



WSAA PRODUCT APPRAISAL CERTIFICATE

Future Pipe Industries LLC - Fiberstrong® Filament Wound Glass Reinforced Thermoplastic (GRP) Jacking Pipes for Sewer Applications (DN 300 – DN 2200)

This appraisal is for Fiberstrong® Filament Wound (FW) Glass Reinforced Plastics (GRP) jacking pipe systems for non-pressure sewerage applications.

FPI jacking pipes are available in nominal sizes ranging from DN 300 (324.5mm OD) to DN 2200 (2245mm OD). The nominal pressure classification is PN4, suitable for non-pressure applications and pressures up to 400kPa. Stiffness ratings are available from SN20,000 to SN1,000,000.

The pipes are manufactured with a standard length of 6m. Shorter pipes may be supplied for specific project requirements.

Fiberstrong jacking pipes are joined using Grade 316 stainless steel couplings with an integrated EPDM elastomeric seal.

A listing of Quality and Product Certification Certificates are included in the attached Schedules A and B.

Product Category	GRP Pipes
PA Number:	PA 2202
Supplier	Future Pipe Industries LLC
Brand	Fiberstrong®
Standards	ISO 25780:2011 – <i>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.</i>
WSAA Product Specification	WSA PS – 206J <i>Filament Wound Glass Reinforced Plastics (FW-GRP) Pipes for Pressure and Non-Pressure Applications – Drinking Water, Non-Drinking Water Supply and Sewerage – Installed Using Trenchless Installation Methods</i>
Issue date	3 June 2022
Expiry date	2 June 2027
Recommendations	It is recommended that WSAA members, subject to any specific requirements of the member, accept or authorise the FPI Fibrestrong FW GRP jacking pipes, as detailed in this report, for use in non-pressure sewerage applications, provided the design, installation and commissioning are in accordance with applicable WSAA Codes and the manufacturer's requirements.
Disclaimer	The disclaimer on Page 2 explains a number of very important limits on your ability to rely on the information in this Product Appraisal Certificate and the assessment criteria used to underlay it. Please read it carefully and take it into account when considering the content in this Certificate.

1. Disclaimer

This Product Appraisal Certificate (Certificate) is issued by WSAA on the understanding that:

This Certificate applies to the product(s) as submitted in Schedule A. Any changes to the product(s) either minor or major shall void this Certificate.

To maintain the recommendations of this Certificate any such changes shall be detailed and notified to the Product Appraisal Manager for consideration and review of the Certificate including the product appraisal criteria underlying it and appropriate action. Appraisals and their recommendations will be the subject of continuous review dependent upon the satisfactory performance of products.

WSAA reserves the right to undertake random audits of product manufacture and installation. Where products fail to maintain appraised performance requirements the appraisal and its recommendations may be modified and reissued. Certificates will be reviewed and reissued at regular intervals not exceeding five (5) years.

WSAA reserves the right to withdraw this Certificate at any time in its sole and absolute discretion for any reason.

The following information explains a number of very important limits on your ability to rely on the information in this Certificate. Please read it carefully and take it into account when considering the contents of this Certificate.

Any enquiries regarding this Certificate should be directed to the Product Appraisal Manager Phone: 03 8605 7601 email carl.radford@wsaa.asn.au.

1.1. Issue of Certificate

This Certificate has been published and/or prepared by WSAA and nominated Project Manager and peer group of technical specialists (the Publishers).

The Certificate and the underlying product appraisal criteria have been prepared for use within Australia only by technical specialists that have expertise in the function of products such as those appraised in the Certificate (the Recipients).

By accepting this Certificate, the Recipient acknowledges and represents to the Publisher(s) and each person involved in the preparation of the Certificate and product appraisal criteria underlying it that the Recipient has understood and accepted the terms of this Disclaimer.

1.2. Limits on Reliance on Information and Recommendations

1.2.1. Disclaimer of liability

Neither the Publisher(s) nor any person involved in the preparation of the Certificate and product appraisal criteria underlying it accept(s) any liability for any loss or damage suffered by any person however caused (including negligence or the omission by any person to do anything) relating in any way to the Certificate or the product appraisal criteria underlying it. This includes (without limitation) any liability for any recommendation or information in the Certificate or any errors or omissions.

1.2.2. Intellectual Property and other rights

WSAA does not undertake any assessment of whether the importation, manufacture, sale or use of the Product the subject of this Certificate infringes the intellectual property rights or proprietary rights of any person. Recipients of the Certificate should undertake their own assessment of whether (as relevant) the importation, manufacture, sale or use of the relevant Products infringe the intellectual property rights or other proprietary rights of any person. If the Product infringes intellectual property rights or other proprietary rights there is potential for the supply of the Products to be interrupted.

From time to time WSAA and the other Publishers may receive notice of allegations that the importation, manufacture, sale or use of the Product infringes intellectual property rights or other proprietary rights. WSAA's policy is to not refer to such allegations in its Certificate or take any other steps to put Recipients on notice of such allegations. If, however, WSAA becomes aware that the allegations have been admitted or proved in Court, then WSAA may, at its discretion, take such steps as it considers appropriate. As such, Recipients acknowledge, agree and accept that WSAA may have information in its possession about intellectual property rights infringement allegations or other infringement allegations in relation to the Product which are not referred to or disclosed in this Certificate and which are not otherwise communicated to Recipients.

1.2.3. Need for independent assessment

The information and any recommendation contained (expressly or by implication) in this Certificate are provided in good faith (and subject to the limitations noted in this Certificate). However, you should treat the information as indicative only. You should not rely on that information or any such recommendation except to the extent that you reach an agreement to the contrary with the Publisher(s).

This Certificate does not contain all information that a person might require for the purposes of assessing any product discussed or appraised within it. The product appraisal criteria used in preparing this Certificate may not address all relevant aspects of the Product.

Recipients should seek independent evidence of any matter which is material to their decisions in connection with an assessment of the Product and consult their own advisers for any technical information required. Any decision to use the Product should take into account the reliability of that independent evidence obtained by the Recipient regarding the Product. Recipients should also independently verify and assess the appropriateness of any recommendation in the Certificate, especially given that any recommendation will not take into account a Recipient's particular needs or circumstances.

WSAA has not evaluated the extent of the product liability and professional indemnity insurance that the provider of the product maintains. Recipients should ensure that they evaluate the allocation of liability for product defects and any professional advice obtained in relation to the product or its specification including the requirements for product liability and professional indemnity insurance.

1.3. No Updating

Neither the Publisher(s) nor any person involved in the preparation of this Certificate or the product appraisal criteria underlying it [has] [have] any obligation to notify you of any change in the information contained in this Certificate or of any new information concerning the Publisher(s) or the Product or any other matter.

1.4. No Warranty

The Publisher(s) do[es] not, in any way, warrant that steps have been taken to verify or audit the accuracy or completeness of the information in this Certificate, or the accuracy, completeness or reasonableness of any recommendation in this Certificate

QUALITY AND PRODUCT CERTIFICATIONS

Copies of the following Quality and Product Certification Certificates are available from WSAA.

TABLE A1 FUTURE PIPE INDUSTRIES LLC – MANAGEMENT SYSTEMS

Sector M-41 Plot No 1F1 2F1 and 3F1 Mussafah ICAD-1 Abu Dhabi UAE	
Quality Systems Standard	ISO 9001:2015
Certification Licence No.	DU004313
Certifying Agency	Bureau Veritas
First Date of Certification	24 April 1996
Current Date of Certification	18 April 2021
Expiry Date of Certification	6 June 2024

TABLE A2 FUTURE PIPE INDUSTRIES LLC – PRODUCT CERTIFICATION

Sector M-41 Plot No 1F1 2F1 and 3F1 Mussafah ICAD-1 Abu Dhabi UAE	
Product Standard/Spec.	ISO 25780:2011
Certificate No.	10000490772-PA-DNV-AUS
Issuing Certification body	DNV
First Date of Certification	27 January 2022
Current Date of Certification	27 January 2022
Expiry Date of Certification	17 January 2027

SCHEDULE B

PRODUCT LITERATURE

DN	Nominal Pipe OD	SN 20,000				SN 32,000				SN 40,000				SN 50,000				SN 64,000					
		Nominal Pipe ID	Minimum Total Wall	Jacking Load M.Tons	Jacking Load kN	Nominal Pipe ID	Minimum Total Wall	Jacking Load M.Tons	Jacking Load kN	Nominal Pipe ID	Minimum Total Wall	Jacking Load M.Tons	Jacking Load kN	Nominal Pipe ID	Minimum Total Wall	Jacking Load M.Tons	Jacking Load kN	Nominal Pipe ID	Minimum Total Wall	Jacking Load M.Tons	Jacking Load kN		
300	324.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
350	376.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
375	400.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
400	427.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
450	500.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
500	530.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
550	550.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
600	616.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	576.2	20.46	45	446
650	649.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	606.9	21.71	55	540
700	719.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	672.3	23.89	67	654
750	750.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	701.7	24.85	76	748
800	819.7	-	-	-	-	-	-	-	-	773.7	23.31	74	724	770.3	25.02	85	831	766.9	26.72	95	936		
850	859.5	-	-	-	-	814.6	22.73	74	722	811.2	24.43	85	834	807.9	26.08	96	942	803.6	28.24	110	1,083		
900	923.0	-	-	-	-	874.7	24.44	81	790	871.6	25.99	92	899	867.7	27.94	106	1,037	863.3	30.18	122	1,193		
950	959.2	-	-	-	-	910.0	24.90	87	856	906.3	26.78	101	994	902.0	28.92	117	1,150	897.4	31.19	134	1,316		
1,000	1,025.2	-	-	-	-	972.5	26.67	108	1,057	968.6	28.60	123	1,208	963.9	30.93	142	1,390	959.2	33.32	161	1,576		
1,100	1,097.7	-	-	-	-	1,040.7	28.81	134	1,315	1,036.5	30.90	152	1,491	1,032.6	32.86	169	1,655	1,027.2	35.56	192	1,879		
1,200	1,227.7	1,173.5	27.42	137	1,345	1,164.3	32.02	181	1,780	1,160.0	34.16	202	1,980	1,155.2	36.53	225	2,203	1,148.9	39.71	255	2,499		
1,250	1,278.5	1,227.1	28.51	154	1,511	1,213.3	32.92	198	1,845	1,207.4	35.83	227	2,300	1,202.9	38.12	250	2,452	1,196.4	41.97	282	2,768		
1,300	1,347.5	1,288.3	29.91	177	1,741	1,278.2	34.95	231	2,264	1,273.3	37.39	256	2,515	1,267.3	40.41	288	2,825	1,261.8	43.17	317	3,107		
1,400	1,433.5	1,370.7	31.71	202	1,981	1,360.1	37.01	262	2,566	1,354.7	39.72	292	2,863	1,349.0	42.56	323	3,173	1,341.3	46.40	366	3,591		
1,450	1,496.9	1,431.2	33.17	236	2,318	1,420.0	38.77	302	2,964	1,414.4	41.55	335	3,282	1,408.1	44.72	371	3,643	1,400.4	48.55	416	4,077		
1,500	1,533.8	1,466.4	34.02	215	2,106	1,455.0	39.71	283	2,778	1,449.1	42.67	319	3,126	1,442.7	45.86	357	3,498	1,436.1	49.15	396	3,881		
1,600	1,632.9	1,561.2	36.15	258	2,530	1,549.3	42.09	334	3,276	1,543.2	45.17	373	3,661	1,537.3	48.12	411	4,028	1,528.7	52.42	465	4,561		
1,700	1,714.5	1,638.9	38.07	297	2,915	1,627.3	43.88	375	3,681	1,621.2	46.95	416	4,085	1,613.8	50.63	465	4,565	1,605.0	55.07	524	5,143		
1,800	1,837.6	1,757.0	40.62	356	3,493	1,744.6	46.81	445	4,369	1,737.1	50.56	499	4,896	1,729.2	54.51	556	5,450	1,719.8	59.21	622	6,104		
1,900	1,933.8	1,848.8	42.82	409	4,011	1,835.4	49.51	510	5,007	1,827.8	53.31	568	5,569	1,820.1	57.14	625	6,134	1,810.8	61.80	695	6,817		
2,000	2,041.7	1,951.7	45.28	468	4,590	1,937.7	52.30	580	5,692	1,929.8	56.23	643	6,306	1,921.6	60.37	708	6,950	1,911.7	65.29	786	7,712		
2,100	2,153.2	2,059.2	47.28	528	5,181	2,049.8	55.01	659	6,463	2,036.0	58.89	724	7,101	2,027.2	63.32	798	7,829	2,015.6	69.10	894	8,773		
2,200	2,245.0	2,146.9	49.33	588	5,764	2,130.6	57.49	731	7,174	2,123.3	61.63	804	7,887	2,112.7	66.47	888	8,714	2,103.1	71.26	971	9,529		

DN	Nominal Pipe OD	SN 80,000				SN 100,000				SN 128,000				SN 160,000				SN 200,000				
		Nominal Pipe ID	Minimum Total Wall	Jacking Load M.Tons	Jacking Load kN	Nominal Pipe ID	Minimum Total Wall	Jacking Load M.Tons	Jacking Load kN	Nominal Pipe ID	Minimum Total Wall	Jacking Load M.Tons	Jacking Load kN	Nominal Pipe ID	Minimum Total Wall	Jacking Load M.Tons	Jacking Load kN	Nominal Pipe ID	Minimum Total Wall	Jacking Load M.Tons	Jacking Load kN	
300	324.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
350	376.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
375	400.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
400	427.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
450	500.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
500	530.5	-	-	-	-	490.1	20.51	39	382	486.9	22.11	45	445	484.1	23.49	51	499	480.6	25.24	58	568	
550	550.5	-	-	-	-	508.8	21.17	43	424	505.6	22.74	50	489	502.2	24.47	57	559	508.6	26.23	64	631	
600	616.5	573.2	21.97	53	516	570.2	23.47	60	585	566.3	25.39	69	673	562.0	27.54	79	771	559.1	29.00	85	837	
650	649.7	604.1	23.11	62	608	600.5	24.88	71	695	596.9	26.71	80	783	593.2	28.57	89	872	588.6	30.83	100	981	
700	719.5	668.9	25.63	76	749	666.0	27.05	84	826	661.4	29.36	97	949	656.6	31.75	110	1,077	652.3	33.92	121	1,191	
750	750.8	698.9	26.23	84	826	694.3	28.58	98	958	689.9	30.76	110	1,081	685.3	33.05	123	1,208	680.9	35.26	136	1,330	
800	819.7	762.7	28.80	109	1,065	758.5	30.91	122	1,194	753.2	33.55	138	1,356	748.8	35.75	152	1,490	743.1	38.61	169	1,662	
850	859.5	799.6	30.23	124	1,212	795.5	32.32	137	1,346	790.3	34.89	154	1,511	785.2	37.44	171	1,674	780.0	40.06	188	1,840	
900	923.0	859.3	32.17	136	1,332	854.4	34.59	153	1,499	848.7	37.45	173	1,696	843.2	40.19	192	1,884	837.2	43.19	213	2,087	
950	959.2	892.8	33.49	151	1,482	887.7	36.06	170	1,667	882.3	38.77	190	1,861	876.9	41.73	211	2,072	870.4	44.72	233	2,283	
1,000	1,025.2	954.0	35.88	181	1,774	949.3	38.25	199	1,957	942.5	41.66	226	2,218	936.7	44.54	248	2,436	930.3	47.74	273	2,577	
1,100	1,097.7	1,022.1	38.08	213	2,088	1,016.8	40.77	235	2,310	1,009.2	44.54	267	2,618	1,002.7	47.82	294	2,885	995.5	51.39	323	3,173	
1,200	1,227.7	1,143.0	42.66	283	2,772	1,136.7	45.82	312	3,063	1,128.9	49.71	348	3,419	1,122.3	53.00	379	3,718	1,114.2	57.05	416	4,085	
1,250	1,278.5	1,190.6	44.25	310	3,046	1,183.6	47.74	345	3,380	1,176.7	51.21	378	3,711	1,168.2	55.46	419	4,114	1,160.2	59.46	458	4,490	
1,300	1,347.5	1,254.7	46.73	354	3,469	1,248.6	49.76	385	3,775	1,239.5	54.31	431	4,233	1,231.6	58.24	471	4,625	1,222.7	62.70	517	5,067	
1,400	1,433.5	1,335.3	49.43	399	3,918	1,327.1	53.48	444	4,354	1,318.7	57.71	490	4,807	1,310.2	61.98	536	5,260	1,301.4	66.36	583	5,722	
1,450	1,496.9	1,394.4	51.57	450	4,419	1,386.4	55.57	496	4,868	1,376.9	60.31	550	5,397	1,368.2	64.68	600	5,881	1,359.4	69.06	649	6,364	
1,500	1,533.8	1,428.0	53.20	443	4,350	1,420.4	56.99	488	4,786	1,410.5	61.94	546	5,352	1,402.1	66.15	594	5,831	1,392.9	70.73	647	6,348	
1,600	1,632.9	1,521.3	56.08	511	5,012	1,513.2	60.17	562	5,514	1,502.3	65.60	629	6,175	1,493.2	70.16	686	6,727	1,481.6	75.97	757	7,425	
1,700	1,714.5	1,596.9	59.10	577	5,664	1,588.1	63.50	635	6,231	1,577.6	68.73	703	6,900	1,567.0	74.03	772	7,573	1,556.5	79.28	840	8,236	
1,800	1,837.6	1,712.0	63.08	677	6,641	1,702.4	67.89	745	7,304	1,691.0	73.59	824	8,087	1,680.5	78.83	897	8,800	-	-	-	-	
1,900	1,933.8	1,801.9	65.23	761	7,464	1,790.6	71.90	845	8,287	1,780.3	77.06	921	9,031	-	-	-	-	-	-	-	-	
2,000	2,041.7	1,901.3	70.48	868	8,513	1,892.1	75.09	940	9,219	-	-	-	-	-	-	-	-	-	-	-	-	
2,100	2,153.2	2,005.5	74.17	978	9,597	1,995.3	79.25	1,062	10,418	-	-	-	-	-	-	-	-	-	-	-	-	
2,200	2,245.0	2,092.2	76.72	1,066	10,455	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

DN	Nominal Pipe OD	SN 320,000				SN 640,000				SN 1,000,000			
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SUPPLIER CONTACTS

Future Pipe Industries LLC

Dubai UAE

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