Series ATG-1

Backflow Preventer Test Kit

The Ames ATG-1 Backflow Preventer Test Kit is a compact portable testing device made for testing all Reduced Pressure Zone Backflow Prevention Assemblies and Double Check Valve Assemblies. The ATG-1 is easily connected to any RPZ device enabling accurate testing of 'zone' differential pressure, relief valve opening differential, fouled check valves or similar problems that visual inspections cannot locate. The unit is supplied with a rugged carrying case for easy handling and accessibility.

Specifications

- Maximum working pressure – 175psi (12.1 bar)
- Maximum working temperature – 210°F
- Gauge – 4½" diameter face dual scale 0 – 15psi and 0 – 1kg/cm^2, ±2% accuracy full scale
- Test Valves – (2) ball valves and (1) needle valve
- Hoses – (3) 3' with female threaded swivel couplings
- Adaptors – (3) ¼" threaded coupling adaptors

  (3) ½" x ¼" bushings

  (3) ¾" x ¼" bushings
- 1 – 16" securing strap
- 1 – Moisture resistant instruction guide
- Case – light weight, shock resistant molded plastic with foam inserts

CALIFORNIA PROPOSITION 65 WARNING

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.
(California law requires this warning to be given to customers in the State of California.)
For more information: www.watts.com/prop65

Testing — Reduced Pressure Zone Assemblies

Reduced Pressure Zone Assemblies must be inspected and tested periodically, in accordance with local codes, to ensure proper operation of check valves within the unit.

A differential pressure gauge is recommended for Test No. 1 rather than a manometer for the following reasons: It utilizes minimum time to perform the test. It eliminates the necessity of closing the inlet ball valve which could release pipe scale and foreign matter into the backflow preventer. Only a slight amount of water is 'spilled' in test. A mercury manometer could cause a pollution hazard.

Test Set Up

Reduced Pressure Zone Assembly
Close Valves A, B and C on Test Kit.
Connect high side hose to test cock #2
Connect low side hose to test cock #3. Close shutoff #2.
Open test cocks #2 and #3.
Open vent valve C.
Open 'high' valve A and bleed to atmosphere until all the air is expelled.
Close valve A. Open 'low' valve B and bleed to atmosphere until all air is expelled. Close 'low' valve B. Close 'vent' valve C.
Connect vent hose to test cock #4.

Test Procedure

Reduced Pressure Zone Assembly
Field Test Equipment Required
Reduced Pressure Zone Backflow Preventer Test Kit

Test No. 1

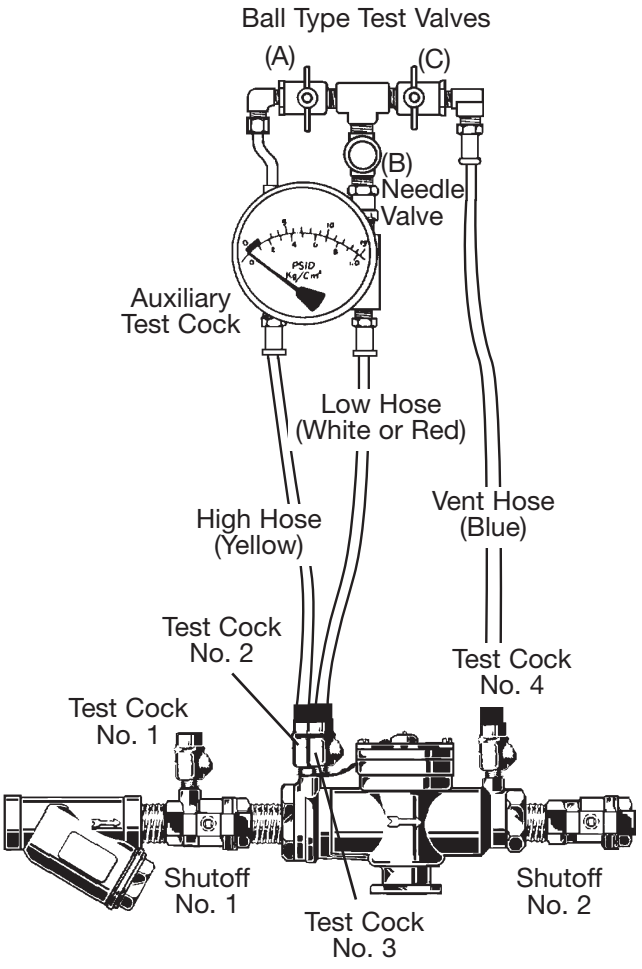
Purpose: To test Check Valve No. 2 for tightness against reverse flow.
Requirements: Valve must be tight against reverse flow under all pressure differentials. Slowly open the 'high' valve A and the 'vent' valve C, and keep the 'low' valve B closed. Open test cock #4. Indicated pressure differential will decrease slightly. If pressure differential continues to decrease (until the vent opens) check valve #2 is reported as 'leaking'.

Test No. 2

Purpose: To test shutoff #2 for tightness.
Requirements: After passing Test No. 1, continue to Test No. 2 by closing test cock #2. The indicated pressure differential will decrease slightly. If pressure differential continues to decrease (approaching "zero"), shutoff #2 is reported to be "leaking".

Test No. 3

Purpose: To test Check Valve No. 1 for tightness.
Requirements: Valve must be tight against reverse flow under all pressure differentials. Close 'high' valve A and open test cock #2. Close test cock #4. Disconnect vent hose at test cock #4. Open valves B and C, bleeding to atmosphere. Then closing valve B restores the system to a normal static condition. Observe the pressure differential gauge. If there is a decrease in the indicated value, Check Valve No. 1 is reported as "leaking".



Test No. 4

Purpose: To test operation of pressure differential relief valve.
Requirements: The pressure differential relief valve must operate to maintain the "zone" between the two check valves at least 2psi less than the supply pressure. Close 'vent' valve C. Open 'high' valve A. Open the 'low' valve B very slowly until the differential gauge needle starts to drop. Hold the valve at this position and observe the gauge reading at the moment the first discharge is noted from the relief valve. Record this as the opening differential pressure of the relief valve.

Note: It is important that the differential gauge needle drops slowly. Close test cocks #2 and #3. Use 'vent' hose to relieve pressure from test kit by opening valves A, B and C. Remove all test equipment and open shutoff #2.

Caution: To prevent freezing, hold Test Kit vertically to drain differential gauge and hoses prior to placing in case.

Problem Identification Procedures - For RPZ Assemblies

PROBLEM: Continuous or intermittent discharge from relief valve.

1. When using differential pressure gauge

A. Check differential across No. 1 check valve

Reading	Problem
2 to 3 PSID	Leak in No. 1 or No. 2 check valve
4 to 7 PSID and steady	Malfunctioning pressure relief valve
2 to 7 PSID fluctuating	Inlet pressure fluctuating

2. Without using differential pressure gauge.

A. Close gate valve No. 2

Result	Problem
If discharge stops	Leak in No. 2 check valve
If discharge does not stop	Go to B

B. Open No. 4 test cock to product a flow greater than differential relief valve discharge

Result	Problem
If discharge stops	Leak in No. 1 check valve
If discharge does not stop	Malfunctioning pressure relief valve

Testing — Double Check Valve Assemblies

Test Check Valve No. 1

Step 1: Ensure shutoff #1 is open, shutoff #2 is closed.

Step 2: Connect high side hose to test cock #3, low side to test cock #2 and open both test cock #2 and test cock #3.

Step 3: Open valve C, then open A to bleed air from the high side. Close valve A, then open B to bleed low side. Close valve B.

Step 4: Connect vent hose loosely to test cock #1. Open valve A to vent air from vent hose. Tighten vent hose at test cock #1, open test cock #1.

Step 5: Close shutoff #1. Slowly loosen hose at test cock #2 until differential gauge rises to 2psi and retighten hose. If the differential reading does not decrease, record check valves as “tight”.

Test Check Valve No. 2

Step 1: Move the high side hose to test cock #4, low side to test cock #3 and open both test cock #3 and test cock #4. Remove vent hose from test cock #1, open shutoff #1.

Step 2: Open valve C, then open valve A to bleed air from the high side. Close valve A, then open valve B to bleed low side. Close valve B.

Step 3: Connect vent hose loosely to test cock #1. Open valve A to vent air from the vent hose. Tighten vent hose at test cock #1, open test cock #1.

Step 4: Close shutoff #1, then slowly loosen hose at test cock #3 until differential gauge rises to 2psi and retighten hose. If the differential reading does not decrease, record check as tight. Remove all hoses and restore valve to original working condition.

Note: The assembly will fail both the first and second check valve tests above, if shutoff #2 leaks excessively. To test for a leaky #2 shutoff, use the following procedure.

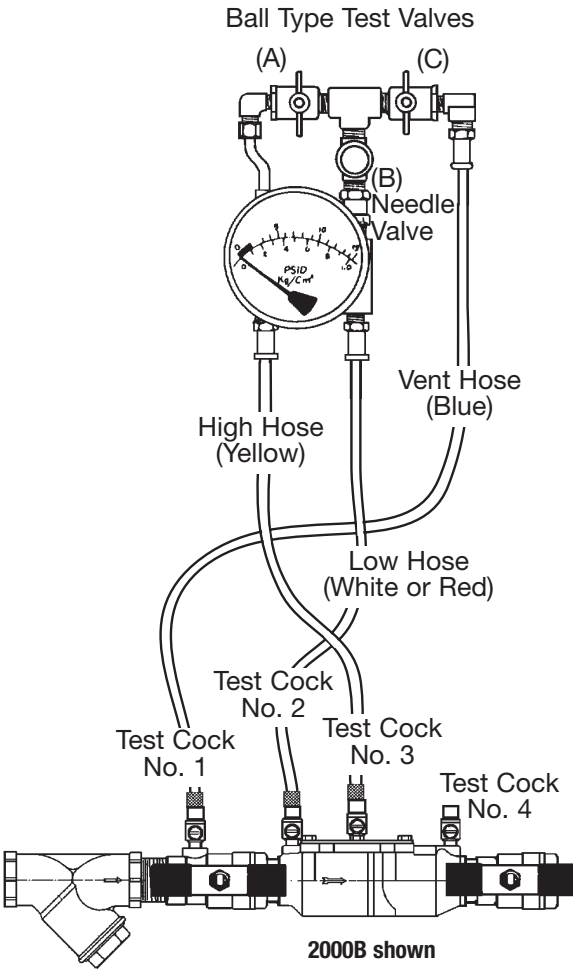
Test for Leaky No. 2 Shutoff

Step 1: Connect the high side to test cock #1, low side to test cock #4. Open test cock #1 and test cock #4. Close shutoffs #1 and #2.

Step 2: Close valve C. Open valve A, then open valve B ½ turn, loosen hose at test cock #4 to remove air. Retighten hose.

Step 3: If the differential gauge rises above 0, there is excessive leakage at shutoff #2 and it must be replaced to test the assembly.

Note: Product information is subject to change without notice and supersedes all previous publications.



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