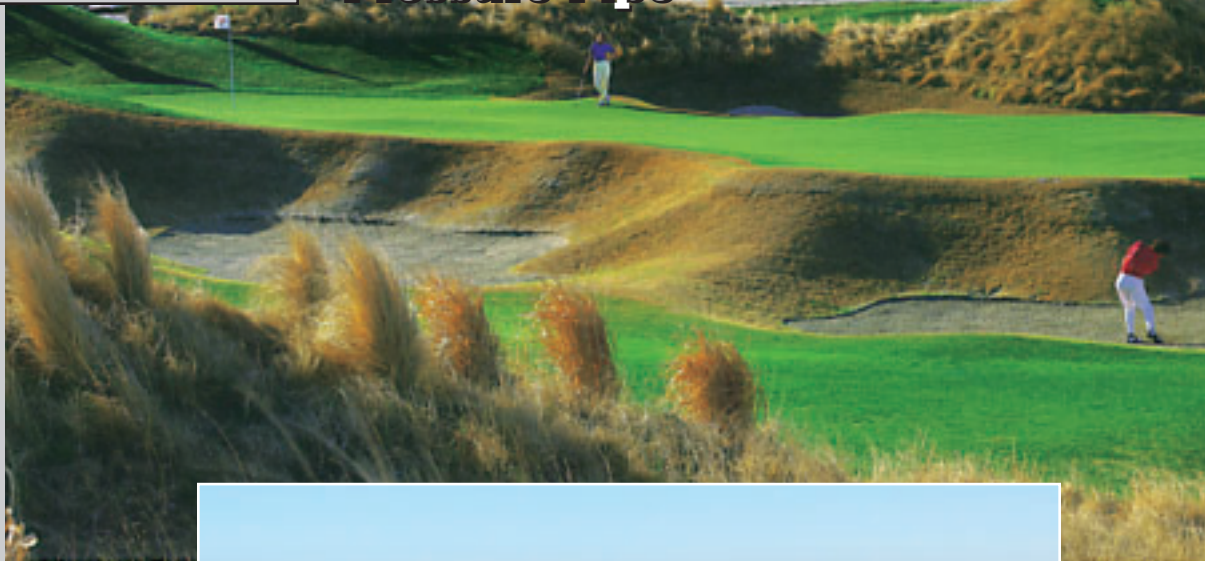


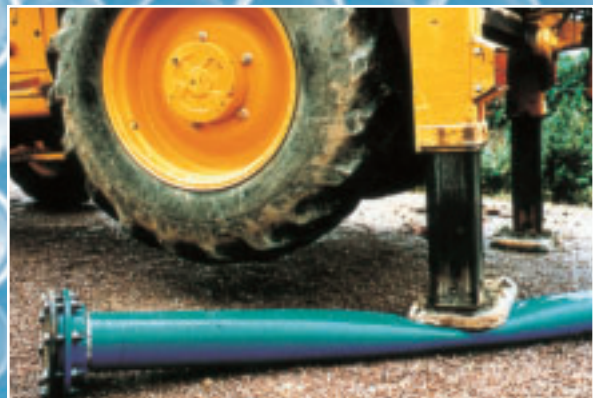
PWEagle

Ultra-Blue IPS

**PR 200 Molecular Oriented
Pressure Pipe**



Specifically
Engineered for
Demands of
Rural Water &
Golf Course
Irrigation
Systems



PWEagle

Ultra-Blue

Ultra-Blue Molecular Oriented Polyvinyl Chloride (PVCO) Pressure Pipe, manufactured by PW Eagle, combines innovative engineering design and years of experience in PVC pipe manufacturing. The result is a higher-performance, lighter-weight, more cost-effective pressure pipe for potable water, force main systems and golf course irrigation.

Molecular orientation has been used for many years to enhance the strength of several different materials. Ultra-Blue is manufactured by applying these same principles to the pipe extrusion process, utilizing increased temperatures and internal pressure to expand the pipe in a pre-formed mold. During the pipe expansion process, the PVC's molecular orientation is changed and the physical properties of the finished pipe product are established.



Molecular Oriented PVC Pipe for High Strength & Superior Performance

Features

Ultra Hoop Strength

Molecular orientation through the expansion of the starting stock greatly enhances the material's hydrostatic design strength. The unique material structure of Ultra-Blue gives it a pressure capacity greatly in excess of conventional pressure pipes with the same wall thickness. Long-term hydrostatic pressure tests show Ultra-Blue has a Hydrostatic Design Basis (HDB) of 7100 psi. Conventional PVC pressure pipe has an HDB of 4000 psi. With equivalent safety factors, the wall thickness of Ultra-Blue can be reduced to approximately half that of conventional PVC pipe, and still maintain the same pressure rating.

Ultra Cyclic Endurance

Ultra-Blue has four times the cyclic fatigue strength as conventional PVC pipe of the same pressure rating

Ultra Impact Strength

Impact tests per ASTM D2444 demonstrate Ultra-Blue's superior impact resistance when compared to conventional PVC pressure pipe. Ultra-Blue has superior cold weather impact resistance and impact strength three to four times that of conventional PVC pipe.

Ultra Toughness

Strongly resists longitudinal cracking - will not split from end to end.

Ultra Sealing System

Proven retained-style gasket system. The rubber gasket is a lip seal that is retained inside the ring groove of the bell.

Ultra Flow Capacity

Larger inside diameter results in 9% greater flow capacity compared to SDR21 of the same diameter.

Ultra Light Weight

Ultra-Blue is 40% lighter weight than conventional PVC pipe, SDR21, as shown in the table below. The result is easier handling and installation.

Weight of IPS Ultra-Blue vs SDR21

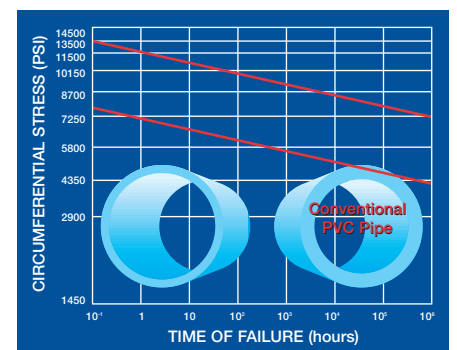
Nominal Pipe Size (inches)	SDR21 Approx Wt (lbs/ft)	Ultra-Blue Approx Wt (lbs/ft)	Difference (%)
6	4.10	2.5	-41
8	7.00	4.2	-41
10	10.90	6.4	-41
12	15.30	8.9	-41

Ultra Corrosion Resistance

Ultra-Blue, because it is non-metallic, will not corrode.

Ultra Pressure Capacity

As shown below, by orienting conventionally extruded PVC pipe, actual pressure capability is dramatically increased.



Performance & Installation

Enhanced Cyclic Fatigue Resistance

Abrupt pressure changes in a pipeline contribute to cyclic stresses and expansion and contraction of the pipe. Ultra-Blue's oriented configuration contributes to exceptional cyclic fatigue resistance, which is much greater than conventional PVC pipe. Ultra-Blue

has four times the number of cycles to failure compared to conventional PVC pipe.

Larger Inside Diameter for Superior Flow Capacity

Ultra-Blue's high hoop strength results in equal pressure ratings, with less material than conventional PVC pipes. Consequently, when Ultra-Blue is manufactured with an IPS

O.D., larger I.D.'s result, with flow areas increasing by approximately 9%. Because it has the same smooth interior (Hazen-Williams C=150) as all PVC pressure pipes, and is supplied in the same 20 foot laying lengths, Ultra-Blue will supply 9% greater flow capacity over conventional PVC pipes of the same pressure rating.

		SDR21 — ASTM D2241			Ultra-Blue — ASTM F1483			
Nominal Pipe Size (inches)	Pressure Rating @ 73°F (psi)	Average OD (inches)	Min Wall Thickness (inches)	Approx ID (inches)	Average OD (inches)	Min Wall Thickness (inches)	Approx ID (inches)	Minimum Flow Area Difference (%)
6	200	6.625	0.316	5.96	6.625	0.182	6.24	9.1
8	200	8.625	0.410	7.76	8.625	0.236	8.13	9.1
10	200	10.750	0.511	9.67	10.750	0.295	10.13	9.1
12	200	12.750	0.606	11.47	12.750	0.349	12.02	9.1

The Sealing System

The EPDM rubber gasket is a lip seal that is retained inside the ring groove of the bell. Making the seal an integral part of the pipe eliminates many of the disadvantages of separate sealing rings. The gasket is installed in the bell by the pipe manufacturer.

The unique design holds the sealing ring securely in position during transport and pipe assembly.

Backfilling and Testing

Backfilling should be done immediately after installing each length of pipe. Backfill that will lie adjacent to the pipe should contain no large rocks or hard clods. Pipe may be tested at any time after installation. Prior to testing, make sure the line is properly thrust blocked and all air is evacuated.

Fittings

Ultra-Blue has an IPS outside

diameter (O.D.) making standard IPS PVC gasketed fittings compatible. (Note: solvent weld PVC fittings cannot be used.) When using M.J. fittings with Ultra-Blue IPS, a CIOD transition gasket must be used.

Joint Restraint Devices

Any joint restraint devices that are designed for use with standard PVC can be used with Ultra-Blue.

Joint Assembly

Ultra-Blue will arrive on the jobsite with the gasket installed, ready for assembly. Assemble as follows:

1. Inspect the bell and remove any foreign matter such as mud, sand or ice.
2. Clean off the spigot end of the pipe and apply lubricant to the spigot end covering the beveled nose and sealing surface all the way to the stopmark.
3. Place the beveled end in the companion bell and provide straight

alignment.

4. Push the pipe straight home with a bar and block until the stop mark on the spigot end is even with the end of the bell.
5. When properly assembled to the stop mark, the joint may be deflected axially up to two degrees.

Note:

1. Do not assemble the joint by swinging or stabbing.
2. Ultra-Blue cannot be solvent welded.

Tapping

Ultra-Blue is one of the easiest and safest pipes to tap. Ultra-Blue may be tapped with the same tapping saddles used on conventional IPS PVC pipe. The service clamps or saddles used should:

- a) provide full support around the circumference of the pipe
- b) Provide a bearing area of sufficient width along the axis of the pipe.

Standards and Listings & Pipe Dimensions and Weights

PVCO Pipe shall conform to the following standards:

ASTM F1483 – Specification for Oriented Polyvinyl Chloride (PVCO) Pressure Pipe.

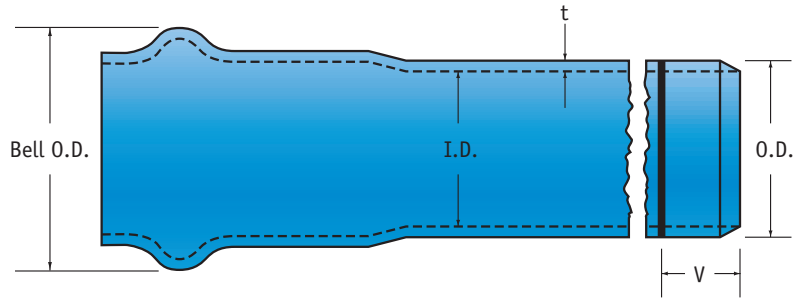
ASTM D1784 – Specification for Rigid Polyvinyl Chloride (PVC) Compounds and Chlorinated Polyvinyl Chloride (CPVC) compounds.

ASTM D2241 Performance Requirements – Specification for Polyvinyl Chloride (PVC) pressure-rated pipe (SDR series).

ASTM D3139 – Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals.

UNI-B-1 – Recommended Specification for Thermoplastic Pipe Joints – Pressure and Non-Pressure Applications.

ANSI/NSF Standard No. 61 – Drinking Water System Components – Health Effects.



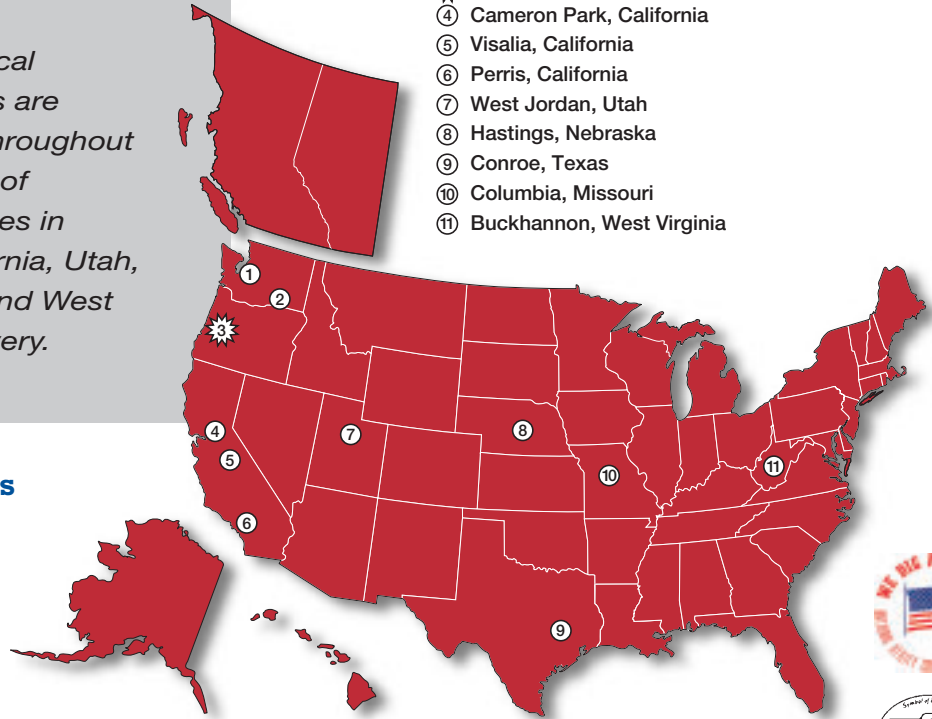
Pipe Dimensions & Weights

Nominal Pipe Size (inches)	Pressure Rating (psi)	Approx Bell OD (inches)	Average Pipe OD (inches)	Min Wall Thickness (t) (inches)	Approx ID (inches)	Stop Line Distance (v) (inches)	Approx Weight (lbs/ft)	Approx Weight (lbs/Jnt)
6	200	8 $\frac{3}{8}$	6.625	0.182	6.24	4 $\frac{1}{2}$	2.5	51
8	200	10 $\frac{1}{4}$	8.625	0.236	8.13	4 $\frac{1}{2}$	4.2	84
10	200	12 $\frac{1}{4}$	10.750	0.295	10.13	5 $\frac{1}{2}$	6.4	127
12	200	14 $\frac{1}{4}$	12.750	0.349	12.02	5 $\frac{1}{2}$	8.9	179

PW Eagle manufactures PVC pipe for a variety of applications servicing the potable water, well casing, sewer, agriculture, turf, plumbing, communications and electrical markets. PW Eagle products are available from distributors throughout the United States and parts of Western Canada. Our facilities in Oregon, Washington, California, Utah, Nebraska, Texas, Missouri and West Virginia assure on-time delivery.

PW Eagle Facilities Are Located In:

- ① Tacoma, Washington
- ② Sunnyside, Washington
- ☀️ ③ Eugene, Oregon (and Corporate Headquarters)
- ④ Cameron Park, California
- ⑤ Visalia, California
- ⑥ Perris, California
- ⑦ West Jordan, Utah
- ⑧ Hastings, Nebraska
- ⑨ Conroe, Texas
- ⑩ Columbia, Missouri
- ⑪ Buckhannon, West Virginia



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Fax 573-474-1760
- ⑪ West Virginia 800-624-3111
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