

TECHNICAL BULLETIN TB211

Pressure Testing of REHAU PEXa Piping Systems



Product: REHAU PEXa Pipe and Fittings
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REHAU only provides the general guidelines for performing a pressure test on a REHAU PEXa piping system as set forth below. This guideline applies to both compressed air and hydrostatic (water) testing for the following applications:

- Potable hot and cold plumbing
- Radiant floor heating (RFH) and cooling
- Snow and ice melting (SIM)
- Ground source heat exchange (geothermal)
- General hydronic distribution
- Fire protection (also see TB225)
- Municipal water service line (also see TB239)

WARNING

- Failure to follow proper safety precautions for an air pressure test could result in dangerous separation of the material, leading to serious injury or death.
- Use personal protective equipment. To reduce the risk of eye injury, always wear close-fitting protective eyewear with side protection. Eyewear must be impact-rated and marked as complying with ANSI Z87.1.
- Never use a torch, open flame or heat gun on a pressurized system. Exceeding the temperature pressure ratings will result in dangerous separation of materials leading to serious injury or death.
- Never rework a connection that is under pressure. Depressurize the system, cut out connection and replace.
- To reduce the risk of personal injury, only qualified persons conducting and/or inspecting the pressure test should be present.

General Recommendations

- A pressure test must always be performed prior to closing in the system (e.g., behind drywall).
- Perform test using water or air at ambient temperature. **Do not exceed 150 psi (1030 kPa) for the piping system.** Verify maximum pressure limits are not exceeded for all system components prior to performing the pressure test.
 - When air pressure testing with **EVERLOC[®]** polymer fittings **do not exceed 120 psi (825 kPa).**
- For RFH and SIM systems, a pressure test must always be performed on the system prior to and during the installation of the thermal mass to ensure that RAUPEX pipe and connections are leak free. For dry systems (e.g., joist space), a pressure test must be performed after installation and up to the time that the system is put in operation.
- Tests shall comply with local codes where applicable and, where required, shall be witnessed by the building official.

Pressure Testing with Air

Air can store a high amount of energy as compared to water during a pressure test. Due to this higher energy, different failure modes of system materials must be understood by persons conducting the pressure test.

- If a thermoset polymer (e.g., PEXa pipe) is over-pressurized and fails (bursts), it does so in a ductile mode, meaning that the pipe will swell and then split with no separation of fragments.
- If a rigid thermoplastic polymer material (e.g., PPSU) is over-pressurized and fails (bursts), it does so in a brittle mode and can result in separation of the material.

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REHAU Pressure Test Procedure:

- Use an air test if conditions do not permit a water test (e.g., freezing conditions, insufficient water supply/pressure).
- Air temperature will affect the gauge pressure. Perform all pressure tests at a constant temperature. Verify maximum pressure requirements for other systems prior to performing the test.
- Conduct a visual inspection of the piping system, to ensure all connections have been properly made and all piping has been properly secured prior to pressurization.
- Perform a preliminary pressure test pressurizing the system to 1.5 times the maximum operating pressure not to exceed the maximum pressures defined above for 30 minutes.
- As the piping expands, restore pressure, first at 10 minutes into the test and again at 20 minutes.
- At the end of the 30-minute preliminary test, pressure must not fall by more than 5 psi from the maximum, and there shall be no leakage.
- After performing the preliminary test, perform the main pressure test immediately. The main pressure test shall last at least 2 hours. The test pressure should be restored and must not fall more than 3 psi after 2 hours. No leakage should be detected.
- It is recommended to maintain pressure on the system during further construction, where practical, to immediately identify any damage. If a water (hydrostatic) test is used, protect the water from freezing or drain water from pipes.
- If any repairs or corrections are necessary, depressurize the system before proceeding.

NOTICE

- When other thermoplastic piping materials (e.g., CPVC, PP-R) are present in the piping system, these sections of piping must be isolated from the REHAU PEXa piping system during the pressure test. The installer must consult the other component manufacturer's installation instructions for pressure testing those sections of the system.
- Always refer to the local codes for pressure testing requirements and use air testing only if approved by the local Authority Having Jurisdiction (AHJ).
- REHAU only provides the general guidelines for performing a pressure test, which by no means supersede or are intended to contradict safety requirements. It is the responsibility of the installing contractor to ensure a proper and safe pressure test is performed on site.
- All other trades must be notified that the pressure test will be conducted on the piping system.

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