Carrier
United Technologies
turn to the experts

23XRV

Variable Speed Screw Chiller

improve buildings

Carrier improves the world around us; Carrier improves people's lives; our products and services improve building performance; our culture of improvement will not allow us to rest when it comes to the environment.

Job reference of 23XRV Variable Speed Screw Chiller

LEED Rating	GOLD
Carrier equipment:	
23XRV variable speed screw chiller	1 set
19XR centrifugal chiller	1 set
VAV terminal 35E	48 sets
39G/39GI air handling unit	37 sets
42GWC/42CE fan coil unit	227 sets
Carrier Comfort Control	

Project Background

Otis is the world's leading manufacturer and service provider of elevators, escalators and moving walkways. It opened its first green R&D Center in Tianjin that covers an area of more than 140,000 sq. meter, including office block, cafeteria, logistic center. The center incorporates the most advanced technologies to minimize site energy use.

To meet Otis' challenging need, Carrier designs a hybrid combination plant by applying the latest 23XRV variable speed screw chiller and 19XR centrifugal chiller. As an energy saving model project, Otis R&D Center boasts a comprehensive energy savings rate of at least 25% which gives this center a competitive edge in achieving LEED Gold certification.

LCO Building in New York
23XRV500

Its easy installation and superior performance definitely meets building's increasing need for HVAC.

—— Gary Jones
Project Consultant

The Gaston County Medical Building
23XRV300

23XRV has certainly worked well for us in all circumstances.

—— Barry Styers
Facilities Supervisor

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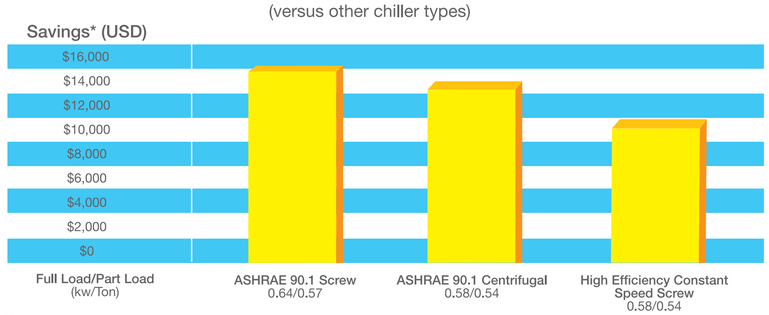
www.carrier.com.hk
CHK-C-23XRV-1210-1

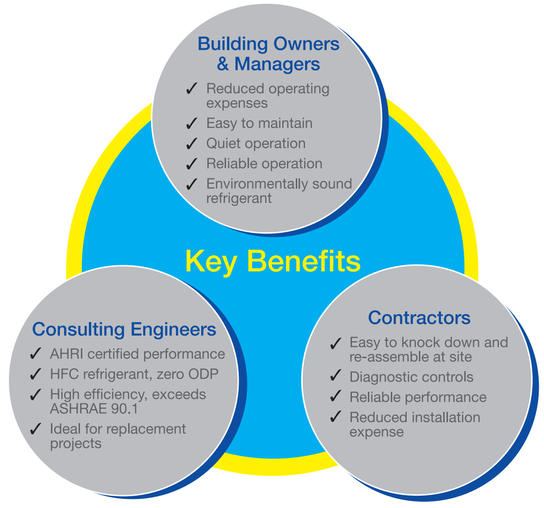
23XRV Annual Energy Savings

(versus other chiller types)



Notes:

* Savings based on AHRI conditions, 3,000-hour operation, $0.07/kwhr electric rates and $5 demand charge
* 23XRV's superor full load and part load efficiency performance can help buildings to maximize credits achievement for LEED® in the Energy and Atmosphere Credit 1: Optimize Energy Performance category



Turn to the Experts

Whatever your HAVC system needs, from specifying and purchasing to installation and maintenance, Carrier has the solution. As the world leader in heating, ventilation, and air conditioning, Carrier is committed to continually improving the quality of comfort for our customers.

From concept to finished product, Carrier always walk with you every step of the way. Whether you have one building, multiple sites nationwide, or special equipment and facility requirements, Carrier will recommend a solution that fits your scope and budge.

EVERGREEN® 23XRV Variable Speed Screw Chiller

Evergreen™

Introducing Carrier's Evergreen 23XRV – the world's first water-cooled variable speed screw chiller. It combines the reliability of a screw compressor with the energy savings of a variable frequency drive (VFD). This simple, reliable combination achieves ultra-high efficiency levels while lowering the cost of ownership.

The Evergreen 23XRV's overall efficiency is superior to other constant and variable speed chillers on the market today because only the 23XRV has the ability to maximize efficiency at all operating conditions. The 23XRV has an unparalleled operational envelop that permits the chiller to operate under adverse and ever changing real-world conditions, while maintaining peak efficiency levels.

As with all of Carrier's Evergreen family of chillers, the 23XRV enables chiller plants to achieve superior efficiencies at true operating conditions without compromising the environment. With environmentally sound refrigerant, superior efficiency, and powerful controls, these units are ideal for both new construction and replacement projects.

23XRV
- HFC-134a
- capacity 1055-1800kW

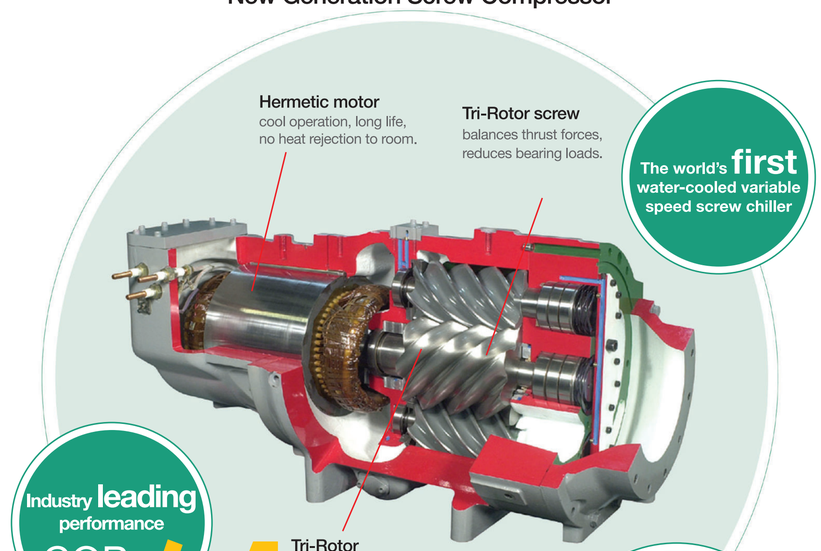
Efficiency

The 23XRV variable speed screw chiller has the ability to reduce speed and optimize operation independent of ambient conditions. This unique capability permits the chiller to precisely match building load and conserve energy.

Reliability

Evergreen 23XRV's simple, yet innovative tri-rotor compressor design reduces the number of moving parts, uses less lubricating oil, and eliminates the slide valve. In addition, Evergreen chillers are equipped with sturdy heat exchangers that are constructed to meet the stringent requirements of ASME code. Carrier's hermetic motors operate in a clean refrigerant-cooled environment and are not exposed to the hot, dirty air that may be present in the mechanical room. The hermetic design eliminates the potential for shaft leaks and refrigerant / oil loss.

New Generation Screw Compressor



2008 AHR Expo INNOVATION AWARDS Value Impact Application WINNER

Foxfire™ Compression Technology

Evergreen Advantages

Since the variable speed drive that is utilized for the 23XRV is IEEE-519 compliant, field-installed harmonic filters or harmonic study of the building's electrical system will not be required. The integrated variable speed drive provides a soft start, further reducing stress on the compressor and inrush current at start-up.

Evergreen chillers can be shipped fully charged with refrigerant from the factory, minimizing the time required for start-up The ability to store the entire refrigerant charge inside the chiller reduces maintenance time. Because of the Evergreen chiller's positive pressure design, air and other containments do not enter the chiller, purge units are not required as efficiency is maintained throughout the life of the chiller. The tight construction of Evergreen chiller surely eliminates the possibility of refrigerant leak.

Environmental Leadership

Carrier has long been committed to the environment and its sustainability. Evergreen chillers provide our customers with a high-efficiency, chlorine-free, long-term solution unaffected by refrigerant phase-out. Carrier's decision to utilize non-ozone-depleting HFC-134a refrigerant provides our customers with a safe and environmentally sound choice without compromising efficiency.

The Right Level of Control

All Carrier Evergreen chillers come fully equipped with simple-to-use onboard controls, allowing users to easily monitor over 125 operating and diagnostic conditions in several languages. A chilled-water control system that supervises and optimizes the operation of your chilled-water plant can also be provided. Carrier Comfort NetworkR (CCN) has the ability to control and maximize energy efficiency for all elements of the heating, ventilation, and air conditioning (HVAC) system.

For all your comfort needs, Carrier has the right level of control.

HFC-134a

PHYSICAL DATA

Nominal Capacity[1]		Model	Full Load COP	NPLV[2] COP	Dimensions[3]		
Tons	kW				Length mm	Width mm	Height mm
300	1,055	23XRV3030	5.2	9.1	4,172	1,930	2,200
350	1,230	23XRV3131	5.5	9.7	4,172	1,930	2,200
400	1,407	23XRV3232	5.6	10.1	4,172	1,930	2,200
450	1,583	23XRV4040	5.6	10.4	4,347	2,045	2,299
500	1,759	23XRV4746	5.7	10.8	4,867	2,045	2,299

Notes:
1. Nominal cooling capacity based on: evaporator entering/leaving water temperature 12°C/7°C, condenser entering/leaving water temperature 32°C/37°C.
2. Non-standard Part Load Value as per AHRI standard 550/590.
3. Dimensions based on 2-pass cooler and condenser with both nozzles on same end of chiller, 150psi (1,034kPa) water boxes and with victaulic connections.