



PEXALGAS

The widest range
for the distribution
of combustible gas

valsir[®]
QUALITY FOR PLUMBING

MADE IN ITALY

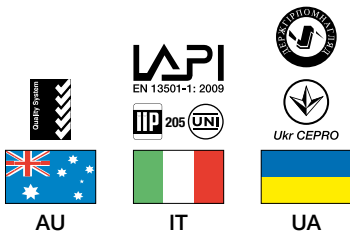




PEXALGAS

The widest range
for the distribution
of combustible gas

Pexal® Gas is the result of the years of experience gained by Valsir in the production of multilayer systems for combustible gas in residential buildings: the international certifications obtained over recent years for Pexal® Gas in Italy, Australia, New Zealand and Ukraine are proof of the reliability and quality of the system.



Valsir supplies **the widest range of diameters on the market, from 16 to 75 mm**, available both in straight lengths and in coils, pre-fitted with a **protective corrugated covering, flame retardant and anti UV** in class 320 in compliance with European Standard EN 61386.

MADE IN ITALY



CLASS B - UV RES

2/100 -

WALSIR

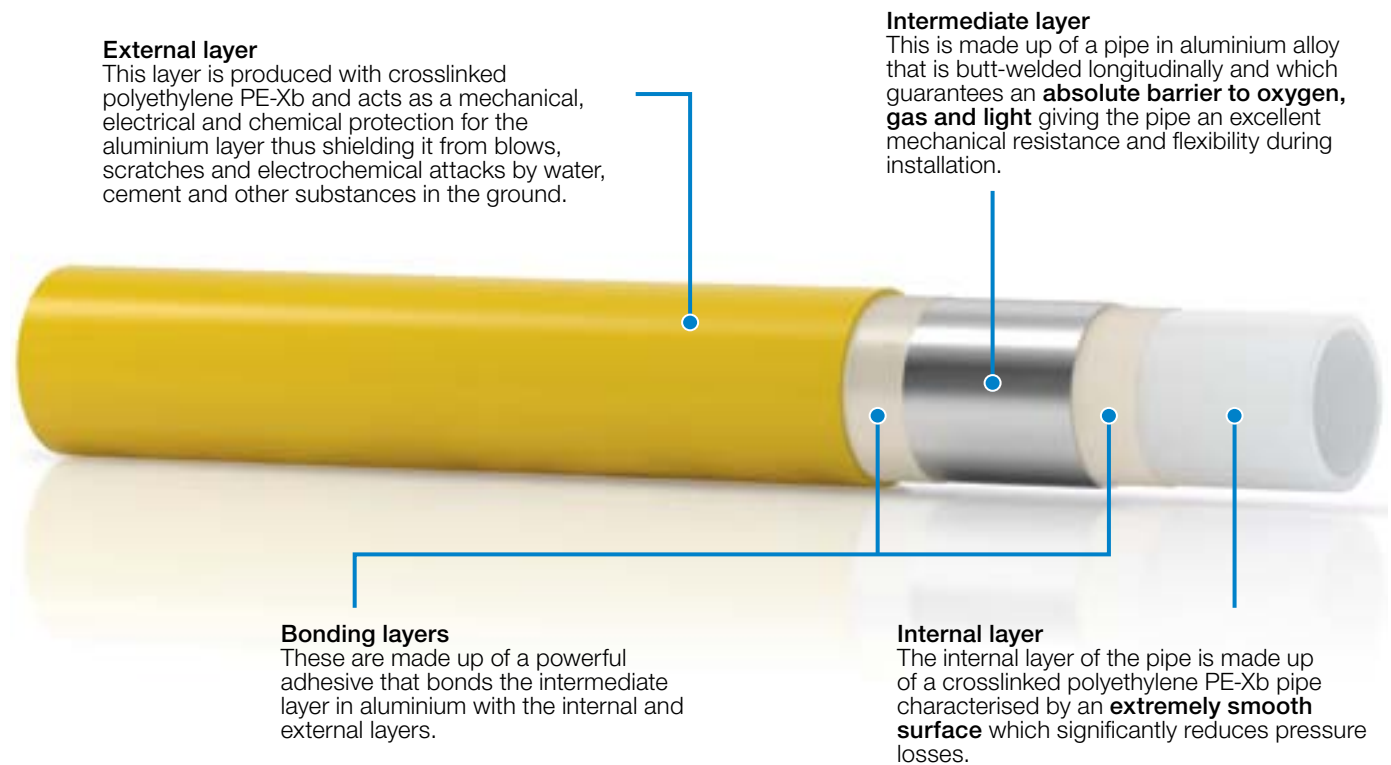
WALSIR

WALSIR

ONE PRODUCT OFFERS THE ADVANTAGES OF SYNTHETIC MATERIALS AND OF METAL

The Pexal® Gas multilayer system combines the positive features that are typical of crosslinked polyethylene PE-Xb and also those of aluminium; **crosslinked polyethylene PE-Xb guarantees excellent mechanical, physical and chemical**

properties and the butt-welded aluminium pipe strengthens mechanical resistance introducing excellent characteristics of flexibility and malleability, fundamental features for accelerating and simplifying installation operations.



External layer

This layer is produced with crosslinked polyethylene PE-Xb and acts as a mechanical, electrical and chemical protection for the aluminium layer thus shielding it from blows, scratches and electrochemical attacks by water, cement and other substances in the ground.

Intermediate layer

This is made up of a pipe in aluminium alloy that is butt-welded longitudinally and which guarantees an **absolute barrier to oxygen, gas and light** giving the pipe an excellent mechanical resistance and flexibility during installation.

Bonding layers

These are made up of a powerful adhesive that bonds the intermediate layer in aluminium with the internal and external layers.

Internal layer

The internal layer of the pipe is made up of a crosslinked polyethylene PE-Xb pipe characterised by an **extremely smooth surface** which significantly reduces pressure losses.

The end result is a product that is composed of different layers of material, connected to each other, that allows **excellent properties to be reached that otherwise would not be possible with a pipe made of one single material.**

The Pexal® Gas system is manufactured in compliance with European Standard EN ISO 21003 and the international standards for the production of gas multilayer systems (UNI TS 11344, AS4176.8). Its reliability and quality are guaranteed by the most strict approval bodies that control and verify performance with meticulous frequency within the production plants.

THE ADVANTAGES OF THE MULTILAYER SYSTEM



The **total resistance to corrosion, to construction materials and to the principal chemical compounds** allows it to be used in the most varied applications.



The system has a **service life of at least 50 years** that is **guaranteed** by product standards.



The **extreme smoothness of the internal surface ensures reduced pressure losses.**



The elasticity of the crosslinked polyethylene means vibrations are absorbed which therefore guarantees **excellent sound absorption.**



Connection between the crosslinked polyethylene and aluminium guarantees **excellent flexibility during bending** (also manual) and **structure permanence in the long term.**



The **range of fittings, accessories and relative tools is particularly wide** and allows all requirements to be satisfied.

Durability guaranteed for all application fields

The regulations that define the requirements for multilayer pipes require long-term tests to guarantee a lifecycle of at least 50 years. The same regulations also settle different application fields that include water supply systems and high temperature heating systems. Depending on the application field different types of tests are performed that can be of a physical, chemical or mechanical type as well as tests that establish the suitability of the pipes to carry drinking water.

Valsir multilayer pipes passed all the tests required by UNI EN ISO 21003-1 and they are suitable for all the application fields envisaged (up to the maximum pressure rating of 10 bar) as declared within the marking stamped on the pipe.





The layer of butt-welded aluminium acts as an **absolute barrier to the passage of oxygen, gas and light.**



It is also the **ideal solution in areas subject to earthquakes** thanks to the excellent mechanical properties such as flexibility and capacity to dampen vibrations.



Thermal expansion is about 8 times lower than that of plastic pipes and is **similar to that of metal pipes.**



Wide range of pipes **from De 16 mm to De 75 mm.**



The **pipes are extremely light** as compared with metal pipes, the weight is 1/3 in comparison with the weight of a copper pipe and is 1/10 of the weight of a steel pipe.

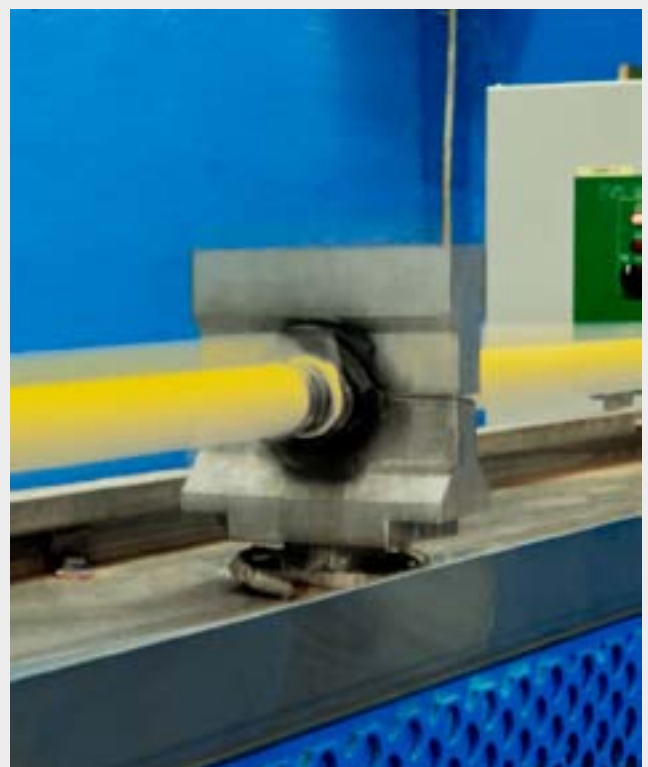


The Valsir Pexal® Gas system is produced with materials that are completely recyclable which can be recovered at the end of their service life. The production processes employed are energy efficient and of reduced impact. Valsir has adopted the Green Building principles in terms of environmental protection and conservation of resources.

Quality system

Valsir, in order to verify and guarantee the quality of the connections between the multilayer pipe and fitting, performs numerous types of tests, and not just those imposed by the International quality standards.

High temperature pressure tests, oven tests, bursting tests, tensile tests, water hammer tests and vibration tests on the joint are just some of the tests performed in our laboratories to guarantee the quality and reliability.



THE RESULT OF TECHNOLOGY AND EXPERIENCE

Crosslinked polyethylene

In the crosslinking process, the polymer chains undergo a reaction that creates very strong links between them thus modifying the chemical, physical and mechanical properties of the polyethylene.

As compared with high density polyethylene (PE) or polyethylene of raised temperature resistance (PE-RT), crosslinked polyethylene (PE-X) guarantees greater performance, among which the most important feature is long term resistance to ageing and to high temperatures.

Crosslinked polyethylene can be produced by using different technologies recognized by International Standards and identified by the methods A (peroxides), B (silanes), C (radiation), D (azocompounds); the method used is indicated together with the abbreviation for the material, thus obtaining PE-Xa, PE-Xb, PE-Xc, PE-Xd. There is much conflicting information in the market as to which is the best technology; however, it is not the type of crosslinking process that determines the quality of the pipe but the capacity to produce it in compliance with all the relevant quality standards which are applied to all four of the above-mentioned crosslinking methods.

An innovating crosslinking process

Drawing on its experience and the technologies at its disposal, some time ago Valsir has implemented an innovative crosslinking method for PE-Xb that achieves physical and mechanical characteristics of absolute importance.

The polyethylene that composes the Valsir multilayer pipes is crosslinked by means of steam diffusion at 100°C in sealed chambers, inside which vacuum is created to ensure they are completely filled with steam.

It fully penetrates inside each coil guaranteeing a uniform level of crosslinking regardless of pipe diameter and length. This innovative process as compared with traditional crosslinking methods that involve immersion or water circulation, ensures extreme uniformity of the mechanical characteristics of the finished product.



Aluminium

The combination of crosslinked polyethylene and aluminium allows pipes to be obtained that provide exceptional mechanical characteristics; in one single product, the advantages of two materials are combined, but there is much more than this. The performance of multilayer pipes depends on numerous factors such as the type of aluminium alloy, the ratio of the aluminium thickness to the total thickness of the pipe, the position of the aluminium layer, the technology used to form and weld the aluminium, the adhesion of the same to the layers of crosslinked polyethylene.

The creation of a multilayer pipe that combines high resistance to pressure and high temperature, flexibility and stability is the result of a careful and accurate design phase that not only involves the most delicate aspects of the product but also the processes and technologies employed to produce it. Many years of experience in the production of multilayer pipes enabled Valsir to implement processes and technologies making its product recognized on the most important international markets and these factors are decisive in contributing to the superiority of Valsir as compared with most producers worldwide.

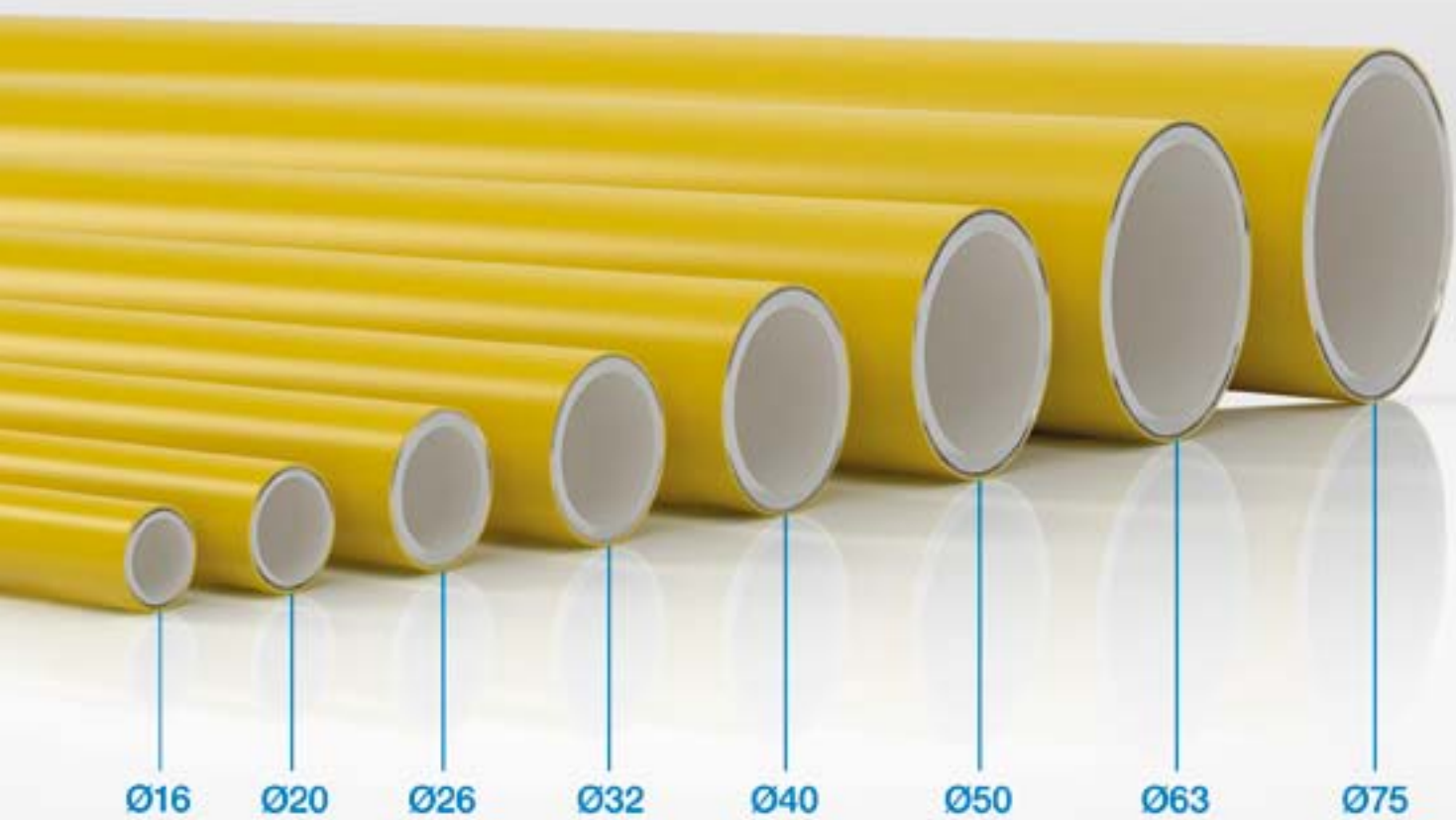


The aluminium forming process

There are different methods for the production of multilayer pipes and they differ mainly in the technology used in forming the aluminium pipe.

It can be formed by overlapping, overlapping and welding, or by butt connection and welding.

The latter is the technology chosen by Valsir in that it guarantees a uniform thickness across the entire circumference, greater resistance to pressure and bending, uniform mechanical characteristics, greater adhesion values with the bonding layers and a total barrier to oxygen.



Ø16

Ø20

Ø26

Ø32

Ø40

Ø50

Ø63

Ø75

THE WIDEST RANGE ON THE MARKET

The range is composed of:

- pipes in straight 5 m lengths in diameters from 16 to 75 mm
- in 100 m coils up to diameter 32 mm
- in 50 m coils with corrugated flame retardant anti UV covering up to diameter 26 mm.

The system is completed by a wide range of “multipress” fittings (U, C, TH, H, VAL) and a series of useful accessories for the creation of complete plants, such as derivation manifolds, interception valves, both in-wall and for meters, and boxes for housing fittings.

The wide range of diameters available in the Pexal® Gas range allows the construction of large plants, such as those dimensioned according to UNI 11528 that serve appliances with heat outputs greater than 35 kW.



The solution for terminal connections

To install flanged fittings for connection to appliances, Valsir has designed an innovative and compact fittings box that allows the connection of flanged fittings of the Valsir Pexal® Gas range to pipe diameters 16, 20, 26 mm with corrugated covering.

The Pexal® Gas fittings box blocks the corrugated covering, protects that pipe and fitting and guarantees an **accessible connection** as required by installation standards.

AN EXCELLENT MULTILAYER SYSTEM

Time and money saving installations

Thanks to their excellent mechanical characteristics the Valsir multilayer pipes can be bent instead of employing fittings thus obtaining significant advantages from an economical point of view.

Valsir multilayer pipes can be bent by hand with diameters up to 32 mm and mechanically for larger diameters, with bending radii up to 2.5 times the pipe's diameter.

The excellence of Valsir multilayer pipes also lies in the extraordinary dimensional stability and in the low coefficient of thermal expansion: once bent and installed the pipes remain in place over time and thus allow the number of anchor clips to be reduced which, in surface mounting, can be reduced by 40% of the number of clips necessary for plastic pipes in PE-X, PE-RT, PP-R, PB, PVC-C, etc.



Bending diameter 20 mm



Bending diameter 75 mm

PEXAL® GAS FITTINGS

Brass press fittings

Connections in the Valsir Pexal® Gas system are performed easily and safely and involve just a few simple operations.

New Pexal® Gas press fittings with brass alloy body and stainless steel sleeve fixed with a technopolymer yellow ring.

Moreover the Pexal® Gas fittings differ from fittings for water transportation since Gas is written on the sleeve and the o-rings are yellow in colour, specifically for this type of installation.



MADE IN ITALY

PEXAL® GAS AND ITS ADVANTAGES

- Fittings equipped with a **special base ring in yellow technopolymer** that isolates the aluminium in the pipe from the brass fitting.
- **Greater insertion depth** of the pipe on the insert.
- **Each fitting is individually wrapped for improved handling** on the installation site and to protect it from dust and debris.
- Compatibility with a **wide range of pressing profiles** (H, TH, C, U, VAL).
- **Wide range of fitting types** and accessories.
- **Leakage detection during system testing** in the event of incomplete pressing.
- Range of **diameters from 16 to 75 mm**.
- Anti-loosening profile and double ring seal.



Multipress

The Valsir press fittings, both in brass are termed “multipress” as they can be used with the various pressing profiles most widely used in the market.

The plumber can use the revolutionary Pexal® Gas multipress fittings produced by Valsir, regardless of the type of tool they possess.



Pressing profile U, H, C



Pressing profile TH

The Pexal® Gas fittings **guarantee immediate leakage in the event of incorrect pressing;** therefore, in the event of poor pressing, the error can be immediately identified, guaranteeing an easy and safe installation.

The stainless steel sleeves have four holes on the end that allow the plumber to verify that the pipe has been fully inserted.

A special base ring in technopolymer on the end of the fitting prevents contact between the brass and aluminium of the pipe, thus avoiding galvanic corrosion.



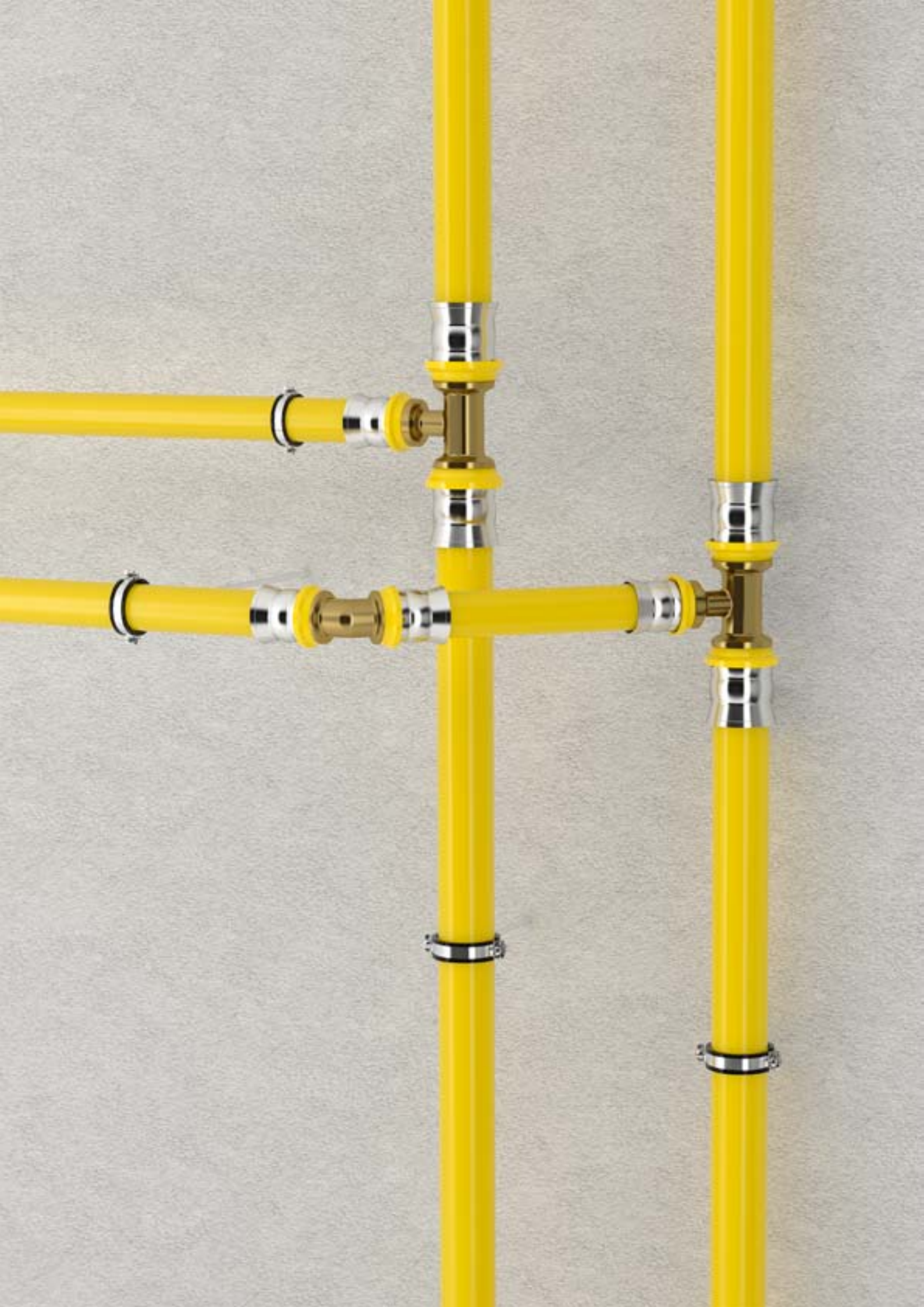
Quality packaging

Each Pexal® Gas fitting is individually wrapped. This is a huge advantage for storing and handling on the installation site.

The bag protects the insert and the O-rings from being damaged and from dust and debris that could compromise the pressing operation.

All information relating to the product is clearly indicated (pressing profiles, diameters and product marks) as well as all information relating to installation in order to avoid errors during installation.





TOOLS

Reliability, long service life and high quality are the main characteristics that differentiate the Valsir tools used in the installation of the Pexal® Gas system; these products were designed to the suggestions of our most trusted plumbers and are produced using high quality materials.

Pressing machines, socketing machines, pipe cutters, multi-diameter expanders, bending tools for bending the pipes by hand or mechanically are just some of the tools that make up and complete the entire product line.



Compatibility with other systems

Pexal® Gas ensures total compatibility with other piping systems.

The special transition fittings and accessories allow already existing copper and crosslinked polyethylene pipes to be connected with ease to Valsir multilayer pipes.

THE INTERNATIONAL REGULATORY FRAMEWORK

The international standard ISO 17484 specifies the requirements and performance of multilayer piping systems; systems to be understood as pipes and fittings, destined for the transport of combustible gas, natural gas and LPG inside the building.

As specified, multilayer piping systems can be used at temperatures that vary between -20°C to $+60^{\circ}\text{C}$ with a maximum operating pressure as high as 500 kPa (5 bar). Nevertheless, local technical standards or specific national regulations that are issued in single countries and which generally introduce further limitations on construction characteristics and on the limits of use of the system must always be analysed.

The aim of these national regulations is also that of defining the rules regarding the installation of multilayer pipes, it is in fact fundamental that these are in compliance with the particular construction techniques adopted for the buildings, with the climatic conditions of the location and with the distribution methods of the combustible gas adopted in that country.

These are the main reasons why it is not possible to create a universal Standard that complies with the different methods that each country has adopted and developed over the years.

We therefore recommend verifying the existence of national regulations or laws that not only allow the use of multilayer systems for the distribution of combustible gas inside the building, but that also define the rules on installation and use.



REFERENCE



Chaffers dock - Wellington (New Zealand)



Torri Camuzzi - Pescara (Italy)



I Navigli - Padova (Italy)



CUSTOMER SERVICE

Technical support

Valsir provides complete support during design and on site, thanks to a high-level technical department that consists of a team of engineers with international experience that are capable of providing solutions to all installation needs.



Valsir Academy

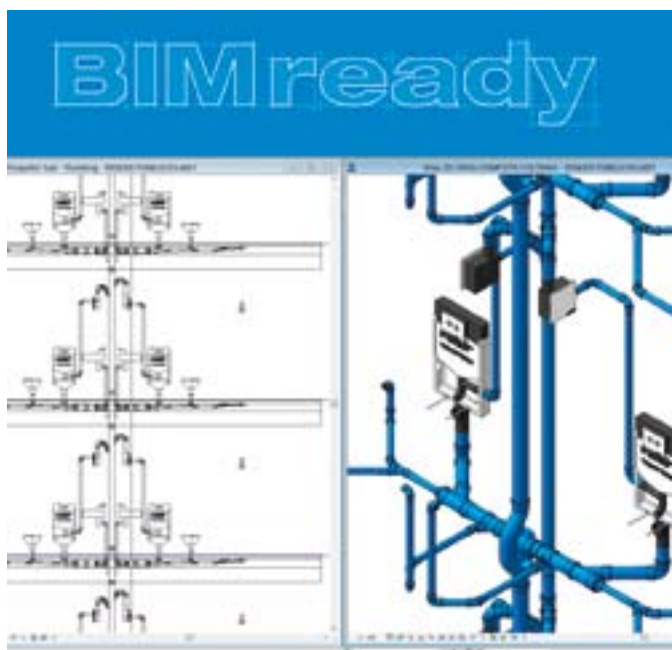
Valsir has an important training facility - **Valsir Academy** - dedicated to clients, distributors, plumbers and planners that provides perfectly equipped courses, theoretical and practical courses on the use and the design of plumbing and heating systems. Courses are provided both inside the training facility and on customers' premises.

SOFTWARE

Silvestro software

The design of floor and radiator heating systems, water supply as well as waste and drainage systems, is extremely easy and the issue of the project technical documents is rapid when using the Silvestro software program. Rapid, simple, unique, Silvestro has numerous strong points:

- rapid learning curve thanks to a simple and intuitive interface
- completely graphic background that facilitates input of the project details
- automatic drawing of the loops in the floor radiant systems
- automatic repositioning of the stack points on the plan view
- generation of calculation reports that are exportable in an .xls format
- import and export of files in .dwg format
- immediate update of software with a guided procedure
- creation of complete bill of materials from the project files



Valsir is BIM ready

Valsir has embraced the BIM philosophy, the modelling process that allows the improvement of planning, design, construction and the management of buildings, concurring with the transition of the industry toward the digital representation of buildings. "BIM oriented" planning offers extraordinary competitive advantages: greater efficiency and productivity, less errors, less downtime, lower costs, enhanced interoperability, maximum sharing of information, a more punctual and coherent supervision of the project. Valsir captures the essence of this system creating a series of Revit applications and models designed for simple and fast use.

QUALITY AND ENVIRONMENT

Quality

The constant commitment of Valsir in the production of quality products is attested by over **200 product approvals** obtained throughout the world by the most stringent certification bodies (data updated to 01/04/2021), by a Management System of the Quality (QMS) certified in compliance with the **UNI EN ISO 9001:2015** standard and the Energy Management System (SGE) certified according to the international standard **UNI EN ISO 50001:2018**. Valsir S.p.A. has further demonstrated its commitment to the environment by obtaining certification **ISO 14001:2015** on the Vestone production site.

Since 2019 an innovative and modern plant has also been built that, integrated with the already installed photovoltaic park, will be able to produce over 30% of the electricity needed for all Valsir plants. This is a Trigenerator powered by methane gas capable of producing electricity, steam and cooling energy.



Sustainability

Efficient processes and reliable products are no longer the only parameters used to perform an assessment of the quality of a company's conduct: the capacity of the company and its management to design and implement production process that are sustainable from an environmental point of view is of equal importance.

Valsir has started a project of Corporate Social Responsibility and has published its 3th Sustainability Report that gathers facts and figures relating to the daily commitment of Valsir in terms of social, economic and environmental responsibility.



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WASTE SYSTEMS



SUPPLY SYSTEMS



GAS SYSTEMS



FLUSHING SYSTEMS



BATHROOM SYSTEMS



TRAPS



RADIANT SYSTEMS



DRAINAGE SYSTEMS



HRV SYSTEM



ACADEMY



SEWER SYSTEMS



WATER TREATMENT



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