

Copper Tube Fittings

RATED INTERNAL WORKING PRESSURES OF JOINTS MADE WITH COPPER WATER TUBE AND SOLDER TYPE FITTINGS, PSI (BAR)

Joining Material	Working Temperature		Maximum Gauge Working Pressure for Standard Water Tube Sizes [Note (1)]					Saturated Steam LB (kg) All Sizes
	°F	°C	1/8" through 1" PSI BAR	1 1/4" through 2" PSI BAR	2 1/2" through 4" PSI BAR	5" through 8" PSI BAR	10" to 12" PSI BAR	
Alloy Sn50 50-50 Tin-Lead solder [Notes (2), (3)]	100	38	200 (14)	175 (12)	150 (10)	135 (9)	100 (6)	15
	150	66	150 (10)	125 (9)	100 (7)	90 (6)	70 (5)	
	200	93	100 (7)	90 (6)	75 (5)	70 (5)	50 (3)	
	250	121	85 (6)	75 (5)	50 (3)	45 (3)	40 (3)	
Alloy Sb5 95-5 Tin-Antimony solder [Note (4)]	100	38	1090 ⁽⁹⁾ (75)	850 ⁽⁸⁾ (59)	705 ⁽⁹⁾ (49)	660 ⁽⁸⁾ (46)	340 (23)	15
	150	66	625 ⁽¹⁰⁾ (43)	485 ⁽¹⁰⁾ (34)	405 ⁽¹⁰⁾ (28)	375 ⁽¹⁰⁾ (26)	280 (19)	
	200	93	505 ⁽¹¹⁾ (35)	395 ⁽¹⁰⁾ (27)	325 ⁽¹⁰⁾ (32)	305 ⁽¹⁰⁾ (21)	230 (16)	
	250	121	270 (19)	210 (15)	175 (12)	165 (11)	120 (8)	
Alloy E	100	38	710 ⁽¹⁰⁾ (49)	555 ⁽¹⁰⁾ (38)	460 ⁽¹⁰⁾ (32)	430 ⁽¹⁰⁾ (30)	320 (22)	15
	150	66	475 ⁽¹¹⁾ (33)	370 ⁽¹⁰⁾ (26)	305 ⁽¹⁰⁾ (21)	285 ⁽¹¹⁾ (20)	215 (15)	
	200	93	375 (26)	290 (20)	240 ⁽¹¹⁾ (17)	225 ⁽¹¹⁾ (16)	170 (12)	
	250	121	320 (22)	250 (17)	205 (14)	195 (13)	145 (9)	
Alloy HB [Note (6)]	100	38	1035 ⁽⁹⁾ (71)	805 ⁽⁸⁾ (56)	670 ⁽⁸⁾ (46)	625 ⁽⁹⁾ (43)	340 (23)	15
	150	66	710 ⁽¹⁰⁾ (49)	555 ⁽¹⁰⁾ (38)	460 ⁽¹⁰⁾ (32)	430 ⁽¹⁰⁾ (30)	320 (22)	
	200	93	440 ⁽¹¹⁾ (30)	345 ⁽¹¹⁾ (24)	285 ⁽¹¹⁾ (20)	265 ⁽¹¹⁾ (18)	200 (14)	
	250	121	430 ⁽¹¹⁾ (30)	335 ⁽¹¹⁾ (23)	275 ⁽¹¹⁾ (19)	260 ⁽¹¹⁾ (18)	195 (13)	
Joining materials at or above 593°C [Note (7)]	Pressure-temperature ratings consistent with the materials and procedures employed.							

GENERAL NOTE:

For extremely low working temperatures in the 0°F to 200°F range, it is recommended that a joint material melting at or above 1000°F be employed [see Note (5)].

NOTES:

- (1) Standard water tube sizes per ASTM B 88
- (2) ASTM B 32 Alloy Grade Sn50
- (3) The Safe Drinking Water Act Amendment of 1986 prohibits the use of any solder having a lead content in excess of 0.2% in potable water systems.
- (4) ASTM B 32 Alloy Grade Sb5
- (5) ASTM B 32 Alloy Grade E
- (6) ASTM B 32 Alloy Grade HB
- (7) These joining materials are defined as *brazing alloys* by the American Welding Society.
- (8) The solder joint exceeds the strength of Types K, L & M tube in drawn and annealed tempers.
- (9) The solder joint exceeds the strength of Types L & M tube in drawn temper and Type K tube in annealed temper.
- (10) The solder joint exceeds the strength of Type M tube in drawn temper and Types L & K in annealed temper.
- (11) The solder joint exceeds the strength of Type L tube in annealed temper.