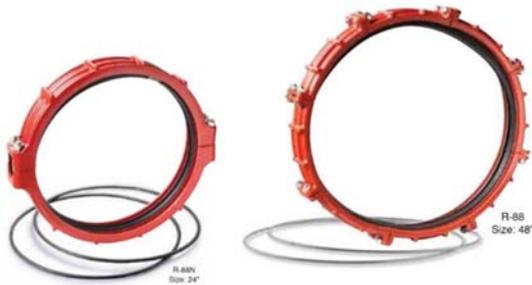


R-88 RING JOINT COUPLING



The Shurjoint Model R-88 Ring Joint Coupling is an ideal pipe joining method when pipe is difficult to groove or when grooving is not the preferred joining method. Available in sizes 8" to 96" the R-88 offers ease of use and excellent performance.

The Shurjoint Model R-88 Ring Joint Coupling is supplied with a pair of factory supplied weld rings. For installation weld a ring on each pipe end to be connected, next mount the rubber gasket over the pipe ends, place coupling segments over the gasket and fasten the bolts and nuts.



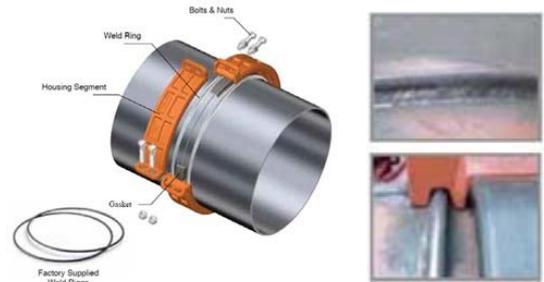
R-88 couplings should always be installed so that the coupling bolt pads make metal to metal contact.

The Shurjoint R-88 Ring Joint Coupling is considered a shouldered coupling with the factory supplied weld rings serving as the joint shoulders. The R-88's performance standards meet and or exceed the requirements of ASTM F1476 and AWWA C606. The factory supplied weld rings offer a much more economical and installation friendly alternative to that of traditional shoulder rings, including Type A, B, C, D, E, and G rings.

The R-88 coupling can also be used on stainless steel pipe with optional weld rings available in compatible stainless steel grades. Check with Shurjoint for details and availability.

Typical applications include:

- Water & Waste Water Treatment Plants
- Mining & Tunnel Boring
- Pulp & Paper
- Hydroelectric Plants
- Co-Gen Electric Plants
- Food & Beverage
- Compressed Air
- HVAC

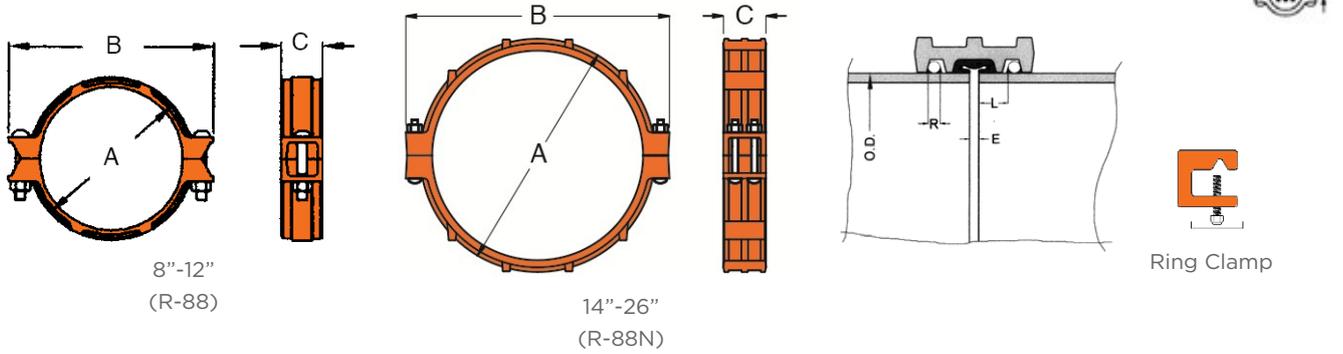


material specification

- **Housing:**
 - Ductile Iron to ASTM A536, Gr. 65-45-12, min. tensile strength 65,000 psi (448 MPa).
 - 8"-26" consist of two housing segments
 - 28"-38" consist of six housing segments
 - 40"-96" consist of eight housing segments
- **Surface Finish:**
 - Standard painted finishes in orange or RAL3000 red.
 - Hot dip zinc galvanized (optional)
 - Epoxy Coatings in RAL3000 red or other colors (optional).
- **Weld Rings:**
 - Carbon Steel SAE J403 (ANSI) 1020.
 - Stainless steel: 304, 316, 316L.
- **Rubber Gasket:**
 - Grade "E" EPDM (Color code: Green stripe) Good for cold & hot water up to +230°F (+110°C). Also good for services for water with acid, water with chlorine or chloramines, deionized water, seawater and waste water, dilute acids, oil-free air and many chemicals. Not recommended for petroleum oils, minerals oils, solvents and aromatic hydrocarbons.
 - Maximum Temperature Range: -30°F (-34°C) to +230°F (+110°C)*.
 - *EPDM gaskets for water services are not recommended for steam services unless couplings or components are accessible for frequent gasket replacement.
 - Other options: Grade "T" - Nitrile
Grade "M" - Halogenated Butyl.
 - For additional details contact Shurjoint.
- **Bolts & Nuts:**
 - ¾" - 1½": Heat treated carbon steel track bolts to ASTM A183 Gr. 2, minimum tensile strength 110,000 psi (758 MPa), Zinc electroplated, with heavy-duty hexagonal nuts to ASTM A563.
 - Stainless steel bolts and stainless steel nuts or Silicone-Bronze nut are available upon request.

MODEL R-88 / R-88N RING JOINT COUPLING

The Shurjoint Model R-88 Ring Joint Coupling is available in sizes 8" / 200 mm and above. Sizes 14" / 350 mm to 26" / 650 mm are now available in a two-segment style (R-88N). The two-segment style offers an easier and faster installation.



Model R-88 / R-88N Ring Joint Coupling

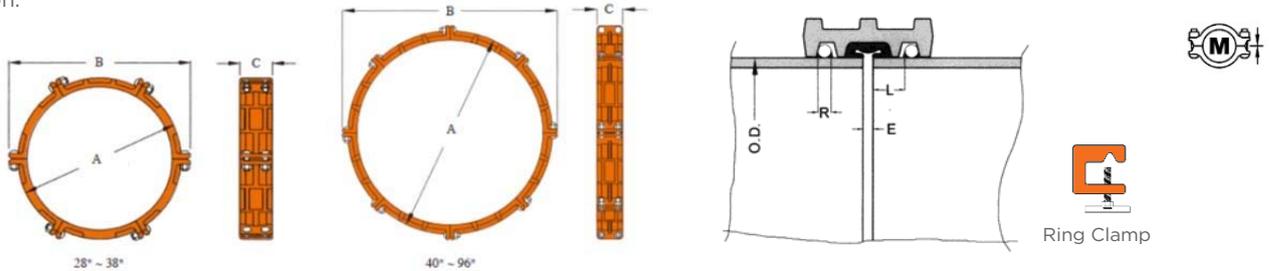
| Nominal Size | Pipe O.D. | Rings both sides fully welded** | | Axial Displacement+ E | Angular Movement / Deflection † | | Dimensions | | | Bolts | | Sealing Surface L | Ring Size R | No. of Clamps ‡ | Weight |
|--------------|-----------|---------------------------------|----------------------|-----------------------|---------------------------------|----------|------------|-------|------|-------|---------|-------------------|-------------|-----------------|--------|
| | | Max. Working Pressure (CWP)* | Max. End Load (CWP)* | | Per Coupling | Per Pipe | A | B | C | No. | Size | | | | |
| in | in | psi | lbf | in | (°) | in/ft | in | in | in | | in | in | in | No. | lbs |
| mm | mm | bar | kN | mm | | mm/m | mm | mm | mm | | mm | mm | mm | | kgs |
| 8 | 8.625 | 400 | 23350 | 0-0.340 | 2.14 | 0.45 | 10.08 | 13.00 | 3.11 | 2 | ¾ x 4¾ | 0.91 | ¼ | 3 | 16.8 |
| 200 | 219.1 | 28.0 | 105.51 | 0-8.7 | | 37 | 256 | 330 | 79 | | M20x120 | 23 | 6.0 | 3 | 7.6 |
| 10 | 10.750 | 400 | 36280 | 0-0.340 | 1.95 | 0.41 | 12.29 | 15.20 | 3.25 | 2 | ¾ x 4¾ | 0.91 | ¼ | 3 | 22.2 |
| 250 | 273.0 | 28.0 | 163.81 | 0-8.7 | | 34 | 312 | 386 | 83 | | M20x120 | 23 | 6.0 | 3 | 10.1 |
| 12 | 12.750 | 400 | 51040 | 0-0.190 | 0.82 | 0.17 | 14.72 | 17.90 | 3.39 | 2 | ¾ x 6½ | 1.02 | ⅝ | 3 | 30.8 |
| 300 | 323.9 | 28.0 | 230.59 | 0-4.8 | | 14 | 374 | 455 | 86 | | --- | 26 | 8.0 | 3 | 14.0 |
| 200 JIS | 8.516 | 400 | 22770 | 0-0.340 | 1.50 | 0.31 | 9.96 | 12.87 | 3.11 | 2 | --- | 0.91 | ¼ | 3 | 17.6 |
| | 216.3 | 28.0 | 102.83 | 0-8.7 | | 26 | 253 | 327 | 79 | | M20x120 | 23 | 6.0 | 3 | 8.0 |
| 250 JIS | 10.528 | 400 | 34800 | 0-0.340 | 1.50 | 0.31 | 12.05 | 14.96 | 3.25 | 2 | --- | 0.91 | ¼ | 3 | 22.0 |
| | 267.4 | 28.0 | 157.16 | 0-8.7 | | 26 | 306 | 380 | 83 | | M20x120 | 23 | 6.0 | 3 | 10.0 |
| 300 JIS | 12.539 | 400 | 49360 | 0-0.190 | 1.50 | 0.31 | 14.53 | 17.72 | 3.39 | 2 | --- | 1.02 | ⅝ | 3 | 32.6 |
| | 318.5 | 28.0 | 222.97 | 0-4.8 | | 26 | 369 | 450 | 86 | | M20x120 | 26 | 8.0 | 3 | 14.8 |
| 14*** | 14.000 | 600 | 92360 | 0-0.484 | 1.48 | 0.30 | 16.26 | 19.84 | 4.21 | 2 | ¾ x 5⅝ | 1.02 | ⅝ | 4 | 46.9 |
| 350 | 355.6 | 42.0 | 410.98 | 0-12.3 | | 25 | 413 | 504 | 107 | | --- | 26 | 8.0 | 4 | 21.3 |
| 14 | 14.000 | 400 | 61540 | 0-0.250 | 1.20 | 0.25 | 15.93 | 19.40 | 3.65 | 2 | ¾ x 5½ | 1.02 | ⅝ | 4 | 31.5 |
| 350 | 355.6 | 28.0 | 277.94 | 0-6.4 | | 21 | 405 | 493 | 93 | | --- | 26 | 8.0 | 4 | 14.3 |
| 16 | 16.000 | 400 | 80380 | 0-0.250 | 0.90 | 0.19 | 17.92 | 21.52 | 3.65 | 2 | ¾ x 5½ | 1.02 | ⅝ | 4 | 35.0 |
| 400 | 406.4 | 28.0 | 363.02 | 0-6.4 | | 16 | 455 | 547 | 93 | | --- | 26 | 8.0 | 4 | 15.9 |
| 18 | 18.000 | 400 | 101730 | 0-0.375 | 1.20 | 0.25 | 20.37 | 24.17 | 4.23 | 2 | 1 x 5½ | 1.18 | ⅝ | 4 | 59.9 |
| 450 | 457.2 | 28.0 | 459.45 | 0-9.5 | | 21 | 517 | 614 | 107 | | --- | 30 | 8.0 | 4 | 27.2 |
| 20 | 20.000 | 400 | 125600 | 0-0.375 | 1.08 | 0.23 | 22.46 | 25.99 | 4.35 | 2 | 1 x 5½ | 1.18 | ⅝ | 4 | 69.5 |
| 500 | 508.0 | 28.0 | 567.22 | 0-9.5 | | 19 | 570 | 660 | 110 | | --- | 30 | 9.5 | 4 | 31.6 |
| 24 | 24.000 | 400 | 180860 | 0-0.375 | 0.80 | 0.17 | 27.17 | 30.00 | 4.84 | 4 | ¾ x 6½ | 1.18 | ½ | 4 | 101.9 |
| 600 | 609.6 | 28.0 | 816.80 | 0-9.5 | | 14 | 690 | 762 | 123 | | --- | 30 | 12.7 | 4 | 46.3 |
| 26 | 26.000 | 300 | 159190 | 0-0.500 | 1.06 | 0.22 | 29.58 | 32.78 | 6.69 | 4 | 1 x 10 | 1.97 | ½ | 4 | 173.5 |
| 650 | 660.4 | 20.0 | 684.72 | 0-12.7 | | 18 | 751 | 832 | 170 | | --- | 50 | 12.7 | 4 | 78.7 |

Note: Dimensions are subject to change without notice. Other sizes are available on request.
 *Working Pressure and End Load are the total from all internal and external loads based on the applicable pipe wall thickness.
 **Working Pressure is based on rings both sides fully welded standard wall carbon steel pipe.
 ***Reinforced model sold as R-88A with 600 psi pressure rating.
 +Allowable Axial Displacement and Angular Movement (Deflection) figures shown are the maximum nominal range of movement at each R-88 coupling joint when rings are welded in the standard position. For design and installation purposes these figures should be reduced by 25%.
 †10mm shoulder rings are acceptable.
 ‡The number of ring clamps listed is the minimum required to correctly position the weld ring around the circumference of the pipe end.

R-88 RING JOINT COUPLING Rev.2024.09.19

MODEL R-88 RING JOINT COUPLING (Large Diameter)

The Shurjoint Model R-88 Ring Joint Coupling is available in sizes 28" / 700 mm to 96" / 2400 mm. The larger diameter couplings are comprised of 6 to 8 housing segments depending on the size and feature two bolts at each joint segment to ensure a positive connection.



Model R-88 Ring Joint Coupling (Large Diameter)

| Nominal Size | Pipe O.D. | Rings both sides fully welded** | | Axial Displacement† E | Angular Movement/ Deflection † | | Dimensions | | | Bolts | | Sealing Surface L | Ring Size R | No. of Clamps ‡ | Weight |
|--------------|-----------|---------------------------------|----------------------|-----------------------|--------------------------------|----------|------------|-------|------|-------|--------|-------------------|-------------|-----------------|--------|
| | | Max. Working Pressure (CWP)* | Max. End Load (CWP)* | | Per Coupling | Per Pipe | A | B | C | NO | Size | | | | |
| in | in | psi | lbf | in | (°) | in/ft | in | in | in | | in | in | in | No. | lbs |
| mm | mm | bar | kN | mm | | mm/m | mm | mm | mm | | mm | mm | mm | | kg |
| 28 | 28.0 | 300 | 184630 | 0-0.500 | 0.90 | 0.19 | 31.75 | 35.47 | 6.69 | 12 | ¾ x 4 | 2.00 | ½ | 4 | 222.2 |
| 700 | 711.2 | 20.0 | 794.11 | 0-12.7 | | 16 | 806 | 901 | 170 | | | 50 | 12.7 | | 101 |
| 30 | 30.0 | 300 | 211950 | 0-0.500 | 0.86 | 0.18 | 33.75 | 37.6 | 6.69 | 12 | 1 x 3½ | 2.00 | ½ | 4 | 218.9 |
| 750 | 762.0 | 20.0 | 911.61 | 0-12.7 | | 15 | 857 | 955 | 170 | | | 50 | 12.7 | | 99.5 |
| 32 | 32.0 | 300 | 241150 | 0-0.500 | 0.84 | 0.18 | 35.75 | 39.45 | 6.69 | 12 | 1 x 3½ | 2.00 | ½ | 4 | 225.4 |
| 800 | 812.8 | 20.0 | 1037.21 | 0-12.7 | | 15 | 908 | 1002 | 170 | | | 50 | 12.7 | | 102.2 |
| 34 | 34.0 | 300 | 272230 | 0-0.500 | 0.84 | 0.18 | 37.75 | 41.5 | 7.87 | 12 | 1 x 3½ | 2.00 | ½ | 4 | 253 |
| 850 | 863.4 | 20.0 | 1170.37 | 0-12.7 | | 15 | 959 | 1054 | 200 | | | 50 | 12.7 | | 115 |
| 36 | 36.0 | 300 | 305200 | 0-0.500 | 0.76 | 0.16 | 39.75 | 43.5 | 7.87 | 12 | 1 x 3½ | 2.00 | ½ | 4 | 246 |
| 900 | 914.4 | 20.0 | 1312.72 | 0-12.7 | | 13 | 1010 | 1103 | 200 | | | 50 | 12.7 | | 111.6 |
| 38 | 38.0 | 232 | 262980 | 0-0.500 | 0.76 | 0.16 | 41.75 | 45.5 | 7.87 | 12 | 1 x 3½ | 2.00 | ½ | 4 | 275 |
| 950 | 965.2 | 16.0 | 1170.10 | 0-12.7 | | 13 | 1060 | 1156 | 200 | | | 50 | 12.7 | | 125 |
| 40 | 40.0 | 232 | 291390 | 0-0.625 | 0.80 | 0.17 | 44.69 | 48.39 | 7.87 | 16 | 1 x 3½ | 2.37 | ¾ | 6 | 310.2 |
| 1000 | 1016.0 | 16.0 | 1296.51 | 0-15.9 | | 14 | 1135 | 1229 | 200 | | | 60 | 15.9 | | 141 |
| 42 | 42.0 | 232 | 321250 | 0-0.625 | 0.86 | 0.18 | 46.7 | 50.71 | 7.87 | 16 | 1 x 3½ | 2.37 | ¾ | 6 | 326.9 |
| 1050 | 1066.8 | 16.0 | 1429.41 | 0-15.9 | | 15 | 1186 | 1288 | 200 | | | 60 | 15.9 | | 148.6 |
| 44 | 44.0 | 232 | 352580 | 0-0.625 | 0.80 | 0.17 | 48.66 | 52.64 | 7.87 | 16 | 1 x 3½ | 2.37 | ¾ | 6 | 343.2 |
| 1100 | 1117.6 | 16.0 | 1568.78 | 0-15.9 | | 14 | 1236 | 1337 | 200 | | | 60 | 15.9 | | 156 |
| 48 | 48.0 | 232 | 419600 | 0-0.625 | 0.70 | 0.15 | 52.68 | 55.91 | 7.87 | 16 | 1 x 3½ | 2.37 | ¾ | 6 | 466.7 |
| 1200 | 1219.2 | 16.0 | 1866.98 | 0-15.9 | | 12 | 1338 | 1420 | 200 | | | 60 | 15.9 | | 211.8 |
| 52 | 52.0 | 175 | 371460 | 0-0.625 | --- | --- | 61.25 | 60.67 | 7.87 | 16 | 1¼ x 5 | 2.37 | ¾ | 6 | 453.2 |
| 1300 | 1320.8 | 12.0 | 1643.33 | 0-15.9 | | --- | 1555 | 1541 | 200 | | | 60 | 15.9 | | 206 |
| 54 | 54.0 | 175 | 400580 | 0-0.625 | --- | --- | 63.25 | 62.52 | 7.87 | 16 | 1¼ x 5 | 2.37 | ¾ | 6 | 472.1 |
| 1350 | 1371.6 | 12.0 | 1772.17 | 0-15.9 | | --- | 1607 | 1588 | 200 | | | 60 | 15.9 | | 214.6 |
| 56 | 56.0 | 175 | 430800 | 0-0.625 | --- | --- | 65.38 | 64.69 | 7.87 | 16 | 1¼ x 5 | 2.37 | ¾ | 6 | 488.2 |
| 1400 | 1422.4 | 12.0 | 1905.87 | 0-15.9 | | --- | 1660 | 1643 | 200 | | | 60 | 15.9 | | 222 |

Note: Dimensions are subject to change without notice. Other sizes are available on request.

*Working Pressure and End Load are the total from all internal and external loads based on the applicable pipe wall thickness.

**Working Pressure is based on rings both sides fully welded standard wall carbon steel pipe.

+Allowable Axial Displacement and Angular Movement (Deflection) figures shown are the maximum nominal range of movement at each R-88 coupling joint when rings are welded in the standard position. For design and installation purposes these figures should be reduced by 25%.

‡The number of ring clamps listed is the minimum required to correctly position the weld ring around the circumference of the pipe end.

Model R-88 Ring Joint Coupling (Large Diameter)

| Nominal Size | Pipe O.D. | Rings both sides fully welded** | | Axial Displacement+ E | Angular Movement/ Deflection † | | Dimensions | | | Bolts | | Sealing Surface L | Ring Size R | No. of Clamps ‡ | Weight |
|--------------|-----------|---------------------------------|----------------------|-----------------------|--------------------------------|----------|------------|--------|------|-------|-----------|-------------------|-------------|-----------------|--------|
| | | Max. Working Pressure (CWP)* | Max. End Load (CWP)* | | Per Coupling | Per Pipe | A | B | C | NO | Size | | | | |
| in | in | psi | lbf | in | (°) | in/ft | in | in | in | | in | in | in | No. | lbs |
| mm | mm | bar | kN | mm | | mm/m | mm | mm | mm | | mm | mm | mm | No. | kg |
| 60 | 60.0 | 175 | 494550 | 0-0.625 | --- | --- | 69.38 | 68.82 | 7.87 | 16 | 1 ¼ x 5 | 2.37 | ¾ | 6 | 537.2 |
| 1500 | 1524.0 | 12.0 | 2187.87 | 0-15.9 | --- | --- | 1762 | 1748 | 200 | 16 | 1 ¼ x 5 | 60 | 15.9 | 6 | 244.2 |
| 66 | 66.0 | 175 | 598709 | 0-0.750 | --- | --- | 76.00 | 75.75 | 8 | 16 | 1 ½ x 5 | 2.37 | ¾ | 8 | 612.5 |
| 1650 | 1676.4 | 12.0 | 2663.19 | 0-19.1 | --- | --- | 1932 | 1924 | 216 | 16 | 1 ½ x 5 | 60 | 19.1 | 8 | 278.4 |
| 68 | 68.0 | 175 | 635544 | 0-0.750 | --- | --- | 78.50 | 78.03 | 8 | 16 | 1 ½ x 5 | 2.37 | ¾ | 8 | 785.4 |
| 1700 | 1727.2 | 12.0 | 2827.04 | 0-19.1 | --- | --- | 1994 | 1982 | 216 | 16 | 1 ½ x 5 | 60 | 19.1 | 8 | 357 |
| 72 | 72.0 | 175 | 712513 | 0-0.750 | --- | --- | 82.50 | 82.28 | 8 | 16 | 1 ½ x 6 ⅞ | 2.37 | ¾ | 8 | 737.7 |
| 1800 | 1828.8 | 12.0 | 3169.41 | 0-19.1 | --- | --- | 2095 | 2090 | 216 | 16 | 1 ½ x 6 ⅞ | 60 | 19.1 | 8 | 335.3 |
| 84 | 84.0 | 100 | 553890 | 0-0.750 | --- | --- | 94.75 | 93.81 | 8 | 16 | 1 ½ x 5 | 2.37 | ¾ | 8 | 780.3 |
| 2100 | 2133.6 | 7.0 | 2501.46 | 0-19.1 | --- | --- | 2406 | 2383 | 216 | 16 | 1 ½ x 5 | 60 | 19.1 | 8 | 354.7 |
| 96 | 96.0 | 100 | 723450 | 0-0.750 | --- | --- | 106.75 | 106.54 | 8 | 16 | 1 ½ x 5 | 2.37 | ¾ | 8 | 823.2 |
| 2400 | 2438.4 | 7.0 | 3267.21 | 0-19.1 | --- | --- | 2711 | 2706 | 216 | 16 | 1 ½ x 5 | 60 | 19.1 | 8 | 374.2 |

Note: Dimensions are subject to change without notice. Other sizes are available on request.

*Working Pressure and End Load are the total from all internal and external loads based on the applicable pipe wall thickness.

**Working Pressure is based on rings both sides fully welded standard wall carbon steel pipe.

+Allowable Axial Displacement and Angular Movement (Deflection) figures shown are the maximum nominal range of movement at each R-88 coupling joint when rings are welded in the standard position. For design and installation purposes these figures should be reduced by 25%.

‡The number of ring clamps listed is the minimum required to correctly position the weld ring around the circumference of the pipe end.

Pressure Ratings of Carbon Steel Pipe (ASTM A53 Gr. B)

When designing a piping system, you must select pipe with the appropriate wall thickness to correspond with the intended working pressure of the system. The table lists design working pressure by the pipe wall schedule, XS, STD and LW, of representative ASTM A53 Gr. B carbon steel pipe calculated in accordance with the formula stipulated in ASME B31.1 Power Piping para. 104.1.

$$P = \frac{2SE(tm - A)}{Do - 2y(tm - A)}$$

Where:

- P = Maximum internal service pressure (psi)
- SE = Allowable stress (psi) (ASTM A53 Gr. B = 15,000 psi)
- tm = Minimum pipe wall thickness (inch) (87.5% of nominal wall thickness)
- Do = Outside diameter of pipe (inch)
- y = A coefficient (For ferritic steels 600°F or below = 0.4)
- A = Additional thickness (inch) (A = 0)

Angular deflection

The R-88 coupling is designed to provide a restrained joint with a controlled range of angular deflection (flexibility). The degree of deflection is influenced by several factors, including; pipe, fitting and component dimensions, pipe end squareness, ring location, weld size and system pressure. When designing a piping system these considerations should be factored into the system. When designing a system requiring increased deflection (flexibility) please contact Shurjoint for customized solutions.

As with all piping systems proper support, anchoring and bracing are essential. Industry standard requirements such as B31.1 (Power Piping), B31.9 (Building Services) and B31.11 (Slurry Transportation), etc. should be followed for your specific type of pipeline system application.

**Maximum internal service pressure of
Carbon Steel Pipe, ASTM A53 Gr. B (psi)**

| Nom. Size | XS | STD | LW |
|-----------|------|---------|---------------|
| in / mm | 0.5" | 0.375"* | 0.25"/0.312"^ |
| 8 / 200 | 1586 | 1006 | 777 |
| 10 / 250 | 1262 | 913 | 621 |
| 12 / 300 | 1058 | 788 | 522 |
| 14 / 350 | 962 | 717 | 475 |
| 16 / 400 | 839 | 625 | 415 |
| 18 / 450 | 744 | 555 | 368 |
| 20 / 500 | 668 | 499 | 331 |
| 24 / 600 | 555 | 415 | 275 |
| 26 / 650 | 512 | 382 | 318 |
| 28 / 700 | 475 | 355 | 295 |
| 30 / 750 | 443 | 331 | 275 |
| 32 / 800 | 415 | 310 | 258 |
| 36 / 900 | 368 | 275 | 229 |
| 38 / 950 | 349 | 261 | 217 |
| 40 / 1000 | 331 | 248 | 206 |
| 42 / 1050 | 315 | 236 | 187 |
| 44 / 1100 | 301 | 225 | |
| 48 / 1200 | 275 | 206 | |
| 52 / 1300 | 254 | 190 | |
| 54 / 1350 | 245 | 183 | |
| 56 / 1400 | 236 | 177 | |
| 60 / 1500 | 220 | 165 | |
| 66 / 1650 | 200 | 150 | |
| 68 / 1700 | 194 | 145 | |
| 72 / 1800 | 183 | 137 | |
| 84 / 2100 | 157 | 118 | |
| 96 / 2400 | 137 | 103 | |



14" and 16" R-88 couplings used at the Eastside Combined Sewer Overflow Tunnel Boring Project – Portland, Oregon, USA.

Exception: * 8" = 0.322" and 10" = 0.365"
 ^ 8" to 24" = 0.25" and 26" to 40" = 0.312"

Pipe Dimensional Tolerance Requirements

Dimensional tolerance requirements for pipe ends used with R-88 couplings: For pipes used in conjunction with the R-88 Ring Joint Coupling, the pipe ends shall meet the Shurjoint dimensional requirements listed above and, in the API, 5L Table 10, listed below, "Tolerances for diameter and out-of-roundness", Diameter tolerances, Pipe end, Welded Pipe. For pipe sizes greater than 56"/DN1400, the same 56"/DN1400 formula shall apply. Pipe ovality and pipe end surface finish including flat spots and imperfections shall not vary more than the limits of API 5L end tolerance.

| Specified Outside Diameter D (in) | Diameter Tolerance, inches d | | | | Out-of-Roundness Tolerance in | |
|---|------------------------------|-------------------------------|------------------------------|-------------|---|--|
| | Pipe except the end a | | Pipe end a,b,c | | Pipe except the End a | Pipe End a,b,c |
| | SMLS Pipe | Welded Pipe | SMLS Pipe | Welded Pipe | | |
| < 2.375 | -0.031 to + 0.016 | | - 0.031 to + 0.016 | | 0.048 | 0.036 |
| ≥2.375 to 6.625 | +/- 0.0075D | | - 0.016 to + 0.063 | | 0.020D for $\frac{D}{r} \leq 75$ By agreement for $\frac{D}{r} > 75$ | 0.015D for $\frac{D}{r} \leq 75$ By agreement for $\frac{D}{r} > 75$ |
| >6.625 to 24.000 | +/- 0.0075D | +/- 0.0075D, but max of 0.125 | +/- 0.005D, but max of 0.063 | | 0.020D | 0.015D |
| >24 to 56 | +/- 0.01D | +/- 0.005D but max of 0.160 | +/- 0.079 | +/- 0.063 | 0.015D for but max of 0.060 For $\frac{D}{r} \leq 75$ By agreement for $\frac{D}{r} > 75$ | 0.01D for but max of 0.500 For $\frac{D}{r} \leq 75$ By agreement for $\frac{D}{r} > 75$ |
| >56 | As agreed | | | | | |
| a. The pipe end includes a length of 4 in ate each of the pipe extremities b. For SMLS pipe the tolerance apply for t≤0.984in and the tolerances for the thicker pipe shall be as agreed c. For expanded pipe with D≥8.625in and for non-expanded pipe, the diameter tolerance and the out-of-roundness tolerance may be determined using the calculated inside diameter or measured inside diameter rather than the specified OD. d. For determining compliance to diameter tolerance, the pipe diameter is defined as the circumference of the pipe in any circumferential plane divide by Pi. | | | | | | |

Recommend Assembly Instructions for the R-88 Couplings

The 28" through 38" R-88 couplings consist of 6 housing sections, and the 40" through 96" R-88's consist of 8 housing sections.

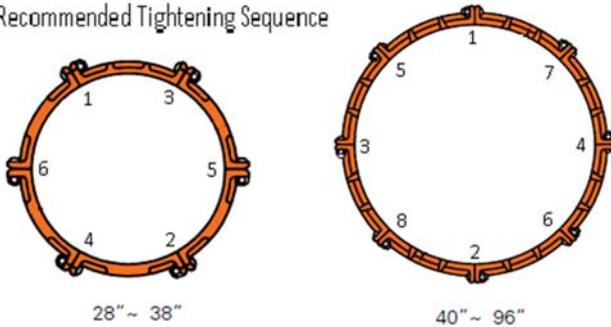
When tightening these couplings, care should be taken to tighten them in an equal sequence around the pipe. Both bolts of each bolt pad should also be tightened equally during the sequence.

The tightening sequence should consist of 2-3 turns of each nut on each bolt, of the bolt pad, and then repeated for the opposite bolts 180° from those tightened. Then alternating; the sequence similar to that used when tightening a flange, as shown in the layout below.

This should be repeated while checking the pad gaps to ensure equal force is applied around the entire circumference, until fully torqued. The amount of torque to be applied is based on the bolt size and is given in the table below.

For more R-88 installation instructions, please refer to the 2013 Ring joint Piping System Catalog.

Recommended Tightening Sequence



RECOMMENDED TORQUE

| BOLT SIZE X NUMBER | LB - FT (NM) |
|--------------------|-----------------------|
| 5/8" x 6 | 100 - 130 (136 - 176) |
| 3/4" x 6 | 150 - 200 (203 - 271) |
| 7/8" x 8 | 180 - 220 (244 - 298) |
| 1" x 16 | 200 - 250 (271 - 339) |
| 1-1/4" x 16 | 250 - 350 (339 - 475) |
| 1-1/2" x 16 | 350 - 500 (475 - 678) |

Note: For systems subject to vibration or movement the use of Belleville washers or periodic checks to ensure tightness of bolts and nuts are recommended

General note

- Maximum Working Pressure (CWP) listed is the maximum cold water pressure for general piping services tested to ASTM F1476 and or AWWA C606 methods. Figures listed are based on roll- or cut-grooved standard wall carbon steel pipe. For other pipe schedules or pipe materials, contact Shurjoint for additional information.
- Max. End Load is calculated based on the maximum working pressure (CWP).
- Listed and or Approved Pressures are pressure ratings for fire protection systems, tested and approved by various approval bodies. Please always refer to the latest approval data posted on the Shurjoint website.
- Field Joint Test: For one time only, the system may be tested hydrostatically at 1½ times the maximum working pressure listed (AWWA C606 5.2.3).
- Warning: Piping systems must always be depressurized and drained before attempting disassembly and or removal of any components.
- The 10 Year Limited Warranty applies to manufacturing defects only and does not cover severe service/temperature applications or wear parts.
- Shurjoint reserves the right to change specifications, designs and or standard without notice and without incurring any obligations.