

nexen[®]

AIR CHAMP[®] PRODUCTS

User Manual



Shaft End Mount Element

Models SEM-450A, SEM-600A, SEM-700A
and SEM-800A

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



WARNING

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.

Nexen Group, Inc.
560 Oak Grove Parkway
Vadnais Heights, Minnesota 55127

TABLE OF CONTENTS

Introduction ----- 1

Installation ----- 1

Operation ----- 2

Maintenance and Repair ----- 3

Parts List ----- 4

Warranties ----- 5

INTRODUCTION

Read this manual carefully, making full use of its explanations and instructions. The "Know How" of safe, continuous, trouble-free operation depends on the degree of your understanding of the system and your willingness to keep all components in proper operating condition. Pay particular attention to all NOTES, CAUTIONS, and WARNINGS to avoid the risk of personal injury or property damage. It is important to understand that these NOTES, CAUTIONS, and WARNINGS are not exhaustive. Nexen cannot possibly know or evaluate all conceivable methods in which service may be performed, or the possible hazardous consequences of each method. Accordingly, anyone who uses a procedure that is not recommended by Nexen must first satisfy themselves that neither their safety or the safety of the product will be jeopardized by the service method selected.

Nexen's SEM (Shaft End Mount) Element is designed to mount and operate on shafts ends and motors up to 40 horsepower. When combined with a sheave, the SEM Element functions as a clutch. With the brake adapter fastened to a supporting frame, the SEM Element functions as a brake.

Maintenance is simplified because the single facing and O-ring are replaceable without removing the SEM Element from its mounting.

INSTALLATION

SEM ELEMENT

The SEM Element functions either as a clutch or as a brake. Depending on the mode of operation selected, a sheave or an adapter is attached to the SEM Elements pilot with the cap screws (Item 23) supplied. A metric allen wrench is required.

1. Insert a full length key (supplied by the customer) into the shaft keyway and slide the SEM Element/ sheave or adapter combination onto the shaft.

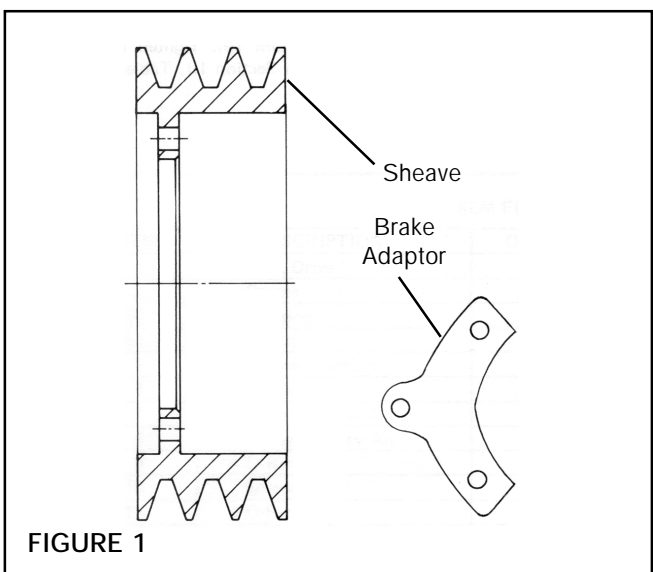
NOTE: Shaft insertion must be at least two times the shaft diameter.

2. Tighten the three set screws (Item 17) (See Table 1 for recommended tightening torques).
3. Secure the brake adapter to a support capable of sustaining the torque loads produced during braking (See Figure 1).

TABLE 1
Recommended Tightening Torques

	SEM-450A	SEM-600A	SEM-700A	SEM-800A
Set Screw (Item 17)	7 ft.lbs.	13 ft.lbs.	* 23 ft.lbs.	* 50 ft.lbs.
Cap Screw (Item 19)	11 ft.lbs.	11 ft.lbs.	23 ft.lbs.	41 ft.lbs.
Cap Screw (Item 23)	11 ft.lbs.	23 ft.lbs.	23 ft.lbs.	23 ft.lbs.

NOTE: Metric allen wrenches are required for all cap screws (Nm = ft.lbs. x 1.3558)



AIR CONNECTION

1. Push the flexible tube assembly (Item #25) into the fitting on the rotary air union (Item #8) until it stops.
2. Connect the 1/8 NPT male fitting end of the tube assembly to the air supply line. Make sure there is a slight curve in the tube assembly.
3. To disconnect the tube assembly push in on the fitting collet and pull out on the tubing.

Note: DO NOT USE RIGID PIPE OR TUBING FOR THIS CONNECTION.

OPERATION

Before operating, make sure all screws are tightened securely. See Table 1 for recommended tightening torques.

Connect the air controls as close to the unit as possible for fast engagement and disengagement. Use a quick exhaust valve where long air lines or high cyclic rates are required.

Pneumatically actuated devices need clean, pressure regulated air for maximum performance and long life. It is recommended that a filter, regulator and lubricator be used on the air line ahead of the air controls.

Check all connections for leaks.

Operating in the Clutch Mode

The drive disc and outer assembly (sheave, housing, piston, cylinder) rotate independently. When mounted on a motor shaft, the drive disc rotates continually. The unit is actuated when air pressure is introduced at the rotary air union. Air pressure pushes the cylinder/facing assembly against the drive disc, engaging the outer assembly. When air exhausts from the cylinder, the return springs push the cylinder/facing assembly to disengaged position.

Operating in the Brake Mode

When mounted on a continually running shaft, the drive disc rotates until the unit is actuated. The adapter holds the outer assembly stationary. Actuating the unit brings the shaft to a stop.

Maximum Recommended Operating Speed

See Table 2 for maximum recommended operating speeds for each SEM model.

TABLE 2

MODEL	DRIVE DISC	OUTER ASSEMBLY
SEM-450A	6000 RPM	3600 RPM
SEM-600A	4500 RPM	3600 RPM
SEM-700A	3900 RPM	3000 RPM
SEM-800A	3400 RPM	2000 RPM

CAUTION

The outer assembly of the SEM Element rotates when operating in the clutch mode. Install a guard, that will not restrict the flow of cooling air around the unit, if it is used where injury to an operator could occur.



MAINTENANCE AND REPAIR

Periodically inspect all air line connections, making sure they are tightened securely. Inspect all cap screws, making sure they are tightened to the torques recommended in **OPERATION**.

NOTE: Metric allen wrenches are required for all screws in the SEM Element.

FRICITION FACING

1. Inspect the friction facing (Item 5) occasionally and replace it when it wears to approximately 1/8 inch thick. The facing is easily replaced without removing the SEM Element from the shaft.
2. Disconnect the air supply at the rotary air union (Item 8).
3. Remove cap screws (Item 19) and slide the piston, cylinder, rotary air union assembly off of the dowel pins (Item 13).
4. Remove machine screws (Item 20) and replace the worn friction facing. Apply Loctite Threadlocker 271 to the brass machine screws before reinstalling.

O-RING OR ROTARY AIR UNION

If there are noticeable air leaks or loss of torque, determine if the O-rings, hoses, controls or rotary air union are leaking and replace the appropriate item.

O-ring (Item 11) Replacement

1. Remove cap screws (Item 19) and slide the piston, cylinder, rotary air union assembly off the dowel pins.
2. Separate the piston and cylinder.
3. Remove the worn O-ring, lubricate the new O-ring with O-ring lubricant, and install.
4. Make sure the cylinder bore is clean, and reassemble the piston and cylinder.

Rotary Air Union Replacement

1. Disconnect the tube assembly (Item 25) by pushing in on the rotary air union fitting collet and pulling out on the tube.
2. Remove the screws (Item 10), retaining washer (Item 7), rotary air union (Item 8) and O-ring (Item 9).
3. Lubricate a new O-ring, place it over the new rotary air union and push the rotary air union into the piston (Item 51).
4. Replace the retaining washer and screws.

BEARINGS

1. Disconnect the air supply at the rotary air union (Item 8).
2. Remove set screws (item 17) and slide the SEM Element off the shaft.
3. Remove retaining ring (Item 16).
4. Press the drive disc (Item 1) out of bearings (Items 14 and 15).
5. Remove retaining ring (Item 22).
6. Push the bearings out of the housing (Item 50).
7. Apply Loctite, RC 601, to the outer race of a new bearing (Item 14) and push it into the housing.
8. Replace retaining ring (Item 22).
9. Support the bearings inner race and press the drive disc into the bearing. Support the drive disc and install spacer (Item 2).
10. Apply Loctite, RC 601 to the outer race of a new bearing (Item 15) and press onto the drive disc and into the housing.
11. Replace retaining ring (Item 16).

NOTE: When installing new bearings in the housing, carefully align each bearing with the housing bore to prevent slivers of aluminum under the bearings.

REASSEMBLY

1. Install springs (Item 12) on the dowel pins (Item 13).
2. Align the bolt holes in the piston, cylinder, rotary air union assembly with the tapped holes in the housing and replace cap screws (Item 19).
3. Tighten the cap screws as recommended in **OPERATION**.

PARTS LIST

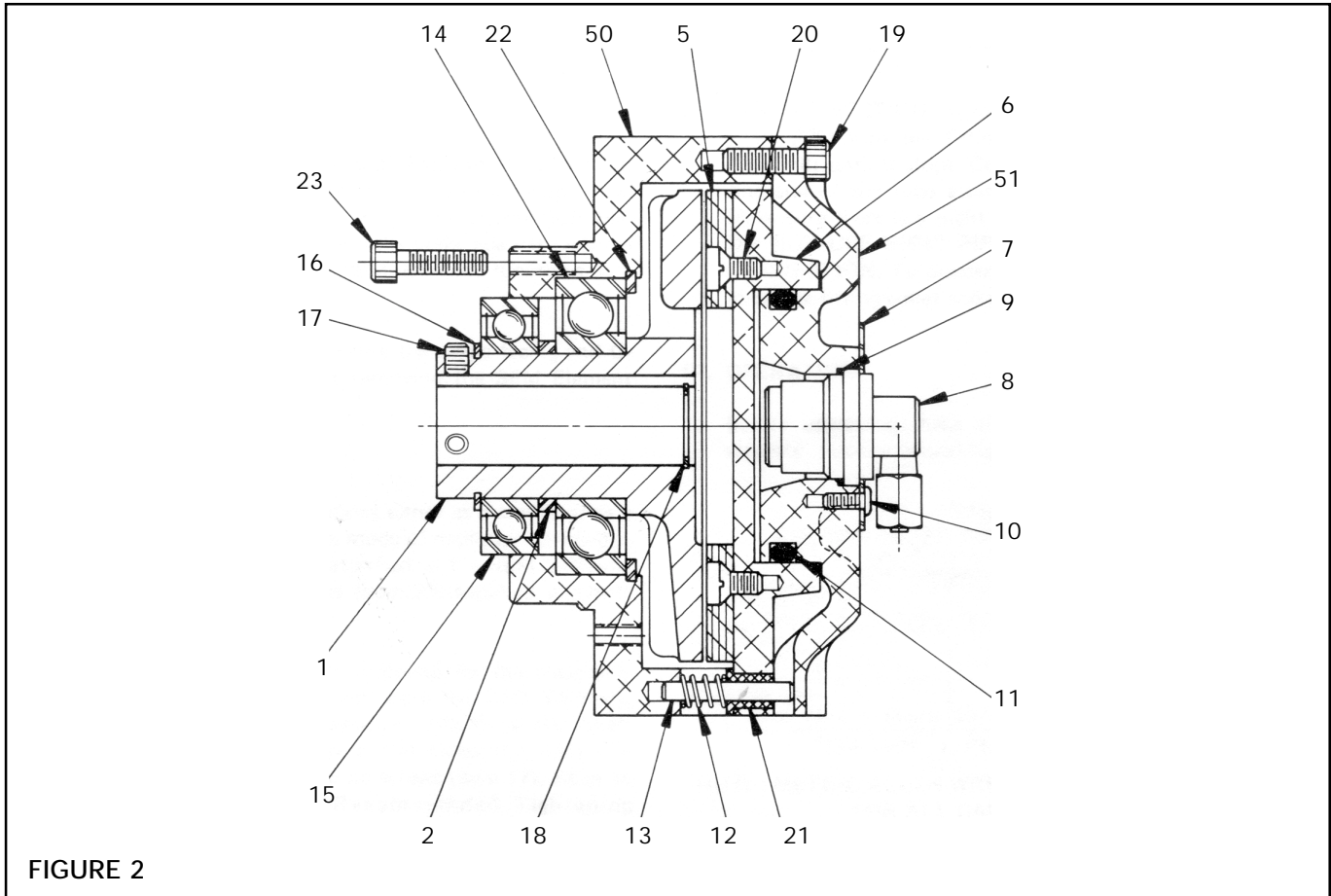


FIGURE 2

ITEM	DESCRIPTION	QTY.
1	Drive Disc	1
2	Spacer	1
5 ¹	Friction Facing	1
6	Cylinder	1
7	Washer, Retaining	1
8 ¹	Rotary Air Union	1
9	O-ring	1
10	Screw	3
11 ¹	O-ring	1
12 ¹	Spring	3
13	Dowel Pin	1
14 ¹	Bearing	1

ITEM	DESCRIPTION	QTY.
15 ¹	Bearing	1
16	Ring, Retaining	1
17	Screw, Set	3
18	Ring, Retaining	1
19	Screw, Cap	6
20 ¹	Screw, Machine	6
21 ¹	Bushing, Flanged	3
22	Ring, Retaining	1
23 ²	Screw, Cap	6
25	Tube Assembly	1
50	Housing	1
51	Piston	1

¹ Denotes Repair Kit Item
² SEM-450A, QTY. 4



WARRANTIES

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.

nexen

Nexen Group, Inc.
560 Oak Grove Parkway
Vadnais Heights, MN 55127

800.843.7445
Fax: 651.286.1099
www.nexengroup.com

ISO 9001 Certified