BUTE-GASLINE
GAS SYSTEM

Technical & Installation Manual

AS 4176.8:2010
License No. AMI 74885

www.gasline.co.nz

Contents

Buteline And Our Commitment

Buteline is proud to be a **New Zealand owned and operated** company, originally specialising in the manufacture of the popular Buteline Polybutene-1 (PB-1) and Pexline Plumbing Systems.

Established in 1980 and based in East Tamaki, Auckland, Buteline have grown from a small family business to a multinational company exporting to Malaysia, United Kingdom and other overseas markets.

The Bute-Gasline ("Gasline") Gas System has been developed to be an extension to our plumbing systems, providing an additional option for discerning gasfitters and architects/specifers.

Product quality control and assurance are of utmost importance, with in-house test equipment and certified independent laboratories closely monitoring quality and conducting product testing.

The Gasline Gas System complies with the Australian standards AS 4176.8 and is ISO Type 5 approved, and is covered by extensive worldwide patents.

A strong commitment to continuing research and development ensure that Buteline will remain leaders in plumbing technology. Our engineers and technical team thrive on the challenges presented with ongoing new product development.

For a free guided tour of Buteline's manufacturing plant in East Tamaki, Auckland, please freephone 0800 BUTELINE.

The Gasline Gas System

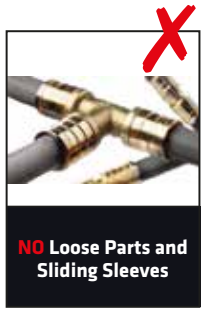
Buteline has developed a total solution to the need for a safe, integrated and easy to use gas system. The resultant system is designed specifically for professional gasfitters and has proven to be high quality and economical.

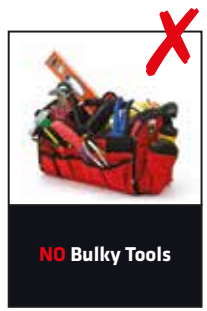
It is strongly recommended that tradesmen use Buteline's total system, i.e. Gasline clamp tools, Gasline MLP pipe and clips, and Gasline fittings, to ensure total compatibility of installations.

When installed in accordance with recommendations contained herein, the complete system is fully guaranteed by Buteline (see page 39).

Why Use The Gasline System

- ✓ The Gasline System is designed & assembled in New Zealand and is readily available from leading Plumbing Merchants.
- ✓ The Gasline System has been designed specifically for use by gasfitters, and meets the requirements of AS 4176.8.
- ✓ Gasline fittings have a one-piece design concept, incorporating factory fitted clamp rings which ensures high productivity, while providing the strongest reinforced joint available.
- ✓ Gasline fittings feature no additional parts such as o-rings, grab rings and pipe inserts.
- ✓ Gasline clamp tools have been designed and engineered for ease of use, to give long life and a professional result every time.
- ✓ Pexline clamp tools are compatible with Gasline.
- ✓ The team at Buteline NZ Ltd are readily available to assist you with the best customer service when and where required.





Gasline System

EQUAL TEES
GT16 - 16mm x 16mm x 16mm
GT20 - 20mm x 20mm x 20mm
GT25 - 25mm x 25mm x 25mm
GT32 - 32mm x 32mm x 32mm

REDUCING TEES
GTR211 - 20mm x 16mm x 16mm
GTR212 - 20mm x 16mm x 20mm
GTR221 - 20mm x 20mm x 16mm
GTR525 - 25mm x 20mm x 25mm
GTR552 - 25mm x 25mm x 20mm
GTR331 - 32mm x 32mm x 16mm
GTR332 - 32mm x 32mm x 20mm
GTR335 - 32mm x 32mm x 25mm
GTR355 - 32mm x 25mm x 25mm

FEMALE TEES
GTF116 - 16mm x 16mm x 1/2"BSP
GTF223 - 20mm x 20mm x 3/4"BSP
GTF551 - 25mm x 25mm x 1"BSP
GTF331 - 32mm x 32mm x 1"BSP

FIXED FEMALE ADAPTORS
GFF16 - 1/2"BSPT x 16mm
GFF2016 - 3/4"BSPT x 16mm
GFF1620 - 1/2"BSPT x 20mm
GFF20 - 3/4"BSPT x 20mm
GFF2025 - 3/4"BSPT x 25mm
GFF25 - 1"BSPT x 25mm
GFF2532 - 1"BSPT x 32mm

STRAIGHT CONNECTORS
GS16 - 16mm x 16mm
GS20 - 20mm x 20mm
GS25 - 25mm x 25mm
GS32 - 32mm x 32mm

STRAIGHT REDUCING CONNECTORS
GS2016 - 20mm x 16mm
GS2516 - 25mm x 16mm
GS2520 - 25mm x 20mm
GS3225 - 32mm x 25mm

MALE ADAPTORS
GM16 - 1/2"BSPT x 16mm
GM2016 - 3/4"BSPT x 16mm
GM1620 - 1/2"BSPT x 20mm
GM20 - 3/4"BSPT x 20mm
GM2025 - 3/4"BSPT x 25mm
GM25 - 1"BSPT x 25mm
GM2532 - 1"BSPT x 32mm
GM32 - 1 1/4"BSPT x 32mm

BRAZING TAILS
GBTF16 - 15mm NZ Cu x 16mm
GBTF161 - 15mm AU Cu x 16mm
GBTF20 - 20mm NZ Cu x 20mm
GBTF25 - 25mm NZ Cu x 25mm
GBTF32 - 32mm NZ Cu x 32mm

For when brazing to copper.

COPPER TAILS
GCT16 - 15mm NZ Cu x 16mm x 330mm
GCT161 - 15mm AU Cu x 16mm x 330mm
GCT3816 - 3/8" NZ Cu x 16mm x 330mm
GCT20 - 20mm NZ Cu x 20mm x 330mm

16mm, 20mm, 25mm & 32mm Range

EQUAL ELBOWS
GE16 - 16mm x 16mm
GE20 - 20mm x 20mm
GE25 - 25mm x 25mm
GE32 - 32mm x 32mm

FIXED FEMALE ELBOWS
GFFE16 - 1/2"BSPT x 16mm
GFFE1620 - 1/2"BSPT x 20mm
GFFE20 - 3/4"BSPT x 20mm
GFFE25 - 3/4"BSPT x 25mm
GFFE32 - 1"BSPT x 32mm

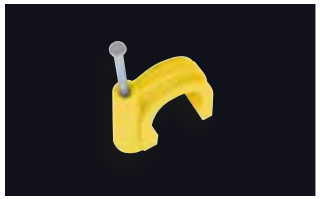
MALE ELBOWS
GME16 - 1/2"BSPT x 16mm
GME1620 - 1/2"BSPT x 20mm
GME20 - 3/4"BSPT x 20mm
GME25 - 1"BSPT x 25mm

FEMALE WING BACK ELBOWS
GWE16 - 1/2"BSP x 16mm
GWE1620 - 1/2"BSP x 20mm
GWE20 - 3/4"BSP x 20mm

MALE WING BACK ELBOWS
GWM90 - 1/2"BSP x 16mm x 90mm
GWM200 - 1/2"BSP x 16mm x 200mm

PIPE END PLUGS
GPG16 - 16mm
GPG20 - 20mm
GPG25 - 25mm
GPG32 - 32mm

**Note: These plugs are for testing usage only and not for permanent use.*



PIPE CLIP WITH MASONRY NAILS
GBA16 - 16mm
GBA20 - 20mm
GBA25 - 25mm
GBA32 - 32mm

PIPE CLIP WITH METAL SCREWS
GBAS16 - 16mm
GBAS20 - 20mm
GBAS25 - 25mm
GBAS32 - 32mm

GAS PIPE REAMERS
GRM1625 - 16mm / 20mm / 25mm
GRM2032 - 20mm / 25mm /32mm

Gasline System - 16mm, 20mm, 25mm & 32mm Range

GAS MLP PIPE COILS
GC16 - 16mm x 50m coil
GC20 - 20m x 50m coil
GC25 - 25mm x 50m coil
GC32 - 32mm x 25m coil

GAS MLP PIPE LENGTHS
GL16 - 16mm x 5m lengths
GL20 - 20mm x 5m lengths
GL25 - 25mm x 5m lengths
GL32 - 32mm x 5m lengths

PIPE CUTTER
PC31 (Orange) - Up to 32mm, replacement blade available
PC31-B1 - Replacement blade for PC31

PIPE CUTTER
PC32 (Yellow) - Up to 32mm, replacement blade available.
PC32-B1 - Replacement blade for PC32

PROCLAMP TOOLS
PROT3- 16mm
PROX20 - 20mm

CLAMP TOOLS
FRX25 - 25mm
FRX32 - 32mm

ELECTRIC CLAMP TOOLS & JAWS
PET01 - Boxed kit includes tool with battery, charger, and a set of 3 jaws (16mm, 20mm& 25mm).
PET02 - Boxed kit includes tool with battery, charger, and a set of 4 jaws (16mm, 20mm, 25mm & 32mm).

PETJ16 - 16mm jaws
PETJ20 - 20mm jaws
PETJ25 - 25mm jaws
PETJ32 - 32mm jaws

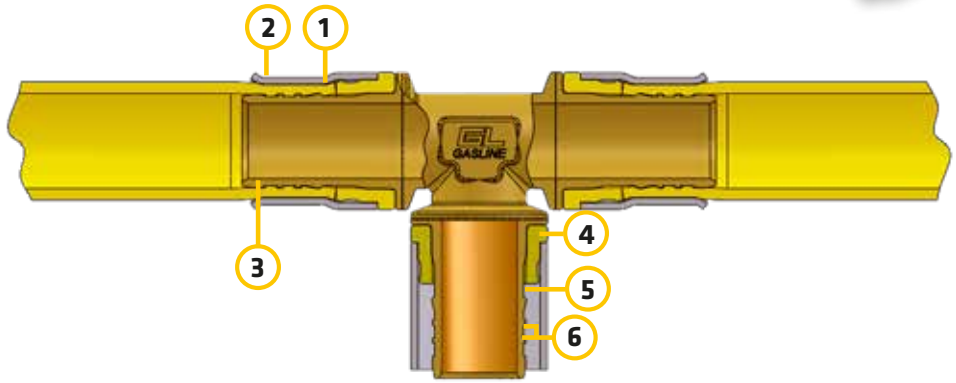
Jaws for the electric tool are also available individually for purchase.

GASLINE FITTINGS CASES
GASC - This tough & durable tradesman's case is available empty.
GASFC - A quality fittings case with Gasline fittings.

Gasline Fittings

Buteline have developed an extensive range of quality fittings which have complete compatibility with Gasline MLP pipe, and are classified as a permanent joint in accordance to AS/NZS 5601.

The fittings are made from DZR brass and the annealed aluminium clamp ring is precisely attached to each fitting during production and is designed to provide a unique metal reinforced joint. Users of Gasline fittings will therefore find the total concept much quicker and more economical than other available systems.



1 WIDE FORGED CLAMP
Minimum working stress applied (approx. 0.5 ton per sq. in.) allowing pipe material to "flow" into insert tail grooves.

2 2mm WIDE FLARE
No stress from clamping transmitted to insert tail or pipe at end of fitting. End of metal sleeve cannot impinge into pipe, even when bending.

3 TAPERED ENTRY, SMOOTH BORE
Minimise resistance to gas flow.

4 POLYMER MOUNTING RING
Positioned between aluminium ring and brass fitting body to eliminate galvanic corrosion.

5 SUREFIT BARB
Patented design feature prevents pipe from falling off sleeve, ensures precise positioning.

6 SEALING RIBS
Narrow lands with wide grooves, ensure clamp stress is transferred into the pipe joint efficiently.

Gasline Multilayer Pipe

Gasline pipe is multilayer PEX/AL/PEX pipe and is produced in 16mm, 20mm, 25mm and 32mm sizes.

16mm, 20mm and 25mm size pipe is supplied in 50m coils and 5m straight lengths. 32mm is available in 25m coils and 5m straight lengths.

Pipe identification marks are printed at 1 metre intervals and indicator lines provide a guide during installation.

Gasline Clamp Tools

Gasline have engineered their clamp tools to ensure a simple, controlled, accurate joint every time. They have a “head” design which permits easy access and alignment. The Gasline clamp tool is available in four sizes to suit 16mm, 20mm, 25mm and 32mm fittings.

The 16mm and 20mm tools are available in a mini size as pictured below (ProClamp). An electric tool is also available, with jaws in 16mm, 20mm, 25mm and 32mm available individually for purchase.

ProClamp Tools
16mm & 20mm

Clamp Tools
25mm & 32mm

Mini Electric Clamp Tool
& Jaws

Servicing Your Clamp Tool

Gasline clamp tools are a very important part of the system. They are robust and designed to perform up to a consistent high standard for many years. Service your clamp tool by cleaning and oiling moving parts regularly. WD40 is an ideal cleaner/lubricant.

Gasline clamp tools must only be used with the Gasline System or with the Pexline Plumbing System.

Installation Demonstration

1. Cut the pipe on an indicator line with the Gasline pipe cutter.

2. Insert Gasline approved reamer into pipe and rotate at least 2 full turns to produce full internal chamfer.

3. Insert the pipe into the Gasline fitting. Ensure you push the pipe all the way (14mm) with a slight twist to 'SureFit' onto the shoulder of the fitting, up to the next indicator line of the same size.

4. *Clamp-Hold-Release*
Clamp once only, approximately 2mm in from the end of the clamp ring. Close the clamp tool handles completely, holding firmly for around 2 seconds and then the tool will release.

5. Use the gauge provided to check that the full clamp force has been achieved. If the gauge does not pass over the ring, the ring is under-clamped. It is important that the gauge passes over the clamp ring. Take corrective action by re-adjusting the tool and then re-clamping.

16mm & 20mm ProClamp Tool Adjustment Instructions

1. Identify the position of the adjuster cam.

2. Turn the tool over and remove the circlip securing the adjuster cam.

3. Retain the circlip for replacement after adjustment.

4. Push the adjuster cam out from the circlip side until the hexagon head of the cam disengages from the handle, and turn the cam clockwise, so that it is moved around 1 flat of the hexagon.

5. Push the hexagonal head of the cam back into the handle and replace the circlip to retain the adjuster cam.

NOTE: The maximum adjustment has been achieved when the adjusting cam has been rotated 180°. Do not adjust your ProClamp Tool more than 5 times in its life cycle.

25mm Clamp Tool Adjustment Instructions

1. Open the tool and remove the screw.

2. Lift the adjuster and rotate *clockwise* by 1 notch.

3. Replace the screw.

4. Check for correct clamp width.

Installation Guide

Carry out installations with a professional manner. Use the complete "Gasline" system – clamp tools, pipe, fittings, etc.

Preparation Of Pipe

(a) Pipe must be clean and free from grease or any other contamination.

(b) Pipe must have no kinks, buckled sections, deep scores, etc.

(c) When measuring, allow 15mm of pipe for each fitting.

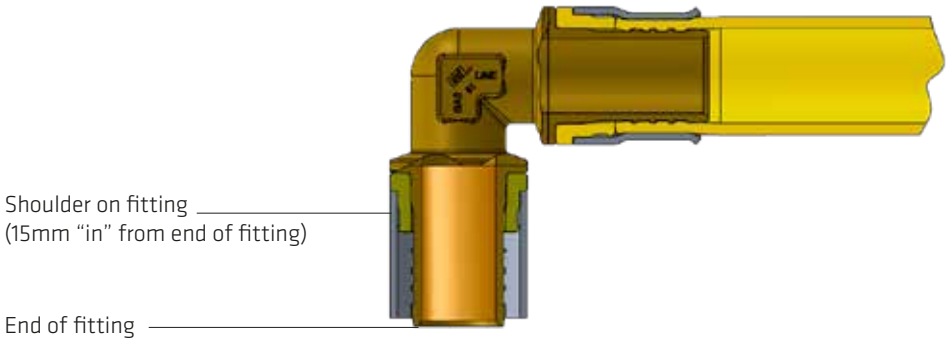
(d) Allow enough length for expansion/contraction (for all sizes, allow 2.5mm expansion per 10m of pipe per 10°C temperature rise)

(e) Cut the pipe to length squarely and cleanly on an indicator line using only approved pipe cutters.

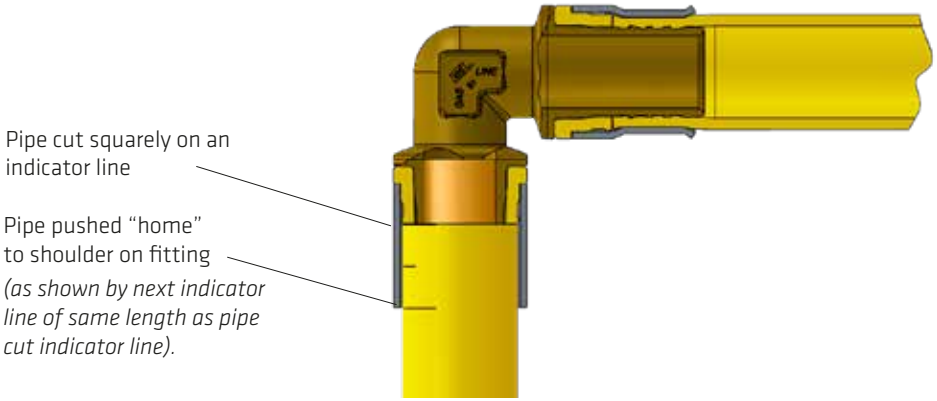
(f) Insert Gasline approved reamer fully into pipe and rotate at least 2 full turns to produce full internal chamfer.

Position Of Fittings

(a) Pre-position fittings correctly on the pipe to achieve alignment with all other pipework prior to final clamping.



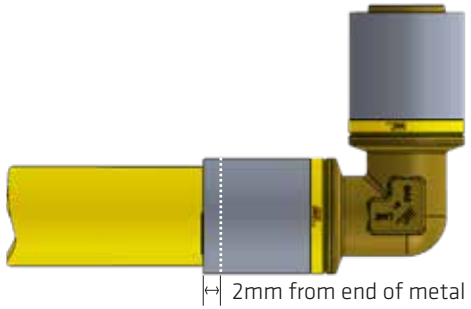
(b) Fully insert (push home to shoulder) with a slight twist to SureFit the pipe into Gasline fittings, up to the next visible indicator line of the same size to ensure full engagement of pipe into the fitting.



Clamping Gasline Fittings

(a) Position the Gasline clamp tool squarely and approximately 2mm in from the end of the factory fitted reinforcing clamp ring.

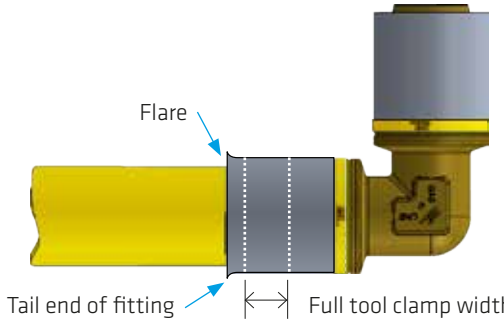
Correct Clamp Tool Position



(b) Close clamp tool handles completely (to the stops provided), hold fully closed for approximately 2 seconds, then release.

(c) A good clamp will produce a "flare" at the end of the reinforcing ring. The "flare" shows that the full clamp width has been applied to the joint - and the designed result achieved. (It is important that a full clamp width is achieved).

Correct Appearance Of Best Joint

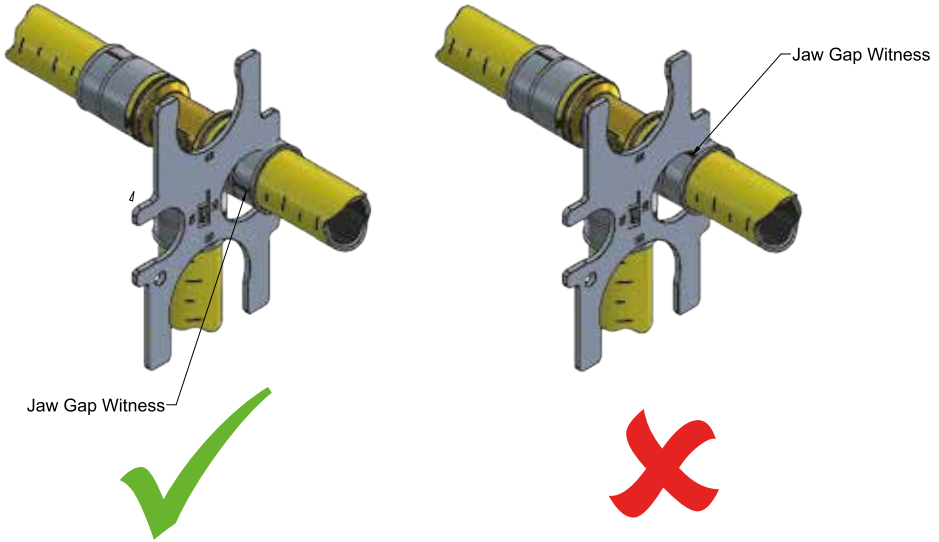


INSTALLER NOTE:
Failing to install Gasline fittings as advised in this Installation Manual voids all warranties. If joints are not made as per this manual, please remove and replace with a new fitting.

(d) Be methodical – ensure you clamp all fittings on the job, and do not double clamp.

(e) All joints must be clamped squarely across the fitting as angled clamping can lead to unacceptable stress levels being imparted onto the fitting and pipework which could lead to premature failure.

(f) When gauging, note where the jaw gap witness is on the fitting clamp ring. The gauge must be passed over the clamp ring at 90° to the jaw gap witness (see diagram below):



Gauge Must Be Passed Over The Clamp Ring at 90° To The Jaw Gap Witness.

Use Only The Complete Gasline System

The use of the complete Gasline System (Gasline pipe, Gasline fittings, Gasline clamp tools) is imperative for a number of reasons:

✓ **Buteline offers a guarantee ONLY when the complete Gasline System (GASLINE PIPE, GASLINE FITTINGS, GASLINE TOOLS) is used.**

✓ Gasline pipe is made to specific tolerances for use with the Gasline fittings to give a strong, leak-proof and PERMANENT joint every time. Only Gasline pipe is manufactured to the exacting standard demanded by the Buteline range of fittings.

✓ The exclusive use of Gasline components ensure a PROFESSIONAL job every time.

The complete Gasline System offers the gasfitters many advantages, including:

✓ **Speed:**
The Gasline clamping method is one of the fastest, most reliable gas system available.

✓ **Extensive product range:**
Useful and innovative fittings specifically designed and engineered for professional gasfitters.

Storage and Handling

(a) Take care to keep the Gasline System and any uninstalled Gasline pipe away from chemicals, solvents, cements, oxidising agents or petroleum products.

(b) Store the Gasline system away from direct sunlight and high temperature sources (e.g: heaters, boilers, gas / central heating / appliance vents).

(c) Avoid dragging pipe across rough surfaces to prevent possible damage to pipe surface. Inspect pipe and fittings prior to installation.

(d) Ensure pipe is protected from potential rodent attacks.

(e) Store fittings so that they cannot be damaged by heavy tools, etc. It is a good idea to have a tool box to carry the large range of fittings available.

Call 0800 BUTELINE or your local representative for more information about a Gasline fittings case. Available from your plumbing merchant.

"Feeding" Gasline Pipe Through Timbers

(a) "Pipe sleeves" and bored holes should be large enough to allow free movement of Gasline pipe.

Minimum Hole Sizes:

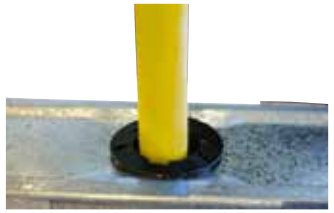
Pipe Size	Hole Required
16mm	20mm
20mm	25mm
25mm	32mm
32mm	40mm

(b) Larger holes may be required to ease pipe through if changing direction.

(c) Use of silicone in the holes is not required.

NOTE:
If sealing Gasline pipe where it passes wooden framing, a natural cure silicone can be used. Do not use an acid cure silicone sealing system as this may have a detrimental effect on the Gasline pipe.

NOTE:
If running Gasline pipe through steel framing, use plastic grommets (as supplied by the steel frame fabricator) to protect the pipe from sharp metal edges.



Bending Radius

Sharp bends should be made with appropriate fittings. Do not kink the pipe.

Pipe Size	Minimum Bending Radius (by hand)	Minimum Bending Radius (using bender)
16mm	80mm	50mm
20mm	100mm	60mm
25mm	200mm	100mm
32mm	N/A	130mm

Pipe Clipping

There are 2 types of Gasline pipe clips available:

Timber / masonry clip

Metal framing screw clip

(a) Remember that Gasline Pipe must not be “anchored tightly” between two points. (Leave some room for expansion and contraction from changes in tempersture).

(b) Do not pinch, kink, or impact the pipe, positioning clips on wall studs or cross braces, in a way so as to relieve any potential stress points in the pipe work.

(c) Pipes unsupported by clips are unsightly and can be damaged.

Pipe Size	Minimum Spacing of Clips
16mm	1 metre
20mm	1.25 metre
25mm	1.50 metre
32mm	2 metres

Connecting to Brazing Tails

Before commencing any work involving heat processes, be sure to check that hot work is permitted.

1. Cut the copper pipe to length, ensuring the end is square and clean.

2. Slide the brazing tail socket onto the copper pipe, ensuring that the aluminium and plastic clamp ring assembly has been removed.

3. Use suitable flux and SilFos to make the joint between the fitting and the copper pipe.

4. AFTER the solder joint has COOLED, slide the aluminium clamp ring assembly onto the tail of the fitting, ensuring it goes fully up to the fitting shoulder.

5. Simply insert the MLP pipe into the Gasline fitting and push fully home to the shoulder of the fitting. Ensure to chamfor the inside of the pipe with the gas pipe reamer.

6. *Clamp - Hold - Release*
   - Clamp the Gasline fitting, using ONLY the Gasline clamp tool.
   - Position the Gasline clamp tool squarely, approximately 2mm in from the end of the clamp ring.
   - Close handles to stops, holding in the tightly closed position for around 2 seconds to ensure that the flow of material is performed. Open and remove the tool.

7. Finished.
   - The process is complete!
   - Installing the Gasline System is quick and secure and always provides a visual indicator of joint completion.

Installing Gasline Underground

Gasline pipes may be installed underground, or in concrete, in a continuous run without joints or fittings in accordance with gas and building codes. We *insist* placing pipe in conduit for this application.

Installing Gasline in Concrete / Masonry

(a) Use a pipe sleeve/conduit when burying Gasline pipe in concrete. Pipe sleeves should be large enough to allow free movement for expansion and contraction.

(b) Gasline pipe installed in concrete slabs, footings etc. must have no joints, and must be in accordance with local building codes.

(c) When installing in concrete / cement plastered walls, use a pipe sleeve to allow free movement for expansion and contraction.

(d) If passing through pre-drilled holes in concrete structures, a pipe sleeve must be used.

Gasline & Marine Environments

Gasline pipe cannot be used for marine/riverboat/caravan/motorhome applications.

Exposure to Elements

The Gasline System should be adequately protected against exposure to direct sunlight (UV radiation) and the elements when located on the exterior of a building or above ground (or when underground), either using pipe sleeving, conduit, lagging or UV resistant water-based paint.

Gasline Fitting aluminium rings must also be wrapped in waterproof insulation tape or self-amalgamating tape such as Denso tape or PVC electrical tape (at least 3 rotations per ring) to be fully compliant with our warranty.

**** Please note that failure to do so voids all warranty.***

Self-amalgamating tape is available from Buteline on request

High Temperature Heat Sources

Keep Gasline pipe a minimum of 500mm away from high temperature heat sources such as heating appliances and flues.

Gasline pipe can be installed alongside recessed electric light fittings but should be kept at least 300mm away from the fitting.

Fire Protection

Gasline pipe which penetrates fire resistant construction must be installed to ensure the fire resistant integrity of the building is retained (refer to local building code).

To achieve the fire rating that is required for the nominated building specification, in all cases please ensure that fire rated silicone and fire collars are suitable for use with the Gasline System.

Riser ducts are constructed to achieve a specific fire rating for the building, and fire collars or fire rated silicone (or similar) will need to be used for each service penetrating a wall or floor.

(Floor) riser ducts are typically required to have a 4 hour fire rating.

Walls are typically required to have a 2 hour fire rating.

Under the NZ Building Code requirements for passive fire protection, it requires fire stopping of service penetrations to be tested to Australian Standards.

Australian Standards (AS 1530-4) for Fire Rating and the Building Code of Australia

AS 1530-2005 is the Australian Standard for methods for fire tests on building materials, components and structures. The standard provides requirements for heating conditions, test procedures, and criteria for determining the fire resistance of an element of building construction to building designers, manufacturers, test laboratories and regulatory authorities. This Standard is referenced in the Building Code of Australia and New Zealand and Part 4 of this Australian Standard details the fire resistance testing of elements of construction, which covers testing of fire resistance relating to installation of Gas systems in buildings.

Passive Fire Protection is available from Ryanfire (www.ryanfire.co.nz) and Fire collars are available from Allproof Industries (www.allproof.co.nz), please contact them for more information.

Passive Fire Protection Guide

RYANFIRE PASSIVE FIRE PROTECTION

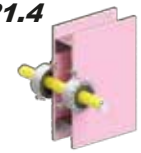
V21.3

13mm FR PLASTERBOARD WALLS

Up to Ø32mm Bute Gasline pipe
40mm Ryanfire SL Collar &
Ryanfire HP-X

Ø16mm	Ø40mm
-/60/30	-/60/-

V21.4



13mm FR PLASTERBOARD WALLS

Up to Ø16mm Bute Gasline pipe
40mm Ryanfire SL Collar &
Ryanfire HP-X

-/60/30

V20.6

13mm FR PLASTERBOARD WALLS

Up to Ø32mm Bute Gasline pipe
Intubatt & Intumastic HP

-/60/60

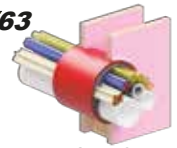
V20.1

26mm FR PLASTERBOARD WALLS

Up to Ø32mm Bute Gasline pipe
Intumastic HP

-/120/120

V63



26mm FR PLASTERBOARD WALLS

Up to Ø32mm Bute Gasline pipe
Mixed Service Penetration
Intusleeve & Intumastic HP

-/90/

V25.9

100mm CONCRETE FLOORS

Up to Ø32mm Bute Gasline
40mm Ryanfire TD Collar &
Ryanfire Mastic

Ø16mm	Ø40mm
-/120/90	-/120/-

V25.17

100mm CONCRETE FLOORS

Up to Ø32mm Bute Gasline pipe
Ryanfire SL Collar &
Ryanfire HP-X

Ø16mm	Ø40mm
-/120/90	-/60/-

V22.6

100mm CONCRETE FLOORS

Up to Ø32mm Bute Gasline pipe
Intumastic HP

-/120/120

V24.8

120mm CONCRETE FLOORS

Up to Ø32mm Bute Gasline pipe
Intubatt & Intumastic HP

-/120/120

V25.16

120mm COMPOSITE FLOORS

Up to Ø32mm Bute Gasline pipe
Ryanfire TD Collar &
Ryanfire Mastic

-/60/30

V22.5

100mm TIMBER INFILL FLOORS

Up to Ø32mm Bute Gasline pipe
Mixed Service Penetration
Intubatt, Ryanfire SL Collar &
Intumastic HP

-/60/-

All seals tested to AS1530.4
Structural / Integrity / Insulation

Tel 09 443 0362 info@ryanfire.co.nz
www.ryanfire.co.nz

**Please note the seal infomation is for the maximum pipe diameters.*
Actual seal fire performance & approvals may exceed what is shown.
Please contact Ryanfire for details and specific fire performance information.

Gasline Internal Bore Sizes

Pipe Size	Bore Size
16mm	12mm nom bore
20mm	16mm nom bore
25mm	20mm nom bore
32mm	26mm nom bore

Working Pressure

Gasline pipe is rated to 1000kPa and fittings are rated to 75°C, however to comply with AS/NZS5601 this is limited to a maximum pressure of 70kPa.

Manufactured to specification for systems ISO 17484-1:2006/AS4176.8.

Multilayer pipe systems for consumer gas installations with a maximum operating pressure up to and including 500kPa (5 bar)

Installation Checklist

- ✓ Be methodical and check as you go that each joint has been clamped correctly.
- ✓ Check the pipe is clean and in good condition, with no kinks or scores.
- ✓ Check that pipework is “clipped” and supported.
- ✓ Check for expansion and contraction allowance on pipes.
- ✓ Check connections visually to ensure that all connections are clamped.
- ✓ Check manufacturer's label (with make or trade name) is attached adjacent to the gas measurement system or LP gas cylinder.

Test The Installation

As with all installations, the Gasline system should be tested immediately after installation, as per the Gas (Safety & Measurement) Regulations and AS/NZS 5601.1:2013 Appendix E.

Gas Safety Certificate (GSC) required.

Certificate(s) of Compliance (CoC) may be required.

Pipe Sizing Instructions

All Gas installations should be sized correctly to obtain the required flow especially when the system is under full load. The installations must be installed by a licensed gasfitter and comply to AS/NZS 5601.1:2013.

This example uses Natural Gas with a meter pressure of 2.75kpa and a pressure drop of 0.75kpa.

Step 1 **Draw a schematic of the pipe system and list all the gas data of the appliances.**

- Complete gas data in the sizing table (see page 30 & 31)
- Label each pipe run section using A-B-C format
- Label the length of each run
- Label the loads of each run

Step 2 **Add the megajoule rating of all the appliances.**

Example (190 + 30 + 70) = 290MJ/h

- Refer to the Gasline sizing tables (see page 32 & 33) to calculate the pipe size of the longest run
- A-B + B-C + C-D (12m + 11m + 9m) = 32m
- Look up the table for the next highest length value (i.e. equal or greater metres value along the top of the table, e.g. 35m)
- Refer to the megajoule rating of all the Appliances (290MJ/h)
- Refer to the sizing table to work out the pipe size (look down the column to locate the equal or next highest MJ/h rating, e.g. 438MJ/h, look to the left to the OD column) = 32mm
- Apply this pipe size to run (A-B = 32mm)

Step 3 **Calculate the length of each run:**

- **For the hot water service (B-F) the calculations are**: A-B + B-F (12m + 3m) = 15m
- Multiply the number of fittings (3) x the fitting equivalent, i.e.: 3 x 0.6 = 1.8 (refer to gas sizing table on pages 32 & 33), the fittings allowance factor is in the far right hand column of the same row as the pipe size.
- Add the run length to the fitting allowance: 15m + 1.8m = 16.8m
- Look up the table at the next highest length value = 18m
- Look up the megajoule rating of the appliance (190MJ/h)
- Refer to the sizing table to work out the pipe size = 25mm
- Apply this pipe size to B-F = 25mm

Step 4 Repeat the above for each of the runs.

For the run B-C, the calculations are: A-B + B-C = (12m + 11m) = 23m

- Multiply the number of fittings (3) x the fitting equivalent (refer to gas sizing table on pages 32 & 33)
- Add the run length to the fitting allowance: 23m + 1.8m = 24.8m
- Look up the table at the next highest length value = 25m
- Add the megajoule rating of the remaining 2 x appliances (Space heater and Cook top: 70MJ/h + 30MJ/h) = 100MJ/h
- Refer to the sizing table to work out the pipe size = 20mm
- Apply this pipe size to B-C = 20mm

For the Cooktop run (C-E) the calculations are: A-B + B-C + C-E= (12m + 11m + 5m) = 28m

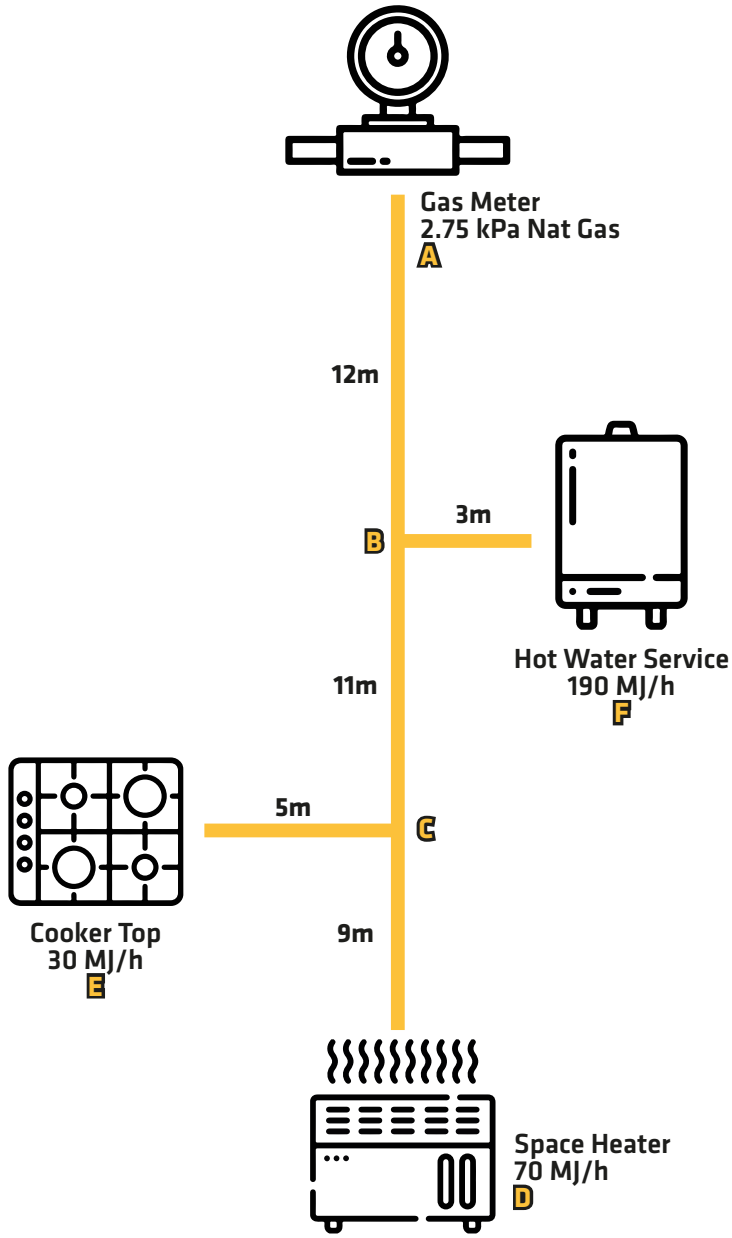
- Multiply the number of fittings (4) x the fitting equivalent (0.6) correction value (refer to gas sizing table on pages 32 & 33)
- Add the run length to the fitting allowance: 28m + 2.4m = 30.4m
- Look up the table at the next highest length value = 35m
- Refer to mega joule rating of the cooktop appliance (30MJ/h)
- Refer to the sizing table to work out the pipe size = 16mm
- Apply this pipe size to C-E = 16mm

For the Space Heater run (C-D) the calculations are: A-B + B-C + C-D= (12m + 11m + 9m) = 32m

- Multiply the number of fittings (3) x the fitting equivalent (0.6) correction value (refer to gas sizing table on pages 32 & 33)
- Add the run length to the fitting allowance: 32m + 1.8m = 33.8m
- Look up the table at the next highest length value = 35m
- Refer to mega joule rating of the space heater appliance (70MJ/h)
- Refer to the sizing table to work out the pipe size = 20mm
- Apply this pipe size to C-D = 20mm

Pipe Section	Gas Flow MJ/h	Nominal Pipe Size	No. of Fitting Used	Length of Run (m)
A-B	290	32mm	NA	32m
B-C	100	20mm	3	24.8m
C-D	70	20mm	3	33.8m
C-E	30	16mm	4	30.4m
B-F	190	25mm	3	16.8m

Gas Pipe Sizing Instructions Example Diagram:



Gas Sizing Chart

	OD(mm) / Metres	2	4	6	8	10	12	14	16	18	20	25	30	35
Natural Gas **Pressure Drop of 0.75kPa** (Meter Pressure 1.1kPa)	**16mm**	84	57	45	38	37	36	34	30	27	24	19	16	14
	20mm	158	106	84	72	63	57	52	48	45	43	41	40	35
	25mm	314	211	167	142	125	113	103	96	89	84	79	75	71
	32mm	602	405	322	273	240	216	198	184	172	162	142	128	117
Natural Gas **Pressure Drop of 0.75kPa** (Meter Pressure 2.75kPa)	**16mm**	315	214	168	142	125	113	103	96	90	84	74	67	61
	20mm	589	396	314	267	235	212	194	179	168	158	139	125	115
	25mm	1169	787	624	530	466	420	385	356	333	314	276	249	228
	32mm	2246	1511	1199	1017	895	807	739	684	640	602	530	478	438
LP Gas **Pressure Drop of 0.250kPa** (Meter Pressure 2.75kPa)	**16mm**	448	303	241	204	180	162	148	137	128	116	106	95	88
	20mm	847	574	388	388	342	308	282	262	245	229	203	182	167
	25mm	1721	1169	792	792	699	631	578	536	501	473	416	375	343
	32mm	3463	2358	1602	1602	1414	1276	1171	1086	1016	963	844	762	698
LP Gas **Pressure Drop of 10kPa** (Meter Pressure 70kPa)	**16mm**	2805	1968	1597	1377	1226	1115	1029	959	903	854	759	689	635
	20mm	6188	4347	3531	3045	2714	2470	2280	2127	2001	1894	1685	1533	1413
	25mm	11467	8060	6552	5654	5042	4590	4239	3955	3721	3523	3137	2853	2632
	32mm	24003	16887	13737	11860	10579	9635	8901	8309	7820	7406	6598	6003	5541

40	45	50	55	60	65	70	75	80	85	90	95	100	Fitting Allowance Correction (+) M
12	11	10	9	8	/	/	/	/	/	/	/	/	1.3
30	27	24	22	20	18	17	/	/	/	/	/	/	1.2
68	64	62	60	58	54	50	48	46	45	45	44	44	0.5
109	102	98	95	89	85	83	80	78	76	74	73	71	0.6
57	53	50	47	45	42	44	39	37	36	35	34	33	1.7
106	99	94	88	84	80	77	74	71	69	67	65	63	1.4
211	197	186	181	178	167	157	151	146	141	137	113	128	0.8
405	379	357	340	335	329	321	309	298	287	278	270	262	0.6
81	76	71	67	64	61	58	56	54	52	50	48	47	1.7
155	144	136	129	123	117	112	107	104	100	96	94	91	1.4
318	298	280	265	252	241	231	222	214	206	200	192	188	0.8
647	606	570	540	514	491	471	453	436	421	408	396	384	0.6
592	556	525	499	477	457	439	423	408	395	383	372	361	1.7
1316	1237	1171	1112	1063	1018	979	943	911	882	855	830	809	1.4
2454	2306	2182	2075	1983	1900	1827	1762	1702	1649	1599	1552	1512	0.8
5168	4860	4599	4375	4181	4008	3855	3718	3593	3481	3377	3280	3194	0.6

Please refer to page 38 for a Pressure Conversion Chart.

Definition Of Terms

Clamp
To brace, clasp or band for strengthening other materials.
To strengthen or fasten to hold firmly. (Dictionary definition)

CNG
Compressed Natural Gas

CoC
Certificate of Compliance

Convection
Refers to the transfer of heat by means of a flow of fluid (liquid or gaseous form). Liquid is heated in one place then moved to a place where it can give up its heat. Natural convection is caused by heating a fluid making it less dense than the surrounding fluid and allowing the heated fluid to rise by displacement.

Crimp
To press into pleats or folds. (Dictionary definition)

GCP
Gas Code of Practice

GSC
Gas Safety Certificate

LPG
Liquefied Petroleum Gas

Marine Installation
Any installation where the product is prone to salt water exposure.

Underground Installation
Any installation where the product can come into direct contact with minerals, soil, or corrosive substances.

Notes

Notes

Pressure Conversion Chart

kPa	Bar	Metre Head	P.S.I.
5	0.05	0.5	0.72
10	0.1	1	1.45
20	0.2	2	2.90
30	0.3	3	4.35
40	0.4	4	5.80
50	0.5	5	7.25
60	0.6	6	8.70
70	0.7	7	10.15
80	0.8	8	11.60
90	0.9	9	13.05
100	1.0	10	14.50
200	2.0	20	29.00
300	3.0	30	43.50
400	4.0	40	58.00
500	5.0	50	72.50
1000	10.0	100	145.00

(Rounded)

1. 1 metre head = 3.28ft head
2. Additional conversions can be calculated.
e.g. To find 700 kPa in bars or metre head from chart
500 kPa = 5 bar or 50 metre head
+ 200 kPa = 2 bar or 20 metre head
= 700 kPa = 7 bar or 70 metre head

The Gasline Warranty

To whom it may concern,

Buteline NZ Ltd ("**Buteline**") warrants that all products within the Bute-Gasline System (including pipes and fittings) ("**Gasline System**") will be free from manufacturing defects for a period of 25 years from the date of manufacture ("**Warranty**") and that the Gasline System meets:

- The durability requirements of the New Zealand Building Code; and
- The Australia Standard AS 4176.8.

This Warranty is strictly subject to the following terms and conditions.

Installation Requirements: Installation of the Gasline System must be carried out:

- By a licensed gas fitter;
- Strictly in accordance with the latest version available at the date of installation, of Buteline's Technical & Installation Manual, which may be found at www.gasline.co.nz; and
- In compliance with local and national gas fitting regulations.

Exclusions: This Warranty does not apply if:

- The Installation Requirements have not been met;
- The Gasline System has not been installed in a proper and workmanlike manner to the highest possible standard expected of a licensed gas fitter;
- The Gasline System has been installed in an incompatible or unsuitable environment where it is not fit for purpose, including if any system design incorporating the Gasline System is unsuitable;
- The Gasline System has not been used or maintained in accordance with Buteline's instructions;
- The Gasline System has been modified, incorrectly adjusted or operated; or
- The Gasline System has been subjected to corrosive or foreign solutions or chemicals internally or externally around the Gasline System.

Consumer Guarantees Act: This Warranty is in addition to and does not exclude or limit a consumer's rights in relation to the Gasline System or its installation under the Consumer Guarantees Act 1993.

Limitations: This Warranty is subject to the following limitations:

- Buteline's liability under this Warranty is limited to the cost of repairing or replacing the defective products within the Gasline System (at Buteline's discret ion).
- Buteline will not be liable for the cost of any inspection, return, removal or reinstallation of any defective products or labour or other costs which may arise as a result of any claim under this Warranty.
- The Warranty only applies to pipes, fittings and joints within the Gasline System and does not extend to any other pipe, fitting or joint not made by Buteline.
- Any claim under this Warranty must be made within 30 days of any potential claim being identified.
- Buteline does not in any way warrant the workmanship of any party that installs the Gasline System, nor does it warrant the system design incorporating the Gasline System by any party.
- This Warranty is only valid for products sold and installed in New Zealand.

Claims: To claim under this Warranty:

- Please contact Buteline at the following address: warranty@gasline.co.nz and send us the invoice for the products (as proof of purchase) and the installer's details, including their gasfitting licence number.
- A Buteline representative will be in contact within 48 hours of receipt of your claim.
- Any products that are the subject of a claim cannot be destroyed or removed from the installation site until we have inspected the same or waived our right to do so in writing.

My Gasline Representative is:

Name: _____

_____

Phone: _____

_____

Email: _____

_____

Buteline NZ Limited
29 Lady Ruby Drive, East Tamaki, Auckland, New Zealand
PO Box 204308, Highbrook, Auckland 2161, New Zealand
Phone: +64 (0) 9 273 5800 Email: sales@buteline.co.nz

www.gasline.co.nz

NZGM0122