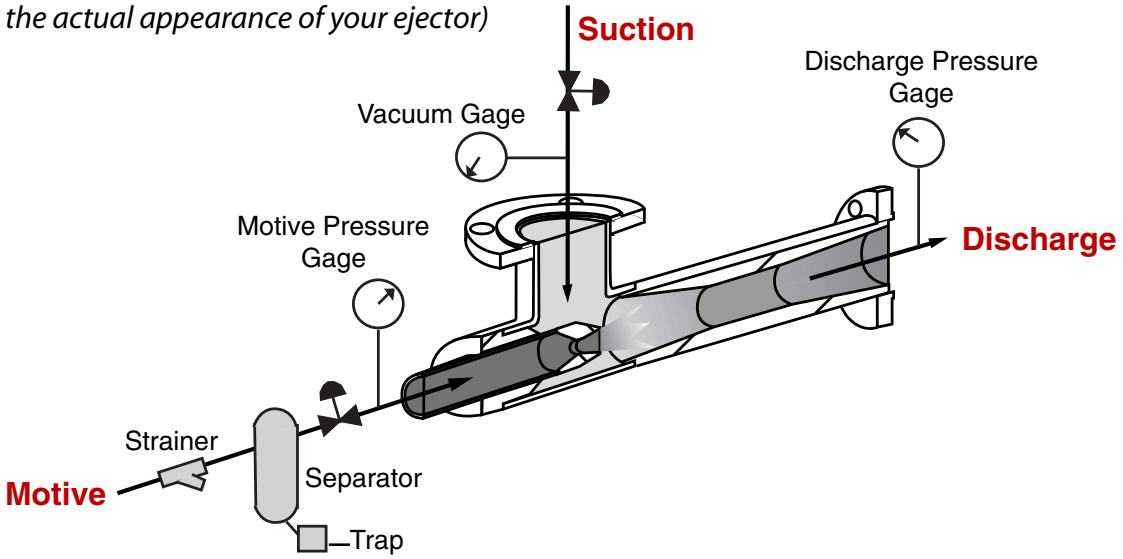
Fox Thermocompressors

Series 245-CPR Thermocompressor

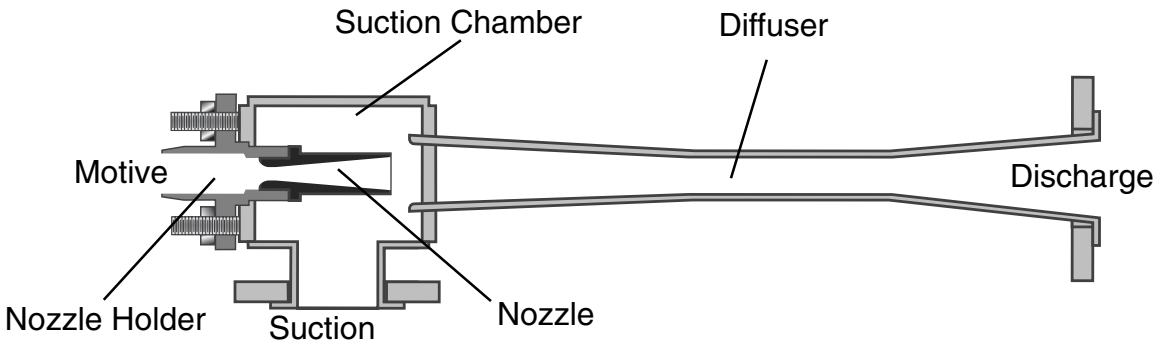
Used to Compress Steam to a Higher Pressure

Recommended Installation

(Diagram/illustration is for explanation purposes only and is not intended to represent the actual appearance of your ejector)



Ejector Representational Cross Section



General Notes on Installation

- ***Ejector Orientation***: The ejector can be installed and operated in any position
- ***Mating piping*** : Use equal or larger line sizes for each ejector connection. Using smaller sizes will lead to poor performance or the ejector not working at all.

Motive Steam Line :

- Ejector performance is based on motive steam pressure measured **at** the ejector, not at the steam supply location (header, compressor, etc.).
- Install a steam strainer/filter, separator, and trap to ensure delivery of clean and dry steam to the ejector.
- Steam quality should be 97% or better. Wet steam ***will*** cause major problems and nozzle erosion.
- If the ejector is designed for saturated steam, up to 50°F of superheat is tolerable.
- If the steam is coming from a horizontal header, take the ejector's steam from the top of the header. This will avoid blowing condensate through the ejector nozzle.

F O X

Fox Venturi Ejectors

from Fox Valve

Dover NJ USA

www.foxvalve.com

Suction Line:

- Minimize pressure losses by installing ejector as close to suction source as possible.
- Install an isolation valve on the suction line to prevent back-flow during start-up or vacuum failure during ejector shut down.

Discharge Line Installation

- Ejector discharge pressure is the single most important factor affecting ejector performance. Increasing the discharge pressure above design conditions will result in deterioration of ejector performance. Discharge line size should the same or larger than the ejector discharge connection. Avoid unnecessary restrictions, valves, filters, etc.

Operation of Thermocompressors

Start Up

- Open discharge line valve/restrictions. Start the motive steam supply and regulate the pressure to the **design** pressure. (Motive pressure higher than design point will ***degrade***, not improve, ejector performance). Open suction valve(s) to allow process gases into ejector. The ejector should now perform as designed.

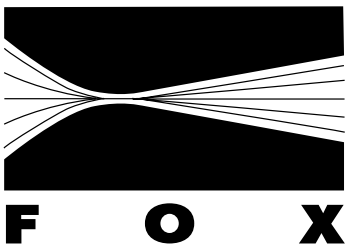
Maintenance and Troubleshooting

Fox Thermocompressors should be able to operate for long periods of time without maintenance. Problems (i.e. loss of vacuum) usually arise due to:

- ***Ejector operation outside of initial design conditions:*** Call Fox
- ***Air leakage:*** Vacuum may not be maintained because air is leaking either into the process or ejector. Check all seals, flanges, and piping on the vacuum side of your process.
- ***Wear on the motive nozzle:*** If the motive nozzle shows any signs of wear or erosion, it needs to be replaced. The nozzle should be checked when neighboring equipment is inspected, or whenever performance or vacuum problems occur.
- ***Scale build up in the diffuser section of the ejector:*** Depending on the degree of build up this will produce instability and poor ejector performance.

Effect of Process Variables on 245-CPR Ejector Operation

- ***Effect of Motive Pressure:*** Using motive pressure below the design pressure will result in an abrupt loss of vacuum and suction capacity. Gradually increasing the motive pressure above the design pressure will result in gradual loss of capacity.
- ***Effect of Discharge Pressure:*** Increasing the discharge pressure will result in abrupt loss of vacuum and suction capacity. Gradually reducing the discharge pressure below the design pressure will result in gradual loss of capacity.
- ***Effect of Suction Load Changes (ie. suction gas temperature, MW, flow rate, pressure)*** Ejectors operate on a performance curve much like a pump. They will create either deep vacuum and low flow, or shallow vacuum with high flow. Increasing the temperature will reduce the suction capacity. Increasing the suction gas molecular weight will result in an increase in suction capacity. The term 'suction capacity' refers to the suction mass flow rate.



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