

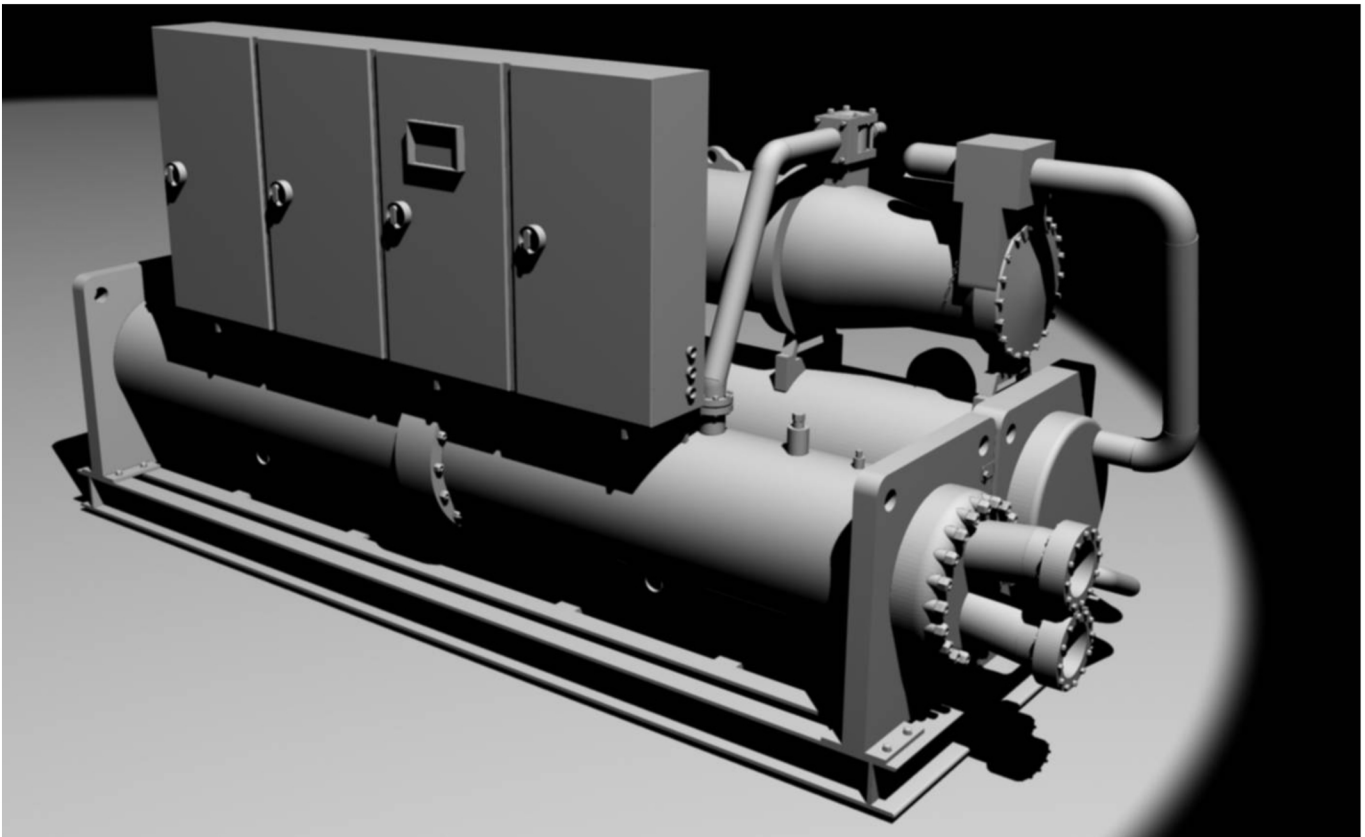
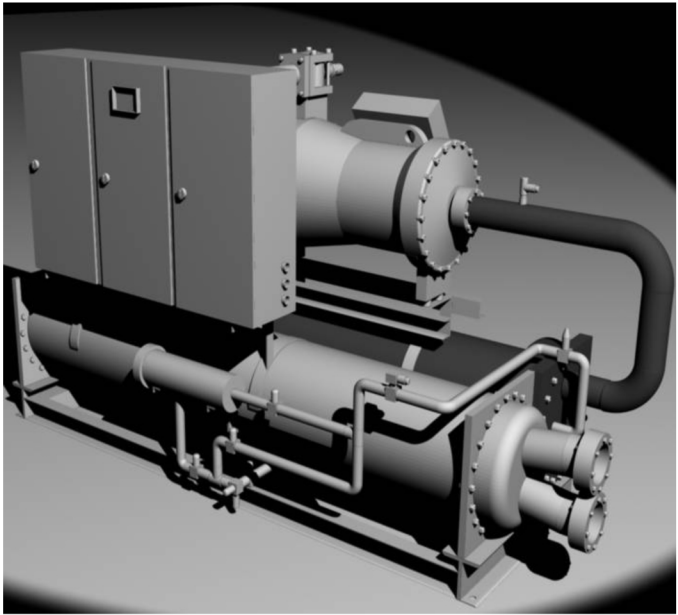
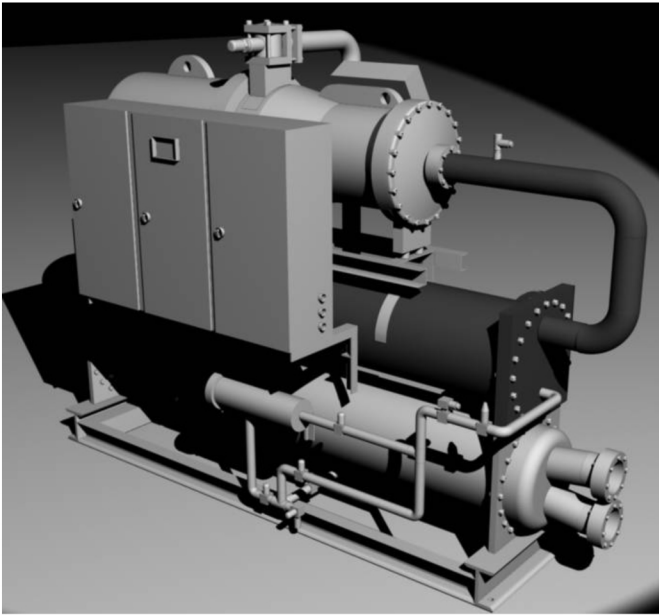


JL Marine & Engineering Pte Ltd

- Chilled Water Unit

Marine Technology and Products Catalogue
Product Instructions





1. Features

• General

- 1) Power: 3 Φ -380~415V-50hz

3 Φ -440V-50hz

2) PLC Control Panel: KGS/KM

3) Compressor: Bitzer-Compact Screw

4) Start Type: Y-Δ

5) Refrigerant: R407C/R134A

6) Safety Devices: high & low pressure switches; freezing switch; fuse; overload; motor overheat switch; temperature controller; converse start protector; oil level switch
- 7) Cool Water Temperature:

32°C inlet/36°C outlet (seawater)

36°C inlet/40°C outlet (freshwater)

8) Chilled Water Temperature:

12°C inlet/7°C outlet

9) Condensing Temperature:

40°C (seawater)/43°C (freshwater)

10) Lubricant:

BSE170—R407C

B320SH—R22

Owing to continued product development, JL reserves the right to introduce alterations without prior notice.

2. Codification Method

Unit Code:

JCW-SW-100³-S⁴-A50⁵-(07)⁶

1) Series:

JCW=JL Marine Chilled Water Unit

2) Cooling Medium:

SW=Seawater; FW=Freshwater

3) Cooling Capacity:

Unit: Cooling Ton

4) System Qty:

S=Single System; D=Double System

5) Power Source

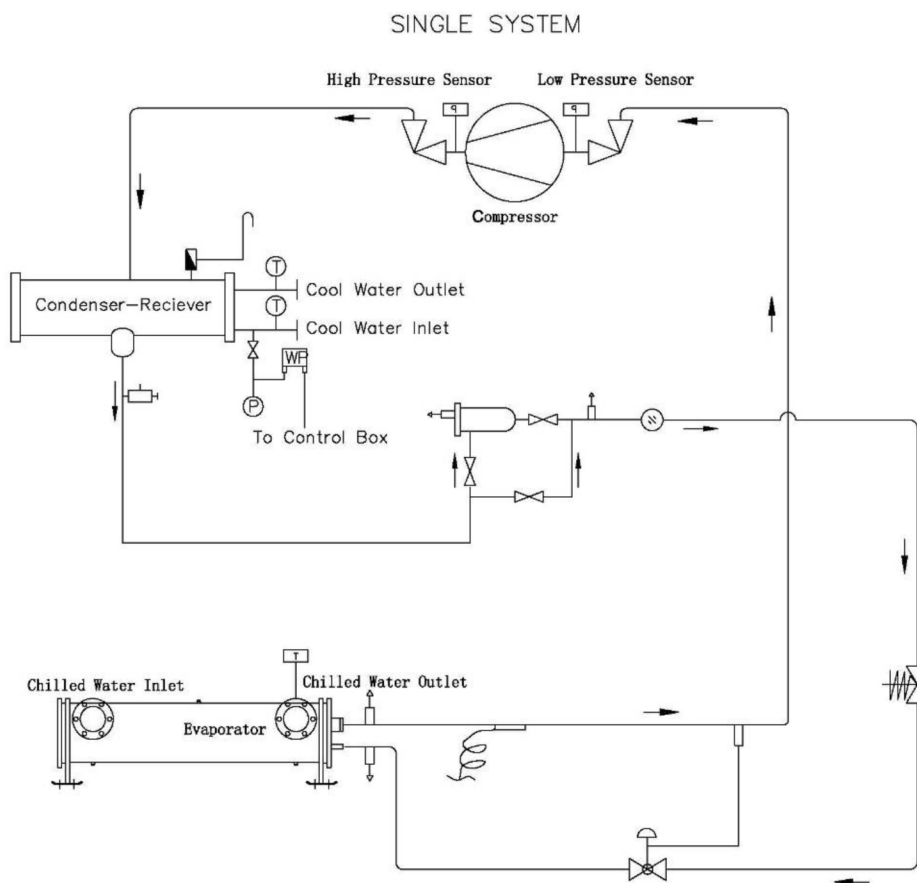
A50=380-400v/3ph/50hz; B50=415v/3ph/50hz; A60=440v/3ph/60hz;

B60=690v/3ph/60hz

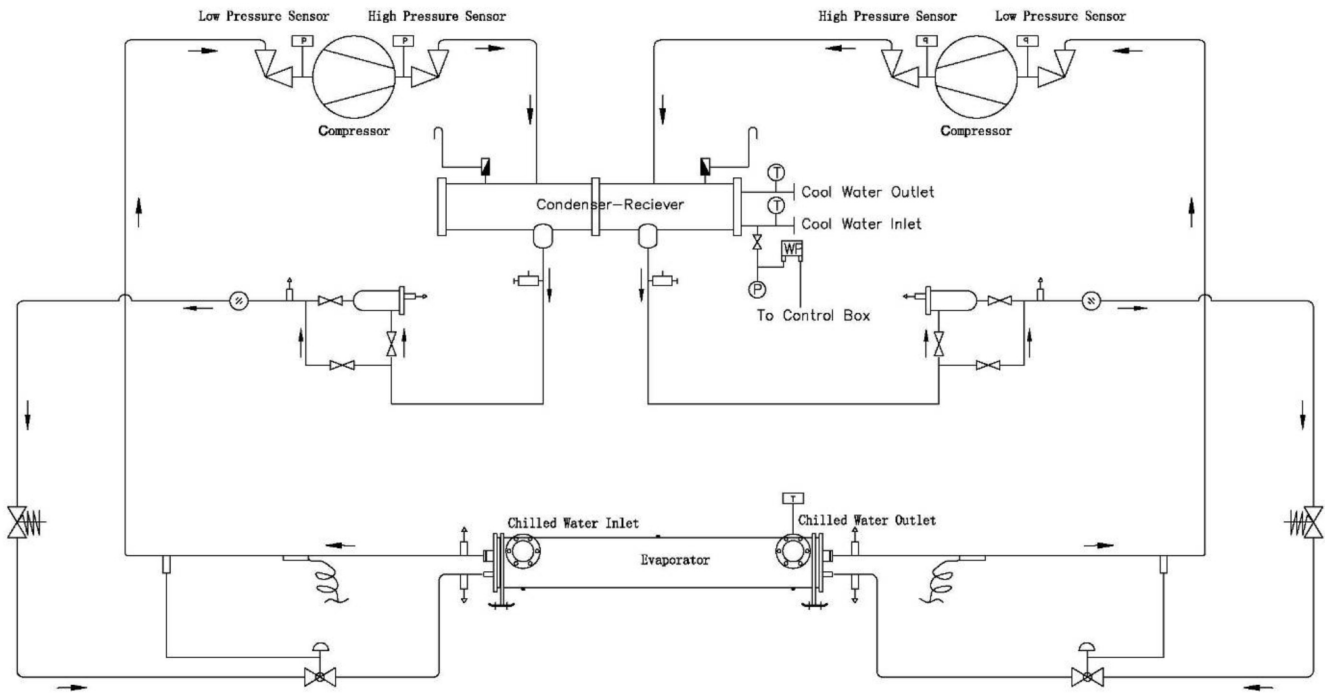
6) Refrigerant

22=R22; 04=R404A; 07=R407C; 34=R134A

3. Piping Diagrams

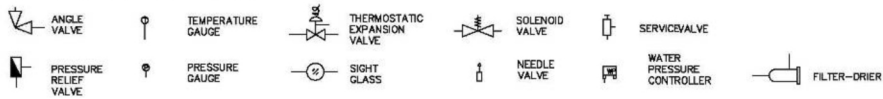


DOUBLE SYSTEM



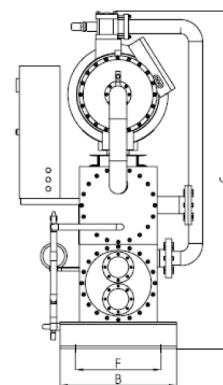
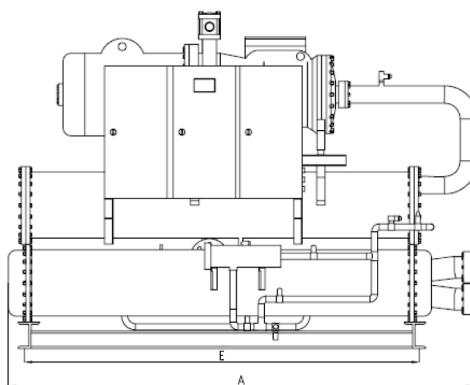
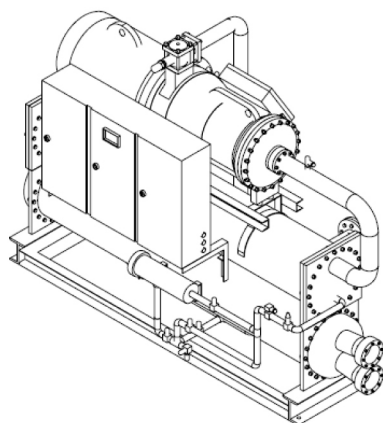
NOTE :

→ REFRIGERANT FLOW DIRECTION



50Hz

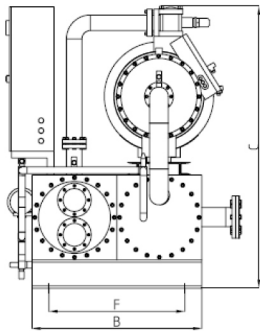
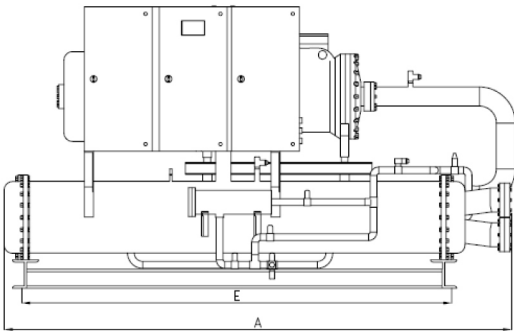
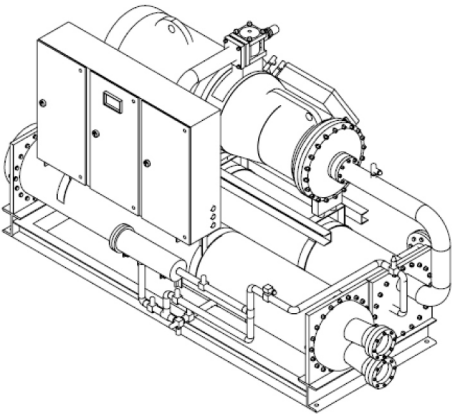
<i>Item</i>		<i>JCW</i>	<i>040S</i>	<i>050S</i>	<i>060S</i>	<i>080S</i>	<i>090S</i>	<i>100S</i>	<i>120S</i>
Cooling capacity		kw kcal/h	137.2 117,992	170.4 146,544	209.1 179,826	254.1 218,526	327.9 281,994	360.4 309,944	433.8 373,068
Power consumption		kw	31.5	37.9	46.3	56.6	72.5	79.1	94.3
Running ampere		A	56	68	83	101	130	141	169
Starting ampere		A	141	169	207	253	324	353	421
Capacity control		4-Step capacity control							
Compressor	Quantity	--	1	1	1	1	1	1	1
Refrigeration oil	Quantity	L	9	11	11	13	13	13	13
Refrigerant	Quantity	kg	20	25	30	40	45	50	60
Evaporator									
Type		U-Type							
Water flow rate		m ³ /h	23.6	29.3	36.0	43.7	56.4	62.0	74.6
Head loss		m	4.6	4.8	4.8	5.2	5.4	6.0	6.3
Pipe size		--	ø3"	ø3"	ø3"	ø4"	ø4"	ø4"	ø4"
Condenser									
Type		Shell and tube							
Water flow rate		m ³ /h	29.0	35.8	43.9	53.4	68.9	75.6	90.8
Head loss		m	2.0	2.0	3.0	3.0	3.0	3.8	4.5
Pipe size		--	ø3"	ø3"	ø3"	ø4"	ø4"	ø4"	ø4"
Unit Dimensions	Length(A)	mm	2500	2500	2750	3050	2800	3300	3300
	Width(B)	mm	750	750	750	1100	1250	1250	1250
	Height(C)	mm	1400	1450	1450	1250	1400	1400	1400
	Length(D)	mm	/	/	/	2390	2190	2620	2620
	Length(E)	mm	1970	1970	2270	2550	2350	2780	2780
	Width(F)	mm	700	700	700	550	640	640	640
weight	Net weight	kg	1200	1500	1500	1700	2050	2100	2300
	Operating weight	kg	1300	1600	1600	1800	2150	2200	2420



Owing to continued product development, JL reserves the right to introduce alterations without prior notice.

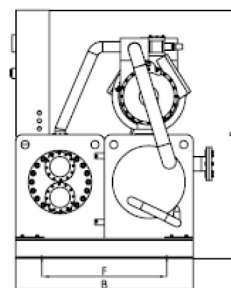
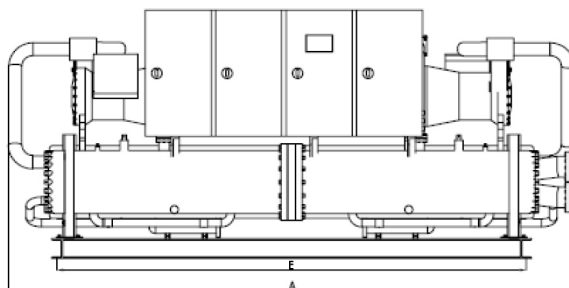
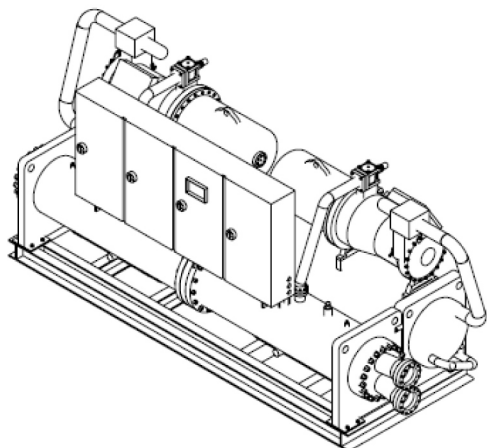
INTRODUCTION

50Hz								
Item	JCW	135S	150S	165S	180S	200S	225S	250S
Cooling capacity	kw kcal/h	458.7 394,482	552.9 449,694	562.1 483,406	615.1 528,986	663.2 570,352	777.6 668,736	843.2 725,152
Power consumption	kw	98.1	111.6	119.8	130.9	138.9	158.6	169
Running ampere	A	175	199	214	234	248	283	302
Starting ampere	A	438	499	535	585	621	709	755
Capacity control	4-Step capacity control							
Compressor	Quantity	--	1	1	1	1	1	1
Refrigeration oil	Quantity	L	13	19	20	21	23	23
Refrigerant	Quantity	kg	68	75	80	90	100	115
Evaporator								
Type	U-Type							
Water flow rate	m ³ /h	78.9	89.9	96.7	105.8	114.1	133.7	145.0
Head loss	m	6.3	6.3	6.6	6.6	7.0	8.0	8.0
Pipe size	--	DN125	DN125	DN125	DN150	DN150	DN150	DN150
Condenser								
Type	Shell and tube							
Water flow rate	m3/h	95.8	109.1	117.3	128.3	138.0	161.0	174.1
Head loss	m	4.5	4.5	4.5	4.5	4.5	5.8	5.8
Pipe size	--	DN125	DN125	DN125	DN150	DN150	DN150	DN150
Unit Dimensions	Length(A)	mm	3350	3400	3400	3400	3400	3800
	Width(B)	mm	1250	1300	1300	1300	1450	1600
	Height(C)	mm	1400	1450	1450	1500	1550	1600
	Length(D)	mm	2620	2620	2620	2620	2620	2920
	Length(E)	mm	2780	2780	2780	2780	2780	3080
	Width(F)	mm	740	870	870	870	920	1030
weight	Net weight	kg	2500	2900	3000	3200	3660	4200
	Operating weight	kg	2700	3100	3200	3450	3950	4500



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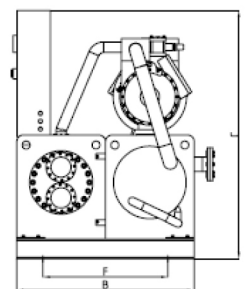
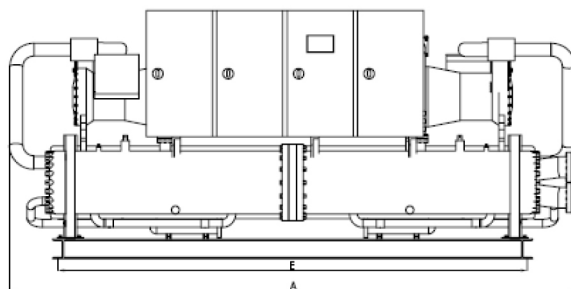
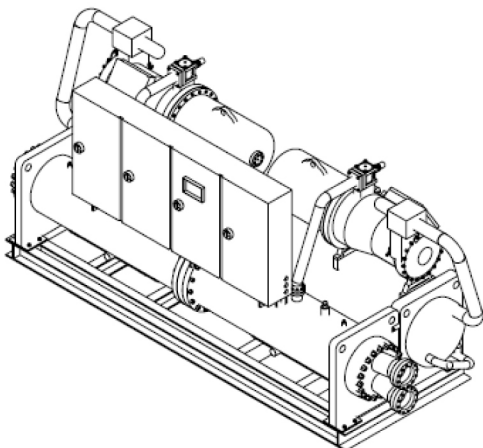
50Hz								
Item	JCW	080D	100D	110D	120D	140D	160D	180D
Cooling capacity	kw kcal/h	274.4 235,984	340.8 293,088	379.4 326,284	418.2 359,652	465.7 400,502	508.2 437,052	655.8 563,988
Power consumption	kw	63.0	75.8	84.3	92.6	103.3	113.2	145.0
Running ampere	A	113	135	151	166	185	202	259
Starting ampere	A	197	237	264	290	323	354	454
Capacity control	8-Step capacity control							
Compressor	Quantity	--	2	2	2	2	2	2
Refrigeration oil	Quantity	L	18	22	22	22	26	26
Refrigerant	Quantity	kg	40	50	55	60	70	90
Evaporator								
Type	U-Type							
Water flow rate	m ³ /h	47.2	58.6	65.3	71.9	80.1	87.4	112.8
Head loss	m	5.8	6.0	6.3	6.3	6.3	6.6	6.6
Pipe size	--	ø4"	ø4"	ø4"	ø4"	DN125	DN150	DN150
Condenser								
Type	Shell and tube							
Water flow rate	m ³ /h	58.0	71.7	79.8	87.9	97.9	106.9	137.7
Head loss	m	4.0	4.0	4.0	4.0	4.0	4.0	5.7
Pipe size	--	ø4"	ø4"	ø4"	ø4"	DN125	DN125	DN150
Unit Dimensions	Length(A)	mm	3200	3200	3200	3200	3200	3750
	Width(B)	mm	1000	1050	1050	1050	1150	1380
	Height(C)	mm	1500	1550	1550	1600	1600	1600
	Length(D)	mm	/	/	/	/	/	2620
	Length(E)	mm	2570	2370	2370	2700	2700	3080
	Width(F)	mm	700	720	720	720	720	870
weight	Net weight	kg	2400	2900	3000	3100	3400	4200
	Operating weight	kg	2500	3000	3100	3250	3600	4400



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50Hz

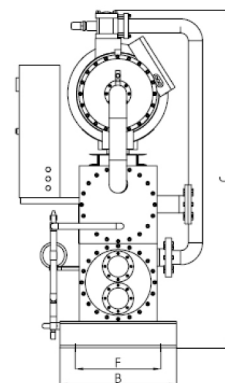
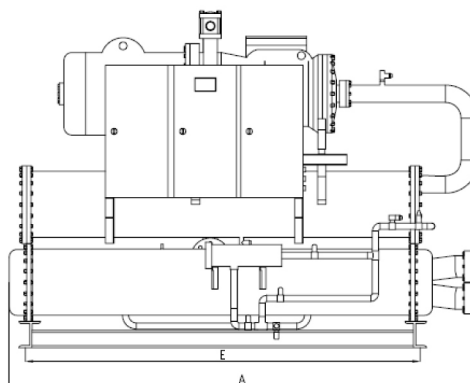
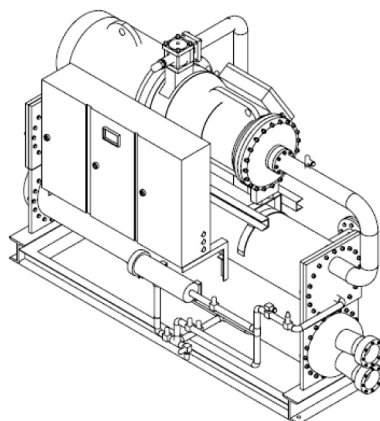
<i>Item</i>		<i>JCW</i>	200D	220D	240D	270D	300D	330D	350D
Cooling capacity		kw kcal/h	720.8 619,888	770.2 662,372	867.6 746,136	917.4 788,964	1045.8 899,388	1124.2 966,812	1230.2 1,057,972
Power consumption		kw	158.2	168.8	188.6	196.2	223.2	239.6	261.8
Running ampere		A	283	302	337	351	399	428	468
Starting ampere		A	495	528	590	614	698	750	819
Capacity control		8-Step capacity control							
Compressor	Quantity	--	2	2	2	2	2	2	2
Refrigeration oil	Quantity	L	26	26	26	26	32	38	38
Refrigerant	Quantity	kg	100	110	120	135	150	170	180
Evaporator									
Type		U-Type							
Water flow rate		m ³ /h	124.0	132.5	149.2	157.8	179.9	193.4	211.6
Head loss		m	6.6	6.6	6.6	6.6	8.0	9.0	9.0
Pipe size		--	DN150	DN150	DN150	DN150	DN200	DN200	DN200
Condenser									
Type		Shell and tube							
Water flow rate		m ³ /h	151.2	161.5	181.7	191.5	218.3	234.6	256.6
Head loss		m	5.7	5.7	5.7	5.7	6.4	6.4	6.4
Pipe size		--	DN150	DN150	DN150	DN150	DN150	DN200	DN200
Unit Dimensions	Length(A)	mm	4050	4050	4150	4150	4300	4300	4300
	Width(B)	mm	1380	1380	1450	1450	1450	1500	1500
	Height(C)	mm	1600	1600	1700	1700	1700	1750	1750
	Length(D)	mm	1550	1550	1600	1600	1600	1650	1650
	Length(E)	mm	2920	2920	2920	2920	3190	3190	3190
	Width(F)	mm	3080	3080	3080	3080	3350	3350	3350
weight	Net weight	kg	4650	4700	5000	5300	6200	6300	6650
	Operating weight	kg	4850	4900	5230	5550	6500	6650	6800



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60Hz

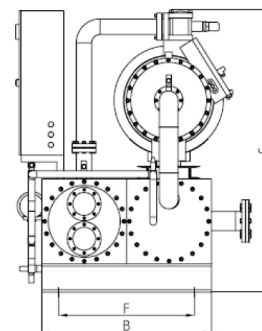
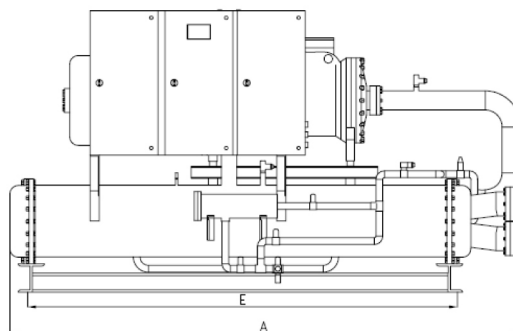
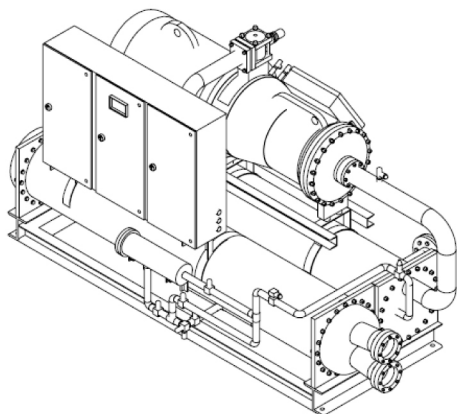
Item		JCW	040S	050S	060S	080S	090S	100S	120S
Cooling capacity		kw kcal/h	164.6 141,590	204.5 175,853	250.9 215,791	304.9 262,231	393.5 338,393	432.5 371,933	520.6 447,682
Power consumption		kw	37.8	45.5	55.6	67.9	87.0	94.9	113.2
Running ampere		A	56	68	83	101	130	141	169
Starting ampere		A	141	169	207	253	324	353	421
Capacity control		4-Step capacity control							
Compressor	Quantity	--	1	1	1	1	1	1	1
Refrigeration oil	Quantity	L	9	11	11	13	13	13	13
Refrigerant	Quantity	kg	20	25	30	40	45	50	60
Evaporator									
Type		U-Type							
Water flow rate		m ³ /h	28.3	35.2	43.2	52.4	67.7	74.4	89.5
Head loss		m	4.6	4.8	4.8	5.2	5.4	6.0	6.3
Pipe size		--	ø3"	ø3"	ø3"	ø4"	ø4"	ø4"	ø4"
Condenser									
Type		Shell and tube							
Water flow rate		m ³ /h	34.8	43.0	52.7	64.1	82.7	90.7	109.0
Head loss		m	2.0	2.0	3.0	3.0	3.0	3.8	4.5
Pipe size		--	ø3"	ø3"	ø3"	ø4"	ø4"	ø4"	ø4"
Unit Dimensions	Length(A)	mm	2500	2500	2750	3050	2800	3300	3300
	Width(B)	mm	750	750	750	1100	1250	1250	1250
	Height(C)	mm	1400	1450	1450	1250	1400	1400	1400
	Length(D)	mm	/	/	/	2390	2190	2620	2620
	Length(E)	mm	1970	1970	2270	2550	2350	2780	2780
	Width(F)	mm	700	700	700	550	640	640	640
weight	Net weight	kg	1200	1500	1500	1700	2050	2100	2300
	Operating weight	kg	1300	1600	1600	1800	2150	2200	2420



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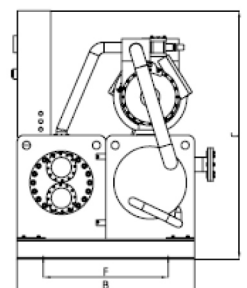
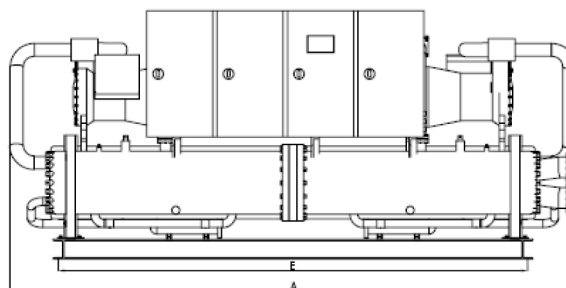
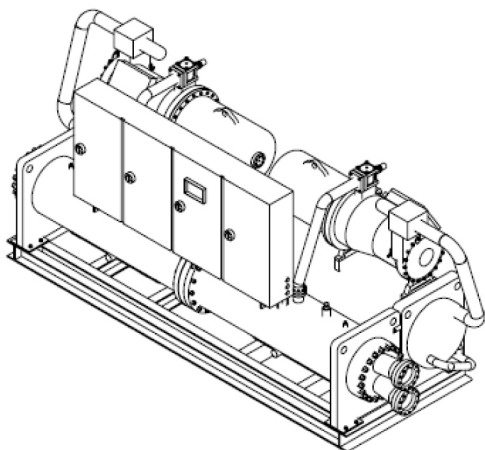
INTRODUCTION

60Hz									
Item		JCW	135S	150S	165S	180S	200S	225S	250S
Cooling capacity		kw kcal/h	550.4 473,378	663.5 539,633	674.5 580,087	738.1 634,783	795.8 684,422	933.1 802,483	1011.8 870,182
Power consumption		kw	117.7	133.9	143.8	157.1	166.7	190.3	202.8
Running ampere		A	175	199	214	234	248	283	302
Starting ampere		A	438	499	535	585	621	709	755
Capacity control		4-Step capacity control							
Compressor	Quantity	--	1	1	1	1	1	1	1
Refrigeration oil	Quantity	L	13	19	20	21	23	23	23
Refrigerant	Quantity	kg	68	75	80	90	100	115	120
Evaporator									
Type		U-Type							
Water flow rate		m³/h	94.7	107.9	116.0	127.0	136.9	160.4	174.0
Head loss		m	6.3	6.3	6.6	6.6	7.0	8.0	8.0
Pipe size		--	DN125	DN125	DN125	DN150	DN150	DN150	DN150
Condenser									
Type		Shell and tube							
Water flow rate		m3/h	115.0	130.9	140.8	154.0	165.6	193.2	208.9
Head loss		m	4.5	4.5	4.5	4.5	4.5	5.8	5.8
Pipe size		--	DN125	DN125	DN125	DN150	DN150	DN150	DN150
Unit Dimensions	Length(A)	mm	3350	3400	3400	3400	3400	3750	3800
	Width(B)	mm	1250	1300	1300	1300	1450	1600	1600
	Height(C)	mm	1400	1450	1450	1500	1550	1600	1600
	Length(D)	mm	2620	2620	2620	2620	2620	2920	2920
	Length(E)	mm	2780	2780	2780	2780	2780	3080	3080
	Width(F)	mm	740	870	870	870	920	920	1030
weight	Net weight	kg	2500	2900	3000	3200	3660	3700	4200
	Operating weight	kg	2700	3100	3200	3450	3950	4000	4500



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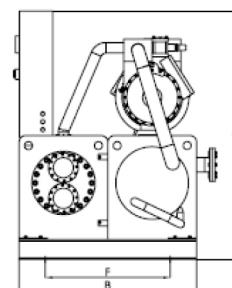
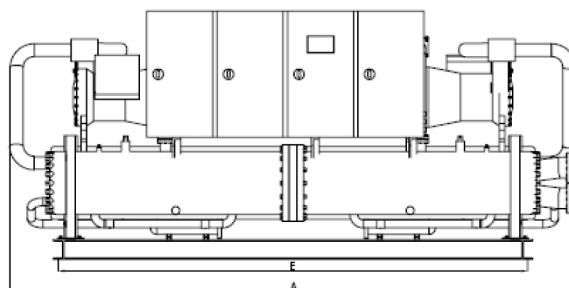
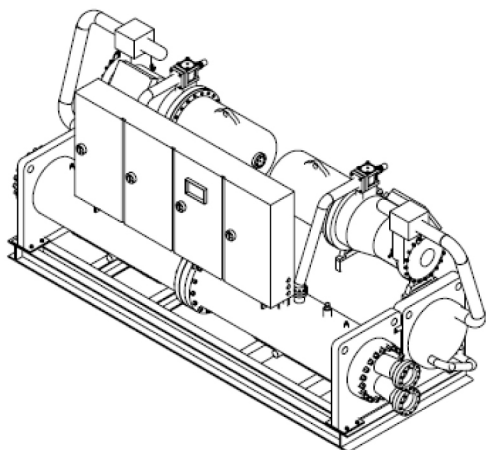
60Hz								
Item	JCW	080D	100D	110D	120D	140D	160D	180D
Cooling capacity	kw kcal/h	329.3 283,181	409.0 351,706	455.3 391,541	501.8 431,582	558.8 480,602	609.8 524,462	787.0 676,786
Power consumption	kw	75.6	91.0	101.2	111.1	124.0	135.8	174.0
Running ampere	A	113	135	151	166	185	202	259
Starting ampere	A	197	237	264	290	323	354	454
Capacity control	8-Step capacity control							
Compressor	Quantity	--	2	2	2	2	2	2
Refrigeration oil	Quantity	L	18	22	22	22	26	26
Refrigerant	Quantity	kg	40	50	55	60	70	90
Evaporator								
Type	U-Type							
Water flow rate	m ³ /h	56.6	70.3	78.4	86.3	96.1	104.9	135.4
Head loss	m	5.8	6.0	6.3	6.3	6.3	6.6	6.6
Pipe size	--	ø4"	ø4"	ø4"	ø4"	DN125	DN150	DN150
Condenser								
Type	Shell and tube							
Water flow rate	m ³ /h	69.6	86.0	95.8	105.5	117.5	128.3	165.2
Head loss	m	4.0	4.0	4.0	4.0	4.0	4.0	5.7
Pipe size	--	ø4"	ø4"	ø4"	ø4"	DN125	DN125	DN150
Unit Dimensions	Length(A)	mm	3200	3200	3200	3200	3200	3750
	Width(B)	mm	1000	1050	1050	1050	1150	1380
	Height(C)	mm	1500	1550	1550	1600	1600	1600
	Length(D)	mm	/	/	/	/	/	2620
	Length(E)	mm	2570	2370	2370	2700	2700	3080
	Width(F)	mm	700	720	720	720	720	870
weight	Net weight	kg	2400	2900	3000	3100	3400	4200
	Operating weight	kg	2500	3000	3100	3250	3600	4400



Owing to continued product development, JL reserves the right to introduce alterations without prior notice.

60Hz

<i>Item</i>		<i>JCW</i>	200D	220D	240D	270D	300D	330D	350D
Cooling capacity		kw kcal/h	865.0 743,865	924.2 794,846	1,041.1 895,363	1,100.9 946,756	1,255.0 1,079,266	1,349.0 1,160,174	1,476.2 1,269,566
Power consumption		kw	189.8	202.6	226.3	235.4	267.8	287.5	314.2
Running ampere		A	283	302	337	351	399	428	468
Starting ampere		A	495	528	590	614	698	750	819
Capacity control		8-Step capacity control							
Compressor	Quantity	--	2	2	2	2	2	2	2
Refrigeration oil	Quantity	L	26	26	26	26	32	38	38
Refrigerant	Quantity	kg	100	110	120	135	150	170	180
Evaporator									
Type		U-Type							
Water flow rate		m ³ /h	148.8	159.0	179.0	189.4	215.9	232.1	253.9
Head loss		m	6.6	6.6	6.6	6.6	8.0	9.0	9.0
Pipe size		--	DN150	DN150	DN150	DN150	DN200	DN200	DN200
Condenser									
Type		Shell and tube							
Water flow rate		m ³ /h	181.4	193.8	218.0	229.8	262.0	281.5	307.9
Head loss		m	5.7	5.7	5.7	5.7	6.4	6.4	6.4
Pipe size		--	DN150	DN150	DN150	DN150	DN150	DN200	DN200
Unit Dimensions	Length(A)	mm	4050	4050	4150	4150	4300	4300	4300
	Width(B)	mm	1380	1380	1450	1450	1450	1500	1500
	Height(C)	mm	1600	1600	1700	1700	1700	1750	1750
	Length(D)	mm	1550	1550	1600	1600	1600	1650	1650
	Length(E)	mm	2920	2920	2920	2920	3190	3190	3190
	Width(F)	mm	3080	3080	3080	3080	3350	3350	3350
weight	Net weight	kg	4650	4700	5000	5300	6200	6300	6650
	Operating weight	kg	4850	4900	5230	5550	6500	6650	6800



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INTRODUCTION