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state of the pipe

Aquatherm Standard Pressure Testing Procedure

Aquatherm offers an extensive warranty to protect against damages caused by failure from manufacturer's defect. Aquatherm requires that all installations be pressure tested in accordance with the following instructions and that proof of the pressure test be submitted to Aquatherm before the coverage can go into effect. Warranty coverage begins only after the pressure test is properly completed and submitted. Aquatherm's warranty does not cover failures caused by improper installation, operation outside of the recommended parameters, freeze damage or damage from mishandling after the pipe has left the manufacturer. The Aquatherm warranty also does not cover elastomeric components (seals, gaskets, O-rings), components made by other manufacturers, or connections made to other non-Aquatherm systems or components.

REFER TO AQUATHERM TECHNICAL BULLETIN 201802A-AQTTB FOR ADDITIONAL INFORMATION AND SAFETY PRECAUTIONS

Step 1: Determine your testing pressure.

To help ensure the integrity of the heat fusion connections, a pressure test must be performed on the completed system. The amount of pressure used depends on the type of pipe and intended pressure of the application.

- If the piping system has a mixture of SDR pipe, you should test to the higher SDR's (thinner walled pipe's) testing requirements. For example, if the piping system contains SDR 17.6 pipe and SDR 11 piping, you should test to the requirements of the SDR 17.6 piping.
- If the piping system contains SDR 17.6 pipe and has an intended operating pressure of 65 psi or lower, the system must be tested at 100 psi.
- If the piping system contains SDR 17.6 pipe and has an intended operating pressure higher than 65 psi, the system must be tested at 150% of the intended operating pressure or a maximum of 160 psi¹. **Do not use compressed air to test SDR 17.6¹.**
- If the system contains only SDR 11 or heavier-walled pipe (lower SDR) and has an intended operating pressure of 100 psi or less, the system must be tested at 150 psi.
- If the system contains only SDR 11 or heavier-walled pipe (lower SDR) and has an intended operating pressure higher than 100 psi, the system must be tested at 150% of the intended operating pressure.
- If you have concerns regarding your testing pressure, please contact Aquatherm. Exceptions to the required pressure test must be given via written confirmation from Aquatherm.



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Pipe SDR	SDR 17.6			SDR 11. 9, 7.4		
System Operating Pressure	≤ 65 psi		>65 psi	≤ 100 psi		>100 psi
Testing Pressure:	100 psi		150%	150 psi		150%
Choose One:						

Step 2: Determine your testing medium

Water is the preferred medium for testing purposes, due to its incompressibility. However, low pressure, (15 psi or less) air testing may be used to find leaks and open-end pipes. Do not use compressed air alone on any piping system unless it is a compressed air system.

- If the system is intended for compressed air service, only compressed air may be used for the pressure test, regardless of the following restrictions.
- If the testing pressure is equal to or less than 150 psi, you may test with water only, or with a water over air combination system (water-filled piping, with air as pressure source).
- If the testing pressure exceeds 150 psi, the test must be performed using water only. Compressed air alone is not approved for systems with a testing pressures higher than a 15 psi leak test, unless those systems are intended for compressed air service.



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System Operating Medium:	Compressed Air Service	Water Service	
Testing Pressure:		</=150 psi	>150 psi
Testing Medium:	Test with Compressed Air	Test with water or water over air system	
Choose One:			

Do not use compressed air to test SDR 17.6¹.

Step 3: Observe safety protocols.

The full Aquatherm warranty does not take effect until the pressure test is completed and submitted and the system is in operation. Therefore, it is important for the tester to observe all safety recommendations from Aquatherm until the testing is complete.

For all systems:

- Visually inspect the connections for signs of proper fusion, following the guidelines given in the Aquatherm Installer manual. Socket connections should have two even rings of melted plastic, and a visible depth mark. Butt welded connections should have a single bead with a rounded top. This inspection is most easily done during the fusion process. The absence of these signs may be indicative of an improper fusion.
- Remove all fusion equipment from the system before starting the pressure test.
- Set your pressure gauge near the bottom of the system, where the pressure will be highest. This reduces the risk of over-pressurizing the system.
- Observe the system during the test for any indications of leaks. If a leak is found, relieve all test pressure and repair the leak before continuing.

Additionally, when using compressed air:

- Stand clear of the pipe during testing and warn others nearby to do the same. Take measures to secure loose sections of the pipe in case a rupture does occur.



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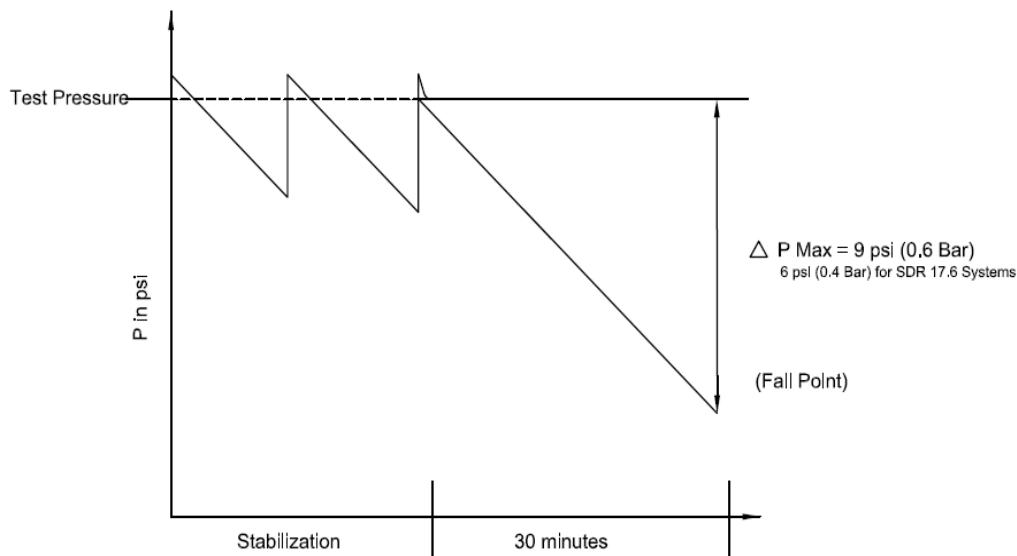
- Do not perform the test if the ambient temperature is higher than 100 °F. Use water instead.
- Should any transition joints leak during testing, check the joints for proper assembly and repeat the test using water before replacing any of the fittings.

Step 4: Perform the test.²

Follow the steps as indicated below. Use a digital pressure test gauge or an analog gauge that is accurate to within 0.5 psi. Record the results on the pressure test form, which is included.

Preliminary test:

- Bring the system up to the test pressure. The system will expand slightly once it is up to pressure, so additional pressure may be required to help it stabilize.
- Once the system stabilizes, observe it for 30 minutes. The system should be able to hold the test pressure during that time.
- The loss of more than 9 psi (6 psi for SDR 17.6 systems) or steadily decreasing pressure during this test is indicative of a leak. If a leak occurs, identify the leak and repair the system then repeat this test.
- A successful version of this test must be completed before proceeding.
- Aquatherm recommends using this test for progress testing, rather than completing the entire testing sequence. The entire testing sequence must be completed on the entire system when it is finished.



REFER TO AQUATHERM TECHNICAL BULLETIN 201802A-AQTTB FOR ADDITIONAL INFORMATION AND SAFETY PRECAUTIONS



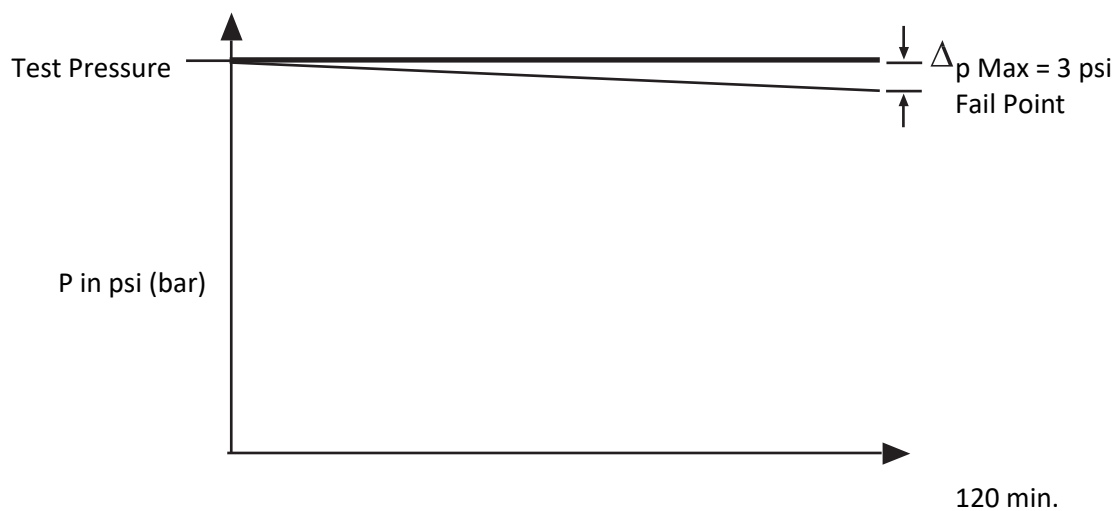
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Principal test:

- If the system has lost any pressure during the preliminary test, bring the system back up to the test pressure.
- Observe the system for 120 minutes. The system should be able to hold the full test pressure during that time.
- The loss of more than 3 psi or steadily decreasing pressure during this test is indicative of a leak. Identify the leak and repair the system before repeating this test. The test pressure must have less than 3 psi loss, and have stabilized at a value of less than 3 psi loss during the test.
- A successful version of this test must be completed before proceeding.

Principal Test



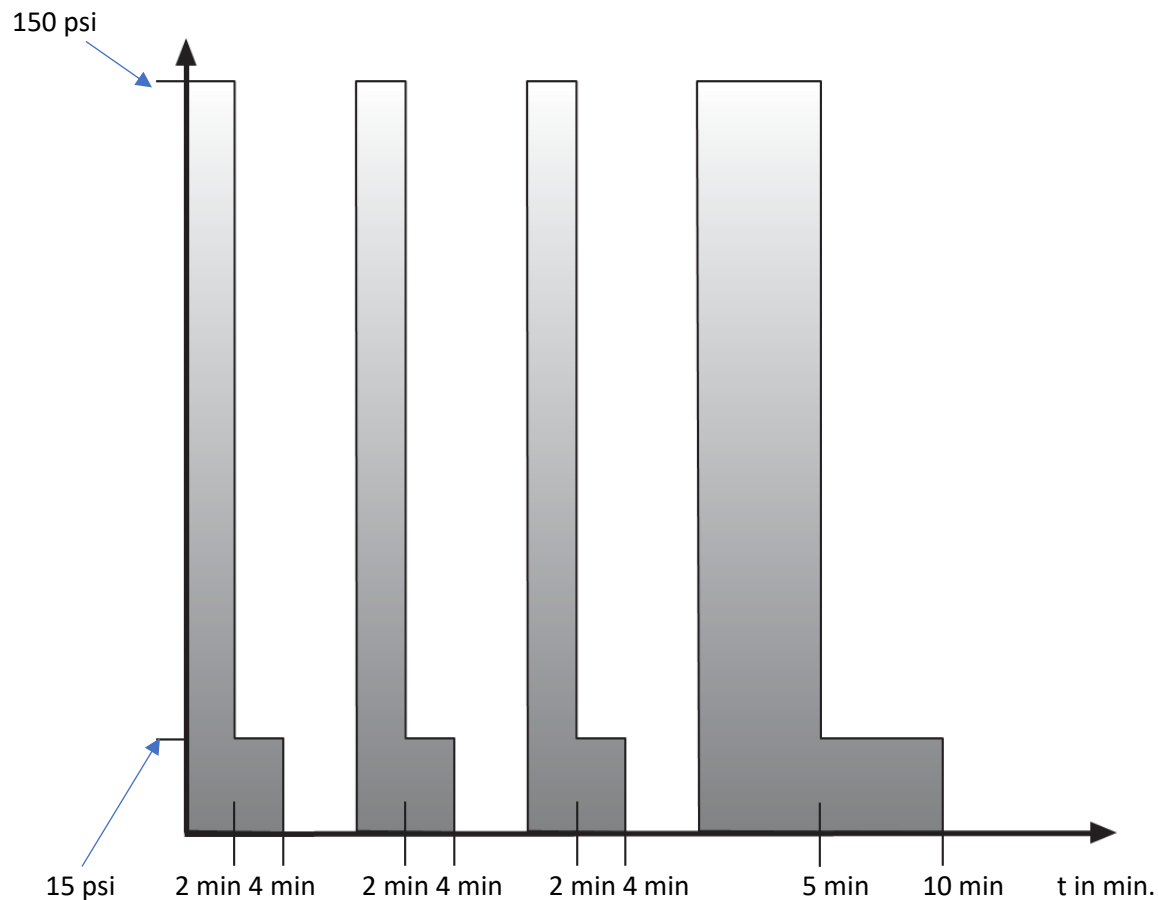


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Final test:

- Release the pressure from the system.
- Bring the system up to test pressure for two minutes. Reduce the system pressure to 15 psi for two minutes.
- Release the pressure from the system.
- Bring the system up to test pressure for two minutes. Reduce the system pressure to 15 psi for two minutes.
- Release the pressure from the system.
- Bring the system up to test pressure for two minutes. Reduce the system pressure to 15 psi for two minutes.
- Release the pressure from the system.
- Bring the system up to test pressure for five minutes. Reduce the system pressure to 15 psi for five minutes.
- Release the pressure from the system.





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Step five: Complete and submit the pressure test record.

- Submit the forms to Aquatherm within 30 days of completing the pressure test.
- If you are testing a system in sections, save all the pressure test records and submit them together.
- Include the installer numbers of all the installers who fused connections on the system.

The Aquatherm standard pressure test submission form can be found online on the website. Additional installer numbers may be added to the space below.

The following are maximum testing pressures for high-rise buildings or high-pressure systems. The maximum testing pressures should not exceed the following:

Pipe	Maximum Test Pressure Allowed
PP-RP (RCT) SDR 9	400 psi
PP-R SDR 7.4	400 psi
PP-R SDR 11	270 psi
PP-R SDR 17.6	160 psi

1. Revised 13 March 2018
2. Revised 14 Nov. 2018