JCM 101 Universal Clamp Couplings

JCM 101 Universal Clamp Coupling - Single Band

JCM Universal Clamp Couplings provide a full circumferential seal and wide range for the permanent repair or reconnection of asbestos-cement, cast iron, ductile iron, PVC, HDPE and other types of pipe. Critical design factors include:

Balanced, Low Profile Ductile Iron lugs (ASTM A536) with mutually supporting sliding fingers provide distortion free tightening over a wide range. Ductile Iron lugs offer corrosion resistance and the most efficient method of transfer of energy from the fastener attachment directly to compression of the gasket.

Corrosion Resistant Type 304 Stainless Steel Band conforms to pipe irregularities, maintaining sealing pressure over the entire gasket area. Design criteria requires gauge thickness increase with clamp size. This is just one of the design points which enables JCM Universal Clamp Couplings to withstand the internal forces involved with large pipe repair.

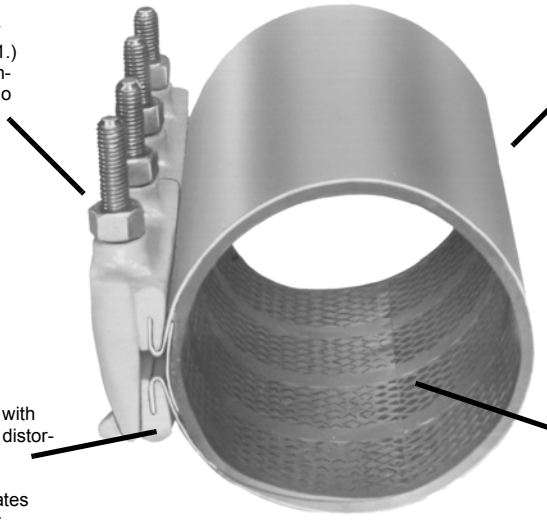
Positive Attachment of stainless band to lugs eliminates band pull out and mechanical weakness at this critical point. This structurally sound fabrication design element also allows the higher ***"turbo torque"*** capabilities to ensure permanent repairs on high pressure applications.

Gridded Gasket with long tapered ends and recessed bridge plate assures even gasket pressure through out the range - without wrinkling or crimping. **Diamond gridded, 1/4" thick gaske**t (JCM standard on nominal sizes 4" and larger) adapt to pitted or uneven pipe surfaces to completely seal damaged areas. Standard gasket is compounded for use with water, salt solutions, mild acids, bases and sewage. Other gasket compounds for exotic line contents are available.

Larger Bolts for greater torque ratings are provided on 14" clamps and larger. The 3/4" bolts have bolt torque capability in excess of 150 ft. lbs. These higher torque value capabilities allow JCM Universal Clamp Couplings to go beyond the "standard installation".

Corrosion resistant, high strength low alloy bolts and nuts (AWWA C-111, ANSI A21.11.) are standard. Optional 18-8 Type 304 Stainless Steel available. Drop-in bolts means no loose parts.

Type 304 Stainless Steel band conforms to pipe irregularities maintaining sealing pressure over entire gasket.



Low profile Ductile Iron lugs (ASTM A536) with mutually supporting sliding fingers provide distortion free tightening over wide range.

Positive attachment of band to lugs eliminates mechanical weaknesses and band pull-out.

Gridded gasket with long tapered ends and recessed bridge plate assures even gasket pressure throughout range - without wrinkling or crimping. Compounded for use with water, salt solutions, mild acids and bases.

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NOM. PIPE SIZE (IN.)	CLAMP O.D. RANGE (IN.)	WIDTH	CLAMP NUMBER	APPR. WT. EA. (LBS.)
1-1/2	1.88 - 2.15	6 12	101-0190- 6 101-0190-12	7 14
2	2.35 - 2.63	6 7-1/2 12 15	101-0238- 6 101-0238- 7 101-0238-12 101-0238-15	7 9 15 18
2-1/4 - 2-1/2	2.70 -3.13	6 7-1/2 12 15	101-0275- 6 101-0275- 7 101-0275-12 101-0275-15	8 9 15 19
3	3.46 -3.70	6 7-1/2 12 15	101-0350- 6 101-0350- 7 101-0350-12 101-0350-15	8 10 16 20
3 - 4	3.73 - 4.13	6 7-1/2 12 15	101-0400- 6 101-0400- 7 101-0400-12 101-0400-15	8 10 16 20
4	4.45 - 4.75	6 7-1/2 12 15	101-0450- 6 101-0450- 7 101-0450-12 101-0450-15	9 11 17 21
4	4.74 - 5.14	6 7-1/2 12 15 18 30	101-0480- 6 101-0480- 7 101-0480-12 101-0480-15 101-0480-18 101-0480-30	9 11 18 22 26 44
4	4.95 - 5.35	6 7-1/2 12 15 18 30	101-0500- 6 101-0500- 7 101-0500-12 101-0500-15 101-0500-18 101-0500-30	9 11 18 22 27 44
4 - 5	5.22 - 5.62	6 7-1/2 12 15 18 30	101-0525- 6 101-0525- 7 101-0525-12 101-0525-15 101-0525-18 101-0525-30	9 11 18 22 27 45
6	5.95 - 6.35	6 7-1/2 12 15 18 30	101-0600- 6 101-0600- 7 101-0600-12 101-0600-15 101-0600-18 101-0600-30	9 11 18 22 27 47
6	6.56 - 6.96	6 7-1/2 12 15 18 30	101-0663- 6 101-0663- 7 101-0663-12 101-0663-15 101-0663-18 101-0663-30	10 12 19 24 28 47

NOM. PIPE SIZE (IN.)	CLAMP O.D. RANGE (IN.)	WIDTH	CLAMP NUMBER	APPR. WT. EA. (LBS.)
6	6.85 - 7.25	6 7-1/2 12 15 18 30	101-0690- 6 101-0690- 7 101-0690-12 101-0690-15 101-0690-18 101-0690-30	10 12 19 24 29 48
6	7.05 - 7.45	6 7-1/2 12 15 18 30	101-0710- 6 101-0710- 7 101-0710-12 101-0710-15 101-0710-18 101-0710-30	10 12 19 24 29 48
6	7.45 - 7.85	6 7-1/2 12 15 18 30	101-0745- 6 101-0745- 7 101-0745-12 101-0745-15 101-0745-18 101-0745-30	10 13 20 25 30 50
8	7.95 - 8.35	6 7-1/2 12 15 18 30	101-0800- 6 101-0800- 7 101-0800-12 101-0800-15 101-0800-18 101-0800-30	10 13 21 26 31 51
8	8.54 - 8.94	6 7-1/2 12 15 18 30	101-0863- 6 101-0863- 7 101-0863-12 101-0863-15 101-0863-18 101-0863-30	11 13 21 26 32 53
8	8.99 - 9.39	6 7-1/2 12 15 18 30	101-0905- 6 101-0905- 7 101-0905-12 101-0905-15 101-0905-18 101-0905-30	11 13 21 27 32 53
8	9.27 - 9.67	7-1/2 12 15 18 30	101-0940- 7 101-0940-12 101-0940-15 101-0940-18 101-0940-30	14 21 28 32 54
8 - 10	9.90 - 10.30	7-1/2 12 15 18 30	101-1000- 7 101-1000-12 101-1000-15 101-1000-18 101-1000-30	17 32 35 48 70
10	10.60 - 11.00	7-1/2 12 15 18 30	101-1075- 7 101-1075-12 101-1075-15 101-1075-18 101-1075-30	18 34 36 48 72

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NOM. PIPE SIZE (IN.)	CLAMP O.D. RANGE (IN.)	WIDTH	CLAMP NUMBER	APPR. WT. EA. (LBS.)
10	11.04 - 11.44	7-1/2 12 15 18 30	101-1110- 7 101-1110-12 101-1110-15 101-1110-18 101-1110-30	18 34 36 50 72
10	11.34 - 11.74	7-1/2 12 15 18 30	101-1140- 7 101-1140-12 101-1140-15 101-1140-18 101-1140-30	19 34 36 50 73
10	11.75 - 12.15	7-1/2 12 15 18 30	101-1175- 7 101-1175-12 101-1175-15 101-1175-18 101-1175-30	19 36 38 52 75
10 - 12	12.00 - 12.40	7-1/2 12 15 18 30	101-1200- 7 101-1200-12 101-1200-15 101-1200-18 101-1200-30	19 36 39 52 78

JCM Universal Clamp Coupling published ranges accommodate standard industry pipe dimensions. Should your application require a special range, contact the JCM Sales Team

NOM. PIPE SIZE (IN.)	CLAMP O.D. RANGE (IN.)	WIDTH	CLAMP NUMBER	APPR. WT. EA. (LBS.)
12	12.62 - 13.02	7-1/2 12 15 18 30	101-1275- 7 101-1275-12 101-1275-15 101-1275-18 101-1275-30	20 37 40 52 80
12	13.10 - 13.50	7-1/2 12 15 18 30	101-1320- 7 101-1320-12 101-1320-15 101-1320-18 101-1320-30	20 37 40 52 80
12	13.40 - 13.80	7-1/2 12 15 18 30	101-1340- 7 101-1340-12 101-1340-15 101-1340-18 101-1340-30	20 37 40 52 80
12	13.70 - 14.10	7-1/2 12 15 18 30	101-1370- 7 101-1370-12 101-1370-15 101-1370-18 101-1370-30	20 38 41 53 82
12	14.00 - 14.40	7-1/2 12 15 18 30	101-1400- 7 101-1400-12 101-1400-15 101-1400-18 101-1400-30	20 38 41 53 82

JCM Universal Clamp Couplings
Repairs or reconnection means...

- Less pipeline downtime
- Less labor, material and equipment cost
- Less complications in scheduling crew and equipment
- Small excavations
- No need of special equipment or materials
- No need of extra pipe
- No need of complete shutdown

JCM Universal Clamp Couplings

Full encirclement clamp couplings work on the mechanical sealing principle. Greater gasket pressure equals greater pressure holding capability. The weak link in all repair clamp couplings has generally been the bolting system. Just as the clamp is reaching the high torque levels necessary to provide extra sealing for a little safety factor - most clamp bolting systems start to pull out, become deformed or actually break.

NOW, JCM Universal Clamp Couplings come with a stronger, more structurally positive fastener system that is capable of obtaining maximum gasket compression. JCM Universal Clamp Couplings with ***"Turbo Torque"*** provide you with the means of making the clamp conform to the pipe - and performing as never before.

Standard repair clamps in the industry require bolt torque ranges between 60 - 85 ft. lbs. of torque. Some advise not to exceed 75 ft. lbs. of torque due to excessive lug deformation or potential band pull out. Difficult installations involving pipe offset or deflection often require more torque to assure proper clamp conformation to the pipe and high gasket compression. Larger pipe sizes and pipelines with higher working pressures also require higher torque capability. JCM Universal Clamp Couplings with ***"Turbo Torque"*** have bolt torque capability in excess of 100 ft. lbs. on 5/8" bolts and 150 ft. lbs. on 3/4" bolts. These higher torque value capabilities allow JCM Universal Clamp Couplings to go beyond the "standard installation".

As an added PLUS, JCM Universal Clamp Couplings come standard with a thicker gasket in all but the smallest sizes. This heavy 1/4" thick gasket was introduced to the industry to provide for better performance on heavily damaged and pitted pipe. However, it had been available in only 10" and 12" clamp sizes. In JCM clamps this heavier gasket is standard in all sizes 3" and larger. Combined with the ***"Turbo Torque"*** clamping system, the heavy gasket feature means more clamp capability under extreme conditions.

MATERIAL SPECIFICATIONS - JCM 101 Universal Clamp Couplings

BAND:	Type 304 Stainless Steel
LUGS:	Ductile Iron ASTM A-536
BOLTS:	Corrosion resistant low alloy per AWWA C-111, ANSI A21.11. Optional Stainless Steel 18-8 Type 304.
GASKET:	Compounded for use with water, salt solutions, mild acids and bases. Other gaskets available upon request.

JCM 101 and 102
Universal Clamp Couplings
Typical Specifications

JCM 101 Universal Clamp Couplings - JCM 102 Multi-Band Clamps (sizes 4” through 8”)

All full circumferential single and multi-band repair clamps 1-1/2” and larger shall have a minimum material standard of certifiable prime 304 Stainless Steel band; heavy duty, low profile Ductile Iron Lugs (ASTM A536) with mutually supporting sliding fingers; 5/8” corrosion resistant alloy bolts, per AWWA Standard C-111, ANSI 21.11, (or Stainless Steel 18-8 Type 304 bolts) and 1/4” thick gridded gasket with tapered lap joint ends and a 304 stainless steel quarter hardened bridge plate molded flush into the gasket. To provide extra tightening capability, the band shall be permanently attached to the lugs by crimping the lug and locking it in place with a minimum of three stainless welds per lug. Clamp shall be similar to JCM 101 Universal Clamp Coupling, JCM 102 Universal Clamp Coupling or approved equal.

JCM 101 Universal Clamp Couplings - JCM 102 Multi-Band Clamps (sizes 10” and larger)

All full circumferential single and multi-band repair clamps 10” and larger shall have a minimum material of 17 gauge certifiable prime 304 Stainless Steel band; heavy duty Ductile Iron Lugs (ASTM A536) with mutually supporting sliding fingers; 3/4” corrosion resistant alloy bolts, per AWWA Standard C-111, ANSI 21.11, (or Stainless Steel 18-8 Type 304 bolts) and a 1/4” thick gridded gasket with tapered lap plate molded flush into the gasket. To provide extra tightening capability, the band shall be permanently attached to the lugs. The attachment shall withstand a minimum of 100 ft. lbs. of torque per bolt. Clamp shall be similar to JCM 101 Universal Clamp Coupling, JCM 102 Universal Clamp Coupling or approved equal.

JCM 100 Series Universal Clamp Couplings are ANSI/NSF Standard 61 Certified.

JCM Industries, Inc. / P. O. Box 1220 / Nash, TX 75569-1220

JCM 101 and 102
Universal Clamp Couplings
Material Specifications

JCM UNIVERSAL CLAMP COUPLINGS

BAND: Type 304 Stainless Steel

LUGS: Ductile Iron ASTM A-536

BOLTS: Corrosion resistant low alloy per AWWA C-111, ANSI A21.11.
Optional Stainless Steel 18-8 Type 304.

GASKETS: Compounded for use with water, salt solutions, mild acids and bases. Other gaskets available upon request.

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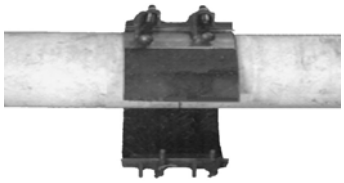
JCM Universal Clamp Couplings
Installation Instructions
Models 101, 102, 103, 104

1. Clean and scrape pipe. Remove any dirt or debris that would interfere with the complete sealing of the gasket around the pipe. Lubricate the pipe with soapy water. **Do not use oil base pipe lubricant.** *Trick of the Trade: Place a mark on the pipe to each side of the damaged area equal to the width of the clamp. This presents a visual mark to center the repair clamp over the damage area (1/2 of this distance is center).*

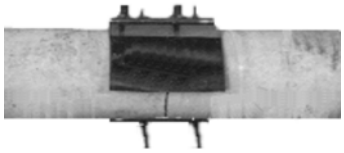
2. Inspect pipe for integrity, size and outside diameter. Confirm the proper size and range of repair clamp.

   For Models 101, 103 - Place clamp on pipe and center over damaged area.



101, 103

   For Models 102, 104 - Place clamp half without bolts on pipe so that gasket flap is on top facing you.

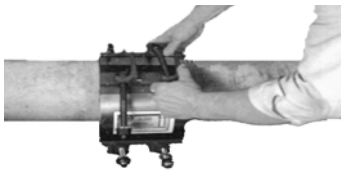


102, 104

3. **For Models 101, 103** - Tuck tapered gasket in place, mesh finger lugs and rotate clamp in direction of arrow to smooth tapered gasket flap. Engage bolts and tighten finger tight to hold in place.

101, 103

   For Models 102, 104 - Take half with bolts and turn gasket side up so that bolts slide back out of the way of fingers. Feed bottom tapered gasket end into place, mesh top lug fingers and engage bolts. Rotate clamp in direction of arrow to smooth gasket flaps Engage remaining bolts and tighten finger tight to hold in place. NOTE: Gaps between lugs should be approximately even on both sides.



102, 104

4. Tighten all bolts evenly to the following torque values:

   5/8" Bolts to 70 Foot Pounds
   3/4" Bolts to 90 Foot Pounds

5. Complete installation of fitting and confirm minimum bolt torque levels have been maintained. For JCM 103 and 104 Tapped Clamps, proceed with tapping process.

Universal Clamp Coupling Installation "Tricks of the Trade

Years of field experience, special applications and product testing have revealed many subtleties regarding application and installation of repair clamps. For maximum performance under adverse conditions take advantage of the JCM "Tricks of the Trade."

- Always clean and lubricate pipe with water or soapy water. This will help overcome friction when rotating the clamp to smooth the gasket. Do not use oil base pipe lubricant.
- Place a reference mark on the pipe back from the damaged area to help in centering clamp over break. Clamp provide maximum performance when centered over damage area.
- Breaks involving deflected pipe require a wider clamp. JCM lugs will articulate, permitting clamp to better conform to pipe.
- Damage involving large holes or massive pitted areas - use stainless steel or galvanized metal plate over large holes (under repair clamp) to provide the gasket something to seal against.
- Drill holes in the ends of splits or cracks to relieve forces which could cause splits to continue.
- Clamp performance drops when gap between pipe ends is larger than 1/2". Use a stainless steel spacer to fill or to place over gap.
- Leave sufficient pressure on a broken line to prevent intrusion of foreign matter to prevent excessive line contamination.
- With pressure reduced, spraying water will cease as soon as water level rises above break.
- Lubricating clamp bolts will ease clamp installation and assure proper torquing of bolts.

Making Larger Clamp From Smaller Clamps

Longer than normal gasket tapers permit joining of Universal Clamp Couplings of like width and type to make a larger clamp. For instance, a 6" and 8" clamp can be joined to make a 14" clamp. This provide you with "on hand" capability to make repairs on larger pipe sizes.

- Determine which clamps are available to make needed clamp, usually 2 or 3 clamps are sufficient. It is recommended that clamps to be joined be not more than one nominal size apart. Join clamps with ranges that when combined include O.D. of pipe to be repaired. For Example: Required clamp is 14" to fit 16.44 O.D. Combining a 101-0905-12 (range 8.99 to 9.39) and a 101-0690-12 (range 6.84 to 7.25) will make a clamp with a range of 15.84 to 16.64.

- Prior to joining clamps, reduce the curvature of the recessed bridge plate (as shown in photo) to slightly less than curvature of pipe to be repaired. This is done by laying bridge plate between two 2" x 4"'s and hitting with a small sledge hammer.

- Install as a multi-band clamp, making sure to tighten bolts evenly keeping gaps between lugs approximately even.