

## Hot Water Driven Lithium Bromide Absorption Chiller



### MOON ENVIRONMENT TECHNOLOGY CO.,LTD.

Add: No.1 Binglun Road,Yantai,P.R.China  
Service Hotline: +86-535-6697172  
Email: info@moon-tech.com  
Website: www.moonoverseas.com



WhatsApp

# CONTENTS

# TMAR-H

Hot Water Driven Lithium Bromide  
Absorption Chiller

Company profile	01
Product appearance	03
Product nomenclature	03
Cooling principle	04
Features of the unit	05
Performance parameter	09
Outline drawing	13
Piping flow chart	15
Thermal and cold insulation	16
Installation instruction	17

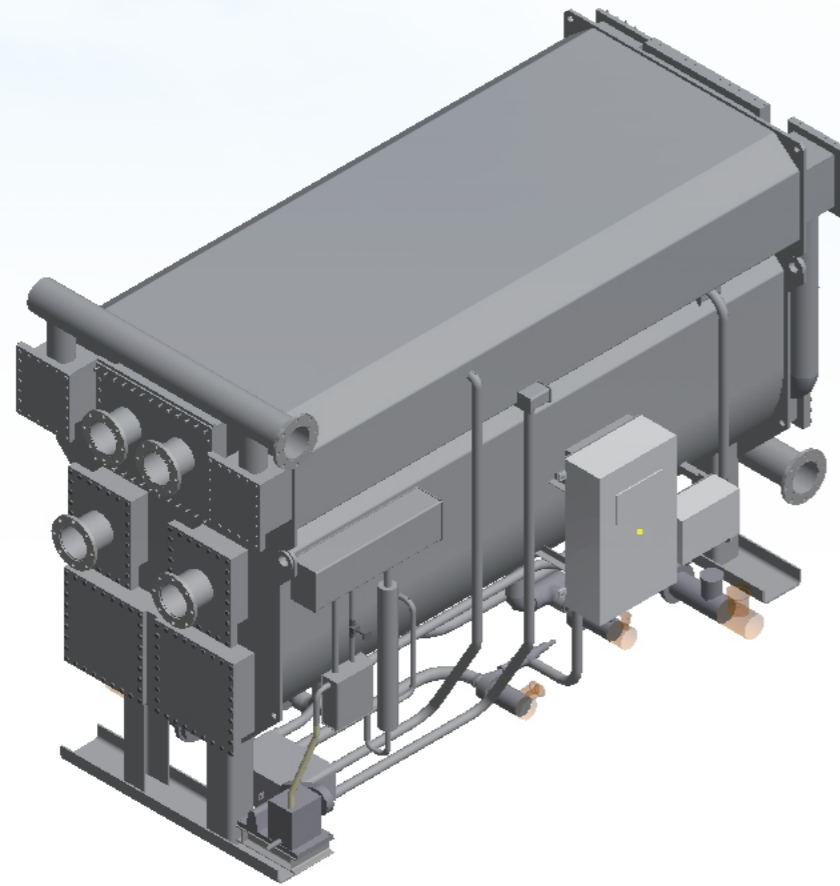
## COMPANY PROFILE

The company is owned by Yantai Moon Group who is also the owner of Dunham Bush. Supported by the strong technology research strength of Tsinghua University and the China Academy of Sciences, HYTM developed the modern design Lithium Bromide absorption chiller, including the direct-fired absorption chiller, hot water type absorption chiller, steam type absorption chiller, multi-energy chiller of exhaust & hot water type, and more than 10 types of Lithium Bromide absorption heat pumps for heating application. The products are widely used in industries like metallurgy, chemical, textile, printing, dyeing, pharmaceutical and commercial cooling.

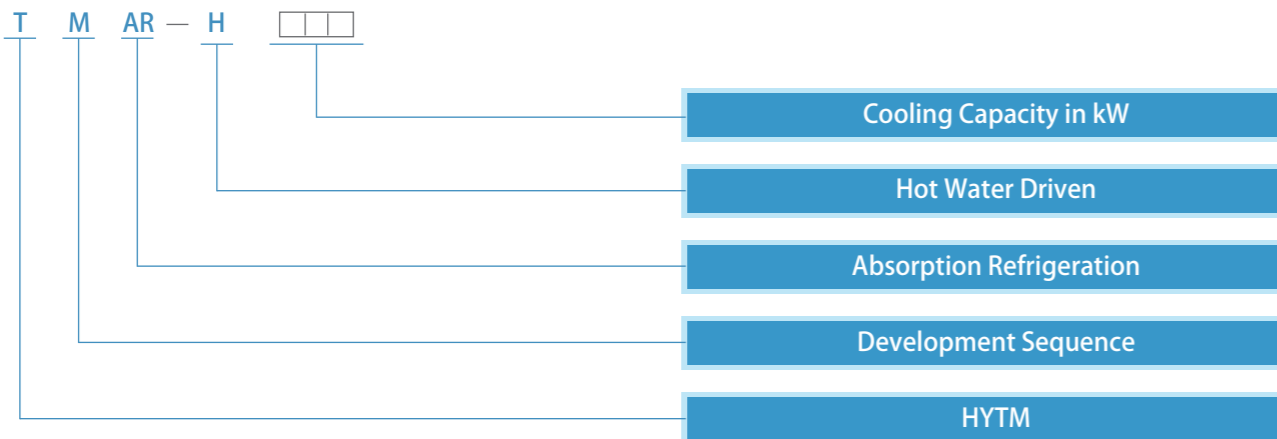
Faced with the new situation, new task, and new goals of energy conservation for low carbon emission, HYTM will more firmly shoulder the corporate emission of “committed to improving the quality of lives” and give full play to its technological advantages and excellent services, create greater energy saving and environmental protection benefits for customers.



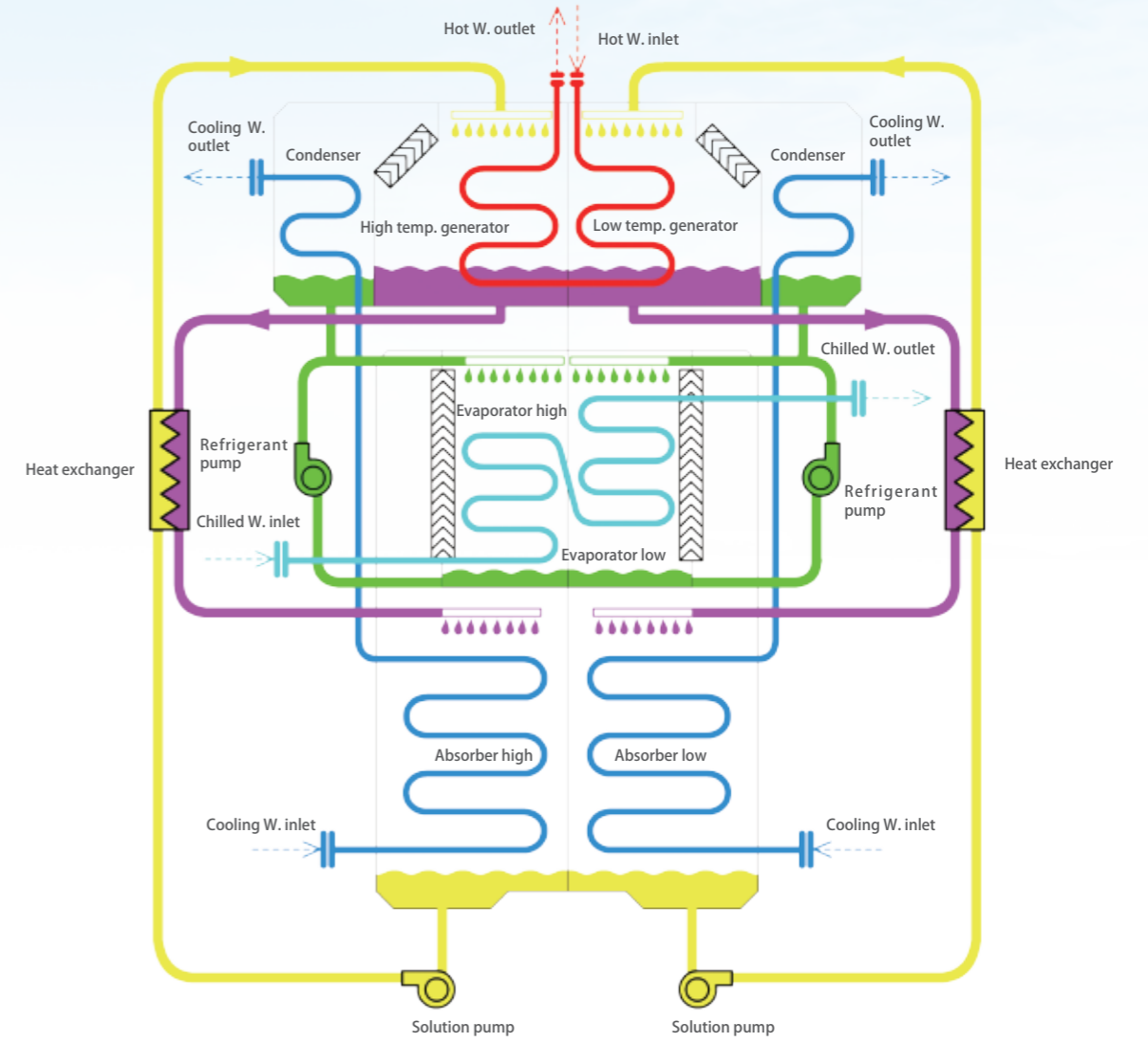
# PRODUCT APPEARANCE



# PRODUCT NOMENCLATURE



# REFRIGERATION PRINCIPLE



Cooling circle diagram

- Refrigerant water
- Hot water
- Cooling water
- Diluted solution
- Chilled water
- Concentrated solution

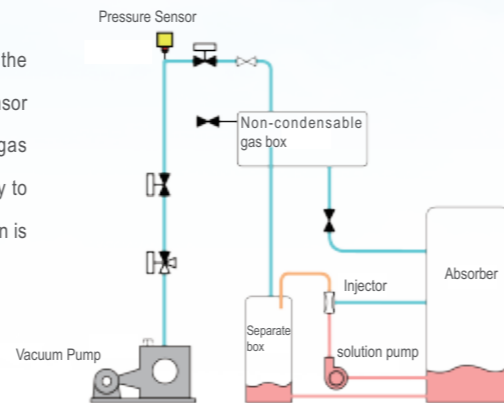
The refrigerant water absorbs the heat of the chilled water in heat transfer pipes in the evaporator and become refrigerant vapor, the chilled water temp. is reduced in this process.

The concentrated lithium bromide solution dilutes in the absorber after absorbing refrigerant vapor from the evaporator, and the diluted solution flows through the heat exchanger to the generator. The diluted solution is heated by heat source of hot water in the generator to generate refrigerant vapor. Meanwhile, the concentration of the diluted solution increases and become concentrated solution, and the concentrated solution returns to the absorber through the heat exchanger. The unit cooling circulation is formed during the cyclic process of lithium bromide solution and refrigerant water.

## FEATURES OF THE UNIT

### Full-automatic air purging system

- a The chiller is equipped with automatic air purging system, 3-stage protection of the chiller vacuum.
- b The auto-purge system can collect the non-condensable gas inside the chiller to the gas tank automatically by the injector, the pressure sensor monitors the pressure inside the gas tank in real time. When the gas pressure reach to set value, the vacuum pump will run automatically to purge the non-condensable gas out of the chiller. No manual operation is required during this whole process.

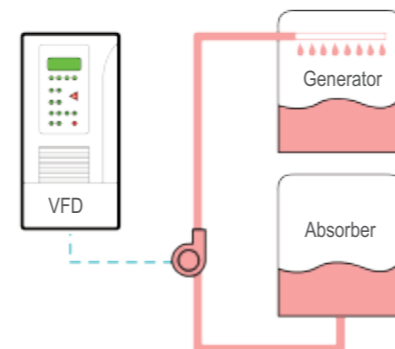


### Multilevel anticrystallization system

- a The system monitors the crystallization allowance by the concentration of solution and adjusts the cycle in real time to avoid crystallization.
- b The unit is equipped with the automatic crystal melting tube to prevent the crystallization of solution and melt the crystal.
- c The unit is equipped with the optimal dilution running time control function to calculate the optimal dilution running time based on the concentration at shutdown. Ensure that the unit is safely closed down.

### VFD control system

The chiller is designed with VFD control system for the LiBr solution pump to adjust the LiBr solution recycling volume during part load operation, the chiller start up period is shorten and the chiller efficiency in part load is improved.



## FEATURES OF THE CHILLER

### 全自动抽气系统

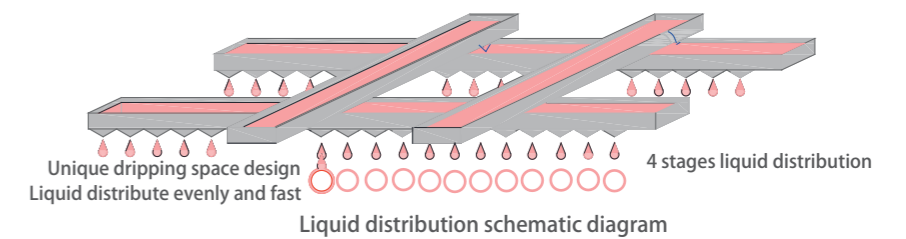
### Energy-efficient evaporation absorption design

- a The chiller is designed with double stage evaporation and absorption. Both the evaporator and absorber are consist of two parts, the high pressure part and the low pressure part, the two times evaporation and absorption improve the chiller efficiency dramatically.

- b The evaporator tubes is designed with non-equal spacing design and uses copper tubes to improve the efficiency of evaporation.

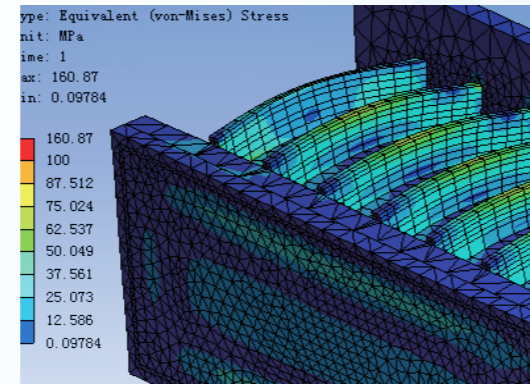
### Advanced gravity dripping technology

- a The solution drop and distribution on the tube surface by gravity, no any solution spray pumps are used, and chiller power consumption is also reduced.
- b The solution is distributed in 4 stages to make the whole liquid distribution system more scientific and the liquid film on the heat transfer tube more uniform, improving the absorption and evaporation efficiency.
- c The liquid distributor is designed with high-quality stainless steel, never blocked during operation and the chiller life span is much extended.



Professional structural intensity design

The shell cylinder and water chamber of the unit are reasonably designed with stress analysis method, meeting the safety use requirements of the customers in various pressure ranges.



Intelligent Advanced Monitoring System

- a This self-developed remote monitoring system can monitor the operation state of the machine comprehensively through computer cloud, mobile phone APP and WeChat, to provide customers with an optimal operation scheme through data and big data analysis of energy consumption.
  
- b The system is able to provide RS485, ethernet and other interfaces and data communication protocols; it allows acquisition, display of the machine parameters and control of the machine through the building centralized control system and industrial DCS centralized control system.
  
- c The advanced remote monitoring system not only can monitor the chiller real operating parameters, but also show the chiller performance curve, pre-alarms and suggestions of how to solve the alarms, the spare part replacement period, the chiller service record, and chiller daily/monthly/yearly fuel consumption cost.

# PERFORMANCE PARAMETER

## Hot water 130°C→70°C

Model	TMAR-H	—	055	065	075	090	100	115	125	140	160	175	205	230	290	350	420	475	530	585	640	705	775	915	1020	1165	
Cooling Capacity		USRt	120	144	168	200	224	256	288	320	360	400	464	528	664	800	960	1080	1196	1328	1456	1600	1760	2080	2320	2646	
		kW	422	506	591	703	788	900	1013	1125	1266	1407	1632	1857	2335	2814	3376	3798	4206	4671	5121	5627	6190	7315	8159	9305	
		10 <sup>4</sup> kcal/h	36	44	51	60	68	77	87	97	109	121	140	160	201	242	290	327	362	402	440	484	532	629	702	800	
Chilled water	Inlet/outlet temp.	°C	12→7																								
	Flowrate	m <sup>3</sup> /h	72.6	87.1	101.6	121.0	135.5	154.8	174.2	193.5	217.7	241.9	280.6	319.3	401.6	483.8	580.6	653.2	723.3	803.2	880.6	967.7	1064.4	1258.0	1403.1	1600.1	
	Pressure drop	mH <sub>2</sub> O	4.9	5.1	5.0	5.1	1.8	1.5	1.7	1.7	1.7	1.7	1.8	3.9	4.0	5.8	5.9	5.8	5.9	5.8	3.9	3.6	4.5	5.6	3.2	3.9	5.6
		kPa	48	50	49	50	18	15	16	17	17	17	18	38	39	57	58	57	58	57	39	35	44	55	31	38	55
	Pass	—	4	4	4	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Pipe size	mm	125	125	150	150	150	200	200	200	200	200	200	200	250	250	300	300	350	350	400	400	450	450	500	500	500	
Cooling water	Inlet temp.	°C	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	31	31	31	31	31	31	31	
	Outlet temp.	°C	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	
	Flowrate	m <sup>3</sup> /h	142	171	199	237	265	303	341	379.2	427	474	550	626	787	948	1138	1280	1417	1349	1479	1625	1788	2113	2357	2687	
	Pressure drop	mH <sub>2</sub> O	2.2	2.3	2.1	2.2	4.1	3.7	3.9	3.9	3.9	3.9	4.1	6.5	6.8	6.7	6.7	6.9	6.7	7.1	7.3	7.1	8.9	10.5	5.7	7.5	10.5
		kPa	21	22	21	22	40	36	38	39	39	39	40	64	67	66	66	68	66	69	71	70	87	103	56	74	103
Pass	—	2+1																									
Pipe size	mm	200	200	250	250	250	300	300	300	300	300	300	300	300	350	400	400	450	450	500	500	500	600	600	600	600	
Hot Water	Inlet/Outlet temp.	°C	130→70																								
	Flowrate	m <sup>3</sup> /h	8	10	11	14	15	17	20	22	25	27	32	36	45	54	65	74	81	90	99	109	120	142	158	180	
	Pressure drop	mH <sub>2</sub> O	4.4	3.9	4.4	4.3	9.3	8.4	8.0	8.0	8.3	8.5	9.3	9.2	9.6	9.2	9.2	9.4	9.0	7.1	6.9	8.6	11.2	5.6	7.8	10.1	
		kPa	43	39	44	42	91	82	79	78	81	84	91	90	94	91	90	92	88	70	68	85	110	55	77	99	
	Pass	—	18	18	18	18	18	18	18	18	18	18	16	16	16	16	16	16	16	12	12	12	12	12	12	12	
Pipe size (DN)	mm	40	40	50	50	50	50	65	65	65	65	80	80	80	100	100	100	125	125	125	125	150	150	150	200		
Power	Power type	V×Hz×φ	380×50×3																								
	Vacuum pump	kW	0.75																								
	Refrigerant pump	kW	0.6	0.6	0.6	0.6	0.6	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.6	1.6	1.6	1.6	1.6	1.6	3	3	3	3	
	Solution pump 1	kW	3.6	3.6	3.6	4.4	4.4	4.4	4.4	4.4	6	6	6	6	6	7.4	7.4	7.4	7.4	9	9	9	13	13	15	15	
	Solution pump 2	kW	1.5	1.5	1.5	2.6	2.6	2.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	6	6	
	Control panel	kVA	0.5																								
	Total power	kW	6.5	6.5	6.5	8.4	8.4	8.6	9.6	9.6	11.2	11.2	11.2	11.2	11.2	12.6	13.4	13.4	13.4	15.0	15.0	15.0	20.4	20.4	24.8	24.8	
Total power capacity	kVA	13.3	13.3	13.3	17.2	17.2	17.3	18.7	18.7	21.2	21.2	21.2	21.2	21.2	24.5	26.0	26.0	27.8	33.6	33.6	33.6	42.0	42.0	62.6	62.6		
Dimension	Length	mm	3750	3750	3850	3850	4820	4820	4930	4930	5050	5050	6300	6300	7300	7300	7360	7360	7420	8050	8050	8460	9250	7550	8050	9250	
	Width	mm	1860	2060	2150	2280	2150	2280	2270	2310	2410	2530	2090	2350	2440	2840	3160	3270	3420	3270	3520	3520	3520	4250	4250	4250	
	Height	mm	2600	2750	2820	2890	2820	2890	2920	2950	3020	3080	3150	3210	3520	3620	3890	4080	4080	4120	4150	4150	4150	4450	4450	4450	
Weight	Max. shipping weight	ton	6.9	8.0	9.1	10.2	11.4	12.6	13.6	14.5	15.7	16.7	18.9	20.1	23.7	20.4	24.9	27.1	29.2	30.1	32.2	34.2	37.5	44.2	49.5	57.5	
	Total shipping weight	ton	-	-	-	-	-	-	-	-	-	-	-	-	-	30.7	36.9	40.2	43.9	46.2	50.4	53.3	58.6	76.5	86.2	99.5	
	Operation weight	ton	8.8	10.1	11.5	13.1	14.7	16.6	18.1	19.6	21.3	22.9	24.5	26.5	31.8	37.2	45.1	49.3	54.1	56.9	63.3	67.5	74.8	94.8	106.2	122.3	

- Notes:
- The fouling factor of chilled water and cooling water is 0.086m<sup>2</sup>k/kw.
  - The max. working pressure at the chilled water and cooling water side is 1.0MPaG, higher working pressure is optional.
  - This model of chiller can also be driven by pressure of lower than 0.3MPaG.
  - The chiller dimension can be adjusted according to the client's requirement.
  - Chiller cooling capacity adjust range is 20%~100%. Chilled water and cooling water flowrate adjust range is 60%~100%.
  - Minimum chilled water outlet temp. is 5°C. Minimum cooling water inlet temp. is 15°C.

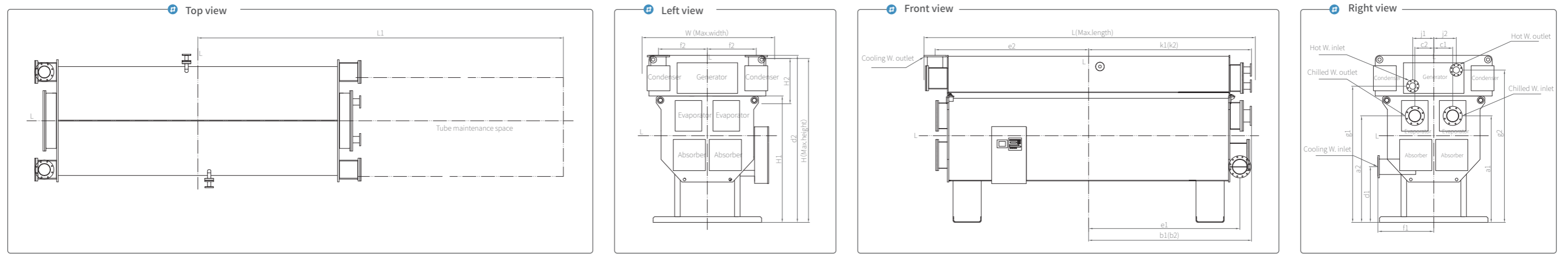
# PERFORMANCE PARAMETER

## Hot water 98°C→88°C

Model	TMAR-H	—	055	065	075	090	100	115	125	140	160	175	205	230	290	350	420	475	530	585	640	705	775	915	1020	1165
Cooling Capacity		USRt	150	180	210	250	280	320	360	400	450	500	580	660	830	1000	1200	1350	1495	1660	1820	2000	2200	2600	2900	3307
		kW	528	633	739	879	985	1125	1266	1407	1583	1759	2040	2321	2919	3517	4220	4748	5258	5838	6401	7034	7737	9144	10199	11631
		10 <sup>4</sup> kcal/h	45	54	64	76	85	97	109	121	136	151	175	200	251	302	363	408	452	502	550	605	665	786	877	1000
Chilled water	Inlet/outlet temp.	°C	12→7																							
	Flowrate	m <sup>3</sup> /h	90.7	108.9	127.0	151.2	169.3	193.5	217.7	241.9	272.2	302.4	350.8	399.2	502.0	604.8	725.8	816.5	904.2	1004.0	1100.7	1209.6	1330.6	1572.5	1753.9	2000.1
	Pressure drop	mH <sub>2</sub> O	7.4	7.6	7.5	7.6	2.7	2.3	2.5	2.5	2.6	2.7	5.9	6.0	8.8	9.0	8.8	8.9	8.8	5.9	5.4	6.7	8.3	4.8	5.8	8.4
		kPa	72	74	73	75	26	22	24	25	26	27	58	59	86	88	86	87	86	58	53	66	81	47	57	83
	Pass	—	4	4	4	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Pipe size	mm	125	125	150	150	150	200	200	200	200	200	200	200	250	250	300	300	350	350	400	400	450	450	500	500	
Cooling water	Inlet temp.	°C	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	31	31	31	31	31	31	31
	Outlet temp.	°C	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
	Flowrate	m <sup>3</sup> /h	169	202	236	281	314	359	404	449	505	562	651	741	932	1123	1347	1516	1678	1864	2043	2245	2470	2919	3256	3713
	Pressure drop	mH <sub>2</sub> O	3.1	3.4	3.0	3.2	6.0	5.4	5.7	5.8	5.9	6.2	10.0	10.4	9.6	9.6	10.0	9.6	10.2	10.4	10.2	12.7	14.8	8.2	10.8	15.0
		kPa	30	33	29	31	59	53	56	57	58	61	98	102	94	94	98	94	100	102	100	125	145	80	106	147
Pass	—	2+1																								
Pipe size	mm	200	200	250	250	250	300	300	300	300	300	300	300	300	350	400	400	450	450	500	500	500	600	600	600	600
Hot Water	Inlet/Outlet temp.	°C	98→88																							
	Flowrate	m <sup>3</sup> /h	56	67	79	93	105	120	135	150	168	187	217	247	310	374	449	505	559	621	681	748	823	972	1084	1237
	Pressure drop	mH <sub>2</sub> O	7.4	6.5	7.4	7.2	5.1	4.6	4.3	4.3	4.5	4.6	7.0	7.0	7.4	7.1	7.2	7.4	7.0	11.9	11.5	6.9	9.1	4.8	6.6	8.2
		kPa	72	63	73	71	50	45	43	42	44	45	69	69	73	70	70	72	68	116	113	67	89	47	65	80
	Pass	—	6	6	6	6	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3
Pipe size	mm	100	100	125	125	150	150	200	200	200	200	200	200	200	200	250	250	250	300	300	300	300	300	350	350	400
Power	Power type	V×Hz×φ	380×50×3																							
	Vacuum pump	kW	0.75																							
	Refrigerant pump	kW	0.6	0.6	0.6	0.6	0.6	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.6	1.6	1.6	1.6	1.6	1.6	3	3	3	3
	Solution pump 1	kW	3.6	3.6	3.6	4.4	4.4	4.4	4.4	4.4	6	6	6	6	6	7.4	7.4	7.4	7.4	9	9	9	13	13	15	15
	Solution pump 2	kW	1.5	1.5	1.5	2.6	2.6	2.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	6	6
	Control panel	kVA	0.5																							
	Total power	kW	6.5	6.5	6.5	8.4	8.4	8.6	9.6	9.6	11.2	11.2	11.2	11.2	11.2	11.2	12.6	13.4	13.4	13.4	15.0	15.0	15.0	20.4	20.4	24.8
Total power capacity	kVA	13.3	13.3	13.3	17.2	17.2	17.3	18.7	18.7	21.2	21.2	21.2	21.2	21.2	21.2	24.5	26.0	26.0	27.8	33.6	33.6	33.6	42.0	42.0	62.6	62.6
Dimension	Length	mm	3750	3750	3850	3850	4820	4820	4930	4930	5050	5050	6300	6300	7300	7300	7360	7360	7420	8050	8050	8460	9250	7550	8050	9250
	Width	mm	1860	2060	2150	2280	2150	2280	2270	2310	2410	2530	2090	2350	2440	2840	3160	3270	3420	3270	3520	3520	3520	4250	4250	4250
	Height	mm	2600	2750	2820	2890	2820	2890	2920	2950	3020	3080	3150	3210	3520	3620	3890	4080	4080	4120	4150	4150	4150	4450	4450	4450
Weight	Max. shipping weight	ton	6.9	8.0	9.1	10.2	11.4	12.6	13.6	14.5	15.7	16.7	18.9	20.1	23.7	20.4	24.9	27.1	29.2	30.1	32.2	34.2	37.5	44.2	49.5	57.5
	Total shipping weight	ton	-	-	-	-	-	-	-	-	-	-	-	-	-	30.7	36.9	40.2	43.9	46.2	50.4	53.3	58.6	76.5	86.2	99.5
	Operation weight	ton	8.8	10.1	11.5	13.1	14.7	16.6	18.1	19.6	21.3	22.9	24.5	26.5	31.8	37.2	45.1	49.3	54.1	56.9	63.3	67.5	74.8	94.8	106.2	122.3

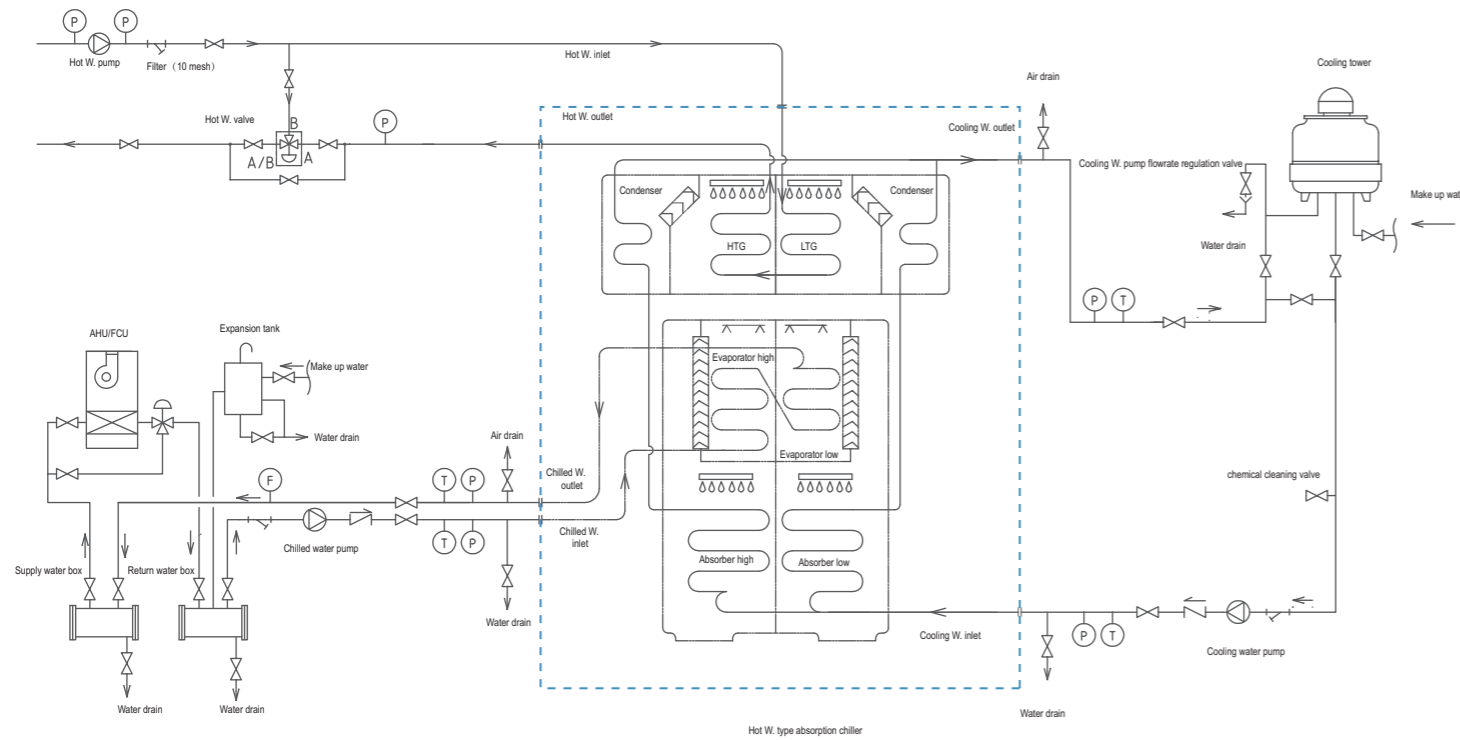
- Notes:
- The fouling factor of chilled water and cooling water is 0.086m<sup>2</sup>k/kw.
  - The max. working pressure at the chilled water and cooling water side is 1.0MPaG, higher working pressure is optional.
  - The chiller dimension can be adjusted according to the client's requirement.
  - Chiller cooling capacity adjust range is 20%~100%. Chilled water and cooling water flowrate adjust range is 60%~100%.
  - Minimum chilled water outlet temp. is 5°C. Minimum cooling water inlet temp. is 15°C.

# OUTLINE DRAWING



	Chilled W. pipe	Chilled W. pass	Cooling W. pipe	Cooling W. pass	Hot W. pipe	Hot W. pass	a1	b1	c1	a2	b2	c2	d1	f1	e1	d2	f2	e2	g1	j1	k1	g2	j2	k2	L	W	H	L1	H1	H2
TMAR-H055	125	4	200	2+1	100	6	1500	1825	280	1700	1825	280	800	600	1650	2550	660	1700	2120	170	1825	2320	170	1825	3750	1860	2600	4600	—	—
TMAR-H065	125	4	200	2+1	100	6	1520	1825	300	1720	1825	300	800	630	1650	2700	700	1700	2200	190	1825	2425	190	1825	3750	2060	2750	4600	—	—
TMAR-H075	150	4	250	2+1	125	6	1625	1825	330	1850	1825	330	850	680	1680	2770	750	1730	2270	230	1825	2520	230	1825	3850	2150	2820	4600	—	—
TMAR-H090	150	4	250	2+1	125	6	1700	1825	360	1920	1825	360	865	740	1680	2840	810	1730	2360	240	1825	2600	240	1825	3850	2280	2890	4600	—	—
TMAR-H100	150	2	250	2+1	150	4	1740	2390	330	1740	2390	330	850	680	2200	2770	750	2250	2270	230	2390	2480	230	2390	4820	2150	2820	6100	—	—
TMAR-H115	200	2	300	2+1	150	4	1820	2390	360	1820	2390	360	865	740	2230	2840	810	2280	2360	240	2390	2610	240	2390	4820	2280	2890	6100	—	—
TMAR-H125	200	2	300	2+1	200	4	1740	2390	330	1740	2390	330	850	765	2230	2870	800	2280	2350	240	2390	2490	240	2390	4930	2270	2920	6100	—	—
TMAR-H140	200	2	300	2+1	200	4	1805	2390	360	1805	2390	360	865	800	2230	2900	820	2280	2420	240	2390	2600	240	2390	4930	2310	2950	6100	—	—
TMAR-H160	200	2	300	2+1	200	4	1830	2390	370	1830	2390	370	920	825	2230	2970	840	2280	2530	280	2390	2720	280	2390	5050	2410	3020	6100	—	—
TMAR-H175	200	2	300	2+1	200	4	1860	2390	380	1860	2390	380	920	825	2230	3030	890	2280	2530	280	2390	2720	280	2390	5050	2530	3080	6100	—	—
TMAR-H205	200	2	300	2+1	200	4	1965	2910	425	1965	2910	425	940	925	2730	3100	860	2780	2580	240	2910	2790	240	2910	6300	2090	3150	7600	—	—
TMAR-H230	200	2	300	2+1	200	4	2030	2910	430	2030	2910	430	990	940	2730	3160	950	2780	2660	290	2910	2870	290	2910	6300	2350	3210	7600	—	—
TMAR-H290	250	2	350	2+1	200	4	2180	3430	450	2180	3430	450	1025	980	3300	3470	990	3350	2895	290	3430	3100	290	3430	7300	2440	3520	9250	—	—
TMAR-H350	250	2	400	2+1	250	4	2310	3430	505	2310	3430	505	1060	1100	3325	3570	1150	3375	3015	340	3430	3240	340	3430	7300	2840	3620	9250	—	—
TMAR-H420	300	2	400	2+1	250	4	2480	3520	560	2480	3520	560	1120	1250	3325	3840	1320	3375	3270	385	3520	3520	385	3520	7360	3160	3890	9250	3000	1300
TMAR-H475	300	2	450	2+1	250	4	2540	3520	600	2540	3520	600	1150	1310	3350	4030	1370	3400	3390	385	3520	3660	385	3520	7360	3270	4080	9250	3100	1300
TMAR-H530	350	2	450	2+1	300	4	2620	3640	650	2620	3640	650	1200	1390	3350	4030	1420	3400	3440	430	3640	3680	430	3640	7420	3420	4080	9250	3150	1500
TMAR-H585	350	2	500	2+1	300	4	2620	3890	650	2620	3890	650	1200	1390	3830	4070	1370	3880	3440	385	3890	3740	385	3890	8050	3270	4120	10700	3150	1500
TMAR-H640	400	2	500	2+1	300	4	2660	3890	680	2660	3890	680	1240	1480	3830	4100	1480	3880	3510	430	3890	3790	430	3890	8050	3520	4150	10700	3200	1500
TMAR-H705	400	2	500	2+1	300	3	2660	4130	680	2660	4130	680	1240	1480	4080	4100	1480	4130	3510	430	4130	3790	430	4130	8460	3520	4150	11350	3200	1500
TMAR-H775	450	2	600	2+1	300	3	2660	4600	680	2660	4600	680	1240	1480	4490	4100	1480	4540	3510	430	4600	3790	430	4600	9250	3520	4150	12500	3200	1500
TMAR-H915	450	2	600	2+1	350	3	2750	3750	720	2750	3750	720	1200	1900	3630	4400	1720	3680	3850	470	3750	4110	470	3750	7550	4250	4450	10200	3450	1700
TMAR-H1020	500	2	600	2+1	350	3	2750	4010	720	2750	4010	720	1200	1900	3880	4400	1720	3930	3850	470	4010	4110	470	4010	8050	4250	4450	10700	3450	1700
TMAR-H1165	500	2	600	2+1	400	3	2750	4710	720	2750	4710	720	1200	1900	4490	4400	1720	4540	3850	470	4710	4110	470	4710	9250	4250	4450	12500	3450	1700

## PIPING FLOW

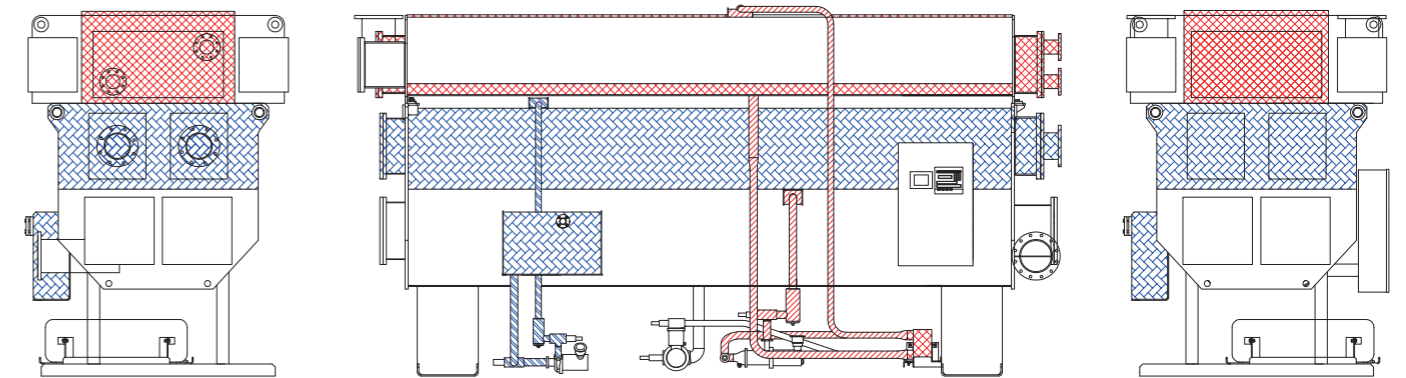


Sample: (P) Pressure meter (T) Thermometer (F) Flow meter (Filter) (Check valve)

### Note:

- ① the standard supply scope is within the range of [ ]
- ② the piping flow is just for reference.
- ③ pls installed 10 mesh filter at the chilled water, cooling water pipe, and hot water pipe. 2 meters far from the pipe inlet of the chiller.

## THERMAL AND COLD INSULATION



- Please undertake the construction project of thermal and cold insulation after moving in and installation of the unit and completion of vacuum airtightness test.
- Construction methods must be executed in line with the "Instruction Drawing for Construction" of each part.
- The outer package, cover and flange shall be all made into the construction for easy loading and unloading.
- Do not hide various meters, instruments, wire harnesses in the thermal and cold insulation materials, in order for the easy determination of actions and adjustment. In addition, please take care not to break or damage wire harnesses and fine ducts.
- The thermal and cold insulation materials shall be non-combustible.
- When the thermal and cold insulation materials are fixed by supporting pedestal, please make sure to use the binder, and absolutely avoid the welding process (it may cause damage to the vacuum of unit and components in the flange).

# INSTALLATION GUIDANCE

## 01 Water Piping

- The user shall prepare the external pipes connected from the unit.
- Please mount the chilled water pump, cooling water pump, hot water pump, and expansion tank in the right position, so that the pressure applied to the body will not exceed the specified value.
- Each chiller shall be fitted with dedicated chilled water pump, cooling water pump and hot water pump as possible, and the water pump flow rate shall meet the requirements.
- Mount the filter on the inlet side of the unit (10 mesh).
- The treatment of water quality (when the water quality is poor) is necessary to prevent the scale depositing and corrosion of heat transfer tube.
- The system pipeline shall be cleaned and rust removed through by-pass line after installation, and then connected with the machine, washing water and foreign matters in the pipeline shall not pass through the machine.
- A control valve shall be installed at the water supply and discharge pipeline of the cooling tower in order to control the water quality of the cooling water.
- A thermometer and a pressure gauge shall be installed near the inlet and outlet of cold water, cooling water and hot water; and an air release valve and a drain valve shall be set in the appropriate position.
- A 40A connecting pipe shall be installed between the machine and each inlet and outlet, in order to clean the whole circulation system with cleaning fluid.
- The pipeline design of cold water, cooling water and hot water system shall refer to the flow chart of external piping and the temperature and pressure instruments, air release and drain valves and assorted ancillary equipments shall be installed correspondingly.
- The bearing pressure of each system shall be confirmed when testing the hydraulic pressure of cold water, cooling water and hot water system to avoid exceeding the designed test pressure.
- The inlet and outlet of the water system of the machine shall be provided with short pipe (or bent pipe) in order to facilitate inspection and disassembly and the weight of which shall not be added to the machine.
- The hot water system shall be provided with a main valve, which shall be closed during shutdown.
- The insulation layer shall be made removable during insulation construction of the inlet flange of the generator and the flange of hot water pipeline.
- Please refer to the regulations of GB/T18431 for water quality standards, and please contact with our company for any special requirements in addition to the above notes.

## 02 Machine room settings

- The machine shall be arranged at the place with favorable ventilation, and the ventilation equipment shall be installed in the machine room.
- Avoid damp and dusty places which are likely to cause electrical failure.
- Control the ambient temperature of machine room at 0 C to 40 C. The frost crack shall be caused during power-off in case it is too cold, and damage to electrical elements of the unit shall be caused in case it is too hot. Control the ambient humidity below 85%, which will affect the electrical insulation if too high.
- Daylighting shall be taken into consideration in the machine room, to facilitate the daily monitoring and inspection and maintenance.
- Install the machine in the position of easy drainage.
- Please control the levelness of water chiller-heater, as well as the length and width of cylinder below 1/1000.
- Determine the horizontal perpendicularity by means of the mounting adjustment sizing block during installation.
- Since the maintenance and repair of the machine need to be considered around the unit arrangement, at least 1m of operating space shall be left around the unit, and the space for tube drawing shall be left on any side of both ends of the unit (refer to outline drawing); 1.5m of space is recommended to be left on the side of control cabinet; it is suggested that the distance between the top of unit and the ceiling shall be no less than 0.5m. Please refer to the outline drawing of the unit for details.
- Relevant laws and regulations shall be observed to ensure a safe distance from the combustible parts of the building and combustible materials.

# INSTALLATION GUIDANCE

## 03 Precautions

- Please arrange professionals to conduct operations of machine lifting, handling, installation, etc. Improper operations are likely to cause the machine upside down and falling, as well as major accidents such as serious injuries, deaths, etc. Be sure to observe the rules.

## 04 Foundation ground

- It is necessary to carry out the waterproof construction for the foundation ground, with the drainage ditch arranged. It is suggested that the foundation load shall be 1.5 times the operating weight. Place the unit on the foundation directly without fixing by bolts when the unit is in position. If there is a need to use anchor bolt for fixing in case of strong vibration source surrounded by the unit or demand of shock resistance by the user, please illustrate the situation when ordering.

## 05 Installation position

- The absorption-type unit is featured with low noise and slight vibration, which can be installed in the basement or on the roof. It is necessary to consider the actual on-site situation of customer, unit installation, and simple and convenient maintenance with respect to the final position.

## 06 Handling instructions

- Choose to use the lifting capacity of lifting machinery for handling according to the handling weight as recorded in the outline drawing.
- Since there are special lifting holes on the unit, the unit may be damaged with great loss if it is lifted from other position.

- Distribute the unit weight evenly among all lifting points during handling, and please maintain a horizontal lifting and landing..
- Be careful not to damage the components or pipelines beside the lifting rope during installation and pulling of the lifting rope. Make reference to Lifting Drawing for the weight and diameter of lifting hole.
- Please absolutely avoid the contact or collision with surrounding objects.
- Especially with the front of the machine, which is surrounded and attached by a number of small matching pipes and instruments. Please take care to prevent collision and damage.
- When handling in split type, please first handle the part fitted inside and far away from the inlet.

## MOON ENVIRONMENT TECHNOLOGY CO.,LTD.

Add: No.1 Binglun Road,Yantai,P.R.China  
Service Hotline: +86-535-6697172  
Email: [info@moon-tech.com](mailto:info@moon-tech.com)  
Website: [www.moonoverseas.com](http://www.moonoverseas.com)

