# PIPELINE REPAIR PRODUCTS FOR HIGH PRESSURE PIPES IN THE OIL- GAS- AND PETROCHEMICAL INDUSTRY

## Pipe Fit - Split Repair Sleeve

- for on shore installation
- for offshore installation, with zinc anodes and marine epoxy coating
- weldable, with heat insulating gaskets
- with girder rings, if required

Split sleeves are widely used for making repairs to a variety of high or low pressure and high or low temperature pipelines, containing oil, water, gas, steam and chemical fluids.

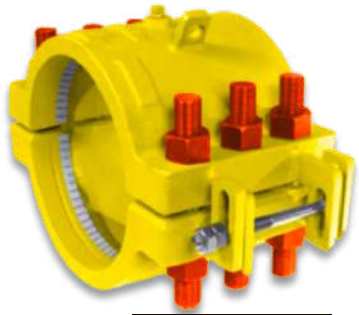
The clamp halves are joined by bolts to form a high integrity pressure vessel around the damaged or leaking pipe.

Sealing is provided by elastomer seals of the highest quality selected for compatibility with the pipeline fluid and operating temperature.

The Split sleeves may also be welded after installation to provide a permanent repair. It may be completely seal welded with the pipeline in operation

Offshore type, with zinc anode

Standard, on shore type



With girder rings

Weldable split sleeves

**Design Features and Methods**

Safety
The clamps are fully compensatory pressure vessels, hydrostatically tested to 1.3 times the rated working pressure (as per ASME Sect ion VI I I Div.1 clause UG-99)

All Clamps are equipped with a 1/2" or 1" NPT vent port depending on size and client's requirements.

**Design Criteria and Industry Standards**
All split sleeves are tested in accordance with the API Specification 6H, "Specification for End Closures, Connectors, and Swivels", ASME BOILER AND PRESSURE VESSEL CODE, Section VIII; and with ANSI standards B-31.3, B31.4, & B31.8, where applicable.
Certification: EN 10204 3.1

**Ease of Installation and Maintenance**
All split sleeves are designed to be installed with the most common tools available and are readily field repairable, including full seal replacement.

**Economy**
Split Sleeve Repair Clamps are designed utilizing the latest technology, allowing optimization of design techniques and materials, resulting in lower weight,

**Split Sleeves are suitable for sour environment**
This type of split sleeve is designed to be used in hydrogen sulfide (H2S) bearing hydrocarbon service. For sour services, the body material will meet NACE MR0175

**Certification and Testing**
Nondestructive testing (NDT):
- 100 % magnetic particle inspection (MPI) for stiffener to shell weld (fillet)
- 100 % ultrasonic testing of vent plug welds
- 100 % MPI of hinge welds
Hydrotest as per ASME Section VIII Div.1 clause UG-99

**Split Sleeve Material Specifications**

ANSI pressure classes 300, 400, 600, 900 and 1500

Design based on: ASME Sec. VIII, API 6H, ANSI B31.4, B31.8 and Split Sleeve Software 3S)

Design control and stress analysis with Finite Element Package

Body materials: A216 WCB, A216 WCC, A352 LCC, A516 Gr.70 (Suitable for normally corrosive services)

Stud material: A193 Gr. B7
Nut material: A 194 Gr. 2H

Coating: Yellow Epoxy Polyamide, standard or Marine epoxy

The highest quality NBR or VITON elastomer seal precisely compatible with the line fluid and ambient temperature will be installed into the split sleeves.

NBR temperature range is from - 20°C to + 80°C
HNBR temperature range is from - 20°C to + 150°C
VITON temperature range is from - 20°C to + 200°C

Gaskets are replaceable without any special tools.

Girder rings can be installed upon client's request.

Double Row Sealing (DRS) design is also available. This special design is more suitable for where probable
leakage is much costly or dangerous, such as gaseous services & offshore applications.

**Weldable split sleeves**
All clamps can be fully prepared for welding after installation (welding procedure is available on request).

Heat insulators (parallel to the seals) protect the seals from heat during the welding of the sleeves to the pipe.

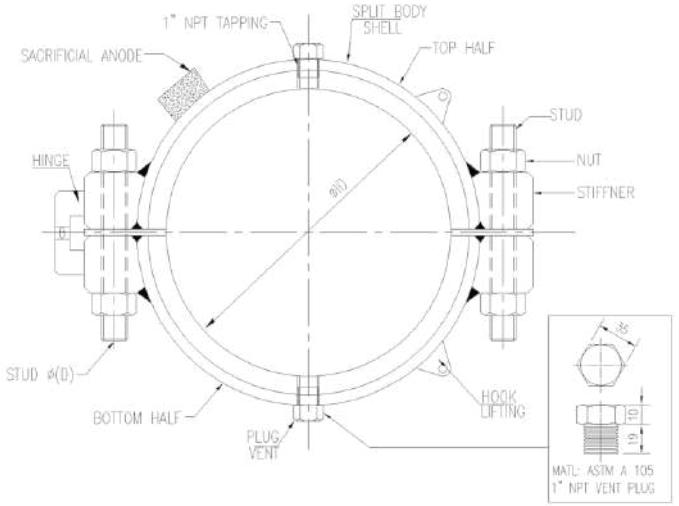
***Clamps with longer lengths available on request.***

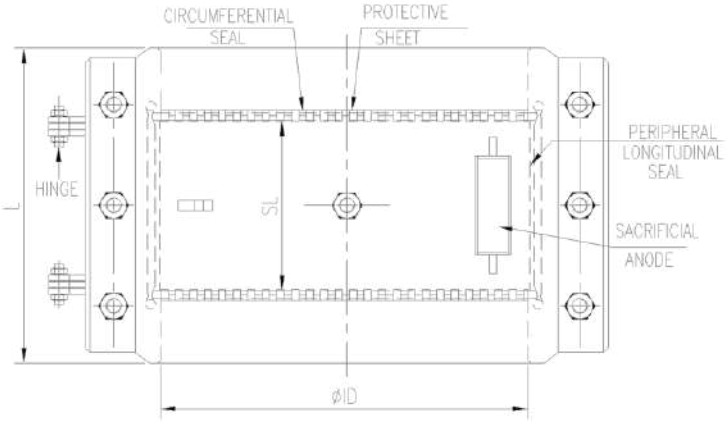
# Standard Sizes (others available on request)

| API PIPE SIZES (INCHES) | SEALING LENGTH (INCHES) | TOTAL LENGTH ANSI 400/600 (INCHES | TOTAL LENGTH ANSI 900 (INCHES) |
|---|---|---|---|
| 4 | 5-1/2 | 9.25 | 9.25 |
| 6 | 5-1/2 | 9.25 | 11 |
| 8 | 5-1/2 | 9.25 | 11 |
| 10 | 5-1/2 | 11 | 11 |
| 12 | 5-1/2 | 11 | 11 |
| 14 | 8 | 14 | 12.5 |
| 16 | 8 | 14 | 14 |
| 18 | 8 | 14 | 14 |
| 20 | 8 | 14 | 14 |
| 22 | 8 | 14 | 14 |
| 24 | 8 | 14 | 15.75 |
| 26 | 8 | 15 | 15.75 |
| 28 | 8 | 15 | 15.75 |
| 30 | 8 | 15 | 17.25 |
| 32 | 8 | 15 | 17.25 |
| 34 | 8 | 15 | 17.25 |
| 36 | 8 | 16 | 17.25 |
| 38 | 8 | 16 | 19 |
| 40 | 8 | 16 | 19 |
| 42 | 8 | 17.5 | 19 |
| 48 | 8 | 17.5 | 20.5 |

| STANDARD CLAMP COMPONENTS | |
|---|---|
| Body (shell) | A516 Gr. 70 |
| Stud Bolts | A193 Gr. B7 |
| Nuts | A194 Gr. 2H |
| Gaskets | NBR or Viton |
| Coating | (Marine) Epoxy |

general drawing for an offshore split sleeve with zinc anode and girder rings



# Flange Fit
# Flange Repair Clamp

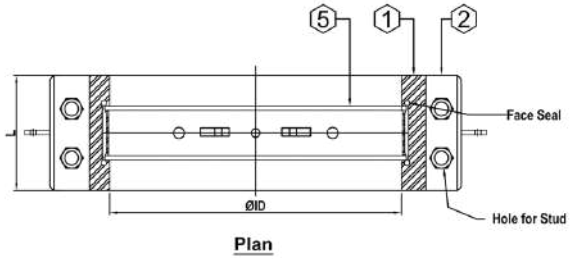
**Stops leaks in flange gaskets**
Flange Fit Repair Rings are designed for easy installation.

No special surface preparation is required prior to installation.

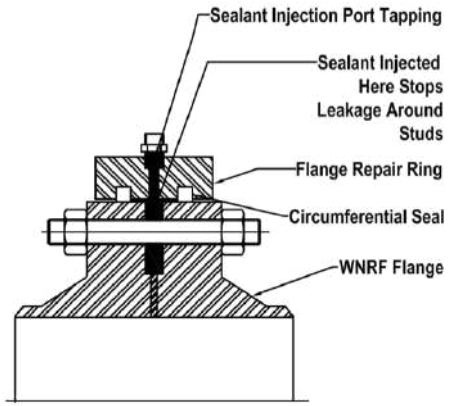
The product can be installed by your own personnel and can be used multiple times.
Bolt leakage is stopped by the injection of a suitable sealant fluid via sufficient injection sockets.

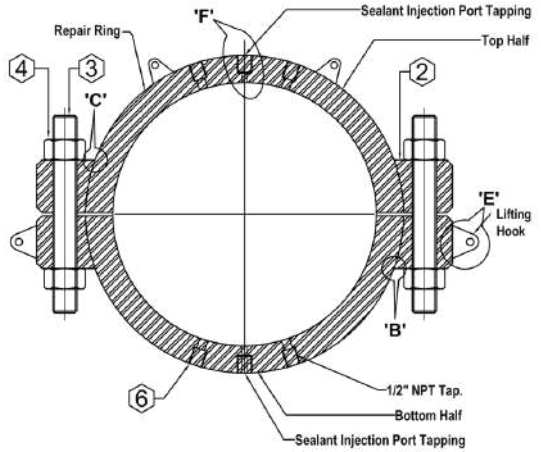
In case of a small gap between the line flanges, gaskets can be installed for temporarily sealing prior and during injection.
Detailed design is done based on line temperature, design temperature and design pressure.

In order to be able to quote the correct product, please download and complete the Flange Fit Data Sheet from our website and send it to us.
Clamps are hydrotested as per ANSI class at 1.3 x operating pressure



Plan




## Material specifications

| Standard Clamp Components | |
|---|---|
| **Body** | ASTM A516 |
| **Stud Bolts** | A193 Gr. B7 |
| **Nuts** | A194 Gr. 2H |
| **Gaskets** | NBR (others available on request) |

# Split Barrel

Product Description

The split barrel repair clamp is used to repair leaking
Couplings, broken AC couplings and leaking bell joint connections.
With the split barrel repair clamps, it is possible to repair the pipe without removing the broken coupling.
Furthermore, it can be easily installed even under rough and wet conditions. No special tools are needed, just a torque wrench.
The clamp is suitable for pressures up to 40 bar and on pipes with diameter up to 1500mm and length up to 5000mm.

More specifications

Material: stainless steel AISI 304/316
Bolts & nuts: Stainless steel AISI 304/316 with PTFE coating-to avoid galling.
Rubber gaskets: NBR or EPDM. Axial gaskets are seated in grooves in each half of the split barrel
Restraint strips are welded in to prevent the rubber from flowing out during installation
The initial radial seal is obtained be tightening the end bolts at each end of barrel
Depending on the size and weight of the product, a hinge construction will be provided to lift the split barrel over the pipe
A vent is installed for test purpose and to enable the medium to escape during installation.
A suitable vent valve is not included

We will need to know the pipe diameter, repair situation, pressure and medium as well as the required length. If possible, please provide us with a sketch or picture of the repair situation.

# Needle Clamp

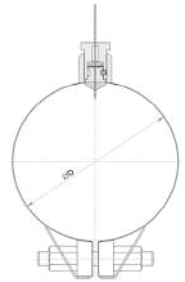
Product description

The Needle Clamp is a pinhole repair clamp and is the the appropriate solution to repair small corrosion pits in steel pipes.
No surface preparation is required, and a simple wrench is sufficient to install the clamp.
The needle guides the Zp of the conical rubber gasket to enter the corroded area.
By tightening the plug, the rubber gasket sufficiently compresses to seal off the leak.
Maximum working pressure is 2000 psi (138 bar).
The Needle Clamp can be installed by your own personnel.

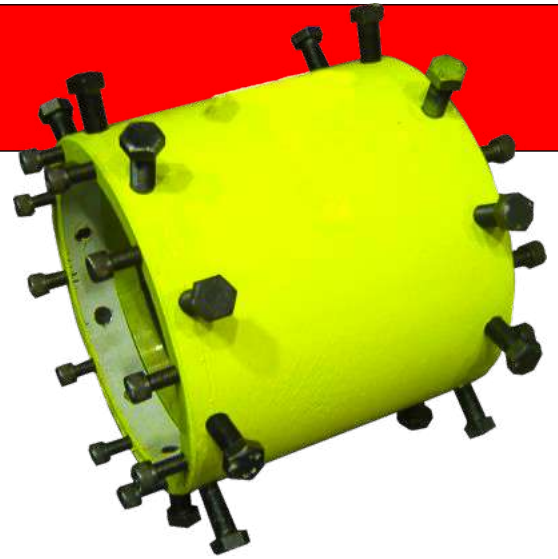
Weld cap

## Material specifications

| Standard Clamp Components | |
|---|---|
| **Body** | Stainless Steel AISI 304 |
| **Stud Bolts** | A193 Gr. B7 |
| **Gasket (4)** | NBR or VITON |
| **Nuts** | A194 Gr. 2H |
| **Pilot pin (1)** | SS 316 |
| **Packing force screw (2)** | ASTM A105, galvanized |
| **Thrust washer (3)** | Brass |
| **Dual dia pin (5)** | SS 316 |



# Pipeline Coupling



Product Description

The pipeline coupling connects oil-gas, steam and Petro-chemical pipelines easily and safely.

The pipeline coupling can be installed without any preparation of the pipe ends.

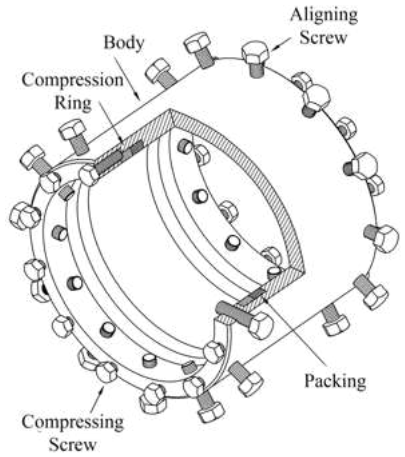
The coupling operates with 2 kinds of bolting systems: radial & axial screws.

They align the two pipe ends together and compress the sealing gaskets, respectively.

In case a long-term connection of the pipes is required, the pipeline coupling must be welded to the line.

The gasket material is selected according to the medium inside the pipe, the desired operating temperature, rate of corrosion and product performance.

NBR gaskets are standard. Other gaskets are available upon request.
The pipeline coupling can withstand axial forces only while it is anchored to the pipe (i.e., either it is fully welded on the line pipes or the line is axially supported).




## Material specifications

| Standard product components | |
|---|---|
| Body | Acc. To API 5L/ ASTM A106 or equivalent |
| Screws | Acc. To A193 Gr. B7 |

High Pressure Leak Repair Clamps are ideally made for extremely critical applications.
CLAMPCO high pressure leak repair clamps are the ideal, cost effective and safe solution for leaking pipelines. They have already been used worldwide with extremely positive results and satisfied customers both onshore and offshore. The clamps are manufactured with strict adherence to industry specifications and quality control program. The clamps are precision machined in the CLAMPCO machine shop.
CLAMPCO high pressure leak repair clamps have helped customers avoid costly downtime that reduces their output.

## HIGH PRESSURE LEAK REPAIR CLAMPS

## BEND CLAMP

## ENCLOSURE CLAMP

## CONNECTOR CLAMP

Designed & Manufactured in INDIA
CLAMPCO CONTROLS-INDIA
Div. of SEVEN OCEAN-DUBAI