

## Technical Information Tubular Glass

### Red Line Tubing - Maximum Recommended Working Pressure in PSI

Size	1/2" OD +0, -1/32" Wall 5/64" ±1/64"		5/8" OD +0, -1/32" Wall 3/32" ±1/64"		3/4" OD +0, -1/32" Wall 7/64" ±1/64"	
	Up to 51°C (150°F)	To 268°C (425°F)	Up to 51°C (150°F)	To 268°C (425°F)	Up to 51°C (150°F)	To 268°C (425°F)
8"	390	300	370	285	360	280
10"	370	295	345	280	340	275
12"	360	295	335	280	330	275
14"	345	290	325	275	320	270
16"	335	285	315	270	310	265
18"	325	280	305	265	300	260
20"	310	280	290	265	285	260
24"	280	270	265	255	260	-
30"	250	-	235	-	230	-
36"	215	-	205	-	200	-
48"	175	-	165	-	160	-
60"	135	-	125	-	125	-
72"	100	-	90	-	90	-

### Plain High Pressure Tubing - Maximum Recommended Working Pressure in PSI

Size	1/2" OD +0, -1/32" Wall 5/64" ±1/64"		5/8" OD +0, -1/32" Wall 3/32" ±1/64"		3/4" OD +0, -1/32" Wall 7/64" ±1/64"	
	Up to 51°C (150°F)	To 268°C (425°F)	Up to 51°C (150°F)	To 268°C (425°F)	Up to 51°C (150°F)	To 268°C (425°F)
8"	460	340	435	320	425	315
10"	445	335	420	315	410	310
12"	435	325	410	305	400	300
14"	415	315	390	295	385	290
16"	400	300	375	285	370	280
18"	385	295	360	280	355	275
20"	375	285	350	270	345	265
24"	340	270	320	255	315	260
30"	295	-	280	-	275	-
36"	260	-	245	-	240	-
48"	205	-	195	-	190	-
60"	155	-	150	-	145	-
72"	110	-	100	-	100	-

#### **Tubular Gauge Glass: Factors affecting performance**

In Steam boiler service, corrosion of gauge glass presents a considerable variety of problems, namely, the temperature of saturated steam increases with the steam pressure resulting in an increased rate of attack ( a flat transparent gauge glass can be protected using a mica shield but this is not possible where tubing is concerned).

Chemical treatment of boiler feed waters to reduce steel corrosion will produce an alkalinity of the water at Ph values between 10 and 11, sometimes higher, leading to further increases in the rate of wear of the glass. Fortunately, the water in contact with the gauge glass, being furnished largely by condensate through the upper connection to the boiler, will be less alkaline than that in the boiler.

This condensate, by flowing over the glass, dissolves minute quantities of silica. These small quantities of silica in solution inhibit the attack of the boiler water in the glass to a considerable extent.

The fresh condensate entering the gauge will often attack the glass in upper areas, more than in the lower part of the gauge, where the temperature is lower and where the degree of saturation of silica is greater. This effect is particularly more noticeable in the case of tubular gauge glasses.

Apart from the boiler pressure, which determines the saturation steam temperature, the other factors determining corrosive rate of attack are:

Speed of condensate flow into the gauge.

The amount of circulation of water between the gauge column and boiler through the lower connection.

The temperature drop between the boiler and the gauge column.

Details of boiler operating routine.

Because of these variables between one boiler installation and another, it is not possible to state specific steam pressures at which the rate of glass corrosion becomes unacceptably large.

In general, it is found that tubular type gauges are not suitable at pressures beyond 300 to 350 psi