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COMPRESSOR SELECTION FOR MOBILE OR TRANSPORT APPLICATIONS

A compressor's basic construction determines the degree of shock or vibration it can tolerate without damage. We have encountered repeated instances of misapplication of Copelaweld compressors on transit applications subject to shock and vibration, with resulting early failure and expensive field retrofit necessary.

Copelametic compressors because of their accessible hermetic construction are mounted solidly within the compressor body, with any resilient mounting provided externally with springs. On transit applications where noise is not critical, Copelametic models can be mounted solidly to a base, and can withstand extreme shock without damage.

Copelaweld compressors are of welded construction, with the motor and compressor body suspended on internal springs. Since welded compressors are primarily designed for residential use, or for application within an occupied space, noise suppression is critical, and the mounting springs are relatively soft to provide good sound and vibration dampening characteristics.

If a Copelaweld compressor is subjected to shock and vibration, the body can move violently within the compressor shell, breaking springs, generating metal fragments, and actually shearing bolts. Under some circumstances, it might be possible that the springs can act as an accelerating force. The shock and vibration can originate from abrupt starts and stops of the vehicle in which the compressor is mounted, from swaying due to loss of stability, or from bumps in the roadway. The potential chance of damage is magnified in direct proportion to the compressor height and weight.

In general, Copelaweld compressors should never be applied on commercial trucks, off road vehicles, or rapid transit vehicles. Smaller horsepower welded compressors have been applied successfully on recreational vehicles where the vehicle's soft springing and the limited hours of usage make the application less severe. Limited usage in yachts in coastal waters has been relatively successful, but off-shore usage in heavy seas should be avoided.

Unfortunately, engineers writing specifications for rapid transit systems may not be aware of the welded compressor's vulnerability, and may look at weight as the only criteria. The equipment manufacturer must be alert to potential problems in mobile applications, and Copelaweld compressors should not be used in such applications without prior approval from the Copeland Application Engineering Department.

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