COMPRESSOR STANDARD TEST PROCEDURES

Every compressor Blackmer manufactures is subjected to a series of tests that ensure it is in optimal running condition when it leaves the factory. A summary of these tests are listed below:

Mechanical Run Test with Shop Driver

This test is performed to ensure that the unit is in good running condition and that proper clearances were maintained during assembly. This test is performed on one of the Blackmer standard test stands.

1. After assembly, the compressor is run for a period of time long enough for the compressor temperature to stabilize. This takes only a few minutes. The exact operating temperature is not measured. This is done with open suction and discharge. If the customer representative wishes to witness the compressor running for four hours, this can be arranged.

2. The oil pressure is monitored and adjusted if necessary during this process to ensure proper oil pump operation. The oil pressure is set at 25 psig.

3. The tester checks the general operation of the compressor. Knocks, unusual vibration, excessive heat buildup, or anything else out of the ordinary are signs of something wrong. Vibration and temperature are not measured. The tester's judgement and experience determine whether these are acceptable. Such symptoms are diagnosed as required and corrective actions taken. If a problem occurs, it is corrected and the unit retested until satisfactory results are achieved.

4. An orifice test is performed in which a manifold is attached to the compressor discharge with an orifice. The compressor is operated for a short period of time (usually 1-2 minutes) with this manifold in place. The compressor must build a minimum pressure requirement against this orifice. If it does not, the cause is determined, corrected and the unit is retested until satisfactory results are achieved.

5. The operation of the suction valve unloaders is checked during this test, if applicable.

6. The successful test results will be indicated on the test data sheet.

Nitrogen Leak Test

This test is performed to ensure that there are no leaks in the piping, compressor, or other pressure containing parts of the package.

1. All openings in the completed compressor package are plugged and the unit is pressurized with nitrogen to 350 psig. On water-cooled units the water jackets are tested to 100 psig.

2. All pipe connections, compressor parts, and other pressurized components are checked with a soap solution. Any bubbling that occurs indicates a leak. If a leak is found, the pressure is bled off, the leak repaired, and the unit retested until satisfactory results are achieved.

3. The successful test results will be indicated on the test data sheet.

Hydostatic Test (optional)

This test is done to ensure that the head and cylinder castings are free of porosity.

1. The following parts will be assembled on the hydrostatic test fixture:

   Cylinder
   Head
   Valve Cover Plates (if applicable)
   Valve Hold Down Screws
   Valve Caps
   Necessary O-Rings

2. The assembly will be filled with test fluid and pressurized to 1.5 times the maximum allowable working pressure of the compressor or other specified pressure.

3. This pressure is maintained for 10 minutes. The castings are checked for leaking test fluid. If a part does not pass, it is replaced and the procedure is repeated until satisfactory results are achieved.

4. A hydrostatic test number is assigned and is stamped on both head and cylinder.

5. The hydrostatic test section of the compressor test sheet is filled out for the unit.