

MultiTrac® Ball Bushing® Bearings



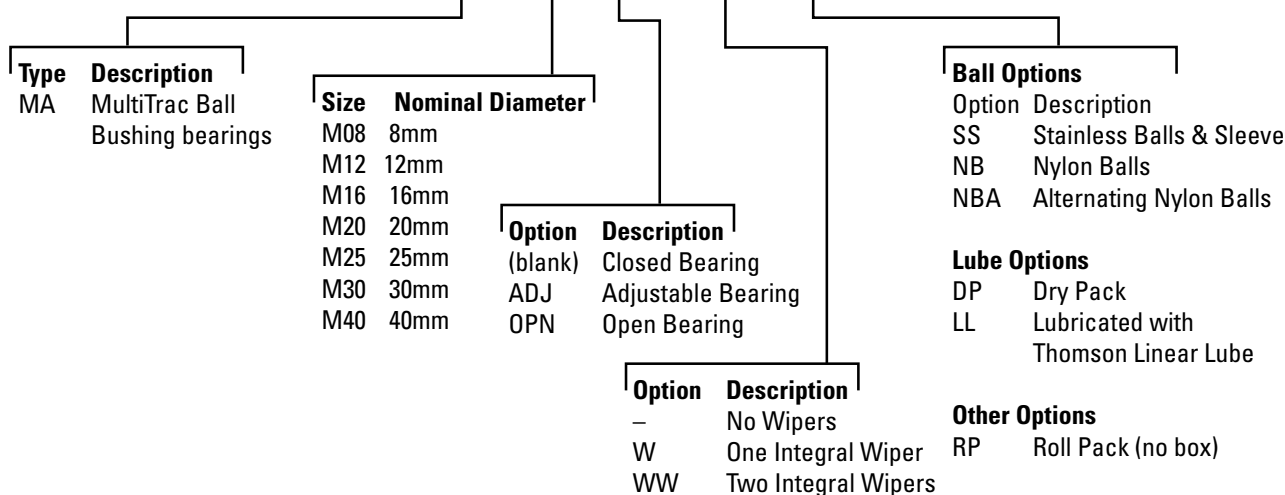
Thomson MultiTrac Ball Bushing Bearings offer:

- Patented, multiple-track design with up to twice the load-carrying capacity, or eight times the life, of conventional linear bearings.
- Rigid design for minimal deflection, assuring accurate, precise positioning.
- Coefficient of friction as low as 0.001.
- Patented ball control technology, which eliminates binding and chatter (stick-slip) common to high-friction, plain bushings and sliding-way bearings.
- RoundRail Advantage which, combined with the advanced MultiTrac Ball Bushing Bearing design, eliminates the need for the derating factors commonly required with square rail linear guides.
- Steady state speeds up to 3 m/s and accelerations up to 150 m/s², without the use of derating factors.
- Wear-resistant, engineered-polymer retainers to reduce inertia and noise levels.
- Adjustable, closed and open configurations.
- Stainless steel (440C) option available in all sizes for corrosive environments.

Part Number Description and Specification

Super Smart Ball Bushing Bearings (Closed Type) for End-Supported Applications

MAM160PNWWSS

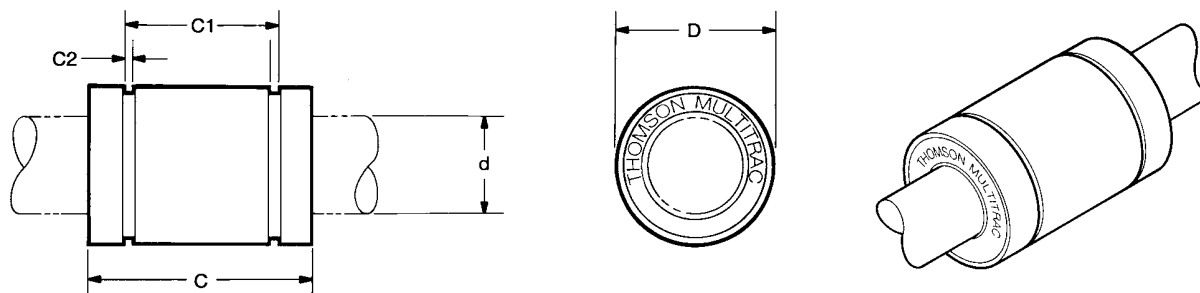


Metric Ball Bushing Bearings

Not all options are available in all sizes.
See catalog pages or contact Thomson Customer Support for combination availability.
For additional information on bearing options, see page 263.



MultiTrac® Ball Bushing® Bearings (Closed Type)



MultiTrac Ball Bushing Linear Bearings (Closed Type) (Dimensions in mm)

Part Number			d ⁽⁴⁾	D	C h14	C1 H13	C2 min.	Number of ball tracks	Mass (kg)	Dynamic Load W ⁽¹⁾⁽³⁾ (N)	Load Limit W ₀ ⁽²⁾⁽³⁾ (N)
Without Integral Wipers	With one Integral Wiper	With two Integral Wipers									
MAM08	MAM08W	MAM08WW	8	16	25	16.2	1.10	4	0.02	180	330
MAM12	MAM12W	MAM12WW	12	22	32	22.6	1.30	5	0.04	350	880
MAM16	MAM16W	MAM16WW	16	26	36	24.6	1.30	8	0.06	550	1300
MAM20	MAM20W	MAM20WW	20	32	45	31.2	1.60	8	0.11	1000	2360
MAM25	MAM25W	MAM25WW	25	40	58	43.7	1.85	8	0.20	1980	5100
MAM30	MAM30W	MAM30WW	30	47	68	51.7	1.85	8	0.33	2060	5800
MAM40	MAM40W	MAM40WW	40	62	80	60.3	2.15	8	0.63	3820	9250

(1) For rated travel life of 100 km. For longer travel lives, reduce load to $W \cdot (100/L)^{0.33}$ where L (km) is the required travel life. Do not exceed the Dynamic Load Rating for travel life of less than 100 km.

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

(3) For diametral clearance, see Table 1.

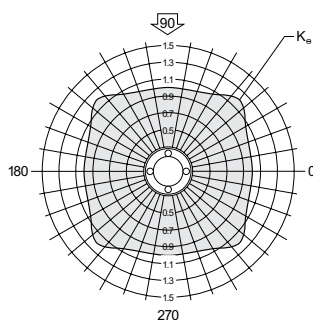
NOTE: For part number description and specifications, see page 149.

NOTE: External seals and retaining rings are available. See page 168 for specifications.

NOTE: For additional technical information, see the Engineering section beginning on page 252.

Table 1 - Standard Diametral Clearances Closed Type

Nominal Size d (mm)	Diametral Clearance (µm)
8	+15 +3
12	+19 +3
16	+19 +3
20	+22 +4
25	+22 +4
30	+22 +4
40	+27 +5

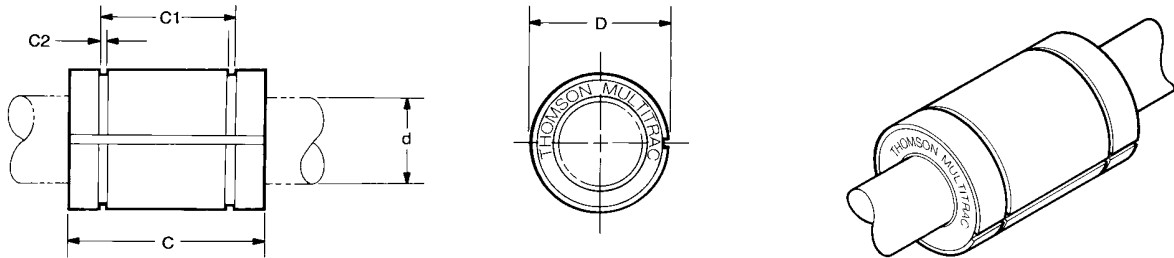


MAM16 MAM16ADJ
 MAM20 MAM20ADJ
 MAM25 MAM25ADJ
 MAM30 MAM30ADJ
 MAM40 MAM40ADJ

For closed type bearings with LinearRace® shaft, h6 tolerance

Thomson RoundRail Linear Guides and Components

MultiTrac Ball Bushing Linear Bearings (Closed adjustable type)



MultiTrac Ball Bushing Linear Bearings (Closed Adjustable Type) (Dimensions in mm)

Part Number			d ⁽⁴⁾	D	C h14	C1 H13	C2 min.	Number of ball tracks	Mass (kg)	Dynamic Load W ⁽¹⁾⁽³⁾ (N)	Load Limit W ₀ ⁽²⁾⁽³⁾ (N)
Without Integral Wipers	With one Integral Wiper	With two Integral Wipers									
MAM08ADJ	MAM08ADJW	MAM08ADJWW	8	16	25	16.2	1.10	4	0.002	180	330
MAM12ADJ	MAM12ADJW	MAM12ADJWW	12	22	32	22.6	1.30	6	0.04	350	880
MAM16ADJ	MAM16ADJW	MAM16ADJWW	16	26	36	24.6	1.30	8	0.06	550	1300
MAM20ADJ	MAM20ADJW	MAM20ADJWW	20	32	45	31.2	1.60	8	0.11	1000	2360
MAM25ADJ	MAM25ADJW	MAM25ADJWW	25	40	58	43.7	1.85	8	0.20	1980	5100
MAM30ADJ	MAM30ADJW	MAM30ADJWW	30	47	68	51.7	1.85	8	0.33	2060	5800
MAM40ADJ	MAM40ADJW	MAM40ADJWW	40	62	80	60.3	2.15	8	0.63	3820	9250

(4) The load capacities W and W₀ are valid for a resultant load applied at 90° with the ball tracks oriented as shown in the polar graphs below. If the resultant acts along another direction, the appropriate multiplicative correction factor K_q should be applied to W and W₀ respectively. Open type bearings have reduced load capacities when used in pull-off situations.

(5) Diametral fit-up is determined by the housing diameter. See Table 2.

NOTE: For part number description and specifications, see page 149.

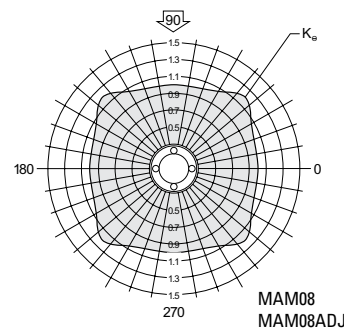
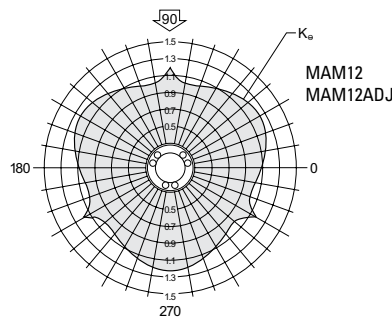
NOTE: External seals and retaining rings are available. See page 168 for specifications.

NOTE: For additional technical information, see the Engineering section beginning on page 252.

**Table 2 -
Standard Diametral Clearances
Adjustable and Open Type**

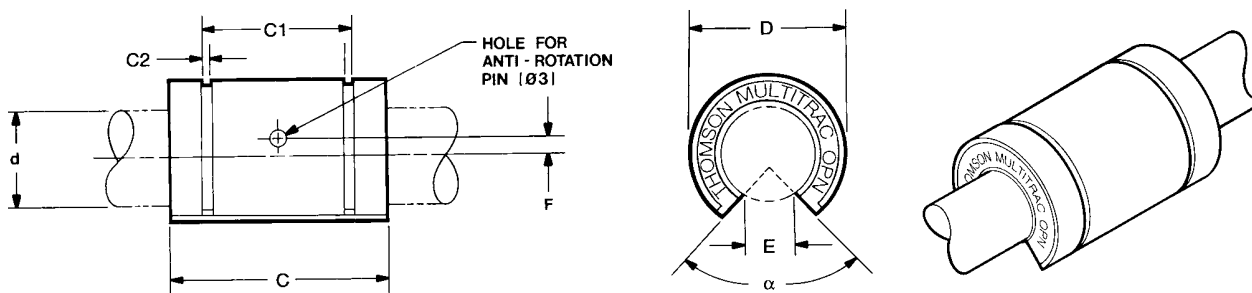
Nominal Shaft Diameter d (mm)	Diametral Housing Bore H6 (µm)
8	+28 +7
12	+33 +9
16	+33 +9
20	+40 +10
25	+40 +10
30	+40 +10
40	+48 +12

For adjustable and open type bearings with LinearRace shaft, h6 tolerance





MultiTrac® Ball Bushing® Bearings (Open Type)



MultiTrac Ball Bushing Linear Bearings (Open Type) (Dimensions in mm)

Part Number			d ⁽⁴⁾	D	C h14	C1 H13	C2 min.	E	F	Angle α (deg)	Number of ball tracks	Mass (kg)	Dynamic Load W ⁽¹⁾⁽³⁾ (N)	Load Limit W ₀ ⁽²⁾⁽³⁾ (N)
Without Integral Wipers	With one Integral Wiper	With two Integral Wipers												
MAM120PN	MAM120PNW	MAM120PNWW	12	22	32	22.6	1.30	7.3	1.35	120	4	0.04	440	1100
MAM160PN	MAM160PNW	MAM160PNWW	16	26	36	24.6	1.30	10.6	0	90	6	0.06	600	1500
MAM200PN	MAM200PNW	MAM200PNWW	20	32	45	31.2	1.60	11.5	0	90	6	0.11	1100	2720
MAM250PN	MAM250PNW	MAM250PNWW	25	40	58	43.7	1.85	13.9	1.50 ⁽⁶⁾	90	6	0.20	2170	5300
MAM300PN	MAM300PNW	MAM300PNWW	30	47	68	51.7	1.85	20.3	2.00	90	6	0.33	2260	6710
MAM400PN	MAM400PNW	MAM400PNWW	40	62	80	60.3	2.15	20.9	1.50	90	6	0.63	4200	10700

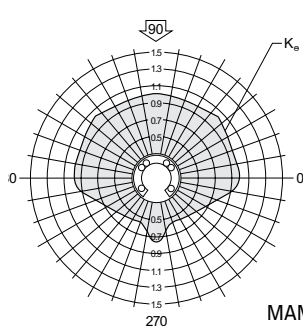
(6) Hole for anti-rotation pin is below centerline.

For footnotes 1-5, see pages 146-147.

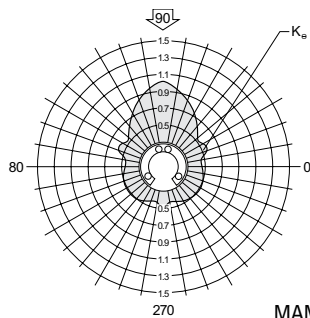
NOTE: For part number description and specifications, see page 149.

NOTE: External seals and retaining rings are available. See page 168 for specifications.

NOTE: For additional technical information, see the Engineering section beginning on page 252.



MAM160PN
MAM200PN
MAM250PN
MAM300PN
MAM400PN



MAM120PN

MultiTrac Ball Bushing Bearings

Thomson MultiTrac Ball Bushing Bearings are designed with greater rigidity and up to twice the load capacity of conventional linear bearings. The design incorporates a one-piece, bearing-quality, steel sleeve (see Figure 1) for maximum rigidity. The single-piece, engineered-polymer ball retainer provides smooth, quiet operation.

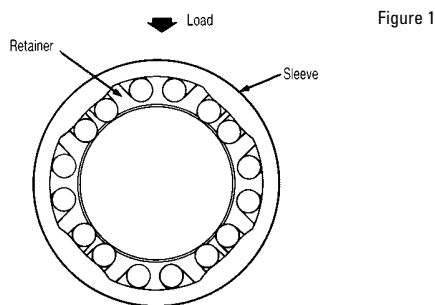


Figure 1

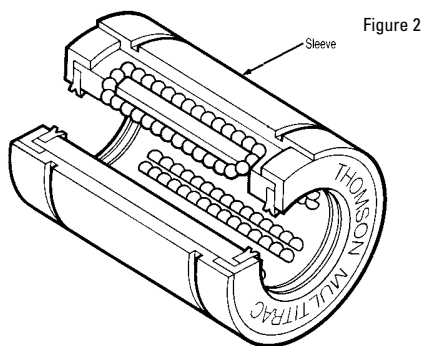


Figure 2

Twice the Load Capacity

The bearing's load capacity is improved by the optimal positioning of the load tracks. This places the maximum number of load-bearing balls in the load zone (see Figure 1).

High Speed Operation

The advanced design also improves the bearing's ball control. This allows accelerations as high as 150 m/s² and travel speeds up to 3 m/s.

Integral Seals

The bearing includes double-acting integral wipers, which keep out dirt, grit and other contaminants, and retain bearing lubrication.

Improved Ball Control

Through advanced, computer-aided design techniques, ball control improvements assure smooth entry and exit of the balls in and out of the load zone.

Ideal for Corrosive Environments

Optional stainless steel (440C) resists rust and corrosion.



Application

Wire Straightening/Feeding Machine

Objective

Redesign a wire straightening/feeding mechanism for a wire drawing machine that improves cycle time and minimizes downtime.

Solution

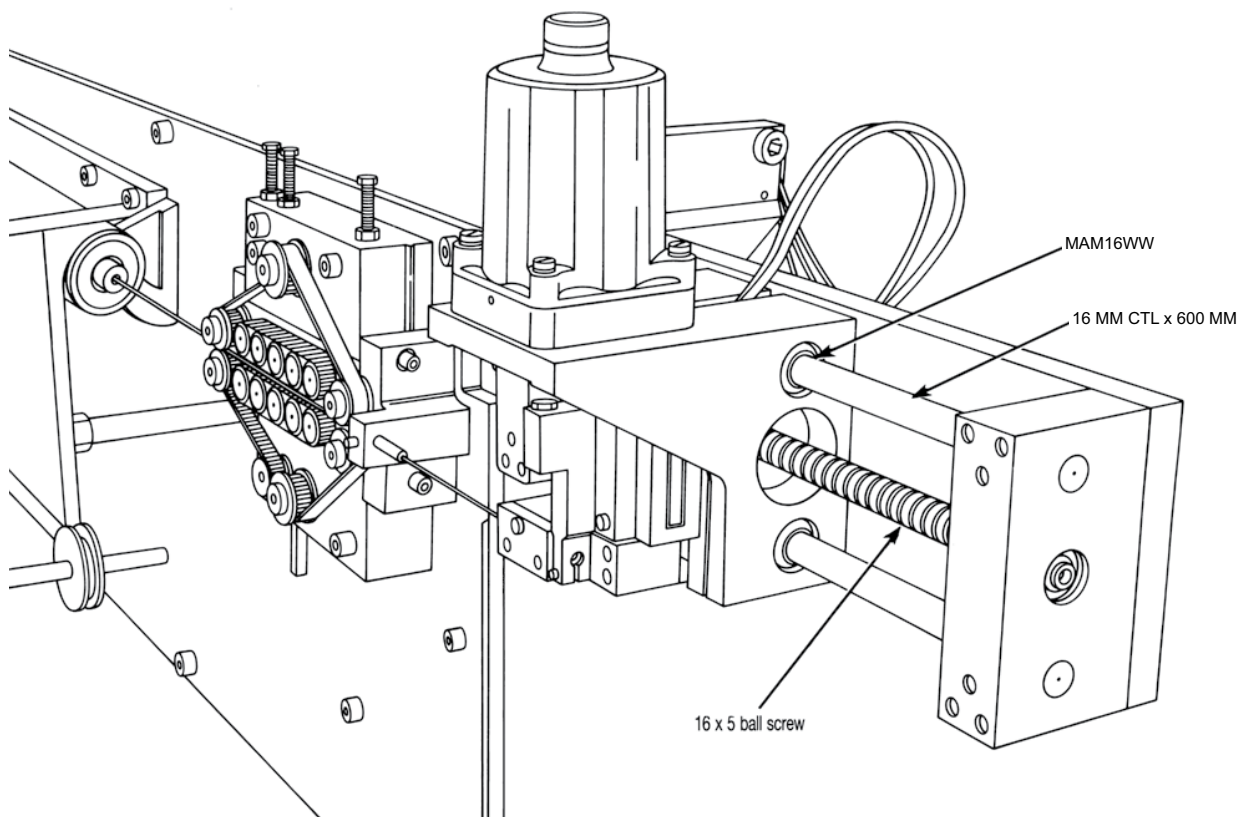
Combine the performance advantages of the MultiTrac® Ball Bushing® Linear Bearings with the operating efficiency of Thomson ball screws.

Products Specified

4 - MAM16WW (MultiTrac Ball Bushing linear bearings)
2 - 16 MM CTL x 600 MM (60 Case® LinearRace® shaft)
1 - 16 x 5 Thomson ball screw assembly

Benefits

Because MultiTrac Ball Bushing Linear Bearings have twice the load capacity of conventional linear bearings, service life increased from six months to four years. This significantly reduced downtime and maintenance requirements and provided increased productivity with substantial cost savings.



Thomson RoundRail Linear Guides and Components

Application

Pick and Place X-Y System

Objective

Build an X-Y System that transfers the work piece between two separate machining stations.

Solution

Assemble the X-Y System utilizing Super Smart Ball Bushings Bearing pillow blocks on end-supported shafts for the X-axis and continuous supported 60 Case LinearRace shaft on the Y-axis. Utilize Thomson ball screws for high-speed positioning.

Products Specified

X-axis

2 - 40 MM CTL x 1200 MM (60 Case LinearRace)

4 - SBM40 (shaft support blocks)

4 - SSEPBAM40DD (Super Smart pillow blocks)

1 - 32 x 5 Thomson ball screw assembly Y-axis

2 - LSRAM40 CTL x 1200 MM (Smart Rail guides)

4 - SSEPBOAM40DD (Super Smart pillow blocks)

1 - 32 x 5 Thomson ball screw assembly

Benefits

The 60 Case LinearRace shafts and shaft support end blocks provided an important bridge between machining stations. The Super Smart pillow blocks and Thomson ball screws provided uninterrupted high speed movement of the work piece. Productivity increased by 200%

