

INSTALLATION**TB-14**

October 2000

Test Pressure for AWWA C900/C905

There has been some controversy in the waterworks industry about what maximum pressures are allowed for testing of installed C900/C905 systems. The confusion arises because of the different safety factors used to design pipe in the two standards.

The AWWA C605 standard for installation of PVC pipe states in the note at the bottom of Table 2:

In no case shall the pressure be allowed to exceed the design pressure for pipe, appurtenances, or thrust restraints.

Assuming that the appurtenances and thrust restraints are designed to withstand the test pressure, the issue then becomes the design pressure of the pipe. For example:

AWWA Standard	Dimension Ratio	Pressure	Safety Factor	Surge Allowance
C900	18	150 psi Pressure Class	2.5	35 psi
C905	18	235 psi Pressure Rating	2.0	Zero

The differences in design method are due to the distinct end-use applications for the two standards: distribution systems for C900 and transmission systems for C905.

However, both C900 and C905 are being used for the same application during a static pressure test and both will experience the same stresses when loaded by the same pressures. It does not make sense for two pipes that have the same DR to have allowable test pressures that differ by more than fifty percent.

In the C905 standard, the pressure ratings for all of the dimension ratios result in maximum fiber stresses of 2000 psi in the pipe wall. In the C900 standard, each dimension ratio has a different maximum fiber stress at the pressure class: for example, 1200 psi for DR 25 and 1300 psi for DR 14. These values are not only inconsistent, but they are much lower than the C905 values.

Dimension Ratio	14	18	25
Allowable Test Pressure	305 psi	235 psi	165 psi

PWPipe recommends these maximum test pressures for leakage and pressure testing of installed C900 and C905.

Of course, these recommendations are only for testing pressures. For operating requirements, follow AWWA C900 and C905 Standards.