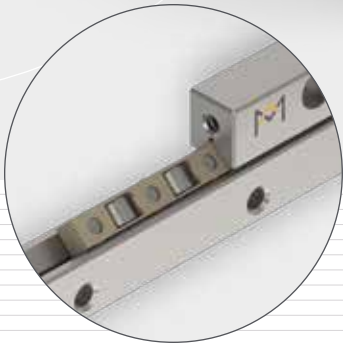
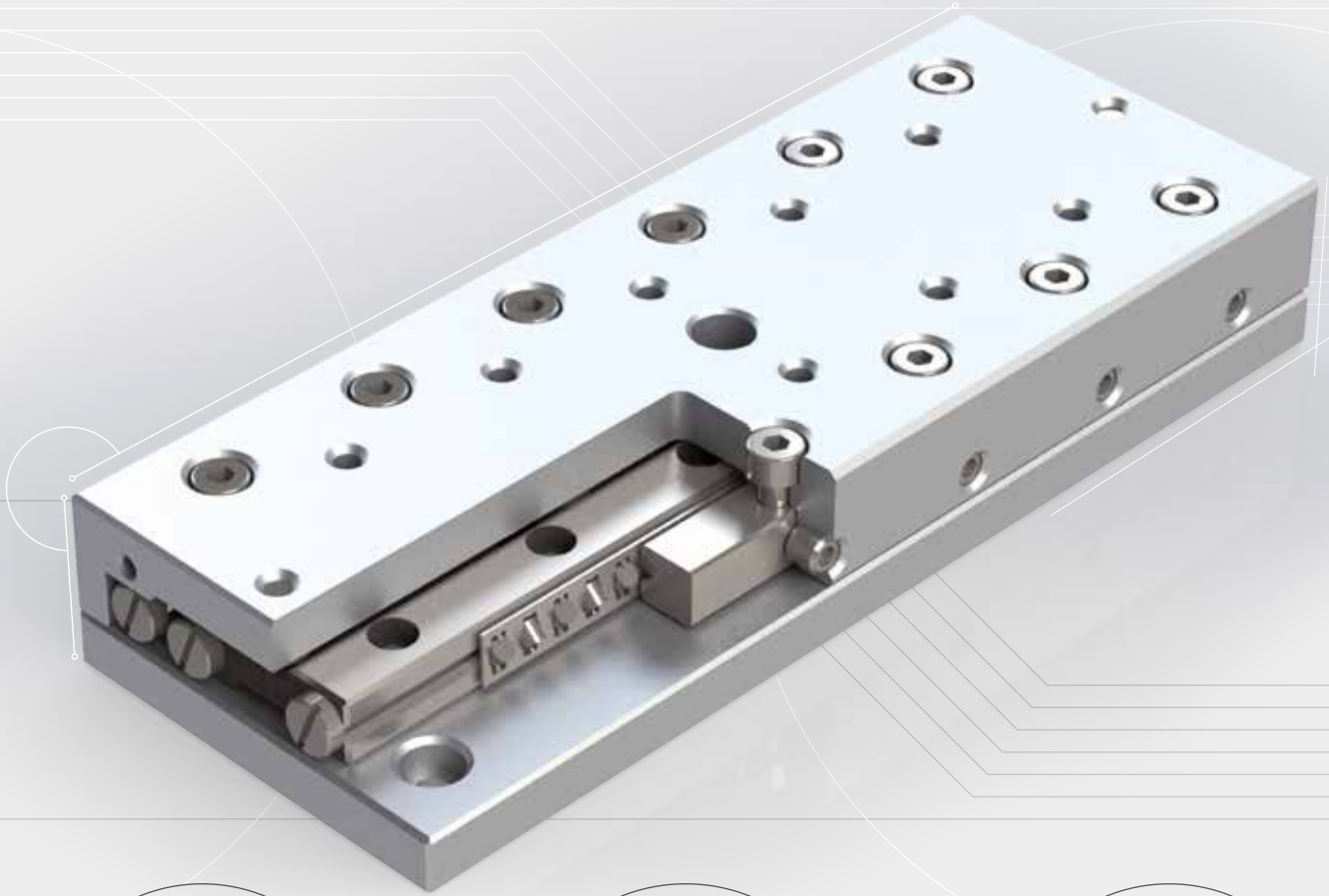


OVER
50
YEARS
of success



LINEAR BEARING SETS TYPE RSD



Company's headquarters in Dedemsvaart, Netherlands



Innovative design and manufacture of precision linear bearings, frictionless slides, positioning stages and engineered-to-spec motion systems.





INTRODUCTION

PM has engineered and manufactured innovative and top quality precision linear bearings and slides at our research and production facilities in the Netherlands since 1966. We are experts in finding solutions that meet the specific requirements of a wide variety of industry applications. A trusted partner for hundreds of industry heavyweights around the globe, our client base ranges from the semiconductor industry, medical technology and metrology sectors, to industrial automation, space and defence industries.

COMPANY

The key to the exceptional quality of PM products lies in our highly specialised manufacturing machinery and facilities. Specifically, the PM production facility is temperature controlled and built to suppress and minimise distortions caused by vibration. Our precision rails are produced with remodeled, non-standard machinery. The resulting high quality of our products makes PM an attractive supplier for various high-tech industries including semiconductor, optical and life sciences.

NEW PRODUCTS

We constantly deploy the latest technologies to create new products or functionally enhance existing products in our range. Clients typically choose to work with PM for our proven ability to meet a complex set of requirements, mostly including maximum performance of parts in the most compact of spaces. We are always working to further refine the performance of PM products, in order to ensure that we consistently meet the requirements of clients in high-tech industries. The following new PM products are the result of our relentless drive to be operating at the cutting edge of the latest technologies:

- **Linear bearing type RNG:** is a compact design with high load capacity. Available with optional Anti Cage Creep solution (ACC). Perfectly integrates robustness and compactness.
- **Micro roller slide type PMMR:** featuring crossed-rollers. Designed for best performance in micro-sized applications.
- **Flat Mounted Bearing type FMB:** is an extremely flat, low-friction and easy to install table bearing.

CUSTOMISED PARTS

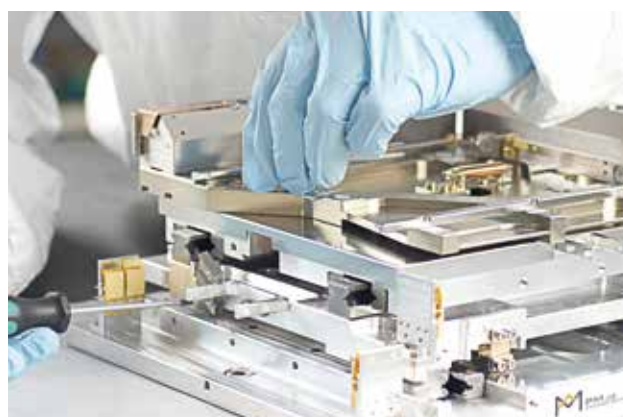
In addition to offering high-quality standardised products, we design and manufacture engineered linear bearings and positioning systems meeting our clients' application-specific requirements.

PM combines the latest knowledge from its in-house R&D department, developments in manufacturing technology

more widely as well as performance insights generated by industry deployment of precision applications.

Over the past 50 years PM has expanded its reach to serve a global client base. Our experienced, multilingual engineering and sales teams stand ready to work with you in realising your demanding projects.

Technical data in this catalogue is based on standard quality grade Q8 (no suffix). For higher quality grades please contact our product experts to discuss your requirements.



DISCLAIMER

This catalogue is the result of a full revision of its previous edition. It reflects the latest progress in linear bearings technology as well as insights gathered from industry application. Any information from previous editions that does not correspond to the data in this current edition, is therefore invalid. Due to the continuous development of our product range, we reserve the right to make modifications without prior notice.

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PRODUCT OVERVIEW

PM linear bearings are used as components in multiple industries worldwide. What really sets apart PM products is their unsurpassed quality and technical performance in terms of accuracy, their extremely low levels of friction, high rigidity and long lifetime.

Our wide range of linear bearings allows for maximum design flexibility, realising a play-free linear movement that is both cost-effective and the best fit for its application. Popular linear bearings are also available as set packages including all the essential components like cages, end pieces and attachment screws. In the following pages, this catalogue presents these standard sets, specifying options for load capacity and stroke length.

Importantly, PM customers benefit from over 50 years' experience in the field of linear bearings manufacturing. As a result of our continuous testing of innovations and new insights in engineering and manufacturing, our linear bearings are constantly being optimised further and often become an industry benchmark.

At PM we are always driven by our goal to be industry leaders in quality and performance. We possess the expertise and manufacturing capability to supply custom made linear bearings and linear slides.

So whether you choose a standard product as presented in this catalogue or a customised component that meets your specific needs, we only ever deliver top quality.

1. LINEAR BEARING TYPE RSD

- Equipped with balls or rollers
- For light up to medium load
- Available in size 1.5 - 24 mm
- Lengths from 20 - 1400 mm
- Also available as a set, see page 41



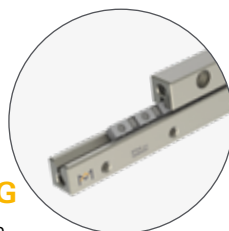
2. LINEAR BEARING TYPE RSDE

- Equipped with rollers, size 3 – 9 mm
- For precision applications
- For medium up to high loads
- Anti cage creep technology optional
- Also available as a set, see page 57



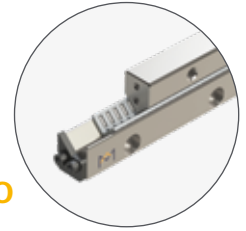
3. LINEAR BEARING TYPE RNG

- Equipped with rollers 4 and 6 mm
- Very compact design and high load ratings
- Offers reduced weight
- Anti cage creep technology optional
- Also available as a set, page 67



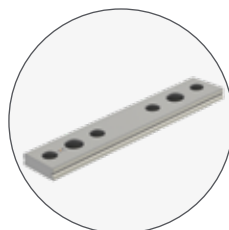
4. LINEAR BEARINGS TYPE N/O AND M/V

- Equipped with needle rollers
- Best load ratings and maximum rigidity
- Lengths from 100 - 1200 mm
- Anti cage creep technology optional



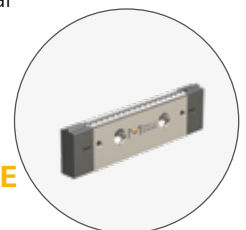
5. DOUBLE PRISM TYPE DS

- Compact design
- Can be combined with RSD linear bearings and recirculating units UK and UR
- Available in size 2 - 15 mm
- Lengths up to 1400 mm



6. RECIRCULATING UNITS TYPE UK AND UR

- For unlimited travel
- Low profile and space saving design
- Equipped with balls (UK) or rollers (UR)
- Available in size 2 - 15 mm





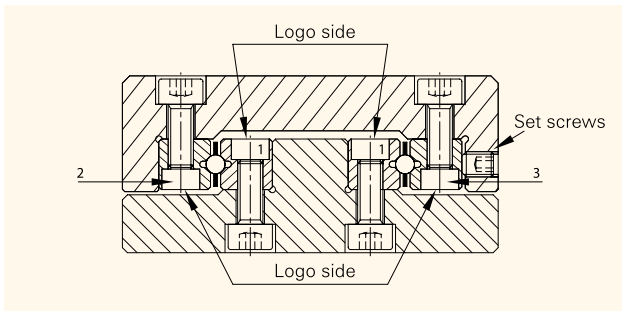
ASSEMBLY PROCEDURE

PRIOR TO ASSEMBLY

PM linear bearings are precision components; they have to be handled with meticulous care. To achieve a perfect linear bearing, it is necessary to respect the following guidelines:

- When handling the components. Damage on the rail surface will impact the running performance and operational lifetime
- Prevent contact with any foreign materials when mounting the rails
- During assembly, ensure that all linear bearing components have the same temperature
- For uniform tightening of the bolts the use of a torque screw driver is recommended. Various models are available.

ASSEMBLY LINEAR BEARINGS



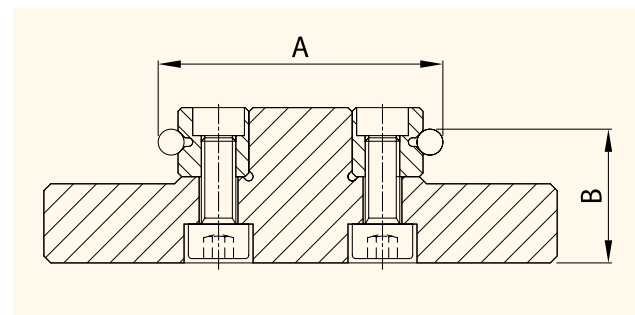
For satisfactory installation of all types of linear bearings in this catalogue, it is necessary to consider the following points:

- 1) To determine the location of fixing holes in the support structure (slide base) the holes in the rails should be taken as a reference and "copied" onto the support structure. 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, special type GD or GDN attachment screws can be supplied. The dimensions of these screws are listed in the tables at the end of each chapter.
- 2) Carefully de-burr and clean all elements, to ensure a flat surface and a perfect fit of the rails.
- 3) Now, as a required first step, to fasten the inner rail pair (marked as 1 in figure above) 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. Subsequently,

they can be fastened by starting from one end and working towards the opposite end.

- 4) Parallelism of the V-groove of the rails (A and B) should be checked to ensure they don't exceed the tolerance of the linear bearings (page 14). After these steps have been followed, the slide element is ready for assembly.

Parallelism of rails V-groove: ΔA and ΔB

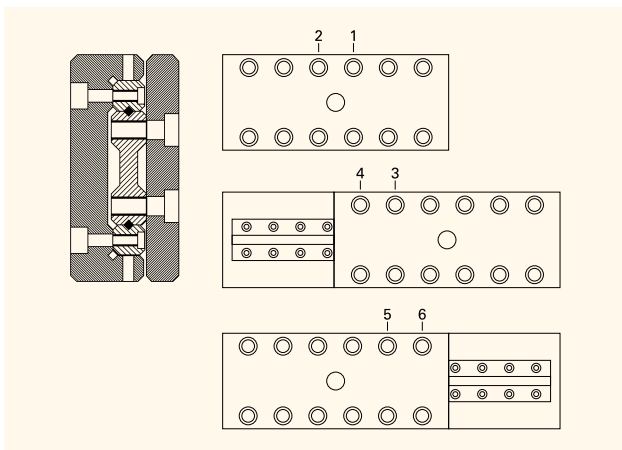


- 4.1) The fixed bearing rail (2) should be mounted as described under step 3 above, but care should be taken not to tighten the adjustable rail (marked as 3 in figure on the left side) too much, so as to leave a gap between the V-grooves for the insertion of ball cages, roller cages or needle cages.
- 5) If any end stop screws are present, remove them now.
- 6) Carefully insert the cages. When placed in their exact position, lightly secure the adjustable rail until the screws are finger-tight.
- 7) Fit the end screws or end pieces.
- 8 I) The linear bearing set is now ready to be backlash free-adjusted using the lateral preload set screws (page 19, Preload Settings). The amount of preload is given in the tables at page 23.
- 8 II) Before starting the preload procedure carefully move the slide top over its stroke length back and forth and feel that there are no irregularities.
- 9) Preload procedure: put the slide on a clean surface on its side with the lateral preload set screws up. Follow step 1, 2 and 3 for the correct preload sequence.
 - Step 1. Start in the middle position and adjust the set screws with the recommended torque value, working outwards from the middle. Notice: Only adjust the screws directly above the cage.



Step 2. Move the slide top in one direction and adjust the set screws to the recommended torque value.

Step 3. Move the slide top in opposite position and repeat the adjusting for the screws which are now above the cages.



Again move the slide top back and forth a couple of times and feel that there are no irregularities.

- 10) Secure the attachment screws on the adjusting rail.
- 11) When assembly is complete, the linear bearings must be checked for absence of play and inspected for running quality.



TABLES

RECOMMENDED PRELOAD SETTINGS

Table 1 Linear bearings type RSD with roller cages

Roller size (mm)	Pitch cage (mm)	Set screw	Pitch* (mm)	Preload (Ncm)
1.5	3	M2.5	10	0.75
2	4	M3	15	1.50
3	5	M5	25	4.50
4	7	M5	40	11.50
6	9	M6	100	27.50
9	14	M8	100	105.50
12	18	M10	100	212.00
15	20	M12	100	370.00

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

Needle size (mm)	Pitch cage (mm)	Set screw	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

*pitch between the preload setscrews

Table 2 Linear bearings type RSD with ball cages

Ball size (mm)	Pitch cage (mm)	Set screw	Pitch* (mm)	Preload (Ncm)
1.5	3	M2.5	10	0.15
2	4	M3	15	0.36
3	5	M5	25	1.05
4	7	M5	40	2.70
6	9	M6	50	4.00
9	14	M8	100	11.70
12	18	M10	100	25.00
15	20	M12	100	34.50

Table 3 Linear bearings type RSDE with roller cages

Roller size (mm)	Pitch cage (mm)	Set screw	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 type RNG with roller cages

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



LINEAR BEARING SET

User benefits

- Packaged as a set
- Standard stroke lengths*
- Ready for assembly, reducing cost
- Cages are straightened
- Short lead times
- Global standard
- All parts come pre-selected with stroke and load ratings

*Do you require longer stroke lengths? Roller cages can easily be shortened. Cage length should be at least 70% of the rail length.

Linear bearings set type RSD

Used by industries around the world, type RSD linear bearings provide high accuracy and superior reliability.

A standard set consists of:

- 4 pcs. Rails type RSD
 - 2 pcs. Roller cages type AA
 - 8 pcs. End screws type GA inserted in the rail ends
- Packed and delivered as a set.

Example: RSD-3100x14AA

One set consists of:

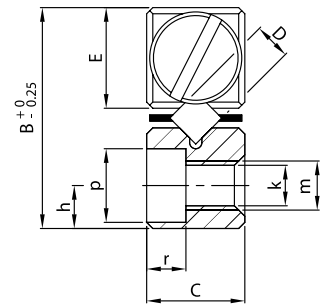
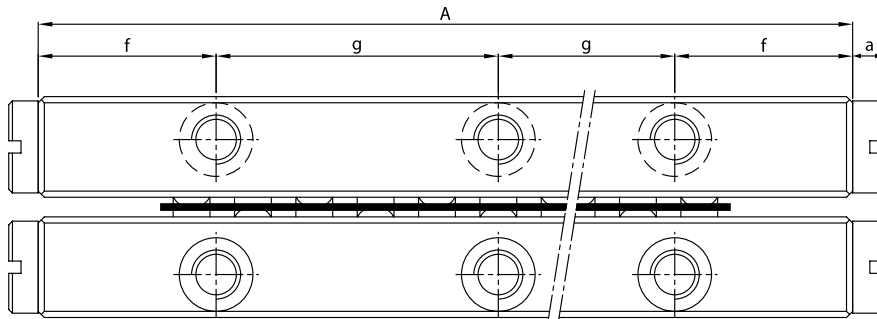
- 4 pcs. Rails type RSD-3100
- 2 pcs. Roller cages type R3x14AA
- 8 pcs. End screws type GA-3

PRODUCT CODES

To specify your detailed order, please follow the product code format as set out in the table below.

Type + Size	Rail length	Quality grade (Suffix Q4, Q2)	Rail finishing	Number of rollers	Cage type (Suffix AA, AL, KZR, JJ, KCLK)	Stainless steel (Suffix SS)
RSD- 3	100	Q4	SF	15	AA	

Order template (adjust as needed): Standard: 1 set RSD-3100x10AA
 Stainless steel: 1 set RSD-3100x10AA-SS

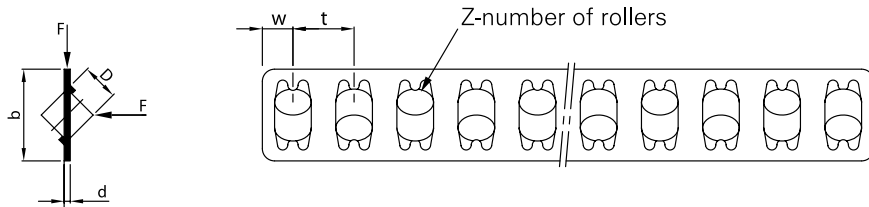


One set includes: 4 rails + 2 roller cages + 8 end screws

RSD Kit		Main dimensions					Mounting holes					
Standard	Stainless steel	A	B	C	E	D	f	g	h	k	m	p
RSD-1520x4KZR	RSD-1520x4KZR-SS	20						1x10				
RSD-1530x6KZR	RSD-1530x6KZR-SS	30						2x10				
RSD-1540x8KZR	RSD-1540x8KZR-SS	40						3x10				
RSD-1550x10KZR	RSD-1550x10KZR-SS	50	8.5	4	3.9	1.5	5	4x10	1.8 ^{±0.1}	1.6	M2	3
RSD-1560x13KZR	RSD-1560x13KZR-SS	60						5x10				
RSD-1570x15KZR	RSD-1570x15KZR-SS	70						6x10				
RSD-1580x17KZR	RSD-1580x17KZR-SS	80						7x10				
RSD-2030x5AA	RSD-2030x5AA-SS	30						1x15				
RSD-2045x8AA	RSD-2045x8AA-SS	45						2x15				
RSD-2060x11AA	RSD-2060x11AA-SS	60						3x15				
RSD-2075x13AA	RSD-2075x13AA-SS	75						4x15				
RSD-2090x16AA	RSD-2090x16AA-SS	90						5x15				
RSD-2105x18AA	RSD-2105x18AA-SS	105	12	6	5.5	2	7.5	6x15	2.5 ^{±0.1}	2.5	M3	4.3
RSD-2120x21AA	RSD-2120x21AA-SS	120						7x15				
RSD-2135x23AA	RSD-2135x23AA-SS	135						8x15				
RSD-2150x26AA	RSD-2150x26AA-SS	150						9x15				
RSD-2165x29AA	RSD-2165x29AA-SS	165						10x15				
RSD-2180x32AA	RSD-2180x32AA-SS	180						11x15				
RSD-3050x7AA	RSD-3050x7AA-SS	50						1x25				
RSD-3075x10AA	RSD-3075x10AA-SS	75						2x25				
RSD-3100x14AA	RSD-3100x14AA-SS	100						3x25				
RSD-3125x17AA	RSD-3125x17AA-SS	125						4x25				
RSD-3150x21AA	RSD-3150x21AA-SS	150						5x25				
RSD-3175x24AA	RSD-3175x24AA-SS	175	18	8	8.2	3	12.5	6x25	3.5 ^{±0.2}	3.2	M4	6
RSD-3200x28AA	RSD-3200x28AA-SS	200						7x25				
RSD-3225x31AA	RSD-3225x31AA-SS	225						8x25				
RSD-3250x35AA	RSD-3250x35AA-SS	250						9x25				
RSD-3275x38AA	RSD-3275x38AA-SS	275						10x25				
RSD-3300x42AA	RSD-3300x42AA-SS	300						11x25				

Bold = Short lead time item

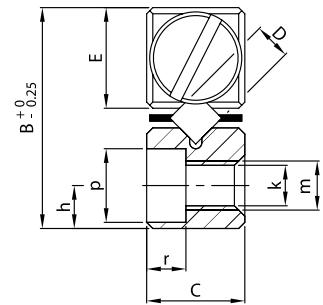
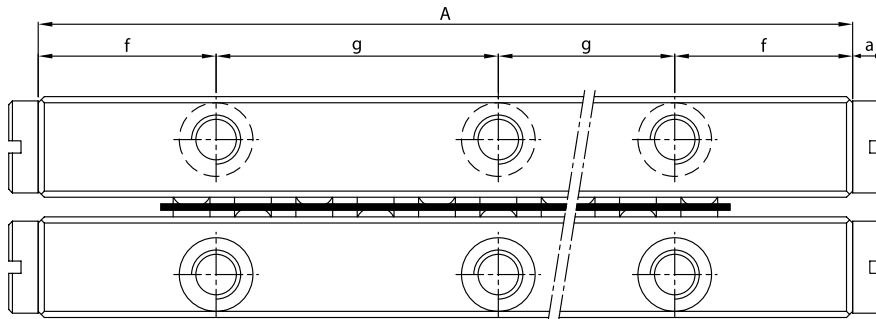
Regular = Long lead time item - please ask us about prices and lead times



r	End pieces a	Weight (g)	Load rating C_{dyn} (N)	Roller cage					Stroke	Type
				b	d	t	w	Z		
1.4	1.5	10	208	3.8	0.5	3	2.25	4	10	RSD-1520x4KZR
		14	312					6	18	RSD-1530x6KZR
		18	416					8	27	RSD-1540x8KZR
		22	520					10	30	RSD-1550x10KZR
		27	676					13	35	RSD-1560x13KZR
		31	780					15	40	RSD-1570x15KZR
		34	884					17	50	RSD-1580x17KZR
2	2	28	430	5.6	0.3	4	2.8	5	18	RSD-2030x5AA
		42	688					8	24	RSD-2045x8AA
		55	946					11	30	RSD-2060x11AA
		69	1118					13	44	RSD-2075x13AA
		83	1376					16	50	RSD-2090x16AA
		96	1548					18	64	RSD-2105x18AA
		110	1806					21	70	RSD-2120x21AA
		123	1978					23	84	RSD-2135x23AA
		137	2236					26	90	RSD-2150x26AA
		151	2494					29	95	RSD-2165x29AA
165	2752	32	100	RSD-2180x32AA						
3.2	2.4	94	952	7.5	0.5	5	3.5	7	28	RSD-3050x7AA
		135	1360					10	48	RSD-3075x10AA
		187	1904					14	58	RSD-3100x14AA
		234	2312					17	78	RSD-3125x17AA
		281	2856					21	88	RSD-3150x21AA
		327	3264					24	105	RSD-3175x24AA
		374	3808					28	115	RSD-3200x28AA
		421	4216					31	135	RSD-3225x31AA
		468	4760					35	145	RSD-3250x35AA
		514	5168					38	165	RSD-3275x38AA
		561	5712					42	175	RSD-3300x42AA

F = For load direction please refer to picture provided

Units: mm

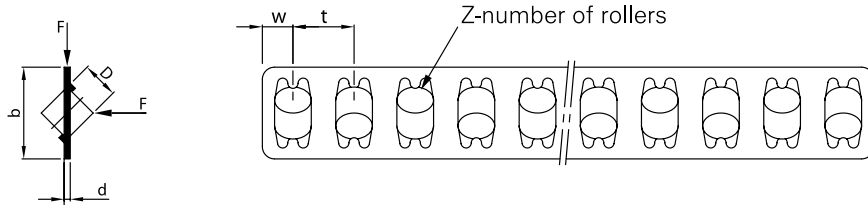


One set includes: 4 rails + 2 roller cages + 8 end screws

RSD Kit		Main dimensions					Mounting holes					
Standard	Stainless steel	A	B	C	E	D	f	g	h	k	m	p
RSD-4080x7AA	RSD-4080x7AA-SS	80						1x40				
RSD-4120x11AA	RSD-4120x11AA-SS	120						2x40				
RSD-4160x15AA	RSD-4160x15AA-SS	160						3x40				
RSD-4200x19AA	RSD-4200x19AA-SS	200						4x40				
RSD-4240x23AA	RSD-4240x23AA-SS	240						5x40				
RSD-4280 x27AA	RSD-4280x27AA-SS	280	22	11	10	4	20	6x40	4.5 ^{+0.2}	4.3	M5	7.5
RSD-4320x31AA	RSD-4320x31AA-SS	320						7x40				
RSD-4360x35AA	RSD-4360x35AA-SS	360						8x40				
RSD-4400x39AA	RSD-4400x39AA-SS	400						9x40				
RSD-4440x43AA	RSD-4440x43AA-SS	440						10x40				
RSD-4480x47AA	RSD-4480x47AA-SS	480						11x40				
RSD-6100x8AA	RSD-6100x8AA-SS	100						1x50				
RSD-6150x12AA	RSD-6150x12AA-SS	150						2x50				
RSD-6200x15AA	RSD-6200x15AA-SS	200						3x50				
RSD-6250x19AA	RSD-6250x19AA-SS	250						4x50				
RSD-6300x23AA	RSD-6300x23AA-SS	300						5x50				
RSD-6350x27AA	RSD-6350x27AA-SS	350	31	15	14	6	25	6x50	6 ^{+0.2}	5.2	M6	9.5
RSD-6400x30AA	RSD-6400x30AA-SS	400						7x50				
RSD-6450x34AA	RSD-6450x34AA-SS	450						8x50				
RSD-6500x38AA	RSD-6500x38AA-SS	500						9x50				
RSD-6600x46AA	RSD-6600x46AA-SS	600						11x50				

Bold = Short lead time item

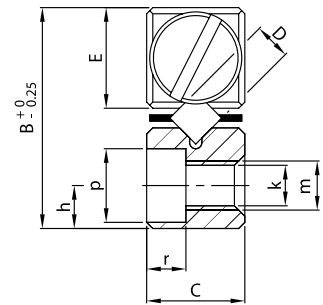
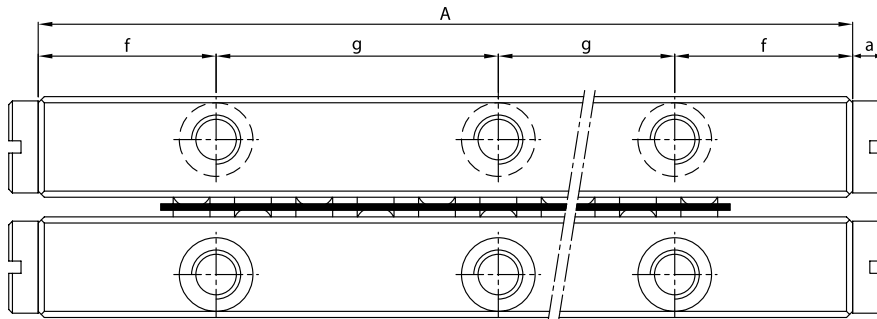
Regular = Long lead time item - please ask us about prices and lead times



r	End pieces a	Weight (g)	Load rating C _{dyn} (N)	Roller cage					Stroke	Type
				b	d	t	w	Z		
4.1	2.7	282	1862	10	0.5	7	5	7	58	RSD-4080x7AA
		420	2915					11	82	RSD-4120x11AA
		561	3975					15	105	RSD-4160x15AA
		702	5035					19	130	RSD-4200x19AA
		843	6095					23	150	RSD-4240x23AA
		985	7155					27	175	RSD-4280x27AA
		1121	8480					31	200	RSD-4320x31AA
		1263	9275					35	225	RSD-4360x35AA
		1405	10335					39	250	RSD-4400x39AA
		1545	11395					43	270	RSD-4440x43AA
1687	12455	47	295	RSD-4480x47AA						
5.2	3.7	627	4320	14	0.75	9	6	8	55	RSD-6100x8AA
		942	6480					12	84	RSD-6150x12AA
		1260	8100					15	120	RSD-6200x15AA
		1570	10260					19	150	RSD-6250x19AA
		1880	12420					23	185	RSD-6300x23AA
		2200	14580					27	214	RSD-6350x27AA
		2510	16200					30	245	RSD-6400x30AA
		2830	18360					34	280	RSD-6450x34AA
		3140	20520					38	310	RSD-6500x38AA
		3770	24840					46	360	RSD-6600x46AA

F = For load direction please refer to picture provided

Units: mm

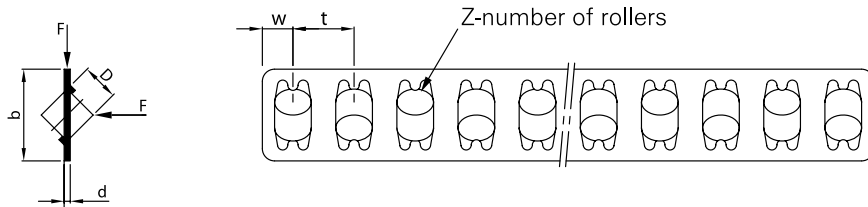


One set includes: 4 rails + 2 roller cages + 8 end screws

RSD Kit		Main dimensions					Mounting holes					
Standard	Stainless steel	A	B	C	E	D	f	g	h	k	m	p
RSD-9200x10AA	RSD-9200x10AA-SS	200						1x100				
RSD-9300x15AA	RSD-9300x15AA-SS	300						2x100				
RSD-9400x20AA	RSD-9400x20AA-SS	400						3x100				
RSD-9500x25AA	RSD-9500x25AA-SS	500						4x100				
RSD-9600x30AA	RSD-9600x30AA-SS	600						5x100				
RSD-9700x35AA	RSD-9700x35AA-SS	700	44	22	19.8	9	50	6x100	9±0.2	6.8	M8	11
RSD-9800x40AA	RSD-9800x40AA-SS	800						7x100				
RSD-9900x45AA	RSD-9900x45AA-SS	900						8x100				
RSD-91000x50AA	RSD-91000x50AA-SS	1000						9x100				
RSD-91100x55AA	RSD-91100x55AA-SS	1100						10x100				
RSD-91200x60AA	RSD-91200x60AA-SS	1200						11x100				
RSD-12200x7AA	On request	200						1x100				
RSD-12300x11AA		300						2x100				
RSD-12400x15AA		400						3x100				
RSD-12500x18AA		500						4x100				
RSD-12600x23AA		600						5x100				
RSD-12700x26AA		700	58	28	25.9	12	50	6x100	12±0.2	8.5	M10	13.5
RSD-12800x31AA		800						7x100				
RSD-12900x34AA		900						8x100				
RSD-121000x37AA		1000						9x100				
RSD-121100x42AA		1100						10x100				
RSD-121200x46AA		1200						11x100				

Bold = Short lead time item

Regular = Long lead time item - please ask us about prices and lead times



r	End pieces a	Weight (g)	Load rating C_{dyn} (N)	Roller cage					Stroke	Type
				b	d	t	w	Z		
6.2	4.2	2720	13500	20	1	14	9	10	115	RSD-9200x10AA
		4030	20250					15	175	RSD-9300x15AA
		5380	27000					20	235	RSD-9400x20AA
		6700	33750					25	295	RSD-9500x25AA
		8050	40500					30	355	RSD-9600x30AA
		9230	47250					35	415	RSD-9700x35AA
		10501	54000					40	475	RSD-9800x40AA
		11900	60750					45	535	RSD-9900x45AA
		13000	67500					50	595	RSD-91000x50AA
		14099	74250					55	655	RSD-91100x55AA
		15200	81000	60	715	RSD-91200x60AA				
8.3	5.3	4670	17920	26	1.2	18	12	7	120	RSD-12200x7AA
		6880	28160					11	200	RSD-12300x11AA
		9090	38400					15	240	RSD-12400x15AA
		11400	46080					18	320	RSD-12500x18AA
		13700	58880					23	360	RSD-12600x23AA
		15800	66560					26	440	RSD-12700x26AA
		18200	79360					31	480	RSD-12800x31AA
		20500	87040					34	560	RSD-12900x34AA
		22800	94720					37	640	RSD-121000x37AA
		25000	107520					42	680	RSD-121100x42AA
	27300	117760	46	720	RSD-121200 x46AA					

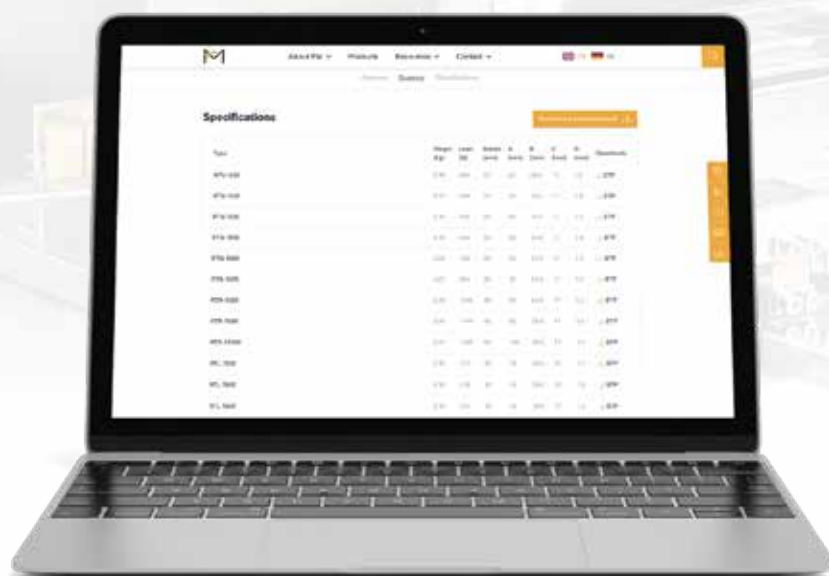
F = For load direction please refer to picture provided

Units: mm



SAVE TIME!

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