

nexen.

AIR CHAMP® PRODUCTS

User Manual






DAP-625S and DAP-875S

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="548 558 846 611"> 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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Table of Contents

General Specifications	4
General Safety Precautions	4
Introduction	5
Installation	5
Lubrication	6
Air Connections	6
Operation	7
Parts Replacement	8
Replacement Parts	10
Warranty	11

GENERAL SPECIFICATIONS


Specifications	
Torque:	Clutch: Up to 56 Nm (500 in-lbs) Brake: Up to 45 Nm (400 in-lbs)
Disengagement Pressure:	1 - 5.5 bar (14.5 - 80 psi)
Service Temperature:	4.5 - 104 C (40 - 220 F)
Approximate Weight:	Up to 14.5 kg (32 lbs)

GENERAL SAFETY PRECAUTIONS




CAUTION

Use lifting aids and proper lifting techniques when installing, removing, or placing this product 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.




CAUTION

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



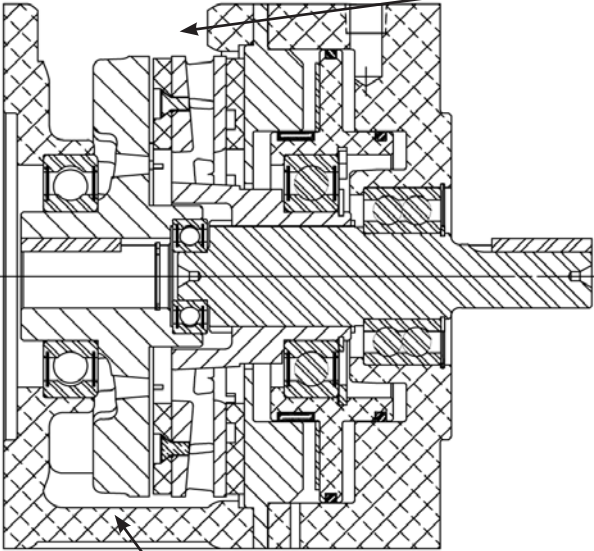
WARNING


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".



WARNING


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





CAUTION

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



CAUTION

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

INTRODUCTION

Nexen's DAP is a combination air actuated clutch and spring engaged brake. The unit's brake remains engaged until air is applied to engage the clutch. Because of the internal construction of the DAP, overlap (simultaneous engagement of both clutch and brake) is impossible.

Nexen's DAP is suited for mounting on standard NEMA "C" flange mounting faces such as reducer units and outputs, and motor flanges. An "L" shaped foot is also available for free standing applications.

INSTALLATION

MOUNTING ON MOTORS AND REDUCER OUTPUT SHAFTS

1. Position motor or reducer output shaft upward and insert Key (Item 31).
2. Rotate DAP keyway upward and slide unit approximately 1.5" [38.1 mm] onto the shaft.
3. Rotate entire unit to line up mounting holes in flanges.

NOTE

Observe location of air inlet and orientate to suit mounting requirements.

4. Push DAP all the way onto shaft until mounting flanges are flush.
5. Install four Cap Screws (Item 26) and Lockwashers (Item 20) and tighten securely.

MOUNTING ON REDUCER INPUT FLANGES

1. Position DAP output shaft upward and insert Key (Item 31) into keyway.
2. With keyway in reducer also pointing up, slide unit up to reducer flange.

NOTE

Observe location of air inlet and rotate unit to suit installation.

3. Install cap screws supplied with reducer and tighten until mounting faces are flush.

FOOT MOUNTING

1. Cradle output flange onto Nexen's "L" shaped foot.
2. Install four cap screws supplied with foot into output flange.
3. Mount DAP Clutch/Brake/Foot combination to machine frame.
4. Install sheaves, sprockets, or couplings onto unit's output shaft as required.

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



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

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.



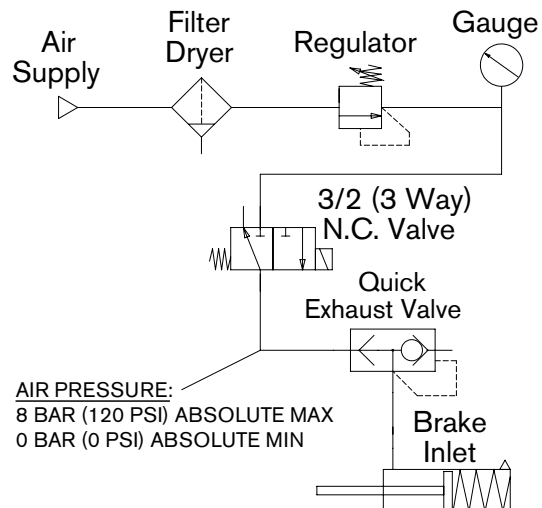
CAUTION

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



A typical control for the Nexen DAP is a Normally Closed (N.C.) 3-Way valve. When the valve is energized, the air supply engages the clutch portion of the DAP. When the valve is de-energized, air exhausts from the air chamber and engages the brake portion of the DAP.



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.



Typical Brake Control Circuit



OPERATION

	 WARNING
	Never exceed maximum operating speeds listed for your product. (See Table 2).

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



	 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".

Nexen's DAP Spring Engaged Brake remains engaged until air pressure is applied to activate the clutch. The brake releases at approximately 40 psi. The brake may also be released manually by alternately turning Set Screws (Item 24) clockwise until the Output Shaft (Item 1) rotates freely. To re-activate the brake, turn Set Screws (Item 24) counter clockwise until they are flush with the outside diameter of the Output Housing (Item 2).

Periodically check air line connections and mounting bolts to make sure that they are tightened securely.

TABLE 2

Size	Max RPM
DAP- 625S	1800
DAP- 875S	1800

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

NOTE

Nexen's DAP clutch begins to deliver torque at approximately 50 psi. Below 50 psi the spring force of the brake overcomes the air cylinder thrust, therefore it is important to have pressure regulated air to the control valve.

PARTS REPLACEMENT

NOTE

For repair convenience, Nexen's DAP separates into three major subassemblies: Output Housing/Shaft Assembly, Disc-Hub/Spring Assembly, and Input Housing/Friction Disc Assembly.

FRICITION FACING REPLACEMENT

Inspect Friction Facings (Item 7) and replace when worn down to approximately 5/32 inch [3.9 mm] thick.

1. Remove DAP from it's mounting.
2. Remove Cap Screws (Item 25) and Lockwashers (Item 19).
3. Remove Input Housing (Item 4) and Friction Disc Assembly (Item 11),
4. Remove Clutch Friction Facing (Item 7).
5. Clamp or bolt Spring Housing (Item 5) to Output Housing (Item 3).
- a. Apply a minimum of 50 psi. to disengage brake or turn Set Screws (Item 24) to manually release brake.
- b. Rotate Disc-Hub (Item 2), aligning brake facing screw clearance holes with each Machine Screws (Item 23).
- c. Remove Machine Screws (Item 23) and slide Friction Facing (Item 7) sections out of assembly.
6. Install new Clutch Friction Facing (Item 7).

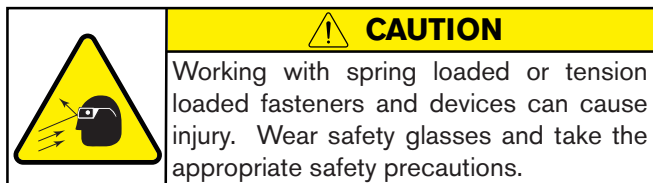
O-RING REPLACEMENT

1. Slide Disc-Hub (Item 2), Spring Housing (Item 5), Piston (Item 6) and Bearing (Item 15) Assembly of Output Shaft Spline (Item 1).
2. Remove O-Rings (Items 21 & 22).
3. Clean O-Ring grooves and O-Ring contact surfaces.
4. Lubricate O-Ring grooves, O-Ring contact surfaces, and new O-Rings with O-Ring lubricant.
5. Install New O-Rings (Items 21 & 22).
6. Turn Set Screws (Item 24) clockwise until Push Rod (Item 30) is exposed.
7. Pull Push Rods out of sockets.
8. Remove O-Rings (Item 29).
9. Clean O-Ring Grooves and O-Ring contact surfaces.
10. Lubricate O-Ring grooves, O-Ring contact surfaces, and new O-Rings with O-Ring lubricant.
11. Install new O-Rings (Item 29).
12. Push the Push Rods (Item 30) back into sockets.

PARTS REPLACEMENT (continued)

BEARING REPLACEMENT

1. Press Friction Disc (Item 11) out of Bearing (Item 13).
2. Press Bearing (Item 13) out of Input Housing (Item 4).
3. Apply Loctite® to O.D. of new Bearing (Item 13) and press bearing into Input Housing (Item 4).
4. Fully supporting inner race of Bearing (Item 13), press Friction Disc (Item 11) into bearing.
5. Slide Pilot Bearing (Item 15) off Output Shaft (Item 1).



6. Remove Retaining Ring (Items 16 & 18).
7. Press Disc-Hub (Item 2) out of Bearing (Item 13).
8. Push Bearing (Item 13) out of Piston (Item 8).

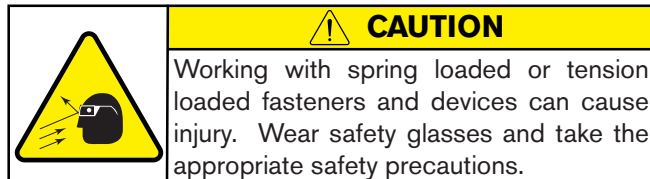
NOTE

At this point of disassembly, inspect Die Springs (Item 27) and replace if the Spring has taken a set. The optimum height for the spring is 1 1/4" [31.75 mm] + 1/16" [1.59 mm].

9. Apply Loctite® 601 to O.D. of Bearing (Item 15) and push bearing into Piston (Item 6).
10. Place Back-Up Washer (Item 9) on Piston (Item 6).
11. Install Springs (Item 27) into each socket of Spring Housing (Item 5) and set Back-Up Washer (Item 9) side of Piston (Item 8) on top of Springs (Item 27).

12. Fully supporting inner race of Bearing, press Disc-Hub (Item 2) into Bearing (Item 13).

13. Install Retaining Rings (Items 16 & 18).

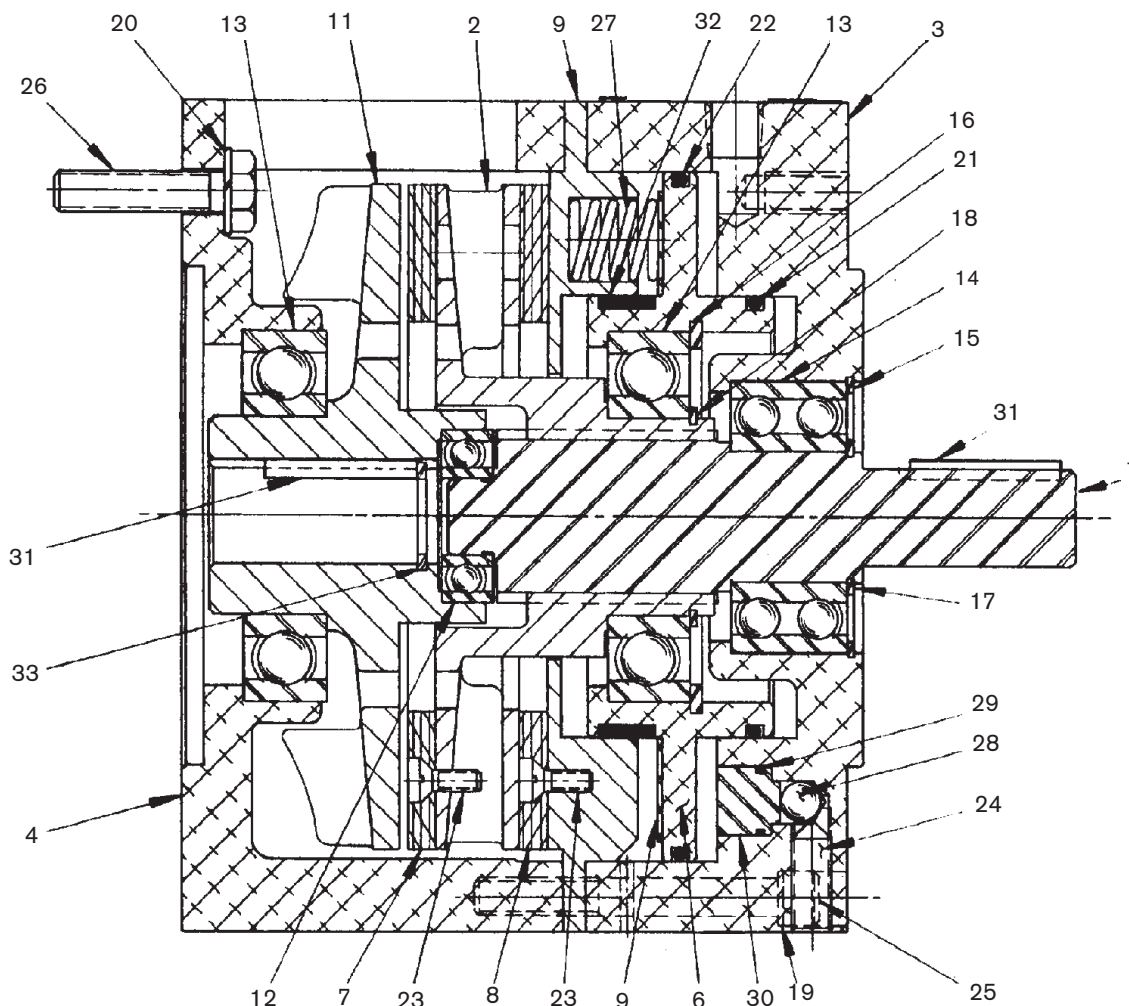


14. Remove Retaining Rings (Items 15 & 17).
15. Press Output Shaft (Item 1) out of Bearing (Item 14).
16. Push Bearing (Item 14) out of Output Housing (Item 3).
17. Apply Loctite® 601 to O.D. of new Bearing (Item 14) and press bearing into Output Housing (Item 3).
18. Fully supporting inner race of Bearing (Item 14), press Output Shaft (Item 1) into bearing.
19. Install Retaining Rings (Items 15 & 17).
20. Push Disc-Hub/Spring Assembly over Output Shaft splines and into Output Housing (Item 3) of assembly.
21. Apply Loctite® 601 to O.D. of Pilot Bearing (Item 12) and place bearing into counterbore of Friction Disc (Item 11).
22. Place Input Housing/Friction Disc Assembly onto Disc-Hub/Spring Housing/Piston Assembly.
23. Replace Cap Screws (Item 19) and Lockwashers (Item 25) and tighten securely.

REPLACEMENT PARTS LIST

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.



ITEM	DESCRIPTION	QTY
1	Output Shaft	1
2	Disc-Hub	1
3	Output Housing	1
4	Input Housing	1
5	Spring Housing	1
6	Piston	1
7	Clutch Friction Facing	1
8	Brake Friction Facing	1
9	Spring Back-Up Washer	1
10	Guard Ring (Not Shown)	1
11	Friction Disc Assembly	1
12	Bearing	1
13	Bearing	2
14	Bearing	1
15	Retaining Ring	1
16	Retaining Ring	1
17	Retaining Ring	1

ITEM	DESCRIPTION	QTY
18	Retaining Ring	1
19	Lockwasher	4
20	Lockwasher	4
21	O-Ring (Small)	1
22	O-Ring (Large)	1
23	Machine Screw	12
24	Set Screw	2
25	Cap Screw	4
26	Cap Screw	4
27	Spring	6
28	Ball	2
29	O-Ring	2
30	Push Rod	2
31	Key	2
32	Wear Ring	1
33	Retaining Ring	1

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.

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