Explosion Proof Compact Pressure Switches
9692X / 9671X / 9681X
Microtorque™ Valve

Take the quiz, you can win $100!
The Explosion Proof Compact Pressure Switches
9692X/9671X/9681X

MBA Training Session II
by Jason Kang
Barksdale’s Explosion Proof Compact Pressure Switches are used in the hazardous locations to control and monitor high or low pressure conditions within hydraulic systems.

The Explosion Proof Compact Pressure Switches are based on:
- Dia-Seal design (9681X & 9671X)
  - Low pressure & vacuum range
- Piston design (9692X)
  - High pressure range
Three Models Available

- **9692X**
  - Piston design
  - 6 Pressure ranges: 100 to 7500 psi
  - New range: 150 to 3000 psi

- **9681X**
  - Dia-Seal design
  - 4 Pressure ranges
  - 2 to 500 psi

- **9671X**
  - Vacuum model
PRODUCT FEATURES

- Explosion proof housing (NEMA 4X, 7 & 9)
- Approvals: CSA, UL, ATEX approved
- NACE Compliant
- Field adjustable with tamper resistant cover
- Internal self-locking adjustment wheel
  - 6 slotted nut for easy adjustment

- Dual Seal approval per CSA compliant (ANSI/ISA 12.27.01)
PRODUCT BENEFITS

- Accuracy: +/- 2%
- Compact design with 316SS enclosure
- Standard rectangular body housing
- 1/2” NPT electrical conduit connection
- Available with factory preset
- Wetted materials: Buna-N, Viton®, EPR
- Process fitting: 1/4” NPT Female
- SPDT & DPDT Limit switch provides dual switching capability with a single set point.
- Gold contact limit switch
PRODUCT BENEFITS (Cont.)

▶ Two Different bodies

- “K option” with mounting holes, 3/4” longer body
- “Non-K” or standard with shorter body

Mounting Holes
Dia-Seal Piston Design

1. Limit Switch
2. Adjustment Wheel
3. Piston Actuator
4. Pressure Plate
5. Diaphragm
6. Static Weather Seal
7. Spring
TARGET MARKETS

- BOP closing units
- Safety panels
- Chemical and petrochemical plants
- Pulp and paper mills
- Pump and gas compressors
- Burner control

- Oil refineries
- Compressor skids
- Utilities
- Waste water treatment
- Turbines
- Power plants
- Locomotive air brake system
LOCOMOTIVE AIR BRAKE SYSTEM

BENEFITS:

- Reliable
- Easy adjustment
- Compact design

The 9692X explosion proof compact pressure switches are used as a safety device in transit train stations to detect pressure variation in the air brake system.
GAS TANK COMPRESSOR

BENEFITS:

- Ease of installation & maintenance
- Compact design
- Reliable

The 9692X explosion pressure compact switch is used in the vertical gas tank compressor system to control the pressure variation and ultimately shut down the system when pressure exceeds the set point.
FUEL GAS VALVE TRAIN

BENEFITS:

- Compact design
- Product dependability
- Media compatibility
- Quick delivery

The 9692X explosion proof compact pressure switches are used in the Fuel Gas Valve Train system to control the on/off switch in the tank heater chambers.
BOP CLOSING UNIT

BENEFITS:

- Pressure control reliability
- Ease of installation
- High pressure set point

The 9692X explosion pressure compact switches are used in BOP closing units to control the pressure level in the valve & regulator system.
### COMPETITOR OVERVIEW

<table>
<thead>
<tr>
<th>PRODUCT DESCRIPTION</th>
<th>BARKSDALE</th>
<th>CCS</th>
<th>ITT-NEODYN</th>
<th>UE</th>
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<tbody>
<tr>
<td>Explosion Proof Compact</td>
<td><img src="image1" alt="" /></td>
<td><img src="image2" alt="" /></td>
<td><img src="image3" alt="" /></td>
<td><img src="image4" alt="" /></td>
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<tr>
<td>Pressure Switch</td>
<td>9692X/9681X/9671X</td>
<td>6900 Series</td>
<td>131P Series</td>
<td>12 Series</td>
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**KEY DIFFERENTING FEATURES:**

- Standard rectangular body for ease of installation
- One piece conduit fitting
- Vacuum model
- 2 different lengths/bodies
  - Shorter length (standard version)
  - With mounting holes (“-K” option)
The Explosion Proof Compact Switches are one of Barksdale’s flagship products:

- Single set point with dual switching capability
- Explosion proof with full approvals
- Pressure range: Vacuum to 7500 psi
- Easy set point adjustment
- Dual seal containment for additional protection
- NACE compliant

Coming Soon!! Barksdale’s new T9692X Compact Explosion Proof Temperature Switch
SALES TOOLS (Cont.)

For Customer

Explosion Proof Pressure Switches
9682X/9671X/9681X Compact Explosion Proof Pressure Switches

Description
Barksdale’s Compact Explosion Proof Pressure Switches offer high reliability, making them an ideal solution for hazardous environments. These switches meet the requirements of C1D1 or Division 1 locations. These switches feature precision fit for panelboard control from vacuum to 7500 psig.

Application
Barksdale’s 9682X/9671X/9681X Compact Explosion Proof Pressure Switches are specifically designed for hazardous environments to control and safeguard valves, pumps, and other components. These switches feature precision fit for panelboard control from vacuum to 7500 psig.

Features
- Explosion proof housing
- UL, CE, and FM approved
- NEMA 4X, 7, 9, II
- NACE compliant
- SPDT or DPDT switch capability
- Dual set point
- Pressure range from -500 psi vacuum to 7500 psi
- Full field adjustment

Other Applications
- BOP station zones
- Safety valves
- Chemical process
- Tubing and pump stations
- Pump and gas compressors
- Boiler control
- Oil refineries
- Compressor skids
- Utilities
- Water/steam treatment
- Power plants
- Lubrication oil tanks

For Salesperson

Explosion Proof Pressure Switches
9682X/9671X/9681X Compact Explosion Proof Pressure Switches

Description & Key Features
Barksdale’s Compact Explosion Proof Pressure Switches are designed for high reliability, making them ideal solutions for hazardous environments. Available in SPDT or DPDT switch configurations, these switches meet the requirements for C1D1 or Division 1 locations. Barksdale Compact Explosion Proof Pressure Switches feature precision fit for panelboard control from vacuum to 7500 psig.

- Explosion proof housing
- UL, CE, and FM approved
- NEMA 4X, 7, 9
- NACE compliant
- SPDT or DPDT switch capability
- Dual set point
- Pressure range from -500 psi vacuum to 7500 psi
- Full field adjustment

Target Market / Customers
- BOP station zones
- Safety valves
- Chemical process
- Tubing and pump stations
- Pump and gas compressors
- Boiler control
- Oil refineries
- Compressor skids
- Utilities
- Water/steam treatment
- Power plants
- Lubrication oil tanks

Qualifying Questions
- Do you need an explosion proof switch to control up to 7500 psi?
- Does the application require explosion proof?
- Do you need to panel mount switch?

Support Team:
W. S. P. S. Technologies
1-800-262-5616
www.barksdale.com

Additional Support Tools:
Customer Support
www.barksdale.com

FOR SALE NETWORK ONLY – DO NOT DISTRIBUTE OUTSIDE SALE NETWORK

Barksdale Control Products
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Barksdale’s Compact Explosion Proof Pressure Switches are specifically designed for hazardous environments to control and safeguard valves, pumps, and other components. These switches feature precision fit for panelboard control from vacuum to 7500 psi.
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**Additional Support Tools:**

Datasheet/additional info:
- [http://www.barksdale.com/products/pressure/9692x.htm](http://www.barksdale.com/products/pressure/9692x.htm)
- [http://www.barksdale.com/products/pressure/9681x.htm](http://www.barksdale.com/products/pressure/9681x.htm)


Cross reference:  [www2.barksdale.com/crossref/searchpartnumber.asp](http://www2.barksdale.com/crossref/searchpartnumber.asp)
Microtorque Valve
MBA Training Session II
by Dmitriy Polishchuk
INTRODUCTION

- A compact directional control valve using Shear-Seal® technology.
- Incorporates the advantages of a Barksdale valve in a small compact package.

- high flow, high pressure capability
- zero-leak performance
- able to handle contaminated media
BARKSDALE SOLUTION

Microtorque Valve

- Compact version of the Heavy Duty Shear-Seal® directional control valve. Designed for fluid power applications up to 6,000 psi where compact design and virtually zero leakage are a must.

- **Features:**
  - Original Shear-Seal® Technology
  - Lightweight compact design
  - Zero-leak performance
  - High pressure capability
  - Able to tolerate contaminated media
FEATURES

Materials of Construction:
Body & Housing: Anodized aluminum
Shaft, Rotor, Pressure Seals 400 Series Stainless Steel

Weight: 0.95 lbs

Size
PERFORMANCE

Media: Hydraulic Oil
Working Pressure: 6,000 psi (415 bar)
Consult factory for pressure up to 10,000 psi (690 bar)

Cv and Flow:

<table>
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<tr>
<th></th>
<th>Flow Capacity</th>
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<td></td>
<td>20 ft/sec</td>
<td>40 ft/sec</td>
<td>Cv factor</td>
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<tr>
<td><strong>518 Series</strong></td>
<td>1.4 gpm</td>
<td>2.8 gpm</td>
<td>0.40</td>
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<tr>
<td>Interflow</td>
<td></td>
<td></td>
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<tr>
<td><strong>526 Series</strong></td>
<td>0.36 gpm</td>
<td>0.72 gpm</td>
<td>0.09</td>
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<tr>
<td>Non-Interflow</td>
<td></td>
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</table>
AVAILABLE OPTIONS

- Manifold mount (DO3 – industry standard)
- Panel mount
- Spring return
- 2 or 3 position detent
- High Pressure version up to 10,000 psi
Applications

- **Industrial Hydraulics**
  - Work holding clamps and systems
  - Hydraulic presses and lifting systems
  - Pump skid control
  - Hydraulic power units
  - Metalworking tools
  - Tube forming and bending equipment

- **Mobile Hydraulics**
  - Military vehicles
  - Concrete mixing vehicles
  - Hydraulic cylinders
  - Booms, cranes, lifts
  - Portable power packs
  - Emergency vehicles
APPLICATIONS

- Hydraulic Tools
  *For speed control and holding part in place*

- Work-holding equipment (hydraulic vises)
- Drill Press
- Milling Machine
- Log Splitter
- Metalworking tools (Lathe)

DO3 manifold mounting
Industrial Hydraulics

APPLICATIONS

- Hand Pumps
  
  *For flow control*
  
  - Zero-leak performance
  - Compact size
APPLICATIONS

- **Steering Control**
  
  Controls steering on front and rear wheels of:

- Telescopic boom lifters
- Rough terrain forklifts
- Aerial work platforms
- Scissors lifts
- Cranes
- Booms
- Lift Trucks
- Telehandlers
- Lift trucks
- Wheeled loaders
- Mobile cranes
- Work platforms
APPLICATIONS

- **Agriculture**
  *Operates pumps and directs hydraulic system control*
  - Farm equipment
  - Tractors
  - Harvesters

- **Road Levelers**
  *Controls the level of the machine to be perpendicular to ground*
  - Pavers for material handling & compacting

- **Forestry**
  *Valve controls the clamping arms*
  - Forwarders
  - Skidders
  - Truck Cranes
Mobile Hydraulics

APPLICATIONS

- Military
  For hydraulic steering/hydraulic controls
  - Ramps
  - Tanks
  - Howitzers
  - Military Vehicles
Mobile Hydraulics

APPLICATIONS

- **Hydraulic Power Units**
  
  *For flow direction control*
  
  - Portable or stationary
  - Where no electricity is available
  - Used with hydraulic tools
COMPETITIVE POSITIONING

Key players:
- Parker
- Snap-tite

Barksdale’s competitive advantage is our name recognition, quality, reliability and performance.

Alternate valve technologies:
- Spool type valves
- Poppet type valves

Products that use non-Shear-Seal® valve technology are prone to leaking and cannot handle high flows or contaminated media as well as Shear-Seal® valves.
COMPETITIVE POSITIONING

Parker
Barksdale offers better delivery
- better quality

Snap-tite
Barksdale offers better performance
- more products
- more features
- and better delivery
VALVE TECHNOLOGIES

Shear-Seal® valves

Poppet type valves

Spool type valves
FLOW CAPACITY

- Flow restrictions
  - Throttling losses are significant in spool and poppet valve design
  - Shear-Seal® design has smoother flow path => lower flow losses and higher flow rates versus other valve designs resulting in higher efficiency of the hydraulic system
LEAKAGE

- Overburden of pumps and compressors
- Overheating of hydraulic fluid (damaging other equipment)

- **Shear-Seal® valves** are effectively leak free

- **Spool valves** have inherent leakage paths
  - Spool-to-bore clearance (required for shifting)
  - Leakage increases continually as valve wears and clearances increase

- **Poppet valves** are susceptible to leakage
  - Contamination trapped between the seal and the seat prevents full closing
  - High velocity causes erosion of the seat which again prevents full closing
CONTAMINATED MEDIA

- Valve damage or freeze up from dirty fluid (a fact of life)

- **Shear-Seal® design** is highly tolerant of particulate contamination
  - Lapped metal to metal seals (shear seals) do not allow particulates between mating surfaces
  - Seals wipe clean during closing
  - Mobile hydraulic systems are particularly susceptible to contamination

- **Spool and poppet valves** are much less tolerant of particulate contamination
  - Erosion of poppet valve seats
LIFE EXPECTANCY

- **Shear-Seal® valves** offer longer life expectancy
  - Perform better over time: “Wear in not out”
  - Low maintenance cost: replacement of pressure seals

- **Spool and poppet designs** susceptible to excessive maintenance cost
  - Frequent maintenance of valves or valve replacement
  - Repair of other equipment damage caused by valves
  - Production loss from machine downtime
SUMMARY

Designed as a compact version of the Heavy Duty Shear Seal® directional control valve, Barksdale’s Microtorque valve provides superior directional control for fluid power applications up to 6,000 psi where compact design and virtually zero leakage are a must.

- High flow, high pressure capability
- Zero-leak performance
- Ability to handle contaminated media

Used in many different applications, find the next one

► Industrial Hydraulics
► Mobile Hydraulics
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Cross reference: https://www2.barksdale.com/crossref/searchpartnumber.asp
Training: https://apps.barksdale.com/extranet/training/mba.asp
Sales Sheets

For Customer

Microtorque™ Valve

Description
Barksdale's Microtorque valve is an ideal choice for fluid power applications where the operator needs a small, reliable valve with high efficiency. Designed for fluid power applications up to 4,000 psi, the compact design and virtually zero leakage are a must.

Features
- Original Single-Stage Technology
- Light-weight compact design
- Zero-nose performance
- High-pressure capability

Available Options
- Panel mount
- Manifold mount
- 2 or 3 way
- Flow rates up to 10 gpm
- Switching up to 10,000 psi

Applications
- Mobile Hydraulics
- Industrial Hydraulics
- Marine
- Industrial
- Other

Barksdale is recognized leader in the design and manufacture of industrial fluid power valves for numerous industrial applications. The Microtorque valve, featuring Barksdale's valve design, is ideal for severely stressed fluid power systems where a fail-safe design is critical for high-performance operations.

For Salesperson

Microtorque™ Valve

Description & Key Features
Designed as a compact version of the Heavy Duty Sheet Metal directable pressurized valve, Barksdale's Microtorque valve provides superior performance for fluid power applications. Its compact design and virtually zero leakage are a must.

Features
- Pressure rated
- Manifold mount
- Panel mount
- In 2 or 3 way
- For 2 or 3 way

Uses
Barksdale is recognized leader in the design and manufacture of fluid power valves. The Microtorque valve is an ideal choice for fluid power applications where the operator needs a small, reliable valve with high efficiency. The Microtorque Valve offers a wide range of options that allow it to be adapted to numerous applications.

Awards
Barksdale's乃閔聞 leaders in the design and manufacture of fluid power valves, providing superior performance and reliability in a wide range of applications. The Microtorque Valve offers a wide range of options that allow it to be adapted to numerous applications.

Target Market / Typical Applications
- Mobile Hydraulics
- Industrial Hydraulics
- Marine
- Industrial
- Other

Barksdale's Microtorque Valve is the ideal choice for液压 system requirements, providing superior performance and reliability in a wide range of applications. The Microtorque Valve offers a wide range of options that allow it to be adapted to numerous applications.

Competitive Positioning

Key Points
- Reliability
- Price
- Quality

Barksdale's competitive advantage is in our commitment to quality, reliability, and performance.

Support Team

- Sales: 520-985-2000
- Fax: 520-985-2000

- Qualifying Questions
- In manual directional control valve required for your hydraulic system? To compensate for system failure?
- To prevent valve seal damage? To prevent pressure spikes?

- Additional Support Tools

Barksdale Control Products

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