

POLICY BULLETIN

Tecumseh Compressor Company
Compressor Group



Tecumseh

**SUBJECT: Hermetic Compressors in
Water Related Applications**

Issued: January 8, 1990

PB-119

PAGE: 1 of 2

REV DATE: 1/15/2007

To prevent serious injury or death from water utilizing system explosions, certain safeguards are necessary. Manufacturers of the following products should focus on the contents of this warning:

1. Water cooling systems, e.g. icemakers and water coolers.
2. Water cooled systems, e.g. some grocery store refrigeration display cases.
3. Water source systems, e.g. heat pumps.

OVER-PRESSURIZATION CONDITION

Water can leak (in certain limited circumstances) into the refrigerant side of the heat exchanger portion of the water-cooled, water cooling, and water source systems. When water enters the system, extremely high temperatures can result from the following:

- a) Water coming in contact with live electrical connections in the compressor causing a short circuit to ground.
- b) Water filling the compressor to the point where the compressor rotor is locked.

OVER-PRESSURIZATION CONSEQUENCES

The resulting heat build-up from either circumstance can cause excessive pressure throughout the entire system. Furthermore, the excessive pressure can in turn lead to an explosion anywhere in the system, including but not limited to an explosion in the system compressor.

The pressure required for an explosion in the compressor exceeds 1000 psig. If such an explosion occurs, the resulting metal projectiles and/or resulting blast effect could cause serious bodily injury or death to anyone in the vicinity.

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OVER-PRESSURIZATION PREVENTION

To prevent this type of over-pressurization in the system, it is necessary to do one or more of the following:

1. To keep water from leaking into the refrigeration system, do not use single-wall construction in the heat exchanger; or
2. Eliminate uncontrolled, electrically live parts, relative to ground, inside the hermetic compressor. This can be accomplished by using a high pressure cut-out which interrupts power to all leads to the compressor; or
3. Use a pressure relief valve.

Refrigeration systems using other electrically conductive heating or cooling media should be similarly evaluated and treated. If you have any questions contact Tecumseh Compressor Company.