



Mini Rail

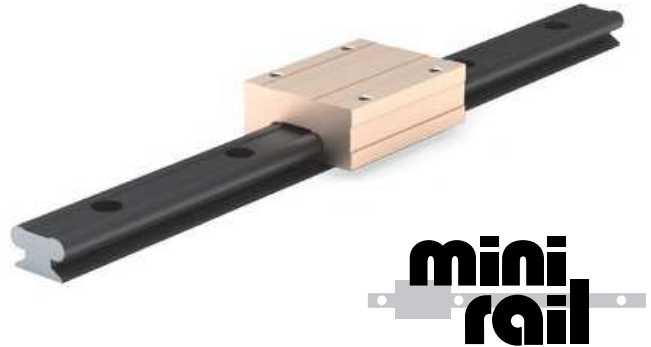
Components

PRODUCT OVERVIEW

An economical alternative to conventional miniature linear guides, Mini Rail requires little maintenance, is dimensionally interchangeable with industry standard sizes and is maintained in stock for quick delivery.

Mini Rail miniature linear guides are available in lengths up to 3600mm, meaning no cumbersome butt joints. These guides are precision manufactured out of lightweight aluminum alloys to ensure long life and corrosion resistance.

- Ceramic coated aluminum rail and anodized aluminum carriage
- Self-lubricating FrelonGOLD® Liner
- Compact design leaves a small footprint
- Corrosion resistance makes Mini Rail ideal in harsh environment
- No rolling elements eliminates possibility of catastrophic failure
- Withstands vibration and shock
- Available in five sizes: 7, 9, 12, 15, and 20 mm

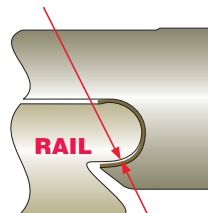


CARRIAGE CONFIGURATIONS

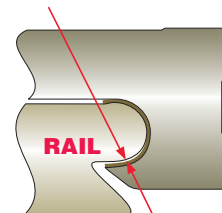
Precision Series: Ceramic coated rails and anodized carriages are corrosion resistant. FrelonGOLD self-lubricating liner delivers the best overall performance, the highest loads, the best wear life, and speeds. Most precise running clearance for high precision applications.

Compensated Series: Same as Precision Series except with additional clearance provided to tolerate misalignment.

Precision Series
 .025 - .051 mm
 Running Clearance
 (CERAMIC COATED)



Compensated Series
 .064 - .089 mm
 Running Clearance
 (CERAMIC COATED)



APPLICATIONS

- Medical Precision
- Mobile Home Components
- Packaging
- Food Processing
- Product Movement
- Automation
- Semi-conductor
- Printing
- Electronics

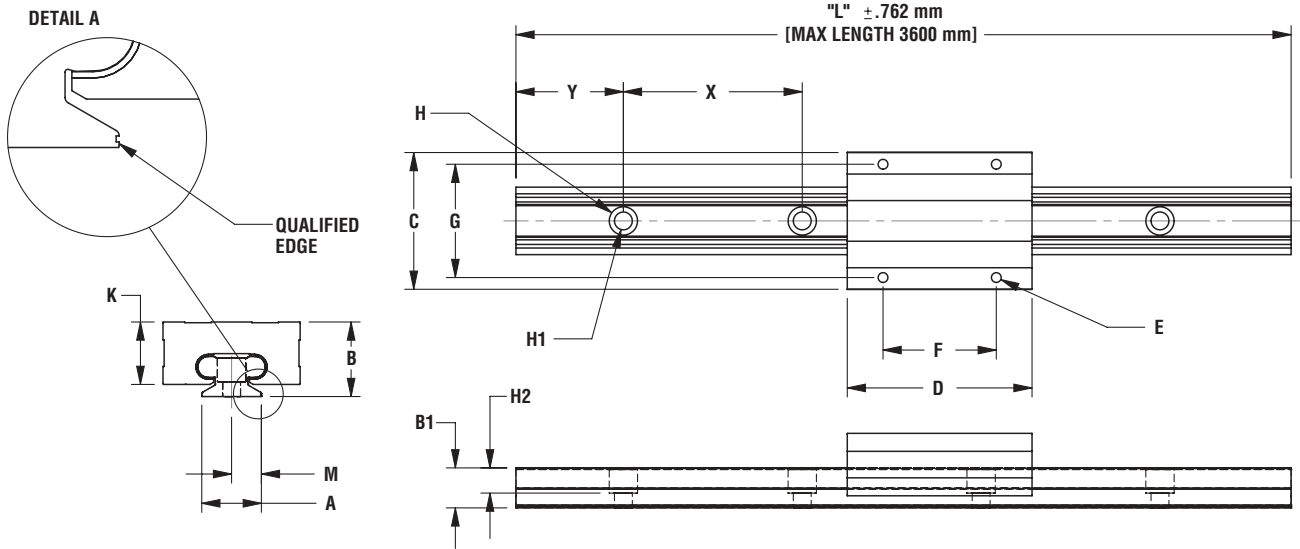
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DIMENSIONS



Maximum Length: 3600 mm
Materials: 6061-T6 aluminum rail and carriage, FrelonGOLD®

Max V: 300 sfm for FrelonGOLD (1.524 m/s)
Max P: 3000 psi for FrelonGOLD (20.68 N/mm²)

PART NUMBER	RUNNING CLEARANCE	A	B	B1	C	D	E		F	G	H	H ₁	H ₂	K	M	Y	X	RAIL WT. GRAM/MM	CARRIAGE WT. GRAM
		BASE WIDTH MM	OVERALL HEIGHT	RAIL HEIGHT	CARRIAGE WIDTH	CARRIAGE LENGTH	CARRIAGE MTG. HOLE SIZE	CARRIAGE MTG. HOLE DEPTH	CARRIAGE MTG. HOLE CTR. TO CTR.	RAIL HOLE SIZE			CARRIAGE HEIGHT	RAIL MTG. HOLE TO QUALIFIED EDGE	RAIL HOLE TO END	RAIL HOLE CTR. TO CTR.			
MR7-XXX	.025 - .051	7	8	6.1	17	24	M2 x 0.4	THRU	8	12	4.2	2.4	2.3	6.2	3.5	5	15	0.10	5.7
MRC7-XXX	.064 - .089																		
MR9-XXX	.025 - .051	9	10	7.1	20	30	M3 x 0.5	THRU	13	15	4.5	2.6	3	8.0	4.5	7.5	20	0.16	8.5
MRC9-XXX	.064 - .089																		
MR12-XXX	.025 - .051	12	13	8.0	27	34	M3 x 0.5	THRU	15	20	6	3.5	10.7	6	10	25	0.22	20.0	
MRC12-XXX	.064 - .089																		
MR15-XXX	.025 - .051	15	16	9.2	32	42	M3 x 0.5	THRU	20	25	6	3.5	14.1	7.5	15	40	0.38	34.0	
MRC15-XXX	.064 - .089																		
MR20-XXX	.025 - .051	20	25	13.4	46	62	M4 x 0.7	12.5	38	38	9.5	6	8.5	21.2	10	20	60	0.48	127.9
MRC20-XXX	.064 - .089																		

Note: Cut-to-length rails are available up to 3600 mm.
 Standard and cut-to-length rail ends are NOT coated. Fully coated rails are available upon request for high volume quantity requirements.
 All carriage mounting holes are through tapped except MR20 12.5mm of thread.
 The "Y" dimension will remain constant at one end unless requested otherwise.
 Add the overall length of the rail to the part number (EX: "MR12-0220" for a Precision Series assembly with a 220mm rail).

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STATIC LOAD DATA

The numbers below are for rails in a static condition. Refer to the calculations below to establish dynamic parameters.

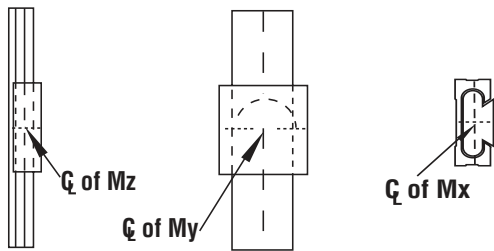
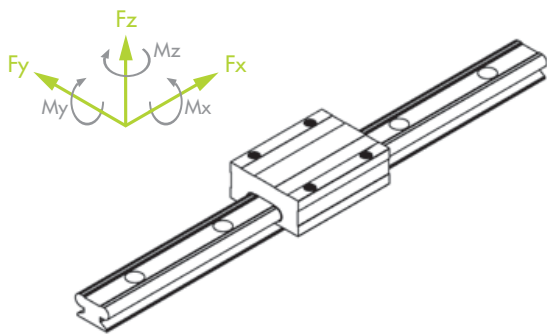
SIZE	MSL N*	MY N-M	MX N-M	MZ N-M
7	734	2.3	1.8	1.8
9	1557	5.0	3.2	3.2
12	1957	9.0	5.6	5.6
15	3114	15.1	9.0	9.0
20	6005	24.9	14.7	14.7

*Max static load in Newtons.

LOAD/MOMENT CONVERSION

$$N = 4.45 \times (\text{lbs.})$$

$$N\text{-m} = 0.113 \times (\text{in.-lbs.})$$



PERFORMANCE RATINGS FOR LINEAR MOTION

Plain bearings are rated by their limiting PV, which is a combination of load over a given surface area and the velocity.

BEARING MATERIAL	MAX. PV	MAX. P	MAX. V NO LUBRICATION
FrelonGOLD®	20,000 (psi x ft./min.) or 0.7 N/mm ² x m/s	3000 psi or 20.68 N/mm ²	300 sfm or 1.524 m/s

PV = The performance measurement of plain bearings.

$$PV = P \times V, \text{ where } P = \text{pressure (load) in psi (kgf/cm}^2\text{)}$$

V = velocity (speed) in sfm (m/min.)

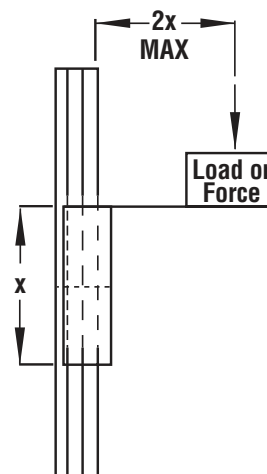
PV Example: Load = 85 psi
Speed = 180 ft./min.
PV = 85 x 180 = 15,300 PV

Note: All three parameters must be met by an application for the bearing to perform properly.

Note: FrelonGOLD® bearing material coefficient of friction is 0.125.

CANTILEVERED LOADS

Binding of the carriage will occur if the 2:1 ratio for cantilevered loads and drive forces is exceeded. This principle is not load or force dependent. It is a product of the coefficient of frictions associated with plain bearings. Contact factory or website for additional information.



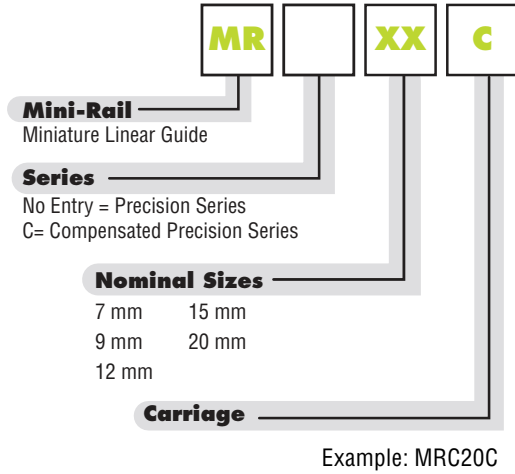


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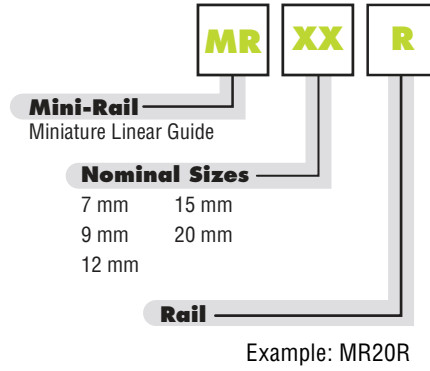
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ORDERING INFORMATION

CARRIAGE



RAIL



Note: Mini Rail carriages are matched to the rails at the time of the order.
Adding carriages at a later date may result in an unsatisfactory fit between carriage and rail

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