

Coolant Distribution Unit In-Rack

Art.Nr. 3343.230





Description:

The CDU In-Rack 21" is a liquid to liquid Coolant Distribution Unit In-Rack, single phase, based on OCP standards. The unit is ready to build in an Open Rack v3 with DC busbar.

The Coolant Distribution Unit In-Rack separates the primary coolant circuit (FWS = facility water circuit) from the secondary coolant circuit (TCS = technology cooling system) to cool the IT equipment. This separation ensures, that the required volume flow, pressure and coolant quality is always maintained in the TCS

Main components and features

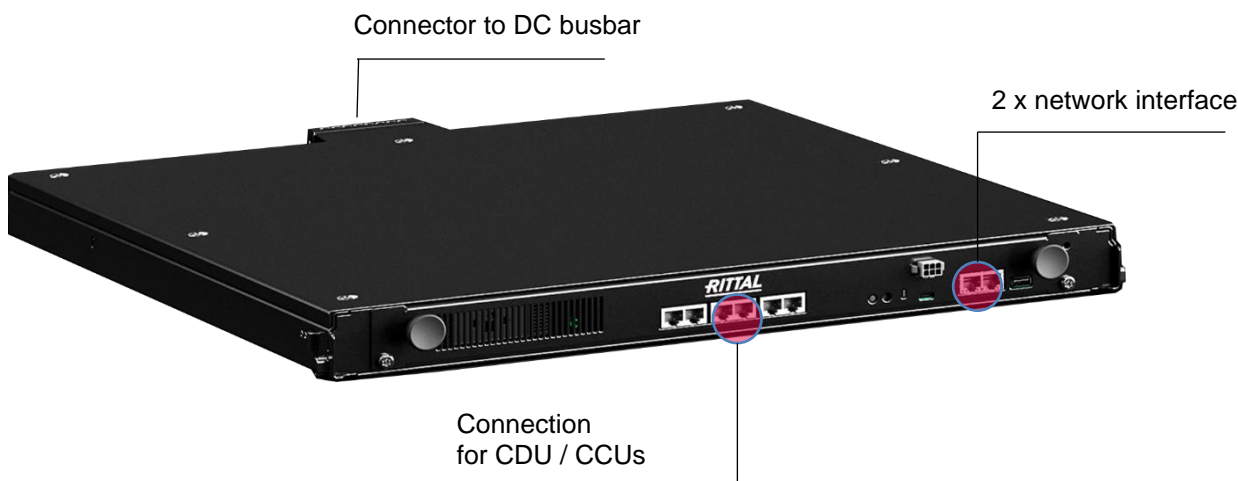
- **Housing:**
 - ✓ CDU In-Rack is designed to build in an ORv3 Rack.
- **Power**
 - ✓ The CDU is powered via DC busbar of the ORv3.
 - ✓ It connects directly to the busbar.
- **Pumps**
 - ✓ 3 speed driven centrifugal pumps are built in the CDU In-Rack.
 - ✓ The pumps are designed with N+1 redundancy.
 - ✓ Fail safe mode for the pumps when signal is missing.
- **Plate HEx**
 - ✓ The HEx is designed for 150 kW heat transfer duty @ 6 K ATD. (Coolant FWS: water; coolant TCS: PG 25)
- **Expansion vessel**
 - ✓ Volume storage capacity of 3 litre.
- **2-way control ball valve**
 - ✓ 2-way control ball valve in FWS with fail safe mode mechanism.
- **FWS coolant supply and coolant return**
 - ✓ Tri Clamp sanitary flange is used to connect the CDU In-Rack to the FWS (1 1/2 inch).
- **TCS coolant supply and coolant return**



- ✓ Tri Clamp sanitary flange is used to connect the CDU In-Rack to the Rack manifolds (1 1/2 inch) via flexible hoses..
- **TCS filter**
 - ✓ Standard: 25 µm, optional 50 µm
 - ✓ Placed after hex and pumps
 - ✓ External access allows service without removing CDU.
 - ✓ Automatic clogging detection via pressure difference
- **Sensors / meters in general**
 - ✓ Temperature and pressure sensors hot swappable
- **Sensors TCS**
 - ✓ .Coolant supply temperature
 - ✓ .Coolant return temperature
 - ✓ .Coolant supply high pressure
 - ✓ .Coolant return low pressure
 - ✓ Coolant filter pressure
 - ✓ Coolant leakage sensor (Built-in leakage sensor inside the CDU In-Rack covering the maximum area)
 - ✓ Flow sensor
- **Sensors FWS**
 - ✓ .Coolant supply temperature
 - ✓ Coolant supply pressure
- **Ambient air side sensor**
 - ✓ Temperature/-humidity sensor
- **Front side CDU In-Rack**
 - ✓ Status LEDs at the front for status checking power, communication, leakage
 - ✓ RJ 45 socket at the front panel for communication between CDU and Control Module

Control module

- **Control module for monitoring and controlling the entire system (10U)**



The control module consists of an outer chassis and an inner cassette which can be removed while the system is in operation.

This allows the controller to be replaced without interrupting the cooling / coolant circuit.

While the controller is being replaced, the pumps continue to operate in fail-safe mode.

- **Features**

- ✓ Controller hot swappable, CDU runs in fail safe mode if controller fails
- ✓ Powered via DC busbar
- ✓ Supported protocols:
- ✓ Supported protocols: IPv4 / IPv6,
- ✓ Integral Web Server, HTTP, HTTPS, SSL, SSH,
- ✓ NTP, Telnet, TCP/IP v4 and v6, DHCP, DNS, NTP,
- ✓ Syslog, SNMP v1, v2c and v3, Traps,
- ✓ OPC-UA, Modbus/TCP,
- ✓ FTP/SFTP (update / file transfer),
- ✓ Redfish
- ✓ Email transmission (SMTP)
- ✓ CCUs (pumps) run in fail safe mode if signal of control module is missing
- ✓ Default: Pumps continue to operate at the speed that was set at the time of the Signal failure



- ✓ 2-way valve opens if signal of controller is missing.
- **Control**
 - ✓ The pumps speed is controlled by the delta pressure in the TCS.
The delta p is a setpoint and can be set by the user.
 - ✓ The 2-way control ball valve in the FWS controls the supply temperature in TCS. This temperature is a setpoint and can be set by the user.

Technical data

Feature	Value
Nom. Cooling capacity	150 kW @ 6 K ATD / 200 kW @ 8 K ATD
Dimensions w x h x d	548 x 188,5 x 855 mm
Weight dry / wet	80 kg / 93 kg
Nominal flow rate FWS	225 lpm at 1.5 bar (21.8 PSI)
Coolant FWS	Water
Power supply	48 VDC via DC busbar
Max. power consumption	Rated: 2.3 kW (min. 1 kW; max. 3.2 kW)
Dimension pipes FWS	1 1/2 inch
Max. pressure FWS	10 bar (145 PSI)
Water volume FWS	7 Liter / 1,85 US gallons
Water operating temp. FWS	10°C...50°C / 50°F...+122°F (non condensing)
Coolant TCS	PG 25



Nominal flow rate TCS	225 lpm @ 1.5 bar (21.8 PSI) head
Coolant volume TCS	15 Liter / 4,0 US gallons
Coolant operating temp. TCS	+20...55°C / +68°F...131°F (non condensing)
Dimension pipes TCS	1 1/2 inch
Volume expansion vessel TCS	Total: 3 litre
Material PHEX	Stainless steel (soldered with copper)
Material Piping	Stainless steel
Material pumps	Brass
Sealing material	EPDM

Power input characteristics PSU

Parameter	Conditions	Min.	Norm	Max.	Units
Input voltage operating range	Line to Line (Delta source)	180	200/208/277	305	VAC
	Line to Line Wye source with neutral connection	312	346/360/480	528	VAC
	HVDC	192	240/380	400	VDC
Frequency	AC Input	47	50/60	63	Hz

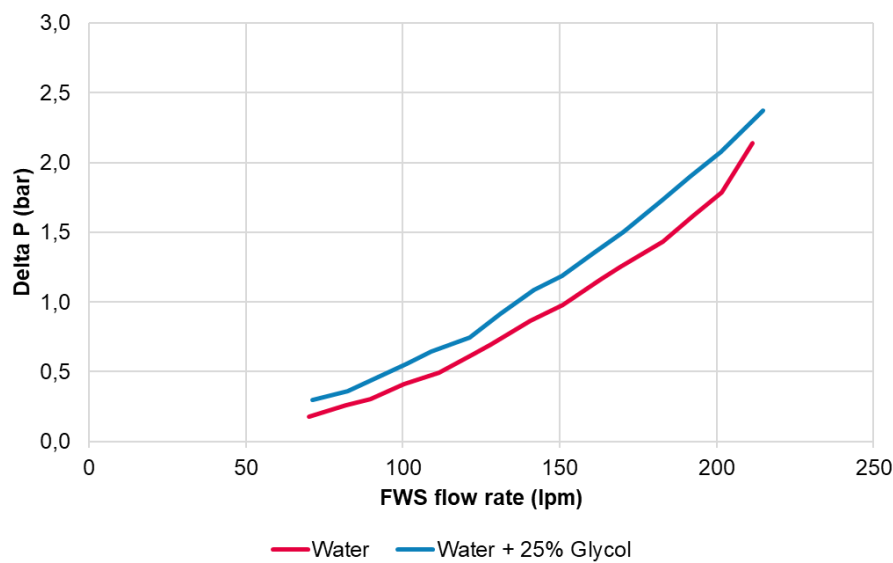


List of wetted materials

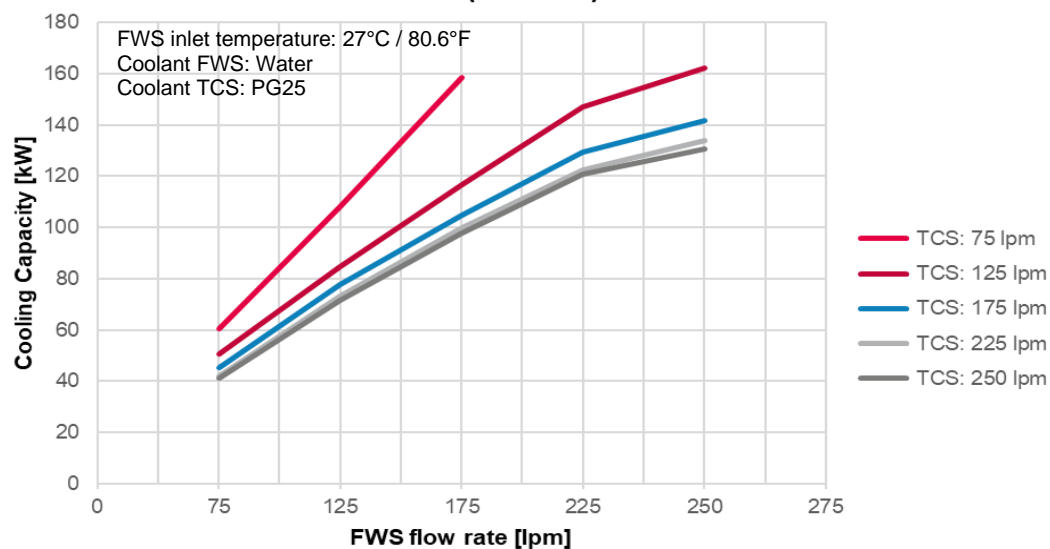
Classification		Designation	
Metals	Ferrous metals	SS-AISI 301 SS-AISI 302 SS-AISI 304 SS-AISI 316 SS-AISI 316L	
	Non-ferrous metals	Nickel plated brass Copper Brass with <15% Zinc, <1% lead	
Non-metals	Plastics	Thermoplastics	PPS PPO / GF PA66 GF30 /EPDM PEEK ETFE
		Elastomers	EPDM SBR FKM Butyl
	Other non-metals	Ceramic	

Performance curves

Pressure drop FWS circuit

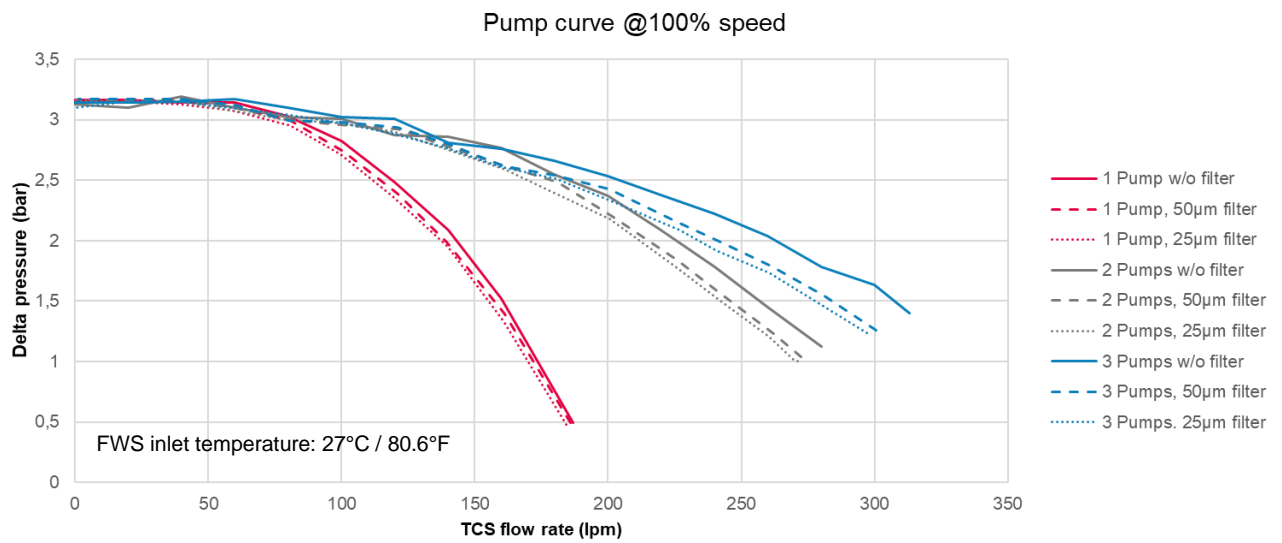
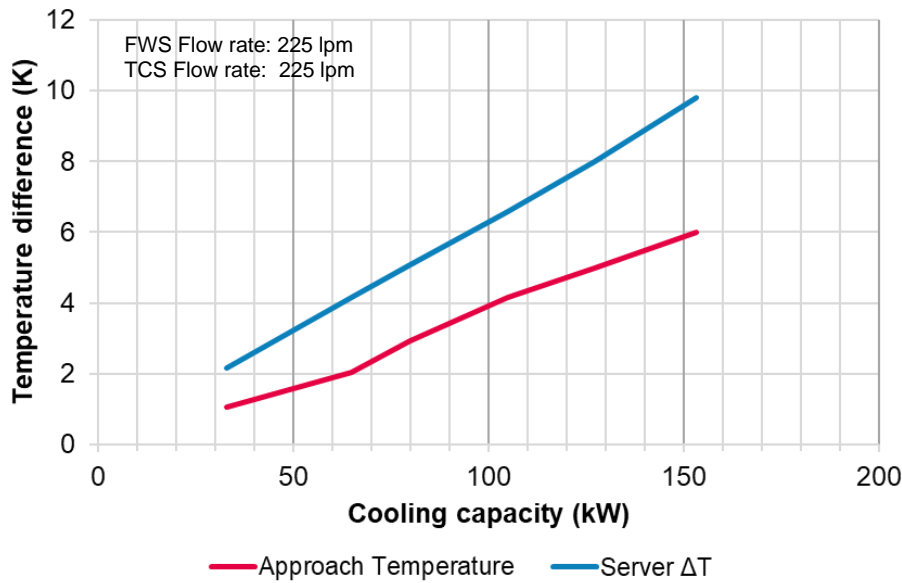


CDU In-Rack Cooling capacity @different flow rates (6K ATD)





ATD vs. Cooling capacity at constant flow rate
(FWS coolant: Water, TCS coolant: PG 25)



Specification CDU In-Rack VS 7.0
This is preliminary data. Subject to technical changes.

May 2026