

AIR CHAMP® PRODUCTS

User Manual



Straight Bore Brake

Models S-450, S-600, S800, S-1000,
S-1200, S-1400, S-450A, S-600A,
S-800A, and S-1000A

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.

Technical Support: 800-843-7445
(651) 484-5900

www.nexengroup.com



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

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INSTALLATION

NOTE: Refer to Figure 1.

1. Insert the Key (Item 16) into the shaft keyway.
2. Slide the brake over the Key and on the shaft.
3. Install and tighten the three Set Screws (Item 17).
4. Align the brake's air inlet to the six o'clock down position.
5. Using the four holes in the Air Chamber flange or a torque pin in the slot provided, secure the brake's Air Chamber (Item 4) to prevent brake rotation.

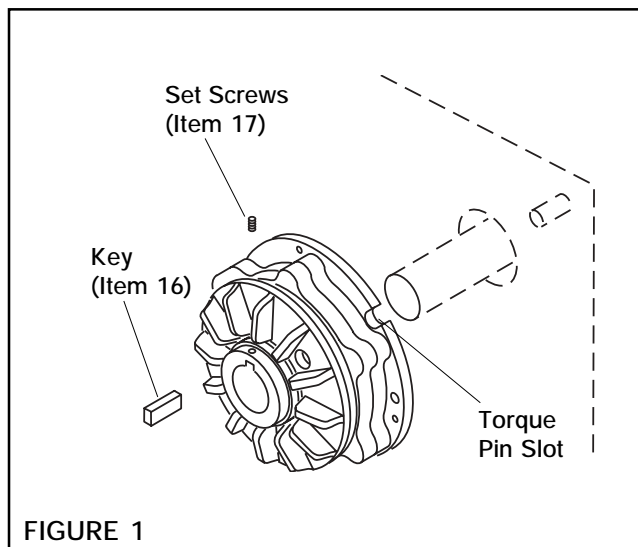


FIGURE 1

AUXILIARY COOLING AIR CONNECTIONS

NOTE: The auxiliary cooling option is not a standard feature. It is a passage through which compressed air can flow 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.

NOTE: Do not use rigid pipe or tubing when making air line connections.

A 10-32 tapped hole in the piston plate allows auxiliary cooling of the brake's friction surface (see Figure 2). Auxiliary cooling increases the brake's thermal capacity approximately 0.1 HP_t per 100 SCFH of cooling air over the brake's rated thermal horsepower at any RPM (see Table 1).

EXAMPLE: A T-1000 develops 1.0 HP_t at 200 RPM. Referring to Table 2, 80 psi of cooling air increases the HP_t 0.4 (400 SCFH/100 x 0.1). **RESULT:** Total HP_t is 1.0+0.4=1.4 HP_t.

NOTE: Use non-lubricated air tapped off the air line ahead of the lubricator.

Hose assembly part number is 857000.

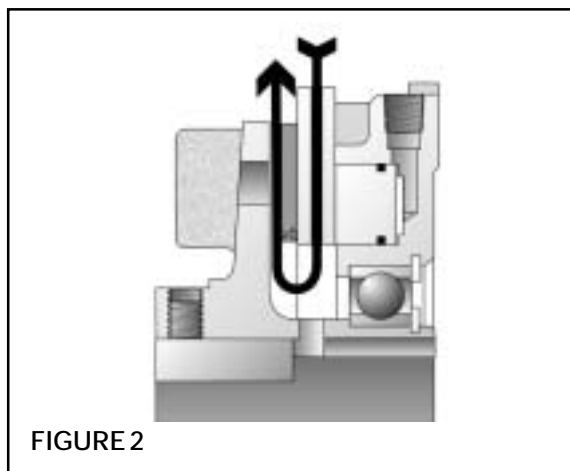


FIGURE 2

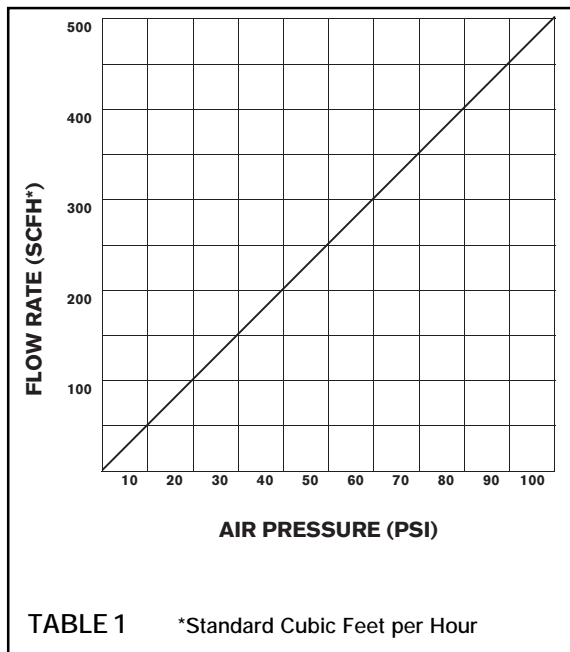
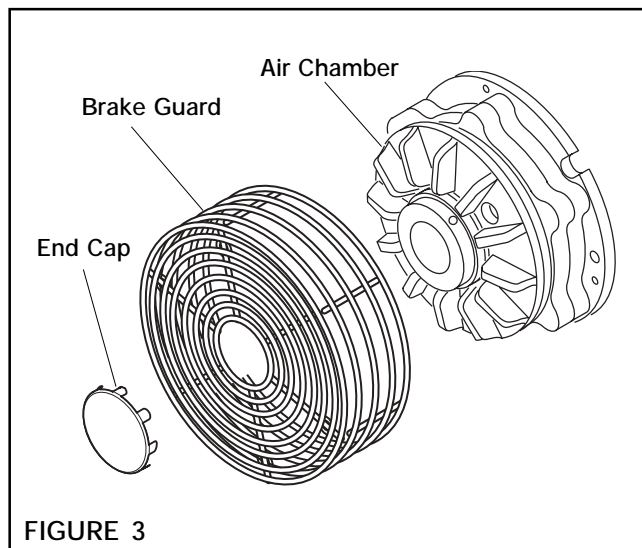


TABLE 1 *Standard Cubic Feet per Hour

OPTIONAL BRAKE GUARD INSTALLATION

NOTE: Refer to Figure 3.

1. Align the mounting holes of the Brake Guard with the four tapped holes in the S-brake Air Chamber.
2. If the Brake Guard is shipped with an End Cap, 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.
3. Using the four 10-24 X 3/8 Phillips Head Pan Screws and Internal Tooth Lock Washers, secure the Brake Guard to the Brake.
4. If additional clearance is required (S-1200/1400), secure standoffs to air chamber before installing fastening screws.



LUBRICATION

NOTE: Pneumatically actuated devices require clean, pressure regulated, and lubricated air for maximum performance and long life. The most effective and economical way to lubricate Nexen Brakes is with an Air Line Lubricator, which injects oil into the pressurized air, forcing an oil mist into the air chamber.

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

Synthetic lubricants are not recommended.

LUBRICATOR DRIP RATE SETTINGS

NOTE: These settings are for Nexen supplied lubricators. If you are not using a Nexen lubricator, calibration must replicate the following procedure.

1. Close and disconnect the air line from the unit.
2. Turn the Lubricator Adjustment Knob clockwise 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 counterclockwise until closed.
7. Turn the Lubricator Adjustment Knob clockwise 1/3 turn.
8. Open the air line to the unit.

TROUBLESHOOTING

SYMPTOM	PROBABLE CAUSE	SOLUTION
Failure to engage	Air not being exhausted due to a control valve malfunction	Replace the control valve.
	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	Broken Compression Springs	Replace the Compression Springs.
	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.

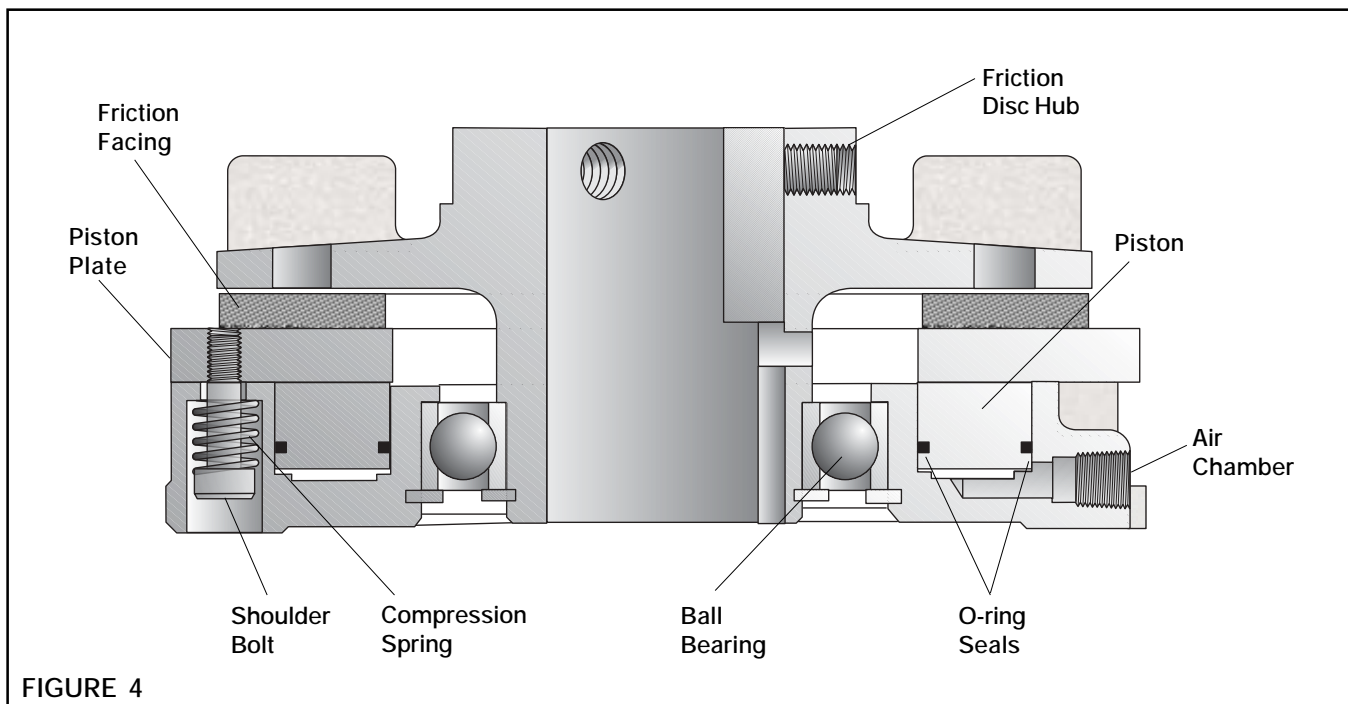


FIGURE 4

PARTS REPLACEMENT

FRICION FACINGS

NOTE: Refer to Figure 5.

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 2).

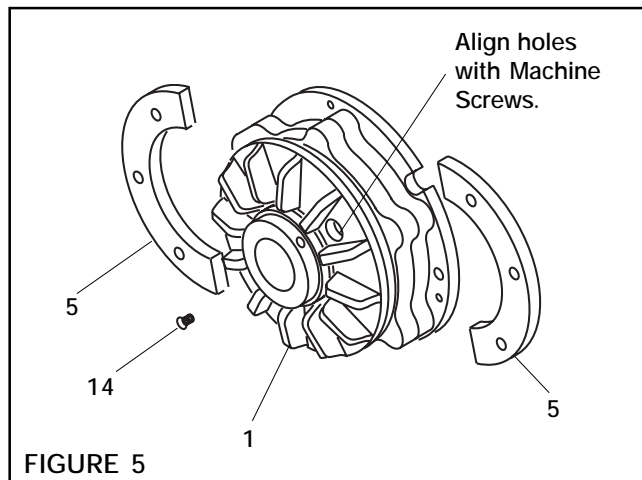


TABLE 2

Model	Tightening Torques
S-450	19 in-lb [2.1 Nm]
S-450A	
S-600	
S-600A	5 ft-lb [6.8 Nm]
S-800	
S-800A	
S-1000	
S-1000A	6 ft-lb [8.1 Nm]
S-1200	
S-1400	

BEARING AND O-RING SEALS

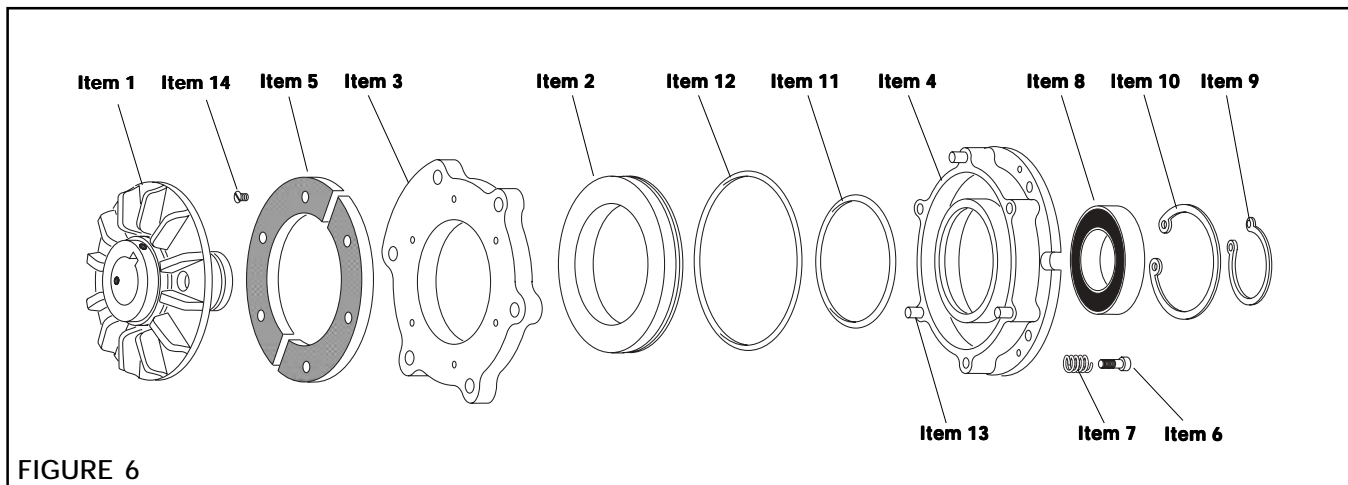

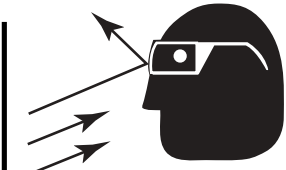


FIGURE 6


WARNING

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



The Shoulder Bolts (Item 6) are spring loaded. Always wear safety goggles when working with spring or tension loaded fasteners or devices.

NOTE: Refer to Figure 6.

1. Remove the Retaining Ring (Item 9).
 2. Press the Friction Disc Hub (Item 1) out of the Ball Bearing (Item 8).
 3. Remove the Retaining Ring (Item 10).
 4. Press the old Ball Bearing (Item 8) out of the Air Chamber (Item 4).
 5. Alternately and evenly remove the three old Shoulder Bolts (Item 6) and Compression Springs (Item 7) (See Warning above).
 6. Separate the Piston Plate (Item 3) and split Friction Facing (Item 5) from the Air Chamber (Item 4).
 7. Remove Piston (Item 2) from Air Chamber (Item 4).
 8. Remove the old O-ring Seals (Items 11 and 12) from the Piston (Item 2).
 9. Clean the bearing bore of the Air Chamber (Item 4) with solvent to remove all old Loctite® residue.
 10. Apply an adequate amount of Loctite® 680 to evenly coat the O.D. of the new Ball Bearing (Item 8) and press the new Ball Bearing into the Air Chamber (Item 4).
 11. Reinstall the Retaining Ring (Item 10).
 12. Clean the o-ring grooves of the Piston (Item 2) and o-ring contact surfaces of the Air Chamber (Item 4); then, lubricate the new O-ring Seals (Item 11 and 12) and the o-ring grooves and contact surfaces of the Piston and Air Chamber with a thin film of fresh o-ring lubricant.
 13. Install the new O-ring Seals (Items 11 and 12) onto the Piston (Item 2).
- NOTE: Avoid pinching the O-ring Seals when assembling the Piston and Air Chamber.**
14. Slide the Piston (Item 2) into the Air Chamber (Item 4).
 15. Align the pins on the Air Chamber (Item 4) with the holes in the Piston Plate (Item 3) and slide the Piston Plate and split Friction Facing (Item 5) onto the Air Chamber.
 16. Clamp the Piston Plate (Item 3) and Air Chamber (Item 4) together with C-clamps.
 17. Apply Loctite® 242 to the threads of the three new Shoulder Bolts (Item 6) and install the new Shoulder Bolts and new Compression Springs (Item 7).

18. Alternately and evenly tighten the three new Shoulder Bolts (Item 6) to the recommended torque (See Table 3).
19. Remove the C-clamps.
20. Supporting the inner race of the Ball Bearing (Item 8), press the Friction Disc Hub (Item 1) into the Ball Bearing.
21. Reinstall the Retaining Ring (Item 9).

TABLE 3

MODEL	BOLT SIZE	TIGHTENING TORQUES
S-450	0.190-24	46.0 in-lb. [5.2 Nm]
S-450A		
S-600	0.312-18	245.0 in-lb. [27.7 Nm]
S-600A		
S-800		
S-800A		
S-1000		
S-1000A	0.375-16	580.0 in-lb [65.5 Nm]
S-1200		
S-1400		

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.

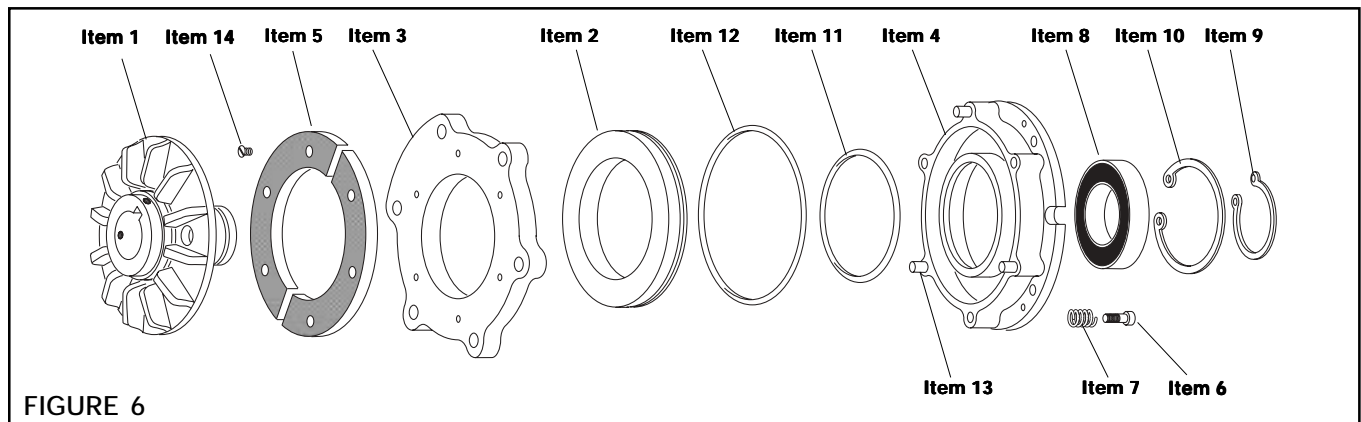


FIGURE 6

ITEM	DESCRIPTION	QTY
1	Friction Disc Hub	1
2	Piston	1
3	Piston Plate	1
4 ³	Air Chamber	1
5 ²	Friction Facing (split)	1
6 ¹	Shoulder Bolt	3
7 ¹	Compression Spring	3
8 ¹	Ball Bearing	1

ITEM	DESCRIPTION	QTY
9	Retaining Ring	1
10	Retaining Ring	1
11 ¹	O-ring Seal	1
12 ¹	O-ring Seal	1
13 ³	Dowel Pin	3
14 ²	Machine Screw	6 ⁵
16	Key	1
17	Set Screw	3

¹ Denotes Repair Kit items.
² Denotes Facing Kit items.
³ Order Air Chamber Assembly in place of the Air Chamber (Item 4) and Dowel Pin (Item 13) (See Table 4).
⁴ There are 6 Friction Facing pieces in the size 1200 models.
⁵ There are 8 machine screws in the size 1400 and 12 machine screws in the size 1200 models.

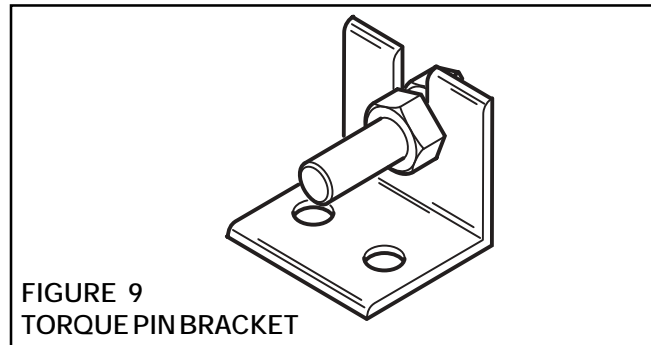
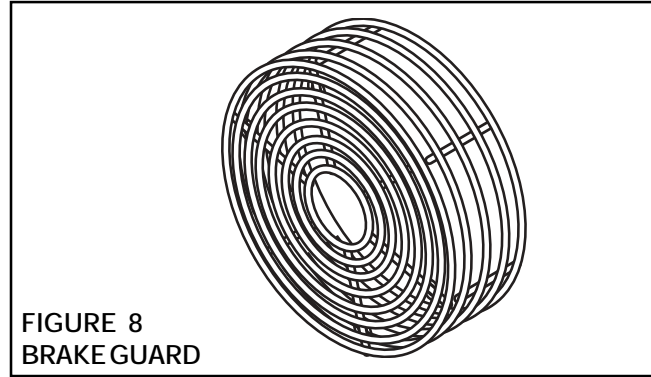
TABLE 4

Model	Air Chamber Assembly
S-450	Product Number 12232
S-450-A	
S-600	Product Number 12233
S-600A	
S-800	Product Number 12234
S-800A	
S-1000	Product Number 12235
S-1000A	

ACCESSORIES

**TABLE 5
PRODUCT NUMBERS**

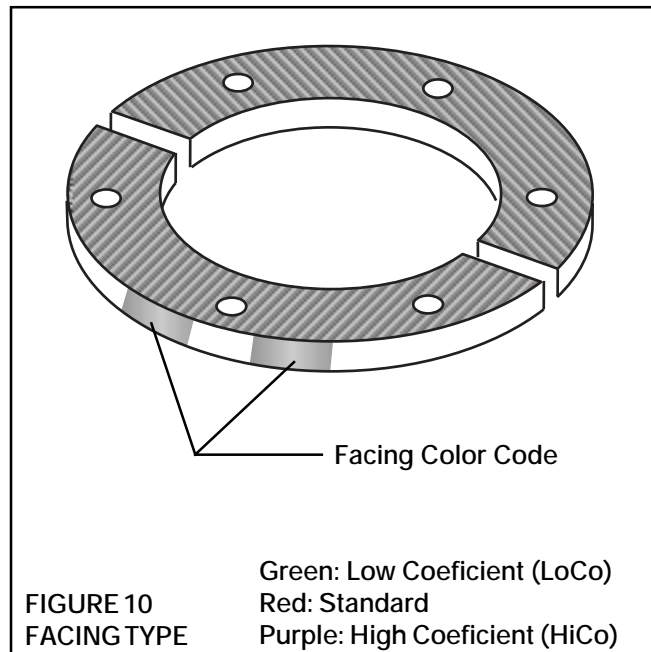
Model	Torque Pin Bracket	Brake Guard
S-450	819900	817700
S-450A		
S-600	821400	818300
S-600A		
S-800	823400	826300
S-800A		
S-1000	825500	828200
S-1000A		
S-1200	822515	822516
S-1400	822525	822526



FACING AND REPAIR KITS

**TABLE 6
PRODUCT NUMBERS**

Model	LoCo Facing Kit	Standard Facing Kit	HiCo Facing Kit	Repair Kit	Seal Kit
S-450	818972	818971	818974	818900	--
S-600	820572	820571	820574	820500	--
S-800	827472	827471	827474	827400	--
S-1000	827572	827571	827574	827500	--
S-1200	822528	822511	822711	822512	822712
S-1400	822529	822521	822722	822522	822721
S-450A	818972	818971	818974	818903	--
S-600A	820572	820571	820574	820503	--
S-800A	827472	827471	827474	827402	--
S-1000A	827572	827571	827547	827502	--



NOTE: Before ordering new friction facings, determine if your brake uses low coefficient (LoCo), standard or high coefficient (HiCo) friction facings (Consult the color code chart in Figure 10) Do not change friction facing type without consulting Nexen.

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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FORM NO. L-20087-L-0305