


**nexen**<sup>®</sup>

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# WEB CONTROL PRODUCTS

User Manual



## Tension Control Brakes Single Spider, Double Spider and Water-Cooled Models

FORM NO. L-20062-C-0704

In accordance with Nexen's established policy of constant product improvement, the specifications contained in this manual are subject to change without notice. Technical data listed in this manual are based on the latest information available at the time of printing and are also subject to change without notice.

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# DANGER

Read this manual carefully before installation and operation.

Follow Nexen's instructions and integrate this unit into your system with care.

This unit should be installed, operated and maintained by qualified personnel **ONLY**.

Improper installation can damage your system or cause injury or death.

Comply with all applicable codes.

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ISO 9001 Certified



## INSTALLATION

Nexen Tension Control Brakes may be received either completely assembled and mounted on a shaft, or by customer preference, without shafts. Made to order shafts are available from the factory.

If the customer supplies the shaft, some machining will be required. The following instructions for machining the shaft and mounting will facilitate installation.

### MACHINING THE SHAFT

Refer to Figure 1 for diagram of air inlet end of shaft.

1. The shaft diameter must be within bearing bore tolerance (nominal to minus 0.001).
2. A standard square keyway is required for key (Item 35).
3. Drill a 3/8" diameter hole in the center of the shaft long enough to reach the air outlets.
4. Air outlets: Tap drill 11/32" through the shaft, intersecting the 3/8" diameter hole, and tap 1/8 NPT on both ends. Locate outlets one inch from the end of the keyway on the rotary air union (Item 28) end of the brake. On double spider brakes, outlets are located one inch from both ends of the keyway.
5. Tap a 5/8-18 NF hole, 5/8" deep, on the end of the shaft for the rotary air union (Item 28).

### MOUNTING

1. Insert key (Item 35) into the keyway.
2. Place the spider (Item 4) on the shaft and slide over the key. Tighten the set screws (Item 24) in the spider hub just tight enough to mark the shaft.

**NOTE: The spider is symmetrical about the centerline and can be placed on the shaft to rotate in either direction. On Duo-Torque models the highest torque is developed when the spider assembly is installed so that the weight (Item 5) is following the shoe (Item 6) in the direction of rotation.**

3. Remove the spider and drill holes the diameter of the set screws 1/8" to 1/4" deep where the set screws have marked the shaft.
4. Replace the spider or spiders on the shaft and tighten the set screws making sure they are firmly seated in the drilled holes.

5. Install the brake shell (Item 1):

- (a) **Single spider models:** Place the brake shell on the shaft and slide over the previously mounted spider assembly until the bearing ring of the inboard bearing butts against the spider hub. Slide the eccentric lock-collar over the outboard bearing ring and turn in the direction opposite to the rotation of the shaft until tightly engaged. Tighten the set screws in lock collar. Install two elbows (Item 27) in the shaft outlets and connect the hoses (Item 26).
  - (b) **Double spider models:** Place the spider and shaft assembly in the brake shell with the ends of the shaft protruding. Install four elbows (Item 27) in the shaft outlets and connect the hoses (Item 26). Slide the brake heads (Item 2) over the two shaft projections with the locating shoulder toward the brake shell. Secure the brake heads to the brake shell with the cap screws (Item 38) and lock-washers (Item 39). Slide the eccentric lock collars over the bearing ring and turn in the direction opposite to the rotation until tightly engaged. Tighten the set screws in the lock collars. (Make sure the spiders are in the center of the brake shell.)
6. **Water cooled models:** Connect the water inlet to the bottom port of the brake shell and the water outlet to the top port. (See Figure 2 for piping diagrams.)

### OPERATION

The torque of the Nexen Tension Brake, at any RPM, can be increased by increasing the air pressure or decreased by decreasing the air pressure. At any set air pressure, torque is decreased by an increase in RPM and increased by a decrease in RPM due to the centripetal action of the counter weights (Item 5) in the spider assembly, for example, in an unwind application air pressure is set to obtain the proper web tension. As the roll unwinds, assuming a constant sheet speed, the RPM increases and the action of the counterweights reduces the torque output of the brake evenly. To minimize the amount of manual adjustment required, weight can be added to or removed from the counter weights to produce a uniform web tension. Control panels containing a screw type regulator and a gauge are available for accurate control of air pressure. The control panel is also equipped with a quick release valve to permit the operator to disengage the brake without interrupting the regulator setting. It is recommended that an air line filter be used in the air circuit ahead of, the other controls. (See Figure 2 for piping diagrams.)

## LUBRICATION

All Nexen Tension Control Brakes (except 20-2SW & 24-2SW) with standard bore sizes are equipped with permanently sealed bearings and require no lubrication. Brakes without sealed bearings are equipped with zerk fittings (Item 25) in the brake shell and have been Pre-lubricated with Lubriplate #630-2. Lubrication schedules may vary due to the temperature and speed at which each brake is run, however under normal circumstances it is recommended that brakes be lubricated every six months. Re-lubricate with Lubriplate #630-2 only. Never over lubricate as this could cause the bearings to overheat or grease to accumulate on the shoe track.

## MAINTENANCE

1. Periodically inspect all set screws and air line fittings to make sure they are tightened securely.
2. Inspect the friction facings (Item 7) occasionally and replace before the brass machine screws (Item 9) score the shoe track. Replacement facings are immediately available from the factory.

### TO REPLACE THE FRICTION FACINGS:

1. Remove the spider assembly from the shell. (On single spider models it is only necessary to loosen the eccentric lock collar and the spider set screws (Item 24) and slide the spider assembly away from the brake shell.)
2. Remove the cotter pin (Item 15) and the shoe pin (Item 10).
3. Remove the brass machine screws (Item 9) and replace the facings. After the facing is installed, lightly peen the end of the brass machine screws to prevent them from working loose and scoring the shoe track.

## BRAKE FAILURE

### LOSS OF BRAKING POWER MAY BE CAUSED BY:

1. A ruptured diaphragm (Item 8).
2. Leaks in the air lines.
3. Oil or grease on the shoe track.
4. Insufficient air pressure.

### GRABBING MAY BE CAUSED BY:

1. A badly scored or warped brake shell (Item 1).
2. Admitting air pressure to the brake too rapidly. This condition can be corrected by installing a flow control valve in the air line ahead of the rotary air union (Item 28).
3. Foreign material on the shoe track.

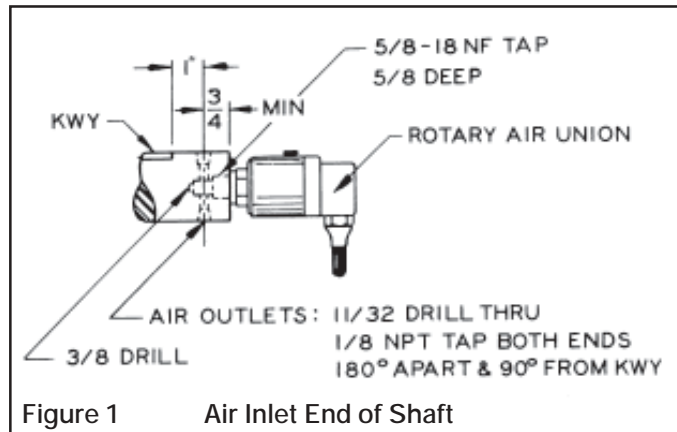


Figure 1 Air Inlet End of Shaft

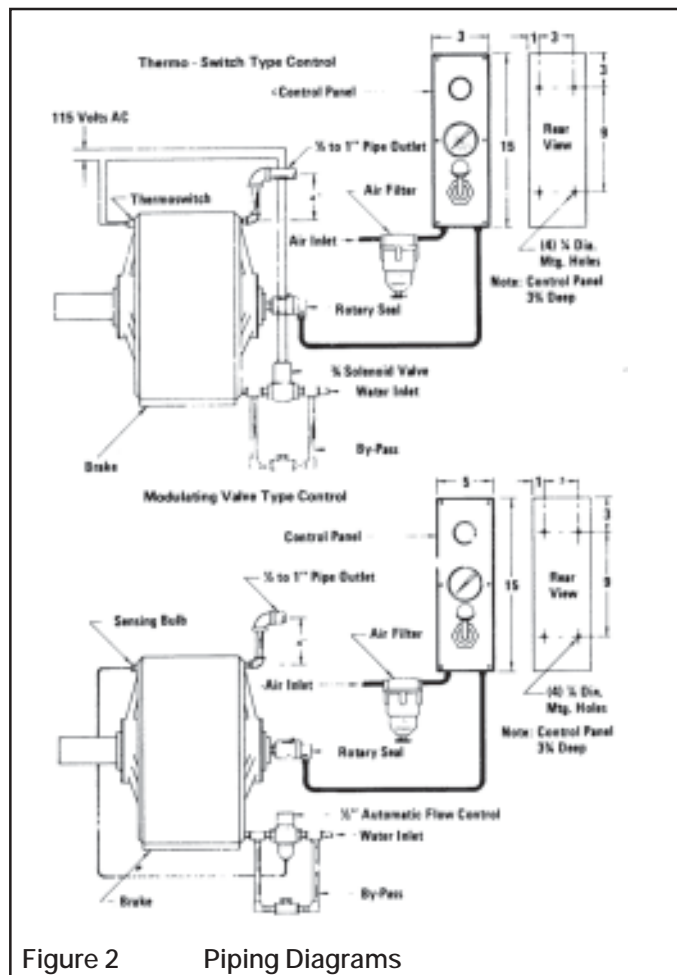
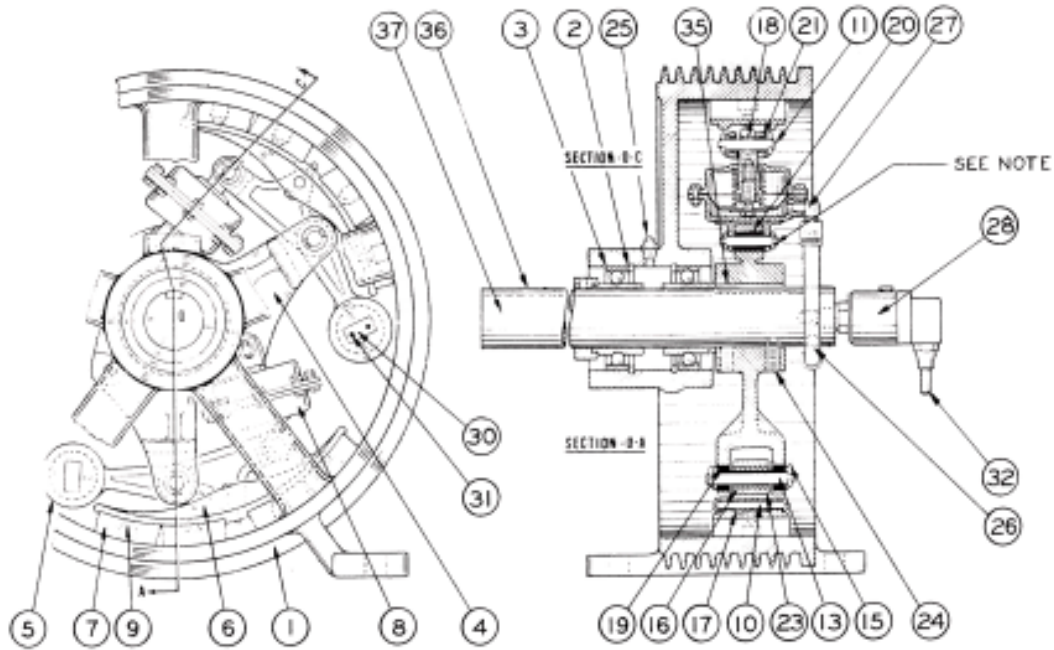


Figure 2 Piping Diagrams

## PARTS LIST - SINGLE SPIDER TENSION CONTROL BRAKE

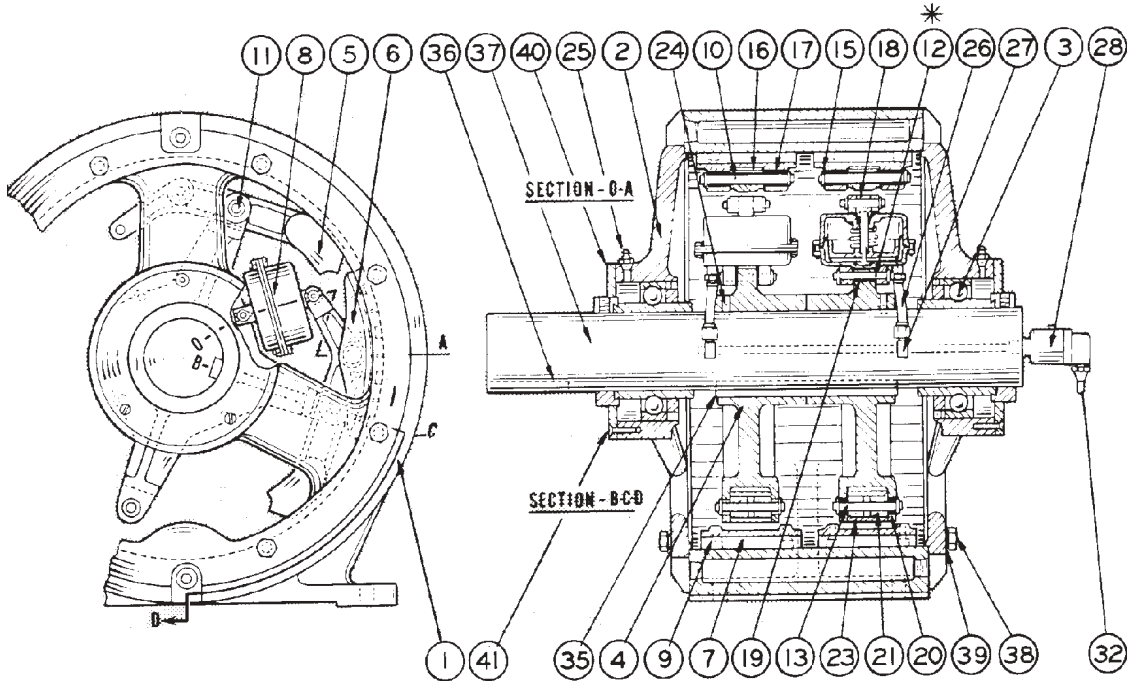


NOTE: SA & SW : use 14, 22 & 33  
 1SA & 1SW: use 12 & 15

NOTE: For replacement parts contact your local Nexen Distributor. When ordering replacement parts, give SERIAL NO. and MODEL NO. of unit.

ITEM	DESCRIPTION	QUANTITY					
		11-SA	12-SA & 12-SW	15-SA & 15-SW	15-1SA & 15-1SW	20-1SW	24-1SW
1	Shell	1	1	1	1	1	1
2	Retaining Ring	2	2	2	2	2	2
3	Bearing	2	2	2	2	2	2
4	Spider	1	1	1	1	1	1
5	Weight	2	2	3	3	4	5
6	Shoe	2	2	3	3	4	5
7	Friction Facing	4	4	12	6	16	20
8	Diaphragm Assembly	2	2	3	3	4	5
9	Machine Screw	4	4	12	12	32	40
10	Pin, Shoe	2	2	3	3	4	5
11	Pin, Diaphragm Link	2	2	3	3	4	5
12	Pin	--	--	--	3	4	5
13	Pin, Weight	2	2	3	3	4	5
14	Lock Washer	2	2	3	--	--	--
15	Cotter Pin	12	12	18	24	32	40
16	Bearing, Weight	2	4	6	6	8	10
17	Bearing, Shoe	--	2	--	6	8	10
18	Bearing, Rod End	2	2	3	--	--	--
19	Bearing, Spider	--	4	--	6	8	10
20	Bearing, Spider	--	4	--	3	4	5
21	Bearing, Weight	--	--	--	6	8	10
22	Hex Nut	2	2	3	--	--	--
23	Spacer	--	--	--	3	4	5
24	Set Screw	2	2	2	2	2	2
25	Zerk Fitting	1	1	1	1	1	1
26	Hose Assembly	2	2	3	3	2	2
27	Elbow	4	4	4	4	4	4
28	Rotary Air Union	1	1	1	1	1	1
29	Tee (not shown)	--	--	1	1	2	3
30	Plate	--	--	6	--	8	10
31	Screw, Drive	--	--	12	--	16	20
32	Hose Assembly	1	1	1	1	1	1
33	Cap Screw	2	2	3	--	--	--
34	Hose Assembly, Diaphragm	--	--	--	--	2	3
35	Key (Spider)	1	1	1	1	1	1
36	Key (Shaft)	1	1	1	1	1	1
37	Shaft	1	1	1	1	1	1

## PARTS LIST - DOUBLE SPIDER TENSION CONTROL BRAKE



NOTE: Model 11-25W uses 14, 22 & 33.

NOTE: For replacement parts, contact your local Nexen Distributor. When ordering replacement parts, give SERIAL NO. and MODEL NO. of unit.

ITEM	DESCRIPTION	QUANTITY			
		11-25W	15-25W	20-25W	24-25-W
1	Shell	1	1	1	1
2	Brake Head	2	2	2	2
3	Bearing	2	2	2	2
4	Spider	2	2	2	2
5	Weight	4	6	8	10
6	Shoe	4	6	8	10
7	Friction Facing	8	12	32	40
8	Diaphragm Assembly	4	6	8	10
9	Machine Screw	8	24	64	80
10	Pin, Shoe	4	6	8	10
11	Pin, Diaphragm Link	4	6	8	10
12	Pin	--	6	8	10
13	Pin, Weight	4	6	8	10
14	Lock Washer	4	--	--	--
15	Cotter Pin	24	48	64	80
16	Bearing, Weight	4	12	16	20
17	Bearing, Shoe	--	12	16	20
18	Bearing, Rod End	4	--	--	--
19	Bearing, Spider	--	12	16	20
20	Bearing, Spider	--	6	8	10
21	Bearing, Weight	--	12	16	20
22	Hex Nut	4	--	--	--

ITEM	DESCRIPTION	QUANTITY			
		11-25W	15-25W	20-25W	24-25W
23	Spacer	--	6	8	10
24	Set Screw	4	4	4	8
25	Zerk Fitting	2	2	2	2
26	Hose Assembly	4	6	4	4
27	Elbow	8	8	12	8
28	Rotary Air Union	1	1	1	1
29	Tee (not shown)	--	2	4	6
30	Plate	--	--	16	20
31	Screw, Drive	--	--	32	40
32	Hose Assembly	1	1	1	1
33	Cap Screw	4	--	--	--
34	Hose Assembly, Diaphragm	--	--	4	6
35	Key (Spider)	1	1	1	1
36	Key (Shaft)	1	1	1	1
37	Shaft	1	1	1	1
38	Cap Screw	16	8	16	12
39	Lock washer	--	8	16	12
40	Dust Cover	--	--	2	2
41	Machine Screw (cover)	--	--	10	10
42	Screen Guard (not shown)	--	6	6	6
43	Machine Screw (not shown)	--	18	18	18



## WARRANTY

### Warranties

Nexen warrants that the Products will be free from any defects in material or workmanship for a period of 12 months from the date of shipment. NEXEN MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, AND ALL IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. This warranty applies only if (a) the Product has been installed, used and maintained in accordance with any applicable Nexen installation or maintenance manual for the Product; (b) the alleged defect is not attributable to normal wear and tear; (c) the Product has not been altered, misused or used for purposes other than those for which it was intended; and (d) Buyer has given written notice of the alleged defect to Nexen, and delivered the allegedly defective Product to Nexen, within one year of the date of shipment.

### Exclusive Remedy

The exclusive remedy of the Buyer for any breach of the warranties set out above will be, at the sole discretion of Nexen, a repair or replacement with new, serviceably used or reconditioned Product, or issuance of credit in the amount of the purchase price paid to Nexen by the Buyer for the Products.

### Limitation of Nexen's Liability

TO THE EXTENT PERMITTED BY LAW NEXEN SHALL HAVE NO LIABILITY TO BUYER OR ANY OTHER PERSON FOR INCIDENTAL DAMAGES, SPECIAL DAMAGES, CONSEQUENTIAL DAMAGES OR OTHER DAMAGES OF ANY KIND OR NATURE WHATSOEVER, WHETHER ARISING OUT OF BREACH OF WARRANTY OR OTHER BREACH OF CONTRACT, NEGLIGENCE OR OTHER TORT, OR OTHERWISE, EVEN IF NEXEN SHALL HAVE BEEN ADVISED OF THE POSSIBILITY OR LIKELIHOOD OF SUCH POTENTIAL LOSS OR DAMAGE. For all of the purposes hereof, the term "consequential damages" shall include lost profits, penalties, delay images, liquidated damages or other damages and liabilities which Buyer shall be obligated to pay or which Buyer may incur based upon, related to or arising out of its contracts with its customers or other third parties. In no event shall Nexen be liable for any amount of damages in excess of amounts paid by Buyer for Products or services as to which a breach of contract has been determined to exist. The parties expressly agree that the price for the Products and the services was determined in consideration of the limitation on damages set forth herein and such limitation has been specifically bargained for and constitutes an agreed allocation of risk which shall survive the determination of any court of competent jurisdiction that any remedy herein fails of its essential purpose.

### Limitation of Damages

In no event shall Nexen be liable for any consequential, indirect, incidental, or special damages of any nature whatsoever, including without limitation, lost profits arising from the sale or use of the Products.

### Warranty Claim Procedures

To make a claim under this warranty, the claimant must give written notice of the alleged defect to whom the Product was purchased from and deliver the Product to same within one year of the date on which the alleged defect first became apparent.

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