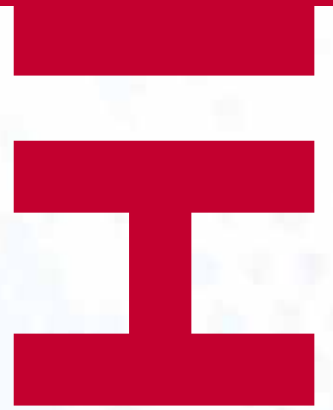


Commercial Air Conditioning Samurai Chillers

Cooling & Heating

HITACHI



RETROFITTING & REFURBISHMENT PROJECTS

Projects change and develop over time. In order to keep up you must be able to rely on your selected products. Hitachi with its modular design is an ideal solution for quick compact and space adaptable installations whilst not limiting your ambitions for high efficiency. And with up to 116 possible module combinations for both Air and Water Cooled units, matching your project development couldn't be easier.

Our
mod
des

INTELLIGENT CONTROLS

You require control. With Hitachi's Modular units you can be confident of optimising the control of the chiller, saving energy and efficiently interfacing with Building Management Systems. Current Limiter setting, second Water Outlet Temperature setting (4 for Heat Pump), Night mode along Modbus and BACNet Gateways will provide your site customisation. Whilst dynamic sequencing of modules for priority, operation time, backup, maintenance or module failure automatically provides continuity.

PRICE, PERFORMANCE & SPACE FLEXIBILITY

What drives your project, High efficiency? Reduced initial costs?
Or is space flexibility the determining factor?

With Hitachi's Samurai Modular Chiller range you can specify your exact project requirements by configuring a chiller with 1 or up to 8 modules. Two operating modes selectable at commissioning allow the installation's performance to focus on either high efficiency or high accuracy outlet water temperature. Alternatively, spread the cost of investment and add modules to match your project phases.

For unique
modular
design

Manufacturer's 3 Year Warranty

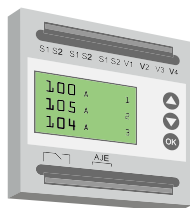
CONTINUOUS OPERATIONAL SAFETY

Safety first. Each module has its own compressor, regulators and refrigerant circuit. Should a module fail, the remaining modules maintain operational continuity, whilst Hitachi's unique Dynamic Back-up Control automatically starts any standby modules. Smart defrost, automatic restart after power failure, anti-freeze pump function, automatic fan on/off cycling for snow protection, remote alarms all enhance the security of supply.

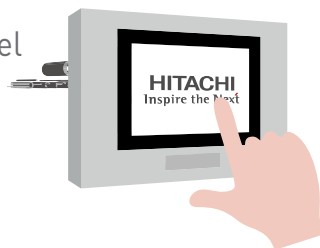
FEATURES & OPTIONS

SAMURAI

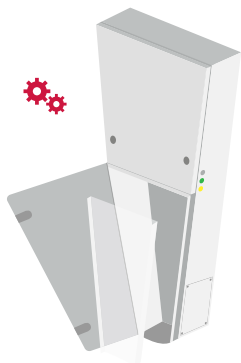
Power Meter 



LCD Touch Panel



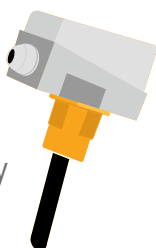
EBOX Louvre Safety Cover 



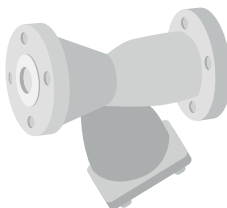
ModBus Gateway 



ModBus Gateway 



Water Filter 



BACnet Gateway 



Electronic Expansion Valves

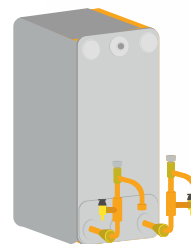
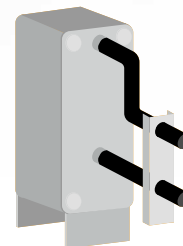
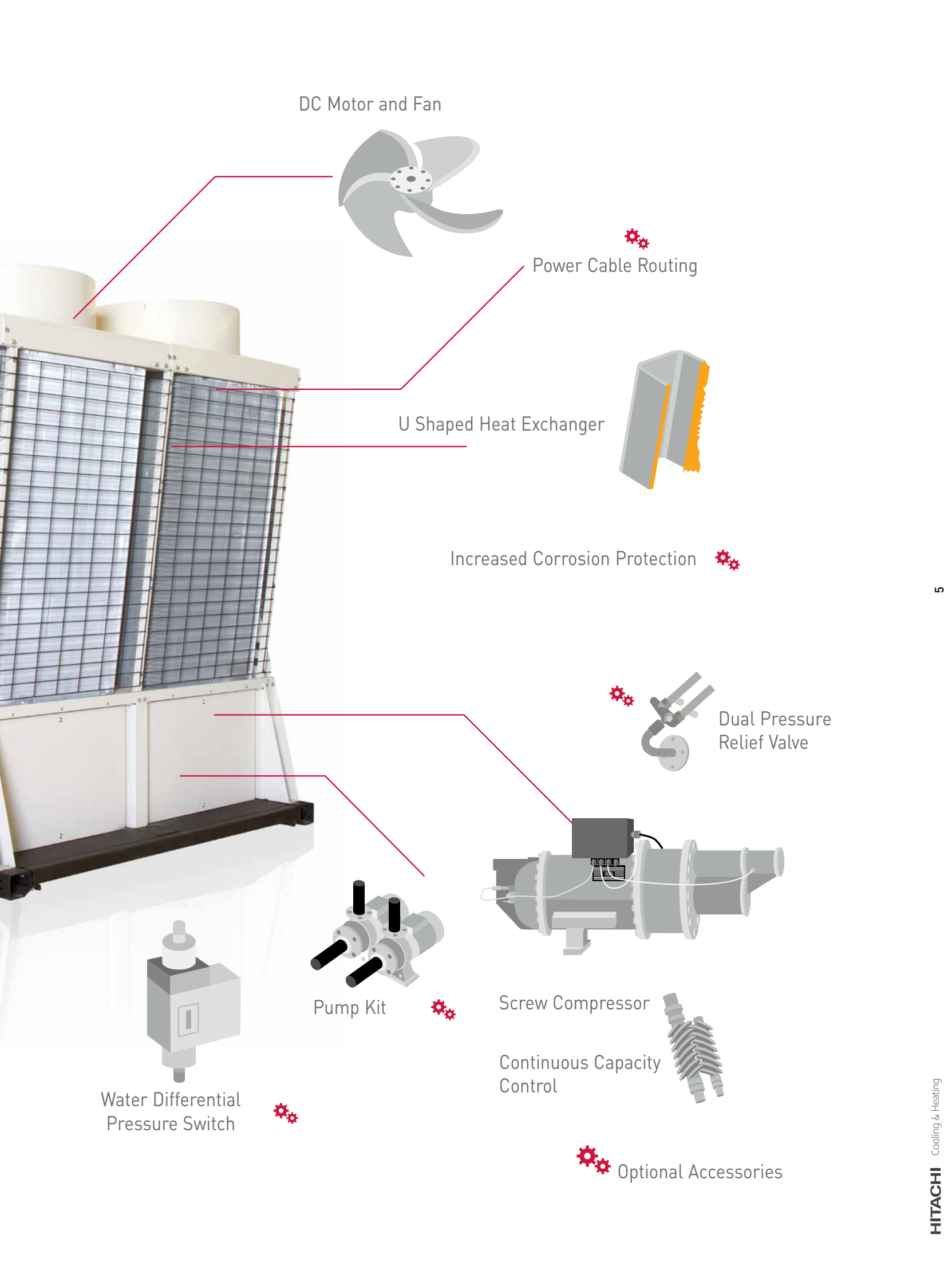


Plate Heat Exchanger





DC Motor and Fan

Power Cable Routing

U Shaped Heat Exchanger

Increased Corrosion Protection

Dual Pressure
Relief Valve

Screw Compressor

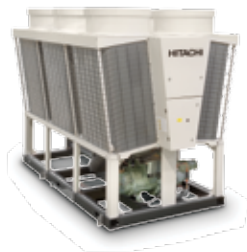
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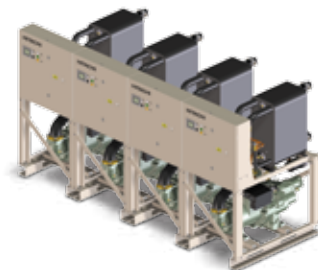
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SAMURAI CHILLERS

AIR COOLED HI-EFFICIENCY



- 6 Basic Modules: (60, 70, 80, 90, 120 and 140HP)
- Customise selection for either Energy Efficiency, Price or Installation space
- Combine up to 8 Modules to match higher capacities (Possible modules combinations are equal sizes or 60 with 70, 70 with 80, 80 with 90 and 120 with 140)
- Two Operating Modes as Standard; selected at Commissioning
 - Steady water outlet temperature (+/- 0.5°C). All compressors running at the same load
 - High Efficiency Mode, Smart control of compressors start/stop operation
- Capacities from 150kW to 2880kW in cooling and from 145kW to 2320kW in heating
- Modules come in new 4, 6 and 8 Fan sizes
- 4 blade fan design with inverter control achieves reduced input power at partial load
- Low noise, super low noise and extra super low noise models available
- New heat exchangers designed with true dual type system to increase surface area and increase accuracy of evaporation temperature
- New twin screw compressor optimised for R134a means the load can be more accurately matched and higher seasonal efficiencies achieved
- SEER - Tier 2 Compliant (2021)



Optional: Integrated hydraulic module



RCME 60 - 140AH2

SAMURAI

AIR COOLED, HI-EFFICIENCY

COOLING ONLY

	Unit	RCME 60AH2	RCME 70AH2	RCME 80AH2	RCME 90AH2	RCME 120AH2	RCME 140AH2
Cooling Capacity ⁽¹⁾	Kw	160	180	205	225	320	360
Power Input	Kw	51	57.3	64.9	70.3	101.9	114.6
EER (inc. pump input)		3.14 (3.11)	3.14 (3.11)	3.16 (3.13)	3.20 (3.16)	3.14 (3.12)	3.14 (3.12)
SEER		4.11	4.13	4.12	4.12	4.18	4.19
Sound Power Level (Std/LN/SLN/ESLN)	dB(A)	96 / 93 / 91 / 88	97 / 94 / 92 / 89	98 / 95 / 93 / 90	99 / 96 / 94 / 91	99 / 96 / 94 / 91	100 / 97 / 95 / 92
Sound Pressure Level (Std/LN/SLN/ESLN) (2)	dB(A)	83 / 80 / 78 / 75	84 / 81 / 79 / 76	85 / 82 / 80 / 77	86 / 83 / 81 / 78	86 / 83 / 81 / 78	100 / 97 / 95 / 92
Height	mm	2450					
Width	mm	1955				3970	
Depth	mm	2290		3230		2300	
Net Weight	Kg	1300	1340	1590	1680	2640	2720
Capacity Control	-	Continuous Capacity Control					
	%	25 ~ 100					
Number of Circuits	-	1	1	1	1	2	
Water Pipe Connection	in	2 ½" Victaulic (1 x Inlet / 1 x Outlet)				2 ½" Victaulic (2 x Inlet / 2 x Outlet)	
Leaving Water Outlet Temperature	°C	5°C ~ 15°C (Low option down to -10°C, High option up to 30°C)					

- NOTES:**
1. The nominal cooling capacities are based on the European Standard EN14511.
Chilled Water Inlet / Outlet Temperature: 12 / 7°C
Condenser Inlet Air Temperature: 35°C
2. Sound Pressure level measured at 1.5m height and 1m from control panel

HEAT PUMP

	Unit	RHME 60AH2	RHME 70AH2	RHME 80AH2	RHME 90AH2	RHME 120AH2	RHME 140AH2
Cooling Capacity ⁽¹⁾	Kw	150	170	195	210	300	340
Power Input	Kw	50.8	57.6	65.7	69.8	101.7	115.3
EER (inc. pump input)		2.95 (2.93)	3.14 (3.11)	3.16 (3.13)	3.20 (3.16)	3.14 (3.12)	3.14 (3.12)
SEER		4.11	4.13	4.12	4.12	4.18	4.19
Heating Capacity	Kw	145	145	185	185	290	290
Power Input	Kw	51.2	51.2	64.9	64.9	102.5	102.5
COP (inc. pump input)		2.83 (2.82)	2.83 (2.82)	2.85 (2.84)	2.85 (2.84)	2.83 (2.82)	2.83 (2.82)
SCOP		3.22	3.22	3.25	3.25	3.22	3.22
Sound Power Level (Std/LN/SLN/ESLN)	dB(A)	96 / 93 / 91 / 88	97 / 94 / 92 / 89	98 / 95 / 93 / 90	99 / 96 / 94 / 91	99 / 96 / 94 / 91	100 / 97 / 95 / 92
Sound Pressure Level (Std/LN/SLN/ESLN) (2)	dB(A)	83 / 80 / 78 / 75	84 / 81 / 79 / 76	85 / 82 / 80 / 77	86 / 83 / 81 / 78	86 / 83 / 81 / 78	100 / 97 / 95 / 92
Height	mm	2450					
Width	mm	1955				3970	
Depth	mm	2290		3230		2300	
Net Weight	Kg	1300	1340	1590	1680	2640	2720
Capacity Control	-	Continuous Capacity Control					
	%	25 ~ 100					
Number of Circuits	-	1	1	1	1	2	
Water Pipe Connection	in	2 ½" Victaulic (1 x Inlet / 1 x Outlet)				2 ½" Victaulic (2 x Inlet / 2 x Outlet)	
Chilled Water Outlet Temperature	°C	5°C ~ 15°C (Low option down to -10°C, High option up to 30°C)					
Heated Water Outlet Tempearture	°C	35°C ~ 55°C					
Ambient Temprature - Cooling	°C	-15°C ~ 46°C					
Ambient Temprature - Heating	°C	-9.5°C (DB), -10°C (WB) ~ 21°C (DB), 15.5°C (WB)					

- NOTES:**
1. The nominal cooling capacities are based on the European Standard EN14511.
Chilled Water Inlet / Outlet Temperature: 12 / 7°C
Condenser Inlet Air Temperature: 35°C
Heated Water Inlet / Outlet Temperature: 40 / 45°C
Condenser Inlet Air Temperature: 6°C WB
2. Sound Pressure level measured at 1.5m height and 1m from control panel

SAMURAI CHILLERS

WATER COOLED HI-EFFICIENCY



- High efficiency Screw Compressor
- Stainless Steel Plate Heat Exchanger(s)
- 806 x 1271 mm width/depth
- R134a Refrigerant
- Modules – up to 8 for 1 chiller (max 2000 kW)
- Operating Modes x 2
- SEER - Tier 2 compliant (2021)
- SEPR_{MT} – Tier 2 compliant (2018)
- SEPR_{HT} – Tier 2 compliant (2021)
- SCOP – Tier 2 compliant (2017)
- Full range of Options & Accessories.



RCME 40~70WH1

SAMURAI

WATER COOLED CHILLER, HI-EFFICIENCY

COOLING ONLY & HEAT PUMP

	Unit	RCME 40WH1	RCME 50WH1	RCME 60WH1	RCME 70WH1
Cooling Capacity ⁽¹⁾	Kw	140	180	220	250
Heating Capacity ⁽²⁾	Kw	159.9	205.9	252.9	297.1
Power Input (Cooling) ¹	Kw	28	36.3	45.4	51.3
Power Input (Heating) ²	Kw	33.4	43.3	54.1	61.2
EER		5.0	4.96	4.85	4.87
COP		4.8	4.76	4.67	4.69
SEER		5.14	5.46	5.51	5.51
Sound Power Level (Std/LN/SLN)	dB(A)	88 / 82 / 72	89 / 83 / 73	90 / 84 / 74	91 / 85 / 75
Sound Pressure Level (Std/LN/SLN)	dB(A)	60 / 54 / 44	61 / 55 / 45	62 / 56 / 46	63 / 57 / 47
Height	mm	1681			
Width	mm	806			
Depth	mm	1271			
Net Weight	Kg	860	950	1040	1075
Capacity Control	-	Continuous Capacity Control			
	%	25 ~ 100			
Number of Circuits	-	1	1	1	1
Water Pipe Connection (Evaporator)	in	2 ½" Victaulic (1 x Inlet / 1 x Outlet)			
Water Pipe Connection (Condenser)	in	2 ½" Victaulic (1 x Inlet / 1 x Outlet)			
Leaving Water Outlet Temperature (Cool)	°C	5 ~ 15 (-10 option)			
Leaving Water Outlet Temperature (Heat)	°C	22 ~ 50			
Condenser Water Outlet Temperature 3	°C	22 ~ 50 (60° option)			

NOTES:

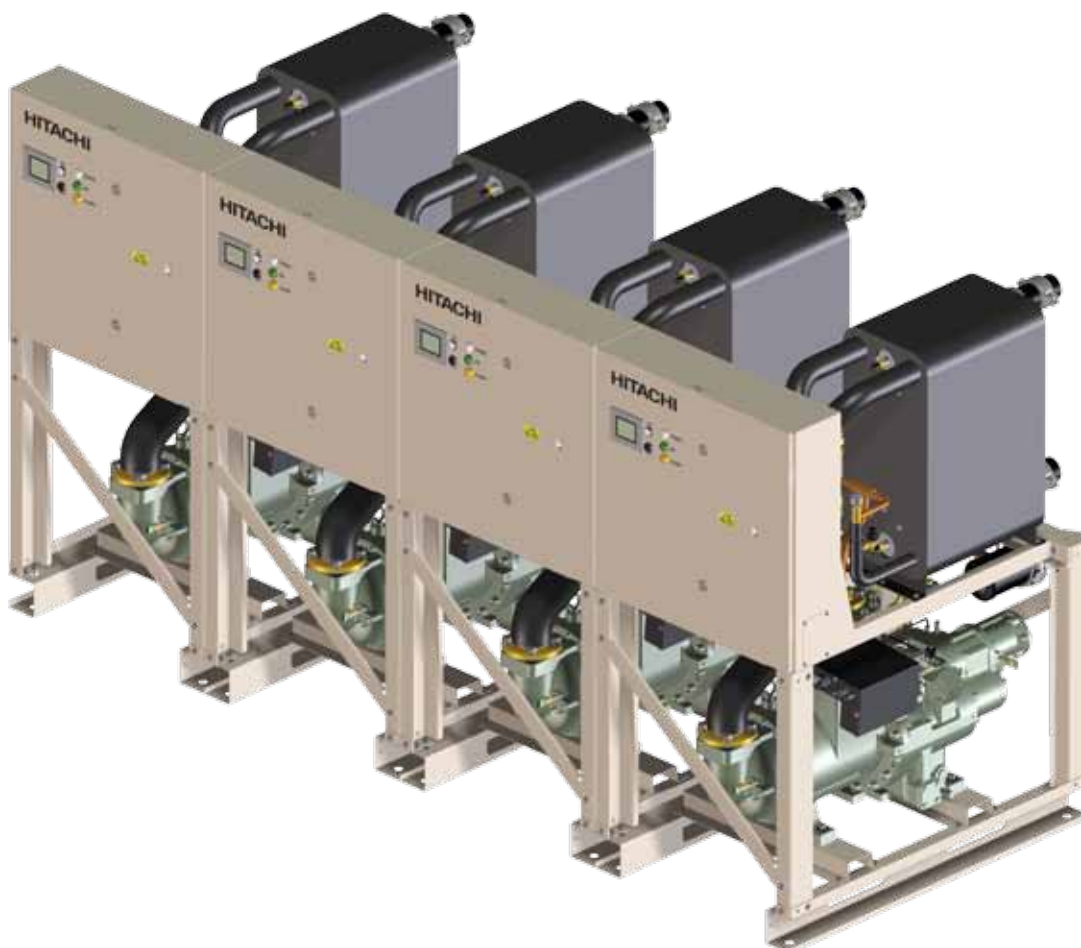
- The nominal cooling capacities are based on the European Standard EN12055.
Chilled Water Inlet / Outlet Temperature: 12 / 7°C
Cooling Water Inlet / Outlet Temperature: 30 / 35°C
- The nominal heating capacities are only for Heat Pump Operation Option and based on following conditions.
Chilled Water Inlet / Outlet Temperature: 12 / 7°C
Hot Water (Condenser) Inlet / Outlet Temperature: 40 / 45°C
- In case of high condensing option and heat pump operation option.

SAMURAI CHILLERS

CONDENSERLESS HI-EFFICIENCY



- High efficiency Screw Compressor
- Stainless Steel Plate Heat Exchanger(s)
- 806 x 1271 mm width/depth
- R134a Refrigerant
- Modules – up to 8 for 1 chiller (max 1,720 kW)
- Operating Modes x 2
- SEER - Tier 2 compliant (2021)
- SEPR_{MT} – Tier 2 compliant (2018)
- SEPR_{HT} – Tier 2 compliant (2021)
- SCOP – Tier 2 compliant (2017)
- Full range of Options & Accessories



RCME40~60CLH1

SAMURAI

CONDENSERLESS, HI-EFFICIENCY

	Unit	RCME 40CLH1	RCME 50CLH1	RCME 60CLH1
Cooling Capacity ⁽¹⁾	Kw	135	175	215
Power Input	Kw	32	41.8	52.4
EER		4.22	4.19	4.1
Sound Power Level (Std/LN/SLN)	dB(A)	88 / 82 / 72	89 / 83 / 73	
Sound Pressure Level (Std/LN/SLN)	dB(A)	60 / 54 / 44	61 / 55 / 45	62 / 56 / 46
Height	mm		1681	
Width	mm		806	
Depth	mm		1271	
Net Weight	Kg	765	835	900
Capacity Control	-	Continuous Capacity Control		
	%	25 ~ 100		
Number of Circuits	-	1	1	1
Water Pipe Connection (Evaporator)	in	2 ½" Victaulic (1 x Inlet / 1 x Outlet)		
Condensing Temperature	°C	30 ~ 60		

NOTES:

1. The nominal cooling capacities are based on the following conditions.

Chilled Water Inlet / Outlet Temperature: 12 / 7°C

Condensing Temperature: 45°C

CHILLED WATER FAN COILS

New offering to complement our chiller range:

- EC or AC Fan motor versions
- 2 pipe or 4 pipe
- Full range of controls & accessories certified by Eurovent



SAMURAI M CHILLERS

AIR COOLED, INVERTER SCROLL



- Connect up to 32 modules in one chiller
- Electronically Commutated (EC) Fan
- Inverter Drive Compressor
- U-Shaped Condenser Coils
- Low noise kits reduce sound by 6 dB(A)
- Smart building ready
- EER - Tier 2 compliant (2021)
- SEPR_{MT} – Tier 2 compliant (2018)
- SEPR_{HT} – Tier 2 compliant (2021)
- SCOP – Tier 2 compliant (2017)
- Full range of Options & Accessories



RCMA 18-100AN

SAMURAI M

AIR COOLED, INVERTER SCROLL

Unit - Heat Pump		RHMA 18AN	RHMA 24AN	RHMA 30AN	RHMA 40AN	RHMA 50AN	RHMA 60AN	RHMA 75AN	RHMA 90AN	RHMA 100AN
Unit - Cooling Only		RCMA 18AN	RCMA 18AN	RHMA 30AN	RCMA 40AN	RCMA 50AN	RCMA 60AN	RCMA 75AN	RCMA 90AN	RCMA 100AN
Nominal Cooling	kW	44.8	60.4	77.5	99.1	122.8	164.0	189.1	219.4	255.1
Power Input	kW	15.3	21.3	24.8	32.6	40.8	52.1	61.2	70.4	82.0
EER nominal		2.93	2.84	3.13	3.05	3.01	3.15	3.09	3.12	3.11
SEER		4.63	4.56	4.34	4.73	4.36	4.68	4.58	4.24	4.60
Season Energy Efficiency	%	182	179	171	186	171	184	180	167	181
SEPR HT		5.9	5.9	5.64	5.67	5.86	5.95	5.94	5.86	6.31
SEPR MT		3.70	3.42	3.67	3.51	3.39	3.67	3.51	3.51	3.39
Nominal Heating	kW	46.83	56.61	79.72	90.90	122.36			TBC	
Power Input	kW	17.26	21.25	28.02	33.16	47.11			TBC	
COP nominal		2.71	2.66	2.85	2.74	2.60			TBC	
SCOP		3.32	3.28	3.39	3.36	3.31	3.32	3.36	3.49	3.30
Season Energy Efficiency	%	130	128	133	131	129	130	131	137	129
Refrigerant		R410A								
Pre-charged Refrigerant Quantity per coil	circuit 1	9.5	12.3	8.5	9.5	11.4	9.5	11.0	9.5	11.0
	circuit 2	9.1			11.0	11.4	11.0	11.0	11.0	11.0
	circuit 3	11.0						11.0	11.0	11.0
	circuit 4								11.0	11.0
Compressor Type		Scroll DC Inverter + Scroll								
Number of Compressors		2	2	3	3	4	5	6	7	8
Capacity range	%	33~100	25~100	25~100	15~100	12~100			TBC	
Dimensions (H x W x D)	mm	2440 x 1500 x 1200			2440 x 2440 x 1200			2440 x 2240 x 3050		
Weight (without pump kit)	kg	575	598	875	902	979			TBC	
Sound Power (Cooling only))	dB(A)	75	76	77	78	80	81	82	84	85
Sound Power (Heat pump C/H)	dB(A)	81 / 83	82 / 85	83 / 85	84 / 86	84 / 86	87 / 89	89 / 90	91 / 91	92 / 92
Fan Motor Type	/	EC Motor								
Fan Quantity	pcs	1			2			3		4
Working ambient temp (Cooling)	°C	-17,8 ~ 48								
Working ambient temp (Heating)	°C	-15 ~ 25								
Water leaving temp (Cooling)	°C	-8 ~ 20 (Cooling only) / +5 ~20 (Heat pump)								
Water leaving temp (Heating)	°C	25 ~ 55								
Heat exchanger type		Brazen Plate Heat Exchanger								
Optional Pump type		Variable Speed Drive Pump								
Flow rate min / nominal / max	l/s	1.5 / 2.14 / 2.8	2 / 2.88 / 3.7	2.7 / 3.69 / 5	3.3 / 4.73 / 6.2	4.2 / 5.86 / 7.8	- / 7.82 / -	- / 9.02 / -	- / 10.46 / -	- / 12.17 / -
Total pressure drop	kPa	25.6	24.4	23.5	30.5	38	29.13	34.1	33.34	40.1
Water Connections		2" Vitaulic			2 ½" Vitaulic			TBC		
Supply Voltage	V/ph/hz	400 / 3 / 50Hz								
Maximum unit current	A	40.5	43.7	66.2	77	91.5			TBC	

- NOTES:
1. The nominal cooling capacities are based on the European Standard EN14511.
Chilled Water Inlet / Outlet Temperature: 12 / 7°C
Condenser Inlet Air Temperature: 35°C
Heated Water Inlet / Outlet Temperature: 40 / 45°C
Condenser Inlet Air Temperature: 6°C WB

2. Sound Pressure level measured at 1.5m height and 1m from control panel

SAMURAI S CHILLERS

AIR COOLED, INVERTER SCROLL

- Connect up to 4 modules in one chiller
- Esp of fan up to 30 Pa
- Inverter Drive Compressor
- SEER – Tier 2 compliant (2021)
- SCOP – Tier 2 compliant (2017)
- Built in hydraulic kits with pump and flow switch mounted by factory
- Safety valve, water strainer and automatic make-up valve are shipped loose



NOTES:

- The nominal cooling capacities are based on the European Standard EN14511.
Chilled Water Inlet / Outlet Temperature: 12 / 7°C
Condenser Inlet Air Temperature: 35°C
Heated Water Inlet / Outlet Temperature: 40 / 45°C
Condenser Inlet Air Temperature: 6°C WB
- Sound Pressure level measured at 1.5m height and 1m from control panel

	Unit	RHMA 4AVN	RHMA 5AVN	RHMA 6AVN	RHMA 7AVN
Nominal Cooling	Kw	11.2	14.0	15.5	18.0
Power Input	Kw	3.9	5.5	6.0	7.1
EER nominal		2.9	2.5	2.6	2.5
SEER / Seasonal Energy Efficiency	%	/ ≥149	/ ≥149	/ ≥149	/ ≥149
Nominal Heating	kW	12.4	15.2	16.2	20.3
Power Input	kW	3.2	4	4.3	5.9
COP nominal		3.9	3.8	3.8	3.4
SCOP / Seasonal Energy Efficiency		3.58 / 140	3.7 / 145	3.78 / 148	3.58 / 140
Refrigerant		R410A			
Pre-charged Refrigerant	kg	2.8	3.3	3.9	4
Compressor Type		Hitachi DC Inverter			
Number of Compressors		1	1	1	1
Dimensions (H x W x D)	mm	1320 x 995 x 360			
Weight (without pump kit)	kg	126	128	141	141
Sound Power (Cooling only) (Std/LN)	dB(A)	70 / 65	70 / 65	70 / 65	70 / 69
Fan Motor Type	/	BLDC/54			
Fan Quantity	pcs	2	2	2	2
Pump Horsepower	kW	0.37	0.37	0.37	0.37
Pressure drop	m	15	13	12	11
Working ambient temp (Cooling)	°C	-5 ~ 48			
Working ambient temp (Heating)	°C	-20 ~ 25			
Water leaving temp (Cooling)	°C	+5 ~ 15			
Water leaving temp (Heating)	°C	30 ~ 50			
Heat exchanger type		Brazen Plate Heat Exchanger			
Nominal Flow rate	l/s	1.93	2.41	2.67	3.10
Total pressure drop	MPa	150	130	120	110
Water Connections		Thread / 1"			
Supply Voltage	V/ph/hz	220/1/50			
Maximum unit current	A	24	33	33	36



RHMA 4-7AVN

Johnson Controls Hitachi Air Conditioning Europe SAS - UK

Whitebrook Park, Lower Cookham Road,
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Tel.: 020 3901 0912

CERTIFICATION



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