

# Diamond Power® Series II — Ported Level Gauge (Bi-Color)

The Diamond Power® Series II ported level gauge (bi-color) from Babcock & Wilcox (B&W) is a 3000 psi (207 bar) ported gauge that produces a red/green image to indicate the water level in a high-pressure steam drum. Light projected through steam produces a red image. Light projected through water is refracted (bent) and produces a green image.

## Features

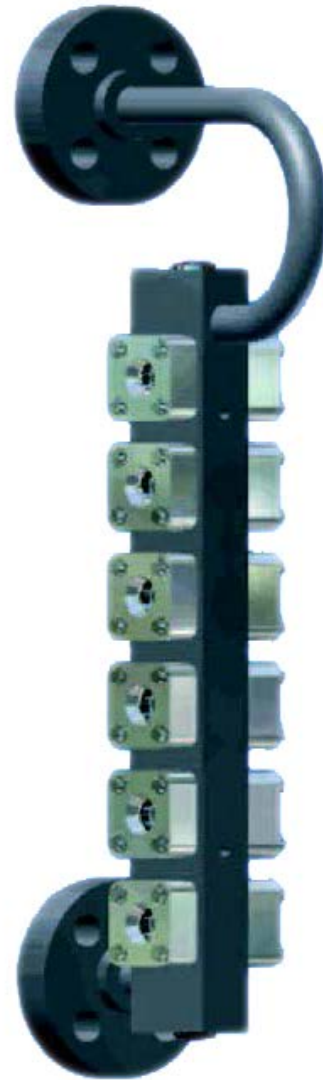
- Designed for 3000 psi (207 bar) and 696F (369C) steam service
- Body is precision machined into a trapezoidal shape
- Laminated and die formed graphoil sealing gasket
- Constructed to the ASME Boiler and Pressure Vessel Code requirements for design, materials and construction

## Benefits

- One piece type 304L stainless steel body and covers provide corrosion resistance and long service life
- Belleville spring washers maintain gasket loading under thermal and pressure cycles
- Precision tempered and ground aluminosilicate glass provides clear visibility
- Two discs of premium V-1 quality clear ruby mica protect the glass from steam and extend service life

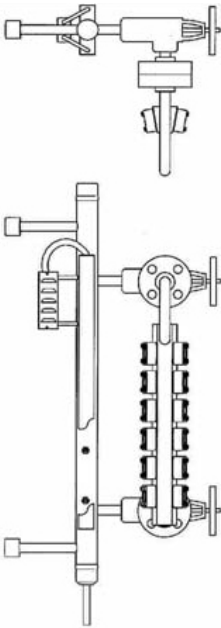
## Options

- Visibility: gauges are available in a range of standard visibilities from 12.5 in. up to 42.5 in. (318 to 1080 mm) to suit various applications
- End connection options: flanged with pipe expansion loop, or pipe nipple ended for use with tubular packing box valves
- Gauge flange spacing: standard flange center, or customized to suit retrofit applications
- Solid-state illuminator with level display provides clear red/green image and a 10-year maintenance free service life. Illuminator can be easily modified for use in hazardous (explosive) areas.
- Ported style visual gauges require a RED/GREEN illuminator to indicate the water level. This is required by ASME Boiler Code.
- Gauges can be incorporated with other standard components and provided as part of a complete boiler level equipment package including:
  - Plain water column to match drum centers and gauge
  - Diamond Power electronic level column with probes, remote indication and controls
  - Gauge isolation valves with chain wheel operators and chain
  - Column isolation valves and drain valves

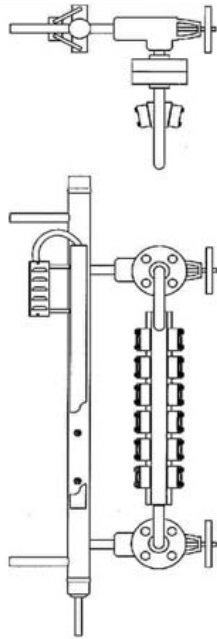


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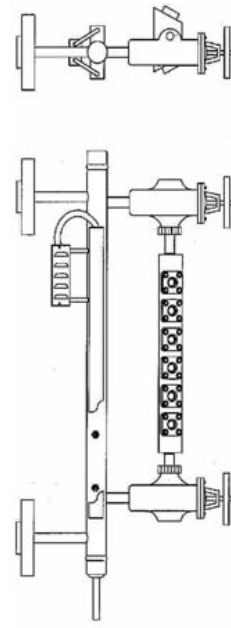
## Ported Level Gauges Installed on a Diamond Power® Series II Electronic Level Column



Side Flange Mounting



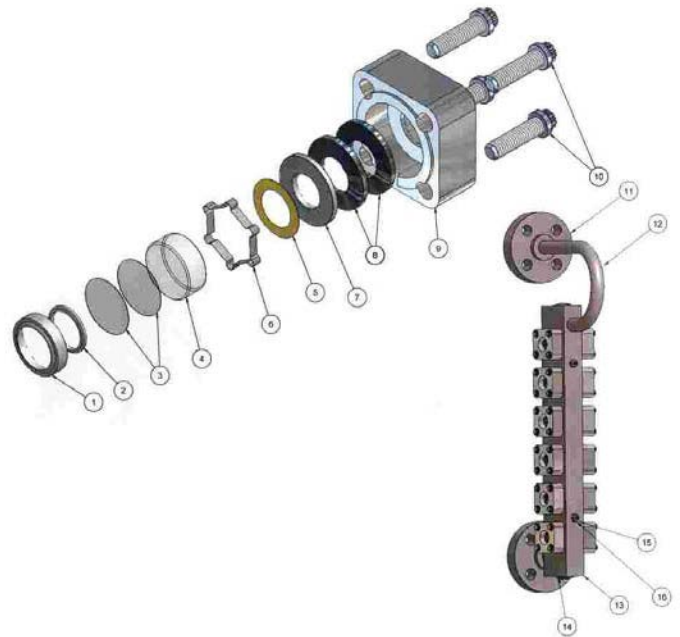
Bottom Flange Mounting



Pipe Nipple Mounting

| Item | Qty | Description            | Material                 |
|------|-----|------------------------|--------------------------|
| 1*   | 1   | Gasket Retainer        | Stainless Steel          |
| 2*   | 1   | Sealing Gasket         | Graphoil                 |
| 3*   | 2   | Mica                   | Mica                     |
| 4*   | 1   | Glass                  | Tempered Aluminosilicate |
| 5*   | 1   | Cushion Gasket         | Non-Asbestos             |
| 6    | 1   | Glass Retaining Spring | Stainless Steel          |
| 7    | 1   | Flat Washer            | Stainless Steel          |
| 8    | 2   | Belleville Washer      | Stainless Steel          |
| 9    | 1   | Port Cover             | ASME SA 351 CF8          |
| 10   | 4   | Cover Bolt             | ASME SA 193 B7           |
| 11   | 2   | Flange                 | ASME SA 105              |
| 12   | 1   | Pipe                   | ASME SA 106 GR.B         |
| 13   | 1   | Gauge Body             | ASME SA 479 TYPE 304     |
| 14   | 2   | Plug                   | ASME SA 182 TP 304       |
| 15   | 4   | 5/16-18 Stud           | Stainless Steel          |
| 16   | 4   | 5/16-18 Nut            | Stainless Steel          |

\*Included in the Bi-color Gauge Port Repair Kit: P/N DP-46-20 0110



**Ordering:** Use B&W form SP-653 to list the particular equipment design specifications, configurations, and options.

# Diamond Power® Series II — Bi-Color Gauge Illuminator System

The solid state bi-color gauge illuminator and display attach to the ported level gauge (required) to produce a red and green image on the display.

The red/green image is produced by an array of solid state light emitting diodes (LEDs) and precision lenses that focus the image through the gauge body onto the display.

The LED arrays and precision plano-convex lens provide a bright, clear and unmistakable image in the presence of steam and water. The high intensity narrow beam LEDs are mounted on an electronic printed circuit board with current limiting resistors.

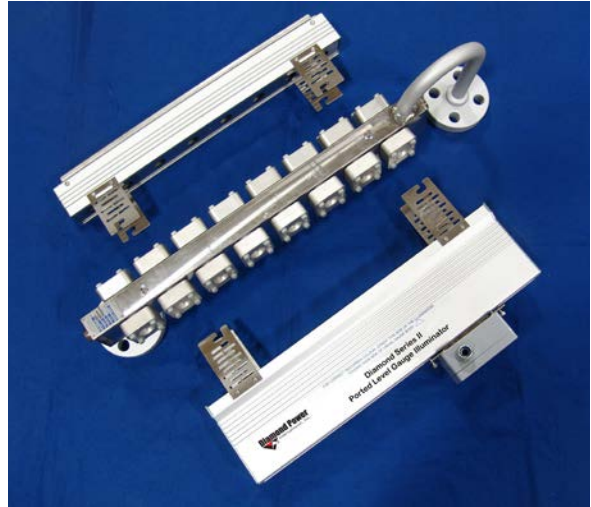
A precision 24 VDC power supply provides the illuminator with the exact current that is required for a constant clean image.

## Features

- Indoor or outdoor installations rated NEMA 4X
- Easily removed for gauge port inspection or repair
- Illuminator and display are extremely lightweight and compact
- Illuminator power supply can utilize voltage of either 120 or 240 VAC
- 6 LEDs per port produce extremely bright image, visible from more than 100 ft (30 m)
- Level display enables operator to easily view image without standing at a precise spot

## Options

- Display hood for increased visibility of display in bright sunlight
- Mirror or closed-circuit TV for remote viewing

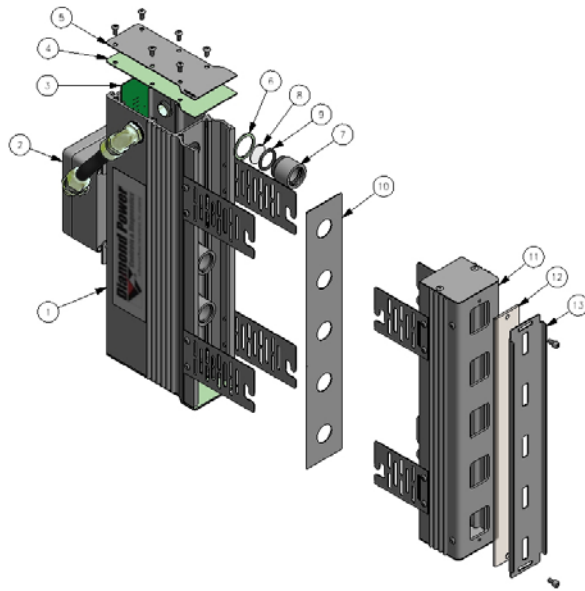


*The standard bi-color gauge illuminator system is required on the ported level gauge.*

## Benefits

- All stainless steel and aluminum construction provides corrosion resistance and long service life
- LEDs are immune to failure from vibration
- Extremely efficient; converts virtually all energy into light, reducing power consumption and costs. Only 0.5 watts per port.
- Average LED life is 11 years, resulting in reduced maintenance and service costs
- Absence of fragile colored glass prevents unnecessary repairs
- Display and illuminator can be installed on either side of the gauge to provide viewing flexibility
- Adjustable end plate for exact placement of viewing screen, providing an unmistakable image

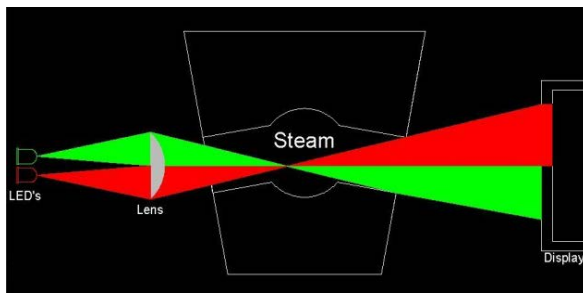
## Bi-Color Gauge Illuminator Parts Reference Guide



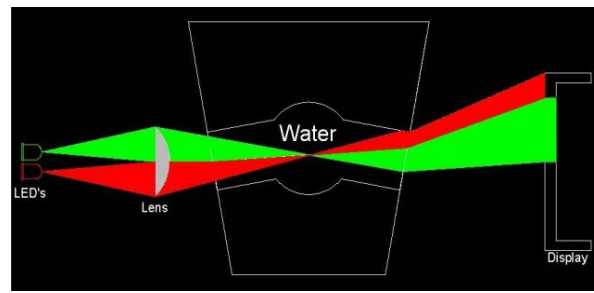
### Parts List

| Item | Description          |
|------|----------------------|
| 1    | Illuminator Cabinet  |
| 2    | Power Supply         |
| 3    | LED PCB              |
| 4    | Gasket               |
| 5    | Cover                |
| 6    | Lens Gasket          |
| 7    | Lens Holder          |
| 8    | Lens                 |
| 9    | O-ring               |
| 10   | Heat Divider         |
| 11   | Display Cabinet      |
| 12   | Display Window       |
| 13   | Adjustable End Plate |

### Bi-Color Gauge Operation



Observer sees RED



Observer sees GREEN

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