

DUPCON

THE RIGHT PRODUCT FOR YOUR APPLICATION



40 years

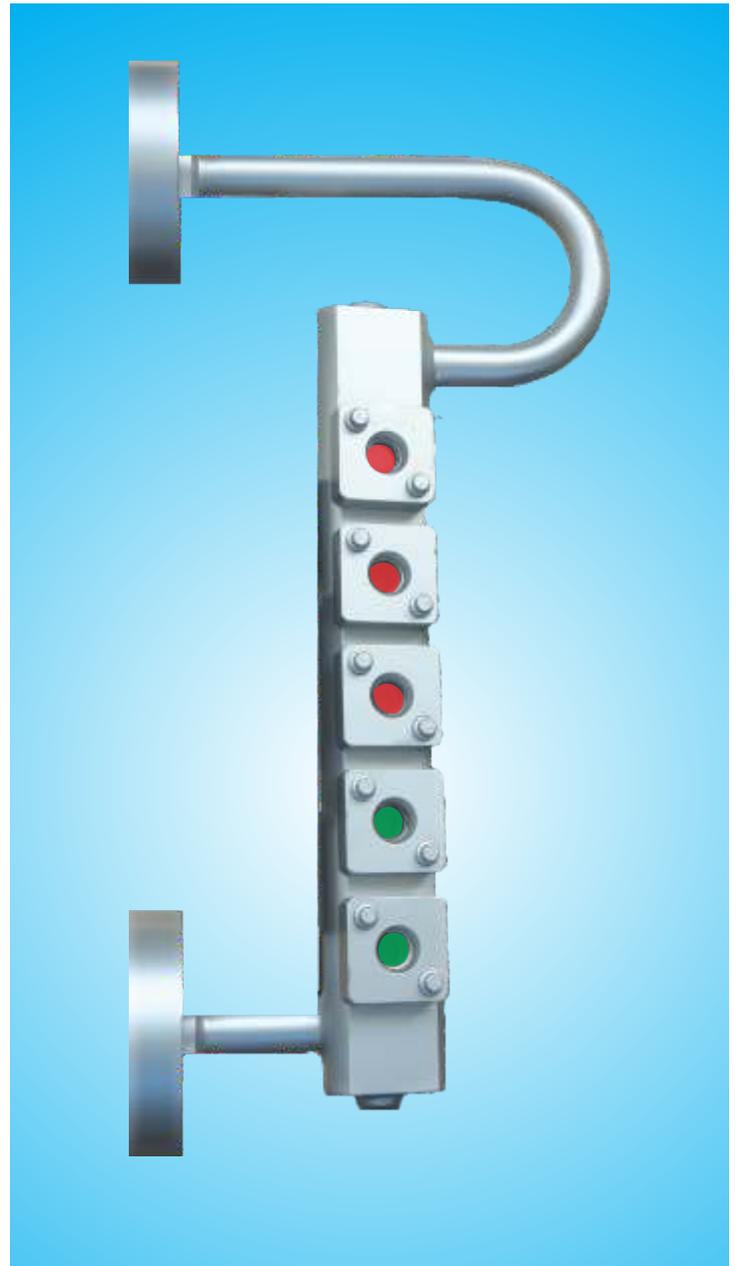
TWO COLOR BOILER LEVEL GAGE MODEL DUALCOLOR

BENEFITS:

- The **BEST** safety for the boiler and the employees with unmistakable reading of the steam drum water level;
- Low maintenance cost;
- Easy reading
- Long service life;

FEATURES:

- TWO COLORS direct reading;
Green for water;
Red for steam
- PORT-type transparent elements
- Special cone springs compensate for thermal expansion and maintain the correct compression of the glass and the gasket.
- For boilers operating with up to 207 bar (3000 psi) pressure.
- Meets ASME Boiler Pressure Code for direct reading of the water level in steam drum
- Par. 60.1.1 requires two direct reading gages in each boiler operating pressure above 28 bar (400 psi).



Direct Reading for WIDE ANGLE

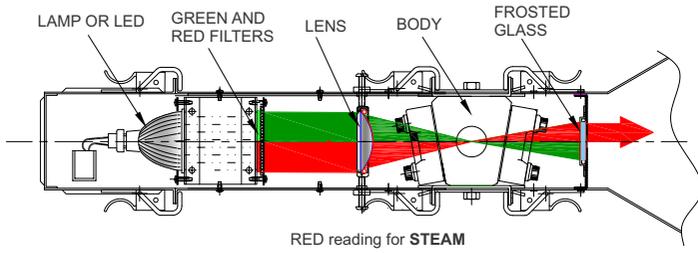


Reading in DIRECT Closed Circuit TV (CCTV)

OPERATING PRINCIPLE

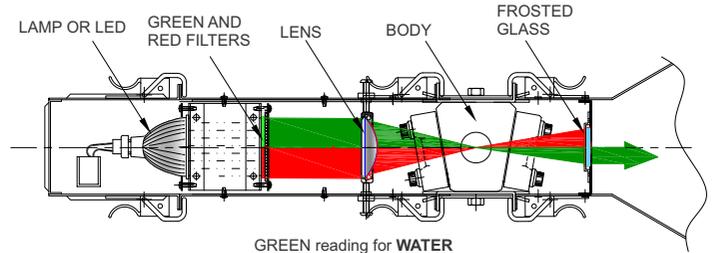
The **DURCON DUALCOLOR** boiler level gage is exclusively optical, no mechanical interferences or moving parts. The Illuminator with individual high efficiency optical assemblies, creates a GREEN and a RED parallel light beams for each gage port.

DUALCOLOR Level gage with **CONCENTRA** Illuminator and **WIDE ANGLE** reading.



RED reading for STEAM

The green and red light beams are focused by the convex lens through the gage port. As there is steam present in the port, the light follows through an interrupted path and is captured by the frosted glass in BRIGHT RED.



GREEN reading for WATER

As shown here the green and red light beams are refracted by the water present in the port and captured by the frosted glass in BRIGHT GREEN.

DURCON CONCENTRA ILLUMINATOR

The boiler water level gage is installed near the upper drum and often out of visual reach of the operator. So it is of utmost importance that its reading be easy and reliable also at distance. To facilitate the reading are used illuminators. The **DURCON's CONCENTRA** illuminator is modern, efficient, reliable and most important, significantly facilitates the reading of the upper drum water level.

With **DURCON CONCENTRA** illuminator and its innovative **WIDE ANGLE** front hood, the boiler operator will be able to read error-free, with just a quick look, the boiler drum water level from any frontal angle. GREEN for water and RED for steam do eliminate possible misinterpretations. This is an exceptional advantage when compared to conventional system using illuminators which reading is only possible from a completely frontal location.

With **DURCON CONCENTRA** illuminator and its Closed Circuit TV front duct, the boiler drum water level is transmitted securely to any TV monitor, i.e. the boiler control room. This illuminator has a frontal hood duct sealed from external light and mounted on a pedestal. Internal rails facilitate the positioning of the TV camera, to transmit a perfect image.

Additional transmission options as mirrors etc. are also available

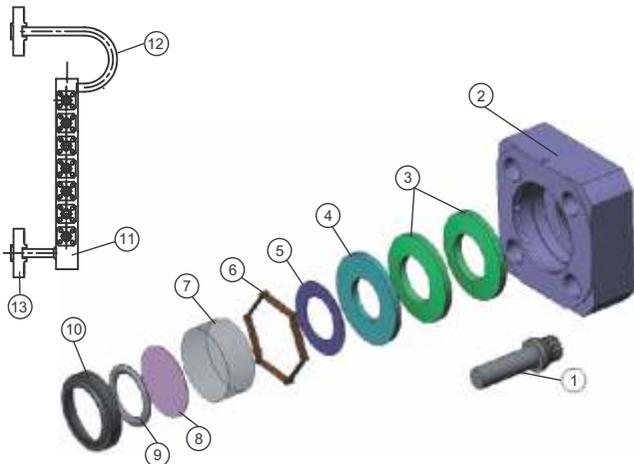


Direct Reading for WIDE ANGLE



Reading in DIRECT Closed Circuit TV (CCTV)

MATERIALS (parts)



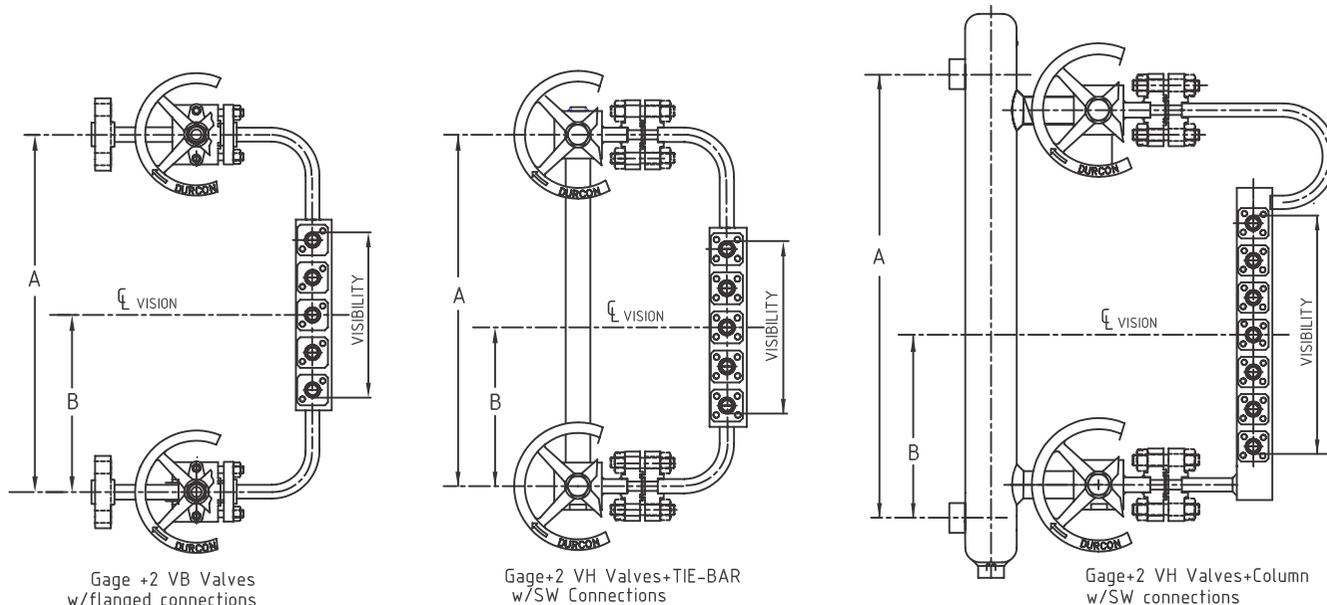
ITEM	Qty.	DESCRIPTION	MATERIAL	SPECIFICATION
1	04	BOLT	ALLOY STEEL	ASTM A 193 Gr B7
2	01	COVER	C. S. SURFACE TREATED	ASTM A105 / ASTM A516 Gr 70
3	02 (x)	SPRING CONE	STAINLESS STEEL	17-7 PH
4	01	WASHER	ST. ST. HEAT THREATED	AISI 410
5	01	CUSHION	SPECIAL GASKET	-----
6	01	CENTRALIZER	STAINLESS STEEL	AISI 302
7	01	GLASS	ALUMINUM SILICATE	-----
8	02	MICA	SPECIAL RUBY	-----
9	01	SEALING GASKET	FLEXIBLE GRAPHITE	See note XX
10	01	CLIP	STAINLESS STEEL	AISI 304
11	01	gage BODY	STAINLESS STEEL	ASTM A182 Gr F304L
12	02	TUBE	CARBON STEEL	ASTM A106
13	03	FLANGES	CARBON STEEL	ASTM A105

*NOTES:
 X One (1) Spring Cone for pressure up to 59 bar / Two (2) Spring Cone for pressure above 59 bar, up to 207 bar.
 XX Sealing gasket has no asbestos
 (*) Items 5;7;8;9 and 10 are offered and available as "REPAIR KIT".

Corrosion and thermal shock resistant materials

- Low carbon stainless steel is used to enhance the body corrosion resistance.
- Chrome molybdenum alloy steel bolts are used to enhance superior mechanical strength at elevated temperature. In addition they are surface treated against environmental corrosion.
- The round glasses are tempered with special composition and treatment to withstand the elevated pressures, temperatures and thermal shocks.
- Each port is protected with Ruby Mica against corrosion caused by high temperature steam and water combinations.

DIMENSIONS REQUIRED BY TYPE OF STANDARD INSTALLATION ARRANGEMENTS



STANDARD INSTALLATION ARRANGEMENTS (FIGURES)

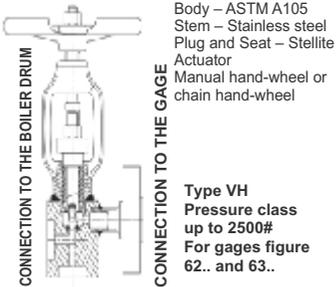
For working pressure up to 59 bar (855,5 psi)	gauge with nipple connections 6110	gauge with lateral flanged connections 6120	gauge + 2 VB valves, flanged connections 6130	gauge + 2 VB valves + circulating Tie Bar, SW connections 61301	gauge + 2 VB valves + Column, SW connections 61302	2 gauges + 4 VB valves + Column, SW connections 61302x6130
	gauge with nipple connections 6210	gauge with lateral flanged connections 6220	gauge + 2 VH valves, SW connections 6240	gauge + 2 VH valves + circulating Tie Bar, SW connections 62401	gauge + 2 VH valves + Column, SW connections 62402	2 gauges + 4 VH valves + Column, SW connections 62402x6240
	gauge with lateral flanged connections 6320		gauge + 2 VH valves, SW connections 6340	gauge + 2 VH valves + circulating Tie Bar, SW connections 63401	gauge + 2 VH valves + Column, SW connections 63402	2 gauges + 4 VH valves + Column, SW connections 63402x6340

GAGE ISOLATION VALVES (VB AND VH), CHECK VALVES (RA)

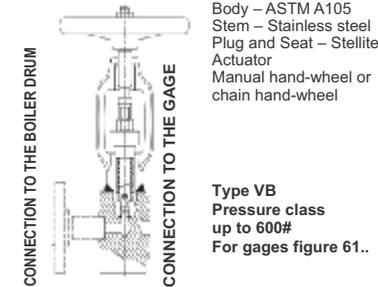
The reliability and operational safety of the level gage depends on the use of adequate isolation valves. **DURCON's** VB and VH isolation valves have been developed for long operational life, easy maintenance, safe isolation and start-up operation of the gage. The building block construction offers a wide range of choices.

The automatic check valves type RA, block the discharge of steam and water in case of failure of the glass of any PORT type element. This option is a very important additional safety feature for the boiler operator and for the maintenance worker. The upper check valve has a manual handle to be used for bypassing the check valve function during start-up mode or when self-cleaning is needed.

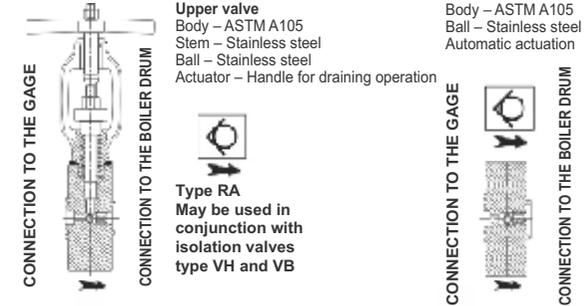
Isolation valve type VH



Isolation valve type VB



Check valve Type RA



OPTIONS

Column, Tie Bar, Drain connections, other connections, Drain and Vent valves, etc.

DURCON's standards are: Column: Nominal size 3" and 4"; Tie Bar: nominal size 1-1/2";

Drain and other connections: Nominal size 1/2" and 3/4" SW Additional options and sizes are available on request.

ALARMS

When it is specified "Column with alarm(s)", the column is supplied prepared for the use of **DURCON's** electronic alarm system model **DURNIVEL**. Special probes located laterally in the water column, accomplish alarm(s) and cut-off(s) functions. This highly reliable system, alerts the operator when abnormal drum water level conditions occur. It is also available this system with automatic cut-off with time delay logic, in case pre-defined conditions occur. For additional information consult **DURCON's DURNIVEL** brochure.

HOW TO SELECT

6				6	
Max. working pressure	Isolation valves and connectio	Check valves	Supports	Pressure class	For two gages assemblies
1- 59 bar 2- 128 bar 3- 207 bar	1 - Nipple 2 - Lateral flange 3 - VB Valve 4 - VH Valve 5 - Other	0 - Without 1 - RA Valve	0 - Without 1 - Tie Bar 2 - Column 3 - Other	1- 600# 2- 900# 3- 1500# 4- 2500#	Repeat the first 3 digit for assemblies with two gages in one column

HOW TO SPECIFY DURCON's BOILER LEVEL GAGE

Two color PORT type boiler level gage, model **DUALCOLOR**

Figure: 6 * * * 6 * * * Mounting (see note below) Right Left

Dimensions: Visibility ___ mm; A: ___ and B ___

Visibility (mm)	276	305	316	381	403	419	457	463	530	610	610	657	686	757	757	838	914	991	1067	1143	1219
(Inch)	10 3/4	12	12 1/2	15	15 3/4	16 1/2	18	18 1/4	21	24	24	25 3/4	27	29 3/4	30	33	36	39	42	45	48
Number of ports	5	5	5	6	7	7	8	7	9	9	10	11	11	11	12	13	14	15	16	17	18

* Other dimensions available on request / Dimensions in BOLD are standard

Connections to the process: Flanges SW NPS: _____ Pressure class: _____

Alarms: LLL ___mm LL ___mm HL ___mm HHL ___mm (L=Low, H=High) Inform distance from ζ vision

Accessories (Drain valve; Chain Hand-wheel; Chain height; Additional connections; etc.): _____

Illuminator to be type **CONCENTRA** with individual optical assemblies (Lamp; Filters and Lens) protected against ash and dust. Illuminator power supply ___ Volts AC CC Light source: LED lamps

ILLUMINATOR FRONT HOOD:

Wide Angle front view CCTV (hood for TV camera); Other: _____

NOTE: Gage hand is **RIGHT** when, facing hand-wheel, the gage is to the observer's right. **LEFT** when gage is at the left.

The right product for your application.

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