THE COMPANY 55 Years

Sabro

TRUST the AIRXperts

WWC Water-Cooled Package Chillers

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Also Available with Environmental Friendly Refrigerant (R-407C)+**DC INVERTER**

Sabro
HVAC Solutions

Introduction

- **Sabro Water-cooled Package Water Chillers** provide chilled water for all commercial/industrial air conditioning applications such as hotels, motels, multi story buildings, shopping arcades, office buildings, hospitals and clinics etc, with the combination of AHUs-Air handling units or FCUs-fan coil units,for chilled water demands of industrial/commercial applications.

- **Sabro Water-cooled Water Chillers are suitable** to maintain stable cooling even in high ambient conditions with combination of a suitable cooling tower. All models are provided with multiple compressors and refrigerant circuits (except models WWC040-S, 050-S, 060-S & 160-S). All units are provided with all necessary safety and protective devices for dependable and trouble free operation.

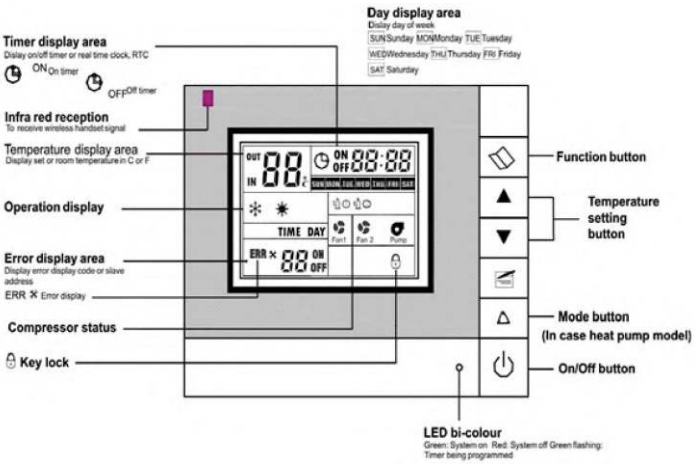
- **Sabro Water-cooled Package Water Chillers are manufactured,** in wide range of 4 hp to 240hp, to meet the requirements. These units are completely factory assembled, internally wired, charged with operating refrigerant and are solely tested before dispatch.

- The only work required at site is to place the unit on foundations and connect it with chilled/condenser water piping and main power supply connection, which results in reduced installation work and cost.

Equipment Features

Performance and Technical Features

- Highly efficient/reliable hermetic scroll/semi-hermatic(reciprocating) compressors.
- Specially designed to operate in diverse tropical conditions, most of the models have multiple compressors with individual refrigerant circuits, all equipped with necessary safety devices for smooth and reliable operations.
- Multi compressors unit is provided with step thermostat.
- Acrylic coated aluminium foil fins (optional) for installation at seal line areas.
- Economical and energy efficient in operations.
- The WWC units are passed through rigorous in-house testing which guarantees Smooth and efficient operations at installation sites.
- The unit is equipped with current over-load protections as well the other refrigeration, electronics/electrical/mechanical safety devices.
- Fan motors are totally enclosed, weather proof type having class F insulation along with IP-55 protection.
- The unit is provided with micro-processor based electronic digital thermostat that is an intelligent programmable temperature control device.



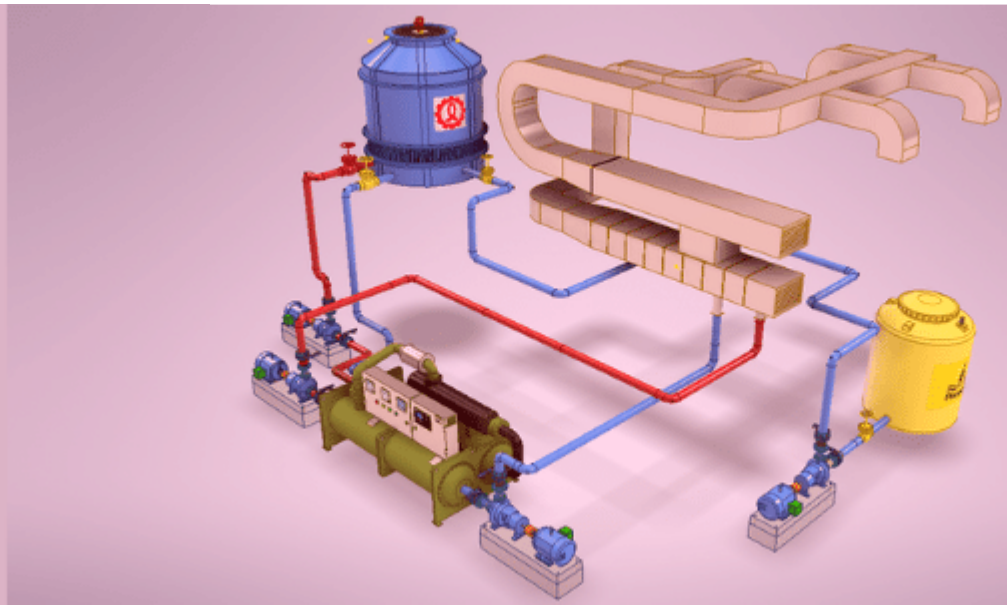
Equipment Features

Sabro Water-cooled Pasckage Chillers Are..

Designed to help you create a better environment now and for the future, providing increased energy efficiency, improved performance with lower sound-levels and when it comes to the refrigerant, **Sabro really does leave you free to select an environment friendly air cooled chiller without compromising either capacity or efficiency.**

- All in one package.
- Single point electrical connections.
- Units can be handled conveniently and flexibly thus saving installation cost & installation space.

Factory charged environment friendly refrigerant R-407C(optional)



Components Details

Construction

The basic unit is made up of **Heavy Gauge G.I sheets**. These sheets are de-greased and de-rusted before phosphating and then fine - finished with baked enamel, resulting excellent corrosion resistance which ensures long life of the unit. The whole unit is assembled on a rigid base assembly, provided with external belts for mounting on the foundations. **For the sake of convenience in servicing,** access doors/panels are provided.

Compressor

The heart of an air conditioner is the compressor. **Sabro has therefore chosen Copeland USA,** the reputed manufacturers of compressors in the world. The use of hermetic scroll and semi hermetic reciprocating compressors is efficient and dependable. All compressors have internal line break over current protection. In addition to this, external over current relay is provided for additional protection of compressors. The multi compressor units are provided with step thermostat to operate the compressors one by one according to the situation.

Evaporator(chiller)

The evaporator shell is of direct expansion type with refrigerant in the bundles of copper tubes and water in the enclosed M.S. shell. The coil is tested on 200psi pressure for tube side and 100psi pressure for shell. The evap. shell is externally insulated with high grade thermal break insulation. Mild steel Sheet jacketing protects the insulation from damage.

Condenser

The water-cooled condenser is shell and through tube type, with mild steel shell and integral finned copper tubes. The refrigerant flows through the shell and water flows through the tubes. The removable head plates allow the internal cleaning of copper tubes. The coil is tested at 450 psi pressure. A safety relief valve ensures the safe operation of unit.

Refrigerant Controls

These units are equipped with **Thermostatic Expansion Valve** to ensure equal refrigerant distribution and compressor safety.

Electric Control Panel

It consists of contactors, thermal overload relays, time delay relays and fuses etc. The control panel can be provided for remote installation in the field on request. Field wiring will be required to carry out with remote control installation.

Safety Devices

Compressor Internal Protector

Protects the compressor motor winding from overheating.

Power Failure Relay

It protects the unit from operating at high/low voltage or wrong phase sequence/phase reversal.

Over-Load Relays

Protect the electrical components from over-current operation.

Time Delay Relay

To avoid simultaneous start of 2 compressors and resultant surge current, keeping required current intact.

High & Low Pressure Cut-out Switches

These switches are used to protect the compressor from any damage due to abnormal suction/discharge pressures.

Oil Protection Switch

It Protects the compressor from any damage due to lack of lubrication. (Only In Semi-hermetic Compressors)

Flow Switch

It stops the unit, to protect from any damage due to lack of water flow.

Compressor Crank Case Heater

To keep the compressor's oil warm during time intervals when it is not operating, to prevent excessive transportation of refrigerant.

Freeze-up Protection

It protects the evaporator from water freeze-up.

Safety Relief Valve

It protects the unit in case of high discharge pressure.

Optional Accessories

Pressure Gauge

Visual representation, depicting compressor's operating conditions, using high & low refrigerant pressure & oil pr. gauges (with semi-hermetic compressors).

Oil Pressure Gauge

Oil pr. gauge is provided only with semi hermetic compressors.

Power Monitor

Stops the unit in case of failure of any 1 phase, under/over voltage or phase reversal .

Micro-Processor Control

Computes logic to operate and monitor the unit, maintaining the precise control of temperature and humidity.

Capacity Head Controller

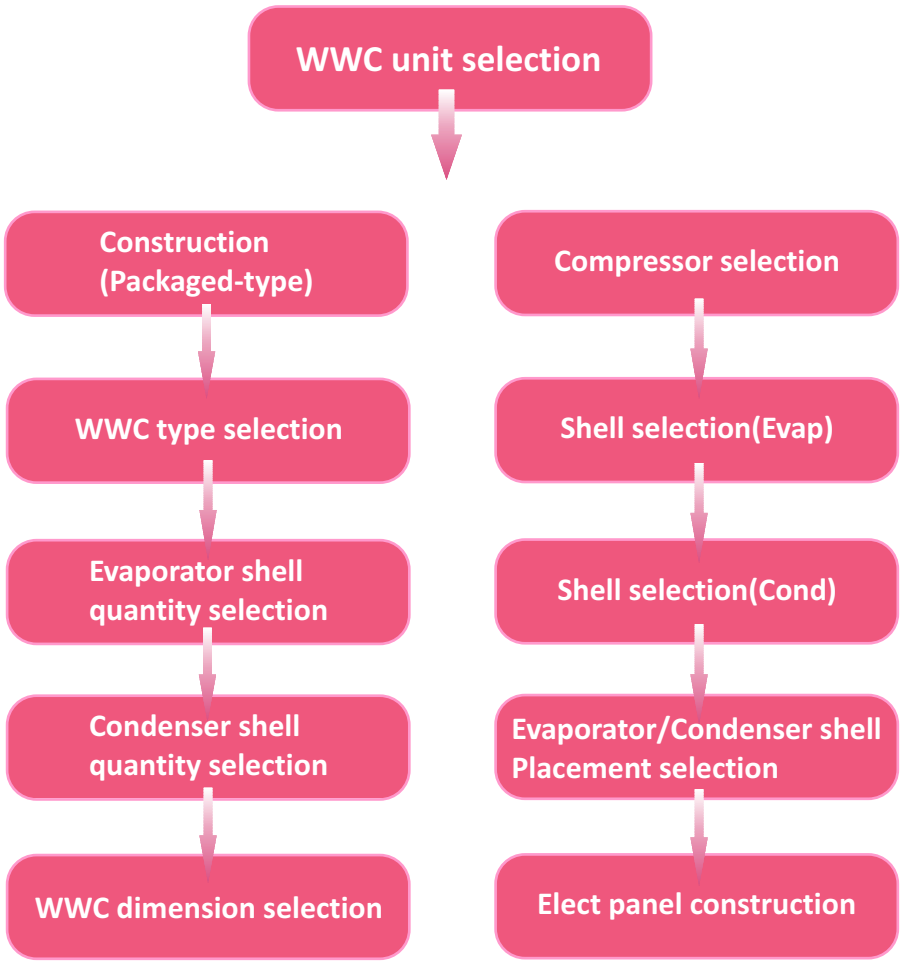
Controls system automatically by adjusting the compressor's pumping capacity (Only with semi-hermetic compressors) balancing the cooling load and permitting the compressor to start under partial load.

Rubber Vibration Isolator

To eliminate the transmission of unit's vibrations to the foundation/building.

Any additional accessory can be provided on requirement.

Nomenclature



PHYSICAL DATA

ITEMS	MODELS	WWC 040-S	WWC 050-S	WWC 060-S	WWC 080-D	WWC 100-D	WWC 120-D	WWC 160-S	WWC 160-D
Cooling capacity	Btu/Hr	36179	49050	56774	72358	98100	113548	144717	144500
	Kcal/Hr	9123	12369	14316	18246	24737	28633	36492	36438
Refrigerant circuits		1	1	1	2	2	2	1	2
Compressor	Type	Hermetic Scroll							
	Quantity	1	1	1	2	2	2	1	2
	H.P.	4.0	5	6	4.0x2	5x2	6x2	16	8.0x2
	K.W.	2.98	3.73	4.5	2.98x2	3.73x2	4.5x2	11.9	5.96x2
Evaporator	Type	shell and coil type							
Water Flow Rate	U.S.Gpm	7.24	9.81	11.36	14.48	19.62	22.72	28.94	28.90
Chill Water Connections	Inlet(OD)	1"	1"	1.5"	1.5"	1.5"	1.5"	2"	2"
	Outlet(OD)	1"	1"	1.5"	1.5"	1.5"	1.5"	2"	2"
Chiller Shell Insulation		1" thick aeroflex							
Condenser	Type	shell and tube type							
Water Flow Rate	U.S.Gpm	9.04	12.25	14.19	18.08	24.50	28.37	36.14	36.08
Water Connections(Cond)	Inlet(OD)	1.25"	1.25"	1.25"	1.25"	2"	2"	2"	2"
	Outlet(OD)	1.25"	1.25"	1.25"	1.25"	2"	2"	2"	2"
Power Supply		380/415-3-50HZ							
Refrigerant		R-22(Factory charged)							
Refrigerant Control		Thermo static Expansion Valve							
Safety Devices		Hi-low pr. Switch,compressor overcurrent relay,phase failure relay,flow switch crank case and fuse etc							
Over All Dimensions	Height (mm)	1132			1252	1260		1285	
	(inches)	44.50			49.30	49.61		50.60	
	Width (mm)	1136			1525	1535		1550	
	(inches)	44.72			60.03	60.44		61.02	
	Depth(mm)	356			421	509		600	
	(inches)	14.00			16.57	20.00		23.62	
Weight	K.G.	200	220	230	245	400	450	480	485

ITEMS	MODELS	WWC 200-D	WWC 200-Q	WWC 240-D	WWC 240-Q	WWC 260-D	WWC 320-D	WWC 370-D	WWC 420-D
Cooling Capacity	Btu/Hr	195500	196200	227651	227096	242467	289434	332200	374966
	Kcal/Hr	49298	49475	57405	57265	61142	72985	83769	94553
Refrigerant Circuits		2	4	2	4	2	2	2	2
Compressor	Type	Hermetic Scroll							
	Quantity	2	4	2	4	2	2	2	2
	H.P.	10x2	5x4	12x2	6x4	16+10	16x2	21+16	21x2
	K.W.	7.5x2	3.73x4	8.94x2	4.5x2	11.92+7.5	11.92x2	15.7+11.92	15.7x2
Evaporator	Type	shell and coil type							
Water Flow Rate	U.S.Gpm	39.10	39.24	45.53	45.42	48.49	57.89	66.44	74.99
Chill Water Connections	Inlet(OD)	2"	2"	2"	2"	2.5"	2.5"	2.5"	2.5"
	Outlet(OD)	2"	2"	2"	2"	2.5"	2.5"	2.5"	2.5"
Chiller Shell Insulation		1" thick aeroflex							
Condenser	Type	shell and tube type							
Water Flow Rate	U.S.Gpm	48.82	49.00	56.85	56.71	60.54	72.28	82.96	93.63
Water Connections(Cond)	inlet(OD)	2"	2.5"	2.5"	2.5"	3"	3"	3"	3"
	Outlet(OD)	2"	2.5"	2.5"	2.5"	3"	3"	3"	3"
Power Supply		380/415-3-50HZ							
Refrigerant		R-22(Factory charged)							
Refrigerant Control		Thermo static Expansion Valve							
Safety Devices		Hi-low pr. Switch,compressor overcurrent relay,phase failure relay,flow switch crank case and fuse etc							
Over All Dimensions	Height (mm)	1295		1470			1500	1502	1565
	(inches)	50.98		57.87			59.00	59.13	61.61
	Width (mm)	1980		2235			2250	2336	2350
	(inches)	78.00		88.00			88.58	91.96	92.52
	Depth(mm)	610		632			762	762	762
	(inches)	24.02		24.88			30.00	30.00	30.00
Weight	K.G.	610	620	725	735	775	795	845	910

PHYSICAL DATA

ITEMS	MODELS	WWC 500-D	WWC 640-D	WWC 700D	WWC 800-D	WWC 1050-T	WWC 1200-T
Cooling Capacity	Btu/Hr	445524	585176	621750	704125	932625	1056188
	Kcal/Hr	112345	147560	156783	177555	235175	266333
Refrigerant Circuits		2	2	2	2	3	3
Compressor	Type	Hermetic Scroll		S.H. Reciprocating			
	Quantity	2	2	2	2	3	3
	H.P.	25x2	32x2	35x2	40x2	35x3	40x3
	K.W.	18.6x2	23.9x2	26x2	29.8x2	26x3	29.8x3
Evaporator	Type	Shell and Coil Type					
Water Flow Rate	U.S.Gpm	89.10	117.04	124.35	140.83	186.53	211.24
Chill Water Connections	Inlet(OD)	3"	3"	3"	3"	3"x2	3"x2
	Outlet(OD)	3"	3"	3"	3"	3"x2	3"x2
Chiller Shell Insulation		1" thick aeroflex					
Condenser	Type	shell and Tube Type					
Water Flow Rate	U.S.Gpm	111.3	146.2	155.3	175.9	232.9	263.8
Water Connections(Cond)	inlet(OD)	3"	3"	3"	3.5"	3"x2	3"x2
	Outlet(OD)	3"	3"	3"	3.5"	3"x2	3"x2
Power Supply		380/415-3-50HZ					
Refrigerant		R-22(Factory charged)					
Refrigerant Control		Thermo static Expansion Valve					
Safety Devices		Hi-low pr. Switch,compressor overcurrent relay,phase failure relay,flow switch crank case and fuse etc					
Over All Dimensions	Height (mm)	1565	1903	1910	1950	1737	1755
	(inches)	61.61	74.92	75.20	76.77	68.39	69.10
	Width (mm)	2399	2830	2850	2870	3912	3950
	(inches)	94.45	111.42	112.20	113.00	154.02	155.51
	Depth(mm)	949	955	965	985	1235	1250
	(inches)	37.36	37.60	37.99	38.78	48.62	49.21
Weight	K.G.	1015	1310	1600	1750	2250	3100

ITEMS	MODELS	WWC 1280-Q	WWC 1400-Q	WWC 1600-Q	WWC 1920-H	WWC 2100-H	WWC 2400-H
Cooling Capacity	Btu/Hr	1188352	1243500	1408250	1755528	1865250	2112375
	Kcal/Hr	299660	313566	355110	442681	470349	532665
Refrigerant Circuits		4	4	4	6	6	6
Compressor	Type	Hermetic Scroll	S.H. Reciprocating		Hermetic Scroll	S.H. Reciprocating	
	Quantity	4	4	4	6	6	6
	H.P.	32x4	35x4	40x4	32x6	35x6	40x6
	K.W.	23.9x4	26x4	29.8x4	23.9x6	26x6	29.8x6
Evaporator	Type	Shell and Coil Type					
Water Flow Rate	U.S.Gpm	237.7	248.7	281.7	351.1	373.0	422.5
Chill Water Connections	Inlet(OD)	3"x2	3"x2	3"x2	3"x2	3"x2	3"x3
	Outlet(OD)	3"x2	3"x2	3"x2	3"x2	3"x2	3"x3
Chiller Shell Insulation		1" thick aeroflex					
Condenser	Type	shell and Tube Type					
Water Flow Rate	U.S.Gpm	296.8	310.5	351.7	438.4	465.8	527.5
Water Connections(Cond)	Inlet(OD)	3"x2	3"x2	4"x2	4"x2	4"x2	4"x3
	Outlet(OD)	3"x2	3"x2	4"x2	4"x2	4"x2	4"x3
Power Supply		380/415-3-50HZ					
Refrigerant		R-22(Factory charged)					
Refrigerant Control		Thermo static Expansion Valve					
Safety Devices		Hi-low pr. Switch,compressor overcurrent relay,phase failure relay,flow switch crank case and fuse etc					
Over All Dimensions	Height (mm)	1777		1849	1854		1905
	(inches)	69.96		72.80	73.00		75.00
	Width (mm)	3970		3985	4055		4125
	(inches)	156.00		1565.89	159.65		162.40
	Depth (mm)	1118		1270	1950		1950
	(inches)	44.02		50.00	76.77		76.77
Weight	K.G.	3400	3650	4070	4410	4520	5045

Note: Nominal cooling capacity is based on following conditions:

Chiller entering water temprature=12.7°C(55°F) Condenser entering water temprature=29.4°C(85°F)

Chiller leaving water temprature=7.2°C(45°F) Condenser leaving water temprature=35°C(95°F)

COOLING PERFORMANCE DATA

MODELS	Leaving chilled water temp.°F	Condenser entering water temperature.°F													
		70		75		80		85		90		95		100	
		Cooling capacity													
		TH	GPM	TH	GPM	TH	GPM	TH	GPM	TH	GPM	TH	GPM	TH	GPM
WWC040-S	45	42.3	7.3	39.6	7.3	41.9	7.3	36.2	7.3	34.5	7.3	31.8	7.3	29.2	7.3
WWC050-S	45	57.4	9.8	54.3	9.8	52.1	9.8	49.0	9.8	47.6	9.8	45.3	9.8	44.1	9.8
WWC060-S	45	62.7	11.4	60.3	11.4	58.6	11.4	56.8	11.4	54.4	11.4	52.8	11.4	50.0	11.4
WWC080-D	45	84.6	14.5	79.2	14.5	83.8	14.5	72.4	14.5	69.0	14.5	63.6	14.5	58.4	14.5
WWC100-D	45	114.8	19.6	108.6	19.6	104.2	19.6	98.0	19.6	95.2	19.6	90.6	19.6	88.2	19.6
WWC120-D	45	125.4	22.8	120.6	22.8	117.2	22.8	113.6	22.8	108.8	22.8	105.6	22.8	100.0	22.8
WWC150-S	45	159.3	28.9	154.5	28.9	149.8	28.9	144.8	28.9	139.6	28.9	137.5	28.9	134.5	28.9
WWC150-D	45	159.1	28.9	163.0	28.9	159.0	28.9	144.5	28.9	139.3	28.9	137.0	28.9	134.I	28.9
WWC200 D & Q	45	218.5	39.1	213.0	39.1	204.1	39.1	196.0	39.1	188.0	39.1	183.5	39.1	178.8	39.1
WWC240 D & Q	45	251.0	45.5	243.0	45.5	237.5	45.5	227.5	45.5	221.6	45.5	214.5	45.5	209.5	45.5
WWC260-D	45	275.4	48.5	263.3	48.5	252.1	48.5	242.5	48.5	235.7	48.5	229.8	48.5	223.1	48.5
WWC320-D	45	320.6	57.9	311.7	57.9	301.4	57.9	289.5	57.9	278.5.	57.9	269.5	57.9	260.0	57.9
WWC370-D	45	370.5	66.5	357.5	66.5	344.8	66.5	332.0	66.5	320.3	66.5	312.5	66.5	303.0	66.5

NOTE: TH=total heat GPM= Water Flow(IN/OUT) through Evaporator Shell MBH=1000Btu/Hr

Shows nominal cooling capacity

DATA BASED ON:10°F cooler water temprature drop and 10°F condenser water temp. rise

*Direct interpolation is permissible-do not extrapolate

COOLING PERFORMANCE DATA

MODELS	Leaving Chilled Water Temp°F	Condenser entering water temperature.°F													
		70		75		80		85		90		95		100	
		Cooling capacity													
		TH	GPM	TH	GPM	TH	GPM	TH	GPM	TH	GPM	TH	GPM	TH	GPM
WWC420-D	45	419.5	27.0	404.3	29.1	390.5	30.4	375.0	75.0	364.9	34.2	351.5	36.6	339.8	38.6
WWC500-D	45	490.1	89.1	474.3	89.1	460.8	89.1	445.5	89.1	433.0	89.1	421.5	89.1	410.0	89.1
WWC640-D	45	635.5	117.0	619.7	117.0	602.5	117.0	585.2	117.0	570.7	117.0	556.4	117.0	543.0	117.0
WWC700-D	45	703.5	124.4	675.5	124.4	649.7	124.4	621.8	124.4	607.0	124.4	587.0	124.4	568.0	124.4
WWC800-D	45	760.8	140.8	740.0	140.8	720.8	140.8	704.2	140.8	685.0	140.8	667.1	140.8	649.5	140.8
WWC1050-T	45	1040.5	186.5	1004.7	186.5	966.7	186.5	932.6	186.5	901.5	186.5	871.7	186.5	848.5	186.5
WWC1200-T	45	1145.5	211.3	1115.7	211.3	1086.8	211.3	1056.2	211.3	1023.7	211.3	996.2	211.3	972.5	211.3
WWC1280-Q	45	1290.0	237.7	1257.8	237.7	1223.8	237.7	1188.4	237.7	1162.7	237.7	1131.9	237.7	1102.4	237.7
WWC1400-Q	45	1404.5	248.7	1355.7	248.7	1302.8	248.7	1243.5	248.7	1201.7	248.7	1152.5	248.7	1102.7	248.7
WWC1600Q	45	1543.7	281.7	1499.8	281.7	1448.7	281.7	1408.3	281.7	1365.9	281.7	1322.0	281.7	1280.0	281.7
WWC1920-H	45	1915.0	351.1	1862.7	351.1	1813.8	351.1	1755.5	351.1	1701.0	351.1	1648.0	351.1	1599.7	351.1
WWC2100-H	45	2090.0	373.0	2014.8	373.0	1945.3	373.0	1865.3	373.0	1790.8	373.0	1719.3	373.0	1650.2	373.0
WWC2400-H	45	2321.0	422.5	2250.7	422.5	2184.0	422.5	2112.4	422.5	2045.0	422.5	1988.7	422.5	1919.0	422.5

NOTE: TH=total heat GPM= Water Flow(IN/OUT) through Evaporator Shell MBH=1000Btu/Hr

Shows nominal cooling capacity

DATA BASED ON:10°F cooler water temprature drop and 10°F condenser water temp. rise

*Direct interpolation is permissible-do not extrapolate

ELECTRICAL DATA

Model WWC	Compressor (each)						Unit total current & fuse size			Starting Method Description
	HP	Qty	Starting method	RLA	FLA	LRA	RLA	FLA	MFA	
040S	4.0	1	AL	5.8	8.3	50	5.8	8.3	15	Across the line starting
050S	5.0	1	AL	7.4	10.1	65	7.4	10.1	15	
060S	6.0	1	AL	8.2	10.8	75	8.2	10.8	15	
080D	4.0	2	AL	5.8	8.3	50	11.6	16.6	25	
100D	5.0	2	AL	7.4	10.1	65	14.8	20.2	30	
120D	6.0	2	AL	8.2	10.8	75	16.4	21.6	30	
160S	16.0	1	AL	22.5	29.0	179	22.5	29.0	40	
160D	8.0	2	AL	11.5	16.0	95	23.0	32.0	40	
200D	10.0	2	AL	13.8	19.3	125	27.6	38.6	60	
200Q	5.0	4	AL	7.4	10.1	65	29.6	40.4	2 x 30*	
240D	12.0	2	AL	15.8	21.5	135	31.6	43.0	60	
240Q	6.0	4	AL	8.2	10.8	75	32.8	43.2	2 x 30*	
260D	10+16	1+1	AL	13.8+22.5	19.3+29	125+179	36.3	48.3	70	
320D	16	2	AL	22.5	29.0	179.0	45.0	58.0	75	
370D	16+21	1+1	AL	22.5+28	29+37	179+225	50.5	66.0	85	
420D	21.0	2	AL	28	37	225	56.0	74.0	100	
500D	25.0	2	AL	32	40	279	64.0	80.0	100	
640D	32.0	2	AL	42.5	51.0	310	85.0	102.0	120	
700D	35.0	2	PW	62	71.3	150	124.0	142.6	180	Part winding start
800D	40.0	2	PW	65	73.5	160	130.0	147.0	180	
1050T	35.0	3	PW	62	71.3	150	186.0	213.9	250	
1200T	40.0	3	PW	65	73.5	160	195.0	220.5	250	
1280Q	32.0	4	AL	42.5	51.0	310	170.0	204.0	250	Across the line starting
1400Q	35.0	4	PW	62	71.3	150	248.0	285.2	180 x2*	Part winding start
1600Q	40.0	4	PW	65	73.5	160	260.0	294.0	180x2*	
1920H	32.0	6	AL	42.5	51.0	310	255.0	306.0	180x2*	Across the line starting
2100H	35.0	6	PW	62	71.3	150	372.0	427.8	250x2*	Part winding start
2400H	40.0	6	PW	65	73.5	160	390.0	441.0	250x2*	

RLA=Rated load amps. Are based on 85°F(29.4°C)condenser water in(10° T.D)and 45°F(7.22°C) chiller water out(10°F T.D)

FLA=Full load amps. Are based on 100°F(37.9°C)condenser water in(10° T.D)and 50°F(10°C) chiller water out(10°F T.D)

LRA=Locked rotor amps.

AL=Across the line starting

PW=Part wind starting

Elec supply=380/415-3-50HZ

M F A=Maximum fuse amps

*Chiller equipped with two control panels,

-Locked rotor amps are for PW compressors and for 1st winding & 1 second only

-In multi compressor units,the compressor motors will start sequence wise

Due to continuous improvement in our products,specs may change without any notice

WATER PRESSURE DROP DATA

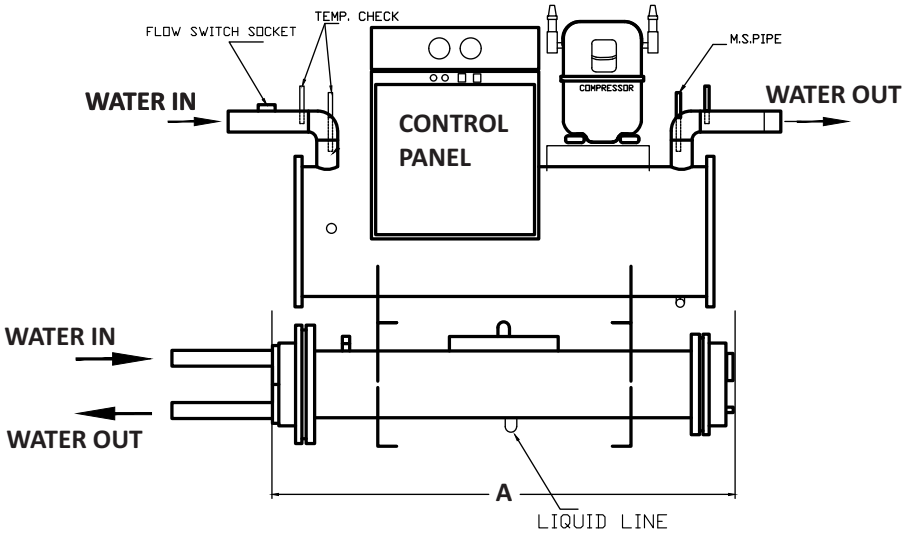
Condenser Water Pressure Drop.(Feet of Water)

G.P.M	MODELS WWC										
	040	050	080	100	120	160	200	240/260	320	370	420
5	1.10										
10	1.20	1.30	1.50								
15	1.70	1.90	2.10								
20	2.40	2.70	2.90	1.30	1.50	1.50					
25	3.00	3.40	3.60	1.70	1.90	1.90					
30	3.50	4.00	4.50	1.90	2.30	2.20					
35			5.50	2.20	2.80	2.50					
40			6.80	2.70	3.30	2.90	1.40	1.70			
45			7.30	3.10	3.90	3.20	1.70	1.90			
50				3.40	4.40	3.60	1.90	2.10	1.80	1.90	
55				3.70	4.90	4.00	2.10	2.30	1.90	2.00	
60				4.10	5.50	4.50	2.30	2.50	2.10	2.30	
65						5.10	2.50	2.70	2.40	2.60	2.80
70						5.80	2.90	3.30	2.70	2.90	3.15
75						6.20	3.20	3.50	2.80	3.10	3.35
80						7.00	3.70	4.00	2.90	3.40	3.60
85							4.10	4.40	3.20	3.60	3.90
90							4.60	4.80	3.40	3.80	4.00
95									3.60	3.90	4.35
100									3.80	4.10	4.60
105									4.20	4.50	4.90
110									4.50	4.80	5.20
120										5.30	5.75
130										5.70	6.25
140										6.50	6.85
150										6.50	7.75

G.P.M	MODELS WWC									
	500	640	800	1050	1200	1400	1600	1920	2100	2400
70										
80	4.00	4.30								
90	5.00	5.40								
100	5.80	6.20								
110	6.40	6.80								
120	6.90	7.20	2.90							
130	7.50	7.90	3.10							
140	8.60	8.90	3.60	3.20						
150	9.50	9.90	4.00	3.50						
160	10.00	10.50	4.30	3.70	4.10	4.40				
170	11.50	11.00	4.70	3.90	4.70	5.00				
180	12.60	13.10	5.20	4.20	5.20	5.50				
190		14.20	5.60	4.70	5.60	5.90				
200		15.50	5.90	5.20	5.90	6.20				
220		17.50	6.50	5.60	6.50	6.90				
240			7.60	6.20	6.90	7.30	3.00			
260				6.60	7.60	8.00	3.20	3.4	4.00	3.30
280				7.30	8.70	9.00	3.70	3.9	4.50	3.80
300				8.60	9.60	10.00	4.20	4.5	4.90	4.30
320					10.00	10.60	4.50	4.8	5.30	4.70
340					11.50	11.10	4.90	5.2	5.60	5.00
360					12.70	13.10	5.40	5.6	6.00	5.50
380						14.30	5.80	5.9	6.80	6.00
400						15.60	6.10	6.4	7.10	6.30
420							6.40	6.7	7.70	6.60
440							6.8	7.2	8.2	7
460							7.7	8.1	8.7	7.9
480							8.2	8.5	9	8.4
500								9	9.6	8.9
550								9.6	10.2	9.5
600								10.1	11	10.2
700									12	10.9
800									12.6	11.3
900									13	12

WWC Models with Single Compressor

040-S, 050-S, 060-S, 160-S — **Dimensions in MM**



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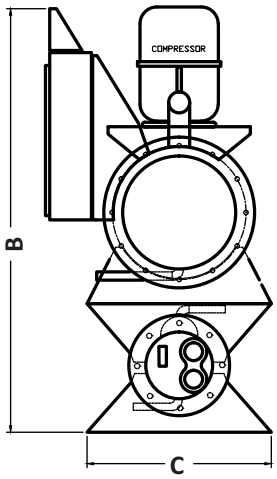


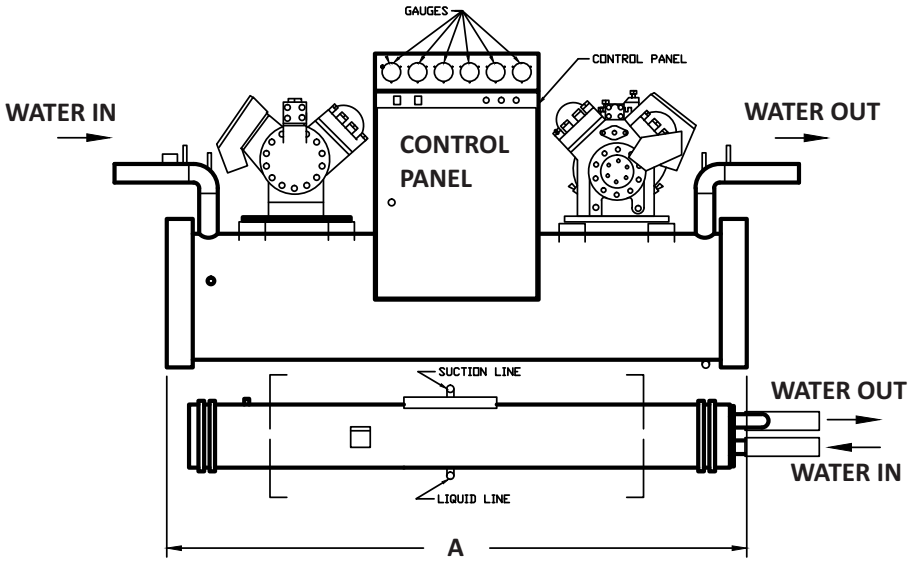
SIDE

MODEL	WIDTH (A)	HEIGHT (B)	DEPTH (C)
WWC 040-S	1136	1132	356
WWC 050-S	1136	1132	356
WWC 060-S	1136	1132	356
WWC 160-S	1550	1285	600

WWC Models with Double Compressors

080-D, 100-D, 120-D, 160-D, 200-D, 240-D, 260-D, 320-D, 370-D, 420-D, 500-D, 640-D, 700-D, 800-D

Dimensions in MM



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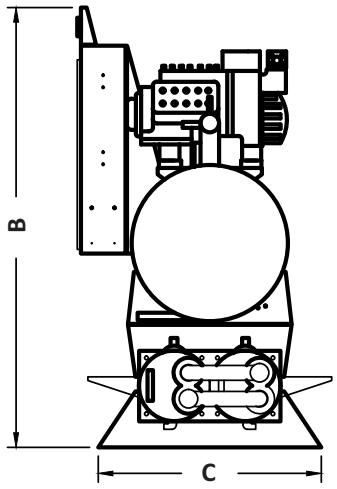
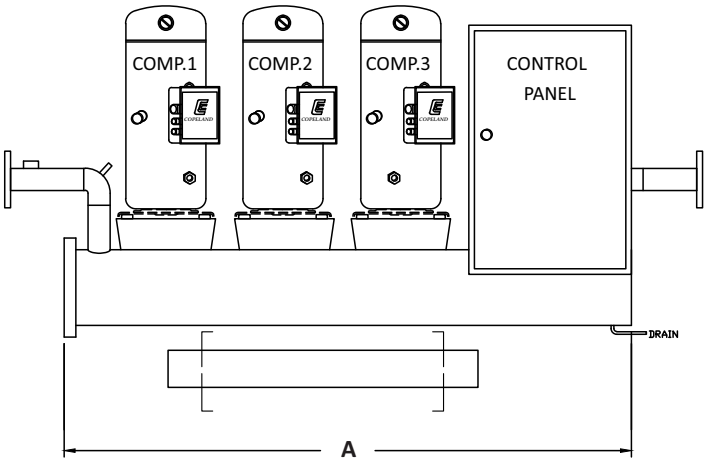


SIDE

MODEL	WIDTH (A)	HEIGHT (B)	DEPTH (C)
WWC 080-D	1525	1252	421
WWC 100-D	1535	1260	509
WWC 120-D	1535	1260	509
WWC 160-D	1550	1285	600
WWC 200-D	1980	1295	610
WWC 240-D	2235	1470	632
WWC 260-D	2235	1470	632
WWC 320-D	2250	1500	762
WWC 370-D	2336	1502	762
WWC 420-D	2350	1565	762
WWC 500-D	2399	1565	949
WWC 640-D	2830	1903	955
WWC 700-D	2850	1910	965
WWC 800-D	2870	1950	985

WWC Models with Three Compressors

1050-T, 1200-T — **Dimensions in MM**



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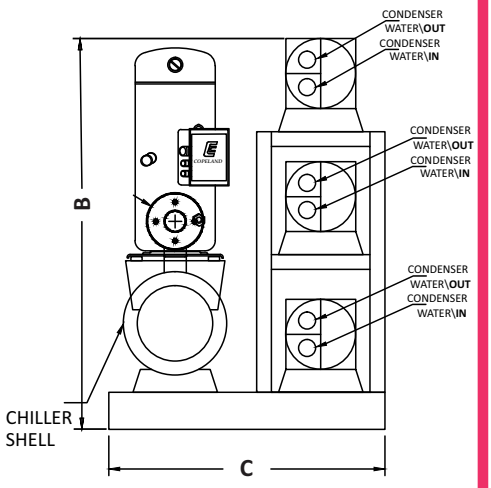
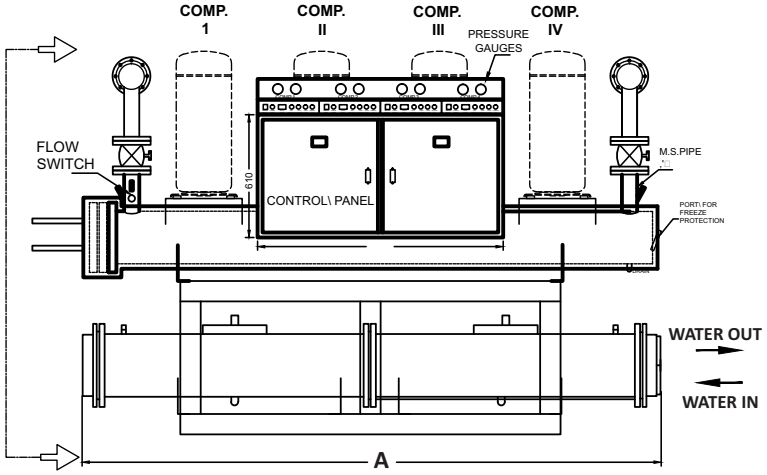


SIDE

MODEL	WIDTH (A)	HEIGHT (B)	DEPTH (C)
WWC 1050-T	3912	1737	1235
WWC 1200-T	3950	1755	1250

WWC Models with Four Compressors

200-Q, 240-Q, 1280-Q, 1400-Q, 1600-Q — **Dimensions in MM**



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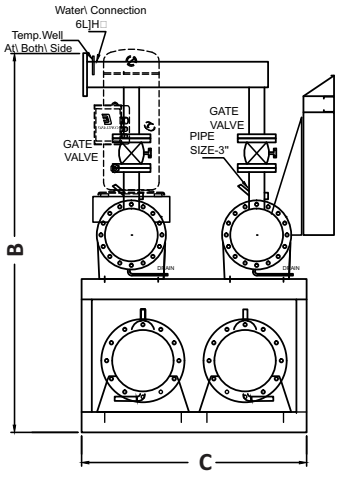
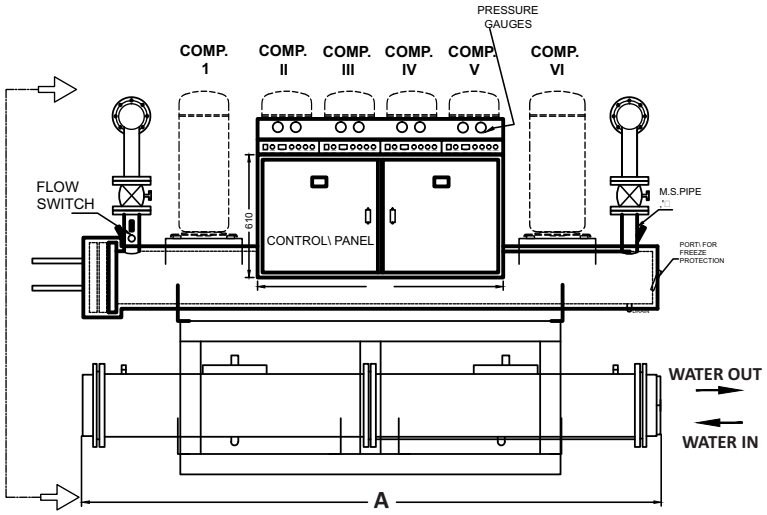


SIDE

MODEL	WIDTH (A)	HEIGHT (B)	DEPTH (C)
WWC 200-Q	1980	1295	610
WWC 240-Q	2235	1470	632
WWC 1280-Q	3970	1777	1118
WWC 1400-Q	3970	1777	1118
WWC 1600-Q	3985	1849	1270

WWC Models with Six Compressors

1920-H, 2100-H, 2400-H — **Dimensions in MM**



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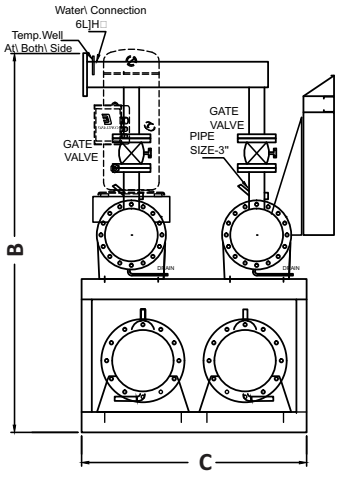

SIDE

MODEL	WIDTH (A)	HEIGHT (B)	DEPTH (C)
WWC 1920-H	4055	1854	1950
WWC 2100-H	4055	1854	1950
WWC 2400-H	4125	1905	1950

Metric/Imperial Unit Conversion Table

Imperial → Metric

Linear Measure (Length/Distance)

Imperial	Metric
1 inch	25.4 millimetres
1 foot (=12 inches)	0.3048 metre
1 yard (=3 feet)	0.9144 metre
1 (statute) mile (=1760 yards)	1.6093 kilometres
1 (nautical) mile (=1.150779 miles)	1.852 kilometres

Square Measure (Area)

Imperial	Metric
1 square inch	6.4516 sq. centimeters
1 square foot (=144 square inches)	9.29 square decimeters
1 square yard (=9 square feet)	0.8361 square metres
1 acre (=4840 square yards)	0.40469 hectare
1 square mile (=640 acres)	259 hectares

Cubic Measure (Volume)

Imperial	Metric
1 cubic inch	16.4 cubic centimeters
1 cubic foot (=1728 cubic inches)	0.0283 cubic metres
1 cubic yard (=27 cubic feet)	0.765 cubic metres

Capacity Measure (Volume)

Imperial	Metric
1 (imperial) fl. oz. (=1/20 imperial pint)	28.41 ml
1 (US liquid) fl. oz. (=1/16 US pint)	29.57 ml
1 (imperial) gill (=1/4 imperial pint)	142.07 ml
1 (US liquid) gill (=1/4 US pint)	118.29 ml
1 (imperial) pint (=20 fl. imperial oz.)	568.26 ml
1 (US liquid) pint(=16 fl. US oz.)	473.18 ml
1 (US dry) pint (= 1/2 quart)	550.61 ml
1 (imperial) gallon (=4 quarts)	4.546 litres
1 (US liquid) gallon (=4 quarts)	3.785 litres
1 (imperial) peck (=2 gallons)	9.092 litres
1 (US dry) peck (= 8 quarts)	8.810 litres
1 (imperial) bushel (=4 pecks)	36.369 litres
1 (US dry) bushel (=4 pecks)	35.239 litres

Mass (Weight)

Imperial	Metric
1 grain	0.065 gram
1 dram	1.772 grams
1 ounce (=16 drams)	28.35 grams
1 pound (=16 ounces =7000 grains)	0.45359237 kilogram
1 stone (=14 pounds)	6.35 kilograms
1 quarter (=2 stones)	12.70 kilograms
1 hundred weight (=4 quarters =112 lb.)	50.80 kilograms
1 (long) ton (=2240 lbs)	1.016 tonnes
1 (short) ton (=2, 000 lbs)	0.907 tonne

Metric → Imperial

Linear Measure (Length/Distance)

Metric	Imperial
1 millimetre	0.0394 inch
1 centimetre (=10 mm)	0.3937 inch
1 decimetre (=10 cm)	3.937 inches
1 metre (=100 cm)	1.0936 yards
1 decametre (=10 m)	10.936 yards
1 hectometre (=100 m)	109.36 yards
1 kilometre (=1000 m)	0.6214 miles

Square Measure (Area)

Metric	Imperial
1 square centire metre	0.1550 sq. inch
1 square metre (=10 000 sq. cm)	1.1960 sq. yards
1 are (=100 sq. metres)	119.60 sq. yards
1 hectare (=100 ares)	2.4711 acres
1 square kilometer (=100 hectares)	0.3861 sq. mile

Cubic Measure (Volume)

Metric	Imperial
1 cubic centimeter	0.0610 cubic inch
1 cubic metre (one million cu. cm)	1.308 cubic yards

Capacity Measure (Volume)

Metric	Imperial
1 millilitre	0.002 (imperial) pint
1 centilitre (=10 ml)	0.018 pint
1 decilitre (=100 ml)	0.176 pint
1 litre (=1000 ml)	1.76 pints
1 decalitre (=10 l)	2.20 (imperial) gallons
1 hectolitre (=100 l)	2.75 (imperial) bushels

Mass (Weight)

Metric	Imperial
1 milligram	0.015 grain
1 centigram (=10 mg)	0.154 grain
1 decigram (=100 mg)	1.543 grain
1 gram (=1000 mg)	15.43 grain
1 decagram (=10 g)	5.64 drams
1 hectogram (=100 g)	3.527 ounces
1 kilogram (=1000 g)	2.205 pounds
1 tonne (=1000 kg)	0.984 (long) ton

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