E.P. Homiek Sheet Metal & HVAC Supply Newsletter

THE DUCT MAN QUARTERLY

May 2024 | HVAC News You Can Use

IMPORTANT HVAC/R LICENSE REMINDER

The deadline for completing the 5-hour continuing education requirement for Licensed Master HVACR Contractor biennial license renewal is June 30, 2024.

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HEATING & A/C EQUIPMENT

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Thru-the Wall Split System Condensing Units with Air Handlers

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Call or visit E.P. Homiek for pricing and details

Replacing a Compressor Without Diagnosing the Root Cause Is Asking for a Repeat Failure

Compressor failure in an HVAC system is seldom due to a defect in the compressor itself. In fact, 90% of compressor failures are the direct result of issues rooted elsewhere in the system. In such cases, installing a new compressor without first identifying and rectifying the root cause will likely lead to the premature failure of the replacement unit as well. A repeat failure is not only an unnecessary expense and major disruption for customers, but it is damaging to the service contractor's reputation, as well.

Loss of lubrication is the primary cause of compressor breakdown, with several potential sources. Improperly sized piping on split systems can trap oil, inhibiting its return to the compressor's crankcase. Suction lines must be appropriately sized - large enough to minimize pressure drop yet small enough to maintain adequate velocity for oil return. Likewise, liquid lines must be sized to minimize pressure drop while avoiding undercharging of the system. Adhering to manufacturer specifications for piping and accessory selection is crucial.

Flood-back, which occurs when liquid refrigerant returns to the compressor through the suction line during operation, washing oil from critical bearing surfaces, is another leading contributor to premature failure. The resulting oil dilution accelerates wear on bearings, pistons, cylinders, rotors, and stators. Another cause of compressor failure not to be confused with flood-back is flooded start. This occurs when refrigerant migrates and condenses in the crankcase oil during the off-cycle. Upon restart, the drop in crankcase pressure causes this refrigerant to boil out of the oil, carrying oil away from vital components. Both flooding and flood-back can originate from various system issues.

Slugging is another potential compressor killer that occurs when an errant mass or "slug" of liquid refrigerant

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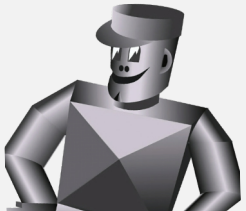

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Compressor Failure—continued from page 1

or oil present in the suction line or evaporator returns to the compressor, usually upon startup. The compressor attempts to compress this liquid slug, which it is not designed to do, overstressing components and leading to damage.

Other potential sources of compressor breakdown include faulty contactors, system leaks, fouled evaporators/filters/condensers, rapid loading/unloading, miswired or improperly adjusted controls, low superheat settings, or the use of incompatible lubricants.

To avoid unnecessary compressor replacement costs and maintain customer satisfaction, it is essential to perform comprehensive diagnostic procedures to pinpoint the underlying root cause of failure before installing a new compressor. Proper system maintenance is vital for prolonging compressor service life.

EPH sales specialist Troy Xifo in action at Atlantic Builders Convention, March 19-21, in Atlantic City. The show was a resounding success, with lots of great opportunities and professional connections made.

Atlantic Builders Convention
Hosted by New Jersey Builders Association

E.P. HOMIEK PROVIDES NO-WAIT CUSTOM DUCT FABRICATION

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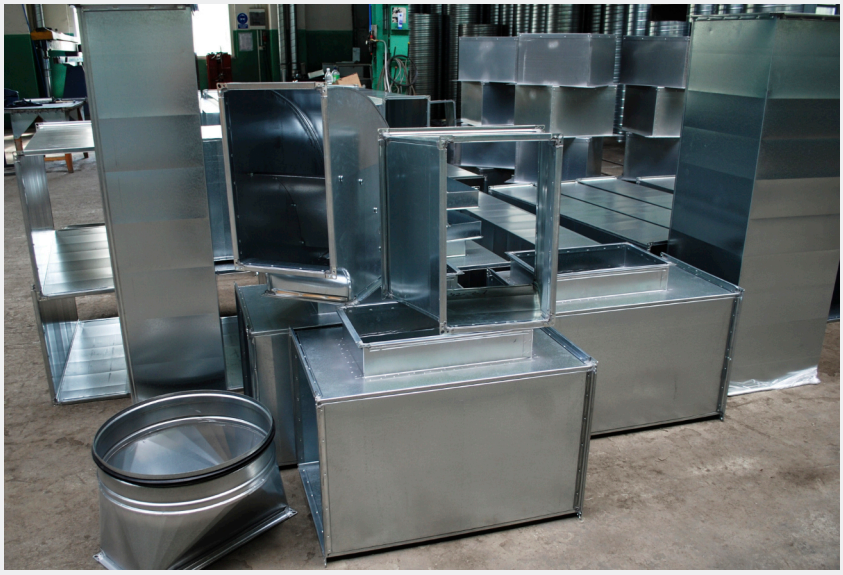

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- **1-2 hour emergency service**
- **Free delivery**
- **Competitive prices**
- **Guarantee on all fabrication**
- **Two convenient one-stop locations in Union and Lakewood, New Jersey for all your ductwork and HVAC supply needs**