

## Product description

### Characteristic features

Resist NR II ball rail systems made of corrosion-resistant steel<sup>1)</sup> have been used in particular in conjunction with water-based media, highly dilute acids, alkali or salt solutions. These guides are particularly suitable for use in relative humidities above 70 % and temperatures above 30 °C.

Conditions like these are found above all in cleaning systems, galvanization and pickling lines, steam degreasing systems, and also cooling equipment.

Since no additional corrosion protection is needed, Resist NR II ball rail systems are particularly suitable for use in clean rooms, general PCB production. There are other potential uses in the general packaging industry.

### General information about Resist NR II ball runner blocks

- ▶ For all SNS ball guide rails that are not initially greased and not preserved
- ▶ Refer to the appropriate steel ball runner block for the dimensions

### Highlights

- ▶ All metal parts made of corrosion-resistant steel
- ▶ Available in five common sizes
- ▶ Excellent dynamic characteristics:  
Speed:  $v_{\max} = 5 \text{ m/s}$   
Acceleration:  $a_{\max} = 500 \text{ m/s}^2$
- ▶ The same high load capacities in all four main directions of loading
- ▶ Available in accuracy classes N, H and P, up to preload class C2
- ▶ 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

#### 1) Resist NR II:

Ball runner block body or ball guide rail and all steel components made of corrosion-resistant steel according to DIN EN 10088

### General notes

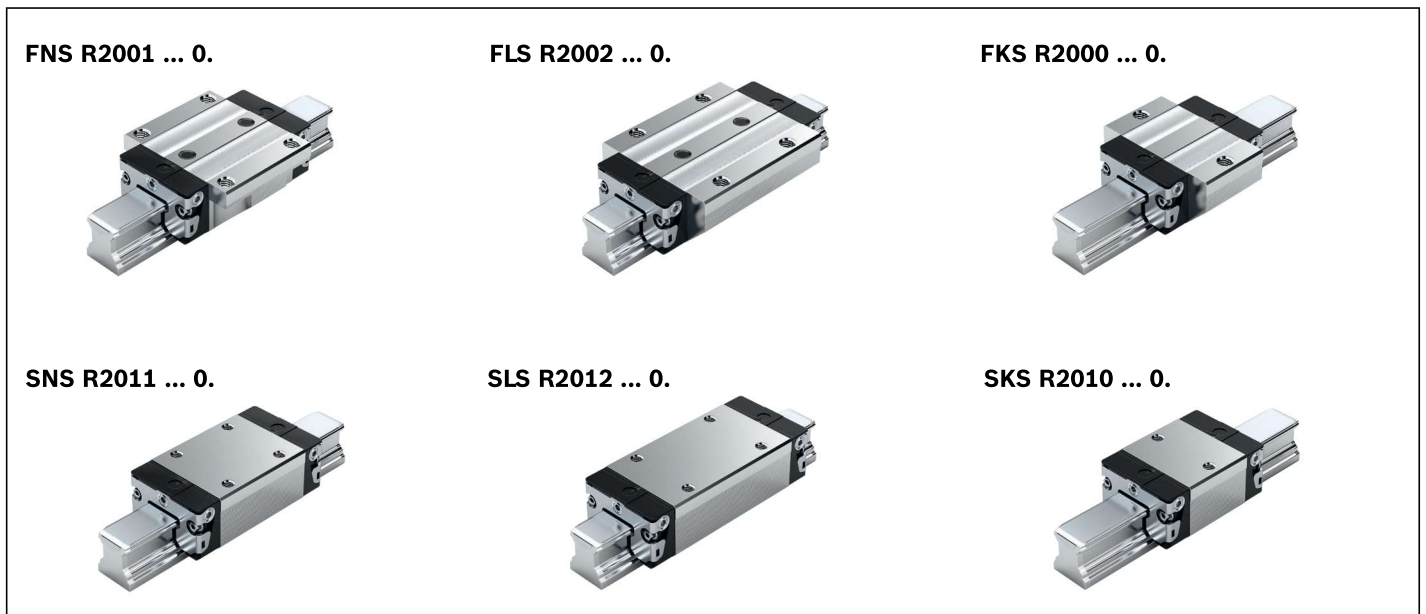
- ▶ Refer to the ball rail system catalog NRFG R310DE2226 (2011.04) for ball rail systems for uses in areas of the food industry
- ▶ Combining different accuracy classes When you combine ball guide rails and ball runner blocks of different accuracy classes, the tolerances change for dimensions H and A3. See “Accuracy classes and their tolerances”
- ▶ Combining different materials  
When you combine ball guide rails and ball runner blocks of different materials, the load capacities, permissible loads and load moments change. You must use the lower value in each case.

**Further highlights**

- ▶ Limitless interchangeability; all ball guide rail versions can be combined at will with all ball runner block versions within each accuracy class (including those made of steel, aluminum, Resist NR and Resist CR)
- ▶ Optimum system rigidity through preloaded O-arrangement
- ▶ Existing range of accessories fully utilizable
- ▶ Attachments on the ball runner block for mounting from above and below<sup>2)</sup>
- ▶ Increase in rigidity with lift-off and lateral loading by means of additional screw connections on two holes in the middle of the ball 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
- ▶ Ball runner blocks also available with chrome-plated guide rails

2) Type-dependent

**Overview of formats**



**Definition of ball runner block format**

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



**Ball chain (optional)**

- ▶ Optimizes noise levels

# FNS, FLS, FKS, SNS, SLS, SKS

Size	Ball runner block with size	Preload class			Accuracy class			Seal with ball runner blocks						Weight (kg)	Load capacities <sup>2)</sup> (N)		Load moments <sup>2)</sup> (Nm)				
		C0	C1	C2	N	H	P	without ball chain			with ball chain				m	C	C <sub>0</sub>	M <sub>t</sub>	M <sub>10</sub>	M <sub>L</sub>	M <sub>L0</sub>
								SS	LS <sup>1)</sup>	DS	SS	LS <sup>1)</sup>	DS								
<b>FNS</b>																					
15	R2001 1	9			4	3	-	04	05	-	06	07	-	0.20	5 100	9 300	63	90	34	49	
			1		4	3	2	04	05	-	06	07	-								
				2	-	3	2	04	-	-	06	-	-								
20	R2001 8	9			4	3	-	04	05	-	06	07	-	0.45	12 300	16 900	205	215	110	115	
			1		4	3	2	04	05	0X	06	07	0W								
				2	-	3	2	04	-	0X	06	-	0W								
25	R2001 2	9			4	3	-	04	05	-	06	07	-	0.65	15 000	21 000	270	295	150	165	
			1		4	3	2	04	05	0X	06	07	0W								
				2	-	3	2	04	-	0X	06	-	0W								
30	R2001 7	9			4	3	-	04	05	-	06	07	-	1.10	20 800	28 700	460	500	245	265	
			1		4	3	2	04	05	0X	06	07	0W								
				2	-	3	2	04	-	0X	06	-	0W								
35	R2001 3	9			4	3	-	04	05	-	06	07	-	1.60	27 600	37 500	760	805	375	390	
			1		4	3	2	04	05	0X	06	07	0W								
				2	-	3	2	04	-	0X	06	-	0W								
<b>FLS</b>																					
15	R2002 1	9			4	3	-	04	05	-	06	07	-	0.30	8 500	14 000	82	132	64	104	
			1		4	3	2	04	05	-	06	07	-								
				2	-	3	2	04	-	-	06	-	-								
20	R2002 8	9			4	3	-	04	05	-	06	07	-	0.55	16 000	24 400	265	310	190	230	
			1		4	3	2	04	05	0X	06	07	0W								
				2	-	3	2	04	-	0X	06	-	0W								
25	R2002 2	9			4	3	-	04	05	-	06	07	-	0.90	20 000	31 600	365	450	290	350	
			1		4	3	2	04	05	0X	06	07	0W								
				2	-	3	2	04	-	0X	06	-	0W								
30	R2002 7	9			4	3	-	04	05	-	06	07	-	1.50	26 300	40 100	590	695	420	495	
			1		4	3	2	04	05	0X	06	07	0W								
				2	-	3	2	04	-	0X	06	-	0W								
35	R2002 3	9			4	3	-	04	05	-	06	07	-	2.25	36 500	56 200	1 025	1 210	710	840	
			1		4	3	2	04	05	0X	06	07	0W								
				2	-	3	2	04	-	0X	06	-	0W								
<b>FKS</b>																					
15	R2000 1	9			4	3	-	04	05	-	06	07	-	0.15	4 500	5 600	44	55	16	19	
			1		4	3	-	04	05	-	06	07	-								
				-	-	-	-	-	-	-	-	-	-								
20	R2000 8	9			4	3	-	04	05	-	06	07	-	0.30	8 200	9 400	125	115	45	40	
			1		4	3	-	04	05	0X	06	07	0W								
				-	-	-	-	-	-	-	-	-	-								
25	R2000 2	9			4	3	-	04	05	-	06	07	-	0.50	10 500	12 600	195	180	70	65	
			1		4	3	-	04	05	0X	06	07	0W								
				-	-	-	-	-	-	-	-	-	-								
30	R2000 7	9			4	3	-	04	05	-	06	07	-	0.80	14 500	17 200	320	295	110	105	
			1		4	3	-	04	05	0X	06	07	0W								
				-	-	-	-	-	-	-	-	-	-								
35	R2000 3	9			4	3	-	04	05	-	06	07	-	1.20	19 300	22 400	545	485	170	150	
			1		4	3	-	04	05	0X	06	07	0W								
				-	-	-	-	-	-	-	-	-	-								

**Order example**

Options:

- ▶ Resist NR II SKS ball runner blocks BSHP
- ▶ Size 30
- ▶ Preload class C1
- ▶ Accuracy class H
- ▶ With standard seal, without ball chain

Material number: R2010 713 04

**Preload classes**

- C0 = Without preload (clearance)
- C1 = Moderate preload
- C2 = Average 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	Ball runner block with size	Preload class			Accuracy class			Seal with ball runner blocks						Weight (kg) m	Load capacities <sup>2)</sup> (N)		Load moments <sup>2)</sup> (Nm)			
		C0	C1	C2	N	H	P	without ball chain			with ball chain				C	C <sub>0</sub>	M <sub>t</sub>	M <sub>10</sub>	M <sub>L</sub>	M <sub>L0</sub>
								SS	LS <sup>1)</sup>	DS	SS	LS <sup>1)</sup>	DS							
<b>SNS</b>																				
15	R2011 1	9			4	3	-	04	05	-	06	07	-	0.15	5 100	9 300	63	90	34	49
			1		4	3	2	04	05	-	06	07	-							
				2	-	3	2	04	-	-	06	-	-							
20	R2011 8	9			4	3	-	04	05	-	06	07	-	0.35	12 300	16 900	205	215	110	115
			1		4	3	2	04	05	OX	06	07	OW							
				2	-	3	2	04	-	OX	06	-	OW							
25	R2011 2	9			4	3	-	04	05	-	06	07	-	0.50	15 000	21 000	270	295	150	165
			1		4	3	2	04	05	OX	06	07	OW							
				2	-	3	2	04	-	OX	06	-	OW							
30	R2011 7	9			4	3	-	04	05	-	06	07	-	0.85	20 800	28 700	460	500	245	265
			1		4	3	2	04	05	OX	06	07	OW							
				2	-	3	2	04	-	OX	06	-	OW							
35	R2011 3	9			4	3	-	04	05	-	06	07	-	1.25	27 600	37 500	760	805	375	390
			1		4	3	2	04	05	OX	06	07	OW							
				2	-	3	2	04	-	OX	06	-	OW							
<b>SLS</b>																				
15	R2012 1	9			4	3	-	04	05	-	06	07	-	0.20	8 500	14 000	82	132	64	104
			1		4	3	2	04	05	-	06	07	-							
				2	-	3	2	04	-	-	06	-	-							
20	R2012 8	9			4	3	-	04	05	-	06	07	-	0.45	16 000	24 400	265	310	190	230
			1		4	3	2	04	05	OX	06	07	OW							
				2	-	3	2	04	-	OX	06	-	OW							
25	R2012 2	9			4	3	-	04	05	-	06	07	-	0.65	20 000	31 600	365	450	290	350
			1		4	3	2	04	05	OX	06	07	OW							
				2	-	3	2	04	-	OX	06	-	OW							
30	R2012 7	9			4	3	-	04	05	-	06	07	-	1.10	26 300	40 100	590	695	420	495
			1		4	3	2	04	05	OX	06	07	OW							
				2	-	3	2	04	-	OX	06	-	OW							
35	R2012 3	9			4	3	-	04	05	-	06	07	-	1.70	36 500	56 200	1 025	1 210	710	840
			1		4	3	2	04	05	OX	06	07	OW							
				2	-	3	2	04	-	OX	06	-	OW							
<b>SKS</b>																				
15	R2010 1	9			4	3	-	04	05	-	06	07	-	0.10	4 500	5 600	44	55	16	19
			1		4	3	-	04	05	-	06	07	-							
				-	-	-	-	-	-	-	-	-	-							
20	R2010 8	9			4	3	-	04	05	-	06	07	-	0.25	8 200	9 400	125	115	45	40
			1		4	3	-	04	05	OX	06	07	OW							
				-	-	-	-	-	-	-	-	-	-							
25	R2010 2	9			4	3	-	04	05	-	06	07	-	0.35	10 500	12 600	195	180	70	65
			1		4	3	-	04	05	OX	06	07	OW							
				-	-	-	-	-	-	-	-	-	-							
30	R2010 7	9			4	3	-	04	05	-	06	07	-	0.60	14 500	17 200	320	295	110	105
			1		4	3	-	04	05	OX	06	07	OW							
				-	-	-	-	-	-	-	-	-	-							
35	R2010 3	9			4	3	-	04	05	-	06	07	-	0.90	19 300	22 400	545	485	170	150
			1		4	3	-	04	05	OX	06	07	OW							
				-	-	-	-	-	-	-	-	-	-							
e.g.	R2010 7		1			3			04											

1) Only with accuracy classes N and H

2) Load capacities and load moments for ball runner blocks **without** ball chain. Load capacities and load moments for ball runner blocks **with** ball chain.  14

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

#### Note

See standard ball runner blocks BSHP for the dimensions and dimension drawing