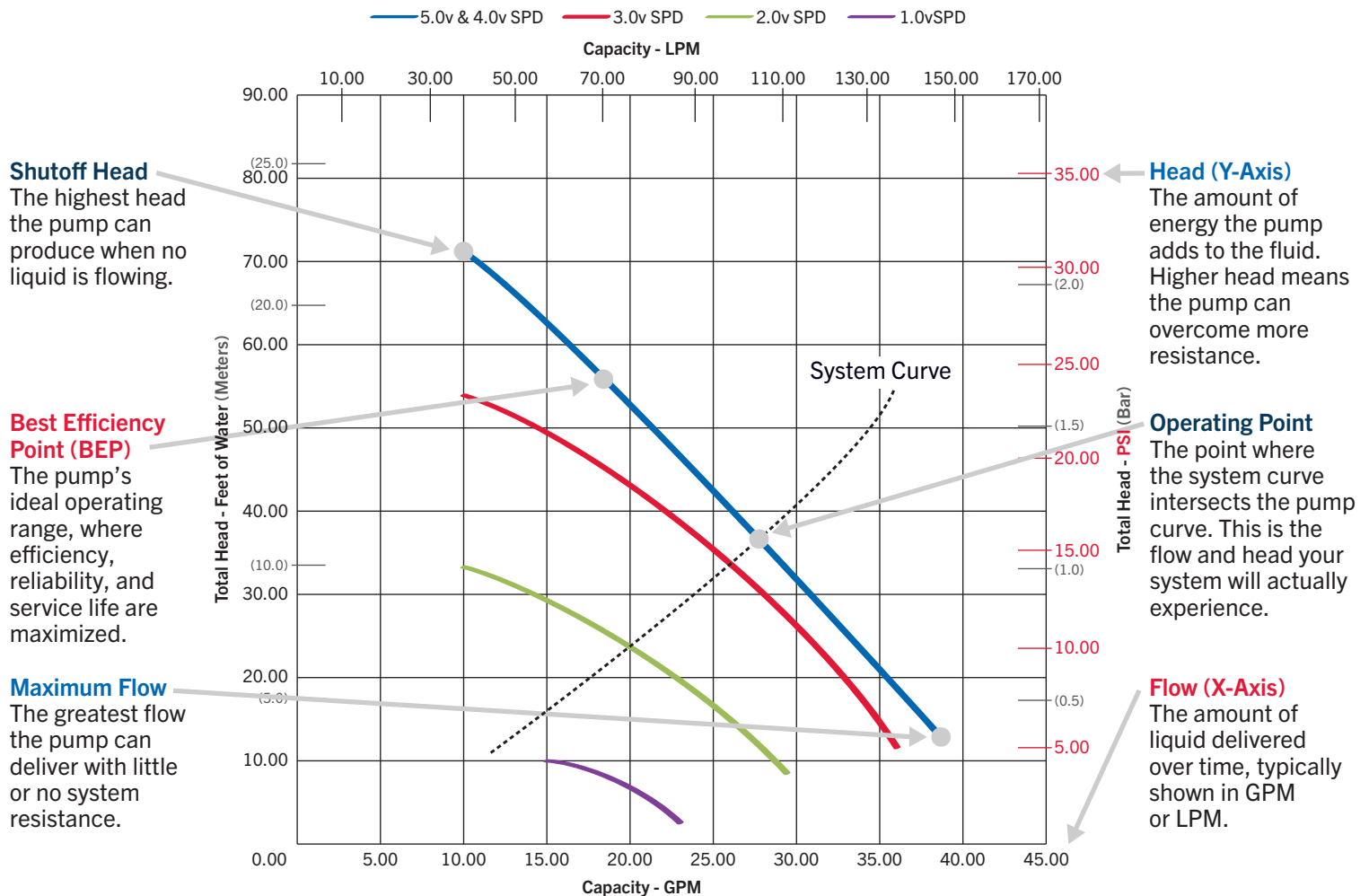


UNDERSTANDING PUMP CURVES & HEAD PRESSURE

Read a Pump's Performance Chart and Select the Right Operating Point

A pump curve is a performance graph that shows the relationship between flow rate and head pressure. As system resistance changes, the pump naturally operates at a different point on the curve. Learning to read a pump curve helps you choose the right pump and predict how it will perform in your application.

ANATOMY OF A PUMP CURVE



Example

Application Requirements

- Flow: **28 GPM**
- Total Dynamic Head: **36 ft**

Using the pump curve (5.0v & 4.0v SPD), the operating point is approx. 28 GPM at 36ft of head.



Remember: Pumps don't choose their operating point, the system does.

UNDERSTANDING PUMP CURVES & HEAD PRESSURE

Head Pressure is Simply a Measure of the Energy a Pump Adds to Move Fluid

Unlike PSI, head is measured in feet or meters because it describes the pump's ability to overcome elevation and system resistance.

What Creates Head?

(Simple illustrated system diagram with arrows)

Show these contributors:

- Vertical Lift
- Pipe Friction
- Valves & Fittings
- Filters
- Spray Nozzles or Restrictions

All of these combine to create Total Dynamic Head (TDH).

Total Dynamic Head (TDH)

TDH = Static Lift + Friction Loss + Pressure Requirements

As TDH increases:

- Flow decreases
- The operating point moves left on the pump curve

As TDH decreases:

- Flow increases
- The operating point moves right on the pump curve

Common Pump Curve Mistakes

Choosing a Pump Based Only on Flow

Flow ratings alone don't tell the full story. Always consider the required head pressure.

Ignoring Friction Losses

Long piping, filters, valves, and fittings all increase system resistance and reduce flow.

Operating Far From the BEP

Running too far left or right of the Best Efficiency Point can increase vibration, wear, and energy consumption.

Assuming a Pump Always Delivers Its Rated Flow

A pump's published maximum flow is only achieved under very low system resistance. Actual flow depends on the system's Total Dynamic Head.

Quick Reference

Pump Curve

A graph showing pump performance across varying flow and head conditions.

Head

The energy added by the pump to move fluid through a system.

Flow Rate

The volume of liquid delivered over time (GPM or LPM).

Total Dynamic Head (TDH)

The total system resistance, including elevation, friction, and pressure requirements.

Best Efficiency Point (BEP)

The operating range where the pump performs most efficiently and reliably.

Operating Point

The intersection of the pump curve and system curve where the pump will naturally operate.