

AWWA C906 15 McElroy



AWWA C906-15

New Standard. New Opportunities

The passage of American Water Works Association (AWWA) C906-15 on Sept. 1 is good news for the polyethylene pipe industry. If you haven't seen it yet, there are significant benefits to this new standard that will help open up new opportunities.

Here are some of the main highlights of AWWA C906-15:

- Zero leakage requirement for other joining systems has a zero leakage requirement. As the focus on water conservation continues to grow, fused-CPVC systems guarantee a leak-free application to system owners and designers from the start of the project through the life of the pipeline.
- The standard now covers all sizes from 4" through 84" diameter pipe. Previously this standard only covered through 42" pipe.
- The standard recognizes the performance properties of the current high-performance polyethylene resins. Many of the performance properties of these resins are orders of magnitude greater than previous resins. By recognizing these performance properties, you will have confidence in a safety factor that is greater than or equal to 2.
- Based on these properties, this revision allows the use of a larger internal diameter (ID) with the same outside diameter and outside diameter of competing pipe materials. For example, previously a 12" DN 11 pipe was rated at 100 psi. Under the new rules, a 12" DN 11.5 pipe made to C906-15 is rated at the same 100 psi. The larger internal diameter gives it increased flow capacity of the pipe making (CPVC) even more competitive with other materials.
- Conversely, by maintaining the same DR, the pressure rating for 12" DN 11 pipe made to C906-15 will now have a DR of 10.

What's exciting about the recognition of the pipe and resin properties in the final standard is that it will be required to go up a pipe size and will have the ability to use higher wall pipe with a higher flow rate. This helps level the playing field for the PE industry because many manufacturers require PE pipe, unlike other competing pipe materials, to be certified. This certification is a PE at a disadvantage when pipe manufacturers are awarded contracts to the lowest bidder. Without the requirement for higher quality pipe, PE can compete directly on its merits and advantages. There's no other pipe standard out there that can demand a performance equivalent to a world benchmark, representing some of the highest and most secure stages of water conservation. This is a huge selling point.

C906-15 was published in the August issue of the *AWWA Manual* and went into effect on Sept. 1, 2015. Some "Phase II" information was included in the *Manual* about the new standard.

Learn More

AWWA C906 15 McElroy: A Comprehensive Overview of Polyethylene Pipe Fusion Standards and Equipment

The AWWA C906 15 McElroy standard is a critical reference point for professionals involved in the design, installation, and maintenance of polyethylene (PE) pipe systems. This standard, developed by the American Water Works Association (AWWA), outlines the specifications for PE pipe and fittings used in water and wastewater applications. McElroy, a leading manufacturer of fusion equipment, plays a significant role in ensuring that these specifications are met through their innovative products and practices. In this article, we will delve into the AWWA C906 standard, the role of McElroy in the industry, the benefits of using polyethylene pipes, and guidelines for proper pipe fusion techniques.

Understanding AWWA C906 Standard

The AWWA C906 standard defines the specifications for high-density polyethylene (HDPE) pipes and fittings for water distribution and transmission systems. This standard is essential for ensuring the reliability, safety, and efficiency of water supply systems. Below are the key components of the AWWA C906 standard:

1. Material Specifications

The AWWA C906 standard outlines specific material requirements for HDPE pipes

and fittings, including:

- Type of Material: The pipes must be made from PE4710 or PE100 material, ensuring high performance and durability.
- Pressure Ratings: The standard specifies various pressure ratings, typically ranging from 150 psi to 250 psi or higher, based on the intended application and size of the pipe.
- Color Coding: Pipes are often colored or marked to indicate their intended use, such as blue for potable water and green for sewer applications.

2. Dimensions and Tolerances

The standard provides detailed guidelines on the dimensions and tolerances of HDPE pipes. Key aspects include:

- Nominal Pipe Sizes: The standard covers a range of nominal pipe sizes from 4 inches to 63 inches in diameter.
- Wall Thickness: Specifications for wall thickness are crucial for maintaining structural integrity under pressure.
- Length of Pipe: Standard lengths are typically 20 feet or 40 feet, but custom lengths may be manufactured upon request.

3. Testing Requirements

To ensure that the pipes meet the necessary performance standards, the AWWA C906 includes various testing requirements, such as:

- Hydrostatic Testing: Pipes must undergo hydrostatic tests to verify their ability to withstand pressure without failure.
- Impact Resistance: Tests to assess the impact resistance of the material to ensure it can handle external forces without cracking.
- Oxidation Resistance: Evaluating the material's resistance to oxidative degradation, which is critical for long-term performance.

The Role of McElroy in Pipe Fusion

McElroy is a renowned manufacturer of thermoplastic pipe fusion equipment, and their contributions to the industry align closely with the AWWA C906 standard. Their equipment is designed to facilitate the safe and efficient joining of HDPE pipes, ensuring compliance with industry standards.

1. Types of Fusion Equipment

McElroy offers various types of fusion equipment suited for different applications. Some of the most common equipment includes:

- Butt Fusion Machines: Ideal for joining pipe ends together, ensuring a strong and leak-free connection.
- Socket Fusion Tools: Used for smaller diameter pipes and fittings, providing a reliable method for joining.
- Electrofusion Equipment: This technique utilizes electrical currents to heat and fuse pipe ends, suitable for various sizes and types of joints.

2. Training and Certification

Proper training in fusion techniques is vital for ensuring high-quality installations. McElroy provides comprehensive training programs, including:

- Hands-On Workshops: Participants receive practical experience with fusion equipment and techniques.
- Certification Programs: Successful completion of training results in certification, ensuring that professionals are well-versed in industry standards and best practices.

3. Innovations in Fusion Technology

McElroy continues to innovate in the field of fusion technology, enhancing the efficiency and effectiveness of pipe joining. Key innovations include:

- Automated Fusion Equipment: Machines that reduce the potential for human error and improve fusion consistency.
- Data Collection and Monitoring: Advanced systems that track fusion parameters, ensuring compliance with AWWA C906 standards.

Benefits of Using Polyethylene Pipes

Polyethylene pipes offer numerous advantages over traditional materials such as PVC and ductile iron. Some of the key benefits include:

1. Corrosion Resistance

- No Rusting: HDPE is not prone to rusting or corrosion, which extends the lifespan of the pipeline.
- Chemical Resistance: PE pipes can withstand a variety of chemicals, making them suitable for diverse applications.

2. Lightweight and Easy to Handle

- **Reduced Labor Costs:** The lightweight nature of polyethylene makes handling and installation easier, reducing labor costs.
- **Simplified Transportation:** Transporting PE pipes is more efficient due to their lighter weight compared to traditional materials.

3. Flexible Installation Options

- **Bend Radius:** HDPE pipes can be bent to a smaller radius, allowing for flexible installation in tight spaces.
- **Trenchless Installation:** Polyethylene pipes are well-suited for trenchless installation methods, minimizing surface disruption.

Guidelines for Proper Pipe Fusion Techniques

To ensure that HDPE pipes are fused correctly, it is essential to follow established guidelines. The following steps outline the proper fusion process:

1. Preparation

- **Inspect Pipe Ends:** Ensure that the ends of the pipes are clean and free from debris or contaminants.
- **Cutting the Pipe:** Use a proper cutting tool to achieve a square cut on the pipe ends.

2. Set Up the Fusion Equipment

- **Calibration:** Ensure that the fusion machine is calibrated according to the manufacturer's specifications.
- **Alignment:** Properly align the pipe ends within the fusion machine to ensure an even and consistent fusion.

3. Fusion Process

- **Heating:** The pipe ends are heated to the specified temperature for the recommended duration.
- **Joining:** Once heated, the pipes are pressed together with a defined force to create a strong bond.

- Cooling: Allow the fused joint to cool adequately before subjecting it to pressure or stress.

4. Inspection and Testing

- Visual Inspection: Check the fused joint for any signs of defects or irregularities.
- Pressure Testing: Conduct hydrostatic testing to confirm the integrity of the joint.

Conclusion

The AWWA C906 15 McElroy standard is essential for professionals in the water and wastewater industry, ensuring the reliability and safety of polyethylene pipe systems. Understanding the specifications outlined in the AWWA C906 standard, combined with the innovative fusion equipment and training offered by McElroy, provides a foundation for successful pipe installation and maintenance. As the demand for reliable water distribution systems continues to grow, the role of polyethylene pipes and proper fusion techniques will remain critical for ensuring the sustainability and efficiency of these vital infrastructures.

Frequently Asked Questions

What is AWWA C906?

AWWA C906 is a standard developed by the American Water Works Association that specifies the design and installation of polyvinyl chloride (PVC) pressure pipe and fittings for water supply and other applications.

What does the '15' in AWWA C906 15 indicate?

The '15' in AWWA C906 15 refers to the nominal diameter of the pipe, which is 15 inches.

What is the significance of McElroy in relation to AWWA C906?

McElroy is a leading manufacturer of pipe fusion equipment, and their products are often used in conjunction with AWWA C906 standards for installing PVC pipe.

What are the benefits of using AWWA C906 15 PVC pipes?

Benefits of using AWWA C906 15 PVC pipes include corrosion resistance, lightweight for easy handling, low installation costs, and long service life.

How does AWWA C906 15 comply with industry standards?

AWWA C906 15 complies with industry standards by ensuring that materials, dimensions, and performance requirements meet or exceed the specifications set for PVC pipes and fittings in water distribution.

What applications are suitable for AWWA C906 15 PVC pipes?

AWWA C906 15 PVC pipes are suitable for various applications, including potable water distribution, irrigation systems, and wastewater management.

What tools are recommended for installing AWWA C906 15 pipes?

Recommended tools for installing AWWA C906 15 pipes include fusion machines like those made by McElroy, pipe cutters, and basic plumbing tools for handling and connecting fittings.

Are there any environmental considerations with AWWA C906 15 PVC pipes?

Yes, while PVC pipes are durable and recyclable, it's important to consider their production and disposal impacts, and ensure compliance with local environmental regulations during installation and maintenance.

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Discover how the AWWA C906 15 McElroy standards can enhance your piping projects. Learn more about their benefits and applications in our comprehensive guide!

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