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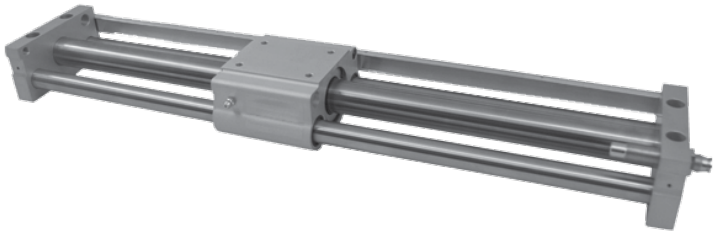
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Ultran Cylinders

Bimba Ultran® Rodless cylinders feature magnets on the carriage and piston that form a strong bond that holds them together. When the cylinder is actuated, the piston and carriage move back and forth as one unit. Ultran® Band cylinders are mechanically coupled and utilize a specially engineered sealing strip to provide exceptional band life. Common application uses for Ultran® cylinders include transferring product, feeding, opening doors, cutting, and more.







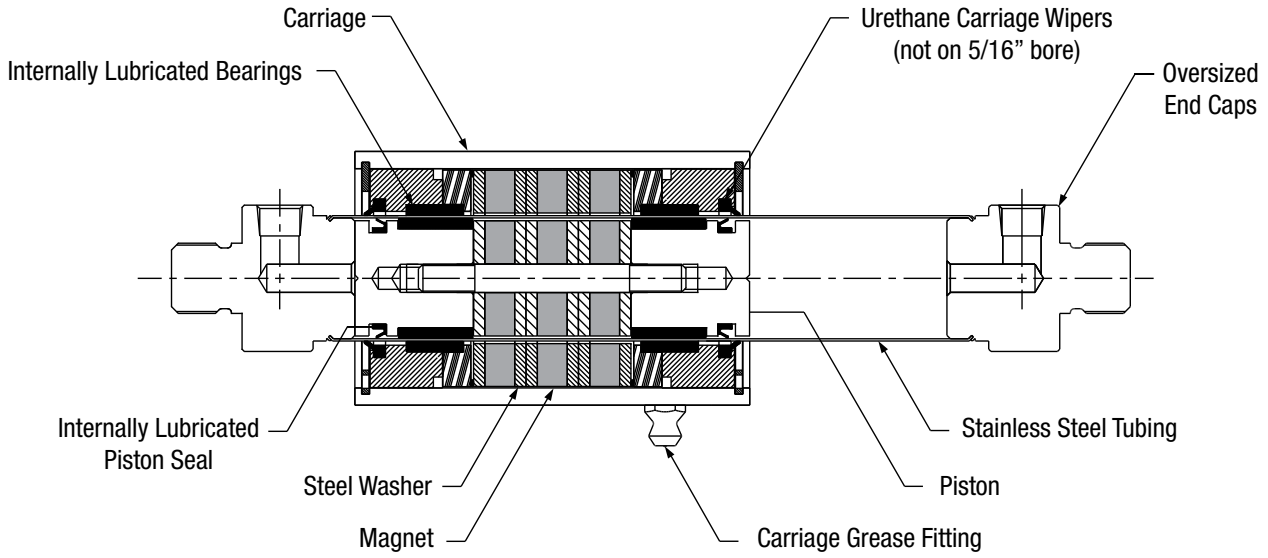
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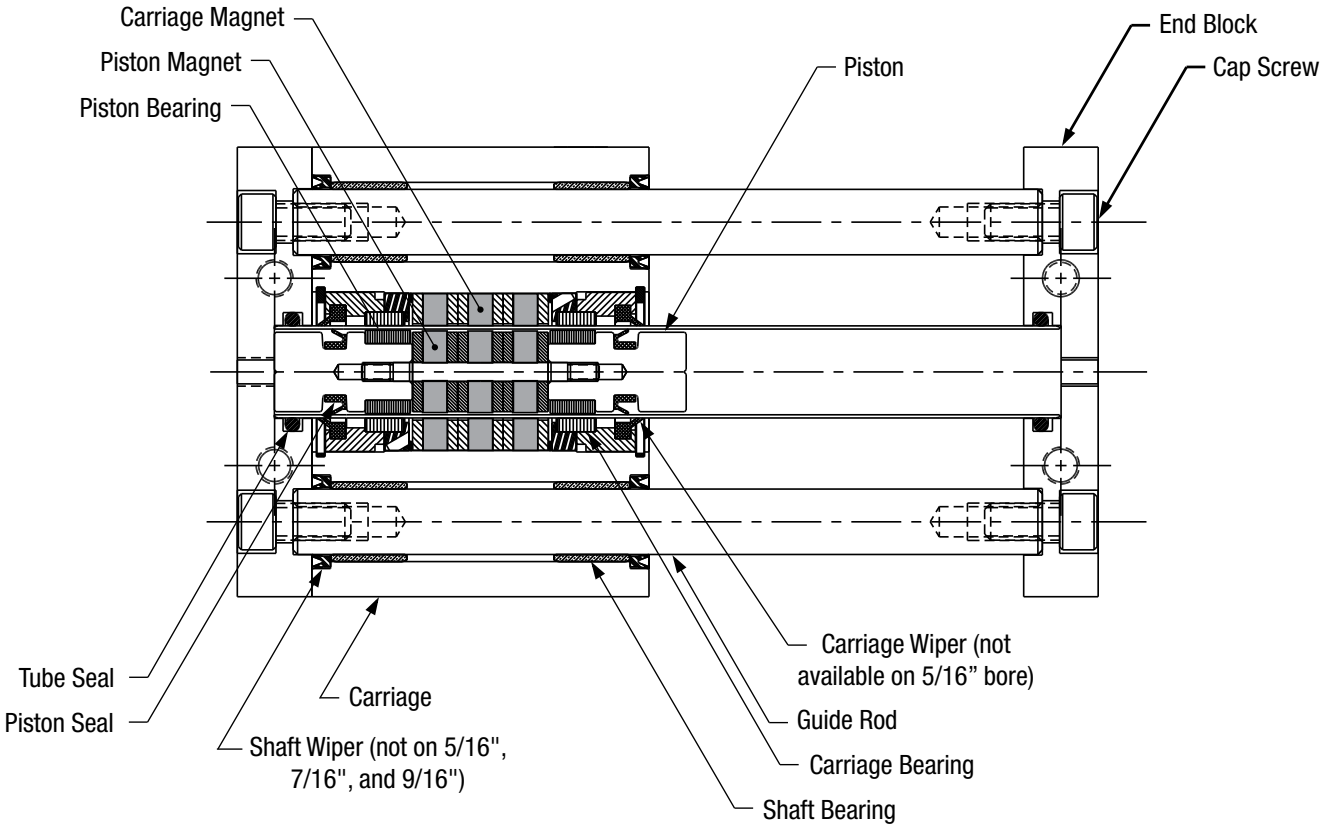
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Ultran



Ultran Slide



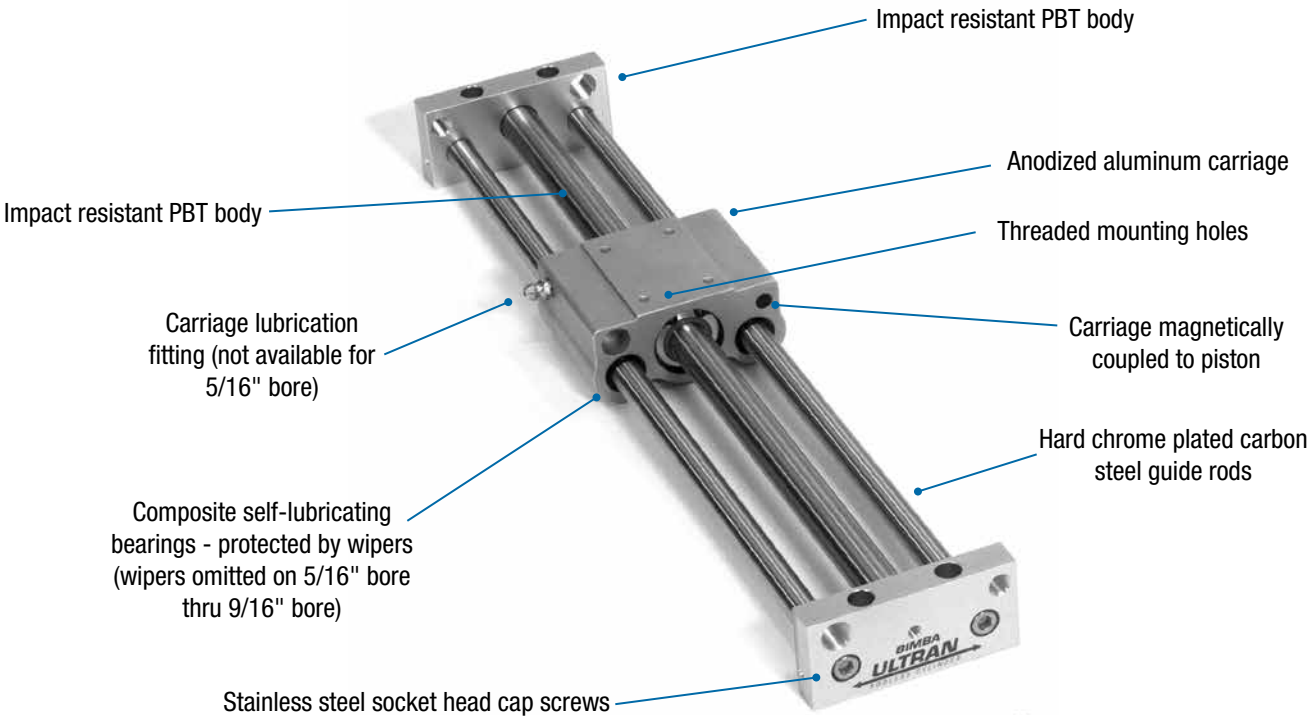
The above cutaway drawings show how Bimba magnetically-coupled Ultran rodless cylinders work. Three magnets are located on the carriage, with three matching magnets on the piston. (For 5⁄16" bore, five magnets are used.) These magnets form a strong bond that holds the carriage and piston together. When the cylinder is actuated, the piston and carriage move as one unit. The magnetic attraction between the magnets determines a cylinder's magnetic coupling strength.

Ultran rodless cylinders provide one of the highest coupling strengths available, carrying higher loads without causing the piston to uncouple from the carriage. Bimba also offers two magnetic coupling strength options (Gold and Silver) to suit a wide variety of applications. The Silver option uses two sets of magnets instead of three. (For 5⁄16" bore, four sets of magnets are used.)

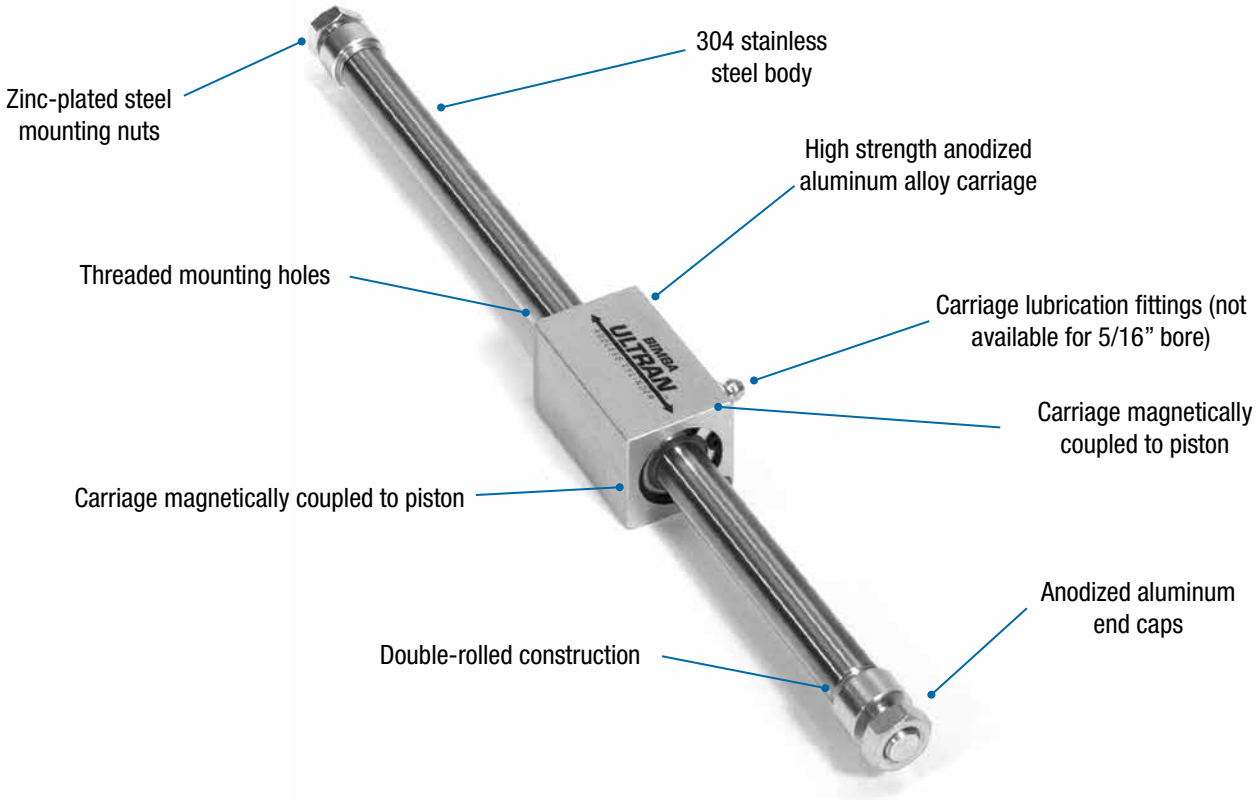
Bimba offers a model with built-in guides (Ultran Slide) and an unguided unit (Ultran).

Product Features

Ultran Slide



Ultran



Engineering Specifications (Ultran and Ultran Slide)

Ratings

Pressure Rating:	100 PSI (Air or Hydraulic)
Temperature Range:	0˚ to 170˚F
Breakaway:	Ultran Gold Coupling Strength - Less than 25 PSI
	Ultran Silver Coupling Strength - Less than 20 PSI
	Ultran Slide Gold Coupling Strength - Less than 30 PSI
	Ultran Slide Silver Coupling Strength - Less than 25 PSI

Magnetic Coupling Strength (lbs)

Cylinder Bore	Ultran Gold (UG/UGS)	Ultran Silver (US/USS)
5/16" (007)	13	8
7/16" (01)	20	10
9/16" (02)	29	16
3/4" (04)	61	33
7/8" (06)	102	55
1-1/16" (09)	127	74
1-1/4" (12)	190	110
1-1/2" (17)	270	150
2" (31)	552	332

Weight (lbs) (Ultran)

Cylinder Bore	Base Weight (0" Stroke)		Adder per 1"
	(UG)	(US)	
5/16" (007)	0.10	0.09	0.006
7/16" (01)	0.22	0.21	0.01
9/16" (02)	0.56	0.51	0.01
3/4" (04)	1.18	1.11	0.02
7/8" (06)	1.54	1.42	0.02
1-1/16" (09)	2.54	2.34	0.03
1-1/4" (12)	3.16	2.90	0.03
1-1/2" (17)	6.36	5.76	0.05
2" (31)	16.46	15.15	0.07

Weight (lbs) (Ultran Slide)

Cylinder Bore	Base Weight (0" Stroke)		Adder per 1"
	(UGS)	(USS)	
5/16" (007)	0.24	0.23	0.05
7/16" (01)	0.52	0.51	0.08
9/16" (02)	1.44	1.38	0.10
3/4" (04)	2.70	2.58	0.13
7/8" (06)	3.61	3.49	0.21
1-1/16" (09)	5.66	5.47	0.28
1-1/4" (12)	7.38	7.12	0.35
1-1/2" (17)	14.48	13.90	0.49
2" (31)	38.48	37.17	1.13

Lubrication

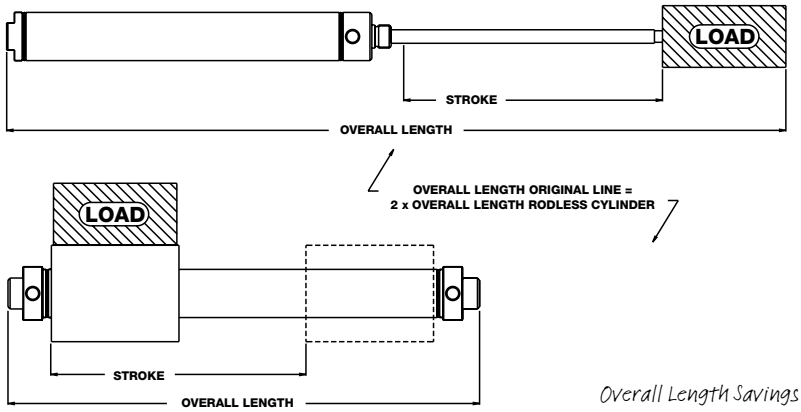
The Ultran rodless cylinder is pre-lubricated at the factory with a permanent grease eliminating the need for airline lubrication. The carriage should be lubricated every 100 linear miles with a high grade of bearing grease. Other types of pre-lubrication are available upon request. The lubricant used by the factory can be ordered as part number MS-2861-14OZ. The lubricant is packaged in a 14 oz grease gun cartridge.

Repairs

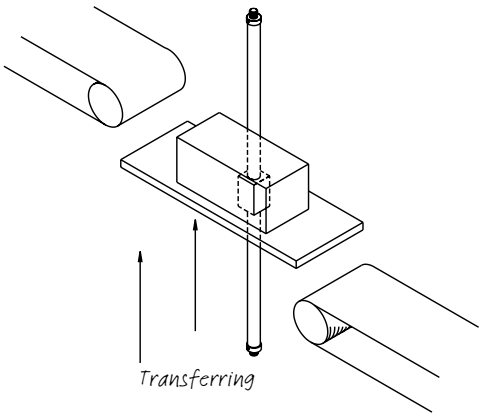
The Ultran rodless cylinder must be returned to the factory for repairs. Repair parts are available for the Ultran Slide - see How to Repair on page 405.

Application Possibilities

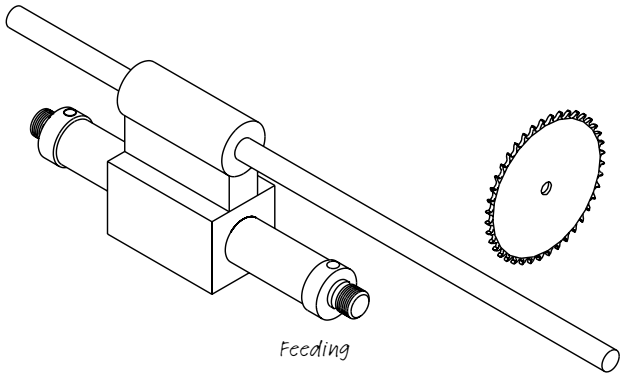
Save space and streamline your design with the Bimba Ultran rodless cylinder.



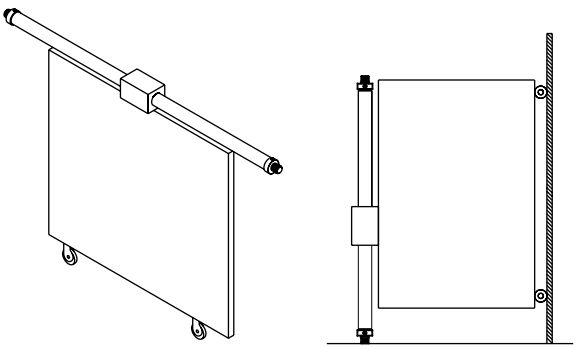
Overall Length Savings



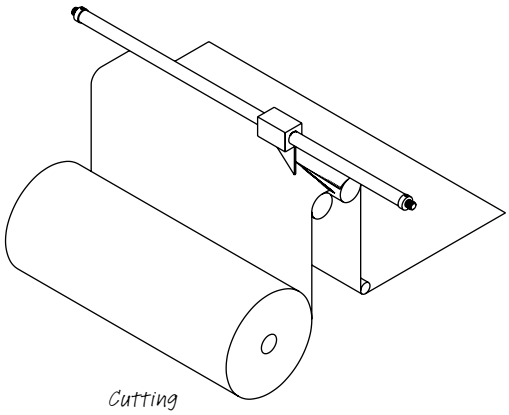
Transferring



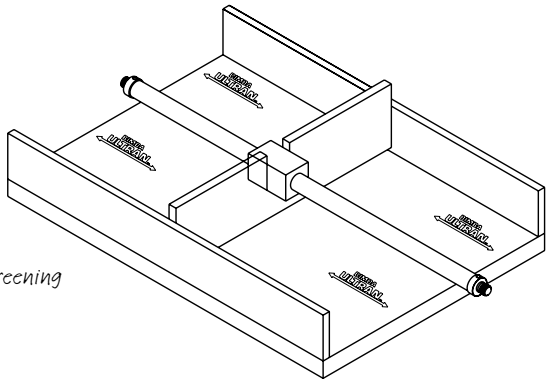
Feeding



Door Opening



Cutting



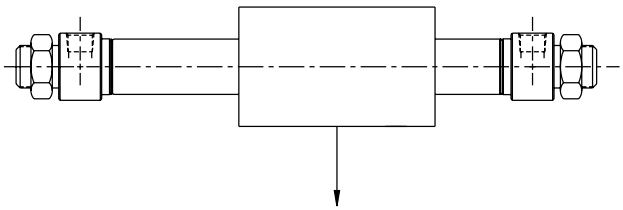
Silk Screening

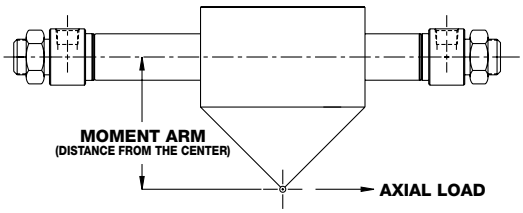
Size/Application Considerations (Ultran)

Each bore size of the Bimba Ultran Slide rodless cylinder has specific load carrying capabilities. These capabilities can be enhanced by externally supporting the load or by ordering the internal cushion option or external shock absorbers. The load should always be guided and supported for optimum life. Cushions or shock absorbers will also increase cylinder life when used properly. Use the following procedures to determine the requirements for specific applications.

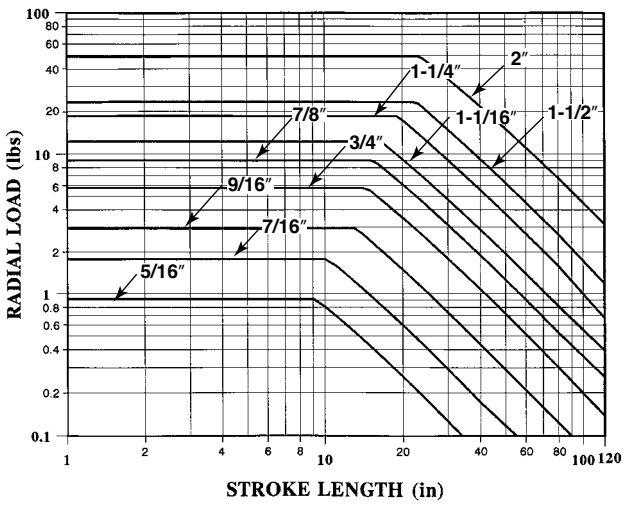
NOTE: Exceeding the load can cause the carriage and piston to decouple.

1. Check radial load requirements. Graph C, Radial Load vs. Stroke Length, shows the maximum radial load the cylinder will support for a specific bore size and stroke length. If your radial load requirements fall above the curve, the load must be externally supported.
2. Check axial load requirements. Graph D, Axial Load vs. Moment Arm, shows the maximum axial load the cylinder will support for a specific bore size and moment arm length. If your axial load requirements fall above the curve for the specific bore size, the load must be externally supported.
3. Check End-of-Stroke Velocity and Load Requirements. From Graphs E through H, Velocity vs. Load, choose the graph for your Ultran model and mounting position. If your velocity and load requirements fall above the curve for the specific bore size, you will need internal cushions or external shock absorbers to decelerate the load without causing the carriage and piston to decouple.
4. Maximum Velocity. If cylinder speed will exceed 20 in/sec or cycle rate will exceed 15 per minute, special application considerations may be required. Please consult your local distributor.
5. Internal Cushions. From Graphs I through L, Velocity vs. Load for Cushions, choose the graph for your Ultran model and mounting position. If your velocity and load requirements fall above the curve for the specific bore size, you will need external shock absorbers to decelerate the load.
6. External Shock Absorbers. Choose from Graphs EE through RR (Related Products), Velocity vs. Load for Shock Absorbers, for your bore size. Choose model LS, SS or HS based on your velocity and load.

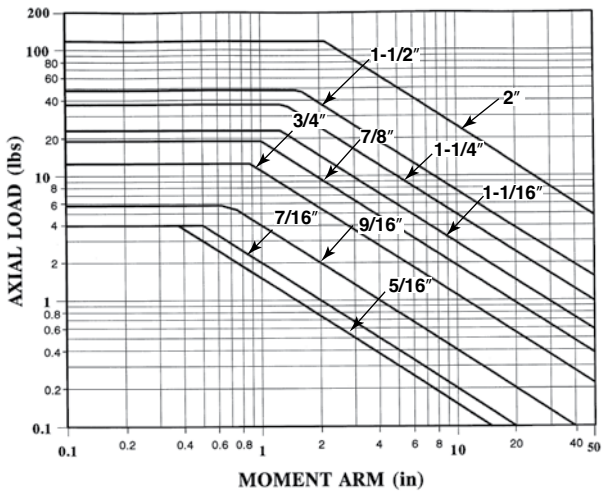




Radial Load Vs Stroke Length*



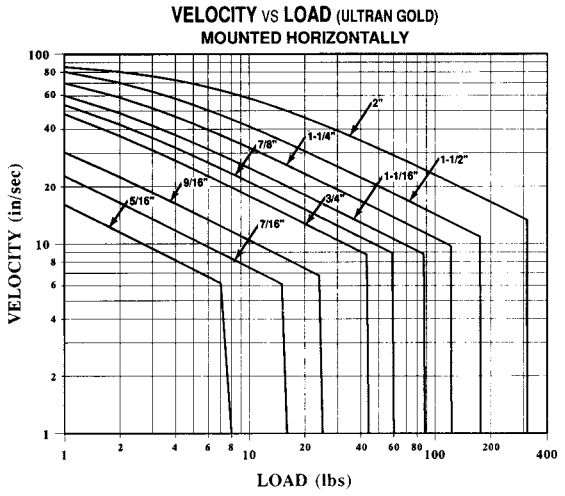
Axial Load Vs Moment Arm

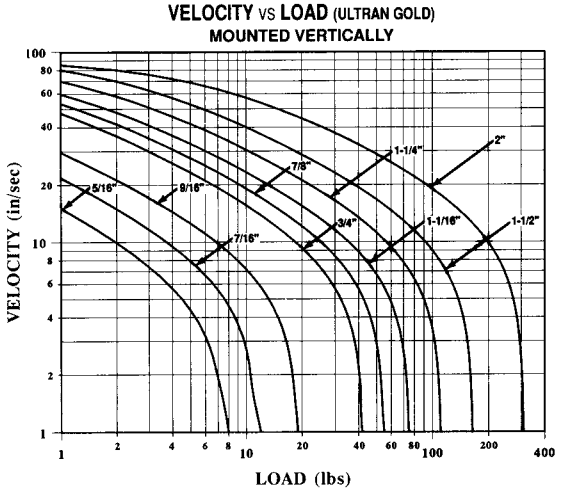


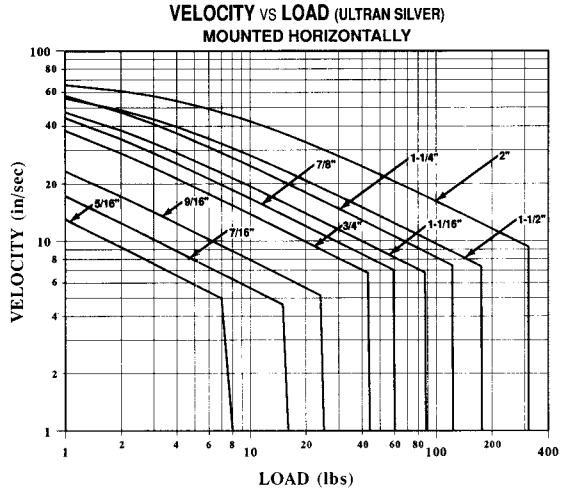
*Stud mount only. Consult factory if pivot mounted.

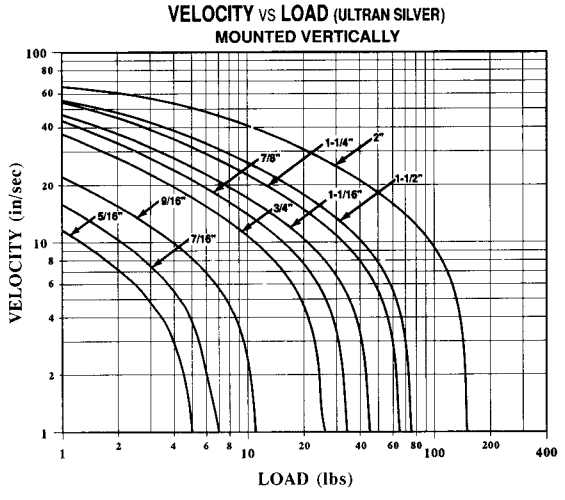
Velocity vs. Load for Basic Ultran Models

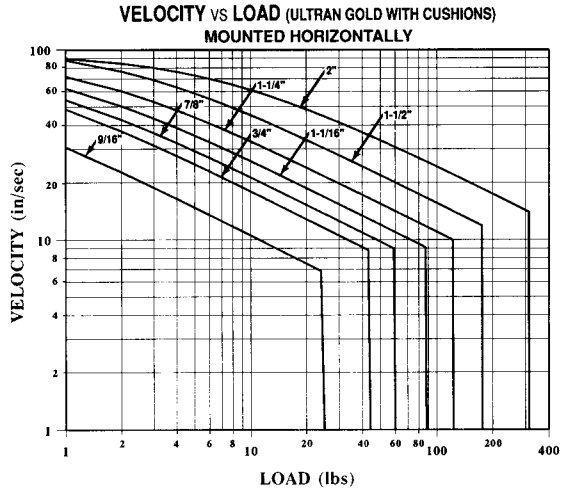
NOTE: Velocities in excess of 20 in/sec require application review by Bimba.

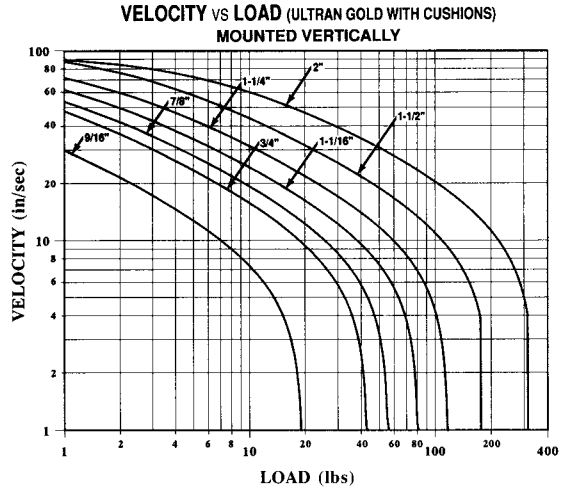






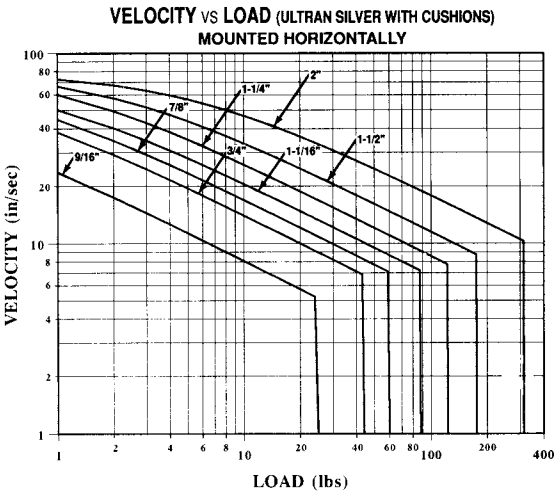


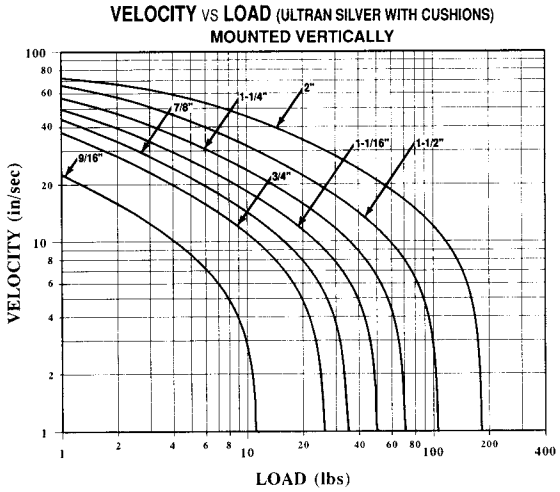




Velocity vs. Load for Basic Ultran Models

NOTE: Velocities in excess of 20 in/sec require application review by Bimba.





How to Specify

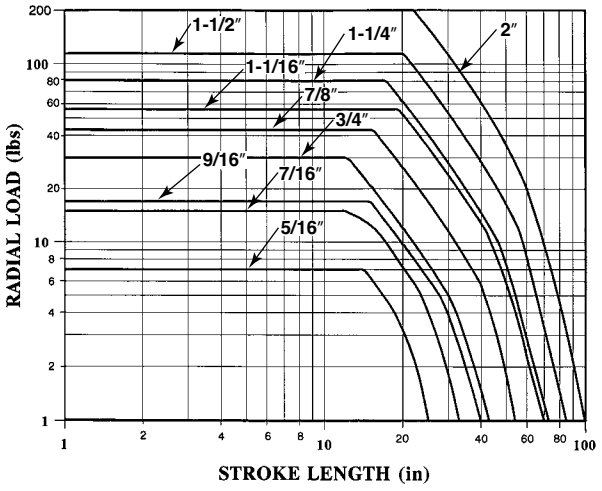
Size/Application Considerations (Ultran Slide)

Each bore size of the Bimba Ultran Slide rodless cylinder has specific load carrying capabilities. These capabilities can be enhanced by ordering external shock absorbers. Shock absorbers will also increase cylinder life when used properly. Use the following procedures to determine the requirements for specific applications.

NOTE: Exceeding the load can cause the carriage and piston to decouple.

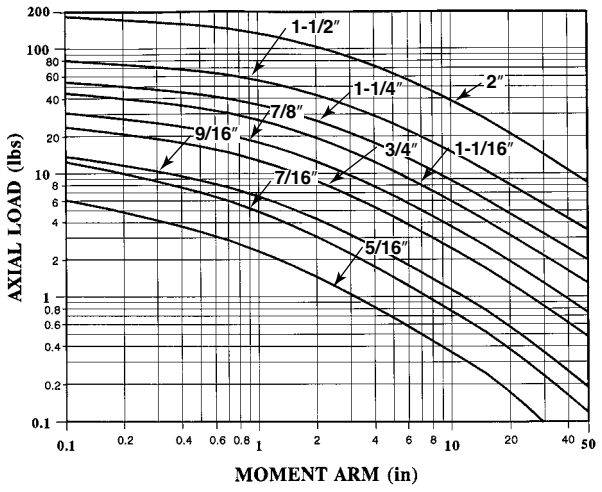
1. Check side load or radial load requirements. Graph A, Side Load/Radial Load vs. Stroke Length, shows the maximum load the cylinder will support for a specific bore size and stroke length.
2. Check axial load requirements. Graph B, Axial Load vs. Moment Arm, shows the maximum load the cylinder will support for a specific bore size and stroke length. Use the illustrations and formulas beside the graph to determine the load on the Ultran Slide.
3. External Shock Absorbers. If your load requirements fall above the curve for the specific bore size, external shock absorbers may allow you to decelerate the load. Choose from Graphs M through DD - Velocity versus Load for Related Products for your bore size.
4. Maximum Velocity. If cylinder speed will exceed 20 in/sec or cycle rate will exceed 15 per minute, special application considerations may be required. Please consult your local distributor.

SIDE/RADIAL LOAD vs STROKE LENGTH



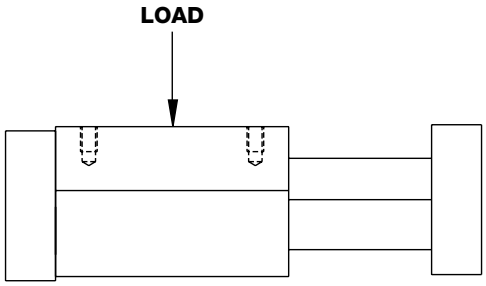
Graph A

AXIAL LOAD vs MOMENT ARM



Graph B

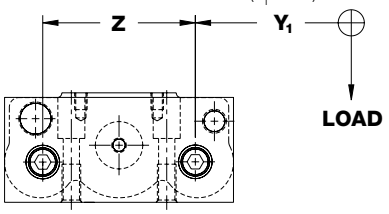
Radial Load



SEE GRAPH A

Side Load

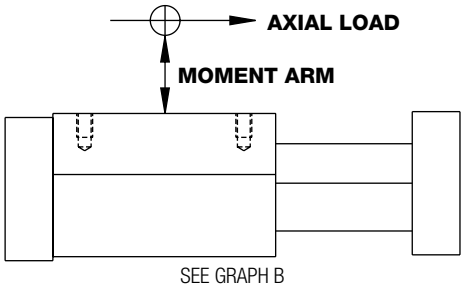
SIDE LOAD = 2 x LOAD (Y_1/Z +1)



SEE GRAPH A

Cylinder Bore	Z
5/16" (007)	1.312
7/16" (01)	1.562
9/16" (02)	2.000
3/4" (04)	2.518
7/8" (06)	2.750
1-1/16" (09)	3.062
1-1/4" (12)	3.500
1-1/2" (17)	4.500
2" (31)	5.750

Axial Load



SEE GRAPH B

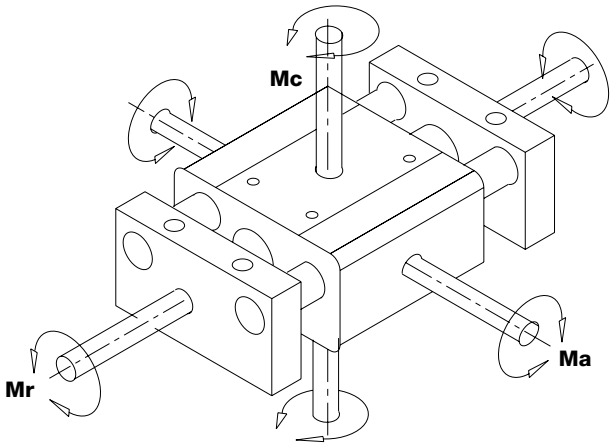
Size/Application Considerations (Ultran Slide)

Moments About the Carriage:

The table below gives the maximum allowable moment an Ultran Slide will support. There are three different directions that the moment can be applied (see Sketch A).

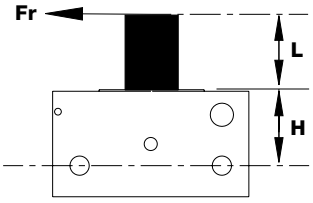
Maximum Allowable Moment (in-lb)

Bore	Radial	Axial	Cross	H
	Mr max.	Ma max.	MC max.	
5/16" (007)	2.3	5.2	5.2	0.625
7/16" (01)	4.9	9.4	9.4	0.656
9/16" (02)	6.6	17.2	17.2	0.906
3/4" (04)	11.1	37.5	37.5	1.168
7/8" (06)	14.3	68.4	68.4	1.374
1-1/16" (09)	19.5	89.1	89.1	1.563
1-1/4" (12)	26.5	160	160	1.937
1-1/2" (17)	40.4	250	250	2.281
2" (31)	67.0	800	800	3.000



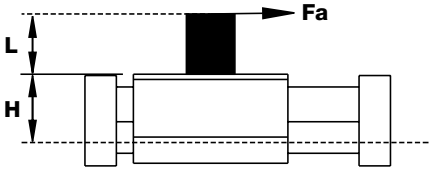
Sketch A

Radial Moment



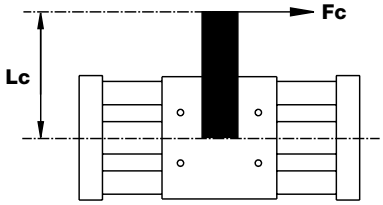
Sketch B

Axial Moment



Sketch C

Cross Moment



Sketch D

Sketches B, C, and D demonstrate how a force is applied to a moment arm to produce the moments shown in Sketch A. Use the equations below to determine the actual moments created by your application. The results of each calculated moment should be compared to the maximums listed in the table. (If the actual moments are greater than the listed maximums, then the load and moments should be evaluated using the next larger Ultran Slide.)

Radial Moment = Mr = Fr x (L+H)

Axial Moment = Ma = Fa x (L+H)

Cross Moment = Mc = Fc x (Lc)

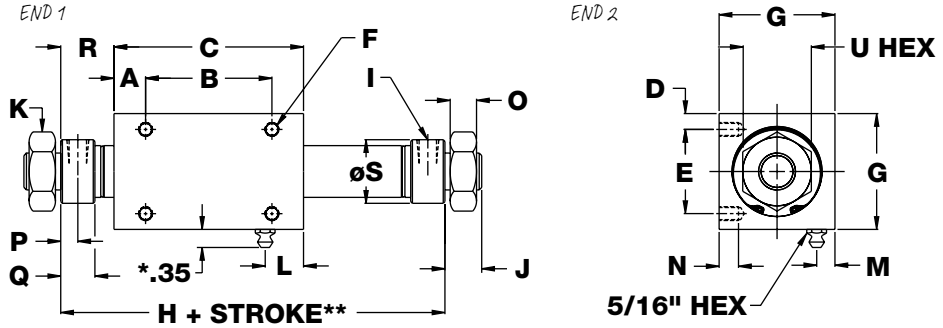
An Ultran Slide can withstand compound moments but the maximum allowable will be determined by the total percentage of the axial, radial and cross moments. The equation below will determine the compound moment percent based on the total moments. The compound moment percent must not be greater than 100. (If the compound moment percent is greater than 100, then the load and moments should be evaluated using the next larger Ultran Slide.)

$$M\ compound\ \% = 100 \times \left(\frac{Mr}{Mr\ max} + \frac{Ma}{Ma\ max} + \frac{Mc}{Mc\ max} \right) < \underline{100}\%$$

Dimensions (Ultran)

Bore	A	B	C	D	E	F	G	H	I	J
5/16" (007)	0.344	1.062	1.750	0.141	0.469	4-40-UNC	0.750	3.014	10-32	0.368
7/16" (01)	0.344	1.188	1.875	0.125	0.750	6-32 UNC	1.000	3.139	10-32	0.438
9/16" (02)	0.375	1.500	2.250	0.188	1.000	8-32 UNC	1.375	3.514	10-32	0.438
3/4" (04)	0.562	1.750	2.875	0.188	1.375	10-24 UNC	1.750	4.875	1/8 NPT	0.625
7/8" (06)	0.500	2.125	3.125	0.188	1.625	10-24 UNC	2.000	5.125	1/8 NPT	0.625
1-1/16" (09)	0.500	2.500	3.500	0.250	1.750	1/4-20 UNC	2.250	5.500	1/8 NPT	0.625
1-1/4" (12)	0.562	2.750	3.875	0.250	2.125	1/4-20 UNC	2.625	5.875	1/8 NPT	0.875
1-1/2" (17)	0.500	3.500	4.500	0.312	2.500	5/16-18 UNC	3.125	6.500	1/8 NPT	0.875
2" (31)	1.188	5.000	7.375	0.500	3.250	1/2-13 UNC	4.250	10.000	1/4 NPT	1.000

Bore	K	L	M	N	O	P	Q	R	S	U
5/16" (007)	5/16-24 NUT	N/A	N/A	0.125	0.188	0.203	0.406	0.632	0.625	0.500
7/16" (01)	7/16-20 NUT	0.395	0.312	0.125	0.250	0.203	0.406	0.632	0.704	0.688
9/16" (02)	7/16-20 NUT	0.455	0.312	0.220	0.250	0.203	0.406	0.632	0.755	0.688
3/4" (04)	5/8-18 NUT	0.572	0.375	0.312	0.375	0.315	0.630	1.000	0.985	0.938
7/8" (06)	5/8-18 NUT	0.635	0.375	0.375	0.375	0.315	0.630	1.000	1.110	0.938
1-1/16" (09)	5/8-18 NUT	0.706	0.500	0.375	0.375	0.315	0.630	1.000	1.297	0.938
1-1/4" (12)	3/4-16 NUT	0.750	0.375	0.500	0.420	0.315	0.630	1.000	1.545	1.125
1-1/2" (17)	3/4-16 NUT	0.756	0.750	0.520	0.420	0.315	0.630	1.000	1.735	1.125
2" (31)	1-1/4-12 NUT	1.500	0.750	0.750	0.500	0.438	0.875	1.312	2.312	1.875

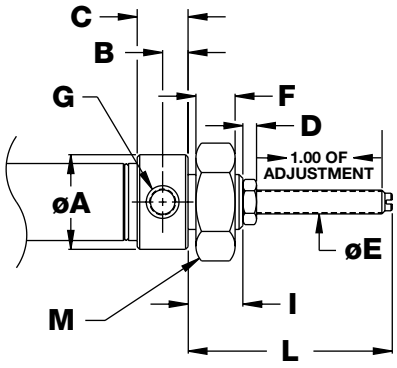


*Grease fitting on 2" bore is recessed.
**See page 395 for option length adders.

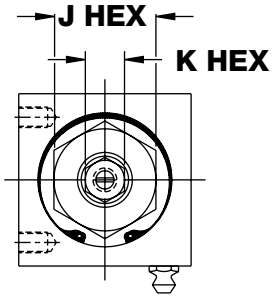
Stroke Adjustment (Ultran)

Stroke Adjustment Dimensions (in)

Bore	A	B	C	D	E	F
5/16" (007)	0.625	0.203	0.406	0.094	6-40 UNF	0.188
7/16" (01)	0.704	0.203	0.406	0.109	10-32 UNF	0.250
9/16" (02)	0.755	0.203	0.406	0.109	10-32 UNF	0.250
3/4" (04)	0.985	0.315	0.630	0.156	1/4-28 UNF	0.375
7/8" (06)	1.110	0.315	0.630	0.188	5/16-24 UNF	0.375
1-1/16" (09)	1.297	0.315	0.630	0.188	5/16-24 UNF	0.375
1-1/4" (12)	1.545	0.315	0.630	0.220	3/8-24 UNF	0.420
1-1/2" (17)	1.735	0.315	0.630	0.220	3/8-24 UNF	0.420
2" (31)	2.312	0.438	0.875	0.250	7/16-20 UNF	0.500



Bore	G	I	J	K	L	M
5/16" (007)	10-32	0.368	0.500	0.188	1.795	5/16-24 NUT
7/16" (01)	10-32	0.438	0.688	0.313	1.469	7/16-20 NUT
9/16" (02)	10-32	0.438	0.688	0.313	1.469	7/16-20 NUT
3/4" (04)	1/8-NPT	0.625	0.938	0.438	1.905	5/8-18 NUT
7/8" (06)	1/8-NPT	0.625	0.938	0.438	1.943	5/8-18 NUT
1-1/16" (09)	1/8-NPT	0.625	0.938	0.438	1.943	5/8-18 NUT
1-1/4" (12)	1/8-NPT	0.875	1.125	0.563	2.115	3/4-16 NUT
1-1/2" (17)	1/8-NPT	0.875	1.125	0.563	2.115	3/4-16 NUT
2" (31)	1/4-NPT	1.000	1.875	0.688	2.278	1-1/4-12 NUT



Stroke Adjustment Length Adder (in)

Bore	5/16" (007)	7/16" (01)	9/16" (02)	3/4" (04)	7/8" (06)	1-1/16" (09)	1-1/4" (12)	1-1/2" (17)	2" (31)
Add to overall length: (per end)	0.044	0.060	0.060	0.060	0.080	0.080	0.110	0.110	0.120

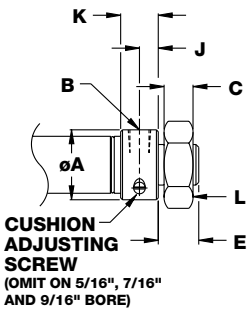
Bumper Length Adder (in)

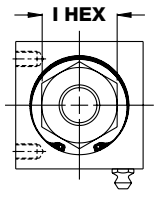
Bore	5/16" (007)	7/16" (01)	9/16" (02)	3/4" (04)	7/8" (06)	1-1/16" (09)	1-1/4" (12)	1-1/2" (17)	2" (31)
Add to overall length: (per end)	0.095	0.120	0.120	0.140	0.140	0.150	0.150	0.150	0.200

Cushions (in)

Bore	A	B	C	E	I	J	K	L
9/16" (02)	0.755	10-32	0.250	0.438	0.688	0.203	0.406	7/16-20 NUT
3/4" (04)	0.985	1/8 NPT	0.375	0.625	0.938	0.315	0.630	5/8-18 NUT
7/8" (06)	1.110	1/8 NPT	0.375	0.625	0.938	0.315	0.630	5/8-18 NUT
1-1/16" (09)	1.297	1/8 NPT	0.375	0.625	0.938	0.315	0.630	5/8-18 NUT
1-1/4" (12)	1.545	1/8 NPT	0.420	0.875	1.125	0.315	0.630	3/4-16 NUT
1-1/2" (17)	1.735	1/8 NPT	0.420	0.875	1.125	0.315	0.630	3/4-16 NUT
2" (31)	2.312	1/4 NPT	0.500	1.000	1.875	0.438	0.875	1-1/4-12 NUT

NOTE: There is no length adder for the cushion option. Cushion option not available for 5/16" and 7/16" bores.



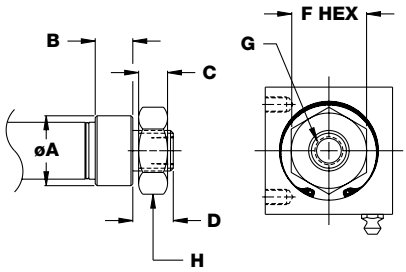


How to Specify

Axial Ports (in) (Ultran)

Bore	A	B	C	D	F	G	H
5/16" (007)	0.625	0.406	0.188	0.368	0.500	10-32	5/16-24 NUT
7/16" (01)	0.704	0.406	0.250	0.438	0.688	10-32	7/16-20 NUT
9/16" (02)	0.755	0.406	0.250	0.438	0.688	10-32	7/16-20 NUT
3/4" (04)	0.985	0.630	0.375	0.625	0.938	1/8 NPT	5/8-18 NUT
7/8" (06)	1.110	0.630	0.375	0.625	0.938	1/8 NPT	5/8-18 NUT
1-1/16" (09)	1.297	0.630	0.375	0.625	0.938	1/8 NPT	5/8-18 NUT
1-1/4" (12)	1.545	0.630	0.420	0.875	1.125	1/8 NPT	3/4-16 NUT
1-1/2" (17)	1.735	0.630	0.420	0.875	1.125	1/8 NPT	3/4-16 NUT
2" (31)	2.312	0.875	0.500	1.000	1.875	1/4 NPT	1-1/4-12 NUT

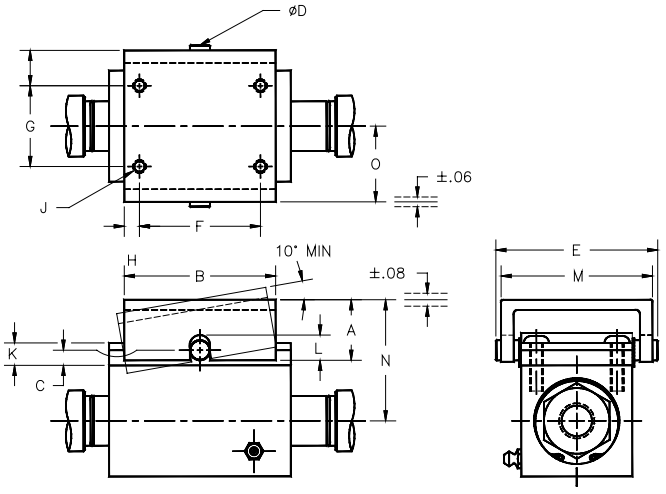
NOTE: There is no length adder for the Axial port option.



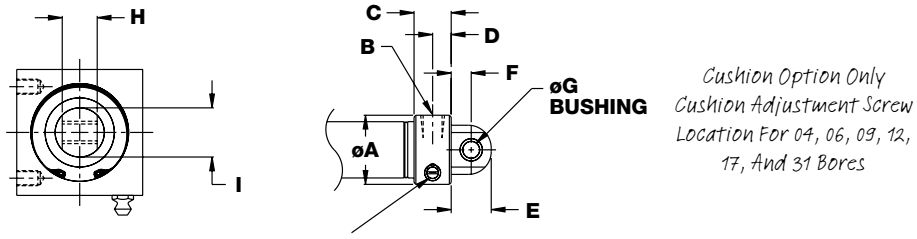
Floating Mount Bracket (in) (Ultran)

Bore	A	B	C	D	E	F	G	H	I	J	K
5/16" (007)	0.532	1.438	0.188	0.187	1.317	1.062	0.469	0.188	0.360	4-40 UNC	0.236
7/16" (01)	0.625	1.688	0.188	0.249	1.646	1.188	0.750	0.250	0.383	6-32 UNC	0.248
9/16" (02)	0.750	1.875	0.188	0.249	2.005	1.500	1.000	0.188	0.437	8-32 UNC	0.278
3/4" (04)	0.875	2.375	0.250	0.312	2.442	1.750	1.375	0.312	0.459	10-24 UNC	0.340
7/8" (06)	0.938	2.750	0.312	0.374	2.849	2.125	1.625	0.312	0.547	10-24 UNC	0.421
1-1/16" (09)	1.062	3.000	0.312	0.374	3.068	2.500	1.750	0.250	0.594	1/4-20 UNC	0.421
1-1/4" (12)	1.125	3.562	0.375	0.437	3.599	2.750	2.125	0.406	0.672	1/4-20 UNC	0.484
1-1/2" (17)	1.188	4.250	0.375	0.437	4.068	3.500	2.500	0.375	0.719	5/16-18 UNC	0.484
2" (31)	1.938	6.500	0.500	0.624	6.000	5.000	3.250	0.750	1.250	1/2-13 UNC	0.634

Bore	L	M	N	O
5/16" (007)	0.250	1.188	1.019	0.594
7/16" (01)	0.312	1.516	1.206	0.758
9/16" (02)	0.312	1.875	1.518	0.938
3/4" (04)	0.375	2.312	1.861	1.156
7/8" (06)	0.438	2.719	2.080	1.359
1-1/16" (09)	0.438	2.937	2.330	1.469
1-1/4" (12)	0.500	3.469	2.612	1.734
1-1/2" (17)	0.500	3.937	2.924	1.969
2" (31)	0.688	5.750	4.268	2.875



Pivot Option (in) (Ultran)

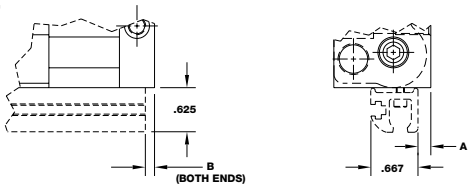


Cushion Option Only
Cushion Adjustment Screw Location For 04, 06, 09, 12, 17, And 31 Bores

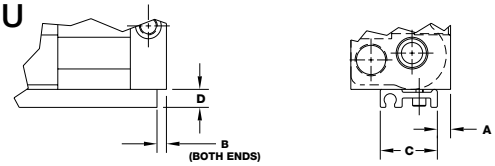
Bore	A	B	C	D	E	F	G	H	I
5/16" (007)	0.625	10-32	0.406	0.203	0.368	0.212	0.127	0.243	0.375
7/16" (01)	0.704	10-32	0.406	0.203	0.437	0.250	0.157	0.305	0.500
9/16" (02)	0.755	10-32	0.406	0.203	0.437	0.250	0.157	0.305	0.500
3/4" (04)	0.985	1/8-NPT	0.630	0.315	0.625	0.344	0.253	0.368	0.750
7/8" (06)	1.110	1/8-NPT	0.630	0.315	0.625	0.344	0.253	0.368	0.750
1-1/16" (09)	1.297	1/8-NPT	0.630	0.315	0.625	0.344	0.253	0.368	0.875
1-1/4" (12)	1.545	1/8-NPT	0.630	0.315	0.875	0.500	0.378	0.493	1.000
1-1/2" (17)	1.735	1/8-NPT	0.630	0.315	0.875	0.500	0.378	0.493	1.125
2" (31)	2.312	1/4-NPT	0.876	0.438	1.000	0.500	0.439	0.868	1.375

Switch Track for Miniature Switches (Ultran Slide)

Option T



Option U

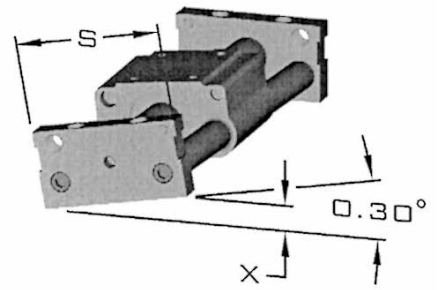


Bore	A	B	C	D
5/16" (007)	0.000	0.024	0.787	0.299
7/16" (01)	0.000	0.023	0.787	0.248
9/16" (02)	0.188	0.625	0.787	0.248
3/4" (04)	0.563	0.125	0.787	0.248
7/8" (06)	0.784	0.117	0.787	0.248
1-1/16" (09)	1.125	0.125	0.655	0.367
1-1/4" (12)	1.250	0.242	0.655	0.367
1-1/2" (17)	1.500	0.250	0.655	0.367
2" (31)	2.596	0.492	0.655	0.367

How to Specify

Ultran Slide Mounting Instructions (Ultran Slide)

Improper mounting of the Ultran slide could result in binding and/or excess breakaway. As a rule of thumb, the end blocks should be mounted flat with no more than 0.30˚ of differential misalignment end-to-end (including both end blocks, i.e., 0.30˚ on one end block if other end block is square. If both end blocks are out of square, the total between them cannot exceed 0.30˚. The x dimension represents how much displacement 0.30˚ represents using 0.0175" per inch per degree of misalignment.)



The following table shows the S dimension (End Block width dimension as found in the catalog) for all bore sizes:

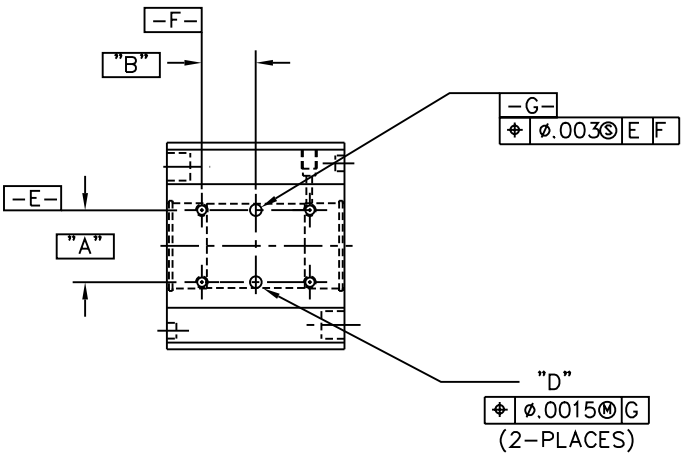
Model	S in (mm)	x in (mm)
007 (5/16" Bore)	2.000 (50.8)	0.010 (0.25)
01 (7/16" Bore)	2.312 (58.7)	0.012 (0.30)
02 (9/16" Bore)	3.000 (76.2)	0.016 (0.40)
04 (3/4" Bore)	3.375 (85.7)	0.018 (0.46)
06 (7/8" Bore)	3.750 (95.3)	0.020 (0.51)
09 (1-1/16" Bore)	4.250 (108.0)	0.022 (0.56)
12 (1-1/4" Bore)	4.812 (122.2)	0.025 (0.64)
17 (1-1/2" Bore)	6.000 (152.4)	0.031 (0.79)
31 (2" Bore)	8.000 (203.2)	0.042 (1.07)

For example:

> A Model 007 (5/16" Bore) has a S dimension of 2.00". 0.30˚ of misalignment would yield approximately 0.010" of differential misalignment from end-to-end before binding and/or excess breakaway would occur.

> A Model 17 (1-1/2" Bore) has a S dimension of 6.00". 0.30˚ of misalignment would yield approximately 0.031" of differential misalignment from end-to-end before binding and/or excess breakaway would occur.

Dowel Pin Hole Locations



Bore	A	B	D
020 (9/16")	1.000	.750	.1270/.1280 x .240/.260 DP.
040 (3/4")	1.375	.876	.1895/.1905 x .410/.430 DP.
090 (1-1/16")	1.750	1.250	.2520/.2530 x .410/.430 DP.
170 (1-1/2")	2.500	1.750	.3145/.3155 x .560/.580 DP.

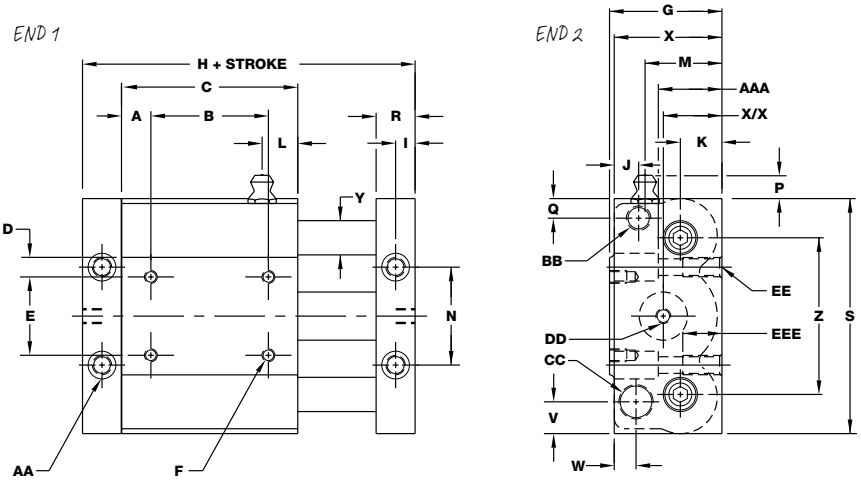
Dimensions (Ultran Slide)

Bore	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P
5/16" (007)	0.344	1.062	1.750	0.141	0.469	4-40-UNC	1.062	2.750	0.250	0.188	0.438	N/A	N/A	0.750	N/A
7/16" (01)	0.344	1.188	1.875	0.125	0.750	6-32 UNC	1.062	2.875	0.250	0.188	0.406	0.395	0.788	0.938	0.288
9/16" (02)	0.375	1.500	2.250	0.250	1.000	8-32 UNC	1.438	3.250	0.250	0.312	0.531	0.455	0.982	1.250	0.297
3/4" (04)	0.562	1.750	2.875	0.312	1.375	10-24 UNC	1.832	4.125	0.312	0.312	0.664	0.572	1.239	1.625	0.234
7/8" (06)	0.500	2.125	3.125	0.188	1.625	10-24 UNC	2.062	4.625	0.375	0.375	0.688	0.635	1.438	1.625	0.225
1-1/16" (09)	0.500	2.500	3.500	0.375	1.750	1/4-20 UNC	2.313	5.000	0.375	0.250	0.750	0.706	1.549	1.875	0.172
1-1/4" (12)	0.562	2.750	3.875	0.318	2.125	1/4-20 UNC	2.687	5.875	0.500	0.500	0.750	0.750	1.562	2.125	0.162
1-1/2" (17)	0.500	3.500	4.500	0.500	2.500	5/16-18 UNC	3.188	6.500	0.500	0.750	0.906	0.756	1.736	2.500	0.109
2" (31)	1.188	5.000	7.375	0.500	3.250	1/2-13 UNC	4.312	10.375	0.750	0.813	1.312	1.500	2.688	3.250	0.000

Bore	Q	R	S	V	W	X	X/X	Y	Z	AA	BB	CC	DD
5/16" (007)	0.188	0.500	2.000	0.215	0.215	1.000	0.562	0.312	1.312	#6	5/16-24 UNF	3/8-32 UNEF	10-32
7/16" (01)	0.219	0.500	2.312	0.218	0.220	1.000	0.562	0.375	1.562	#10	5/16-24 UNF	3/8-32 UNEF	10-32
9/16" (02)	0.250	0.500	3.000	0.406	0.281	1.375	0.749	0.438	2.000	#10	5/16-24 UNF	7/16-28 UNEF	10-32
3/4" (04)	0.313	0.625	3.375	0.406	0.313	1.750	0.957	0.500	2.518	1/4	5/16-24 UNF	7/16-28 UNEF	1/8 NPT
7/8" (06)	0.313	0.750	3.750	0.500	0.438	2.000	1.063	0.625	2.750	1/4	5/16-24 UNF	1/2-20 UNF	1/8 NPT
1-1/16" (09)	0.375	0.750	4.250	0.594	0.375	2.250	1.188	0.750	3.062	5/16	5/16-24 UNF	1/2-20 UNF	1/8 NPT
1-1/4" (12)	0.375	1.000	4.812	0.656	0.562	2.625	1.375	0.812	3.500	5/16	5/16-24 UNF	3/4-16 UNF	1/8 NPT
1-1/2" (17)	0.438	1.000	6.000	1.000	0.906	3.125	1.625	1.000	4.500	3/8	5/16-24 UNF	3/4-16 UNF	1/8 NPT
2" (31)	0.250	1.500	8.000	1.125	0.938	4.250	2.188	1.500	5.750	3/4	5/16-24 UNF	1-12 UNF	1/4 NPT

Bore	EE	AAA	EEE
5/16" (007)	10-32 UNF	0.750	0.315
7/16" (01)	1/4-28 UNF	0.750	0.322
9/16" (02)	1/4-28 UNF	0.750	0.500
3/4" (04)	5/16-24 UNF	1.080	0.625
7/8" (06)	5/16-24 UNF	1.375	0.625
1-1/16" (09)	3/8-24 UNF	1.375	0.750
1-1/4" (12)	3/8-24 UNF	1.750	0.750
1-1/2" (17)	7/16-20 UNF	1.750	0.750
2" (31)	7/8-9 UNC	3.125	1.000

NOTE: H+ stroke tolerance for stroke lengths less than 42" is +/- 0.032". For stroke lengths greater than 42" the tolerance is +0.104/-0.047".

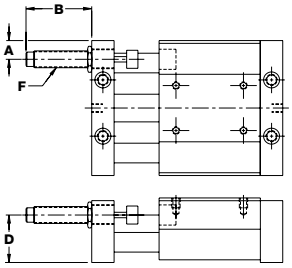


How to Specify

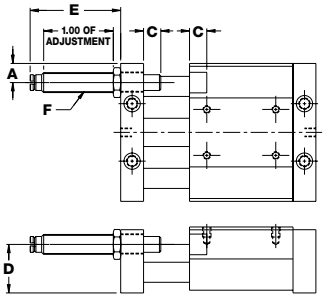
Shock Absorber/Stroke Adjustment (in) (Ultran Slide)

Bore	A	B	C	D	E	F
5/16" (007)	0.215	0.750	0.000	0.785	1.093	3/8-32 UNEF
7/16" (01)	0.218	0.750	0.000	0.780	1.093	3/8-32 UNEF
9/16" (02)	0.406	1.460	0.375	1.094	1.594	7/16-28 UNEF
3/4" (04)	0.406	1.335	0.375	1.438	1.469	7/16-28 UNEF
7/8" (06)	0.500	2.490	0.375	1.562	1.438	1/2-20 UNF
1-1/16" (09)	0.594	2.490	0.375	1.875	1.438	1/2-20 UNF
1-1/4" (12)	0.656	2.890	0.500	2.062	1.500	3/4-16 UNF
1-1/2" (17)	1.000	2.890	0.562	2.219	1.438	3/4-16 UNF
2" (31)	1.125	3.500	0.562	3.312	1.563	1-12 UNF

Shock Absorber



Stroke Adjustment

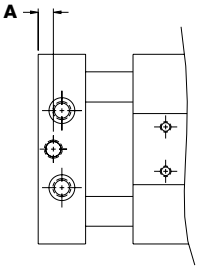


NOTE: Do not let the shock absorbers bottom out. The shock should not be used as a stroke adjuster. A stop collar is needed for the shock if stroke adjustment is required.

Cylinder Bore Size	Shock Absorbers			Stroke Adjustment	*Stop Collar
	Model			Model	Model
	Light	Standard	Heavy		
5/16" (007)	LS-02	SS-02	HS-02	USA-01	N/A
7/16" (01)					
9/16" (02)	LS-04	SS-04	HS-04	USA-02	USC-04
3/4" (04)				USA-04	
7/8" (06)	LS-09	SS-09	HS-09	USA-09	USC-09
1-1/16" (09)					
1-1/4" (12)	LS-17	SS-17	HS-17	USA-17	USC-17
1-1/2" (17)					
2" (31)	LS-31	SS-31	HS-31	USA-31	USC-31

*The Ultran Slide Cylinder needs to be increased by the B dimension in order to maintain intended stroke length. The overall length increases by the same amount. The A dimension indicates maximum amount of stroke adjustment attainable. See Related Products section for dimensions.

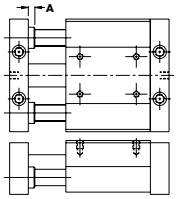
Alternate Port (in.)



Bore	A
5/16" (007)	0.162
7/16" (01)	0.150
9/16" (02)	0.162
3/4" (04)	0.188
7/8" (06)	0.312
1-1/16" (09)	0.312
1-1/4" (12)	0.500
1-1/2" (17)	0.500
2" (31)	0.750

NOTE: 3/4" port size is 10-32, all other sizes are same as standard.

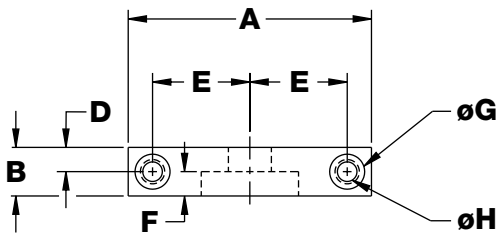
Bumper Adder (per end) (in.)

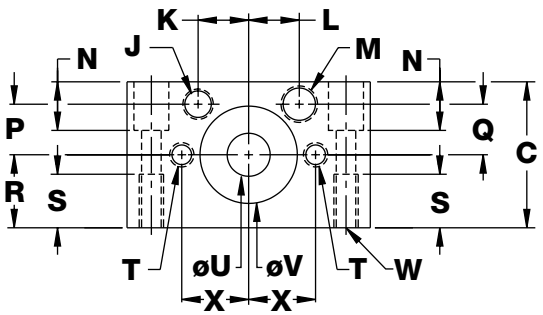


Bore	A
5/16" (007)	0.157
7/16" (01)	0.157
9/16" (02)	0.281
3/4" (04)	0.281
7/8" (06)	0.312
1-1/16" (09)	0.312
1-1/4" (12)	0.312
1-1/2" (17)	0.312
2" (31)	0.312

NOTE: Internal bumpers reach full compression at 80 PSI. External bumpers will not contact carriage until internal bumpers are fully compressed.

Mounting Block (in)



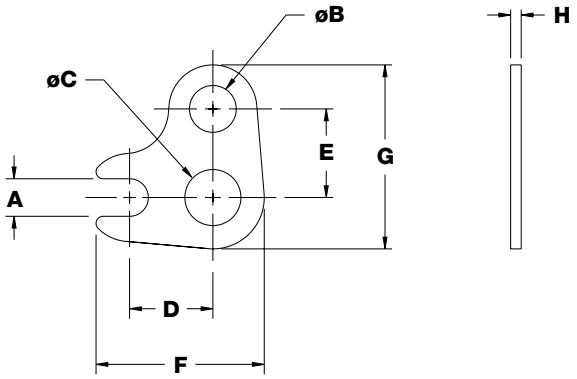


J – Hole for Switch
M – Hole for Shock Absorber

Bore	Model	A	B	C	D	E	F	G	H	J	K	L
5/16" (007)	MB-007	2.000	0.375	0.875	0.188	0.813	0.250	0.272	0.159	5/16-24 UNF	0.500	N/A
7/16" (01)	MB-01	2.500	0.500	1.125	0.250	0.938	0.250	0.357	0.213	5/16-24 UNF	0.562	N/A
9/16" (02)	MB-02	2.500	0.500	1.500	0.250	1.000	0.250	0.354	0.213	5/16-24 UNF	0.520	0.520
3/4" (04)	MB-04	3.500	0.750	1.875	0.375	1.312	0.375	0.422	0.272	5/16-24 UNF	0.671	0.671
7/8" (06)	MB-06	3.500	0.750	2.125	0.375	1.375	0.375	0.422	0.273	5/16-24 UNF	0.789	0.789
1-1/16" (09)	MB-09	4.000	0.750	2.500	0.375	1.563	0.375	0.515	0.332	5/16-24 UNF	0.893	0.893
1-1/4" (12)	MB-12	5.000	1.000	2.875	0.500	2.000	0.443	0.609	0.391	5/16-24 UNF	1.062	1.016
1-1/2" (17)	MB-17	5.000	1.000	3.375	0.500	2.000	0.443	0.609	0.391	5/16-24 UNF	1.240	1.240
2" (31)	MB-31	8.500	1.500	4.500	0.750	3.250	1.000	1.187	0.779	5/16-24 UNF	1.625	1.607

Bore	Model	M	N	P	Q	R	S	T	U	V	W	X
5/16" (007)	MB-007	N/A	0.312	0.250	N/A	0.438	0.315	6-40 UNF	0.318	0.776	6-40 UNF	0.594
7/16" (01)	MB-01	N/A	0.380	0.375	N/A	0.563	0.380	1/4-28 UNF	0.442	0.995	1/4-28 UNF	0.688
9/16" (02)	MB-02	3/8-32 UNEF	0.500	0.520	0.520	0.750	0.500	1/4-28 UNF	0.442	1.000	1/4-28 UNF	0.688
3/4" (04)	MB-04	7/16-28 UNEF	0.625	0.671	0.671	0.938	0.500	5/16-24 UNF	0.629	1.375	5/16-24 UNF	0.938
7/8" (06)	MB-06	1/2-20 UNF	0.625	0.789	0.789	1.063	0.750	5/16-24 UNF	0.629	1.375	5/16-24 UNF	0.938
1-1/16" (09)	MB-09	1/2-20 UNF	0.875	0.893	0.893	1.250	0.750	3/8-24 UNF	0.629	1.375	3/8-24 UNF	1.125
1-1/4" (12)	MB-12	3/4-16 UNF	1.125	1.062	1.016	1.438	1.125	7/16-20 UNF	0.754	1.625	7/16-20 UNF	1.375
1-1/2" (17)	MB-17	3/4-16 UNF	1.375	1.240	1.240	1.688	1.000	7/16-20 UNF	0.753	1.625	7/16-20 UNF	1.375
2" (31)	MB-31	1-12 UNF	1.625	1.625	1.607	2.250	1.500	7/8-9 UNC	1.380	2.750	7/8-9 UNC	2.125

Shock Absorber/Switch Bracket (For 9/16" bore and larger only) (Ultran)



A – Slot for Switch
B – Hole for Shock Absorber
C – Hole for Cylinder

Bore	Model	A	B	C	D	E	F	G	H
9/16" (02)	BU-02	0.320	0.399	0.442	0.710	0.755	1.433	1.568	0.090
3/4" (04)	BU-04	0.320	0.478	0.629	0.910	0.900	1.820	1.900	0.120
7/8" (06)	BU-06	0.320	0.556	0.629	0.875	1.116	1.785	2.179	0.120
1-1/16" (09)	BU-09	0.320	0.556	0.629	0.910	1.047	1.820	2.110	0.120
1-1/4" (12)	BU-12	0.320	0.793	0.754	0.375	1.437	2.410	2.812	0.120
1-1/2" (17)	BU-17	0.320	0.793	0.754	1.450	1.453	2.485	2.828	0.120
2" (31)	BU-31	0.320	1.005	1.254	2.230	2.290	3.640	4.165	0.224

Ultran

The model number of Ultran rodless cylinders consists of an alphanumeric cluster designating product type, bore size, stroke length, and other optional components that together make up the complete part number to use in ordering. Use the ordering information below to build a valid part number.

An example of a basic Ultran unit with Silver coupling strength, 1-1/2" bore, 66.375" stroke, and additional options is shown below.

US - 17 66.375 - A1B1F

Model	
UG	Ultran Rodless, Gold coupling strength
US	Ultran Rodless, Silver coupling strength*

* Specify silver coupling strengths for lower breakaway application requirements. Use caution as decoupling can occur at pressures less than 100 PSI. Refer to the engineering specifications on page 387 for details.

Bore Size	
007	5/16"
01	7/16"
02	9/16"
04	3/4"
06	7/8"
09	1-1/16"
12	1-1/4"
17	1-1/2"
31	2"

Stroke Length	
Standard	**Maximum**
1/4" - 30" (007)	30"
1/4" - 40" (01)	50"
1/4" - 40" (02)	90"
1/4" - 80" (04)	120"
1/4" - 80" (06)	120"
1/4" - 80" (09)	120"
1/4" - 80" (12)	120"
1/4" - 80" (17)	120"
1/4" - 80" (31)	100"

Options	
A	Stroke adjustment (both ends)
A1	Stroke adjustment (end 1)
A2	Stroke adjustment (end 2)
B	Bumpers (both ends)
B1	Bumpers (end 1)[1]
B2	Bumpers (e nd 2)
C	Cushions (both ends)*[2]
C1	Cushions (end 1)
C2	Cushions (end 2)
F	Floating Mount Bracket [3]
K	Pivot (both ends)
K1	Pivot (end 1)
K2	Pivot (end 2)
P	Axial ports (both ends)
P1	Axial port (end 1)
P2	Axial port (end 2)
S	Seals - oil service (low pressure hydraulic service)

[1] 80 PSI required to reach full stroke due to bumper compression.
[2] Not available for 5/16" and 7/16" bores. 9/16" bore has fixed cushions, other sizes have adjustable cushions.
[3] For use when application requirements dictate a non-parallel or floating interface with the Ultran carriage to prevent binding between the Ultran and external guiding systems. Refer to page 396 for dimensions.
The 9/16" bore fixed cushion operates like an air spring. A small amount of air is trapped behind the piston to help slow it down. Since there is no air bleed-off, this air will remain trapped behind the piston until the cylinder is cycled. A minimum of 40 psi is needed to move the cylinder to full stroke. If air pressure is removed from the front side of the piston, the trapped air will act like a spring and move the piston away from the end cap about 3/16 of an inch.

Combination Availability

	A	B	C	F	K	P	S
5/16"(007) 7/16"(01)	B,F,S	A,F,K,P	N/A	A,B,K,P,S	B,F,S	B,F,S	A,F,K,P
All other sizes	B,F,S	A,F,K,P	F,K	A,B,C,K,P,S	B,C,F,S	B,F,S	A,F,K,P

Location

See diagram on page 394 for location of End 1 and End 2. Incompatible options cannot be ordered on the same end (see combination availability chart above).

How to Order

Ultran Slide

The model number of Ultran Slide cylinders consists of an alphanumeric cluster designating product type, bore size, stroke length, and other optional components that together make up the complete part number to use in ordering. Use the ordering information below to build a valid part number.

An example of a basic Ultran Slide unit with 1-1/2" bore, 23.375" stroke, and additional options is shown below.

UGS - 17 23.375 - A1T

Model	
UGS	Ultran Slide, Gold coupling strength
USS	Ultran Slide, Silver coupling strength

Bore Size	
007	5/16"
01	7/16"
02	9/16"
04	3/4"
06	7/8"
09	1-1/16"
12	1-1/4"
17	1-1/2"
31	2"

Stroke Length	
Standard	**Maximum**
1/4" - 15" (007)	25"
1/4" - 20" (01)	30"
1/4" - 30" (02)	40"
1/4" - 30" (04)	40"
1/4" - 40" (06)	50"
1/4" - 60" (09)	70"
1/4" - 60" (12)	70"
1/4" - 60" (17)	85"
1/4" - 60" (31)	100"

Options	
A	Stroke adjustment (both ends)
A1	Stroke adjustment (end 1)
A2	Stroke adjustment (end 2)
B	Bumpers (both ends)1
B1	Bumpers (end 1)
B2	Bumpers (end 2)
D	Dowel pin holes for Transition Plates [2]
L	Remove guide rod wipers in 3/4"-2" bores
S	Seals - oil service (low pressure hydraulic service)
T	Switch track
U	Switch track for miniature switch
Y	Alternate port (both ends)
Y1	Alternate port (end 1)
Y2	Alternate port (end 2)

[1] Increases overall dimension. Internal bumpers reach full compression at 80 PSI. External bumpers will not contact carriage until internal bumpers are fully compressed.
[2] Transition Plate Applications: Option -D must be ordered if dowel pin holes are required. Not available on all bore sizes. Refer to Related Products/Transition Plates for details. Hole locations shown in Related Products/Appendix.

Combination Availability

	A	B	D	S	T, U	Y
For all sizes	D,S,T,Y	D,T,Y	A,B,D,S,T,Y	A,D,T,Y	A,B,D,S,Y	A,B,D,S,T

NOTE: Option -A can be ordered with option -B if they are ordered on different ends, i.e., A1B2 or A2B1.

Location

See diagram on page 399 for location of End 1 and End 2.

Basic Repair Kits (Ultran Slide)

Bimba recommends that the Ultran Slide be returned to the factory for repairs. However, the following parts and kits are available for the Ultran Slide rodless cylinder.

Part	Cylinder Bore Size								
	5/16" (007)	7/16" (01)	9/16" (02)	3/4" (04)	7/8" (06)	1-1/16" (09)	1-1/4" (12)	1-1/2" (17)	2" (31)
Shaft bearing	RD-50644	RD-50645	RD-48996	RD-48997	RD-50646	RD-48998	RD-50647	RD-48999	RD-50648
Shaft wiper	N/A	N/A	RD-22720	RD-23079	RD-15679	RD-23086	RD-50656	RD-16174	RD-50657
Tube seal	RD-1476	RD-22653	RD-13012	RD-1078	RD-10050	RD-48874	RD-50769	RD-1147	RD-50770
Carriage bearing	RD-51006	RD-51007	RD-41631	RD-41633	RD-51433	RD-41635	RD-51434	RD-41637	RD-51438
Carriage wiper	N/A	RD-49806	RD-47191	RD-47192	RD-49805	RD-47193	RD-49804	RD-47194	RD-49803
Piston bearing	N/A	N/A	RD-41632	RD-41634	RD-51435	RD-41636	RD-51436	RD-41638	RD-51439
Piston seal	RD-13970-T	RD-13435-T	RD-45616	RD-45621	RD-50651	RD-45622	RD-50652	RD-45623	RD-50653
Piston bumper	RD-50468	RD-50469	RD-33072	RD-33073	RD-33073	RD-33071	RD-33071	RD-33076	RD-36326
Shaft bumper	RD-50802	RD-50803	RD-50279	RD-50280	RD-50804	RD-50281	RD-50805	RD-50282	RD-50806
Shaft washer	RD-50797	RD-50798	RD-50283	RD-50284	RD-50799	RD-50285	RD-50800	RD-50286	RD-50801
Body[1]	KUB-007	KUB-01	KUB-02	KUB-04	KUB-06	KUB-09	KUB-12	KUB-17	KUB-31
Guide Rods[1]	KUG-007	KUG-01	KUG-02	KUG-04	KUG-06	KUG-09	KUG-12	KUG-17	KUG-31
Switch Track[1]-T	KUT-007	KUT-01	KUT-02	KUT-04	KUT-06	KUT-09	KUT-12	KUT-17	KUT-31
Switch Track[1]-U	KUU-007	KUU-01	KUU-02	KUU-04	KUU-06	KUU-09	KUU-12	KUU-17	KUU-31
Repair kit[2]	KU-007	KU-01	KU-02	KU-04	KU-06	KU-09	KU-12	KU-17	KU-31

[1] Option-B must be included at the end of part number if bumpers are being used with the Ultran Slide. (i.e., KUT-007-B)
[2] Includes required quantity of all except bumpers, oil service piston seals, bodies, guide rods and switch track, which are sold separately. Consult your local stocking Bimba distributor for prices.

Product Features

Ultran High Load Slide



Features and Benefits

- Large load bearing capabilities
- Greater carriage precision
- Leak-free construction
- Piston seals are internally lubricated for long life
- Special rare earth magnet configuration for high magnetic coupling strengths.
- 304 stainless steel body and “U” cup seals for lower dynamic friction.
- Pre-lubricated for miles of maintenance-free travel, with easily-accessible carriage lubrication port.
- Shock absorbers to decelerate loads.
- Optional 1” stroke length adjustment available.
- Midstroke position sensing available. End-of-stroke sensing available for all models.
- Optional bumpers to reduce noise.
- Oil service seal option available for low pressure hydraulic service.

Engineering Specifications (Ultran High Load Slide)

Ratings

Operating Medium:	Air or Hydraulic
Pressure Rating:	100 PSI
Temperature Range:	0˚ F to +170˚ F
Breakaway:	Less than 25 PSI

Lubrication

All Bimba High Load Ultran Slide actuators are pre-lubricated internally and externally with our special bearing grade grease. The guide shafts are pre-lubricated with lightweight oil. The cylinder's life can be extended by providing additional lubrication with an air line mist lubricator and by lubricating the carriage every 100 miles with a high grade bearing grease. The guide shafts should be lubricated periodically with a lightweight oil. Do not over oil–there is an internal wick to retain the lightweight oil.

Repairs

The High Load Ultran Slide actuators must be returned to the factory for repairs.

Material of Construction

Carriage:	Anodized aluminum
End Block:	Anodized aluminum
Guide Shaft:	Case-hardened steel
Base Plate:	Anodized aluminum
Guide Shaft Support:	Anodized aluminum
End Block Screws:	Stainless steel
Guide Shaft Screws:	Black oxide carbon steel
Carriage Retaining Rings:	Plated carbon steel
Body Wiper:	Urethane
Guide Shaft Bearing:	Ball bearings in plastic housing
Port Plug:	Carbon steel
Bearing Retaining Screw:	Stainless steel

Options

Bumpers (Internal & External):	Urethane
Stroke Adjuster Screw:	Stainless steel
Shock Absorbers:	Anodized aluminum end plates, 303 stainless steel guide rods
Bumper Plug:	Anodized aluminum
Stroke Adjuster Bumper Plate:	Anodized aluminum
Switch Track:	Anodized aluminum

Weight (lbs)

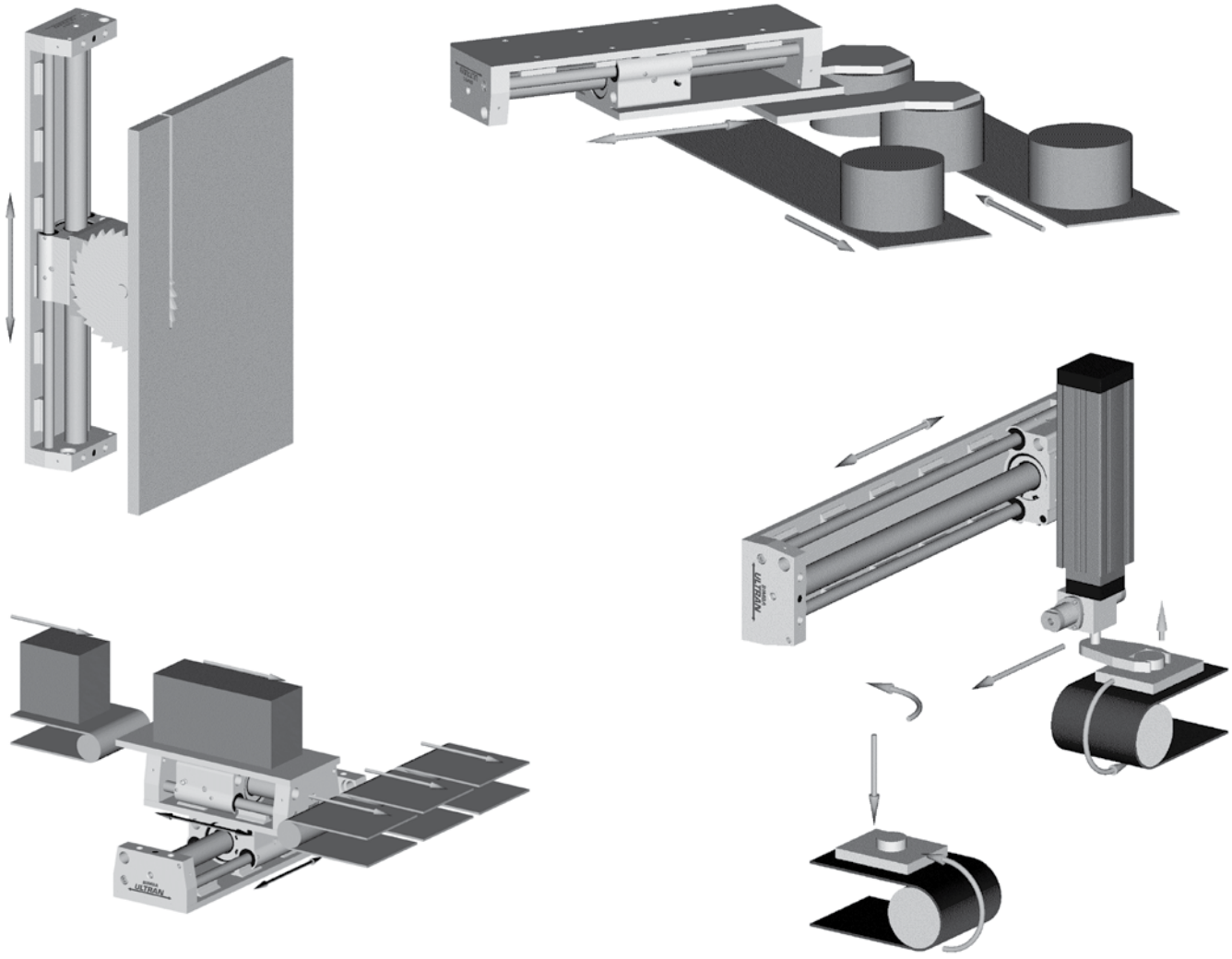
Bore Size	Base Weight (0˚ Stroke)	Adder per 1"
1-1/16" (09)	5.43	0.23
1-1/4" (12)	7.87	0.44
1-1/2" (17)	14.1	0.45
Option Adders for 1-1/16"		
A Option Adder	0.19	N/A
A1 Option Adder	0.1	N/A
A2 Option Adder	0.1	N/A
B Option Adder	0.01	N/A
Option Adders for 1-1/4" and 1-1/2"		
A Option Adder	2.67	N/A
A1 Option Adder	1.33	N/A
A2 Option Adder	1.33	N/A
B Option Adder	0.01	N/A

Magnetic Coupling Strength (lbs)

Bore Size	Strength
1-1/16" (09)	127
1-1/4" (12)	190
1-1/2" (17)	270

How It's Used

Ultran High Load Slide



Provides high load carrying capability within an Ultran Slide Cylinder. The unit incorporates a ball bearing system offering large load bearing capabilities with greater carriage precision.

Size/Application Considerations (Ultran High Load Slide)

Each bore size of the High Load Ultran Slide has specific load-carrying capabilities. Shock absorbers can extend cylinder life when used properly. See subsequent section on shock absorbers to calculate maximum allowable kinetic energy before a shock absorber is required. Use the following procedures to determine the requirements for specific applications.

NOTE: Exceeding the recommended loads can result in improper cylinder function: piston/carriage decoupling, unacceptable deflections, etc.

1. Check the loading condition requirements and find that condition below. See sketches A and B for illustration of loading conditions.
2. Depending on the loading condition, use the appropriate chart, graph or formula to help determine maximum allowable loads and/or moment arms.

Table 1. Maximum Allowable Loads and Moments*

Bore	Maximum Load			Maximum Moment		
	Radial (lbs)	Pull Off (lbs)	Side (lbs)	Axial (Ma) (in-lbs)	Radial (Mr) (in-lbs)	Cross (Mc) (in-lbs)
1-1/16" (09)	1440	992	1440	1111	435	1613
1-1/4" (12)	2480	220	992	261	385	1178
1-1/2" (17)	2480	992	1984	1488	2232	2976

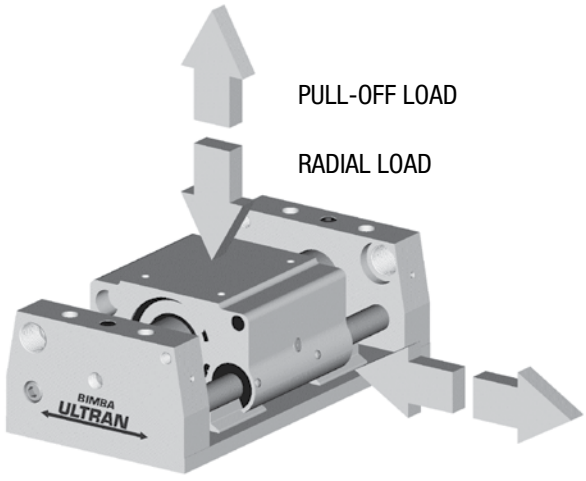
*Dynamic Ratings

The values shown in Table 1 are the maximum allowable loads for the load carrying system. To achieve these values, the base plate must be fully supported along its full length and the load must be equally distributed among all four bearings. For best results, your application analysis should determine maximum loading on each bearing. Do not exceed 20 in/sec velocity or 15 cycle/minute cycle rate; the internal piston bearings will heat up and cause sluggish motion.

Radial Load and Pull-off Load

A load applied perpendicular to both the base plate and to the direction of actuation. Load directed toward the base plate represents the maximum loading capacity of the system. Load directed away from the base plate reduces the system's load rating to approximately 40% of maximum radial loading. This is what's called the “pull-off” capacity.

In this loading condition, the maximum radial load-carrying capability is 620 pounds per bearing. The maximum “pull-off” load in the same mounting condition is 248 pounds per bearing.



SKETCH A

Side Load

A load that is applied parallel to the base plate, but perpendicular to the direction of actuation. Depending on bore size, the maximum side load will be at least 20% less than the maximum radial loading capacity.

In this loading condition, the maximum load carrying capability is 496 pounds per bearing. Only two bearings are used to calculate the load carrying capability of the 1-1/4" bore unit.

Size/Application Considerations (Ultran High Load Slide)

Radial Moment Load (Mr)

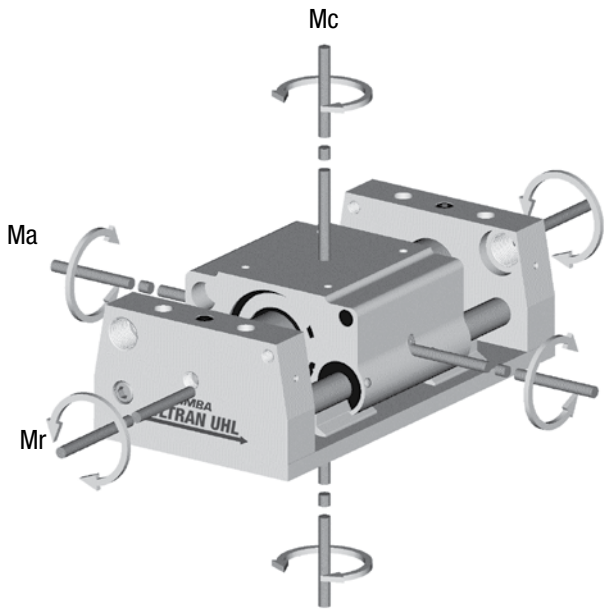
An unbalanced radial or side load applied to the system. The center of the radial load must be outside the span of the guide shafts, or the center of the side load must be at some point other than the center of the guide shafts to cause a radial moment loading condition.

Axial Moment Load (Ma)

An axial (same as the direction of actuation) load applied to the system, where the center of the load is at some point other than the center of the guide shafts. The load must also be between the span of the guide shafts to be a pure axial moment loading condition.

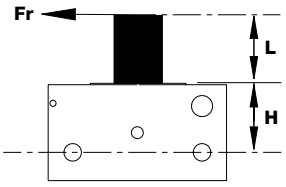
Cross Moment Load (Mc)

An axial load applied to the system, where the center of the load is at some point outside of the span of the guide shafts.



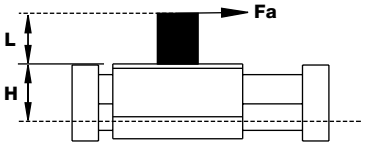
SKETCH B

Radial Moment



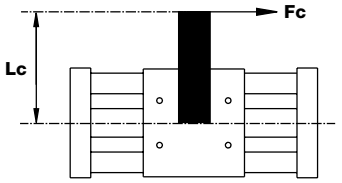
SKETCH C

Axial Moment



SKETCH D

Cross Moment



SKETCH E

Sketches C, D, and E demonstrate how a force is applied to a moment arm to produce the moments shown in Sketch B. Use the equations below to determine the actual moments created by your application. The results of each calculated moment should be compared to the maximums listed in the table. (If the actual moments are greater than the listed maximums, then the load and moments should be re-evaluated.)

Radial Moment =	Mr	=	Fr x (L+H)
Axial Moment	=	Ma	= Fa x (L+H)
Cross Moment =	Mc	=	Fc x (Lc)

A High Load Ultran Slide can withstand compound moments but the maximum allowable will be determined by the total percentage of the axial, radial and cross moments. The equation below will determine the compound moment percent based on the total moments. The compound moment percent must not be greater than 100. (If the compound moment percent is greater than 100, then the load and moments should be re-evaluated.)

$$M\ compound\ \% = 100 \times \left(\frac{Mr}{Mr\ max} + \frac{Ma}{Ma\ max} + \frac{Mc}{Mc\ max} \right) < \underline{100}\%$$

Size/Application Considerations (Ultran High Load Slide)

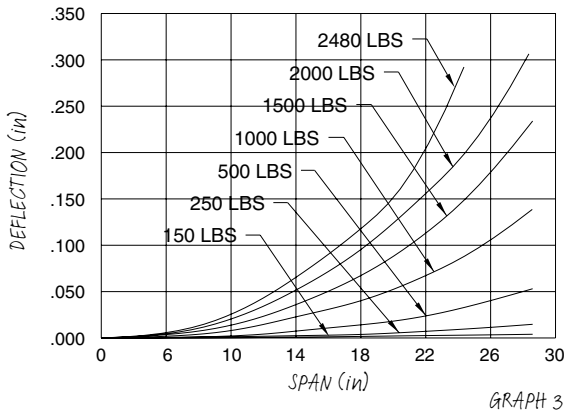
Unsupported Loads

If your application does not fully support the base plate, refer to Graphs 1-3. Graph 1, “Load vs. Span” displays the maximum load allowable with a maximum 0.005" deflection.

If your application allows for greater deflections, refer to Graphs 2 and 3, “Deflection vs. Span”. Use the following steps to determine resultant loads or deflections pertinent to your application.

1. If you know the length (span) that the base plate will be supported, find that span on the X-Axis of the graph. From this point, go up to the approximate location that best represents your weight or load. Across to the left from this point where it intersects the Y-Axis identifies what deflection can be expected between the supported points.
2. If you know the maximum amount of deflection that your application can tolerate, find this deflection on the Y-Axis of the graph. Once you locate the desired deflection, go across to the approximate location that best represents your weight or load. Directly under this point on the X-Axis is the recommended span length.

(1-1/4" Bore)
DEFLECTION vs SPAN

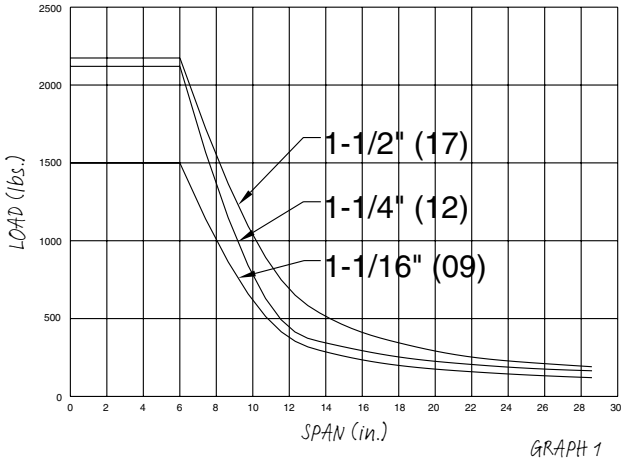


GRAPH 3

If your application combines radial and moment loads, or exceeds the deflections from Graphs 2 and 3, consult your authorized Bimba distributor to determine if the application is feasible.

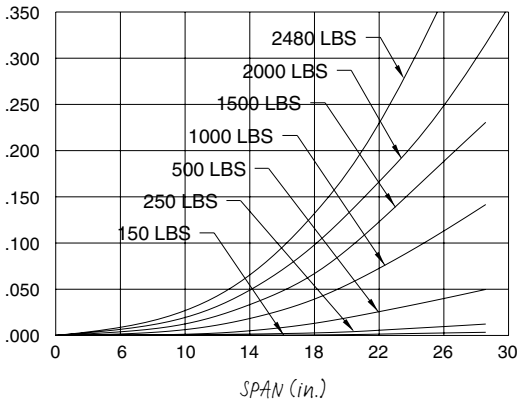
NOTE: Velocities exceeding 20 in/sec or 15 cycle/minute require review by Bimba.

LOAD vs SPAN



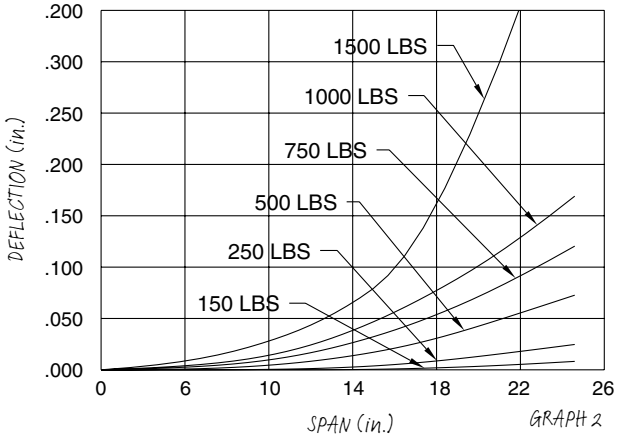
GRAPH 1

(1-1/2" Bore)
DEFLECTION vs SPAN



GRAPH 4

(1-1/16" Bore)
DEFLECTION vs SPAN

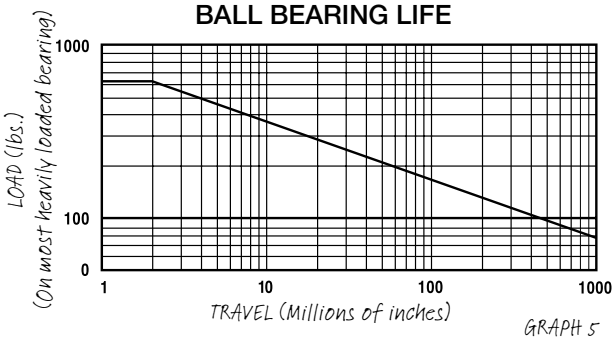


GRAPH 2

Bearing Life

The life of the ball bearing bushings are primarily affected by the amount of load it is required to carry. This can be best illustrated by Graph 5 below.

BALL BEARING LIFE



GRAPH 5

Dimensions (Ultran High Load Slides)

Bore	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1-1/16" (09)	0.500	0.706	2.500	3.500	5.000	0.375	1.750*	1.750	1/4-20 UNC	0.375	0.750	0.500	0.250	0.375
1-1/4" (12)	0.562	0.750	2.750	3.875	5.875	0.318	2.125	1.938	1/4-20 UNC	0.500	1.000	0.625	0.306	0.514
1-1/2" (17)	0.500	0.756	3.500	4.500	6.500	0.500	2.500	2.250	5/16-18 UNC	0.520	1.000	0.625	0.559	0.486

Bore	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	BB
1-1/16" (09)	5/16-24 UNF	1/8 NPT	1/2-20 UNF	0.594	0.375	2.300	3.062	4.250	0.172	0.375	1.125	1.563	1.922	2.625
1-1/4" (12)	5/16-24 UNF	1/8 NPT	3/4-16 UNF	0.742	0.563	1.660	3.500	5.000	0.109	0.375	1.125	1.750	1.938	3.000
1-1/2" (17)	5/16-24 UNF	1/8 NPT	3/4-16 UNF	0.992	0.906	1.917	4.500	6.000	0.140	0.375	1.281	2.000	2.109	3.500

Bore	CC	II	DD	EE
1-1/16" (09)	2.688	#10	0.252	0.420
1-1/4" (12)	3.062	#10	—	—
1-1/2" (17)	3.562	1/4"	—	—

* The 09 base plate mounting holes are 1.56" apart. Other bore sizes have carriage mounting holes and base plates mounting holes in line as shown.

Mounting Hole Calculation for 1-1/16" bore

$$JJ = \frac{KK - (INT(\frac{KK}{4}) \times 4)}{2}$$

If Result < 1.60, use:

$$JJ = \frac{KK - [(INT(\frac{KK}{4}) - 1) \times 4)]}{2}$$

Where KK = (E + Stroke) and INT is integer.

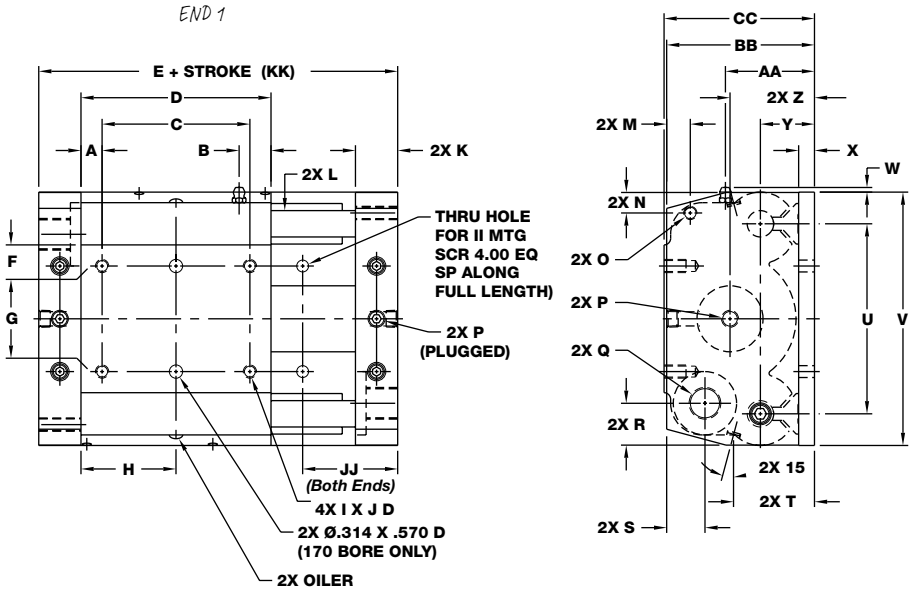
Mounting Hole Calculation for 1-1/4" and 1-1/2" bores

$$JJ = \frac{KK - (INT(\frac{KK}{4}) \times 4)}{2}$$

If Result < 1.85, use:

$$JJ = \frac{KK - [(INT(\frac{KK}{4}) - 1) \times 4)]}{2}$$

Where KK = (E + Stroke) and INT is integer.



Ports

The Base Model High Load Ultran Slide offers both axial and alternate port locations. The base unit comes with flush surface plugs installed on top of the End Blocks unless the “Y” option is specified. This no charge option has the plugs installed on the side of the End Blocks.

Shock Absorber/Stroke Adjustment (in) (Ultran High Load Slides)

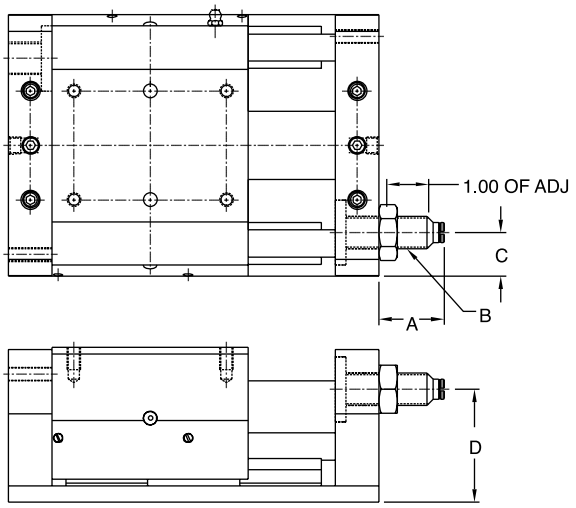
High Load Ultran Slides requiring shock absorbers with stop collars for stroke adjustment or a larger kinetic energy rating should use the following shock absorber.

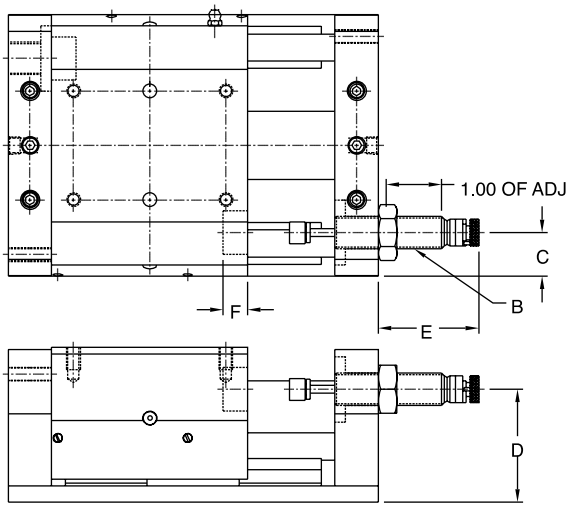
Bore	A	B	C	D	E	F
1-1/16" (09)	1.562	1/2-20 UNF	0.594	2.250	2.060	0.465
1-1/4" (12)	1.750	3/4-16 UNF	0.742	2.438	2.312	0.550
1-1/2" (17)	1.750	3/4-16 UNF	0.992	2.594	2.312	0.550

NOTE: Do not let the shock absorbers bottom out. The shock should not be used as a stroke adjuster. An optional stop collar is needed if stroke adjustment is required.

Bore	Shock Absorber Model	Stop Collar* Model
1-1/16" (09)	HS-09	USC-09
1-1/4" (12)	HS-17	USC-17
1-1/2" (17)	HS-17	USC-17

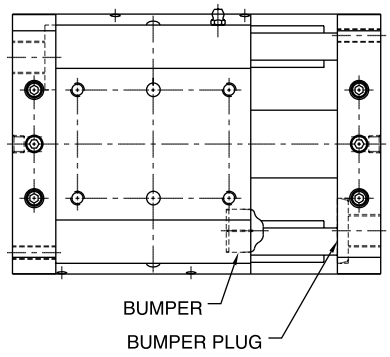
*The Ultran Slide Cylinder needs to be increased by the B dimension in order to maintain intended stroke length. The overall length increases by the same amount. The A dimension indicates maximum amount of stroke adjustment attainable. See Related Products for dimensions.





Bumper Compression

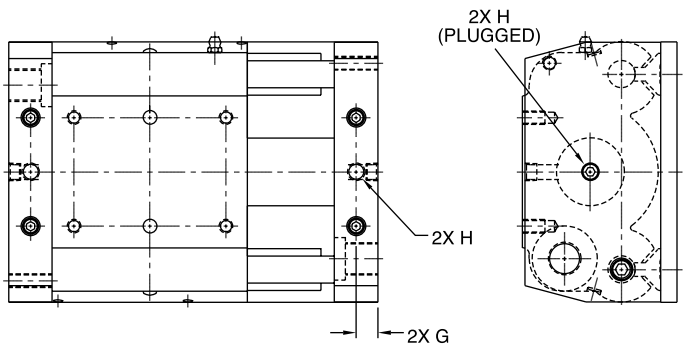
Bore	Pressure
1-1/16" (09)	80 PSI
1-1/4" (12)	80 PSI
1-1/2" (17)	60 PSI



The Bumper option does not add overall length to the cylinder. However, the unit will not go full stroke until the specified pressure in table above is applied to the cylinder. If full stroke is required at a pressure less than that specified above, the stroke adjustment option may be utilized in combination with the bumper option to obtain full stroke. Example: If 5 inches of stroke is required at 40 psi, order a 5.5 inch stroke unit with the Stroke Adjustment Option and adjust the stroke down to 5 inches.

Alternate Port (in)

Bore	G	H
1-1/16" (09)	0.375	1/8 NPT
1-1/4" (12)	0.500	1/8 NPT
1-1/2" (17)	0.500	1/8 NPT

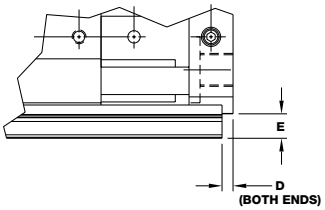


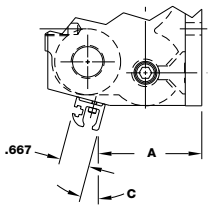
The Base Model High Load Ultran Slide offers both axial and alternate port locations. The base unit comes with flush surface plugs installed in the top ports of the End Blocks unless the “Y” option is specified. This no charge option has the plugs installed in the End Block side ports.

How to Specify

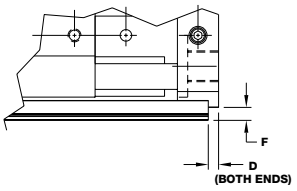
Switch Track for Miniature Switches (Ultan High Load Slides)

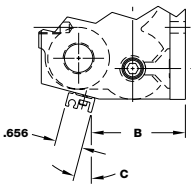
Option T





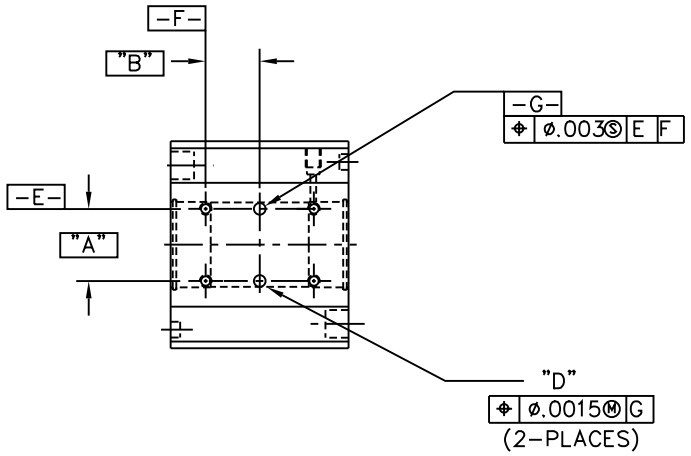
Option U





Bore	A	B	C	D	E	F
1-1/16" (09)	1.497	1.494	0°	0.125	0.531	0.272
1-1/4" (12)	1.999	1.954	10°	0.242	0.522	0.267
1-1/2" (17)	2.356	2.289	15°	0.250	0.577	0.327

Dowel Pin Hole Locations (Ultan High Load Slides)



Bore	A	B	D
020 (9/16")	1.000	.750	.1270/.1280 x .240/.260 DP.
040 (3/4")	1.375	.876	.1895/.1905 x .410/.430 DP.
090 (1-1/16")	1.750	1.250	.2520/.2530 x .410/.430 DP.
170 (1-1/2")	2.500	1.750	.3145/.3155 x .560/.580 DP.

Ultran High Load Slide

The model number of Ultran High Load Slide cylinders consists of an alphanumeric cluster designating product type, bore size, stroke length, and other optional components that together make up the complete part number to use in ordering. Use the ordering information below to build a valid part number.

An example of a basic High Load Ultran Slide unit with 1-1/4" bore, 25.75" stroke, and additional options is shown below.

UHL - 12 25.75 - A1T

Model	
UHL	High Load Ultran Slide

Bore Size	
09	1-1/16"
12	1-1/4"
17	1-1/2"

Stroke Length
6" to 132"
Available in 1/4" increments[1]

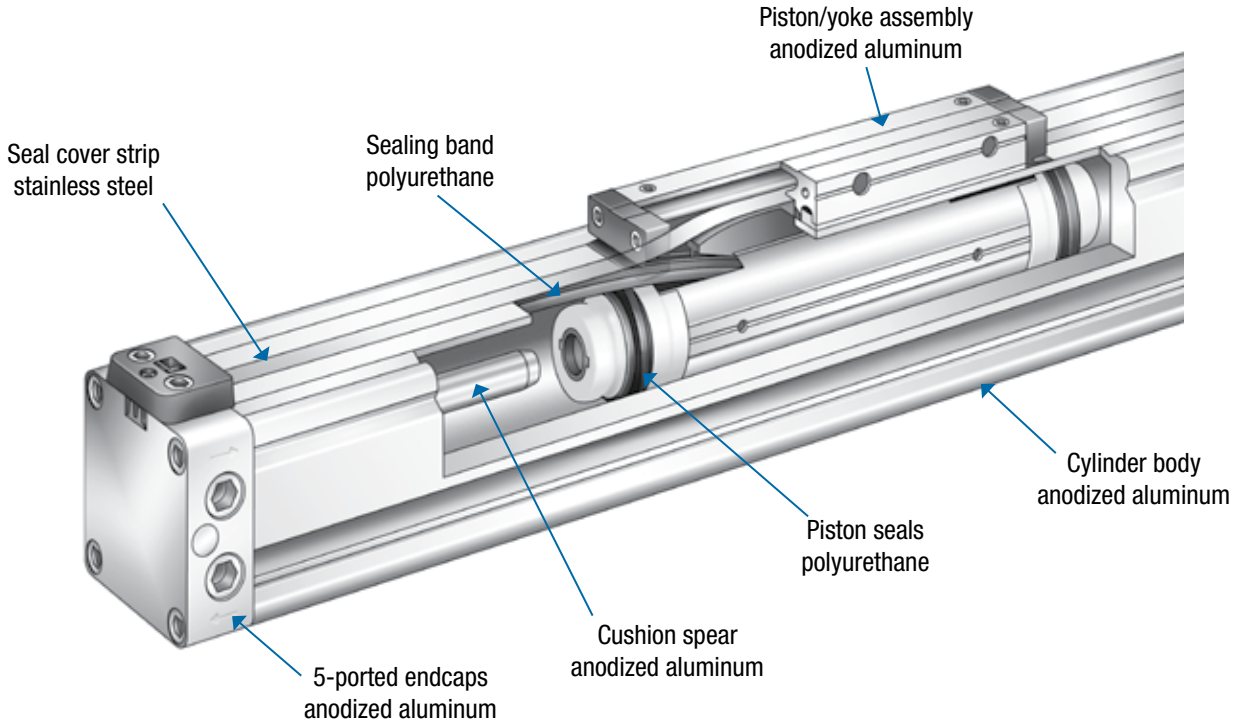
[1] Contact your authorized Bimba distributor if smaller stroke increments are required for your application.

Options	
A	Stroke adjustment (both ends)
A1	Stroke adjustment (end 1)
A2	Stroke adjustment (end 2)
B	Bumpers (both ends)1
B1	Bumpers (end 1)
B2	Bumpers (end 2)
S	Seals - oil service (low pressure hydraulic service)
T	Switch track
U	Switch track for miniature switches
Y	Alternate port (both ends)
Y1	Alternate port (end 1)
Y2	Alternate port (end 2)

NOTE: All options are compatible, except bumpers (option B) and oil service seals (option S) and T and U switch tracks.
Dowel pin holes are standard on 1-1/16" (09) and 1-1/2" (17) bore cylinder. Not available on 1-1/4" (12) bore cylinder.

Product Features

Ultran Band



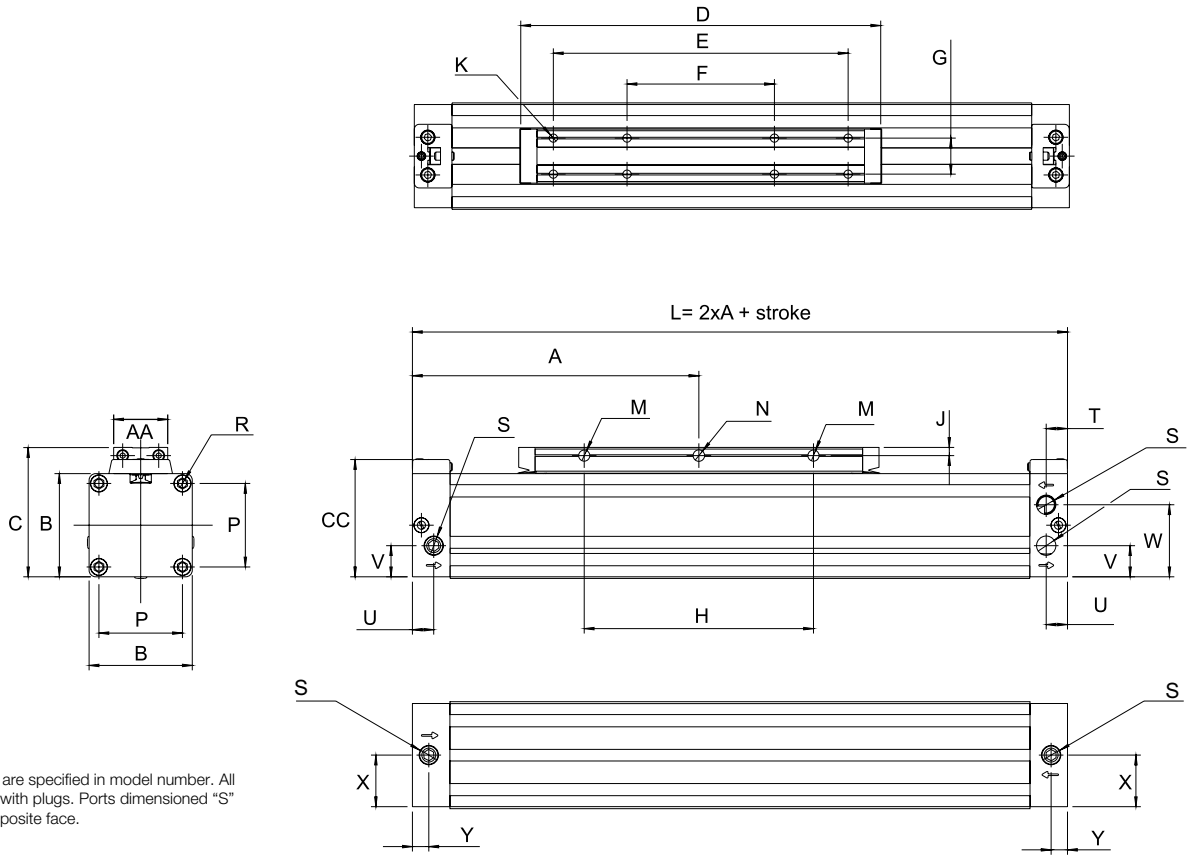
Features and Benefits

- The Bimba Ultran Band is a mechanically- coupled rodless cylinder, providing overall length savings in excess of 40% vs. traditional cylinders.
- Specially engineered sealing strip out performs all other band sealing systems on the market.
- Stainless steel cover strip protects the sealed area and prolongs band life.
- Bore sizes range from 18mm to 63mm in basic model as well as with additional guiding.
- All models are switch-ready and come standard with finely adjustable cushioning.
- Unique five-ported endcaps provide maximum plumbing flexibility.





Dimensions (Ultran Band)



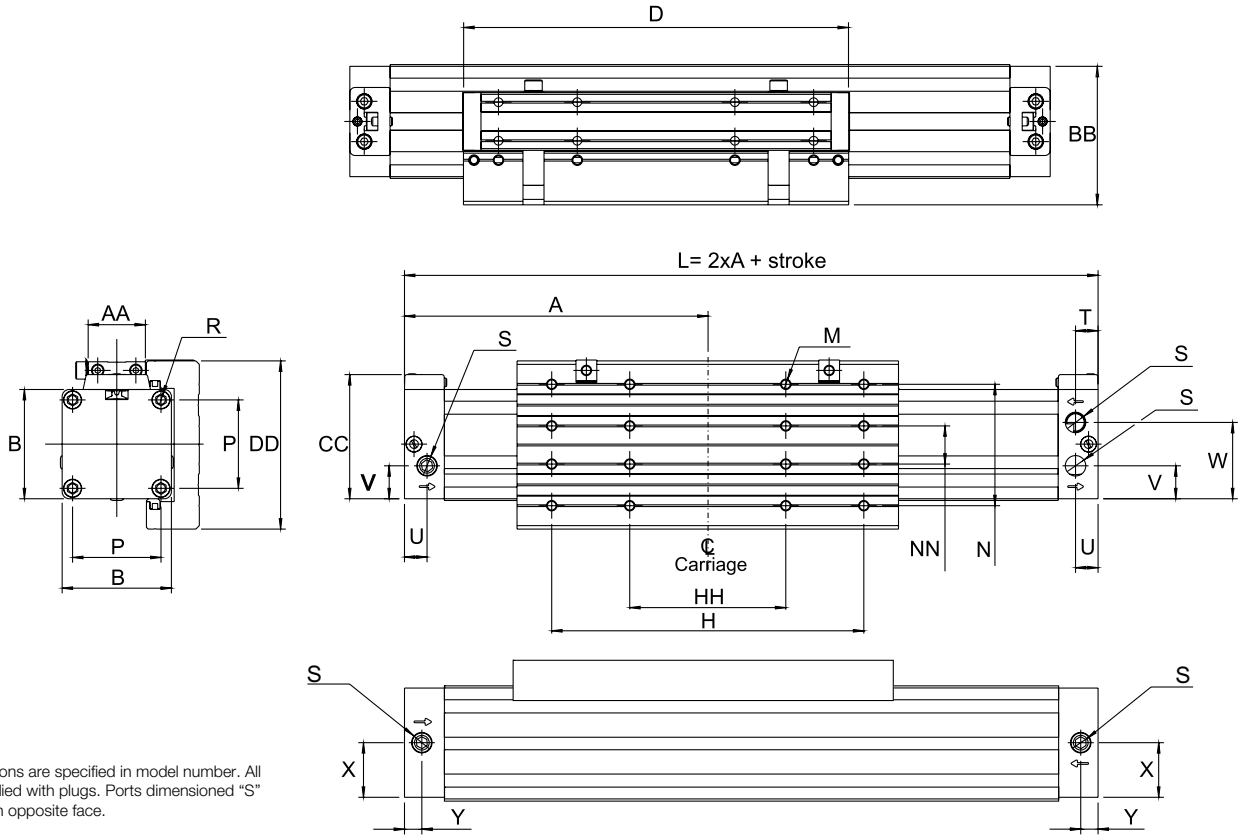
Active port positions are specified in model number. All other ports supplied with plugs. Ports dimensioned "S" are duplicated on opposite face.

Bore Size	A	AA	B	C	CC	D	E	F	G	H
18mm	80 (3.15)	15.5 (0.61)	30 (1.18)	39 (1.54)	36.5 (1.44)	103 (4.06)	75 (2.95)	-	10 (0.39)	50 (1.97)
25mm	100 (3.94)	20 (0.79)	42 (1.65)	53 (2.09)	50.2 (1.98)	131 (5.16)	100 (3.94)	50 (1.97)	13 (0.51)	70 (2.76)
32mm	120 (4.72)	25 (0.98)	52 (2.05)	65 (2.56)	60.2 (2.37)	171 (6.73)	140 (5.51)	70 (2.76)	16 (0.63)	100 (3.94)
40mm	150 (5.91)	33 (1.3)	63 (2.48)	79 (3.11)	71.6 (2.82)	220 (8.66)	180 (7.09)	90 (3.54)	22 (0.87)	140 (5.51)
50mm	180 (7.09)	42 (1.65)	78 (3.07)	96 (3.78)	86.6 (3.41)	280 (11.02)	220 (8.66)	110 (4.33)	29 (1.14)	180 (7.09)
63mm	215 (8.46)	54 (2.13)	93 (3.66)	113.5 (4.47)	101.6 (4)	333 (13.11)	280 (11.02)	140 (5.51)	40 (1.57)	230 (9.06)

Bore Size	J	K	OM	ON	P	R	Port S	T
18mm	3 (0.12)	M3x7 (#4-48x0.28)	3.4 (0.13)	3.5 (0.14)	23.5 (0.93)	M3x8 (#4-48x0.31)	M5 (10-32)	9.5 (0.37)
25mm	3.5 (0.14)	M4X7 (#8-36x0.28)	4.4 (0.17)	4.5 (0.18)	33 (1.3)	M4x10 (#8-36x0.39)	G1/8 (1/8 NPT)	7 (0.28)
32mm	4.5 (0.18)	M5X9 (#10-32x0.35)	5.3 (0.21)	5.5 (0.22)	41 (1.61)	M5x11 (#10-32x0.43)	G1/8 (1/8 NPT)	7 (0.28)
40mm	5 (0.20)	M6X10 (1/4-28x0.39)	6.8 (0.27)	7 (0.28)	51 (2.01)	M6x13 (1/4-28x0.51)	G1/4 (1/4 NPT)	13 (0.51)
50mm	6.5 (0.26)	M8X12.5 (5/16-24x0.49)	6.8 (0.27)	7 (0.28)	63 (2.48)	M8x13 (5/16-24x0.51)	G1/4 (1/4 NPT)	12 (0.47)
63mm	8 (0.31)	M8X15 (5/16-24x0.59)	8.8 (0.35)	9 (0.35)	78 (3.07)	M8x13 (5/16-24x0.51)	G3/8 (3/8 NPT)	13 (0.51)

Bore Size	U	V	W	X	Y
18mm	9.5 (0.37)	9.3 (0.37)	20.7 (0.81)	15 (0.59)	6.5 (0.26)
25mm	13 (0.51)	13.5 (0.53)	28.5 (1.12)	21 (0.83)	7.0 (0.28)
32mm	7 (0.28)	15.5 (0.61)	36.5 (1.44)	26 (1.02)	9.0 (0.35)
40mm	13 (0.51)	19 (0.75)	44 (1.73)	31.5 (1.24)	10 (0.39)
50mm	12 (0.47)	21 (0.83)	50 (1.97)	39 (1.54)	12 (0.47)
63mm	12 (0.47)	23 (0.91)	61.5 (2.42)	46.5 (1.83)	12 (0.47)

Dimensions (Ultran Band)



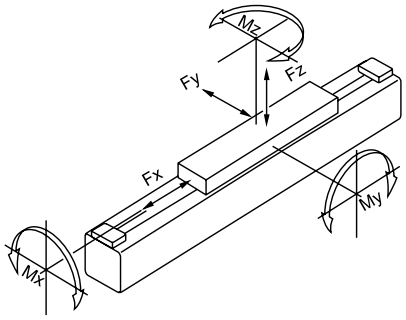
Active port positions are specified in model number. All other ports supplied with plugs. Ports dimensioned "S" are duplicated on opposite face.

Bore Size	A	AA	B	BB	CC	D	DD	H	HH
18mm	80 (3.15)	15.5 (0.61)	30 (1.18)	39 (1.54)	36.5 (1.44)	103 (4.06)	50 (1.97)	75 (2.95)	-
25mm	100 (3.94)	20 (0.79)	42 (1.65)	53 (2.09)	50.2 (1.98)	131 (5.16)	66 (2.6)	100 (3.94)	50 (1.97)
32mm	120 (4.72)	25 (0.98)	52 (2.05)	65 (2.56)	60.2 (2.37)	171 (6.73)	80 (3.15)	140 (5.51)	70 (2.76)
40mm	150 (5.91)	33 (1.3)	63 (2.48)	79 (3.11)	71.6 (2.82)	220 (8.66)	97 (3.82)	180 (7.09)	90 (3.54)
50mm	180 (7.09)	42 (1.65)	78 (3.07)	96 (3.78)	86.6 (3.41)	280 (11.02)	116 (4.57)	220 (8.66)	110 (4.33)
63mm	215 (8.46)	54 (2.13)	93 (3.66)	113.5 (4.47)	101.6 (4)	333 (13.11)	136 (5.35)	280 (11.02)	140 (5.51)

Bore Size	M	N	NN	P	R	Port S	T	U
18mm	M3x7 (#4-48x0.28)	35 (1.38)	10 (0.39)	23.5 (0.93)	M3x8 (#4-48x0.31)	M5 (#10-32)	9.5 (0.37)	9.5 (0.37)
25mm	M4x7 (#8-36x0.28)	45 (1.77)	13 (0.51)	33 (1.30)	M4x10 (#8-36x0.39)	G1/8 (1/8 NPT)	7 (0.28)	13 (0.51)
32mm	M5x9 (#10-32x0.35)	55 (2.17)	16 (0.63)	41 (1.61)	M5x11 (#10-32x0.43)	G1/8 (1/8 NPT)	7 (0.28)	7 (0.28)
40mm	M6x10 (1/4-28x0.39)	70 (2.76)	22 (0.87)	51 (2.01)	M6x13 (1/4-28x0.51)	G1/4 (1/4 NPT)	13 (0.51)	13 (0.51)
50mm	M8x12.5 (5/16-24x0.49)	85 (3.35)	29 (1.14)	63 (2.48)	M8x13 (5/16-24x0.51)	G1/4 (1/4 NPT)	12 (0.47)	12 (0.47)
63mm	M8x15 (5/16-24x0.59)	105 (4.13)	40 (1.57)	78 (3.07)	M8x13 (5/16-24x0.51)	G3/8 (3/8 NPT)	13 (0.51)	12 (0.47)

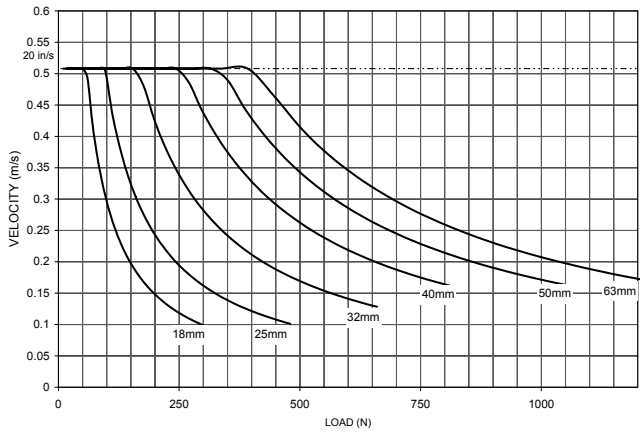
Bore Size	V	W	X	Y
18mm	9.3 (0.37)	20.7 (0.81)	15 (0.59)	6.5 (0.26)
25mm	13.5 (0.53)	28.5 (1.12)	21 (0.83)	7 (0.28)
32mm	15.5 (0.61)	36.5 (1.44)	26 (1.02)	9 (0.35)
40mm	19 (0.75)	44 (1.73)	31.5 (1.24)	10 (0.39)
50mm	21 (0.83)	50 (1.97)	39 (1.54)	12 (0.47)
63mm	23 (0.91)	61.5 (2.42)	46.5 (1.83)	12 (0.47)

Engineering Specifications (Ultran Band)

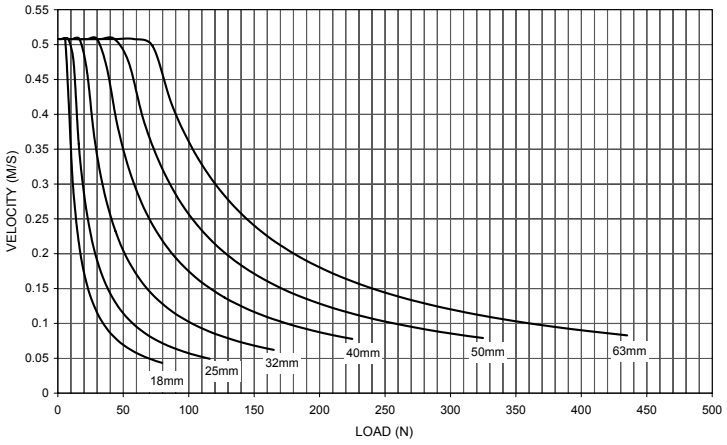


Bore Size	Maximum Moment, Nm (in-lb)		
	Mx	My	Mz
18mm	1 (8.8)	3 (26.5)	3 (26.5)
25mm	2 (17.7)	13 (115)	13 (115)
32mm	3.5 (31)	25 (221.2)	25 (221.2)
40mm	5.5 (48.7)	40 (354)	40 (354)
50mm	10 (88.5)	65 (575.2)	65 (575.2)
63mm	16 (141.6)	100 (885)	100 (885)

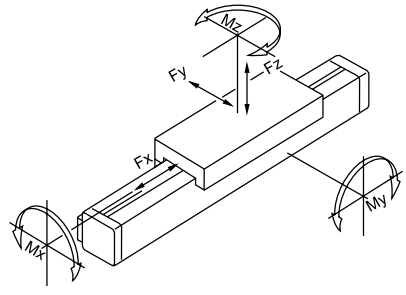
Load (Fz) vs. Velocity



Load (Fy) vs. Velocity



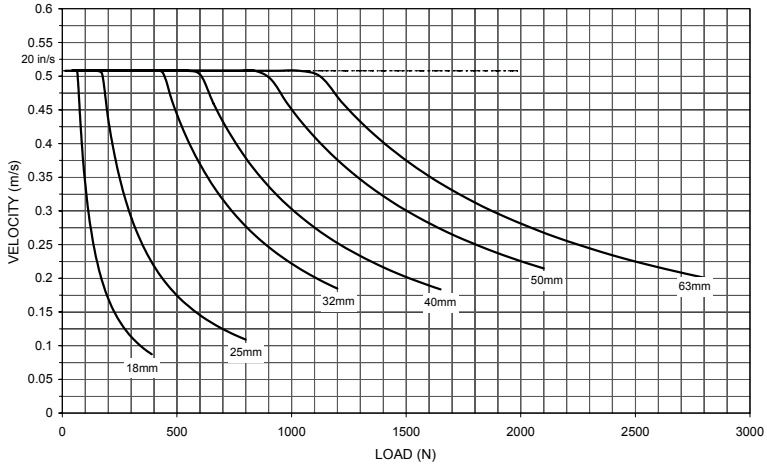
Engineering Specifications (UBS, UBSM)



Bore Size	Maximum Moment, Nm (in-lb)		
	Mx	My	Mz
18mm	3.5 (31)	6 (53.1)	6 (53.1)
25mm	10 (88.5)	20 (177)	20 (177)
32mm	25 (221.2)	45 (398.2)	45 (398.2)
40mm	40 (354)	75 (663.7)	75 (663.7)
50mm	80 (708)	150 (1327.4)	150 (1327.4)
63mm	110 (973.5)	250 (2212.4)	250 (2212.4)

Nx 0.225 = LB
m/sec x 39.4 = in/sec

Load (Fy or Fz) vs. Velocity



How to Specify

Engineering Specifications (Ultran Band)

Kinetic Energy

Term	Description	S.I. Units	U.S. Units
KE	Kinetic energy	N-m	in-lb.
W	Weight of applied load	kg	lb.
k	Bore constant	kg	lb.
V	Maximum velocity*	M/sec	in/sec

NOTE: Maximum velocity, or impact velocity, is typically = 2 x average velocity

Using S.I. Units
KE = 1/2 x (W + k) x V2

Bore Size	UB, UBM	UBS, UBSM	UB, UBM, UBS, UBSM	UBS, UBSM	
	Bore Constant (k) (kg)		Max KE, no shocks* (N-m)	Max KE with shocks (N-m)	Max KE/hr with shocks (N-m/hr)
18mm	0.07	0.16	0.56	27	33894
25mm	0.15	0.33	1.70	27	33894
32mm	0.30	0.62	4.52	27	33894
40mm	0.55	1.15	8.20	192	75698
50mm	1.02	1.99	12.35	192	75698
63mm	1.73	3.09	15.46	192	75698

NOTE: Any application where velocity exceeds 0.5 m/sec (20 in/sec) requires shock absorbers.

Using U.S. Units
KE = 1/773 x (W + k) x V2

Bore Size	UB, UBM	UBS, UBSM	UB, UBM UBS, UBSM	UBS, UBSM	
	Bore Constant (k) (lb)		Max KE, no shocks* (in-lb.)	Max KE with shocks (in-lb.)	Max KE/hr with shocks (in-lb./hr)
18mm	0.15	0.35	4.96	239	299947
25mm	0.33	0.73	15.04	239	299947
32mm	0.66	1.37	40.00	239	299947
40mm	1.21	2.53	72.57	1699	669894
50mm	2.25	4.38	109.29	1699	669894
63mm	3.81	6.81	136.81	1699	669894

General Specifications

Pressure Rating:	2 to 8 bar (30 to 110 PSI), dry filtered air
Breakaway:	15 PSI or less (UB, UBM)
	30 PSI or less (UBS, UBSM)
Leakage:	100 sccm or less
Operating Temperature:	20˚ C to 80˚ C (-4˚ F to 175˚ F)
Expected Service Life:	1,000 linear miles
Lubrication:	Silicone grease
Maximum Speed:	100 in/sec (impact velocity)
	50 in/sec (average velocity)

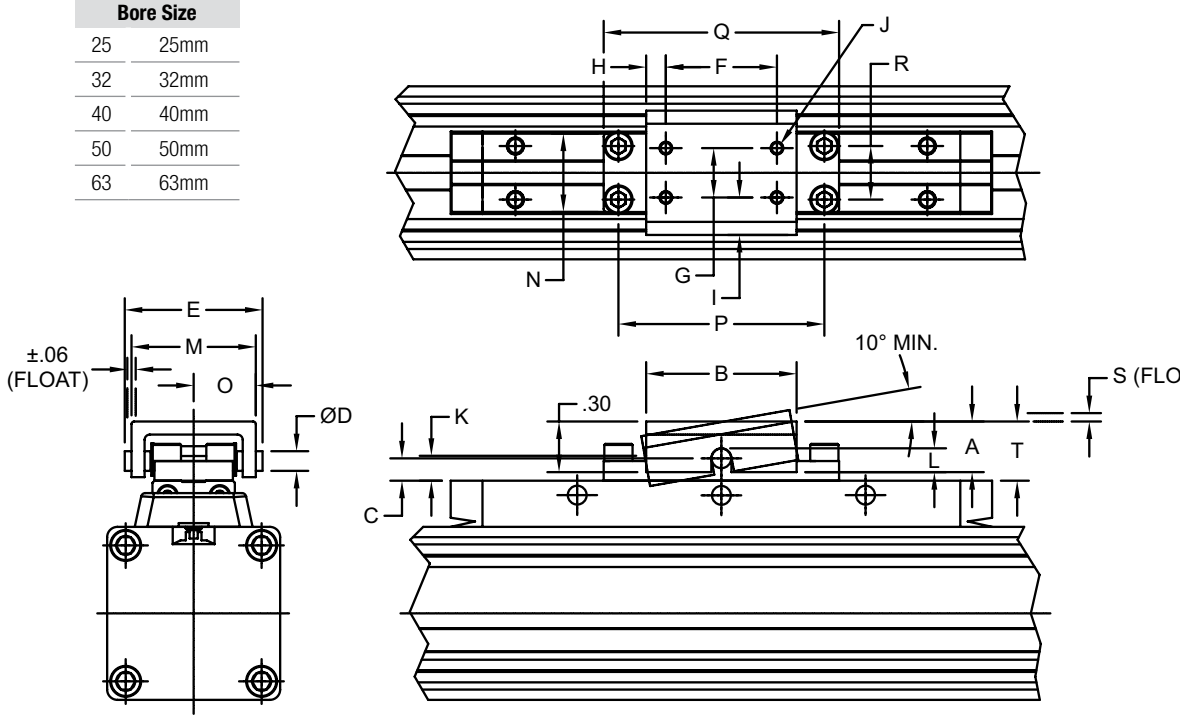
Floating Mounting Bracket (Ultran Band)

Only suitable for use on UB models sized 25mm and larger. Not suitable for use on UBS, UBM, and UBSM models. If a floating mounting bracket is required for these models, contact Bimba.

Ideal when a non-parallel or floating interface is required for interfacing the carriage to an external guiding system. Prevents binding between the UB and the external guiding hardware.

UBFM -

Bore Size	
25	25mm
32	32mm
40	40mm
50	50mm
63	63mm



Dimensions (in)

Bore Size	A	B	C	D	E	F	G	H	I	J
25mm	0.53	1.44	0.19	0.19	1.32	1.06	0.47	0.19	0.36	#4-40 UNC
32mm	0.63	1.69	0.19	0.25	1.65	1.19	0.75	0.25	0.38	#6-32 UNC
40mm	0.75	1.88	0.19	0.25	2.01	1.50	1.00	0.19	0.44	#8-32 UNC
50mm	0.75	1.88	0.25	0.25	2.01	1.50	1.00	0.19	0.44	#8-32 UNC
63mm	0.94	2.75	0.31	0.37	2.85	2.13	1.63	0.31	0.55	#10-24 UNC

Bore Size	K	L	M	N	O	P	Q	R	S	T
25mm	0.24	0.25	1.19	0.75	0.59	1.97	2.25	0.51	0.15	0.56
32mm	0.25	0.31	1.52	1.00	0.76	2.76	3.25	0.63	0.19	0.63
40mm	0.28	0.31	1.88	1.30	0.94	3.54	4.13	0.87	0.19	0.75
50mm	0.28	0.31	1.88	1.61	0.94	4.33	4.91	1.14	0.19	0.81
63mm	0.42	0.44	2.72	2.04	1.36	5.51	6.25	1.58	0.25	1.00

How to Accessorize

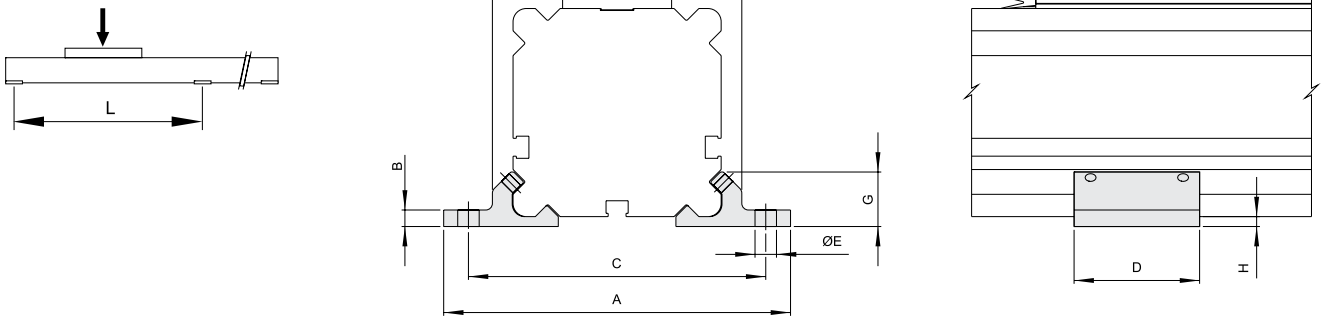
Center Supports

Kit includes: 2 supports and mounting hardware. Additional cylinder support is needed for cylinder span and load combinations as shown in table.

Bore Size	Distance L mm (inch) with 0.5mm deflection						
	250 N (56 lb)	500N (112 lb)	750N (169 lb)	1000N (225 lb.	1500N (337 lb)	2000N (450 lb)	2500N (562 lb)
18mm	700 (28)	-	-	-	-	-	-
25mm	1100 (43)	1350 (53)	700 (28)	-	-	-	-
32mm	1400 (55)	1100 (43)	950 (37)	850 (33)	-	-	-
40mm	1600 (63)	1300 (51)	1150 (45)	1050 (41)	900 (35)	-	-
50mm	2050 (81)	1700 (67)	1550 (61)	1350 (53)	1150 (45)	1050 (41)	-
63mm	2450 (96)	2050 (81)	1850 (73)	1700 (67)	1550 (61)	1350 (53)	1250 (49)

UBCS -

Bore Size	
18	18mm
25	25mm
32	32mm
40	40mm
50	50mm
63	63mm

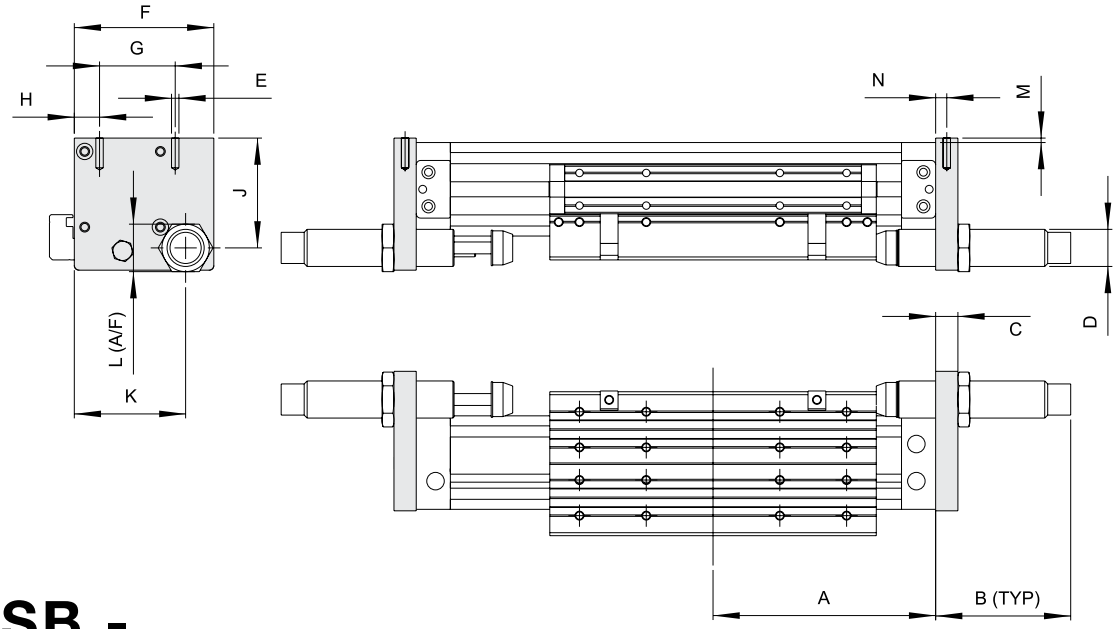


Dimensions mm (in)

Bore Size	A	B	C	D	ØE	F	G	H
18mm	56 (2.20)	2.5 (0.10)	46 (1.81)	23 (0.91)	4.3 (0.17)	36.5 (1.44)	8.3 (0.33)	2.0 (0.08)
25mm	70 (2.76)	3.5 (0.14)	60 (2.36)	28 (1.10)	5.3 (0.21)	50.0 (1.97)	11.0 (0.43)	2.0 (0.08)
32mm	85 (3.35)	4.0 (0.16)	73 (2.87)	33 (1.30)	5.3 (0.21)	61.5 (2.42)	13.8 (0.54)	3.0 (0.12)
40mm	105 (4.13)	4.5 (0.18)	90 (3.54)	38 (1.50)	6.5 (0.26)	75.0 (2.95)	16.5 (0.65)	3.0 (0.12)
50mm	122 (4.80)	5.0 (0.20)	106 (4.17)	43 (1.69)	8.5 (0.33)	91.0 (3.58)	19.0 (0.75)	3.0 (0.12)
63mm	144 (5.67)	6.0 (0.22)	125 (4.92)	48 (1.89)	8.5 (0.33)	107 (4.21)	22.0 (0.87)	4.5 (0.18)

Shock Absorber Bracket (Ultran Band)

Kit includes: 2 brackets and mounting hardware.



Shock absorber shown fully compressed with cylinder at end of stroke.

UBSB -

UBMSB -

Bore Size	
18	18mm
25	25mm
32	32mm
40	40mm
50	50mm
63	63mm

Dimensions (in)

Bore Size	A	B	C	D	E	F	G	H
18mm	80 (3.15)	62 (2.44)	8 (0.31)	M14x1.0 (1/2-20)	M3x10 (#4-40)	44.5 (1.75)	23.5 (0.93)	9 (0.35)
25mm	100 (3.94)	56 (2.2)	10 (0.39)	M14x1.0 (1/2-20)	M4x10 (#8-32)	58 (2.28)	33 (1.3)	13.5 (0.53)
32mm	120 (4.72)	56 (2.2)	12 (0.47)	M14x1.0 (1/2-20)	M5x12 (10-24)	71 (2.79)	41 (1.61)	15.5 (0.61)
40mm	150 (5.91)	91 (3.58)	15 (0.59)	M25x1.5 (1-12)	M6x15 (1/4-20)	94 (3.70)	51 (2.01)	17 (0.67)
50mm	180 (7.09)	91 (3.58)	15 (0.59)	M25x1.5 (1-12)	M8x20 (5/16-18)	103 (4.06)	63 (2.48)	23.5 (0.93)
63mm	215 (8.46)	82.5 (3.25)	15 (0.59)	M25x1.5 (1-12)	M8x20 (5/16-18)	119.5 (4.7)	78 (3.07)	21 (0.83)

Bore Size	J	K	L	M	Shock Absorber PIN
18mm	37 (1.46)	36.5 (1.44)	17 (0.67)	2 (0.08)	SSM-27 (SS-09)
25mm	50 (1.97)	50 (1.97)	17 (0.67)	2 (0.08)	SSM-27 (SS-09)
32mm	61.5 (2.42)	61 (2.4)	17 (0.67)	2 (0.08)	SSM-27 (SS-09)
40mm	74 (2.91)	75 (2.95)	32 (1.26)	3 (0.12)	SSM-50 (SS-31)
50mm	90 (3.54)	89 (3.5)	32 (1.26)	3 (0.12)	SSM-50 (SS-31)
63mm	107 (4.21)	105.5 (4.15)	32 (1.26)	4.5 (0.18)	SSM-50 (SS-31)

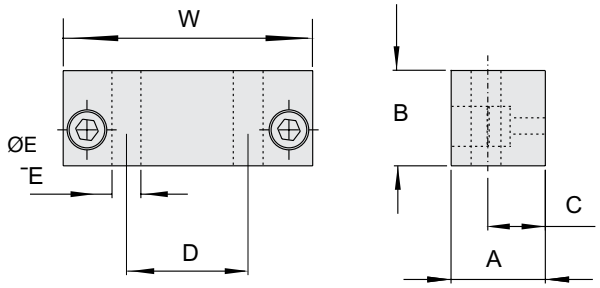
Mounting Block (Ultran Band)

Kit includes: 2 blocks, 4 bolts to attach to cylinder.

UBMB -

UBMMB -

Bore Size	
18	18mm
25	25mm
32	32mm
40	40mm
50	50mm
63	63mm



Dimensions mm (in)

Bore Size	A	B	C	D	ØE	W
18mm	10 (0.39)	14.5 (0.57)	5 (0.2)	14 (0.55)	4.5 (0.18)	30 (1.18)
25mm	15 (0.59)	17 (0.67)	7.5 (0.3)	22 (0.87)	5.5 (0.22)	42 (1.65)
32mm	15 (0.59)	20 (0.79)	7.5 (0.3)	23.5 (0.93)	7 (0.28)	52 (2.05)
40mm	15 (0.59)	23 (0.91)	7.5 (0.3)	30 (1.18)	9 (0.35)	63 (2.48)
50mm	16 (0.63)	26 (1.02)	8 (0.31)	39 (1.54)	9 (0.35)	78 (3.07)
63mm	20 (0.79)	27.5 (1.08)	10 (0.39)	52 (2.05)	11 (0.43)	93 (3.66)

Position Sensing Switches

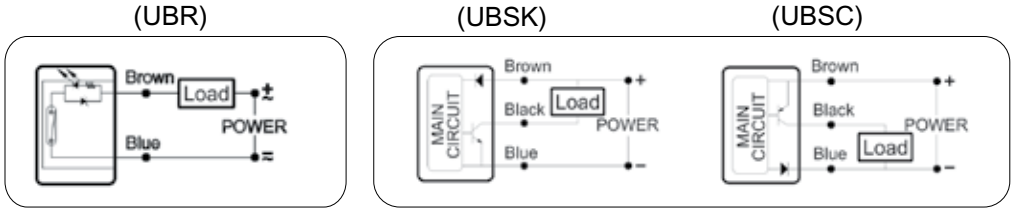
Switch Model Numbers		Description
18mm bore only	25mm-63mm bores	
MSK	UBSK	GMR, Sinking, 3m cable (NPN)
MSC	UBSC	GMR, Sourcing, 3m cable (PNP)
MR	UBR	Reed, 3m cable
MSKQ	UBSKQ	GMR, Sinking, M8 quick connect (NPN)
MSCQ	UBSCQ	GMR, Sourcing, M8 quick connect (PNP)
MRQ	UBRQ	Reed, M8 quick connect

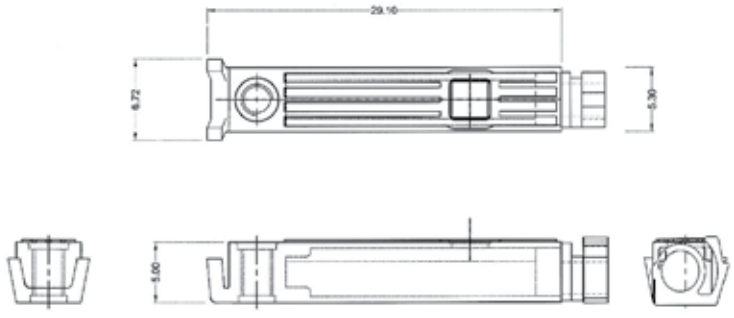
Switch Specifications (25mm-63mm Bores)*

Characteristic	UBR	UBSK	UBSC
Switching Logic	SPST N/O	Solid State Output Normally Open	
Sensor Type	Reed Switch	NPN Current Sinking	PNP Current Sourcing
Operating Voltage	5~240V DC/AC	5~28V DC	
Switching Current	100mA max	200mA max	
Switching Power	10W max	6W max	
Current Consumption	- -	20mA max @ 24V (Active)	18mA max @ 24V (Active)
Voltage Drop	2.5V max @ 40mA DC	0.5V @ 200mA max (Resistive Load)	
Leakage Current	- -	0	.01mA max
Indicator	Red LED	Red LED	Green LED
Sensitivity	60 Gauss	40 Gauss	
Max Switching Frequency	1000 Hz	1000 Hz	
Temp Range	-10 ~ 70 deg C	-10 ~ 70 deg C	
Shock	30G	50G	
Vibration	9G	9G	
Enclosure Protection	IP67	IP67	
Circuit Protection	N one	Reverse Source Polarity; Surge suppression	

*For specifications on 18mm bore switches MS/MR, and Quick Connect mating cables, see Related Products Section.

Wiring Diagram





How to Order

Ultran Band

The model number of Ultran Band cylinders consists of an alphanumeric cluster designating product type, bore size, stroke length, and other optional components that together make up the complete part number to use in ordering. Use the ordering information below to build a valid part number.

An example of a basic Ultran Band unit with 25mm bore, 12” stroke, and additional options is shown below.

UB - 25 12 - 1XCM

Model	
UB	Ultran Band
UBS	Ultran Band, Side Guide
UBM	Ultran Band, Metric
UBSM	Ultran Band, Metric, Side Guide

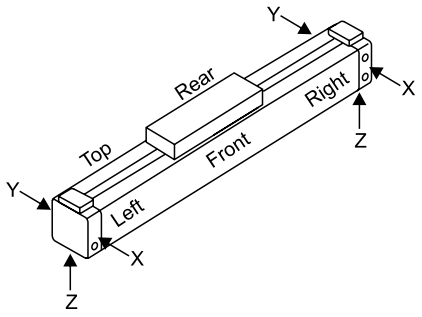
Bore Size	
18	18mm
25	25mm
32	32mm
40	40mm
50	50mm
63	63mm

Stroke Length
1” increments to 120” max.1 (UB, UBS)
25mm increments to 3000mm max. (UBM, UBSM)

[1] Price adder applies to strokes over 48 inches (1220 mm). Contact Bimba Customer Service for more information.

Options	
1	Single end porting (RH) (X, Y positions only)
2	Single end porting (LH) (X, Y positions only)
3	Double end porting (X, Y, or Z positions)
F	Floating mounting bracket2
X	Side front port position
Y	Side rear port position
Z	Bottom port position
C	Adjustable cushions
M	MRS position sensing

[2] Only available on UB models sized 25mm and larger. Not available on 18mm models, or on UBS, UBM, and UBSM. If a floating mounting bracket is required for these models, contact Bimba. For use when a non-parallel or floating interface with the carriage is required to prevent binding between the UB and external guiding systems. Refer to page 417 for dimensions.



Notes:
Must specify port function and location.
All models have cushions; include “C” in all part numbers.
All models include magnet and are switch-ready; include “M” in all part numbers.
For port positioning, use diagram above.

Basic Repair Kits (Ultran Band)

Kits include: all seals, sealing band, cover strip, all assembly hardware. Two kits are offered; one for strokes up to 3m stroke and one for strokes 3-6m.

Example: Basic repair kit for UB-2536-1XCM = RK9N0253

Bore Size	Kits for Stroke 0-3m (0-118")		Kits for Strokes 3-6m (118" +)	
	Seal Kit (3m) NPT (inch)	Seal Kit (3m) Metric	Seal Kit (6m) NPT (inch)	Seal Kit (6m) Metric
18mm	RK9N0183	RK9Y0183	RK9N0186	RK9Y0186
25mm	RK9N0253	RK9Y0253	RK9N0256	RK9Y0256
32mm	RK9N0323	RK9Y0323	RK9N0326	RK9Y0326
40mm	RK9N0403	RK9Y0403	RK9N0406	RK9Y0406
50mm	RK9N0503	RK9Y0503	RK9N0506	RK9Y0506
63mm	RK9N0633	RK9Y0633	RK9N0636	RK9Y0636

Notes

Notes

Notes

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