



# Refrigerant Guide

## Refrigerant Oil Retained in System Components

The amount of oil typically retained in system components is shown here. The amount will vary with component size and design.

Component	Typical Amount of Oil	
Evaporator	2.0 fl.oz.	60 cc
Condenser	1.0 fl.oz.	30 cc
Receiver Drier	0.5 fl.oz.	15 cc
Accumulator	2.0 fl.oz.	60 cc

## Refrigerant Oil Amount Based on Charge Quantity (TXV System)

AC System with *less than* 3.5 pounds of R134a

**Five cylinders or less:**  $[ \text{R134a ( lbs )} \times 2 ] + 1.35 = \text{Total Oil Charge ( oz )}$

**Seven cylinders or more:**  $[ \text{R134a ( lbs )} \times 1.07 ] + 2.4 = \text{Total Oil Charge ( oz )}$

AC System with *more than* 3.5 pounds of R134a

*On Vehicle Testing Recommended*

## Conversion Factors

Pounds to ounces:  $( \text{ lb } ) \times 16 = ( \text{ oz } )$

Ounces to cubic centimetres:  $( \text{ oz } ) \times 29.6 = ( \text{ cc } )$

# Refrigerant charge amount per foot of hose length change for TXV system (pounds)

Hose size and Location	Charge Factor	Refrigerant Hose Length in feet (results in decimal pounds rounded to the nearest hundredth)										
		ft → 1'	2'	3'	4'	5'	6'	7'	8'	9'	10'	
<b>High Pressure Vapor</b>												
#8 ( 1 <sup>3</sup> / <sub>32</sub> " ID )	0.0043	0.00	0.01	0.01	0.02	0.02	0.03	0.03	0.03	0.04	0.04	
#10 ( 1/2" ID )	0.0065	0.01	0.01	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	
<b>High Pressure Liquid</b>												
#6 ( 5/16" ID )	0.0346	0.03	0.07	0.10	0.14	0.17	0.21	0.24	0.28	0.31	0.35	
#8 ( 1 <sup>3</sup> / <sub>32</sub> " ID )	0.0584	0.06	0.12	0.18	0.23	0.29	0.35	0.41	0.47	0.53	0.58	
<b>Low Pressure Vapor</b>												
#10 ( 1/2" ID )	0.0011	0.001	0.002	0.003	0.004	0.005	0.007	0.008	0.009	0.010	0.011	
#12 ( 5/8" ID )	0.0017	0.002	0.003	0.005	0.007	0.009	0.010	0.012	0.014	0.015	0.017	
#14 ( 3/4" ID )	0.0025	0.002	0.005	0.007	0.010	0.012	0.015	0.017	0.020	0.022	0.025	
#16 ( 7/8" ID )	0.0034	0.003	0.007	0.010	0.013	0.017	0.020	0.024	0.027	0.030	0.034	

R134a amount in pounds

**Formula for R134a per Hose Length:** Hose length ( ft ) \* Charge Factor = R134a ( lb )

Vapor line changes have minimal impact on refrigerant charge

Liquid line changes have greater impact on charge ( rule of thumb: 1/2 oz per foot of #6 liquid line )

Condenser changes can have a significant impact on system charge



Copyright ©2009 Red Dot Corporation