OVER 55 YEARS of success

PM.nl
DISCOVER PRECISION

# DUST-PROTECTED LINEAR SLIDES TYPE RTNG

PM is a high-end bearing and customised (mechatronic ) system supplier, offering full vertical integration from (co-) engineering to production, assembly and qualification - all performed in-house.

# INTRODUCTION

*Since 1966, PM has been designing and manufacturing innovative, high-quality precision linear bearings and slides at our research and production facilities in the Netherlands. We specialise in delivering solutions to meet the unique demands of a wide range of industries. As a trusted partner to hundreds of global industry leaders, our clients span sectors such as semiconductors, medical technology, metrology, industrial automation, space, and defense.*

## COMPANY

The exceptional quality of PM products stems from our highly specialized manufacturing machinery and facilities. Our production facility is temperature-controlled and designed to minimize distortions caused by vibrations. Additionally, our precision rails are produced using customized, non-standard machinery. This commitment to quality makes PM an attractive supplier for various high-tech industries, including semiconductors, optics, and life sciences.

## NEXT-GENERATION PRODUCTS

At PM, we continuously integrate the latest technologies to enhance the performance and functionality of the existing product range. This approach allows us to meet the ever evolving demands of high-tech industries, where precision, reliability, and compactness are critical.

Our clients value PM for our ability to engineer solutions that deliver maximum performance, even in the most space-constrained applications. Through ongoing innovation and refinement, we take proven designs to the next level, raising the bar for what's possible in precision motion.

The following product is a result of our commitment to meet the demands for next-generation equipment::

- **Miniature Slide MSR:** A compact linear slide designed for high load capacity in very limited spaces. It includes crossed roller bearings and an anti-cage creep mechanism. The slides are made entirely of stainless steel.

## 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 55 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 comprehensive revision of its previous edition. It reflects the latest advancements in linear bearing technology, as well as insights gathered from industry applications. 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.*

# PRODUCT OVERVIEW

PM slides are ready-to-install single-axis components with capacity for limited linear movement. These crossed roller slides use PM linear bearings type RSD come factory preloaded, thus assuring consistently high running accuracies, extremely low uniform friction coefficients, and long operating lifetimes. With a variety of models and a wide range of sizes available, the designer is given maximum flexibility to find an appropriate solution for all sorts of applications requiring linear movement.

Each type comes with attachment holes drilled to standard configurations, facilitating quick and easy assembly into your application. Thanks to their excellent running characteristics and proven solid reliability, these slides are the standard choice for factory automation in the general machine industry, including high-precision equipment. Custom designs can be supplied according to your specifications.

## 1. CROSSED ROLLER SLIDES TYPE RT / RTA

- Stroke lengths of 10 to 950 mm
- For highest accuracy performance
- Normal to high load capacity
- Steel, cast-iron or aluminum slide bodies
- Available in 6 standard sizes

## 2. DUST-PROTECTED SLIDES TYPE RTNG

- Stroke lengths of 10 to 250 mm
- Protection against dust and dirt
- For highest accuracy performances
- Steel and cast-iron slide bodies
- High rigidity

## 3. LOW PROFILE SLIDES TYPE RTS

- Stroke lengths of 12 to 130 mm
- For highest accuracy performance
- Low overall height with high stiffness
- Steel slide bodies
- Available in 3 standard sizes

## 4. MINIATURE BALL SLIDES TYPE PMM

- Stroke lengths of 5 to 70 mm
- Ultra-compact and lightweight design
- For rapid and precise movements
- Slide parts made of stainless steel
- Available in standard 3 sizes

## 5. MINIATURE CROSSED ROLLER SLIDES TYPE PMMR

- Stroke lengths of 5 to 70 mm
- All parts made of stainless steel
- For highest stiffness and accuracy requirements in the smallest of application spaces
- $V_{max}$ = 2 m/s, $a_{max}$ = 200 m/s$^2$ (20 g)
- $C_{dyn}$ up to 1020 N

## 6. MINIATURE CROSSED ROLLER SLIDES TYPE MSR

- Including anti-cage creep mechanism
- 7 sizes, including the world's smallest slide, size 3
- Play-free, high repeatability
- All parts made of stainless steel
- Stroke lengths of 5 – 112 mm

# TECHNICAL DATA

## ASSEMBLY

For each type the mounting holes are drilled to standard configuration in the slide top and slide base facilitating quick and easy installation into the application. Threaded holes in the slide parts are according to ISO-standards. Please note that dimensions listed in this catalogue are in mm.

Linear slides are precision devices; proper mounting is a prerequisite for their performance according to specifications. Slides must be mounted onto rigid, fine-machined (preferably fine-milled or grinded), flat surfaces and must be supported over their entire base length. Specifications as listed are only valid when these conditions are met.

## REFERENCE SURFACE

The surface of the side opposite to the preload set screws is ground parallel to the slide axis and can therefore be used as a reference face for mounting the slide into the application.

## OPERATING TEMPERATURE

Slides are capable of operating in a temperature range of -30 °C to +120 °C. For slides which contain plastic components (plastic cages), the operating temperature range is -30 °C to +80 °C.

## MAXIMUM VELOCITY AND ACCELERATION

**RTN / RTL, RTNG and RTS types crossed roller slides**

Max. recommended speed v = 50 m/min.
Max. acceleration a = 8 m/sec².

**PMM type ball miniature slides**

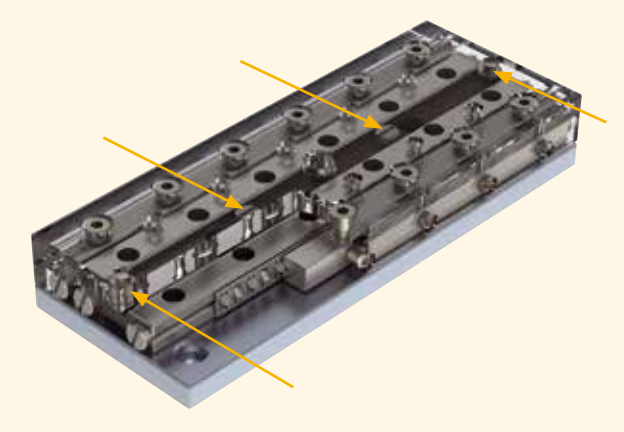
Max. recommended speed v = 50 m/min.
Max. acceleration a = 8 m/sec².

**PMMR and MSR type crossed roller miniature slides**

Max. recommended speed v = 120 m/min.
Max. acceleration a = 200 m/sec² (20 g).

## INTERNAL STROKE LIMIT SCREWS

Crossed-roller slides RTN/RTL and RTNA/RTLA have internal stroke limit screws in the center line of the slides. These screws are for emergency use only and may not be used as a regular stroke end stop, as this can cause permanent damage to the linear bearings.



*Example of location internal stroke limit screws*

## CAGE OPTIONS

The slides are delivered from the factory with crossed roller cages, which offer high load capacity and stiffness. However, some applications require ball cages because they are less sensitive to dust or when very low friction is needed. At PM, we can deliver the slides with ball cages upon request.

## DELIVERED CONDITION

They are ready-to-use. The slides are factory preloaded by the use of lateral set screws and free of play. The amount of preload is approximately 10% of the dynamic load capacity. They are delivered with a small quantity of oil for lubrication which also protects the rails in the slides against corrosion. The quality grade of the crossed roller linear bearings which are used in the linear slides is in standard accuracy grade Q8.

The slides are free from stick-slip. The coefficient of friction range for slides fitted with balls or cylindrical rollers is 0.0005 to 0.003. PM slides are manufactured according the best manufacturing standards, offering high smoothness and precision of movement.

PMM, MSR and PMMR type of miniature slides are factory preloaded by means of geometry pairing.

## SERVICE

The slides are factory preloaded and don't need readjustment. Depending on the application requirements the linear bearings need re-lubrication. There are no specific calculations to determine the lubrication intervals for linear bearings, thus it must be determined for each application.

However, we recommend a small quantity of lubrication at least twice a year for oil and at least once a year for grease. The lubrication can be applied to the linear bearings using the lateral gap between the rails. If this is not possible cause of the design of the machine we advise the use of special lubrication holes which can be added to the rails. If this is the case for you, please consult a PM advisor.

## LOADS AND MOMENTS

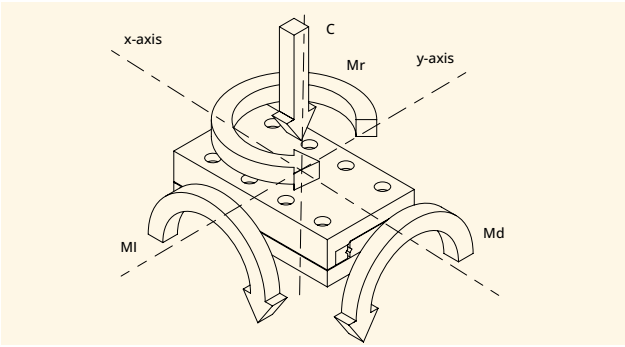
Slides listed in this catalogue are able to carry loads and moments in any direction. Load ratings are compliant with ISO and DIN standards for calculating roller bearings (ISO standard 281, for miniature slide type PMM DIN 636, part 3). To ensure high running accuracy and to prevent the occurrence of play, any vibration and overloading must be avoided.

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.

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

Md = Roll moment: when a load is cantilevered off the side of a slide, perpendicular to the direction of travel.

Mr = Yaw moment: when a force causes a rotation moment around the centre of an axis. Exceeding of the listed moment ratings may reduce the lifetime of the bearings and can degrade accuracy. Please feel free to contact one of our product specialists for information.




## STORAGE

Slides are precision components and need to be handled with great care. Slides are delivered in a package, special developed for optimum protection against external vibrations and contamination. For transport and storage use the original package. Slides should be stored at constant room temperature and under clean and dry conditions. Remove the slides from their packaging just before use.

## VACUUM AND CLEANROOM COMPATIBLE

The majority of the slides can be prepared for use in (ultra-high) vacuum or cleanroom environments. Special care has to be taken, for example when selecting low outgassing materials, special lubricants, surface finishings, vented stainless steel fasteners for use in blind tapped holes, special ball- or crossed roller cages as well as switches and wires. Slides are assembled in our modern cleanroom cells certified to ISO/FDIS 14644-1 class 6 with cleanspots class 5.

## NOTE ON DUAL USE

For applications requiring two or more slides to be mounted in parallel, please specify matched pairs (suffix MP) when ordering. Due to the slides high rigidity, special attention must be paid to the alignment and finish of adjacent surfaces. This ensures even load distribution, smooth operation, and reliable performance.

## CUSTOMISED LINEAR SLIDES

In a situation that a standard product does not suit your application we offer customised product service. For example in:

- Special geometry
- Non-standard materials
- Customized cages
- Vacuum and UHV-compatibility
- Low till non-magnetic linear bearings
- Improved raceway surfaces
- Higher load ratings
- Higher speeds / accelerations

With over 55 years' experience we are well equipped and capable to fulfil your orders meeting even the most demanding requirements.

Please consult your PM advisor for more information.


*Type RTNG crossed roller slide offers protection against environmental contamination due to the narrow gap between the slide and base. Its other characteristics are similar to those of the RTN/RTL slides.*

## SLIDE BODY MATERIALS

Sizes 1.5, 2 and 3 mm: steel with black oxide finish.
Sizes 6 and 9 mm are available in cast-iron.

## FEATURES AND SPECIFICATIONS

- Incorporates preloaded linear bearings type RSD and double-sided rail, including roller cages
- Linear strokes are limited by the end plates. Please note it is not permitted to use these plates as hard stop / machine stop
- Roller cage material brass
- For horizontal and vertical applications
- The narrow gap between slide and base is approx. 0.08 mm in size
- All mounting surfaces are precision ground. One flank of the slide (the side opposite to the set screws) is ground parallel to the linear bearings to serve as a reference face
- The slide top and base are equipped with tapped attachment holes, drilled to a standard configuration enabling easy mounting
- For running accuracies please refer to page 150

## OPTIONAL FEATURES

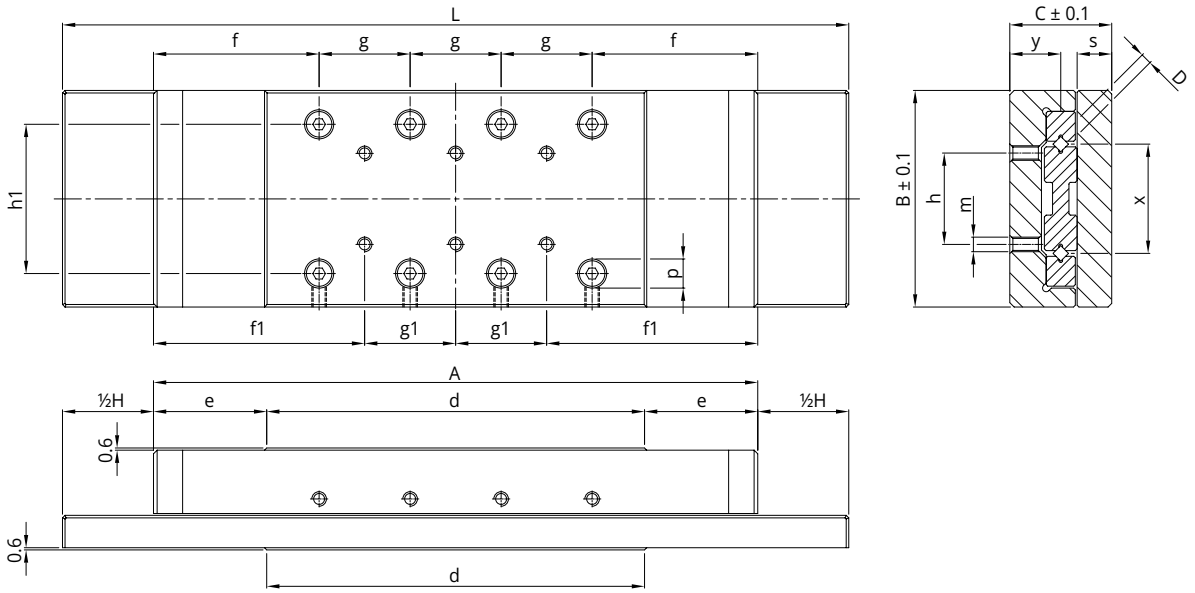
- Diam. 3, 6 and 9 mm can be delivered with dust-protected wipers and seals providing full covering, as shown at the top of page 125 and 127. Friction may be slightly higher as a result
- Selected slides can be supplied with a height tolerance of ± 0.01 mm
- Cages can be replaced by plastic crossed roller type KZR or type KKLK equipped with balls
- Higher accuracy grade slides
- Stainless steel version

## ORDER NOTES

Please specify the following in your order note:

- Model no. and quantity needed

**Example:** 2 pcs. slide type RTNG-6200

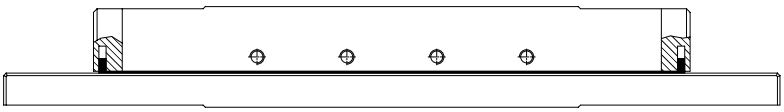



Please see drawing and table on page 128 and 129 for configuration of mounting holes in the slide base.

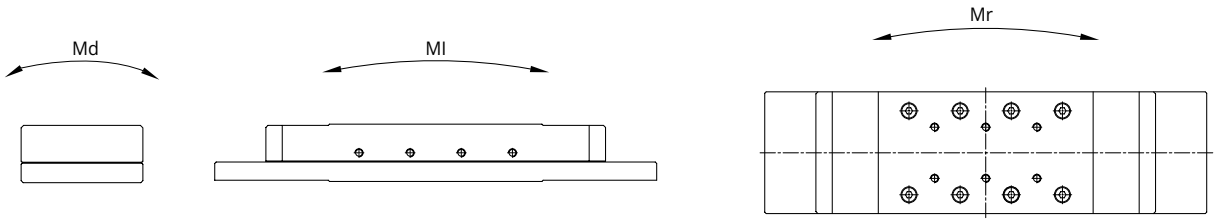
| Type | Main dimensions | | | | | Stroke | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | L | H | d | e | f | f1 | g | g1 |
| RTNG-1520 | 42 | | | | 52 | 10 | 25 | 8.5 | 16 | 21 | 1x10 | - |
| RTNG-1530 | 57 | | | | 72 | 15 | 35 | 11 | 18.5 | 23.5 | 2x10 | 1x10 |
| RTNG-1540 | 72 | | | | 92 | 20 | 45 | 13.5 | 21 | 26 | 3x10 | 2x10 |
| RTNG-1550 | 87 | | | | 112 | 25 | 55 | 16 | 23.5 | 28.5 | 4x10 | 3x10 |
| RTNG-1560 | 102 | 29.6 | 17 | 1.5 | 132 | 30 | 65 | 18.5 | 26 | 31 | 5x10 | 4x10 |
| RTNG-1570 | 117 | | | | 152 | 35 | 75 | 21 | 28.5 | 33.5 | 6x10 | 5x10 |
| RTNG-1580 | 132 | | | | 172 | 40 | 85 | 23.5 | 31 | 36 | 7x10 | 6x10 |
| RTNG-1590 | 147 | | | | 192 | 45 | 95 | 26 | 33.5 | 38.5 | 8x10 | 7x10 |
| RTNG-15100 | 162 | | | | 212 | 50 | 105 | 28.5 | 36 | 41 | 9x10 | 8x10 |
| RTNG-2030 | 60 | | | | 75 | 15 | 35 | 12.5 | 22.5 | 30 | 1x15 | - |
| RTNG-2045 | 82 | | | | 104 | 22 | 50 | 16 | 26 | 33.5 | 2x15 | 1x15 |
| RTNG-2060 | 105 | | | | 135 | 30 | 65 | 20 | 30 | 37.5 | 3x15 | 2x15 |
| RTNG-2075 | 127 | | | | 164 | 37 | 80 | 23.5 | 33.5 | 41 | 4x15 | 3x15 |
| RTNG-2090 | 150 | 39.6 | 21 | 2 | 195 | 45 | 95 | 27.5 | 37.5 | 45 | 5x15 | 4x15 |
| RTNG-2105 | 172 | | | | 224 | 52 | 110 | 31 | 41 | 48.5 | 6x15 | 5x15 |
| RTNG-2120 | 195 | | | | 255 | 60 | 125 | 35 | 45 | 52.5 | 7x15 | 6x15 |
| RTNG-2135 | 217 | | | | 284 | 67 | 140 | 38.5 | 48.5 | 56 | 8x15 | 7x15 |
| RTNG-2150 | 240 | | | | 315 | 75 | 155 | 42.5 | 52.5 | 60 | 9x15 | 8x15 |
| RTNG-3050 | 91 | | | | 116 | 25 | 55 | 18 | 33 | 45.5 | 1x25 | - |
| RTNG-3075 | 128 | | | | 165 | 37 | 80 | 24 | 39 | 51.5 | 2x25 | 1x25 |
| RTNG-3100 | 166 | | | | 216 | 50 | 105 | 30.5 | 45.5 | 58 | 3x25 | 2x25 |
| RTNG-3125 | 203 | | | | 265 | 62 | 130 | 36.5 | 51.5 | 64 | 4x25 | 3x25 |
| RTNG-3150 | 241 | | | | 316 | 75 | 155 | 43 | 58 | 70.5 | 5x25 | 4x25 |
| RTNG-3175 | 278 | 59.5 | 28 | 3 | 365 | 87 | 180 | 49 | 64 | 76.5 | 6x25 | 5x25 |
| RTNG-3200 | 316 | | | | 416 | 100 | 205 | 55.5 | 70.5 | 83 | 7x25 | 6x25 |
| RTNG-3250 | 391 | | | | 516 | 125 | 255 | 68 | 83 | 95.5 | 9x25 | 8x25 |
| RTNG-3300 | 466 | | | | 616 | 150 | 305 | 80.5 | 95.5 | 108 | 11x25 | 10x25 |
| RTNG-3350 | 541 | | | | 716 | 175 | 355 | 93 | 108 | 120.5 | 13x25 | 12x25 |
| RTNG-3400 | 616 | | | | 816 | 200 | 405 | 105.5 | 120.5 | 133 | 15x25 | 14x25 |

**Bold** = Short lead time item

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

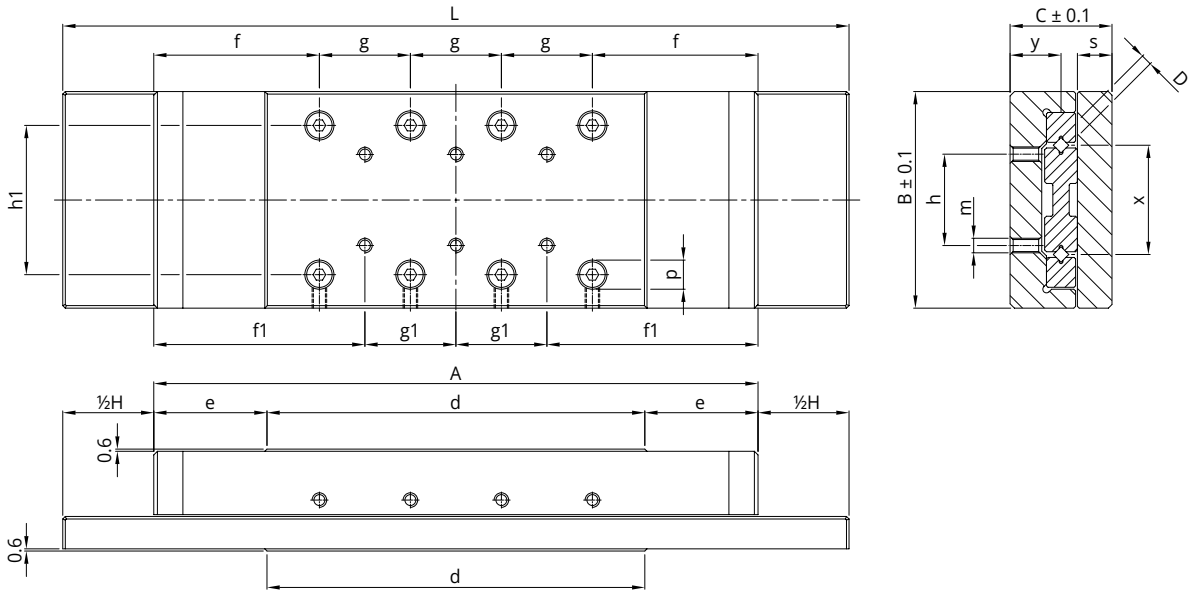


Sealing around for 3, 6, 9 mm (on request)




| h | h1 | m | p | s | x | y | $C_{dyn}$ in N | Weight (kg) | Md in Nm | Ml in Nm | Mr in Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | 18.4 | M2.5 | 4.6 | 6 | 13.5 | 8.75 | 260 | 0.17 | 1.4 | 1.2 | 1.5 |
| | | | | | | | 364 | 0.23 | 2.1 | 2.5 | 1.9 |
| | | | | | | | 520 | 0.29 | 3.5 | 4.4 | 2.6 |
| | | | | | | | 624 | 0.35 | 4.2 | 5.6 | 3.1 |
| | | | | | | | 780 | 0.41 | 4.9 | 7.5 | 4.0 |
| | | | | | | | 884 | 0.47 | 5.6 | 8.7 | 4.6 |
| | | | | | | | 1040 | 0.52 | 7.0 | 10.6 | 5.5 |
| | | | | | | | 1144 | 0.59 | 7.7 | 11.9 | 6.1 |
| | | | | | | | 1300 | 0.65 | 8.4 | 13.7 | 7.0 |
| 15 | 25 | M3 | 6.3 | 7 | 18 | 10.75 | 430 | 0.37 | 3.1 | 2.8 | 3.4 |
| | | | | | | | 688 | 0.52 | 6.2 | 6.9 | 4.6 |
| | | | | | | | 946 | 0.63 | 7.7 | 11.0 | 6.3 |
| | | | | | | | 1204 | 0.81 | 10.8 | 15.1 | 8.2 |
| | | | | | | | 1376 | 0.94 | 12.4 | 17.9 | 9.5 |
| | | | | | | | 1634 | 1.10 | 13.9 | 22.0 | 11.4 |
| | | | | | | | 1892 | 1.24 | 17.0 | 26.1 | 13.4 |
| | | | | | | | 2150 | 1.38 | 18.6 | 30.3 | 15.4 |
| | | | | | | | 2408 | 1.52 | 21.7 | 34.4 | 17.5 |
| 25 | 41 | M4 | 7.8 | 9.5 | 30 | 14 | 952 | 1.16 | 12.2 | 10.9 | 5.4 |
| | | | | | | | 1496 | 1.68 | 20.4 | 21.8 | 13.6 |
| | | | | | | | 2040 | 2.12 | 28.6 | 32.6 | 18.2 |
| | | | | | | | 2448 | 2.68 | 36.7 | 40.8 | 22.0 |
| | | | | | | | 2992 | 3.13 | 44.9 | 51.7 | 27.1 |
| | | | | | | | 3536 | 3.60 | 53.0 | 62.6 | 32.3 |
| | | | | | | | 4080 | 4.12 | 61.2 | 73.4 | 37.6 |
| | | | | | | | 5032 | 5.09 | 73.4 | 92.5 | 47.0 |
| | | | | | | | 6120 | 6.05 | 89.8 | 114.2 | 57.7 |
| | | | | | | | 7072 | 7.98 | 106.1 | 133.3 | 67.1 |
| | | | | | | | 8160 | 9.90 | 122.4 | 155.0 | 77.9 |

Units: mm

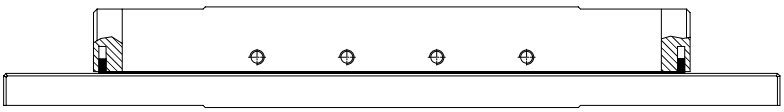



Please see drawing and table on page 128 and 129 for configuration of mounting holes in the slide base.

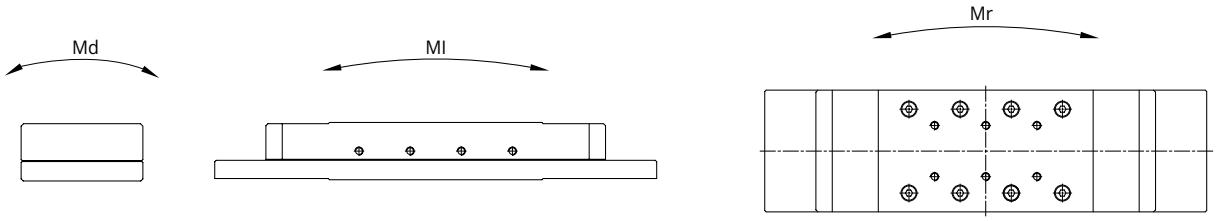
| Type | Main dimensions | | | | | Stroke | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | L | H | d | e | f | f1 | g | g1 |
| RTNG-6100 | 173 | | | | 223 | 50 | 110 | 31.5 | 61.5 | 86.5 | 1x50 | - |
| RTNG-6150 | 248 | | | | 323 | 75 | 160 | 44 | 74 | 99 | 2x50 | 1x50 |
| RTNG-6200 | 323 | | | | 423 | 100 | 210 | 56.5 | 86.5 | 111.5 | 3x50 | 2x50 |
| RTNG-6250 | 398 | | | | 523 | 125 | 260 | 69 | 99 | 124 | 4x50 | 3x50 |
| RTNG-6300 | 473 | 99.5 | 45 | 6 | 623 | 150 | 310 | 81.5 | 111.5 | 136.5 | 5x50 | 4x50 |
| RTNG-6350 | 548 | | | | 723 | 175 | 360 | 94 | 124 | 149 | 6x50 | 5x50 |
| RTNG-6400 | 623 | | | | 823 | 200 | 410 | 106.5 | 136.5 | 161.5 | 7x50 | 6x50 |
| RTNG-6450 | 698 | | | | 923 | 225 | 460 | 119 | 149 | 174 | 8x50 | 7x50 |
| RTNG-6500 | 773 | | | | 1023 | 250 | 510 | 131.5 | 161.5 | 186.5 | 9x50 | 8x50 |
| RTNG-9200 | 329 | | | | 429 | 100 | 210 | 59.5 | 114.5 | 164.5 | 1x100 | - |
| RTNG-9300 | 479 | 148 | 60 | 9 | 629 | 150 | 310 | 84.5 | 139.5 | 189.5 | 2x100 | 1x100 |
| RTNG-9400 | 629 | | | | 829 | 200 | 410 | 109.5 | 164.5 | 214.5 | 3x100 | 2x100 |
| RTNG-9500 | 779 | | | | 1029 | 250 | 510 | 134.5 | 189.5 | 239.5 | 4x100 | 3x100 |

**Bold** = Short lead time item

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



Sealing around for 3, 6, 9 mm (on request)




| h | h1 | m | p | s | x | y | $C_{dyn}$ in N | Weight (kg) | Md in Nm | Ml in Nm | Mr in Nm |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 50 | 65 | M6 | 11 | 14 | 46 | 23 | 4320 | 5.69 | 97.2 | 97.2 | 68.7 |
| | | | | | | | 6480 | 7.96 | 145.8 | 175.0 | 100.1 |
| | | | | | | | 8640 | 10.23 | 194.4 | 252.7 | 135.4 |
| | | | | | | | 10800 | 12.51 | 243.0 | 330.5 | 172.2 |
| | | | | | | | 13500 | 14.78 | 291.6 | 427.7 | 219.3 |
| | | | | | | | 15660 | 17.05 | 340.2 | 505.4 | 257.4 |
| | | | | | | | 17820 | 19.33 | 388.8 | 583.2 | 295.6 |
| | | | | | | | 19980 | 21.60 | 437.4 | 661.0 | 334.0 |
| | | | | | | | 22140 | 23.87 | 486.0 | 738.7 | 372.5 |
| 100 | 104 | M8 | 14 | 17 | 78 | 31 | 13500 | 23.30 | 526.5 | 529.2 | 338.2 |
| | | | | | | | 21600 | 34.35 | 842.4 | 982.8 | 534.6 |
| | | | | | | | 28350 | 45.38 | 1053.0 | 1360.8 | 712.2 |
| | | | | | | | 35100 | 57.27 | 1368.9 | 1738.8 | 894.5 |

Units: mm

Configuration mounting holes in slide base

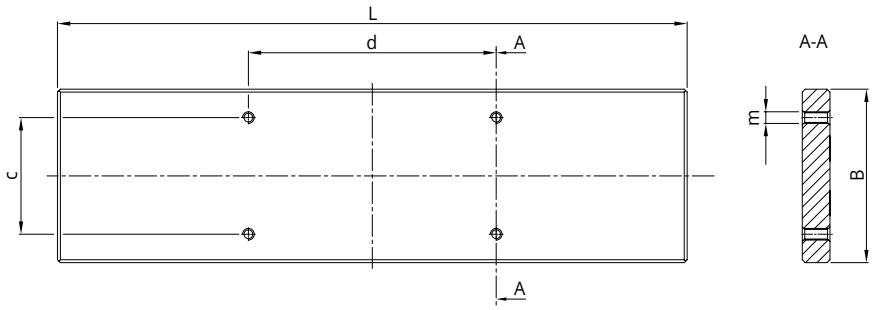



Fig. 1

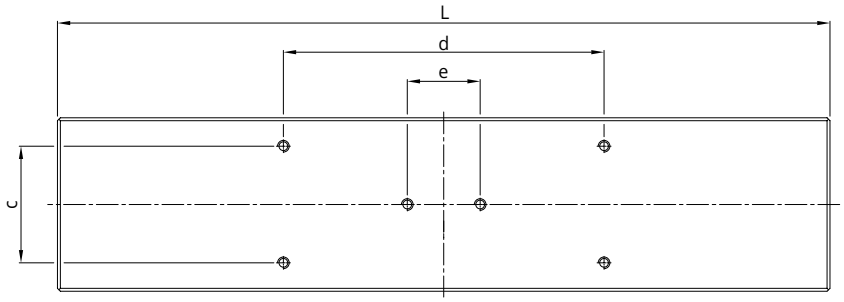



Fig. 2

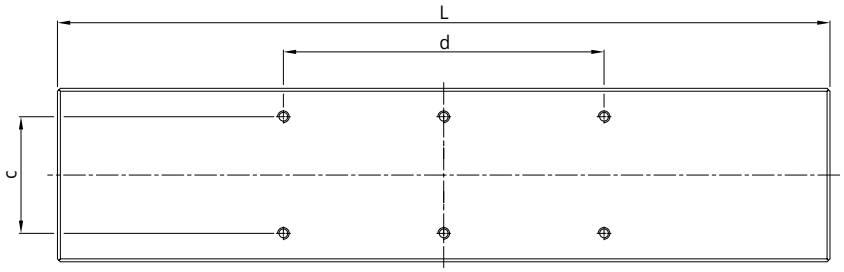



Fig. 3

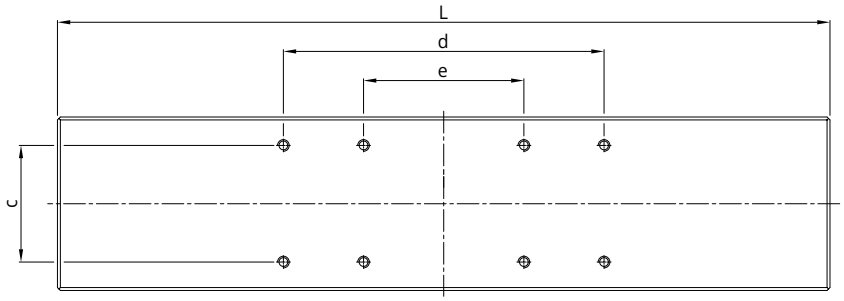



Fig. 4

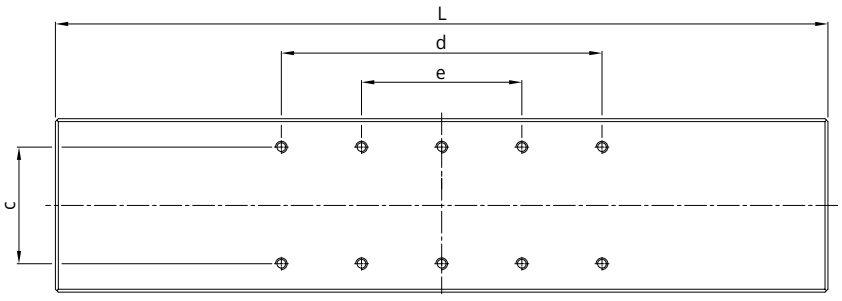



Fig. 5

2D and 3D drawings are available on our website www.PM.nl or email info@PM.nl

| Type | L | B | c | d | e | m | Fig |
|---|---|---|---|---|---|---|---|
| RTNG-1520 | 52 | | | 17 | - | | 1 |
| RTNG-1530 | 72 | | | 27 | - | | 1 |
| RTNG-1540 | 92 | | | 37 | - | | 1 |
| RTNG-1550 | 112 | | | 47 | 25 | | 2 |
| RTNG-1560 | 132 | 29.6 | 22 | 57 | 30 | M2.5 | 2 |
| RTNG-1570 | 152 | | | 67 | 35 | | 2 |
| RTNG-1580 | 172 | | | 77 | 40 | | 2 |
| RTNG-1590 | 192 | | | 87 | 45 | | 2 |
| RTNG-15100 | 212 | | | 97 | 50 | | 2 |
| RTNG-2030 | 75 | | | 25 | - | | 1 |
| RTNG-2045 | 104 | | | 40 | - | | 1 |
| RTNG-2060 | 135 | | | 55 | - | | 1 |
| RTNG-2075 | 164 | | | 70 | - | | 1 |
| RTNG-2090 | 195 | 39.6 | 30 | 85 | 45 | M3 | 2 |
| RTNG-2105 | 224 | | | 100 | 50 | | 2 |
| RTNG-2120 | 255 | | | 115 | 30 | | 2 |
| RTNG-2135 | 284 | | | 130 | 40 | | 2 |
| RTNG-2150 | 315 | | | 145 | 40 | | 2 |
| RTNG-3050 | 116 | | | 35 | - | | 1 |
| RTNG-3075 | 165 | | | 60 | - | | 1 |
| RTNG-3100 | 216 | | | 85 | - | | 1 |
| RTNG-3125 | 265 | | | 110 | - | | 3 |
| RTNG-3150 | 316 | | | 135 | - | | 3 |
| RTNG-3175 | 365 | 59.5 | 40 | 160 | - | M4 | 3 |
| RTNG-3200 | 416 | | | 185 | 65 | | 4 |
| RTNG-3250 | 516 | | | 235 | 85 | | 4 |
| RTNG-3300 | 616 | | | 285 | 95 | | 4 |
| RTNG-3350 | 716 | | | 335 | 170 | | 5 |
| RTNG-3400 | 816 | | | 385 | 195 | | 5 |
| RTNG-6100 | 223 | | | 70 | - | | 1 |
| RTNG-6150 | 323 | | | 120 | - | | 1 |
| RTNG-6200 | 423 | | | 170 | - | | 3 |
| RTNG-6250 | 523 | | | 220 | - | | 3 |
| RTNG-6300 | 623 | 99.5 | 60 | 270 | - | M6 | 3 |
| RTNG-6350 | 723 | | | 320 | 110 | | 4 |
| RTNG-6400 | 823 | | | 370 | 130 | | 4 |
| RTNG-6450 | 923 | | | 420 | 210 | | 5 |
| RTNG-6500 | 1023 | | | 470 | 240 | | 5 |
| RTNG-9200 | 429 | | | 160 | - | | 1 |
| RTNG-9300 | 629 | 148 | 100 | 260 | - | M8 | 1 |
| RTNG-9400 | 829 | | | 360 | - | | 3 |
| RTNG-9500 | 1029 | | | 460 | - | | 3 |

**Bold** = Short lead time item

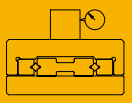
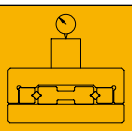
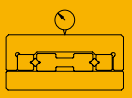
Regular = Long lead time item - please ask us about prices and lead times

Units: mm

## RUNNING ACCURACIES AND TOLERANCES

The table below shows the accuracies for different types of PM slides. Accuracies are measured with the slides in an unloaded horizontal position. The values shown are also applicable to 2-axis combinations. Where relevant, please refer to the appropriate stroke lengths.

In more complex cases, such as combinations of multiple axes, please contact us for expert support. Upon request, we can provide precision slides with a certificate of compliance based on laser accuracy measurements. Special higher accuracy grade slides are available upon request.

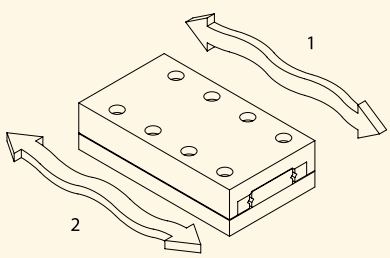
| Type | A in mm |  Straight line accuracy in µm over travel lenght on the side |  Flatness accuracy in µm over travel lenght on the top |  Parallelism in µm, neutral position on slide top |
|---|---|---|---|---|
| RT (RTN/RTL) | 25-50 | 2 | 2 | 5 |
| | 55-95 | 3 | 2 | 6 |
| | 105-155 | 4 | 3 | 7 |
| | 160-305 | 4 | 3 | 8 |
| | 310-510 | 4 | 4 | 10 |
| | 510-710 | 5 | 4 | 13 |
| | 810-1010 | 5 | 5 | 15 |
| RTA (RTNA/RTLA) Aluminium | 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 and PMMR | 15-30 | 3 | 4 | 5 |
| | 35-50 | 4 | 4 | 6 |
| | 60-80 | 5 | 6 | 8 |
| MSR | 8-50 | 3 | 3 | 3 |
| | 50-130 | 4 | 4 | 4 |

Tolerance on the height +0.03 mm / -0.1 mm | Optional: Slides can be supplied with a height tolerance of ±0.01mm

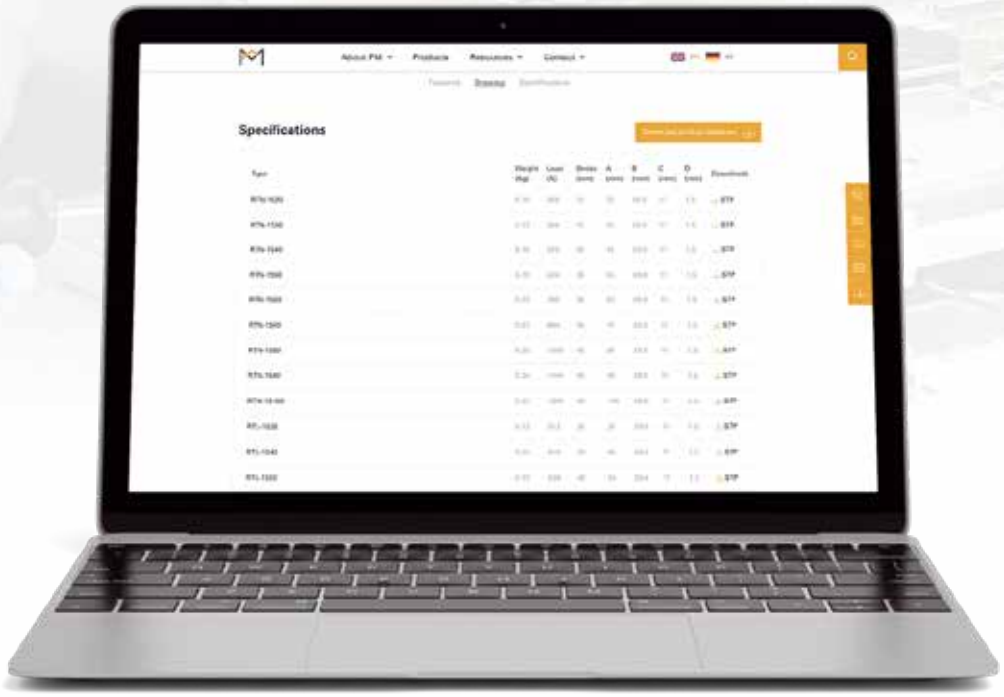
**1. STRAIGHT LINE ACCURACY:** this is the amount of error deviance from the ideal straight line of travel in the vertical plane.

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

**PARALLISM IN µm, NEUTRAL POSITION ON SLIDE TOP:** the parallellism of the slide surfaces occures unloaded on a flat, horizontal surface in zero-position.



Download the standard product .STP files



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