GRP JACKING PIPES
FOR MICRO-TUNNELING
FLOWTITE GRP JACKING PIPES

Flowtite GRP Jacking Pipes are designed and manufactured for the construction and renovation of belowground pipelines using trenchless methods. They are recognised and chosen for their high axial compressive strength and ring stiffness and provide significant advantages compared to other pipe materials. Flowtite GRP Jacking Pipes are supplied with a range of high performance coupling systems suitable for micro-tunnelling and pipe jacking.

The Flowtite GRP Jacking Pipe product range consists of:
- Standard jacking pipes
- Jacking pipes with injection nozzles
- Jacking pipes for intermediate jacking stations
- Relining pipes
- Specially tailored fittings and manholes
- Jacking pipe joints

APPLICATIONS FOR FLOWTITE GRP JACKING PIPES

Flowtite GRP Jacking Pipes are suitable for the construction of new sewer and pressure pipelines, replacement of old sewers, road culverts in transport engineering and relining using the following trenchless methods of construction:
- Micro-tunnelling
- Hydraulic jacking with remote control drilling
- Free boring
- Sliplining

Flowtite GRP Jacking Pipes can be installed in:
- Straight or curved alignments
- Cohesive and non-cohesive soils
- Dry or high water table conditions
TECHNICAL DATA

The Flowtite GRP Jacking Pipes manufacturing process allows a wide range of pipe dimensions and properties and is not restricted by outside diameters or pipe lengths.

Pipe Lengths
The pipe length can be customised according to specific requirements to fit the site conditions and jacking pipe equipment. Such flexibility helps to maximise installation efficiency.

Pipe Diameters
Flowtite GRP Jacking Pipes can be manufactured to fit the internal diameter of any pipe, ensuring a smooth transition between open trench and jacked pipe. Flowtite GRP transition pipe allows direct jointing of standard trenched pipe to jacking pipe, eliminating the requirement for a maintenance structure. Customised internal and external pipe diameters can be accommodated.
Flowtite GRP Jacking Pipes systems provide:

• High axial compressive strength for longer single drive lengths, depending on soil conditions and jacking parameters
• Consistent distribution of concentrated compressive stress (especially in curves)
• Excellent hydraulic properties
• Operating temperatures from -50 °C to +70 °C

The high compressive strength of Flowtite GRP Jacking Pipes also allows reduced wall thicknesses compared with other pipe materials, maximising cost savings and optimising the price / performance ratio. Further benefits can be achieved with:

• Smaller jacking machines
• Minimum excavation volume
• Smaller starting pit (thrust block volume)
• Lower energy consumption
• Reduced construction time
• Chemical resistance
MATERIAL PROPERTIES

Physical Characteristics
The wall construction of Flowtite GRP Jacking Pipes can vary, depending on the stiffness and jacking load requirements. Indicative mechanical properties are provided in the following table.

<table>
<thead>
<tr>
<th>PROPERTIES OF FLOWTITE GRP JACKING PIPES</th>
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<tbody>
<tr>
<td>Parameter</td>
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<tr>
<td>Material density</td>
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<tr>
<td>Longitudinal compressive</td>
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<tr>
<td>strength</td>
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<td>Hoop flexural modulus</td>
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STANDARDS AND QUALITY

Flowtite GRP Jacking Pipes are manufactured acc. to the following relevant standards, under third party certified quality assurance programmes complying with ISO 9001 Quality Management System:

- **ISO 25780:2011**
  „Plastics piping systems for pressure and non-pressure water supply, irrigation, drainage or sewerage – Glass reinforced thermosetting plastics (GRP) systems based on unsaturated polyester (UP) resin – Pipes with flexible joints intended to be installed using jacking techniques“.

- **ISO 10467:2004**
  „Plastics piping systems – Glass reinforced thermoplastics (GRP) systems based on unsaturated polyester (UP) resin: Pressure and non-pressure drainage and sewerage“.

- **ISO 10639:2004**
  „Plastics piping systems – Glass reinforced thermoplastics (GRP) systems based on unsaturated polyester (UP) resin: Pressure and non-pressure water supply“.

- **EN 1796:2013**
  „Plastics piping systems for water supply with or without pressure – Glass-reinforced thermosetting plastics (GRP) based on unsaturated polyester resin (UP)“.

- **EN 14364:2013**
  „Plastics piping systems for drainage and sewerage with or without pressure - Glass-reinforced thermosetting plastics (GRP) based on unsaturated polyester resin (UP) – Specifications for pipes, fittings and joints“.

- **ASTM D3262**
  „Standard Specification for “Fiberglass” (Glass-Fiber-Reinforced Thermosetting-Resin) Sewer Pipe“.
This brochure is intended as a presentation only. Flowtite have separate handbooks and manuals for engineering and installing Flowtite products, which should be used for such purposes.

All values listed in the product specifications are nominal. Unsatisfactory product results or applications may occur due to environmental fluctuations, variations in operating procedures, or interpolation of data. We highly recommend that any personnel using this data have specialized training and expertise in the application of the products and their normal installation and operating conditions as well as any particular requirements and the degree of care required for product installation or service.

Flowtite does its utmost to ensure that all technical information, data and recommendations are based upon good research and our wealth of experience. We provide the data in this brochure in good faith, and, as such, accept no liability, and will not be held liable, for any losses or damage which may result from the installation or use of any products listed in this brochure. Flowtite companies reserve the right to revise, delete or make obsolete any data and product featured in this brochure without prior notice. We welcome comments regarding this brochure.