

Valve Testing Device

The valve testing device accurately measures outlet static and residual water pressures and flow from 2½" hose connections. This valve test device facilitates the initial and periodic testing of pressure regulating valves (PRVs) in sprinkler and standpipe systems per NFPA 13, NFPA 14, and NFPA 25 requirements. This device can also be used for standpipe, fire pump, and hydrant flow testing



- Accuracy range from 100-500 GPMs and up to 250 PSI
- Entire unit weighs only 24 lbs.
- Powder-coated inline aluminum venturi flowmeter body with internal stream shapers
- 2½" female NST swivel inlet x 2½" male NST outlet
- Stability base with handle for easy carrying and storage
- Detachable 30-degree swiveling elbow for easy connection to a PRV
- Crank handle on brass gate valve for easy opening, closing, and throttling water flow
- Set field adjustable PRVs accurately on site
- Both gauges are tested and calibrated to N.I.S.T Standards
- Each device includes a calibration certificate

Part Number	Finish	Notes
☐ VALVETEST2	Aluminum	Measures up to 500 GPM / 250 PSI
☐ VALVETESTCASE2	Plastic	Custom molded carrying case for test device unit



VALVETEST2 USER MANUAL

2-1/2" Standpipe Testing Device

Operation, Maintenance & Troubleshooting

Model Reference: VALVETEST2C / VALVETEST2G Quick Disconnect Gauge Assembly (VFM25-QDGA)

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1. Introduction

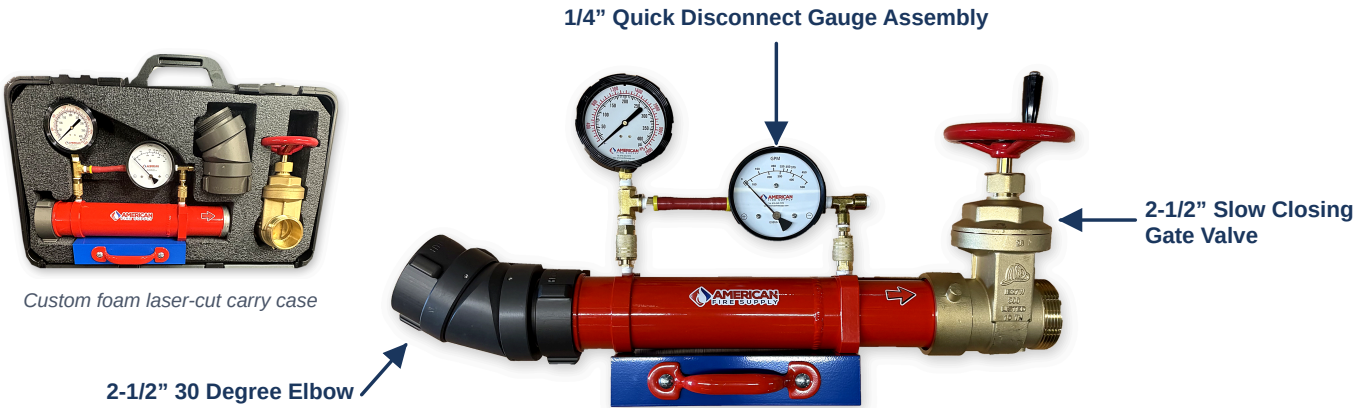
Standards for sprinkler and standpipe systems require the testing of pressure regulating valves when the valves are first installed and periodically after, ensuring they are free from defects and meet the system’s hydraulic requirements. The “Standpipe Testing Device” (VALVETEST2) connects to a hose valve or other male threaded outlet connection to accurately measure flow up to **500 GPM** and pressure up to **250 psi** to facilitate testing requirements of the following standards:

- NFPA 13 – Standard for Installation of Sprinkler Systems
- NFPA 14 – Standard for the Installation of Standpipe and Hose Systems
- NFPA 25 – Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems

The “Standpipe Testing Device” can also be used for standpipe, fire pump, backflow, and hydrant flow testing. Additional units may be necessary to meet the test requirements.

2. Parts List & Diagram

VALVETEST2C – Standard Unit Components



VALVETEST2C Standpipe Testing Device and carry case

Part #	Description
VALVETEST2C	Complete Standpipe Testing Device w/ Custom Foam Laser Cut Case
VALVETEST2G	Quick Disconnect Gauge Assembly Only
VAL078	2-1/2" Brass Slow Closing Gate Valve
VALVETESTCASE2	Carry Case Only

CAUTION: Always wear proper PPE when conducting flow testing or flushing. Make sure all connections are tight and no pedestrian or vehicular traffic is in the path of the water’s flow.



VALVETEST2 USER MANUAL (continued)

2-1/2" Standpipe Testing Device – Operation & Maintenance

3. Operation

IMPORTANT NOTE

Scaling and other sediments can damage the internal components of the device. Flush the test connection water supply free of debris before each use. Always reference the applicable testing standard(s) and check with local codes and ordinances for amendments or exceptions.

A. Setup & Connection

1. Confirm the quick disconnect gauge assembly is installed correctly and secured to the ports on the body.
2. Fully close the swivel gate valve and attach it to the discharge side of the body.
3. Attach the 30° swiveling elbow as needed.
4. Secure the female swivel inlet of the device (or elbow if attached) to the 2-1/2" test connection after the water supply line has been properly flushed. Adapters are necessary to connect to threads other than NST.
5. Connect fire hose suitable for testing to the VALVETEST2's discharge side and the male outlet end of the test hose to the appropriate drainage connection or area. The hose should be of sufficient length to allow a smooth flow to the drain, and the drain should be sized to meet the test's flow demands. Make all necessary adjustments to the drainage system to ensure the anticipated flows can be safely discharged. If using a drain riser, verify that all the drain riser's openings are shut and tight, as flows can temporarily back up the riser before completely draining. Check local codes and ordinances for drainage requirements.
6. Use a wrench to fasten all connections securely. No leaks should be present during testing.

B. Testing

7. Slowly open the test connection valve and allow water to fill the device and gauge assembly until the valve is fully open. With the test connection fully open, the pressure gauge shows the static outlet pressure.
8. Gradually and smoothly open the throttling gate valve, making sure the hose is free of kinks and bends as the flow rate increases. Continue opening the gate valve until reaching the desired flow rate. When testing and setting adjustable pressure regulating valves, measure the residual outlet pressure at the design flow rate. If the pressure is too low, begin increasing outlet pressure according to the manufacturer's instructions. While adjusting the outlet pressure, monitor the flow rate, and adjust the throttling valve to maintain the design flow rate. Continue adjusting the valve until the residual outlet pressure and flow meet the design requirements. After recording measurements, begin decreasing the flow by slowly closing the gate valve until the valve is completely closed and there is no water flowing through the VALVETEST2. Verify the static outlet pressure does not exceed the maximum allowable pressure. If the static outlet pressure is too high, open the throttling valve and readjust the valve setting. Repeat this process until the valve is set correctly and measurements are recorded.

C. Removal

9. Before removing the VALVETEST2, fully close the test connection valve and open the throttling valve to drop the pressure and drain the device. A vacuum effect may be present from draining the water, which may also collapse the test hose. Begin VALVETEST2 removal by slowly loosening the swivel at the test connection. Be careful of water trapped in the VALVETEST2 as the swivel becomes loose. It is often prudent to have a bucket to catch this water. Disconnect the test hose from the throttling valve. Replace any test connection caps.

4. Maintenance

- Condensation and moisture can create calcium deposits, potentially causing blockages in gauges and restricted orifices over time. **Flush the unit and gauge assemblies after each use.** Open the gate valve and tilt the unit at a 45° angle for ten seconds to drain water from the unit. Disconnect the gauge assembly and tilt it at a 45° angle for ten seconds on each end to drain any trapped water. Reconnect the gauge assembly and wipe down the entire unit with a cloth to remove any dirt.
- Keep the unit in the upright position when not in use, especially when storing for long periods. We recommend storing the unit in the optional case to protect the gauges from damage.
- Inspect the 1/4" quick disconnect gauge ports monthly for any loose pieces of Teflon tape, rust, scale, etc., and remove if found.
- Periodically inspect the gauges for damage, and replace them if necessary. If the GPM gauge will not return to "0" after testing, see **Section 5 – Troubleshooting**.

! WARNING

Do not subject the gauge assembly to freezing temperatures, especially when wet.

SECTION 5

TROUBLESHOOTING GUIDE



Quick Disconnect Gauge Assembly

GPM Gauge Will Not Return to "0"

Model Reference: VFM25-QDGA (VALVETEST2G and equivalent assemblies)

5.1 Component Identification



High Pressure Side
(HI)



GPM Gauge Face



Low Pressure Side
(LO)

5.2 Parts Overview & Orientation



Labeled Components

1. High Pressure Adapter

Threads into the female gauge body.

2. High Pressure Spring Seat

Washer and screw face the high-pressure side of the cylinder.

3. Low Pressure Spring Seat

Flat washer, spring, and nylon seat assembly.

4. Low Pressure Adapter

Spring positioned on the backside of the low-pressure adapter end.

IMPORTANT — Spring Seat Orientation

The high-pressure adapter threads into the female gauge body. Orient the high-pressure spring seat so the washer and screw face the high-pressure side of the cylinder. The spring remains on the backside of the low-pressure adapter end.

5.3 Troubleshooting Procedure — Stuck Gauge Needle



Access Hole
High Pressure Adapter

If the gauge needle becomes stuck:

1. Locate the small access hole in the high-pressure adapter.
2. Insert a small screwdriver into the hole.
3. Gently push forward to release the seat.

WARNING

This procedure may only be performed on the HIGH PRESSURE side. Attempting this on the low-pressure side can cause the seat to break. Use extreme care and apply only gentle force.



TROUBLESHOOTING GUIDE (continued)

Quick Disconnect Gauge Assembly – GPM Gauge Will Not Return to “0”

5.4 Symptom Summary

Symptom	Possible Cause	Corrective Action
After testing, the GPM gauge is “Pinned/Stuck” and will not return to “0”.	The differential gauge is a magnetic DP gauge. Grit lodged between the cylinder body and the cylinder seat throws off the needle. Once cleaned, the gauge should function normally.	1. Carefully insert a small screwdriver through the high-pressure adapter and gently push forward to dislodge the seat and return the needle to “0” (see 5.3). 2. If the quick fix fails, follow the detailed procedure below.

5.5 Detailed Troubleshooting Procedures

A. Safety & Preparation

1. Ensure the system is fully depressurized and the assembly is isolated from all pressure sources.
2. Depress the female quick-disconnect collar to equalize the gauge to atmospheric pressure.
3. Remove the red ¼" male hose from the high-pressure end of the GPM gauge.
4. Remove the ¼" Street Tee from the low-pressure end of the GPM gauge.

B. Disassembly

5. Place the gauge on a smooth surface. Hold the gauge body with one hand and back off (counter-clockwise) the low-pressure adapter. This is a straight thread that seals with an O-ring; once the seal is broken it will spin off freely by hand. Carefully remove so as not to drop or lose the three internal parts (flat washer, low-pressure spring, and nylon seat).
6. Remove the high-pressure adapter and place it on the flat surface.
7. Insert a flat screwdriver into the chamber and gently tap the seat until the complete assembly is removed from the cylinder bore.
Note: grit, scale, calcium, or other foreign matter is typically wedged between the high-pressure spring seat and the body.

C. Cleaning

8. Using a clean bucket of water, a rag, and mild soap, thoroughly clean the internal cylinder bore and all seat parts. Scraping with a utility knife or screwdriver may be required to remove stubborn deposits.

D. Reassembly

9. Reassemble in the following order:
10. Insert the High-Pressure Spring Seat through the high-pressure side of the body (valve-seat screw and flat washer must face the high-pressure adapter).
11. Insert and hand-tighten the high-pressure adapter.
12. Hold the low-pressure adapter with threads upright. Place the flat washer into the adapter, followed by the spring, then the nylon seat over the spring.
13. Gently install the low-pressure adapter by hand into the low-pressure side of the body.
14. Tighten both adapters with a wrench.

E. Verification

15. Confirm the gauge needle has reset to “0”. If it has, the gauge may be returned to service.
16. If neither the quick-fix nor the full cleaning procedure restores the gauge, replace the gauge on the assembly.



Disassembled components: adapters, spring seat assembly, and gauge body



VALVETEST2 USER MANUAL (continued)

Calibration, Warranty & Disclaimer

6. Gauge Calibration

All gauges are tested and calibrated with test standards traceable to N.I.S.T. as specified in the American National Standards ASME B40.100-1998, PP6.1, and test procedures as specified in ASME B40.100-1998. Each shipment includes an N.I.S.T. Traceable Certificate. Each gauge is marked with a certification ID number, and a corresponding certification form is included with each shipment. The certification form can be duplicated upon request.

RECOMMENDATION

Replacement gauges and gauge assemblies are available. We recommend replacing the gauges on an annual basis.

7. Warranty

All products sold by American Fire Supply are guaranteed under intended and normal use for one year from the date of shipment. This warranty is limited to the original purchaser and applies to products deemed inoperable or unusable due to defects in the original material or quality. Any field modifications made by the purchaser may negate this warranty. This warranty does not cover or apply to any personal injury, labor charges, or apply to products that have been damaged in transit, subject to abuse, neglect, accident, or improper use or installation.

8. Disclaimer

The information contained herein constitutes generally recommended procedures. American Fire Supply assumes no responsibility for errors or omissions and shall not be liable for any losses, damages, or injury resulting from the use of the information contained herein or occurring during use of this product.

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