



# PPI Position Paper

## on HDPE (PE 4710) Distribution

### Potable Water Pipe Sizes and Pressure Classes

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With the recent publication of ANSI/AWWA C906-15 and updates to ASTM standards such as D3035 and F714, PE4710 is the highest performance classification of HDPE piping material for potable water applications. It is the recommendation of PPI and its members to standardize the product offering into common distribution pipe diameters and pressure classes to improve availability of PE4710 potable water pipes and fittings for water utilities.

Product standardization provides benefits to municipalities, water utilities, contractors, distributors, and manufacturers by streamlining system design and improving pipe and fittings availability from distributor and manufacturers' stock.

Table 1 summarizes the recommended standard pipe and fitting offerings. Contact the pipe and fitting manufacturer for larger diameters and additional dimensional ratios (DRs). PPI PACE at [www.ppipace.com](http://www.ppipace.com) is available to assist in calculations and comparisons with alternate materials for determination of appropriate pressure class (PC) needed.

**Table 1: PE 4710 Standard Potable Water Pipes**

<b>Size</b>	4" to 24" DIPS and IPS per AWWA C906 and ASTM D3035			
<b>Potable Water</b>	NSF- 61 and blue stripes			
<b>DR</b>	17	13.5	11	9
<b>Pressure Class<sup>1</sup></b>	125 psi	160 psi	200 psi	250 psi
<b>Recurring Surge Pressure<sup>2</sup></b>	188 psi	240 psi	300 psi	375 psi
<b>Occasional Surge Pressure<sup>3</sup></b>	250 psi	320 psi	400 psi	500 psi

**DEFINITIONS** (Refer to AWWA M55):

1. Pressure Class (PC) is the design capacity to resist working pressure up to 80°F maximum service temperature including specified maximum allowances for recurring positive pressure surges above working pressure. **NOTE:** AWWA defines Pressure Class differently for different materials; Pressure Class for DI and PVC are not identical to the HDPE Pressure Class.
2. Recurring surge pressures ( $P_{RS}$ ) occur frequently and are inherent in the design and operation of the system (such as normal pump startup or shutdown, and normal valve opening or closure).  $WPR = 1.5 \times PC \times F_T - P_{RS}$ . Recurring surge pressures may occur up to millions of times in a piping system's lifetime. Note that 1.5xPC is also the maximum test pressure per ASTM F2164.
3. Occasional surge pressures ( $P_{OS}$ ) are caused by emergency operations, usually the result of a malfunction (such as power failure, sudden valve closure, or system component failure).  $WPR = 2 \times PC \times F_T - P_{OS}$