Thomson Super Smart Ball Bushing

BONDY

INDUSTRIAL EQUIPMENT SUPPLIER

For ordering and questions call

(+45) 70 15 14 14

Super Smart Ball Bushing Bearings



Thomson Super Smart Ball Bushing Bearing products offer:

- Up to six times the load capacity or 216 times the travel life of conventional linear bearings.
- Twice the load capacity or eight times the travel life of industry standard Thomson Super Ball Bushing Bearings.
- Universal self-alignment feature that compensates for misalignment of housing bores and 60 Case® LinearRace® shaft deflection, optimizes load distribution between ball tracks and assures uniform ball loading over the entire length of the bearing plate. Installation time and cost is minimized, while bearing performance and life is maximized.
- Technologically advanced design that allows the bearing to maintain its diametral fit-up when installed in a housing that is slightly out-of-round.

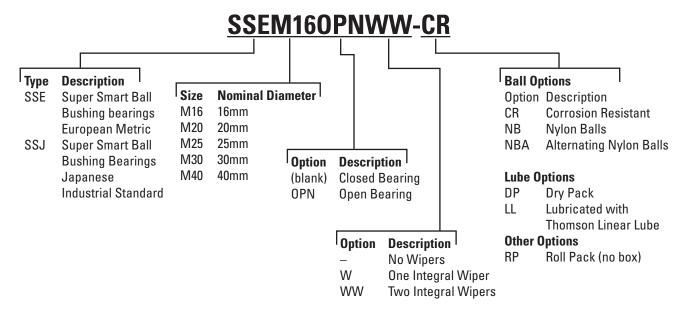
- Up to 400% longer LinearRace shaft life and minimal machine downtime when replacing conventional linear bearings or the standard Super Ball Bushing Bearing.
- RoundRail Advantage combined with universal selfalignment, eliminating the need for derating factors commonly required when using linear guides.
- Coefficient of friction as low as 0.001. This allows the use of smaller, less expensive motors, belts, gears and ball screws, when replacing high friction, plain bearings.
- Closed and open configurations.
- Double-lip integral wipers that keep out dirt while retaining lubrication. Travel life is maximized.

Available in both European and JIS standard dimensions.



Part Number Description and Specification

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



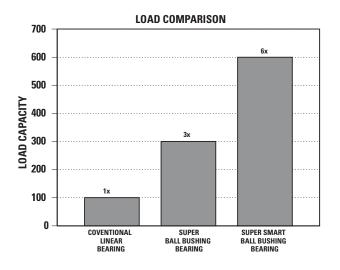
Not all options are available in all sizes.

See catalog pages or contact Thomson Customer Support for combination availability. For additional information on bearing options, see page 263.

The Super Smart Advantage

Advantage: Load Capacity

The Super Smart Ball Bushing Bearing provides twice the load capacity of the industry standard Thomson Super Ball Bushing Bearing and six times the load capacity of conventional linear bearings.



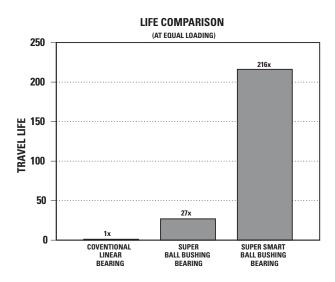


Downsizing

The photograph above shows a conventional Ball Bushing Bearing, Super Ball Bushing Bearing and Super Smart Ball Bushing Bearing, all of which have the same load capacity.

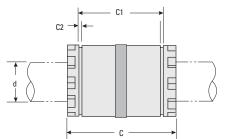
Advantage: Travel Life

The Super Smart Ball Bushing Bearing provides eight times the travel life of the industry standard Thomson Super Ball Bushing Bearing and 216 times the travel life of conventional linear bearings.

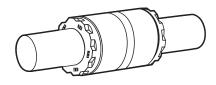




Super Smart Ball Bushing[®] **Bearings** (Closed Type)



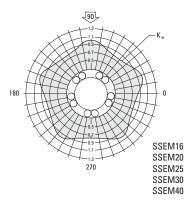




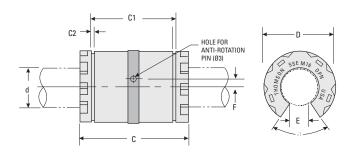
Super Smart Ball Bushing Bearings (Closed Type) (Dimensions in mm)

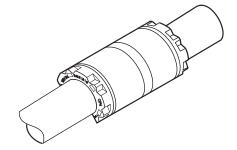
	Part Number					01	00			Dynamic	Load Limit	
Without Integral Wipers	With one Integral Wiper	With two Integral Wipers	d ⁽⁴⁾	D	C h14	C1 H13	C2 min.	Number of Ball Tracks	Mass (kg)	Load W ⁽¹⁾⁽³⁾ (N)	W ₀ ⁽²⁾⁽³⁾ (N)	
SSEM16	SSEM16W	SSEM16WW	16	26	36	24.6	1.30	10	0.030	2200	2400	
SSEM20	SSEM20W	SSEM20WW	20	32	45	31.2	1.60	10	0.066	4000	4400	
SSEM25	SSEM25W	SSEM25WW	25	40	58	43.7	1.85	10	0.135	6700	7300	
SSEM30	SSEM30W	SSEM30WW	30	47	68	51.7	1.85	10	0.206	8300	9100	
SSEM40	SSEM40W	SSEM40WW	40	62	80	60.3	2.15	10	0.392	13700	15000	

- (1) For rated travel life of 100 km. For longer travel lives. reduce load to •(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 do not exceed the Load Limit
- (3) The load capacities W and Wq 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 Kq. should be applied to W and Wq respectively. Open type bearings have reduced load capacities when used in pull-off situations.
- (4) Internal bearing diameter is affected by the housing bore. see Table 1.
- (5) Hole for anti-rotation pin is below centerline.
- NOTE: For part number description and specifications, see page 128.
- 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.



Super Smart Ball Bushing Bearings (Open Type)





Super Smart Ball Bushing Bearings (Open Type) (Dimensions in mm)

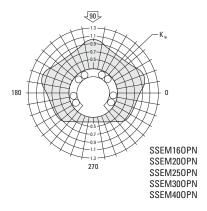
	Part Number		=(0)		C	C1	C2			Angle	Number		Dynamic	Load Limit
Without Integral Wipers	With one Integral Wiper	With two Integral Wipers	d ⁽⁴⁾	D	h14	H13	min.	E	F	α (deg)	of Ball Tracks	Mass (kg)	Load W ⁽¹⁾⁽³⁾ (N)	W ₀ ⁽²⁾⁽³⁾ (N)
SSEM160PN	SSEM160PNW	SSEM160PNWW	16	26	36	24.6	1.30	9.0	0	70	8	0.023	2200	2400
SSEM200PN	SSEM200PNW	SSEM200PNWW	20	32	45	31.2	1.60	10.0	0	50	8	0.054	4000	4400
SSEM250PN	SSEM250PNW	SSEM250PNWW	25	40	58	43.7	1.85	12.5	1.50(5)	60	8	0.107	6700	7300
SSEM300PN	SSEM300PNW	SSEM300PNWW	30	47	68	51.7	1.85	13.7	2.00	55	8	0.163	8300	9100
SSEM400PN	SSEM400PNW	SSEM400PNWW	40	62	80	60.3	2.15	19.0	1.50	54	8	0.315	13700	15000

- (1) For rated travel life of 100 km. For longer travel lives, reduce load to •(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 do not exceed the Load Limit.
- (3) The load capacities W and Wq 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 Kq, should be applied to W and Wq respectively. Open type bearings have reduced load capacities when used in pull-off situations.
- (4) Internal bearing diameter is affected by the housing bore, see Table 1.
- (5) Hole for anti-rotation pin is below centerline.
- NOTE: For part number description and specifications, see page 128.
- NOTE: External seals and retaining 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

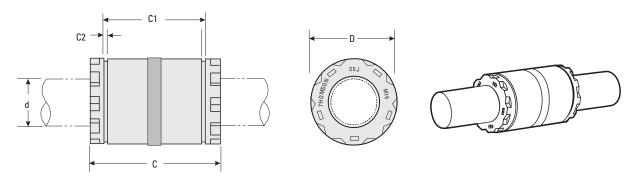
Nominal	Nominal	Diametral	Clearance		
Shaft Diameter d (mm)	Housing Bore Diameter d (mm)	Housing Bore H7 (µm)	Housing Bore H6 (µm)		
16	26	+33 +4	+26 +3		
20	32	+37 +6	+30 +4		
25	40	+37 +6	+30 +4		
30	47	+37 +6	+30 +4		
40	62	+44 +7	+35 +5		

For Super Smart Ball Bushing Bearings mounted in a housing and with LinearRace shafts, h6 tolerance





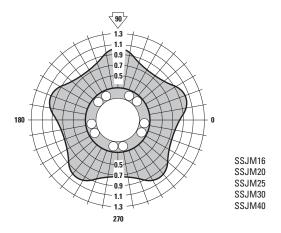
Super Smart Ball Bushing[®] Bearings - JIS Specifications (Closed Type)



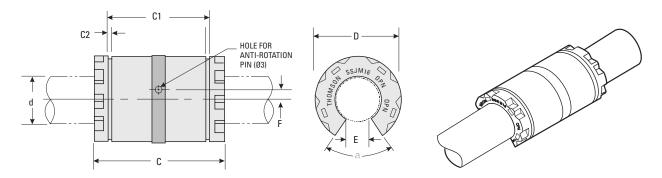
Designed to be used for new or existing JIS (Japanese Industrial Standard) designs

	Part Number			Dime	ensions (r	nm)					
Without Integral Wipers	With One Integral Wiper	With Two Integral Wiper	Nominal LinearRace Dia. d	C h14	C1 h13	C2 min.	Nominal Housing Bore Dia. D ⁽²⁾	Number of Ball Tracks	Mass (kg)	Dynamic Load W ⁽¹⁾⁽³⁾ (N)	Load Limit W ₀ ⁽²⁾⁽³⁾ (N)
SSJM16	SSJM16W	SSJM16WW	16	37	26.5	1.60	28	10	.030	2200	2400
SSJM20	SSJM20W	SSJM20WW	20	42	30.5	1.60	32	10	.066	4000	4400
SSJM25	SSJM25W	SSJM25WW	25	59	41	1.85	40	10	.133	6700	7300
SSJM30	SSJM30W	SSJM30WW	30	64	44.5	1.85	45	10	.202	8300	9100
SSJM40	SSJM40W	SSJM40WW	40	80	60.5	2.10	60	10	.392	13700	15000

- (1) For rated travel life of 100 km. For longer travel lives, reduce load to •(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 do not exceed the Load Limit.
- (3) The load capacities W and Wq 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 Kq, should be applied to W and Wq respectively. Open type bearings have reduced load capacities when used in pull-off situations.
- (4) Refer to Table 1 to find the diametral tolerance between the LinearRace and Super Smart Ball Bushing bearing for bearing installation in housing H7 or J7 tolerance.
- NOTE: For part number description and specifications, see page 128.
- NOTE: External seals and retaining rings are available. See page 168 for specifications.
- NOTE: For additional technical information, see engineering section beginning on page 252.



Super Smart Ball Bushing Bearings - JIS Specifications (Open Type)



Designed to be used for new or existing JIS (Japanese Industrial Standard) designs

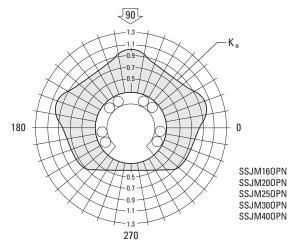
	Part Number			Dimen	sions (n	nm)							
Without Integral Wipers	With One Integral Wiper	With Two Integral Wiper	Nominal LinearRace Dia. d	C h14	C1 h13	C2 min.	Nominal Housing Bore Dia. D ⁽²⁾	E min.	a (deg)	Number of Ball Tracks	Mass (kg)	Dynamic Load W ⁽¹⁾⁽³⁾ (N)	Load Limit W ₀ ⁽²⁾⁽³⁾ (N)
SSJM160PN	SSJM160PNW	SSJM160PNWW	16	37	26.5	1.60	28	11	80	8	.023	2200	2400
SSJM200PN	SSJM200PNW	SSJM200PNWW	20	42	30.5	1.60	32	11	60	8	.054	4000	4400
SSJM250PN	SSJM250PNW	SSJM250PNWW	25	59	41	1.85	40	12	50	8	.107	6700	7300
SSJM300PN	SSJM300PNW	SSJM300PNWW	30	64	44.5	1.85	45	15	50	8	.163	8300	9100
SSJM400PN	SSJM400PNW	SSJM400PNWW	40	80	60.5	2.10	60	20	50	8	.315	13700	15000

- (1) For rated travel life of 100 km. For longer travel lives, reduce load to •(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 do not exceed the Load Limit
- (3) The load capacities W and Wq 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 Kq, should be applied to W and Wq respectively. Open type bearings have reduced load capacities when used in pull-off situations.
- (4) Refer to Table 1 to find the diametral tolerance between the LinearRace and Super Smart Ball Bushing bearing for bearing installation in housing having either a H7 or J7 tolerance.
- NOTE: For part number description and specifications, see page 128.
- NOTE: External seals and retaining rings are available. See page 168 for specifications.
- NOTE: For additional technical information, see engineering section beginning on page 252.

Table 1 - Standard Dimensional Clearances

Naminal		Dimensiona	l Clearance
Nominal LinearRace® Dia. d (mm)	Nominal Housing Bore Diameter d (mm)	Housing Bore H7 (μm)	Housing Bore J7 (μm)
16	28	+33 +8	+24 -1
20	32	+39 +9	+28 -2
25	40	+39 +9	+28 -2
30	45	+39 +9	+28 -2
40	60	+44 +11	+35 -1

For Super Smart Ball Bushing Bearings mounted in a housing and with LinearRace shafts, h6 tolerances





MultiTrac® Ball Bushing® Bearings



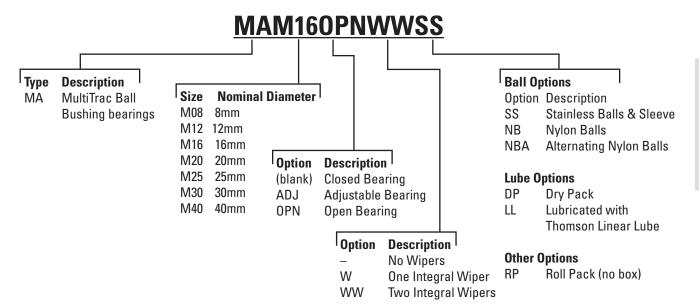
Thomson MultiTrac Ball Bushing Bearings offer:

- 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 highfriction, 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



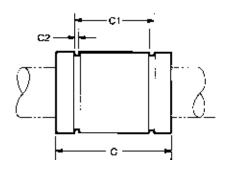
Not all options are available in all sizes.

See catalog pages or contact Thomson Customer Support for combination availability. For additional information on bearing options, see page 263.

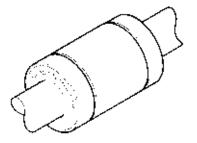


MultiTrac® Ball Bushing® Bearings

(Closed Type)







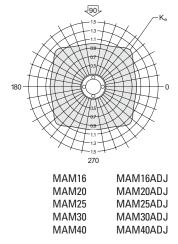
MultiTrac Ball Bushing Linear Bearings (Closed Type) (Dimensions in mm)

	Part Number										
Without Integral Wipers	With one Integral Wiper	With two Integral Wipers	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)
MAM08	W80MAM	MW80MAM	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•(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.

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



For closed type bearings with LinearRace $^{\! @}$ shaft, h6 tolerance

⁽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

⁽³⁾ For diametral clearance, see Table 1.

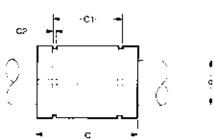
NOTE: For part number description and specifications, see page 149.

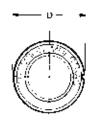
NOTE: External seals and retaining rings are available. See page 168 for specifications.

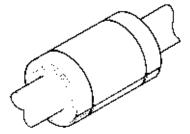
NOTE: For additional technical data, see Engineering Support section.

MultiTrac Ball Bushing Linear Bearings

(Closed adjustable type)







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

	Part Number				С	C1	C2	Number of		Dynamic	Load Limit
Without Integral Wipers	With one Integral Wiper	With two Integral Wipers	d ⁽⁴⁾	D	h14	H13	min.	ball tracks	Mass (kg)	Load W ⁽¹⁾⁽³⁾ (N)	(N)
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

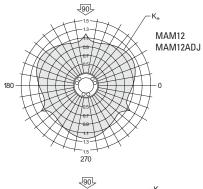
⁽⁴⁾ The load capacities W and Wq are valid for a resultant load applied at 90° with the ball tracks oriented as shown in the polar graphs below. If the resultant acts along another direction, the appropriate multiplicative correction factor Kq, should be applied to W and Wq respectively. Open type bearings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

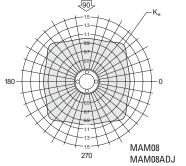
- (5) Diametral fit-up is determined by the housing diameter. See Table 2.
- NOTE: For part number description and specifications, see page 149.
- NOTE: External seals and retaining are available. See page 168 for specifications.
- NOTE: For additional technical information, see the Engineering section beginning on page 252.

Table 2 -Standard Diametral Clearances Adjustable and Open Type

•	1 /1
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

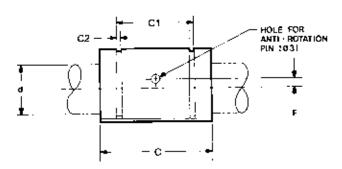


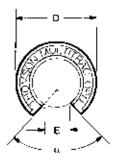


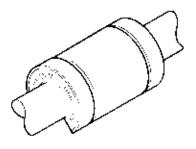


MultiTrac® Ball Bushing® Bearings

(Open Type)







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

	Part Number				С	C1	C2			Angle	Number	Mass	Dynamic	Load Limit
Without Integral Wipers	With one Integral Wiper	With two Integral Wipers	d ⁽⁴⁾	D	h14	H13	min.	E	F	α (deg)	of ball tracks	(kg)	Load W ⁽¹⁾⁽³⁾ (N)	(N)
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

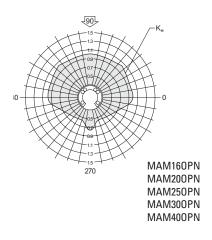
(6) Hole for anti-rotation pin is below centerline.

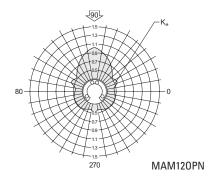
For footnotes 1-5, see pages 146-147.

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

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

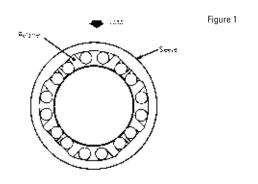
NOTE: For additional technical information, see the Engineering section beginning on page 252.

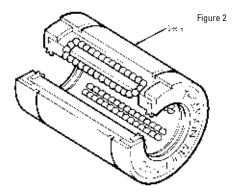




MultiTrac Ball Bushing Bearings

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.





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/s 2 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.

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