

GF Piping Systems

+GF+

Silenta 3A

Low Noise Pipe Systems



General Information

The Best Choice

Corrosion and chemical resistant products, systems and complete solutions from GF Piping Systems

+ Georg Fischer

Georg Fischer focuses on three core businesses: GF Piping Systems, GF Automotive and GF AgieCharmilles. The industrial corporation founded in 1802 headquarters in Switzerland and operates approximately 130 companies with more than 14 000 employees in 30 countries. GF Piping Systems is a leading supplier of plastic and metal piping systems with global market presence. For the treatment and distribution of water and chemicals, as well as the safe transport of liquids and gases in industry, we have the corresponding jointing technologies, fittings, valves, automation products and pipes in our portfolio.



GF Piping Systems headquarters in Schaffhausen, Switzerland.

+ Our market segments

Being a strong implementation partner GF Piping Systems supports its customers in every phase of the project. No matter which processes and applications are planned in the following market segments:

- Building Technology
- Chemical Process Industry
- Energy
- Food & Beverage / Cooling
- Microelectronics
- Marine
- Water & Gas Utilities
- Water Treatment

+ Global presence

Our global presence ensures customer proximity worldwide. Sales companies in over 25 countries and representatives in another 80 countries provide customer service around the clock. With 50 production sites in Europe, Asia and the USA we are close to our customers and comply with local standards. A modern logistics concept with local distribution centers ensures highest product availability and short delivery times. GF Piping Systems specialists are always close by.

+ Complete solutions provider

Our extensive product range represents a unique form of product and competence bundling. With over 60 000 products, allied with a broad range of services, we offer individual and comprehensive system solutions for a variety of industrial applications. Our automation offering perfectly fits into our complete system approach and is thus an integral part of our portfolio. Having the profitability of the projects in focus, we optimize processes and applications that are integrated into the whole system.

Continually setting standards in the market, we directly provide our customers with technological advantages. Due to our worldwide network customers benefit directly from our 50 years+ experience in plastics.

From start to finish, we support our customers as a competent, reliable and experienced partner, actively contributing the know-how of an industrial company that has been successful in the market for over 200 years.

General Information

Silenta 3A Low Noise Pipe Systems

GF Hakan Plastik Silenta 3A is a sound-insulating 3-layered sewer pipe system made of Silenta PP which is specially formulated and reinforced for non-pressurized domestic drainage in accordance with System Standards of DIN 4109, DIN 4102.

+ General Information

Silenta 3A reaches a sound-intensity level of 16 dB at 4lt/s flow rate by the officially recognized Fraunhofer Institute, Germany.

Silenta 3A is suitable for hot/cold water and acidic liquid transfers.

Silenta 3A can be used at above and underground drainage systems, even at areas with high traffic load.

Silenta 3A Products consist of pipes from 40mm to 200mm with and without socket and fittings with complementing accessories.

Silenta 3A is GF Hakan Plastik's globally registered trademark.

+ Benefits

Provides excellent sound insulation, creates ideal conditions for buildings and contributes to an increase in the property value along with the quality of life.

Reduces the vibrations and unfamiliar sounds coming from the plumbing system.

Flame-retardant, according to DIN 4102 standard.

High impact resistance.

Does not require additional sound insulation systems.

The coefficient of thermal expansion is only 0.06 mm/m°K.

Operation and installation temperature climb down to -20° C.

Resistant to organic and inorganic acids.

Suitable for pH value between 2 & 12.

Alternative to cast iron.



Product Properties

Sound Insulation Performance

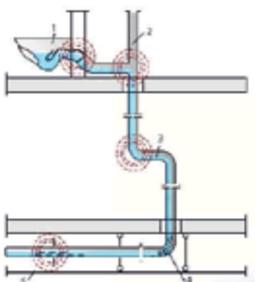
+ Why Sound Protection?

Sound protective measures in a building pursue the purpose of minimizing noise pollution in rooms. Occupants need to be protected from disturbing air-borne and structure-borne sound. Architectural sound protection measures can be applied to the buildings and the elements of them where people spend longer period of time of ces, ats. Disturbing noise caused by sources within the building directly structure-borne noise or indirectly e.g. noise deriving from building engineering systems can easily be solved by SILENTA.

+ Sound Reduction With Silenta

Both structure-borne and air-borne noise occur in sewer pipe systems. The pipe wall of the sewer pipe vibrates due to currents and flow noises. The type and intensity of these pipe vibrations depend on a variety of factors, such as the mass of the pipe, the pipe material and its inner damping. The pipe vibrations are emitted directly from the pipe as air-borne noise and are transferred as structure-borne noise via the pipe attachments to the wall fastening panel. When developing a sound-insulating domestic waste water system, both types of sound distribution must be taken into account.

+ The sources of sounds in building can be listed as;



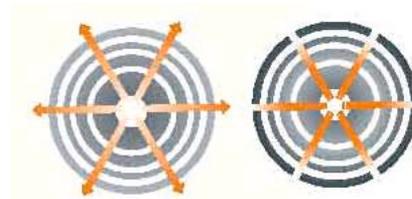
- Water shrinks
- The change of direction of the water
- High water velocities
- Crossing points
- Narrowing the formation of cavitation
- Flushing the toilets
- Unloading
- Incorrect planning

+ Air-Borne Noise

Air-borne noise is present if the noises of a sound source are transferred directly through the air to people.

+ Structure-Borne Noise

With structure-borne noise, the sound transfer first occurs through a solid body. This body vibrates and the vibration passes on to people as air-borne noise.



The voice waves diffusing by airway form a pressure inside the environment and surfaces it beats. The high molecular special formula used in the middle layer of three-layer SILENTA 3A pipe absorbs this noise and avoids it from going out.



In the waste water installations, vibrations on the pipe systems occur as a result of beating or the impulsion waste water on the pipe surface. These vibrations are transferred on the wall where the installation is assembled by contact. The voice formed by contact is substantially absorbed by courtesy of the special structure of SILENTA 3A.

Technical Properties

Fields Of Application

Silenta noise-insulating products are used wherever sound protection and high impact resistance is required. Silence plays a big role in areas such as;

+ Drainage Systems

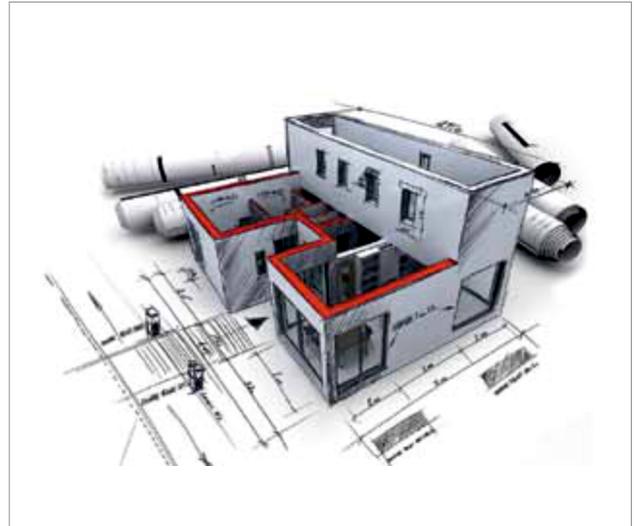
Working Areas : Office buildings, conference rooms, etc.

Studying Areas : Schools, colleges, libraries, community centers, tutoring centers, etc.

Sleeping Areas : Hospitals, houses, residences, apartments, hotels, etc.

Commercial Kitchens : Restaurants, industrial kitchens.

Underground Drainage Systems : All underground drain systems between the building and the main pipe line.



+ Centralised Vacuum Cleaning Systems

Sustainable / green buildings

+ Exhaust Gas Systems

Waste gas transport at industrial areas

+ Chemical Transfer Systems

Industrial areas (short and long term usage)

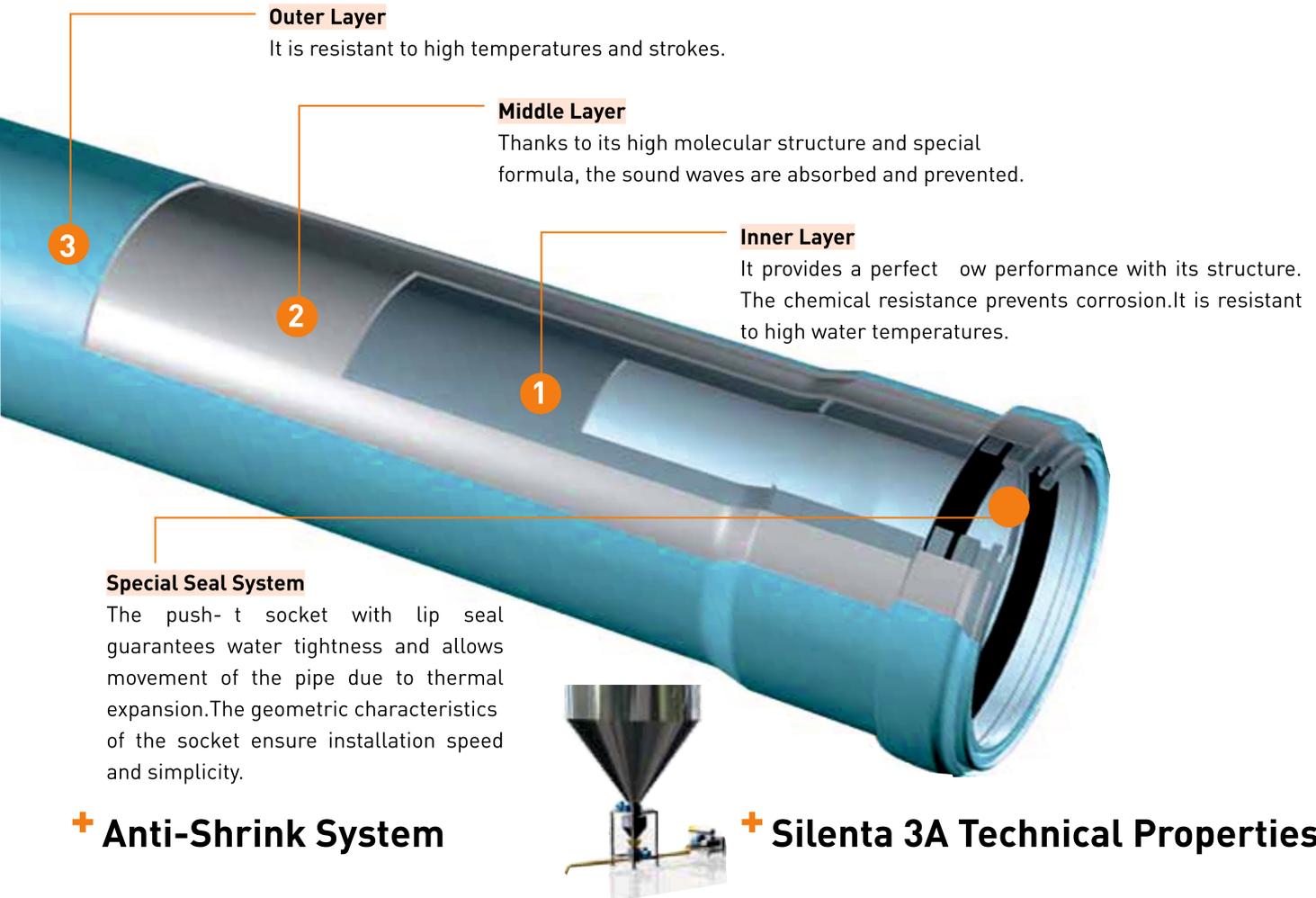
Silenta pipes and fittings are not suitable for:

Transfer of waste water containing petrol or benzene and installations at temperatures below -20 °C.

Product Properties

Characteristics Of Excellence

Silenta 3A features a three-layer wall construction. The multi-layer structure increases pipe rigidity. Technically desirable characteristics are optimized in a targeted way.



Outer Layer

It is resistant to high temperatures and strokes.

Middle Layer

Thanks to its high molecular structure and special formula, the sound waves are absorbed and prevented.

Inner Layer

It provides a perfect flow performance with its structure. The chemical resistance prevents corrosion. It is resistant to high water temperatures.

Special Seal System

The push-fit socket with lip seal guarantees water tightness and allows movement of the pipe due to thermal expansion. The geometric characteristics of the socket ensure installation speed and simplicity.

+ Anti-Shrink System

“Anti-Shrink System” is a manufacturing process of SILENTA 3A that prevents any kind of deformation in case of ambient temperature or heat variations. If this system is not applied during the manufacturing process, the socket may be subject to shape deformations. SILENTA Anti-Shrink System avoids problems such as changes in shape, fluid flow obstacles, complicated assembly and leakages.

+ Silenta 3A Technical Properties

RAW MATERIAL

Inner Layer	PP
Middle Layer	MINERAL REINFORCED PP
Outer Layer	PP

Tensile Strength	13 N/mm
Color Code	Light Blue
Elasticity Module	2400-3800 Mpa
Coef. of Thermal Expansion	0,06 mm / mK
Diameters	40 Ø-50 Ø-75 Ø-90 Ø 110 Ø-125 Ø-160 Ø-200 Ø
Connection Type	Push-Fit System
Temperature of Operating Media	Min: 0C Max: 97C
Service Life	50 years

SIGNIFICANT ACOUSTIC PERFORMANCE

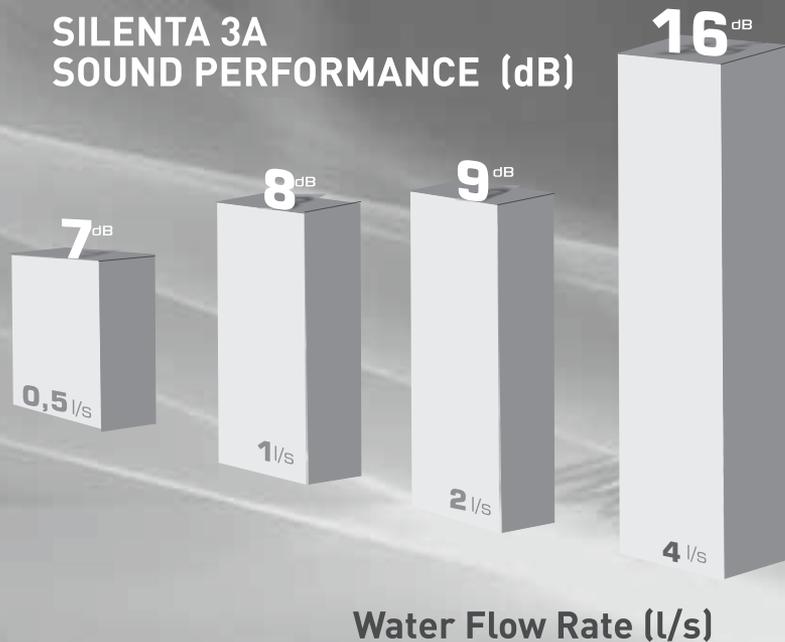
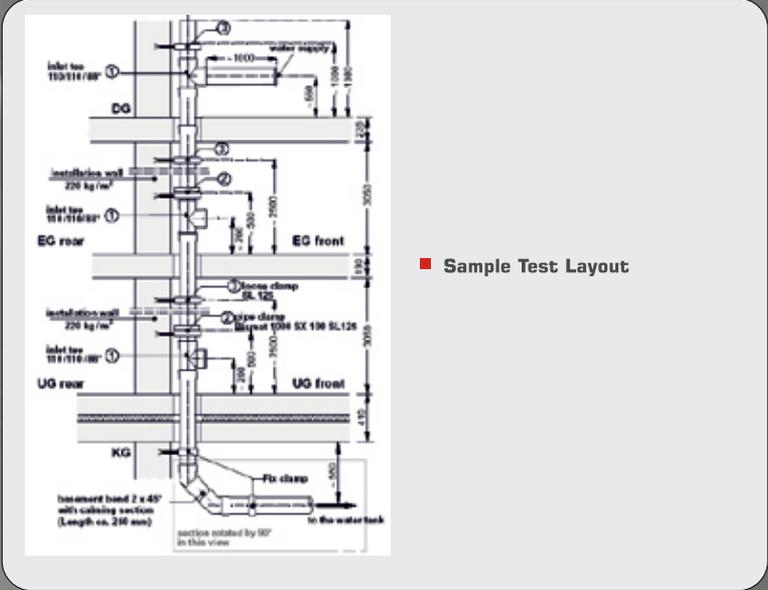


	Wastewater system "HAKAN SILENTA Premium Highly Noise-insulated" with pipe clamps "Isomat 1000 SX100 SL125"			
Flow rate [l/s]	0,5	1,0	2,0	4,0
Installation sound level L_{pA} [dB(A)] measured in the basement test-room UG front *)	43	45	48	50
Installation sound level L_{pA} [dB(A)] measured in the basement test-room UG rear *)	6	9	9	15
Airborne sound pressure level L_{pA} [dB(A)]	43	45	48	50
Structure-borne sound characteristic level L_{w} [dB(A)]	4	7	7	13

GF Hakan Plastik measurements of August 19, 2009. Sound pressure levels measured in the installation test facility. Test object was the waste water system "HAKAN SILENTA 3A Noise-Insulated DIN 4102" (manufacturer Hakan). The waste water system consisted of straight plastic pipes and fittings, nominal width OD 110 and pipe clamps "Isomat 1000 Sx100 SL125" (manufacturer IS Walraven).

The sound-insulating domestic waste water system SILENTA 3A guarantees quality, peace and living comfort.

In practice-oriented measurements carried out by the officially recognized Fraunhofer Institute for Building Physics in Stuttgart, Germany SILENTA 3A reached a sound-intensity level of 16 dB at 4l/s flow rate.

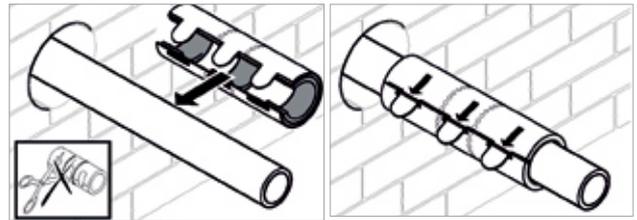


Product Properties

Fire Protection

During the assembly of Silenta pipes, it is recommended to use one of the below fire retarding products in wall and floor transitions in order to ensure a good fire protection. In case of fire, these items prevent the propagation of flames between the floors and the adjacent doors. Their assembly is fast and easy and does not require the use of any extra equipment.

+ Fire, Smoke and Noise Barrier



Is easily and simply installed.

Is maintenance-free and unaffected by moisture or any other building

+ Fire Retarding Cuff



If installed properly, stuck on both sides of the wall, the cuffs will not allow smoke or flames to pass from a room to another.

It can be used with waste water pipes for up to 200mm diameter.

+ Fire Protection Stripe



The nature of his work is based on the coverage of the surface of the pipes.

Then the protective shield will protect it from heat and flame. It can be applied to any material without the need of any extra tools or can be installed with glued tape.

AN EXTREMELY WIDE RANGE



The wide range of GF Hakan Plastik Pipes & Fittings allow construction of the entire waste network.

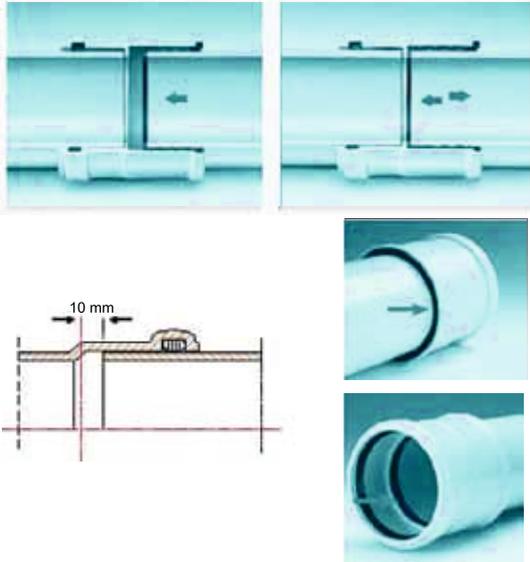
Pipe lengths between **0,50m to 6m** and diameters from **40mm to 200mm** characterised by a wide choice of fittings.

These particular pipe sizes are due to the large wall thickness and the need for a sufficient bore passage. Special connection and transition fittings of **SILENTA 3A LOW NOISE SYSTEM** to make it possible to connect other waste systems made of different materials.

The range is completed with accessories for connections to other waste systems produced by GF Hakan Plastik 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.

Assembly

Easy & Rapid Installation



+ Connecting The Pipes With Fittings

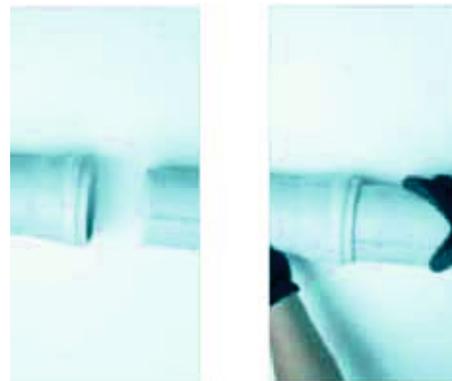
1. Clean the ends of both the pipe and the fitting to be connected.
2. Apply a thin layer of lubricant to the ends of the pipe and the fitting. Do not use grease or soft soap.
3. Insert the pipe completely into the fitting until it stops.
4. Mark inserted pipe end in this position at the sleeve edge with a pencil, felt pen etc.
5. Vertically laid pipework: for each additional storey, retract the push-fit connection in the socket by 10 mm.
6. Horizontally laid pipework: after every 4 m of laid pipe length, retract the push-fit connections between the fittings and they can remain fully inserted.
7. It is not necessary to make changes in length to push-fit connections between fittings, they can remain fully inserted.

Length expansion coefficient:

-SILENTA 3A 0,06 mm/m°K

SILENTA 3A having a great jointing system with push-fit socket ensures practical and rapid installations without the use of electrical appliances or special tools,

Thanks to Silenta 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 GF Hakan Plastik technical manuals.



+ Shortening And Chambering The Pipes

1. Cut the pipe at a 90° angle from the axis with a pipe cutter, a fine-toothed saw or any other parting-off tool.
2. For connections to push-fit socket pipe systems, chamfer the pipe ends with a chamfering tool or a coarse file at an angle under approx. 10°.
3. Deburr the outside edges with a knife or a scraper.



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The technical data are not binding. They neither constitute expressly warranted characteristics nor guaranteed properties nor a guaranteed durability. They are subject to modification. Our General Terms of Sale apply.

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