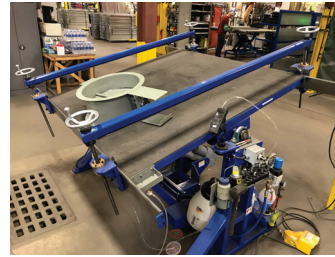


QA and Testing

All Greenheck industrial dampers are produced under our ISO9001-2015 Quality Assurance Program in Schofield, WI. Each bubble tight damper is tested before shipment. We test every unit per the AMCA Standard 500D test procedures. Test pressure is applied to the damper based on the models rated pressure, plus a minimum of 10% extra. All welded seams, axle penetrations and bolted connections are verified for zero leakage. The units are tested in both directions, so installation direction is irrelevant. We place a “bubble tight tested” sticker on the unit and attach a test report form to the damper for shipment to the job site. Greenheck retains copies of the test report in our systems if additional copies are needed.



Seals

Bubble tight dampers are designed with a full perimeter sweep seal. This seal is made of silicone rubber for best sealing results and the lowest torque requirements. Dampers were prototyped to 10,000 cycles without failure to the seal. Other seal materials have been used, but Greenheck does not recommend using alternate seal materials. They tend to increase the torque value to 2-4 times that of silicone and generally have a shorter life span. They will also require larger actuators and more rugged blade and axles sizes which can significantly increase costs. Every 5-7 years, the silicone blade seal should be evaluated for wear or dry rotting. The seal should be replaced if there appears to be damaged or degraded in any way.

Blade Direction

Dampers are designed for blades to be horizontal after installation. Damper installations with the damper blade vertically are not recommended as the weight of the damper blade can cause the axles to sag and prevent the blade seals from being properly centered. If vertically bladed units are required, please contact your representative for special design request information.

Temperature

Many damper applications for bubble tight dampers are designed for -40°F to 250°F (-40°C to 121°C) temperatures. The HBTR and HBT series dampers are ideally designed for this temperature range. There are times when requests for temperatures greater than 250°F (121°C) are asked for. Above 250°F (121°C), the blade and axles will have excessive movement due to the thermal expansion of the materials. These expansions can be unpredictable in which direction might see more or less expansion, thus these expansions could cause the damper seals to not properly seat against the damper and may cause the damper seals to lose their effectiveness. Therefore, 250°F (121°C) is the maximum temperature rating of our HBTR/HBT series dampers.

Actuators

Bubble tight dampers are designed as 2-position dampers – fully open or full closed. They are not designed to be modulated due to the blade seal configuration. The blade seal is a fold-over sweep seal design and modulating the damper may cause problems with the folding of the seal and prevent the bubble tight effectiveness of the seal.

Greenheck strongly recommends that actuators be ordered and installed from the factory. This allows us to properly install, set up and cycle the actuators on the damper and ship them complete to the job site. If dampers are ordered without actuators, then Greenheck will supply two actuator mounting angles on the damper frame (“bracket only” in CAPS). The job site will be responsible for actuators and actuator mounting plates for commercial style actuators, or actuators, actuator mounting plates and actuator couplings for industrial type actuators.

