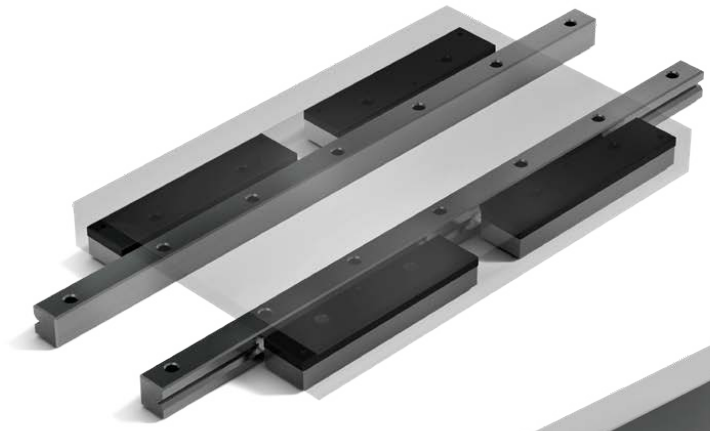
6 Recirculating unit

6.1 Product specifications



Application with recirculating units and linear guideways of type R

Application with recirculating units and a linear guideway of type RD

Recirculating units support high-precision, rigid and compact structures with unlimited travel. They are used as standard with linear guideways of type R or RD.

The SCHNEEBERGER product range includes recirculating units in different versions and for different load capacities; with rollers or balls, with damping elements or for dry runs.

The range is modular in structure and depending on the type includes sizes from 1 to 12.

6 Recirculating unit

6.1 Type SK and SKD

Type SK

Type SKD

The type SK recirculating unit is equipped with balls and is suitable for small to medium loads.

This recirculating unit is used combined with SCHNEEBERGER linear guideways of type R and/or RD. The SK units can be used in space saving designs that have equal loading in all directions.

Sizes 6 and 9 (size 12 on request) can additionally be equipped with damping elements (type designation SKD). These provide improved smoothness with slightly reduced load carrying capacity.

Benchmark data

Supporting structure
- Hardened and ground with high precision

Materials
- Supporting structure made of through hardened tool steel, hardness 58 - 62 HRC
- Rolling element made of through hardened roller bearing steel, hardness 58 - 64 HRC
- Transmission part in sizes 1, 2, 9 and 12 made of anodized aluminium
- Transmission part in sizes 3 and 6t depending on the length made of plastic or aluminium
- Non-corrosive version on request
- Damping elements for SKD made of plastic
- Wipers made of plastic

Wipers
- From size 3 interchangeable track wipers are made from plastic as standard fitted

Speed
- 2 m/s

Acceleration
- 50 m/s^2

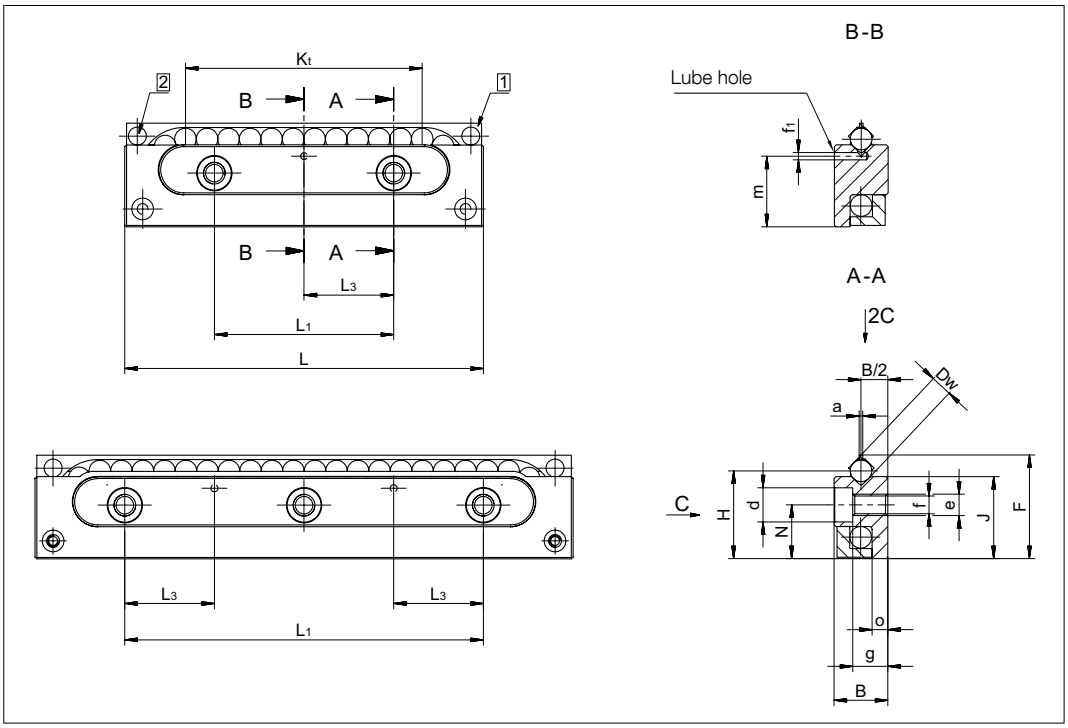
Operating temperatures
- -40° C to +80° C

Same installation with the following recirculating units
- SKC and SR

Can be combined with the following products
- Linear guideway type R and RD

6 Recirculating unit

Dimensions and load capacities type SK and SKD



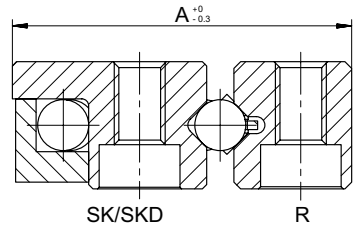
1 Retaining web may not be used as a stop
2 Wiper from size SK 3-075

Type and size		Weight in g	B	Dw	F	H	J	K_t	L	L_1	L_3	N	a	d	e	f	f_1	g	m	o	C in N SK	C in N SKD	Options (see chapter 8)
SK 1-022		5	4	1.5	8.4	7.25	6.9	9	22	10	-	4.8	0.3	3	M2	1.65	-	2.6	-	1.2	63		GP
SK 2-032		10	6	2	11	9.5	9	16	32	15	-	6	0.3	4.4	M3	2.55	-	4	-	1.9	135		GP
SK 3-075		45	8	3	16.9	14.5	13.8	48	75	25	12.5	9	0.5	6	M4	3.3	1.5	4.9	11.5	2.4	425		GP
SK 6-100	**SKD 6-100**	200	15	6	28.9	24.5	22.9	60	100	50	25	15	1	9.5	M6	5.2	2	9.8	19.7	4.4	715	650	GP
SK 6-150	**SKD 6-150**	300						102	150	2 x 50											1'170	1'100	
SK 9-150	**SKD 9-150**	670	22	9	45.1	39	36.7	90	150	100	50	26	1.5	10.5	M8	6.8	3	15.8	32.4	6.3	1'650	1'500	GP
SK 9-200	**SKD 9-200**	940						144	200												2'550	2'400	
SK 12-200	SKD 12-200	1'470	28	12	57.1	49	45.9	120	200	100	50	32	2	13.5	M10	8.5	3	19.8	40.2	7.7	2'860	2'600	GP

The types in bold are standard. Types SK12 and SKD 12 are available on request

6 Recirculating unit

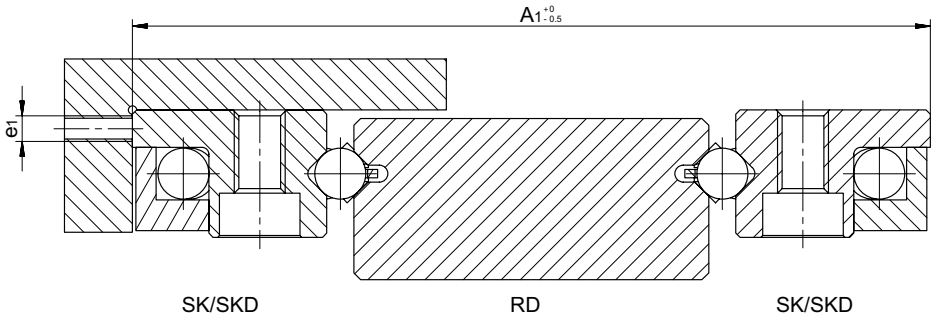
Installed dimensions and permissible torque for type SK and SKD

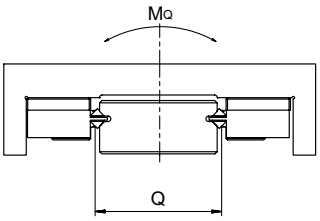


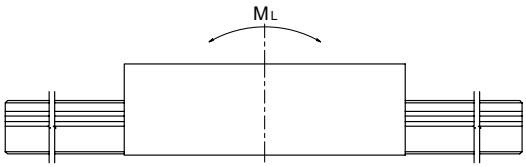
Installed dimensions for type SK and SKD

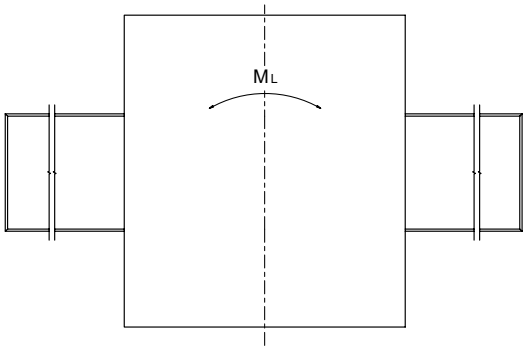
Type	Size	A	A_1	e_1
SK	**1-022**	11.5	28	M1.6
	2-032	15.5	37	M2.5
	3-075	23.5	57	M3
SK and SKD	**6-100**	40	94	M5
	6-150	40	94	M5
	9-150	61	150	M6
	9-200	61	150	M6
SK and SKD	12-200	78	175	M8

The types in bold are standard. Types SK12 and SKD 12 are available on request









Permissible torques for type SK and SKD

Type	Size	Q	M_L in Nm		M_Q in Nm	
			SK	SKD	SK	SKD
SK	**1-023**	13.5	0.4		0.8	
	2-033	18.0	1.4		2.4	
	3-076	28.0	7.2		12.0	
SK and SKD	**6-100**	45.0	23.0	23.0	32.0	29.0
	6-150		40.0	40.0	53.0	50.0
	9-150	72.0	81.0	81.0	119.0	108.0
	9-200		130.0	130.0	184.0	173.0
SK and SKD	12-200	77.0	187.0	187.0	220.0	200.0

The types in bold are standard. Types SK12 and SKD 12 are available on request

6 Recirculating unit

6.2 Type SKC

The recirculating unit type SKC was developed for dry running, vacuum and clean room applications. It is made out of DURALLOY® coated steel and has ceramic balls, which are separated from one another by balls made out of TEFLON®.

This recirculating unit is used combined with SCHNEEBERGER linear guideways of type R and/or RD. The SKC units can be used in space saving designs that have equal loading in all directions. It is suitable for small to medium loads.

Benchmark data

Supporting structure
- Hardened and ground and coated with high precision

Materials
- Supporting structure made of stainless steel 1.4034, DURALLOY® coated, hardness min. 54 HRC
- Transmission part made out of stainless steel 1.4034
- Rolling element made of ceramic (balls made of TEFLON® between the ceramic balls are responsible for minimal friction)

Speed
- 2 m/s

Acceleration
- 50 m/s^2

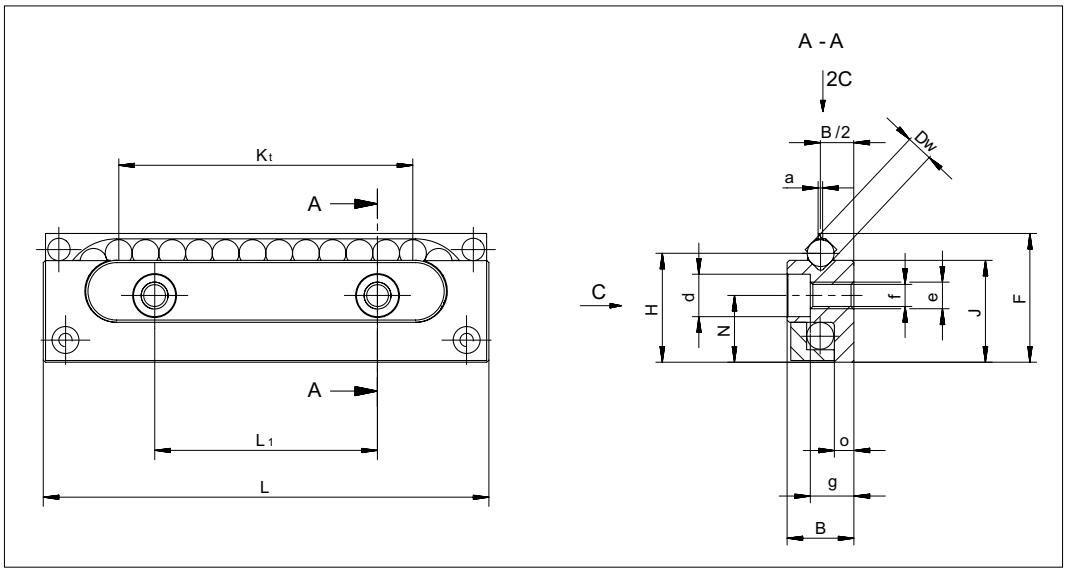
Operating temperatures
- -150° C to +200° C

Same installation with the following recirculating units
- SK, SKD and SR

Can be combined with the following products
- Linear guideway type R and RD

6 Recirculating unit

Dimensions and load capacities of type SKC

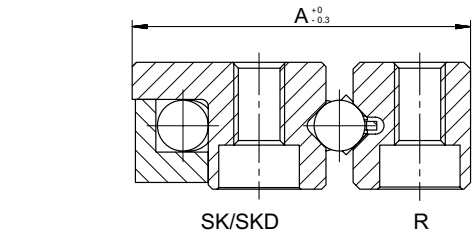


Type and size	Weight in g	B	Dw	F	H	J	K_t	L	L_1	N	a	d	e	f	g	o	C* in N	Options (see chapter 8)
SKC 3-075	44	8	3	16.9	14.5	13.8	48	75	25	9	0.5	6	M4	3.3	4.9	2.4	75	GP
SKC 6-100	212	15	6	28.9	24.5	22.9	60	100	50	15	1	9.5	M6	5.2	9.8	4.4	125	GP

* Loading capacity for dry running

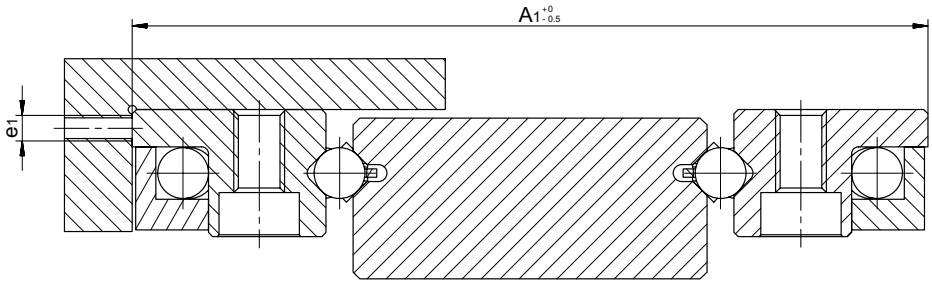
6 Recirculating unit

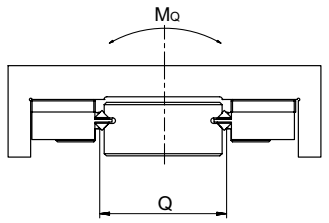
Installed dimensions and permissible torques for type SKC

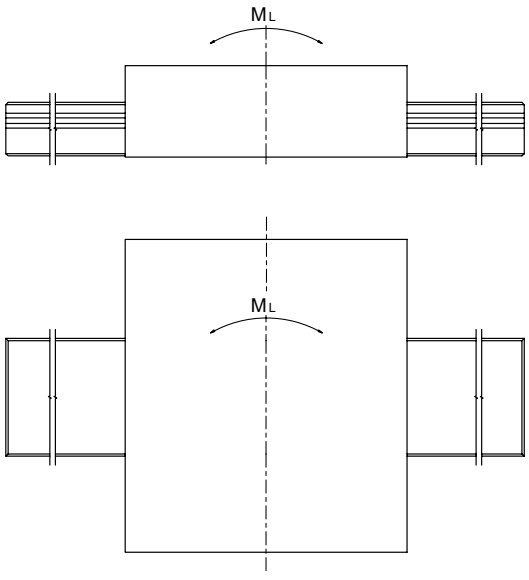


Installed dimensions for type SKC

Type	Size	A	A_1	e_1
SKC	3-075	23.5	57	M3
SKC	6-100	40	94	M5







Permissible torques for type SKC

Type	Size	Q	M_L in Nm	M_Q in Nm
SKC	3-075	28.0	0.9	2.1
SKC	6-100	45.0	3.0	5.6

6 Recirculating unit

6.3 Type SR

The SR recirculating units has cross rollers and is suitable for medium to high loads.

This recirculating unit is used combined with SCHNEEBERGER linear guideways of type R and/or RD. In this way space-saving designs can be created that can be equally loaded in all directions.

Benchmark data

Supporting structure
- Hardened and ground with high precision

Materials
- Supporting structure made of through hardened tool steel, hardness 58 – 62 HRC
- Rolling element made of through hardened roller bearing steel, hardness 58 – 64 HRC
- Transmission part depending on the length made of plastic or anodized aluminium
- Stainless steel on request
- From size 3 the rollers are laid in plastic shoes

Speed
- 2 m/s

Acceleration
- 50 m/s^2

Operating temperatures
- -40° C to +80° C

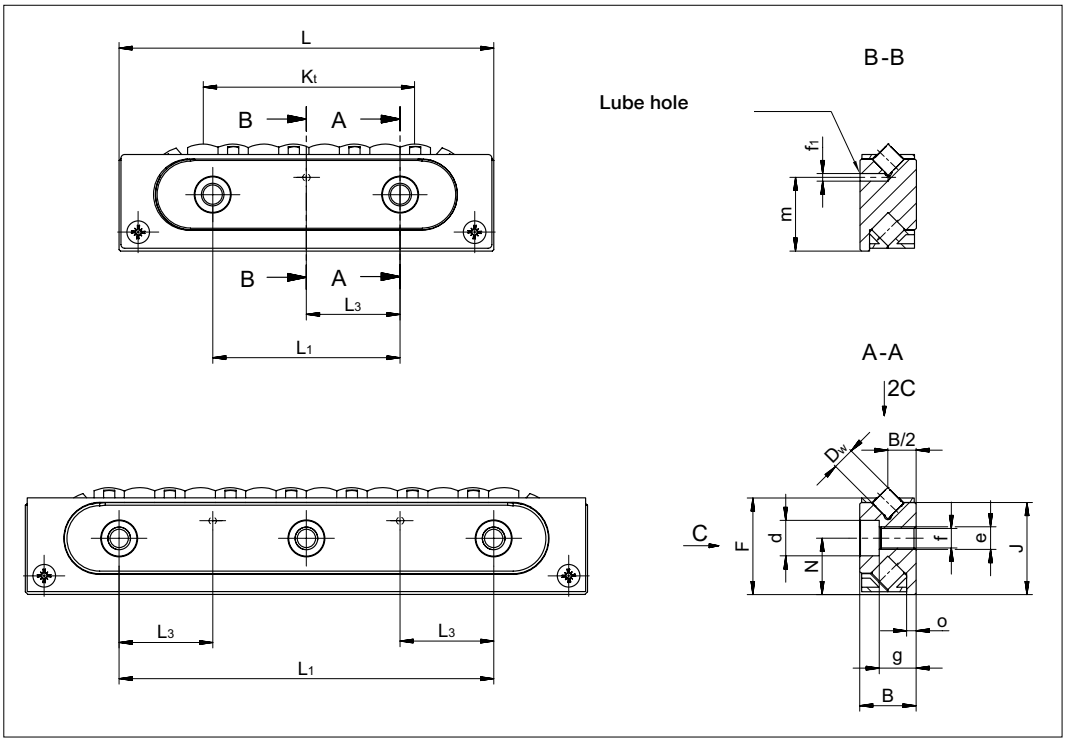
Same installation with the following recirculating units
- SK, SKD and SKC

Can be combined with the following products
- Linear guideway type R and RD

SCHNEEBERGER LINEAR TECHNOLOGY

6 Recirculating unit

Dimensions and load capacities of type SR

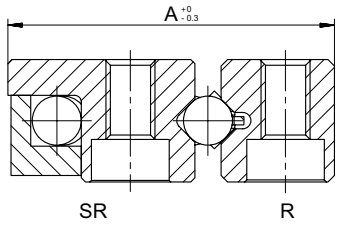


Type and size	Weight in g	B	Dw	F	J	K_t	L	L_1	L_3	N	d	e	f	f_1	g	m	o	C in N	Options (see chapter 8)
SR 2-032	10	6	2	9.8	9.5	16	32	15	-	6	4.4	M3	2.55	-	4	-	1	380	GP
SR 3-075	50	8	3	15	14.5	46	75	25	12.5	9	6	M4	3.3	1.5	4.9	11.8	1.3	850	GP
SR 6-100	210	15	6	25.7	24.5	56	100	50	25	15	9.5	M6	5.2	2	9.8	19.7	2.5	2'150	GP
SR 6-150	310					105	150	50										3'750	
SR 9-150	750	22	9	40.5	39	92	150	100	50	26	10.5	M8	6.8	3	15.8	32.4	3.5	5'850	GP
SR 12-200	1'580	28	12	51.5	49	112	200	100	50	32	13.5	M10	8.5	3	19.8	40.2	4	10'000	GP

The types in bold are standard. Type SR 12 is available on request

6 Recirculating unit

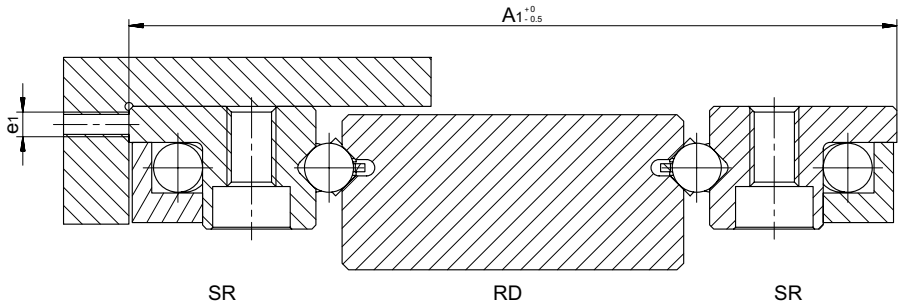
Installed dimensions and permissible torques for type SR

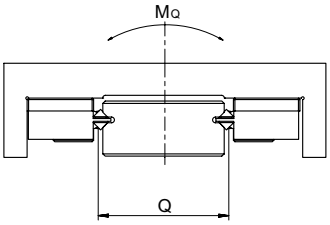


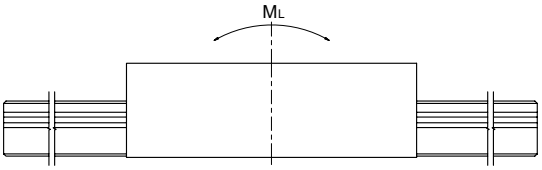
Installed dimensions for type SR

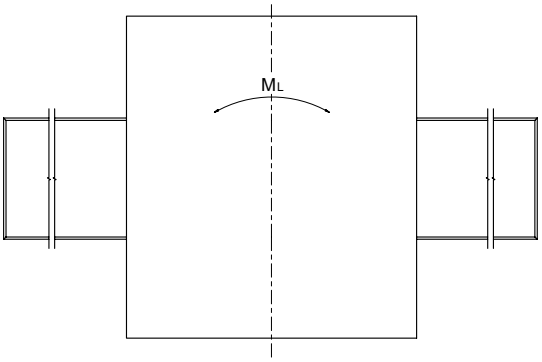
Type and size	A	A_1	e_1
SR 2-032	15.5	37	M2.5
SR 3-075	23.5	57	M3
SR 6-100	40	94	M5
SR 6-150	40	94	M5
SR 9-150	61	150	M6
SR 12-200	78	175	M8

The types in bold are standard. Type SR 12 is available on request









Torques for type SR

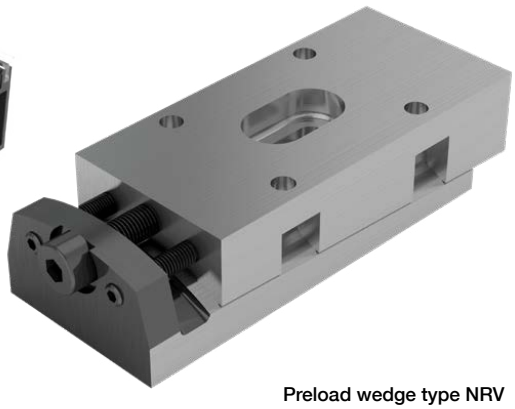
Type and size	Q	M_L in Nm	M_Q in Nm
SR 2-032	18.0	3.0	7.0
SR 3-075	28.0	12.0	24.0
SR 6-100	45.0	60.0	97.0
SR 6-150		112.0	169.0
SR 9-150	72.0	241.0	421.0
SR 12-200	77.0	553.0	770.0

The types in bold are standard. Type SR 12 is available on request

6 Recirculating unit

6.4 Type NRT (with NRV)

Recirculating unit type NRT



Preload wedge type NRV

This roller recirculating unit is designed for medium to heavy loads. Solutions to demanding applications can be created using NRT, NRV, and suitable guideways.

Advantages/benefits of the NRT

- Two independent tracks, the small amount of roller play and the optimal ratio of roller length and roller diameter are responsible for minimal lateral forces.
- The large number of rollers and the optimised roller run-ins are responsible for minimal travel pulsation and a low coefficient of rolling friction
- High degree of rigidity thanks to three-point support on the rear
- Protected roller return
- Double-lipped wipers on each side
- Can also be supplied matched as an option, sorted within 5µm

Advantages/benefits of the preload wedge NRV

This preload wedge is used for setting preload. The NRV with its concave and convex supporting surfaces is also able to even out minor angular errors and deformations in the connecting structure.

Benchmark data

Supporting structure
- Hardened and ground with high precision

Materials
- Supporting structure made of through hardened tool steel, hardness 58 – 62 HRC
- Rolling element made of through hardened roller bearing steel, hardness 58 – 64 HRC
- Transmission parts and wipers made of plastic

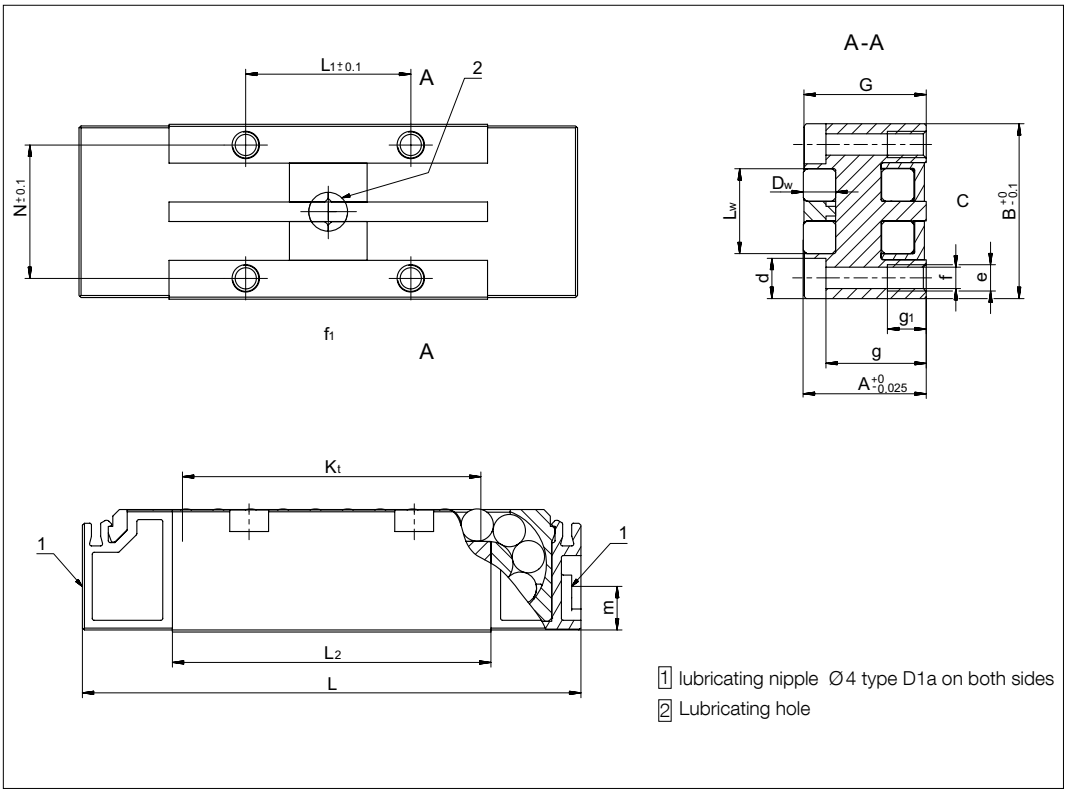
Speed
- 1 m/s

Acceleration
- 50 m/s^2

Operating temperatures
- -40° C to +80° C

6 Recirculating unit

Dimensions and load capacities of type NRT



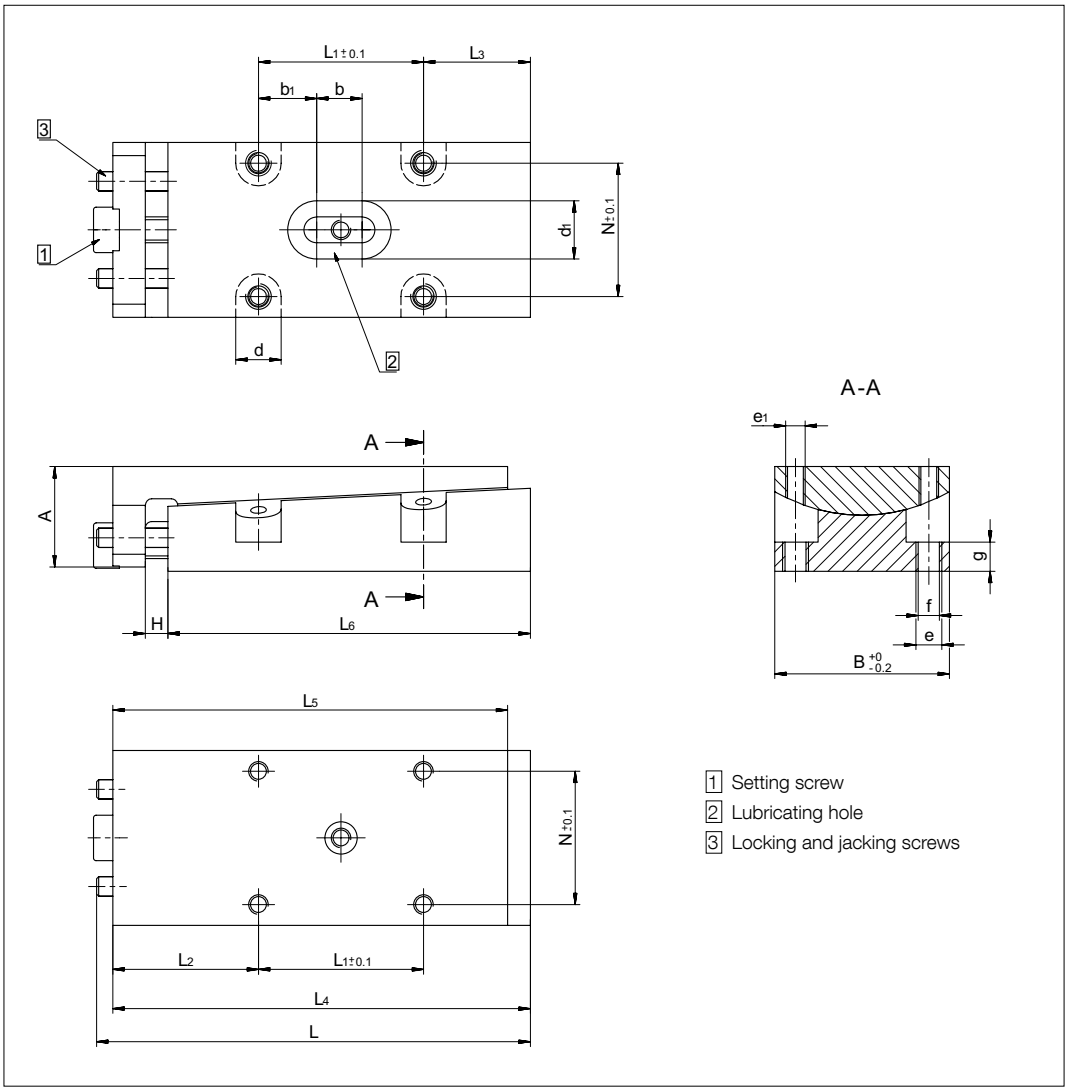
1 lubricating nipple Ø4 type D1a on both sides
2 Lubricating hole

Recirculating unit type NRT

Type and size	Weight in g	A	B	Dw	G	K_t	L	L_1	L_2	L_w	N	d	e	f	f_1	g	g_1	m	C in N	Options (see chapter 8)
NRT 19077	185	19	27	5	18.85	45	77	25.5	49.2	13	20.6	6	M4	3.3	6	15.5	6	5.3	43'000	GP ZS
NRT 26111	570	26	40	7	25.85	70	111	44	75.6	19	30	8	M6	5	9	20	10	10.3	98'000	GP ZS
NRT 26132	721					91	132	68	96.6							20.6			120'000	GP ZS
NRT 38144	1'390	38	52	10	37.8	90	144	51	96.8	26	41	11	M8	6.8	11	29	14	14.5	181'000	GP ZS

6 Recirculating unit

Dimensions and load capacities of type NRV



1 Setting screw
2 Lubricating hole
3 Locking and jacking screws

Preload wedge NRV

Type and size	Weight in g	A	B	H max.	L max.	L_1	L_2	L_3	L_4 max.	L_5	L_6	N	b	b_1	d	d_1	e	e_1	f	g
NRV 19077	195	16	27	7	72	25.5	22.5	16.5	68	61	56	20.6	7	9	7	9	M4	M3	3.3	4.5
NRV 26111	670	25	40	8	105	44	29	21	98	90	83	30	9	17.5	8	11	M6	M4	5	8
NRV 26132	837				126	68	27.5	19.5	119	111	104			29.5						
NRV 38144	1'300	30	52	8	130	51	37.5	28.5	121	113	105	41	10	20.5	11	14	M8	M6	6.8	8