

# LINEAR COMPONENTS

## Table of Contents

### ACME LEAD SCREWS, NUTS & FLANGES ME 2 - E 5

Technical Data .....	ME 2
Lead Screw, Nuts & Flanges .....	ME 3 - ME 4
Lubricating Spray .....	ME 5
Lubricating Grease .....	ME 5

### HIGH PRECISION AND PRECISION LEAD SCREWS

Technical Data .....	ME 6 - ME 7
Anti-Backlash Lead Screw Assemblies .....	ME 8
Lead Screws .....	ME 9

### LINEAR CLUTCH - LINEAR ACTUATORS .....ME 10

### LINEAR SLIDES

Technical Data Linear Slides .....	ME 11
Cross Roller Bearing Rail Set .....	ME 12
Cross Roller Bearing Double V Rail Sets .....	ME 13
Cross Roller Recirculating Bearings & Rail Sets .....	ME 14 - ME 15
Cross Roller Slide Assemblies, Long Travel .....	ME 16
Cross Roller Slide Assemblies, Low Profile .....	ME 17
Cross Roller Flange Based Slide Assemblies .....	ME 18
Cross Roller Slides .....	ME 19
Linear Ball Slides .....	ME 20
Cross Roller Lead Screw Driven Slide .....	ME 21 - ME 22
Rack Driven Ball Slides .....	ME 23
Rack Driven Ball Slide Pinions .....	ME 24

### BEARINGS

Linear Rotary Bearings .....	ME 25
Linear Motion Adjustable Bearings .....	ME 26
Precision Linear "Gear Drive" Bearings .....	ME 27

### LINEAR DRIVE GEAR RACKS .....ME 28

### THERMOPLASTIC ROD ENDS .....ME 29 - ME 30

### SELF-ALIGNING ROD ENDS .....ME 31 - ME 32

### LINEAR BEARINGS

Flanged Type .....	ME 33
Ball Bearings .....	ME 34 - ME 35, ME 37
Self-Aligning - Barrel Style .....	ME 36
No Lube .....	ME 38
Thermoplastic .....	ME 39
Thermoplastic Self-Aligning .....	ME 40

### LINEAR PILLOW BLOCK ASSEMBLIES .....ME 41

Linear Pillow Block .....	ME 42
With Shaft Wipers .....	ME 43

### LINEAR BEARING BRACKETS .....ME 44 - ME 45

### SHAFT SUPPORT .....ME 46

### SHAFT HANGERS .....ME 47

### GROUND SHAFTING .....ME 48

Seals .....	ME 49
-------------	-------

# ACME LEAD SCREWS, NUTS & FLANGE

## TECHNICAL DATA - See Reference Section for more information.

### ROLLED ACME SCREWS

Rolled thread acme screws offer the largest selection of size and pitch choices in the industry. Rolled thread screws are cost effective.



MATERIAL	THREAD CLASS	LEAD ACCURACY	SCREW DIAMETER	SCREW LENGTHS
4140 Alloy Steel	Centralizing 2C or Stub	±6.25µm/25mm up to 26mm	10mm to 26mm	Available up to 1825 mm
300 Stainless Steel	Centralizing 2C or Stub	±6.25µm/25mm up to 26mm	10mm to 26mm	Available up to 1825 mm

Special end configurations are available on request, call Berg TSR Group for special quotes. Materials used in these acme nuts have been selected for low friction, minimum wear, long life and clean operation.

### BRONZE ACME & ISO NUT

Special high tensile bronze is selected for our smooth running, anti-wedging bronze nuts.



MATERIAL	BRONZE
TENSILE YIELD	344 Mpa
TENSILE ULTIMATE	448 Mpa
HARDNESS	RB75
DYNAMIC CO-EFFICIENT OF FRICTION	0.125 with Lubricant

### PLASTIC ACME ISO NUTS

The high strength and inherent lubricity of this material can result in product life that can equal or exceed conventional nut materials.



TENSILE STRENGTH @ 21°C	55 Mpa
COMPRESSIVE STRENGTH @ 21°C	110 Mpa
PV LIMIT @ N•m / mm <sup>2</sup> - min.	21
CO-EFFICIENT OF FRICTION	0.10

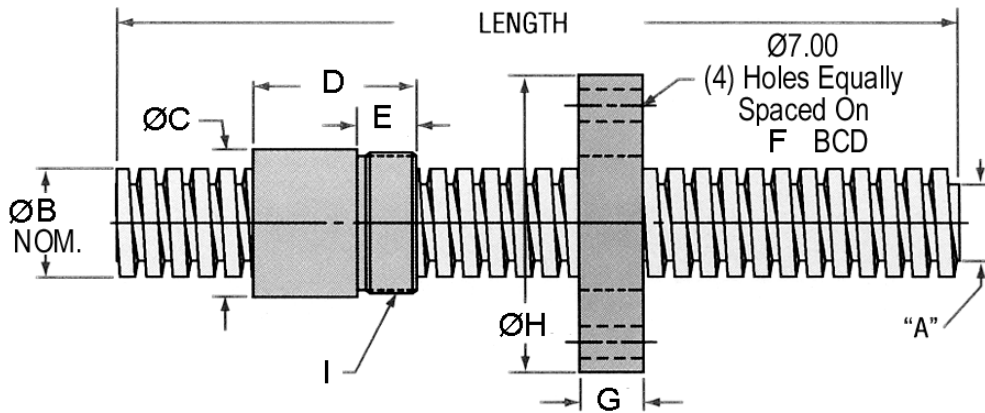
### FLANGES FOR BRONZE & PLASTIC NUTS

Made of carbon steel alloy with black oxide finish.



LEAD SCREW SPECIFICATIONS	ALLOY	STAINLESS STEEL
MATERIAL	4140 Series	300 Series
MINIMUM HARDNESS	200 Brinell	170 Brinell
TENSILE ULTIMATE STRENGTH	655 Mpa	586 Mpa
FINISH	Black Oxide	Natural

# ACME LEAD SCREWS



SERIES	ØB	ØC	D	E	F	G	ØH	I
TIM10	10.0	18.0	16.0	10.0	28.50	11.0	42.0	M15X1
TIM12	12.0	28.0	19.0	13.0	53.00	14.0	66.0	M25X1.5
TIM16	16.0	28.0	26.0	13.0	53.00	14.0	66.0	M25X1.5
TIM20	20.0	34.0	32.0	13.0	60.00	14.0	75.0	M30X1.5
TIM26	26.0	45.0	45.0	15.0	70.00	16.0	85.0	M40X1.5

To extend the life of these lead screws we recommend that you lubricate with either spray lubricant (Stock No. E-100) or grease (Stock No. PAG-1). See Page ME 5.

SIZE (O.D.)	FORM	LEAD	STARTS
<b>10MM</b>	<b>ISO RIGHT HAND</b>	<b>3.000</b>	<b>2</b>

LEAD SCREW STOCK NO.	LENGTH (MM)	MATERIAL	BACKLASH	"A" ROOT DIA.
TIM10SS3-100	100	300 Series STAINLESS STEEL	0.13	7.92
TIM10SS3-200	200			
TIM10SS3-250	250			
TIM10SS3-300	300			
TIM10SS3-900	900			
TIM10SS3-1825	1825			
TIM10AS3-100	100	4140 ALLOY STEEL	0.13	7.92
TIM10AS3-200	200			
TIM10AS3-250	250			
TIM10AS3-300	300			
TIM10AS3-900	900			
TIM10AS3-1825	1825			

NUT(S) / FLANGE - ARE TO BE ORDERED SEPARATELY

NUT STOCK NO.	O.D.	MATERIAL	EFFICIENCY	TORQUE* (N·m)	DYNAMIC LOAD (KN)	STATIC LOAD (KN)
TIM10B3-NT	10MM	BRONZE	44%	1.09	3447	11032
TIM10P3-NT		PLASTIC	53%	.843	1723	1723

FLANGE STOCK NO.	MATERIAL	FINISH
TIM1S-FL**	CARBON ALLOY STEEL	BLACK OXIDE

\* TORQUE TO RAISE ONE (1) KN.

\*\* STAINLESS STEEL FLANGES AVAILABLE ON REQUEST.

SIZE (O.D.)	FORM	LEAD	STARTS
<b>12MM</b>	<b>ISO RIGHT HAND</b>	<b>3.000</b>	<b>1</b>

LEAD SCREW STOCK NO.	LENGTH (MM)	MATERIAL	BACKLASH	"A" ROOT DIA.
TIM12SS3-100	100	300 Series STAINLESS STEEL	0.16	7.69
TIM12SS3-200	200			
TIM12SS3-250	250			
TIM12SS3-300	300			
TIM12SS3-900	900			
TIM12SS3-1825	1825			
TIM12AS3-100	100	4140 ALLOY STEEL	0.16	7.69
TIM12AS3-200	200			
TIM12AS3-250	250			
TIM12AS3-300	300			
TIM12AS3-900	900			
TIM12AS3-1825	1825			

NUT(S) / FLANGE - ARE TO BE ORDERED SEPARATELY

NUT STOCK NO.	O.D.	MATERIAL	EFFICIENCY	TORQUE* (N·m)	DYNAMIC LOAD (KN)	STATIC LOAD (KN)
TIM12B3-NT	12MM	BRONZE	33%	1.11	4963	15858
TIM12P3-NT		PLASTIC	55%	.860	2481	2481

FLANGE STOCK NO.	MATERIAL	FINISH
TIM2S-FL**	CARBON ALLOY STEEL	BLACK OXIDE

\* TORQUE TO RAISE ONE (1) KN.

\*\* STAINLESS STEEL FLANGES AVAILABLE ON REQUEST.

# ACME LEAD SCREWS

SIZE (O.D.)	FORM	LEAD	STARTS
<b>16MM</b>	<b>ISO RIGHT HAND</b>	<b>4.000</b>	<b>1</b>

LEAD SCREW STOCK NO.	LENGTH (MM)	MATERIAL	BACKLASH	"A" ROOT DIA.
TIM16SS4-100	100	300 Series STAINLESS STEEL	0.24	10.90
TIM16SS4-200	200			
TIM16SS4-250	250			
TIM16SS4-300	300			
TIM16SS4-900	900			
TIM16SS4-1825	1825			
TIM16AS4-100	100	4140 ALLOY STEEL		
TIM16AS4-200	200			
TIM16AS4-250	250			
TIM16AS4-300	300			
TIM16AS4-900	900			
TIM16AS4-1825	1825			

NUT(S) / FLANGE - ARE TO BE ORDERED SEPARATELY

NUT STOCK NO.	O.D.	MATERIAL	EFFICIENCY	TORQUE* (N•m)	DYNAMIC LOAD (KN)	STATIC LOAD (KN)
TIM16B4-NT	16MM	BRONZE	41%	1.56	8825	28240
TIM16P4-NT		PLASTIC	53%	1.188	4412	4412

FLANGE STOCK NO.	MATERIAL	FINISH
TIM2S-FL**	CARBON ALLOY STEEL	BLACK OXIDE

\* TORQUE TO RAISE ONE (1) KN.

\*\* STAINLESS STEEL FLANGES AVAILABLE ON REQUEST.

SIZE (O.D.)	FORM	LEAD	STARTS
<b>20MM</b>	<b>ISO RIGHT HAND</b>	<b>4.000</b>	<b>1</b>

LEAD SCREW STOCK NO.	LENGTH (MM)	MATERIAL	BACKLASH	"A" ROOT DIA.
TIM20SS4-100	100	300 Series STAINLESS STEEL	0.24	14.90
TIM20SS4-200	200			
TIM20SS4-250	250			
TIM20SS4-300	300			
TIM20SS4-900	900			
TIM20SS4-1825	1825			
TIM20AS4-100	100	4140 ALLOY STEEL		
TIM20AS4-200	200			
TIM20AS4-250	250			
TIM20AS4-300	300			
TIM20AS4-900	900			
TIM20AS4-1825	1825			

NUT(S) / FLANGE - ARE TO BE ORDERED SEPARATELY

NUT STOCK NO.	O.D.	MATERIAL	EFFICIENCY	TORQUE* (N•m)	DYNAMIC LOAD (KN)	STATIC LOAD (KN)
TIM20B4-NT	20MM	BRONZE	35%	1.818	13790	44128
TIM20P4-NT		PLASTIC	47%	1.342	6895	6895

FLANGE STOCK NO.	MATERIAL	FINISH
TIM3S-FL**	CARBON ALLOY STEEL	BLACK OXIDE

\* TORQUE TO RAISE ONE (1) KN.

\*\* STAINLESS STEEL FLANGES AVAILABLE ON REQUEST.

SIZE (O.D.)	FORM	LEAD	STARTS
<b>26MM</b>	<b>ISO RIGHT HAND</b>	<b>6.000</b>	<b>1</b>

LEAD SCREW STOCK NO.	LENGTH (MM)	MATERIAL	BACKLASH	"A" ROOT DIA.
TIM26SS6-100	100	300 Series STAINLESS STEEL	0.30	17.84
TIM26SS6-200	200			
TIM26SS6-250	250			
TIM26SS6-300	300			
TIM26SS6-900	900			
TIM26SS6-1825	1825			
TIM26AS6-100	100	4140 ALLOY STEEL		
TIM26AS6-200	200			
TIM26AS6-250	250			
TIM26AS6-300	300			
TIM26AS6-900	900			
TIM26AS6-1825	1825			

NUT(S) / FLANGE - ARE TO BE ORDERED SEPARATELY

NUT STOCK NO.	O.D.	MATERIAL	EFFICIENCY	TORQUE* (N•m)	DYNAMIC LOAD (KN)	STATIC LOAD (KN)
TIM26B6-NT	26MM	BRONZE	39%	2.469	23304	74573
TIM26P6-NT		PLASTIC	51%	1.859	11652	11652

FLANGE STOCK NO.	MATERIAL	FINISH
TIM4S-FL**	CARBON ALLOY STEEL	BLACK OXIDE

\* TORQUE TO RAISE ONE (1) KN.

\*\* STAINLESS STEEL FLANGES AVAILABLE ON REQUEST.

# LUBRICATION FOR ACME LEAD SCREWS & NUTS

Proper lubrication is the key to continued performance and reliability of acme screw assemblies.



PACKETS ARE  
SPECIAL ORDER ONLY  
PLEASE CALL FOR  
PRICING AND  
AVAILABILITY

340g Acme Screw (Spray) Lubricant = STOCK NO. E-100  
453g Can of Acme Screw Grease = STOCK NO. PAG-1

#### SPECIFICATIONS:

NLGI Grade No.	2
Penetration (worked)	285
Dropping Point	287°C
Gelling Agent	Synthetic
Oil Viscosity	cst @ 40°C is 96 / cst @ 100°C is 11.3
Temperature Range	-9°C to 204°C



# HIGH PRECISION & PRECISION LEAD SCREWS

## TECHNICAL DATA Lead Screws and Components

Berg is a pioneer in the development of lead screws. Providing cost effective solutions to linear actuation problems. The close tolerance, free running nuts are ideal for miniature applications requiring rotary to linear or linear to rotary actuation.

For applications requiring precision positioning, Berg also manufactures Anti-Backlash Nuts. This device, consisting of only three components, utilizes the constant force of a compression spring to push two nut halves apart. This action eliminates any play (backlash) which exists between the internal thread of the nut and the external screw thread. To ensure accuracy and repeatability the nut can be fine tuned through the use of the many available spring constants, to meet any pre-load design requirements.

<b>Lead Screw Specification</b>	<b>High Precision</b>
Lead Error	±0.05mm/100mm
Repeatability	0.001mm.
Straightness	0.03mm/100mm
Backlash	0.08mm (zero when using Anti-Backlash nut)
Temperature Range	-45°C to +93°C

LEAD SCREW DIAMETER	HELITRONICS NUTLOAD CAPACITY* kg	HIGH HELIX NUTLOAD CAPACITY* kg
4	10	7
5	10	7
6	15	10
8	26	14
10	30	18
12	50	20
16	75	25
20	120	30
25	170	35

\* Based on the shear value of nut.



## Design Considerations

**Critical Speed** - The critical speed of a lead screw shaft is the maximum speed (rpm) before the screw will become dynamically unstable. This results when the forced frequency of the rotating screw corresponds to its natural frequency. It's value is dependent on the length of the screw, the diameter of the thread, and the support configuration. The critical speed value is governed by the following equation.

$$\text{Critical Screw Speed (N)} = K \times C \times 10^6 \times d/D^2$$

Where:

- K = End support factor
  - 0.36 one end fixed, other free (Figure 9.1)
  - 1.00 simple supports both ends (Figure 9.2)
  - 1.47 one end fixed, one simple (Figure 9.3)
  - 2.23 both ends fixed (Figure 9.4)
- C = Material factor
  - 4.5 for Stainless Steel screws
  - 1.6 for Aluminum screws
- d = Root diameter of the screw
- D = Distance between the nut and the support bearing

**Load** - In order to properly incorporate a lead screw into a design, load requirements must be taken into account. Maximum load values for the nuts are listed in the tables on the following pages. These numbers are based on the shear of the nuts and does not take shaft buckling into account (see Max. Column Load formula below). Wherever possible, nuts should be positioned so as to be put in tension, pulling the load. This eliminates the need for buckling considerations. Listed below are some helpful formulas to assist in proper lead screw selection.

$$\text{Max. Critical Column Load (F)} = K \times C \times 10^6 \times d^4/D^2$$

Where:

- K = End support factor
  - 0.25 one end fixed, other free (Figure 9.1)
  - 1.00 simple supports both ends (Figure 9.2)
  - 2.00 one end fixed, one simple (Figure 9.3)
  - 4.00 both ends fixed (Figure 9.4)
- C = Material factor
  - 13.4 for Stainless Steel screws
  - 4.8 for Aluminum screws
- d = Root diameter of the screw
- D = Distance between the nut and the support bearing

$$\text{Torque to Move a Load (T)} = F \times L/2 \times \xi \times E$$

Where:

- F = Load
- L = Lead
- E = Efficiency (consult Berg Engineering Department for efficiency values)



Figure 9.1



Figure 9.2



Figure 9.3

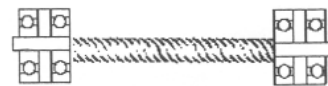
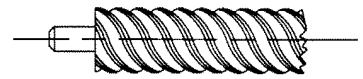
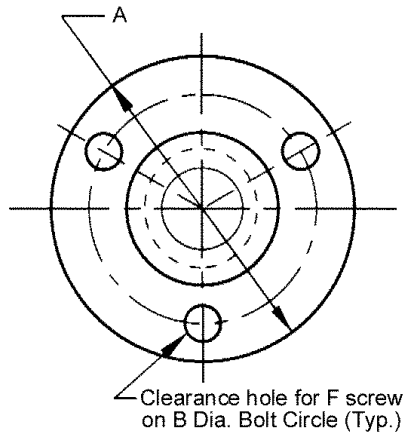
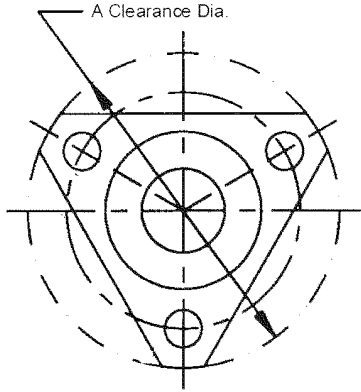
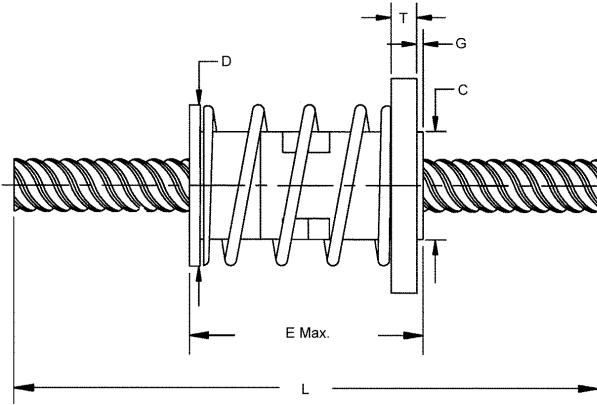


Figure 9.4

E

# ANTI-BACKLASH LEAD SCREW ASSEMBLIES

SERIES	MATERIAL
HIGH PRECISION	NUT - ACETAL, SPRING - STEEL PLATED ZINC, SCREW - STAINLESS STEEL (400 SERIES)



Special end configurations available on request.

## Helitronic Thread

STOCK NO.	PITCH DIA.	LEAD	ØA	ØS	ØC	ØD	E	G	T	F	L
TTMS4ABS1-300	4	1	25.5	19	11	15	29	1.5	5	M3	300
TTMS6ABS2-300	6	2									
TTMS8ABS4-300	8	4									
TTMS10ABS2-500	10	2									
TTMS10ABS20-500	10	20	38	28.5	16	19	38	1.5	5	M3	500
TTMS12ABS5-500	12	5									
TTMS12ABS10-500	12	10									
TTMS16ABS4-1000	16	4	44.5	35	22.5	26	53	2	6.5	M4	1000
TTMS16ABS10-1000	16	10									
TTMS20ABS4-1000	20	4									
TTMS20ABS10-1000	20	10									
TTMS20ABS20-1000	20	20									
TTMS25ABS5-1000	25	5	55.5	45.50	30	40	63.5	2	6.5	M5	1000
TTMS25ABS10-1000	25	10									
TTMS25ABS20-1000	25	20									

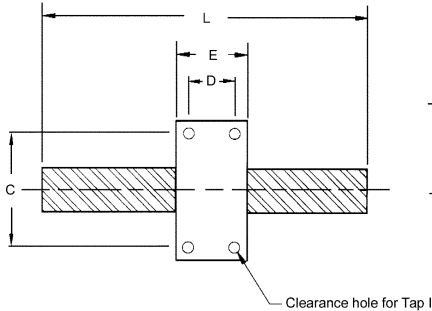
Additional nuts, other lengths and materials are available, call for quotes.



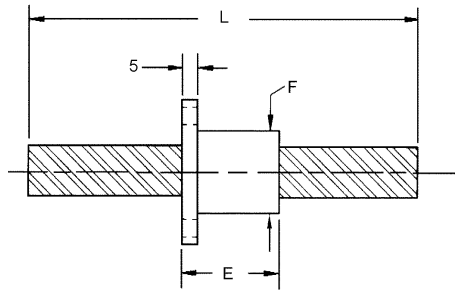
# PRECISION LEAD SCREWS

## MATERIAL

**NUT - ACETAL    SCREW - HIGH HELIX THREAD, ALUMINUM ANODIZED  
HELITRONIC THREAD, STAINLESS STEEL (400 SERIES)**



LEAD SCREW WITH SQUARE NUT



LEAD SCREW WITH ROUND NUT

### Rectangular Nut

HELITRONIC THREAD STOCK NO.	HELIX THREAD STOCK NO.	PITCH DIA.	LEAD	A	B	C	D	E	ØF	ØG <sup>1</sup>	ØH	I <sup>1</sup>	L
TTM4KS1-300	-	4	1										
-	HTM5KA10-300	5	10										
-	HTM5KA15-300	5	15	12.5	33	25	*	19	12	20	28	M3	300
TTM6KS2-300	-	6	2										
TTM8KS4-300	-	8	4										
TTM10KS2-500	-	10	2										
TTM10KS20-500	HTM10KA20-500	10	20	16	44.5	35	*	19	16	25	35	M4	500
-	HTM10KA30-500	10	30										
TTM12K-500	-	12	5										
TTM12KS10-500	-	12	10	19	50	40	15.5	25	20	30 <sup>1</sup>	40	M <sup>1</sup>	500
TTM16KS4-1000	-	16	4										
TTM16KS10-1000	-	16	10	25	50	40	15.5	25	25	35	45	M4	1000
TTM20K-1000	-	20	4										
TTM20KS10-1000	-	20	10										
TTM20KS20-1000	-	20	20	35	60	50	20	30	30	40	50	M5	1000
-	HTM20KA40-1000	20	40										
-	HTM20KA60-1000	20	60										
TTM25KS5-1000	-	25	5										
TTM25KS10-1000	-	25	10										
TTM25KS20-1000	-	25	20	35	60	50	20	30	35	45	55	M5	1000
-	HTM25KA50-1000	25	50										
-	HTM25KA75-1000	25	75										

NOTE:  
Special lengths, ends or diameters and additional nuts available on request.

\*These items are supplied with one mounting hole at E/2, on each side.

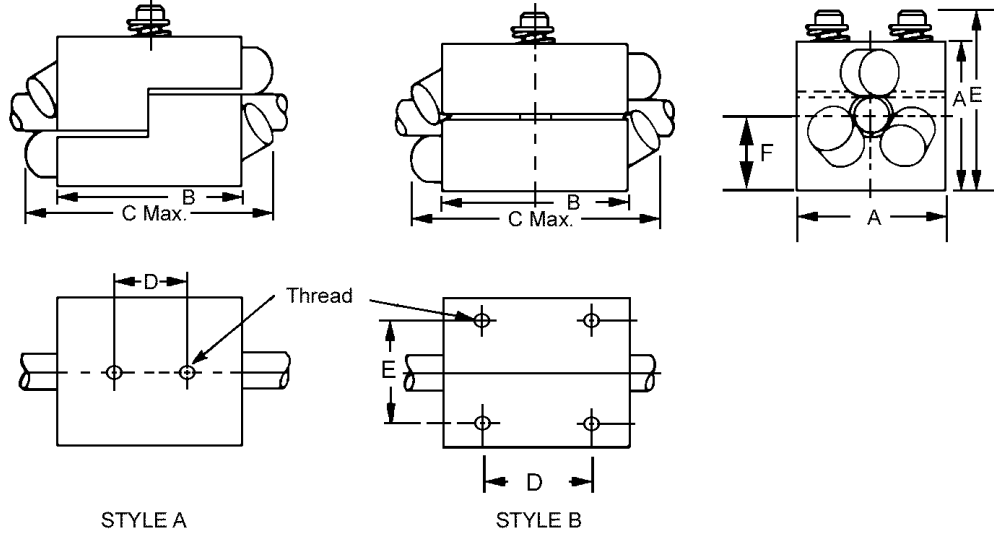
### Round Nut

HELITRONIC THREAD STOCK NO.	HELIX THREAD STOCK NO.	PITCH DIA.	LEAD	A	B	C	D	E	ØF	ØG <sup>1</sup>	ØH	I <sup>1</sup>	L
TTM4LS1-300	-	4	1										
-	HTM5LA10-300	5	10										
-	HTM5LA15-300	5	15	12.5	33	25	*	19	12	20	28	M3	300
TTM6LS2-300	-	6	2										
TTM8LS4-300	-	8	4										
TTM10LS2-500	-	10	2										
TTM10LS20-500	HTM10LA20-500	10	20	16	44.5	35	*	19	16	25	35	M4	500
-	HTM10LA30-500	10	30										
TTM12K-500	-	12	5										
TTM12LS10-500	-	12	10	19	50	40	15.5	25	20	30 <sup>1</sup>	40	M4 <sup>1</sup>	500
TTM16LS4-1000	-	16	4										
TTM16LS10-1000	-	16	10	25	50	40	15.5	25	25	35	45	M4	1000
TTM20K-1000	-	20	4										
TTM20LS10-1000	-	20	10										
TTM20LS20-1000	-	20	20	35	60	50	20	30	30	40	50	M5	1000
-	HTM20LA40-1000	20	40										
-	HTM20LA60-1000	20	60										
TTM25LS5-1000	-	25	5										
TTM25LS10-1000	-	25	10										
TTM25LS20-1000	-	25	20	35	60	50	20	30	35	45	55	M5	1000
-	HTM25LA50-1000	25	50										
-	HTM25LA75-1000	25	75										

<sup>1</sup> These holes / bolt circles may be slotted to accept a range of sizes.

# LINEAR CLUTCH - LINEAR ACTUATORS

SHAFT SIZE	STYLES	MATERIAL
8mm - 25mm	A & B	ALUMINUM HOUSING STEEL BALL BEARINGS AND SCREWS



- Translates rotating motion into linear motion
- Built In Safety - Adjustable tension allows device to slip free when overloaded
- Infinite Travel - On threadless shafting
- Ends Backlash Problems - Free axial backlash less than 0.025mm
- No Lubrication - Shaft runs dry - Bearing factory lubricated
- Installs Fast, Two halves assemble around shaft
- Longer Life for shafts and actuators
- Greatly reduces maintenance
- Operates on standard Berg ground shafting (hard or soft)
- Efficiency .90 (approximately)



STOCK NO.	SHAFT DIA.	LEAD (mm)	THRUST RATING	A	B	C	D	E	F	THREAD	STYLE
LCAM-1	8 mm	1.3	22N	28.4	41.1	57.2	19.0	42.2	14.5	M3x0.5x6.3DP	A
LCAM-2		2.5									
LCAM-3		2.5									
LCAM-4		15.0									
LCAM-7	15.0	133N	38.1	50.8	71.4	25.4	48.5	19.3	M5x0.8x9.5DP		
LCAM-9	25.0										
LCAM-10	2.50										
LCAM-11	10.0										
LCAM-12	12 mm	2.5	266N	50.8	63.5	85.8	31.8	68.3	25.6	M6x1.0x12.7DP	
LCAM-13		15.0									
LCAM-14		25.0									
LCAM-15		2.5									
LCAM-16	25 mm	5	444N	76.2	63.5	90.4	33	88.9	38.1	M6x1.0x12.7DP	B
LCAM-17		25									

# LINEAR SLIDES

## TECHNICAL DATA

W. M. Berg, Inc. manufactures a complete line of off the shelf linear ball slides and linear crossed roller slide bearings. Made to the highest quality standards, components must pass strict inspection requirements at each stage of manufacturing. These Quality Control steps ensure precise, uniform, linear movement with low friction and minimum side-play.

Available in inch or metric sizes, and in travel lengths ranging from 12mm to 600mm, slides have flat, parallel, and smooth mounting surfaces. Equipped with mounting holes, they are shipped ready to install, with no need for modifications or adjustments.

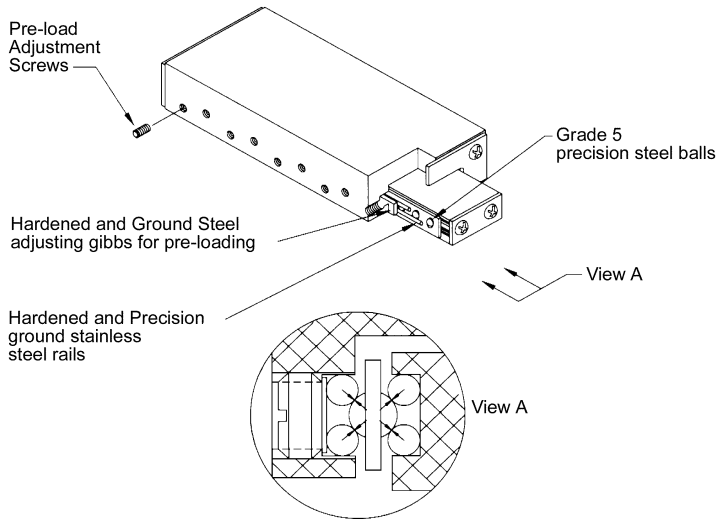


FIGURE 1

### Linear Ball Slides

**W. M. Berg Inc.** Linear Ball Slides are designed to provide precise linear movement for **light to medium loads**. Their construction, as shown in Figure 1, consists of precision Grade 5 balls rolling along ground wire ways. Since the rolling contact surface is a point, the bearing ways are self cleaning, expelling matter which may deposit on their surfaces.

### Linear Crossed Roller Slides

W. M. Berg Inc. Linear Crossed Roller Slides are designed to provide precise linear movement for medium to heavy loads. Their improved stiffness and rigidity mean long term reliability under the punishment of vibration and shock conditions. Their construction as shown in Figure 2 consists of precision rollers rolling along ground flat ways. Since the rolling contact surface is a line, they can support greater loads than the ball slides

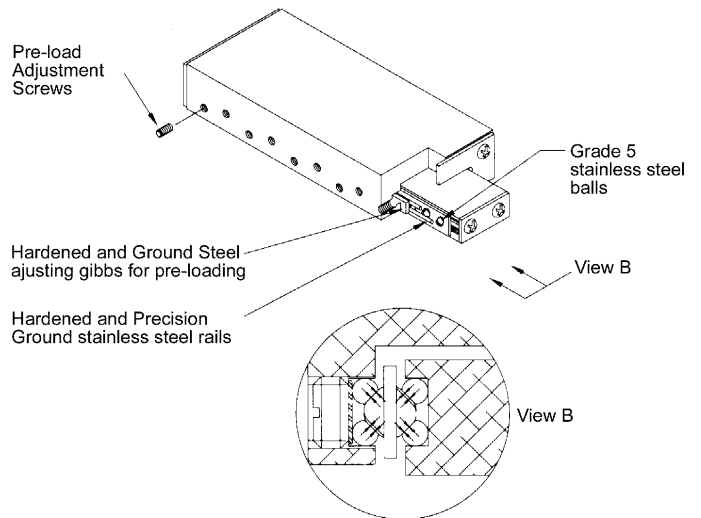


FIGURE 2

- Straightness of Travel = Precision Series - 0.0127mm/mm  
\* Ultra-precision Series - 0.0101mm/mm
- Repeatability of Travel = Precision Series - 0.254 mm  
Ultra-precision Series - 0.00127 mm
- Life = 2.5 x 10<sup>6</sup>mm of Travel at Safe Load Capacity  
= 2.5 x 10<sup>6</sup>mm of Travel at 1/2 Safe Load Capacity  
Coefficient of Friction = .003

$$\text{Safe Load Capacity} = \frac{\text{Rated Load Capacity}}{\text{Safety Factor (SF)}}$$

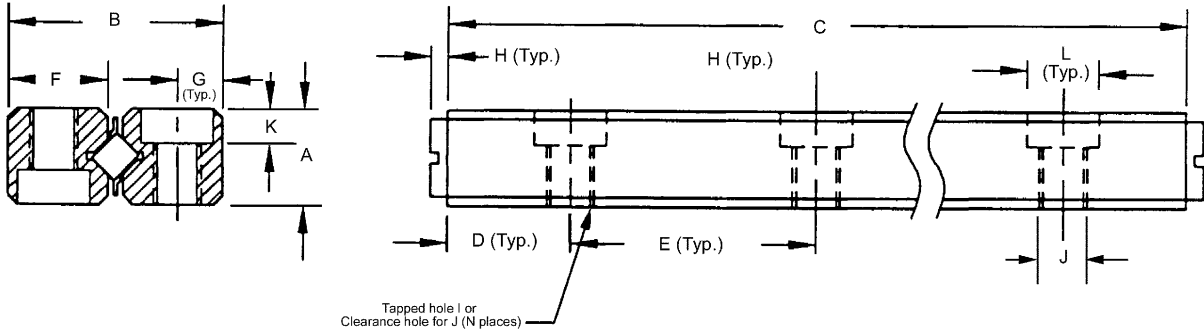
\* Inspection Report Available for This Accuracy



# CROSS ROLLER BEARINGS RAIL SET

## MATERIAL

**RAILS & ROLLERS - HARDENED & GROUND TOOL STEEL • RETAINERS - BRASS**

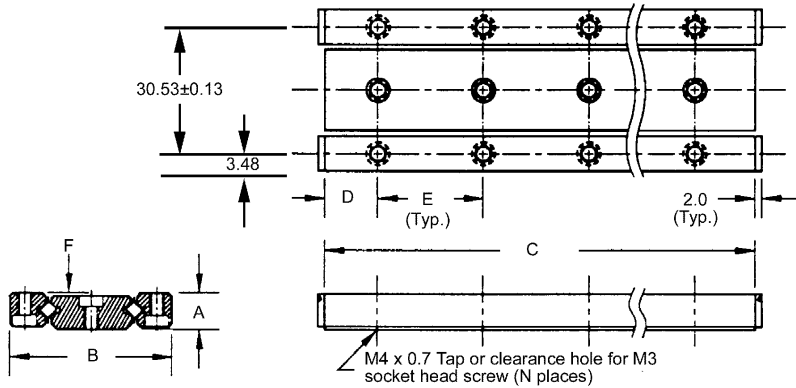


STOCK NO.	TRAVEL	A	B +0.00 -0.20	C	D	E	F	G	H	I	J	K	N	RATED CAPACITY (kg)
LR1-02M	23.9			50mm									2	105
LR1-03M	33.8			75mm									3	160
LR1-04M	33.8			100mm									4	210
LR1-05M	33.8			125mm									5	290
LR1-06M	53.8			150mm									6	315
LR1-07M	53.6	8.0	18.0	175mm	12.5	25.0	8.3	3.5	2.0	M4 x 0.7	3.3	3.1	7	395
LR1-08M	53.6			200mm									8	448
LR1-09M	83.6			225mm									9	474
LR1-10M	103.6			250mm									10	527
LR1-11M	103.6			275mm									11	579
LR1-12M	103.4			300mm									12	658
LR2-04M	44.2			100mm									2	325
LR2-06M	72.1			150mm									3	545
LR2-08M	100.3			200mm									4	650
LR2-10M	128.5			250mm									5	870
LR2-12M	156.5			300mm									6	980
LR2-14M	184.7			350mm									7	1200
LR2-16M	212.6			400mm									8	1300
LR2-18M	216.9			450mm									9	1525
LR2-20M	221.0	15.0	31.0	507mm	25.0	50.0	13.8	6.0	3.0	M6 x 1.0	5.2	5.5	10	1740
LR2-22M	225.0			550mm									11	1960
LR2-24M	229.1			600mm									12	2180
LR2-26M	412.8			650mm									13	1960
LR2-28M	440.9			700mm									14	2180
LR2-30M	486.9			750mm									15	2290
LR2-32M	497.1			800mm									16	2500
LR2-34M	525.0			850mm									17	2610
LR2-36M	577.1			900mm									18	2725

Part number represents two sets of parts shown in diagram.

# ULTRA PRECISION CROSS ROLLER BEARINGS DOUBLE V RAIL SETS

TRAVEL	MATERIAL
23mm TO 53mm	RAILS & ROLLERS - HARDENED AND GROUND TOOL STEEL • RETAINERS - BRASS*

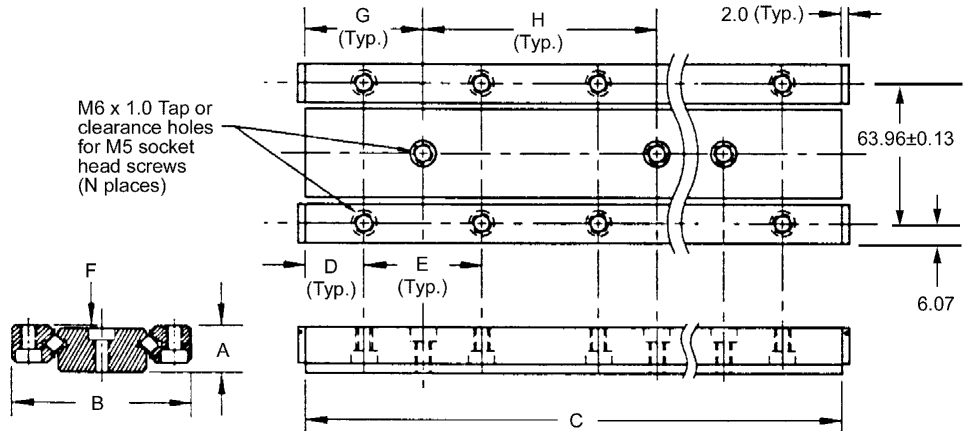


STOCK NO.	TRAVEL	A	B	C mm	D	E	F	N	RATED CAPACITY kg
LVL-01M	23.0			50.0				2	105
LVL-02M	33.0			75.0				3	180
LVL-03M	33.0	8.2	37.6	100.0	12.5	25.0	.15	4	210
LVL-04M	33.0			125.0				5	290
LVL-05M	53.0			150.0				6	315

\* In some cases, may be plastic.

E

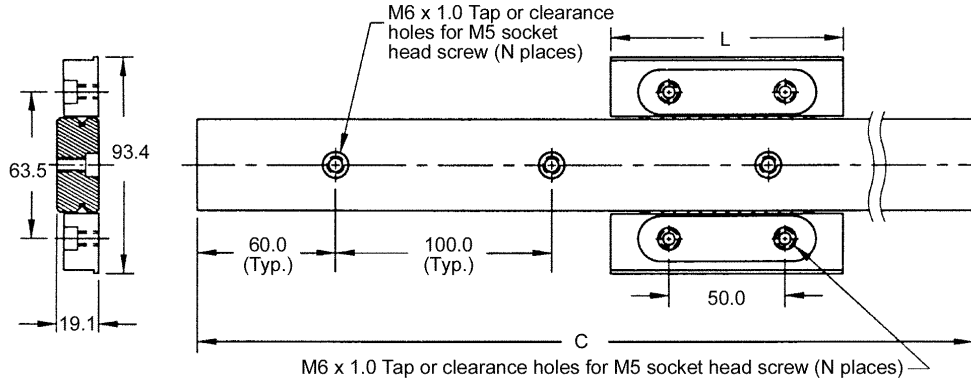
TRAVEL	MATERIAL
125mm TO 875mm	RAILS & ROLLERS - HARDENED AND GROUND TOOL STEEL • RETAINERS - BRASS*



STOCK NO.	TRAVEL	A	B	C	D	E	F	G	H	N		RATED CAPACITY (kg)
										SIDE RAILS	CENTER RAILS	
LVH-05M	125.0			150.0				25.0	50.0	3	3	545
LVH-11M	275.0			300.0						6	3	980
LVH-15M	375.0	19.0	76.0	400.0	25.0	50.0	.2	50.0	100.0	8	4	1300
LVH-23M	575.0			600.0						12	6	1960
LVH-35M	875.0			900.0						18	9	2940

# ULTRA PRECISION CROSS ROLLER "RECIRCULATING" BEARINGS & RAIL SETS

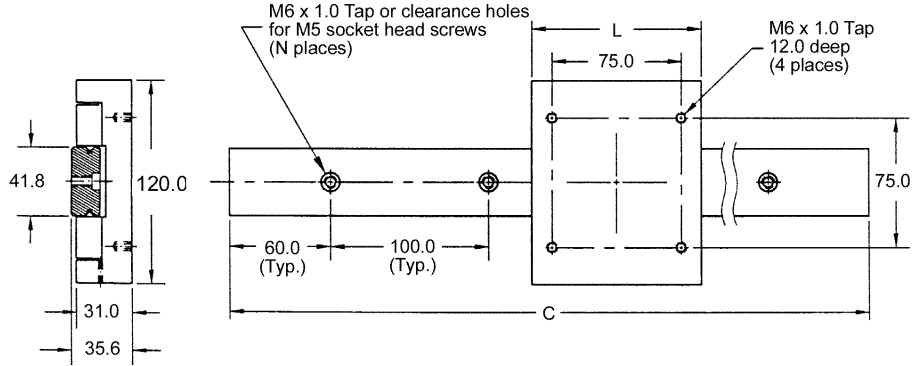
TRAVEL	MATERIAL
150mm TO 800mm	RAILS & ROLLERS - HARDENED AND GROUND TOOL STEEL



STOCK NO.	TRAVEL	C	L	N	RATED CAPACITY (kg)
DRWA-08M	200	320		3	435
DRWA-20M	500	620	100	6	
DRWA-32M	800	920		9	
DRWB-06M	150	320		3	870
DRWB-18M	450	620	148	6	
DRWB-30M	750	920		9	

# ULTRA PRECISION CROSS ROLLER “RECIRCULATING” BEARINGS & RAIL SETS

TRAVEL	MATERIAL
150mm TO 800mm	RAILS & ROLLERS -HARDENED AND GROUND TOOL STEEL TOP CARRIAGE - 6061-T6 ALUMINUM, CLEAR ANODIZED

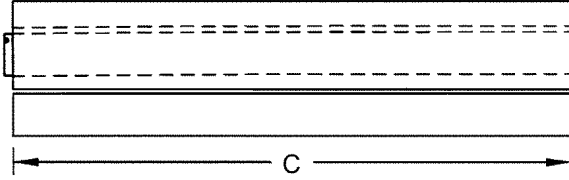
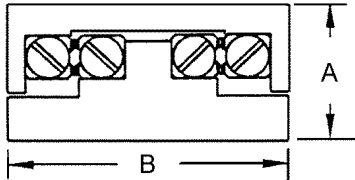


STOCK NO.	TRAVEL	C	L	N	RATED CAPACITY (kg)
RWSA-08M	200	320		3	435
RWSA-20M	500	620	100	6	
RWSA-32M	800	920		9	
RWSB-06M	150	320		3	870
RWSB-18M	450	620	148	6	
RWSB-30M	750	920		9	

E

# ULTRA-PRECISION CROSS ROLLER SLIDE ASSEMBLIES, LONG TRAVEL

TRAVEL	MATERIAL
25mm TO 575mm	RAILS & ROLLERS - HARDENED AND GROUND TOOL STEEL TOP CARRIAGE 6061-T6 ALUMINUM, CLEAR ANODIZED OR G2 CLOSE GRAIN CAST IRON • RETAINERS - BRASS



ALUMINUM STOCK NO.	CAST IRON STOCK NO.	TRAVEL	A	B	C	RATED CAPACITY (lbs.)
LWAA-01	LWSA-01	25			50.6	79
LWAA-02	LWSA-02	50			76.2	105
LWAA-03	LWSA-03	75			101.6	160
LWAA-04	LWSA-04	100			127.0	184
LWAA-05	LWSA-05	125			152.4	210
LWAA-06	LWSA-06	150	25.0	50.8	177.8	235
LWAA-07	LWSA-07	175			203.2	290
LWAA-08	LWSA-08	200			228.6	315
LWAA-09	LWSA-09	225			254.0	340
LWAA-10	LWSA-10	250			279.4	370
LWAA-11	LWSA-11	275			304.8	420
LWAB-02	LWSB-02	50			76.2	105
LWAB-03	LWSB-03	75			101.6	160
LWAB-04	LWSB-04	100			127.0	184
LWAB-05	LWSB-05	125			152.4	210
LWAB-06	LWSB-06	150			177.8	235
LWAB-07	LWSB-07	175	31.8	76.2	203.2	290
LWAB-08	LWSB-08	200			228.6	315
LWAB-09	LWSB-09	225			254.0	340
LWAB-10	LWSB-10	250			279.4	370
LWAB-11	LWSB-11	275			304.8	420
LWAC-03	LWSC-03	75			101.6	218
LWAC-05	LWSC-05	125			152.4	325
LWAC-07	LWSC-07	175			203.2	435
LWAC-09	LWSC-09	225			254.0	545
LWAC-11	LWSC-11	275			304.8	650
LWAC-13	LWSC-13	325			355.6	760
LWAC-15	LWSC-15	375	36.6	10.6	406.4	870
LWAC-17	LWSC-17	425			457.2	980
LWAC-19	LWSC-19	475			508.0	1090
LWAC-21	LWSC-21	525			558.8	1200
LWAC-23	LWSC-23	575			609.6	1300
LWAD-04	LWSD-04	120			152.4	325
LWAD-06	LWSD-06	170			203.2	435
LWAD-08	LWSD-08	220			254.0	545
LWAD-10	LWSD-10	270			304.8	650
LWAD-12	LWSD-12	320			355.6	760
LWAD-14	LWSD-14	375	50.8	152.4	406.4	870
LWAD-16	LWSD-16	425			457.2	980
LWAD-18	LWSD-18	475			508.0	1090
LWAD-20	LWSD-20	525			558.8	1200
LWAD-22	LWSD-22	575			609.6	1300



Mounting holes can be supplied at an additional cost, contact Customer Service.

Specify desired mounting holes and locations when ordering.



# ULTRA-PRECISION CROSSED ROLLER SLIDE ASSEMBLIES, LOW PROFILE

TRAVEL	MATERIAL
25mm TO 125mm	RAILS & ROLLERS - HARDENED AND GROUND TOOL STEEL TOP & BASE - 6061-T6 ALUMINUM, CLEAR ANODIZED RETAINERS - PLASTIC

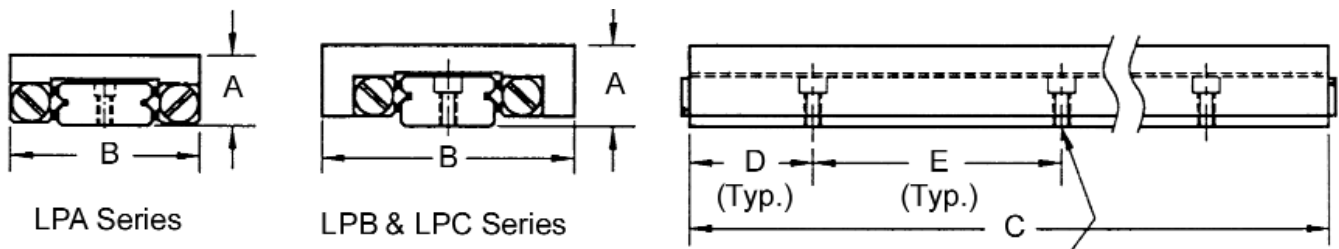
STOCK NO.	TRAVEL	A	B	C	D	E	I	J	N	RATED CAPACITY (kg)
LPA-01M	25			50.8					2	34
LPA-02M	50			76.2					3	34
LPA-03M	75	15.9	38	101.6	12.5	25.0	M4 x 0.7	M3	4	45
LPA-04M	100			127.0					5	45
LPA-05M	125			152.4					6	45

TRAVEL	MATERIAL
25mm TO 125mm	RAILS & ROLLERS - HARDENED AND GROUND TOOL STEEL TOP & BASE - 6061-T6 ALUMINUM, CLEAR ANODIZED RETAINERS - BRASS

STOCK NO.	TRAVEL	A	B	C	D	E	I	J	N	RATED CAPACITY (kg)
LPB-01M	25			50.8					2	34
LPB-02M	50			76.2					3	34
LPB-03M	75	15.9	51	101.6	12.5	25.0	M4 x 0.7	M3	4	34
LPB-04M	100			127.0					5	34
LPB-05M	125			152.4					6	34

TRAVEL	MATERIAL
150mm TO 900mm	RAILS & ROLLERS - HARDENED AND GROUND TOOL STEEL TOP & BASE - 6061-T6 ALUMINUM, CLEAR ANODIZED RETAINERS - PLASTIC

STOCK NO.	TRAVEL	A	B	C	D	E	I	J	N	RATED CAPACITY (kg)
LPC-06M	150			152.9	25.0	50.0			3	435
LPC-12M	300			305.3					3	870
LPC-24M	600	31.8	95	610.1	50.0	100.0	M6 x 1.0	M5	6	1850
LPC-36M	900			914.9					9	2725

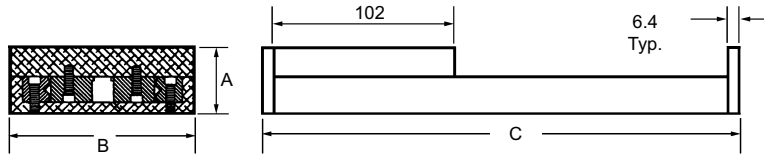


Tapped hole I or clearance hole for screw J (N places)

Mounting holes can be supplied at an additional cost, contact Customer Service.  
Specify desired mounting holes and locations when ordering.

# ULTRA-PRECISION CROSS ROLLER FLANGE BASED SLIDE ASSEMBLIES

TRAVEL	MATERIAL
150mm TO 500mm	RAILS & ROLLERS - HARDENED AND GROUND TOOL STEEL TOP CARRIAGE 6061-T6 ALUMINUM, CLEAR ANODIZED OR G2 CLOSE GRAIN CAST IRON • RETAINERS - BRASS

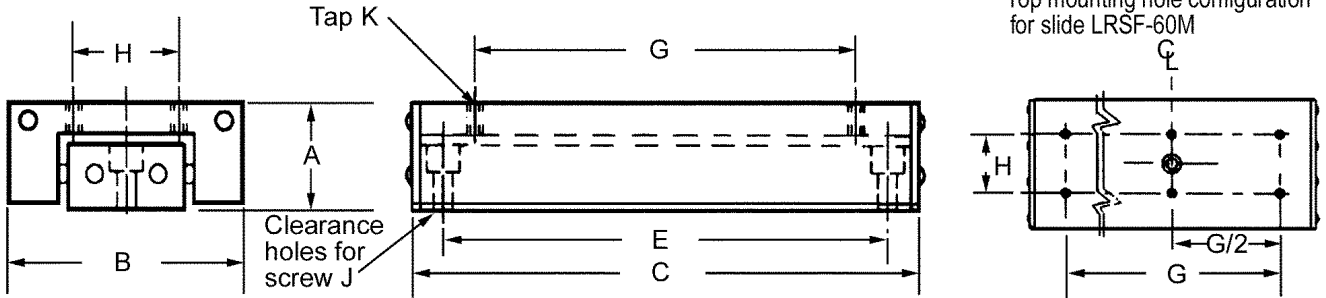


ALUMINUM STOCK NO.	CAST IRON STOCK NO.	TRAVEL	A	B	C	RATED CAPACITY (kg)
RWAA-06	RWAS-06	150			254	435
RWAA-08	RWAS-08	200			305	
RWAA-10	RWAS-10	250			356	
RWAA-12	RWAS-12	300			406	
RWAA-14	RWAS-14	350	36.6	102	457	
RWAA-16	RWAS-16	400			508	
RWAA-18	RWAS-18	450			559	
RWAA-20	RWAS-20	500			610	
RWBA-06	RWBS-06	150			254	
RWBA-08	RWBS-08	200			305	
RWBA-10	RWBS-10	250			356	
RWBA-12	RWBS-12	300			406	
RWBA-14	RWBS-14	350	50.8	152	457	
RWBA-16	RWBS-16	400			508	
RWBA-18	RWBS-18	450			559	
RWBA-20	RWBS-20	500			610	

Mounting holes can be supplied at an additional cost, contact Customer Service. specify desired mounting holes and locations when ordering.

# CROSS ROLLER SLIDES

TRAVEL	MATERIAL
<b>13.0mm TO 152.4mm</b>	<b>ALUMINUM BLACK ANODIZED</b>



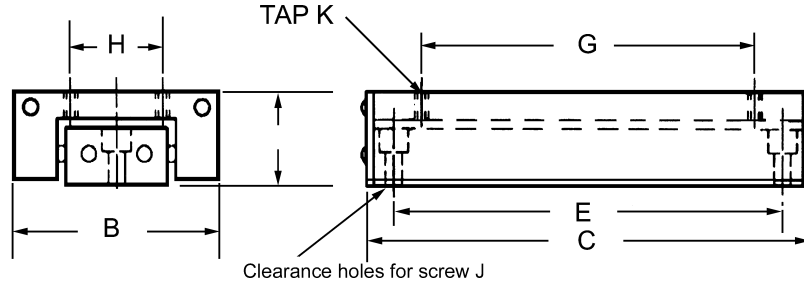
STOCK NUMBER	TRAVEL	A	B	C	E	G	H	J	RATED CAPACITY (kg)
LRSA-5M	13.0			26.9	19.0	16.0			15
LRSA-10M	25.5	8.0	14.0	52.3	35.0	41.5	5.5	M2.0 X 0.4	25
LRSA-20M	51.0			77.7	60.5	66.5			31
LRSB-5M	13.0			26.9	19.0	16.0			23
LRSB-10M	25.5	10.0	19.0	52.3	35.0	41.5	9.5	M3.0 X 0.5	36
LRSB-20M	51.0			77.7	60.5	66.5			45
LRSC-15M	38.1			65.0	54.0	57.0			61
LRSC-20M	50.8	13.5	27.0	90.4	79.5	82.5	11.0	M4.0 X 0.7	102
LRSC-30M	76.2			115.8	82.5	101.5			120
LRSD-10M	25.4			50.8	36.0	35.0			61
LRSD 20M	50.8	16.0	38.0	76.2	63.5	60.5	16.0	M4.0 X 0.7	82
LSRD 30M	76.2			101.6	89.0	85.5			82
LRSD-40M*	101.6			152.4	101.5	136.5			141
LRSE-10M	25.4			50.8	41.5	35.0			82
LRSE-20M	50.8			82.6	70.0	66.5			82
LRSE 30M	76.2	19.1	44.5	101.6	89.0	85.5	22.0	M4.0 X 0.7	109
LRSE-40M	101.6			152.4	101.5	139.5			141
LRSF-15M	38.1			66.5	47.5	41.5			150
LRSF-20M	50.8			101.5	85.5	76.0			190
LRSF-30M	76.2	25.5	66.5	127.0	111.0	101.6	32.0	M5.0 X 0.8	204
LRSF-40M	101.6			152.5	136.5	127.0			227
LRSF-60M*	152.4			228.5	178.0	152.4			320

Other sizes and load capacities available.

**E**

# LINEAR BALL SLIDES

TRAVEL	MATERIAL
12.0mm TO 200mm	ALUMINUM BLACK ANODIZED

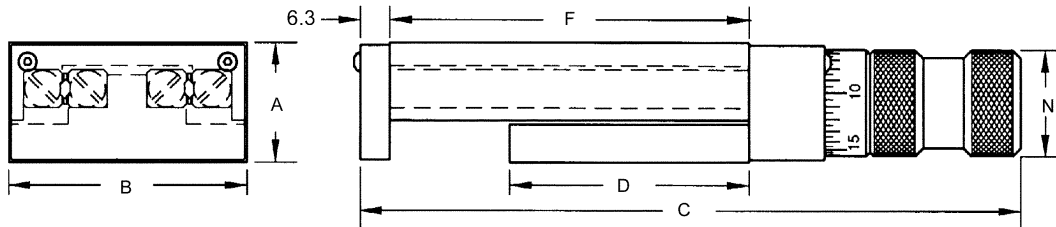


STOCK NUMBER	TRAVEL	A	B	C	E	G	H	J	K	RATED LOAD kg
LBSGM-12	12			20	10	10				1
LBSGM-25	25	6.0	9.5	32	20	20	4	M2 X 0.4*	M2 X 0.4	1
LBSGM-35	35			45	30	30				1
LBSKM-12	12			28	20	15				2
LBSKM-25	25			51	30	40				4
LBSKM-50	50	8.0	14.0	102	80	65	5	M2	M2 x 0.4	5
LBSKM-100	100			127	90	115				7
LBSKM-125	125			152	100	140				8
LBSEM-12	12			27	19	15				2
LBSEM-25	25			52	35	40				4
LBSEM-50	50	10.0	19.0	78	60	65	10	M3	M3 x 0.5	5
LBSEM-75	75			103	86	90				6
LBSEM-100	100			129	89	115				7
LBSEM-125	125			154	114	140				8
LBSFM-25	25			52	40	40				8
LBSFM-50	50			90	75	75				9
LBSFM-75	75	13.5	27.0	116	75	100				11
LBSFM-100	100			152	100	130	10	M4	M4 x 0.7	14
LBSFM-150	150			203	125	190				16
LBSFM-200	200			254	175	240				18
LBSHM-25	25			51	30	30				7
LBSHM-50	50			78	55	60				9
LBSHM-75	75			102	80	80				11
LBSHM-100	100	15.5	38.0	152	100	130	15	M4	M4 x 0.7	16
LBSHM-150	150			203	125	180				20
LBSHM-200	200			254	175	225				25
LBSAM-25	25			50	35	35				14
LBSAM-35	35			65	50	50				15
LBSAM-50	50	20.0	44.0	80	65	65	20	M5	M5 x 0.8	16
LBSAM-75	75			100	85	85				18
LBSBM-50	50			100	75	75				48
LBSBM-75	75	25.0	66.0	125	100	100	35	M5	M5 x 0.8	52
LBSBM-100	100			150	125	125				58

\*Tapped hole in this series only.

# ULTRA-PRECISION CROSS ROLLER LEAD SCREW DRIVEN SLIDE ASSEMBLIES

STYLE	TRAVEL	MATERIAL
<b>KNOB</b>	<b>25mm TO 150mm</b>	RAILS & ROLLERS - HARDENED AND GROUND TOOL STEEL TOP CARRIAGE 6061-T6 ALUMINUM, CLEAR ANODIZED OR G2 CLOSE GRAIN CAST IRON • RETAINERS BRASS



ALUMINUM STOCK NO.	CAST STOCK NO.	TRAVEL	A	B	C	D	F	RATED CAPACITY (kg)	N
LDA-01K	LDS-01K	25	25.0	50.8	140	50.8	76.2	105	22.2
LDA-02K	LDS-02K	25			165	76.2	101.6	160	
LDA-03K	LDS-03K	50			190	101.6	152.4	210	
LDA-04K	LDS-04K	25	31.7	76.2	175	76.2	101.6	160	27.7
LDA-05K	LDS-05K	25			200	101.6	127.0	235	
LDA-06K	LDS-06K	50			225	101.6	152.4	210	
LDA-07K	LDS-07K	25	36.5	101.6	225	127.0	152.4	290	27.7
LDA-08K	LDS-08K	60			276	152.4	203.2	340	
LDA-09K	LDS-09K	50			327	203.2	254.0	475	
LDA-10K	LDS-10K	75			378	228.6	304.8	500	
LDA-11K	LDS-11K	50	50.8	152.4	269	152.4	203.2	545	34.9
LDA-12K	LDS-12K	100			390	203.2	304.8	650	
LDA-13K	LDS-13K	150			492	304.8	406.4	780	

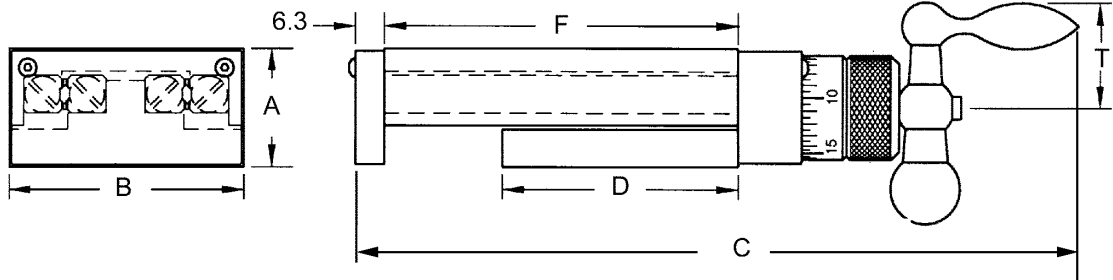
Mounting holes can be supplied at an additional cost, contact Customer Service.



E

# ULTRA-PRECISION CROSS ROLLER LEAD SCREW DRIVEN SLIDE ASSEMBLIES

STYLE	TRAVEL	MATERIAL
<b>CRANK</b>	<b>25mm TO 150mm</b>	RAILS & ROLLERS - HARDENED AND GROUND TOOL STEEL TOP CARRIAGE 6061-T6 ALUMINUM, CLEAR ANODIZED OR G2 CLOSE GRAIN CAST IRON • RETAINERS BRASS

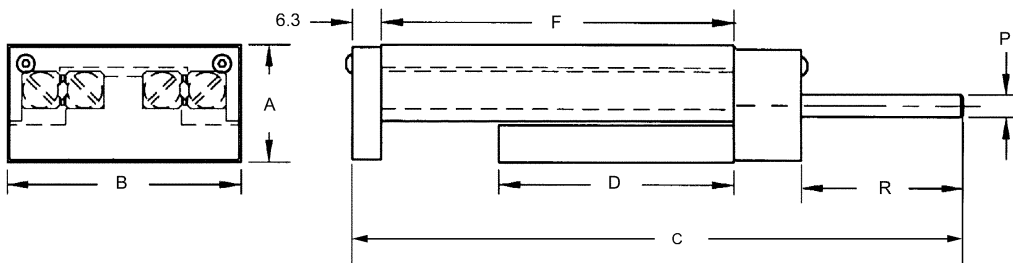


ALUMINUM STOCK NO.	CAST STOCK NO.	TRAVEL	A	B	C	D	F	T	RATED CAPACITY (kg)
LDA-01C	LDS-01C	25			155	50.8	76.2		105
LDA-02C	LDS-02C	25	25.0	50.8	180	76.2	101.6	25	160
LDA-03C	LDS-03C	50			206	101.6	152.4		210
LDA-04C	LDS-04C	25			184	76.2	101.6		160
LDA-05C	LDS-05C	25	31.7	76.2	210	101.6	127.0	25	235
LDA-06C	LDS-06C	50			235	101.6	152.4		210
LDA-07C	LDS-07C	25			235	127.0	152.4		290
LDA-08C	LDS-08C	60			285	152.4	203.2		340
LDA-09C	LDS-09C	50	36.5	101.6	337	203.2	254.0	25	475
LDA-10C	LDS-10C	75			387	228.6	304.8		500
LDA-11C	LDS-11C	50			313	152.4	203.2		545
LDA-12C	LDS-12C	100	50.8	152.4	414	203.2	304.8	38	650
LDA-13C	LDS-13C	150			515	304.8	406.4		780

Mounting holes can be supplied at an additional cost, contact Customer Service.



STYLE	TRAVEL	MATERIAL
<b>SHAFT</b>	<b>25mm TO 150mm</b>	RAILS & ROLLERS - HARDENED AND GROUND TOOL STEEL TOP CARRIAGE 6061-T6 ALUMINUM, CLEAR ANODIZED OR G2 CLOSE GRAIN CAST IRON • RETAINERS BRASS



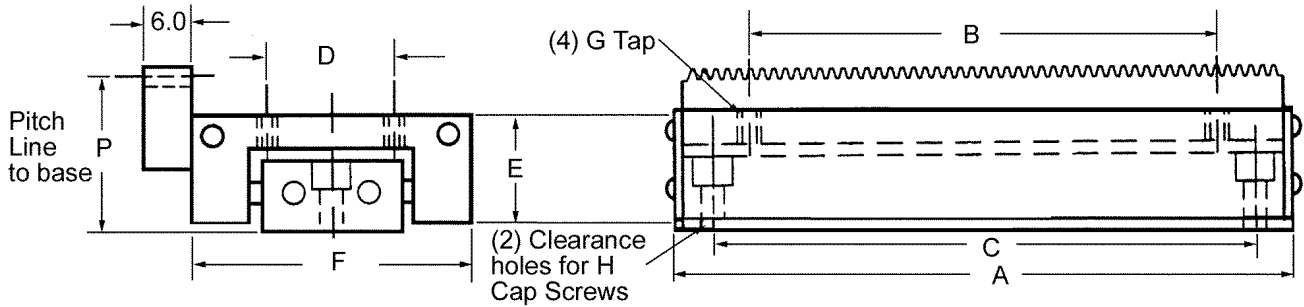
ALUMINUM STOCK NO.	CAST STOCK NO.	TRAVEL	A	B	C	D	F	P +0.005 +0.018	R	RATED CAPACITY (kg)
LDA-01SM	LDS-01SM	25			133	50.8	76.2			105
LDA-02SM	LDS-02SM	25	25.0	50.8	159	76.2	101.6	4.00	35	160
LDA-03SM	LDS-03SM	50			164	101.6	152.4			210
LDA-04SM	LDS-04SM	25			165	76.2	101.6			160
LDA-05SM	LDS-05SM	25	31.7	76.2	190	101.6	127.0	4.00	38	235
LDA-06SM	LDS-06SM	50			216	101.6	152.4			210
LDA-07SM	LDS-07SM	25			216	127.0	152.4			290
LDA-08SM	LDS-08SM	60			266	152.4	203.2			340
LDA-09SM	LDS-09SM	50	36.5	101.6	316	203.2	254.0	4.00	36	475
LDA-10SM	LDS-10SM	75			368	228.6	304.8			500
LDA-11SM	LDS-11SM	50			279	152.4	203.2			545
LDA-12SM	LDS-12SM	100	50.8	152.4	361	203.2	304.8	6.00	54	650
LDA-13SM	LDS-13SM	150			483	304.8	406.4			780

Mounting holes can be supplied at an additional cost, contact Customer Service.



# RACK DRIVEN BALL SLIDES

TRAVEL	MATERIAL	PRESSURE ANGLE
<b>13mm TO 100mm</b>	<b>RACK - 416 STAINLESS STEEL BALL SLIDE - ANODIZED ALUMINUM</b>	<b>20°</b>



- Low starting and running friction
- Zero sideplay and wobble
- High accuracy and repeatability
- No lubrication required
- Heavy load carrying capacity
- Operates in any position
- Factory aligned and preloaded
- Easy replacement

STOCK NUMBER	MAX TRAVEL	MAX LOAD (kg)	A	B	C	D	E	F	G	H	P	MODULE
LRDB-5M	13	2.3	39.5	31.5	31.5							
LRDB-10M	25	4.5	65.0	57.0	57.0							
LRDB-15M	38	6.8	77.5	70.0	69.8	11.0	12.7	25.5	M3x0.5	M3	14.0	0.4
LRDB-20M	50	9.0	90.5	82.5	82.5							
LRDB-30M	75	13.6	116.0	108.0	108.0							
LRDD-10M	25	18.0	66.5	54.0	54.0							
LRDD-20M	50	27.0	101.6	76.2	85.5							
LRDD-30M	75	40.7	127.0	101.6	111.0	31.5	25.4	66.5	M4X0.7	M4	28.0	0.8
LRDD-40M	100	52.5	152.4	127.0	136.5							

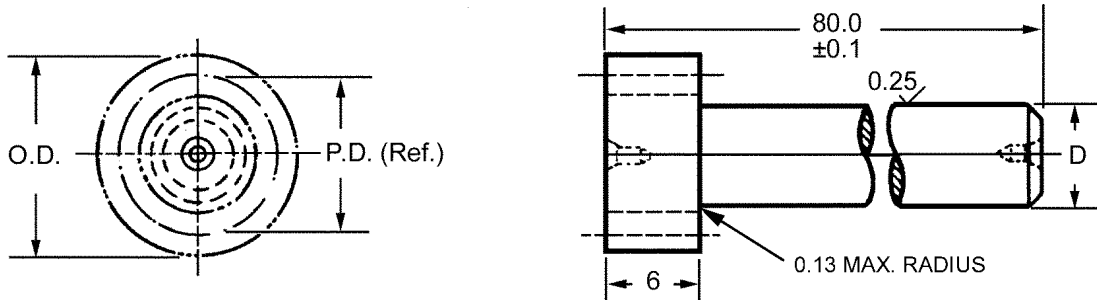
Other sizes available on request.



E

# RACK DRIVEN BALL SLIDE PINIONS

MODULE	MATERIAL	PRESSURE ANGLE
<b>0.4 AND 0.8</b>	<b>STAINLESS STEEL 1.4305</b>	<b>20°</b>

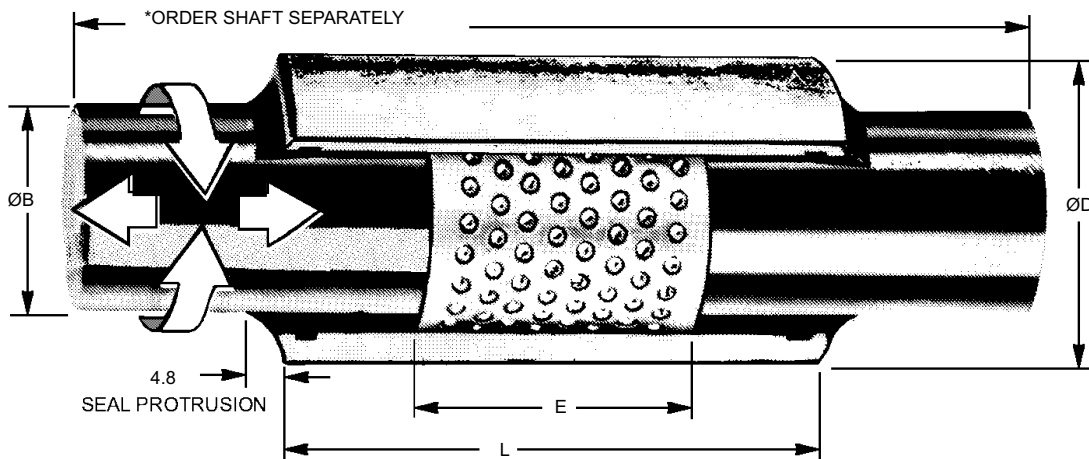


STOCK NUMBER	MODULE	NO. OF TEETH	P.D.	OD	D	USE FOR SLIDES
PSGS6M-20H	0.4	20	8.00	8.80	6.000	LRDB
PSDS6M-10H	0.8	10	8.00	9.60	6.000	LRDD



# LINEAR-ROTARY BEARINGS PRE-LOADED, GENERAL PURPOSE

BORE	MAX. LINEAR TRAVEL	MATERIAL
16mm TO 50mm	25mm TO 150mm	HOUSING - STEEL DIN 1.0601 RETAINER - 16mm BORE-BRASS, 20-50mm BORE - ALUMINUM SEALS-NITRILE RUBBER



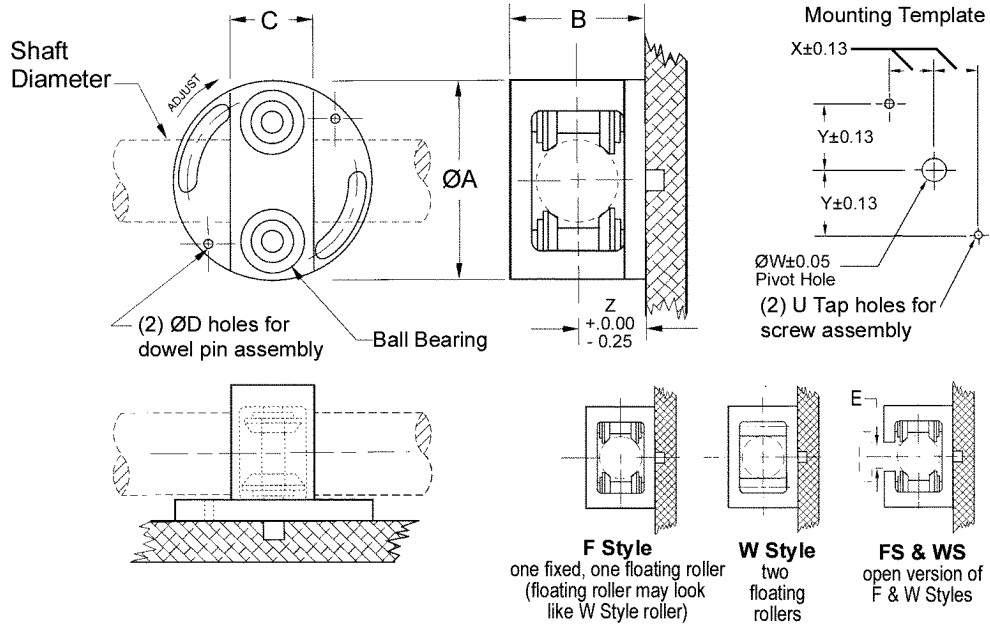
STOCK NO.	SHAFT DIA. (REF.)	OUTSIDE DIA. ØD	HOUSING DIA. FOR PROPER FIT	E	L -0.13	MAX LINEAR TRAVEL	RATED LOAD (kg)	SHAFT STOCK NO.
LRM-16M-1 LRM-16M-2	16.00	28.007	+0.012 27.995	16.0	45.00 55.00	25 50	137	LMS-16M-300
LRM-20M-1 LRM-20M-2	20.00	32.010	+0.015 31.995	21.0	50.00 60.00	25 50	195	LMS-20M-300
LRM-25M-1 LRM-25M-2 LRM-25M-3 LRM-25M-4	25.00	39.013	+0.018 38.995	25.0	55.00 65.00 80.00 95.00	25 50 75 100	243	LMS-25M-300
LRM-32M-1 LRM-32M-2 LRM-32M-3 LRM-32M-4 LRM-32M-5	32.00	46.013	+0.018 45.995	36.0	65.00 75.00 90.00 105.00 125.00	25 50 75 100 150	445	LMS-32M-300
LRM-40M-1 LRM-40M-2 LRM-40M-3 LRM-40M-4 LRM-40M-5	40.00	55.013	+0.018 54.995	43.0	70.00 85.00 95.00 110.00 135.00	25 50 75 100 150	548	LMS-40M-300
LRM-50M-1 LRM-50M-2 LRM-50M-3 LRM-50M-4 LRM-50M-5	50.00	70.013	+0.018 69.995	58.5	85.00 100.00 110.00 125.00 150.00	25 50 75 100 150	952	LMS-50M-300

- Seals can be hand removed to reduce friction
- Supporting combinations of linear and rotary motion bearings
- Temperature ranges -40°C to +120°C



# LINEAR MOTION ADJUSTABLE BEARINGS

STYLE	MATERIAL
<b>F, W, FS &amp; WS</b>	<b>HOUSING - STAINLESS STEEL DIN 1.4305 or MILD STEEL, BLACK OXIDE FINISH BEARINGS, SPINDLES &amp; BALL BEARINGS - STAINLESS STEEL DIN 1.4112</b>



STAINLESS STEEL STOCK NO.	MILD STEEL STOCK NO.	SHAFT DIA. MIN. - MAX.	ØA	B	C	D	E	U	ØW	X	Y	Z	RATED LOAD (kg)
-	LMX-4-F	6.25-6.5MM	15.7	14.2	6	-	-	M3	3.2	6.9	6.9	7.1	10
-	LMX-4-W	6.25-6.5MM	15.7	14.2	6	-	-	M3	3.2	6.9	6.9	7.1	10
LMA-6-F	LMX-6-F	9.5-13MM	31.8	23.6	13	2.5	-	M4	6.4	7.9	9.4	1.5	41
LMA-6-W	LMX-6-W	9.5-13MM	31.8	23.6	13	2.5	-	M4	6.4	7.9	9.4	1.5	41
LMA-12-F	LMX-12-F	19-26MM	60.2	41.1	25	2.5	-	M4	6.4	16.9	19.7	20.2	209
LMA-12-W	LMX-12-W	19-26MM	60.2	41.1	25	2.5	-	M4	6.4	16.9	19.7	20.2	209
LMA-12-FS	LMX-12-FS	25-26MM	60.2	41.1	25	2.5	14	M4	6.4	16.9	19.7	20.2	209
LMA-12-WS	LMX-12-WS	25-26MM	60.2	41.1	25	2.5	14	M4	6.4	16.9	19.7	20.2	209
LMA-20-F	LMX-20-F	31-32MM	82.6	53.8	*	3.8	16	M4	9.6	21.8	26.1	25.6	340
LMA-20-W	LMX-20-W	31-32MM	82.6	53.8	*	3.8	16	M4	9.6	21.8	26.1	25.6	340
LMA-20-FS	LMX-20-FS	31-32MM	82.6	53.8	*	3.8	16	M4	9.6	21.8	26.1	25.6	340
LMA-20-WS	LMX-20-WS	31-32MM	82.6	53.8	*	3.8	16	M4	9.6	21.8	26.1	25.6	340
-	LMX-24-F	37-39MM	91.2	70	*	3.8	19	M6	9.6	25.4	25.1	35.1	568
-	LMX-24-W	37-39MM	91.2	70	*	3.8	19	M6	9.6	25.4	25.1	35.1	568
-	LMX-24-FS	37-39MM	91.2	70	*	3.8	19	M6	9.6	25.4	25.1	35.1	568
-	LMX-24-WS	37-39MM	91.2	70	*	3.8	19	M6	9.6	25.4	25.1	35.1	568
-	LMX-32-F	50-51MM	120.7	77.7	*	3.8	25	M6	12.8	28.3	47.0	38.5	1362
-	LMX-32-W	50-51MM	120.7	77.7	*	3.8	25	M6	12.8	28.3	47.0	38.5	1362
-	LMX-32-FS	50-51MM	120.7	77.7	*	3.8	25	M6	12.8	28.3	47.0	38.5	1362
-	LMX-32-WS	50-51MM	120.7	77.7	*	3.8	25	M6	12.8	28.3	47.0	38.5	1362

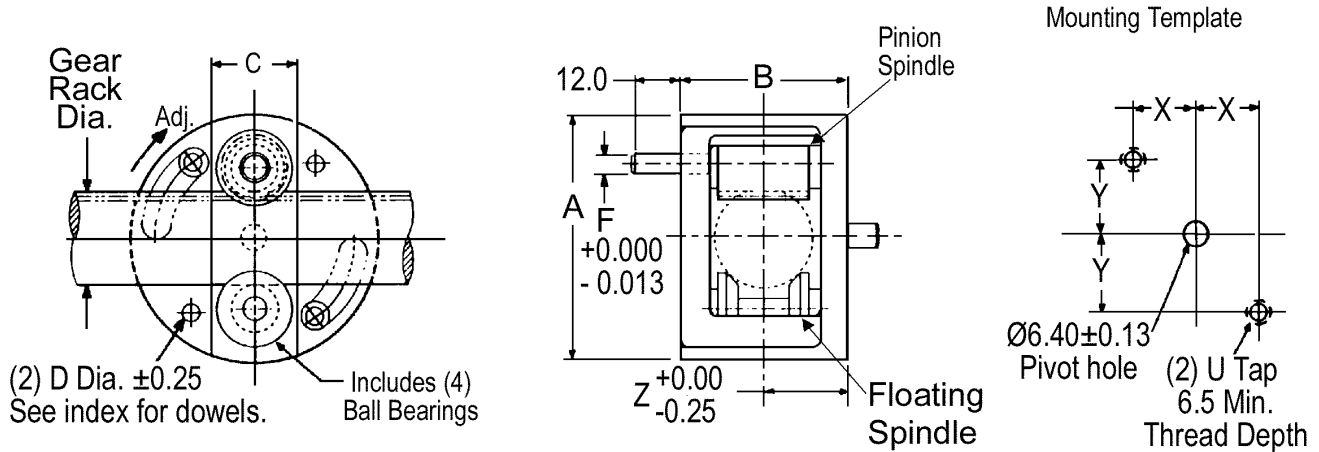
\* 31 thru 51mm shaft units are round. C = A.



# PRECISION LINEAR "GEAR DRIVE" BEARINGS

## MATERIAL

**STAINLESS STEEL DIN 1.4305 WITH DIN 1.4112 BALL BEARINGS**



STOCK NO.	LINEAR DRIVE GEAR RACK STOCK NO.	ØA ±0.5	B ±0.5	C	ØD	U	X ±0.13	Y ±0.13	Z	ØF	GEAR DRIVE PINION DATA 0.4 MOD 20° PRESSURE ANGLE		
											NO. OF TEETH	PITCH DIA. (REF.)	TRAVEL PER (REV.)
LMA-G-6M	R11M-1	32	24	13	2.5	M3	8.03	9.4	11.51	3	20	8	25.2
LMA-G-12M	R11M-2	60	41	25.5	2.5	M4	16.87	19.71	20.22	6	40	16	50.3

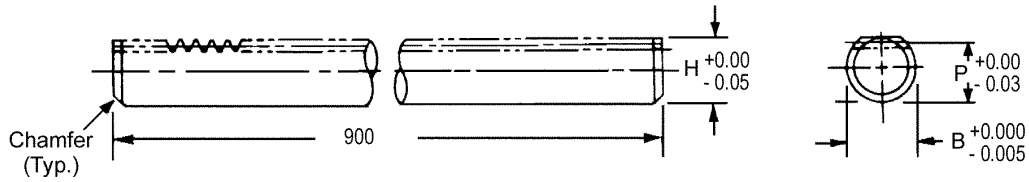
- Power take off for encoders, feedback systems, etc.
- Power drive. Direct drive through stepper motors, etc.
- Mount with Dial and Vernier for simple, accurate positioning.
- Backlash adjustable by rotating housing against gear rack.
- Mounting screws and washers supplied.



E

# LINEAR DRIVE GEAR RACKS

MODULE	MATERIAL	PRESSURE ANGLE
0.4	STAINLESS STEEL DIN 1.4005	20°



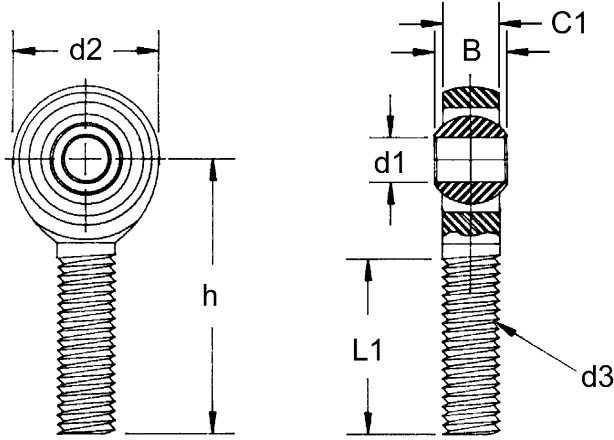
STOCK NO.	MOD	USE WITH DRIVE BEARING	P	B	H
R11M-1	0.4	LMA-G-6M	10.60	12.000	11.00
R11M-2	0.4	LMA-G-12M	22.60	25.000	23.00

- Use with linear "gear drive" bearings
- Can be butted for longer lengths.
- High Precision, High Performance



# THERMOPLASTIC ROD ENDS

STYLE	MATERIAL
EXTERNAL THREAD	HOUSING - REINFORCED THERMOPLASTIC RACE - B15 BEARING

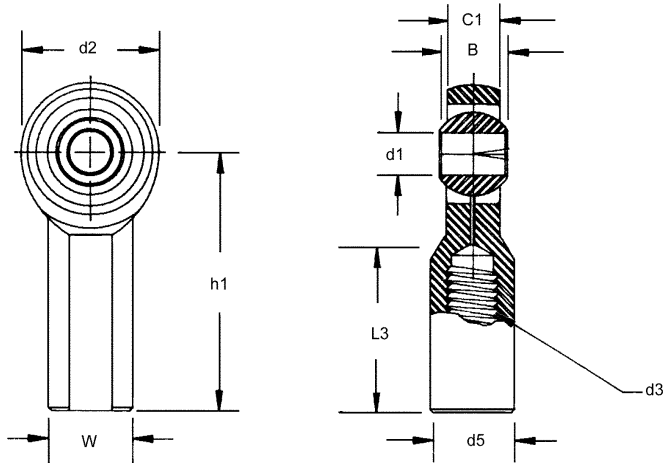


RIGHT THREAD STOCK NO.	LEFT THREAD STOCK NO.	d1 +.06 -.02	d2	d3	c1	B	h	L1 +1.6 -0.8
RKARM-05	RKALM-05	5	18	M5 x 0.8	6	8	33	19
RKARM-06	RKALM-06	6	20	M6 x 1.0	7	9	36	21
RKARM-08	RKALM-08	8	24	M8 x 1.25	9	12	42	25
RKARM-10	RKALM-10	10	30	M10 x 1.5	10.5	14	48	28
RKARM-12	RKALM-12	12	34	M12 x 1.75	12	16	54	32
RKARM-14	RKALM-14	14	38	M14 x 2.0	13.5	19	60	36
RKARM-16	RKALM-16	16	42	M16 x 2.0	15	21	66	37
RKARM-18	RKALM-18	18	46	M18 x 1.5	16.5	23	72	41
RKARM-20	RKALM-20	20	50	M20 x 1.5	18	25	78	45
RKARM-22	RKALM-22	22	56	M22 x 1.5	20	28	84	48

E

# THERMOPLASTIC ROD ENDS

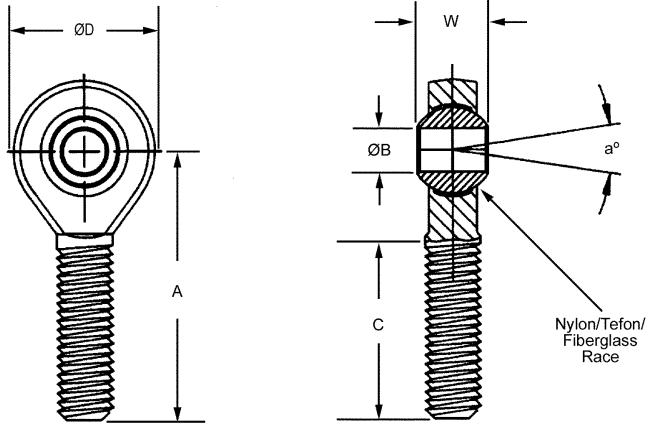
STYLE	MATERIAL
<b>INTERNAL THREAD</b>	<b>HOUSING - REINFORCED THERMOPLASTIC RACE - B15 BEARING</b>



RIGHT THREAD STOCK NO.	LEFT THREAD STOCK NO.	d1 +.06 -.02	d2	d3	d5	c1	B	h1	L3 +1.6mm -.8mm	W
RKBRM-05	RKBLM-05	5	18	M5 x 0.8	12	6	8	27	10	SW09
RKBRM-06	RKBLM-06	6	20	M6 x 1.0	13	7	9	30	12	SW11
RKBRM-08	RKBLM-08	8	24	M8 x 1.25	16	9	12	36	16	SW14
RKBRM-10	RKBLM-10	10	30	M10 x 1.5	19	10.5	14	43	20	SW17
RKBRM-12	RKBLM-12	12	34	M12 x 1.75	22	12	16	50	22	SW19
RKBRM-14	RKBLM-14	14	38	M14 x 2.0	25	13.5	19	57	25	SW22
RKBRM-16	RKBLM-16	16	42	M16 x 2.0	27	15	21	64	28	SW22
RKBRM-18	RKBLM-18	18	46	M18 x 1.5	31	16.5	23	71	32	SW23
RKBRM-20	RKBLM-20	20	50	M20 x 1.5	34	18	25	77	33	SW30
RKBRM-22	RKBLM-22	22	56	M22 x 1.5	37	20	28	84	37	SW32

# SELF-ALIGNING ROD ENDS

BORE	STYLE	MATERIAL
5mm TO 25mm	EXTERNAL THREAD	BODY AND RACE- LOW CARBON STEEL WITH PROTECTIVE COATING BALL - ALLOY STEEL, CHROME PLATED

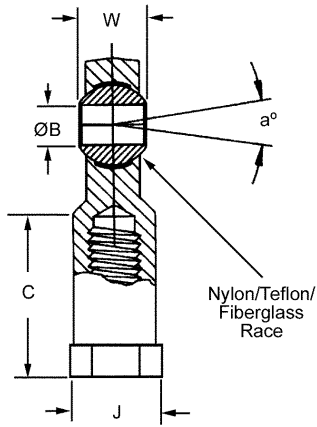
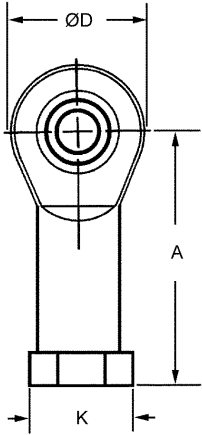


STOCK NUMBER	ØB +0.065 -0.012	W	A	ØD	C ±1.0	THREAD	a <sub>p</sub> MISALIGN ANGLE	RADIAL STATIC LOAD CAP (kg)
REM-5	5	8	33	16	20	M5X0.8	7.5	527
REM-6	6	9	36	19	22	M6X1.0	6.5	744
REM-8	8	12	42	22.25	25	M8X1.25	7.5	1,386
REM-10	10	14	48	27	29	M10X1.5	8.0	1,789
REM-12	12	16	54	30	33	M12X1.75	8.0	1,886
REM-16	16	21	66	38	40	M16X2.0	8.5	3,286
REM-18	18	23	72	42	44	M18X1.5	9.5	4,212
REM-20	20	25	78	46	47	M20X1.5	9.0	5,196
REM-25	25	31	95	60	57	M24X2.0	10.0	10,650

E

# SELF-ALIGNING ROD ENDS

BORE	STYLE	MATERIAL
5mm TO 25mm	INTERNAL THREAD	BODY AND RACE- LOW CARBON STEEL WITH PROTECTIVE COATING BALL - ALLOY STEEL, CHROME PLATED



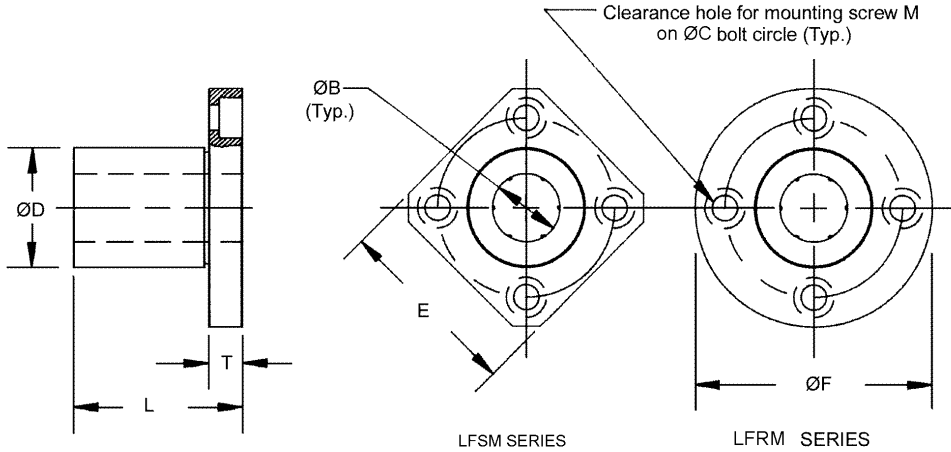
STOCK NUMBER	ØB +0.065 -0.12	W	A	ØD	C ±1.0	K	J	THREAD	a° MISALIGN ANGLE	RADIAL STATIC LOAD CAP (kg)
RIM-5	5	8	27	16	10	11	9	M5X0.8	7.5	723
RIM-6	6	9	30	19	12	13	11	M6X1.0	6.5	1125
RIM-8	8	12	36	22.5	16	16	14	M8X1.25	7.5	1,435
RIM-10	10	14	43	29	20	19	17	M10X1.5	8.0	1,789
RIM-12	12	16	50	35	22	22	19	M12X1.75	8.0	1,886
RIM-16	16	21	64	38	27	27	22	M16X2.0	8.5	3,286
RIM-18	18	23	71	42	32	31	27	M18X1.5	9.5	4,212
RIM-20	20	25	77	46	33	34	30	M20X1.5	9.0	5,196
RIM-25	25	31	95	60	42	42	36	M24X2.0	10.0	10,158

- High Radical and Trust Loads
- Long Cycle Life



# FLANGED TYPE LINEAR BEARINGS

STYLE	MATERIAL
<b>SQUARE OR ROUND FLANGE</b>	<b>HOUSING &amp; BALLS - 52100 CHROME STEEL RETAINER - DELRIN</b>

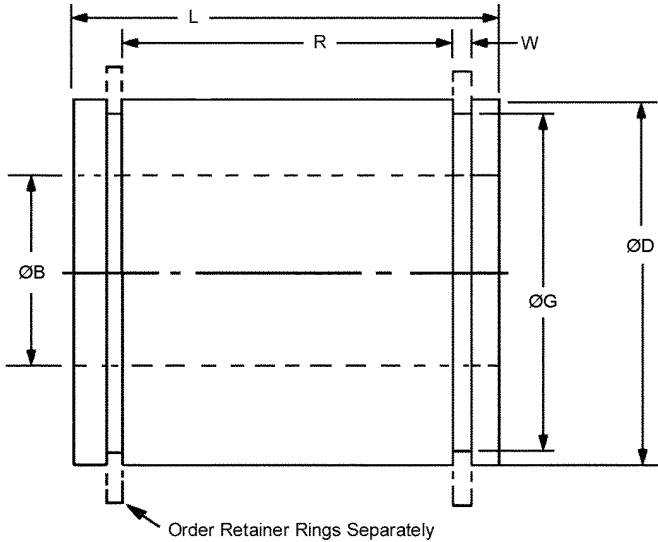


SQUARE FLANGE STOCK NO.	ROUND FLANGE STOCK NO.	WORKING BORE ØB	OUTSIDE DIA. ØC	L MAX.	T	ØF	E	ØC	M	LOAD RATING (kg)
LFSM-1	LFRM-1	6.000-0.009	12.000-0.011	19	5	28	22	20	M3	21
LFSM-2	LFRM-2	8.000-0.009	15.000-0.011	24	5	32	25	24	M3	28
LFSM-3	LFRM-3	10.000-0.009	19.000-0.013	29	6	40	30	29	M4	38
LFSM-4	LFRM-4	12.000-0.009	21.000-0.013	30	6	42	32	32	M4	42
LFSM-5	LFRM-5	13.000-0.009	23.000-0.013	32	6	43	34	33	M4	52
LFSM-6	LFRM-6	16.000-0.009	28.000-0.013	37	6	48	37	38	M4	79
LFSM-7	LFRM-7	20.000-0.010	32.000-0.019	42	8	54	42	43	M5	90
LFSM-8	LFRM-8	25.000-0.010	40.000-0.019	59	8	62	50	51	M5	100
LFSM-9	LFRM-9	30.000-0.010	45.000-0.019	64	10	74	58	69	M6	100

**E**

# LINEAR BALL BEARINGS

SHAFT SIZE	MATERIAL
6mm TO 30mm	HOUSING AND BALLS - STAINLESS STEEL OR 52100 CHROME STEEL BALL RETAINER - PLASTIC

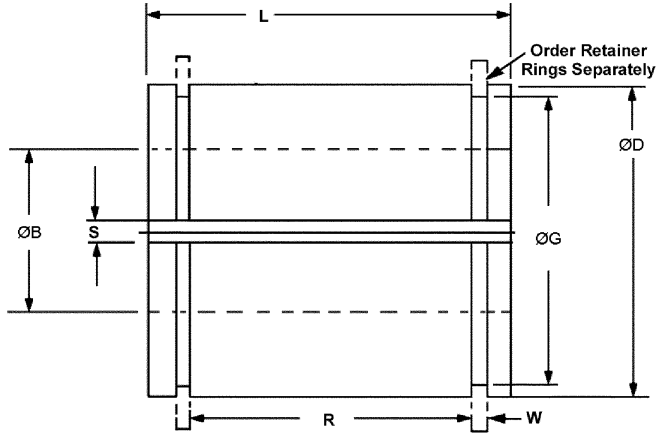


STAINLESS STEEL STOCK NO.	CHROME STEEL STOCK NO.	WORKING BORE ØB	OUTSIDE DIA. ØD	L ±0.3	R	W	ØG	RATED LOAD (kg)	RECOMMENDED FITS		SHAFT STOCK NO.	RETAINER RING STOCK NO.
									NORMAL ±0.013	PRESS ±0.013		
LMBM-1SS	LMBM-1	6.000-0.009	12-11um	19.0	11.3	1.1	11.5	21	12.000	11.975	S416-6M-900	Q2M-12
LMBM-2SS	LMBM-2	10.000-0.009	19-13um	29.0	19.4	1.3	18.0	38	19.000	18.975	S416-10M-900	Q2M-19
LMBM-3SS	LMBM-3	13.000-0.009	23-13um	32.0	20.4	1.3	22.0	52	23.000	22.975	S416-13M-900	Q2M-23
LMBM-4SS	LMBM-4	20.000-0.009	32-16um	42.0	27.3	1.6	30.5	90	32.000	31.975	S416-20M-900	Q2M-32
LMBM-5SS	LMBM-5	25.000-0.010	40-16um	59.0	37.3	1.8	38.0	100	40.000	39.975	S416-25M-900	Q2M-40
LMBM-6SS	LMBM-6	30.000-0.010	45-16um	64.0	40.8	1.8	43.0	160	45.000	44.975	S416-30M-900	Q2M-45

\* Specify Length Required.

# LINEAR BALL BEARINGS

STYLE	SHAFT SIZE	MATERIAL
<b>ADJUSTABLE DIAMETER SERIES</b>	<b>13mm TO 30mm</b>	<b>HOUSING AND BALLS - CHROME STEEL BALL RETAINER - PLASTIC</b>

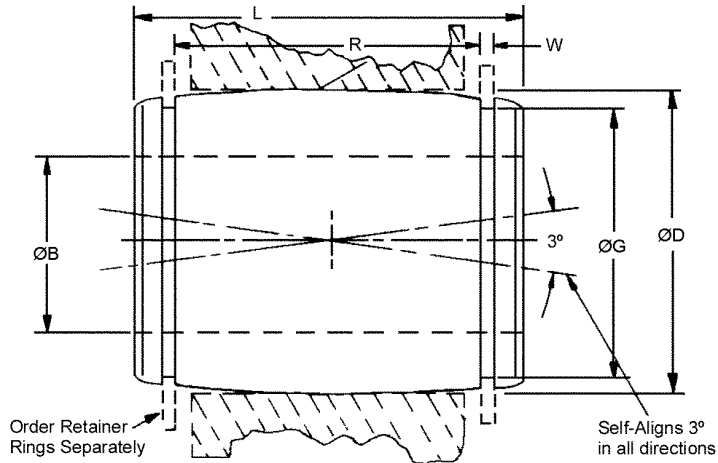


STOCK NO.	WORKING BORE (Before Adjust. ØB)	HOUSING BORE (Before Adj. ØD Ref.)	L	R ±0.3	W	ØG	RATED LOAD (kg)	MINIMUM SLOT WIDTHS	SHAFT STOCK NO.	RETAINER RING STOCK NO.
LMCM-3	13.000-0.009	23-13um	32.0	20.4	1.3	22.0	52	1.5	S416-13M-900	Q2M-23
LMCM-4	20.000-0.010	32-16um	42.0	27.3	1.6	30.5	90	1.5	S416-20M-900	Q2M-32
LMCM-5	25.000-0.010	40-16um	59.0	37.3	1.8	38.0	100	2.0	S416-25M-900	Q2M-40
LMCM-6	30.000-0.010	45-16um	64.0	40.8	1.8	43.0	160	2.5	S416-30M-900	Q2M-45

E

# LINEAR BALL BEARINGS SELF-ALIGNING-BARREL STYLE

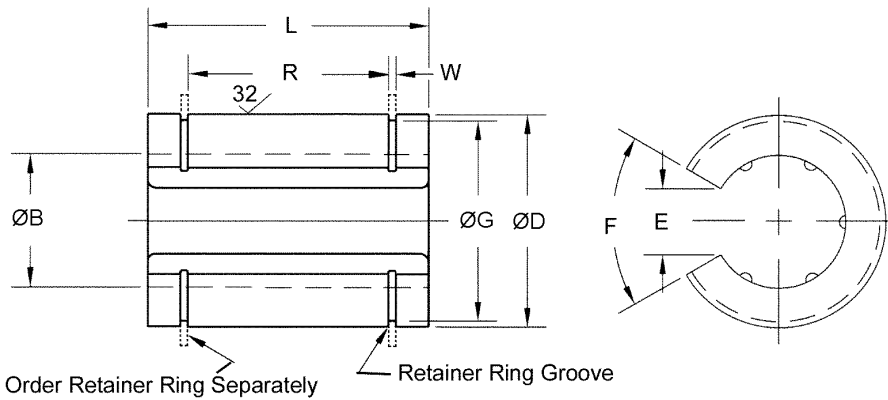
SHAFT SIZE	MATERIAL
<b>6mm TO 30mm</b>	<b>HOUSING AND BALLS - CHROME STEEL BALL RETAINER - PLASTIC</b>



STOCK NO.	WORKING BORE ØB	HOUSING BORE ØD	L	R ±0.3	W	ØG	RATED LOAD (kg)	SHAFT STOCK NO.	RETAINER RING STOCK NO.
LMBM-1-B	6.000-0.009	12-11um	19.0	11.3	1.1	11.5	21	S416-6M-900	Q2M-12
LMBM-2-B	10.000-0.009	19-13um	29.0	19.4	1.3	18.0	38	S416-10M-900	Q2M-19
LMBM-3-B	13.000-0.009	23-13um	32.0	20.4	1.3	22.0	52	S416-13M-900	Q2M-23
LMBM-4-B	20.000-0.010	32-16um	42.0	27.3	1.6	30.5	90	S416-20M-900	Q2M-32
LMBM-5-B	25.000-0.010	40-16um	59.0	37.3	1.8	38.0	100	S416-25M-900	Q2M-40
LMBM-6-B	30.000-0.010	45-16um	64.0	40.8	1.8	43.0	160	S416-30M-900	Q2M-45

# LINEAR BALL BEARINGS

STYLE	SHAFT SIZE	MATERIAL
<b>OPEN SERIES</b>	<b>13mm TO 30mm</b>	<b>HOUSING AND BALLS - CHROME STEEL BALL RETAINER - PLASTIC</b>

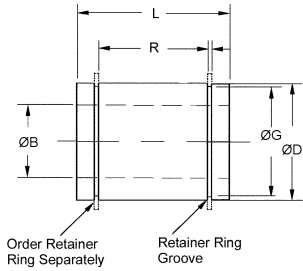


STOCK NO.	BORE (Before Adjust. ØB)	HOUSING BORE ØD (Ref.)	L	R ±0.3	W	ØG	RATED LOAD (kg)	MINIMUM SLOT		SHAFT STOCK NO.	RETAINER RING STOCK NO.
								WIDTH E	ANGLE F		
LMDM-3	13.000-0.009	23-13um	32.0	20.4	1.3	22.0	52	9	80°	S416-13M-900	Q5M-23
LMDM-4	20.000-0.010	32-16um	42.0	27.3	1.6	30.5	90	11	60°	S416-20M-900	Q5M-32
LMDM-5	25.000-0.010	40-16um	59.0	37.3	1.8	38.0	100	12	50°	S416-25M-900	Q5M-40
LMDM-6	30.000-0.010	45-16um	64.0	40.8	1.8	43.0	160	15	50°	S416-30M-900	Q5M-45

E

# LINEAR "NO LUBE" BEARINGS

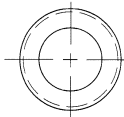
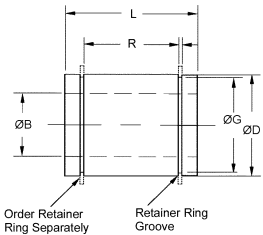
STYLE	SHAFT SIZE	MATERIAL
<b>OPEN</b>	<b>6mm TO 30mm</b>	<b>MOLYBDENUM DISULFIDE FILLED NYLATRON</b>



Open Style

STOCK NO.	WORKING BORE ØB	OUTSIDE DIA. ØD	L	R ±0.3	W	ØG	HARDENED SHAFT STOCK NO.	SOFT ST/ST SHAFT STOCK NO.	RETAINER RING STOCK NO.
LMNM-1-OPN	6.00+0.08	12.00/-0.08	19.0	11.3	1.1	11.5	S416-6M-900	S1-106	Q2M-12
LMNM-2-OPN	10.00+0.08	19.00/-0.08	29.0	19.4	1.3	18.0	S416-10M-900	S1-110	Q2M-19
LMNM-3-OPN	13.00+0.11	23.00/-0.11	32.0	20.4	1.3	22.0	S416-13M-900	S1-113	Q2M-23
LMNM-4-OPN	20.00+0.11	32.00/-0.11	42.0	27.3	1.6	30.5	S416-20M-900	S1-120	Q2M-32
LMNM-5-OPN	25.00+0.11	40.00/-0.15	59.0	37.3	1.8	38.0	S416-25M-900	S1-125	Q2M-40
LMNM-6-OPN	30.00+0.15	45.00/-0.15	64.0	40.8	1.8	43.0	S416-30M-900	S1-130	Q2M-45

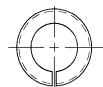
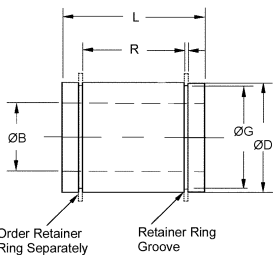
STYLE	SHAFT SIZE	MATERIAL
<b>CLOSED</b>	<b>6mm TO 30mm</b>	<b>MOLYBDENUM DISULFIDE FILLED NYLATRON</b>



May be used with either hard or soft ground shafting

STOCK NO.	WORKING BORE ØB	OUTSIDE DIA. ØD	L	R ±0.3	W	ØG	HARDENED SHAFT STOCK NO.	SOFT ST/ST SHAFT STOCK NO.	RETAINER RING STOCK NO.
LMNM-1	6.00+0.08	12.00/-0.08	19.0	11.3	1.1	11.5	S416-6M-900	S1-106	Q2M-12
LMNM-2	10.00+0.08	19.00/-0.08	29.0	19.4	1.3	18.0	S416-10M-900	S1-110	Q2M-19
LMNM-3	13.00+0.11	23.00/-0.11	32.0	20.4	1.3	22.0	S416-13M-900	S1-113	Q2M-23
LMNM-4	20.00+0.11	32.00/-0.11	42.0	27.3	1.6	30.5	S416-20M-900	S1-120	Q2M-32
LMNM-5	25.00+0.11	40.00/-0.15	59.0	37.3	1.8	38.0	S416-25M-900	S1-125	Q2M-40
LMNM-6	30.00+0.15	45.00/-0.15	64.0	40.8	1.8	43.0	S416-30M-900	S1-130	Q2M-45

STYLE	SHAFT SIZE	MATERIAL
<b>ADJUSTABLE</b>	<b>6mm TO 30mm</b>	<b>MOLYBDENUM DISULFIDE FILLED NYLATRON</b>

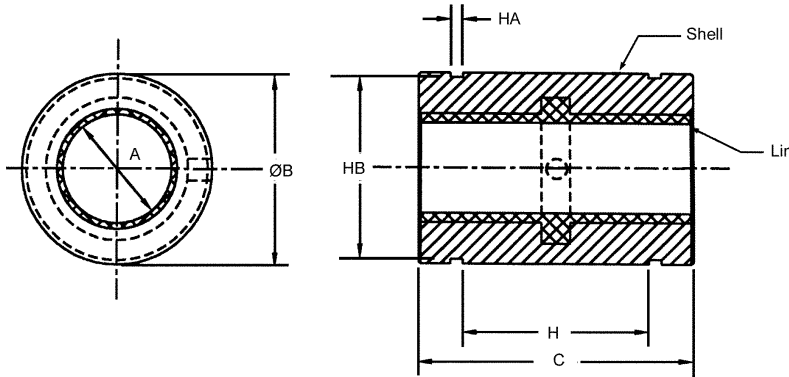


Adjustable Style

STOCK NO.	WORKING BORE ØB	OUTSIDE DIA. ØD	L	R ±0.3	W	ØG	HARDENED SHAFT STOCK NO.	SOFT ST/ST SHAFT STOCK NO.	RETAINER RING STOCK NO.
LMNM-1-ADJ	6.00+0.08	12.00/-0.08	19.0	11.3	1.1	11.5	S416-6M-900	S1-106	Q2M-12
LMNM-2-ADJ	10.00+0.08	19.00/-0.08	29.0	19.4	1.3	18.0	S416-10M-900	S1-110	Q2M-19
LMNM-3-ADJ	13.00+0.11	23.00/-0.11	32.0	20.4	1.3	22.0	S416-13M-900	S1-113	Q2M-23
LMNM-4-ADJ	20.00+0.11	32.00/-0.11	42.0	27.3	1.6	30.5	S416-20M-900	S1-120	Q2M-32
LMNM-5-ADJ	25.00+0.11	40.00/-0.15	59.0	37.3	1.8	38.0	S416-25M-900	S1-125	Q2M-40
LMNM-6-ADJ	30.00+0.15	45.00/-0.15	64.0	40.8	1.8	43.0	S416-30M-900	S1-130	Q2M-45

# THERMOPLASTIC LINEAR BEARINGS

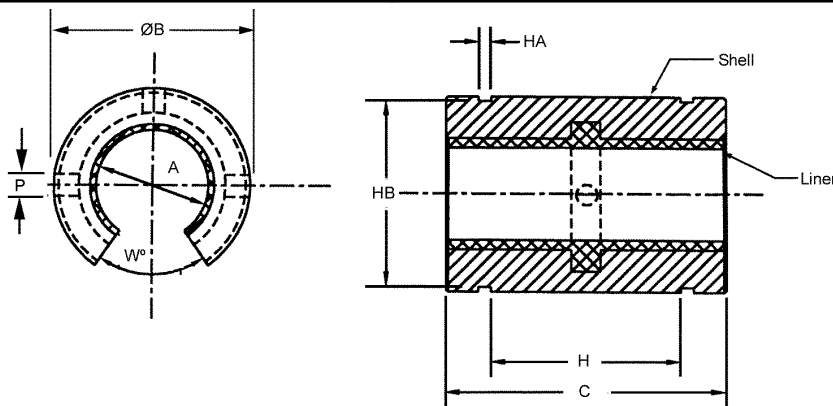
STYLE	SHAFT SIZE	MATERIAL
<b>CLOSED</b>	<b>5mm TO 50mm</b>	<b>SHELL - ALUMINUM LINER - THERMOPLASTIC POLYMER</b>



STOCK NO.	NOMINAL SIZE	ØA	ØB	C	H	HA	HB
LBUM-01-05	5	5.025/5.060	12	22	12	1.10	11.5
LBUM-01-08	8	8.032/8.070	16	25	14	1.10	15.2
LBUM-01-10	10	10.030/10.088	19	29	19	1.20	17.5
LBUM-01-12	12	12.030/12.088	22	32	20	1.20	20.5
LBUM-01-16	16	16.030/16.088	26	36	22	1.20	24.2
LBUM-01-20	20	20.030/20.091	32	45	28	1.50	29.6
LBUM-01-25	25	25.030/25.091	40	58	40	1.75	36.5
LBUM-01-30	30	30.040/30.110	47	68	48	1.75	43.5
LBUM-01-40	40	40.040/40.115	62	80	56	2.00	57.6
LBUM-01-50	50	50.050/50.130	75	100	72	2.50	70.5

E

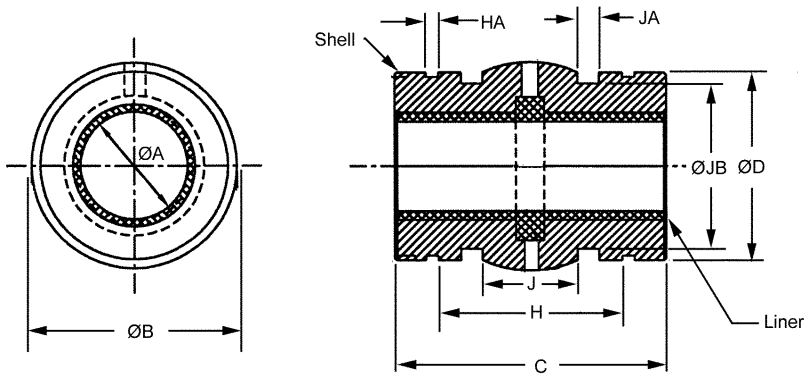
STYLE	SHAFT SIZE	MATERIAL
<b>OPEN</b>	<b>10mm TO 50mm</b>	<b>SHELL - ALUMINUM LINER - THERMOPLASTIC POLYMER</b>



STOCK NO.	NOMINAL SIZE	ØA	ØB	C	W°	P +0.1
LBOUM-01-10	10	10.030/10.088	19	29	60	3
LBOUM-01-12	12	12.030/12.088	22	32	80	3
LBOUM-01-16	16	16.030/16.088	26	36	80	3
LBOUM-01-20	20	20.030/20.091	32	45	70	4
LBOUM-01-25	25	25.030/25.091	40	58	70	4
LBOUM-01-30	30	30.040/30.110	47	68	75	4
LBOUM-01-40	40	40.040/40.115	62	80	75	6
LBOUM-01-50	50	50.050/50.130	75	100	75	6

# THERMOPLASTIC SELF ALIGNING LINEAR BEARINGS

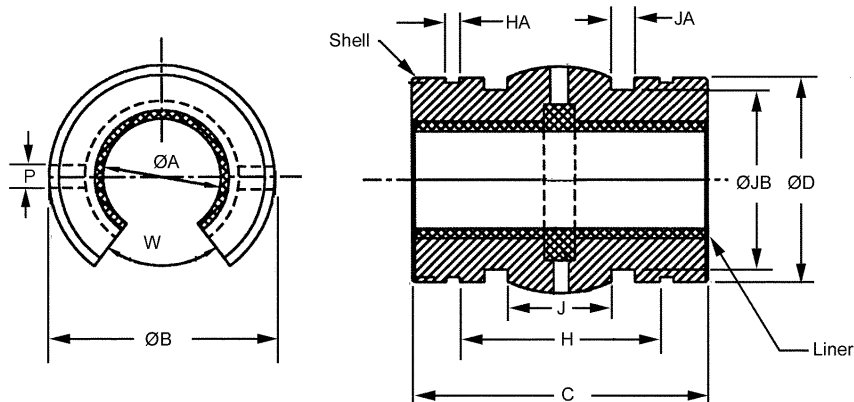
STYLE	SHAFT SIZE	MATERIAL
<b>CLOSED</b>	<b>10mm TO 50mm</b>	<b>SHELL - ALUMINUM LINER - THERMOPLASTIC POLYMER</b>



STOCK NO.	NOMINAL SIZE	ØA	ØB	C	H	HA	ØHB	D	ØJB	JA	J	R
LBUM-03-10	10	10.05/10.02	19	28.9	19.2	1.2	17.5	15.5	15.4	3	5	13
LBUM-03-12	12	12.05/12.02	22	31.9	20.2	1.2	20.5	21.5	18.4	3	6	18
LBUM-03-16	16	16.05/16.02	26	35.9	22.25	1.2	24.2	25.5	20.4	4	8	32
LBUM-03-20	20	20.06/20.02	32	44.8	28.3	1.5	29.6	31.5	26.4	4	10	50
LBUM-03-25	25	25.06/25.02	40	57.8	40.35	1.75	35.5	39.5	34.4	4	12.5	39
LBUM-03-30	30	30.07/30.03	47	67.8	48.4	1.75	43.5	46.0	41.4	4	15	57
LBUM-03-40	40	40.07/40.03	62	89.8	56.55	2.0	57.6	56.4	56.4	4	20	100
LBUM-03-60	50	50.09/50.04	75	99.8	72.65	2.5	70.5	69.4	69.4	4	25	157

Self-aligning bearings are fitted with O-Rings as standard.

STYLE	SHAFT SIZE	MATERIAL
<b>OPEN</b>	<b>10mm TO 50mm</b>	<b>SHELL - ALUMINUM LINER - THERMOPLASTIC POLYMER</b>



STOCK NO.	NOMINAL SIZE	ØA	ØB	D	J	JA	ØJB	ØHB	H	HA	C	R	W°	P +0.1
LBOUM-03-10	10	10.05/10.02	19	18.5	5	3	15.4	17.5	19.2	1.2	28.9	13	60	3
LBOUM-03-12	12	12.05/12.02	22	21.5	6	3	18.4	20.5	20.2	1.2	31.9	18	80	3
LBOUM-03-16	16	16.05/16.02	26	25.5	8	4	20.4	24.2	22.25	1.2	35.9	32	80	3
LBOUM-03-20	20	20.06/20.02	32	31.5	10	4	26.4	29.6	28.3	1.5	44.8	50	70	4
LBOUM-03-25	25	25.06/25.02	40	39.0	12.5	4	34.4	36.5	40.35	1.75	57.8	39	70	4
LBOUM-03-30	30	30.07/30.03	47	46.0	15	4	41.4	43.5	48.4	1.75	67.8	57	75	4
LBOUM-03-40	40	40.07/40.03	62	56.4	20	4	56.4	57.8	56.55	2.0	89.8	100	75	8
LBOUM-03-50	50	50.09/50.04	75	74.0	25	4	69.4	70.5	72.65	2.5	99.6	157	75	6

Self-aligning bearings are fitted with O-Rings as standard.



# LINEAR PILLOW BLOCK ASSEMBLIES

STYLE	SHAFT SIZE	MATERIAL
<b>CLOSED (SEE FIG. 1)</b>	<b>6mm TO 30mm</b>	HOUSING - BLACK ANODIZED ALUMINUM, BEARING HOUSING & BALLS - CHROME STEEL, BALL RETAINER - PLASTIC, RETAINER RING - CARBON STEEL

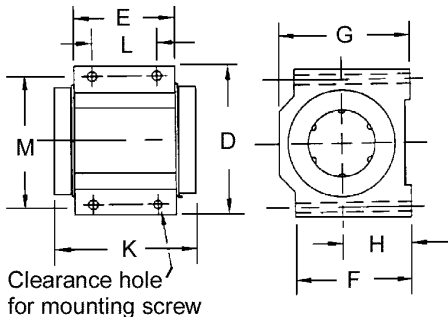
STOCK NO.	SHAFT SIZE	D	E	F	G	H ±0.03	K	L	M	RATED LOAD (kg)	SHAFT STOCK NO.	MOUNTING SCREW STOCK NO.
LPAM-1	6	29	11	16.7	21	11.00	19	*	22.0	21	S416-6M-900	Y9-M3-A16
LPAM-2	10	32	20	19.8	24	12.50	29	*	25.5	38	S416-10M-900	Y9-M3-A20
LPAM-3	13	38	20	25.4	30	16.00	32	12.0	30.0	52	S416-13M-900	Y9-M3-A25
LPAM-4	20	48	27	36.5	42	22.00	42	19.0	40.0	90	S416-20M-900	Y9-M4-A30
LPAM-5	25	60	37	41.3	49	25.50	59	26.0	50.5	100	S416-25M-900	Y9-M5-A35
LPAM-6	30	70	41	52.4	64	33.00	64	30.0	60.0	160	S416-30M-900	Y9-M5-A45

STYLE	SHAFT SIZE	MATERIAL
<b>OPEN (SEE FIG. 2)</b>	<b>13mm TO 30mm</b>	HOUSING - BLACK ANODIZED ALUMINUM, BEARING HOUSING & BALLS - CHROME STEEL, BALL RETAINER - PLASTIC, RETAINER RING - CARBON STEEL

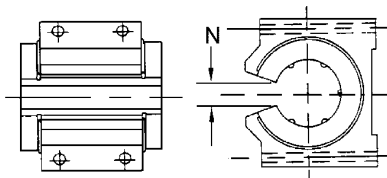
STOCK NO.	SHAFT SIZE	D	E	F	G	H ±0.03	K	L	M	N	RATED LOAD (kg)	MOUNTING SHAFT STOCK NO.	SCREW STOCK NO.
LPAM-13	13	38	20	25.4	30	16.00	32	12.0	30.0	11	52	S416-13M-900	Y9-M3-A25
LPAM-14	20	48	27	36.5	42	22.00	42	19.0	40.0	13	90	S416-20M-900	Y9-M4-A35
LPAM-15	25	60	37	41.3	49	25.50	59	26.0	50.0	15	100	S416-25M-900	Y9-M5-A35
LPAM-16	30	70	41	52.4	64	33.00	64	30.0	60.0	18	160	S416-30M-900	Y9-M5-A45

STYLE	SHAFT SIZE	MATERIAL
<b>ADJUSTABLE (SEE FIG.3)</b>	<b>13mm TO 30mm</b>	HOUSING - BLACK ANODIZED ALUMINUM, BEARING HOUSING & BALLS - CHROME STEEL, BALL RETAINER - PLASTIC, RETAINER RING - CARBON STEEL

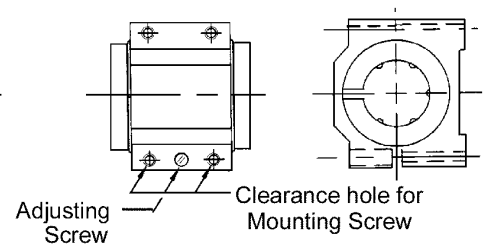
STOCK NO.	SHAFT SIZE	D	E	F	G	H ±0.03	K	L	M	RATED LOAD (kg)	SHAFT STOCK NO.	MOUNTING SCREW STOCK NO.
LPAM-23	13	38	20	25.4	30	16.00	32	12.0	30.0	52	S416-13M-900	Y9-M3-A13
LPAM-24	20	48	27	36.5	42	22.00	42	19.0	40.0	90	S416-20M-900	Y9-M4-A16
LPAM-25	25	60	37	41.3	49	25.50	59	26.0	50.0	100	S416-25M-900	Y9-M5-A20
LPAM-26	30	70	41	52.4	64	33.00	64	30.1	60.0	160	S416-30M-900	Y9-M5-A25



CLOSED STYLE  
FIGURE 1



OPEN STYLE  
FIGURE 2



ADJUSTABLE STYLE  
FIGURE 3

# PILLOW BLOCK

STYLE	SHAFT SIZE	MATERIAL
<b>CLOSED (SEE FIG. 1)</b>	<b>6mm TO 30mm</b>	<b>BLACK ANODIZED ALUMINUM</b>

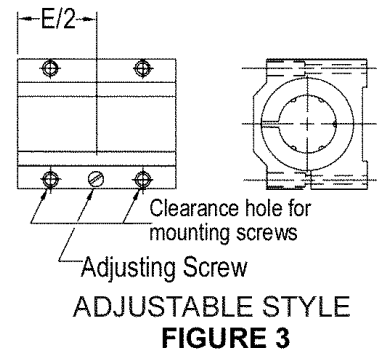
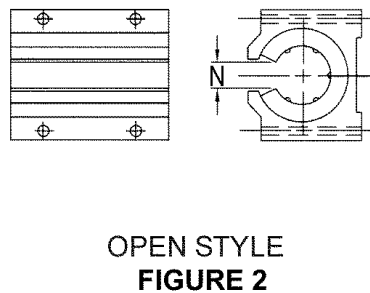
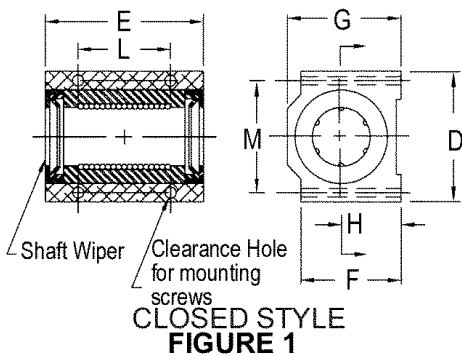
STOCK NO.	BORE ØB +0.013 -0.000	USE WITH LINEAR BEARING STOCK NO.	USE WITH RETAINER RING STOCK NO.	USE WITH MOUNTING SCREW STOCK NO.	SHAFT SIZE (REF.)	USE WITH SHAFT WIPER STOCK NO.	D	E	R	G	H ±0.03	L	M
LMFM-1	12.000	LMBM-1	Q2M-12	Y9-M3-A20	6	LMGM-R-5	29	23	16.7	21	11.00	14	22.0
LMFM-2	19.000	LMBM-2	Q2M-19	Y9-M3-A25	10	LMGM-R-6	32	43	19.8	24	12.50	34	25.5
LMFM-3	23.000	LMBM-3	Q2M-23	Y9-M3-A30	13	LMGM-R-1	38	46	25.4	30	16.00	37	30.0
LMFM-4	32.000	LMBM-4	Q2M-32	Y9-M4-A40	20	LMGM-R-2	48	56	36.5	42	22.00	46	40.0
LMFM-5	40.000	LMBM-5	Q2M-40	Y9-M5-A45	25	LMGM-R-3	60	69	41.3	49	25.50	55	50.0
LMFM-6	45.000	LMBM-6	Q2M-45	Y9-M5-A60	30	LMGM-R-4	70	74	52.4	64	33.00	60	60.0

STYLE	SHAFT SIZE	MATERIAL
<b>OPEN (SEE FIG. 2)</b>	<b>13mm TO 30mm</b>	<b>BLACK ANODIZED ALUMINUM</b>

STOCK NO.	BORE ØB +0.013 -0.000	USE WITH LINEAR BEARING STOCK NO.	USE WITH RETAINER RING STOCK NO.	USE WITH MOUNTING SCREW STOCK NO.	SHAFT SIZE (REF.)	USE WITH SHAFT WIPER STOCK NO.	D	E	R	G	H ±0.03	L	M	N
LMFM-13	23.000	LMDM-3	Q5M-23	Y9-M3-A30	13	LMGM-P-1	38	46	25.4	30	16.00	13	30.0	11
LMFM-14	32.000	LMDM-4	Q5M-32	Y9-M4-A40	20	LMGM-P-2	48	56	36.5	42	22.00	20	40.0	13
LMFM-15	40.000	LMDM-5	Q5M-40	Y9-M5-A45	25	LMGM-P-3	60	69	41.3	49	25.50	25	50.0	15
LMFM-16	45.000	LMDM-6	Q5M-45	Y9-M3-A60	30	LMGM-P-4	70	74	52.4	64	33.00	30	60.0	18

STYLE	SHAFT SIZE	MATERIAL
<b>ADJUSTABLE (SEE FIG. 3)</b>	<b>13mm TO 30mm</b>	<b>BLACK ANODIZED ALUMINUM</b>

STOCK NO.	BORE ØB +0.013 -0.000	USE WITH LINEAR BEARING STOCK NO.	USE WITH RETAINER RING STOCK NO.	USE WITH MOUNTING SCREW STOCK NO.	SHAFT SIZE (REF.)	USE WITH SHAFT WIPER STOCK NO.	D	E	R	G	H ±0.03	L	M
LMFM-23	23.000	LMCM-3	Q2M-23	Y9-M3-A30	13	LMGM-A-1	38	46	25.4	30	16.00	13	30.0
LMFM-24	32.000	LMCM-4	Q2M-32	Y9-M4-A40	20	LMGM-A-2	48	56	36.5	42	22.00	20	40.0
LMFM-25	40.000	LMCM-5	Q2M-40	Y9-M5-A45	25	LMGM-A-3	60	69	41.3	49	25.50	25	50.0
LMFM-26	45.000	LMCM-6	Q2M-45	Y9-M5-A60	30	LMGM-A-4	70	74	52.4	64	33.00	30	60.0



Linear Bearing, Retainer Ring, Mounting Screw and Shaft Wipers sold separately.

# LINEAR PILLOW BLOCK ASSEMBLIES WITH WIPERS

STYLE	SHAFT SIZE	MATERIAL
<b>CLOSED (SEE FIG. 1)</b>	<b>6mm TO 30mm</b>	HOUSING - BLACK ANODIZED ALUMINUM, BEARING HOUSING & BALLS - CHROME STEEL, BALL RETAINER - PLASTIC, RETAINER RING - CARBON STEEL, WIPER- SYNTHETIC RUBBER

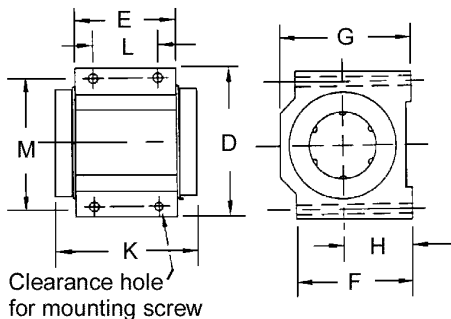
STOCK NO.	SHAFT SIZE	D	E	F	G	H ±0.03	L	M	RATED LOAD (kg)	SHAFT STOCK NO.	MOUNTING SCREW STOCK NO.	REPLACEMENT SHAFT WIPER STOCK NO.
LPWM-1A	6	29	23	16.7	21	11.00	14	22.0	21	S416-6M-900	Y9-M3-A20	LMGM-R-5
LPWM-2A	10	32	43	19.6	24	12.50	34	25.5	38	S416-10M-900	Y9-M3-A25	LMGM-R-6
LPWM-3A	13	38	46	25.4	30	16.00	37	30.0	52	S416-13M-900	Y9-M3-A30	LMGM-R-1
LPWM-4A	20	46	56	36.5	42	22.00	46	40.0	90	S416-20M-900	Y9-M4-A40	LMGM-R-2
LPWM-5A	25	60	69	41.3	49	25.50	55	50.0	100	S416-25M-900	Y9-M5-A45	LMGM-R-3
LPWM-6A	30	70	74	52.4	64	33.00	60	60.0	160	S416-30M-900	Y9-M5-A60	LMGM-R-4

STYLE	SHAFT SIZE	MATERIAL
<b>OPEN (SEE FIG. 2)</b>	<b>13mm TO 30mm</b>	HOUSING - BLACK ANODIZED ALUMINUM, BEARING HOUSING & BALLS - CHROME STEEL, BALL RETAINER - PLASTIC, RETAINER RING - CARBON STEEL, WIPER- SYNTHETIC RUBBER

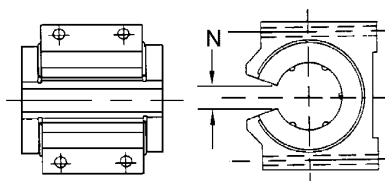
STOCK NO.	SHAFT SIZE	D	E	F	G	H ±0.03	L	M	N	RATED LOAD (kg)	SHAFT STOCK NO.	MOUNTING SCREW STOCK NO.	REPLACEMENT SHAFT WIPER STOCK NO.
LPWM-13A	13	36	46	25.4	30	16.00	37	30.0	11	52	S416-13M-900	Y9-M3-A30	LMGM-P-1
LPWM-14A	20	46	56	36.5	42	22.00	46	40.0	13	90	S416-20M-900	Y9-M4-A40	LMGM-P-2
LPWM-15A	25	60	69	41.3	49	25.50	55	50.0	15	100	S416-25M-900	Y9-M5-A45	LMGM-P-3
LPWM-16A	30	70	74	52.4	64	33.00	60	60.0	16	160	S416-30M-900	Y9-M3-A60	LMGM-P-4

STYLE	SHAFT SIZE	MATERIAL
<b>ADJUSTABLE (SEE FIG.3)</b>	<b>13mm TO 30mm</b>	HOUSING - BLACK ANODIZED ALUMINUM, BEARING HOUSING & BALLS - CHROME STEEL, BALL RETAINER - PLASTIC, RETAINER RING - CARBON STEEL, WIPER- SYNTHETIC RUBBER

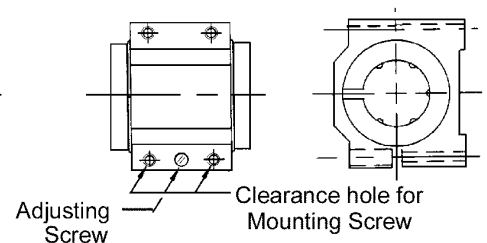
STOCK NO.	SHAFT SIZE	D	E	F	G	H ±0.03	L	M	RATED LOAD (kg)	SHAFT STOCK NO.	MOUNTING SCREW STOCK NO.	REPLACEMENT SHAFT WIPER STOCK NO.
LPWM-23A	13	36	46	25.4	30	16.00	37	30.0	52	S416-13M-900	Y9-M3-A30	LMGM-A-1
LPWM-24A	20	48	56	36.5	42	22.00	46	40.0	90	S416-20M-900	Y9-M4-A40	LMGM-A-2
LPWM-25A	25	60	69	41.3	49	25.50	55	50.0	100	S416-25M-900	Y9-M5-A45	LMGM-A-3
LPWM-26A	30	70	74	52.4	64	33.00	60	60.0	160	S416-30M-900	Y9-M5-A60	LMGM-A-4



CLOSED STYLE  
FIGURE 1



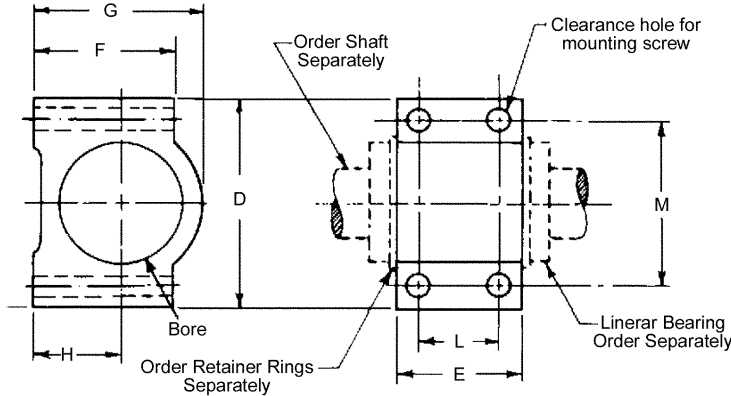
OPEN STYLE  
FIGURE 2



ADJUSTABLE STYLE  
FIGURE 3

# LINEAR BEARING BRACKETS

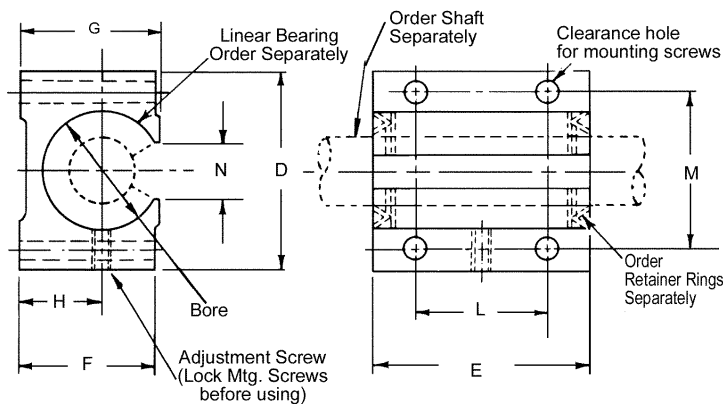
TYPE	FOR SHAFT SIZES	MATERIAL
<b>CLOSED RETAINER RING DESIGN</b>	<b>6mm TO 30mm</b>	<b>6061T6 ALUMINUM BLACK ANODIZED</b>



STOCK NO.	BORE ØB +0.013 -0.000	USE WITH LINEAR BEARING STOCK NO.	USE WITH RETAINER RING STOCK NO.	USE WITH MOUNTING SCREW STOCK NO.	SHAFT SIZE (Ref.)	D	E	F	G	H ±0.03	L	M
LMEM-1	12.000	LMBM-1	Q2M-12	Y9-M3-A20	6	29	11	16.7	21	11.00	*	22.0
LMEM-2	19.000	LMBM-2	Q2M-19	Y9-M3-A25	10	32	20	19.8	24	12.50	*	25.5
LMEM-3	23.000	LMBM-3	Q2M-23	Y9-M3-A30	13	38	20	25.4	30	16.00	12.0	30.0
LMEM-4	32.000	LMBM-4	Q2M-32	Y9-M4-A40	20	48	27	36.5	42	22.00	19.0	40.0
LMEM-5	40.000	LMBM-5	Q2M-40	Y9-M5-A45	25	60	37	41.3	49	25.50	26.0	50.0
LMEM-6	45.000	LMBM-6	Q2M-45	Y9-M5-A60	30	70	41	52.4	64	33.00	30.0	60.0

\* 2 Mounting holes centered on length.

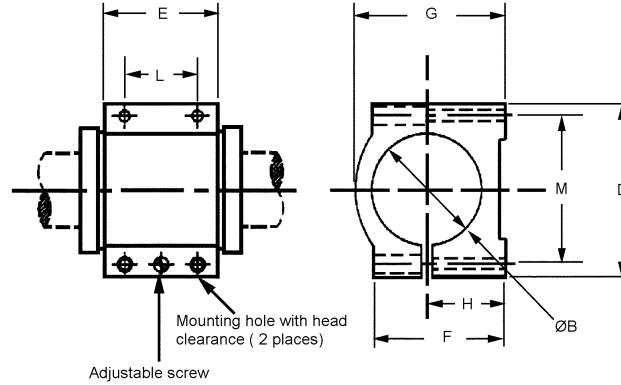
TYPE	FOR SHAFT SIZES	MATERIAL
<b>OPEN RETAINER RING DESIGN</b>	<b>13mm TO 30mm</b>	<b>6061T6 ALUMINUM BLACK ANODIZED</b>



STOCK NO.	BORE ØB +0.013 -0.000	USE WITH LINEAR BEARING STOCK NO.	USE WITH RETAINER RING STOCK NO.	USE WITH MOUNTING SCREW STOCK NO.	SHAFT SIZE (Ref.)	D	E	F	G	H ±0.03	L	M	N
LMEM-13	23.000	LMDM-3	Q5M-23	Y9-M3-A30	13	38	20	25.4	30	16.00	12.0	30.0	11
LMEM-14	32.000	LMDM-4	Q5M-32	Y9-M4-A40	20	48	27	36.5	42	22.00	19.0	40.0	13
LMEM-15	40.000	LMDM-5	Q5M-40	Y9-M5-A45	25	60	37	41.3	49	25.50	26.0	50.0	15
LMEM-16	45.000	LMDM-6	Q5M-45	Y9-M5-A60	30	70	41	52.4	64	33.00	30.0	60.0	18

# LINEAR BEARING BRACKETS

TYPE	FOR SHAFT SIZES	MATERIAL
<b>ADJUSTABLE RETAINER RING DESIGN</b>	<b>13mm TO 30mm</b>	<b>6061T6 ALUMINUM BLACK ANODIZED</b>



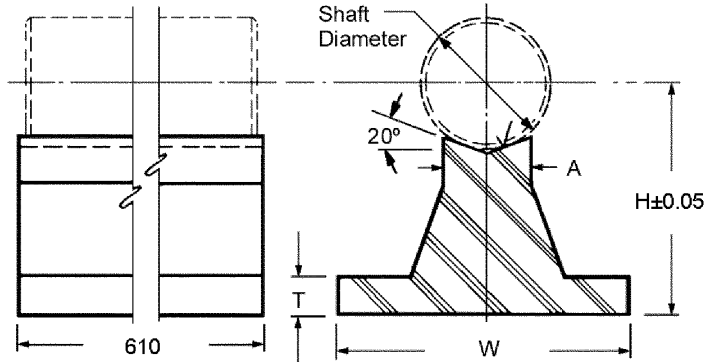
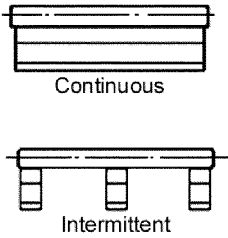
STOCK NO.	BORE ØB +0.013 -0.000	USE WITH LINEAR BEARING STOCK NO.	USE WITH RETAINER RING STOCK NO.	USE WITH MOUNTING SCREW STOCK NO.	SHAFT SIZE (Ref.)	D	E	F	G	H ±0.03	L	M
LMEM-23	23.000	LMCM-3	Q2M-23	Y9-M3-A30	13	38	20	25.4	30	16.00	12.0	30.0
LMEM-24	32.000	LMCM-4	Q2M-32	Y9-M4-A40	20	48	27	36.5	42	22.00	19.0	40.0
LMEM-25	40.000	LMCM-5	Q2M-40	Y9-M5-A45	25	60	37	41.3	49	25.50	26.0	50.0
LMEM-26	45.000	LMCM-6	Q2M-45	Y9-M5-A60	30	70	41	52.4	64	33.00	30.0	60.0

E

# SHAFT SUPPORT

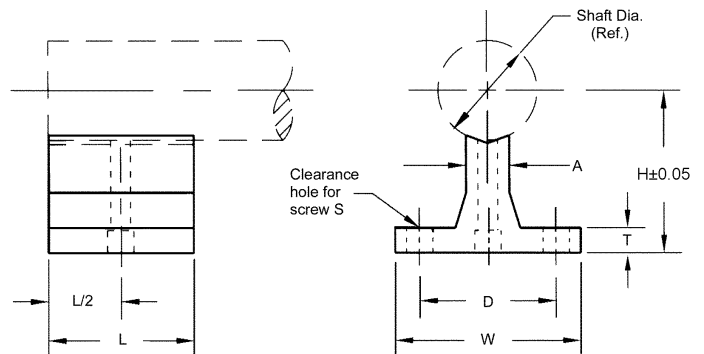
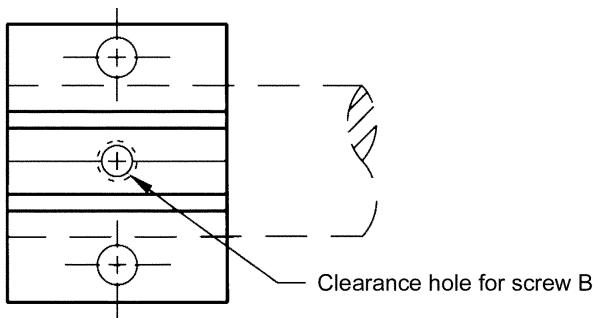
FOR SHAFT SIZES	MATERIAL	USE WITH
13mm TO 50mm	EXTRUDED ALUMINUM	LMD, LMA & LMX OPEN STYLE, LINEAR BEARINGS

## EXAMPLES



STOCK NO.	SHAFT DIA.	H	T	W	A
LMR-1	13	28.70	5	38	6
LMR-2	20	38.60	6	44	10
LMR-3	25	44.23	6	54	13
LMR-4	30	53.03	8	64	14
LMR-5	40	64.43	10	76	17
LMR-6	50	82.28	13	95	22

FOR SHAFT SIZES	MATERIAL
13mm TO 50mm	EXTRUDED ALUMINUM

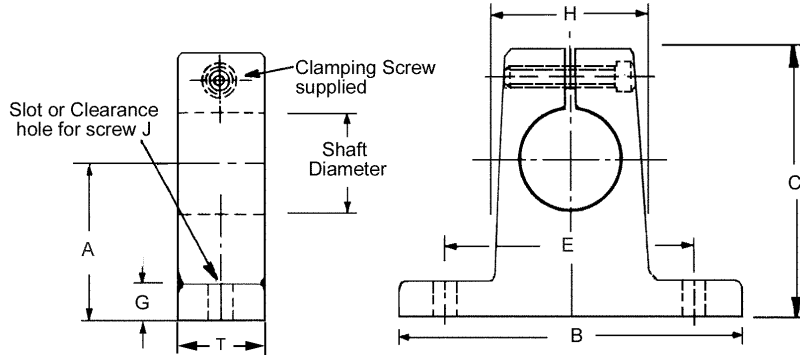


STOCK NO.	SHAFT DIA. (Ref.)	H	T	W	A	L	S	B	
								THREAD	LENGTH
LMR-1HM	13	28.70	5	38	6	102	M4	M4	20
LMR-2HM	20	38.60	6	44	10	152	M5	M5	30
LMR-3HM	25	44.23	6	54	13	152	M6	M8	35
LMR-4HM	30	53.03	8	64	14	152	M8	M10	40
LMR-5HM	40	64.43	10	76	17	203	M8	M12	40
LMR-6HM	50	82.28	13	95	22	203	M10	M14	60



# SHAFT HANGERS

FOR SHAFT SIZES	MATERIAL
6mm TO 30mm	ALUMINUM M12.0 BLACK ANODIZED

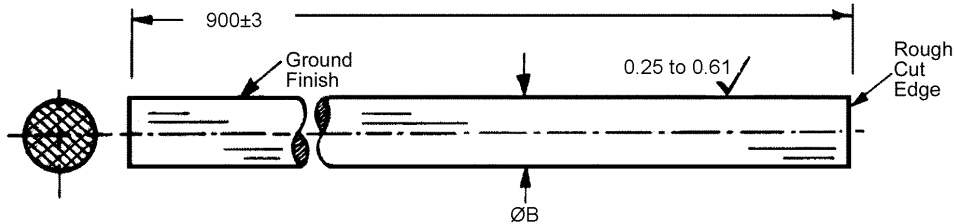


STOCK NO.	SHAFT DIA.	A	B	C	E	T	G	H	J
LMHM-1	6	15.00	29	29	22.0	10	5	16	M3
LMHM-2	10	17.00	32	33	24.0	13	5	16	M4
LMHM-3	13	19.00	38	37	29.0	16	6	19	M5
LMHM-5A	20	27.00	48	48	38.0	22	13	25	M6
LMHM-6	25	54.00	57	78	44.0	25	16	32	M6
LMHM-7A	30	60.00	64	86	51.0	32	19	35	M6

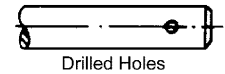
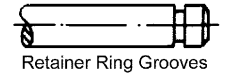
E

# GROUND STOCK

FOR SHAFT SIZES	MATERIAL
6mm TO 30mm	303 STAINLESS STEEL



Modification on request  
send drawings



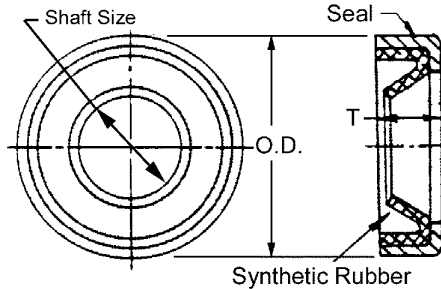
STOCK NO.	NOMINAL DIA.*	ØB	B TOL.
S1-106	6	5.992	+0.000
S1-136	6	6.000	-0.005
S1-110	10	9.992	
S1-143	10	10.000	
S1-112	12	11.991	
S1-146	12	12.000	
S1-113	13	12.993	
S1-114	14	13.993	+0.000
S1-116	16	15.974	-0.008
S1-147	16	16.000	
S1-120	20	19.992	
S1-125	25	24.993	
S1-148	25	25.000	
S1-130	30	29.992	

\*Straightness: 10mm diameter and above .0101 mm/mm, 6mm diameter and below on best efforts basis.



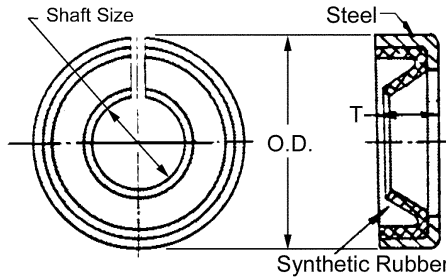
# SHAFT SEALS

STYLE	FOR SHAFT SIZES
<b>REGULAR</b>	<b>6mm TO 30mm</b>



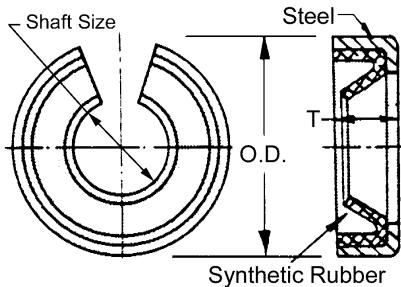
STOCK NO.	SHAFT SIZE	OUTSIDE DIA.	T
LMGM-R-5	6	12	2
LMGM-R-6	10	19	7
LMGM-R-1	13	23	7
LMGM-R-2	20	32	7
LMGM-R-3	25	40	5
LMGM-R-4	30	45	5

STYLE	FOR SHAFT SIZES
<b>ADJUSTABLE</b>	<b>6mm TO 30mm</b>



STOCK NO.	SHAFT SIZE	OUTSIDE DIA.	T
LMGM-A-5	6	12	2
LMGM-A-6	10	19	7
LMGM-A-1	13	23	7
LMGM-A-2	20	32	7
LMGM-A-3	25	40	5
LMGM-A-4	30	45	5

STYLE	FOR SHAFT SIZES
<b>OPEN</b>	<b>6mm TO 30mm</b>



STOCK NO.	SHAFT SIZE	OUTSIDE DIA.	T
LMGM-P-5	6	12	2
LMGM-P-6	10	19	7
LMGM-P-1	13	23	7
LMGM-P-2	20	32	7
LMGM-P-3	25	40	5
LMGM-P-4	30	45	5



**E**

