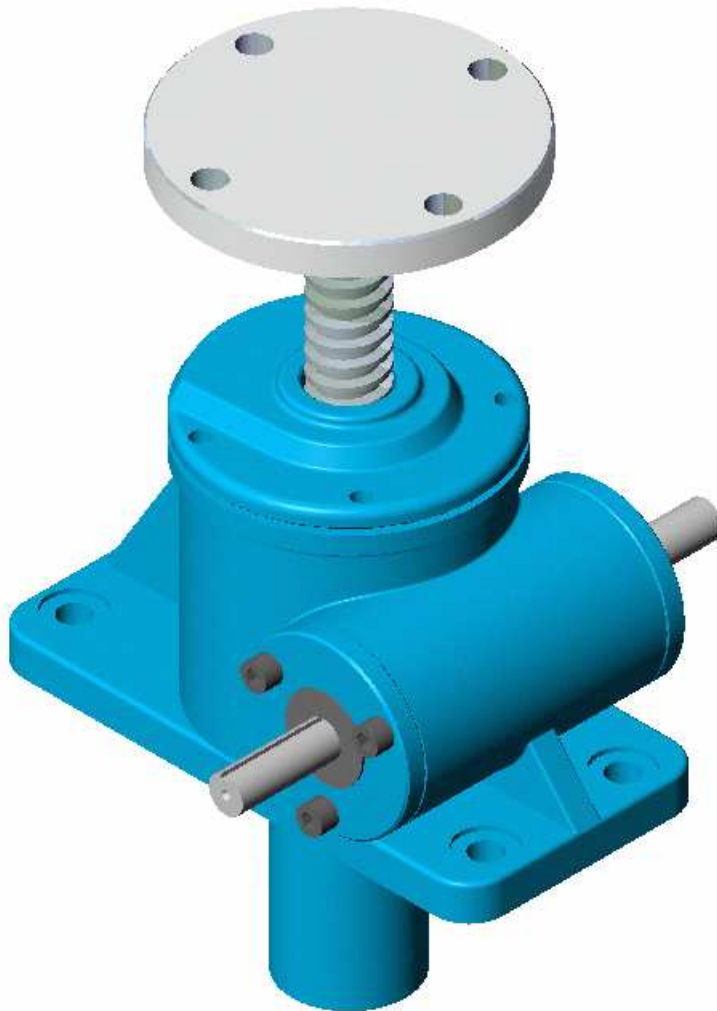




Joyce/Dayton Corp.

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Operation and Maintenance Manual for Joyce/Dayton  
Machine Screw Jacks



**WARNING!**

The product described in this catalog is for industrial use only. It may not be used to lift or support people without prior written approval from the Joyce/Dayton Corp. The recommendations in this manual for installation, operation and maintenance must be followed to ensure safe use. All persons responsible for the installation and use of Joyce Jacks must be familiar with the contents of this manual.

**CUSTOMER IS RESPONSIBLE FOR PROVIDING TRAVEL STOPS.**

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## Section I General Information

### 1-1 Contact Joyce/Dayton Corp.

Joyce/Dayton Corp.  
P.O. Box 1630  
Dayton, OH 45401  
(800) 523-5204 (US and Canada only)  
(937) 294-6261 (937) 297-7173 Fax  
Email: [sales@JoyceDayton.com](mailto:sales@JoyceDayton.com)  
Website: [www.joycedayton.com](http://www.joycedayton.com)

### 1-2 Purpose and Scope

This manual provides installation, operation and maintenance instruction for standard Joyce/Dayton Machine Screw Jacks. Although this manual covers the standard jacks and most variations of the Joyce/Dayton Machine Screw Jack, there may be some jacks that vary significantly from this manual. For special jacks not covered, please contact Joyce/Dayton Corp. for assistance.

### 1-3 Receipt of Product

All equipment should be immediately inspected upon receipt for any damage and to verify correct product and quantities. Any problems should be reported to Joyce/Dayton Corp. and the freight carrier as soon as possible. Products returned without a *Return Goods Authorization (RGA)* form will not be accepted.

### 1-4 Warranty

Seller warrants its products to be free from defects in material and workmanship under normal and proper use in accordance with instruction of seller for a period of one year from the date of shipment to buyer. Seller's liability under such warranty or in connection with any other claim relating to the products shall be limited to the repair, or at seller's option, the replacement or refund of the purchase price, of any products or parts or

components thereof which are returned to seller freight prepaid and which are defective in material or workmanship. Products or parts or components thereof, which are repaired or replaced by seller, will be returned to buyer freight collect. This warranty is not intended to cover consumer products, as defined in the Magnuson-Moss Warranty-Federal Trade Commission Improvement Act, 15 U. S. C. Sections 2301-12, which are purchased by buyer for purposes other than resale. If buyer is not intending to resell the products, and if the products are consumer products as defined in the Magnuson-Moss Act, the foregoing warranty, but not the limitation of seller's liability, shall be null and void. **EXCEPT AS EXPRESSLY STATED ABOVE, SELLER MAKES NO WARRANTY, EXPRESS OR IMPLIED, WHETHER OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OR USE OR OTHERWISE, ON THE PRODUCTS, OR ON ANY PARTS OR LABOR FURNISHED DURING THE SALE, DELIVERY OR SERVICING OF THE PRODUCTS.**

### **1-5 Precautions of Use and Installation**

1. Side loading of the lifting screw is not permitted in the dynamic operation of the jack. A limited side load is allowable in the static condition. Contact Joyce/Dayton for the allowable side load for a specific application.
2. Mechanical stops are not provided on the lifting screw unless requested. Therefore, it is possible to drive the screw out of the jack sleeve (housing). It is the customer's responsibility to provide travel limit devices on all jacks. A mechanical stop, if provided is only an auxiliary device to limit the travel of the lifting screw. Engaging a mechanical stop during jack operation can cause damage to the internal jack mechanism.
3. In most applications, factory or manufacturer-assisted installation is not required. However, it is necessary that appropriate, qualified personnel perform the installation of Joyce/Dayton products.
4. Joyce/Dayton jacks are not rated for shock-loading, extreme vibration or critical speed conditions (high speed or long-length screw.) It is the responsibility of the user to ensure these conditions are not imposed on a jack or the power transmission equipment.
5. In the event that service or maintenance is required, the load must be secured or removed before any work can begin.
6. The machine screw jacks can be mounted and operated in any orientation. When used in a horizontal position, the worm should be mounted parallel with the horizon and below the gear to ensure proper lubrication.
7. Never allow the jack to retract beyond the minimum closed position, as damage to the jack can occur.
8. Boots or protective bellows covers should be used to protect and keep the lifting screw clean in dusty or abrasive environments.
9. For continuous or high-duty cycles inquire with your local sales representative or consult Joyce/Dayton Corp. regarding Bevel Ball actuators.

### **1-6 General Installation instructions**

1. Ensure that all personnel who will service or operate equipment are familiar with its use and limitations.
2. Secure or remove the load before any installation procedures begin.
3. Be certain the rating of the jack meets or exceeds the load.
4. The jacks must be mounted on a structure sufficient to support the maximum possible load. The structure must be rigid. An under-designed structure could lead to bending of the lifting screw causing premature wear or failure.
5. Drive shaft alignment is critical. Mis-alignment will cause reversing stresses in rotating members and will lead to fatigue failure. Correct coupling specification is important.
6. In a system with shafts, miter boxes, etc., confirm that the shafts and jacks operate without binding or excessive force before powered drive devices are engaged.

7. When fastening the load to a jack, make sure the jack is in the retracted position. This positions the load accurately with respect to the jack screw centerline. Never pull the screw to one side to make connection with your structure. Fully extend the jack to make sure the load is aligned with the lifting screw.
8. All jacks should be mounted with S.A.E. Grade 8 bolts or equivalent.
9. Torque all mounting bolts in a symmetric pattern to avoid damage to the sleeve.
10. Shaft and coupling guards are the responsibility of the user.
11. Optional limit switches furnished with the jacks are NOT preset and require field adjustment before use.

## Section II Maintenance

### 2-1 Lubrication

1. Jacks are lubricated before leaving the factory.
2. For normal operation, jacks should be greased at least once per month. Under extended use, grease twice monthly or as conditions dictate. Grease thru the fitting on the jack with hand or power operated equipment. Grease with No. 1 Consistency Grease. Do not allow jacks to operate un-lubricated. It is the responsibility of the user to maintain sufficient lubrication of the jack and to the lifting screw.
3. The products listed below are recommended by the lubricant manufacturers to meet the requirements for normal operation. The listing of brand names is solely for the convenience of users of Joyce equipment and their lubricant suppliers; it does not constitute any endorsement. Joyce/Dayton assumes no responsibilities for the quality, performance or availability of any listed products

**COMPANY .....BRAND NAME**  
 Mobilgrease .....XHP 461  
 Shell Oil Company .....Retinax HD NLGI 1  
 Shell Oil Company .....Albina SLC 460  
 Mobil Oil.....Mobilith SHC PM 460

4. For operation above 250°F or extreme loading, consult the Engineering Department of Joyce/Dayton Corp.
5. Do not operate jack without lubrication.
6. Total grease capacity by jack type (estimated):

Jack Capacity	Shots	Weight	Jack Capacity	Shots	Weight
250-1000	3	1.0 oz	25 ton	140	49 oz.
1 ton	5	1.8 oz.	30 ton	135	47 oz.
2 ton	13	4.5 oz	35 ton	135	47 oz.
3 ton	13	4.5 oz	50 ton	230	81 oz.
5 ton	26	9 oz	75 ton	525	184 oz.
10-15 ton	50	17 oz	100 ton	600	210 oz.
20 ton	95	33 oz.	150 ton	650	228 oz.

## 2-2 Repair Parts

Obtain repair parts by calling Joyce/Dayton Customer Service at (800) 523-5204, (937) 294-6261, (937) 297-7371 (facsimile) or by email [sales@joycedayton.com](mailto:sales@joycedayton.com). You may also call your local sales representative. When ordering repair parts, please supply the serial number (located on the jack nameplate).

Recommended repair parts for rebuild or spares. Refer to Section 3-1 Exploded View and Section 3-2 Parts List.

- A. (1) Thrust bearing – Item 4
- B. (1) Wormgear – Item 5
- C. (2) Worm shaft bearing and race – Item 6
- D. (2) Worm shaft seal – Item 7 (2-ton and above)
- E. (1) Shim kit – Assortment of item 8
- F. (1) Worm - 12
- G. (1) Lifting screw - 14
- H. (1) Boot (if signs of wear are evident) – Item 34
- I. (1) Traveling Nut - 37

## 2-3 Disassembly of Machine Screw Jacks

Use the appropriate disassembly procedure – if the lifting nut is outside the jack on the screw, the jack is a Keyed for Traveling Nut (KFTN), also called a “rotating screw”, otherwise the jack is a translating model. Handle machined parts with care, and maintain an “order of disassembly” to aid in re-assembly. Remove all couplings, screw support bearings, etc. before beginning disassembly.

### **Disassembly Procedure for KFTN (rotating screw) Models: see Figure 3-1**

1. Remove the boot clamps (item 33) and collapse boots (item 34), if the jack is equipped with boots. Remove the traveling nut (item 37) from the screw.
2. Loosen the (4) set screws (item 13) in the sleeve cap and remove the sleeve cap by rotating counter-clockwise (CCW.)
3. The screw assembly can now be removed from the jack sleeve. The screw assembly consists of the machine screw (item 14), the upper thrust bearing (item 4), the key (item 38) and the wormgear (item 5). The upper thrust bearing can be removed from the assembly. The wormgear can be pressed off the screw for replacement if necessary. Note: On inverted KFTN models, it may be necessary to remove the screw first.
4. Remove screws (item 10) from the bearing cap (item 3). Remove the bearing caps and seals (item 7) carefully to avoid damaging seals. Make sure keys have been removed first. Note: the WJ250 thru WJ51 jacks have retaining clips (item 20) instead of bearing caps.
5. Carefully remove the shims (item 8) from the jack sleeve or bearing cap. NOTE: there will not necessarily be an equal quantity of shims per side. Keep track of the number and order of shims on each side of the jack. The WJ250 thru WJ51 jacks do not have shims.
6. Remove the worm bearings (item 6). The cup may be press-fit and require the use of a dead-blow, plastic or other non-marring mallet to remove the worm (item 12).

### **Disassembly Procedure for Translating Models: see Figure 3-1**

1. Remove the boot clamps (item 33) and collapse the boot (item 34) if equipped. On upright and inverted models, loosen the (4) set screws (item 13) and remove the sleeve cap (item 2) by rotating CCW.
2. Remove the protection tube (item 11) and check to see if the lifting screw has travel stops. This may require the use of a pipe wrench or strap wrench. If the jack has travel

stops on the screw, these will need to be removed before the lifting screw is removed from the jack. If the jack does not have stops, the lifting screw can be removed by simply unthreading it from the wormgear.

3. Remove the thrust bearings (item 4) and the wormgear (item 5) from the sleeve. The bearing cones may be pressed onto the wormgear.
4. Keyed jacks have a keyway cut the length of the lifting screw (item 35). A steel sleeve cap (item 17) has a key (item 30), which travels in the keyway and prevents rotation of the lifting screw. It is very important not to allow any side load on a keyed jack, as the key can cut into the lifting screw, and severely affect the life of the jack.
5. Remove screws, (item 10) from the bearing caps (item 3). Remove the bearing caps and seals (item 7) carefully to avoid damaging seals. Make sure keys have been removed first. Note: the WJ250, WJ500, WJ1000 and WJ51 jacks have retaining clips instead of bearing caps.
6. Carefully remove the shims (item 8) from the jack sleeve or bearing cap. NOTE: there will not necessarily be an equal quantity of shims per side. Keep track of the number and order of shims on each side of the jack. The WJ250 thru WJ51 jacks do not have shims.
7. Remove the worm shaft bearings (item 6). The cups may be press-fit and require the use of a dead-blow, plastic or other non-marring mallet to remove the worm (item 12).

## **2-4 Inspection of Components**

1. Before any inspection, it will be necessary to completely clean all parts of the jack. Use caution with any machined or fragile part.
2. Inspect the cleaned sleeve (item 1) and sleeve cap (item 2) for any signs of stress or fracture, especially around the mounting bolt locations.
3. Inspect the worm (item 12) and thrust bearings (item 4) for any signs of brinelling, abrasive wear or spalling. Test for smooth, quiet operation of bearings.
4. Inspect bearing caps (item 3) for any signs of stress.
5. Inspect the keyway on the worm (item 12) and roll the worm on a flat surface to look for wobble in the shaft. Threads on the worm should not show an excessive buildup of bronze gear material.
6. Replace all seals when a complete disassembly is done.
7. Inspect aluminum-bronze wormgear (item 5) for signs of excessive wear.
8. Check boots (item 34) for wear or cracks.
9. Inspect lifting screw (item 14) or straightness.

## **2-5 Assembly of Machine Screw Jacks**

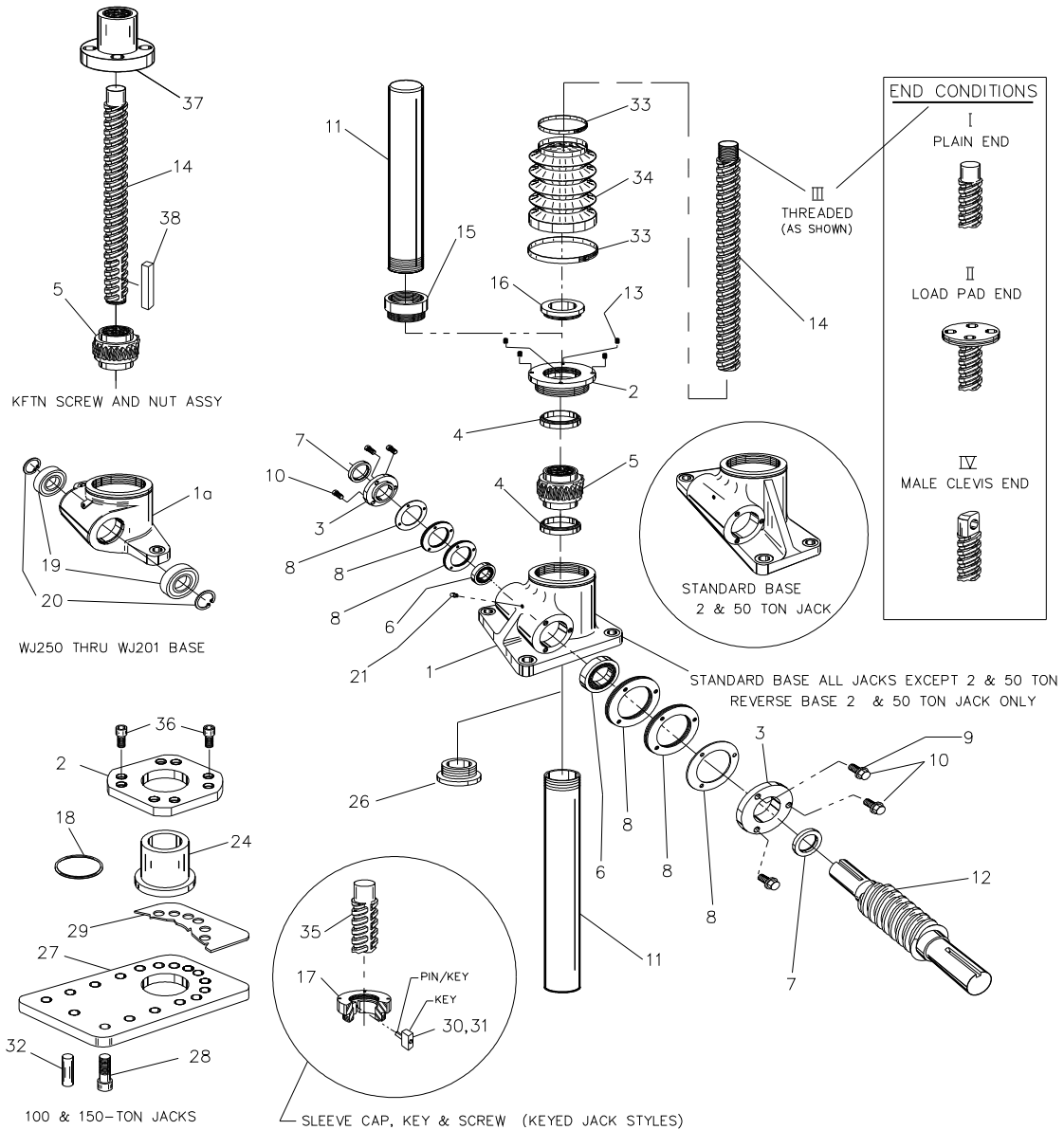
1. Assure that all bearings are packed with grease. Coat seals with light oil and put masking tape on keyways and other sharp surfaces to avoid seal damage.
2. Assembly of jack is reverse of the disassembly procedure. Make sure all bearings and seals seat properly. The bearing cap screws and sleeve cap should only be hand tightened, initially. Some jacks may require the wormgear and thrust bearing be installed first, as they will not pass the worm, if already installed.
3. Tighten bearing cap bolts. Check the input shaft for excessive axial or lateral movement. If the input shaft feels loose remove shims, if it feels tight, add shims. Give the input shaft a solid blow on each end (in axial direction) with a soft mallet and re-check the feel. If it feels OK, continue to next step, otherwise continue adjusting the shims. This is a trial and error operation. The correct set-up has a solid feel without play (axial or lateral) and the input shaft rotates with an even, smooth but snug feel.
4. When jack is re-assembled, the thrust bearing pre-load needs to be set. Check by rotating the input shaft, while tightening the sleeve cap. Continue to check the rotation of the input shaft as sleeve cap is tightened. Use a dead-blow hammer on top of sleeve cap to help it seat. Tighten sleeve cap until it will not tighten further by hand.

## **2-6 100 and 150-Ton Jacks**

- 1. The assembly of the 100 and 150-ton jack varies from the smaller machine screw jacks. The 100 and 150-ton jacks utilize a base plate and a sleeve that are shimmed and bolted together, instead of a sleeve and sleeve cap.**
- 2. In a translating jack, the screw (item 14) should be removed first, and then the sleeve can be unbolted from the base.**
- 3. In a KFTN model, the base and sleeve may be unbolted first.**
- 4. In assembly, the pre-load for the worm shaft (item 12) is set the same as the rest of the jacks. The pre-load for the thrust bearings (item 4) is set with the shims between the base plate and the sleeve. Similar to the smaller machine screw jacks, this is a trial and error process to obtain the correct pre-load. (See Section 2.5 – Assembly of Machine Screw Jacks).**

### 3-1 Exploded View

#### PARTS LIST FOR ALL JOYCE STANDARD WORM GEAR SCREW JACKS Models "WJ", "DWJ", "WJT", "SWJ", And "DSWJ" Traveling Screw, Traveling Nut And Keyed For Traveling Nut Versions (Upright Styles shown for purpose of illustration)



**JOYCE** [www.joycedayton.com](http://www.joycedayton.com)  
(937) 294-6261

Serial No. XXXXXX



### 3-2 Parts List – Translating and KFTN jacks

**Parts list Table**

Item	Translating	Item	KFTN- Keyed For Traveling Nut
1	Sleeve	1	Sleeve
1a	Sleeve (WJ250 – WJ201 jack)	1a	Sleeve (WJ250 – WJ201 jack)
2	Sleeve Cap	2	Sleeve Cap
3	Bearing Cap (2)	3	Bearing Cap (2)
4	Thrust Bearing	4	Thrust Bearing
5	Wormgear	5	Wormgear
6	Worm Shaft Bearing (2)	6	Worm Shaft Bearing (2)
7	Worm Shaft Seal (2)	7	Worm Shaft Seal (2)
8	Shims	8	Shims
9	Bearing Cap Lockwasher (6-8)	9	Bearing Cap Lockwasher (6-8)
10	Bearing Cap Screw (6-8)	10	Bearing Cap Screw (6-8)
11	Protection Tube	12	Worm (Input Shaft)
12	Worm (Input Shaft)	13	Set Screw - sleeve cap (4)
13	Set Screw – sleeve cap (4)	14	Lifting Screw
14	Lifting Screw	16	Seal
15	Protection Tube Adapter (Inverted only)	18	O-ring seal**
17	Keyed Sleeve Cap*	19	Bushing (miniature jacks only) (2)
18	O-ring seal**	20	Retaining Ring (WJ250 - WJ51 jacks only) (2)
19	Bushing (miniature jacks only) (2)	21	Grease Fitting
20	Retaining Ring (WJ250 - WJ51 jacks only) (2)	22	Drive Screw (2)
21	Grease Fitting	23	Name Plate
22	Drive Screw (2)	24	Top Bushing**
23	Name Plate	26	Bushing (inverted only)
24	Top Bushing**	27	Base Plate**
26	Bushing (inverted only)	28	Sleeve Bolts (16)
27	Base Plate**	29	Base Shim
28	Sleeve Bolts (16)	32	Alignment Pin
29	Base Shim	33	Boot Clamp
30	Key* – keyed jacks	34	Bellows Boot
31	Key screw* – keyed jacks	37	Traveling Nut
32	Alignment Pin	38	Key - KFTN
33	Boot Clamp		
34	Bellows Boot		
35	Keyed Screw*		
36	Sleeve cap screws (8)**		

\* Keyed Jack styles only

\*\* 100 & 150 ton jacks only

### 3-3 Specifications

Model Number	WJ250	WJ500	WJ1000	WJ51 WJ201	(R)WJT62 (R)WJT122 (R)WJT242 (R)WJT252	D(R)WJ62 D(R)WJ122 D(R)WJ242	WJ63 WJ123 WJ243 WJ253	DWJ63 DWJ123 DWJ243	WJT65 WJT125 WJT245	WJT255	DWJ65 DWJ125 DWJ245
Capacity	250 lbs.	500 lbs.	1,000 lbs.	1 TON	2 TON	2 TON	3 TON	3 TON	5 TON	5 TON	5 TON
Lifting Screw Diameter (inches)	1/2	1/2	5/8	3/4	1	1	1	1	1 1/2	1 1/2	1-1/2
Thread Pitch/Lead (inches)	.125 Pitch Stub Acme	.250 Pitch Stub Acme	.125 Pitch Stub Acme	.200 Pitch Acme	.250 Pitch Acme	.250 Pitch .500 Lead Acme	.250 Pitch Acme	.250 Pitch .500 Lead Acme	.375 Pitch Stub Acme	.250 Pitch Acme	.250 Pitch .500 Lead Acme
Worm Gear Ratio	5:1	5:1	5:1	5:1 20:1	6:1 12:1 24:1 25:1	6:1 12:1 24:1	6:1 12:1 24:1 25:1	6:1 12:1 24:1	6:1 12:1 24:1	25:1	6:1 12:1 24:1
Worm Shaft Turns for 1" Travel	40	20	40	25 100	24 48 96 100	12 24 48	24 48 96 100	12 24 48	16 32 64	100	12 24 48
Tare Torque Inch-lbs.	1	1	1	3	4	4	6	6	10	10	10
Starting Torque Inch lbs.	.025W*	.033W*	.030W*	.038W* .017W*	.041W* .025W* .018W* .015W*	.057W* .035W* .025W*	.040W* .025W* .017W* .0155W*	.055W* .034W* .024W*	.065W* .041W* .029W*	.022W*	.072W* .045W* .033W*
Operating Torque † (inch lbs.)	.018W* @ 500 RPM	.024W* @ 500 RPM	.021W* @ 500 RPM	.026W* .009W* @ 500 RPM	.028W* .015W* .009W* .0085W* @ 500 RPM	.039W* .022W* .013W* @ 500 RPM	.029W* .016W* .009W* .009W* @ 500 RPM	.041W* .022W* .013W* @ 500 RPM	.044W* .025W* .015W* @ 300 RPM	.011W* @ 300 RPM	.050W* .028W* .017W* @ 300 RPM
Screw Torque ** (inch lbs.)	.050W*	.069W*	.059W*	.075W*	.098W*	.139 W*	.098 W*	.139 W*	.151 W*	.131W*	.171 W*
Efficiency Rating approx.	23.0%	33.3%	19.9%	25.0% 15.9%	24.2% 22.0% 18.3% 17.0%	33.7% 30.5% 25.4%	24.3% 22.2% 18.5% 17.8%	33.8% 30.7% 25.6%	23.0% 20.6% 16.7%	13.4%	26.8% 23.9% 19.6%
Basic Jack Weight (lbs.)	1.2	1.3	1.3	6	15	15	17	17	32	32	32
Add to Basic Jack Weight (lbs.) for each Additional 1" of Travel	0.1	0.1	.01	.3	.3	.3	.4	.4	.7	.7	.7

Series DWJ may lower under load. External locking systems are required

W\* = Load in pounds

\*\*Screw torque is the torque required to keep the screw from rotating.

† Operating torque: torque required for a given load increases as speed decreases

### 3.3 Specifications (continued)

Model Number	WJ810 WJ2410 WJ2510	WJ2510	DWJ810 DWJ2410	WJ815 WJ2415	WJ2515	DWJ815 DWJ2415	WJ820 WJ2420	WJ2520	DWJ820 DWJ2420
Capacity	10 TON	10 TON	10 TON	15 TON	15 TON	15 TON	20 TON	20 TON	20 TON
Lifting Screw Diameter (inches)	2	2	2	2 1/4	2 1/4	2 1/4	2 1/2	2 1/2	2 1/2
Thread Pitch/Lead (inches)	.500 Pitch Acme	.25 Pitch Acme	.333 Pitch .666 Lead Acme	.500 pitch Acme	.250 pitch	.333 Pitch .666 Lead Acme	.500 pitch Acme	.25 pitch Acme	.375 Pitch .750 Lead Acme
Worm Gear Ratio	8:1 24:1	25:1	8:1 24:1	8:1 24:1	25:1	8:1 24:1	8:1 24:1	25:1	8:1 24:1
Worm Shaft Turns for 1" Travel	16 48	100	12 36	16 48	100	12 36	16 48	100	10.67 32
Tare Torque Inch-lbs.	20	20	20	30	30	30	40	40	40
Starting Torque Inch lbs.	.061W* .030W*	.024W*	.070W* .035W*	.069W* .036W*	.026W*	.079W* .041W*	.075W* .039W*	.029W*	.088W* .046W*
Operating Torque † (inch lbs.)	.043W* .018W* @ 200 RPM	.014W* @ 200 RPM	.062W* .026W* 200 RPM	.047W* .020W* @ 200 RPM	.015W* @ 200 RPM	.058W* .025W* @ 200 RPM	.015W* .022W* @ 200 RPM	.016W* @ 200 RPM	.061W* .026W* @ 200 RPM
Screw Torque ** (inch lbs.)	.195 W*	.161W*	.228 W*	.210W*	.178W*	.244W*	.227W*	.194W*	.272W*
Efficiency Rating approx.	23.1% 18.8%	11.3%	31.9% 25.9%	21.1% 16.6%	10.2%	34.4% 27.0%	19.6% 15.4%	9.4%	24.5% 19.3%
Basic Jack Weight (lbs.)	43	43	43	59	59	59	77	77	77
Add to Basic Jack Weight (lbs.) for each Additional 1" of Travel	1.3	1.3	1.3	1.4	1.4	1.4	1.9	1.9	1.9

Series DWJ may lower under load. External locking systems are required

W\* = Load in pounds

\*\*Screw torque is the torque required to keep the screw from rotating.

† Operating torque: torque required for a given load increases as speed decreases

### 3-3 Specifications (continued)

Model Number	WJ1125 WJ3225	DWJ1125 DWJ3225	WJ1130 WJ3230	DWJ1130 DWJ3230	WJ1135 WJ3235	(R)WJT1150 (R)WJT3250	WJ1175 WJ3275	WJ12100 WJ36100	WJ12150 WJ36150	WJ50250
Capacity	25 TON	25 TON	30 TON	30 TON	35 TON	50 TON	75 TON	100 TON	150 TON	250 TON
Lifting Screw Diameter (inches)	3 3/8	3 3/8	3 1/2	3 1/2	3 3/4	4 1/2	5	6	7	9
Thread Pitch/Lead (inches)	.666 Pitch Stub Acme	.5625 Pitch 1.125 Lead Acme	.666 Pitch Acme	.5625 Pitch 1.125 Lead Acme	.666 Pitch Acme	.666 Pitch Acme	.666 Pitch Mod. Square.	.750 Pitch Mod. Square.	1.00 Pitch Mod. Square.	1.00 Pitch ACME
Worm Gear Ratio	11:1 32:1	11:1 32:1	11:1 32:1	11:1 32:1	11:1 32:1	11:1 32:1	11:1 32:1	12:1 36:1	12:1 36:1	50:1
Worm Shaft Turns for 1" Travel	16 48	9.5 28.5	16 48	9.5 28.5	16 48	16 48	16 48	16 48	12 36	50
Tare Torque Inch lbs.	50	.50	60	60	.70	100	155	205	300	500
Starting Torque Inch lbs.	.088W* .053W*	.106W* .063W*	.088W* .052W*	.107W* .064W*	.093W* .055W*	.095W* .050W*	.107W* .056W*	.112W* .059W*	.134W* .070W*	
Operating Torque Inch lbs.	.055W* .025W* @ 200 RPM	.067W* .030W* @ 200 RPM	.055W* .025W* @ 200 RPM	.067W* .030W* @ 200 RPM	.057W* .026W* @ 200 RPM	.063W* .027W* @ 150 RPM	.067W* .028W* @ 150 RPM	.072W* .031W* @ 90 RPM	.084W* .037W* @ 90 RPM	.036W* @ 60 RPM
Screw Torque ** (inch lbs.)	.313W*	.384W**	.313W*	.384W*	.328W*	.378W*	.418W*	.495W*	.595W*	.711W*
Efficiency Rating approx.	18.3% 13.5%	25.1% 18.6%	18.3% 13.5%	25.1% 18.6%	17.4% 12.9%	15.8% 12.4%	14.8% 11.7%	13.9% 10.8%	15.7% 12.1%	8.8%
Basic Jack Weight (lbs.)	164	164	164	164	240	387	610	1010	1350	3415
Add to Basic Jack Weight (lbs.) for each Additional 1" of Travel	3.0	3.0	3.1	3.1	3.4	6.1	6.5	10.0	12.2	21.0

Series DWJ may lower under load. External locking systems are required

W\* = Load in pounds

\*\*Screw torque is the torque required to keep the screw from rotating.

† Operating torque: torque required for a given load increases as speed decreases

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