

GasPex Installation and Training



Important Notice

The Couta Group markets and sells a range of Gas and Water piping systems. Such systems comprise both pipe and fittings. Our components and systems are certified by SAI Global to the required Australian Standards required in Australian Building and Plumbing Codes. The certifications apply to genuine Couta Group products.

The GasPex piping has not been tested, certified or guaranteed for use in combination with the product of ANY other company/brand. Similarly for our fittings.

It is CRITICAL that you note that using GasPex pipe or fittings in combination with other suppliers' pipe or fittings or use of incorrect tools or other components may cause leakage or other defects in the system and voids any warranties applicable to the complete GasPex system. Users should consult the Couta Group if in doubt as to suitable fittings or tools for any installation.

Technical Detail

The GasPex piping system has been reviewed by the Technical Committee for AS5601 covering the requirements for gas installations in Australia.

The GasPex piping system fully complies with all requirements of AS4176.8:2010 and Technical Specification ATS 5200.478 that apply for macro composite pipe systems for gas in Australia.

AS 4176:1994 covers pipe and fittings from 16mm-25mm inclusive, and ATS5200.478 covers pipe and fittings 32mm-63mm inclusive. AS4176:2010 is the latest publication of the required standard. The testing requirements for all specifications are uniform.

GasPex piping materials have been independently tested by the Plumbing Testing Laboratory in WA for conformance to AS4176:1994. In addition all products are independently certified by SAI Global.

Our piping and fittings factories are fully certified to ISO9001. Products manufactured at these facilities have received independent approvals from regulatory authorities in many of the world's developed countries.

Basic Installation Techniques

Installation of the GasPex system is relatively straightforward for a trained and licensed Gas Fitter.

The pipe is easy to bend, holds a memory and won't spring back when released (16-32 pipe size). Fittings are made of high quality brass rod, cold cut and hot forged for compactness. The completed fittings are robust and solid. Fittings up to sizes of 50mm are made from DR brass.

Fittings of sizes 63mm are manufactured from nickel plated brass for durability and aesthetic appeal complete with a dual O-ring for a gas/water tight joint. The unique heat treatment technologies of the fitting, together with the specially designed tools, enable GasPex/WaterPex piping to be rapidly connected and installed.

Pipes are available in a range of diameters each with their own comprehensive range of fittings. The connection of pipe to fitting uses a crimped joint which removes the need for slow, time-consuming welding.

Tools needed to complete an installation are a reamer, pipe bending tool, pipe cutting tool and a manual or powered pressing clamp, all of which are available from The Couta Group at competitive prices.



Limiting Conditions

GasPex piping installations must be installed by a licensed gas plumber in strict accordance with the gas installation code AS 5601. In addition the plumber must have successfully completed the GasPex product training course and have received certification for this. The training course is available online at www.gaspex.com.au or can be conducted on site or any other convenient location.

GasPex fittings are made from DR brass in sizes 16, 20, 25, 32, 40 and 50mm. 63mm are made of nickel plated brass and therefore when buried below ground they must be wrapped in a waterproof material.

Multi layered composite gas piping systems must not be subjected to direct UV light. If they are exposed to direct UV light then they must be covered. The Couta Group has a UV corrugate lagging in its range for this purpose.

Multi layered composite gas piping systems must not be used to make the final connection to any appliances.

GasPex piping system can only be installed by using the official GasPex sizing chart.

When installing GasPex piping system, the generic limiting conditions relating to all types of materials as outlined in AS 5601 must be complied with.

GasPex Installation Guidelines

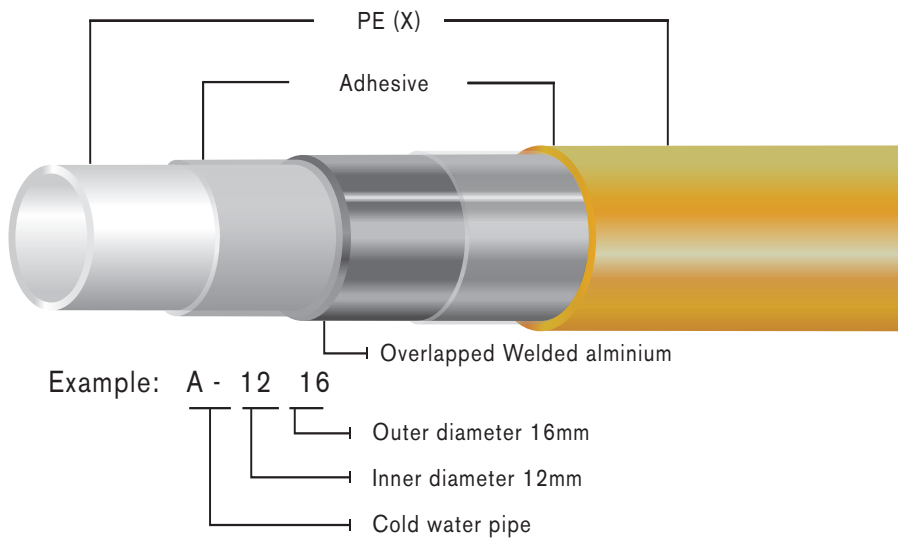


The Couta Group Pex-Al-Pex Piping System Installation Guidelines

This manual contains recommended installation instructions for the Couta Group GasPex piping systems. **Failure to observe these installation instructions** may result in substandard performance of the system. The Couta Group expressly disclaim any responsibility or liability for substandard performance resulting from failure to comply with the installation instructions.

1. The Couta Group GasPex Pipe Description

GasPex Pex/Al/Pex pipe combines the benefits of both metal and plastic pipes. The inline welded aluminium layer provides a total barrier against oxygen penetration. The structure of the pipe compensates for the snap-back forces and the linear expansion caused by temperature changes. The basis of the system is simple, safe and fast pipe installation: simply bend by hand or using a bending spring, cut to length, ream and bevel, join together, crimp, done.



2. Limiting Conditions

Gas pex™ piping installations must be installed by a licensed gas plumber in strict accordance with the gas installation code as 5601. In addition the plumber must have successfully completed the Gas pex product training course and have received certification for this. Training can be undertaken on-line or in person. Gas pex™ fittings are made from DR brass in sizes 16, 20, 25 and 32mm and may be buried underground without further protection. Larger fittings from 40mm and upwards are made of nickel plated brass and when buried below ground they must be wrapped in a water proof material such as denso tape.

Gas pex™ piping installations must be installed by a licensed gas plumber in strict accordance with the gas installation code as 5601. In addition the plumber must have successfully completed the Gas pex product training course and have received certification for this. Training can be undertaken on-line or in person. Gas pex™ fittings are made from DR brass in sizes 16, 20, 25 and 32mm and may be buried underground without further protection. Larger fittings from 40mm and upwards are made of nickel plated brass and when buried below ground they must be wrapped in a water proof material such as denso tape.

Multi layered composite gas piping systems must not be subjected to direct uV light. If they are exposed to direct uV light then they must be covered. Corrugated uV resistant conduit is available within the Gas pex range of product for this purpose. Multi layered composite gas piping systems must not be used to make the final connection to any appliance. Gas pex™ piping installations, being of a pex/al/pex material have a maximum ambient temperature rating of 80° Celsius as detailed in as5601.

Gas pex™ piping system can only be sized by using the official Gas pex™ sizing charts. When installing the Gas pex™ piping system the generic limiting conditions, relating to all types of materials as detailed in as 5601, must be adhered to.

GasPex Installation Guidelines

3. System design and application classifications

Application conditions and classifications of the pipes. the basic Gas pex™ pex-al-pex piping system components can be used in the areas of plumbing for gas applications.

Pipe Material	Applications	Service Temperatures	Maximum Working Pressure (Class 500)
PEX/AL/PEX	Gas Supply	-40°C -- +80°C	70kPA As per AS5601

Typical Burst Pressure of Gas Pex Piping

At 25 deg C Room temp, typical bursting pressures for Gas Pex piping are:

- > 16mm pipe = 7.6Mpa
- > 20mm pipe = 5.8Mpa
- > 25mm pipe = 5.2Mpa

Minimum distance between pipe fixings

The following detail has been extracted from AS5601

- > 16mm pipe size-fixings to be not more than 1.00 metres apart
- > 20mm pipe size-fixings to be not more than 1.25 metres apart
- > 25mm pipe size-fixings to be not more than 1.50 metres apart
- > 32mm pipe size and above – fixings to be not more than 2.0 metres apart

GasPex Installation Guidelines



4. Introduction to GasPex fittings and Tools

Gas Pex is a complete system that has been independently tested for compliance to Australian Gas Installation requirements. The system is comprised of both Gas Pex™ pipes & fittings.

The Couta Group provides a wide range of fittings in the Gas Pex range to ensure installation is as simple as possible. Gas Pex™ fittings are forged from both DR and nickel plated brass. Fittings up to 32mm are made from DR brass and may be used for gas and/or potable water systems. Larger fittings from 40mm and upwards are made of nickel plated brass and when buried below ground they must be wrapped in a water proof material such as denso tape.

The Gas Pex fittings have a double o-ring system for added security of jointing as shown below:



A full listing of the fittings range is available at www.gaspex.com.au. The list of fittings is regularly updated so check back periodically to keep up to date with the latest information.

GasPex Tooling

A. Reamers available

2 styles of reamers are available dependent on user preferences. The reamers perform the function of rounding the pipe after cutting and beveling the inner lip to allow easy insertion of the fitting for jointing. Triangular plastic reamers (see below) are frequently used where a small number of joints are needed. There are 2 sizes of reamer available being GPZ-ZYD16-20 for 16,20,25 mm systems or the GPZ-ZYD20-32 for 20, 25, 32mm piping.



GasPex Installation Guidelines

In addition, we offer metal reamers for each individual size of pipe (red handle picture below). The advantage of this style of reamer is that the handle can be removed and the reamer fitted to a drill for easy operation. This is particularly useful for large bore pipe to make the job easy, or for smaller bore pipe where there are many joints to be prepared. Product codes are as follows:

Product	Product Code	Product Description
	CG-MDR16	Metal Drill Reamer 16mm
	CG-MDR20	Metal Drill Reamer 20mm
	CG-MDR25	Metal Drill Reamer 25mm
	CG-MDR32	Metal Drill Reamer 32mm
	CG-MDR40	Metal Drill Reamer 40mm
	CG-MDR50	Metal Drill Reamer 50mm
	CG-MDR63	Metal Drill Reamer 63mm

Cutting Tools Available

Designed for smooth, even cutting, the tool's jaw should fit firmly over the pipe to allow a square, burr-free cut.



Pipe cutter (GPZ-SC1)
Used for cutting Pex Al Pex pipes 16-32mm.




Pipe cutter (GPZ-QGQ)
Used for cutting Pex Al Pex pipes 40-63mm

GasPex Installation Guidelines



Pipe Bending Tools Available

The Gas Pex piping system may be bent with a maximum bending radius of 5 times the pipe Outside Diameter (OD). For example, a length of 20mm pipe can have a bending radius of not less than 100mm ($5 \times 20 = 100$) or a 32mm pipe a bending radius of not less than 160mm ($5 \times 32 = 160$).

Product	Product Code	Product Description
	GPZ-EXSP-16	16mm External Bending Spring
	GPZ-EXSP-20	20mm External Bending Spring
	GPZ-EXSP-25	25mm External Bending Spring
	GPZ-EXSP-32	32mm External Bending Spring
	GPZ-WH-1216	16mm External Bending Spring
	GPZ-WH-1620	20mm External Bending Spring
	GPZ-WH-2025	25mm External Bending Spring
	GPZ-WH-2632	32mm External Bending Spring

In addition it is important to note that Copper tube benders may also be used to successfully bend Gas Pex product. For example an 18mm copper bender can be used for 16mm Gas Pex pipe, 20mm copper bender for 20mm Gas Pex pipe, etc.

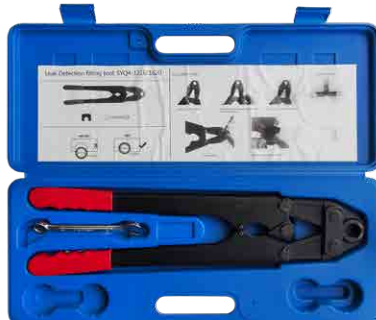
Manual Pressing Tools

The Couta Group supplies a range of high quality but inexpensive manual pressing tools for 16 through to 32mm piping systems. Above 32mm battery or electric tools are needed

The manual pressing tools come in kit form and include all jaws and reamers required to get the job done.

The GPZ-SYQ.14-32A KIT has a lengthened handle to make crimping of 32mm joints easier. The kit includes heads and reamers from 16 through 32mm.

Note: All the jaws for the Gas PexPex Systems are designated "U"-profile. Spare jaws can be purchased for both tools as required.

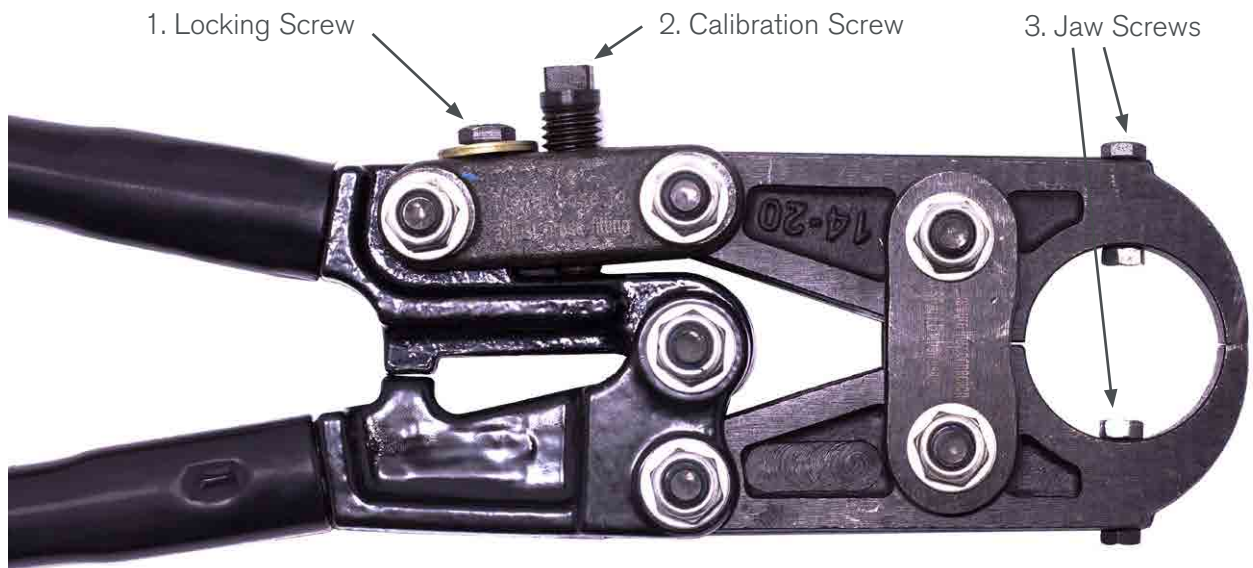


GasPex Installation Guidelines

5. Set Up and Operating Instructions for Manual Pressing Tools

Both of the Manual Pressing Tool kits are very similar in set up and operation. Both have individual pressing jaws for each size of pipe to be crimped. The method of changing jaws is the same on both tools. In addition both tools need to be calibrated prior to use and calibration is performed by the same method in both cases.

The lengthened manual pressing tool for sizes 16 through 32mm is shown below. Key part names are identified as follows:



GasPex Installation Guidelines

a) Preparation for use

Choose the correct pressing jaws. The correct jaws must be chosen for the pipe size to be joined. For 16mm pipe joint, use the 16mm jaws, etc. The jaws are engraved on the face to show the sizing for the pipe outer diameter.

Pressing jaw with engraved sizing on face



b) Mount pressing jaw on to clamp

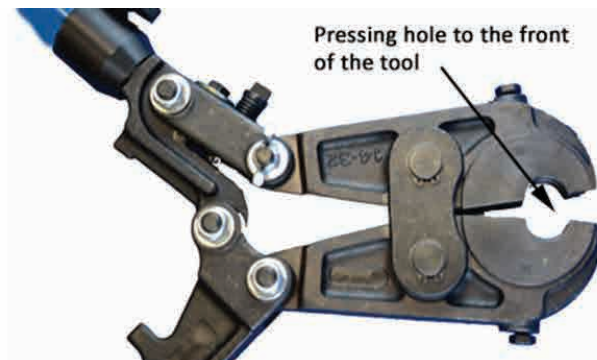
Open the handles of the pressing tool and undo the Jaw screws (part number 3) so that the jaws can be inserted into the clamp head.

Pressing jaw with engraved sizing on face



Position the two jaws in the clamp head ensuring that the two jaws are evenly positioned and the specification number on each of the two jaws is facing up. Then retighten the screws to fix the jaw.

Pressing hole to front of tool



GasPex Installation Guidelines



Pay attention to the jaw direction ensuring that the centre of the pressing hole is adjacent to the jaw opening direction.

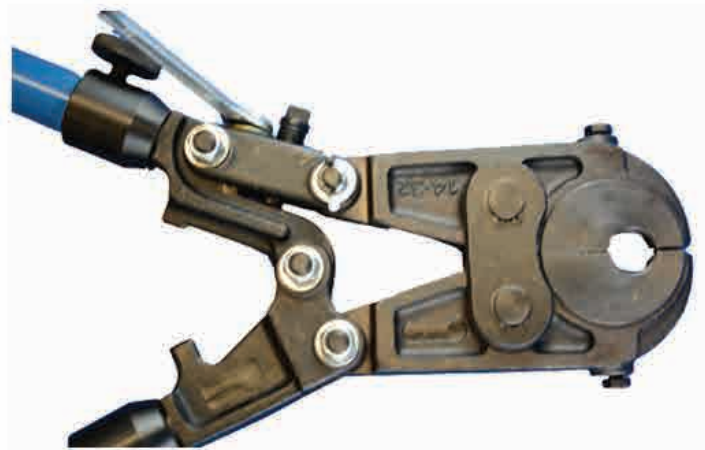
c) Check the calibration of the tool

Try to close the clamp without a fitting or pipe in place. The appropriate Trial-Clamping-Force required to fully close the clamp jaws should be about 20Kg. This will require firm pressure to close the jaws and handles fully. If closing the handles requires only light pressure then the clamp will need adjustment before use. Please refer to next step for how to adjust.

d) Adjustment of the crimping force of the manual tool

Open the clamp and loosen the "locking screw" (part No. 1) anti-clockwise for about 3 turns.

Pressing jaw tool
with clamp



If the Trial-Clamping-Force was too loose, you should turn the "calibration screw" (name No. 2) clockwise for about 1/4 turn.

If the Trial-Clamping-Force is too great, then you should turn the "calibration screw" anticlockwise. You should repeat this process until the Trial-Clamping-Force is around 20kg – requires firm force to close.

Pressing jaw tool
with clamp open



GasPex Installation Guidelines



The calibration screw should not be touched again when the Trial-Clamping-Force reaches 20Kg. The clamp should be immediately locked using the locking screw.

Close the clamp and tighten the 'locking screw'.

With the preliminary adjustment of the tool now complete, it is important to confirm that the crimping is sufficient by completing a joint using the required sized pipe and fitting and testing with a gauging tool supplied in the tool kit.

Gauging tool



The gauge should slip over the grooves in the sleeve of the crimped fitting without touching the sides. If the tool scrapes the stainless steel sleeve, needs force, or simply will not go over the crimped sleeve then the fitting has not been fully crimped. In these cases the tool must be recalibrated and the joint re-crimped.

Manual Tools – Cautionary Notes for Operation

Notes for operation

It is not necessary to use lengthened handles when pressing fittings no bigger than 25mm. Lengthened handles are necessary for pressing fittings 32mm. When pressing fittings, the contact points on right and left handles (see main part name No. 10 and 11) must contact.

Adjustment should be made on the following occasions:

- > First use of the tool
- > Every time heads are changed
- > Every 60 crimps
- > Each day prior to use
- > The closed clamp handles can be opened freely with little or no force

The clamp should be maintained periodically by cleaning and adding lubrication oil to pins (key part No. 3, 5,6,7). As a minimum this should be done once every month.

After adjustment, the nominal operating force applied for crimping the fittings is shown in the following table:

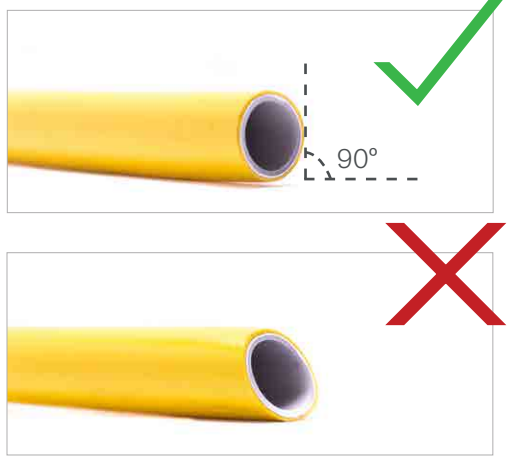

Product Specification	16mm	20mm	25mm	32mm
Operation Force (kg)	20	32	40	45

GasPex Installation Guidelines

Pipe Preparation

Cut the pipe to the required length ensuring that the cut is square (perpendicular to the length). Use the GPZ-SC1 cutter or equivalent for 16 through to 32mm pipe. The GPZ-QGQ cutter is easiest when working with larger bore piping systems.

It is important that you check that the pipe end profile has been cut square as shown below.

<p>Pipe end profile with appropriate right angle cut</p>		 <p>Always check that the pipe end profile has been cut square</p>
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Rounding and Beveling

The reamer tools have the dual purpose of “rounding” the pipe after cutting and then beveling the inner lip of the pipe to allow easy insertion of the fitting to prevent damage of the O-ring during insertion into the pipe.

Using either the plastic or metal reamer, insert the correct sized reamer into the pipe, turning as you go. This will round the pipe. Push the reamer down and continue to turn so that the reamer bevels the inner lip of the pipe. You should see pex swarf being generated at the shoulder of the reamer. Continue to ream for 3-4 turns.

Plastic reamer inserted into pipe

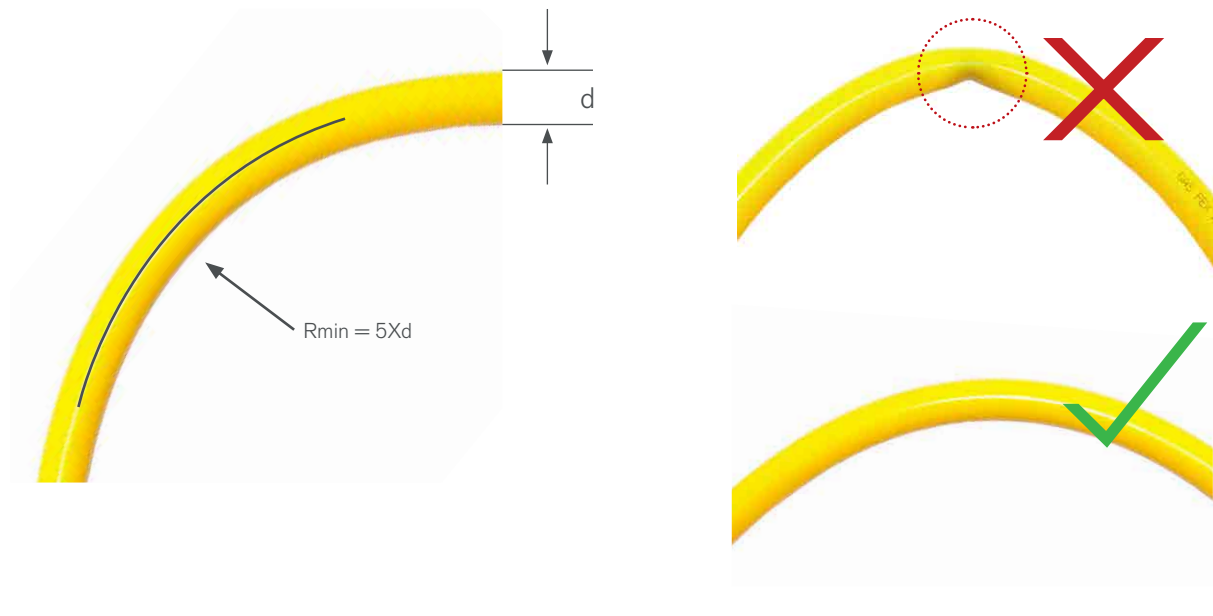
Rounded piping after use of reamer



Creating pipe Bends

Bending of the pipe may be accomplished by hand with an internal or external bending spring or copper tube benders. Bending springs are available within our range of products. It is very important to note that the minimum bending radius for pipe is $5x D$ where D is the nominal outside diameter of the pipe.

Bent piping



If you want to bend the pipe by hand then this is possible although not the recommended method. A bending spring is preferred. If bending the pipe by hand it is recommended that you keep your hands 40cm (16 inches) apart during the bending process. Create the bend slowly taking care not to kink the pipe or exceed the minimum bend requirements.



If bending with an internal bending spring, insert the bending spring inside the pipe remembering to leave a minimum of 2 inches of the spring extruding from the pipe – this is necessary so that you are able to easily remove the spring after creating the bend. Create the bend ensuring that the bending radius is not less than $5x$ the outer diameter of the pipe. Remove the bending spring when completed.

Where an external bending spring is to be used to create the bend, insert the pipe into the bending spring and move the spring so that it centres on the point at which you require a bend. Create the bend ensuring that the bending radius is not less than $5x$ the outer diameter of the pipe. Remove the bending spring when completed.

GasPex Installation Guidelines

Connecting pipe and fittings – Sizes 16 through to 32mm

Check the fitting and pipe- The pipe end should be rounded and bevelled as previously described and the size of the fitting and pipe to be joined must be identical, e.g. 20mm fitting joined to 20mm pipe.

Push the pipe straight on to the fitting (do not "screw/turn" the pipe on to the fitting) until the pipe shows fully past the witness mark of the sleeve.

At this point, the joint is now prepared for crimping.

Piping placed fully past witness mark of fitting sleeve



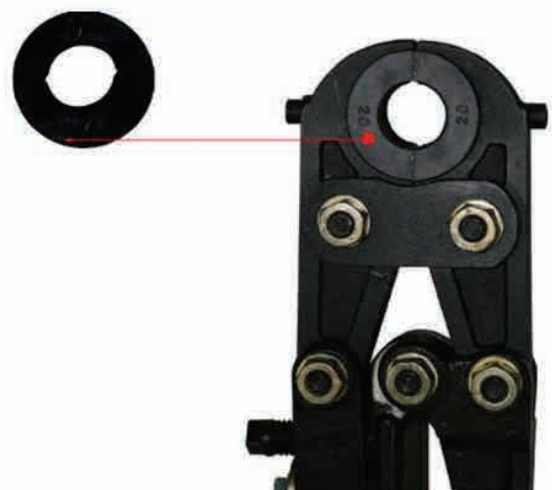
The Couta Group disclaims any responsibility or liability for product failures due to the use of any unauthorized tools or the mixing and matching the pipe and/or fittings of other manufactures with Couta Group systems.

Ensure that your crimping tool has been adjusted as recommended. Verification/calibration of the tool should be made on the following occasions

- > First use of the tool
- > Every time heads are changed
- > Every 60 crimps
- > Each day prior to use
- > The closed clamp handles can be opened freely with little or no force

Also ensure that the correct sized jaw has been fitted to the tool.

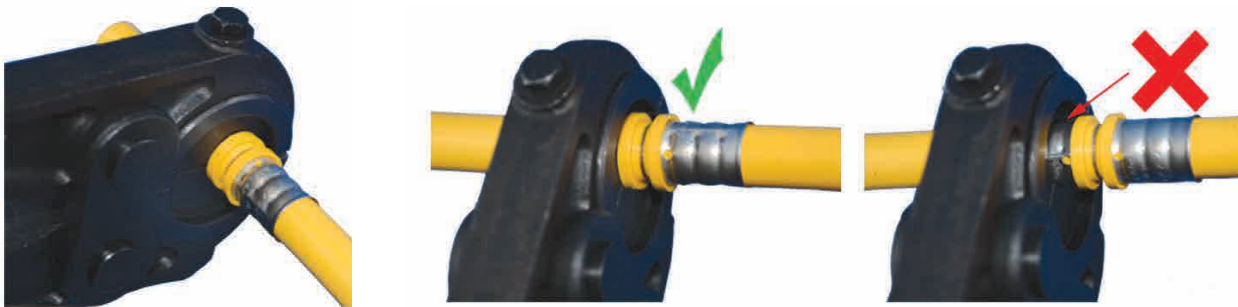
Tool and corresponding jaw



GasPex Installation Guidelines

Position the jaws so that the face of the jaw abuts the plastic isolating ring.

Positioning of jaw in relation to isolating ring



Fully close the handles of the crimping tool until the handles lock into their final position. Open the handles and remove the pressing tool from the fitting. Check the crimp using the gauging tool and if ok the jointing is complete.

Resulting crimped joint



Connecting pipe and fittings – For pipe joints of 40 to 63mm

For jointing 40mm through 63mm pipe and fittings the procedure varies slightly from the above.

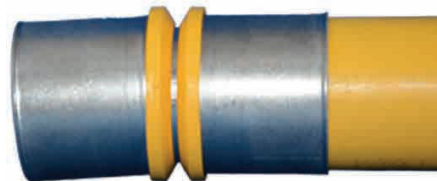
The pipe must be rounded and bevelled as previously described. Once this has been done the sleeve is removed from the fitting to be joined and slid over the pipe until the pipe abuts the rounded edge of the sleeve.

Piping abutting rounded edge of sleeve Description



The fitting is then inserted into the sleeved pipe until the sleeve is hard against the shoulder of the fitting flange.

Sleeved pipe with fitting flange



Please push the pipe straight onto the fitting – do not turn the pipe on the fitting to prevent damage to the o-rings.

The Couta Group has tested and approved the use of Novopress, Klauke, Rothenberger and REMS battery tools for effective crimping of these larger joints. Jaws are to be U-profile. Other brands of crimping tool have not been fully tested with our systems. These Installation Guidelines outline common installation situations. Situations not covered in this document should be referred to the Couta Group for further information.

If Users meet any new case or have any questions on the above guidelines, please do not hesitate to contact The Couta Group by phoning **1300 761 916** or via email on sales@coutagroup.com.au