

Remanufactured Compressors: Making an Informed Choice

BY ROB SCHEMEL

There is still plenty of confusion surrounding the wide range of remanufactured compressors available today. Understanding the distinctions between buying an OEM unit or one from a third-party remanufacturer can help you make the right decision

One of the most important choices contractors are often faced with when fixing hvacr-related problems lies at the heart of many refrigeration or air-conditioning systems – replacing failed semi-hermetic compressors. Most contractors understand the best option is to replace the failed compressor with a remanufactured unit.

However, there is still much confusion surrounding the wide range of remanufactured compressors available today. Is the original equipment manufacturer (OEM) or a third-party remanufacturer your best source? And how does an OEM remanufactured compressor differ from other remanufactured compressors? This is information every contractor should know, but many still may not fully understand the differences between choosing a remanufactured compressor from an OEM or a third-party manufacturer.

This article will address OEM remanufacturing, and discuss the impact that a thoroughly disassembled, reassembled and re-certified compressor can ultimately have on system quality, reliability and safety. It also will look at third-party remanufactured compressors.



Remanufacturing saves raw materials from being used, which saves natural resources and helps the environment.

Remanufactured products are 'green'

To understand why OEMs offer a beneficial option for remanufactured compressors, it's first important that contractors understand a little about remanufacturing as well as the remanufactured compressor.

The practice of remanufacturing is not only associated with the hvac industry. Almost every industry features remanufactured products and equipment; many of them you may have purchased and not realized it. There are rebuilt or remanufactured automobile engines and transmissions, motorcycle parts, computer hard drives and even office furniture.

From an environmental standpoint, remanufacturing is important. The National Center for Remanufacturing and Resource Recovery (www.reman.rit.edu) estimates that the annual energy savings resulting from remanufacturing activities worldwide and from all industries is 120 trillion Btu.

This is equal to the electricity generated by 16 million barrels of crude oil. The center also calculates that the raw materials saved by remanufacturing in a year would fill 155,000 railroad cars forming a train 1,100 miles long.

By remanufacturing existing equipment and products, manufacturers reuse natural resources and prevent older items from ending up as scrap. This not only saves money and valuable resources, but it also helps protect the environment.

The remanufactured compressor

The number of semi-hermetic compressors installed worldwide makes them an ideal choice for the remanufacturing process. The wide use and benefits of semi-hermetic technology, which is applied everywhere from large air-conditioning units in office buildings to heavy-duty, low-temperature cases in supermarkets, has resulted in a total installed base value of more than \$1 billion.

This provides a large, established base for the remanufactured aftermarket. It is estimated that the remanufactured compressor market is more than \$100 million. As these compressors fail, customers want a replacement that will satisfy their requirements for performance and meet their budget at the same time. Replacing a failed compressor with a brand new one is not an option.

For one reason, it would be expensive; remanufactured compressors provide customers an economical alternative. Second, when purchased from an OEM, the remanufactured compressor delivers the same high level of quality, reliability, performance and safety associated with a new one.

There are distinct reasons why OEM remanufactured compressors provide the same level of performance and safety as new ones. Much of it has to do with the remanufacturing process and strict safety standards followed by OEMs. Key reasons are:

- **UL recognition.** OEM remanufactured compressors are recognized by Underwriters Laboratories Inc. (UL) (www.ul.com), an independent, not-for-profit product-safety testing and certification organization. In contrast, few of the estimated 100 third-party remanufacturers sell UL-certified compressors.

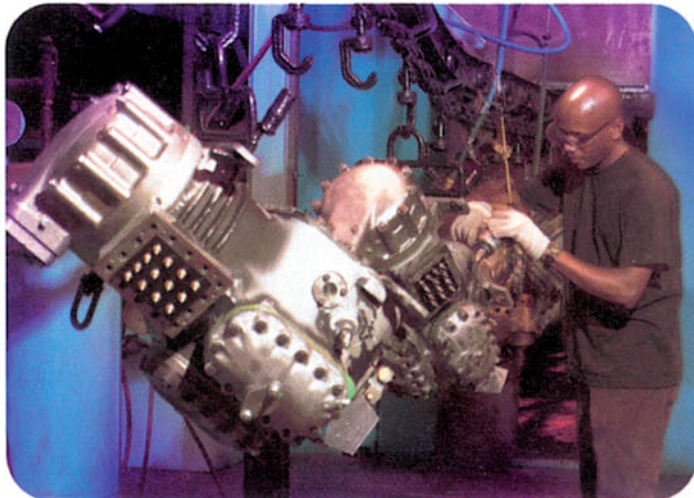
The organization tests products and components, and also helps companies achieve global acceptance of their electrical devices, programmable systems and quality processes. UL recognition is extremely important when dealing with the safety of an item.

"From a safety standpoint, it's very important that remanufactured compressors meet the same standards as required from brand new ones," says Larry Kettwich, senior staff engineer, UL. "Compressors featuring the well-known 'UЯ' (reversed R) mark comply with the UL's rigid set of international standards that ensure a safe product by greatly reducing any foreseeable risk of fire, electrical shock or other possible hazards."

- **Disassembly.** OEMs completely disassemble compressors to the bare "core" as part of their remanufacturing process. This process allows OEMs to test every essential component for operational integrity.

As part of the disassembly, they also follow a strict set of internal auditing processes and production procedures designed to identify and replace obsolete technology, as well as make enhancements that will reduce installation problems, customer callbacks and other field issues.

- **Design improvements and upgrades.** Through the years, OEMs have invested substantial finances and research hours toward improving the efficiency, capacity, reliability and quality of semi-hermetic compressors. This is reflected in their remanufacturing processes, where updated specifications and enhanced parts are added to deliver the most reliable, energy-efficient operation. It is estimated that some OEMs replace or upgrade more than



OEMs strip down compressors to their core, which allows for every component to be tested.

500 parts during the remanufacturing process.

These upgrades also ensure the long-term reliability and safety of the remanufactured compressor. For example, manufacturers have invested millions of dollars in testing and design enhancements associated with the CFC refrigerant phase-out, so their compressors can operate reliably and safely using the new higher-pressure refrigerants and POE oils.

As an example, small, air-cooled semi-hermetic compressors have been completely updated with new suction reed valving, stainless steel reeds and positive displacement oil pumps. In addition, OEM engineers have made many energy efficiency design improvements in their valve plates to ensure extended life and reliability.

Third-party remanufacturers do not have access to design changes like these, and therefore, are not capable of making the upgrades on failed compressors.

• **Proprietary knowledge and design information.**

The processes, design and manufacturing techniques used by OEMs are proprietary. This means it is nearly impossible for third-party remanufacturers to replicate them. This also limits their ability to upgrade older compressors to meet today's standards.

This, of course, will have an effect on performance, reliability and safety. OEMs also package all remanufactured compressors with the latest product information, application guidelines and the accessories needed for installation.

"When remanufacturing a compressor it's important to bring it back to its original design specifications and add any upgrades and modifications to ensure it can meet the efficiency and performance challenges of today," says Joe Marchese, CMS, owner of Coldtronics, Pittsburgh. Marchese is Education chairman of the Pittsburgh Chapter of RSES and a part-time hvacr instructor at the Community College of Allegheny County.

"The internal procedures, processes and auditing set up

by OEMs make it possible to produce remanufactured compressors that have the same level of quality, reliability, performance and safety associated with new compressors," Marchese says.

• **Complete product line.** OEMs support contractors with a complete product offering of original and remanufactured compressors for all applications. This makes it easier to order items, as well as work closely with the OEM to meet customer needs and demands. Third-party remanufacturers focus only on the most common applications and, therefore, typically do not offer a product line that covers all customer needs and demands.

Third-party remanufacturers

Knowing all this, are there any reasons why a contractor would still consider a third-party remanufactured compressor? Depending on the situation and needs of the customer, there are a few reasons.

First, many third-party remanufacturers sell their remanufactured compressors at a lower cost. They can do this because their remanufacturing process often deals with "fixing" compressors and replacing failed parts, so they tend to have lower operating costs and overhead.

Another reason is that many third-party remanufacturers provide on-site assistance during start-up to ensure the remanufactured compressor is properly installed. Finally, local third-party remanufacturers can provide a replacement when an OEM compressor is not available.

This seems to be more prevalent with compressors used in air-conditioning applications, but seldom will contractors risk their reputation when servicing refrigeration equipment with more strenuous operating demands.

Making an informed decision

Ultimately, the choice between a remanufactured compressor from an OEM or a third-party remanufacturer rests with the contractor. And his reputation depends on the fact that customers expect him to make the right decision.

Commercial business owners call on contractors when they have a problem with their hvac or refrigeration system, putting trust in their contractor's expertise and skill to quickly fix the problem and have the system up and running as soon as possible.

Arm yourself with all the facts about remanufactured compressors the next time you're faced with a critical replacement decision. It can mean the difference between unnecessary callbacks or repeat business. ♦

Rob Schemmel is manager of service engineering at Copeland Corp. and has been with the company for more than 31 years. Schemmel responds to a range of aftermarket service issues, diagnosing and correcting refrigeration system problems. For more information, visit www.emersonclimatecontractor.com.