Section: R100
Bulletin: R100.33
Date: 7/15/96
Supersedes: AB7.1A, 2A

Clark·Reliance®

PRISMATIC WATER GAGES

SHARP, HIGHLY VISIBLE, ACCURATE WATER LEVEL READINGS

PRECISE, EASY-TO-READ LEVEL GAGES MEET A WIDE VARIETY OF INSTALLATION REQUIREMENTS

Clark-Reliance Prismatic Gages provide a well-defined, distinct image of water levels, eliminating reading errors or distortions possible with less effective gage types. Highly versatile, Prismatic Gages are easily installed in vertical or Tiltview Assemblies. In addition, Clark-Reliance Prismatic Gages offer the flexibility of combining multiple gage sections to achieve coverage of extended viewing areas.

Available in two designs, "C" Types should be specified for pressures to 250 PSI and "S" Types for pressures to 350 PSI.

Typical Prismatic Gage applications include installation on boiler drums, feedwater heaters, deaerators, and other tanks.

Quality Materials Clark-Reliance Prismatic Gages feature quality materials and reliable design. Gage glass is of the highest quality borosilicate glass, tempered for improved toughness against shattering. As an important safety feature, should breakage occur, glass fragments will *interlock* and remain in place.

The unique Clark-Reliance clamping design produces a uniform, firm, strictly compressive load on the glass – adding to gage reliability and prolonged service life.

MULTIPLE SECTIONS ALLOW LONGER LEVEL VIEWING AREAS

Large storage tanks, heater tanks and similar applications call for Prismatic Gage assemblies employing multiple gage sections. Double, triple and quadruple assemblies are readily available, and even longer assemblies can be provided.

In multiple assemblies, the space between gage windows is approximately 1½ inches. This gap is considered insignificant where multiple assemblies are normally installed.

Note the various dimensions and specifications for multiple gage assemblies listed in tables presented elsewhere on these pages.

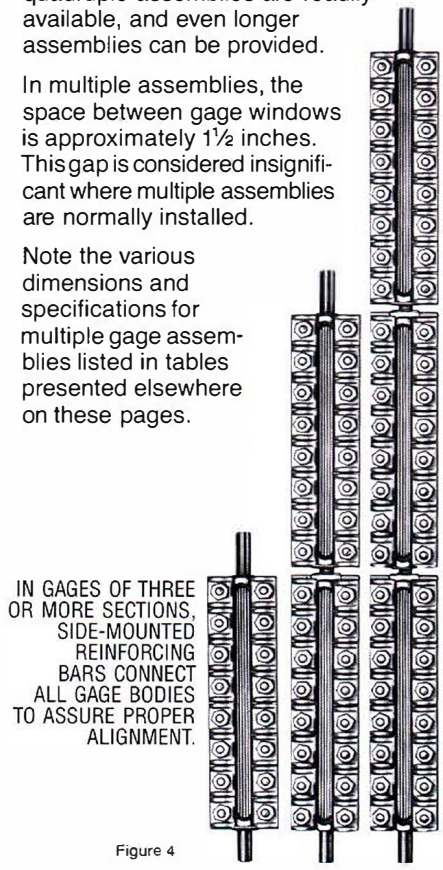

Figure 4

Figure 5

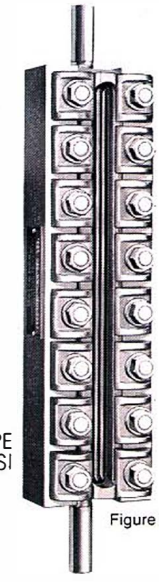

Figure 6

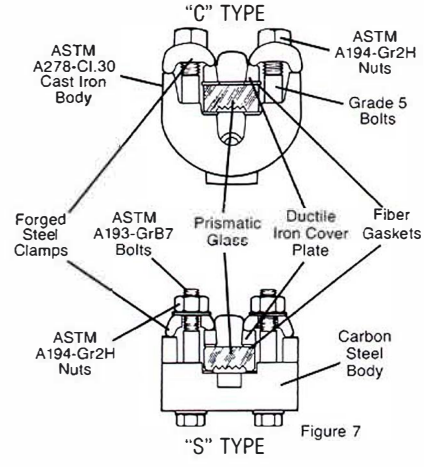

Figure 7

THE PRISMATIC PRINCIPLE

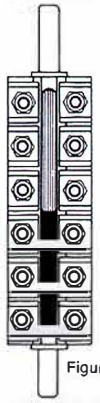

Figure 1

STEAM APPEARS WHITE
WATER APPEARS BLACK

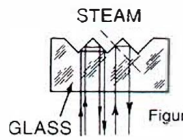

Figure 2

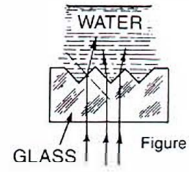

Figure 3

Prismatic glass is flat on the outside. The inside, in contact with either water or steam, is shaped with multiple 90° angle prisms.

Rays of light normal to glass strike the prisms at a 45° angle.

The critical angle of a ray passing from glass to steam is 42°. Therefore, the 45° ray is totally reflected and causes the steam space to appear white (Figure 2).

The critical angle of a ray passing from glass to water is 62°. Therefore, with the 45° angle being less, the ray penetrates the water and reveals the gage housing in black (Figure 3).

GAGE SELECTION DATA

Specific combinations of boiler water pressure and boiler water pH levels suggest the installation of mica-protected gages to resist gage glass deterioration and possible gage leakage.

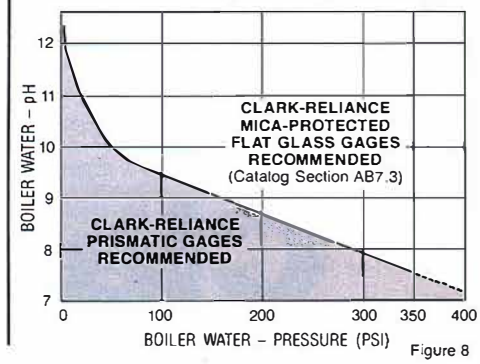

Figure 8

PRISMATIC GAGES VERTICAL ASSEMBLIES

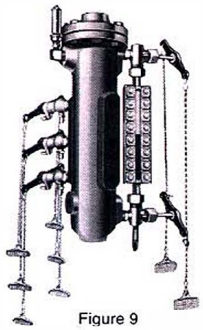

Figure 9

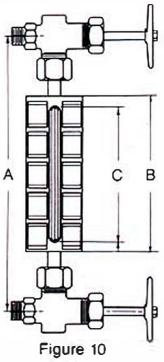

Figure 10

Vertical Centers With Reliance Valves A	Prismatic Number		Vertical Water Visibility C	Over-All Body Length B
	"C" Type	"S" Type		
14	C4	S4	6¾	7⅞
16	C5	S5	7⅞	9
17	C6	S6	9⅛	10¼
18	C7	S7	10⅛	11⅜
19	C7	S7	10⅛	11⅜
19½	C8	S8	11¾	13
20	C9	S9	12½	13¾
21	C9	S9	12½	13¾
22	C9	S9	12½	13¾
23	C44	S44	14⅞	16
24	C44	S44	14⅞	16
25	C55	S55	17⅛	18¼
26	C55	S55	17⅛	18¼
27	C66	S66	19⅝	20¾
28	C66	S66	19⅝	20¾
29	C66	S66	19⅝	20¾
30	C77	S77	21¾	23
31	C77	S77	21¾	23
32	C77	S77	21¾	23
33	C88	S88	25	26¼
34	C99	S99	26½	27¾
30¼	C444	S444	23	24⅛
33⅝	C555	S555	26⅜	27½
37⅜	C666	S666	30⅛	31¼
40¾	C777	S777	33⅜	34⅝
45⅝	C888	S888	38¼	39½
47⅞	C999	S999	40½	41¾
38⅜	C4444	S4444	31⅛	32¼
42⅞	C5555	S5555	35⅝	36¾
47⅞	C6666	S6666	40⅝	41¾
52⅜	C7777	S7777	45	46¼
57⅞	C8888	S8888	51½	52¾
61⅞	C9999	S9999	54½	55¾

PRISMATIC GAGES TILTVIEW® ASSEMBLIES

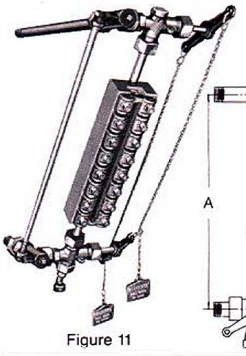

Figure 11

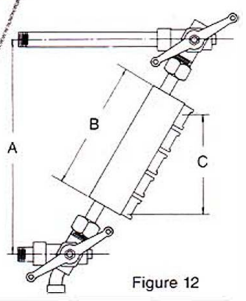

Figure 12

Vertical Centers With Reliance Valves A	Prismatic Number		Vertical Water Visibility C	Over-All Body Length B
	"C" Type	"S" Type		
15	C6	S6	7⅞	10¼
16	C7	S7	8¾	11⅜
17	C8	S8	10¼	13
18	C9	S9	10⅞	13¾
19	C9	S9	10⅞	13¾
20	C44	S44	12⅞	16
21	C44	S44	12⅞	16
22	C55	S55	14⅞	18¼
23	C55	S55	14⅞	18¼
24	C66	S66	17	20¾
25	C66	S66	17	20¾
26	C77	S77	18⅞	23
27	C77	S77	18⅞	23
28	C77	S77	18⅞	23
29	C88	S88	21⅝	26¼
30	C99	S99	23	27¾

NOTES ON SPECIFYING CLARK-RELIANCE PRISMATIC WATER GAGES

- When specifying Prismatic Gages, refer to the Vertical Valve Center dimension "A" in the tables provided. Locate the "A" dimension that corresponds to your own gage valve centers.
- The over-all length of the Prismatic Gage, including nipples, is equal to a Tubular Glass gage length.
- A change to Prismatic Gages reduces the length of visible water range 3" to 6" depending upon gage and valve combinations.
- Nipples are ¾" diameter. Minimum length of top nipple is 1¾". Minimum length of bottom nipple is 1⅜" when Clark-Reliance bronze valves are used.

PRISMATIC GAGES REPLACING TUBULAR GLASS

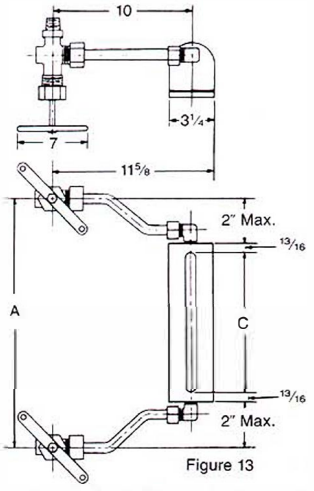

Figure 13

NOTE: When installing a Prismatic Gage to replace an existing tubular glass gage, a reduction in gage visibility can be avoided by installing an offset assembly. The offset assembly accepts a Prismatic Gage long enough to provide the necessary visibility, using valves rotated 90°. *When ordering, please specify gage valve centers and Clark-Reliance Water Column and Valve part numbers.*

Gage No.	C	A-Valve Centers			
		Prismatic		Flat Glass	
	Visib.	Min.	Max.	Min.	Max.
4	6¾	9⅜	13⅜	9¾	13¾
5	7⅞	10½	14½	10⅞	14⅞
6	9⅛	11¾	15¾	12⅛	16⅛
7	10⅛	12⅞	16⅞	13⅛	17⅛
8	11¾	14½	18½	14¾	18¾
9	12½	15¼	19¼	15½	19½

Figure 14

GAGE ILLUMINATION

Gage Illuminators are a helpful option. See our Catalog Section AB8.1 for details on Clark-Reliance Illumination equipment. For any assistance in specifying, contact your nearest Clark-Reliance representative.

For additional information, contact your local Clark-Reliance representative

Clark·Reliance®

16633 FOLTZ INDUSTRIAL PARKWAY • STRONGSVILLE, OHIO 44136-5597 • USA
TELEPHONE: (440) 572-1500 • FACSIMILE: (440) 238-8828 • www.clark-reliance.com

ISO 9001 REGISTERED

NOTE: Clark-Reliance shall not be liable for damages of any kind resulting in part from failure to install its products in accordance with all applicable codes and/or state and local regulations, improper application and/or maintenance.

●The Clark-Reliance Corporation, 1998

REPRESENTED BY: YATES & COMPANY, INC. ♦ 1 Hollywood Ave, Unit 22 HoHoKus, NJ 07423
Tel: 201-345-3101 ♦ Email: info@yatesco.net