

MACHINE SCREW ACTUATORS

1/4 to 350 TONS

Top Plate

Must be bolted to lifting member to prevent rotation except when screw is keyed.

Lifting Screw

Available with threaded end or clevis end instead of top plate.

Shell Cap

Locked into place by set screws.

Load Bearings

Bearings, top and bottom to take loads in either direction.

Thrust Bearing & Grease Seals

At each end of worm.
1/4, 1/2 and 1 ton models do not have seals.

Worm Gear

Wear resistant Bronze. Accurately hobbled for greater gear contact.

Worm

Available with double or single shaft extension.

Housing

Aluminum on 1/4 to 1 ton models. Ductile iron or cast steel 2 ton through 250 ton models.

Coverpipe

Protects lifting screw threads.

Because the Duff-Norton machine screw mechanical actuator is produced in many standard models with a wide range of capacities, there is a standard model for almost any requirement. Models can be furnished to 250 Tons capacity.

Operated manually or by means of gear motors, machine screw actuator models can be used singly, in tandem or in multiple arrangements (see page 135). Since most capacities have a uniform lifting speed, added economy can be realized in raising unevenly distributed loads by operating the different capacities in union.

Most Duff-Norton machine screw actuator models with higher ratios are self-locking and will hold heavy loads in position indefinitely without creep. They can be used to push, pull, and apply pressure as linear actuators. They are furnished with standard raises in increments of 1 inch. Depending upon size and type of load, models are available with raises up to 20 feet.

FEATURES

- Positive, mechanical positioning
- Uniform lifting speed
- Multiple arrangements
- Anti-backlash (optional)

MACHINE SCREW

ACTUATORS

MODEL NUMBERING SYSTEM

FL - TKM - 9002 - 6 - 1R

Model Prefix

R - Reducer
F - C-face Adapter
H - Hand Wheel
L - Limit Switch
E - Encoder
J - Rotary Counter

Screw End & Configuration

T - Threaded End
C - Clevis End
M - Top Plate
P - Plain End
K - Keyed Screw
CC - Double Clevis
D - Inverted Rotating
U - Upright Rotating
N - Numeric Ratio

Series & Capacity No.

Series:

Machine Screw
 (90xx, 18xx, 70xx, 25xx)
 Special MS
 (100xx, 20xx, 80xx, 35xx)

(1800 series base configurations are available only on 2 and 50 Ton models)

Capacities:

Upright model suffixes end with the capacity number. Inverted model suffixes lower the capacity number by one digit. Rotating model suffixes raise the capacity number by one digit.

M - Base Model

Travel

1" increment travels are always represented using the exact travel amount.

Travels with fractional lengths are quoted using that length, but are serialized when the order is processed.

Serialized digits in this position may also be used for other models containing special features

Model Suffix

B - Boot
L - Single End Worm Ext. Left
R - Single End Worm Ext. Right
1 - Optional Ratio #1
2 - Optional Ratio #2
X - Supplied without cover pipe

B9003 TV - 10.50 - LX2 - BFL

Capacity

B9225 - 500 Lbs
B9250 - 1000 Lbs
B9003 - 3 Ton

Screw End

C - Clevis End Screw
CC - Double Clevis Ends
M - Top Plate Screw
P - Plain End Screw
T - Threaded End Screw

Travel

1" Incremental travels are always represented using the exact travel amount. Fractional lengths are represented and processed to the nearest 100ths.

Base Model

None - Upright Translating
D - Inverted Rotating
K - Keyed, anti-rotation
U - Upright Rotating
V - Inverted Translating

Key Accessories

B - Boot
E - Encoder
F - C-face Adapter
H - Hand Wheel
J - Rotary Counter
L - Limit Switch
R - Reducer

Model Suffix

L - Single End Worm Extension Left
N - Numeric Gear Ratio - 100 turns/inch
R - Single End Worm Extension Right
X - Supplied without Cover Pipe
1 - Alternate Gear Ratio #1
2 - Alternate Gear Ratio #2

Alphabet characters representing features and suffixes should always be used in alphabetic order to avoid questions of hierarchy.

Models for actuators with specialized features will have a serialized suffix such as B9225T-0001.

MACHINE SCREW ACTUATORS PERFORMANCE TABLE

Performance Table Instructions – pages 15, 39, 47, 52, 55, 76, and 82

When reviewing any Duff-Norton Actuator Performance Specifications Table, as part of the process of selecting the best-suited actuator for your application, there are several important worm-gear ratios to consider.

Standard Ratio – is frequently chosen when higher speeds and efficiency ratings are desired.

Optional Ratio – is frequently chosen when the application requires higher lifting capacities, lower speeds, or to ease the use of a handwheel.

Numeric Ratio – is frequently chosen for applications requiring fine adjustments, higher lifting capacities, lower speeds, the easy use of a handwheel, self locking applications, and also offers the benefit of an even number of worm input turns per inch of stroke.

Specifications - Standard, Optional, and Numeric Ratios																		
Capacity (Tons)		1/4	1/2	1	2	3	5	10	15	20	25	30	35	50	75	100	150	250†
Max. Speed C-face Driven (in/min)** Pg.118		—	—	—	72.0	72.0	108.0	108.0	108.0	108.0	107.0	107.5	107.0	—	—	—	—	—
Max. Speed Reducer Driven (in/min)** Pg. 110		—	—	—	14.4	21.9	21.9	21.9	21.9	21.9	22.2	22.2	22.4	12.2	—	—	—	—
Dimensional Information Pg. 115		18	19	20	21-23	24	25	26	27	28	29	29	30	31-32	33	34	35	36
Lifting Screw	Diameter (in)	1/2	5/8	3/4	1	1	1-1/2	2	2-1/4	2-1/2	3	3	3-3/4	4-1/2	5	6	7	9
	Pitch (Std. & Opt.)	0.250	0.125	0.200	0.250	0.250	0.375	0.500	0.500	0.500	0.666	0.666	0.666	0.666	0.666	0.750	1.000	1.000
	Pitch (Numerical)	—	—	—	—	—	0.250	0.250	0.250	0.250	0.320	0.32	0.320	0.320	—	—	—	—
	Type	ACME	ACME	ACME	ACME	ACME	ACME	ACME	ACME	ACME	ACME	ACME	ACME	ACME	Mod. Sq.	Mod. Sq.	Mod. Sq.	Mod. Sq.
Worm Gear Ratios	Standard	5:1	5:1	5:1	6:1	6:1	6:1	8:1	8:1	8:1	10-2/3:1	10-2/3:1	10-2/3:1	10-2/3:1	10-2/3:1	12:1	12:1	50:1
	Optional No. 1	—	—	20:1	24:1	24:1	24:1	24:1	24:1	24:1	32:1	32:1	32:1	32:1	32:1	36:1	36:1	—
	Optional No. 2	—	—	—	12:1	12:1	12:1	—	—	—	—	—	—	—	—	—	—	—
	Numeric Ratio	—	—	20:1	25:1	25:1	25:1	25:1	25:1	25:1	32:1	32:1	32:1	32:1	—	—	—	—
Turns of Worm for 1 inch Stroke	Standard	20	40	25	24	24	16	16	16	16	16	16	16	16	16	16	12	50
	Optional No. 1	—	—	100	96	96	64	48	48	48	48	48	48	48	48	48	36	—
	Optional No. 2	—	—	—	48	48	32	—	—	—	—	—	—	—	—	—	—	—
	Numeric Ratio	—	—	100	100	100	100	100	100	100	100	100	100	100	—	—	—	—
Worm Torque at No Load (in-lb)	Standard	2	2	5	5	5	10	20	20	30	40	40	50	100	150	200	250	200
	Optional No. 1	—	—	5	5	5	10	20	20	30	40	40	50	100	150	200	250	—
	Optional No. 2	—	—	—	5	5	10	—	—	—	—	—	—	—	—	—	—	—
	Numeric Ratio	—	—	5	5	5	10	20	20	30	40	40	50	100	—	—	—	—
Maximum Horsepower per Actuator	Standard	1/3	1/3	1/2	2	2	4	5	5	5	8	8	8	15	15	25	25	35
	Optional No. 1	—	—	1/4	1/2	3/4	3/4	1-1/2	1-1/2	1-1/2	2-1/2	2-1/2	2-1/2	6	6	11	11	—
	Optional No. 2	—	—	—	3/4	1-1/4	2	—	—	—	—	—	—	—	—	—	—	—
	Numeric Ratio	—	—	1/4	1/2	1/2	3/4	1-1/2	1-1/2	1-1/2	2-1/2	2-1/2	2-1/2	6	—	—	—	—
Worm Torque at Full Load* (in-lb)	Standard	13	21	55	120	165	450	750	1430	1811	2220	2640	4000	7500	12000	16000	28110	20000
	Optional No. 1	—	—	25	50	75	185	400	820	1035	1401	1685	2400	4200	6601	8600	15500	—
	Optional No. 2	—	—	—	75	105	275	—	—	—	—	—	—	—	—	—	—	—
	Numeric Ratio	—	—	25	48	72	175	370	640	925	1500	1800	2411	4040	—	—	—	—
Efficiency Rating (%)	Standard	30.6	18.9	23.1	22.1	24.2	22.1	26.5	20.9	22.0	22.4	22.4	17.4	13.3	12.4	12.4	14.2	8.0
	Optional No. 1	—	—	12.7	13.3	13.3	13.4	16.6	12.1	12.8	11.8	11.8	9.7	7.9	7.5	7.7	8.6	—
	Optional No. 2	—	—	—	17.7	19.0	18.1	—	—	—	—	—	—	—	—	—	—	—
	Numeric Ratio	—	—	12.7	13.3	13.2	9.1	8.6	7.5	6.9	5.3	5.3	4.6	3.9	—	—	—	—
Key Torque (in-lb)	Std. & Opt. 1 & 2	40	70	175	460	670	1750	4700	7580	10625	14000	16800	26500	47110	73000	118200	216000	423300
	Numeric Ratio	—	—	175	460	670	1599	4077	6645	9369	11474	13770	18561	30970	—	—	—	—
Maximum Worm Speed at Full Load (RPM)	Standard	1616	1000	573	1051	766	560	420	220	174	227	190	126	126	79	98	56	110
	Optional No. 1	—	—	630	630	631	278	236	115	91	112	94	66	90	57	81	45	—
	Optional No. 2	—	—	—	630	751	458	—	—	—	—	—	—	—	—	—	—	—
	Numeric Ratio	—	—	630	657	437	270	256	148	102	105	87	65	94	—	—	—	—
Maximum Load at Full Horsepower and 1750 RPM (lb)	Standard	455	527	520	2332	2521	3047	4386	3406	3370	5691	5691	4220	5949	4939	8865	7003	26780
	Optional No. 1	—	—	400	1156	1888	1064	1791	1276	956	1839	1839	1193	2831	1537	4670	2875	—
	Optional No. 2	—	—	—	1258	2402	2339	—	—	—	—	—	—	—	—	—	—	—
	Numeric Ratio	—	—	400	1210	1162	1031	1944	1646	1074	1714	1714	1187	2946	—	—	—	—
Weight with 6 inch Stroke (Raise) (lb)		2	2	5	17	17	35	52	66	93	160	160	240	410	650	1200	1350	2700
Weight per Add.1 inch Stroke (Raise) (lb)		0.1	0.1	0.3	0.3	0.3	0.9	1.4	1.5	2.6	2.5	2.5	3.7	5.5	6.5	9.0	12.6	23.0

** Speed is a function of how the actuator is driven. Please see the indicated pages for more information.

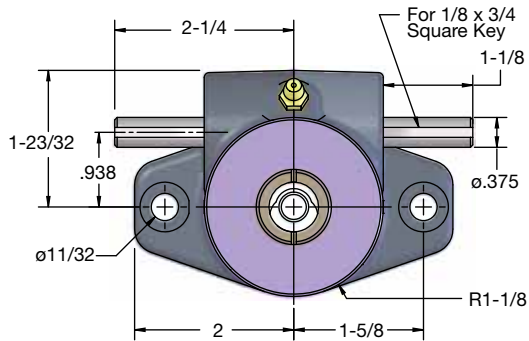
† Duff Norton has provided special actuators rated at 300 tons and 350 tons for certain applications. Actuators at these capacities are provided under specific Duff Norton / customer agreement as to the actuator's performance parameters. Please contact our Application Engineering group for more information.

Note: All actuator units can be supplied with standard raises up to 24 inches. Special raises up to 20 feet are available upon request. Closed height dimensions may increase for actuators supplied with bellows boots. See pages 148-149.

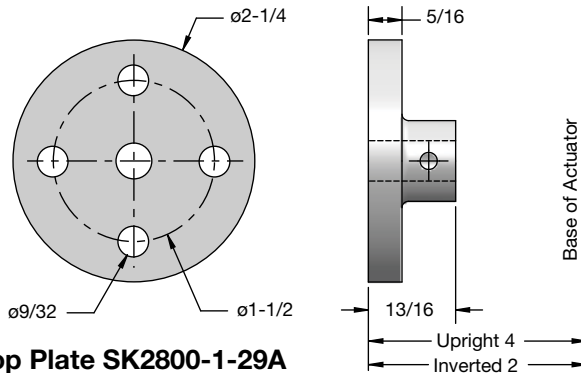
MACHINE SCREW

ACTUATORS

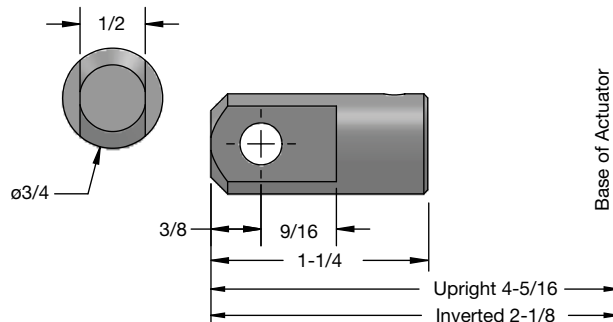
500 LB CAPACITY



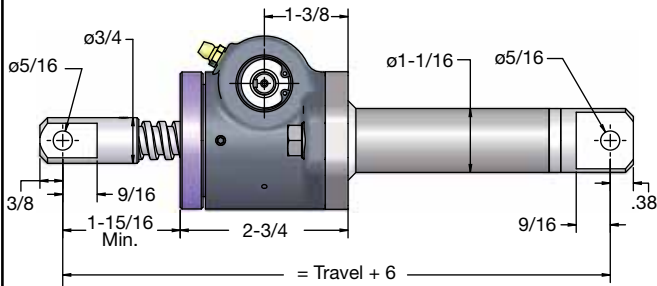
5/8 Diameter x .250 Lead Lifting Screws



Top Plate SK2800-1-29A



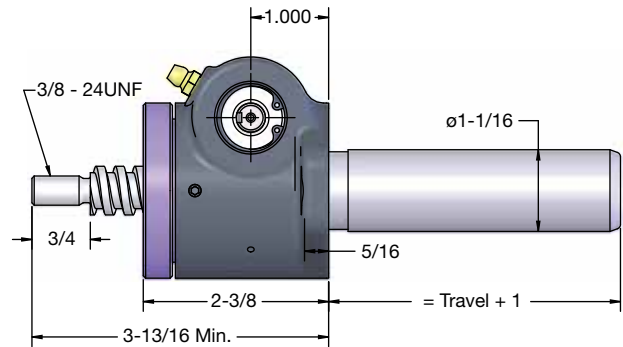
Clevis End B9225-11A



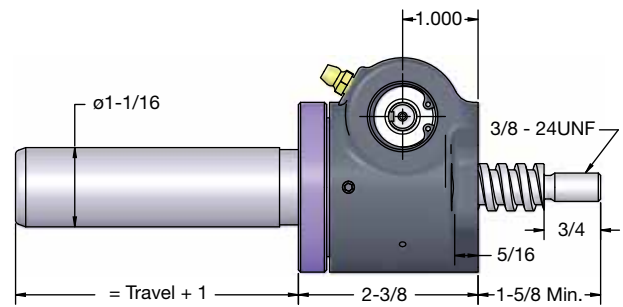
Double Clevis: B9225CC

Maximum Allowable Raise in Compression 7" - Rating 500 lbs.

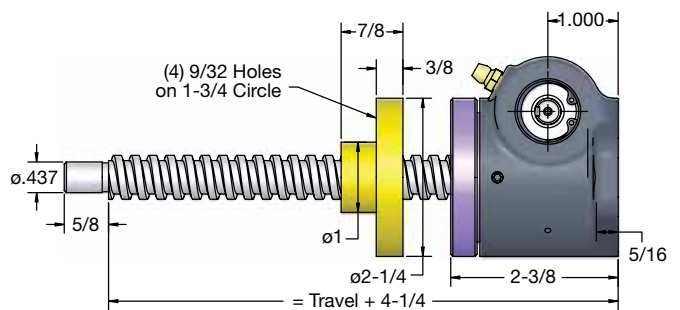
Note: Lifting screw is not keyed. Top should be secured to a lifting member to prevent rotation. When a Bellows Boot is required, see pages 148-149. Dimensions are subject to change without notice. When the lifting screw is keyed, the holes in the top plate will not necessarily be in the position shown.



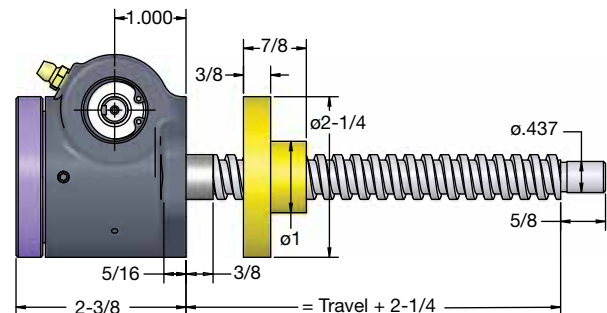
Upright: B9225T



Inverted: B9225TV

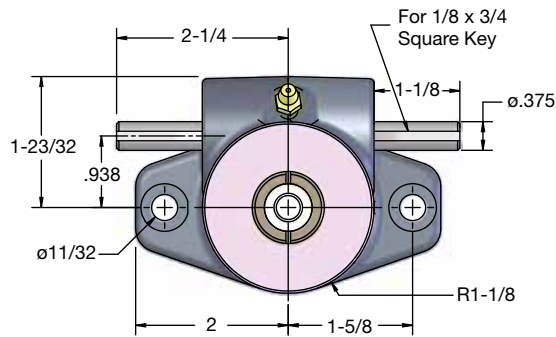


Upright Rotating: B9225U

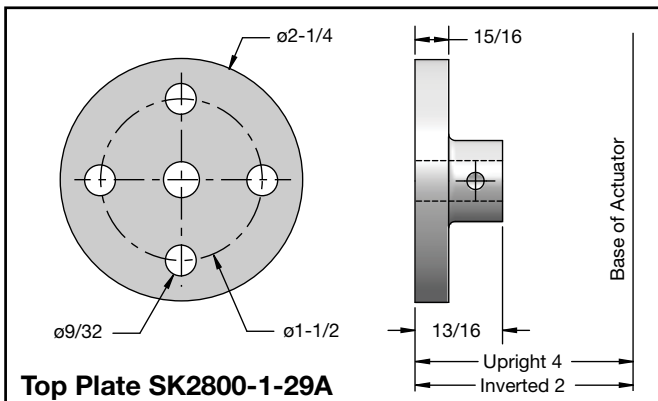


Inverted Rotating: B9225D

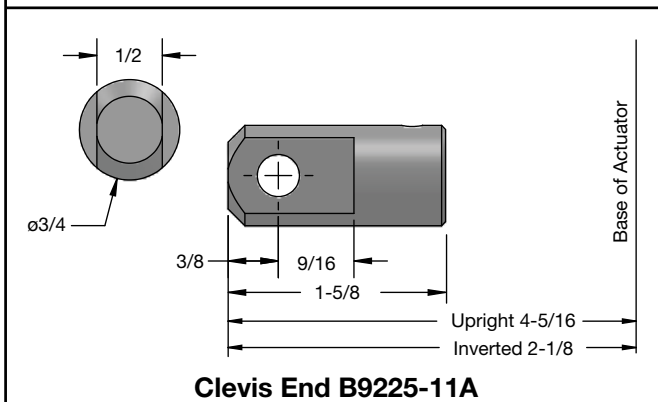
MACHINE SCREW ACTUATORS 1000 LB CAPACITY



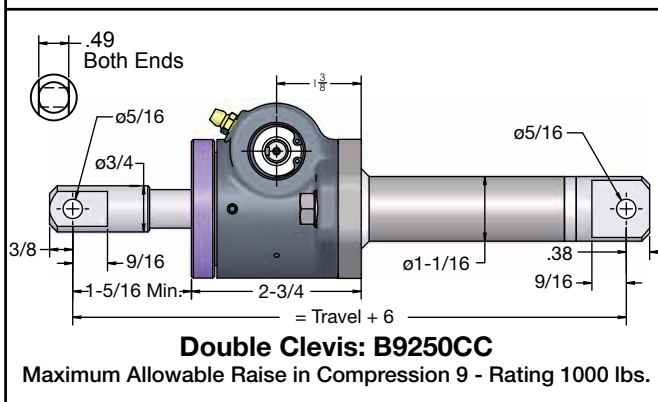
5/8 Diameter x .125 Lead Lifting Screws



Top Plate SK2800-1-29A



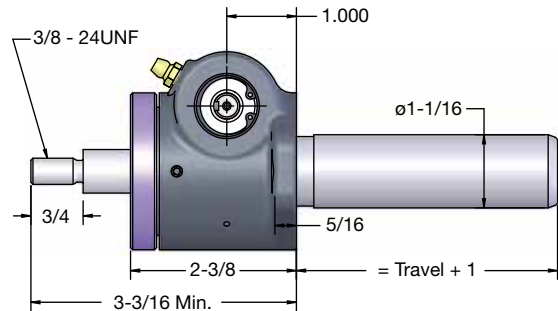
Clevis End B9225-11A



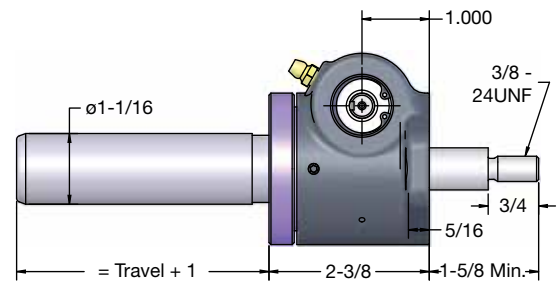
Double Clevis: B9250CC

Maximum Allowable Raise in Compression 9 - Rating 1000 lbs.

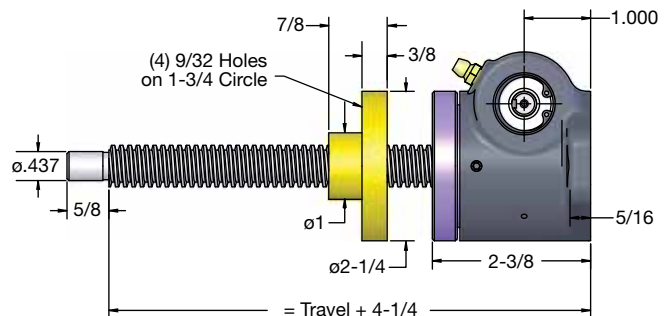
Note: Lifting screw is not keyed. Top should be secured to a lifting member to prevent rotation. When a Bellows Boot is required, see pages 148-149. Dimensions are subject to change without notice. When the lifting screw is keyed, the holes in the top plate will not necessarily be in the position shown.



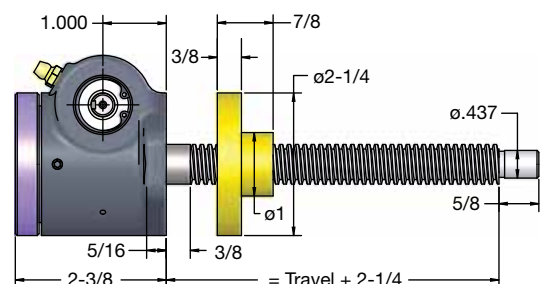
Upright: B9250T



Inverted: B9250TV



Upright Rotating: B9250U

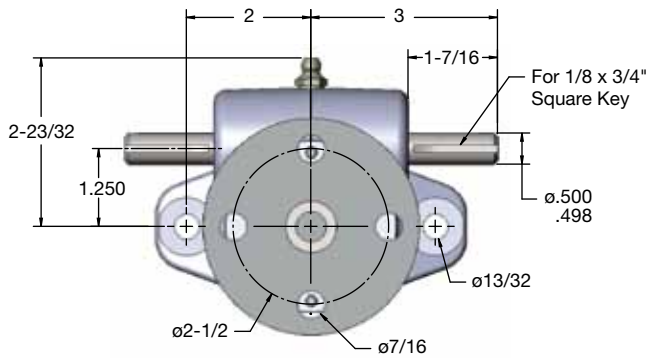


Inverted Rotating: B9250D

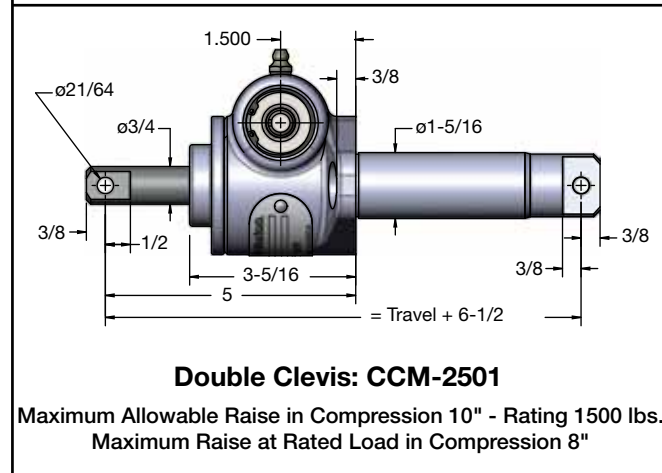
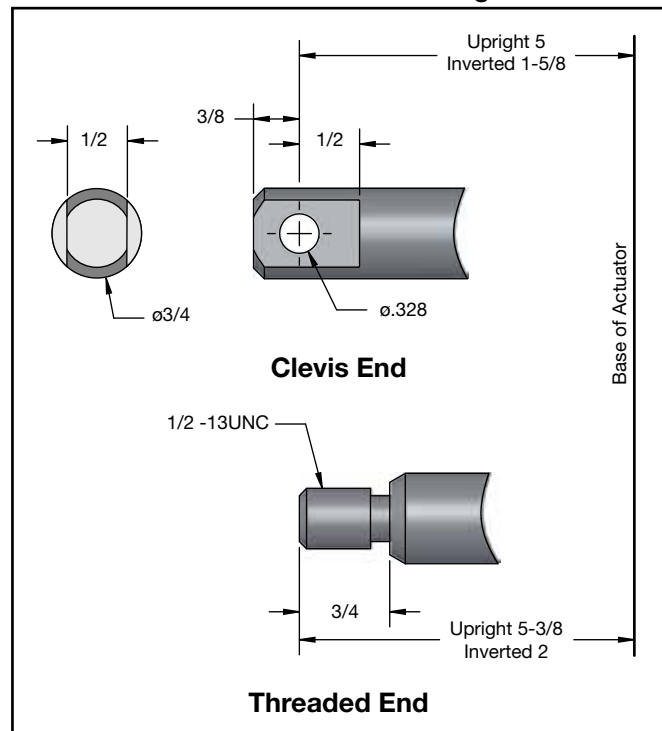
MACHINE SCREW

ACTUATORS

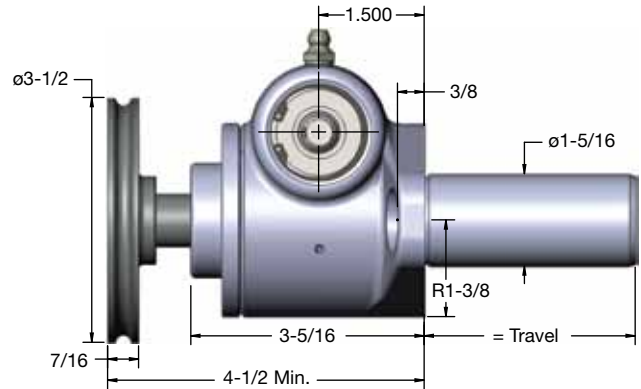
1 TON CAPACITY



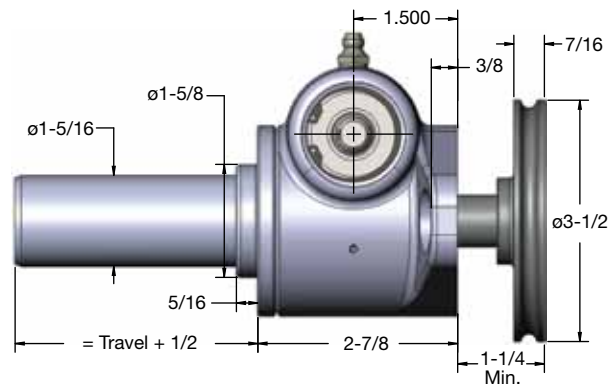
3/4 Diameter x .200 Lead Lifting Screws



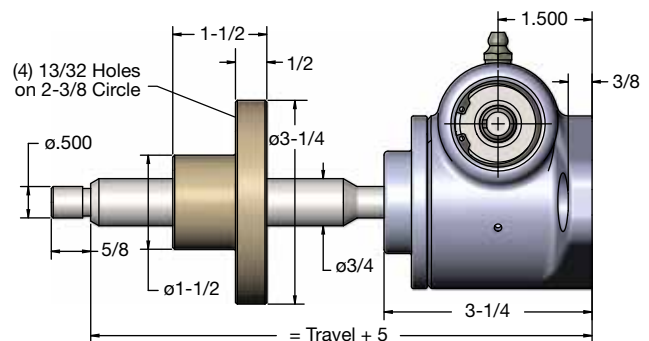
Note: Lifting screw is not keyed. Top should be secured to a lifting member to prevent rotation. When a Bellows Boot is required, see pages 148-149. Dimensions are subject to change without notice.



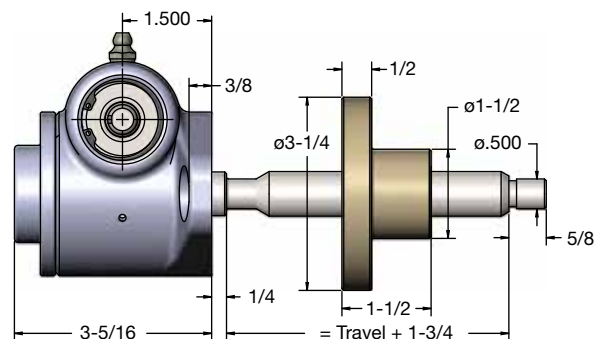
Upright: M-2501



Inverted: M-2500



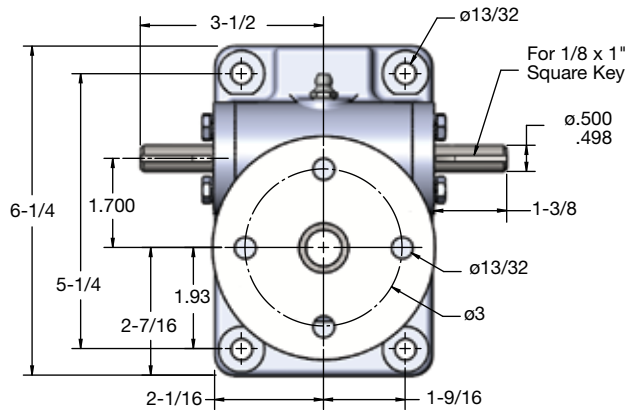
Upright Rotating: UM-2502



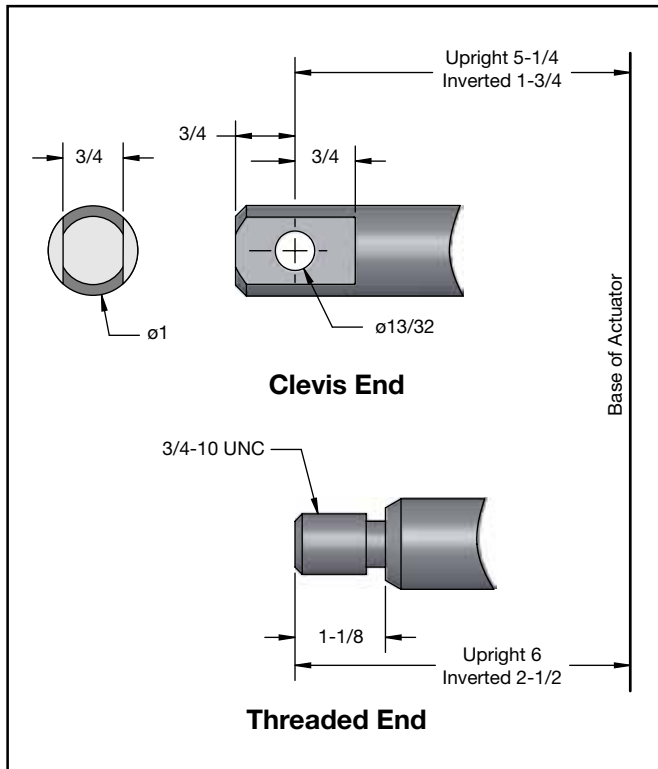
Inverted Rotating: DM-2502

MACHINE SCREW ACTUATORS

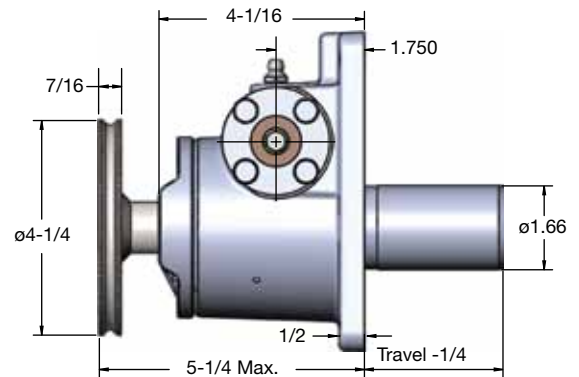
2 TON CAPACITY — 9000 SERIES



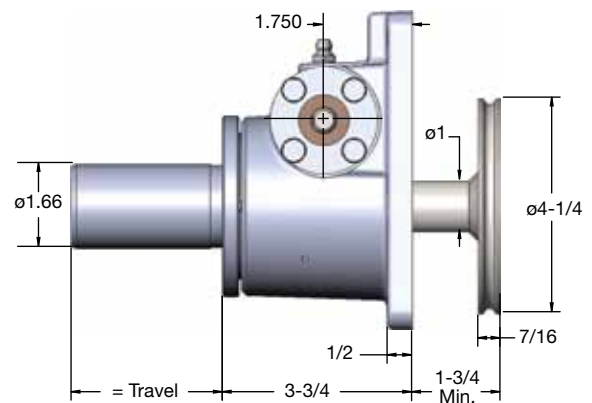
1" Diameter x .250 Lead Lifting Screws



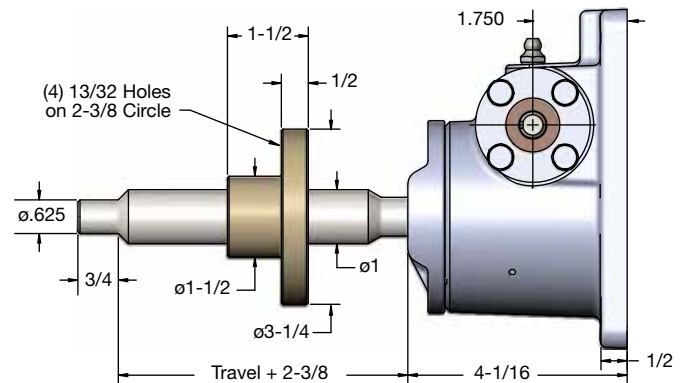
Note: Lifting screw is not keyed. Top should be secured to a lifting member to prevent rotation. When a Bellows Boot is required, see pages 148-149. Dimensions are subject to change without notice.



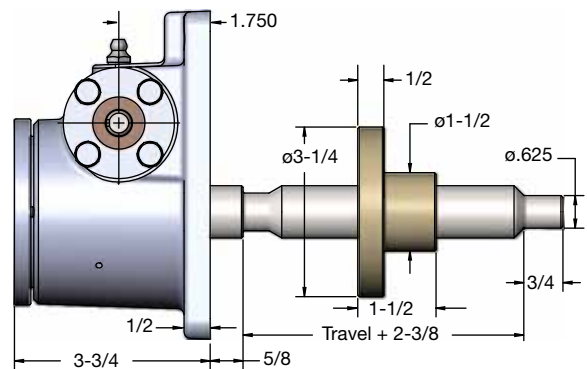
Upright: M-9002



Inverted: M-9001



Upright Rotating: UM-9003

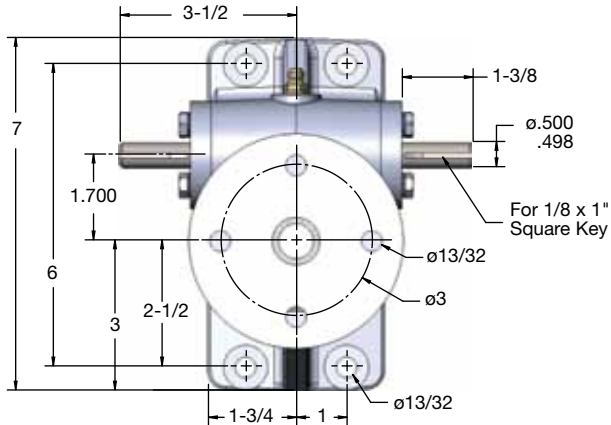


Inverted Rotating: DM-9003

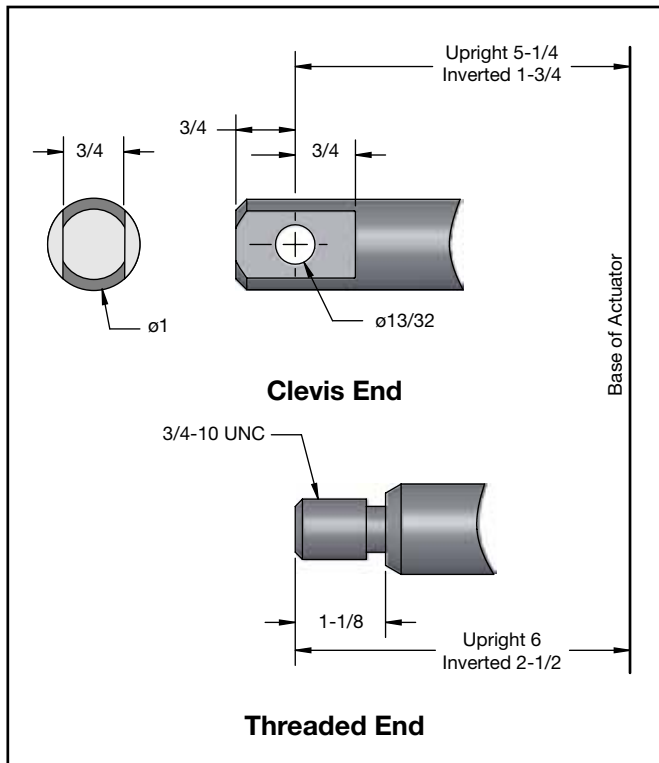
MACHINE SCREW

ACTUATORS

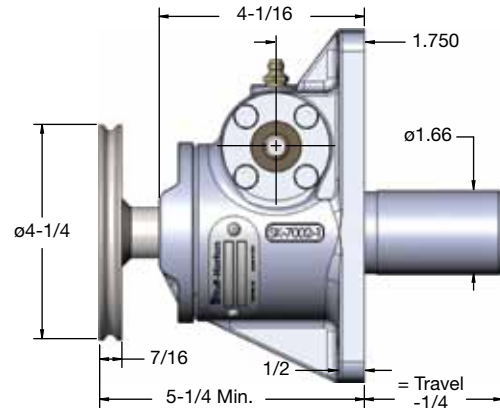
2 TON CAPACITY — 7000 SERIES



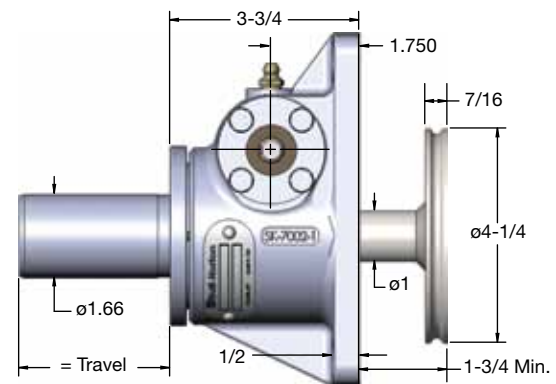
1" Diameter x .250 Lead Lifting Screw



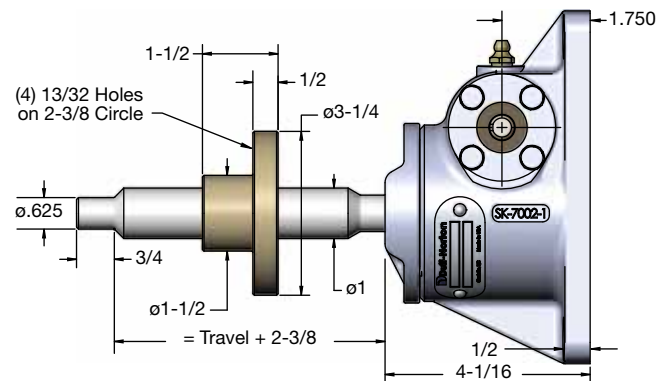
Note: Lifting screw is not keyed. Top should be secured to a lifting member to prevent rotation. When a Bellows Boot is required, see pages 148-149. Dimensions are subject to change without notice.



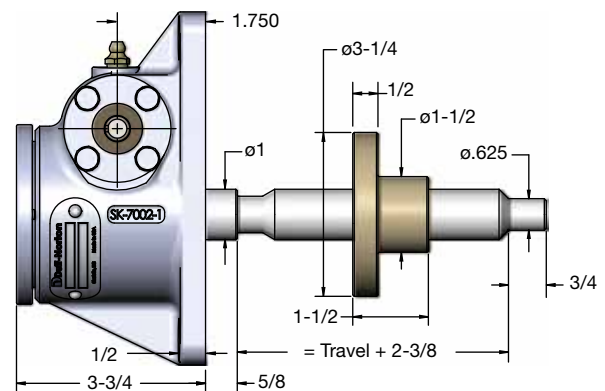
Upright: M-7002



Inverted: M-7001



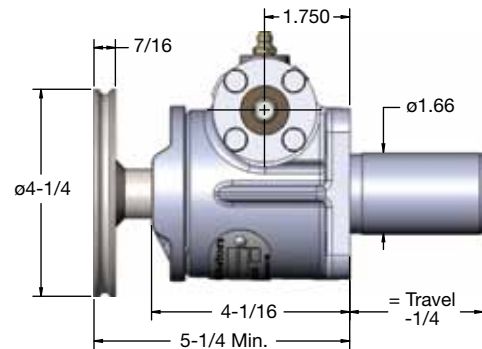
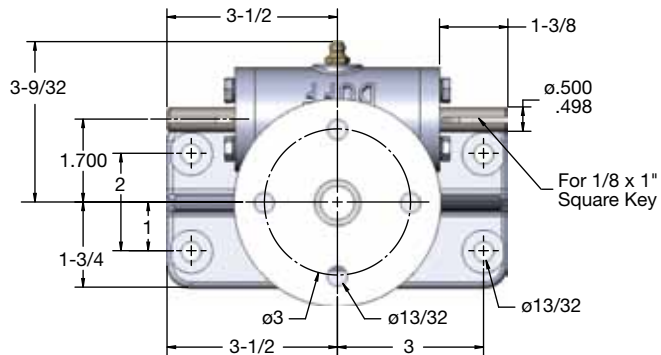
Upright Rotating: UM-7003



Inverted Rotating: DM-7003

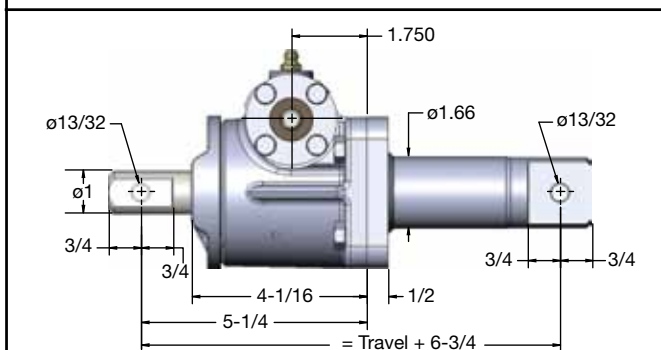
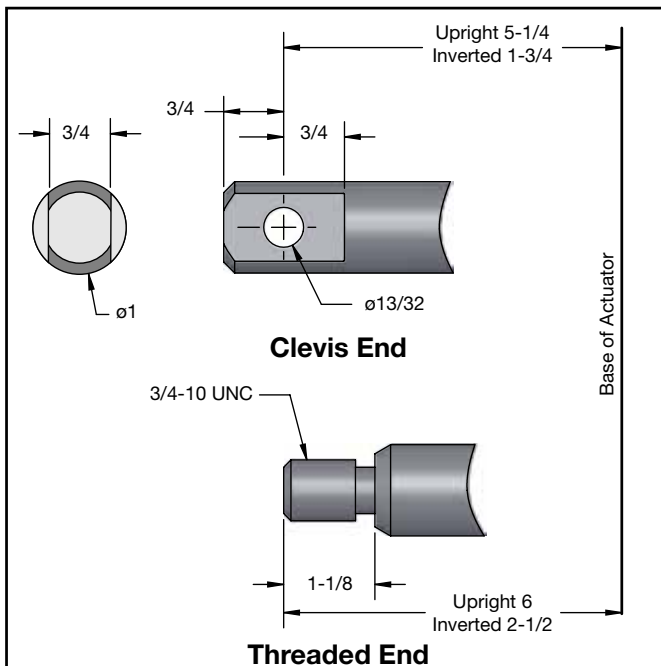
MACHINE SCREW ACTUATORS

2 TON CAPACITY — 1800 SERIES



Upright: M-1802

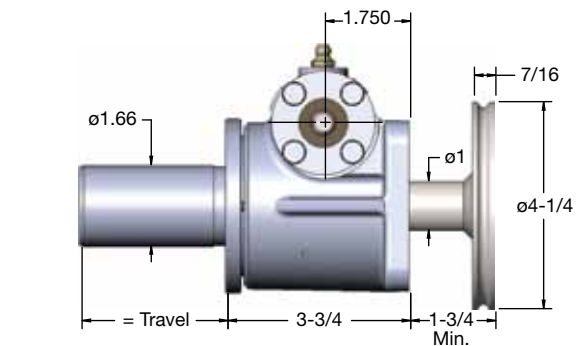
1" Diameter x .250 Lead Lifting Screws



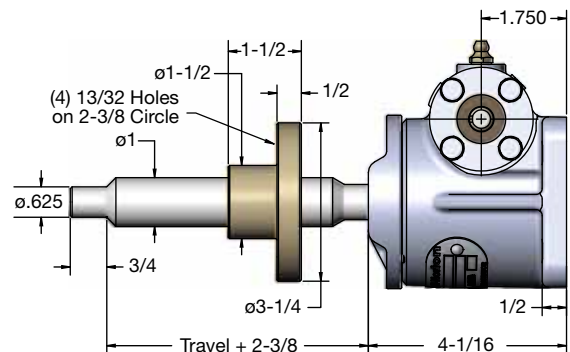
Double Clevis: CCM-1802

Maximum Allowable Raise in Compression 14" - Rating 3000 Lbs.
Maximum Raise at Rated Load in Compression 12"

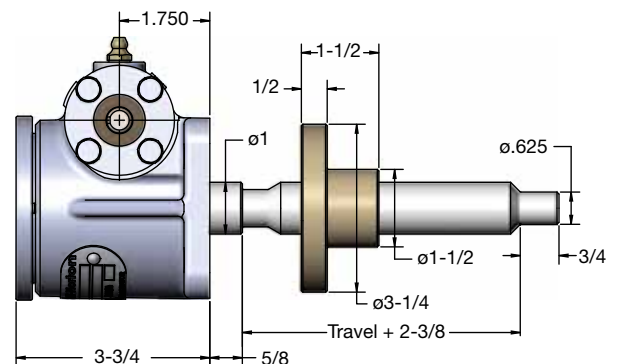
Note: Lifting screw is not keyed. Top should be secured to a lifting member to prevent rotation. When a Bellows Boot is required, see pages 148-149. Dimensions are subject to change without notice.



Inverted: M-1801



Upright Rotating: UM-1803

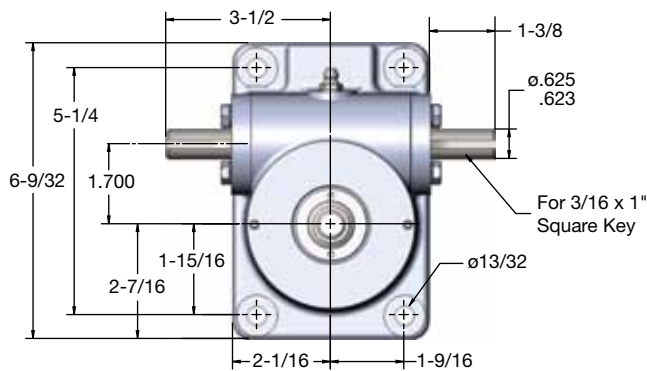


Inverted Rotating: DM-1803

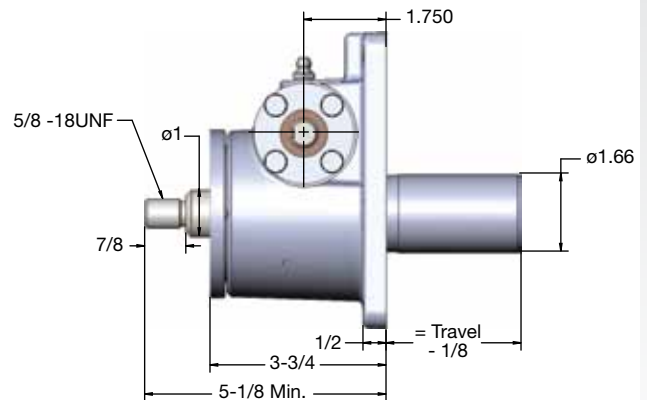
MACHINE SCREW

ACTUATORS

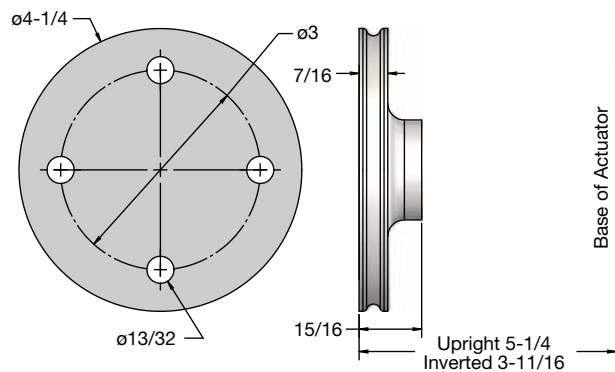
3 TON CAPACITY



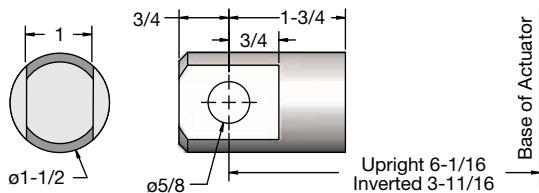
Top View: B9003 1" Diameter x .250"



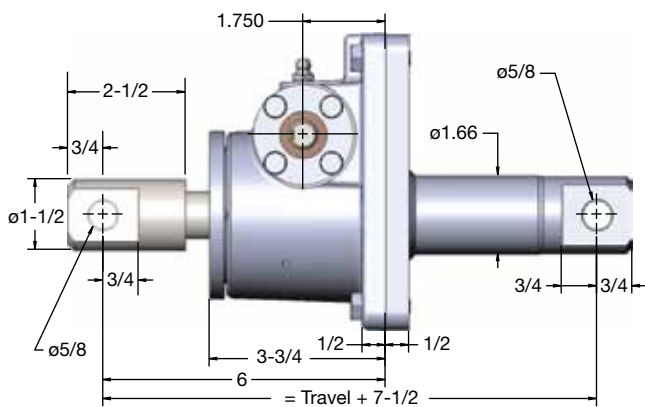
Upright: B9003T



Top Plate SK90003-6A



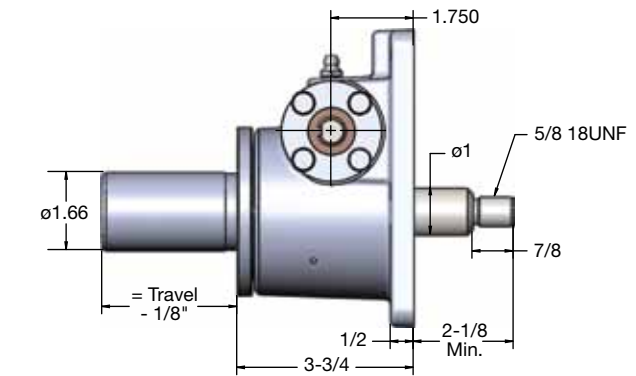
Clevis End SK90003-18A



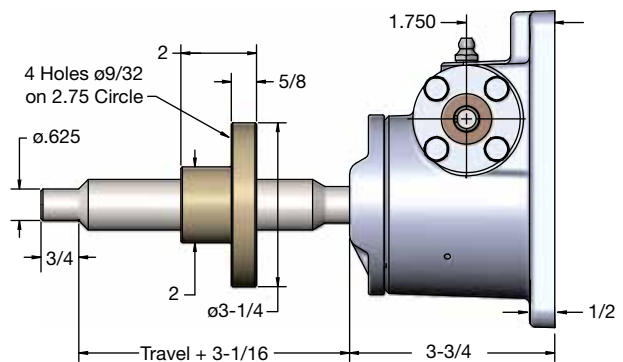
Double Clevis: CCM-9003

Maximum Allowable Raise in Compression 14" - Rating 3000 Lbs.
Maximum Raise at Rated Load in Compression 9"

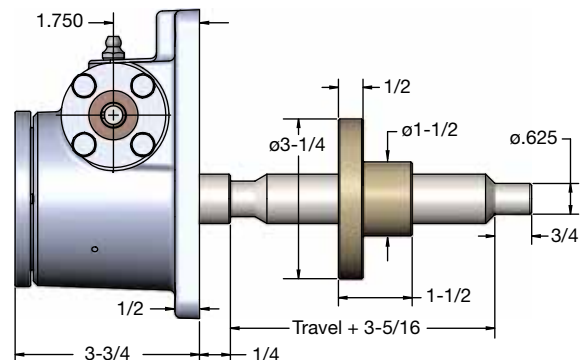
Note: Lifting screw is not keyed. Top should be secured to a lifting member to prevent rotation. When a Bellows Boot is required, see pages 148-149. Dimensions are subject to change without notice.



Inverted: B9003TV

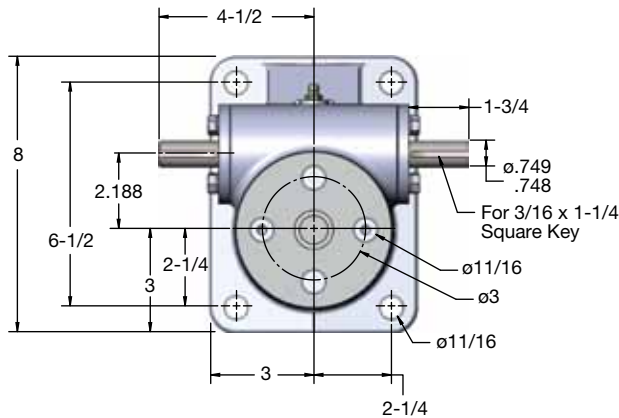


Upright Rotating: B9003U

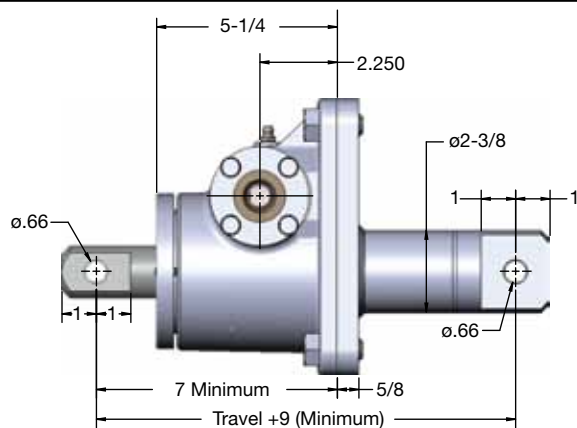
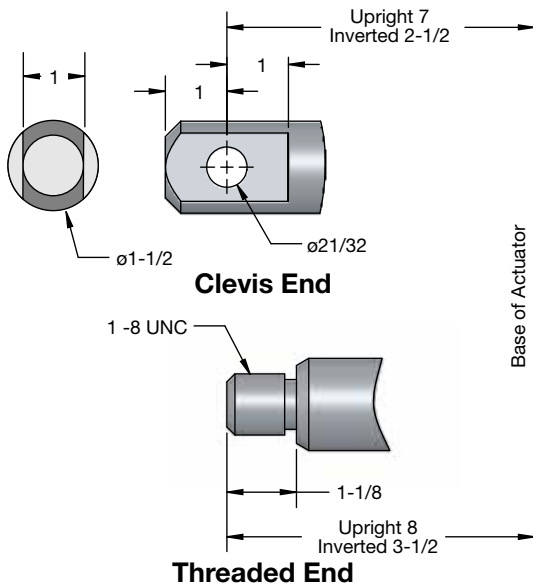


Inverted Rotating: B9003D

MACHINE SCREW ACTUATORS 5 TON CAPACITY



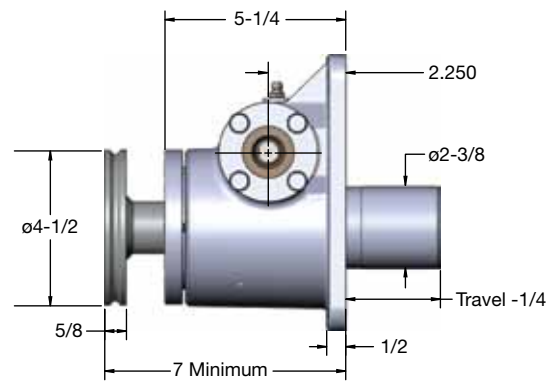
1-1/2" Diameter x .375 Lead Lifting Screws



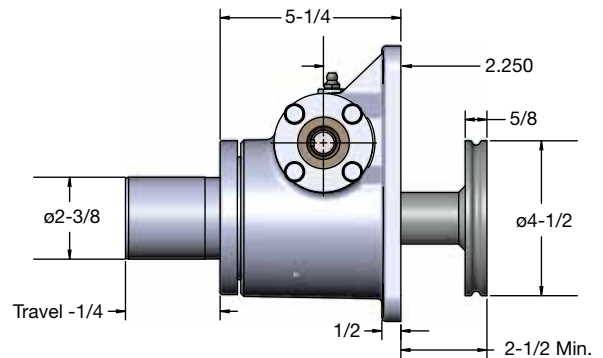
Double Clevis: CCM-9005

Maximum Allowable Raise in Compression 22" - Rating 6500 Lbs.
Maximum Raise at Rated Load in Compression 17"

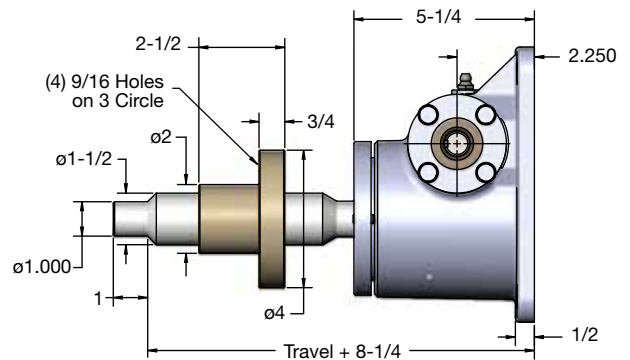
Note: Lifting screw is not keyed. Top should be secured to a lifting member to prevent rotation. When a Bellows Boot is required, see pages 148-149. Dimensions are subject to change without notice.



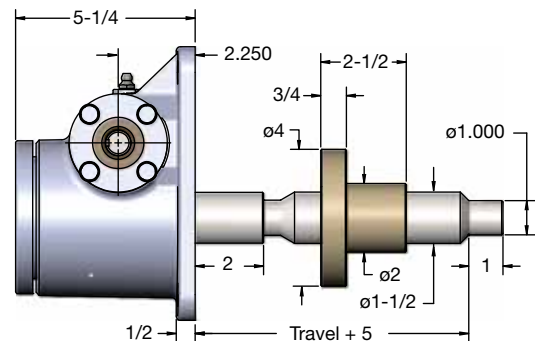
Upright: M-9005



Inverted: M-9004



Upright Rotating: UM-9006

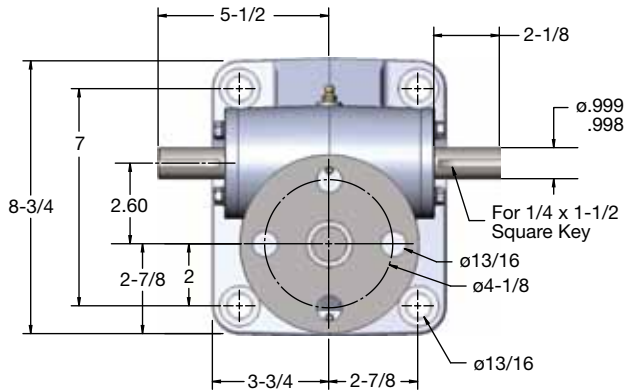


Inverted Rotating: DM-9006

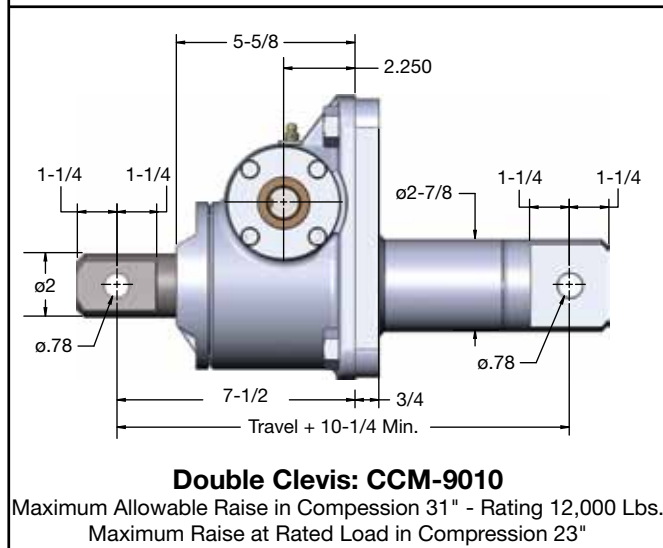
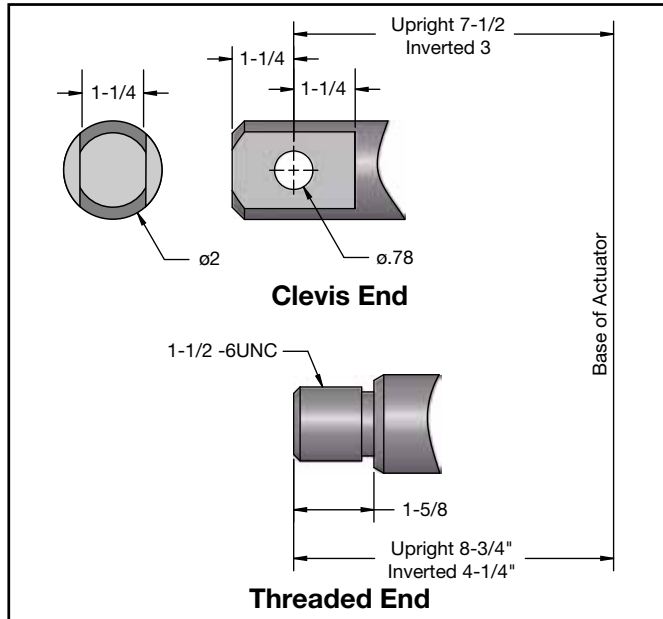
MACHINE SCREW

ACTUATORS

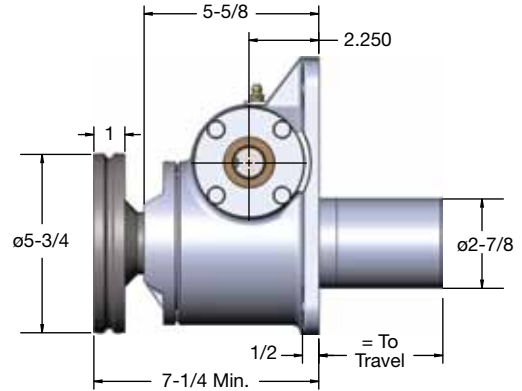
10 TON CAPACITY



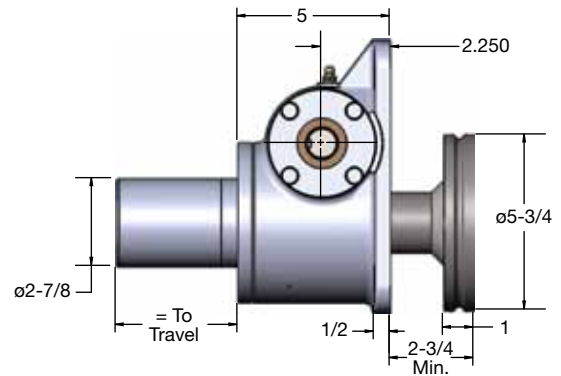
2" Diameter x .500 Lead Lifting Screws



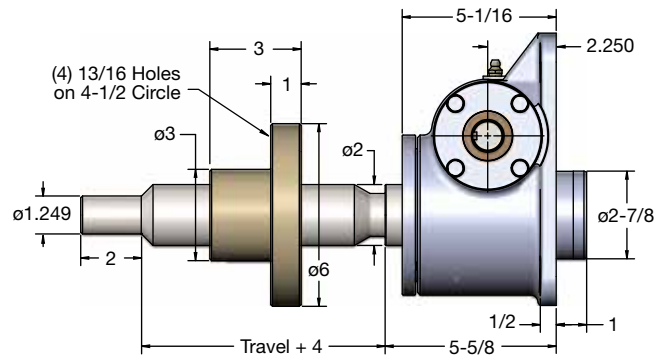
Note: Lifting screw is not keyed. Top should be secured to a lifting member to prevent rotation. When a Bellows Boot is required, see pages 148-149. Dimensions are subject to change without notice.



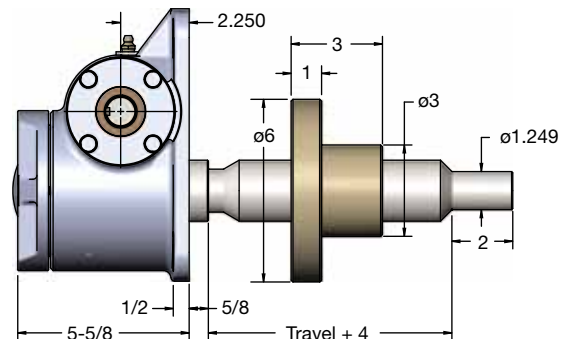
Upright: M-9010



Inverted: M-9009

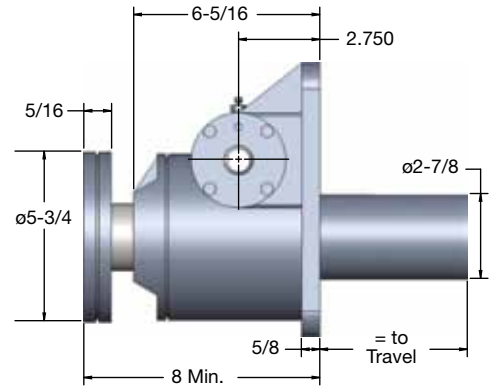
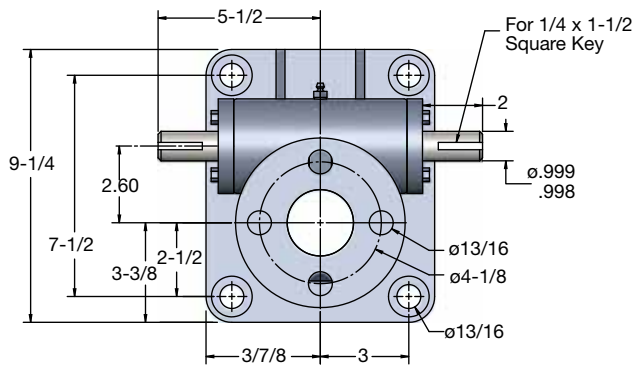


Upright Rotating: UM-9011



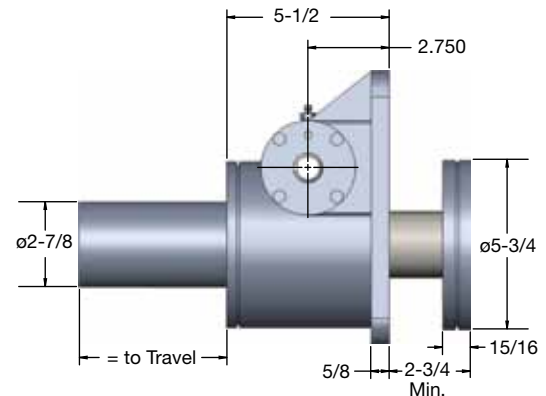
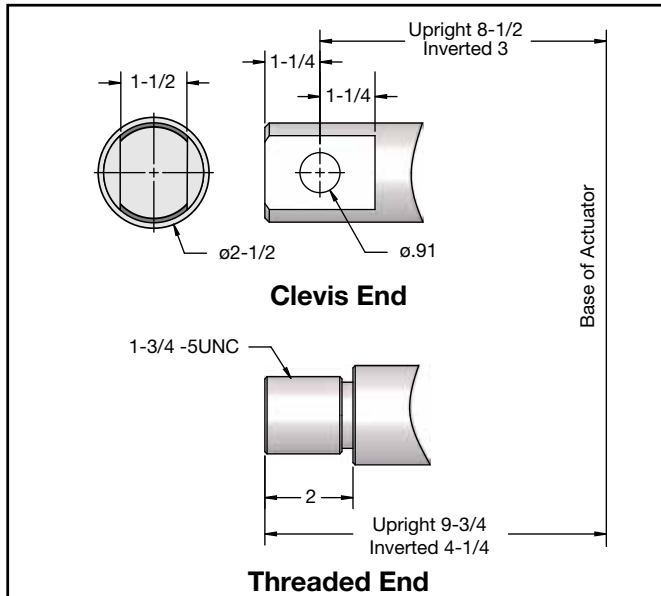
Inverted Rotating: DM-9011

MACHINE SCREW ACTUATORS 15 TON CAPACITY

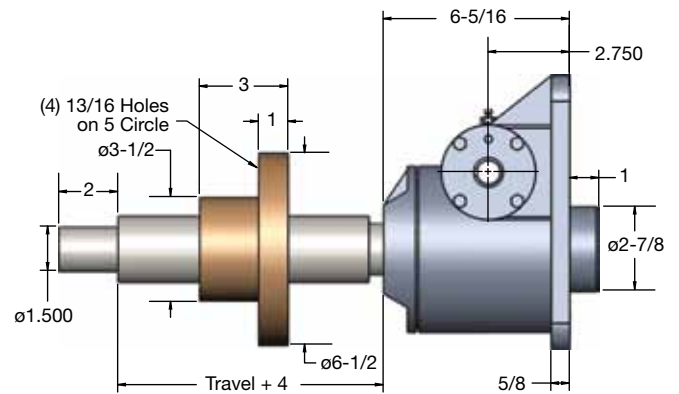


Upright: M-9015

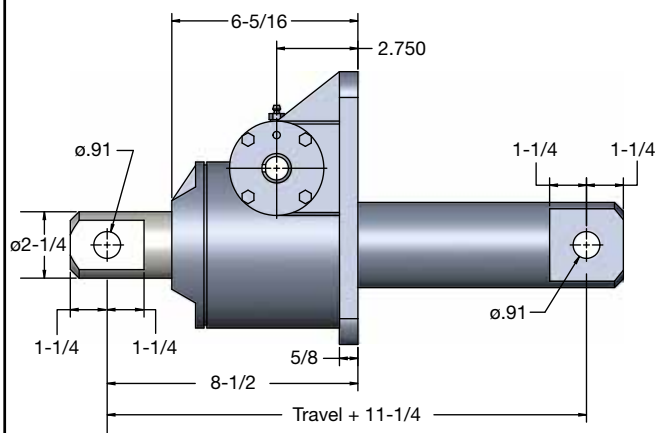
2-1/4" Diameter x .500 Lead Lifting Screws



Inverted: M-9014



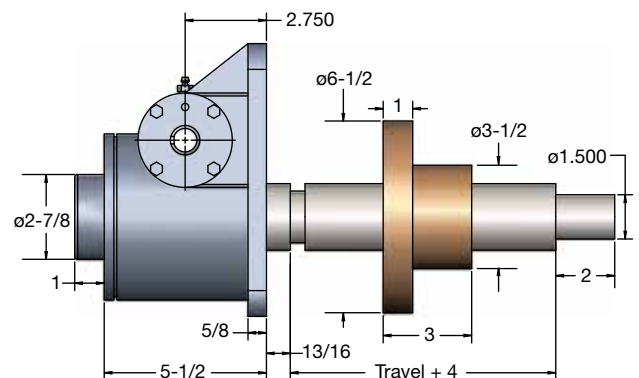
Upright Rotating: UM-9016



Double Clevis: CCM-9015

Maximum Allowable Raise in Compression 37" - Rating 16,000 Lbs.
Maximum Raise at Rated Load in Compression 26"

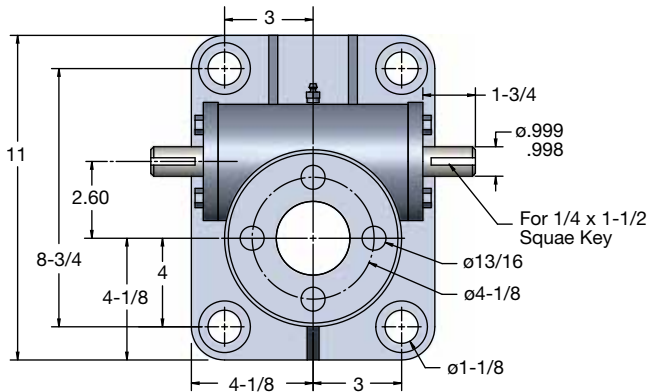
Note: Lifting screw is not keyed. Top should be secured to a lifting member to prevent rotation. When a Bellows Boot is required, see pages 148-149. Dimensions are subject to change without notice.



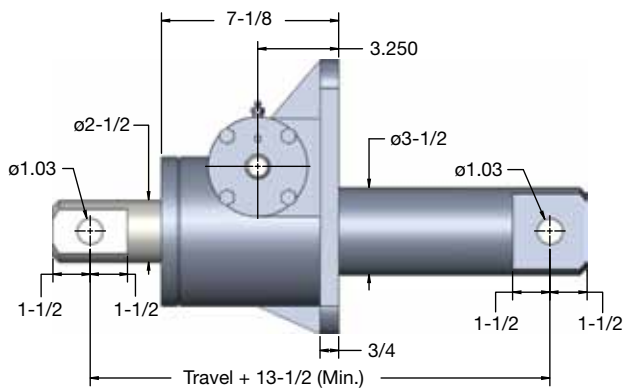
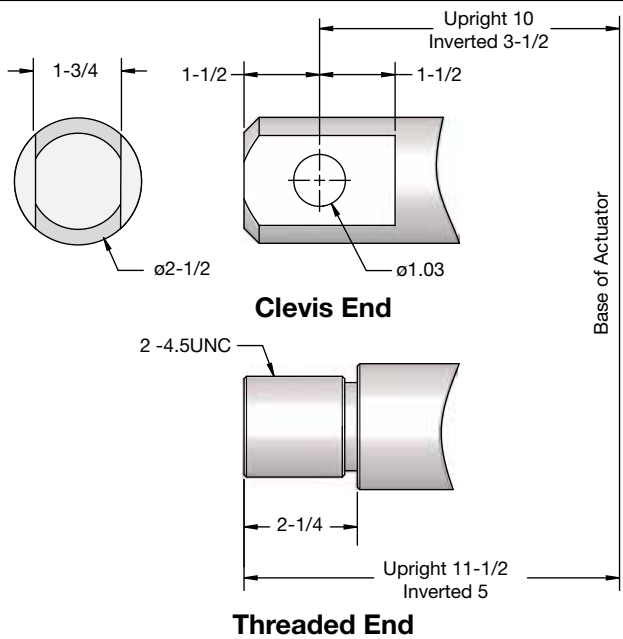
Inverted Rotating: DM-9016

ACTUATORS

20 TON CAPACITY



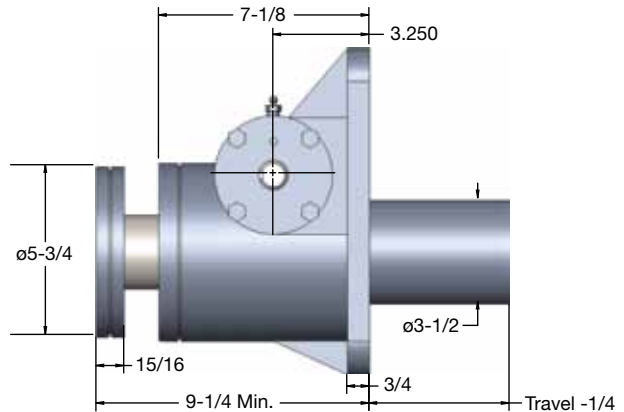
2-1/2" Diameter x .500 Lead Lifting Screws



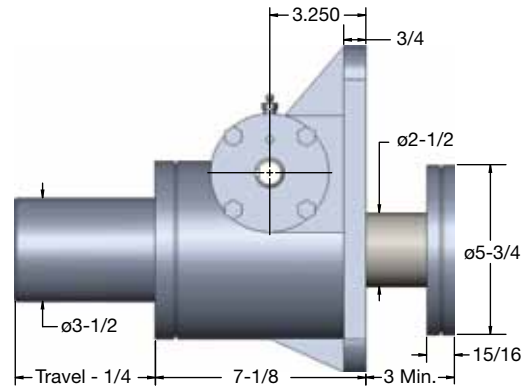
Double Clevis: CCM-9020

Maximum Allowable Raise in Compression 42" - Rating 21,000 Lbs.
Maximum Raise at Rated Load in Compression 29"

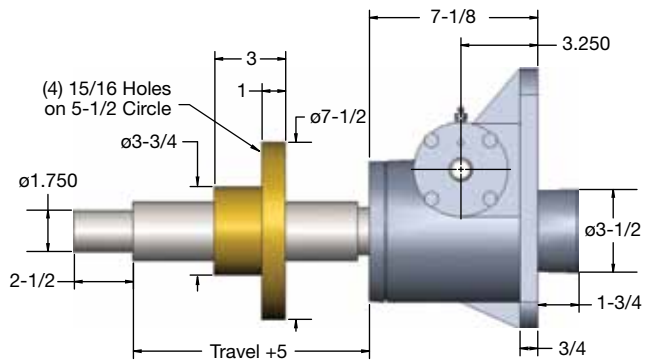
Note: Lifting screw is not keyed. Top should be secured to a lifting member to prevent rotation. When a Bellows Boot is required, see pages 148-149. Dimensions are subject to change without notice.



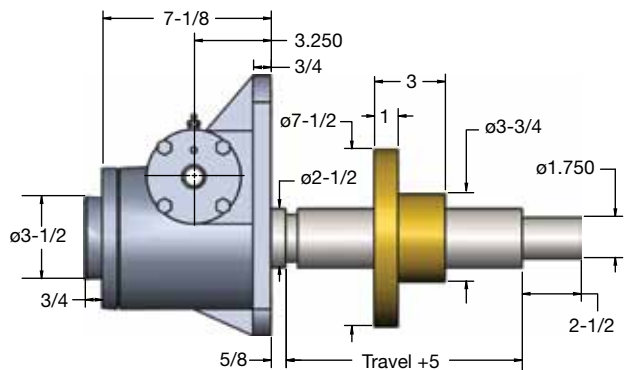
Upright: M-9020



Inverted: M-9019



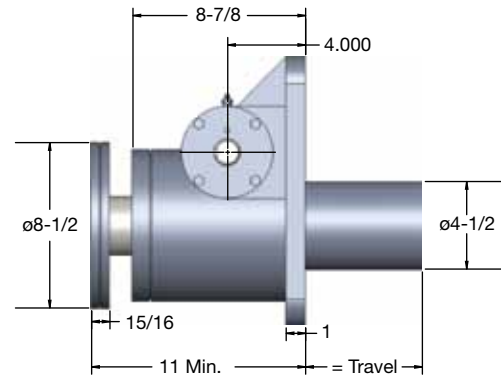
Upright Rotating: UM-9021



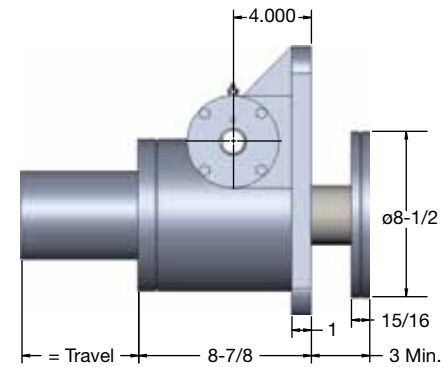
Inverted Rotating: DM-9021

ACTUATORS

25 TON CAPACITY



3" Diameter x .666 Lead Lifting Screws



Double Clevis: CCM-9025

Maximum Allowable Raise in Compression 56" - Rating 37,000 Lbs
 Maximum Raise at Rated Load in Compression 47"

The technical drawing shows a double clevis assembly with the following dimensions:

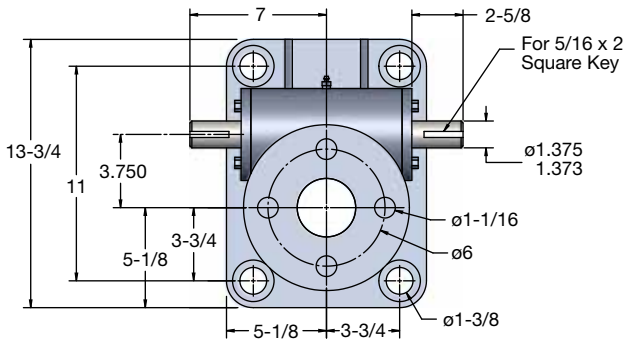
- Overall length: 8-7/8"
- Distance from centerline to end face: 4.000"
- End face diameter: $\phi 1.28$
- Inner bore diameter: $\phi 3$
- Inner bore length segments: 1-3/4" and 1-3/4"
- Outer diameter of main body: $\phi 4-1/2$
- Main body length segment: 12"
- Flange thickness: 1"
- Travel dimension: +16 Min.
- Additional end face diameter: $\phi 1.28$
- Additional inner bore length segments: 1-3/4" and 1-3/4"

[illegible]

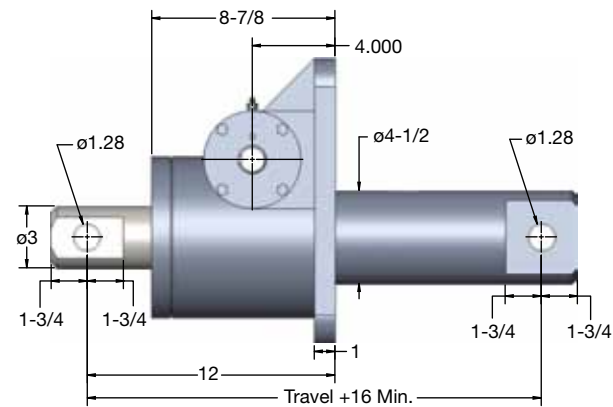
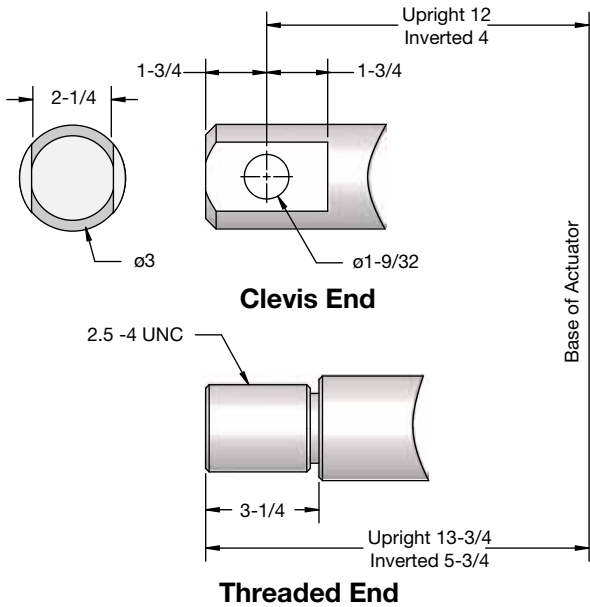
Note: Lifting screw is not keyed. Top should be secured to a lifting member to prevent rotation. When a Bellows Boot is required, see pages 148-149. Dimensions are subject to change without notice.

ACTUATORS

30 TON CAPACITY

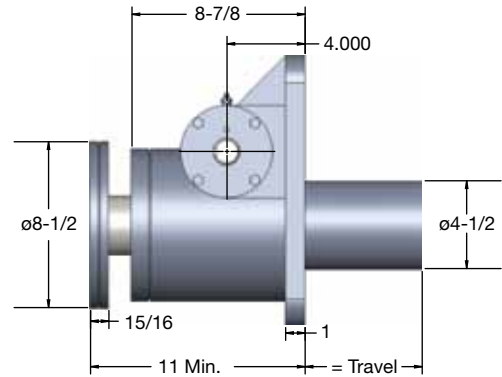


3" Diameter x .666 Lead Lifting Screws

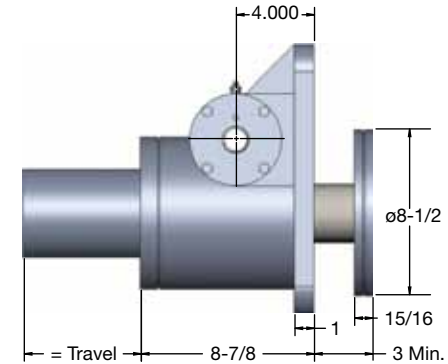


Double Clevis: CCM-9030

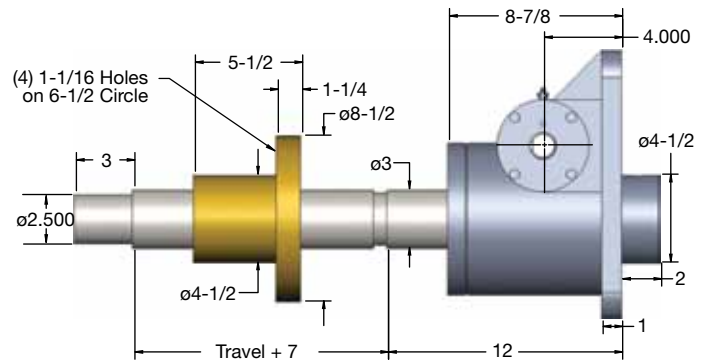
Maximum Allowable Raise in Compression 56" - Rating 37,000 Lbs.
Maximum Raise at Rated Load in Compression 44"



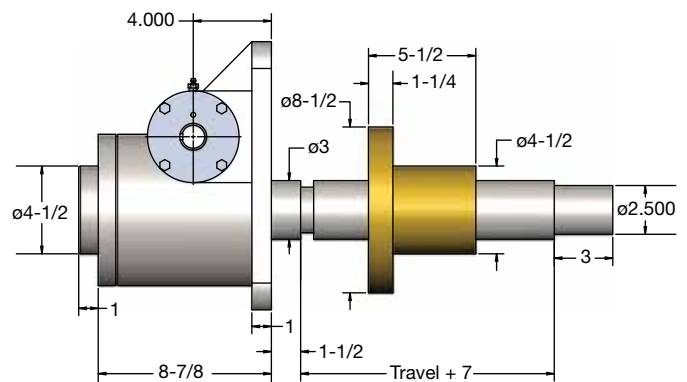
Upright: M-9030



Inverted: M-9029



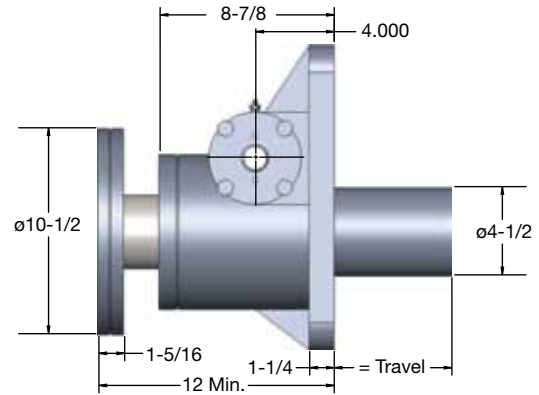
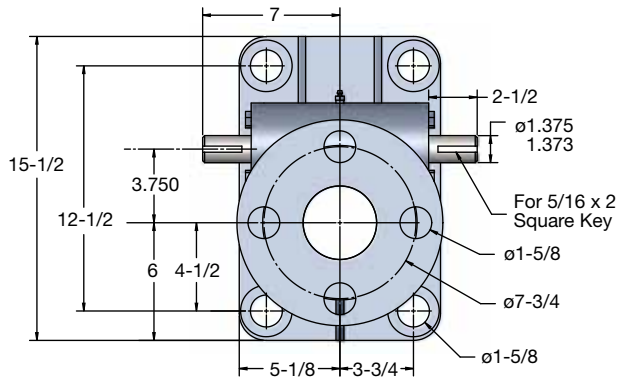
Upright Rotating: UM-9031



Inverted Rotating: DM-9031

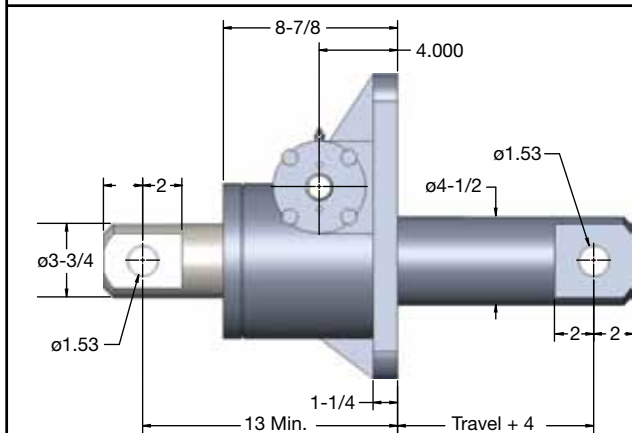
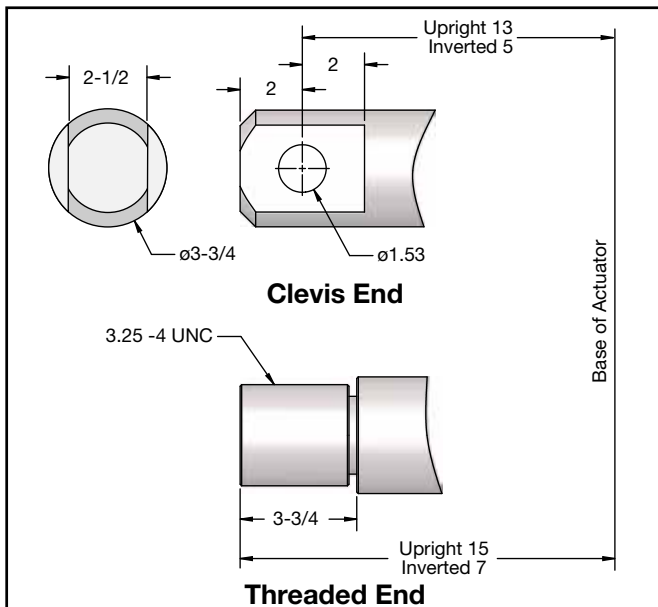
Note: Lifting screw is not keyed. Top should be secured to a lifting member to prevent rotation. When a Bellows Boot is required, see pages 148-149. Dimensions are subject to change without notice.

MACHINE SCREW ACTUATORS 35 TON CAPACITY



Upright: M-9035

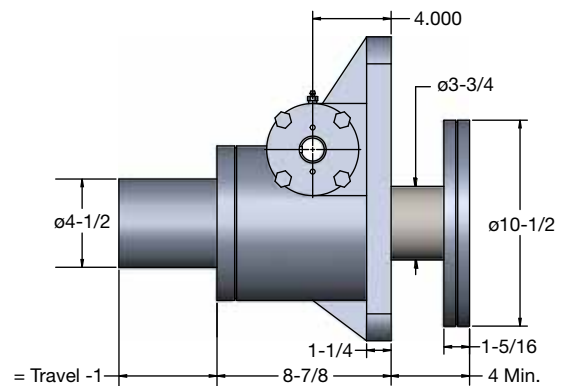
3-3/4" Diameter x .666 Lead Lifting Screws



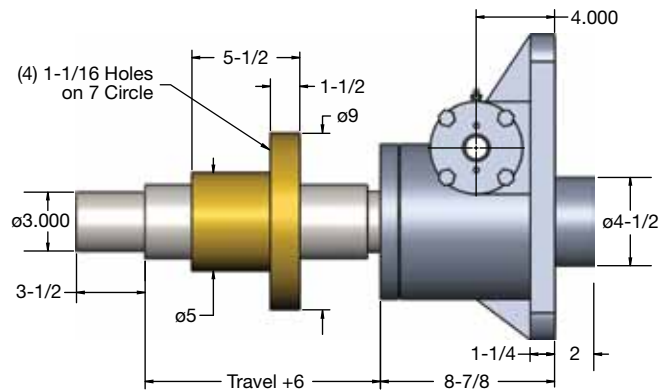
Double Clevis: CCM-9035

Maximum Allowable Raise in Compression 74" - Rating 62,000 Lbs.
Maximum Raise at Rated Load in Compression 69"

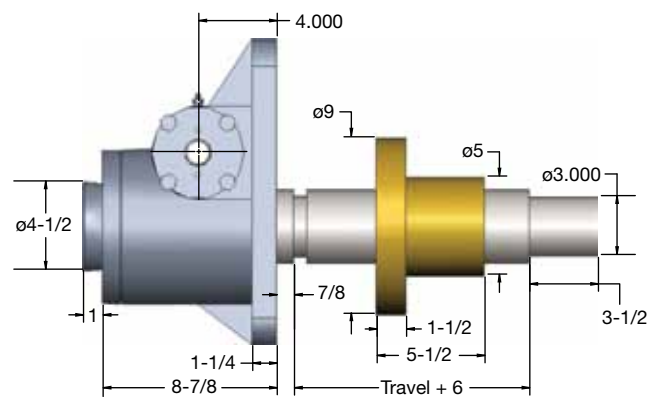
Note: Lifting screw is not keyed. Top should be secured to a lifting member to prevent rotation. When a Bellows Boot is required, see pages 148-149. Dimensions are subject to change without notice.



Inverted: M-9034



Upright Rotating: UM-9036

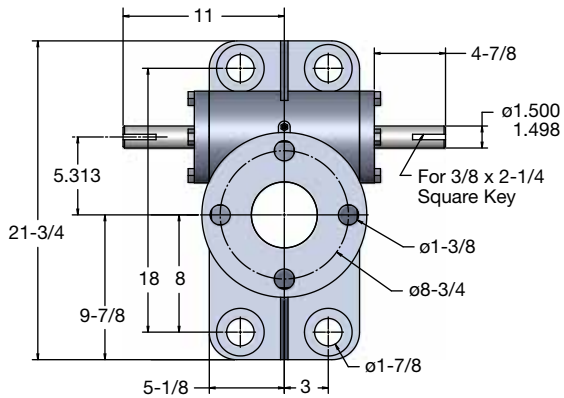


Inverted Rotating: DM-9036

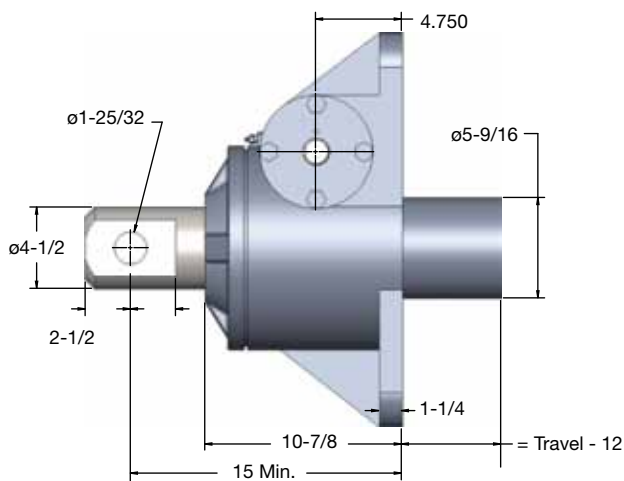
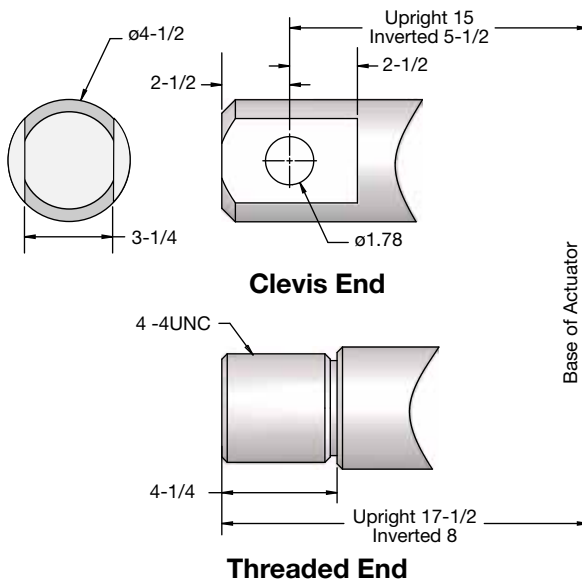
MACHINE SCREW

ACTUATORS

50 TON CAPACITY — 9000 Series



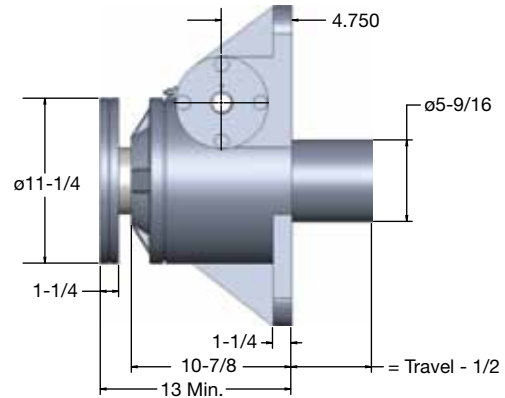
4-1/2" Diameter x .666 Lead Lifting Screws



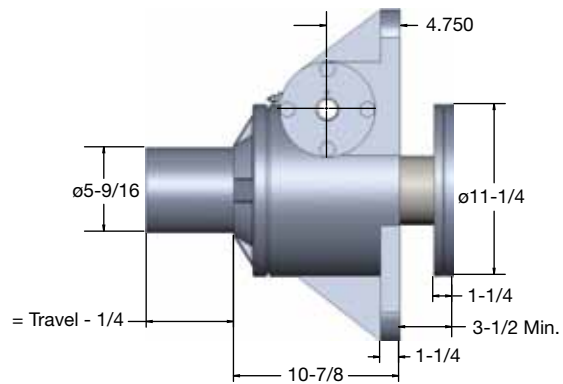
Double Clevis: CCM-9050

Maximum Allowable Raise in Compression 93" - Rating 94,000 Lbs.
Maximum Raise at Rated Load in Compression 90"

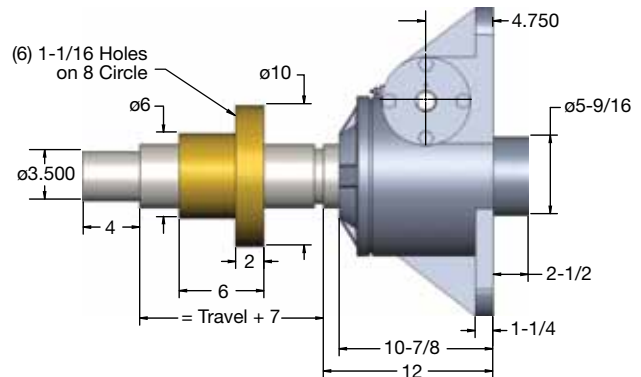
Note: Lifting screw is not keyed. Top should be secured to a lifting member to prevent rotation. When a Bellows Boot is required, see pages 148-149. Dimensions are subject to change without notice.



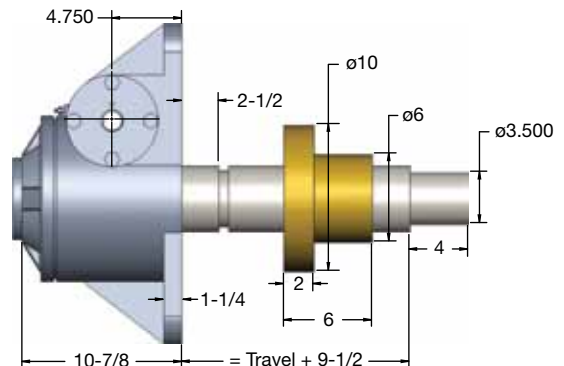
Upright: M-9050



Inverted: M-9049

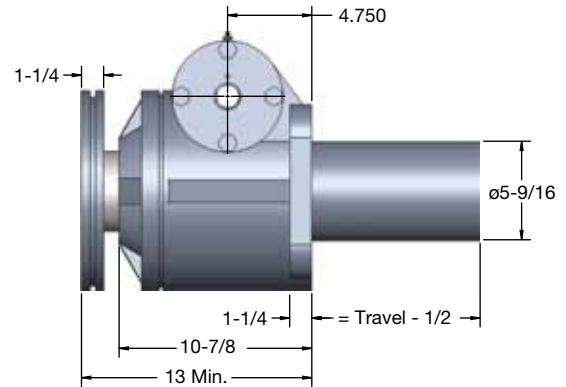


Upright Rotating: UM-9051

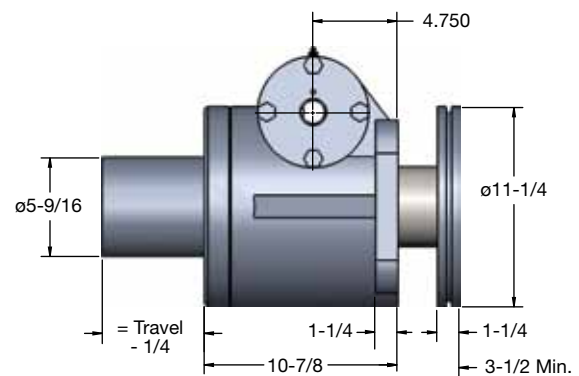


Inverted Rotating: DM-9051

50 TON CAPACITY — 1800 Series



4-1/2" Diameter x .666 Lead Lifting Screws



Technical drawing of a mechanical assembly with dimensions:

- (6) 1-1/16 Holes on 8 Circle
- 6
- 2
- 4.750
- $\phi 3.500$
- 4
- $\phi 6$
- $\phi 10$
- $\phi 5-9/16$
- 2-1/2
- 1-1/4
- 10-7/8
- 12
- = Travel + 7

[illegible]

Maximum Allowable Raise in Compression 93" - Rating 94,000 Lbs.
Maximum Raise at Rated Load in Compression 90"

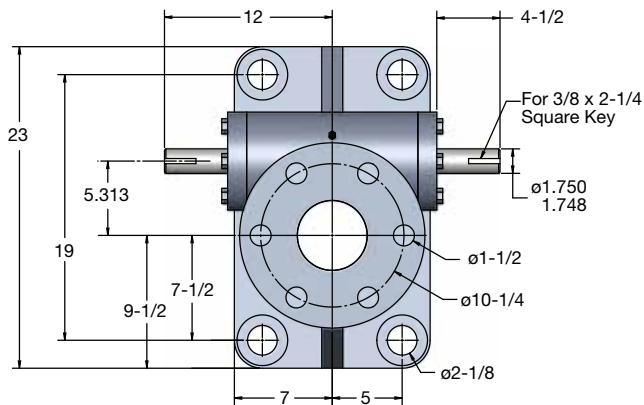
Technical drawing of a mechanical assembly. The top view shows a circular component with a central hole and four smaller holes, with a dimension of 4.750. The side view shows a shaft with a central yellow component. Dimensions include: $\phi 10$ for the central component, $\phi 6$ for the shaft, $\phi 3.500$ for the end section, 4 for the end section length, 2 for the central component thickness, 6 for the central component length, 1-1/4 for the distance from the left end to the central component, 2-5/8 for the distance from the left end to the end of the central component, and 10-7/8 for the total length. A dimension line at the bottom indicates the total length is equal to Travel + 7.

31

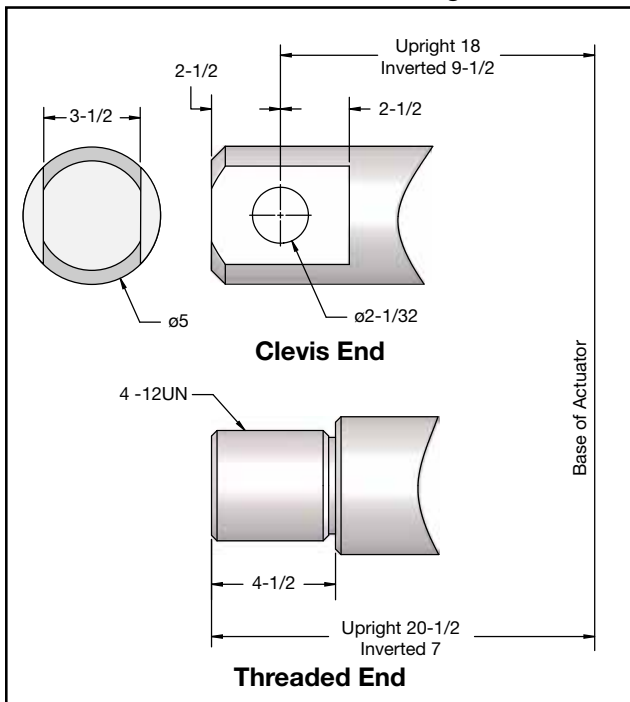
MACHINE SCREW

ACTUATORS

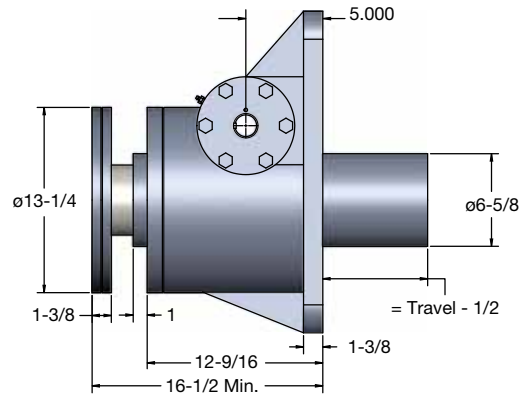
75 TON CAPACITY



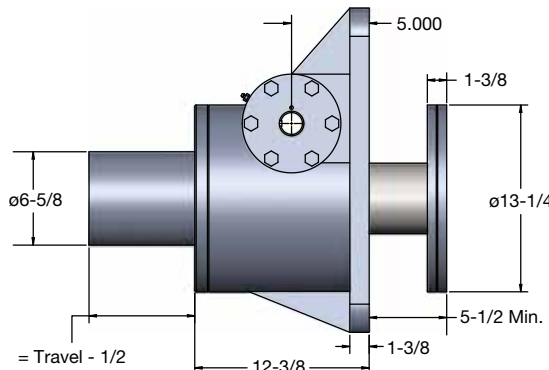
5" Diameter x .666 Lead Lifting Screws



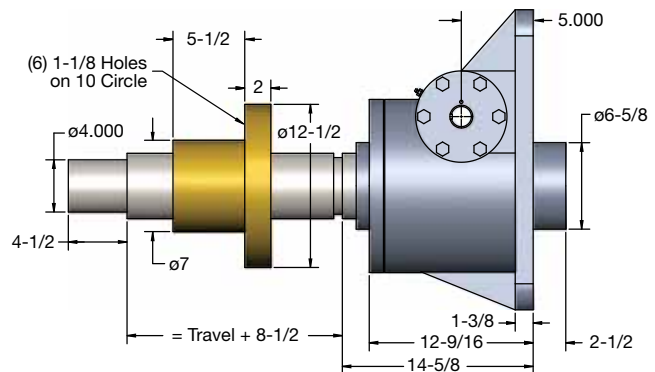
Note: Lifting screw is not keyed. Top should be secured to a lifting member to prevent rotation. When a Bellows Boot is required, see pages 148-149. Dimensions are subject to change without notice.



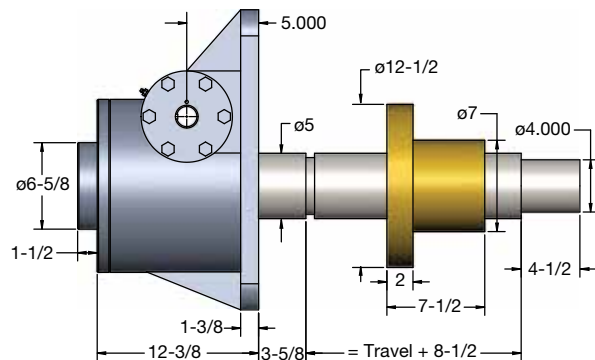
Upright: M-9075



Inverted: M-9074



Upright Rotating: UM-9076

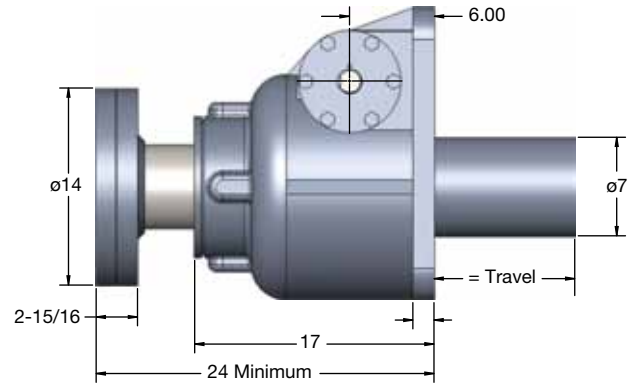
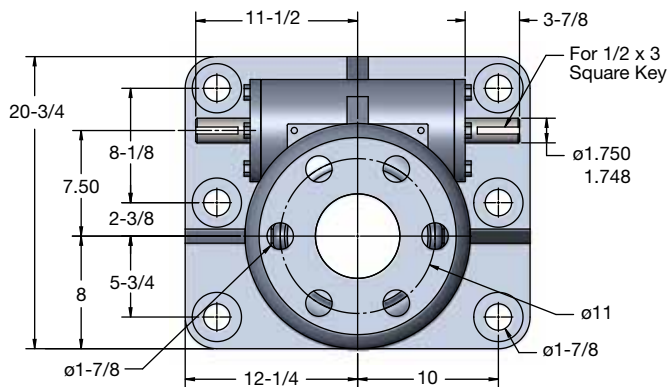


Inverted Rotating: DM-9076

MACHINE SCREW

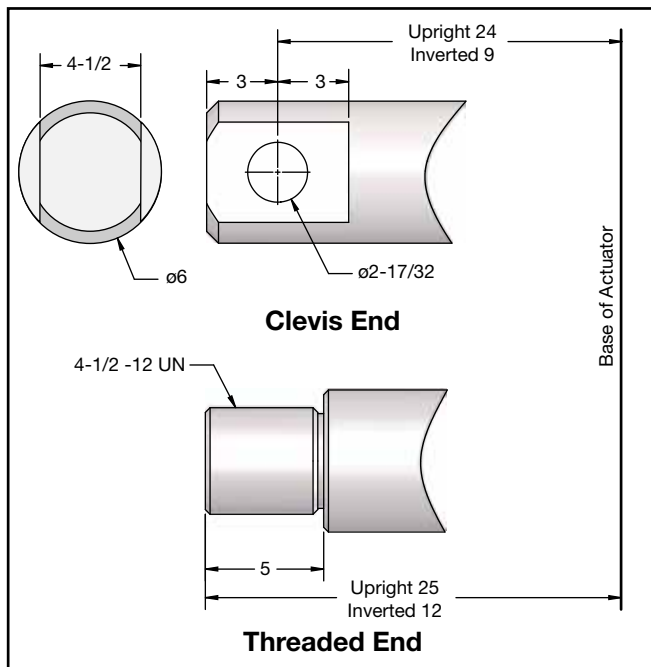
ACTUATORS

100 TON CAPACITY

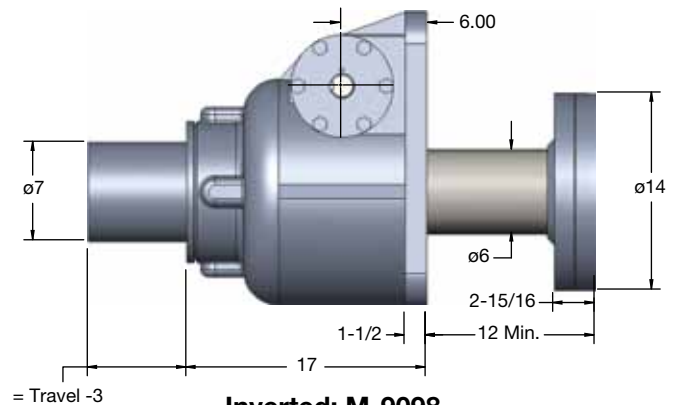


Upright: M-9099

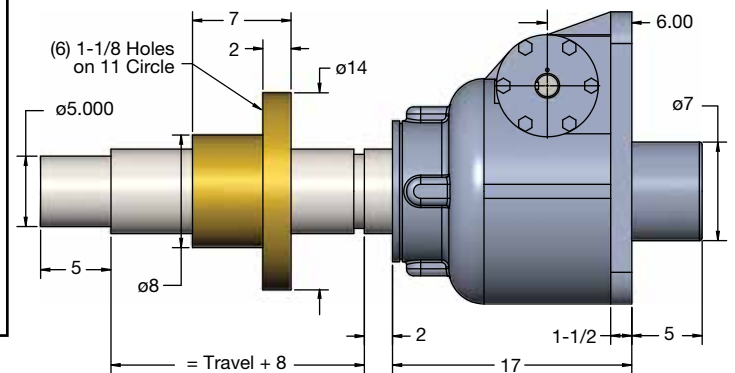
6" Diameter x .750 Lead Lifting Screws



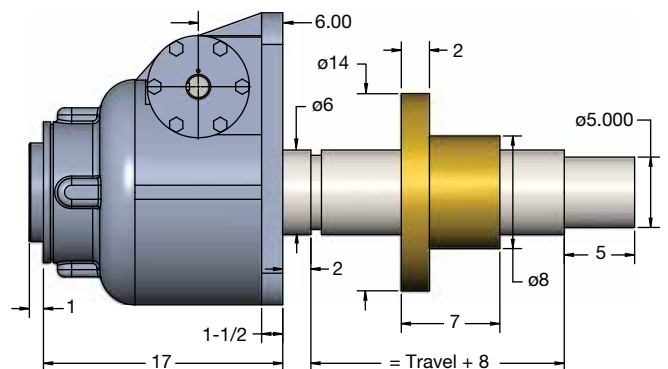
Note: Lifting screw is not keyed. Top should be secured to a lifting member to prevent rotation. When a Bellows Boot is required, see pages 148-149. Dimensions are subject to change without notice.



Inverted: M-9098



Upright Rotating: UM-9097

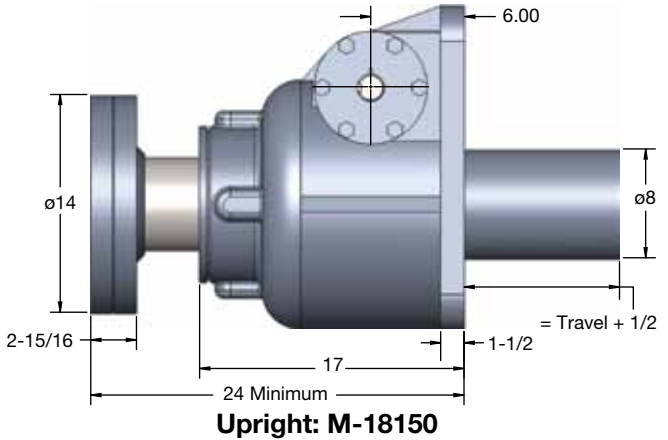
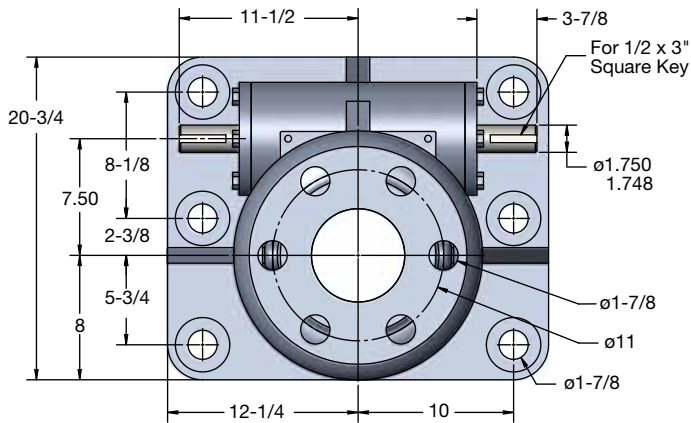


Inverted Rotating: DM-9097

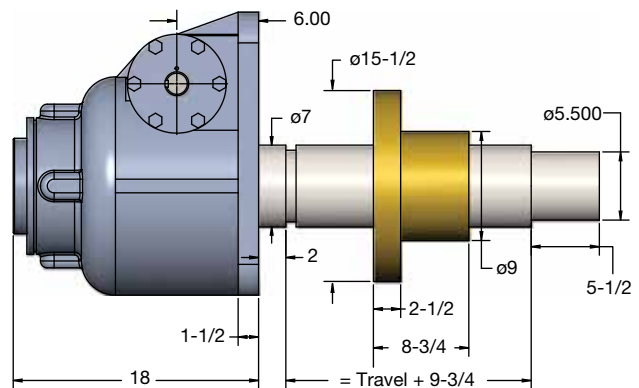
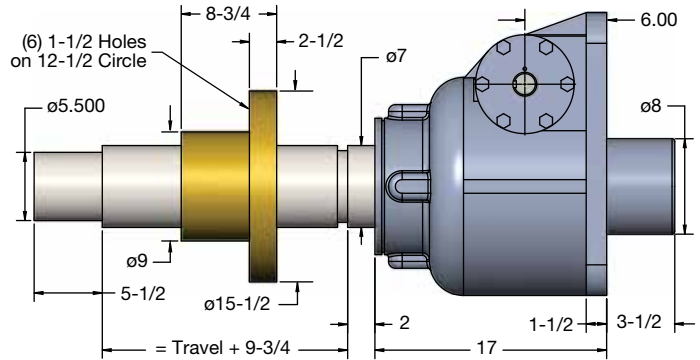
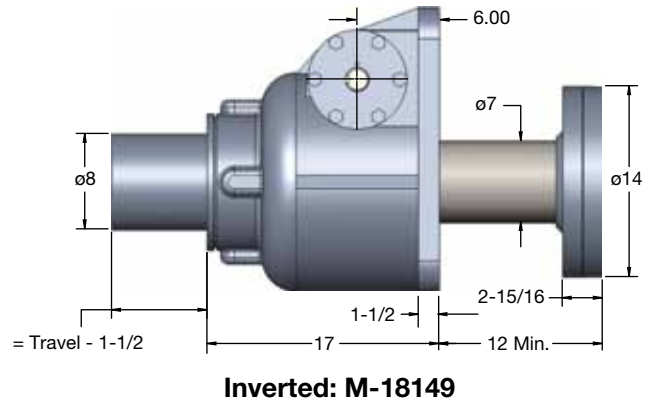
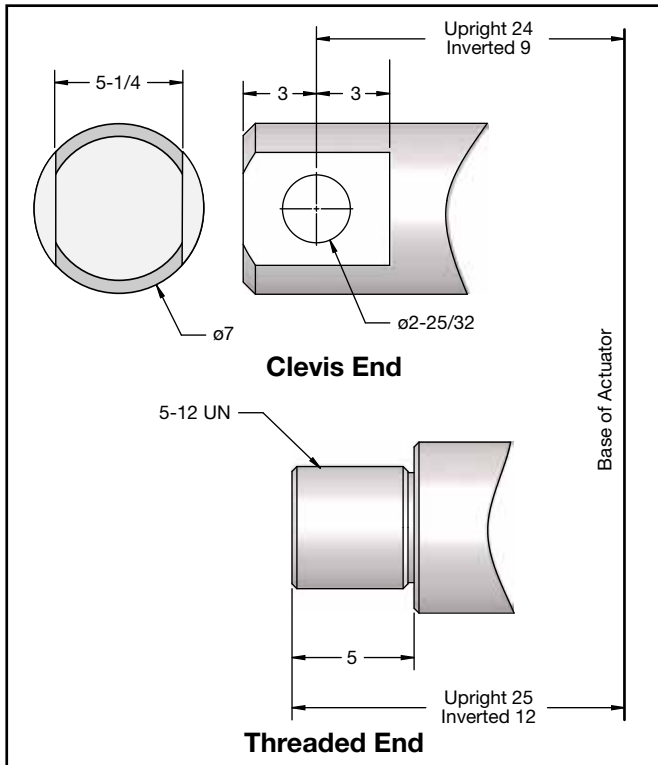
MACHINE SCREW

ACTUATORS

150 TON CAPACITY

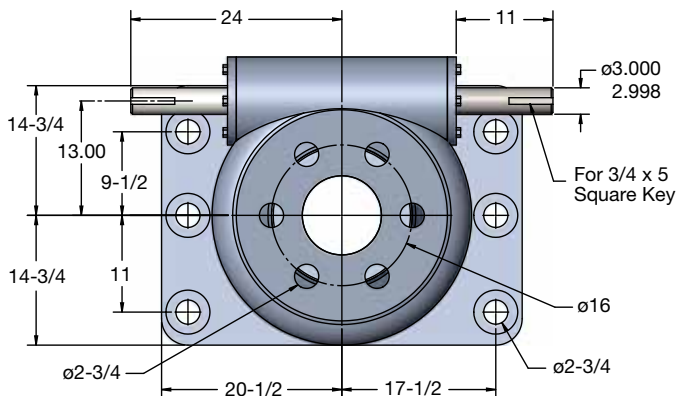


7" Diameter x 1.0" Lead Lifting Screws

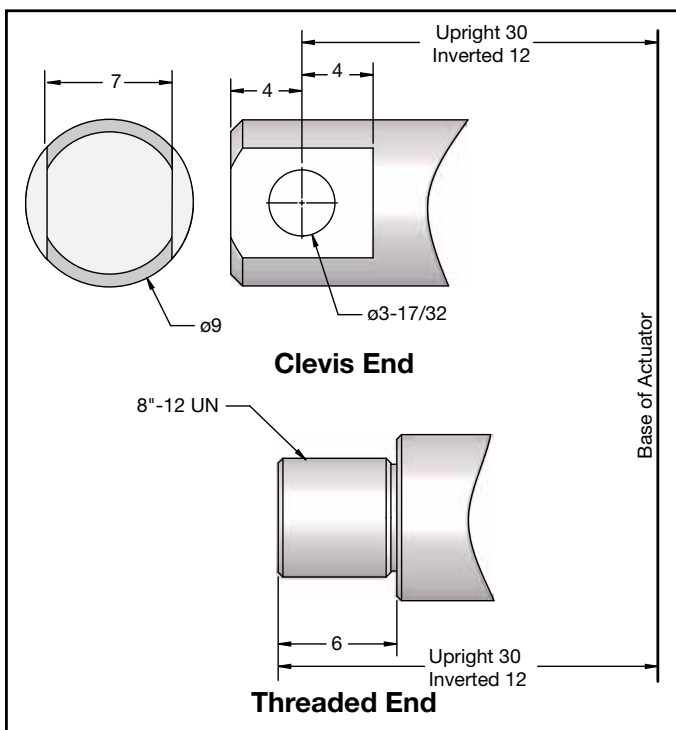


Note: Lifting screw is not keyed. Top should be secured to a lifting member to prevent rotation. When a Bellows Boot is required, see pages 148-149. Dimensions are subject to change without notice.

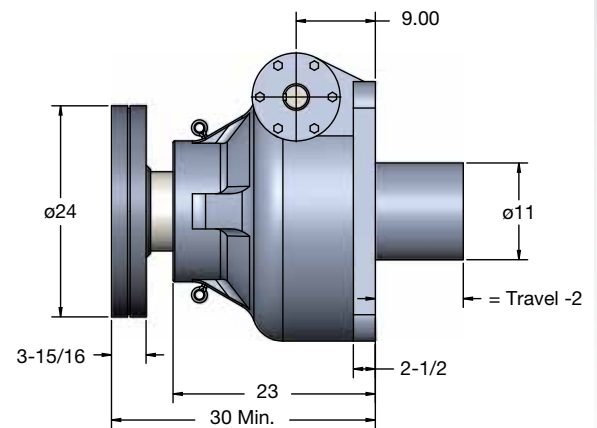
MACHINE SCREW ACTUATORS 250 TON CAPACITY



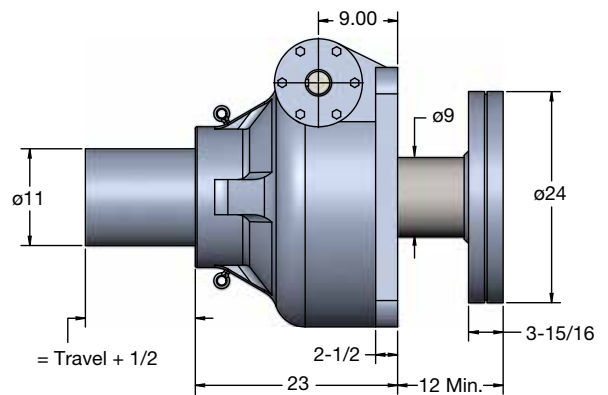
9" Diameter x 1" Lead Lifting Screws



Note: Lifting screw is not keyed. Top should be secured to a lifting member to prevent rotation. When a Bellows Boot is required, see pages 148-149. Dimensions are subject to change without notice.



Upright: M-2250



Inverted: M-2249

NOTE

Duff-Norton has provided special actuators rated at **300 tons** and **350 tons** for certain applications.

Actuators at these capacities are provided under specific Duff-Norton / customer agreement as to the actuator's performance parameters. These changes are internal to the housing and do not otherwise impact the envelope dimensions shown.

Please contact our Application Engineering group for more information.