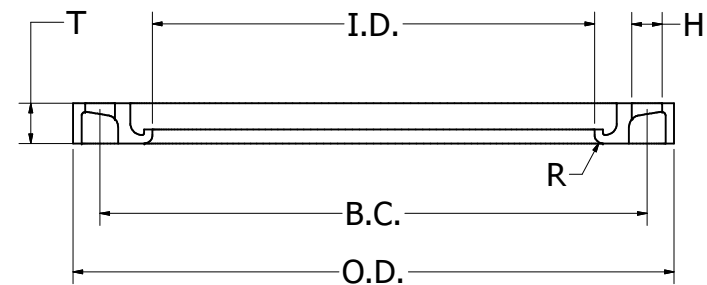
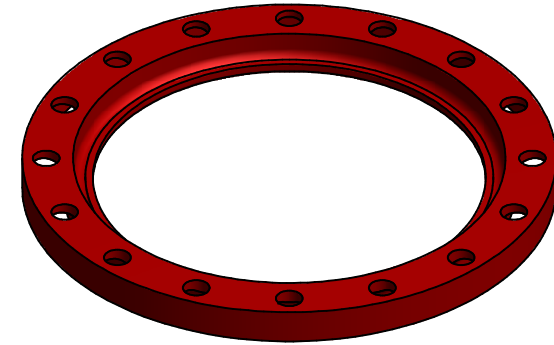


Material: Ductile Iron, ASTM A536, 65/45/12

| REVISION HISTORY | | | |
|------------------|--------------------------|----------|--------------|
| REV | DESCRIPTION | DATE | DESIGNER |
| 1 | VALID | 07/29/11 | |
| 2 | ADD 42" SDR11 | 09/07/11 | Matt Graff |
| 3 | ADD 20", 22", 24 SDR7 | 10/14/11 | Matt Graff |
| 4 | EDIT SDR COLUMN | 06/28/12 | Matt Graff |
| 5 | EDIT PER PHYSICAL FLANGE | 05/20/13 | Don Peterson |

| Dimensions | | | | | | | | | | |
|--------------------|-----|--------|-------|--------|------------|--------------------|-----------------------|-------|--------------|--------------------------|
| Pipe Diameter (in) | SDR | O.D. | T | I.D. | Bolt Count | Bolt Hole Size (H) | Bolt Hole Circle (BC) | R | Weight (lbs) | Operating Pressure (psi) |
| 1/2" | 7 | 3.500 | 0.500 | 0.900 | 4 | 0.625 | 2.380 | 0.130 | 1.0 | 267 |
| 3/4" | 7 | 3.880 | 0.500 | 1.110 | 4 | 0.625 | 2.750 | 0.130 | 1.0 | 267 |
| 1" | 7 | 4.250 | 0.560 | 1.380 | 4 | 0.625 | 3.130 | 0.130 | 1.0 | 267 |
| 1 1/4" | 7 | 4.630 | 0.630 | 1.720 | 4 | 0.625 | 3.500 | 0.190 | 1.4 | 267 |
| 1 1/2" | 7 | 5.000 | 0.690 | 1.970 | 4 | 0.625 | 3.880 | 0.250 | 1.7 | 267 |
| 2" | 7 | 6.000 | 0.750 | 2.460 | 4 | 0.750 | 4.750 | 0.310 | 2.2 | 267 |
| 2" | 11 | 6.000 | 0.500 | 2.630 | 4 | 0.750 | 4.750 | 0.200 | 1.5 | 160 |
| 2 1/2" | 7 | 7.000 | 0.880 | 2.970 | 4 | 0.750 | 5.500 | 0.310 | 4.0 | 267 |
| 3" | 7 | 7.500 | 0.940 | 3.600 | 4 | 0.750 | 6.000 | 0.400 | 3.5 | 267 |
| 3" | 11 | 7.500 | 0.530 | 3.750 | 4 | 0.750 | 6.000 | 0.280 | 2.5 | 160 |
| 4" | 7 | 9.000 | 0.940 | 4.600 | 8 | 0.750 | 7.500 | 0.400 | 5.0 | 267 |
| 4" | 11 | 9.000 | 0.550 | 4.750 | 8 | 0.750 | 7.500 | 0.280 | 3.5 | 160 |
| 5" | 7 | 10.000 | 0.940 | 5.690 | 8 | 0.875 | 8.500 | 0.440 | 6.0 | 267 |
| 6" | 7 | 11.000 | 1.000 | 6.750 | 8 | 0.875 | 9.500 | 0.400 | 7.5 | 267 |
| 6" | 11 | 11.000 | 0.630 | 6.880 | 8 | 0.875 | 9.500 | 0.280 | 4.5 | 160 |
| 8" | 7 | 13.500 | 1.120 | 8.750 | 8 | 0.875 | 11.750 | 0.400 | 11.0 | 267 |
| 8" | 11 | 13.500 | 0.850 | 8.880 | 8 | 0.875 | 11.750 | 0.280 | 8.0 | 160 |
| 10" | 7 | 16.000 | 1.190 | 10.920 | 12 | 1.000 | 14.250 | 0.400 | 17.0 | 267 |
| 10" | 11 | 16.000 | 0.980 | 11.000 | 12 | 1.000 | 14.250 | 0.310 | 12.0 | 160 |
| 12" | 7 | 19.000 | 1.500 | 12.920 | 12 | 1.000 | 17.000 | 0.400 | 22.0 | 267 |
| 12" | 11 | 19.000 | 1.250 | 13.130 | 12 | 1.000 | 17.000 | 0.280 | 20.0 | 160 |
| 14" | 7 | 21.000 | 1.630 | 14.180 | 12 | 1.125 | 18.750 | 0.400 | 37.0 | 267 |
| 14" | 11 | 21.000 | 1.380 | 14.380 | 12 | 1.125 | 18.750 | 0.310 | 30.0 | 160 |
| 16" | 7 | 23.500 | 1.880 | 16.190 | 16 | 1.125 | 21.250 | 0.400 | 52.5 | 267 |
| 16" | 11 | 23.500 | 1.650 | 16.380 | 16 | 1.125 | 21.250 | 0.350 | 40.0 | 160 |
| 18" | 7 | 25.000 | 1.900 | 18.200 | 16 | 1.250 | 22.750 | 0.400 | 56.0 | 267 |
| 18" | 11 | 25.000 | 1.670 | 18.380 | 16 | 1.250 | 22.750 | 0.350 | 41.0 | 160 |
| 20" | 7 | 27.500 | 2.125 | 20.375 | 20 | 1.250 | 25.000 | 0.310 | 66.5 | 267 |
| 20" | 11 | 27.500 | 1.810 | 20.380 | 20 | 1.250 | 25.000 | 0.400 | 53.0 | 160 |
| 22" | 7 | 29.500 | 2.300 | 22.375 | 20 | 1.375 | 27.250 | 0.310 | 87.0 | 267 |
| 22" | 11 | 29.500 | 2.000 | 22.380 | 20 | 1.380 | 27.250 | 0.370 | 65.0 | 160 |



NOTES
 Improved Piping Products' backing ring and blinds mate with AWWA C207, ANSI B16.5 and ANSI B16.47, as appropriate. Specifications not stated in these standards follow internal specifications

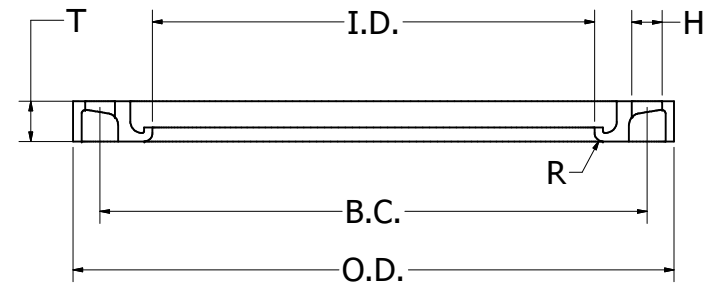
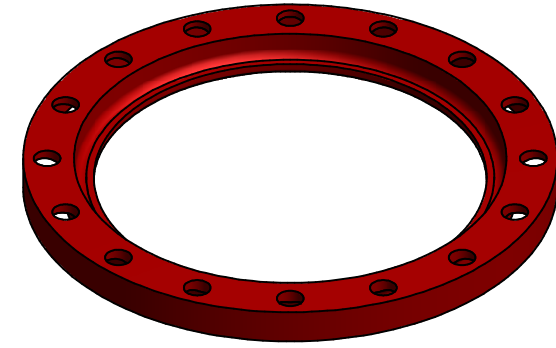
| | | |
|--|-----------|--|
| DRAWN Matt Graff | 7/29/2011 | |
| ENG Ellis Clark | 5/21/2013 | |
| QA Teresa Matias | 6/14/2013 | |
| VPOP | | |
| TITLE BUP-SDR Convuluted Flange / Backup Ring Submittal Sheet | | |
| UNLESS OTHERWISE NOTED, ALL DIMENSIONS IN INCHES | | SIZE/PART NO C BUP-SDR submittal |
| SCALE | | SALES NO REV 2 SHEET 1 OF 2 |

Ongoing engineering design efforts may affect the technical information listed in our publications.

Material: Ductile Iron, ASTM A536, 65/45/12

| REVISION HISTORY | | | |
|------------------|--------------------------|----------|--------------|
| REV | DESCRIPTION | DATE | DESIGNER |
| 1 | VALID | 07/29/11 | |
| 2 | ADD 42" SDR11 | 09/07/11 | Matt Graff |
| 3 | ADD 20", 22", 24 SDR7 | 10/14/11 | Matt Graff |
| 4 | EDIT SDR COLUMN | 06/28/12 | Matt Graff |
| 5 | EDIT PER PHYSICAL FLANGE | 05/20/13 | Don Peterson |

| Dimensions | | | | | | | | | | |
|--------------------|------|--------|-------|--------|------------|--------------------|-----------------------|-------|--------------|--------------------------|
| Pipe Diameter (in) | SDR | O.D. | T | I.D. | Bolt Count | Bolt Hole Size (H) | Bolt Hole Circle (BC) | R | Weight (lbs) | Operating Pressure (psi) |
| 24" | 7 | 32.000 | 2.500 | 24.375 | 20 | 1.375 | 29.500 | 0.310 | 106.0 | 267 |
| 24" | 11 | 32.000 | 2.170 | 24.375 | 20 | 1.375 | 29.500 | 0.400 | 73.0 | 160 |
| 24" | 17 | 32.000 | 1.950 | 24.375 | 20 | 1.375 | 29.500 | 0.400 | 58.2 | 100 |
| 26" | 7 | 34.250 | 2.530 | 26.380 | 24 | 1.375 | 31.750 | 0.310 | 109.0 | 267 |
| 26" | 11 | 34.250 | 2.380 | 26.380 | 24 | 1.375 | 31.750 | 0.310 | 106.0 | 160 |
| 26" | 17 | 34.250 | 2.000 | 26.380 | 24 | 1.375 | 31.750 | 0.250 | 85.0 | 100 |
| 28" | 9 | 36.500 | 2.600 | 28.380 | 28 | 1.375 | 34.000 | 0.310 | 126.0 | 200 |
| 28" | 11 | 36.500 | 2.500 | 28.380 | 28 | 1.375 | 34.000 | 0.310 | 116.0 | 160 |
| 28" | 17 | 36.500 | 2.300 | 28.380 | 28 | 1.375 | 34.000 | 0.500 | 112.0 | 100 |
| 30" | 9 | 38.750 | 2.800 | 30.380 | 28 | 1.375 | 36.000 | 0.310 | 147.0 | 200 |
| 30" | 11 | 38.750 | 2.600 | 30.380 | 28 | 1.375 | 36.000 | 0.310 | 123.0 | 160 |
| 30" | 17 | 38.750 | 2.280 | 30.380 | 28 | 1.375 | 36.000 | 0.310 | 121.0 | 100 |
| 30" | 26 | 38.750 | 2.060 | 30.380 | 28 | 1.375 | 36.000 | 0.250 | 99.0 | 64 |
| 32" | 9 | 41.750 | 3.000 | 32.380 | 28 | 1.630 | 38.500 | 0.310 | 180.0 | 200 |
| 32" | 11 | 41.750 | 2.750 | 32.380 | 28 | 1.630 | 38.500 | 0.320 | 156.0 | 160 |
| 32" | 26 | 41.750 | 2.120 | 32.380 | 28 | 1.630 | 38.500 | 0.500 | 138.0 | 64 |
| 34" | 11 | 43.750 | 2.930 | 34.380 | 32 | 1.630 | 40.500 | 0.310 | 197.0 | 160 |
| 34" | 17 | 43.750 | 2.440 | 34.380 | 32 | 1.630 | 40.500 | 0.310 | 188.0 | 100 |
| 36" | 9 | 46.000 | 3.800 | 36.380 | 32 | 1.630 | 42.750 | 0.310 | 323.0 | 200 |
| 36" | 11 | 46.000 | 3.030 | 36.380 | 32 | 1.630 | 42.750 | 0.310 | 214.0 | 160 |
| 36" | 17 | 46.000 | 2.750 | 36.380 | 32 | 1.630 | 42.750 | 0.310 | 168.6 | 100 |
| 36" | 26 | 46.000 | 2.500 | 36.380 | 32 | 1.630 | 42.750 | 0.310 | 162.0 | 64 |
| 40" | 11 | 50.750 | 4.060 | 40.500 | 36 | 1.630 | 47.250 | 0.320 | 480.0 | 160 |
| 42" | 11 | 53.000 | 4.060 | 42.380 | 36 | 1.630 | 49.500 | 0.310 | 470.0 | 160 |
| 42" | 13.5 | 53.000 | 3.660 | 42.380 | 36 | 1.630 | 49.500 | 0.310 | 430.0 | 128 |
| 42" | 21 | 53.000 | 3.000 | 42.380 | 36 | 1.630 | 49.500 | 0.310 | 297.0 | 80 |
| 42" | 39 | 53.000 | 2.260 | 42.380 | 36 | 1.630 | 49.500 | 0.310 | 253.0 | 40 |
| 48" | 11 | 59.500 | 4.530 | 48.500 | 44 | 1.630 | 56.000 | 0.250 | 740.0 | 160 |
| 48" | 17 | 59.500 | 3.940 | 48.500 | 44 | 1.630 | 56.000 | 0.250 | 497.0 | 100 |
| 48" | 26 | 59.500 | 3.500 | 48.500 | 44 | 1.630 | 56.000 | 0.250 | 332.0 | 64 |
| 48" | 51 | 59.500 | 2.400 | 48.500 | 44 | 1.630 | 56.000 | 0.250 | 234.0 | 30 |
| 54" | 17 | 66.250 | 4.000 | 54.620 | 44 | 1.880 | 62.750 | 0.190 | 674.0 | 100 |
| 54" | 19 | 66.250 | 4.330 | 54.620 | 44 | 1.880 | 62.750 | 0.190 | 694.0 | 89 |
| 54" | 26 | 66.250 | 3.750 | 54.620 | 44 | 1.880 | 62.750 | 0.190 | 529.0 | 64 |
| 54" | 51 | 66.250 | 2.570 | 54.620 | 44 | 1.880 | 62.750 | 0.190 | 375.0 | 30 |
| 63/60" | 19 | 73.000 | 2.800 | 64.000 | 52 | 1.880 | 69.250 | 0.200 | 437.0 | 89 |
| 63/60" | 26 | 73.000 | 3.150 | 64.000 | 52 | 1.880 | 69.250 | 0.200 | 502.0 | 64 |
| 63/66" | 7 | 80.000 | 4.240 | 64.000 | 52 | 1.880 | 76.000 | 0.250 | 776.0 | 86 |



NOTES
 Improved Piping Products' backing ring and blinds mate with AWWA C207, ANSI B16.5 and ANSI B16.47, as appropriate. Specifications not stated in these standards follow internal specifications

| | | |
|--|-----------|--|
| DRAWN Matt Graff | 7/29/2011 | |
| ENG Ellis Clark | 5/21/2013 | |
| QA Teresa Matias | 6/14/2013 | |
| VPOP | | |
| TITLE BUP-SDR Convuluted Flange / Backup Ring Submittal Sheet | | |
| UNLESS OTHERWISE NOTED, ALL DIMENSIONS IN INCHES | | SIZE/PART NO C BUP-SDR submittal |
| SCALE | | SALES NO |
| | | REV 2 SHEET 2 OF 2 |

Ongoing engineering design efforts may affect the technical information listed in our publications.