

# VR11 Recovery System



VR11 low pressure recovery system  
belt driven vacuum pump



## Features and benefits

- Designed for complete removal of R11, R123 and R113
- Easily transportable
- Can be used for both liquid and vapor recovery
- Helps recover the refrigerant charge from a chiller to meet the requirements of the Clean Air Act
- Evacuates the chiller to 29" Hg vacuum using its 1 H.P. beltdriven vacuum pump rated at 40 microns and 10.6 cfm

## Applications

- Low pressure chillers
- Transportable by van or truck
- Easily movable within equipment and mechanical rooms

## Standard accessories included with the unit

- 1 - 15 foot 3/4" hose
- 2 - 10 foot 3/4" hoses
- 1 - 6 foot 1/4" hose
- 1 - Relief valve, set at 20 psig to purge non-condensables, if required
- 1 - C165 Filter Drier
- Order recovery cylinder separately (TNK00893, N250T or TNK00894, N665T)

## Specifications

### Capacity

- Vapor: 0.86 lbs./min
- Liquid: Push/Pull 84 lbs./min
- Vacuum: 29"Hg

**Power:** 1 H.P., 18.50A, 115V, 60Hz, 1PH

**Unit Weight:** 246 lbs.

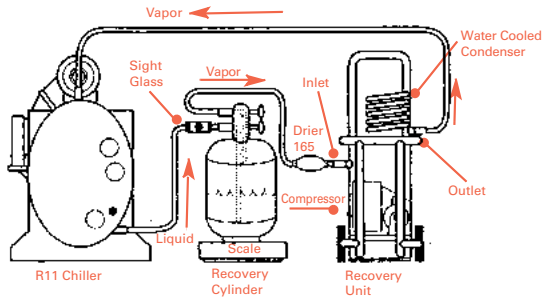
**Shipping Weight:** 296 lbs.

**Dimensions:** 26"Wx28Lx45"H

**Available:** 1 H.P., 6A, 220V, 50Hz, 1PH, VR11E

**Connections:** 5/8" MFL

## Liquid Recovery Diagram #1

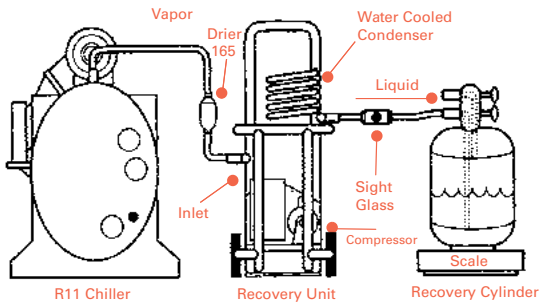


## Liquid recovery

Liquid recovery is done by using the push-pull method as shown in Diagram #1. A lower pressure is created in the recovery cylinder which forces the liquid refrigerant from the chiller into the cylinder.

The pumping rate will increase if the chiller pressure is raised to 5 to 10 psig by raising the water temperature. The rate will also improve if a 3/4" or 1" connection is used at the chiller.

## Vapor Recovery Diagram #2



Pounds of vapor left in a 350 ton chiller at various vacuum levels (Diagram)

The VR11 includes one 50 pound recovery cylinder NC50U with a floattype shut-off switch. This switch will shut off the VR11 when the recovery cylinder is 80% full.

Additional, larger tanks, NRP model TNK00893 (N250T), TNK00894 (N665T) etc. can be purchased separately if required.

## Vapor recovery

Once all the liquid has been recovered, the remaining vapor can be extracted with the recovery unit as shown in Diagram #2. The VR11 utilizes a water cooled condenser which requires approximately 3 gpm of water between 40°F and 75°F.

As with liquid recovery, the recovery time is improved if the connections at the chiller are changed to 3/4" or 1".

R11 vapor must also be recovered to meet EPA requirements.

To illustrate the need to recover both liquid and vapor, take an example of a 350 ton chiller which has a charge of about 600 pounds of R11.

The chiller, which is about 15 feet long, has a combined evaporator/ condenser volume of about 300 cubic feet. From standard refrigerant tables, 0 psig R11 vapor weighs .364 lbs/ft<sup>3</sup>. After removing all the R11 liquid (about 500 lbs.), the chiller will hold approximately 109 pounds of vapor at 0 psig. Assuming recovery to the VR11 capacity of 29" Hg vacuum, approximately 5 pounds of vapor will remain. This is less than 1% of the total charge, which meets EPA requirements.

## Ordering information

ServiceFirst P/N	Vendor P/N	Description
TOL02836	VR11	VR11 Low Pressure Recovery System (without tank)
TNK00893	N250T Tank	Tank
TNK00894	N665T Tank	Tank
KIT13757*	VR11REGKIT	Regulator Kit
KIT13758*	VR11HOSEKIT	Hose Kit

\*For the VR11 to function properly, a regulator kit and hose kit are required (purchased as separate items).



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