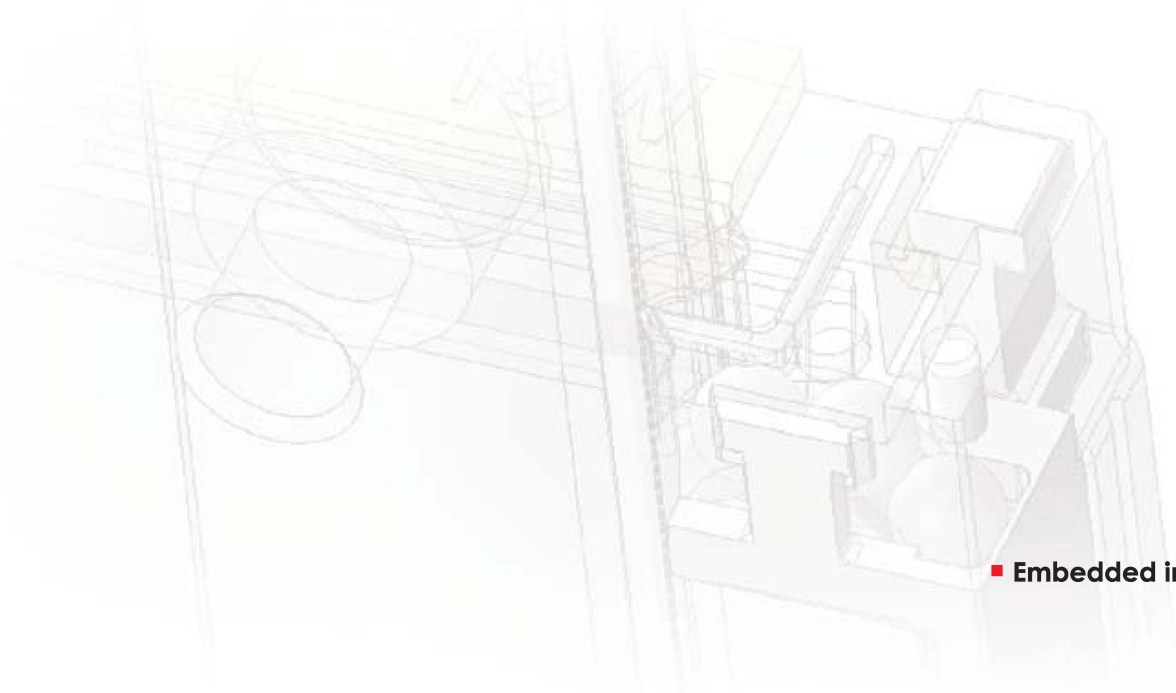


1. Product Introduction



■ Embedded inverse hook design

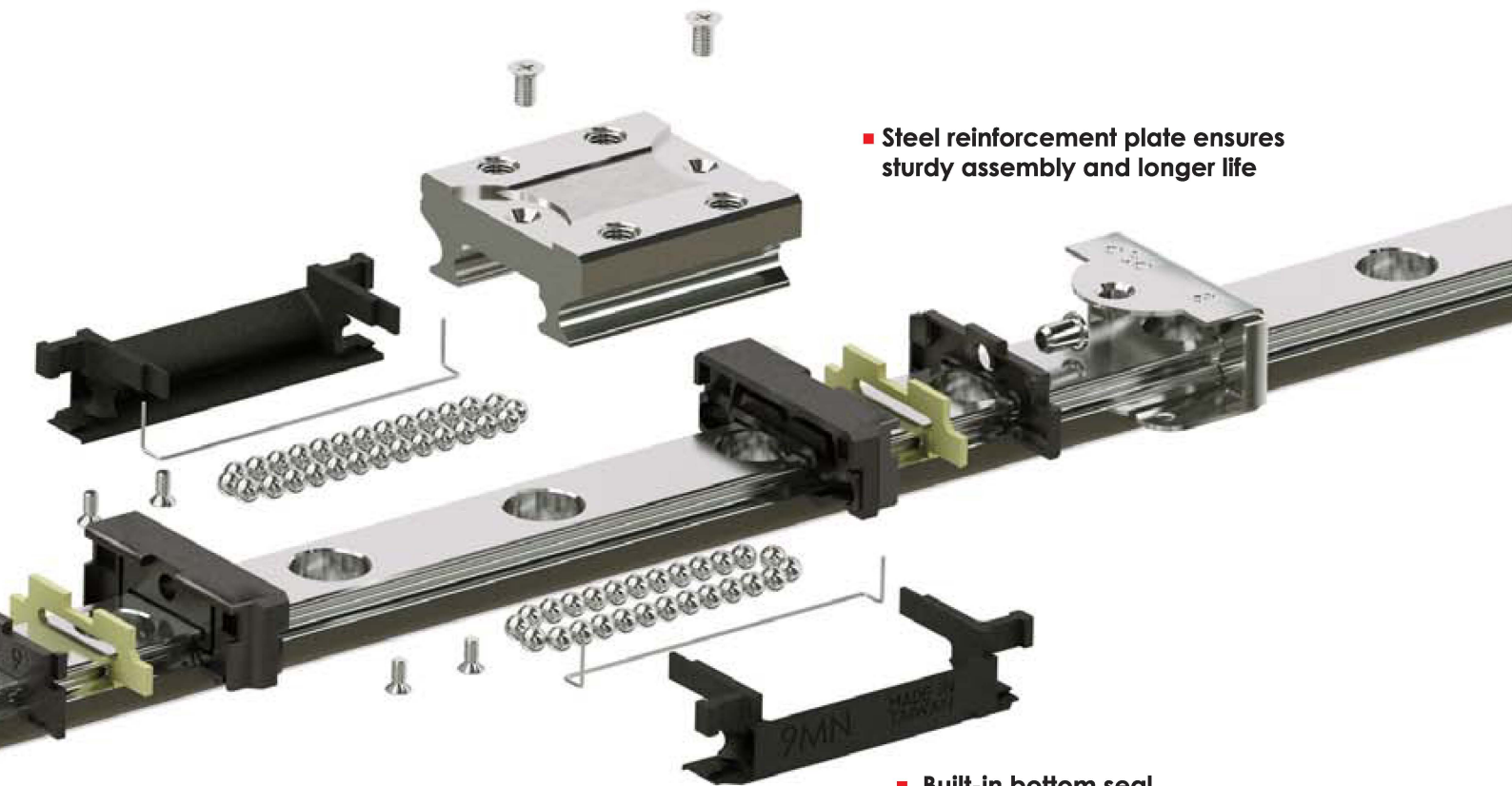
■ Designed for high load, high moment applications



■ Precision

MR Miniature linear guide series have three accuracy grades for design selection: Precision (P) , High (H) , Normal (N).

■ **Unique ball re-circulation design**



■ **Steel reinforcement plate ensures sturdy assembly and longer life**

■ **Built-in bottom seal**

* the new design is recommended for purchase in priority.

■ **Lubrication storage**

Environmentally-friendly system requires less lubricant.

■ **Material**

Regardless of series, MR miniature linear guides use stainless steel processed material.



1. Product Introduction

Dustproof design

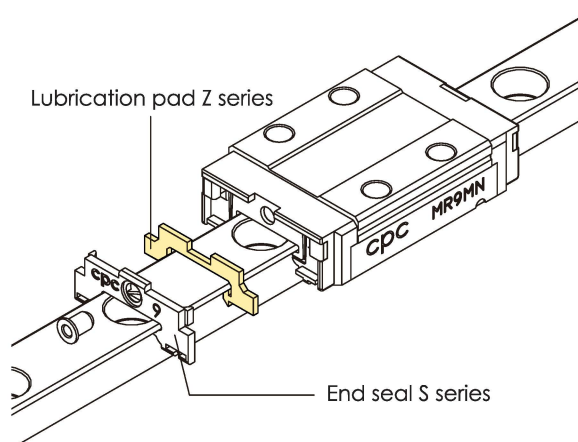
SS series-end seal

The standard end seal design can be hermetic and dustproof effectively; it can also maintain the product life, reduce lubrication grease consumption, and ensure a long-lasting lubrication effect. The special design of seal lip can generate few friction force without influencing its running smoothness.

Environmentally friendly lubrication design

ZZ series-end seal and lubrication pad

The two ends of the runner block are respectively provided with a hermetic lubrication grease injection design, capable of bringing the lubrication grease to the raceway by means of steel ball circulation, thereby achieving a lubrication effect. A built-in lubrication pad is optionally provided upon the design, further ensuring the lubrication effect of a long-term running, thereby reducing the maintenance cost, and further performing a very good lubrication capability during a short stroke running.



Brand new U series

Features: the built-in bottom seal does not affect the friction resistance if a clearance is smaller than 0.1mm.

SU series - end, bottom seals

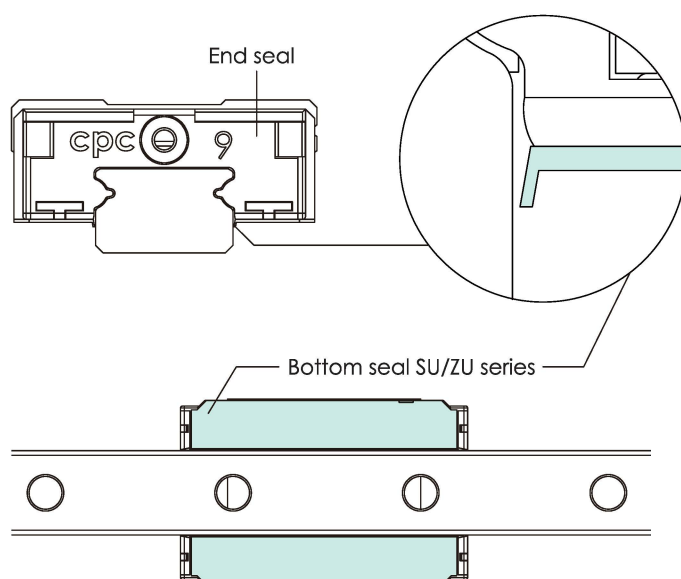
In addition to a normally equipped end seal, a newly designed runner block is equipped with a extra bottom seal, which can prevent foreign matters entering via the lower side of the runner block into the ball running rail, extending the working life of the runner block.

*the new design is recommended for purchase in priority.

ZU series - end, bottom seals and lubrication pad

A newly designed bottom seal can prevent lubrication grease from spilling below the runner block. In addition, a built-in lubrication pad is mounted, further strengthening the effects of saving grease, and extending a re-greasing interval.

*the new design is recommended for purchase in priority.



End reinforcing design

EE series-end seal and reinforcing plate

Adopting two pieces of stainless steel reinforcing plate to cover the two plastic ends of the slide block completely with an all cover design, and using stainless steel screws to respectively secure the upper and lower sides of the runner block steel body tightly strengthen the rigidity and coverage of the end cap so as to endure a faster running speed; a gap sealing design is adopted between the reinforcing plate and slide rail, allowing the stainless steel reinforcing plate to have a wiping blade function too.

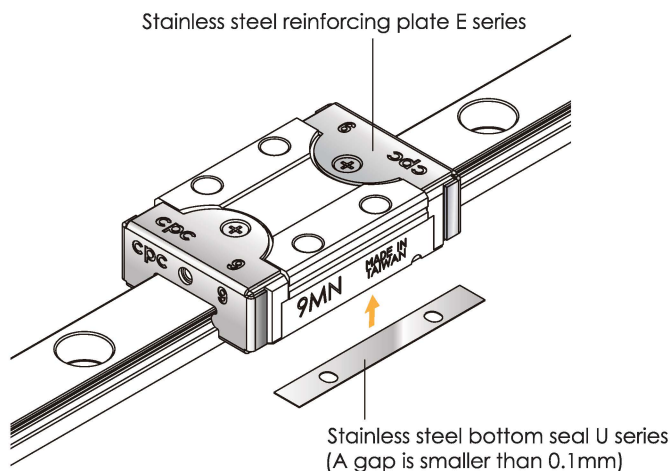
Running speed $V_{max}=5m/s$, $a_{max}=300m/s^2$
(60m/s² can be reached without prepressing)

EZ series - end seal, reinforcing plate and lubrication pad

The built-in lubrication pads at the two ends of the runner block conform to environmental protection requirements and reduce maintenance cost.

EU series - end seal, stainless steel bottom seal and reinforcing plate

The stainless steel bottom seal protects the runner block of the EU series from the collision of foreign matters from the bottom and hence the damage of the runner block. Therefore, the runner block of this series has the best protection capability among all series; the product is recommended for using in the environment with enormous iron scraps around.



UZ series - end seal, stainless steel bottom seal, reinforcing plate and lubrication pad

The lubrication pad can provide highly rigid runner block with better lubrication and grease storage capabilities, and reduce re-greasing time.

Brand new UE series

SUE series - end seal, bottom seal and reinforcing plate

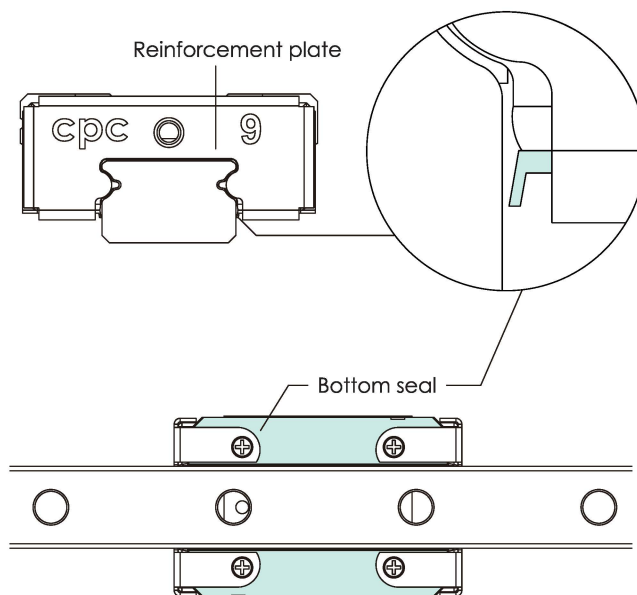
Built-in type bottom seal strengthens the dustproof capability of the bottom of the runner block, and the stainless steel reinforcing plate can prevent hard and rigid objects from striking by the plastic cap out of the end; its dustproof effect is the best among all the product series.

*the new design is recommended for purchase in priority.

ZUE series - end seal, bottom seal, reinforcing plate and lubrication pad

The bottom seal can prevent the lubrication grease from spilling below the runner block, and an built-in lubrication pad is further mounted, further strengthening a grease saving effect.

*the new design is recommended for purchase in priority.



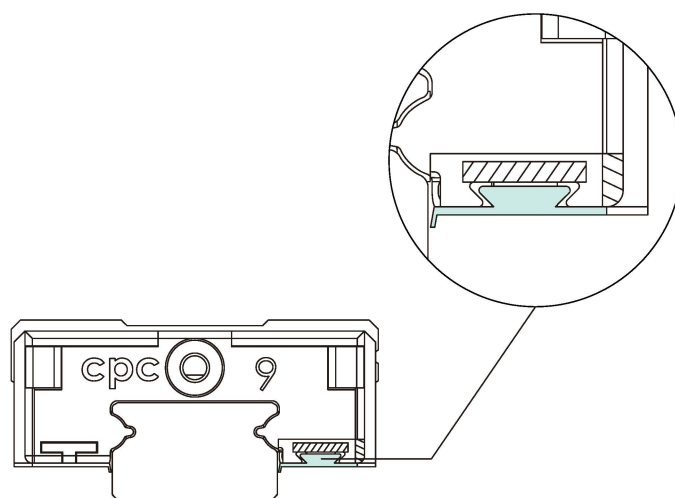
MR

MINIATURE LINEAR GUIDE SERIES

1. Product Introduction

Embedded inverse hook design for reinforced mechanical integration

When the runner block is in motion and changing direction, the circulating stainless steel balls inside the raceway generate impact force against the plastic end cap. As the demand for rapid motion in the automation industry has increased, **cpc** has invented a new design to improve high speed running capability. Plastic inverse hooks for miniature linear blocks tightly secure block components to handle the impact force effectively by distributing the applied stress over a larger area.

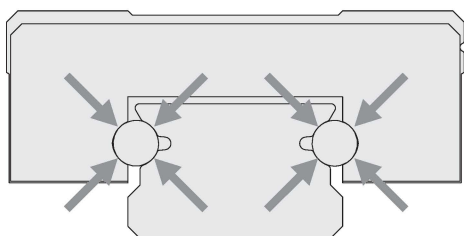


Brand new design

Suitable for :
 High speed belt driven mechanism
 High speed carrier design
 Automation linkage between stations

High load and high moment capacity

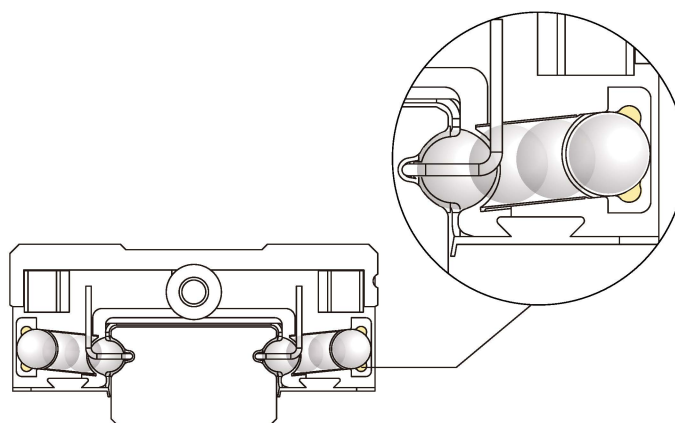
The MR Miniature Linear Guide series is designed using two rows of recirculating balls. The design uses a Gothic profile with a 45° contact angle to achieve equal load capacity in all directions. Within the restriction of limited space, larger stainless steel balls are used to enhance the load and torsion resistance capacity.



cpc linear guides (indicated with the thick black line above) provide greater surface contact as compared to competing products (indicated with the red-dotted line) when comparing same width rails.

Dust Proof Design

Our standard design comes equipped with an end seal that effectively restricts dust contamination and prolongs lubrication, ensuring longer product life. Specially-designed low friction seal lips do not affect running smoothness.





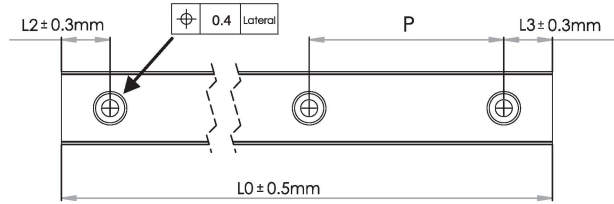
MINIATURE LINEAR GUIDE SERIES

3. Ordering Information

3.1 Length of Rail

Length of Rail

Butt-jointing is required when lengths exceed Lmax. (For detailed information, please contact cpc technical support.)



Model Code														Unit: mm		
MR	U	15	M	N	K	EE	2	V1	P	-310L	-15	-15	II	J		
														Customization code		
														Number of rails on the same moving axis		
														End hole pitch (mm)		
														Starting hole pitch(mm)		
														Rail length (mm)		
														Accuracy Grades: P(Precision) \ H(High) \ N(Normal)		
														Preload classes : V0 : Clearance VS : Standard V1 : Light Preload		
														Block quantity : Quantity of the runner block		
														SS: With End Seal ZZ: End seal + Lubrication Storage SU: End seal + Bottom Seal ZU: End seal + Bottom Seal + Lubrication Storage EE: End seal + Reinforcement Plate EZ: End seal + Reinforcement Plate + Lubrication Storage EU: End seal + Reinforcement Plate + Stainless Bottom Seal UZ: End seal + Reinforcement Plate + Stainless Bottom Seal + Lubrication Storage SUE: End seal + Bottom Seal + Reinforcement Plate ZUE: End seal + Bottom Seal + Reinforcement Plate + Lubrication Storage		
														Rail material : No Mark : Standard Rail K : Carbon steel (Now available: size 9, 12, and 15.)		
														Block type : L : Long N : Standard		
														Rail type : M : Standard W : Wide		
														Rail dimension : The width of rail ex. : 2 \ 3 \ 5 \ 7 \ 9 \ 12 \ 15		
														Special Rail U : Upward Screwing Rail No Mark : Standard Rail		
														Product Type: MR: Miniature Linear Guide		

Standard type	Unit: mm					
size	3M	5M	7M	9M	12M	15M
Standard length of one rail	30	40	40	55	70	70
	40	55	55	75	95	110
	50	70	70	95	120	150
		85	85	115	145	190
		100	100	135	170	230
			130	155	195	270
				175	220	310
				195	245	350
				275	270	390
				375	320	430
					370	470
					470	550
					570	670
					870	
Pitch	10	15	15	20	25	40
L2, L3min.	3	3	3	4	4	4
L2, L3max.	5	10	10	20	20	35
L0 max.	300	1000	1000	1000	1000	1000

Wide type	Unit: mm						
size	2W	3W	5W	7W	9W	12W	15W
Standard length of one rail	30	40	50	50	50	70	110
	40	55	70	80	80	110	150
	50	70	90	110	110	150	190
				110	140	140	190
				130	170	170	230
				150	200	200	270
				170	260	260	310
					290	290	390
						320	470
							550
							670
							790
	Pitch	10	15	20	30	30	40
L2, L3min.	3	3	4	3	4	4	4
L2, L3max.	5	10	15	25	25	35	35
L0 max.	300	1000	1000	1000	1000	1000	1000

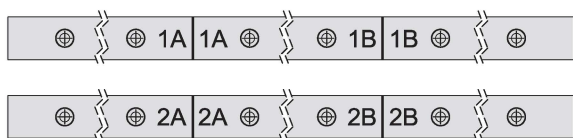
Customization Requirement

The meaning of suffix characters:

- J** : Butt-jointing track rail
- G** : Customer designated lubricant
- I** : Inspection report
- R** : Special process for rail
- B** : Special process for block
- S** : Special straightness for rail
- C3** : Cap M3
- C4** : Cap M4
- MS** : Metal Stopper on stainless steel Rail

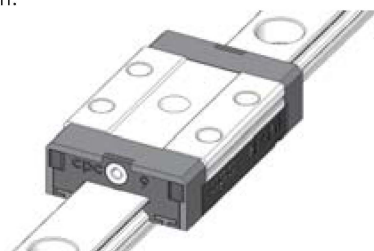
J : Butt-Jointing track rail

When the required length of rail exceeds the standard rail length, a butt-joint can be specified. The rail butt-joint indication is marked as illustrated below.



B : Special process for block

For special process requirements, please contact technical support.



I : Inspection report

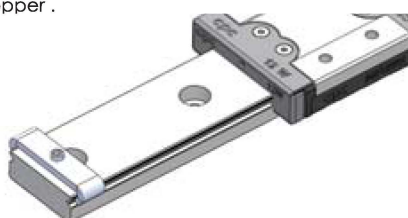
Please contact technical support.

S : Special straightness for rail

The straightness of the linear guide rail is specially calibrated by precision fine grinding.

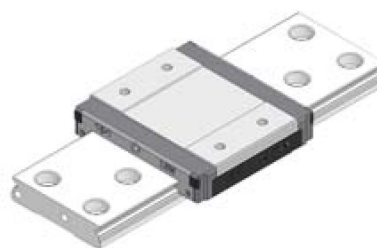
MS : Metal Stopper on stainless steel Rail

1. To prevent the block from separating from the rail during the transportation or the installation which may cause the item damaged or even scattered.
2. Perfect plus for the rail installed on the vertical axis (Z axis) to prevent the block separates from the rail due to the gravity.
3. Stoppers and the screws are made of stainless steel material with anti-corrosion function.
4. Strongly NOT recommended being applied as the mechanical limited stopper .



R : Special process for rail

For special process requirements, please contact technical support.



G : Customer designated lubricant

According to application environment.

GN : No lubricant

GC : Low dust generation

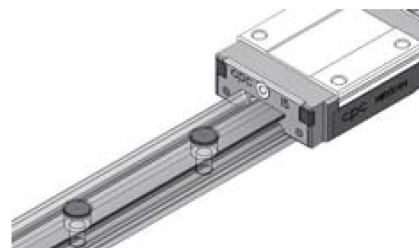
Suitable for clean room environments.

C3 CapM3 :

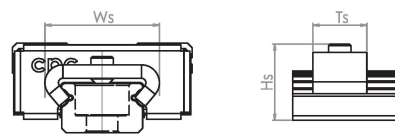
Applies to MR9M, MR12M, MR15M, MR7W & MR9W rails.

C4 CapM4 :

Applies to MR12W, MR15W rails.



Dimension

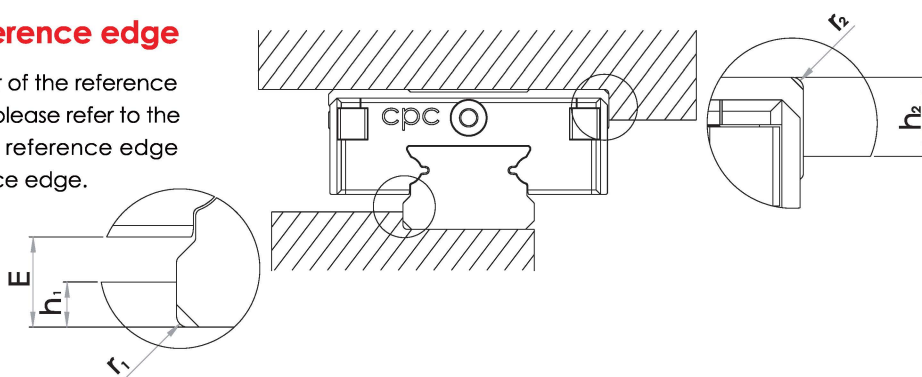


Rail Size	Ws max	Ts	Hs max
MR-7M	10	5	8
MR-9M	13	6	9
MR-12M	17	7	12
MR-15M	19	7	14
MR-7W	18	6	9
MR-9W	23	6	11
MR-12W	29	7	13
MR-15W	47	7	14

4. Installation Illustration

Height and chamfer of reference edge

To avoid any interference, the corner of the reference edge should have a chamfer. If not, please refer to the following table for the height of the reference edge corner and the height of the reference edge.



Height and chamfer of reference surface

Dimension	h ₂	r _{2max}	r _{1max}	SS/ZZ		SU/ZU		EE/EZ		EU/UZ		SUE/ZUE	
				h ₁	E	h ₁	E	h ₁	E	h ₁	E	h ₁	E
3M	1.5	0.3	0.1	0.8	1	0.6	0.9	-	-	-	-	-	-
5M	1.9	0.3	0.2	1.2	1.5	0.9	1.2	0.8	1.1	-	-	0.7	1.0
7M	2.8	0.3	0.2	1.2	1.5	0.8	1.1	-	-	-	-	-	-
9M	3	0.3	0.2	1.8	2.2	1.3	1.7	1.3	1.7	1	1.4	1.1	1.5
12M	4	0.5	0.3	2.6	3	2.1	2.5	1.9	2.3	1.6	2	1.7	2.1
15M	4.5	0.5	0.3	3.6	4	2.7	3.1	2.8	3.2	2.5	2.9	2.4	2.9

Dimension	h ₂	r _{2max}	r _{1max}	SS/ZZ		SU/ZU		EE/EZ		EU/UZ		SUE/ZUE	
				h ₁	E	h ₁	E	h ₁	E	h ₁	E	h ₁	E
2WL	1.5	0.3	0.1	0.8	1	0.6	0.9	0.5	0.7	-	-	0.4	0.6
3W	1.7	0.3	0.1	0.7	1	0.6	0.9	-	-	-	-	-	-
5W	2	0.3	0.2	1.2	1.5	1	1.3	-	-	-	-	-	-
7W	2.8	0.3	0.2	1.7	2	1.3	1.6	1.2	1.5	-	-	1.1	1.4
9W	3	0.3	0.2	3	3.4	2.5	2.9	2.4	2.8	2.1	2.5	2.2	2.6
12W	4	0.5	0.3	3.5	3.9	2.9	3.3	2.9	3.3	2.4	2.8	2.4	2.8
15W	4.5	0.5	0.3	3.6	4	3	3.4	2.8	3.2	2.4	2.8	2.4	2.8

Screw tightening torque (Nm)

Screw grade 12.9 Alloy Steel Screw	Steel		Non Iron Metal
	Cast Iron	Cast Iron	
M2	0.6	0.4	0.3
M2.5/M2.6	1.2	0.8	0.6
M3	1.8	1.3	1
M4	4	2.5	2

ISO 3506-1 A2-70 Stainless Screw	Cast Iron
M1.6	0.15
M2	0.3
M2.5/M2.6	0.6
M3	1.1
M4	2.5

The mounting surface

Surface roughness
The mounting surface should be ground or fine milled to reach a surface roughness Ra1.6 µm.

Geometric and positional accuracy of the mounting surface

Inaccurate mounting surfaces will affect the operational accuracy of the linear guide when the mounting surface height differential is greater than the values calculated by formulas (15), (16), and (17). The rating lifetime will also be shortened.

Reference edge

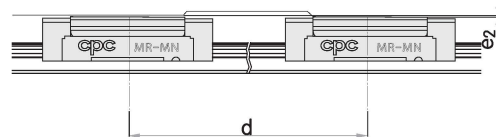
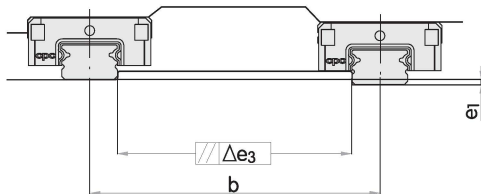
Rail: Both sides of the track rail can be the reference edge without any special marking.

Block: Reference edge is opposite to the groove marking side.

$$e1 \text{ (mm)} = b \text{ (mm)} \cdot f1 \cdot 10^{-4} \quad \text{--- (15)}$$

$$e2 \text{ (mm)} = d \text{ (mm)} \cdot f2 \cdot 10^{-5} \quad \text{--- (16)}$$

$$e3 \text{ (mm)} = f3 \cdot 10^{-3} \quad \text{--- (17)}$$



Dimension	V0/VS			V1		
	f1	f2	f3	f1	f2	f3
3MN	4	9	2	3	9	1
5MN	4	8	2	2	8	2
7MN	5	11	4	3	10	3
9MN	5	11	6	4	10	4
12MN	6	13	8	4	12	6
15MN	7	11	12	5	10	8
3ML	4	5	2	3	5	1
5ML	3	5	2	2	5	1
7ML	4	6	4	3	6	3
9ML	5	7	5	3	7	4
12ML	5	8	8	3	7	5
15ML	7	8	11	4	8	7

Dimension	V0/VS			V1		
	f1	f2	f3	f1	f2	f3
2WL	4	5	2	3	5	1
3WN	2	5	2	4	3	1
5WN	2	5	2	1	3	1
7WN	2	6	4	2	4	3
9WN	2	7	6	2	5	4
12WN	3	8	8	2	5	5
15WN	2	9	11	1	6	7
3WL	2	3	1	1	2	1
5WL	2	3	2	1	2	1
7WL	2	4	4	1	3	3
9WL	2	5	5	2	3	3
12WL	2	5	7	2	3	5
15WL	2	5	10	1	4	7