



# Bell & Gossett

a xylem brand

## What is PLEV?

Centrifugal Pumps installed in HVAC systems typically operate in variable load systems that see a variation of flow requirements based on the heating or cooling load in a building.

Part Load Efficiency Value, or PLEV for short, is Bell & Gossett's term for the weighted average pump efficiency. **This number is determined based on the standard load profile developed in AHRI 550/590-1998 also known as IPLV or Integrated Part Load Value.**

The PLEV<sub>v</sub> equation is as follows:

$$PLEV = \frac{1}{\frac{1\%}{A} + \frac{42\%}{B} + \frac{45\%}{C} + \frac{12\%}{D}}$$

A, B, C and D are the pump efficiency values at 100%, 75%, 50% and 25% of flow rate. Based on the above equation, during any given year the Pump will operate at 100% flow (Duty Point) - only 1% of the year, 75% flow - 42% of the year, 50% flow - 45% of the year and 25% flow - only 12% of the entire year.

The Subscript "v" denotes variable speed operation with the control or fixed head calculated within the critical circuit in a system. Bell & Gossett's ESP-PLUS software defaults to 30% of pump TDH (Total Design Head) to represent the control head in a system. ASHRAE 90.1- 2013 requires that the total head loss in a system be calculated so the critical zone's fixed head should also be calculated. The actual calculated number should be used as it represents a more accurate calculation which will be reflective in the cost analysis.

The actual load and flow characteristic for any building or system will change based on location, system type, and system usage. The PLEV is simply a term that represents the efficiency of the pump at partial flow rates and may be used to gauge true pump performance within a hydronic system and can be used to accurately compare pump manufactures for an overall operational efficiency.

**PLEASE NOTE:** Bell & Gossett suggests listing the 30% TDH or calculated minimum control head within the equipment schedule as well as specifications to keep a fair comparison between manufacturers.

Please contact your local Bell & Gossett Representative for additional information on PLEV.