

## **Rawal APR Refrigeration Device**



### **What is it?**

The Rawal APR is a capacity control device that can be added to a R-22 or R-410a Dx refrigeration system. The Rawal APR allows the Dx system to operate at lower than full load with no changes to the evaporator's apparatus dew point conditions.

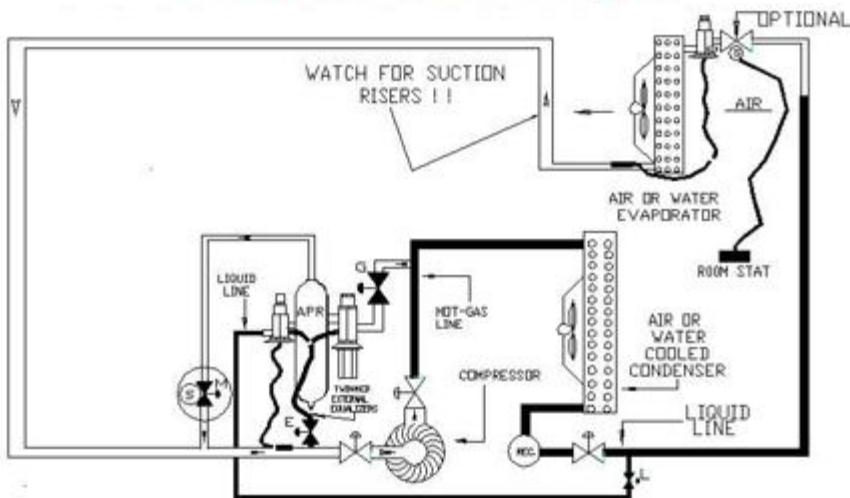
This provides three benefits: First, this creates a smooth, fully modulating unloader (capacity control). Secondly, this creates a very effective dehumidifier by allowing for the evaporator to continue to removing moisture (at low load) without overcooling the space being conditioned (no re-heat necessary). Lastly, the common threat of freezing the evaporator coil (at low load) is eliminated.

### **How does it work?**

The device is piped per the diagram on the next page. Adjustment (at start up) is made to a hot gas valve based on a desired suction pressure setpoint.

As the suction pressure (a.k.a., load) drops below the setpoint, the hot gas valve opens to compensate. At the same time, a properly sized (matched) thermo expansion valve (TXV) monitors the compressor return line conditions and cools the return gas as necessary to protect the compressor.

### APR Control Installation Diagram



A major concern for any refrigeration system is the proper return of oil to the compressor, during low load operation. Splits systems are far-more prone to having problems with this issue. Therefore, US Airconditioning recommends that all consultants and contractor contact their US Airconditioning representative to discuss their application of the Rawal APR prior to purchasing the device.

As a rule, never select an APR device for more than 50% of the system capacity on a split refrigeration system. Verify that the refrigerant lines have been properly, not over-sized.

If the APR valve is over-sized, oil return problems may result. Please contact your US Airconditioning representative for assistance when selecting an APR control.