Specifications:

Pressure Range: vacuum to 3000 psi (vacuum to 207 bar)
Burst Pressure: 12,000 psi (828 bar) minimum
Pressure Resolution: +/- 0.005 psi (+/- 0.034 mbar)
Mechanical rotation: 42 turns
Verner Torque: Fingertip adjustment from 0 to 3000 psi (0 to 207 bar)
Operating media: nitrogen, compressed air or any clean, dry non-corrosive gas
Construction: Aluminum, 304 stainless steel, brass
Seal Materials: Buna-N, Teflon
Operating Temperature Range: 0° to 130°F (-18 to 56°C)
Weight: 3.7 lb (2.5 kg)
Dimensions: 5.6" x 6.8" x 6.5" (14.2 cm x 17.2 cm x 16.5 cm)
Inlet Connection: (1) Male Quick-test
Inlet Hose: 6' Quick-test hose standard; other lengths optional
Regulator Connection: (1) 1/4" Male NPT
Outlet Connections: (3) Male Quick-test with cap and chain
Outlet Hose: 3' Quick-test hose standard; other lengths optional
Process Connection (to device under test): (1) 1/4" Male NPT
Pressure Reference Connection: (1) 1/4" Female NPT standard; 1/8" Male NPT or 1/4" Male NPT optional

Field Use package (add -FLDK) includes: (1) carabineer, (1) shoulder strap

Laboratory package (add -LABK) includes: (1) mounting stand with non-skid base, (1) Quick-test bulkhead fitting, (1) tube and tube fitting to hard-pipe outlet bulkhead to volume controller
Weight: 1.8 lb (825 g)
Dimensions: 3.3" x 6.0" x 9.0" (8.4 cm x 15.2 cm x 22.9 cm)

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QTVC Volume Controller

Operation Manual

Ralston Instruments, LLC

QTVC-2FBA, QTVC-1MBA, QTVC-2MBA INSTRUCTIONS

Contents:

QTVC calibration volume controller, (1) 6' Inlet hose, (1) 3' hose, (2) Adapters - hose X 1/4" Male NPT process adapters and (1) pressure reference fitting.

Warning: Contents under pressure. Failure to follow the instructions can result in injury or death.

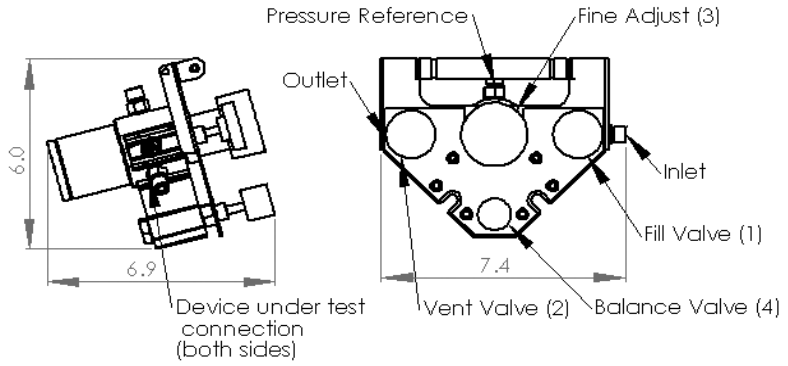
Caution: Always wear eye protection when using this device.

Calibration setup:

1. Connect either 3' or 6' hose to Inlet connection to the right of Fill Valve (1). Connect the 1/4" Male Adaptor (QTHA-2MB0) to the other end of the hose. No Teflon tape or wrench is required. Attach the 1/4" Male Adapter to the pressure regulator outlet on the nitrogen cylinder.
2. Connect the pressure gauge or calibrator to the Pressure Reference connection (Above the Fine adjust piston (3). There are three outlet connections so it is not necessary to use a tee between the Volume controller, the calibrator and the device under test. Note that if a deadweight, calibrator or other large pressure reference is used then attach an additional hose to connect the Volume controller to the calibration reference.
3. Connect either the 3' or 6' hose to one of the two Device under Test connections. These are located behind the handle/panel at 5:00 O'clock and 7:00 O'clock when looking at the Volume controller from the front. Connect the 1/4" Male Adaptor (QTHA-2MB0) to the other end of this hose. No Teflon tape or wrench is required. Attach the 1/4" Male Adapter to the device under test. The test set-up is ready to be pressurized

Operation of the QTVC Volume Controller

1. Close the Vent Valve (2).
2. Make sure that the Fine adjust piston is several turns from the top (Counterclockwise) or bottom (Clockwise) of its stroke.
3. Adjust the pressure regulator on the Nitrogen tank so that the reading pressure is within the range of the first calibration test point.



4. Pull the Balance Valve up firmly until it reaches the end of its stroke.
5. Open the Fill Valve (1) and pressurize the system.
6. Close the Fill Valve (1) and allow pressure to stabilize. Because the nitrogen is expanding the pressure reference will register am increase in pressire as the nitrogen warms to ambient temperature.
7. Ensure that the Volume Controller pressure is within 100 psi (7 bar) of the first test point. If the pressure is not within this range then slowly open Vent Valve (2) until the pressure is closer to the first test point.
8. Push the Balance valve down until it reaches the bottom of its stroke.
9. Use the Fine Adjust Piston (3) to adjust the Volume controller to reach the precise pressure required. Allow the pressure to stabilize before performing a calibration.
10. Perform the calibration.
11. Important: After every calibration pull the Balance Valve (4) up until it reaches the end of its stroke.
12. Repeat Steps 2 to 10 for each calibration.
13. When all calibrations are completed make sure the Balance Valve (4) is in the up position (Pulled all the way out).
14. Using the Vent Valve (2) bleed excess nitrogen from the system. Unscrew the Vent Valve (2) several turns to vent both the top and the bottom of the Volume Controller. Because the Vent Valve is a two stage valve it must be unscrewed several turns to activate the second stage. If the system is vented without pulling the balance valve up (Not recommended) then the Vent Valve (2) can be unscrewed several turns to vent the top of the Volume Controller.

Troubleshooting:

1. Problem: The Device does not hold pressure.
   Solution: Make sure that all hoses are attached to their respective devices. If a port is not in use it must be plugged.
2. Problem: The fine adjust piston is difficult to turn.
   Solution: The pressure on the Volume Controller piston has become unbalanced. Pull the Balance Valve (4) up. If this cannot be done then open the Fill Valve (1) to rebalance the device. If this cannot be done then open the Vent Valve (2) several turns to vent both the top and bottom of the Volume Controller. Then follow steps 1 to 10 of the QTVC operation manual.
3. Problem: There appears to be a slow leak immediately after pressurizing the system or after changing the pressure.
   Solution: This is not a leak. As gas expands it cools and the pressure changes. This is natural. Allow the system to come to equilibrium before making a pressure calibration.