




FMCBE Model 70-14
Metric Face Mounted Enclosed
Clutch Brake With/Without Integral
Valve



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

	<div data-bbox="625 558 922 611"> DANGER</div> <p>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, cause injury or death. Comply with all applicable codes.</p>	
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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

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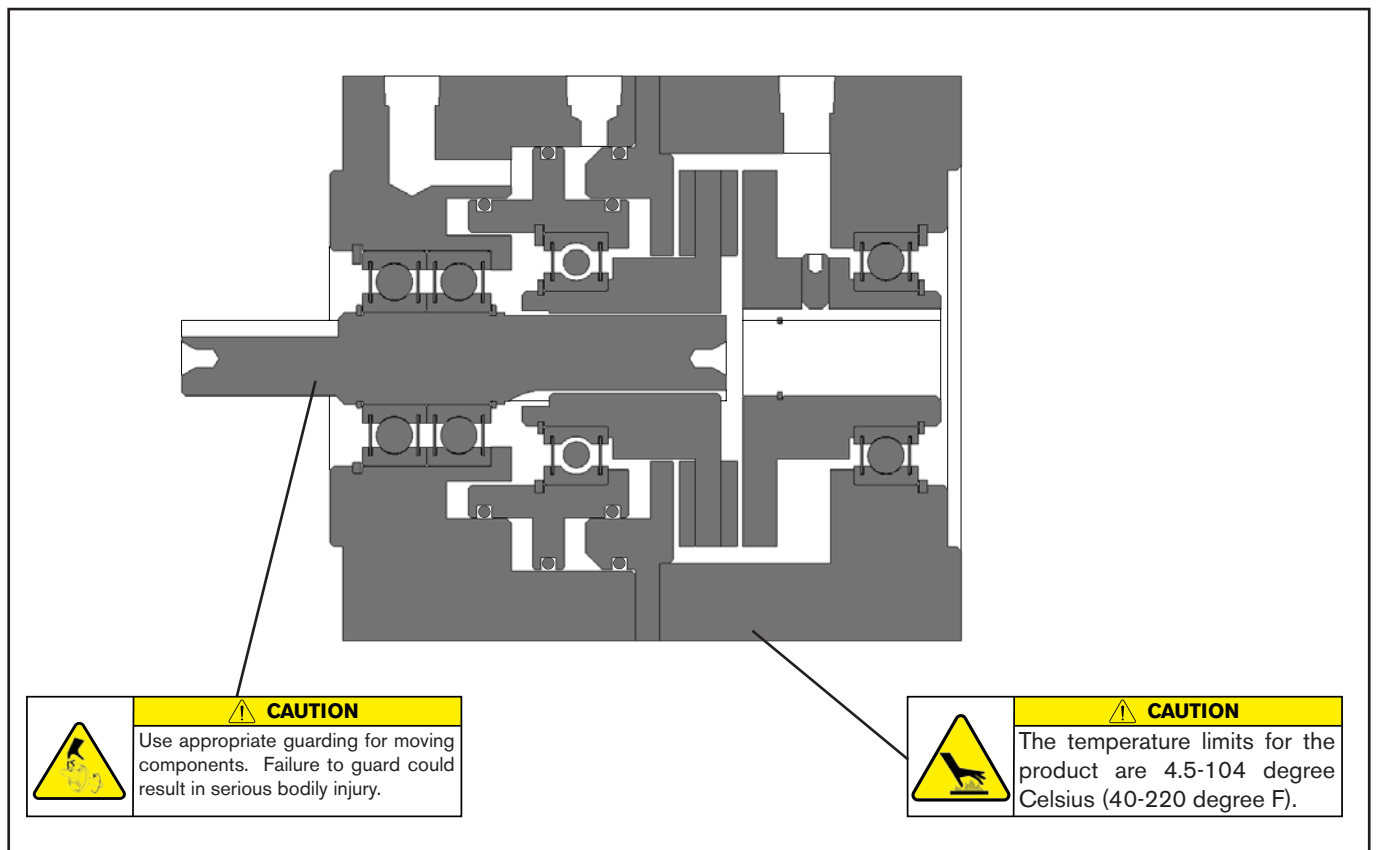
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GENERAL SPECIFICATIONS

Specifications	
Max Static Torque	Clutch: 10 Nm (7.4 ft-lbs) Brake: 10 Nm (7.4 ft-lbs)
Actuation Pressure	.1 - 5.5 bar (1 - 80 psi)
Service Temperature	4.5 - 104 C (40 - 220 F)
Approximate Weight	Up to 6.5 kg (14.5 lbs)

GENERAL SAFETY PRECAUTIONS

	<p>CAUTION</p> <p>Use lifting aids and proper lifting techniques when installing, removing, or placing this product in service.</p>		<p>CAUTION</p> <p>Use appropriate guarding for moving components. Failure to guard could result in serious bodily injury.</p>
	<p>CAUTION</p> <p>Watch for sharp features when interacting with this product. The parts have complex shapes and machined edges.</p>		<p>CAUTION</p> <p>The temperature limits for the product are 4.5-104 degree Celsius (40-220 degree F).</p>
	<p>WARNING</p> <p>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".</p>		<p>WARNING</p> <p>This product is capable of emitting a spark if misused, therefore it is not recommended for use in any explosive environment.</p>



INSTALLATION

MOUNTED ON THE SHAFT END OF A MOTOR

Refer to Figure 1.

1. Remove the Socket Head Cap Screws (Item 13) and the Housing (Item 1).
2. Insert the Customer Supplied Key into the motor shaft keyway.
3. Slide the Housing (Item 1) onto the motor shaft, then secure it to the motor with the Socket Head Cap Screws (Item 29).
4. Align the Set Screw (Item 26) in the Drive Disc (not shown) with the hole in the Housing (Item 1).
5. Tighten the Set Screw (Item 26) and install the Plug (Item 27). Align the FMCBE Model 70-14 air inlet ports to the 6 o'clock down position to allow condensation to drain out of the ports.

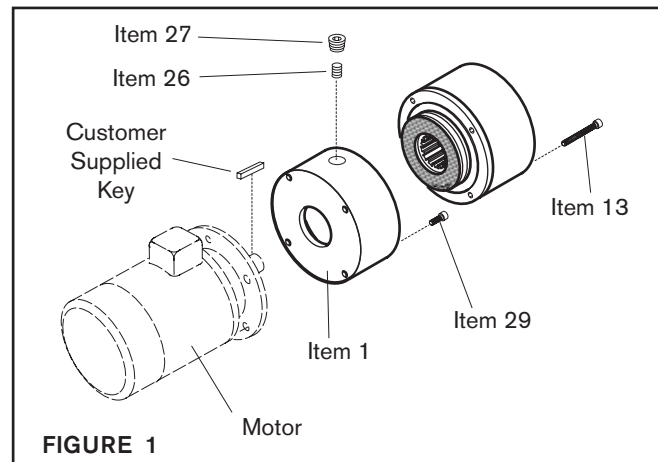


FIGURE 1

6. Apply a drop of Loctite® 242 to the threads of the four Socket Head Cap Screws (Item 13) and secure the two halves of the FMCBE Model 70-14 (Metric Face Mounted Enclosed Clutch Brake) together.
7. Tighten the four Socket Head Cap Screws (Item 13) to 6.1-7.5 Nm (54-66 in/lbs).

MOUNTED BETWEEN A GEAR REDUCER AND A MOTOR

Refer to Figure 2.

1. Remove the Socket Head Cap Screws (Item 13) and the Housing (Item 1).
2. Insert the Customer Supplied Key into the motor shaft keyway.
3. Slide the Housing (Item 1) onto the motor shaft, then secure it to the motor with the Socket Head Cap Screws (Item 29).
4. Align the hole in the Housing (Item 1) with the Set Screw (Item 26) in the Drive Disc.
5. Tighten the Set Screw (Item 26) and install the Plug (Item 27). See "NOTICE".
6. Apply a drop of Loctite® 242 to the threads of the four Socket Head Cap Screws (Item 13) and secure the two halves of the FMCBE Model 70-14 together.
7. Tighten the four Socket Head Cap Screws (Item 13) to 6.1-7.5 Nm (54-66 in/lbs).

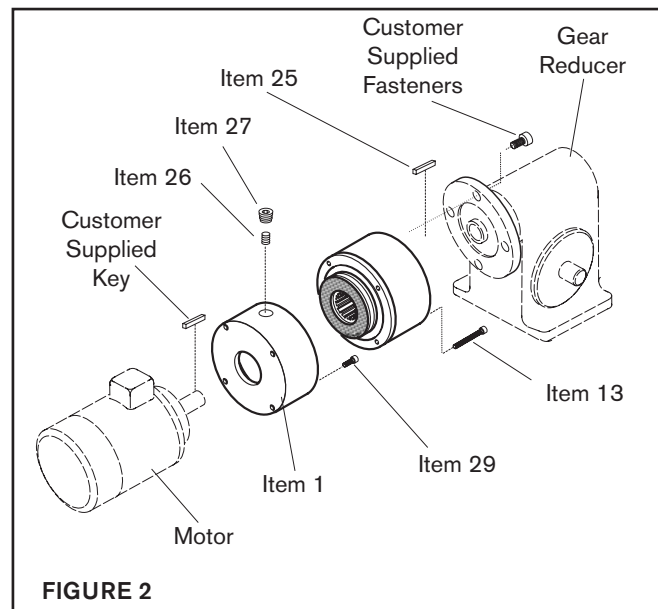


FIGURE 2

8. Insert the Key (Item 25) into the Stub Shaft (not shown).
9. Slide the Stub Shaft into the Gear Reducer.
10. Secure the FMCBE Model 70-14 to the Gear Reducer with the customer supplied fasteners.

LUBRICATION

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

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

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.

The following are common air supply schemes used with this product. These are examples and not an all-inclusive list. All air circuits to be used with this product must be designed following EN983 guidelines.



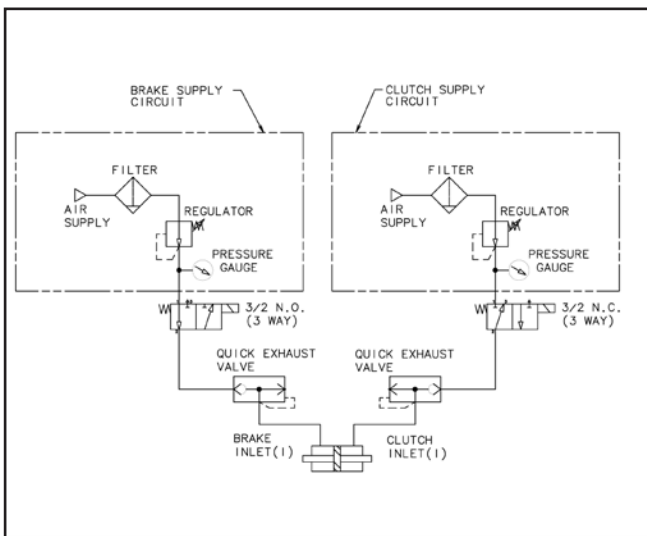
CAUTION

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

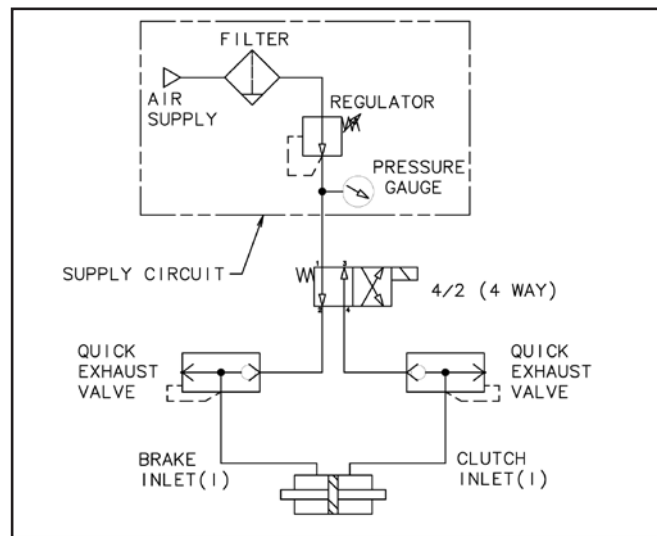
Air Pressure (Gage) Limits

6.9 Bar (100 PSI) Absolute Max.

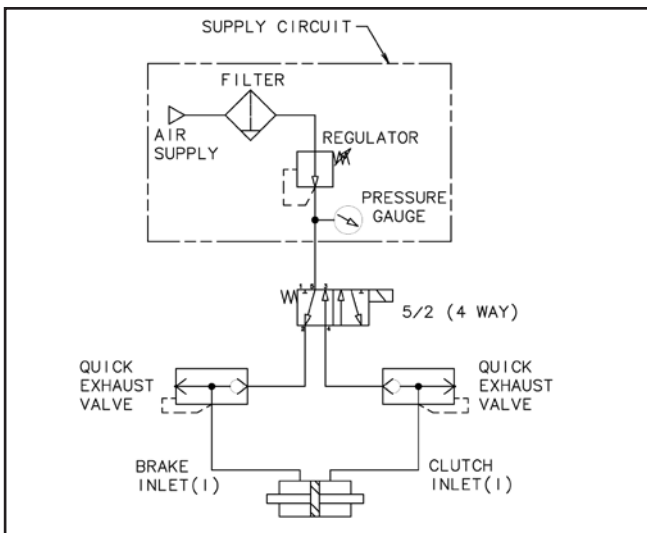
0 Bar (0 PSI) Absolute Min.



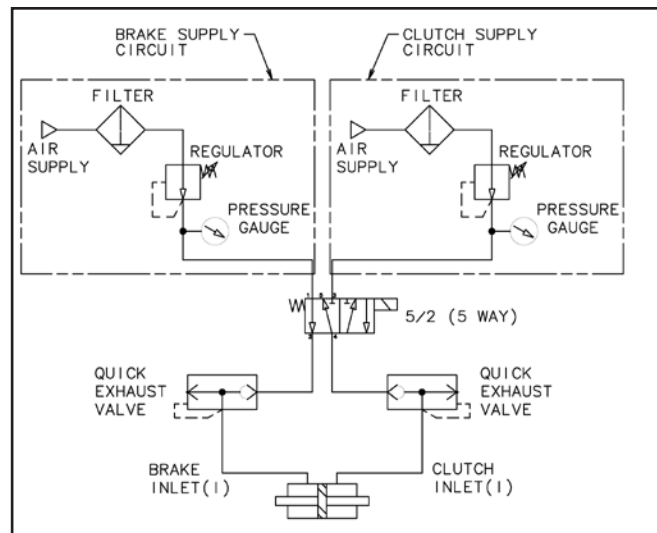
3/2 (3 Way)



4/2 (4 Way)

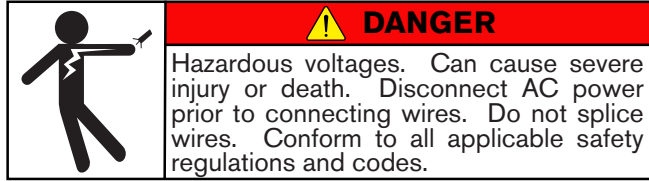


5/2 (4 Way)



5/2 (5 Way)

AIR AND ELECTRICAL CONNECTIONS (INTEGRAL VALVE STYLE)



Refer to Table 1 and Figures 3 and 4.

1. Connect the air supply to the inlet port.

2. Place the gasket on the Solenoid Valve (Item 36).

NOTE: If you do not install the gasket, you may not get a proper seal. An improper seal can cause corrosion in a moist environment.

3. Plug the DIN Connector (Item 40) into the Solenoid Valve (Item 36).

4. Tighten the pan head screw included on the DIN Connector (Item 40).

5. Connect the lead wires of the DIN Connector (Item 40) to an appropriate power source (See Table 1). Observe polarity when you connect any device marked "+" and "-".

Lead Wire Cable:

Brown wire = positive
White wire = common
Green wire = ground

NOTE: The 115 VDC rectified lead wire contains a full bridge rectifier and surge suppressor which converts AC power to rectified AC power and provides circuit protection.

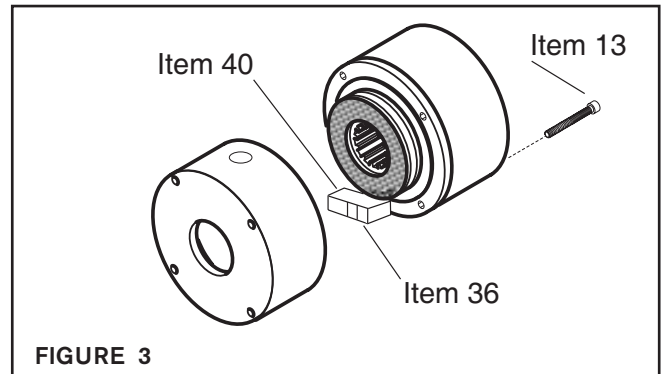
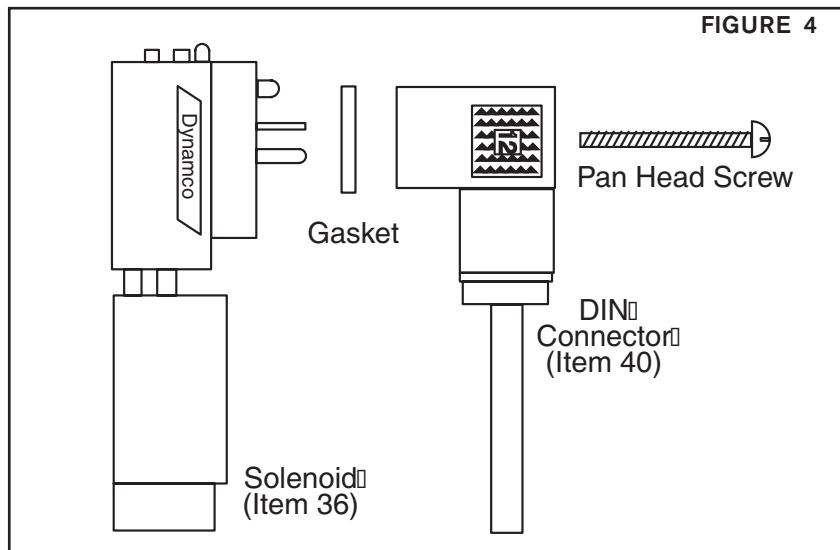


Table 1 - Spool Specifications				
Power	Voltage	Resistance	Current	Solenoid Part #
Standard Coil: 115 VDC*	2.5 Watts	5500 Ohms	.021 Amps	4919
Optional Coils □ (Contact Nexen) 24 VDC	0.6 Watts	1100 Ohms	.027 Amps	4961

* A Nexen rectifier lead wire is supplied for the 115 VDC and can be used for AC (50/60 Hz) or DC operation.

DIN Connector; 9mm Centers



FMCBE MODEL 70-14 ASSEMBLY (NPT STYLE)

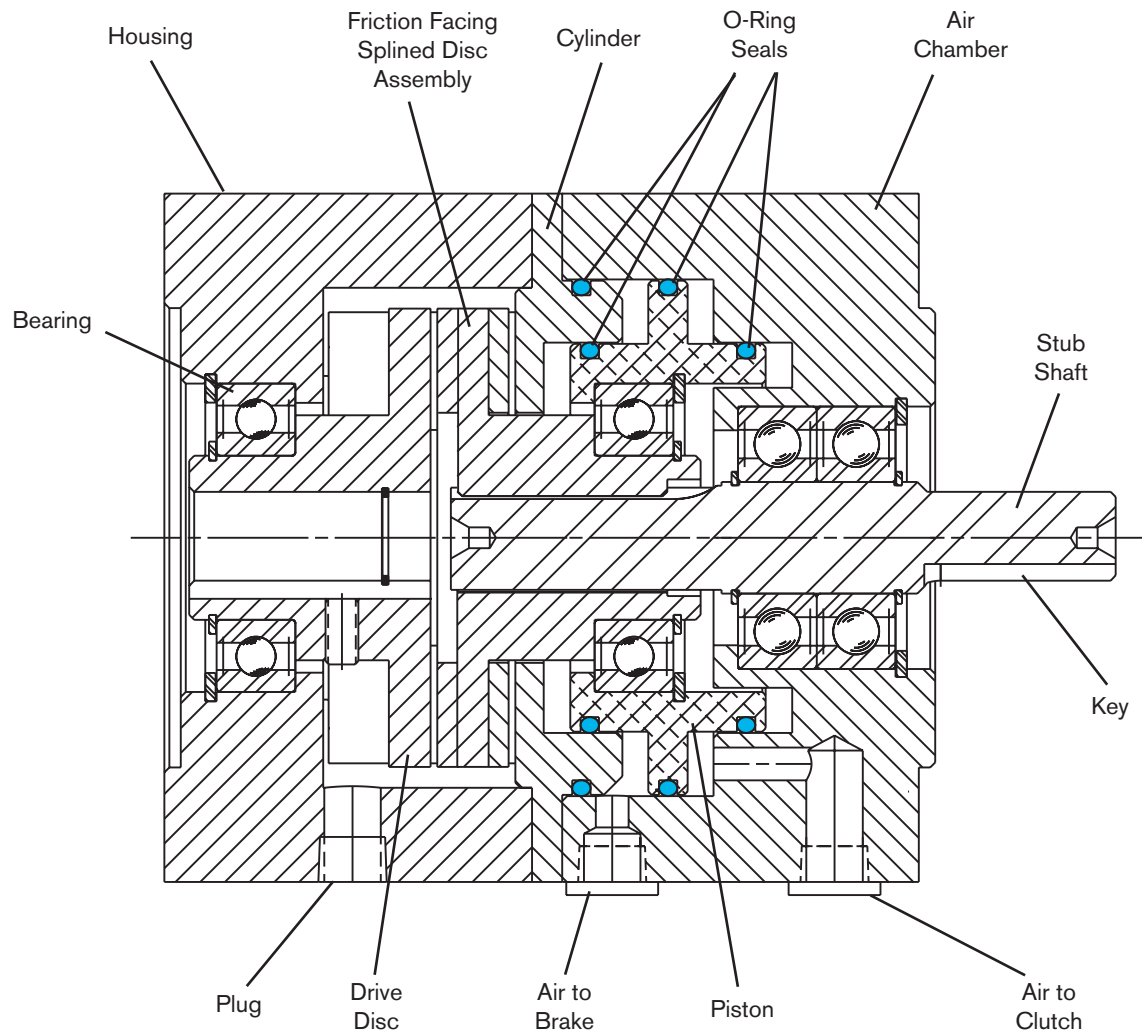


FIGURE 5

FMCBE ASSEMBLY

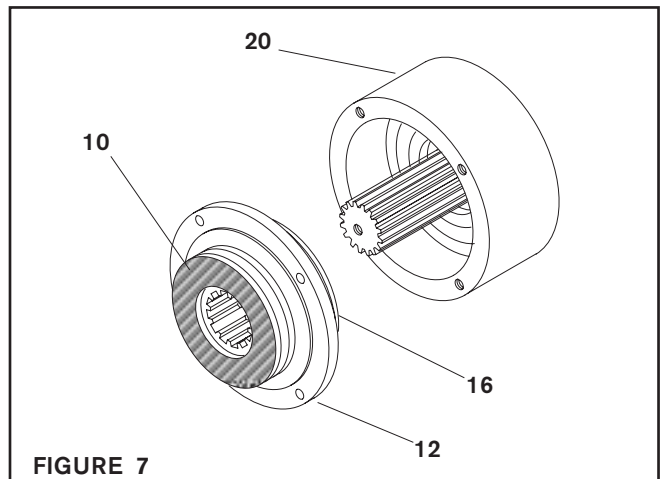
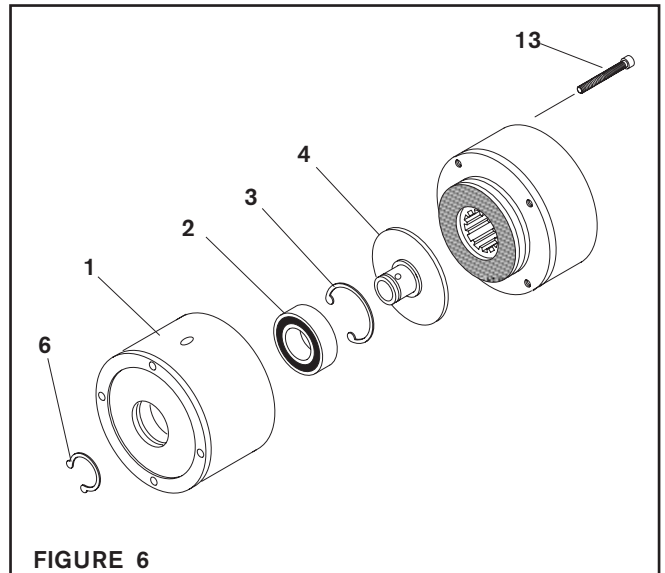
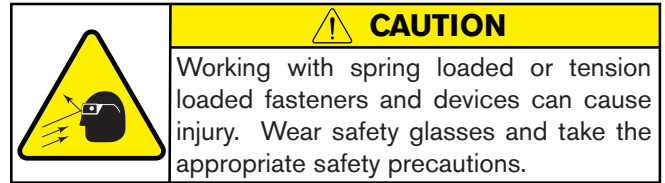
Refer to Figures 6, 7, 8, 9 and 10.

1. Remove the four Socket Head Cap Screws (Item 13) and slide the Housing (Item 1) Bearing (Item 2), and the Drive Disc (Item 4) out of the FMCBE.
2. Remove the Retaining Ring (Item 6).
3. Press the Drive Disc (Item 4) out of the Bearing (Item 2) and the Housing (Item 1).
4. Remove the Retaining Ring (Item 3) from the Housing (Item 1).
5. Support the Housing (Item 1) and press the old Bearing (Item 2) out of the Housing.

NOTE: Removing the bearing damages it. Do not reuse the bearing.

6. Clean the bearing bore of the Housing (Item 1) with fresh safety solvent. Make sure that all of the old Loctite® residue is removed.
7. Apply an adequate amount of Loctite® 680 to evenly coat the outer race of the new Bearing (Item 2).
8. Carefully align the outer race of the new Bearing (Item 2) with the bore of the Housing (Item 1).
9. Support the Housing (Item 1), press on the outer race of the new Bearing and press the new Bearing (Item 2) into the Housing.
10. Reinstall the Retaining Ring (Item 3).
11. Support the inner race of the new Bearing (Item 2) and press the Drive Disc (Item 4) into the new Bearing and Housing (Item 1).
12. Reinstall the Retaining Ring (Item 6).

13. Slide the Friction Facing Splined Disc Assembly (Item 10), the Cylinder (Item 12), and the Piston (Item 16) out of the Air Chamber (Item 20).
14. Remove the Retaining Ring (Item 6) and press the Friction Facing/Splined Disc Assembly (Item 10) out of the Cylinder (Item 12) and the Piston (Item 16).
15. Slide the Piston (Item 16) out of the Cylinder (Item 12), then remove the old O-Ring Seals (Items 14 and 15) from the Piston and the Cylinder.
16. Remove the Retaining Ring (Item 3) from the Piston (Item 16), then press the old Bearing (Item 2) out of the Piston.
17. Clean the bearing bore of the Piston (Item 16) with fresh safety solvent. Make sure that all of the old Loctite® residue is removed.



18. Apply an adequate amount of Loctite® 680 to evenly coat the outer race of the new Bearing (Item 2).
19. Support the Piston (Item 16), press on the outer race of the new Bearing (Item 2), press the new Bearing (Item 2) into the Piston.
20. Reinstall the Retaining Ring (Item 3).
21. Clean the O-Ring grooves and contact surfaces of the Piston (Item 16) and Cylinder (Item 12) with fresh safety solvent. Lubricate the O-Ring grooves and contact surfaces with fresh O-Ring lubricant.

(Continued...)

FMCBE ASSEMBLY (continued)



CAUTION

Working with spring loaded or tension loaded fasteners and devices can cause injury. Wear safety glasses and take the appropriate safety precautions.

22. Lubricate and install the new O-Ring Seals (Items 14 and 15) onto the Piston (Item 16) and Cylinder (Item 12), then slide the Piston back into the Cylinder.
23. Support the inner race of the new Bearing (Item 2) and press the new Friction Facing Splined Disc Assembly (Item 10) into the Cylinder, the Piston, and the new Bearing.
24. Reinstall the Retaining Ring (Item 6).
25. Remove the Retaining Ring (Item 24) from the Stub Shaft (Item 23).
26. Press the Stub Shaft (Item 23) out of the Bearings (Item 19).
27. Remove the Retaining Ring (Item 18) from the Air Chamber (Item 20).
28. Press the old Bearings (Item 19) out of the Air Chamber (Item 20).
29. Clean the bearing bore of the Air Chamber (Item 20) with fresh safety solvent. Make sure that all of the old Loctite® residue is removed.
30. Apply an adequate amount of Loctite® 680 to evenly coat the outer race of the new Bearings (Item 19).
31. Support the Air Chamber (Item 20), press on the outer race of the new Bearings (Item 19) and press the new Bearings into the Air Chamber.
32. Reinstall the Retaining Ring (Item 18).
33. Support the inner race of the new Bearings (Item 19) and press the Shaft (Item 23) into the new Bearing and Air Chamber (Item 20).
34. Reinstall the Retaining Ring (Item 24).
35. Slide the Friction Facing Splined Disc Assembly (Item 10), the Cylinder (Item 12), and the Piston (Item 16) into the Air Chamber (Item 20).
36. Apply a drop of Loctite® 242 to the threads of the four Socket Head Cap Screws (Item 13). Use the four Socket Head Cap Screws to secure the Air Chamber (Item 20) to the Housing (Item 1).
37. Evenly tighten the four socket Head Cap Screws to 6.1 - 7.5 Nm (54-66 in/lbs). Alternate between the four screws as you tighten them.

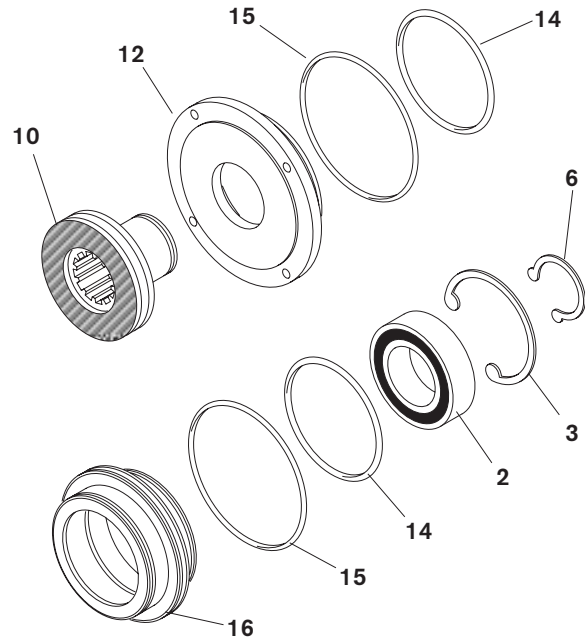


FIGURE 8

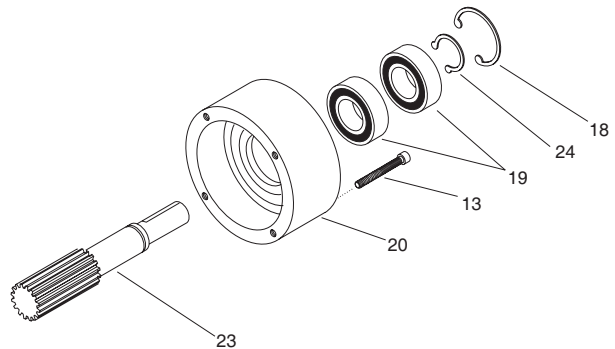


FIGURE 9

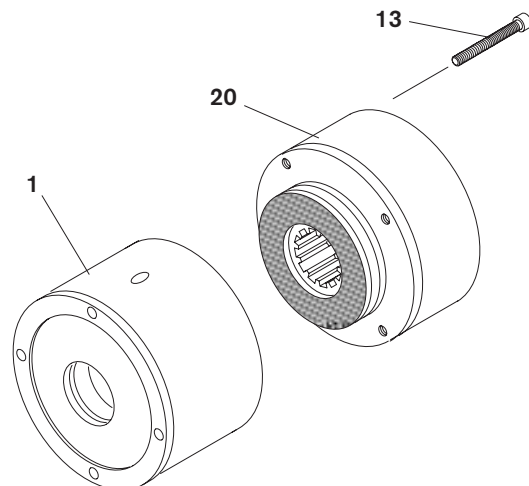


FIGURE 10

TROUBLESHOOTING

SYMPTOM	PROBABLE CAUSE	SOLUTION
Failure to engage.	Air not getting to the FMCBE due to a control valve malfunction.	Check for a control valve malfunction or low air pressure and replace the control valve if necessary.
	Lack of lubrication on Stub Shaft Spline.	Lubricate Stub Shaft spline.
	Air leaks around the O-ring Seals.	Replace the O-ring Seals.
Failure to disengage.	Unexhausted air due to a control valve malfunction.	Check for a control valve malfunction and replace the control valve if necessary.
	Lack of lubrication on Stub Shaft Spline.	Lubricate Stub Shaft spline.
Loss of torque.	Air leaks around the O-ring Seals.	Replace the O-ring Seals.
	Worn or dirty Friction Facings.	Replace the Friction Facings.

REPLACEMENT PARTS

The Item or “Balloon” Number for all Nexen Products is used for part identification on all Product Parts List, Product Price List, 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.

FMCBE -NPT Style

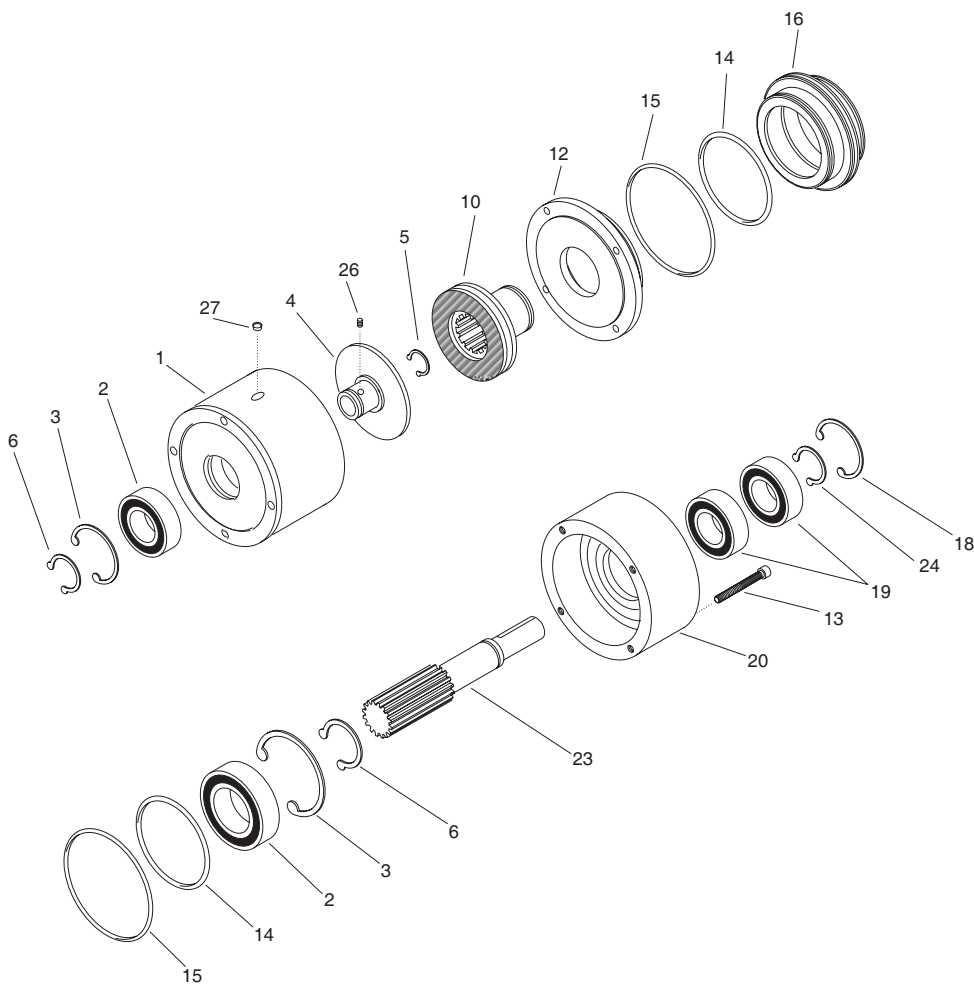


FIGURE 11

ITEM	DESCRIPTION	QTY
1	Housing	1
2 ¹	Bearing	2
3	Retaining Ring (Int.)	2
4	Drive Disc	1
5	Retaining Ring (Int.)	1
6	Retaining Ring (Ext.)	2
10 ¹	Friction Facing Splined Disc Assy.	1
12	Cylinder	1
13	Socket Head Cap Screw (M5x0.8)	4
14 ¹	O-Ring Seal	2
15 ¹	O-Ring Seal	2

ITEM	DESCRIPTION	QTY
16	Piston	1
18	Retaining Ring (Int.)	1
19 ¹	Bearing	2
20	Air Chamber	1
23	Stub Shaft	1
24	Retaining Ring (Ext.)	1
25	Key (not shown)	1
26	Set Screw	1
27	Plug (.125 NPTF)	1
29	Socket Head Cap Screw (M6 x 1.0) (not shown)	4

¹Denotes Repair Kit item (Repair Kit No. 801362).

REPLACEMENT PARTS (continued)

FMCBE -Integral Valve Style

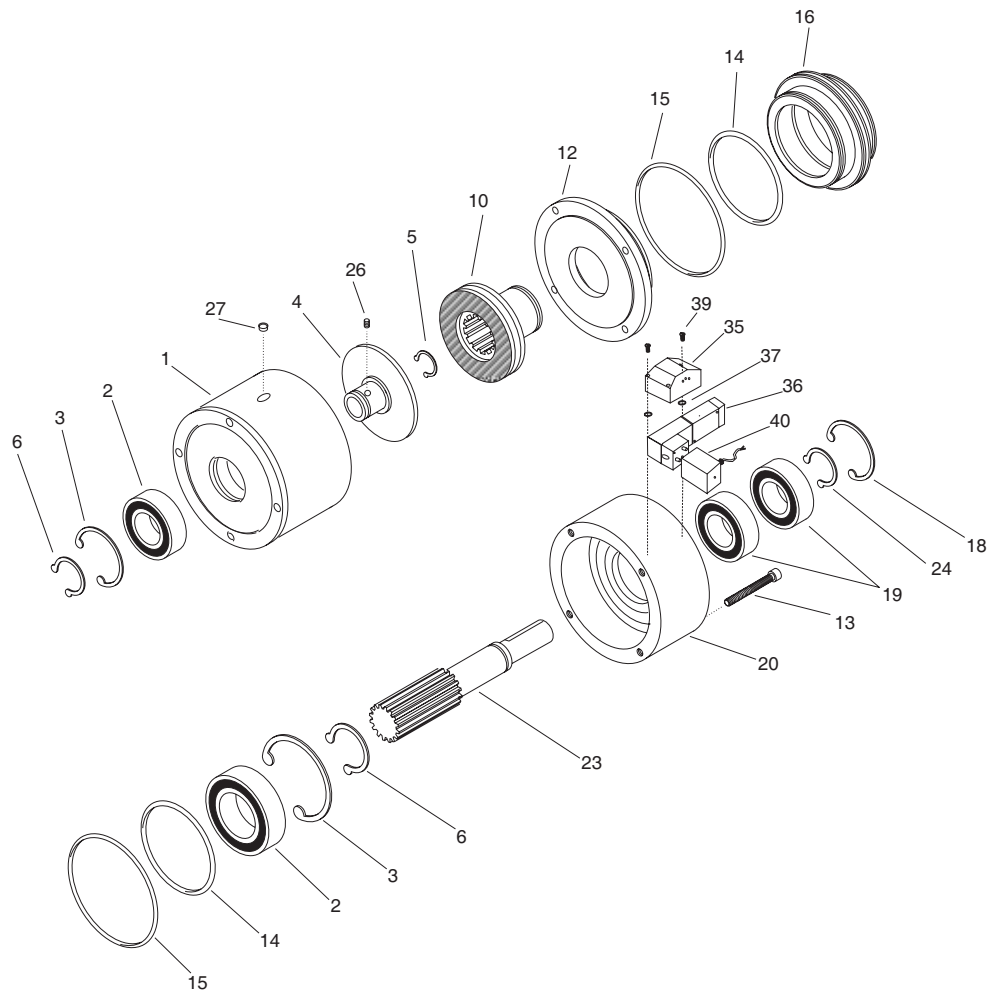


FIGURE 12

ITEM	DESCRIPTION	QTY
1	Housing	1
2 ¹	Bearing	2
3	Retaining Ring (Int.)	2
4	Drive Disc	1
5	Retaining Ring (Int.)	1
6	Retaining Ring (Ext.)	2
10 ¹	Friction Facing Splined Disc Assy.	1
12	Cylinder	1
13	Socket Head Cap Screw (M5x0.8)	4
14 ¹	O-Ring Seal	2
15 ¹	O-Ring Seal	2
16	Piston	1
18	Retaining Ring (Int.)	1

ITEM	DESCRIPTION	QTY
19 ¹	Bearing	2
20	Air Chamber	1
23	Stub Shaft	1
24	Retaining Ring (Ext.)	1
25	Key (not shown)	1
26	Set Screw	1
27	Plug (.125 NPTF)	1
29	Socket Head Cap Screw (M6 x 1.0)	4
35	Manifold	1
36	Solenoid Valve	1
37	O-Ring Seal	2
39	Socket Head Cap Screw (M3 x 0.5)	3
40	DIN Connector	1

¹Denotes Repair Kit item (Repair Kit No. 801362).

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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