Tech Sheet #103
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EJECTOR DISCHARGE PRESSURE

The anticipated maximum discharge pressure an ejector will see is critical to the design of an ejector; therefore, users must carefully analyze the discharge pressure and provide pressure at or below this information to the ejector manufacturer upfront. The user must keep the discharge pressure below the design discharge pressure of the ejector for the ejector to perform satisfactorily.

The effect of discharge pressure depends on whether the ejector is designed as a critical or non-critical compression ejector. Critical compression occurs when the ratio of the discharge pressure divided by the suction pressure (in absolute terms) is approximately two for steam.

Discharge pressures below the design discharge pressure on a critical compression ejector will not provide increased performance. Lowering the discharge pressure below the design discharge pressure on a non-critical compression ejector may provide more suction capacity or lower the suction pressure.

Discharge pressures above the design discharge pressure will cause sudden and dramatic loss of vacuum on a critical compression ejector. With this, conditions know as "backfiring" or "broken" change to occur, which causes the flow to cyclically alternate between the normal flow direction, from suction to discharge, to reverse flow, from discharge to suction. The user's process or product can be contaminated when this occurs. For a non-critical compression ejector, discharge pressures above the design discharge pressure will typically shift the suction pressure versus suction flow curve upward; the suction pressure will increase correspondingly to the increase in discharge pressure.

For further information on a related topic, see HEI Tech Sheet 104, *Ejector Throttling Questions*.

This Tech Sheet was developed by the members of the Heat Exchange Institute's (HEI) Vacuum Technology Section. HEI is a trade association comprising the leading manufacturers of heat exchange and vacuum equipment. HEI Tech Sheets are information tools and should not be used as substitutes for instructions from individual manufacturers. Always consult with individual manufacturers for specific instructions regarding their equipment.