

Well Flow Management

Production Systems

ExHg™ Mercury Removal System for Onshore Applications

Mercury occurs naturally in oil and gas reservoirs varying in concentration depending on reservoir geology. Mercury is a corrosive and toxic compound that causes serious health hazards even in trace amounts and can cause significant damage to production facilities if not managed. Environmental regulations within local operating areas also stipulate stringent regulations for the mercury content in emissions.

The Expro ExHg™ Mercury Removal Package is a mobile or portable skid mounted unit that is designed to reduce the mercury content in the feed gas to an acceptable limit thereby reducing the risk to plant, people, and environment. The mercury removal unit also helps in avoiding any costly downtime and production shutdowns.

Unique to the ExHg™ is its readiness to accept wet saturated gas both in water and hydrocarbon liquids.

Expro ExHg™ system provides a customized solution to Client challenges within a single modular mobile unit with a wide range of operating parameters. Designed with safety and ease of access to any part of the process unit in mind, the ExHg™ is not only a one stop solution to efficiently removing mercury from your gas but is also simple to hook up and operate. Tie in points located at convenient locations allow for quick connection to the unit, which enables for quick start-up of the unit once on location.

An optional mercury analyzer can be installed on the unit to read the inlet and outlet mercury content so the operator has access to real time online readings and performance of the unit.

Expro has in-house experts who can simulate the process and advise Clients on the best operational parameters of the unit and what specifications can be achieved. We are a one-stop-solution to all your gas processing challenges with global sales & support.

Features and benefits

- Saturated (H₂O & HC) gas
- Lowest residence time, high reactivity and selectivity
- High gas flow & low Inlet Hg (less than 100ug/Nm³) or Vice Versa
- Can easily handle high inlet Hg concentration
- Inbuilt Control & Safety Instrumented System
- Reduced risk of exposure to mercury
- Compliance to local environmental regulations
- Compact design
- Operational flexibility
- Minimal operator intervention
- Multiple ExHg™ packages can be operated in parallel to achieve the required process specifications

Applications

- Oil and Gas processing facilities
- Gas plants with turbo expanders and other sensitive processing equipment

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Specifications

Capacity* MMscfd (Inlet Pressure)	248 (600#)
Pressure rating	Up to 900#
Temperature rating °F (°C)	-49 to 194 (-45 to 90)
Inlet mercury content	Up to 61,100 ng/Nm ³
Outlet mercury content	< 10 ng/Nm ³
Media Type	Non regenerative catalyst
Skid dimensions (L x W x H) ft. (m)	97 x 42 x 41 (29.5 x 12.8 x 12.5)
Weight (dry) lbs (kgs)	374,786 (170,000)

* Flowrate varies based on inlet mercury content - values are indicative. Speak with one of our experts to learn more about your specific application.

The mercury removal mobile unit comprises the following equipment:

- Inlet filter coalescer
- Mercury removal bed
- Dust filter

Process description

- The feed gas first flows into the inlet filter coalescer where the bulk of the free liquids are removed. This is followed by the fine liquid droplet removal in the coalescing section.
- The liquid free, mercury laden gas then flows through the fixed absorbent bed of the mercury removal vessel where the mercury is removed by an irreversible reaction with the absorbent media (proprietary metal sulphides) to form mercury sulphide (HgS) which binds within the absorbent structure.
- Finally, the gas passes through a dust filter which removes any solids and particulates (>5µg) to the protect downstream equipment.

