




## Eclipse Stage Brake NEMA 23 Sizes



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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|   |   |   |
|---|---|---|
|  | <div data-bbox="623 558 919 611"> <b>DANGER</b></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 <b>ONLY</b>. Improper installation can damage your system, cause injury or death. Comply with all applicable codes.</p> |  |
|---|---|---|

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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## GENERAL SPECIFICATIONS

| Size                    | Min Holding Torque    | Max RPM | Inertia w/coupling                                       | Weight  |
|-------------------------|-----------------------|---------|--|---------|
| NEMA 23<br>Stage Brakes | 2.25 Nm<br>(20 in-lb) | 10,000  | .5 kg x cm <sup>2</sup><br>(.0004 in-lb-s <sup>2</sup> ) | 1.5 lbs |

Pneumatic units accept an optional solenoid valve (normally closed) controlled by 24 VDC at 104 mA. Solenoid valves are fitted with 18" flying leads standard. To order the solenoid valve (optional), refer to Nexen product #964650.

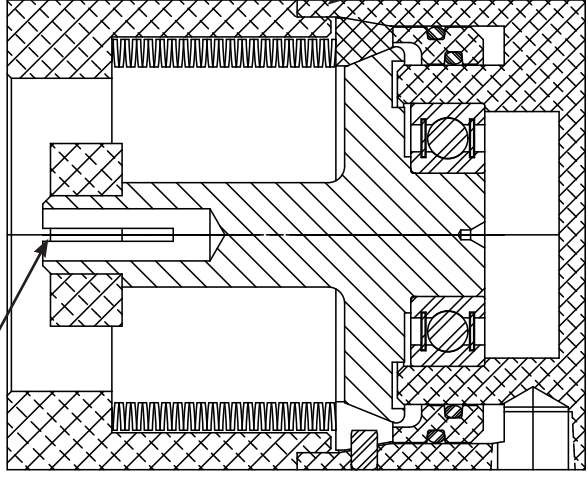
## GENERAL SAFETY PRECAUTIONS


|  |   |   |  |
|--|---|---|--|
|   | <p><b>CAUTION</b></p> <p>Watch for sharp features when interacting with this product. The parts have complex shapes and machined edges.</p> |   | <p><b>WARNING</b></p> <p>This product is capable of emitting a spark if misused, therefore it is not recommended for use in any explosive environment.</p>   |
|  | <p><b>CAUTION</b></p> <p>Use appropriate guarding for moving components. Failure to guard could result in serious bodily injury.</p>        |  | <p><b>WARNING</b></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> |



**CAUTION**

The temperature limits for the product are 4.5-104 degree Celsius (40-220 degree F).





**CAUTION**

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

## INSTALLATION

### MOUNTED ON THE SHAFT END OF A THOMSON LINEAR STAGE

Refer to Figures 1 & 2.

1. Clean the output shaft of the Thomson Linear Stage with a non-petroleum-based solvent such as isopropyl alcohol. **DO NOT** lubricate either the input bore of the brake or the output shaft of the stage. Lubricants will reduce the coefficient of friction, thus reducing the clamp load capability of the joint.
2. Remove the plastic NPT plug from the access hole on the Nexen Stage Brake.
3. Rotate the Clamp Collar, supplied on the input bore of the Stage Brake, until its Socket Head Cap Screw is aligned with the access port.
4. Slide the Stage Brake onto the output shaft of the Thomson Linear Stage.

#### NOTE

Space permitting, align the air inlet ports in the down position to allow condensation to drain out of the air chamber.

5. Secure the Stage Brake to the Stage by tightening the 4 customer-supplied Socket Head Cap Screws until they are finger-tight.
6. Tighten the Clamp Collar, which was aligned with the access port in step 2, to the torque specifications listed in Table 1.



#### CAUTION

**DO NOT over-torque the fasteners. Overtightening can lead to premature brake failure.**

7. Tighten the 4 Socket Head Cap Screws to the customer-supplied torque values.
8. Reinsert the plastic NPT Plug into the access hole on the Nexen Stage Brake.
9. **Standard Configuration:**  
Attach the Quick Exhaust Valve to the brake. Use Teflon tape and/or pipe sealant on the threads.

#### With Optional Solenoid:

If you are using the optional Solenoid Valve (Nexen Part #964650), the Quick Exhaust Valve is unnecessary. Assemble the optional Solenoid Valve directly to the brake using the supplied fittings. Use Teflon tape and/or pipe sealant on the threads. Refer to Figure 2.

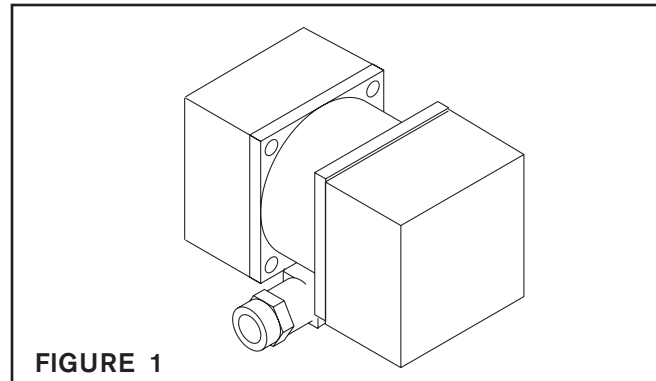


FIGURE 1

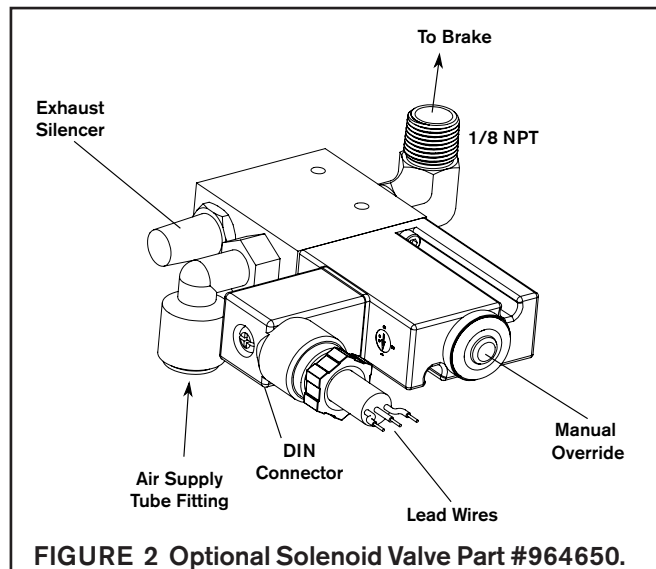


FIGURE 2 Optional Solenoid Valve Part #964650.

TABLE 1

| BRAKE MODEL | BORE SIZE | TORQUE REQUIRED      |
|-------------|-----------|----------------------|
| 964630      | 0.1875    | 15 In. Lbs. [2 Nm]   |
| 964631      | 0.250     | 28 In. Lbs. [3.2 Nm] |
| 964632      | 0.375     | 49 In. Lbs. [5.5 Nm] |
| 964633      | 8 mm      | 41 In. Lbs. [4.6 Nm] |
| 964634      | 10 mm     | 41 In. Lbs. [4.6 Nm] |
| 964635      | 12 mm     | 84 In. Lbs. [9.5 Nm] |

TABLE 2

| OPTIONAL SOLENOID VALVE SPECIFICATIONS |         |            |          |     |
|--|---------|------------|----------|-----|
| Voltage                                | Power   | Resistance | Current  | CV  |
| Standard Coil: 24 VDC                  | 4 Watts | 145 Ohms   | .17 Amps | .25 |

## INSTALLATION (continued)



### NOTE



The Quick Exhaust Valve maximizes the brake response time. Since the Stage Brake is spring-engaged (for fail-safe operation) and pneumatically disengaged, the quicker the air pressure is removed from the air chamber, the quicker the load will be brought to rest.

### NOTE

The Stage Brake will disengage if you depress the domed button at the top of the Solenoid Valve (if air pressure is supplied). The LED will illuminate when the Solenoid Valve is actuated and the Stage Brake is disengaged. Unit has been designed to release before (at or below) 5.5 bar [80 psi]. Required disengagement pressure higher than 5.5 bar [80 psi] may indicate improper assembly.

10. Connect the lead wires from the optional Solenoid Valve to the brake control connection points on the Motor Drive or the PLC. Refer to the valve specifications shown in Table 2. On the lead wire cable, the Brown wire is Positive, the White wire is Common, and the Green wire is Ground.

|  |  |
|--|--|
|  |  <b>CAUTION</b>   |
|  | The Stage Brake will disengage if air pressure is supplied and you press the domed button on the Solenoid Valve. The LED will illuminate when the Solenoid Valve is actuated and the Stage Brake is disengaged. Pressure needed to disengage the Stage Brake should not exceed 80 psi. |

|  |  |
|--|--|
|  |  <b>CAUTION</b>   |
|  | 24 VDC valve connector has a suppression diode installed across the coil. Observe proper voltage polarity or connector damage will result. |

## 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

|   |   |
|---|---|
|  |  <b>CAUTION</b>  |
|   | 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

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

### NOTE

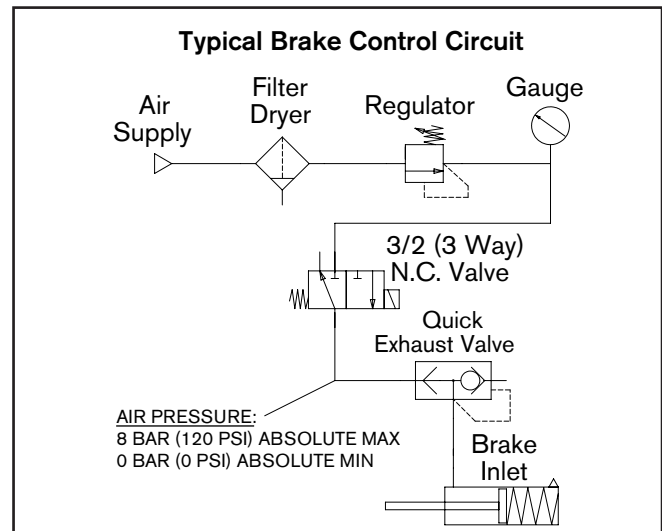
For quick response, Nexen recommends a quick exhaust valve and short air lines between the Control Valves and the product. Align the air inlet ports to a down position to allow condensation to drain out of the air chambers of the product.



### CAUTION

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

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

| Size    | Max RPM |
|---------|---------|
| NEMA 23 | 10000   |



### 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:  $\text{Time} = \text{Volume} / (\text{Power} * \text{Wear Rate})$ .



### CAUTION

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

## TROUBLESHOOTING

| Problem                   | Probable Cause   | Solution   |
|---------------------------|--|--|
| Failure to engage (brake) | Weak or broken Wave Spring                             | Replace the unit.  |
|                           | Air not exhausting                                     | Check control valves.  |
| Failure to disengage      | Control valve malfunction-air not getting to the brake | Check for low air pressure or replace the control valve.<br><b>NOTE:</b> Unit has been designed to release before (at or below) 5.5 Bar [80 psi]. Required disengagement pressure higher than 5.5 Bar [80 psi] may indicate improper assembly. |
|                           | Air leaking around the O-ring seals                    | Replace the unit.  |
| Loss of torque            | Worn or dirty Friction Facing                          | Replace the unit.  |

## BRAKE ASSEMBLY

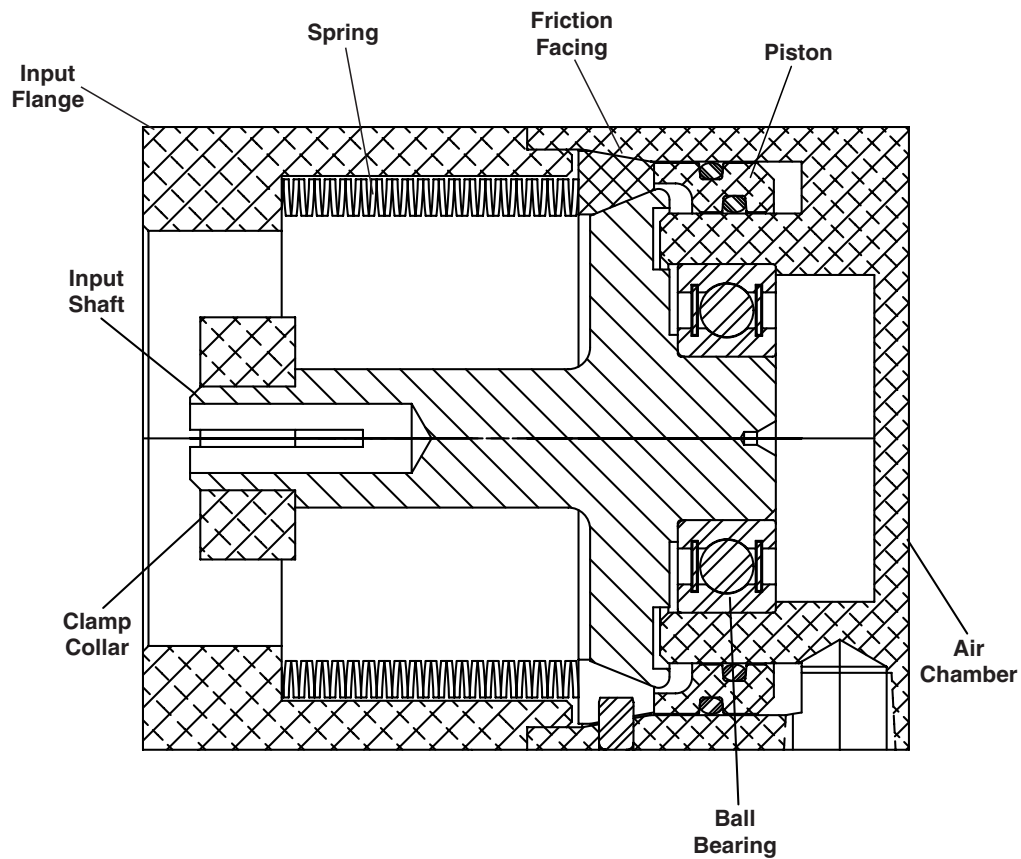


FIGURE 3

## ACCESSORIES

### DESCRIPTION

### PROD. NO.

Optional Solenoid Valve .....964650



## 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.

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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.

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