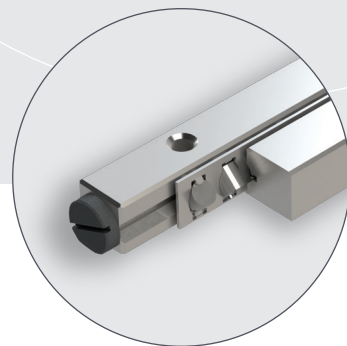
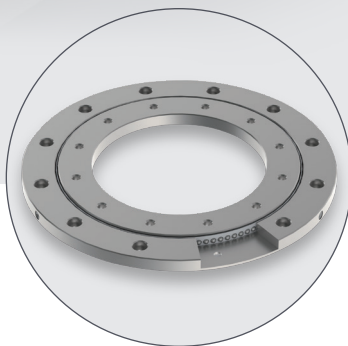
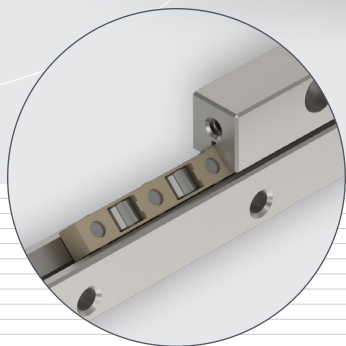
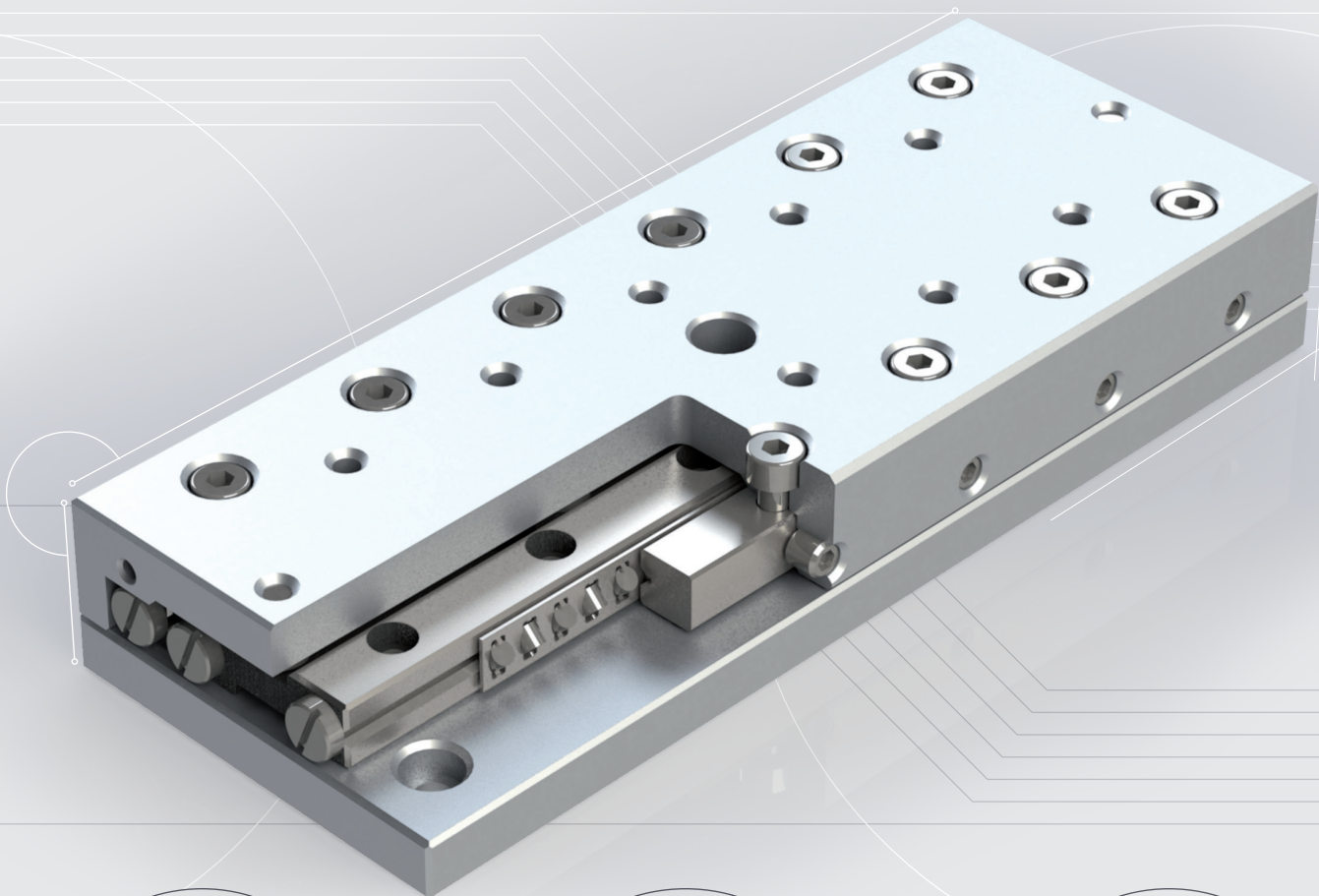


OVER
50
YEARS
of success



Roller micro slides type PMMR



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).

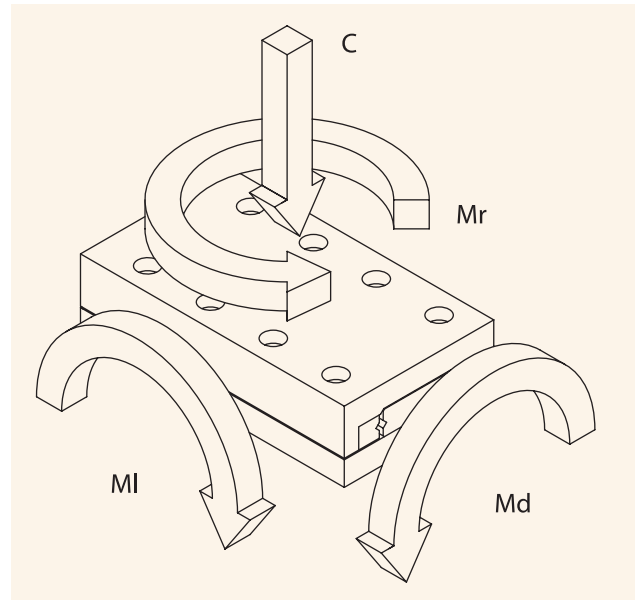
To ensure the high running accuracy and to prevent against play, vibration and overloads have to be avoided. The load capacity C , defined in ISO76-1987, is the maximum downward load or force located in the center of the upper part in horizontal zero-position.

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.



With roller cage

Higher speeds, excellent rigidity and durability as well as limited spaces, these are the challenges of today's industry. With the PMMR we realise previously unknown dynamics and precision in a smallest package as possible. PMMR is the world first miniature slide equipped with crossed roller technology.

MATERIALS

Table parts and balls: stainless steel 1.4034, hardness 54-57 HRc

Roller cage made from stainless steel

All screws stainless steel

FEATURES AND SPECIFICATION

- 3 Sizes
- All parts stainless steel
- Can be mounted in horizontal and vertical direction.
special designed single piece U-shaped cage prevents creeping of the cage and is limited by using inside screws
- Slide-top and -base have equal lengths
- All mounting surfaces are finished by precision grinding
- All the flanks of the slide are ground parallel to the rails and can serve as Reference Face
- The slide-top and -base have tapped attachment holes
- Maximum speed 2 m/s
- Maximum acceleration 200 m/s²
- Running accuracies are shown on page 128

OPTIONS (CONSULT PM)

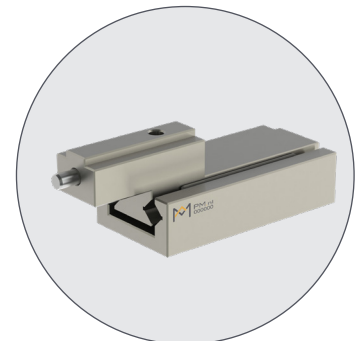
- Selected slides can be supplied with a height tolerance of ± 0.01 mm
- Defined push force
- UHV compatible version incl. lubricants
- All stainless steel version
- Special versions
- Higher speeds / accelerations

Notes by ordering

When ordering please specify the following:

- Model no. and quantity

Example: 1 piece slide type PMMR 2-30



Custom made

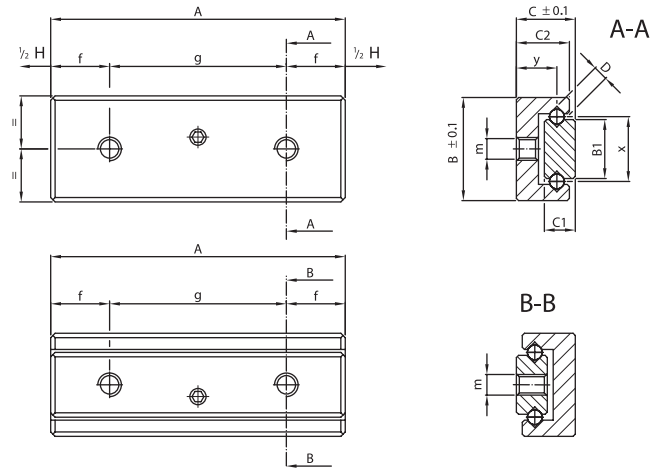


Fig. 1

Type					Stroke H				f	g	h
	A	B	C	D		B1	C1	C2			
PMMR 05-10	10				5				2.5	1x5	
PMMR 05-15	15	7	4	1	10	4	2.1	3.6	3.5	1x8	-
PMMR 05-20	20				15				4	1x12	
PMMR 05-25	25				20				4.5	1x16	
PMMR 1-15	15				5				3.5	1x8	
PMMR 1-20	20				10				4	1x12	
PMMR 1-25	25				15				4.5	1x16	
PMMR 1-30	30	10	6	1.5	20	5	3	5.5	5	1x20	4
PMMR 1-35	35				25				5.5	1x24	
PMMR 1-40	40				30				6	1x28	
PMMR 1-45	45				35				6.5	1x32	
PMMR 1-50	50				40				7	1x36	
PMMR 2-30	30				20				5	1x20	
PMMR 2-40	40				30				6	1x28	
PMMR 2-50	50	15	8	2.5	40	8	4.5	7.5	7	1x36	7
PMMR 2-60	60				50				7.5	3x15	
PMMR 2-70	70				60				8	3x18	
PMMR 2-80	80				70				10	3x20	

Bold = Short lead time item

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

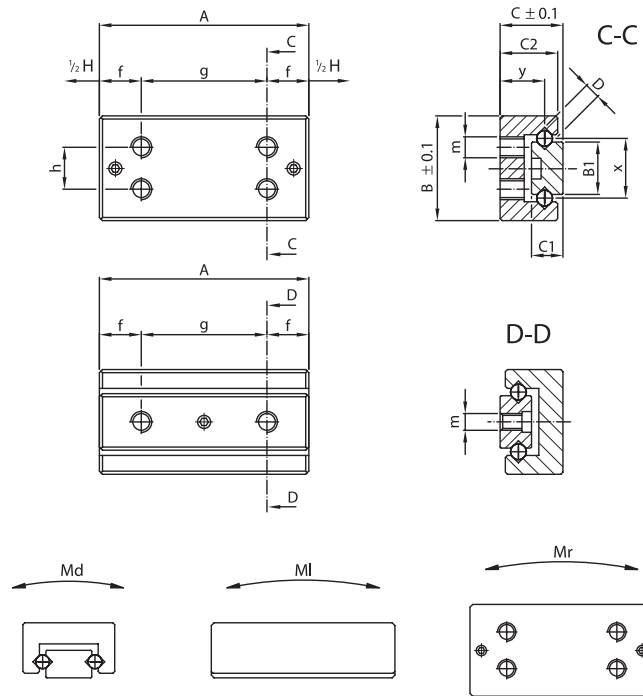


Fig. 2

m	x	y	C in N	Weight (g)	Md in Ncm	MI in Ncm	Mr in Ncm	Fig.
M1.6	4.4	2.75	156	3	12	65	9	1
			195	4	16	98	12	1
			234	5	20	131	15	1
			273	6	24	163	18	1
M2	5.7	4.25	258	6	67	216	67	2
			322	8	83	288	85	2
			387	11	100	361	110	2
			451	13	117	433	125	2
			516	15	134	505	145	2
			580	18	150	577	165	2
			645	20	167	650	180	2
709	22	184	722	200	2			
M2.5	8.8	5.5	510	30	217	620	180	2
			612	38	260	775	210	2
			714	47	303	930	240	2
			816	56	347	1085	270	2
			918	66	390	1240	295	2
1020	75	433	1395	325	2			

Units: mm



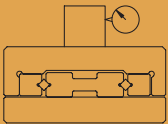
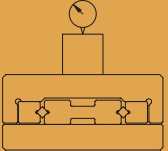
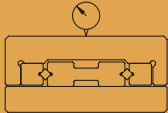
RUNNING ACCURACIES AND TOLERANCES

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.

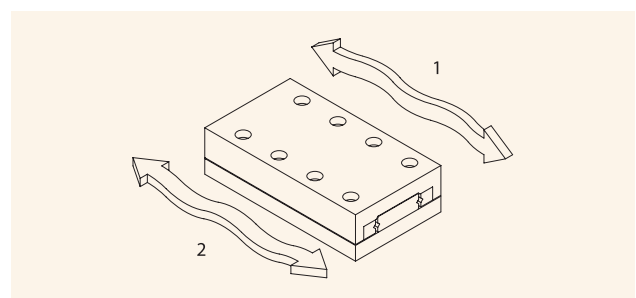
Special higher accuracy grade slides can be requested.

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.



PM RESEARCH AND PRODUCTION FACILITY



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