



Computer Room Air Conditioning & Air Handling

In Server Row Solutions (CRAH CW, CRAC DX)

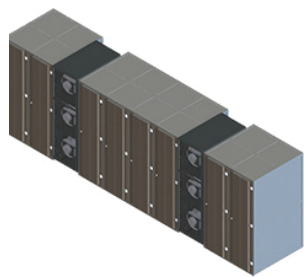


With applications expertise and the right products and solutions for data centers and computer rooms, our mission is to help you deliver on your mission. Whether you are planning for a new space or expanding servers in an existing space, Trane Computer Room Air Handling and Air Conditioning Solutions offer precise, reliable and efficient cooling. Trane In Server Row Solutions provide targeted cooling of high-density server racks for hot spot management and flexible configuration to address open, hot and cold aisle configurations.

The benchmark of flexibility and energy efficiency.

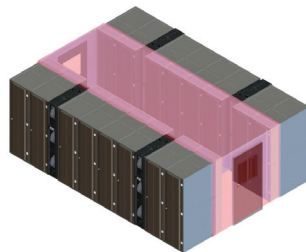
- Flexible configuration to address aisle need: Open, Hot, Cold
- Targeted cooling of high-density racks for hot spot management
- Air flow direction: left and right, forward
- Water-side economizer and Indirect Dynamic Cooling for maximum potential savings
- Scalable solution, add more in row units as server racks scale
- Suitable for server rack cooling in data centers with or without raised floor
- Can be used with racks from any manufacturer
- Variable-speed compressor for precise cooling capacity and integrated soft start

Configurations



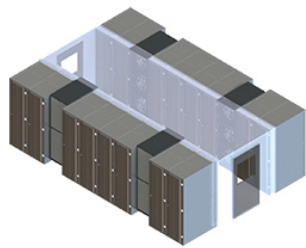
Open Aisle

Open aisle configuration organizes racks in a single row or in hot and cold aisle rows, but without containment. The In Server Row Units draw hot air from the external environment or hot aisle, remove the heat, and supply cooled air to the front of IT equipment in the cold aisle.



Hot Aisle

Hot aisle containment captures the hot exhaust air from IT equipment and prevents from mixing with cool air. The front of IT equipment is accessed in the external cold aisle. The In Server Row Units draw the contained hot air from the hot aisle, remove the heat, and supply cooled air into the external cold aisle.



Cold Aisle

Cold aisle containment captures cooled air from the In Server Row Units and prevents it from mixing with hot air. The front of IT equipment is accessed in the contained cold aisle. The In Server Row Units draw hot air from the external environment, remove the heat, and supply cooled air back into the contained cold aisle.

Technical Data

		CRAH CW CRS	CRAC DX CRS
Capacity	kW	26-53	12-33
	MBH	90-180	64-132
Air Flow	CFM	2900-5800	1500-2900

Performance Data

Air, Water, Glycol Cooled Systems - Models 042, 084, 090

MODELS MBH/kW 042-AR 042-W 042-G 084-AR 084-W 084-G 090-AR 090-W 090-G

NET DX COOLING CAPACITY - MBH / kW (INCLUDES MOTOR HEAT @ RATED CFM)

100° FDB / 69.2° FWB ENTERING AIR TEMPERATURE										
Total	MBH	50.2	55.0	51.0	99.0	107.0	97.0	104.0	112.0	101.0
Sensible		52.0	55.0	51.0	99.0	107.0	97.0	104.0	112.0	101.0
Total	kW	15.1	16.2	14.8	28.9	31.3	28.3	30.0	33.0	30.0
Sensible		15.1	16.2	14.8	28.9	31.0	28.3	30.0	33.0	30.0
95° FDB / 67.7° FWB ENTERING AIR TEMPERATURE										
Total	MBH	49.0	53.0	48.0	94.0	101.0	92.0	98.0	106.0	96.0
Sensible		49.0	53.0	48.0	94.0	101.0	92.0	98.0	106.0	96.0
Total	kW	14.3	15.4	14.0	27.4	29.7	26.8	29.0	31.0	28.0
Sensible		14.3	15.4	14.0	27.4	29.7	26.8	29.0	31.0	28.0
90° FDB / 66.1° FWB ENTERING AIR TEMPERATURE										
Total	MBH	46.0	50.0	45.0	88.0	97.0	88.0	93.0	102.0	91.0
Sensible		46.0	50.0	45.0	88.0	97.0	88.0	93.0	102.0	91.0
Total	kW	13.5	14.7	13.2	25.8	28.5	25.7	27.0	30.0	27.0
Sensible		13.5	14.7	13.2	25.8	28.5	25.7	27.0	30.0	27.0
85° FDB / 64.5° FWB ENTERING AIR TEMPERATURE										
Total	MBH	44.0	49.0	43.0	85.0	95.0	82.0	89.0	99.0	86.0
Sensible		44.0	49.0	43.0	85.0	95.0	82.0	89.0	99.0	86.0
Total	kW	12.8	14.2	12.5	24.9	27.8	23.9	26.0	29.0	25.0
Sensible		12.8	14.1	12.5	24.9	27.8	23.9	26.0	29.0	25.0
80° FDB / 62.8° FWB ENTERING AIR TEMPERATURE										
Total	MBH	42.0	47.0	41.0	83.0	92.0	81.0	87.0	97.0	84.0
Sensible		42.0	47.0	41.0	83.0	88.0	81.0	84.0	89.0	84.0
Total	kW	12.4	13.7	12.1	24.2	26.8	23.7	26.0	29.0	25.0
Sensible		12.4	13.7	12.0	24.1	25.8	23.7	25.0	26.0	25.0

Water, Glycol Cooled Systems - Model 085

MODELS MBH/kW 085-W 085-G

NET DX COOLING CAPACITY - MBH / kW (INCLUDES MOTOR HEAT @ RATED CFM)

100° FDB / 69.2° FWB ENTERING AIR TEMPERATURE

Total	MBH	104.0	94.8
Sensible		104.4	94.8
Total	kW	30.6	27.8
Sensible		30.6	27.8

NET FREE COOLING CAPACITY - MBH (BASED ON 50°F ENTERING GLYCOL TEMPERATURE)

Total	MBH	99.0	82.9
Sensible		99.0	82.9
Total	kW	29.0	24.3
Sensible		29.0	24.3
GPM		25.0	27.0
Coil PD FT		13.7	19.1
FC PD (note 1)		22.1	28.7
Unit PD FT (note 1)		42.7	54.4

NET DX COOLING CAPACITY - MBH / kW (INCLUDES MOTOR HEAT @ RATED CFM)

95° FDB / 67.7° FWB ENTERING AIR TEMPERATURE

Total	MBH	99.8	90.1
Sensible		99.8	90.1
Total	kW	29.2	26.4
Sensible		29.2	26.4

NET FREE COOLING CAPACITY - MBH (BASED ON 50°F ENTERING GLYCOL TEMPERATURE)

Total	MBH	89.2	74.0
Sensible		89.2	74.0
GPM		24.1	26.0
Coil PD FT		12.8	17.8
FC PD FT (note 1)		21	27.0
Unit PD FT (note 1)		41.1	50.8
Total	kW	26.1	21.7
Sensible		26.1	21.7

NET DX COOLING CAPACITY - MBH / kW (INCLUDES MOTOR HEAT @ RATED CFM)

90° FDB / 66.1° FWB ENTERING AIR TEMPERATURE

Total	MBH	94.7	85.3
Sensible		94.3	85.3
Total	kW	27.8	25.0
Sensible		27.6	25.0

40% ethylene glycol

Water, Glycol Cooled Systems - Model 085 (Continued)

MODELS **MBH/kW** **085-W** **085-G**
NET FREE COOLING CAPACITY - MBH (BASED ON 50°F ENTERING GLYCOL TEMPERATURE)

90° FDB / 66.1° FWB ENTERING AIR TEMPERATURE			
Total	MBH	79.2	65.2
Sensible		79.2	65.2
GPM		23.1	25.0
Coil PD FT		11.8	16.6
FC PD FT (note 1)		19.5	25.4
Unit PD FT (note 1)		38.0	48.2
Total	kW	23.2	19.1
Sensible		23.2	19.1

NET DX COOLING CAPACITY - MBH / kW (INCLUDES MOTOR HEAT @ RATED CFM)

85° FDB / 64.5° FWB ENTERING AIR TEMPERATURE			
Total	MBH	92.0	80.5
Sensible		85.9	80.5
Total	kW	27.0	23.6
Sensible		25.2	23.6

NET FREE COOLING CAPACITY - MBH (BASED ON 50°F ENTERING GLYCOL TEMPERATURE)

Total	MBH	69.3	56.2
Sensible		69.3	56.2
GPM		22.6	24.0
Coil PD FT		11.4	10.5
FC PD FT (note 1)		18.9	18.2
Unit PD FT (note 1)		37.6	40.2
Total	kW	20.3	16.5
Sensible		20.3	16.5

NET DX COOLING CAPACITY - MBH / kW (INCLUDES MOTOR HEAT @ RATED CFM)

80° FDB / 62.8° FWB ENTERING AIR TEMPERATURE			
Total	MBH	89.7	77.7
Sensible		77.9	72.8
Total	kW	26.3	22.8
Sensible		22.8	21.3

NET FREE COOLING CAPACITY - MBH (BASED ON 50°F ENTERING GLYCOL TEMPERATURE)

Total	MBH	59.4	47.9
Sensible		59.4	47.9
GPM		22.1	23.2
Coil PD FT		10.9	10.0
FC PD FT (note 1)		18.3	17.4
Unit PD FT (note 1)		36.4	38.4
Total	kW	17.4	14.1
Sensible		17.4	14.1

40% ethylene glycol

Model CRS-090

12" CABINET		TOTAL CAPACITY		SENSIBLE CAPACITY		FLOW RATE GPM	TOTAL SYSTEM PRESSURE DROP, Ft. H ₂ O
		BTU/H	kW	BTU/H	kW		
100°FDB/69.2°F WB ENTERING AIR TEMPERATURE							
40°F EWT	10°F ΔT	129,617	38.0	129,617	38.0	26.2	24.5
	12°F ΔT	125,139	36.7	125,139	36.7	21.0	16.1
45°F EWT	10°F ΔT	117,368	34.4	117,368	34.4	23.7	20.1
	12°F ΔT	113,122	32.2	113,122	33.2	19.1	13.4
50°F EWT	10°F ΔT	105,218	30.8	105,218	30.8	21.4	16.5
	12°F ΔT	100,811	29.5	100,811	29.5	17.0	10.6
95°FDB/67.7°F WB ENTERING AIR TEMPERATURE							
40°F EWT	10°F ΔT	121,726	35.7	120,757	35.4	24.6	21.8
	12°F ΔT	112,386	32.9	112,386	32.9	19.0	13.3
45°F EWT	10°F ΔT	104,535	30.6	104,535	30.6	21.2	16.3
	12°F ΔT	100,245	29.4	100,245	29.4	17.0	10.7
50°F EWT	10°F ΔT	92,192	27.0	92,192	27.0	18.7	12.7
	12°F ΔT	88,031	25.8	88,031	25.8	15.0	8.4
90°FDB/66.1°F WB ENTERING AIR TEMPERATURE							
40°F EWT	10°F ΔT	109,059	32.0	107,198	31.4	22.0	17.6
	12°F ΔT	99,391	29.1	99,391	29.1	16.8	10.5
45°F EWT	10°F ΔT	91,692	26.9	91,692	26.9	18.7	12.8
	12°F ΔT	87,216	25.6	87,216	25.6	14.8	8.3
50°F EWT	10°F ΔT	79,320	23.2	79,320	23.2	16.2	9.7
	12°F ΔT	74,959	22.0	74,959	22.0	12.8	6.2
85°FDB/64.5°F WB ENTERING AIR TEMPERATURE							
40°F EWT	10°F ΔT	96,555	28.3	93,527	27.4	19.5	14.0
	12°F ΔT	86,499	25.4	86,499	25.4	14.7	8.2
45°F EWT	10°F ΔT	78,630	23.0	78,630	23.0	16.0	9.6
	12°F ΔT	74,137	21.7	74,137	21.7	12.6	6.1
50°F EWT	10°F ΔT	66,315	19.4	66,315	19.4	13.6	7.0
	12°F ΔT	61,825	18.1	61,825	18.1	10.6	4.4
80°FDB/62.8°F WB ENTERING AIR TEMPERATURE							
40°F EWT	10°F ΔT	84,202	24.7	80,116	23.5	17.2	11.1
	12°F ΔT	80,458	23.6	77,242	22.6	13.7	7.2
45°F EWT	10°F ΔT	65,745	19.3	65,745	19.3	13.5	6.9
	12°F ΔT	61,176	17.9	61,176	17.9	10.5	4.3
50°F EWT	10°F ΔT	53,253	15.6	53,253	15.6	11.0	4.7
	12°F ΔT	48,608	14.2	48,608	14.2	8.4	2.7



Model CRS-180

24" CABINET		TOTAL CAPACITY		SENSIBLE CAPACITY		FLOW RATE GPM	TOTAL SYSTEM PRESSURE DROP, Ft. H ₂ O
		BTU/H	kW	BTU/H	kW		
100°FDB/69.2°F WB ENTERING AIR TEMPERATURE							
40°F EWT	10°F ΔT	270,762	79.4	267,158	78.3	56.0	55.2
	12°F ΔT	252,610	74.0	252,610	74.0	43.5	34.3
45°F EWT	10°F ΔT	235,275	69.0	235,275	69.0	49.0	42.6
	12°F ΔT	228,040	66.8	228,040	66.8	39.5	28.4
50°F EWT	10°F ΔT	210,435	61.7	210,435	61.7	44.0	34.5
	12°F ΔT	203,363	59.6	203,363	59.6	35.5	23.1
95°FDB/67.7°F WB ENTERING AIR TEMPERATURE							
40°F EWT	10°F ΔT	245,849	72.1	239,969	70.3	51.0	46.4
	12°F ΔT	239,974	70.3	235,218	68.9	41.5	31.5
45°F EWT	10°F ΔT	209,408	61.4	209,408	61.4	43.5	34.1
	12°F ΔT	202,307	59.3	202,307	59.3	35.2	22.9
50°F EWT	10°F ΔT	184,879	54.2	184,879	54.2	39.0	27.6
	12°F ΔT	177,574	52.0	177,574	52.0	31.2	18.1
90°FDB/66.1°F WB ENTERING AIR TEMPERATURE							
40°F EWT	10°F ΔT	220,747	64.7	212,936	62.4	46.0	38.2
	12°F ΔT	214,208	62.8	207,808	60.9	37.0	25.4
45°F EWT	10°F ΔT	183,826	53.9	183,826	53.9	38.5	27.1
	12°F ΔT	176,252	51.7	176,252	51.7	31.0	18.1
50°F EWT	10°F ΔT	158,847	46.6	158,847	46.6	33.5	20.7
	12°F ΔT	151,093	44.3	151,093	44.3	26.7	13.5
85°FDB/64.5°F WB ENTERING AIR TEMPERATURE							
40°F EWT	10°F ΔT	195,763	57.4	185,634	54.4	41.0	30.8
	12°F ΔT	188,714	55.3	180,359	52.9	33.0	20.5
45°F EWT	10°F ΔT	158,051	46.3	158,051	46.3	33.5	20.9
	12°F ΔT	149,579	43.8	149,579	43.8	26.5	13.5
50°F EWT	10°F ΔT	132,979	39.0	132,979	39.0	28.5	15.3
	12°F ΔT	124,153	36.4	124,153	36.4	22.0	9.6
80°FDB/62.8°F WB ENTERING AIR TEMPERATURE							
40°F EWT	10°F ΔT	170,522	50.0	158,384	46.4	36.0	24.2
	12°F ΔT	162,601	47.7	152,689	44.8	28.5	15.6
45°F EWT	10°F ΔT	131,334	38.5	131,334	38.5	28.0	15.0
	12°F ΔT	122,660	35.9	122,660	35.9	22.0	9.5
50°F EWT	10°F ΔT	105,995	31.1	105,995	31.1	23.0	10.3
	12°F ΔT	96,888	28.4	96,888	28.4	17.7	6.3



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