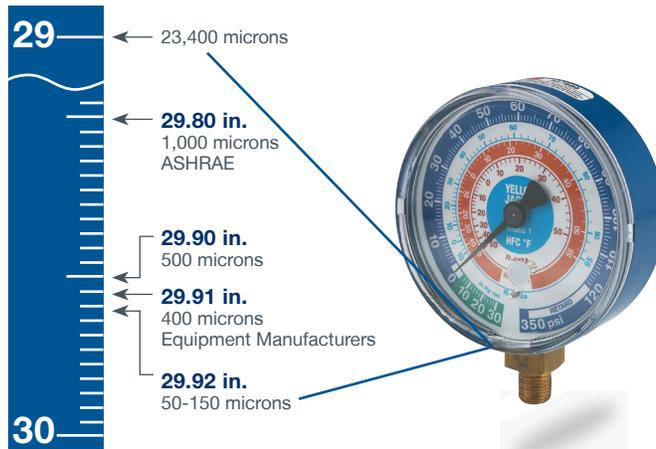


## HOW TO MEASURE AN “ADEQUATE” VACUUM

Many contractors pull the refrigerant out and think the work is done. In reality, when you get to 29 inches of vacuum (the green zone on your gauge), you are only half finished. Once the recovery machine has done its work, it's time to finish off the job with a vacuum pump.

### Standard Lo-Side Gauge

Shows vacuum in inches. A  $\pm 1\%$  gauge would be accurate to  $\pm 7600$  microns when calibrated at a full vacuum (which is generally not the case with this type of gauge).



*Only an electronic vacuum gauge can precisely measure the level at which non-condensable gas is removed from system.*

## Why a Vacuum Pump?

ASHRAE recommends evacuation to below 1000 microns for moisture removal and below 500 microns after replacing a compressor. Some equipment manufacturers call for evacuation to 400 microns to ensure that harmful water vapor is removed from the system.

When you have water vapor in your system, the risk of icing up capillary tubing and expansion valves becomes much higher. A high quality vacuum pump will be able to take you down to 200-500 microns. With the system almost completely free from water vapor, you are ready to put the refrigerant back in the system. A thorough approach to evacuation ensures longer equipment life and reduced risk of problems.

### Use a Vacuum Gauge to Read Vacuum Down to 25 Microns

1000 microns equal only 0.039 inches of mercury, a measurement that cannot be made with a mechanical gauge, or determined by evacuation time or the sound of the pump. A popular tool that can measure vacuum at evacuation levels below 1000 microns is an electronic vacuum gauge.

The best place to measure vacuum is at the system, not at the pump. With a combination vacuum/charging valve, you can attach the electronic vacuum gauge directly to the system and isolate it from the pump, hoses and manifold for a true indication of the vacuum in the system. With a digital vacuum gauge, you can see the last evidence of moisture being removed and witness that the system has been dried out.

## FREQUENTLY ASKED QUESTIONS

### 1. How can I speed up evacuation?

A. Select the right pump cfm. The following guidelines are for domestic through commercial applications.

System size (tons)	Pump cfm
10-30	4.0
30-45	6.0
40-50	7.0
45-60	8.0
60 and above	11.0

B. Use clean vacuum pump oil. Milky oil is water saturated and limits pump efficiency.

C. Remove valve cores from both high and low fittings with a vacuum/charge valve tool to reduce time through this orifice by at least 20 percent.

D. Evacuate both hi- and lo-sides at the same time.  
Use short, 3/8" diameter and larger hoses.

E. SUPER EVAC™ manifolds can reduce evacuation time by over 50-60 percent.

F. Use a heat gun.

### 2. Does extension cord length affect performance?

To ensure proper starting and running performance from your YELLOW JACKET pump, always use a minimum 12 gauge extension cord for lengths up to 100 feet. Extension cords over 100 feet are not recommended.