



# KemPex Gas™

**DESIGN &  
INSTALLATION  
GUIDE**

PEX  
PRESS-FIT  
CONNECTION  
SYSTEM  
FOR GAS



## WHY USE KEMPEX GAS™

- KemPex Gas is a multi layer piping system, incorporating a layer of aluminum 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 Golbal (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.



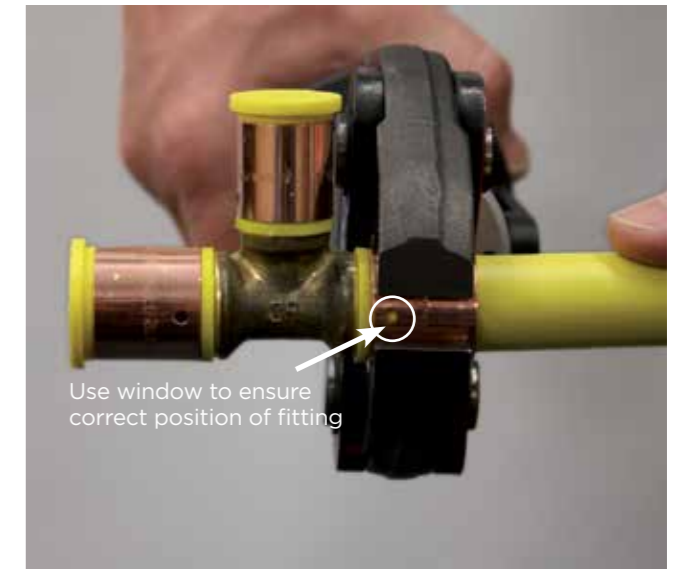
1. Cut pipe at right angle.



2. Round end of pipe.



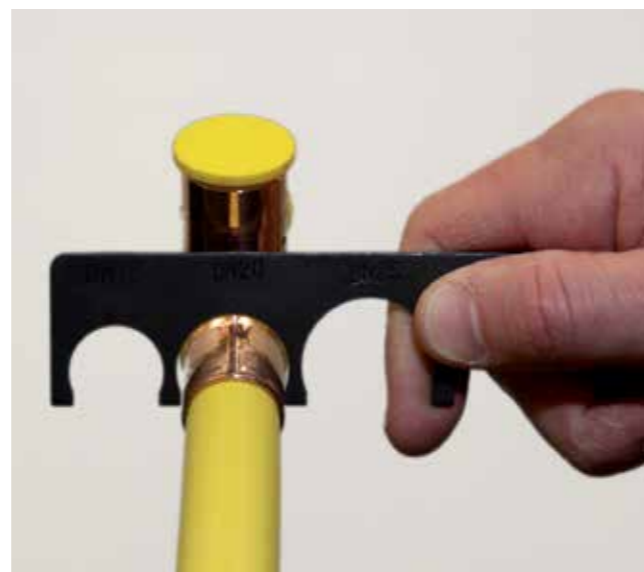
3. Insert fitting.



4. Observe window, position tool and crimp.



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
Wall thickness (mm)	2	2.23	2.5	3
Material	HDPE/AL/PEX	HDPE/AL/PEX	HDPE/AL/PEX	HDPE/AL/PEX
Operating pressure (max)	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
Pipe internal roughness	.007mm	.007mm	.007mm	.007mm
Oxygen diffusion	Impervious	Impervious	Impervious	Impervious
Service Life	50+ years	50+ years	50+ years	50+ years
Bending radius (min with bender mm)	50	60	100	130
Bending radius (by hand mm)	80	100	200	-
<b>Support and Clipping</b>				
Clip spacing	1000	1250	1500	2000

**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.

<b>1.</b> Natural Gas 1.1kPa (Pressure Drop .1kPa) or 10%	Od(mm) / metres	4	6	8	10	12	14	16	18	20	22	25	28	30	35	40	45	50	55	60	Fittings
	16mm	80	64	55	48	43	40	37	35	33	29	27	27	26	24	23	21	20	19	18	1.2
	20mm	172	138	117	104	83	85	80	75	70	67	62	59	57	52	48	45	42	34	38	1.1
	25mm	313	249	213	187	170	156	145	136	128	122	113	106	102	94	87	75	77	73	69	0.4
	32mm	629	503	428	378	342	314	291	273	258	244	228	213	206	188	175	164	155	146	140	0.5
<b>2.</b> Natural Gas 1.5kPa (Pressure Drop .15kPa) or 10%	Od(mm) / metres	4	6	8	10	12	14	16	18	20	22	25	28	30	35	40	45	50	55	60	Fittings
	16mm	96	76	65	58	52	47	44	41	39	37	34	32	31	29	27	25	24	23	22	1.2
	20mm	205	158	140	124	111	102	95	89	84	79	74	70	67	62	57	54	50	47	45	1.1
	25mm	372	298	253	224	202	185	172	162	152	144	135	127	122	111	104	97	85	87	82	0.4
	32mm	750	598	510	450	407	374	347	325	410	290	271	254	245	225	208	196	184	175	167	0.5
<b>3.</b> Natural Gas 2.75kPa (Pressure Drop .275kPa) or 10%	Od(mm) / metres	4	6	8	10	12	14	16	18	20	22	25	28	30	35	40	45	50	55	60	Fittings
	16mm	135	107	92	80	73	67	62	59	55	53	48	45	44	40	37	35	33	31	30	1.4
	20mm	289	231	197	174	158	144	134	126	118	112	105	98	95	87	80	75	65	68	64	1.3
	25mm	525	419	357	315	285	262	243	228	214	204	190	178	171	158	146	137	129	123	116	0.75
	32mm	1057	844	657	636	574	527	489	458	433	410	382	358	345	316	294	275	260	246	235	0.5
<b>4.</b> Natural Gas 2.5kPa (Pressure Drop .25kPa) or 10%	Od(mm) / metres	4	6	8	10	12	14	16	18	20	22	25	28	30	35	40	45	50	55	60	Fittings
	16mm	198	158	135	118	107	99	92	85	80	76	71	67	65	59	55	52	48	46	44	1.2
	20mm	425	340	289	255	231	212	197	184	174	165	153	144	139	128	118	111	105	99	95	1.1
	25mm	771	616	525	464	419	384	357	335	315	300	279	262	252	231	214	201	190	180	171	0.4
	32mm	1553	1240	1057	933	844	775	719	674	636	603	561	527	507	466	433	405	382	363	345	0.5
<b>5.</b> Natural Gas 7.0kPa (Pressure Drop .7kPa) or 10%	Od(mm) / metres	4	6	8	10	12	14	16	18	20	22	25	28	30	35	40	45	50	55	60	Fittings
	16mm	231	184	158	139	126	115	107	100	95	90	83	78	75	69	64	60	57	54	52	2
	20mm	497	398	339	299	270	248	231	215	204	193	179	169	163	149	138	130	123	116	110	1.2
	25mm	902	720	614	542	490	450	417	391	369	350	325	306	295	270	251	235	221	210	201	1
	32mm	1816	1449	1235	1092	986	905	840	787	743	705	656	616	592	544	505	473	446	423	404	0.8
<b>6.</b> LPG Gas 2.75kPa (Pressure Drop .275kPa) or 10%	Od(mm) / metres	4	6	8	10	12	14	16	18	20	22	25	28	30	35	40	45	50	55	60	Fittings
	16mm	217	173	147	131	118	108	101	94	89	84	78	74	71	65	61	57	54	50	48	1.4
	20mm	468	374	318	281	254	233	216	203	192	181	169	159	152	140	130	122	115	109	104	1.3
	25mm	848	677	577	510	460	423	392	368	347	329	306	287	277	254	236	221	208	198	188	0.8
	32mm	1707	1363	1162	1026	927	851	790	741	698	662	617	579	557	512	475	445	419	398	379	0.5

## 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).

### 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).

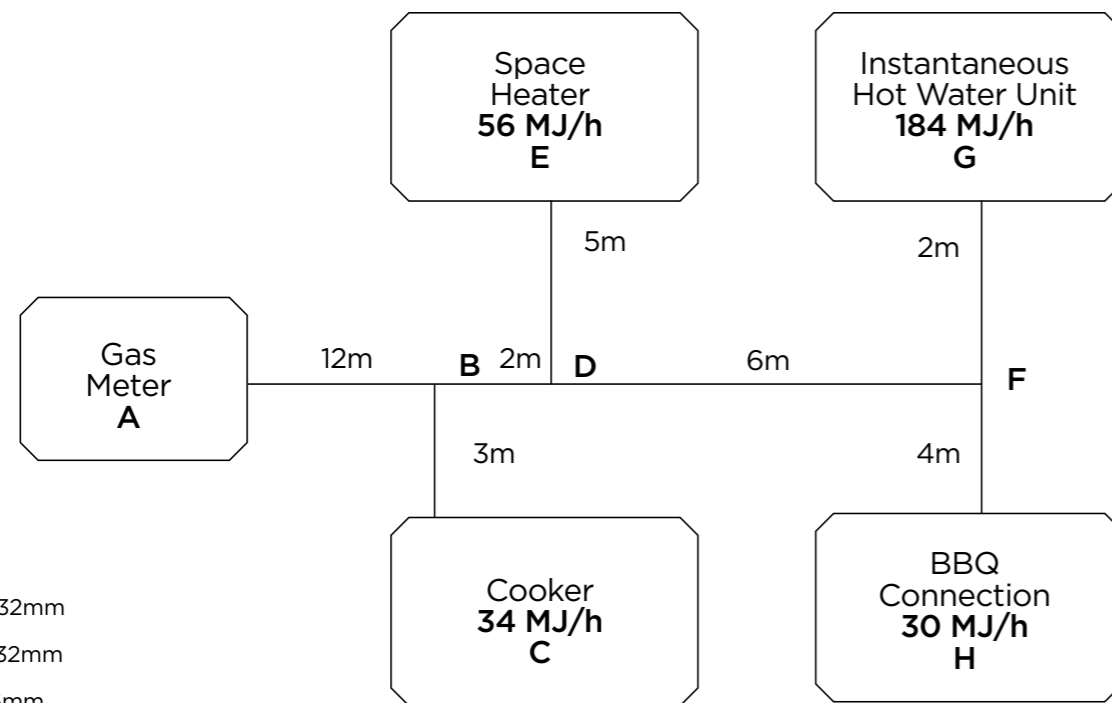
\* note: every fitting in the pipe run should be included except straight joiners.

### 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



### Examples:

A-B = 304 MJ/h = 32mm

B-D = 270 MJ/h = 32mm

B-C = 34 MJ/h = 16mm

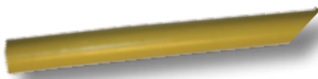

D-E = 56 MJ/h = 20mm

D-F = 214 MJ/h = 32mm

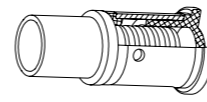
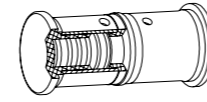
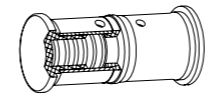
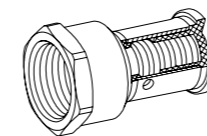
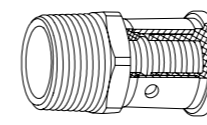
F-G = 184 MJ/h = 25mm

F-H = 30 MJ/h = 16mm

## KEMPEX GAS PIPE RANGE

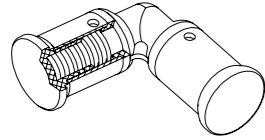
	Diameter	Wall	Length	Code
<b>Gas Pipe - Straights</b> 	16mm	2.0mm	5 meters	110716
	20mm	2.25mm	5 meters	110720
	25mm	2.5mm	5 meters	110725
	32mm	3.0mm	5 meters	110732
<b>Gas Pipe - Coils</b> 	16mm	2.0mm	50 meters	110816
	20mm	2.25mm	50 meters	110820
	25mm	2.5mm	50 meters	110825
	32mm	3.0mm	25 meters	110832

## KEMPEX GAS FITTINGS RANGE

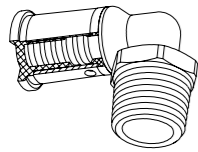
	Diameter	Pack quantity	Code
<b>Connecting bars</b> 	16mm	10	141416
	20mm	10	141420
	25mm	10	141425
	32mm	5	141432
<b>Connectors</b> 	16mm	10	141016
	20mm	10	141020
	25mm	10	141025
	32mm	5	141032
<b>Connectors - Reducing</b> 	20mm x 16mm	10	146010
	25mm x 16mm	10	146012
	25mm x 20mm	10	146014
	32mm x 25mm	5	146016
<b>Connectors - Female</b> 	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
	25mm x 1"	5	141125
	32mm x 1"	5	141133
	32mm x 1 1/4"	5	141132
<b>Connectors - Male</b> 	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

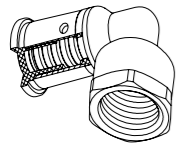
	Diameter	Pack quantity	Code
<b>Elbows - 90 Degree</b>	16mm	10	145016
	20mm	10	145020
	25mm	5	145025
	32mm	5	145032



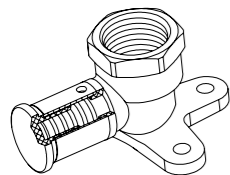
<b>Elbows - 90 Degree Male</b>	16mm x 1/2"	10	145216
	20mm x 1/2"	10	145221
	20mm x 3/4"	10	145220
	25mm x 1"	10	145225



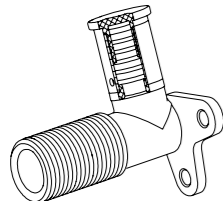
<b>Elbows - 90 Degree Female</b>	16mm x 1/2"	10	145116
	20mm x 1/2"	10	145121
	20mm x 3/4"	10	145120



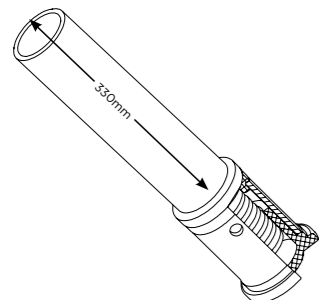
<b>Wingbacks - Female</b>	16mm x 1/2"	10	148716
	20mm x 1/2"	5	148721
	20mm x 3/4"	5	148720



<b>Wingbacks - Male</b>	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

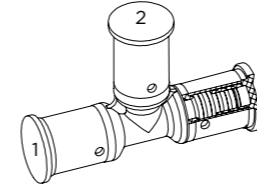


<b>Copper Tails</b>	16mm x 15mm - 330mm	1	141515
	16mm x 1/2" - 330mm	1	141513
	16mm x 3/8" - 330mm	1	141510
	20mm x 20mm - 330mm	1	141520

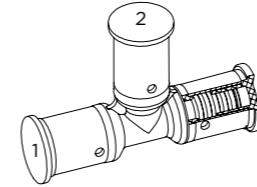


## KEMPEX GAS FITTINGS CONTINUED

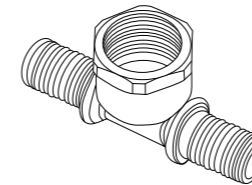
	Diameter	Pack quantity	Code
<b>Tees - Equal</b>	16mm	10	147016
	20mm	10	147020
	25mm	5	147025
	32mm	3	147032



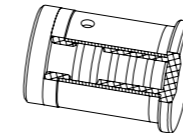
<b>Tees - Reducing</b>	20mm x 16mm x 20mm	10	147212
	20mm x 20mm x 16mm	10	147214
	20mm x 16mm x 16mm	10	147210
	25mm x 20mm x 25mm	5	147216
	25mm x 25mm x 20mm	5	147218
	32mm x 16mm x 32mm	5	147220
	32mm x 20mm x 32mm	5	147221
	32mm x 25mm x 32mm	3	147222



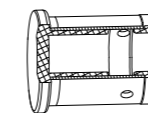
<b>Tees - Threaded</b>	20mm x 3/4"	10	147120
	25mm x 1"	10	147125
	32mm x 1"	5	147132



<b>End Plugs</b>	16mm	20	148016
	20mm	20	148020
	25mm	10	148025
	32mm	10	148032



<b>Crimp Ring Assemblies</b>	16mm	10	148916
	20mm	10	148920
	25mm	10	148925
	32mm	10	148932



<b>Open Clips</b>	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.