



**PPI and MAB Position Paper**  
**on HDPE (PE 4710) Distribution Potable Water Pipe Sizes and**  
**Pressure Classes**  
**May 18, 2018**

Product standardization provides benefits to water utilities, contractors, distributors, and manufacturers by streamlining system design and improving pipe and fittings availability from distributors' and manufacturers' stock. Based on the recommendations of the Municipal Advisory Board and increasing demand for HDPE water pipe, the HDPE industry recommends the following commonly used standard distribution sizes and DRs.

Table 1 summarizes the common standard pipes and fittings and shows in red the highly recommended stocking Dimension Ratios (DR). PPI PACE is available at [www.ppipace.com](http://www.ppipace.com) to determine the appropriate pressure class, and to assist in calculations and comparisons with alternate materials.

**Table 1: PE 4710 Standard Potable Water Distribution Pipes and Fittings**

Size	4" to 12" DIPS per AWWA C906 and ASTM D3035			
Potable Water	NSF- 61, blue stripe, CC3			
DR	17	13.5	11	9
Pressure Class <sup>1</sup>	125 psi	160 psi	200 psi	250 psi
Recurring Surge Pressure <sup>2</sup>	188 psi	240 psi	300 psi	375 psi
Occasional Surge Pressure <sup>3</sup>	250 psi	320 psi	400 psi	500 psi

Note: Contact manufacturer for other diameters (3/4" to 65"), IPS and DIPS sizes, DRs and CCs

**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  $1.5 \times PC$  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).  $WPR = 2 \times PC \times F_T - P_{OS}$