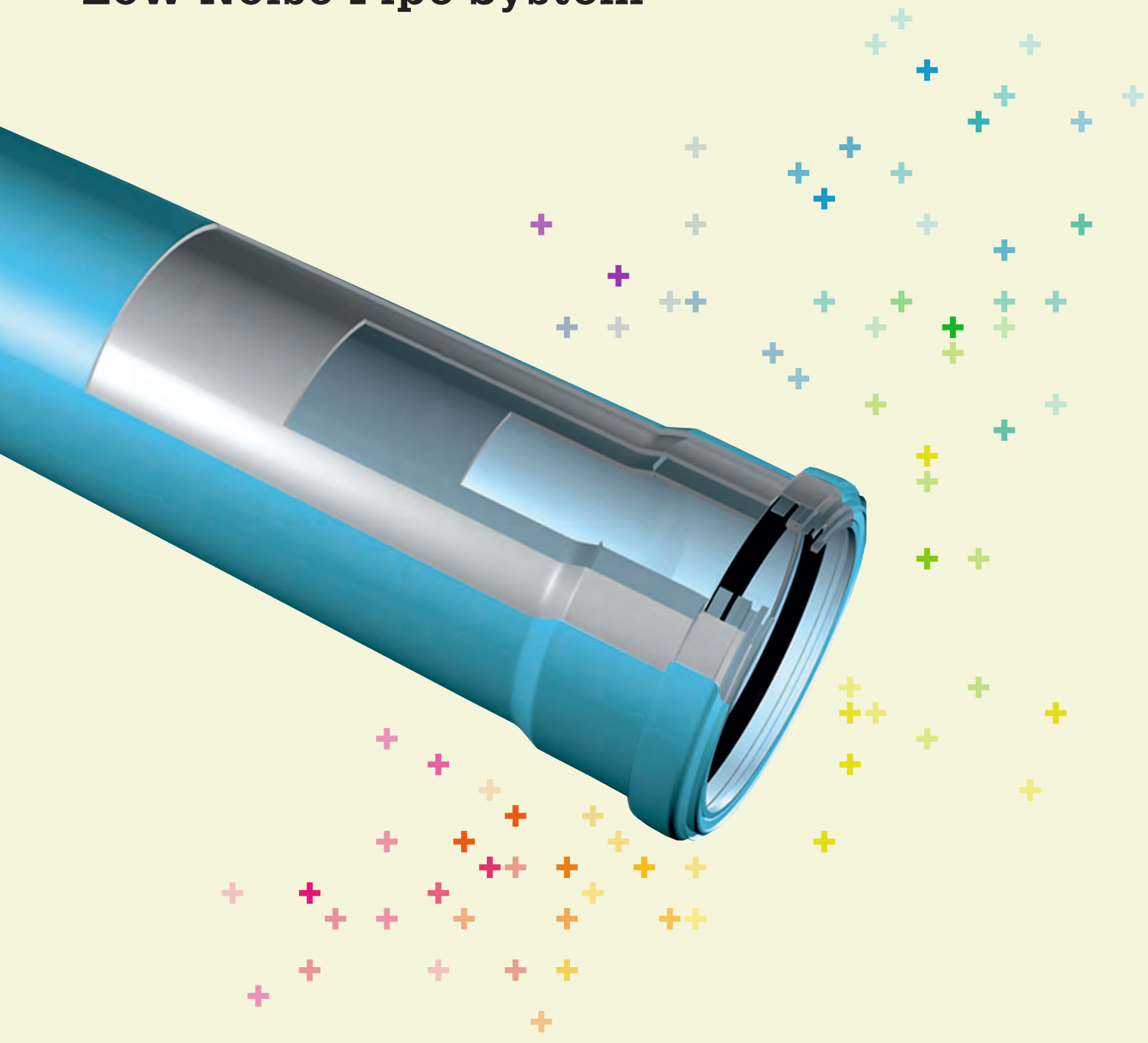
GF Piping Systems

SILENTA 3A

Low Noise Pipe System



SILENTA 3A Low Noise Pipe System

SILENTA 3A is a three-layer sewer pipe system made of PP material with noise-insulating properties. It is specially formulated and reinforced for non-pressurized domestic drainage in accordance with standards of DIN 4109, DIN 4102, BS EN 1451-1, ISO 7671 and VDI 4100.

General Information

- SILENTA 3A achieves a sound-intensity level of 17 dB at 4L/s flow rate, officially recognized by the Fraunhofer Institute, Germany.
- SILENTA 3A is suitable for domestic soil, waste and vent (SWV) systems.
- SILENTA 3A can be used inside of buildings and for underground SWV systems.
- SILENTA 3A consists of pipes and fittings from 40mm to 200mm.
- SILENTA 3A is a GF globally registered trademark.

Benefits

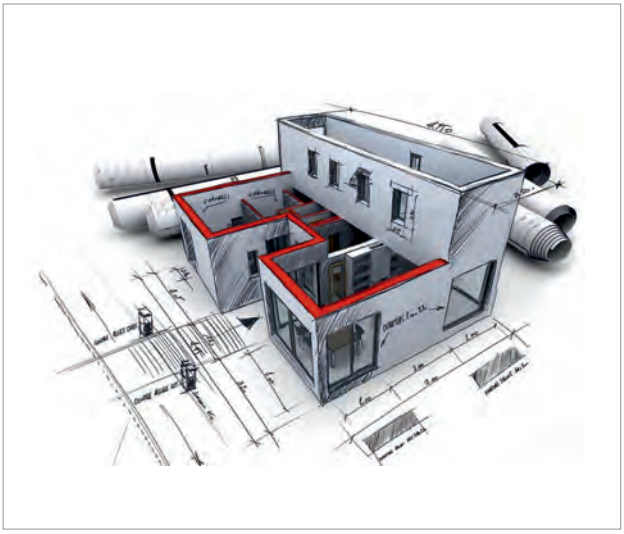
- Provides excellent sound insulation to create an ideal living condition, which can then contribute to an increase in property value.
- Reduces vibrations and noises coming from the SWV systems.
- Flame-retardant according to DIN 4102 standard.
- High impact resistance.
- The coefficient of thermal expansion is only 0.06 mm/mK.
- Operating temperature from 0°C to 97°C.
- Corrosion-free, resistant to organic and inorganic acids.
- Suitable for pH value from 2 to 12.
- Alternative to cast iron.

Fields Of Application

SILENTA 3A is commonly installed in areas demanding low noise, high temperature and high impact resistance environment.

Soil, Waste and Vent Systems (SWV)

- **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 SWV systems between buildings and sewer mains.



Chemical Transfer Systems

Industrial areas (short and long term usage)

SILENTA 3A pipes and fittings are not suitable for:

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

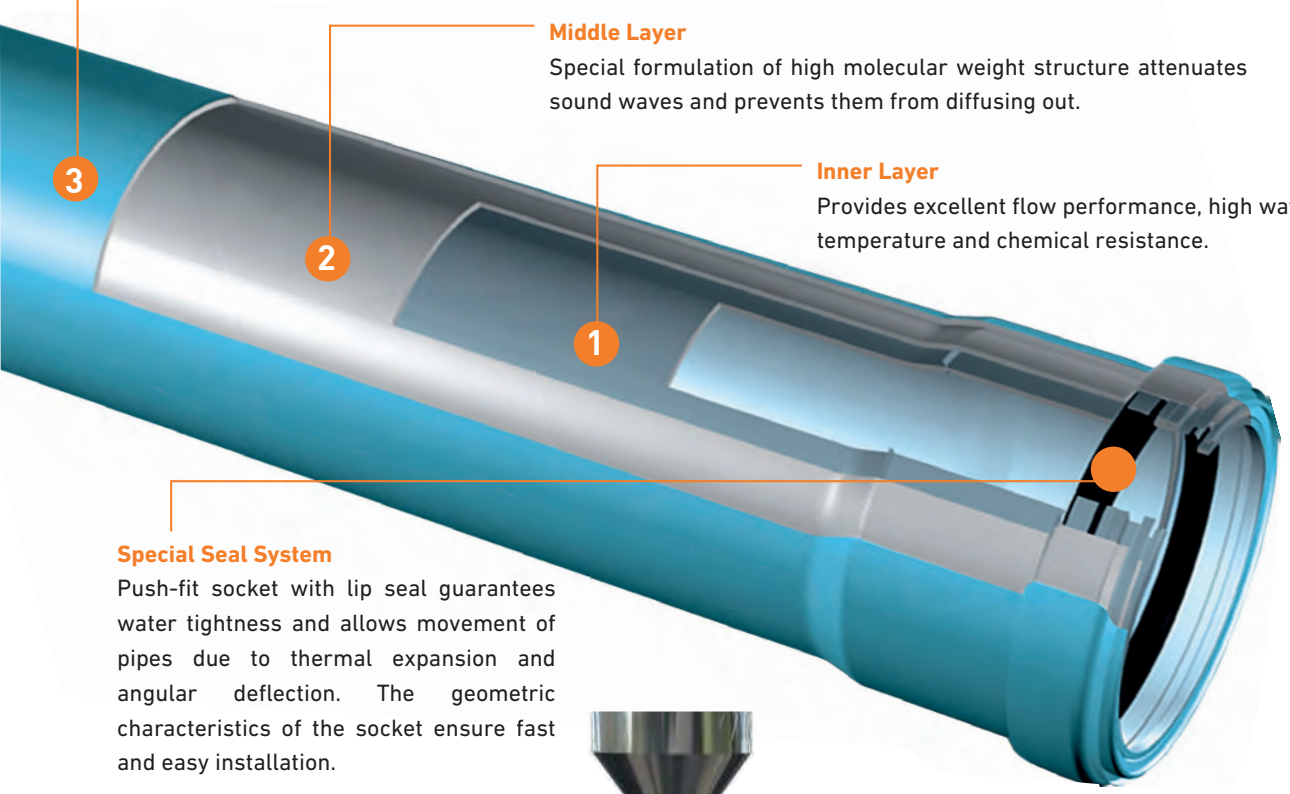
Characteristics of Excellence

SILENTA 3A features a three-layer wall construction. The multi-layer structure increases pipe rigidity and provides sound attenuation characteristics.

Outer Layer
High temperature and impact resistance.

Middle Layer
Special formulation of high molecular weight structure attenuates sound waves and prevents them from diffusing out.

Inner Layer
Provides excellent flow performance, high water temperature and chemical resistance.



Special Seal System
Push-fit socket with lip seal guarantees water tightness and allows movement of pipes due to thermal expansion and angular deflection. The geometric characteristics of the socket ensure fast and easy installation.

+ 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 3A Anti-Shrink System prevents problems such as changes in shape, impeded flow and leakages.

+ SILENTA 3A Technical Properties

Raw Material

Inner Layer	PP
Middle Layer	Mineral Reinforced PP
Outer Layer	PP

Tensile Strength	13 N/mm
Colour Code	Light Blue
Elasticity Module	2400-3800 MPa
Coefficient Of Thermal Expansion	0.06 mm/mK
Diameter	40Ø-50Ø-75Ø-90Ø 110Ø-125Ø-160Ø-200Ø
Connection Type	Push-Fit System
Temperature of Operating Media	Min: 0°C Max: 97°C
Service Life	50 years

Sound Insulation Performance

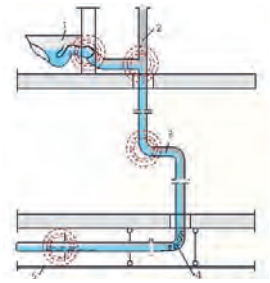
Why Sound Protection?

To minimize noise pollution in living quarters, occupants need to be shielded from disturbing air-borne and structure-borne noise. Architectural sound protection measures can be applied to the buildings and their elements where people spend longer period of time (offices, flats). Disturbing noise caused by sources within the building directly (structure-borne noise) or indirectly (e.g. noise deriving from SWV systems) can easily be prevented with SILENTA 3A.

Sound Reduction With SILENTA 3A

Both structure-borne and air-borne noises occur in SWV systems. The pipe vibrates due to fluid sloshing under gravity flow and change of flow direction. The type and intensity of these pipe vibrations depend on a variety of factors, such as the mass of pipe, pipe material and its damping properties. The pipe vibrations are transmitted directly from the pipe as air-borne noise and being transferred as structure-borne noise via the pipe attachments to the walls. When developing a low noise SWV systems, both types of noise sources must be taken into account.

The sources of noise in SWV systems can be listed as:



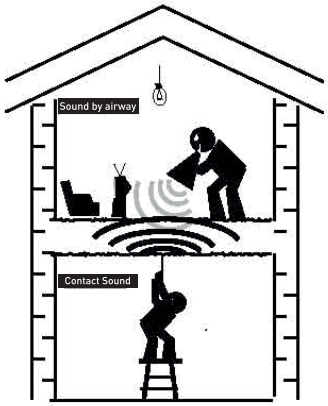
- Water sloshing
- Change of water direction
- High water velocities
- Converging flows
- Formation of cavitation
- Flushing toilets
- Excessive vibration due to insufficient pipe support

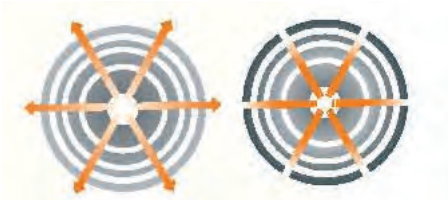
Air-Borne Noise

Air-borne noise is present when the sound source is transferred directly through the air.

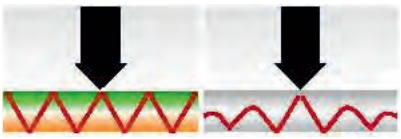
Structure-Borne Noise

With structure-borne noise, the sound transfer first occurs through a solid body. This body vibrates and the vibration is conveyed as air-borne noise.





Sound waves generated by fluid flow in the pipe forms sound pressure level (dB) on the pipe wall. Special formulation of high molecular weight structure in the middle layer of SILENTA 3A pipe absorbs and reduces this noise from diffusing out.

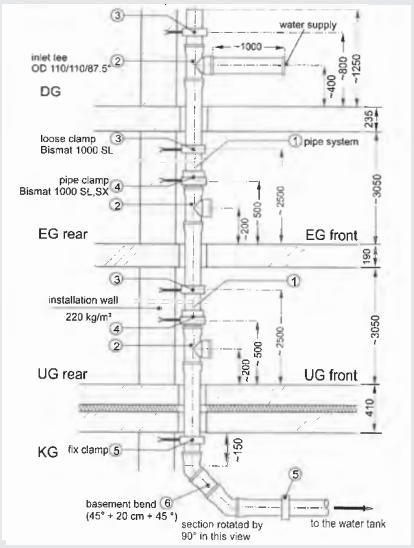


In the SWV systems installations, vibrations on the pipe systems occur as a result of waste water hitting the pipe surface. These vibrations are often transferred to the wall where the installation is assembled and creates noise. With SILENTA 3A low noise pipe system, this contact noise can be substantially reduced and absorbed.

Significant Acoustic Performance

	"SILENTA 3A" (OD 110 x 4.0 manufacturer: George Fischer (MJ) with pipe clamps "Bismat 1000" (manufacturer: Walraven)			
Flow rate [l/s]	0.5	1.0	2.0	4.0
Installation sound level L_{ASTR} - [dB(A)] following DIN 4109 in the basement test-room (UG front)	44	47	50	52
Installation sound level L_{ASTR} - [dB(A)] following DIN 4109 in the basement test-room (UG rear)	15	11	14	20
Installation sound level L_{ASTR} - [dB(A)] following VDI 4100 in the basement test-room (UG front)	42	45	48	50
Installation sound level L_{ASTR} - [dB(A)] following VDI 4100 in the basement test-room (UG rear)	11	<10	11	17

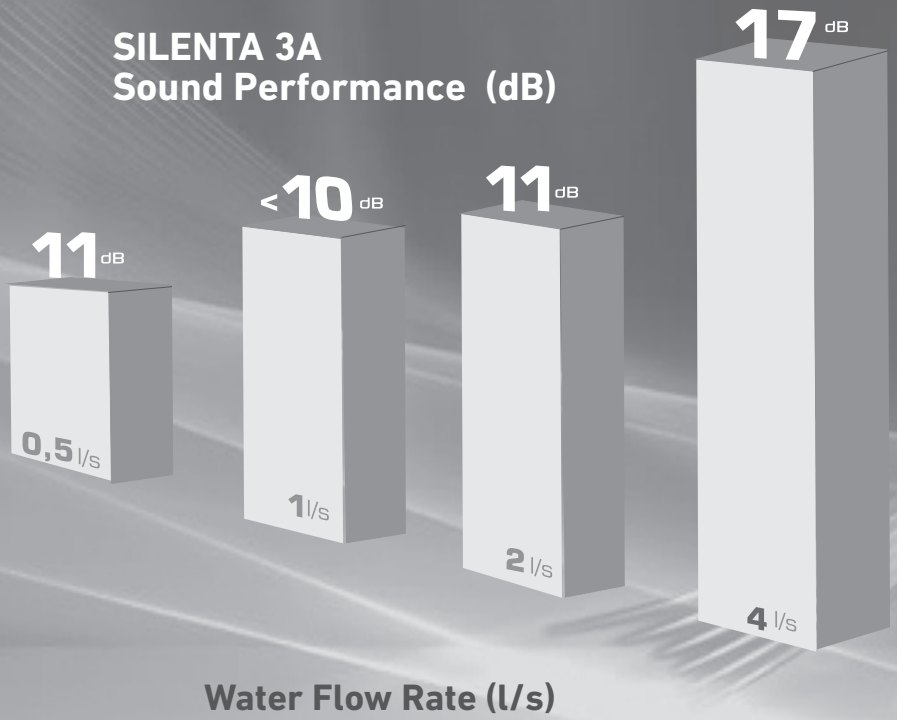
GF Silenta 3A measurements of February 15, 2019. Sound pressure levels measured in the installation test facility. Test object was the waste water system "GF SILENTA 3A". The waste water system consisted of straight plastic pipes and fittings, "Silenta 3A" OD 110x4.0 and pipe clamps "Bismat 1000". (manufacturer: Walraven).



Test Sample Layout

SILENTA 3A low noise pipe system guarantees a low noise environment and high living comfort.

In the sound measurement test carried out by Fraunhofer Institute for Building Physics in Stuttgart, Germany, SILENTA 3A achieved a sound-intensity level of only 17 dB when measuring flow at a flow rate of 4L/s according to VDI 4100.

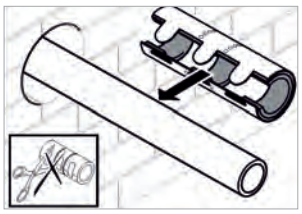


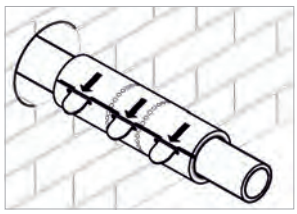
Fire Protection

During the assembly of SILENTA 3A pipes, it is recommended to use one of the below fire barriers and retarding products for wall and floor transitions. In case of fire, these items prevent the propagation of flames between the floors and adjacent rooms. Assembly of these fire retarding products can be done without extra tools.

+ Fire, Smoke and Noise Barrier

1. Foam Tape
2. Fire-Resistant Layer
3. Stainless Steel Sleeve





Fast and easy installation.

Maintenance-free and unaffected by moisture or building materials.

+ Fire Retarding Cuff

The cuffs are installed on both sides of the wall to prevent smoke or flames passing from one room to another.

They can be used with SWV pipes of up to 200mm diameter.

+ Fire Protection Stripe

The stripe covers the surface of the pipe and protects it from heat and flame.

It can be applied with glued tape on SILENTA 3A without extra tools.

Comprehensive Range of Pipes and Fittings

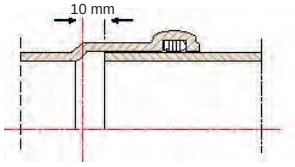
The comprehensive range of SILENTA 3A pipes and fittings allows construction of the entire SWV systems.

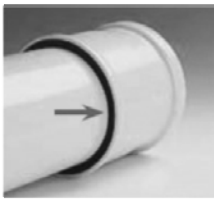
Pipe lengths are from 250 mm to 5500 mm, with diameters ranging from 40 mm to 200 mm, complemented by wide choice of fittings.

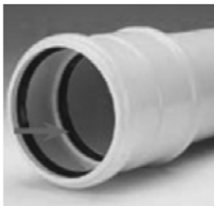
These pipe sizes are designed to cater for the needs of different internal bores and flow conditions. Special connection and transition fittings of SILENTA 3A make it possible to connect to other SWV systems made of different materials.

The range is completed with rubber insulated pipe clamps to reduce the vibrations that are transferred to the installation walls while in operation.

Fast & Easy Installation







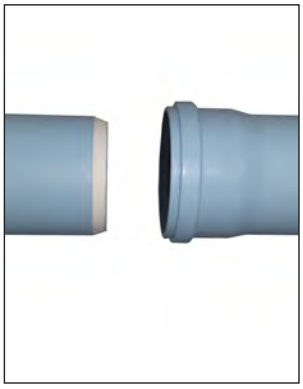
Connecting the Pipes with Fittings

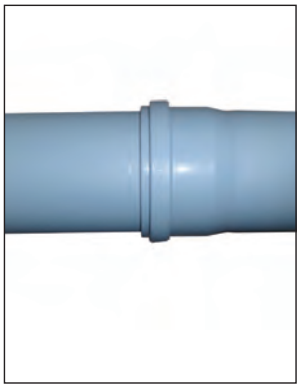
1. Clean the jointing ends of pipe and fitting.
2. Apply a thin layer of lubricant to the ends of the pipe and fitting. Do not use grease.
3. Insert the pipe completely into the fitting until it stops.
4. Mark inserted pipe end in this position at the sleeve edge with a pencil, felt pen, or similar.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

SILENTA 3A Thermal Expansion Coefficient: 0.06 mm/mK

SILENTA 3A push-fit socket jointing system ensures fast and easy installations without the need of special tools.

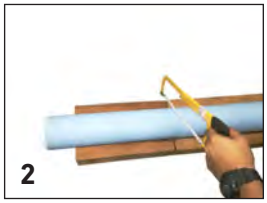
With SILENTA 3A low thermal expansion coefficient, the push-fit joints are able to tolerate the changes in length of the pipe without taking any extra precautionary measures.





Shortening and Chamfering the Pipes

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



SILENTA 3A Pipe with Single Socket

Code	Diameter (mm)	Length (mm)	Packing (pcs)
300204111	40	250	154
300204112	40	500	98
300204113	40	1000	259
300204114	40	2000	259
300204115	40	3000	259
300204121	50	250	108
300204122	50	500	72
300204123	50	1000	167
300204124	50	2000	167
300204125	50	3000	167
300204126	50	5500	167
300204131	75	250	48
300204132	75	500	32
300204133	75	1000	88
300204134	75	2000	88
300204135	75	3000	88
300204136	75	5500	88
300204141	90	250	30
300204142	90	500	21
300204143	90	1000	74
300204144	90	2000	74
300204145	90	3000	74
300204146	90	5500	74
300204151	110	250	24
300204152	110	500	18
300204153	110	1000	43
300204154	110	2000	43
300204155	110	3000	43
300204156	110	5500	43
300204161	125	250	16
300204162	125	500	10
300204163	125	1000	38
300204164	125	2000	38
300204165	125	3000	38
300204166	125	5500	38
300204171	160	250	12
300204172	160	500	8
300204173	160	1000	28
300204174	160	2000	28
300204175	160	3000	28
300204176	160	5500	28
300204183	200	1000	14
300204184	200	2000	14
300204185	200	3000	14
300204186	200	5500	44

SILENTA 3A Single Branch (45°)

Code	Diameter (mm)	Packing (pcs)
4704204000121	40x40	250
4704205000121	50x50	150
4704207500221	75x50	75
4704207500321	75x75	60
4704209000321	90x90	POA
4704211000421	110x50	40
4704211000521	110x75	30
4704211000621	110x110	20
4704212500721	125x50	30
4704212500821	125x75	25
4704212500921	125x110	20
4704212501021	125x125	16
4704216001121	160x110	10
4704216001221	160x125	10
4704216001321	160x160	8
4704220001421	200x110	4
4704220001521	200x125	4
4704220001621	200x160	4
4704220001721	200x200	4

SILENTA 3A Single Branch (67°)

Code	Diameter (mm)	Packing (pcs)
4704211000721	110x110	25

SILENTA 3A Single Branch (87°)

Code	Diameter (mm)	Packing (pcs)
4704204000221	40x40	200
4704205001821	50x50	150
4704207501921	75x50	100
4704207502021	75x75	80
4704209000421	90x90	POA
4704211002121	110x50	50
4704211002221	110x75	30
4704211002321	110x110	30
4704212502421	125x50	20
4704212502521	125x75	20
4704212503822	125x110	20
4704212503921	125x125	20
4704216002621	160x110	10
4704216004022	160x125	10
4704216001421	160x160	5
4704220002821	200x110	5

SILENTA 3A Double Branch (45°)

Code	Diameter (mm)	Packing (pcs)
4704205003021	50x50	100
4704207503121	75x50	80
4704207503521	75x75	80
4704211003221	110x50	40
4704211003321	110x75	20
4704211003421	110x110	16
4704212503521	125x110	10
4704212505021	125x125	10
4704216003621	160x110	8
4704220003721	200x110	4

SILENTA 3A Double Branch (87°)

Code	Diameter (mm)	Packing (pcs)
4704209002521	90x90	POA
4704211002521	110x110	20

SILENTA 3A Double Corner Branch (87°)

Code	Diameter (mm)	Packing (pcs)
4704211003021	110x110	POA

SILENTA 3A Elbow (15°)

Code	Diameter (mm)	Packing (pcs)
4704104000121	40	500
4704105000121	50	300
4704107500621	75	150
4704109001121	90	POA
4704111001121	110	60
4704116001121	160	POA

SILENTA 3A Elbow (30°)

Code	Diameter (mm)	Packing (pcs)
4704104000221	40	500
4704105000221	50	350
4704107500721	75	150
4704109001221	90	POA
4704111001221	110	60
4704116001221	160	POA

SILENTA 3A Elbow (45°)

Code	Diameter (mm)	Packing (pcs)
4704104000321	40	500
4704105000321	50	300
4704107500921	75	150
4704109001321	90	POA
4704111001721	110	50
4704112501621	125	40
4704116001821	160	20
4704120002021	200	10

SILENTA 3A Elbow (67,5°)

Code	Diameter (mm)	Packing (pcs)
4704105000421	50	300
4704107500821	75	150
4704111001421	110	50

SILENTA 3A Elbow (87°)

Code	Diameter (mm)	Packing (pcs)
4704104000521	40	450
4704105000521	50	300
4704107501021	75	100
4704109001421	90	POA
4704111001621	110	40
4704112501721	125	30
4704116001921	160	15
4704120002121	200	6

SILENTA 3A Long Elbow (45°)

Code	Diameter (mm)	Packing (pcs)
4704111004521	110	POA

SILENTA 3A Blind Cap

Code	Diameter (mm)	Packing (pcs)
4704905000421	50	1000
4704907500121	75	500
4704909000121	90	POA
4704911000221	110	200
4704912508121	125	100
4704916000321	160	60

SILENTA 3A Socket

Code	Diameter (mm)	Packing (pcs)
4704504000121	40	600
4704505000121	50	400
4704507500221	75	200
4704509000321	90	POA
4704511000321	110	80
4704512506121	125	40
4704516000421	160	30
4704520000521	200	12

SILENTA 3A Sleeve Socket

Code	Diameter (mm)	Packing (pcs)
4704505000221	50	400
4704507500321	75	200
4704511000421	110	80
4704512506122	125	40
4704516000621	160	30
4704520000721	200	12

SILENTA 3A Reducer

Code	Diameter (mm)	Packing (pcs)
4704405000121	50x40	500
4704407500121	75x50	200
4704411000221	110X50	100
4704411000321	110x75	100
4704411000421	110x90	POA
4704412500421	125x110	50
4704416000521	160x110	40
4704416000721	160x125	50
4704420008621	200x110	20
4704420008721	200x125	20
4704420000621	200x160	20

SILENTA 3A “S” Siphon

Code	Diameter (mm)	Packing (pcs)
4704607500121	75x45°	50
4704611000121	110x45°	20
4704607500221	75x87°	50
4704611000221	110x87°	20

SILENTA 3A Clean-Out

Code	Diameter (mm)	Packing (pcs)
4704311000421	75	80
4704309000421	90	POA
4704311000121	110	30
4704312500122	125	20
4704316000221	160	8

SILENTA 3A Floor Trap

Code	Diameter (mm)	Packing (pcs)
4701911002022	110x75x50x50	12

SILENTA 3A Long Socket

Code	Diameter (mm)	Packing (pcs)
4704911002221	110	POA

SILENTA 3A Single Parallel Branch

Code	Diameter (mm)	Packing (pcs)
4704211010122	110x110	POA

SILENTA 3A Clamp

Code	Diameter (mm)	Packing (pcs)
4701905001022	50	100
4701907501122	75	100
4701911001222	110	100
4701912501322	125	100
4701916001422	160	50

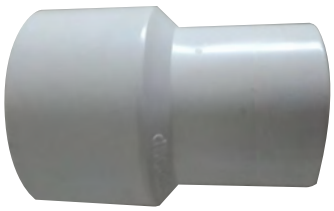
SILENTA 3A Clamp with Nut

Code	Diameter (mm)	Clamping Range (mm)	Packing (pcs)
4501904020082	40	40	POA
4501905820082	50	58	POA
4501907820182	75	78	POA
4501911020282	110	110	POA
4501916020482	160	155-163	POA
4501920020582	200	197-219	POA

Gasket

Code	Diameter (mm)	Packing (mm)
1410904001292	40	POA
1410905001292	50	POA
1410907501292	75	POA
1410909000492	90	POA
1410911001392	110	POA
1410912501492	125	POA
1410916001592	160	POA
1410920000792	200	POA

Adaptor PVC



Code	Diameter (mm)	Packing (pcs)
300203107	50-56	72
300203108	75-82	72

Notes

Notes

GF Piping Systems

Worldwide at home

Our sales companies and representatives
ensure local customer support in over 100 countries.
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