product bulletin

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COMPRESSOR TEST PRESSURES

Many customers pressure test their units to check for leaks and verify the pressure integrity of their system. Carlyle also pressure tests each of our compressors to verify the above. We would like to point out several important safety procedures which should be observed during this testing:

1. DO NOT EXCEED THE SAFE TEST PRESSURE LIMITS ESTABLISHED BY THE COMPRESSOR OR UNIT MANUFACTURER. In the case of our Carlyle semi-hermetic and open compressors, these values are stamped in the compressor's nameplate. Shown below is a summary of these test pressure values:

COMPRESSOR MODEL	MAXIMUM HIGH SIDE TEST PRESSURE, PSI	MAXIMUM LOW SIDE TEST PRESSURE, PSI
ALL 06D	450	245
ALL 06E	450	315
5F20, 30	450*	205*
5F40, 60	325*	205*
5F40, 46	325*	205*
5F60 thru 126	450	245

*Design pressure for these models

In the above, the high side of the compressor is considered to be the cylinder heads while the low side is the remainder of the compressor.

2. In most systems, it is less costly to use an inert gas such as nitrogen or carbon dioxide to back up the refrigerant vapor pressure. Only about 5 to 10% of the total mixture need be refrigerant vapor for leak detection. Because of the extremely high pressures which are possible with these inert gases though, it is always advisable to use a gage-equipped regulator on the back up gas cylinder.

3. Always install a relief valve in the pressure feed line from the back-up cylinder to limit the system pressure to the safe test pressure limit of the compressor (or lower, if required by the unit manufacturer).

4. When mixing refrigerant and high pressure inert gas, always put the refrigerant in first. Valve off and remove the refrigerant cylinder, then connect and introduce the regulated inert gas. Nitrogen, carbon dioxide, and other full cylinder pressures can rupture a refrigerant cylinder.

5. Never use oxygen as the back-up gas; an explosion may occur if oil is present in the system.

These recommendations should be reviewed by your manufacturing personnel if you pressure test your units at your facility. In addition, these safety precautions should also be incorporated into your unit's Installation and Start-Up Instructions, if they are not already there.