FIBERSTRONG™

RELIABLE JACKING PIPE SYSTEMS IN POLYESTER AND VINYL ESTER RESINS

Pipe Jacking and Microtunnelling represents an ever-growing area of trenchless technology, having gained a proven track record over many years for offering cost effective solutions, while providing minimum surface disruption.

In today's environmentally conscious world, Pipe Jacking and Microtunnelling have also established a reputation for offering tremendous environmental benefits, not just through minimised surface disruption, but through major reductions in carbon footprint compared to traditional open cut installation methods.

To further enhance the environmental and carbon footprint reduction opportunities, and building on decades of major infrastructure utilising FPI filament wound Fiberstrong™ pipe system, FPI has developed a low carbon, high-performance; Fiberstrong™ composite pipe jacking system.

Future Pipe Fiberstrong™ Jacking Pipes are:
Low embodied carbon - Significantly lower embodied carbon content than steel and concrete. Thus, helping to meet end user and operator carbon neutral targets.

Lightweight – Typically 80% reduction in pipe self-load when compared to traditional materials such as concrete and 75% lighter than steel so reducing jacking load requirements and ease of handling

Corrosion free – Zero corrosion thus eliminating the need for protective coatings or corrosion mitigation systems

High flow – With a smooth noncorrosive internal bore offering lower friction loss, comparative flow rates can be achieved with reduced diameters lines so offering additional savings.

Fiberstrong™ utilizes a flexible joint jointing system with elastomeric sealing systems that can adapt to a variety of angular deviation in accordance to international standards thereby further enhancing overall installation integrity.

FPI
FUTURE PIPE INDUSTRIES

APPLICATIONS

The main applications of Fiberstrong™ Jacking systems are as follows:

- Sanitary Sewage
- Storm Water
- Drains
- Industrial Waste Lines
- Pressure lines
- Irrigation
- Water Supply

ADVANTAGES OF FIBERSTRONG™ JACKING SYSTEMS

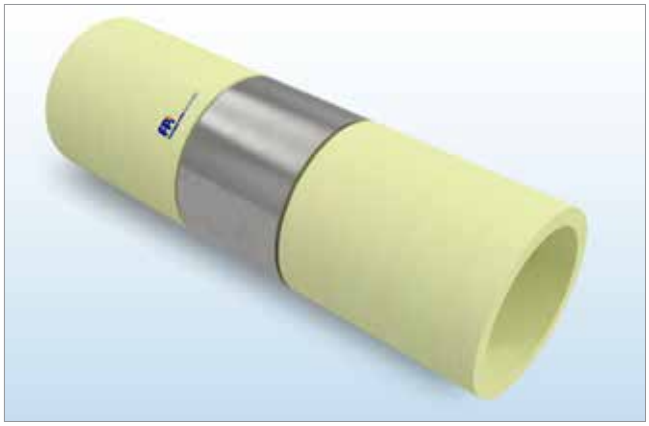
- Fiberstrong™ Jacking Pipe Systems can be supplied with or without grouting ports
- Reduced jacking loads due to smooth external surface
- Adaptable to a variety of installation equipment
- Can be produced in a variety of lengths and diameters according to project requirements
- Designed to meet project specific loads

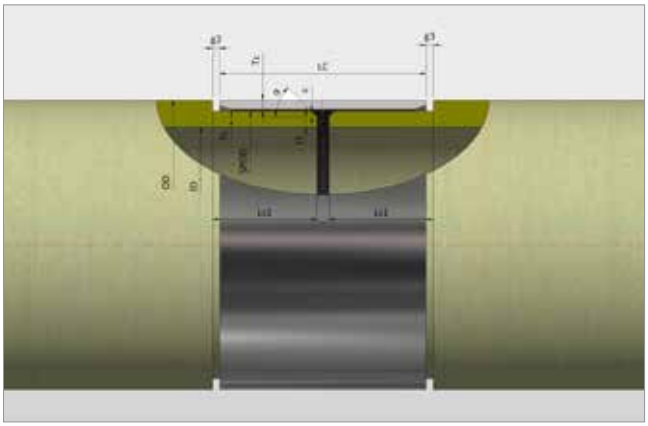
APPLICABLE STANDARDS

The applicable design standards include:

- **ISO 25780** Plastics Piping Systems for Pressure and Non-Pressure Water Supply, Irrigation, Drainage or Sewerage -Glass-Reinforced Thermosetting Plastics (GR P) Systems Based on Unsaturated Polyester (UP) Resin. Pipes with flexible joints intended to be installed using jacking techniques
- **EN 14364** Plastics piping systems for drainage and sewerage with or without pressure. Glass-reinforced thermosetting plastics (GRP) based on unsaturated polyester resin (UP).
- **ISO 10639** Plastics Piping Systems for Pressure and Non-Pressure Water Supply- Glass-Reinforced Thermosetting Plastics(GRP) Systems Based on Unsaturated Polyester (UP) Resin
- **ISO 10467** Plastics Piping Systems for Pressure and Non-Pressure Drainage and Sewerage- Glass-Reinforced Thermosetting Plastics (GRP) Systems Based on Unsaturated Polyester (UP) Resin
- **ASTM D 3262** Glass Fiber (Glass-Fiber-Reinforced Thermosetting-Resin) Sewer Pipe
- **ASTM D 3517** Glass Fiber (Glass-Fiber-Reinforced Thermosetting-Resin) Pressure Pipe
- **AWWA C950** Fiberglass Pressure Pipe
- **AWWA M45** Fiberglass Pipe Design
- **DIN 19523** Requirements and test methods for determination of the jetting resistance of components of drains and sewers

JOINTING SYSTEM





Stainless steel coupler with integrated gasket - SSCR

PRODUCT SPECIFICATIONS:

Fiberstrong™ Jacking Pipe Systems can be produced in a variety of stiffness classes ranging from SN20,000 up to SN1,000,000 and with a maximum pressure rating up to PN10. The standard outside diameters (OD) are as listed below:

Table 1: Standard product range

DN		OD		Allowable Jacking Force (F.S.=2.5)		Allowable Jacking Force (F.S.=3.0)		Allowable Jacking Force (F.S.=3.5)		Weight	
mm	inch	mm	inch	Metric Ton	US Ton	Metric Ton	US Ton	Metric Ton	US Ton	kg/m	lb/ft
450	18	502	19.8	70	77	58	64	50	55	78	53
500	20	533	21.0	105	115	87	96	75	82	101	68
550	22	553	21.8	105	115	87	96	75	82	103	69
600	24	619	24.4	210	231	175	192	150	165	169	113
650	26	652	25.7	210	231	175	192	150	165	171	115
700	28	722	28.5	210	231	175	192	150	165	181	122
750	30	753	29.7	210	231	175	192	150	165	183	123
800	32	822	32.4	210	231	175	192	150	165	189	127
850	34	862	34.0	210	231	175	192	150	165	192	129
900	36	926	36.5	350	385	291	321	250	275	288	194
950	38	962	37.9	350	385	291	321	250	275	292	196
1,000	40	1,028	40.5	350	385	291	321	250	275	298	200
1,100	44	1,100	43.4	350	385	291	321	250	275	305	205
1,200	48	1,230	48.5	350	385	291	321	250	275	317	213
1,250	50	1,281	50.5	350	385	291	321	250	275	321	216
1,300	52	1,350	53.2	490	540	408	450	350	385	410	275
1,400	56	1,436	56.6	490	540	408	450	350	385	424	285
1,450	58	1,500	59.1	490	540	408	450	350	385	423	285
1,500	60	1,537	60.6	630	694	525	578	450	496	540	363
1,600	64	1,636	64.5	630	694	525	578	450	496	550	370
1,700	68	1,717	67.6	630	694	525	578	450	496	559	376
1,800	72	1,840	72.5	770	848	641	707	550	606	655	440
1,900	76	1,937	76.3	770	848	641	707	550	606	666	447
2,000	80	2,044	80.5	910	1003	758	835	650	716	763	513
2,100	84	2,156	84.9	1050	1157	875	964	750	826	858	576
2,200	88	2,248	88.6	1190	1311	991	1093	850	936	950	638

Note: Products with higher jacking loads or specific stiffness classes are available upon request.