

DUOPEX GAS MANUAL



THE DUOPEX GAS PIPE AND FITTING SYSTEM IS DESIGNED TO MAKE EVERY JOB QUICK AND EASY. IT PROVIDES A REVOLUTIONARY ALTERNATIVE FOR THE PROFESSIONAL PLUMBER AND GASFITTER.





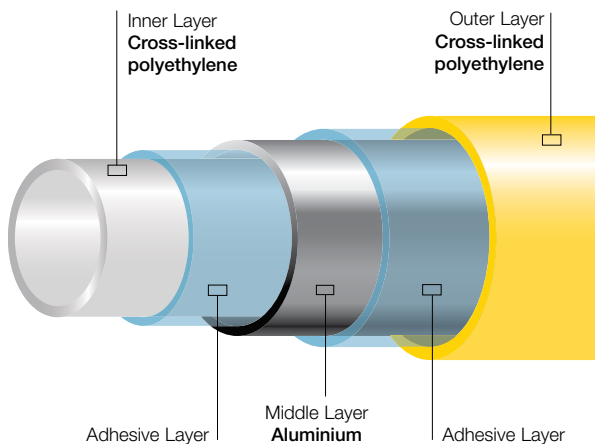
The DUOPEX-GAS pipe and fitting system is designed as a consumer system for gas installations in accordance with Table 3.1 of Australian Standard (Gas Installations) AS 5601—2004.

All the limiting conditions and the requirements of AS 5601 particularly Sections 3 Materials and Components, Section 4 Installing Consumer Piping, Section 5 Installing Appliances and this publication should be strictly adhered to.

DUOPEX GAS PIPE

The DUOPEX GAS pipe is a multi layer or composite pipe system.

It consists of an inner layer of cross-linked polyethylene (PE-X), an adhesive layer, an aluminium layer, an adhesive layer, an outer layer of cross-linked polyethylene, which is effectively a 5-layer pipe.



The pipe has been tested in accordance with AS4176 and carries license number 21044 and Standardsmark.

The DUOPEX GAS pipe has many advantages. Some are listed below:

- Impermeability to oxygen and gases in general.
- Form stability during installation, for an example in a curve.
- Low thermal conductivity level.
- Light weight during transport and installation.
- Thermal expansion is lower than that of other tubes.
- Very good behaviour in the presence of fire thanks to the metal layer and low steam emission during combustion.
- Lower pressure loss thanks to the smooth inner layer.

Data Sheet

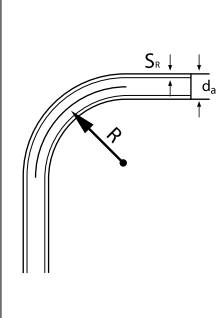
Dimension	16x2	20x2	26x3	32x3	40x3.5	50x4	63x4.5
Coefficient of Linear Thermal Expansion in mm/m x K	0.026	0.026	0.026	0.026	0.026	0.026	0.026
Thermal Conductivity in W/M x K	0.45	0.45	0.45	0.45	0.45	0.45	0.45
Water contents in 1/m	0.113	0.201	0.314	0.531	0.855	1.385	2.29
Radius of curvature without aids mm	5 x d	5 x d	-	-	-	-	-
Radius of curvature with bending spring mm	2 x d	3 x d	-	-	-	-	-
Radius of curvature with bending tool mm	-	-	3.6 x d	3.6 x d	4.0 x d	4.0 x d	4.5 x d
Pipe roughness K mm	0.007	0.007	0.007	0.007	0.007	0.007	0.007
Coil Length	50 100	50 100	50	50	-	-	-
Coil Dimensions mm inside x outside x width	610 x 740 x 115 510 x 740 x 120	550 x 780 x 190	550 x 780 x 190	940 x 1200 x 150	-	-	-
Weight per coil kg	5.5	15	15	21			
Metres per length	5	5	5	5	5	5	5

Forming Stability

After bending the DUOPEX GAS pipe will remain stable, due to the metal layer. In many cases thanks to this characteristic, it is possible to prefabricate assemblies before delivery to the site.

Minimum Bending Radii

Bending can be made manually however if tighter bends are required bending springs or bending tools can be used.



Pipe Dimension (mm)	Bending radii without tools	Bending radii with internal pipe bending spring
16 x 2.0	5 x d _a	2.0 x d _a
20 x 2.0	5 x d _a	3.0 x d _a
Bending radii with bending tools		
26 x 3.0	3.6 x d _a	
32 x 3.0	3.6 x d _a	
40 x 3.5	4.0 x d _a	
50 x 4.0	4.0 x d _a	
63 x 4.5	4.5 x d _a	

Thermal Changes in Length

Heating and cooling cause pipe length changes.

The coefficient of expansion of DUOPEX GAS composite pipes is 0.026 mm/m x k

Thermal changes in length

Pipe length changes are caused by heating and cooling.

The coefficient of expansion of DUOPEX composite pipes is 0.026mm/m x K.

Example

Temperature

differential ΔT	50k
Pipe length L	5 m
Coefficient of expansion a	0.026 mm/m.K
Linear expansion ΔL	6.5 mm
ΔL	$= a \times L \times \Delta T$
	$= 0.0026\text{mm/m} \cdot \text{K} \times 5 \text{ m} \times 50 \text{ K}$
	$= 6.5 \text{ mm}$

Spacing of Supporting Devices

SEE ALSO AS5601 TABLE 4.2

Pipe Dimension (mm)	Max Pipe clip clearance (cm)
16 x 2.0	100
20 x 2.0	125
26 x 3.0	150
32 x 3.0	200
40 x 3.5	200
50 x 4.0	250
63 x 4.5	250

Synthetic clips must be used.

Fire and Excessive Heat

Keep DUOPEX GAS PIPE a minimum of 500mm from sources of high heat such as heating appliances and flues from heating appliances.

Keep DUOPEX GAS PIPE 1500mm from slow combustion type stoves and flues used to heat hot water or cooking. (Wet back type).

Leave 300mm minimum space between DUOPEX PIPE and recessed electric light fittings.

DUOPEX PIPE should not be positioned within 150mm of gas or central heating vents or flues.

UV Resistance

DUOPEX GAS PIPES must be protected against direct sunlight or UV radiation. Consequently, DUOPEX GAS PIPES must be covered during transport or storage if they have been removed from their original packaging. When DUOPEX GAS PIPES are used in a protective tube adequate UV protection is assured during the installation phase. Furthermore, jackets made from insulating material can undertake the function of UV protection with DUOPEX GAS PIPES.

Gas Standard AS 5601

4.11.4 - Composite pipe installed above ground shall be protected against degradation from exposure to ultra violet light.

Note: A typical means of protection is sleeving or wrapping with a suitable protective material.

Chemical Resistance

The chemical properties of polyethylene are significantly improved by cross-linking. Multi layer pipe with cross-linked polyethene has been approved for use in AS5601. This includes Natural gas and LPG. For specific gases other than these please contact the Duopex representative.

DUOPEX GAS pipes are resistant to the following media:

- Concrete, plaster, mortar, and cement.
- Disinfectants and cleaning agents according to DVGW worksheet W 291 and DIN 2000.
- All natural potable water constituents.
- Corrosion - protection agents according to DIN 1988 part 4.

DUOPEX GAS pipes must be protected against:

- Direct contact with bitumen or bitumen strips.
- Pipes must be protected against greases, solvents and oils.
- Contaminated areas as defined by AS5601 and AS3500.

If the DUOPEX GAS pipe installation system is used in areas where, for example, aggressive gases, permanently acting moistures or building materials containing chlorine are to be encountered, the fittings have to be protected using suitable jacketing. This also applies to contact with screed, concrete, mortar or plaster.

Always consult the manufacturer for details.

The pipes have been tested in accordance with ATS 5200.478, which was written to address the dimensional limitations within AS4176. The testing requirements of this technical specification match those in AS4176. The pipes carry standards mark and licence number 21044.



DUOPEX GAS FITTINGS

The DUOPEX GAS fittings are manufactured from dezincification resistance (DR) brass with a stainless steel crimp ring and joined to the pipe using a precision and specific crimping tool.

The fittings have been tested in accordance with ATS 5200.478. The testing requirements of this technical specification match those in AS4176. The fittings carry watermark and licence number 21069.

To increase joint performance all DUOPEX GAS crimp fittings are characterised by a plastic holding ring which has 2 important functions:

1. As a locating ring that matches the DUOPEX GAS jaws for a perfect crimp position.
2. It allows the installer to visually check when the pipe is correctly fitted on the fitting.

These pipe fittings are available for DUOPEX GAS in sizes ranging from 16 to 63mm.

DUOPEX GAS crimp fittings are classified as a permanent joint in accordance with AS 5601.



Female BSP Tee

For the complete range of fittings see pages 18 to 24.

AUSPEX JOINTING TOOLS

MINI TOOL



DUOPEX GAS JAWS
16mm to 32mm



AUSPEX WATER JAWS
16mm to 25mm



- Battery Powered – hydraulic 9.6 volts/Ah.
- Ergonomic handling.
- Short crimping time (approx.3-4 sec.)
- Automatic piston return and motor cut off.
- 360 degree moveable jaw holder.
- Weight including crimping jaws only 2.5 kg approx.
- System dependent, up to 32mm can be used.
- At 20mm approx. 65 crimps per battery charge possible.
- Charging time of approx. 40 min.
- Delivery contents: crimping tool, carrying case, charger and two battery.
- Jaws are available in sizes 16-32mm for DUOPEX GAS.
- Jaws for AUSPEX hot and cold water PE-X system are available and are compatible with the AUSPEX mini tool 16mm to 25mm.
- The carrying case can be supplied complete with the mini tool and accessories.

MAXI TOOL



DUOPEX GAS JAWS
16mm to 32mm



DUOPEX GAS JAWS
40mm to 63mm

- Battery powered – hydraulic 12V.
- Lightweight, compact design and construction.
- Ergonomic handle design (one hand operation).
- Short pressure time (depending on pipe diameter, approx. 5 to 7 sec.).
- Automatic piston retraction after reaching operating pressure, motor cut-off.
- Maintenance and malfunction warnings microprocessor – controlled.
- 360 degree moveable jaw holder.
- Jaw range available from 16 to 63mm.
- Metal carrying case complete with battery-hydraulic tool, one battery and charger.
- At medium pipe diameters, approx 150 crimp strokes per battery charge.

MAKING A JOINT

It is most important that the tool manual supplied with the tool is read in its entirety and the user becomes familiar with the maintenance, precautions and the proper use of this tool.

The following describes, in general terms, the jointing procedures using the AUSPEX Mini Tool but should not be regarded as a substitute for reading and applying the detailed instructions contained in the tool manual.

- 1** Ensure that the battery is fully charged and attach it to the tool.



- 2** Select the jaw size to suit the fitting to be crimped. The jaws must be examined in terms of possible damage, or dirt in the compression area.
- 3** To change the jaw push the pin in and at the same time twist it in an anti-clockwise direction. The pin should then spring back.
- 4** Insert the jaws and line up the holes in the tool with the hole in the jaw.
- 5** Push the pin through the hole in the jaw until it locks in position.



- 6** Cut the pipe to the required length with the recommended multi layer pipe cutters.



- 7a** Clean the pipe by using the deburring tool. Insert the calibrating tool into the pipe, and alternately turn in a clockwise and in a counter-clockwise direction.

OR



- 7b** Insert the calibrating/deburring tool into the pipe, and then alternately turn in a clockwise and in a counter-clockwise direction.

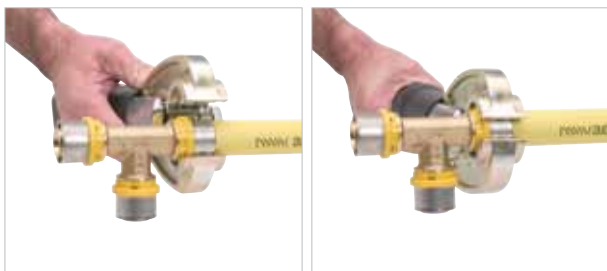
MAKING A JOINT



- 8 Insert the pipe into the fitting and under the stainless steel ring and push the pipe until it is visible in the slots of the plastic ring. This ensures you have pushed the pipe home.



- 9 By squeezing the back of the jaw the jaws will open. If you look at the machined profile on the inside of the jaws you will note a slot on each side of the profile.



- 10 With the jaws open place the fitting inside the jaws so that the raised section of the plastic ring fits into the slot in the jaws. Release the jaws so they fit snugly over the fitting ensuring that the raised section of the plastic ring fit into the slots in the jaw.



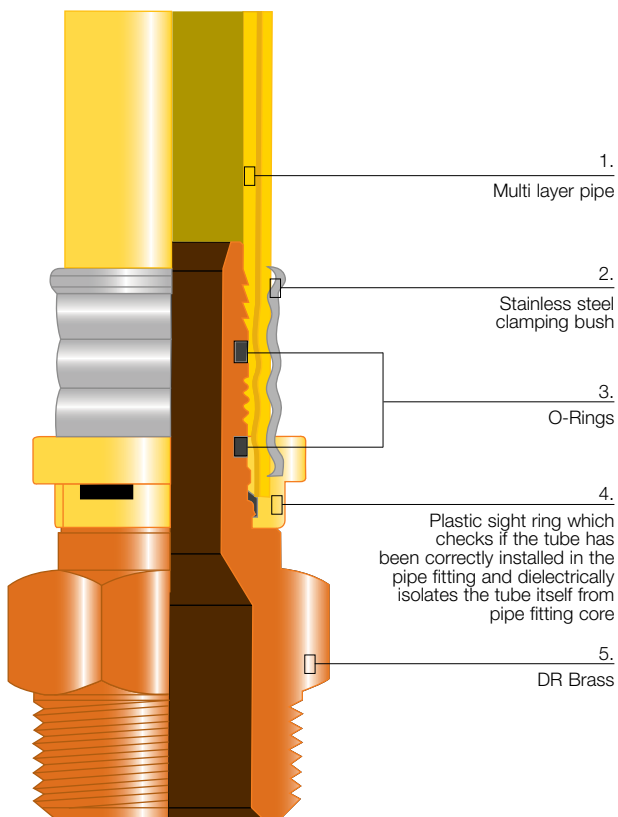
- 11** Press the switch mechanism until the joint is completed and the piston has retracted back into the body of the tool.



- 12** Press the back end of the jaws and remove the completed joint.

Pipe and fittings are joined and sealed thanks to the stainless steel outer bush mechanical deformation (2). This deformation is achieved by using the special DUOPEX GAS jaws.

- 1 Multi layer pipe
- 2 Stainless steel clamping bush
- 3 O-Rings
- 4 Plastic sight ring
- 5 DR Brass



SIZING TABLES FOR NATURAL GAS

NATURAL GAS Pressure drop 0.075 (Meter Pressure 1.1 kPa)

Nom Size	Length of straight pipe in metres														Correction (+ mt for fitting)				
	2	4	6	8	10	12	14	16	18	20	25	30	35	40		45	50	55	60
16mm	74	58	47	39															1.2
20mm	155	132	103	87	78	70	62	58	54	50	47	41	38						1.1
26mm	303	241	194	163	140	128	116	109	103	97	85	78	70	64	60	58	54	50	0.6
32mm	621	535	388	330	291	264	244	221	213	194	175	155	144	132	124	116	111	101	0.5
40mm	1048	939	745	625	563	504	466	427	407	376	334	295	275	252	233	225	213	198	N/A
50mm	2018	1785	1436	1242	1086	970	892	834	776	737	660	582	543	485	466	446	435	388	N/A
63mm	3880	3492	2755	2328	2056	1862	1746	1591	1513	1397	1242	1125	1048	931	892	854	815	757	N/A

NATURAL GAS Pressure drop 0.75 (Meter Pressure 2.75 kPa)

Nom Size	Length of straight pipe in metres														Correction (+ mt for fitting)				
	2	4	6	8	10	12	14	16	18	20	25	30	35	40		45	50	55	60
16mm	283	217	175	147	132	116	107	99	91	87	78	70	64	58	54	50	49	47	1.7
20mm	621	469	388	326	287	252	237	217	202	190	171	151	147	132	120	113	107	105	1.5
26mm	1125	873	698	601	524	466	431	396	369	353	310	279	256	241	221	213	198	190	0.8
32mm	2250	1746	1436	1183	1067	951	892	815	757	718	640	582	524	485	462	427	407	388	0.7
40mm	4268	3298	2716	2309	2018	1785	1649	1552	1436	1358	1187	1086	1009	931	873	815	776	737	N/A
50mm	8148	6402	5083	4346	3647	3298	3182	2910	2716	2600	2328	2095	1940	1785	1668	1571	1474	1397	N/A
63mm	15908	12416	10088	8536	7372	6596	6208	5820	5354	5044	4462	4074	3725	3453	3182	2988	2910	2716	N/A

SIZING TABLES FOR NATURAL GAS

NATURAL GAS Pressure drop 1.5 kPa Flow through PE-X / AL / PE-X pipe crimp fittings (MJ/h)

Nom diam (mm)	Length of Straight Pipe in metres														Correction (+ mt for fitting)				
	2	4	6	8	10	12	14	16	18	20	25	30	35	40		45	50	55	60
16	423	330	252	217	194	175	163	147	140	128	113	101	93	85	81	78	74	66	1.7
20	931	737	563	485	427	380	357	326	303	279	252	225	210	190	182	171	159	151	1.5
26	1630	1319	1028	892	776	698	660	601	563	524	466	419	388	349	341	310	295	279	0.8
32	3298	2600	2056	1824	1552	1397	1319	1203	1125	1048	931	854	776	718	660	640	601	582	0.7
40	6208	5044	3880	3414	2910	2600	2483	2250	2134	1959	1785	1591	1474	1358	1319	1203	1125	1086	N/A
50	11834	9506	7062	6596	5626	5122	4734	4268	4074	3764	3182	2871	2794	2406	2328	2250	2212	1940	N/A
63	23086	18624	14744	12804	10864	10088	9312	8536	7760	7372	6596	5820	5432	5354	4734	4462	4268	3880	N/A

This table is suitable for supply pressures within the range 5-10 kPa

Technical Regulators requirements may vary in different states and territories

SIZING TABLES FOR LPG

LPG Pressure Drop 0.25kPa (Pressure Supply 2.75kPa) Flow through PE-X/AL/PE-X pipe crimp fittings (MJ/h)

Nom Size (mm)	Length of Straight Pipe in metres												60 Correction (+ mt for fitting)						
	2	4	6	8	10	12	14	16	18	20	25	30		35	40	45	50	55	
16	238	190	152	128	114	100	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.7
20	532	418	333	285	247	219	204	190	166	169	147	133	119	114	106	100	96	NA	1.5
26	998	760	618	523	447	418	380	352	323	314	276	247	223	209	190	181	171	166	0.8
32	1995	1530	1235	1045	922	855	760	713	665	627	561	494	447	428	399	380	352	342	0.7
40	3800	2945	2375	2043	1805	1615	1473	1378	1283	1235	1055	950	874	808	760	713	665	646	NA
50	7220	5605	4560	3895	3420	3040	2850	2660	2470	2375	2090	1881	1710	1615	1568	1425	1330	1245	NA
63	13300	10925	8930	7600	6650	5890	5605	5130	4750	4655	3990	3610	3230	3040	2850	2755	2565	2470	NA

LPG Pressure Drop 10kPa (Pressure Supply 70kPa) Flow through PE-X/AL/PE-X pipe crimp fittings (MJ/h)

Nom Size (mm)	Length of Straight Pipe in metres												60 Correction (+ mt for fitting)						
	2	4	6	8	10	12	14	16	18	20	25	30		35	40	45	50	55	
16	2090	1615	1292	1064	950	855	798	732	684	627	570	513	475	428	409	390	361	342	
20	4180	3420	2850	2375	2090	1900	1663	1615	1520	1425	1235	1140	1045	950	903	855	798	760	
26	7600	6175	5130	4275	3800	3420	3135	2850	2755	2565	2280	2090	1900	1805	1663	1615	1473	1425	
32	16150	12350	10450	8550	7600	6745	6270	5700	5510	5130	4560	3990	3800	3515	3325	3135	2945	2850	
40	29450	23750	19760	16150	14250	12825	12065	11115	10450	9500	8550	7790	7125	6650	6175	5890	5605	5320	
50	52250	45600	38000	30875	27550	24700	22800	20900	19950	18525	16625	16150	13775	12825	11875	11400	10545	10260	
63	99750	87780	72200	60800	55100	47500	44175	41800	38000	36100	32300	28975	27075	24700	23275	22325	20900	19950	

DUOPEX GAS PRODUCT LIST

Threaded fittings should not be heat re-fabricated.
Use approved pastes/jointing compounds.

PIPES

UV SLEEVING

GPM401605GSL
Suitable for 16mm
Duopex Gas pipe



GPM412005GSL
Suitable for 20mm
Duopex Gas pipe



GPM422605GSL
Suitable for 26mm
Duopex Gas pipe



Available in 5m lengths

PIPE STRAIGHT

16MM X 5M	GPM401605
20MM X 5M	GPM412005
26MM X 5M	GPM422605
32MM X 5M	GPM433205
40MM X 5M	GPM444005
50MM X 5M	GPM455005
63MM X 5M	GPM466305



PIPE COILS

16 X 50M	GPM401650
16 X 100M	GPM4016100
20 X 50M	GPM412050
20 X 100M	GPM4120100
26 X 50M	GPM422650
32 X 50M	GPM433250



FITTINGS

COUPLINGS

16	GPM011616
20	GPM012020
26	GPM012626
32	GPM013232
40	GPM014040
50	GPM015050
63	GPM016363
20 X 16	GPM022016
26 X 16	GPM022616
26 X 20	GPM022620
32 X 20	GPM023220
32 X 26	GPM023226
40 X 26	GPM024026
40 X 32	GPM024032
50 X 32	GPM025032
50 X 40	GPM025040
63 X 40	GPM026340
63 X 50	GPM026350



TEES

16MM	GPM03161616
20MM	GPM03202020
26MM	GPM03262626
32MM	GPM03323232
40MM	GPM03404040
50MM	GPM03505050
63MM	GPM03636363
20 X 16 X 16	GPM04201616
16 X 16 X 20	GPM04161620
20 X 20 X 16	GPM04202016
20 X 16 X 20	GPM04201620
26 X 20 X 16	GPM04262016
26 X 26 X 16	GPM04262616
20 X 20 X 26	GPM04202026
26 X 20 X 20	GPM04262020
26 X 20 X 26	GPM04262026
26 X 26 X 20	GPM04262620
32 X 32 X 20	GPM04323220
32 X 26 X 26	GPM04322626
32 X 26 X 32	GPM04322632



FITTINGS

TEES

32 X 32 X 26	GPM04323226
40 X 40 X 32	GPM04404032
40 X 32 X 32	GPM04403232
40 X 32 X 40	GPM04403240
50 X 50 X 20	GPM04505020
50 X 50 X 32	GPM04505032
50 X 50 X 40	GPM04505040
63 X 63 X 32	GPM04636332
63 X 63 X 40	GPM04636340
63 X 63 X 50	GPM04636350

THREADED BSP TEES (MALE)

16 X 16 X 1/2"	GPM04161615MI
20 X 20 X 1/2"	GPM04202015MI
20 X 20 X 3/4"	GPM04202020MI
26 X 26 X 3/4"	GPM04262620MI
32 X 32 X 1"	GPM04323225MI



THREADED BSP TEES (FEMALE)

16 X 16 X 1/2"	GPM04161615FI
20 X 20 X 1/2"	GPM04202015FI
20 X 20 X 3/4"	GPM04202020FI
32 X 32 X 1/2"	GPM04323215FI
32 X 32 X 1"	GPM04323225FI
40 X 40 X 1"	GPM04404025FI
50 X 50 X 3/4"	GPM04505020FI
50 X 50 X 1"	GPM04505025FI
63 X 63 X 1"	GPM04636325FI



45° ELBOWS

26 X 26	GPM05452626
32 X 32	GPM05453232
40 X 40	GPM05454040
50 X 50	GPM05455050
63 X 63	GPM05456363



ELBOWS

16MM	GPM051616
20MM	GPM052020
26MM	GPM052626
32MM	GPM053232
40MM	GPM054040



FITTINGS

ELBOWS

50MM	GPM055050
63MM	GPM056363

THREADED BSP ELBOWS (FEMALE)

16 X 1/2"	GPM051615FI
20 X 1/2"	GPM052015FI
20 X 3/4"	GPM052020FI
26 X 3/4"	GPM052620FI
32 X 1"	GPM053226FI
40 X 1 1/4"	GPM054032FI
50 X 1 1/2"	GPM055040FI



THREADED BSP ELBOWS (MALE)

16 X 1/2"	GPM051615MI
20 X 1/2"	GPM052015MI
20 X 3/4"	GPM052020MI
26 X 3/4"	GPM052620MI
32 X 1"	GPM053225MI
40 X 1 1/4"	GPM054032MI
50 X 1 1/2"	GPM055040MI
63 X 2"	GPM056350MI



LUGGED ELBOWS (MALE)

16 X 1/2" (73MM)	GPM061615S
16 X 1/2" (88MM)	GPM061615L
20 X 3/4" (200MM)	GPM062020



These fittings are not for heat related re-fabrication.
Do not braze onto threads. Use approved pastes/jointing compounds.

FITTINGS

LUGGED ELBOWS (FEMALE)

16 X 1/2"	GPM071615FI
20 X 1/2"	GPM072015



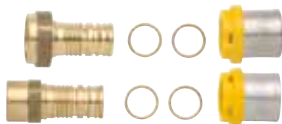
LUGGED ELBOWS (FEMALE) TWO WAY

16 X 1/2"	GPM07161615
20 X 1/2"	GPM07202015



BRAZING TAILS

16 X 1/2" MALE	GPM0816M
16 X 1/2" FEMALE	GPM0816F
20 X 3/4" MALE	GPM0820M
20 X 3/4" FEMALE	GPM0820F
26 X 1" MALE	GPM0826M
26 X 1" FEMALE	GPM0826F
26 X 3/4" MALE	GPM082520M
32 X 1 1/4" FEMALE	GPM0832F
40 X 1 1/2" FEMALE	GPM0840F
50 X 2" FEMALE	GPM0850F



O rings and stainless steel sleeve must be applied after soldering and quenching. Ensure that O rings are correctly located on the fitting.

FITTINGS

THREADED BSP ADAPTORS (MALE)

16 X 1/2"	GPM091615
16 X 3/4"	GPM091620
20 X 1/2"	GPM092015
20 X 3/4"	GPM092020
26 X 3/4"	GPM092620
26 X 1"	GPM092625
32 X 1"	GPM093225
32 X 1 1/4"	GPM093232
40 X 1 1/4"	GPM094032
50 X 1 1/2"	GPM095040
63 X 2"	GPM096350



THREADED BSP ADAPTORS (FEMALE)

16 X 1/2"	GPM101615
20 X 1/2"	GPM102015
20 X 3/4"	GPM102020
26 X 3/4"	GPM102620
26 X 1"	GPM102625
32 X 1"	GPM103225
32 X 1 1/4"	GPM103232
40 X 1 1/4"	GPM104032
50 X 1 1/2"	GPM105040



COMPRESSION ADAPTORS

16MM	GPM131615
20MM	GPM132020
26MM	GPM132625



END CAPS

16	GPM1416
20	GPM1420
26	GPM1426
32	GPM1432
40	GPM1440



FITTINGS

LOOSE NUT CONNECTOR ELBOWS (MALE)

26 X 1"

GPM19262590MI



LOOSE NUT CONNECTOR STRAIGHT (MALE)

16 X 1/2"

GPM191615MI

16 X 3/4"

GPM191620MI

20 X 1/2"

GPM192015MI

20 X 3/4"

GPM192020MI



LOOSE NUT CONNECTOR STRAIGHT (FEMALE)

16 X 1/2"

GPM191615FI

20 X 1/2"

GPM192015FI



TOOL KITS

MINI KIT



DUOPEX Jaws 16-32mm



TOOL KITS

MAXI KIT



DUOPEX Jaws 40-63mm



ACCESSORIES

CUTTING TOOL



Tool specific for multi layered pipe

CALIBRATING TOOL



GPM231026

CALIBRATING/DEBURRING TOOLS



16-40mm
GPM7498X1640DP

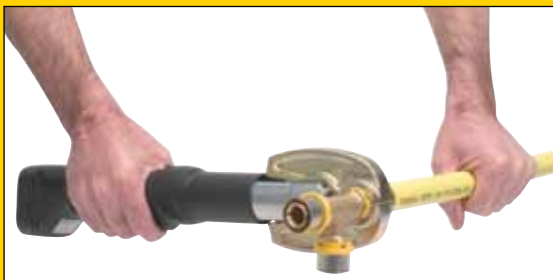


50mm
GPM21X50



63mm
GPM21X63

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PO BOX 4271 Dandenong South Victoria 3164

Telephone (03) 9770 3600 Facsimile (03) 9768 3415

enquiries@auspex.com.au

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