

Background Information

In order to continue to satisfy the needs of customers, Flexpipe is expanding its popular 5” Flexpipe HT (FPHT) product line by manufacturing a 750 psi product offering.

About this Bulletin

This document highlights the main characteristics of the 5” Flexpipe HT product line and serves as a supplement to the Flexpipe Technical Manual and the Flexpipe Installation Guide. To obtain a copy of Flexpipe documents, please log onto www.flexpipesystems.com.

Technical Manual Additional Information

Product Lines

Flexpipe HT has been available in a 5” internal diameter as FP601 HT with a pressure rating of 10,342 kPa (1,500 psi) since 2019. The addition of 5” FP301 HT with a pressure rating of 5,171 kPa (750 psi) will expand the pressure offering of this versatile product line.

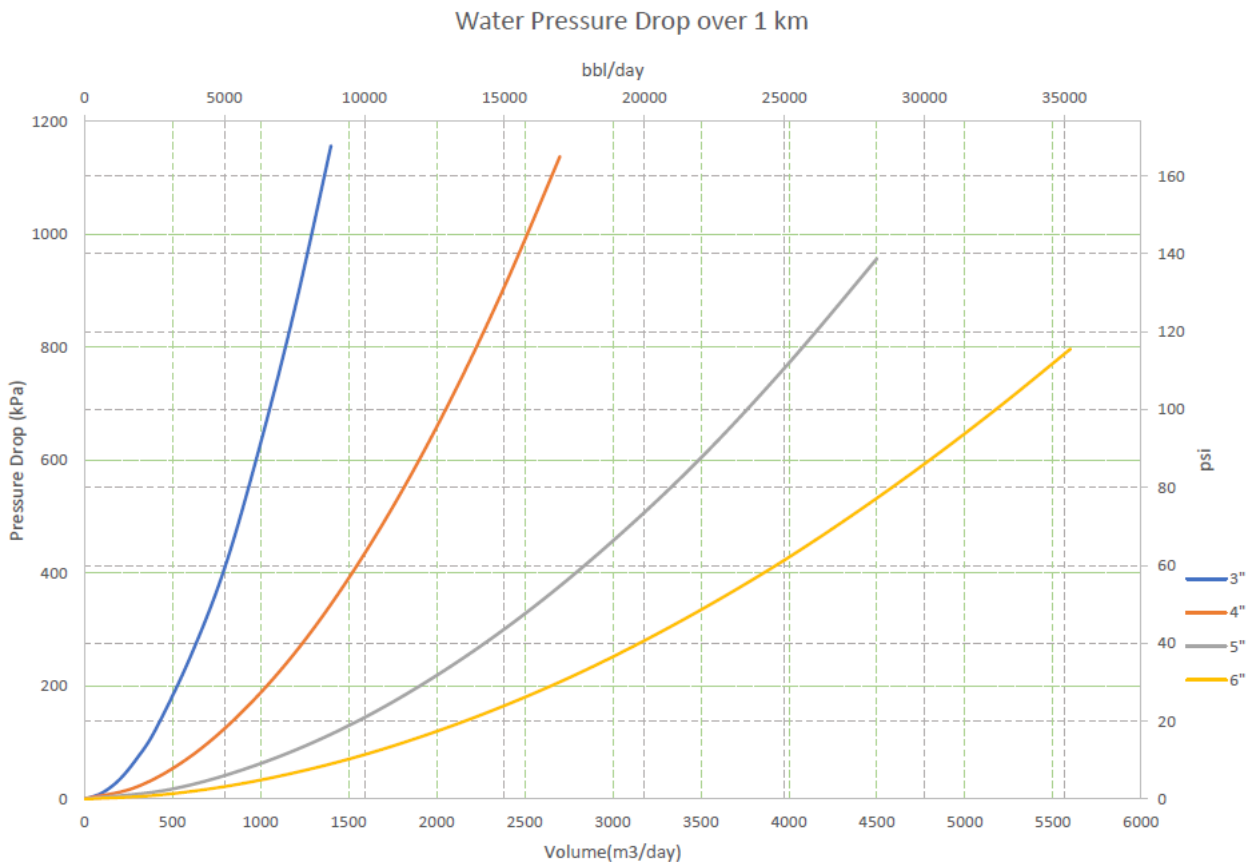


Figure 1: Estimated flow rates for a 1km long 5” pipeline carrying water

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Design

5" Flexpipe HT is the same multilayered construction, with a liner, reinforcement layers and jacket, as used in the 2"-4" Flexpipe HT products. The design of Flexpipe HT is shown in Figure 2.



Figure 2: Flexpipe HT Design

Materials

5" Flexpipe HT uses the same HDPE-RT resin as used in the 2"-4" Flexpipe HT products.

Fittings

5" Flexpipe HT uses a design similar to that of the Flanges, Couplings, and Weldnecks as used in the 2"-4" Flexpipe HT products. The configuration, design, materials, manufacturing and corrosion protection as detailed in the Flexpipe Technical Manual are the same.

Standards

Flexpipe HT is designed in accordance with the Canadian Standards Association (CSA) Z662 Section 13.1, and the American Petroleum Institute API 15S "Spoolable Reinforced Plastic Line Pipe".

Testing

Flexpipe HT qualification program includes extensive testing following API 15S and Flexpipe internal test procedures, including but not limited to Table 1.

Table 1: Qualification Testing

Test Description	Applicable Standard(s)
Regression Pressure Testing	ASTM D1598 API 15S
Elevated Temperature Pressure Testing	API 15S
Minimum Bend Radius Pressure Testing	API 15S
Short Term Burst Pressure Testing	ASTM D1599 Procedure A API 15S
Cyclic Pressure Testing	ASTM D2992-12 Procedure A
Impact Resistance Testing	API 15S
Thermal Cycle Testing	API 15S

Performance

Flexpipe will conduct Application Engineering Reviews for all Flexpipe HT installations to verify fitness of the product for the intended service.

Gas

Flexpipe HT is compatible with systems gases including those containing H₂S and CO₂.

Oil

Flexpipe HT is compatible with hydrocarbons including aromatic compounds.

Water

Flexpipe HT is compatible with produced water.

H₂S

Flexpipe HT is compatible with H₂S. Flexpipe chooses to limit H₂S content of up to 10% by mol in gas phase of liquids (oil and/or water) or multiphase. Applications above 10% are evaluated on a case-by-case basis.

CO₂

Flexpipe HT is suitable for gases or liquids containing up to 100% CO₂ by volume.

Aromatic and Cycloalkane Hydrocarbons

Flexpipe HT is compatible with aromatic and cycloalkane hydrocarbons (e.g. benzene, toluene, ethyl benzene, xylene, naphthalene and cyclohexane) in gas or liquids. Table 2 below lists the allowable aromatic and cycloalkane concentration for Flexpipe HT at normal operating pressures, based on Flexpipe test data.

Table 2: Allowable Aromatic and Cycloalkane Hydrocarbon Content for Flexpipe HT

Operating Temperature	Maximum allowable aromatic and cycloalkane content (by volume)
Up to 82°C (180°F)	50%

For gas applications in which condensates can form, a suitable pigging program should be implemented to prevent liquid buildup at low points along the pipeline.

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Methanol and Ethanol

HDPE has good resistance to concentrated methanol and ethanol at temperatures up to 82°C (180°F). Alcohols may be used with Flexpipe HT in continuous and batch programs, or during hydrotests to prevent freezing.

Maximum and Minimum Allowable Operating Temperature

Flexpipe HT is rated for a maximum allowable temperature of 82°C (180°F), and a minimum allowable temperature of -29°C (-20°F) for the low temperature O-rings and -5°C (23°F) for the standard O-rings. It is recommended to limit the amplitude of the temperature differential between the maximum and minimum operating temperatures to 87°C / 156°F or lower. Contact your Flexpipe Account Manager to discuss applications with extreme temperature swings.

Maximum Allowable Operating Pressure

5" FP301 HT is rated for a maximum allowable operating pressure of 5,171 kPa (750 psi) and the 5" FP601 HT is rated for a maximum allowable operating pressure of 10,342 kPa (1500 psi).

Flexpipe HT Cyclic Capabilities

Flexpipe HT is primarily intended for use with pumps generating a steady (non-pulsating) pressure output, such as centrifugal pumps, progressive cavity pumps, gear pumps, etc. It is not recommended to utilize Flexpipe HT with pumps generating a pulsating pressure output, such as Duplex, Triplex, Quintuplex, Diaphragm, Hydra-Cell, etc.

Flexpipe HT is not intended for severe cyclic applications. In order to eliminate or reduce the pressure fluctuations resulting from pump on/off cycles, Flexpipe recommends using a variable frequency drive (VFD) to regulate the flow rate while maintaining continuous and smooth operation of the pump.

Depending on their magnitude and frequency, pressure pulsations and fluctuations could be detrimental to the pipe performance. Please contact your Flexpipe representative for a project specific application evaluation, particularly in applications involving a pulsating or fluctuating pressure profile.

Pump Jacks

Flexpipe HT is a very good fit for applications with pump jacks. For pump jacks with an upstroke pressure above 150 psi, Flexpipe recommends limiting the amplitude of the pressure differential between the routine upstroke and down stroke pressures to 50 psi for 5” FP601 HT and 30 psi for 5” FP301 HT. Infrequent pressure excursions beyond this limit are generally acceptable. In order to ensure the long-term integrity of the piping system, Flexpipe recommends:

- Installing and maintaining a pressure switch (such as a Presco switch) set at a maximum of 100 psi above the upstroke pressure to limit the possibility of subjecting the pipeline to excessive pressure swings for extended time durations.
- Routinely monitoring the upstroke and down stroke pressure values using a calibrated pressure gauge mounted between the well head and the flow line.
- Implementing a suitable pigging program to ensure the upstroke pressure does not increase as a result of wax build up.

Thermal Conductivity

Flexpipe Spoolable Composite Pipeline Products thermal conductivity properties result from the properties of the polyethylene and the reinforcement materials. Accordingly, Flexpipe Spoolable Products is a good thermal insulator with higher resistivity than metallic pipes. Table 3 lists the approximate calculated thermal conductivity and resistivity values of the 5” Flexpipe HT product. Contact Flexpipe for guidance. Laboratory testing of these values has not been conducted or confirmed.

Table 3: 5” Flexpipe HT Thermal Conductivity and Resistivity

Item	Units	Value		Units	Value	
		5” FP301 HT	5” FP601 HT		5” FP301 HT	5” FP601 HT
Pipe Size						
Wall Thickness	mm	16.33	20.42	in	0.643	0.804
Resist_eff	1/K_eff	3.51	4.16	hr*ft*F/Btu	6.072	7.208
K_eff	W*m ⁻¹ *K ⁻¹	0.29	0.24	1/Resist_eff	0.165	0.139

Support Spacing

For elevated support of Flexpipe Spoolable Products, a continuous tray which is wide enough to allow for the expected thermal expansion and snaking is recommended. Flexpipe Spoolable Products may also be supported using individual (non-continuous) pipe supports or hangers, as long as the expected thermal expansion can be accommodated. The pipe should be allowed to rest in a rounded cradle, with a length approximately equal to or greater than the nominal diameter of the pipe being supported. Fittings within the elevated area should be directly supported. Supports should have rounded edges that will not cut into the pipe. In order to prevent excessive sag between supports, Flexpipe recommends spacing the supports no farther than the distances given in Table 4.

Table 4: Recommended Pipe Support Spacing for the Flexpipe HT product

	Recommended Maximum Support Spacing			
	Liquid Service		Gas Service	
	(m)	(ft)	(m)	(ft)
5" Flexpipe HT	1.5	5	1.8	6

Buoyancy and Pipe Weights

Flexpipe Spoolable Products will float in water or muskeg if not weighted or buried in a clay base. If conditions are suitable, the pipeline may be plowed into muskeg without weighting. The suitability of the conditions may be evaluated based on existing pipelines in the area and consultation with Flexpipe Engineering.

If there is a concern that the pipe may float, the pipe can be weighted during installation. The weights should not have sharp edges that could point-load or cut the protective jacket of the product. Sand-filled saddlebag weights are recommended.

When weights are used it is preferable to place them while the pipe is in the ditch, if this is not possible, it is extremely important that the pipe is handled and lowered into the ditch by lifting as near as possible to the weights. Lifting on the pipe may cause the pipe to kink or be damaged by the weights.

The following formulas can be used to calculate the pipe buoyancy per unit length (note that some unit conversions may be required). To keep the pipe submerged, the sand bag weight per unit length must be slightly more than the buoyancy force per unit length. Note that there will also be a buoyancy force on the sand bags themselves, which is compensated for in the formulas below.

Pipe cross - sectional area = $OD^2 \times \frac{\pi}{4}$

Weight of fluid displaced per unit length of pipe = Pipe cross - sectional area \times Fluid density

Net buoyancy per unit length of pipe
 = Weight of fluid displaced per unit length - Pipe weight per unit length
Note that the pipe will sink if the net buoyancy is less than 0.

Submerged sand bag weight required per unit length of pipe = Net buoyancy per unit length of pipe \times 1.1
 Flexpipe recommends multiplying by 1.1 to ensure the pipeline is adequately weighted to remain submerged.

Weight of fluid displaced by sand bag = Volume of fluid displaced by sand bag \times Fluid density
 Submerged weight of sand bag = Weight of sand bag in air - Weight of fluid displaced by sand bag

Sand bag spacing = $\frac{\text{Submerged weight of sand bag}}{\text{Submerged sand bag weight required per unit length of pipe}}$

Note: The sand bag spacing should be small enough to prevent the unrestrained pipe between sand bags from rising too far.

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The recommended dry sand bag weight is shown in Table 5 for each type of Flexpipe Spoolable Products. These results are based on muskeg with a fluid density of 1121 kg/m³ (70 lb/ft³).

Table 5: Recommended Sand Bag Weighting Flexpipe HT

		Pipe Weight per Length		Pipe OD		Recommended Weights*		Recommended Maximum Spacing	
		(kg/m)	(lbs/ft)	(mm)	(in)	(kg)	(lb)	(m)	(ft)
FP301 HT	5"	8.3	5.6	157	6.2	100	220	4.0	13.0
FP601 HT	5"	11.8	7.9	165	6.5	100	220	4.0	13.0

*Dry sand bag weight. These weights already include the recommended safety factor of 1.1 to ensure the pipe remains submerged.

Installation Guide Additional Information

Shipping Reels

5" Flexpipe HT pipe and fittings weigh more than other Flexpipe HT products. Caution must be taken when loading, unloading and handling the pipe, reel and fittings. Only appropriately rated equipment should be used. Lifting equipment, team lift, and proper lifting techniques should be utilized when handling fittings.

Table 6: 5" Flexpipe HT pipe and fitting weights

5" Flexpipe HT							
Pipe		Flange		Coupling		Weldneck	
FP301 HT	FP601 HT	FP301 HT	FP601 HT	FP301 HT	FP601 HT	FP301 HT	FP601 HT
8.3 kg/m	11.8 kg/m	51 kg	64 kg	57 kg	58 kg	39 kg	40 kg
5.6 lb/ft	7.9 lb/ft	132 lbs	141 lbs	125 lbs	128 lbs	85 lbs	88 lbs


The reel for 5" Flexpipe HT products is different than those used for 2"-4" products. The height and width of the reels remain the same as 2"-4" but the diameter of the central hub of the reel which the pipe is wrapped around is larger. The reel contains four additional spokes.



Figure 3: 5” FP601 HT reel

Deploying Flexpipe Spoolable Products

Most of the standard Flexpipe HT deployment methods are acceptable for 5” Flexpipe HT products. Contact Flexpipe for approved installation methods. Slower deployment speeds may be required to reduce the amount of slack build-up on the reel.

 <p>NOTE!</p>	<p>The following guidelines have been set for determining whether a scratch is tolerable:</p> <p>5” pipe – Max scratch depth: 3.2 mm (0.125” or 1/8 inch)</p>
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Minimum Operation and Handling Bend Radius

The minimum allowable bend radius of Flexpipe Spoolable Products differs in operation (pressurized) and transport/handling (un-pressurized) conditions, as shown in Table 7.

Table 7: Minimum Operation and Handling Bend Radius

Flexpipe Spoolable Product	Minimum Bend Radius OPERATION		Minimum Bend Radius TRNSPORT & HANDLING	
	(m)	(ft)	(m)	(ft)
5” Flexpipe HT	3	10	1.4	4.5

Note: The minimum radius does not apply to fittings/couplings. These joints need to be kept straight to avoid point loading at the end of the fitting. Typically, there should be no bends within 1 meter (3 feet) from a fitting.

Maximum Allowable Pull Force

The maximum allowable pull force that can be exerted on 5” Flexpipe HT products without risk of damaging the pipe must be observed:

Table 9: Maximum Allowable Pull Force

Flexpipe NPS	Kilogram-Force	Newtons	Pound-Force
5” Flexpipe HT	5 103	50 042	11 250

Note: It is Flexpipe’s recommendation to use an inline tensile load measuring device and a swivel for all bore and liner pulls. After the pull is complete, the section that was pulled on should be cut back at least 1.5 meters (5 feet) from the pull point and discarded.

Plowing

5” Flexpipe HT products are suitable to be plowed. Contact your Flexpipe representative for additional information regarding plowing 5” products and suitability of plow chute dimensions.

Pulling Through Conduit Pipe

In situations where the existing pipeline has failed, Flexpipe Spoolable Products can be used as a remedial line or free-standing liner. In these applications there must be adequate clearance between the outer diameter of the Flexpipe Spoolable Products, and the inner diameter of the conduit. There cannot be obstructions in the existing conduit that could damage the Flexpipe Spoolable Products. The conduit pipe must also be clean.

See Table 10 and Table 11 below for guidance on compatibility of Flexpipe Spoolable Products with conduit pipe sizes. This guidance assumes round pipe and a straight line. Pulling with ovalled pipe off the reel, pulling through bends, etc. should be evaluated by the installation contractor to determine potential maximum pull lengths.

Table 10: Steel Conduit Piping Compatibility Chart

Wall thickness	8” Steel				10” Steel			
	Sch.20	0.219” wall	0.188” wall	Sch.10	0.252” wall	0.220” wall	0.189” wall	0.157” wall
Conduit ID	8.125”	8.817”	8.249”	8.329”	10.246”	10.309”	10.372”	10.435”
Product								
5” FP301 HT	PF	PF	PF	PF	PF	PF	PF	PF
5” FP601 HT	PF	PF	PF	PF	PF	PF	PF	PF

N = Not compatible
 P = Compatible for pipe without fittings
 PF = Compatible for pipe with coupling fittings

Table 11: Minimum ID and Required Sizing Plate

Flexpipe NPS		Minimum ID of conduit*	Sizing Plate
5-inch	mm	172	166
	inch	6.77”	6.54”

*Minimum ID of conduit for pipe only. Fittings will require a larger conduit ID.

Crimp Kit

The standard crimp kit used to install 2”-4” Flexpipe and Flexpipe HT is not used to install the 5” product. A specific large ID crimp kit is used to install 5”-6” products.


	<p>NOTE! The large ID crimp kit is heavier than the standard crimp kit. Lifting equipment and proper lifting techniques should be used when handling the large ID crimp kit.</p>
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Table 12: Crimp kit equipment list and weight

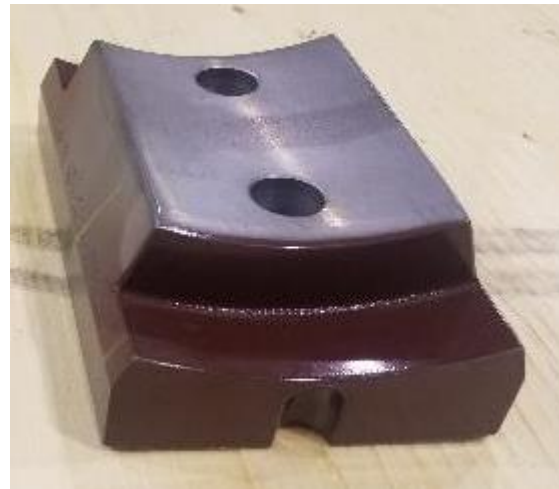
Equipment	Weight	
	lbs	kg
4-Way Report Valve w/ Hoses	23	10.5
Press	144	65.5
Pump	134	61
Crimper	542	246

Crimper Die Sets

The 5” Flexpipe HT crimper die set comes with 8 individual dies that fit into the crimper. Each die has two bolt holes beveled into the die. Unlike the 2”-4” product lines, the 5” product line has a unique set of dies for each pressure class. In order to easily distinguish the die sizes from one another, the 5” FP601 HT crimper dies are purple and the 5” FP301 HT crimper dies are orange. In addition, the dies are etched with “301 and “601”.



5” FP301 HT Crimper Dies



5” FP601 HT Crimper Dies

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Reamer - Pipe Beveler

A new piece of equipment has been released for beveling the internal liner of all Composite Production Systems (CPS) Products. Bosch's 18V Cordless Die Grinder with Reed's Cordless Power Pipe Beveler as shown below. This tool uses a Reed RBIT1 15° router bit to safely and consistently bevel the internal liner of 5" Flexpipe HT products prior to fitting installation. Initially, CPS field technicians will use the Pipe Beveler. Reference SOP 14-4194 – 5 Inch Pipe Beveler for additional information.



Figure 5: Pipe Beveler

Pipe Clamps

The Mandrel Insertion Press inserts the fitting into the Flexpipe Spoolable Product by pushing against the pipe clamp. The pipe clamp inserts for the 5" Flexpipe HT products are purple. Depending upon the size and type of Flexpipe Spoolable Product being installed, various pipe clamp inserts must be used. All of the pipe clamp inserts are labeled accordingly.



Figure 6: Pipe clamp with inserts

Marking the Pipe End

Trace the insertion mark **A** and the clamp mark **B** on the pipe end as per the table below. Insertion mark **A** indicates how far the pipe should be pushed into the fitting. Clamp mark **B** shows where to place the pipe clamp.

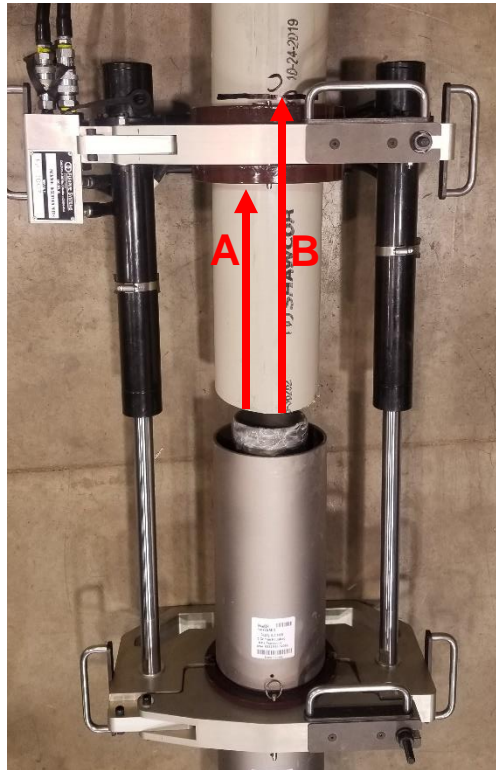


Figure 7: Insertion mark (A) and clamp mark (B)

Table 12: Marking Distances

Flexpipe NPS	Insertion Mark (A)		Clamp Mark (B)	
	(mm)	(inches)	(mm)	(inches)
5" (All fittings)	358	14 1/8	460	18 1/8

Checking Flattened Pipe

Minor indentations and ovalization of the pipe from manufacturing the pipe onto the reel is normal. The method of installation may also cause pipe indentations or ovalization. Pipe that has been flattened up to 50% of the original outside diameter is acceptable during installation because the line will relax back into round shape. Pipe that has been flattened beyond 50% of the original outside diameter must be cut out. Please refer to Figure 8 and Figure 9 as well as the ovality % calculation below.

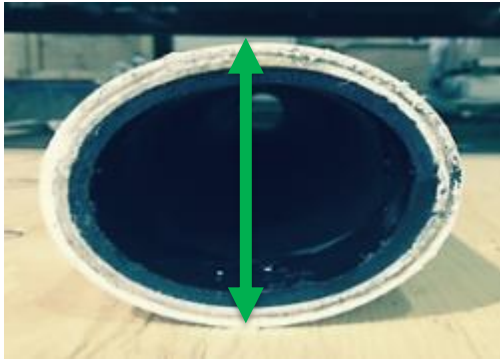


Figure 8: Acceptable Ovalization



Figure 9: Unacceptable Ovalization

$$Ovality \% = \frac{(Max\ OD - Min\ OD)}{Nominal\ OD} \times 100$$

Max OD: the widest outer diameter
 Min OD: the smallest outer diameter
 Nominal OD: the pipe OD as manufactured

If the pipe has concave indentations such as seen in the third case in the below figure, the distance between inflection points (the place on the pipe where it changes from being round or convex to concave as you run your finger around in circumferentially), must be measured. If the width exceeds that found in the below table, the pipe section containing the indentation must be cut out.

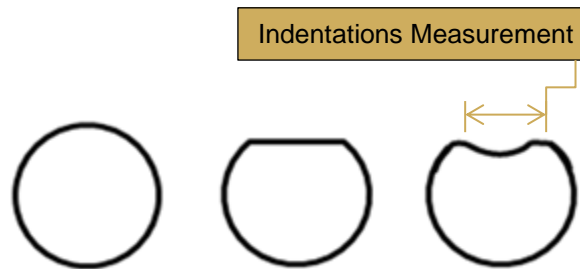


Figure 10: Indentations Diagram

Table 13: Maximum Acceptable Width of Indention

Flexpipe NPS	Concave Indention Width	
	mm	inch
5"	76	3

If the pipe end is oval, squeeze the end of the pipe back into round by positioning the external pipe clamp shown below 2-3 inches from the end of the pipe. Align the external pipe clamp so that the center of each half contacts the short side of the oval, with the hinges and bolt aligned along the long sides of the oval.

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The pipe may be pre-heated to reduce the stiffness. It is recommended that a portable heater be used to warm up the end of the pipe. Do not heat the pipe above a temperature that is comfortable to touch with a bare hand (maximum 60°C, 140°F). If the pipe is too hot to touch with a bare hand, allow it to cool prior to applying a pipe clamp or installing the fitting. A section of pipe approximately 1 m (3 ft.) long should be heated.



Figure 1: 5" External Pipe Clamp

Inserting the Pipe into the Fitting

When using an older design of the Mandrel Insertion Press, or installing larger diameter fittings, the cylinders of the Insertion Press will not extend far enough to allow a single insertion stroke.

The assembly will require the two-stage insertion process as outlined below.

- Select the pipe clamp that matches the product size and series you are using. Initially set the pipe clamp back approximately 10" from the end of the pipe and tighten.
- Set the pipe into the insertion press, center and align the leading edge of the mandrel into the bore of the pipe, then close and secure the gate with the locking pins.
- Insert the pipe approximately halfway onto the mandrel, or until the pipe reaches the edge of the fitting sleeve. Confirm the mandrel and pipe are properly set into each other prior to the next step below.
- Now fully open the press, move the pipe clamp back to the original pipe clamp mark, and slowly begin to close the press. Stop the pipe insertion once the sleeve has reached the insertion marking located on the pipe.
- In both insertion strokes, the clamp must never be closer than 4" from the end of the sleeve to avoid damaging the reinforcements.

Fitting Support

The pipe should be supported when installing end fittings or pull tools particularly when the connection is close to the reel. Support should be ~3' from the crimper. After installation, always support and lift the fitting to avoid kinking the pipe.

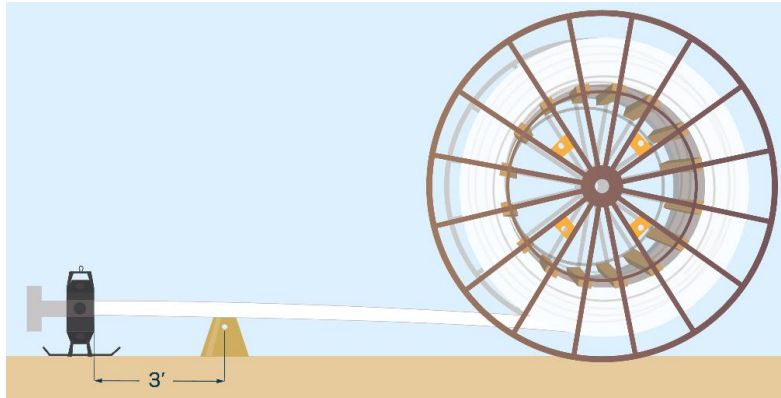


Figure 12: Fitting installation pipe support

Marking the Fitting

Based on the fitting size and grade, mark the applicable crimp locations on the fitting as shown below. All distances are from the sleeve end on the pipe side.

Table 14: Crimp Location Dimensions – Fittings

Crimp Number	5" (5 Crimps)	
	(mm)	(inches)
1 st Crimp	270	10 5/8
2 nd Crimp	203	8
3 rd Crimp	136	5 3/8
4 th Crimp	67	2 5/8
5 th Crimp	Flush with Sleeve End	Flush with Sleeve End

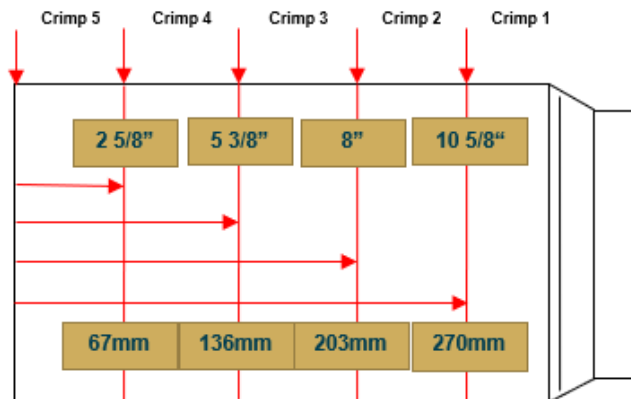


Figure 13: 5" Fitting Crimp Locations

Note: The flare on 5" may appear to be smaller than other Flexpipe HT products.

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Anode Kit

The anodes for 5" Flexpipe HT have two anode strips. The anodes are installed similar to other products. The anode is secured to the fitting using the attached clamp. Both anode strips are secured to the pipe on the same side of the coupling using the provided cloth tape. The fittings then are wrapped with protective wrapping as outlined in the Installation Guide.



Figure 14: 5" Anode Kit

Risers

Flexpipe riser chutes are designed to protect Flexpipe Spoolable Products from ground movement caused by settlement, freezing and thawing cycles, etc. It is recommended to use a riser chute to transition Flexpipe Products from buried to an above ground connection. Riser chutes are available from Flexpipe. Check with Flexpipe for the latest versions of the riser drawings.

Flexpipe currently only offers a 45° riser chute due to the bend radius of 5" pipe. Contact Flexpipe if a 90° riser is required.

The installation of the 5" riser is similar to those for 2"-4". The 5" riser is the same riser and hardware as the 6" riser thus there will be a small gap between the pipe and the C-channel. It is also required to use the supplied square backing tube between the bottom of the riser chute and the U-bolt nuts. U-bolts must only be hand tight. Do not over tighten the U-bolts. There will be a gap between the edge of the plastic half-moon and the pipe. Additional riser installation guidance is available in the Flexpipe Installation Guide.



Figure 15: 5" FP601 HT installed into a 45° riser chute

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Figure 16: Square backing tubing and gap between the plastic half-moon and the pipe (left). Gap between the pipe and C-channel (right).

Pigging

Use only 5.25" standard medium-density foam pigs for watering / de-watering of pipelines, light cleaning, dry gas pipeline pigging and for initial pigging operations through new pipelines. Either blunt nose or bullet foam pigs are acceptable. Custom polyurethane pigs designed for use with Flexpipe Spoolable Products provide more aggressive cleaning of the pipeline and require the presence of some liquid in the pipeline to provide lubrication. These custom polyurethane pigs should not be used in dry gas pipeline applications or new pipelines that have not been in service. Pigs other than those recommended by Flexpipe may become stuck at fittings because of the ID restriction and/or may damage the pipe. The pigs are currently not capable of cleaning 6" steel pipes. See Figure 11 below showing the 5" Flexpipe HT Crimp Flange Fitting cross-section. It is recommended to minimize the distance between the launcher / receiver and the inlet of the 5" Flexpipe HT. Contact your Flexpipe representative for the foam and polyurethane pigs as they are not available at the typical pig vendor.

For new installation of the 5" Flexpipe HT product, pass a 5.25" medium-density foam pig through the pipeline before attempting to use the custom polyurethane pig.

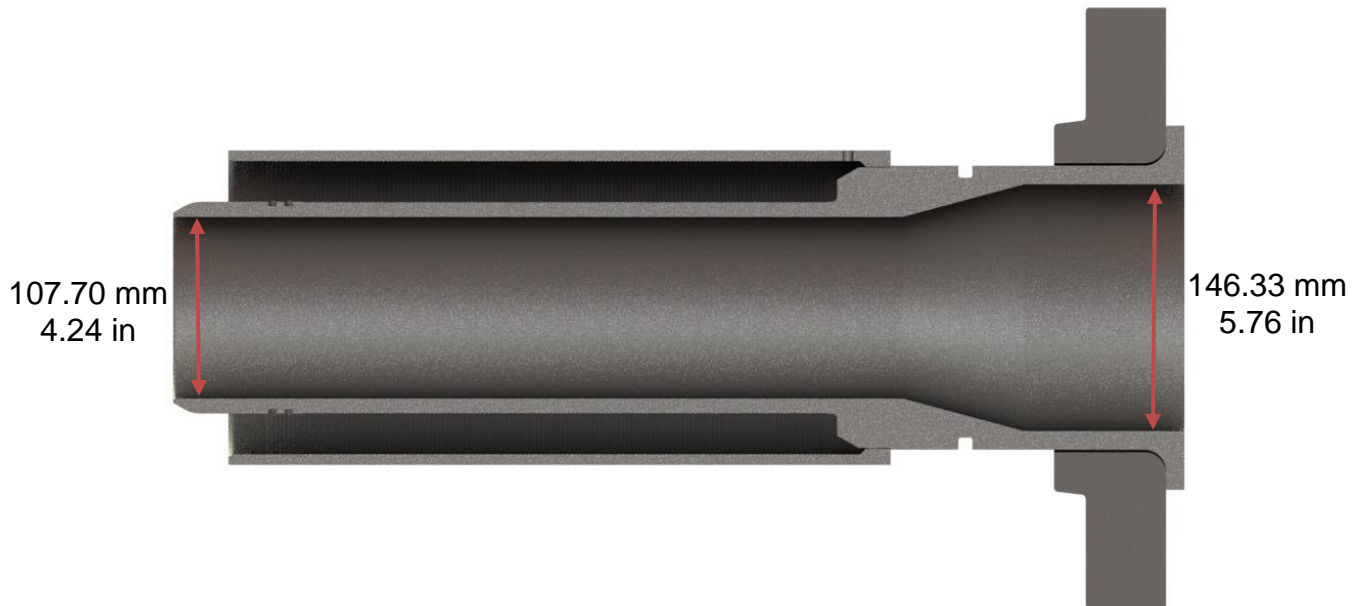


Figure 17: 5" Flexpipe HT Flange Crimp Fitting Cross-section

Appendix A.2 Flexpipe HT Product Datasheet

Flexpipe HT (FPHT)		FP301	FP601
Maximum Operating Pressure @ 82°C or 180°F		5,171 kPa/ 750 psi	10,342 kPa/ 1,500 psi
Nominal Size		5"	5"
Outside Diameter	Metric (mm)	157	165
	Imperial (inches)	6.2	6.5
Inside Diameter	Metric (mm)	125	125
	Imperial (inches)	4.9	4.9
Pipe Weight	Metric (kg/m)	8.3	11.8
	Imperial (lbs/ft)	5.6	7.9
Weight – Full of Water	Metric (kg/m)	20.4	23.9
	Imperial (lbs/ft)	13.7	16.1
Min. Bend Radius (Operational)	Metric (m)	3	3
	Imperial (ft)	10	10
Length/Reel*	Metric (m)	365	325
	Imperial (ft)	1,198	1,066
Reel Diameter	Metric (m)	3.7	3.7
	Imperial (ft)	12	12
Reel Width	Metric (m)	2.4	2.4
	Imperial (ft)	8	8
Reel Weight - Full*	Metric (kg)	4,170	5,085
	Imperial (lbs)	9,190	10,980
Reel Weight - Empty	Metric (kg)	1,150	1,150
	Imperial (lbs)	2,530	2,530
Fitting Outside Diameter**	Metric (mm)	178	186
	Imperial (inches)	7.0	7.3
Fitting Inside Diameter**	Metric (mm)	108	108
	Imperial (inches)	4.2	4.2

*Lengths and reel weights are approximate as they may vary depending on the manufacturing run.

**Fitting dimensions do not include O.D. of flange provided for flanged end fittings. Fitting O.D. and I.D apply to flanged end, weld-neck and pipe-to-pipe coupling fittings.

Product data is subject to change without notice. Flexpipe's products are patented by US Patents 6,889,716, 6,902,205, 7,946,629 B2 and 8,042,252 B2 by Canada Patents 2,513,506, 2,513,468 and 2,562,823 and by European Patent 1592908. Additional patents are pending. Flexpipe products comply with API 15S, API 17J, CSA Z662-15, ASTM F2686 and ASTM D2992. ©Mattr Ltd., 2015

Table E.7 Pipe Fill Volume per Unit Distance

Flexpipe, Flexpipe HT, FlexCord			
Nominal Size (in)	bbl/ft	gal/ft	m ³ /m
5	0.02	0.98	0.012