Low Suction Pressure

At suction pressures below 10 psig it is difficult for the end user to predict what the actual supply pressure will be within 1 to 2 psi and/or for the packager to predict pressure drops within a fraction of a psi. These variations in inlet pressure and pressure drops can result in a significant change in horsepower and flow, either upward or downward, depending upon the actual suction pressure.

Ariel recommends that compressor cylinders in this application be oversized between 5 to 10% and equipped with variable volume clearance pockets or high clearance valve assemblies to produce the desired flow. The effect of the actual suction pressure being 1 to 2 psi higher or lower should be considered when selecting the driver horsepower rating.

Vacuum Suction Pressure

Vacuum suction pressures can be applied to Ariel cylinders. The sensitivity of changes in suction pressure should be reviewed, as in the above Low Suction Pressure paragraph. Additionally, the mean cylinder pressure should be maintained above atmospheric pressure. If the mean cylinder pressure is less than 5 to 10 psig, air may be pulled into the cylinder and into the gas stream through the packing cases. If operating below 5 to 10 psig mean cylinder pressure, a purged packing can be applied, using sweet gas for the purge gas. This provides process or fuel gas to be drawn into the cylinder across the packing, rather than air. Consider installing an oxygen sensor downstream of any negative suction pressure equipment.