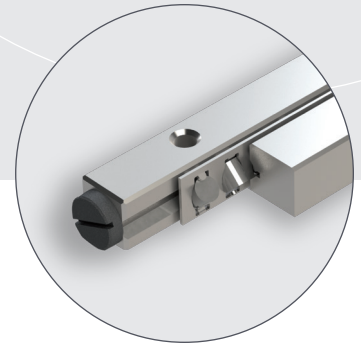
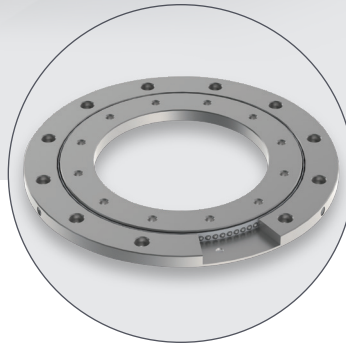
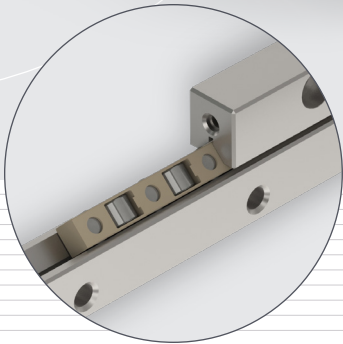
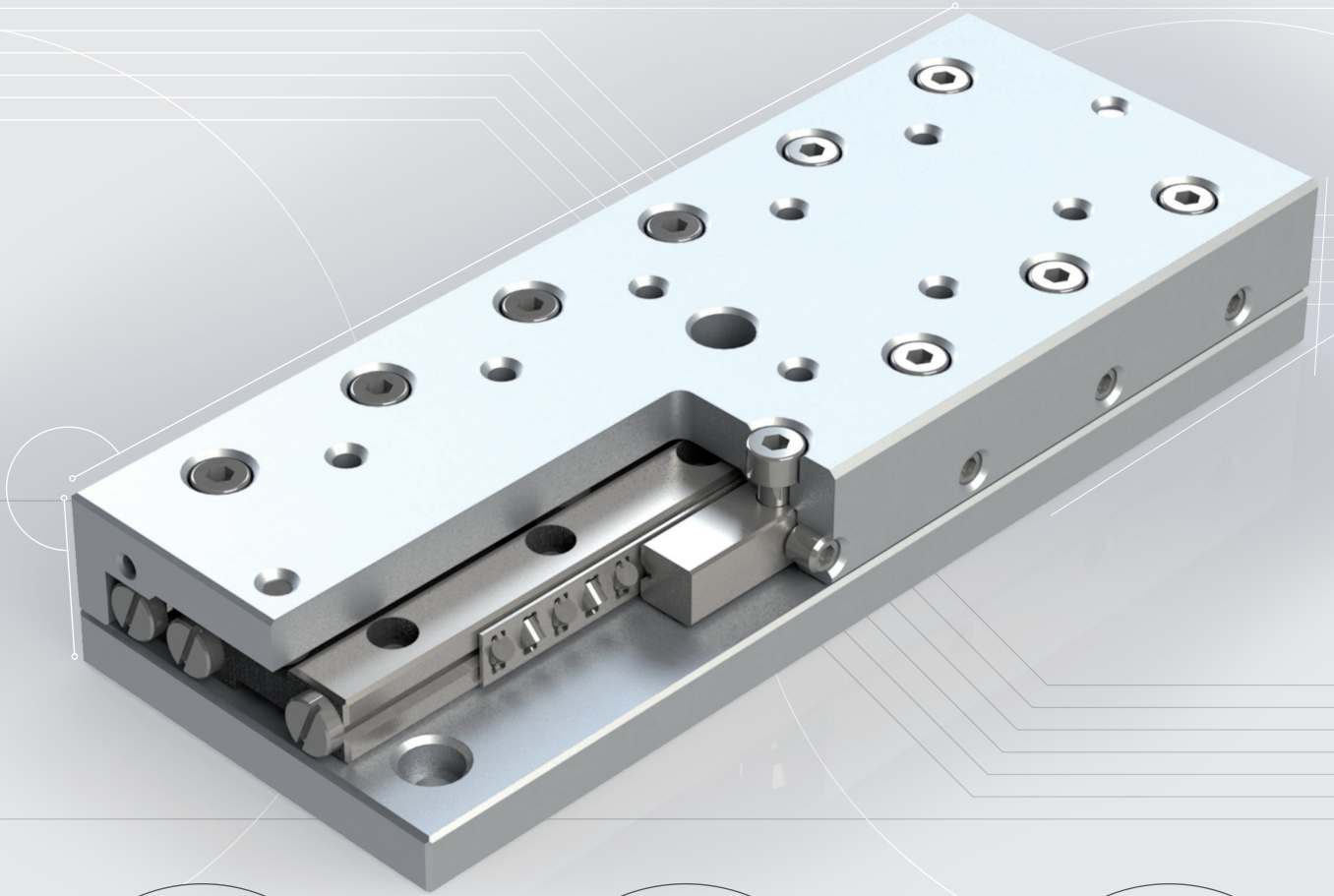


OVER
50
YEARS
of success



Frictionless slides type RT



TECHNISCHE DATEN

ASSEMBLY

The mounting holes of each type are drilled to a standard configuration in slide-top and -base and permit the user a quick attachment into the application. Thread holes in the table parterre according to ISO-standard. Dimensions in this catalogue are in mm.

Pm linear slides are precision devices and require proper mounting to perform at rated specifications. They have to be mounted on rigid and fine-machined, preferable by fine-milling, flat surfaces and supported over their entire base length. Hereby the characters qualities of PM linear slide will be shown to full advantage

LOADS AND MOMENTS

The slides listed in this catalogue are able to carry loads and moments in any direction. The load ratings are based on the fundamentals established by ISO and DIN for the calculation of roller bearings (ISO standard 281, for miniature slide type PMM DIN 636, part 3).

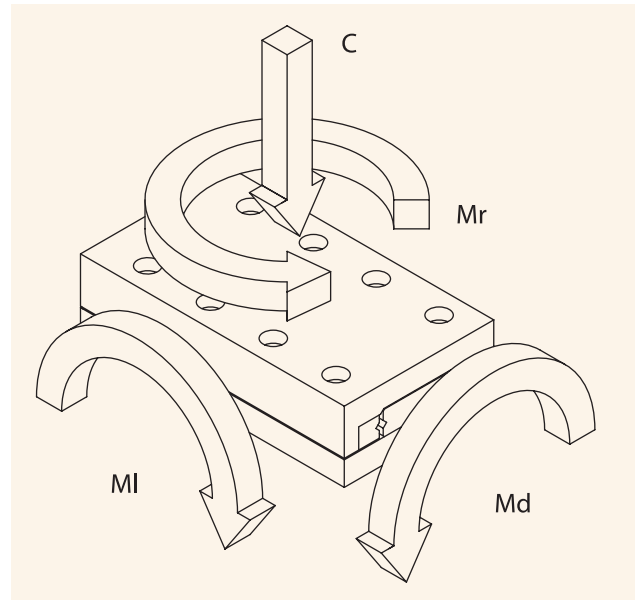
To ensure the high running accuracy and to prevent against play, vibration and overloads have to be avoided. The load capacity C , defined in ISO76-1987, is the maximum downward load or force located in the center of the upper part in horizontal zero-position.

M_I = Pitch moment: when a load is cantilevered (not symmetrically mounted) off the end of an axis, parallel to the direction of travel.

M_d = Roll moment: Wenn a load is cantilevered off the side of an axis, perpendicular to the direction of travel.

M_r = Yaw moment: when a force causes a rotation moment about the center of an axis.

Exceeding of the listed moment ratings may reduce the life of the bearings and can degrade accuracy. Please feel free to contact one of our product specialists for more information.



VACUUM AND CLEANROOM COMPATIBLE SLIDES

Most of the PM slides can be prepared for use in (ultra-high) vacuum or cleanroom environments. Special care has to be taken for example with the selection of the low outgassing materials, special lubricants, surface finishings, vented stainless steel fasteners for use in blind tapped holes, special ball- or crossed roller cages and with the selection of switches and wires. For the assembly of the tables we use modern cleanroom cells unto ISO/FDIS 14644-1 class 5 with clean spots class 3.

With over 50 years experience in this field we are ready to meet the most challenging requirements.

For more information please consult PM.



PM frictionless precision slides type RTN and RTL are preloaded linear motion units, ready for mounting. The well proven design of this model offers a wide range of benefits as for example; high rigidity, no stick-slip effect and an unprecedented precision in linear movement thanks to the installation of a double-sided track-rail on the slide-base which eliminates machining.

MATERIAL TABLE BODIES

1, 2, 3 and 4 series steel, black oxide finished
6 and 9 series cast-iron

FEATURES AND SPECIFICATIONS

- Incorporates pre-loaded linear bearings type RSD and double-sided track-rail, including roller cages.
On request to provide with ball cages
- Slide-top and -base have equal lengths
- 2 standard stroke lengths (N- and L-stroke).
Linear strokes are limited by internal mounted hard end-stops, two in the slide-top and one or two in the base-plate, depending on RTLA or RTNA version.
N-stroke: for normal stroke/travel, with normal loads.
L-stroke: for longer stroke/travel, with reduced loads
- For use in horizontal and vertical direction
- All mounting surfaces are precision ground.
One flank of the slide (the side opposite to the adjustment screws) is ground parallel to the linear bearings to serve as a Reference Face
- The slide-top is provided with tapped attachment holes, drilled to a standard configuration. The slide-base is equipped with countersunk-bored holes, which accept socket head screws. Pre-drilled holes offers simple mounting
- Running accuracies are shown on page 128

OPTIONS

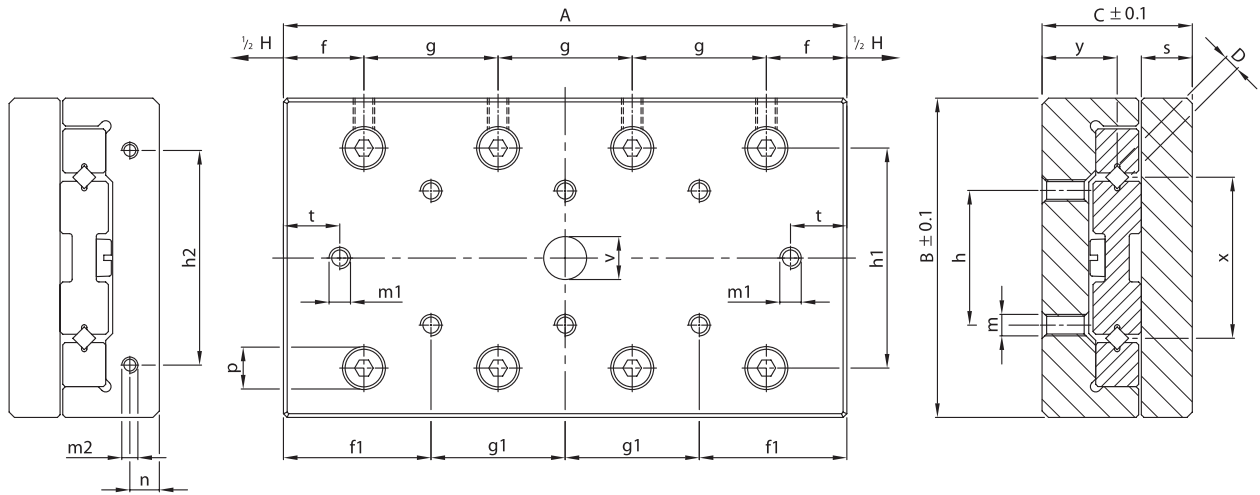
- Selected slides can be supplied with a height tolerance of ± 0.01 mm
- Cages can be replaced by plastic crossed roller type KZR or type KCLK fitted with balls
- Higher accuracy grade slides
- Execution in stainless steel
- SF finishing for linear bearings offering smooth and ultra-precise operation
- UHV compatible version

Notes by ordering

When ordering please specify the following:

- Model no. and quantity

Example: 1 piece slide type RTNA-3250

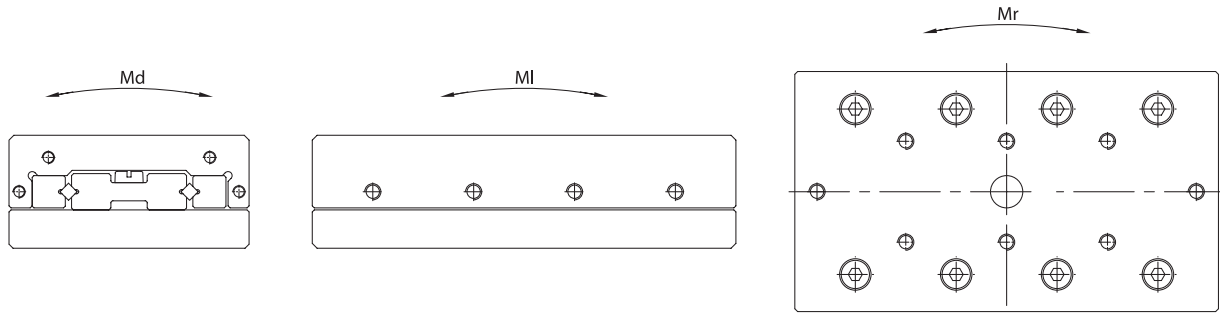


Configuration mounting holes slide-base: page 98 and 99.

Type					Stroke H												
	A	B	C	D	RTN	RTL	f	f1	g	g1	h	h1	h2	m	m1	m2	
RT-1520	25				10	-			1x10	-							
RT-1530	35				15	20			2x10	1x10							
RT-1540	45				20	30			3x10	2x10							
RT-1550	55				25	40			4x10	3x10							
RT-1560	65	29.6	17	1.5	30	50	7.5	12.5	5x10	4x10	10	18.4	12	M2.5	M2	M2	
RT-1570	75				35	60			6x10	5x10							
RT-1580	85				40	70			7x10	6x10							
RT-1590	95				45	80			8x10	7x10							
RT-15100	105				50	90			9x10	8x10							
RT-2030	35				15	-			1x15	-							
RT-2045	50				22	30			2x15	1x15							
RT-2060	65				30	45			3x15	2x15							
RT-2075	80				37	60			4x15	3x15							
RT-2090	95	39.6	21	2	45	75	10	17.5	5x15	4x15	15	25	16	M3	M2.5	M2	
RT-2105	110				52	90			6x15	5x15							
RT-2120	125				60	105			7x15	6x15							
RT-2135	140				67	120			8x15	7x15							
RT-2150	155				75	135			9x15	8x15							
RT-3050	55				-	30			1x25	-							
RT-3075	80				37	55			2x25	1x25							
RT-3100	105				50	80			3x25	2x25							
RT-3125	130				62	105			4x25	3x25							
RT-3150	155				75	130			5x25	4x25							
RT-3175	180	59.5	28	3	87	155	15	27.5	6x25	5x25	25	41	40	M4	M4	M3	
RT-3200	205				100	180			7x25	6x25							
RT-3250	255				125	230			9x25	8x25							
RT-3300	305				150	280			11x25	10x25							
RT-3350	355				175	330			13x25	12x25							
RT-3400	405				200	380			15x25	14x25							

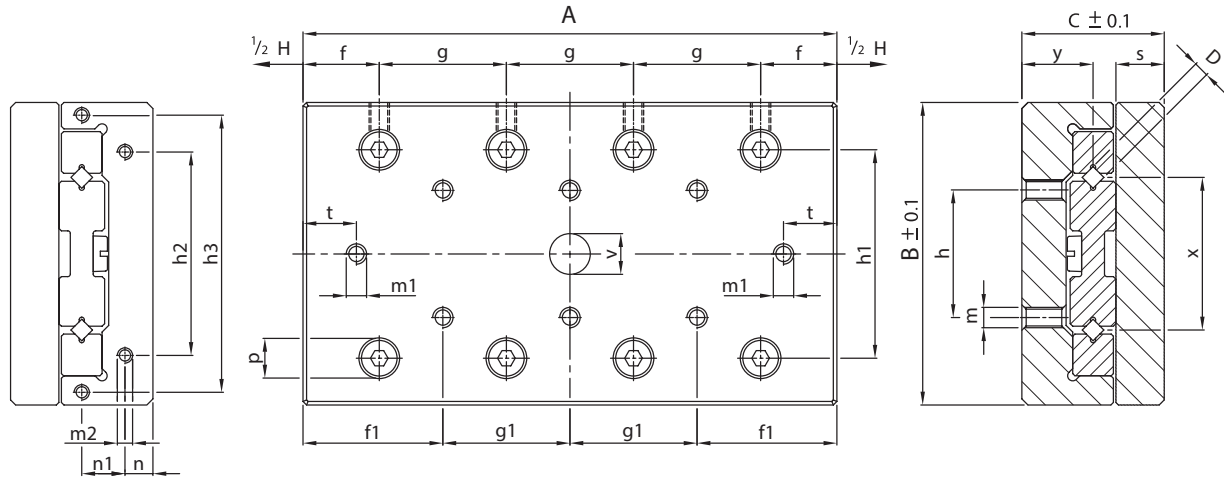
Bold = Short lead time item

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



n	p	s	t	v	x	y	C _{dyn} in N		Weight (KG)	Md in Nm		MI in Nm		Mr in Nm	
							RTN	RTL		RTN	RTL	RTN	RTL	RTN	RTL
2.5	4.6	6	2.44	4.5	13.5	8.75	260	-	0.10	1.4	-	1.2	-	1.5	-
			364				312	0.12	2.1	2.1	2.5	1.9	1.9	1.7	
			520				416	0.16	3.5	2.8	4.4	3.1	2.6	2.1	
			624				520	0.19	4.2	3.5	5.6	4.4	3.1	2.6	
			780				572	0.23	4.9	3.5	7.5	5.0	4.0	2.9	
			884				676	0.27	5.6	4.2	8.7	6.2	4.6	3.4	
			1040				780	0.30	7.0	4.9	10.6	7.5	5.5	4.0	
			1144				832	0.34	7.7	5.6	11.9	8.1	6.1	4.3	
			1300				936	0.37	8.4	6.3	13.7	9.4	7.0	4.9	
3.4	6.3	7	5.5	5.5	18	10.75	430	-	0.19	3.1	-	2.8	-	3.4	-
							688	602	0.28	6.2	4.6	6.9	5.5	4.6	4.1
							946	774	0.38	7.7	6.2	11.0	8.3	6.3	5.2
							1204	946	0.47	10.8	7.7	15.1	11.0	8.2	6.3
							1376	1118	0.56	12.4	9.3	17.9	13.8	9.5	7.5
							1634	1290	0.65	13.9	10.8	22.0	16.5	11.4	8.8
							1892	1376	0.75	17.0	12.4	26.1	17.9	13.4	9.5
							2150	1548	0.84	18.6	13.9	30.3	20.6	15.4	10.8
							2408	1720	0.93	21.7	15.5	34.4	23.4	17.5	12.1
5.5	7.8	9.5	5.5	8	30	14	-	952	0.64	-	12.2	-	10.9	-	5.4
							1496	1224	0.94	20.4	16.3	21.8	16.3	13.6	11.5
							2040	1632	1.24	28.6	24.5	32.6	24.5	18.2	14.7
							2448	1904	1.55	36.7	28.6	40.8	29.9	22.0	17.0
							2992	2312	1.86	44.9	32.6	51.7	38.1	27.1	20.7
							3536	2584	2.15	53.0	36.7	62.6	43.5	32.3	23.2
							4080	2992	2.46	61.2	44.9	73.4	51.7	37.6	27.1
							5032	3672	3.06	73.4	53.0	92.5	65.3	47.0	33.6
							6120	4352	3.66	89.8	65.3	114.2	78.9	57.7	40.3
							7072	5032	4.27	106.1	73.4	133.3	92.5	67.1	47.0
							8160	5712	4.87	122.4	85.7	155.0	106.1	77.9	53.7

Units: mm

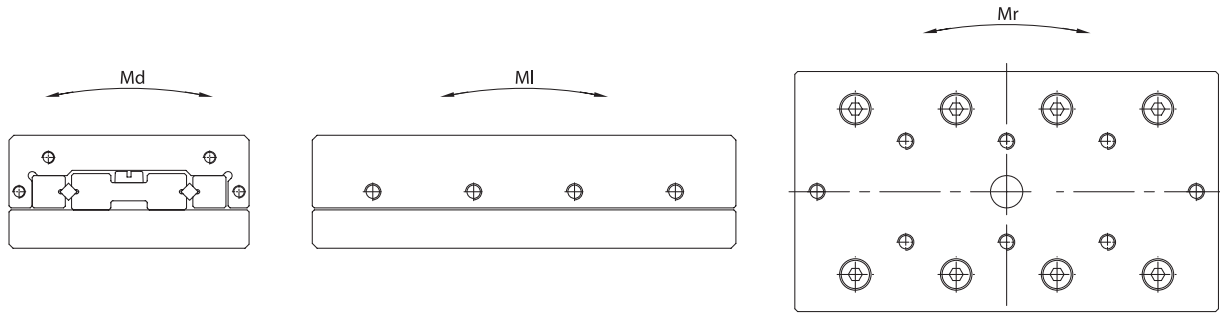


Configuration mounting holes slide-base: page 98 and 99.

Type					Stroke H												
	A	B	C	D	RTN	RTL	f	f1	g	g1	h	h1	h2	h3	m	m1	
RT-4080	85				50	-			1x40	-							
RT-4120	125				75	90			2x40	1x40							
RT-4160	165				105	130			3x40	2x40							
RT-4200	205				130	170			4x40	3x40							
RT-4240	245	80	35	4	155	210	22.5	42.5	5x40	4x40	40	53	55	-	M5	M5	
RT-4280	285				185	250			6x40	5x40							
RT-4320	325				210	290			7x40	6x40							
RT-4360	365				235	330			8x40	7x40							
RT-4400	405				265	370			9x40	8x40							
RT-6100	110				50	70			1x50	-							
RT-6150	160				75	120			2x50	1x50							
RT-6200	210				100	170			3x50	2x50							
RT-6250	260				125	220			4x50	3x50							
RT-6300	310				150	270			5x50	4x50							
RT-6350	360	99.5	45	6	175	320	30	55	6x50	5x50	50	65	90	92	M6	M6	
RT-6400	410				200	370			7x50	6x50							
RT-6450	460				225	420			8x50	7x50							
RT-6500	510				250	470			9x50	8x50							
RT-6600	610				300	570			11x50	10x50							
RT-6700	710				350	670			13x50	12x50							
RT-9100	110				50	-	30	55	1x50	-							
RT-9200	210				100	150			1x100	-							
RT-9300	310				150	250			2x100	1x100							
RT-9400	410				200	350			3x100	2x100							
RT-9500	510	148	60	9	250	450	55	105	4x100	3x100	100	104	90	135	M8	M8	
RT-9600	610				300	550			5x100	4x100							
RT-9700	710				350	650			6x100	5x100							
RT-9800	810				400	750			7x100	6x100							
RT-9900	910				450	850			8x100	7x100							
RT-91000	1010				500	950			9x100	8x100							

Bold = Short lead time item

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



m2	n	n1	p	s	t	v	x	y	C _{dyn} in N		Weight (KG)	Md in Nm		MI in Nm		Mr in Nm	
									RTN	RTL		RTN	RTL	RTN	RTL	RTN	RTL
M3	6.5	-	10	10.5	9	9.5	40	18.5	1855	-	1.70	31.8	-	29.7	-	25.9	-
									2915	2650	2.50	53.0	53.0	59.4	51.9	36.5	33.5
									3710	3445	3.30	74.2	63.6	81.6	74.2	46.0	42.7
									4770	4240	4.10	95.4	84.8	111.3	96.5	59.6	52.7
									5830	4770	4.90	116.6	95.4	141.0	111.3	73.6	59.6
									6890	5565	5.70	137.8	106.0	170.7	133.6	87.9	70.1
									7950	6360	6.50	159.0	127.2	200.3	155.8	102.4	80.7
									9010	7155	7.30	180.2	137.8	230.0	178.1	116.9	91.5
									9805	7950	8.10	190.8	159.0	252.3	200.3	127.9	102.4
M4	8	15	11	14	10	11	46	23	4320	3780	3.30	97.2	72.9	97.2	77.8	68.7	62.2
									6480	5400	4.84	145.8	121.5	175.0	136.1	100.1	83.6
									8640	6480	6.37	194.4	145.8	252.7	175.0	135.4	100.1
									10800	8100	7.91	243.0	170.1	330.5	233.3	172.2	126.4
									13500	9720	9.44	291.6	218.7	427.7	291.6	219.3	153.7
									15660	11340	11.00	340.2	243.0	505.4	349.9	257.4	181.6
									17820	12420	12.54	388.8	267.3	583.2	388.8	295.6	200.4
									19980	14040	14.07	437.4	315.9	661.0	447.1	334.0	228.8
									22140	15660	15.60	486.0	340.2	738.7	505.4	372.5	257.4
									27000	18900	18.65	607.5	413.1	913.7	622.1	459.4	314.8
31320	21600	21.71	704.7	486.0	1069.2	719.3	536.8	362.9									
M4	11	20	14	17	17	14	78	31	6750	-	6.50	210.6	-	151.2	-	223.8	-
									13500	10800	12.64	526.5	421.2	529.2	378.0	338.2	283.0
									21600	16200	18.86	842.4	631.8	982.8	680.4	534.6	400.1
									28350	21600	25.08	1053.0	842.4	1360.8	982.8	712.2	534.6
									35100	25650	31.20	1368.9	947.7	1738.8	1209.6	894.5	640.4
									43200	31050	37.41	1684.8	1158.3	2192.4	1512.0	1116.2	784.8
									49950	35100	43.53	1895.4	1368.9	2570.4	1738.8	1302.3	894.5
									56700	40500	49.75	2211.3	1579.5	2948.4	2041.2	1489.2	042.1
									64800	44550	55.96	2527.2	1684.8	3402.0	2268.0	1714.0	153.4
									71550	49950	62.08	2737.8	1895.4	3780.0	2570.4	1901.7	302.3

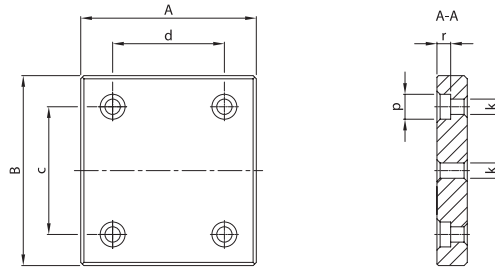


Fig. 1

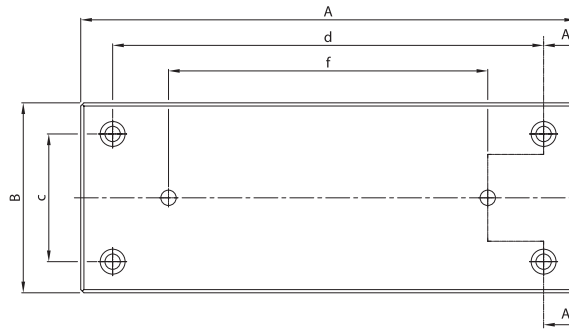


Fig. 2

Configuration mounting holes in slide-base

Type	A	B	c	d	e	f	g	k	p	r	Fig.
RT-1520	25			17	-	-	-				1
RT-1530	35			27	-	-	-				1
RT-1540	45			37	-	-	-				1
RT-1550	55			47	-	25	-				2
RT-1560	65	29.6	22	57	-	30	-	3	5	2.5	2
RT-1570	75			67	-	35	-				2
RT-1580	85			77	-	40	-				2
RT-1590	95			87	-	45	-				2
RT-15100	105			97	-	50	-				2
RT-2030	35			25	-	-	-				1
RT-2045	50			40	-	-	-				1
RT-2060	65			55	-	-	-				1
RT-2075	80			70	-	-	-				1
RT-2090	95			85	-	45	-				2
RT-2105	110	39.6	30	100	-	50	-	3.8	6.3	3.3	2
RT-2120	125			115	-	30	-				2
RT-2135	140			130	-	40	-				2
RT-2150	155			145	-	40	-				2
RT-3050	55			35	-	-	-				1
RT-3075	80			60	-	-	-				1
RT-3100	105			85	-	-	-				1
RT-3125	130			110	-	-	-				1
RT-3150	155			135	-	75	-				2
RT-3175	180	59.5	40	160	-	86	-	4.8	7.8	4.3	2
RT-3200	205			185	-	55	-				2
RT-3250	255			235	145	55	-				3
RT-3300	305			285	165	65	-				3
RT-3350	355			335	195	75	-				3
RT-3400	405			385	225	85	-				3

Bold = Short lead time item

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

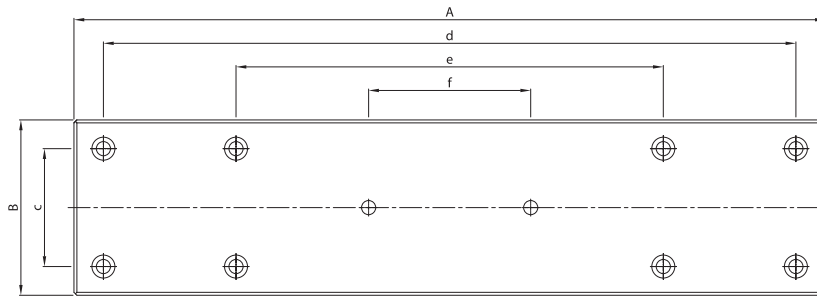


Fig. 3

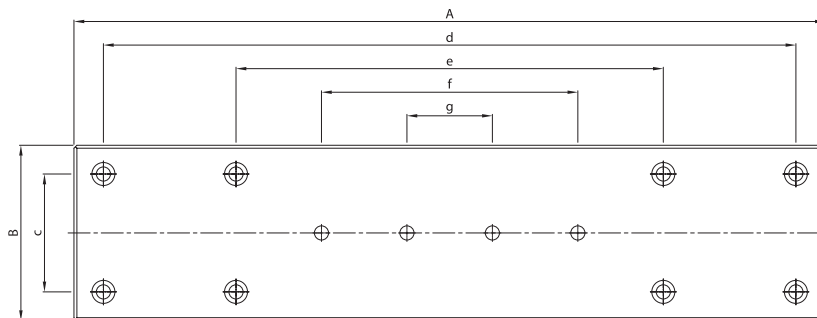


Fig. 4

Type	A	B	c	d	e	f	g	k	p	r	Fig.
RT-4080	85			65	-	-					1
RT-4120	125			105	-	-					1
RT-4160	165			145	-	-					1
RT-4200	205			185	-	105					2
RT-4240	245	80	55	225	-	145	-	5.5	10	5.4	2
RT-4280	285			265	-	185					2
RT-4320	325			305	145	225					3
RT-4360	365			345	185	265					3
RT-4400	405			385	225	305					3
RT-6100	110			90	-	-					1
RT-6150	160			140	-	-					1
RT-6200	210			190	-	100					2
RT-6250	260			240	-	120					2
RT-6300	310			290	-	150					2
RT-6350	360	99.5	60	340	200	80	-	6.8	11	6.3	3
RT-6400	410			390	230	90					3
RT-6450	460			440	260	100					3
RT-6500	510			490	290	110					3
RT-6600	610			590	350	210					4
RT-6700	710			690	410	250					4
RT-9100	110			80	-	-					1
RT-9200	210			100	-	-					1
RT-9300	310			200	-	-					1
RT-9400	410			300	-	180					2
RT-9500	510	148	90	400	-	240	-	9	14	8.7	2
RT-9600	610			500	340	120					3
RT-9700	710			600	400	140					3
RT-9800	810			700	460	280					4
RT-9900	910			800	520	320					4
RT-91000	1010			900	600	360					4

Units: mm



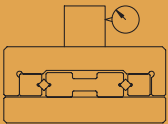
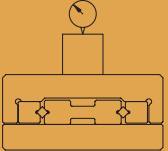
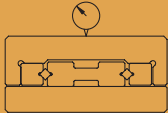
RUNNING ACCURACIES AND TOLERANCES

PM slides are delivered with accuracies as mentioned in the table below. The checks on the slides are made in unloaded horizontal position. The shown values can also be used for 2-axis combinations. If so, please refer to the belonging slide-strokes. When more axis are used in a

combination it will be more complicated and we offer in these questions our experience.

On request the precision slides will be delivered with a certificate of compliance, measured with a HP laser accuracy equipment.

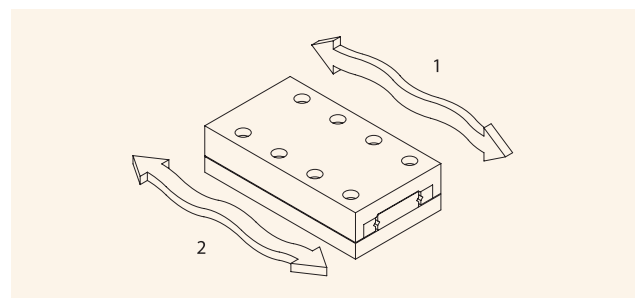
Special higher accuracy grade slides can be requested.

Type	A in mm	 Straight line accuracy in μm over travellenght on the side	 Flatness accuracy in μm over travellenght on the top	 Parallism in μm , neutral position on side top
RT (RTN/RTL)	25-50	2	2	5
	55-95	3	2	6
	105-155	4	3	7
	160-305	4	3	8
	310-510	4	4	10
	510-710	5	4	13
	810-1010	5	5	15
RTA (RTNA/RTLA) Aluminum	25-50	2	2	5
	55-95	3	2	5
	105-155	4	3	8
	160-305	4	3	10
	310-510	4	4	15
	510-710	5	4	20
	810-1010	5	5	25
RTNG	52-91	2	2	5
	106-166	3	2	6
	171-314	3	3	7
	317-517	4	3	10
	524-817	4	4	13
	824-1028	5	5	15
RTS	25-45	3	3	2
	55-95	4	4	4
	105-155	5	5	5
PMM und PMMR	15-30	3	4	5
	35-50	4	4	6
	60-80	5	6	8

1. STRAIGHT LINE ACCURACY: this is the amount of error deviates from the ideal straight line of travel in the vertical plane.

2. FLATNESS ACCURACY: this is the amount of error deviates from the ideal straight line of travel in the horizontal plane.

PARALLISM IN M, NEUTRAL POSITION ON SLIDE TOP: the parallism of the table surfaces occurs unloaded on a flat, horizontal surface in zero-position.



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