ColdLogik CL20 Rear Door Heat Exchanger

ColdLogik Rear Door Heat Exchangers are highly efficient cooling systems for use on data center/server cabinets. Designed to operate on a closed loop water circuit, ensuring optimum thermal and energy performance by removing heat generated by the active equipment directly at source.

This single source solution replaces the traditional approach to data center cooling and permits load removal of over 90kW per cabinet, therefore has the capability to withstand low medium and the higher density demands experienced today.

The ColdLogik solution means that hot/cold aisles are no longer necessary therefore allowing customers to capitalise on the use of actual real estate within the data hall, permitting alternate room layout and enhanced scalability possibilities.

Significant OpEx and CapEx savings can be realised through the employment of ColdLogik particularly over mechanical cooling, usually by 86% while PUE of 1.03 has been achieved where ColdLogik has been used exclusively.



Low to High Density

Over 90kW cooling capacity per cabinet



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Performance Examples

Performance examples—these three examples are showing the same RDHx but with differing duties attainable when regulating or changing the water temperature. Other performance duties are attainable when calculating bespoke project specific requirements.

Maximum Duty

Our highest duties based on 14°C water inlet – to avoid condenwsation – and wide ΔT to deliver reasonable DC temperatures. This deployment would require the use of mechanically cooled external plant but has the ability to offer exceptional cooling capacities per cabinet.

Cooling Capacity - Maximum		5 Fan	6 Fan
Maximum Duty	kW	62	93
Air Flow (50Hz 230v)	m³/h (cfm)	6847 (4030)	8217 (4836)
DB Air On	°C (°F)	50 (122)	58 (136)
DB Air Out	°C (°F)	20 (68)	20 (68)
Water In	°C (°F)	14 (57.2)	14 (57.2)
Water Out	°C (°F)	25 (77)	30 (86)
Volume Fluid Flow	m³/h (l/s) / USGal/m	5 (1.4) / 22	5 (1.4) / 22
Fluid Velocity	m/s (ft/s)	0.99 (3.25)	0.82 (2.7)

Nominal Duty

This is a more general, workable duty with 18°C water inlet and covers most requirements in Europe while also maintaining an acceptable room temperature of 24°C. Operating with wide water ΔT also allows for lower power draw of the mechanically cooled external plant, reducing CapEx and OpEx costs while delivering leading cooling capacities per cabinet.

Cooling Capacity - Nominal		5 Fan	6 Fan
Maximum Duty	kW	55	80
Air Flow (50Hz 230v)	m³/h (cfm)	6847 (4030)	8217 (4836)
DB Air On	°C (°F)	50 (122)	55 (131)
DB Air Out	°C (°F)	23 (73.4)	22 (71.6)
Water In	°C (°F)	18 (64.4)	18 (64.4)
Water Out	°C (°F)	28 (82.4)	32 (89.6)
Volume Fluid Flow	m³/h (l/s) / USGal/m	5 (1.4) / 22	5 (1.4) / 22
Fluid Velocity	m/s (ft/s)	0.99 (3.25)	0.82 (2.7)

Efficient Duty

Taking advantage of the higher allowable room temperatures in a Data Center of 27°C/80.6°F allows the use of higher water temperatures, therefore reducing the infrastructure required for mechanical cooling, and allows for most or all-day free cooling. This will provide customers with higher efficiency cooling and lower running costs thus beginning to obtain a return on their investment while maximising real estate.

Cooling Capacity - Efficient		5 Fan	6 Fan
Maximum Duty	kW	50	74
Air Flow (50Hz 230v)	m³/h (cfm)	6847 (4030)	8217 (4836)
DB Air On	°C (°F)	50 (122)	55 (131)
DB Air Out	°C (°F)	26 (79)	25 (77)
Water In	°C (°F)	21 (69.8)	21 (69.8)
Water Out	°C (°F)	30 (86)	34 (93.4)
Volume Fluid Flow	m³/h (l/s) / USGal/m	5 (1.4) / 22	5 (1.4) / 22
Fluid Velocity	m/s (ft/s)	0.99 (3.25)	0.82 (2.7)

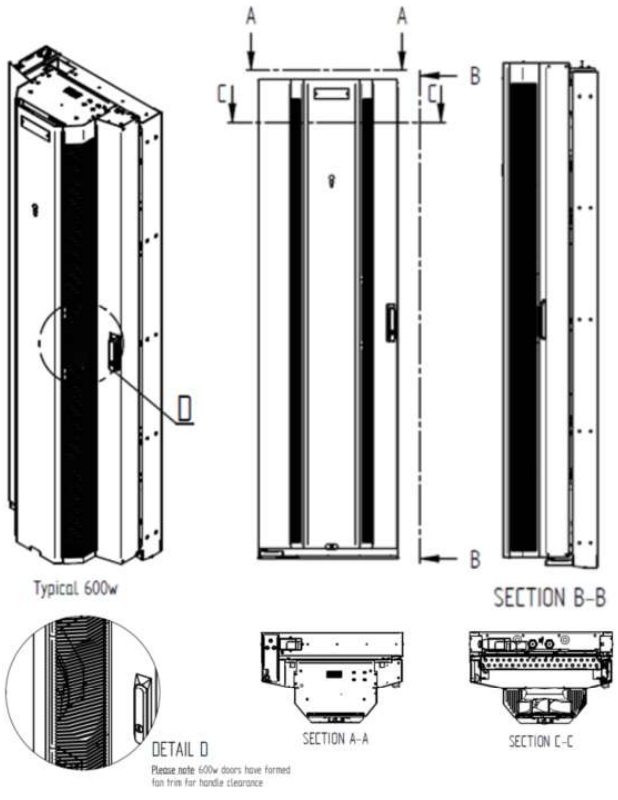
Cooling capacity data is shown for illustration purposes. USystems work alongside their customers who largely have unique challenges and ambitions. The nature of our technology, capabilities and approach is emulated in the delivery of efficient designs and solutions across the globe.

Legend
DB - Dry Bulb
ΔT - Delta T / difference supply and return temperatures
Air On - Air onto coil / air off active equipment
Air Off - Air off coil / air out from ColdLogik cooler

Technical Data

		CL20 (including interface frame)					
To Suit:		42U 5 Fan		48U* 5 Fan		48U* 6 Fan	52U 6 Fan
		600w	800w	600w	800w	800w	800w
Height	mm (“)	2040 (80.3)		2307 (90.8)		2307 (90.8)	2485 (97.8)
Width	mm (“)	596 (23.5)	796 (31.3)	596 (23.5)	796 (31.3)	796 (31.3)	796 (31.3)
Depth	mm (“)	380 (15)					
Fits Rack	U x mm (“)	42 x 600 (23.6)	42 x 800 (29.5)	48* x 600 (23.6)	48* x 800 (29.5)	48* x 800 (29.5)	52 x 800 (29.5)
Dry Weight	kg (lb)	86 (189.6)	112 (247)	94 (207.3)	126.5 (278.9)	137.9 (304.1)	143.3 (316.2)
Dry Weight (including frame)	kg (lb)	112.7 (248.5)	140.7 (310.2)	123.3 (271.9)	157.8 (347.9)	169.2 (373.1)	176.4 (389)
Wet Weight (including frame)	kg (lb)	123.7 (272.8)	151.7 (334.5)	134.3 (296.1)	169.8 (374.4)	184.6 (407)	191.8 (422.9)
Paint (finalised on order)		RAL 9003 (White)					
		RAL 9005 (Black)					
Communication Protocol		Modbus over TCP/IP					
		(BACnet, SNMP optional)					
Hinge Side		Left-Hand Side (standard)					
		Right-Hand Side (available on request)					
Connections	mm (“)	25 (1)					
Water Volume Capacity	L (USGal)	11 (2.9)				15.4 (4)	
Maximum Rated Current	A	12.5					

CL20 Combined Fan Performance **				
Type			Backward Curved Centrifugal	
Number of fans			5	6
Air flow	m^3/h (CFM)	30%	2135 (1257)	2553 (1502)
		70%	5262 (3097)	6293 (3703)
		100%	6871 (4044)	8217 (4836)
Current 50Hz 230v / 60Hz 208v	A	30%	0.62 / 0.72	0.79 / 0.87
		70%	3.71 / 4.09	4.46 / 4.92
		100%	7.54 / 8.33	9.04 / 9.98
Power Input 50Hz 230v	W	30%	51	61
		70%	398	478
		100%	845	1014
Total fan noise	dB	30%	69	67
		70%	85	83
		100%	90	89



*48U RDC, and 48U frame fit 47/48U rack
**Based on positive air pressure environment. PF 1. Others may vary.

USystems

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Contact Details

Europe

Systems House,
235 Ampthill Road
Bedford,
MK42 9QG, UK

T: +44 (0) 1234 761 720
E: sales@usystems.com

North America

USystems Inc
260 East Main Street
Suite 6413, Rochester
NY 14604 USA

T: 585-432-0393
E: sales_department@usystemsusa.com

Further Documentation

For additional information, please refer to the below. Available through your USystems representative, or our central enquires line at sales@usystems.com

Complete Product Range	Available at www.usystems.com
Operations and Maintenance Manual	Please contact sales@usystems.com
Troubleshooting Guide	Please contact sales@usystems.com
Product Brochure	Available at www.usystems.com

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