

## Fafnir® Ball Screw Support Bearings (MMN/MMF Series)



*Timken® Fafnir® MMN/MMF Series are specifically designed for ball screw applications requiring maximum axial rigidity, low drag torque, and extreme control of lateral eccentricity.*

- Reduced scrap through better precision
- Assembly width tolerance control stops endcap grinding
- Higher machine productivity
- Reduced maintenance

**Timken® Fafnir® sealed ball screw support bearings improve machine tool accuracy, productivity and service life.**

New MMN/MMF double-row series ball screw support bearings combine a set of advanced features to meet machine tool demands for smooth and accurate positioning. Integral, low-torque contact seals effectively exclude contaminants for reliable operation and extended service life.

The superprecision double-row configuration supports axial loads in both directions, as well as combination radial loads and over-turning moments. Innovative cage design permits additional balls for higher load capacity. ABEC 9/ISO P2 axial running tolerances reduce runout to deliver maximum accuracy for precise tool positioning and repeatability. This helps machine tools obtain truer and smoother cuts, while maximizing productivity.

Available in flanged (MMF) and non-flanged (MMN) series, these sealed unit designs simplify installation for both standard and rotating nut mountings. The MMF flanged version eliminates the need for external clamping of the outer ring. The standard version is the sealed duplex configuration, but both series may be ordered with seals or shields and either a duplex or quad set arrangement.

### MMN/MMF Benefits

**Increased service life** – The pair of low-torque integral contact seals protects against contamination to extend bearing service life in harsh operating environments. Bearings are pre-packed with grease and allow for in-service relubrication.

**High load capacity** – Double-row design supports axial and combined loads. Greater ball complement increases load capacity.

**Preload consistency for repeatable performance** – The two-piece inner ring is matched with outer ring and cages for a precision preload that can be easily established against the shaft shoulder by a precision locknut.

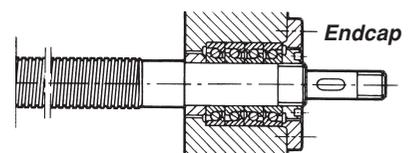
**Superprecision accuracy** – ABEC 9/ISO P2 axial running tolerances reduce runout and enhance positioning accuracy. Tightly controlled width tolerances and smooth running torque help improve system consistency and performance.

**Higher stiffness** – Bearings incorporate a 60° contact angle and a maximum complement of steel balls for superior axial rigidity and accuracy.

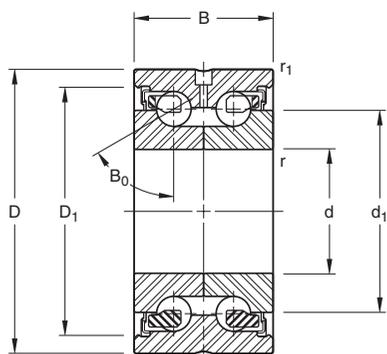
**Higher speeds** – Heavy-duty NLGI #2 grease provides outstanding speed performance. Ceramic balls and special greases are available to boost speed and acceleration levels, as well as stiffness.

**Easy and flexible installation** – One-piece bearing units with internal seals simplify mounting for both fixed and rotating nut designs. Flanged units eliminate external clamping.

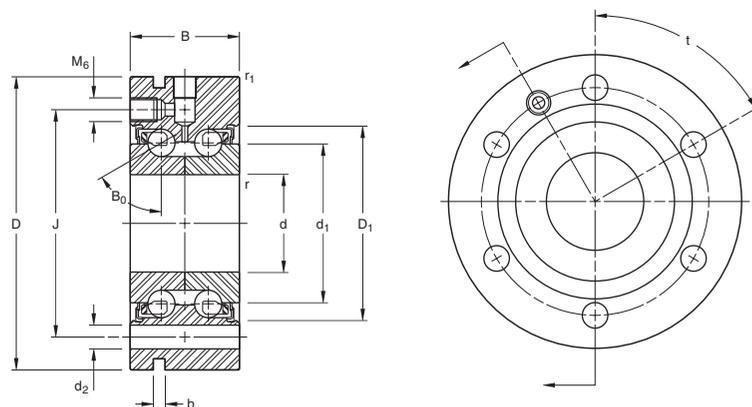
**Stop endcap grinding (MMN)** – Precision-ground width tolerance (five times tighter than ABEC 9/ISO P2 standards) and new marking of individual set width virtually eliminate need to regrind endcaps for the proper fit. This improves productivity and helps reduce assembly costs.



### MMN Series (Non-Flanged)



### MMF Series (Flanged)



MMN Series (Non-Flanged)	Bore d	OD D	Width B	Min. D <sub>1</sub>	Max. d <sub>1</sub>	Recommended		Corner Radius	
						Housing Shoulder Diameter	Shaft Shoulder Diameter	Outer r <sub>1</sub>	Inner r
	mm	mm	mm	mm	mm	mm	mm	mm	mm
MMN512BS42PP DM	12	42	25	33,1	25,0	32,0	19,0	0,6	0,3
MMN515BS45PP DM	15	45	25	37,0	27,6	34,5	21,5	0,6	0,3
MMN517BS47PP DM	17	47	25	37,8	28,4	36,5	23,5	0,6	0,3
MMN520BS52PP DM	20	52	28	43,2	35,0	42,5	27,5	0,6	0,3
MMN525BS57PP DM	25	57	28	49,3	40,6	48,0	33,5	0,6	0,3
MMN530BS62PP DM	30	62	28	54,3	45,6	53,5	38,5	0,6	0,3
MMN535BS72PP DM	35	72	34	62,6	51,5	61,0	43,0	0,6	0,3
MMN540BS75PP DM	40	75	34	68,7	57,5	67,0	49,0	0,6	0,3
MMN550BS90PP DM	50	90	34	82,6	71,5	81,0	63,0	0,6	0,3
MMN550BS110PP DM	50	110	54	99,6	81,1	98,5	66,0	0,6	0,6
MMN560BS110PP DM	60	110	45	100,0	84,0	98,0	72,0	0,6	0,6

MMF Series (Flanged)	Bore d	OD D	Width B	Min. D <sub>1</sub>	Max. d <sub>1</sub>	Recommended		Corner Radius		Pitch Circle J	Hole Diameter d <sub>2</sub>	Hole Spacing t	
						Housing Shoulder Diameter	Shaft Shoulder Diameter	Outer r <sub>1</sub>	Inner r				
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	holes	degrees
MMF512BS55PP DM	12	55	25	33,1	25,0	32,0	19,0	0,6	0,3	42	6,5	3	120
MMF515BS60PP DM	15	60	25	37,0	27,6	34,5	21,5	0,6	0,3	46	6,5	3	120
MMF517BS62PP DM	17	62	25	37,8	28,4	36,5	23,5	0,6	0,3	48	6,5	3	120
MMF520BS68PP DM	20	68	28	43,2	35,0	42,5	27,5	0,6	0,3	53	6,5	4	90
MMF525BS75PP DM	25	75	28	49,3	40,6	48,0	33,5	0,6	0,3	58	6,5	4	90
MMF530BS80PP DM	30	80	28	54,3	45,6	53,5	38,5	0,6	0,3	63	6,5	6	60
MMF535BS90PP DM	35	90	34	62,6	51,5	61,0	43,0	0,6	0,3	75	8,5	4	90
MMF540BS100PP DM	40	100	34	68,7	57,5	67,0	49,0	0,6	0,3	80	8,5	4	90
MMF550BS115PP DM	50	115	34	82,6	71,5	81,0	63,0	0,6	0,3	94	8,5	6	60
MMF550BS140PP DM	50	140	54	99,6	81,1	98,5	66,0	0,6	0,6	113	10,5	12	30
MMF560BS145PP DM	60	145	45	100,0	84,0	98,0	72,0	0,6	0,6	120	8,5	8	45

Other versions available on request, such as quad set (QM) and shielded (DD) configurations.

Unmounted Contact Angle ( $B_0$ ) = 60°

Extraction Groove Width (b) = 3,0mm

For your nearest Timken sales representative, call (800) 223-1954. Outside the U.S. and Canada, call (330) 438-3000.

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