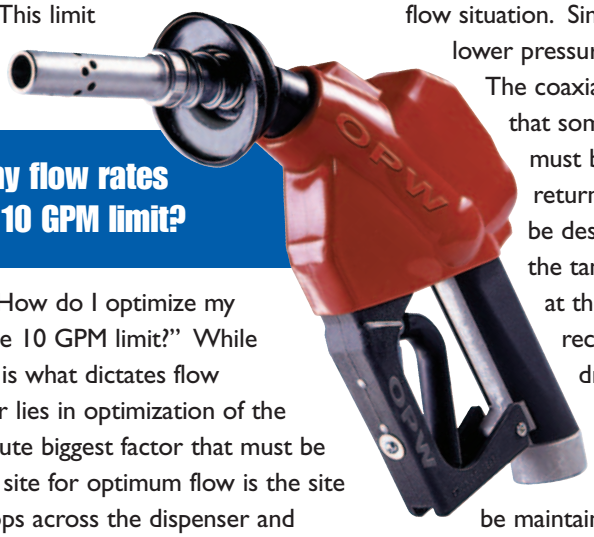
Optimize Your Flow Rates with the OPW 12VW Nozzle

NOZZLE FLOW RATE DISCUSSION

Flow rates have been a topic of discussion in the retail petroleum business for many years. There are many myths and mysteries as to what the optimal flow rate is and what factors contribute to flow performance. Conventional wisdom dictates that higher is better to allow customers to get in and out of the station quickly. The U.S. EPA recognized a problem with this pursuit of high flow rates in that excessive flow rates increase the likelihood of splash-back at the nozzle. This phenomenon prompted them to act in instituting the 10GPM limit on retail fueling points. This limit remains in force today.



How do I optimize my flow rates and not exceed the 10 GPM limit?

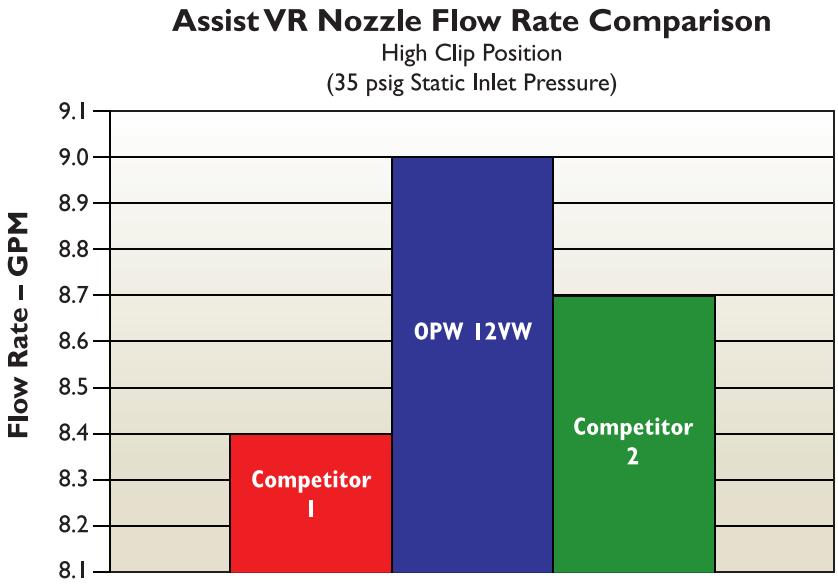
The question then became, "How do I optimize my flow rates and not exceed the 10 GPM limit?" While many believe that the nozzle is what dictates flow performance, the true answer lies in optimization of the entire fuel system. The absolute biggest factor that must be considered when designing a site for optimum flow is the site size and layout. Pressure drops across the dispenser and hanging hardware should be considered, but the greatest variable by far is the pump and piping system capacity. The fueling system must be sized to optimize the flow based on factors such as the number of hose points likely to be operating simultaneously, the distance between the tank pad and the dispensers, the number of fueling points being supplied by each piping run, and even the depth of the tanks. Without the appropriate pump capacity or piping arrangement for the site, flow rates can become a major issue. The objective is to deliver enough pressure to the inlet of each nozzle to ensure an "acceptable" flow rate regardless of how many fueling points are in use at the same time. The vast majority of flow rate issues can be traced directly back to the design of the underground portion of the fueling system. Maintenance, obviously, is also important to ensure that a system is operating at peak performance. Clogged filters have been the cause for removal of countless perfectly good nozzles.

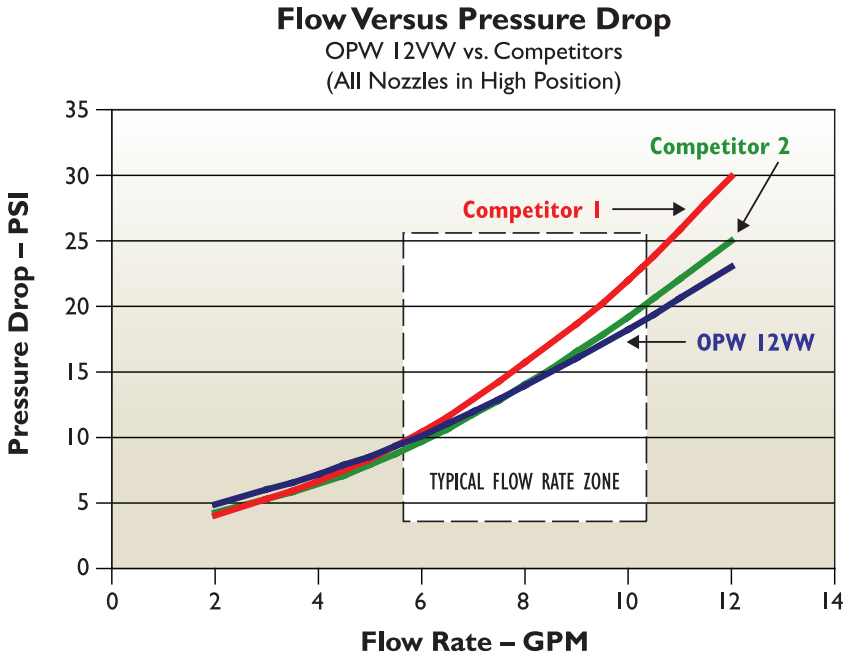
Having ensured that the fueling system has been sized and maintained appropriately, we turn to the hanging hardware to see what effect it really has on flow performance. Conventional fueling hardware is not often cited for being the cause of a low flow situation. Simply by design, conventional equipment has lower pressure drops versus vapor recovery equipment. The coaxial nature of vapor recovery hardware dictates that some of the cross sectional area of the flow path must be sacrificed to allow space for the vapor path returning vapors to the tank. The vapor path must be designed to minimize pressure drop back to the tank to ensure efficient recovery of the vapor at the nozzle spout. Thus, in general, all vapor recovery equipment has slightly higher pressure drops than conventional equipment. While the underground fuel system design is still by far the most critical factor in station flow rate performance, nozzle pressure drops must be maintained within a reasonable range to prevent low flow situations.

In consideration of this fact, OPW has optimized the flow path of our 12VW vapor recovery nozzle to maintain superior flow in the high clip position while ensuring efficient collection of vapors. The 12VW design dictates that the wide-open flow poppet position is achieved when the lever is latched in high-clip. The result: maximum flow is achieved without manually holding the nozzle open.

The information on the back of this page shows a direct comparison of the 12VW flow performance versus our competitors in the high clip position.

OPW 12VW – Optimized to deliver superior flow rates in the high clip position.





What this means for the 12VW User:

- Higher flow rates are achieved in the high clip position versus competitive nozzles
- Maximum flow rate is achieved without the need to manually hold the nozzle open during fueling
- Superior flow performance is consistently delivered across the typical inlet pressure range available at the dispenser

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