



United Technologies

turn to the experts



AQUAEDGE™

19XR Hermetic Centrifugal Liquid Chiller

Cooling Capacity: 300~1650 RT (single-stage)
800~3000 RT (two-stage)



Turn To The Experts

Founded by the inventor of modern air conditioning, Carrier is the world's leader in high-technology heating, air-conditioning and refrigeration solutions. Carrier experts provide sustainable solutions, integrating energy-efficient products, building controls and energy services for residential, commercial, retail, transport and food service customers. Carrier is a part of UTC Building & Industrial Systems, a unit of United Technologies Corp., a leading provider to the aerospace and building systems industries worldwide.

With a broad portfolio of advanced technical patent awards, our global R&D center in Shanghai develops innovative heat, ventilation and air-conditioning (HVAC) solutions.

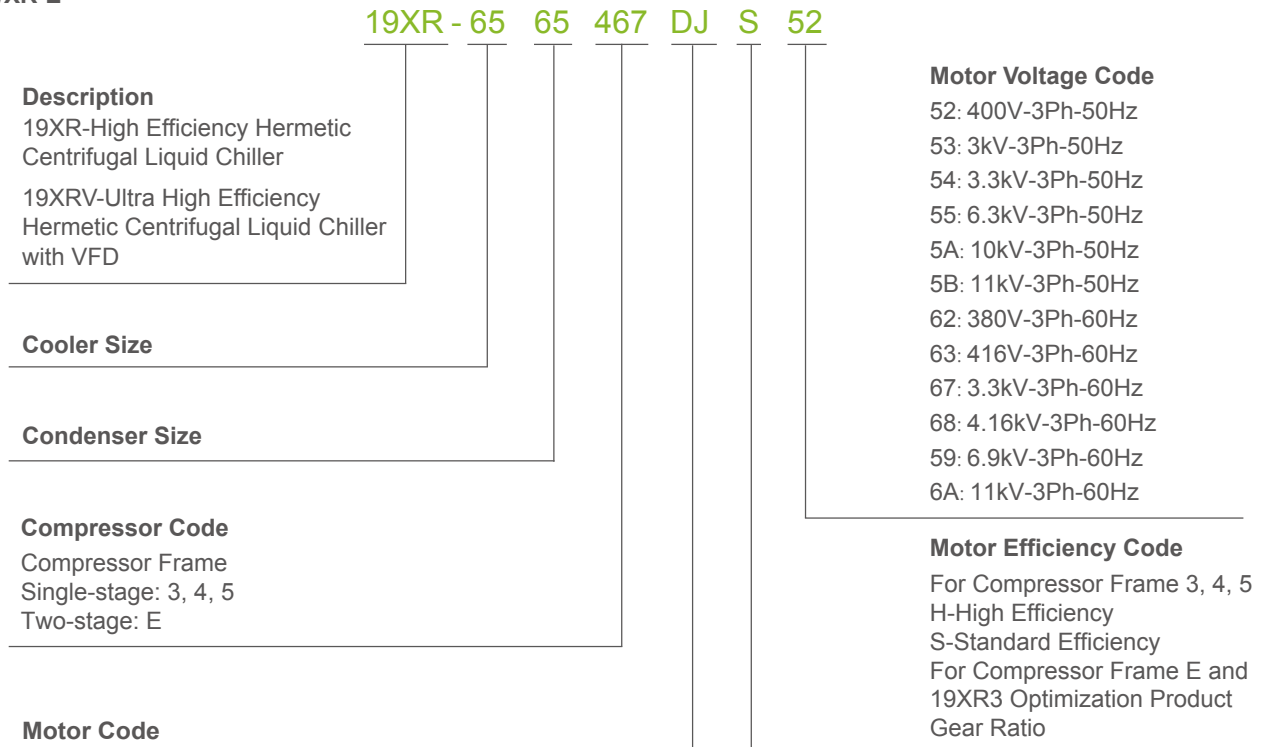


In 1998, Time magazine named Dr. Carrier one of its 20 most influential builders and titans of the 20th century.



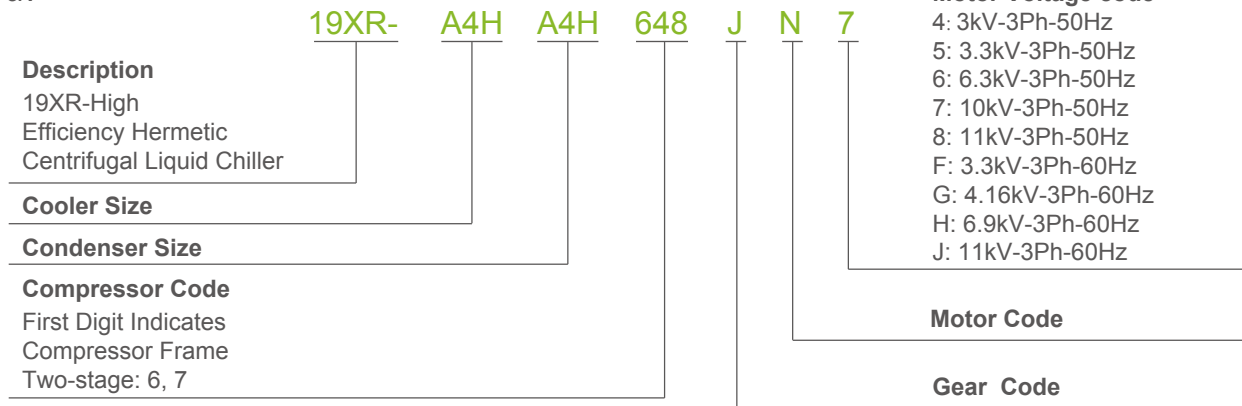
Model Number Nomenclature

19XR/XR-E



Note: Carrier is dedicated to continuous product development. Components list will vary to meet different demands
 *Availability please check with local sales office

19XR-6/7



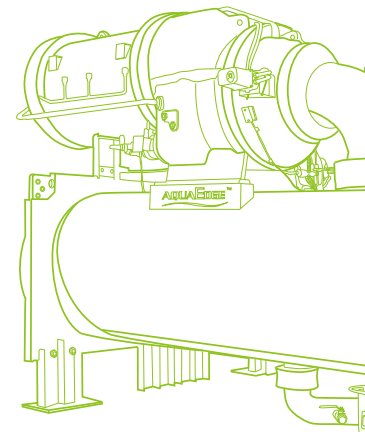
Cooling Capacity

19XR Single-stage: 1055-5274kW (Air-conditioning Low/Medium voltage)
 2110-5803kW (Air-conditioning High voltage)
 1055-5135kW (Air-conditioning Low voltage VFD)

19XR Two-stage: 2813-5274kW (Air-conditioning Low/Medium/High voltage Low voltage VFD)
 5627-10548kW (Air-conditioning Medium/High voltage)
 3517-5275kW (Heating application Low/Medium/High voltage)

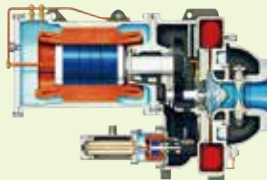
Energy-saving and High Efficiency

- Key components of compressor are designed with advanced aircraft engine technologies.
- Taper pipe diffuser is applied in single stage compressor to improve compressor efficiency. Carrier patent of split rotational diffuser inner ring can rotate with load change, adjust area and direction of flow channel, thus greatly improve the part load performance and reliability of chiller.
- Non-blade diffuser designed for two-stage compressor, combined with inner-stage economizer improves chiller performance and makes it a better choice of high lift application.
- 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.
- Carrier patent AccuMeter™ system regulates refrigerant flow according to load conditions, provides a liquid seal at all operating conditions and eliminates unintentional hot gas bypass. Thus ensure the part load performance of chiller. (Only for single stage compressor)



Stable Operation

- Variable inlet guide vanes - The guide vanes are connected with air-water piping, reducing installation craft-quality cable and controlled by a precise electronic actuator. The vanes regulate inlet flow to provide high efficiency through a wide operating range.
- Diffuser design-pipe diffuser design uses jet engine technology, increasing centrifugal compressor peak efficiency (single-stage only). Two-stage compressor utilizes vane-less diffuser to meet high lift application requirement with stable operation.
- Hermetical Motors—cooling is accomplished by spraying liquid refrigerant on the motor windings. This highly efficient motor cooling method also eliminates the potential for shaft seal leaks and refrigerant/oil loss.



Single-stage compressor

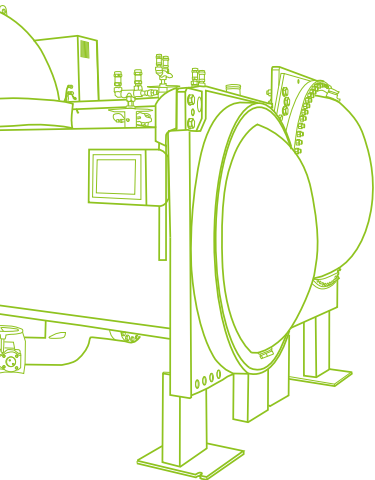


Integrated transmission

Environmental Leadership

- Designed specifically for chlorine-free HFC-134a refrigerant (the environmentally preferred HFC-134a refrigerant with zero-ozone-depletion potential)

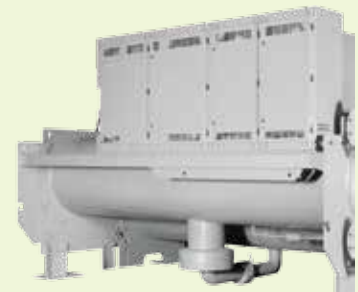




- ✔ International Chiller Visual Control (ICVC) - a large english LCD (liquid crystal display) features 4 menu-specific soft keys. The default display offers all in one glance review of key chiller operation data, simplifying the interaction between chiller and user.(For 19XR)
- ✔ Color Touch Screen - friendly human machine interface , graphical display screens for the main components and multi languages selection.(Only for 19XRE/6/7)
- ✔ Carrier offers 10/11kV 19XR/XR-E/6/7 centrifugal chiller with multiple choices of power supply installation.
- ✔ 19XRV/XR(V)-E AquaEdge chiller 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.
- ✔ Flexible combination - The chillers provide a complete line of compressors, motors and heat exchangers, ensuring the best combination of chiller components regardless of tonnage, lift, and efficiency specifications.



Free-standing VFD starter



Unit-mounted VFD starter

Convenient Installation

- ✔ Water boxes are equipped with standard flanges, which facilitate the field installation and protect temperature sensor.
- ✔ The positive pressure design reduces the chiller size by up to 35% compared to low-pressure design. The smaller size minimizes the need for valuable mechanical room floor space. In addition, positive-pressure design eliminates the need for additional cost of low-pressure containment devices.
- ✔ Refrigerant-cooled oil cooler-Refrigerant cooling eliminates field water piping, reduces installation cost.
- ✔ Cooler and condenser are designed and manufactured in accordance with the standard of pressure vessel of china. The unit isolation valves facilitate the heat exchangers as liquid container, which provides ease of maintenance.

Carrier PIC5 Control System - Intelligent Colorful Touch Screen

- Carrier two-stage centrifugal chiller equips latest PIC5 control system with strong control and monitoring function during chiller operation. The PIC5 control system applies a 10.5 inch high resolution touch screen, which can support more than ten language choices for customer, real time display of operation parameters with pictures makes it more human friendly and comfortable interface for operation. This PIC5 control system simulates and monitors chiller operation, adjusts cooling or heating capacity according to load change and provides various protection during operation.

Reliable Start-up and Operation

- PIC5 control system provides customer security code to avoid any setting change without authorization. There are three levels of access with individual security code.
- 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 PIC5 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.
- PIC5 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.



Effective Failure Diagnostic

- PIC5 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 PIC5 control system. Customer or Carrier service technician can read and delete alarm records by Carrier service/PCDCT tools.
- PIC5 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.
- PIC5 control system has email alarm function. PIC5 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 exists.

- The installation of Carrier PIC5 colorful touch screen is very flexible. It greatly improves the convenience that customer can install touch screen at any corner of the chiller.
- The customer can not only directly operate on touch screen but also use the port to connect with Ethernet and operate via web page. Customer just needs to input controller IP address into the browser's address bar during operation in internet explorer.
- PIC5 control system has function of wireless monitoring and operation. Apple Company products i-Phone or i-Pad can be connected with chiller at anytime and anywhere with WiFi by downloading and installing App software in advance.
- Except for Ethernet, PIC5 control system facilitates various accesses, such as LEN, USB and Carrier CCN access to meet customer and service people selections. PIC5 is compatible with Carrier i-Vu control network and integrated Bacnet/IP protocol. PIC5 also facilitates protocol converter for Modbus and Lonworks to simplify the seamless connection with building control systems.



Main Page

- Control system main page operation and primary parameters monitored:
 - 1)Main page button
 - 2)menu page button
 - 3)Log in /Language button
 - 4)Start-up/Stop page button
 - 5)Alarm menu button
 - 6)Setting point
 - 7)Chiller load percentage
 - 8)Inlet Guide Vane position percentage
 - 9) Oil sump temperature
 - 10)Oil pressure difference
 - 11)Condensing water pump status
 - 12)Chilled water pump status
 - 13)Condenser water inlet/outlet temperature
 - 14)Evaporator water inlet/outlet temperature
 - 15)Condenser saturated temperature and pressure
 - 16)Condenser saturated temperature and pressure
- Customer can easily read primary information of chiller, components status and access to other interfaces from this page. They are:
 - General parameter page
 - Temperature/Pressure page
 - Input/Output parameter page
 - Water system parameter page
 - Operation time
 - Mode
 - Graphic data trend



19XR Two-stage Hermetic Centrifugal Chiller

In 2013, Carrier introduced a high-efficiency two-stage hermetic centrifugal chiller to deliver continuous energy saving and environmental protection, as well as the most comprehensive range of air-conditioning, heat pump, energy recovery, ice thermal storage, VFD and high-voltage applications.

Environmental Leadership

The system has been designed specifically for chlorine-free HFC-134a refrigerant, the environmentally preferred HFC-134a refrigerant with zero-ozone depletion potential.



Industry-leading Efficiency

The all-new design greatly increases chiller full-load and part-load efficiency with a COP up to 6.5 (AHRI conditions) and an IPLV up to 7.4 or up to 10.5 with VFD.

High-efficiency technologies include:

- ✓ Advanced technology two stage high efficiency compressor , design specifically for HFC-134a.
- ✓ New blunt leading-edge IGV for part load efficiency improvement.
- ✓ An interstage economizer that improves system and efficiency and increases capacity.



Two-stage Compressor



IGV



Impeller



Economizer

Wide Application

The innovative two-stage compressor provides a dramatic range of capabilities. With a maximum LWT of 65 C and a minimum LCWT of -6 C , the 19XR two-stage centrifugal chiller is ideal wherever energy conservation and environmental protection are required.

Stable Operation

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.

Low Sound Level

For ultra-quiet operation, the advanced two-stage compressor has an optimized aero-structural design and allows lower impeller speed.

Modular Construction

The cooler, condenser and compressor assemblies are compact and entirely bolted together. This design makes the chiller ideally suited for replacement projects where ease of disassembly and reassembly at the jobsite is essential.

Heat Pump Application

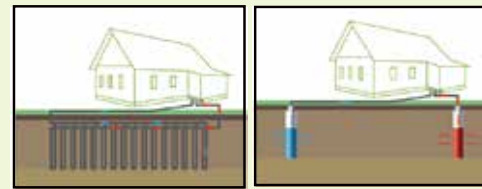
The heat pump system utilizes natural energy storage in soil, bedrock, groundwater, surface water, wastewater and air to satisfy demand for building cooling, heating and hot water.

Heat Pump System Benefits

- ✔ Cooling/heating
- ✔ Improved system efficiency
- ✔ Use of low-grade energy

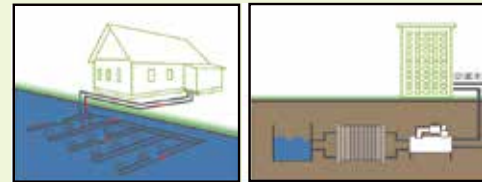
19XR-E Benefits

- ✔ Wide range of applications with high efficiency
- ✔ Hot water temperature (LWT) up to 65 °C



Geothermal

Underground water



Earth's surface water

Dark/Grey water

Energy Recovery Application

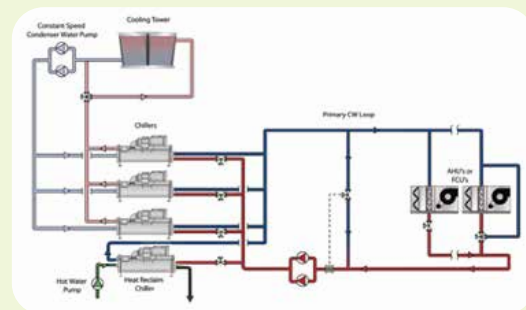
Discharging condenser heat via a cooling tower not only causes thermal pollution but is a tremendous waste for locations with high demand for heating, such as hotels, factories and hospitals.

Energy Recovery System Benefits

- ✔ Reduced boiler size and operating time
- ✔ Reduced cooling tower size and waste heat discharge
- ✔ Improved system efficiency by 15-25%

19XR-E Benefits

- ✔ High efficiency operation
- ✔ Hot water temperature(LWT) up to 65 °C



Ice Thermal Storage Application

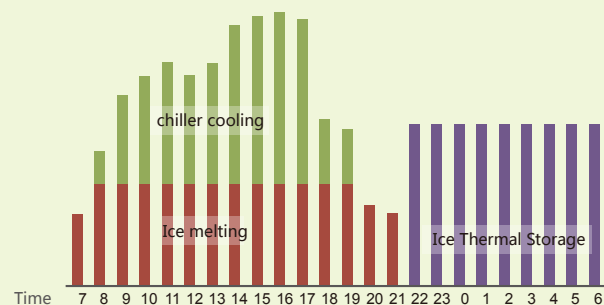
The chiller stores energy as ice during the night, when electricity costs and utilization are low. This energy is then discharged to satisfy cooling loads when electricity costs peak during the day, greatly reducing building operating costs.

Ice Thermal Storage System Benefits

- ✔ Reduced chiller and cooling tower size
- ✔ Reduced chiller operating time
- ✔ Operational cost savings by using off-peak electricity
- ✔ Backup cooling in emergency situations

19XR-E Benefits

- ✔ Stable 24-hour operation
- ✔ Suitable for variable voltage and VFD applications
- ✔ Minimum leaving water temp (LCWT): -6 °C
- ✔ Suitable for cold air distribution district cooling systems



Performance Data

Air-conditioning (380V-3Ph-50Hz)

Model	Chiller			Motor		Evaporator			Condenser			Footprint			Weight			
	Cooling Capacity		Input Power	Full load COP	RLA	LRYA	Flow Rate	Pressure Drop	Water Connection	Flow Rate	Pressure Drop	Water Connection	Length	Width	Height	Operating	Rigging (w/o Refrigerant)	Refrigerant Charge
	kW	Tons	kW	ikW/kW	A	A	l/s	kPa	mm	l/s	kPa	mm	mm	mm	mm	kg	kg	kg
19XR-303132HUBU52	1055	300	188	0.179	325	745	50.4	86.4		59.7	64.8		4172	1707	2073	6628	5801	371
19XR-313133HUCU52	1231	350	224	0.182	384	843	58.8	84.2		69.8	86.1		4172	1707	2073	6789	5906	396
19XR-313234HUEU52	1406	400	256	0.182	440	1046	67.2	107.1	DN200	79.8	84.2	DN200	4172	1707	2073	6965	6046	396
19XR-404036HUFU52	1583	450	283	0.179	487	1119	75.6	77.9		89.5	77.3		4365	1908	2153	8097	6808	483
19XR-414138HUGU52	1758	500	310	0.176	525	1176	84.0	78.1		99.3	76.8		4365	1908	2153	8386	7004	508
19XR-505138HUGU52	1934	550	341	0.176	575	1176	92.4	71.3		109.6	51.6		4460	2054	2137	9488	7788	609
19XR-5P51436DES52	2110	600	381	0.181	667	1357	100.8	68.8		119.8	60.7		4460	2054	2207	9719	8110	493
19XR-5P504QEDDS52	2110	600	388	0.184	678	1357	100.8	68.8		120.1	70.8		4460	2054	2207	9967	8393	493
19XR-5Q5144FLEH52	2286	650	427	0.187	748	1521	109.2	73.2	DN200	130.5	71.0	DN250	4460	2054	2207	10096	8449	510
19XR-5R514QELEH52	2286	650	417	0.182	730	1521	109.2	66.8		130.2	70.7		4460	2054	2207	10549	8864	524
19XR-5Q5245FLFH52	2462	700	469	0.190	808	1637	117.6	83.9		140.9	72.0		4460	2054	2207	10239	8558	510
19XR-5Q524R5LFH52	2462	700	452	0.184	781	1637	117.6	83.9		140.3	71.5		4460	2054	2207	10614	8932	510
19XR-6X65467LGH52	2638	750	487	0.185	851	1794	126.0	77.2		150.3	80.2		5000	2124	2261	11797	9735	619
19XR-6R614T5LGH52	2638	750	460	0.174	807	1794	126.0	58.4	DN250	148.9	64.0	DN250	4480	2124	2261	11570	9589	579
19XR-6Z6747FLGH52	2814	800	508	0.181	886	1794	134.4	72.8		159.8	73.1		5000	2124	2261	12259	10029	657
19XR-6Z664U5LGH52	2814	800	484	0.172	847	1794	134.4	72.8		158.5	79.3		5000	2124	2261	12497	10305	657
19XR-7P704V5LGH52	3164	900	554	0.175	962	1794	151.2	74.0		179.2	80.0		5169	2426	2750	15575	12787	836
19XR-70704W6LHH52	3517	1000	621	0.177	1055	1837	168.1	108.5		199.3	97.2		5169	2426	2750	16354	13381	1020
19XR-7P71E53MDB52	3869	1100	680	0.176	1145	2362	184.9	106.8	DN300	218.4	97.7	DN300	5169	2426	2902	17495	14499	964
19XR-7Q72E53MDB52	3869	1100	670	0.173	1129	2362	184.9	89.5		218.1	85.1		5169	2426	2902	17974	14802	1002
19XR-7Q72E53MEB52	4220	1200	736	0.174	1251	2729	201.7	105.0		238.0	99.9		5169	2426	2902	18008	14836	1002
19XR-8P81E51MEB52	4220	1200	697	0.165	1187	2729	201.7	72.6		236.3	76.5		5205	2711	2950	20483	16619	1113
19XR-8P80E63MFB52	4572	1300	799	0.175	1359	3276	218.5	84.0		257.8	102.1		5205	2711	2950	20284	16495	1113
19XR-8Q81E61MFB52	4572	1300	766	0.168	1305	3276	218.5	72.6	DN350	256.4	88.8	DN350	5205	2711	2950	20790	16805	1156
19XR-8P81E63MFB52	4924	1400	862	0.175	1461	3276	235.3	96.2		277.7	102.8		5205	2711	2950	20548	16684	1113
19XR-8R84E63MFB52	5276	1500	910	0.172	1538	3276	252.1	83.4		297.1	84.9		5205	2711	2950	21773	17435	1204

Brine application (10kV-3Ph-50Hz)

Model	Chiller			Motor		Evaporator			Condenser			Footprint			Weight			
	Cooling Capacity		Input Power	COP	RLA	LRYA	Flow Rate	Pressure Drop	Nozzle Connection	Flow Rate	Pressure Drop	Nozzle Connection	Length	Width	Height	Operating	Rigging (w/o refrigerant)	Refrigerant Charge
	kW	Tons	kW	ikW/kW	A	A	l/s	kPa	mm	l/s	kPa	mm	mm	mm	mm	kg	kg	kg
19XR-7070E43MDE5A	2462	700	604	0.245	40	231	158.0	129.2		210.2	108.1		5169	2426	2902	18554	15447	1148
19XR-7R72E53MFE5A	2814	800	696	0.247	46	244	180.6	95.6	DN300	240.5	102.7	DN300	5169	2426	2902	18646	15373	1039
19XR-8R82E63MFE5A	3164	900	779	0.246	52	244	203.2	72.4		270.3	88.0		5205	2711	2950	21671	17488	1204
19XR-8787E65MFE5A	3517	1000	859	0.244	57	244	225.8	135.4	DN350	300.0	117.4	DN350	5731	2711	2950	24300	19576	1549

- Note:** 1. The above selections are based on entering/leaving chilled water temperature:12/7°C; entering/leaving cooled water temperature:32/37°C. Cooler fouling factor is 0.0176 m²C/kW and condenser fouling factor is 0.044 m²C/kW.
 2. The above brine application selections are based on entering/leaving chilled water temperature:-2/-6°C; entering/leaving cooled water temperature:30/33.5°C. Cooler fouling factor is 0.0176 m²C/kW and condenser fouling factor is 0.044 m²C/kW, 25% ethylene glycol.
 3. Carrier will select specific models using computer on different requests for tonnage, lift, and efficiency. For details, please contact local agencies.
 4. Standard water box pressure is 1.0MPa, and can provide 1.6Mpa, 2.0Mpa as option; For more requirements, please contact local agencies.
 5. The above selections are made based on the voltage being 380V/10kV. For details or customized selections, please contact local agencies.
 6. 60Hz selections are also available. Please contact local agencies to get more support.

Performance Data

Air-conditioning (10kV-3Ph-50Hz)

Model	Chiller				Motor		Evaporator			Condenser			Footprint			Weight		
	Cooling Capacity		Input Power	Full load COP	RLA	LRYA	Flow Rate	Pressure Drop	Water Connection	Flow Rate	Pressure Drop	Water Connection	Length	Width	Height	Operating	Rigging (w/o Refrigerant)	Refrigerant Charge
	kW	Tons	kW	ikW/kW	A	A	l/s	kPa	mm	l/s	kPa	mm	mm	mm	mm	kg	kg	kg
19XR-7P704V5LHH5A	3164	900	556	0.176	38	200	151.2	74.0										
19XR-70704W6LHH5A	3517	1000	620	0.176	42	200	168.1	108.5										
19XR-7P71E53MDB5A	3869	1100	683	0.177	45	231	184.9	106.8	DN300	218.5	97.8	DN300	5169	2426	2902	18067	15069	964
19XR-7Q72E53MDB5A	3869	1100	674	0.174	45	231	184.9	89.5		218.2	85.2		5169	2426	2902	18546	15372	1002
19XR-7Q72E53MFB5A	4220	1200	738	0.175	49	244	201.7	105.0		238.0	99.9		5169	2426	2902	18446	15273	1002
19XR-8P81E51MFB5A	4220	1200	696	0.165	46	244	201.7	72.6		236.3	76.4		5205	2711	2950	20922	17057	1113
19XR-8P80E63MFB5A	4572	1300	802	0.175	53	244	218.5	84.0		258.9	102.9		5205	2711	2950	20658	16868	1113
19XR-8Q81E63MFB5A	4572	1300	789	0.173	52	244	218.5	72.6	DN350	257.4	89.5	DN350	5205	2711	2950	21164	17178	1156
19XR-8P81E63MFB5A	4924	1400	868	0.176	58	244	235.3	96.2		279.0	103.7		5205	2711	2950	20922	17057	1113
19XR-8R84E63MFB5A	5276	1500	912	0.173	60	244	252.1	83.4		297.2	84.9		5205	2711	2950	22147	17808	1204
19XR-878750EMHH5A	5803	1650	988	0.170	64	299	277.3	148.1		326.0	135.6		5731	2711	3029	24551	19955	1420
19XR-A4FA45626JN7	5626	1600	964	0.171	63	366	268.9	67.7		316.6	90.3		5270	3051	3484	29887	24527	1321
19XR-A4FA46638JN7	5977	1700	1024	0.171	67	366	285.7	76.1		336.5	84.9		5270	3051	3484	30325	24798	1321
19XR-A4FA47638JN7	6329	1800	1076	0.170	70	366	302.5	85.0		356.0	82.1	DN400	5270	3051	3484	30721	25043	1321
19XR-A4FA47638JP7	6680	1900	1138	0.170	75	399	319.3	94.3	DN400	375.7	90.6		5270	3051	3484	30721	25043	1321
19XR-A4FA47648JQ7	7032	2000	1211	0.172	79	430	336.1	104.1		396.0	99.8		5270	3051	3484	30721	25043	1321
19XR-A6FB66648JQ7	7384	2100	1232	0.167	81	430	352.9	127.1		414.5	93.2	DN450	5879	3185	3484	34622	27631	1650
19XR-A6GB66648JQ7	7735	2200	1290	0.167	84	430	369.7	121.8		434.1	101.5		5879	3185	3484	34726	27570	1706
19XR-B6FC65718TU7	8087	2300	1334	0.165	88	550	386.5	97.0		453.2	79.1		6020	3658	3742	42626	33901	1908
19XR-B6FC65710TU7	8438	2400	1397	0.166	92	550	403.3	105.3		473.1	85.5		6020	3658	3742	42626	33901	1908
19XR-B6GC65720TU7	8790	2500	1463	0.166	96	550	420.1	94.5		493.1	92.1		6020	3658	3742	43179	34229	1939
19XR-B6GC66720TV7	9142	2600	1508	0.165	100	555	436.9	101.9	DN450	512.3	83.4	DN500	6020	3658	3742	43887	34629	1939
19XR-C6FC66720TV7	9493	2700	1563	0.165	103	555	453.7	81.3		531.7	89.2		6073	3797	3812	47142	37310	2082
19XR-C6FC66730TV7	9845	2800	1629	0.165	107	555	470.5	87.2		551.8	95.4		6073	3797	3812	47142	37310	2082
19XR-C6FC67730TV7	10196	2900	1670	0.164	110	555	487.3	93.3		570.9	86.7		6073	3797	3812	47960	37803	2082
19XR-C6FC67730TW7	10548	3000	1729	0.164	114	614	504.2	99.6		590.6	92.2		6073	3797	3812	47961	37804	2082

Heating application (10kV-3Ph-50Hz)

Model	Chiller				Motor		Evaporator			Condenser			Footprint			Weight		
	Cooling Capacity		Input Power	Full Load COP	RLA	LRYA	Flow Rate	Pressure Drop	Water Connection	Flow Rate	Pressure Drop	Water Connection	Length	Height	Width	Operating	Rigging (w/o refrigerant)	Refrigerant Charge
	kW	Tons	kW	ikW/kW	A	A	l/s	kPa	mm	l/s	kPa	mm	mm	mm	mm	kg	kg	kg
19XR-7171E35MDC5A	3517	1000	662.9	0.188	44	231	136.2	62.1										
19XR-7072E43MFD5A	3869	1100	745.0	0.193	50	244	149.1	88.4										
19XR-7172E45MFC5A	4220	1200	785.4	0.186	52	244	163.9	86.7	DN300	204.6	73.8	DN300	5169	2426	2902	19318	15934	1207
19XR-7274E53MFD5A	4572	1300	879.5	0.192	58	244	176.2	86.6		221.1	80.4		5169	2426	2902	19684	16161	1256
19XR-8082E57MHC5A	4924	1400	939.4	0.191	61	299	190.2	87.9		238	67.4		5205	2711	2950	22096	18034	1279
19XR-8284E57MHC5A	5275	1500	996.3	0.189	64	299	204.2	77.4	DN350	255.6	62.8	DN350	5205	2711	2950	23139	18690	1382

- Note:** 1. The above selections are based on entering/leaving chilled water temperature:12/7°C; entering/leaving cooling water temperature:32/37°C. Cooler fouling factor is 0.0176 m²°C/kW and condenser fouling factor is 0.044 m²°C/kW.
2. The above heating application selections are based on entering/leaving chilled water temperature 10/5°C; entering/leaving cooling water temperature 40/45°C. Cooler fouling factor is 0.0176 m²°C/kW and condenser fouling factor is 0.044 m²°C/kW.
3. Carrier will select specific models using computer on different requests for tonnage, lift, and efficiency. For details, please contact local agencies.
4. Standard water box pressure is 1.0MPa, and can provide 1.6MPa, 2.0MPa as option; For more requirements, please contact local agencies.
5. The above selections are made based on the voltage being 10kV. For details or customized selections, please contact local agencies.
6. 60Hz selections are also available. Please contact local agencies to get more support.

Electrical Data

Motor Size	Motor Electrical Characteristics	380V Electrical data	
		Max Ikw (kw)	Amps (A)
CDS	LRYA LRDA	199	687 1992
CES	LRYA LRDA	217	777 2252
CLS	LRYA LRDA	242	896 2596
CMS	LRYA LRDA	266	934 2706
CNS	LRYA LRDA	294	1053 3051
CPS	LRYA LRDA	323	1119 3244
CQS	LRYA LRDA	360	1295 3752

Motor Size	Motor Electrical Characteristics	6300V Electrical data	
		Max Ikw (kw)	Amps (A)
DDH	LRA LRDA	410	222 –
DEH	LRA LRDA	437	222 –
DFH	LRA LRDA	471	253 –
DGH	LRA LRDA	515	253 –
DHH	LRA LRDA	549	292 –
DJH	LRA LRDA	549	292 –

Motor Size	Motor Electrical Characteristics	380V Electrical Data	
		Max Ikw (kw)	Amps (A)
UBH	LRYA LRDA	213	745 2278
UCH	LRYA LRDA	238	843 2592
UDH	LRYA LRDA	262	895 2753
UEH	LRYA LRDA	289	1046 3243
UFH	LRYA LRDA	317	1119 3478
UGH	LRYA LRDA	351	1176 3660

Motor Size	Motor Electrical Characteristics	380V Electrical data	
		Max Ikw (kw)	Amps (A)
DCS	LRYA LRDA	380	1317 3818
DDS	LRYA LRDA	409	1357 3932
DES	LRYA LRDA	437	1357 3932
DFS	LRYA LRDA	471	1450 4203
DGS	LRYA LRDA	475	1296 4490

DHS	LRYA LRDA	549	1801 5220
DJS	LRYA LRDA	597	1801 5520

Motor Size	Motor Electrical Characteristics	6300V Electrical data	
		Max Ikw (kw)	Amps (A)
EHH	LRA LRDA	603	314 –
EJH	LRA LRDA	646	342 –
EKH	LRA LRDA	692	387 –
ELH	LRA LRDA	752	380 –
EMH	LRA LRDA	812	380 –
ENH	LRA LRDA	882	415 –
EPH	LRA LRDA	938	531 –

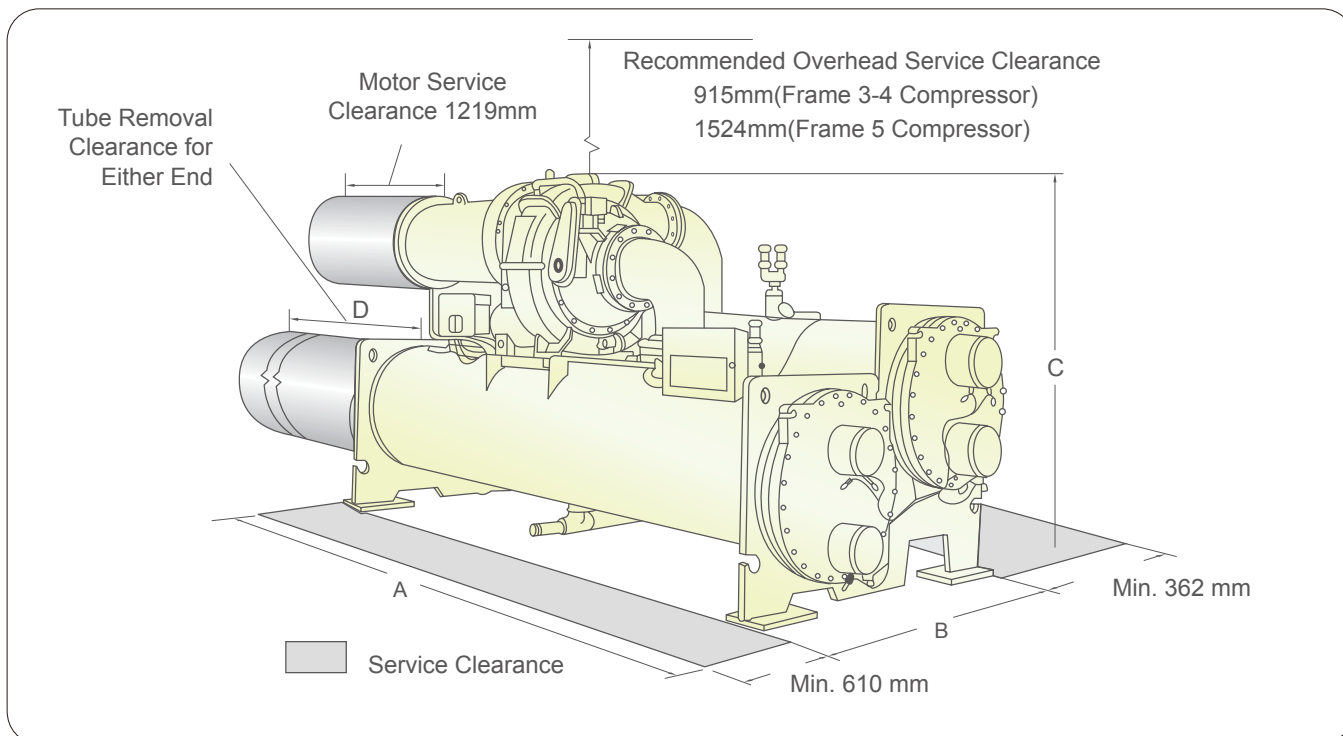
Motor Size	Motor Electrical Characteristics	380V Electrical data	
		Max Ikw (kw)	Amps (A)
EHS	LRYA LRDA	604	1426 4133
EJS	LRYA LRDA	645	1957 5672
EKS	LRYA LRDA	692	1988 5762
ELS	LRYA LRDA	751	1988 5762
EMS	LRYA LRDA	812	1988 5762

ENS	LRYA LRDA	879	2450 7100
EPS	LRYA LRDA	938	2450 7100

Motor Size	Motor Electrical Characteristics	10000V Electrical data	
		Max Ikw (kw)	Amps (A)
MDH	LRA LRDA	738	231 –
MFH	LRA LRDA	944	244 –
N	LRA LRDA	1161	366 –
P	LRA LRYA	1258	399 –
Q	LRA LRYA	1356	430 –
R	LRA LRYA	1449	448 –
S	LRA LRYA	1548	491 –
T	LRA LRYA	1629	487 –
U	LRA LRYA	1742	550 –
V	LRA LRYA	1837	555 –
W	LRA LRYA	1935	614 –
X	LRA LRYA	2031	574 –
Y	LRA LRYA	2129	674 –
Z	LRA LRYA	2249	652 –

Notes: 1. Legend : LRA- Locked Rotor Amps, LRYA-Locked Rotor Y Amps, LRDA-Locked Rotor Delta Amps.
2. For other details, please contact local agencies.

19XR Chiller Dimensions



Cooler/Condenser Size	A-Length for NIH waterbox (2Passes)	B-Width	C-Width	D-Tube Removal Space for Either End
3P ~ 34	4172	1707	2073	3747
3X ~ 39	4693	1707	2073	4343
4P ~ 44	4365	1908	2153	3747
4X ~ 49	4885	1908	2153	4343
5P ~ 54	4460	2054	2207	3747
5X ~ 59	4980	2054	2207	4343
6P ~ 64	4480	2124	2261	3747
6X ~ 69	5000	2124	2261	4343
7P ~ 74	5169	2426	2985	4267
7X ~ 79	5766	2426	2985	4877
8P ~ 84	5200	2711	3029	4267
8X ~ 89	5810	2711	3029	4877

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.

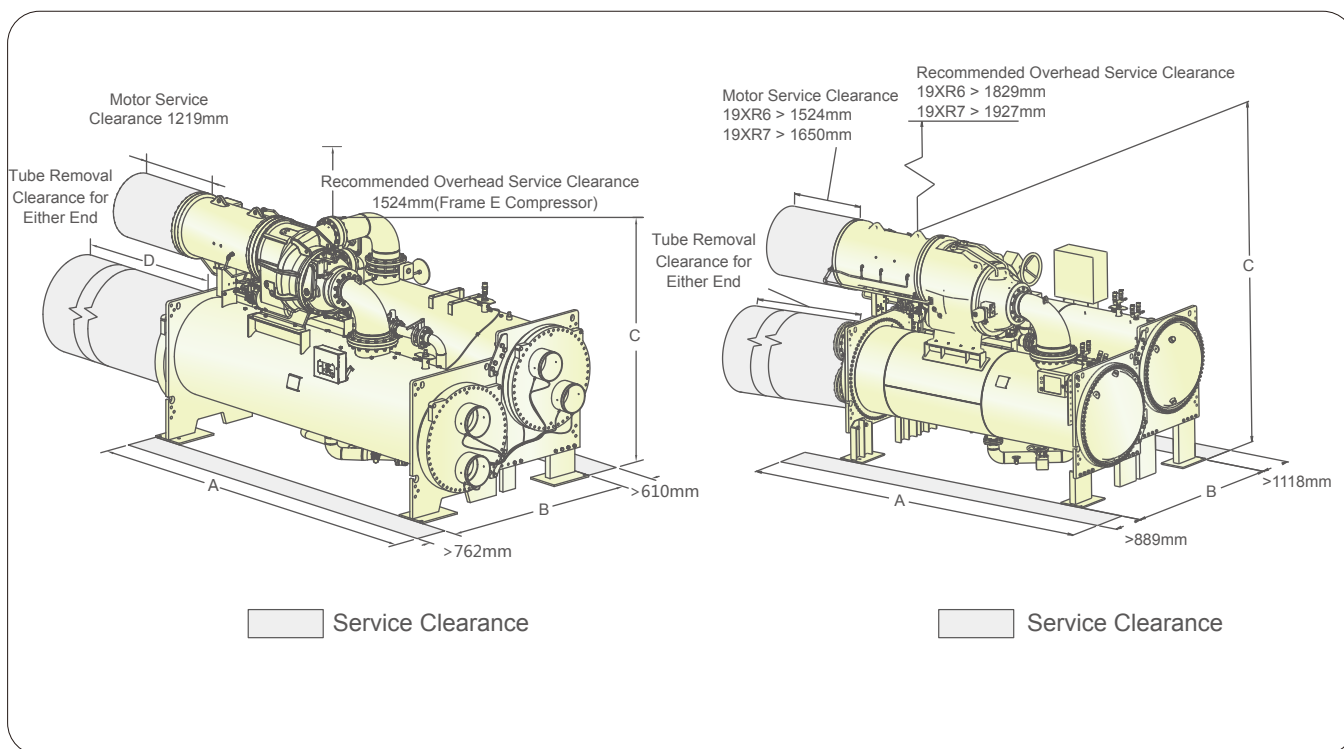
19XR/XR-E Starter Dimensions (Free standing)

(380V-3ph-50Hz/60Hz)

Voltage	Starter Type	Rated Current(A)	Width(mm)	Width(mm)	Depth(mm)	Height(mm)
380V	Y-Δ	<740	800	800	600	2000
		740-1560	1000	1000	600	2000
380V	Solid State	<1157	1200	1200	800	2000
		1157-1550	1600	1600	800	2000
6.3kV	Across the Line Primary Reactor		1000	1000	1660	2600
			2000	2000	1660	2600
10/11kV	Across the Line Primary Reactor		1000	1000	1660	2600
			2000	2000	1660	2600

Notes: The wiring of 380V starter enters from the top and exits from the bottom.
 The wiring of 6.3/10/11kV starter enters from the top and exits from the top.

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



Cooler Size	Condenser Size	A-Length for NIH Waterbox mm(2 passes)	B-Width mm	C-Width mm	D-Tube Removal Space for Either End mm
7P-74	70-74	5169	2426	2902	4267
7X-79	75-79	5779	2426	2902	4877
8P-84	80-84	5205	2711	2950	4267
8X-89	85-89	5817	2711	2950	4877
A4A-A47	A4A-A47	5270	3051	3484	4267
A6A-A67	A6A-A67	5879	3051	3484	4877
A4A-A47	B4A-B47	5270	3185	3484	4267
A6A-A67	B6A-B67	5879	3185	3484	4877
B6A-B67	C6A-C67	6020	3658	3742	5182
C6A-C67	C6A-C67	6073	3797	3812	5182
C6A-C67	D6A-D67	6076	4013	3811	5182

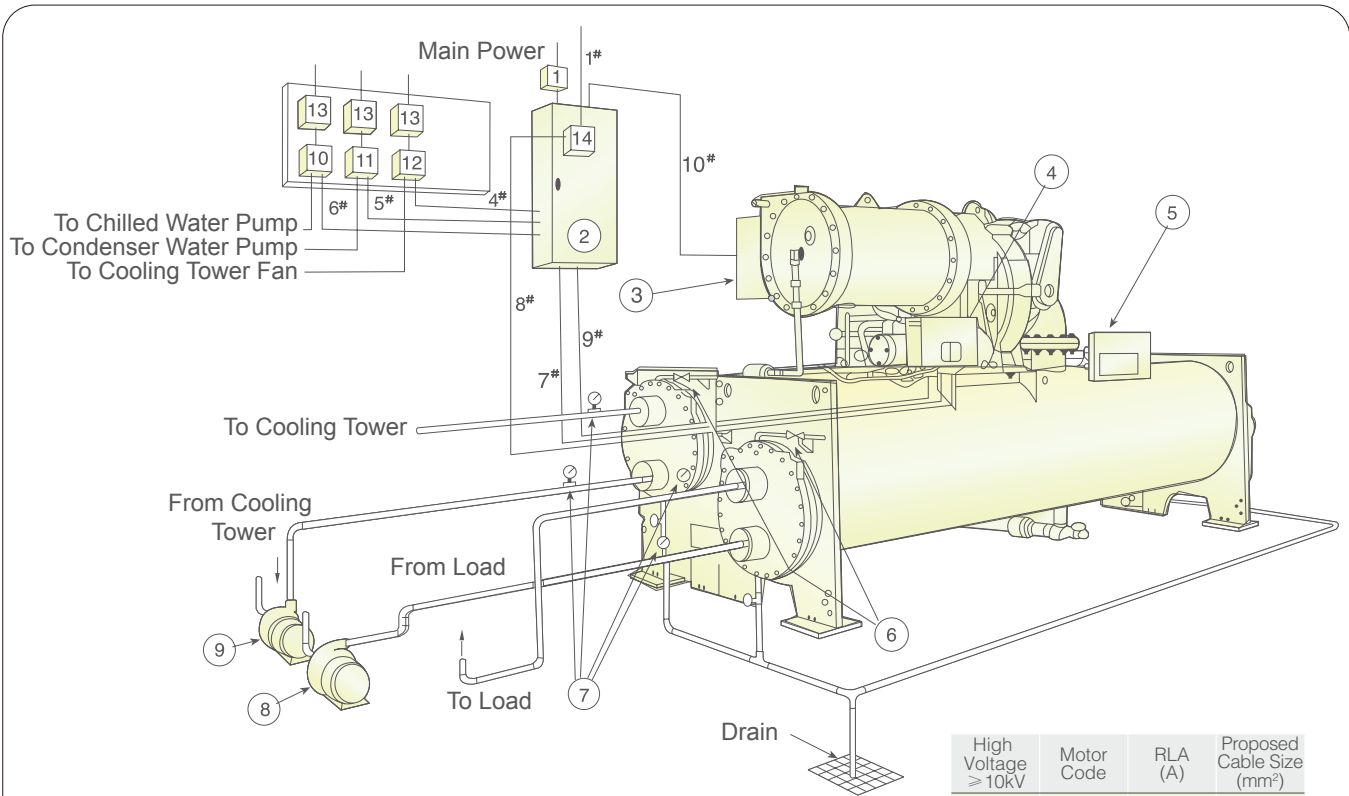
Notes: 1. A-length includes flanges with both cooler and condenser having two passes and nozzles being at the same end (drive end for standard units).
2. The above dimensions are based on the waterside pressure being 1.0Mpa. A-length will vary while the waterside pressure increases.

19XR-6/7 Starter Dimensions (Free standing)

Voltage	Starter Type	Width(mm)	Depth(mm)	Height(mm)
10/11kV	Across the Line	1000	1300	2500
	Primary Reactor	2000	1300	2700
	Auto-Transformer	3000	1500	2700

Notes: The wiring of 10/11kV starter enters from the top and exits from the top. For other wiring requirements, please contact local agencies to get more support.

Typical Piping and Wiring



- | | |
|---------------------------------|---|
| ① Air Switch | ② Freestanding Compressor Motor Starter |
| ③ Compressor Motor Terminal Box | ④ Oil Pump Controller |
| ⑤ Control Panel | ⑥ Vents |
| ⑦ Pressure Gauges | ⑧ Chilled Water Pump |
| ⑨ Cooling Water Pump | ⑩ Chilled Water Pump Starter |
| ⑪ Cooling Water Pump Starter | ⑫ Cooling Tower Fan Starter |
| ⑬ Air Switch | ⑭ Oil Pump Switch |

High Voltage $\geq 10kV$	Motor Code	RLA (A)	Proposed Cable Size (mm ²)
XR4/5	ALL	<70	50
	N	75	50
	P	82	50
	Q	88	50
	R	94	50
XR6	S	100	70
	T	105	70
	U	113	70
	V	119	70
XR7	W	125	95
	X	131	95
	Y	138	95
	Z	145	95

Line Purpose

- 1# Main power to Starter:
- 4# To Cooling Tower Fan Starter:
- 5# To Cooling Tower Water Pump Starter:
- 6# To Chilled Water Pump Starter:
- 7# To Oil Heater Contactor:
- 8# To Oil Pump Contactor:
- 9# To Lubrication System Power Panel:
- 10# To Motor:

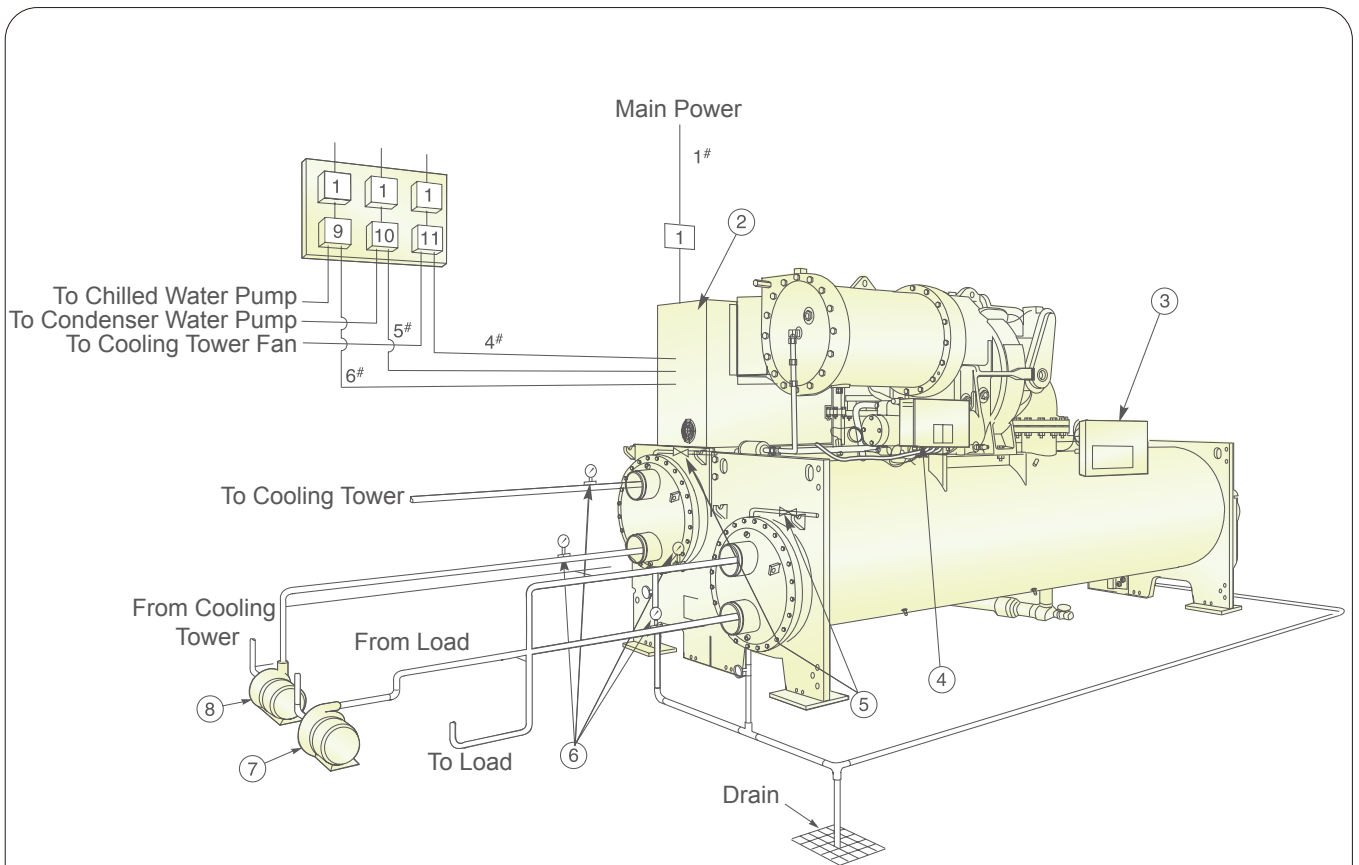
Specification

- 380V AC: 3 phases, 1 neutral, and 1 grounding
Or 6300V/10kV/11kV AC: 3 phases, 1 grounding (medium/high voltage)
- 2 control lines (optional)
- 2 control lines (optional)
- 2 control lines (optional)
- 115V AC: 2 power lines, 1 grounding
- 380V AC power line, 3 phases 5A(For 6300V/10kV/11kV chiller,customer supply
380V power line to oil pump contactor)
- 8 control shielding lines, 600V, 80°C, grounding in starter
- 380V AC: 6 leads (Minimum ampacity per conductor = $0.721 \times RLA$), 2 grounding
Or 6300V/10kV/11kV AC: 3 leads, 1 grounding (medium/high voltage)

Piping and Wiring Requirements:

- The installer must get all pipes and wires in place and mark the ends.
- Filters must be installed in cooling water and chilled water pipes.
- Thermometer (0-50°C) and pressure gauge (0~1Mpa or 2MPa) must be installed at inlet and outlet of the pipes.
- The installer must install the relief valve vent to outdoors with a steel pipe(outer diameter 42mm, thickness 4mm).
- It is suggested that an oxygen content monitor be installed in the machine room for safety, which will give an alarm when the oxygen content is less than 19.5%.
- Selected cable size range is from 50~120 square millimeter. If the customer select cable size is less than 50 square millimeter or more than 120 square millimeter, please contact YLC factory.
- Communication cable between starter (ISM module) and control box (IOB module) shall apply Carrier specified one pair and half shielded twisted cable. The cable shall be installed as far away from high voltage cables and other strong jamming equipments as possible and keep the communication cable as shorter as possible to avoid noise. The communication cable must go through a metal conduit independently.

Typical Piping and Wiring (with VFD)



- | | | | |
|------------------------------|------------------------------|----------------------|-----------------------|
| ① Air Switch | ② Unit-mounted Starter | ③ Control Panel | ④ Oil Pump Controller |
| ⑤ Vents | ⑥ Pressure Gauges | ⑦ Chilled Water Pump | ⑧ Cooling Water Pump |
| ⑨ Chilled Water Pump Starter | ⑩ Cooling Water Pump Starter | | |

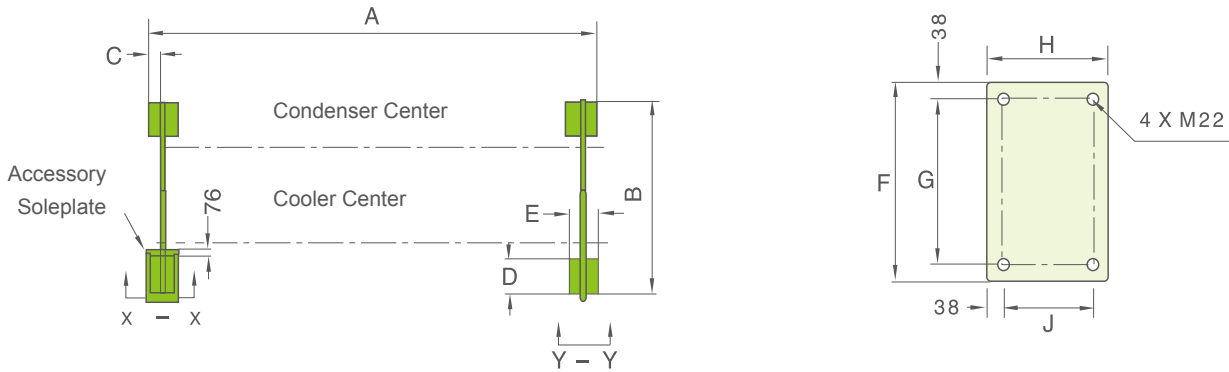
Line	Purpose	Specification
1#	Main power to Starter:	380V AC: 3 phases, 1 neutral, and 1 grounding
4#	To Cooling Tower Fan Starter:	2 control lines (optional)
5#	To Cooling Tower Water Pump Starter:	2 control lines (optional)
6#	To Chilled Water Pump Starter:	2 control lines (optional)

Piping and Wiring Requirements:

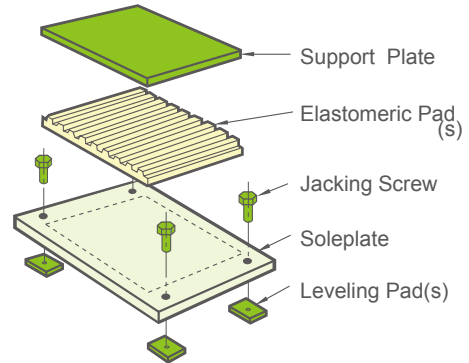
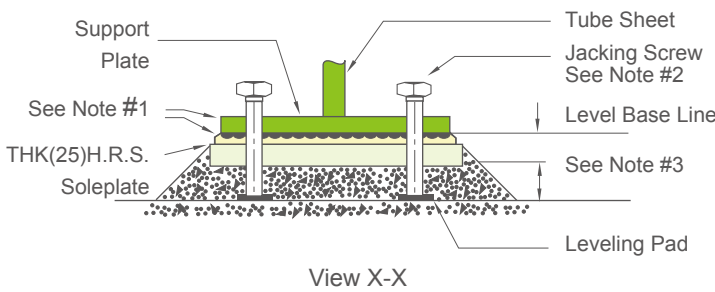
1. The installer must get all pipes and wires in place and mark the ends.
2. Filters must be installed in cooling water and chilled water pipes.
3. Thermometer (0-50°C) and pressure gauge (0~1Mpa or 2MPa) must be installed at inlet and outlet of the pipes.
4. The installer must install the relief valve vent to outdoors with a steel pipe(outer diameter 42mm, thickness 4mm).
5. It is suggested that an oxygen content monitor be installed in the machine room for safety, which will give an alarm when the oxygen content is less than 19.5%.

Types of Base Isolation

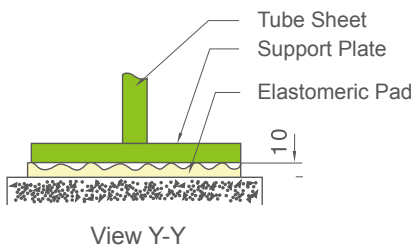
Location Of Isolator



Standard Isolation



Simplified Isolation



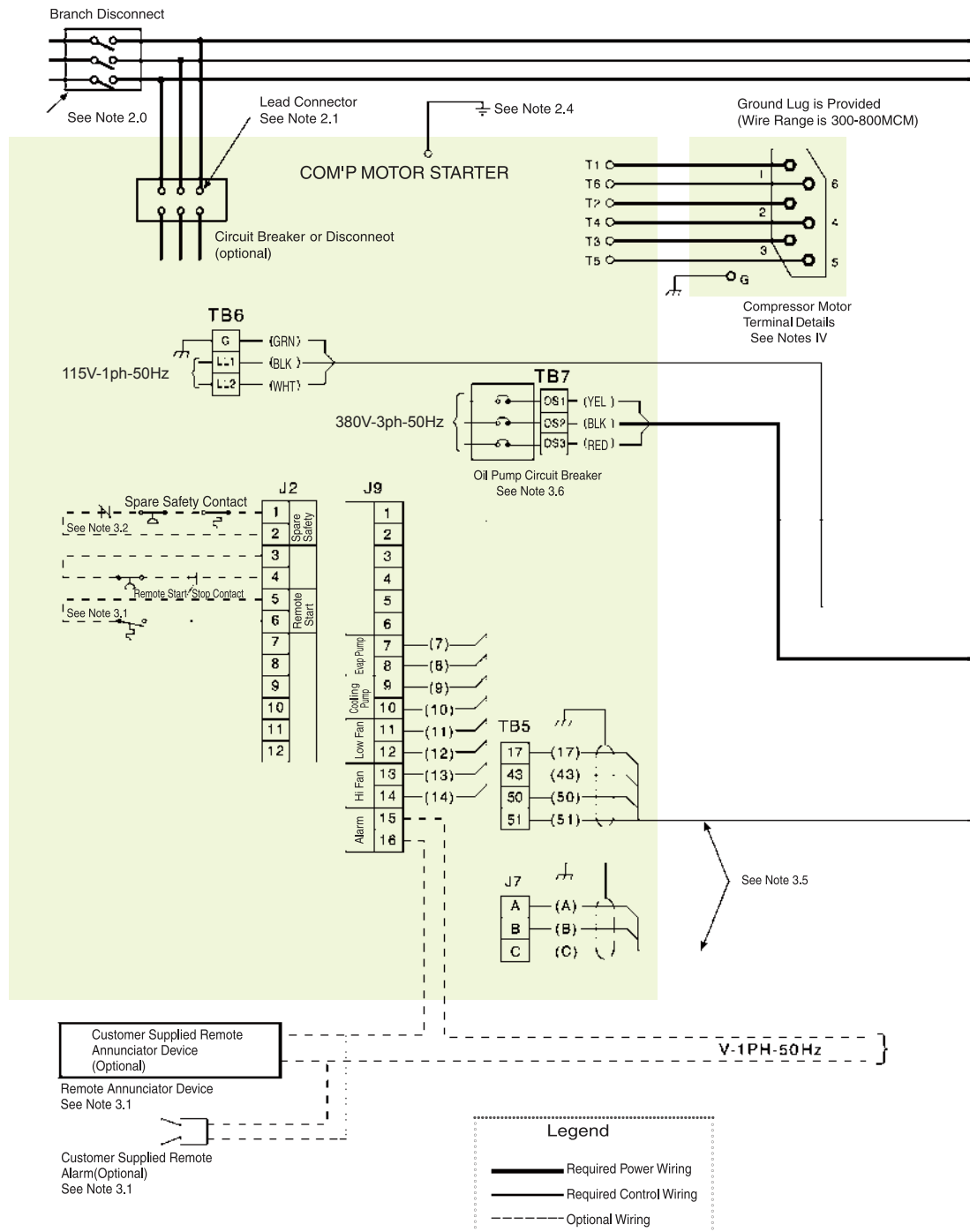
蒸发器 / 冷凝器型号	A	B	C	D	E	F	G	H	J
	mm	mm	mm	mm	mm	mm	mm	mm	mm
3P-34/30-34	3931	1632	92	387	229	540	464	254	178
3X-39/35-39	4451	1632	92	387	229	540	464	254	178
4P-44/40-44	3931	1829	92	387	229	540	464	254	178
4X-49/45-49	4451	1829	92	387	229	540	464	254	178
5P-54/50-54	3931	1969	92	387	229	540	464	254	178
5X-59/55-59	4451	1969	92	387	229	540	464	254	178
6P-64/60-64	3931	2070	92	387	229	540	464	254	178
6X-69/65-69	4451	2070	92	387	229	540	464	254	178
7P-74/70-74	4620	2400	176	559	406	711	635	432	356
7X-79/75-79	5320	2400	176	559	406	711	635	432	356
8P-84/80-84	4620	2686	176	559	406	711	635	432	356
8X-89/85-89	5320	2686	176	559	406	711	635	432	356
A4A-A47/A4A-A47	4492	3051	164	559	406	711	635	432	356
A6A-A67/A6A-A67	5102	3051	164	559	406	711	635	432	356
A4A-A47/B4A-B47	4492	3185	164	559	406	711	635	432	356
A6A-A67/B6A-B67	5102	3185	164	559	406	711	635	432	356
B6A-B67/C6A-C67	5082	3632	164	559	406	711	635	432	356
C6A-C67/C6A-C67	5080	3772	164	559	406	711	635	432	356
C6A-C67/D6A-D67	5082	4013	168	559	406	711	635	432	356

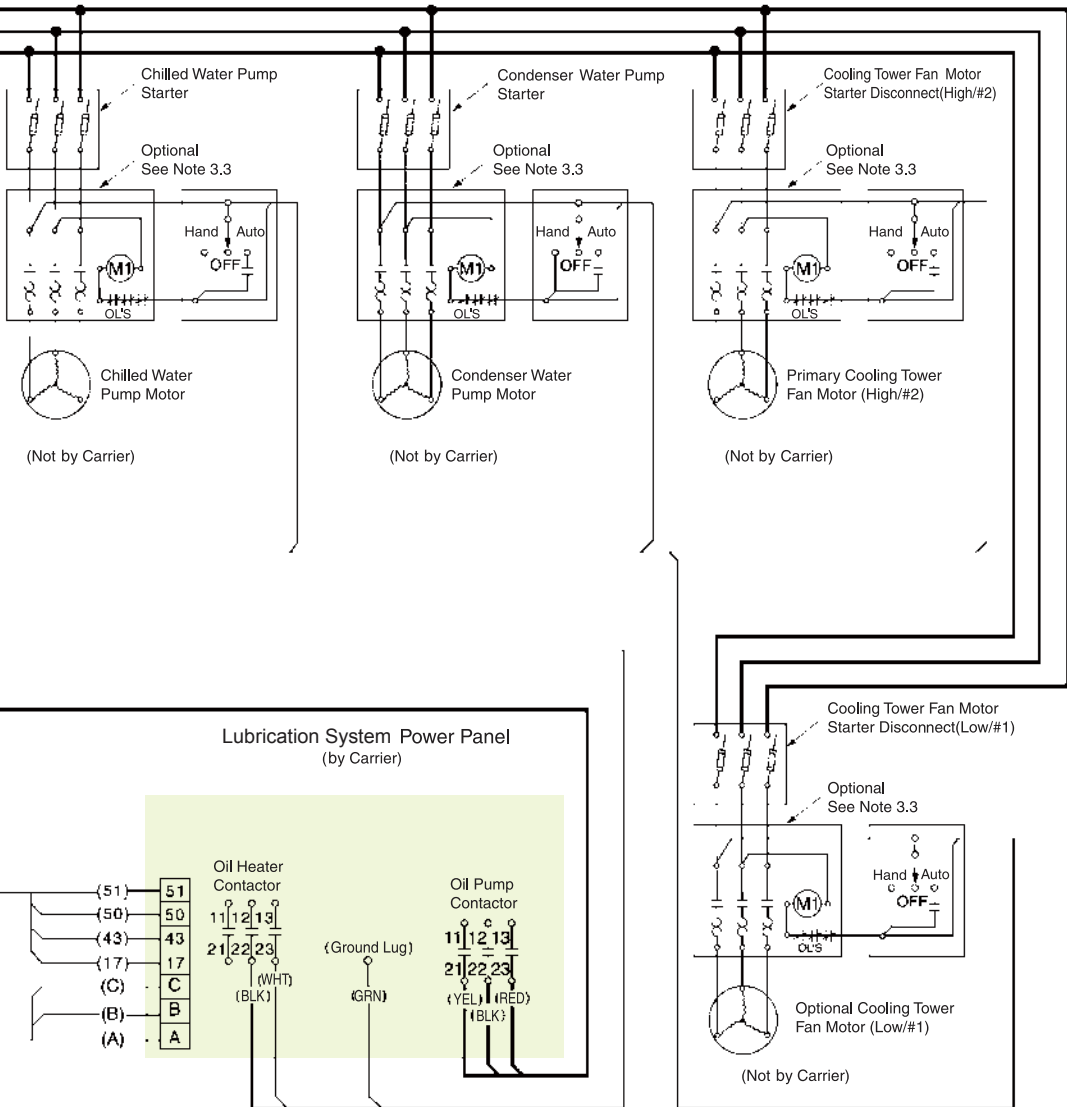
Notes:

- Accessory soleplate package includes 4 soleplates, 16 jacking screws, and 16 leveling pads.
- Jacking Screws should be removed after the grout has set.
- Thickness of grout varies, depending on the amount necessary to level chiller.

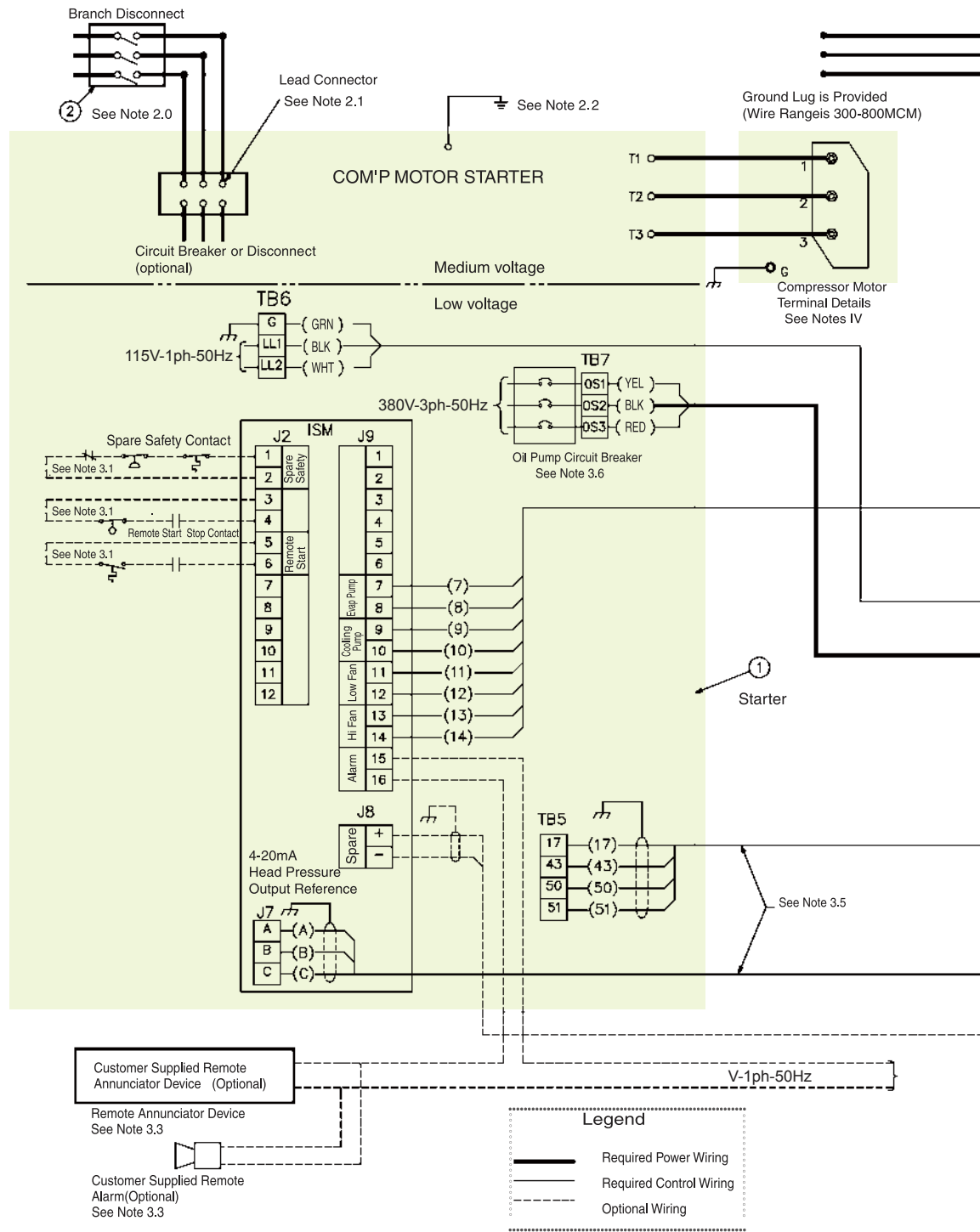
Field Wiring

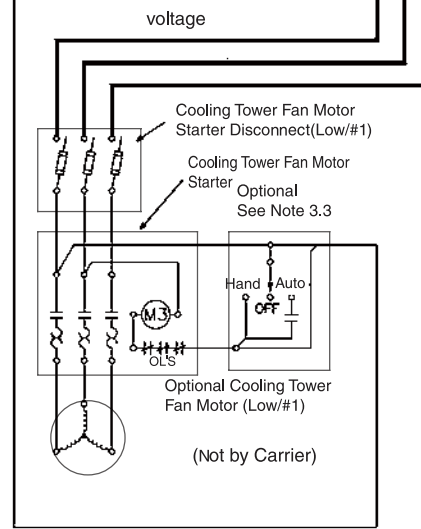
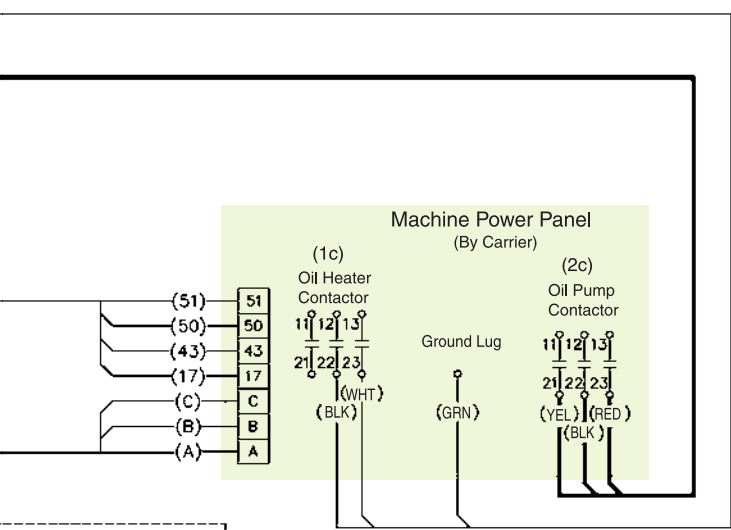
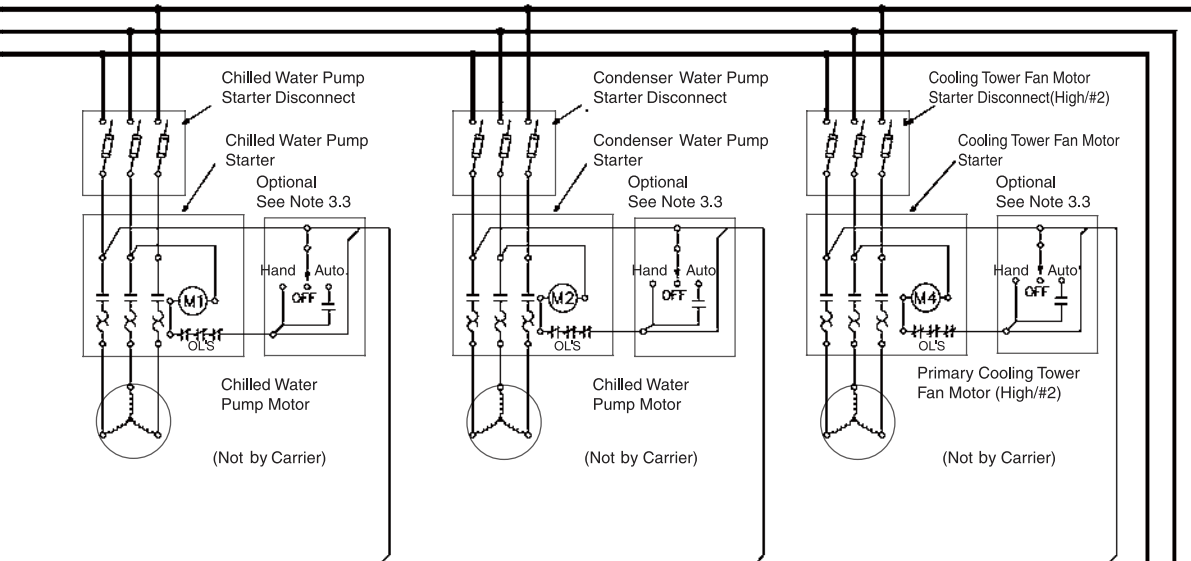
19XR/XR-E Typical Field Wiring with Free-Standing Starter (380V-3ph-50Hz/60Hz)





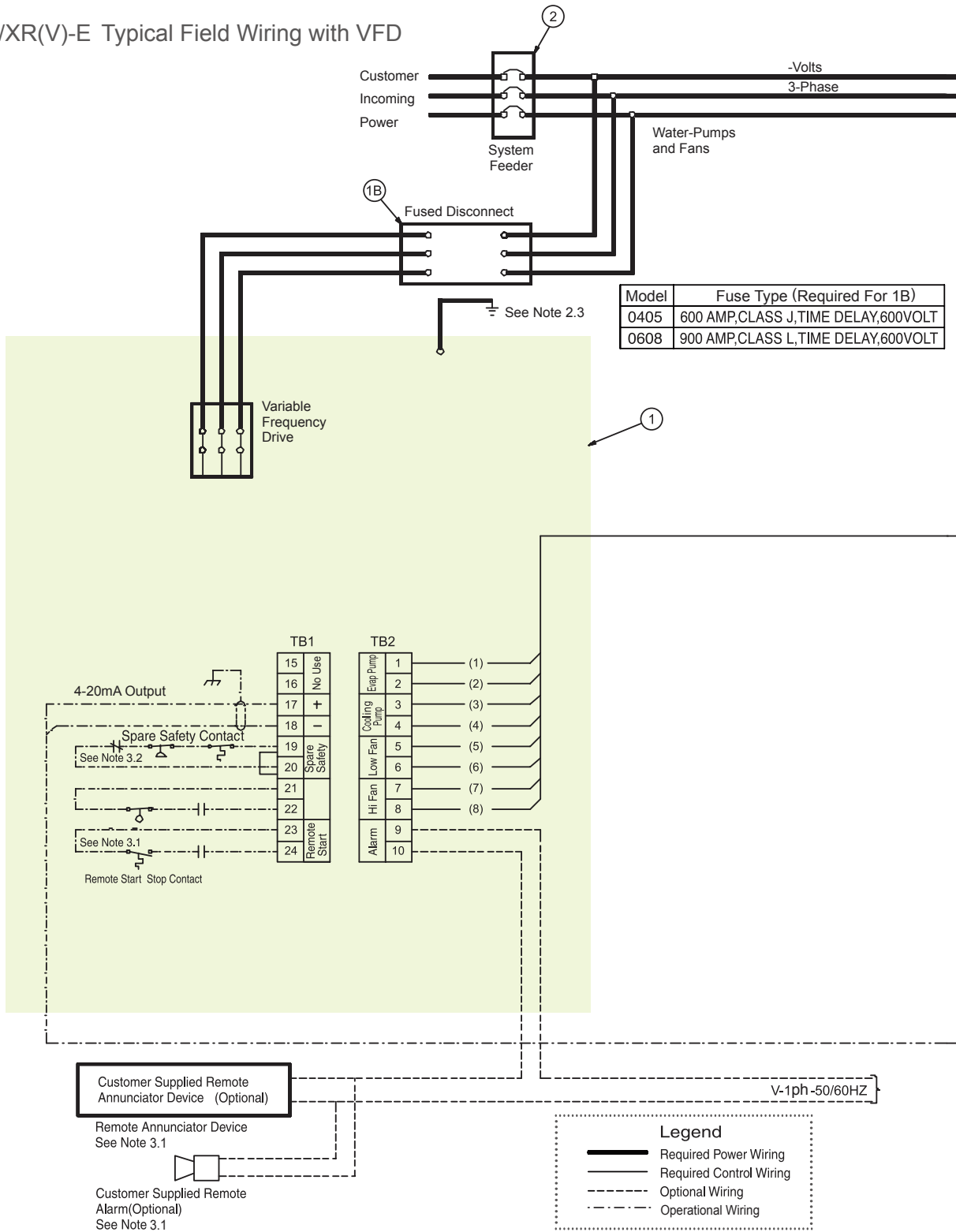
19XR/XR-E Typical Field Wiring with Free-Standing Starter (Medium Voltage)

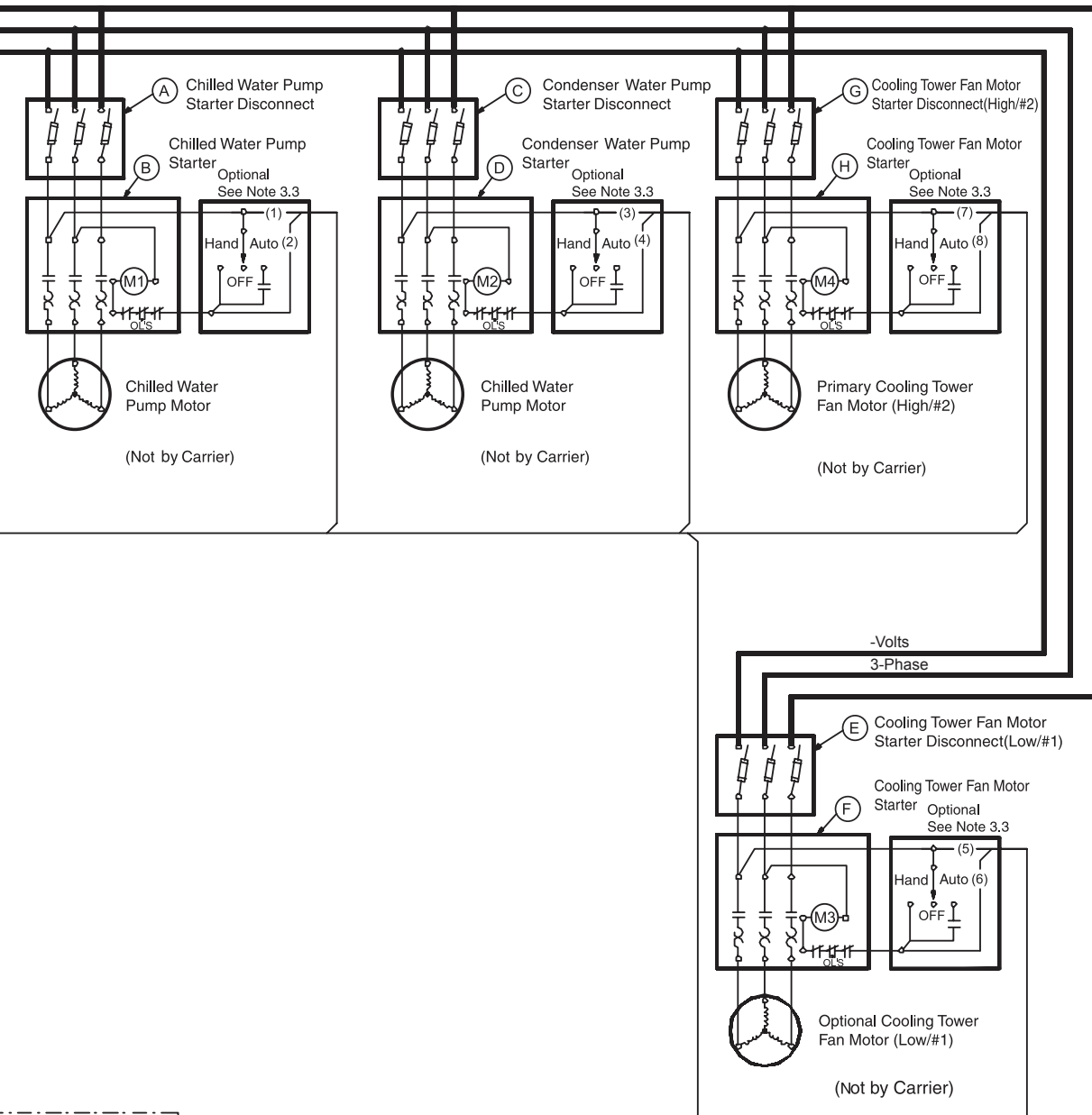




4-20mA Output Reference to Device Choice (Not by Carrier)
 Examples: Tower Bypass Value
 Tower Speed Control
 Condenser Pump Speed Control

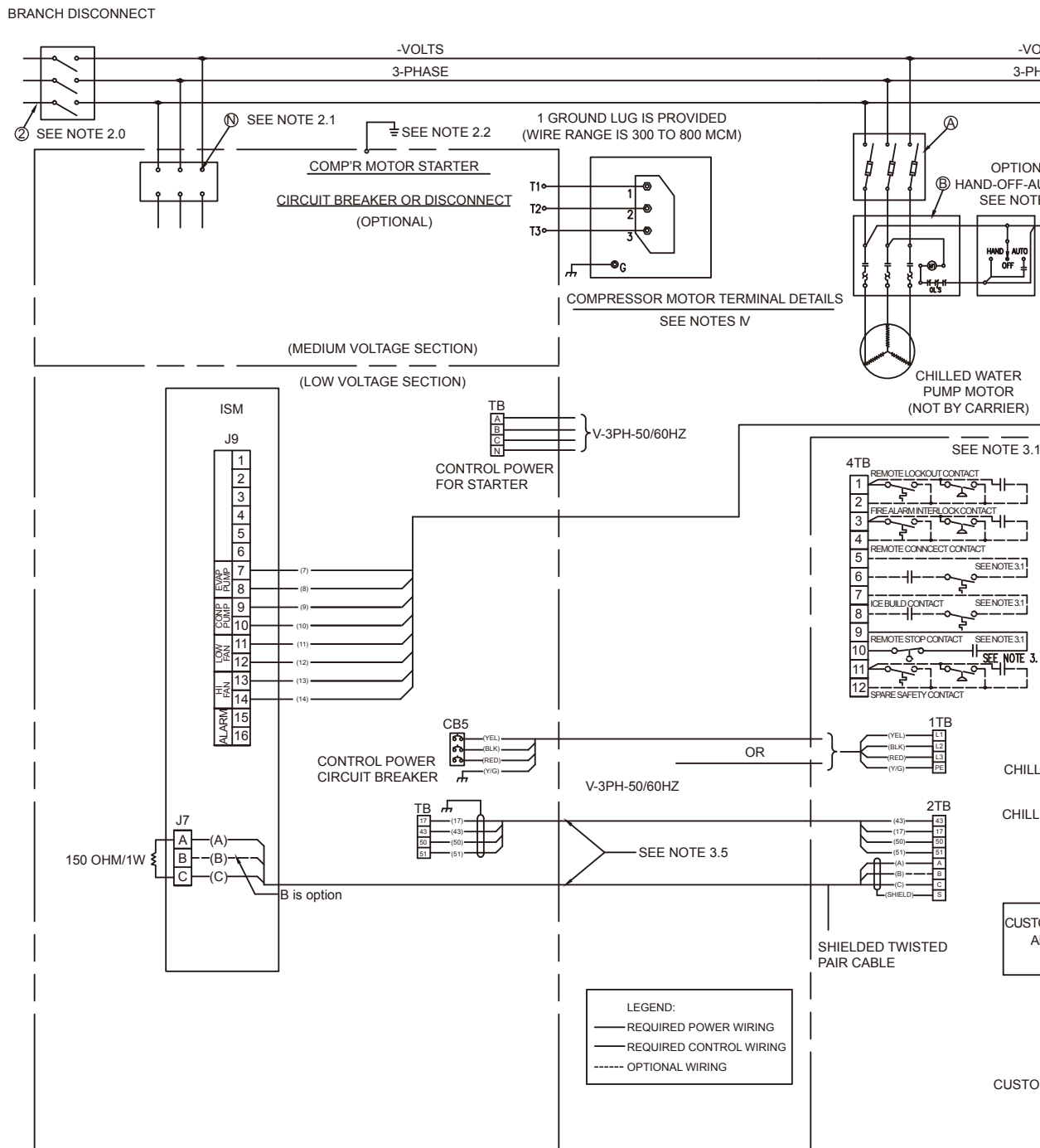
19XR(V)-E Typical Field Wiring with VFD

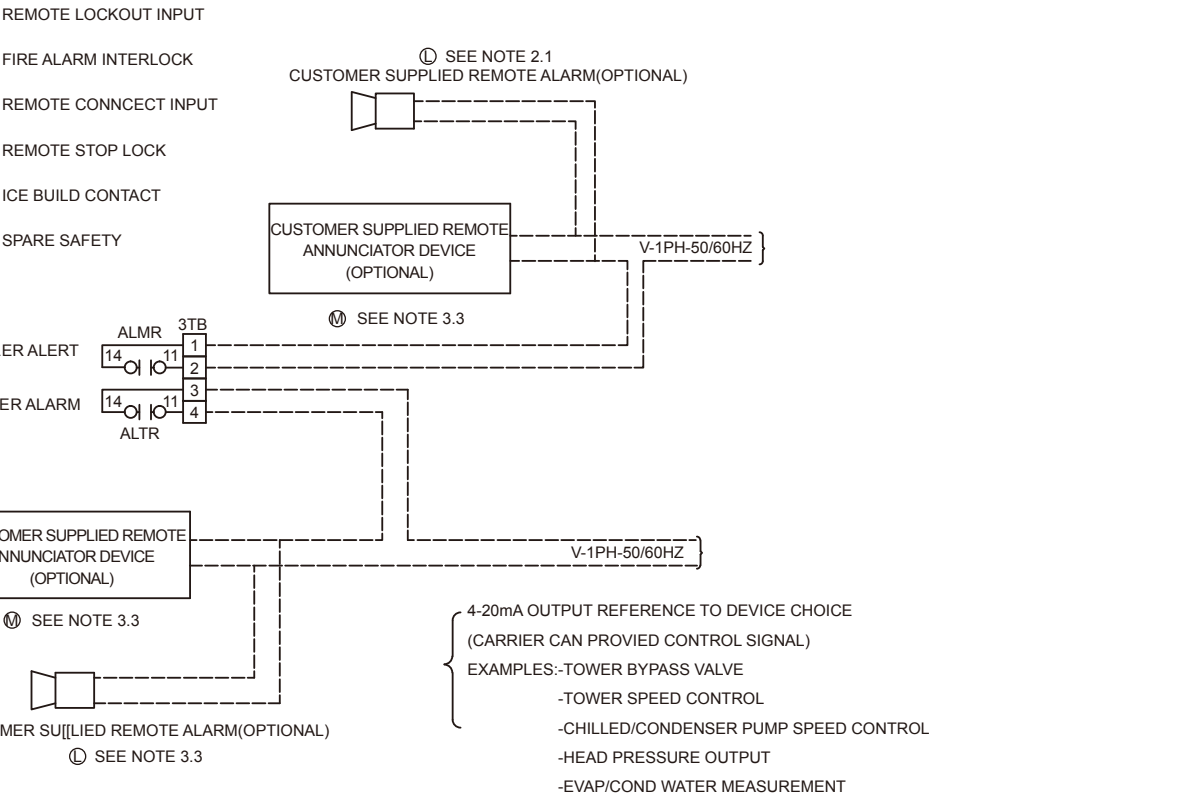
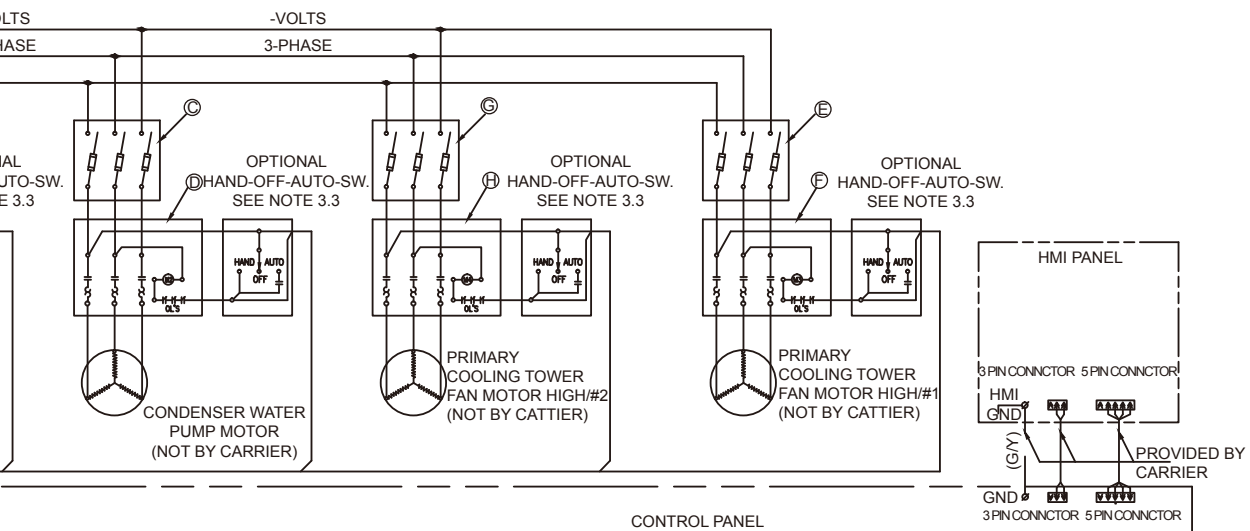




4-20mA Output Reference to Device Choice (Not by Carrier)
 Examples: Tower Bypass Value
 Tower Speed Control
 Condenser Pump Speed Control
 See Note 3.5

19XR-6/7 Typical Field Wiring with Free-Standing Starter (High Voltage)





Field Wiring Specifications (with Free-standing Starter)

I. General

- 1.0 Starters shall be designed and manufactured in accordance with Carrier Engineering Requirement Z-415.
- 1.1 All field-supplied conductors, devices, and the field-installation wiring, termination of conductors and devices, must be in compliance with all applicable codes and job specifications.
- 1.2 The routing of field-installed conduit and conductors and the location of field-installed devices must not interfere with equipment access or the reading, adjusting, or servicing of any component.
- 1.3 Equipment installation and all starting and control devices, must comply with details in equipment submittal drawings and literature.
- 1.4 Contacts and switches are shown in the position they would with the circuit deenergized and the chiller shut down.
- 1.5 WARNING - Do not use aluminum conductors.
- 1.6 Installer is responsible for any damage caused by improper wiring between starter and machine.

II. Power Wiring to Starter

- 2.0 Circuit breaker is to be used to disconnect power to starter.
- 2.1 Unit-mounted starter power conductor rating must meet minimum nameplate voltage and compressor motor RLA.
- 2.2 Lug adapters may be required if installation conditions dictate that conductors be sized beyond the minimum ampacity required.
- 2.3 Flexible conduit should be used for the last few feet of the power conductor to start enclosure to provide unit vibration isolation.
- 2.4 Compressor motor and controls must be grounded by using equipment-grounding lugs provided inside unit mounted starter enclosure.

III. Control Wiring

- 3.0 Field supplied control conductors should be at least 1 mm² or larger.
- 3.1 Optional ice build start/remote lockout contacts, optional remote start/stop device contacts, optional fire alarm interlock and optional spare safety device contacts, must have 24 VAC rating. MAX current is 60 MA, nominal current is 10 MA. Switches with gold plated bifurcated contacts are recommended.
- 3.2 Remove jumper wire between J2-1 and J2-2 before connecting auxiliary safeties between these terminals(Not applicable for 19XR6).
- 3.3 IOB relay contact outputs can control cooler and condenser pump and tower fan motor contactor coil loads(VA) rated 5 Amps at 115 VAC up to 3 Amps at 220 VAC. Do not use starter control transformer as the power source for contactor coil loads.
- 3.4 Do not route control wiring carrying 30V or less within a conduit which has wires carrying 50V or higher or along side wires carrying 50V or higher.
- 3.5 Control wiring between free-standing starter and control panel must be separate shielded cables with minimum rating of 600V, 80°C For communication must use shield twist pair wire.
- 3.6 If optional oil pump circuit breaker is not supplied within the starter enclosure as shown, it must be located within sight of the chiller with wiring routed to suit. (Not applicable for 19XR6)

Field Wiring Specifications (with Free-standing Starter)

IV. Power Wiring Between Free-standing Starter and Compressor Motor

- 4.0 Low voltage (600 v or less) compressor motors have (6) 5/8" terminal studs (lead connectors not supplied by Carrier). Either 3 or 6 conductors must be run between compressor motor and starter, depending on the type of motor starter employed. If only 3 leads are utilized, jumper motor terminals as follows : 1 to 6, 2 to 4, and 3 to 5. Center to center distance between terminals is 8mm. Compressor motor starter must have nameplate stamped as to conform with Carrier Engineering Requirement Z-415.
- 4.1 Medium voltage [over 600 volts] compressor motors have (3) terminals. Connections are 9/16-threaded stud. Compressor motor starter must have nameplate stamped as to conform with Carrier Engineering requirement "Z-415."
- 4.2 Power conductor rating must meet compressor motor RLA. When (3) conductors are used: Minimum ampacity per conductor = $1.25 \times$ compressor RLA When (6) conductors are used: Minimum ampacity per conductor = $0.721 \times$ compressor RLA
- 4.3 When more than one conduit is used to run conductors from starter to compressor motor terminal box, three leads from each phase (conductor) must be in each conduit to prevent excessive heating (e.g., conductors to motor terminals 1, 2, & 3 in one conduit, and those to 4, 5, & 6 in another).
- 4.4 Compressor motor power conductors may enter terminal box through top, bottom or right side using holes cut by contractor to suit conduit. Flexible conduit should be used for the last few feet to the terminal box for unit vibration isolation.
- 4.5 Compressor motor frame should be grounded in accordance with the National Electrical Code-us (NFPA-70) and applicable codes. Means for grounding compressor motor is a #4 AWG-500 MCM pressure connector, supplied and located in the lower left side corner of the compressor motor terminal box.
- 4.6 Do not allow motor terminals to support weight of wire cables. Use cable supports and strain relieves as required.
- 4.7 Use backup wrench when tightening lead connectors to motor terminal studs. Torque to 45 lb-ft max.
- 4.8 Motor terminals and wire connectors must be insulated with insulation putties and tapes attached to chillers to prevent moisture condensing and electrical arc.

Field Wiring Specifications (with VFD)

I. General

- 1.0 VFD starters shall be designed and manufactured in accordance with Carrier Engineering Requirement Z-420.
- 1.1 All field-supplied conductors, devices, and the field-installation wiring, termination of conductors and devices, must be in compliance with all applicable codes and job specifications.
- 1.2 The routing of field-installed conduit and conductors and the location of field-installed devices must not interfere with equipment access or the reading, adjusting, or servicing of any component.
- 1.3 Equipment installation and all starting and control devices, must comply with details in equipment submittal drawings and literature.
- 1.4 Contacts and switches are shown in the position they would with the circuit deenergized and the chiller shut down.
- 1.5 WARNING - Do not use aluminum conductors.

II. Power Wiring to VFD Starter

- 2.0 Provide a means of disconnecting power to starter. Fused disconnect is required on VFD.
- 2.1 Incoming power wire must be protected with metal jacket.
- 2.2 Line side power conductor rating must meet VFD nameplate voltage and chiller full load amps (minimum circuit ampacity).
- 2.3 Compressor motor and controls must be grounded by using equipment grounding lugs provided inside unit mounted starter enclosure.

III. Control Wiring

- 3.0 Field supplied control conductors should be at least 1 mm² or larger.
- 3.1 Optional ice build start/terminate device contacts, optional remote start/stop device contacts and optional spare safety device contacts, must have 24 VAC rating. MAX current is 60 MA, nominal current is 10 MA. Switches with gold plated bifurcated contacts are recommended.
- 3.2 Remove jumper wire between TB1-19 and TB1-20 before connecting auxiliary safeties between these terminals.
- 3.3 VFD ISM contact outputs can control cooler and condenser pump and tower fan motor contactor coil loads (VA) rated 5 Amps at 115 VAC up to 3 Amps at 227 VAC. Do not use VFD starter control transformer as the power source for contactor coil loads.
- 3.4 Do not route control wiring carrying 30V or less within a conduit which has wires carrying 50V or higher or along side wires carrying 50V or higher.
- 3.5 VFD provide spare output terminal for customer, Input sign must be 4~20mA, not grounded. Input resistance of terminal is soon.



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.



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