product spotlight

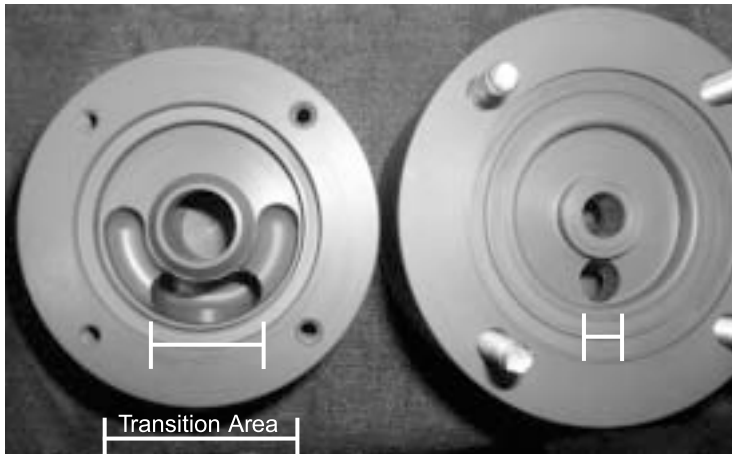
Not All PTFE Diaphragm Relief & Backpressure Valves Are Created Equal…

Comparing the RVDT with a typical discount backpressure valve.

The True Blue Series RVDT has been the undisputed king of relief/backpressure valves virtually since its inception. It features a PTFE diaphragm backed with Viton for super sensitivity, the patented Fail-Dry early warning vent, high flow rate and easy adjustment. It is ideal for regular relief, backpressure, anti-siphon, by-pass.virtually anything dealing with pressure "upstream."

Because the RVDT offers so much, it is easy for competitors to make a cheaper valve. But beware if the discount valve claims to be the same. As you can see from the photos below, the competitor's Series BPV valve offers a lot less...

First, let's take the valves apart. The most obvious advantage the RVDT has is the size of the internal inlet orifice...

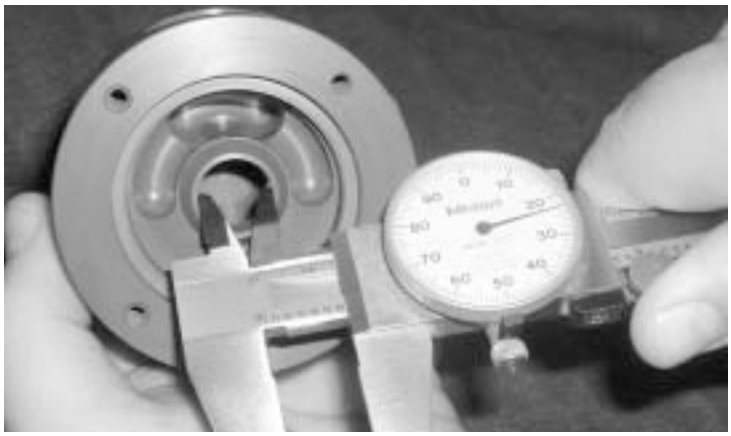


Above: Plast-O-Matic valve shown at left; BPV valve shown at right. Compare inlet orifices on 3/4" valves: The kidney-shaped Plast-O-Matic inlet orifice (left) is approximately 400% larger than the BPV orifice (right). Notice also that the inlet flow transition area extends halfway around the Plast-O-Matic valve... it is non-existent on the BPV valve.

Second, let's measure the main internal orifice in the valves. Here's the BPV valve...

Above: Note that the main internal orifice on the 3/4" BPV measures just .372"

Below: Note that the main internal orifice on the 3/4" Plast-O-Matic RVDT measures .623", or 67% larger flow capacity.



It's simple: The big orifice inside the Plast-O-Matic valve – together with the kidney-shaped inlet orifice and large flow transition area – allows substantially more liquid flow than the BPV. Although both valves are the same 3/4" pipe size, you can easily see that the Plast-O-Matic product has a lot more engineering behind it.

Finally, you should be aware that the competitive valve uses a compact, low-throughput body, and a small "one-size-fits-all" spring. According to Roger Ramoth, Chief Engineer at Plast-O-Matic, "a short, universal spring has an advantage in that it results in a low-cost compact valve, but the performance cost is just too high." He explains that the amount of force required to move a short spring with a high spring rate is substantially higher than the force required to move a longer spring with a lower spring rate the same distance. "Once a valve cracks open, it requires overpressure to open further. A 'soft' spring with a lot of travel simply requires much less overpressure to compress and provide flow." Roger adds that the lower spring rate of the longer spring also provides finer adjustability. The adjusting screw also adds to this attribute: "The fine thread on the RVDT enables the user to set it more accurately."

In place of the "fits-all" spring, the RVDT provides two – one spring for higher settings, and a second spring for lower settings. Trying to use just one spring to cover the entire range of pressure settings is a bit like trying to play a round of golf with just a five iron in your bag. It can be done, but your score will be lousy.

Incidentally, you may have noticed that the external size of the 3/4" BPV valve is larger than the 3/4" Plast-O-Matic RVDT. Perhaps this is to create the illusion of a heavy-duty valve? In reality, it's simply a lot of excess plastic.

PLAST-O MATIC

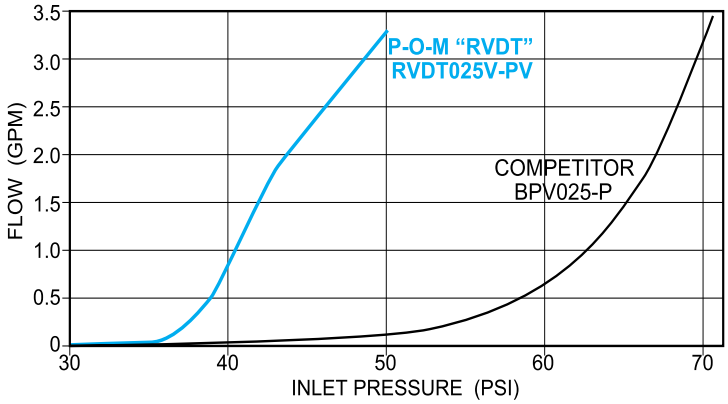
PRODUCT DATA

SUPPLEMENT/CATALOG RV

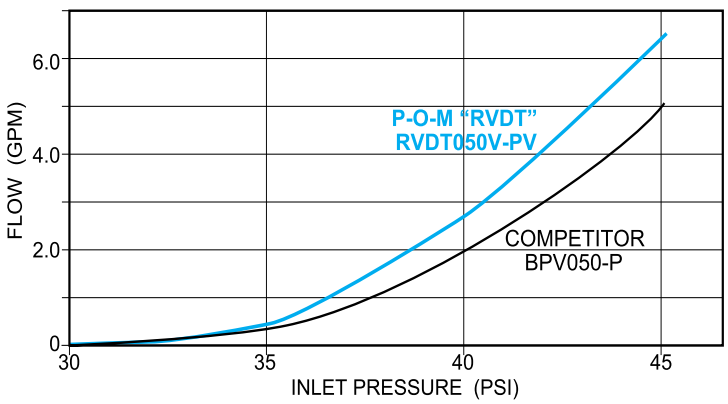
Plast-O-Matic Product Comparison

PTFE Diaphragm Backpressure Valves
Continuous Flow Performance Curves

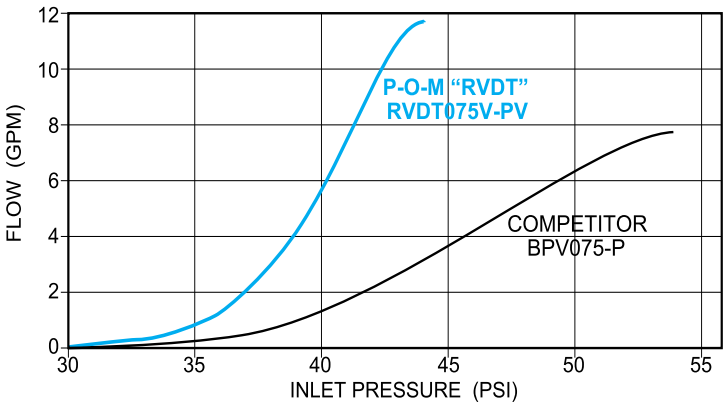
1/4" IN-LINE



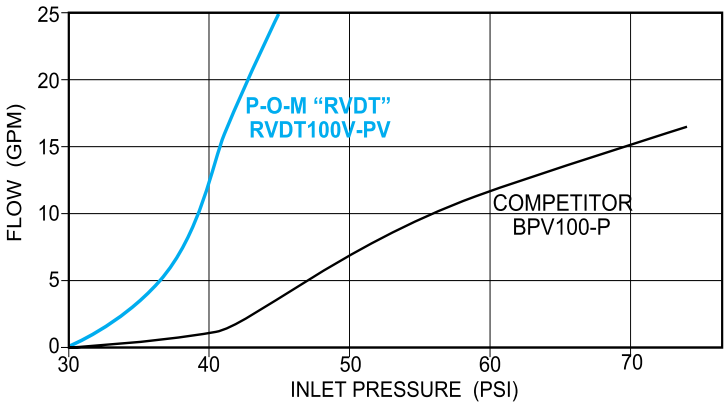
1/2" IN-LINE



3/4" IN-LINE



1" IN-LINE



TEST PARAMETERS

Inlet Pressure: Variable

Set Pressure: 30 PSI

Media: Tap Water

Temperature: 65°F (18.5°C)

Curves show substantial differences in flow rates between backpressure valves. In most cases, the competitive valves require extreme overpressure and added wear-and-tear on the pump to achieve flow rates of the Plast-O-Matic RVDT.

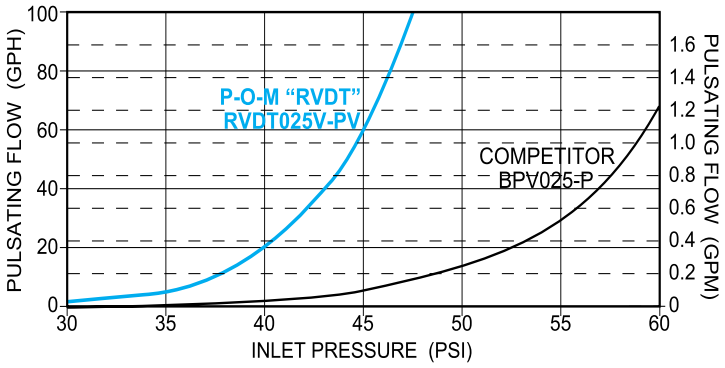
NOTE: All data for these curves was collected from actual flow tests at Plast-O-Matic Valves, Inc. in Cedar Grove, NJ. The measuring equipment used was the same for all valves tested, and the relative results between different models are considered to be an accurate portrayal of the data recorded.

Plast-O-Matic Product Comparison

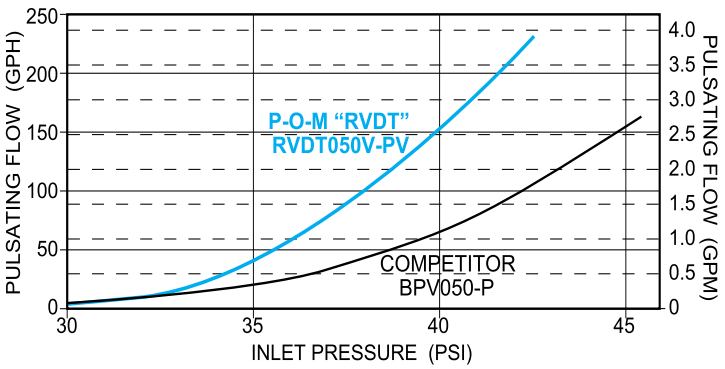
PTFE Diaphragm Backpressure Valves
Pulsating Flow Performance Curves

Double Diaphragm Sand Piper Pump Was Used For Test – Valves Were Set Using Air (2 Bubbles Per Second To Indicate Set Point)

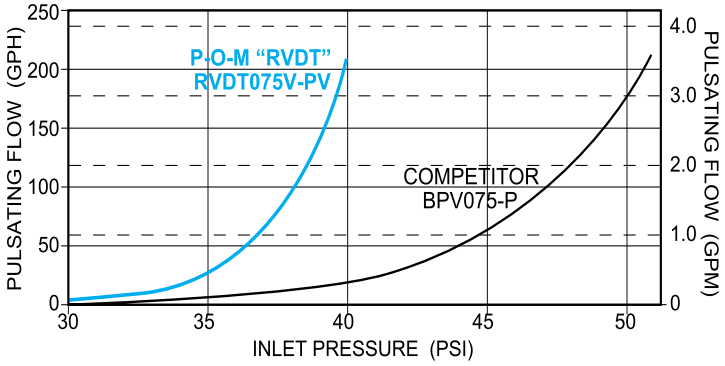
1/4" IN-LINE



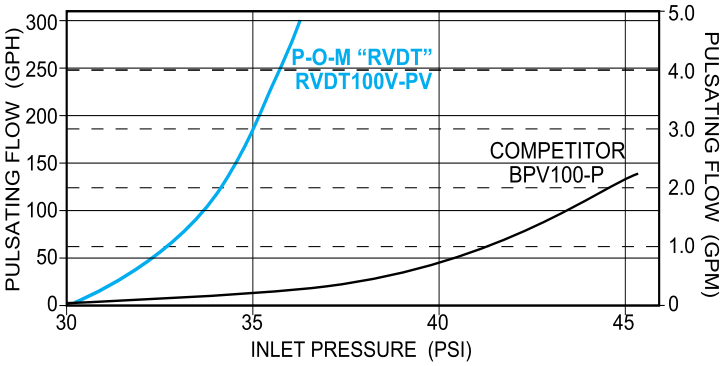
1/2" IN-LINE



3/4" IN-LINE



1" IN-LINE



TEST PARAMETERS

Inlet Pressure: Variable

Set Pressure: 30 PSI

Media: Tap Water

Temperature: 70°F (21°C)

Curves show substantial differences in flow rates between backpressure valves. In most cases, the competitive valves require extreme overpressure and added wear-and-tear on the pump to achieve flow rates of the Plast-O-Matic RVDT.

NOTE: All data for these curves was collected from actual flow tests at Plast-O-Matic Valves, Inc. in Cedar Grove, NJ. The measuring equipment used was the same for all valves tested, and the relative results between different models are considered to be an accurate portrayal of the data recorded.