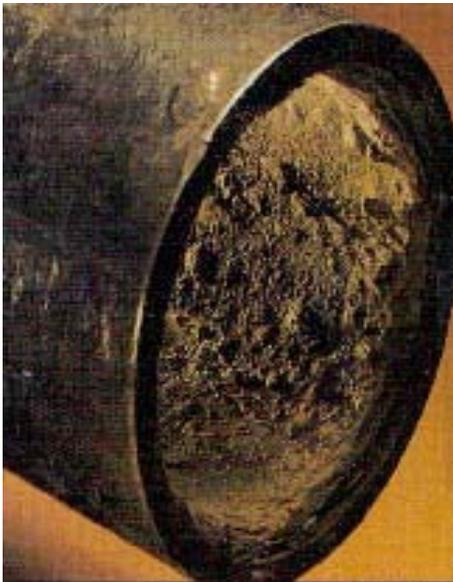


PIGGING PRODUCTS

Capex supply

PIG LAUNCHER and RECEIVER

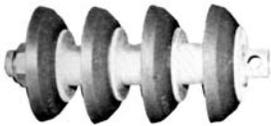


Before Cleaning



After Cleaning

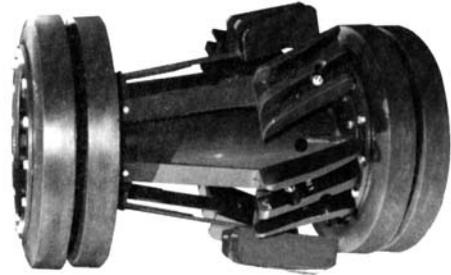
TYPES OF PIGS DISPLACEMENT AND BATCHING PIGS AND PIG WITH BLADES (FOR CLEANING)



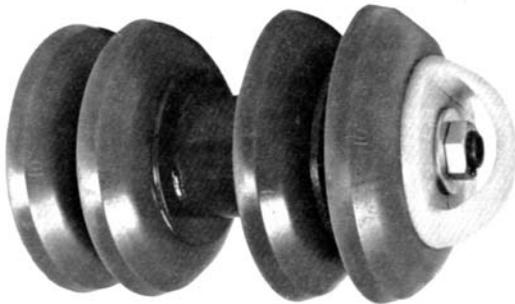
2" to 6"



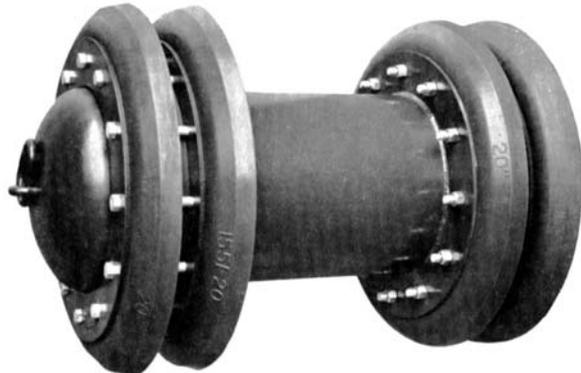
3" and 4"



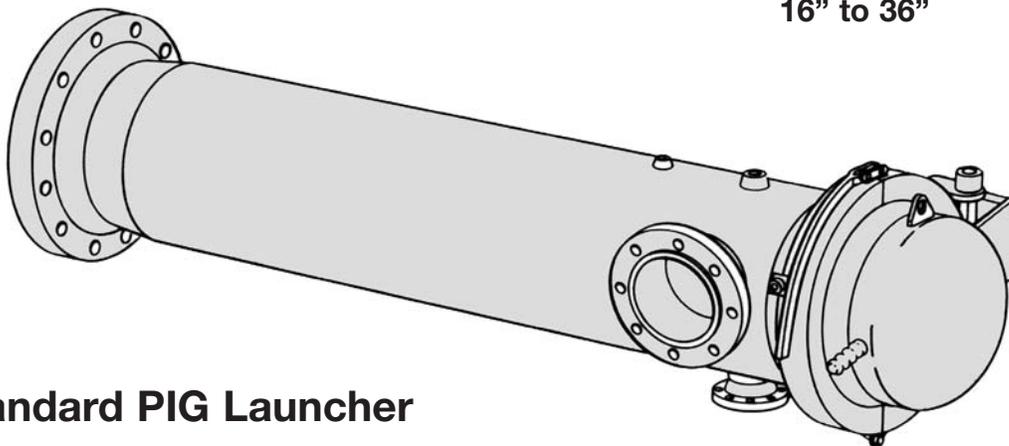
PIG with blades



5" to 14"



16" to 36"



A Standard PIG Launcher

PIPE COATINGS

For 100% corrosion and sealing protection of line pipe and field welds contact Capex Canada Inc.

Fusion bonded epoxy coatings applied internally or externally to steel pipe provide not only protection against external corrosion for buried, exposed or submerged oil and gas pipelines but also provide thermal insulation.



One of the common coatings: 3 LAYER PE coating
to specification DIN 30670

Additional applications that are available:

- Liquid 2-Part Epoxy
- Polyethylene
- PE
- Nylon
- Glass
- Concrete Lining
- Bitumen / Fiber

Pipeline field work contractors perform the following coating work:

- Field joint internal and external
- Fusion bonded epoxy
- Liquid 2- part epoxy
- Shrink sleeve applications

Heat shrinkable sleeves for corrosion protection of field welds are easily applied to steel pipelines for both buried as well as exposed installations of various operating temperatures. The recommended minimum sleeve width = bare steel dimension plus two inches on either side of the pipe weld. Some of these sleeves provide excellent resistance to cathodic disbandment resulting in effective long term corrosion protection.

Heat shrinkable sleeves are available in three types:

- Wrap around sleeve
- Tubular
- Tape

Note – Fusion bonded epoxy powder as an alternate can also be applied as a protective coating to the 'field' weld area.

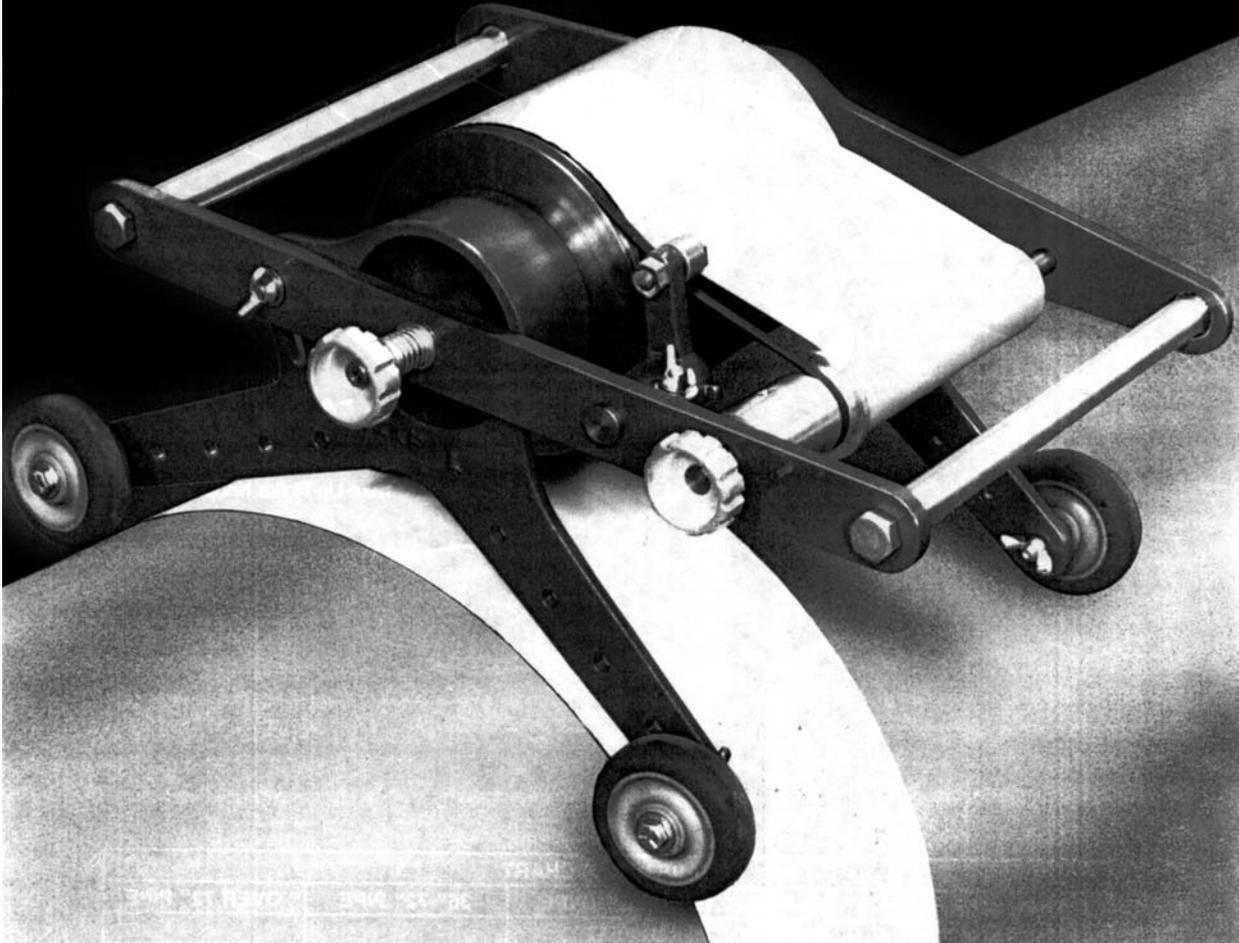


Internal and External Fusion Bonded epoxy (FBE) is factory applied to steel line pipe up to 45 feet long.

The end to end corrosion protection is completed during construction by applying FBE Power to the internal and external Field Hoist after welding – onshore or offshore.

ACCUWRAP™ II

HAND HELD PIPE WRAPPING MACHINE



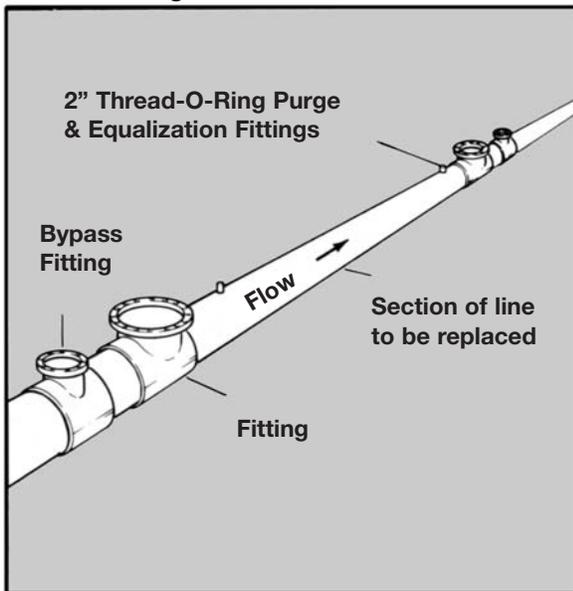
- **Applies Release Liner or Plain Tape Coatings**
- **Separate Tension Adjustments for Tape and Release Line Take-Up**
- **Will Accommodate Tape with 1 1/2" or 3" Diameter Cores**
- **Ideal for Both Spiral and Cigarette Wrapping**
- **Three Size Machines fit Tape Widths 2" - 6", 6"-12" and 12"-18"**
- **Accuwrap Can be Used on 4" and Larger Pipe**
- **Very Low Profile, Requires Less Clearance**
- **Lightweight Construction**
- **Easy to Operate**

PLUGGING

The plugging operation provides a method to remove, and if necessary, replace a section of a piping system without having a shutdown or flow interruption.

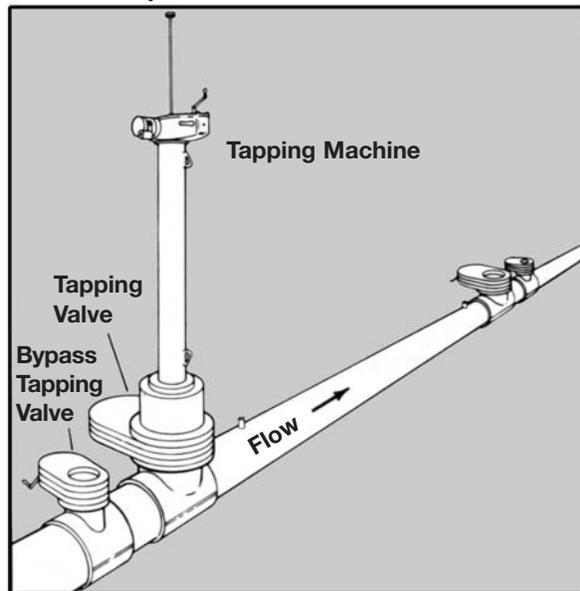
TYPICAL PROCEDURE OF PLUGGING WITHOUT SHUTDOWN

1. Weld fittings



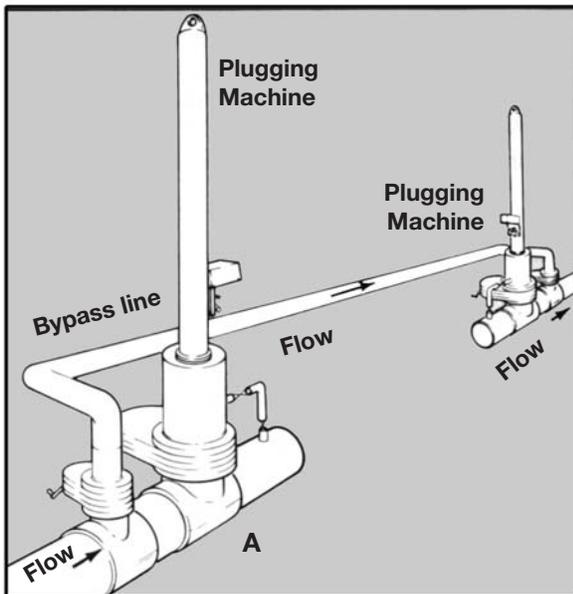
Fitting flanges are welded on each end of the section to be isolated. Bypass fittings with flanges and equalization fittings are welded to the line.

2. Make taps



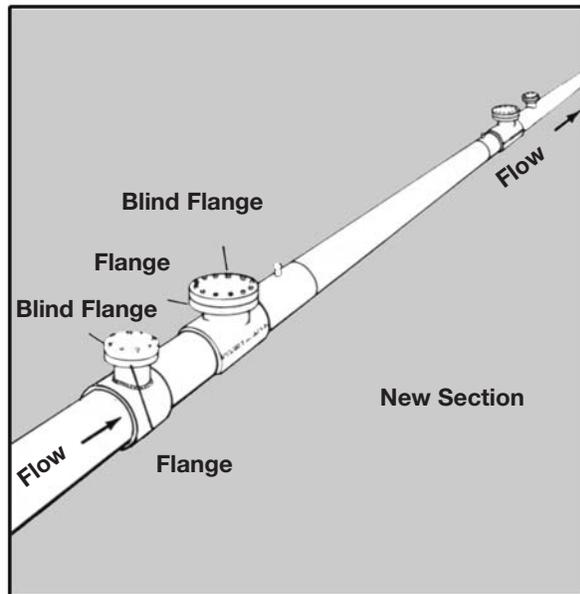
A valve is mounted on each fitting and taps are made through the valves into the pipeline. The cutter is withdrawn after each tap, the valve closed, and tapping machine removed.

3. Plug line



Bypass connections are made and the bypass valves are opened. Plugging machines are mounted and the plugging heads are lowered through valves into sealing position. After the new section is tied in, pressure is equalized by connection from the housing to the pipeline

4. Recover valves



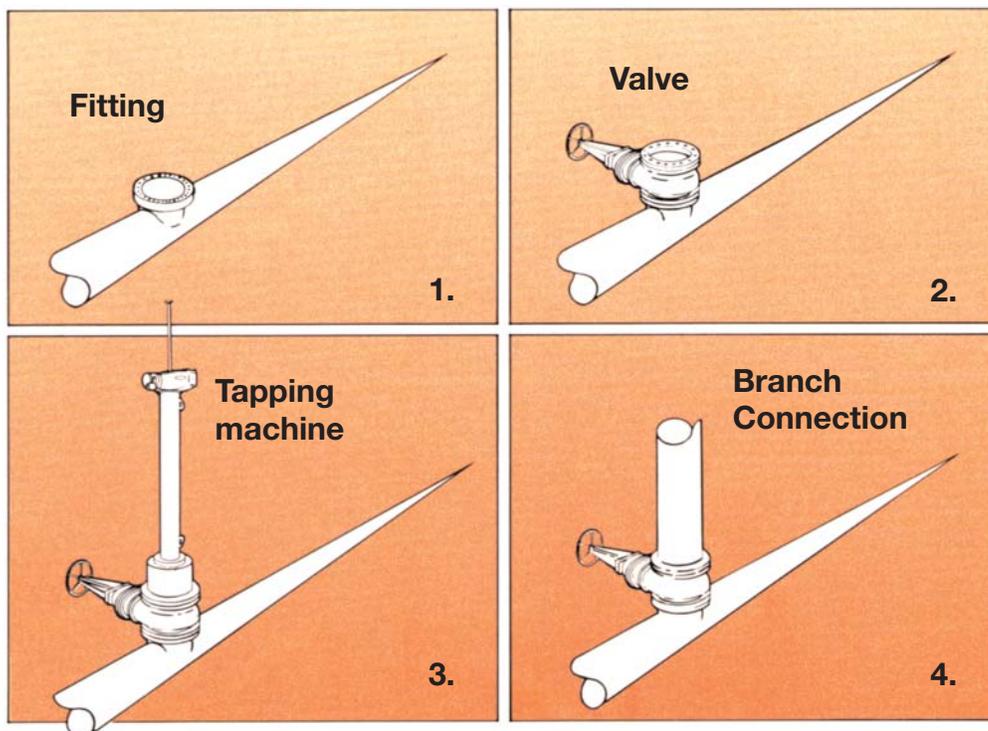
Tapping machine cutters are replaced with plugs and tapping machines (or machine) are mounted on valves. The plugs are lowered into position inside flanges. Tapping machines are removed, valves recovered, and blind flanges installed.

TAPPING

Both hot tapping and pressure tapping provide a method of making an uninterrupted line flow connection while the existing system is under pressure.

- Step One** Attach a pressure containing fitting such as a threadolet, weldolet or a threaded or flanged branch connection such a split flanged tee to the existing pressurized system.
- Step Two** Attach a gate or ball valve. The port through the valve must be sufficient to allow the hole cutter to pass through.
- Step Three** Test to verify the valve and fitting will withhold the pressure of the system.
- Step Four** Cut the hole through the pipe wall and remove the coupon so produced. Close valve, remove tapping machine and install connecting pipe.

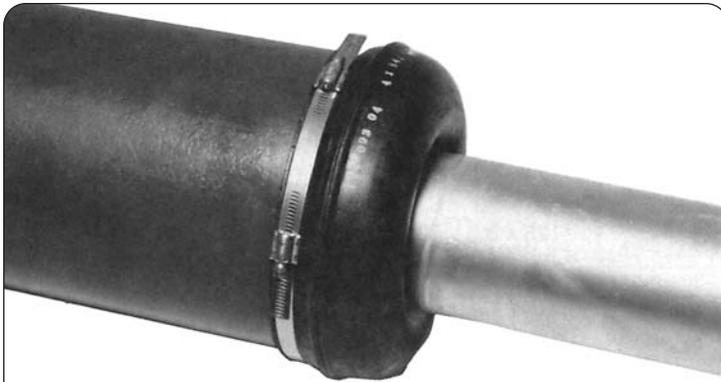
Tapping procedure



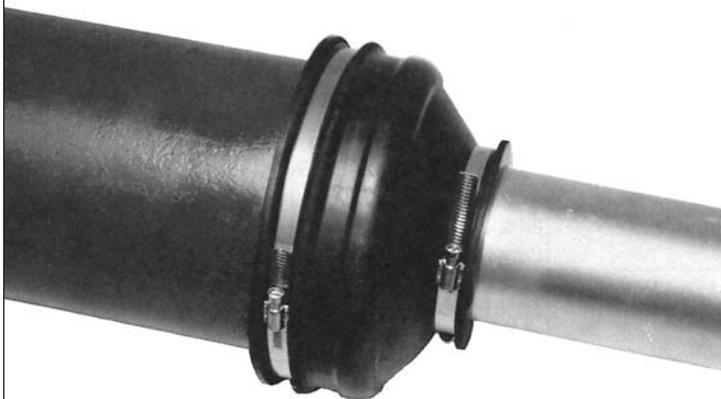
CROSSING MATERIALS

Sealing materials are available for the ends of cased crossings from Capex. Although centring of the pipe in the casing is most desirable these seals are available for use in any positioning of the pipe in relation to the casing and are held in place by steel clamps.

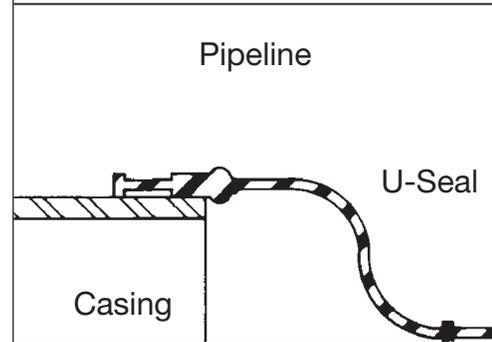
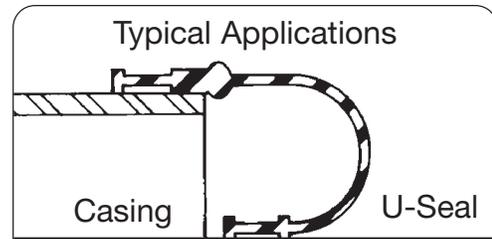
U-Seal and Z-Seal for cased Crossings



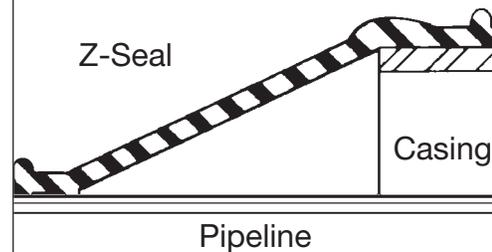
The flexible U-Seal is designed for eccentric installations and maintains its seal regardless of the pipe position in relation to the casing. Two stainless-steel bands with adjustable double-end clamps hold the U-Seal firmly in place. A screwdriver is the only tool needed for installation. The U-Seal will withstand temperatures to 235°F (112°C).



The Z-seal is designed for installations where an extra rugged seal is required. It is recommended for use on pipe that is centred at the casing ends. A screwdriver is the only tool needed to tighten the stainless-steel bands and there are extra points for tightening on the big-inch sizes. The Z-Seal will withstand temperatures to 235°F (112°C)



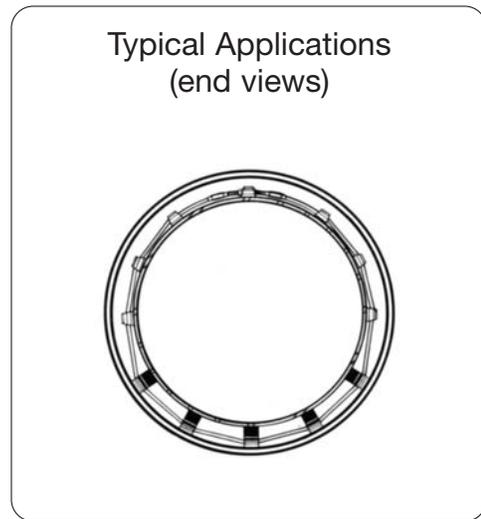
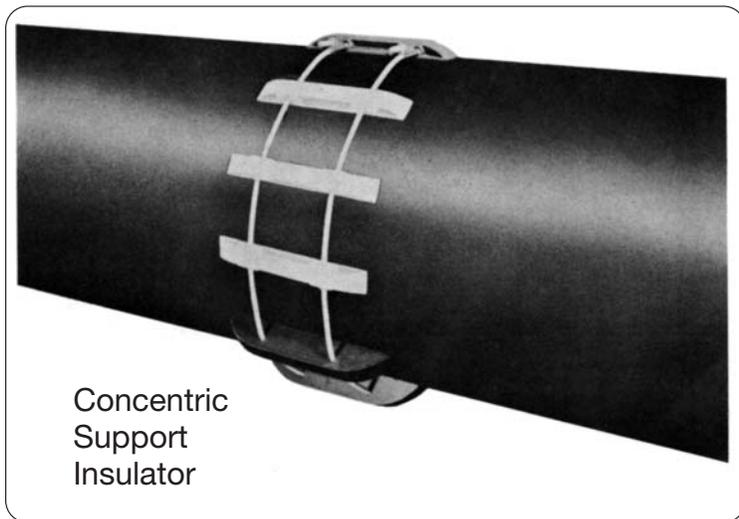
The U-Seal can be installed two ways. The top drawing shows the "U" shape which provides for ample flexibility. It can also be installed with the shorter band on the outside



The heavy-duty Z-Seal will withstand the weight of backfill earth. No shield is required.

CATHOD PROTECTION

Another crossing installation material from Capex are the cradles. These cradles carry the weight of the pipe, and the backfill, and also insulate the pipe from the casing. These cradles also center the pipe inside the casing.

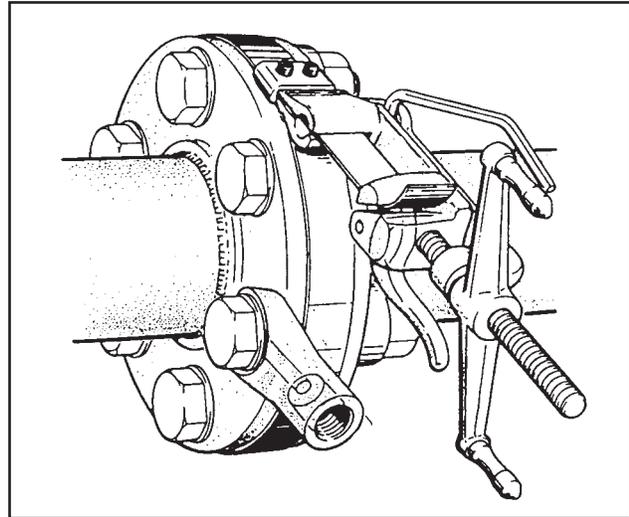


TRENCHING EQUIPMENT



SEALING MATERIALS

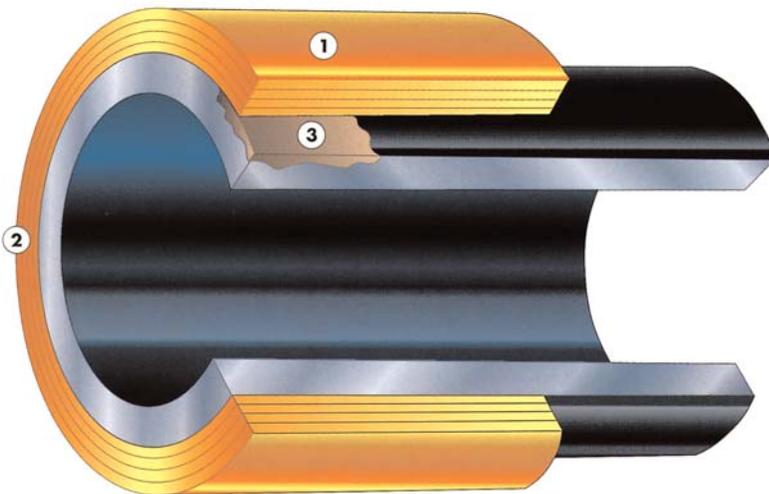
Seal low pressure flange leaks in chemical and steamlines with materials from Capex without shut down interruption of production and costly unit removal to a distant workshop with a permanent easily applied mixture of only two compounds plus a steel band.



The steel banding kit allows custom made seals to be formed for each individual repair

RECOMMENDED FOR SERVICES NOT EXCEEDING 300°C NOR 600 P.S.I.

For leaks in pipelines due to corrosion or accident Capex can solve this problem with a sleeve wrap-around sheet material of such high strength which when applied to any size of pipe actually exceeds the yield strength of the original pipe.



The Clock Spring System consist of:

- 1.** *A patented, high-strength, unidirectional composite structure.*
- 2.** *A patented, fast-curing, high-performance two-part adhesive system.*
- 3.** *An extremely high compressive strength, proprietary load transferring component. Once installed, the three elements bond together to form an extraordinarily strong, durable repair.*

STOP LEAKS

Leaks through pin holes to large holes and leaks between flanges can now be stopped without production downtime.

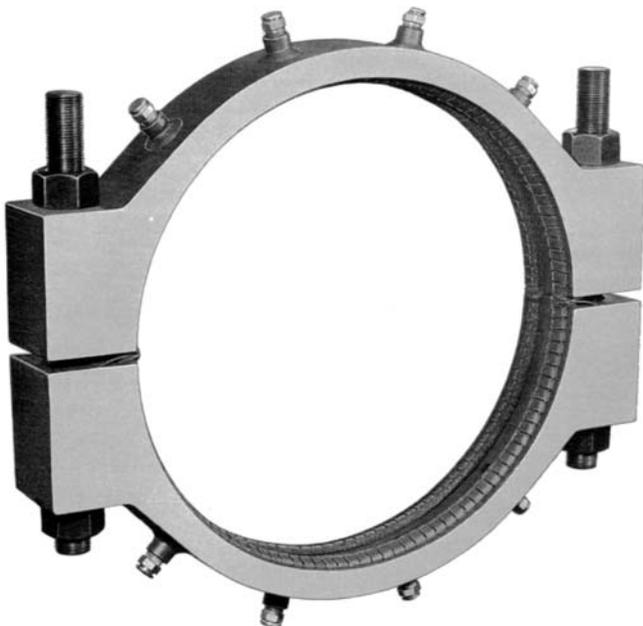
The pin hole solution:



For larger holes in pipe sizes 1.5" to 48":



And for leaks between flanges we offer:



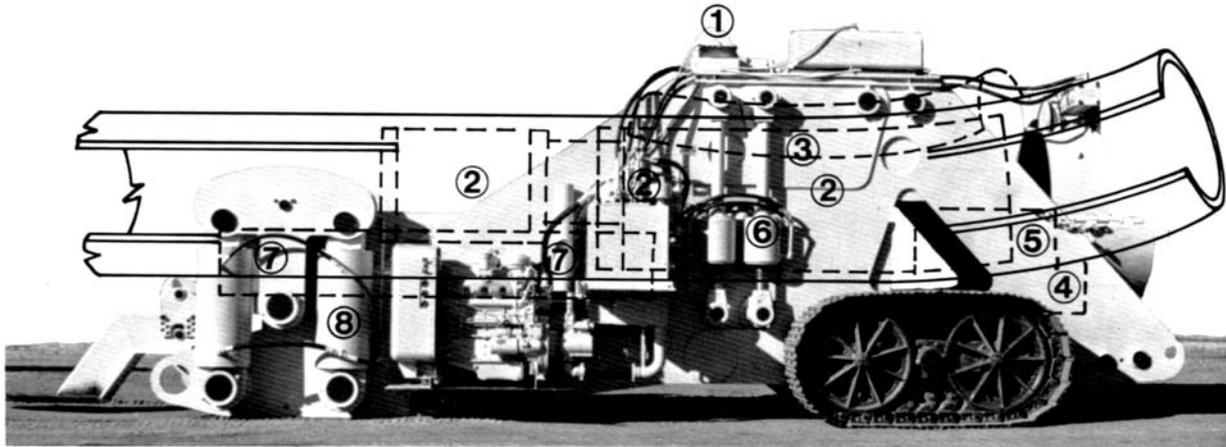
PIPE BENDING EQUIPMENT FOR SHOP USE AND FIELD WORK

As pipe sizes vary so do pipe bending machines.
Our smallest:



Steel pipes up to 18 mm

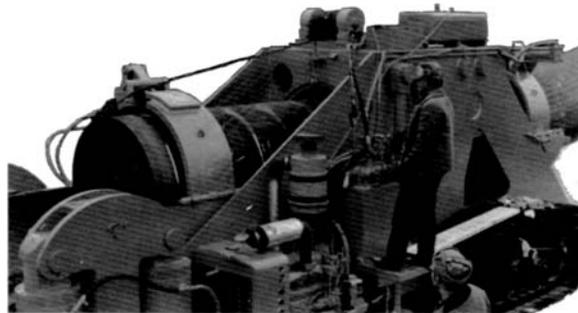
VERTICAL HYDRAULIC PIPE BENDING MACHINES



HOW IT OPERATES

The section of pipe is moved into the bender by the hydraulically driven winch ① and the bending mandrel ② inserted. The pipe is then positioned under the die ③ at the point where the bend is to start and the mandrel expanded. Wedges ④ force the pin-up shoe ⑤ to secure it against the pipe.

Inboard cylinders ⑥ pull stiffback ⑦ up, raising pipe against the die which acts as a fulcrum. Outboard cylinders ⑧ push front end of stiffback up, putting bend into pipe.



After each bend, the pipe is moved through the machine on predetermined increments and the operation is repeated until specified degree of bend is attained.

PIPE HANGERS

Some of our sources have over 50 years experience in the Power and Petro Chemical Industries, and the quality of their products is assured by stringent quality control supervision that design is in accordance with the customer's purchase order and at least one of the following specifications:

DIN; VGB; SVDB; BS 394
PART I; KTA 320513; ANSI
B31-1; MSS SP58; MSS SP69;
ANSI SECTION III,
SUBSECTION NF.

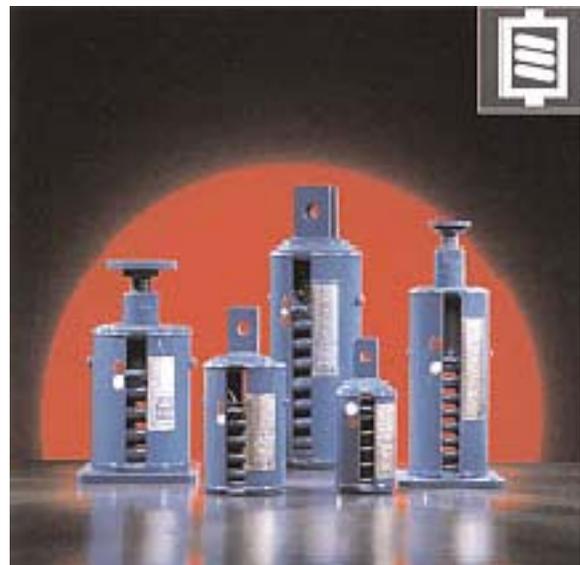
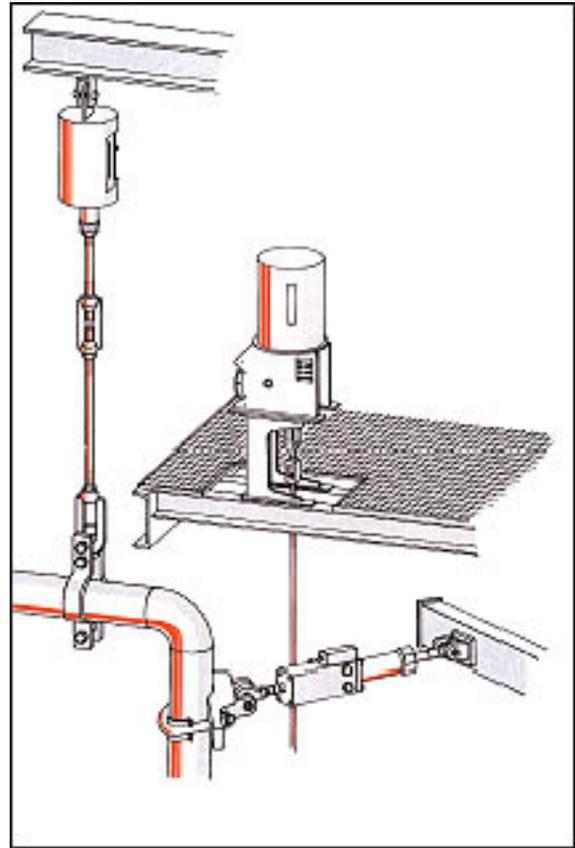
The two most commonly used hangers:

- the Constant
- the Spring

Both types of hangers bear the weight of the pipe which undergoes vertical movement.

Constant support hangers are used in all cases in which the vertical movement is relatively large.

Spring hangers are used in all cases in which the vertical movement is relatively small.



WELDING EQUIPMENT WHICH IS AVAILABLE FROM CAPEX



CAPEX can supply welding rod/wire for mild steel, stainless steel, low alloys, nickel alloys and exotic metals and brazing alloys to satisfy all your maintenance and repair applications.

A complete line of spot, press, rocker arm, seam, wire, butt, flush butt, as well as automatic and semi automatic welders are available.

The American Welding Society and other industrial sources have estimated that the average welder has his 'arc-on' only 30 per cent of the time. With attention to work flow some welding machines will conservatively achieve a 70% 'arc-on' time.

MECHANICAL PIPING SYSTEM

The mechanical method is an alternate way of joining pipe rather than threading, welding, or flanging pipe ends.

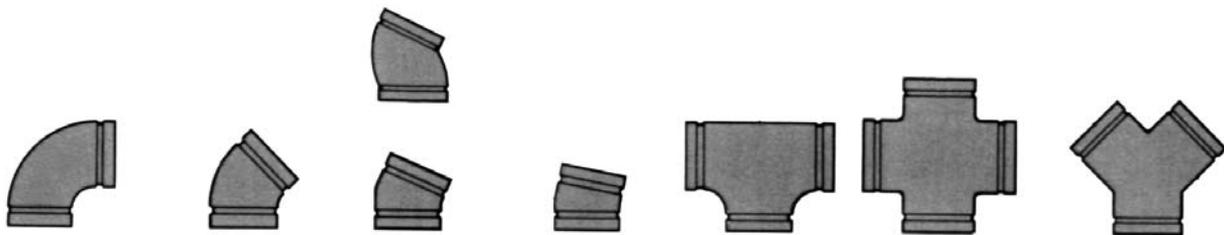
The mechanical method includes the use of couplings on either grooved or plain ended pipe. This means of piping construction in oil fields and power plants is world-wide and is considered to be the most versatile, economical and reliable piping system.

The grooving system of construction is up to three times faster to install than hand welding, easier and more reliable than threading or flanging and the movement flexibility allowed by the coupling makes installation easier and faster.



Also available to make the mechanical piping system complete are the following grooved fittings:

elbows, tees, laterals, reducer, valves and adaptors for converting from flanged and threaded lines.



PORTABLE MACHINES TAKE THE CORRECTION MACHINE TO THE PROBLEM... NO LONGER DOES THE WORK-FORCE HAVE TO TAKE THE PROBLEM TO A DISTANT CORRECTION MACHINE.

Portable machines for on-site construction and maintenance work are designed for machining full faced, raised faced and grooved flanges as well as bevelling and counter boring flanges.

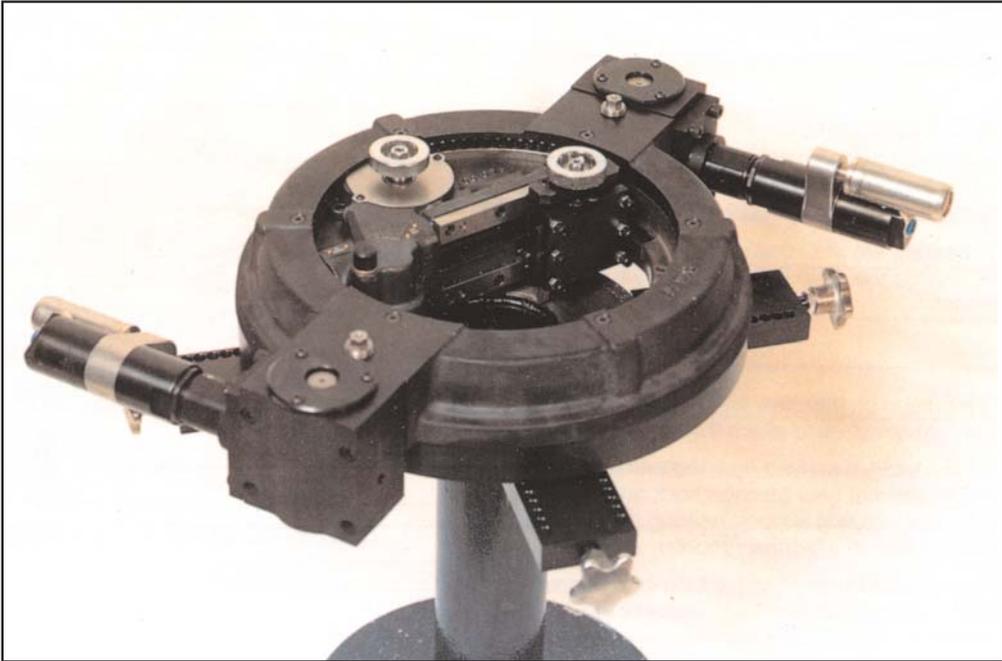
These machines possess the features that make work easy:

- each unit is compact and light weight
- easy to use
- cut all types of grooves and root faces of weld preparations
- reduce down-time
- save freight cost (to off-site repair machine shops)
- eliminate temporary leak sealing procedures
- reduce replacement flange inventories

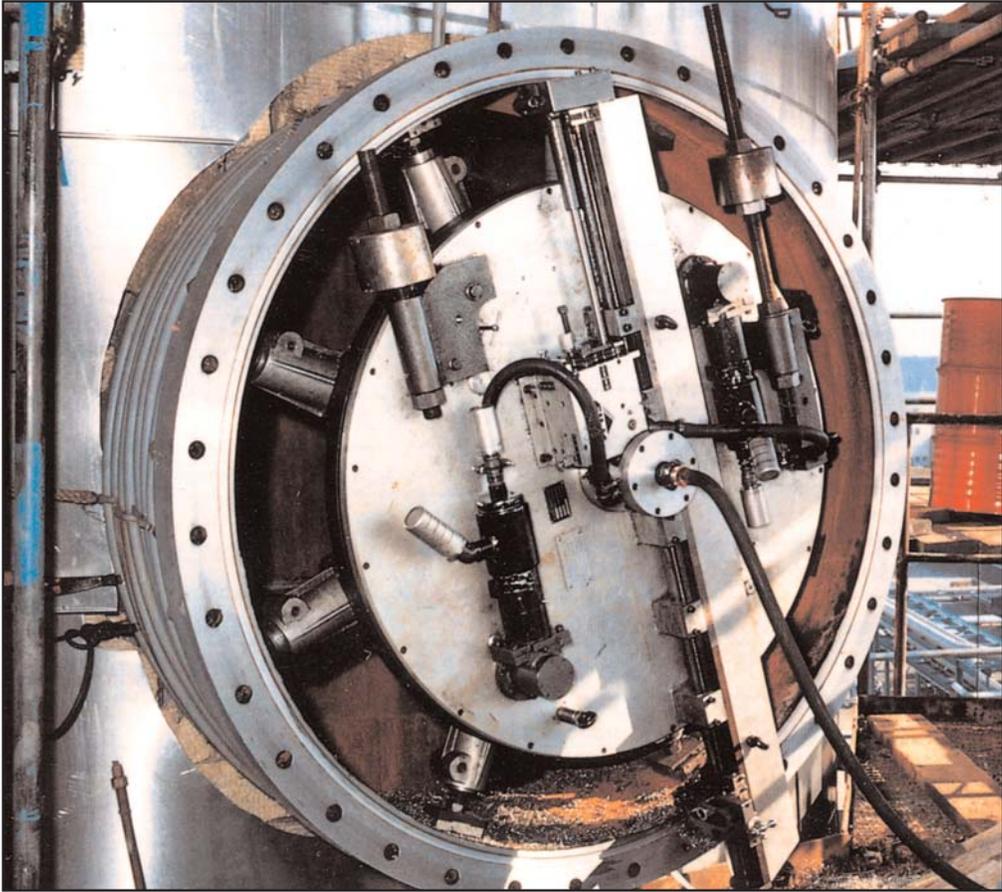
These machines come in many sizes as one single machine cannot machine all sizes of flanges. The required pneumatic power to operate these machines varies as shown below.

MACHINING SIZE	POWER REQUIRED	FLANGE FACET
- up to 305 mm	2 motors of 0.85 h.p. each	a
- up to 584 mm	2 motors of 1.55 h.p. each	bx
- 75mm to 533 mm	1 motor of 0.85 h.p. each	cd
- 153 mm to 762 mm	1 motors of 1.55 h.p. each	df
- 610 mm to 1524 mm	2 motors of 1.55 h.p. each	ee
- 1219mm to 2438 mm	2 motors of 3.5 h.p. each	fa

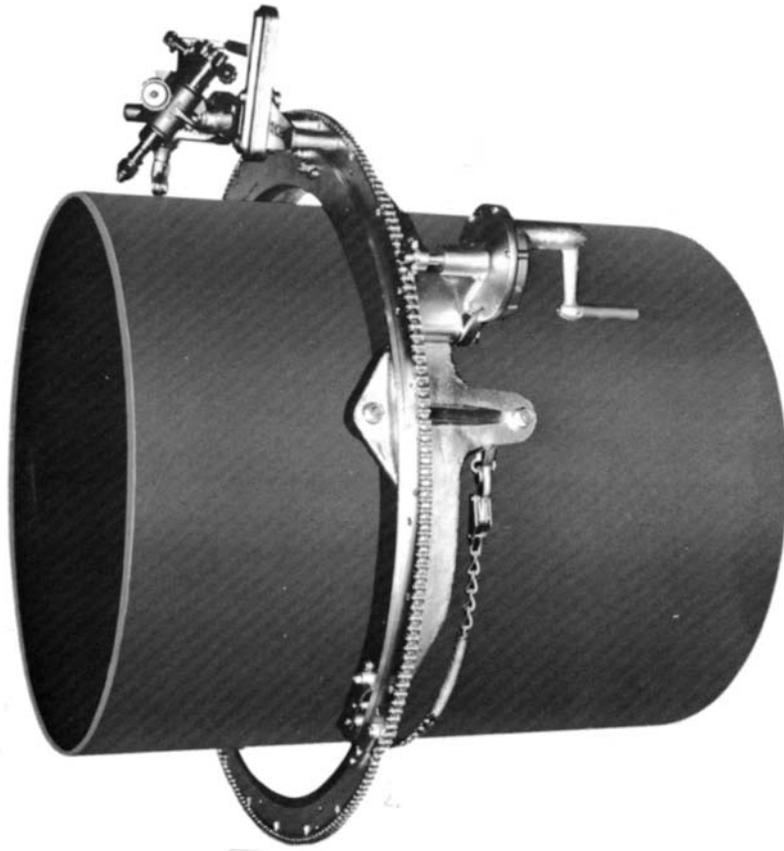
The smallest: The “A” unit



The largest: The “FA” unit

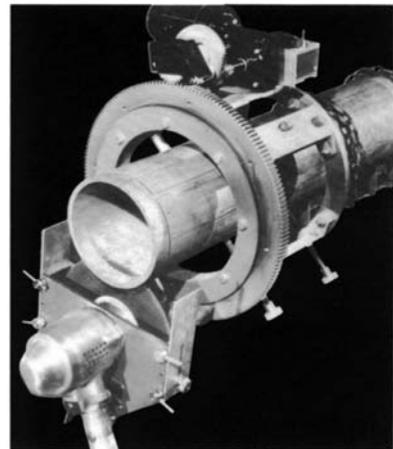
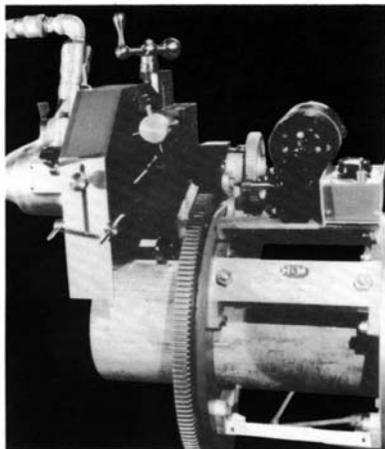
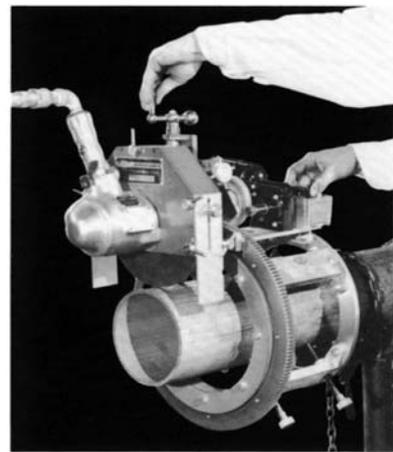
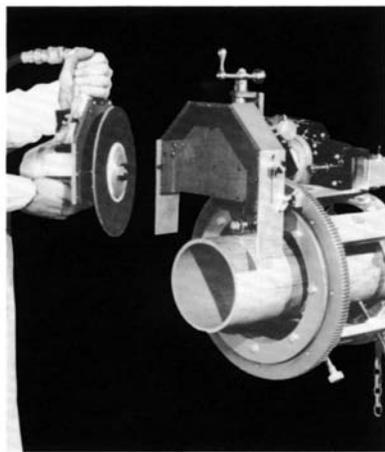


CUTTING AND BEVELLING PIPE



PORTABLE PIPE CUT-OFF AND BEVELLING MACHINES

This unit moves around the pipe and the cutting depth can be controlled regardless of any out-of-roundness.



Also from CAPEX are elbow mountable end-beveling machines for use when an existing bevel on an elbow has to be changed.