BALL SCREW JACKS

Joyce/Dayton offers Ball Screw Jacks in several designs including:

- **Translating**
- **Keyed for traveling nut (KFTN)**
- **Double clevis**
- **Trunnion mount**

A guide for ordering is on pages 82 and 83.

BALL SCREW JACKS ORDERING INFORMATION

Instructions: Select a model number from this chart.

1-Ton Standard	2-Ton Standard	2-Ton Reverse Base Standard	5-Ton Standard	10-Ton Standard	10-Ton Heavy Duty	20-Ton Standard	30-Ton Standard	50-Ton Standard
WBL51 WBL201	WB62 WB122 WB242	RWB62 RWB122 RWB242	WB65 WB125 WB245	WBL810 WBL2410	WB810 WB2410	WB820 WB2420	WB1130 WB3230	WB1150 WB3250
1-Ton Heavy Duty	**2-Ton High Lead**	**2-Ton Reverse Base High Lead**	**5-Ton High Lead**	**10-Ton Standard High Lead**	**10-Ton Heavy Duty High Lead**			**50-Ton Reverse Base**
WB51 WB201	HWB62 HWB122 HWB242	RHWB62 RHWB122 RHWB242	HWB65 HWB125 HWB245	HWBL810 HWBL2410	HWB810 HWB2410			RWB1150 RWB3250

Important Note: *Not self-locking, may lower under load. Brake motors or external locking systems are required.

H: indicates High lead (2-ton, 5-ton and 10-ton only).

R: Reverse Base Jack (2-ton and 50-ton only).

Sample Part Number: WB65U4S-6.0-STDX-STDX-B

Jack Configuration

U=Upright

I=Inverted

End Conditions

1=T1
(plain end)

2=T2
(load pad)

3=T3
(threaded end)

4=T4
(male clevis)

Left Side Shaft Code
(see below)

XXXX=Remove
STDX=Standard

For optional shaft codes, see page 83.

Right Side Shaft Code
(see below)

XXXX=Remove
STDX=Standard

For optional shaft codes, see page 83.

Ball Screw Jack Rise

Rise is travel expressed in inches and not the actual screw length.

Additional Options

X=Standard Jack, no additional options

S=Additional Specification Required (comment as necessary)

Protective Boots pp. 170-172
B=Protective Boot
D=Dual Protective Boot

Finishes p. 179
F1=Do Not Paint
F2=Epoxy Paint
F3=Outdoor Paint Process

Motor Options
M1=Less Motor
M2=Brake Motor
M3=Single Phase Motor (120VAC)
M4=50Hz Motor

Grease/Seals
H1=High Temperature Operation
H2=Food Grade

Screw Stops
ST0=Extending

• Specify as many options as needed

Jack Designs

S=Translating

K=Keyed for Non Rotation**

N=Traveling Nut

D=Double Clevis

A=KFTN Trunnion*
T=Trunnion*

*Standard trunnion mounts available on 2-ton through 20-ton jacks. (See page 173)

**Keyed for non-rotation is not a standard option. Contact Joyce/Dayton with your requirements.

BALL SCREW JACKS SHAFT CODES

Instructions: Select the appropriate shaft codes for both right and left hand shafts. One shaft code must be specified for each side of the jack.

Screw Stops (p. 10) and Boots (pp. 170-172)

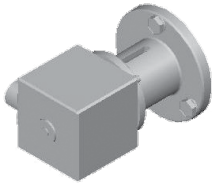
Screw stops are optional on ball screw jacks. When specified the closed height of the jack and the protection tube length may be increased.
When boots are added to ball screw jacks, the closed height of the jack may be increased.

Geared Potentiometers (p. 176)

POTA=0-10V (IP65)
POTB=4-20MA (IP65)
POTC=0-10V w/2 switches*
POTD=4-20MA w/2 switches*
*Optional IP65 rating available.

Encoders and Electronic Limit Switches

ENCX=Encoder (p. 178)
ELS2=2 Position Electronic Switch
ELS4=4 Position Electronic Switch
ELS6=6 Position Electronic Switch



Motors for Systems and Direct Drive (p. 185)

- All standard motors are 3-phase, 208-230/460 VAC or 230/460 VAC. Other motor options are available. Specify the appropriate motor size from the chart on the right.
- Refer to the "Additional Options" chart on the preceding page as needed.
- Brake motors (M2) are required for ball screw jacks.
- If the motor frequency will be varied to provide a "soft" start, an inverter duty brake motor may be required.

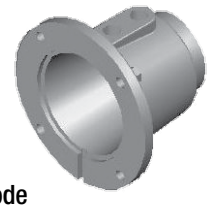
Motors

Size	Code
1/4 HP	K
1/3 HP	A
1/2 HP	B
3/4 HP	C
1 HP	D
1-1/2 HP	E
2 HP	F
3 HP	L
5 HP	G
7-1/2 HP	H
10 HP	I
15 HP	J

Motor Mounts (p. 185)

Ordering Example:

MMA A



MMA=56C
MMB=140TC
MMC=180TC
MMD=210TC

Motor code from chart at left

Standard motor adapters are aluminum.

Mechanical Limit Switches (pp. 174-175)

Ordering Example: LA13

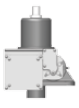
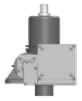
Models

Model	Code
LS7-402	LI
LS8-402	LA
LS8-404	LB
LS9-502	LC
LS9-503	LD
LS9-504	LE
LS9-505	LF
LS9-506	LG
LS9-507	LH

Number of DPDT Switches (see p. 175)

NOTE: Will always be 0 for LS7 models

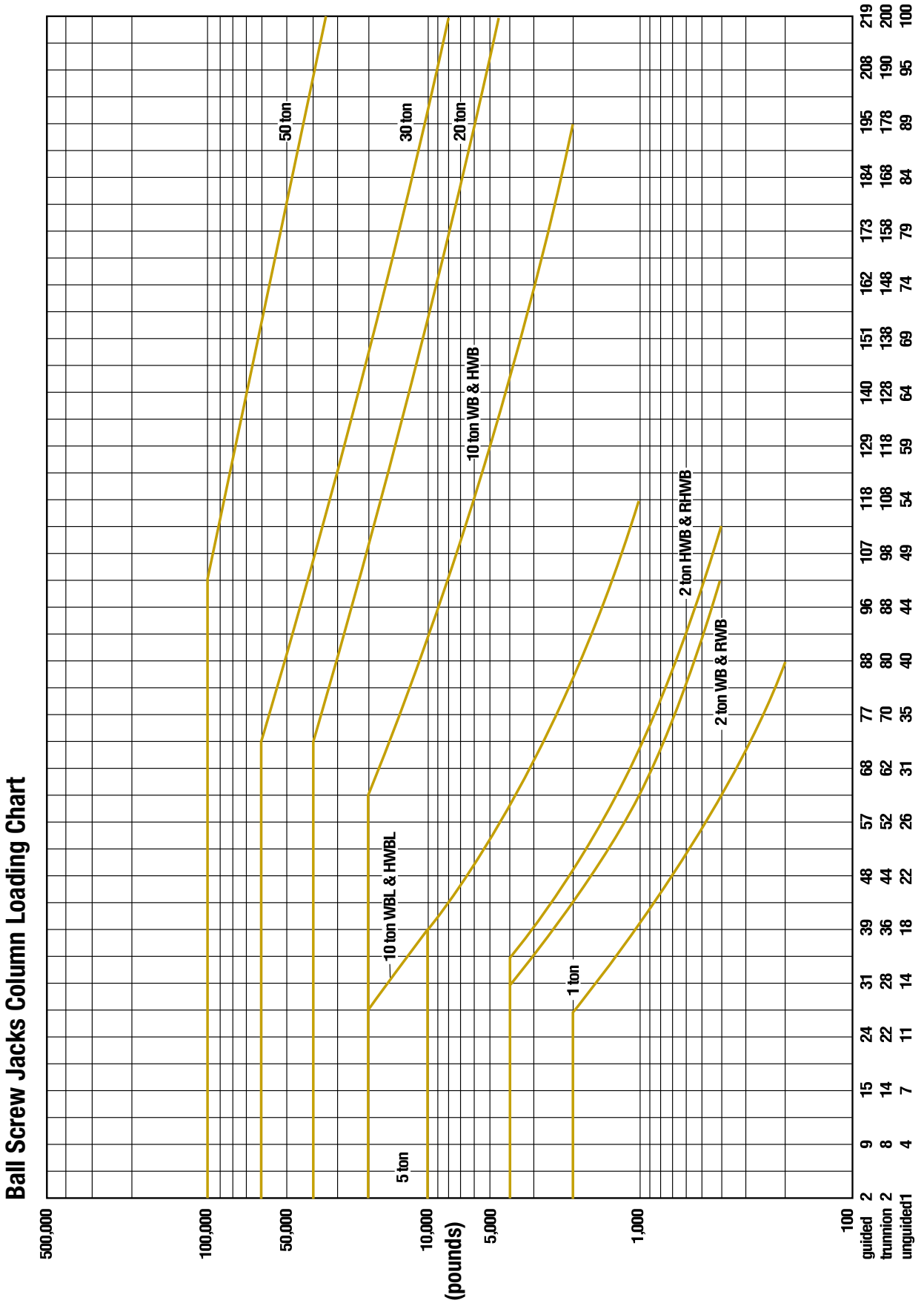
Available Positions

	1	2*	3	4	5	6*	7	8
Left Side Shaft Options								
Right Side Shaft Options								

- 2, 5, 10, 15, and 20 Ton ball screw jacks are available with positions #1, #3, and #5.
- 30-ton and 50-ton ball screw jacks are available with positions #1, #4, #7 and #8.

*These positions are not standard. Contact Joyce/Dayton with your requirements.

BALL SCREW JACKS COLUMN LOADING



This chart includes a 2:1 Factor-of-Safety based on the Euler-Johnson equation for column loading (Oberg, Erik et al: Machinery's Handbook, 24th Edition. c. 1992 Industrial Press Inc.) The horizontal portion of each line represents the jack's maximum dynamic capacity. Under static conditions, these lines can be exceeded. Please contact factory for assistance.

BALL SCREW JACKS SPECIFICATIONS

Model	Capacity	Screw Diameter (Inches)	Thread Pitch/Lead	Worm Gear Ratio	Worm Shaft Turns for 1" Travel	Tare Torque (Inch Lbs.)	Starting Torque (Inch Lbs.)	Operating Torque (Inch Lbs.)	Efficiency Rating % Approx	Screw Torque (Inch Lbs.)	Worm Holding Torque	Ball Nut Life at Rated Load (Inch Screw Travel x 1000)	Basic Jack Weight (Lbs.)	Jack Weight per Inch Travel (Lbs.)
WBL51	1 ton	3/4	0.2	5:1	25	3	.014W*	.012W* @ 500 RPM	51.7	.035W*	.006W*	108	8	0.25
WBL201				20:1	100		.005W*	.004W* @ 500 RPM	38.5		.002W*			
WB51				5:1	25		.014W*	.012W* @ 500 RPM	51.7		.006W*	858		
WB201				20:1	100		.005W*	.004W* @ 500 RPM	38.5		.002W*			
(R)WB62	2 ton	1	0.25	6:1	24	4	.015W*	.013W* @ 500 RPM	52.1	.044W*	.007W*	642	18	0.4
(R)WB122				12:1	48		.009W*	.007W* @ 500 RPM	47.2		.004W*			
(R)WB242				24:1	96		.006W*	.004W* @ 500 RPM	39.3		.002W*			
(R)HWB62			1.0	6:1	6		.064W*	.051W* @ 500 RPM	52.1	.177W*	.033W*	190		
(R)HWB122				12:1	12		.039W*	.028W* @ 500 RPM	47.2		.020W*			
(R)HWB242				24:1	24		.028W*	.017W* @ 500 RPM	39.3		.014W*			
WB65	5 ton	1 1/2	0.474	6:1	12.66	10	.030W*	.025W* @ 300 RPM	51.1	.084W*	.013W*	1015	42	0.7
WB125				12:1	25.33		.019W*	.014W* @ 300 RPM	45.7		.007W*			
WB245				24:1	50.66		.013W*	.008W* @ 300 RPM	37.2		.004W*			
HWB65			1.0	6:1	6		.065W*	.052W* @ 300 RPM	51.1	0.177W*	.033W*	512		
HWB125				12:1	12		.041W*	.029W* @ 300 RPM	45.7		.020W*			
HWB245				24:1	24		.029W*	.018W* @ 300 RPM	37.2		.014W*			
WBL810	10 ton	1 1/2	0.474	8:1	16.88	20	.022W*	.019W* @ 200 RPM	50.7	.084W*	.010W*	127	58	0.9
WBL2410				24:1	50.66		.010W*	.008W* @ 200 RPM	40.3		.004W*			
HWBL810			1.0	8:1	8		.047W*	.039W* @ 200 RPM	50.7	.177W*	.024W*	64		
HWBL2410				24:1	24		.024W*	.016W* @ 200 RPM	40.3		.012W*			
WB810	10 ton	2	0.5	8:1	16	20	.023W*	.019W* @ 200 RPM	50.7	.088W*	.009W*	729	62	1.4
WB2410				24:1	48		.011W*	.008W* @ 200 RPM	40.3		.003W*			
HWB810			1.0	8:1	8		.047W*	.039W* @ 200 RPM	50.7	.177W*	.018W*	1423		
HWB2410				24:1	24		.023W*	.016W* @ 200 RPM	40.3		.006W*			
WB820	20 ton	2 1/4	0.5	8:1	16	40	.024W*	.020W* @ 200 RPM	47.4	.088W*	.009W*	121	105	2.6
WB2420				24:1	48		.012W*	.009W* @ 200 RPM	35		.003W*			
WB1130	30 ton	3	0.66	11:1	16.67	60	.027W*	.020W* @ 200 RPM	48	.117W*	.009W*	343	220	3.2
WB3230				32:1	48.48		.016W*	.009W* @ 200 RPM	35		.003W*			
(R)WB1150	50 ton	4	1.0	11:1	11	100	.038W*	.029W* @ 200 RPM	49.3	.177W*	.013W*	614	460	4.8
(R)WB3250				32:1	32		.020W*	.012W* @ 200 RPM	37.5		.005W*			

Important Note: Ball Screw Jacks are not self-locking. Brake motors or external locking systems are required.

(R): Reverse Base Jack.

***W:** Load in pounds.

Tare Torque: Initial torque to overcome seal and normal assembly drag. This value must be added to starting torque or operating torque values.

Starting Torque: Torque value required to start moving a given load (dissipates to operating torque values once the load begins moving).

Operating Torque: Torque required to continuously raise a given load at the input RPM listed.

Note: If your actual input RPM is 20% higher or lower than the listed RPM, please refer to our JAX® program to determine actual torque values at your RPM.

Screw Torque: Torque required to resist screw rotation (Translating Design Jacks) and traveling nut rotation (Keyed for Traveling Nut Design Jacks).

Worm Holding Torque: Torque required to prevent input shaft (worm) from backdriving.

Lead: The distance traveled axially in one rotation of the lifting screw.

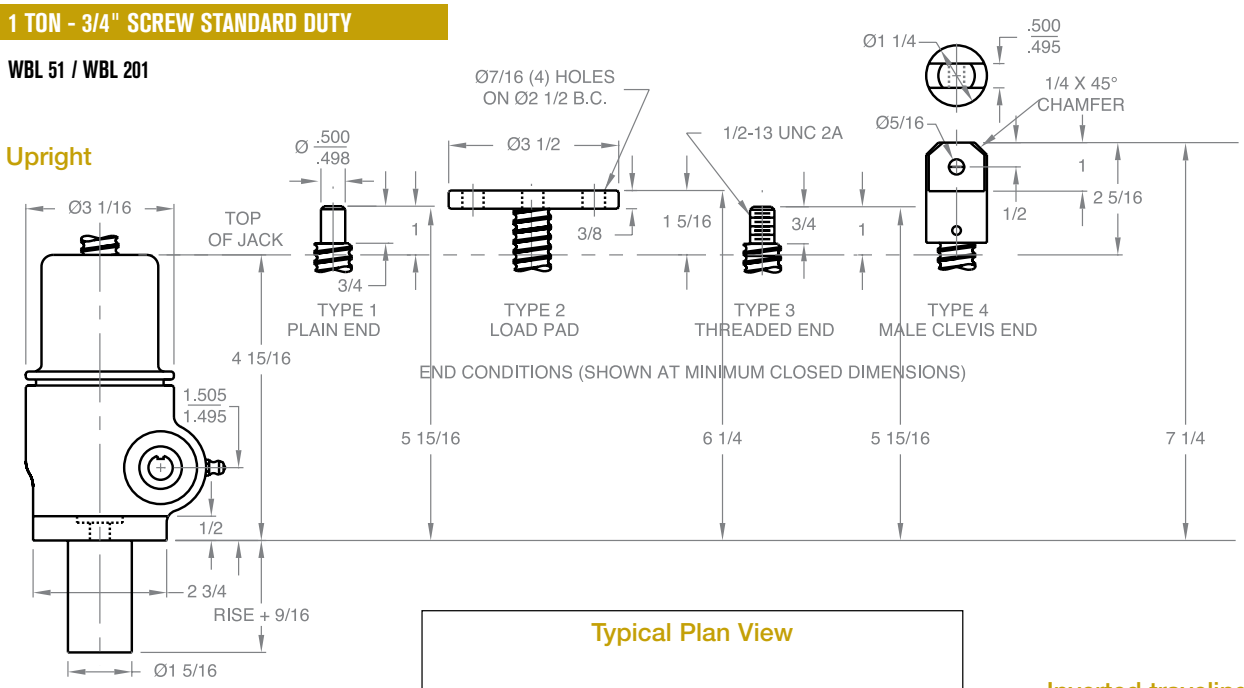
Pitch: The distance from a point on a screw thread to a corresponding point on the next thread, measured axially.

BALL SCREW JACKS

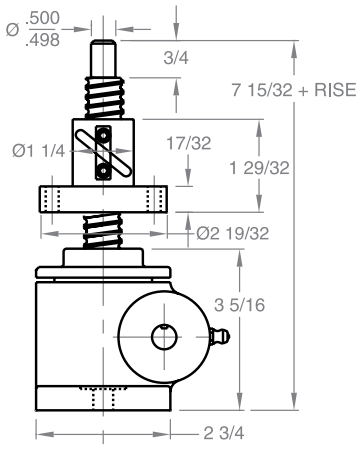
1 TON - 3/4" SCREW STANDARD DUTY

WBL 51 / WBL 201

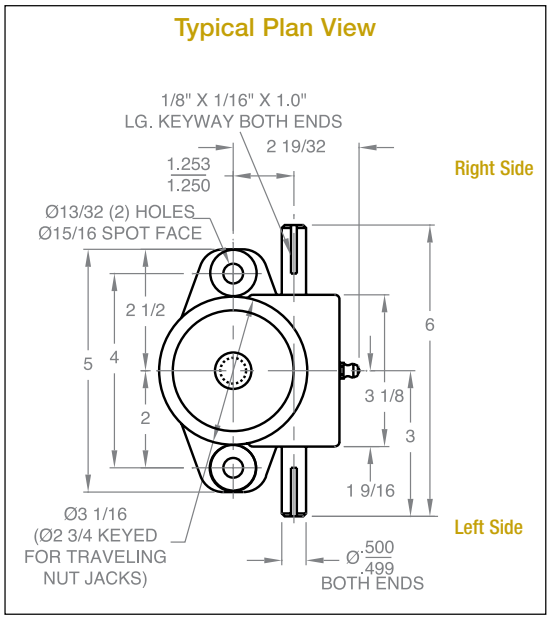
Upright



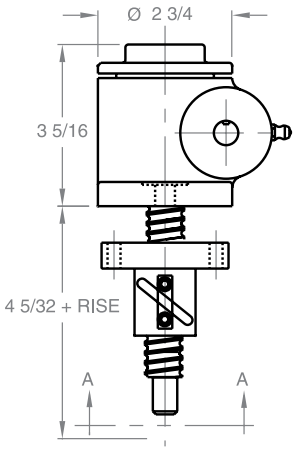
Upright traveling nut



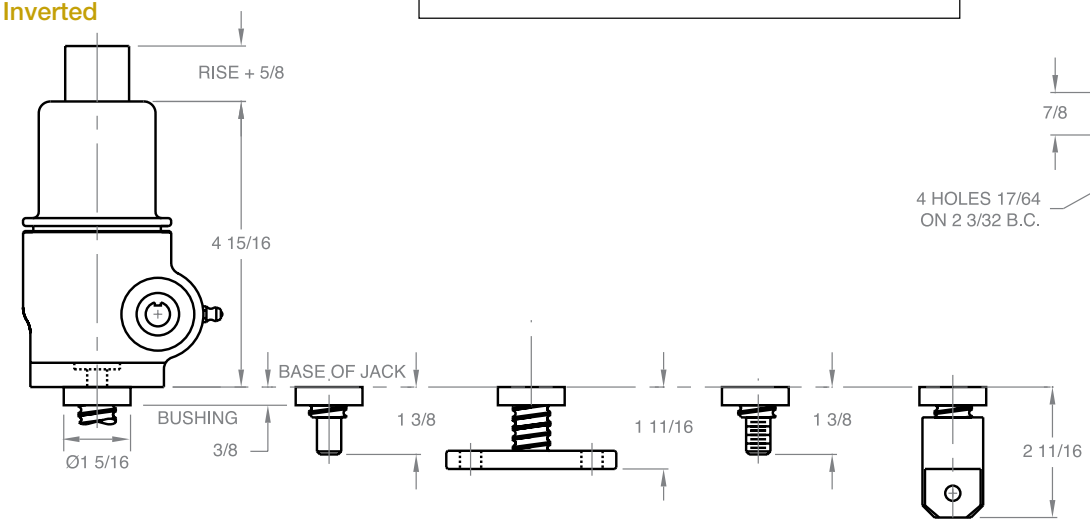
Typical Plan View

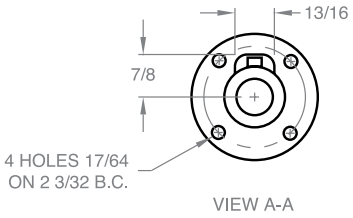


Inverted traveling nut



Inverted





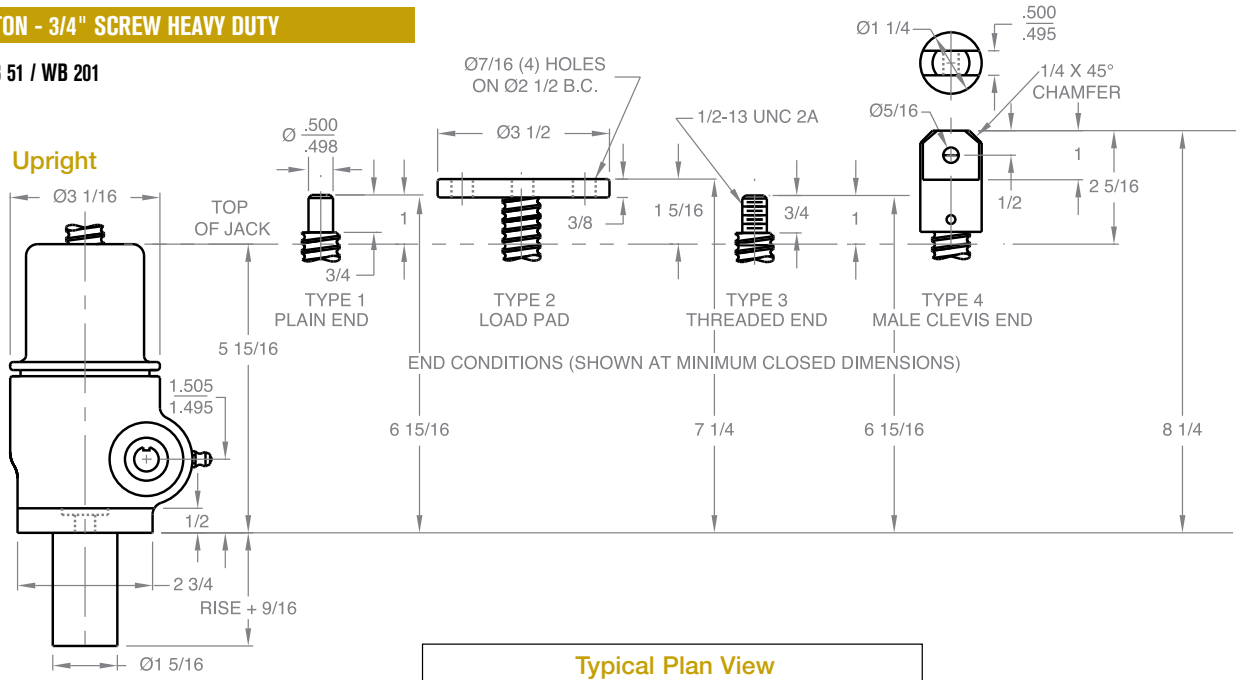
Note: Drawings are artist's conception — not for certification; dimensions are subject to change without notice.

BALL SCREW JACKS

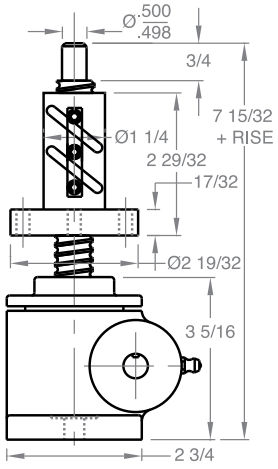
1 TON - 3/4" SCREW HEAVY DUTY

WB 51 / WB 201

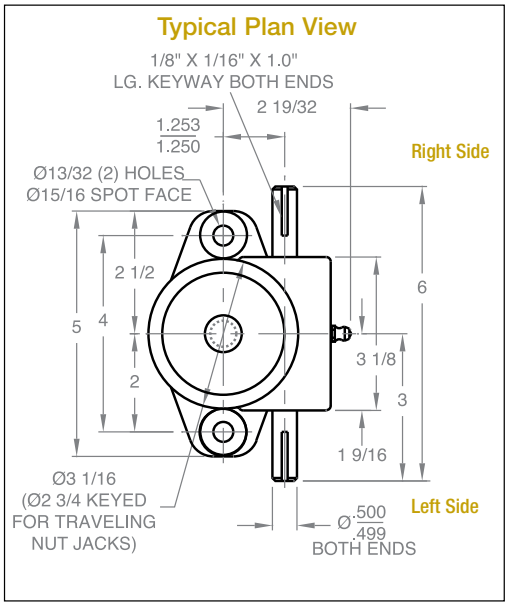
Upright



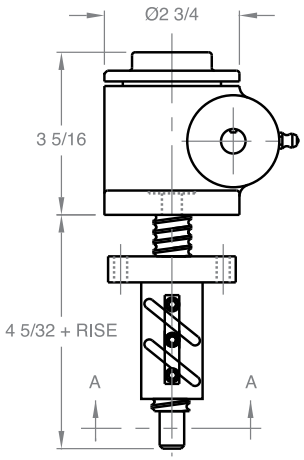
Upright traveling nut



Typical Plan View



Inverted traveling nut



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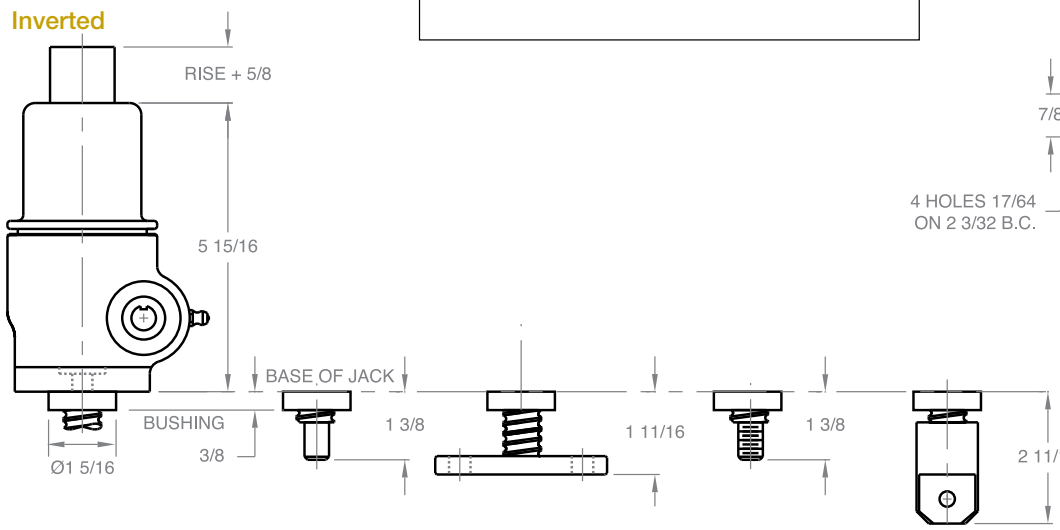

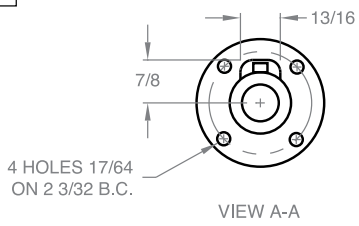

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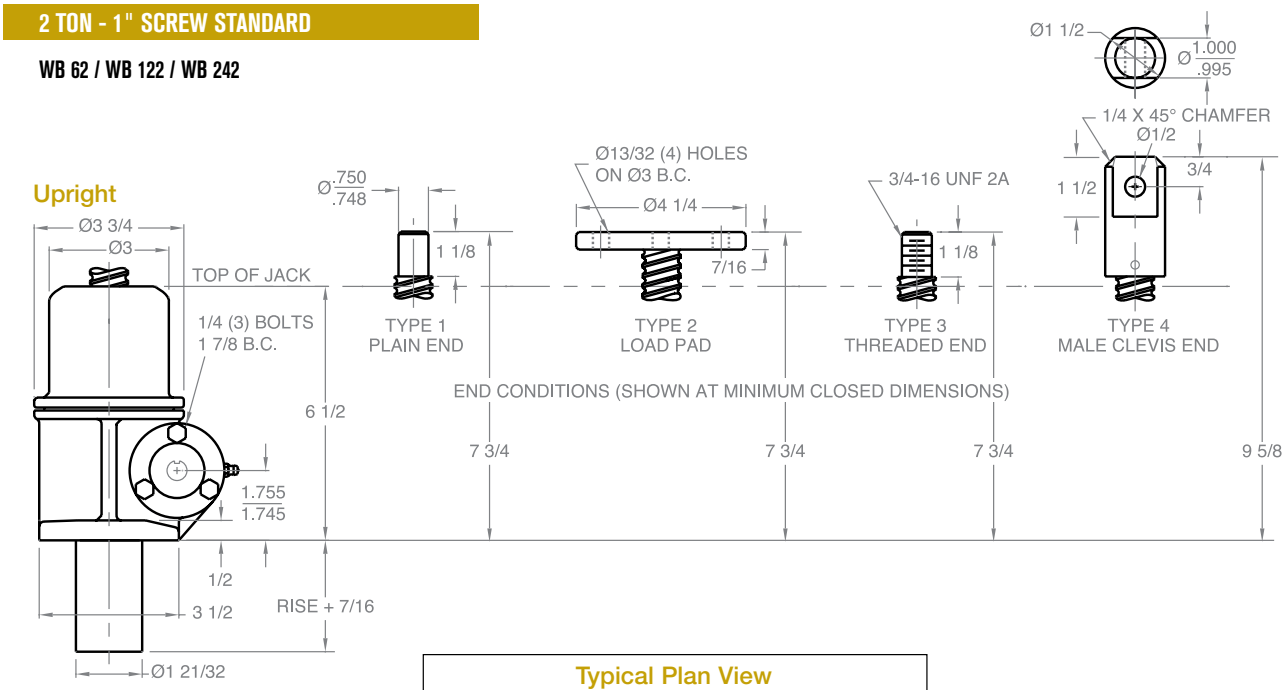
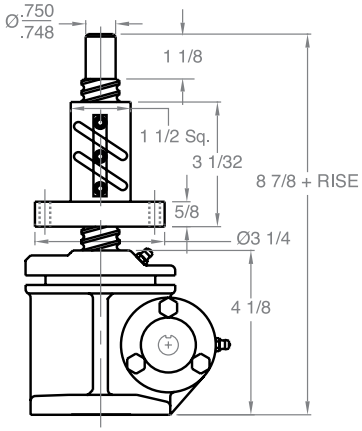
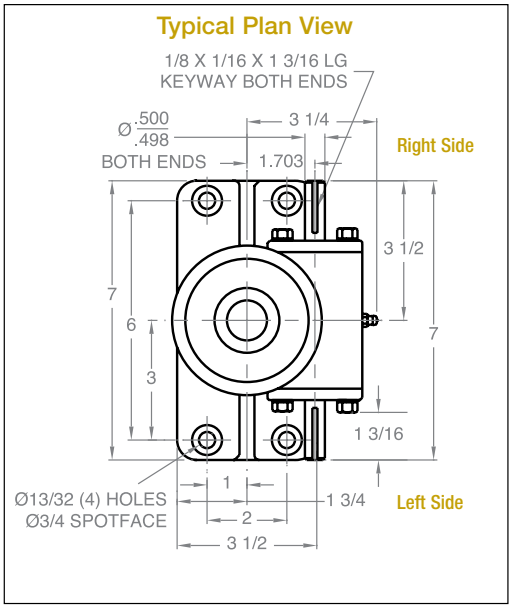
BALL SCREW JACKS

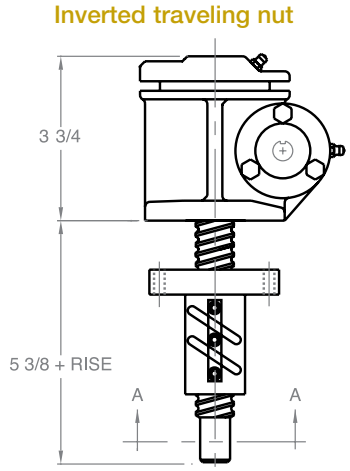
2 TON - 1" SCREW STANDARD

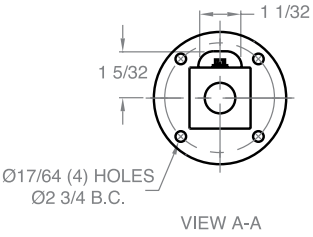
WB 62 / WB 122 / WB 242











FOR DOUBLE CLEVIS DESIGN
CONTACT JOYCE/DAYTON

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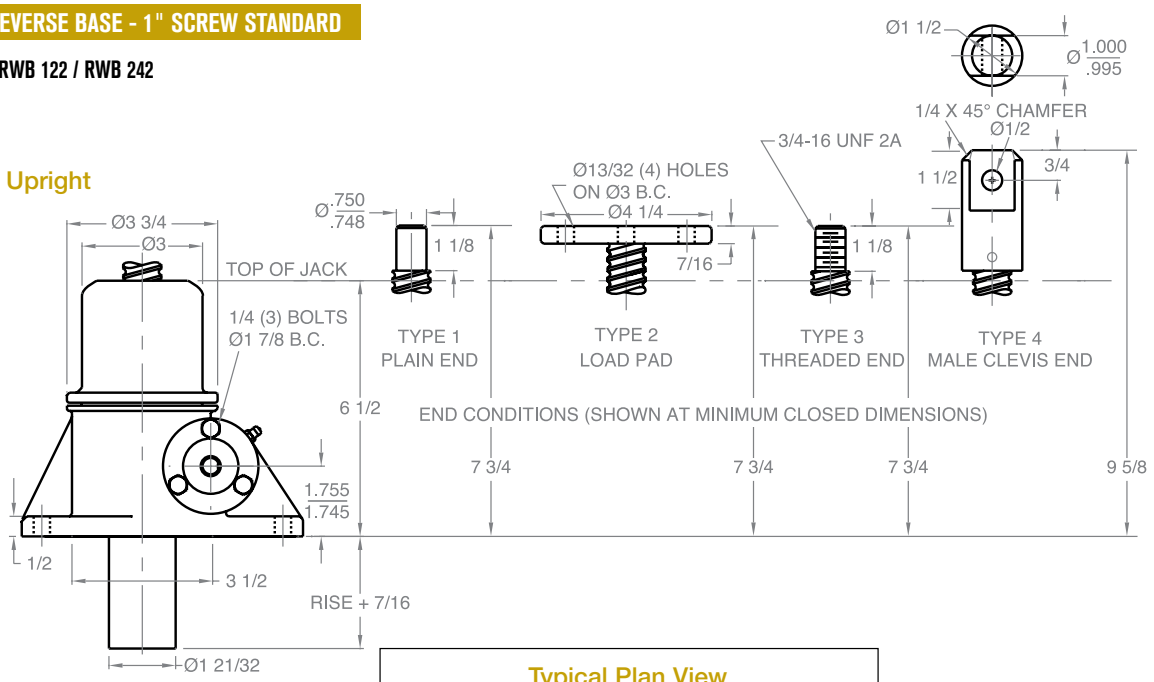
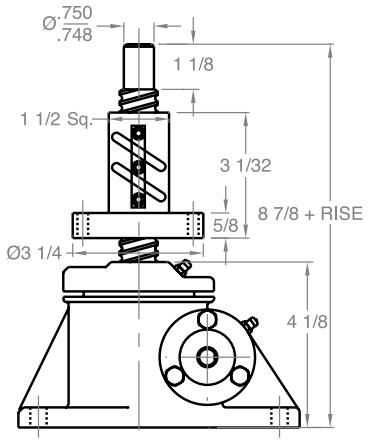
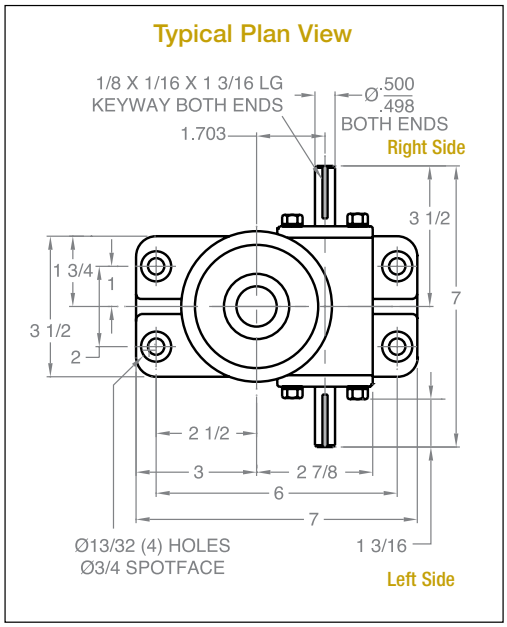
BALL SCREW JACKS

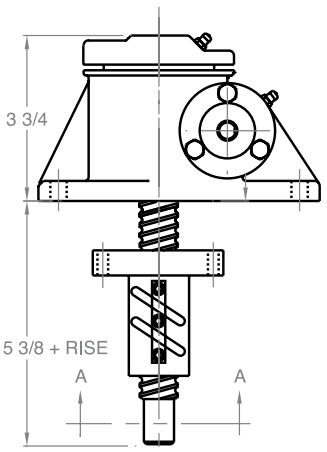
2 TON REVERSE BASE - 1" SCREW STANDARD

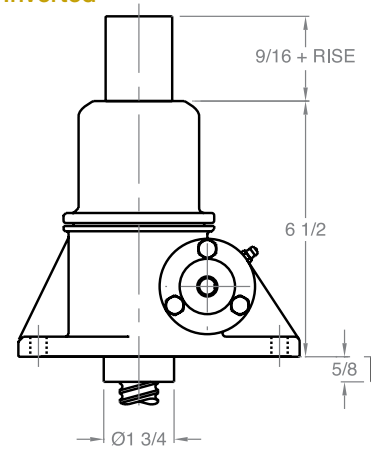
RWB 62 / RWB 122 / RWB 242



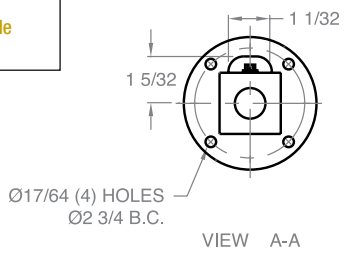


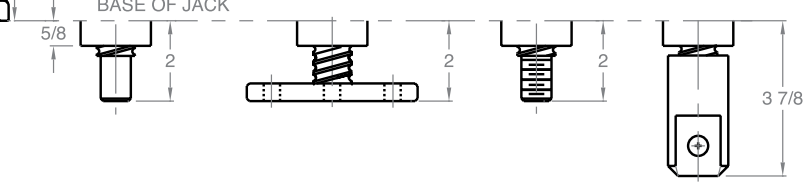






FOR DOUBLE CLEVIS DESIGN
CONTACT JOYCE/DAYTON





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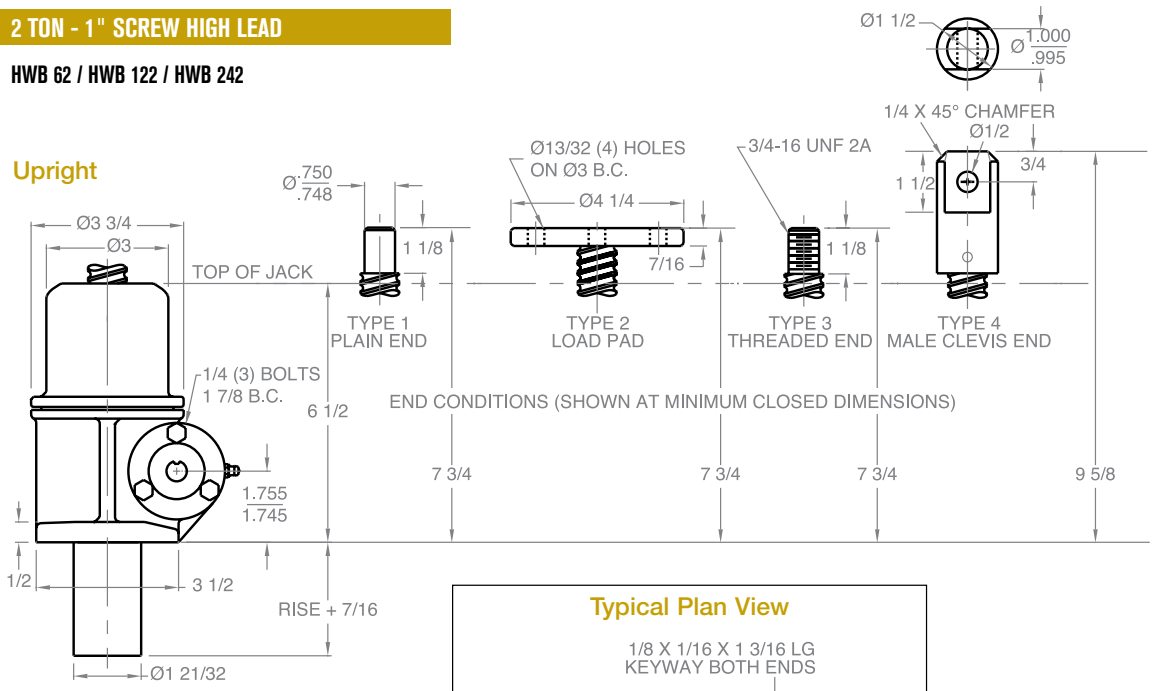
BALL SCREW JACKS

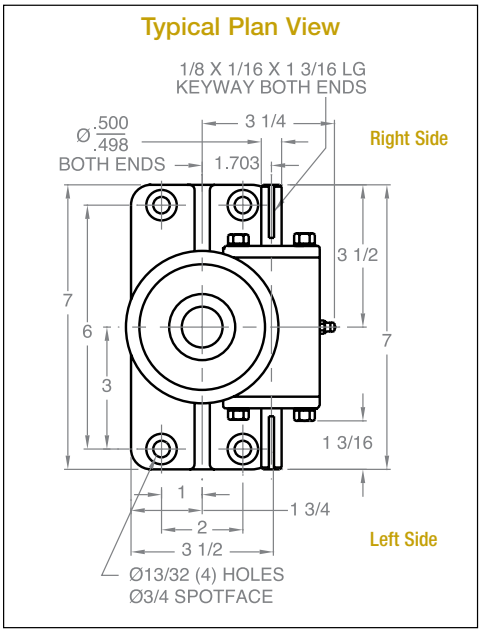
2 TON - 1" SCREW HIGH LEAD

HWB 62 / HWB 122 / HWB 242

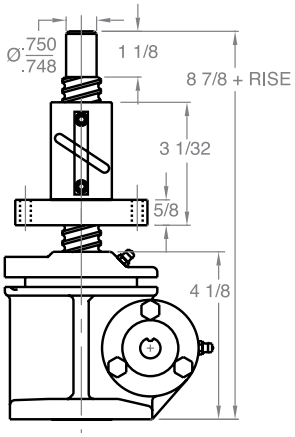
Upright



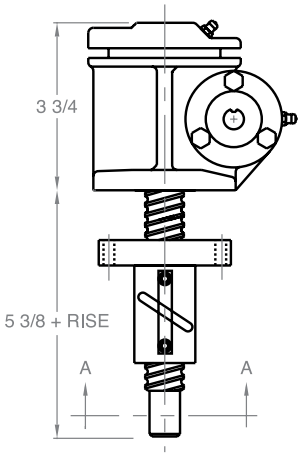
Typical Plan View



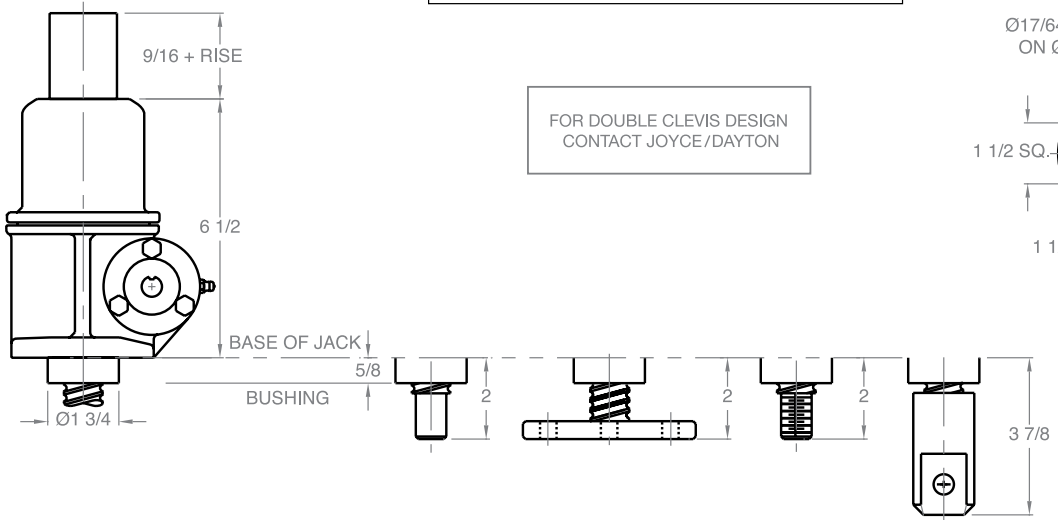
Upright traveling nut



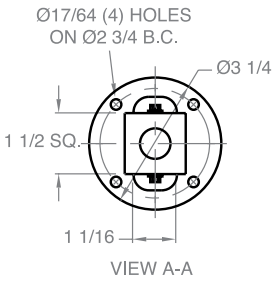
Inverted traveling nut



Inverted



FOR DOUBLE CLEVIS DESIGN CONTACT JOYCE/DAYTON



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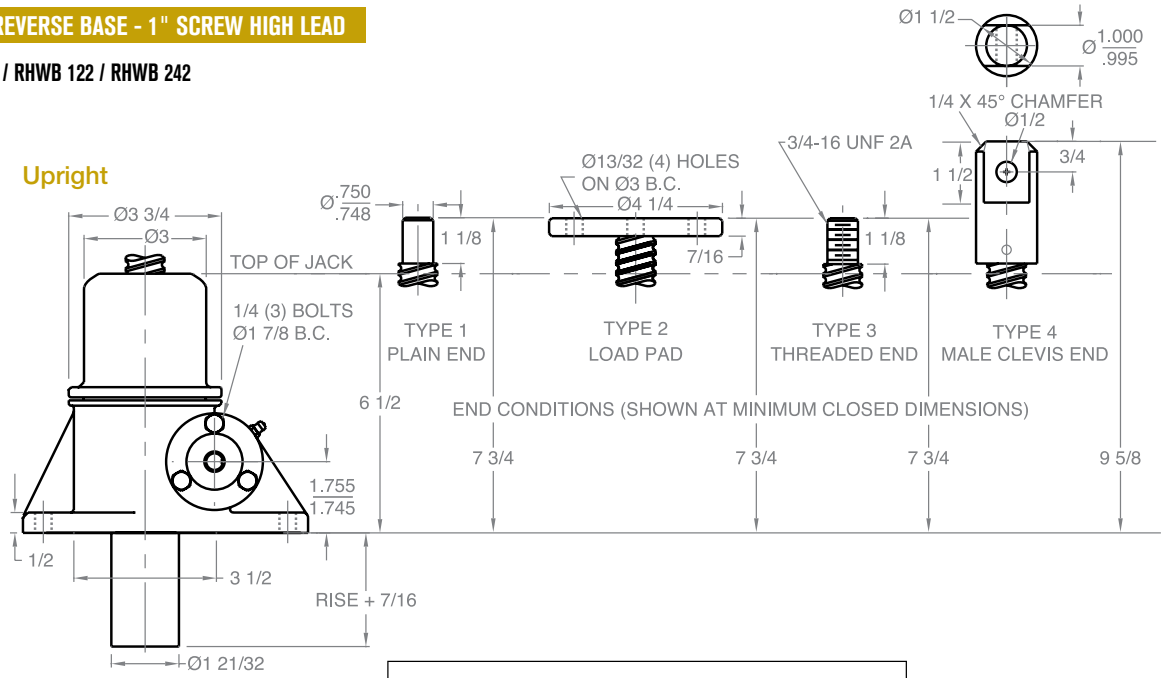
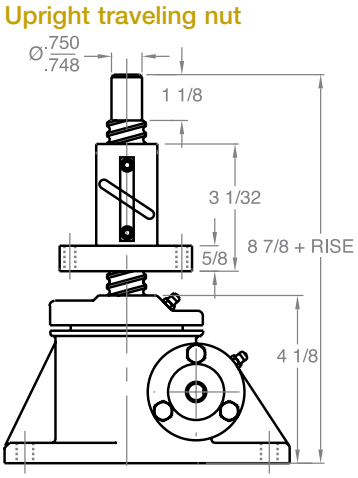
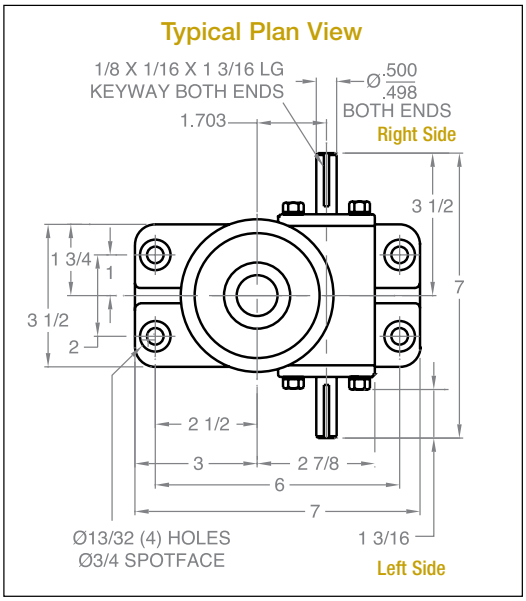
BALL SCREW JACKS

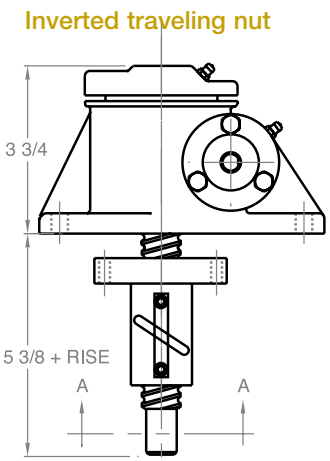
2 TON REVERSE BASE - 1" SCREW HIGH LEAD

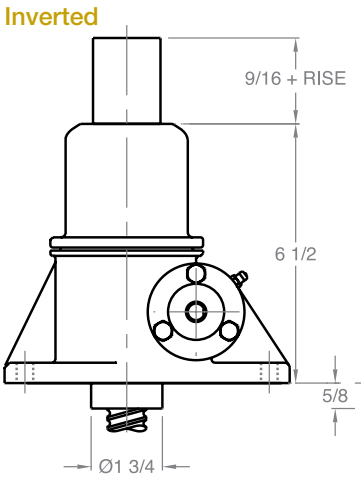
RHWB 62 / RHWB 122 / RHWB 242



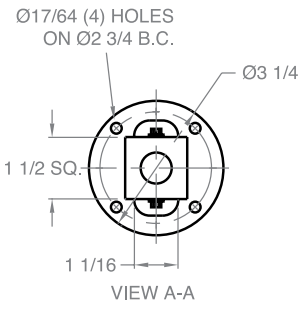


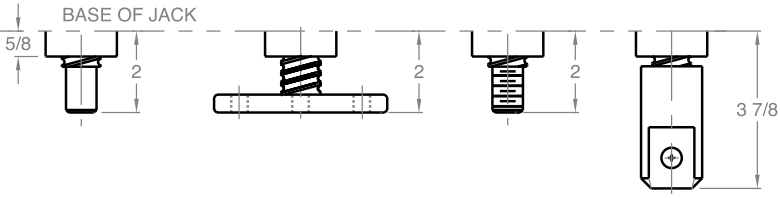






FOR DOUBLE CLEVIS DESIGN
CONTACT JOYCE/DAYTON





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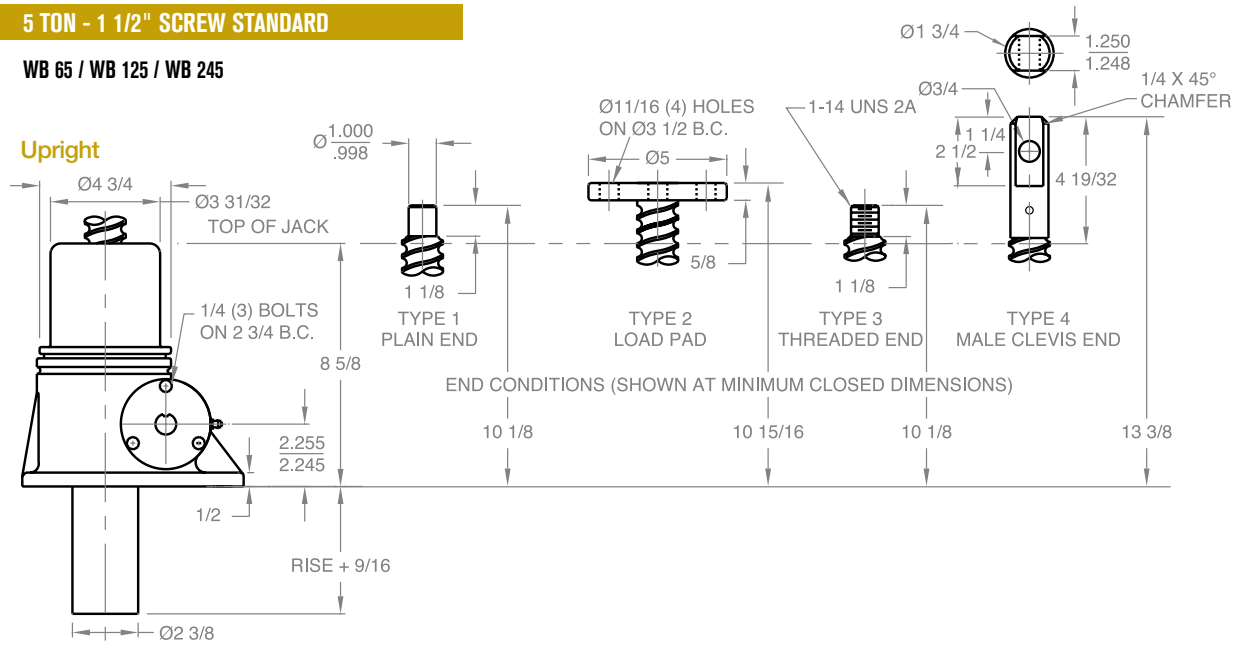
BALL SCREW JACKS

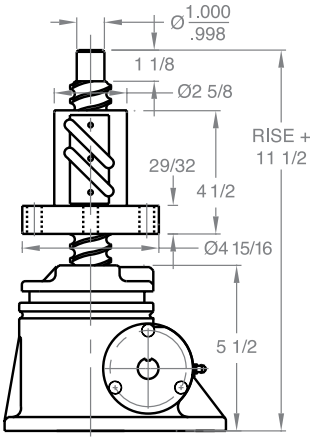
5 TON - 1 1/2" SCREW STANDARD

WB 65 / WB 125 / WB 245

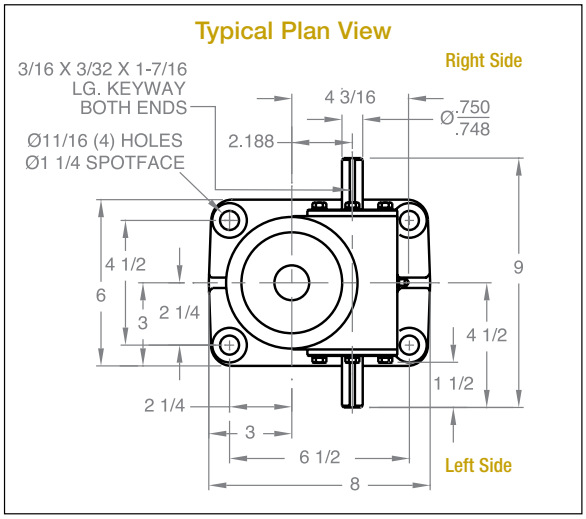
Upright



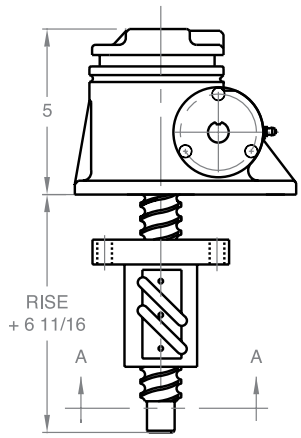
Upright traveling nut



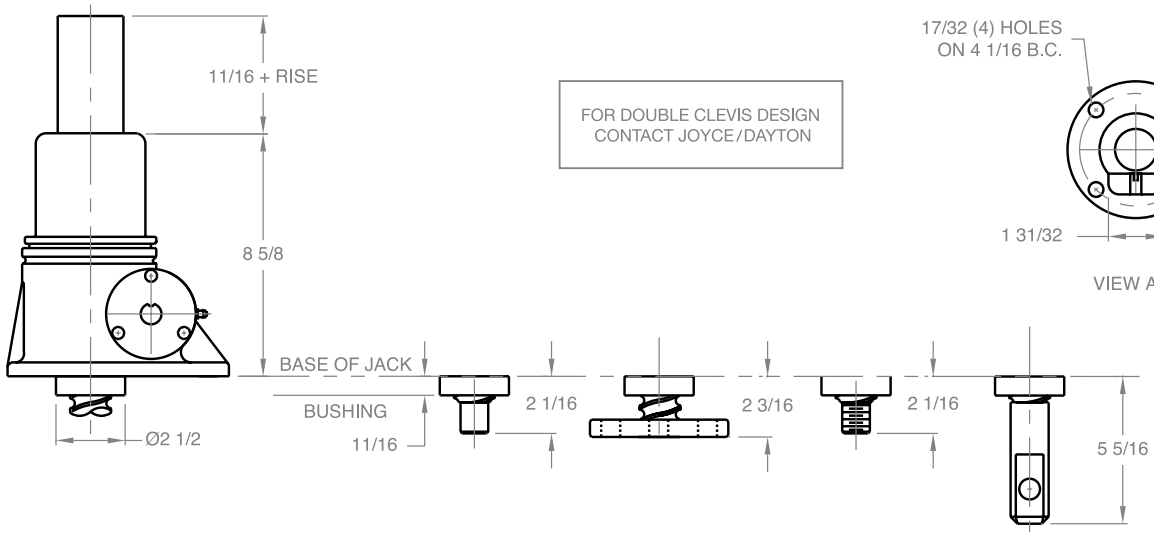
Typical Plan View



Inverted traveling nut



Inverted



FOR DOUBLE CLEVIS DESIGN
CONTACT JOYCE/DAYTON

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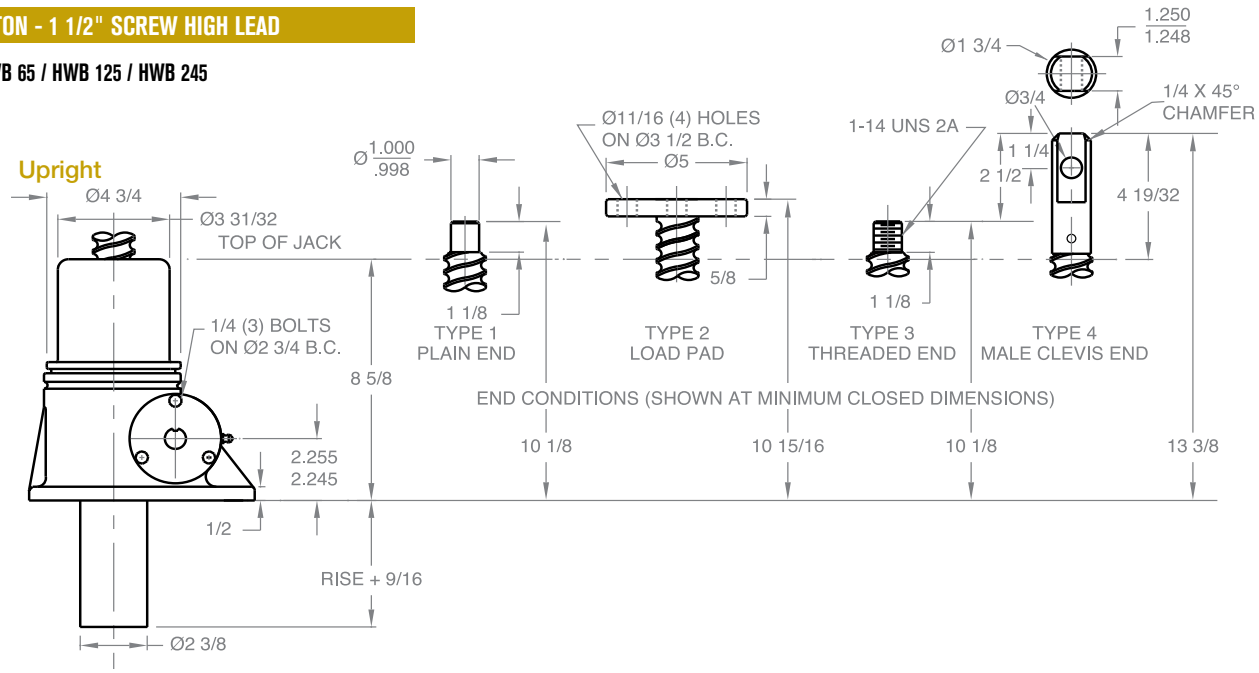
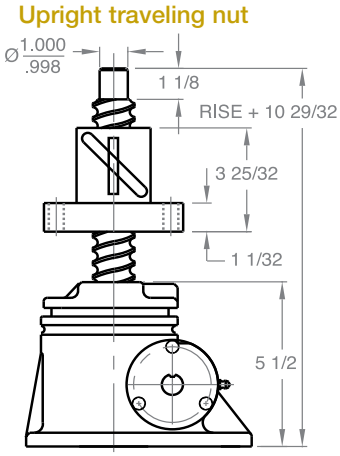
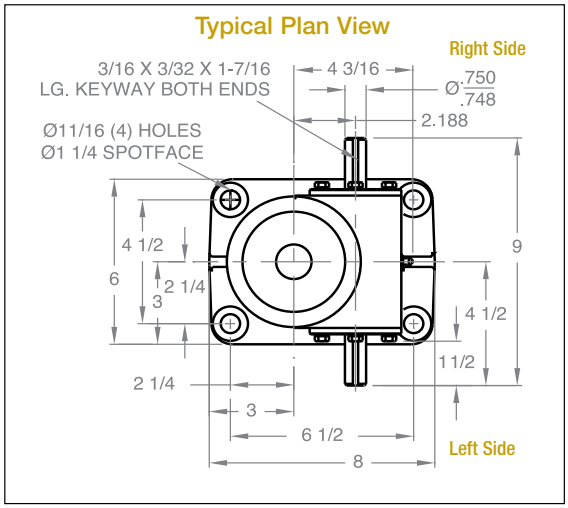
BALL SCREW JACKS

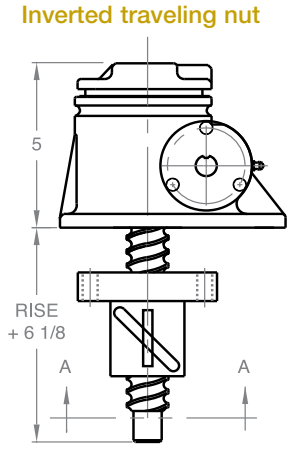
5 TON - 1 1/2" SCREW HIGH LEAD

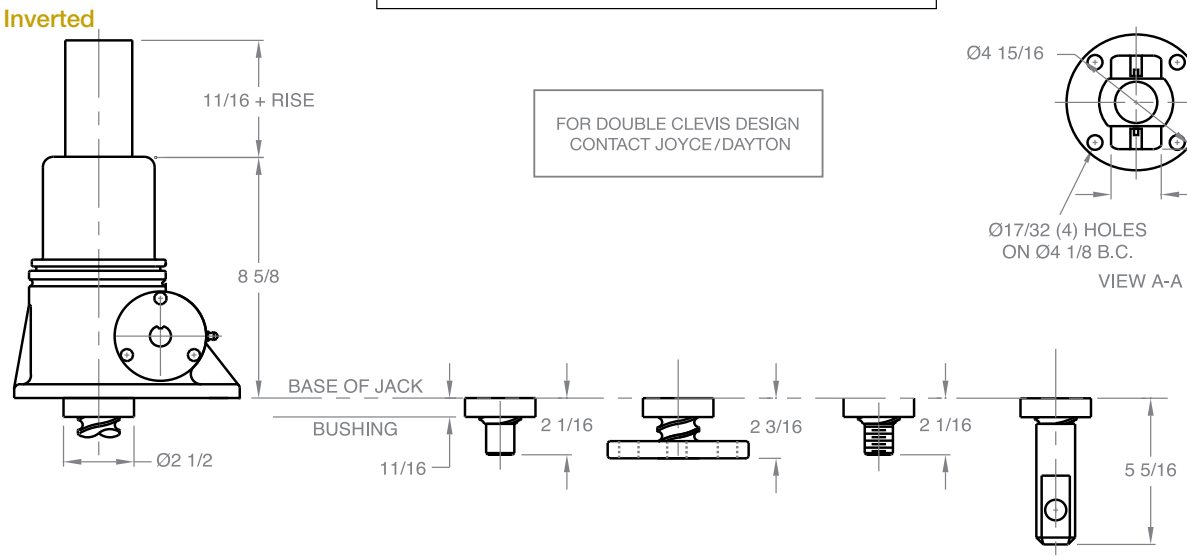
HWB 65 / HWB 125 / HWB 245











FOR DOUBLE CLEVIS DESIGN
CONTACT JOYCE/DAYTON

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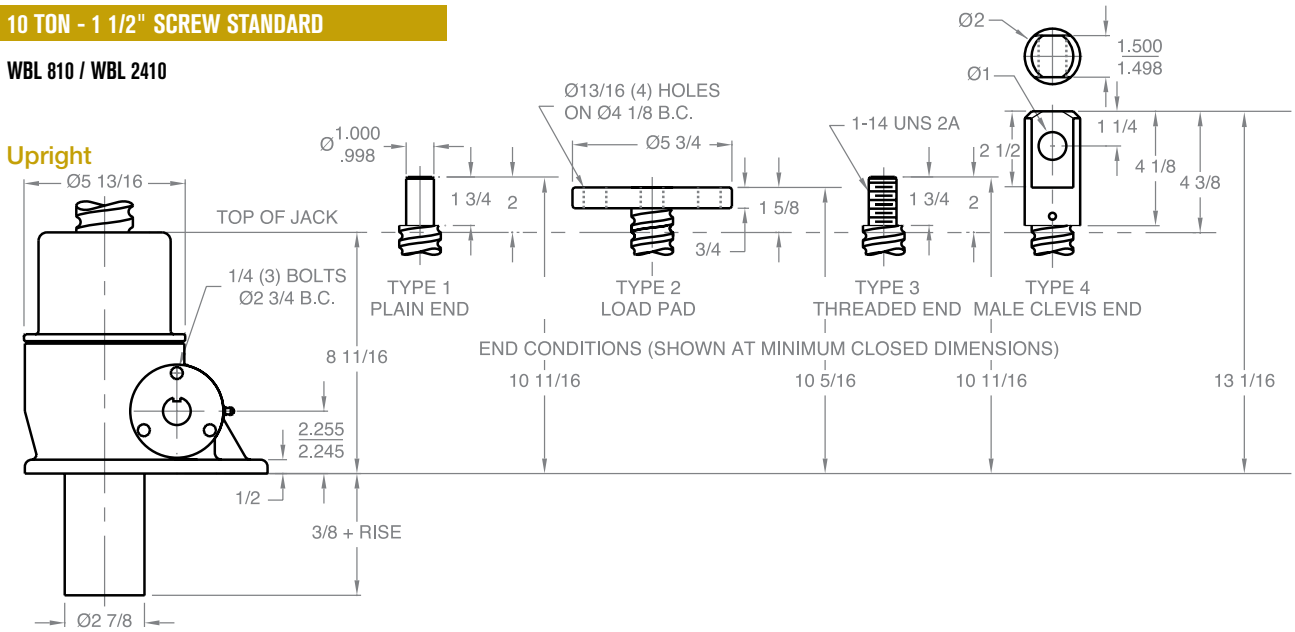
BALL SCREW JACKS

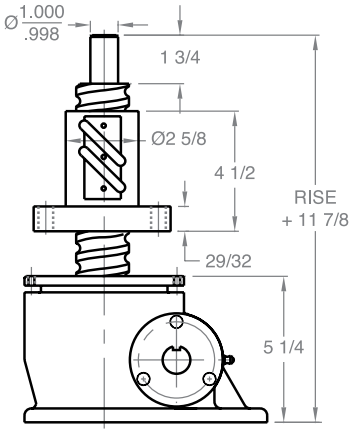
10 TON - 1 1/2" SCREW STANDARD

WBL 810 / WBL 2410

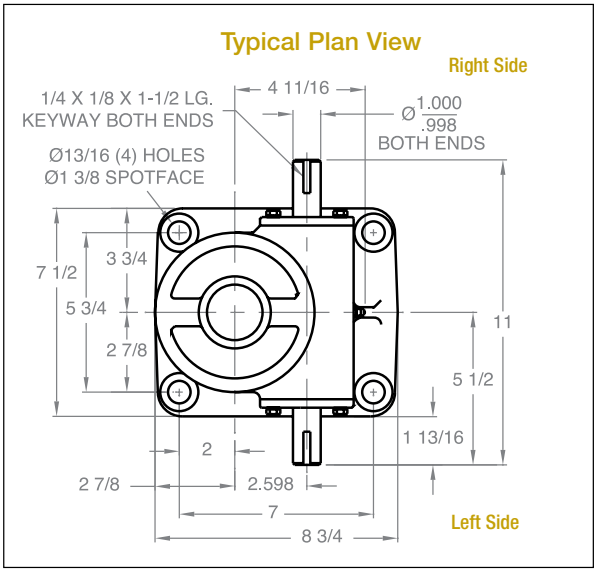
Upright



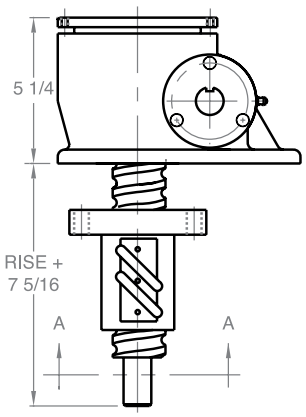
Upright traveling nut

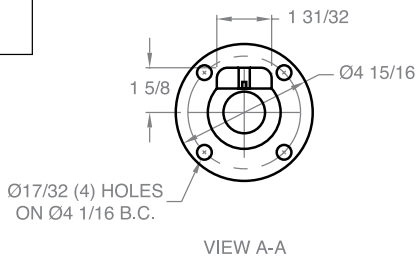


Typical Plan View



Inverted traveling nut





Inverted

FOR DOUBLE CLEVIS DESIGN
CONTACT JOYCE/DAYTON

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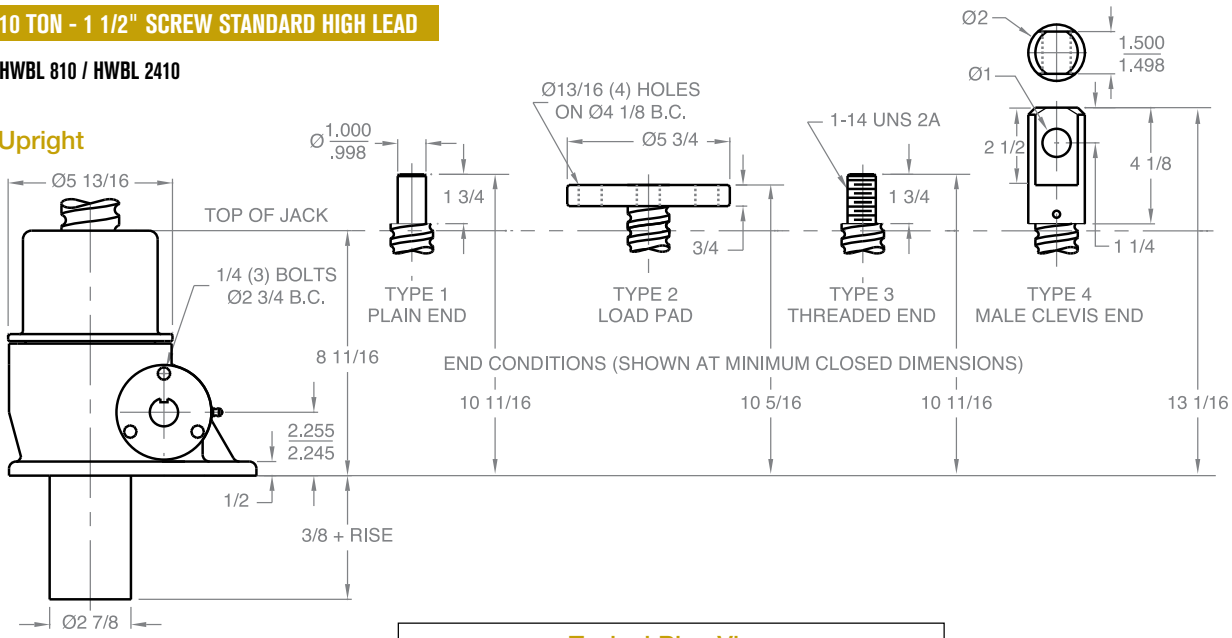
BALL SCREW JACKS

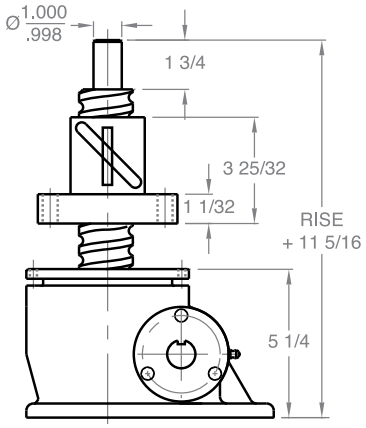
10 TON - 1 1/2" SCREW STANDARD HIGH LEAD

HWBL 810 / HWBL 2410

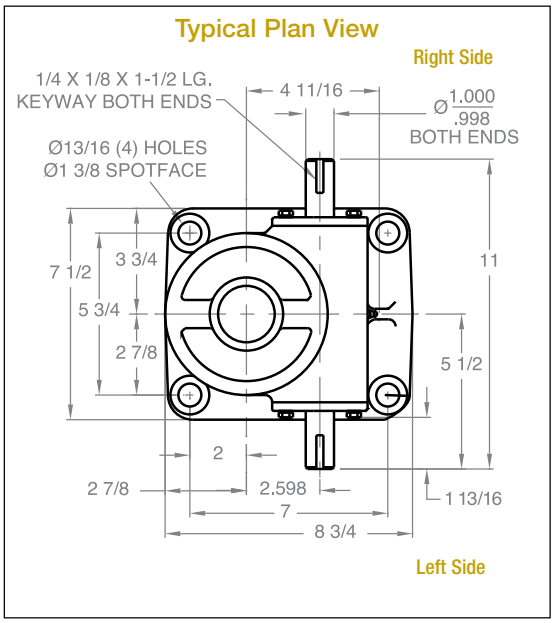
Upright



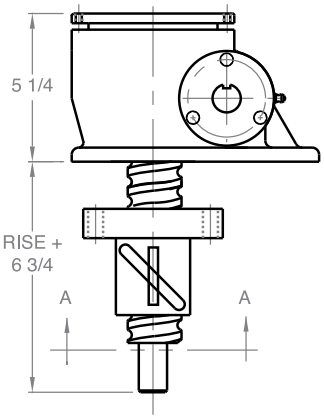
Upright traveling nut



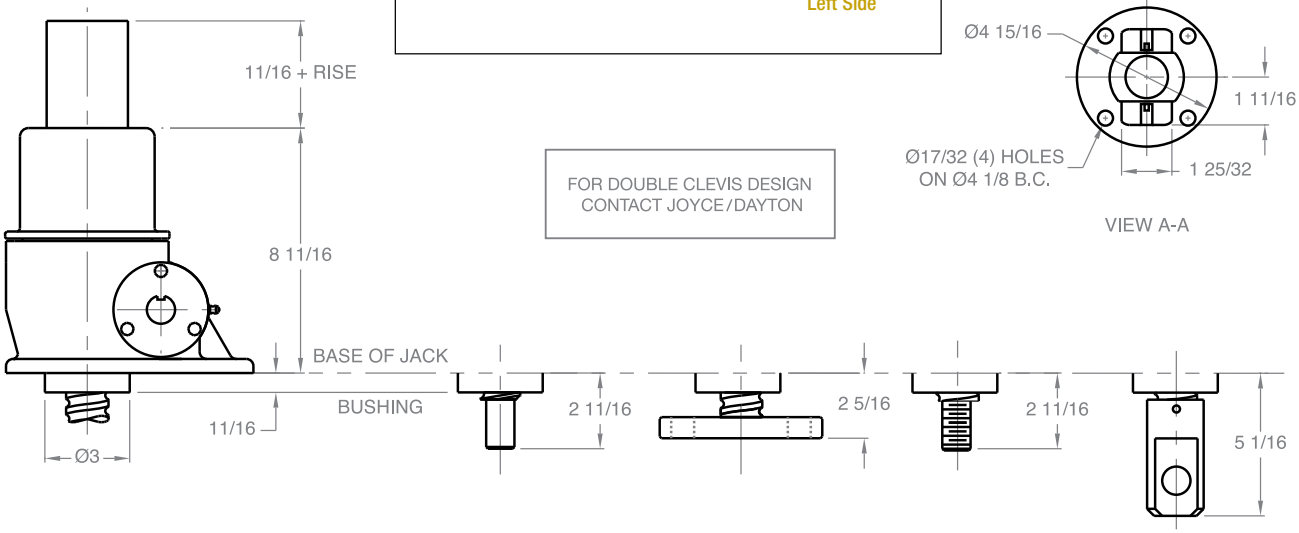
Typical Plan View



Inverted traveling nut



Inverted



FOR DOUBLE CLEVIS DESIGN
CONTACT JOYCE/DAYTON

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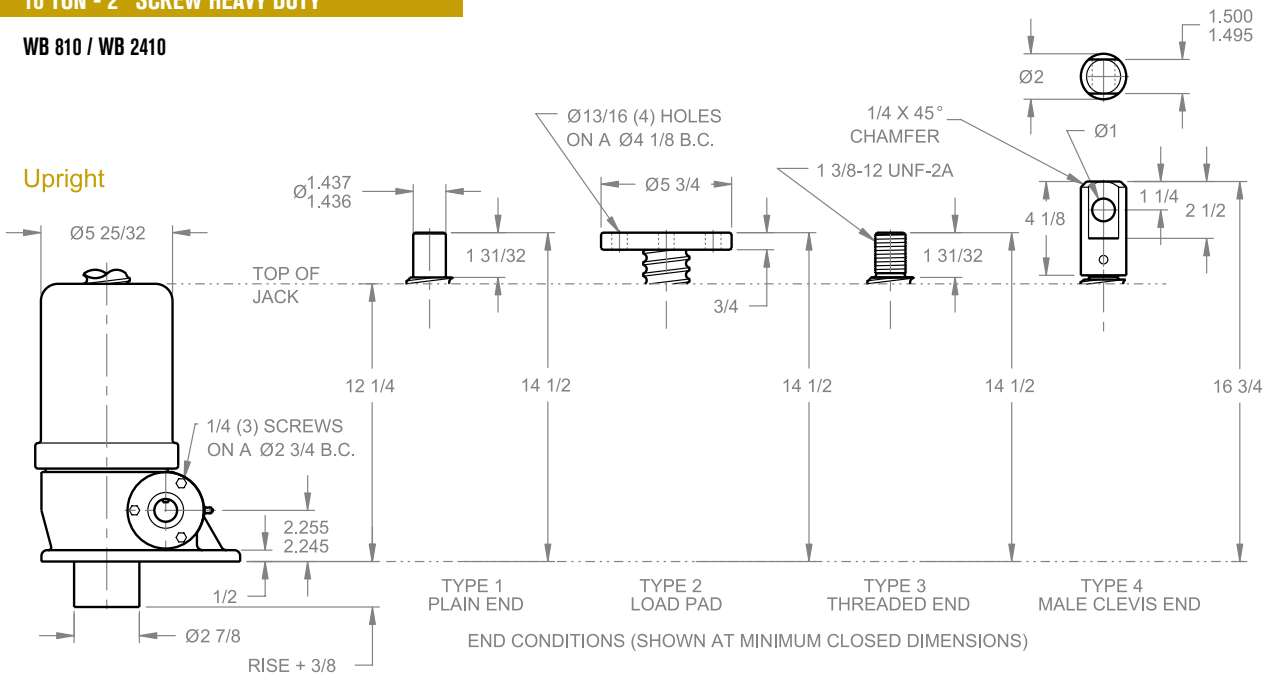
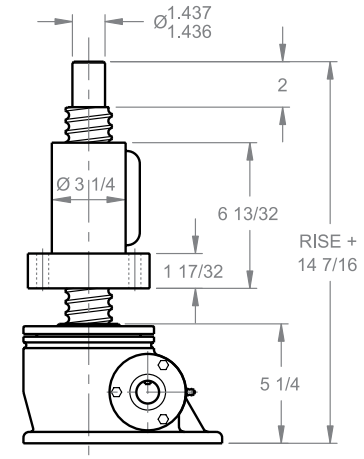
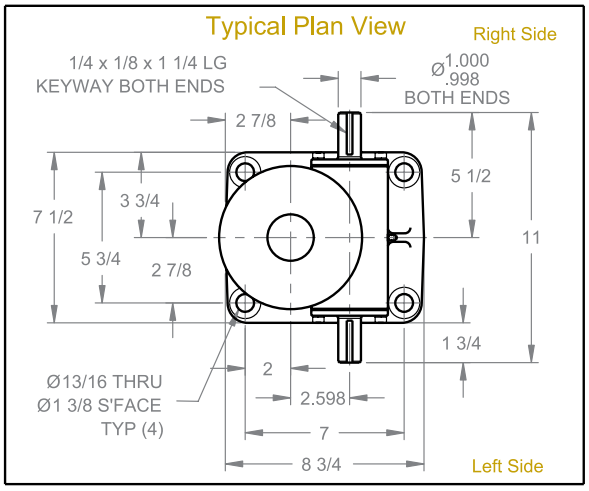
BALL SCREW JACKS

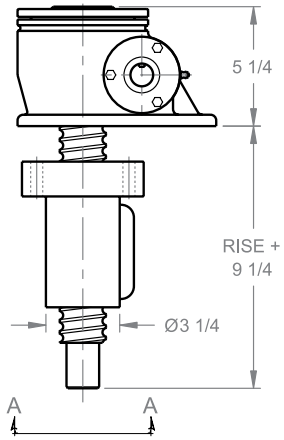
10 TON - 2" SCREW HEAVY DUTY

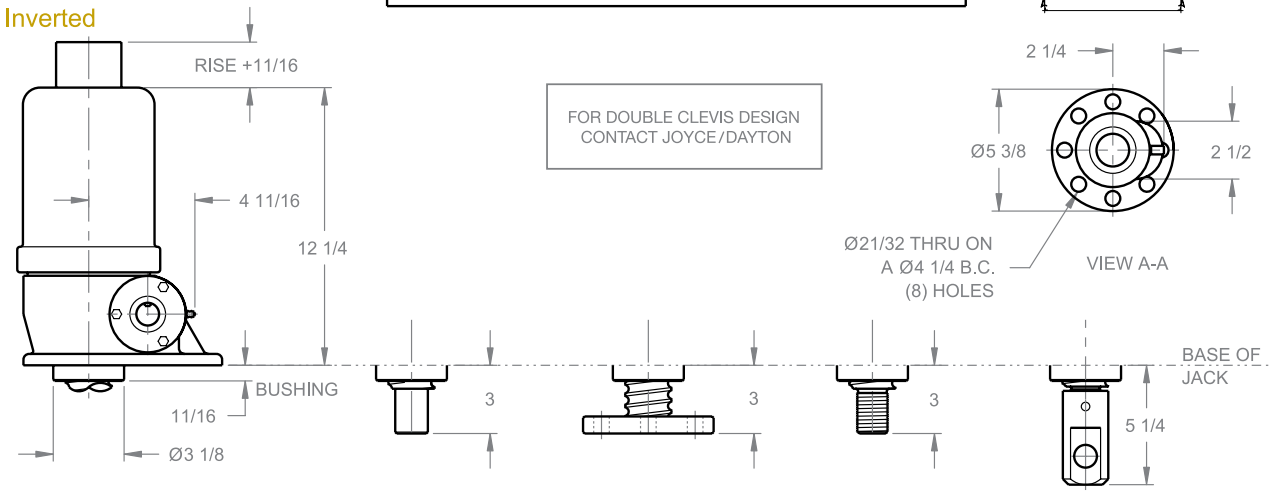
WB 810 / WB 2410











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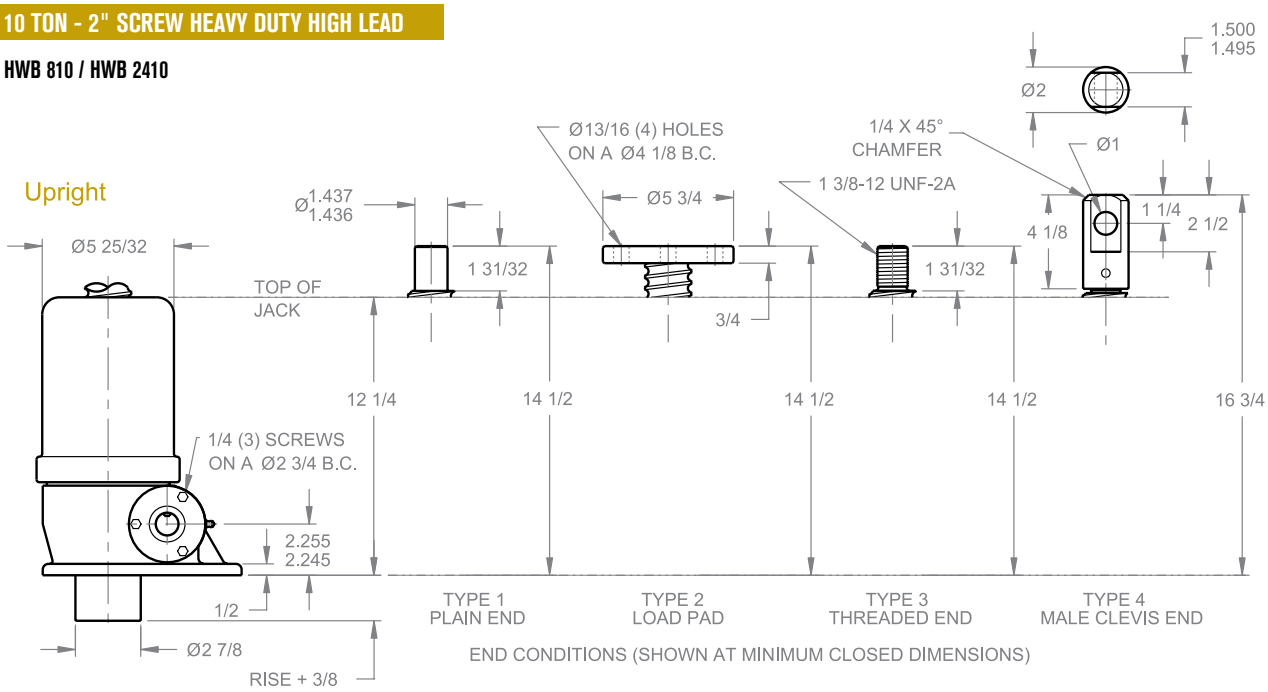
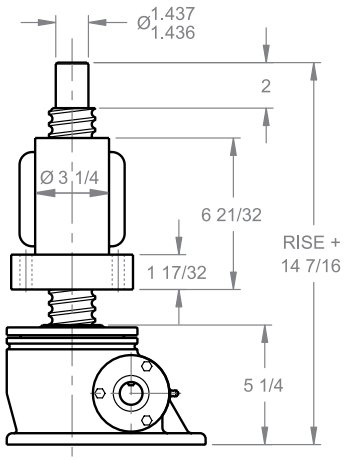
BALL SCREW JACKS

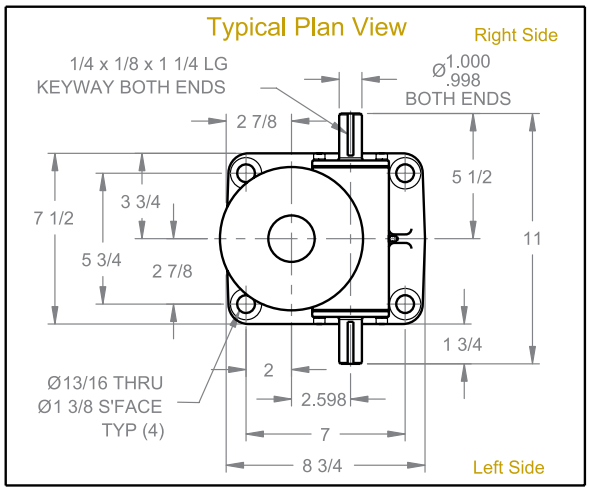
10 TON - 2" SCREW HEAVY DUTY HIGH LEAD

HWB 810 / HWB 2410

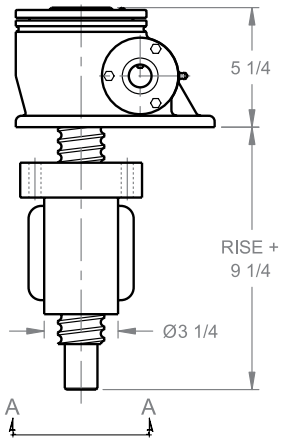


Upright traveling nut

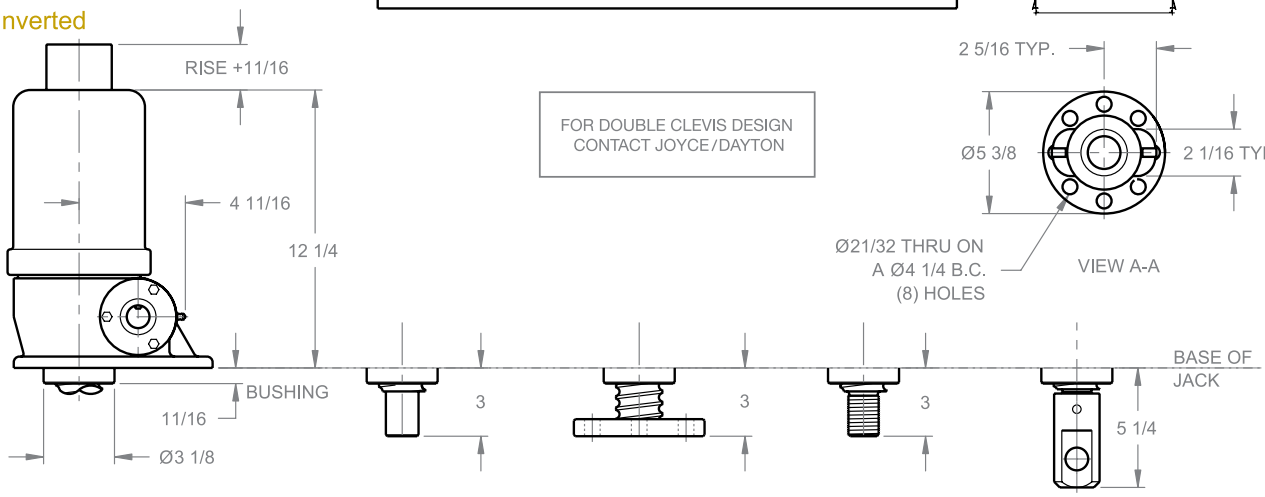




Inverted traveling nut



Inverted



FOR DOUBLE CLEVIS DESIGN
CONTACT JOYCE/DAYTON

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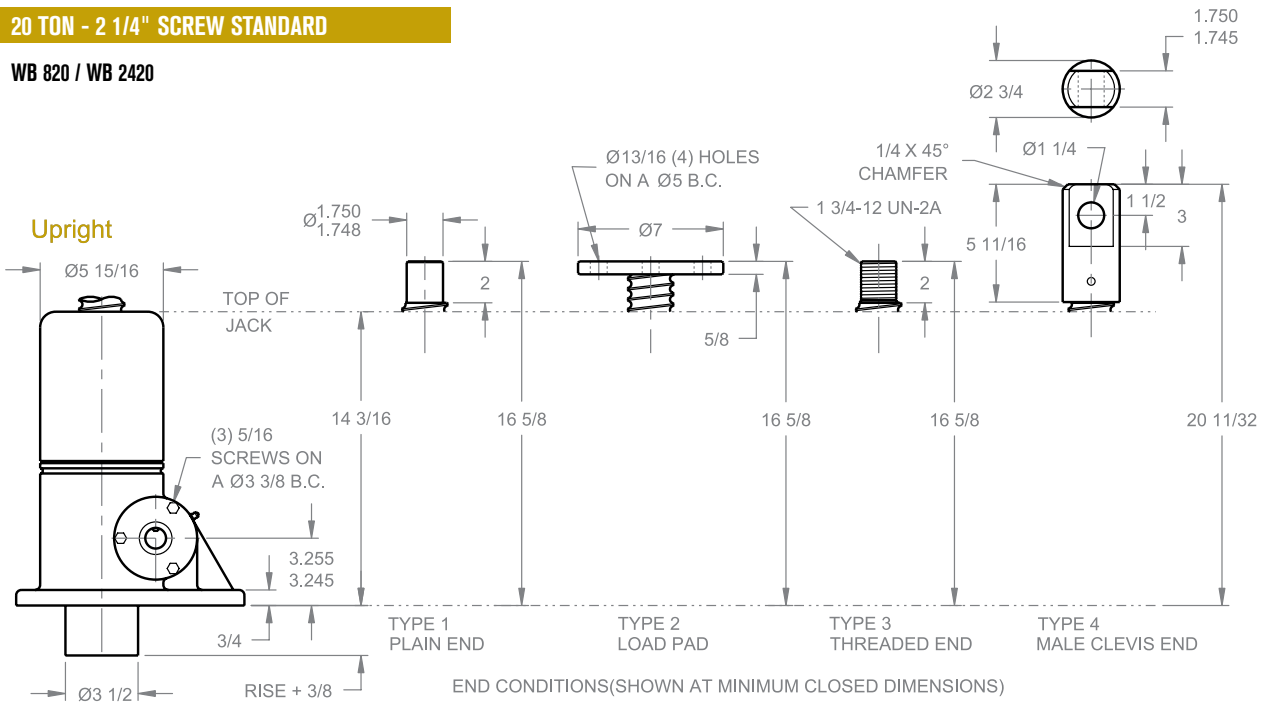
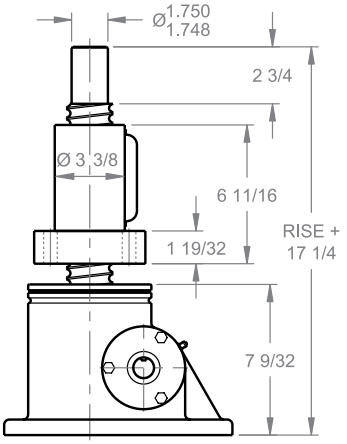
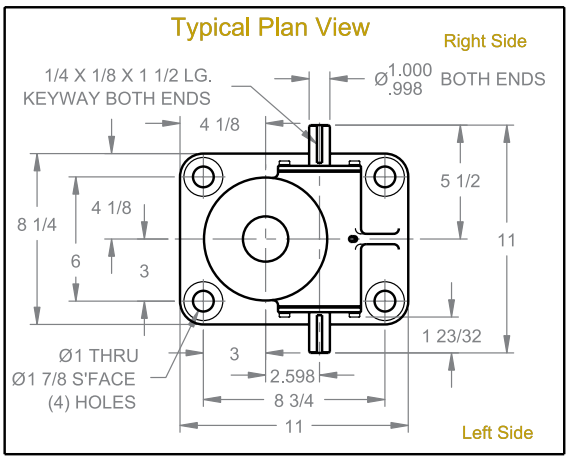
BALL SCREW JACKS

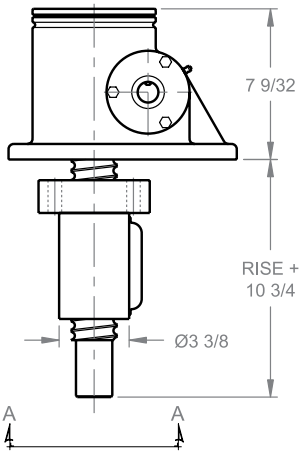
20 TON - 2 1/4" SCREW STANDARD

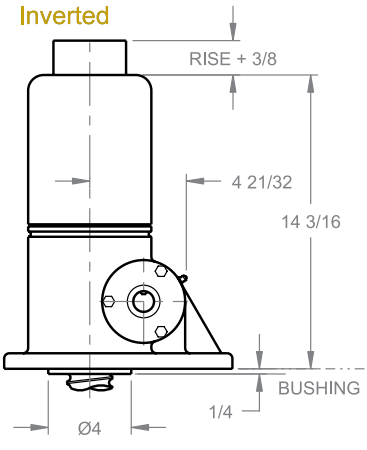
WB 820 / WB 2420



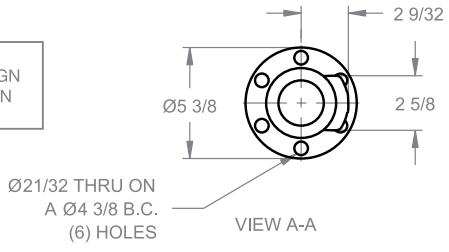


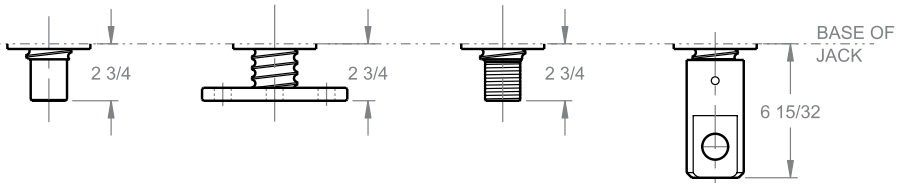






FOR DOUBLE CLEVIS DESIGN CONTACT JOYCE/DAYTON





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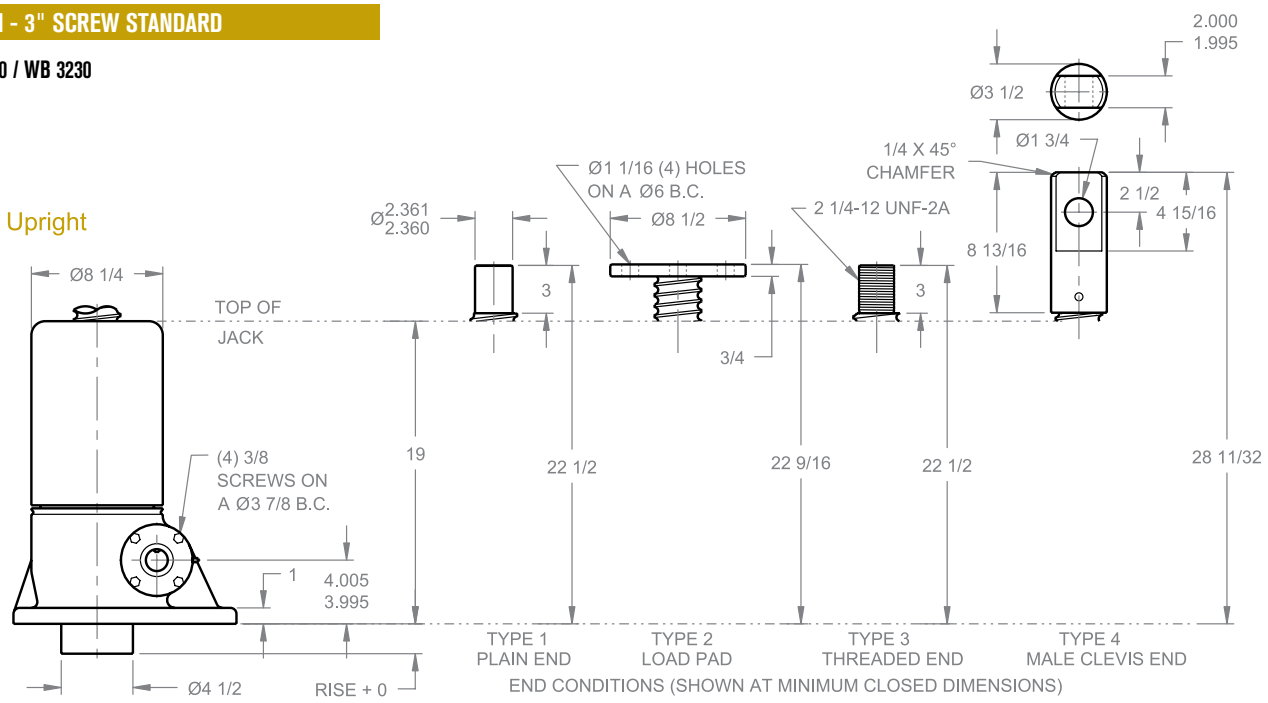
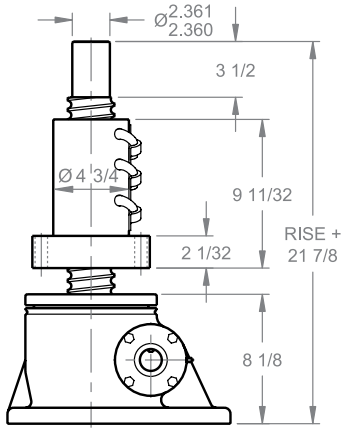
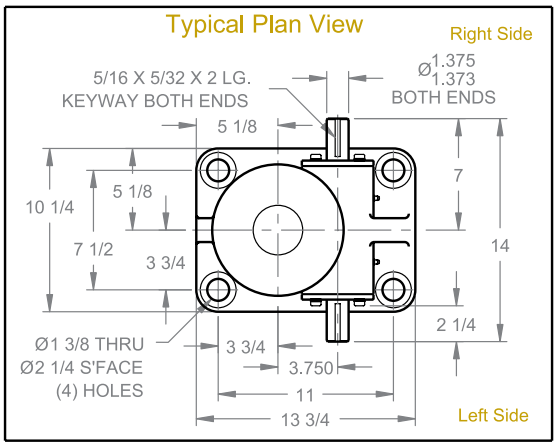
BALL SCREW JACKS

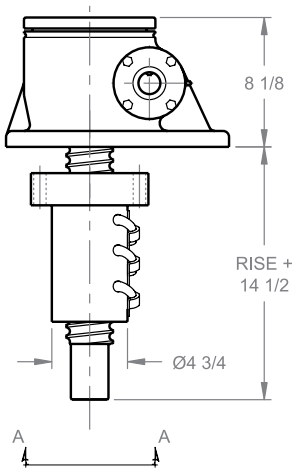
30 TON - 3" SCREW STANDARD

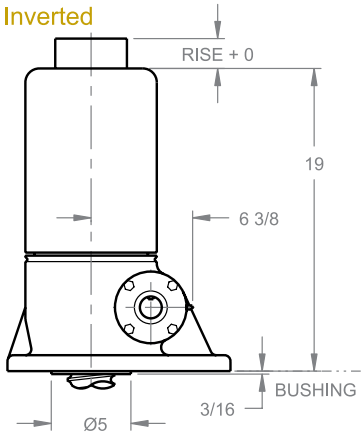
WB 1130 / WB 3230



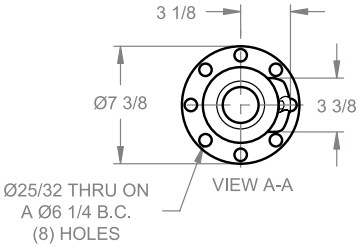


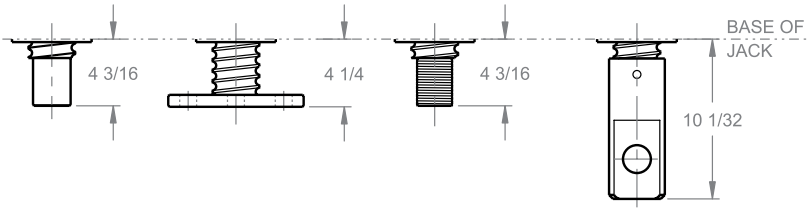






FOR DOUBLE CLEVIS DESIGN CONTACT JOYCE/DAYTON





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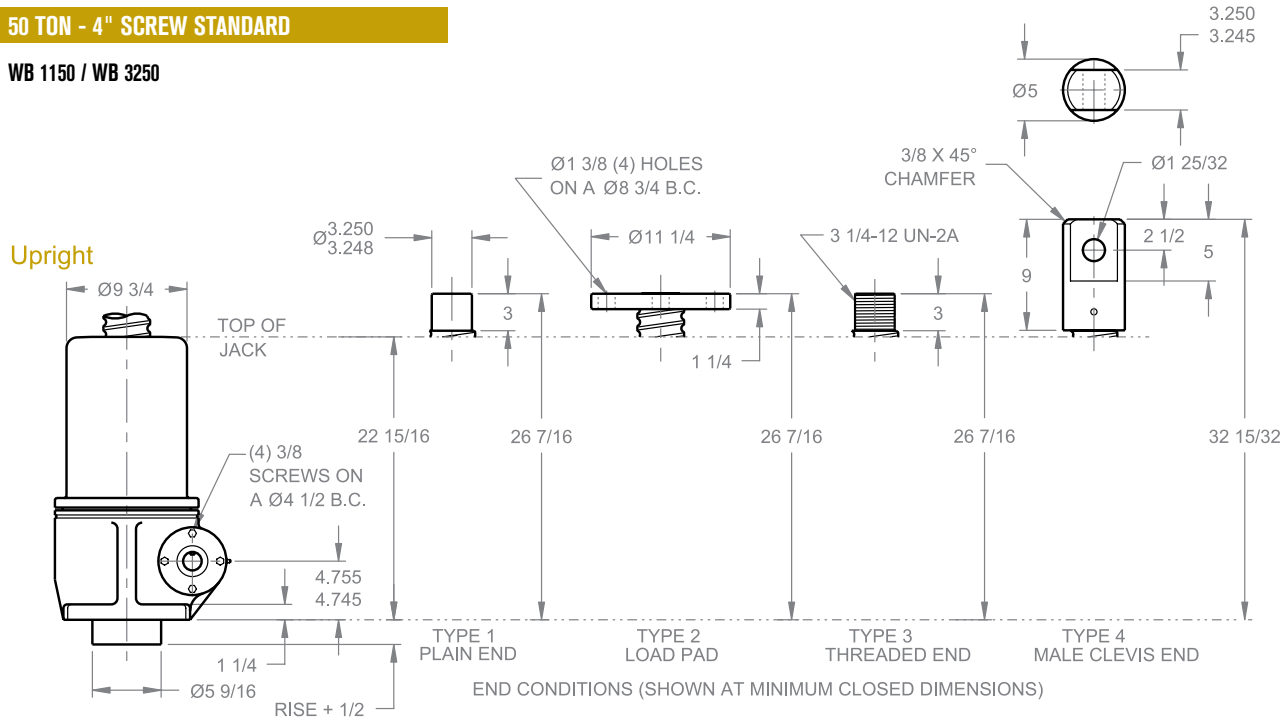
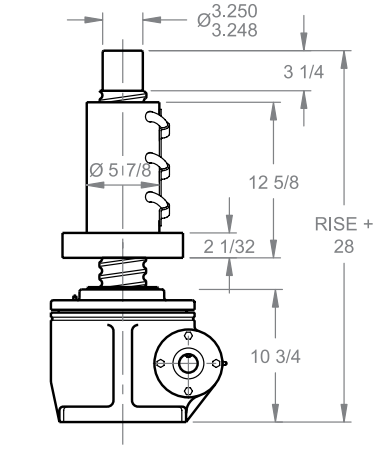
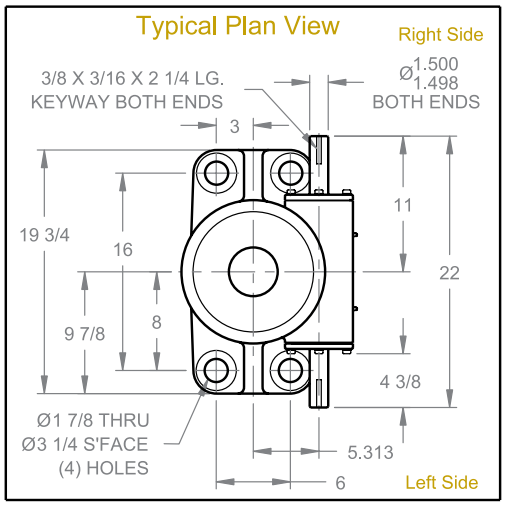
BALL SCREW JACKS

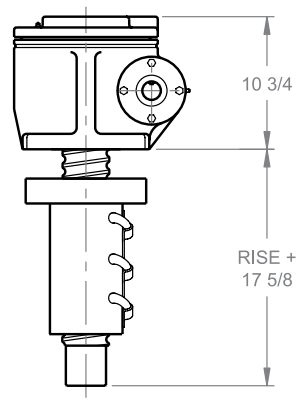
50 TON - 4" SCREW STANDARD

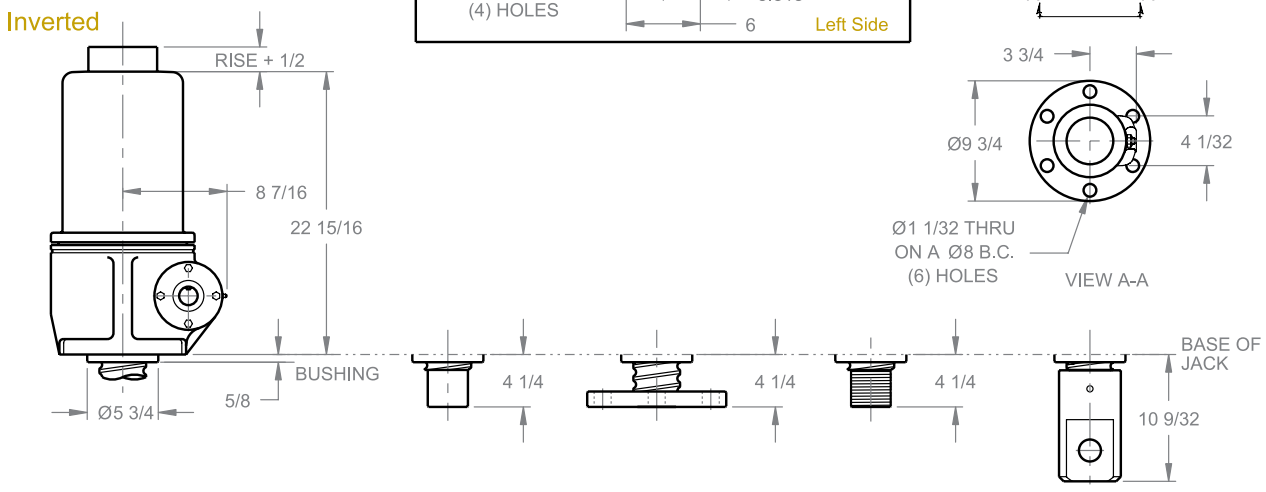
WB 1150 / WB 3250









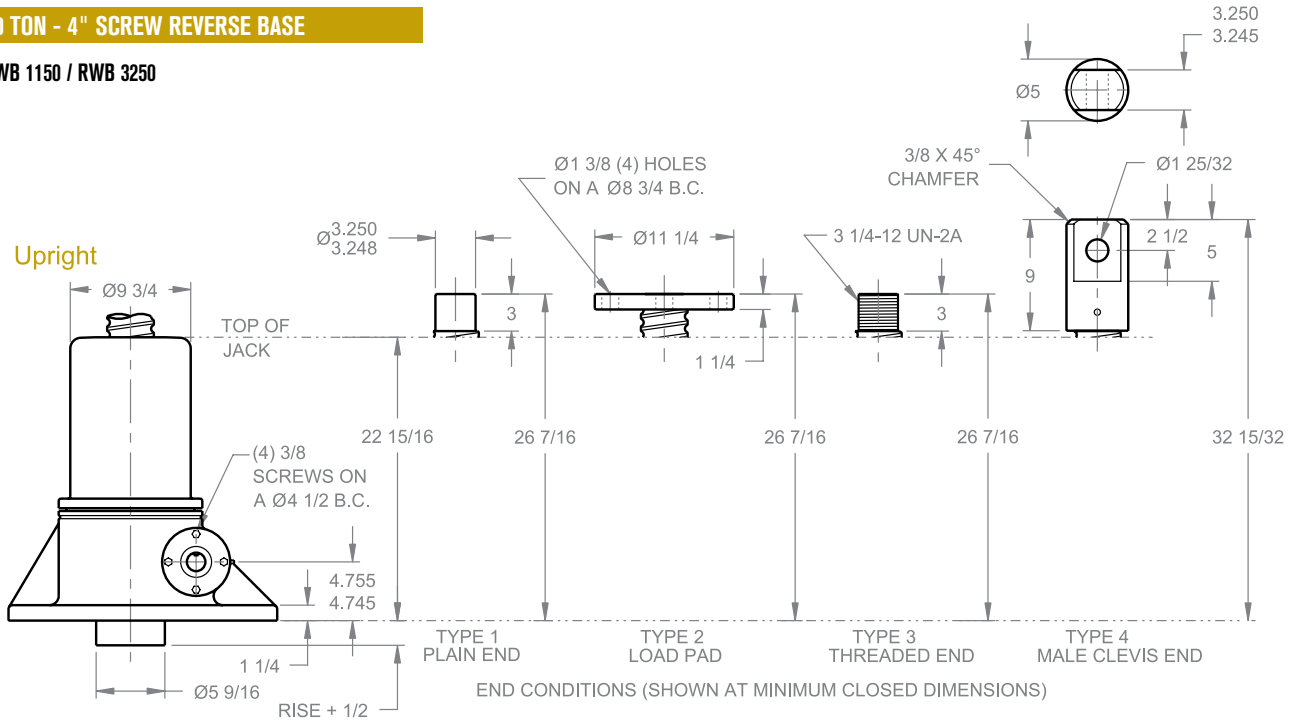


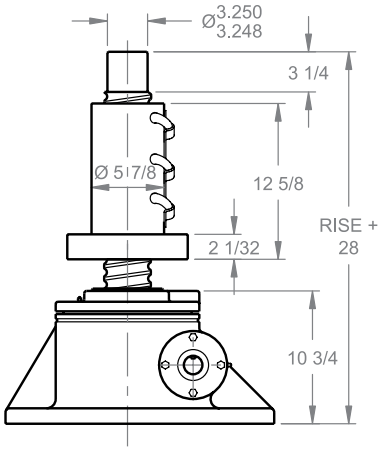
Note: Drawings are artist's conception — not for certification; dimensions are subject to change without notice.

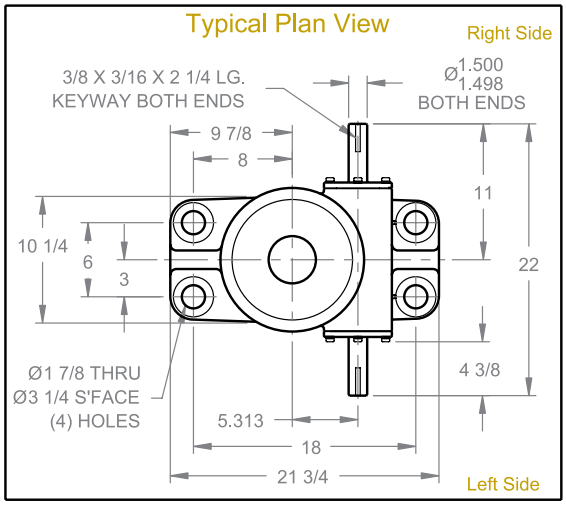
BALL SCREW JACKS

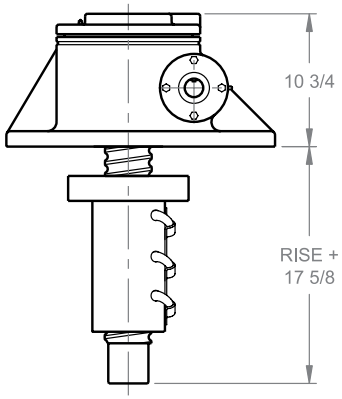
50 TON - 4" SCREW REVERSE BASE

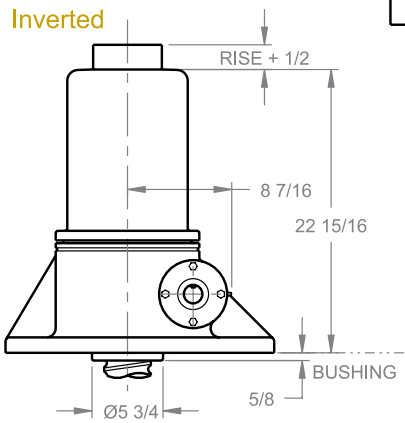
RWB 1150 / RWB 3250

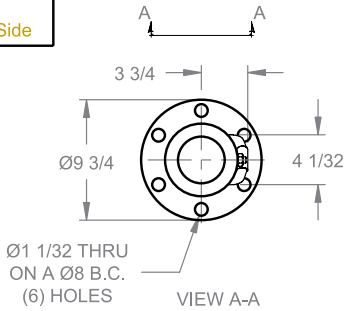


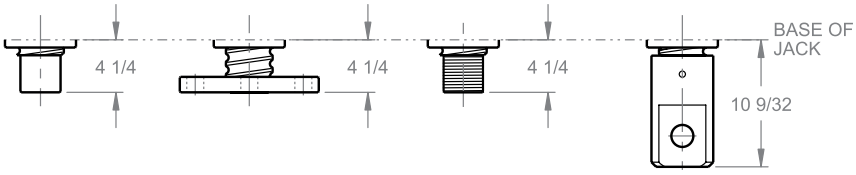












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