



HAIRF[®]

PRECISION AIR COOLING UNIT



COOL-ROW / IN-ROW

CSM Distribution Sdn Bhd (1030516-T)

26, Jalan BP 5/9, Bandar Bukit Puchong,
47120 Puchong, Selangor Darul Ehsan.

www.csmd.my

COOL-ROW / IN-ROW UNIT

• COOLING SOLUTION

EFFICIENT COOLING SOLUTION FOR MODULARIZED DATA CENTER



High Heat Density Data Center



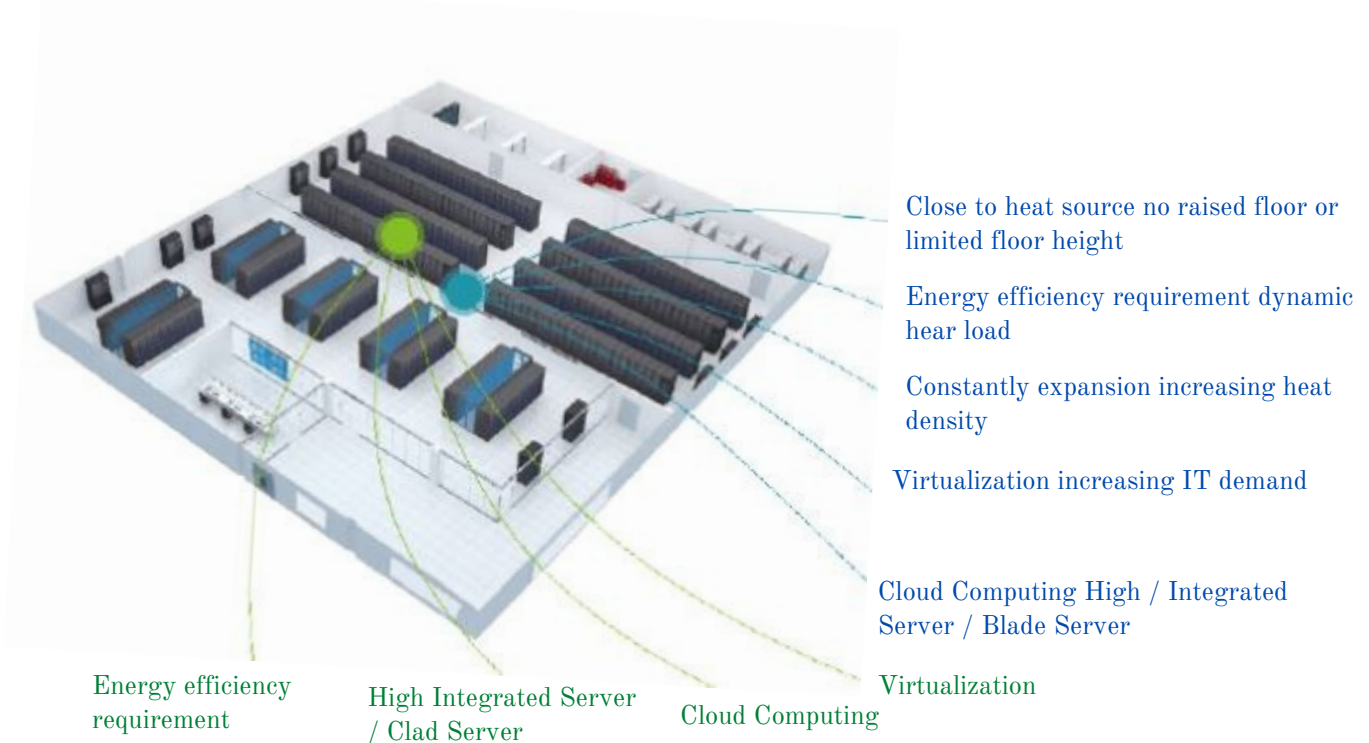
Reducing Data Center PUE



Container Data Center



Modularized Data Center



- XROW is an adaptive row-based cooling system placed close to the heat source and ideal for rack level cooling solution for Data Center.

COOL-ROW / IN-ROW UNIT

• INTRODUCTION

AIR-COOLED

- Cool-Row Air-Cooled type is divided into two main parts: Indoor Unit and Air-Cooled Condenser. The Air-Cooled type has two nominal cooling capacities of 25KW and 35KW, 25KW is a half-rack wide style [300mm(W) x 2000mm(H) x 1100mm(D)] and the 35KW is the standard rack style [600mm(W) x 2000mm(H) x 1100mm(D)].

WATER-COOLED, GLYCOL-COOLED

- Cool-Row Water-Cooled and Glycol-Cooled models are divided into two main parts, the indoor unit and the water-cooled condensing. The indoor unit style and specifications are the same as Air-Cooling. The Water-Cooled condensing is divided into two types: plate heat exchanger and shell-and-tube heat exchanger, which can be externally placed outside the equipment room to achieve the purpose of cooling water out of the machine room.

CHILLED WATER

- Cool-Row chilled water type only has an indoor unit, and needs chilled water to provide a cold source for normal operation.
- The chilled water type has three cooling capacity for 25KW, 40KW, 60KW. 25KW is half-rack wide style [300mm(W) x 2000mm(H) x 1100mm(D)], 40KW and 60KW is the standard rack style [600mm(W) x 3000mm(H) x 1100mm(D)].

FLEXIBLE AIR CONFIGURATION

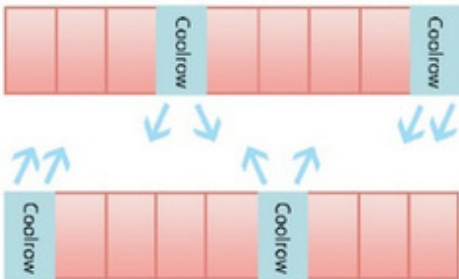


COOL-ROW / IN-ROW UNIT

• APPLICATION

APPLICATION 1:

- Face-to-face, back-to-back Cabinets Data Center



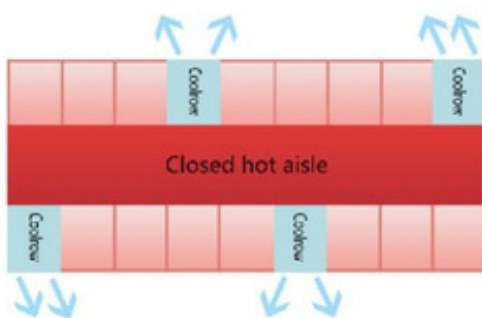
APPLICATION 2:

- Closed Cold-Aisle Data Center



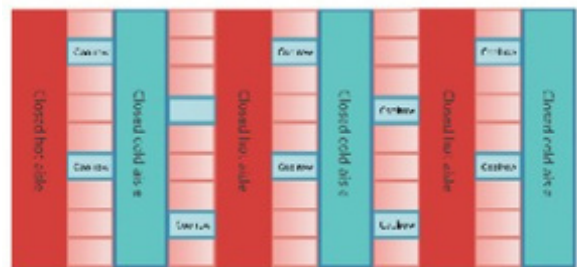
APPLICATION 3:

- Closed Hot-Aisle Data Center



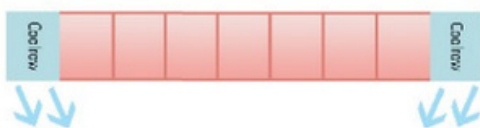
APPLICATION 4:

- Closed Hot-Aisle and Cold-Aisle Data Center



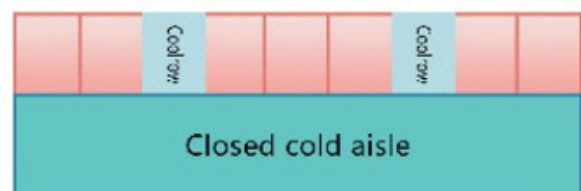
APPLICATION 5:

- Single Row Cabinet Data Center



APPLICATION 6:

- Single Row Cabinet and Closed Cold-Aisle Data Center



COOL-ROW / IN-ROW UNIT

• CHARACTERISTICS

ADVANCED CONTROLLER

- Advanced team work function, up to 16 remote temperature / humidity sensors
Standard RS485 communication interface, optional SNMP and TCP/IP interfaces

EFFICIENT EC FAN SYSTEM

- Saving 20%-30% energy compared to traditional AC motor
- Soft-startup function, Low startup current
- Adjust rotary speed automatically according to cooling requirements and Air-Flow pressure, and provide Air- Flow required
- N+1 Redundancy configuration of fans, ensure the Air-Flow in case of any fan fault Easy-maintenance designed

HIGH EFFICIENCY COMPRESSOR SYSTEM

- R410A Refrigerant
- Adopting scroll compressor with high reliability and energy efficiency ratio

ELECTRONIC EXPANSION VALVE

- Adjust the throttle of valve smoothly to save the energy
- Wide range of operations, which can help reduce the superheat degree and improved EER Realize cooling capacity and heat load precise matching
- Quick response, realize the precise cooling

OPTION

- Transfer switch for Dual Power Input GPRS SMS Alarm
- Low-temperature startup kits
- Wired Temperature / Humidity Sensors Tree-way water valve



COOL-ROW / IN-ROW UNIT

• TECHNICAL DATA - SERIES DX UNIT

Model: CR		015A/W	020A/W	025A/W	030A/W	041A/W
AEER	W/W	≥3.5	≥3.5	≥3.5	≥3.5	≥3.5
Power Supply		380V 3Ph-50Hz				
Total Cooling Capacity		37°C DB/24%RH				
Total Capacity	KW	15.5	21.2	25.4	30.1	34.8
Sensible	KW	15.5	21.2	25.4	30.1	34.8
Total Cooling Capacity		30°C DB/34%RH				
Total Capacity	KW	12.4	16.9	20.3	24.1	27.8
Sensible	KW	12.4	16.9	20.3	24.1	27.8
Compressor		Hermetic Scroll				
Refrigerant		R407C/R410A				
Fan Section		EC Fan				
Air Flow	m ³ /h	2800	4500	5800	6700	7200
Quantity	n	6	6	6	3	3
Expansion Valve		Thermal expansion valve/Electronic exv				
Air Filter		4				
Reheat Section		Optional				
Capacity	KW	3	3	3	6	6
Humidifier Section		Optional				
Capacity	Kg/h	2	2	2	3	3
Dimension						
Height	mm	2000	2000	2000	2000	2000
Length	mm	300	300	300	600	600
Depth	mm	1100	1100	1100	1100	1100
Weight	KG	115	145	165	300	440
Connection Pipe Size						
Liquid Pipe	mm	12	16	16	19	19
Gas Pipe	mm	16	19	22	22	22
Water Inlet Pipe	mm	G1/2	G1/2	G1/2	G1/2	G1/2
Water Outlet Pipe	mm	20	20	20	20	20
Note:						
[1] Air-Return Temperature 37°C, Relative Humidity 24% RH; Outdoor Temperature 45 °C						
[2] Standard Front Direct Air-Flow, Back Air Return, Configured with Air Deflector for Sment						

COOL-ROW / IN-ROW UNIT

• TECHNICAL DATA - SERIES CW UNIT

Model: CR		025C	040C	060C
Power Supply		220V 1PH-50Hz	380V 3PH-50Hz	
Inlet & Outlet Water Temperature				
Total Capacity (7°C/12°C)	KW	31.8	50.4	70
Sensible	KW	31.8	50.4	70
Total Capacity (10°C/15°C)	KW	28	44.5	62.5
Sensible	KW	28	44.5	62.5
Total Capacity (12°C/18°C)	KW	24.5	39.8	55.4
Sensible	KW	24.5	39.8	55.4
Compressor		Hermetic Scroll		Hermetic Scroll EC
Refrigerant		R4104		
Fan Section		EC FAN		
Air Flow	m ³ /h	5000	7000	11000
Quantity	N	6	2	3
Air Filter		G4		
Reheat Section				
Capacity	KW	3	6	6
Humidifier Section				
Capacity	Kg/h	2	2	2
Dimension				
Height	mm	2000	2000	2000
Length	mm	300	600	600
Depth	mm	1100	1100	1100
Weight	Kg	200	340	360
Connection Pipe Size				
Inlet Water	mm	1 1/4	1 1/2	1 1/2
Inpet Pipe of Humidifier	mm	G1/2	G1/2	G1/2
Water Outlet Pipe	mm	20	20	20
Indoor Unit FLA	A	23	13.5	15.2
Note:				
[1] Air-Return Temperature 37°C, Relative Humidity 24% RH;				
[2] Standard Front Direct Air-Flow, Back Air Return, Configured with Air Deflector for Special Requirement				

COOL-ROW / IN-ROW UNIT

- AIR COOLED CONDENSOR



Condenser Model		SA32	SA42	SA50	SA60	SA70	SA80
Rated Power (KW)		0.35*2				0.76*2	
Power Supply		380V 3PH-50Hz					
Connector Size		Ø22/Ø16			Ø25/Ø19		Ø28/Ø22
Fan Quantity		1				2	
Noise (dB)		56	62		66	68	70
Dimension / Size	Length (mm)	1350		1550		1850	
	Depth (mm)	972		1277			
	Height (mm)	654		662		654	
	Weight (kg)	120	128	136	152	168	