

Release information

UNIVERSAL SMART X series 4 and UNIVERSAL SMART X series EDGE 2 for SEA

Appendix 1 : Model name list

(Product Bulletin No.J2023-021 : 3/12)

Model Name List

<Universal Smart X series 4 for Asia>

			HP	30HP		40HP		50HP			
Power supply			3ph 60Hz 220V		✓		✓			✓	
			3ph 50/60Hz 380V	✓		✓		✓			
			3ph 50/60Hz 400V	✓		✓		✓		✓	
			3ph 50/60Hz 415V	✓		✓		✓		✓	
			3ph 60Hz 440V	✓		✓		✓		✓	
Model Name			RUA-SP								
Standard	Pumpless	Heat pump	244HL5S	244HL6S	334HL5S	334HL6S	244HL1S	244HL7S	244HL6S		
			244HL5SM	244HL6SM	334HL5SM	334HL6SM	244HL1SM	244HL7SM	244HL6SM		
		Cooling Only	244HLN5S	244HLN6S	334HLN5S	334HLN6S	244HLN1S	244HLN7S	244HLN6S		
			244HLN5SM	244HLN6SM	334HLN5SM	334HLN6SM	244HLN1SM	244HLN7SM	244HLN6SM		
		Heat pump (High EER)	244CL5S	244CL6S	334CL5S	334CL6S	244CL1S	244CL7S	244CL6S		
			244CL5SM	244CL6SM	334CL5SM	334CL6SM	244CL1SM	244CL7SM	244CL6SM		
		Cooling Only (High EER)	244CLN5S	244CLN6S	334CLN5S	334CLN6S	244CLN1S	244CLN7S	244CLN6S		
			244CLN5SM	244CLN6SM	334CLN5SM	334CLN6SM	244CLN1SM	244CLN7SM	244CLN6SM		
		Integrated Pump	Heat pump	244H5S	244H6S	334H5S	334H6S	244H1S	244H7S	244H6S	
				244H5SM	244H6SM	334H5SM	334H6SM	244H1SM	244H7SM	244H6SM	
	Cooling Only		244HN5S	244HN6S	334HN5S	334HN6S	244HN1S	244HN7S	244HN6S		
			244HN5SM	244HN6SM	334HN5SM	334HN6SM	244HN1SM	244HN7SM	244HN6SM		
	Heat pump (High EER)		244C5S	244C6S	334C5S	334C6S	244C1S	244C7S	244C6S		
			244C5SM	244C6SM	334C5SM	334C6SM	244C1SM	244C7SM	244C6SM		
	Cooling Only (High EER)		244CN5S	244CN6S	334CN5S	334CN6S	244CN1S	244CN7S	244CN6S		
			244CN5SM	244CN6SM	334CN5SM	334CN6SM	244CN1SM	244CN7SM	244CN6SM		

<Universal Smart X EDGE series 2 for Asia>

			HP	60HP		70HP		60HP (Powerful Heating Type)			
Power supply			3ph 60Hz 220V		✓		✓		✓		
			3ph 50/60Hz 380V	✓		✓		✓			
			3ph 50/60Hz 400V	✓		✓		✓			
			3ph 50/60Hz 415V	✓		✓		✓			
			3ph 60Hz 440V	✓		✓		✓			
Model Name			RUA-SP								
Standard	Pumpless	Heat pump	512HL5S	512HL6S	562HL5S	562HL6S	512FL5S	512FL6S			
			512HL5SM	512HL6SM	562HL5SM	562HL6SM	512FL5SM	512FL6SM			
		Cooling Only	512HLN5S	512HLN6S	562HLN5S	562HLN6S	512FLN5S	512FLN6S			
			512HLN5SM	512HLN6SM	562HLN5SM	562HLN6SM	512FLN5SM	512FLN6SM			
		Heat pump (High EER)	512CL5S	512CL6S	562CL5S	562CL6S					
			512CL5SM	512CL6SM	562CL5SM	562CL6SM					
		Cooling Only (High EER)	512CLN5S	512CLN6S	562CLN5S	562CLN6S					
			512CLN5SM	512CLN6SM	562CLN5SM	562CLN6SM					
		Integrated Pump	Heat pump	512H5S	512H6S	562H5S	562H6S	512F5S	512F6S		
				512H5SM	512H6SM	562H5SM	562H6SM	512F5SM	512F6SM		
	Cooling Only		512HN5S	512HN6S	562HN5S	562HN6S	512FN5S	512FN6S			
			512HN5SM	512HN6SM	562HN5SM	562HN6SM	512FN5SM	512FN6SM			
	Heat pump (High EER)		512C5S	512C6S	562C5S	562C6S					
			512C5SM	512C6SM	562C5SM	562C6SM					
	Cooling Only (High EER)		512CN5S	512CN6S	562CN5S	562CN6S					
			512CN5SM	512CN6SM	562CN5SM	562CN6SM					

Nomenclature : USX Series 4 and USX EDGE Series 2

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
R	U	A	-	S	P	2	4	4	C	L	N	5	S	M	*	*	*

#1-#3	RUA	: Air Cooled Chiller
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#4	-	: Dash (or hyphen)
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#5-#6		: Series
	SP	Universal Smart X (R410A)
	UP	Universal Smart X - EDGE (R410A)

#7-#8		: Cooling Capacity (USRT)
	24	24RT / 85kW / 30HP
	33	33RT / 118kW / 40HP
	42	42RT / 150kW / 50HP
	51	51RT / 180kW / 60HP
	56	56RT / 200kW / 70HP

#9	0,1,2...	: Development series number
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#10		: Type of refrigerant cycle
	C	Cooling Only
	H	Heat Pump
	F	Heat Pump (Powerful heating type)

#11		: Type of pump
	(Blank)	Pre-installed inverter Pump
	L	Pumpless

#12		: Option
	(Blank)	standard
	N	High COP type

#13		: Power Supply
	1	3ph 50/60Hz 380V
	5	3ph 50/60Hz 380/400/415/ 60Hz 440V
	6	3ph 60Hz 220V
	7	3ph 50/60Hz 400/415/ 60Hz 440V

#14	S	: For South East Asia model Thailand, Indonesia, India, Vietnam, Singapore, Philippine, Brunei, Malaysia, Myanmar, Australia (Total: 12 countries) * For other countries, the regulations need to be confirmed.
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#15		: Module Controller
	(Blank)	None
	M	Equipped

Appendix 2 : Specification sheet for Universal Smart X series EDGE 2

(Product Bulletin No.J2023-021 : 5/12)

Integrated pump

Model Name		RUA-SP	244C5S(M)	244H5S(M)	244C6S(M)	244H6S(M)	334C5S(M)	334H5S(M)	334C6S(M)	334H6S(M)	424C1S(M)	424H1S(M)	424C7S(M)	424H7S(M)	424C6S(M)	424H6S(M)		
Cooling Capacity *1		kW	85.0				118.0				150.0							
Heating Capacity *1		kW	-	85.0	-	85.0	-	118.0	-	118.0	-	150.0	-	150.0	-	150.0		
Unit Color			1Y8.5/0.5(Silky Shade)				1Y8.5/0.5(Silky Shade)				1Y8.5/0.5(Silky Shade)							
Dimensions *2	Height	mm	2,300				2,300				2,300							
	Width	mm	1,080				1,080				1,080							
	Depth	mm	3,400				3,400				3,400							
Shipping Weight		kg	1,273	1,303	1,231	1,261	1,273	1,303	1,231	1,261	1,308	1,338	1,308	1,338	1,266	1,296		
Operating Weight		kg	1,301	1,331	1,259	1,289	1,301	1,331	1,259	1,289	1,343	1,373	1,343	1,373	1,301	1,331		
Power Source *4			380V - 3Ph - 50/60Hz		220V - 3Ph - 60Hz		380V - 3Ph - 50/60Hz		220V - 3Ph - 60Hz		380V - 3Ph - 50/60Hz		400V - 3Ph - 50/60Hz		220V - 3Ph - 60Hz			
Electrical Data *1,3	Cooling	Nominal Current	A		32.7		56.5		50.6		87.5		73.1		69.4		126.0	
		Nominal Input	kW		21.3		33.0		33.0		47.6		47.6		47.6		47.6	
		EER *1			3.99		3.58		3.58		3.15		3.15		3.15		3.15	
		Power Factor	%		99		99		99		99		99		99		99	
	Heating	Nominal Current	A		-	33.5	-	57.8	-	49.4	-	85.4	-	68.0	-	64.6	-	117.0
		Nominal Input	kW		-	21.8	-	21.8	-	32.2	-	32.2	-	44.3	-	44.3	-	44.3
		COP *1			-	3.90	-	3.90	-	3.66	-	3.66	-	3.39	-	3.39	-	3.39
		Power Factor	%		-	99	-	99	-	99	-	99	-	99	-	99	-	99
Compressor	Type	Hermetic Rotary				Hermetic Rotary				Hermetic Rotary								
	Motor Output	kW		5.5 x 4		7.5 x 4		9.25 x 4		9.25 x 4		9.25 x 4		9.25 x 4				
	Type of Start	Inverter				Inverter				Inverter								
	Compressor Heater	W		37 x 4		37 x 4		37 x 4		37 x 4		37 x 4		37 x 4				
Compressor Oil Charge		L		2.0 x 4		2.0 x 4		2.0 x 4		2.0 x 4		2.0 x 4		2.0 x 4				
Condenser Coil - Air Side		Plate Fin Coil				Plate Fin Coil				Plate Fin Coil								
Fans	Type	Propeller Type				Propeller Type				Propeller Type								
	Air Quantity	m ³ /min		1,050 at max		1,050 at max		1,050 at max		1,050 at max		1,050 at max		1,050 at max				
	Motor Output	kW		1.0 x 4		1.0 x 4		1.0 x 4		1.0 x 4		1.0 x 4		1.0 x 4				
Cooler - Water side *5		Braze Plate Type				Braze Plate Type				Braze Plate Type								
Refrigerant	Refrigerant	R410A				R410A				R410A								
	Charge amount	kg		8.2 x 4	8.6 x 4	8.2 x 4	8.6 x 4	8.2 x 4	8.6 x 4	8.2 x 4	8.6 x 4	8.2 x 4	8.6 x 4	8.2 x 4	8.6 x 4			
	Control	EXV				EXV				EXV								
Capacity Control Steps *8		%		0 and 9 ~ 100		0 and 5 ~ 100		0 and 5 ~ 100		0 and 5 ~ 100		0 and 5 ~ 100		0 and 5 ~ 100				
Operation Control		Microprocessor control based on Leaving water temperature and Temperature difference				Microprocessor control based on Leaving water temperature and Temperature difference				Microprocessor control based on Leaving water temperature and Temperature difference								
Operating Limit - LWT *9	Cooling	°C		4 ~ 30		4 ~ 30		4 ~ 30		4 ~ 30		4 ~ 30		4 ~ 30				
	Heating	°C		-	25 ~ 55	-	25 ~ 55	-	25 ~ 55	-	25 ~ 55	-	25 ~ 55	-	25 ~ 55			
Operating Limit - OAT	Cooling	°C		-15 ~ 48 DB		-15 ~ 48 DB		-15 ~ 48 DB		-15 ~ 48 DB		-15 ~ 48 DB		-15 ~ 48 DB				
	Heating	°C		-	-15 ~ 21 DB	-	-15 ~ 21 DB	-	-15 ~ 21 DB	-	-15 ~ 21 DB	-	-15 ~ 21 DB	-	-15 ~ 21 DB			
Protective Devices		High Pressure Switch, Over Current Protection, Inverter Overload Protection (Compressor, Fan, Pump) Compressor Heater, Open Phase Protection, Fuses Microprocessor Control (Compressor time guard, Low water temp. cutout, Low flow rate protection, Low Pressure Cutout, Discharge gas overheat protection, Thermistor failure, High water pressure failure)				High Pressure Switch, Over Current Protection, Inverter Overload Protection (Compressor, Fan, Pump) Compressor Heater, Open Phase Protection, Fuses Microprocessor Control (Compressor time guard, Low water temp. cutout, Low flow rate protection, Low Pressure Cutout, Discharge gas overheat protection, Thermistor failure, High water pressure failure)				High Pressure Switch, Over Current Protection, Inverter Overload Protection (Compressor, Fan, Pump) Compressor Heater, Open Phase Protection, Fuses Microprocessor Control (Compressor time guard, Low water temp. cutout, Low flow rate protection, Low Pressure Cutout, Discharge gas overheat protection, Thermistor failure, High water pressure failure)								
Piping Diameters	Water Inlet Conn.	2" Flange x 1				2" Flange x 1				2-1/2" Flange x 1								
	Water Outlet Conn.	2" Flange x 1				2" Flange x 1				2-1/2" Flange x 1								
	Coil Drain Conn.	PT 1-1/2" External thread x 1				PT 1-1/2" External thread x 1				PT 1-1/2" External thread x 1								
Internal Pump *17		Standard				Standard				Standard								
Internal Pump *17	Motor Output	kW		1.5		1.5		1.5		1.5		1.5		1.5				
	Type	Line Pump				Line Pump				Line Pump								
	Control	Inverter				Inverter				Inverter								
	Max. Current	A		3.1	6.1	3.1	6.1	3.1	6.1	2.8	5.6							
Sound Level (For one module) *14	dBA	Control Box side :59.3				Control Box side :61.9				Control Box side :64.2								
		Coil side : 65.5				Coil side : 68.8				Coil side : 72.0								
		Water Pipe side : 61.4				Water Pipe side : 64.5				Water Pipe side : 67.7								
Controller *15		Module controller (MC)				Module controller (MC)				Module controller (MC)								

Note *1 Rated conditions for cooling operation are as follows. Cooling : 12°C entering (EWT), 7°C leaving (LWT), 35°CDB/24°CWB outdoor air (OAT). Design water flow rate must be within the range of 5 to 10°C

*2 Dimensions do not include projections of water pipe connections.

*3 Electrical data do not include internal pump. The pump data are shown in the column of "Internal Pump". Current and input of internal pump vary with water flow rate and lifting height.

*4 Supply voltage must normally be used within ±5% of the rated voltage, must be within ±10% of the rated voltage even if there is voltage fluctuation, and the inter phase imbalance must be less than 2%.

*5 Maximum working pressure is 0.7MPa.

*8 Range of capacity control may vary depending on the unit's operating condition.

*9 LWT not higher than 35°C at cooling operation is allowable till 1 hour after. After then, LWT must be within the operating range. Control it with bypass pipe if needed.

*10 Water quality must meet JRA guideline "JRA-GL-02-1994"

*14 The on-site sound level will be higher due to the effects of background noise and sound reflection.

*15 MC (Module Controller) is assembled at our factory. MC is installed in products with "M" in the model name. It is necessary one MC when placing multiple modules side by side (Max 16 modules).

*16 Connecting fitting is attached at all module. (Except MC-installed module)

*17 depending on the outlet pump head required to comply with the indent. The power supply design at that time differs from those of a standard pump. Refer to the power supply design items. In addition, refer to pump performance features for operating conditions (pushing pressure range, etc.).

Appendix 2 : Specification sheet for Universal Smart X series EDGE 2

(Product Bulletin No.J2023-021 : 6/12)

Integrated pump, High EER type

Model Name		RUA-SP	244CN5S(M)	244HN5S(M)	244CN6S(M)	244HN6S(M)	334CN5S(M)	334HN5S(M)	334CN6S(M)	334HN6S(M)	424CN1S(M)	424HN1S(M)	424CN7S(M)	424HN7S(M)	424CN6S(M)	424HN6S(M)	
Cooling Capacity *1		kW	85.0				118.0				150.0						
Heating Capacity *1		kW	-	85.0	-	85.0	-	118.0	-	118.0	-	150.0	-	150.0	-	150.0	
Unit Color			1Y8.5/0.5(Silky Shade)				1Y8.5/0.5(Silky Shade)				1Y8.5/0.5(Silky Shade)						
Dimensions *2	Height	mm	2,300				2,300				2,300						
	Width	mm	1,080				1,080				1,080						
	Depth	mm	3,400				3,400				3,400						
Power Source *4			380V - 3Ph - 50/60Hz		220V - 3Ph - 60Hz		380V - 3Ph - 50/60Hz		220V - 3Ph - 60Hz		380V - 3Ph - 50/60Hz		400V - 3Ph - 50/60Hz		220V - 3Ph - 60Hz		
Electrical Data *1,3	Cooling	Nominal Current	A	21.0		36.3		33.1		57.3		48.5		46.1		83.8	
		Nominal Input	kW	13.7				21.6				31.6					
		EER *1		6.20				5.46				4.75					
		Power Factor	%	99				99				99					
	Heating	Nominal Current	A	-	33.5	-	57.8	-	49.4	-	85.4	-	68.0	-	64.6	-	117.0
		Nominal Input	kW	-	21.8	-	21.8	-	32.2	-	32.2	-	44.3	-	44.3	-	44.3
		COP *1		-	3.90	-	3.90	-	3.66	-	3.66	-	3.39	-	3.39	-	3.39
	Power Factor	%	-	99	-	99	-	99	-	99	-	99	-	99	-	99	
Compressor	Type		Hermetic Rotary				Hermetic Rotary				Hermetic Rotary						
	Motor Output	kW	5.5 x 4				7.5 x 4				9.25 x 4						
	Type of Start		Inverter				Inverter				Inverter						
	Compressor Heater	W	37 x 4				37 x 4				37 x 4						
Compressor Oil Charge		L	2.0 x 4				2.0 x 4				2.0 x 4						
Condenser Coil - Air Side			Plate Fin Coil				Plate Fin Coil				Plate Fin Coil						
Fans	Type		Propeller Type				Propeller Type				Propeller Type						
	Air Quantity	m ³ /min	1,050 at max				1,050 at max				1,050 at max						
	Motor Output	kW	1.0 x 4				1.0 x 4				1.0 x 4						
Water spray system *5, 12	Water Spray volume	L/min	13.6 x 1				13.6 x 1				13.6 x 1						
	Feed-water Pressure *6	MPa	0.2				0.2				0.2						
	Operation Control		Water spraying above set compressor capacity and above set OAT (Set OAT adjustment: 20~40°C)				Water spraying above set compressor capacity and above set OAT (Set OAT adjustment: 20~40°C)				Water spraying above set compressor capacity and above set OAT (Set OAT adjustment: 20~40°C)						
Cooler - Water side *7			Braze Plate Type				Braze Plate Type				Braze Plate Type						
Refrigerant	Refrigerant		R410A				R410A				R410A						
	Charge amount	kg	8.2 x 4	8.6 x 4	8.2 x 4	8.6 x 4	8.2 x 4	8.6 x 4	8.2 x 4	8.6 x 4	8.2 x 4	8.6 x 4	8.2 x 4	8.6 x 4	8.2 x 4	8.6 x 4	
	Control		EXV				EXV				EXV						
Capacity Control Steps *8		%	0 and 9 ~ 100				0 and 5 ~ 100				0 and 5 ~ 100						
Operation Control			Microprocessor control based on Leaving water temperature and Temperature difference				Microprocessor control based on Leaving water temperature and Temperature difference				Microprocessor control based on Leaving water temperature and Temperature difference						
Operating Limit - LWT *9	Cooling	°C	4 ~ 30				4 ~ 30				4 ~ 30						
	Heating	°C	-	25 ~ 55	-	25 ~ 55	-	25 ~ 55	-	25 ~ 55	-	25 ~ 55	-	25 ~ 55	-	25 ~ 55	
Operating Limit - OAT	Cooling	°C	-15 ~ 48 DB				-15 ~ 48 DB				-15 ~ 48 DB						
	Heating	°C	-	-15 ~ 21 DB	-	-15 ~ 21 DB	-	-15 ~ 21 DB	-	-15 ~ 21 DB	-	-15 ~ 21 DB	-	-15 ~ 21 DB	-	-15 ~ 21 DB	
Protective Devices			High Pressure Switch, Over Current Protection, Inverter Overload Protection (Compressor, Fan, Pump) Compressor Heater, Open Phase Protection, Fuses Microprocessor Control (Compressor time guard, Low water temp. cutout, Low flow rate protection, Low Pressure Cutout, Discharge gas overheat protection, Thermistor failure, High water pressure failure)				High Pressure Switch, Over Current Protection, Inverter Overload Protection (Compressor, Fan, Pump) Compressor Heater, Open Phase Protection, Fuses Microprocessor Control (Compressor time guard, Low water temp. cutout, Low flow rate protection, Low Pressure Cutout, Discharge gas overheat protection, Thermistor failure, High water pressure failure)				High Pressure Switch, Over Current Protection, Inverter Overload Protection (Compressor, Fan, Pump) Compressor Heater, Open Phase Protection, Fuses Microprocessor Control (Compressor time guard, Low water temp. cutout, Low flow rate protection, Low Pressure Cutout, Discharge gas overheat protection, Thermistor failure, High water pressure failure)						
Piping Diameters	Water Inlet Conn.		2" Flange x 1				2" Flange x 1				2-1/2" Flange x 1						
	Water Outlet Conn.		2" Flange x 1				2" Flange x 1				2-1/2" Flange x 1						
	Coil Drain Conn.		PT 1-1/2" External thread x 1				PT 1-1/2" External thread x 1				PT 1-1/2" External thread x 1						
Internal Pump *17			Standard				Standard				Standard						
	Motor Output	kW	1.5				1.5				1.5						
	Type	kW	Line Pump				Line Pump				Line Pump						
	Control		Inverter				Inverter				Inverter						
	Max. Current	A	3.1		6.1		3.1		6.1		2.8		5.6				
	Max. Input	kW	2.0				2.0				1.8						
Shipping Weight		kg	1,283	1,313	1,241	1,271	1,283	1,313	1,241	1,271	1,318	1,348	1,318	1,348	1,276	1,306	
Operating Weight		kg	1,313	1,343	1,271	1,301	1,313	1,343	1,271	1,301	1,355	1,385	1,355	1,385	1,313	1,343	
Sound Level (For one module) *14	dBA		Control Box side :59.3				Control Box side :61.9				Control Box side :64.2						
			Coil side : 65.5				Coil side : 68.8				Coil side : 72.0						
			Water Pipe side : 61.4				Water Pipe side : 64.5				Water Pipe side : 67.7						
Controller *15			Module controller (MC)				Module controller (MC)				Module controller (MC)						

Note *1 Rated conditions for cooling operation are as follows. Cooling : 12°C entering (EWT), 7°C leaving (LWT), 35°CDB/24°CWB outdoor air (OAT). Design water flow rate must be within the range of 5 to 10°C

*2 Dimensions do not include projections of water pipe connections.

*3 Electrical data do not include internal pump. The pump data are shown in the column of "Internal Pump". Current and input of internal pump vary with water flow rate and lifting height.

*4 Supply voltage must normally be used within ±5% of the rated voltage, must be within ±10% of the rated voltage even if there is voltage fluctuation, and the inter phase imbalance must be less than 2%.

*5 Depending on the feed-water quality, scale may adhere to the coil surface. If needed, install a softening apparatus for feed-water. (by local arrangement)

*6 Adjust the water flow rate so that the feed-water pressure become this value with the hand valve at the feed-water inlet part. When feed-water pressure is insufficient, install a pressurization pump. (by local arrangement)

*7 Maximum working pressure is 0.7MPa.

*8 Range of capacity control may vary depending on the unit's operating condition.

*9 LWT not higher than 35°C at cooling operation is allowable till 1 hour after. After then, LWT must be within the operating range. Control it with bypass pipe if needed.

*12 Water quality must meet JRA guideline "JRA-GL-02-1994"

*14 The on-site sound level will be higher due to the effects of background noise and sound reflection.

*15 MC (Module Controller) is assembled at our factory. MC is installed in products with "M" in the model name. It is necessary one MC when placing multiple modules side by side (Max 16 modules).

*16 Connecting fitting is attached at all module. (Except MC-installed module)

*17 depending on the outlet pump head required to comply with the indent. The power supply design at that time differs from those of a standard pump. Refer to the power supply design items. In addition, refer to pump performance features for operating conditions (pushing pressure range, etc.).

Appendix 2 : Specification sheet for Universal Smart X series EDGE 2

(Product Bulletin No.J2023-021 : 7/12)

Pumpless

Model Name		RUA-SP	244CL5S(M)	244HL5S(M)	244CL6S(M)	244HL6S(M)	334CL5S(M)	334HL5S(M)	334CL6S(M)	334HL6S(M)	424CL1S(M)	424HL1S(M)	424CL7S(M)	424HL7S(M)	424CL6S(M)	424HL6S(M)		
Cooling Capacity *1		kW	85.0				118.0				150.0							
Heating Capacity *1		kW	-	85.0	-	85.0	-	118.0	-	118.0	-	150.0	-	150.0	-	150.0		
Unit Color			1Y8.5/0.5(Silky Shade)				1Y8.5/0.5(Silky Shade)				1Y8.5/0.5(Silky Shade)							
Dimensions *2	Height	mm	2,300				2,300				2,300							
	Width	mm	1,080				1,080				1,080							
	Depth	mm	3,400				3,400				3,400							
Shipping Weight		kg	1,232	1,262	1,190	1,220	1,232	1,262	1,190	1,220	1,254	1,284	1,254	1,284	1,212	1,242		
Operating Weight		kg	1,260	1,290	1,218	1,248	1,260	1,290	1,218	1,248	1,289	1,319	1,289	1,319	1,247	1,277		
Power Source *4			380V - 3Ph - 50/60Hz		220V - 3Ph - 60Hz		380V - 3Ph - 50/60Hz		220V - 3Ph - 60Hz		380V - 3Ph - 50/60Hz		400V - 3Ph - 50/60Hz		220V - 3Ph - 60Hz			
Electrical Data *1,3	Cooling	Nominal Current	A		32.7		56.5		50.6		87.5		73.1		69.4		126.0	
		Nominal Input	kW		21.3		33.0		33.0		47.6		47.6		47.6		47.6	
		EER *1			3.99		3.58		3.58		3.15		3.15		3.15		3.15	
		Power Factor	%		99		99		99		99		99		99		99	
	Heating	Nominal Current	A		-	33.5	-	57.8	-	49.4	-	85.4	-	68.0	-	64.6	-	117.0
		Nominal Input	kW		-	21.8	-	21.8	-	32.2	-	32.2	-	44.3	-	44.3	-	44.3
		COP *1			-	3.90	-	3.90	-	3.66	-	3.66	-	3.39	-	3.39	-	3.39
		Power Factor	%		-	99	-	99	-	99	-	99	-	99	-	99	-	99
Compressor	Type			Hermetic Rotary				Hermetic Rotary				Hermetic Rotary						
	Motor Output	kW		5.5 x 4				7.5 x 4				9.25 x 4						
	Type of Start			Inverter				Inverter				Inverter						
	Compressor Heater	W		37 x 4				37 x 4				37 x 4						
Compressor Oil Charge		L		2.0 x 4				2.0 x 4				2.0 x 4						
Condenser Coil - Air Side				Plate Fin Coil				Plate Fin Coil				Plate Fin Coil						
Fans	Type			Propeller Type				Propeller Type				Propeller Type						
	Air Quantity	m ³ /min		1,050 at max				1,050 at max				1,050 at max						
	Motor Output	kW		1.0 x 4				1.0 x 4				1.0 x 4						
Cooler - Water side *5				Braze Plate Type				Braze Plate Type				Braze Plate Type						
Refrigerant	Refrigerant			R410A				R410A				R410A						
	Charge amount	kg		8.2 x 4	8.6 x 4	8.2 x 4	8.6 x 4	8.2 x 4	8.6 x 4	8.2 x 4	8.6 x 4	8.2 x 4	8.6 x 4	8.2 x 4	8.6 x 4	8.2 x 4	8.6 x 4	
	Control			EXV				EXV				EXV						
Capacity Control Steps *8		%		0 and 9 ~ 100				0 and 5 ~ 100				0 and 5 ~ 100						
Operation Control				Microprocessor control based on Leaving water temperature and Temperature difference				Microprocessor control based on Leaving water temperature and Temperature difference				Microprocessor control based on Leaving water temperature and Temperature difference						
Operating Limit - LWT *9	Cooling	°C		4 ~ 30				4 ~ 30				4 ~ 30						
	Heating	°C		-	25 ~ 55	-	25 ~ 55	-	25 ~ 55	-	25 ~ 55	-	25 ~ 55	-	25 ~ 55	-	25 ~ 55	
Operating Limit - OAT	Cooling	°C		-15 ~ 48 DB				-15 ~ 48 DB				-15 ~ 48 DB						
	Heating	°C		-	-15 ~ 21 DB	-	-15 ~ 21 DB	-	-15 ~ 21 DB	-	-15 ~ 21 DB	-	-15 ~ 21 DB	-	-15 ~ 21 DB	-	-15 ~ 21 DB	
Protective Devices				High Pressure Switch, Over Current Protection, Inverter Overload Protection (Compressor, Fan, Pump) Compressor Heater, Open Phase Protection, Fuses Microprocessor Control (Compressor time guard, Low water temp. cutout, Low flow rate protection, Low Pressure Cutout, Discharge gas overheat protection, Thermistor failure, High water pressure failure)				High Pressure Switch, Over Current Protection, Inverter Overload Protection (Compressor, Fan, Pump) Compressor Heater, Open Phase Protection, Fuses Microprocessor Control (Compressor time guard, Low water temp. cutout, Low flow rate protection, Low Pressure Cutout, Discharge gas overheat protection, Thermistor failure, High water pressure failure)				High Pressure Switch, Over Current Protection, Inverter Overload Protection (Compressor, Fan, Pump) Compressor Heater, Open Phase Protection, Fuses Microprocessor Control (Compressor time guard, Low water temp. cutout, Low flow rate protection, Low Pressure Cutout, Discharge gas overheat protection, Thermistor failure, High water pressure failure)						
Piping Diameters	Water Inlet Conn.			2" Flange x 1				2" Flange x 1				2-1/2" Flange x 1						
	Water Outlet Conn.			2" Flange x 1				2" Flange x 1				2-1/2" Flange x 1						
	Coil Drain Conn.			PT 1-1/2" External thread x 1				PT 1-1/2" External thread x 1				PT 1-1/2" External thread x 1						
Sound Level (For one module) *14	dBA			Control Box side :59.3				Control Box side :61.9				Control Box side :64.2						
				Coil side : 65.5				Coil side : 68.8				Coil side : 72.0						
				Water Pipe side : 61.4				Water Pipe side : 64.5				Water Pipe side : 67.7						
Controller *15				Module controller (MC)				Module controller (MC)				Module controller (MC)						

Note *1 Rated conditions for cooling operation are as follows. Cooling : 12°C entering (EWT), 7°C leaving (LWT), 35°CDB/24°CWB outdoor air (OAT). Design water flow rate must be within the range of 5 to 10°C

- *2 Dimensions do not include projections of water pipe connections.
- *3 Electrical data do not include internal pump. The pump data are shown in the column of "Internal Pump". Current and input of internal pump vary with water flow rate and lifting height.
- *4 Supply voltage must normally be used within ±5% of the rated voltage, must be within ±10% of the rated voltage even if there is voltage fluctuation, and the inter phase imbalance must be less than 2%.
- *5 Maximum working pressure is 0.7MPa.
- *8 Range of capacity control may vary depending on the unit's operating condition.
- *9 LWT not higher than 35°C at cooling operation is allowable till 1 hour after. After then, LWT must be within the operating range. Control it with bypass pipe if needed.
- *10 Water quality must meet JRA guideline "JRA-GL-02-1994"
- *14 The on-site sound level will be higher due to the effects of background noise and sound reflection.
- *15 MC (Module Controller) is assembled at our factory. MC is installed in products with "M" in the model name. It is necessary one MC when placing multiple modules side by side (Max 16 modules).
- *16 Connecting fitting is attached at all module. (Except MC-installed module)

Appendix 2 : Specification sheet for Universal Smart X series EDGE 2

(Product Bulletin No.J2023-021 : 8/12)

Pumpless, High EER type

Model Name		RUA-SP	244CLN5S(M)	244HLN5S(M)	244CLN6S(M)	244HLN6S(M)	334CLN5S(M)	334HLN5S(M)	334CLN6S(M)	334HLN6S(M)	424CLN1S(M)	424HLN1S(M)	424CLN7S(M)	424HLN7S(M)	424CLN6S(M)	424HLN6S(M)		
Cooling Capacity *1		kW	85.0				118.0				150.0							
Heating Capacity *1		kW	-	85.0	-	85.0	-	118.0	-	118.0	-	150.0	-	150.0	-	150.0		
Unit Color		1Y8.5/0.5(Silky Shade)																
Dimensions *2	Height	mm	2,300				2,300				2,300							
	Width	mm	1,080				1,080				1,080							
	Depth	mm	3,400				3,400				3,400							
Shipping Weight		kg	1,242	1,272	1,200	1,230	1,242	1,272	1,200	1,230	1,264	1,293	1,264	1,293	1,222	1,252		
Operating Weight		kg	1,272	1,302	1,230	1,260	1,272	1,302	1,230	1,260	1,301	1,331	1,301	1,331	1,259	1,289		
Power Source *4		380V - 3Ph - 50/60Hz				220V - 3Ph - 60Hz				380V - 3Ph - 50/60Hz				220V - 3Ph - 60Hz				
Electrical Data *1,3	Cooling	Nominal Current	A 21.0				36.3				33.1				57.3			
		Nominal Input	kW 13.7				21.6				21.6				31.6			
		EER *1	6.20				5.46				4.75				99			
		Power Factor	%				99				99				99			
	Heating	Nominal Current	A	-	33.5	-	57.8	-	49.4	-	85.4	-	68.0	-	64.6	-	117.0	
		Nominal Input	kW	-	21.8	-	21.8	-	32.2	-	32.2	-	44.3	-	44.3	-	44.3	
		COP *1	-	-	3.90	-	3.90	-	3.66	-	3.66	-	3.39	-	3.39	-	3.39	
		Power Factor	%	-	99	-	99	-	99	-	99	-	99	-	99	-	99	
Compressor	Type	Hermetic Rotary																
	Motor Output	kW	5.5 x 4				7.5 x 4				9.25 x 4							
	Type of Start	Inverter																
	Compressor Heater	W	37 x 4				37 x 4				37 x 4							
Compressor Oil Charge		L	2.0 x 4				2.0 x 4				2.0 x 4							
Condenser Coil - Air Side		Plate Fin Coil																
Fans	Type	Propeller Type																
	Air Quantity	m ³ /min	1,050 at max				1,050 at max				1,050 at max							
	Motor Output	kW	1.0 x 4				1.0 x 4				1.0 x 4							
Water spray system *5, 12	Water Spray volume	L/min	13.6 x 1				13.6 x 1				13.6 x 1							
	Feed-water Pressure *6	MPa	0.2				0.2				0.2							
	Operation Control	Water spraying above set compressor capacity and above set OAT (Set OAT adjustment: 20~40°C)																
Cooler - Water side *7		Braze Plate Type																
Refrigerant	Refrigerant	R410A																
	Charge amount	kg	8.2 x 4	8.6 x 4	8.2 x 4	8.6 x 4	8.2 x 4	8.6 x 4	8.2 x 4	8.6 x 4	8.2 x 4	8.6 x 4	8.2 x 4	8.6 x 4	8.2 x 4	8.6 x 4		
	Control	EXV																
Capacity Control Steps *8		%	0 and 9 ~ 100				0 and 5 ~ 100				0 and 5 ~ 100							
Operation Control		Microprocessor control based on Leaving water temperature and Temperature difference																
Operating Limit - LWT *9	Cooling	°C	4 ~ 30				4 ~ 30				4 ~ 30							
	Heating	°C	-	25 ~ 55	-	25 ~ 55	-	25 ~ 55	-	25 ~ 55	-	25 ~ 55	-	25 ~ 55	-	25 ~ 55		
Operating Limit - OAT	Cooling	°C	-15 ~ 48 DB				-15 ~ 48 DB				-15 ~ 48 DB							
	Heating	°C	-	-15 ~ 21 DB	-	-15 ~ 21 DB	-	-15 ~ 21 DB	-	-15 ~ 21 DB	-	-15 ~ 21 DB	-	-15 ~ 21 DB	-	-15 ~ 21 DB		
Protective Devices		High Pressure Switch, Over Current Protection, Inverter Overload Protection (Compressor, Fan, Pump) Compressor Heater, Open Phase Protection, Fuses Microprocessor Control (Compressor time guard, Low water temp. cutout, Low flow rate protection, Low Pressure Cutout, Discharge gas overheat protection, Thermistor failure, High water pressure failure)																
Piping Diameters	Water Inlet Conn.	2" Flange x 1																
	Water Outlet Conn.	2" Flange x 1																
	Coil Drain Conn.	PT 1-1/2" External thread x 1																
Sound Level (For one module) *14	dBA	Control Box side :59.3				Control Box side :61.9				Control Box side :64.2								
		Coil side : 65.5				Coil side : 68.8				Coil side : 72.0								
		Water Pipe side : 61.4				Water Pipe side : 64.5				Water Pipe side : 67.7								
Controller *15		Module controller (MC)																

Note *1 Rated conditions for cooling operation are as follows. Cooling : 12°C entering (EWT), 7°C leaving (LWT), 35°CDB/24°CWB outdoor air (OAT). Design water flow rate must be within the range of 5 to 10°C

*2 Dimensions do not include projections of water pipe connections.

*3 Electrical data do not include internal pump. The pump data are shown in the column of "Internal Pump". Current and input of internal pump vary with water flow rate and lifting height.

*4 Supply voltage must normally be used within ±5% of the rated voltage, must be within ±10% of the rated voltage even if there is voltage fluctuation, and the inter phase imbalance must be less than 2%.

*5 Depending on the feed-water quality, scale may adhere to the coil surface. If needed, install a softening apparatus for feed-water. (by local arrangement)

*6 Adjust the water flow rate so that the feed-water pressure become this value with the hand valve at the feed-water inlet part. When feed-water pressure is insufficient, install a pressurization pump. (by local arrangement)

*7 Maximum working pressure is 0.7MPa.

*8 Range of capacity control may vary depending on the unit's operating condition.

*9 LWT not higher than 35°C at cooling operation is allowable till 1 hour after. After then, LWT must be within the operating range. Control it with bypass pipe if needed.

*12 Water quality must meet JRA guideline "JRA-GL-02-1994"

*14 The on-site sound level will be higher due to the effects of background noise and sound reflection.

*15 MC (Module Controller) is assembled at our factory. MC is installed in products with "M" in the model name. It is necessary one MC when placing multiple modules side by side (Max 16 modules).

*16 Connecting fitting is attached at all module. (Except MC-installed module)

*17 depending on the outlet pump head required to comply with the indent. The power supply design at that time differs from those of a standard pump. Refer to the power supply design items. In addition, refer to pump performance features for operating conditions (pushing pressure range, etc.).

Appendix 2 : Specification sheet for Universal Smart X series EDGE 2

(Product Bulletin No.J2023-021 : 9/12)

Integrated pump

Model Name		RUA-UP	512C5S(M)	512H5S(M)	512C6S(M)	512H6S(M)	562C5S(M)	562H5S(M)	562C6S(M)	562H6S(M)	512F5S(M)	512F6S(M)		
Cooling Capacity *1		kW	180.0		180.0		200.0		200.0		180.0			
Heating Capacity *1		kW	-	180.0	-	180.0	-	200.0	-	200.0	180.0			
Unit Color			1Y8.5/0.5(Silky Shade)				1Y8.5/0.5(Silky Shade)				1Y8.5/0.5(Silky Shade)			
Dimensions *2	Height	mm	2,300				2,300				2,300			
	Width	mm	1,080				1,080				1,080			
	Depth	mm	3,400				3,400				3,400			
Power Source *4			380V - 3Ph - 50/60Hz		220V - 3Ph - 60Hz		380V - 3Ph - 50/60Hz		220V - 3Ph - 60Hz		380V - 3Ph - 50/60Hz			
Electrical Data *1,3	Cooling	Nominal Current	A		89.2		154.0		111.3		192.2			
		Nominal Input	kW		58.1		72.5		58.1		58.1			
		EER *1			3.10		2.76		3.10		3.10			
		Power Factor	%		99		99		99		99			
	Heating	Nominal Current	A		-	83.5	-	144.2	-	97.1	-	167.8	83.5	144.0
		Nominal Input	kW		-	54.4	-	54.4	-	63.3	-	63.3	54.4	54.4
		COP *1			-	3.31	-	3.90	-	3.16	-	3.16	3.31	3.31
Power Factor	%		-	99	-	99	-	99	-	99	99	99		
Compressor	Type		Hermetic Rotary				Hermetic Rotary				Hermetic Rotary			
	Motor Output	kW		12.4 x 4				15.4 x 4				12.4 x 4		
	Type of Start			Inverter				Inverter				Inverter		
	Compressor Heater	W		37 x 4				37 x 4				37 x 4		
Compressor Oil Charge	L		2.0 x 4				2.0 x 4				2.0 x 4			
Condenser Coil - Air Side			Plate Fin Coil				Plate Fin Coil				Plate Fin Coil			
Fans	Type		Propeller Type				Propeller Type				Propeller Type			
	Air Quantity	m ³ /min		1,230 at max				1,230 at max				1,230 at max		
	Motor Output	kW		1.2 x 4				1.2 x 4				1.2 x 4		
Cooler - Water side *5			Brazed Plate Type				Brazed Plate Type				Brazed Plate Type			
Refrigerant	Refrigerant			R410A				R410A				R410A		
	Charge amount	kg		10.2 x 4	10.6 x 4	10.2 x 4	10.6 x 4	10.2 x 4	10.6 x 4	10.2 x 4	10.6 x 4	10.6 x 4		
	Control			EXV				EXV				EXV		
Capacity Control Steps *8	%		0 and 5 ~ 100				0 and 5 ~ 100				0 and 5 ~ 100			
Operation Control		Microprocessor control based on Leaving water temperature and Temperature difference				Microprocessor control based on Leaving water temperature and Temperature difference				Microprocessor control based on Leaving water temperature and Temperature difference				
Operating Limit - LWT *9	Cooling	°C		4 ~ 30				4 ~ 30				4 ~ 30		
	Heating	°C		-	25 ~ 55	-	25 ~ 55	-	25 ~ 55	-	25 ~ 55	25 ~ 55	25 ~ 55	
Operating Limit - OAT	Cooling	°C		-15 ~ 52 DB				-15 ~ 52 DB				-15 ~ 52 DB		
	Heating	°C		-	-15 ~ 21 DB	-	-15 ~ 21 DB	-	-15 ~ 21 DB	-	-15 ~ 21 DB	-15 ~ 21 DB	-15 ~ 21 DB	
Protective Devices		High Pressure Switch, Over Current Protection, Inverter Overload Protection (Compressor, Fan, Pump) Compressor Heater, Open Phase Protection, Fuses Microprocessor Control (Compressor time guard, Low water temp. cutout, Low flow rate protection, Low Pressure Cutout, Discharge gas overheat protection, Thermistor failure, High water pressure failure)				High Pressure Switch, Over Current Protection, Inverter Overload Protection (Compressor, Fan, Pump) Compressor Heater, Open Phase Protection, Fuses Microprocessor Control (Compressor time guard, Low water temp. cutout, Low flow rate protection, Low Pressure Cutout, Discharge gas overheat protection, Thermistor failure, High water pressure failure)				High Pressure Switch, Over Current Protection, Inverter Overload Protection (Compressor, Fan, Pump) Compressor Heater, Open Phase Protection, Fuses Microprocessor Control (Compressor time guard, Low water temp. cut-out, Low flow rate protection, Low Pressure Cutout, Discharge gas overheat protection, Thermistor failure, High water pressure failure)				
Piping Diameters	Water Inlet Conn.			2-1/2" Flange x 1				3" Flange x 1				2-1/2" Flange x 1		
	Water Outlet Conn.			2-1/2" Flange x 1				3" Flange x 1				2-1/2" Flange x 1		
	Coil Drain Conn.			PT 1-1/2" External thread x 1				PT 1-1/2" External thread x 1				PT 1-1/2" External thread x 1		
Internal Pump *17				Standard				Standard				Standard		
Motor Output	kW		1.5				2.2				1.5			
Type	kW		Centrifugal Pump				Centrifugal Pump				Centrifugal Pump			
Control			Inverter				Inverter				Inverter			
Max. Current	A		3.1	6.1	4.3	8.5	3.1	6.1						
Max. Input	kW		2.0				2.8				2.0			
Shipping Weight	kg		1,286	1,323	1,281	1,318	1,295	1,332	1,290	1,327	1,334	1,324		
Operating Weight	kg		1,322	1,359	1,317	1,354	1,331	1,368	1,326	1,363	1,370	1,360		
Sound Level (For one module) *14	dBA	Control Box side :69.0				Control Box side :70.5				Control Box side :69.0				
		Coil side : 72.3				Coil side : 74.9				Coil side : 72.3				
		Water Pipe side : 68.5				Water Pipe side : 71.0				Water Pipe side : 68.5				
Controller *15				Module controller (MC)				Module controller (MC)				Module controller (MC)		

Note *1 Rated conditions for cooling operation are as follows. Cooling : 12°C entering (EWT), 7°C leaving (LWT), 35°CDB/24°CWB outdoor air (OAT). Design water flow rate must be within the range of 5 to 10°C

*2 Dimensions do not include projections of water pipe connections.

*3 Electrical data do not include internal pump. The pump data are shown in the column of "Internal Pump". Current and input of internal pump vary with water flow rate and lifting height.

*4 Supply voltage must normally be used within ±5% of the rated voltage, must be within ±10% of the rated voltage even if there is voltage fluctuation, and the inter phase imbalance must be less than 2%.

*5 Maximum working pressure is 0.7MPa.

*8 Range of capacity control may vary depending on the unit's operating condition.

*9 LWT not higher than 35°C at cooling operation is allowable till 1 hour after. After then, LWT must be within the operating range. Control it with bypass pipe if needed.

*10 Water quality must meet JRA guideline "JRA-GL-02-1994"

*14 The on-site sound level will be higher due to the effects of background noise and sound reflection.

*15 MC (Module Controller) is assembled at our factory. MC is installed in products with "M" in the model name. It is necessary one MC when placing multiple modules side by side (Max 16 modules).

*16 Connecting fitting is attached at all module. (Except MC-installed module)

*17 depending on the outlet pump head required to comply with the indent. The power supply design at that time differs from those of a standard pump. Refer to the power supply design items. In addition, refer to pump performance features for operating conditions (pushing pressure range, etc.).

Appendix 2 : Specification sheet for Universal Smart X series EDGE 2

(Product Bulletin No.J2023-021 : 10/12)

Integrated pump, High EER type

Model Name		RUA-UP	512CN5S(M)	512HN5S(M)	512CN6S(M)	512HN6S(M)	562CN5S(M)	562HN5S(M)	562CN6S(M)	562HN6S(M)	512FN5S(M)	512FN6S(M)		
Cooling Capacity *1		kW	180.0				200.0				180.0			
Heating Capacity *1		kW	-	180.0	-	180.0	-	200.0	-	200.0	180.0			
Unit Color			1Y8.5/0.5(Silky Shade)				1Y8.5/0.5(Silky Shade)				1Y8.5/0.5(Silky Shade)			
Dimensions *2	Height	mm	2,300				2,300				2,300			
	Width	mm	1,080				1,080				1,080			
	Depth	mm	3,400				3,400				3,400			
Power Source *4			380V - 3Ph - 50/60Hz		220V - 3Ph - 60Hz		380V - 3Ph - 50/60Hz		220V - 3Ph - 60Hz		380V - 3Ph - 50/60Hz		220V - 3Ph - 60Hz	
Electrical Data *1,3	Cooling	Nominal Current	A	60.6				104.7				60.6		104.7
		Nominal Input	kW	39.5				48.5				39.5		48.5
		EER *1		4.56				4.12				4.56		4.12
		Power Factor	%	99				99				99		99
	Heating	Nominal Current	A	-	83.5	-	144.2	-	97.1	-	167.8	83.5		144.2
		Nominal Input	kW	-	54.4	-	54.4	-	63.3	-	63.3	54.4		63.3
		COP *1		-	3.31	-	3.31	-	3.16	-	3.16	3.31		3.16
	Power Factor	%	-	99	-	99	-	99	-	99	99		99	
Compressor	Type		Hermetic Rotary				Hermetic Rotary				Hermetic Rotary			
	Motor Output	kW	8.7 x 4	11.9 x 4	8.7 x 4	11.9 x 4	10.7 x 4	13.5 x 4	10.7 x 4	13.5 x 4	11.9 x 4			
	Type of Start		Inverter				Inverter				Inverter			
	Compressor Heater	W	37 x 4				37 x 4				37 x 4			
Compressor Oil Charge		L	2.0 x 4				2.0 x 4				2.0 x 4			
Condenser Coil - Air Side			Plate Fin Coil				Plate Fin Coil				Plate Fin Coil			
Fans	Type		Propeller Type				Propeller Type				Propeller Type			
	Air Quantity	m ³ /min	1,230 at max				1,230 at max				1,230 at max			
	Motor Output	kW	1.2 x 4				1.2 x 4				1.2 x 4			
Water spray system *5, 12	Water Spray volume	L/min	13.6 x 1				13.6 x 1				13.6 x 1			
	Feed-water Pressure *6	MPa	0.2				0.2				0.2			
	Operation Control		Water spraying above set compressor capacity and above set OAT (Set OAT adjustment: 20~40°C)				Water spraying above set compressor capacity and above set OAT (Set OAT adjustment: 20~40°C)				Water spraying above set compressor capacity and above set OAT (Set OAT adjustment: 20~40°C)			
Cooler - Water side *7			Braze Plate Type				Braze Plate Type				Braze Plate Type			
Refrigerant	Refrigerant		R410A				R410A				R410A			
	Charge amount	kg	10.2 x 4	10.6 x 4	10.2 x 4	10.6 x 4	10.2 x 4	10.6 x 4	10.2 x 4	10.6 x 4	10.6 x 4			
	Control		EXV				EXV				EXV			
Capacity Control Steps *8		%	0 and 5 ~ 100				0 and 5 ~ 100				0 and 5 ~ 100			
Operation Control			Microprocessor control based on Leaving water temperature and Temperature difference				Microprocessor control based on Leaving water temperature and Temperature difference				Microprocessor control based on Leaving water temperature and Temperature difference			
Operating Limit - LWT *9	Cooling	°C	4 ~ 30				4 ~ 30				4 ~ 30			
	Heating	°C	-	25 ~ 55	-	25 ~ 55	-	25 ~ 55	-	25 ~ 55	25 ~ 55			
Operating Limit - OAT	Cooling	°C	-15 ~ 52 DB				-15 ~ 52 DB				-15 ~ 52 DB			
	Heating	°C	-	-15 ~ 21 DB	-	-15 ~ 21 DB	-	-15 ~ 21 DB	-	-15 ~ 21 DB	-15 ~ 21 DB			
Protective Devices			High Pressure Switch, Over Current Protection, Inverter Overload Protection (Compressor, Fan, Pump) Compressor Heater, Open Phase Protection, Fuses Microprocessor Control (Compressor time guard, Low water temp. cutout, Low flow rate protection, Low Pressure Cutout, Discharge gas overheat protection, Thermistor failure, High water pressure failure)				High Pressure Switch, Over Current Protection, Inverter Overload Protection (Compressor, Fan, Pump) Compressor Heater, Open Phase Protection, Fuses Microprocessor Control (Compressor time guard, Low water temp. cutout, Low flow rate protection, Low Pressure Cutout, Discharge gas overheat protection, Thermistor failure, High water pressure failure)				High Pressure Switch, Over Current Protection, Inverter Overload Protection (Compressor, Fan, Pump) Compressor Heater, Open Phase Protection, Fuses Microprocessor Control (Compressor time guard, Low water temp. cutout, Low flow rate protection, Low Pressure Cutout, Discharge gas overheat protection, Thermistor failure, High water pressure failure)			
Piping Diameters	Water Inlet Conn.		2-1/2" Flange x 1				3" Flange x 1				2-1/2" Flange x 1			
	Water Outlet Conn.		2-1/2" Flange x 1				3" Flange x 1				2-1/2" Flange x 1			
	Coil Drain Conn.		PT 1-1/2" External thread x 1				PT 1-1/2" External thread x 1				PT 1-1/2" External thread x 1			
Internal Pump *17			Standard				Standard				Standard			
Internal Pump *17	Motor Output	kW	1.5				2.2				1.5			
	Type	kW	Centrifugal Pump				Centrifugal Pump				Centrifugal Pump			
	Control		Inverter				Inverter				Inverter			
	Max. Current	A	3.1		6.1		4.3		8.5		3.1		6.1	
	Max. Input	kW	2.0				2.8				2.0			
Shipping Weight		kg	1,298	1,335	1,293	1,330	1,307	1,344	1,302	1,339	1,346		1,336	
Operating Weight		kg	1,334	1,371	1,329	1,366	1,343	1,380	1,338	1,375	1,382		1,372	
Sound Level (For one module) *14	dBA		Control Box side :69.0				Control Box side :70.5				Control Box side :69.0			
			Coil side : 72.3				Coil side : 74.9				Coil side : 72.3			
			Water Pipe side : 68.5				Water Pipe side : 71.0				Water Pipe side : 68.5			
Controller *15			Module controller (MC)				Module controller (MC)				Module controller (MC)			

Note *1 Rated conditions for cooling operation are as follows. Cooling : 12°C entering (EWT), 7°C leaving (LWT), 35°CDB/24°CWB outdoor air (OAT). Design water flow rate must be within the range of 5 to 10°C

*2 Dimensions do not include projections of water pipe connections.

*3 Electrical data do not include internal pump. The pump data are shown in the column of "Internal Pump". Current and input of internal pump vary with water flow rate and lifting height.

*4 Supply voltage must normally be used within ±5% of the rated voltage, must be within ±10% of the rated voltage even if there is voltage fluctuation, and the inter phase imbalance must be less than 2%.

*5 Depending on the feed-water quality, scale may adhere to the coil surface. If needed, install a softening apparatus for feed-water. (by local arrangement)

*6 Adjust the water flow rate so that the feed-water pressure become this value with the hand valve at the feed-water inlet part. When feed-water pressure is insufficient, install a pressurization pump. (by local arrangement)

*7 Maximum working pressure is 0.7MPa.

*8 Range of capacity control may vary depending on the unit's operating condition.

*9 LWT not higher than 35°C at cooling operation is allowable till 1 hour after. After then, LWT must be within the operating range. Control it with bypass pipe if needed.

*12 Water quality must meet JRA guideline "JRA-GL-02-1994"

*14 The on-site sound level will be higher due to the effects of background noise and sound reflection.

*15 MC (Module Controller) is assembled at our factory. MC is installed in products with "M" in the model name. It is necessary one MC when placing multiple modules side by side (Max 16 modules).

*16 Connecting fitting is attached at all module. (Except MC-installed module)

*17 depending on the outlet pump head required to comply with the indent. The power supply design at that time differs from those of a standard pump. Refer to the power supply design items. In addition, refer to pump performance features for operating conditions (pushing pressure range, etc.).

Appendix 2 : Specification sheet for Universal Smart X series EDGE 2

(Product Bulletin No.J2023-021 : 11/12)

Pumpless

Model Name		RUA-UP	512CL5S(M)	512HL5S(M)	512CL6S(M)	512HL6S(M)	562CL5S(M)	562HL5S(M)	562CL6S(M)	562HL6S(M)	512FL5S(M)	512FL6S(M)		
Cooling Capacity *1		kW	180.0				200.0				180.0			
Heating Capacity *1		kW	-	180.0	-	180.0	-	200.0	-	200.0	180.0			
Unit Color			1Y8.5/0.5(Silky Shade)				1Y8.5/0.5(Silky Shade)				1Y8.5/0.5(Silky Shade)			
Dimensions *2	Height	mm	2,300				2,300				2,300			
	Width	mm	1,080				1,080				1,080			
	Depth	mm	3,400				3,400				3,400			
Power Source *4			380V - 3Ph - 50/60Hz		220V - 3Ph - 60Hz		380V - 3Ph - 50/60Hz		220V - 3Ph - 60Hz		380V - 3Ph - 50/60Hz		220V - 3Ph - 60Hz	
Electrical Data *1,3	Cooling	Nominal Current	A	89.2				154.0				89.2		154.0
		Nominal Input	kW	58.1				72.5				58.1		72.5
		EER *1		3.10				2.76				3.10		2.76
		Power Factor	%	99				99				99		99
	Heating	Nominal Current	A	-	83.5	-	144.2	-	97.1	-	167.8	83.5		144.2
		Nominal Input	kW	-	54.4	-	54.4	-	63.3	-	63.3	54.4		63.3
		COP *1		-	3.31	-	3.31	-	3.16	-	3.16	3.31		3.16
		Power Factor	%	-	99	-	99	-	99	-	99	99		99
Compressor	Type		Hermetic Rotary				Hermetic Rotary				Hermetic Rotary			
	Motor Output	kW	12.4 x 4				15.4 x 4				12.4 x 4			
	Type of Start		Inverter				Inverter				Inverter			
	Compressor Heater	W	37 x 4				37 x 4				37 x 4			
Compressor Oil Charge		L	2.0 x 4				2.0 x 4				2.0 x 4			
Condenser Coil - Air Side			Plate Fin Coil				Plate Fin Coil				Plate Fin Coil			
Fans	Type		Propeller Type				Propeller Type				Propeller Type			
	Air Quantity	m ³ /min	1,230 at max				1,230 at max				1,230 at max			
	Motor Output	kW	1.2 x 4				1.2 x 4				1.2 x 4			
Cooler - Water side *5			Brazed Plate Type				Brazed Plate Type				Brazed Plate Type			
Refrigerant	Refrigerant		R410A				R410A				R410A			
	Charge amount	kg	10.2 x 4	10.6 x 4	10.2 x 4	10.6 x 4	10.2 x 4	10.6 x 4	10.2 x 4	10.6 x 4	10.6 x 4			
	Control		EXV				EXV				EXV			
Capacity Control Steps *8		%	0 and 5 ~ 100				0 and 5 ~ 100				0 and 5 ~ 100			
Operation Control			Microprocessor control based on Leaving water temperature and Temperature difference				Microprocessor control based on Leaving water temperature and Temperature difference				Microprocessor control based on Leaving water temperature and Temperature			
Operating Limit - LWT *9	Cooling	°C	4 ~ 30				4 ~ 30				4 ~ 30			
	Heating	°C	-	25 ~ 55	-	25 ~ 55	-	25 ~ 55	-	25 ~ 55	25 ~ 55			
Operating Limit - OAT	Cooling	°C	-15 ~ 52 DB				-15 ~ 52 DB				-15 ~ 52 DB			
	Heating	°C	-	-15 ~ 21 DB	-	-15 ~ 21 DB	-	-15 ~ 21 DB	-	-15 ~ 21 DB	-15 ~ 21 DB			
Protective Devices			High Pressure Switch, Over Current Protection, Inverter Overload Protection (Compressor, Fan, Pump) Compressor Heater, Open Phase Protection, Fuses Microprocessor Control (Compressor time guard, Low water temp. cutout, Low flow rate protection, Low Pressure Cutout, Discharge gas overheat protection, Thermistor failure, High water pressure failure)				High Pressure Switch, Over Current Protection, Inverter Overload Protection (Compressor, Fan, Pump) Compressor Heater, Open Phase Protection, Fuses Microprocessor Control (Compressor time guard, Low water temp. cutout, Low flow rate protection, Low Pressure Cutout, Discharge gas overheat protection, Thermistor failure, High water pressure failure)				High Pressure Switch, Over Current Protection, Inverter Overload Protection (Compressor, Fan, Pump) Compressor Heater, Open Phase Protection, Fuses Microprocessor Control (Compressor time guard, Low water temp. cutout, Low flow rate protection, Low Pressure Cutout, Discharge gas overheat protection, Thermistor failure, High water pressure failure)			
Piping Diameters	Water Inlet Conn.		2-1/2" Flange x 1				3" Flange x 1				2-1/2" Flange x 1			
	Water Outlet Conn.		2-1/2" Flange x 1				3" Flange x 1				2-1/2" Flange x 1			
	Coil Drain Conn.		PT 1-1/2" External thread x 1				PT 1-1/2" External thread x 1				PT 1-1/2" External thread x 1			
Shipping Weight	kg	1,229	1,265	1,224	1,260	1,235	1,271	1,230	1,266	1,276		1,266		
Operating Weight	kg	1,265	1,301	1,260	1,296	1,271	1,307	1,266	1,302	1,312		1,302		
Sound Level (For one module) *14	dBA	Control Box side :69.0				Control Box side :70.5				Control Box side :69.0				
		Coil side : 72.3				Coil side : 74.9				Coil side : 72.3				
		Water Pipe side : 68.5				Water Pipe side : 71.0				Water Pipe side : 68.5				
Controller *15			Module controller (MC)				Module controller (MC)				Module controller (MC)			

Note *1 Rated conditions for cooling operation are as follows. Cooling : 12°C entering (EWT), 7°C leaving (LWT), 35°CDB/24°CWB outdoor air (OAT). Design water flow rate must be within the range of 5 to 10°C

*2 Dimensions do not include projections of water pipe connections.

*3 Electrical data do not include internal pump. The pump data are shown in the column of "Internal Pump". Current and input of internal pump vary with water flow rate and lifting height.

*4 Supply voltage must normally be used within ±5% of the rated voltage, must be within ±10% of the rated voltage even if there is voltage fluctuation, and the inter phase imbalance must be less than 2%.

*5 Maximum working pressure is 0.7MPa.

*8 Range of capacity control may vary depending on the unit's operating condition.

*9 LWT not higher than 35°C at cooling operation is allowable till 1 hour after. After then, LWT must be within the operating range. Control it with bypass pipe if needed.

*10 Water quality must meet JRA guideline "JRA-GL-02-1994"

*14 The on-site sound level will be higher due to the effects of background noise and sound reflection.

*15 MC (Module Controller) is assembled at our factory. MC is installed in products with "M" in the model name. It is necessary one MC when placing multiple modules side by side (Max 16 modules).

*16 Connecting fitting is attached at all module. (Except MC-installed module)

Appendix 2 : Specification sheet for Universal Smart X series EDGE 2

(Product Bulletin No.J2023-021 : 12/12)

Pumpless, High EER type

Model Name		RUA-SP	512CLN5S(M)	512HLN5S(M)	512CLN6S(M)	512HLN6S(M)	562CLN5S(M)	562HLN5S(M)	562CLN6S(M)	562HLN6S(M)	512FLN5S(M)	512FLN6S(M)		
Cooling Capacity *1		kW	180.0				200.0				180.0			
Heating Capacity *1		kW	-	180.0	-	180.0	-	200.0	-	200.0	180.0			
Unit Color			1Y8.5/0.5(Silky Shade)				1Y8.5/0.5(Silky Shade)				1Y8.5/0.5(Silky Shade)			
Dimensions *2	Height	mm	2,300				2,300				2,300			
	Width	mm	1,080				1,080				1,080			
	Depth	mm	3,400				3,400				3,400			
Power Source *4			380V - 3Ph - 50/60Hz		220V - 3Ph - 60Hz		380V - 3Ph - 50/60Hz		220V - 3Ph - 60Hz		380V - 3Ph - 50/60Hz		220V - 3Ph - 60Hz	
Electrical Data *1,3	Cooling	Nominal Current	A	60.6		104.7		74.4		128.6		60.6		104.7
		Nominal Input	kW	39.5		39.5		48.5		48.5		39.5		39.5
		EER *1		4.56				4.12				4.56		4.56
		Power Factor	%	99				99				99		99
	Heating	Nominal Current	A	-	83.5	-	144.2	-	97.1	-	167.8	83.5		144.2
		Nominal Input	kW	-	54.4	-	54.5	-	63.3	-	63.3	54.4		54.4
		COP *1		-	3.31	-	3.90	-	3.16	-	3.16	3.31		3.31
Power Factor	%	-	99	-	99	-	99	-	99	99		99		
Compressor	Type		Hermetic Rotary				Hermetic Rotary				Hermetic Rotary			
	Motor Output	kW	8.7 x 4	11.9 x 4	8.7 x 4	11.9 x 4	10.7 x 4	13.5 x 4	10.7 x 4	13.5 x 4	11.9 x 4			
	Type of Start		Inverter				Inverter				Inverter			
	Compressor Heater	W	37 x 4				37 x 4				37 x 4			
Compressor Oil Charge		L	2.0 x 4				2.0 x 4				2.0 x 4			
Condenser Coil - Air Side			Plate Fin Coil				Plate Fin Coil				Plate Fin Coil			
Fans	Type		Propeller Type				Propeller Type				Propeller Type			
	Air Quantity	m ³ /min	1,230 at max				1,230 at max				1,230 at max			
	Motor Output	kW	1.2 x 4				1.2 x 4				1.2 x 4			
Water spray system *5, 12	Water Spray volume	L/min	13.6 x 1				13.6 x 1				13.6 x 1			
	Feed-water Pressure *6	MPa	0.2				0.2				0.2			
	Operation Control		Water spraying above set compressor capacity and above set OAT (Set OAT adjustment: 20~40°C)				Water spraying above set compressor capacity and above set OAT (Set OAT adjustment: 20~40°C)				Water spraying above set compressor capacity and above set OAT (Set OAT adjustment: 20~40°C)			
Cooler - Water side *7			Braze Plate Type				Braze Plate Type				Braze Plate Type			
Refrigerant	Refrigerant		R410A				R410A				R410A			
	Charge amount	kg	10.2 x 4	10.6 x 4	10.2 x 4	10.6 x 4	10.2 x 4	10.6 x 4	10.2 x 4	10.6 x 4	10.6 x 4			
	Control		EXV				EXV				EXV			
Capacity Control Steps *8		%	0 and 5 ~ 100				0 and 5 ~ 100				0 and 5 ~ 100			
Operation Control			Microprocessor control based on Leaving water temperature and Temperature difference				Microprocessor control based on Leaving water temperature and Temperature difference				Microprocessor control based on Leaving water temperature and Temperature			
Operating Limit - LWT *9	Cooling	°C	4 ~ 30				4 ~ 30				4 ~ 30			
	Heating	°C	-	25 ~ 55	-	25 ~ 55	-	25 ~ 55	-	25 ~ 55	25 ~ 55			
Operating Limit - OAT	Cooling	°C	-15 ~ 52 DB				-15 ~ 52 DB				-15 ~ 52 DB			
	Heating	°C	-	-15 ~ 21 DB	-	-15 ~ 21 DB	-	-15 ~ 21 DB	-	-15 ~ 21 DB	-15 ~ 21 DB			
Protective Devices			High Pressure Switch, Over Current Protection, Inverter Overload Protection (Compressor, Fan, Pump) Compressor Heater, Open Phase Protection, Fuses Microprocessor Control (Compressor time guard, Low water temp. cutout, Low flow rate protection, Low Pressure Cutout, Discharge gas overheat protection, Thermistor failure, High water pressure failure)				High Pressure Switch, Over Current Protection, Inverter Overload Protection (Compressor, Fan, Pump) Compressor Heater, Open Phase Protection, Fuses Microprocessor Control (Compressor time guard, Low water temp. cutout, Low flow rate protection, Low Pressure Cutout, Discharge gas overheat protection, Thermistor failure, High water pressure failure)				High Pressure Switch, Over Current Protection, Inverter Overload Protection (Compressor, Fan, Pump) Compressor Heater, Open Phase Protection, Fuses Microprocessor Control (Compressor time guard, Low water temp. cutout, Low flow rate protection, Low Pressure Cutout, Discharge gas overheat protection, Thermistor failure, High water pressure failure)			
Piping Diameters	Water Inlet Conn.		2-1/2" Flange × 1				3" Flange × 1				2-1/2" Flange × 1			
	Water Outlet Conn.		2-1/2" Flange × 1				3" Flange × 1				2-1/2" Flange × 1			
	Coil Drain Conn.		PT 1-1/2" External thread × 1				PT 1-1/2" External thread × 1				PT 1-1/2" External thread × 1			
Shipping Weight		kg	1,241	1,278	1,236	1,273	1,247	1,284	1,242	1,279	1,289	1,279		
Operating Weight		kg	1,277	1,314	1,272	1,309	1,283	1,320	1,278	1,315	1,314	1,315		
Sound Level (For one module) *14	dBA	Control Box side :69.0				Control Box side :70.5				Control Box side :69.0				
		Coil side : 72.3				Coil side : 74.9				Coil side : 72.3				
		Water Pipe side : 68.5				Water Pipe side : 71.0				Water Pipe side : 68.5				
Controller *15			Module controller (MC)				Module controller (MC)				Module controller (MC)			

Note *1 Rated conditions for cooling operation are as follows. Cooling : 12°C entering (EWT), 7°C leaving (LWT), 35°CDB/24°CWB outdoor air (OAT). Design water flow rate must be within the range of 5 to 10°C

*2 Dimensions do not include projections of water pipe connections.

*3 Electrical data do not include internal pump. The pump data are shown in the column of "Internal Pump". Current and input of internal pump vary with water flow rate and lifting height.

*4 Supply voltage must normally be used within ±5% of the rated voltage, must be within ±10% of the rated voltage even if there is voltage fluctuation, and the inter phase imbalance must be less than 2%.

*5 Depending on the feed-water quality, scale may adhere to the coil surface. If needed, install a softening apparatus for feed-water. (by local arrangement)

*6 Adjust the water flow rate so that the feed-water pressure become this value with the hand valve at the feed-water inlet part. When feed-water pressure is insufficient, install a pressurization pump. (by local arrangement)

*7 Maximum working pressure is 0.7MPa.

*8 Range of capacity control may vary depending on the unit's operating condition.

*9 LWT not higher than 35°C at cooling operation is allowable till 1 hour after. After then, LWT must be within the operating range. Control it with bypass pipe if needed.

*12 Water quality must meet JRA guideline "JRA-GL-02-1994"

*14 The on-site sound level will be higher due to the effects of background noise and sound reflection.

*15 MC (Module Controller) is assembled at our factory. MC is installed in products with "M" in the model name. It is necessary one MC when placing multiple modules side by side (Max 16 modules).

*16 Connecting fitting is attached at all module. (Except MC-installed module)

*17 depending on the outlet pump head required to comply with the indent. The power supply design at that time differs from those of a standard pump. Refer to the power supply design items. In addition, refer to pump performance features for operating conditions (pushing pressure range, etc.).