Tech Sheet #104
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EJECTOR THROTTLING

Users sometimes inquire whether it is possible to throttle motive steam to achieve different vacuum levels. Whether or not an ejector can be throttled in order to achieve different vacuum levels depends upon the ejector's operating compression ratio; i.e. absolute discharge pressure/absolute suction pressure.

If an ejector's design compression ratio is greater than the critical pressure ratio for the media handled (approximately 2:1 for steam) then the ejector is considered non-throttling. In this case an ejector requires a minimum motive pressure in order to operate as designed. The ejector essentially acts as an "on-off" device, meaning that if motive pressure is throttled, the ejectors suction pressure will rise sharply and may become unstable.

Conversely, if an ejector's design compression ratio is less than the critical pressure ratio for the media handled, then the ejector will exhibit a throttling characteristic. In this case, motive steam pressure can be throttled in order to achieve different vacuum levels.

In some cases, a non-throttling ejector may exhibit throttling characteristics when certain operating parameters are varied. An example of this is when discharge pressure is reduced on a non-throttling ejector. Since the required minimum motive pressure is proportional to relatively small changes in discharge pressure, the motive pressure may be reduced, or throttled, proportionally to a relatively small decrease in discharge pressure.

For further information on a related topic, see HEI Tech Sheet 103, *Ejector Discharge Pressure*.