



CRYSTAL TCS

Technological Experience with Human Touch

Title: Ejector Vapour Recovery Unit

In the Oil and Gas Industry, product vapours are produced by the following processes:

- Flashing from High Pressures to Low Pressures
- Gas-Liquid Separation in Separators
- Evaporation from Storage tanks

Traditionally the standard practice for disposal of these vapours was venting to the atmosphere. But venting to the Atmosphere leads to:

- **Loss of valuable products:**
 - The generated vapours consist of the lighter molecular fractions present in the liquid. The vapours, if recovered can convert into usable product which helps boost the revenue from the facility.
For Eg: In crude Oil processing, methane is the dominant constituent in the vapours. Methane is an excellent fuel and has a very high heating value.
The recovered Methane is injected into the supply pipelines which in turn boosts production.
- **VOC and HAP Emissions:**
 - Generated Vapours in most applications come under the category of Volatile Organic Compounds (VOC). Some of these compounds are known to affect air quality and create Air pollution and are classified as Hazardous Air Pollutants (HAP)
 - Recovery of these vapours eliminates letting of to the atmosphere thus stopping Air pollution.

Over the years, due to increased awareness regarding the loss of valuable product and stringent emission norms, recovery of the produced vapours has been made mandatory.

Ejectors in Vapour Recovery Systems:

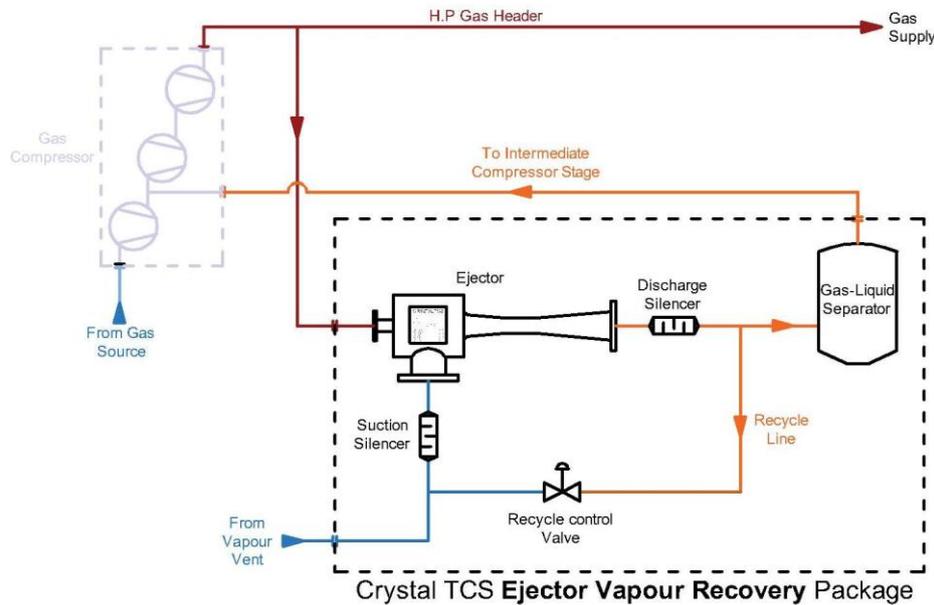
- Ejector vapour recovery systems operate in a form of a closed loop system.
- They suck the vapours and discharge them into the Intermediate stages of the Gas compressors. The Gas compressors further compress the vapour mixture and discharge to the gas supply lines.
- The high pressure gas stream from the Gas Compressor is used as an energy source by the Ejector.
- As the high pressure gas passes through the ejector it expands and forms a low pressure region which sucks the vapours.
- The vapours mix with the motive gas and mixture is then compressed upto discharge pressure.
- A recycle line is used between Ejector Discharge and Suction points to control the suction pressure.

Ejector Vapour Recovery Systems are relatively new to this field, but are rapidly gaining acceptance over conventional recovery systems.

CRYSTAL TCS Pvt Ltd

We at Crystal TCS have performed intensive research and development for coming up with Ejector Solutions for Vapour Recovery Units.

Typical package from Crystal TCS for Vapour Recovery in an Oil Extraction facility.



Salient features of our Ejector Vapour Recovery Unit:

- ✓ Our state of art Process Gas Ejectors ensure reliable compression with minimum Motive Requirement.
- ✓ Every system is custom designed, hence matching the available motive and discharge pressures can be easily accomplished.
- ✓ More than 95% of the vapour can be recovered and varying nature of vapour load is easily accommodated.
- ✓ Reliability of the highest order due to the lack of any moving parts inside the Ejector.
- ✓ The system is delivered as a skid based package with fully automated operation.
- ✓ Silent Operation.
- ✓ Compliance with International Standards for Design and Construction. (ASME , PED)
- ✓ Ejectors can be supplied with U-Stamp Certification, if required.

Typical Applications:

- Methane Recovery in Oil Extraction Rigs, Petroleum Refineries.
- Vapour Recovery for Onshore LNG Production
- Vapour Recovery for Floating Liquefied Natural Gas (FLNG) vessels.