

## R-11 Vapor Recovery



### Challenge

R11 Vapor must be recovered to meet environmental legislation. To illustrate the need to recover both R11 liquid and vapor, let's take the example of a 350 ton chiller which has a charge of about 600 lbs. of R11. The chiller which is about 15 ft. long has a combined evaporator/condenser internal volume of about 300 cubic feet. From standard refrigerant tables we found that at 0 psig R11 vapors weigh .364 lbs./ cu. ft. After removing all the R11 liquid, the 350 ton chiller which has a volume of 300 cu. ft., will hold about 109 lbs. of vapor at 0 psig. About 500 lbs. of R11 should have been removed in liquid form.

### Solution

Liquid and vapor recovery units will help you recover more than 95% of the R11 charge from a chiller and help you meet the requirements of the Clean air Act which allows only for "de minimus" release.

### Results

If we recover to a vacuum of 22" Hg about 30 lbs. of vapor will remain which is 5% of the total charge. At a vacuum level of 26" Hg, only 18 lbs. of vapor would be left which is 3% of the total charge.