

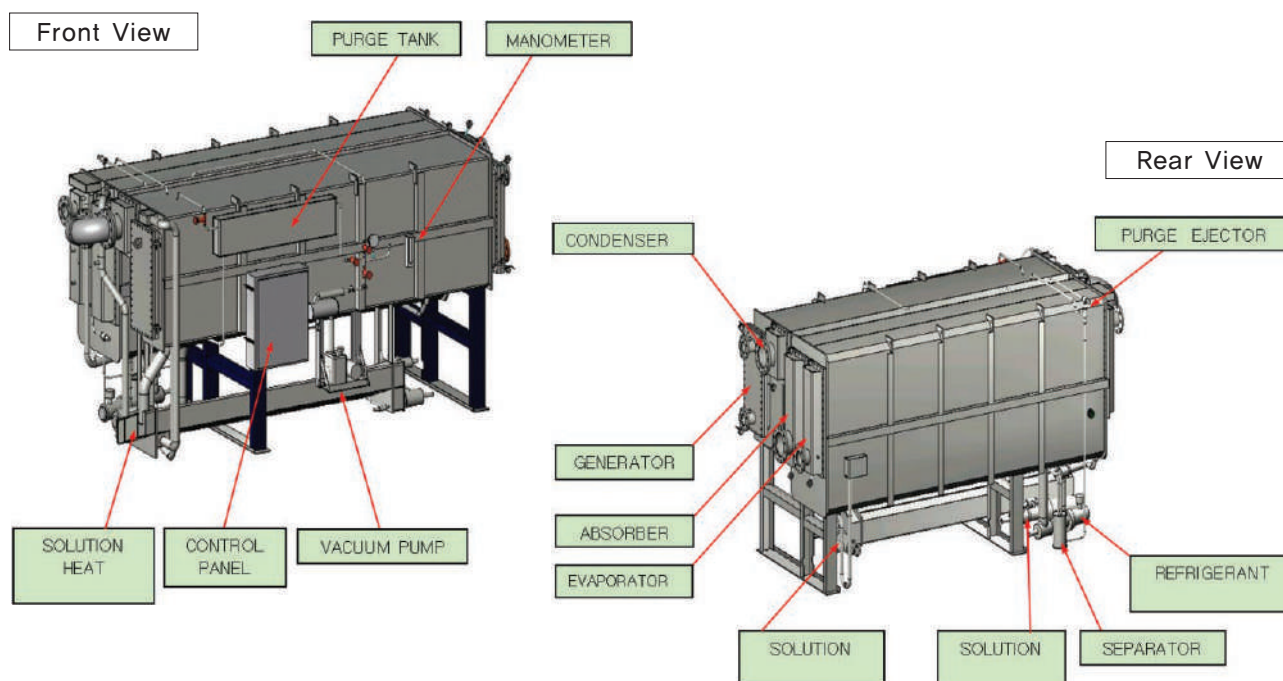
Sakura Air Conditioner User-friendly, Earth-friendly



Hot Water Driver Absorption Chiller

Hot Water Driven Absorption Chiller

Feature L2 TYPE(30~100usRT)



STANDARD FEATURES

Reliable and Simple Operation

Optimal design allows for simple operation.
No need for specially trained technicians.
Automatic control, one-touch operation, and optimal compatibility with other equipment make operations easy.

Ozone Safe and CFC Free

Cooling requirements are met without chlorine based refrigerants.

Precise and Optimized Operation

Factory mounted, wired, and tested microprocessor-based controller monitors and controls the machine operation continuously and automatically. A touch screen display identifies operational status and fault indication. All components meet internally acceptable codes such as UL, CE, KS, or the equivalents.
During the start-up sequence, the controller initiates a self diagnostic system check to verify that all sensors are in range. Remote start/stop switch and a key-locked control panel door protects against unauthorized access.

Reliable Purge System

Non-condensable gases are periodically exhausted from the storage tank by a simple procedure performed while the machine is running. Evacuation is performed by a unit mounted vacuum pump that is connected to the purge

evacuation valve.

Low noise and Low vibration

Since the absorption chiller use fewer mechanical parts than centrifugal chillers, they generate less noise and vibration than the latter type of chiller.

Crystallization-Preventing System(Balance Cycle)

A calibrated overflow dam between the evaporator and the absorber sections. If too high level of LiBr concentration in the absorber occurs, refrigerant will flow from the evaporator holding tank to the absorber, reducing the concentration of LiBr and eliminating. The danger of crystallization

High Reliability

Hermetically sealed, self-lubricating pump motors are precision fabricated from the highest quality materials to ensure long-term reliability and low maintenance.

Simplified Maintenance

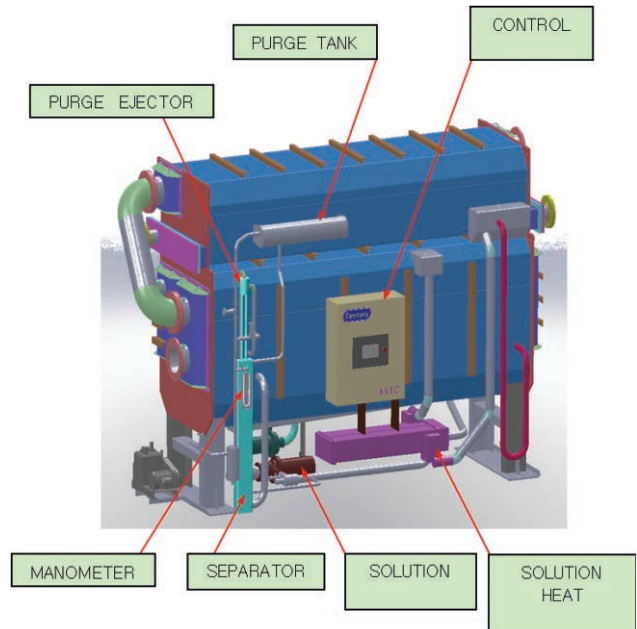
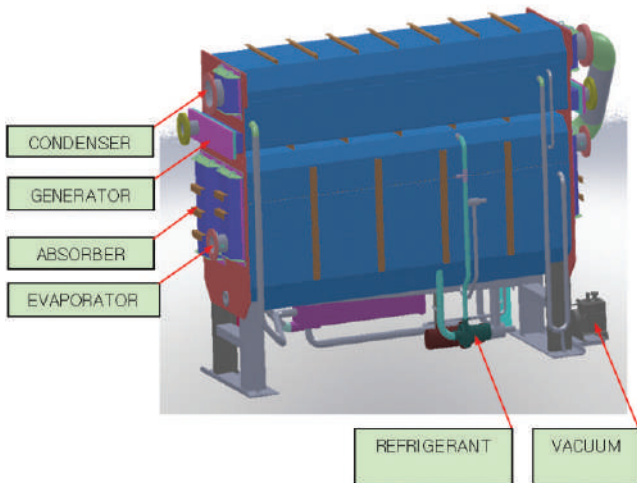
Easily accessible solution and refrigerant pump valves ensure ease of maintenance and prevent vacuum loss.

Standard Hot Water Operation

Inlet Temperature : 203°C(Max. 266°F)
Outlet Temperature : 176°F
Permissible pressure : 1.16psiG

Hot Water Driven Absorption Chiller

Feature L3 TYPE(120~660usRT)



OPTIONAL FEATURES

Adjustable Temperature Settings

Adjustable chilled and condenser water temperature settings allow for variance from specifications, as needed.

Advanced Generator Design

Precision made tubes of the finest materials ensure optimum performance under specific applications.

Lead-Lag Operation

Lead-lag controls available for multi-unit installations.

High Pressure Water Circuitry

High pressure(116psi) water circuits available for highrise building applications.

Pump Motor Power Correction

Increased power factor correction capability available for optimum operating efficiency in minimum reactive power applications.

Earthquake Power Cut-Off

Seismic sensor circuits automatically shut down the unit in event of tremors.

How it works

Sakura Hot Water Driven Absorption Chiller consists of an evaporator, absorber, generator, condenser, and heat exchanger.

Its highly efficient refrigerating cycle uses water as the refrigerant and lithium bromide as the absorbent.

The process takes place in hermetically sealed vessels that maintain a near-perfect vacuum. The cooling cycling is detailed in the following steps.

1. Evaporator

Liquid refrigerant flows through a U trap into the evaporator, and flashes as it passes into the low-pressure evaporator.

2. Absorber

Low vapor pressure results as the refrigerant is absorbed. The absorber draws the low-pressure refrigerant vapor, and lithium bromide is sprayed over the absorber tubes to ensure maximum solution to water vapor exposure.

Water from the cooling tower circulates through the tubes to remove heat that is absorbed and eventually released as the vapor returns to its liquid state.

The solution becomes increasingly diluted as it absorbs refrigerant vapor.

This diluted solution then returns to the generator, where the cycle is repeated.

3. Solution pump / heat exchangers

As the solution flows through the system, the heat exchanger transfers heat between the cool, dilute solution traveling from absorber to generator, and the hot, concentrated solution traveling from generator to absorber.

When the solution flows from concentrated to diluted state, the amount to be eliminated from the absorber is reduced. The efficiency of the lithium bromide to water cycle depends on the efficiency of the heat exchanger.

4. Generator

Heat from the water boils the diluted solution of lithium bromide and water, resulting in the release of water vapor, and concentration of remaining lithium bromide solution.

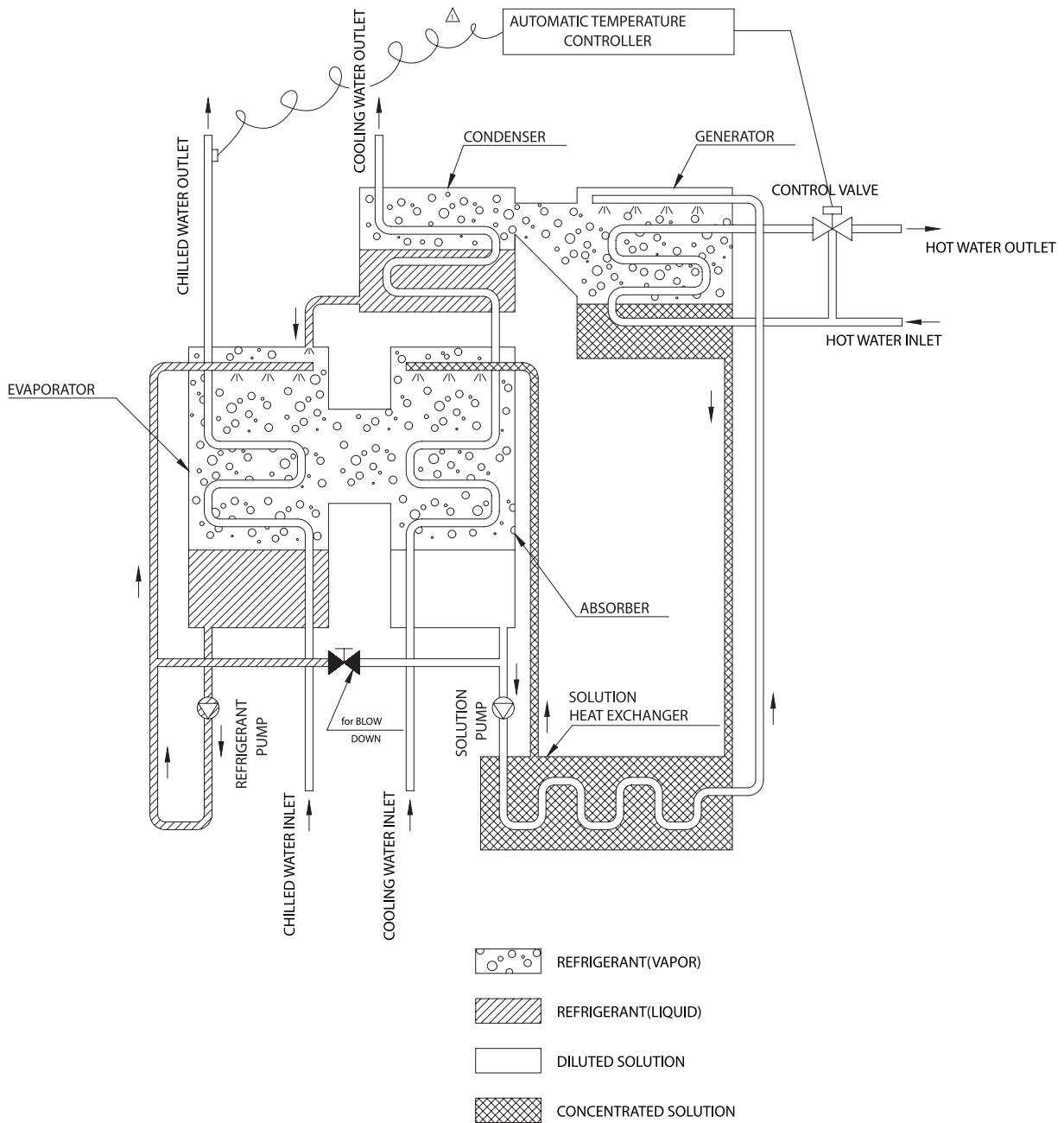
5. Condenser

Water or refrigerant vapor is drawn into the condenser.

Water from the cooling tower flows through the condenser tubes, condensing the refrigerant.

Hot Water Driven Absorption Chiller

Cycle Diagram of Hot Water Driven Absorption Chiller



Hot Water Driven Absorption Chiller

Specifications

STANDARD

MODEL ITEM		AR-D30L2		AR-D40L2		AR-D50L2		AR-D60L2		AR-D70L2		AR-D85L2		AR-D100L2		AR-D120L3		AR-D140L3		AR-D180L3										
COOLING CAPACITY	usRT	28	30	37	40	47	50	55	60	65	70	79	85	93	100	114	20	133	140	171	180									
	kW	98	105	130	140	165	176	193	211	228	246	278	299	327	352	400.9	422.0	467.7	492.3	601.3	632.9									
CHILLED WATER	INLET/OUTLET TEMPERATURE	°F																												
	INLET/OUTLET TEMPERATURE	°F																												
	FLOWRATE	GPM	74.4	79.7	98.6	106.5	125	133	146.6	159.8	173	186.2	210.5	226.3	247.4	266.4	303.6	319.5	354.2	372.8	455.3	479.3								
	PRESSURE DROP	ftAq	12.5	14.4	12.5	14.8	18	20.3	15.1	17.4	18.7	21.7	17.7	20.7	14.8	17.1	29.2	32.2	27.6	30.5	28.9	31.8								
	CONNECTION SIZE (PIPE SIZE)	in	2 1/2				3				4				5															
COOLING WATER	INLET/OUTLET TEMPERATURE	°F																												
	INLET/OUTLET TEMPERATURE	°F																												
	FLOWRATE	GPM	161.1	173	213.1	230.3	270.8	287.9	317	345.6	374.7	403.3	455.2	489.6	538.8	576.3	656.5	691.1	765.9	806.2	984.8	1036.6								
	PRESSURE DROP	ftAq	13.5	15.4	12.8	15.4	23.3	26.6	22.3	26.6	25.6	29.9	27.6	32.2	17.4	20.3	18.7	20.3	18.7	20.0	26.9	28.9								
CONNECTION SIZE (PIPE SIZE)	in	3				4				5				6																
HOT WATER	INLET/OUTLET TEMPERATURE	°F																												
	INLET/OUTLET TEMPERATURE	°F																												
	FLOWRATE	GPM	34.3	36.5	45.3	48.9	57.7	61.2	67.4	73.5	79.7	85.9	96.9	103.9	114	122.4	139.5	146.9	162.8	171.4	209.3	220.3								
	PRESSURE DROP	ftAq	7.2	8.5	6.6	7.9	8.2	9.2	8.9	10.5	12.5	14.4	12.8	14.8	12.8	14.8	3.9	4.3	3.9	4.3	4.3	4.6								
CONNECTION SIZE (PIPE SIZE)	in	1 1/2				2				2 1/2				3				4												
PUMP	SOLUTION PUMP	kW	0,55+0,4				0,75+0,4				2,2+1,5				1,5				2,4											
	REFRIGERANT PUMP	kW	0,2				0,4				0,5				0,5															
	VACUUM PUMP	kW	0,4																											
ELECTRIC POWER CAPACITY	kVA	4,5				6,0				9,5				4,5				5,6												
AREA TO KEEP WARM	ft ²	64.6				91.5				102.3				123.8				76.4												
AREA TO KEEP COOL	ft ²	48.4				70				80.7				80.7				56.0												
DIMENSION	LENGTH(L)	in	5' - 11 ⁷ / ₁₆ "				7' - 8 ¹³ / ₁₆ "				8' - 5 ¹¹ / ₁₆ "				10' - 11 ⁹ / ₁₆ "				8' - 9 ³ / ₁₆ "				8' - 9 ³ / ₁₆ "				12' - 8 ⁷ / ₁₆ "			
	WIDTH(W)	in	6' - ¹³ / ₁₆ "				6' - 6 ¹¹ / ₁₆ "				7' - 4 ³ / ₁₆ "				7' - ⁷ / ₁₆ "				5' - 3 ⁹ / ₁₆ "				8' - 5 ¹⁵ / ₁₆ "							
	HEIGHT(H)	in	6' - 1 ³ / ₁₆ "				6' - 1 ¹⁵ / ₁₆ "				6' - 8 ⁷ / ₁₆ "				10' - 11 ⁹ / ₁₆ "				8' - 5 ¹⁵ / ₁₆ "				10' - 5 ¹⁵ / ₁₆ "							
TUBE REMOVAL LENGTH	in	4' - 3 ³ / ₁₆ "				5' - 10 ¹³ / ₁₆ "				6' - 6 ¹¹ / ₁₆ "				9' - 6 ³ / ₁₆ "				7' - 2 ⁹ / ₁₆ "				10' - 5 ¹⁵ / ₁₆ "								
WEIGHT	RIGGING	lb	7,05		7,277		9,702		9,923		10,805		11,025		12,128		12,582		11,244		14,110									
	OPERATING	lb	7,277		7,497		10,143		10,584		11,687		12,128		13,230		12,125		13,228		16,314									

- Note : 1. usRT : 3024 kcal/h
 2. Maximum permissible pressure is 116 psiG, for chilled water, cooling water and hot water circuit.
 3. Fouling factor of chilled, hot and cooling water : 0.00025 ft² h²F/Btu.
 4. The cooling tower is selected based on outdoor wet bulb temperature 80.6°F.
 5. The described standard specifications can be reformed for progressing engineering technique without notice.
 6. Controllable cooling capacity range shall be 25~100% as a standard condition.

Hot Water Driven Absorption Chiller

STANDARD

MODEL ITEM		AR-D210L3		AR-D250L3		AR-D280L3		AR-D330L3		AR-D380L3		AR-D420L3		AR-D470L3		AR-D530L3		AR-D580L3		AR-D660L3																				
COOLING CAPACITY	usRT	200	210	238	250	266	280	314	330	361	380	399	420	447	470	504	530	551	580	627	660																			
	kW	703.3	738.4	836.9	879.1	935.3	984.6	1104.1	1160.4	1269.4	1336.2	1403.0	1476.8	1571.8	1652.7	1772.2	1863.6	1937.5	2039.4	2204.7	2320.7																			
CHILLED WATER	INLET/OUTLET TEMPERATURE	°F																																						
	INLET/OUTLET TEMPERATURE	°F																																						
	FLOWRATE	GPM	532.6	559.2	633.7	665.7	708.3	745.6	836.1	878.7	961.3	1011.9	1062.5	1118.4	1190.3	1251.5	1342.1	1411.3	1467.2	1544.4	1669.6	1757.5																		
	PRESSURE DROP	ftAq	27.6	30.2	29.2	31.8	27.2	29.9	28.5	31.2	27.9	30.8	28.2	31.2	27.6	30.2	27.6	30.2	27.9	30.5	16.7	18.4																		
	CONNECTION SIZE (PIPE SIZE)	in	5				6				8																													
COOLING WATER	INLET/OUTLET TEMPERATURE	°F																																						
	INLET/OUTLET TEMPERATURE	°F																																						
	FLOWRATE	GPM	1151.8	1209.4	1370.6	1439.7	1531.9	1612.5	1808.3	1900.4	2078.9	2188.4	2297.8	2418.7	2574.2	2706.7	2902.5	3052.2	3173.1	3340.1	3610.8	3800.8																		
	PRESSURE DROP	ftAq	26.6	28.9	26.9	29.2	26.2	28.2	22.3	24.3	22.6	24.6	22.3	24.3	22.3	24.3	22.6	24.6	22.6	24.3	41.7	45.3																		
CONNECTION SIZE (PIPE SIZE)	in	8				10				12				14																										
HOT WATER	INLET/OUTLET TEMPERATURE	°F																																						
	INLET/OUTLET TEMPERATURE	°F																																						
	FLOWRATE	GPM	244.8	257.0	291.3	306.0	325.6	342.7	384.3	403.9	441.9	465.1	488.4	514.1	547.1	575.3	616.9	648.7	674.4	709.9	767.4	807.8																		
	PRESSURE DROP	ftAq	4.3	4.6	4.3	4.6	4.3	4.6	8.5	9.2	8.5	9.2	8.5	9.2	8.5	9.2	8.5	9.2	8.5	9.2	4.6	4.9																		
CONNECTION SIZE (PIPE SIZE)	in	4				5				6								8																						
PUMP	SOLUTION PUMP	kW	2.4		3.7								5.0				5.0+5.0																							
	REFRIGERANT PUMP	kW	0.5		1.3																1.4																			
	VACUUM PUMP	kW	0.4																																					
ELECTRIC POWER CAPACITY	kVA	5.6		8.2								14.5				22.3																								
AREA TO KEEP WARM	ft ²	76.4		81.3				98.8				109.8				13.8				146.4																				
AREA TO KEEP COOL	ft ²	56.0		70.0				87.2				90.9				108.7				124.9																				
DIMENSION	LENGTH(L)	in	12' - 11 ⁷ / ₁₆ "		12' - 8 ³ / ₁₆ "				16' - 3 ¹¹ / ₁₆ "				16' - 6 ⁷ / ₁₆ "				16' - 3 ¹ / ₁₆ "				20' - 3 ¹¹ / ₁₆ "																			
	WIDTH(W)	in	5' - 3 ⁹ / ₁₆ "		5' - 7 ¹ / ₁₆ "				5' - 7 ¹ / ₁₆ "				5' - 10 ⁷ / ₁₆ "				6' - 4 ⁹ / ₁₆ "				6' - 9 ¹³ / ₁₆ "																			
	HEIGHT(H)	in	6' - 1 ³ / ₁₆ "		6' - 1 ¹⁵ / ₁₆ "				6' - 8 ⁷ / ₁₆ "				10' - 11 ⁹ / ₁₆ "				7' - 2 ⁹ / ₁₆ "				10' - 11 ⁷ / ₁₆ "																			
TUBE REMOVAL LENGTH	in	10' - 5 ¹⁵ / ₁₆ "				14' - 1 ³ / ₁₆ "								17' - 11 ⁷ / ₁₆ "																										
WEIGHT	RIGGING	lb	15,212		16,976				18,078				21,826				23,589				26,896				28,660				33,951				35,715				44,533			
	OPERATING	lb	17,637		20,062				21,605				25,794				27,999				31,306				33,731				39,904				42,108				52,911			

Note : 1. usRT : 3024 kcal/h

2. Maximum permissible pressure is 116 psiG, for chilled water, cooling water and hot water circuit.

3. Fouling factor of chilled, hot and cooling water : 0.00025 ft² h²/Btu.

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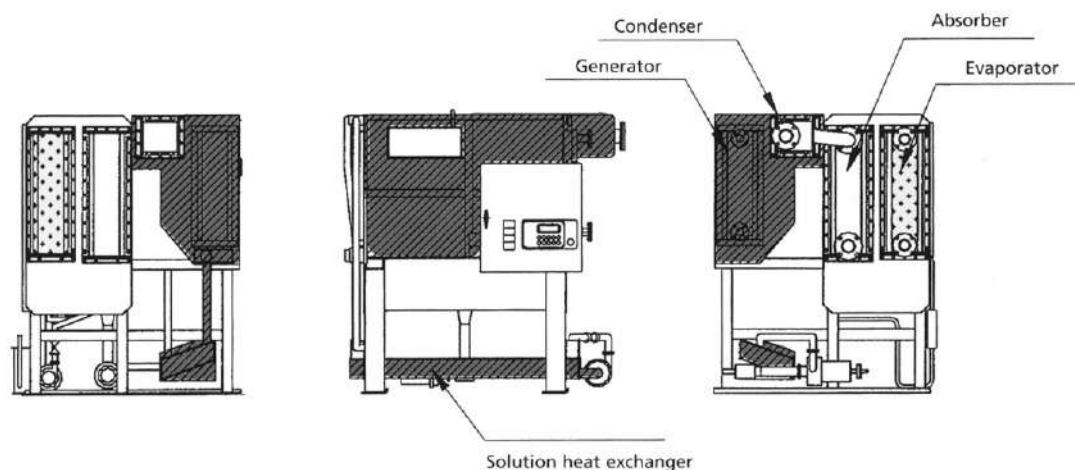
Hot Water Driven Absorption Chiller

Insulation

Insulation procedure

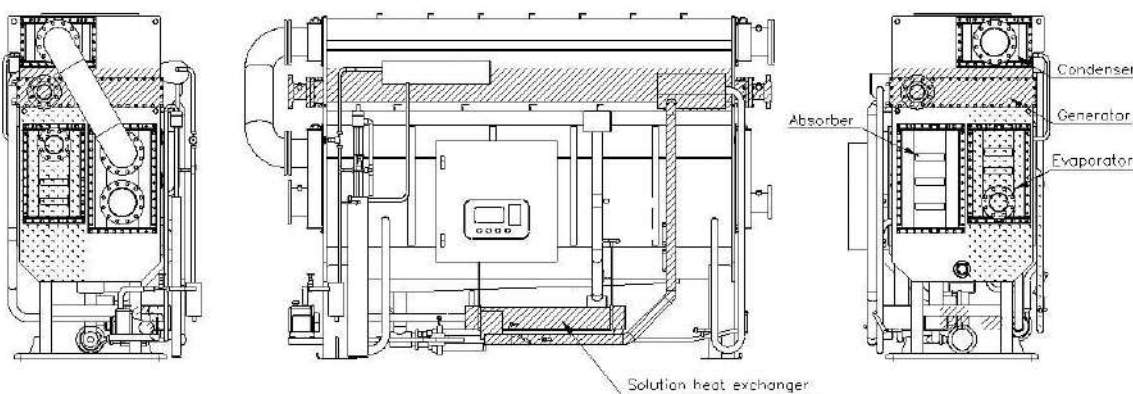
■ AR-D30~100L2

■ Hot Surface
□ Cold Surface



■ AR-D120~660L3

▨ Hot Surface
▤ Cold Surface



INSULATION MATERIAL

Hot Surface : Fiberglass or equivalent
Cold Surface : Fiberglass, polyethylene foam or equivalent

INSULATION THICKNESS

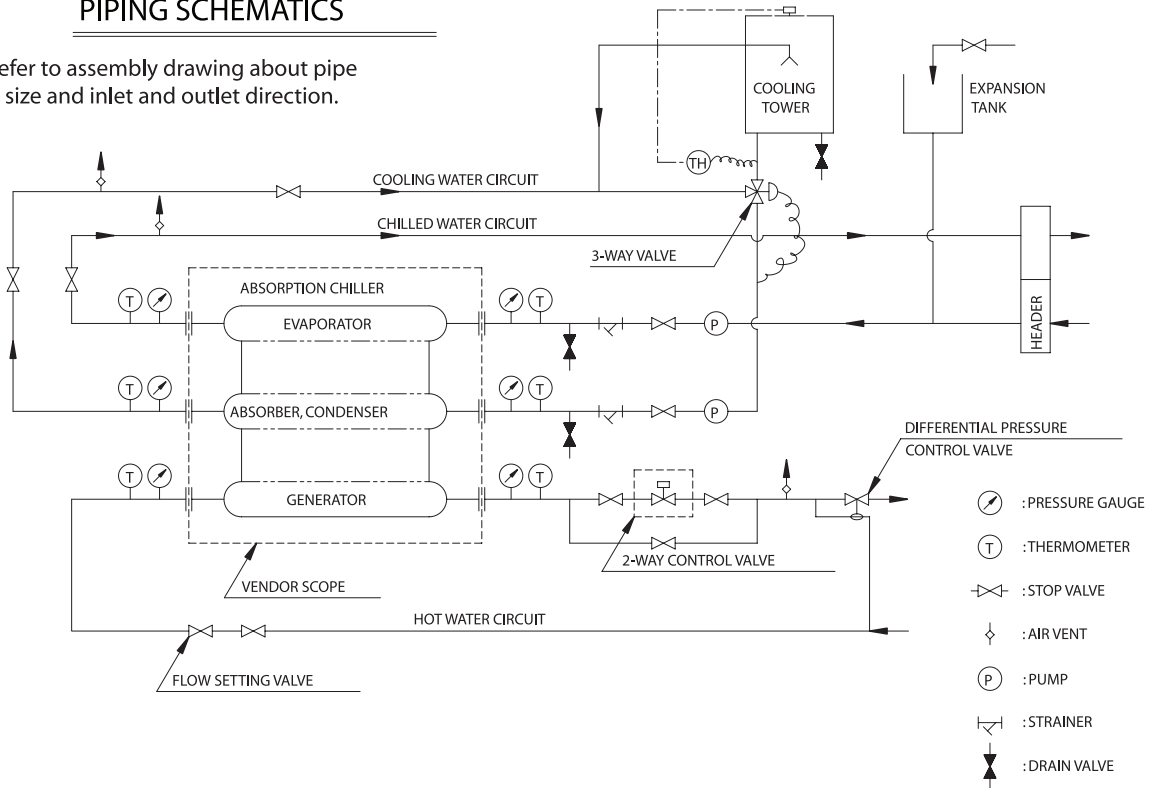
Hot Surface : Approx. 2" for generator and approx. 1" for others
Cold Surface : Approx. 1"

Model	30L2	50L2	70L2	100L2	120L3	180L3	250L3	330L3	420L3	530L3	660L3
AR-D	40L2	60L2	85L2		140L3	210L3	280L3	380L3	470L3	580L3	
Hot surface(ft2)	64.6	91.5	102.3	123.8	70.0	76.4	81.8	98.8	109.8	123.8	146.4
Cold surface(ft2)	48.4	70.0	80.7	80.7	47.4	56.0	70.0	87.2	96.9	108.7	124.9

Hot Water Driven Absorption Chiller

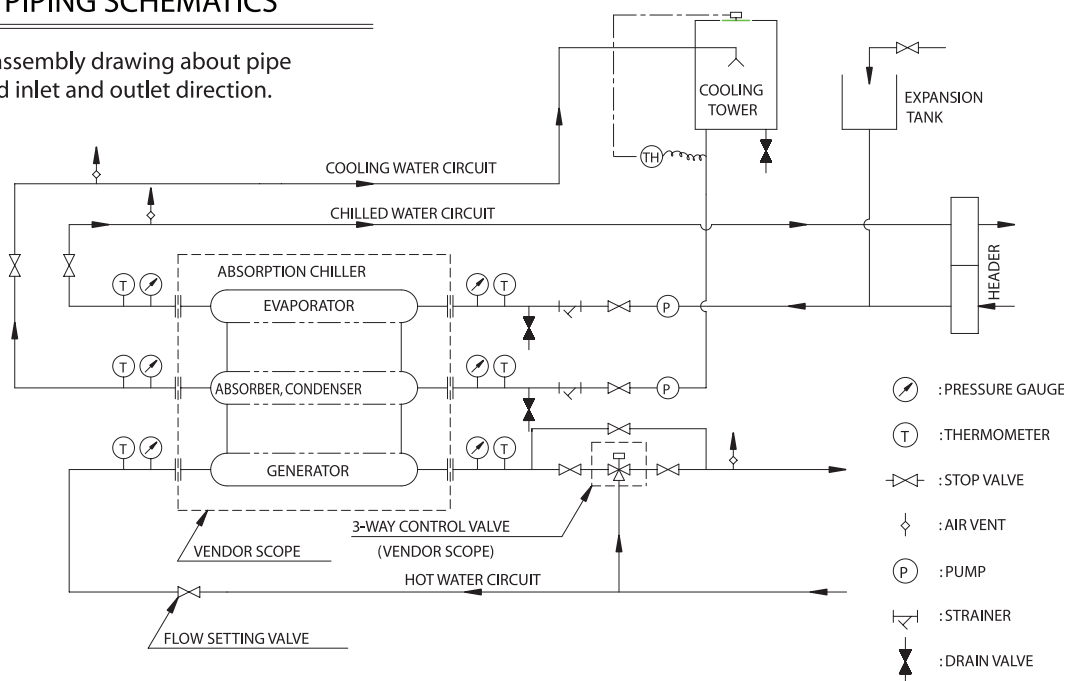
PIPING SCHEMATICS

Refer to assembly drawing about pipe size and inlet and outlet direction.



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Refer to assembly drawing about pipe size and inlet and outlet direction.

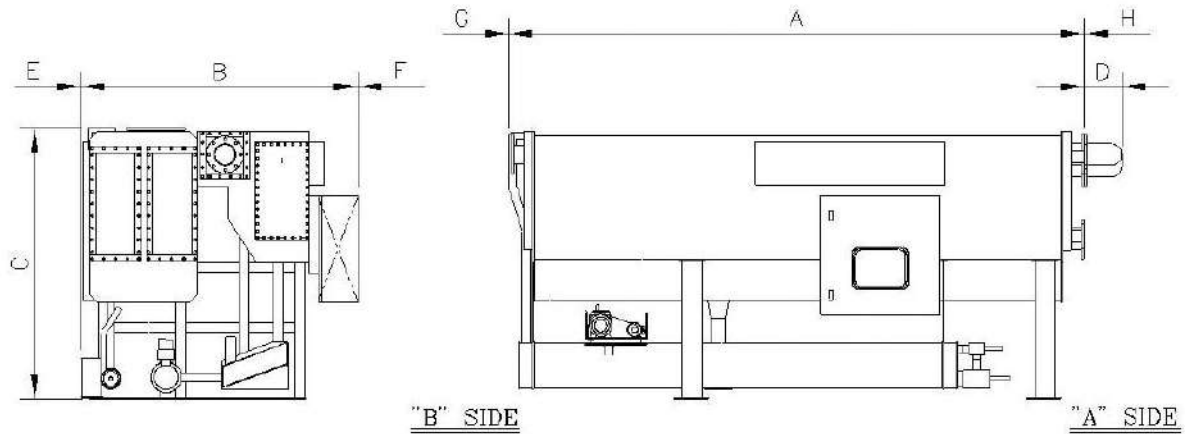


Hot Water Driven Absorption Chiller

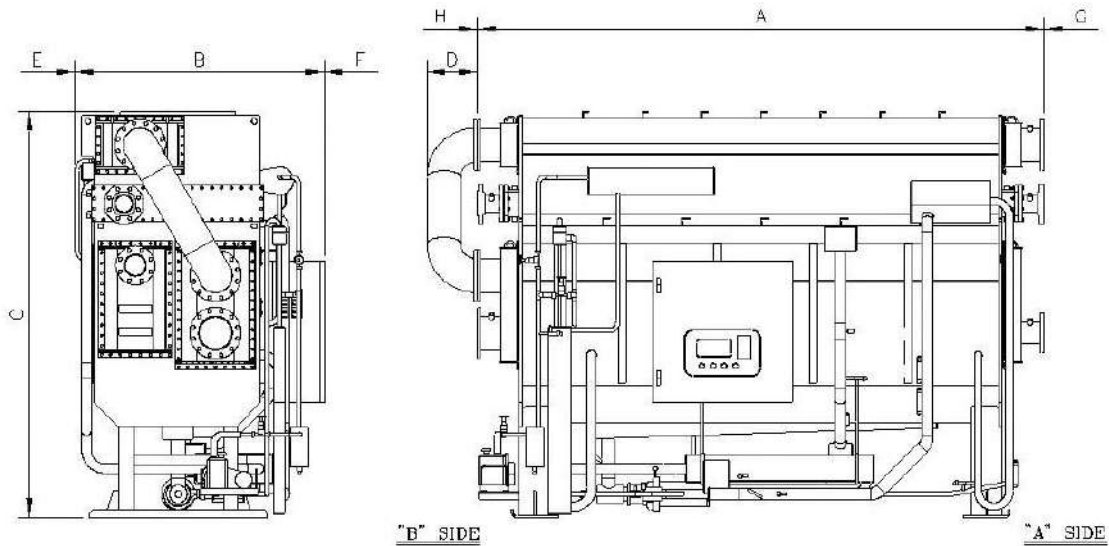
Dimensions

Overall dimensions and Space for service

■ AR-D30~100L2



■ AR-D120~660L3



Model	30L2	50L2	70L2	100L2	120L3	140L3	180L3	210L3	250L3	330L3	420L3	530L3	660L3	
AR-D	40L2	60L2	85L2						280L3	380L3	470L3	580L3		
A	5' - 11 ⁷ / ₁₆ "	7' - 8 ¹³ / ₁₆ "	8' - 5 ¹¹ / ₁₆ "	10' - 9 ⁹ / ₁₆ "	8' - 1 ¹ / ₁₆ "		11' - 10 ¹³ / ₁₆ "		11' - 7 ⁹ / ₁₆ "	14' - 11 ¹³ / ₁₆ "	15' - 1 ⁵ / ₁₆ "	18' - 6 ⁵ / ₁₆ "		
B	6' - 8 ⁷ / ₁₆ "	6' - 6 ¹¹ / ₁₆ "	7' - 4 ³ / ₁₆ "	7' - ⁷ / ₁₆ "	5' - 3 ⁹ / ₁₆ "				5' - 7 ¹ / ₁₆ "	10' - 6 ⁷ / ₁₆ "	6' - 4 ⁹ / ₁₆ "	6' - 9 ¹³ / ₁₆ "		
C	6' - 1 ³ / ₁₆ "	6' - 1 ¹⁵ / ₁₆ "	6' - 8 ⁷ / ₁₆ "	6' - 8 ⁷ / ₁₆ "	8' - 5 ¹⁵ / ₁₆ "				9' - 4 ⁹ / ₁₆ "	10' - 6 ³ / ₁₆ "	10' - 9 ³ / ₁₆ "	10' - 11 ⁷ / ₁₆ "		
D	-	-	-	2 ¹ / ₁₆ "	8 ³ / ₁₆ "	9 ¹¹ / ₁₆ "		1' - ¹¹ / ₁₆ "	1' - 3 ¹¹ / ₁₆ "	1' - 6 ¹¹ / ₁₆ "	1' - 9 ⁷ / ₁₆ "			
E	1' - 11 ⁹ / ₁₆ "				3' - 3 ⁵ / ₁₆ "									
F	2' - 11 ⁷ / ₁₆ "													
G	3' - 9 ⁵ / ₁₆ "	5' - 2 ¹⁵ / ₁₆ "	6' - 3 ⁷ / ₁₆ "	8' - 11 ¹³ / ₁₆ "	6' - 1 ⁹ / ₁₆ "		9' - 3 ¹ / ₁₆ "	9' - 4 ⁹ / ₁₆ "	12' - 8 ¹³ / ₁₆ "	12' - 9 ³ / ₁₆ "	16' - ¹⁵ / ₁₆ "			
H	2' - 7 ⁷ / ₁₆ "			4' - 3 ³ / ₁₆ "						4' - 7 ¹ / ₁₆ "				

Hot Water Driven Absorption Chiller

Hot Water Driven Absorption Chiller

Model :

Cooling capacity :		TON	Quantity :	Unit
Chilled water	Inlet temperature			°F
	Outlet temperature			°F
	Flow rate			GPM
	Fouling factor			ft ² h °F/BTU
Cooling water	Inlet temperature			°F
	Outlet temperature			°F
	Flow rate			GPM
	Fouling factor			ft ² h °F/BTU
Hot water	Inlet temperature			°F
	Outlet temperature			°F
	Flow rate			GPM
	Fouling factor			ft ² h °F/BTU
Max. pressure of water circuit	Chilled water			psiG
	Cooling water			psiG
	Hot water			psiG
Electrical power		Phase,	V,	Hz
Installation location				Indoor or Outdoor
Purpose	Air conditioning or Industrial process etc.			
<p>■ Special features</p>				

Hot Water Driven Absorption Chiller

Electrical Data

POWER	ITEM(UNIT)	OUTPUT	RUNNING CURRENT	INPUT	NO FUSE BREAKER		FIELD WIRING WIRING		GROUND
	MODEL	kW	A	kW	MCA	MOP	AWG	CONDUIT	AWG
3PH 230V 60Hz	AR-D30L2	1.55	8.5	2.4	9	15	14	1"	14
	AR-D40L2	1.55	8.5	2.4	9	15	14	1"	14
	AR-D50L2	1.55	8.5	2.4	9	15	14	1"	14
	AR-D60L2	1.55	8.5	2.4	9	15	14	1"	14
	AR-D70L2	1.95	11.5	3.4	12.8	15	14	1"	14
	AR-D85L2	1.95	11.5	3.4	12.8	15	14	1"	14
	AR-D100L2	4.5	18.9	6	20.7	30	10	1"	12
	AR-D120L3	2.6	9.5	2.8	10.8	15	14	1"	14
	AR-D140L3	2.6	9.5	2.8	10.8	15	14	1"	14
	AR-D180L3	3.4	11.7	3.6	13.5	15	14	"1"	14
	AR-D210L3	3.4	11.7	3.6	13.5	15	14	"1"	14
	AR-D250L3	5.7	17.5	5.9	20	30	10	"1"	12
	AR-D280L3	5.7	17.5	5.9	20	30	10	"1"	12
	AR-D330L3	5.7	17.5	5.9	20	30	10	"1"	12
	AR-D380L3	5.7	17.5	5.9	20	30	10	"1"	12
	AR-D420L3	5.7	17.5	5.9	20	30	10	"1"	12
	AR-D470L3	5.7	17.5	5.9	20	30	10	"1"	12
	3PH 460V 60Hz	AR-D530L3	7	30.5	7.2	36.3	60	8	"1"
AR-D580L3		7	30.5	7.2	36.3	60	8	"1"	12
AR-D660L3		12.8	47.7	13	53.5	75	4	"1"	10
AR-D30L2		1.55	4.2	2.4	4.5	15	14	"1"	14
AR-D40L2		1.55	4.2	2.4	4.5	15	14	"1"	14
AR-D50L2		1.55	4.2	2.4	4.5	15	14	"1"	14
AR-D60L2		1.55	4.2	2.4	4.5	15	14	"1"	14
AR-D70L2		1.95	5.7	3.4	6.4	15	14	"1"	14
AR-D85L2		1.95	5.7	3.4	6.4	15	14	"1"	14
AR-D100L2		4.5	9.4	6	10.3	15	14	"1"	14
AR-D120L3		2.6	4.7	2.8	5.4	15	14	"1"	14
AR-D140L3		2.6	4.7	2.8	5.4	15	14	"1"	14
AR-D180L3		3.4	5.8	3.6	6.7	15	14	"1"	14
AR-D210L3		3.4	5.8	3.6	6.7	15	14	"1"	14
AR-D250L3		5.7	8.7	5.9	10	15	14	"1"	14
AR-D280L3		5.7	8.7	5.9	10	15	14	"1"	14
AR-D330L3		5.7	8.7	5.9	10	15	14	"1"	14
AR-D380L3		5.7	8.7	5.9	10	15	14	"1"	14
AR-D420L3	5.7	8.7	5.9	10	15	14	"1"	14	
AR-D470L3	5.7	8.7	5.9	10	15	14	"1"	14	
AR-D530L3	7	15.2	7.2	18.1	30	10	"1"	12	
AR-D580L3	7	15.2	7.2	18.1	30	10	"1"	12	
AR-D660L3	12.8	23.8	13	26.7	30	10	"1"	12	



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