Tech Sheet #107
Heat Exchange Institute
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Frequently Asked Questions for Vacuum Systems, Liquid Ring Pumps, and Hybrid Systems

Q. *I installed a surplus ejector in our system as a replacement. Now the system works worse than before. Why?*

A. Two ejectors may be identical in appearance and size; however, the ejectors could have entirely different internals and could be designed for different applications. It may be possible to contact the Original Equipment Manufacturer if you have a serial number or drawing number to obtain the original design parameters for your ejector.

Q. *For a multi-stage system, does it matter if the first stage performance curve is expressed in equivalent water vapor load?*

A. No. Performance curves for any single ejector can be plotted in dry air equivalent or water vapor equivalent. Multiple stage systems, however, are designed for a maximum non condensable flow rate. Flow rates greater than this maximum will result in instability or loss of vacuum.

Q. *My performance curve shows equivalent water vapor load, but I have a mixture of vapors as load. How do I interpret the curve*?

A. This topic is covered in detail in the HEI *Standards for Steam Jet Vacuum Systems*. Refer to section 5.3 of the standards.

Q. *Why does my multi-stage condensing system achieve a better vacuum level in the winter?*

A. Colder cooling water temperature can reduce vapor load in the main ejector system. Decreased loading to the vacuum system will also decrease absolute operating pressure.

Q. Why doesn't my vacuum condenser drain properly?

A. Refer to HEI Tech Sheet #130.

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.

Q. *What Information do I need to do an accurate performance evaluation when troubleshooting?*

A. When troubleshooting systems, be certain you have the following information before proceeding to evaluate systems on your own or with the assistance of the manufacturer:

- Suction temperature of the system
- Motive steam temperature
- Cooling water flow rate
- Inter stage temperatures
- Suction pressure of the system
- Motive steam pressure
- Cooling water temperature
- Inter stage pressures
- Cooling water temperature rise
- Cooling water pressure drop

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