



## Flow Test Comparison

**Test #1** measures the test flow through a **hydrant nozzle with a hand-held pitot.**

- Static 85 PSI
- Residual 60 PSI
- Pitot 36 PSI
- Test flow 1,007 GPM

**Predicted flow at 20 PSI – 1,687 GPM**

**Test #2** measures the test flow **through 2½” x 10’ hose and the 2½” Hose Monster.**

- Static 85 PSI
- Residual 70 PSI
- Pitot 20 PSI
- Test flow 754 PSI

**Predicted flow at 20 PSI – 1,665 PSI**

1. Static pressure in both tests is equal.
2. Test flow rate in test #2 is less than in test #1. This is because of the friction loss in 10 feet of hose.
3. Residual pressure in test #2 is greater than in test #1. This is because the test flow rate is less.
4. When flow rates are extrapolated to a residual of 20 PSI, they are approximately equal. The difference of 22 GMP (1%) is due to the precision of residual and pitot readings\*.

In summary, the test flows will be different, but the difference will not affect the flow test. The Hose Monster and hose will result a lower test flow rate and a higher residual pressure. When all data is considered, the flow tests result in the same predicted flow rates.

### Other info:

\*Precision of gauge readings is important.

Example: If a residual of 71 PSI is used in Test #2, predicted flow rate at 20 PSI would be 1728 GPM. In this example a single PSI of residual pressure is equal to a 4% difference in predicted flow rate.

The flow tests are examples designed to demonstrate the effects of flow tests using the Hose Monster vs. hand-held pitot. The formula used to extrapolate predicted flow rate is taken from NFPA 291-Recommended Practice for Fire Flow Testing and Marking of Hydrants.

