nexen®

# AIR CHAMP® PRODUCTS

User Manual

## Models SSE-450, SSE-600, SSE-800, and SSE-1000

CE

RoHS compliant

FORM NO. L-20175-M-1017

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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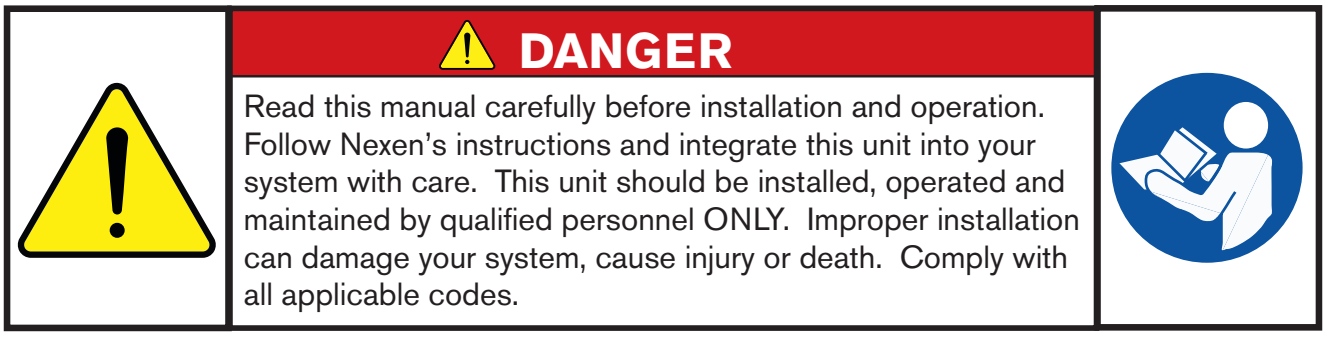


This document is the original, non-translated, version.

Conformity Declaration: In accordance with Appendix II B of CE Machinery Directive (2006/42/EC):

A Declaration of Incorporation of Partly Completed Machinery evaluation for the applicable EU directives was carried out for this product in accordance with the Machinery Directive. The declaration of incorporation is set out in writing in a separate document and can be requested if required.

This machinery is incomplete and must not be put into service until the machinery into which it is to be incorporated has been declared in conformity with the applicable provisions of the Directive.

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**ISO 9001 Certified**

# Table of Contents

## GENERAL SPECIFICATIONS

| Specifications: | |
|---|---|
| Torque | Up to 418 Nm (3700 in-lbs) |
| Actuation Pressure | 1 - 5.5 bar (14.5 - 90 psi) |
| Service Temperature | 4.5 - 104 C (40 - 220 F) |
| Approximate Weight | Up to 32 kg (70 lbs) |

## GENERAL SAFETY PRECAUTIONS

**⚠ CAUTION**

Some product assemblies can exceed 70 lbs. Use lifting aids and proper lifting techniques when installing, removing, or placing in service.

**⚠ CAUTION**

Use appropriate guarding for moving components. Failure to guard could result in serious bodily injury.

**⚠ CAUTION**

Watch for sharp features when interacting with this product. The parts have complex shapes and machined edges.

**⚠ WARNING**

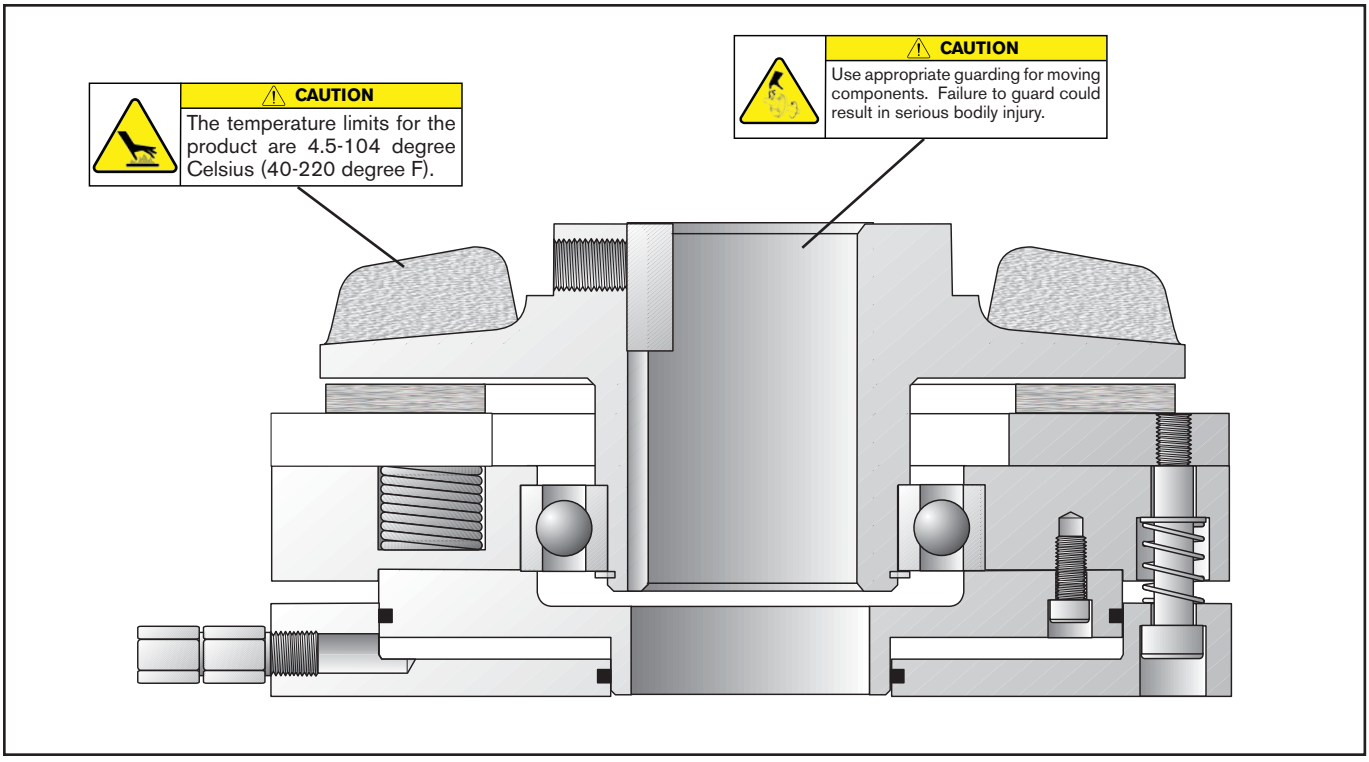
This product is capable of emitting a spark if misused therefore is not recommended for use in any explosive environment.

**⚠ WARNING**

Ensure proper guarding of the product is used. Nexen recommends the machine builder design guarding in compliance with OSHA 29 CFR 1910 “Occupational Safety and Health Hazards”.

**⚠ CAUTION**

This product has possible pinch points. Care should be taken when interacting with this product.



## INSTALLATION

1. Before mounting, ensure Cylinder (Item 10) has adequate clearance to move freely (See Figure 1 and Table 1).

2. Insert the Key (Item 18) into the shaft (See Figure 2).

   **NOTE: Keep torque pin as short as possible.**

3. Position SSE Brake on the shaft and torque pin (See Figure 2).

4. Tighten the Set Screw (Item 17) to secure the SSE Brake to the shaft (See Figure 2 and Table 2).

   **NOTE: Models SSE-450, SSE-600**

   **The key (item 18, Fig. 2) does not clear the piston I.D. Assemble onto the shaft from the finned-hub end of the brake.**

**FIGURE 1**

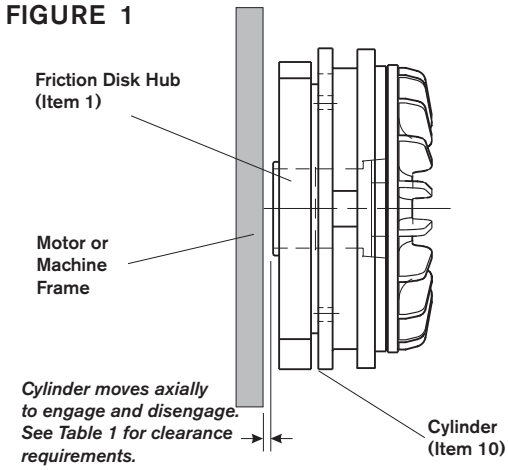



**TABLE 1**

| Model | Minimum Clearance for Cylinder (Friction Disc Hub to Machine Frame) |
|---|---|
| SSE-450 | 0.125 In. [3.175 mm] |
| SSE-600 | 0.125 In. [3.175 mm] |
| SSE-800 | 0.125 In. [3.175 mm] |
| SSE-1000 | 0.375 In. [9.525 mm] |

**FIGURE 2**

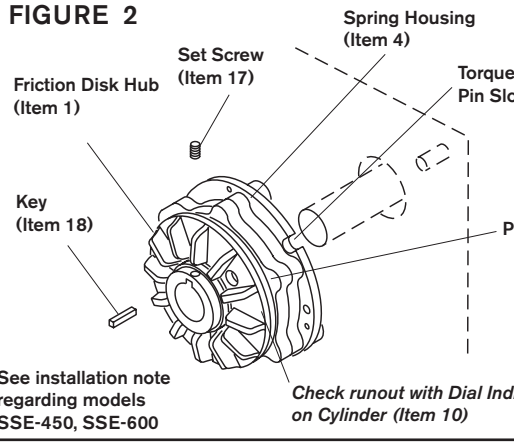



**TABLE 2**
**Recommended Tightening Torque (Item 17)**

| Model | Tightening Torques |
|---|---|
| SSE-450 | 38 In. Lbs. [5 Nm] |
| SSE-600 | 90 In. Lbs. [10 Nm] |
| SSE-800 | 90 In. Lbs. [10 Nm] |
| SSE-1000 | 327 In. Lbs. [37 Nm] |

## BRAKE GUARD INSTALLATION

**NOTE: Refer to Figure 3.**

1. Align the mounting holes of the Brake Guard with the four tapped holes in the SSE Mounting Flange.

2. Using the four 10-24 Phillips Head Pan Screws, secure the Brake Guard to the SSE. Tighten to 35 in-lbs [4 Nm].

3. If the Brake Guard is not through shaft mounting, place the End Cap over the front of the Brake Guard and bend the tabs around the Brake Guard to hold the End Cap in place.

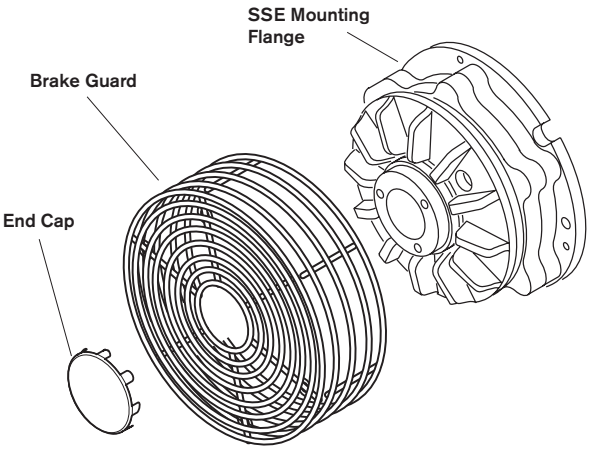



FIGURE 3

## LUBRICATION

**NOTE**

**Note: Nexen pneumatically actuated devices require clean, pressure regulated air for maximum performance and life. All seals in Nexen pneumatically operated devices are lubricated for life, and do not require additional lubrication.**

**However, some customers prefer to use an air line lubricator, which injects oil into the pressurized air, forcing an oil mist into the air chamber. This is acceptable, but care must be taken to ensure once an air mist lubrication system is used, it is continually used over the life of the product as the oil mist may wash free the factory installed lubrication.**

**Locate the lubricator above and within ten feet of the product, and use low viscosity oil such as SAE-10.**

**Synthetic lubricants are not recommended.**

**Nexen product's bearings are shielded and pre-lubricated, and require no further lubrication.**

### LUBRICATOR DRIP RATE SETTINGS

**⚠ CAUTION**

These settings are for Nexen supplied lubricators. If you are not using a Nexen lubricator, calibration must follow the manufacturer's suggested procedure.

1. Close and disconnect the air line from the unit.

2. Turn the Lubricator Adjustment Knob counterclockwise three complete turns.

3. Open the air line.

4. Close the air line to the unit when a drop of oil forms in the Lubricator Sight Gage.

5. Connect the air line to the unit.

6. Turn the Lubricator Adjustment Knob clockwise until closed.

7. Turn the Lubricator Adjustment Knob counterclockwise one-third turn.

8. Open the air line to the unit.

## AIR CONNECTIONS

**NOTE: Refer to Figure 4.**

**⚠ CAUTION**

**Never operate brake without the Restrictor installed.**

**NOTE: The Restrictor is provided to prevent Shoulder Bolt (Item 6) fatigue from impact during operation.**

1. Connect Flexible Hose (Item 19) to the Restrictor (Item 22) (See Figure 4).

**NOTE: The Auxiliary Cooling Option has been removed from all standard Nexen S, T and TSE series brakes. It is a passage for compressed air to be connected for increased thermal capacity. If you desire this feature or are replacing a brake that has this feature, please contact Nexen at 800-843-7445.**

All Nexen pneumatically actuated devices require clean and dry air, which meet or exceeds ISO 8573.1:2001 Class 4.4.3 quality.

**NOTE**

**For quick response, Nexen recommends a quick exhaust valve and short air lines between the Control Valves and the product. Align the air inlet ports to a down position to allow condensation to drain out of the air chambers of the product.**

**⚠ CAUTION**

Low air pressure will cause slippage and overheating. Excessive air pressure will cause abrupt starts and stops, reducing product life.

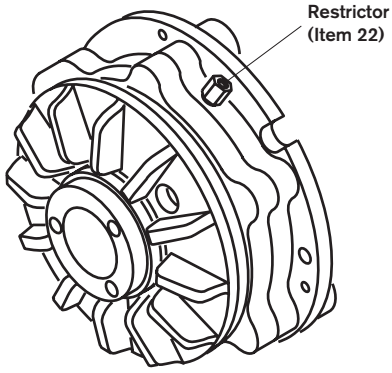
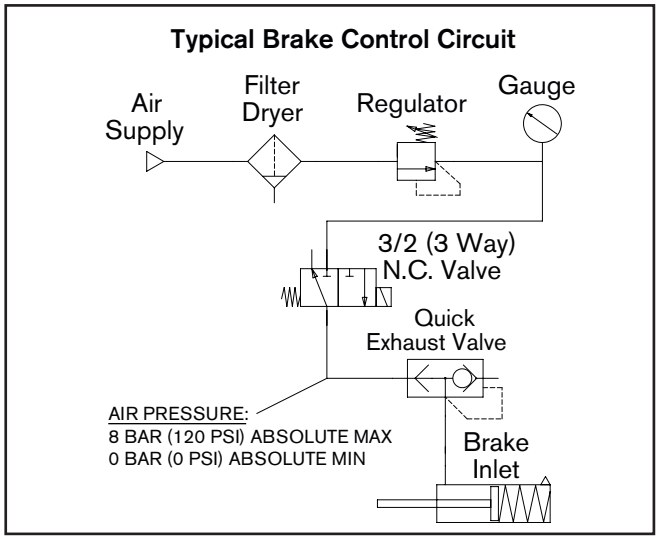



**FIGURE 4**

The following is a common air supply scheme used with this product. This is an example and not an all-inclusive list. All air circuits to be used with this product must be designed following ISO 4414 guidelines.



## OPERATION

**⚠ WARNING**

Never exceed maximum operating speeds listed for your product. (See Table 3).

**TABLE 3**

| Sizes: | Max RPM |
|---|---|
| SSE 450-1000 | *1800 |

*Consult Nexen for high speed applications.

**⚠ CAUTION**

Never exceed life of facing material. Facing life depends on the volume of material and the total energy over the life of the unit. Expected life (in hrs) can be found by: Time=Volume/(Power*Wear Rate).

**⚠ CAUTION**

The temperature limits for this product line are 4.5-104 Degree Celsius (40-220 Degree F).

The SSE Brake will remain engaged until sufficient air pressure is applied to release it. Depending upon the length of the air lines and the type of controls used, the amount of release air may vary.

**⚠ WARNING**

Ensure proper guarding of the product is used. Nexen recommends the machine builder design guarding in compliance with OSHA 29 CFR 1910 “Occupational Safety and Health Hazards”.

**⚠ CAUTION**

Do not use more air pressure than required to release the brake (100 psi maximum).

Apply increasing amounts of air pressure to the brake until the Friction Disc Hub turns freely.

## MANUAL DISENGAGEMENT

1. To manually release the SSE Brake, remove the three Shoulder or Socket Head Cap Screws (Item 6) and replace them with customer supplied cap screws (See Table 4).
2. Tighten the cap screws alternately and evenly to draw the Plate (Item 3) and Friction Facing (Item 5) away from the Friction Disc Hub (Item 1).

**TABLE 4**

| Model | Cap Screw Size |
|---|---|
| SSE-450 | 10-24 x 1-1/2 |
| SSE-600 | 5/16-18 x 1-3/4 |
| SSE-800 | 3/8-16 x 2 |
| SSE-1000 | 3/8-16 x 2-1/4 |

## MAINTENANCE

Periodically inspect all mounting bolts and air line fittings to make sure they are securely tightened. Pay particular attention to Shoulder Screws or Socket Head Cap Screws (Item 6). If these screws are loose, the Cylinder (Item 10) travel will increase, causing the O-Ring Seals to leak air. Tighten the Shoulder Screws or Socket Head Cap Screws (Item 6) to the recommended torque (See Table 5).

Inspect Friction Facings (Item 5) for signs of wear and replace if worn down to where the Machine Screws (Item 14) may score the Friction Disc Hub.

**TABLE 5**

| Model | Tightening Torques |
|---|---|
| SSE-450 | 48 In. Lbs. [5.0 Nm] |
| SSE-600 | 230.0 In. Lbs. [26 Nm] |
| SSE-800 | 450.0 In. Lbs. [50.8 Nm] |
| SSE-1000 | 388.0 In. Lbs. [43.8 Nm] |

## TROUBLESHOOTING

| Symptom | Probable Cause | Solution |
|---|---|---|
| Failure to engage. | Air not being exhausted due to a control valve malfunction. | Replace the control valve. |
| | Broken Compression Springs. | Replace the Compression Springs. |
| | Internal contamination or corrosion. | Align the exhaust port to the six o'clock down position to allow condensation to drain out of the exhaust port. |
| Failure to disengage. | Low or lack of air pressure. | Check for control valve malfunction and replace it if necessary. |
| | | Check for air leaks in the air lines and around the O-rings Seals. Replace the air lines or O-ring Seals if necessary. |
| | Internal contamination or corrosion. | Align the exhaust port to the six o'clock down position to allow condensation to drain out of the exhaust port. |
| Loss of torque. | Worn or dirty Friction Facings. | Replace the Friction Facings. |

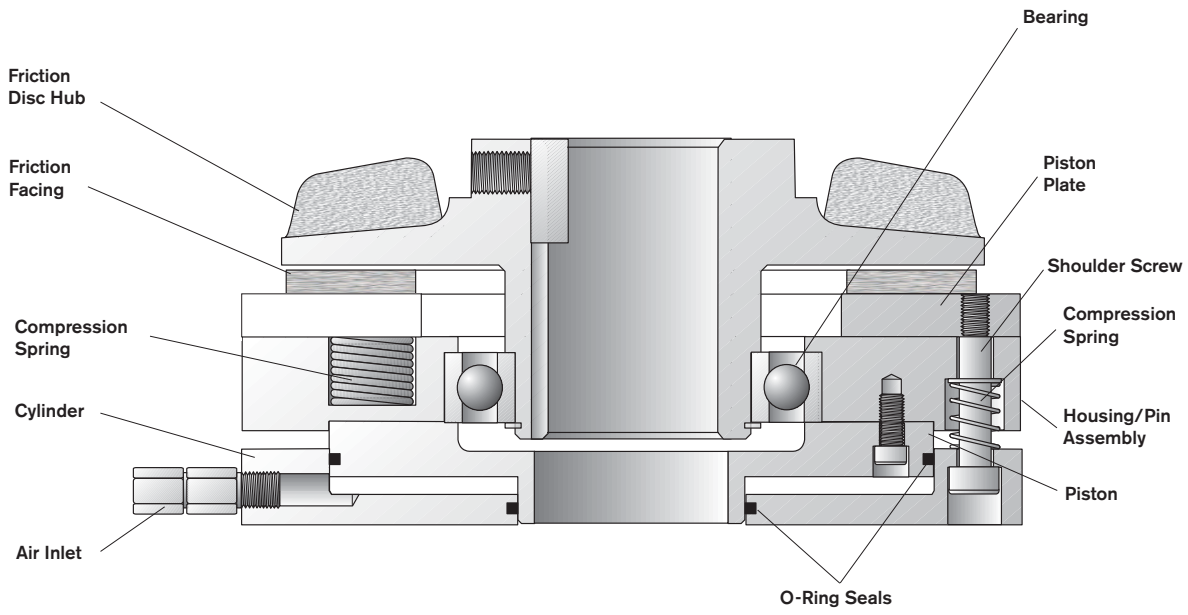



**FIGURE 5**

## FRICTION FACINGS

**NOTE: Refer to Figure 6.**

1. Align the holes in the Friction Disc Hub (Item 1) with the Machine Screws (Item 14) holding the split Friction Facing (Item 5).
2. Remove the old Machine Screws (Item 14).
3. Remove the old split Friction Facings (Item 5).
4. Install the new split Friction Facings (Item 5).
5. Secure the new split Friction Facings (Item 5) using the new Machine Screws (with locking patch) (Item 14).
6. Tighten the new Machine Screws to the recommended torque (See Table 6).

**FIGURE 6**

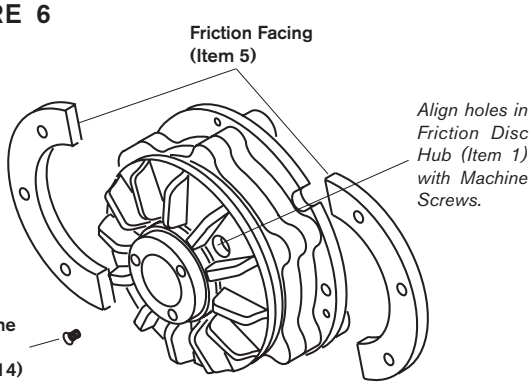



**TABLE 6**
**Recommended Tightening Torque (Item 14)**

| Model | Tightening Torques |
|---|---|
| SSE-450 | 22 In. Lbs. [2.5 Nm] |
| SSE-600 | 22 In. Lbs. [2.5 Nm] |
| SSE-800 | 60 In. Lbs. [6.7 Nm] |
| SSE-1000 | 60 In. Lbs. [6.7 Nm] |

## BEARING, COMPRESSION SPRINGS, AND 0-RING SEALS

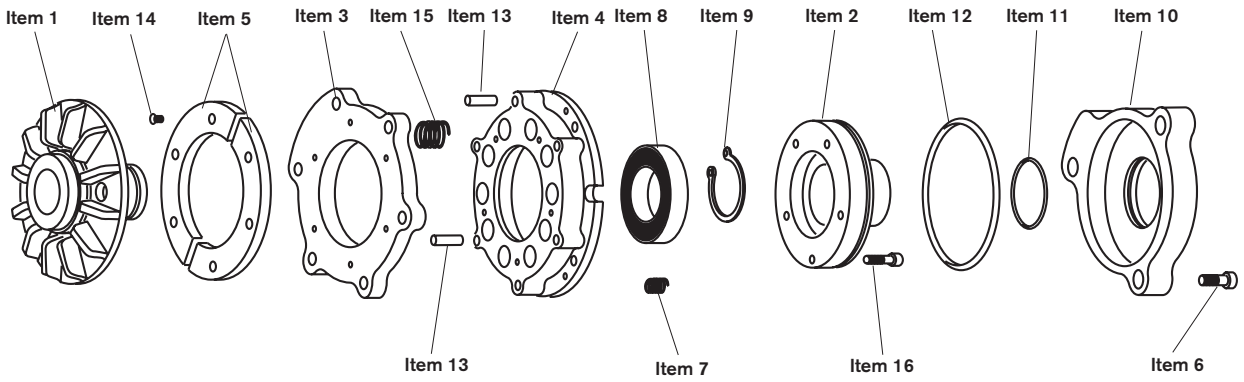



**FIGURE 7**

**NOTE: Refer to Figure 7.**

**⚠ CAUTION**

Shoulder and Socket Head Cap Screws are spring loaded. Always wear safety goggles when working with spring or tension loaded fasteners or devices.

1. Alternately and evenly remove the Shoulder or Socket Head Cap Screws (Item 6).
2. Remove the Cylinder (Item 10).
3. Remove the Compression Springs (Item 7).
4. Remove the O-ring Seals (Items 11 and 12).

**⚠ CAUTION**

Spring Housing and Piston Plate are spring loaded. Spring Housing and Piston Plate can spring apart, resulting in personal injury if Spring Housing and Piston Plate are not clamped together.

5. Remove the Socket Head Cap Screws (Item 16).

6. Remove the Piston (Item 2).

7. Using C-Clamps, compress the Spring Housing (Item 4) against Piston Plate (Item 3).

**⚠ CAUTION**

Special attention should be exercised when working with Retaining Rings. Always wear safety goggles when working with spring or tension loaded fasteners or devices.

8. Remove the Retaining Ring (Item 9).

9. Press the Friction Disc Hub (Item 1) out of the Bearing (Item 8).

10. Slowly unclamp the Spring Housing (Item 4) and Piston Plate (Item 3).

11. Using a bearing puller, remove the Bearing (Item 8) from the Spring Housing (Item 4).

12. Clean the bearing bore of the Spring Housing (Item 4), the Piston Plate (Item 3), and the Compression Springs (Item 15) with fresh safety solvent to remove all old Loctite® residue.

13. Apply an adequate amount of Loctite® 680 to evenly coat O.D. of new Bearing (Item 8) and press new Bearing into Spring Housing (Item 4).

14. Equally space the Compression Springs (Item 15) in the spring pockets of the Spring Housing (Item 4).

15. Slide the Piston Plate (Item 3) onto the Dowel Pins (Item 13) of the Spring Housing (Item 4).

16. Using C-clamps, compress the Piston Plate (Item 3) against the Compression Springs (Item 15) and Spring Housing (Item 4).

17. Press the Friction Disc Hub (Item 1) into the new Bearing (Item 8).

18. Reinstall the Retaining Ring (Item 9).

19. Remove the C-clamps securing the Spring Housing against the Piston Plate.

20. Press the Piston (Item 2) into the Spring Housing (Item 4).

21. Apply Loctite® 242 to entire length and under the heads of the Socket Head Cap Screw (Item 16). Alternately and evenly tighten the Socket Head Cap Screws to the recommended torque (See Table 7).

**NOTE: Loctite® must seal all air gaps between the Socket Head Cap Screws (Item 16) and the clearance holes.**

22. Reinstall the Compression Springs (Item 7).

23. Clean the O-ring grooves of the Piston (Item 2) and Cylinder (Item 10); then, lubricate the new O-rings and O-Ring contact surfaces with a thin film of fresh O-Ring lubricant.

**NOTE: Avoid pinching of O-Ring Seals when assembling Piston and Cylinder.**

24. Install the new O-Ring Seals (Items 11 and 12).

25. Slide the Cylinder (Item 10) onto the Piston (Item 2).

26. SSE-450 and SSE-600: Apply Loctite® 242 to the threads of the Socket Head Cap Screws or Shoulder Screws (Item 6); then, alternately and evenly tighten them to the recommended torque (See Table 7).

    SSE-800: Alternately and evenly tighten the Socket Head Cap Screws (Item 6) to the recommended torque (See Table 6). Do not use lubricants or thread locking compounds on the Socket Head Cap Screws (Item 6).

**⚠ CAUTION**

The SSE-1000 uses Nexen Shoulder Screws only. The Shoulder Screws are specifically designed for high stress and prevailing torque capabilities.

SSE-1000: Lubricate the tapped holes in the Piston Plate (Item 3) with a light machine oil before installing the Shoulder Screws (Item 6); then, alternately and evenly tighten them to the recommended torque (See Table 7).

**TABLE 7**
**Recommended Tightening Torque (Items 6 and 16)**

| Model | Item 6 | Item 16 |
|---|---|---|
| SSE-450 | 45.0 In. Lbs. [5.0 Nm] | 60.0 In. Lbs. [6.7 Nm] |
| SSE-600 | 230.0 In. Lbs. [26.0 Nm] | 60.0 In. Lbs. [6.7 Nm] |
| SSE-800 | 300.0 In. Lbs. [34.0 Nm] | 90.0 In. Lbs. [10.7 Nm] |
| SSE-1000 | 388.0 In. Lbs. [43.8 Nm] | 90.0 In. Lbs. [10.7 Nm] |

## REPLACEMENT PARTS LIST

The item or balloon number for all Nexen products is used for part identification on all product parts lists, product price lists, unit assembly drawings, bills of materials, and instruction manuals.

When ordering replacement parts, specify model designation, item number, part description, and quantity. Purchase replacement parts through your local Nexen Distributor.

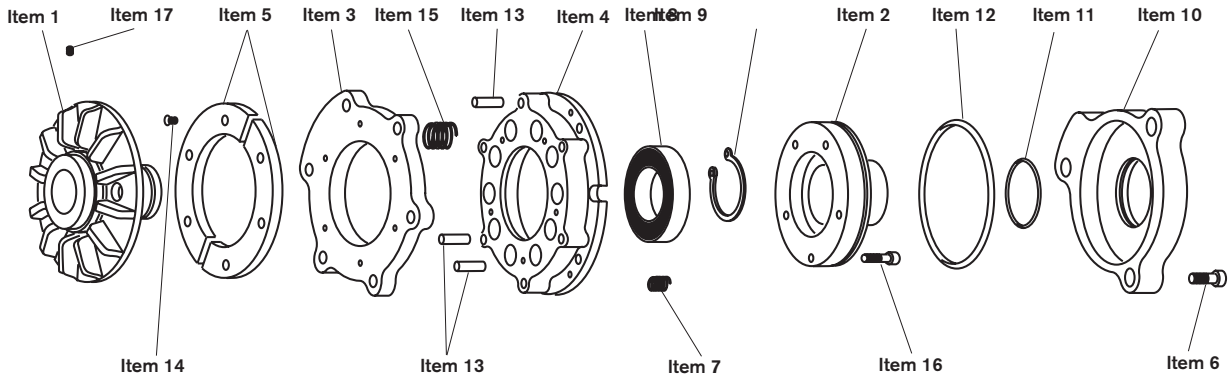



FIGURE 8

| ITEM | DESCRIPTION | QTY |
|---|---|---|
| 1 | Friction Disc Hub | 1 |
| 2 | Piston | 1 |
| 3 | Piston Plate | 1 |
| 4[5] | Spring Housing | 1 |
| 5[1] | Friction Facing | 1 |
| 6[1,2] | Shoulder or Socket Head Cap Screw | 3 |
| 7 | Compression Spring | 3 |
| 8[1] | Bearing | 1 |
| 9 | Retaining Ring | 1 |
| 10 | Cylinder | 1 |
| 11[1] | O-Ring Seal (Small) | 1 |
| 12[1] | O-Ring Seal (Large) | 1 |
| 13[5] | Dowel Pin | 3 |
| 14[1] | Machine Screw | 6 |
| 15[3] | Compression Spring | – |
| 16[4] | Cap Screw | -- |
| 17 | Set Screw | 3 |
| 18 | Key (Not Shown) | 1 |
| 19 | Hose Assembly (Not Shown) | 1 |
| 22 | Restrictor Valve Housing (Not Shown) | 1 |
| 23 | Restrictor Valve (Not Shown) | 1 |
| 24 | Air Inlet Adaptor (Not Shown) | 1 |

[1] Denotes repair kit items.

[2] **CAUTION: Model SSE-1000 uses Nexen Shoulder Screws only.**

[3] See Table 8 for product number and quantity.

[4] SSE-450 and SSE-600: Qty 5. SSE-800 and SSE-1000: Qty 3.

[5] Order Air Chamber Assembly in place of the Spring Housing (Item 4) and Dowel Pin (Item 13) (See Table 9).

**TABLE 8**

| Model | Product No. | Qty. |
|---|---|---|
| SSE-450 | 818830 | 6 |
| | 818831 | 10 |
| | 818832 | 6 |
| | 818833 | 6 |
| | 818865 | 8 |
| | 818866 | 8 |
| SSE-600 | 820330 | 6 |
| | 820332 | 6 |
| | 820365 | 8 |
| | 820366 | 10 |
| | 820331 | 6 |
| | 820311 | 8 |
| SSE-800 | 822430 | 6 |
| | 822465 | 8 |
| | 822466 | 10 |
| | 822467 | 8 |
| | 822482 | 10 |
| | 822483 | 8 |
| SSE-1000 | 822530 | 6 |
| | 822531 | 6 |
| | 822565 | 8 |
| | 822566 | 10 |
| | 822567 | 10 |
| | 822581 | 8 |

**Facing Kit:** One split Friction Facing and six Machine Screws

**Repair Kit:** Facing Kit plus one Bearing, three Shoulder Screws (Socket Head Cap Screws for SSE-800), three Retaining Rings, and two O-Ring Seals.

Specify the model and kit product number when ordering facing and repair kits (See Table 11).

**TABLE 9**

| Model | Spring Housing Assembly w. Pin |
|---|---|
| SSE-450 | Prod. No. 12228 |
| SSE-600 | Prod. No. 12229 |
| SSE-800 | Prod. No. 12230 |
| SSE-1000 | Prod. No. 12231 |

## ACCESSORIES

**TABLE 10**
**Brake Guards**

| Model | Product No. |
|---|---|
| SSE-450 | 817700 |
| SSE-600 | 818300 |
| SSE-800 | 826300 |
| SSE-1000 | 828200 |

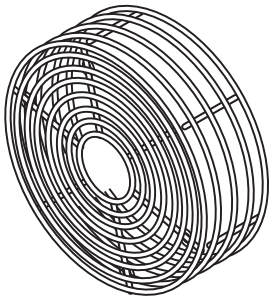


**FIGURE 9**
**Brake Guard**

## FACING AND REPAIR KITS

**TABLE 11**

| Model | Facing Kit | Repair Kit w/out Facing Kit | Repair & Facing kit |
|---|---|---|---|
| SSE-450 | 818974 | 818870 | 818700 |
| SSE-600 | 820574 | 820370 | 820200 |
| SSE-800-1 | 827474 | 822470 | 827610 |
| SSE-1000 | 827574 | 822570 | 827700 |
| | | *822571 | *827703 |

* Use this repair kit for SSE-1000's with serial numbers higher than 1273138.

## WARRANTY

**Warranties**
Nexen warrants that the Products will (a) be free from any defects in material or workmanship for a period of 12 months from the date of shipment, and (b) will meet and perform in accordance with the specifications in any engineering drawing specifically for the Product that is in Nexen's current product catalogue, or that is accessible at the Nexen website, or that is attached to this Quotation and that specifically refers to this Quotation by its number, subject in all cases to any limitations and exclusions set out in the drawing. 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 for the Buyer for any breach of any warranties provided in connection with this agreement will be, at the election of Nexen: (a) repair or replacement with new, serviceably used, or reconditioned parts or products; or (b) issuance of credit in the amount of the purchase price paid to Nexen by the Buyer for the Products.

**Agent's Authority**
Buyer agrees that no agent, employee or representative of Nexen has authority to bind Nexen to any affirmation, representation, or warranty concerning the Products other than those warranties expressly set forth herein.

**Limitation on 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 damages, 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.

**Inspection**
Buyer shall inspect all shipments of Products upon arrival and shall notify Nexen in writing, of any shortages or other failures to conform to these terms and conditions which are reasonably discoverable upon arrival without opening any carton or box in which the Products are contained. Such notice shall be sent within 14 days following arrival. All notifications shall be accompanied by packing slips, inspection reports and other documents necessary to support Buyer's claims. In addition to the foregoing obligations, in the event that Buyer receives Products that Buyer did not order, Buyer shall return the erroneously shipped Products to Nexen within thirty (30) days of the date of the invoice for such Products; Nexen will pay reasonable freight charges for the timely return of the erroneously shipped Products, and issue a credit to Buyer for the returned Products at the price Buyer paid for them, including any shipping expenses that Nexen charged Buyer. All shortages, overages and nonconformities not reported to Nexen as required by this section will be deemed waived.

**Limitation on Actions**
No action, regardless of form, arising out of any transaction to which these terms and conditions are applicable may be brought by the Buyer more than one year after the cause of action has accrued.

nexen

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