Super Ball Runner Blocks made of steel

Product Description

Characteristic features

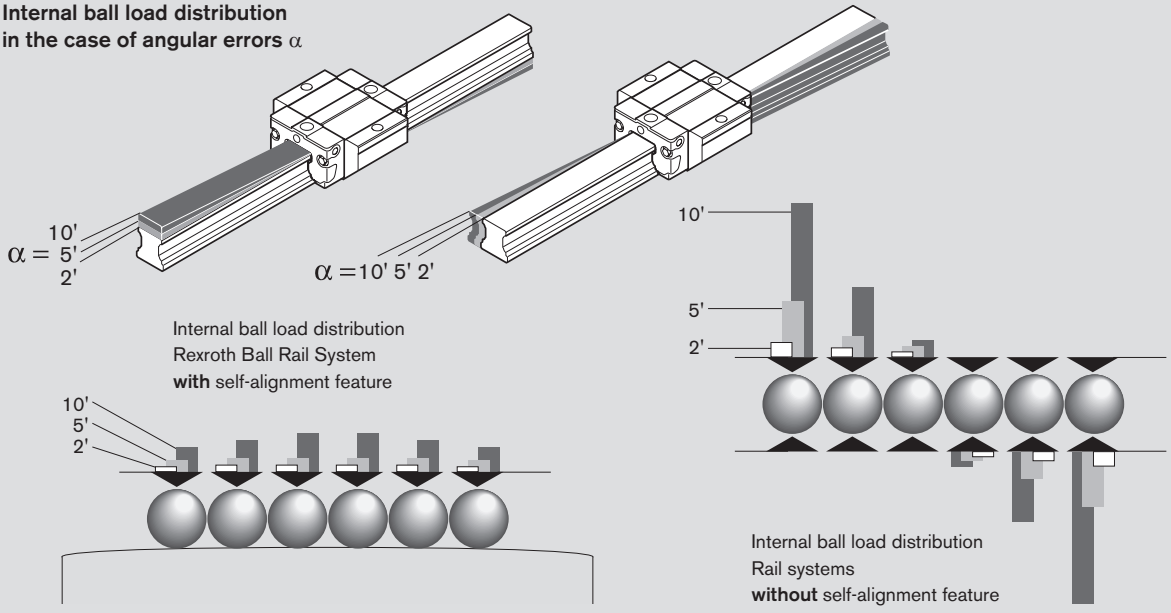
- Automatically compensates for errors in alignment (of up to 10' arc about two axes)
- Extra-compact design
- Same load capability in all four main load directions
- Wider permissible tolerances for parallelism and height offsets of the mounting surfaces
- Accuracy classes H and N
- Preload classes:
  C0 (without preload)
  C1 (preload 2% C)
- Smooth running due to optimized ball recirculation and entry zone geometry
- Low noise level and outstanding travel performance
- Excellent dynamic characteristics:
  Travel speed: $v_{max} = 5$ m/s
  Acceleration: $a_{max} = 500$ m/s^2
- Minimum quantity lubrication system with integrated reservoir for oil lubrication
- Lube ports with metal threads on all sides
- Ball runner blocks pre-lubricated in factory
- Limitless interchangeability; all ball guide rail versions can be combined at will with all ball runner block versions within each accuracy class

Self-alignment

Rexroth's Super Ball Runner Blocks with self-aligning feature automatically compensate for errors in alignment to 10' of arc. There is no load capacity reduction through compression across the edges. The centers of the mating surfaces supporting the steel load bearing plates serve as a rocking fulcrum.
Therefore slight errors in alignment between runner block and guide rail do not cause problems. Also, inaccuracies in machining, mounting errors or guide rail flex will automatically be corrected.
The self-aligning feature assures that the balls enter the load-bearing zone smoothly and that the load is distributed evenly across the entire row of balls.
The result is extra-smooth running and considerably longer service life.

With two Super runner blocks on one guide rail, it is also possible to produce tilt-free Ball Rail Systems with a high load capacity, particularly for handling applications.

Internal ball load distribution in the case of angular errors α



Internal ball load distribution
Rexroth Ball Rail System
with self-alignment feature

Internal ball load distribution
Rail systems
without self-alignment feature

Overview of Super Ball Runner Blocks models made of steel

FKS

SKS

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

Super Ball Runner Blocks made of steel

FKS – Flanged, short, standard height

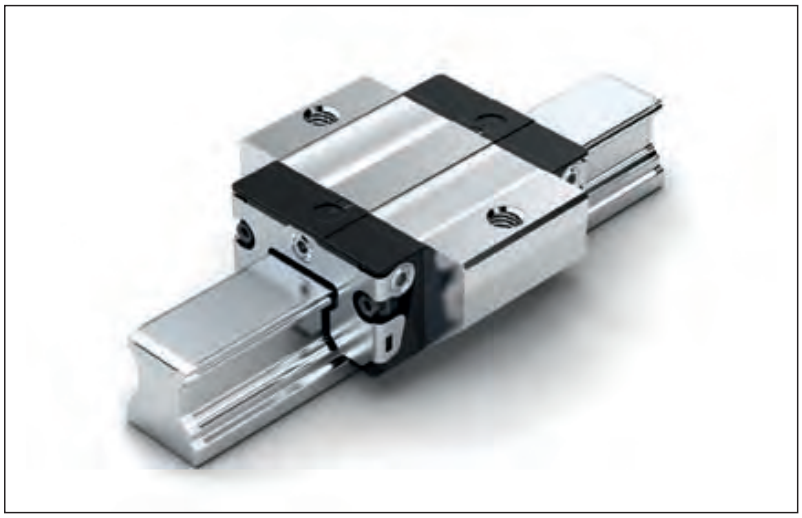
R1661 ... 2.

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

Note on lubrication
– Pre-lubricated

Further Super Ball Runner Blocks FKS
– Corrosion-resistant Ball Runner Blocks
Resist CR ☞ 108

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 without ball chain	
		C0	C1	N	H	SS	LS
15	R1661 1	9	1	4	3	20	21
20	R1661 8	9	1	4	3	20	21
25	R1661 2	9	1	4	3	20	21
30	R1661 7	9	1	4	3	20	21
35	R1661 3	9	1	4	3	20	21
e.g.	R1661 7		1		3	20	

Ordering example
Options:
– Ball Runner Block FKS
– Size 30
– Preload class C1
– Accuracy class H
– With standard seal, without ball chain

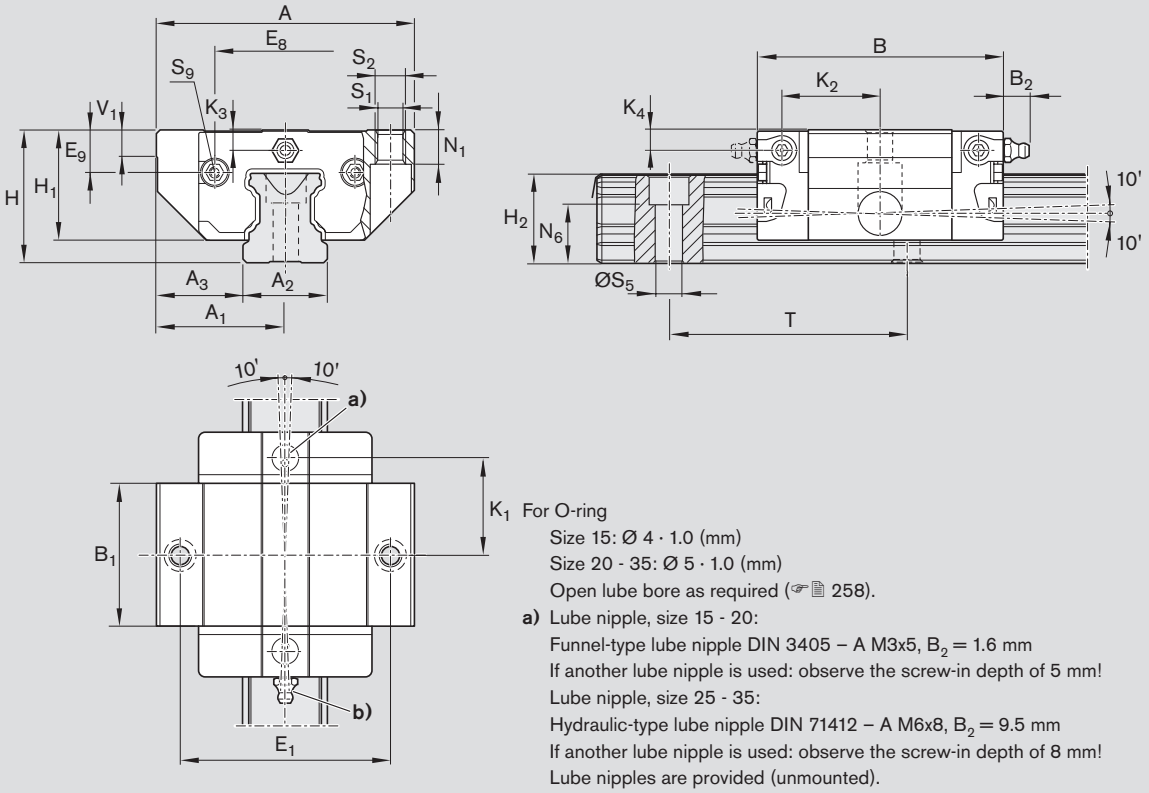
Part number: R1661 713 20

Preload classes
C0 = without preload
C1 = preload 2% C

Seals
SS = standard seal
LS = low-friction seal

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

Ball Runner Blocks FKS



K_1 For O-ring
Size 15: Ø 4 · 1.0 (mm)
Size 20 - 35: Ø 5 · 1.0 (mm)
Open lube bore as required (☞ 258).

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_1	A_2	A_3	B	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)	Permissible load (N)	Load moments[3] (Nm)	
	N_1	$N_6^{\pm 0.5}$	S_1	S_2	S_5	S_9	T	V_1		C	F_{max}	M_t	$M_{t\,max}$
15	5.2	10.3	4.3	M5	4.4	M2.5x3.5	60	5.0	0.15	3 900	1 500	39	15
20	7.7	13.2	5.3	M6	6.0	M3x5	60	6.0	0.30	10 100	3 900	130	50
25	9.3	15.2	6.7	M8	7.0	M3x5	60	7.5	0.50	11 400	4 400	170	65
30	11.0	17.0	8.5	M10	9.0	M3x5	80	7.0	0.80	15 800	6 100	270	105
35	12.0	20.5	8.5	M10	9.0	M3x5	80	8.0	1.20	21 100	8 100	450	175

1) Dimension H_2 with cover strip
2) Dimension H_2 without cover strip

Load capacities and moments for Ball Runner Block **without** ball chain.

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** and $\mathbf{M_t}$ from the table by 1.26.

Super Ball Runner Blocks made of steel

SKS – Slimline, short, standard height

R1662 ... 2.

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

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Note
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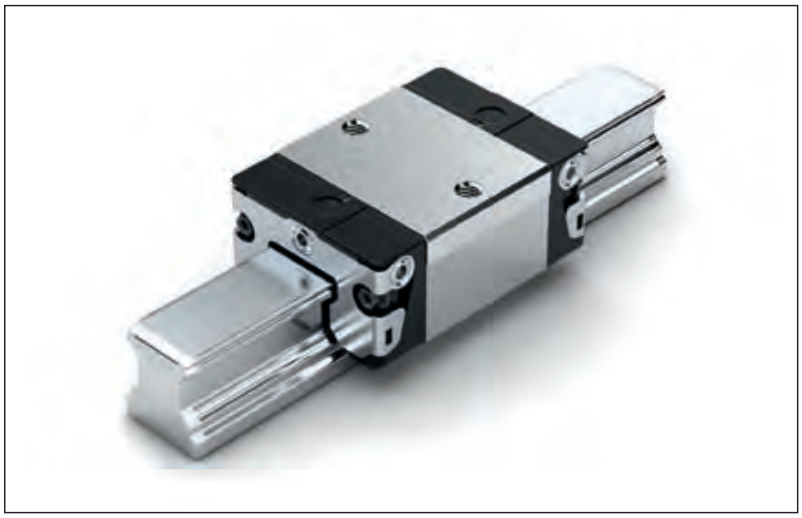

Options and part numbers

Size	Ball runner block with size	Preload class		Accuracy class		Seal for ball runner block without ball chain	
		C0	C1	N	H	SS	LS
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35	R1662 3	9	1	4	3	20	21
e.g.	R1662 7		1		3	20	

Ordering example
Options:
– Ball Runner Block SKS
– Size 30
– Preload class C1
– Accuracy class H
– With standard seal, without ball chain
Part number: R1662 713 20

Preload classes
C0 = without preload
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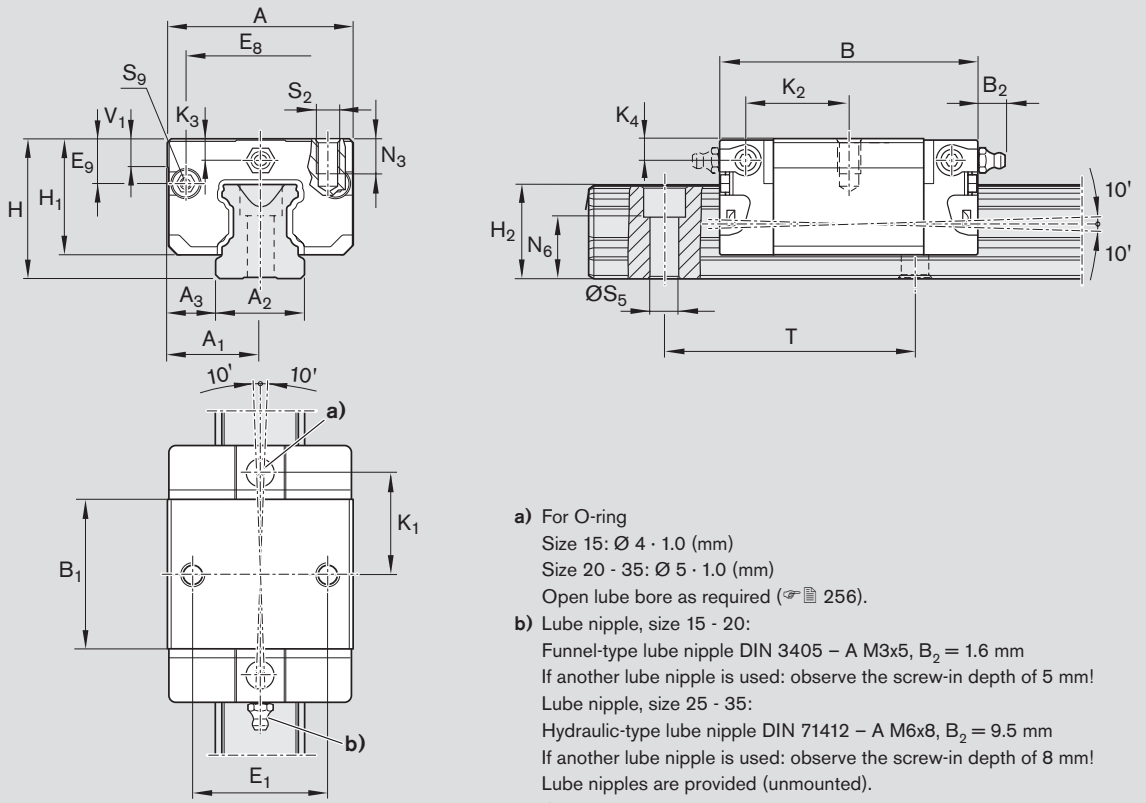
Ball Runner Blocks SKS



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b) Lube nipple, size 15 - 20:
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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)	Permissible load (N)	Load moments[3] (Nm)	
	N_3	$N_6^{\pm 0.5}$	S_2	S_5	S_9	T	V_1		C	F_{max}	M_t	$M_{t\,max}$
15	6.0	10.3	M4	4.4	M2.5x3.5	60	5.0	0.10	3900	1500	39	15
20	7.5	13.2	M5	6.0	M3x5	60	6.0	0.25	10100	3900	130	50
25	9.0	15.2	M6	7.0	M3x5	60	7.5	0.35	11400	4400	170	65
30	12.0	17.0	M8	9.0	M3x5	80	7.0	0.60	15800	6100	270	105
35	13.0	20.5	M8	9.0	M3x5	80	8.0	0.90	21100	8100	450	175

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