

Westatlantic Tech Corp., sales@westatlantictech.com 1-902 455 4455

DUAL BOLT PIPE END COUPLINGS DO NOT REQUIRED SPECIAL PIPE END PREPRATION

High Pressure Pipe Couplings

High pressure couplings WA-PCR-HP dual bolt: Crude oil, gasoline, gas, asphalt, steam, chemical process and other pipeline connections. Flow can resumed immediately at pressures shown in table below.

No special preparation of pipe ends is required. Cut the pipe and slide the dual bolt coupling on. When clamping and thrust bolts are fully tightened, the pipe is joined and leak proof.

WA dual bolt couplings can be with only bolts tightened or they can be welded. If welding is required, it can be delayed until conditions are suitable.

Available in standard sizes: 1½" through 48". *Special sizes, diameters, pressures and lengths, on application. Buna-N packing is standard. Viton, Neoprene, Hydrogenated Nitrile Seals also available.*

Standard body materials: ASTM A 105 Forgings
 ASTM A 106 Gr. B Pipes
 ASTM A 516 GR. 70 Plates

Manufacturing Procedures :

Welding : GTAW & SMAW
Seals : Per requirement
Hydro-testing : Rigs available from 1" to 48" NB #900
Certification : API – 6H License No. API – 6H 0012

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GO to web page: <http://www.pipelinecoupling.com/pages2/high-pressure-coupling-oil-gas-steam.php>

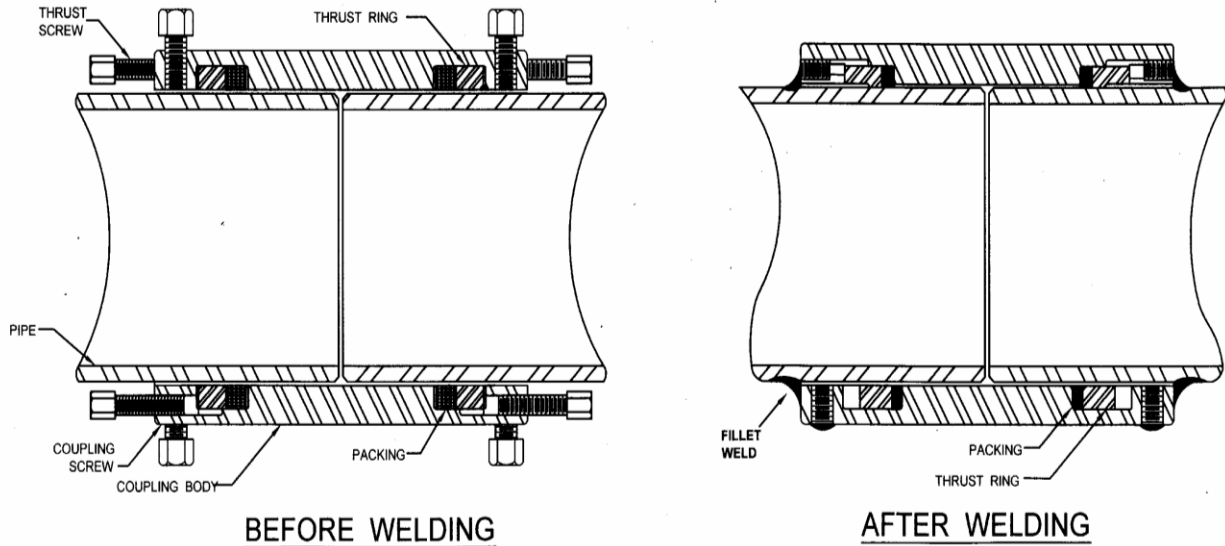
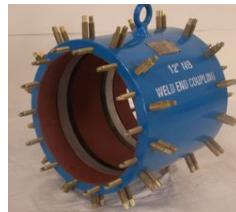
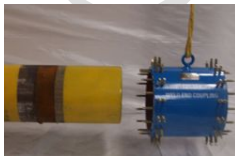


Figure - I

Pipe not anchored: the pipe ends can move freely when subjected to internal or external forces, such as internal pressure, temperature expansion and contraction, underwater currents, ground movement or any combination thereof. see working pressure for "Pipe not Anchored"

Anchored pipe: the pipe ends would not move when subjected to pipe not anchored forces. If the WELD END COUPLING is welded according to instructions, or a suitable Clamp Ring is used, it can be considered an anchored joint .



HOW TO INSTALL

1. Slide the coupling completely over one end of pipe. (a wide gap is purposely left between pipe ends. This eliminates alignment on large pipelines. Mark off one-half of the Coupling length from middle of gap. Slide fitting back to mark, centering coupling equally over joint.
2. After coupling is positioned, torque the clamp and thrust bolts following installation instructions attached to each unit.
Bolts adjust and equalize space between pipe and resist pull forces on the pipeline.
3. Thrust bolts push against the steel thrust ring. This compresses the packing ring with causing packing to flow out between pipe and coupling. When thrust bolts are pulled up tight, the joint installation is complete.
4. If welding is required before pipeline operational. Thrust bolts are cut or burned off flush. Ends of the coupling are fillet - welded around circumference.
Clamping bolts are cut or burned off and sealed.
Welders should be qualified in accordance with the requirements of API Standard RP 1107, Latest Edition. Follow approved welding procedures (WPS).

!! WARNING !!

IMPROPER SELECTION OR USE OF THIS PRODUCT CAN RESULT IN DAMAGE, PERSONAL INJURY, PROPERTY DAMAGE AND/OR HARM TO THE ENVIRONMENT.

Do not use or select a WA coupling until all aspects of the application are thoroughly analyzed. Do not use the coupling until you read and understand these installation instructions. If you have any questions, or encounter any difficulties using this product, please contact: Westatlantic.

READ CAREFULLY

The person in charge of repair must be familiar with these instructions and communicate them to all personnel involved in the repair crew.

SAFETY CHECK LIST

1. Read and follow these instructions carefully. Follow your company's safety policy and applicable codes and standards.
2. Determine the type of joint that coupling is expected to connect. See (A) and (B) on Pate-5 and determine the appropriate rating from the ratings listed on the label.

a) PIPE NOT ANCHORED

A joint in which the pipe ends could move when subjected to internal or external forces, such as internal pressure, temperature expansion and contraction, underwater currents, ground movement or any combination thereof.

The WA bolted ***Pipe Not Anchored*** rating considers only the end force created by the internal pressure. It does not consider any addition external force such as temperature expansion and contraction, underwater currents, ground movement or any combination thereof. These additional external forces must be determined by the customer. If any of these forces cannot be restrained by customer proven techniques, a Clamp Ring should be used.

b) ANCHORED PIPE

A joint in which the pipe ends would not move when subjected to these same forces.

The WA bolted coupling anchored Pipe rating is the maximum pressure at which the pipeline can be operated. It assumes that the pipeline is suitably anchored by welding, by the use of an appropriately rated Clamp Ring or by other customer proven techniques.

3. Observe the pressure and temperature ratings on the label of the Welded coupling.

Do not exceed the maximum appropriate pressure as indicated on the unit.

The minimum pipe wall thickness for standard Weld end is as follows :

Table: II

Nominal Pipe Sizes (inches)	Wall Thickness (inches)	Wall Thickness (mm)
1 ½	0.200	5.08
2	0.218	5.53
2 ½	0.276	7.01
3	0.237	6.01
4	0.237	6.01
6	0.280	7.11
8	0.322	8.17
10	0.365	9.27
12	0.109	2.76
14	0.438	11.12
16 & Larger	0.500	12.7

Pipe wall thicknesses less than those listed may be pushed inward by the force of the clamp screws. For recommended maximum working pressure on thin wall pipe, contact Westatlantic.

Clamp Rings should be considered whenever the wall thickness is less than those listed. Clamp Ring should also be considered where high external forces (such as underwater currents or thermal contractions) are anticipated, even if the pipe has an adequate wall thickness.

Pipelines should be carefully blocked at elbows and bends to prevent pullouts caused by internal and external forces, or WA Clamp Rings should be used. Pipeline should be evenly supported in the bottom of the trench before repress ring. Follow applicable B31 codes during repress ring.

If the WA bolted end coupling is welded according to our instructions, or a suitable Clamp Ring is used, it can be considered an anchored joint.

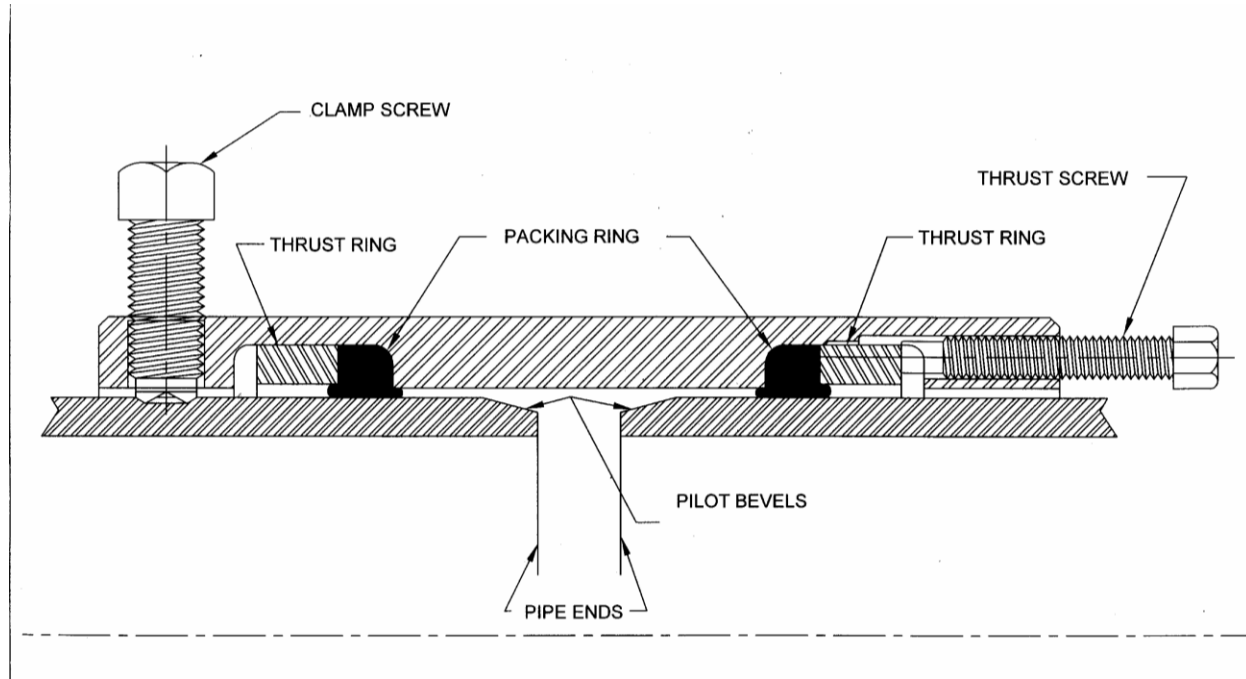


Figure - II

PIPE PREPARATION

- 1 The pipe surface that contacts the gasketing during installation should be clean, free of coating and burrs and lubricated to prevent abrasion to the seals.
- 2 For badly misaligned or out-of-round pipe, it is helpful to grind pilot bevels with generous tapers on the pipe. These bevels eliminate the risk of damage to the seals while shipping the Weld End coupling over the end of the pipe.

INSTALLATION

The seals can be damaged by careless handling. Lifting devices such as chains, cables or lift truck forks should no contact the seals. Failure to do so can result in the seals being damaged or pulled from their grooves.

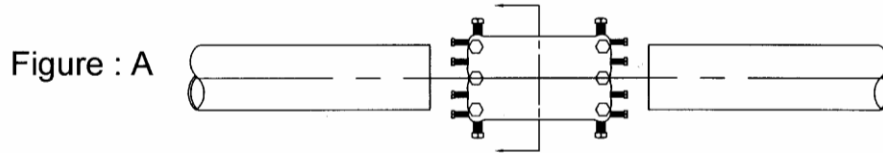
- 1 Coat all exposed surfaces of the sealing material with a lubricant. The following chart indicates that are recommended for the various seals.

Table: III

Buna-N	=	Petroleum, Silicone based lubricants & Glycerin based lubricant
Viton	=	Petroleum, Silicone based lubricants & Glycerin based lubricant
Silicone	=	Glycerin based lubricant
Neoprene	=	Silicone based lubricants & Glycerin based lubricant

The customer must determine if the lubricant is compatible with the product in the pipeline.

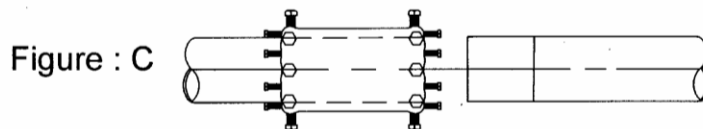
2. To begin the installation, slide the Weld End coupling completely over one end of the pipe. Mark off on the pipe, one-half of the Weld End Coupling length from the middle of gap (recommended gap not to exceed $\frac{3}{4}$ inch). Slide the Weld End back to the mark to divide coupling equally over joint.



SLIDE THE WA WELD END COUPLING COMPLETELY OVER ONE END OF PIPE. ON THE CONNECTING PIPE MARK OFF 1/2 THE WELD + END COUPLING LENGTH MINUS 10mm



Figure : B



BRING SECTION OF PIPE TO BE COUPLED AS CLOSE AS POSSIBLE TO MATING END OF PIPE AND VKVC WELD END COUPLING. GAP BETWEEN PIPES SHOULD NOT EXCEED 20mm

SLIDE WA WELD END COUPLING BACK TO THE MARK TO DIVIDE THE COUPLING EQUALLY OVER THE JOINT.

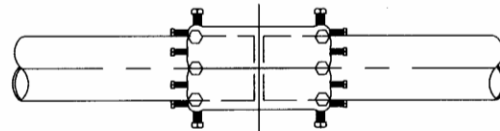


Figure : D

Figure - lii

- 3 Clamp bolts have case hardened cup points which are used to secure the coupling to the pipe. The shanks are mild steel and fully weldable. Clamp bolts should be tightened evenly, maintaining an equal space between the pipe and the coupling using recommended torques.

Accurate clamp bolt torque values are very important when the coupling is used on a pipeline joint that is NOT ANCHORED. Do not exceed the Pipe Not Anchored Rating listed on the label of the coupling until subsequent welding has been completed. FAILURE TO DO SO CAN RESULT IN PERSONAL INJURY OR DAMAGE.

Table: IV

Clamp Screws Dia. In Inch - UNC	Minimum Torque	
	(ft lbs)	(Nm)
5/8 -11	100	136
3/4 - 10	150	240

Re-check all clamp bolts to make certain each has received at least the minimum torque specified in the chart above.

Thrust bolts activate that seal. They are made of mild carbon steel and are fully weldable. They should be tightened gradually and uniformly around the circumference. First, snug all the thrust screws firmly. Then advanced each thrust bolt about 1/8 of a turn before proceeding to an adjacent thrust screw. It will be necessary to make many circuits around the coupling before completing the thrust bolt torquing operation. Use recommended torques in the chart below.

Table: V

Thrust Screws Dia. In Inch - UNC	Torque Range	
	(ft lbs)	(Nm)
3/8 – 16	20 – 25	28 – 34
1/2 – 13	30 – 40	41 – 55
5/8 – 11	70 – 80	95 – 109

A final torque range, shown in the chart above, will be adequate to complete the assembly.

FIELD WELDING IINSTRUCTIONS

PIPELINE SHOULD BE FULL AND UNDER FLOW

If the pipeline has been shut down, re-pressuring to test the seals after repair should be done with extreme caution. Re-pressuring should be accomplished slowly and steadily without surges which could vibrate the pipeline and fitting. Industry codes and standards are a good source of information on this subject. Do not exceed maximum appropriate Pipe Anchored or Pipe Not Anchored Rating. Personnel should not be allowed near the repair until the seal has been proven.

Use absolutely dry electrodes, which are of equal or greater tensile strength than the pipe. Carefully control the size and shape of the circumferential fillet welds. They are required to anchor the joint and give longitudinal Stability to the pipeline. The size of the fillet weld should be at least 1.4 times the wall thickness of the pipe. This assumes a 1.0 joint efficiency based on your level of inspection or your ferent joint efficiency based on your company's welding policy. Strive for a concave faced fillet weld, with streamlined blending into both members; avoid notches and undercuts. The smoother and more streamlined the weld, the greater the resistance to fatigue failure. The worst possible shape would be a heavy reinforced convex weld with an undercut. Improper weld shape can lead to rapid fatigue which can cause leakage, rupture or explosion with attendant serious consequences.

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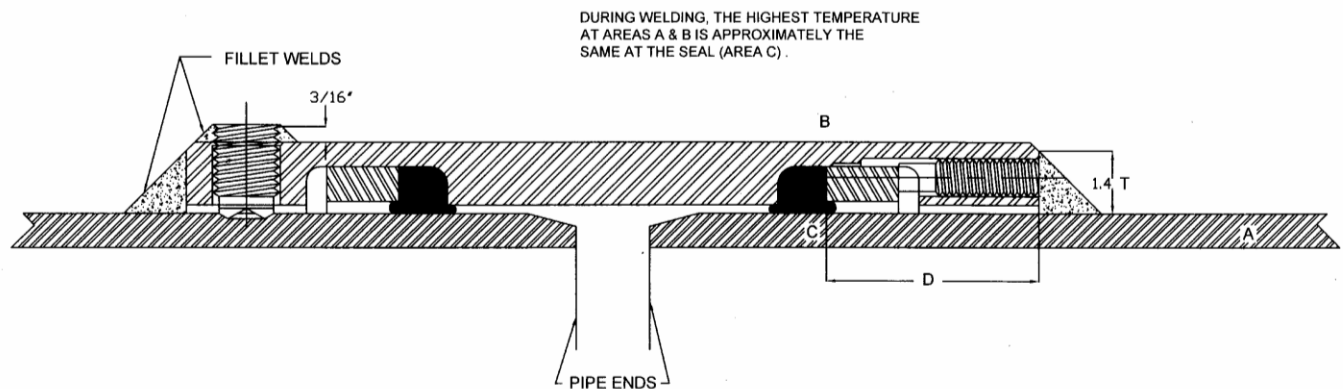


Figure - Iv

Welders and weld procedures should be qualified in accordance with API Standard 1104 "Welding of Pipeline and Related Facilities," or RP 1107 "Recommended Pipeline Maintenance Welding Practices," latest edition. API 1104 and 1107 have easy-to-follow directions for procedure qualification.

We encourage the use of low hydrogen electrodes (E-XX18) because of their high resistance to moisture pick-up and hydrogen cracking.

Shielded metal arc welding (SMAW) filler metals listed in API 1104 and 1107 include the cellulose coated electrodes (E-XX10 series) which are often preferred because of the excellent downhill welding characteristics. These are acceptable filler metals, provided they are proven by procedure qualification.

It is very important that the field welding procedure closely follow the essential variables of the qualified procedure so that the quality of the field weld is represented by the physical tests performed on the procedure qualification test specimen.

Monitor the heat generated by welding or preheating, particularly near the area of the seals, by using temperature crayons or probe thermometers. If the heat generated approaches the temperature limit of the seal material, which is indicated on the label, welding, should be discontinued or sequenced to another part of the fitting so that the affected area has a chance to cool.

WELDING SEQUENCE

1. Caution should be observed so that welding does not overheat the seals. Sequence the welding so that the heat is not concentrated in one area. Thrust bolts should be cut or burned off flush. Start with the fillet weld to the pipe around circumference and include seal-welding the thrust screws. (See Figure 3)
2. Cut or burn off clamp screws approximately 3/16" above the outside surface of the coupling and seal-weld. One clamp screws may be removed at top on each end to serve as a vent while welding and also as a final test point for leakage.

FIELD TESTING THE COUPLING

The WA Weld End can be field tested up to 1-1/2" times the appropriate Pipe Anchored or Pipe Not Anchored Rating.

STORAGE INSTRUCTIONS

The coupling should be stored in a dry environment to prevent the unpainted surfaces from rusting. Storage temperatures should not exceed 120°F (49°C). Cover with a dark polyethylene to keep the direct sunlight from the packing. It is best to exclude contamination, light, ozones and radiation. Improperly stored couplings can cause the gasket material to become cracked and brittle and lose its ability to seal. Shelf life for various seal material is listed in the Shelf Life Guidelines'.

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