



EBARA

HFC 407C REFRIGERANT MODEL (Water-Cooled)

EBARA SCREW MODULE CHILLER

MODEL RHSDW Series

※MODEL - XXX in this catalog is our model code



APPLY for NEW MICROPROCESSOR, ACHIEVE & COVER LARGE CAPACITY

FEATURE

Apply for New Microprocessor, Becomes Easy Chiller Operation

- ◆Microprocessor; Controls up to 8 modules for large capacity, Enables flexible building design. (applicable from 207kW to 3360kW)
- ◆Microprocessor; Indicate operating ref. cycle condition on display for easy chiller management & maintenance.
- ◆Microprocessor; 6 points of Operating status (D/O) selected from total 30 points and 3 signals (A/O) selected from 15 i.e. chilled water, cooling water, refrigerant temperature or pressure are able to send to DCS.
- ◆Microprocessor; Able to control each chilled & cooling water pumps, which is installed in each modular chillers for energy saving. Standard system to install one chilled & one cooling water for one chiller (a few modules up to 8 modules)

Zero ODP* REFRIGERANT HFC-407C is applied for Module chiller

Hermetic type leakless compressor is applied and easy to add a few modules for increasing capacity. Module chiller has many modules, it means high reliability design

*ODP: Ozone Depletion Potential

OUR PROPOSAL for RENEWAL PROJECT

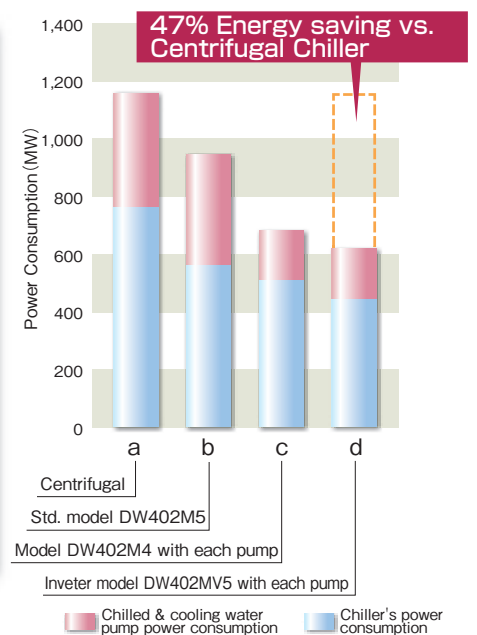
For Replacement, Compact modules chiller is easy to install in the machine room.

For Save Energy, Chilled & Cooling water pumps are installed each by each modules. Operating cost is easy to save at partial load condition.

Pattern	a	b	Our Recommendation	
Machine Type	Centrifugal Chiller	Screw Module chiller model DW402M5	Screw Module chiller model DW402M5	Screw Module chiller model DW402MV5 with Inverter
Setting Flow				
Operating Pump Style	One Pump for chiller	One pump for 5 modules chiller	Each Module has one pump	Each Module has one pump
Unit Control	Non	Control	Control	Control

Comparison Condition:
Design capacity 1800kW, Load condition Hotel in Japan
Chilled water pump head & cooling water pump head: 20mH₂O and 30 degC

Fig. 1 Comparison for Replace job Hotel in Japan



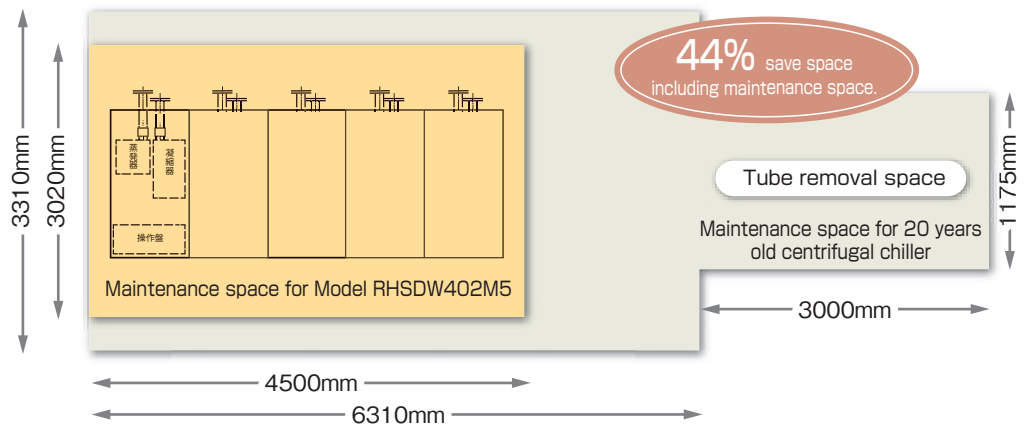
New Microprocessor panel can control modules up to 8 modules. Module chillers are easy to replace and good for reliability.

- ◆Skip back up feature: If one module is failed, other module starts for back up.
- ◆Rotation feature: Keep constant operation hours for rotating modules.
- ◆Optimum Operation Feature: Control optimum operation modules under partial load condition
(Pumps interlocking operation expect more energy saving)

Save Space: Chiller's foot print becomes smaller

Compared with 20 years old model, Module chiller's installation space becomes smaller. Also tube removal space is not required, such space can be used for other purpose.

Comparison between Module chiller and 20 years old centrifugal chiller under same capacity



Several

Not only compact design but also separate module by module, even if narrow installation passage, we can carry it into the machine room. As model DW202M1 module's weight is less than 1000kg, using conventional Lift is able to carry it into the machine room. Also Module chiller can be carried by overturned installation.



Image picture of Lift instalation.



Overturned installation (Option)

Model RHSDW202M Standard performance

MODEL: RHSDW		202M1		202M2		202M3		202M4		202M5		202M6		202M7		202M8		
Cycle	Hz	50	60	50	60	50	60	50	60	50	60	50	60	50	60	50	60	
Capacity	kW	207	241	414	482	621	723	828	964	1035	1205	1242	1446	1449	1687	1656	1928	
Number of Modules		1		2		3		4		5		6		7		8		
Chilled water	Leaving Temperature	°C	7															
	Flow rate(*)	L/min	590	690	1180	1380	1780	2070	2370	2760	2960	3450	3560	4150	4150	4840	4750	5530
	Pressure drop(*)	kPa	57	76	57	76	57	76	57	76	57	76	57	76	57	76	57	76
	Connection Size(**)	mm	65															
	Header Size(***)	mm	—		80		100		125		125		150		150		200	
Cooling water	Flow rate(*)	L/min	710	840	1430	1680	2140	2510	2860	3350	3570	4190	4290	5030	5000	5870	5720	6710
	Pressure drop(*)	kPa	34	46	34	46	34	46	34	46	34	46	34	46	34	46	34	46
	Connection Size(**)	mm	65															
	Header Size(***)	mm	—		100		125		125		150		200		200		200	
Electrical Data(*)	Power Consumption	kW	40.2	49.4	80.4	98.8	120.6	148.2	160.8	197.6	201	247	241.2	296.4	281.4	345.8	321.6	395.2
	Current Data	A	65	80	130	159	196	239	261	318	326	398	391	476	456	556	522	635
	Power Factor	%	89.6	89.7	89.6	89.7	89.6	89.7	89.6	89.7	89.6	89.7	89.6	89.7	89.6	89.7	89.6	89.7
	Starting Current	A	216	250	281	330	346	409	412	489	477	568	542	647	607	727	672	806
Power Source		200/400V 3Phase 50/60Hz																
Compressor	Type		Semi-Hermetic Type Screw															
	Model number		RHSB045J	RHSB045J × 2		RHSB045J × 3		RHSB045J × 4		RHSB045J × 5		RHSB045J × 6		RHSB045J × 7		RHSB045J × 8		
	Motor Power & (Pole)	kW	45(2)		45(2) × 2		45(2) × 3		45(2) × 4		45(2) × 5		45(2) × 6		45(2) × 7		45(2) × 8	
	Starting Method		Star-Delta															
	Turn down	%	100~33		100~17		100~11		100~8		100~7		100~6		100~5		100~5	
Evaporator	Type		Blazing Type Plate Heat Exchanger															
	Containing Water Volume	L	25		25 × 2		25 × 3		25 × 4		25 × 5		25 × 6		25 × 7		25 × 8	
Condenser	Type		Blazing Type Plate Heat Exchanger															
	Containing Water Volume	L	42		42 × 2		42 × 3		42 × 4		42 × 5		42 × 6		42 × 7		42 × 8	
Safety device		Motor High Temperature, Discharge Temperature High, Compressor Over load, Refrigerant High & Low pressure, Chilled water low temperature, Fusible plug and Safety relief valve																
Standard feature		Inter lock for Chilled & cooling water Pumps, Indication (Operating hours , Number of start & stop, Chilled water leaving temperature), Chilled water temperature dual set points, Local/Remote, Auto-Restart feature within 10 min (adjustable) power Failure, No. of unit(s) start/stop control by load condition and Module Rotation.																
Refrigerant	Brand		HFC407C															
	Charge volume	kg	28		28 × 2		28 × 3		28 × 4		28 × 5		28 × 6		28 × 7		28 × 8	
Lube Oil	Brand		UX300															
	Charge volume	L	7		7 × 2		7 × 3		7 × 4		7 × 5		7 × 6		7 × 7		7 × 8	
Dimensions	Width	mm	700		1400		2100		2800		3500		4200		4900		5600	
	Height	mm	1595															
	Length	mm	1320															
Dry Weight	kg	986		1972		2958		3944		4930		5916		6902		7888		
Operating Weight	kg	1206		2412		3618		4824		6030		7236		8442		9648		
Paint Color (Mansel #)		N4																
Sound Level (50Hz/60Hz)(****)	dB (A)	68	70	71	73	73	75	74	76	75	77	76	78	77	79	78	80	
Standard Accessory		Vibration Isolation Pad																

*Indicate data is based on JIS condition (Chilled water 12/7 °C, cooling water 30/35 °C and Electrical data 400V motor).Design fouling factor is 0.086 m²K/kW.

**Indicate each modules connection size.

***Indicate recommended connection size of header.

****Indicate sound data is based on JIS condition monitored at 1m from casing and 1.5m from grand level.Sound value will be changed at actual site condition.

Model RHSDW202MV with Inverter Standard performance

MODEL: RHSDW		202MV1		202MV2		202MV3		202MV4		202MV5		202MV6		202MV7		202MV8		
Cycle	Hz	50	60	50	60	50	60	50	60	50	60	50	60	50	60	50	60	
Capacity	kW	211		422		633		844		1055		1266		1477		1688		
Number of Modules		1		2		3		4		5		6		7		8		
Chilled water	Leaving Temperature	°C 7																
	Flow rate(*)	L/min	600		1210		1810		2420		3030		3630		4230		4840	
	Pressure drop(*)	kPa	59															
	Connection Size(**)	mm	65															
	Header Size(***)	mm	—		80		100		125		125		150		150		200	
Cooling water	Flow rate(*)	L/min	730		1460		2180		2910		3640		4370		5100		5830	
	Pressure drop(*)	kPa	35															
	Connection Size(**)	mm	65															
	Header Size(***)	mm	—		100		125		125		150		200		200		200	
Electrical Data(*)	Power Consumption	kW	42.2		84.4		126.6		168.8		211		253.2		295.4		337.6	
	Current Data	A	64		128		192		256		320		384		448		513	
	Power Factor	%	95															
Power Source		200/400V 3Phase 50/60Hz																
Compressor	Type	Semi-Hermetic Type Screw																
	Model number		RHSB045J	RHSB045J × 2	RHSB045J × 3	RHSB045J × 4	RHSB045J × 5	RHSB045J × 6	RHSB045J × 7	RHSB045J × 8								
	Motor Power & (Pole)	kW	45(2)		45(2) × 2		45(2) × 3		45(2) × 4		45(2) × 5		45(2) × 6		45(2) × 7		45(2) × 8	
	Starting Method		Star-Delta															
	Turn down	%	100~33		100~17		100~11		100~8		100~7		100~6		100~5		100~5	
Evaporator	Type	Blazing Type Plate Heat Exchanger																
	Containing Water Volume	L	25		25 × 2		25 × 3		25 × 4		25 × 5		25 × 6		25 × 7		25 × 8	
Condenser	Type	Blazing Type Plate Heat Exchanger																
	Containing Water Volume	L	42		42 × 2		42 × 3		42 × 4		42 × 5		42 × 6		42 × 7		42 × 8	
Safety device		Motor High Temperature, Discharge Temperature High, Compressor Over load, Refrigerant High & Low pressure, Chilled water low temperature, Fusible plug and Safety relief valve																
Standard feature		Inter lock for Chilled & cooling water Pumps, Indication (Operating hours , Number of start & stop, Chilled water leaving temperature), Chilled water temperature dual set points, Local/Remote, Auto-Restart feature within 10 min (adjustable) power Failure, No. of unit(s) start/stop control by load condition and Module Rotation.																
Refrigerant	Brand	HFC407C																
	Charge volume	kg	28		28 × 2		28 × 3		28 × 4		28 × 5		28 × 6		28 × 7		28 × 8	
Lube Oil	Brand	UX300																
	Charge volume	L	7		7 × 2		7 × 3		7 × 4		7 × 5		7 × 6		7 × 7		7 × 8	
Dimensions	Width	mm	700		1400		2100		2800		3500		4200		4900		5600	
	Height	mm	1695															
	Length	mm	1320															
Dry Weight	kg	1014		2028		3042		4056		5070		6084		7098		8112		
Operating Weight	kg	1236		2472		3708		4944		6180		7416		8652		9888		
Paint Color (Mansel #)		N4																
Sound Level (50Hz/60Hz)(****)	dB (A)	69		72		74		75		76		77		78		79		
Standard Accessory		Vibration Isolation Pad																

*Indicate data is based on JIS condition (Chilled water 12/7 °C, cooling water 30/35 °C and Electrical data 400V motor).Design fouling factor is 0.086 m²K/kW.

**Indicate each modules connection size.

***Indicate recommended connection size of header.

****Indicate sound data is based on JIS condition monitored at 1m from casing and 1.5m from grand level.Sound value will be changed at actual site condition.

Model RHSDW402M Standard performance

MODEL: RHSDW		402M1		402M2		402M3		402M4		402M5		402M6		402M7		402M8		
Cycle	Hz	50	60	50	60	50	60	50	60	50	60	50	60	50	60	50	60	
Capacity	kW	360	420	720	840	1080	1260	1440	1680	1800	2100	2160	2520	2520	2940	2880	3360	
Number of Modules		1		2		3		4		5		6		7		8		
Chilled water	Leaving Temperature	°C 7																
	Flow rate(*)	L/min	1030	1200	2060	2400	3090	3610	4120	4810	5150	6010	6190	7220	7220	8430	8260	9630
	Pressure drop(*)	kPa	41	55	41	55	41	55	41	55	41	55	41	55	41	55	41	55
	Connection Size(**)	mm	100															
	Header Size(***)	mm	—		125		150		150		200		200		250		250	
Cooling water	Flow rate(*)	L/min	1230	1440	2450	2880	3680	4310	4910	5750	6140	7190	7360	8640	8590	10080	9810	11520
	Pressure drop(*)	kPa	24	33	24	33	24	33	24	33	24	33	24	33	24	33	24	33
	Connection Size(**)	mm	100															
	Header Size(***)	mm	—		125		150		200		200		250		250		250	
Electrical Data(*)	Power Consumption	kW	64.6	78.1	129.2	156.2	193.8	234.3	258.4	312.4	323	390.5	387.6	468.6	452.2	546.7	516.8	624.8
	Current Data	A	128	135	247	269	370	404	493	539	617	674	740	809	896	944	987	1079
	Power Factor	%	76	84	76	84	76	84	76	84	76	84	76	84	76	84	76	84
	Starting Current	A	340	370	464	505	587	639	710	774	834	909	957	1045	1081	1179	1204	1314
Power Source		200/400V 3Phase 50/60Hz																
Compressor	Type	Semi-Hermetic Type Screw																
	Model number		RHSB090J	RHSB090J × 2		RHSB090J × 3		RHSB090J × 4		RHSB090J × 5		RHSB090J × 6		RHSB090J × 7		RHSB090J × 8		
	Motor Power & (Pole)	kW	90(2)		90(2) × 2		90(2) × 3		90(2) × 4		90(2) × 5		90(2) × 6		90(2) × 7		90(2) × 8	
	Starting Method		Star-Delta															
	Turn down	%	100~33		100~17		100~11		100~8		100~7		100~6		100~5		100~5	
Evaporator	Type	Blazing Type Plate Heat Exchanger																
	Containing Water Volume	L	50		50 × 2		50 × 3		50 × 4		50 × 5		50 × 6		50 × 7		50 × 8	
Condenser	Type	Blazing Type Plate Heat Exchanger																
	Containing Water Volume	L	86		86 × 2		86 × 3		86 × 4		86 × 5		86 × 6		86 × 7		86 × 8	
Safety device		Motor High Temperature, Discharge Temperature High, Compressor Over load, Refrigerant High & Low pressure, Chilled water low temperature, Fusible plug and Safety relief valve																
Standard feature		Inter lock for Chilled & cooling water Pumps, Indication (Operating hours , Number of start & stop, Chilled water leaving temperature), Chilled water temperature dual set points, Local/Remote, Auto-Restart feature within 10 min (adjustable) power Failure, No. of unit(s) start/stop control by load condition and Module Rotation.																
Refrigerant	Brand	HFC407C																
	Charge volume	kg	49		49 × 2		49 × 3		49 × 4		49 × 5		49 × 6		49 × 7		49 × 8	
Lube Oil	Brand	UX300																
	Charge volume	L	7		7 × 2		7 × 3		7 × 4		7 × 5		7 × 6		7 × 7		7 × 8	
Dimensions	Width	mm	960		1920		2880		3840		4800		5760		6720		7680	
	Height	mm	1950															
	Length	mm	1710															
Dry Weight	kg	1900		3800		5700		7600		9500		11400		13300		15200		
Operating Weight	kg	2120		4240		6360		8480		10600		12720		14840		16960		
Paint Color (Mansel #)		N4																
Sound Level (50Hz/60Hz)(****)	dB (A)	72	74	75	77	77	79	78	80	79	81	80	82	81	83	82	84	
Standard Accessory		Vibration Isolation Pad																

*Indicate data is based on JIS condition (Chilled water 12/7 °C, cooling water 30/35 °C and Electrical data 400V motor).Design fouling factor is 0.086 m²K/kW.

**Indicate each modules connection size.

***Indicate recommended connection size of header.

****Indicate sound data is based on JIS condition monitored at 1m from casing and 1.5m from grand level.Sound value will be changed at actual site condition.

Model RHSDW402MV Inverter model Standard performance

MODEL: RHSDW		402MV1		402MV2		402MV3		402MV4		402MV5		402MV6		402MV7		402MV8		
Cycle	Hz	50	60	50	60	50	60	50	60	50	60	50	60	50	60	50	60	
Capacity	kW	400		800		1200		1600		2000		2400		2800		3200		
Number of Modules		1		2		3		4		5		6		7		8		
Chilled water	Leaving Temperature	°C 7																
	Flow rate(*)	L/min	1140		2290		3430		4580		5720		6880		8030		9170	
	Pressure drop(*)	kPa	50															
	Connection Size(**)	mm	100															
	Header Size(***)	mm	—	125		150		150		200		200		250		250		
Cooling water	Flow rate(*)	L/min	1370		2740		4110		5480		6850		8190		9550		10920	
	Pressure drop(*)	kPa	30															
	Connection Size(**)	mm	100															
	Header Size(***)	mm	—	125		150		200		200		250		250		250		
Electrical Data(*)	Power Consumption	kW	73.7		147.4		221.1		294.8		368.5		442.2		515.9		589.6	
	Current Data	A	112		224		336		448		560		673		784		896	
	Power Factor	%	95															
Power Source		200/400V 3Phase 50/60Hz																
Compressor	Type	Semi-Hermetic Type Screw																
	Model number		RHSB090J	RHSB090J × 2		RHSB090J × 3		RHSB090J × 4		RHSB090J × 5		RHSB090J × 6		RHSB090J × 7		RHSB090J × 8		
	Motor Power & (Pole)	kW	90(2)		90(2) × 2		90(2) × 3		90(2) × 4		90(2) × 5		90(2) × 6		90(2) × 7		90(2) × 8	
	Starting Method		Star-Delta															
	Turn down	%	100~33		100~17		100~11		100~8		100~7		100~6		100~5		100~5	
Evaporator	Type	Blazing Type Plate Heat Exchanger																
	Containing Water Volume	L	50		50 × 2		50 × 3		50 × 4		50 × 5		50 × 6		50 × 7		50 × 8	
Condenser	Type	Blazing Type Plate Heat Exchanger																
	Containing Water Volume	L	124		248		372		496		726		850		974		1098	
Safety device		Motor High Temperature, Discharge Temperature High, Compressor Over load, Refrigerant High & Low pressure, Chilled water low temperature, Fusible plug and Safety relief valve																
Standard feature		Inter lock for Chilled & cooling water Pumps, Indication (Operating hours , Number of start & stop, Chilled water leaving temperature), Chilled water temperature dual set points, Local/Remote, Auto-Restart feature within 10 min (adjustable) power Failure, No. of unit(s) start/stop control by load condition and Module Rotation.																
Refrigerant	Brand	HFC407C																
	Charge volume	kg	49		49 × 2		49 × 3		49 × 4		49 × 5		49 × 6		49 × 7		49 × 8	
Lube Oil	Brand	UX300																
	Charge volume	L	7		7 × 2		7 × 3		7 × 4		7 × 5		7 × 6		7 × 7		7 × 8	
Dimensions	Width	mm	960		1920		2880		3840		4800		5760		6720		7680	
	Height	mm	2100															
	Length	mm	1710															
Dry Weight	kg	1980		3960		5940		7920		9900		11880		13860		15840		
Operating Weight	kg	2210		4420		6630		8840		11050		13260		15470		17680		
Paint Color (Mansel #)		N4																
Sound Level (50Hz/60Hz)(****)	dB (A)	73		76		78		79		80		81		82		83		
Standard Accessory		Vibration Isolation Pad																

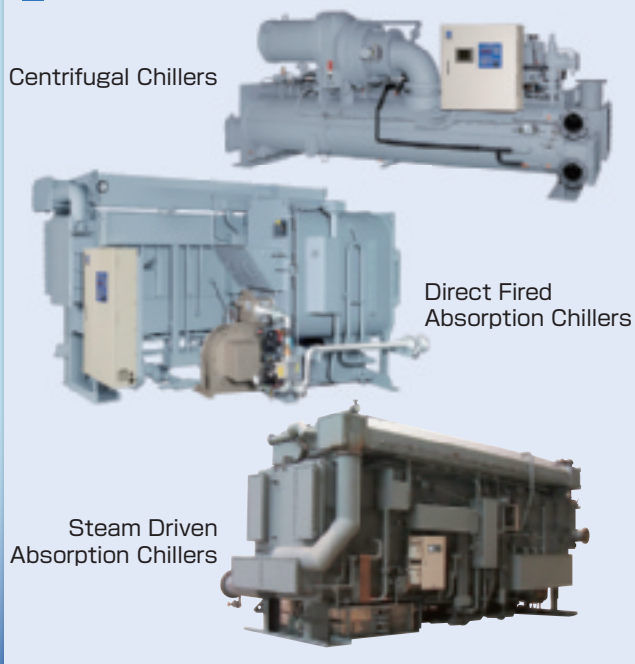
*Indicate data is based on JIS condition (Chilled water 12/7 °C, cooling water 30/35 °C and Electrical data 400V motor).Design fouling factor is 0.086 m²K/kW.

**Indicate each modules connection size.

***Indicate recommended connection size of header.

****Indicate sound data is based on JIS condition monitored at 1m from casing and 1.5m from grand level.Sound value will be changed at actual site condition.

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Head Office & Sales Department

3-2-16 Ohmorikita, Ohta-ku, Tokyo143-0016, JAPAN
 Phone: +81-3-6384-8145 Fax: +81-3-5493-0716

EBARA CORPORATION

Head Office:

11-1, Haneda Asahi cho, Ohta-ku, Tokyo, 144-8510 Japan
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