

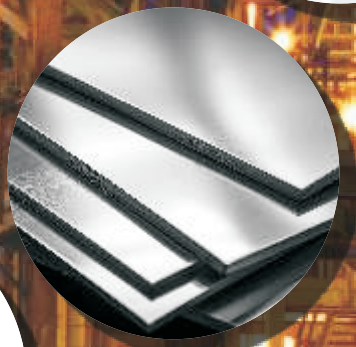


सूक्ष्म, लघु एवं मध्यम उद्यम
MICRO, SMALL & MEDIUM ENTERPRISES

AN ISO 9001:2015 Certified Co.



RAMDEV METAL OVERSEAS



Buttweld Pipe Fittings

Piggable Bends

Forged Fittings

Flanges

Fabricated Tanks

Vessels

Piping Systems

Spools

And more...

Suresh Rathod: 9819315945
Alex Divakar : 8169108502



RAMDEV

METAL OVERSEAS





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Company Profile

Monel Forge And Fittings Pvt. Ltd. was founded, it has been our mission to not only manufacture Buttweld fittings, long radius (3D, SD, Customized) bends and large diameter welded 2 Halves Pipe Fittings but also provide complete piping package solutions to our customers.

By flexibility, skill, experience and dedication to our work as well as long-standing relationships with leading manufacturers for all piping related products, we have become over the years a well-known and leading supplier to MFPL and End users across the globe.

We have also become a **ONE STOP SHOP** for reliable Indian origin Piping Supplies for various stockists and traders around the world. Hard-to-find items, short delivery times, rare material grades and similar tasks are just as much our daily business as standard items from mass production. We find solutions for your individual requirements.

We have our own in-house inspection and commissioning staff enabling us to satisfy each customer's individual logistical requirements.

Quality Policy

Quality is our mission, the quality policy is our main tool in achieving it. Utmost Satisfaction of client's expectation.

Innovative, Cost and time effective services Consistent and Continuous quality improvement Fulfillment of defined quality objective targets

Develop the organization as an international for excellence

Continuous evaluation of market to explore challenging areas of operation

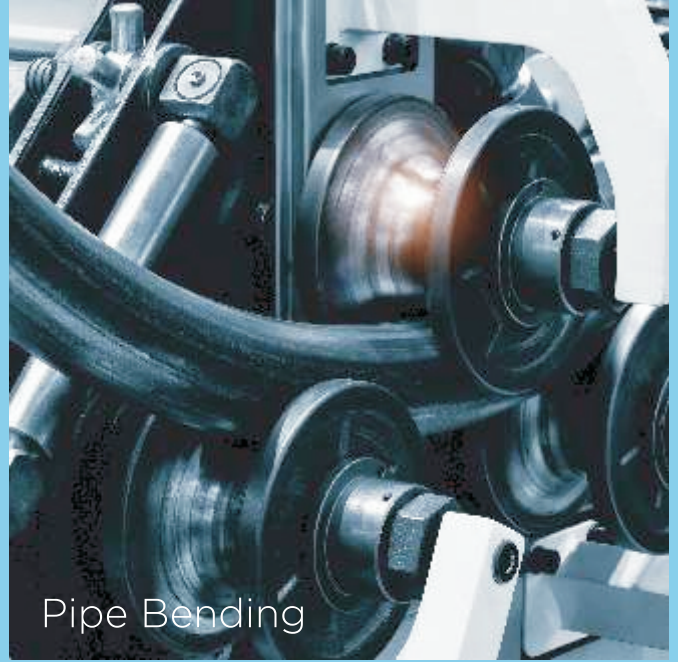
The group is determined to improve productivity and focus continuously on and people

Testing Facility Available

- Chemical Analysis
- Mechanical Tests
- Metallography Test
- Hydrostatic
- Corrosion Test
- Ultrasonic Test
- Radiography
- Miscellaneous Test



Heat Treatment



Pipe Bending

Our Facility

We have all in house facilities for manufacturing of L. R. Bend, Welded 2 Half Fittings, Flanges, Outlets such as Cutting, Hot & Cold Forming, Pressing, Rolling, Ball Passing, Welding, Grinding, Finishing, Gauging, Handling, Hydraulic Test, Heat Treatment, Solutions annealing, Temperature Controlling With Heat Treatment Chart for Client review, surface Treatment, Machining Drilling, Boring, ID Control Picking, Passivation anti rust Coating for excellent protection and durable packaging.

Each of our product comes with a manufacturer test certificate with a manufacturer test certificate with any reputed National & International Third Party Inspection can be done as per Customer requirement 3.1/3.2 Certification



Plate Pressing



Our Mission

To provide the best quality products & services by maintaining high standards of manufacturing low cost, on time delivery customized products & clients satisfaction.



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Butt-weld Fitting

Stainless Steel & Duplex Steel Fittings

Size : 1/2"NB to 36"NB ANSI B 16.9 MSS-SP-43
 Schedule : 105/405/805/1605/XXS
 Stainless Steel : ASTM A 403 WP-TP 304/304H/304L/316/
 316H/316L/316Ti/309/310/317L/321/347/904L
 Duplex Steel : ASTM A815-UNS S31803, 532750, S32760, S32205

Alloy Steel, Carbon Steel & LTCS Fittings

Size : 1/2"NB to 36"NB ANSI B 16.9
 Schedule : 105/405/805/160S/XXS
 Alloy Steel : ASTM A 234 WPB WP5, WP9, WP11, WP12, Wp91
 Carbon Steel : ASTM A 234 WPB, IS 1239 PART II
 Low Temp. CS : ASTM A-420 WPL6
 Other Service : Hot Dip Galvanizing, Sand Blasting

Copper & Nickel Alloys Fittings

Size : 1/2"NB to 36"NB ANSI B 16.9
 Schedule : 105/405/805
 Copper Nickel : C70600(90:10), C71500 (70:30), C71640
 Nickel : UNS N02200, N02201
 Monel : UNS N04400, N05500, Alloy 20
 Inconel : UNS N06600, N06601, N06625, N08800, N08810, N08825
 Hastelloy : UNS N10276, N06022, N10665, N06455

Test Certificate

Manufacturer Test Certification
 En 3.1 & 3.2
 IBR Test Certification Form IIIC

Type

| | |
|--------------------------|----------------------------------|
| Stubend - (Long & Short) | Elbow (45 DEG, 90 DEG, 180 DEG) |
| U Bend | Tee - (Barred, Equal, Reducing) |
| End Cap | Reducer (Concentric & Eccentric) |
| Lateral | Nipple - (Swage & Barrel) |





Long Radius Bend

Stainless Steel & Duplex Steel Bends

- Size : 1/2"NB to 34"NB
Schedule : Sch. 10 to Sch. 160 in 3D, 5D, 6D, BD, 10D
Stainless Steel : ASTM A 403 WP-TP 304/304H/304L/316/316H/
316L/316Ti/309/310/317L/321/347/904L
Duplex Steel : ASTM A815—UNS S31803, S32750, S32760,S32205

Alloy Steel, Carbon Steel & LTCS Bends

- Size : 2" to 24"
Schedule : Sch. 2 to Sch XXS in 3D, SD, 6D, 8D, 10D
Alloy Steel : ASTM A 234 WPB WPS, WP9, WP11, WP12, Wp91
Carbon Steel : ASTM A 234 WPB
Low Temp. CS : ASTM A-420 WPL6

Copper & Nickel Alloys Bends

- Size : 1/2" to 12"
Schedule : Sch. 10 to Sch 80 in 3D, 5D, 6D, 8D, 10D
Copper Nickel : C70600(90:10), C71500 (70:30), C71640
Nickel : UNS N02200, N02201
Monel : UNS N04400, N05500, Alloy 20
Inconel : UNS N06600, N06601, N06625, N08800, N08810, N08825
Hastelloy : UNS N10276, N06022, N10665, N06455
Tolerance : Minimum wall Thickness Rate and Ovality, No Wrinkles,
with required Tangent length

Test Certificate

- Manufacturer Test Certification
En 3.1 & 3.2
IBR Test Certification Form IIIC

Type

- Long Radius Bend
Piggable Bend
Hot Bend
Customized Bend





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ANSI PIPE SCHEDULE SI-UNIT (METRIC) Dimension and weight of pipe to ANSI/ASME B 36.10 & B 36.19

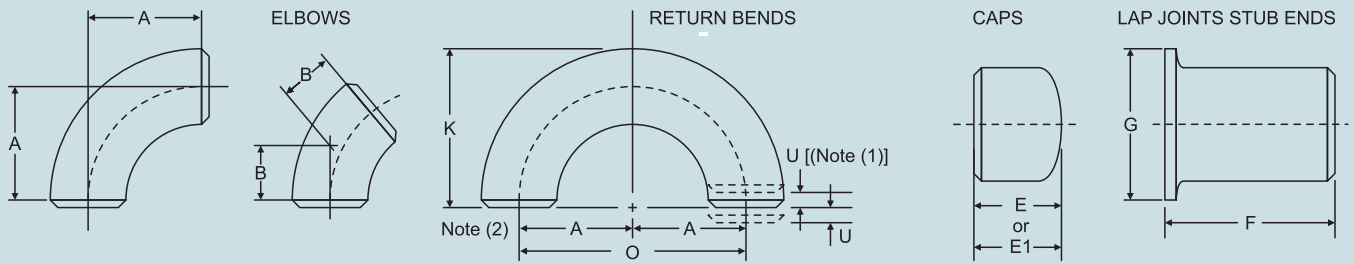
| Nominal Pipe Size Inc./DN | Outside Diameter MM | WALL THICKNESS = MM | | | | | | | | | | | | | | | | | |
|---------------------------------|---------------------------|---------------------|-------|--------|--------|--------|--------|-------|--------|--------|--------|-------|--------|--------|--------|--------|--------|--------|--|
| | | 5S | 10 S | 10 | 20 | 30 | STD | 40 S | 40 | 60 | XS | 80 S | 80 | 100 | 120 | 140 | 160 | XXS | |
| 1/8" | 10.30 | | 1.24 | | | | 1.73 | 1.73 | 1.73 | | 2.41 | 2.41 | 2.41 | | | | | | |
| DN-6 | | | 0.28 | | | | 0.37 | 0.37 | 0.37 | | 0.47 | 0.47 | 0.47 | | | | | | |
| 1/4" | 13.70 | | 1.65 | | | | 2.24 | 2.24 | 2.24 | | 3.02 | 3.02 | 3.02 | | | | | | |
| DN-8 | | | 0.51 | | | | 0.63 | 0.63 | 0.63 | | 0.80 | 0.8 | 0.80 | | | | | | |
| 3/8" | 17.10 | | 1.65 | | | | 2.31 | 2.31 | 2.31 | | 3.20 | 3.2 | 3.20 | | | | | | |
| DN-10 | | | 0.64 | | | | 0.84 | 0.84 | 0.84 | | 1.10 | 1.1 | 1.10 | | | | | | |
| 1/2" | 21.30 | 1.65 | 2.11 | | | | 2.77 | 2.77 | 2.77 | | 3.73 | 3.73 | 3.73 | | | | 4.78 | 7.74 | |
| DN-15 | | 0.80 | 1.00 | | | | 1.27 | 1.27 | 1.27 | | 1.62 | 1.62 | 1.62 | | | | 1.95 | 2.55 | |
| 3/4" | 26.70 | 1.65 | 2.11 | | | | 2.87 | 2.87 | 2.87 | | 3.91 | 3.91 | 3.91 | | | | 5.56 | 7.82 | |
| DN-20 | | 1.03 | 1.28 | | | | 1.69 | 1.69 | 1.69 | | 2.20 | 2.2 | 2.20 | | | | 2.90 | 3.64 | |
| 1" | 33.40 | 1.65 | 2.77 | | | | 3.38 | 3.38 | 3.38 | | 4.55 | 4.55 | 4.55 | | | | 6.35 | 9.09 | |
| DN-25 | | 1.29 | 2.09 | | | | 2.50 | 2.50 | 2.50 | | 3.24 | 3.24 | 3.24 | | | | 4.24 | 5.45 | |
| 1.1/4" | 42.20 | 1.65 | 2.77 | | | | 3.56 | 3.56 | 3.56 | | 4.85 | 4.85 | 4.85 | | | | 6.35 | 9.70 | |
| DN-32 | | 1.65 | 2.76 | | | | 3.39 | 3.39 | 3.39 | | 4.47 | 4.47 | 4.47 | | | | 5.61 | 7.77 | |
| 1.1/2" | 48.30 | 1.65 | 2.77 | | | | 3.68 | 3.68 | 3.68 | | 5.08 | 5.08 | 5.08 | | | | 7.14 | 0.15 | |
| DN-40 | | 1.90 | 3.11 | | | | 4.05 | 4.05 | 4.05 | | 5.41 | 5.41 | 5.41 | | | | 7.25 | 9.55 | |
| 2" | 60.30 | 1.65 | 2.77 | | | | 3.91 | 3.91 | 3.91 | | 5.54 | 5.54 | 5.54 | | | | 8.74 | 11.07 | |
| DN-50 | | 2.40 | 3.93 | | | | 5.44 | 5.44 | 5.44 | | 7.48 | 7.48 | 7.48 | | | | 11.11 | 13.44 | |
| 2.1/2" | 73.00 | 2.11 | 3.05 | | | | 5.16 | 5.16 | 5.16 | | 7.01 | 7.01 | 7.01 | | | | 9.53 | 14.02 | |
| DN-65 | | 3.69 | 5.26 | | | | 8.63 | 8.63 | 8.63 | | 11.41 | 11.41 | 11.41 | | | | 14.92 | 20.39 | |
| 3" | 88.90 | 2.11 | 3.05 | | | | 5.49 | 5.49 | 5.49 | | 7.62 | 7.62 | 7.62 | | | | 11.13 | 15.24 | |
| DN-80 | | 4.52 | 6.46 | | | | 11.29 | 11.29 | 11.29 | | 15.27 | 15.27 | 15.27 | | | | 21.35 | 27.68 | |
| 3.1/2" | 101.60 | 2.11 | 3.05 | | | | 5.74 | 5.74 | 5.74 | | 8.08 | 8.08 | 8.08 | | | | | | |
| DN-90 | | 5.18 | 7.41 | | | | 13.57 | 13.57 | 13.57 | | 18.64 | 18.64 | 18.64 | | | | | | |
| 4" | 114.30 | 2.11 | 3.05 | | | | 6.02 | 6.02 | 6.02 | | 8.56 | 8.56 | 8.56 | 11.13 | | | 13.49 | 17.12 | |
| DN-100 | | 5.84 | 8.37 | | | | 16.08 | 16.08 | 16.08 | | 22.32 | 22.32 | 22.32 | 28.32 | | | 35.54 | 41.03 | |
| 5" | 141.30 | 2.77 | 3.40 | | | | 6.55 | 6.55 | 6.55 | | 9.53 | 9.53 | 9.53 | 12.70 | | | 15.88 | 19.05 | |
| DN-125 | | 9.46 | 11.56 | | | | 21.77 | 21.77 | 21.77 | | 30.97 | 30.97 | 30.97 | 40.28 | | | 49.12 | 57.43 | |
| 6" | 168.30 | 2.77 | 3.40 | | | | 7.11 | 7.11 | 7.11 | | 10.97 | 10.97 | 10.97 | 14.27 | | | 18.26 | 21.95 | |
| DN-150 | | 11.31 | 13.83 | | | | 28.26 | 28.26 | 28.26 | | 42.56 | 42.56 | 42.56 | 54.21 | | | 67.57 | 79.22 | |
| 8" | 219.10 | 2.77 | 3.76 | | 6.35 | 7.04 | 8.18 | 8.18 | 8.18 | 10.31 | 12.70 | 12.7 | 12.70 | 15.09 | 18.26 | 20.62 | 23.01 | 22.23 | |
| DN-200 | | 14.78 | 19.97 | | 33.32 | 36.82 | 42.55 | 42.55 | 42.55 | 53.09 | 64.64 | 64.64 | 64.64 | 75.92 | 90.44 | 100.93 | 111.27 | 107.93 | |
| 10" | 273.00 | 3.40 | 4.19 | | 6.35 | 7.80 | 9.27 | 9.27 | 9.27 | 12.70 | 12.70 | 12.7 | 15.09 | 18.26 | 21.44 | 25.40 | 28.58 | 25.40 | |
| DN-250 | | 22.61 | 27.78 | | 41.76 | 51.01 | 60.29 | 60.29 | 60.29 | 81.53 | 81.53 | 81.53 | 95.98 | 114.70 | 133.01 | 155.10 | 172.27 | 155.10 | |
| 12" | 323.80 | 3.96 | 4.57 | | 6.35 | 8.38 | 9.53 | 9.53 | 10.31 | 14.27 | 12.70 | 12.7 | 17.48 | 21.44 | 25.40 | 28.58 | 33.32 | 25.40 | |
| DN-300 | | 31.24 | 35.98 | | 49.73 | 65.20 | 73.86 | 73.86 | 79.71 | 108.93 | 97.44 | 97.44 | 132.05 | 159.87 | 186.92 | 208.08 | 238.69 | 186.92 | |
| 14" | 355.60 | 3.96 | 4.78 | 6.35 | 7.92 | 9.53 | 9.53 | | 11.13 | 15.09 | 12.70 | | 19.05 | 23.83 | 27.79 | 31.75 | 35.71 | | |
| DN-350 | | 34.34 | 41.30 | 54.69 | 67.90 | 81.33 | 81.33 | | 94.55 | 126.72 | 107.40 | | 158.10 | 194.98 | 224.66 | 253.58 | 281.72 | | |
| 16" | 406.40 | 4.19 | 4.78 | 6.35 | 7.92 | 9.53 | 9.53 | | 12.70 | 16.66 | 12.70 | | 21.44 | 26.19 | 30.96 | 36.53 | 40.49 | | |
| DN-400 | | 41.56 | 47.29 | 62.65 | 77.83 | 93.27 | 93.27 | | 123.30 | 160.13 | 123.31 | | 203.54 | 245.57 | 286.66 | 333.21 | 365.38 | | |
| 18" | 457.00 | 4.19 | 4.78 | 6.35 | 7.92 | 11.13 | 9.53 | | 14.27 | 19.05 | 12.70 | | 23.83 | 29.36 | 34.93 | 39.67 | 4 | 5.24 | |
| DN-450 | | 46.79 | 53.26 | 70.57 | 87.71 | 122.38 | 105.17 | | 155.80 | 205.75 | 139.16 | | 254.57 | 309.64 | 363.58 | 408.28 | 459.39 | | |
| 20" | 508.00 | 4.78 | 5.54 | 6.35 | 9.53 | 12.70 | 9.53 | | 15.09 | 20.62 | 12.70 | | 26.19 | 32.54 | 38.10 | 44.45 | 50.01 | | |
| DN-500 | | 59.32 | 68.60 | 78.56 | 117.15 | 155.13 | 117.15 | | 183.43 | 247.84 | 155.13 | | 311.19 | 381.55 | 441.52 | 508.15 | 564.85 | | |
| 22" | 559.00 | 4.78 | 5.54 | 6.35 | 9.53 | 12.70 | 9.53 | | 22.23 | 12.70 | | | 28.58 | 34.93 | 41.28 | 47.63 | 53.98 | | |
| DN-550 | | 65.33 | 75.53 | 86.55 | 129.14 | 171.10 | 129.14 | | 294.27 | 171.10 | | | 373.85 | 451.45 | 527.05 | 600.67 | 672.30 | | |
| 24" | 610.00 | 5.54 | 6.35 | 6.35 | 9.53 | 14.27 | 9.53 | | 17.48 | 24.61 | 12.70 | | 30.96 | 38.89 | 46.02 | 52.37 | 59.54 | | |
| DN-600 | | 82.58 | 94.45 | 94.53 | 141.12 | 209.65 | 41.12 | | 255.43 | 355.28 | 187.07 | | 442.11 | 547.74 | 640.07 | 720.19 | 808.27 | | |
| 26" | 660.00 | | | 7.92 | 12.70 | | 9.53 | | | | 12.70 | | | | | | | | |
| DN-650 | | | | 127.36 | 202.74 | | 152.88 | | | | 202.74 | | | | | | | | |
| 28" | 711.00 | | | 7.92 | 12.70 | 15.88 | 9.53 | | | | 12.70 | | | | | | | | |
| DN-700 | | | | 137.32 | 218.71 | 272.23 | 164.86 | | | | 218.71 | | | | | | | | |
| 30" | 762.00 | | | 7.92 | 12.70 | 15.88 | 9.53 | | | | 12.70 | | | | | | | | |
| DN-750 | | | | 147.29 | 234.68 | 292.20 | 176.85 | | | | 234.68 | | | | | | | | |
| 32" | 813.00 | | | 7.92 | 12.70 | 15.88 | 9.53 | | 17.48 | | 12.70 | | | | | | | | |
| DN-800 | | | | 157.25 | 250.65 | 312.17 | 188.83 | | 342.94 | | 250.65 | | | | | | | | |
| 34" | 864.00 | | | 7.92 | 12.70 | 15.88 | 9.53 | | 17.48 | | 12.70 | | | | | | | | |
| DN-850 | | | | 167.21 | 266.63 | 332.14 | 200.82 | | 364.92 | | 266.63 | | | | | | | | |
| 36" | 914.00 | | | 7.92 | 12.70 | 15.88 | 9.53 | | 19.05 | | 12.70 | | | | | | | | |
| DN-900 | | | | 176.97 | 282.29 | 351.73 | 212.57 | | 420.45 | | 282.29 | | | | | | | | |
| 38" | 965.00 | | | | | | 9.53 | | | | 12.70 | | | | | | | | |
| DN-950 | | | | | | | 224.56 | | | | 298.26 | | | | | | | | |
| 40" | 1016.00 | | | | | | 9.53 | | | | 12.70 | | | | | | | | |
| DN-1000 | | | | | | | 236.54 | | | | 314.23 | | | | | | | | |
| 42" | 1067.00 | | | | | | 9.53 | | | | 12.70 | | | | | | | | |
| DN-1050 | | | | | | | 248.53 | | | | 330.21 | | | | | | | | |
| 44" | 1118.00 | | | | | | 9.53 | | | | 12.70 | | | | | | | | |
| DN-1100 | | | | | | | 260.52 | | | | 346.18 | | | | | | | | |
| 46" | 1168.00 | | | | | | 9.53 | | | | 12.70 | | | | | | | | |
| DN-1150 | | | | | | | 272.27 | | | | 361.84 | | | | | | | | |
| 48" | 1219.00 | | | | | | 9.53 | | | | 12.70 | | | | | | | | |
| DN-1200 | | | | | | | 284.25 | | | | 377.81 | | | | | | | | |

Note: The different grades of stainless steel permit considerable variations in weight. The ferritic stainless steels may be about 5% less, and the austenitic stainless steel about 2% greater than the values shown in this table, which are based on weights for carbon steel.



**DIMENSIONS OF BUTT WELDED FITTINGS TO
ANSI / ASME / B 16.9 / MSS - SP 43**

**RAMDEV
METAL OVERSEAS**



| Normal size Inches | OD mm | A | | B | K | | O | | E (Note 3) | Limit THK for E | E1 (Note 4) | G | F | |
|-----------------------|----------|------|-----|-----|------|-----|------|------|---------------|-----------------------|----------------|-----|-----------------|------------------|
| | | LR | SR | | LR | SR | LR | SR | | | | | Long Pattern | Short Pattern |
| 1/2 | 21.3 | 38 | | 16 | 48 | | 76 | | 25 | 4.57 | 25 | 35 | 76 | 51 |
| 3/4 | 26.7 | 38 | | 19 | 51 | | 76 | | 25 | 3.81 | 25 | 43 | 76 | 51 |
| 1 | 33.4 | 38 | 25 | 22 | 56 | 41 | 76 | 51 | 38 | 4.57 | 38 | 51 | 102 | 51 |
| 1.1/4 | 42.2 | 48 | 32 | 25 | 70 | 52 | 95 | 64 | 38 | 4.83 | 38 | 64 | 102 | 51 |
| 1.1/2 | 48.3 | 57 | 38 | 29 | 83 | 62 | 114 | 76 | 38 | 5.08 | 38 | 73 | 102 | 51 |
| 2 | 60.3 | 76 | 51 | 35 | 106 | 81 | 152 | 102 | 38 | 5.59 | 44 | 92 | 152 | 64 |
| 2.1/2 | 73 | 95 | 64 | 44 | 132 | 100 | 190 | 127 | 38 | 7.11 | 51 | 105 | 152 | 64 |
| 3 | 88.9 | 114 | 76 | 51 | 159 | 121 | 229 | 152 | 51 | 7.62 | 64 | 127 | 152 | 64 |
| 3.1/2 | 101.6 | 133 | 89 | 57 | 184 | 140 | 267 | 178 | 64 | 8.13 | 76 | 140 | 152 | 76 |
| 4 | 114.3 | 152 | 102 | 64 | 210 | 159 | 305 | 203 | 64 | 8.64 | 76 | 157 | 152 | 76 |
| 5 | 141.3 | 190 | 127 | 79 | 262 | 197 | 381 | 254 | 76 | 9.65 | 89 | 186 | 203 | 76 |
| 6 | 168.3 | 229 | 152 | 95 | 313 | 237 | 457 | 305 | 89 | 10.92 | 102 | 216 | 203 | 89 |
| 8 | 219.1 | 305 | 203 | 127 | 414 | 313 | 610 | 406 | 102 | 12.7 | 127 | 270 | 203 | 102 |
| 10 | 273 | 381 | 254 | 159 | 518 | 391 | 762 | 508 | 127 | 12.7 | 152 | 324 | 254 | 127 |
| 12 | 323.8 | 457 | 305 | 190 | 619 | 467 | 914 | 610 | 152 | 12.7 | 178 | 381 | 254 | 152 |
| 14 | 355.6 | 533 | 356 | 222 | 711 | 533 | 1067 | 711 | 165 | 12.7 | 191 | 413 | 305 | 152 |
| 16 | 406.4 | 610 | 406 | 254 | 813 | 610 | 1219 | 813 | 178 | 12.7 | 203 | 470 | 305 | 152 |
| 18 | 457 | 686 | 457 | 286 | 914 | 686 | 1372 | 914 | 203 | 12.7 | 229 | 533 | 305 | 152 |
| 20 | 508 | 762 | 508 | 318 | 1016 | 762 | 1524 | 1016 | 229 | 12.7 | 254 | 584 | 305 | 152 |
| 22 | 559 | 838 | 559 | 343 | 1118 | 838 | 1676 | 1118 | 254 | 12.7 | 254 | 641 | 305 | 152 |
| 24 | 610 | 914 | 610 | 381 | 1219 | 914 | 1829 | 1219 | 267 | 12.7 | 305 | 692 | 305 | 152 |
| 26 | 660 | 991 | | 406 | | | | | 267 | | | | | |
| 28 | 711 | 1067 | | 438 | | | | | 267 | | | | | |
| 30 | 762 | 1143 | | 470 | | | | | 267 | | | | | |
| 32 | 813 | 1219 | | 502 | | | | | 267 | | | | | |
| 34 | 864 | 1295 | | 533 | | | | | 267 | | | | | |
| 36 | 914 | 1372 | | 565 | | | | | 267 | | | | | |
| 38 | 965 | 1448 | | 600 | | | | | 305 | | | | | |
| 40 | 1016 | 1524 | | 632 | | | | | 305 | | | | | |
| 42 | 1067 | 1600 | | 660 | | | | | 305 | | | | | |
| 44 | 1118 | 1676 | | 695 | | | | | 343 | | | | | |
| 46 | 1168 | 1753 | | 727 | | | | | 343 | | | | | |
| 48 | 1219 | 1829 | | 759 | | | | | 343 | | | | | |

General Note: All Dimensions are in millimeters

Note 1-A&B dim of 29 mm & 11 mm for Elbow, O & K dim of 57 mm & 43 mm for Return, respectively may be furnished for NPS 3/4 at the manufacturer's option.

Alignment of end U see page 5 for tolerance

Note 2- Dimensions A is equal to one-half of dimension O

Note 3- Length E applies for thickness not exceeding that given in column limit THK for E

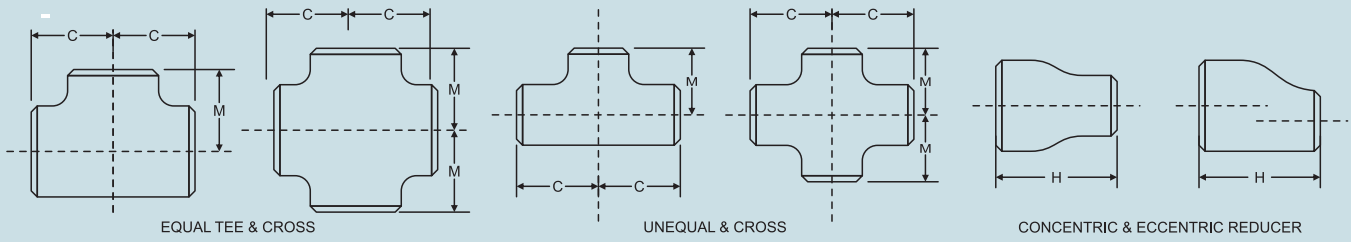
Note 4- Length E1 applies for thickness greater than that given in column limit THK for NPS 24 & smaller.

For NPS 26 & larger, length E1 shall be by agreement between manufacturer & purchaser



RAMDEV METAL OVERSEAS

DIMENSIONS OF BUTT WELDED FITTINGS TO ANSI / ASME / B 16.9 / MSS - SP 43



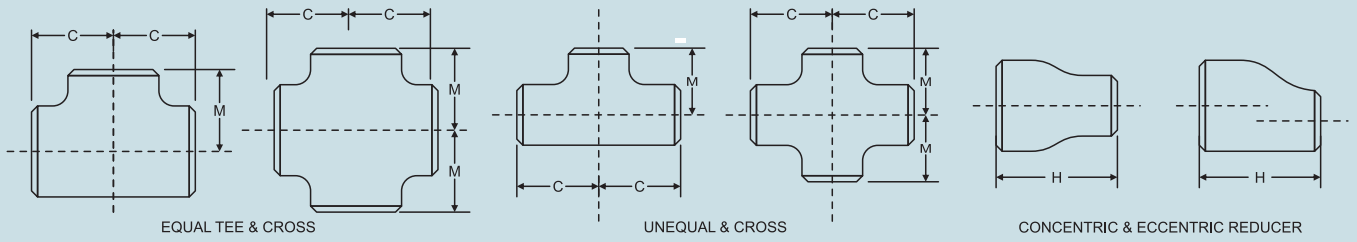
| Nominal size Inch | OD mm | C | M | H | Nominal size Inch | OD mm | C | M | H | Nominal size Inch | OD mm | C | M | H |
|-------------------|---------------|-----|-----|------|-------------------|---------------|-----|-----|-----|-------------------|-------------|-----|-----|-----|
| 1/2 | 21.3 | 25 | 25 | - | 5 x 3 | 141.3 x 88.9 | 124 | 111 | 127 | 20 x 8 | 508 x 219.1 | 381 | 324 | - |
| 1/2 x 3/8 | 21.3 x 17.3 | 25 | 25 | 38** | 5 x 2.1/2 | 141.3 x 73 | 124 | 108 | 127 | 22 | 559 | 419 | 419 | - |
| 1/2 x 1/4 | 21.3 x 13.7 | 25 | 25 | 38** | 5 x 2 | 141.3 x 60.3 | 124 | 105 | 127 | 22 x 2 0 | 559 x 508 | 419 | 406 | 508 |
| 3/4 | 26.7 | 29 | 29 | - | 6 | 168.3 | 143 | 143 | - | 22 x 18 | 559 x 457 | 419 | 394 | 508 |
| 3/4 x 1/2 | 26.7 | 29 | 29 | 38 | 6 x 5 | 168.3 x 141.3 | 143 | 137 | 140 | 22 x 16 | 559 x 406.4 | 419 | 381 | 508 |
| 3/4 x 3/8 | 26.7 x 17.3 | 29 | 29 | 38 | 6 x 4 | 168.3 x 114.3 | 143 | 130 | 140 | 22 x 14 | 559 x 355.6 | 419 | 381 | 508 |
| 1 | 33.4 | 38 | 38 | - | 6 x 3.1/2 | 168.3 x 101.6 | 143 | 127 | 140 | 22 x 12 | 559 x 323.8 | 419 | 371 | - |
| 1 x 3/4 | 33.4 x 26.7 | 38 | 38 | 51 | 6 x 3 | 168.3 x 88.9 | 143 | 124 | 140 | 22 x 10 | 559 x 273 | 419 | 359 | - |
| 1 x 1/2 | 33.4 x 21.3 | 38 | 38 | 51 | 6 x 2.1/2 | 168.3 x 73 | 143 | 121 | 140 | 24 | 610 | 432 | 432 | - |
| 1.1/4 | 42.2 | 48 | 48 | - | 8 | 219.1 | 178 | 178 | - | 24 x 22 | 610 x 559 | 432 | 432 | 508 |
| 1.1/4 x 1 | 42.2 x 33.4 | 48 | 48 | 51 | 8 x 6 | 219.1 x 168.3 | 178 | 168 | 152 | 24 x 20 | 610 x 508 | 432 | 432 | 508 |
| 1.1/4 x 3/4 | 42.2 x 26.7 | 48 | 48 | 51 | 8 x 5 | 219.1 x 141.3 | 178 | 162 | 152 | 24 x 18 | 610 x 457 | 432 | 419 | 508 |
| 1.1/4 x 1/2 | 42.2 x 21.3 | 48 | 48 | 51 | 8 x 4 | 219.1 x 114.3 | 178 | 156 | 152 | 24 x 16 | 610 x 406.4 | 432 | 406 | 508 |
| 1.1/2 | 48.3 | 57 | 57 | - | 8 x 3.1/2 | 219.1 x 101.6 | 178 | 152 | 152 | 24 x 14 | 610 x 355.6 | 432 | 406 | - |
| 1.1/2 x 1.1/4 | 48.3 x 42.2 | 57 | 57 | 64 | 10 | 273 | 216 | 216 | - | 24 x 12 | 610 x 323.8 | 432 | 397 | - |
| 1.1/2 x 1 | 48.3 x 33.4 | 57 | 57 | 64 | 10 x 8 | 273 x 219.1 | 216 | 203 | 178 | 24 x 10 | 610 x 273 | 432 | 384 | - |
| 1.1/2 x 3/4 | 48.3 x 26.7 | 57 | 57 | 64 | 10 x 6 | 273 x 168.3 | 216 | 194 | 178 | 26 | 660 | 495 | 495 | - |
| 1.1/2 x 1/2 | 48.3 x 21.3 | 57 | 57 | 64 | 10 x 5 | 273 x 141.3 | 216 | 191 | 178 | 26 x 24 | 660 x 610 | 495 | 483 | 610 |
| 2 | 60.3 | 64 | 64 | - | 10 x 4 | 273 x 114.3 | 216 | 184 | 178 | 26 x 22 | 660 x 559 | 495 | 470 | 610 |
| 2 x 1.1/2 | 60.3 x 48.3 | 64 | 60 | 76 | 12 | 323.8 | 254 | 254 | - | 26 x 20 | 660 x 508 | 495 | 457 | 610 |
| 2 x 1.1/4 | 60.3 x 42.2 | 64 | 57 | 76 | 12 x 10 | 323.8 x 273 | 254 | 241 | 203 | 26 x 18 | 660 x 457 | 495 | 444 | 610 |
| 2 x 1 | 60.3 x 33.4 | 64 | 51 | 76 | 12 x 8 | 323.8 x 219.1 | 254 | 229 | 203 | 26 x 16 | 660 x 406.4 | 495 | 432 | - |
| 2 x 3/4 | 60.3 x 26.7 | 64 | 44 | 76 | 12 x 6 | 323.8 x 168.3 | 254 | 219 | 203 | 26 x 14 | 660 x 355.6 | 495 | 432 | - |
| 2.1/2 | 73 | 76 | 76 | - | 12 x 5 | 323.8 x 141.3 | 254 | 216 | 203 | 26 x 12 | 660 x 323.8 | 495 | 422 | - |
| 2.1/2 x 2 | 73 x 60.3 | 76 | 70 | 89 | 14 | 355.6 | 279 | 279 | - | 28 | 711 | 521 | 521 | - |
| 2.1/2 x 1.1/2 | 73 x 48.3 | 76 | 67 | 89 | 14 x 12 | 355.6 x 323.8 | 279 | 270 | 330 | 28 x 26 | 711 x 660 | 521 | 521 | 610 |
| 2.1/2 x 1.1/4 | 73 x 42 | 76 | 64 | 89 | 14 x 10 | 355.6 x 273 | 279 | 257 | 330 | 28 x 24 | 711 x 610 | 521 | 508 | 610 |
| 2.1/2 x 1 | 73 x 33.4 | 76 | 57 | 89 | 14 x 8 | 355.6 x 219.1 | 279 | 248 | 330 | 28 x 22 | 711 x 559 | 521 | 495 | 610 |
| 3 | 88.9 | 86 | 86 | - | 14 x 6 | 355.6 x 168.6 | 279 | 238 | 330 | 28 x 20 | 711 x 508 | 521 | 483 | 610 |
| 3 x 2.1/2 | 88.9 x 73 | 86 | 83 | 89 | 16 | 406.4 | 305 | 305 | - | 28 x 18 | 711 x 457 | 521 | 470 | - |
| 3 x 2 | 88.9 x 60.3 | 86 | 76 | 89 | 16 x 14 | 406.4 x 355.6 | 305 | 305 | 356 | 28 x 16 | 711 x 406.4 | 521 | 457 | - |
| 3 x 1.1/2 | 88.9 x 48.3 | 86 | 73 | 89 | 16 x 12 | 406.4 x 323.8 | 305 | 295 | 356 | 28 x 14 | 711 x 355.6 | 521 | 457 | - |
| 3 x 1.1/4 | 88.9 x 42.2 | 86 | 70 | 89 | 16 x 10 | 406.4 x 273 | 305 | 283 | 356 | 28 x 12 | 711 x 323.8 | 521 | 448 | - |
| 3.1/2 | 101.6 | 95 | 95 | - | 16 x 8 | 406.4 x 219.1 | 305 | 273 | 356 | 30 | 762 | 559 | 559 | - |
| 3.1/2 x 3 | 101.6 x 88.9 | 95 | 92 | 102 | 16 x 6 | 406.4 x 168.3 | 305 | 264 | - | 30 x 28 | 762 x 711 | 559 | 546 | 610 |
| 3.1/2 x 2.1/2 | 101.6 x 73 | 95 | 89 | 102 | 18 | 457 | 343 | 343 | - | 30 x 26 | 762 x 660 | 559 | 546 | 610 |
| 3.1/2 x 2 | 101.6 x 60.3 | 95 | 83 | 102 | 18 x 16 | 457 x 406.4 | 343 | 330 | 381 | 30 x 24 | 762 x 610 | 559 | 533 | 610 |
| 3.1/2 x 1.1/2 | 101.6 x 48.3 | 95 | 79 | 102 | 18 x 14 | 457 x 355.6 | 343 | 330 | 381 | 30 x 22 | 762 x 559 | 559 | 521 | 610 |
| 4 | 114.3 | 105 | 105 | - | 18 x 12 | 457 x 323.8 | 343 | 321 | 381 | 30 x 20 | 762 x 508 | 559 | 508 | - |
| 4 x 3.1/2 | 114.3 x 101.6 | 105 | 102 | 102 | 18 x 10 | 457 x 273 | 343 | 308 | 381 | 30 x 18 | 762 x 457 | 559 | 495 | - |
| 4 x 3 | 114.3 x 88.9 | 105 | 98 | 102 | 18 x 8 | 457 x 219.1 | 343 | 298 | - | 30 x 16 | 762 x 406.4 | 559 | 483 | - |
| 4 x 2.1/2 | 114.3 x 73 | 105 | 95 | 102 | 20 | 508 | 381 | 381 | - | 30 x 14 | 762 x 355.6 | 559 | 483 | - |
| 4 x 2 | 114.3 x 60.3 | 105 | 89 | 102 | 20 x 18 | 508 x 457 | 381 | 368 | 508 | 30 x 12 | 762 x 323.8 | 559 | 476 | - |
| 4 x 1.1/2 | 114.3 x 48.3 | 105 | 86 | 102 | 20 x 16 | 508 x 406.4 | 381 | 356 | 508 | 30 x 10 | 762 x 273 | 559 | 460 | - |
| 5 | 141.3 | 124 | 124 | - | 20 x 14 | 508 x 355.6 | 381 | 356 | 508 | 32 | 813 | 597 | 597 | - |
| 5 x 4 | 141.3 x 114.3 | 124 | 117 | 127 | 20 x 12 | 508 x 323.8 | 381 | 346 | 508 | 32 x 30 | 813 x 762 | 597 | 584 | 610 |
| 5 x 3.1/2 | 141.3 x 101.6 | 124 | 114 | 127 | 20 x 10 | 508 x 273 | 381 | 333 | - | 32 x 28 | 813 x 711 | 597 | 572 | 610 |

General Note: All Dimensions are in millimeters



**DIMENSIONS OF BUTT WELDED FITTINGS TO
ANSI / ASME / B 16.9 / MSS - SP 43**

**RAMDEV
METAL OVERSEAS**



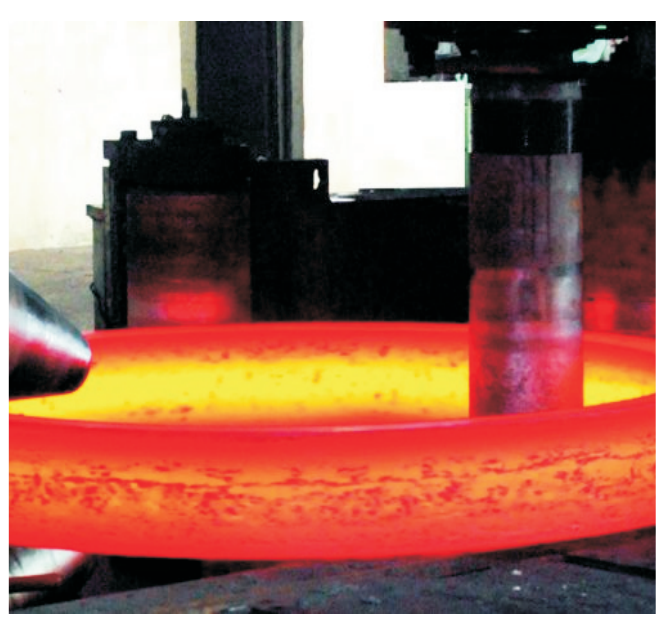
| Nominal size Inch | OD mm | C | M | H | Nominal size Inch | OD mm | C | M | H | Nominal size Inch | OD mm | C | M | H |
|-------------------|-------------|-----|-----|-----|-------------------|--------------|-----|-----|-----|-------------------|-------------|-----|-----|-----|
| 32 x 26 | 813 x 660 | 597 | 572 | 610 | 40 x 24 | 1016 x 610 | 749 | 660 | - | 48 x 42 | 1219 x 1067 | 889 | 813 | 711 |
| 32 x 24 | 813 x 610 | 597 | 559 | 610 | 40 x 22 | 1016 x 559 | 749 | 648 | - | 48 x 40 | 1219 x 1016 | 889 | 813 | 711 |
| 32 x 22 | 813 x 559 | 597 | 546 | - | 40 x 20 | 1016 x 508 | 749 | 635 | - | 48 x 38 | 1219 x 965 | 889 | 813 | - |
| 32 x 20 | 813 x 508 | 597 | 533 | - | 40 x 18 | 1016 x 457 | 749 | 622 | - | 48 x 36 | 1219 x 914 | 889 | 787 | - |
| 32 x 18 | 813 x 457 | 597 | 521 | - | 42 | 1067 | 762 | 711 | - | 48 x 34 | 1219 x 864 | 889 | 787 | - |
| 32 x 16 | 813 x 406.4 | 597 | 508 | - | 42 x 40 | 1067 x 1016 | 762 | 711 | 610 | 48 x 32 | 1219 x 813 | 889 | 787 | - |
| 32 x 14 | 813 x 355.6 | 597 | 508 | - | 42 x 38 | 1067 x 965 | 762 | 711 | 610 | 48 x 30 | 1219 x 762 | 889 | 762 | - |
| 34 | 864 | 635 | 635 | - | 42 x 36 | 1067 x 914 | 762 | 711 | 610 | 48 x 28 | 1219 x 711 | 889 | 762 | - |
| 34 x 32 | 864 x 813 | 635 | 622 | 610 | 42 x 34 | 1067 x 864 | 762 | 711 | 610 | 48 x 26 | 1219 x 660 | 889 | 762 | - |
| 34 x 30 | 864 x 762 | 635 | 610 | 610 | 42 x 32 | 1067 x 813 | 762 | 711 | 610 | 48 x 24 | 1219 x 610 | 889 | 737 | - |
| 34 x 28 | 864 x 711 | 635 | 597 | 610 | 42 x 30 | 1067 x 762 | 762 | 711 | 610 | 48 x 22 | 1219 x 559 | 889 | 737 | - |
| 34 x 26 | 864 x 660 | 635 | 597 | 610 | 42 x 28 | 1067 x 711 | 762 | 698 | | | | | | |
| 34 x 24 | 864 x 610 | 635 | 584 | - | 42 x 26 | 1067 x 660 | 762 | 698 | | | | | | |
| 34 x 22 | 864 x 559 | 635 | 572 | - | 42 x 24 | 1067 x 610 | 762 | 660 | | | | | | |
| 34 x 20 | 864 x 508 | 635 | 559 | - | 42 x 22 | 1067 x 559 | 762 | 660 | | | | | | |
| 34 x 18 | 864 x 457 | 635 | 546 | - | 42 x 20 | 1067 x 508 | 762 | 660 | | | | | | |
| 34 x 16 | 864 x 409.4 | 635 | 533 | - | 42 x 18 | 1067 x 457 | 762 | 648 | | | | | | |
| 36 | 914 | 673 | 673 | - | 42 x 16 | 1067 x 406.4 | 762 | 635 | | | | | | |
| 36 x 34 | 914 x 864 | 673 | 660 | 610 | 44 | 1118 | 813 | 762 | | | | | | |
| 36 x 32 | 914 x 813 | 673 | 648 | 610 | 44 x 42 | 1118 x 1067 | 813 | 762 | | | | | | |
| 36 x 30 | 914 x 762 | 673 | 635 | 610 | 44 x 40 | 1118 x 1016 | 813 | 749 | 610 | | | | | |
| 36 x 28 | 914 x 711 | 673 | 622 | 610 | 44 x 38 | 1118 x 965 | 813 | 737 | 610 | | | | | |
| 36 x 26 | 914 x 660 | 673 | 622 | 610 | 44 x 36 | 1118 x 914 | 813 | 724 | 610 | | | | | |
| 36 x 24 | 914 x 610 | 673 | 610 | - | 44 x 34 | 1118 x 864 | 813 | 724 | 610 | | | | | |
| 36 x 22 | 914 x 559 | 673 | 597 | - | 44 x 32 | 1118 x 813 | 813 | 711 | | | | | | |
| 36 x 20 | 914 x 508 | 673 | 584 | - | 44 x 30 | 1118 x 762 | 813 | 711 | | | | | | |
| 36 x 18 | 914 x 457 | 673 | 572 | - | 44 x 28 | 1118 x 711 | 813 | 698 | | | | | | |
| 36 x 16 | 914 x 406.4 | 673 | 559 | - | 44 x 26 | 1118 x 660 | 813 | 698 | | | | | | |
| 38 | 965 | 711 | 711 | - | 44 x 24 | 1118 x 610 | 813 | 698 | | | | | | |
| 36 x 36 | 965 x 914 | 711 | 711 | 610 | 44 x 22 | 1118 x 559 | 813 | 686 | | | | | | |
| 38 x 34 | 965 x 864 | 711 | 698 | 610 | 44 x 20 | 1118 x 508 | 813 | 686 | | | | | | |
| 38 x 32 | 965 x 813 | 711 | 686 | 610 | 46 | 1168 | 851 | 800 | | | | | | |
| 38 x 30 | 965 x 762 | 711 | 673 | 610 | 46 x 44 | 1168 x 1118 | 851 | 800 | 711 | | | | | |
| 38 x 28 | 965 x 711 | 711 | 648 | 610 | 46 x 42 | 1168 x 1067 | 851 | 787 | 711 | | | | | |
| 38 x 26 | 965 x 660 | 711 | 648 | 610 | 46 x 40 | 1168 x 1016 | 851 | 775 | 711 | | | | | |
| 38 x 24 | 965 x 610 | 711 | 635 | - | 46 x 38 | 1168 x 965 | 851 | 762 | 711 | | | | | |
| 38 x 22 | 965 x 559 | 711 | 622 | - | 46 x 36 | 1168 x 914 | 851 | 762 | | | | | | |
| 38 x 20 | 965 x 508 | 711 | 610 | - | 46 x 34 | 1168 x 864 | 851 | 749 | | | | | | |
| 38 x 18 | 965 x 457 | 711 | 597 | - | 46 x 32 | 1168 x 813 | 851 | 749 | | | | | | |
| 40 | 1016 | 749 | 749 | - | 46 x 30 | 1168 x 762 | 851 | 737 | | | | | | |
| 40 x 38 | 1016 x 965 | 749 | 749 | 610 | 46 x 28 | 1168 x 711 | 851 | 737 | | | | | | |
| 40 x 36 | 1016 x 914 | 749 | 737 | 610 | 46 x 26 | 1168 x 660 | 851 | 737 | | | | | | |
| 40 x 34 | 1016 x 864 | 749 | 724 | 610 | 46 x 24 | 1168 x 610 | 851 | 724 | | | | | | |
| 40 x 32 | 1016 x 813 | 749 | 711 | 610 | 46 x 22 | 1168 x 559 | 851 | 724 | | | | | | |
| 40 x 30 | 1016 x 762 | 749 | 698 | 610 | 48 | 1219 | 889 | 838 | | | | | | |
| 40 x 28 | 1016 x 711 | 749 | 673 | - | 48 x 46 | 1219 x 1168 | 889 | 838 | 711 | | | | | |
| 40 x 26 | 1016 x 660 | 749 | 673 | - | 48 x 44 | 1219 x 1118 | 889 | 838 | 711 | | | | | |

General Note: All Dimensions are in millimeters



RAMDEV

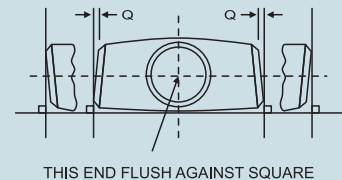
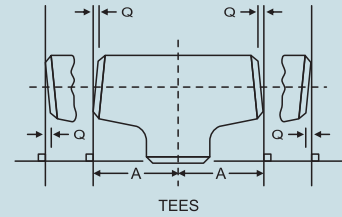
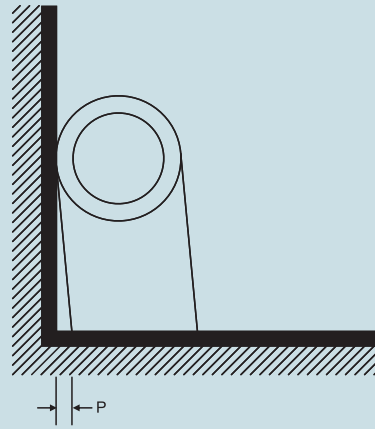
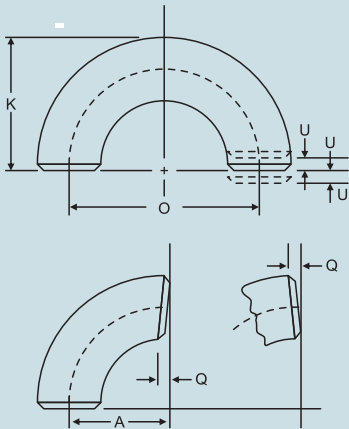
METAL OVERSEAS





RAMDEV METAL OVERSEAS

TOLERANCES OF BUTT WELDED FITTINGS DIMENSION TO ANSI / ASME B 16.9



TOLERANCES

| All Fittings | | | | | Center-to-End Dimensions of 90° & 45° Elbows and Tees, A, B, C, M | Overall Length of Reducers and Lap Joint Stub Ends, F, H | Overall Length of Caps, E | 180° Returns | | |
|-------------------------|------------|---|---|--|---|--|---------------------------|-------------------------------|---------------------------|----------------------|
| Nominal Pipe Size (NPS) | (DN) | Outside Diameter at Bevel, D [Notes (1), and (2)] | Inside Diameter at End [Notes (1), (3) and (4)] | Wall Thickness t | | | | Center-to-Center Dimension, O | Back-to-Face Dimension, K | Alignment of Ends, U |
| 1/2 to 2.1/2 | 15 - 65 | + 1.6 - 0.8 | 0.8 | Not Less Than 87.5% of Nominal Thickness | 2 | 2 | 3 | 6 | 6 | 1 |
| 3 to 3.1/2 | 80 - 90 | 1.6 | 1.6 | | 2 | 2 | 3 | 6 | 6 | 1 |
| 4 | 100 | 1.6 | 1.6 | | 2 | 2 | 3 | 6 | 6 | 1 |
| 5 to 8 | 125 - 200 | + 2.4 - 1.6 | 1.6 | | 2 | 2 | 6 | 6 | 6 | 1 |
| 10 to 18 | 250 - 450 | + 4.0 - 3.2 | 3.2 | | 2 | 2 | 6 | 10 | 6 | 2 |
| 20 to 24 | 500 - 600 | + 6.4 - 4.8 | 4.8 | | 2 | 2 | 6 | 10 | 6 | 2 |
| 26 to 30 | 650 - 750 | + 6.4 - 4.8 | 4.8 | | 3 | 5 | 10 | - | - | - |
| 32 to 48 | 800 - 1200 | + 6.4 - 4.8 | 4.8 | | 5 | 5 | 10 | - | - | - |

| Nominal Pipe Size (NPS) | (DN) | Lap Joint Stub Ends | | | | Nominal Pipe Size (NPS) | (DN) | Angularity Tolerances | |
|-------------------------|------------|----------------------------|-------------------------|----------------------------|---------------|-------------------------|-------------|-----------------------|--------------|
| | | Outside Diameter of Lap, G | Fillet Radius of Lap, R | Outside Diameter of Barrel | Lap Thickness | | | Off Angle, Q | Off Plane, P |
| 1/2 to 2.1/2 | 15 - 65 | + 0 - 1 | + 0 - 1 | | + 1.6 - 0 | 1/2 to 4 | 15 - 100 | 1 | 2 |
| 3 to 3.1/2 | 80 - 90 | + 0 - 1 | + 0 - 1 | | + 1.6 - 0 | 5 to 8 | 125 - 200 | 2 | 4 |
| 4 | 100 | + 0 - 1 | + 0 - 2 | | + 1.6 - 0 | 10 to 12 | 250 - 300 | 3 | 5 |
| 5 to 8 | 125 - 200 | + 0 - 1 | + 0 - 2 | | + 1.6 - 0 | 14 to 16 | 350 - 400 | 3 | 6 |
| 10 - 18 | 250 - 450 | + 0 - 2 | + 0 - 2 | | + 3.2 - 0 | 18 to 24 | 450 - 600 | 4 | 10 |
| 20 to 24 | 500 - 600 | + 0 - 2 | + 0 - 2 | | + 3.2 - 0 | 26 to 30 | 650 - 750 | 5 | 10 |
| 26 to 30 | 650 - 750 | - | - | | - | 32 to 42 | 800 - 1050 | 5 | 13 |
| 37 to 48 | 800 - 1200 | - | - | | - | 44 - 48 | 1100 - 1200 | 5 | 19 |

General Note:

1. All Dimensions are in millimeters
2. Tolerances are equal plus and minus except as noted

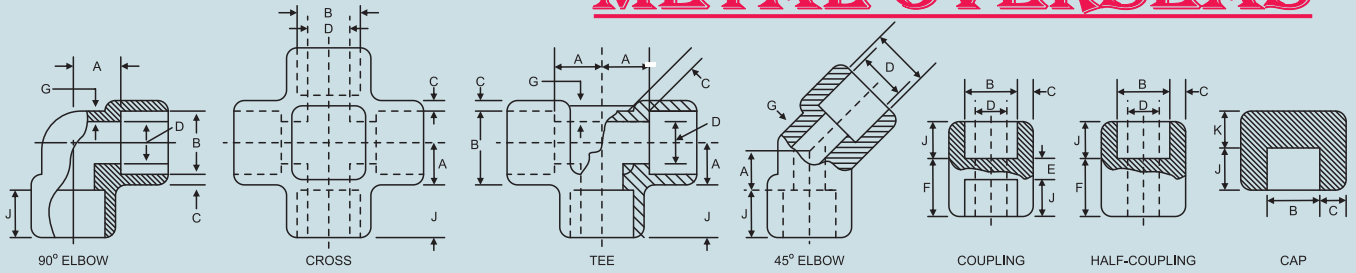
Notes:

1. Out-of-round is the sum of absolute of plus and minus tolerances
2. This tolerance may not apply in localized areas of formed fittings where increased wall thickness is required to meet design requirements of para 2.2 of ASME B 16.9
3. The inside diameter and the nominal wall thicknesses at ends are to be specified by the purchaser
4. Unless otherwise specified by the purchaser, these tolerances apply to the nominal inside diameter, which equals the difference between the nominal outside diameter and twice the nominal wall thickness



DIMENSIONS OF SW FITTINGS TO ANSI / ASME / B 16.11

RAMDEV METAL OVERSEAS



| Nom size Inch | Soc Bore Diam (Note 1) | Bore Diameter of Fittings (Note 1) | | | Socket Wall Thickness (Note 2) | | | Body Wall Thickness | | | Min SW Dep. | Centre to Bottom of Socket | | | | | | Laying Length | | End Wall Thickness Min | | |
|------------------|---------------------------|---------------------------------------|------|------|-----------------------------------|-------|-------|---------------------|------|-------|-------------|----------------------------|------|------|-----------|------|------|---------------|---------------|---------------------------|------|------|
| | | | | | | | | | | | | 90° Elbow Tee & Cross | | | 45° Elbow | | | Coupling | Half Coupling | | | |
| | | | | | | | | | | | | B | D | | C | | | | | | | |
| | 3000 | 6000 | 9000 | 3000 | 6000 | 9000 | 3000 | 6000 | 9000 | | 3000 | 6000 | 9000 | 3000 | 6000 | 9000 | | | 3000 | 6000 | 9000 | |
| 1/8 | 10.8 | 6.1 | 3.2 | | 3.18 | 3.43 | | 2.41 | 3.15 | | 9.5 | 11 | 11 | | 8 | 8 | | 6.5 | 16 | 4.8 | 6.4 | |
| | 11.2 | 7.6 | 4.8 | | 3.18 | 3.96 | | | | | | | | | | | | | | | | |
| 1/4 | 14.2 | 8.5 | 5.6 | | 3.3 | 4.01 | | 3.02 | 3.68 | | 9.5 | 11 | 13.5 | | 8 | 8 | | 6.5 | 16 | 4.8 | 6.4 | |
| | 14.6 | 10 | 7.1 | | 3.78 | 4.6 | | | | | | | | | | | | | | | | |
| 3/8 | 17.6 | 11.8 | 8.4 | | 3.5 | 4.37 | | 3.2 | 4.01 | | 9.5 | 13.5 | 15.5 | | 8 | 11 | | 6.5 | 17.5 | 4.8 | 6.4 | |
| | 18 | 13.3 | 9.9 | | 4.01 | 5.03 | | | | | | | | | | | | | | | | |
| 1/2 | 21.8 | 15 | 11 | 5.6 | 4.09 | 5.18 | 8.18 | 3.73 | 4.78 | 7.47 | 9.5 | 15.5 | 19 | 25.5 | 11 | 12.5 | 15.5 | 9.5 | 22.5 | 6.4 | 7.9 | 11.2 |
| | 22.2 | 16.6 | 12.5 | 7.2 | 4.67 | 5.97 | 9.35 | | | | | | | | | | | | | | | |
| 3/4 | 27.2 | 20.2 | 14.8 | 10.3 | 4.27 | 6.04 | 8.56 | 3.91 | 5.56 | 7.82 | 12.5 | 19 | 22.5 | 28.5 | 13 | 14 | 19 | 9.5 | 24 | 6.4 | 7.9 | 12.7 |
| | 27.6 | 21.7 | 16.3 | 11.8 | 4.9 | 6.96 | 9.78 | | | | | | | | | | | | | | | |
| 1 | 33.9 | 25.9 | 19.9 | 14.4 | 4.98 | 6.93 | 9.96 | 4.55 | 6.35 | 9.09 | 12.5 | 22.5 | 27 | 32 | 14 | 17.5 | 20.5 | 12.5 | 28.5 | 9.6 | 11.2 | 14.2 |
| | 34.3 | 27.4 | 21.5 | 16 | 5.69 | 7.92 | 11.38 | | | | | | | | | | | | | | | |
| 1.1/4 | 42.7 | 34.3 | 28.7 | 22 | 5.28 | 6.93 | 10.62 | 4.85 | 6.35 | 9.7 | 12.5 | 27 | 32 | 35 | 17.5 | 20.5 | 22.5 | 12.5 | 30 | 9.6 | 11.2 | 14.2 |
| | 43.1 | 35.8 | 30.2 | 23.5 | 6.07 | 7.92 | 12.14 | | | | | | | | | | | | | | | |
| 1.1/2 | 48.8 | 40.1 | 33.2 | 27.2 | 5.54 | 7.8 | 11.12 | 5.08 | 7.14 | 10.15 | 12.5 | 32 | 38 | 38 | 20.5 | 25.5 | 25.5 | 12.5 | 32 | 11.2 | 12.7 | 15.7 |
| | 49.2 | 41.6 | 34.7 | 28.7 | 6.35 | 8.92 | 12.7 | | | | | | | | | | | | | | | |
| 2 | 61.2 | 51.7 | 42.1 | 37.4 | 6.04 | 9.5 | 12.12 | 5.54 | 8.74 | 11.07 | 16 | 38 | 41 | 54 | 25.5 | 28.5 | 28.5 | 19 | 41 | 12.7 | 15.7 | 19 |
| | 61.7 | 53.3 | 43.6 | 38.9 | 6.93 | 10.92 | 13.84 | | | | | | | | | | | | | | | |
| 2.1/2 | 73.9 | 61.2 | | | 7.67 | | | 7.01 | | | 16 | 41 | | | 28.5 | | | 19 | 43 | 15.7 | 19 | |
| | 74.4 | 64.2 | | | 8.76 | | | | | | | | | | | | | | | | | |
| 3 | 89.8 | 76.4 | | | 8.3 | | | 7.62 | | | 16 | 57 | | | 32 | | | 19 | 44.5 | 19 | 22.4 | |
| | 90.3 | 79.4 | | | 9.52 | | | | | | | | | | | | | | | | | |
| 4 | 115.2 | 100.7 | | | 9.35 | | | 8.56 | | | 19 | 66.5 | | | 41 | | | 19 | 48 | 22.4 | 28.4 | |
| | 115.7 | 103.8 | | | 10.69 | | | | | | | | | | | | | | | | | |

General Note: All Dimensions are in millimeters

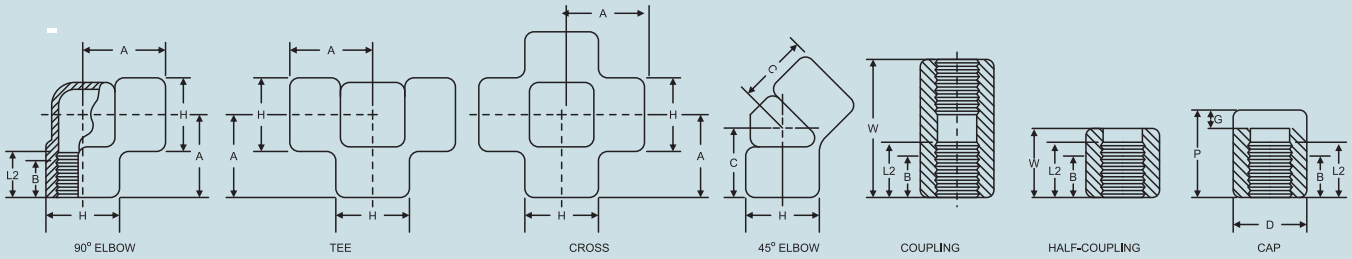
Note:

- Upper & Lower Values for each size are the respective maximum & minimum dimensions
- Average of socket wall thickness around periphery shall be no less that listed values. The minimum values are permitted in localized areas



RAMDEV METAL OVERSEAS

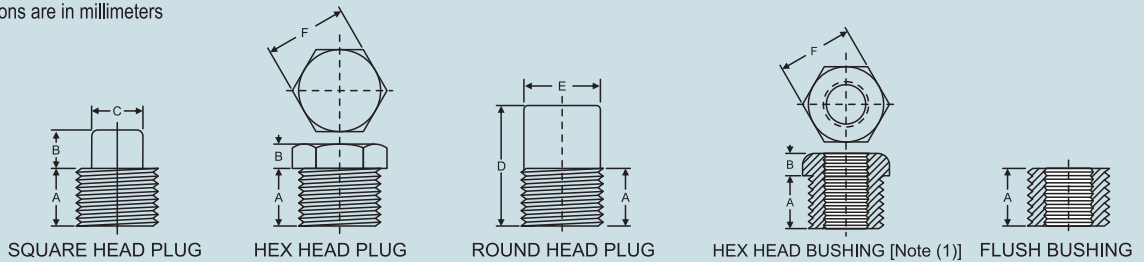
DIMENSIONS OF THREADED FITTINGS TO TO ANSI / ASME B 16.11 THREAD TO ANSI / B 1.20.1



| Nom. size Inch | Center to End Elbow, Tee, Cross | | | Center to End 45° Elbow | | | Out Side Diameter | | | End to End | End to End Cap | | Out Side Diameter | | Min. End Wall THK | | Min. Thread Length | |
|----------------|---------------------------------|-----|------|-------------------------|------|------|-------------------|------|------|-------------|----------------|------|-------------------|------|-------------------|------|--------------------|------|
| | A | | | C | | | H | | | W | P | | D | | G | | B | L2 |
| | 2000 | 300 | 6000 | 2000 | 3000 | 6000 | 2000 | 3000 | 6000 | 3000 & 6000 | 3000 | 6000 | 3000 | 6000 | 3000 | 6000 | | |
| 1/8 | 21 | 21 | 25 | 17 | 17 | 19 | 22 | 22 | 25 | 32 | 19 | | 16 | 22 | 4.8 | | 6.4 | 6.7 |
| 1/4 | 21 | 25 | 28 | 17 | 19 | 22 | 22 | 25 | 33 | 35 | 25 | 27 | 19 | 25 | 4.8 | 6.4 | 8.1 | 10.2 |
| 3/8 | 25 | 28 | 33 | 19 | 22 | 25 | 25 | 33 | 38 | 38 | 25 | 27 | 22 | 32 | 4.8 | 6.4 | 9.1 | 10.4 |
| 1/2 | 28 | 33 | 38 | 22 | 25 | 28 | 33 | 38 | 46 | 48 | 32 | 33 | 28 | 38 | 6.4 | 7.9 | 10.9 | 13.6 |
| 3/4 | 33 | 38 | 44 | 25 | 28 | 33 | 38 | 46 | 56 | 51 | 37 | 38 | 35 | 44 | 6.4 | 7.9 | 12.7 | 13.9 |
| 1 | 38 | 44 | 51 | 28 | 33 | 35 | 46 | 56 | 62 | 60 | 41 | 43 | 44 | 57 | 9.7 | 11.2 | 14.7 | 17.3 |
| 1.1/4 | 44 | 51 | 60 | 33 | 35 | 43 | 56 | 62 | 75 | 67 | 44 | 46 | 57 | 64 | 9.7 | 11.2 | 17 | 18 |
| 1.1/2 | 51 | 60 | 64 | 35 | 43 | 44 | 62 | 75 | 84 | 79 | 44 | 48 | 64 | 76 | 11.2 | 12.7 | 17.8 | 18.4 |
| 2 | 60 | 64 | 83 | 43 | 44 | 52 | 75 | 84 | 102 | 86 | 48 | 51 | 76 | 92 | 12.7 | 15.7 | 19 | 19.2 |
| 2.1/2 | 76 | 83 | 95 | 52 | 52 | 64 | 92 | 102 | 121 | 92 | 60 | 64 | 92 | 108 | 15.7 | 19 | 23.6 | 28.9 |
| 3 | 86 | 95 | 106 | 64 | 64 | 79 | 109 | 121 | 146 | 108 | 65 | 68 | 108 | 127 | 19 | 22.4 | 25.9 | 30.5 |
| 4 | 106 | 114 | 114 | 79 | 79 | 79 | 146 | 152 | 152 | 121 | 68 | 75 | 140 | 159 | 22.4 | 28.4 | 27.7 | 33 |

General Note: All Dimensions are in millimeters

PLUGS AND BUSHINGS



| DN | Nominal Pipe Size | Min. Length, A | Square Head Plug | | Round Head Plugs | | Hex Plugs and Bushings | | | | | |
|-----|-------------------|----------------|-----------------------|---------------------|--------------------------|----------------|------------------------|---------------------|----------------|----|---|---|
| | | | Min. Square Height, B | Min. Width Flats, C | Nominal Head Diameter, E | Min. Length, D | Nominal Width Flats, F | Min. Hex Bushing, G | Height Plug, H | | | |
| | | | 6 | 1/8 | 10 | 6 | 7 | 10 | 35 | 11 | - | 6 |
| | | | 8 | 1/4 | 11 | 6 | 10 | 14 | 41 | 16 | 3 | 6 |
| 10 | 3/8 | 13 | 8 | 11 | 18 | 41 | 18 | 4 | 8 | | | |
| 15 | 1/2 | 14 | 10 | 14 | 21 | 44 | 22 | 5 | 8 | | | |
| 20 | 3/4 | 16 | 11 | 16 | 27 | 44 | 27 | 6 | 10 | | | |
| 25 | 1 | 19 | 13 | 21 | 33 | 51 | 36 | 6 | 10 | | | |
| 32 | 1.1/4 | 21 | 14 | 24 | 43 | 51 | 46 | 7 | 14 | | | |
| 40 | 1.1/2 | 21 | 16 | 28 | 48 | 51 | 50 | 8 | 16 | | | |
| 50 | 2 | 22 | 18 | 32 | 60 | 64 | 65 | 9 | 18 | | | |
| 65 | 2.1/2 | 27 | 19 | 36 | 73 | 70 | 75 | 10 | 19 | | | |
| 80 | 3 | 28 | 21 | 41 | 89 | 70 | 90 | 10 | 21 | | | |
| 100 | 4 | 32 | 25 | 65 | 114 | 76 | 115 | 13 | 25 | | | |

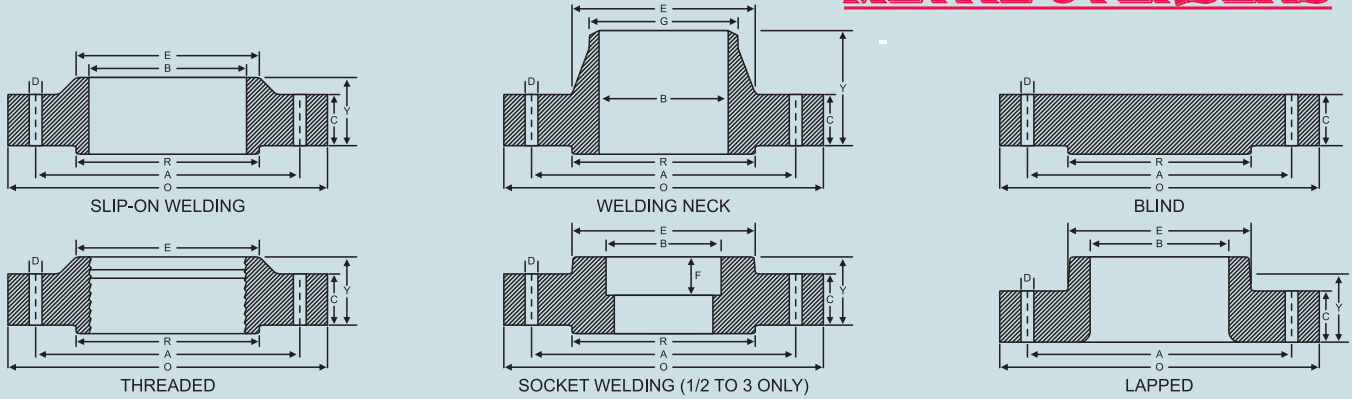
General Note:

1. All Dimensions are in millimeters

Notes:

1. Cautionary Note Regarding Hex Bushings: Hex head bushings of one-size reduction should not be used in services where they might be subject to harmful loads and forces other than internal pressure.

DIMENSIONS OF FLANGES TO ASME / ANSI B 16.5



DIMENSIONS OF CLASS 150 FLANGES (ASME/ANSI B 16.5)

| Nominal Size Inch | Flange Dia O | Dia of Bolt Circle A | Dia of Bolt Holes D | No. of Holes | Thk of Flange C | | Dia of Hub E | Length through Hub | | | Hub Diameter Beginning of Welding Neck G | Dia of Bore | | Dia of R / F R | Depth of Socket F |
|-------------------|--------------|----------------------|---------------------|--------------|-----------------|-----------|--------------|--------------------|---------|---------|--|-------------|---------|----------------|-------------------|
| | | | | | Other Flange | LAP Joint | | S/O & S/W Y | W / N Y | L / J Y | | S/O & S/W B | L / J B | | |
| 1/2 | 88.9 | 60.4 | 15.9 | 4 | 9.7 | 11.2 | 30.2 | 14.2 | 45.9 | 15.7 | 21.3 | 22.3 | 22.8 | 35.0 | 9.6 |
| 3/4 | 98.5 | 69.8 | 15.9 | 4 | 11.2 | 12.7 | 38.1 | 14.2 | 50.8 | 15.7 | 26.7 | 27.6 | 28.2 | 42.9 | 11.1 |
| 1 | 107.9 | 79.2 | 15.9 | 4 | 12.7 | 14.2 | 49.2 | 15.7 | 53.8 | 17.5 | 33.4 | 34.5 | 35.0 | 50.8 | 12.7 |
| 1.1/4 | 117.3 | 88.9 | 15.9 | 4 | 14.2 | 15.7 | 58.6 | 19.0 | 55.6 | 20.5 | 42.2 | 43.1 | 43.6 | 63.5 | 14.2 |
| 1.1/2 | 127.0 | 98.5 | 15.9 | 4 | 15.7 | 17.5 | 65.0 | 20.5 | 60.4 | 22.3 | 48.3 | 49.5 | 50.0 | 73.1 | 15.7 |
| 2 | 152.4 | 120.6 | 19.0 | 4 | 17.5 | 19.0 | 77.7 | 23.9 | 61.9 | 25.4 | 60.3 | 61.9 | 62.4 | 91.9 | 17.5 |
| 2.1/2 | 177.8 | 139.7 | 19.0 | 4 | 20.6 | 22.3 | 90.4 | 26.9 | 69.3 | 28.4 | 73.0 | 74.6 | 75.4 | 104.6 | 19.0 |
| 3 | 190.5 | 152.4 | 19.0 | 4 | 22.4 | 23.9 | 107.9 | 28.4 | 68.3 | 30.2 | 88.9 | 90.6 | 91.4 | 127.0 | 20.5 |
| 4 | 228.6 | 190.5 | 19.0 | 8 | 22.4 | 23.9 | 134.8 | 31.7 | 74.06 | 33.2 | 114.3 | 116.0 | 116.8 | 157.2 | |
| 5 | 254.0 | 215.9 | 22.2 | 8 | 22.4 | 23.9 | 163.6 | 35.0 | 87.3 | 36.5 | 141.3 | 143.7 | 144.5 | 185.6 | |
| 6 | 279.4 | 241.3 | 22.2 | 8 | 23.9 | 25.4 | 192.0 | 38.1 | 87.3 | 39.6 | 168.3 | 170.6 | 171.4 | 215.9 | |
| 8 | 342.9 | 298.4 | 22.2 | 8 | 26.9 | 28.4 | 246.1 | 42.9 | 100.0 | 44.4 | 219.1 | 221.4 | 222.2 | 269.7 | |
| 10 | 406.4 | 361.9 | 25.4 | 12 | 28.4 | 30.2 | 304.8 | 47.7 | 100.0 | 49.3 | 273.0 | 276.3 | 277.3 | 323.8 | |
| 12 | 482.6 | 431.8 | 25.4 | 12 | 30.2 | 31.8 | 365.2 | 53.8 | 112.7 | 55.6 | 323.8 | 327.1 | 328.1 | 381.0 | |
| 14 | 533.4 | 476.2 | 28.6 | 12 | 33.3 | 35.0 | 400.0 | 55.6 | 125.4 | 79.2 | 355.6 | 359.1 | 360.1 | 412.7 | |
| 16 | 596.9 | 539.7 | 28.6 | 16 | 35.1 | 36.6 | 457.2 | 61.9 | 125.4 | 87.3 | 406.4 | 410.4 | 411.2 | 469.9 | |
| 18 | 635.0 | 577.8 | 31.7 | 16 | 38.1 | 39.6 | 504.9 | 66.5 | 138.2 | 96.7 | 457.0 | 461.7 | 462.2 | 533.4 | |
| 20 | 698.5 | 635.0 | 31.7 | 20 | 41.1 | 42.9 | 558.8 | 71.3 | 142.7 | 103.1 | 508.0 | 513.0 | 514.3 | 584.2 | |
| 24 | 812.8 | 749.3 | 34.9 | 20 | 46.0 | 47.8 | 663.4 | 81.0 | 150.8 | 111.2 | 610.0 | 615.9 | 615.9 | 692.1 | |

DIMENSIONS OF CLASS 300 FLANGES (ASME/ANSI B 16.5)

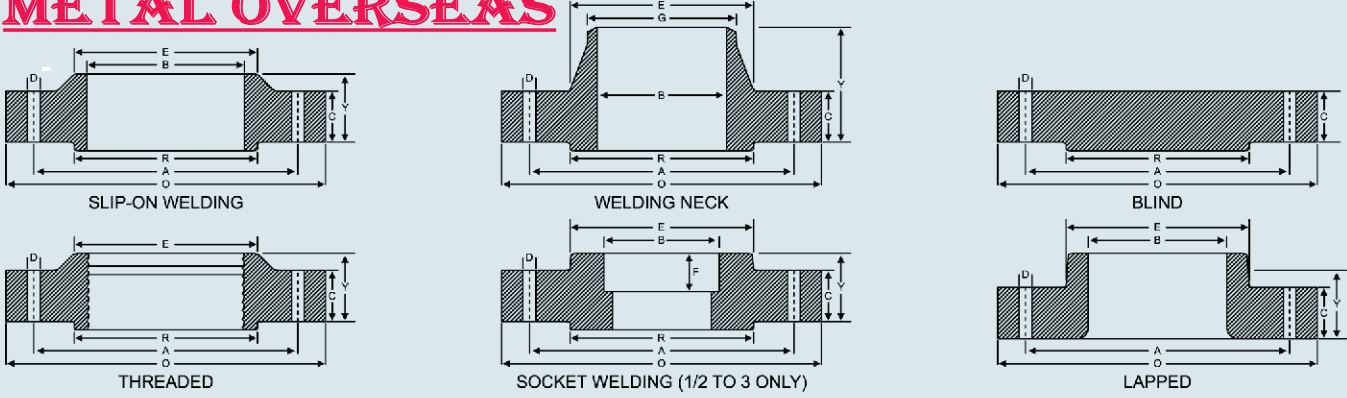
| Nominal Size Inch | Flange Dia O | Dia of Bolt Circle A | Dia of Bolt Holes D | No. of Holes | Thk of Flange C | | Dia of Hub E | Length through Hub | | | Hub Diameter Beginning of Welding Neck G | Dia of Bore | | Dia of R / F R | Depth of Socket F |
|-------------------|--------------|----------------------|---------------------|--------------|-----------------|-----------|--------------|--------------------|---------|---------|--|-------------|---------|----------------|-------------------|
| | | | | | Other Flange | LAP Joint | | S/O & S/W Y | W / N Y | L / J Y | | S/O & S/W B | L / J B | | |
| 1/2 | 95.2 | 66.5 | 15.9 | 4 | 12.7 | 14.2 | 38.1 | 20.6 | 50.8 | 22.3 | 21.3 | 22.3 | 22.8 | 35.0 | 9.6 |
| 3/4 | 117.3 | 82.5 | 19.0 | 4 | 14.2 | 15.7 | 47.7 | 23.9 | 55.6 | 25.4 | 26.7 | 27.6 | 28.2 | 42.9 | 11.1 |
| 1 | 123.9 | 88.9 | 19.0 | 4 | 15.7 | 17.5 | 53.8 | 25.4 | 60.4 | 26.9 | 33.4 | 34.5 | 35.0 | 50.8 | 12.7 |
| 1.1/4 | 133.3 | 98.5 | 19.0 | 4 | 17.5 | 19.0 | 63.5 | 25.4 | 63.5 | 26.9 | 42.2 | 43.1 | 43.6 | 63.5 | 14.2 |
| 1.1/2 | 155.4 | 114.3 | 22.2 | 4 | 19.1 | 20.6 | 69.8 | 28.7 | 66.8 | 30.2 | 48.3 | 49.5 | 50.0 | 73.1 | 15.7 |
| 2 | 165.1 | 127.0 | 19.0 | 8 | 20.6 | 22.4 | 84.0 | 31.8 | 68.3 | 33.2 | 60.3 | 61.9 | 62.4 | 91.9 | 17.5 |
| 2.1/2 | 190.5 | 149.3 | 22.2 | 8 | 23.9 | 25.4 | 100.0 | 36.6 | 74.7 | 38.1 | 73.0 | 74.6 | 75.4 | 104.6 | 19.0 |
| 3 | 209.5 | 168.1 | 22.2 | 8 | 26.9 | 28.4 | 117.3 | 41.4 | 77.7 | 42.9 | 88.9 | 90.6 | 91.4 | 127.0 | 20.5 |
| 4 | 254.0 | 200.1 | 22.2 | 8 | 30.2 | 31.8 | 146.0 | 46.2 | 84.3 | 47.7 | 114.3 | 116.0 | 116.8 | 157.2 | |
| 5 | 279.4 | 234.9 | 22.2 | 8 | 33.3 | 35.0 | 117.8 | 49.3 | 97.0 | 50.8 | 141.3 | 143.7 | 144.5 | 185.6 | |
| 6 | 317.5 | 269.7 | 22.2 | 12 | 35.1 | 36.6 | 206.2 | 50.8 | 97.0 | 52.3 | 168.3 | 170.6 | 171.4 | 215.9 | |
| 8 | 381.0 | 330.2 | 25.4 | 12 | 39.6 | 41.1 | 260.3 | 60.4 | 109.7 | 62.0 | 219.1 | 221.4 | 222.2 | 269.7 | |
| 10 | 444.5 | 387.3 | 28.6 | 16 | 46.0 | 47.8 | 320.5 | 65.0 | 115.8 | 95.2 | 273.0 | 276.3 | 277.3 | 323.8 | |
| 12 | 520.7 | 450.8 | 31.7 | 16 | 49.3 | 50.8 | 374.6 | 71.6 | 128.5 | 101.6 | 323.8 | 327.1 | 328.1 | 381.0 | |
| 14 | 584.2 | 514.3 | 31.7 | 20 | 52.3 | 53.8 | 425.4 | 74.7 | 141.2 | 111.2 | 355.6 | 359.1 | 360.1 | 412.7 | |
| 16 | 647.7 | 571.5 | 34.9 | 20 | 55.6 | 57.2 | 482.6 | 81.0 | 144.5 | 120.6 | 406.4 | 410.4 | 411.2 | 469.9 | |
| 18 | 711.2 | 628.6 | 34.9 | 24 | 58.7 | 60.5 | 533.4 | 87.4 | 157.2 | 130.0 | 457.0 | 461.7 | 462.2 | 533.4 | |
| 20 | 774.7 | 685.8 | 34.9 | 24 | 62.0 | 63.5 | 587.2 | 93.7 | 160.5 | 139.7 | 508.0 | 513.0 | 514.3 | 584.2 | |
| 24 | 914.4 | 812.8 | 41.3 | 24 | 68.3 | 69.9 | 701.5 | 104.9 | 166.6 | 152.4 | 610.0 | 615.9 | 615.9 | 692.1 | |

1. All Dimensions are in millimeters. 2. Thickness 'C' is exclusive of Raised Face Thickness of 1.6 MM. For Class 150 and Class 300.



RAMDEV METAL OVERSEAS

DIMENSIONS OF FLANGES TO ASME / ANSI B 16.5



DIMENSIONS OF CLASS 600 FLANGES (ASME/ANSI B 16.5)

| Nominal Size Inch | Flange Dia O | Dia of Bolt Circle A | Dia of Bolt Holes D | No. of Holes | Thk of Flange C | Dia of Hub E | Length through Hub | | | Hub Diameter Beginning of Welding Neck G | Dia of Bore | | Dia of R / F R | Depth of Socket F |
|----------------------|-----------------|-------------------------|------------------------|--------------|--------------------|-----------------|--------------------|------------|------------|---|----------------|------------|-------------------|----------------------|
| | | | | | | | S/O & S/W Y | W / N Y | L / J Y | | S/O & S/W B | L / J B | | |
| | | | | | | | | | | | | | | |
| 1/2 | 95.2 | 66.5 | 15.9 | 4 | 14.2 | 38.1 | 22.3 | 52.3 | 22.2 | 21.3 | 22.3 | 22.8 | 35.0 | 9.6 |
| 3/4 | 117.3 | 82.5 | 19.0 | 4 | 17.5 | 47.7 | 25.4 | 57.1 | 25.4 | 26.7 | 27.7 | 28.2 | 42.9 | 11.1 |
| 1 | 123.9 | 88.9 | 19.0 | 4 | 17.5 | 53.8 | 26.9 | 62.0 | 26.9 | 33.4 | 34.5 | 35.0 | 50.8 | 12.7 |
| 1.1/4 | 133.3 | 98.5 | 19.0 | 4 | 20.6 | 63.5 | 28.4 | 66.5 | 28.4 | 42.2 | 43.1 | 43.6 | 63.5 | 14.2 |
| 1.1/2 | 155.4 | 114.3 | 22.2 | 4 | 22.3 | 69.8 | 31.7 | 69.8 | 31.7 | 48.3 | 49.5 | 50.0 | 73.1 | 15.7 |
| 2 | 165.1 | 127.0 | 19.0 | 8 | 25.4 | 84.0 | 36.5 | 73.1 | 36.5 | 60.3 | 61.9 | 62.5 | 91.9 | 17.5 |
| 2.1/2 | 190.5 | 149.3 | 22.2 | 8 | 28.4 | 100.0 | 41.1 | 79.2 | 41.1 | 73.0 | 74.6 | 75.4 | 104.6 | 19.0 |
| 3 | 209.5 | 168.1 | 22.2 | 8 | 31.8 | 117.3 | 45.9 | 82.5 | 45.9 | 88.9 | 90.7 | 91.4 | 127.0 | 20.5 |
| 4 | 273.0 | 215.9 | 25.4 | 8 | 38.1 | 152.4 | 53.8 | 101.6 | 53.8 | 114.3 | 116.0 | 116.8 | 157.2 | - |
| 5 | 330.2 | 266.7 | 28.6 | 8 | 44.4 | 189.0 | 60.4 | 114.3 | 60.4 | 141.3 | 143.8 | 144.5 | 185.6 | - |
| 6 | 355.6 | 292.1 | 28.6 | 12 | 47.7 | 222.2 | 66.5 | 117.3 | 66.5 | 168.3 | 170.7 | 171.4 | 215.9 | - |
| 8 | 419.1 | 349.2 | 31.7 | 12 | 55.6 | 273.0 | 76.2 | 133.3 | 76.2 | 219.1 | 221.5 | 222.2 | 269.7 | - |
| 10 | 508.0 | 431.8 | 34.9 | 16 | 63.5 | 342.9 | 85.8 | 152.4 | 111.2 | 273.0 | 276.3 | 277.4 | 323.8 | - |
| 12 | 558.8 | 488.9 | 34.9 | 20 | 66.5 | 400.0 | 91.9 | 155.4 | 117.3 | 232.8 | 327.1 | 328.2 | 381.0 | - |
| 14 | 603.2 | 527.0 | 38.1 | 20 | 69.9 | 431.8 | 93.7 | 165.1 | 127.0 | 355.6 | 359.2 | 360.2 | 412.7 | - |
| 16 | 685.8 | 603.2 | 41.3 | 20 | 76.2 | 495.3 | 106.4 | 177.8 | 139.7 | 406.4 | 410.5 | 411.2 | 469.9 | - |
| 18 | 742.9 | 654.0 | 44.4 | 20 | 82.6 | 546.1 | 117.3 | 184.1 | 152.4 | 457.0 | 461.8 | 462.2 | 533.4 | - |
| 20 | 812.8 | 723.9 | 44.4 | 24 | 88.9 | 609.6 | 127.0 | 190.5 | 165.1 | 508.0 | 513.1 | 514.3 | 584.2 | - |
| 24 | 939.8 | 838.2 | 50.8 | 24 | 101.6 | 717.5 | 139.7 | 203.2 | 184.1 | 610.0 | 616.0 | 616.0 | 692.1 | - |

DIMENSIONS OF CLASS 900 FLANGES (ASME/ANSI B 16.5)

| Nominal Size Inch | Flange Dia O | Dia of Bolt Circle A | Dia of Bolt Holes D | No. of Holes | Thk of Flange C | Dia of Hub E | Length through Hub | | | Hub Diameter Beginning of Welding Neck G | Dia of Bore | | Dia of R / F R | Depth of Socket F |
|----------------------|-----------------|-------------------------|------------------------|--------------|--------------------|-----------------|--------------------|------------|------------|---|----------------|------------|-------------------|----------------------|
| | | | | | | | S/O & S/W Y | W / N Y | L / J Y | | S/O & S/W B | L / J B | | |
| | | | | | | | | | | | | | | |
| 1/2 | 120.6 | 82.5 | 22.2 | 4 | 22.4 | 38.1 | 31.7 | 60.4 | 31.7 | 21.3 | 22.3 | 22.8 | 35.0 | - |
| 3/4 | 130.0 | 88.9 | 22.2 | 4 | 25.4 | 44.4 | 35.0 | 69.8 | 35.0 | 26.7 | 27.6 | 28.2 | 42.9 | - |
| 1 | 149.3 | 101.6 | 25.4 | 4 | 28.4 | 52.3 | 41.1 | 73.1 | 41.1 | 33.4 | 34.5 | 35.0 | 50.8 | - |
| 1.1/4 | 158.7 | 111.2 | 25.4 | 4 | 28.4 | 63.5 | 41.1 | 73.1 | 41.1 | 42.2 | 43.1 | 43.6 | 63.5 | - |
| 1.1/2 | 177.8 | 123.9 | 28.6 | 4 | 31.8 | 69.8 | 44.4 | 82.5 | 44.4 | 48.3 | 49.5 | 50.0 | 73.1 | - |
| 2 | 215.9 | 165.1 | 25.4 | 8 | 38.1 | 104.6 | 57.1 | 101.6 | 57.1 | 60.3 | 61.9 | 62.4 | 91.9 | - |
| 2.1/2 | 244.3 | 190.5 | 28.6 | 8 | 41.1 | 123.9 | 63.5 | 104.6 | 63.5 | 73.0 | 74.6 | 75.4 | 104.6 | - |
| 3 | 241.3 | 190.5 | 25.4 | 8 | 38.1 | 127.0 | 53.8 | 101.6 | 53.8 | 88.9 | 90.7 | 91.4 | 127.0 | - |
| 4 | 292.1 | 234.9 | 31.7 | 8 | 44.5 | 158.7 | 59.8 | 114.3 | 69.8 | 114.3 | 116.0 | 116.8 | 157.2 | - |
| 5 | 349.2 | 279.4 | 34.9 | 8 | 50.8 | 190.5 | 79.2 | 127.0 | 79.2 | 141.3 | 143.7 | 144.5 | 185.6 | - |
| 6 | 381.0 | 317.5 | 31.7 | 12 | 55.6 | 243.9 | 85.9 | 139.7 | 85.9 | 168.3 | 170.6 | 171.4 | 215.9 | - |
| 8 | 469.9 | 393.7 | 38.1 | 12 | 63.5 | 298.4 | 101.6 | 162.0 | 114.3 | 219.1 | 221.5 | 222.2 | 269.7 | - |
| 10 | 546.1 | 469.9 | 38.1 | 16 | 69.8 | 368.3 | 107.9 | 184.1 | 127.0 | 273.0 | 276.3 | 277.3 | 323.8 | - |
| 12 | 609.6 | 533.4 | 38.1 | 20 | 79.2 | 419.1 | 117.3 | 200.1 | 142.7 | 323.8 | 327.1 | 328.2 | 381.0 | - |

1. All Dimensions are in millimeters. 2. Thickness 'C' is exclusive of Raised Face Thickness of 1.6 MM. For Class 600 and Class 900.

DIMENSIONAL TOLERANCES ANSI / ASME B 16.5



Thread, Socket-welding, Slip-on, Lap joint and Blind

| | | | |
|--------------------------|--|--|--------------------|
| Outside Diameter | When O.D. is 24" or less | +1/16" (1.6 mm) | |
| | When O.D. is Over 24" | +1/8" (3.2 mm) | |
| Inside Diameter | Threaded | within limits on boring gauge | |
| | Socket-welding slip-on and lap joint | +1/32" (0.8 mm), -0" 12" & larger +1/16" (1.6 mm), -0" | |
| Outside Dia of Hub | 12" and smaller | +3/32" (2.4 mm) -1/16" (1.6 mm) | |
| | 14" and larger | ± 1/8" (3.2 mm) | |
| Diameter of Contact face | 1/16" raised face | ± 1/32" (0.8 mm) | |
| | 1/4" raised face tongue & groove male, female | ± 1/64" (0.4 mm) | |
| Diameter of Counterbore | Same as for inside diameter | | |
| Drilling | Bolt circle | ± 1/16" (1.6 mm) | |
| | Bolt hole spacing | ± 1/30" (0.8 mm) | |
| | Eccentricity of bolt circle with respect to facing | 2-1/2" & smaller | 1/32" (0.8 mm) max |
| | | 3" & large | 1/16" (1.6 mm) max |
| Thickness | 18" and smaller | +1/8" (3.2 mm), -0" | |
| | 20" and smaller | +3/16" (4.8 mm), -0" | |
| Length thru hub | 18" and smaller | +1/8" (3.2 mm), -1/32" (0.8 mm) | |
| | 20" and larger | +3/16" (4.8 mm), -1/16" (1.6 mm) | |

Welding Neck

| | | | |
|-------------------------------------|--|--------------------------------------|--------------------|
| Outside Diameter | When O.D. is 24" or less | +1/16" (1.6 mm) | |
| | When O.D. is Over 24" | +1/8" (3.2 mm) | |
| Inside Diameter | 10" and smaller | ± 1/32" (0.8 mm) | |
| | 12" thru 18" | ± 1/16" (1.6 mm) | |
| | 20" and large | +1/8" (3.2 mm) -1/16" (1.6 mm) | |
| Diameter of Contact face | 1/16" raised face | ± 1/32" (0.8 mm) | |
| | 1/4" raised face | | |
| | Tongue & groove male, female | ± 1/64" (0.4 mm) | |
| Outside Diameter of Hub at base | When Hub base is 24" or smaller | ± 1/16" (1.6 mm) | |
| | When Hub base is over 24" | ± 1/8" (3.2 mm) | |
| Diameter of Hub at Point of Welding | 5" and smaller | +3/32" (2.4 mm) - 1/32" (0.8 mm) | |
| | 6" and larger | + 5/32" (4.0 mm) - 1/32" (0.8 mm) | |
| Drilling | Bolt circle | ± 1/16" (1.6 mm) | |
| | Bolt hole spacing | ± 1/32" (0.8 mm) | |
| | Eccentricity of bolt circle with respect to facing | 2-1/2" & smaller | 1/32" (0.8 mm) max |
| | | 3" & large | 1/16" (1.6 mm) max |
| Thickness | 18" and smaller | +1/8" (3.2 mm), -0" | |
| | 20" and larger | +3/16" (4.8 mm), -0" | |
| Length thru Hub | 10" and smaller | ± 1/16" (1.6 mm) | |
| | 12" and larger | ± 1/8" (3.2 mm) | |

APPLICATION INDUSTRIES

- Oli & Gas Industries
- Steel Plants & Rolling Mills Mfg.
- Automobile & Heavy Mobile Vehicle
- Material Handling Stores
- Agriculture Machinery Equipments
- Refineries
- Analyzer-lab & Testing Equipments
- Car Care Systems
- Life Sciences
- Super Market Storage & Rack Systems
- Automation Machinery
- Multi Parking Systems
- Military
- Power Generations Systems
- Cement Industry Machinery
- Motion & Control Tech. Equipment
- Hydrostatic Drive Systems
- Cooling & Heating Systems
- Packaging Equipments
- Engines & Railways
- Pulp Paper Machinery
- Fuel Cells Components
- Machine Tool Application
- Industrial Mining Equipments
- Food & Beverages Equipments
- Marine Project
- Oil Mill Plants
- Aerospace & Aircraft System
- Pollution Control Equipments
- Offshore Engineering
- Plastic / Rubber Processing Machines
- Fire & Safety Industries
- Ship Building
- Sugar Industries
- Petro-Chemical
- Chemical & Pharmaceutical
- Food Industries
- Nuclear Power
- Railway
- Water Piping Systems

Third Party Inspection



RAMDEV METAL OVERSEAS



Suresh Rathod: 9819315945



ramdevmetaloverseas26@gmail.com.

1ST FLOOR, JETHA BHIMJI BUILDING . 59/61 , OFFICE NO. 5, SHREE RAM MANDIR MARG ,
DURGAVEVI UDYAN , MOTI CINEMA 4TH KUMBHARWADA , MUMBAI ,
MAHARASHTRA - 400004



RAMDEV METAL OVERSEAS



Mr. S. Rathod.
(Managing Director)

9819315945
8169108502

RAMDEV METAL OVERSEAS

PROFILE COMPANY

STOCKIST ,MANUFACTURE & SUPPLIERS OF :

STAINLESS STEEL, CARBON STEEL, ALLOY STEEL, SHEET, PLATE,
COIL, ROD, PIPE, ANGLE, FERROUS & NON-FERROUS METALS,
HARDOX ETC.



RAMDEV METAL OVERSEAS

COMPANY PROFILE

COMPANY NAME : RAMDEV METAL OVERSEAS .

OFFICE : NO.7, 1st FLOOR, 312, SHANKER MARWADI CHAWL, PATTHE
BAPURAO MARG, KHETWADI (GIRGOAN) MUMBAI-400004

E-MAIL : ramdevmetaloverseas26@gmail.com.

GST NO : 27MKNPK5164J1ZD

PAN NO : MKNPK5164J

CONTACT NO : 8169108502 / 9819315945 .

GODOWN KALAMBOLI : Plot No 1575 Steel Market KHERUPADA Kalmboli Navi Mumbai
410208. MOB NO. +91 8169108502



RAMDEV METAL OVERSEAS



~OUR BRANCH~



- 1st FLOOR , JETHA BHIMJI BLD . 59/61 , OFFICE NO. 5, SHREE RAM MANDIR MARG , DURGAVEDI
UDYAN , MOTI CINEMA 4th KUMBHARWADA , MUMBAI , MAHARASHTRA - 400004



RAMDEV METAL OVERSEAS

ABOUT

- **RAMDEV METAL OVERSEAS** was established in 2020 and started as a Butt Weld Pipe Fittings trading company in the beginning. RMO has grown up rapidly to be a global fitting supplier based on strong financial structure, large volume of inventory/stock, biggest manufacturing facilities, accumulated technologies and experiences. We have supplied our products to the world wide major customer's comprehensive industrial area such as Oil & Gas, Chemical & Petrochemical, Water treatment, Nuclear & Power Plant, Offshore platform & Shipbuilding.



RAMDEV METAL OVERSEAS

Our products are applicable for any kinds of severe operating condition such as high pressure and high temperature or cryogenic condition. We are always doing our best to bring up RMO to be the world's leading company through drastic investment activities in the belief that the best quality is the solid bastion of business survival and customer's satisfaction. In the future, RMO will provide more value to the customers based on our customer-first policy & quality-first policy.



RAMDEV METAL OVERSEAS

- **QUALITY POLICY** "Quality is never an accident - it is always the result of high intention, sincere effort, intelligent direction and skillful execution , its represents the wise choice, of many alternatives". The Company possesses the most modern plants, equipped with the latest machinery which ensures production of quality products. The manufactured quality products have earned and to ensure continual improvement in this direction.

- Continual improvement in quality to minimize the customer complaints
- To ensure timely delivery of products to customer
- Improvement skill of work force
- To minimize the waste percentage



RAMDEV

METAL OVERSEAS



RAMDEV METAL OVERSEAS

ABOUT



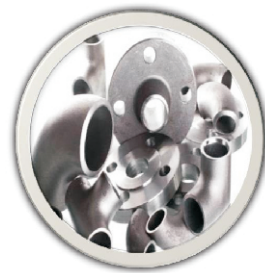
- PIPES & TUBES**
- **MATERIAL :** Stainless Steel / Duplex / Super Duplex / Nickel Alloy / Carbon Steel / Alloy Steel
 - **STANDARD :** ASTM / ASME / ANSI / AISI / DIN
 - **GRADE :** 304, 304L, 310S, 316, 316L, 321, 904L, 2205, 2507, Monel, Inconel, Hastelloy, TITANIUM P5, P9, P11, P12, P22, P91, etc. \
 - **TYPES :** Seamless / Welded / U-Tubes



RAMDEV METAL OVERSEAS

PIPE FITTINGS / FLANGE

- **STAINLESS STEEL :** ASTM A4033 WP 304/304L/304H/316 316L/317/317L/321/310/347/904L etc.
- **CARBON STEEL :** ASTM A234 WPB / A420 WPL3 / A420 WPL6 / MSS-SP-75 WPHY 42/46/52/56 60/65/70.
- **ALLOY STEEL :** ASTM A234 WP1/WP5/WP9/WP11/WP22 WP22 WP91 etc.
- **TYPES :** Elbow, Tee, Reducer, Return Bends, Stub - Ends, Cap, Collar, Cross Insert
- **SIZE :** 1/2" NB to 32" NB (Seamless & Welded)
- **WALL THICKNESS :** Sch. 5S to Sch. XXS .



RAMDEV METAL OVERSEAS



COPPER

- **TUBES :** 2mm Od To 200mm Od With Thickness Of 0.10mm To 15mm In Length Up to 10 Mtrs Straight (Coils Up to 25 Mtrs) In Copper, Brass And Curpronickel.
- **RODS :** In All Size Up to 160mm Diameter In Copper, Brass And Bronzes.
- **TYPES :** Sheet, Plate, Pipes & Rods.
- **SIZE :** As Per Requirement



RAMDEV METAL OVERSEAS

FASENER, NUT AND BOLT

- STAINLESS STEEL :** ASTM A4033 WP 304/304L/304H/316/316L/317/317L 321/310/347/904L etc
- DUPLEX & SUPER DUPLEX :** UNS S31803, UNS S32750, UNS S32760 ALLOY 20
- HIGH NICKEL ALLOY :** Monel, Nickel, Inconel, Hastalloy, Copper, Brass, Titanium, Tantalum, Aluminium, High Speed Steel etc
- TYPES :** Hex, Stud, Hex Head Flange, U-Bolts, Nylon Insert lock, Sloed Etc.



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SHEETS, PLATES & COIL

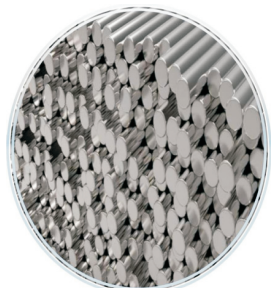
- **Stainless Steel Coils Sheets & Plates :** as per ASTM A 240 Gr. TP 304, 304L 304LN 309, 309S, 309H, 310S, 310H, 316, 316L, 316H, 316LN, 316TI, 317, 317L, 321, 321H, 347, 347H, 348, 348H, 409, 410, 420, 430 etc.
- **Alloy Steel Plates :** as per ASTM A 387 Gr. 2, 5, 9, 11, 12 & 22 IN CLASS 1 & 2, ASTM A 204, Gr. A & B, DIN 17175 Gr. 15Mo3 with IBR Test Certificate.
- **Carbon Steel / Boiler Quality Plates** as per IS 2062 Gr. A, B & C IS 2002 Gr. 1&2 ASTM A516 Gr.60 & 70 ASTM S515 Gr. 70 .
- **High Nickel Alloy :** Monel, Nickel, Inconel, Hastalloy, Copper, Brass, Bronze , titanium, Tantalum, Bismuth, Aluminium, High Speed Steel, Zinc, Lead etc.
- **Duplex & Super Duplex Steel :** UNS S31803, UNS S32750, UNS S32760, 904L, Alloy 20
- **Types :** Sheet, Plates, strips etc.



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RODS, BRIGHT BAR

- **STAINLESS STEEL :** ASTM A4033 WP 304/304L/304H/316 316L/317/317L/ 321/310/347/904L etc
- **DUPLEX & SUPER DUPLEX :** UNS S31803, UNS S32750, UNS S32760 ALLOY 20
- **HIGH NICKEL ALLOY :** Monel, Nickel, Inconel, Hastalloy, Copper, Brass, Titanium, Tantalum, Aluminium, High Speed Steel etc
- **TYPES :** Round Bright & Bar, Squire & Rectangler



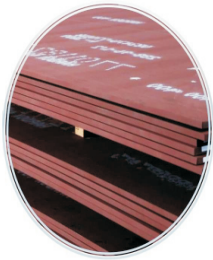


RAMDEV

METAL OVERSEAS



RAMDEV METAL OVERSEAS



HARDOX®

The all-round steel that resists wear and abrasion

Hardox is an abrasion-resistant steel with a normal hardness of 400 | 500 | 600 HBW.

Hardox is an all-around wear resistant steel.

Thanks to its high toughness, good bendability and weldability, this steel can be used in structures with moderate wear.



RAMDEV METAL OVERSEAS

FLANGE & PIPE FITTINGS



SS Butt Elbow



SS Forge Fittings



SS Rosemount



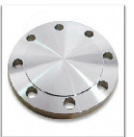
SS Butt Fittings



Spectacle Blind Flanges



SS Orifice flanges



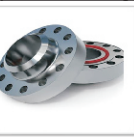
SS Blind Flange



SS Slipon Flanges



SS WNRF Flanges



SS TPC Compact Flanges



RAMDEV METAL OVERSEAS

DARY VALVE & FITTINGS



Single Tc Ball Valve



Tc Butterfly Valve



SS S/W Tee



Trilover Clamp (Union)



TC NRV



Tc Diaphragm



3 Pcs Ball Valve



Sampal Cock



Zero Dead Valve



Pipe Holder



Flush Bottom Valve Type



Tc Stainer



1Pc Ball Valve S/E



Sight Glass



Sample Valve Threaded



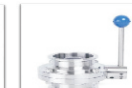
SMS/DIN/IDF Union



SMS Liner/Male Part



3 Way Plug Valve



Buttery fly tanker valve



SMS Bend



RAMDEV METAL OVERSEAS

APPLICATION INDUSTRIES



RAMDEV METAL OVERSEAS

APPLICATION INDUSTRIES

- ❖ OIL & GAS INDUSTRIES
- ❖ PHARMA-CEUTICAL
- ❖ PETRO-CHEMICAL
- ❖ SUGAR INDUSTRIES
- ❖ CAR CARE SHYSTEM
- ❖ ENGINES & RAILWAY

- ❖ REFINERIES
- ❖ PAPER & PULP
- ❖ AUTOMOBILE
- ❖ ENGINEERING
- ❖ MILITARY
- ❖ MARINE PROJECT

- ❖ SURGICAL EQUIPMENT
- ❖ FURNACE INDUSTRIES
- ❖ NUCLEAR POWER
- ❖ WATER PIPING SYSTEM
- ❖ MACHINE TOOL APPLICATION
- ❖ ENGINES & RAILWAYS



RAMDEV METAL OVERSEAS

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 GST NO : 27MKNPK51641ZD