

WhispaPipe

Acoustically insulated marine pipe

Jul 12



ARMATEC

PRODUCT DESCRIPTION

Fibreglass marine exhaust tube complete with factory fitted double layer of acoustic insulation. It has been tested to and passes "Test method for fire endurance testing of water filled plastic piping (Level 3), IMO Resolution A.753(18), Appendix 2". Contact ARMATEC or visit our website for IMO test certificate

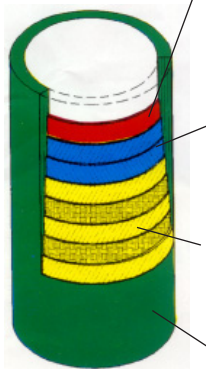
ACOUSTIC PERFORMANCE

By comparison with uninsulated fibreglass pipe, WhispaPipe achieves reductions in noise of over 20 dB over a range of frequencies with excellent performance in the lower frequencies below 300 Hz.

BENEFITS

- **Corrosion Resistant:** Fibreglass tubing is corrosion resistant inside and outside and is ideal for handling the corrosive engine gases and seawater.
- **Fire Resistant:** Maintains structural integrity for at least 30 minutes in event of fire.
- **Less Maintenance:** As the fibreglass tubing does not corrode or rust it requires very little ongoing maintenance.
- **UV Resistant:** An external UV resistant coating can be applied to stop deterioration by UV radiation.
- **Easy Installation:** Significant time savings are made with the acoustic insulation factory installed; especially when fitted in hard to access places like cupboards and bulkheads.
- **Leak Free Joints:** Tube lengths and fittings are typically joined by the standard butt and strap method giving a leak free system.

Cross Section of WhispaPipe



Inner Surface. The interior surface 0.25mm - 0.5mm, is a smooth resin rich laminate reinforced with surface veil. Providing optimum corrosion-resistance and a minimal friction factor when combined with the best resin for the specific chemical conditions.

Structural Layers. The structural layers handle the internal water pressure and other stresses.

Acoustic Layer. A double wrap of acoustic insulation gives the WhispaPipe its noise attenuation properties.

Exterior Surface. A final layer of fibreglass completes the WhispaPipe.

USES

- Engine exhaust tubing.
- Engine exhaust silencers and mufflers.
- Engine exhaust intake tubing.
- Air ducting for air conditioning.
- Toilets/showers effluent lines.

STANDARD PRICE LISTS

To assist you in ordering tube and fittings, please ask for our standard price list. Simply fill out with your requirements and submit to us for prompt service.

AVAILABILITY AND SIZES

ARMATEC marine exhaust tubing, fittings and accessories are manufactured in New Zealand to international standards using materials and technology sourced internationally. Some diameters of tubing and a number of fittings are stocked for immediate delivery. For WhispaPipe, typical lead times for manufacture are 2 to 4 weeks. Typical tubing sizes include 50, 75, 100, 125, 150, 200, 250, 300 diameter and larger sizes.



WhispaPipe, with factory fitted acoustic insulation minimises on-vessel installation time and costs.



WhispaPipe meets IMO fire endurance tests. Contact ARMATEC or visit website for IMO test certificate.

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Typical Physical Properties of ARMATEC FRP Tubing

General

Specific Gravity 1.5

Linear Coefficient of Thermal Expansion
(ASTM D696) .. 27×10^{-6} (m/m -degC)

Thermal Conductivity 1.5 W/mK

Glass Content 30 -35 %

Barcol Hardness 35 to 45

Typical physical properties of 10mm thick laminate

	MPa	psi
Ultimate tensile strength(ASTM D638)	103	15,000
Flexural Strength (ASTM D790)	152	22,000
Flexural modulus of elasticity(ASTM D790)	6,895	1,000,000
Compressive strength (ASTM D695)	152	22,000

Specific physical properties are dependant on wall thickness, laminate construction and resin selection. Contact ARMATEC for detailed information and advice. Numbers given are typical properties, not to be construed as a specification.

INSTALLATION DETAIL

To achieve the best acoustic insulation performance, the WhispaPipe must be isolated from any support structures or clamps using a layer of foam. This stops the acoustic energy transforming into vibrational energy, ie noise, within the yacht or boat.

Due to thermal expansion of the air surrounding the acoustic insulation, provide 3-4mm diameter air holes through the outer pipe at regular intervals of approximately 3 metres. Alternatively, to reduce noise leakage, leave the pipe open to breathe at the ends where noise doesn't matter such as in the engine room.

JOINTING OF WHISPAPIPE

1. Cut the WhispaPipe to required length.
2. Mark the outer layer of fibreglass a minimum 80mm from the cut end of the pipe.
3. Cut through the outer layer of fibreglass and the sound insulation layers at this mark and remove from the inner pipe by sliding off the end of the pipe or cut along the pipe and open out. Be careful not to cut the inner fibreglass pipe. Retain the outer layers.
4. Install the pipes with foam isolation at brackets and align pipes for jointing.
5. Butt and strap the inner fibreglass pipe as per ARMATEC Butt and Strap procedure FP07.
6. Hydrotest inner pipe to ensure there are no leaks.
7. Reinstall the acoustic insulation once joints have been leak tested (see below).

Three ways to reinstate the acoustic insulation:

- A. Reuse the outer fibreglass pipe and insulation layers previously removed. Spread them around the joint and then apply a fibreglass strap over all cut lines.
- C. A sleeve of the outer pipe and insulation can be cut from the end of a spare piece of pipe at the full width of the required joint. Fibreglass the cut lines around and along the pipe.
- D. The Insulation can be replaced and then the pipe wrapped externally with an aluminium tape to complete the outer joint.



Acoustic insulation is easily removed to allow jointing of lengths of WhispaPipe. Acoustic insulation is then reinstated after jointing.



WhispaPipe with butt and strap joints, and acoustic insulation reinstated with aluminium tape.

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