



## **Water Pex™ PE (X) /AL/PE (X) Multilayer Piping System Installation Guidelines**

**Water Pex™ PE (X) /AL/PE (X) Multilayer Pipe thereafter is briefly called PAP pipe in the context.**

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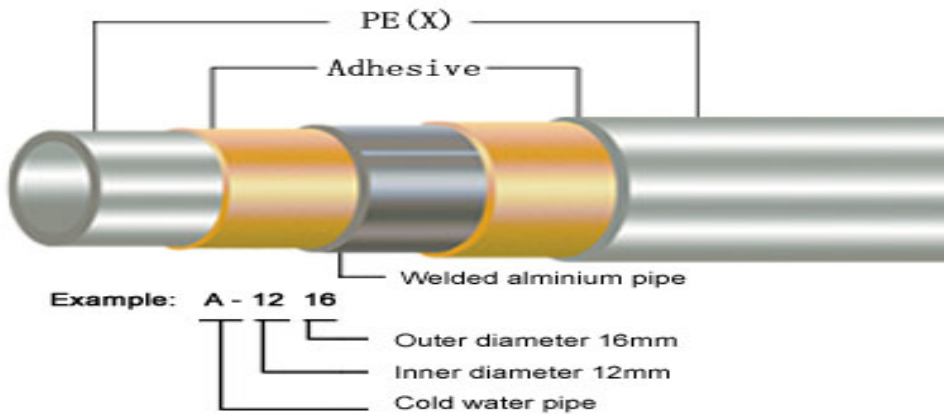
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# Water Pex™ Pex-Al-Pex Piping System Installation Guidelines

This manual contains recommended installation instructions for Water Pex™ Pex-Al-Pex piping systems. Failure to observe these installation instructions may result in substandard performance of the system. Water Pex™ Piping Systems expressly disclaim any responsibility or liability for substandard performance resulting from failure to comply with the installation instructions.

## 1. Water Pex™ Pex-Al-Pex pipe description

Water Pex™ Pex-Al-Pex pipe combines the benefits of both metal and plastic pipes. The inline welded aluminium tube is absolutely safe against oxygen penetration. It 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, cut to length, ream and bevel, join together, screw or press, done.



## 3. System design and application classifications

Application conditions and classifications of the pipes. The basic Water Pex™ Pex-Al-Pex piping system components can be used in the areas of plumbing, under floor heating & radiator heating.

Types of pipe	Materials	Applications	Service temperatures	Maximum working pressure
A	HDPE/AL/HDPE	Cold water supply	-40°~+60°	10bar
B1	PEX/AL/PEX	Hot water supply, under floor heating, radiator heating etc.	-40°~+95°	10bar

## **4. Introduction to Water Pex™ fittings and Tools**

A complete system is made of Water Pex™ Pex-Al-Pex pipes & fittings.

Water Pex™ provides different types of fitting to customers. Water Pex™ fittings are forged from strong brass, depending on different areas and applications, majorly 2 types of brass are used for Water Pex™ fitting production: Dezincification Resistant brass according to Australian standards.

### **4.1 Fittings available**

**F5 series:** "U" pressing jaws and clamping tools are necessary.



### **4.2 Reamers available**

Made of plastic or steel, to be inserted into the pipe for beveling and rounding the Water Pex™ Pex-Al-Pex pipe, before the pipe is installed onto the fitting.



Plastic reamer (WPZ-ZYD 16-20, WPZ-ZYD 20-32)

Use for rounding and beveling pipes 16-32mm, application for F5 Fittings.

### **4.3 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 (WPZ-SC1)

Use for cutting PAP pipes 16-32mm

**4.4 Pipe bending tools available**

Allow to bend PAP pipe at bending radius of 5 times the pipe Outside Diameter(OD).



Bending spring, external and internal available  
(WPZ-WH-16, 20, 25 32mm)

**4.5 Pressing tools available**

Water Pex™ supplies manual pressing tools (Water Pex™ WPZ-SYQ series jaws and clamps) pressing For using other suppliers’ dynamoelectric pressing clamps, please consult with authoritative Water Pex™ technician for approval.

**Water Pex™ manual pressing clamp**



Lengthened manual pressing clamp  
(WPZ-SYQ14-32A KIT) without pressing jaw;



Adjustable manual pressing clamp  
(WPZ-SYQ14-20A KIT) without pressing jaw

Available pressing jaws for lengthened and adjustable manual pressing clamps are shown as below table.

Table 1 pressing jaw for manual pressing clamp

picture	Jaw specifications	Suitable tool
	SYQ14-20A 1216	WPZ-SYQ14-32A KIT
	SYQ14-20A 1620	
	YYQB-1216 II	
	YYQB-1620 II	
	YYQB-2025 II	
	YYQB-2632 II	

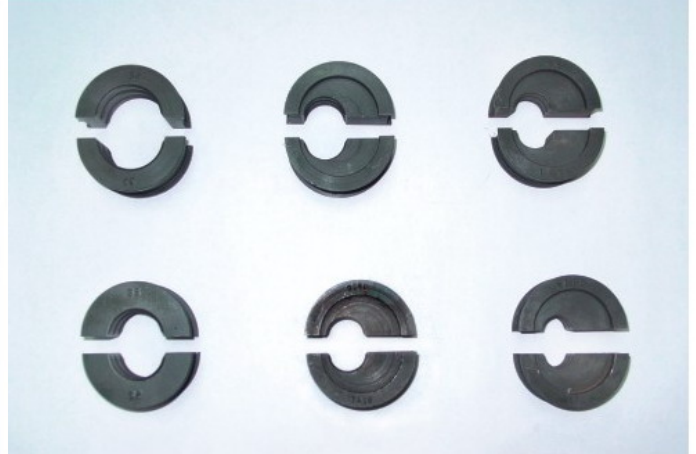
**4.6 Operation instruction for Water Pex™ manual pressing clamp**

Below is the introduction of how to use the Water Pex manual pressing clamp (WPZ-SYQ14-32A KIT) with lengthened handle. The clamp(WPZ-SYQ-14-20A KIT) without lengthened handle can be operated in the same way as the clamp(WPZ-SYQ14-32A KIT) with lengthened handle.

**1, Structure of Water Pex™ manual pressing clamp (WPZ-SYQ14-32A KIT).**

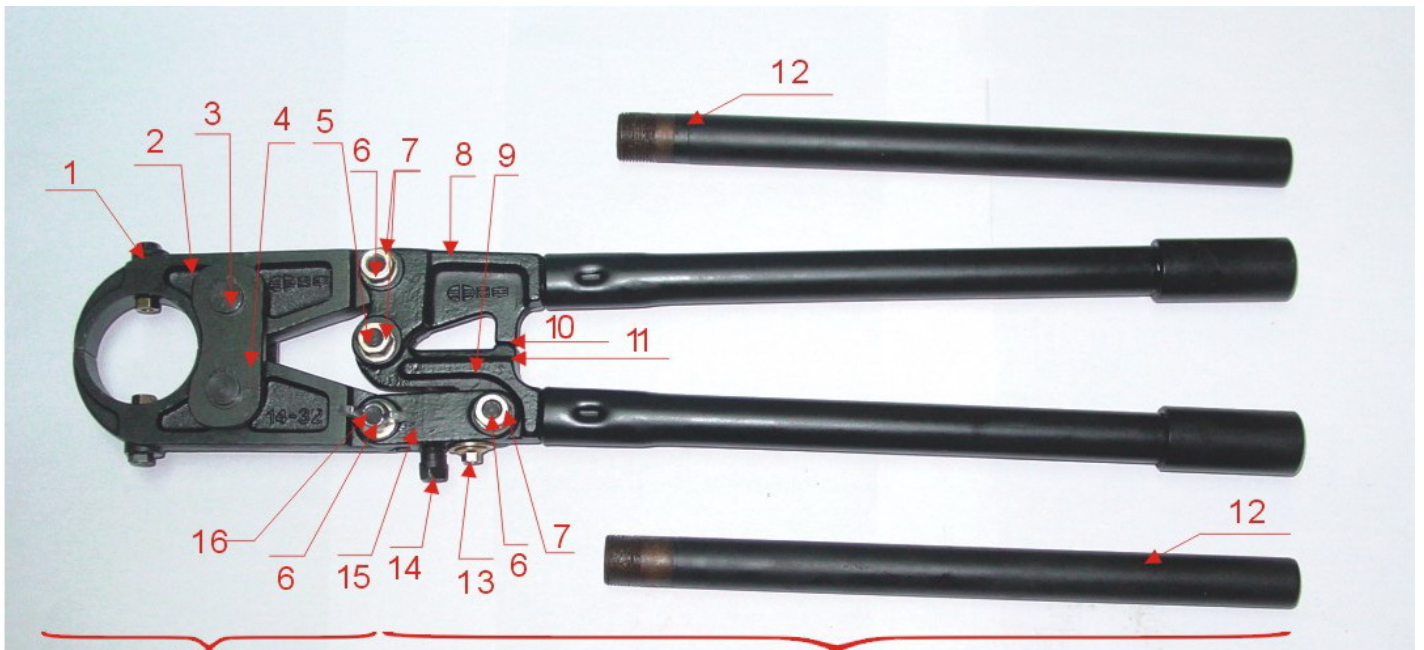


Pressing fitting



available pressing jaw specification see table 1

Below is the clamp picture with the name of each part/component.



Clamp head

clamp handle

Main part names:

- 1:Screw(M6X25), 2: Clamp body, 3: Pin in clamp body, 4: Connection body, 5 :Pin 1 in handle, 6: Pin 2 in handle, 7:Screw(M8), 8: Right handle, 9: Left handle, 10: Contact point on right handle, 11: Contact point on left handle, 12: Lengthened handle, 13: Locking screw(M6X12), 14: Adjusting screw, 16:Butterfly-shape Screw (M8)

## 2, Preparation before use

### Step 1, Choose correct pressing jaws.

Appropriate pressing jaw should be selected per the pipe size.

#### Notices:

- Specification number is engraved on one side of each jaw. The number stands for the pipe outer diameter by mm. Please make sure the lettered sides of the two half jaws are positioned on the same side.
- The jaws engraved with specification number alone, stand for U-profile jaws (for pressing F5 fittings).

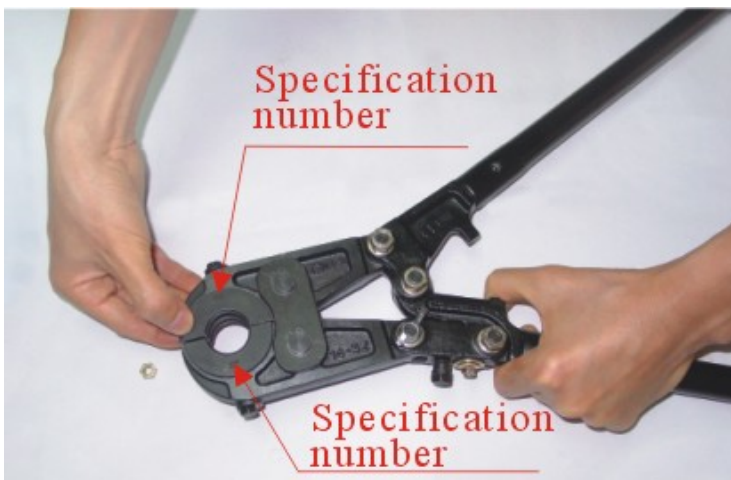
### Step2, Mount pressing jaw on to clamp

A, you need to open the clamp handles and take off two screws (main part name No.1,M6X25), see following picture.



B, Position the two jaws in the clamp head, make sure the two jaws are evenly positioned and the specification number on the two jaws are on the same side, then fix the jaws with the screws (main part name No.1, M6X25).

Notice: please don't over-fix the jaws, a little looseness is allowed.



C, Please pay attention to the jaw direction, make sure the center of pressing hole is by the jaw opening direction.



D, **Trial-Clamping-Force** evaluation:

Try to close the clamp without fitting or lengthened handle mounted, the appropriate **Trial-Clamping-Force** to fully close the clamp jaws should be about 15 Kg. If not, then the clamp need adjustment before use, please refer to next step for how to adjust.



**Step3, Adjustment for clamp.**

A, Open the clamp and loosen the "locking screw"(see main part name No. 13)anti clockwise for about 3 turns/rounds.

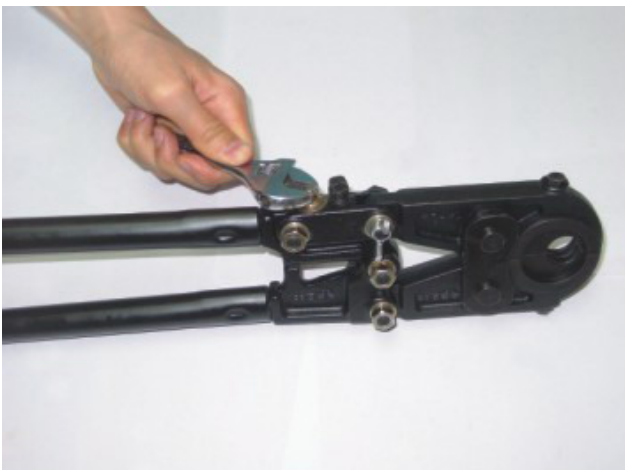


B, If the **Trial-Clamping-Force** is too small, you should turn the "adjustment screw" (see main part name No. 14.)clock wise for about 1/4 turns/rounds. If the Trial-Clamping-Force is too big, then you should turn the "adjustment screw" anti-clockwise. You should repeat this process until the Trial-Clamping-Force is around 15kg.

**Note: The adjustment screw (main part name No. 14) should not be touched again when the Trial-Clamping-Force reaches 15 Kg, the clamp should be immediately locked by locking screw (see main part name No. 13) at the next step to finish the adjustment.**



C, Close the clamp and tighten the "locking screw" (see main part name No. 13) clock wise, then open the clamp, the adjustment is finished.



### 3, Operating cautions

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 following occasions:

- New clamp tool is to be used
- Clamp jaws can not be fully closed when pressing fittings.
- Change pressing jaws,
- User finds that **Operation Force** changes a lot more than in previous use.
- Closed clamp can be opened freely without using any force.
- Pressing effect is bad.

In case of new tools, due to the burrs in tool production, **Operational Force** may change after 60 times of pressing. The tool can still be used after proper adjustment.

The clamp should be maintained periodically by cleaning and adding lubrication oil to pins (main part No. 3, 5,6,7) at least once every month.

4. After adjustment, Operation Forces for pressing fittings could refer to following table.

Specification	16	20	25
Operation Force(Kg)	20	32	40

**Note: The forces listed above are for pressing fittings up to 25mm.**

## **5. Water Pex™ Pex-Al-Pex pipe and fitting connection technique**

### **5.1 Pipe preparation**

Cutting pipe to wanted length, the pipe should be cut in perpendicular direction.



\* WPZ-SC1 cutter for pipe 16-32mm

### **5.2 Rounding and beveling**

The pipe end hole must be beveled correctly so as not to damage the O-ring during fitting installation and also to let the fitting insert get into the pipe easily.

### 5.2.1 Rounding and beveling the pipe 16-25mm

Round and bevel the pipe end with the Water Pex™reamer (WPZ-ZYD-1620 or 2032 Plastic reamer)

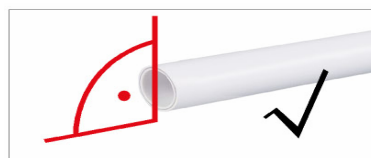


### 5.2.3 Checking the profile of pipe after rounding and beveling

The installer should make sure the pipe end profile is rounded and beveled smoothly, and the swarf caused by beveling are removed and cleaned from inside, outside and end of the pipe.



2. Left one shows the pipe before rounding and beveling, the right one shows the pipe after rounding and bevelling



3. Get rid of the scraps caused by beveling.

### 5.3 Bending the pipe

#### \* Bending directly



Bending the pipe directly to the required radius by hands. Recommended distance for two hands is 40 cm.

Notice: Bending Pex-Al-Pex pipe without tools should be slow and it only suits large radius curve. After bending the installer must re-check to ensure there has been no damage to pipe.

#### \* Bending with internal bending spring



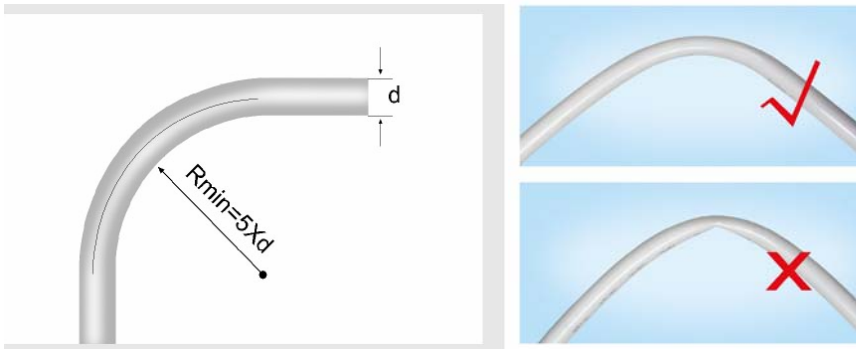
Insert the internal bending spring into the pipe, a little part of the spring should be left outside the pipe, bend the pipe to the bending radius required, the bending radius should be not less than 5 X Diameter.

#### \* Bending with external bending spring



Insert the pipe into the external bending spring, and move the spring to the point where pipe should be bent, then bend the pipe with hand, the bending radius should be not less than 5 X Diameter.

**Notice:**



The minimum bending radius is 5D (D=outside diameter of the pipe)  
Do not damage the pipe in bending.

**5.4 Connecting pipe and fitting**

Water Pex™ Piping Systems provides F5 crimping fittings for Pex-Al-Pex system, all the fittings are certified and carry the Australian Standard.

**WARNING: It is the installer's responsibility to choose correct fitting components. Water Pex™ Piping Systems do not guarantee or in any way warrant the installation of Water Pex™ Pex-Al-Pex systems due to the wide variance in installation practices.**

**IMPORTANT: Mixing use of Water Pex™ pipes with other producers' fittings, or mixing Water Pex™ fittings with other producers' pipes, or wrong use of tools/components/fittings without Water Pex™ authoritative technician's permission during installation might cause leakage. User should consult us for suitable fittings or tools.**

**5.4.2 Connecting F5 series crimp fittings**

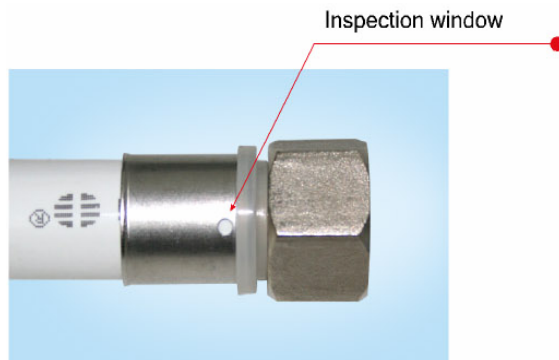
Before connecting crimping fittings, user must make sure pipes are well and truly prepared.

**5.4.2.1 Connecting F5 fitting with pipe 16-32mm**

(1).Check the fitting and pipe, the pipe end should be rounded and beveled, the fitting and pipe specifications should be compatible.

(2).Aim and straight push the fitting insert into the pre-sleeved pipe, until the pipe out-surface can be seen through the inspection holes.

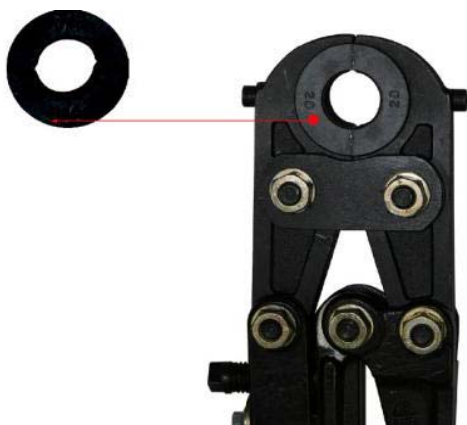
**Note: Please aim and straight push, don't screw when you put the fitting insert into the pipe.**



**Important: We provide "U" profile pressing jaws for crimp series fittings. "U" profile pressing jaw is used for F5 series fittings. Operation instructions of the tools also must be observed. Please use the pressing tools supplied by Water Pex™ or certified by Water Pex™ to ensure the installation quality. In addition, we recommend collaborative well-known ROTHENBERGER tools.**

**Warning: Water Pex™ Piping Systems disclaim any responsibility or liability failures due to unauthorized tools or fittings application in Water Pex™ Pex-Al-Pex pipe system.**

(3). Choose correct size pressing jaws and clamping tool according to the pipe size



Water Pex manual pressing tool(WPZ-SYQ14-20A KIT and SYQ 14-32A KIT) are available

(4). Position the jaws so that their ends align with the press sleeve's end which is by the plastic ring, close the pressing clamp completely.



(5). While the jaw is completely closed, the handles will be self-locked. Open the handles and remove the pressing tool from the fitting and installation is accomplished.



## **6. Installation procedure for Water Pex™ Pex-Al-Pex Pipe System**

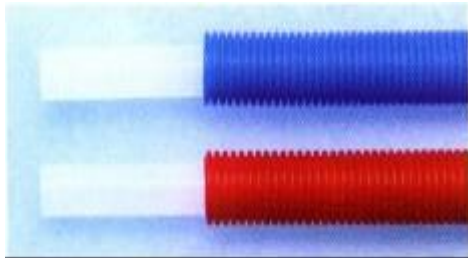
Water Pex™ piping system is excellent choice for tap water and under floor heating, it could be connected using the high quality Water Pex™ Pex-Al-Pex pipe with outside diameter ranging 16-32mm.

### **6.1 Protection**

**Fire Protection**, the main goal of fire protection is to hinder fires. If a fire occurs, then the second goal of fire protection is to minimize damage.

**Thermal Protection**, Water Pex™ Pex-Al-Pex Pipe has better insulation properties when compared with bare copper or steel pipes, for practical reasons we recommend that Water Pex™ Pex-Al-Pex pipe is installed to the same level as an equivalent sized metal pipe.

Insulating solutions with pre-insulated Water Pex™ PAP pipes



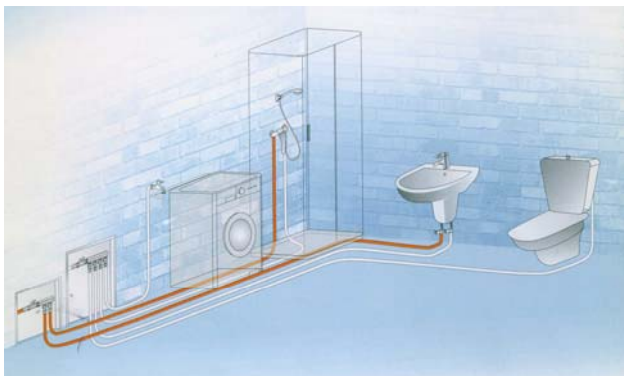
Pipe with corrugated pipe

### **Caution:**

- Maximum working temperature: 95°.
- Maximum continuous operating pressure: 10 bar at a continuous operation temperature of 70 tested hydrostatic stress performance of 50 years, safety factor 1.5.
- Please contact us at [info@gaspex.com.au](mailto:info@gaspex.com.au) or 1300 761 916 if you require additional explanation of the instruction.

### **6.3 Example installation**

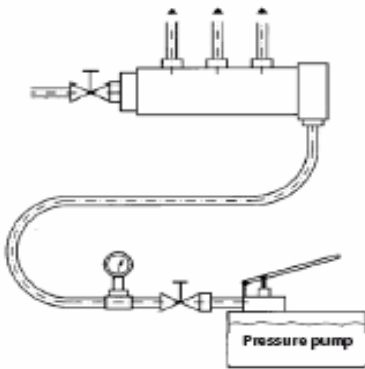
The drawings below show a typical domestic property where Water Pex™ plumbing system has been installed to the ground floor.



**Caution:** Pressure testing should be performed right after piping installation, if there is no leakage found after pressure testing, the piping system can then be buried with concretes, for maximum allowed diameters and shapes of hard blocks which might be included in the burying concretes, please follow local codes or regulations. Water Pex™ Piping Systems expressly disclaim any responsibility or liability for any damage on the established piping system resulting from hard blocks included in burying concretes with exceeding diameters or out-of-regulation sharp shapes.

The following pressure testing with water is just for installer's reference, installer can use local installation practices or codes for installation checking.

### **7. Pressure testing with Water Pex™ Pex-Al-Pex piping installation**



- A pressure gauge must be connected at the lowest point of the installation being tested and a visual inspection of all pipe connections is to be made before pressure testing with water. Make sure a pressure difference of 0.1 bar can be read by the pressure measuring instruments.
- Ensure no mistakes in all connections, then the installation system should be filled with filtered tap water (Please pay attention to protection against frost and icing) and vented.
- Shut-off valves before and after boilers and tanks are to be closed so that the test pressure is kept away from the rest of the system.
- Build pressure up to maximum permissible operating pressure plus 5 bar (for example ,if the maximum permissible operating pressure is 10 bar then the test pressure should be 15 bar). Wait until the temperature equilibration between water in pipe and ambient, if necessary, the test pressure must be re-built after the waiting period.

**Preliminary test** is to re-establish the test pressure two times within 30 minutes at intervals of 10 minutes. After a further 30 minutes the test pressure must not drop by more than 0.6 bar.

**Main test** is to be run directly following the preliminary test. The test is considered pass if the test pressure

has not dropped by more than 0.2 bar after a further two hours.

After test complete, all fittings need to be checked for possible leakage. The test time and pressure dropped off the preliminary and main test must be recorded for plumber and user reference.

## **8. Pipe line flushing**

Total system is to be flushed thoroughly as soon as possible after installation of the piping and following the pressure test. To ensure a sufficient flushing effect, this procedure could be based on pulsating flow of water or water and air.

**Water Pex™ Piping Systems claim this *Water Pex™ Pex-Al-Pex Piping System Installation Guidelines* does not include all cases possibly met during Water Pex™ Pex-Al-Pex piping system's services. If users meet any new case or have any questions on above guidelines, please contact us by email: [info@gaspex.com.au](mailto:info@gaspex.com.au) or Phone: 1300 761 916**