TECH TIP #45

SOLDERED FITTINGS AND VALVES

SOLDERS AND WORKING PRESSURES

The table of maximum working pressures below reflects what is generally considered as good engineering practice under reasonably constant and favorable conditions, i.e., pressures which are fairly steady, absence of particularly corrosive media, etc. Unusual conditions require increased safety factors and therefore lower working pressures should be used.

RATED INTERNAL WORKING PRESSURES OF PIPING SYSTEMS MADE OF COPPER WATER TUBE AND SOLDERED FITTINGS—POUNDS PER SQUARE INCH

SOLDER USED IN JOINTS	SERVICE TEMP. DEG. F.	WATER (a) COPPER WATER TUBE—NOMINAL SIZES ¼" to 1" Incl.	1 ¼" to 2" Incl.	2 ½" to 4" Incl.	5" to 8" Incl.	10" to 12" Incl.	SATURATED STEAM ALL
50-50 Tin-Lead (b) Also applies for the 40% tin—60% lead alloy	100	200	175	150	130	100	—
	150	150	125	100	90	70	--
	200	100	90	75	75	50	—
	250	85	75	50	50	40	15 (f)
95-5 Tin-Antimony or 95-5 Tin-Lead (c)	100	500	400	300	150	150	—
	150	400	350	275	150	150	—
	200	300	250	200	150	140	—
	250	200	175	150	140	110	15 (f)
Brazing Alloys (Melting at or above 1000° F.)	250 (d)	300	210	170	150	150	—
	350	270	190	150	150	150	120 (e)

(a) Including other noncorrosive liquids and gases.

(b) ASTM B32, Alloy Grade 50A.

(c) ASTM B32, Alloy Grade 5A.

(d) For service temperatures lower than 250° F., the solders as above may be used.

(e) This pressure is determined by the temperature of saturated steam at 120 lb. pressure or 350° F.

(f) This pressure is determined by the temperature of saturated steam at 15 lb. pressure or 250° F.

NOTE: The values shown are based on data in the National Bureau of Standards Publications, "Building Materials and Structures Reports BMS 58 and BMS 83". The table is from data published by the Copper and Brass Research Association.