



**Application Engineering Bulletin
AE-1281-R3**

Revised December, 1994

**OIL CHARGES FOR
COPELAMETIC COMPRESSORS**

Copelametic compressors are manufactured with an oil sight glass in the crankcase to observe oil level in the compressor. A Copelametic compressor is considered to be properly charged with oil if the oil level in the sight glass is at the level indicated in Table 1. It is important to always check oil level while the compressor is running. This is the most reliable method to ensure proper lubrication during operation. After prolonged off periods, the oil level in a compressor can be misleading due to refrigerant which is dissolved in the oil.

Effective with new and remanufactured compressors produced after November 1987, the factory oil charge will provide the recommended oil level for close-coupled single compressor systems. Some compressor models produced before this date may have oil levels slightly above or below these values due to cumulative minor manufacturing changes or specific customer requests.

Beginning in 1994, all Copeland compressors have the factory oil charge marked on the nameplate. The recharge amount is slightly less since some oil will remain in the compressor when drained. When recharging, reduce the nameplate value by the amount shown in Table 2 so as not to overcharge the compressor.

Some applications, especially those with long lines, may require additional oil to be added in order to maintain the recommended sight glass levels. However, it should be noted that adding too much oil can result in serious damage (broken rods and valves) to the compressor due to slugging of oil in the cylinders, as well as increased oil circulation in the system. On the other hand, in many installations, especially existing systems where a remanufactured compressor is installed, we find that excess oil, which was resident in the system when the replacement compressor was

**Table 1
Recommended Oil Levels for Copelametic Compressors**

Compressor Models	System Type	Oil Level			
		Idle Nom.	Tol.	Running Nom.	Tol.
H, K, E, 3, L (Air Cooled)	All	$\frac{3}{4}$	$+\frac{1}{4}$ -0	$\frac{1}{2}$	$+\frac{1}{4}$ -0
E, N, 3, 2D, M, 9, 3D, 4,6 (Refrigerant Cooled)	Single Compressor Systems	$\frac{3}{4}$	$+0$ $-\frac{1}{4}$	$\frac{1}{2}$	$+0$ $-\frac{1}{4}$
	Multiple Compressor Racks with Oil Equalization Systems	$\frac{1}{2}$	$+\frac{1}{4}$ -0	$\frac{1}{4}$	$+\frac{1}{4}$ -0
8	All	$\frac{1}{2}$	$+0$ $-\frac{1}{8}$	$\frac{1}{4}$	$+0$ $-\frac{1}{8}$

Copeland 4-1281

installed, must be removed to achieve the proper oil level in the compressor.

Note that the direction of rotation of the crankshaft affects the oil level in the sight glass. This is due to splashing of the running gear in the oil. Rotation in one direction pushes oil toward the sight glass while rotation in the other direction pushes oil away from the sight

glass. This normally does not affect compressor operation as long as the oil level is within recommended levels.

The final guidelines in all cases should be to maintain the oil level recommended in Table 1.

**Table 2
Copelametic Oil Adjustments**

<u>MODEL</u>	<u>DIFFERENCE*</u> <u>(FL. OZ.)</u>
H	6
K	2
E	5
N	5
3	5
L	5
2D	8
2D Deep Sump	15
M	10
M Deep Sump	15
9	10
9 Deep Sump	10
3D	10
3D Deep Sump	10
4	10
6	10
8	10

* Difference between factory charge and field recharge. Reduce nameplate value by this amount when recharging in the field.