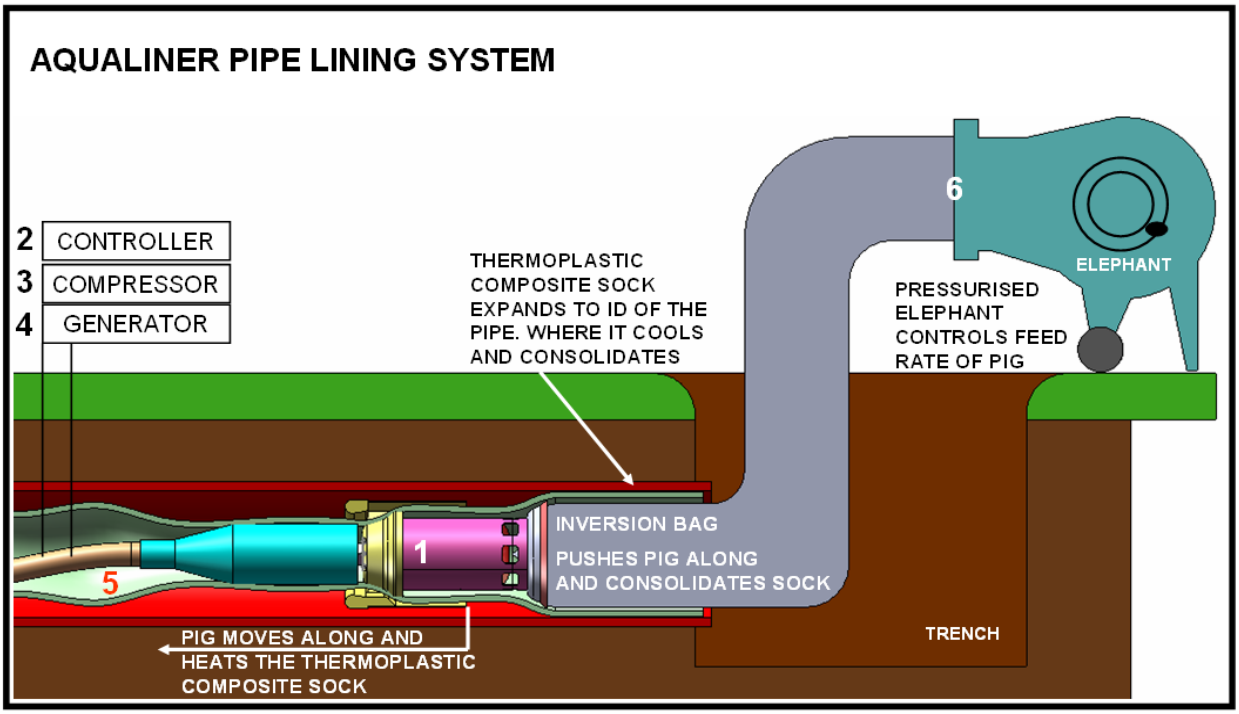
Process Description

Aqualiner's "Melt in Place Pipe" (MIPP) lining process for water mains and sewers involves winching a liner tube, made from an intimately woven fabric of glass fibre and polypropylene filaments, through the pipe to be renewed. A heated pig is then passed through the woven liner to deliver hot air which melts the polypropylene material and encapsulates the glass reinforcement. The molten mixture of glass fibre and polypropylene is then consolidated against the pipe wall using a pressurised silicone rubber inversion tube. Upon contact with the pipe wall the material cools down to form a tightly fitting thin walled, fully structural glass fibre reinforced polypropylene pipe. The process is currently designed to be capable of lining pipes between 6" and 12" diameter.



Compliance

The Aqualiner lining system has WRC Approved certification to endorse its fitness for purpose for waste water applications as specified in PT/292/1109-AS.

This includes meeting the key requirements of EN ISO 11296-4:2009 "Plastic piping systems for the renovation of underground non pressure drainage and sewerage networks – Part 4". These tests include:

- Short term modulus
- Long term modulus (10,000 hour)
- Long term strain in bending – strain corrosion test (10,000 hour)

Aqualiner's water mains pipe lining product has been approved in the UK under Regulation 31 of the Water Supply (Water Quality) Regulations 2000 and NSF 61 Drinking Water Components requirements.

Aqualiner products are designed for gravity and pressure use in generally in accordance with WRC Sewer Rehabilitation Manual and using the procedures of the design appendix of ASTM F1216-09.

Liner performs as a fully structural, standalone AWWA Class 4 liner able to support internal pressure, soil, traffic, external groundwater and transient vacuum loads.

The Aqualiner liner has also met the requirements of Clause 6.10 of WIS 4-35-01 issue 1 July 2000 for resistance to jetting pressure of 180 bar (2600 Psi).

Environmental benefits

Aqualiner's MIPP structural liners have virtually unlimited shelf life and do not require liquid resins impregnated into the lining thus reducing health and safety concerns to the public and contractors installing the product. No risk of any chemicals being leached out into the water. There is also no possibility of on-site contamination of local water ways from chemicals.

Customer benefits

These include:

- Full structural pipe replacement/renewal
- Thin walled (3mm)
- Small site footprint so less environmental impact from road works. Potentially only requiring 2 vehicles on site
- Liner does not shrink and is close fit
- The liner is thermoplastic based and the process can be stopped and restarted
- Thermoplastic composite liners weld to themselves so liners can be over-lined to build up additional strength or longevity in the future
- The process has the ability to line round bends and offset joints

Standard 3rd party attachments – joints, connections and end seals

Flange adaptor/End seal

Liner coupler

Ferrule/House Connection

Other Benefits

- ✓ Ability to line water mains and sewers in critical conditions.
- ✓ Liner is close fitting, no annulus shrinkage
- ✓ Thermoplastic liners offer enhanced strain capacity, no liner cracking
- ✓ Can line in wet conditions

For further information please contact:

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