



19XR/XRV Two-stage

Two-stage centrifugal
Liquid chillers

Nominal cooling capacity
2800 - 12000 kW



Interstage economizer
Two-stage compressor
Industry-leading efficiency with VFD
Wide Application
Stable Operation
Low Sound Level
Modular Construction
Refrigerant R-134A and low GWP
R-513A and R-515B

The Carrier 19XR/19XRV with a COP up to 6.5 (AHRI conditions) and an IPLV up to 7.4 or up to 11 (AHRI conditions) with VFD 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:

- Interstage economizer to improve efficiency and increase capacity.
- Unique concept of the hermetic compressor:
 - Dual-stage aerodynamic impeller.
 - Vane-less diffuser to meet high lift application requirement with stable operation.
 - Motor cooled by spraying liquid refrigerant on the motor windings.
- 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.



19XR/XRV TWO-STAGE

- Patented float valve technology for optimised sub-cooling and refrigerant level in the evaporator.
- Three available A1, non toxic non flammable, refrigerants: R-134A (GWP=1430) and low GWP R-513A (GWP=630) and R-515B (GWP=299). R-513A and R-515B have GWP<750 according F-Gas (UE) 2024/573.
- Wide range for chilled water temperatures from -6°C to +20°C.

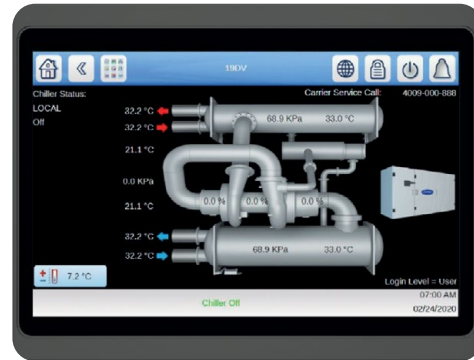
These advantages, together with the modularity of the units and their efficiency, economical operation and dimensional constraints allow the use of the Carrier 19XR/19XRV two-stage centrifugal chillers in any high-capacity water cooling applications such as air-conditioning, heat pump, energy recovery, ice thermal storage, marine, VFD and high-voltage applications.

The two-stage compressor has excellent load-adjustment capabilities to achieve high efficiency and stability at a variety of load and temperature conditions, including its minimum load of 10%.

The 19XR two-stage centrifugal chiller also features a refrigerant cooled semi hermetic low current inrush motor, eliminating the need for shaft seal and oil refrigerant containment components. Double-grooved tube sheets make a superior leak-tight joint when combined with roller expansion.

Features and advantages

- Nominal cooling capacities from 2800-12000 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.
- Dual stage compressor with non-blade diffuser designed, combined with inner-stage economizer for chiller performance improvement and high lift application. The innovative two-stage compressor provides a dramatic range of capabilities. With a maximum LWT of 45°C and up to 65°C as a special execution and a minimum LCWT of -6°C, the 19XR two-stage centrifugal chiller is ideal wherever energy conservation and environmental protection are required.
- Variable speed compressor capability on 19XRV-E AquaEdge chiller - Improvement of part load efficiency and electrical performance. Provided by CARRIER in R-134a and R-513A units. In R-515 could be provided locally by CARRIER from an external supplier.
- 19XRV/XR(V)-E equipped with a LF2 VFD that designs with total harmonic distortion (THD)<5% and fully meets IEEE519-1992 requirement. The 19XRV/XR(V)-E becomes a more cost-effective choice for installations with a high percentage of time operating at part load.
- High performance tubing - Tubing with internally and externally enhanced fins improves chiller performance by reducing overall resistance to heat transfer. The new heat exchanger reduces refrigerant charge and manufacturing cost.
- Heat exchangers certified by the European pressure vessels code (PED), and all marine code certifications.



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

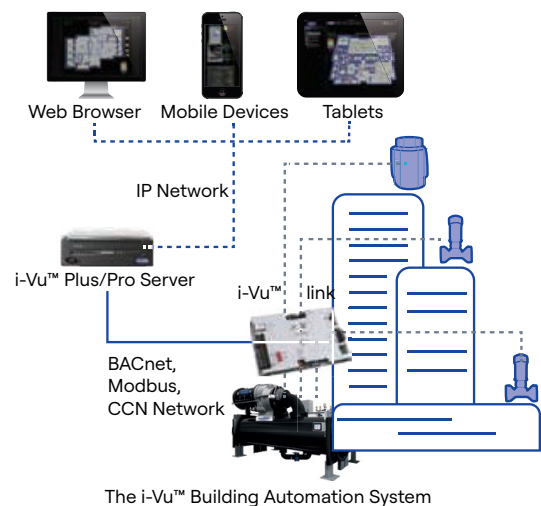
- Carrier® SmartVu™ control system provides smart password function to avoid any setting change without authorization.
- When chiller receives start-up order, controller will conduct following pre-start safety checking, to ensure parameters like oil sump temperature, condensing pressure, bearing temperature, 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.



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.



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.



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 (VFD available) in R-134A and R-513A version.
- 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 (Starters available from external manufacturers).
- High-voltage motors available: 400V (19XRE only), 3kV, 3.3kV, 6.3kV, 10kV, 11kV.
- CCN/JBus or CCN/BACnet: remote connection.
- 21 bar water heat exchanger.
- Waterbox with flanges and counterflanges to facilitate the maintenance.
- Nozzle with flanges (water inlet/outlet with flanges).
- Delivered in multiple sections sections to facilitate the installation.
- Refrigerant leak detector module : unit-mounted sensor (not compatible with 19XRE with unit-mounted VFD).

Flexible Combination

- 19XR/XR(V) AquaEdge chiller provides a complete line of compressors, motors and heat exchangers, ensuring good combination of chiller components regardless of tonnage, lift, and efficiency specifications.
- Carrier offers multiple starters choices for different power supply application.
- 19XR(V) AquaEdge chiller can be equipped with high tier VFD which with Active Rectifier, the harmonic distortion (THD) $\leq 5\%$, fully comply IEEE519-1992 requirement, also the fundamental power factor can be up to 0.99. With the help of VFD, the IPLV.IP of 19XR(V) can achieve to 11.0. Available only for 19XR sizes C/E with R-134A and R-513A
- Colorful Touch Screen - friendly human machine interface, graphical display screens for the main components and support multi languages.

Free-standing VFD starter



Unit-mounted VFD starter



Physical data

Heat exchanger frame size	Compressor frame size	Dimensions (mm)					
		Length		Width		Height	
		Min	Max	Min	Max	Min	Max
7	XRE	5160	5210	2470	2935	3015	3283
8	XRE	5200	5845	2710	3165	3040	3335

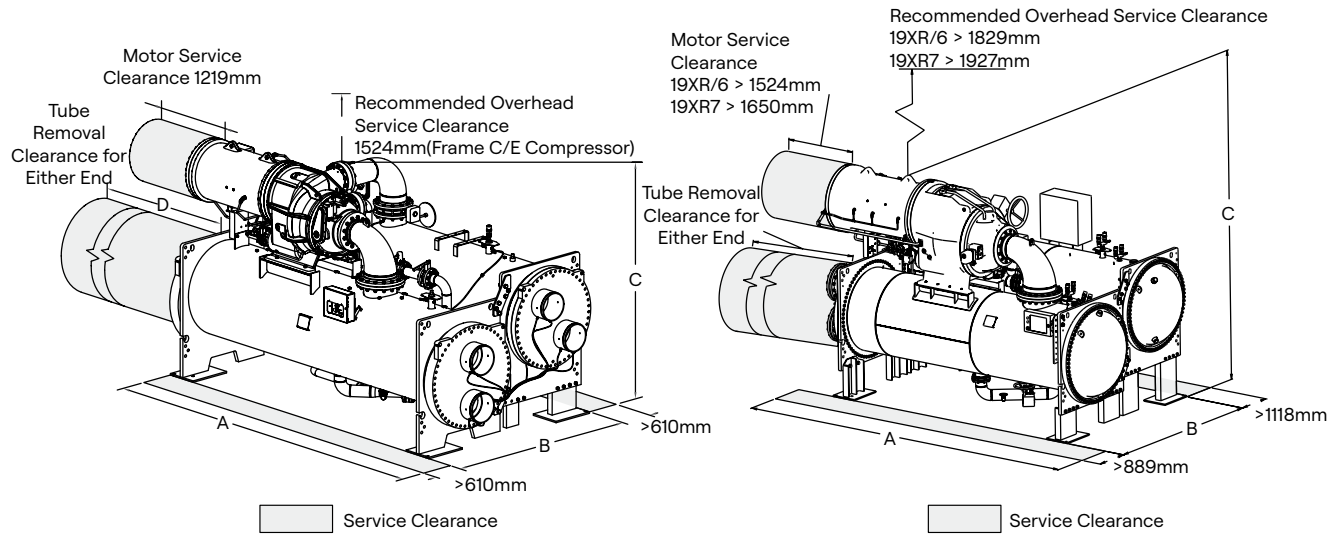
Heat exchanger frame size	Compressor frame size	Weight (kg)					
		Net		Operating		R134a	
		Min	Max	Min	Max	Min	Max
7	XRE	16015	20815	17920	23155	836	1168
8	XRE	18505	24270	21195	27340	984	1309

Heat exchanger frame size		Compressor frame size	Dimensions (mm)		
Cooler frame size	Condenser frame size		Length	Width	Height
A4	A4	XR6	5175	3130	3485
A6	A6	XR6	5785	3130	3485
A4	B4	XR6	5195	3255	3485
A6	B6	XR6	5805	3255	3485
B6	C6	XR7	5925	3670	3745
C6	C6	XR7	5975	3800	3815
C6	D6	XR7	5975	4015	3815

Heat exchanger frame size		Compressor frame size	Weight (kg)	
			Net	Operating
Cooler frame size	Condenser frame size			Max
A4	A4	XR6	30830	35466
A6	A6	XR6	32330	37580
A4	B4	XR6	33080	38432
A6	B6	XR6	34900	40813
B6	C6	XR7	44270	52132
C6	C6	XR7	49110	58055
C6	D6	XR7	54190	64647

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

19XR-C/E/6/7 Chiller Dimensions



19XR-C Unit Dimensions

Evaporator Size	Condenser Size	A-Length for NIH Waterbox (2 Passes)	B-Width	C-Height		D-Tube Removal Space for Either End
				Without Unit- mounted Starter	With Unit- mounted Y- Δ/ Solid State Starter	
		mm	mm	mm	mm	mm
5P~54	50~54	4393	2098	2421	2850	3747
5X~59	55~59	4921	2078	2421	2850	4343
6P~64	60~64	4419	2163	2637	3071	3747
6X~69	65~69	4940	2148	2637	3071	4343
7P~74	70~74	5051	2472	2743	3155	4267
7X~79	75~79	5660	2472	2743	3155	4877

19XR-C/E/6/7 Chiller Dimensions

Evaporator Size	Condenser Size	A-Length for NIH Waterbox (2 Passes)	B-Width	C-Height		D-Tube Removal Space for Either End
				Without Unit- mounted Starter	With Unit- mounted Y- Δ / Solid State Starter	
		mm	mm	mm	mm	mm
7P~74	70~74	5045	2426	2889	3266	4369
7X~79	75~79	5642	2426	2889	3266	4978
8P~84	80~84	5121	2711	2937	3381	4369
8X~89	85~89	5731	2711	2937	3381	4978
8P~84	V0~V4	5195	2926	3082	-	4267
8X~89	V5~V9	5805	2926	3082	-	4877
A4A~A47	A4A~A47	5229	3051	3484	-	4572
A6A~A67	A6A~A67	5839	3051	3484	-	5182
A4A~A47	B4A~B47	5229	3186	3484	-	4572
A6A~A67	B6A~B67	5839	3186	3484	-	5182
B6A~B67	C6A~C67	5969	3658	3742	-	5182
C6A~C67	C6A~C67	6019	3798	3813	-	5182
C6A~C67	D6A~D67	6019	4014	3813	-	5182
C8A~C87	D8A~D87	6629	4014	3813	-	5792

NOTES:

1. A-length includes flanges with both cooler and condenser having two passes and nozzles being at the same end (drive end for standard units).
2. The above dimensions are based on the waterside pressure being 1.0Mpa. A-length will vary while the waterside pressure increases.