

# Copper Tube TO NZS 3501

PLUMBING  
COPPER TUBE



## USAGE

- Plumbing
- Gas Fittings
- Drainage

## BENEFITS

- Backed by MM Kembla's reputation for quality, service and customer care for nearly 100 years.
- Manufactured to New Zealand Standard NZS3501.
- Safe. It does not burn or support combustion. Max service temp of 200°C.
- Strong and reliable but also easily repaired if necessary.
- Supported by a comprehensive range of copper fittings.

## FEATURES

- Seamless copper tube available in sizes 15mm up to 150mm
- Kemlag pre-Insulated copper tube is available with a green plastic sheathing. For use in a variety of applications including burying in corrosive soils or laying under floors and concrete slabs.
- MM Kembla copper tube is permanently marked.

## INSTALLATION

- Copper tubes and fittings can be easily joined using brazing methods.



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KEMBLA NZS3501 COPPER TUBE FOR WATER AND GAS RETICULATION							
Dimensions		Wall (mm)	Safe Working Pressure (MPa)*	Table	Temper	Length (metres)	Code
Nominal Bore	Actual OD						
15 LG	14.73	0.70	4.59	3	HH	5	010901
20 LG	21.08	0.90	4.10	3	HH	5	010906
15	14.73	1.02	6.84	1	HH	5	010904
20	21.08	1.02	4.68	1	HH	5	010911
25	27.43	1.02	3.55	1+2	HD	5	010913
32	34.19	1.22	3.40	1+2	HD	5	010921
40	40.54	1.22	2.85	1+2	HD	5	010922
50	53.24	1.22	2.16	1+2	HD	5	010923
65	65.94	1.22	1.73	1+2	HD	5	010924
80	79.04	1.42	1.68	2	HD	5	010925
100	104.85	1.63	1.45	2	HD	5	010926
150	156.06	1.83	1.09	2	HD	5	010927
KEMBLA NZS3501 SOFT COPPER COILS							
15	14.73	1.02	6.84	1	ANN	15	010935
20	21.08	1.02	4.68	1	ANN	15	010937
KEMLAG - PRE-INSULATED COPPER TUBE							
15	14.73	1.02	6.84	1	HH	5	010930
20	21.08	1.02	4.68	1	HH	5	010932

LG - Light Gauge Tube

\* - Based on individual tempers for temperatures up to 65°C.

KEMBLA SOFT COPPER COILS AS/NZS 1571:1995 STANDARD - GAS ONLY				
OD (mm)	OD (inch)	Wall Thickness	Coil Length	Code
6.35mm	1/4"	0.81mm	30 metres	030103
9.52mm	3/8"	0.81mm	18 metres	030108
12.70mm	1/2"	0.71mm	15 metres	030110
19.05mm	3/4"	0.91mm	18 metres	030117

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## FITTINGS PRESSURE LOSS

The most common method of determining pressure drop through fittings and valves is through the “equivalent pipe length method”. A predetermined length of pipe expressed in metres represents each fitting. This “equivalent pipe length” will equate to the same head loss as a pipe of the same diameter with the same flow and velocity.

Nominal Tube Size DN (mm)	Elbow	Bend 90 Long Radius 20	Branch Flow	Line Flow	Reduction in Flow	Gate Valve	Globe Valve	Swing Check Valve
<b>Equivalent Pipe Length in metres</b>								
15	0.50	0.22	0.91	0.55	0.40	0.10	4.80	1.60
20	1.08	0.48	2.25	1.35	0.51	0.15	5.60	2.00
25	1.40	0.62	2.65	1.59	0.66	0.20	7.60	2.35
32	1.80	0.79	3.00	1.80	0.85	0.24	9.75	3.00
40	2.20	0.97	3.30	1.98	1.03	0.30	13.70	3.75
50	2.90	1.28	4.00	2.40	1.36	0.40	17.00	4.65
65	3.50	1.54	4.30	2.58	1.65	0.50	20.25	6.00
80	4.50	1.98	4.95	2.97	2.12	0.60	25.00	7.50
100	6.00	2.64	6.60	3.96	2.85	0.80	32.00	10.00
150	8.00	3.74	9.35	5.61	4.00	1.30	45.00	13.00

## CALCULATIONS

**Flow Rate = V x N**  
(litres/second)

**Where:**

V = Velocity (meters/second)  
N = Calculation factor (see K&N chart)

**Example:**

Calculate the flow rate in a NZS3501 DN15 tube with water flowing at 1.5 metres/second

$$\begin{aligned} \text{Flow Rate} &= V \times N \\ &= 1.5 \times 0.126 \\ &= 0.189 \text{ litres/second} \end{aligned}$$

**Velocity = Q / N**  
(metres/second)

**Where:**

Q = Flow rate (litres/second)  
N = Calculation factor (see K&N chart)

**Example:**

Determine the velocity of water in a NZS3501 DN20 tube with 0.25 litres/second flow rate.

$$\begin{aligned} \text{Velocity} &= Q / N \\ &= 0.25 / 0.285 \\ &= 0.877 \text{ metres/second} \end{aligned}$$

**Tube Pressure Loss = K x Q<sup>1.85</sup> x t**  
(kPa/metre)

**Where:**

K = Constant (see K&N chart)  
Q = Flow rate (litres/second)  
t = temperature factor

**Example:**

Find the pressure loss in a NZS3501 DN80 tube with water flowing at 12 litres/second at 15°C

$$\begin{aligned} \text{Loss} &= K \times Q^{1.85} \times t \\ &= 0.00789 \times 12^{1.85} \\ &= 0.7826 \text{ kPa/metre} \end{aligned}$$

## K AND N VALUES

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Nominal Bore	K	N
10	196.55	0.071
15	48.76	0.126
20	6.76	0.285
25	1.66	0.506
32	0.57	0.792
40	0.23	1.140
50	0.0568	2.027
65	0.0192	3.167
80	0.00789	4.559
100	0.00194	8.107
150	0.0018	18.24

  

Temperature °C	t
4	1.06
15	1.00
60	0.86
82	0.82



## Quality Piping Systems Since 1916

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