

NATURAL GAS

TECHNICAL DATA BOOK



CUSTOMER PIPING SYSTEMS

COPPER PIPING

Copper is used extensively in customer piping systems and also for some inlet services. Two types as classified in AS 1432 are deemed suitable by AG 601 for gas reticulation use. These are, Type A and Type B.

In practice, mainly type B copper piping is used for gas. This is owing to the lower cost of this lesser wall thickness pipe, and the associated larger internal bore and lighter weight per length.

COPPER TUBING DATA, TYPE — B (AS 1432)

NOMINAL SIZE (DN)	DIMENSIONS O.D. X THICKNESS (mm)	MASS (kg/m)	SAFE WORKING PRESSURE (kPa)
10	9.52 x 0.91	0.22	7630
15	12.70 x 0.91	0.30	5590
18	15.88 x 1.02	0.43	4980
20	19.05 x 1.02	0.52	4110
25	25.40 x 1.22	0.83	3680
32	31.75 x 1.22	1.05	2920
40	38.10 x 1.22	1.27	2420
50	50.80 x 1.22	1.70	1800
65	63.50 x 1.22	2.14	1430
80	76.20 x 1.63	3.42	1610
90	88.90 x 1.63	4.00	1380
100	101.60 x 1.63	4.58	1200
125	127.00 x 1.63	5.74	960
150	152.40 x 2.03	8.58	1000
200	203.20 x 2.03	11.48	720

Fittings/Joining

Silver solder (silver bearing copper alloy) of 1.8% silver content is the minimum means by which piping is joined to either brass or copper fittings.

SILVER BRAZING ALLOYS (AS 1167.1)

ALLOY DESIGNATION	SILVER CONTENT	TIP COLOUR	MELTING RANGE
B2	2%	Yellow	645 — 740°C
B3	5%	Silver	645 — 740°C
B4	15%	Brown	645 — 700°C
B5	18%	Lt. Blue	640 — 680°C

NOTE: Higher silver content improves capillary action, and increases strength & ductility of finished joint.

KITEC PIPING SYSTEM

A new piping system approved for gas reticulation to 7kPa under the Australian Standard AS4176-1994 is the Hardie Iplex product, Kitec.

Kitec piping differs from the traditional piping materials in that it is a composite of both polymer and metal, where aluminium tubing is sandwiched between inner and outer bonded layers of polyethylene. The combined effect is a corrosion resistant tube which is lightweight, tough, and keeps its sectional form whilst maintaining an angle when bent.

Installation:

Ease, speed and uniform quality of installation are attributes characteristic of the Kitec system. The piping being flexible can be transported in 30m coils to a site, unwound and then serpented around obstacles between connection points. This ability allows for the use of only a minimal number of fittings.

Fittings are of a crimped variety and as such do not require either oxy-acetylene or thread cutting equipment to attach.

Crimping is performed using a lever type single action tool which produces a leak-tight connection without the application of any sealant.

Timed trials by experienced fitters on typical domestic installations have shown labour time savings on average of 30% over similar copper installations.

An extensive range of fittings, including transition fittings (from crimp type to threaded, etc.) are available to suit the following sizes of pipe.

PIPE DESIGNATION	NOM I.D. (mm)	NOM O.D. (mm)	WEIGHT PER METER (kg)	WEIGHT PER 30m COIL (kg)
1216	12	16	0.10	3.0
1620	16	20	0.15	4.5
2025	20	25	0.20	6.0

TECHNICAL DATA

Chemical Resistance	Non-corrosive, resists most acids, salt, solutions, alkalines, fats and oils
Operating Temperature Range	-20°C to 60°C
Recommended Support Spacing	Horizontal: 1m Vertical: 2m
Fittings	Hardie Iplex Fittings for Kitec only
Gas (Oxygen) Permeability	Zero
Thermal Conductivity	0.45 W/mK
Linear Coefficient of Thermal Expansion	2.5×10^{-5} per °C

