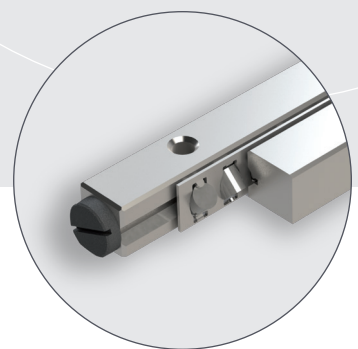
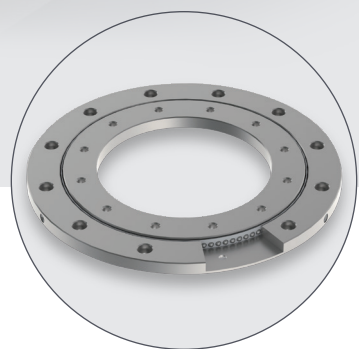
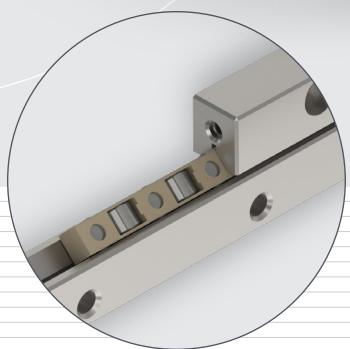
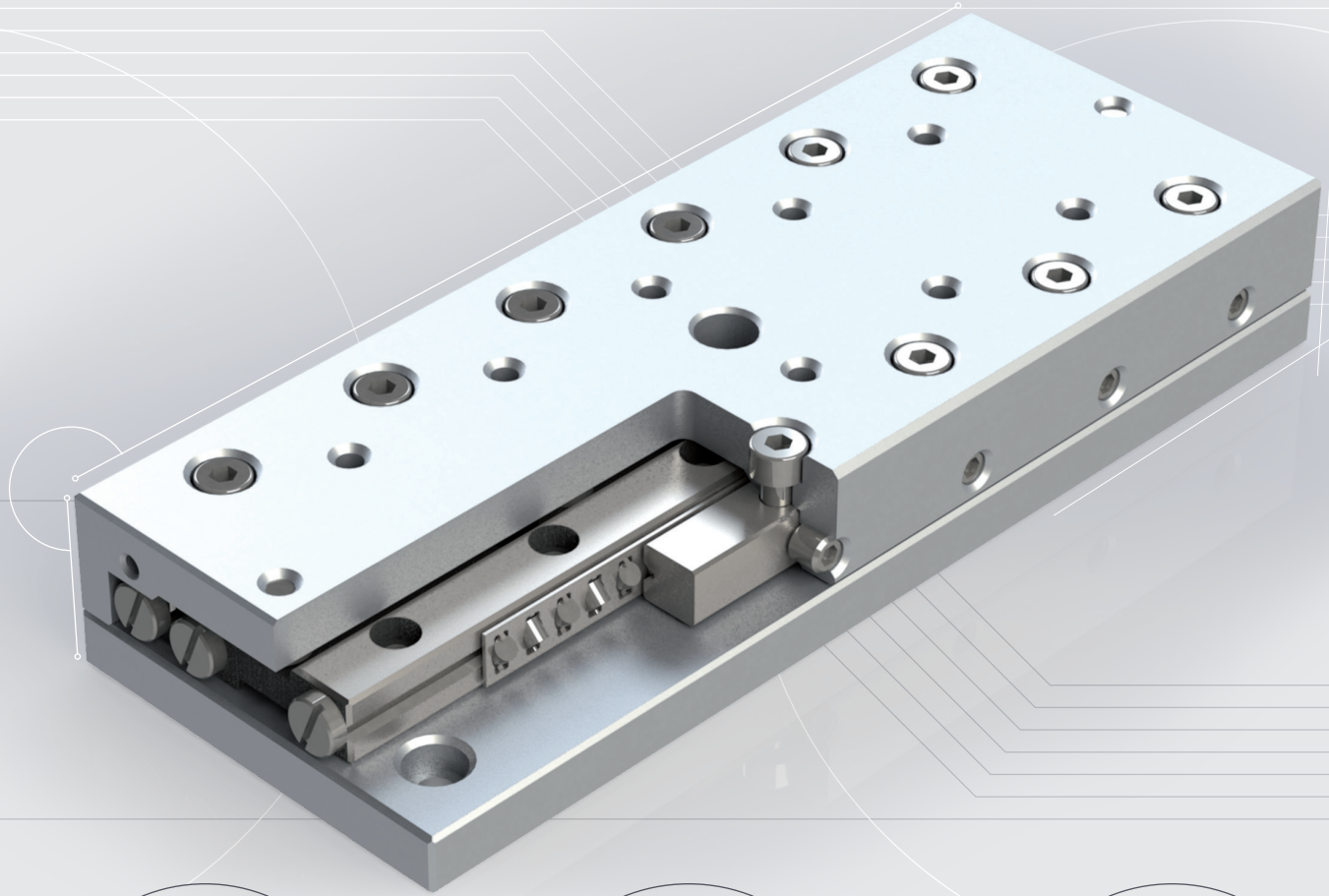


OVER
50
YEARS
of SUCCESS



LINEAR BEARINGS SETS TYPE RNG



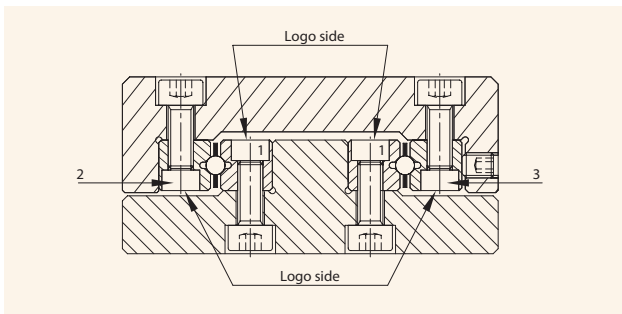
ASSEMBLY PROCEDURE

BEFORE START ASSEMBLY

PM linear bearings are precision components; they have to be handled with meticulous care. To achieve a perfect linear bearing, please pay due attention to the following notes:

- Be careful in handling the components. Do not drop it or hit it with anything like a hammer. Damages on the rail surface will have his impact on the running performance and operation life.
- Keep out any foreign material when mounting the rails.
- During assembly, all linear bearing components must have the same room temperature.
- For an uniform tightening of the bolts the use of a torque screw driver is recommended. Various models and bits are available. Please consult PM.

ASSEMBLY LINEAR BEARINGS



For a satisfying installation of all types of linear bearings in this catalog, the following should be observed:

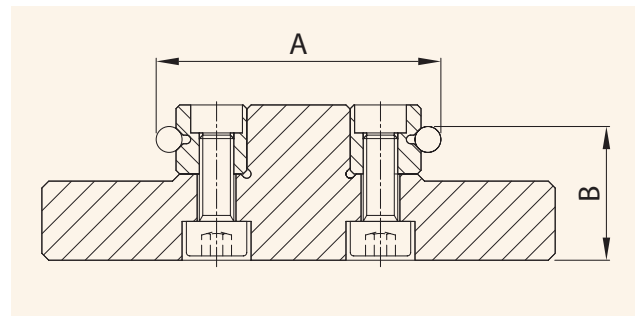
- 1) Fixing holes in the support structure (slide-base) should be "spotted through" from the holes in the rails. This is highly desirable as the original pitch of individual holes may have altered during hardening by as much as 0.4 mm. To compensate this, in part at least, special attachment screws type GD or GDN can be supplied. The dimensions of these are listed in the tables under the relative linear bearings for sizes.
- 2) Carefully de-burr and clean all constructional elements, to ensure a flat surface and a perfect seating of the rails.
- 3) The inner rail-pair (1), mounted "shoulder-to-shoulder" should be bolted down first, as follows: The base and reference face 1 of the linear bearing rails should be lightly oiled before they are clamped

against the mounting and reference shoulder.

They should then be bolted down by tightening up progressively, starting from one end and working to the other.

- 4) Parallelism of the V-tracks of the rails (A and B) should be checked. The tolerance must be within the tolerance of the linear bearings (page 14). When this has been done, the slide element in question is now ready for assembly.

Parallelism of rails V-track: ΔA und ΔB



- 4.1) The slide top can now be assembled. The fixed bearing rail (2) should be mounted as described at 3.1 above, but the adjustable rail (3) should only be screwed down lightly, to leave a gap between V-tracks for the insertion of ball-, roller- or needle cages.
- 5) This point only in cases where end stops are already inserted in the rail ends. Remove the end stop screws.
- 6) Carefully insert the cages. When the cages are exact in position, bolt down the adjustable V-rail lightly, until the screws are finger-tight.
- 7) Fit the end stop screws or end pieces.
- 8) The linear bearing set can now be play-free adjusted using the lateral preload setscrews. (chapter Preload Setting Linear Bearings, page 18).
- 9) Secure the attachment screws on the adjusting rail.
- 10) When assembly is finished, the linear bearings must be inspected for absence of play and for running the accuracy.



TABLES

RECOMMENDED PRELOAD SETTINGS

Table 1 Linear bearings RSD with roller cages

Roller size (mm)	Pitch cage (mm)	Setscrew	Pitch* (mm)	Preload (Ncm)
1.5	3	M 2.5	10	0.75
2	4	M3	15	1.50
3	5	M5	25	4.50
4	7	M5	40	11.50
6	12	M6	100	18.50
9	14	M8	100	105.50
12	22	M10	100	176.50
15	20	M12	100	370.00

Table 2 Linear bearings RSD with ball cages

Roller size (mm)	Pitch cage (mm)	Setscrew	Pitch* (mm)	Preload (Ncm)
1.5	3	M 2.5	10	0.20
2	4	M3	15	0.40
3	5	M5	25	1.10
4	7	M5	40	2.70
6	9	M6	50	4.00
9	14	M8	100	11.70
12	15.5	M10	100	25.00
15	20	M12	100	34.50

Table 3 Linear bearings RSDE with roller cages

Roller size (mm)	Pitch cage (mm)	Setscrew	Pitch* (mm)	Preload (Ncm)
3	3.3	M5	25	16
4	4.4	M5	40	41
6	6.6	M6	50	86
9	On request			

Table 4 Linear bearings RNG with roller cages

Roller size (mm)	Pitch cage (mm)	Setscrew	Pitch* (mm)	Preload (Ncm)
4	4.4	M3	25	14
6	6.6	M4	25	25

Table 5 Linear Bearings N/O and M/V with needle cages

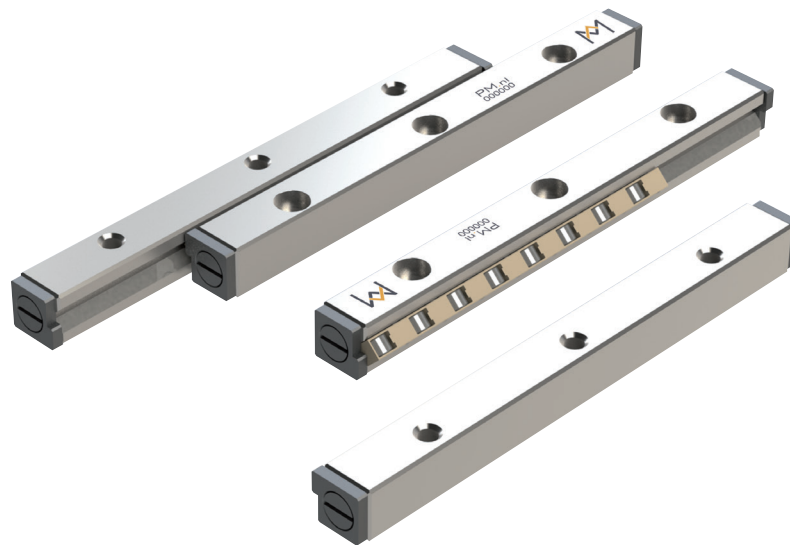
Roller size (mm)	Pitch cage (mm)	Setscrew	Pitch* (mm)	Preload (Ncm)
2	4.5	M6	50	1.05
2	4.5	M8	100	1.30
2.5	5	M8	100	2.70
2.5	5.5	M8	100	2.90
3	6	M12	100	5.70
3.5	7	M14	100	7.70

RECOMMENDED TIGHTENING TORQUE FOR ATTACHMENT SCREWS

Table 6 Tightening torque strength grade 12.9

Max. Tightening torques (Ncm)		
Size	Tightening Torque DIN 912	Attachment screws GD and GDN
M2	0.60	0.48
M3	2.00	1.60
M4	4.90	3.92
M5	9.60	7.68
M6	17.00	13.60
M8	41.00	32.80
M10	79.00	63.20
M12	140.00	112.00
M14	220.00	176.00

*pitch between the preload setscrews



LINEAR BEARINGS SET

Advantages for users

- Packed as set
- Standard stroke lengths*
- Ready for assembly, reducing cost
- Cages are straighten
- Quick delivery
- Worldwide standardized
- Pre selection by load capacity vs travel length

*In need of longer stroke lengths? Roller cage are easy to shorten. The length of cage should be a least > 70% of rail length.

Linear bearings set type RNG

Used worldwide in high precision linear motion, providing high accuracy and an outstanding reliability.

Standard linear bearings sets consists of:

- 4 pcs. rails type RNG
- 2 pcs. roller cages type KRE
- 8 pcs. end screws type GBN inserted in the rail ends

Packed and delivered as set.

Example: RNG-4150x22KRE

One set consists of:

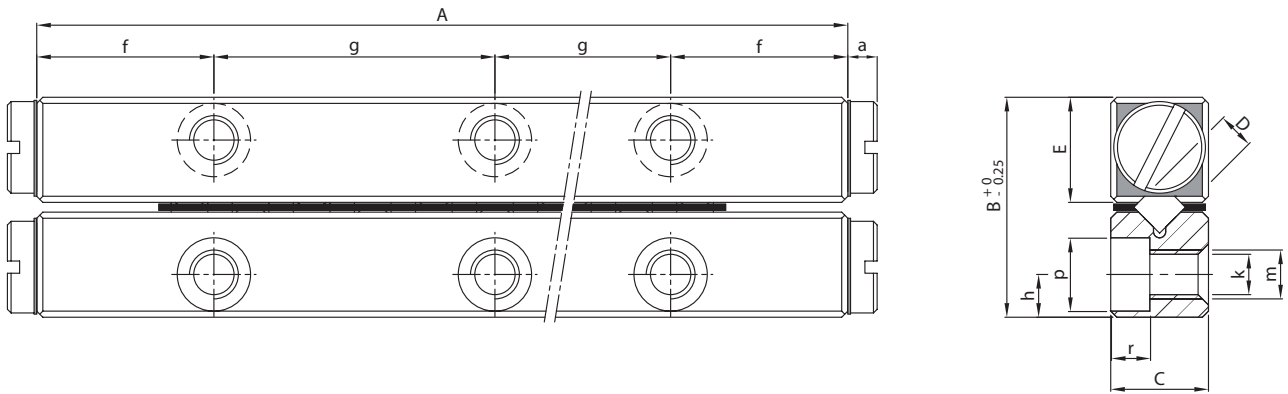
- 4 pcs. rails RNG-4150
- 2 pcs. roller cages R4x22KRE
- 8 pcs. end screws GBN-4

SET NUMBER STRUCTURE

If changes are required please check the type number structure.

Type + Size	Rail length	Number of rollers	Cage (Suffix KRE, KREV...)	Stainless steel (Suffix SS)	Special quality (Suffix Q4, SF...)
RNG- 4	150	22	KRE		

Ordering example: Standard: 1 set RNG-4150x22KRE
 Stainless steel: 1 set RNG-4150x22KRE-SS

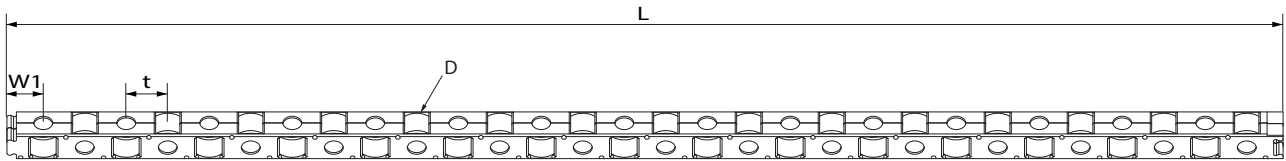
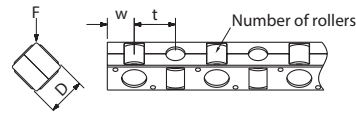


one set include: 4 rails + 2 roller cages + 8 end pieces

RSDE kit		Main dimensions					Mounting holes						
Standard	Stainless steel	A	B	C	E	D	f	g	h	k	m	p	
RNG-4050x7KRE	RNG-4050x7KRE-SS	50						1x25					
RNG-4075x11KRE	RNG-4075x11KRE-SS	75						2x25					
RNG-4100x15KRE	RNG-4100x15KRE-SS	100						3x25					
RNG-4125x19KRE	RNG-4125x19KRE-SS	125						4x25					
RNG-4150x23KRE	RNG-4150x23KRE-SS	150						5x25					
RNG-4175x27KRE	RNG-4175x27KRE-SS	175	19	9	9	4	12.5	6x25	3.5 ^{±0.2}	2.65	M3	5.5	
RNG-4200x30KRE	RNG-4200x30KRE-SS	200						7x25					
RNG-4225x32KRE	RNG-4225x32KRE-SS	225						8x25					
RNG-4250x35KRE	RNG-4250x35KRE-SS	250						9x25					
RNG-6100x10KRE	RNG-6100x10KRE-SS	100						3x25					
RNG-6150x16KRE	RNG-6150x16KRE-SS	150						5x25					
RNG-6200x20KRE	RNG-6200x20KRE-SS	200						7x25					
RNG-6250x25KRE	RNG-6250x25KRE-SS	250						9x25					
RNG-6300x31KRE	RNG-6300x31KRE-SS	300						11x25					
RNG-6350x36KRE	RNG-6350x36KRE-SS	350	25	12	12	6	12.5	13x25	5 ^{±0.2}	3.3	M4	7	
RNG-6400x40KRE	RNG-6400x40KRE-SS	400						15x25					

Bold = Short lead time item

Regular = Long lead time item - please request for price and delivery time



r	End pieces a	Weight (g)	C _{dyn} in (N)	Roller cage						Stroke	Type
				D	t	w	w1	L	Z		
2.7	4	125	5495	4	4.4	2.8	3.85	32	7	30	RNG-4050x7KRE
		205	8635					49.6	11	45	RNG-4075x11KRE
		275	11775					67.2	15	60	RNG-4100x15KRE
		345	14915					84.8	19	75	RNG-4125x19KRE
		415	18055					102.4	23	90	RNG-4150x23KRE
		485	21195					120	27	105	RNG-4175x27KRE
		555	23550					133.2	30	130	RNG-4200x30KRE
		625	25120					144.3	32	155	RNG-4225x32KRE
		695	27475					157.5	35	180	RNG-4250x35KRE
3.2	4	460	17650	6	6.6	4.3	6.3	68	10	50	RNG-6100x10KRE
		690	28240					107.6	16	80	RNG-6150x16KRE
		920	35300					134	20	120	RNG-6200x20KRE
		1150	44125					167	25	150	RNG-6250x25KRE
		1380	54715					210.6	31	175	RNG-6300x31KRE
		1610	63540					243.6	36	210	RNG-6350x36KRE
		1840	70600					270	40	245	RNG-6400x40KRE

F = Load direction according to picture.

Units: mm

PM RESEARCH AND PRODUCTION FACILITY



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