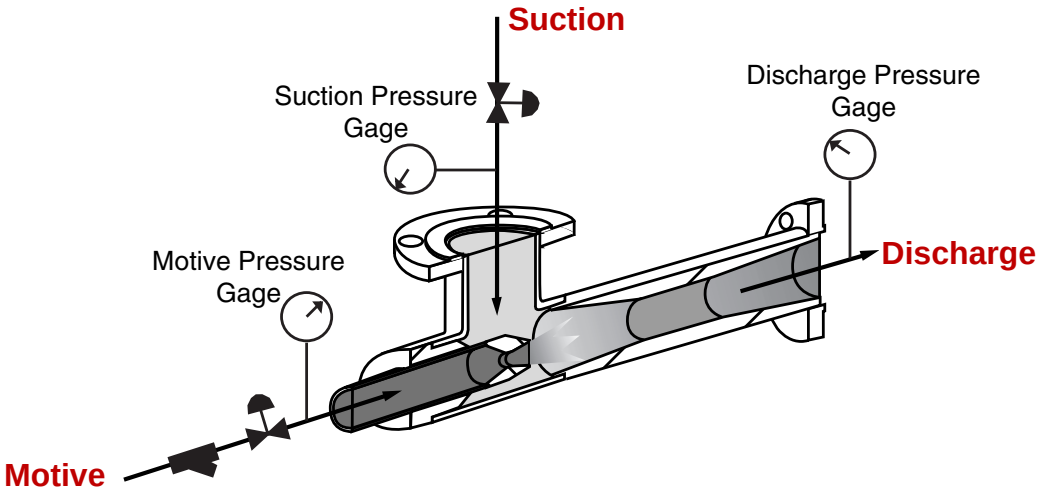
Fox Gas Jet Ejectors
for use with Steam, Air Nat Gas, Etc.

Used for Vacuum or to Compress Gases

Recommended Installation

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



General Notes on Installation

- ***Ejector Orientation***: This ejector can be installed and operated in any position - horizontal or vertical
- ***Mating piping*** : All mating pipelines must be the same size or larger than the ejector's motive, suction, and discharge connections. Motive air lines should be oversized to avoid ΔP between air supply and reduced immediately at ejector nozzle. Discharge piping can never be reduced below ejector discharge outlet.

Motive Gas Line :

- Ejector performance is based on motive gas pressure as measured **at** the ejector, not at your gas supply location (header, compressor, etc.). Pressure losses between gas supply header and ejector must be minimized. The motive gas connection does not indicate a prudent selection for line size between the ejector and the gas supply source/header.
- Use dry and oil-free motive gas to prevent motive nozzle wear.
- For steam applications: Install a strainer/filter to prevent scale deposits and debris from entering the motive nozzle and possibly causing clogs or wear.

Suction Line:

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

F O X

Fox Venturi Ejectors
from Fox Valve
Dover NJ USA
www.foxvalve.com
email: info@foxvalve.com

Discharge Line Installation

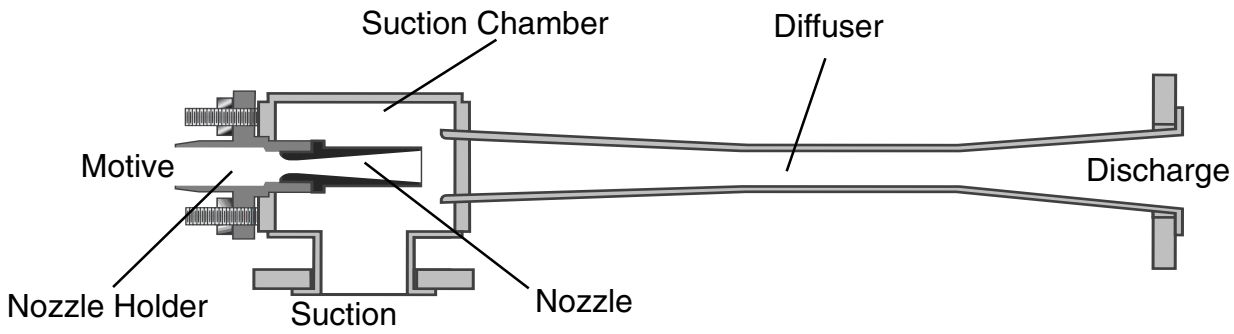
- Minimizing ejector discharge pressure is the single most important factor affecting ejector performance. Discharge pressure must never be higher than that designed for. Discharge line size can never be reduced from ejector outlet connection. Avoid unnecessary restrictions, valves, filters, etc.

Operation of Air Ejectors/Gas Jet Ejectors

Start Up

- Open discharge line valve if applicable. Start the motive gas supply and regulate motive pressure to design pressure. (Motive pressure higher than design point will *degrade*, not improve, ejector performance). Open suction valve(s) to allow process gases into ejector

Ejector Representational Cross Section



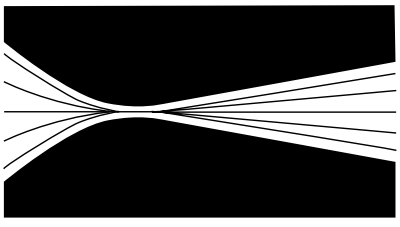
Maintenance and Troubleshooting

Fox ejectors should be able to operate without maintenance. Problems 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 ejector related equipment is down, 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 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 result in a decrease in suction capacity. Increasing the suction gas molecular weight will result in an increase in suction capacity. The term 'suction capacity' refers to the mass flow rate.



Fox Venturi Ejectors
from Fox Valve
Dover NJ USA
www.foxvalve.com
email: info@foxvalve.com