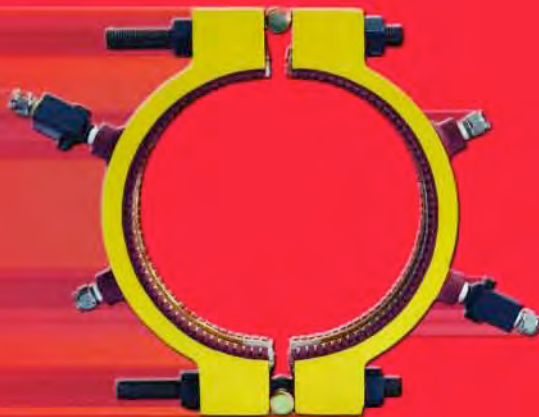
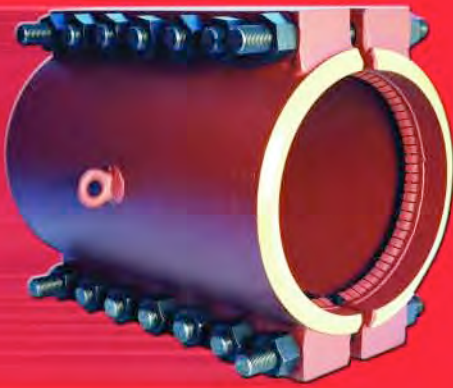


PLIDCO®

PIPING REPAIR & MAINTENANCE PRODUCTS



THE PIPE LINE DEVELOPMENT COMPANY

PLIDCO®

Cleveland, Ohio 44145 U.S.A.

PLIDCO[®] THE PIPE LINE DEVELOPMENT CO.

What makes us better

PLIDCO[®] EXPERIENCE

- * Pioneered pipeline maintenance and repair fittings and has sold thousands of these fittings since 1949.
- * Products have been used successfully by major companies world wide.
- * Personnel are well seasoned and have many years experience that provide a wealth of knowledge to solve customer problems.
- * Experienced supervision is available during installation at an additional charge.

PLIDCO[®] FITTINGS

- * Versatile and easy to install.
- * Weldable with the line in operation.
- * Fittings carry serial numbers and are traceable to a Material Certificate.
- * Fittings can be supplied with different seal materials that are compatible with the product in the line.
- * Elastomer seals carry batch numbers and are traceable to a test certificate.
- * Split products come with patented steel girderrings that prevent displacement and damage to seals during installation.
- * Full penetration shell to sidebar welds are 100% radiographed.

PLIDCO[®] QUALITY

- * Fittings can be designed to special specifications or requirements.
- * Can analyze customer needs and design custom fittings.
- * ISO 9001 quality system in place, with full traceability.
- * Split Repair products are hydrostatically tested in accordance with API standards and connectors get 100% dimensional check.
- * Fittings are designed using ASME Section VIII and API 6 H standards to include bolt induced bending stresses.
- * Full documentation is available upon request.

PLIDCO[®] MANUFACTURING

- * Welders are qualified per ASME section 9
- * A large inventory is readily available for immediate shipment around the clock.
- * Premium-Plant-Time is available (Round the clock production for critical emergencies.)

Contact us at;
The Pipe Line Development Co.
870 Canterbury Road
Cleveland, Ohio 44145

Phone: 440-871-5700
800-848-3333
Fax: 440-871-9577
E-mail: pipeline@plidco.com

Table of Contents

Introduction	4
PLIDCO® Split+Sleeve	5
PLIDCO® Split+Repair-Ell	5
PLIDCO® Smith+Clamp™	6
PLIDCO® Weld+Cap	6
PLIDCO® Flange+Repair Ring	7
PLIDCO® Flange Repair+Split Sleeve	7
PLIDCO® Weld+Ends®Couplings	8
PLIDCO® Clamp+Rings	8
PLIDCO®+Flange	9
PLIDCO® Riser-Type Weld+Ends®	9
PLIDCO® Clamp+Sleeve	9
PLIDCO® Hot+Tapping Saddle	10
PLIDCO® Shear+Plug™	11
PLIDCO® Sole+Mates™	11
Custom Repair Fittings	12
Seal Material	12
Sealants	12
PLIDCO® Special Coatings And Options	12
PLIDCO® Research & Development, Engineering, Sales And Service	13
PLIDCO® Testing	13
PLIDCO® D.O.T. Training	14
Product Warranty	14

The beginning of a great thing!

The Pipe Line Development Company, or PLIDCO®, is a United States, family owned business founded on October 1, 1949 by Joseph B. and Berneice K. Smith. Their idea was to make fittings that would avoid or minimize costly shut-downs, saving time and money. Since the start of the company, PLIDCO® has been an innovative manufacturer of quality pipeline repair and maintenance fittings and holds patents throughout the world with hundreds of thousands of fittings sold. PLIDCO® fittings have been used for on-shore and off-shore repairs and in hazardous non-weld areas. Applications include oil, gas, water, steam, slurry, and other piping lines.

The Factory

PLIDCO® is the leading supplier of pipeline repair and maintenance fittings in the world and is proud to have a proven record spanning over 5 decades. The company headquarters in Cleveland, Ohio houses a large manufacturing, warehouse and office facility and employs approximately 100 full time employees. The factory is equipped with all of the standard fabrication and machine tools plus special equipment required to completely manufacture standard and special fittings.

Quality

Since the first day The Pipe Line Development Company began in 1949, quality has played a leading role in the manufacturing process of its fittings. Each fitting is designed and manufactured following a strict quality control program as well as applicable industrial codes.

In August of 2001 PLIDCO® received its ISO 9001 certification for its quality administration system. The certification was achieved by undergoing a comprehensive audit of its manufacturing process, operations and documentation systems. With this certification and state of mind, PLIDCO® requires continuous improvement in its quality management activities for better products now and into the future.

How we benefit the Industry

All pipelines after time will need repair because of leaks, corrosion or cracks. PLIDCO® manufactures repair fittings made to cover and protect the damaged areas on pipelines minimizing and even avoiding costly shutdowns. When shut-down is unavoidable PLIDCO® couplings allow replacement of damaged sections while keeping downtime to an absolute minimum. For example, special fittings have been used to repair pipelines damaged by underwater corrosion. Other fittings have been manufactured to repair dents, cracks, holes, and third party damage. PLIDCO® fittings have helped repair and maintain pipelines and will continue to do so in the future keeping down time and costs to a minimum while keeping hazardous piping safe.



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PLIDCO® SPLIT+SLEEVE

PLIDCO® Split+Sleeves are repair fittings used to permanently seal leaks caused by corrosion or third party damage on-shore and off-shore. These fittings are easy and safe to install and can be welded while the line is in service. Standard working pressure is 1,000 psig with higher working pressures available. The PLIDCO® Split+Sleeve is hydrotested to 1.5 times its working pressure is designed using ASME Section VIII and API 6H. All sizes, lengths and pressures are manufactured. Our stock includes API pipe sizes 1½" to 48". Higher working pressure, longer lengths and other sizes are available upon request.

Benefits:

- Can be used for temporary or permanent repair.
- Full penetration shell to side bar welds are 100% radiographed.
- The PLIDCO® Split+Sleeve can be seal welded for a permanent repair while the line is in service.
- Patented steel GirderRings hold seals in place and protect them from displacement and damage during installation.
- Design includes bolt induced bending stresses.
- Body and seal gland design has over 55 years of proven success.
- Widest range of seal materials in stock.
- PLIDCO® Split+Sleeves used for temporary repair can be reconditioned and used again.
- D.O.T. Training is available.



PLIDCO® SPLIT+REPAIR-ELL

PLIDCO® Split+Repair Ells function the same way as the PLIDCO® Split+Sleeve. These fittings are available for long radius, short radius, screwed and socket welded applications. PLIDCO® Split+Repair Ells can be manufactured for any angle, pipe size, and working pressure upon request.

Benefits:

- Fast and Easy to install.
- Patented steel GirderRings hold seals in place and protect them from displacement and damage during installation.
- Appropriate seal material will be recommended upon line product information.
- PLIDCO® Split+Repair Ells are available in pressures of 1,000 psig and higher.
- Clamp Ends are available to counteract hydrostatic forces.
- PLIDCO® Split+Repair Ells can be seal welded for a permanent repair while the line is in service
- PLIDCO® Split+Repair Ells used for temporary repairs can be reconditioned and used again.
- Proven track record of over 55 years.



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PLIDCO® SMITH+CLAMP™

The PLIDCO® Smith+Clamp™ is used to locate and seal pit-hole leaks in high pressure pipelines. Simply place the Smith+Clamp™ on the pipe, insert the draw-bolt at the bottom of the clamp to hold it in place and use the pilot pin to find and guide the sealing cone into the pit-hole. Tighten the draw bolt and the force screw to complete the seal. Can be designed for larger holes upon request.

Benefits:

- *Light weight and cost effective.*
- *Can find leaks in pipelines that may not be visible.*
- *Force screw requires minimum force to seal leak*
- *The cones' direct pressure on leak eliminates the danger of caving in badly corroded pipe.*
- *Safe and easy installation.*

**PLIDCO® WELD+CAP**

PLIDCO® Weld+Caps used with PLIDCO® Smith+Clamps™ makes possible a fast, safe and permanent welded pipe repair while the pipeline is in operation. PLIDCO® Weld+Caps meet D.O.T. requirements and the latest ASME Section VIII specifications.

Benefits:

- *Safe, easy and fast permanent repair.*
- *Can be welded while pipeline is in flow.*
- *Meets D.O.T. requirements for permanent repair.*

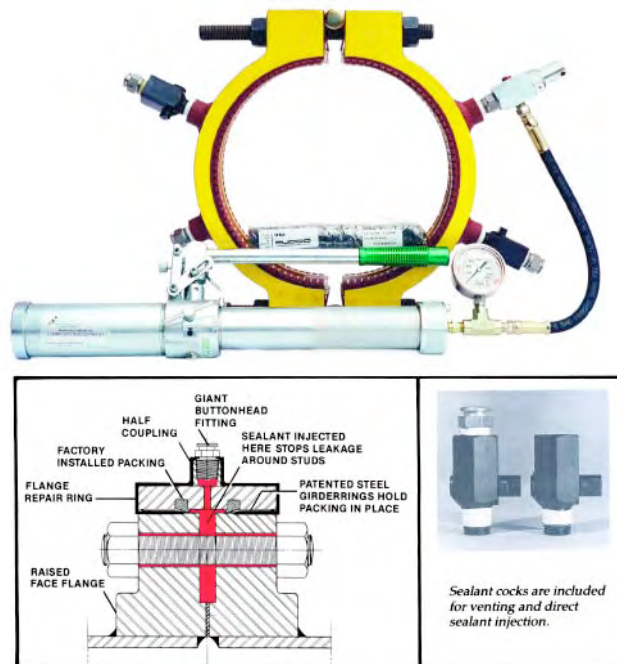


PLIDCO® FLANGE+REPAIR RING

The PLIDCO® Flange+Repair Ring fits over leaking flange, studs/nuts down to create a seal around the circumference. The ring comes with button-head fittings, which allows you to pump sealant to seal flange studs/nuts for a complete seal. Flange+Repair rings are available from stock in standard Flange sizes 1½" to 12" 150 lb ANSI through 600 lb ANSI. Larger, special sizes and higher pressures available upon request.

Benefits:

- Patented steel GirderRings hold seals in place and protect them from displacement and damage during installation.
- No drilling required.
- Injected sealant seals leaking flange studs/nuts.
- Installation can be done when line is operational.
- Safe and easy installation.
- Proven track record of over 55 years.
- Complete repair kits are available that include sealant gun and sealant.
- Can be installed by your own maintenance personnel.
- Can be reconditioned and used again.
- D.O.T. Training is available.

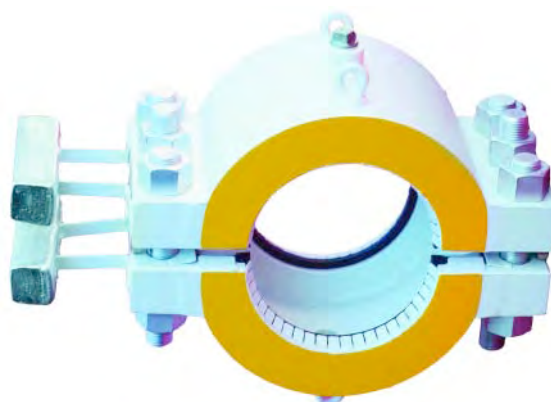


PLIDCO® FLANGE REPAIR+SPLIT SLEEVE

Used to seal and fully encompass flanges for on-shore and off-shore applications. This sleeve stops the leaking flanges by sealing on the pipe beyond the flange welds with the ability to cover a wide variety of flange types and classes.

Benefits:

- Patented steel GirderRings hold seals in place and protect them from displacement and damage during installation.
- Covers a wide range of flange types and classes
- Wide range of seal material in stock.
- Used for on-shore and off-shore applications.
- Safe and easy installation.



PLIDCO® WELD+ENDS® COUPLINGS

PLIDCO® Weld+Ends® are safety welding couplings used to quickly join pipe so that flow can be resumed immediately keeping down-time to a minimum. These couplings are used for both on-shore and off-shore applications. No special preparation of pipe ends is needed to install PLIDCO® Weld+Ends®.

Available from stock in API pipe sizes 1½" to 48" and special lengths and working pressures available upon request.

Benefits:

- *Welding is optional.*
- *Join pipe with no need to purge.*
- *No special preparation of pipe ends required.*
- *Can be welded onto pipe safely while line is in flow.*
- *Double row of clamping screws are available upon request for excessive end pull loads.*
- *Various types of seal materials available.*
- *Safe and easy installation.*
- *D.O.T. Training available.*



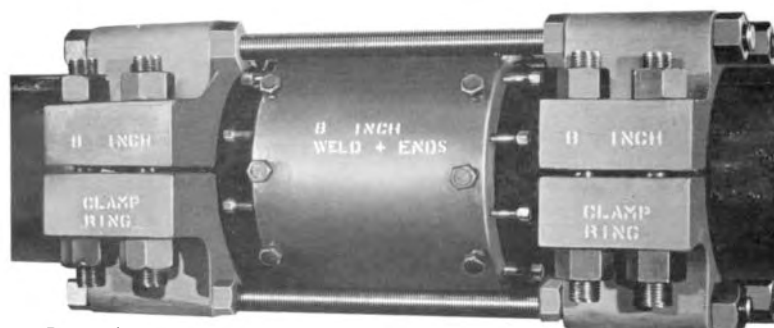
PLIDCO® CLAMP+RINGS

PLIDCO® Clamp+Rings are used with PLIDCO® Weld+Ends®, Split+Sleeves, or other fittings where excessive end-pull or compression loadings are encountered. They may be used permanently, or temporarily, and are reusable.

The PLIDCO® Clamp+Rings are heavily constructed and achieve tremendous gripping power. Carefully designed the PLIDCO® Clamp+Rings eliminate the danger of caving in or distorting pipelines.

Benefits:

- *Extreme gripping power.*
- *Especially useful with high-tensile, thin wall-pipe.*
- *Precision-bored inside diameter of the ring eliminates danger of caving in or distorting pipe.*
- *Reusable*



Patented

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PLIDCO®+FLANGE

Useful for hundreds of applications particularly useful for making tie-in connections for prefabricated expansion and rework projects. PLIDCO®+Flanges are easy and safe to install even in hard to reach places such as high overhead piping, conduits and tunnels, tight manifolds or in hazardous locations.

PLIDCO®+Flanges are available in all pipe sizes and pressure ratings. No special pipe preparation is needed, just simply cut pipe, slide the PLIDCO®+Flange on and tighten the bolts down to the specified torque for a complete installation.

Benefits:

- No special pipe preparation to install.
- Mechanical fitting, useful in non-weld areas
- Easy flange bolt alignment
- Can be used with blind flange following recommended pressures.
- Welding is optional
- Large variety of seal materials available
- Safe and easy
- PLIDCO®+Flanges can be reconditioned and used again.



PLIDCO® RISER-TYPE WELD+ENDS®

The PLIDCO® Riser-Type Weld+Ends® are an easy way to replace underwater risers on off-shore gas and oil lines without the need to weld. This fitting consists of additional clamp and thrust screws to provide a secure seal for high pressure and to resist extreme end-pull.

The PLIDCO® Riser-Type Weld+Ends® are socket welded at the surface to the new replacement riser then lowered into the water. The diver then cuts the old riser, and places the new fitting over the cut pipe and tightens screws to complete the installation creating a leak proof seal.

Benefits:

- Safe and easy to install
- No underwater welding needed.
- Competitively priced compared to other fittings in the market.
- Quick and easy way to replace a section of pipe.
- Keeps down time to a minimum.



PLIDCO® CLAMP+SLEEVE

PLIDCO® Clamp+Sleeves can be used to couple pipe, seal pipe leaks and reinforce badly damaged pipe. PLIDCO® Clamp+Sleeves are designed to grip the outside wall of a pipe to counteract extraordinary end-pull and unusual axial stresses, often encountered in off-shore installations.

PLIDCO® Clamp+Sleeves are available in any size, length and working pressure upon request.

Benefits

- Patented steel GirderRings hold seals in place and protect them from displacement and damage during installation.
- Can be designed for welding or non-welding applications.
- Metal spray to increase gripping power without gouging O.D. of pipe.
- Safe and easy installation under pressure.
- Proven track record for over 55 years.
- Sleeve can be reconditioned and used again.



PLIDCO® HOT+TAPPING SADDLE

PLIDCO® Hot+Tapping Saddle allows you to tap into a pressurized line without welding, to make branch connections or for plugging operations. Special designs are available and can be custom built for your specific needs and specifications. Available with full size branches, in any range of sizes and pressures with threaded, welded or flanged outlets.

Benefits:

- Patented steel GirderRings hold seals in place and protect them from displacement and damage during installation.
- Available in all sizes and pressures with full size branches
- Available in threaded, welded, or flanged outlets
- Can be used in non-weld hazardous areas
- Custom designed for your specified needs and specifications.
- Large inventory of seals are available to accommodate a wide variety of pipeline products and temperatures.
- Clamp ends are available to eliminate movement or rotation during plugging operations.
- Safe and easy installation.

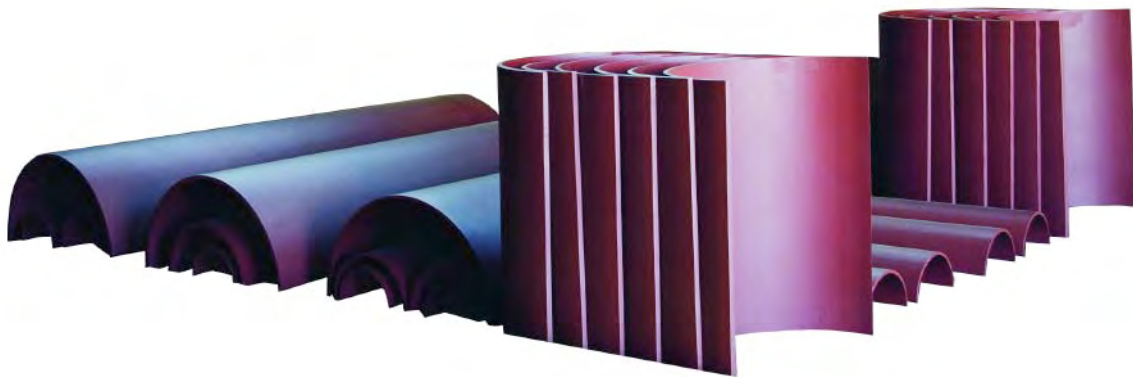


PLIDCO® SOLE+MATES™

PLIDCO® Sole+Mates™ are designed to reinforce non-leaking, weakened, dented or damaged pipelines. Sole+Mates™ conform to ANSI/ASME B31.4 and B31.8 and the U.S. Department of Transportation requirements. Longitudinal butt-welding is required for all applications and back-up strips are furnished. For pressure containing applications, the sleeve must be fully seal-welded to the pipeline.

Benefits:

- Safe repair method
- Supplied for any specified pressure wall thickness and class location.
- Supplied in various lengths and materials as specified.



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PLIDCO® SHEAR+PLUG™

The PLIDCO® Shear+Plug™ division offers its customers a safe and reliable method to temporarily (either for the short or the long term); isolate sections of their high pressure, high temperature or otherwise hazardous piping at an excellent value (when compared to a shut-down), when and where they need it done.

The PLIDCO® Shear+Plug™ solves high pressure/high temperature line plugging problems by providing a positive metal to metal seal, complete with sealant backup.

The PLIDCO® Shear+Plug™ is offered in sizes up to 8 inches and standard units are available for ANSE pressure rating.

A double action hydraulic cylinder accomplishes the shear through, positions the sealing blind plate and also retracts it. No shell cutter is used to enter the pipe. The complete one piece coupon is pushed into the receptacle housing for easy, complete retrieval.

Benefits:

- One of a kind PLIDCO® innovation to isolate high pressure pipelines.
- Metal-to-metal seal.
- Resists high temperature and pressure.
- No shell cutter is used to enter pipe.
- Cuts one piece retrievable coupon.
- The PLIDCO® Shear+Plug™ is impervious to flow rate, making it ideal for boiler feed applications.



PLIDCO® SERVICE

Let a PLIDCO® certified technician do your next installation. We recognize the need for highly skilled and trained technicians has grown and look forward to sending in our team to complete the installation of any of our products.

At PLIDCO® we are committed to working together to make hazardous piping safer.

CUSTOM REPAIR FITTINGS

Developing and fabricating custom fittings for specific conditions is an important part of our business. We welcome the opportunity to work out a solution for any problem involving piping repair and maintenance.

Your assurance of a successful solution is our established policy of a money-back guarantee. If the correct information is given, PLIDCO® manufactures the fitting, it is installed according to our instructions, and does not do the job, your money will be refunded.

SEAL MATERIAL

It is very important for packing to be compatible with the product flowing through the pipeline. PLIDCO® stocks a wide variety of seal material to ensure that we are fully capable to aid your emergency pipeline needs quickly, safely and with minimal or no down time.

If there is any doubt as to the proper seal material for your pipeline please contact us for our recommendations.

SEALANTS

We offer a variety of sealants for various applications.

Our program includes testing a variety of sealants in different applications so that we will be able to recommend the proper one for a specific use. Please contact us for further information.

PLIDCO® SPECIAL COATINGS AND OPTIONS

COATINGS

Fittings:

Coatings other than the standard primer are available. The most common options are marine epoxy or coal tar coating. Other coatings may be quoted on application.

Studs and Nuts:

Special plating and coatings for studs and nuts are available to provide maximum corrosion resistance in harsh environments.

OPTIONS

Hinges:

For ease of installation hinges are available. Hinges are recommended for large diameter sleeves or extra-long sleeves.

Vents:

Used to force water out of the annulus area between sleeve and pipe in underwater applications using a lubricant or sealant. Other uses include the ability to vent product while installing a sleeve on a live pipeline, and to be used for tapping in a branch connection.

Sacrificial Anodes:

To protect a fitting from corrosion anodes may be attached to fittings. Anodes have an average life of twenty years.

PLIDCO® RESEARCH & DEVELOPMENT, ENGINEERING, SALES AND SERVICE

We continually work to improve existing products and develop new ones to better meet the needs of our customers. Our state-of-the-art R&D and engineering departments are staffed by skilled specialists backed by the latest equipment and technology, all to help solve customer problems and improve production.

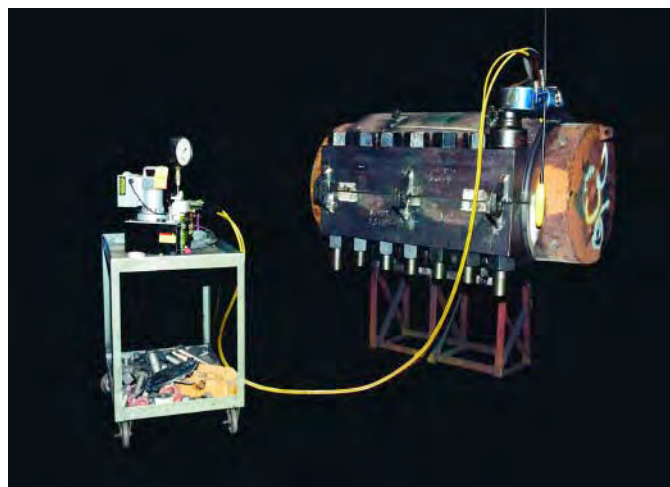
Our experienced and knowledgeable sales staff is available to answer any pipeline repair or maintenance questions you may have. The sales departments computerized inventory system allows us to check product availability in seconds. We will let you know exactly what is in stock, and when we will have it on your dock.

Due to the use of our products in many emergency situations, we offer Emergency Service 24-hours/7 days a week. Our inventories are kept stocked with repair products and equipment needed for most emergencies. In addition, our personnel are highly trained and experienced in dealing with critical repairs.

PLIDCO® TESTING

All equipment used for testing and inspection is regularly calibrated. Where applicable, all certified standards used in equipment calibration are traceable to the National Bureau of Standards.

In-process inspection and production testing are also an important part of our quality program and include Radiographic Testing, Hydrostatic Testing and Stress Analysis when required. Our goal is to insure the ultimate in product integrity.



Our newest edition to our testing equipment is a high-pressure and temperature steam boiler. This steam boiler is used to test PLIDCO® Shear+Plugs™, Sealants and seal materials. We take pride in our testing ability and equipment to assure our customers of a dependable product and consistent quality.

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PLIDCO® D.O.T. TRAINING

PLIDCO® now offers a fee-based D.O.T. training class to become certified to install PLIDCO® products. The training class consists of an introduction of the PLIDCO® product line, summary of installation instructions, a power point presentation, interactive demonstration, a test on the training and an authorized certificate for successful completion of test.

With this training you will learn everything there is to know about the installation of PLIDCO® products to make your future installations safe, easy and correct. This training is a must if you want to safely repair your leaks with the highest quality repair fittings on the market. Please contact us for further information on how PLIDCO® can assist you with your installation needs or questions.

PRODUCT WARRANTY

1. Products manufactured by The Pipe Line Development Company, hereinafter referred to as PLIDCO®, are warranted free from defects in material and workmanship for a period of one (1) year from date of shipment from factory. The warranty on components not manufactured by PLIDCO® shall not exceed the warranty of the component manufacturer.
2. If defect under this Warranty appears, PLIDCO®, at its option, will repair or replace the defective product or part, or refund the purchase price, less an allowance for services rendered by product prior to claim, and in no event will PLIDCO® be responsible for consequential or incidental damages.
3. Claims for breach of warranty must be made in writing immediately upon discovery and sent by registered mail to the home office, 870 Canterbury Road, Cleveland, Ohio 44145. Defective products or parts must be held for inspection by PLIDCO® or, at PLIDCO®'s option, be returned to PLIDCO® F.O.B. its factory.
4. This Warranty shall not apply to any product or component which has been repaired or altered by anyone other than PLIDCO®, or has become defective due to misuse, negligence or casualty, or has been operated or maintained contrary to PLIDCO®'s printed instructions.
5. Remedies available to an owner for breach of this warranty are expressly limited to an action to recover for the value of repairs or replacements due hereunder and PLIDCO®'s liability for incidental or consequential damages are hereby expressly excluded to the full extent permitted by applicable law.
6. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR USE AND OF ALL OTHER OBLIGATIONS OR LIABILITIES ON PLIDCO®'S PART, AND PLIDCO® NEITHER ASSUMES NOR AUTHORIZES ANY OTHER PERSON TO ASSUME FOR IT, ANY OTHER LIABILITY IN CONNECTION WITH THE SALE OF PRODUCT.

Additional information upon request.

PLIDCO® D.O.T. Training



PLIDCO®
SPLIT+SLEEVE TRAINING



PLIDCO®
WELD+ENDS® TRAINING

PLIDCO®
FLANGE+REPAIR RING TRAINING



PLIDCO®
SMITH+CLAMP™ TRAINING

PLIDCO® now offers a fee-based D.O.T. training program to certify your maintenance personnel to install PLIDCO® pipeline repair products. The training class will consist of an introduction of the products, summary of installation instructions, a power point presentation, live demonstrations, question and answer period and a written test. This training is a must if you want to safely repair your leaks with the highest quality repair fitting on the market.

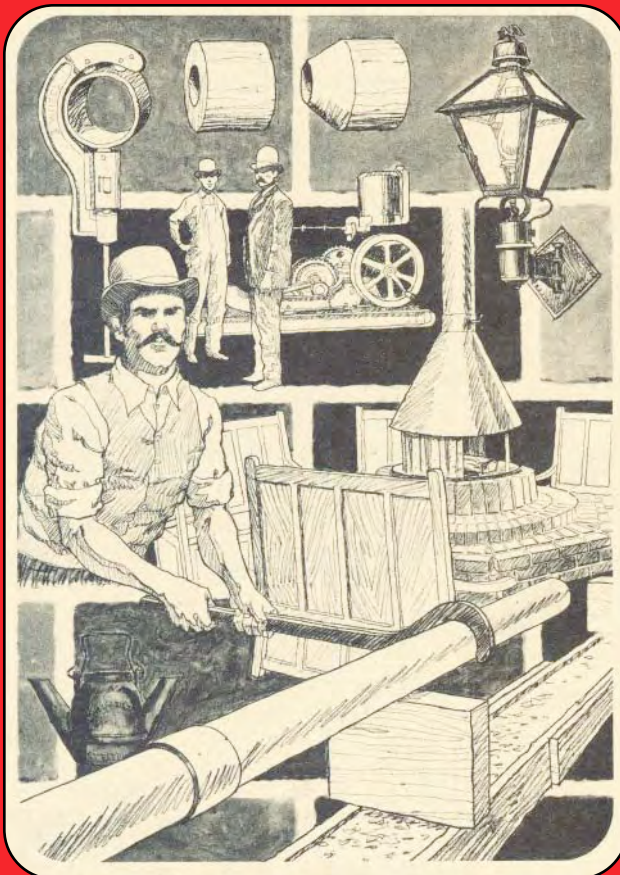
For more information please contact us at:

Phone: 800-848-3333/440-871-5700 or E-mail us at pipeline@plidco.com

THE PLIDCO® PIPELINE MUSEUM

We live better today because of pipelines. Crude oil, slurry, gasoline, steam, chemicals, gas, water and other commodities are transported through pipelines made of steel, aluminum, copper, cast iron and plastic. It is for that reason Joseph B. Smith, the founder of PLIDCO® thought is so valuable to create this historical museum.

The purpose of the museum is to preserve and exhibit, in one location, a recorded history of pipelines and the contributions they have made to civilizations all over the world, so that we and future generations have a better understanding of the important role pipelines, and the men who built them, have played throughout history.



Among some of the pipes on display at the museum are, pipe from ancient Rome and a section of the 48" Alyeska Pipe Line. Pipe tongs, early types of repair fittings and other pipeline artifacts are also displayed. Logos and road crossing markers from around the world set an international mood underscoring the importance of pipelining. Museum tours are conducted by appointment. Customers, friends and guests are welcome to visit and browse, when in Cleveland, Ohio.

Appropriate materials for the museum are constantly being sought to add to its collection of pipe line sections, pumps, pipeline fittings and equipment, records, photographs and pipeline road crossing markers. If you have anything you would like to donate please contact us.

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