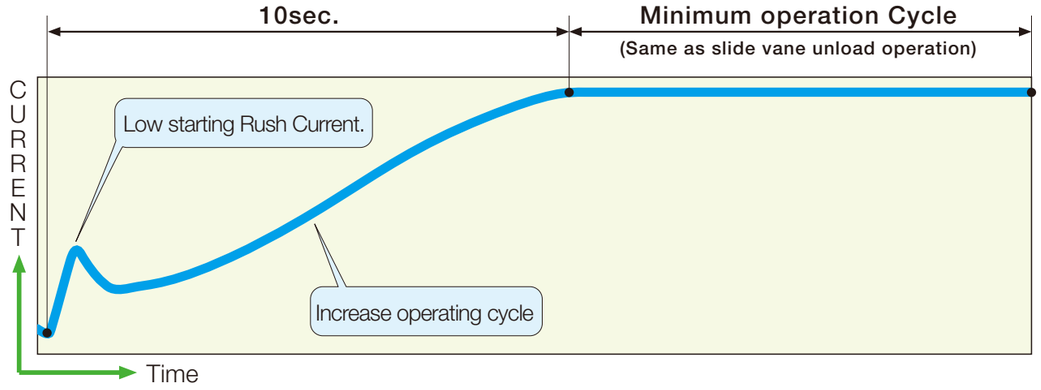
INVERTOR STARTING RUSH CURRENT FEATURE



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"Model: XXX" in this catalog is our model code.
All specifications are subject to change without notice.

2012年4月

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EBARA

CR7146EA

HFC 407C REFRIGERANT MODEL (Water-Cooled)

SCREW MODULAR CHILLER

MODEL: RHS DW-M Series

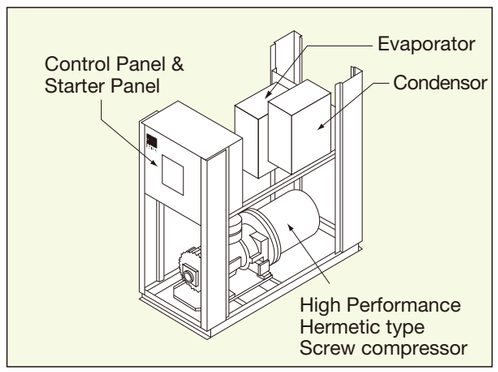
＊MODEL: XXX in this catalog is our model code

EBARA SCREW MODULAR CHILLER

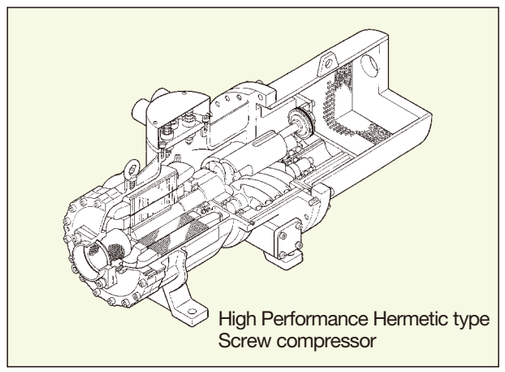
WATER COOLED HFC407c Refrigerant model
Model: RHSDW-M
Model: RHSDW-MV(INVERTER CONTROL)

■ FEATURES

● CONSTRUCTION



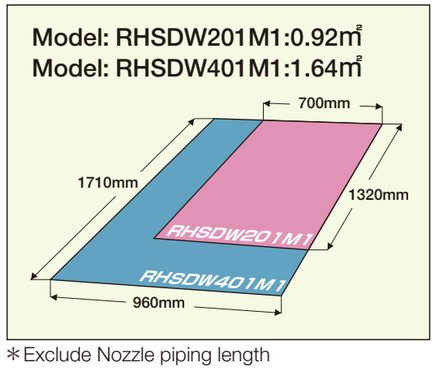
Internal Construction



Compressor Cross section drawing

● Easy Carry Into Machine Room

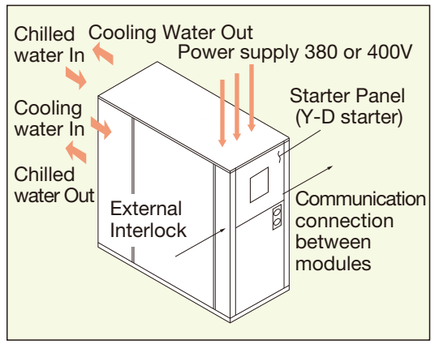
Because they are so compact and can be carried a module at a time, it can be taken through narrow routes. Model RHSDW201M & 201MV's weight are lower than 1000kg/module. It is easy to carry into the machine room by normal elevator.



＊Exclude Nozzle piping length

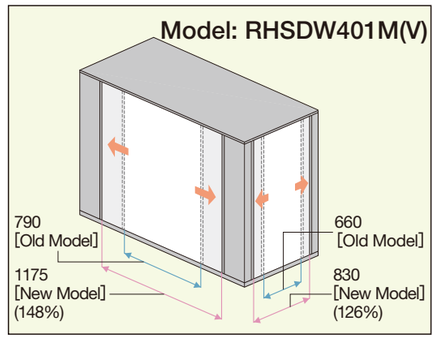
● Easy job site work

Modules are inspected, checked and refrigerant charged by our supervisor on site. And also power & interlocking wiring and both chilled & cooling water headers are connected, it is easy to start.



● Easy maintenance

Maintenance work is able to carry out from any side spaces, front and rear, which opening is designed with wider space than previous machine, front side 105%, rear side 126% and side space 148% bigger space. Side opening allows maintenance of chiller at installation place.



● Dual setting point for borth chilled & Hot water temperature

Module chiller has dual set points for both Chilled and Hot water. Chilled water (or Hot water) temperature set point is adjustable during operation.

● Easy to increase the Module Number

Capacity is easy to increase by adding modules. (Master module can control Max. 5 modules)

● Better part load performance

Just one module can be used for small-capacity operation (turn down). The master module's microprocessor controls the number of operating modules for each module chiller. Further, each module performs continuous capacity control using a slide vane (and Inverter). Hence, operation is efficient even at low loads.

● Minimum impact from malfunctions

If by any chance one of the modules malfunctions, the other modules will continue operating.

● Low Noise design

Each module is covered by steal casing, therefore low noise operation is achieved.

● Environment-friendly design Chiller/Heat pump

ODP free Refrigerant HFC407c is used and also charged refrigerant (28kg for Model RHSDW201 module /49kg for Model RHSDW401 module) is minimized. Almost leakage free hermetic design and high performance chiller design is good for influence of environment.

● Many optional function

Chilled & cooling water pump control, module unit control / rotation, chilled & hot water temperature remote setting, and other functions are standard option. And also out door, demand control and other applications are available.

MODEL: RHSDW201M
STANDARD SPECIFICATION

(50Hz / 60Hz)

MODEL NAME			RHSDW201M1	RHSDW201M2	RHSDW201M3	RHSDW201M4	RHSDW201M5
Capacity *		kW	207/241	414/482	621/723	828/964	1035/1205
Number of Modules			1	2	3	4	5
Chilled water	Leaving Temperature	℃	7				
	Flow Rate *	L/min	590/690	1180/1380	1780/2070	2370/2760	2960/3450
	Pressure Drop *	kPa	57/80				
	Connecting Nozzle size **	inch	2-½				
	Header size ***	inch	–	3	4	5	
Cooling Water	Flow Rate *	L/min	710/840	1430/1680	2140/2510	2860/3350	3570/4190
	Pressure Drop *	kPa	34/49				
	Connecting Nozzle size **	inch	2-½				
	Header size ***	inch	–	4	5		6
Power			200V/400V 3φ 50/60Hz				
Electrical Feature*	Power Consumption	kW	40.2/49.4	80.4/98.8	120.6/148.2	160.8/197.6	201.0/247.0
	Current	A	65/80	130/159	196/239	261/318	326/398
	Power Factor	%	89.6/89.7				
	Starting Current	A	216/250	281/330	346/409	412/489	477/568
Compressor	Type		Semi hermetic Screw Compressor				
	Model Number		RHSB045J	RHSB045J × 2	RHSB045J × 3	RHSB045J × 4	RHSB045J × 5
	Rated power	kW	45	45 × 2	45 × 3	45 × 4	45 × 5
	Starting Method		Y−Δ Start				
	Control range	%	100～33	100～17	100～11	100～8	100～7
Evaporator	Type		Blazing Type Plate Heat exchanger				
	Containing Capacity	L	27	27 × 2	27 × 3	27 × 4	27 × 5
Condenser Type			Blazing Type Plate Heat exchanger				
Safety Devices			Compressor Motor over load, Discharge Gas high temperature, Compressor Motor High Temperature, Refrigerant High & low pressure, Chilled water low temperature, Fusible plug and safety valve.				
Standard Feature			Chilled & Cooling water pump interlock operation, Operating time & Number of start, Remote chilled or hot water temperature control, Dual chilled or hot water temperature setting reset, Remote/Local operation, Hunching operation protection, Instantaneous power failure protection (within 10 minutes auto start), unit control and rotation operation.				
HFC407C Charging amount		kg	28	28 × 2	28 × 3	28 × 4	28 × 5
Lube Oil charging amount		L	7	7 × 2	7 × 3	7 × 4	7 × 5
Dimensions	Width	mm	700	1400	2100	2800	3500
	Height	mm	1595				
	Length	mm	1320				
Dry Weight		kg	970	1940	2910	3880	4850
Operating Weight		kg	1190	2380	3570	4760	5950
Paint Color (Munsell No.)			N4				
Noise ****		dB(A)	68/70	71/73	73/75	74/76	75/77
Standard accessory			Rubber Pad				

* "Data in the above table is based on JIS B8613 (Screw Chiller) condition, which chilled water temperature is 12/7℃ and cooling water temperature is 30/35℃. And Electricity power data is based on 400V case.
Fouling factor of Chilled water & Cooling water is applied to 0.086 m²K/kW. "
** Indicate each module's nozzle connection and flange type is JIS 10K FF Flange.
*** Indicate header piping size (Optional item) and flange type is JIS 10K FF Flange.
**** Noise data is based on operating condition of JIS B8613 (Screw Chiller), which chilled water temperature is 12/7℃ and cooling water Temperature 30/35℃ with cover casing. Actual noise data may be changed, caused by back ground noise, actual operating condition.

MODEL: RHSDW201MV
STANDARD SPECIFICATION for INVERTOR MODEL

MODEL NAME			RHSDW201MV1	RHSDW201MV2	RHSDW201MV3	RHSDW201MV4	RHSDW201MV5
Capacity *		kW	211	422	633	844	1055
Number of Modules			1	2	3	4	5
Chilled water	Leaving Temperature	℃	7				
	Flow Rate *	L/min	600	1210	1810	2420	3030
	Pressure Drop *	kPa	62				
	Connecting Nozzle size **	inch	2-½				
	Header size ***	inch	–	3	4	5	
Cooling Water	Flow Rate *	L/min	730	1460	2180	2910	3640
	Pressure Drop *	kPa	36				
	Connecting Nozzle size **	inch	2-½				
	Header size ***	inch	–	4	5		6
Power			200V/400V 3φ 50/60Hz				
Electrical Feature*	Power Consumption	kW	42.2	84.4	126.6	168.8	211.0
	Current	A	64	128	192	256	320
	Power Factor	%	95.0				
Compressor	Type		Semi hermetic Screw Compressor				
	Model Number		RHSB045J	RHSB045J × 2	RHSB045J × 3	RHSB045J × 4	RHSB045J × 5
	Rated power	kW	45	45 × 2	45 × 3	45 × 4	45 × 5
	Starting Method		Invertor Start & control				
	Control range	%	100～33	100～17	100～11	100～8	100～7
Evaporator	Type		Blazing Type Plate Heat exchanger				
	Containing Capacity	L	27	27× 2	27× 3	27× 4	27× 5
Condenser Type			Blazing Type Plate Heat exchanger				
Safety Devices			Compressor Motor over load, Discharge Gas high temperature, Compressor Motor High Temperature, Refrigerant High & low pressure, Chilled water low temperature, Fusible plug and safety valve.				
Standard Feature			Chilled & Cooling water pump interlock operation, Operating time & Number of start, Remote chilled or hot water temperature control, Dual chilled or hot water temperature setting reset, Remote/Local operation, Hunching operation protection, Instantaneous power failure protection (within 10 minutes auto start), unit control and rotation operation.				
HFC407C Charging amount		kg	28	28 × 2	28 × 3	28 × 4	28 × 5
Lube Oil charging amount		L	7	7 × 2	7 × 3	7 × 4	7 × 5
Dimensions	Width	mm	700	1400	2100	2800	3500
	Height	mm	1695				
	Length	mm	1320				
Dry Weight		kg	998	1996	2994	3992	4990
Operating Weight		kg	1220	2440	3660	4880	6100
Paint Color (Munsell No.)			N4				
Noise ****		dB(A)	69	72	74	75	76
Standard accessory			Rubber Pad				

* "Data in the above table is based on JIS B8613 (Screw Chiller) condition, which chilled water temperature is 12/7℃ and cooling water temperature is 30/35℃. And Electricity power data is based on 400V case.
Fouling factor of Chilled water & Cooling water is applied to 0.086 m²K/kW. "
** Indicate each module's nozzle connection and flange type is JIS 10K FF Flange.
*** Indicate header piping size (Optional item) and flange type is JIS 10K FF Flange
**** Noise data is based on operating condition of JIS B8613 (Screw Chiller), which chilled water temperature is 12/7℃ and cooling water Temperature 30/35℃ with cover casing. Actual noise data may be changed, caused by back ground noise, actual operating condition.

MODEL: RHSDW401M
STANDARD SPECIFICATION

(50Hz / 60Hz)

MODEL NAME			RHSDW401M1	RHSDW401M2	RHSDW401M3	RHSDW401M4	RHSDW401M5
Capacity *		kW	360/420	720/840	1080/1260	1440/1680	1800/2100
Number of Modules			1	2	3	4	5
Chilled water	Leaving Temperature	℃	7				
	Flow Rate *	L/min	1030/1200	2060/2400	3090/3610	4120/4810	5150/6010
	Pressure Drop *	kPa	40/55				
	Connecting Nozzle size **	inch	4				
	Header size ***	inch	–	5	6		8
Cooling Water	Flow Rate *	L/min	1230/1440	2450/2880	3680/4310	4910/5750	6140/7190
	Pressure Drop *	kPa	25/35				
	Connecting Nozzle size **	inch	4				
	Header size ***	inch	–	5	6	8	
Power			200V/400V 3φ 50/60Hz				
Electrical Feature*	Power Consumption	kW	64.6/78.1	129.2/156.2	193.8/234.3	258.4/312.4	323/390.5
	Amperes	A	128/135	247/269	370/404	493/539	617/674
	Power Factor	%	76/84				
	Starting Current	A	340/370	464/505	587/639	710/774	834/909
Compressor	Type		Semi hermetic Screw Compressor				
	Model Number		RHSB090J	RHSB090J × 2	RHSB090J × 3	RHSB090J × 4	RHSB090J × 5
	Rated power	kW	90	90 × 2	90 × 3	90 × 4	90 × 5
	Starting Method		Y−Δstart				
	Control range	%	100～33	100～17	100～11	100～8	100～7
Evaporator	Type		Blaring Type Plate Heat exchanger				
	Containing Capacity	L	49	50 × 2	50 × 3	50 × 4	50 × 5
Condenser Type			Blaring Type Plate Heat exchanger				
Safety Devices			Compressor Motor over load, Discharge Gas high temperature, Compressor Motor High Temperature, Refrigerant High & low pressure, Chilled water low temperature, Fusible plug and safety valve.				
Standard Feature			Chilled & Cooling water pump interlock operation, Operating time & Number of start, Remote chilled or hot water temperature control, Dual chilled or hot water temperature setting reset, Remote/Local operation, Hunching operation protection, Instantaneous power failure protection (within 10 minute auto start), unit control and rotation operation.				
HFC407C Charging amount		kg	49	49 × 2	49 × 3	49 × 4	49 × 5
Lube Oil charging amount		L	7	7 × 2	7 × 3	7 × 4	7 × 5
Dimensions	Width	mm	960	1920	2880	3840	4800
	Height	mm	1950				
	Length	mm	1710				
Dry Weight		kg	1880	3760	5640	7520	9400
Operating Weight		kg	2100	4200	6300	8400	10500
Paint Color (Munsell No.)			N4				
Noise ****		dB(A)	72/74	75/77	77/79	78/80	79/81
Standard accessory			Rubber Pad				

* "Data in the above table is based on JIS B8613 (Screw Chiller) condition, which chilled water temperature is 12/7℃ and cooling water temperature is 30/35℃. And Electricity power data is based on 400V case.
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*** Indicate header piping size (Optional item) and flange type is JIS 10K FF Flange.
**** Noise data is based on operating condition of JIS B8613 (Screw Chiller), which chilled water temperature is 12/7℃ and cooling water Temperature 30/35℃ with cover casing. Actual noise data may be changed, caused by back ground noise, actual operating condition.

MODEL: RHSDW401MV
STANDARD SPECIFICATION for INVERTOR MODEL

MODEL NAME			RHSDW401MV1	RHSDW401MV2	RHSDW401MV3	RHSDW401MV4	RHSDW401MV5
Capacity *		kW	400	800	1200	1600	2000
Number of Modules			1	2	3	4	5
Chilled water	Leaving Temperature	℃	7				
	Flow Rate *	L/min	1140	2290	3430	4580	5720
	Pressure Drop *	kPa	50				
	Connecting Nozzle size **	inch	4				
	Header size ***	inch	–	5	6		8
Cooling Water	Flow Rate *	L/min	1370	2740	4110	5480	6850
	Pressure Drop *	kPa	30				
	Connecting Nozzle size **	inch	4				
	Header size ***	inch	–	5	6	8	
Power			200V/400V 3φ 50/60Hz				
Electrical Feature*	Power Consumption	kW	73.7	147.4	221.1	294.8	368.5
	Amperes	A	112	224	336	448	560
	Power Factor	%	95				
Compressor	Type		Semi hermetic Screw Compressor				
	Model Number		RHSB090J	RHSB090J × 2	RHSB090J × 3	RHSB090J × 4	RHSB090J × 5
	Rated power	kW	90	90 × 2	90 × 3	90 × 4	90 × 5
	Starting Method		Invertor Start & control				
	Control range	%	100～33	100～17	100～11	100～8	100～7
Evaporator	Type		Blaring Type Plate Heat exchanger				
	Containing Capacity	L	50	50 × 2	50 × 3	50 ×	50 × 5
Condenser Type			Blaring Type Plate Heat exchanger				
Safety Devices			Compressor Motor over load, Discharge Gas high temperature, Compressor Motor High Temperature, Refrigerant High & low pressure, Chilled water low temperature, Fusible plug and safety valve.				
Standard Feature			Chilled & Cooling water pump interlock operation, Operating time & Number of start, Remote chilled or hot water temperature control, Dual chilled or hot water temperature setting reset, Remote/Local operation, Hunching operation protection, Instantaneous power failure protection (within 10 minute auto start), unit control and rotation operation.				
HFC407C Charging amount		kg	49	49 × 2	49 × 3	49 × 4	49 × 5
Lube Oil charging amount		L	7	7 × 2	7 × 3	7 × 4	7 × 5
Dimensions	Width	mm	960	1920	2880	3840	4800
	Height	mm	2100				
	Length	mm	1710				
Dry Weight		kg	1970	3940	5910	7880	9850
Operating Weight		kg	2200	4400	6600	8800	11000
Paint Color (Munsell No.)			N4				
Noise ****		dB(A)	73	76	78	79	80
Standard accessory			Rubber Pad				

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