TECH TIP

VACUUM TERMINOLOGY

Vacuum pumps have several terms to describe performance, which may be confusing.

Vacuum is a term used to express any pressure lower than atmospheric pressure. Vacuum is commonly referred to as “inches of vacuum.” The correct term, however, is “inches of mercury” (in/Hg). Maximum vacuum is 29.92 in/Hg at sea level.

CFM stands for cubic feet (of air or vapor) per minute. This relates to how fast the pump pulls a vacuum. The higher the CFM number, the faster it pulls.

Out-Gassing describes A/C system oil slowly releasing refrigerant vapor. System evacuation requires adequate time (45 to 60 minutes) to allow for out-gassing.

Two-Stage Pump essentially means two pumps in line. The first pump pulls on the second pump, which pulls on the system. This arrangement provides a faster and deeper pull than a single stage pump.

Micron is a term for a metric measurement of length. It also describes a metric measurement of pressure/vacuum. Microns represent the amount (length) of mercury in a glass tube (barometer) when measuring pressure/vacuum. The closer to 0 microns, the deeper the vacuum. Vacuum from 29 to 30 in/Hg still contains 25,400 microns.

Vacuum pump performance could be described this way:

Imagine a box that is 3’ X 3’ X 3’ filled with soccer balls, baseballs and golf balls. All of these balls represent different size particles of vapor (air, moisture and/or refrigerant). Any vacuum pump capable of pulling at least 29 in/Hg at sea level will be able to remove the larger soccer ball size particles.

- A vacuum pump capable of pulling down to 100 microns can remove the medium baseball size particles.
- A vacuum pump capable of 25 microns will be able to remove the smaller golf ball size particles.

Deeper vacuum and longer evacuation time provides a cleaner system.