

K1[®] COMPOSITE GAS PIPE SYSTEM

SIZING TABLES FOR CRIMP FITTINGS (NATURAL GAS)

Flow through PE-HD/AL/PE-HD Composite Pipe Crimped Fittings (MJ/h)

TABLE 1.0 LOW PRESSURE

Pressure Drop 0.075kPa (Meter Pressure 1.1kPa) K1									
Nom. Size	Length of straight pipe in metres								
	2	4	6	8	10	12	14	16	18
16mm	84	58	46	40	35	32	29	26	23
20mm	168	116	93	80	70	64	59	55	51
25mm	328	226	181	155	138	125	115	107	100
32mm	660	454	364	312	276	250	230	214	201
40mm	1620	1064	838	700	615	553	503	467	434
50mm	2973	1942	1518	1273	1114	997	906	838	779
	20	25	30	35	40	45	50	55	60
16mm	21	17	14	12	11	9	8	8	7
20mm	48	43	39	35	30	27	24	22	20
25mm	95	84	76	70	65	61	58	55	52
32mm	190	168	153	140	131	123	116	110	105
40mm	408	355	320	290	270	253	236	223	211
50mm	731	637	570	519	478	447	419	395	375

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SIZING TABLES FOR CRIMP FITTINGS (NATURAL GAS)

TABLE 1.1 LOW PRESSURE

Pressure Drop 012kPa (Meter Pressure 1.25kPa) K1									
Nom. Size	Length of straight pipe in metres								
	2	4	6	8	10	12	14	16	18
16mm	109	75	60	51	45	41	38	35	33
20mm	217	149	120	103	91	82	76	70	66
25mm	424	291	234	200	177	161	148	138	129
32mm	851	585	470	402	356	323	297	276	259
40mm	2090	1372	1080	903	794	713	649	602	560
50mm	3835	2505	1959	1642	1438	1286	1169	1081	1005
	20	25	30	35	40	45	50	55	60
16mm	31	27	22	19	17	15	13	12	11
20mm	62	55	50	46	43	40	38	35	32
25mm	122	108	98	90	84	79	74	71	67
32mm	245	217	197	181	168	158	149	142	135
40mm	527	458	413	374	349	327	305	287	272
50mm	943	822	735	670	617	577	540	510	484

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SIZING TABLES FOR CRIMP FITTINGS (NATURAL GAS)

TABLE 1.2 HIGH PRESSURE

Pressure Drop 0.25kPa (Meter Pressure 2.75kPa) K1									
Nom. Size	Length of straight pipe in metres								
	2	4	6	8	10	12	14	16	18
16mm	161	111	89	76	68	61	56	52	49
20mm	323	222	178	153	135	122	113	105	98
25mm	629	433	348	298	264	239	220	205	192
32mm	1267	871	699	598	530	480	442	411	386
40mm	2930	1899	1474	1232	1058	948	865	799	730
50mm	5299	3573	2837	2417	2103	1899	1741	1624	1492

Note: **Every fitting used within IPLEX K1[®] system, including tees, elbows, reducers, meter connections, and appliance connections has an equivalence equal to 2.5 metres of pipe.**

Pressure Drop 0.25kPa (Meter Pressure 2.75kPa) K1									
Nom. Size	Length of straight pipe in metres								
	20	25	30	35	40	45	50	55	60
16mm	46	41	37	34	32	30	28	26	23
20mm	93	82	75	69	64	60	57	54	51
25mm	181	161	146	134	125	117	110	105	100
32mm	364	323	293	269	250	235	222	211	201
40mm	689	598	537	479	442	411	386	359	343
50mm	1417	1248	1132	1013	950	891	846	787	752

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SIZING TABLES FOR CRIMP FITTINGS (NATURAL GAS)

TABLE 1.3 HIGH PRESSURE (VIC, SA, QLD, TAS AND NT).

Pressure Drop 0.75kPa (Meter Pressure 2.75kPa) K1									
Nom. Size	Length of straight pipe in metres								
	2	4	6	8	10	12	14	16	18
16mm	292	201	161	138	122	111	102	95	89
20mm	585	402	323	276	245	222	204	190	178
25mm	1142	785	630	539	478	433	398	371	348
32mm	2295	1577	1267	1084	961	871	801	745	699
40mm	5303	3438	2668	2229	1915	1717	1565	1446	1321
50mm	9591	6467	5135	4375	3806	3437	3151	2940	2701
	20	25	30	35	40	45	50	55	60
16mm	84	75	68	62	58	54	51	49	46
20mm	168	149	135	124	116	109	103	97	93
25mm	328	291	264	243	226	212	200	190	181
32mm	660	585	530	488	454	426	402	382	364
40mm	1247	1082	972	867	800	745	699	649	620
50mm	2564	2260	2049	1833	1720	1612	1531	1424	1362

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SIZING TABLES FOR CRIMP FITTINGS (NATURAL GAS)

TABLE 1.4 HIGH PRESSURE (NSW, WA)

Pressure Drop 1.50kPa (Meter Pressure 2.75kPa) K1									
Nom. Size	Length of straight pipe in metres								
	2	4	6	8	10	12	14	16	18
16mm	426	292	235	201	178	161	148	138	130
20mm	851	585	470	402	356	323	297	276	259
25mm	1661	1142	917	785	695	630	580	539	506
32mm	3339	2295	1843	1577	1398	1267	1165	1084	1017
40mm	7742	5019	3896	3255	2795	2506	2285	2112	1928
50mm	14003	9442	7497	6388	5557	5018	4600	4293	3944
	20	25	30	35	40	45	50	55	60
16mm	122	109	98	90	84	79	75	71	68
20mm	245	217	197	181	168	158	149	142	135
25mm	478	424	384	353	328	308	291	276	264
32mm	961	851	772	710	660	620	585	556	530
40mm	1820	1579	1418	1266	1168	1087	1021	948	905
50mm	3743	3299	2992	2676	2511	2354	2235	2079	1988

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K1[®] COMPOSITE GAS PIPE SYSTEM

SIZING TABLES FOR CRIMP FITTINGS (LPG)

TABLE 1.5 FLOW THROUGH PE-HD/AL/PE-HD COMPOSITE PIPE CRIMPED FITTINGS (MJ/H) LPG

Pressure Drop 0.25kPa (Meter Pressure 2.75kPa) K1									
Nom. Size	Length of straight pipe in metres								
	2	4	6	8	10	12	14	16	18
16mm	277	190	153	131	116	105	97	90	84
20mm	554	381	306	262	232	210	193	180	169
25mm	1081	743	597	511	453	410	377	351	329
32mm	2173	1494	1199	1027	910	824	758	706	662
40mm	4570	2963	2300	1921	1650	1479	1349	1247	1138
50mm	8266	5574	4426	3771	3281	2962	2716	2534	2328
	20	25	30	35	40	45	50	55	60
16mm	80	71	64	59	55	51	49	46	44
20mm	159	141	128	118	110	103	97	92	88
25mm	311	276	250	230	214	201	189	180	172
32mm	625	554	502	462	430	403	381	362	345
40mm	1075	932	837	747	690	642	603	560	535
50mm	2210	1948	1766	1580	1482	1389	1320	1227	1174

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SIZING TABLES FOR CRIMP FITTINGS (LPG)

TABLE 1.6 LPG

Pressure Drop 10.0kPa (Meter Pressure 70.0kPa) K1									
Nom. Size	Length of straight pipe in metres								
	2	4	6	8	10	12	14	16	18
16mm	2648	1820	1462	1251	1109	1005	924	860	807
20mm	5297	3640	2923	2502	2218	2009	1848	1720	1614
25mm	10337	7104	5705	4883	4327	3921	3607	3356	3149
32mm	20779	14281	11468	9815	8699	7882	7251	6746	6330
40mm	43691	28325	21987	18368	15775	14144	12897	11919	10881
50mm	79025	53284	42309	36052	31363	28318	25960	24225	22257
	20	25	30	35	40	45	50	55	60
16mm	762	675	612	563	524	491	464	441	421
20mm	1524	1351	1224	1126	1048	983	928	882	841
25mm	2974	2636	2388	2197	2044	1918	1812	1721	1642
32mm	5979	5299	4801	4417	4109	3856	3642	3459	3300
40mm	10273	8912	8005	7146	6594	6134	5761	5351	5110
50mm	21125	18619	16885	15101	14170	13283	12614	11732	11222

Note: **Every fitting used within IPLEX K1[®] system, including tees, elbows, reducers, meter connections, and appliance connections has an equivalence equal to 2.5 metres of pipe.**

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PIPE SIZING

THE FOLLOWING EXAMPLE USES NATURAL GAS WITH A METER PRESSURE OF 2.75KPA WITH A PRESSURE DROP OF 0.75KPA. (REFER PAGE 4).

STEP 1 – Add the mega joule rating of all the appliances (190+ 30+70) = 290MJ/h

- Refer to IPLEX Gas Sizing Tables to calculate the pipe size of the longest run:

$$A-B + B-C + C-D (13 + 10 + 8) = 31m$$

(No fitting allowance required)

- Look up the table at the next highest length value = 35m
- Look for mega joule rating of the appliance (290 MJ/h)
- Calculate pipe size = 32mm
- Apply this pipe size to (A-B) = 32mm

STEP 2 – Calculate the length of each run:

For the hot water service the calculations are:

$$A-B + B-F (13 + 4) = 17m$$

- Multiply the number of fittings (3) x the fitting equivalence (refer IPLEX Pipe Sizing Tables) $3 \times 2.5 = 7.5m$
- Add the run length to the fitting allowance:

$$17m + 7.5m = 24.5m$$

- Look up the table at the next highest length value = 25m
- Look for mega joule rating of the appliance (190 MJ/h)
- Calculate pipe size = 25mm
- Apply this pipe size to (B-F) = 25mm

STEP 3 – Repeat the above for each run:

For the run B-C, the calculations are:

$$A-B + B-C = (13 + 10) = 23m$$

- Multiply the number of fittings (3) x the fitting equivalence (refer Iplex Pipe Sizing Tables) $3 \times 2.5 = 7.5m$
- Add the run length to the fitting allowance:

$$23m + 7.5m = 30.5m$$

- Look up the table at the next highest length value = 35m
- Add the mega joule value of the remaining 2 appliances (cook top and space heater) = (100 MJ/h),
- Calculate pipe size = 20mm
- Apply this pipe size to (B-C) = 20mm

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PIPE SIZING

For the cook top the calculations are:

$$A-B + B-C + C-E (13 + 10 + 6) = 29m$$

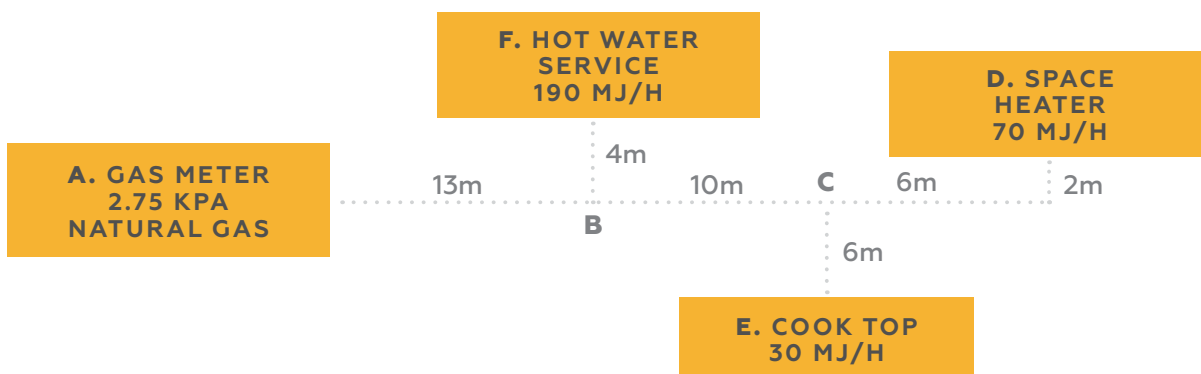
- Multiply the number of fittings (4) x the fitting equivalence (refer Iplex Pipe Sizing Tables) $4 \times 2.5 = 10m$
- Add the run length to the fitting allowance: $29m + 10m = 39m$
- Look up the table at the next highest length value = 40m
- Look for mega joule rating of the appliance (30 MJ/h)
- Calculate pipe size = 16mm
- Apply this pipe size to (C-E) = 16mm

For the space heater the calculations are:

$$A-B + B-C + C-D (13 + 10 + 8) = 31m$$

- Multiply the number of fittings (4) x the fitting equivalence (refer Iplex Pipe Sizing Tables) $4 \times 2.5 = 10m$
- Add the run length to the fitting allowance: $31m + 10m = 41m$
- Look up the table at the next highest length value =45m
- Look for mega joule rating of the appliance (70 MJ/h)
- Calculate pipe size = 20mm
- Apply this pipe size to (C-D) = 20mm

Table below indicates what pipe size should be used for each run



PIPE SECTION	GAS FLOW MH/j	NOMINAL SIZE (DN)	NO. OF FITTING USED	LENGTH OF RUN (m)
A-B	290	32mm	na	31m
B-C	100	20mm	3	30.5m
C-D	70	20mm	4	41m
C-E	30	16mm	4	39m
B-F	190	25mm	3	24.5m

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