



# Copper Tubing Africa (Pty) Ltd.

Water flow resistance through compression and capillary fittings used with SANS 460: 2003 Class 1 copper tube.

Equivalent Length In Meters

Nominal Size (mm)	Temp of Water (°C)	Tee (Compression or Capillary)			Reducing Tee (Compression or Capillary)		Elbow (Compression)	Elbow (Capillary)	Bend (Compression or Capillary)	Return Bend		Reducer (Compression or Capillary)		
													$\frac{D_1}{D_2} = 2$	$\frac{D_1}{D_2} = 3$
12	15.5	0.030	0.44	0.37	0.48	0.30	0.35	0.23	0.16	0.21	0.47	0.21	0.092	.85
	65	0.039	0.55	0.49	0.59	0.39	0.42	0.28	0.20	0.25	0.57	0.25	0.11	0.10
	115	0.041	0.59	0.52	0.65	0.42	0.48	0.30	0.22	0.28	0.65	0.28	0.12	0.11
15	15.5	0.043	0.59	0.53	0.65	0.43	0.45	0.31	0.23	0.28	0.65	0.28	0.11	0.12
	65	0.050	0.68	0.62	0.75	0.50	0.56	0.37	0.26	0.35	0.75	0.35	0.12	0.14
	115	0.054	0.78	0.68	0.85	0.56	0.63	0.40	0.29	0.37	0.85	0.37	0.13	0.15
18	15.5	0.052	0.74	0.64	0.80	0.54	0.59	0.39	0.26	0.33	0.80	0.33	0.16	0.15
	65	0.063	0.89	0.77	0.97	0.65	0.70	0.46	0.32	0.40	0.96	0.40	0.19	0.18
	115	0.067	0.95	0.84	1.1	0.70	0.76	0.49	0.34	0.42	1.1	0.42	0.19	0.18
22	15.5	0.068	1.0	0.83	1.0	0.69	0.74	0.49	0.34	0.42	1.0	0.42	0.21	0.20
	65	0.085	1.1	1.0	1.2	0.84	0.90	0.60	0.41	0.50	1.2	0.50	0.24	0.23
	115	0.089	1.3	1.1	1.5	0.94	1.0	0.65	0.46	0.55	1.4	0.55	0.26	0.24
28	15.5	0.10	1.4	1.2	1.5	0.97	1.0	0.68	0.48	0.58	1.5	0.58	0.29	0.27
	65	0.12	1.6	1.4	1.7	1.2	1.2	0.83	0.58	0.67	1.7	0.67	0.34	0.31
	115	0.13	1.7	1.5	2.1	1.3	1.4	0.89	0.63	0.73	1.9	0.73	0.35	0.31
35	15.5	0.13	1.8	1.5	1.9	1.3	1.3	0.91	0.60	0.69	1.9	0.69	0.38	0.35
	65	0.15	2.0	1.7	2.2	1.5	1.5	1.0	0.71	0.80	2.2	0.80	0.45	0.42
	115	0.16	2.3	2.0	2.5	1.7	1.7	1.2	0.80	0.85	2.5	0.85	0.48	0.44
42	15.5	0.16	2.3	1.9	2.4	1.6	1.5	1.1	0.75	0.85	2.4	0.85	0.49	0.46
	65	0.18	2.6	2.2	2.8	1.9	1.8	1.4	0.89	1.0	2.8	1.0	0.55	0.52
	115	0.20	2.9	2.5	3.2	2.1	2.0	1.5	1.0	1.1	3.2	1.0	0.58	0.55
54	15.5	0.22	3.1	2.7	3.4	2.3	2.1	1.7	1.1	1.1	3.4	1.3	0.77	0.64
	65	0.24	3.6	3.2	3.9	2.6	2.4	1.9	1.2	1.3	3.9	1.4	0.87	0.72
	115	0.26	4.0	3.4	4.3	2.8	2.6	2.0	1.3	1.3	4.3	1.4	0.87	0.71
76	15.5	0.35	4.7	4.1	5.1	3.4	2.9	2.4	1.5	1.5	4.9	1.6	1.0	0.93
	65	0.40	5.6	4.8	6.0	4.0	3.4	2.8	1.8	1.8	6.0	1.9	1.2	1.0
	115	0.49	6.0	5.2	6.6	4.3	3.8	3.0	1.9	1.9	6.6	2.0	1.2	1.2
108	15.5	0.52	7.4	6.5	7.9	5.3	4.2	3.7	2.2	2.1	7.9	2.2	1.6	1.5
	65	0.61	8.5	7.3	9.1	6.1	4.9	4.3	2.5	2.4	9.2	2.6	1.8	1.7
	115	0.61	9.4	7.9	10	6.5	5.2	4.7	2.7	2.5	10	2.7	1.9	1.8

### Size and Nominal Wall Thickness

Size (mm)	Wall Thickness (mm)
12	= 0.6
15	= 0.7
18	= 0.8
22	= 0.9
28	= 0.9
35	= 1.2
42	= 1.2
54	= 1.2
76	= 1.7
108	= 2.3

### How to use the chart:

When the desired nominal size, temperature and fitting is obtained, use the value to calculate the resistance in meter value to determine the amount of flow loss.