



E Series
**High-efficiency
Two-stage** Compressor
From 800 to 1500 tons

19XR/XR-E

Hermetic Centrifugal Liquid Chiller

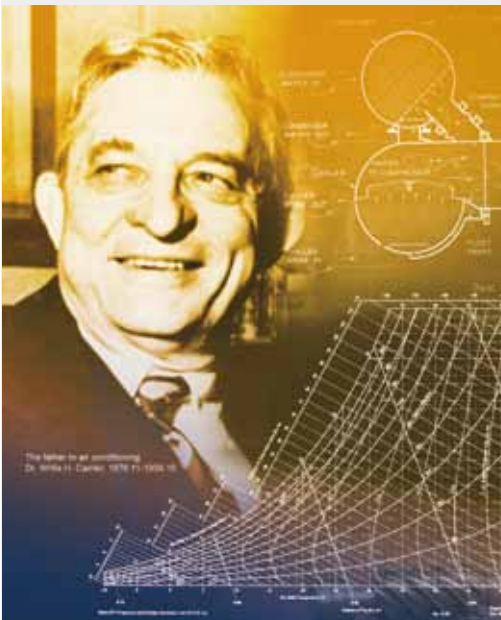
Cooling Capacity: 19XR 300~1650TR 19XR-E 800~1500TR



Carrier China

Carrier Corporation is a subsidiary of the United Technologies Corp. (UTC), which ranks the 150th in Fortune Top 500 in 2011 and has its operations in aerospace and building systems industries all over the world. From the time the founder Dr. Carrier invented the first system of modern air conditioning in 1902, Carrier has been the world leader in the air conditioning industry with its products and system solutions supplied to numerous famous buildings, and up to now, the network of distribution cover more than 170 countries all over the world. In 2011, Carrier ranked top in the HVAC industry field with its sales revenue of US \$12 billion.

In China, there are 6 Carrier factories which have more than 2500 employees. As the world-class factory, Carrier has a number of technically advanced production lines, manufacturing commercial and residential chillers, compressors and air-side products. A wide range of products are able to meet diversified requirements of different customers. The global R&D center located in Shanghai has the capability of developing several major projects in the same time, with many advanced technical patents awarded to support Carrier stay most competitive in terms of technology advantage in the HVAC industry.



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



Model Number Nomenclature

	19XR	65	65	467	DJ	S	52	
Description 19XR-High Efficiency Hermetic Centrifugal Liquid Chiller 19XRV-Ultra High Efficiency Hermetic Centrifugal Liquid Chiller with VFD 19XR-E-Two-stage High Efficiency Hermetic Centrifugal Liquid Chiller 19XRV-E-Two-stage Ultra High Efficiency Hermetic Centrifugal Liquid Chiller with VFD								Motor Voltage Code 52-(380V-3Ph-50Hz) 55-(6.3kV-3Ph-50Hz) 5A-(10kV-3Ph-50Hz) 52-400-3-50 53-3000-3-50 54-3300-3-50 55-6300-3-50 5A-10000-3-50 5B-11000-3-50 62-380-3-60 63-416-3-60 67-3300-3-60 68-4160-3-60 59-6900-3-60 6A-11000-3-60
Cooler Size 30, 31, 32 35, 36, 37 40, 41, 42 45, 46, 47 50-54, 5P-5R 55-59, 5X-5Z 60-64, 6P-6R 65-69, 6X-6Z 70-74, 7P-7R 75-79, 7X-7Z 80-84, 8P-8R 85-89, 8X-8Z								Motor Efficiency Code S - Standard Efficiency H - High Efficiency Gear size code for 19XR-E
Condenser Size 30, 31, 32 35, 36, 37 40, 41, 42 45, 46, 47 50, 51, 52, 53, 54 55, 56, 57, 58, 59 60, 61, 62, 63, 64 65, 66, 67, 68, 69 70, 71, 72, 73, 74 75, 76, 77, 78, 79 80, 81, 82, 83, 84 85, 86, 87, 88, 89								Motor Code CD DC EH MD CE DD EJ MF CL DE EK CM DF EL CN DG EM CP DH EN CQ DJ EP
								Compressor Code First Digit Indicates Compressor Frame Size

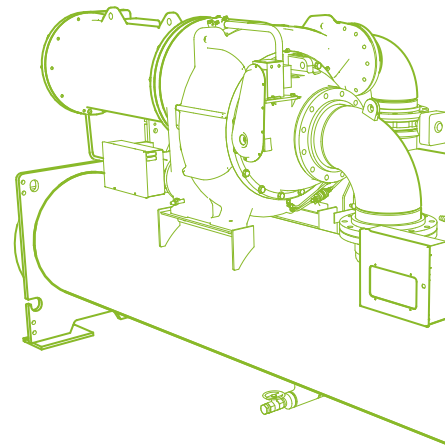
Note: Carrier is dedicated to continuous product development. Components list will vary to meet different demands
 *Availability please check with local sales office

Cooling Capacity

- 19XR: 1055~5274kW (Air condition Low voltage/Middle vottage)
 2110~5803kW (Air condition High voltage)
 1055~5135kW (Air condition Low voltage VFD)
- 19XR-E: 2813~5274kW (Air condition Low voltage/Low voltage VFD/Middle voltage/High voltage)
 2110~3517kW (Ice condition Low voltage/Middle voltage/High voltage)

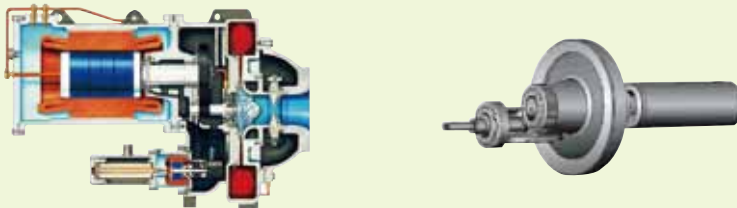
Energy-saving and High Efficiency

- Compressor key components designed with advanced jet engine technology.
- Aerodynamically contoured impellers - Impellers use high back sweep main blades with low-ent and are smaller and lighter than profile intermediate splitter blades. This new design is aerodynamically contoured to improve compressor full-load and part-load operating efficiency.
- 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.
- Optimized piping design reduces refrigerant pressure loss and ensures chiller efficiency.



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 - single-stage compressor utilizes patented SRD actuator to improve efficiency and reliability. Two-stage compressor utilizes vaneless diffuser to meet high lift application requirement with stable operation.

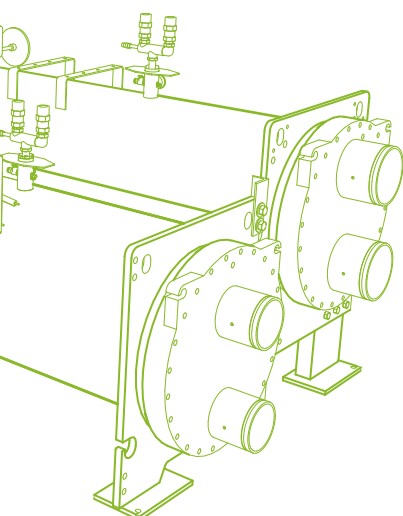


Environmental Leadership

- 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.
- Direct digital Product Integrated Control (PIC II)- Automated controls test can be executed prior to start-up to verify that the entire control system is functioning properly. Carrier's PIC II integrates directly with the Carrier Comfort Network (CCN) via DATAPORT module, providing a system solution to controls applications.
- Carrier offers 19XR/XR-E 10/11kV hermetic centrifugal chiller to provide more choices for installation with 10/11kV and power supply.
- 19XRV/XR(V)-E Evergreen 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.
- Mix-match capability - 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 make the heat exchangers into a liquid containers and the pump out system is also provided to output refrigerant, which provides ease of maintenance.

19XR-E 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:

- ✓ A new two-stage compressor and two efficient impellers designed specifically for HFC-134a refrigerant
- ✓ New blunt leading-edge IGV for part load efficiency improvement
- ✓ An economizer that improves cycle efficiency and provides more capacity



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-E 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-E also features a refrigerant-cooled hermetic motor with a low inrush current and no risk of refrigerant or oil leakage. 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

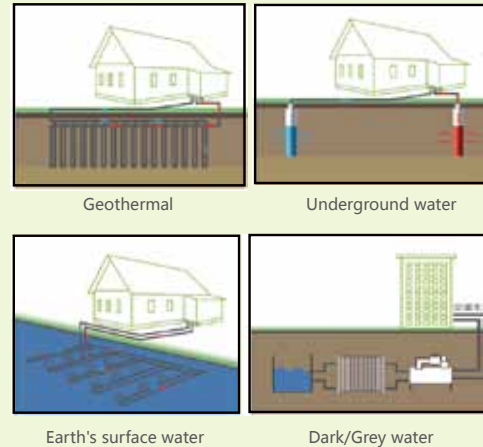
The heat pump system utilizes natural energy storage in soil, bedrock, groundwater, surface water, wastewater and air to satisfy demand for building cooling, heating and hot water.

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



Energy Recovery Application

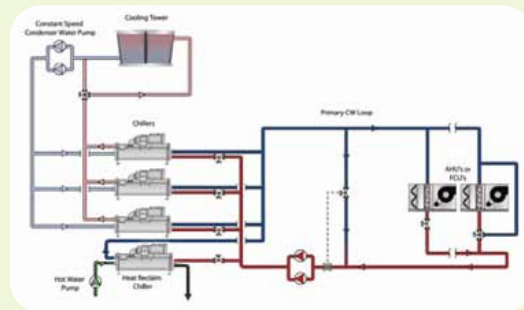
Discharging condenser heat via a cooling tower not only causes thermal pollution but is a tremendous waste for locations with high demand for heating, such as hotels, factories and hospitals.

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

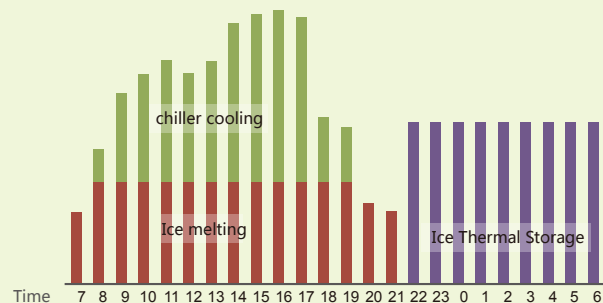
The chiller stores energy as ice during the night, when electricity costs and utilization are low. This energy is then discharged to satisfy cooling loads when electricity costs peak during the day, greatly reducing building operating costs.

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 Condition (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
	kW	Tons	kW	ikW/kW	A	A	L/S	kPa	mm	L/S	kPa	mm	mm	mm	mm	kg	kg	kg
19XR3031327CLS52	1055	300	210	0.199	369	896	50.4	86.4	DN200	60.8	66.9	DN200	4172	1707	2073	6555	5725	371
19XR3131336CMS52	1231	350	240	0.195	410	782	58.8	84.2	DN200	70.6	87.9	DN200	4172	1707	2073	6677	5791	396
19XR3132347CNS52	1407	400	278	0.198	481	916	67.2	107.1	DN200	80.9	86.3	DN200	4172	1707	2073	6805	5884	396
19XR4040356CPS52	1583	450	306	0.193	534	1119	75.6	77.9	DN200	90.8	79.2	DN200	4365	1908	2153	7970	6678	483
19XR4141386CQS52	1759	500	335	0.190	580	1122	84	78.1	DN200	100.5	78.5	DN200	4365	1908	2153	8212	6828	508
19XR5051385KGH52	1934	550	347	0.179	605	1146	92.4	71.3	DN200	109.7	51.7	DN250	4460	2054	2137	9433	7730	609
19XR5P51436DES52	2110	600	381	0.181	667	1357	100.8	68.8	DN200	119.8	60.7	DN250	4460	2054	2207	9719	8110	493
19XR5P504QEDDS52	2110	600	380	0.180	664	1357	100.8	68.8	DN200	119.8	70.5	DN250	4460	2054	2207	9967	8393	493
19XR5Q5144FLEH52	2286	650	425	0.186	738	1637	109.2	73.2	DN200	130.4	62.5	DN250	4460	2054	2207	10239	8558	510
19XR5R514QELEH52	2286	650	407	0.178	714	1521	109.2	66.8	DN200	129.2	69.7	DN250	4460	2054	2207	10549	8864	524
19XR5Q5245FLFH52	2462	700	469	0.190	808	1637	117.6	83.9	DN200	141	72.1	DN250	4460	2054	2207	10239	8558	510
19XR5Q524R5LFH52	2462	700	442	0.180	764	1637	117.6	83.9	DN200	139.3	70.5	DN250	4460	2054	2207	10614	8932	510
19XR6X65467LGH52	2638	750	487	0.185	851	1794	126	77.2	DN250	150.3	80.2	DN250	5000	2124	2261	11797	9735	619
19XR6R614T5LGH52	2638	750	460	0.174	807	1794	126	58.4	DN250	149	64	DN250	4480	2124	2261	11570	9589	579
19XR6Z6747FLGH52	2814	800	508	0.181	886	1794	134.4	72.8	DN250	159.8	73.1	DN250	5000	2124	2261	12371	10141	657
19XR6Z664U5LGH52	2814	800	484	0.172	847	1794	134.4	72.8	DN250	158.5	79.3	DN250	5000	2124	2261	12601	10409	657
19XR7P704V5LGH52	3164	900	554	0.175	961	1794	151.2	74	DN300	178.4	79.4	DN300	5169	2426	2750	15575	12787	836
19XR70704W6LHH52	3517	1000	620	0.176	1055	1837	168.1	108.5	DN300	198.5	96.5	DN300	5169	2426	2750	16354	13381	1020
19XR7P71E53MDB52	3869	1100	684	0.177	1152	2362	184.9	106.8	DN300	218.6	97.9	DN300	5169	2426	2902	17652	14538	1119
19XR7Q72E53MDB52	3869	1100	673	0.174	1134	2362	184.9	89.5	DN300	218.2	85.2	DN300	5169	2426	2902	18114	14824	1158
19XR7Q72E53MEB52	4220	1200	737	0.175	1252	2729	201.7	105	DN300	238	99.9	DN300	5169	2426	2902	18146	14857	1158
19XR8P81E53MEB52	4220	1200	722	0.171	1228	2729	201.7	72.6	DN350	237.5	77.2	DN350	5205	2711	2950	20527	16550	1268
19XR8P80E53MFB52	4572	1300	800	0.175	1360	3276	218.5	84	DN350	258.8	102.8	DN350	5205	2711	2950	20334	16432	1268
19XR8Q81E53MFB52	4572	1300	788	0.172	1341	3276	218.5	72.6	DN350	257.4	89.4	DN350	5205	2711	2950	20823	16725	1311
19XR8P81E63MFB52	4924	1400	862	0.175	1460	3276	235.3	96.2	DN350	277.6	102.8	DN350	5205	2711	2950	20589	16611	1268
19XR8R84E63MFB52	5276	1500	907	0.172	1534	3276	252.1	83.4	DN350	297	84.8	DN350	5205	2711	2950	21772	17323	1359

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 m² °C/kW and condenser fouling factor is 0.044 m² °C/kW.
2. Carrier will select specific models using computer on different requests for tonnage, lift, and efficiency. For details, please contact local agencies.
3. Standard water box pressure is 1.0MPa, and can provide 1.6Mpa, 2.0Mpa as option; For more requirements, please contact local agencies.
4. The above selections are made based on the voltage being 380V. For details or customized selections, please contact local agencies.
5. 60Hz selections are also available. Please contact local agencies to get more support.

Performance Data

Air Condition (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
	kW	Tons	kW	ikW/kW	A	A	L/S	kPa	mm	L/S	kPa	mm	mm	mm	mm	kg	kg	kg
19XR7P704V5LHH5A	3164	900	556	0.176	38	200	151.2	74	DN300	179.3	80	DN300	5169	2426	2750	16192	13403	836
19XR70704W6LHH5A	3517	1000	620	0.176	42	200	168.1	108.5	DN300	198.5	96.5	DN300	5169	2426	2750	16960	13985	1020
19XR7P71E53MDB5A	3869	1100	685	0.177	45	231	184.9	106.8	DN300	218.6	97.9	DN300	5169	2426	2902	18195	15081	1119
19XR7Q72E53MDB5A	3869	1100	674	0.174	45	231	184.9	89.5	DN300	218.2	85.2	DN300	5169	2426	2902	18657	15368	1158
19XR7Q72E53MFB5A	4220	1200	736	0.174	49	244	201.7	105	DN300	238	99.9	DN300	5169	2426	2902	18563	15273	1158
19XR8P81E53MFB5A	4220	1200	721	0.171	48	244	201.7	72.6	DN350	237.5	77.2	DN350	5205	2711	2950	20944	16967	1268
19XR8P80E53MFB5A	4572	1300	799	0.175	53	244	218.5	84	DN350	258.8	102.8	DN350	5205	2711	2950	20689	16787	1268
19XR8Q81E53MFB5A	4572	1300	787	0.172	52	244	218.5	72.6	DN350	257.4	89.4	DN350	5205	2711	2950	21178	17080	1311
19XR8P81E63MFB5A	4924	1400	861	0.175	57	244	235.3	96.2	DN350	277.6	102.8	DN350	5205	2711	2950	20944	16967	1268
19XR8R84E63MFB5A	5276	1500	906	0.172	60	244	252.1	83.4	DN350	297	84.8	DN350	5205	2711	2950	22127	17678	1359
19XR878750EMHH5A	5803	1650	988	0.170	64	299	277.3	148.1	DN350	326.1	135.7	DN350	5731	2712	3029	24551	19955	1420
19XRD5QQQQ585585MFHMFH5A	8790	2500	1508	0.172	101	295	420.1	63	DN450	495.8	61.2	DN450	8032	3261	3365	42230	35552	2266
19XRD5RRSS595595MFHMFH5A	10548	3000	1825	0.173	122	305	504.1	87.9	DN450	595.5	67.1	DN450	8032	3261	3365	43498	36482	2206

- Note:
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 2. Carrier will select specific models using computer on different requests for tonnage, lift, and efficiency. For details, please contact local agencies.
 3. Standard water box pressure is 1.0MPa, and can provide 1.6Mpa, 2.0Mpa as option; For more requirements, please contact local agencies.
 4. The above selections are made based on the voltage being 380V. For details or customized selections, please contact local agencies.
 5. 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	RLA		338
	LRYA	199	687
	LRDA		1992
CES	RLA		371
	LRYA	217	777
	LRDA		2252
CLS	RLA		412
	LRYA	242	896
	LRDA		2596
CMS	RLA		452
	LRYA	266	934
	LRDA		2706
CNS	RLA		500
	LRYA	294	1053
	LRDA		3051
CPS	RLA		548
	LRYA	323	1119
	LRDA		3244
CQS	RLA		611
	LRYA	360	1295
	LRDA		3752

Motor Size	Motor Electrical Characteristics	380V Electrical data	
		Max Ikw (kw)	Amps (A)
DCS	RLA		648
	LRYA	380	1317
	LRDA		3818
DDS	RLA		697
	LRYA	409	1357
	LRDA		3932
DES	RLA		741
	LRYA	437	1357
	LRDA		3932
DFS	RLA		799
	LRYA	471	1450
	LRDA		4203
DGS	RLA		809
	LRYA	475	1296
	LRDA		4490
DHS	RLA		936
	LRYA	549	1801
	LRDA		5220
DJS	RLA		968
	LRYA	597	1801
	LRDA		5520

Motor Size	Motor Electrical Characteristics	380V Electrical data	
		Max Ikw (kw)	Amps (A)
EHS	RLA		1033
	LRYA	604	1426
	LRDA		4133
EJS	RLA		1104
	LRYA	645	1957
	LRDA		5672
EKS	RLA		1187
	LRYA	692	1988
	LRDA		5762
ELS	RLA		1285
	LRYA	751	1988
	LRDA		5762
EMS	RLA		1386
	LRYA	812	1988
	LRDA		5762
ENS	RLA		1507
	LRYA	879	2450
	LRDA		7100
EPS	RLA		1606
	LRYA	938	2450
	LRDA		7100

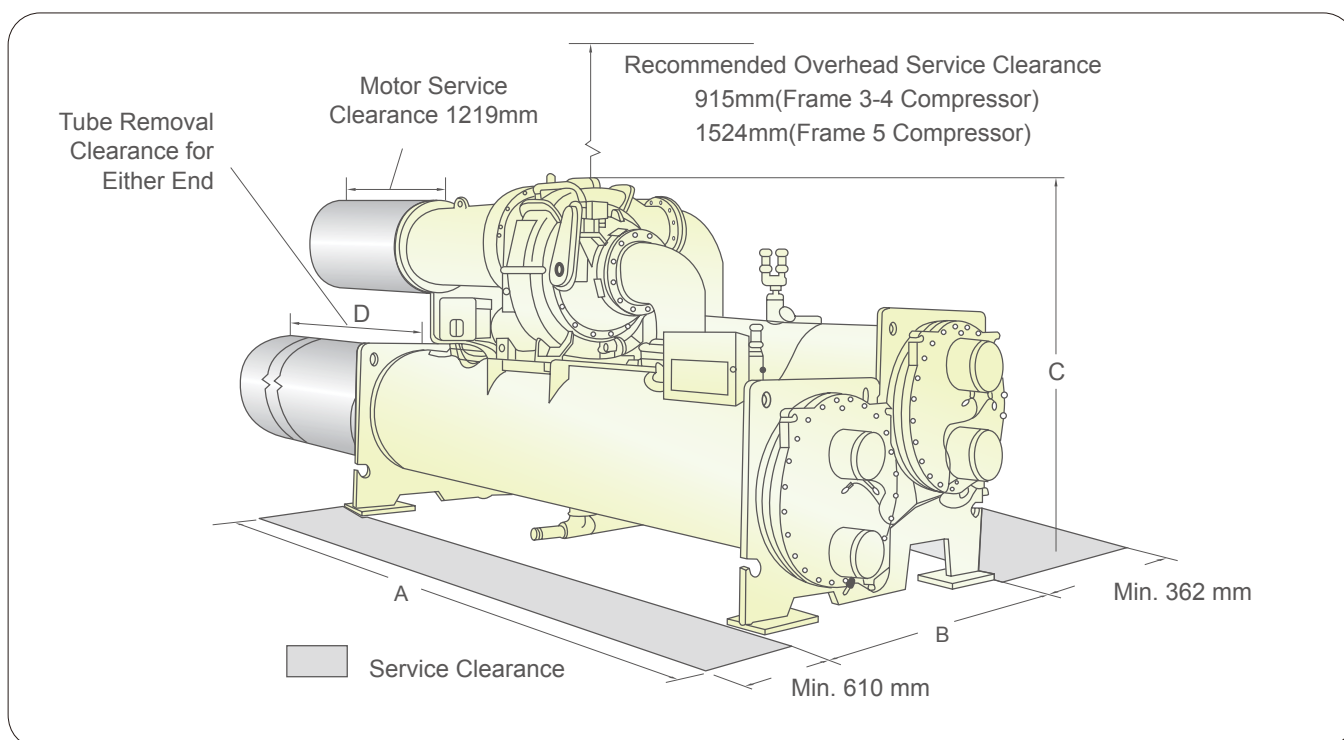
Motor Size	Motor Electrical Characteristics	6300V Electrical data	
		Max Ikw (kw)	Amps (A)
DDH	RLA		43
	LRYA	410	222
	LRDA		—
DEH	LRYA		45
	RLA	437	222
	LRDA		—
DFH	RLA		49
	LRYA	471	253
	LRDA		—
DGH	RLA		53
	LRYA	515	253
	LRDA		—
DHH	RLA		57
	LRYA	549	292
	LRDA		—
DJH	RLA		57
	LRYA	549	292
	LRDA		—

Motor Size	Motor Electrical Characteristics	6300V Electrical data	
		Max Ikw (kw)	Amps (A)
EHH	RLA		62
	LRYA	603	314
	LRDA		—
EJH	RLA		67
	LRYA	646	342
	LRDA		—
EKH	RLA		72
	LRYA	692	387
	LRDA		—
ELH	RLA		78
	LRYA	752	380
	LRDA		—
EMH	RLA		84
	LRYA	812	380
	LRDA		—
ENH	RLA		91
	LRYA	882	415
	LRDA		—
EPH	RLA		97
	LRYA	938	531
	LRDA		—

Motor Size	Motor Electrical Characteristics	10000V Electrical data	
		Max Ikw (kw)	Amps (A)
MDH	RLA		48
	LRYA	738	231
	LRDA		—
MFH	RLA		61
	LRYA	944	244
	LRDA		—

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

19XR Chiller Dimensions



Heat Exchanger Size	A-Length mm(2 passes)	B-Width mm	C-Height mm	D-Tube Removal Space for Either End mm
30 ~ 32	4172	1707	2073	3747
35 ~ 37	4693	1707	2073	4343
40 ~ 42	4365	1908	2153	3747
45 ~ 47	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	5156	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.

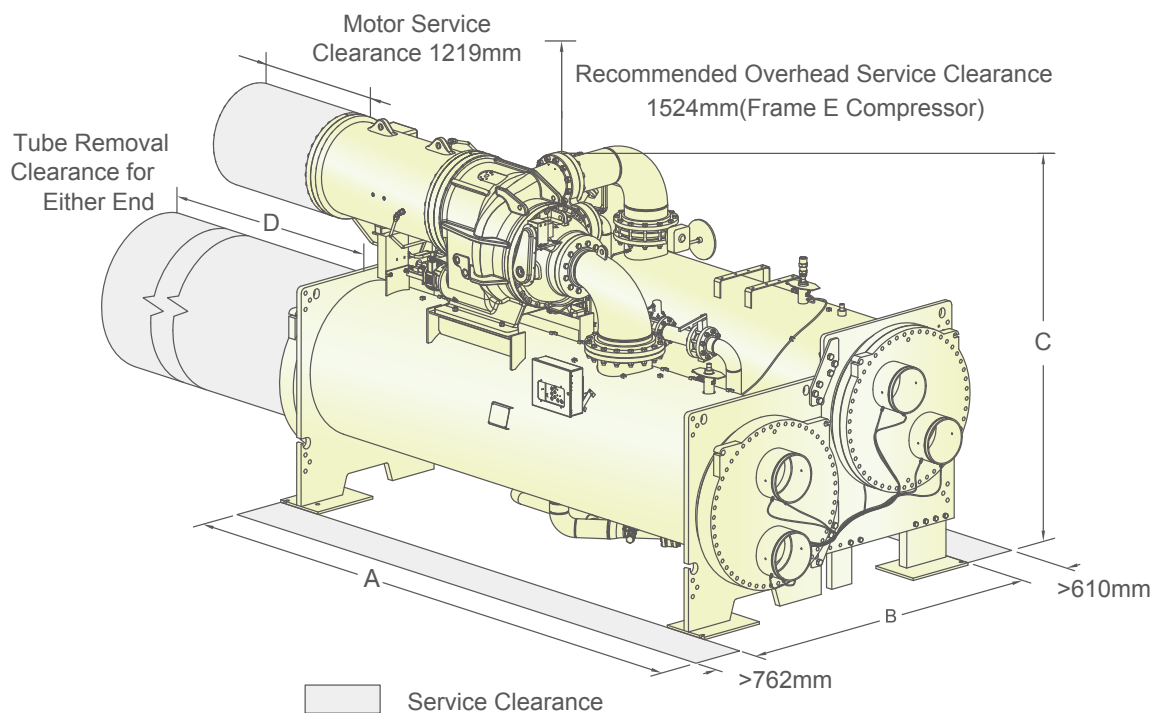
Starter Dimensions (Free standing)

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

Starter Type	Rated Current(A)	Width(mm)	Depth(mm)	Height(mm)
Y- Δ	< 740	800	600	2000
Y- Δ	740 ~ 1560	1000	600	2000

Notes: The wiring of starter enters from the top and exits from the bottom.

19XR-E Chiller Dimensions



Heat Exchanger Size	A-Length	19XR-E B-Width	19XR-E C-Height	D-Tube Removal Space for Either End
	mm (2 passes)	mm	mm	mm
70-74/7K-7R	5169	2426	2902	4267
75-79/7T-7Z	5779	2426	2902	4877
80-84/8K-8R	5205	2711	2950	4267
85-89/8T-8Z	5817	2711	2950	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.

Nozzle Dimensions



Drive End (Type A)

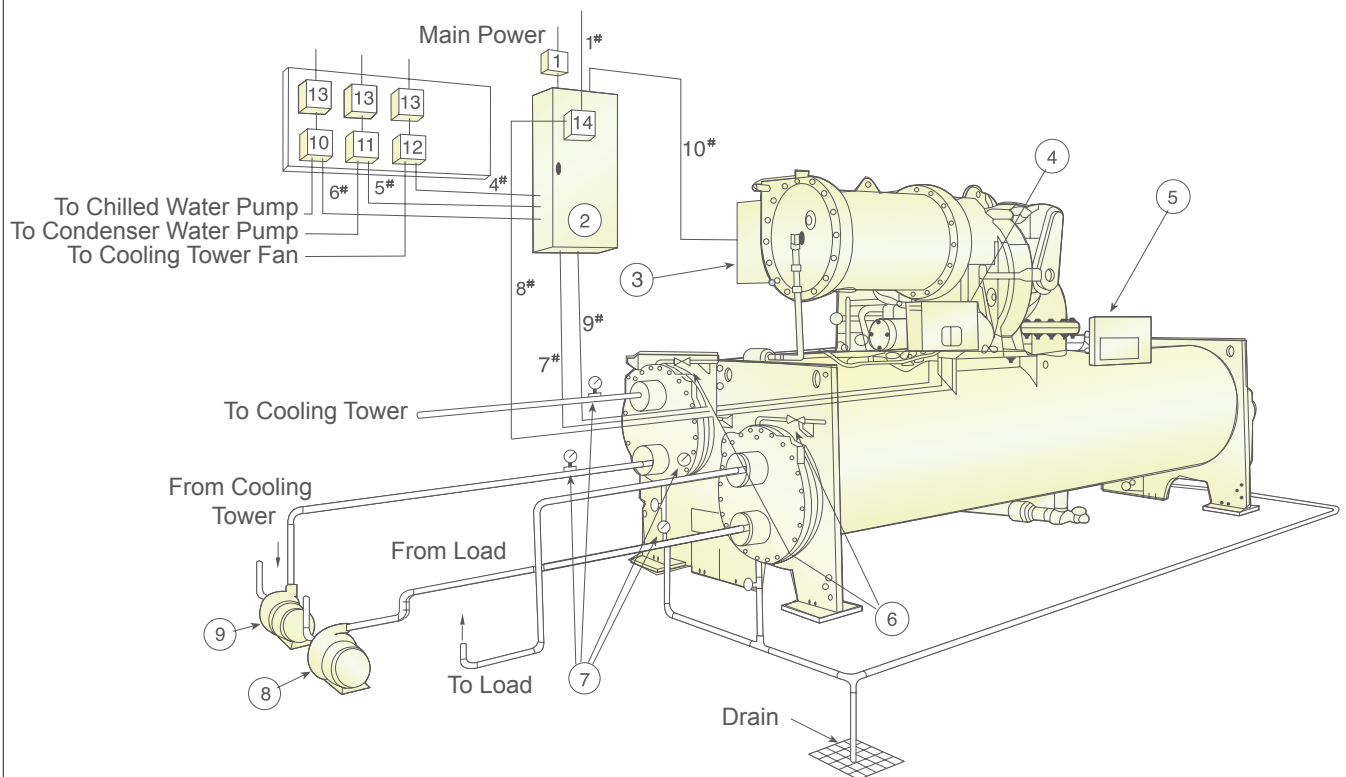
For C of Cooler Waterbox: 5 in and 6 out
For R of condenser Water box: 7 in and 8 out

Compressor End (Type B)

For D of Cooler Waterbox: 3 in and 4 out
For S of condenser Water box: 1 in and 2 out

(mm)

Notes: 1. Nozzles of standard units are at the drive end (Type A). Type B is also available on request.
2. The above dimensions are based on the waterside pressure being 1.0Mpa. Dimensions will vary while the waterside pressure increases.



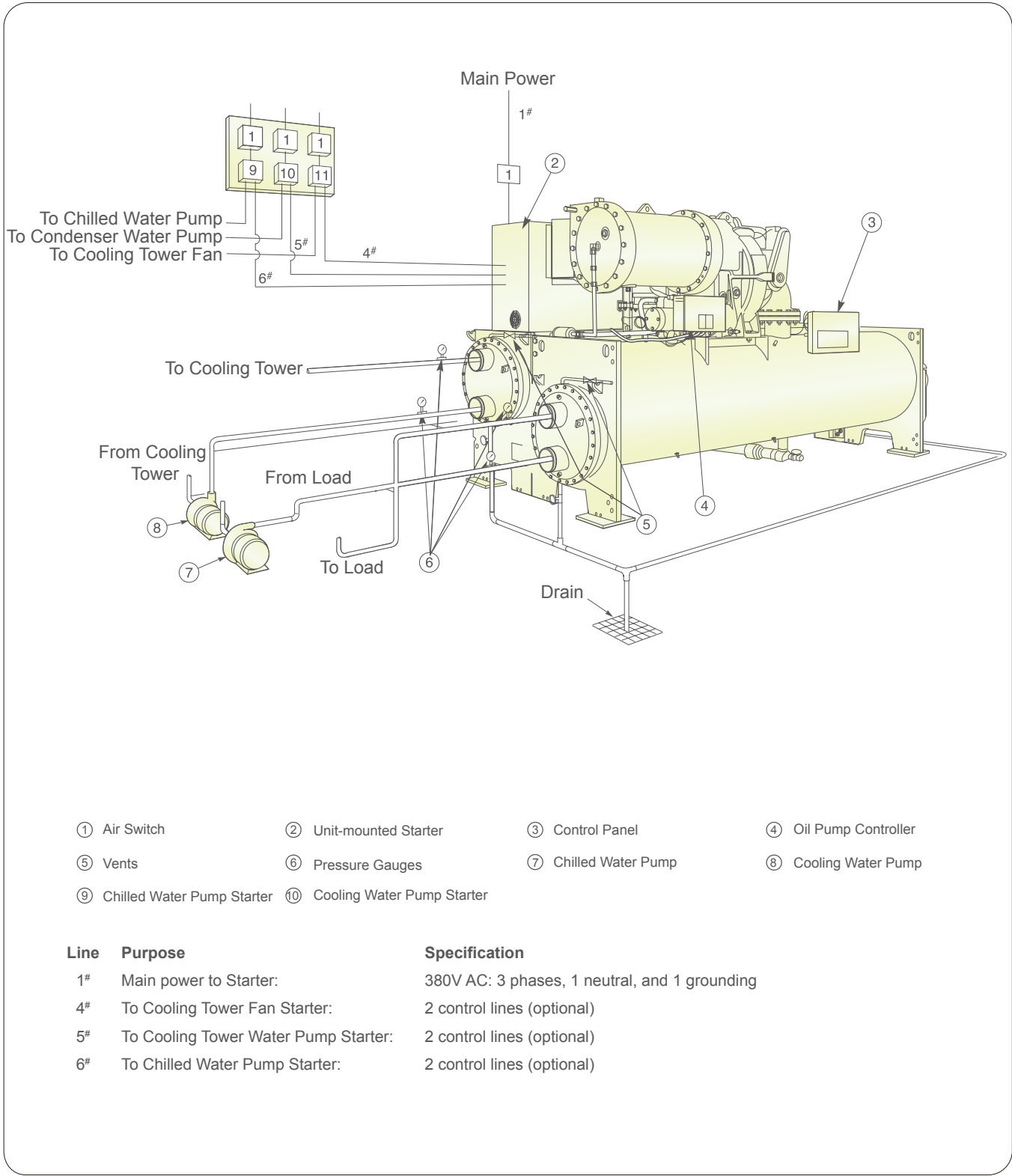
- | | | | |
|----------------------|---|---------------------------------|-----------------------------|
| ① Air Switch | ② Freestanding Compressor Motor Starter | ③ Compressor Motor Terminal Box | ④ Oil Pump Controller |
| ⑤ Control Panel | ⑥ Vents | ⑦ Pressure Gauges | ⑧ Chilled Water Pump |
| ⑨ Cooling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

Line	Purpose	Specification
1#	Main power to Starter:	380V AC: 3 phases, 1 neutral, and 1 grounding Or 6300V AC: 3 phases, 1 grounding (medium voltage)
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)
7#	To Oil Heater Contactor:	115V AC: 2 power lines, 1 grounding
8#	To Oil Pump Contactor:	380V AC power line, 3 phases 5A(For 6300V chiller,customer supply 380V power line to oil pump contactor)
9#	To Lubrication System Power Panel:	8 control shielding lines, 600V, 80℃, grounding in starter
10#	To Motor:	380V AC: 6 leads (Minimum ampacity per conductor = 0.721 x RLA), 2 grounding Or 6300V AC: 3 leads, 1 grounding (medium voltage)

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%.

Typical Piping and Wiring (with VFD)

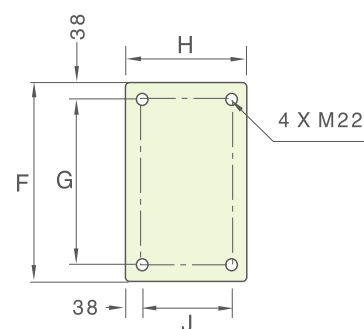
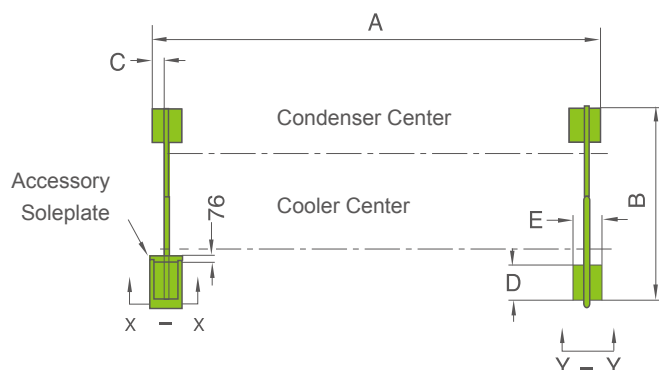


Piping and Wiring Requirements:

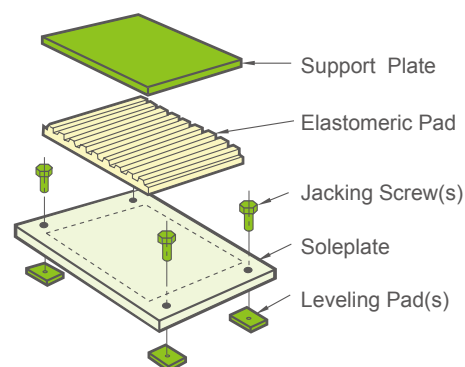
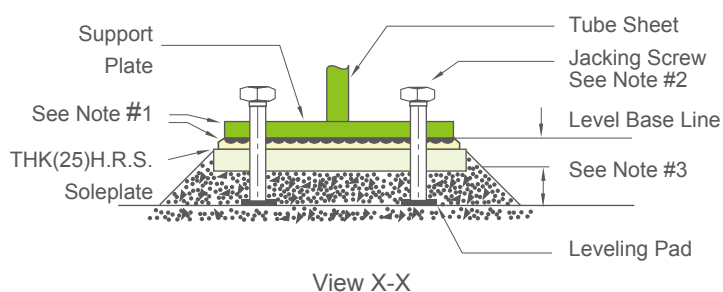
1. The installer must get all pipes and wires in place and mark the ends.
2. Filters must be installed in cooling water and chilled water pipes.
3. Thermometer (0-50°C) and pressure gauge (0~1Mpa or 2MPa) must be installed at inlet and outlet of the pipes.
4. The installer must install the relief valve 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

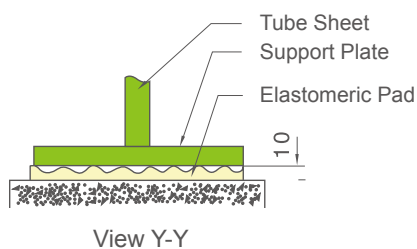
Location Of Isolator



Standard Isolation



Simplified Isolation



Notes:

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

Heat Exchanger Size		A	B	C	D	E	F	G	H	J
Frame 3	30~32	3931	1632	92	387	229	540	464	254	178
	35~37	4451	1632	92	387	229	540	464	254	178
Frame 4	40~42	3931	1829	92	387	229	540	464	254	178
	45~47	4451	1829	92	387	229	540	464	254	178
Frame 5	5P~54	3931	1969	92	387	229	540	464	254	178
	5X~59	4451	1969	92	387	229	540	464	254	178
Frame 6	6P~64	3931	2070	92	387	229	540	464	254	178
	6X~69	4451	2070	92	387	229	540	464	254	178
Frame 7	7P~74	4620	2400	176	559	406	711	635	432	356
	7X~79	5230	2400	176	559	406	711	635	432	356
Frame 8	8P~84	4620	2686	176	559	406	711	635	432	356
	8X~89	5230	2686	176	559	406	711	635	432	356

Option Specifications

Waterside Pressure of condenser:

The standard pressure is 1.0Mpa, 1.6 and 2.0Mpa are also available if necessary.

Waterside Pressure of cooler:

The standard pressure is 1.0Mpa, 1.6 and 2.0Mpa are also available if necessary.

Spring Isolator:

The standard isolator is made of elastomeric rubber. Spring Isolator is also available for further isolation if necessary.

Discharge Line Sound Reduction Kit (19XR only):

This helps reduce the noise by 1~2dB (A)

(For details, please contact local agencies.)

Dimension Selection for Selected Model

19XR/XR-E Centrifugal Chillers can be configured according to customers' requirements. Dimensions of chiller, piping and base correspond to the heat exchanger and can be identified in the table listed in the catalog. Take as an example 19XR4142386CQS, of which the size of cooler and condenser is 41 and 42 respectively:

See chiller dimension table on page 6, the heat exchanger 40~42 line for length, width, height of the chiller as follows:

Heat Exchanger Size	A-Length mm	B-Width mm	C-Height mm	D-Tube Removal Space mm
40 ~ 42	4365	1908	2153	3747

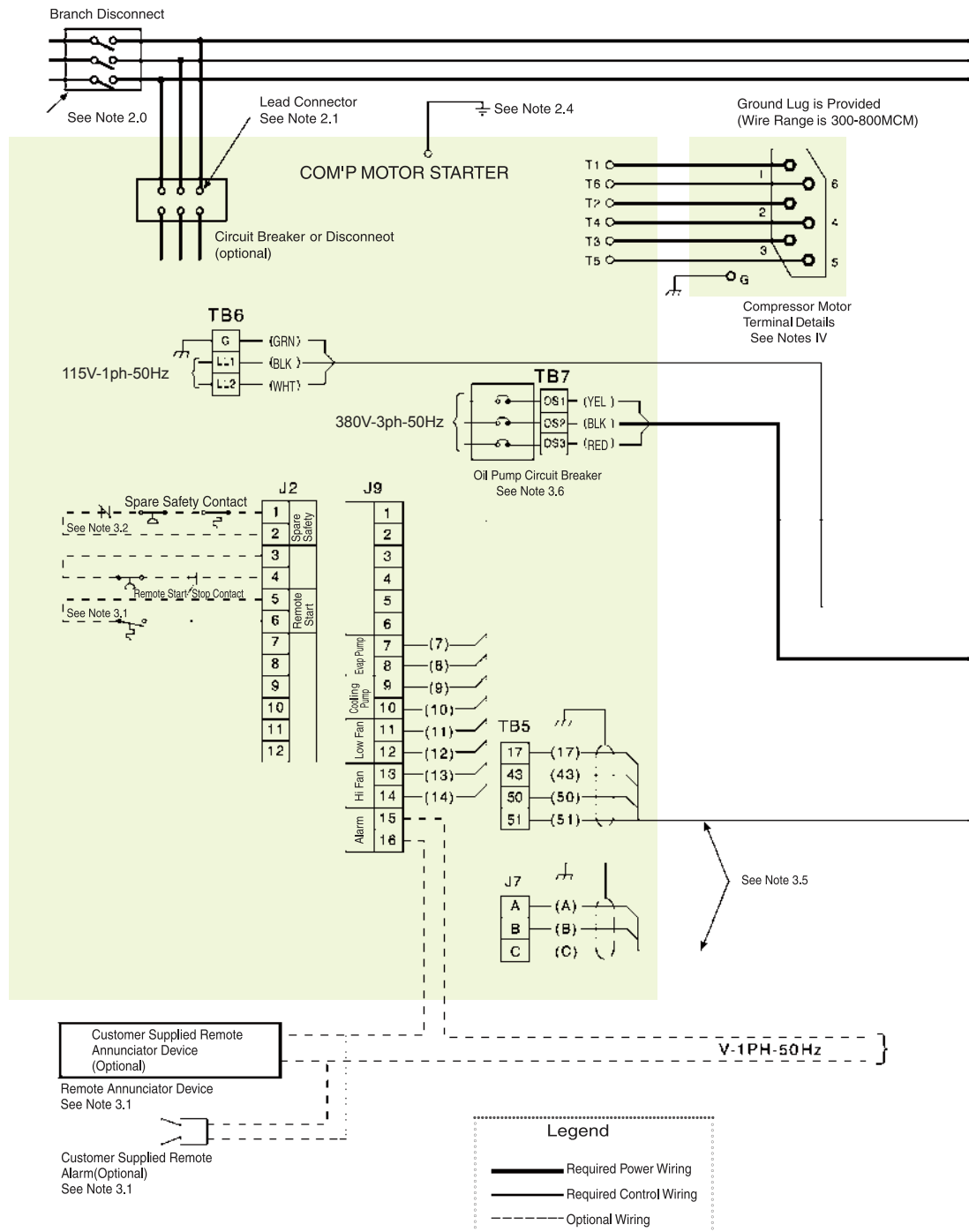
See nozzle dimensions table on page 7, the heat exchanger 40~42 line for dimensions of main nozzles and flanges as follows:

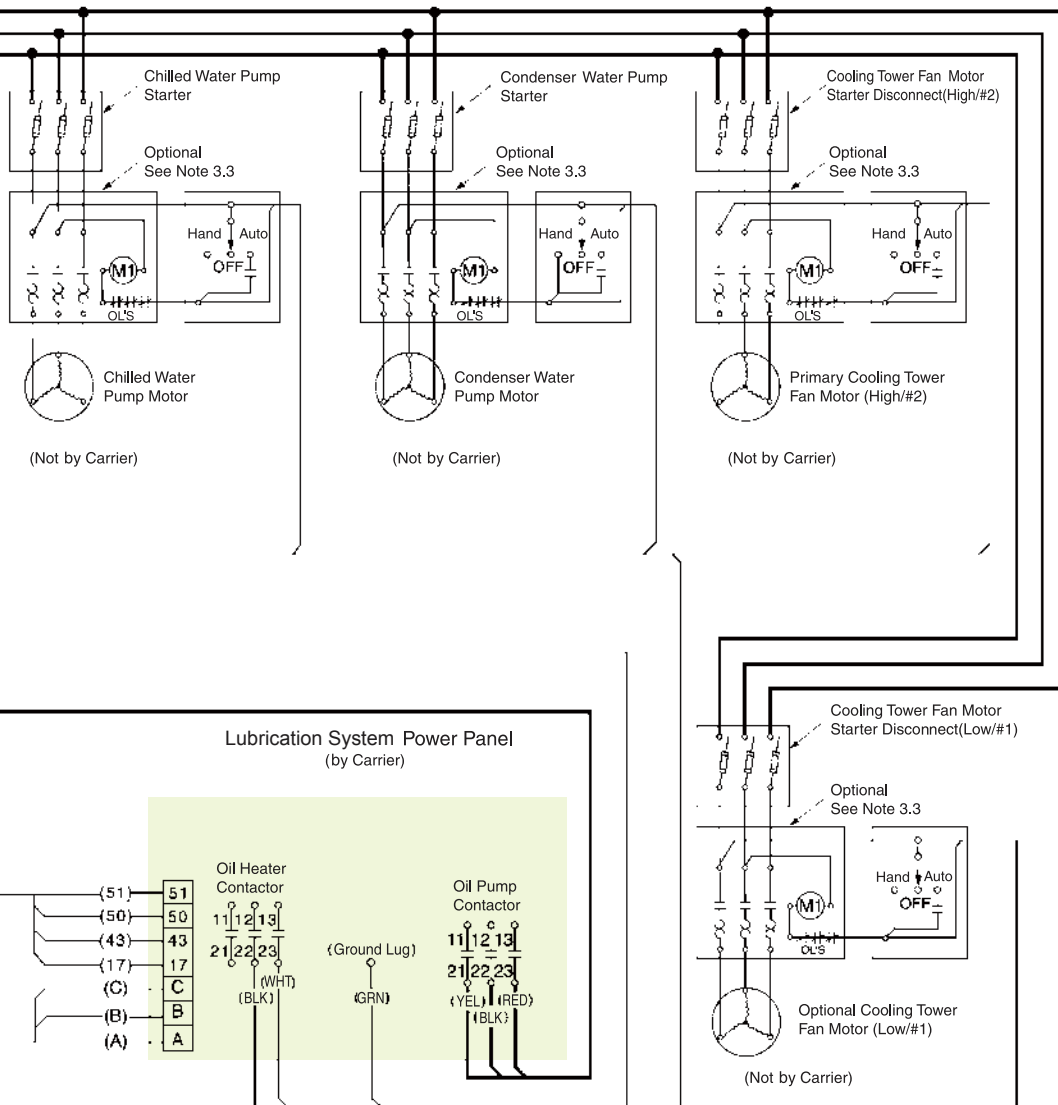
Heat Exchanger Size	A	B	C	D	ØE	ØF	H	I
40 ~ 42	627	995	499	867	DN200	DN200	940	464

See base dimensions table on page 10, the heat exchanger 40~42 line for base dimensions as follows:

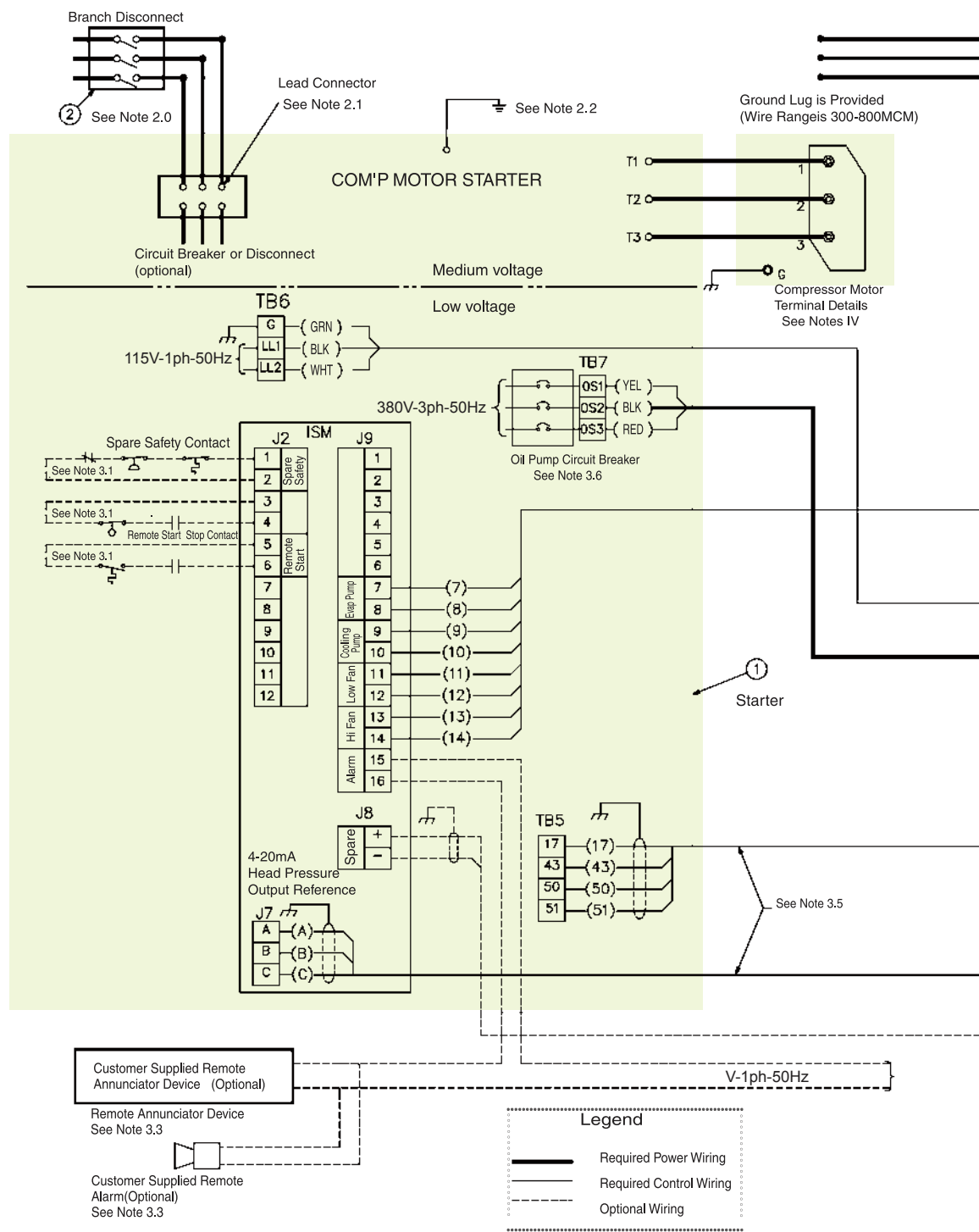
Heat Exchanger Size	A	B	C	D	E	F	G	H	J
40 ~ 42	3931	1829	92	387	229	540	464	254	178

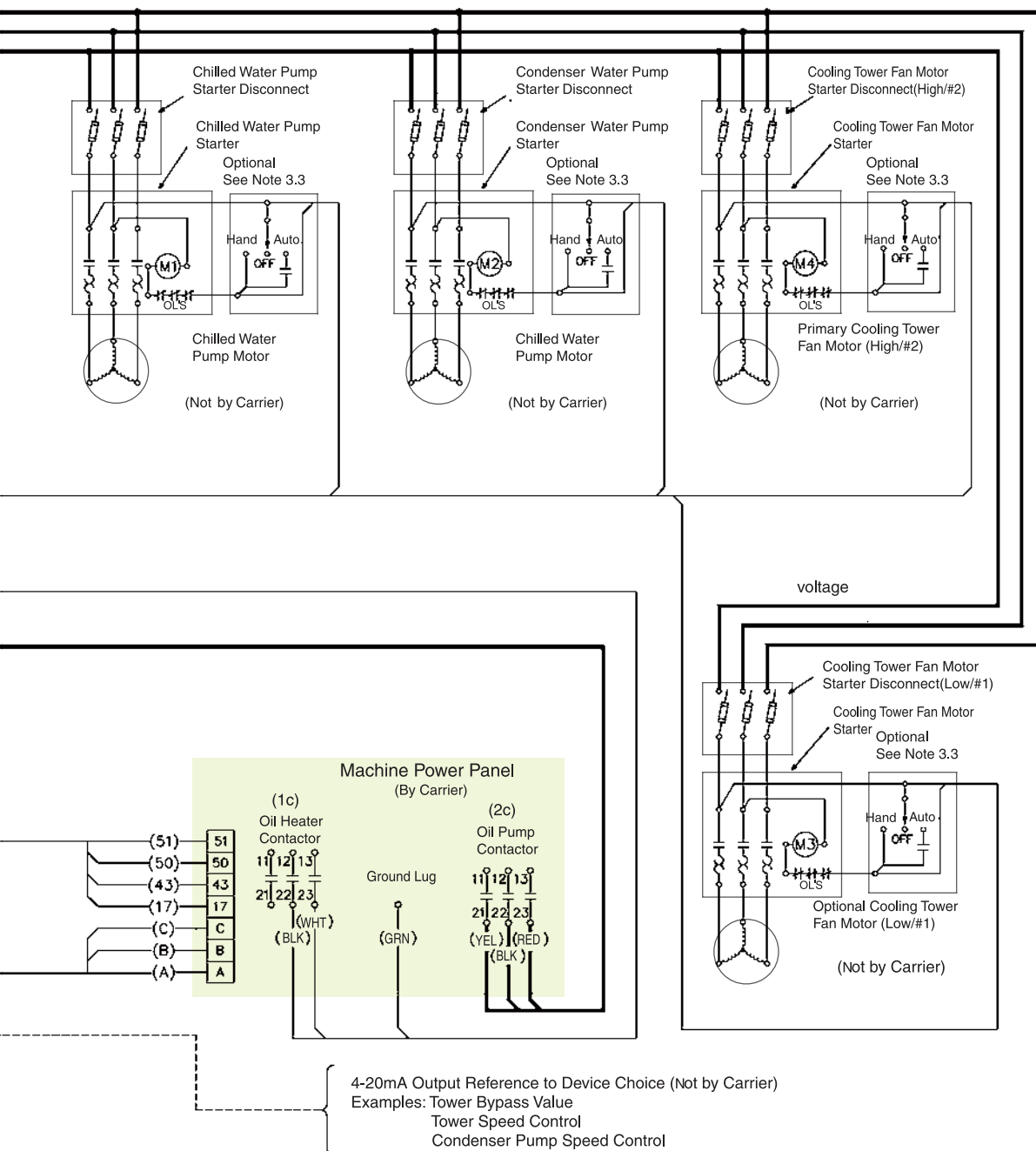
19XR/XR-E Typical Field Wiring with Free-Standing Starter (380V-3ph-50Hz/60Hz)



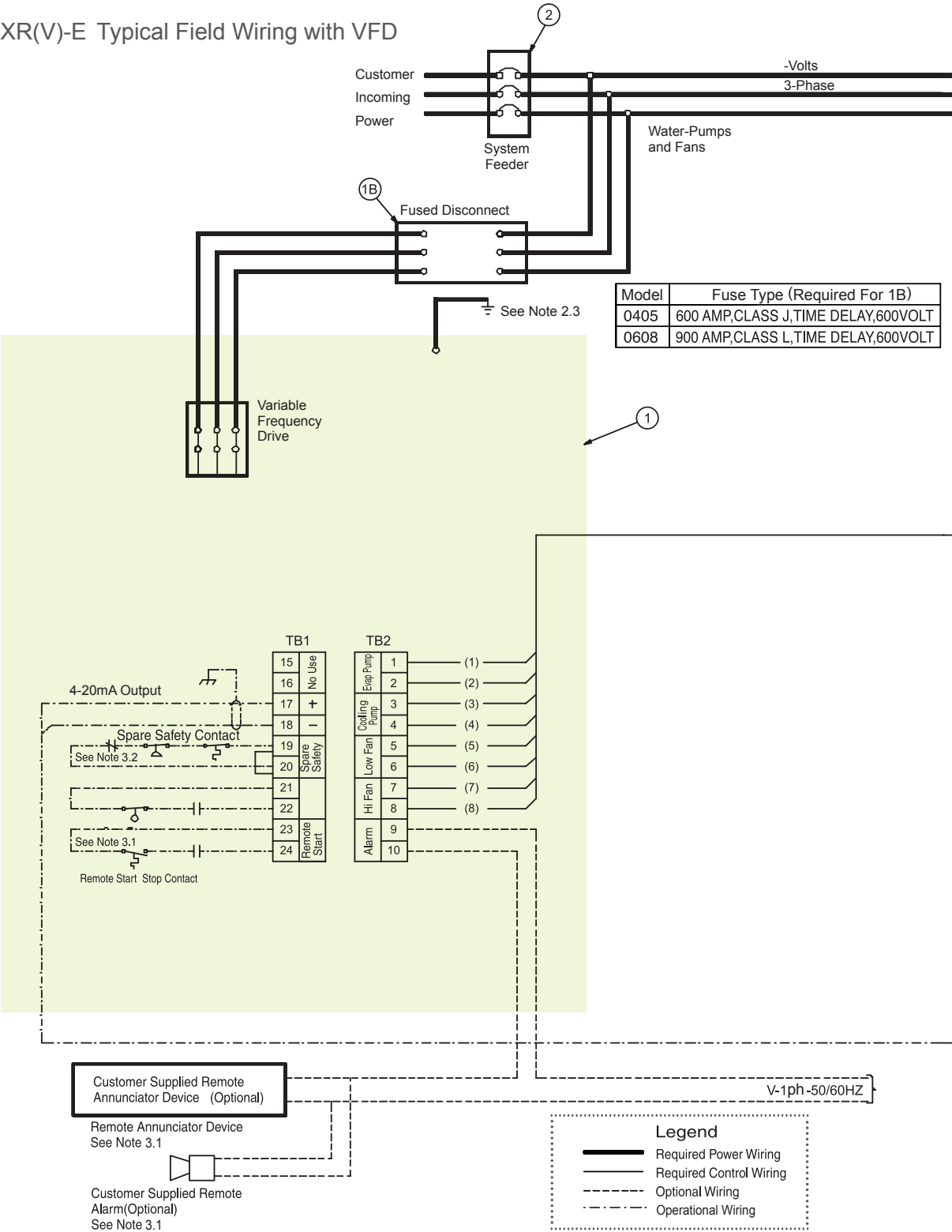


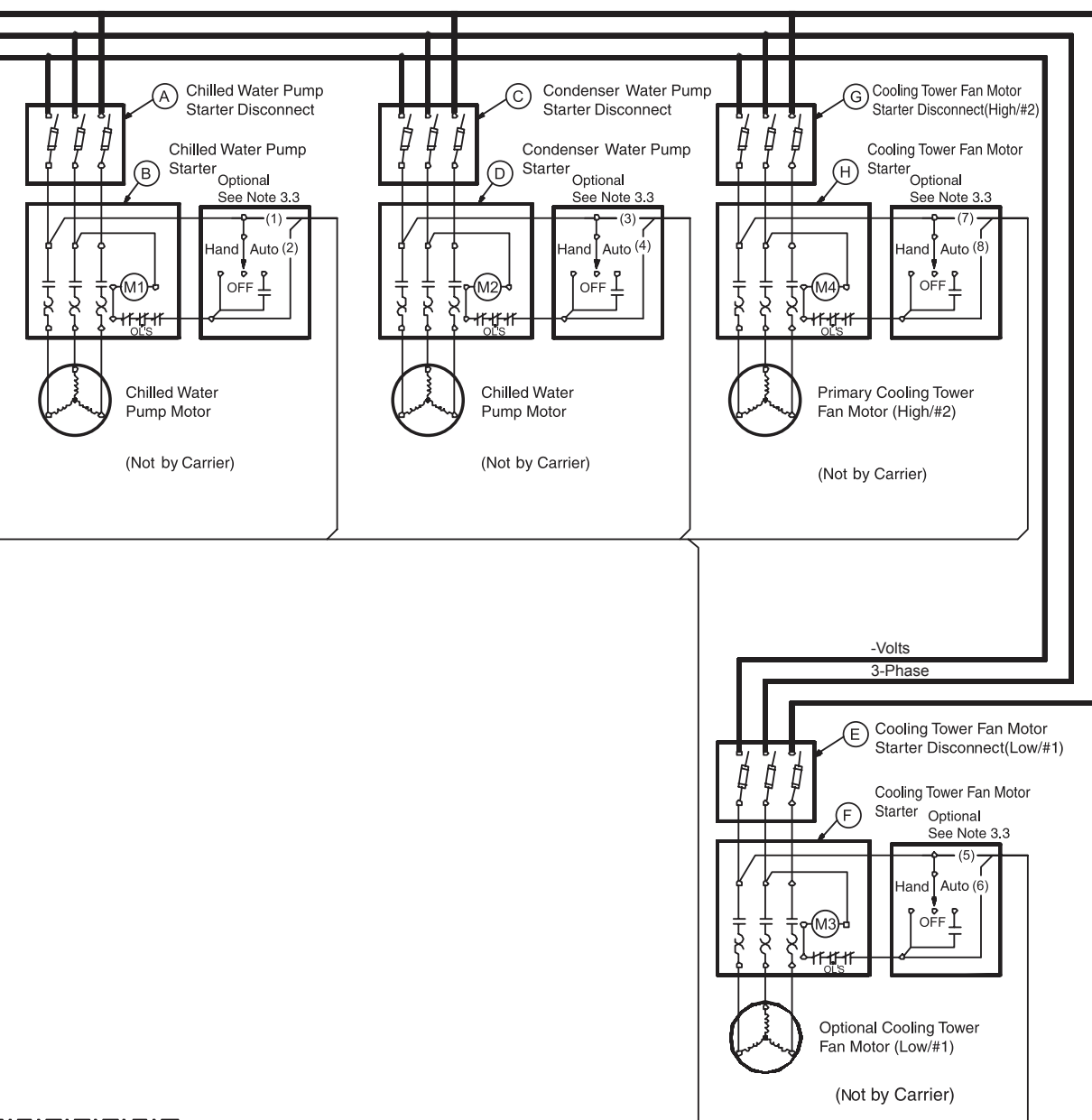
19XR/XR-E Typical Field Wiring with Free-Standing Starter (Medium Voltage)





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





4-20mA Output Reference to Device Choice (Not by Carrier)

Examples: Tower Bypass Valve
Tower Speed Control
Condenser Pump Speed Control

See Note 3.5

Microprocessor Controls

Microprocessor controls provide the safety, interlock, and indications necessary to operate the chiller in a safe and efficient manner. In addition, the program logic ensures proper starting, stopping, and recycling of the chiller and provides a communication link to the Carrier Comfort Network (CCN).

The microprocessor control on each Carrier centrifugal system is factory mounted, wired, and tested to ensure machine protection and efficient capacity control.

Control system

- ✓ LCD with Language Pre-programmed for Chinese
- ✓ Component Test and Diagnostic Check
- ✓ Programmable Recycle Allows Chiller to Recycle at Optimum Loads for Decreased Operating Costs
- ✓ Menu-Driven Keypad Interface for Status Display, Set Point Control, and System Configuration
- ✓ CCN Compatible
- ✓ Primary and Secondary Status Message
- ✓ Individual Start/Stop Schedules for Local and CCN Operation Modules
- ✓ Recall of Up to 25 Alarm/Alert Messages with Diagnostic Help
- ✓ Two Chiller Lead/Lag with Third Chiller Standby is Standard in the PIC II Software
- ✓ Optional Soft Stop Unloading Closes Guide Vanes to Unload the Motor to the Configured Amperage Level Prior to Stopping

Safety cutouts

- ✓ Bearing Oil High Temperature*
- ✓ Motor High Temperature*+
- ✓ Refrigerant (Condenser) High Pressure*+
- ✓ Refrigerant (Cooler) Low Pressure*+
- ✓ Lube Oil Low Pressure
- ✓ Compressor (Refrigerant) Discharge Temperature*
- ✓ Under Voltage**
- ✓ Over Voltage**
- ✓ Oil Pump Motor Overload
- ✓ Cooler and Condenser Water Flow
- ✓ Motor Overload+
- ✓ Motor Acceleration Time
- ✓ Intermittent Power Loss
- ✓ Compressor Starter Faults
- ✓ Compressor Surge Protection*
- ✓ Low Level Ground Fault
- ✓ Low Level-phase to phase and phase to ground

Display

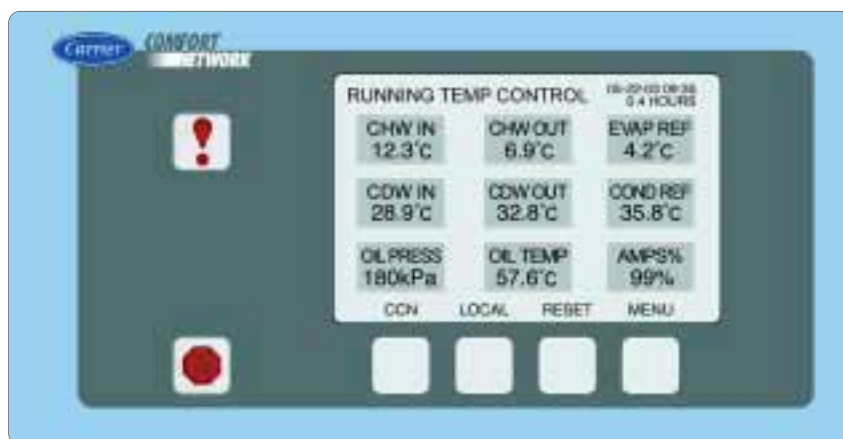
- ✓ Chiller Operation Status Message
- ✓ Power-On
- ✓ Pre-Start Diagnostic Check
- ✓ Compressor Motor Amps
- ✓ Pre-Alarm Alert++
- ✓ Alarm
- ✓ Contact for Remote Alarm
- ✓ Safety Shutdown Messages
- ✓ Elapsed Time (Hours of Operation)
- ✓ Chiller Input kW

Capacity Control

- ✓ Leaving Chilled Water Control
- ✓ Entering Chilled Water Control
- ✓ Soft Loading Control by Temperature or Load Ramping
- ✓ Guide Vane Actuator Module
- ✓ Hot Gas Bypass Valve
- ✓ Power (Demand) Limiter

Interlocks

- ✓ Manual/Automatic Remote Start
- ✓ Starting/Stopping Sequence
 - Pre-lube/Post-Lube
 - Pre-Flow/Post-Flow
- Compressor Starter Run Interlock
- ✓ Pre-Start Check of Safeties and Alerts
- ✓ Low Chilled Water (Load) Recycle
- ✓ Monitor/Number Compressor Starts and Run Hours
- ✓ Manual Reset of Safeties



Notes:

- * These can be configured by users to provide alert indication at user-defined limit.
- + Override Protection: Causes compressor to first unload and then, if necessary, shut down.
- * * Will not require manual reset or cause an alarm if auto-restart after power failure is enabled.
- + + By display code only.

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/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 J2-1 and J2-2 before connecting auxiliary safeties between these terminals.
- 3.3 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 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 power panel must be separate shielded cables with minimum rating of 600V, 80°C Ground shield at starter.
- 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.

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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