

SILERE



**Soundproof waste and drainage
system inside the buildings**



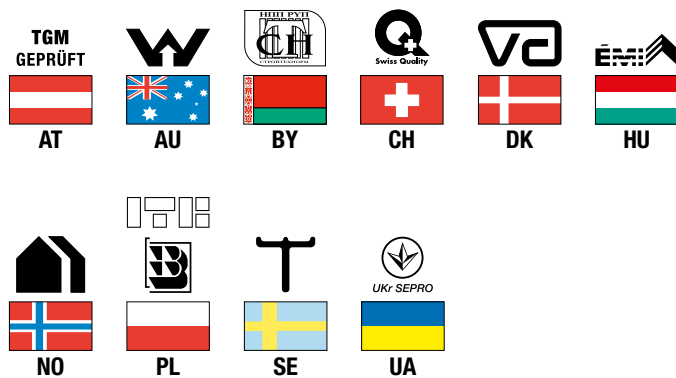
valsir[®]
QUALITY FOR PLUMBING



Distillery Hill - Sydney (Australia)

REFINERY DE

Silere®, the leading push-fit soundproof waste system



Over recent years there has been an increase in the attention given to the emission of the noise generated inside buildings, involving various aspects such as urban planning, construction techniques, the layout of rooms and the soundproofing of systems.

Respect of the conditions of acoustic well-being of homes, as well as the workplace and public venues, has become an essential requirement of buildings.

Silere® is a push-fit system composed of pipes, fittings and accessories, is industrialized, produced and patented by Valsir and meets these requirements guaranteeing the levels of silence of waste systems as required by the laws and regulations in force.



Silere® is produced in compliance with EN 1451 and can be used for low and high temperature **waste systems**, for waste network ventilation systems and for rainwater drainage systems **inside the buildings, for civil and industrial use, hospitals and hotels.**

The wide range of pipes, fittings and accessories allows an entire waste system to be constructed: from the branches to the sanitary appliances, the stacks and waste manifolds.

MADE IN ITALY



Grand Hotel Savoia - Genova (Italy)

PERFORMANCE WITHOUT COMPROMISE

The benefits of using a Silere® waste system

- Excellent soundproofing performances measured in the Fraunhofer laboratory of Stuttgart, in compliance with EN 14366, equal to **6 dB(A) with a flow rate of 2 l/s** (certificate P-BA 223/2006).
 - **Speed and ease of installation** without the use of any special tools, thanks to the push-fit jointing method. Also the socket joint doesn't require the extra use of harmful glues or solvents.
 - Resistance to intermittent discharges at temperatures as high as **95°C**.
 - High impact resistance at extremely harsh temperatures as low as **-20°C**.
- The pipes and fittings are characterised by a **large thickness and high mechanical resistance**.
 - **High chemical resistance to the substances dissolved in civil and industrial waste systems**.
 - Wide range of transition fittings for connection to other waste systems such as cast iron, PE, PP, PVC.
 - Wide range of diameters from **DN 50 mm to DN 160 mm**.
 - The product, its recyclability and the production processes are based on **Green Building principles** which promote respect for the environment and the conservation of natural resources.

Push-fit socket with lip seal

The push-fit socket is fitted with a lip seal that guarantees hydraulic tightness and free movement of the pipe caused by heat expansion. The shape of the socket ensures speed and ease of installation.

Single layer of high thickness material

The entire wall of the pipes and fittings is made up of the same mix of polypropylene and mineral loads which guarantees high **mechanical resistance, excellent soundproofing performance, extremely smooth internal surfaces and high resistance to chemical agents**.

Silere® pipes and fittings are made of a **patented polypropylene-based mix (PP) and mineral loads (MF)** that provide high mechanical characteristics and at low (impact resistance at -20°C) and high temperatures (at a continuous operating temperature as high as 95°C).

The Silere® waste system can transport waste liquids with PH values between 2 and 12, it has a high resistance to the most common chemical agents and is characterised by an extremely smooth surface, such as to prevent the accumulation of deposits inside the waste pipework.



Ø58

Ø78

Ø90

Ø110

Ø135

Ø160

A RANGE THAT STANDS OUT

The range is made up of pipe lengths between 150 mm and 3 m and is characterised by a wide choice of fittings and accessories that allow the most varied system configurations to be created.

From diameters 58 mm and 78 mm for the creation of branches for each floor, to diameters 135 and 160 mm for waste manifolds. These particular pipe sizes are due to the large wall thickness and the need for a sufficient bore passage; thanks to the special connection and transition fittings, it is possible to connect the Silere® system to other waste systems made of different materials.

The range is completed with accessories for connection to other waste systems produced by Valsir and pipe clips with anti-vibration rubber to reduce the vibrations that are transferred to the installation walls when the waste system is in operation.



Fire collars

When fire protection standards or local regulations require the **compartmentalization of rooms** such as, for example, central heating plants, underground car parks and industrial facilities that are at risk of fire, then fire collars can be used.

To meet all system requirements and the most strict fire protection regulations a **complete range** is available that includes diameters **from 58 to 160 mm**.

It is important to remember that the Silere waste system is made of a polypropylene based material and therefore, unlike other materials such as PVC, it does **not produce carcinogenic compounds** such as dioxins and vinyl chloride **in the event of fire**.



Valsir is the only company that can provide a sound insulating waste system with **Silere® “ventilation branch”**. This is the ideal solution in high-rise buildings where the simultaneous use factor of the sanitary appliances is high.

This innovative waste system guarantees excellent ventilation of the waste stack and branches on each floor, limiting pressure fluctuations in the system.

This system also offers significant advantages and money savings thanks to the possibility of constructing single stacks (therefore without the need for parallel ventilation) of a **110 mm diameter with a draining capacity that is more than double** that of systems with primary ventilation.

The ideal solution in high-rise buildings

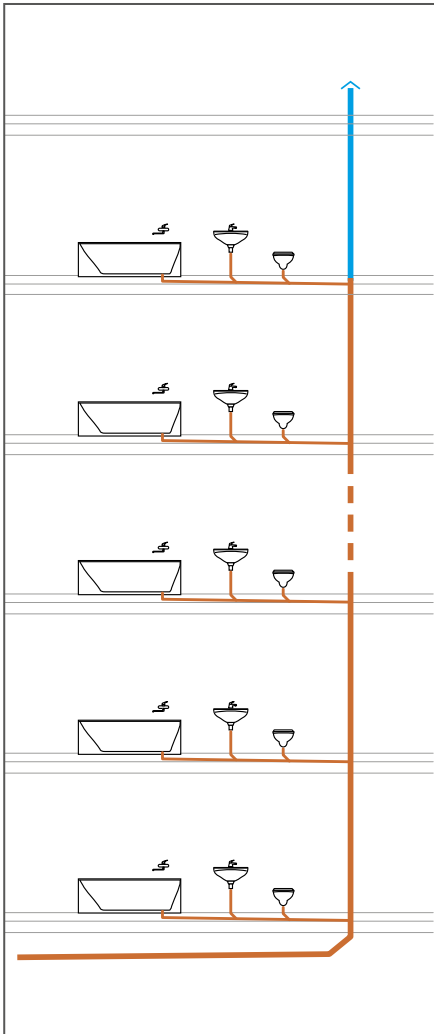
- **Single soil stack**, a parallel ventilation stack is therefore not required.
- **Increase in drainage flow** in comparison with conventional systems.
- **Reduction in speed** of waste flow.
- **Excellent ventilation** of the stack and branches of each floor.
- **Up to 6* connections** on one branch fitting.
- **Up to 45** apartments** can be connected to the same soil stack.

* The side connections of the Silere® ventilation branch are created in the factory according to project specifications.

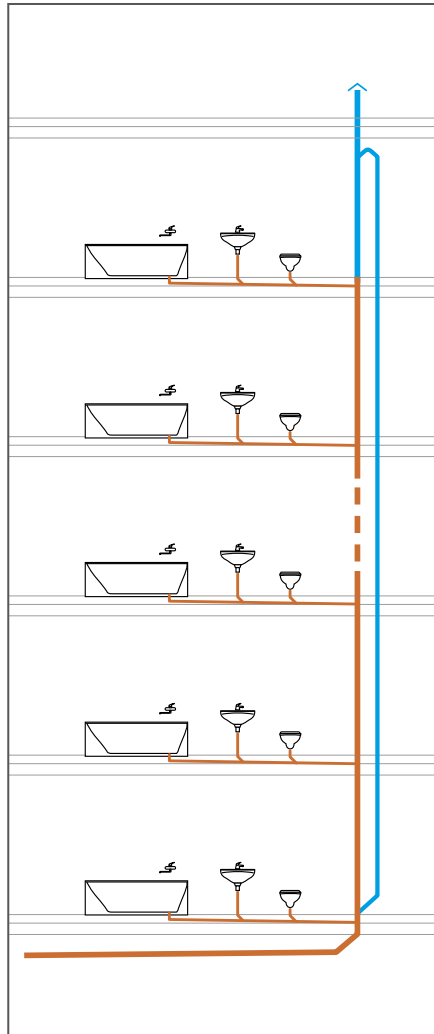
** The number of apartments depends on the composition of the same.

A waste system with a Silere® “ventilation branch” allows greater volumes to be drained than any other waste system (primary ventilation systems, direct or indirect parallel ventilation systems, secondary ventilation systems).

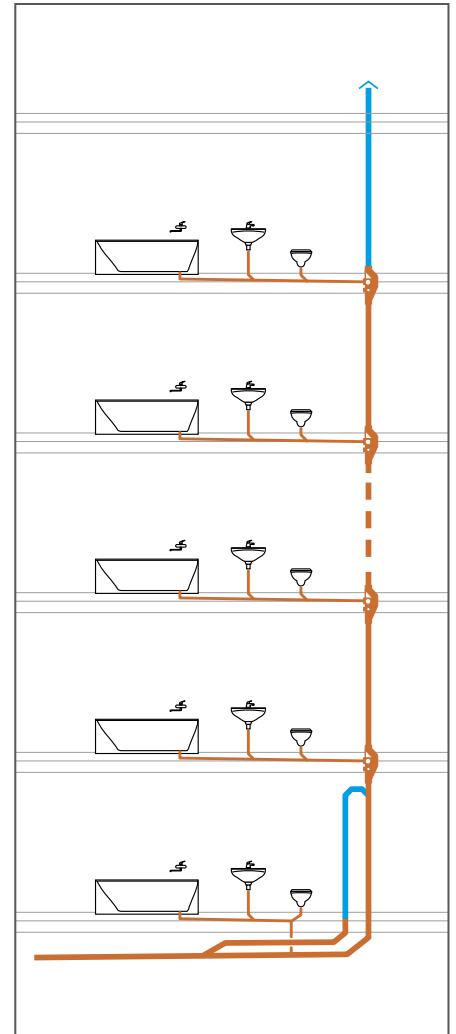
System with primary ventilation



System with parallel ventilation



System with ventilation branches



Drainage capacity **40% greater** than waste systems with primary ventilation.

Drainage capacity is **120% greater** than waste systems with primary ventilation.

EXCELLENCE IN SOUNDPROOFING PERFORMANCE

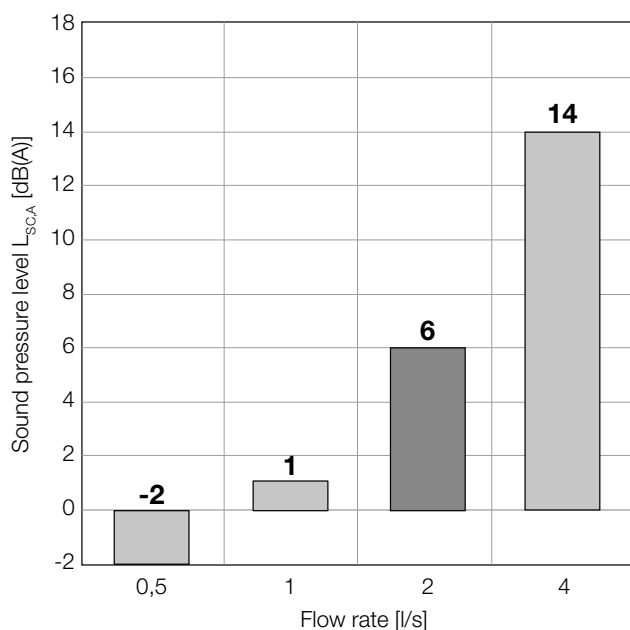
When a waste system is in operation, noises originate inside the pipework which vibrates due to the fall of the liquid being discharged.

Most of the noise propagates inside the pipe, however, the vibrations generated are transmitted from the walls of the pipe to the surrounding area, to the pipe anchoring system and consequently to the building structure.

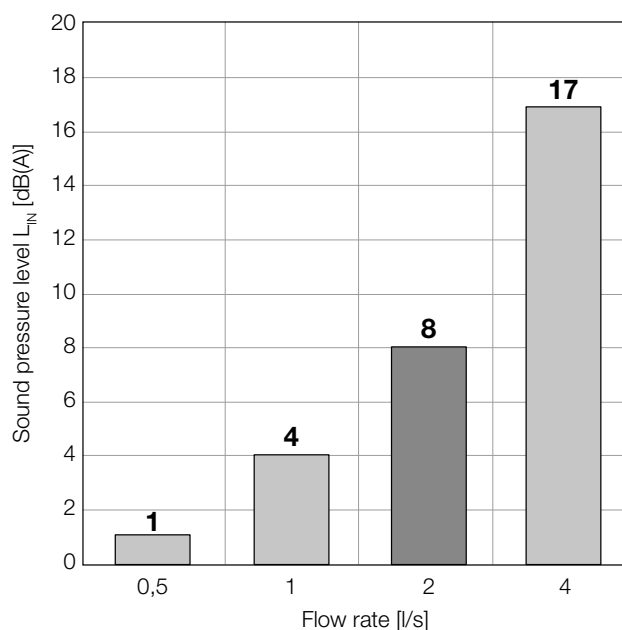
To control the levels of noise created by waste systems not only requires the correct design of the system and clearly the correct installation but also the identification of a waste system that will guarantee a high soundproofing performance.

Silere® is a top sound insulating product that was designed with the aim of providing high performing sound insulated waste systems, in fact, with a waste flow of 2 l/s (represents the typical discharge rate of a WC) noise levels of 6 dB(A) were measured.

Levels of sound pressure $L_{SC,A}$ of Silere® pipe in compliance with EN 14366



Levels of sound pressure L_{IN} of Silere® pipe in compliance with DIN 4109



Levels of sound pressure expressed in dB(A) measured on the ground floor behind the installation wall with pipe diameter of 110 mm in compliance with DIN 4109 and EN 14366. These results were obtained by the Fraunhofer Institute in Stuttgart using two soundproofing pipe clips for floor.



The measurement of the soundproofing performance of waste systems

The reference standards used to evaluate the performance of waste systems in the laboratory and which specify the measurement methods are DIN 4109 (together with DIN 52219) and EN 14366.

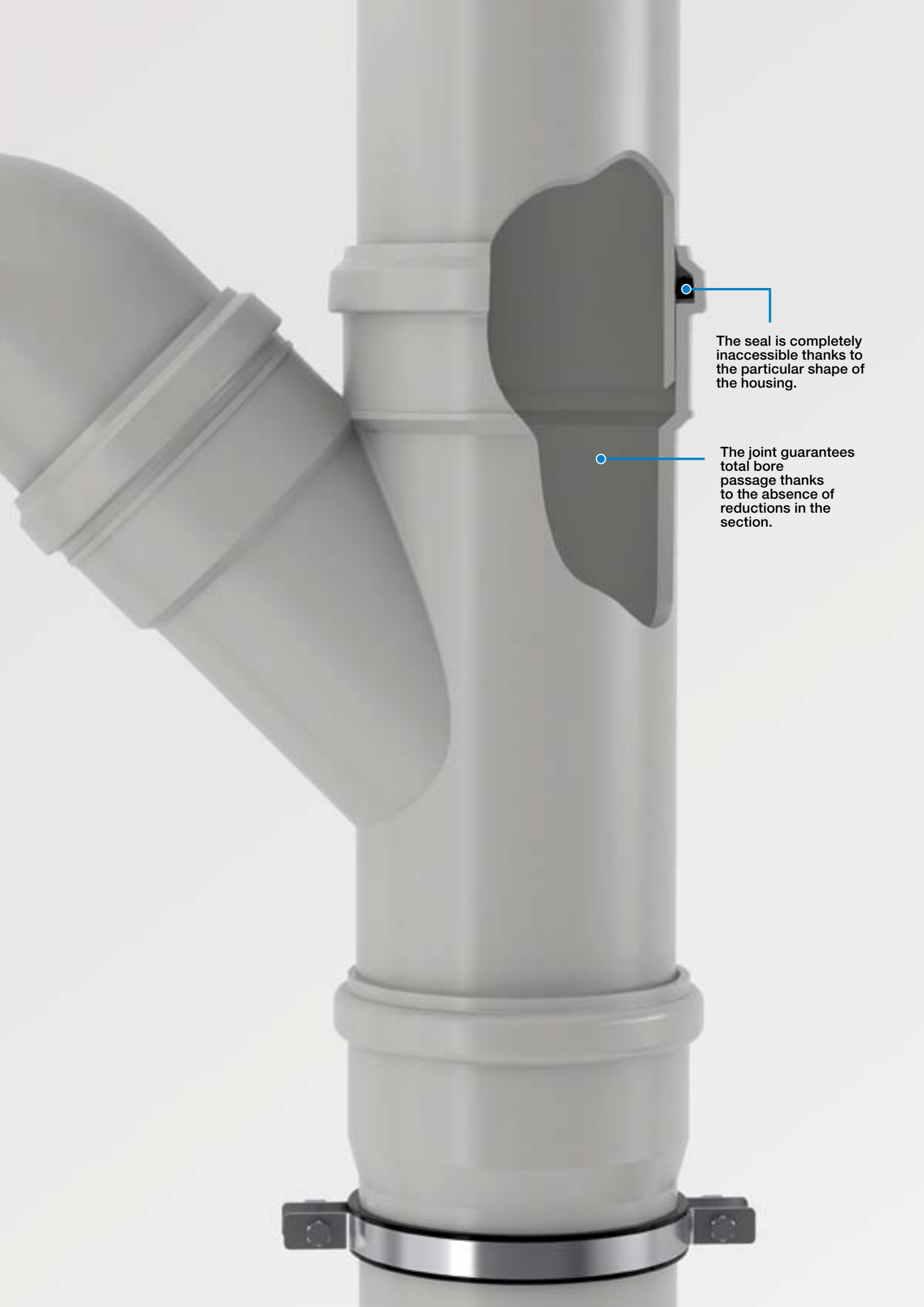
Both standards require the use of a test building composed of four floors with a concrete wall onto which the waste stack is anchored.

The measuring floors are divided into two rooms: the front room is where the waste stack is installed, the rear room is free of installations and receives the sound vibrations that are transferred from the partition wall.

The values measured can be expressed using different indicators according to requirements and the reference standards.

$L_{SC,A}$ is the indicator required by EN 14366 and indicates the structure-borne noise level, whereas L_{IN} is an indicator that also encompasses the air-borne noise required by DIN 4109.

It's not important which indicator is the most effective, however, when comparing different waste systems it is of vital importance for a fair comparison that the same indicator is used. The real noise levels produced by a waste system can only be measured when it is in operation, in that it depends on numerous factors such as the installation and the building type; laboratory indicators should be used only as a means of comparison.



The seal is completely inaccessible thanks to the particular shape of the housing.

The joint guarantees total bore passage thanks to the absence of reductions in the section.

PUSH-FIT JOINT: RAPID AND EASY INSTALLATION

Silere® ensures practical and rapid installations without the use of glues, electrical appliances or special tools, thanks to the jointing system with push-fit socket.

The particular shape of the seal and the housing of the push-fit joint guarantee hydraulic tightness and allow the normal movements of the pipe including those caused by thermal expansion.



A system that is suitable for temperature fluctuations: **the thermal expansion of Silere® is extremely low compared with the most common plastic materials:** a 3 m pipe will expand in length by just 9 mm when the waste flow is at a continuous temperature of 60°C.

Thanks to Silere®'s low coefficient of heat expansion the push-fit joints are capable of absorbing the variations in length of the pipe without taking any particular precautionary measures; it is enough to observe the installation instructions in the Valsir technical manuals.



The bi-joint sleeve to reduce wastage to a minimum

To allow use of leftover pieces of pipe, Valsir supplies a bi-joint sleeve: a special fitting that allows two pipes without sockets to be connected together, guaranteeing hydraulic tightness without compromising flow rates.



Capital Gate - Abu Dhabi (United Arab Emirates)

REFERENCES



Austin Hospital - Melbourne (Australia)



Banc de Sang - Barcelona (Spain)



Dolmabahce Palace - Istanbul (Turkey)



Hotel Ceylan Continental - Istanbul (Turkey)



Mercure Hotel - Siracusa (Italy)



Reyno de Navarra Arena - Pamplona (Spain)



TECHNICAL SUPPORT AND ASSISTANCE

Valsir provides complete support both during the planning phase and on site, thanks to a first-class technical office made up of a team of highly experienced engineers, capable of dealing with the most complex system requirements.

Valsir also boasts an important training centre called **Valsir Academy** catering for clients, distributors, plumbers and planners. Two highly equipped halls are available where theoretical and practical courses are organized on the use and design of water supply systems using the Silvestro software, a program that was developed specifically within Valsir.



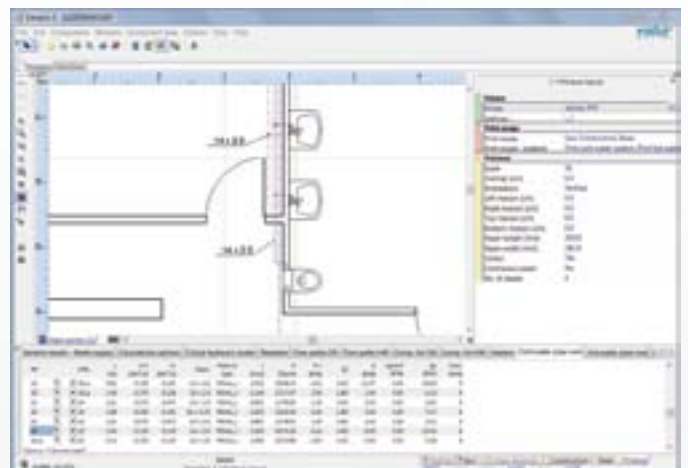
SILVESTRO SOFTWARE

The design of floor and radiator heating systems, water supply as well as waste and drainage systems, is extremely easy and the production of the project technical documents is extremely rapid when using the Silvestro software program.

Rapid, simple, unique, Silvestro allows the user to design and calculate primary, direct and indirect parallel or secondary ventilation systems, both in a plan view and vertical elevation plan.

The strong points are many:

- 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.



QUALITY AND ENVIRONMENT



Efficient processes and reliable products are not the only parameters used to evaluate a company's conduct: today, in fact, the capacity of the company and its management team **to design and implement production processes that are sustainable from an environmental point of view** are of equal importance.

Valsir has always been committed to the manufacture of **recyclable products** and the implementation of **sustainable processes**, in line with the most advanced **Green Building** principles (green building and environmentally friendly project design), and today boasts highly sustainable production plants which, thanks to the use of renewable energy and planning that aim at the conservation of resources, have obtained a **Class A energy certificate**.

The consistency of Valsir's commitment is demonstrated by its **product approvals** which amount to **160** in total, obtained around the world from the most severe certification bodies (figure updated on 14/02/2013), and by the **certified quality system** in compliance with the European Standard **UNI EN ISO 9001:2008**.



Production processes and management systems that are verified, monitored and certified.



Sustainable production plants and processes, use of renewable energies, sustainability of resources.



Products that are verified, monitored and certified by recognized certification bodies.



Recyclable products and low impact production processes in line with the Green Building principles.

THE VALSIR RANGE



WASTE SYSTEMS



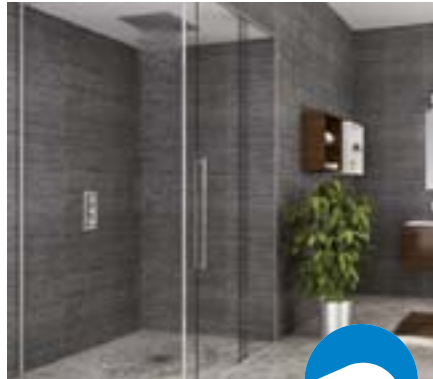
SUPPLY SYSTEMS



GAS SYSTEMS



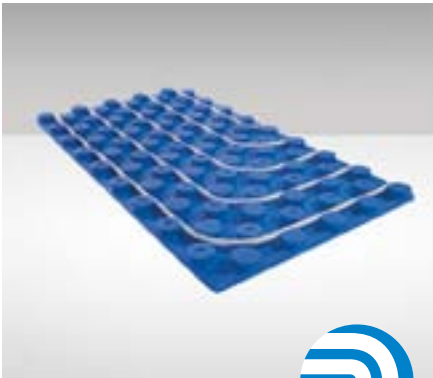
CISTERNS



BATHROOM SYSTEMS



TRAPS



RADIANT SYSTEMS



DRAINAGE SYSTEMS



ACADEMY



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