

SPECIFICATIONS FOR STANDARD/ WIDE RANGE

REPAIR AND TAP CLAMPS

REVISED DECEMBER 2011

1. **SCOPE**

This specification covers single and multiple band full circle clamps to repair full circumferential breaks, holes, cracks, or other damage on cast iron, ductile iron, asbestos cement, steel and other types of pipe.

2. **GENERAL REQUIREMENTS**

Standard Repair and Tap Clamps

- a) Band or shell shall be of the O.D. size range and length specified. Band shall be of Type 304 stainless steel.
- b) Lugs shall be of high strength ductile iron per ASTM A536, and securely attached to the band or shell. Each lug shall be so designed to allow, "Drop in bolts" and stabilizing "fingers" to provide maximum torquing of the bolts. Lugs are to be shop-coated with an oil-modified urethane corrosion-resistant paint.
- c) Gasket shall provide a 360° sealing surface and of such size and shape to provide an adequate compressive force against the pipe after assembly to affect a positive seal under all combinations of joint and gasket tolerances. Materials used shall be vulcanized natural or vulcanized synthetic rubber with antioxidant and antioxidant ingredients to resist set after installation. No reclaimed rubber shall be used. A heavy gauge Type 304 stainless armor plate shall be vulcanized into the gasket to span the lug area.
- d) Bolts shall be of high strength, low alloy steel with semi finished hexagon nuts and washers in accordance with AWWA/ANSI C111/A21.11.

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| <u>Pipe Size (inches)</u> | <u>Minimum Working Pressure Rating (psi)</u> |
|---------------------------|--|
| 12 and smaller | 200 |
| 16 thru 20 | 100 |
| 24 | 75 |

e) The bolt and lug design shall be closed on one side.

3. STANDARD CLAMP RANGES (Single Band):

| <u>Nominal Dia. x Min. Band Width</u> | <u>O.D. Range*</u> |
|---------------------------------------|--------------------|
| 6" x 7½" | 6.84" - 7.24" |
| 8" x 7½" | 8.99" - 9.39" |
| 12" x 7½" | 13.70" - 14.10" |

4. STANDARD CLAMPS RANGES (Multiple Band):

| | |
|--------------|-----------------|
| A. 4" x 12½" | 4.74" - 5.57" |
| A. 6" x 15" | 6.62" - 7.42" |
| B. 6" x 15" | 7.20" - 8.00" |
| A. 8" x 15" | 8.50" - 9.27" |
| B. 8" x 15" | 9.25" - 10.05" |
| A. 10" x 15" | 11.04" - 12.24" |
| A. 12" x 15" | 13.14" - 14.34" |
| B. 12" x 15" | 13.65" - 14.85" |
| A. 16" x 10" | 18.08" - 18.84" |
| B. 16" x 20" | 17.15" - 17.90" |
| C. 16" x 20" | 18.46" - 19.21" |
| A. 20" x 10" | 22.90" - 23.65" |
| B. 20" x 20" | 21.52" - 22.27" |
| C. 20" x 20" | 23.21" - 23.97" |

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STANDARD CLAMPS RANGES (Multiple Band): (continued)

| | |
|--------------|-----------------|
| A. 24" x 10" | 27.28" - 28.34" |
| B. 24" x 20" | 25.70" - 26.80" |
| C. 24" x 20" | 27.72" - 28.82" |

NOTE: Band Widths shall not vary more than +1 inch.

5. Where 2, 1½, 1 and ¾ inch tapped repair clamps are specified, they shall be multiple band in the sizes specified in paragraph (4) above.

6. **WIDE RANGE REPAIR AND TAP CLAMPS REQUIREMENTS**

Wide range repair clamps shall be of the full circle split band super range design consisting of either two half circle body sections and two sets of nuts, bolts, and lugs, or of the single band expanded range design consisting of one extended range band and one set of nuts, bolts, and lugs.

- a) Band or Shell shall be O.D. size wide range and length specified. Band shall be 18-8 type 304-stainless steel and shall maintain a minimum thickness of between 1.0 - 1.5 millimeters.
- b) Bolt retainer assembly or lugs shall be of a type 304 stainless steel and of a non-welded design. Lugs may be cast, forged or cold formed of type 304 stainless steel, and may include a high impact polycarbonate plastic, non-corrosive retainer. Lug design shall be such that the band fully compresses the gasket to the complete working width of the repair clamp without deformation of the band.
- c) All nuts and bolts shall be 304-stainless steel and coated with an anti-seize coating such as a non-seize zinc coating or a baked in place Xylon coating to prevent galling.
- d) Gasket shall be vulcanized natural or vulcanized synthetic rubber with antioxidant and antioxidant ingredients to resist set after installation. No reclaimed rubber shall be used.

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Gasket must provide a 360° sealing surface, and shall be a lap-type with a waffle gridded pattern and may be equipped with pressure assisted sealing banks. Gasket shall be bonded to the body section by gluing or mechanical attachment method that allows the matched tapered ends to properly overlap for installations.

- e) Spanner plate (gap bridging shim) shall be of 18-8 type 304 stainless steel, and vulcanized into the gasket to span the lug area to ensure uniform compression against the pipe or mechanically attached to the clamp band, so as not to cause a leak at its leading edge. .
- f) The repair tapped clamps shall have an 18-8 type 304 stainless steel outlet TIG welded to ban. All welds and bare metal surfaces shall be chemically passivated.

| <u>Pipe Size (inches)</u> | <u>Minimum Working Pressure Rating (psi)</u> |
|----------------------------------|---|
| 12" and smaller | 200 |

Wide Range Repair and Tap Clamp Ranges

| <u>Nominal Dia. x Band Width</u> | <u>O.D. Range</u> |
|---|--------------------------|
| 4" x 15" | 4.80 - 5.60 |
| 6" x 15" | 6.84 - 7.64 |
| 8" x 15" | 9.00 - 9.80 |
| 10" x 15" | 11.35 - 12.15 |
| 12" x 15" | 13.60 - 14.40 |

- 7. Quality control procedures shall be employed to insure that the gasket, band, and lug are properly fabricated and free of any visible defects.
- 8. Unless otherwise specified, each clamp shall be stenciled or coated in a satisfactory manner to identify the pipe size, clamp range and type of pipe. The markings shall be permanent type, water resistant, and will not smear or become illegible.

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9. The San Antonio Water System may, at no cost to the manufacturer, subject random repair clamps to testing by an independent laboratory for compliance with these standards. Any visible defect or failure to meet the quality standards herein will be grounds for rejecting the entire order.
10. The attached qualified products list identifies specific manufactured items by catalog number that are approved.

*Ranges may be broadened but not narrowed.

Approved Manufacturers and Models:
Standard Repair & Tap Clamp

| <u>Manufacturer</u> | <u>Repair Clamp Model</u> | <u>Tap Clamp Model</u> |
|--|----------------------------------|-------------------------------|
| Dresser Piping Specialties | 360 | 360 |
| JCM Industries, Inc. | 101, 102 | 103, 133 |
| Romac Industries, Inc. | CL1, CL2, CL3 | CL1, CL2, CL3 |
| Smith-Blair, Inc. | 226, 227, 228 | 238, 239 |
| The Ford Meter Box Co., Inc. | F1, F2, F3 | F1, F2, F3 |
| PowerSeal Products Corp. | 3121, 3122, 3123 | 3131, 3132 |
| Cascade Waterworks Manufacturing CDR1 Ductile Lug Only | | |

Approved Manufacturers

Wide Range Repair and Tap Clamps

Total Piping Solutions EZ-Max Plus Series 4000

Previous Specification Date:

MAY 1992

JUNE 1998

APRIL 1999

APRIL 2001

APRIL 2004

JUNE 2007

DECEMBER 2011