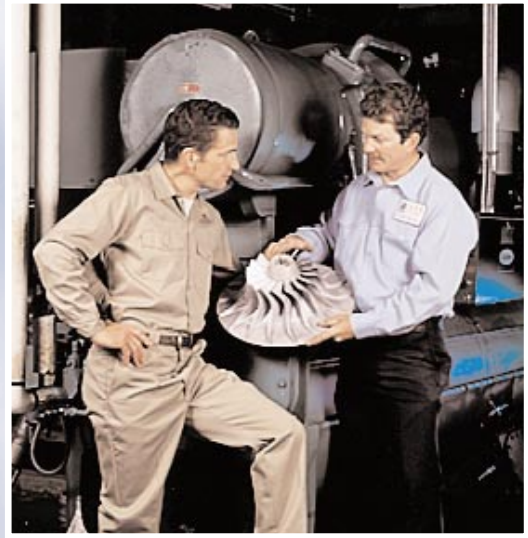


York[®] Aftermarket Products and Services



 **YORK[®]** INTERNATIONAL
CORPORATION



Aftermarket Services



Total Service Agreements

The Total Service Agreement is the most comprehensive service available, including all the features of our inspection and preventive maintenance agreements. York takes complete responsibility for repairs, eliminating surprises and providing full peace of mind to the equipment owner. All service costs become a budgetary payment with a Total Service Agreement, making your budget and cost control efforts easier to manage.



Preventive Maintenance Agreements

York can help protect your investment and avoid costly repairs with a Preventive Maintenance Agreement. You'll keep equipment going longer – and dramatically reduce the cost of ownership – when proper preventive maintenance that follows manufacturer recommendations is performed. York provides both standard and custom maintenance agreements that include the following features: Preventive Maintenance, Emergency and After-hours Service, In-Warranty Service, Operator Training, Leak Testing and Repair, and Eddy Current Tube Testing.

Maintenance Agreements are available for all types of chillers. We service all manufacturers of equipment including: Carrier, Trane, McQuay, and Dunham-Bush.



Inspection Agreements

In some cases, you may wish to perform your own preventive maintenance. In these circumstances, York can provide inspection-only agreements. Regular inspections can help identify problems before they become catastrophic. Inspection contracts include the following features:

- Routine inspections based on equipment operation and/or customer requirements
- Reports and recommendations from York Service professionals
- Option for emergency service



System Evaluations

Chiller system evaluations are the best way to ensure efficient and reliable operation of your entire chilling system – including pumps, cooling tower, air handling equipment, controls, as well as your chiller. When performed by qualified York Service personnel, this complete maintenance evaluation lays a solid foundation for plans to maximize chiller system performance for years to come. The comprehensive evaluation covers areas such as: chiller-operating history, system equipment inventories, system control documentation, equipment evaluation, air and water balance testing, a written report including recommendations, and, finally, a meeting with a York professional to discuss York's recommendations.



Seasonal Startup and Shutdown

Annual chiller service provides an ideal opportunity to make certain your chiller is operating efficiently and reliably. York Service provides you with a flexible startup or shutdown package that allows you to choose the services you need. These services include; compressor, compressor motor, control center, purge unit, oil return system, cooler, condenser, starter, water pumps, and cooling towers. Chiller startup ensures proper chiller system operation throughout the cooling system. Chiller shutdown services ensure leak tight machines and minimize the potential for unscheduled service at the beginning of the next cooling season.



Centrifugal Compressor Internal Inspections and Rebuilds

A thorough internal inspection of your compressor is an economical way to avoid costly downtime and unscheduled repairs. Planned inspection not only minimizes repair costs by detecting and stopping problems in the making; it keeps your equipment running efficiently and reliably. York technicians give your compressor a professional, internal inspection, which is your best assurance for reducing the risk of downtime and enhancing your chiller's performance and service life. With York, you get a complete inspection with preventive maintenance geared to compressor run time and these services are not limited to York manufactured compressors. York has the expertise to inspect, service, and repair all brands of compressors.





Aftermarket Services



Reciprocating Compressor Internal Inspections and Maintenance

Periodic inspection of reciprocating compressors at 5,000 operating hours (or every two years) can detect developing problems, thereby preventing the high costs of sudden failure, maximizing operating life, and minimizing repair costs. York Service technicians perform all manufacturer-recommended procedures, which eliminates the need for special tool purchases or in-house staff training. Inspection procedures include transfer of refrigerant charge, drainage and disposal of oil charge, tophead overhaul (removal and replacement of suction/discharge valves and springs), gasket replacement, as well as an internal crankcase inspection.



Eddy Current Tube Testing

The condition of heat exchanger tubes is vital to efficient, reliable chiller operation. Tube failure can result in catastrophic chiller failure. Repair can be expensive and time consuming, as tube failure contaminates the refrigerant system and causes hermetic motor burnout. Unfortunately, tube condition is not readily visible. Not only are tubes hidden inside the shell, but the condition of internal tube walls is hidden from sight. Eddy Current Tube Testing is an inexpensive, electronic method used to analyze tubes in place. As one of the most effective means for finding leaks and other tube faults, Eddy Current Tube Testing minimizes downtime by eliminating unexpected tube failures and avoids costly repairs by providing advanced warning of problems before failure.



Vibration Analysis

Vibration analysis gives an inside look at the compressor to determine compressor and motor operating condition. It provides early detection of bearing wear, seal rubs and/or component imbalance. If a problem is detected, the repair can be conveniently scheduled to reduce unplanned and costly downtime. Vibration analysis is best scheduled during chiller commissioning to develop baseline levels, during season startup, prior to winter shutdown, or whenever a change in unit sound level is detected.



Refrigerant Analysis

Your refrigerant can tell you a lot about the condition of the chiller. Expert laboratory analysis of refrigerant can identify the presence of rust, sludge, and harmful acids in the chiller. Not only do these contaminants reduce operating efficiency; they cause unnecessary parts wear and costly catastrophic chiller failure. The combination of moisture and refrigerant forms acids, which are highly corrosive. The presence of these contaminants in the refrigerant can be “visualized” by chemical analysis. As a part of a regular maintenance program, refrigerant analysis is essential for maintaining efficiency and preventing downtime. Analysis pinpoints the causes and the origin of contamination so that repairs can be made quickly and cost effectively.



Oil Analysis

Regularly scheduled analysis of your chiller’s oil is a valuable aid in assessing its internal mechanical condition. The presence of harmful acids, corrosion causing water, corrosion products, and metal particles indicating abnormal parts wear, are all detected by chemical analysis. Oil analysis, when used as a part of a maintenance program, prevents catastrophic compressor failure and the cost of unexpected shutdowns. Analysis identifies the need to tear down and visually inspect chiller parts, so conditions can be remedied before they become expensive-to-repair problems. Because oil analysis detects abnormal machine conditions to permit early remedy, it’s easier and less expensive to keep your chiller in peak operating condition.



Air Handler Service

Air handling system service ensures efficient and reliable performance of central station air handlers, rooftop units, and all related air-side equipment from any manufacturer. Extensive maintenance procedures include visual inspections, belt adjustments, fan balancing, bearing lubrication, cleaning cooling and steam coil fins, inspecting and lubricating dampers and VAV components, and inspecting and maintaining filters to improve air quality and provide more efficient air distribution throughout your facility. regular air handler service is a critical step in your IAQ process.





Aftermarket Products



Chiller Variable-Speed Drives

Variable-Speed Drives can improve the performance of your chiller. If you own a constant speed centrifugal chiller, either old or new, a York Variable Speed-Drive retrofit will dramatically reduce your energy costs. Annual savings typically average 30%. These savings are possible because no constant speed chiller, not even a high efficiency model, can match a VSD where it really counts—in real world energy performance. Real world energy performance means performance at off design conditions, as well as design conditions. An advanced computer analysis will show how much a VSD retrofit can reduce your energy costs. By accruing off design savings during nearly 99% of your chiller's operating season, the payback for your VSD retrofit will come in as little as one to three years.



Spectrum Graphic Control Panel Retrofits

York Spectrum Graphic Control Panel retrofits enhance reliability, efficiency, and ease of operation unequalled in conventional and competitive controls. The user-friendly keypad makes reading data and data logging a breeze. A full array of features ensure proper and efficient operation.

- Easy troubleshooting through shutdown condition logging
- Precise loading and unloading to maintain tight control of leaving liquid temperature
- Programmable demand limits
- Easy data logging



Air-Modulator Variable-Speed Control Retrofits

York Air-Modulator variable-speed drive retrofits for air-handling units save energy by matching air volume to the actual cooling load and optimizing fan speed. In fact, an Air-Modulator can cut energy costs as much as 60%! Depending on the fan-control method it replaces, this retrofit can yield energy savings that produce a ROI as high as 100%, paying for itself in as little as a year. Similar savings can be achieved when the air-modulator drive is applied to other HVAC equipment like pumps and towers.

The Air-Modulator is engineered specifically for HVAC, so it's directly compatible with standard HVAC pneumatic and electric control signals. And, it's easily applied on standard motors. That makes it an ideal retrofit for a wide range of air-handling units—whether made by York, Carrier, Trane, or other major suppliers.



TurboGuard Purge Units

The TurboGuard high efficiency purge system is designed to minimize refrigerant emissions. For all brands of low pressure chillers, the TurboGuard unit is a sure, effective way to minimize CFC emissions. That helps you conserve valuable refrigerant, maintain chiller efficiency by removing non-condensables, and protect the environment. TurboGuard features include:

- High efficiency performance
- CFC-free operation – does not include an auxiliary unit using CFCs
- Time-proven design
- Low maintenance
- Applicable for most low-pressure chillers



SkyGuard II High Efficiency Purge Units

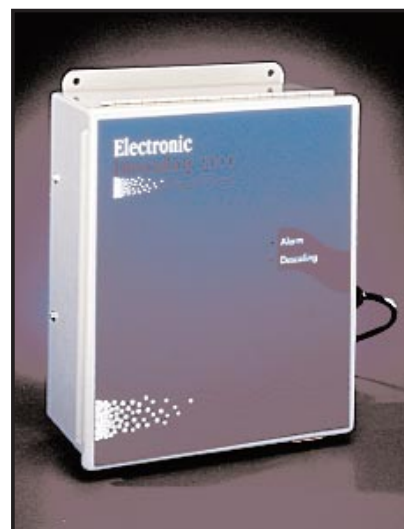
The SkyGuard II purge unit is a compressor type design for applications requiring a high efficiency compressor type purge (i.e. low oil pressure chillers). It provides superior features and efficiency when compared to competitive models. SkyGuard II features include:

- Emissions ranging from .75 to .0049 pounds of refrigerant per pound of air
- Unattended purging when chiller is operating or idle
- Easy maintenance
- Operation when chiller is off
- Ease of installation



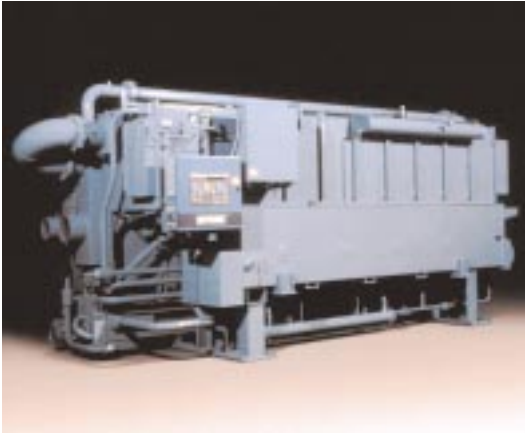
Electronic Anti-Fouling System

Scale build-up can foul a chiller's condenser tubes, increasing the thermal resistance of the heat exchanger and, subsequently, increasing energy use and costs. Once scaling has occurred, traditional removal methods may shorten tube life, resulting in expensive, premature tube replacement. York's ED 2000 System utilizes a unique electronic process preventing scale fouling without caustic, abrasive cleaners. By eliminating even soft-scale accumulation, ED 2000 technology improves chiller performance, resulting in substantial cost savings and reduced maintenance costs. With ED 2000 water management, you eliminate the hassles of cleaning tubes with acid, steel brushes and abrasives. You also save the wear and tear on tubes caused by these cleaning methods.





Aftermarket Products



SmartPurge for Absorption Chillers

SmartPurge retrofits maintain two-stage absorption chiller performance while eliminating the hassles of manual purging. A SmartPurge eliminates non-condensables that raise operating pressures. By eliminating non-condensables, corrosion of the absorber is prevented. Early warning of a leak enhances reliability. A frequent purge alert gives you time to take action to stop leaks and prevent corrosion.

SmartPurge features include:

- Automatic removal of non-condensables
- Fully automatic operation
- Purge counter
- Early warning system



Refrigerant Storage and Recycling Systems

The York Refrigerant Storage/Recycling System (RSR) offers all the features a field service technician needs. These compact, portable, self-contained units are easy to operate for fast chiller evacuation. Capacities are ARI certified to assure performance as specified. RSR units use vacuum pumps on low pressure units and refrigerant compressors on high pressure units to assure timely removal of refrigerant and EPA compliance. York provides vessel sizes to match every chiller capacity resulting in a unit that is smaller, lighter and more mobile than competitive units.



PressurePak™ Pressurization Device for Leak Detection

The York PressurePak™ system plays an important role for chillers in the CFC-free era by dramatically simplifying leak detection so operators don't postpone the procedure—before serious problems occur. Unlike the time consuming and difficult hot-water pressurization and nitrogen pressurization processes, the PressurePak procedure can be performed in as little as three hours.

An automatic control setting activates PressurePak any time the chiller is not in operation, keeping non-condensables from entering the system. PressurePak can be retrofitted to any centrifugal chiller brand.



Microcomputer Control Panel Printer Retrofit

Operating information is the key to maintaining chiller efficiency. The Microcomputer Control Center Printer retrofit makes tracking this information faster and easier. The panel printer can be configured to print chiller logs automatically at any interval you choose. Technicians can easily review stored log readings to get valuable information on chiller efficiency and to help pinpoint minor problems before they become catastrophic failures. Easily programmed, the printer can be installed remotely to accommodate your space requirements.



Solid State Starters

York Solid State Starters increase the reliability of your chiller and extend compressor life. The solid state design provides smooth acceleration of the motor and stepless transition to full speed operation. There are no moving parts in a solid state starter. York starters are designed to provide a high degree of flexibility in adjusting the starting characteristics and do not require special motors.



VentGuard Relief Valve and Rupture Disk

VentGuard is a second-generation product that provides a level of refrigerant loss protection that is simply unavailable with other designs. VentGuard II positions a safety relief valve between the bursting disk and the vent piping. In the event of an over-pressurization of the refrigerant system, the bursting disk ruptures – but the VentGuard relief valve resets to prevent the venting of the entire refrigerant charge. VentGuards are available for use on chillers using R-123, R-113 and R-11.





Driveline Retrofits and Conversions

Compressor Retrofits



A breakdown of a CFC chiller creates an urgent dilemma: should you risk spending good money on a poor proposition by immediately repairing an old chiller? Or should you spend a lot of time and money replacing the chiller? Quickship retrofit drivelines provide a cost-effective third option that solves the problem. A retrofit driveline combines speed of repair and the like-new performance of a replacement chiller. It is faster to install, costs less than replacement, and reuses shells, piping and wiring. It leaves the existing equipment room intact – all components fit through the equipment room door. Compressor retrofits include a *Spectrum* control panel, a purge unit and are available for all competitive brands.

Parallel Driveline Retrofits



Parallel Driveline Retrofits are designed to provide the customer energy-savings benefits. Parallel drivelines can be utilized to peak shave chillers to avoid peak demand energy costs. They're also ideally suited to provide savings during off-peak operation. A smaller parallel driveline can be operated at full load when the original compressor would be operating at an inefficient part-load point. In these circumstances, the energy savings can be significant as you gain the advantage of the large heat exchangers. Parallel drivelines are provided in both single stage and multistage compressor configurations.

Engineered Conversions



York is uniquely positioned to provide engineered solutions for industrial applications. Our regional engineers evaluate CFC conversions and system retrofits for equipment ranging from low temperature refrigeration to standard air conditioning systems. Additional capabilities include electrical and control panel retrofits for special area classifications, and reengineering to meet changes in process load and operating parameters.



The Premier name in HVACR service is your #1 service value

When facing any repair, maintenance, upgrade, or operating challenge, it pays to use the service organization that delivers extra value for your service dollar—York® Aftermarket Service.

York Aftermarket Service is focused on your complete satisfaction, because we are totally committed to heating, ventilation, air-conditioning, and refrigeration. Consequently, we devote major resources to factory-training, certifying, and equipping our technicians to service all brands of equipment. In North America, over 1,200 York service technicians operate locally from 125 service points, with over 3,000 service points worldwide.

Because we combine local vision with global perspective, York Aftermarket Service returns greater value by offering a wider range of capabilities that are targeted to your needs. York helps you achieve your goals by providing:

1. Customizable service agreements that tap our single-source capability to handle any job from start to finish
2. Technical capability to handle all engineering, maintenance, and repair challenges
3. Enhancement products and services for equipment upgrades and energy savings
4. Customer satisfaction support to ensure quality and continuous improvement
5. Flexible financing options to fit your budget
6. Strategic Accounts capability to simplify co-ordination and pricing for multi-facility customers

Since our beginning in 1874, York has led the way with innovative concepts in HVACR service. Today, see how the world's #1 service organization can protect your equipment and your reputation by being your service provider. For more details on any product or service, call your nearby York Aftermarket Service representative or visit us at www.york.com

