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MR-E072-C-1812

HITACHI

Steam Absorption Chiller

EX/EXS series

OVERVIEW

HITACHI DOUBLE EFFECT STEAM FIRED ABSORPTION CHILLER EX/EXS SERIES

For over 50 years, using the most advanced technology, Hitachi has always led the development of the chiller industry, demonstrating high efficiency, reliability and durability.
Utilizing know-how and technological skill cultivated over many years, Hitachi has developed a new and powerful model of high efficiency absorption chiller – the EX/EXS series – to satisfy customer demand and exceed expectations.

ADVANTAGES

Excellent Durability
- 8,000 hours of operation (Standard).
- Statutory durable years: 15 (with recommended maintenance).
- Low possibility of crystallization during operation.

High Efficiency (COP = 1.41 *EX series)
- Less amount of steam is required to produce chilled water.
- Excessive running costs can be avoided by re-use of waste steam, compared with electric chillers.

Easy to Operate
- A fully automatic purge pump system reduces the burden imposed on the operator's daily work.
- Easy operation via 10.4 inch-wide touch panel with simple interface and various information indicators.
- Fast start up time, compared with conventional absorption chillers.

High Reliability
- More than 22,000 Hitachi absorption chillers are shipped out throughout the world,here and abroad.
- Our absorption chiller incorporates the epoch-making “Parallel flow” design structure, originally invented by Hitachi.

MODEL NAME

HAU – C W 500 EXS A

HAU
Hitachi Absorption Unit

Operating Condition
C: Heavy Load / under 8,000 hrs (Standard)

Heating Source
W: Steam
WL: Low pressure steam

Nominal cooling capacity (USRT)

Series Code
EX (EXW)(EXW3)(EXW4) :
High efficiency type (Single Module)
EXS (EXWS)(EXW3S)(EXW4S) :
Standard efficiency type (Single Module)
EXW2, EXW4, EXW5 : High efficiency type (Twin Module)
EXW2S, EXW4S, EXW5S : Standard efficiency type (Twin Module)

Temperature Difference
A: Chilled water (large temperature difference)
B: Chilled water/Cooling water (large temperature difference)
C: Cooling water (large temperature difference)

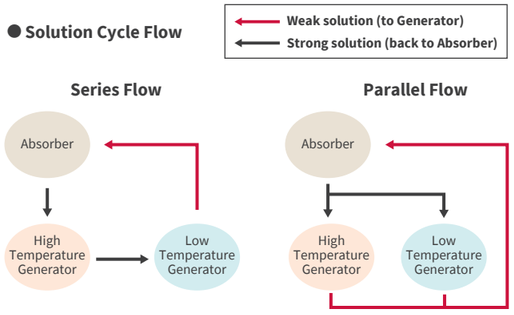
FEATURES

TOP CLASS HIGH EFFICIENCY
(COP=1.41 *Catalogue specified condition)

The Hitachi EX series has achieved a new benchmark: the launch of a top-class high-efficiency Steam Absorption Chiller, marking a high COP of 1.41.

INNOVATIVE PARALLEL FLOW DESIGN

Hitachi has invented the innovative parallel flow solution cycle, which fulfills customer expectations for stable chiller operation. Compared with typical serial (series) flow cycles, this parallel flow cycle allows the Hitachi absorption chiller to operate with weaker LiBr solution concentration and lower High Temp. Gen. pressure, resulting in stable operability that can accommodate severe conditions and abrupt changes. Concurrently, parallel flow design reduces the possibility of crystallization during operation.

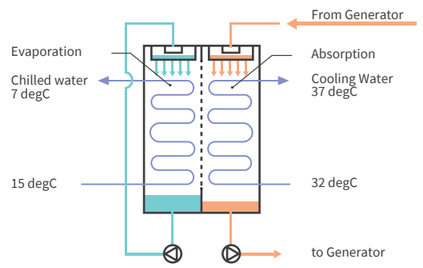


STAINLESS STEEL HIGH TEMPERATURE GENERATOR TUBES (STANDARD)

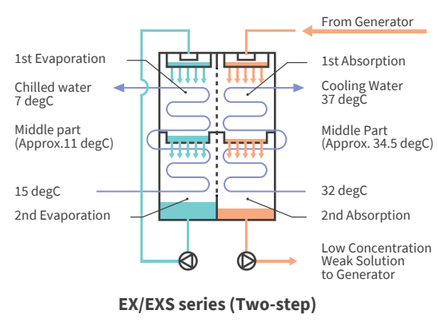
To extend the machine lifetime, Hitachi EX/EXS series absorption chiller uses stainless steel type high temperature generator heat exchanger tubes, which eliminate stress damage and maximize reliability.

TWO-STEP EVAPORATOR AND ABSORBER

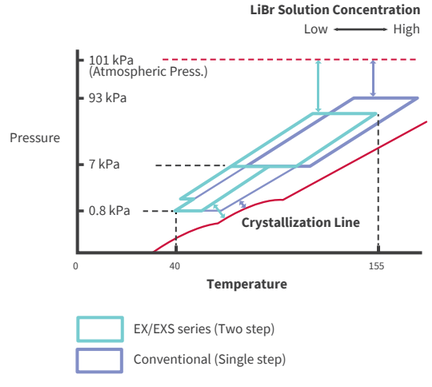
Hitachi EX/EXS series chiller designs are based on a “Two-step evaporator and absorber” structure. This concept divides the absorption process into two stages. This unique design enhances the absorption ability of the LiBr solution and enables the solution concentration to become weaker than it would with a single step. This dramatically reduces potential crystallization and inner corrosion risk compared with conventional single step design.



Conventional (Single step)



EX/EXS series (Two-step)



ADVANTAGES

STANDARD HEAVY LOAD OPERATION (UNDER 8000 HOURS)

One of the most remarkable achievements of the Hitachi EX /EXS series’ development was the realization of standard 8000 hours of operation. The combination of Parallel Flow cycle and two-step evaporator and absorber design made plenty of improvements upon the solution cycle, allowing the chiller to operate under heavy duty conditions without upgrading the chiller frame size.

FAST START-UP

The combination of gravity feed type Low-temperature generator and water-tube-type High-temperature generator significantly reduces the LiBr solution amount charged inside the absorption chiller, resulting in remarkably shortening of the chiller start-up time compared with conventional flooded -type generator.

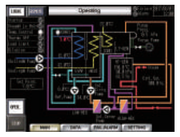
FULLY AUTOMATIC PURGE PUMP SYSTEM (STANDARD)

Manual operation of the vacuum pump is one of the most essential daily tasks for the operator to maintain the Absorption Chiller performance. No matter if the chiller automatically collects non-condensable gases via the auto purge unit, the operator still has to periodically run the vacuum pump manually to discharge the gas from the chiller. And what is worse is that a manual purge is required frequently, especially during the initial start up period and after operating the chiller for many years. In contrast, Hitachi supplies not only the auto purge unit, but also the self controlled purge pump as a standard which does the operator's daily purge pump operation automatically.

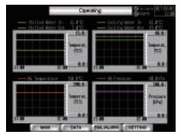
This resolution of adding a fully automatic purge pump system as a standard was a breakthrough for absorption chillers and provides trouble-free and comfortable operation without intervention from the operator.

FEATURES OF WIDE TYPE 10.4 INCH FULL COLOR LCD TOUCH PANEL FOR EASY OPERABILITY

- Wide 10.4 inch full color LCD touch panel.
- Shows comprehensible cycle flow diagram.
- Indicates essential operating data for easy data recording.
- Indicates trend graph of chiller operation.
- Shows handling guide in case of failure and alarm.
- Indicates and stores operation, failure and alarm histories.
- Capable of downloading 3-months of operation data to USB memory.
- RS485 and Ethernet ports are equipped for MODBUS communication as a standard.
- Multilingual options for interface (Japanese, English, Original Chinese, Simplified Chinese and Arabic).


Normal operation screen


Operating data screen


Trend graph screen


Failure & Alarm screen


Handling guides for troubles


Language selection (e.g. Chinese)

ADDITIVE PROPOSAL

SOLUTION PUMP INVERTER (OPTION)

The VFD solution pump improves partial load efficiency by reducing steam consumption versus having a constant speed pump. It is recommended that the user add solution pump inverter when they rarely operate the chiller with a full load.

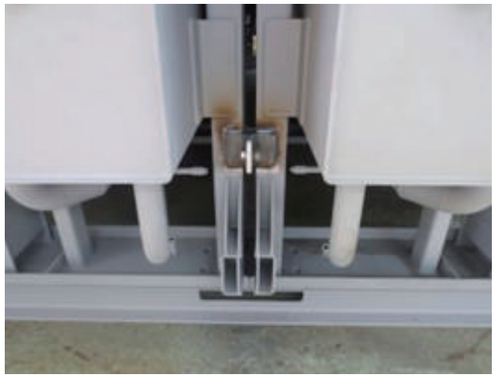
TWIN MODULE DESIGN

TWIN MODULE DESIGN CONCEPT

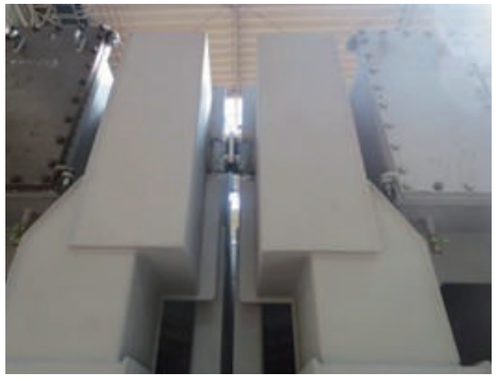
With abundant experience of supplying absorption chillers to district cooling plants, Hitachi has developed its Non-vacuum breaking chiller design, which is the “Twin Module” structure. Hitachi is capable of delivering the chiller without cutting any vacuum part of the main body. Therefore, the twin module chiller does not require welding work on the site and enables the shortening of the project construction schedule.

Note:
*HAU-CW2000EXW4 and HAU-CW4000EXW4 shall be split carry-in shipment due to transportation issues. These two models requires welding work at site.

Setting both chillers onto common base



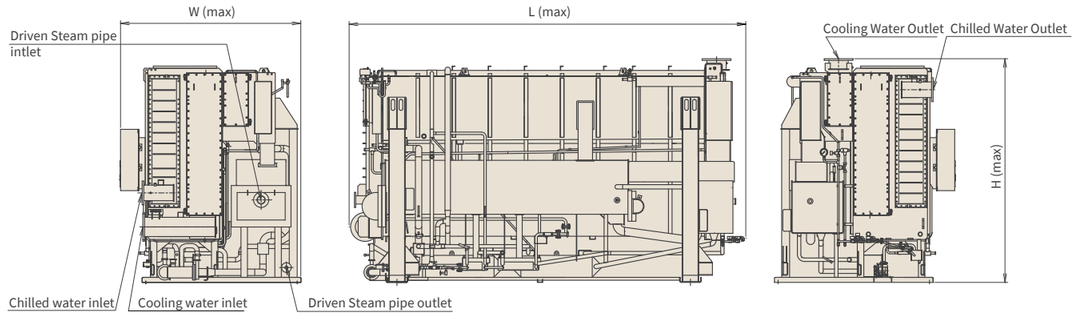
Bolt nut tied (Bottom part)



Bolt nut tied (Upper part)

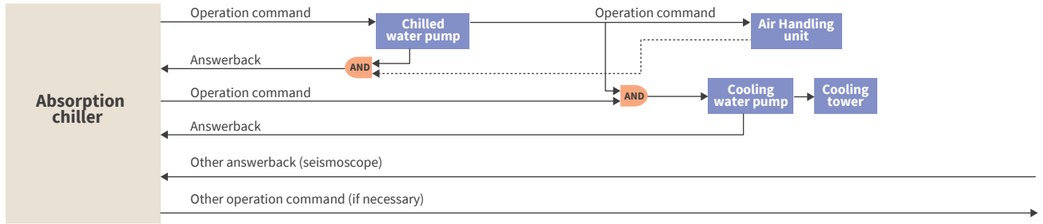
INSTALLATION

EXTERNAL DIMENSIONS

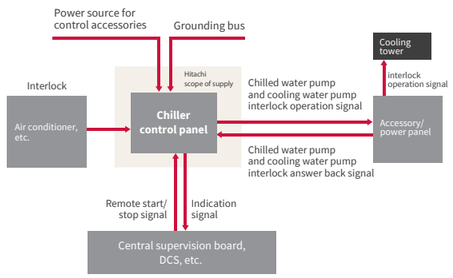


EX(W)/EX(W)S Series	150	180	240	300	370	400	450	500	560	600	700	800	900	1000	1100	1200	1300	1400	1500	1600
Length (mm)	3,000	3,600	4,300	4,800	5,800	6,300	4,870	5,370	5,870	6,400	7,200	8,100	6,800	7,400	8,100	8,100	8,600	9,100	9,600	10,100
Width (mm)	2,290	2,400	2,400	2,400	2,400	2,400	2,550	2,550	2,550	2,550	2,550	2,550	3,100	3,100	3,100	3,100	3,100	3,100	3,100	3,100
Height (mm)	2,550	2,550	2,550	2,550	2,550	2,550	3,102	3,102	3,102	3,102	3,102	3,102	3,150	3,150	3,150	3,300	3,300	3,300	3,300	3,300

INTERLOCK SYSTEM



WIRING WORK



Safety Precautions

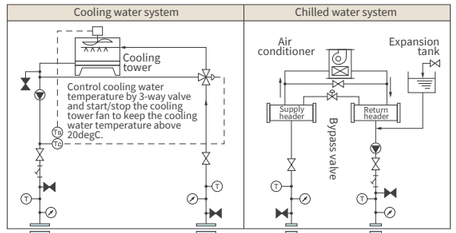
(For daily operation)
Prior to use, read the instruction manual carefully and receive explanations from authorized personnel to use the chiller appropriately.

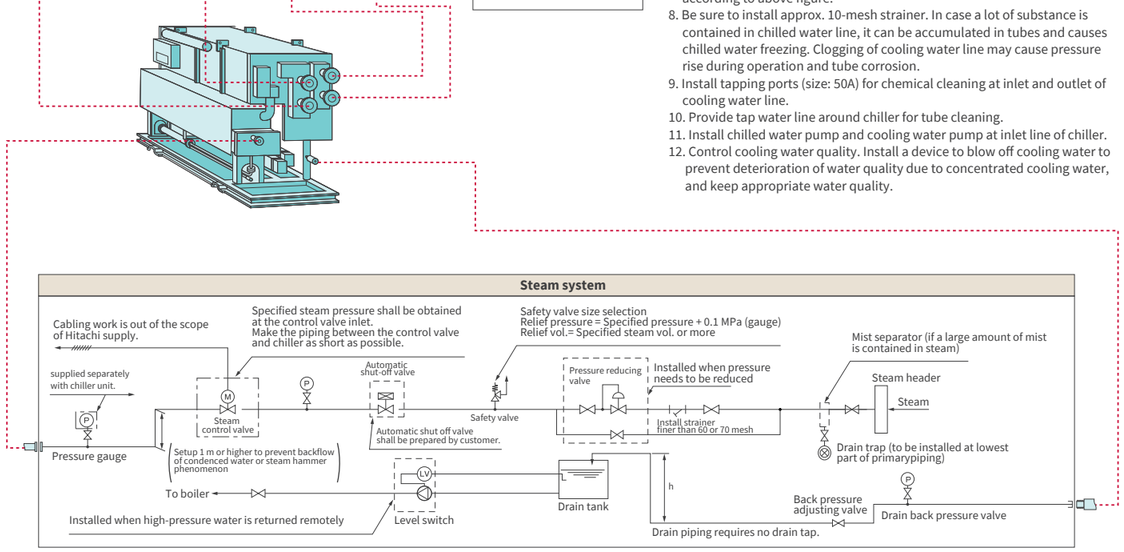
(For installation)
1. Do not install the chiller where inflammable material (gasoline, thinner, etc.) is handled or where corrosive gas (ammonia, chlorine, etc.) is generated. Otherwise, fire may result.
2. Carry-in work, installation work, foundation work, wiring work, piping work, and thermal insulation work are required. Consult expert companies.
3. In case ventilation system is required to be installed, consult expert company. Improper work may cause oxygen deficiency accident or other problems.
4. Waterproofing is required on floor surface where the chiller-heater is installed. Drainage ditch is also required around chiller. Improper waterproofing may cause water leakage, resulting in water damage to neighboring facilities.
5. Service and maintenance space is required around chiller. Insufficient maintenance space may disturb safety work and result in injury.

(For service and maintenance)
Special techniques are necessary for proper maintenance.
Please consult Hitachi service agents.
Improper maintenance may cause failure, oxygen deficiency accident, fire, electric shock, etc

INSTALLATION

PIPING WORK





Symbols

- Thermometer
- Pressure gauge
- Strainer
- Stop valve
- Air vent valve
- Drain valve
- Pump
- 3-way valve
- 2-way valve

Piping flanges, packing and bolts will be prepared by customer.

Precautions for Chilled Water and Cooling Water Piping Work

1. Install water piping according to instruction as above figure.
2. Direction of water nozzles varies depending on specifications. See installation diagram for direction of water nozzles.
3. Be sure not to apply 1.0MPa (10kg/cm^{2}G) or higher pressure to chiller. (In case of high-pressure application, contact factory.)
4. Install drain valves at the lowest part of piping between shut-off valve and chiller.
5. Install air vent valves at the top of piping higher than chiller.
6. Install thermometers and pressure gauges according to instruction as above figure.
7. In case chilled water line is not open system, install expansion tank according to above figure.
8. Be sure to install approx. 10-mesh strainer. In case a lot of substance is contained in chilled water line, it can be accumulated in tubes and causes chilled water freezing. Clogging of cooling water line may cause pressure rise during operation and tube corrosion.
9. Install tapping ports (size: 50A) for chemical cleaning at inlet and outlet of cooling water line.
10. Provide tap water line around chiller for tube cleaning.
11. Install chilled water pump and cooling water pump at inlet line of chiller.
12. Control cooling water quality. Install a device to blow off cooling water to prevent deterioration of water quality due to concentrated cooling water, and keep appropriate water quality.

Steam and Steam Drain Piping

1. Install steam and steam drain piping according to diagram.
2. Apply specification steam pressure at steam control valve inlet. Keep fluctuation of steam pressure within +50~-100kPa of specifications. Too large a fluctuation of steam pressure may cause unstable control, failure stop, and cause negative impact to lifetime of equipped pumps and control valves.
3. Steam control valve, steam shut-off valve, and steam inlet pressure gauge are delivered separately. Customer shall install according to diagram and apply cables to chiller control panel.
4. To assure high controllability, size of steam control valve is selected to be smaller than connection pipe. Accordingly, install reducers at primary and secondary side of steam control valve.
5. The steam drain might be accumulated in steam pipe at primary and secondary side of steam control valve while chiller is stopped, and it may cause steam hammer during at start-up. Install steam control valve at horizontal pipe which is higher (at least 1m) than steam inlet nozzle of chiller, and prevent steam drain accumulation by slightly inclining steam pipe, etc.
6. Clogging of steam control valve with foreign substance may cause not only control valve failure, but chiller failure due to malfunction of steam flow control function. Accordingly, be sure to install mesh strainer (approx.60 to 70 mesh) according to diagram. After completion of piping work, flush inside steam line well.
7. To prevent steam drain from flowing into High-temperature Generator, install drain trap at the lowest part of steam control valve primary side. In case a large amount of drainage is contained in steam, install mist separator.
8. While chiller is stopping, close manual steam main valve to prevent steam from leaking into High-temperature Generator. In case the manual steam main valve is difficult to operate manually because of remote start/stop and/or multiple unit control application, install steam automatic shut-off valve, which is interlocked with chiller. Steam automatic shut-off valve is an optional item.
9. To prevent operation without steam flow, be sure to create start-up interlock with these equipment and devices.
10. Install back pressure adjusting valve and pressure gauge on drain piping according to diagram to adjust back pressure of steam drain. Standard drain back pressure is 98kPa(G). Be sure that [pressure head up to drain tank=h] plus [piping pressure drop] equal to this value.
11. Drain discharged from the Absorption Chiller is sufficiently super-cooled condensate water; therefore it is not necessary to install a drain trap on drain piping. If a drain trap is installed on drain piping, steam flow can be unstable.
12. Provide individual drain piping for each chiller. In case multiple drain flows are joined, install a check valve for each drain line to prevent reverse flow, and minimize fluctuation of back pressure.
13. For direction of steam and drain inlet/outlet, see installation drawing.

STANDARD SPECIFICATIONS

		Standard Specification	Optional items
Chilled water line	Flow rate	See specification table (constant flow rate)	Variable flow rate (lower limit 50%)
	Temperature	Standard: 12/7degC Large temperature difference: 15/7degC	Outlet temperature 5-12degC
	Max.working press.	0.78MPa (8kg/cm^{2}G)	Max. 2.0MPa
Cooling water line	Flow rate	See specification table (constant flow rate)	Variable flow rate (Minimum 50%)
	Temperature	Standard: Inlet=32degC, Outlet=37degC Inlet temperature lower limit: 20degC	Large temperature difference: Inlet=32degC, Outlet=38.9degC
	Water quality	City water (Based on JRA9001)	Industrial water, Demineralized water (investigation is required)
	Max.working press.	0.78MPa (8kg/cm^{2}G)	Max. 2.0MPa
Installation place	Indoor	Main unit: Anti-corrosive primer coating (without cold/hot insulation)	
	Ambient environment	Ambient temperature: 7-40degC (cooling) Relative humidity: 10-90%RH, Altitude: Max.1000m	In case altitude exceeds 1000m, special design is required
Installation place	Indoor	Main unit: Anti-corrosive primer coating (without cold/hot insulation)	
	Ambient environment	Ambient temperature: 7-40degC (cooling), 2-40degC (heating) Relative humidity: 10-90%RH, Altitude: Max.1000m	In case altitude exceeds 1000m, special design is required
Delivery form		Complete unit carrying in	Dry-shipment, separate shipment (twin module type)
Power source	Phase	3-phase / 4-wires	3-phase / 3-wires
	Voltage-Frequency	380V-50Hz	415V-50Hz, 440V-50Hz, etc.
Wiring cable	Cable on machine	Cabling (control cables, power cables)	
Safety device		Motor overload: Solution pump, Refrigerant pump, etc. Abnormal cycle: HG high temp., HG high press., Refrigerant overcooled, Chilled water flow pressure switch, etc.	Cooling water flow switch, Seismoscope, Band heater,etc.
Control panel		See "Control System"	
Capacity control	Type	PID control	
Purge unit	Type	Accumulate non-condensable gas via solution ejector to purge tank. Discharge accumulated gas by mechanical vacuum pump automatically.	
Steam line	Consumption	See specification table	
	Working pressure	0.780MPa (G)	Please contact Hitachi when the steam supply pressure is other than our standard.
Commissioning	Site commissioning		Commissioning at site (performed only once)

SCOPE OF WORK

Item	Classfication		Arranged by Hitachi	Arranged by customer	Remarks
Transportation	Factory to site		×	○	
Carry-in and installation	Unloading		×	○	
	Site entrance to machine base		×	○	
	Installation and leveling		×	○	
	Parts installation	Anchor bolts and nuts	×	○	
		Liner plates for level adjustment	×	○	
Insulation	Cold and hot surface insulation		×	○	
Finish coating	Chiller unit		×	○	Gray (Anti-Rust Undercoating)
	Control panel		○	×	Paint color: Munsell 5Y7/1 Gloss
Electrical work	Primary power source panel to chiller-heater control panel		×	○	AC380V / 3-phase
	Another power source panel, remote monitoring board, etc. ⟷ Chiller control panel		×	○	Interlock operation of chilled water pump and cooling water pump wiring , wiring between Chiller and DCS, etc.
	Grounding (Earthing)		×	○	
	Cooling water temperature control		×	○	Cooling tower fan start/stop control, three-way valve control, etc.
Related work	Equipment work		×	○	Foundation work, piping work for chilled water/ cooling water/ steam/ water drain
	Parts for installation	Companion flange, gasket, bolts and nuts	×	○	For chilled water and cooling water piping
		Steam control valve and steam pressure gauge	×	○	Prepared by Hitachi and installed, wire connected by customer
Others	Commissioning		○	×	(optional)
	Utilities for commissioning		×	○	Electricity, Chilled water, Cooling water, Steam etc.
	Disposal of packing materials		×	○	
	Technical service after commissioning		○	×	Service contract shall be made between customer and Hitachi local agent for after sales service.

SPECIFICATIONS

EX SERIES (HIGH EFFICIENCY / HEAVY LOAD TYPE)

CHW 12-7°C / CW 32-37°C COP:1.41

Model		HAU-CW	150EX	180EX	240EX	300EX	370EX	400EX	450EX	560EX	600EX	700EX	800EXP	900EXW	1000EXW	1100EXW	1200EXW3	1300EXW3	1400EXW3	1500EXW3	1600EXW3S
Module type		-	Single	Single	Single	Single	Single	Single	Single	Single	Single	Single	Single	Single	Single	Single	Single	Single	Single	Single	Single
Cooling Capacity		kW	527	633	844	1,055	1,301	1,407	1,582	1,969	2,110	2,461	2,813	3,165	3,516	3,868	4,220	4,571	4,923	5,274	5,626
		USRT	150	180	240	300	370	400	450	560	600	700	800	900	1,000	1,100	1,200	1,300	1,400	1,500	1,600
COP		-	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41
Chilled water	Temperature	°C	12-7	12-7	12-7	12-7	12-7	12-7	12-7	12-7	12-7	12-7	12-7	12-7	12-7	12-7	12-7	12-7	12-7	13-7	13-7
	Flow Rate	m^3/h	90.7	108.9	145.2	181.4	223.8	241.9	272.2	338.7	362.9	423.4	483.8	544.3	604.8	665.3	725.8	786.2	846.7	756.0	806.4
	Pressure drop	kPa	115	78	89	75	134	56	77	45	59	89	126	55	74	97	94	116	142	121	144
	Connection Piping Size	DN	100	125	125	150	150	200	200	200	200	250	250	250	300	300	300	300	350	300	300
	Number of Passes	-	Odd	Odd	Even	Odd	Odd	Even	Odd	Even	Even	Even	Even	Even	Even	Even	Even	Even	Even	Even	Even
Cooling water	Temperature	°C	32-37	32-37	32-37	32-37	32-37	32-37	32-37	32-37	32-37	32-37	32-37	32-37	32-37	32-37	32-37	32-37	32-37	32-37	32-37
	Flow Rate	m^3/h	155.2	186.2	248.3	310.4	382.8	413.8	465.6	579.4	620.8	724.2	827.7	931.1	1,034.6	1,138.1	1,241.5	1,345.0	1,448.4	1,551.9	1,655.3
	Pressure drop	kPa	100	80	85	72	127	63	69	123	47	70	95	138	58	75	73	90	108	130	154
	Connection Piping Size	DN	125	150	200	200	200	250	250	250	300	300	300	350	350	400	400	400	450	450	450
	Number of Passes	-	Odd	Odd	Even	Odd	Odd	Even	Odd	Odd	Even	Even	Even	Odd	Even	Even	Even	Even	Even	Even	Even
Power source	Apparent electric power	kVA	8.9	10.8	10.8	12.2	12.2	12.2	15.8	15.8	15.8	15.8	15.8	17.6	21.8	25.0	25.0	25.0	25.0	25.0	25.0
	Power consumption	kW	7.1	8.6	8.6	9.8	9.8	9.8	12.6	12.6	12.6	12.6	12.6	14.1	17.5	20.0	20.0	20.0	20.0	20.0	20.0
Motor output	Solution pump	kW	2.2+1.1	2.2+2.2	2.2+2.2	3.0+2.2	3.0+2.2	3.0+2.2	5.5+2.2	5.5+2.2	5.5+2.2	5.5+2.2	5.5+2.2	5.5+2.2	7.5+2.2	7.5+3.7	7.5+3.7	7.5+3.7	7.5+3.7	7.5+3.7	7.5+3.7
	Refrigerant pump	kW	0.2	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	1.3	1.3	1.5	1.5	1.5	1.5	1.5	1.5
	Vacuum pump	kW	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Steam	Consumption	kg/h	545	653	871	1,089	1,343	1,452	1,634	2,033	2,178	2,541	2,904	3,267	3,630	3,993	4,356	4,719	5,082	5,445	5,808
	Consumption rate	kg/(h・RT)	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63
	Inlet pressure	kPa(G)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)
	Inlet pipe connection size	A	65	65	65	65	80	80	100	100	100	125	125	125	125	150	150	150	150	150	200
	Outlet pipe connection size	A	20	20	20	25	25	25	25	32	32	32	32	32	40	40	40	50	50	50	50
Dimension (Indoor)	Length (L)	mm	3,000	3,600	4,300	4,800	5,800	6,300	4,870	5,870	6,400	7,200	8,100	6,800	7,400	8,100	8,100	8,600	9,100	9,600	10,100
	Width (W)	mm	2,290	2,400	2,400	2,400	2,400	2,400	2,550	2,550	2,550	2,550	2,550	3,100	3,100	3,100	3,100	3,100	3,100	3,100	3,100
	Height (H)	mm	2,550	2,550	2,550	2,550	2,550	2,550	3,102	3,102	3,102	3,102	3,102	3,150	3,150	3,150	3,300	3,300	3,300	3,300	3,300
	Tube extraction length	mm	2,000	2,550	3,200	4,000	5,000	5,500	4,000	5,000	5,500	6,300	7,000	5,700	6,300	7,000	7,000	7,500	8,000	8,500	9,000
Operation weight		t	7.2	8.5	9.9	11.6	15.8	17.6	17.1	21.8	24.3	26.9	30.1	33.5	36.5	39.4	44.1	47.1	50.1	53.2	56.2
Shipping weight (Single unit)		t	6.6	7.8	9.1	10.6	14.4	16.2	15.3	19.7	22.0	24.4	27.2	29.7	32.4	35.0	38.9	41.6	44.4	47.2	50.0
Insulation area	Hot	m^2	19	21	24	28	33	36	33	39	40	41	46	50	53	58	64	70	76	82	88
	Cold	m^2	8	10	12	14	17	18	14	17	19	20	23	32	35	38	43	46	48	51	53
Water volume	Chilled water	m^3	0.21	0.25	0.30	0.36	0.46	0.50	0.55	0.65	0.71	0.79	0.88	1.24	1.34	1.46	1.68	1.80	1.89	1.99	2.08
	Cooling water	m^3	0.33	0.39	0.46	0.56	0.83	0.89	1.17	1.39	1.48	1.61	1.88	2.36	2.52	2.71	3.28	3.40	3.55	3.70	3.85

Notes
1. 1 USRT is 3.516 kW (3,024 kcal/h)
2. Chilled water and Cooling water quality shall be controlled in accordance with JRA-GL-02-1994
3. Capacity control range is 100% - 20%.
4. Scale factor is 0.086 m2K/kW (0.0005 ft2hF/BTU) for both chilled water and cooling water.
5. Maximum working pressure is 780 kPa(G) (8kgf/cm2G) for both chilled water and cooling water.
6. Above COP does not include power consumption.
7. Specifications in this catalogue are subject to change without notice.
8. Contact your nearest Hitachi-Johnson Controls Air Conditioning, Inc distributor or representative for models of steam inlet temperature condition below 0.780MPaG.

SPECIFICATIONS

EX SERIES (HIGH EFFICIENCY / HEAVY LOAD TYPE)

CHW 12-7°C / CW 32-37°C COP:1.41

Model		HAU-CW	1000EXW4	1120EXW4	1250EXW4	1400EXW4	1500EXW4	1600EXW4	1680EXW4	1800EXW4	1900EXW4	2000EXW4	1800EXW2	2000EXW2	2240EXW2	2500EXW2	2800EXW2	2000EXW5	2240EXW5	2500EXW5
Module type		-	Single	Single	Single	Single	Single	Single	Single	Single	Single	Single	Twin	Twin	Twin	Twin	Twin	Twin	Twin	Twin
Cooling Capacity		kW	3,516	3,938	4,395	4,923	5,274	5,626	5,907	6,329	6,681	7,033	3,165	7,033	7,876	8,791	9,846	7,033	7,876	8,791
		USRT	1,000	1,120	1,250	1,400	1,500	1,600	1,680	1,800	1,900	2,000	900	2,000	2,240	2,500	2,800	2,000	2,240	2,500
COP		-	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41
Chilled water	Temperature	°C	12-7	12-7	12-7	12-7	12-7	12-7	12-7	13-7	13-7	13-7	12-7	12-7	12-7	12-7	13-7	12-7	12-7	12-7
	Flow Rate	m^3/h	604.8	677.4	756.0	846.7	907.2	967.7	1,016.1	907.2	957.6	1,008.0	544.3	1,209.6	1,354.8	1,512.0	1,411.2	1,209.6	1,354.8	1,512.0
	Pressure drop	kPa	101	141	61	82	100	119	139	117	137	160	55	80	113	155	150	77	108	149
	Connection Piping Size	DN	300	300	300	350	350	350	400	350	350	400	250	300×2	300×2	300×2	300×2	300×2	300×2	300×2
	Number of Passes	-	Odd	Odd	Even	Even	Even	Even	Even	Even	Even	Even	Even	Even	Even	Even	Even	Even	Even	Even
Cooling water	Temperature	°C	32-37	32-37	32-37	32-37	32-37	32-37	32-37	32-38	32-38	32-38	32-37	32-37	32-37	32-37	32-38	32-37	32-37	32-37
	Flow Rate	m^3/h	1,034.6	1,158.7	1,293.2	1,448.4	1,551.9	1,655.3	1,738.1	1,551.9	1,638.1	1,724.3	931.1	2,069.2	2,317.5	2,586.5	2,414.0	2,069.2	2,317.5	2,586.5
	Pressure drop	kPa	78	106	58	78	93	111	126	108	125	143	138	73	99	136	133	73	98	133
	Connection Piping Size	DN	350	400	400	450	450	450	450	450	450	450	350	350×2	400×2	400×2	400×2	350×2	400×2	400×2
	Number of Passes	-	Odd	Odd	Even	Even	Even	Even	Even	Even	Even	Even	Odd	Even	Even	Even	Even	Even	Even	Even
Power source	Apparent electric power	kVA	25.0	25.0	25.0	25.0	25.0	25.0	25.0	37.4	37.4	37.4	35.2	43.6	50.0	50.0	50.0	43.6	50.0	50.0
	Power consumption	kW	20.0	20.0	20.0	20.0	20.0	20.0	20.0	29.9	29.9	29.9	28.2	35.0	40.0	40.0	40.0	35.0	40.0	40.0
Motor output	Solution pump	kW	7.5+3.7	7.5+3.7	7.5+3.7	7.5+3.7	7.5+3.7	7.5+3.7	7.5+3.7	11+7.5	11+7.5	11+7.5	5.5×2+2.2×2	7.5×2+2.2×2	7.5×2+3.7×2	7.5×2+3.7×2	7.5×2+3.7×2	7.5×2+2.2×2	7.5×2+3.7×2	7.5×2+3.7×2
	Refrigerant pump	kW	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.2	2.2	2.2	1.3×2	1.3×2	1.5×2	1.5×2	1.5×2	1.3×2	1.5×2	1.5×2
	Vacuum pump	kW	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Steam	Consumption	kg/h	3,630	4,066	4,538	5,082	5,445	5,808	6,098	6,534	6,897	7,260	3,267	7,260	8,131	9,075	10,164	7,260	8,131	9,075
	Consumption rate	kg/(h・RT)	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63
	Inlet pressure	kPa(G)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)
	Inlet pipe connection size	A	125	125	150	150	150	200	200	200	200	200	150	150	150	200	200	150	150	200
	Outlet pipe connection size	A	40	40	40	50	50	50	50	50	50	50	32×2	40×2	40×2	40×2	50×2	40×2	40×2	40×2
Dimension (Indoor)	Length (L)	mm	6,000	6,700	7,300	8,000	8,500	9,000	9,500	10,000	10,500	11,000	7,500	8,200	9,200	10,200	11,200	8,200	9,200	10,200
	Width (W)	mm	3,100	3,100	3,100	3,100	3,100	3,100	3,100	3,100	3,100	3,100	5,300	5,300	5,300	5,300	5,300	4,800	4,800	4,800
	Height (H)	mm	3,900	3,900	3,900	3,900	3,900	3,900	3,900	3,900	3,900	3,900	3,500	3,500	3,500	3,500	3,500	4,000	4,000	4,000
	Tube extraction length	mm	5,000	5,700	6,300	7,000	7,500	8,000	8,500	9,000	9,500	10,000	6,300	7,000	8,000	9,000	10,000	7,000	8,000	9,000
Operation weight		t	40.3	45.2	48.9	53.3	56.5	59.8	61.5	64.7	68.1	71.4	72.5	78.3	87.4	97.8	106.0	80.0	90.0	100.0
Shipping weight (Single unit)		t	34.5	38.9	42.2	46.2	49.1	43.5	44.6	47.0	49.5	35.3	32.4	35.0	38.3	43.1	46.7	36.0	40.0	44.4
Insulation area	Hot	m^2	40	45	49	53	56	59	63	66	69	72	106	116	120	132	144	107	122	137
	Cold	m^2	34	37	40	44	47	49	52	54	57	59	70	76	86	96	106	81	90	101
Water volume	Chilled water	m^3	2.09	2.25	2.40	2.56	2.68	2.79	2.91	3.03	3.15	3.26	2.68	2.92	4.20	4.60	5.00	3.96	4.44	5.00
	Cooling water	m^3	3.53	3.80	4.03	4.29	4.48	4.68	4.87	5.06	5.25	5.44	5.04	5.42	6.60	7.00	7.60	5.00	5.60	6.30

Notes
1. 1 USRT is 3.516 kW (3,024 kcal/h)
2. Chilled/Hot water and Cooling water quality should be controlled in accordance with JRA-GL-02-1994
3. Capacity control range is 100% - 20%.
4. Scale factor is 0.086 m2K/kW (0.0005 ft2hF/BTU) for both chilled water and cooling water.
5. Maximum working pressure is 780 kPa(G) (8kgf/cm2G) for both chilled water and cooling water.
6. Above COP does not include power consumption.
7. Dry shipment is necessary for 1600EXW4~1900EXW4.
8. 2000EXW4 will be separate shipment and site welding is necessary after installation.
9. Specifications in this catalogue are subject to change without notice.
10. Contact your nearest Hitachi-Johnson Controls Air Conditioning, Inc distributor or representative for models of steam inlet temperature condition below 0.780MPaG.

EX SERIES (HIGH EFFICIENCY / HEAVY LOAD TYPE)

CHW 12-7°C / CW 32-37°C COP:1.41

Model		HAU-CW	2800EXW5	3000EXW4	3200EXW4	3360EXW4	3600EXW4	3800EXW4	4000EXW4
Module type		-	Twin	Twin	Twin	Twin	Twin	Twin	Twin
Cooling Capacity		kW	9,846	10,549	11,252	11,815	12,659	13,362	14,065
		USRT	2,800	3,000	3,200	3,360	3,600	3,800	4,000
COP		-	1.41	1.41	1.41	1.41	1.41	1.41	1.41
Chilled water	Temperature	°C	13-7	12-7	12-7	12-7	13-7	13-7	13-7
	Flow Rate	m^3/h	1,411.2	1,814.4	1,935.4	2,032.1	1814.4	1,915.2	2,016.0
	Pressure drop	kPa	150	100	119	139	117	137	160
	Connection Piping Size	DN	300×2	350×2	350×2	400×2	350×2	350×2	400×2
	Number of Passes	-	Even	Even	Even	Even	Even	Even	Even
Cooling water	Temperature	°C	32-38	32-37	32-37	32-37	32-38	32-38	32-38
	Flow Rate	m^3/h	2,414.0	3,103.8	3,310.7	3,476.2	3,103.8	3,276.2	3,448.6
	Pressure drop	kPa	130	93	111	126	108	125	143
	Connection Piping Size	DN	400×2	450×2	450×2	450×2	450×2	450×2	450×2
	Number of Passes	-	Even	Even	Even	Even	Even	Even	Even
Power source	Apparent electric power	kVA	50.0	50.0	50.0	50.0	74.8	74.8	74.8
	Power consumption	kW	40.0	40.0	40.0	40.0	59.8	59.8	59.8
Motor output	Solution pump	kW	7.5×2+3.7×2	7.5×2+3.7×2	7.5×2+3.7×2	7.5×2+3.7×2	11×2+7.5×2	11×2+7.5×2	11×2+7.5×2
	Refrigerant pump	kW	1.5×2	1.5×2	1.5×2	1.5×2	2.2×2	2.2×2	2.2×2
	Vacuum pump	kW	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Steam	Consumption	kg/h	10,164	10,890	11,616	12,197	13,068	13,794	14,520
	Consumption rate	kg/(h・RT)	3.63	3.63	3.63	3.63	3.63	3.63	3.63
	Inlet pressure	kPa(G)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)
	Inlet pipe connection size	A	200	200	250	250	250	250	250
	Outlet pipe connection size	A	50×2	50×2	50×2	50×2	50×2	50×2	50×2
Dimension (Indoor)	Length (L)	mm	11,200	8,700	9,200	9,700	10,200	10,700	11,200
	Width (W)	mm	4,800	5,900	5,900	5,900	5,900	5,900	5,900
	Height (H)	mm	4,000	4,100	4,100	4,100	4,100	4,100	4,100
	Tube extraction length	mm	10,000	7,500	8,000	8,500	9,000	9,500	10,000
Operation weight		t	109.0	113.0	119.6	123.0	129.4	136.2	142.8
Shipping weight (Single unit)		t	47.8	49.1	43.5	44.6	47.0	49.5	35.3
Insulation area	Hot	m^2	150	112	118	126	132	138	144
	Cold	m^2	110	94	98	104	108	114	118
Water volume	Chilled water	m^3	5.50	5.36	5.58	5.82	6.06	6.30	6.52
	Cooling water	m^3	8.00	8.96	9.36	9.74	10.12	10.50	10.88

Notes
1. 1 USRT is 3.516 kW (3,024 kcal/h)
2. Chilled water and Cooling water quality should be controlled in accordance with JRA-GL-02-1994
3. Capacity control range is 100% - 20%.
4. Scale factor is 0.086 m2K/kW (0.0005 ft2hF/BTU) for both chilled water and cooling water.
5. Maximum working pressure is 780 kPa(G) (8kgf/cm2G) for both chilled water and cooling water.
6. Above COP does not include power consumption.
7. Dry shipment is necessary for 3200EXW4~3800EXW4.
8. 4000EXW4 will be separate shipment and site welding is necessary after installation.
9. Specifications in this catalogue are subject to change without notice.
10. Contact your nearest Hitachi-Johnson Controls Air Conditioning, Inc distributor or representative for models of steam inlet temperature condition below 0.780MPaG.

SPECIFICATIONS

EXS SERIES (STANDARD EFFICIENCY / HEAVY LOAD TYPE)

CHW 12-7°C / CW 32-37°C COP:1.35

Model		HAU-CW	150EXS	180EXS	240EXS	300EXS	370EXS	400EXS	450EXS
Module type		-	Single	Single	Single	Single	Single	Single	Single
Cooling Capacity		kW	527	633	844	1,055	1,301	1,407	1,582
		USRT	150	180	240	300	370	400	450
COP		-	1.35	1.35	1.35	1.35	1.35	1.35	1.35
Chilled water	Temperature	°C	12-7	12-7	12-7	12-7	12-7	12-7	12-7
	Flow Rate	m^3/h	90.7	108.9	145.2	181.4	223.8	241.9	272.2
	Pressure drop	kPa	115	78	89	75	134	56	77
	Connection Piping Size	DN	100	125	125	150	150	200	200
	Number of Passes	-	Odd	Odd	Even	Odd	Odd	Even	Odd
Cooling water	Temperature	°C	32-37	32-37	32-37	32-37	32-37	32-37	32-37
	Flow Rate	m^3/h	158.2	189.8	253.1	316.3	390.1	421.8	474.5
	Pressure drop	kPa	104	84	89	75	134	66	73
	Connection Piping Size	DN	125	150	200	200	200	250	250
	Number of Passes	-	Odd	Odd	Even	Odd	Odd	Even	Odd
Power source	Apparent electric power	kVA	8.9	10.8	10.8	12.2	12.2	12.2	15.8
	Power consumption	kW	7.1	8.6	8.6	9.8	9.8	9.8	12.6
Motor output	Solution pump	kW	2.2+1.1	2.2+2.2	2.2+2.2	3.0+2.2	3.0+2.2	3.0+2.2	5.5+2.2
	Refrigerant pump	kW	0.2	0.4	0.4	0.4	0.4	0.4	0.4
	Vacuum pump	kW	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Steam	Consumption	kg/h	590	707	943	1,179	1,454	1,572	1,769
	Consumption rate	kg/(h・RT)	3.93	3.93	3.93	3.93	3.93	3.93	3.93
	Inlet pressure	kPa(G)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)
	Inlet pipe connection size	A	65	65	65	65	80	80	100
	Outlet pipe connection size	A	20	20	20	25	25	25	25
Dimension (Indoor)	Length (L)	mm	3,000	3,600	4,300	4,800	5,800	6,300	4,870
	Width (W)	mm	2,290	2,400	2,400	2,400	2,400	2,400	2,550
	Height (H)	mm	2,550	2,550	2,550	2,550	2,550	2,550	3,102
	Tube extraction length	mm	2,000	2,550	3,200	4,000	5,000	5,500	4,000
Operation weight		t	6.7	7.9	9.2	10.7	15.1	16.9	16.4
Shipping weight (Single unit)		t	6.1	7.2	8.4	9.7	13.7	15.5	14.6
Insulation area	Hot	m^2	19	21	24	28	33	36	33
	Cold	m^2	8	10	12	14	17	18	14
Water volume	Chilled water	m^3	0.21	0.25	0.30	0.36	0.46	0.50	0.55
	Cooling water	m^3	0.33	0.39	0.46	0.56	0.83	0.89	1.17

Notes
1. 1 USRT is 3.516 kW (3,024 kcal/h)
2. Chilled water and Cooling water quality should be controlled in accordance with JRA-GL-02-1994
3. Capacity control range is 100% - 20%.
4. Scale factor is 0.086 m2K/kW (0.0005 ft2hF/BTU) for both chilled water and cooling water.
5. Maximum working pressure is 780 kPa(G) (8kgf/cm2G) for both chilled water and cooling water.
6. Above COP does not include power consumption.
7. Specifications in this catalogue are subject to change without notice.
8. Contact your nearest Hitachi-Johnson Controls Air Conditioning, Inc distributor or representative for models of steam inlet temperature condition below 0.780MPaG.

SPECIFICATIONS

EXS SERIES (STANDARD EFFICIENCY / HEAVY LOAD TYPE)

CHW 12-7°C / CW 32-37°C COP:1.35

Model		HAU-CW	500EXS	560EXS	600EXS	700EXS	800EXPS	900EXWS	1000EXWS	1100EXWS	1200EXW3S	1300EXW3S	1400EXW3S	1500EXW3S	1600EXW3S	1000EXW4S	1120EXW4S	1250EXW4S	1400EXW4S	1500EXW4S	1600EXW4S
Module type		-	Single	Single	Single	Single	Single	Single	Single	Single	Single	Single	Single	Single	Single	Single	Single	Single	Single	Single	Single
Cooling Capacity		kW	1,758	1,969	2,110	2,461	2,813	3,165	3,516	3,868	4,220	4,571	4,923	5,274	5,626	3,516	3,938	4,395	4,923	5,274	5,626
		USRT	500	560	600	700	800	900	1,000	1,100	1,200	1,300	1,400	1,500	1,600	1,000	1,120	1,250	1,400	1,500	1,600
COP		-	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
Chilled water	Temperature	°C	12-7	12-7	12-7	12-7	12-7	12-7	12-7	12-7	12-7	12-7	12-7	13-7	13-7	12-7	12-7	12-7	12-7	12-7	12-7
	Flow Rate	m^3/h	302.4	338.7	362.9	423.4	483.8	544.3	604.8	665.3	725.8	786.2	846.7	756.0	806.4	604.8	677.4	756.0	846.7	907.2	967.7
	Pressure drop	kPa	105	45	59	89	126	55	74	97	94	116	142	121	144	101	141	61	82	100	119
	Connection Piping Size	DN	200	200	200	250	250	250	300	300	300	300	350	300	300	300	300	300	350	350	350
	Number of Passes	-	Odd	Even	Even	Even	Even	Even	Even	Even	Even	Even	Even	Even	Even	Odd	Odd	Even	Even	Even	Even
Cooling water	Temperature	°C	32-37	32-37	32-37	32-37	32-37	32-37	32-37	32-37	32-37	32-37	32-37	32-37	32-37	32-37	32-37	32-37	32-37	32-37	32-37
	Flow Rate	m^3/h	527.2	590.5	632.6	738.1	843.5	949.0	1,054.4	1,159.8	1,265.3	1,370.7	1,476.1	1,581.6	1,687.0	1,054.4	1,180.9	1,318.0	1,476.1	1,581.6	1,687.0
	Pressure drop	kPa	96	129	51	74	100	146	62	80	77	94	115	135	159	85	117	63	81	97	115
	Connection Piping Size	DN	250	250	300	300	300	350	350	400	400	400	450	450	450	350	400	400	450	450	450
	Number of Passes	-	Odd	Odd	Even	Even	Even	Odd	Even	Even	Even	Even	Even	Even	Even	Odd	Even	Even	Even	Even	Even
Power source	Apparent electric power	kVA	15.8	15.8	15.8	15.8	15.8	17.6	21.8	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
	Power consumption	kW	12.6	12.6	12.6	12.6	12.6	14.1	17.5	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Motor output	Solution pump	kW	5.5+2.2	5.5+2.2	5.5+2.2	5.5+2.2	5.5+2.2	5.5+2.2	7.5+2.2	7.5+3.7	7.5+3.7	7.5+3.7	7.5+3.7	7.5+3.7	7.5+3.7	7.5+3.7	7.5+3.7	7.5+3.7	7.5+3.7	7.5+3.7	7.5+3.7
	Refrigerant pump	kW	0.4	0.4	0.4	0.4	0.4	1.3	1.3	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
	Vacuum pump	kW	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Steam	Consumption	kg/h	1,965	2,201	2,358	2,751	3,144	3,537	3,930	4,323	4,716	5,109	5,502	5,895	6,288	3,930	4,402	4,913	5,502	5,895	6,288
	Consumption rate	kg/(h・RT)	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93
	Inlet pressure	kPa(G)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)
	Inlet pipe connection size	A	100	100	100	125	125	125	125	150	150	150	150	150	200	125	125	150	150	150	200
	Outlet pipe connection size	A	25	32	32	32	32	32	40	40	40	50	50	50	50	40	40	40	50	50	50
Dimension (Indoor)	Length (L)	mm	5,370	5,870	6,400	7,200	8,100	6,800	7,400	8,100	8,100	8,600	9,100	9,600	10,100	6,000	6,700	7,300	8,000	8,500	9,000
	Width (W)	mm	2,550	2,550	2,550	2,550	2,550	3,100	3,100	3,100	3,100	3,100	3,100	3,100	3,100	3,100	3,100	3,100	3,100	3,100	3,100
	Height (H)	mm	3,102	3,102	3,102	3,102	3,102	3,150	3,150	3,150	3,300	3,300	3,300	3,300	3,300	3,900	3,900	3,900	3,900	3,900	3,900
	Tube extraction length	mm	4,500	5,000	5,500	6,300	7,000	5,700	6,300	7,000	7,000	7,500	8,000	8,500	9,000	5,000	5,700	6,300	7,000	7,500	8,000
Operation weight		t	18.6	20.8	23.1	25.6	28.5	31.9	34.5	37.4	41.9	44.8	47.7	50.5	53.4	38.7	43.2	46.9	51.1	54.2	57.3
Shipping weight (Single unit)		t	16.6	18.6	20.9	23.1	25.6	28.1	30.4	33.0	36.7	39.3	41.9	44.6	47.2	32.9	37.0	40.2	44.0	46.8	49.0
Insulation area	Hot	m^2	36	39	40	41	46	50	53	58	64	70	76	82	88	40	45	49	53	56	59
	Cold	m^2	16	17	19	20	23	32	35	38	43	46	48	51	53	34	37	40	44	47	49
Water volume	Chilled water	m^3	0.60	0.65	0.71	0.79	0.88	1.24	1.34	1.46	1.68	1.80	1.89	1.99	2.08	2.09	2.25	2.40	2.56	2.68	2.79
	Cooling water	m^3	1.25	1.39	1.48	1.61	1.88	2.36	2.52	2.71	3.28	3.40	3.55	3.70	3.85	3.53	3.80	4.03	4.29	4.48	4.68

Notes
1. 1 USRT is 3.516 kW (3,024 kcal/h)
2. Chilled water and Cooling water quality should be controlled in accordance with JRA-GL-02-1994
3. Capacity control range is 100% - 20%.
4. Scale factor is 0.086 m2K/kW (0.0005 ft2hF/BTU) for both chilled water and cooling water.
5. Maximum working pressure is 780 kPa(G) (8kgf/cm2G) for both chilled water and cooling water.
6. Above COP does not include power consumption.
7. Specifications in this catalogue are subject to change without notice.
8. Contact your nearest Hitachi-Johnson Controls Air Conditioning, Inc distributor or representative for models of steam inlet temperature condition below 0.780MPaG.

SPECIFICATIONS

EXS SERIES (STANDARD EFFICIENCY / HEAVY LOAD TYPE)

CHW 12-7°C / CW 32-37°C COP:1.35

Model		HAU-CW	1680EXW4S	1800EXW4S	1900EXW4S	2000EXW4S	1800EXW2S	2000EXW2S	2240EXW2S	2500EXW2S	2800EXW2S	2000EXW5S	2240EXW5S	2500EXW5S	2800EXW5S	3000EXW4S	3200EXW4S	3360EXW4S	3600EXW4S	3800EXW4S	4000EXW4S
Module type		-	Single	Single	Single	Single	Twin	Twin	Twin	Twin	Twin	Twin	Twin	Twin	Twin	Twin	Twin	Twin	Twin	Twin	Twin
Cooling Capacity		kW	5,907	6,329	6,681	7,033	6,329	7,033	7,876	8,791	9,846	7,033	7,876	8,791	9,846	10,549	11,252	11,815	12,659	13,362	14,065
		USRT	1,680	1,800	1,900	2,000	1,800	2,000	2,240	2,500	2,800	2,000	2,240	2,500	2,800	3,000	3,200	3,360	3,600	3,800	4,000
COP		-	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
Chilled water	Temperature	°C	12-7	13-7	13-7	13-7	12-7	12-7	12-7	12-7	13-7	12-7	12-7	12-7	13-7	12-7	12-7	12-7	13-7	13-7	13-7
	Flow Rate	m^3/h	1,016.1	907.2	957.6	1,008.0	1,088.6	1,209.6	1,354.8	1,512.0	1,411.2	1,209.6	1,354.8	1,512.0	1,411.2	1,814.4	1,935.4	2,032.1	1814.4	1,915.2	2,016.0
	Pressure drop	kPa	139	117	137	160	55	80	113	155	150	77	108	149	150	100	119	139	117	137	160
	Connection Piping Size	DN	400	350	350	400	250	300×2	300×2	300×2	300×2	300×2	300×2	300×2	300×2	350×2	350×2	400×2	350×2	350×2	400×2
	Number of Passes	-	Even	Even	Even	Even	Even	Even	Even	Even	Even	Even	Even	Even	Even	Even	Even	Even	Even	Even	Even
Cooling water	Temperature	°C	32-37	32-38	32-38	32-38	32-37	32-37	32-37	32-37	32-38	32-37	32-37	32-37	32-38	32-37	32-37	32-37	32-38	32-38	32-38
	Flow Rate	m^3/h	1,771.4	1,581.6	1,669.5	1,757.3	1,897.9	2,108.8	2,361.8	2,636.0	2,460.2	2,108.8	2,361.8	2,636.0	2,460.2	3,163.2	3,374.1	3,542.8	3,163.2	3,338.9	3,514.6
	Pressure drop	kPa	131	112	133	149	143	76	103	141	138	76	102	138	135	97	115	131	112	130	149
	Connection Piping Size	DN	450	450	450	450	350	350×2	400×2	400×2	400×2	350×2	400×2	400×2	400×2	450×2	450×2	450×2	450×2	450×2	450×2
	Number of Passes	-	Even	Even	Even	Even	Odd	Even	Even	Even	Even	Even	Even	Even	Even	Even	Even	Even	Even	Even	Even
Power source	Apparent electric power	kVA	25.0	37.4	37.4	37.4	35.2	43.6	50.0	50.0	50.0	43.6	50.0	50.0	50.0	50.0	50.0	50.0	74.8	74.8	74.8
	Power consumption	kW	20.0	29.9	29.9	29.9	28.2	35.0	40.0	40.0	40.0	35.0	40.0	40.0	40.0	40.0	40.0	40.0	59.8	59.8	59.8
Motor output	Solution pump	kW	7.5+3.7	11+7.5	11+7.5	11+7.5	5.5×2+2.2×2	7.5×2+2.2×2	7.5×2+3.7×2	7.5×2+3.7×2	7.5×2+3.7×2	7.5×2+2.2×2	7.5×2+3.7×2	7.5×2+3.7×2	7.5×2+3.7×2	7.5×2+3.7×2	7.5×2+3.7×2	7.5×2+3.7×2	11×2+7.5×2	11×2+7.5×2	11×2+7.5×2
	Refrigerant pump	kW	1.5	2.2	2.2	2.2	1.3×2	1.3×2	1.5×2	1.5×2	1.5×2	1.3×2	1.5×2	1.5×2	1.5×2	1.5×2	1.5×2	1.5×2	2.2×2	2.2×2	2.2×2
	Vacuum pump	kW	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Steam	Consumption	kg/h	6,602	7,074	7,467	7,860	7,074	7,860	8,803	9,825	11,004	7,860	8,803	9,825	11,004	11,790	12,576	13,205	14,148	14,934	15,720
	Consumption rate	kg/(h・RT)	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93	3.93
	Inlet pressure	kPa(G)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)	780 (Saturated)
	Inlet pipe connection size	A	200	200	200	200	150	150	150	200	200	150	150	200	200	200	250	250	250	250	250
	Outlet pipe connection size	A	50	50	50	50	32×2	40×2	40×2	40×2	50×2	40×2	40×2	40×2	50×2	50×2	50×2	50×2	50×2	50×2	50×2
Dimension (Indoor)	Length (L)	mm	9,500	10,000	10,500	11,000	7,500	8,200	9,200	10,200	11,200	8,200	9,200	10,200	11,200	8,700	9,200	9,700	10,200	10,700	11,200
	Width (W)	mm	3,100	3,100	3,100	3,100	5,300	5,300	5,300	5,300	5,300	4,800	4,800	4,800	4,800	5,900	5,900	5,900	5,900	5,900	5,900
	Height (H)	mm	3,900	3,900	3,900	3,900	3,500	3,500	3,500	3,500	3,500	4,000	4,000	4,000	4,000	4,100	4,100	4,100	4,100	4,100	4,100
	Tube extraction length	mm	8,500	9,000	9,500	10,000	6,300	7,000	8,000	9,000	10,000	7,000	8,000	9,000	10,000	7,500	8,000	8,500	9,000	9,500	10,000
Operation weight		t	58.7	61.8	64.9	67.9	69.6	75.2	83.9	93.9	101.8	76.8	86.4	96.0	104.6	108.4	114.6	117.4	123.6	129.8	135.8
Shipping weight (Single unit)		t	42.5	44.8	47.0	49.3	31.1	33.6	36.8	41.4	44.8	34.6	38.4	42.6	45.9	46.8	49.0	42.5	44.8	47.0	49.3
Insulation area	Hot	m^2	63	66	69	72	106	116	120	132	144	107	122	137	150	112	118	126	132	138	144
	Cold	m^2	52	54	57	59	70	76	86	96	106	81	90	101	110	94	98	104	108	114	118
Water volume	Chilled water	m^3	2.91	3.03	3.15	3.26	2.68	2.92	4.20	4.60	5.00	3.96	4.44	5.00	5.50	5.36	5.58	5.82	6.06	6.30	6.52
	Cooling water	m^3	4.87	5.06	5.25	5.44	5.04	5.42	6.60	7.00	7.60	5.00	5.60	6.30	8.00	8.96	9.36	9.74	10.12	10.50	10.88

Notes
1. 1 USRT is 3.516 kW (3,024 kcal/h)
2. Chilled water and Cooling water quality should be controlled in accordance with JRA-GL-02-1994
3. Capacity control range is 100% - 20%.
4. Scale factor is 0.086 m2K/kW (0.0005 ft2hF/BTU) for both chilled water and cooling water.
5. Maximum working pressure is 780 kPa(G) (8kgf/cm2G) for both chilled water and cooling water.
6. Above COP does not include power consumption.
7. Dry shipment is necessary for 1680EXW4S~2000EXW4S, 3360EXW4S~4000EXW4S.
8. Specifications in this catalogue are subject to change without notice.
9. Contact your nearest Hitachi-Johnson Controls Air Conditioning, Inc distributor or representative for models of steam inlet temperature condition below 0.780MPaG.