Smart Brief

Clamp Usage is Essential to Filter Life

Clamps are a fundamental part of the filter bag assembly in fabric filters. Choosing the right clamp and installing it correctly is critical. Testing and investigation have revealed several major reasons why clamps fail.

Wrong Clamps

There are a variety of clamp syles on the market. If your current clamps have been successful in your application, you may not need to switch to other available options.

Common clamps:

- Type 301 SS band with carbon steel screw (the most common)
- Type 301 SS band with 400 series stainless steel screw: resists corrosion slightly better in high moisture environments
- Type 316 SS band and components (acid resistant): used for very corrosive environments where the bands have failed on the standard quick release clamps

Look for signs of corrosion before purchasing new clamps:

- Screw has begun to deteriorate; part of the band directly under screw has heavy corrosion damage (see Fig. 1).
- The clamp has rusty, corroded surface, or the band is broken. (see Fig. 1).
- Clamp band material feels brittle when bent.

Overtorquing clamps

Overtorquing is a frequent problem that occurs when too much force is applied as the clamp is tightened, causing damage to the band slots, housing, or bridge. Rules of thumb for tightening clamps:

- Proper torque for a quick-release hose style clamp is 30 to 60 in-lb. Torque in excess of 60 in-lb. can cause damage that is not necessarily visible to the naked eye.
- When using hand nut driver: tighten until screw feels tight with one hand, then test with torque wrench (that reads in inch pounds) to determine an accurate feel.
- When using power tools: tighten some clamps and immediately test with a torque wrench to verify that they are within the recommended range.

Look for these visible signs of damage from overtorquing:

- Adjustment slots are distorted, or in severe cases, broken away (see Fig. 2).
- Clamp bridge (the flat metal plate at the end of the screw in a quick release clamp) begins to bow (see Fig. 3).

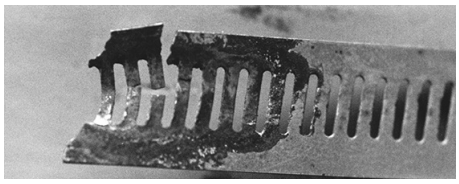

Fig. 1:

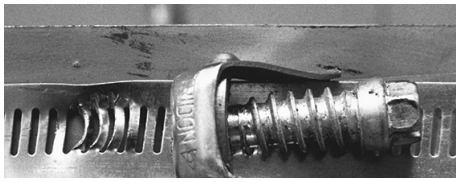

Fig. 2:

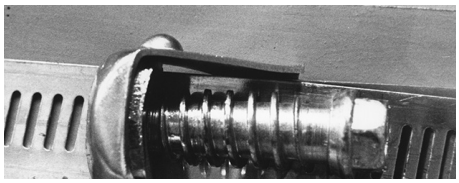

Fig. 3:

Misplacement

Positioning is critical to get proper function from the clamp.

- Roll band cage top must be seated properly on bag cup or venturi (the bead must be seated properly into the groove) before clamping.
- Clamps installed at an angle may slip or the quick release may become unsecured as it moves.
- Clamps installed across the thimble bead in reverse air baghouses will blow off during operation.

Reuse of old clamps

Failures may result from reusing old clamps that appear in good condition, but are not strong. Slots can weaken during retightening and fail after the clamp is brought up to operating temperature and conditions.

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