



## Confidence with the global standard in pressure relief devices

- Robust design and materials provide reliable protection and long life
- Widest array of options for a solution tailored to your requirements
- 100% tested for quality assurance
- Visual and remote indication of operation

### Product Summary

**Description** Mechanical device for relief of excessive pressure buildup in large volumes of gas or fluid. Patented dual gasket system provides quick response time and automatically reseals after pressure has subsided.

Options include local operation indication, contacts (switches) for operation alarming, and directional shield for hot oil and gas exhaust control.

**Application** For overpressure protection on transformers, load tap changers and other related electrical equipment.



## QUALITROL® LPRD large pressure relief devices

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### Confidence with the global standard in pressure relief devices

- World's leading pressure relief device pioneered automatically resealing pressure relief
- Greater than 50 years and 400,000 units of field experience in pressure relief have enabled QUALITROL experts to refine designs for maximum reliability
- Most frequently customer specified pressure relief by name

### Robust design and materials provide reliable protection and long life

- Main cover is available in zinc clad steel (208/213) or stainless steel (216) for added durability and corrosion resistance
- Dual gasket design provides amplified force for rapid operation
- Patented secondary seal wiper gasket provides more reliable resealing
- Stainless steel operating valve, fasteners, and hardware for added durability
- Flange and ring are made from aluminum with a chromate conversion coating with exposed aluminum components receiving an additional thermosetting powder coat finish

### Widest array of options for a solution curtailed to your requirements

- Preset certified relief rating allows you to select the device that best meets your needs
- Switches can be specified to operate as latching or momentary, SPDT or DPDT, high DC, or low current gold contact type, and with connector, terminal box, or flying lead style connections
- Optional directional shield can be coupled with piping, providing maximum protection of equipment, personnel and the environment by redirecting the flow of hot oil and gas
- Optional gas bleed system available for mounting under the oil level
- Device can be top mounted horizontally (recommended) or side mounted vertically for maximum installation flexibility

### 100% tested for quality assurance

- QUALITROL LPRDs are 100% pressure tested for proper operation pressure
- Test results are serialized for traceability

### Visual and remote indication of operation

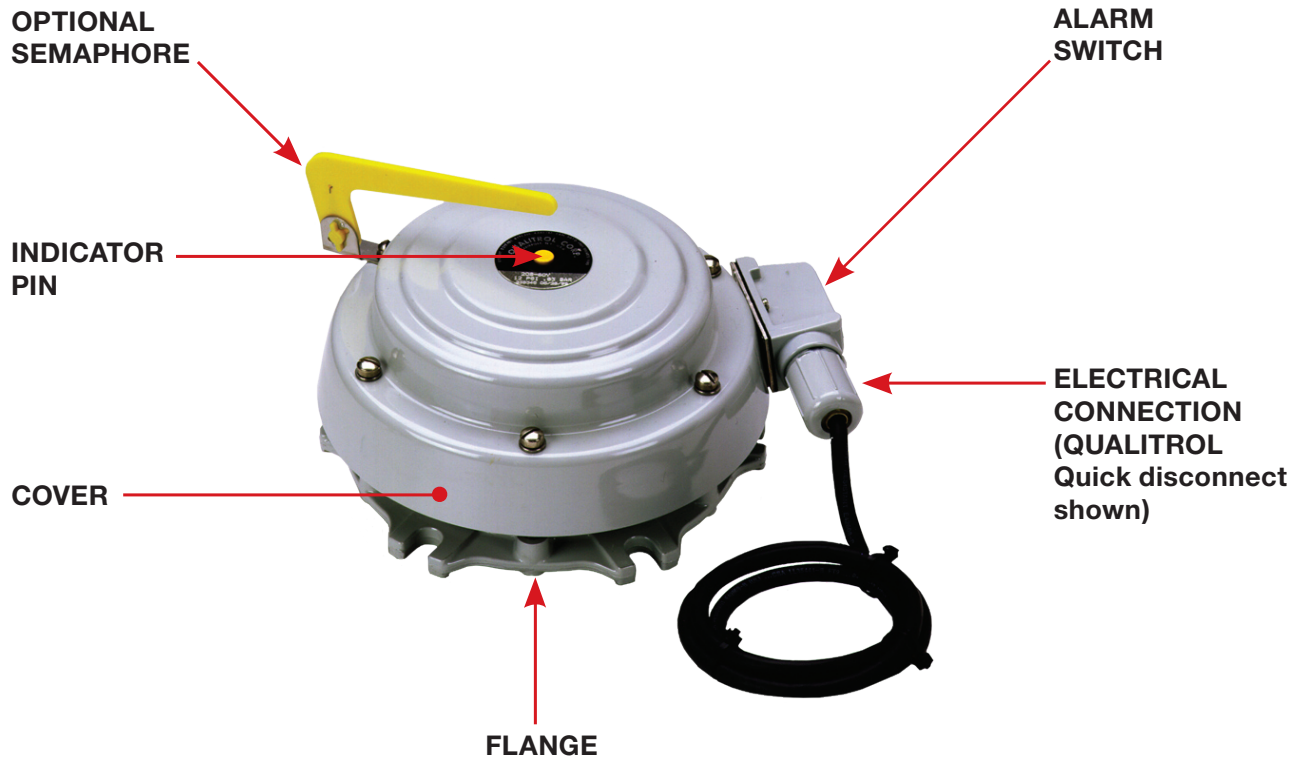
- Optional semaphore (flag) provides visual indication of actuation and is available in different colors and materials
- Standard units support up to two alarms switches that can be mounted directly to the device or on the directional shield



#### Don't see what you need?

QUALITROL regularly creates models with special customer requirements. Contact your local sales representative or QUALITROL Application Engineer to review your special requirements.

## LPRD features



### Applications

Qualitrol Pressure Relief Devices are used in a wide variety of transformer systems including:

- Network (up to 500 KVA and higher in certain applications)
- Large distribution and small power (up to 2500 KVA)
- Medium power (2500 KVA to 10,000 KVA)
- Large power (10,000 KVA and above)
- Load tap changers
- Mobile systems
- Electric railway locomotives

### Installation

While no precise formula applies to determine the required quantity of pressure relief devices (PRDs) for protection, it is typical to apply the following general rule: Use one pressure relief device for each 10,000 gallons of cooling liquid capacity or fraction thereof. Some specifications require the use of pressure relief devices on transformers rated at 1,000 KVA or higher but many QUALITROL LPRDs are in use on transformers rated as low as 300 KVA. Ultimately, the choice of the size and quantity of PRDs to install comes down to the risk level an operator is willing to operate at.

QUALITROL LPRDs are typically mounted in the recommended horizontal orientation with the top side up, however, they may be side mounted (vertical orientation) as well. In these installations, when the device is mounted below the fluid level, the normal head pressure must be considered when determining the operating value of the LPRD. In addition, provision should be made for proper clearance of the operation indicator, and optimal orientation of the electrical connection.



## Components and accessories

### Alarm switches



- Each pressure relief device can be specified with up to two alarm switches (with 4 contacts) that will activate upon valve operation
- Switch contacts can be specified as latching or momentary operation, SPDT or DPDT, high DC, or low current gold contact type, and with connector, terminal box, or flying lead style connections

### Directional shield



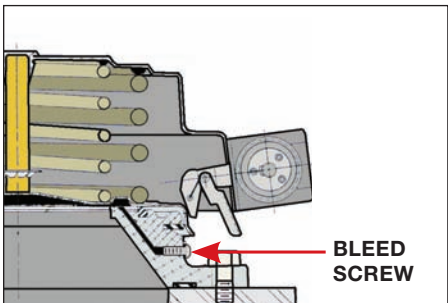
- Directional shield mounts on top of pressure relief device and is specifically designed for ease of retrofit applications
- Redirects flow of hot oil and gas away from personnel or critical parts on the transformer
- Shield accommodates up to two alarm switches and an indicator

### Operation indication semaphore



- Optional semaphore (flag) provides visual indication of actuation and is available in different colors and materials
- Compatible with directional shield and alarm switches

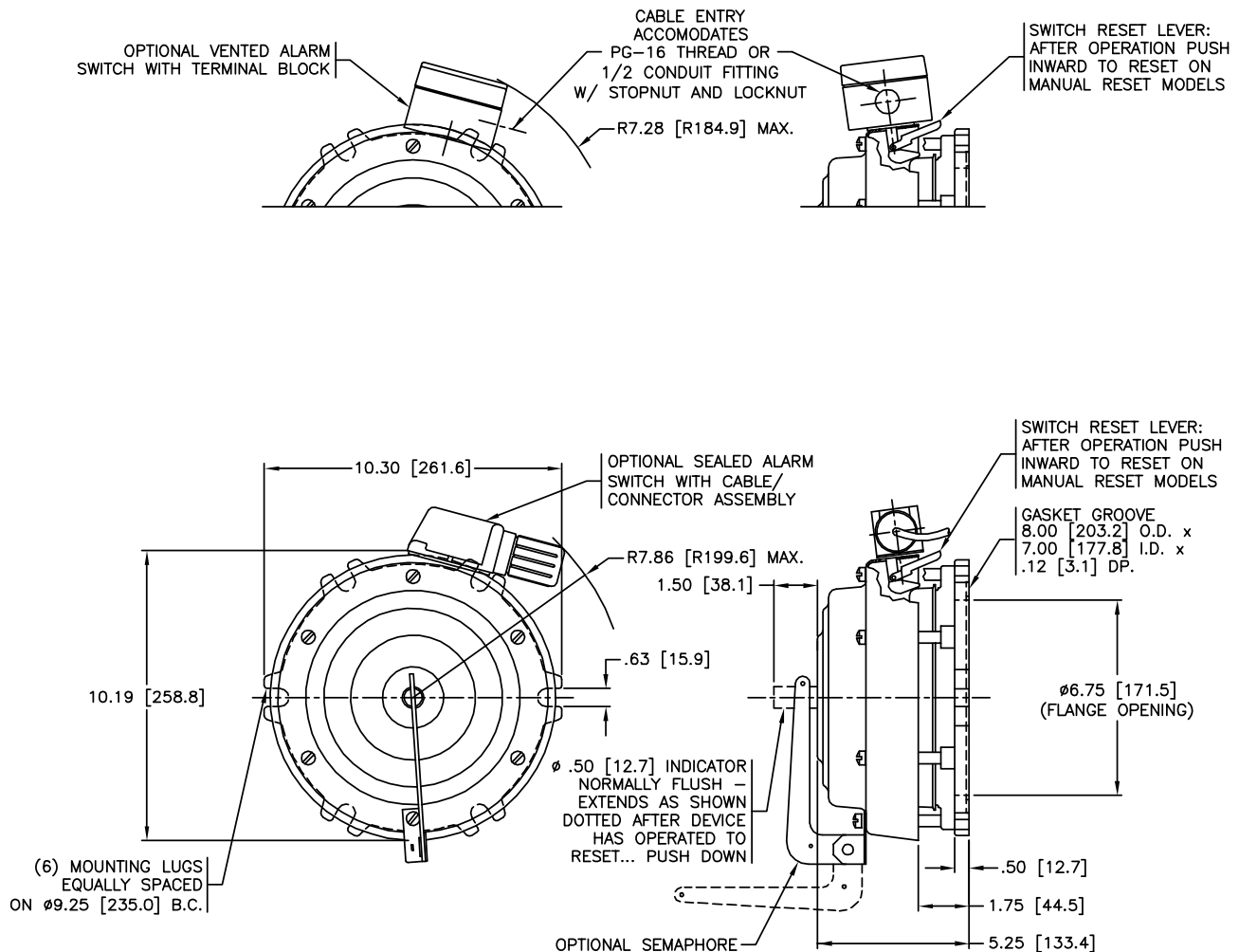
### Gas bleed system



- For use in applications where pressure relief device is mounted below the oil level
- Provides a means by which trapped gases can be purged from the wetted chamber of the pressure relief device


**TECHNICAL SPECIFICATIONS**

|                      |                               |   |
|----------------------|-------------------------------|---|
| <b>Materials</b>     | Cover                         | Cold rolled steel, zinc plated with chromate and thermosetting powder coat or 300 series stainless steel, as per model                                    |
|                      | Flange                        | Die cast aluminum; polyester resin impregnated, chromate conversion coating and ASA 70 light gray thermosetting powder coat finish                        |
|                      | Ring                          | Aluminum with chromate conversion coating   |
|                      | Indicator pin                 | Brass   |
|                      | Indicator retaining sleeve    | UV stabilized nylon and high temperature thermoplastic rubber   |
|                      | Bushing                       | Stainless steel   |
|                      | Spring                        | ASTM A229 oil-tempered spring wire with zinc plate and chromate   |
|                      | Spring seat                   | Aluminum  |
|                      | Valve stems                   | Carbon steel with zinc plate and chromate   |
|                      | External hardware             | Stainless steel   |
|                      | Sealing valve                 | 304 Stainless steel, sealing areas lubricated with silicone based lubricant   |
|                      | Springs                       | ASTM A229 Oil tempered spring wire  |
|                      | Studs                         | 416 stainless steel, or 300 series stainless steel, as per model  |
|                      | Gaskets                       | Nitrile, Viton, or Silicone as per model  |
|                      | Semaphore (optional)          | Impact resistant plastic with stainless steel hardware is standard  |
| <b>Environmental</b> | Ambient operating temperature | -40°F to +176°F (-40°C to +80°C)  |
|                      | Oil operating temperature     | -4°F to +212°F (-20°C to +100°C)  |
|                      | Salt spray                    | 200 hours of salt spray testing per ASTM B:117 with no visual signs of corrosion<br>1000 hours of salt spray testing with no appreciable loss of strength |
| <b>Electrical</b>    | Electrical connection         | IP66, PG-13.5 cable entry, max. 2.5 mm 2-strand wire (14 AWG)   |
|                      | Operating temperature         | -13°F to +185°F (-25°C to +85°C)  |
|                      | Dielectric strength           | 2500 VAC, 50/60 Hz. for one minute  |
|                      | Switch rating                 | ½ A @ 125 VDC non-inductive<br>¼ A @ 250 VDC non-inductive  |
|                      | Electrical connection         | QUALITROL style circular 3 pin, ANSI style circular 3 pin, military spec MS3102E16-10P circular 3 pin, flying leads or terminal box                       |



## QUALITROL® Field Services

To further improve reliability, QUALITROL provides comprehensive education and on-site commissioning services, maintenance contracts and technical support to all customers worldwide. Emergency response is available on all products and services.

## About QUALITROL®

QUALITROL Company LLC manufactures substation and transformer monitoring and protection devices used by electric utilities and manufacturing companies. It is the global leader in sales and installations of transformer asset protection equipment, fault recorders and fault locators. Established in 1945, QUALITROL Company produces thousands of different types of products on demand, each customized to customers' unique requirements.

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