

Contractor Service Tips



Pump Down Systems

Q: What is a 'pump down' system and when should it be used?

A pump-down system consists of a normally closed solenoid valve installed in the liquid line and a low-pressure control that senses suction pressure. The system operation is as follows:

- A thermostat is wired to the liquid line solenoid valve. On a call for cooling, the thermostat contacts close. This causes the solenoid coil to be energized, opening the valve. Liquid refrigerant flows into the evaporator and the suction pressure rises above the low-pressure control 'set-point.' The contacts on the low pressure control close and the compressor begins to run.
- When the thermostat is satisfied, its contacts open, causing the solenoid valve to close. This stops refrigerant flow into the evaporator. As the compressor continues to run, refrigerant is pumped out of the evaporator coil and suction pressure falls.

When the suction pressure reaches the 'cut-out' setting on the low-pressure control its contacts open, stopping the compressor. This removes all refrigerant from the low side of the system during the 'off-cycle.'

Q: What is the advantage of the pump down system?

The advantage of a pump-down system is that all the liquid refrigerant is stored in the receiver and condenser when the compressor is not operating. This prevents liquid migrating to the compressor crankcase during the off cycle and the ensuing possibility of liquid slugging at compressor start-up.