

PVC PIPE ASSOCIATION TECHNICAL BRIEF

AWWA C900 AND C905 STANDARDS OVER THE YEARS

NEW AWWA C900-16 STANDARD

AWWA recently published its new C900-16 standard, titled “Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. Through 60 In. (100 mm Through 1,500 mm).” The new edition comes 41 years after the initial publication of C900 in 1975. Now that the newest standard is in print, it is appropriate to look back at how AWWA’s PVC pipe standards have progressed over the years.

AWWA PVC PIPE STANDARDS MILESTONES

Listed below are important AWWA PVC pipe standards milestones. Not every edition of each standard is mentioned, because AWWA requires reaffirmation of standards on a regular basis even if there are no significant revisions.

AWWA C900-75

The first edition of C900 included CIOD sizes 4- through 12-inches. Since this was AWWA’s first plastic-pipe standard, it contained some very conservative requirements. Primary among them was the use of a safety factor of 2.5 (while other AWWA iron and concrete pipe standards used 2.0). At that time, 12-inch PVC pipe was considered “large-diameter” pipe.

AWWA C905-88

AWWA’s first expansion into larger sizes of PVC pipe came with the publication of the C905 standard in 1988. The standard included sizes 14- through 36-inches in IPS and CIPS ODs. With the benefit of 13 years of AWWA experience and about 25 years of ASTM experience, the C905 standard used a safety factor of 2.0. It is interesting to note that large diameter had increased from 12-inch in 1975 to 36-inch in 1988.

AWWA C905-97

The second edition of C905 added the 42- and 48-inch sizes, further expanding the definition of large diameter for PVC pipe.

AWWA C900-07

This edition of C900 revised the pressure-class determination section to match the C905 methodology (including a safety factor of 2.0). This opened the door to combining the C900 and C905 standards. However, AWWA decided to keep the two individual standards in force for one additional revision cycle. Another major change was the removal of the standard’s built-in surge allowance in favor of a method of designing for both occasional surge and recurring surge pressures.

AWWA C905-10

This edition of C905 harmonized the standard with C900-07’s terminology and design approach, further paving the way to combining the two standards.

AWWA C900-16

The new sixth edition of C900 absorbed the C905 sizes, making the C905 standard redundant. The new combined standard includes all of the C905 products, including the IPS sizes. Additional sizes include 54- and 60-inch. At least one new pressure class was added for each size of pipe.

THE MOST NOTABLE CHANGE - "LARGE DIAMETER"

There were many changes over the years, but the most striking is in the definition of “large-diameter”: the maximum AWWA PVC pipe size is now five times what it was in 1975.

References: AWWA C900-75 “Polyvinyl Chloride (PVC) Pressure Pipe, 4 In. Through 12 In., for Water” (1975); AWWA C905-88 “AWWA Standard for Polyvinyl Chloride (PVC) Water Transmission Pipe, Nominal Diameters 14 In. Through 36 In.” (1988); AWWA C905-97, Standard for Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 14 In. Through 48 In. (350 mm Through 1,200 mm), for Water Transmission and Distribution (1997); AWWA C900-07 “Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. Through 12 In. (100 mm Through 300 mm), for Water Transmission and Distribution” (2007); AWWA C905-10 “Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 14 In. through 48 In. (350 mm through 1,200 mm)” (2010); AWWA C900-16 “Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. Through 60 In. (100 mm Through 1,500 mm)” (2016).

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