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HOT TAPPING

Hot Tapping & Line Stopping are necessary and economical solutions for the growing demand of adding valves, replacing valves, and changing a pressurized system without a shut down.

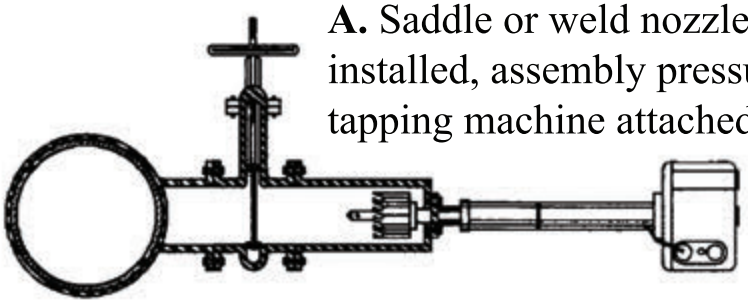
With today's great demand for expansion and changes, large diameter feeder lines are not easily shut down and drained to make modifications. The unnecessary waste of large volumes of water, sewage or chemicals is of great concern to everyone. In addition, the possibility of a fire starting while fire lines are emptied is a risk not worth taking.

Call today for a free quote!
800-221-3332

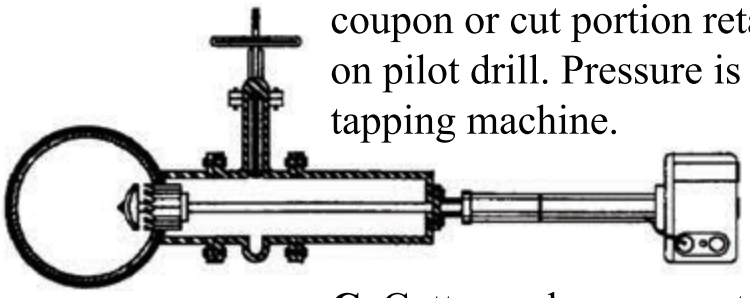
www.HotTap.com

SERVICES 1/2” - 72”

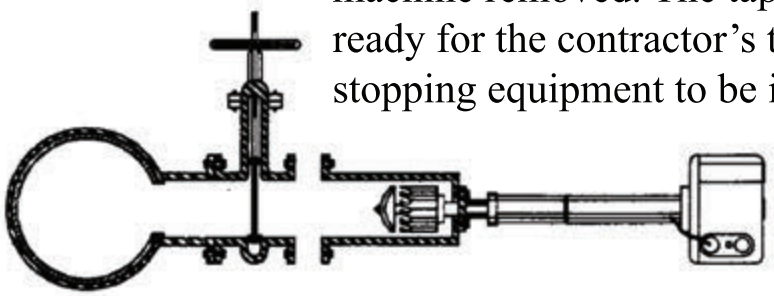
Hot tapping or pressure tapping is the method of making a connection to existing piping or vessels without interruption to the system. Hot tapping is also the first procedure in line stopping. The hole saw is used to make an opening in the pipe so a line plugging head can be inserted. IFT’s hot tapping services include tapping 1/2" to 72" on natural gas, water, sewage, steam, petroleum products, and chemicals.



A. Saddle or weld nozzle installed, valve installed, assembly pressure tested and tapping machine attached.

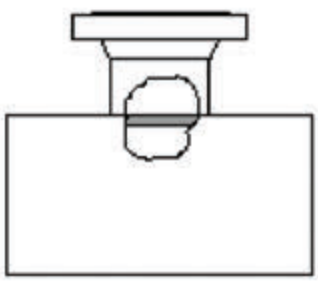


B. Valve opened, hot tap completed, coupon or cut portion retained by latches on pilot drill. Pressure is contained within tapping machine.

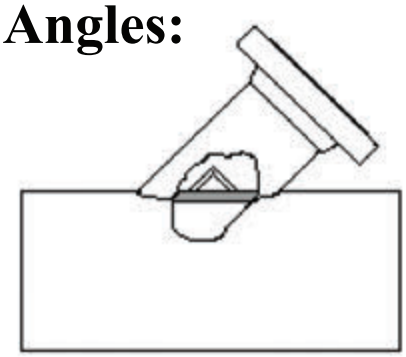


C. Cutter and coupon retracted and valve closed. Fluid is drained and tapping machine removed. The tapped valve is now ready for the contractor’s tie-in or IFT line stopping equipment to be inserted.

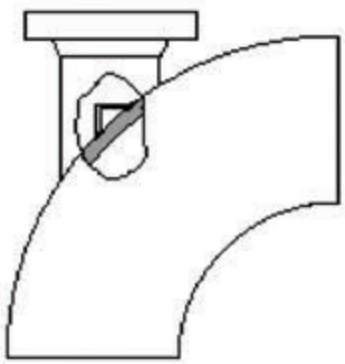
Typical Tapping Angles:



Straight Tap

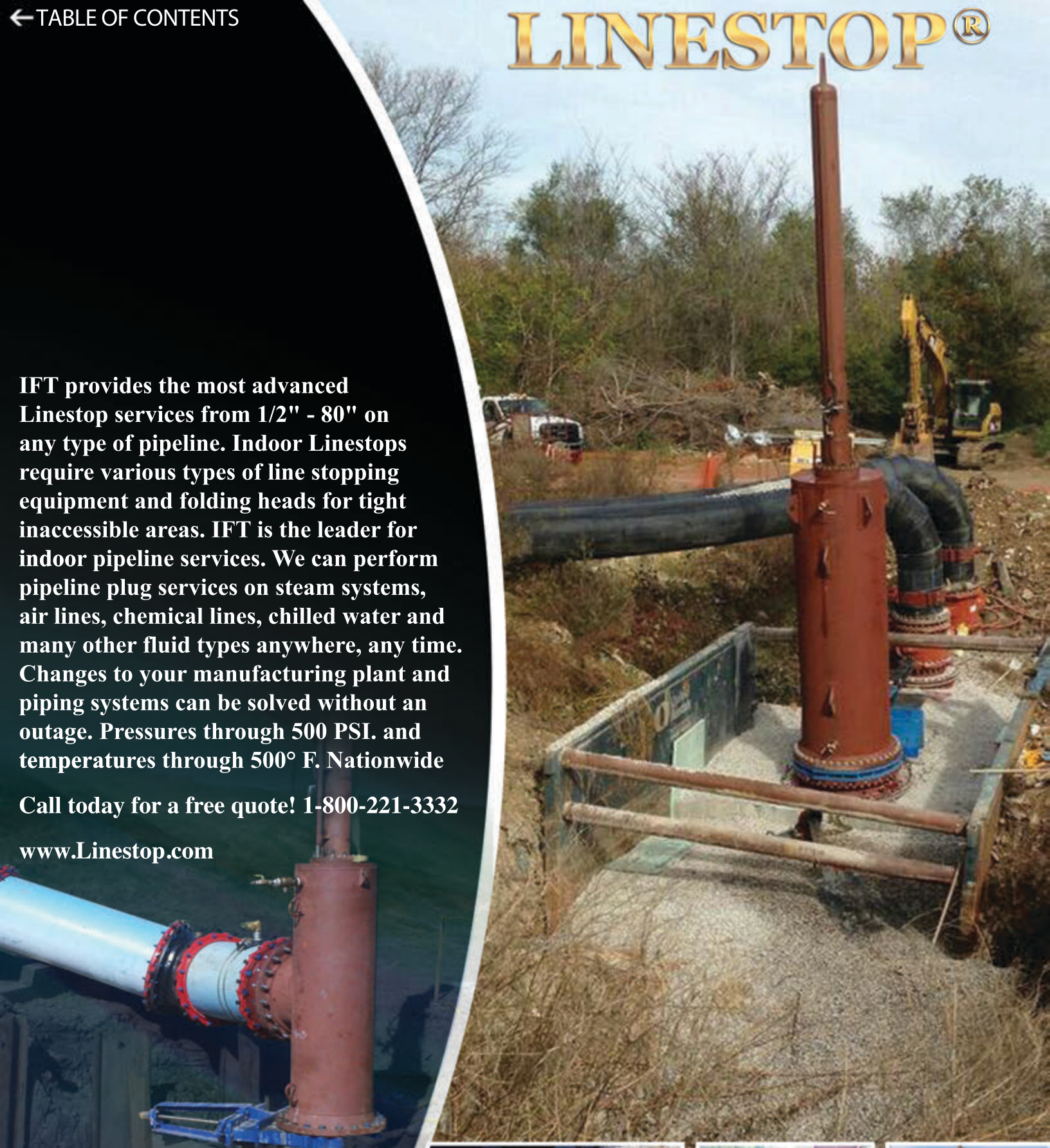


Angle Tap



Elbow Tap

LINESTOP®



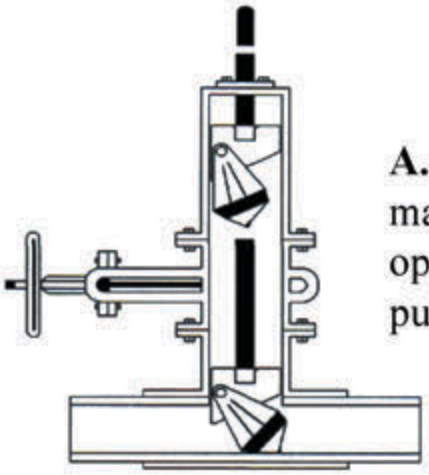
IFT provides the most advanced Linestop services from 1/2" - 80" on any type of pipeline. Indoor Linestops require various types of line stopping equipment and folding heads for tight inaccessible areas. IFT is the leader for indoor pipeline services. We can perform pipeline plug services on steam systems, air lines, chemical lines, chilled water and many other fluid types anywhere, any time. Changes to your manufacturing plant and piping systems can be solved without an outage. Pressures through 500 PSI. and temperatures through 500° F. Nationwide

Call today for a free quote! 1-800-221-3332

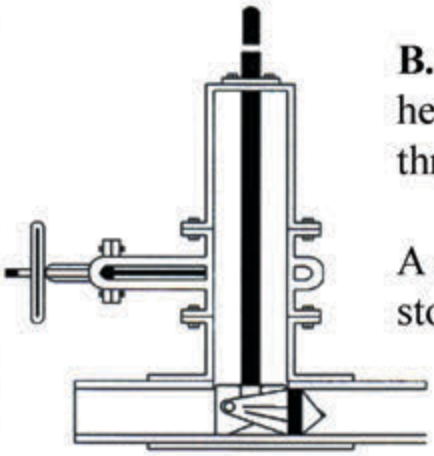
www.Linestop.com

SERVICES 1/2” - 80”

Line stopping or line plugging is a means of isolating a piping system and providing a shut off where none exists. This process serves as a control, or temporary valve that is removed after alterations or valve replacements have been made.

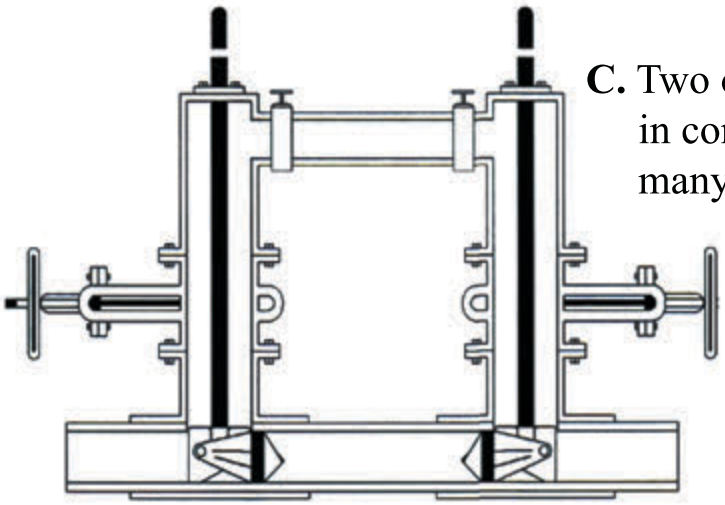


A. Hottap on line previously made, linestop™ machine attached to temporary valve and valve opened. Linestop™ hydraulically or mechanically pushed into line to plug the pipe.



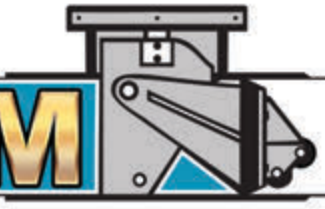
B. There are various types of line stopping heads. The type illustrated can hold pressures through 1000 psi.

A single linestop™ can be used to temporarily stop off and abandon a pipeline.



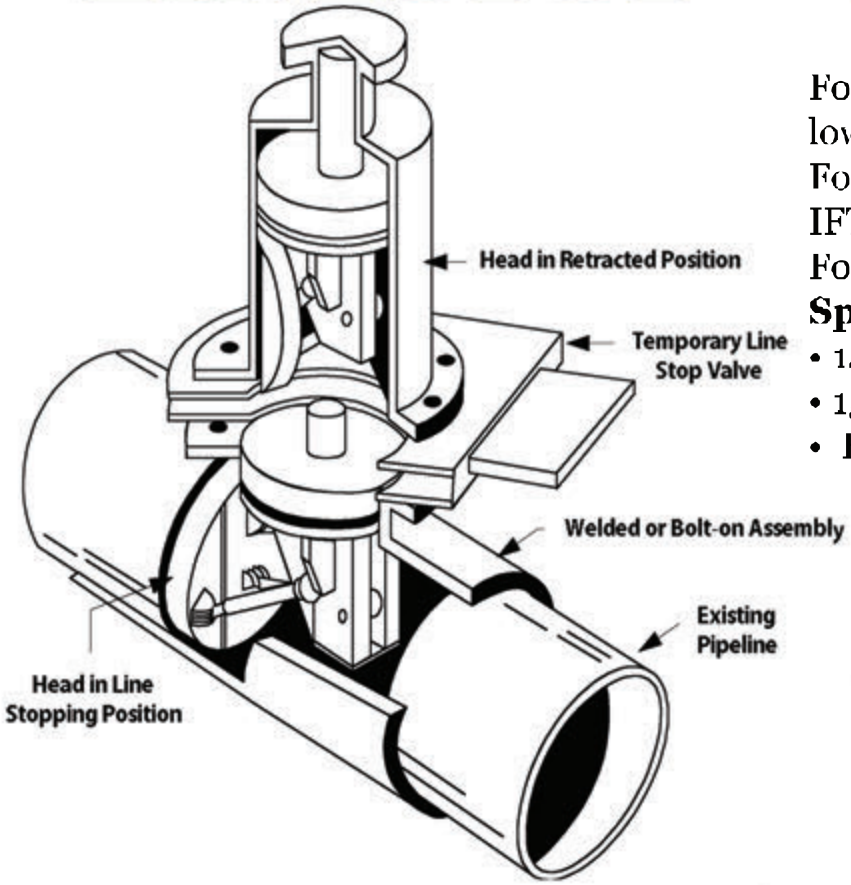
C. Two or more linestops can be used in conjunction to isolate and bypass many intersecting lines at once.

Fluid in line is bypassed, leaving a workable dead section to alter, repair or add a valve, while service provided by this line is continued.



®LINESTOP.COM

LINESTOP™ MACHINES

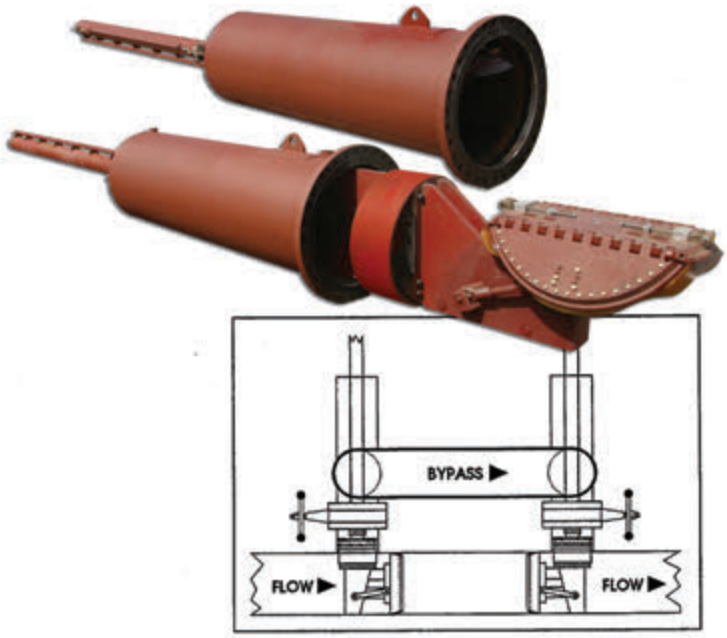


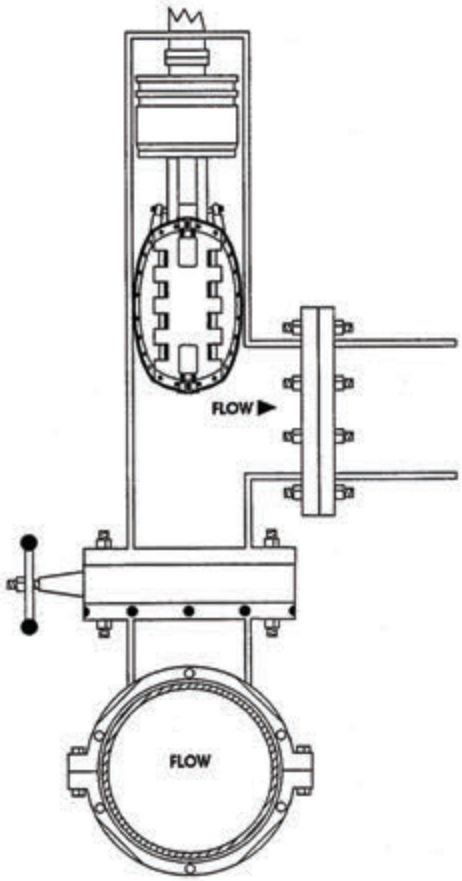
IFT Folding Head

Folding head machinery was designed for low cost line stopping on all types of pipelines. For example, by utilizing folding equipment IFT can stop a 60" line through a 36" tap. For futher information contact our office.

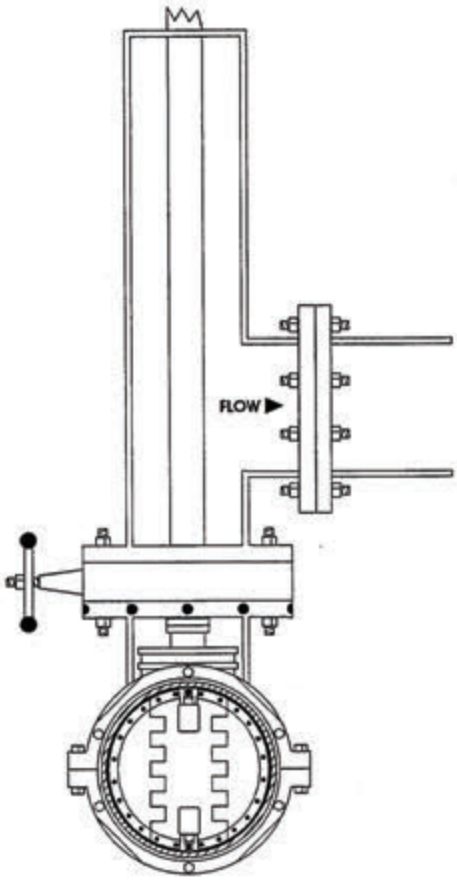
Specifications:

- 14" - 72" Line Stops
- 150 psi Working Pressure
- For Mortar Lined and Out of Round Pipelines

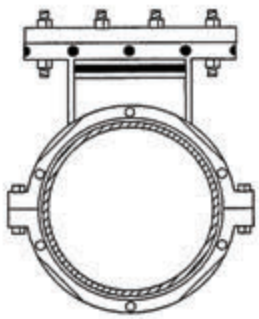




Line stop fitting is installed, and hot tapped, line stop head connected to temporary access valve and bypass line connected.



Line stopping head Installed, stopping existing flow and re-routing it thru bypass outlet.

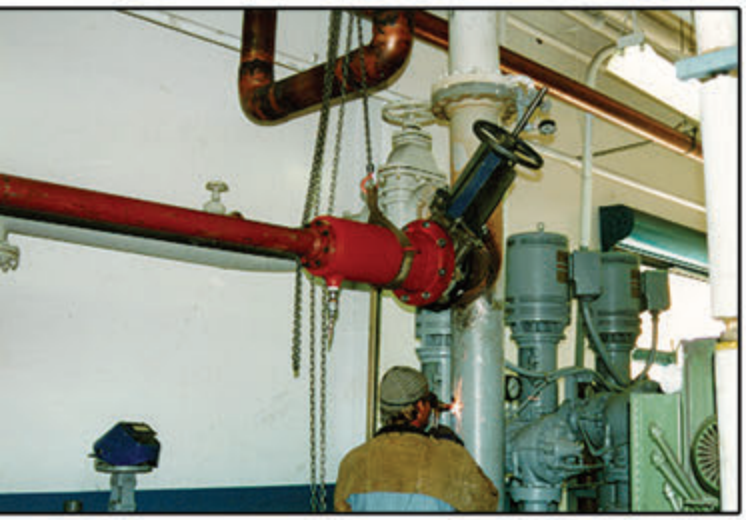


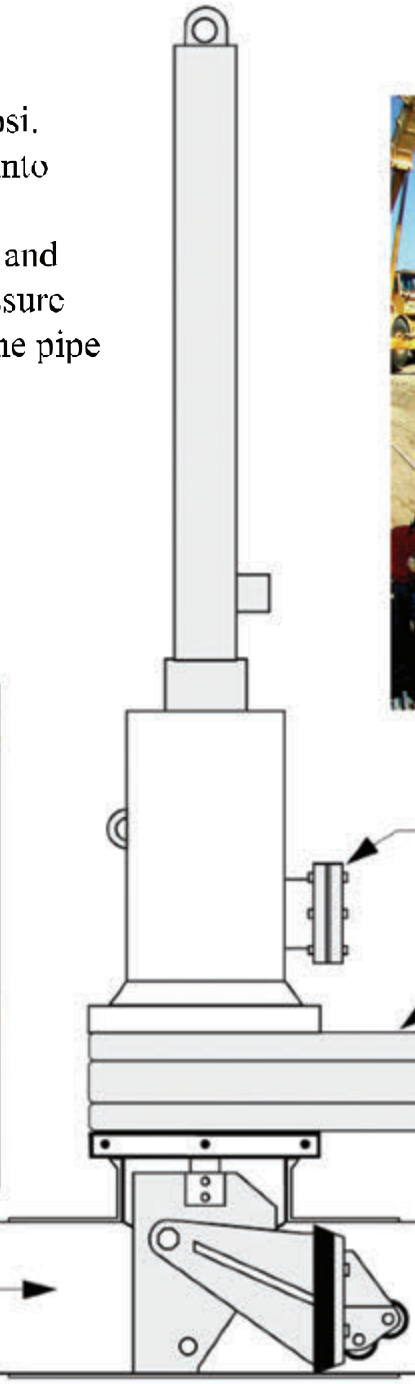
Line is capped, new valve Is installed, or modified. The bypass outlet is removed. Line stopping equipment removed under pressure.

IFT Top Stop 1000

The TOP STOP 1000 was designed to linestop high pressure lines up to 1000 psi. The head tilts down so that it can pivot into the pipeline. When the wheels touch the bottom of the pipe, they guide the head and sealing element into place. The line pressure presses the cup up against the walls of the pipe to help set the seal.

Specifications:
Capabilities from: 1"- 48"
Temperatures up to:
350 Degrees (F)





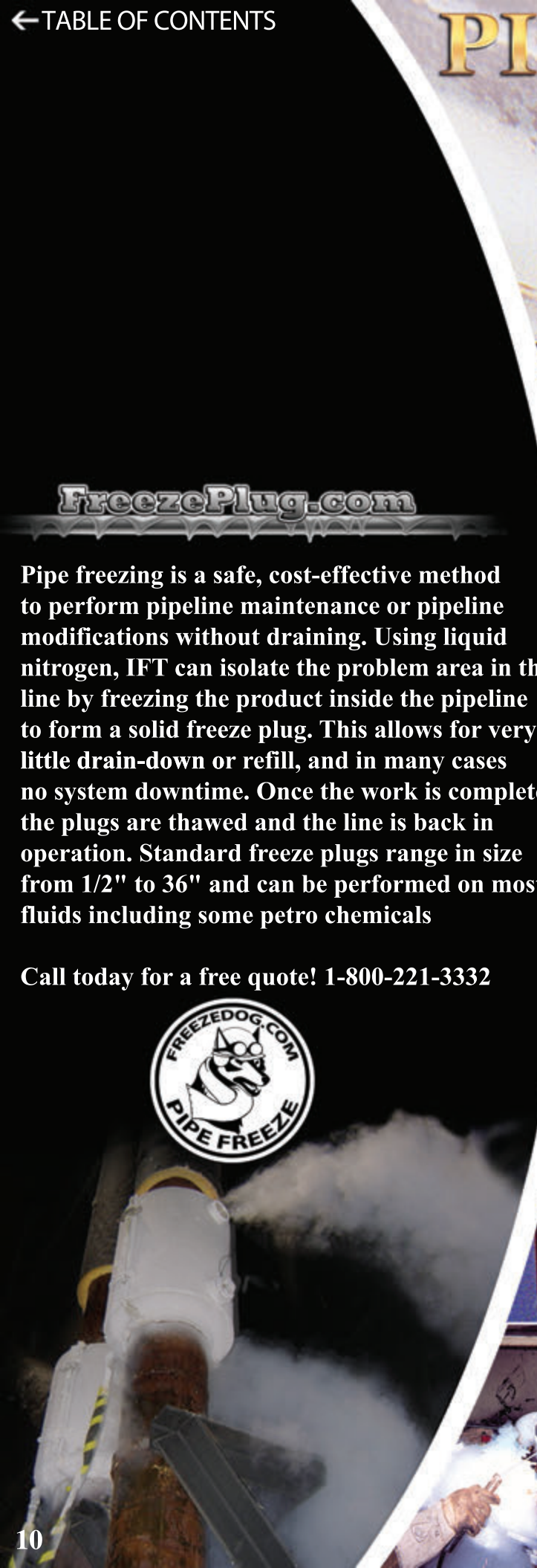
PIPE FREEZING

FreezePlug.com

Pipe freezing is a safe, cost-effective method to perform pipeline maintenance or pipeline modifications without draining. Using liquid nitrogen, IFT can isolate the problem area in the line by freezing the product inside the pipeline to form a solid freeze plug. This allows for very little drain-down or refill, and in many cases no system downtime. Once the work is complete, the plugs are thawed and the line is back in operation. Standard freeze plugs range in size from 1/2" to 36" and can be performed on most fluids including some petro chemicals

Call today for a free quote! 1-800-221-3332

FREEZEDOG.COM
PIPE FREEZE



SERVICES 1/2” - 36”

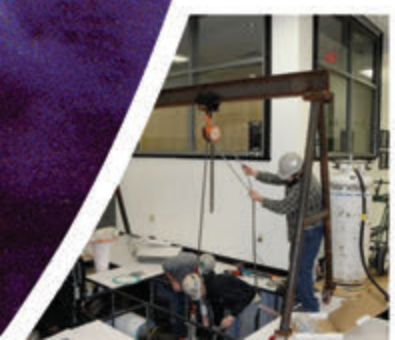
Our repeat customers include power plants, hospitals, industrial companies, mechanical contractors, hotels and manufacturing facilities. With the use of liquid nitrogen, pipe freezing is accomplished by establishing a secure and solid ice plug to isolate pressures in excess of 3000 PSI.

Multiple Freeze Plugs on a 24” Water Flushed Crude Oil Pipeline System

International Flow Technologies (IFT) working in Wichita, Kansas on a project recently completed one of many 24" Freeze plugs to locate a leak. The leak direction is determined by a pressure drop on the leaking side. IFT is setup Nationally to respond quickly to your immediate needs.

FreezePlug.com

The Jaguar-CrayXT5 Super computer Data Facility is the worlds fastest. The Department of Energy relies on IFT’s Pipe Freeze, Hottap and Linestop services to upgrade its pipeline computer systems “Live.” Keep your hospital running, manufacturing plant in production, or modify your computer cooling system without a shut down.

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WALL TAPPING

IFT's wall tapping assemblies are used for hot tapping onto concrete walls, concrete storage tanks, and large diameter concrete conduits where a backing draw plate is impractical. IFT can manufacture any size contour to match your needs with any size outlet through 120", in 125, 150, and 300 lb. classes.

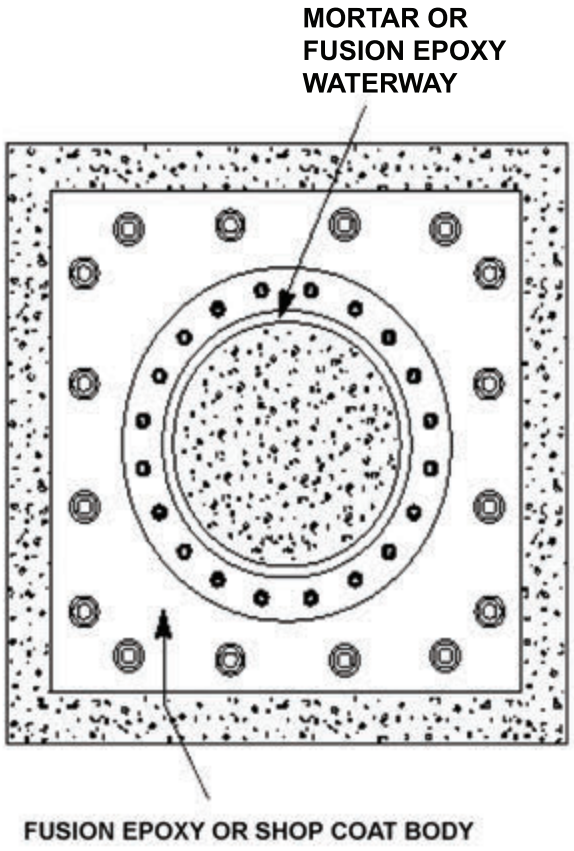
Call today for a free quote!
800-221-3332

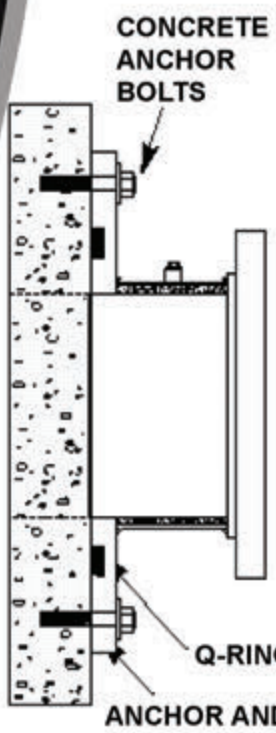
www.WallTaps.com

SERVICES UP TO 120”

IFT SERIES 470 CONCRETE WALL ASSEMBLY

The IFT Series 470 concrete wall assembly body is fabricated of carbon steel and available in shop coat or fusion epoxy coat, with either shop coated, fusion epoxy lined or mortar lined waterways. The assembly is fabricated to match the existing wall contour. IFT's stainless steel anchor bolts are used to attach the tapping outlet securely to the wall. For smooth walls, one Q-Ring seal is adequated, though for extra security two Q-Rings seals can be used. All assemblies include stainless steel anchor bolts, and carbide drill bit structure for drilling the concrete structure.





The IFT 470 wall tapping assemblies are used for hot tapping onto concrete walls, concrete storage tanks and large diameter concrete conduits where a backing draw plate is impractical.

VALVE INSERTING SERVICES

- The **InsertValve™** with Resilient Seat Gate, from start to finish; Made in the **USA**.
- Sizes – 4", 6", 8", 10", 12" Water & Sewer Applications
- Standard valve body installs on Steel, PVC, C-900, Cast-iron Ductile-iron and class 150 A/C pipe without modifications.
- 2" square wrench nut (Optional Hand-wheel) open left or open right Non-rising stem (NRS)
- Meets or exceeds ANSI/AWWA C515 Standards
- Ductile Iron body with nominal 10 mils Epoxy Coated
- Epoxy coating meets or exceeds ANSI/AWWA C550 Standards and ANSI/NSF 61
- Iron wedge, encapsulated with molded rubber
- Triple O-ring seal stuffing box (2 upper & 1 lower O-rings)
- 4"-12" sizes – 250 psig (1723 kPa) maximum working pressure
- Call today for a free quote! 800-221-3332 or visit **www.InsertValve.com**

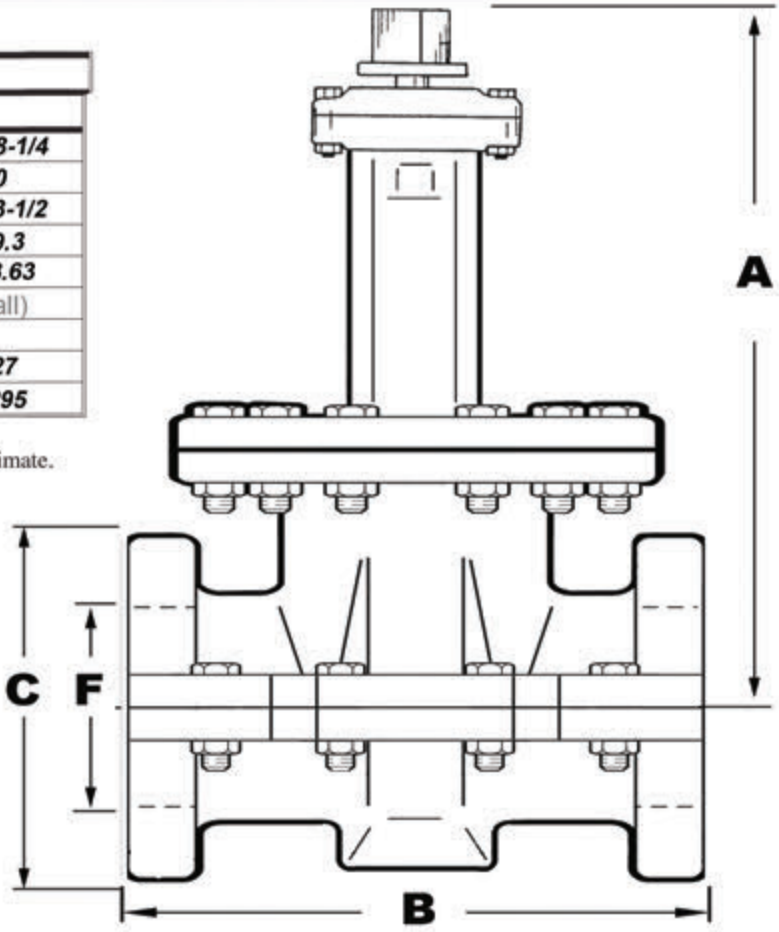
Dimensions

Dimension*	Nominal size		
	4"	6"	8"
A	18	23-1/2	28-1/4
B	16	18	20
C	9-1/8	11-1/4	13-1/2
F Largest std. O.D.	5	7.2	9.3
Smallest std. O.D.	4.5	6.63	8.63
(Larger & smaller custom O.D.'s available, Please Call)			
Turns to open	15	21	27
Weight*	155	230	295

*All dimensions are in inches. All weights are in pounds and are approximate.

Dimension*	Nominal size	
	10"	12"
A	35	37-1/2
B	24	27
C	15-11/16	17-7/8
F Largest std. O.D.	11.4	13.5
Smallest std. O.D.	10.75	12.75
(Larger & smaller custom O.D.'s available, Please Call)		
Turns to open	34	39
Weight*	490	595

(patent# 6776184 /other patents pending)



LIVE AIR-VALVE REPLACEMENT

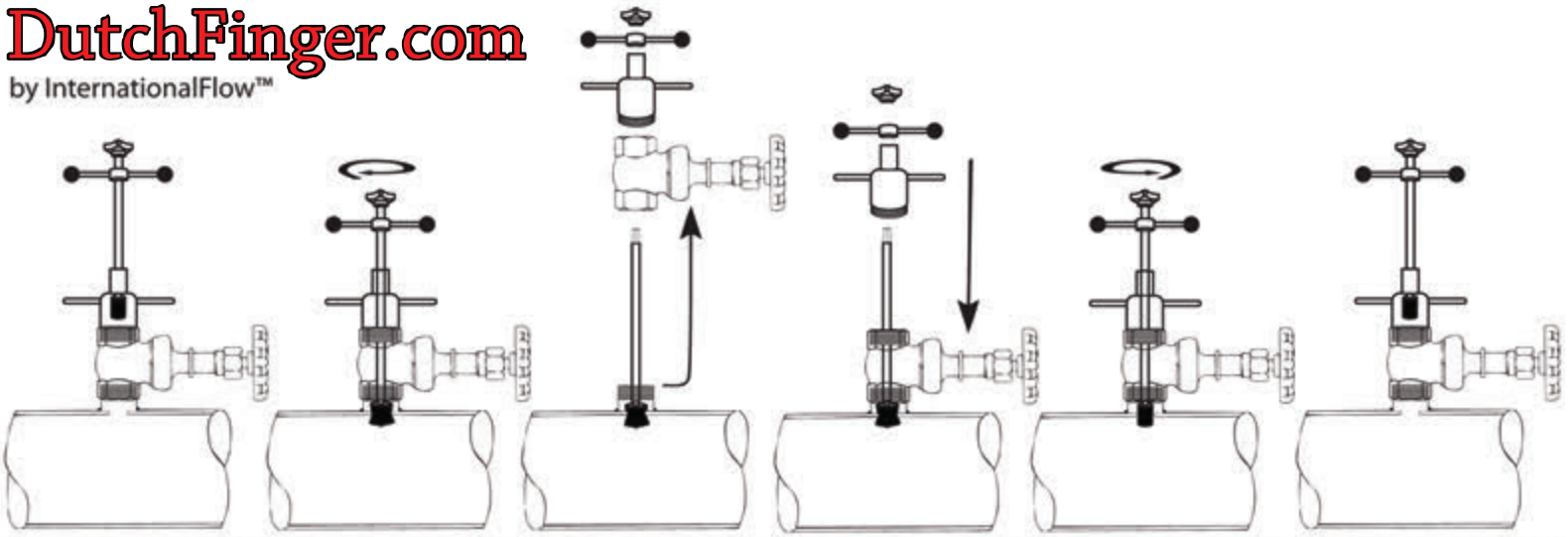
IFT Dutch Finger

The Dutch Finger is installed onto the defective valve in fluid tight arrangement. The defective valve is opened to allow manual insertion of plugging finger into the pipeline opening to a predetermined position. Manual operation of the tool contracts the finger to plug the opening and enlarges the finger inside the pipe, restraining it from movement. The defective valve, nipple and Dutch Finger housing can be removed by lifting it up and over the tool. The new Air-valve, nipple and Dutch Finger is set over the tool and installed onto the pipeline. The Dutch Finger is relaxed and pulled into the pressure tight housing and the new Air-valve is closed completing the process.

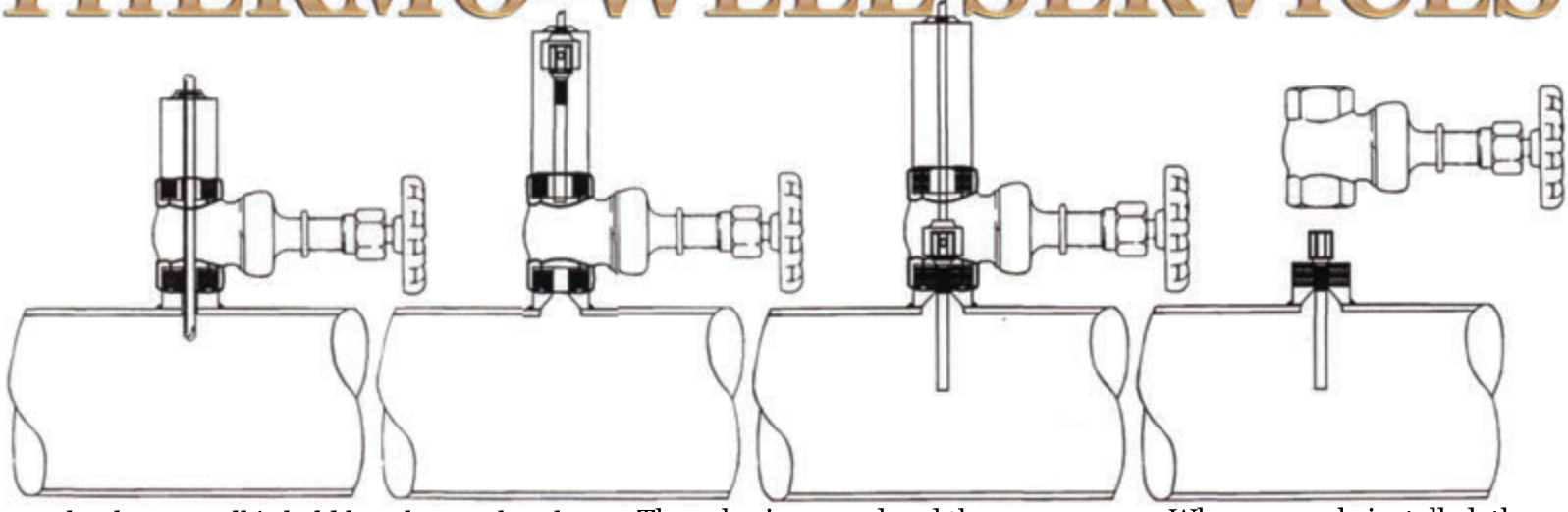




DutchFinger.com
by InternationalFlow™



THERMO-WELL SERVICES



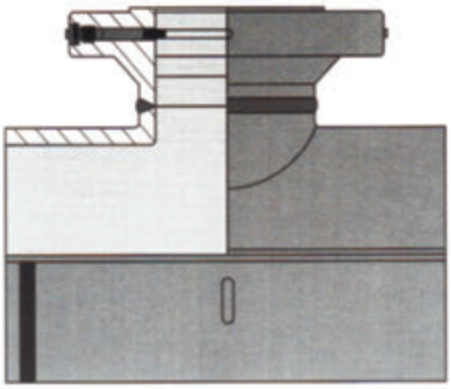
The thermowell is held by a hex socket that has an allen screw to retain the thermowell. The housing containing the thermowell is screwed onto the temporary access valve.

The valve is opened and the thermo-well is pushed past the valve and threaded into the inside thread of the "weldone" fitting.

When properly installed, the pressure is sealed off by the thermowell and the temporary valve can be removed.

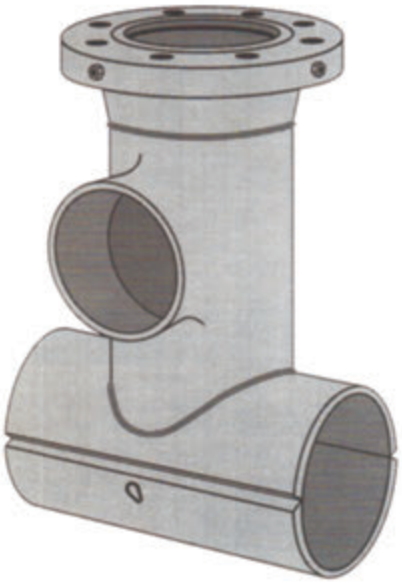
INDUSTRIAL SPLIT WELD FITTINGS

IFT ANSI-150-300-600 SPLIT WELD FITTINGS.
THESE FITTINGS ARE USED IN HEAVY INDUSTRIAL APPLICATIONS.
CALL US TODAY TO SOLVE YOUR NEEDS AT 1-800-221-3332



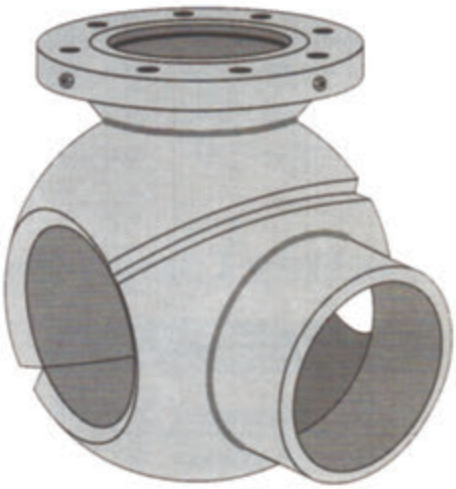
WWW.SPLITWELD.COM

IFT LATERAL TEE



IFT LINESTOP & HOT TAP FITTINGS

IFT SPHERICAL FITTINGS

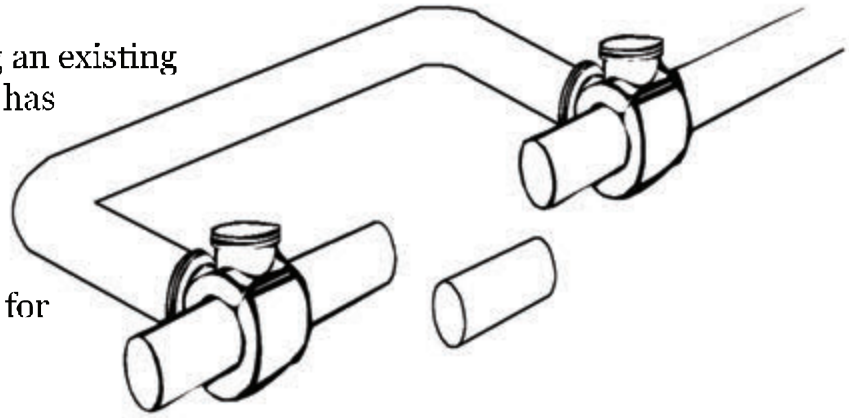


IFT LINESTOP AND HOT TAP PRESSURE FITTINGS ARE DESIGNED, TESTED AND MANUFACTURED PER: ASME/ANSI B31 .8 (GAS PIPELINES), ASME/ANS1 B31.4 (LIQUID PIPELINES), ASME/ANSI B31.3 (CHEMICAL PLANTS & REFINERIES), ASME/ ANSI B3L.L (POWER PLANTS), DOT 192 (FEDERAL REGULATION FOR GAS PIPELINES), DOT 195 (FEDERAL REGULATION FOR LIQUID PIPELINES) AND MOST INTERNATIONAL CODES. IFT CAN ALSO DESIGN FITTINGS TO CUSTOMER'S PIPELINE SPECIFICATIONS. FITTING DOCUMENTATION IS AVAILABLE UPON REQUEST. ALL IFT FITTINGS ARE MARKED ACCORDING TO MSS SP 25.

GAS PIPELINE SERVICES

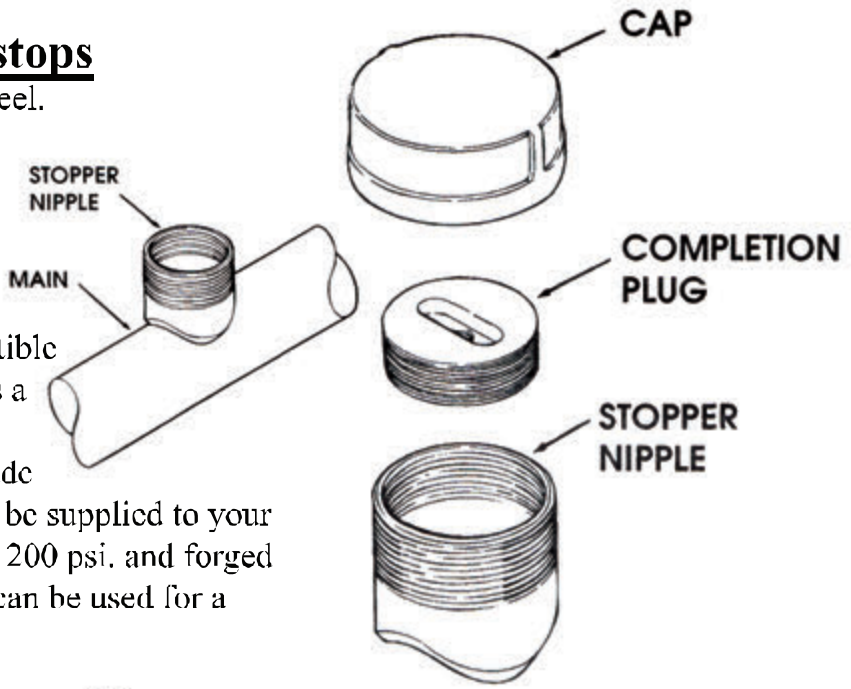
IFT Conversion Tee

The conversion tee is best used for converting an existing line to a new bypass line. The line stop fitting has a permanent side outlet for the new line to be tied into prior to line stopping. Once the line stops are in place the flow passes through the new line. The abandoned section can then be removed and the existing ends can be capped for a permanent relocation.



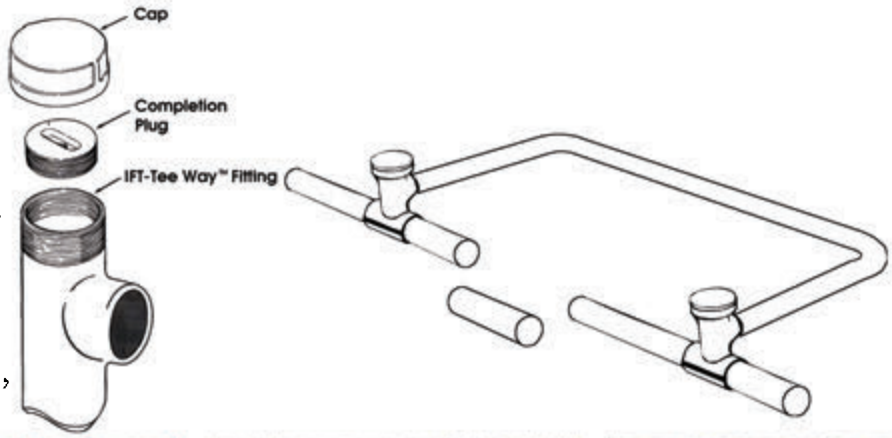
IFT 7560 Fittings for 3/4" - 6" Linestops

IFT 7560 Fittings are available in steel or stainless steel.
7560 - W for carbon steel weld type
7560 - S for stainless steel weld type
7560 - MJ for non weldable pipe or steel pipe in areas not suited for welding
7560 fittings and completion plugs are designed for IFT Flow Master stopping equipment, yet are compatible withother manufacturer's equipment. The fitting uses a threaded completion plug available with or without an o-ring seal. The standard completion plugs are made of cast iron, though brass, steel, or stainless steel can be supplied to your specifications. The standard cap is malleable iron for 200 psi. and forged steel through 1000 psi. An optional Buna-N O-Ring can be used for a bubble tight seal.



IFT Tee Way Fitting

The IFT Tee Way™ fitting is used for adding plug valves where round ported valves, which are typical for hot tapping, cannot be used. Fittings are available for weldable and non-weldable pipe. These fittings are used for outlets through 12". For larger outlet sizes, see IFT RUP Flange Assemblies.



TRACER GAS LEAK LOCATING

Trained to Sniff Out Leaks

LEAKDOG.COM

Our Tracer Gas Leak Locating can locate even the smallest leak. Small leaks can result in explosion, fire or toxic release. Since 1986, oilfield facilities, manufacturing and energy producers have used IFT to find leaks and solve pipeline problems. LeakDog®, a division of IFT, was formed to provide technical tracer gas testing services to locate leaks in a variety of hydrocarbon, chemical and municipal pipelines and vessls.

LeakDog® has service locations throughout America to provide immediate response with our unique mixture of tracer gases to locate leaks. LeakTrack™ are tools and procedures designed and continually improved by IFT keeping LeakDog® ahead of the pack. IFT certified technicians are trained to use helium (an inert gas) hydrogen/nitrogen mixes and other proprietary mixed gasses. Leakdog® maintains its own tank fleet available for large projects.

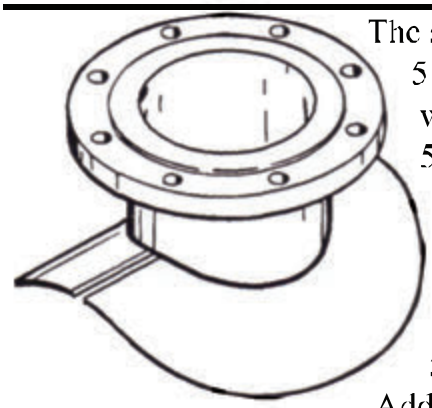
LeakDog® has developed strict procedures for implementing safe tracer gas testing. The gases used are odorless, dissipate quickly and are not dangerous to the environment. They can be mixed with water while hydrostatic testing to allow many miles of pipeline to be tested.

We are well trained and determined to find your leaks. IFT oilfield services include FreezeDog® providing FreezePlug services to isolate fluids in pipelines.

Together LeakDog® and FreezeDog® are the pack to run with.

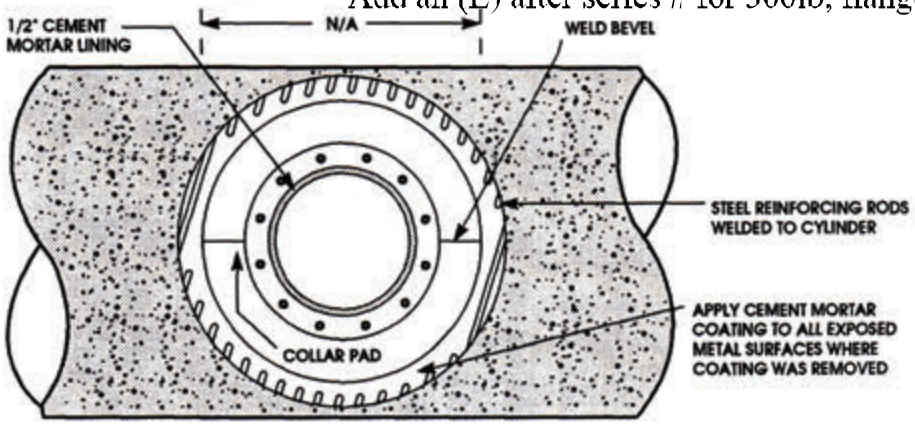
HOTTAP/LINESTOP FITTINGS

IFT Series 520 Hot Tap Fitting With Collar For Concrete Cylinder Pipe

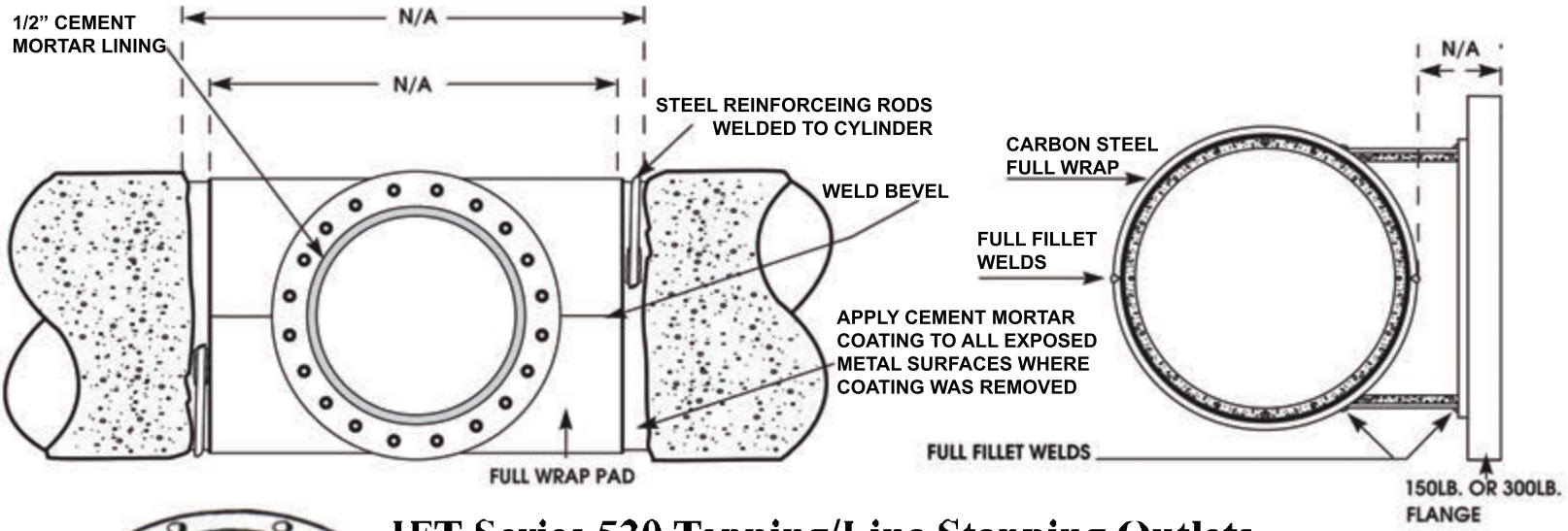


The series 520 tapping/linestop outlets are fabricated to meet most of the series 510 specifications and in addition, include a weld collar to help distribute weights that may be encountered on thin walled pipelines.

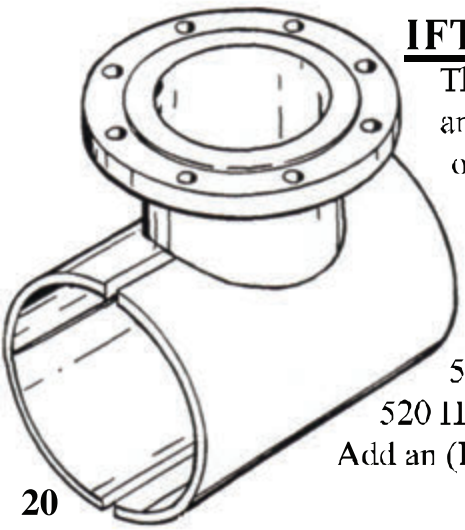
520 for non lined outlet w/ 3/16" collar
520 M for non lined outlet w/1/4" collar
520 H for non lined outlet w/ 3 8" collar
525 mortar lined w/ 3/16" collar
525 M mortar lined w/1 /4" collar
525 H mortar lined w/ 3/8" collar
Add an (L) after series # for 300lb, flange



IFT Series 530 Hot Tap Fitting With Full Wrap For Concrete Cylinder Pipe



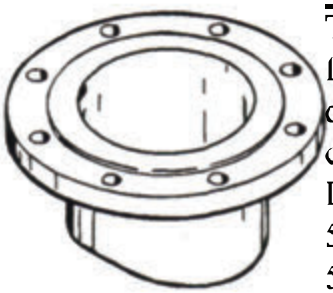
IFT Series 530 Tapping/Line Stopping Outlets



The series 530 tapping outlets are fabricated to meet the series 520 specifications and in addition, include a full wrap to distribute weights that may be encountered on thin walled pipelines or where excessive weights may be introduced.

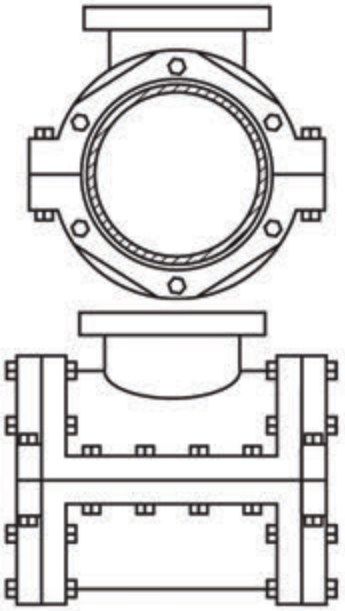
530 for non lined outlet w/ 3/16" full wrap
530 M for non lined outlet w/1/4" full wrap
530 H for non lined outlet w/ 3/8" full wrap
535 for mortar lined outlet w/ 3/16" full wrap
535 M for mortar lined outlet w/1 /4" full wrap
520 H for mortar lined outlet w/ 3/8" full wrap
Add an (L) after series / for 300lb. flange

IFT Series 500 For Weldable Steel Pipe



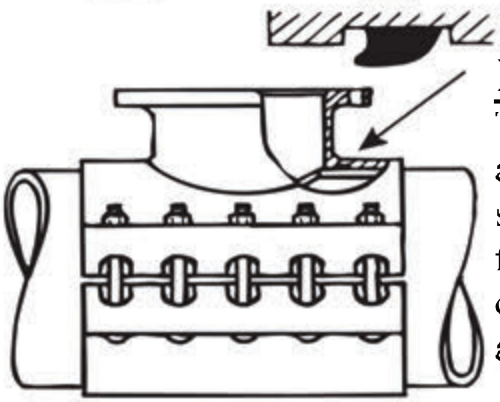
The series 510 tapping linestop outlets are available in 150 lb. and 300 lb. flange ratings through 120". The flange is available in flat face or raised face depending upon your application. The outlet neck is fabricated of non seamed carbon steel pipe which is contoured to match your existing pipeline.
IFT 510 Tapping outlet - IFT 515 for linestop outlet
510 for non lined outlets
512 for mortar lined outlets
Add an (L) after series / for 300lb. flange

The IFT On-Size Mechanical Joint Linestop Sleeve



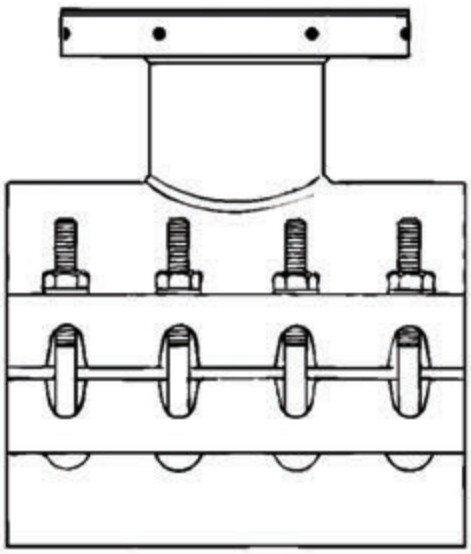
The IFT On-Size Mechanical Joint Linestop Sleeve Fitting is typically fabricated to a specific outside diameter for your line. It is constructed of carbon steel that is normally fusion epoxy coated and assembled with stainless steel bolts and nuts. The advantage of this sleeve is seen primarily for cast iron pipe, A/C pipe, plastic pipe and other fragile pipelines that run the risk of beam breaks. The saddle is completely sealed at all points so if breakage occurs the product is sealed within the containment sleeve. MJ saddles are suggested on temperamental pipelines when the line stop nozzle exceeds 75% of the main size.

IFT Q-Ring Seal Linestop Saddle



The Q-Ring Seal Saddles are constructed of carbon steel and are available with shop coat or fusion epoxy coating, including stainless or low alloy bolts and nuts. These saddles are well suited for many applications. On fragile pipelines outlet size should not exceed 75% of the pipeline main. See IFT Mechanical Joint for a larger bypass.

IFT STP Stainless Steel Linestop Fitting



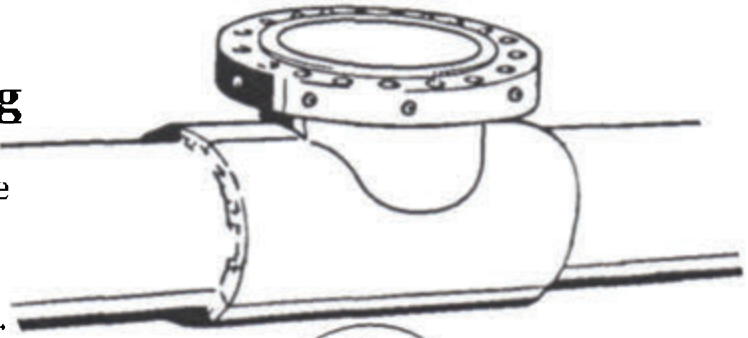
The IFT STP fitting is well known in the water and wastewater industries for line stopping many pipelines. Its lightweight, ease of installation and low price makes it practical for these applications. The design features a full seal around the pipe for fragile mains.

Two styles are available:
STP- standard style has a size on size outlet
STPR - has a reduced outlet for IFT folding head or IFT Flow Master stopping equipment. The STP is also compatible with other line stopping equipment. (Please call for more information.)

HOTTAP/LINESTOP FITTINGS

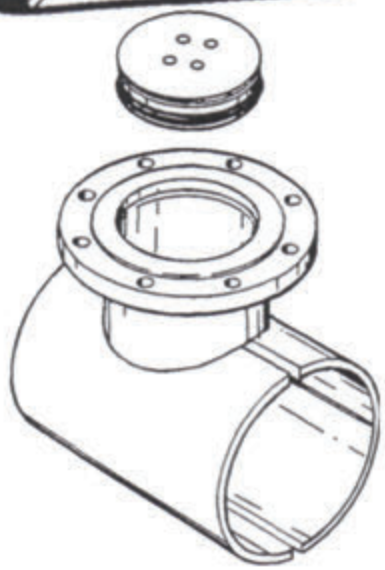
IFT On-Size Weld Linestop Fitting

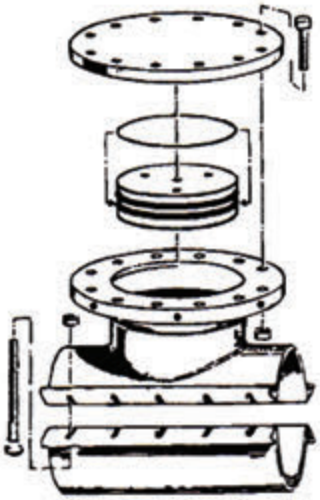
The IFT On-Size Weld Fittings are available in 150, 300, and 600 ANSI ratings, through 48". The flange has a completion plug retaining mechanism built in so that expensive valves can be removed after the line stopping process is complete.

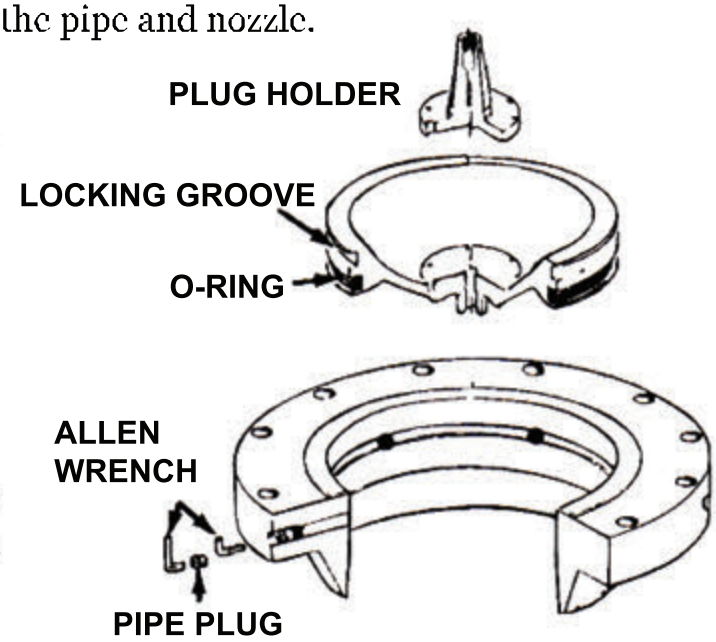


IFT Folder Fitting - Weld Type

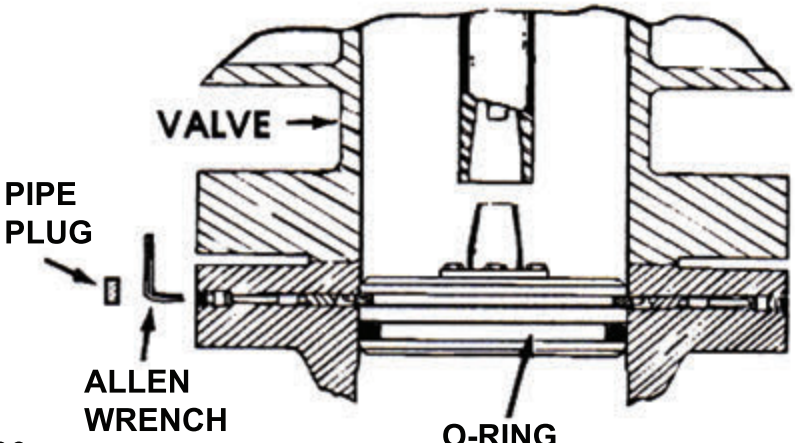
The IFT Folder Fitting is designed for economical line stops on small and large diameter lines. Bypass capability is decreased, due to its reduced outlet size. The equipment needed to operate through this smaller outlet is easier to use due to its size. This fitting is available in Class 150 lb. and 300 lb. flange ratings for line stopping through 60". The folder fitting's weld type nozzle is separate from the full wrap and is welded onto the pipeline prior to the wrap. The full wrap is then welded on around the pipe and nozzle.







The completion plug fits into the flange and seals with an O-ring against the inside of the nozzle. The plug is held in place by various mechanisms. Once the completion plug is set, the temporary valve can be removed and a blind flange can be installed over the assembly as a secondary cover. One benefit of using this type of fitting is that the access can be utilized later to restop the line through the original linestop fitting if needed.



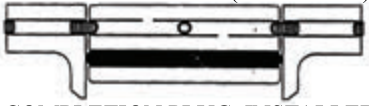
Completion Plug Assemblies

Leaf Style Completion Plug

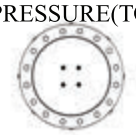
Pin Style Completion Plug

COMPLETION PLUG (SIDE VIEW)

COMPLETION PLUG INSTALLED UNDER PRESSURE(SIDE VIEW)



COMPLETION PLUG INSTALLED UNDER PRESSURE(TOP VIEW)

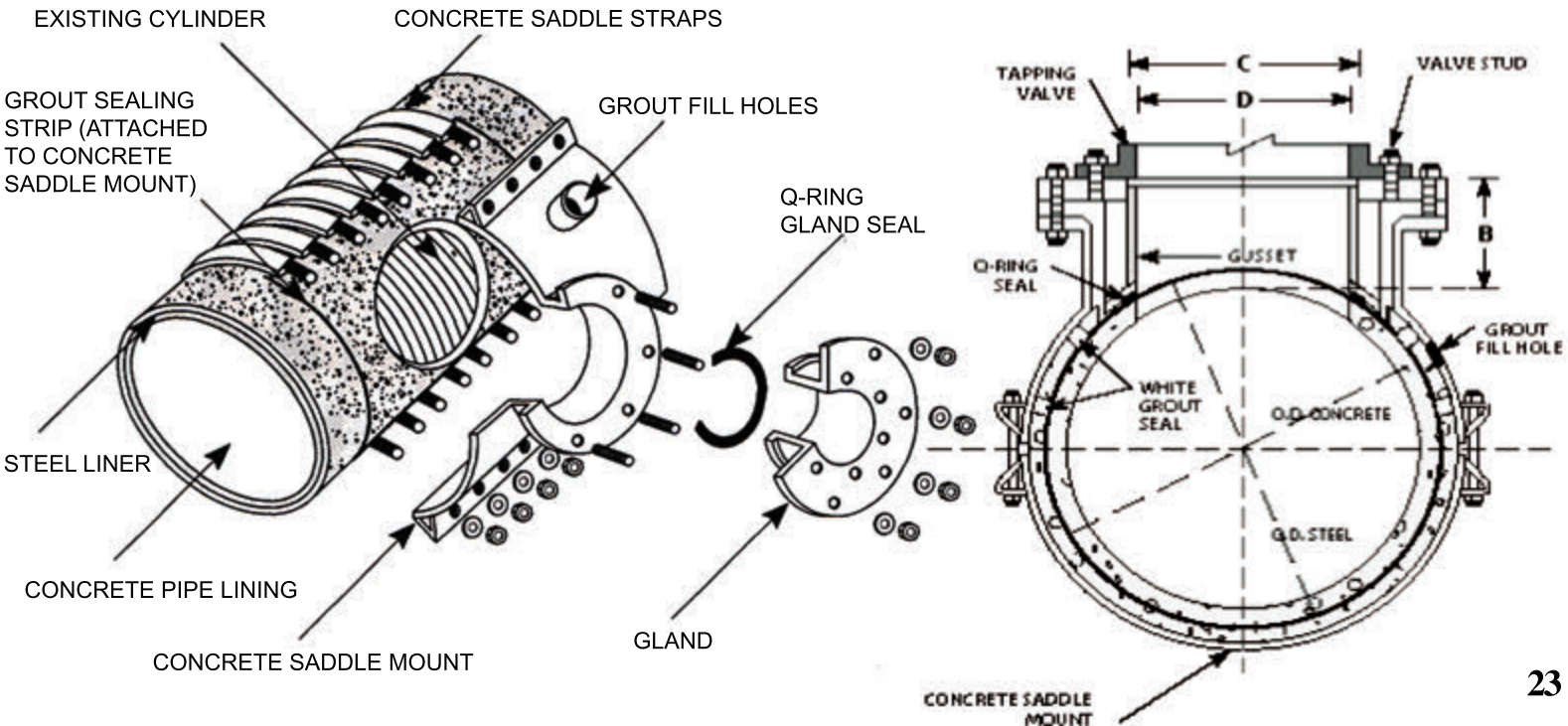


FOR PCCP PRE-STRESSED PIPE

IFT Series 400 Cylinder Tech

The IFT Cylinder Line Stop/Hot Tap Fitting was designed to overcome the problems arising from thin guaged concrete cylinder pipe and the difficulties of welding it. The sleeve has a separate body which permits installation of a retaining assembly prior to cutting the tensioned wires. The sealing gland is drawn against the steel cylinder and seals the outlet with an IFT Q-Ring. Sizes are available for pipelines ranging from 8" to 144" in diameter.

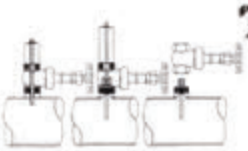
36" HOTTAP ON 48" CMLC FOR A LINESTOP



INTERNATIONAL FLOW TECHNOLOGIES, INC.
PIPELINE SERVICES

HOT TAPPING: 1/2" - 96"

Adding branch connections to existing pipelines, without interrupting service, is our specialty. Capabilities: 1/2"- 96" on water, gas, steam, air, and chemicals. Available for any type of pipe, with complete turnkey service available. IFT specializes in large diameter connections. www.HotTap.com



THERMO-WELL INSERTING

IFT Thermo well inserting is the installation of temperature sensing wells into existing systems without a shutdown. IFT can provide and install your thermo-wells without interrupting service. www.ThermoWellTools.com

LINE STOPPING: 1/2" - 72"

Pipeline linestops isolate a section of pipeline, stopping its flow. IFT provides the most advanced linestop services available today! Sizes from 1/2" - 72" on any type of pipeline. www.Linestop.com

LINE BY-PASSING: 1/2"-72"

IFT can bypass a section of pipe, without interrupting its flow by providing the most advanced line stopping and by-passing service available today! Sizes from 1/2" - 48" on any type of pipeline. www.PipelineBypass.com

LATERAL TEE INSTALL

The IFT Tee Way fittings are used to make connections primarily to existing lines where a plug or butterfly valve is to be used as a main shut off for a new branch line. www.GasTap.com

LIVE AIR-VALVE REPLACEMENT

The Dutch Finger is installed onto the defective valve in a fluid tight arrangement. The defective valve is opened to allow the manual insertion of the plugging finger into the pipeline opening, to a predetermined position. www.DutchFinger.com

WALL TAPPING UP TO 120"

Our assemblies are used for tapping onto concrete walls, concrete storage tanks , & large diameter concrete conduits where a backing draw plate is impractical. We manufacture any size contour to match your needs, with any size outlet through 120" www.WallTap.com

PIPE FREEZING: 1/2" - 36"

Pipe freeze plugging is a simple, cost effective method to perform pipeline maintenance or pipe modifications without draining. Using liquid nitrogen to isolate the pipeline by freezing the product to form one or more solid freeze plugs. www.FreezePlug.com

INSERT VALVES

IFT can install Insert Valves on a pipeline without shutting down the system. Valves can be installed indoors or outdoors on chilled or domestic water, and on air lines. Our customers include hospitals, industrial companies, mechanical contractors, and municipalities. www.InsertValve.com

1-800-221-3332

WWW.HOTTAP.COM/CATALOG FOR OUR PIPELINE SERVICES

LOCATIONS NATIONWIDE

Corporate Address:
221 N County Line Rd.
Mustang, OK 73064
Phone: 800-221-3332
Fax: 951-926-2334

Anchorage, AK:
909-721-7764

Houston, TX:
832-554-7811

Mustang, OK:
281-546-7681

Nashville, TN:
615-507-4884

New Orleans, LA
504-259-4526

About IFT

IFT has been serving the Americas and the World for 37+ years, providing pipeline solutions including emergency response for turn-key bypassing of pipelines, hot tapping, line stopping and valve installation services. IFT is capable of handling modifications to most piping systems. Our specialty is replacing and adding new valves to existing systems without interruption of service and wet tapping of butterfly valves. These solutions are led by a team of technicians using innovative techniques that have helped define the industry. We have completed many projects around the world on water, natural gas, sewage, petroleum and chemical products. IFT has a broad background in handling all types of piping problems, and has a full engineering department to produce the solutions for your pipeline needs. Thank you for your interest and we look forward to assisting you in the future.

This pipe O.D. chart is furnished for your convenience and is based on the latest pipe standards and information supplied by pipe manufacturers. Due to occasional changes and variances in outside diameters, the pipe O.D. should always be verified before ordering fittings.

SMALL DIAMETER PIPE SIZES

Nominal Pipe Size (Inches)	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
Copper Tubing	.63	.88	1.13	1.38	1.63	2.13	2.63
Steel & Plastic Pipe	.84	1.05	1.32	1.66	1.90	2.38	2.88

STANDARD PRESSURE PIPE SIZES

	Nominal Pipe Size (Inches)	3	4	5	6	8	10	12	14	15	16	18	20	24	30
	Copper Tubing	3.13	4.13	5.13	6.13										
	Steel & Plastic Pipe (SDR 26, 21 & Schedule)	3.50	4.50	5.56	6.63	8.63	10.75	12.75	14.00		16.00	18.00	20.00	24.00	30.00
	Plastic Irrigation Pipe (PIP)		4.13		6.14	8.16	10.20	12.24		15.30		18.70	22.05	24.80	
	Plastic Sewer Pipe (SDR 35)		4.22		6.28	8.40	10.50	12.50		15.30		17.40	19.50	21.60	25.80
	Plastic (PVC) AWWA C-900		4.80		6.90	9.05	11.10	13.20	15.30		17.40	19.50	21.60	25.80	
CAST IRON PIPE	Class 100-250 AWWA	3.96	4.80		6.90	9.05	11.10	13.20	15.30		17.40	19.50	21.60	25.80	32.00
CAST IRON PIPE	Class A AWWA Pit Cast	3.80	4.80		6.90	9.05	11.10	13.20	15.30		17.40	19.50	21.60	25.80	31.74
CAST IRON PIPE	Class B AWWA Pit Cast	3.96	5.00		7.10	9.05	11.10	13.20	15.30		17.40	19.50	21.60	25.80	32.00
CAST IRON PIPE	Class C-D AWWA Pit Cast	3.96	5.00		7.10	9.30	11.40	13.50	15.65		17.80	19.92	22.06	26.32	
ASBESTOS-CEMENT PIPE	CLASS 100 Machined	3.74	4.64		6.91	9.11	11.24	13.44	15.07		17.15	19.90	22.12	26.48	33.12
ASBESTOS-CEMENT PIPE	CLASS 100 Flintite Rough Barrel	3.94	4.90		7.13	9.33	11.30	13.42	15.45		17.60				
ASBESTOS-CEMENT PIPE	CLASS 100 Fluid-Tite Rough Barrel	3.93	5.05		7.16	9.32	11.46	13.70	15.36		17.50	20.44	22.50	27.17	
ASBESTOS-CEMENT PIPE	CLASS 100 Permaflex Rough Barrel		4.84		7.15	9.35	11.47	13.74	15.55		17.55	20.50	22.70	27.15	
ASBESTOS-CEMENT PIPE	CLASS 100 Ring-Tite Rough Barrel	3.95	4.92		7.19	9.39	11.47	13.74	15.51		17.65	20.44	22.68	27.12	33.80
ASBESTOS-CEMENT PIPE	CLASS 100 Min. Standard Rough Barrel		4.79		7.05	9.22	11.25	13.37	15.36		17.50				
ASBESTOS-CEMENT PIPE	CLASS 100 Max. Standard Rough Barrel		5.26		7.40	9.57	11.77	14.04	15.80		17.94				
ASBESTOS-CEMENT PIPE	CLASS 150 Machined End	3.84	4.81		6.91	9.11	11.66	13.93	16.22		18.46	20.94	23.28	27.96	35.00
ASBESTOS-CEMENT PIPE	CLASS 150 Flintite Rough Barrel	4.04	5.06		7.13	9.33	11.88	14.14	16.48		18.72				
ASBESTOS-CEMENT PIPE	CLASS 150 Fluid-Tite Rough Barrel	4.03	5.14		7.12	9.32	11.85	14.11	16.41		18.65	21.20	23.54	28.22	
ASBESTOS-CEMENT PIPE	CLASS 150 Permaflex Rough Barrel		5.00		7.20	9.40	11.92	14.20	16.50		18.75	21.30	23.64	28.32	
ASBESTOS-CEMENT PIPE	CLASS 150 Ring-Tite Rough Barrel	4.13	5.07		7.17	9.37	11.92	14.18	16.48		18.72	21.30	23.64	28.32	35.42
ASBESTOS-CEMENT PIPE	CLASS 150 Min. Standard Rough Barrel		4.97		7.07	9.27	11.82	14.08	16.38		18.62				
ASBESTOS-CEMENT PIPE	CLASS 150 Max. Standard Rough Barrel		5.32		7.37	9.62	12.12	14.38	16.73		18.97				
ASBESTOS-CEMENT PIPE	CLASS 200 Machined End	3.84	4.81		6.91	9.11	11.66	13.93	16.22		18.46	22.18	24.66	29.62	37.06
ASBESTOS-CEMENT PIPE	CLASS 200 Flintite Rough Barrel	4.17	5.32		7.26	9.44	11.88	14.14	16.53		18.84				
ASBESTOS-CEMENT PIPE	CLASS 200 Fluid-Tite Rough Barrel	4.18	5.32		7.36	9.46	11.88	14.11	16.44		18.90	22.54	25.02	29.98	
ASBESTOS-CEMENT PIPE	CLASS 200 Permaflex Rough Barrel		5.32		7.25	9.50	11.95	14.20	16.55		18.90	22.54	25.02	29.98	
ASBESTOS-CEMENT PIPE	CLASS 200 Ring-Tite Rough Barrel	4.17	5.33		7.32	9.50	11.92	14.18	16.59		18.90	22.54	25.02	29.98	37.48
ASBESTOS-CEMENT PIPE	CLASS 200 Min. Standard Rough Barrel		5.22		7.26	9.39	11.77	14.03	16.44		18.74				
ASBESTOS-CEMENT PIPE	CLASS 200 Max. Standard Rough Barrel		5.57		7.60	9.79	12.12	14.38	16.88		19.19				
	Nominal Pipe Size (Inches)	3	4	5	6	8	10	12	14	15	16	18	20	24	30

DECIMAL EQUIVALENT CHART

1/32	.03	1/4	.25	7/16	.44	5/8	.63	13/16	.81
1/16	.06	9/32	.28	15/32	.47	21/32	.66	27/32	.84
3/32	.09	5/16	.31	1/2	.50	11/16	.69	7/8	.88
1/8	.13	11/32	.34	17/32	.53	23/32	.72	29/32	.91
5/32	.19	3/8	.38	9/16	.56	3/4	.75	15/16	.94
3/16	.19	13/32	.41	19/32	.59	25/32	.78	31/32	.97