Sclairpipe®
VERSATILE HIGH DENSITY
POLYETHYLENE PIPE
Sclairpipe® high density polyethylene (HDPE) pipe represents the latest advances in both material and manufacturing techniques. Since 1968, Sclairpipe has been proven in a wide range of municipal and industrial piping applications. It has been used extensively in the municipal market for gravity sewers, sewage forcemains, and pressure water systems. Uponor Infra has special expertise in marine installations of Sclairpipe, including river and lake crossings; and river, lake and deep ocean intakes and outfalls.


Sclairpipe is a tough, lightweight, solid wall pipe with a smooth internal surface. Available in various diameters from 4” to 48” it can handle internal pressures of up to 380 psi (PE 4710). It is a well suited alternative to copper, PVC, ductile iron and concrete pipe in a variety of applications. Sclairpipe weighs approximately 1/10 that of a similar sized concrete pipe. Handling requires a minimum of heavy equipment and Sclairpipe can easily be assembled on ice or through wet marshy areas. It will not corrode, tuberculate or support biological growth, making it the material of choice in harsh environments. Sclairpipe is inert to salt water and to chemicals likely to be present in sanitary sewage effluent. Sclairpipe has a smooth ID and maintains its flow capability over time – Hazen Williams C Factor remains 150, even after years of use.

Easier to Transport and Install. Leak Proof.

Sclairpipe is much easier to handle and install than heavier, rigid concrete pipe, offering potential cost savings during the construction process. It is structurally designed to withstand impact, especially in cold weather installations when other pipes are prone to cracks and breaks. Sclairpipe will float even when full of water. For marine applications long lengths of pipe can be assembled on shore and then floated into position.
Thermal butt fusion provides an economical and fast method of delivering a complete, long, continuous length of pipe. Thermal fusion eliminates potential leak points every 8-20 feet commonly found with gasketed (or bell or spigot) pipe materials. The fused joints provide a continuous leak proof system that eliminates the risk of joint leakage due to ground shifting. Fused joints are fully restrained and as such may reduce or eliminate the need for expensive thrust blocks. With Sclairpipe infiltration and exfiltration problems are eliminated.

**Sclairpipe Advantages**

- Leak Proof
- Corrosion Resistant
- Chemical Resistant
- Long Life
- Fatigue Resistant
- Impact Resistant
- Lightweight
- Flexible
- UV Resistant
- Environmentally Friendly

**Cost Effective. Permanent.**

Sclairpipe offers distinct advantages. It can be cold bent to a radius as small as 25 times the pipe’s nominal pipe diameter, and the installed bend radius can be as small as 50 times the nominal pipe diameter. Sclairpipe, installed on a radius, eliminates many of the fittings that would be required for directional changes when using other pipe materials. In addition, the flexibility of Sclairpipe allows it to adapt to uneven ground, unconsolidated river bottoms and excavated underwater trenches without the need for expensive foundations or minor degree elbows. It is well suited for dynamic soils and areas prone to earthquake.

Sclairpipe is cost effective in both the short and long term. The fact that it is lightweight makes it easier to transport and install. It is leak proof and fatigue resistant means there will be years of maintenance free use. The Plastics Pipe Institute estimates the service life for HDPE pipe to conservatively be 50-100 years.
Since its development in 1955, large diameter HDPE pipe has been successfully used in many installations worldwide. In North America, Sclairpipe high density polyethylene pipe was first introduced in 1968. Since then it has been installed for river, lake and salt water crossings, municipal and industrial fresh and salt water intakes and effluent outfalls. Sclairpipe has also been used extensively for pipeline repair and rehabilitation.

Some popular applications of Sclairpipe include:

- Potable Water Distribution
- Pressure Water Systems
- Sewage Systems
- Water Mains
- Slip-lining
- Fire Mains
- Directional Drilling
- Trenchless Technologies
- Slurry Pipe
- Mining
- Marine Pipelines & Crossings
- Deep Water Intakes
- Deep Water Outfalls
- Irrigation Lines
- Biofilters
- Gas Gathering

Proven performance in a wide range of applications

Potable Water

Sclairpipe is used for both new water main installations and to rehabilitate deteriorated piping systems made from other materials. It can accept repetitive pressure surges that far exceed the static pressure rating of the pipe. Sclairpipe is easy to handle and is available in long lengths that cut down on jointing time. Thermal fusion on site reduces installation time and ensures leakproof joints that eliminate infiltration and exfiltration problems. Sclairpipe is well suited for dynamic soils and areas prone to earthquake.

Sewage Systems

After more than 35 years of use in municipal and industrial sewer applications, Sclairpipe has proven to be a reliable, cost effective, long-term solution for sewer and wastewater systems. It offers resistance to corrosion and chemicals with durability and strength that rigid concrete, PVC or ductile iron pipes can’t duplicate. Lightweight Sclairpipe is easy-to-install, extremely flexible and does not corrode or tuberculate over time.

Industry

Long-term reliable piping solutions are always in demand by industry. Sclairpipe offers resistance to corrosion, abrasion and chemicals resulting in a durable, strong and cost-effective installation.
**Mining**

Sclairpipe solid wall HDPE pipe is commonly used in mining applications for tailings disposal and water management including: river water diversion, reclamation lines, culvert, sewer and sub-drainage systems and slurry pipe. It is lightweight, flexible, durable and abrasion resistant. It is virtually leak proof, and can withstand corrosive chemicals, acids or salts commonly found in mines. Sclairpipe combines strength and durability in above ground applications and is UV resistant.

**Irrigation**

Sclairpipe is a cost effective solution for irrigation and agricultural drainage applications such as river and canal diversion, agricultural irrigation systems and pipelines, and water conservation. It is lightweight, flexible and leak proof, resistant to corrosion and salt water, and joints can be heat-fused on site for ease of installation. A Sclairpipe irrigation system will withstand the test of time.

**Heating & Cooling**

Sclairpipe has proven to be a strong, leak proof and chemically inert solution for district cooling applications including dual-purpose projects providing cooling and potable water. It can be assembled on shore in a continuous flexible length, floated on the water’s surface and then sunk by a controlled process. The pipe can also be manufactured in specific lengths and connected on site by flanges with the aid of marine divers. Sclairpipe’s resistance to both corrosion and zebra mussel fouling makes it an ideal solution.
Pipe dimensions are in accordance with ASTM F714 and AWWA C906. Pressure Ratings are for water at 73.4° F. Some of the pipe sizes and DR’s above are available only on request. Check with your representative for availability. Other dimensions and DR’s not listed may be available upon special request. All dimensions are in inches unless otherwise noted. Weights are calculated by the methodology established in PPI’s TR-7 and are applicable to PE 3608.

**Choose the size that’s right for you**

Sclairpipe is available in standard Dimensional Ratio’s (DR’s), in sizes ranging from 4” to 48” in diameter. Sclairpipe is available in PE 3608 and PE 4710. With the higher allowable stress rating of PE 4710, the pipe wall can be thinner for the same pressure rating (higher DR). The Dimensional Ratio relates the minimum wall thickness of the pipe to its outside diameter, and is important to define the pressure rating of a particular pipe. The maximum continuous operating pressure stated is based on the allowable hydrostatic design stress of each specific material (per ASTM D3350 and PPI’s TR-3), and the pipe wall thickness (DR), at a service temperature of 73.4°F.

### Sclairpipe Product Range, IPS Size, PE3608

<table>
<thead>
<tr>
<th>Nominal Pipe Size</th>
<th>PE3608</th>
<th>DR32.5 (50 psi)</th>
<th>DR26 (64 psi)</th>
<th>DR21 (80 psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>4.48</td>
<td>4.52</td>
<td>4.50</td>
<td>4.21</td>
</tr>
<tr>
<td>5</td>
<td>5.54</td>
<td>5.59</td>
<td>5.56</td>
<td>5.20</td>
</tr>
<tr>
<td>6</td>
<td>6.60</td>
<td>6.65</td>
<td>6.63</td>
<td>6.19</td>
</tr>
<tr>
<td>7</td>
<td>7.09</td>
<td>7.16</td>
<td>7.13</td>
<td>6.66</td>
</tr>
<tr>
<td>8</td>
<td>8.59</td>
<td>8.66</td>
<td>8.63</td>
<td>8.06</td>
</tr>
<tr>
<td>10</td>
<td>10.70</td>
<td>10.80</td>
<td>10.75</td>
<td>10.05</td>
</tr>
<tr>
<td>12</td>
<td>12.69</td>
<td>12.81</td>
<td>12.75</td>
<td>11.92</td>
</tr>
<tr>
<td>13</td>
<td>13.31</td>
<td>13.44</td>
<td>13.38</td>
<td>12.50</td>
</tr>
<tr>
<td>14</td>
<td>13.94</td>
<td>14.06</td>
<td>14.00</td>
<td>13.09</td>
</tr>
<tr>
<td>16</td>
<td>15.93</td>
<td>16.07</td>
<td>16.00</td>
<td>14.96</td>
</tr>
<tr>
<td>18</td>
<td>17.92</td>
<td>18.08</td>
<td>18.00</td>
<td>16.83</td>
</tr>
<tr>
<td>20</td>
<td>19.91</td>
<td>20.09</td>
<td>20.00</td>
<td>18.70</td>
</tr>
<tr>
<td>22</td>
<td>21.90</td>
<td>22.10</td>
<td>22.00</td>
<td>20.56</td>
</tr>
<tr>
<td>24</td>
<td>23.89</td>
<td>24.11</td>
<td>24.00</td>
<td>22.43</td>
</tr>
<tr>
<td>26</td>
<td>25.88</td>
<td>26.12</td>
<td>26.00</td>
<td>24.30</td>
</tr>
<tr>
<td>28</td>
<td>27.87</td>
<td>28.13</td>
<td>28.00</td>
<td>26.17</td>
</tr>
<tr>
<td>30</td>
<td>29.87</td>
<td>30.14</td>
<td>30.00</td>
<td>28.04</td>
</tr>
<tr>
<td>32</td>
<td>31.86</td>
<td>32.14</td>
<td>32.00</td>
<td>29.91</td>
</tr>
<tr>
<td>36</td>
<td>35.84</td>
<td>36.16</td>
<td>36.00</td>
<td>33.65</td>
</tr>
<tr>
<td>40</td>
<td>39.82</td>
<td>40.18</td>
<td>40.00</td>
<td>37.39</td>
</tr>
<tr>
<td>42</td>
<td>41.81</td>
<td>42.19</td>
<td>42.00</td>
<td>39.26</td>
</tr>
<tr>
<td>48</td>
<td>47.78</td>
<td>48.22</td>
<td>48.00</td>
<td>44.87</td>
</tr>
</tbody>
</table>

Pipe dimensions are in accordance with ASTM F714 and AWWA C906. Pressure Ratings are for water at 73.4° F. Some of the pipe sizes and DR’s above are available only on request. Check with your representative for availability. Other dimensions and DR’s not listed may be available upon special request. All dimensions are in inches unless otherwise noted. Weights are calculated by the methodology established in PPI’s TR-7 and are applicable to PE 3608.
The standard stocked length of Sclairpipe pipe is 50 feet, in sizes above 4” in diameter with longer lengths available on request.

Please visit our web site (www.uponor.ca) and use our online design tools to determine the pipe size best suited to your specific application.

- All dimensions are in inches unless otherwise specified.
- Pressure ratings are based on load durations of 50 years at a service temperature of 73.4F. The HDS (pipe wall allowable stress) for PE 3608 and PE 4710 are 800 psi and 1,000 psi respectively.
- Dimensions and tolerances per ASTM F714. Pipe weights calculated using PPI TR-7 using PE3608 density of 0.953 gm/cc and 0.958 gm/cc for PE4710 materials.
- The ASTM D3350 cell classifications conform to the requirements of the applicable pipe specification (ASTM F714, AWWA C906, etc.).
- Contact Uponor Infra for sizes, DR’s and DIPS offering not shown.
Pipe dimensions are in accordance with ASTM F714 and AWWA C906.
Pressure Ratings are for water at 73.4 deg F.
Some of the pipe sizes and DR’s above are available only on request. Check with your representative for availability.
Other dimensions and DR’s not listed may be available upon special request.
All dimensions are in inches unless otherwise noted.
Weights are calculated by the methodology established in PPI’s TR-7 and are applicable to PE4710.

For 50 years Uponor Infra has been a leader in the design, development, manufacture and support of polyethylene piping systems. Uponor Infra’s experienced engineers can offer design and engineering assistance, assuring you of a dependable piping system designed to meet your needs. Visit our website (www.uponor.ca) and see how our innovative online calculator can assist you. Extensive R&D in the early 1960’s led us to produce 16” diameter polyethylene pipe at a time when many considered large diameter polyethylene pipes a technical impossibility. Today Uponor Infra produces solid wall Sclairpipe in sizes up to 48”.

All Uponor Infra products are manufactured from special, high strength resins with complete quality control maintained from raw material to finished pipe product. Uponor Infra was the first North American manufacturer of polyethylene pipe and fittings to have its Quality Management System registered to the ISO 9001:2008 level.

Our strict manufacturing specifications are verified daily, using precise dimensional controls and accelerated long term hydrostatic testing. A continuous quality control process assures you of long-term pipe performance.

We certify that the pipe resin used to extrude Sclairpipe has a minimum cell classification of PE 345464C or PE445474C respectively, when classified in accordance with ASTM D3350. Sclairpipe’s material classification is based on PPI’s (Plastic Pipe Institute) method of determining and validating the Long-Term Hydrostatic Stress (LTHS) of polyethylene pipe.
Sclairpipe piping systems can be assembled by heat fusion (butt, electrofusion, socket and saddle fusion), flanged connections, compression couplings and various mechanical couplings. The superior performance of Sclairpipe results from the combination of pipe and fittings designed to work together as a complete system. A full range of pressure rated fittings is available to suit any application.

The most popular method of joining Sclairpipe is thermal butt fusion. This fast and economical technique permits the quick assembly of long continuous lengths and the joining of fittings to the pipe. The fused joints are as reliable and strong as the pipe itself, fully restrained, providing continuous leak proof systems.

### Innovative joining methods and equipment

Sclairpipe piping systems can be assembled by heat fusion (butt, electrofusion, socket and saddle fusion), flanged connections, compression couplings and various mechanical couplings. The superior performance of Sclairpipe results from the combination of pipe and fittings designed to work together as a complete system. A full range of pressure rated fittings is available to suit any application.
Ordering & shipping information

Uponor Infra welcomes your inquiries for non-standard sizes, lengths and pressure ratings of Sclairpipe pipe. We can meet most special packaging requirements and provide custom pipe fittings. Please contact your local Uponor Infra representative or visit our web site.

The charts below outline standard shipment sizes for straight length and coiled pipe.

### Standard Shipments - Straight Lengths

<table>
<thead>
<tr>
<th>IPS PIPE</th>
<th>AVG OD</th>
<th>BUNDLE QTY</th>
<th>TRUCK LOAD QTY</th>
<th>CONTAINER QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>4&quot;</td>
<td>4.50</td>
<td>38</td>
<td>380</td>
<td>480</td>
</tr>
<tr>
<td>5&quot;</td>
<td>5.563</td>
<td>23</td>
<td>276</td>
<td>320</td>
</tr>
<tr>
<td>6&quot;</td>
<td>6.625</td>
<td>20</td>
<td>200</td>
<td>208</td>
</tr>
<tr>
<td>7&quot;</td>
<td>7.125</td>
<td>17</td>
<td>136</td>
<td>180</td>
</tr>
<tr>
<td>8&quot;</td>
<td>8.625</td>
<td>14</td>
<td>112</td>
<td>120</td>
</tr>
<tr>
<td>10&quot;</td>
<td>10.750</td>
<td>11</td>
<td>66</td>
<td>80</td>
</tr>
<tr>
<td>12&quot;</td>
<td>12.750</td>
<td>4</td>
<td>56</td>
<td>52</td>
</tr>
<tr>
<td>13&quot;</td>
<td>13.375</td>
<td>42</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>14&quot;</td>
<td>14.000</td>
<td>42</td>
<td>42</td>
<td></td>
</tr>
<tr>
<td>16&quot;</td>
<td>16.000</td>
<td>30</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>18&quot;</td>
<td>18.000</td>
<td>25</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>20&quot;</td>
<td>20.000</td>
<td>20</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>22&quot;</td>
<td>22.000</td>
<td>16</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>24&quot;</td>
<td>24.000</td>
<td>16</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>26&quot;</td>
<td>26.000</td>
<td>9</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>28&quot;</td>
<td>28.000</td>
<td>9</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>30&quot;</td>
<td>30.000</td>
<td>9</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>800mm</td>
<td>31.594</td>
<td>9</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>32&quot;</td>
<td>32.000</td>
<td>9</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>36&quot;</td>
<td>36.000</td>
<td>4</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>1000mm</td>
<td>39.469</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>42&quot;</td>
<td>42.000</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>1200mm</td>
<td>47.382</td>
<td>4</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>48&quot;</td>
<td>48.000</td>
<td>4</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Notes:
* Bunks required
** Drop deck trailer - maximum 42' length
Pipe lengths range from 40 to 50 feet in size
Sclairpipe general specifications & material standards

Pipe and Fittings

REFERENCE SPECIFICATIONS

CSA B137.1: Polyethylene Pipe, Tubing and Fittings for Cold Water Pressure Services.
AWWA C901: Polyethylene (PE) Pressure Pipe and Tubing, 1/2 in. Through 3 in. for Water Service.
ASTM D3035: Standard Specification for Polyethylene (PE) Plastic Pipe (SDR-PR). Based on Controlled Outside Diameter
AWWA C906: Standard for Polyethylene (PE) Pressure Pipe and Fittings 4 in. Through 63 in., for Water Distribution.NSF 14, 61

MATERIAL

The pipe shall be made from polyethylene resin compound with a minimum cell classification of PE 345464C for PE 3608 materials and PE445474C for PE 4710 materials in accordance with ASTM D3350. This material shall have a Long Term Hydrostatic Strength of 1600 psi when tested and analyzed by ASTM D2837, and shall be a Plastic Pipe Institute (PPI) TR4 listed compound. The raw material shall contain a minimum of 2%, well dispersed, carbon black. Additives, which can be conclusively proven not to be detrimental to the pipe may also be used, provided that the pipe produced meets the requirements of this standard. The pipe shall contain no recycled compound except that generated in the manufacturer’s own plant from resin of the same specification and from the same raw material supplier. Compliance with the requirements of this paragraph shall be certified in writing by the pipe supplier, upon request. Manufacturer’s Quality System shall be certified by an appropriate independent body to meet the requirements of the ISO 9001:2008 Quality Management Program.

PIPE DESIGN

The pipe shall be designed in accordance with the relationships of the ISO-modified formula (see ASTM F714).

\[ P = \frac{2S}{(D^*/t) - 1} \]

where,  
\( S \) = Hydrostatic Design Stress (psi)
\( P \) = Design Pressure Rating (psi)
\( D^* \) = ODavg for IPS Pipe
\( D_{\text{min}} \) for ISO Pipe
\( t \) = Minimum Wall Thickness
\( D^*/t \) = Dimension Ratio

The design pressure rating \( P \) shall be derived using the formula above, expressed in pounds per square inch.
The Hydrostatic Design Stress for PE 3608 materials is 800 psi and for the PE4710 materials is 1000 psi.
The pipe dimensions shall be as specified in manufacturer’s literature.

MARKING

The following shall be continuously printed on the pipe or spaced at intervals not exceeding 5 feet:
Name and/or trademark of the pipe manufacturer.
Nominal pipe size.
Dimension ratio.
The letters PE followed by the polyethylene grade per ASTM D3350, followed by the Hydrostatic Design stress in 100’s of psi e.g. PE 3608.
Manufacturing Standard Reference e.g. ASTM F 714
A production code from which the date and place of manufacture can be determined.

JOINING METHODS

Whenever possible, polyethylene pipe should be joined by the method of thermal butt fusion as outlined in ASTM F2620, Standard Practice for Heat Fusion Joining of PE Pipe and Fittings. Butt fusion joining of pipe and fittings shall be performed in accordance with the procedures recommended by the manufacturer. The temperature of the heater plate should be between 400°F and 450°F. Follow the recommendations of ASTM F2620 regarding interfacial pressures for pipe wall thickness less than or equal to 1.5”. Follow the manufacturer’s recommendations regarding interfacial pressures for pipe walls thicker than 1.5”.

Polyethylene pipe may be connected to fittings or other piping systems by means of a flanged assembly consisting of a polyethylene flange adapter or stub end, and a metal backup ring that has a bolting pattern meeting the dimensional requirements of Class 150, ANSI B16.1/B16.5 in sizes up through 24”, and meeting Class 150 Series A, ANSI B16.47 or AWWA C207 Class B for larger sizes. Follow the manufacturer’s recommendations regarding bolting techniques and the use of gaskets. Pipe or fittings may be joined by butt fusion only by technicians who have been trained and qualified in the use of the equipment.

GENERAL REQUIREMENTS

The pipe manufacturer shall provide, upon request, an outline of quality control procedures performed on polyethylene system components.