ColdLogik CL23 Rear Door Heat Exchanger

ColdLogik Rear Door Heat Exchangers are established as highly efficient cooling systems for use on data center/server racks. 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.

Designed to meet the challenging demands of High-Performance Compute (HPC) cooling, USystems with its unique RDHx has positioned itself alongside water to the chip and immersion cooling technologies, the CL23 HPC which is capable of an unrivalled 200kW of sensible cooling per industry standard rack.

Unlike other high performing cooling technologies, the RDHx requires no specialist infrastructure in the data center, no specialist servers, is fitted to standard IT racks, has retrofit capability, only occupies a small footprint, is easy to install and simple to roll out the CL23 HPC is unquestionably cost effective on all levels.

The CL23 HPC by design is capable of controlling the whole room environment without any additional cooling apparatus, unlike equivalent technologies. In addition, this ColdLogik Solution offers significant capital expenditure savings and with an EER in excess of 100 at maximum duty the CL23 HPC provides a better operational expenditure too.

Over **200kW** In A Single Rack

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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 offer unrivalled High Performance Cooling (HPC) based on an Industry Standard 14/20°C (57.2/68°F) water supply/return from mechanically cooled external plant, and has the ability to offer exceptional cooling capacities of over 200kW per rack.

Cooling Capacity - Maximum		
Maximum Duty	kW	204
Air flow (50Hz 230v)	m³/h (cfm)	14229 (8375)
DB Air On	°C (°F)	65 (149)
DB Air Out	°C (°F)	15 (59)
Water In	°C (°F)	14 (57.2)
Water Out	°C (°F)	20 (68)
Volume Fluid Flow	m³/h (l/s) / USGal/m	29.38 (8.16) / 129.36
Fluid Velocity	m/s (ft/s)	4.84 (15.88)

Nominal Duty

This is a more general, workable duty with 20°C/68°F water inlet and covers most requirements in Europe while also maintaining a room temperature of 22.5°C/72.5°F. 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 up to 177kW per rack.

Cooling Capacity - Nominal		
Nominal Duty	kW	177
Air flow (50Hz 230v)	m³/h (cfm)	14229 (8375)
DB Air On	°C (°F)	65 (149)
DB Air Out	°C (°F)	22.5 (72.5)
Water In	°C (°F)	20 (68)
Water Out	°C (°F)	30 (86)
Volume Fluid Flow	m³/h (l/s) / USGal/m	15.27 (4.27) / 67.23
Fluid Velocity	m/s (ft/s)	2.51 (8.23)

Efficient Duty

Taking advantage of room temperatures of 26°C/78.8°F allows the use of higher water temperatures, therefore reducing the necessity of 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. The loss in cooling capacity in comparison to the nominal performances is negligible.

Cooling Capacity - Efficient		
Efficient Duty	kW	164
Air flow (50Hz 230v)	m³/h (cfm)	14229 (8375)
DB Air On	°C (°F)	65 (149)
DB Air Out	°C (°F)	26 (78.8)
Water In	°C (°F)	23 (73.4)
Water Out	°C (°F)	33 (91.4)
Volume Fluid Flow	m³/h (l/s) / USGal/m	14.2 (3.94) / 62.56
Fluid Velocity	m/s (ft/s)	2.34 (7.68)

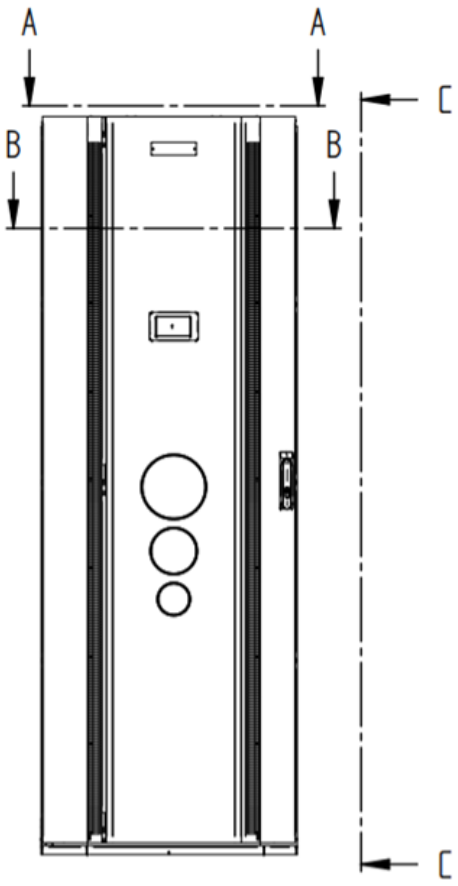
Cooling capacity data is shown for illustration purposes. USystems work alongside their customers who largely have unique challenges and ambitions. The nature of our technology, capabilities and approach is emulated in the delivery of efficient designs and solutions across the globe.

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

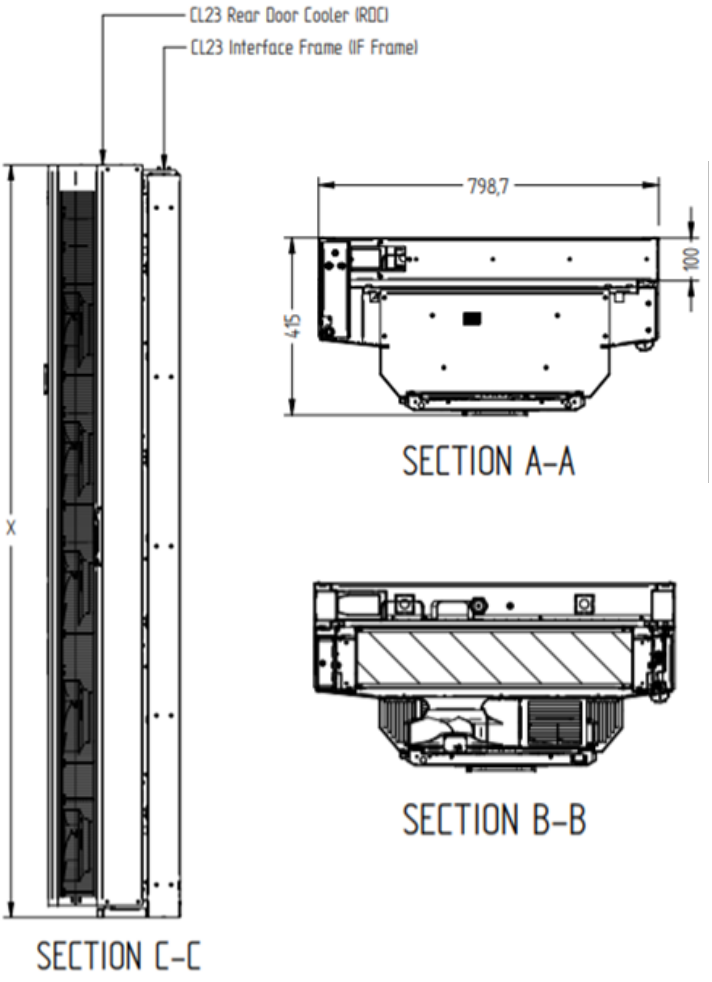
CL23 HPC			
Technical information		To Suit 48U*	To Suit 52U
Height (X)	mm (“)	2303 (90.7)	2481 (97.7)
Width (B)	mm (“)	799 (31.5)	
Depth (C)	mm (“)	415 (16.3)	
Dry Weight	kg (lb)	150 (330)	163 (358)
Wet Weight	kg (lb)	172 (379)	185 (406)
Paint	Finalised on Order	RAL 9003 (White)	
		RAL 9005 (Black)	
Communication Protocol		MODBus over TCP/IP (BACnet, SNMP optional)	
Hinge Side		Left-Hand side - Standard	
		Right-Hand side - on request	
Connections	mm (inch)	32 (1 1/4)	
Water Volume Capacity	L (USGal)	22 (5.75)	
Maximum RDHx Current Draw	A	16	

*48U RDHx, and 48U frame fit 47U/48U rack



CL23 HPC Combined Fan Performance**			
10 x Backward Curved Centrifugal			
Air flow	m3/h (cfm)	30%	4375 (2575)
		70%	10750 (6327)
		100%	14215 (8367)
Current 230v 50Hz / 208v 60Hz	A	30%	1.32 / 1.46
		70%	7.16 / 7.92
		100%	15.06 / 16.65
Power Input 1~200-240v 50/60Hz	W	30%	113
		70%	776
		100%	1691
Total fan noise	dB	30%	68
		70%	85
		100%	92

**Based on positive pressure environment. PF 1. Others may vary.



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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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