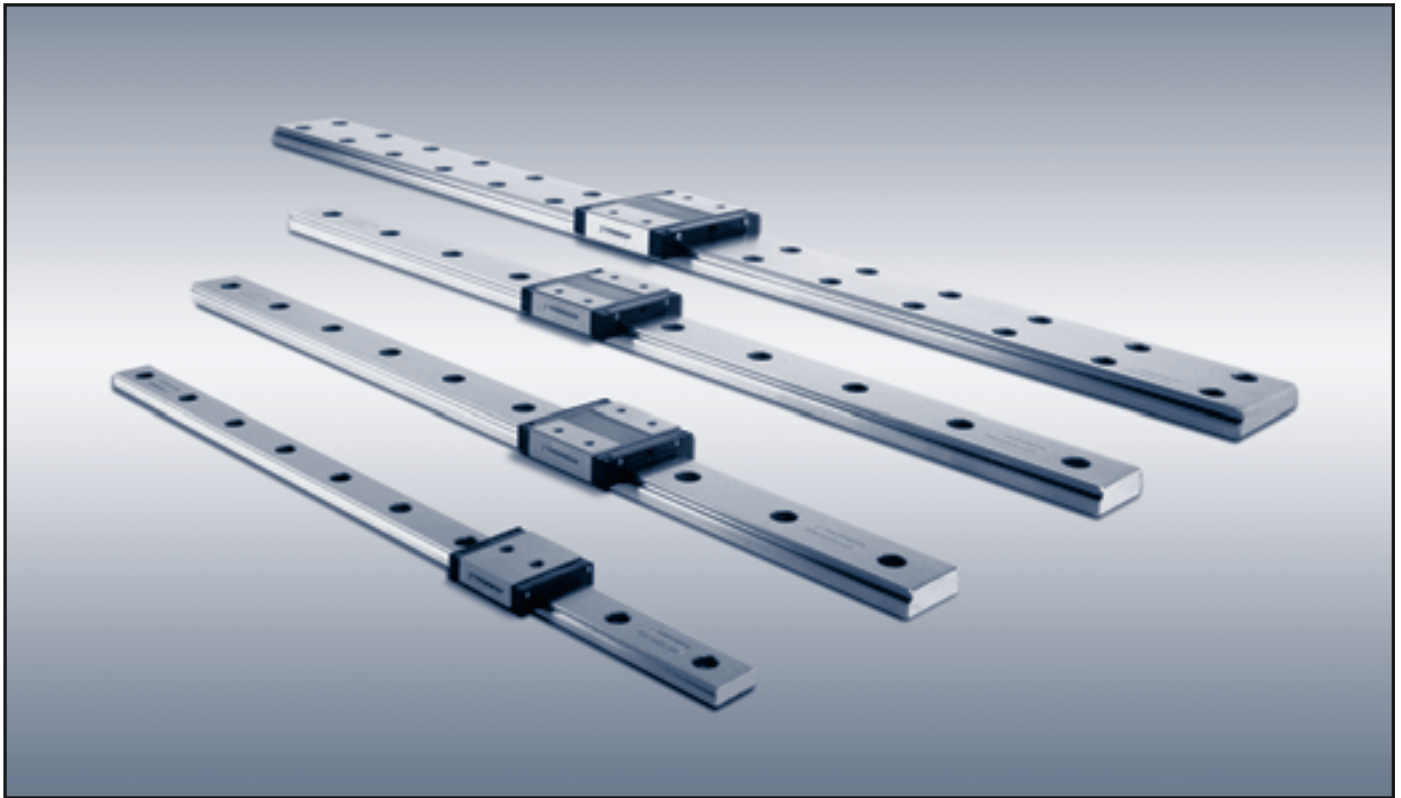


MICROGUIDE™ WIDE STAINLESS STEEL LINEAR GUIDES

TECHNICAL BULLETIN



Features & Benefits:

- Industry standard, drop-in replacement
- 440 stainless steel construction (little or no lubrication required)
- High precision accuracy (up to $\pm 0.010\text{mm}$)
- Extremely smooth operation
- Unlimited stroke
- Low Profile
- High Moment Load Capacity for single rail / carriage applications
- Whisper quiet movement
- Gothic arch ball groove geometry enables single rail application
- Sizes: 7mm, 9mm, 12mm, 15mm
- Technical engineering support from Danaher Motion
- One piece length up to 1 meter
- Contact Danaher Motion for custom lengths and configurations

Applications include:

- Front end semiconductor processing equipment
- Back end semiconductor packaging and handling equipment
- Medical diagnostic and imaging equipment
- Laboratory automation equipment
- Testing and inspection equipment

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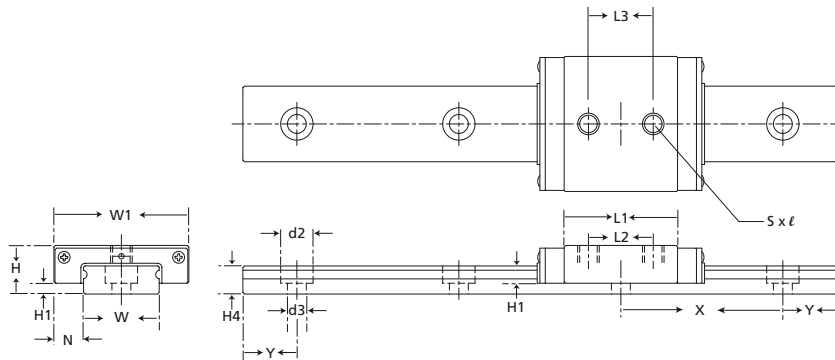


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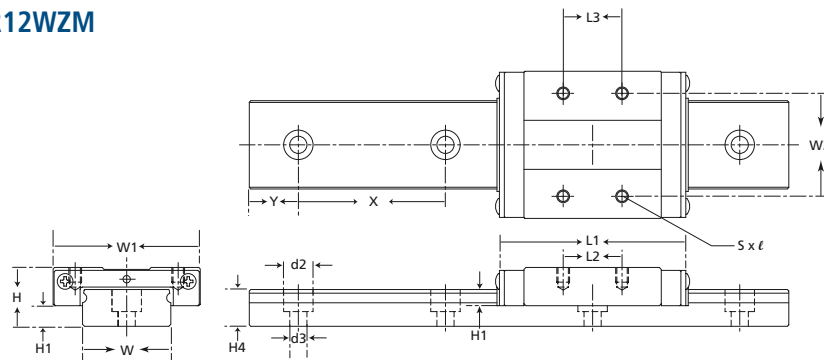


Dimensions

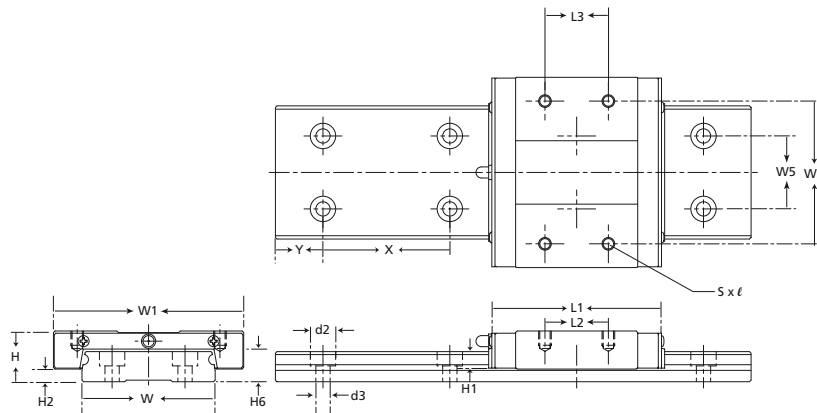
TSR7WZM



TSR9WZM and TSR12WZM



TSR15WZM



Series Type Size, and Style	Assembly Dimensions			Carriage Dimensions						Static Torque		
	H	H1	N	W1	W2	L1	L2	L3	S x l	M _P	M _Y	M _R
TSR7 WZ	9	2	5.5	25	—	31	21.5	12	M4 x 3.5	5.39	5.39	15.2
TSR9 WZ	12	4.2	6	30	21	39	28	12	M2.6 x 3	16.3	16.3	36.0
TSR12 WZ	14	4	8	40	28	44.5	30.5	15	M3 x 3.5	17.2	18.6	47.6
TSR15 WZ	16	4	9	60	45	55.5	38.5	20	M4 x 4.5	35.2	38.2	137

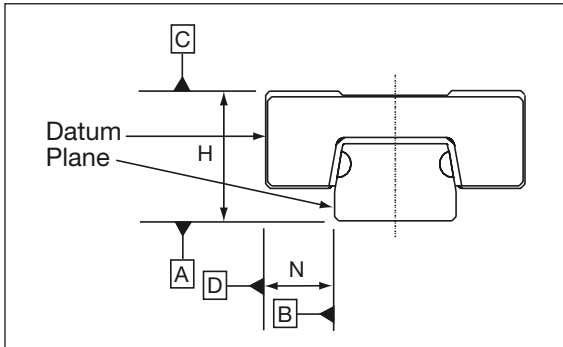
(1) Dynamic load capacities are based upon a 50 km travel life.

(2) The load limit is the maximum load that may be applied to a system. It is important to analyze the application so that peak and/or shock loads do not exceed the load limit.

(3) For 5mm size, there are only 2 mounting holes per carriage.

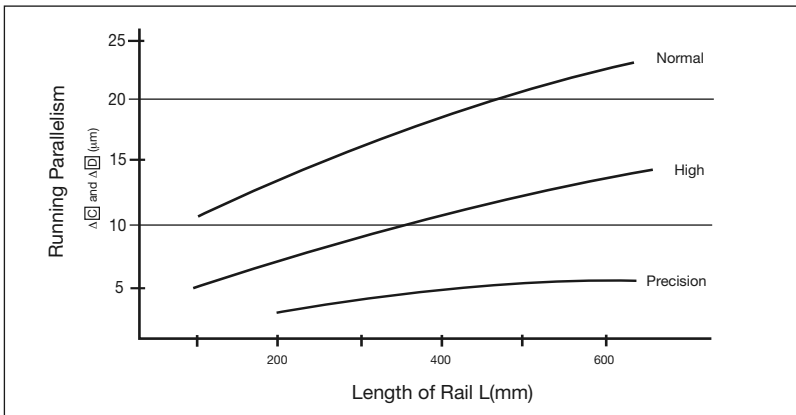
Note: All Dimensions in mm except where noted otherwise.

Accuracy Tolerance



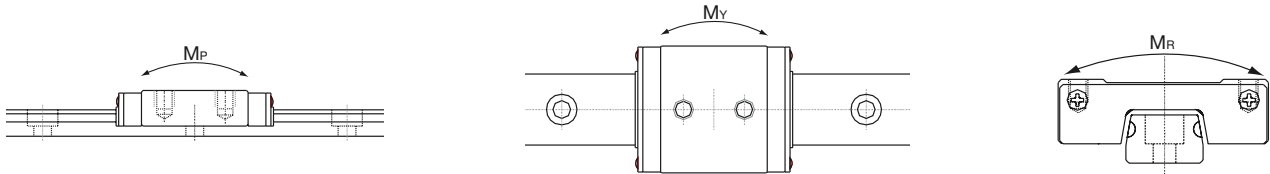
Accuracy of each part		TSR7 WZ, TSR9 WZ, TSR12 WZ & TSR15 WZ		
		Normal (blank)	High H	Precision P
Height H	Dimensional Tolerance	±0.040	±0.020	±0.010
	Pair Tolerance	0.030	0.015	0.007
Width N	Dimensional Tolerance	±0.040	±0.025	±0.015
	Pair Tolerance	0.030	0.020	0.010

Running Parallelism



Fit Up

Series Type, Size, and Style	Radial Clearances (μm)	
	normal fit (blank)	light preload C1
TSR7 WZ	±2	-3~0
TSR9 WZ	±2	-4~0
TSR12 WZ	±3	-6~0
TSR15 WZ	±5	-10~0



Rail Dimensions								Load Capacity		Mass	
W	W5	H4	d2	d3	h	Y	X	Dynamic C ⁽¹⁾ [N]	Limit Co ⁽²⁾ [N]	Carriage [kg]	Rail [kg/m]
14	—	5.2	6	3.5	3.2	10	30	1370	2160	0.03	.51
18	—	7.5	6	3.5	4.5	10	30	2450	3920	0.04	1.08
24	—	8.5	8	4.5	4.5	15	40	4020	6080	0.08	1.5
42	23	9.5	8	4.5	4.5	15	40	6660	9800	0.17	3.0

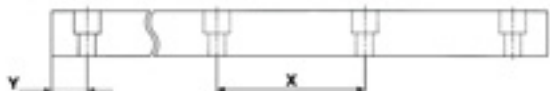
(1) Dynamic load capacities are based upon a 50 km travel life.

(2) The load limit is the maximum load that may be applied to a system. It is important to analyze the application so that peak and/or shock loads do not exceed the load limit.

Note: All Dimensions in mm except where noted otherwise.

Standard Lengths of Rail

Sizes	7 WZ	9 WZ	12 WZ	15 WZ
Standard Lengths	50	50	70	110
	110	110	150	190
	170	170	230	270
	85	260	310	430
	100	350	390	590
	130	440	470	750
	260	530	630	910
	350	620	790	1030
	440	800	950	
	530	1010	1030	
	620			
	800			
	1010			
X	30	30	40	40
Y	10	10	15	15



Load/Life Calculations

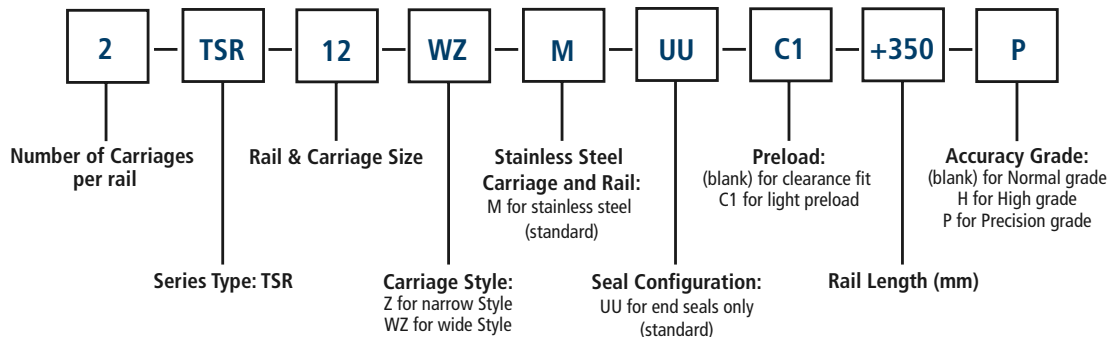
To determine proper carriage size: $C_{\min} = F \cdot \left(\frac{50}{L}\right)^{1/3}$ $C_{\min} = \text{minimum required dynamic load capacity of carriage (N)}$ $F = \text{equivalent load on carriage (N)}$ $L = \text{required travel life (km)}$	To determine travel life: $L = \left(\frac{C}{F}\right)^3 \cdot 50$ $L = \text{normal travel life (km)}$ $C = \text{rated dynamic load capacity of carriage (N)}$ $F = \text{equivalent load on carriage (N)}$
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Conversions

1 lbf = 4.448 N	1 km = 39,370 inches
1 kgf = 9.8 N	1 Nm = 0.7376 lbf - ft

Maximum Travel Speed: $V_{\max} = 3 \text{ m/s}$
 Maximum Acceleration: $a_{\max} = 50 \text{ m/s}^2$

How To Order



43-45 Channel Drive
 Port Washington, NY 11050 USA

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