

GasPex pipe specification

Technical information

Pipe Material	Applications	Service Temperatures	Maximum Working Pressure (Class 500)
Cross- linked polyethylene, overlapped welded aluminum, cross- linked polyethylene	Gas Supply	-40°C -- +80°C	70kpa As per AS5601

Recommended Spacing of Brackets and Clips for GasPex system	
Max. Recommended spacing of Brackets and Clips (m) Horizontal and Vertical pipes	16 mm pipe size-fixings to be not more than 1.00 metres apart
	20 mm pipe size-fixings to be not more than 1.25 metres apart
	25 mm pipe size-fixings to be not more than 1.50 metres apart
	32 mm pipe size-fixings to be not more than 2.00 metres apart
	40 mm pipe size-fixings to be not more than 2.00 metres apart
	50 mm pipe size-fixings to be not more than 2.00 metres apart
	63 mm pipe size-fixings to be not more than 2.00 metres apart

Technical Data Of GasPex Multilayer Pipe (Pex-Al-Pex)								
Nominal size		16	20	25	32	40	50	63
Outside diameter (mm)		16	20	25	32	40	50	63
Inside diameter (mm)		12	16	20	26	32	40	50
Tolerance of pipe thickness (mm)	Min	2.00	2.00	2.40	2.90	4	4.5	6
	Max	2.25	2.25	2.70	3.20	4.6	5.2	6.8
Burst pressure(MPa)	Min	6.00	5.00	4.00	4.00	4.00	3.50	3.50
Minimum thickness of aluminium (mm)		0.21	0.24	0.26	0.31	0.4	0.5	0.6
Long Term hydrostatic strength (MPa)		2.70	2.70	2.30	2.10	2.10	2.00	2.00

Thermal Conductivity – 0.45 W/m.k

Coefficient of Heat Expansion – 25 x 10⁻⁶ m/m.k

Working life – 50 years.

Oxygen permeability – the aluminium layer provides impermeability to oxygen.

Corrosion resistance – The GasPex piping system is resistant to a wide range of acids and alkali's.

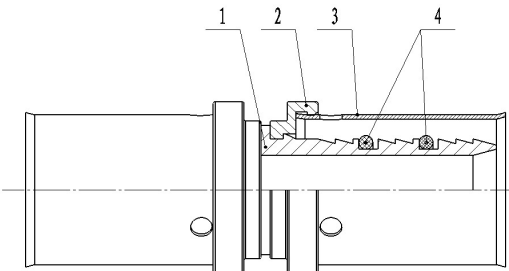
Please contact us should you require resistance to specific materials or environments.

GasPex F5 Fittings

Technical information

(1) working media; working temperature/pressure

Application	Cold water, hot water, gas and compressed air
Working Temperature	-20°C ~ 95°C

Structure Drawing And Main Components	Material
	<p>1. Main body: DZR Brass</p> <p>2. Isolating ring: Polyethylene</p> <p>3. Sleeve: Stainless Steel Sleeve SS304</p> <p>4. O-ring NBR</p>

(2) Pressure loss

F5 U-Profile Press Fittings For Gas Supply														
Nominal size	16		20		25		32		40		50		63	
Zeta values § (-)/ equivalent Pipe length eL [m]	§	eL	§	eL	§	eL	§	eL	§	eL	§	eL	§	eL
Press Elbow 90	1.18	0.71	1.04	0.83	1.05	1.05	0.97	1.26	1.03	1.65	0.94	1.93	0.91	2.32
Equal Straight Union	0.74	0.45	0.60	0.48	0.60	0.60	0.52	0.67	0.54	0.84	0.49	1.00	0.46	1.17
Straight at flow speed	0.79	0.47	0.64	0.51	0.65	0.65	0.56	0.73	0.63	1.01	0.54	1.10	0.5	1.29
Branch at flow speed	1.70	1.02	1.55	1.24	1.56	1.56	1.47	1.92	1.54	2.47	1.45	2.96	1.41	3.61
Equal Tee "Y" type	-	-	1.17	0.94	1.18	1.18	-	-	-	-	-	-	-	-

Zeta Value and equivalent pipe length of F5 u-profile press fittings for gas supply.
 A water velocity of 2m/s has been used for the calculation of equivalent pipe lengths

GasPex F5 Fittings

Technical information

(3) The torque resistance of thread

Thread Size	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"
Torque /N·m	75	100	125	160	200	250	300

(4) Fitting stress corrosion resistance

Stress Corrosion resistance

Sampling

Three test specimens selected at random shall be conditioned to standard laboratory conditions prior to testing.

Testing

Test specimens shall be tested according to ASTM B858 "Standard Test Method for Ammonia Vapour Test for Determining Susceptibility to Stress Corrosion Cracking in Copper Alloys"- Ammonia test for stress corrosion resistance" in a test solution of PH 9.5

Requirements

There shall be no evidence of cracking when viewed with a microscope with a minimum magnification of 10X. Failure of one of the three specimens tested is cause for retest of three additional specimens. Failure of one specimen in the retest shall constitute failure in the test

Minimum distance between pipe fixings

The following detail has been extracted from AS5601

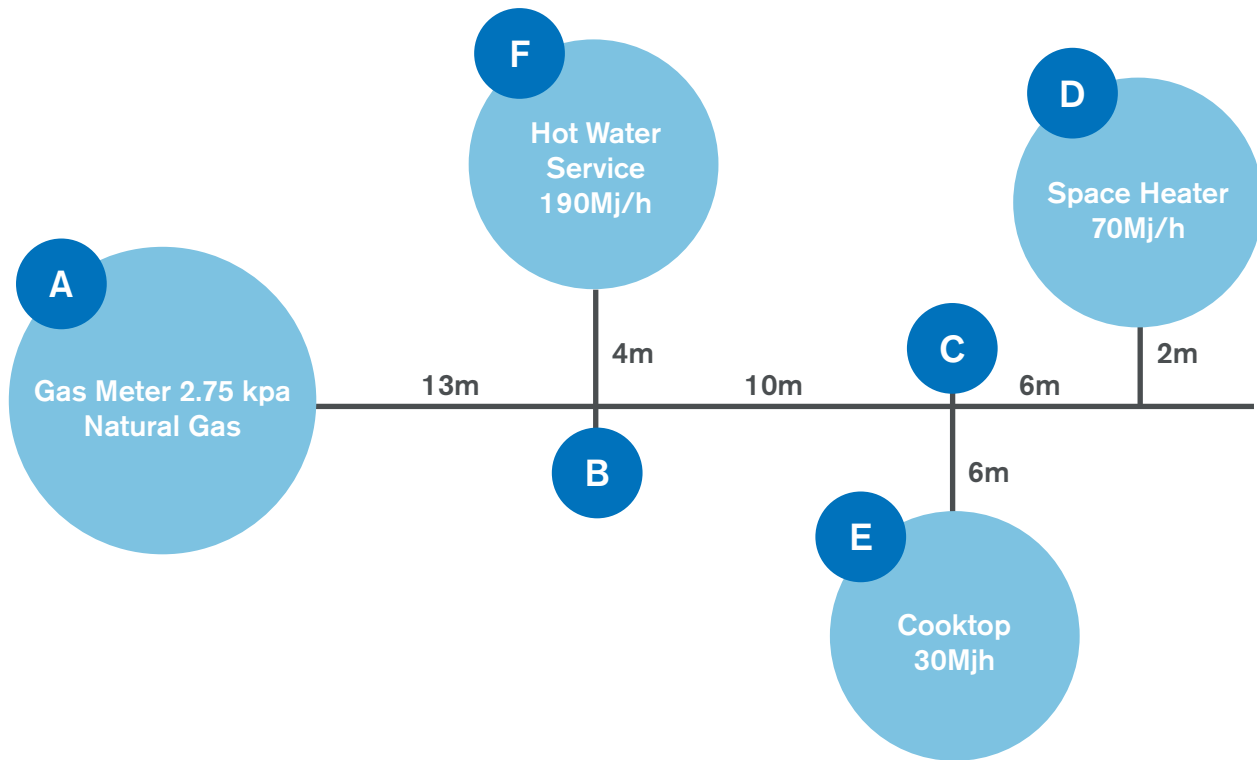
- > 16mm pipe size-fixings to be not more than 1.00 metres apart
- > 20mm pipe size-fixings to be not more than 1.25 metres apart
- > 25mm pipe size-fixings to be not more than 1.50 metres apart
- > 32mm pipe size and above – fixings to be not more than 2.00 metres apart

GasPex Pipe Sizing Example

The following example demonstrates how to correctly size a GasPex installation to accommodate the energy requirements of the appliances to be connected.

A range of GasPex sizing tables is included in this manual as gas supply pressures vary in different regions of Australia. In this example we are using a supply meter pressure of 2.75kPa with a pressure drop of 0.75kPa.

The diagram below details the parameters for this installation.



The first step in the sizing calculation

The first step in the sizing calculation is to determine the index length of the run. The index length is the distance from the gas meter to the farthest appliance. We can review the distances as follows:

Appliance Name	Distance from Gas Meter
Hot Water Service	17 m
Cooktop	29 m
Space Heater	31 m

The Space Heater is furthest from the Gas meter – 31 metres is used as the Index length for this calculation.

GasPex Pipe Sizing Example

The next step is to determine the gas flow/energy requirements

The next step is to determine the gas flow/energy requirements of the GasPex pipe for each section in the installation. The parameters for the spine and branches of the run is as follows:

Pipe Section	Gas Flow (MJ/h)
A – B	290
B - F	190
B – C	100
C – D	70
C – E	30

Referring to the GasPex sizing chart for 2.75kPa Meter Pressure and 0.75 kPa pressure drop, there is a column for 30 m length of pipe and the next column is 35m. As the index length is 31 metres, we need to round up and use the 35 m column.

Section A – B requires 290 MJ/h. Looking down the 35m column of the chart, we see that 25mm pipe will only deliver 270 MJ/h and this is insufficient. 32mm pipe will deliver 543 MJ/h which more than covers our need. We therefore need to use 32mm pipe for section A – B. Section B – F requires 190 MJ/h so reviewing the chart we need to use 25mm GasPex pipe. The following table summarises the sizing required for this installation.

Pipe Section	Gas Flow (MJ/h)	GasPex Pipe Size (DN)	Section Length (m)
A – B	290	32mm	13
B - F	190	25mm	4
B – C	100	20mm	10
C – D	70	20mm	8
C – E	30	16mm	6

A GasPex sizing calculator is also available in the Couta App available from the Apple or Google stores. Download the App and register. You can then use the app to easily calculate job sizing.

Pipe Sizing Charts



LPG Gas Sizing Charts

(LP GAS ONLY)

LPG Gas – 40 kPa Meter Pressure with a Pressure Drop of 10 kPa							
OD mm	16	20	25	32	40	50	63
Length of Pipe Run (metres)	LPG GAS flow through GasPex Composite Pipe (MJ/h)						
2	2,413	5,135	9,223	18,363	31,669	56,884	102,176
4	1,659	3,530	6,340	12,624	21,771	39,105	70,240
6	1,332	2,835	5,092	10,139	17,485	31,406	56,413
8	1,140	2,427	4,359	8,678	14,966	26,882	48,286
10	1,011	2,151	3,863	7,692	13,265	23,827	42,798
12	916	1,949	3,501	6,970	12,020	21,590	38,781
14	843	1,793	3,221	6,412	11,059	19,864	35,679
16	784	1,668	2,996	5,966	10,288	18,480	33,194
18	736	1,565	2,812	5,598	9,654	17,340	31,146
20	695	1,479	2,656	5,288	9,119	16,380	29,421
25	616	1,311	2,354	4,687	8,083	14,518	26,078
30	558	1,188	2,133	4,247	7,324	13,155	23,630
35	513	1,093	1,962	3,907	6,738	12,103	21,740
40	478	1,016	1,826	3,635	6,269	11,260	20,226
45	448	954	1,713	3,411	5,882	10,565	18,978
50	423	901	1,618	3,222	5,556	9,980	17,927
55	402	856	1,537	3,060	5,277	9,479	17,026
60	384	816	1,466	2,919	5,035	9,043	16,244
65	367	782	1,404	2,796	4,822	8,660	15,556
70	353	751	1,349	2,686	4,632	8,320	14,945
75	340	724	1,300	2,588	4,463	8,016	14,398
80	328	699	1,255	2,499	4,310	7,741	13,904
85	318	676	1,215	2,418	4,171	7,491	13,456
90	308	656	1,178	2,345	4,044	7,263	13,046
95	299	637	1,144	2,277	3,927	7,054	12,670
100	291	619	1,112	2,215	3,820	6,861	12,324
110	276	588	1,057	2,104	3,628	6,516	11,705
120	264	561	1,008	2,007	3,461	6,217	11,167
130	253	537	965	1,922	3,315	5,954	10,694
140	243	516	927	1,846	3,184	5,720	10,274
150	234	497	893	1,779	3,068	5,510	9,898
160	226	480	863	1,718	2,963	5,321	9,558
170	218	465	835	1,662	2,867	5,150	9,250
180	212	451	810	1,612	2,780	4,993	8,969
190	206	438	786	1,565	2,700	4,849	8,710
200	200	426	765	1,523	2,626	4,717	8,472

Pipe Sizing Charts



LPG Gas Sizing Charts

(LP GAS ONLY)

LPG 2.75kPa Meter Supply with 0.25kPa Pressure Drop							
OD mm	16	20	25	32	40	50	63
Length of Pipe Run (metres)	LPG GAS flow through GasPex Composite Pipe (MJ/h)						
2	284	603	1,084	2,158	3,722	6,686	12,009
4	195	415	745	1,484	2,559	4,596	8,255
6	157	333	598	1,192	2,055	3,691	6,630
8	134	285	512	1,020	1,759	3,159	5,675
10	119	253	454	904	1,559	2,800	5,030
12	108	229	411	819	1,413	2,537	4,558
14	99	211	379	754	1,300	2,335	4,193
16	92	196	352	701	1,209	2,172	3,901
18	86	184	330	658	1,135	2,038	3,661
20	82	174	312	621	1,072	1,925	3,458
25	72	154	277	551	950	1,706	3,065
30	66	140	251	499	861	1,546	2,777
35	60	128	231	459	792	1,422	2,555
40	56	119	215	427	737	1,323	2,377
45	53	112	201	401	691	1,242	2,230
50	50	106	190	379	653	1,173	2,107
55	47	101	181	360	620	1,114	2,001
60	45	96	172	343	592	1,063	1,909
65	43	92	165	329	567	1,018	1,828
70	41	88	159	316	544	978	1,756
75	40	85	153	304	524	942	1,692
80	39	82	148	294	506	910	1,634
85	37	79	143	284	490	880	1,581
90	36	77	138	276	475	854	1,533
95	35	75	134	268	462	829	1,489
100	34	73	131	260	449	806	1,448
110	32	69	124	247	426	766	1,376
120	31	66	118	236	407	731	1,312
130	30	63	113	226	390	700	1,257
140	29	61	109	217	374	672	1,207
150	27	58	105	209	361	648	1,163
160	27	56	101	202	348	625	1,123
170	26	55	98	195	337	605	1,087
180	25	53	95	189	327	587	1,054
190	24	51	92	184	317	570	1,024
200	24	50	90	179	309	554	996

Natural Gas Sizing Charts (NATURAL GAS ONLY)

Meter Pressure 2.75 kPa with a Pressure Drop Of 1.50 kPa

GAS flow through PE-X/AL/PE-X Composite Pipe Crimped Fittings (MJ/h)
Length of straight pipe in metres

Norm Size mm	2	4	6	8	10	12	14	16	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
16	461	330	252	217	194	175	163	147	140	128	113	101	93	85	81	78	74	66	60	52	43	36	28	19	0	0
20	931	737	563	485	427	380	357	326	303	279	252	225	210	190	182	171	159	151	136	126	124	120	117	113	110	105
25	1630	1319	1028	892	776	698	660	601	563	524	466	419	388	349	341	310	295	279	251	241	232	224	217	210	204	199
32	3298	2600	2056	1824	1552	1397	1319	1203	1125	1048	931	854	776	718	660	640	601	582	500	480	463	447	432	419	407	396
40	6208	5044	3880	3414	2910	2600	2483	2250	2134	1959	1785	1591	1474	1358	1319	1203	1125	1086	863	829	799	771	746	724	703	683
50	11834	9506	7062	6596	5626	5122	4734	4268	4074	3764	3182	2871	2794	2400	2328	2250	2200	1940	1780	1705	1640	1583	1528	1480	1435	1394
63	21988	15022	12008	10240	9046	8176	7498	6960	6520	6150	5425	4900	4495	4170	3905	3680	3485	3230	3170	3030	2928	2820	2729	2635	2550	2450

Natural Gas Sizing Charts

(NATURAL GAS ONLY)

Meter Pressure 1.1 kPa with a Pressure Drop Of 0.075 kPa
 NATURAL GAS flow through PEX/AL/PEX Composite Pipe Crimped Fittings (MJ/h)
 Length of straight pipe in metres

	2	4	6	8	10	12	14	16	18	20	25	30	35	40	45	50	55	60	65	70	75
16	85	58	47	40	36	32	30	28	26	24	22	20	18	17	16	15	14	14	13	12	12
20	167	132	103	87	78	70	62	58	54	50	47	41	38	33	30	28	27	25	24	23	22
25	326	246	196	167	148	134	123	114	107	101	89	80	74	68	64	60	57	55	52	50	48
32	650	535	395	337	298	269	247	229	215	203	179	162	148	138	129	122	115	110	105	101	97
40	1122	939	745	636	563	508	466	433	407	383	338	305	280	260	244	230	218	208	199	191	184
50	2151	1779	1436	1242	1086	970	892	834	772	737	660	582	543	495	466	446	435	395	378	363	349
63	3987	3478	2777	2366	2091	1889	1734	1610	1508	1422	1349	1136	1042	968	907	855	811	773	739	709	683

Meter Pressure 1.1 kPa with a Pressure Drop Of 0.075 kPa - (continued)

Norm Size mm	80	85	90	95	100	110	120	130	140	150	160	170	180	190	200	220	240	260	280	300	350
16	12	11	11	11	10	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
20	22	21	20	20	19	18	17	16.5	16	16	15	15	14	14	13	13	12	12	11	11	10
25	44	43	42	40	39	37	36	34	33	32	30	29	29	28	27	26	26	25	24	23	22
32	94	91	88	85	83	79	75	72	69	66	64	62	60	58	56	54	52	50	49	47	46
40	177	171	166	161	156	148	141	117	130	125	120	116	113	109	106	102	98	94	91	88	86
50	337	326	316	306	298	283	269	258	247	238	229	222	215	208	196	189	182	176	169	163	158
63	658	637	617	599	582	554	526	505	483	465	448	434	420	408	396	375	359	344	330	317	302

Pipe Sizing Charts

Natural Gas Sizing Charts (NATURAL GAS ONLY)

Meter Pressure 2.75 kPa - 5.0 kPa with a Pressure Drop Of 0.75 kPa

NATURAL GAS flow through PE-X/AL/PE-X Composite Pipe Crimped Fittings (MJ/h)
Length of straight pipe in metres

	2	4	6	8	10	12	14	16	18	20	25	30	35	40	45	50	55	60	65	70	75
16	296	217	175	147	132	116	107	99	91	87	78	70	64	58	55	52	49	48	45	43	42
20	621	469	388	326	287	252	237	217	202	190	171	151	147	132	120	113	107	105	89	85	82
25	1134	901	719	613	541	489	449	417	390	368	325	294	270	251	235	221	210	200	191	184	177
32	2260	1813	1447	1233	1090	985	904	839	786	741	655	592	543	504	472	446	423	403	385	370	356
40	4268	3423	2733	2329	2058	1859	1707	1558	1484	1400	1237	1118	1026	953	892	841	798	760	727	698	672
50	8148	6512	5199	4431	3914	3537	3247	3015	2824	2663	2353	2126	1952	1812	1697	1601	1518	1447	1384	1328	1278
63	15908	12729	10162	8661	7651	6914	6346	5893	5519	5206	4599	4156	3815	3542	3318	3129	2968	2828	2705	2595	2498

Meter Pressure 2.75 kPa - 5.0 kPa with a Pressure Drop Of 0.75 kPa - (continued)

Norm Size mm	80	85	90	95	100	110	120	130	140	150	160	170	180	190	200	220	240	260	280	300	350
16	40	39	38	37	36	34	32	31	30	29	28	27	26	25	24	22	21	20	19	18	17
20	79	77	74	72	70	66	63	61	58	56	54	52	51	49	48	46	44	42	40	39	34
25	170	165	160	155	151	143	136	130	125	120	116	112	109	105	102	98	94	91	87	83	75
32	343	332	321	312	303	288	274	262	251	242	234	226	219	212	206	198	191	183	175	166	148
40	648	627	607	589	573	545	517	496	475	458	441	427	413	401	390	377	364	352	339	326	292
50	1233	1192	1155	1121	1089	1036	984	943	903	871	839	812	786	763	741	716	686	656	629	602	532
63	2410	2330	2257	2190	2129	2026	1924	1845	1766	1703	1640	1588	1536	1492	1449	1366	1297	1232	1194	1136	1034