



# PRECAST CONCRETE PRODUCTS

mconproducts.com

## Product Catalogue



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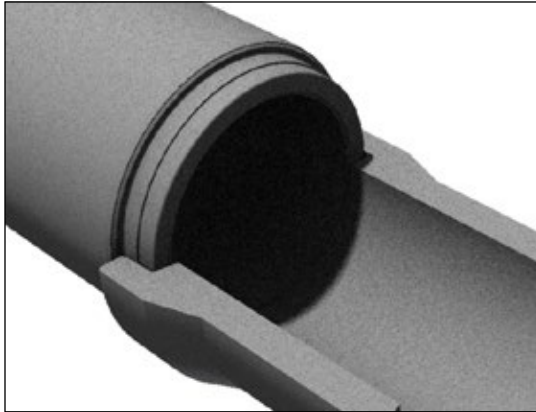


CONCRETE PIPE



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### SECTION 1 CONCRETE PIPE

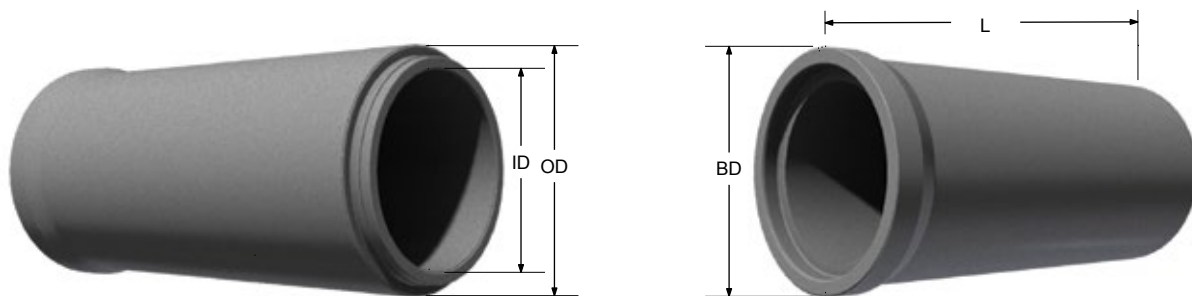
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| Designated Internal Diameter (Nominal) | Actual Diameter (ID) | Outside Diameter (OD) | Wall Thickness (W) | Bell Diameter (BD) | Lay Length (L) | Waterway Area  | Approximate Mass | Truckload Lots |
|----------------------------------------|----------------------|-----------------------|--------------------|--------------------|----------------|----------------|------------------|----------------|
| mm                                     | mm                   | mm                    | mm                 | mm                 | m              | m <sup>2</sup> | kg/pc            | pcs            |
| 300                                    | 305                  | 445                   | 70                 | 498                | 2.286          | 0.07           | 486              | 65             |
| 375                                    | 381                  | 533                   | 76                 | 587                | 2.286          | 0.11           | 648              | 50             |
| 450                                    | 457                  | 622                   | 83                 | 702                | 2.438          | 0.16           | 878              | 40             |
| 525                                    | 533                  | 711                   | 89                 | 752                | 2.286          | 0.22           | 1016             | 34             |
| 600                                    | 610                  | 800                   | 95                 | 829                | 2.286          | 0.29           | 1232             | 28             |
| 675                                    | 686                  | 889                   | 102                | 905                | 2.286          | 0.37           | 1458             | 22             |
| 750                                    | 762                  | 978                   | 108                | 1003               | 2.286          | 0.46           | 1716             | 19             |
| 825                                    | 838                  | 1067                  | 114                | -                  | 2.286          | 0.55           | 1974             | 18             |
| 900                                    | 914                  | 1156                  | 121                | -                  | 2.286          | 0.66           | 2253             | 17             |

## Mass and Dimension 300-900mm Pipe

### Notes

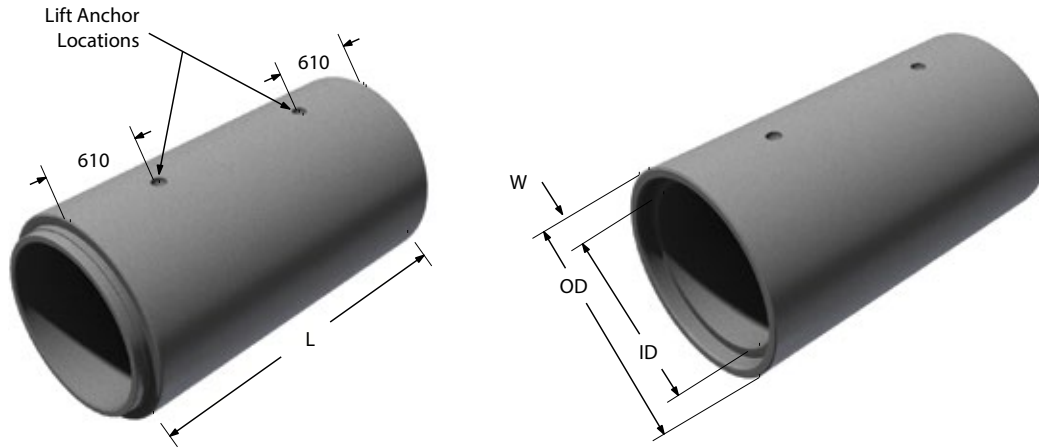
1. Manufactured in accordance with CSA-A257.2.
2. All standard reinforced concrete pipe classes available: 50-D, 65-D, 100-D and 140-D.
3. Contact our engineering department for special design concrete pipe applications.
4. All pipe joints come complete with pre-lubricated rubber gaskets.





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| Designated<br>Internal<br>Diameter<br>(Nominal) | Actual<br>Diameter<br>(ID) | Outside<br>Diameter<br>(OD) | Wall<br>Thickness<br>(W) | Lay Length<br>(L) | Waterway<br>Area | Approximate<br>Mass | Lift Anchor<br>Size | Truckload<br>Lots |
|-------------------------------------------------|----------------------------|-----------------------------|--------------------------|-------------------|------------------|---------------------|---------------------|-------------------|
| mm                                              | mm                         | mm                          | mm                       | m                 | m <sup>2</sup>   | kg/pc               | ton                 | pcs               |
| 975                                             | 991                        | 1245                        | 127                      | 2.286             | 0.77             | 2567                | 4                   | 12                |
| 1050                                            | 1067                       | 1334                        | 133                      | 2.286             | 0.89             | 2919                | 4                   | 11                |
| 1200                                            | 1220                       | 1511                        | 146                      | 2.286             | 1.17             | 3661                | 4                   | 9                 |
| 1350                                            | 1372                       | 1689                        | 159                      | 2.286             | 1.48             | 4480                | 4                   | 8                 |
| 1500                                            | 1524                       | 1867                        | 171                      | 2.438             | 1.82             | 5734                | 4                   | 6                 |
| 1650                                            | 1676                       | 2045                        | 184                      | 2.438             | 2.21             | 6719                | 4                   | 5                 |
| 1800                                            | 1829                       | 2223                        | 197                      | 2.438             | 2.63             | 7846                | 8                   | 4                 |
| 1950                                            | 1981                       | 2362                        | 190                      | 2.438             | 3.08             | 8390                | 8                   | 4                 |
| 2100                                            | 2134                       | 2540                        | 203                      | 2.438             | 3.58             | 9562                | 8                   | 4                 |
| 2250                                            | 2286                       | 2717                        | 215                      | 2.438             | 4.10             | 10726               | 8                   | 3                 |
| 2400                                            | 2438                       | 2896                        | 229                      | 2.438             | 4.67             | 12214               | 8                   | 2                 |
| 2550                                            | 2591                       | 3073                        | 241                      | 2.438             | 5.27             | 13776               | 8                   | 2                 |
| 2700                                            | 2743                       | 3251                        | 254                      | 2.438             | 5.91             | 15139               | 8                   | 2                 |
| 3000                                            | 3048                       | 3606                        | 279                      | 2.438             | 7.30             | 18786               | 20                  | 1                 |
| 3600                                            | 3656                       | 4356                        | 349                      | 2.438             | 10.51            | 26340               | 20                  | 1                 |

## Mass and Dimension 975-3600mm Pipe

### Notes

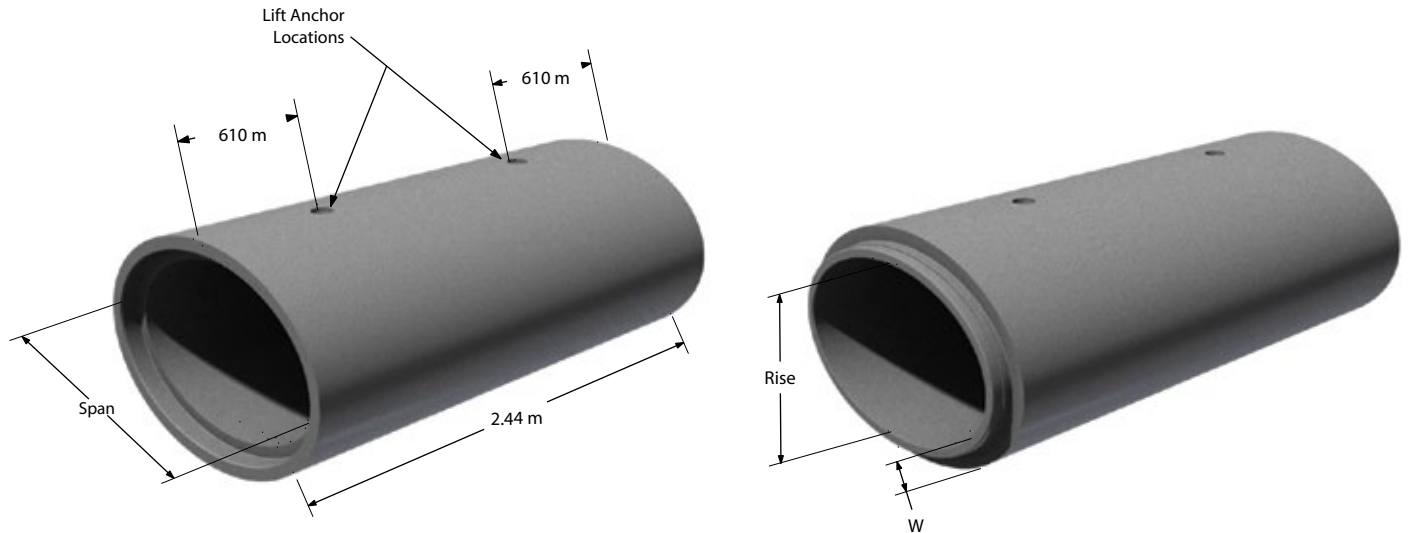
1. Manufactured in accordance with CSA-A257.2.
2. All standard reinforced concrete pipe classes available: 50-D, 65-D, 100-D and 140-D.
3. Contact our engineering department for special design concrete pipe applications.
4. All pipe joints come complete with pre-lubricated rubber gaskets.





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| Designated Size<br>Rise X Span | Designated<br>Equivalent Circular<br>Pipe Diameter | Actual Size<br>Rise X Span | Wall Thickness<br>(W) | Waterway<br>Area | Approximate<br>Mass | Truckload Lots |
|--------------------------------|----------------------------------------------------|----------------------------|-----------------------|------------------|---------------------|----------------|
| mm                             | mm                                                 | mm                         | mm                    | m <sup>2</sup>   | kg/pc               | pcs            |
| 480 x 760                      | 600                                                | 483 x 762                  | 83                    | 0.29             | 1252                | 38             |
| 610 x 965                      | 750                                                | 610 x 965                  | 95                    | 0.46             | 1583                | 20             |
| 730 x 1150                     | 900                                                | 737 x 1143                 | 114                   | 0.69             | 2283                | 11             |
| 855 x 1345                     | 1050                                               | 864 x 1346                 | 127                   | 0.95             | 2928                | 8              |
| 975 x 1535                     | 1200                                               | 965 x 1524                 | 140                   | 1.20             | 3665                | 6              |
| 1090 x 1730                    | 1350                                               | 1092 x 1727                | 152                   | 1.54             | 4518                | 6              |
| 1220 x 1920                    | 1500                                               | 1219 x 1930                | 165                   | 1.91             | 5421                | 5              |
| 1340 x 2110                    | 1650                                               | 1346 x 2108                | 178                   | 2.30             | 6401                | 4              |
| 1465 x 2305                    | 1800                                               | 1473 x 2311                | 191                   | 2.74             | 7464                | 4              |
| 1585 x 2495                    | 1950                                               | 1600 x 2489                | 203                   | 3.22             | 8622                | 3              |
| 1705 x 2690                    | 2100                                               | 1727 x 2692                | 216                   | 3.73             | 9845                | 3              |
| 1825 x 2870                    | 2250                                               | 1829 x 2870                | 229                   | 4.12             | 11151               | 2              |
| 1950 x 3070                    | 2400                                               | 1956 x 3073                | 241                   | 4.87             | 12535               | 2              |
| 2080 x 3250                    | 2550                                               | 2083 x 3251                | 247                   | 5.31             | 13518               | 2              |
| 2195 x 3455                    | 2700                                               | 2210 x 3454                | 267                   | 6.17             | 15597               | 1              |

## Mass and Dimension Elliptical Pipe

### Notes

1. Manufactured in accordance with ASTM C 507.
2. Standard reinforced concrete HE pipe classes available:  
HE-I, HE-II, HE-III, HE-IV.
3. All pipe joints come complete with butyl gasket.

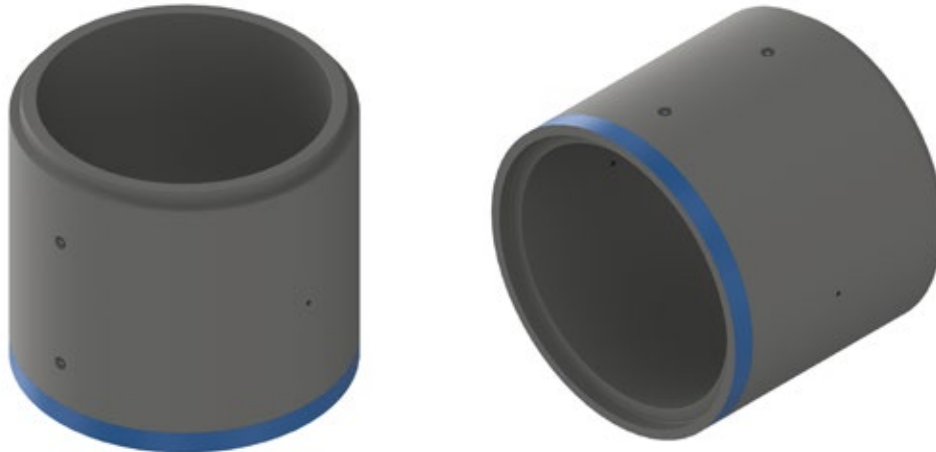






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| Inside Dimensions |      |
|-------------------|------|
|                   | mm   |
|                   | 825  |
|                   | 900  |
|                   | 975  |
|                   | 1050 |
|                   | 1200 |
|                   | 1350 |
|                   | 1500 |
|                   | 1650 |
|                   | 1800 |
|                   | 1950 |
|                   | 2100 |
|                   | 2250 |
|                   | 2400 |
|                   | 2550 |
|                   | 2700 |
|                   | 3000 |

## Jacking Pipe

### Notes

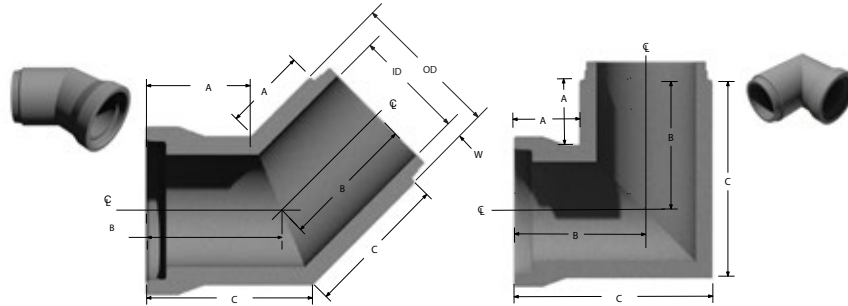
1. Manufactured in accordance with CSA-A257.2.
2. Available in 100-D and 140-D.
3. Contact our engineering department for special design concrete pipe applications.
4. All pipe joints come complete with pre-lubricated rubber gaskets.





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| ID (Nominal) | Wall | OD   | 90° Bends        |      |      | 45° Bends |      |      |
|--------------|------|------|------------------|------|------|-----------|------|------|
| mm           | mm   | mm   | A                | B    | C    | A         | B    | C    |
| 300          | 70   | 445  | 300              | 522  | 745  | 300       | 392  | 484  |
| 375          | 76   | 533  | 300              | 566  | 833  | 300       | 410  | 521  |
| 450          | 83   | 622  | 300              | 612  | 923  | 300       | 429  | 558  |
| 525          | 89   | 711  | 350              | 706  | 1061 | 350       | 497  | 645  |
| 600          | 95   | 800  | 350              | 750  | 1150 | 350       | 516  | 681  |
| 675          | 102  | 889  | 350              | 795  | 1240 | 350       | 534  | 719  |
| 750          | 108  | 978  | 350              | 839  | 1328 | 350       | 553  | 755  |
| 825          | 114  | 1067 | 350              | 883  | 1416 | 350       | 571  | 792  |
| 900          | 121  | 1156 | 350              | 928  | 1506 | 350       | 589  | 829  |
| 975          | 127  | 1245 | 523              | 1145 | 1767 | 887       | 1145 | 1403 |
| 1050         | 133  | 1334 | 479              | 1145 | 1811 | 869       | 1145 | 1421 |
| 1200         | 146  | 1511 | 389              | 1145 | 1901 | 832       | 1145 | 1458 |
| 1350         | 159  | 1689 | Use 2- 45° Bends |      |      | 795       | 1145 | 1495 |
| 1500         | 171  | 1867 | Use 2- 45° Bends |      |      | 834       | 1220 | 1606 |
| 1650         | 184  | 2045 | Use 2- 45° Bends |      |      | 797       | 1220 | 1643 |
| 1800         | 197  | 2223 | Use 2- 45° Bends |      |      | 760       | 1220 | 1680 |
| 1950         | 190  | 2362 | Use 2- 45° Bends |      |      | 731       | 1220 | 1709 |
| 2100         | 203  | 2540 | Use 2- 45° Bends |      |      | 694       | 1220 | 1746 |
| 2250         | 215  | 2717 | Use 2- 45° Bends |      |      | 657       | 1220 | 1783 |
| 2400         | 229  | 2896 | Use 2- 45° Bends |      |      | 620       | 1220 | 1820 |
| 2550         | 241  | 3073 | Use 2- 45° Bends |      |      | 584       | 1220 | 1856 |
| 2700         | 254  | 3251 | Use 2- 45° Bends |      |      | 547       | 1220 | 1893 |
| 3000         | 279  | 3606 | Use 2- 45° Bends |      |      | 473       | 1220 | 1967 |
| 3600         | 349  | 4356 | Use 2- 45° Bends |      |      | 462       | 1220 | 1976 |

## 45° and 90° Bend Dimension

### Notes

1. All Bends are manufactured in accordance with CSA-A257.2.
2. Special angle bends are available upon request.
3. All dimensions are in millimeters unless otherwise shown.



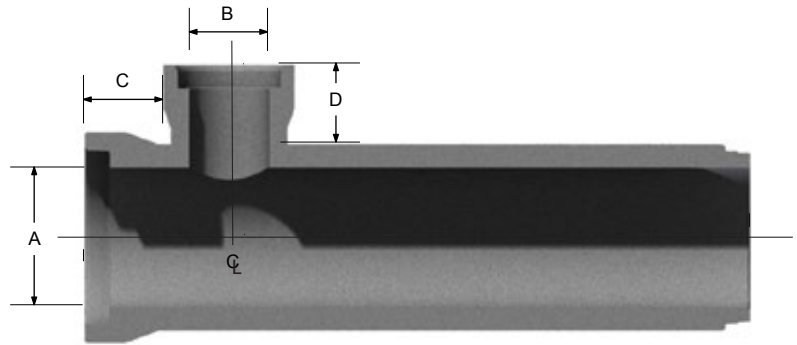


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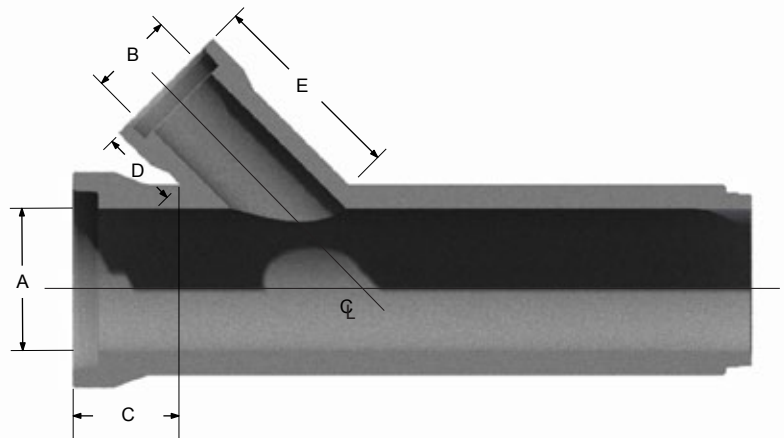
## PIPE TEE

| Main Pipe ID<br>A | Branch Pipe ID<br>B | C   | D   |
|-------------------|---------------------|-----|-----|
| 300 To 3600       | 300                 | 300 | 300 |
| 375 To 3600       | 375                 | 300 | 300 |
| 450 To 3600       | 450                 | 350 | 300 |
| 525 To 3600       | 525                 | 350 | 350 |
| 600 To 3600       | 600                 | 350 | 350 |
| 675 To 3600       | 675                 | 350 | 350 |
| 750 To 3600       | 750                 | 350 | 350 |
| 825 To 3600       | 825                 | 350 | 350 |
| 900 To 3600       | 900                 | 350 | 350 |
| 975 To 3600       | 975                 | 350 | 350 |
| 1050 To 3600      | 1050                | 350 | 350 |
| 1200 To 3600      | 1200                | 350 | 350 |
| 1350 To 3600      | 1350                | 300 | 350 |
| 1500 To 3600      | 1500                | 305 | 350 |



## PIPE WYE

| Main Pipe ID<br>A | Branch Pipe ID<br>B | C   | D   | E    |
|-------------------|---------------------|-----|-----|------|
| 300 To 3600       | 300                 | 400 | 300 | 745  |
| 375 To 3600       | 375                 | 400 | 300 | 833  |
| 450 To 3600       | 450                 | 400 | 300 | 923  |
| 525 To 3600       | 525                 | 400 | 350 | 1061 |
| 600 To 3600       | 600                 | 400 | 350 | 1150 |
| 675 To 3600       | 675                 | 400 | 350 | 1240 |
| 750 To 3600       | 750                 | 400 | 350 | 1328 |
| 825 To 3600       | 825                 | 400 | 350 | 1416 |
| 900 To 3600       | 900                 | 400 | 350 | 1506 |



## Tee and Wye Dimensions

### Notes

1. All wyes and tees are manufactured in accordance with CSA-A257.2.
2. Special design tees and wyes are available upon request.
3. All tee and wye combinations listed above are based on using a full length main pipe.  
50-D, 65-D, 100-D and 140-D.
4. All dimensions are in millimeters unless otherwise shown.



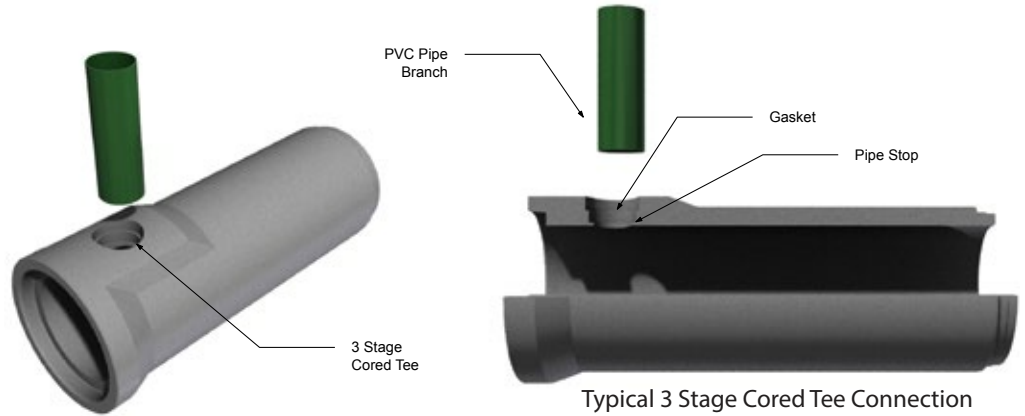




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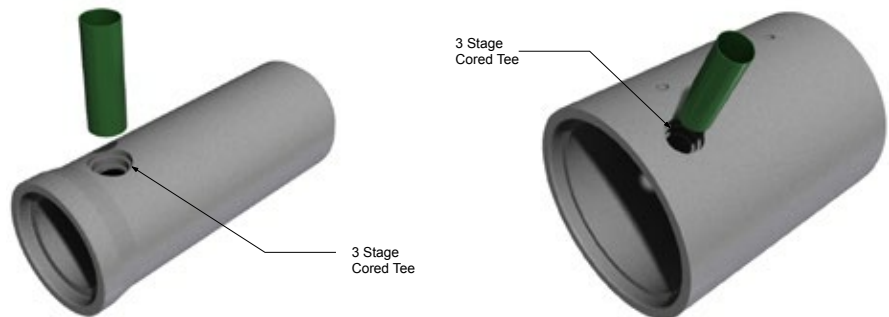
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### "FILLET" PIPE PRODUCT



| Designated Diameter (mm) | PVC Branch Size (mm) |     |     |     |     |     |
|--------------------------|----------------------|-----|-----|-----|-----|-----|
| 300                      | 100                  | 125 | 150 | 200 |     |     |
| 375                      | 100                  | 125 | 150 | 200 | 250 |     |
| 450                      | 100                  | 125 | 150 | 200 | 250 | 300 |

### STANDARD PIPE PRODUCT



| Designated Diameter (mm) | PVC Branch Size (mm) |     |     |     |     |     |
|--------------------------|----------------------|-----|-----|-----|-----|-----|
| 300                      | 100                  |     |     |     |     |     |
| 375                      | 100                  | 125 |     |     |     |     |
| 450                      | 100                  | 125 | 150 | 200 |     |     |
| 525                      | 100                  | 125 | 150 | 200 | 250 |     |
| 600                      | 100                  | 125 | 150 | 200 | 250 |     |
| 675-3000                 | 100                  | 125 | 150 | 200 | 250 | 300 |

## 3 Stage Cored Tee (for PVC pipe applications)

#### Notes

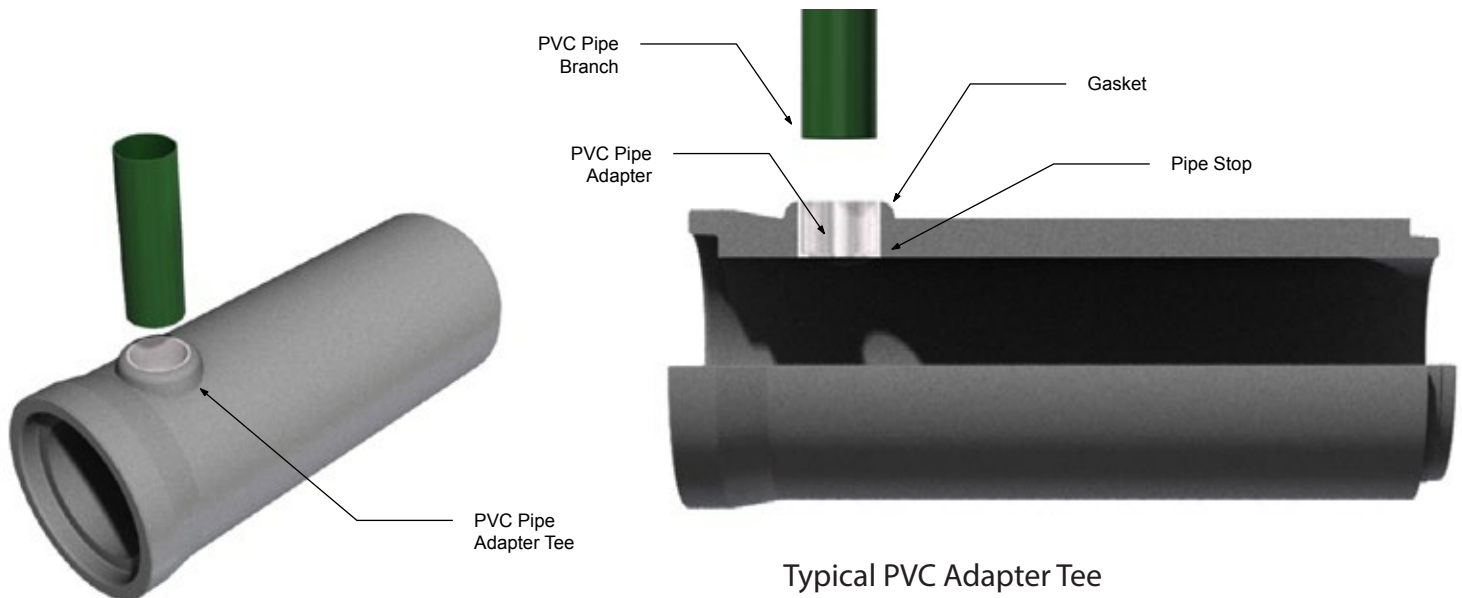
1. Tee connection manufactured in accordance with CSA-A257.2.
2. See page 16 for connection type and sizes not detailed.
3. All dimensions are in millimeters unless otherwise shown.





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Typical PVC Adapter Tee

| Nominal Diameter (mm) | PVC Branch Size (mm)                           |     |     |     |     |
|-----------------------|------------------------------------------------|-----|-----|-----|-----|
| 300                   | 125                                            | 150 | 200 | 250 | 300 |
| 375                   | See page 10 for PVC branch sizes not detailed. | 150 | 200 | 250 | 300 |
| 450                   |                                                |     |     | 250 | 300 |
| 525                   |                                                |     |     |     | 300 |
| 600                   |                                                |     |     |     | 300 |

## PVC Adapter Tee 300–600mm

### Notes

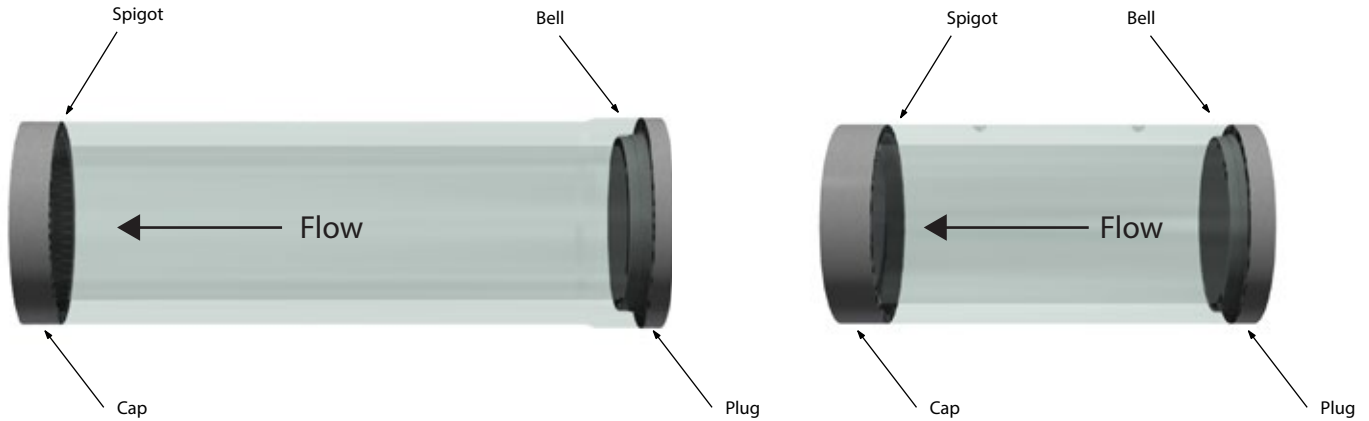
1. Tee connection manufactured in accordance with CSA-A257.2.
2. All dimensions are in millimeters unless otherwise shown.





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| Size | Approximate Mass |       |
|------|------------------|-------|
|      | Plugs            | Caps  |
| mm   | kg/pc            | kg/pc |
| 300  | 26               | 122   |
| 375  | 39               | 167   |
| 450  | 53               | 242   |
| 525  | 69               | 270   |
| 600  | 86               | 325   |
| 675  | 106              | 384   |
| 750  | 130              | 472   |
| 825  | 154              | 527   |
| 900  | 180              | 618   |

| Size | Approximate Mass |       |
|------|------------------|-------|
|      | Plugs            | Caps  |
| mm   | kg/pc            | kg/pc |
| 975  | 865              | 720   |
| 1050 | 989              | 765   |
| 1200 | 1266             | 986   |
| 1350 | 1572             | 1239  |
| 1500 | 1908             | 1440  |
| 1650 | 2284             | 1676  |
| 1800 | 2702             | 1983  |
| 1950 | 3097             | 2192  |
| 2100 | 3585             | 2531  |
| 2250 | 4109             | 2894  |
| 2400 | 4667             | 3279  |
| 2550 | 5262             | 3690  |
| 2700 | 5893             | 4127  |
| 3000 | 7095             | 5892  |
| 3600 | 10279            | 8662  |

## Concrete Pipe Plugs and Caps

### Notes

1. 300 to 1050 mm plugs come complete with one lift point.
2. 1200 to 3000 plugs and Caps come complete with 2 lift points.
3. Alternative precast-in plugs are available upon request. Please contact our engineering department for more detail.







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CONCENTRIC REDUCER



CONCENTRIC INCREASER



ECCENTRIC REDUCER



ECCENTRIC INCREASER

## Concrete Pipe Reducers and Increasers

### Notes

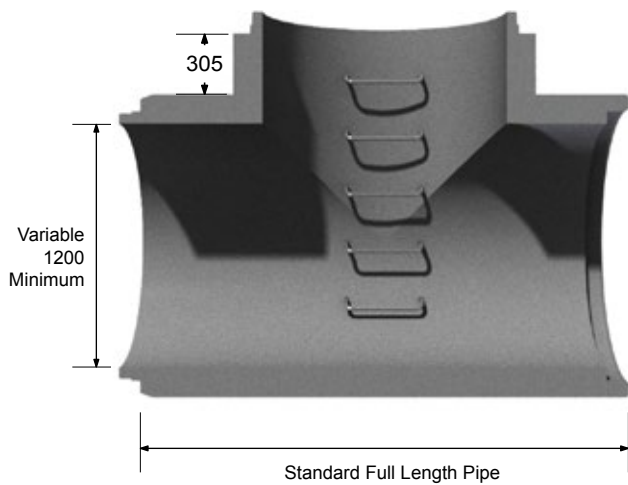
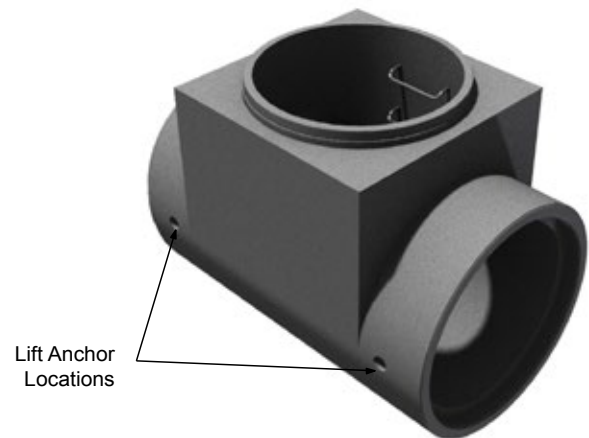
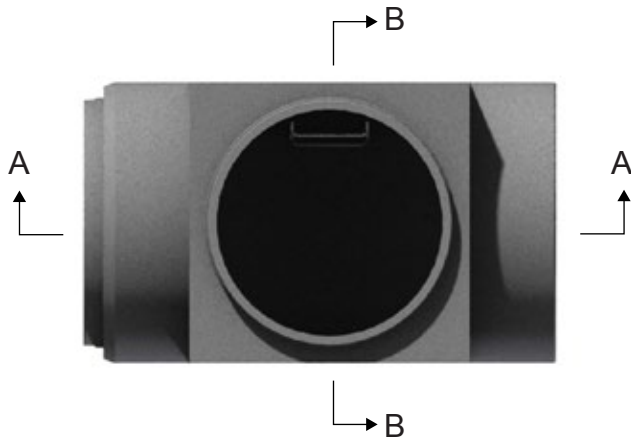
1. All reducers and increasers are manufactured in accordance with CSA A 257.2.
2. Available for all standard pipe diameter applications.



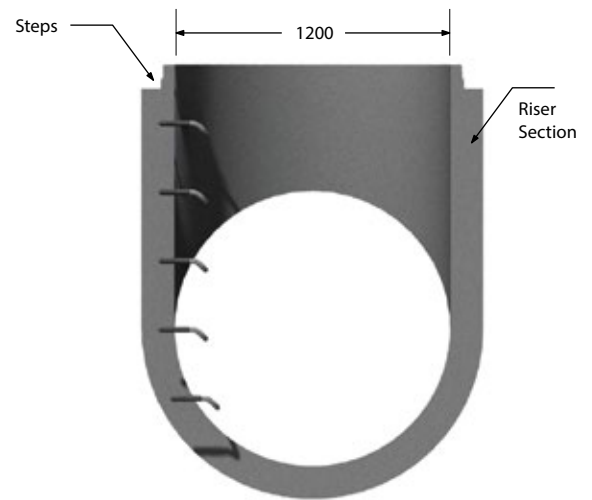


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Section A-A



Section B-B

## Pipe Maintenance Hole Tees

### Notes

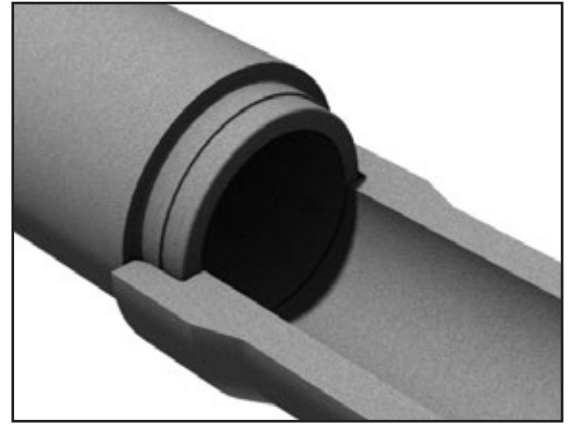
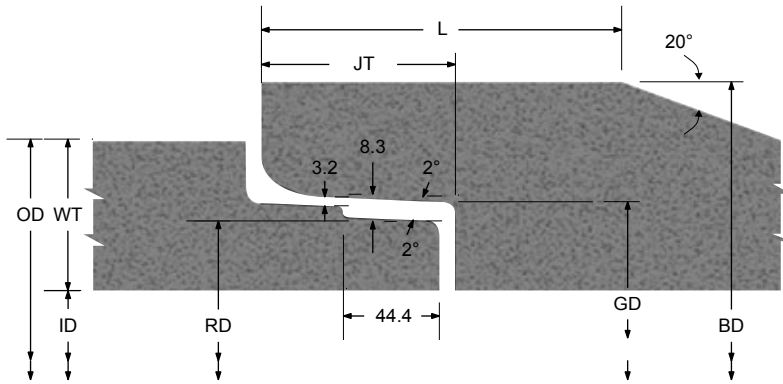
1. Manufactured in accordance with OPSD 707.010.
2. Maintenance hole steps as per OPSD 405.010.
3. Contact the MCON engineering department for special design maintenance tee applications.
4. All dimensions are in millimeters unless otherwise shown.





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| ID<br>(Nominal) | ID<br>(Actual) | OD    | WT    | BD     | JT   | RD    | GD    | L     |
|-----------------|----------------|-------|-------|--------|------|-------|-------|-------|
| 300             | 305            | 444.6 | 69.8  | 498.5  | 88.9 | 374.1 | 387.5 | 165.1 |
| 375             | 381            | 533.4 | 76.2  | 587.4  | 88.9 | 461.7 | 475.2 | 165.1 |
| 450             | 457            | 622.0 | 82.5  | 701.7  | 95.3 | 554.9 | 568.4 | 165.1 |
| 525             | 533            | 710.8 | 88.9  | 752.5  | 88.9 | 614.1 | 627.6 | 177.8 |
| 600             | 610            | 800.4 | 95.2  | 828.7  | 88.9 | 690.3 | 703.8 | 177.8 |
| 675             | 686            | 889.2 | 101.6 | 904.9  | 88.9 | 766.5 | 780.0 | 177.8 |
| 750             | 762            | 977.8 | 107.9 | 1003.3 | 88.9 | 850.1 | 863.6 | 177.8 |

## Pipe Joint Detail 300-750mm

### Notes

1. Pre-lubricated rubber gaskets to be used with this pipe joint design.
2. See page 18 for pipe jointing procedure.
3. Manufactured in accordance with CSA-A257.2.
4. All dimensions are in millimeters unless otherwise shown.

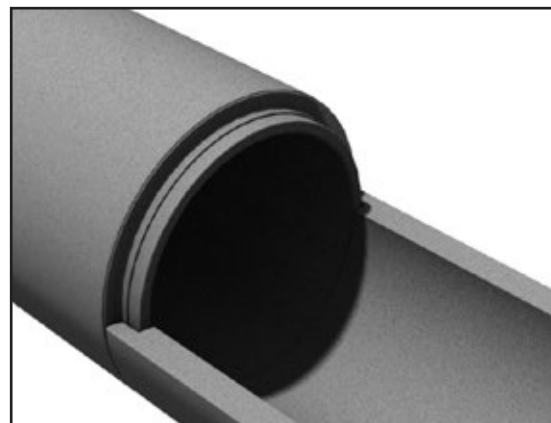
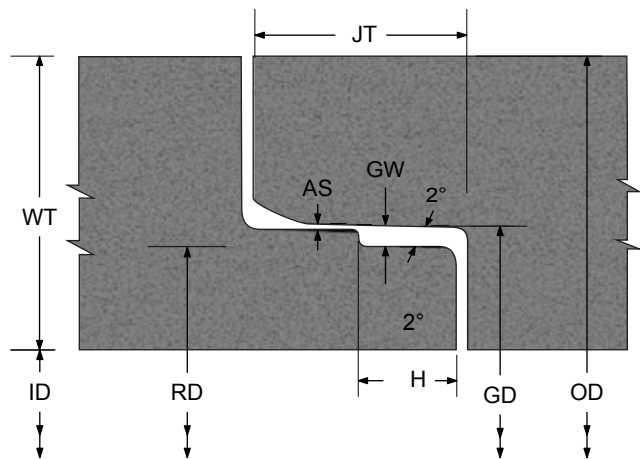






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| ID<br>(Nominal) | ID<br>(Actual) | OD     | WT    | JT    | RD     | GD     | AS  | GW   | H    |
|-----------------|----------------|--------|-------|-------|--------|--------|-----|------|------|
| 825             | 832            | 1066.6 | 114.3 | 88.9  | 926.3  | 939.8  | 3.2 | 8.3  | 44.5 |
| 900             | 914            | 1155.2 | 120.6 | 88.9  | 1002.5 | 1016.0 | 3.2 | 8.3  | 44.5 |
| 975             | 991            | 1245.0 | 127.0 | 88.9  | 1078.7 | 1092.2 | 3.2 | 8.3  | 44.5 |
| 1050            | 1067           | 1333.7 | 133.3 | 107.9 | 1172.7 | 1190.9 | 3.7 | 11.3 | 63.5 |
| 1200            | 1220           | 1512.0 | 146.0 | 107.9 | 1325.1 | 1343.3 | 3.7 | 11.3 | 63.5 |
| 1350            | 1372           | 1689.4 | 158.7 | 107.9 | 1470.1 | 1488.3 | 3.7 | 11.3 | 63.5 |
| 1500            | 1524           | 1866.8 | 171.4 | 120.6 | 1635.2 | 1653.4 | 3.7 | 11.3 | 63.5 |
| 1650            | 1676           | 2044.2 | 184.1 | 127.0 | 1800.3 | 1818.5 | 3.7 | 11.3 | 63.5 |
| 1800            | 1829           | 2222.6 | 196.8 | 127.0 | 1959.8 | 1978.0 | 3.7 | 11.3 | 63.5 |
| 1950            | 1981           | 2362.0 | 190.5 | 127.0 | 2123.7 | 2145.5 | 4.4 | 13.3 | 69.8 |
| 2100            | 2134           | 2540.4 | 203.2 | 127.0 | 2288.8 | 2310.6 | 4.4 | 13.3 | 69.8 |
| 2250            | 2286           | 2717.8 | 215.9 | 127.0 | 2453.9 | 2475.7 | 4.4 | 13.3 | 69.8 |
| 2400            | 2438           | 2895.6 | 228.6 | 127.0 | 2619.0 | 2640.8 | 4.4 | 13.3 | 69.8 |
| 2550            | 2591           | 3073.4 | 241.3 | 127.0 | 2783.8 | 2805.9 | 4.4 | 13.3 | 69.8 |
| 2700            | 2743           | 3251.8 | 254.0 | 127.0 | 2949.2 | 2971.0 | 4.4 | 13.3 | 69.8 |
| 3000            | 3048           | 3606.8 | 279.4 | 152.4 | 3247.7 | 3269.5 | 4.4 | 13.3 | 69.8 |
| 3600            | 3658           | 4356.0 | 349.0 | 152.4 | 3895.4 | 3917.2 | 3.7 | 12.7 | 50.8 |

## Pipe Joint Detail 825-3600mm

### Notes

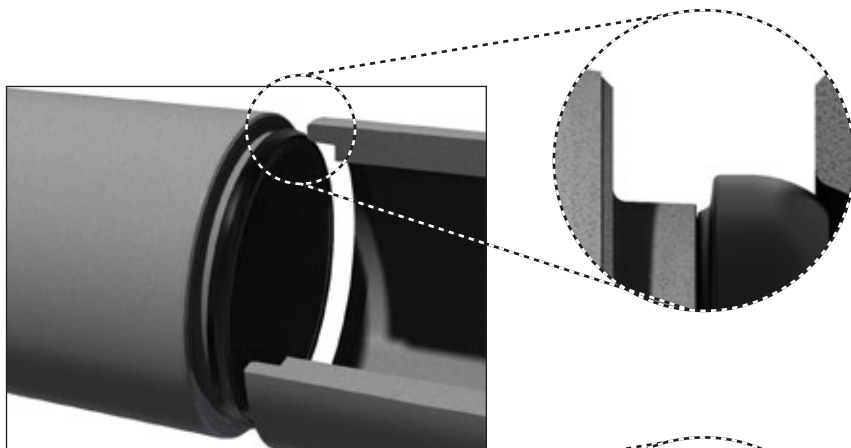
1. Pre-lubricated rubber gaskets to be used with this pipe joint design.
2. See page 18 for pipe jointing procedure.
3. Manufactured in accordance with CSA-A257.2.
4. All dimensions are in millimeters unless otherwise shown.





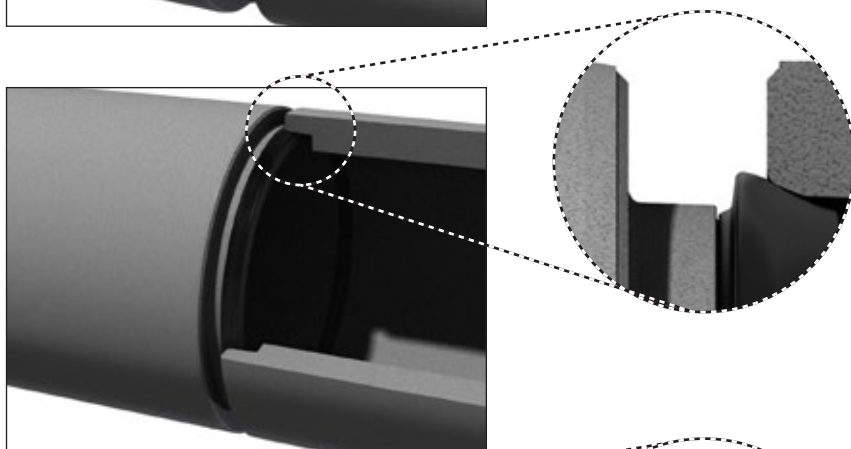
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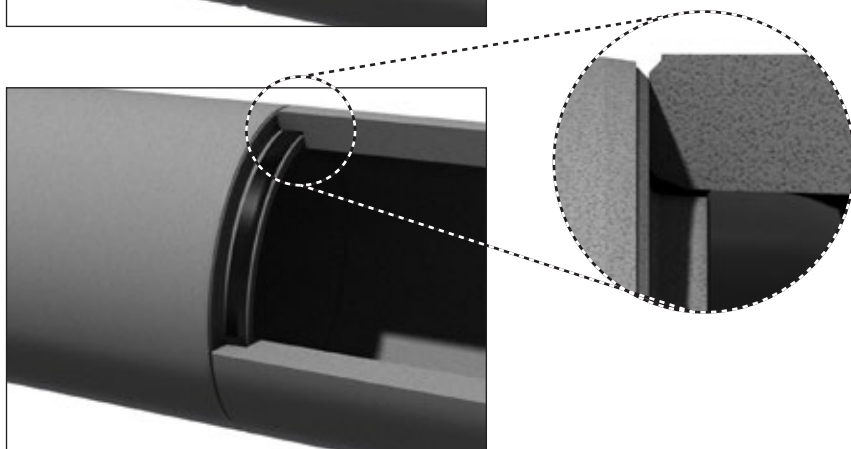
### Step 1

Clean all dirt and foreign objects off the bell and spigot. Ensure both the bell and spigot are free of cracks, chips and defects. Carefully stretch the gasket around the spigot with the nose of gasket resting against the step of the spigot and the gasket tube laying on the spigot



### Step 2

Align the spigot with the bell. Ensure the gasket is in contact with the entire circumference of both the bell taper and the spigot before fully homing the joint.



### Step 3

Engage the spigot into the bell to fully install, locking the joint into place. The self lubricating gasket will roll over the step of the spigot and into the joint recess creating the complete seal.

## Joint Procedure – Pre-Lubricated Gaskets

#### Notes

1. The following above jointing procedure will ensure full optimization of pipe joint performance.
2. This jointing procedure applies to pipe sizes 300 – 3600mm diameter.







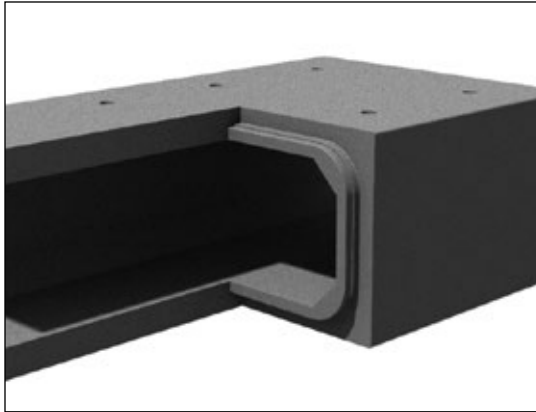
# BOX CULVERTS





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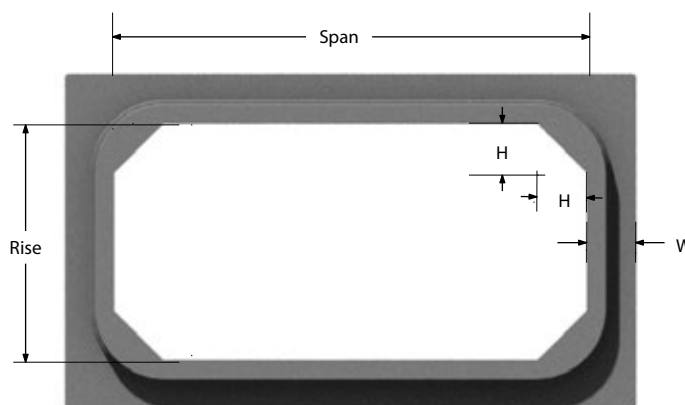
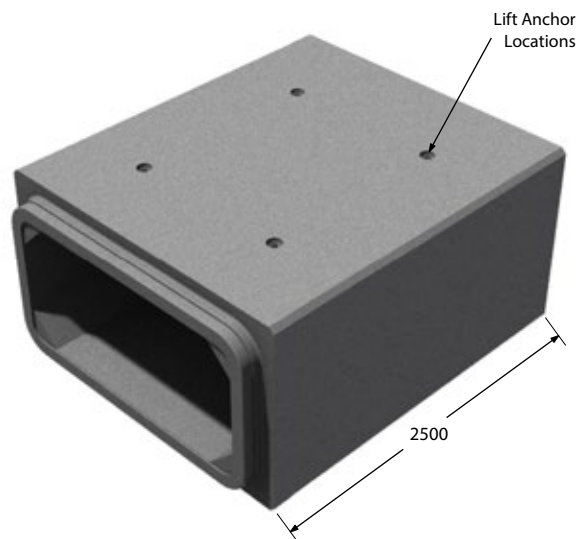
### SECTION 2 BOX CULVERTS

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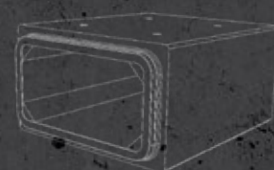


| Designated Size<br>Span X Rise | Wall Thickness<br>(W) | Haunch<br>(H) | Waterway Area  | Approximate Mass | Lift Anchor Size | Truckload Lots |
|--------------------------------|-----------------------|---------------|----------------|------------------|------------------|----------------|
| mm                             | mm                    | mm            | m <sup>2</sup> | kg/pc            | ton              | pieces         |
| 1800 x 900                     | 200                   | 200           | 1.54           | 8162             | 4                | 5              |
| 1800 x 1200                    | 200                   | 200           | 2.08           | 8916             | 4                | 4              |
| 2400 x 1200                    | 200                   | 200           | 2.80           | 10473            | 4                | 3              |
| 2400 x 1500                    | 200                   | 200           | 3.52           | 11204            | 4                | 3              |
| 2400 x 1800                    | 200                   | 200           | 4.24           | 11966            | 4                | 3              |
| 3000 x 1500                    | 250                   | 250           | 4.38           | 16311            | 8                | 2              |
| 3000 x 1800                    | 250                   | 250           | 5.28           | 17242            | 8                | 2              |
| 3000 x 2100                    | 250                   | 250           | 6.18           | 18171            | 8                | 2              |
| 3000 x 2400                    | 250                   | 250           | 7.08           | 19123            | 8                | 2              |

## Mass and Dimensions OPSS Box Sections

### Notes

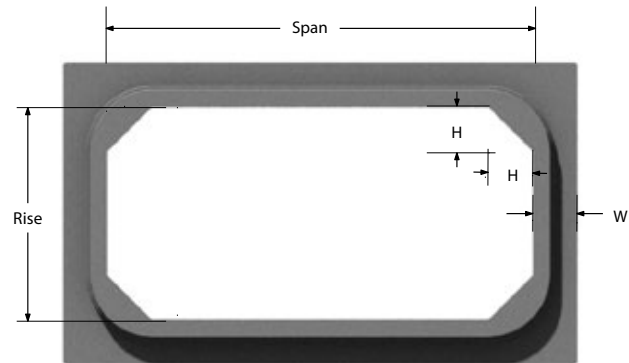
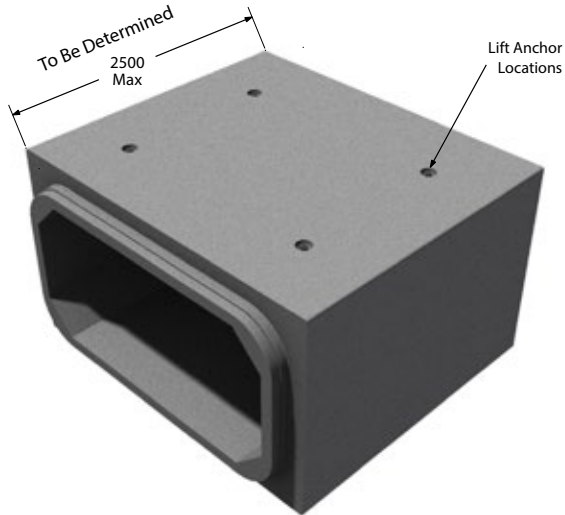
1. Manufactured in accordance with OPSS 1821 and CHBDC.
2. Contact our engineering department for special design concrete box culvert applications.
3. All dimensions are in millimeters unless otherwise shown.





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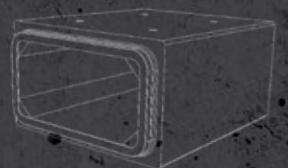


| Span | Rise      | Wall Thickness (W) | Haunch (H)  |
|------|-----------|--------------------|-------------|
| mm   | mm        | mm                 | mm          |
| 1200 | 900-1200  | 200                | 200         |
| 1500 | 1200-1500 | 200                | 200         |
| 1800 | 1500-1800 | 200                | 200         |
| 2400 | 900       | 200                | 200         |
| 2400 | 1200-2400 | 250/300/350        | 250/300/350 |
| 2700 | 1200-2700 | 250/300/350        | 250/300/350 |
| 3000 | 1200-3000 | 250/300/350        | 250/300/350 |
| 3300 | 1200-3300 | 250/300/350        | 250/300/350 |
| 3600 | 1200-3600 | 250/300/350        | 250/300/350 |
| 3900 | 1200-3900 | 300/350            | 300/350     |
| 4200 | 1200-4200 | 300/350            | 300/350     |
| 4500 | 1200-4200 | 300/350            | 300/350     |
| 4800 | 1200-4200 | 300/350            | 300/350     |
| 5100 | 1200-4200 | 300/350            | 300/350     |
| 5400 | 1200-4200 | 300/350            | 300/350     |
| 5700 | 1200-4200 | 300/350            | 300/350     |
| 6000 | 1200-4200 | 300/350            | 300/350     |

## Mass and Dimension MCON Box Sections

### Notes

1. Designed and manufactured in accordance with the Canadian Highway Bridge Design Code (CHBDC) CAN/CSA-S6.
2. Rise dimension is variable in 300mm increments.
3. Contact our engineering department for special design concrete box section applications.
4. All dimensions are in millimeters unless otherwise shown.

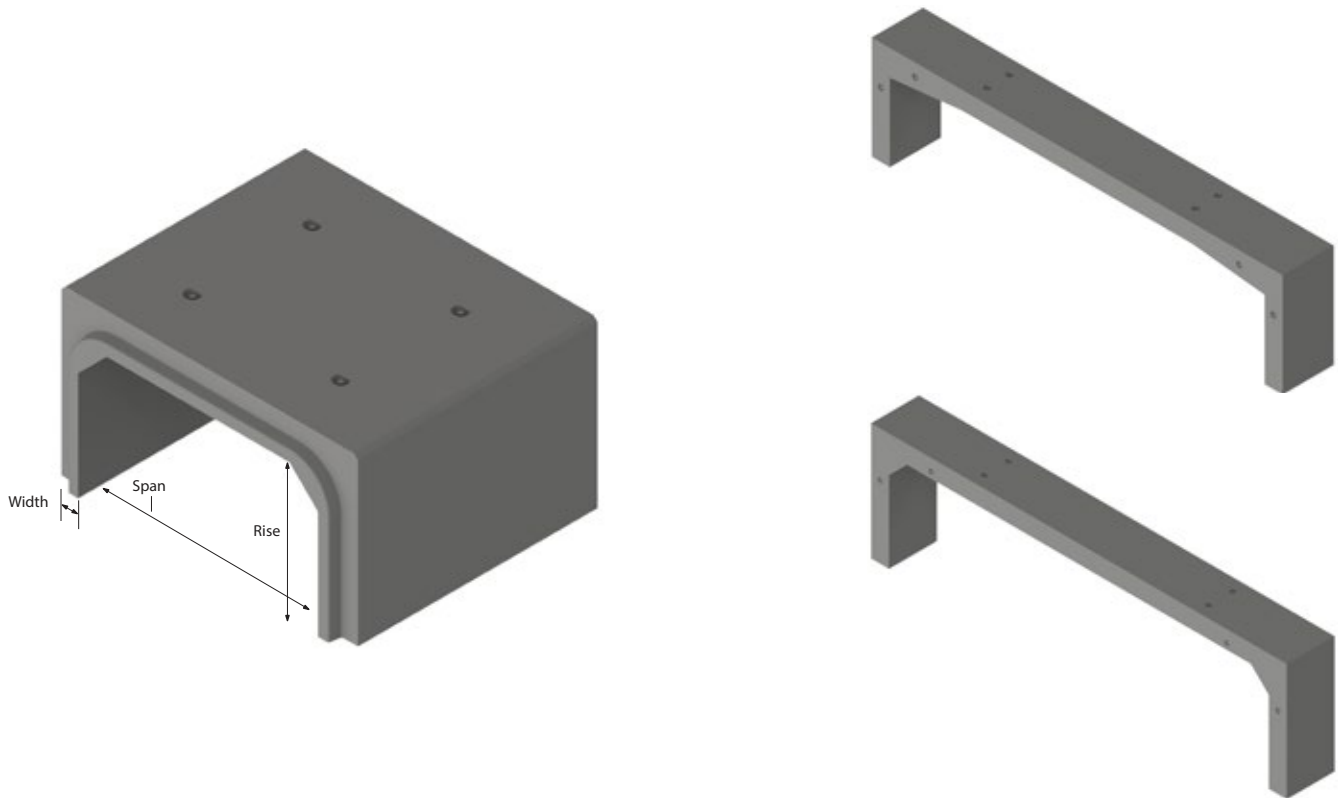






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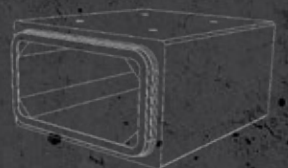


| Span       | Rise       | Wall Thickness (W) | Haunch (X) | Haunch (Y) |
|------------|------------|--------------------|------------|------------|
| mm         | mm         | mm                 | mm         | mm         |
| 600 - 9144 | 600 - 3600 | 200 - 450          | 200 - 3000 | 200 - 450  |

## Three Sided Culverts

### Notes

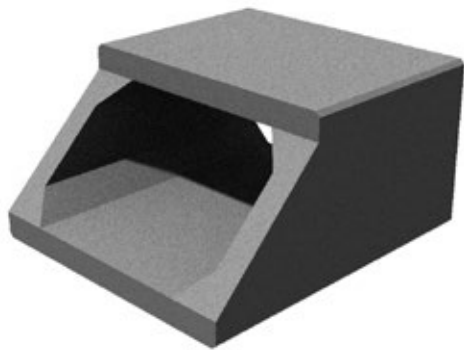
1. Designed and manufactured in accordance with the Canadian Highway Bridge Design Code (CHBDC) CAN/CSA-S6.
2. Span and rise dimensions are variable in 300mm increments.
3. Footing design available upon request.
4. All dimensions are in millimeters unless otherwise shown.
5. Contact our engineering department for custom design or larger three sided culverts.



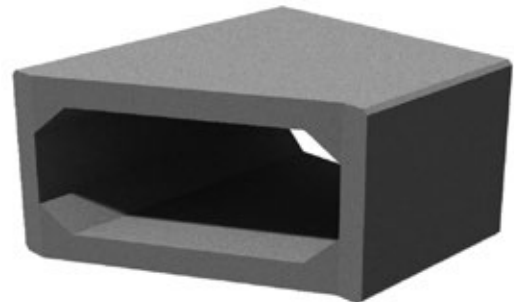


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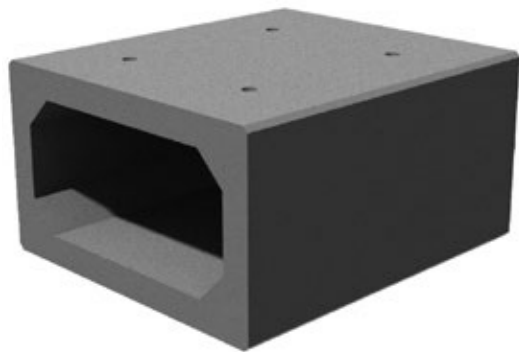
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SLOPED END



BEVELLED END

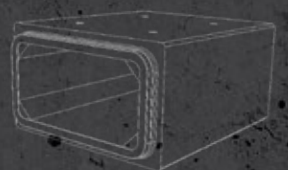


FLUSH END



OPENING FOR PIPE CONNECTION

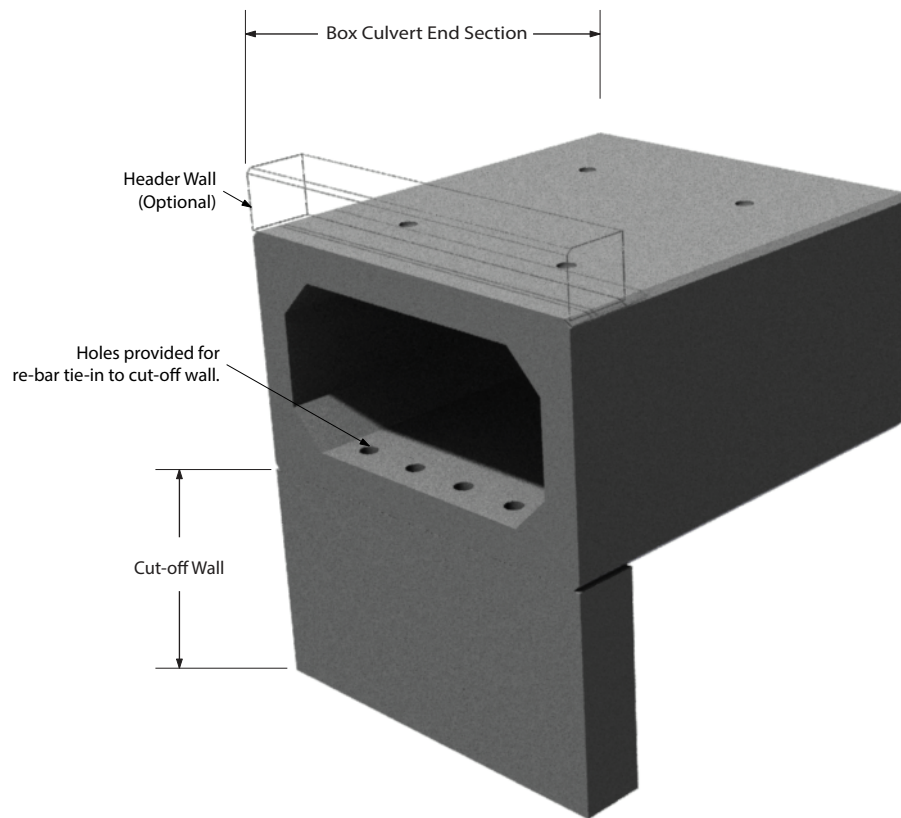
Special Box Sections  
and Fittings





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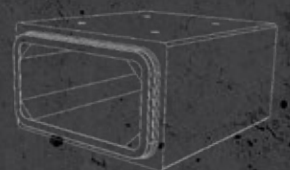


See Note 3

## Special Box Sections (Optional Cut-Off Wall)

### Notes

1. Contact our engineering department for special design concrete box culvert applications.
2. All dimensions are in millimeters unless otherwise shown.
3. Precast cut-off wall available for all box section end treatment types.

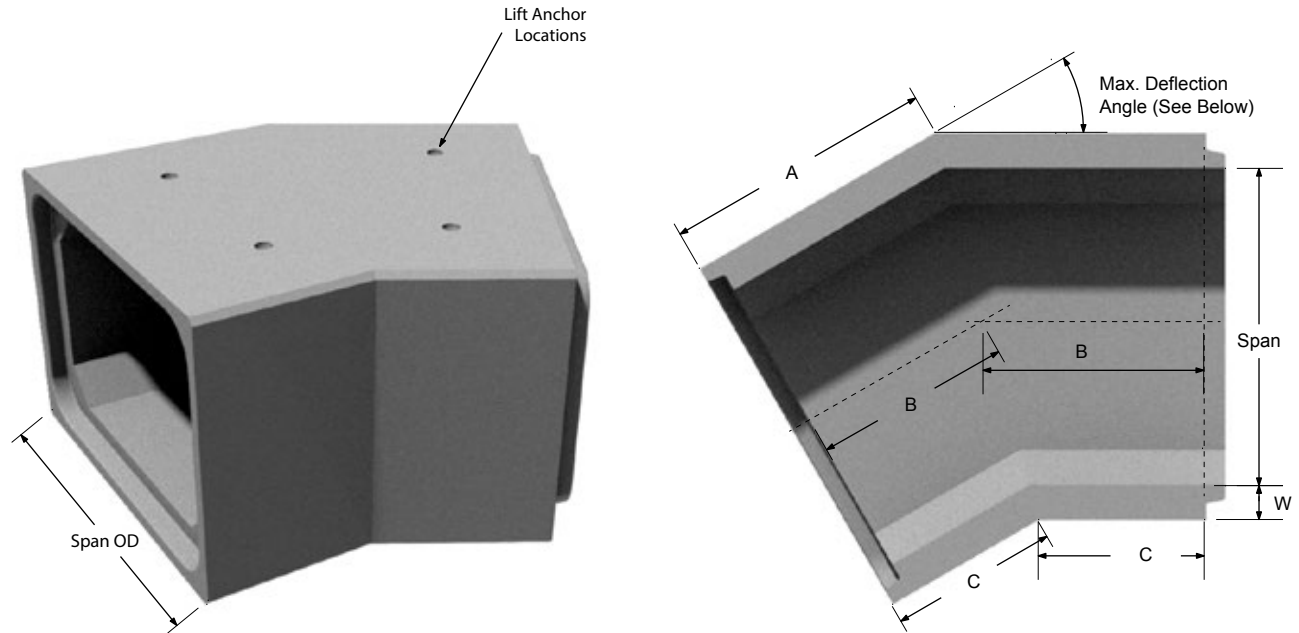






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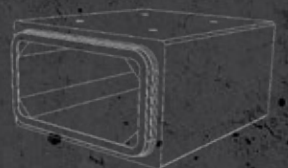


| Span | Max. Deflection Angle | Wall Thickness (W) | Span (OD) | A (max.) | B (constant) | C (min.) | Lift Anchor size |
|------|-----------------------|--------------------|-----------|----------|--------------|----------|------------------|
| mm   | degrees               | mm                 | mm        | mm       | mm           | mm       | tons             |
| 1800 | 75                    | 200                | 2200      | 2094     | 1250         | 406      | 4                |
| 2400 | 60                    | 200                | 2800      | 2058     | 1250         | 442      | 4                |
| 3000 | 45                    | 250                | 3500      | 1975     | 1250         | 525      | 8                |

## Box Section OPSS Bends

### Notes

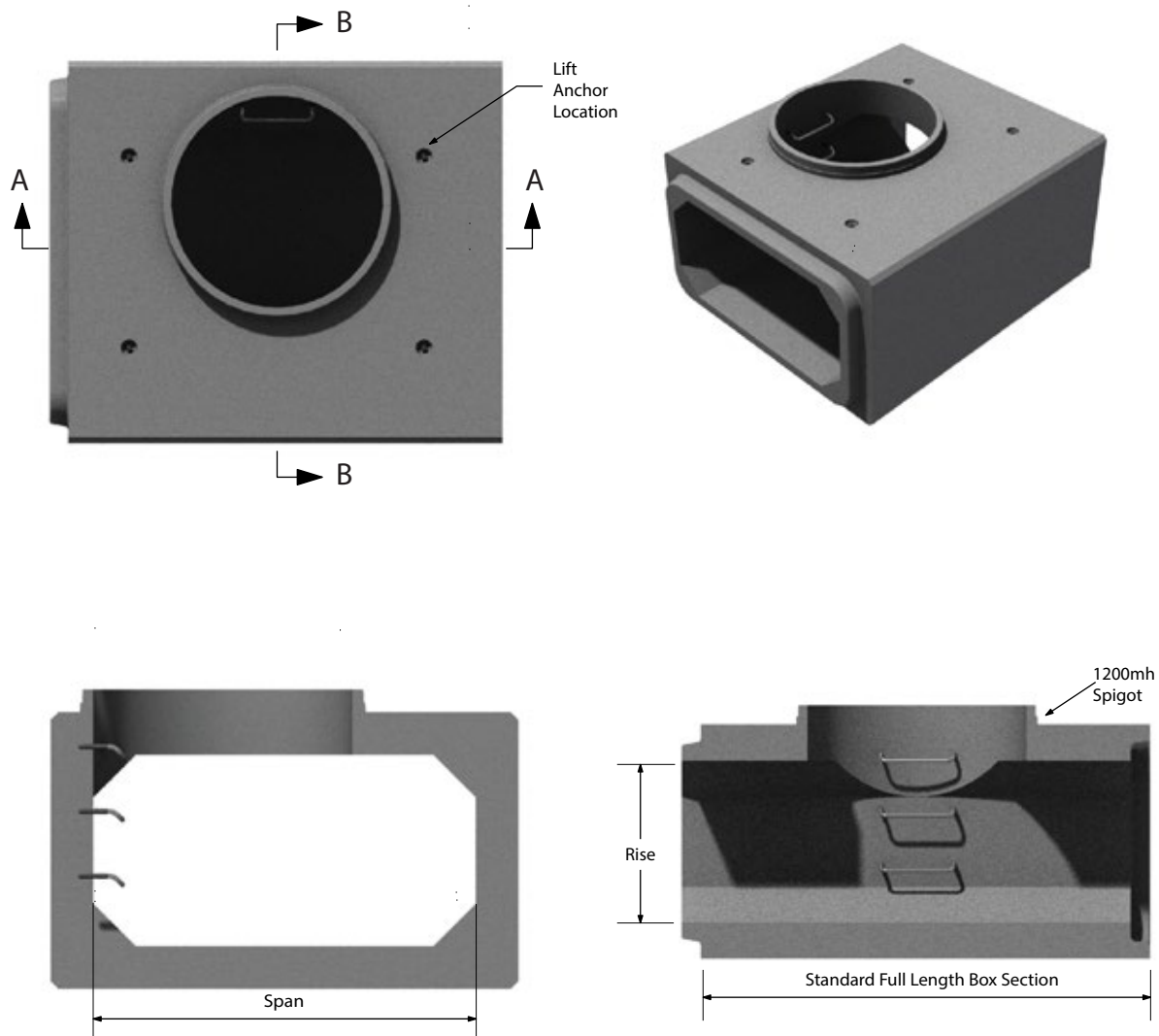
1. Manufactured in accordance with OPSS 1821 and CHBDC.
2. Above dimensions are based on standard center line length of 2.50 m.
3. Contact our engineering department for additional box bend information and angles not detailed.





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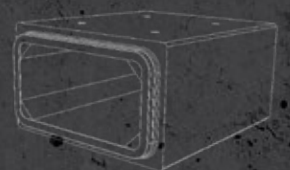
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## Box Section Maintenance Hole Tees

### Notes

1. Manufactured in accordance with OPSS 1821 and CHBDC.
2. Maintenance holes steps as per OPSD 405.010.
3. Above dimensions are in millimeter unless otherwise shown.





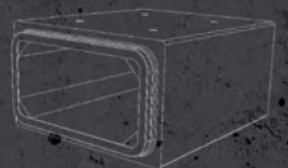
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| Designated Size<br>Span X Rise | Approximate Mass |        |
|--------------------------------|------------------|--------|
|                                | Plugs            | Caps   |
| mm                             | kg/pc            | kg/pc  |
| 1800 x 900                     | 1950             | 1984   |
| 1800 x 1200                    | 2439             | 2567   |
| 2400 x 1200                    | 3112             | 3050   |
| 2400 x 1500                    | 3725             | 3593   |
| 2400 x 1800                    | 4352             | 4409   |
| 3000 x 1500                    | 4781             | 4847   |
| 3000 x 1800                    | 5542             | 5530   |
| 3000 x 2100                    | 6302             | 6214   |
| 3000 x 2400                    | 7063             | 6897   |
| Custom                         | Varies           | Varies |

Box Section Plugs  
and Caps

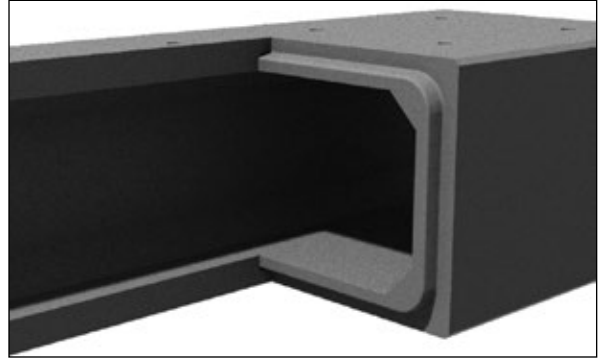
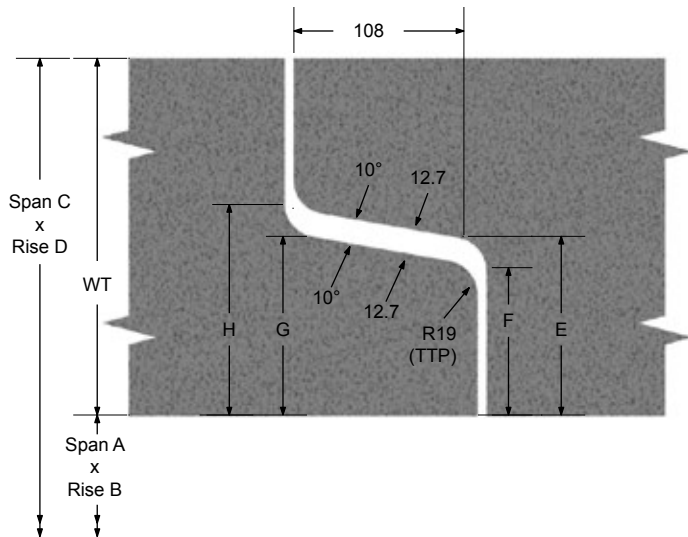






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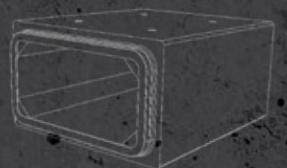


| Inside |        | Outside |        |      |      |       |       |     |
|--------|--------|---------|--------|------|------|-------|-------|-----|
| Span A | Rise B | Span C  | Rise D | E    | F    | G     | H     | WT  |
| 1800   | 1200   | 2200    | 1600   | 96.9 | 84.0 | 103.1 | 116.0 | 200 |
| 2400   | 1800   | 2800    | 2200   | 96.9 | 84.0 | 103.1 | 116.0 | 200 |

## Box Section OPSS Joint Details

### Notes

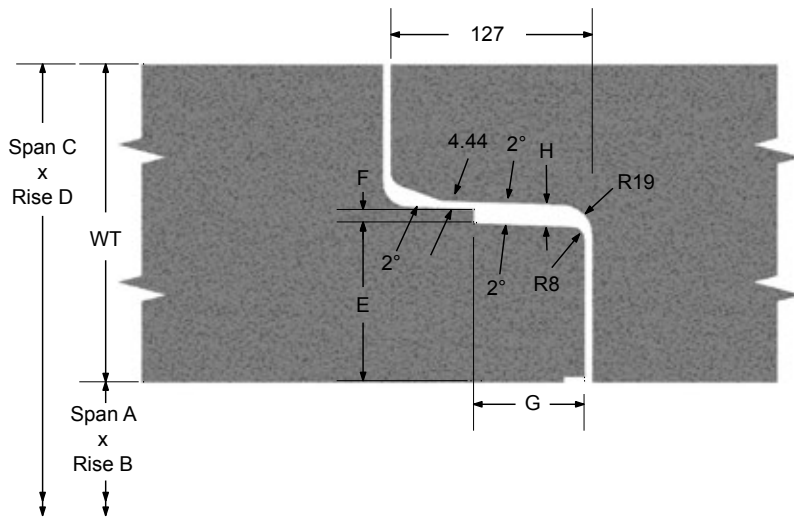
1. Box sizes and dimensions conform to those included in OPSS 1821.
2. Rubber gasket joint treatment available upon request.
3. See page 32 for box joint procedures.
4. All dimensions are in millimeters unless otherwise shown.





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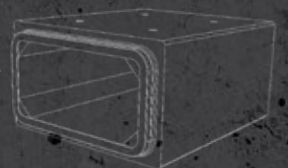


| Inside |        | Outside |        | E     | F    | G     | H     | WT  |
|--------|--------|---------|--------|-------|------|-------|-------|-----|
| Span A | Rise B | Span C  | Rise D |       |      |       |       |     |
| 1800   | 900    | 2200    | 1300   | 100.0 | 8.89 | 69.85 | 13.34 | 200 |
| 2400   | 1200   | 2800    | 1600   | 100.0 | 8.89 | 69.85 | 13.34 | 200 |
| 2400   | 1500   | 2800    | 1900   | 100.0 | 8.89 | 69.85 | 13.34 | 200 |
| 3000   | 1500   | 3500    | 2000   | 125.0 | 8.89 | 69.85 | 13.34 | 250 |
| 3000   | 1800   | 3500    | 2300   | 125.0 | 8.89 | 69.85 | 13.34 | 250 |
| 3000   | 2100   | 3500    | 2600   | 125.0 | 8.89 | 69.85 | 13.34 | 250 |
| 3000   | 2400   | 3500    | 2900   | 125.0 | 8.89 | 69.85 | 13.34 | 250 |

## Box Section OPSS Joint Details

### Notes

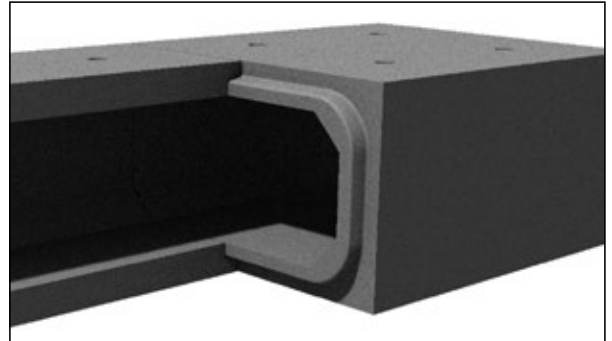
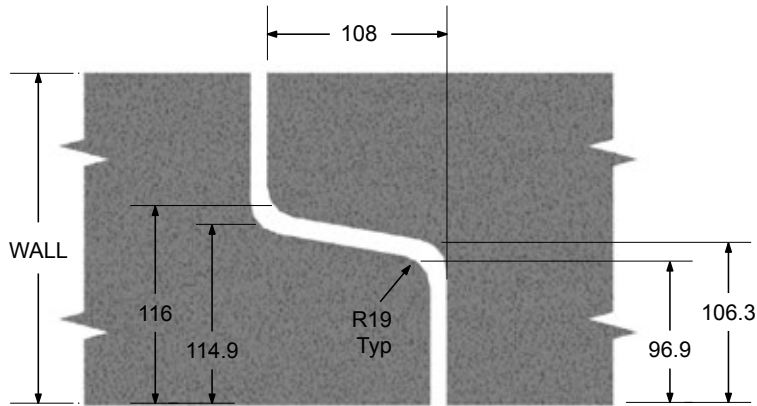
1. Box sizes and dimensions conform to those included in OPSS 1821.
2. Rubber gasket joint treatment available upon request.
3. See page 32 for box joint procedures.
4. All dimensions are in millimeters unless otherwise shown.





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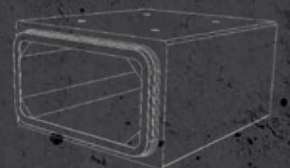


| Span  | Rise       | Wall                  | Haunch                |
|-------|------------|-----------------------|-----------------------|
| mm    | mm         | mm                    | mm                    |
| 1200  | 600 - 1200 | 200 / 250             | 200 / 250             |
| 1500  | 600 - 1500 | 200 / 250             | 200 / 250             |
| 1800  | 900 - 1800 | 200 / 250 / 300       | 200 / 250 / 300       |
| 2100  | 900 - 2100 | 200 / 250 / 300 / 350 | 200 / 250 / 300 / 350 |
| 2400  | 900 - 2400 | 200 / 250 / 300 / 350 | 200 / 250 / 300 / 350 |
| 2700  | 900 - 2700 | 200 / 250 / 300 / 350 | 200 / 250 / 300 / 350 |
| 3000  | 900 - 3000 | 250 / 300 / 350       | 250 / 300 / 350       |
| 3300  | 900 - 3300 | 250 / 300 / 350       | 250 / 300 / 350       |
| 3600  | 900 - 3600 | 250 / 300 / 350       | 250 / 300 / 350       |
| 3900  | 900 - 3600 | 300 / 350 / 400       | 300 / 350 / 400       |
| 4200  | 900 - 3600 | 300 / 350 / 400       | 300 / 350 / 400       |
| 4500  | 900 - 3600 | 300 / 350 / 400       | 300 / 350 / 400       |
| 4800  | 900 - 3600 | 300 / 350 / 400       | 300 / 350 / 400       |
| 5100+ | 900 - 3600 | 300 / 350 / 400       | 350 / 400 / 450       |

## Box Section Joint Detail

### Notes

1. Manufactured in accordance with OPSS 1821 and CHBDC.
2. Rise dimension is variable in 300mm increments.
3. Contact our engineering department for special design concrete box culvert applications.
4. See page 32 for box joint procedures.
5. All dimensions are in millimeters unless otherwise shown.

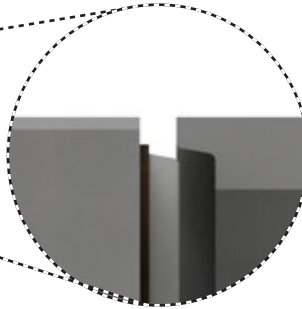
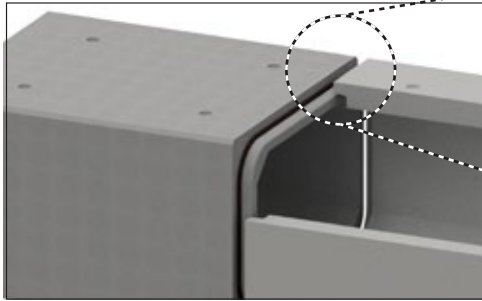






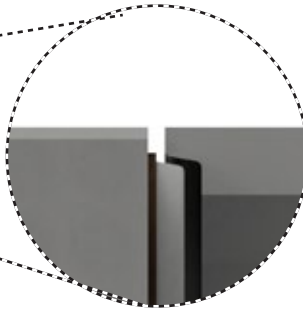
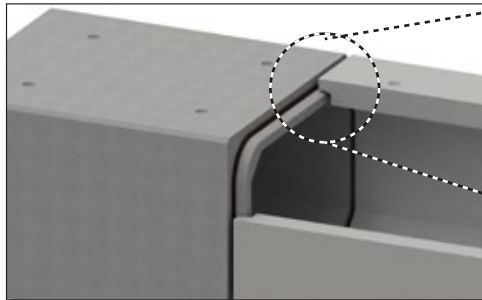
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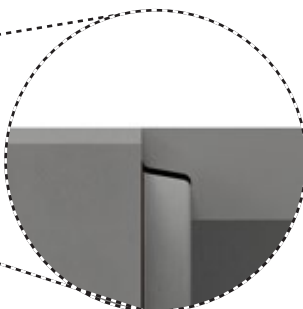
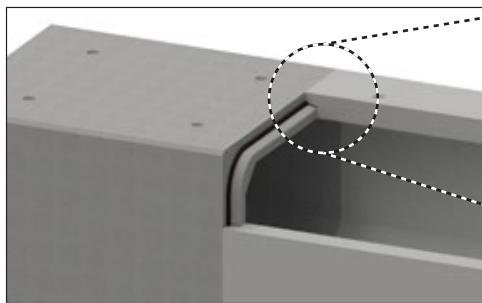
### Step 1

Clean all dirt and foreign objects off the bell and spigot. Ensure both the bell and spigot are free of cracks, chips and defects. Apply butyl tape around the perimeter of the spigot.



### Step 2

Align the spigot with the bell. Ensure the butyl tape is in contact with the entire circumference of both the bell taper and the spigot before fully homing the joint.



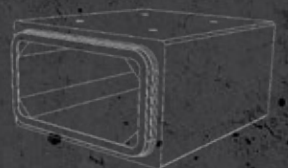
### Step 3

Engage the spigot into the bell to fully install, locking the joint into place. The butyl tape will deform between the bell and spigot creating the complete seal.

## Box Section Joint Procedure – Butyl Tape

#### Notes

1. The following above jointing procedure will ensure full optimization of pipe joint performance.
2. This jointing procedure applies to Box Sections available with butyl tape.





# MAINTENANCE HOLES



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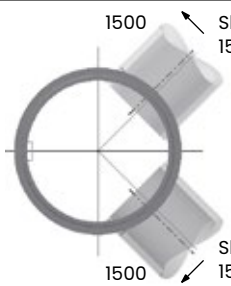
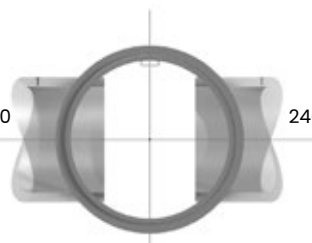
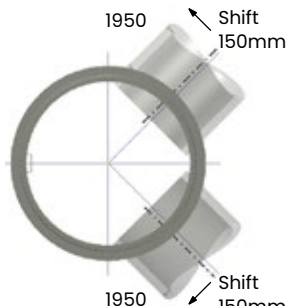
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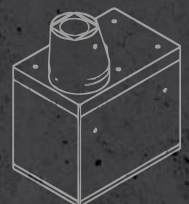
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| MH Size (mm) | Max. Pipe Size For Straight Through                                                      | Max. Pipe Size For Right Angle                                                                                            |
|--------------|------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| 1200         | 600     |  450<br>450                            |
| 1500         | 825     |  600<br>600                            |
| 1800         | 1050    |  825<br>825                            |
| 2400         | 1500   |  1050<br>1050                         |
| 3000         | 1950  |  1500 Shift 150mm<br>1500 Shift 150mm |
| 3600         | 2400  |  1950 Shift 150mm<br>1950 Shift 150mm |

## Maintenance Hole Circular Max Pipe Sizes

### Notes

- Knockouts for small diameter pipe leads 300mm and smaller can be provided in addition to what is shown.
- All dimensions are in millimeters unless otherwise shown.





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## 60° SEPARATION

| Pipe Size | 300  | 375  | 450  | 525  | 600  | 675  | 750  | 825  | 900  | 975  | 1050 | 1200 | 1350 | 1500 |
|-----------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 300       | 1500 |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 375       | 1500 | 1800 |      |      |      |      |      |      |      |      |      |      |      |      |
| 450       | 1800 | 1800 | 1800 |      |      |      |      |      |      |      |      |      |      |      |
| 525       | 1800 | 1800 | 1800 | 2400 |      |      |      |      |      |      |      |      |      |      |
| 600       | 1800 | 1800 | 2400 | 2400 | 2400 |      |      |      |      |      |      |      |      |      |
| 675       | 1800 | 2400 | 2400 | 2400 | 2400 | 2400 |      |      |      |      |      |      |      |      |
| 750       | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 |      |      |      |      |      |      |      |
| 825       | 2400 | 2400 | 2400 | 2400 | 2400 | 3000 | 3000 | 3000 |      |      |      |      |      |      |
| 900       | 2400 | 2400 | 2400 | 2400 | 2400 | 3000 | 3000 | 3000 | 3000 |      |      |      |      |      |
| 975       | 2400 | 2400 | 2400 | 2400 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 |      |      |      |      |
| 1050      | 2400 | 2400 | 2400 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3600 | 3600 |      |      |      |
| 1200      | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3600 | 3600 | 3600 | 3600 | 3600 |      |      |
| 1350      | 3000 | 3000 | 3000 | 3000 | 3000 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 |      |      |      |
| 1500      | 3000 | 3000 | 3000 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 |      |      |      |      |
| 1650      | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 |      |      |      |      |      |      |
| 1800      | 3600 | 3600 | 3600 | 3600 | 3600 |      |      |      |      |      |      |      |      |      |
| 1950      | 3600 | 3600 | 3600 |      |      |      |      |      |      |      |      |      |      |      |

## Maintenance Hole Circular Max Pipe Sizes

### Notes

1. Determine all degrees of separation between each set of pipes.
2. If an angle measured does not correspond to any of the tables then round down the angle to the nearest corresponding table.
3. Take each set of pipes and their corresponding angle of separation then compare them to their appropriate table.
4. The largest size of MH will govern – Table is based on OPSD 701.021 (Nov 2014 Rev #4)





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## 75° SEPARATION

| Pipe Size | 300  | 375  | 450  | 525  | 600  | 675  | 750  | 825  | 900  | 975  | 1050 | 1200 | 1350 | 1500 |
|-----------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 300       | 1200 |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 375       | 1200 | 1200 |      |      |      |      |      |      |      |      |      |      |      |      |
| 450       | 1500 | 1500 | 1500 |      |      |      |      |      |      |      |      |      |      |      |
| 525       | 1500 | 1500 | 1500 | 1800 |      |      |      |      |      |      |      |      |      |      |
| 600       | 1500 | 1500 | 1800 | 1800 | 1800 |      |      |      |      |      |      |      |      |      |
| 675       | 1500 | 1800 | 1800 | 1800 | 1800 | 1800 |      |      |      |      |      |      |      |      |
| 750       | 1800 | 1800 | 1800 | 1800 | 1800 | 2400 | 2400 |      |      |      |      |      |      |      |
| 825       | 1800 | 1800 | 1800 | 1800 | 2400 | 2400 | 2400 | 2400 |      |      |      |      |      |      |
| 900       | 1800 | 1800 | 1800 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 |      |      |      |      |      |
| 975       | 1800 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 3000 |      |      |      |      |
| 1050      | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 3000 | 3000 | 3000 |      |      |      |
| 1200      | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 |      |      |
| 1350      | 2400 | 2400 | 2400 | 2400 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3600 | 3600 |      |
| 1500      | 2400 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3600 | 3600 | 3600 | 3600 | 3600 |
| 1650      | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 |      |
| 1800      | 3000 | 3000 | 3000 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 |      |      |
| 1950      | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 |      |      |      |
| 2100      | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 |      |      |      |      |      |      |
| 2250      | 3600 | 3600 | 3600 | 3600 | 3600 |      |      |      |      |      |      |      |      |      |
| 2400      | 3600 | 3600 |      |      |      |      |      |      |      |      |      |      |      |      |

## Maintenance Hole Circular Max Pipe Sizes

### Notes

1. Determine all degrees of separation between each set of pipes.
2. If an angle measured does not correspond to any of the tables then round down the angle to the nearest corresponding table.
3. Take each set of pipes and their corresponding angle of separation then compare them to their appropriate table.
4. The largest size of MH will govern – Table is based on OPSD 701.021 (Nov 2014 Rev #4)







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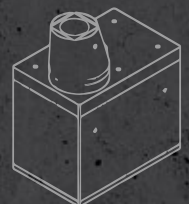
## 90° SEPARATION

| Pipe Size | 300  | 375  | 450  | 525  | 600  | 675  | 750  | 825  | 900  | 975  | 1050 | 1200 | 1350 | 1500 | 1650 | 1800 | 1950 |
|-----------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 300       | 1200 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 375       | 1200 | 1200 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 450       | 1200 | 1200 | 1200 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 525       | 1200 | 1200 | 1500 | 1500 |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 600       | 1200 | 1500 | 1500 | 1500 | 1500 |      |      |      |      |      |      |      |      |      |      |      |      |
| 675       | 1500 | 1500 | 1500 | 1500 | 1800 | 1800 |      |      |      |      |      |      |      |      |      |      |      |
| 750       | 1500 | 1500 | 1500 | 1500 | 1800 | 1800 | 1800 |      |      |      |      |      |      |      |      |      |      |
| 825       | 1500 | 1500 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |      |      |      |      |      |      |      |      |      |
| 900       | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |      |      |      |      |      |      |      |      |
| 975       | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 2400 | 2400 | 2400 | 2400 |      |      |      |      |      |      |      |
| 1050      | 1800 | 1800 | 1800 | 1800 | 1800 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 |      |      |      |      |      |      |
| 1200      | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 3000 | 3000 |      |      |      |      |      |
| 1350      | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 3000 | 3000 | 3000 | 3000 | 3000 |      |      |      |      |
| 1500      | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 |      |      |      |
| 1650      | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3600 | 3600 | 3600 |      |      |
| 1800      | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3600 | 3600 | 3600 | 3600 | 3600 |      |
| 1950      | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 |
| 2100      | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 |      |      |      |
| 2250      | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 |      |      |      |      |
| 2400      | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 |      |      |      |      |      |

## Maintenance Hole Circular Max Pipe Sizes

### Notes

1. Determine all degrees of separation between each set of pipes.
2. If an angle measured does not correspond to any of the tables then round down the angle to the nearest corresponding table.
3. Take each set of pipes and their corresponding angle of separation then compare them to their appropriate table.
4. The largest size of MH will govern - Table is based on OPSD 701.021 (Nov 2014 Rev #4)





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## 105° SEPARATION

| Pipe Size | 300  | 375  | 450  | 525  | 600  | 675  | 750  | 825  | 900  | 975  | 1050 | 1200 | 1350 | 1500 | 1650 | 1800 | 1950 | 2100 | 2250 | 2400 |
|-----------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 300       | 1200 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 375       | 1200 | 1200 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 450       | 1200 | 1200 | 1200 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 525       | 1200 | 1200 | 1200 | 1200 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 600       | 1200 | 1200 | 1200 | 1200 | 1500 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 675       | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 750       | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 825       | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1800 | 1800 |      |      |      |      |      |      |      |      |      |      |      |      |
| 900       | 1500 | 1500 | 1500 | 1500 | 1500 | 1800 | 1800 | 1800 | 1800 |      |      |      |      |      |      |      |      |      |      |      |
| 975       | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |      |      |      |      |      |      |      |      |      |      |
| 1050      | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 2400 | 2400 |      |      |      |      |      |      |      |      |      |
| 1200      | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 |      |      |      |      |      |      |      |      |
| 1350      | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 3000 |      |      |      |      |      |      |      |
| 1500      | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 3000 | 3000 | 3000 |      |      |      |      |      |      |
| 1650      | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 |      |      |      |      |      |
| 1800      | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3600 |      |      |      |      |
| 1950      | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3600 | 3600 | 3600 |      |      |      |
| 2100      | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 |      |      |
| 2250      | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 |      |      |      |
| 2400      | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 |      |      |      |      |

## Maintenance Hole Circular Max Pipe Sizes

### Notes

1. Determine all degrees of separation between each set of pipes.
2. If an angle measured does not correspond to any of the tables then round down the angle to the nearest corresponding table.
3. Take each set of pipes and their corresponding angle of separation then compare them to their appropriate table.
4. The largest size of MH will govern – Table is based on OPSD 701.021 (Nov 2014 Rev #4)





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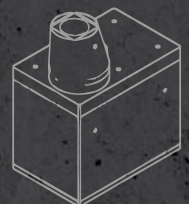
## 135° SEPARATION

| Pipe Size | 300  | 375  | 450  | 525  | 600  | 675  | 750  | 825  | 900  | 975  | 1050 | 1200 | 1350 | 1500 | 1650 | 1800 | 1950 | 2100 | 2250 | 2400 |
|-----------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 300       | 1200 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 375       | 1200 | 1200 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 450       | 1200 | 1200 | 1200 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 525       | 1200 | 1200 | 1200 | 1200 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 600       | 1200 | 1200 | 1200 | 1200 | 1200 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 675       | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 750       | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 825       | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 |      |      |      |      |      |      |      |      |      |      |      |      |
| 900       | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |      |      |      |      |      |      |      |      |      |      |      |
| 975       | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |      |      |      |      |      |      |      |      |      |      |
| 1050      | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |      |      |      |      |      |      |      |      |      |
| 1200      | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 |      |      |      |      |      |      |      |      |
| 1350      | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 |      |      |      |      |      |      |      |
| 1500      | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 |      |      |      |      |      |      |
| 1650      | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 |      |      |      |      |      |
| 1800      | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 |      |      |      |      |
| 1950      | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 |      |      |      |
| 2100      | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 |      |      |
| 2250      | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 |      |
| 2400      | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 |

## Maintenance Hole Circular Max Pipe Sizes

### Notes

1. Determine all degrees of separation between each set of pipes.
2. If an angle measured does not correspond to any of the tables then round down the angle to the nearest corresponding table.
3. Take each set of pipes and their corresponding angle of separation then compare them to their appropriate table.
4. The largest size of MH will govern – Table is based on OPSD 701.021 (Nov 2014 Rev #4)







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## 150° - 180° SEPARATION

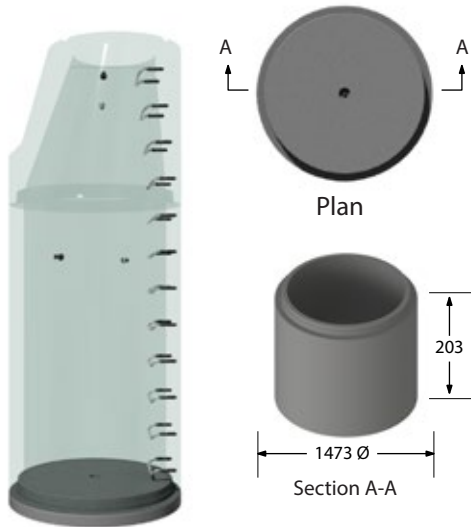
| Pipe Size | 300  | 375  | 450  | 525  | 600  | 675  | 750  | 825  | 900  | 975  | 1050 | 1200 | 1350 | 1500 | 1650 | 1800 | 1950 | 2100 | 2250 | 2400 |
|-----------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 300       | 1200 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 375       | 1200 | 1200 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 450       | 1200 | 1200 | 1200 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 525       | 1200 | 1200 | 1200 | 1200 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 600       | 1200 | 1200 | 1200 | 1200 | 1200 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 675       | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 750       | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 825       | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 |      |      |      |      |      |      |      |      |      |      |      |      |
| 900       | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |      |      |      |      |      |      |      |      |      |      |      |
| 975       | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |      |      |      |      |      |      |      |      |      |      |
| 1050      | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |      |      |      |      |      |      |      |      |      |
| 1200      | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 |      |      |      |      |      |      |      |      |
| 1350      | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 |      |      |      |      |      |      |      |
| 1500      | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 | 2400 |      |      |      |      |      |      |
| 1650      | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 |      |      |      |      |      |
| 1800      | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 |      |      |      |      |
| 1950      | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 |      |      |      |
| 2100      | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 |      |      |
| 2250      | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 |      |
| 2400      | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 |

## Maintenance Hole Circular Max Pipe Sizes

### Notes

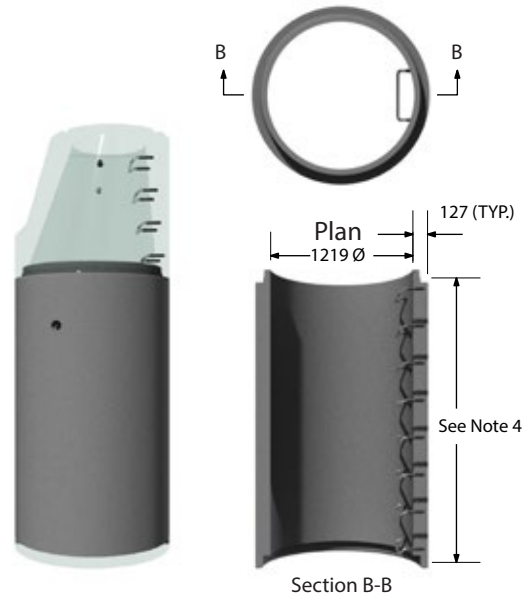
1. Determine all degrees of separation between each set of pipes.
2. If an angle measured does not correspond to any of the tables then round down the angle to the nearest corresponding table.
3. Take each set of pipes and their corresponding angle of separation then compare them to their appropriate table.
4. The largest size of MH will govern – Table is based on OPSD 701.021 (Nov 2014 Rev #4)





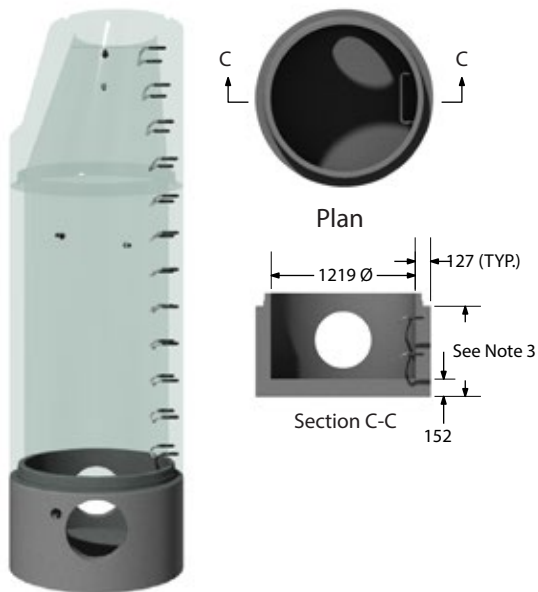
**Base Slab**

(mass - 759 kg)



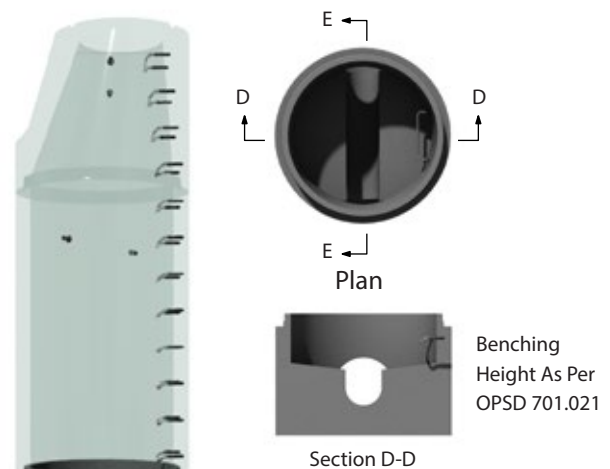
**Riser**

(mass - 1340 kg/m)



**Standard Mono Base**

(mass - 720 kg + 1340 kg/m)



**Benched Mono Base**

**Maintenance Hole  
1200mm Riser and  
Base Sections**

**Notes**

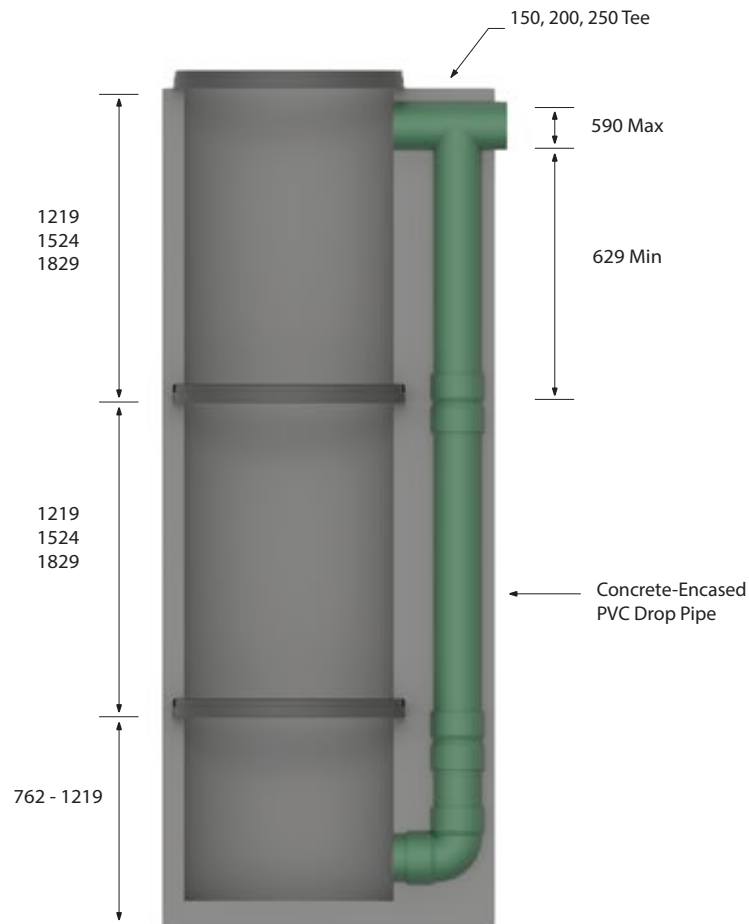
1. Manufactured in accordance with OPSD 701.031 and 701.032.
2. See page 35 for maximum pipe size and alignment angles.
3. Available mono base heights - 610, 762, 914, 1067, 1219, 1372, 1524, 1676 and 1829.
4. Available riser section heights - 305, 610, 914, 1219, 1524 and 1829.
5. Maintenance hole steps (circular hollow aluminum) as per OPSD 405.010.
6. All dimensions are in millimeters unless otherwise shown.
7. 1200 conversion riser requires gasket on both spigot ends.
8. Pre-benching available.





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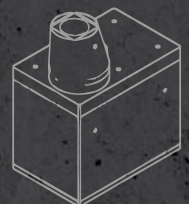


| Sewer ID | Drop Pipe ID | Application        |
|----------|--------------|--------------------|
| 200      | 150-200      | Storm and Sanitary |
| 250      | 150-250      | Storm and Sanitary |
| 300      | 150-300      | Storm and Sanitary |

## Drop Maintenance Holes

### Notes

1. Concrete shall be placed to undisturbed ground and the outside face of the maintenance hole, but there shall be a minimum of 150mm of 15mpa concrete around the drop pipe.
2. Manufactured in accordance with OPSD 1003.010.
3. Dimensions are in millimetres unless otherwise shown.
4. 300 Drop only includes vertical pipe and 90 degree bend, no tee at top.

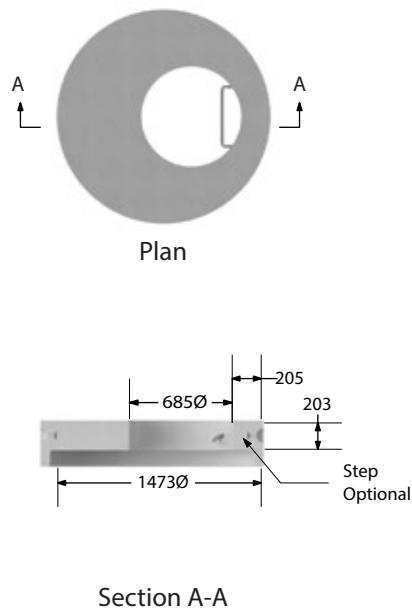




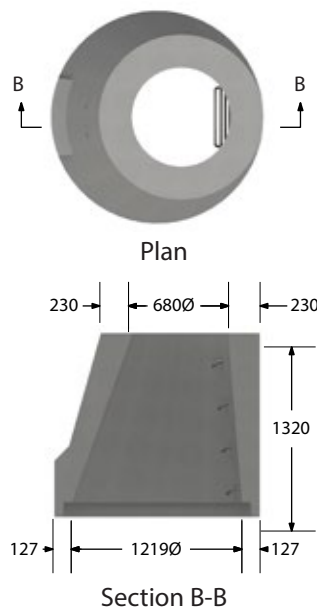


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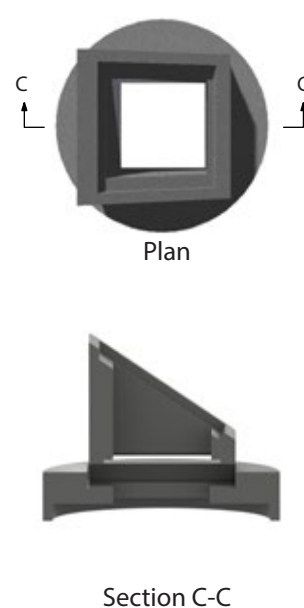
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**Flap Cap**  
(mass - 742 kg)



**Cone**  
(mass - 1975 kg)



**Ditch Inlet Flat Cap**  
(mass - 742 kg + 1133 kg/m)

## Maintenance Hole 1200mm Top Treatments

### Notes

1. Manufactured in accordance with OPSD 701.030 and 705.030 (ditch inlet top only. See page 88 for ditch inlet information).
2. Maintenance hole steps (circular hollow aluminum) as per OPSD 405.010.
3. All dimensions are in millimeters unless otherwise shown.



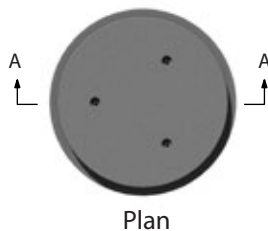


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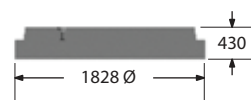
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(mass - 1786 kg)



Plan

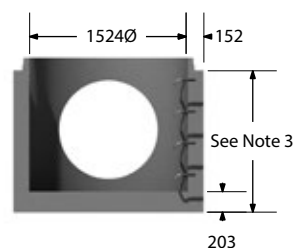


Section A-A

## Base Slab



Plan

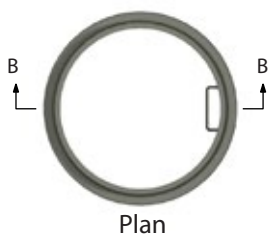


Section C-C

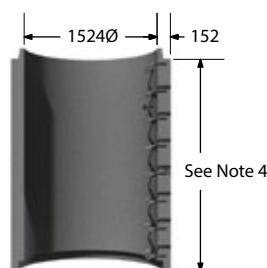
## Standard Mono Base



(mass - 2007 kg/m)



Plan



Section B-B

## Riser

## Maintenance Hole 1500mm Riser and Base Sections

### Notes

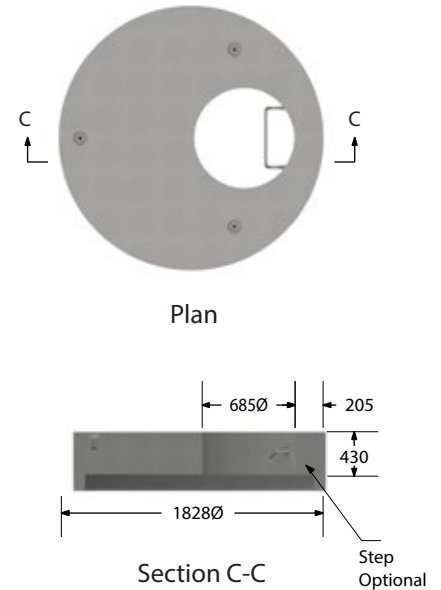
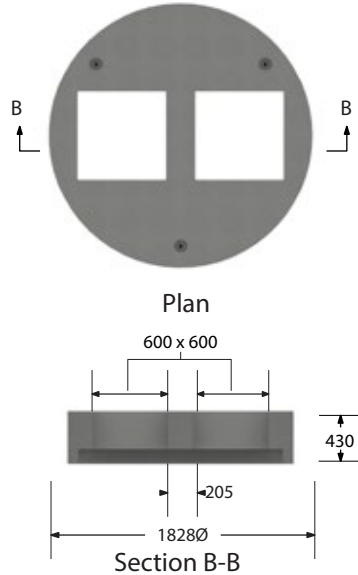
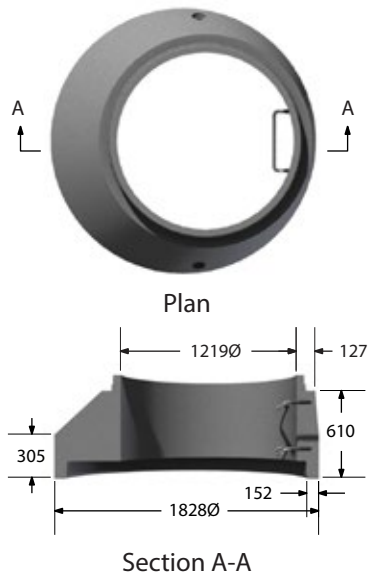
1. Manufactured in accordance with OPSD 701.040 and 701.041.
2. See page 35 for maximum pipe size and alignment angles.
3. Available mono base heights - 610, 914, 1067, 1219, 1372, 1524, 1676, 1829, 1981, 2134, 2286 and 2438.
4. Available riser section heights - 305, 610, 914, 1219, 1524, 1829, 2134 and 2438.
5. Maintenance hole steps (circular hollow aluminum) as per OPSD 405.010.
6. All dimensions are in millimeters unless otherwise shown.
7. Pre-benching available.





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**Transition**  
(mass - 1633 kg)



**Twin Inlet Flat Cap**  
(mass - 1600 kg)

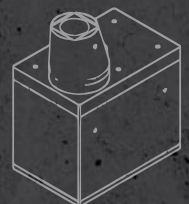


**Flat Cap**  
(mass - 1879 kg)

## Maintenance Hole 1500mm Top Treatments

### Notes

1. Manufactured in accordance with OPSD 701.040 and 703.011 and 703.021.
2. Maintenance hole steps (circular hollow aluminum) as per OPSD 405.010.
3. All dimensions are in millimeters unless otherwise shown.





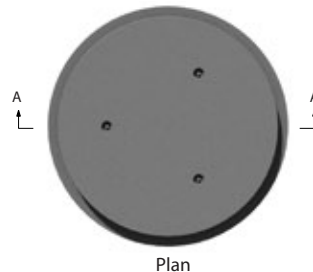


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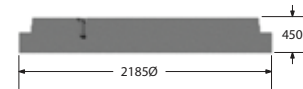
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(mass - 2540 kg)

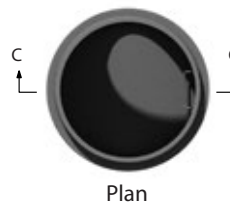


Plan

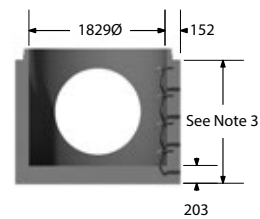


Section A-A

**Base Slab**



Plan

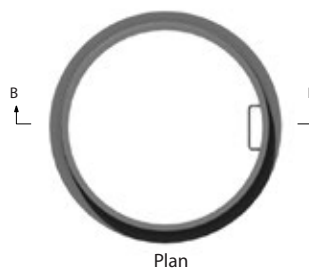


Section C-C

**Standard Mono Base**

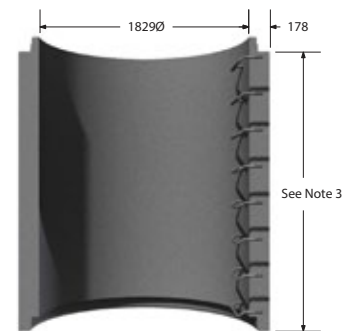


(mass - 2846 ka/m)



Plan

**Riser**



Section B-B

## Maintenance Hole 1800mm Riser and Base Sections

### Notes

1. Manufactured in accordance with OPSD 701.051.
2. See page 35 for maximum pipe size and alignment angles.
3. Available mono base heights - 610, 914, 1067, 1219, 1372, 1524, 1676, 1829, 1981, 2134, 2286 and 2438.
4. Available riser section heights - 305, 610, 914, 1219, 1524, 1829, 2134 and 2438.
5. Maintenance hole steps (circular hollow aluminum) as per OPSD 405.010.
6. All dimensions are in millimeters unless otherwise shown.



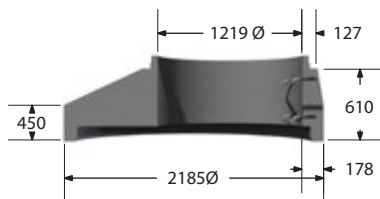


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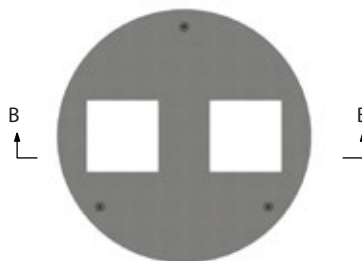
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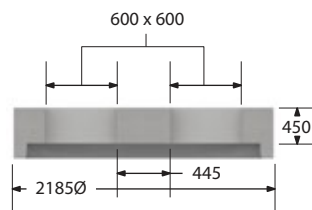
Plan



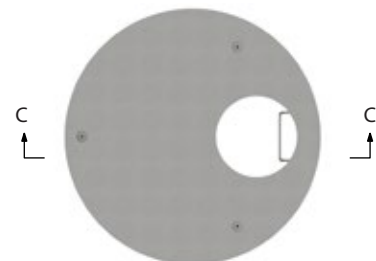
Section A-A



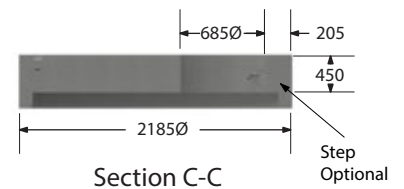
Plan



Section B-B



Plan



Section C-C



**Transition**

(mass - 2570 kg)



**Twin Inlet Flat Cap**

(mass - 2430 kg)



**Flap Cap**

(mass - 2704 kg)

## Maintenance Hole 1800mm Transition and Top Sections

### Notes

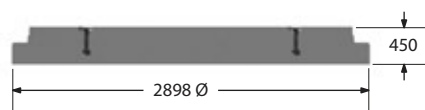
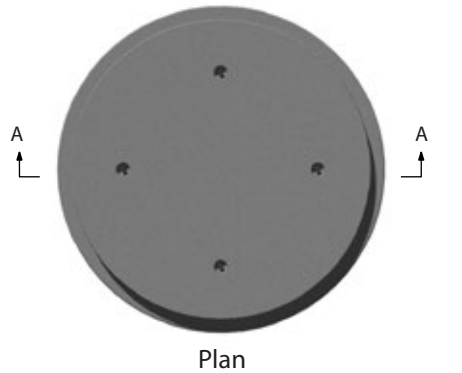
1. Manufactured in accordance with OPSD 701.050, 703.012 and 703.022.
2. Maintenance hole steps (circular hollow aluminum) as per OPSD 405.010.
3. All dimensions are in millimeters unless otherwise shown.





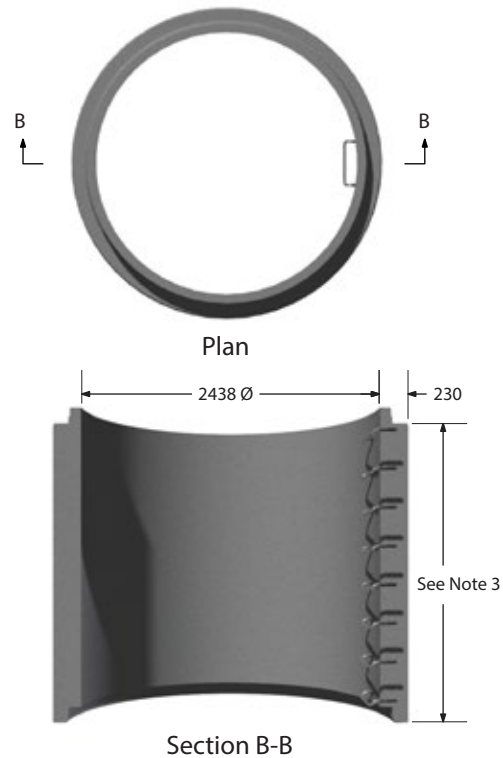
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**Base Slab**

(mass - 4480 kg)



**Riser**

(mass - 4866 kg/m)

## Maintenance Hole 2400mm Riser and Base Slab

### Notes

1. Manufactured in accordance with OPSD 701.061.
2. See page 35 for maximum pipe size and alignment angles.
3. Available riser section heights - 610, 914, 1219, 1524, 1829, 2134, and 2438.
4. Maintenance hole steps (circular hollow aluminum) as per OPSD 405.010.
5. All dimensions are in millimeters unless otherwise shown.
6. 1200 conversion riser requires gasket on both spigot ends.





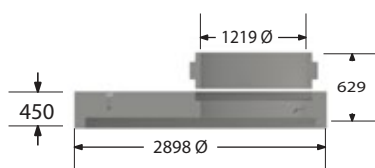


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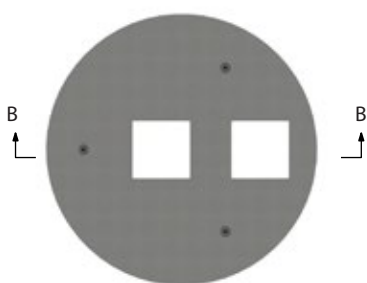
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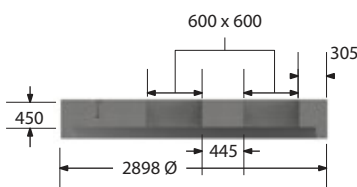
Plan



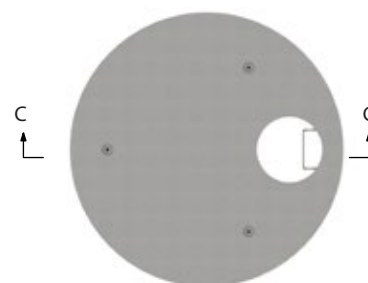
Section A-A



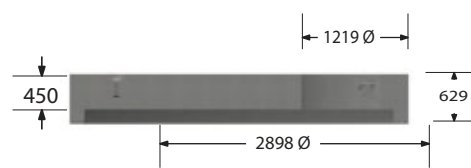
Plan



Section B-B



Plan



Section C-C



**Transition**

(mass - 4668 kg)



**Twin Inlet Flat Cap**

(mass - 4655 kg)



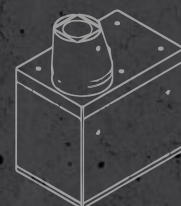
**Flat Cap**

(mass - 4930 kg)

## Maintenance Hole 2400mm Transition and Top Sections

### Notes

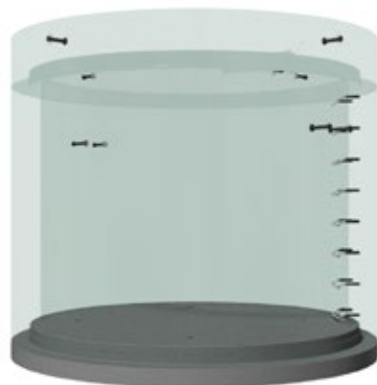
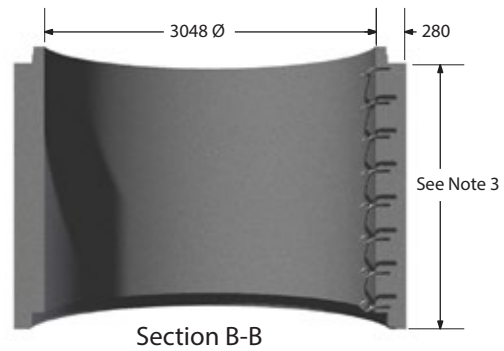
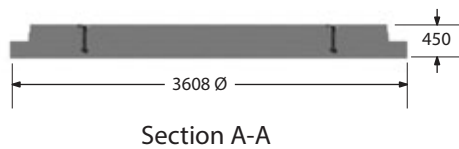
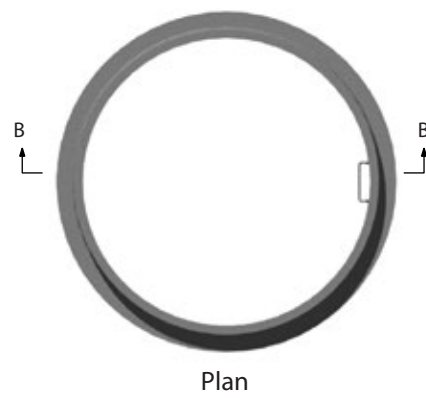
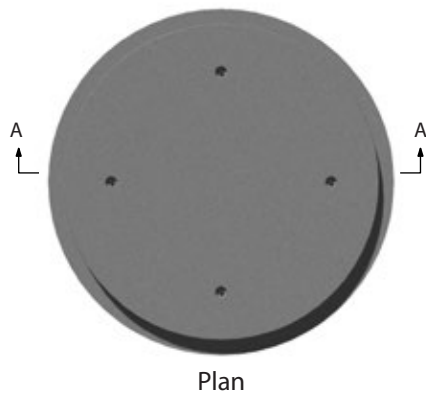
1. Manufactured in accordance with OPSD 701.060 and 703.013, and 703.023.
2. Maintenance hole steps (circular hollow aluminum) as per OPSD 405.010.
3. All dimensions are in millimeters unless otherwise shown.





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**Base Slab**  
(mass - 6944 kg)

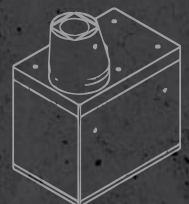


**Riser**  
(mass - 7400 kg/m)

## Maintenance Hole 3000mm Riser and Base Slab

### Notes

1. Manufactured in accordance with OPSD 701.071.
2. See page 35 for maximum pipe size and alignment angles.
3. Available riser section heights - 610, 914, 1219, 1524, 1829, 2134, and 2438.
4. Maintenance hole steps (circular hollow aluminum) as per OPSD 405.010.
5. All dimensions are in millimeters unless otherwise shown.



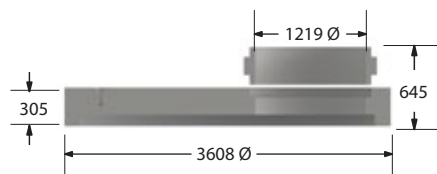


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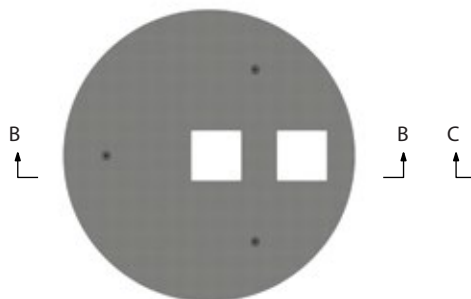
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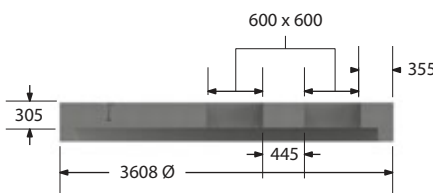
Plan



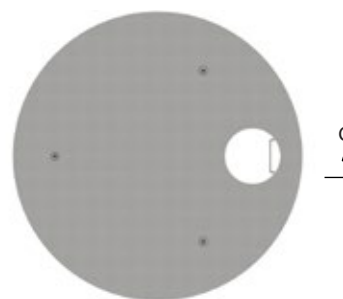
Section A-A



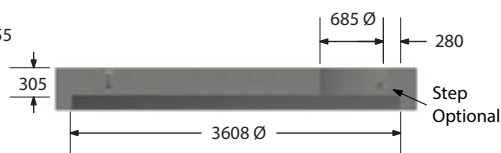
Plan



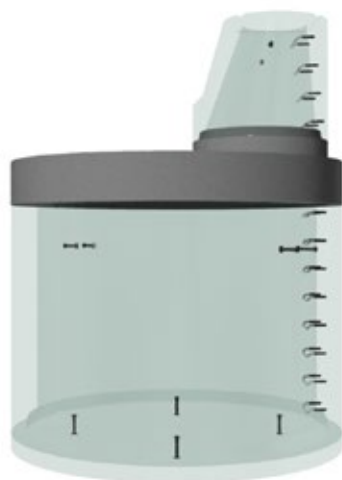
Section B-B



Plan



Section C-C



**Transition**

(mass - 7664 kg)



**Twin Inlet Flat Cap**

(mass - 7743 kg)



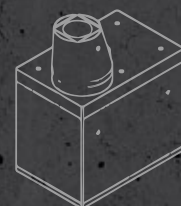
**Flat Cap**

(mass - 7945 kg)

## Maintenance Hole 3000mm Transition and Top Sections

### Notes

1. Manufactured in accordance with OPSD 701.070 and 703.014, and 703.024.
2. Maintenance hole steps (circular hollow aluminum) as per OPSD 405.010.
3. All dimensions are in millimeters unless otherwise shown.







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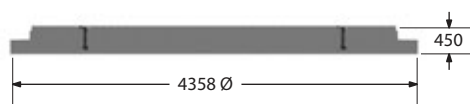
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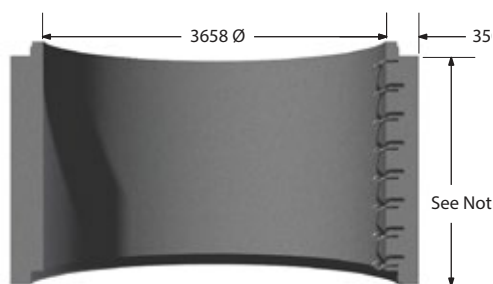
Plan



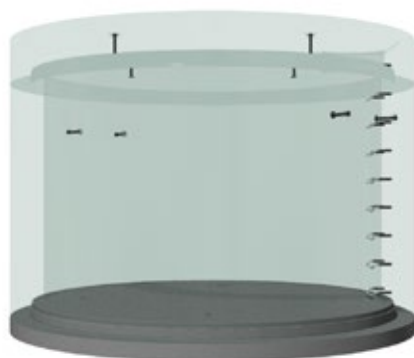
Plan



Section A-A



Section B-B



**Base Slab**

(mass - 10140 kg)



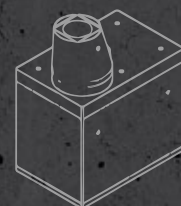
**Riser**

(mass - 10808 kg/m)

## Maintenance Hole 3600mm Riser and Base Slab

### Notes

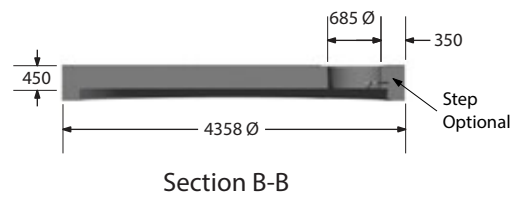
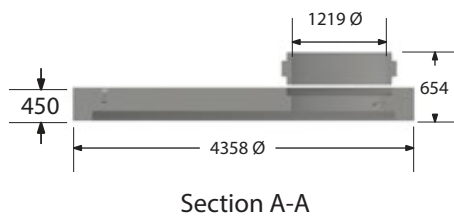
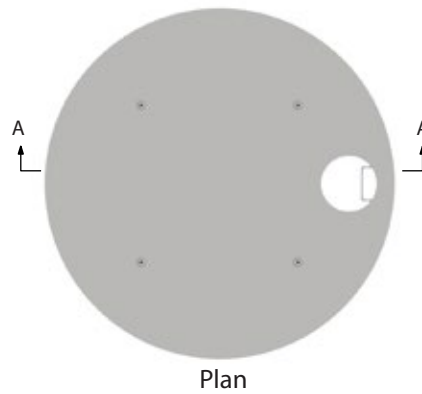
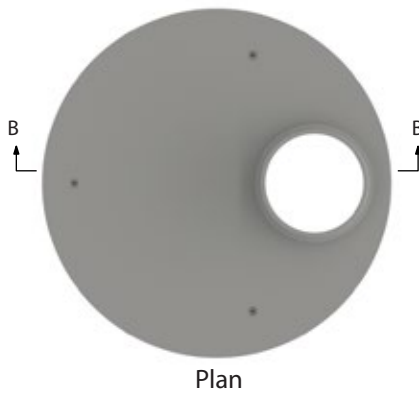
1. Manufactured in accordance with OPSD 701.081.
2. See page 35 for maximum pipe size and alignment angles.
3. Available riser section heights - 610, 914, 1219, 1524, 1829, 2134, and 2438.
4. Maintenance hole steps (circular hollow aluminum) as per OPSD 405.010.
5. All dimensions are in millimeters unless otherwise shown.





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**Transition**  
(mass - 11932 kg)

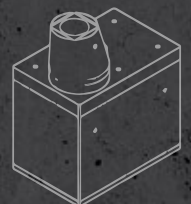


**Flap Cap**  
(mass - 10500 kg)

## Maintenance Hole 3600mm Transition and Flat Cap

### Notes

1. Manufactured in accordance with OPSD 701.080 and 701.015.
2. Maintenance hole steps (circular hollow aluminum) as per OPSD 405.010.
3. All dimensions are in millimeters unless otherwise shown.





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### Max Pipe Size Per Given Wall Size (Perpendicular or 45°)

|                                                  |                                                  |                                                  |
|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|
| <p><b>1219 Wall</b></p> <p>750 Ø 375 Ø 45°</p>   | <p><b>1524 Wall</b></p> <p>975 Ø 525 Ø 45°</p>   | <p><b>1829 Wall</b></p> <p>1200 Ø 675 Ø 45°</p>  |
| <p><b>2438 Wall</b></p> <p>1800 Ø 1050 Ø 45°</p> | <p><b>3048 Wall</b></p> <p>2250 Ø 1350 Ø 45°</p> | <p><b>3810 Wall</b></p> <p>2700 Ø 1800 Ø 45°</p> |
| <p><b>4270 Wall</b></p> <p>3000 Ø 2100 Ø 45°</p> |                                                  |                                                  |

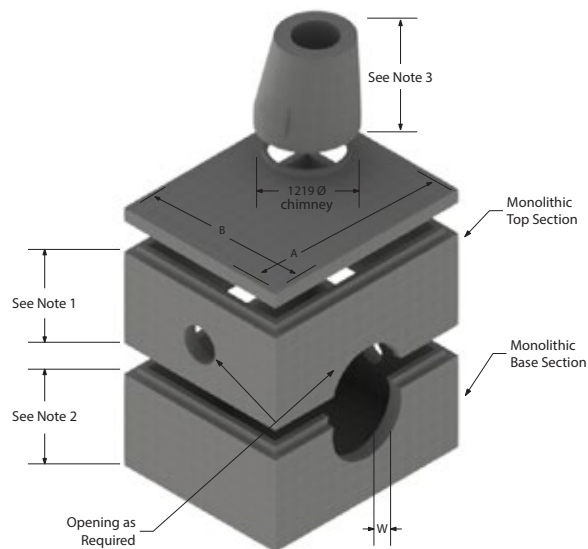
## Wetcast Maintenance Hole Box Chambers – Max Pipe Size

### Notes

1. Designed in accordance with CSA S6 – CHBDC.
2. Chamber depth and connecting pipe size will determine chamber size and wall thickness.
3. See page 44 for 1200mm tapered top details.
4. Maintenance hole steps are circular hollow aluminum as per OPSD 405.010
5. All dimensions are in millimeters unless otherwise shown.







| Box Name | Inside Dimensions | Outside Dimensions |      | Top Slap Thickness | Bott. Slap Thickness | Wall (W) Thickness |
|----------|-------------------|--------------------|------|--------------------|----------------------|--------------------|
|          |                   | A                  | B    |                    |                      |                    |
| M-3-3    | 914 x 914         | 1218               | 1218 | 152                | 152                  | 152                |
| M-4      | 1219 x 1219       | 1677               | 1677 | 229                | 229                  | 229                |
| M-5      | 1524 x 1829       | 1982               | 2287 | 229                | 229                  | 229                |
| M-5.5    | 1829 x 1829       | 2287               | 2287 | 229                | 229                  | 229                |
| M-6.5    | 1829 x 2438       | 2287               | 2896 | 229                | 229                  | 229                |
| M-7.5    | 1829 x 3048       | 2287               | 3506 | 229                | 229                  | 229                |
| M-8      | 2438 x 2438       | 2896               | 2896 | 254                | 254                  | 229                |
| M-9      | 2438 x 3048       | 2896               | 3506 | 254                | 254                  | 229                |
| M-9.5    | 3048 x 3048       | 3506               | 3506 | 254                | 254                  | 229                |
| M-10     | 2438 x 3810       | 2896               | 4268 | 254                | 254                  | 229                |
| M-11     | 3048 x 3810       | 3506               | 4268 | 254                | 254                  | 229                |
| M-12     | 3810 x 3810       | 4260               | 4260 | 254                | 254                  | 229                |
| M-13     | 2438 x 4270       | 2896               | 4728 | 254                | 254                  | 229                |
| M-14     | 3048 x 4270       | 3506               | 4728 | 254                | 254                  | 229                |
| M-15     | 3810 x 4270       | 4260               | 4728 | 300                | 300                  | 229                |
| M-16     | 4270 x 4270       | 4728               | 4728 | 300                | 300                  | 229                |

## Wetcast Maintenance Hole Box Chambers

### Notes

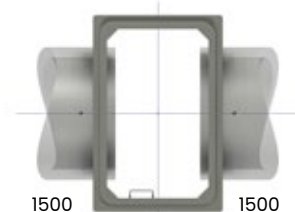
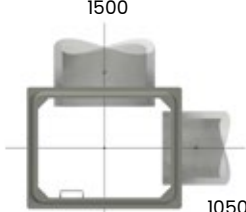
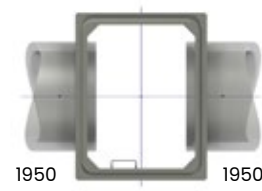
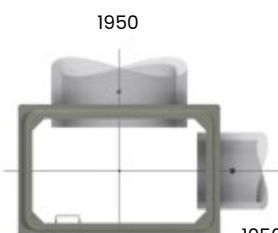
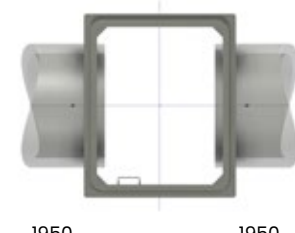
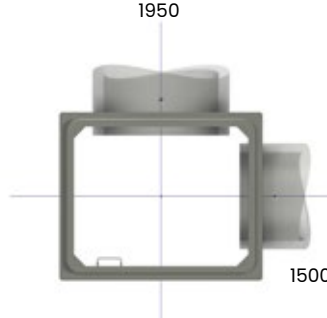
1. Manufactured in accordance with OPSS 1351.
2. Top Section heights @ 152mm increments.  
Bottom section heights at 152mm increments.
3. See page 44 for 1200mm tapered top details.
4. Maintenance hole steps are circular hollow aluminum as per OPSD 405.010
5. All dimensions are in millimeters unless otherwise shown.
6. Mono top sections available when required.





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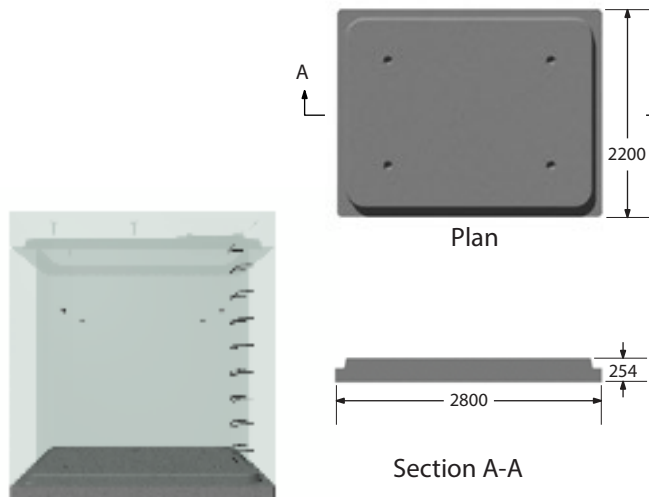
| MH Size (mm) | Max. Pipe Size For Straight Through                                                 | Max. Pipe Size For Right Angle                                                        |
|--------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 2400 x 1800  |    |    |
| 3000 x 1800  |   |   |
| 3000 x 2400  |  |  |

## Drycast Box Maintenance Hole Max Pipe Sizes

### Notes

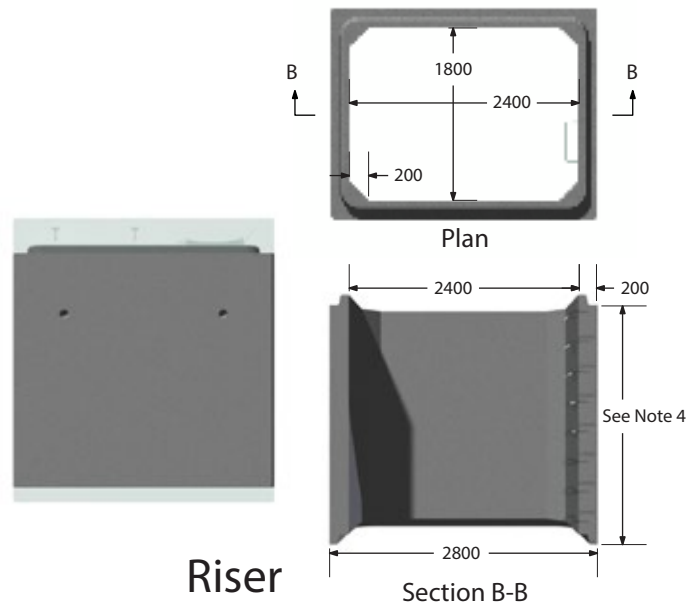
- Knockouts for small diameter pipe leads 300mm and smaller can be provided in addition to what is shown.
- All dimensions are in millimeters unless otherwise shown.





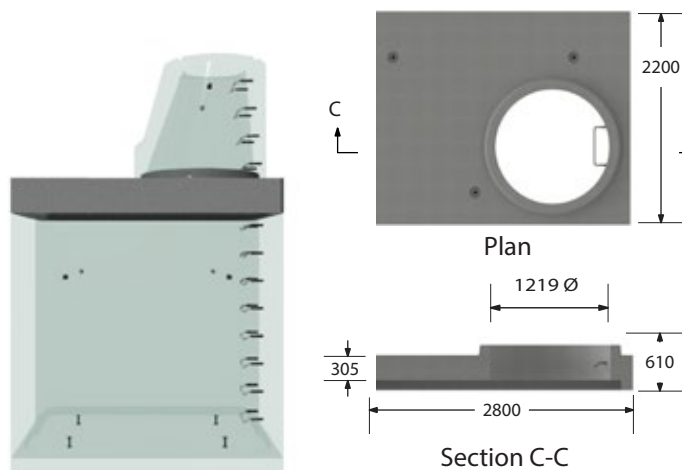
**Base Slab**

(mass - 3494 kg)



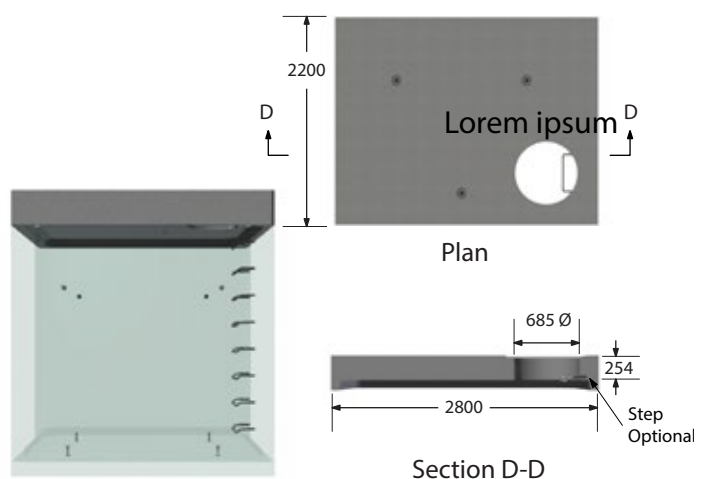
**Riser**

(mass - 4741 kg/m)



**Transition**

(mass - 4055 kg)



**Flat Cap**

(mass - 3871 kg)

## Drycast Maintenance Hole 2400 x 1800mm Box Chambers

### Notes

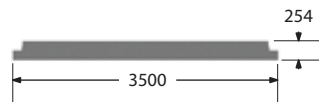
1. Manufactured in accordance with CHBDC.
2. See page 57 for maximum pipe size and alignment angles.
3. Available riser section heights - 305, 610, 914, 1219, 1524, 1829, 2134 and 2500.
4. Maintenance hole steps (circular hollow aluminum) as per OPSD 405.010.
5. All dimensions are in millimeters unless otherwise shown.







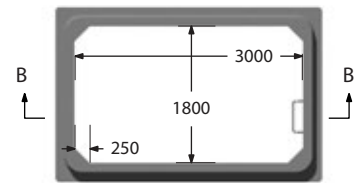
Plan



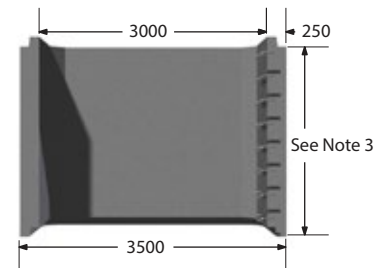
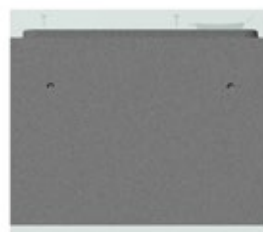
Section A-A

## Base Slab

(mass - 4538 kg)



Plan

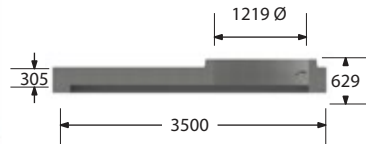
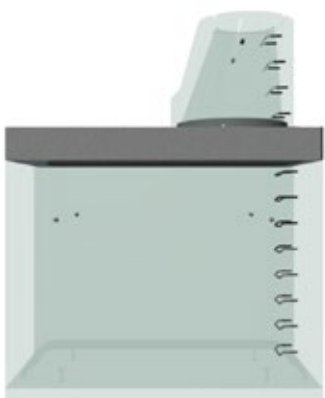


## Riser

(mass - 6866 kg)



Plan



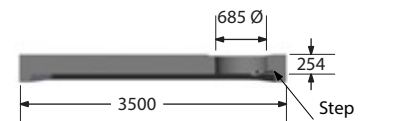
Section C-C

## Transition

(mass - 5552 kg)



Plan



Section D-D

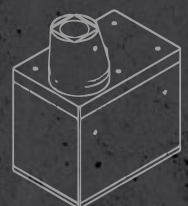
## Flat Cap

(mass - 5138 kg)

# Drycast Maintenance Hole 3000 x 1800mm Box Chambers

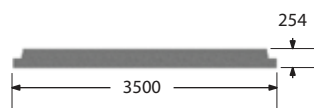
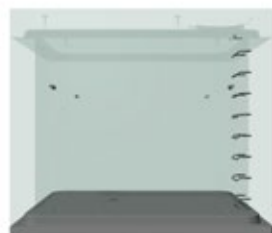
### Notes

1. Manufactured in accordance with CHBDC.
2. See page 57 for maximum pipe size and alignment angles.
3. Available riser section heights - 305, 610, 914, 1219, 1524, 1829, 2134 and 2500.
4. Maintenance hole steps (circular hollow aluminum) as per OPSD 405.010.
5. All dimensions are in millimeters unless otherwise shown.





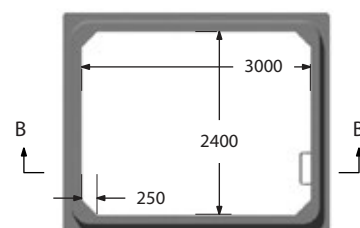
Plan



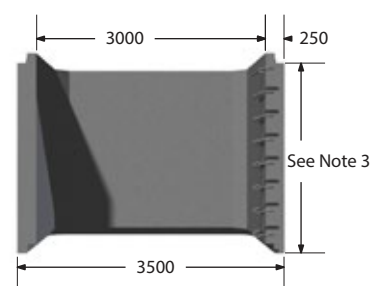
Section A-A

## Base Slab

(mass - 5807 kg)



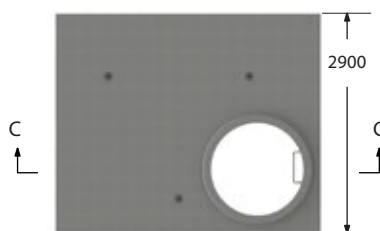
Plan



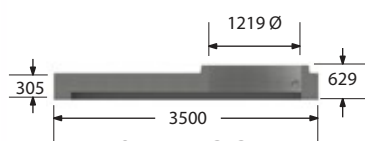
Section B-B

## Riser

(mass - 7546 kg/m)



Plan



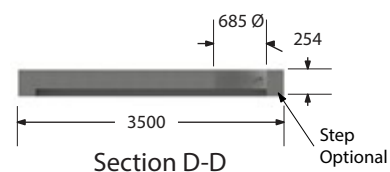
Section C-C

## Transition

(mass - 7157 kg)



Plan



Section D-D

## Flat Cap

(mass - 6255 kg)

# Drycast Maintenance Hole 3000 x 2400mm Box Chambers

### Notes

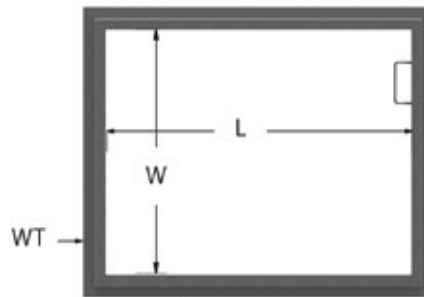
1. Manufactured in accordance with CHBDC.
2. See page 57 for maximum pipe size and alignment angles.
3. Available riser section heights - 305, 610, 914, 1219, 1524, 1829, 2134 and 2500.
4. Maintenance hole steps (circular hollow aluminum) as per OPSD 405.010.
5. All dimensions are in millimeters unless otherwise shown.





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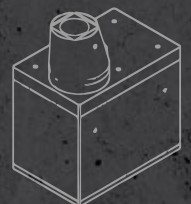


| Length (L) | Width (W <sub>3</sub> ) | Wall Thickness (WT <sub>2</sub> )          |
|------------|-------------------------|--------------------------------------------|
| 1829       | 914-1219                | 229                                        |
| 2438       | 1219-2438               | 229                                        |
| 2743       | 1219-2743               | 229/305                                    |
| 3048       | 1219-3048               | 229/305                                    |
| 3353       | 1219-3353               | 229/305                                    |
| 3658       | 1219-3658               | 229/305                                    |
| 3962       | 1219-3962               | 229/305                                    |
| 4267       | 1219-4267               | 229/305                                    |
| 4572       | 1219-4267               | 229/305                                    |
| 4877       | 1219-4267               | 229/305                                    |
| 5182       | 1219-4267               | 229/305                                    |
| 5486       | 1219-4267               | 229/305<br>depending on<br>site conditions |
| 5791       | 1219-4267               |                                            |
| 6096       | 1219-4267               |                                            |
| 6400       | 1219-4267               |                                            |
| 6706       | 1219-4267               |                                            |
| 7010       | 1219-4267               |                                            |
| 7315       | 1219-4267               |                                            |
| 7620       | 1219-4267               |                                            |

## Maintenance Hole Box Chambers

### Notes

1. Designed in accordance with CSA S6 - CHBDC.
2. Chamber depth and connecting pipe size will determine chamber size and wall thickness.
3. See page 44 for 1200mm tapered top details.
4. Maintenance hole steps are circular hollow aluminum as per OPSD 405.010.
5. All dimensions are in millimeters unless otherwise shown.







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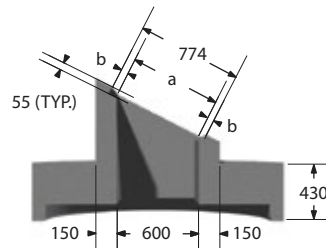
## Ditch Inlet Type A

(mass - 1387 kg + 1590 kg/m)

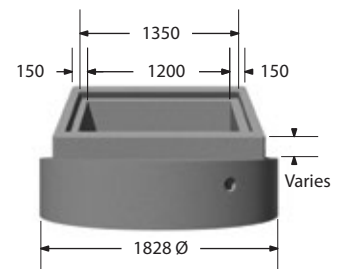
| Opening Dimensions |            |     |    |
|--------------------|------------|-----|----|
| Grate              |            | a   | b  |
| Type               | Slope      |     |    |
| B                  | 2H:1V      | 670 | 52 |
|                    | 3H:1V      | 632 | 71 |
|                    | 4H:1V      | 618 | 78 |
|                    | Horizontal | 600 | 87 |



Plan



Section A-A



Front View



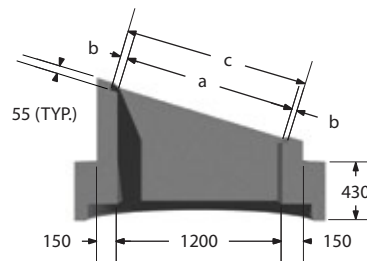
## Ditch Inlet Type B

(mass - 1387 kg + 1590 kg/m)

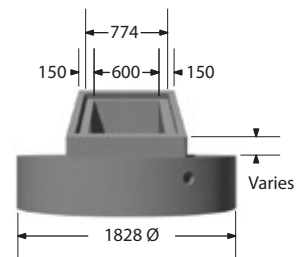
| Opening Dimensions |            |      |     |      |
|--------------------|------------|------|-----|------|
| Grate              |            | a    | b   | C    |
| Type               | Slope      |      |     |      |
| C                  | 2H:1V      | 1341 | 66  | 1473 |
|                    | 3H:1V      | 1265 | 104 | 1473 |
|                    | 4H:1V      | 1237 | 118 | 1473 |
| B                  | 6H:1V      | 1216 | 65  | 1346 |
|                    | Horizontal | 1200 | 73  | 1346 |



Plan



Section B-B

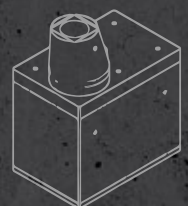


Front View

1500mm Flat Cap  
with 600 x 1200  
Ditch Inlet Top

### Notes

1. Designed in accordance with OPSD 706.010 and OPSD 705.040 Type A and Type B.
2. For ditch inlet top information see page 88.
3. All dimensions are in millimeters unless otherwise shown.





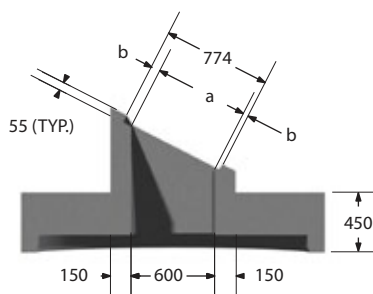
## Ditch Inlet Type A

(mass - 2274 kg + 1590 kg/m)

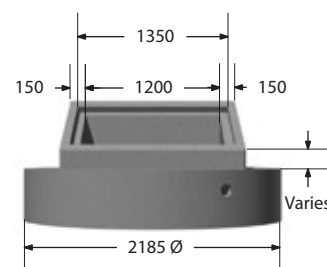
| Opening Dimensions |            |     |    |
|--------------------|------------|-----|----|
| Grate              |            | a   | b  |
| Type               | Slope      |     |    |
| B                  | 2H:1V      | 670 | 52 |
|                    | 3H:1V      | 632 | 71 |
|                    | 4H:1V      | 618 | 78 |
|                    | Horizontal | 600 | 87 |



Plan



Section A-A



Front View



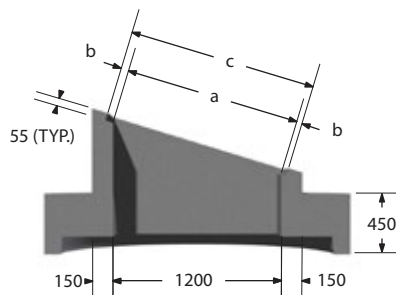
## Ditch Inlet Type B

(mass - 2274 kg + 1590 kg/m)

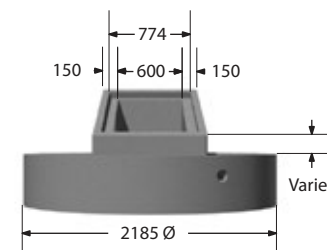
| Opening Dimensions |            |      |     |      |
|--------------------|------------|------|-----|------|
| Grate              |            | a    | b   | C    |
| Type               | Slope      |      |     |      |
| C                  | 2H:1V      | 1341 | 66  | 1473 |
|                    | 3H:1V      | 1265 | 104 | 1473 |
|                    | 4H:1V      | 1237 | 118 | 1473 |
|                    | 6H:1V      | 1216 | 65  | 1346 |
| B                  | Horizontal | 1200 | 73  | 1346 |



Plan



Section B-B

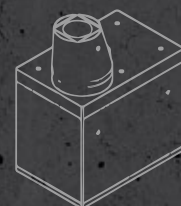


Front View

1800mm Flat Cap  
with 600 x 1200  
Ditch Inlet Top

### Notes

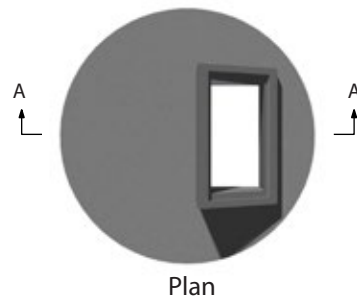
1. Designed in accordance with OPSD 706.020 and OPSD 705.040 Type A and Type B.
2. For ditch inlet top information see page 88.
3. All dimensions are in millimeters unless otherwise shown.



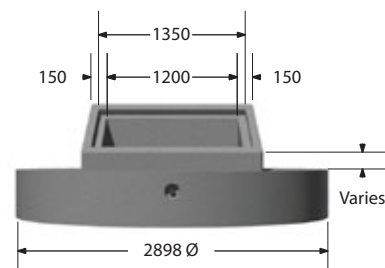
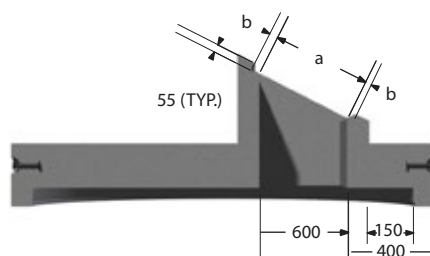


## Ditch Inlet Type A

(mass - 4417 kg + 1590 kg/m)

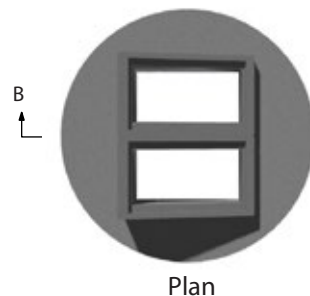


| Opening Dimensions |            |     |    |
|--------------------|------------|-----|----|
| Grate              |            | a   | b  |
| Type               | Slope      |     |    |
| B                  | 2H:1V      | 670 | 52 |
|                    | 3H:1V      | 632 | 71 |
|                    | 4H:1V      | 618 | 78 |
|                    | Horizontal | 600 | 87 |

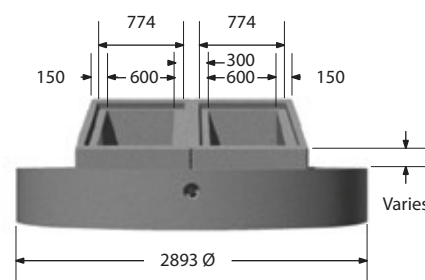
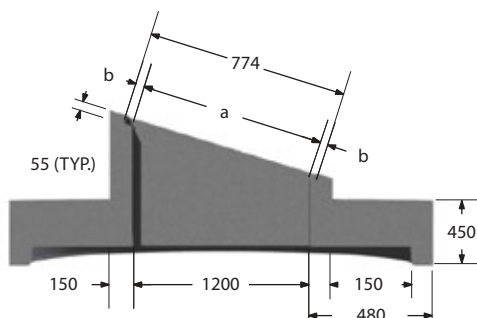


## Ditch Inlet Type B

(mass - 3815 kg + 3180 kg/m)



| Opening Dimensions |            |      |     |      |
|--------------------|------------|------|-----|------|
| Grate              |            | a    | b   | C    |
| Type               | Slope      |      |     |      |
| C                  | 2H:1V      | 1341 | 66  | 1473 |
|                    | 3H:1V      | 1265 | 104 | 1473 |
|                    | 4H:1V      | 1237 | 118 | 1473 |
| B                  | 6H:1V      | 1216 | 65  | 1346 |
|                    | Horizontal | 1200 | 73  | 1346 |



2400mm Flat Cap  
with 600 x 1200 Ditch  
Inlet Top

### Notes

1. Designed in accordance with OPSD 706.030, 706.031 and OPSD 705.040 Type A and Type B.
2. For ditch inlet top information see page 88.
3. All dimensions are in millimeters unless otherwise shown.







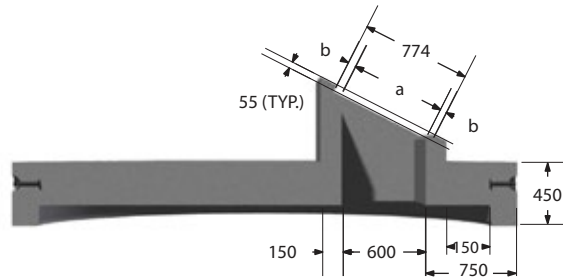
## Ditch Inlet Type A

(mass - 7679 kg - 1590 kg/m)

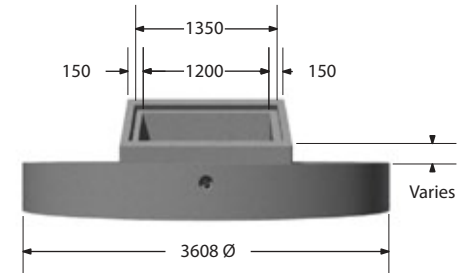


Plan

| Opening Dimensions |            |     |    |
|--------------------|------------|-----|----|
| Grate              |            | a   | b  |
| Type               | Slope      |     |    |
| B                  | 2H:1V      | 670 | 52 |
|                    | 3H:1V      | 632 | 71 |
|                    | 4H:1V      | 618 | 78 |
|                    | Horizontal | 600 | 87 |



Section A-A



Front View



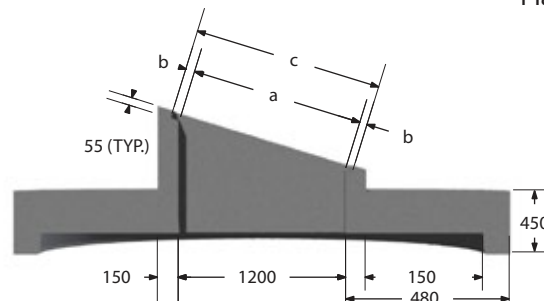
## Ditch Inlet Type B

(mass - 7071 kg - 3180 kg/m)

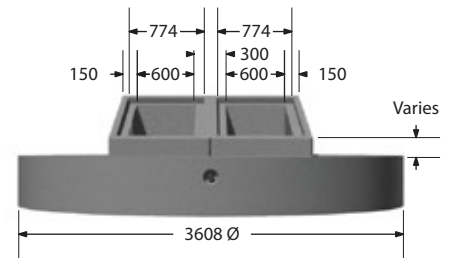


Plan

| Opening Dimensions |            |      |     |      |
|--------------------|------------|------|-----|------|
| Grate              |            | a    | b   | c    |
| Type               | Slope      |      |     |      |
| C                  | 2H:1V      | 1341 | 66  | 1473 |
|                    | 3H:1V      | 1265 | 104 | 1473 |
|                    | 4H:1V      | 1237 | 118 | 1473 |
| B                  | 6H:1V      | 1216 | 65  | 1346 |
|                    | Horizontal | 1200 | 73  | 1346 |



Section B-B



Front View

**3000mm Flat Cap  
with 600 x 1200 Ditch  
Inlet Top**

### Notes

1. Designed in accordance with OPSD 706.040, 706.041 and OPSD 705.040 Type A and Type B.
2. For ditch inlet top information see page 88.
3. All dimensions are in millimeters unless otherwise shown.



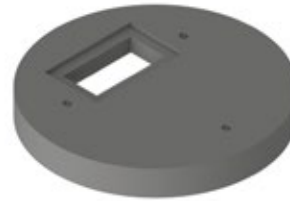


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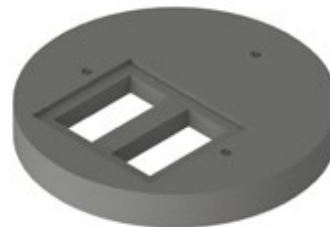
Ditch Inlet Type A



| Opening Dimensions |            |     |    |
|--------------------|------------|-----|----|
| Grate              |            | a   | b  |
| Type               | Slope      |     |    |
| B                  | 2H:1V      | 670 | 52 |
|                    | 3H:1V      | 632 | 71 |
|                    | 4H:1V      | 618 | 78 |
|                    | Horizontal | 600 | 87 |



Ditch Inlet Type B



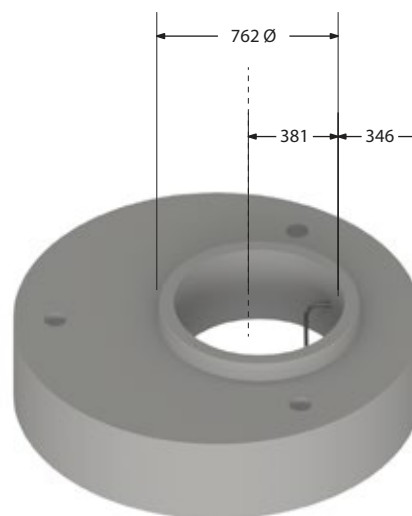
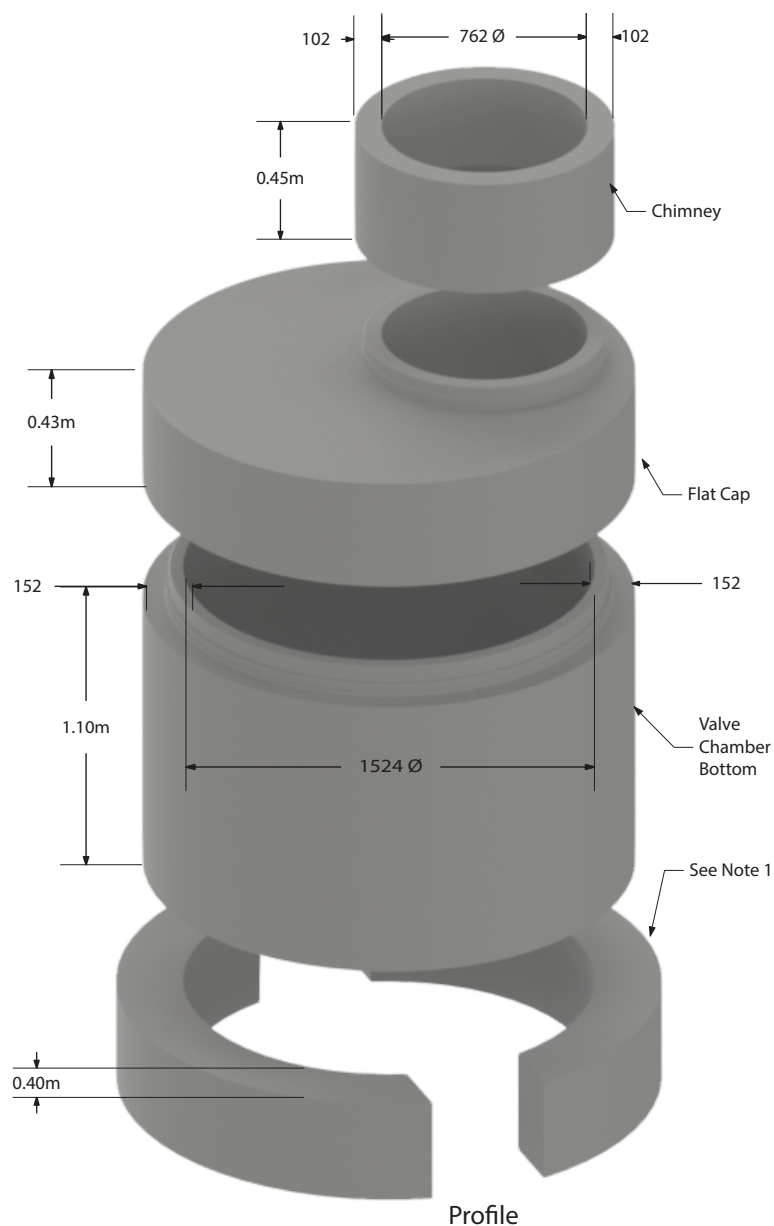
| Opening Dimensions |            |      |     |      |
|--------------------|------------|------|-----|------|
| Grate              |            | a    | b   | c    |
| Type               | Slope      |      |     |      |
| C                  | 2H:1V      | 1341 | 66  | 1473 |
|                    | 3H:1V      | 1265 | 104 | 1473 |
|                    | 4H:1V      | 1237 | 118 | 1473 |
| B                  | 6H:1V      | 1216 | 65  | 1346 |
|                    | Horizontal | 1200 | 73  | 1346 |

3600mm Flat Cap  
with 600 x 1200 Ditch  
Inlet Top

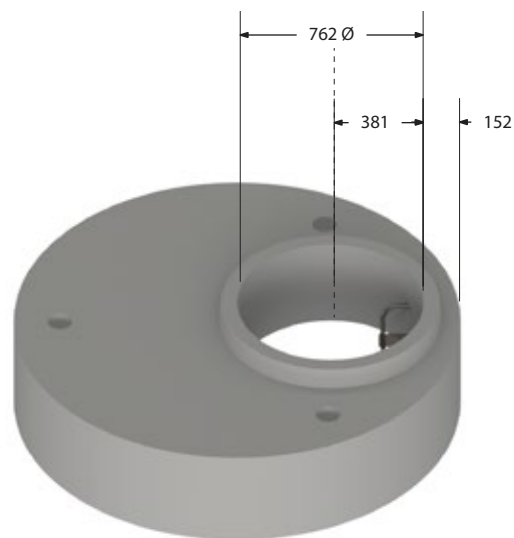
#### Notes

1. Designed in accordance with OPSD 706.040, 706.041 and OPSD 705.040 Type A and Type B.
2. For ditch inlet top information see page 88.
3. All dimensions are in millimeters unless otherwise shown.





Flat Cap for  
Gate Valve Opening



Flat Cap for  
Butterfly Opening

## City of Ottawa 1500mm Valve Chamber

### Notes

1. Valve Chamber Base Sets as per City of Ottawa Standard W-5 See page 68.
2. Manufactured in accordance with OPSD 701.011 as well as City of Ottawa Standard W-2 (Butterfly VC) & W-3 (Gate VC).
3. 762mmØ chimney manufactured in accordance with City of Ottawa Standard W-9.
4. All Valve Chambers c/w Hollow Aluminum Steps as per OPSD 405.010.
5. For adjusters refer to drawing page 121.

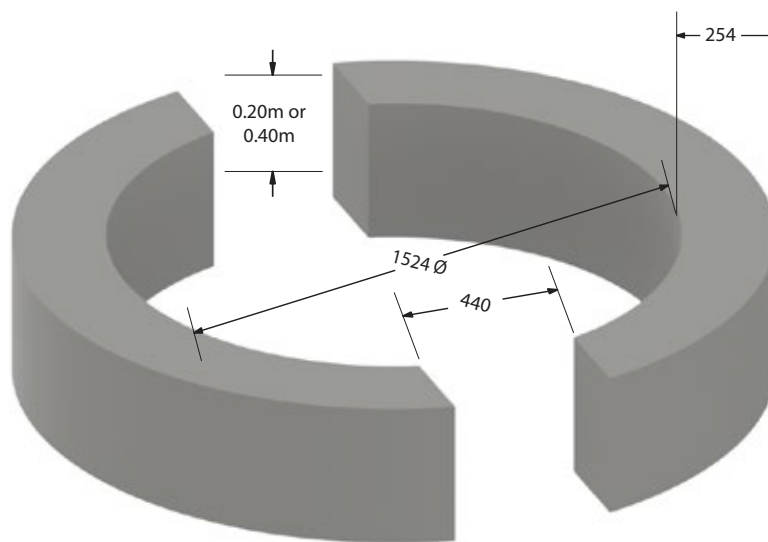






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## City of Ottawa Valve Chamber Base Sets

### Notes

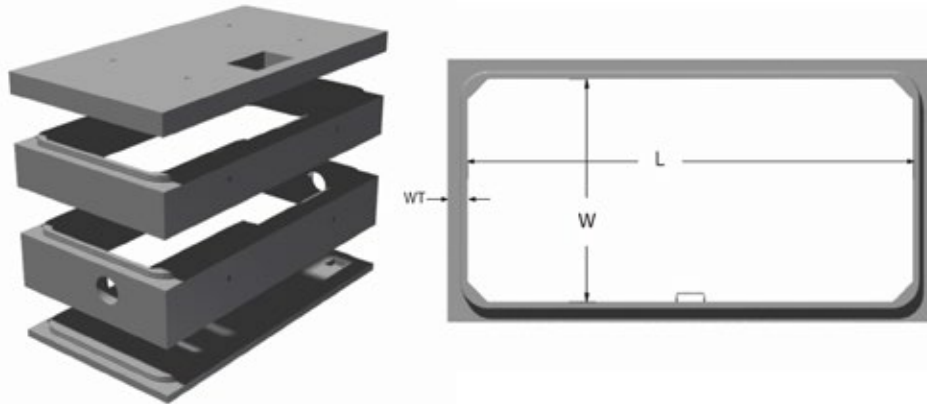
1. Manufactured in accordance with City of Ottawa drawing W-5.
2. All pieces c/w lifting anchors.
3. For 300Ø and 400Ø Watermain, stack base sets two sets high.





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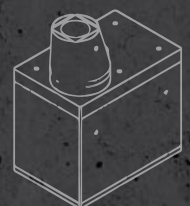


| Length<br>(L) | Width<br>(W <sub>3</sub> ) | Wall Thickness<br>(WT <sub>2</sub> )       |
|---------------|----------------------------|--------------------------------------------|
| 1829          | 914-1219                   | 229                                        |
| 2438          | 1219-2438                  | 229                                        |
| 2743          | 1219-2743                  | 229/305                                    |
| 3048          | 1219-3048                  | 229/305                                    |
| 3353          | 1219-3353                  | 229/305                                    |
| 3658          | 1219-3658                  | 229/305                                    |
| 3962          | 1219-3962                  | 229/305                                    |
| 4267          | 1219-4267                  | 229/305                                    |
| 4572          | 1219-4267                  | 229/305                                    |
| 4877          | 1219-4267                  | 229/305                                    |
| 5182          | 1219-4267                  | 229/305                                    |
| 5486          | 1219-4267                  | 229/305<br>depending on<br>site conditions |
| 5791          | 1219-4267                  |                                            |
| 6096          | 1219-4267                  |                                            |
| 6400          | 1219-4267                  |                                            |
| 6706          | 1219-4267                  |                                            |
| 7010          | 1219-4267                  |                                            |
| 7315          | 1219-4267                  |                                            |
| 7620          | 1219-4267                  |                                            |

## Maintenance, Valve & Meter Box Chambers

### Notes

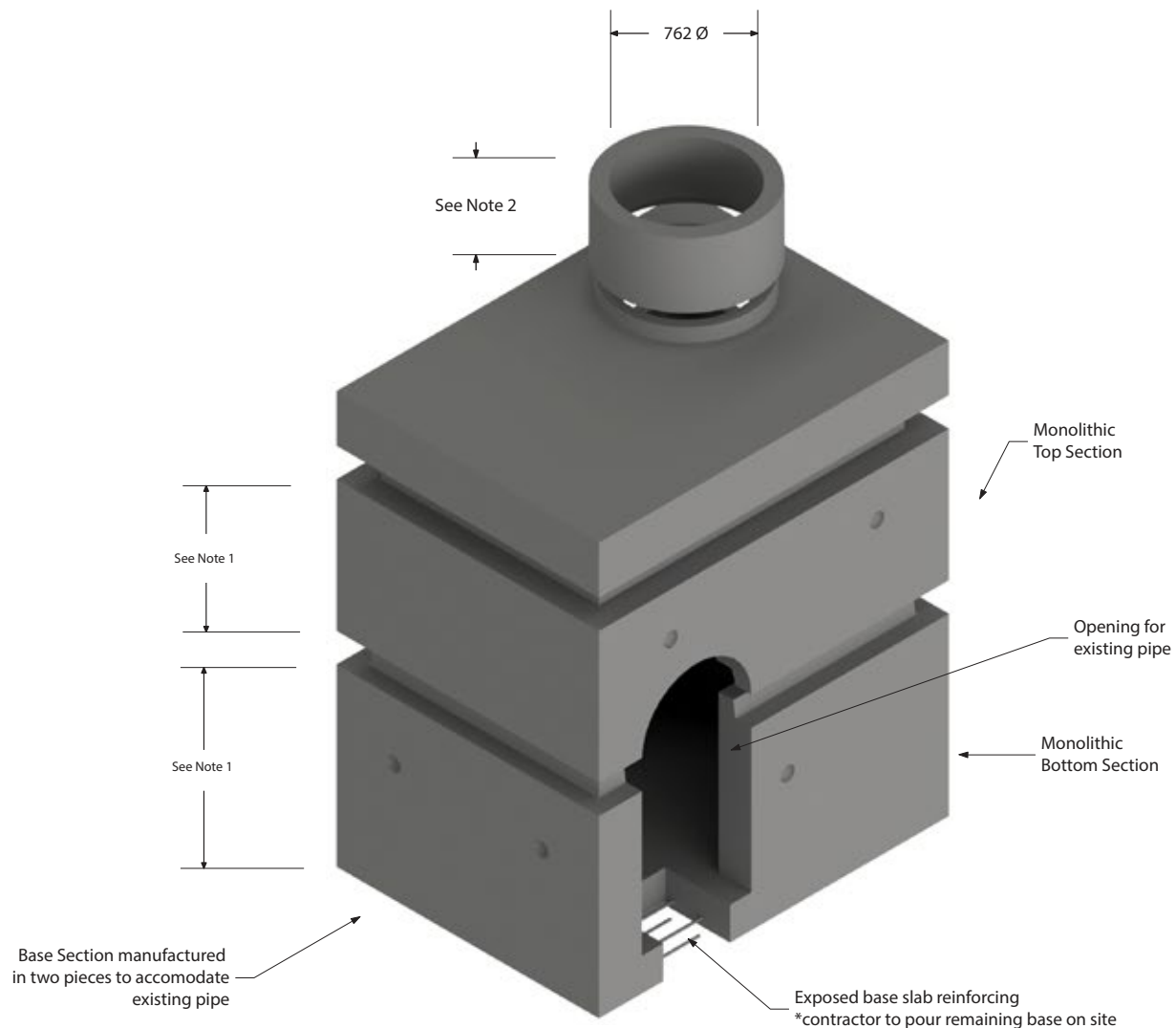
1. Designed in accordance with CSA S6 - CHBDC.
2. Chamber depth and connecting pipe size will determine chamber size and wall thickness.
3. Maintenance hole steps are circular hollow aluminum as per OPSD 405.010.
4. All dimensions are in millimeters unless otherwise shown.





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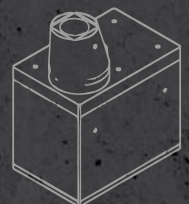
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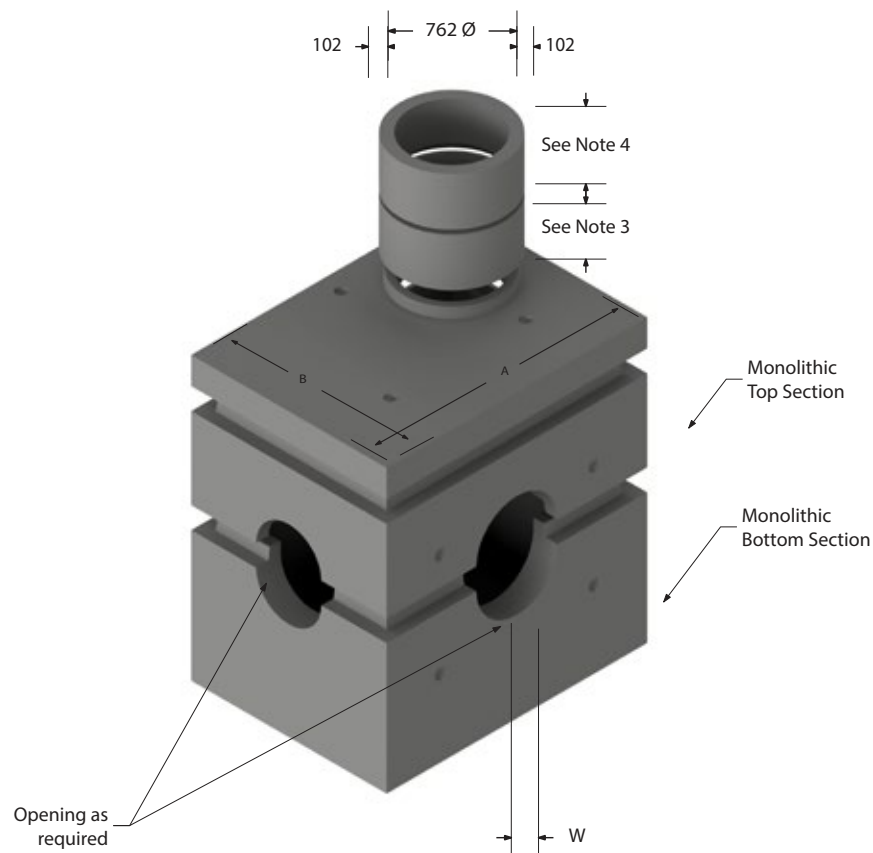
## City of Ottawa T.V.S. Valve Chamber

### Notes

1. Manufactured in accordance with City of Ottawa specification W-11.1.
2. All Valve Chambers c/w Hollow Aluminum Steps as per OPSD 405.010.
3. For adjusters refer to drawing page 121.
4. All heights as per City of Ottawa standards.
5. 762Ø chimney height as required.
6. For available Valve Chamber sizes see pages 67-69.
7. Mono top sections available if required.







| City of Ottawa Specification | Inside Dimensions | Outside Dimensions |      | Top Slap Thickness | Bott. Slap Thickness | Wall (w) Thickness |
|------------------------------|-------------------|--------------------|------|--------------------|----------------------|--------------------|
|                              |                   | A                  | B    |                    |                      |                    |
| W31.1                        | 1524 x 1829       | 1982               | 2287 | 229                | 229                  | 229                |
| W10 ~ R1                     | 1829 x 2438       | 2134               | 2896 | 229                | 229                  | 229                |
| W10 ~ R2                     | 1829 x 3048       | 2134               | 3506 | 229                | 229                  | 229                |
| W11 ~ R3                     | 2438 x 3048       | 2896               | 3506 | 254                | 254                  | 229                |
| W11 ~ R4                     | 3048 x 3810       | 3506               | 4268 | 254                | 254                  | 229                |
| W12 ~ R3                     | 2438 x 3048       | 2896               | 3506 | 254                | 254                  | 229                |
| W12 ~ R4                     | 3048 x 3810       | 3506               | 4268 | 254                | 254                  | 229                |
| W13 ~ R4                     | 3048 x 3810       | 3506               | 4268 | 254                | 254                  | 229                |

## City of Ottawa Box Valve Chamber

### Notes

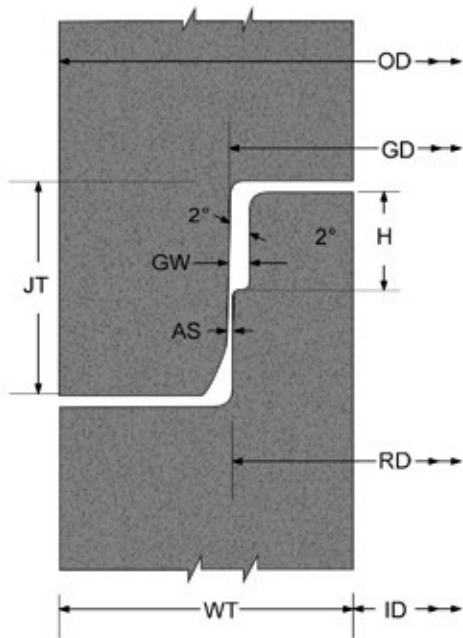
1. Manufactured in accordance with City of Ottawa Standards.
2. All Valve Chambers c/w Hollow Aluminum Steps as per OPSD 405.010.
3. All pieces c/w lifting anchors.
4. Pipe gaskets available upon request.
5. All joints to be sealed with Hydrophilic Waterstop & a Waterproofing membrane.
6. For adjusters refer to drawing page 121.
7. Mono top sections available if required.





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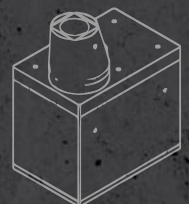


| ID<br>(Nominal) | ID<br>(Actual) | OD     | WT    | JT    | RD     | GD     | AS  | GW   | H    |
|-----------------|----------------|--------|-------|-------|--------|--------|-----|------|------|
| 1200            | 1220           | 1474.0 | 127.0 | 107.9 | 1325.1 | 1343.3 | 3.7 | 11.3 | 63.5 |
| 1500            | 1524           | 1828.0 | 152.0 | 120.6 | 1635.2 | 1653.4 | 3.7 | 11.3 | 66.8 |
| 1800            | 1829           | 2185.0 | 178.0 | 127.0 | 1959.8 | 1978.0 | 3.7 | 11.3 | 66.8 |
| 2400            | 2438           | 2895.6 | 228.6 | 127.0 | 2619.0 | 2640.8 | 4.4 | 13.3 | 69.9 |
| 3000            | 3048           | 3606.8 | 279.4 | 152.4 | 3247.7 | 3269.5 | 4.4 | 13.3 | 69.9 |
| 3600            | 3658           | 4356   | 350.0 | 152.4 | 3895.4 | 3917.2 | 3.7 | 12.7 | 50.8 |

## Maintenance Hole Joint Detail 1200-3600mm

### Notes

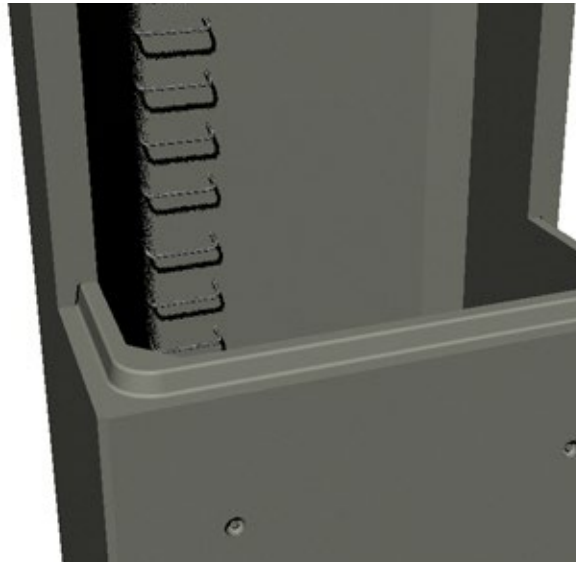
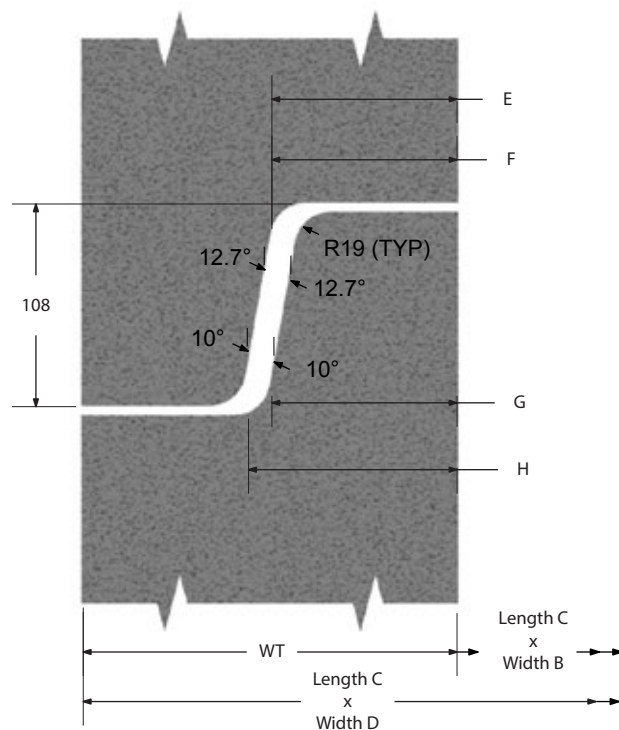
1. Pre-lubricated rubber gaskets to be used with this maintenance hole joint Gaskets design.
2. All dimensions are in millimeters unless otherwise shown.





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| Inside   |         | Outside  |         | E    | F  | G     | H   | WT  | JT  |
|----------|---------|----------|---------|------|----|-------|-----|-----|-----|
| Length A | Width B | Length C | Width D |      |    |       |     |     |     |
| 1800     | 1200    | 2200     | 1600    | 96.9 | 84 | 103.1 | 116 | 200 | 108 |
| 2400     | 1800    | 2800     | 2200    | 96.9 | 84 | 103.1 | 116 | 200 | 180 |
| 3000     | 1800    | 3500     | 1700    |      |    |       |     | 250 | 127 |
| 3000     | 2400    | 3500     | 2900    |      |    |       |     | 250 | 127 |

## Maintenance Hole Box Chambers Standard Wall

### Notes

1. Continuous Butyl Gasket to be used with this Maintenance Hole Joint Design.
2. Dimensions are in millimeters unless otherwise shown.

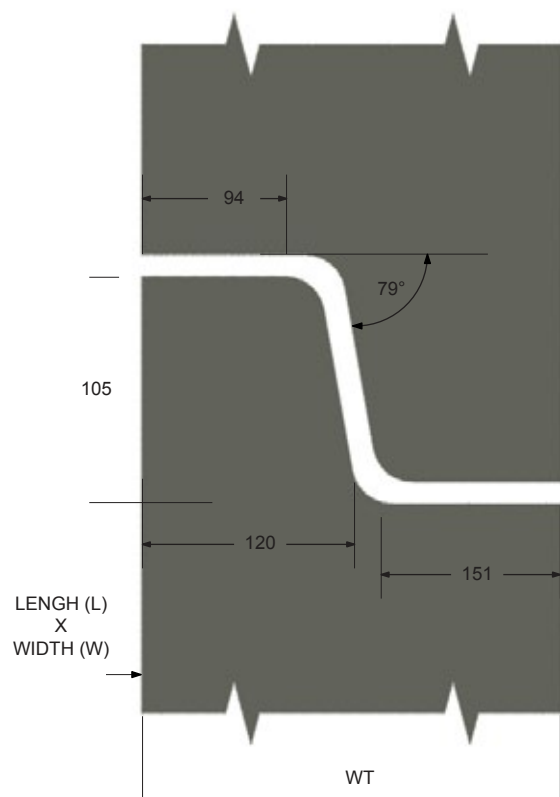






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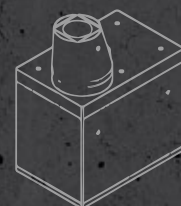


| Length<br>(A) | Width<br>(B) |
|---------------|--------------|
| 2438          | 1219-2438    |
| 2743          | 1219-2743    |
| 3048          | 1219-3048    |
| 3353          | 1219-3353    |
| 3658          | 1219-3658    |
| 3962          | 1219-3962    |
| 4267          | 1219-4267    |
| 4572          | 1219-4267    |
| 4877          | 1219-4267    |
| 5182          | 1219-4267    |
| 5486          | 1219-4267    |
| 5791          | 1219-4267    |
| 6096          | 1219-4267    |
| 6400          | 1219-4267    |
| 6706          | 1219-4267    |
| 7010          | 1219-4267    |
| 7315          | 1219-4267    |
| 7620          | 1219-4267    |

## Maintenance Hole Box Chambers Variable Wall Thickness

### Notes

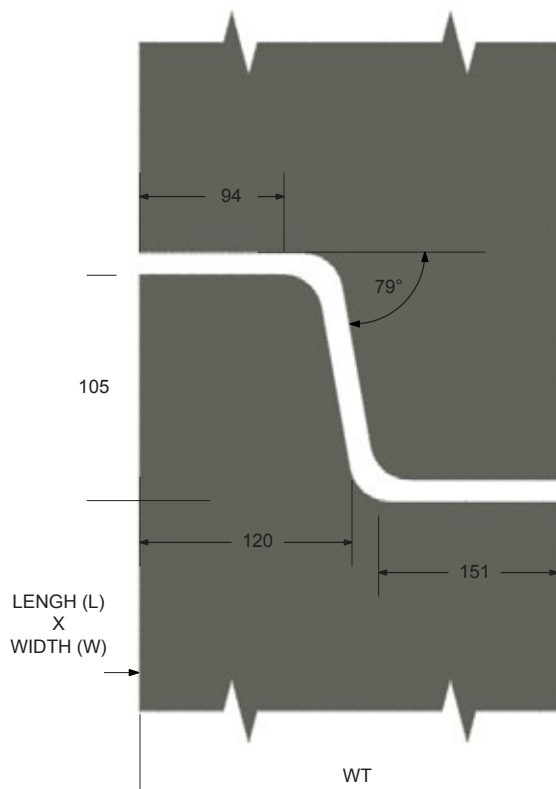
1. Pre-lubricated continuous rubber gasket to be used with this joint design.
2. All dimensions are in millimeters unless otherwise shown.





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| Box Name | Length<br>L | Width<br>W | Wall<br>WT |
|----------|-------------|------------|------------|
| M-3.3    | 914         | 914        | 152        |
| M-4      | 1219        | 1219       | 229        |
| M-5      | 1524        | 1829       | 229        |
| M-5.5    | 1829        | 1829       | 229        |
| M-6      | 1676        | 2438       | 229        |
| M-6.5    | 1829        | 2438       | 229        |
| M-7      | 1676        | 3048       | 229        |
| M-7.5    | 1829        | 3048       | 229        |
| M-8      | 2438        | 2438       | 229        |

| Box Name | Length<br>L | Width<br>W | Wall<br>WT |
|----------|-------------|------------|------------|
| M-9      | 2438        | 3048       | 229        |
| M-9.5    | 3048        | 3048       | 229        |
| M-10     | 2438        | 3810       | 229        |
| M-11     | 3048        | 3810       | 229        |
| M-12     | 3810        | 3810       | 229        |
| M-13     | 2438        | 4270       | 229        |
| M-14     | 3048        | 4270       | 229        |
| M-15     | 3810        | 4270       | 229        |
| M-16     | 4270        | 4270       | 229        |

## Maintenance Hole Ottawa Box Chambers Standard Wall

### Notes

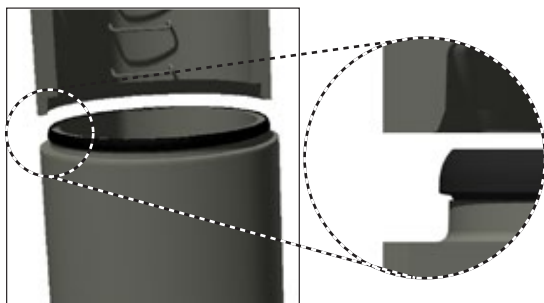
1. Butyl tape gasket to be used with this Maintenance joint design.
2. All dimensions are in millimeters unless otherwise shown.





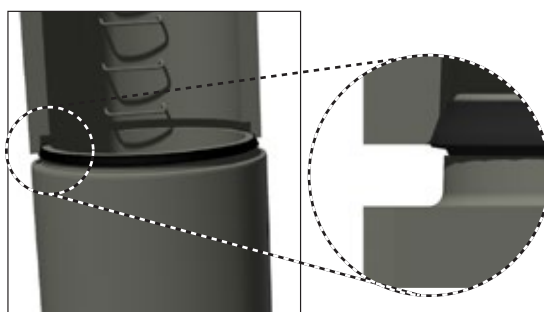
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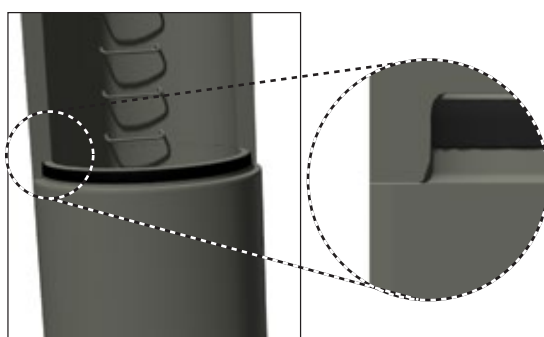
### Step 1

Clean all dirt and foreign objects off the bell and spigot. Ensure both the bell and spigot are free of cracks, chips and defects.



### Step 2

Align the spigot with the bell. Ensure the gasket is in contact with the entire circumference of both the bell taper and the spigot before fully homing the joint.



### Step 3

Engage the spigot into the bell to fully install, locking the joint into place. The self lubricating gasket will roll over the step of the spigot and into the joint recess creating the complete seal.

## Circular Maintenance Hole Jointing Procedure

### Notes

1. The following above jointing procedure will ensure full optimization of pipe joint performance.

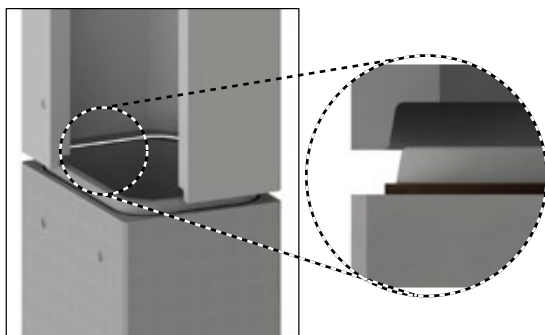






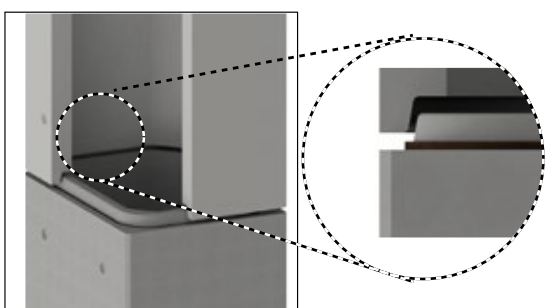
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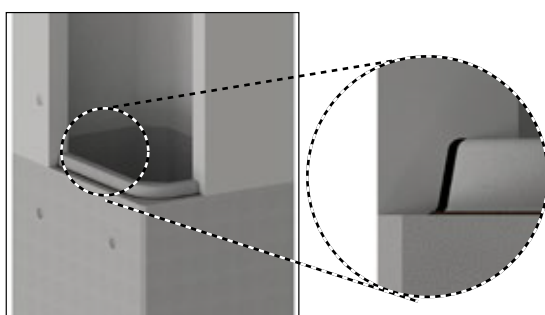
### Step 1

Clean all dirt and foreign objects off the bell and spigot. Ensure both the bell and spigot are free of cracks, chips and defects. Apply butyl tape around the perimeter of the spigot.



### Step 2

Align the spigot with the bell. Ensure the butyl tape is in contact with the entire circumference of both the bell taper and the spigot before fully homing the joint.



### Step 3

Engage the spigot into the bell to fully install, locking the joint into place. The butyl tape will deform between the bell and spigot creating the complete seal.

## Box Chamber Jointing Procedure

#### Notes

1. The following above jointing procedure will ensure full optimization of pipe joint performance.





# STORMWATER MANAGEMENT





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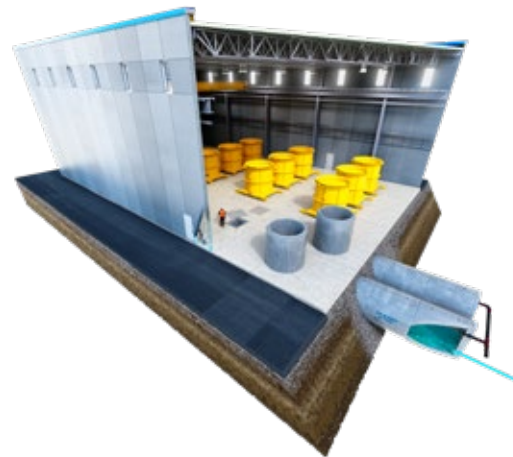
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TRIPLE BOX CULVERT SWRS



TWIN BOX CULVERT SWRS

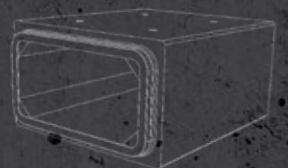


TWIN ROUND SWRS

## Stormwater Retention Systems

### Notes

1. Size of tank components and number of cells will be determined by required storage volume and site constraints.





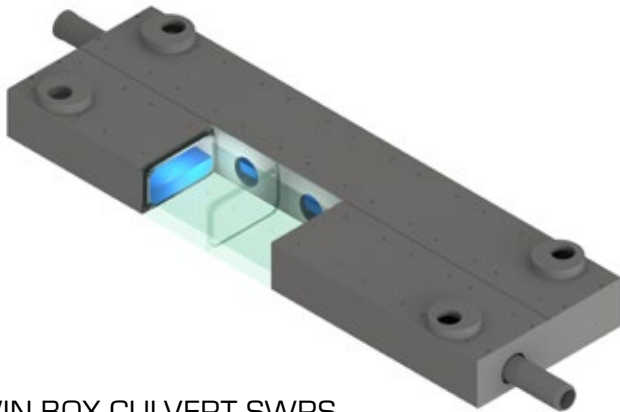


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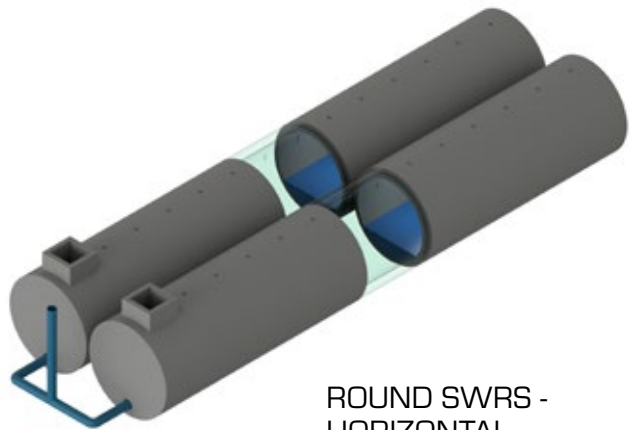
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ROUND SWRS -  
MAINTENANCE HOLES



TWIN BOX CULVERT SWRS

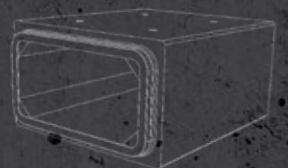


ROUND SWRS -  
HORIZONTAL

## Stormwater Retention Systems

### Notes

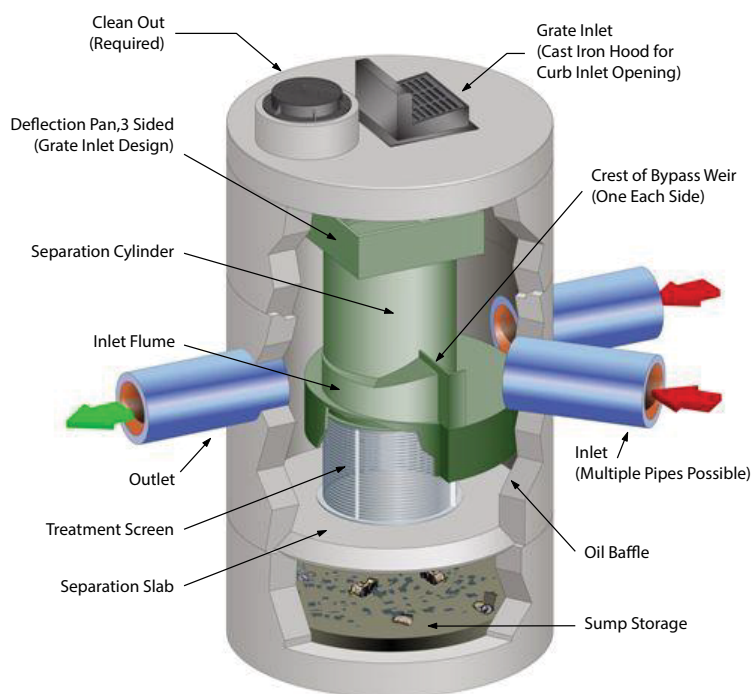
1. Size of tank components and number of cells will be determined by required storage volume and site constraints.





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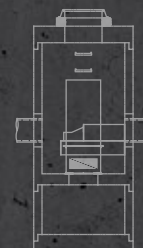


|           | CDS Model  | Typical MH Dia. (ID) | Rated Treatment Flowrate (L/s) |
|-----------|------------|----------------------|--------------------------------|
| 20-Series | CDS2015-4  | 1200                 | 20                             |
|           | CDS2015-5  | 1500                 | 20                             |
|           | CDS2020-5  | 1500                 | 31                             |
|           | CDS2025-5  | 1500                 | 45                             |
| 30-Series | CDS3020-6  | 1800                 | 57                             |
|           | CDS3025-6  | 1800                 | 68                             |
|           | CDS3030-6  | 1800                 | 85                             |
|           | CDS3035-6  | 1800                 | 106                            |
| 40-Series | CDS4030-8  | 2400                 | 127                            |
|           | CDS4040-8  | 2400                 | 170                            |
|           | CDS4045-8  | 2400                 | 212                            |
| 56-Series | CDS5640-10 | 3000                 | 255                            |
|           | CDS5653-10 | 3000                 | 396                            |
|           | CDS5668-10 | 3000                 | 538                            |
|           | CDS5678-10 | 3000                 | 708                            |

## Oil Grit Separators (OGS) Continuous Deflector Unit (CDS)

### Notes

1. Can accommodate multiple inlets.
2. For custom sizes and design option, please contact Echelon Environmental at [info@echelonenvironmental.ca](mailto:info@echelonenvironmental.ca).
3. Ontario Provincial Standards (OPS) – Approved for roadway applications.







# CATCH BASINS





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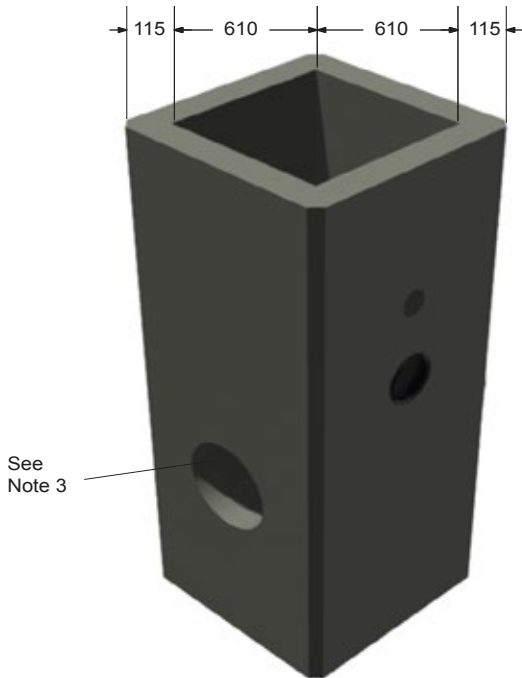
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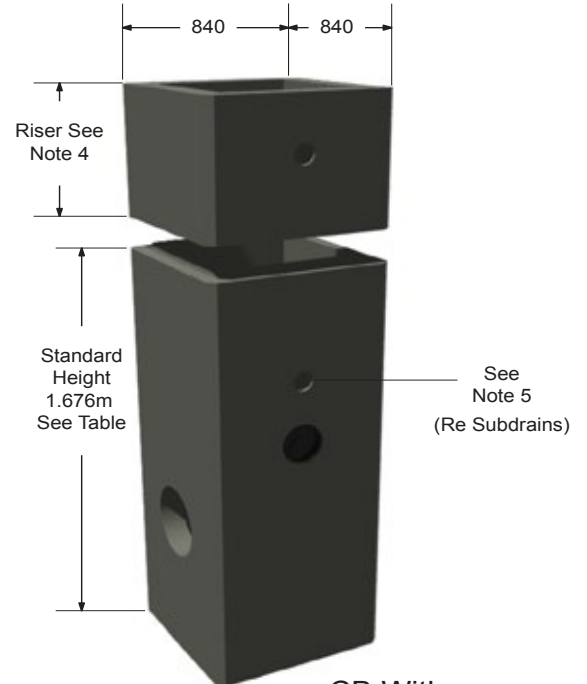


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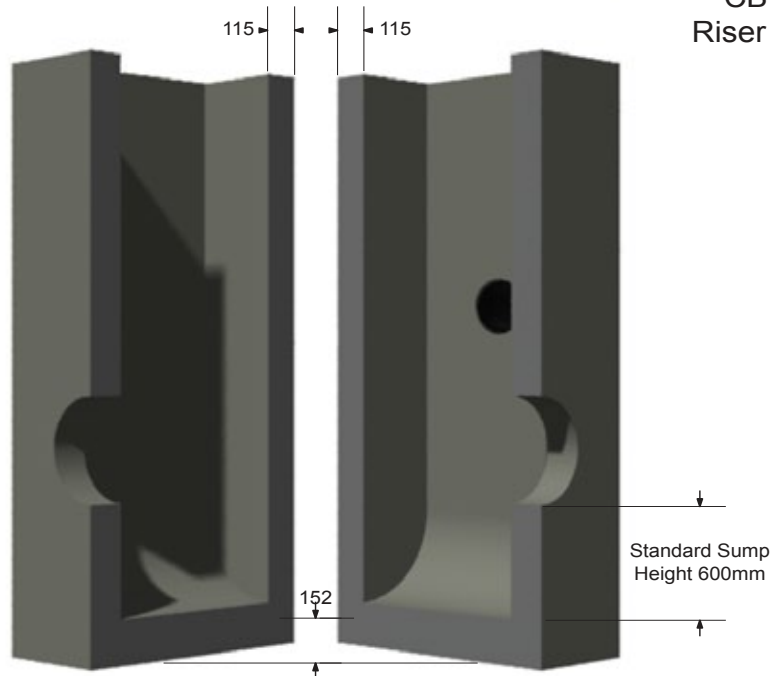


Standard CB



CB With  
Riser Section

| Alternate Standard Heights (mm) |      |
|---------------------------------|------|
| A                               | 1219 |
| B                               | 1372 |
| C                               | 1524 |
| D                               | 1676 |
| E                               | 1829 |
| F                               | 1981 |
| G                               | 2134 |



## 600 x 600mm Single Inlet Catch Basin

### Notes

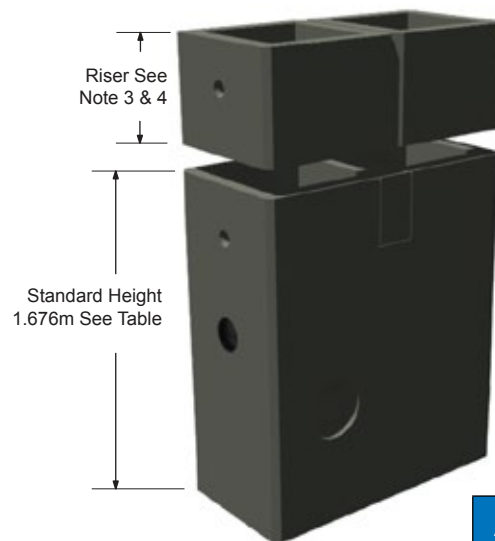
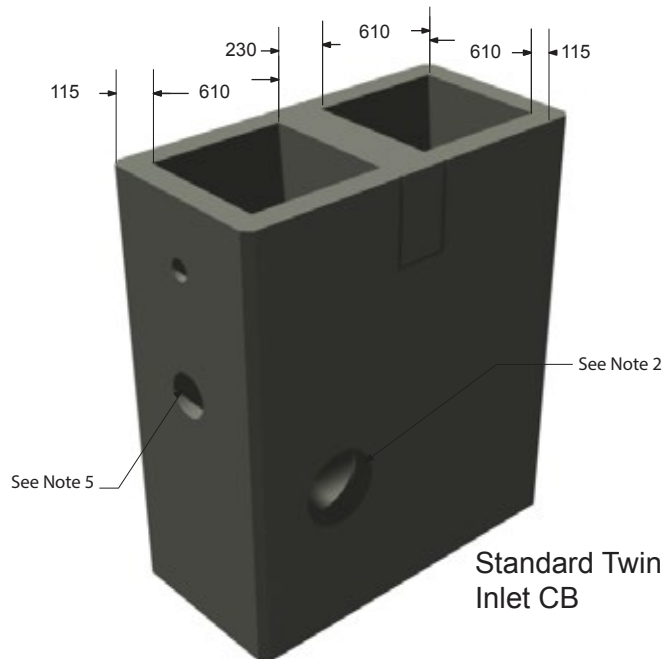
1. Manufactured in accordance with OPSD 705.010.
2. 150mm wall available upon request.
3. Standard opening size - 350mm diameter.
4. Riser sections available - 305, 457, 610, 914, and 1219mm
5. Subdrain connection insert for 100, 125, and 150mm diameter standard on all stock catch basins.
6. GOSS traps available upon request.
7. Flow restrictor plates available; IPEX/Plastech ICD.





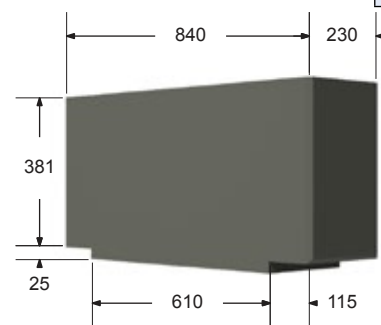
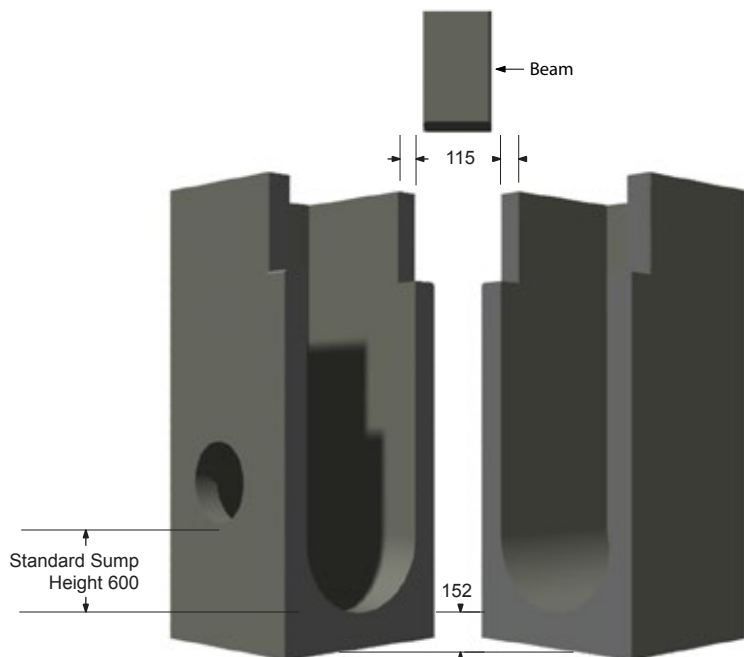
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Alternate Standard Heights (mm)

|   |      |
|---|------|
| A | 1219 |
| B | 1372 |
| C | 1524 |
| D | 1676 |
| E | 1829 |
| F | 1981 |
| G | 2134 |



## 600 x 1450mm Twin Inlet Catch Basin

### Notes

1. Manufactured in accordance with OPSD 705.020.
2. Standard opening size - 400mm diameter.
3. Vertical height may be increased by using two single catch basin riser sections. See page 71 for available riser sections.
4. Riser sections available - 305, 457, 610, 914, and 1219mm.
5. Subdrain connection insert for 100, 125, and 150mm diameter standard on all stock twin inlet catch basins.
6. GOSS traps available upon request.
7. IPEX/Plastech ICD backplates available.

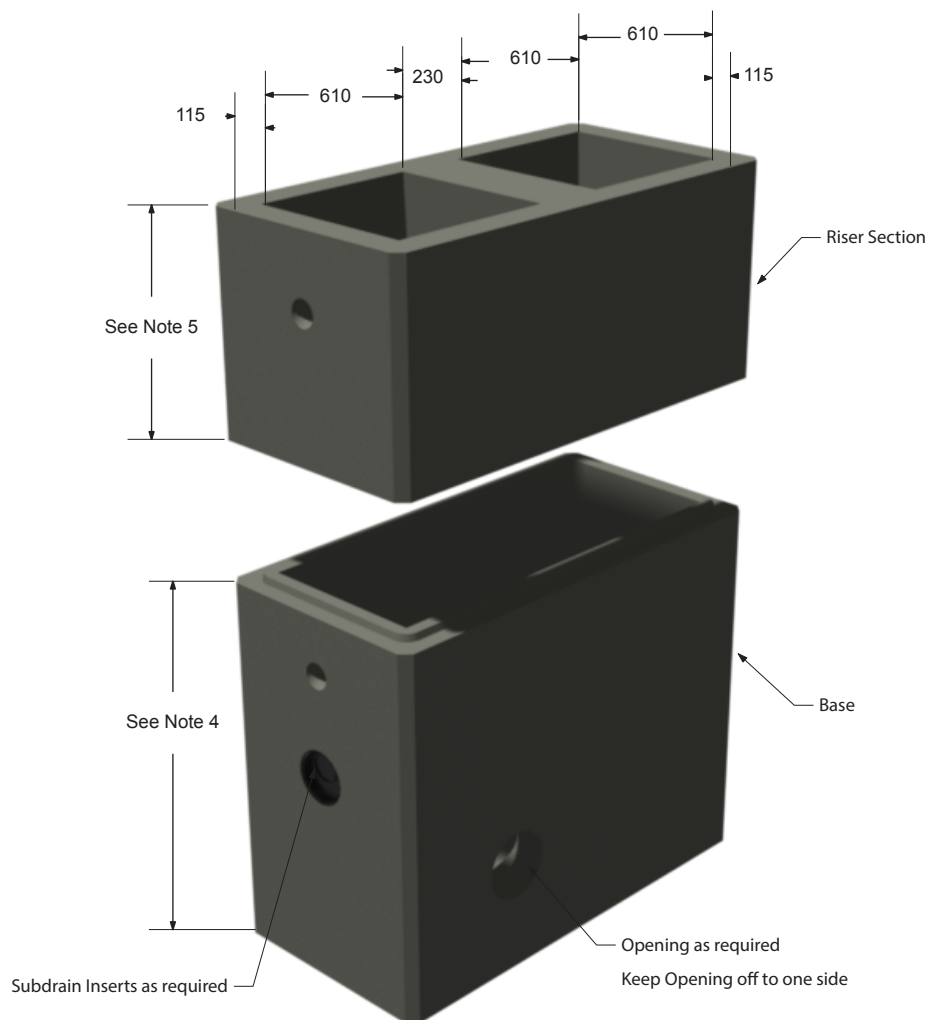






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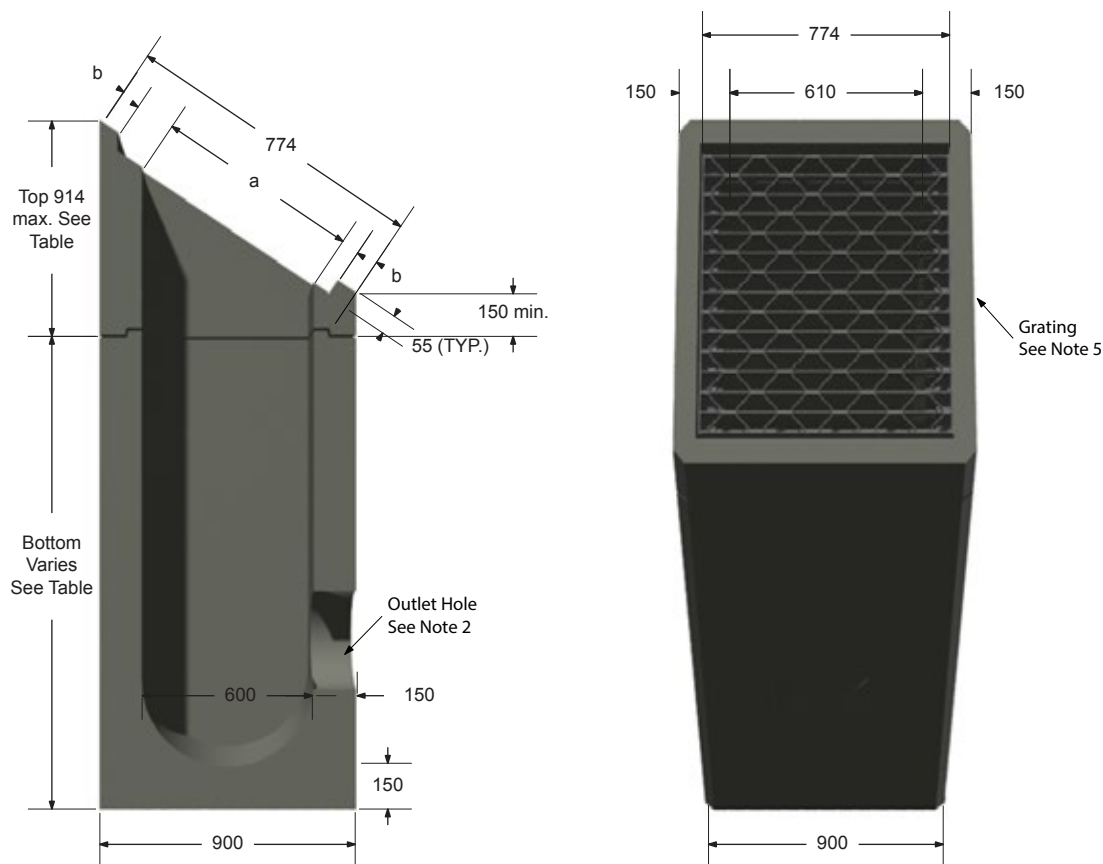


## 600 x 1450mm Twin Inlet Catch Basin

### Notes

1. Manufactured in accordance with OPSD 705.020.
2. Standard sump of 600mm is provided.
3. Pipe gaskets available upon request.
4. Base heights as follows (Structures can be made in 1 piece):  
.61m - 2.13m @ .15m increments.
5. Riser Section heights as follows: .76m - 1.68m @ .15m increment.
6. IPEX/Plastech ICD backplates available.





| Opening Dimensions |            |     |    |
|--------------------|------------|-----|----|
| Grate              |            | a   | b  |
| Type               | Slope      |     |    |
| A                  | 2H:IV      | 670 | 52 |
|                    | 3H:IV      | 632 | 71 |
|                    | 4H:IV      | 618 | 78 |
|                    | 6H:IV      | 608 | 83 |
|                    | Horizontal | 600 | 87 |

| Standard Bottom Heights<br>(mm) |      |
|---------------------------------|------|
| A                               | 1219 |
| B                               | 1372 |
| C                               | 1524 |
| D                               | 1676 |
| E                               | 1829 |
| F                               | 1981 |
| G                               | 2134 |

| Standard Top Heights<br>(mm) |     |
|------------------------------|-----|
| A                            | 305 |
| B                            | 457 |
| C                            | 610 |

## 600 x 600mm Ditch Inlet Catch Basin

### Notes

1. Designed in accordance with OPSD 705.030.
2. Standard opening size - 400mm diameter.
3. Riser sections available - 305, 457, 610, 914, and 1219mm.
4. All dimensions are in millimeter unless otherwise shown.
5. Honey comb grating manufactured in accordance with OPSD 403.010 - Type A.
6. Refer to pages 62-66 to see how ditch inlets are incorporated into maintenance holes.
7. IPEX/Plastech ICD backplates available.



## DITCH INLET TYPE A

| Opening Dimension |            |     |    |
|-------------------|------------|-----|----|
| Grate             |            | a   | b  |
| Type              | Slope      |     |    |
| B                 | 2H:1V      | 670 | 52 |
|                   | 3H:1V      | 632 | 71 |
|                   | 4H:1V      | 618 | 78 |
|                   | Horizontal | 600 | 87 |

## DITCH INLET TYPE B

| Opening Dimension |            |      |     |      |
|-------------------|------------|------|-----|------|
| Grate             |            | a    | b   | c    |
| Type              | Slope      |      |     |      |
| C                 | 2H:1V      | 1341 | 66  | 1473 |
|                   | 3H:1V      | 1265 | 104 | 1473 |
|                   | 4H:1V      | 1237 | 118 | 1473 |
| B                 | 6H:1V      | 1216 | 65  | 1346 |
|                   | Horizontal | 1200 | 73  | 1346 |

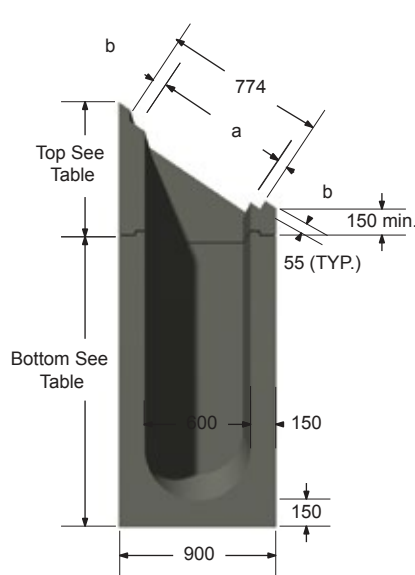
| Standard Bottom Heights (mm) |      |
|------------------------------|------|
| A                            | 1219 |
| B                            | 1372 |
| C                            | 1524 |
| D                            | 1676 |
| E                            | 1829 |
| F                            | 1981 |

| Standard Top Heights (mm) |     |
|---------------------------|-----|
| A                         | 152 |
| B                         | 305 |
| C                         | 762 |
| D                         | 914 |

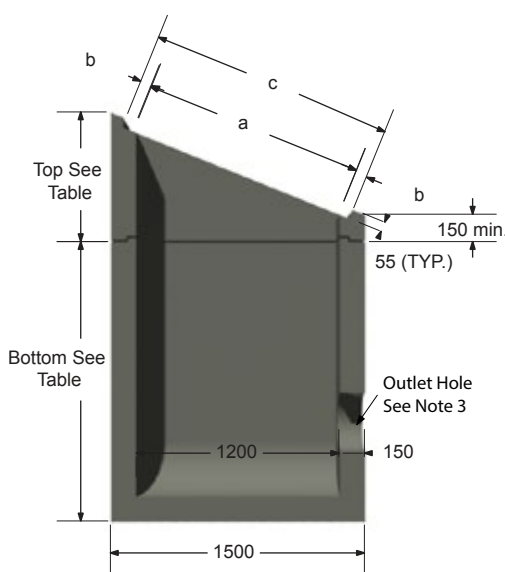
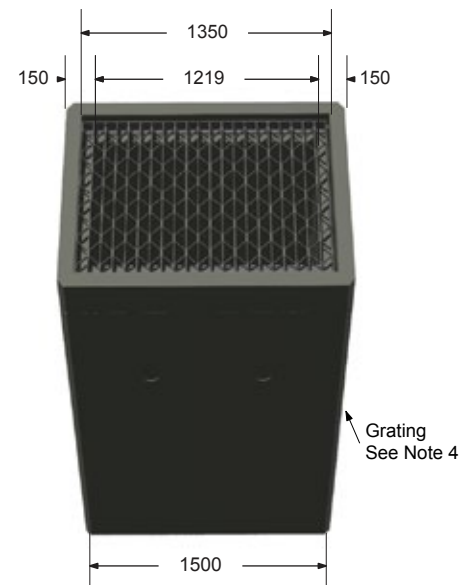
### Notes

A- Monolithic Base heights as follows: .61m - 1.53m @ .15m increments  
 B- Riser Top Section heights as follows: .76m - 1.22m @ .15m increments  
 C- Slopes available as follows: X = 2,3,4,6, & Horizontal

\* Sections also available with variable heights @ .15m increments



Ditch Inlet Type A



Ditch Inlet Type B



## 600 x 1200mm Ditch Inlet Catch Basin

### Notes

1. Manufactured in accordance with OPSD 705.040.
2. Riser sections are available in heights of .305 to 1.219m in 152 increments.
3. Standard outlet opening is 50mm diameter.
4. Honey comb grating as per OPSD 403.010 - Type B and Type A.
5. All dimensions are in millimeters, unless otherwise shown.
6. Refer to pages 62-66 to see how ditch inlets are incorporated into maintenance holes.
7. IPEX/Plastech ICD backplates available.

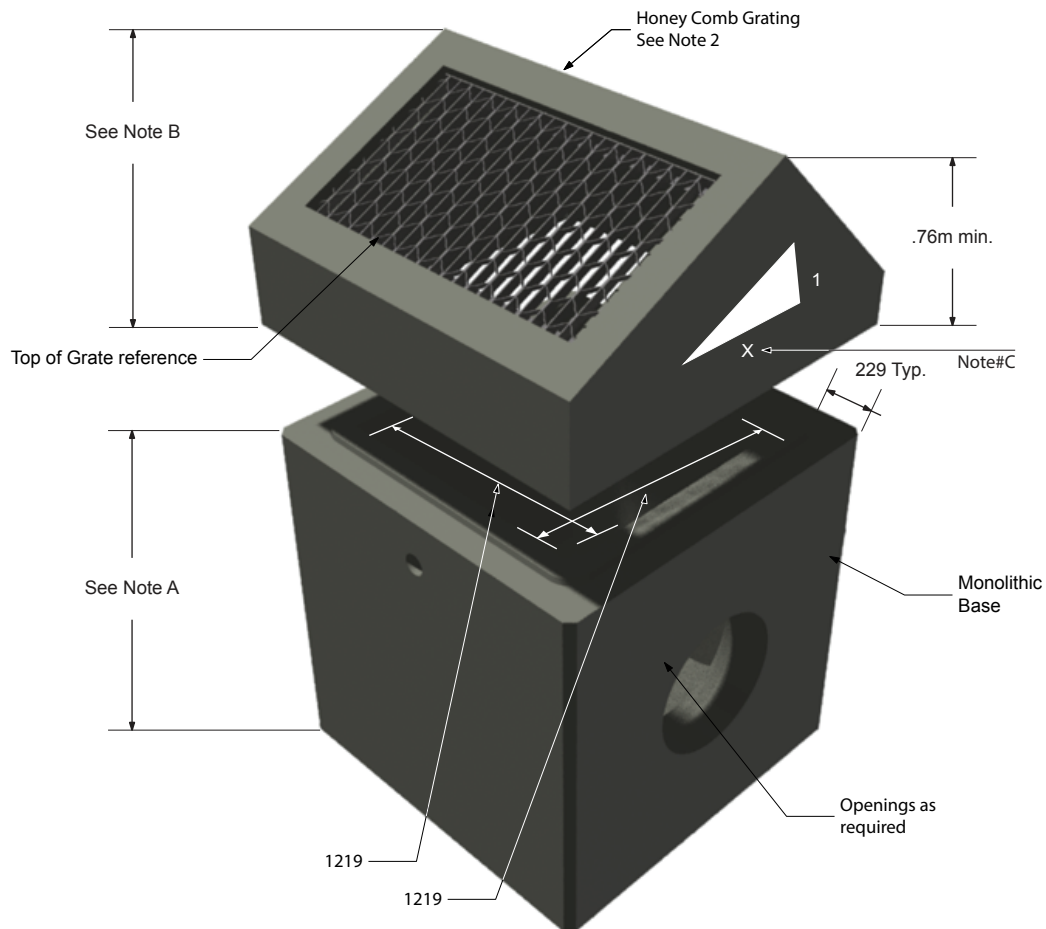






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#### Notes

- A- Monolithic Base heights as follows: .61m - 1.53m @ .15m increments  
B- Riser Top Section heights as follows: .76m - 1.22m @ .15m increments  
C- Slopes available as follows: X = 2,3,4,6, & Horizontal

\* Sections also available with variable heights @ .15m increments

## 1200 x 1200mm Ditch Inlet Catch Basin - Type A

#### Notes

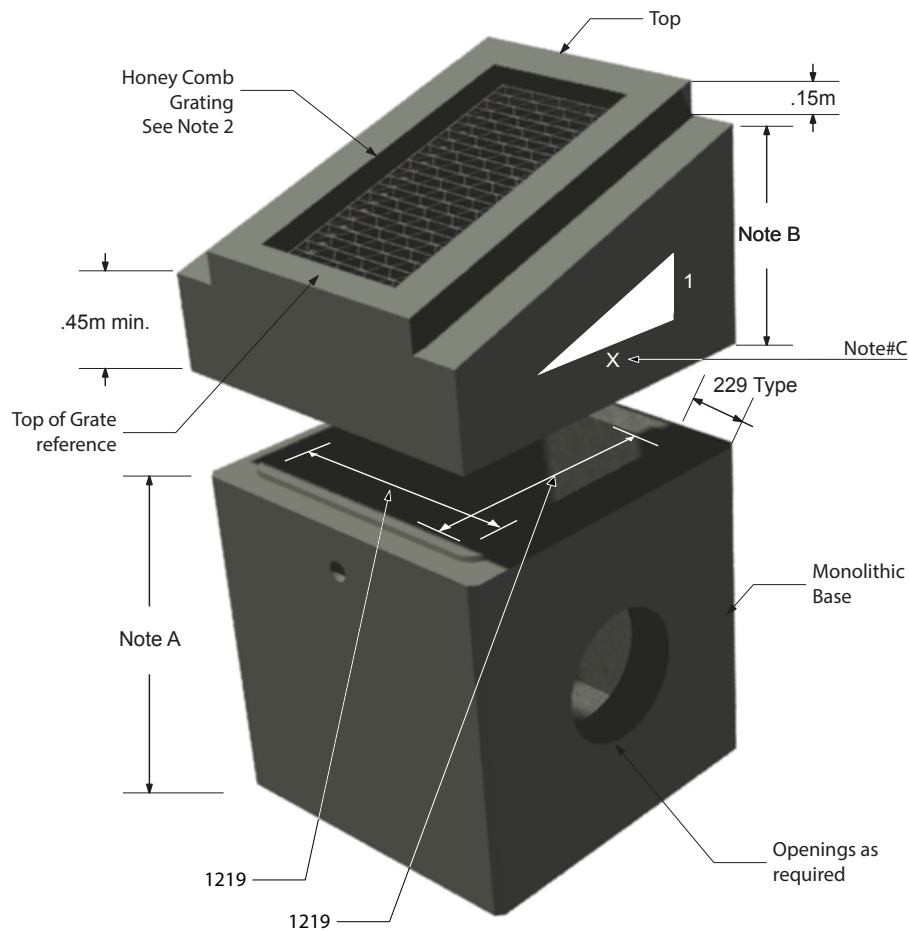
1. Manufactured in accordance with OPSD 702.040.
2. Honey comb grating manufactured in accordance with OPSD 403.010 - Type "B" & Type "C"
3. All maintenance Holes c/w Hollow Aluminum Steps as per OPSD 405.010.
4. Standard sump of 300mm is provided.
5. Pipe gaskets available upon request.
6. Refer to pages 62-66 to see how ditch inlets are incorporated into maintenance holes.





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#### Notes

- A- Monolithic Base heights as follows: .61m - 1.53m @ .15m increments  
B- Riser Top Section heights as follows: .45m - 1.22m @ .15m increments  
C- Slopes available as follows: X = 2,3,4,6, & Horizontal

\* Sections also available with variable heights @ .15m increments

## 1200 x 1200mm Ditch Inlet Catch Basin - Type B

#### Notes

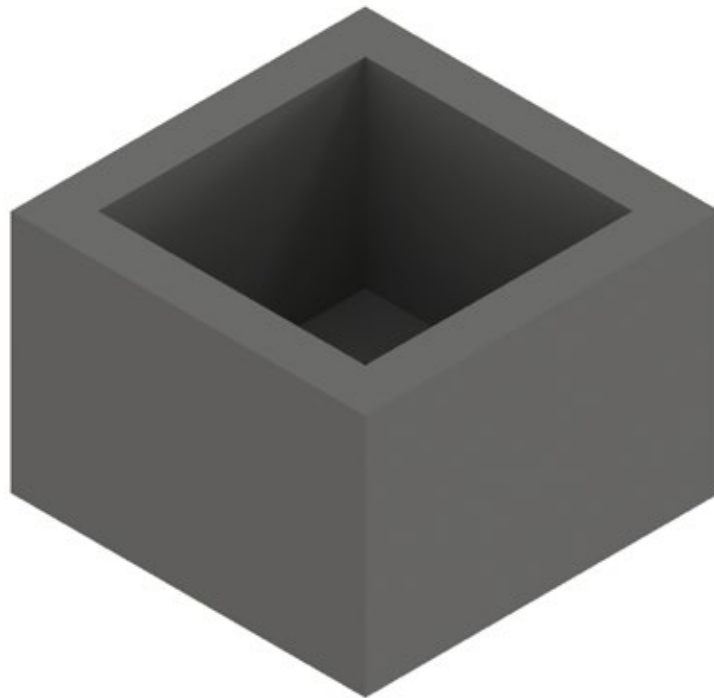
1. Manufactured in accordance with OPSD 702.050.
2. Honey comb grating manufactured in accordance with OPSD 403.010 - Type "B" or Type "C."
3. All maintenance Holes c/w Hollow Aluminum Steps as per OPSD 405.010.
4. Standard sump of 300mm is provided.
5. Pipe gaskets available upon request.
6. Refer to pages 62-66 to see how ditch inlets are incorporated into maintenance holes.





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| Box Name | Inside Dimensions | Outside Dimensions |      | Top Slap Thickness | Bott. Slap Thickness | Wall (W) Thickness |
|----------|-------------------|--------------------|------|--------------------|----------------------|--------------------|
|          |                   | A                  | B    |                    |                      |                    |
| M-3-3    | 914 x 914         | 1218               | 1218 | 152                | 152                  | 152                |
| M-4      | 1219 x 1219       | 1677               | 1677 | 229                | 229                  | 229                |

## Sump Pit

### Notes

1. Manufactured in accordance with OPSS 1351.
2. All dimensions are in millimeters unless otherwise shown.
3. Sump pits are manufactured with a flush top or exposed reinforcing from the top.
4. Alternate sizing available.





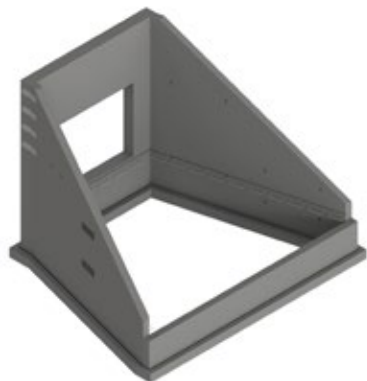


# HEADWALLS



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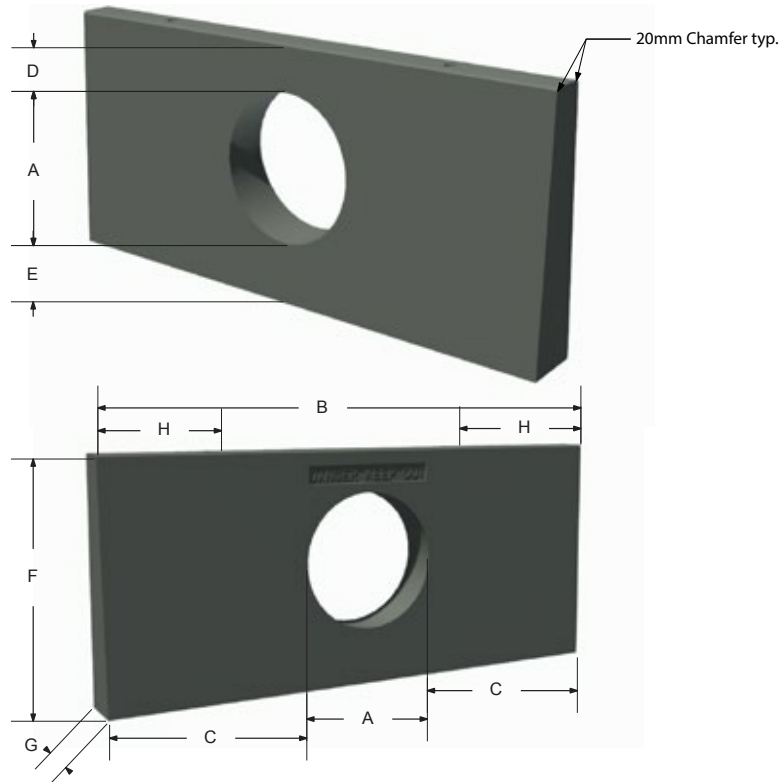
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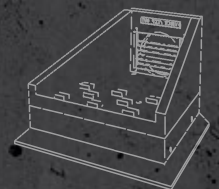


| Pipe Size<br>Conc. | Pipe Size<br>Conc. | Opening | Width |        |     |     | Height | Bottom<br>Thickness | Mass | Anchor | Anchor<br>Size |
|--------------------|--------------------|---------|-------|--------|-----|-----|--------|---------------------|------|--------|----------------|
| Nom                | O.D.               | A       | B     | C      | D   | E   | F      | G                   | Kg   | H      | pcs            |
| 300                | 445                | 520     | 3366  | 1423   | 412 | 740 | 1672   | 439                 | 5052 | 800    | 2 - 8 Ton      |
| 375                | 533                | 610     | 3366  | 1378   | 411 | 651 | 1672   | 439                 | 4978 | 800    | 2 - 8 Ton      |
| 450                | 622                | 700     | 3366  | 1333   | 411 | 561 | 1672   | 439                 | 4890 | 800    | 2 - 8 Ton      |
| 525                | 711                | 790     | 4167  | 1688.5 | 411 | 738 | 1939   | 462                 | 7297 | 1000   | 2 - 8 Ton      |
| 600                | 800                | 880     | 4167  | 1643.5 | 410 | 649 | 1939   | 462                 | 7183 | 1000   | 2 - 8 Ton      |
| 675                | 889                | 960     | 4167  | 1603.5 | 415 | 564 | 1939   | 462                 | 7068 | 1000   | 2 - 8 Ton      |
| 750                | 978                | 1050    | 4968  | 1959   | 414 | 742 | 2206   | 484                 | 9998 | 1000   | 2 - 8 Ton      |
| 825                | 1067               | 1140    | 4968  | 1914   | 413 | 653 | 2206   | 484                 | 9841 | 1000   | 2 - 8 Ton      |
| 900                | 1156               | 1230    | 4968  | 1869   | 413 | 563 | 2206   | 484                 | 9669 | 1000   | 2 - 8 Ton      |

## Headwall 300 to 900mm Pipe

### Notes

1. Precast alternative to OPSD 804.030.
2. Headwall grates are available upon request.
3. All dimensions are in milliliters unless otherwise shown.
4. Alternate openings are available upon request.

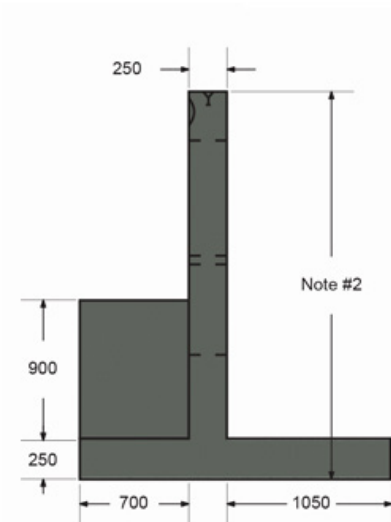
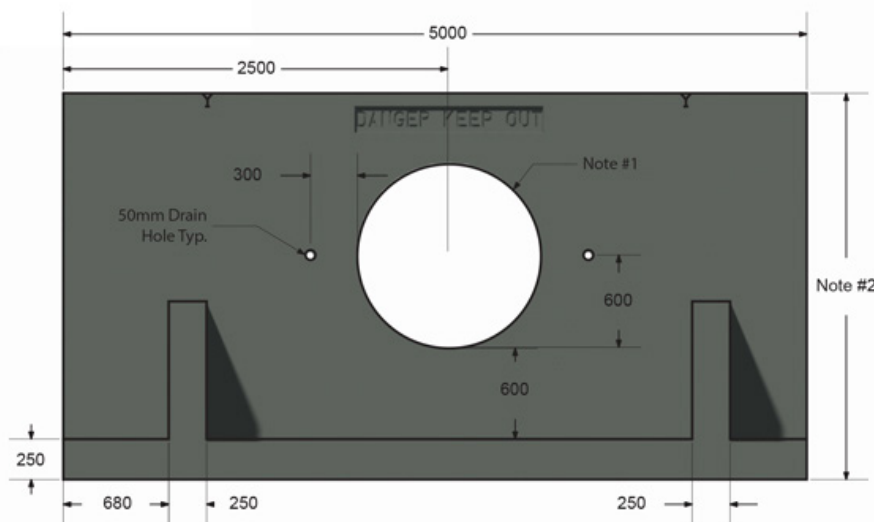
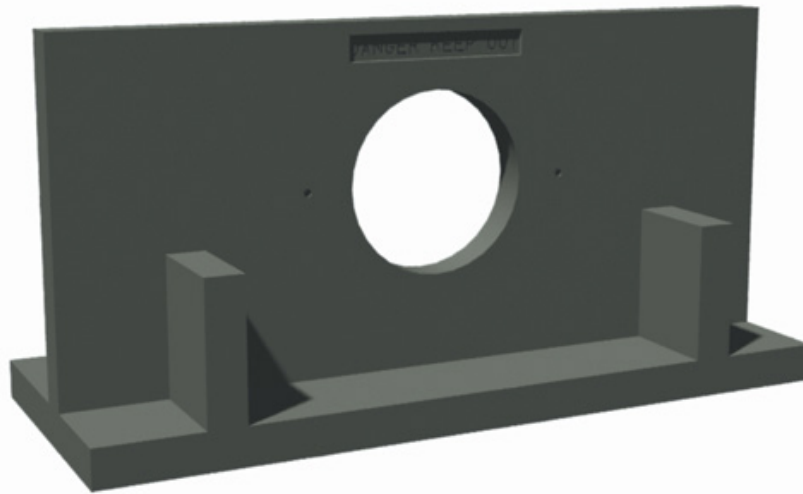






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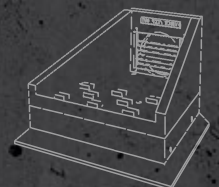
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## Headwall 300 to 1500mm Pipe

### Notes

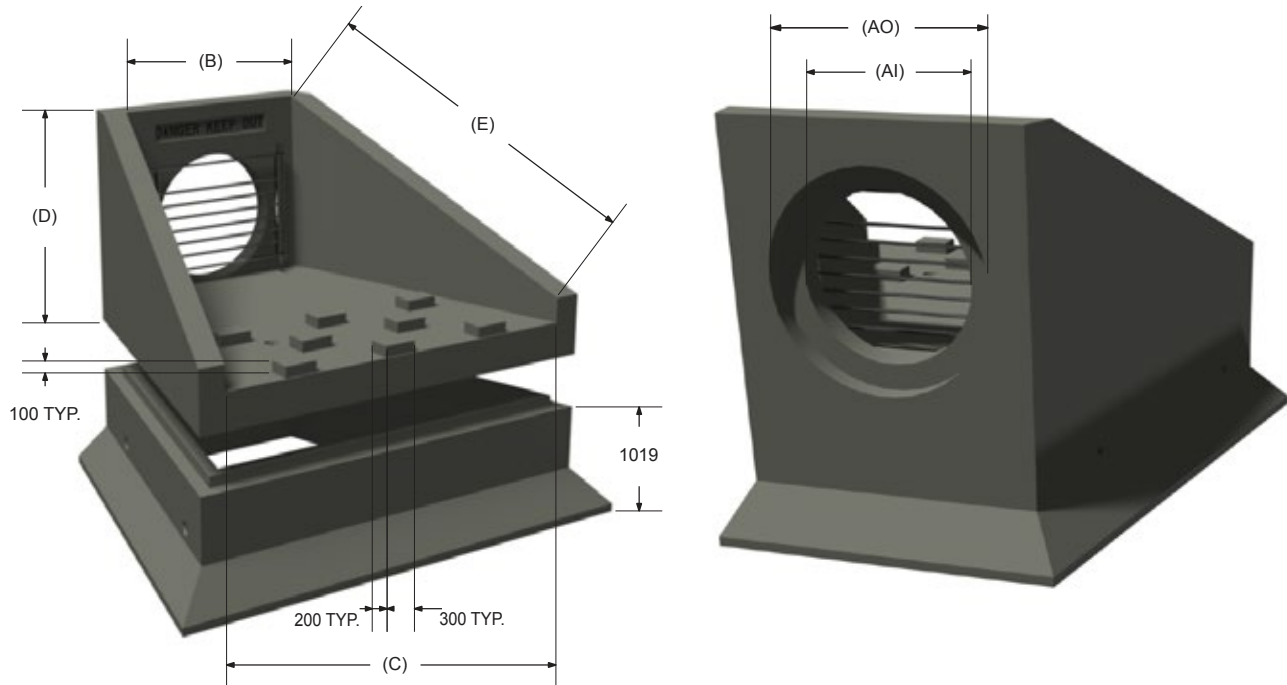
1. Precast alternative to OPSD 804.020.
2. Height of headwall will depend on the size of pipe.
3. Headwall grates as shown are available upon request.
4. Maximum weight = 15,000 kgs.
5. All dimensions are in millimeters unless otherwise shown.
6. Alternate openings are available upon request.





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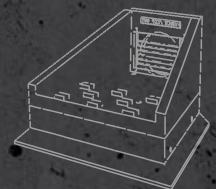


| Pipe Size  | Opening Front<br>(Pipe I.D.) | Opening Back | Back Wall<br>(Inside) | Width of<br>Open End | PS-2 Height | PS-2 Length | Mass (Top) | Mass<br>(Bottom) |
|------------|------------------------------|--------------|-----------------------|----------------------|-------------|-------------|------------|------------------|
| <b>Nom</b> | <b>AI</b>                    | <b>Ao</b>    | <b>B</b>              | <b>C</b>             | <b>D</b>    | <b>E</b>    | <b>kg</b>  | <b>kg</b>        |
| 600        | 610                          | 880          | 1219                  | 2532                 | 1623        | 2750        | 7,733      | 7,434            |
| 675        | 686                          | 960          | 1219                  | 2532                 | 1623        | 2750        | 7,654      | 7,434            |
| 750        | 762                          | 1050         | 1219                  | 2532                 | 1623        | 2750        | 7,554      | 7,434            |
| 825        | 838                          | 1140         | 1219                  | 2532                 | 1623        | 2750        | 7,452      | 7,434            |
| 900        | 914                          | 1230         | 1829                  | 3463                 | 2039        | 3350        | 12,652     | 9,627            |
| 975        | 991                          | 1320         | 1829                  | 3463                 | 2039        | 3350        | 12,526     | 9,627            |
| 1050       | 1067                         | 1410         | 1829                  | 3463                 | 2039        | 3350        | 12,394     | 9,627            |
| 1200       | 1219                         | 1590         | 1829                  | 3463                 | 2039        | 3350        | 12,103     | 9,627            |
| 1350       | 1372                         | 1760         | 2438                  | 4072                 | 2709        | 3350        | 17,106     | 10,639           |
| 1500       | 1524                         | 1940         | 2438                  | 4072                 | 2709        | 3350        | 16,724     | 10,639           |
| 1650       | 1676                         | 2120         | 2438                  | 4072                 | 2709        | 3350        | 16,308     | 10,639           |
| 1800       | 1829                         | 2320         | 2438                  | 4072                 | 2709        | 3350        | 15,832     | 10,639           |

## Headwall 600 to 1800mm Pipe

### Notes

1. Precast alternative to OPSD 804.040.
2. Designed in accordance with CSA S6 - CHBDC.
3. Headwall grates as shown are available upon request.
4. All dimensions are in millimeters unless otherwise shown.
5. Alternate openings are available upon request.



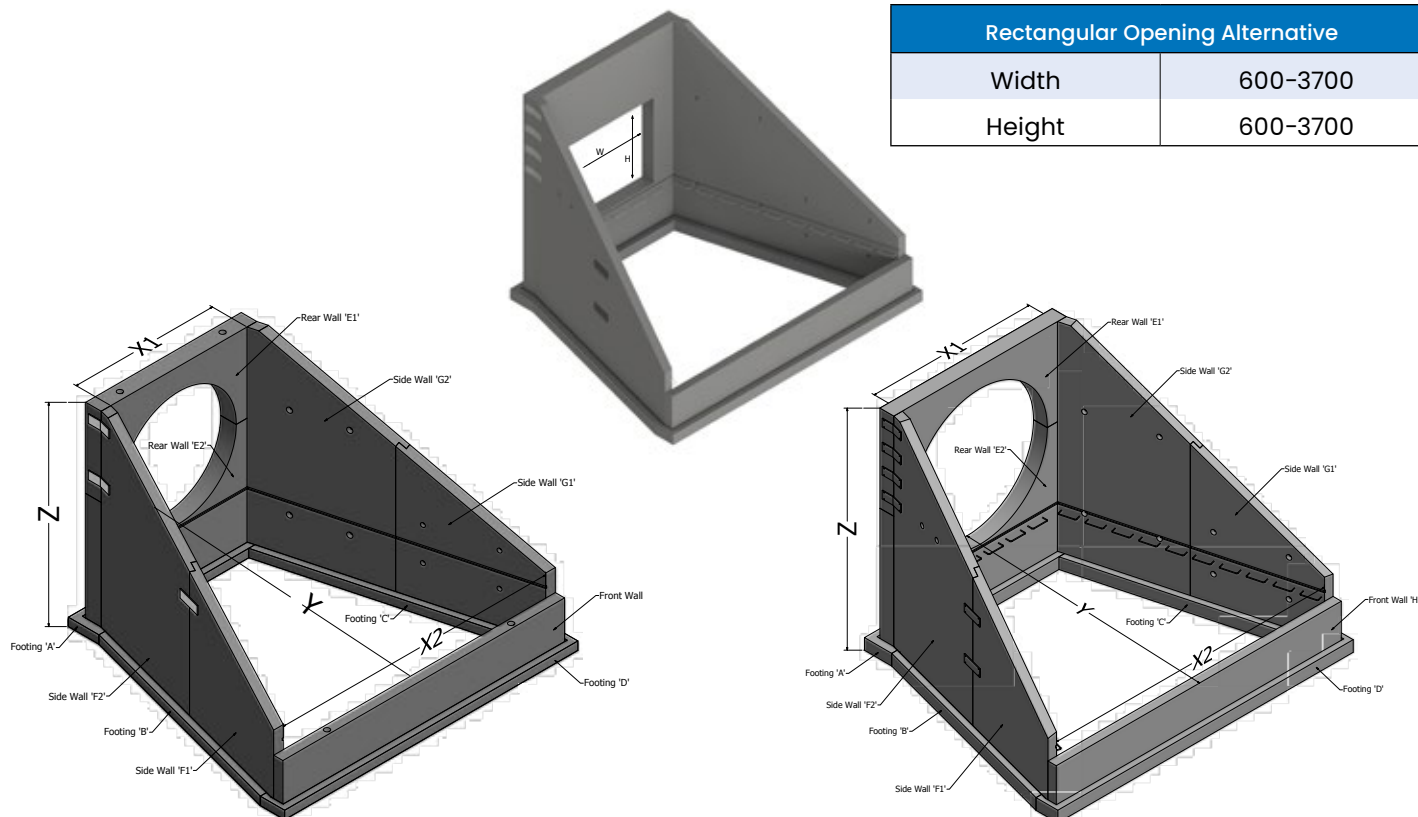


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#### Rectangular Opening Alternative

|        |          |
|--------|----------|
| Width  | 600-3700 |
| Height | 600-3700 |

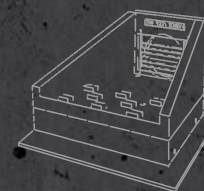


| Pipe Size | Hole Diameter | Back Wall Inside | Width of Open End | Depth | Height (including footings) | Mass of Footings (by piece) |      |      | Mass of Back Wall (by piece) |      | Mass of Wing Walls (by piece) |        | Mass of Front Wall | Total Mass |
|-----------|---------------|------------------|-------------------|-------|-----------------------------|-----------------------------|------|------|------------------------------|------|-------------------------------|--------|--------------------|------------|
| Nom       |               | X1               | X2                | Y     | Z                           | A                           | B, C | D    | E1                           | E2   | F1, G1                        | F2, G2 | H                  | KG         |
| 1950      | 2460          | 3353             | 6458              | 6404  | 4753                        | 2373                        | 2240 | 2835 | 5459                         | 6757 | 3865                          | 6647   | 3749               | 46677      |
| 2100      | 2640          | 3353             | 6458              | 6404  | 4753                        | 2373                        | 2240 | 2835 | 4790                         | 6741 | 3865                          | 6647   | 3749               | 45992      |
| 2250      | 2820          | 3353             | 6458              | 6404  | 4753                        | 2373                        | 2240 | 2835 | 4096                         | 6702 | 3865                          | 6647   | 3749               | 45259      |
| 2400      | 2990          | 4267             | 7372              | 6404  | 5743                        | 2530                        | 2305 | 3213 | 8999                         | 9028 | 4333                          | 7909   | 4244               | 57108      |
| 2550      | 3170          | 4267             | 7372              | 6404  | 5743                        | 2530                        | 2305 | 3213 | 8223                         | 9020 | 4333                          | 7909   | 4244               | 56324      |
| 2700      | 3360          | 4267             | 7372              | 6404  | 5743                        | 2530                        | 2305 | 3213 | 7332                         | 8985 | 4333                          | 7909   | 4244               | 55398      |
| 3000      | 3710          | 4267             | 7372              | 6404  | 5743                        | 2530                        | 2305 | 3213 | 5632                         | 8868 | 4333                          | 7909   | 4244               | 53581      |

## Segmental Headwalls for 1950 to 3000mm Pipe

#### Notes

1. Floor and chute blocks are to be cast-in-place (by others).
2. Precast alternative to OPSD 804.040.
3. Designed in accordance with CSA S6-14 (CHBDC).
4. Headwall grates are available upon request.
5. All dimensions are in millimeters unless otherwise shown.
6. Alternate openings are available upon request.





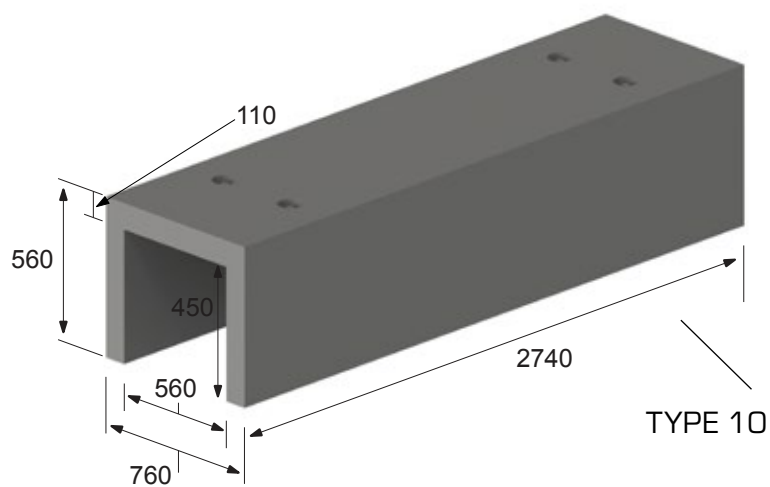
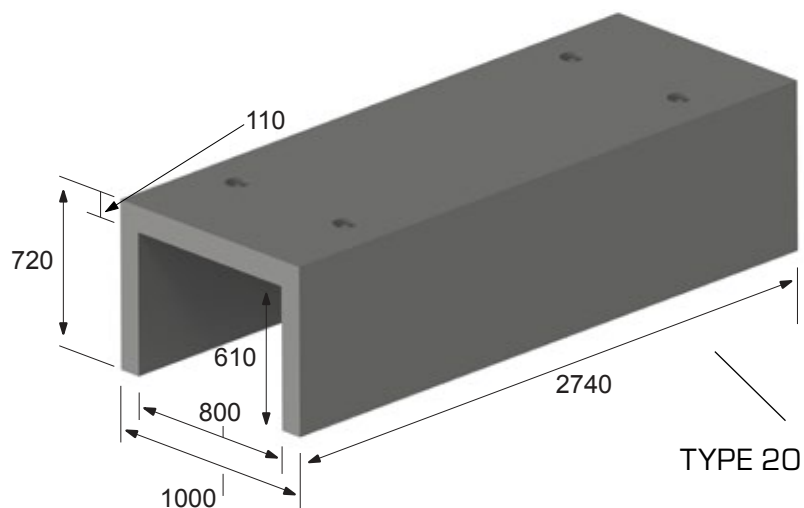


# TRENCH COVERS



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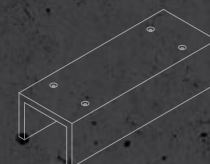
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## Trench Covers

### Notes

1. Designed in accordance with CSA-S6-06.
2. Design Live Load: CL-625-ONT.
3. All dimensions are in millimetres unless otherwise shown.





 **STONE STRONG** SYSTEMS®

**STONE STRONG SYSTEMS®**





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## THE BIG EASY.

We're the first to agree: bigger is better. But we don't stop there. The biggest and most innovative precast block in the industry is also the easiest to work with. Stone Strong Systems' fully and intelligently engineered block technology allows for a lighter, interlocking block that greatly reduces installation time and labor costs — with unmatched safety, durability and aesthetics. It's big. It's easy. It's Stone Strong.



### ROADWAY

Big-time projects demand big-time blocks – Stone Strong Systems' gravity walls are capable of heights in excess of 20 feet. Meanwhile, with proper engineering and reinforcement, Stone Strong MSE walls have topped nearly 50 feet.



### COMMERCIAL

Big-time projects demand big-time blocks – Stone Strong Systems' gravity walls are capable of heights in excess of 20 feet. Meanwhile, with proper engineering and reinforcement, Stone Strong MSE walls have topped nearly 50 feet.



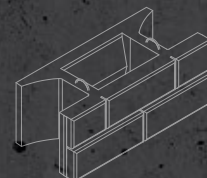
### RESIDENTIAL

Make impossibly hard projects impossibly easy – Stone Strong Systems' tapered block edges provide the versatility needed to contour to any landscape, including straight, convex, concave and circular designs.

# Stone Strong System

#### Notes

1. Contact the MCON engineering department for further information.





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## NOT JUST BIGGER. BETTER.

What is it that makes Stone Strong Systems the best block in precast? In a word — everything. Everyone knows we're the biggest block in the industry. But what they may not know is that we're the industry's most efficient retaining wall system as well. Or that our big block system is the first to be fully engineered both structurally and geotechnically. So no matter what you're looking for — size, speed or strength — Stone Strong Systems can meet your project requirements.



### **LIGHTER**

Our system's unique hollow cavity means less weight per square foot, which translates into reduced transportation costs and a much faster, easier and less costly installation — install up to 1,200 square feet of block a day.



### **BIGGER**

Huge 24-square-foot block dramatically reduces labor costs and installation time, while its sheer size and weight deliver structural strength without any need for tie-backs or additional mechanics.



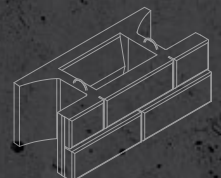
### **INTERLOCKING**

Lift/alignment loops ensure blocks interlock precisely and align units for consecutive level courses. Stone infill securely locks blocks together without any mechanical assistance.

## Stone Strong System

### Notes

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#### **DRAINAGE**

Innovative hollow design makes Stone Strong the only wall system in the industry to feature a fully integrated drainage system requiring no additional parts or labor.

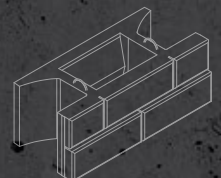
## **THE BUILDING BLOCKS OF INNOVATION.**

Comprised of more than a dozen fully engineered blocks, components and accessories, Stone Strong Systems combines the flexibility to accommodate any retaining wall project — large or small — with unmatched safety, durability and aesthetics. Every block is manufactured to product specifications to assure uniform weight, dimensional tolerance and strength, and unlike other brands, returned concrete is never used for Stone Strong blocks. Not to mention, every block is produced with air-entrained 4,000-psi concrete to protect it through even the most strenuous freeze/thaw cycles.

## **Stone Strong System**

#### **Notes**

1. Contact the MCON engineering department for further information.





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## EVERY STONE STRONG BLOCK FEATURES A REALISTIC, CHISELED-STONE FAÇADE HANDCRAFTED BY REAL ARTISANS.



### CHISELED GRANITE (Standard)

Derived from blocks hand-chiseled by artisans, the pattern is intended to match the classic look of natural, chiseled stone.



### FRACTURED LEDGE (Special Order)

Created from actual fractured ledge stone, the highly defined pattern offers the most natural look.



### POTOMAC (Special Order)

Smooth and broken up, this pattern was produced to replicate actual original cobblestone from the East Coast.



### TENNESSEE FOOTHILLS (Special Order)

Sharp and well defined, the pattern was developed by laser-mapping actual retaining walls in the Smoky Mountains.

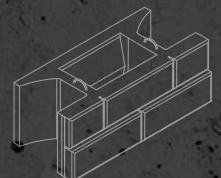


### SMOOTH FACE (Special Order)

## Stone Strong System Patterns

### Notes

1. Contact the MCON engineering department for available patterns and colours.







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**3-28 BLOCK**  
**Face 2' X 18" x 28"**

The 3 SF Block can be used on smaller walls where site depth is a factor. Weight 225 kilograms.



**3-28 TOP BLOCK**  
**Face 2' X 18" x 28"**

The 3 SF Top Block can be used on smaller walls and easy to move around on-site with a skid loader or mini-excavator. Weight 200 kilograms.



**3 SF BLOCK**  
**Face 2' X 18" x 44"**

The 3 SF Block allows the wall to stay on a running bond. This block is also available as a vertical. Weight 364 kilograms.



**3 SF TOP BLOCK**  
**Face 2' X 18" x 44"**

Every Stone Strong block is manufactured to particular specifications to assure uniform weight, dimensional tolerance and strength. Weight 328 kilograms.



**6-28 BLOCK**  
**Face 4' X 18" X 28"**

Stone Strong's tapered block edges provide the versatility needed to contour to any landscape. Weight 430 kilograms.



**6-28 TOP BLOCK**  
**Face 4' X 18" X 28"**

Unlike other brands, returned concrete is never used for Stone Strong blocks. Weight 380 kilograms.



**6 SF BLOCK**  
**Face 4' X 18" X 44"**

The 6 SF Block allows for tighter turning radiuses. This block is also available as a vertical. Weight 680 kilograms.



**6 SF TOP BLOCK**  
**Face 4' X 18" X 44"**

Blocks interlock securely and precisely without any mechanical assistance. Weight 635 kilograms.



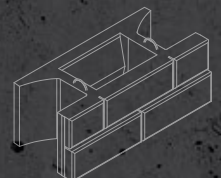
**12 SF BLOCK**  
**Face 8' X 18" X 44"**

The 12 SF Block allows for quicker installation of 1.5 foot high courses. Weight 1360 kilograms.

## Stone Strong System Blocks

### Notes

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**12 SF TOP BLOCK**  
**Face 8' X 18" X 44"**

Stone Strong's sheer mass holds the system together without the need for geogrid or soil reinforcement. Weight 1300 kilograms.



**24 SF BLOCK**  
**Face 8' X 36" X 44"**

This 24 SF Block is the Standard Stone Strong block. This block is also available as a vertical. Weight 2722 kilograms.



**24 SF TOP BLOCK**  
**Face 8' X 36" X 44"**

The Top Block has an 8" recess at the top of the face to allow for multiple finish options. Weight 2449 kilograms.



**24-62 BLOCK**  
**Face 8' X 36" X 62"**

The 24-62 Block builds walls up to 18' with no tie-back. This block is also available as a vertical. Weight 3109 kilograms.



**24-86 BLOCK**  
**Face 8' X 36" X 86"**

The 24-86 Block builds walls up to 22.5' with no tie-back. This block is also available as a vertical. Weight 3489 kilograms.



**D150 BLOCK**  
**Face 8' x 3', Width 86"**

Helps construct gravity walls exceeding 35 feet tall. This block is only available in vertical. Weight 5780 kg.



**24 SF MASS EXTENDER BLOCK**  
**Face 8' X 36" X 56"**

The addition of the extender to the 24 SF block provides for greater gravity wall heights. This block is also available as a vertical. Weight 4526 kilograms.



**45 DEGREE BLOCK**  
**Face 4' x 1.5' x 4'**

The 45° Block provides for inside and outside 45° turns. Weight 910 kilograms.



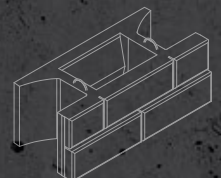
**45 DEGREE INSIDE CORNER TOP**  
**Face 4' x 1.5' x 4'**

The 45° Inside Corner Block provides for corners where the low grading is on the inside of the corner. Weight 757 kilograms.

## Stone Strong System Blocks

### Notes

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#### **45 DEGREE OUTSIDE CORNER TOP**

**Face 4' x 1.5' x 4'**

The 45° Outside Corner Block provides for corners where the low grading is on the outside of the corner. Weight 837 kilograms.



#### **COLUMN 'T' BLOCK**

**Face 4' X 48" X 18"**

90° Block with 1 finished side. Weight 1179 kilograms.



#### **COLUMN 'T' TOP BLOCK**

**Face 4' X 48" X 18"**

90° Top Block with 1 finished side. Weight 1179 kilograms.



#### **90 DEGREE BLOCK**

**Face 48" X 48" X 18"**

90° Block provides for inside and outside 90° turns. Weight 1179 kilograms.



#### **90 DEGREE CORNER TOP**

**Face 48" X 48" X 18"**

90° Corner Top Block can be used for inside and outside 90° turns. Weight 1042 kilograms.



#### **COLUMN END BLOCK**

**Face 48" X 48" X 48" X 18"**

90° Block with 3 finished sides. Weight 1179 kilograms.



#### **4' DUAL BLOCK**

**Face 4' X 18" X 28"**

The 4' Dual Face Block provides for above-grade applications. Weight 800 kilograms.



#### **4' DUAL END BLOCK**

**Face 8' x 18', 28"**

3-sided finished end block. Used for Dual Face end finishing treatments. Weight 800 kilograms.



#### **8' DUAL BLOCK**

**Face 8' X 18" X 28"**

The 8' Dual Face Block provides for above-grade applications. Weight 1597 kilograms.



#### **END CORNER BLOCK**

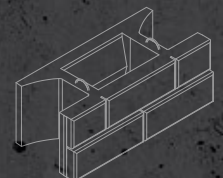
**Face 4' X 18" X 24"**

The End Corner block is used for 90° turns and for end finish treatments. Weight 640 kilograms.

## Stone Strong System Blocks

#### Notes

1. Contact the MCON engineering department for further information.





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**45 DEGREE COLUMN CAP**



**90 DEGREE COLUMN CAP**



**4' END CAP**



**4' STEP CAP**



**8' STEP CAP**



**8' DUAL END CAP**



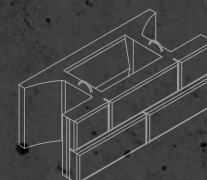
**8' END CAP**

| Column Cap Chart      |                 |             |        |       |                   |
|-----------------------|-----------------|-------------|--------|-------|-------------------|
|                       | End Finishing   | Face Length | Height | Depth | Block Weight (kg) |
| 4' End Cap Block      | 1 Finished End  | 4'          | 0.58   | 2.67' | 405               |
| 4' Cap/Step Block     | 2 Flush Ends    | 4'          | 0.58   | 2.67' | 405               |
| 8' End Cap Block      | 1 Finished End  | 8'          | 0.58   | 2.67' | 726               |
| 8' Dual End Cap Block | 2 Finished Ends | 8'          | 0.58   | 2.67' | 726               |
| 8' Cap/Step Block     | 2 Flush Ends    | 8'          | 0.58   | 2.67' | 726               |
| 8' End Cap Block      | 1 Finished End  | 8'          | 0.58   | 2.67' | 726               |

**Stone Strong System  
Blocks**

**Notes**

1. Caps with two flush ends can also be used for stairs and step applications.
2. Clamp required for installation. Clamp rental available through MCON.
3. Contact the MCON engineering department for further information.







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**90 DEGREE INSIDE CORNER UNIT #1**

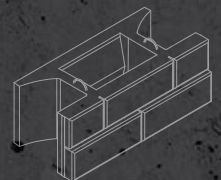
| Block Number | Length           | A                | B                | C               | Block Weight        |
|--------------|------------------|------------------|------------------|-----------------|---------------------|
| 1            | 65 in<br>1646 mm | 25 in<br>641 mm  | 25 in<br>633 mm  | 19 in<br>485 mm | 2070 lbs<br>940 kg  |
| 2            | 70 in<br>1790 mm | 31 in<br>784 mm  | 31 in<br>777 mm  | 23 in<br>593 mm | 2350 lbs<br>1065 kg |
| 3            | 76 in<br>1934 mm | 37 in<br>928 mm  | 36 in<br>921 mm  | 27 in<br>694 mm | 2630 lbs<br>1195 kg |
| 4            | 82 in<br>2077 mm | 42 in<br>1072 mm | 42 in<br>1064 mm | 31 in<br>796 mm | 2900 lbs<br>1315 kg |
| 5            | 87 in<br>2221 mm | 48 in<br>1215 mm | 48 in<br>1208 mm | 35 in<br>896 mm | 3180 lbs<br>1445 kg |
| 6            | 93 in<br>2365 mm | 54 in<br>1359 mm | 53 in<br>1352 mm | 39 in<br>997 mm | 3460 lbs<br>1570 kg |



**90 DEGREE OUTSIDE CORNER UNIT #1**

| Block Number | Length           | A                | B                | C                | Block Weight        |
|--------------|------------------|------------------|------------------|------------------|---------------------|
| 1            | 65 in<br>1652 mm | 42 in<br>1054 mm | 48 in<br>1221 mm | 44 in<br>1124 mm | 2600 lbs<br>1180 kg |
| 2            | 59 in<br>1508 mm | 36 in<br>910 mm  | 42 in<br>1077 mm | 40 in<br>1022 mm | 2330 lbs<br>1055 kg |
| 3            | 56 in<br>1415 mm | 30 in<br>767 mm  | 37 in<br>933 mm  | 36 in<br>920 mm  | 2050 lbs<br>930 kg  |
| 4            | 48 in<br>1221 mm | 25 in<br>623 mm  | 31 in<br>790 mm  | 32 in<br>819 mm  | 1770 lbs<br>805 kg  |
| 5            | 42 in<br>1077 mm | 19 in<br>479 mm  | 25 in<br>646 mm  | 28 in<br>717 mm  | 1500 lbs<br>680 kg  |
| 6            | 37 in<br>933 mm  | 13 in<br>336 mm  | 20 in<br>502 mm  | 24 in<br>616 mm  | 1220 lbs<br>555 kg  |

Inside Corner Block  
Outside Corner Block



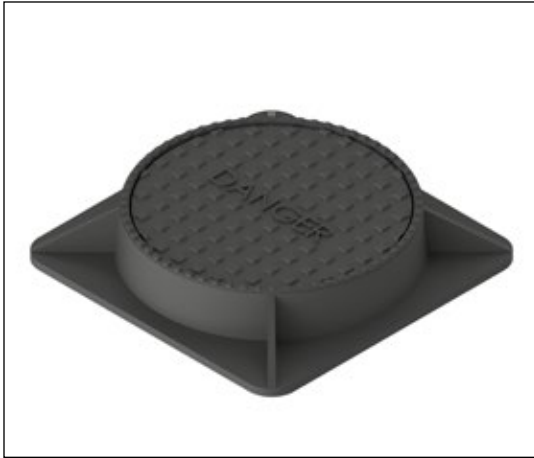


# ACCESSORIES



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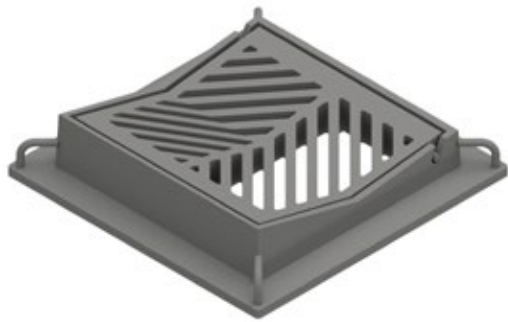
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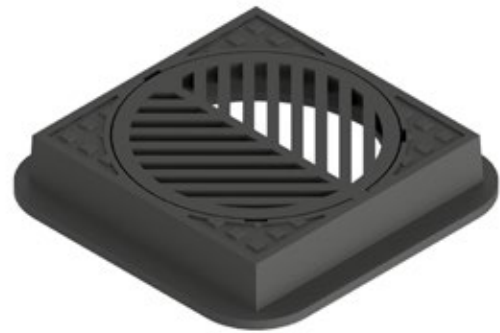


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MAINTENANCE HOLE FRAME & COVER  
OPSD 400.40 - TYPE V



CATCH BASIN FRAME & COVER  
OPSD 400.07

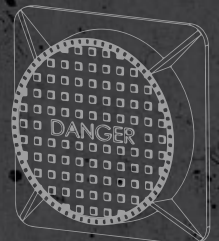


CATCH BASIN FRAME & COVER  
OPSD 400.01 DISHED GRATE



CATCH BASIN FRAME & COVER  
OPSD 400.02 FLAT GRATE

OPSD Catch Basin  
Frame and Covers



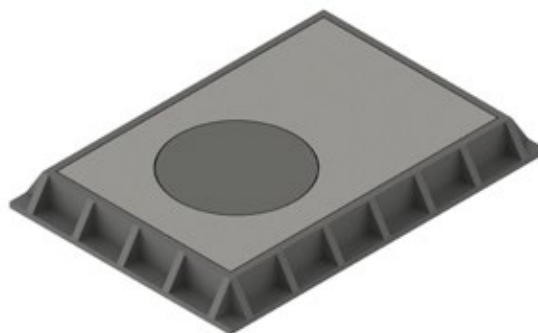


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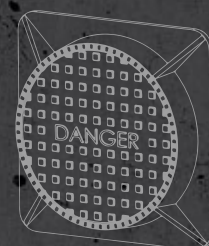


VALVE CHAMBER FRAME AND COVER  
OPSD 402.01



METER/VALVE CHAMBER  
FRAME AND COVER  
OPSD 402.03

OPSD Catch Basin  
Frame and Covers





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MAINTENANCE HOLE FRAME & COVER  
OPSD 401.010 - TYPE A & B

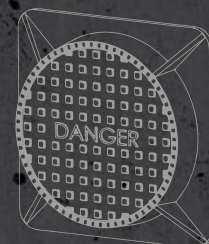


MAINTENANCE HOLE FRAME AND COVER  
OPSD 401.030



MAINTENANCE HOLE FRAME AND COVER  
OPSD 401.020

OPSD Maintenance Hole  
Frame and Covers





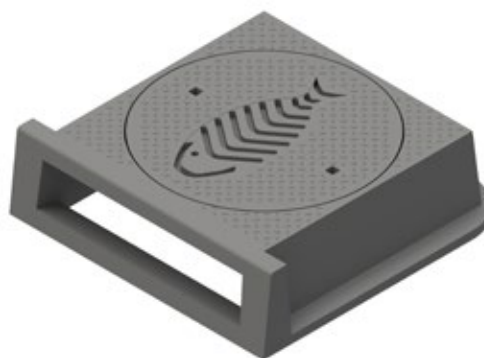


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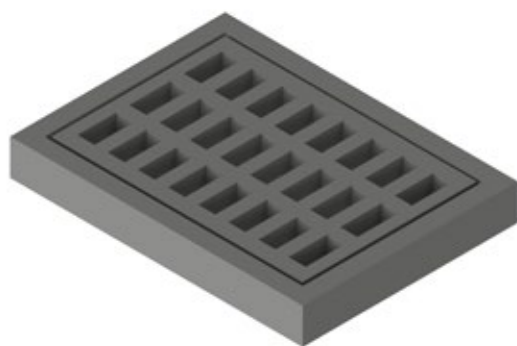
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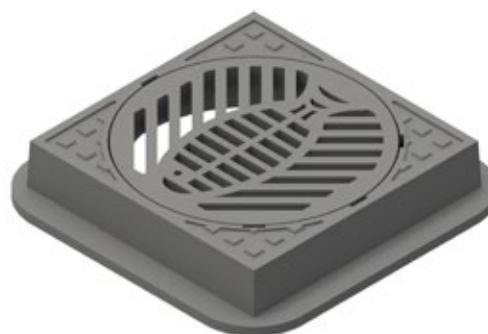
VALVE CHAMBER / MAINTENANCE HOLE  
CITY OF OTTAWA FRAME & COVER -  
W15/W16



CURB INLET CATCH BASIN  
CITY OF OTTAWA FRAME & COVER -  
S22/S23

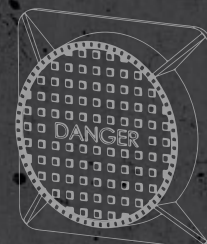


REAR YARD CATCH BASIN  
CITY OF OTTAWA FRAME AND COVER



CATCH BASIN  
CITY OF OTTAWA FRAME  
AND COVER - S19

City of Ottawa Frame  
and Covers





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SANITARY  
CITY OF OTTAWA FRAME & COVER -  
S24/S25

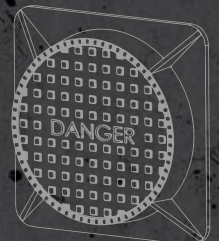


STORM  
CITY OF OTTAWA FRAME & COVER  
S24.1/S25



OPEN GRATE  
CITY OF OTTAWA FRAME & COVER  
S28.1

City of Ottawa Frame  
and Covers OPSD





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DITCH INLET GRATE - TYPE A



DITCH INLET GRATE - TYPE B



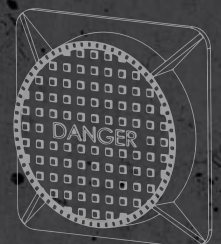
DITCH INLET GRATE - TYPE C

| Grating Type | Grating Size |         |
|--------------|--------------|---------|
|              | Length L     | Width W |
| A            | 762          | 768     |
| B            | 1338         | 768     |
| C            | 1465         | 768     |

## Ditch Inlet Grate

### Notes

1. Conforms to OPSD 403.010
2. Type "A" grates are used on 600mmx600mm ditch inlets. See page 89.
3. Type "B" grates are used on 600mmx1200mm ditch inlets. See page 90.

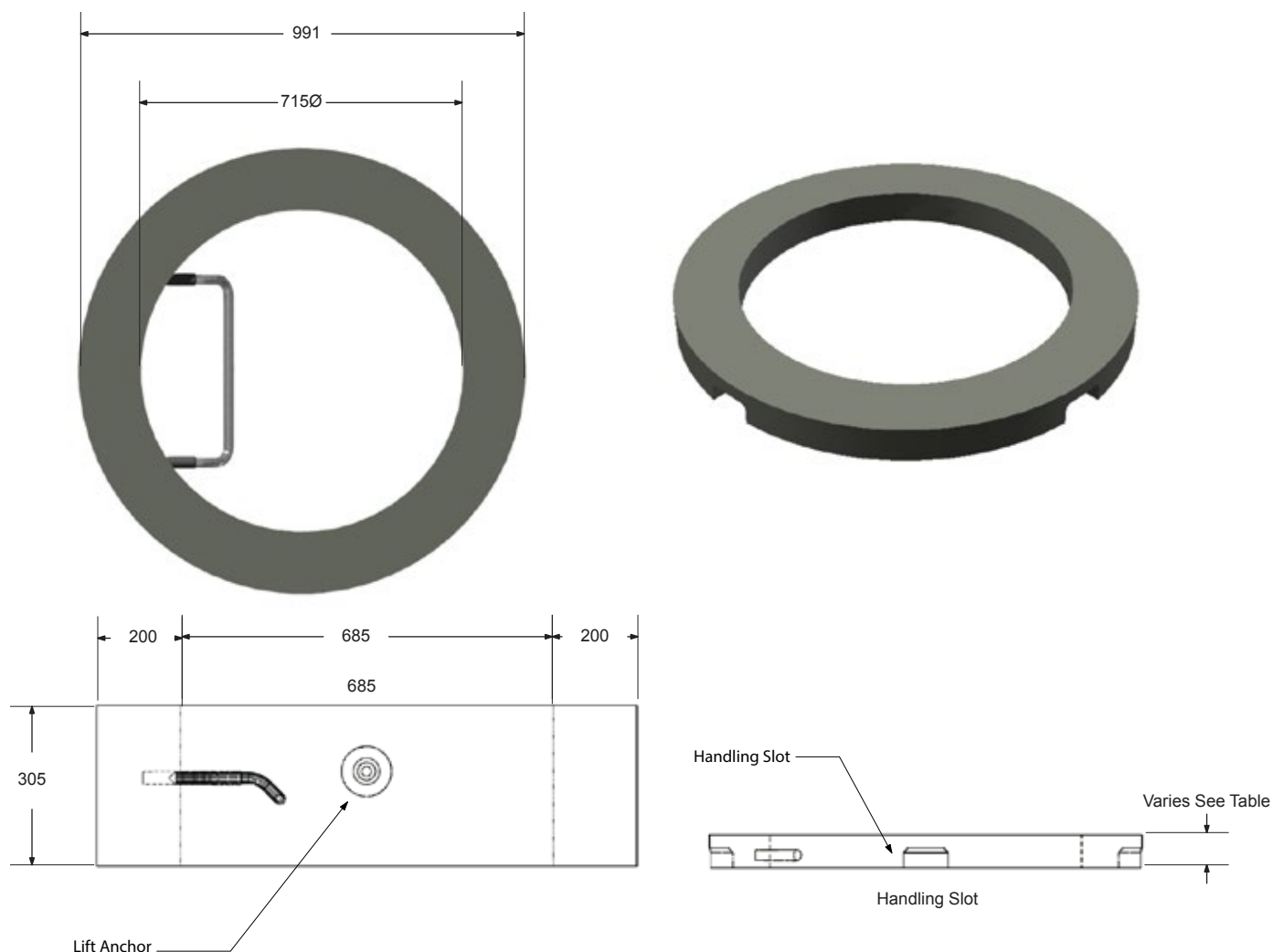






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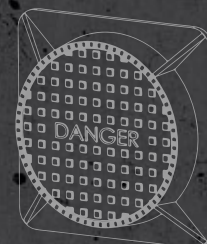


| Unit Height | Bundle (PCS) | Mass (KG/EA) | Steps Y/N  |
|-------------|--------------|--------------|------------|
| 50mm        | 10           | 55           | See Note 3 |
| 75mm        | 8            | 82           | See Note 3 |
| 100mm       | 6            | 109          | See Note 3 |
| 150mm       | 6            | 164          | See Note 3 |
| 300mm       | 1            | 325          | Y          |

## Maintenance Hole Adjustment Rings

### Notes

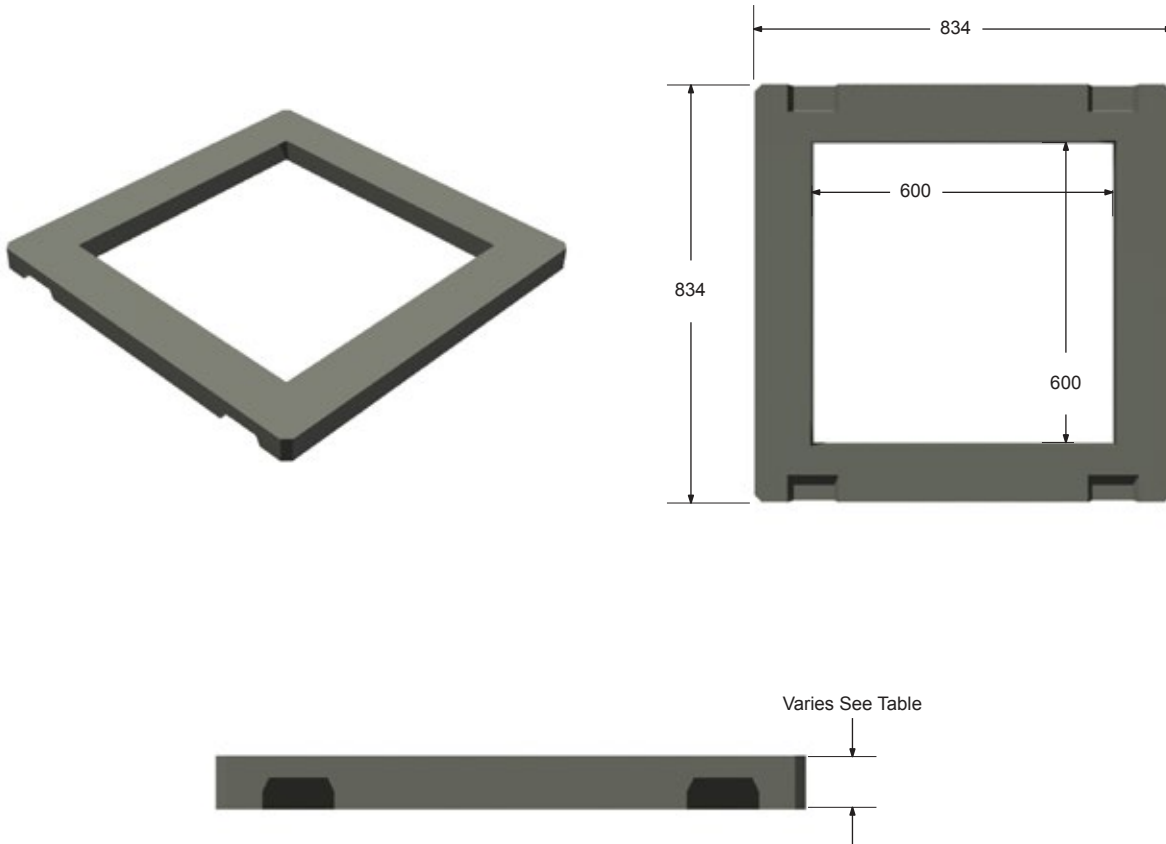
1. Designed in accordance with OPSD 704.010.
2. All dimensions are in millimeters unless otherwise shown.
3. Steps can be pre-installed upon request.





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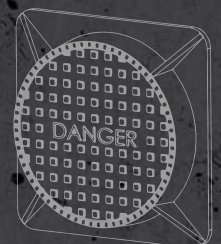


| Unit Height | Bundle (PCS) | Mass (KG/EA) | Steps Y/N  |
|-------------|--------------|--------------|------------|
| 50mm        | 10           | 40           | See Note 3 |
| 75mm        | 9            | 61           | See Note 3 |
| 100mm       | 6            | 84           | See Note 3 |
| 150mm       | 4            | 121          | See Note 3 |

## Catch Basin Adjustment Units

### Notes

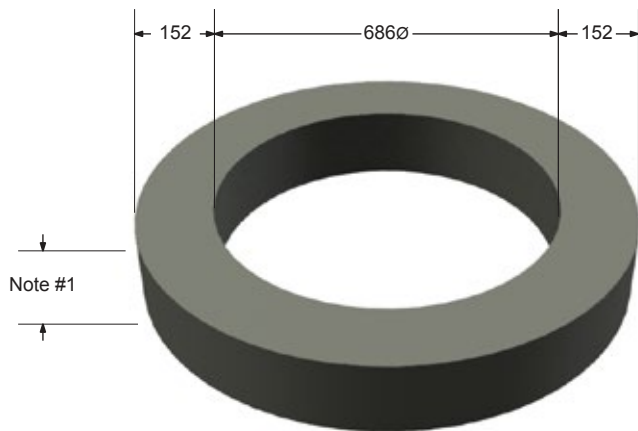
1. Designed in accordance with OPSD 704.010.
2. All dimensions are in millimeters unless otherwise shown.
3. Steps can be pre-installed upon request.



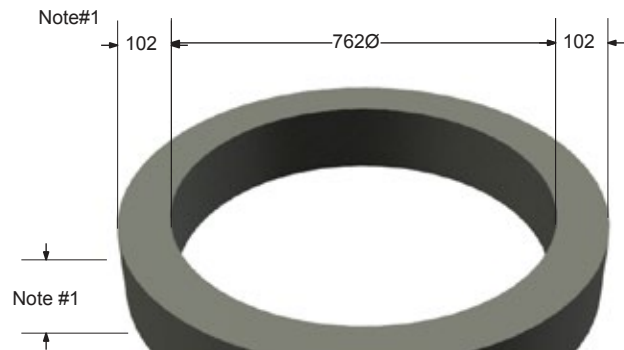


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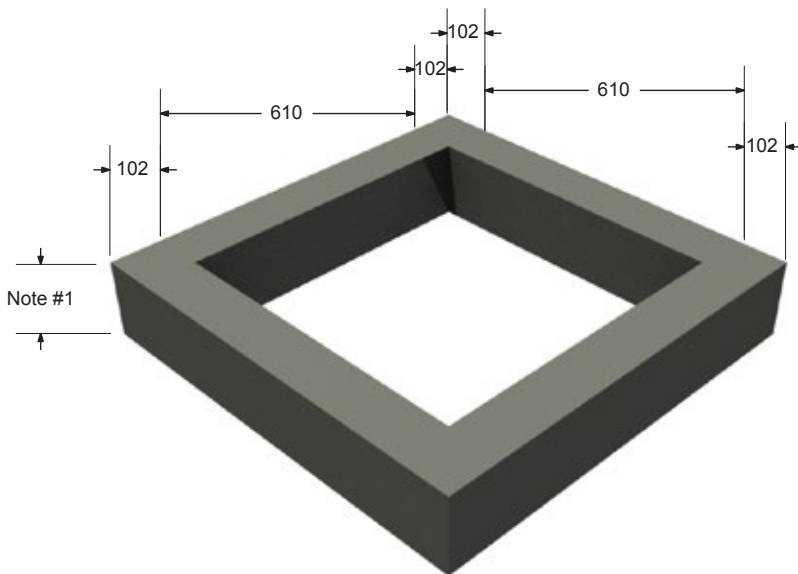
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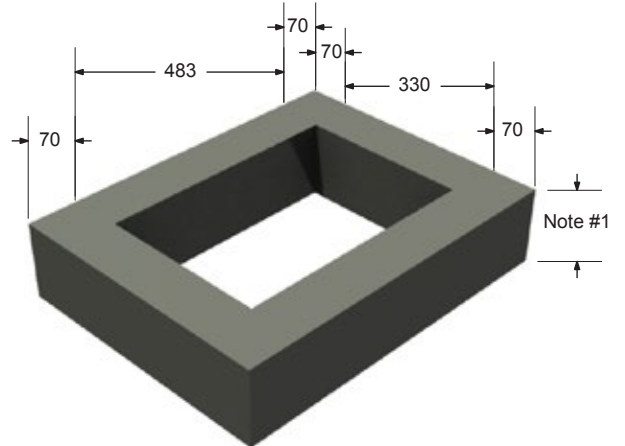
MAINTENANCE HOLE  
ADJUSTER



VALVE CHAMBER  
ADJUSTER



CATCH BASIN  
ADJUSTER

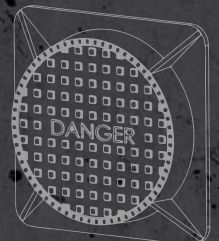


REAR YARD CATCH BASIN  
ADJUSTER

## Adjustment Units

### Notes

1. Heights as follows: 50mm, 75mm, 100mm, & 150mm.
2. Designed in accordance with OPSD 704.010.
3. All dimensions are in millimeters unless otherwise shown.

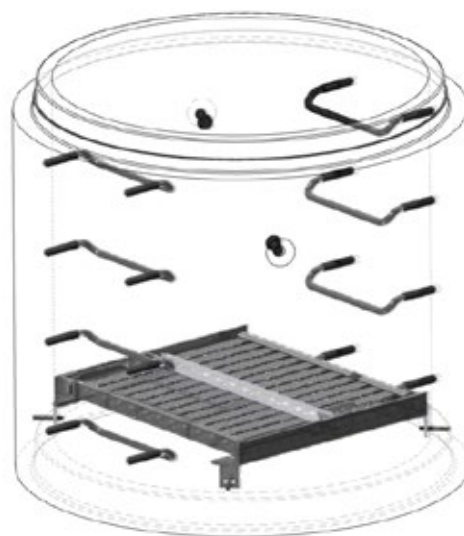






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ALUMINUM SAFETY PLATFORM



20MM HOLLOW ALUMINUM

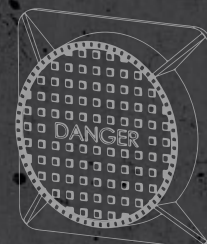


20MM SOLID ALUMINUM

## Maintenance Hole Aluminum Safety Platform and Steps

### Notes

1. Safety platforms designed in accordance with OPSD 404.020.
2. Steps designed as per OPSD 405.010 - Hollow - Standard. Steps as per OPSD 405.020 - Solid - available when specified.
3. All dimensions are in millimeters unless otherwise shown.





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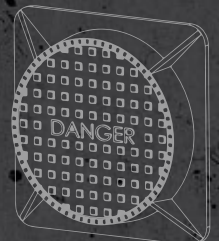
The rubber boot type connector is a common method of connecting both concrete and other pipe materials to maintenance holes, providing both a flexible and watertight connection. The boot connector ranges in sizes to suit the pipe outside diameter and also the maintenance hole diameter that the pipe is to be installed into.

Contact the MCON engineering department for further details on this connector or other connecting systems that are available.

#### PIPE INSTALLATION PROCEDURE:

1. Clean pipe and boot to ensure no dirt or foreign materials are present.
2. Clamping surface on pipe must be clean and smooth.
3. Center pipe in opening and insert pipe until it breaks the inside plane of maintenance hole or, if maintenance hole is benched, to the invert ledge of benching.
4. Attach take-up clamp(s) and stagger screw(s) of clamps around the groove of the gasket so that take-up pressure will be equalized. Make sure each clamps is completely in the correct groove.
5. Using a torque ratchet or torque wrench, gradually tighten screw(s) of clamp(s) in an alternating pattern to 12 ft-lbs (for 8"-14" holes), 20 ft-lbs (for 16"-20" holes), or 60 ft-lbs (for 22" holes and larger).
6. After reaching the recommended torque from Note 5 on the final screw, check all screws again to ensure compression of the clamps.
7. Adjust pipe to line and grade.

Pipe to Maintenance  
Hole Connector



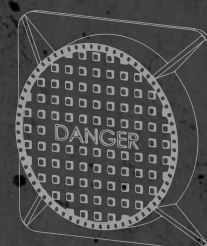


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| Pipe Size<br>(and class)                 | Hole Size    | Preferred Boot<br>(all from Press Seal) | Alternative<br>(from Trellborg)      | Notes                                                                                                           |
|------------------------------------------|--------------|-----------------------------------------|--------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| 50 PVC                                   | 203mm (8")   | 8 QRS PSX:DD (Step)                     | none                                 |                                                                                                                 |
| 75 PVC                                   | 203mm (8")   | 8 QRS PSX:DD (Step)                     | none                                 |                                                                                                                 |
| 100 PVC                                  | 203mm (8")   | 8 QRS PSX:DD (Step)                     | none                                 |                                                                                                                 |
| 125 PVC (DR 28-35)                       | 203mm (8")   | 08-11 PSX:DD                            | "10-06 PSX:DD<br>from Press<br>Seal" | 10-06 alternative needs a 10" hole.<br>NOTE: PSX 08-05:DD are obsolete and not<br>interchangeable with 08-11's. |
| 150 PVC (DR 14-35)                       | 305mm (12")  | 12-06 PSX:DD                            | S106-12BWS                           |                                                                                                                 |
| 200 PVC (DR 28-35)<br>200 PVC (DR 14-35) | 305mm (12")  | 12-08 PSX:DD<br>12M PSX:DD              | 106-12AWS<br>S106-12WS               |                                                                                                                 |
| 250 PVC (DR 14-35)                       | 356mm (14")  | 14M PSX:DD                              | S106-14AWS                           |                                                                                                                 |
| 300 PVC (DR 14-25)<br>300 PVC (DR 28-35) | 406mm (16")  | 16M PSX:DD                              | S106-16WS                            |                                                                                                                 |
| 350 PVC (DR 18-25)                       | 508mm (20")  | 20Y PSX:DD                              | S106-20BWS                           |                                                                                                                 |
| 375 PVC (DR 28-35)                       | 508mm (20")  | 20Y PSX:DD                              | S106-20BWS                           |                                                                                                                 |
| 450 PVC (DR 18-25)                       | 610mm (24")  | 24L PSX:DD                              | S206-24A                             |                                                                                                                 |
| 450 PVC (DR 28-35)                       | 559mm (22")  | 22M PSX:DD                              | S206-24A                             | NOTE: S206-24A alternative needs a 24" hole.                                                                    |
| 500 PVC (DR 18-25)                       | 660mm (26")  | 26L PSX-2:DD                            | S206-24L                             | NOTE: S206-24L alternative needs a 24" hole.                                                                    |
| 525 PVC (DR 28-35)                       | 660mm (26")  | 26L PSX-2:DD                            | S206-26                              |                                                                                                                 |
| 600 PVC (DR 18-25)                       | 762mm (30")  | 30L PSX-2:DD                            | S206-30                              |                                                                                                                 |
| 600 PVC (DR 28-35)                       | 711mm (28")  | 28A PSX-2:DD                            | S206-28                              |                                                                                                                 |
| 300 RCP                                  | 559mm (22")  | 22L PSX-2:DD                            | S206-20L                             |                                                                                                                 |
| 375 RCP                                  | 610mm (24")  | 24A PSX-2:DD                            | S206-24L                             |                                                                                                                 |
| 450 RCP                                  | 711mm (28")  | 28A PSX-2:DD                            | S206-28                              |                                                                                                                 |
| 525 RCP                                  | 813mm (32")  | 32L PSX-2:DD                            | S206-32                              | Both boots require an 1500mm MH minimum.<br>S306-32 option will work in a 1200mm MH.                            |
| 600 RCP                                  | 914mm (36")  | 36A PSX-2:DD<br>(needs 1800mm MH)       | S206-34L<br>(needs<br>1500mm MH)     | NOTE: S206-34L alternative needs a 34" hole<br>S306-34L option will work in a 1200mm MH.                        |
| 675 RCP                                  | 1016mm (40") | 40L PSX-2:DD<br>(needs 1800mm MH)       | S206-38L<br>(needs<br>1800mm MH)     | NOTE: S206-38L alternative needs a 38" hole<br>S306-38L option will work in a 1500mm MH.                        |
| 750 RCP                                  | 1067mm (42") | 42A PSX-2:DD                            | S206-42                              | Both boots require an 1800mm MH minimum.                                                                        |

Boot Gasket







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BUTYL TAPE  
(BOX MANHOLE SEALANT)



HYDROPHILIC WATERSTOP  
(BETONITE WATERSTOP MATERIAL)

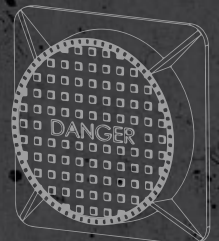


PARASEAL® PARAPRIMER™  
(PARASEAL ACCESSORY PRIMER)



MEL-ROL WATERPROOFING MEMBRANE  
(SELF-ADHERING SHEET WATERPROOFING)

Sealants for Box  
Structures





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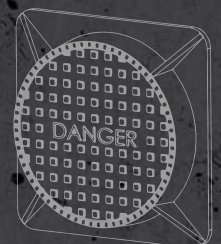


MEL-PRIME PRIMER  
(SOLVENT-BASED VOC ADHESIVE)



KING REDI-PLUG HYDRAULIC CEMENT  
(FOR SEALING ACTIVE WATER LEEKS  
IN CONCRETE)

Sealants for Box  
Structures





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SWIFT LIFT 4T



SWIFT LIFT 8T



SWIFT LIFT 20T

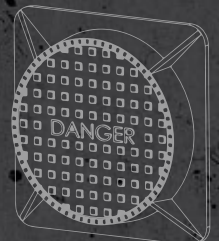


| Swift Lift Universal Lifting Eye Dimensions |      |      |      |       |       |                 |                     |       |
|---------------------------------------------|------|------|------|-------|-------|-----------------|---------------------|-------|
| Rated Load Tons                             | A    | B    | C    | D     | Ex2   | F Maximum Width | G Minimum Thickness | H     |
| 4                                           | 4.6" | 2.8" | 3.5" | 11.0" | 3.46" | 1.02"           | 0.31"               | 2.26" |
| 8                                           | 6.3" | 3.3" | 4.4" | 15.6" | 4.40" | 1.31"           | 0.47"               | 2.90" |
| 20                                          | 7.3" | 4.6" | 5.9" | 20.4" | 5.98" | 1.86"           | 0.71"               | 4.35" |

## Swift Lifts and Boot Gasket

### Notes

1. Contact our engineering department for special design applications.







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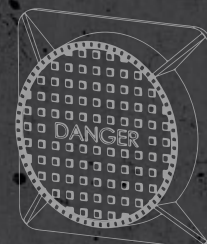
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| in                                                           | Feet Per Roll | Rolls Per Box | Feet Per Box |
|--------------------------------------------------------------|---------------|---------------|--------------|
| <b>Kent Seal #2, Butyl Sealant - Oil Resistant (Nitrile)</b> |               |               |              |
| 3/4                                                          | 14'6"         | 8             | 116          |
| <b>Kent Seal #2, Butyl Sealant</b>                           |               |               |              |
| 1/2                                                          | 21'9"         | 12            | 261          |
| 3/4                                                          | 14'6"         | 8             | 116          |
| 1                                                            | 14'6"         | 6             | 87           |
| 1 1/4                                                        | 14'6"         | 4             | 58           |

| Pipe Size                    |      | TSS Style | Cut Length Inches |
|------------------------------|------|-----------|-------------------|
| in                           | mm   |           |                   |
| Tylox SuperSeal Pipe Gaskets |      |           |                   |
| 12                           | 300  | 135       | 42-1/8            |
| 15                           | 375  | 135       | 52                |
| 18                           | 450  | 135       | 60-1/2            |
| 18                           | 450  | 135       | 62-3/8            |
| 21                           | 525  | 135       | 69-1/8            |
| 24                           | 600  | 135       | 77-5/8            |
| 27                           | 675  | 135       | 86-1/4            |
| 30                           | 750  | 135       | 95-5/8            |
| 33                           | 825  | 135       | 104-1/4           |
| 36                           | 900  | 135       | 112-3/4           |
| 39                           | 975  | 135       | 121-3/8           |
| 42                           | 1050 | 185       | 126-1/8           |
| 48                           | 1200 | 185       | 142-1/2           |
| 54                           | 1350 | 185       | 158-5/8           |
| 60                           | 1500 | 185       | 176               |
| 66                           | 1650 | 185       | 193-5/8           |
| 72                           | 1800 | 185       | 210-7/8           |
| 78                           | 1950 | 225       | 228-3/8           |
| 84                           | 2100 | 225       | 246-1/8           |
| 90                           | 2250 | 225       | 264               |
| 96                           | 2400 | 225       | 281-3/4           |
| 102                          | 2550 | 225       | 299-1/2           |
| 108                          | 2700 | 225       | 318 3/4           |

Pipe Gasket





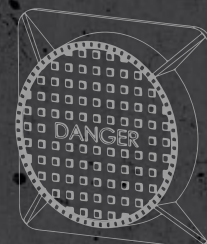
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| Pipe Size                           |      | TSS Style | Cut Length Inches |
|-------------------------------------|------|-----------|-------------------|
| in                                  | mm   |           |                   |
| Tylox SuperSeal Maintenance Gaskets |      |           |                   |
| 48                                  | 1200 | 166       | 147-1/2           |
| 60                                  | 1500 | 165       | 181-1/2           |
| 72                                  | 1800 | 165       | 220-1/2           |
| NITRILE Gaskets                     |      |           |                   |
| 12                                  | 300  | 135       | 42-1/8            |
| 15                                  | 375  | 135       | 52                |
| 18                                  | 450  | 135       | 60-1/2            |
| 18                                  | 450  | 135       | 62-3/8            |
| 21                                  | 525  | 135       | 69-1/8            |
| 24                                  | 600  | 135       | 77-5/8            |
| 27                                  | 675  | 135       | 86-1/4            |
| 30                                  | 750  | 135       | 95-5/8            |
| 33                                  | 825  | 135       | 104-1/4           |
| 36                                  | 900  | 135       | 112-3/4           |
| 39                                  | 975  | 135       | 121-3/8           |
| 42                                  | 1050 | 185       | 126-1/8           |
| 48                                  | 1200 | 185       | 142-1/2           |
| 54                                  | 1350 | 185       | 158-5/8           |
| 60                                  | 1500 | 185       | 176               |
| 66                                  | 1650 | 185       | 193-5/8           |
| 72                                  | 1800 | 185       | 210-7/8           |
| 78                                  | 1950 | 225       | 228-3/8           |
| 84                                  | 2100 | 225       | 246-1/8           |
| 90                                  | 2250 | 225       | 264               |
| 96                                  | 2400 | 225       | 281-3/4           |
| 120                                 | 3000 | 225       | 349-1/4           |

| Pipe Size                                                                                                                                                                                                                      |      | TSS<br>Style | Cut Length<br>Inches |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|--------------|----------------------|
| in                                                                                                                                                                                                                             | mm   |              |                      |
| Tylox SuperSeal Maintenance NITRILE Gaskets                                                                                                                                                                                    |      |              |                      |
| 48                                                                                                                                                                                                                             | 1200 | 165          | 147-1/2              |
| 60                                                                                                                                                                                                                             | 1500 | 165          | 181-1/2              |
| 72                                                                                                                                                                                                                             | 1800 | 165          | 220-1/2              |
| FT-III Connector Series (NITRILE)                                                                                                                                                                                              |      |              |                      |
| 6                                                                                                                                                                                                                              | 150  | SDR35        | 21-1/2               |
| 8                                                                                                                                                                                                                              | 200  | SDR35        | 28-1/8               |
| 10                                                                                                                                                                                                                             | 250  | SDR35        | 34-3/4               |
| 12                                                                                                                                                                                                                             | 300  | SDR35        | 41-1/8               |
| 15                                                                                                                                                                                                                             | 375  | SDR35        | 49-7/8               |
| Three Step cored hole gaskets                                                                                                                                                                                                  |      |              |                      |
| 4                                                                                                                                                                                                                              | 100  | 1576         | 14-1/4               |
| 5                                                                                                                                                                                                                              | 125  | 1576         | 18-5/8               |
| 6                                                                                                                                                                                                                              | 150  | 1576         | 20-3/8               |
| 8                                                                                                                                                                                                                              | 200  | 1576         | 26-3/4               |
| 10                                                                                                                                                                                                                             | 250  | 1576         | 34-1/8               |
| 12                                                                                                                                                                                                                             | 300  | 1576         | 40-1/8               |
| FT-III Connector Series                                                                                                                                                                                                        |      |              |                      |
| 1" x 3/8" Recess Former Strip, 60 Durometer, Neoprene<br>1-1/2" x 1/2" Neoprene 60 Durometer<br>0.656 x 0.25 Nitrile Material (21/32" O.D. x 1/4" I.D.)<br>0.656 x 0.25 Neoprene Material 45 Durometer<br>(21/32" x 1/4" I.D.) |      |              |                      |
| 6                                                                                                                                                                                                                              | 150  | SDR35        | 21-1/2               |
| 8                                                                                                                                                                                                                              | 200  | SDR35        | 28-1/8               |
| 10                                                                                                                                                                                                                             | 250  | SDR35        | 34-3/4               |
| 12                                                                                                                                                                                                                             | 300  | SDR35        | 41-1/8               |
| 15                                                                                                                                                                                                                             | 375  | SDR35        | 49-7/8               |

Pipe to Maintenance  
Hole Connector





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| Landscape/Masonry Products | Distributors of interlocking stones, retaining walls, slabs and curbing                         |
| Architectural Precast      | Manufacturers of architectural precast for buildings such as big box stores and condo buildings |
| Masonry Furnishings        | Manufacturers of masonry furnishings that include sills, lintels, coping and caps               |
| Site Furnishings           | Manufacturers of planters, steps, garbage receptacles, benches, ashtrays, etc.                  |
| Fencing                    | Manufacturers of various precast concrete fencing systems                                       |
| Columns & Signs            | Manufacturers of custom columns and signs to your specifications                                |
| Shelters                   | Manufacturers of a variety of standard shelters                                                 |



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#### PRODUCT LINE

|                    |                                                                                         |
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| Concrete Poles     | Manufacturers of concrete poles for hydro distribution, street lighting                 |
| Utility Structures | Manufacturers of utility vaults, distribution chambers, and other electrical structures |
| Highway Barriers   | Manufacturers of standard OPSD concrete barriers                                        |
| Specialty Items    | Bollards, Aluminum Pole bases                                                           |