

Breathers & Filler Breather Technical Overview

Importance of Breathers

Breathers are an integral component in any Hydraulic system. Breathers provide protection from contamination found in harsh industrial environments. It is well advised to address both contaminant exclusion and removal. An old rule of thumb states that it **cost 10 times as much to REMOVE a particle from your system as it does to EXCLUDE it**. Since this is true, it is easy to see that the benefits of using a high quality breather greatly outweigh the costs.

Recommendations

- 1) HYDAC recommends selecting a breather with a filtration rating (*micron rating*) that is equivalent to or finer than your finest system filter.
- 2) Breathers do get clogged over time. HYDAC recommends the following change-out schedules:
 - For breathers without pressure gauges**
 - Change your breather annually or with every service interval
 - For breathers with pressure gauges**
 - Change your breathers at a 3 psi pressure drop, at 7 psi pressure drop the pump can cavitate

It cost 10X as much to REMOVE a particle from your system, as it does to EXCLUDE it.



HYDAC High Quality Breathers

HYDAC Breathers use HIGH quality filtration.

- For 3µm breathers: $d99.85 = 3 \mu\text{m}$
 - For 10µm breathers: $d100 = 10 \mu\text{m}$
- The d100 rating means that 100% of 10 µm particles are captured by the breather during a standard ISO single pass test.

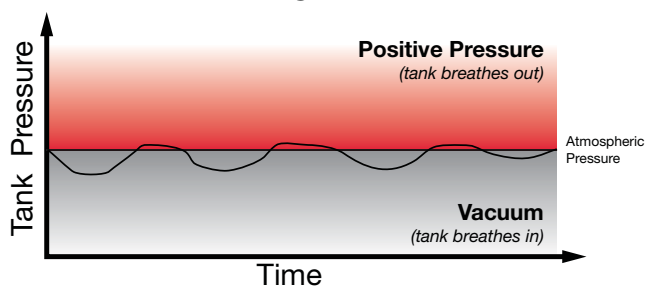
Standard elements are made of phenolic resin impregnated paper, which provides resistance to moisture, ensuring proper filtration over the operational service life of your breather.

Pressurized Breathers

The use of pressurized breathers adds certain benefits:

- Provides additional protection from moisture which can condense in your tank, causing oil degradation and tank erosion
- Provides positive pressure to pump suction line
- Increased breather service life due to less breathing
- Performs anti-splash function

Tank Pressure Using a Standard Breather

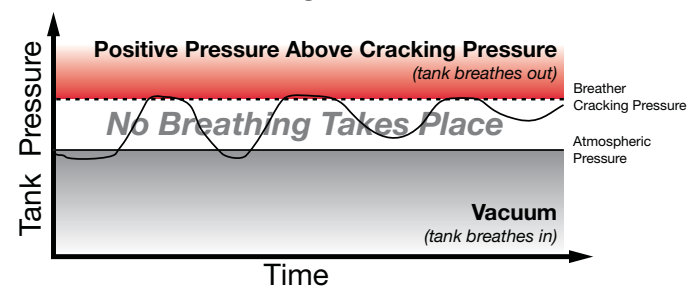


When fluid level rises, the tank pressure rises and air is immediately expelled through the breather whenever positive pressure exists.

When fluid level lowers, the tank pressure drops and air is immediately drawn in through the breather whenever a vacuum exists.

Air is constantly moving through the breather in order to maintain atmospheric pressure.

Tank Pressure Using a Pressurized Breather



When fluid level rises, the existing air volume is compressed, and no air is expelled until the cracking pressure is surpassed.

When fluid level lowers, the tank pressure drops until a vacuum is created at which point, air will be drawn in through the breather.

Air is only expelled when the tank pressure is above the cracking pressure, and air is only drawn in below atmospheric pressure. The majority of the operational cycle will take place between these two conditions.

Note: Low temperature options available. All breathers are available with special options and materials. Please contact the factory.