



KemPex Gas™

**DESIGN &
INSTALLATION
GUIDE**

PEX
PRESS-FIT
CONNECTION
SYSTEM
FOR GAS

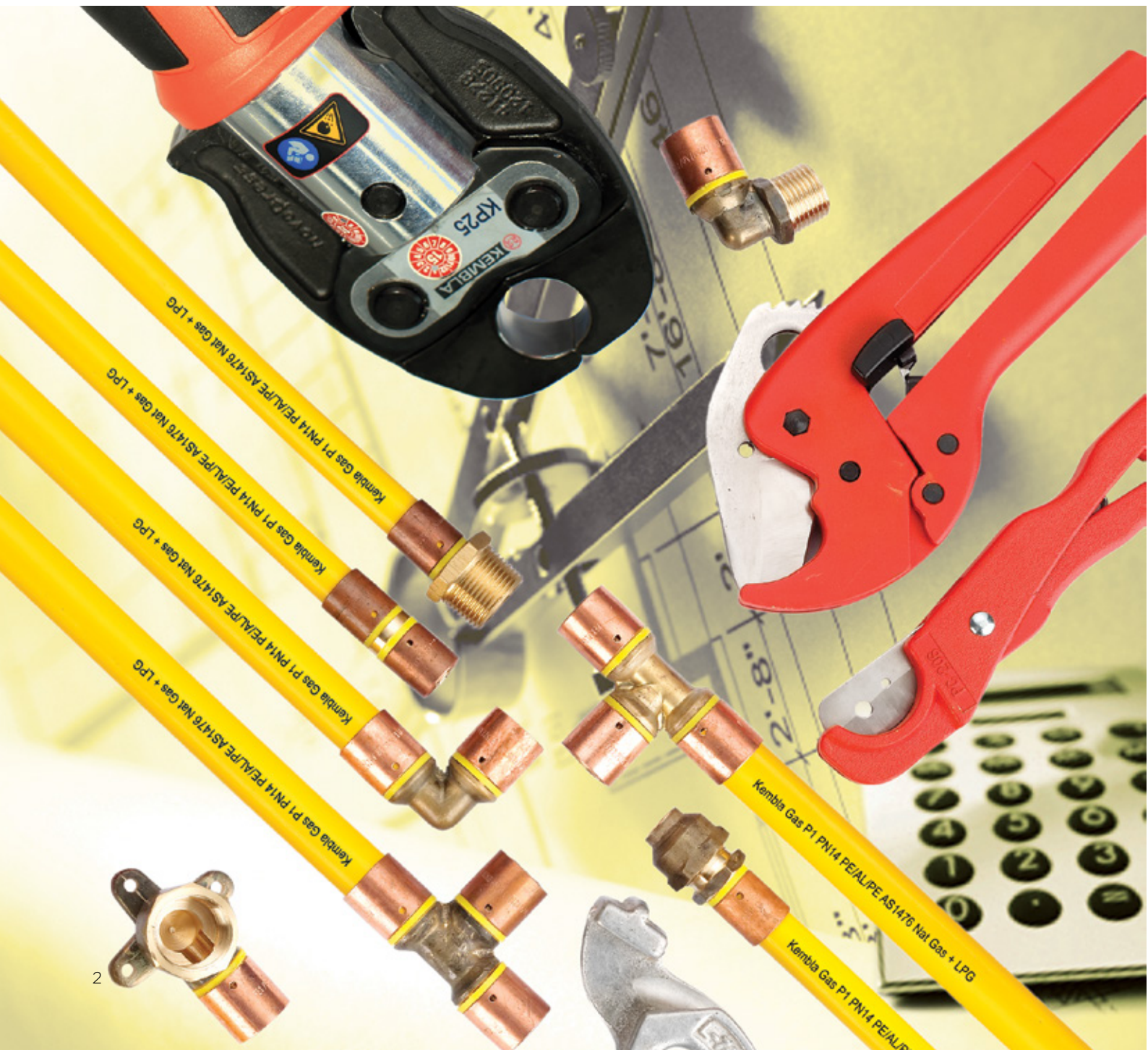




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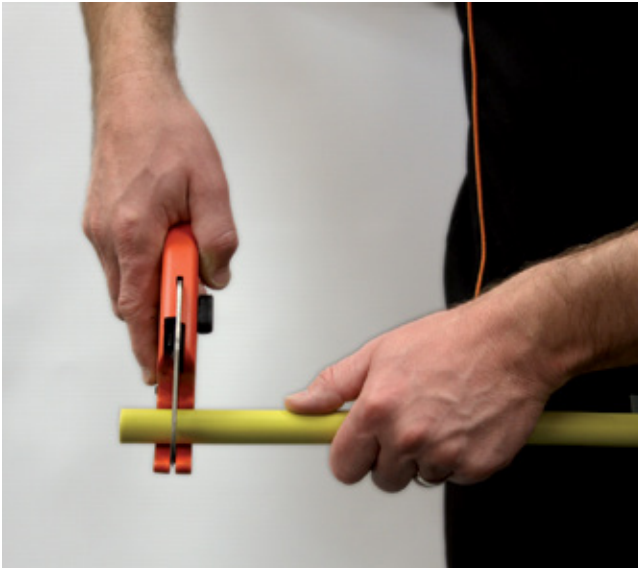
WHY USE KEMPEX GAS™

- KemPex Gas is a multi layer piping system, incorporating a layer of aluminium between an inner layer of PEX and an outer layer of HDPE, creating a flexible solution with the advantages of both plastic and metal pipes with a service life of 50+ years.
- Solid DZR Brass fittings with robust copper rings with depth inspection windows and the longest joining barb on the market ensures a gas tight joint every time.
- KemPex Gas has no O'rings, this results in increased bore size and better flow and removes the risk of installer error due to dirty, damaged or dislodged O'rings.
- A simple press jointing system results in quick and simple installation.
- The KemPex Gas system complies with Australian Standards AS4176 and is certified by SAI Global (licence no. SMK40019).
- KemPex Gas DZR fittings are forged brass resulting in superior mechanical properties with greater fatigue resistance.
- KemPex Gas carries a 25 year warranty and is covered by Kembla's comprehensive insurance cover.



INSTALLATION

The following is a step by step guide to installing the KemPex Gas™ System. For projects requiring maintenance and repair visually inspect the copper tube to ensure it is in reasonable condition with no signs of external corrosion.



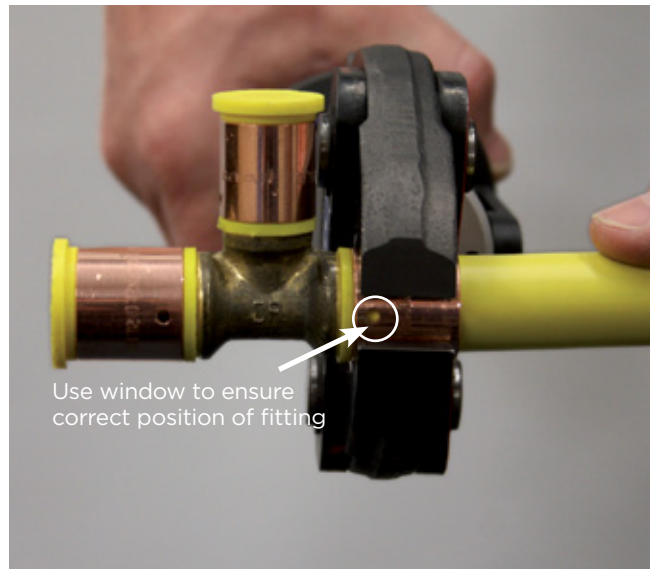
1. Cut pipe at right angle.



2. Round end of pipe.



3. Insert fitting.

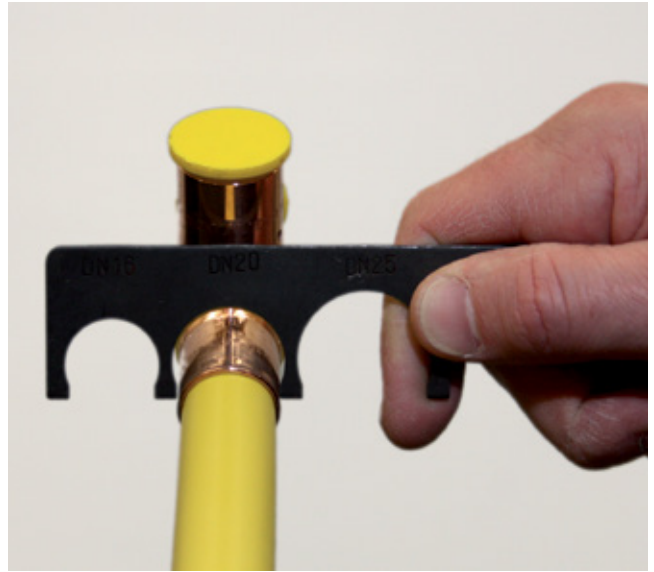


4. Observe window, position tool and crimp.

KemPex Gas™



5. Crimp fitting.



6. Test with Kembla Gas gauge.



Manual Crimping Tool



Kembla Battery Crimping Tool

Tooling • KemPex Gas requires a crimp type tool to press the joints. KemPex Gas has available two types of tooling including a battery tool. Other brands of press tooling may be suitable for Kembla Gas, please consult your Kembla representative.

PEX PIPE TECHNICAL DATA

	EXTERNAL DIAMETER					
	16mm	20mm	25mm	32mm	40mm	50mm
Wall thickness (mm)	2	2.23	2.5	3	4	4.5
Material	HDPE/AL/ PEX	HDPE/AL/ PEX	HDPE/AL/ PEX	HDPE/AL/ PEX	HDPE/AL/ PEX	HDPE/AL/ PEX
Operating pressure (max)	70kPa	70kPa	70kPa	70kPa	70kPa	70kPa
Linear Expansion	2.5mm for every 10°C temp change per 10 metres	2.5mm for every 10°C temp change per 10 metres	2.5mm for every 10°C temp change per 10 metres	2.5mm for every 10°C temp change per 10 metres	2.5mm for every 10°C temp change per 10 metres	2.5mm for every 10°C temp change per 10 metres
Pipe internal roughness	.007mm	.007mm	.007mm	.007mm	.007mm	.007mm
Oxygen diffusion	Impervious	Impervious	Impervious	Impervious	Impervious	Impervious
Service Life	50+ years	50+ years	50+ years	50+ years	50+ years	50+ years
Bending radius (min with bender mm)	50	60	100	130	200	250
Bending radius (by hand mm)	80	100	200	-	-	-
Support and Clipping Clip spacing	1000	1250	1500	2000	2000	2500

APPLICATIONS AND LIMITATIONS

- KemPex Gas must be installed by or under the supervision of a Licensed or Certifying Gasfitter.
- KemPex Gas is designed for transporting Natural Gas and LPG within a commercial or residential building application for the purpose of supplying gas appliances.
- KemPex Gas pipe is rated for a maximum temperature of 40°C and a maximum operating pressure of 70kPa.
- KemPex Gas pipe must be protected from UV exposure. If UV exposure is likely, KemPex Gas must be lagged or sleeved using KemPex conduit.
- KemPex Gas pipe in continuous length without joints may be installed underground external to or under the building, or in concrete in accordance with AS/NZ 5601.1.
- Kembla adhesive labels must be displayed near the meter or LPG cylinder. This label indicates that KemPex Gas pipe is installed and the location of the tee.
- Only Kembla PEX Gas approved tooling should be used on KemPex Gas pipe and fittings.
- Prohibited – KemPex Gas pipe can not be used for marine, riverboat, caravan or motor home applications. Kembla Copper may be used.

1. Natural Gas 1.1kPa (Pressure Drop .1kPa) or 10%	Od(mm) / metres	4	6	8	10	12	14	16	18
	16mm	80	64	55	48	43	40	37	35
	20mm	172	138	117	104	83	85	80	75
	25mm	313	249	213	187	170	156	145	136
	32mm	629	503	428	378	342	314	291	273
	40mm	1350	1072	910	801	722	660	612	571
	50mm	2636	2098	1783	1571	1416	1297	1202	1124
2. Natural Gas 1.5kPa (Pressure Drop .15kPa) or 10%	Od(mm) / metres	4	6	8	10	12	14	16	18
	16mm	96	76	65	58	52	47	44	41
	20mm	205	158	140	124	111	102	95	89
	25mm	372	298	253	224	202	185	172	162
	32mm	750	598	510	450	407	374	347	325
	40mm	1304	1036	880	774	697	638	591	552
	50mm	2550	2029	1725	1520	1370	1255	1163	1087
3. Natural Gas 2.5kPa (Pressure Drop .25kPa)	Od(mm) / metres	4	6	8	10	12	14	16	18
	16mm	125	99	83	72	69	65	60	56
	20mm	275	218	184	162	145	133	123	115
	25mm	506	401	340	299	269	246	228	212
	32mm	1032	820	696	613	552	505	468	437
	40mm	1749	1392	1183	1042	939	860	797	745
	50mm	3412	2720	2314	2041	1841	1687	1564	1463
4. Natural Gas 2.75kPa (Pressure Drop .275kPa) or 10%	Od(mm) / metres	4	6	8	10	12	14	16	18
	16mm	135	107	92	80	73	67	62	59
	20mm	289	231	197	174	158	144	134	126
	25mm	525	419	357	315	285	262	243	228
	32mm	1057	844	657	636	574	527	489	458
	40mm	1848	1471	1250	1102	993	909	843	788
	50mm	3603	2873	2445	2156	1945	1783	1653	1546
5. Natural Gas 7.0kPa (Pressure Drop .7kPa) or 10%	Od(mm) / metres	4	6	8	10	12	14	16	18
	16mm	231	184	158	139	126	115	107	100
	20mm	497	398	339	299	270	248	231	215
	25mm	902	720	614	542	490	450	417	391
	32mm	1816	1449	1235	1092	986	905	840	787
	40mm	3181	2540	2163	1909	1723	1580	1466	1371
	50mm	6179	4941	4213	3722	3362	3085	2862	2680
6. LPG Gas 2.75kPa (Pressure Drop .275kPa) or 10%	Od(mm) / metres	4	6	8	10	12	14	16	18
	16mm	217	173	147	131	118	108	101	94
	20mm	468	374	318	281	254	233	216	203
	25mm	848	677	577	510	460	423	392	368
	32mm	1707	1363	1162	1026	927	851	790	741
	40mm	3060	2440	2077	1832	1653	1515	1404	1313
	50mm	5952	4754	4051	3576	3229	2961	2747	2571

20	22	25	28	30	35	40	45	50	55	60	Fittings
33	29	27	27	26	24	23	21	20	19	18	1.2
70	67	62	59	57	52	48	45	42	34	38	1.1
128	122	113	106	102	94	87	75	77	73	69	0.4
258	244	228	213	206	188	175	164	155	146	140	0.5
538	509	472	442	425	388	359	335	315	298	283	0.3
1058	1002	931	872	838	767	710	663	624	590	561	0.3
20	22	25	28	30	35	40	45	50	55	60	Fittings
39	37	34	32	31	29	27	25	24	23	22	1.2
84	79	74	70	67	62	57	54	50	47	45	1.1
152	144	135	127	122	111	104	97	85	87	82	0.4
410	290	271	254	245	225	208	196	184	175	167	0.5
519	491	456	427	410	375	347	324	304	288	274	0.3
1023	969	900	843	810	741	686	641	603	571	542	0.3
20	22	25	28	30	35	40	45	50	55	60	Fittings
54	53	52	51	50	45	41	37	33	30	28	0.5
108	102	99	97	96	93	91	87	83	78	70	0.5
200	189	175	164	157	144	133	112	99	97	91	0.5
411	389	361	338	325	295	275	256	241	228	217	0.5
701	664	617	578	555	508	470	439	413	390	371	0.3
1378	1305	1213	1137	1093	1000	927	866	815	771	734	0.3
20	22	25	28	30	35	40	45	50	55	60	Fittings
55	53	48	45	44	40	37	35	33	31	30	1.4
118	112	105	98	95	87	80	75	65	68	64	1.3
214	204	190	178	171	158	146	137	129	123	116	0.75
433	410	382	358	345	316	294	275	260	246	235	0.5
742	702	652	611	587	537	497	464	437	413	393	0.3
1456	1379	1283	1202	1156	1058	980	916	862	816	776	0.3
20	22	25	28	30	35	40	45	50	55	60	Fittings
95	90	83	78	75	69	64	60	57	54	52	2
204	193	179	169	163	149	138	130	123	116	110	1.2
369	350	325	306	295	270	251	235	221	210	201	1
743	705	656	616	592	544	505	473	446	423	404	0.8
1292	1224	1138	1067	1026	940	871	814	767	726	690	0.3
2526	2394	2228	2090	2010	1842	1708	1598	1505	1426	1357	0.3
20	22	25	28	30	35	40	45	50	55	60	Fittings
89	84	78	74	71	65	61	57	54	50	48	1.4
192	181	169	159	152	140	130	122	115	109	104	1.3
347	329	306	287	277	254	236	221	208	198	188	0.8
698	662	617	579	557	512	475	445	419	398	379	0.5
1237	1172	1089	1021	982	899	832	778	732	693	659	0.5
2423	2296	2136	2003	1926	1765	1636	1529	1440	1364	1298	0.5

KemPex Gas™

GAS PIPE SIZING

Gas pipe sizing is crucial to the correct performance of the connected gas appliances, pipe must be sized correctly to provide enough gas to each appliance under all conditions.

Step 1:

Sketch pipe layout and add total appliance MJ/h ratings together for a total installation load. (56 + 184 + 34 + 30 = 304 MJ/h).

Step 2:

Identify the pipe path with the biggest load. (A-G) and calculate the length of the path in metres (12 + 2 + 6 + 2 = 22m).

Step 3:

Consult the appropriate Kembla Gas Pressure loss chart (this example uses chart #3 - 2.75 kPa with .275kPa or 10% pressure drop) and find the equal or greater metres value for step 2 along top of chart (22 metres). Take the total rating from step 1 which was 304 MJ/h and look down the chart until you locate the equal or next highest MJ/h rating (410 MJ/h). The far right hand column indicates the fittings allowance factor (0.5).

Examples:

- A-B = 304 MJ/h = 32mm
- B-D = 270 MJ/h = 32mm
- B-C = 34 MJ/h = 16mm
- D-E = 56 MJ/h = 20mm
- D-F = 214 MJ/h = 32mm
- F-G = 184 MJ/h = 25mm
- F-H = 30 MJ/h = 16mm

Step 4:

Calculate the number of fittings on the (A-G) pipe run, in this case 5 fittings were used. Now multiply the fittings factor in step 3 by the number of fittings used (5 x .5 = 2.5 metres). Add 2.5 metres to your original pipe run length, (22m + 2.5 m = 24.5m).

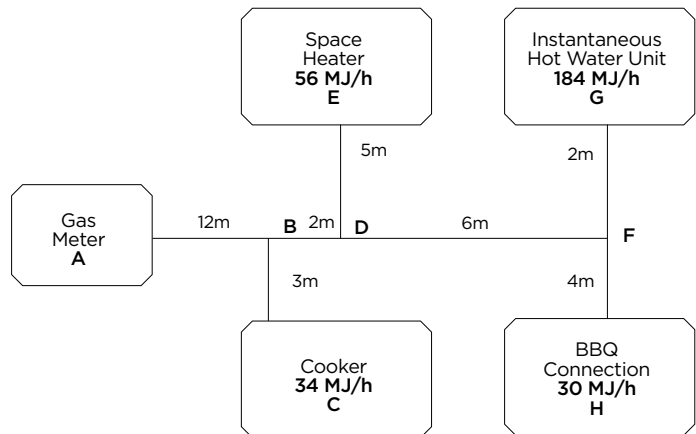
* note: every fitting in the pipe run should be included except straight joiners.

Step 5:

Now using the new pipe length of 24.5 metres, find the equal or next highest metres value on chart #3 as in step 3 (25m) and look down the chart until you locate the equal or next highest MJ/h rating (382 MJ/h). Look at the left hand column to determine the correct pipe size for this run (32mm). You have just sized run (A-G).

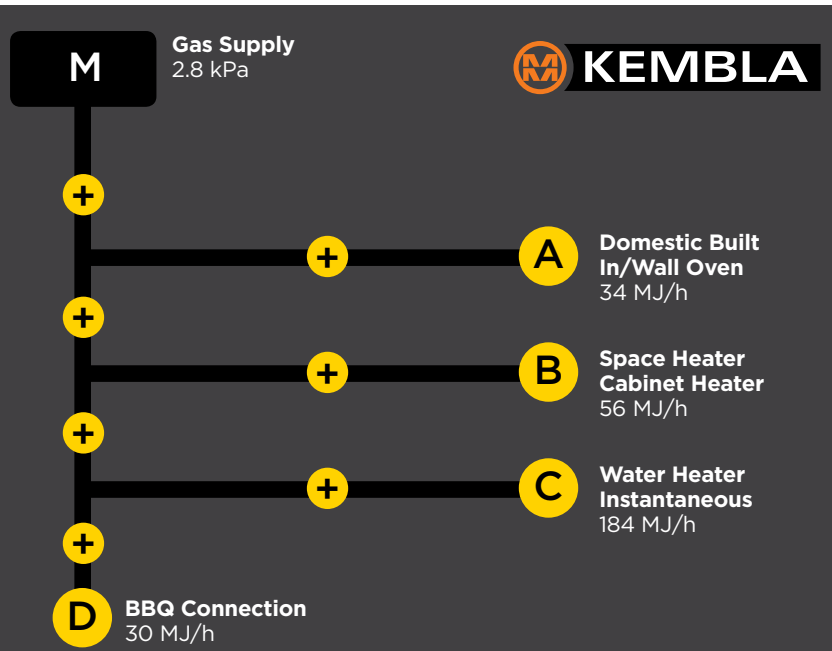
Step 6:

Using the same 25 metre portion of the chart #3, match the MJ/h ratings flowing through each section of pipe work to the equal or next highest MJ/h rating in the chart to determine the individual pipe size for each section.

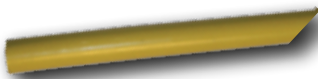



Kembla's Online Gas Pipe Sizing Guide

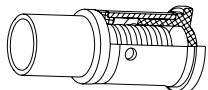
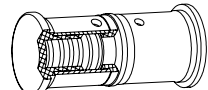
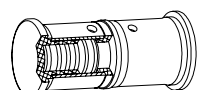
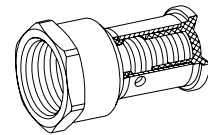
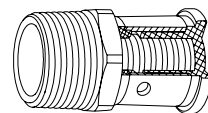
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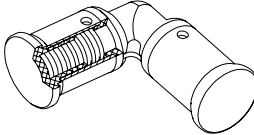
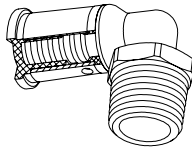
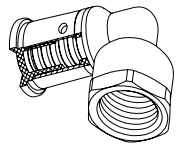
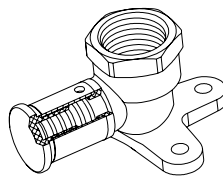
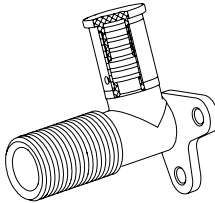
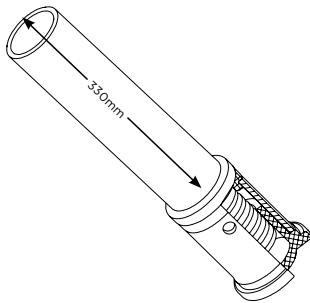
KEMPEX GAS PIPE RANGE

	Diameter	Wall	Length	Code
Gas Pipe - Straights 	16mm	2.0mm	5 meters	110716
	20mm	2.25mm	5 meters	110720
	25mm	2.5mm	5 meters	110725
	32mm	3.0mm	5 meters	110732
	40mm	4.0mm	5 meters	110740
	50mm	4.5mm	5 meters	110750
Gas Pipe - Coils 	16mm	2.0mm	50 meters	110816
	20mm	2.25mm	50 meters	110820
	25mm	2.5mm	50 meters	110825
	32mm	3.0mm	25 meters	110832

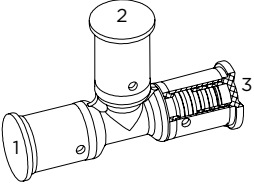
KEMPEX GAS FITTINGS RANGE

	Diameter	Pack quantity	Code
Connecting barbs 	16mm	10	141416
	20mm	10	141420
	25mm	10	141425
	32mm	5	141432
Connectors 	16mm	10	141016
	20mm	10	141020
	25mm	10	141025
	32mm	5	141032
	40mm	5	141040
Connectors - Reducing 	50mm	5	141050
	20mm x 16mm	10	146010
	25mm x 16mm	10	146012
	25mm x 20mm	10	146014
	32mm x 25mm	5	146016
	40mm x 32mm	5	146019
Connectors - Female 	50mm x 32mm	5	146021
	50mm x 40mm	5	146022
	16mm x 1/2"	10	141116
	16mm x 3/4"	10	141117
	20mm x 1/2"	10	141121
	20mm x 3/4"	10	141120
	25mm x 3/4"	10	141126
Connectors - Male 	25mm x 1"	5	141125
	32mm x 1"	5	141133
	16mm x 1/2"	10	141216
	16mm x 3/4"	10	141217
	20mm x 1/2"	10	141221
	20mm x 3/4"	10	141220
	25mm x 3/4"	10	141227
	25mm x 1"	10	141225
32mm x 1"	10	141233	
	32mm x 1 1/4"	10	141232

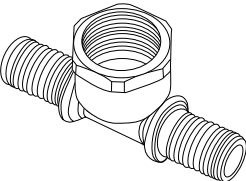
KEMPEX GAS FITTINGS CONTINUED

	Diameter	Pack quantity	Code
Elbows - 90 Degree 	16mm	10	145016
	20mm	10	145020
	25mm	5	145025
	32mm	5	145032
	40mm	1	145040
	50mm	1	145050
Elbows - 90 Degree Male 	16mm x 1/2"	10	145216
	20mm x 1/2"	10	145221
	20mm x 3/4"	10	145220
	25mm x 1"	10	145225
Elbows - 90 Degree Female 	16mm x 1/2"	10	145116
	20mm x 1/2"	10	145121
	20mm x 3/4"	10	145120
Wingbacks - Female 	16mm x 1/2"	10	148716
	20mm x 1/2"	5	148721
	20mm x 3/4"	5	148720
Wingbacks - Male 	16mm x 1/2" - 65mm threaded	5	148865
	16mm x 1/2" - 90mm threaded	5	148890
	16mm x 1/2" - 150mm threaded	5	148815
	16mm x 1/2" - 200mm threaded	5	148820
Copper Tails 	16mm x 15mm - 330mm	1	141515
	16mm x 1/2" - 330mm	1	141513
	16mm x 3/8" - 330mm	1	141510
	20mm x 20mm - 330mm	1	141520

KEMPEX GAS FITTINGS CONTINUED


	Diameter	Pack quantity	Code
Tees - Equal 	16mm	10	147016
	20mm	10	147020
	25mm	5	147025
	32mm	3	147032
	40mm	3	147040
	50mm	3	147050

Tees - Reducing 	20mm x 16mm x 20mm	10	147212
	20mm x 20mm x 16mm	10	147214
	20mm x 16mm x 16mm	10	147210
	25mm x 20mm x 25mm	5	147216
	25mm x 25mm x 20mm	5	147218
	32mm x 16mm x 32mm	5	147220
	32mm x 20mm x 32mm	5	147221
	40mm x 40mm x 25mm	3	147223
	40mm x 40mm x 32mm	3	147224
	50mm x 50mm x 32mm	3	147225
	50mm x 50mm x 40mm	3	147226

Tees - Threaded 	20mm x 3/4"	10	147120
	25mm x 1"	10	147125
	32mm x 1"	5	147132

End Plugs 	16mm	20	148016
	20mm	20	148020
	25mm	10	148025
	32mm	10	148032
	40mm	10	148040
	50mm	10	148050

Crimp Ring Assemblies 	16mm	10	148916
	20mm	10	148920
	25mm	10	148925
	32mm	10	148932

Open Clips 	16mm	100	103016
	20mm	100	103020
	25mm	100	103025



Quality Piping Systems Since 1916

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MM Kembla NZ Ltd warrants Kembla KemPex Gas pipes and fittings for a period of 25 years against faulty materials or workmanship.