



19XR/XRV Single-stage

Single-stage centrifugal
liquid chillers

Nominal cooling capacity:
1000-3000 kW



Single-stage compressor
Industry-leading Efficiency with
VFD

Standard or high-tier VFD on
choice

Wide Application

Stable Operation

Low Sound Level

Modular Construction

The Carrier 19XR/19XRV centrifugal chillers provide exceptional value by achieving energy efficiency levels as high as 6.8 (COP_r) utilising proven technology designed specifically for chlorine-free refrigerants:

- Unique concept of the hermetic compressor:
 - Single-stage aerodynamic impeller.
 - Tunnel diffusers, based on aircraft engine technology.
 - Motor cooled by refrigerant gas injection.
- Possibility to control the compressors using a variable frequency drive (19XRV) to maximise machine energy efficiency.
- Use of high-efficiency evaporator and condenser tubes.
- Expansion sub-cooler integrated into the condenser.
- Patented float valve technology for optimised sub-cooling and refrigerant level in the evaporator.
- Refrigerant R-134a or R-513A.

These advantages, together with the modularity of the units and their efficiency, economical operation and dimensional constraints allow the use of the Carrier 19XR/19XRV centrifugal chillers in any high-capacity water cooling applications.



Features and advantages

- Nominal cooling capacities from 1000 to 3000 kW.
- Mix-match capabilities – a complete line of compressors and heat exchangers to ensure the optimal combination of machine components regardless of capacity, lift and efficiency specifications.
- Hermetic compressor – elimination of leak risks from the compressor/motor shaft sealing in an open compressor.
- Single-stage compressor with special features – aerodynamically contoured impellers, variable inlet guide vanes and movable diffusers for better compressor part and full-load operating efficiency.
- Variable speed compressor capability – improvement of part load efficiency and electrical performance.
- Heat exchangers certified by the European pressure vessels code (PED), and all marine code certifications.
- International Chiller Visual Control (ICVC) – a large english LCD (liquid crystal display) features 4 menu-specific soft keys. The default display offers all in one glance review of key chiller operation data, simplifying the interaction between chiller and user.

Carrier® SmartVu™ Intelligent Control System

User-friendly Interface

Carrier centrifugal chiller equips the latest Carrier® SmartVu™ control system with strong control and monitoring function during chiller operation. The control system applies a 10 inch colorful touch screen, which can support up to ten language choices for customer, real time display of operation parameters with pictures makes it more human friendly and comfortable interface for operation. Carrier® SmartVu™ intelligent control system simulates and monitors chiller operation, adjusts cooling or heating capacity according to load change and provides various protection during operation.

Smart Operation

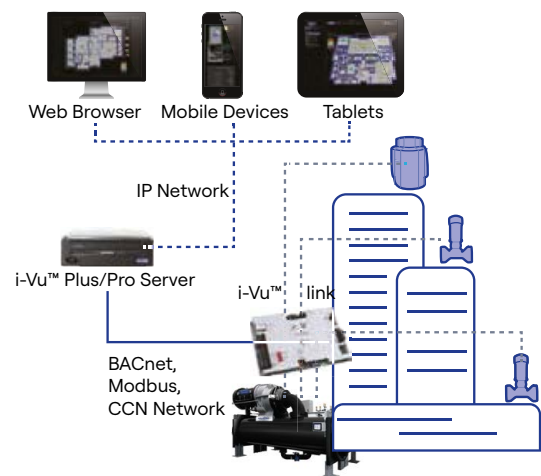
- Carrier® SmartVu™ control system provides smart password function to avoid any setting change without authorization.
- When chiller receives start-up order, controller will conduct following pre-start safety checking, to ensure parameters like oil sump temperature, condensing pressure, bearing temperature, motor winding temperature, discharge temperature, evaporator saturated temperature and average line voltage etc. are normal.
- During chiller operation, except for the function of monitoring main operation parameters control system also has capability to record and display trend curve, which is real time trend of key components during operation. It ensures effective and reliable operation of chiller by optimized intelligent and dynamic control algorithm.
- Carrier® SmartVu™ control system has comprehensive protection during operation, such as oil sump temperature control, surge protection, overvoltage and overcurrent protection, discharge temperature overheat protection, bearing temperature overheat protection, evaporator and condenser anti-freeze protection, low discharge superheat protection etc. in order to ensure chiller long time reliable operation.
- The optional Envelope Stability Control is an advanced solution to balance the chiller efficiency and reliability at very low load. The controller optimizes compressor speed, inlet guide vane position and stabilizer valve position to find the most efficient operating point throughout the operating range without compromising the chiller stability in real time.

Intelligent Diagnosis

- Carrier® SmartVu™ control system has failure diagnostic function and can be easily accessed via touch screen for detail chiller operation parameters. If control system detects failure the alarm will be initiated and related code will be recorded in alarm menu. The alarm records can be automatically saved by control system. Carrier service technician can read and delete alarm records by Carrier service tools.
- The control system has additional pre-diagnostic function. Different with diagnostic function, information displayed from this function is mainly for maintenance purpose. For an example, to inform customer periodically replace lubricant and filter from this function.
- Carrier® SmartVu™ control system has email alarm function. If the controller has been connected to internet, the control system can automatically send out an email with one or more alarm information to customer or service people through effective email address when alarm occurs.

Flexible Interface and Easy Connection with Building Automation System

- Carrier® SmartVu™ control panel supports BACnet or Modbus protocol, with which chiller can seamlessly connect with the Building Automation System or the i-Vu™/WebCTRL™ control network.
- With the powerful i-Vu™ Link (optional), user can integrate all plant equipment into i-Vu™ Building Automation System. The i-Vu™ Building Automation System provides everything user needs to access, manage, and control your building, including the powerful i-Vu™ user interface, plug-and-play BACnet or Modbus controllers and state-of-the-art Carrier equipment.



The i-Vu™ Building Automation System

Carrier® SmartVu™ Intelligent Control System with CARRIER ABOUND

Smart Chiller using CARRIER ABOUND Platform

Using wireless cellular communications technologies, Carrier ABOUND continuously streams operating data to the cloud in real time directly from your chiller's controller. The data is then captured within our IoT platform for ongoing insight into your chiller's health.

Features:

- Integrated equipment sensors that capture key operating data.
 - Secure wireless connectivity to Carrier's cloud-based IoT platform.
 - Persistent and reliable data transmission.
- * Please contact with CARRIER local agents to contract and activate this functionality.



ABOUND

CARRIER ABOUND Cloud

Carrier ABOUND Cloud continuously stores and assesses equipment operating data and service history, comparing it to established values for analytics and data validation. It compares this data to design specifications and matches it against allowable ranges, allowing Carrier to deliver pre-emptive service solutions as needed.

- * Please contact with CARRIER local agents to contract and activate this functionality.

Carrier
ABOUND

Features:

- Complete visibility into your system's performance, energy usage and service history.
- Advanced diagnostics and analytics providing actionable insights.



Smart Technician using CARRIER ABOUND Platform

Carrier ABOUND changes how equipment is serviced and maintained. Carrier service technicians now utilize mobile devices with remote access to put real-time chiller data and service history in the palm of their hands. With advance notification of problems, technicians arrive at the jobsite more informed, which leads to faster problem resolution and reduced mean time to repair.

Features:

- Advance notification.
- Remote detection and diagnosis.

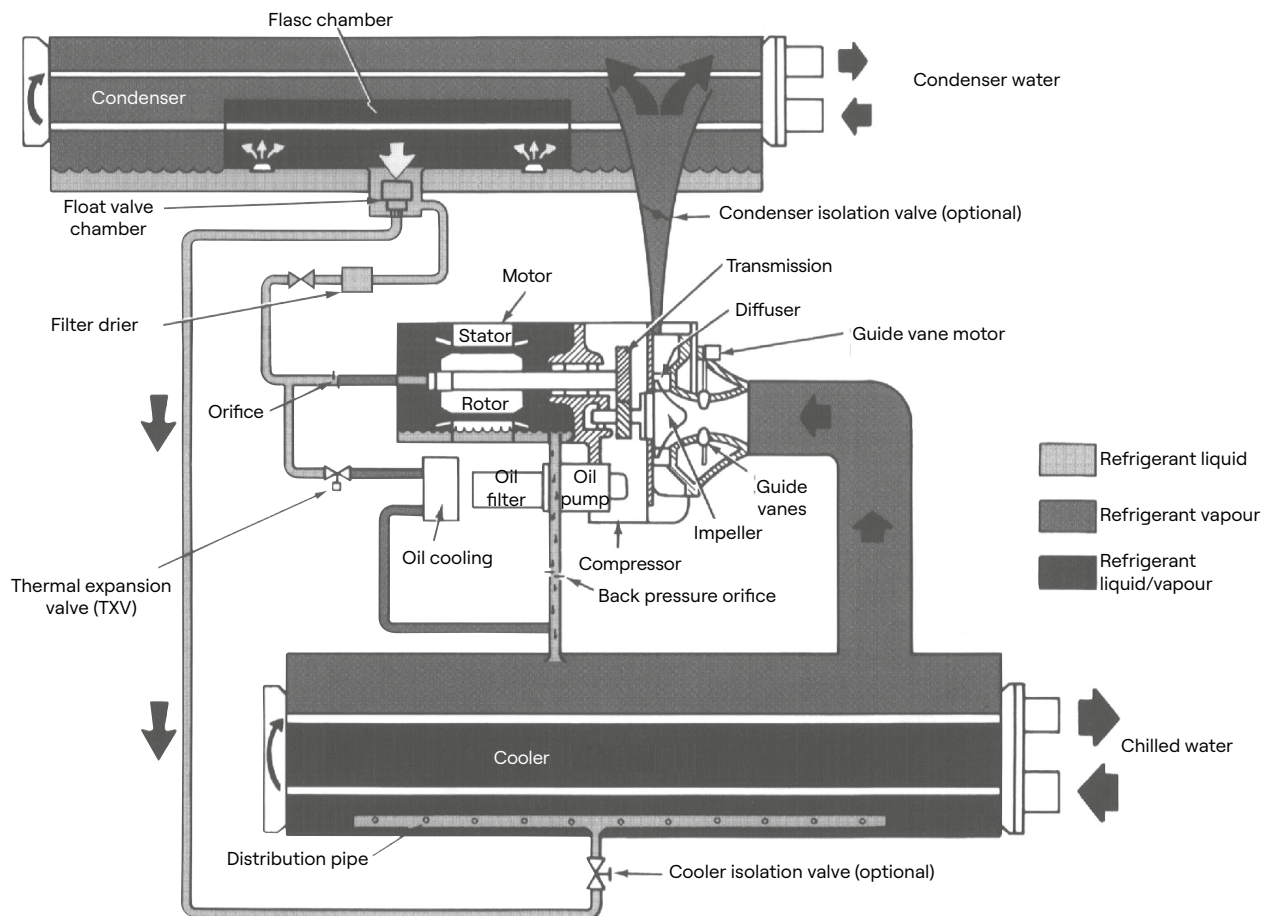
- * Please contact with CARRIER ABOUND HVAC PERFORMANCE local agents to get a maintenance contract.



Options/accessories

- Two types of unit-mounted variable frequency drives (VFDs): standard and high tier, to match different customer requirements in terms of cost and electrical performances.
- Refrigerant isolation valves allow the refrigerant to be stored inside the chiller during service.
- Hot gas by-pass for surge prevention during operation at high condensing temperature or for optimized operation at low load conditions.
- Spring isolators adapted for all chiller configurations.
- Unit-mounted starter reduces machine installation time and expense.
- High-voltage motors available: 3000 V, 3300V, 5500V, 6300V, 10 kV, 11 kV, 50 Hz or 60 Hz.
- CCN/JBus or CCN/BACnet: remote connection.
- 21 bar water heat exchanger.
- Waterbox with flanges and counterflanges.
- Delivered in multiple sections to facilitate the installation.
- Refrigerant leak detector module : unit-mounted sensor (not compatible with 19XRV VFD).
- Tailor maid request Marine, Oil & Gas, Chemical, other customization.

19XR refrigeration cycle



Physical data

Heat exchanger frame size	Compressor frame size	Dimensions (mm)					
		Length		Width		Height	
		Min	Max	Min	Max	Min	Max
3	XR3	4230	4820	1670	1800	2055	2465
4	XR3	4365	4950	1880	1880	2140	2550
5	XR3	4390	4980	1995	1995	2150	2720

Heat exchanger frame size	Compressor frame size	Weight (kg)					
		Net (chiller + R134a)		Operating (net + water)		R134a	
		Min	Max	Min	Max	Min	Max
3	XR3	6780	8100	7200	8700	277	390
4	XR3	7180	9180	7985	10200	381	508
5	XR3	8090	10890	9145	12160	493	674

Data for unit with two-pass nozzle-in-head water boxes being at the same end (compressor end / DS code).