



NSAI
Agrément

CERTIFICATE NO. 01/0117

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a member of the **PIPE LIFE** Group

TECTITE PUSH-FIT FITTINGS

NSAI Agrément (Irish Agrément Board) is designated by Government to carry out European Technical Assessments.

NSAI Agrément Certificates establish proof that the certified products are '**proper materials**' suitable for their intended use under Irish site conditions, and in accordance with the **Building Regulations 1997 and subsequent revisions**.



PRODUCT DESCRIPTION

This Certificate relates to **Tectite Push-fit Fittings**, manufactured by Pegler Yorkshire Group Limited, used with either Qual-PEX Cross-linked Polyethylene Pipe or Copper pipe to I.S. EN 1057.

The **Tectite** range of **Push-fit Fittings** are manufactured from gunmetal or DZR brass outer body with an integral support plastic cartridge ring and a stainless steel toothed ring. The seal is achieved by the use of an integral greased EPDM (Ethylene Propylene Diene Monomer) 'O' ring between the wall of the fitting and the pipe.

Tectite Push-fit Fittings when used with Qual-PEX pipe or Copper pipe to I.S. EN 1057 are suitable in hot and cold water services, as well as central and underfloor heating systems.

Qual-PEX pipes meet the requirements of Class 5 Service conditions specified in Table 1 of ISO EN 15875-1 for a service life of 50 years.

Tectite fittings and Qual-PEX pipe were tested to, and comply with, BS 7291-1, inclusive of the requirements of Class S service conditions, as specified in Table 1 and Table 2 of the standard, and covering *thermoplastics pipes and associated fittings, for hot and cold water, for domestic purposes, and heating installations in buildings – general requirements*, which address both vented and sealed central heating systems.

MANUFACTURE & MARKETING

The **Tectite range of fittings** are manufactured by:

Pegler Yorkshire Group Limited,
St. Catherine's Avenue,
Doncaster,
South Yorkshire, DN4 8DF,
England.

Web: www.pegleryorkshire.co.uk



Tectite

and

Marketed by:

Pipelife Ireland Limited,
White's Cross,
Cork,
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Web: www.pipelife.ie

a member of the **PIPE LIFE** Group

Readers are advised to check that this Certificate has not been withdrawn or superceded by a later issue by contacting the Irish Agrément Board, NSAI, Glasnevin, Dublin 9 or online at www.n Sai.ie

1.1 ASSESSMENT

In the opinion of the Irish Agrément Board (IAB), **Tectite Push-fit Fittings** with Qual-PEX pipe, or Copper pipe to I.S. EN 1057, and when used in accordance with the provisions of this Certificate, are satisfactory for the purpose defined above, and can meet the requirements of the Irish Building Regulations 1997 and subsequent revisions, as indicated in Section 1.2 of this Certificate.

1.2 IRISH BUILDING REGULATIONS REQUIREMENTS

Part D – MATERIALS & WORKMANSHIP

D3 – Proper Materials

Tectite Push-fit Fittings with Qual-PEX pipe, or Copper pipe to I.S. EN 1057, used in accordance with this Irish Agrément Board Certificate, can meet the requirements of the Irish Building Regulations, for workmanship.

D1 – Materials & Workmanship

Tectite Push-fit Fittings and Qual-PEX Cross-linked Polyethylene Pipe, as certified in this Irish Agrément Certificate, are comprised of 'proper materials fit for the intended use' (See Part 4 of this Certificate).

Part L – Conservation of Fuel and Energy

L1 – Conservation of Fuel and Energy

Heating and hot water systems using **Tectite Push-fit Fittings** with Qual-PEX pipe, or Copper pipe to I.S. EN 1057, can meet the current requirements for heating controls and the insulation of pipes and ducts (See Section 4.2 of this Certificate).

2.1 PRODUCT DESCRIPTION

The bodies of the **Tectite** range of **Push-fit Fittings** are manufactured from gunmetal and DZR brass. **Tectite Push-fit Fittings** feature a stainless steel grab ring, acetal demount ring, and a plastic cartridge ring, plus a nylon seal protection ring. The seal is provided by an integral greased EPDM (Ethylene Propylene Diene Monomer) 'O' ring between the wall of the fitting and the pipe. The range of **Tectite Push-fit Fittings** are shown in Table 1 below. A disconnecting tool can be supplied so that fittings may be disconnected and re-used.

2.2 MANUFACTURE

The main body of the **Tectite Push-fit Fittings** are produced from gunmetal or DZR brass which is either cast or forged. The bodies are machined to specific dimensions. The fitting is then assembled with the stainless steel grab ring, EPDM 'O' ring, nylon / Acetal seal protection ring, de-mount collar and cartridge sleeve. The assembly is then crimped to secure the cartridge ring into position.

2.2.1 QUALITY CONTROL

Continuous quality control is carried out during manufacture, including checks on dimensional accuracy, correct crimping assembly, and pressure testing. Leak-tightness testing is carried out randomly during production to verify the joint integrity.

2.3 DELIVERY, STORAGE & MARKING

Tectite Push-fit Fittings are supplied in polyethylene bags, packed in cartons, labelled with manufacturing date, and bear, by impression, the manufacturer's symbol and connection sizes.

2.4 INSTALLATION PROCEDURE

Installation must be carried out in accordance with the manufacturer's instructions and BS 5955-8 *Plastics pipework (thermoplastics materials), specification for the installation of thermoplastic pipes and associated fittings for use in domestic hot and cold services and heating systems in buildings* and BS 8558 *guide to the design, installation, testing and maintenance of services supplying water for domestic use within buildings and their curtilages, as complimentary guidance to BS EN 806*.

The pipe shall be cut square at all times and chamfered to remove any burrs to avoid damage to the EPDM O-ring.

As all plastic materials expand and contract with temperature change, due allowance (i.e. 1%) in pipe runs should be made on installation to accommodate expansion and contraction of the pipe.

Table 1: Range of Tectite Push-fit Fittings

Description	Size	Code
Straight Coupler	1/2"	730251
Straight Coupler	3/4"	730252
Elbow	1/2"	730258
Elbow	3/4"	730259
Equal Tee	1/2"	730262
Equal Tee	3/4"	730263
Reduced Branch Tee	3/4" x 3/4" x 1/2"	730264
End Branch Tee	1/2" x 3/4" x 3/4"	730265
Branch and End Reduced Tee	3/4" x 1/2" x 1/2"	730266
Spigot Reducer	3/4" x 1/2"	730276
Male Coupling	1/2" x 1/2" BSP	730254
Male Coupling	3/4" x 3/4" BSP	730255
Tank Connector	1/2" x 1/2" BSP	730272
Tank Connector	3/4" x 3/4" BSP	730273
Stop End	1/2"	730274
Stop End	3/4"	730275
Bent Tap Connector	1/2" BSP	730271
Straight Tap Connector	1/2" BSP	730278
Straight Tap Connector	3/4" BSP	730277
Disconnecting Tool	1/2"	730249
Disconnecting Tool	3/4"	730250
Disconnecting Clip	1/2"	730247
Disconnecting Clip	3/4"	730248

The principle of the Tectite Joint

The **Tectite Push-fit Fittings** are easy to install, and they achieve reliable and highly versatile joints, by using a positive mechanical system to join the fitting and pipe together.

When a length of pipe is inserted into the fitting, it passes through the release collar and then through the stainless steel grab ring. This grips the pipe, securing it so only the Tectite disconnecting clip or tool can release the fitting from the pipe.

Joining Procedure

Select the correct size of pipe and fitting for the job. Cut the pipe square using rotary pipe cutters for both the Qual-PEX and copper pipe. Ensure that the pipe is cut straight, and is fully clean and free from debris and swarf. Deburr both the Qual-PEX and copper pipe to remove any sharp edges. A Pipelife BS7291 certified pipe support sleeve must be used with the Qual-PEX pipe (see Figure 1).



Figure 1.

Insert the correct size Pipelife BS7291 certified pipe support sleeve into the Qual-PEX pipe ensuring it is fully home. Measure and clearly mark the relevant socket depth on the pipe, with a pencil or felt marker. Approximate distances are as follows: 1/2" fitting – 23mm, 3/4" fitting – 27mm (see Figure 2).



Figure 2.

Insert the pipe through the release collar to rest against the grab ring. Push the pipe firmly home until it reaches the pipe stop with a positive 'click'. Check the fitting has reached the mark. Pull the pipe to check that the fitting is secure. **Tectite Push-fit Fittings** should be installed a minimum of 10mm apart to enable easy access with the disconnecting tool / clip, should disconnecting be required (see Figure 3).



Figure 3.

To demount, insert the disconnecting tool forks around the fitting assembly. Squeeze the disconnecting tool with one hand, compressing the release collar in the fitting. Alternatively the plastic disconnecting clip can be used. With the other hand, twist out the pipe. Check the fitting for damage before remaking the joint. When the fitting has been de-mounted from Qual-PEX pipe, the pipe should be cut back behind the location of the fitting, in case the pipe has been scored during the demounting process (see Figure 3).

For more detailed information on Tectite fittings, and installation considerations, we refer you to www.pegleryorkshire.com.

Bending Qual-PEX

For sharp bends (< 80 mm in radius) standard elbow fittings should be used. Where bends of 80 mm, or greater, are required it is often quicker and neater to use a standard 15 mm x 90° angle bracket. Gentle bends (radii ≥ 175 mm) may be made by the use of pipe clips on either side of the bend, positioned to maintain the bend radius.

The use of pipe bending springs and skilled manipulation is not required. The pipe should not be heated with a blow lamp, hot-air gun or similar.

Table 2: Minimum Bend Radii

1/2" Qual-PEX	80 mm using angle brackets 175 mm using pipe clips
3/4" Qual-PEX	225 mm using pipe clips
1" Qual-PEX	300 mm using pipe clips

Clipping Qual-PEX Pipe

Clips should be positioned adjacent to fittings wherever possible, making due allowance for expansion and contraction of the pipework. Where Qual-PEX pipe is to be surface mounted and visible the following clipping distances are recommended:

Table 3: Clipping Distances

	Average Service Temperature		
	20° C	60° C	80° C
1/2" Qual PEX			
- horizontal	500 mm	400 mm	300 mm
- vertical	800 mm	600 mm	500 mm
3/4" Qual-PEX			
- horizontal	800 mm	600mm	500 mm
- vertical	1200 mm	1000 mm	800 mm
1" Qual-PEX			
- horizontal	800 mm	600mm	500 mm
- vertical	1200 mm	1000 mm	800 mm

Where Qual-PEX pipe is to be boxed-in or installed under floors or in loft spaces, clipping distances can be increased or the clips omitted altogether if the pipe is adequately supported by other means.

Protection of Qual-PEX Pipe

Qual-PEX pipe is a tough material that needs no greater protection from accidental damage when installed than conventional copper. As with copper, Qual-PEX pipe should be sleeved when passing through walls, and protected from nails, etc., when placed under floorboards or buried under plaster.

Qual-PEX pipe is stabilised to withstand limited exposure to ultraviolet radiation or sunlight, but is not designed for permanent direct exposure. Under such conditions painting or lagging is required.

System Testing

The purpose of system testing is to identify any points where leakages occur at a time when they can be repaired as easily as possible, regardless of their cause.

System testing should take place immediately after first fix installation, and before the pipework is completely covered over. For Tectite push-fit systems high and low pressure testing is mandatory.

Low pressure test = 3 bar for 15 minutes.
 High pressure test = 6 bar, or a pressure equal to 1.5 times the pressure relief valve setting, whichever is the greater for 1 hour.

Note: When the testing is complete, the test pressure is discharged from the system, where there is a risk of freezing conditions.

Commissioning The System

When commissioning the system it must be flushed, filled with water, the pump started and residual air removed by opening the bleed valves in each circuit. The system must be checked for leaks after all the air has been removed and before the pipes are covered.

As with all plumbing systems, care should be taken in the layout of pipe runs to avoid damage from nailing.

To minimise this risk the pipe runs should be kept clear of room perimeters and, where possible, doorways.

Boiler Connections

Qual-PEX pipe should not be connected directly to a boiler or similar heat source. It is important to ensure that such a connection is made with a minimum of one metre length of copper pipe. **Qual-PEX** pipe can be joined to this. **Tectite fittings** can however be connected directly to a boiler.

Qual-PEX should not be used on the primary circuit of a solid fuel system.

Gas Pipe

Tectite Push-fit Fittings and **Qual-PEX** pipe should never be used in gas piping systems.

Continuously Operated Re-Circulating Systems (Secondary Hot Water Circulation / Ringmain Installations)

Qual-PEX pipes are not suitable for use in continuously operated re-circulating systems.

Electrical Connections

Qual-PEX is not suitable for earthing electrical installations.

3.1 GENERAL

The heating demands for particular rooms are designed in accordance with the *CIBSE Guide A : Environmental Design 2015*.

To calculate the pressure drop in the pipes connected to each radiator or underfloor heating coil, the total length of pipe is defined as the sum of the lengths of flow and return pipes from the boiler. When **Tectite-Push-fit Fittings** and **Qual-PEX** pipe are used together the bore of the pipe is less than copper or stainless steel pipe of the equivalent outside diameter. The consequent reduction in flow rate for a given pressure head should be considered when designing hot and cold water distribution or central heating systems. The flow rates for **Qual-PEX** pipe are available from Pipelife Ireland, on request.

3.2 Safe Working Temperatures & Pressures

Tectite Push-fit fittings and **Qual-PEX** pipe, when installed as an assembly, meet the requirements for Class 5 service conditions specified in Table 1 of ISO EN 15875-1 for a service life of 25 years. These conditions include operating temperatures of 60° C for 25 years operation, 80° C for 10 years and 100° C for 100 hours at a working pressure of 4 bar. The pipe is also suitable for cold water services for a period of 50 years at a temperature of 20° C and an operating pressure of 10 bar. There is an adequate safety factor to ensure that damage to the pipe will not occur in the event of boiler thermostat or other control failure.

3.3 Chemical Resistance

The materials used in **Tectite Push-fit Fittings** and **Qual-PEX** pipe will not be adversely affected by accidental contact with linseed oil based sealing compounds or soldering flux, although these materials should not normally be used in making joints. Only water based paints and wood preservatives should be used.

3.4 Effect on Water Quality

Tectite Push-fit Fittings and **Qual-PEX** cross-linked Polyethylene Pipe are approved and listed by the UK Water Regulations Advisory Scheme (WRAS) as items which have passed full tests on the effect of water quality in accordance with BS 6920: Part 1, *specification for the suitability of non-metallic products for use in contact with water intended for human consumption with regard to their effect on the quality of the water*.

3.5 Flow Characteristics

The bore of the **Qual-PEX** pipe is less than copper or steel pipe of the equivalent outside diameter. The consequent reduction in flow rate for a given pressure head should be considered when designing the central heating system.

3.6 Note on System Design

In systems where low water content gas boilers with cast iron heat exchangers are used Pipelife Ireland Limited recommend that the balancing valve for the hot water circuit be a brass lockshield gate valve, conforming to BS 5154, *specification for copper alloy globe, globe stop and check, check and gate valves*. This lockshield valve is important so as to prevent the valve being inadvertently turned off while the boiler is on and so as to avoid the pipework being exposed to excessive temperatures by providing an open circuit for water to circulate between the boiler flow and return.

4.1 BEHAVIOUR IN FIRE

Properties In Relation To Fire

Where the **Tectite Push-fit Fittings and Qual-PEX** pipe are used in combination, and passes through an element of structure or cavity barrier, the opening should be fire-stopped in a way that will permit thermal movement.

4.2 THERMAL INSULATION

Heating controls and pipe insulation must meet the minimum requirements for 'Conservation of Fuel and Energy' of the Irish Building Regulations.

4.3 DURABILITY

The **Tectite Push-fit Fittings and Qual-PEX** combination has been widely used in other European countries for over seventeen years. Experience with the system has been very favourable.

The **Tectite Push-fit Fittings** and the **Qual-PEX** pipe, when used in combination, will have a life at least equivalent to that expected from a traditional installation with metal pipes and fittings.

4.4 TESTS AND ASSESSMENTS WERE CARRIED OUT TO DETERMINE THE FOLLOWING:

1. Dimensional accuracy.
2. Effect of thermal cycling on pipes and fittings.
3. Long-term hydrostatic pressure resistance of pipes and fittings.
4. Hydrostatic pressure resistance of fittings.
5. Resistance to pull-out of assembled joints.
6. Short-term hydrostatic pressure resistance of pipes and fittings at 20°C.
7. Short-term hydrostatic pressure resistance of pipes and fittings at 100°C.
8. Long-term hydrostatic strength of pipes and fittings.
9. Effect of materials on quality of potable water to BS 6920-1, *specification for the suitability of non-metallic products for use in contact with water intended for human consumption with regard to their effect on the quality of the water.*

The Tectite fittings and Qual-PEX pipe were tested to BS 7291-1. This testing also satisfies the requirements of Class S service conditions as specified in Table 1 and Table 2 of BS7291-1, for *thermoplastics pipes and associated fittings for hot and cold water for domestic purposes and heating installations in buildings - general requirements*, which covers both vented and sealed central heating systems.

4.5 OTHER INVESTIGATIONS

- (i) Existing data on product properties, in relation to toxicity with respect to suitability for use with potable water supplies, mechanical strength / stability, and durability were assessed.
- (iii) The manufacturing process was examined including the methods adopted for quality control, and details were obtained of the quality and composition of the materials used.

5.1 National Standards Authority of Ireland ("NSAI") following consultation with NSAI Agrément has assessed the performance and method of installation of the product/process and the quality of the materials used in its manufacture and certifies the product/process to be fit for the use for which it is certified provided that it is manufactured, installed, used and maintained in accordance with the descriptions and specifications set out in this Certificate and in accordance with the manufacturer's instructions and usual trade practice. This Certificate shall remain valid for five years from latest revision date so long as:

- (a) the specification of the product is unchanged.
- (b) the Building Regulations and any other regulation or standard applicable to the product/process, its use or installation remains unchanged.
- (c) the product continues to be assessed for the quality of its manufacture and marking by NSAI.
- (d) no new information becomes available which in the opinion of the NSAI, would preclude the granting of the Certificate.
- (e) the product or process continues to be manufactured, installed, used and maintained in accordance with the description, specifications and safety recommendations set out in this certificate.
- (f) the registration and/or surveillance fees due to NSAI Agrément are paid.

5.2 The NSAI Agrément mark and certification number may only be used on or in relation to product/processes in respect of which a valid Certificate exists. If the Certificate becomes invalid the Certificate holder must not use the NSAI Agrément mark and certification number and must remove them from the products already marked.

5.3 In granting Certification, the NSAI makes no representation as to;

- (a) the absence or presence of patent rights subsisting in the product/process; or
- (b) the legal right of the Certificate holder to market, install or maintain the product/process; or
- (c) whether individual products have been manufactured or installed by the Certificate holder in accordance with the descriptions and specifications set out in this Certificate.

5.4 This Certificate does not comprise installation instructions and does not replace the manufacturer's directions or any professional or trade advice relating to use and installation which may be appropriate.

5.5 Any recommendations contained in this Certificate relating to the safe use of the certified product/process are preconditions to the validity of the Certificate. However the NSAI does not certify that the manufacture or installation of the certified product or process in accordance with the descriptions and specifications set out in this Certificate will satisfy the requirements of the Safety, Health and Welfare at Work Act 2005, or of any other current or future common law duty of care owed by the manufacturer or by the Certificate holder.

5.6 The NSAI is not responsible to any person or body for loss or damage including personal injury arising as a direct or indirect result of the use of this product or process.

5.7 Where reference is made in this Certificate to any Act of the Oireachtas, Regulation made thereunder, Statutory Instrument, Code of Practice, National Standards, manufacturer's instructions, or similar publication, it shall be construed as reference to such publication in the form in which it is in force at the date of this Certification.

NSAI Agrément

This Certificate No. **01/0117** is accordingly granted by the NSAI to **Pegler Yorkshire Group Ltd** on behalf of NSAI Agrément.

Date of Issue: **March 2001**

Signed



Seán Balfe
Director of NSAI Agrément

Readers may check that the status of this Certificate has not changed by contacting NSAI Agrément, NSAI, 1 Swift Square, Northwood, Santry, Dublin 9, Ireland. Telephone: (01) 807 3800. Fax: (01) 807 3842. www.n sai.ie

Revisions

- **June 2016:** References to Building Regulations and standards updated.
- **September 2021:** References to Building Regulations and standards updated.
- **16 June 2023:** References to Building Regulations updated.