <sub>2</sub>	A <sub>3</sub>	B	B <sub>1</sub>	E <sub>1</sub>	E <sub>8</sub>	E <sub>9</sub>	H	H <sub>1</sub>	H <sub>2</sub> <sup>1)</sup>	H <sub>2</sub> <sup>2)</sup>	K <sub>1</sub>	K <sub>2</sub>	K <sub>3</sub>	K <sub>4</sub>
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 <sup>3)</sup> (N)		Load moments <sup>3)</sup> (Nm)			
	N <sub>3</sub>	N <sub>6</sub> <sup>±0.5</sup>	S <sub>2</sub>	S <sub>5</sub>	S <sub>9</sub>	T	V <sub>1</sub>	C		C <sub>0</sub>	M <sub>t</sub>	M <sub>t0</sub>	M <sub>L</sub>	M <sub>L0</sub>	
15	6.0	10.3	M4	4.5	M2.5x3.5	60	5.0	0.10	4 500	5 600	44	55	16	19	
20	7.5	13.2	M5	6.0	M3x5	60	6.0	0.25	8 200	9 400	125	115	45	40	
25	9.0	15.2	M6	7.0	M3x5	60	7.5	0.35	10 500	12 600	195	180	70	65	
30	12.0	17.0	M8	9.0	M3x5	80	7.0	0.60	14 500	17 200	320	295	110	105	
35	13.0	20.5	M8	9.0	M3x5	80	8.0	0.90	19 300	22 400	545	485	170	150	

1) Dimension H<sub>2</sub> with cover strip

2) Dimension H<sub>2</sub> without cover strip

3) Load capacities and moments for Ball Runner Block **without** ball chain. Load capacities and moments for Ball Runner Block **with** ball chain  $\varnothing$  5  
 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<sub>t</sub>** and **M<sub>L</sub>** from the table by 1.26.

Ball Guide Rails, Resist NR II

# Product Description, Ball Guide Rails SNS

## Characteristic features

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

## Corrosion resistance and conditions of use

Ball guide rails Resist NR II made of corrosion-resistant steel as per EN 10088. Ball guide rails Resist NR II are used particularly in applications involving water-based media. They are also suitable for environments with a relative humidity of over 70% and temperatures above 30°C.

Since they have built-in corrosion protection, ball guide rails Resist NR II are also ideal for use in the semiconductor industry, machine tools, and especially wherever corrosion protection is required. Other application areas include the packaging industry and areas of the food industry.

Ball guide rails with corrosion-resistant coatings can also be replaced by ball guide rails Resist NR II.

Where special conditions of use are involved, please consult us.



## Proven cover strip for ball guide rail mounting holes

- A single cover for all holes – saves time and money
- Made of corrosion-resistant spring steel per EN 10088
- Easy, secure mounting
- Clip on and fasten

## Ball guide rails with cover strip and aluminum strip clamps

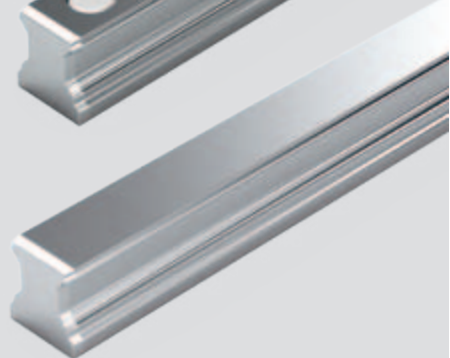
- Without threaded holes at the end faces (not required)



## Ball guide rails with white plastic mounting hole plugs



## Ball guide rails for mounting from below



Definition		Code (example)		
Ball guide rail design style		S	N	S
Width	Slimline Wide	S		
Length	Normal		N	
Height	Standard height			S

# Ordering Examples

## 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.

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 according to formula $L = n_B \cdot T - 4$ mm
		N	H	P	One-piece	Composite		
15	R2045 13	4	3	2	31, ...	31, ...	60	64
20	R2045 83	4	3	2	31, ...	31, ...	60	64
25	R2045 23	4	3	2	31, ...	31, ...	60	64
30	R2045 73	4	3	2	31, ...	31, ...	80	48
35	R2045 33	4	3	2	61, ...	61, ...	80	48
e.g.	R2045 73		3		31, 1676			

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

### From the desired length to the recommended length

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

\* Round up the quotient  $L_W/T$  to the next whole number.

$L_W$  = desired length  
 $T$  = hole spacing

### Calculation example

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

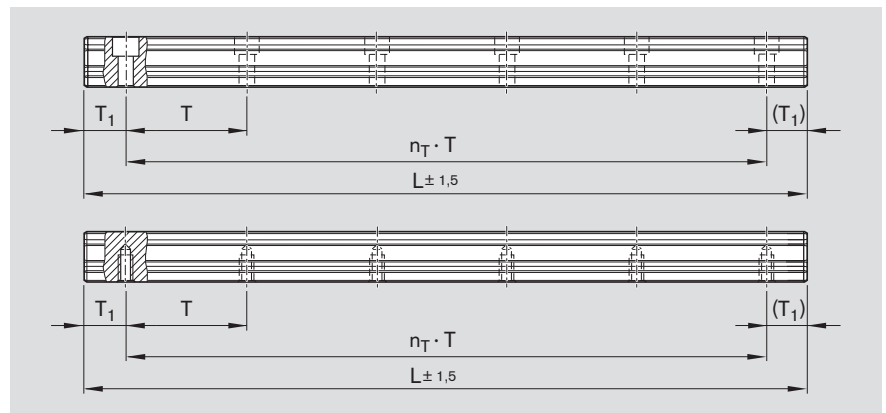
$$L = 21 \cdot 80 \text{ mm} - 4 \text{ mm}$$

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

### Notes on ordering examples

If the preferred dimension  $T_{1S}$  cannot be used:

- Select an end space  $T_1$  between  $T_{1S}$  and  $T_{1 \min}$ .
- Alternatively, select an end space between  $T_1$  and  $T_{1 \max}$ .



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

Basis: number of holes

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

Basis: number of spaces between holes

$L$  = recommended rail length (mm)  
 $L_W$  = desired rail length (mm)  
 $T$  = hole spacing<sup>1)</sup> (mm)  
 $T_{1S}$  = preferred dimension<sup>1)</sup> (mm)  
 $n_B$  = number of holes (-)  
 $n_T$  = no. of spaces between holes (-)

1) For values, see dimensions table at dimension drawing.

### Ordering example 1 (up to $L_{\max}$ )

- Ball Guide Rail NR II, SNS size 30 with cover strip and strip clamps
- Accuracy class H
- Calculated rail length 1676 mm, ( $20 \cdot T_1$ , preferred dimension  $T_{1S} = 38$  mm; number of holes  $n_B = 21$ )

### Ordering data

Part number, rail length (mm)  
 $T_1 / n_T \cdot T / T_1$  (mm)

**R2045 733 31, 1676 mm**  
**38 / 20 · 80 / 38 mm**

### Ordering example 2 (over $L_{\max}$ )

- Ball Guide Rail NR II, SNS size 30 with cover strip and strip clamps
- Accuracy class H
- Calculated rail length 5116 mm, 2 sections ( $63 \cdot T_1$ , preferred dimension  $T_{1S} = 38$  mm; number of holes  $n_B = 64$ )

### Ordering data

Part number and number of sections, rail length (mm)  
 $T_1 / n_T \cdot T / T_1$  (mm)

**R2045 733 32, 5116 mm**  
**38 / 63 · 80 / 38 mm**

For rail lengths greater than  $L_{\max}$ , Rexroth provides matching rail sections for end to end mounting.

Ball Guide Rails, Resist NR II

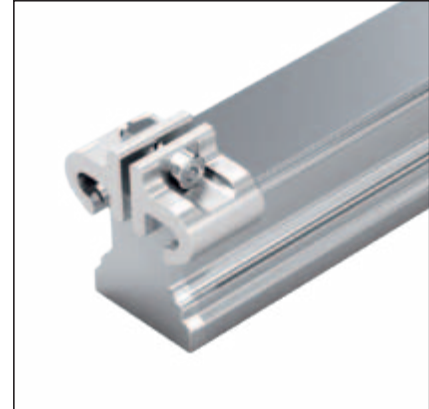
# SNS with cover strip and strip clamps

R2045 .3. ..

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)

### Accessories

- Cover strip ☞ R310..2202
- Strip clamps ☞ R310..2202



### Notes for mounting:

- Secure the cover strip!
- Strip clamps are included in the supply scope.
- 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.

### 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 according to formula $L = n_B \cdot T - 4 \text{ mm}$	
		N	H	P	One-piece	Composite		Maximum number of holes $n_B$	
15	R2045 13	4	3	2	31, ...	3, ...	60	64	
20	R2045 83	4	3	2	31, ...	3, ...	60	64	
25	R2045 23	4	3	2	31, ...	3, ...	60	64	
30	R2045 73	4	3	2	31, ...	3, ...	80	48	
35	R2045 33	4	3	2	61, ...	6, ...	80	48	
e.g.	R2045 73	3			31, 1676				

### Ordering example 1:

(up to  $L_{\max}$ )

Options:

- Ball Guide Rail NR II, SNS
- Size 30
- Accuracy class H
- One-piece
- Rail length  $L = 1676 \text{ mm}$

Part number:

R2045 733 31, 1676 mm

### Ordering example 2:

(over  $L_{\max}$ )

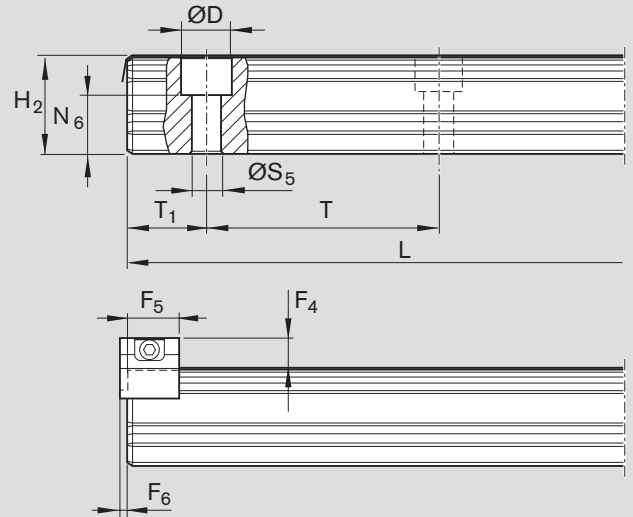
Options:

- Ball Guide Rail NR II, SNS
- Size 30
- Accuracy class H
- **2 sections**
- Rail length  $L = 5116 \text{ mm}$

Part number:

R2045 733 32, 5116 mm

## Ball Guide Rails SNS



Size	Dimensions (mm)													Weight (kg/m)
	A <sub>2</sub>	D	F <sub>4</sub> <sup>2)</sup>	F <sub>5</sub>	F <sub>6</sub>	H <sub>2</sub> <sup>1)</sup>	L <sub>max</sub>	N <sub>6</sub> <sup>±0.5</sup>	S <sub>5</sub>	T	T <sub>1 min</sub>	T <sub>1S</sub> <sup>3)</sup>	T <sub>1 max</sub>	
15	15	7.4	7.3	12	2.0	16.30	1 856	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

- 1) Dimension H<sub>2</sub> with cover strip  
 Size 15 with 0.1 mm cover strip  
 Size 20 - 30 with 0.2 mm cover strip  
 Size 35 with 0.3 mm cover strip

- 2) Dimension F<sub>4</sub> with cover strip

- 3) Recommended: preferred dimension T<sub>1S</sub> with tolerances ± 0.75.

Ball Guide Rails, Resist NR II

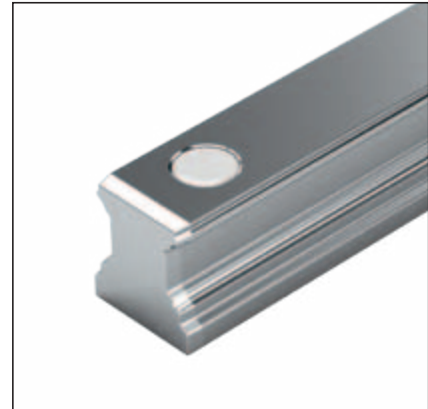
## SNS with plastic mounting hole plugs

R2045 .0. ..

For mounting from above, with plastic mounting hole plugs

### Notes for mounting:

- Plastic mounting hole plugs included in scope of supply.
- Follow the mounting instructions! Send for the publication "Mounting Instructions for Ball Rail Systems."
- Composite guide rails also available.



### 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 according to formula $L = n_B \cdot T - 4 \text{ mm}$	
		N	H	P	One-piece	Composite		Maximum number of holes $n_B$	
15	R2045 10	4	3	2	31, ...	3, ...	60	30	
20	R2045 80	4	3	2	31, ...	3, ...	60	64	
25	R2045 20	4	3	2	31, ...	3, ...	60	64	
30	R2045 70	4	3	2	31, ...	3, ...	80	48	
35	R2045 30	4	3	2	31, ...	3, ...	80	48	
e.g.	R2045 70	3			31, 1676				

### Ordering example 1:

(up to  $L_{\max}$ )

Options:

- Ball Guide Rail NR II, SNS
- Size 30
- Accuracy class H
- One-piece
- Rail length  $L = 1676 \text{ mm}$

Part number:

R2045 703 31, 1676 mm

### Ordering example 2:

(over  $L_{\max}$ )

Options:

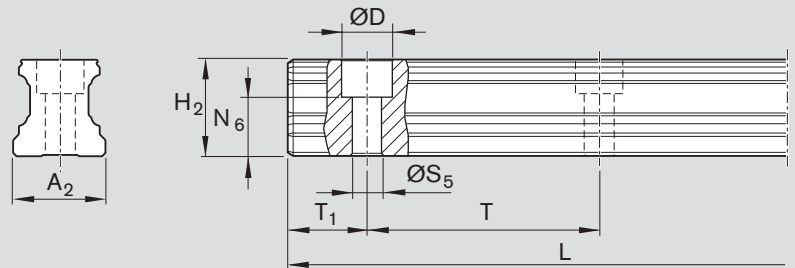
- Ball Guide Rail NR II, SNS
- Size 30
- Accuracy class H
- **2 sections**
- Rail length  $L = 5116 \text{ mm}$

Part number:

R2045 703 32, 5116 mm



## Ball Guide Rails SNS



Size	Dimensions (mm)										Weight (kg/m)
	A <sub>2</sub>	D	H <sub>2</sub> <sup>1)</sup>	L <sub>max</sub>	N <sub>6</sub> <sup>±0.5</sup>	S <sub>5</sub>	T	T <sub>1 min</sub>	T <sub>1S</sub> <sup>2)</sup>	T <sub>1 max</sub>	
15	15	7.4	16.20	1 856	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

## Accessories

– Plastic Mounting Hole Plugs

Size	Single cap	Weight (g)
	Part numbers <sup>3)</sup>	
15	R1605 100 84	0,05
20	R1605 800 84	0,10
25	R1605 200 84	0,30
30	R1605 300 84	0,60
35	R1605 300 84	0,60

1) Dimension H<sub>2</sub> without cover strip

2) Recommended: preferred dimension T<sub>1S</sub> with tolerances ± 0.75.

3) Only this part number permitted when ordering replacements for mounting hole plugs

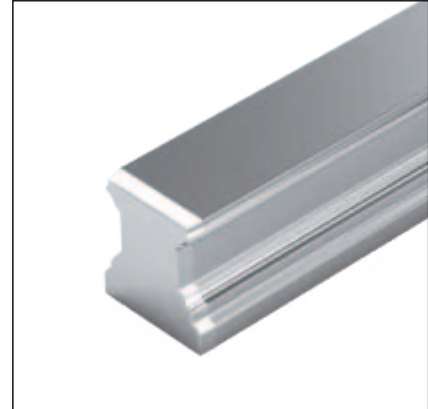
Ball Guide Rails, Resist NR II

# SNS for mounting from below

R2047 .0. ..

## Notes for mounting:

- Follow the mounting instructions!  
Send for the publication "Mounting Instructions for Ball Rail Systems."
- Composite guide rails also available.



## 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 according to formula $L = n_B \cdot T - 4 \text{ mm}$	
		N	H	P	One-piece	Composite		Maximum number of holes $n_B$	
15	R2047 10	4	3	2	31, ...	3, ...	60	30	
20	R2047 80	4	3	2	31, ...	3, ...	60	64	
25	R2047 20	4	3	2	31, ...	3, ...	60	64	
30	R2047 70	4	3	2	31, ...	3, ...	80	48	
35	R2047 30	4	3	2	31, ...	3, ...	80	48	
e.g.	R2047 70	3			31, 1676				

### Ordering example 1:

(up to  $L_{\max}$ )

Options:

- Ball Guide Rail NR II, SNS
- Size 30
- Accuracy class H
- One-piece
- Rail length  $L = 1676 \text{ mm}$

Part number:

R2047 703 31, 1676 mm

### Ordering example 2:

(over  $L_{\max}$ )

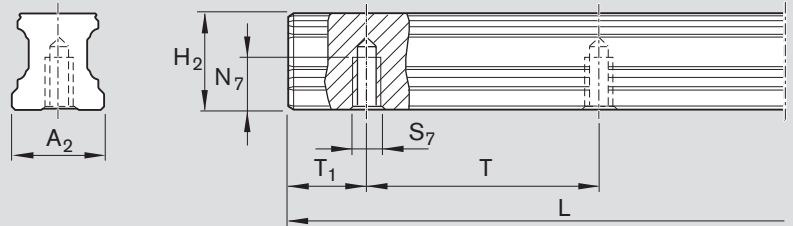
Options:

- Ball Guide Rail NR II, SNS
- Size 30
- Accuracy class H
- **2 sections**
- Rail length  $L = 5116 \text{ mm}$

Part number:

R2047 703 32, 5116 mm

## Ball Guide Rails SNS



Size	Dimensions (mm)									Weight (kg/m)
	A <sub>2</sub>	H <sub>2</sub> <sup>1)</sup>	L <sub>max</sub>	N <sub>7</sub>	S <sub>7</sub>	T	T <sub>1min</sub>	T <sub>1S</sub> <sup>2)</sup>	T <sub>1max</sub>	
15	15	16.20	1 856	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

1) Dimension H<sub>2</sub> without cover strip

2) Recommended: preferred dimension T<sub>1S</sub> with tolerances ± 0.75.

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