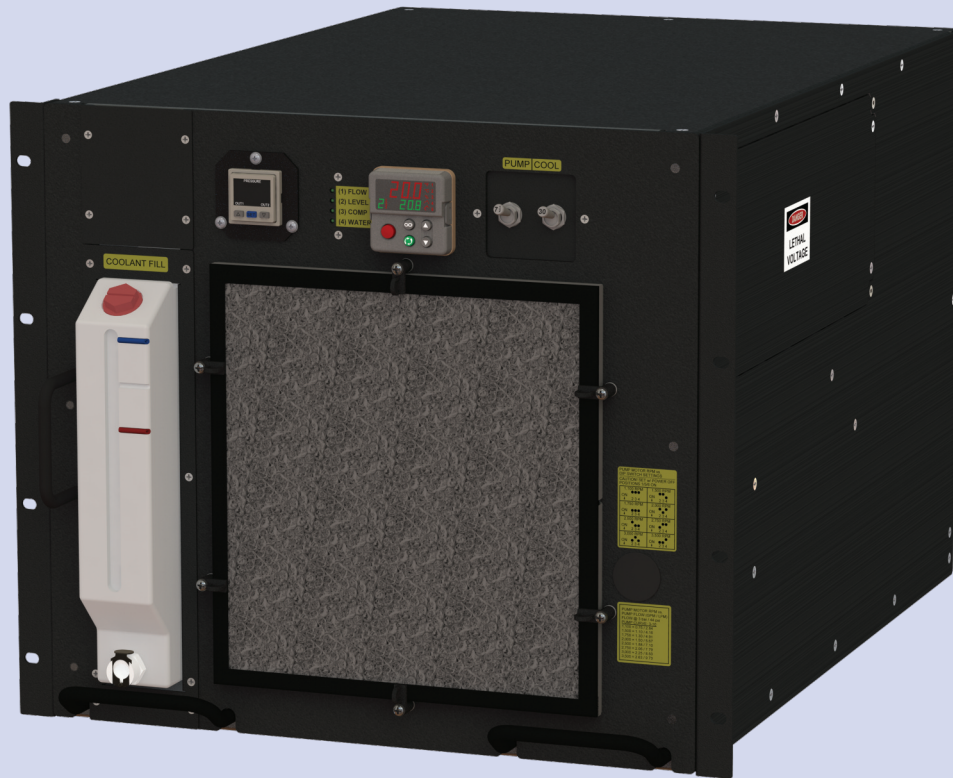




Rack-Mounted Coolant Chiller For Airborne Applications 28 VDC Powered

Front Panel



Back Panel



1,500/2,000 watts (5,100/6,800 BTU's)

K-O Model (DMC-15/20-DC) Rack-Mounted Coolant Chillers

For Demanding Airborne Cooling Applications where 28VDC Mains are Required

CHILLER MODULE FEATURES
K-O Concepts Model DMC-15/-20-DC

- **K-O Model DMC-15/20-DC**

28 VDC Powered coolant chiller for airborne cooling applications. Standard 19 inch, rack mounted configuration allows the cooling module to be integrated with the equipment to be cooled. Fully enclosed cabinet is equipped with handles for ease of installation. Weights only 98 lbs. / 44.5 kg. The chiller is air-cooled for portability.

- **Standard 19 inch Enclosed Rack-Mount Chassis**

All models: 15.72 H x 17.12 W x 24.35 D inches (cabinet dimensions)

Front panel dimensions: 15.72 H x 19.0 W (9U height cabinet)

Request interface control drawing (ICD) number 25431800 for detailed dimensions.

- **Accurate Process Coolant Temperature Control**

The “PID” multi-loop controller accurately maintains the desired process coolant temperature to within 0.1°C of set temperature. The dual digital readout on the User Interface module displays both set and actual process coolant temperatures.

- **Heating**

Waste heat is harvested from the system’s compressor to quickly raise the temperature of the process coolant. Approximately 40% of the BTU rating of the chiller unit is available for heating the process coolant up to 50°C without any external heat load.

- **Communication Options**

Standard RS-485 communications or optional RS-232, Modbus RTU, TCP, USB 2.0, DeviceNet or Profibus DP. Optional 6 Digital Input/Output alarm signals via communications.

- **Electrical Highlights**

Both DMC models operate from 28 VDC. K-O DC chillers come standard with Teflon / Tefzel wire harnesses to meet flight qualification standards.

- **CFC Free Refrigerant**

All models use environmentally friendly R134a (HFC-134a) refrigerant for mobile applications.

- **Process Coolant Pumps**

Standard centrifugal style process coolant pump provides 16 liters per minute @ 19 psi available pressure. Optional positive displacement style process coolant pump provides flow from 3 - 10 liters per minute @ 70 psi available pressure.

- **Deionized (DI) Water or PAO Compatible**

Includes nickel-brazed heat exchanger and upgraded 316 stainless steel fittings. Optional easy service DI cartridge is available.

- **Easy To Service & Maintain**

Chillers are designed for easy service and maintenance. Convenient process coolant fill & drain features on all models. Access panels for ease of electrical service.

- **End-User Printed Circuit Board**

The EU-PCB monitors and reports interface signals via front panel LED’s, audible alarms and/or power down on any or all fault signals.

- **Digital Pressure Gauge** 

The DPG is an upgrade to the mechanical pressure gauge. The transducer operates from 0-145psi and has a 0.25% BFSL accuracy rating. The transducer has all stainless steel parts with no o-rings. The controller displays “in-range” pressure values in green and “out-of-range” pressure values in red.

Chiller Module Specifications & Options

K-O Concepts Model DMC-15/20-DC

MODEL NUMBERS		DMC-15	DMC-20
Cooling Capacities ¹	Watts	1,500	2,000
	BTU/hour	5,100	6,800
Cooling Process	Compressor	All models use refrigerant based compressors.	
Refrigerant Type	R134a	All models use R134a (HFC-134a) / CFC-free.	
Heat Dissipation Note: Air flows from front to rear of cabinet.	Air (air cooled)	All models dissipate heat to ambient air via fan.	
Process Coolant Temperature Range	°C / °F	5-35° / 41-95°	
Ambient Temperature Range (OPERATING) Note: Coolant performance is degraded above 30°C ambient.	°C / °F	5-40° / 41-104°	
Process Coolant Temperature Stability ²	°C	±0.1°	
Process Coolant Tank Capacity	Gallons / liters	1.3 / 4.9	
Process Coolant Maintenance	Fill / drain	All models feature fill & drain via front panel.	
Process Coolant Pump Performance Standard Pump: Centrifugal type. Optional Pump: Positive displacement type.	Gallon / liters per minute	Standard (Model RD-40): 3.5 GPM / 16 LPM (MAX) Optional (Model PDM): 0.75-2.63 GPM / 3-10 LPM	
Process Coolant Pump Pressures	PSI / bar	Standard (Model RD-40): 19 / 1.3 available pressure. Optional (Model PDM): 70 / 4.8 available pressure.	
Process Coolant Pump Head Materials Standard & Optional Process Coolant Pumps.	Model MD Model PDM	Standard (Model RD-40): Glass-reinforced polyethylene. Optional (Model PDM) : Stainless Steel w/ graphite vanes.	
Process Coolant Connections (FNPT)	Inches	Standard Feature: ½	
Input Power Requirements	Volts VDC	28 VDC	28 VDC
Full Load Amperage (typical) Note: Typical line current @ 28 VDC.	Amps @ 28 VDC	29	36
Circuit Breakers	SP	Circuit breakers (2x) located on front panel.	
Weight	Dry lbs. / kg.	98 / 44.5	
Cabinet Dimensions (W x D x H) Note: Standard 19 inch rack-mount configuration, fully enclosed, w/ 15.7 inch / 9 unit (U) high front panel.	Width: in / mm Depth: in / mm Height: in / mm Panel: in / mm	17.12 / 434.9 24.35 / 618.5 15.72 / 399.3 19.0 W x 15.7 H / 482.6 W x 399.3 H	
Process Coolant Temperature Controller	Standard Feature: PID multi-loop controller with User Interface display		
Electrical Interface Signals Note: All interface signals are contact closures & are normally closed (N.C.) in the passed condition. Interface signals accessed via 26 pin (D38999/20WE26PN) connector located on the back panel.	Standard Feature: Process coolant flow signal (reed switch). Standard Feature: Process coolant level signal (reed switch). Optional Feature: Secondary process coolant level signal (reed switch). Standard Feature: Process coolant temperature alarm (relay contact). Standard Feature: Compressor temperature warning (bi-metal switch).		
Condenser Fan	Standard Feature: Speed-controlled for quiet operation.		
Air Filter	Standard Feature: Front panel mounted air filter assembly.		
Communications Note: Communication ports located on back panel. RS-485, RS-232, Profibus DP via 26 pin port. USB 2.0, CAT6 & DeviceNet via optional communications port.	Standard: RS-485 serial communication. Optional: RS-232, Modbus RTU, TCP, USB 2.0, DeviceNet, Profibus DP. Optional: 6 Digital Input/Output alarm signals via communications.		
Process Coolant Types Note: Coolant additives (including glycol) available.	Standard Feature: Demineralized (steam distilled) water compatible. Standard Feature: Deionized (DI) water compatible. Standard Feature: PAO synthetic coolant oil compatible.		
Coolant Particle Filter	Optional Feature: Canister or cartridge style, coolant particle filters.		
Deionized (DI) Water Package	Optional Feature: Mix bed ion cartridge included.		
End-user printed circuit board	Optional Feature: Monitors and reports interface signals via front panel LED's/audible alarm and/or power down on any/or all fault signal(s).		
Digital Pressure Gauge	Standard Feature: 0-145psi, SS Pressure transducer w/ digital controller.		

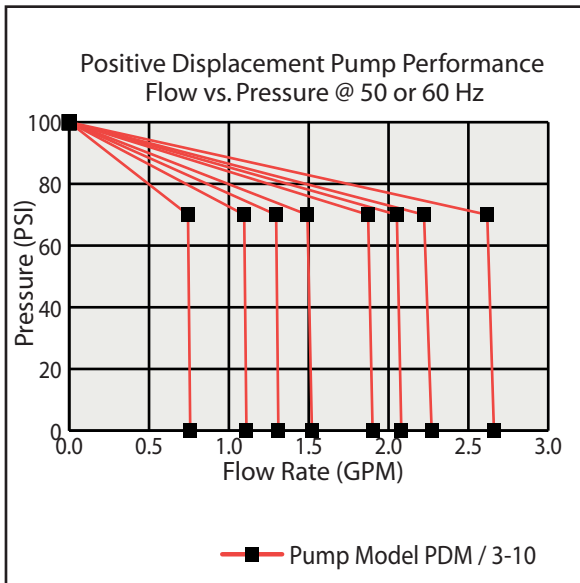
Notes:

- ¹ Cooling capacity ratings are with process coolant @ 20°C / 68°F.
- ² Temperature stability performance requires a stable heat load input.
- * Data shown is with 27°C / 81°F (unrestricted) ambient air.
- * See Thermal Performance chart for cooling capacities @ other process temperatures.
- * Specifications are subject to change without notice.

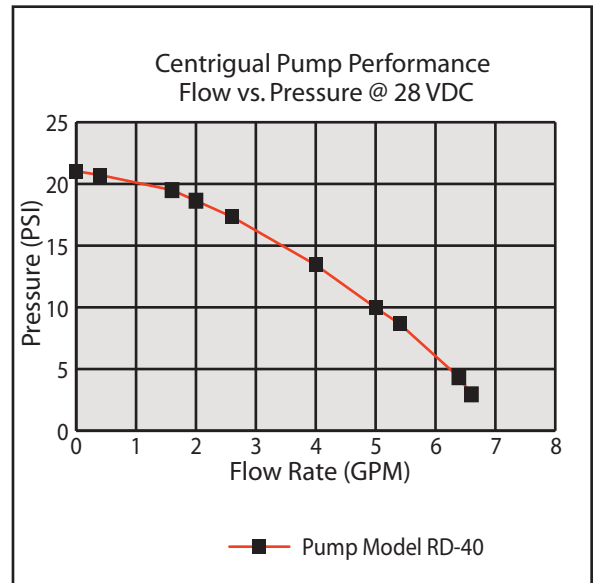
CHILLER MODULE PERFORMANCE DATA

K-O Concepts Model DMC-15/-20-G2

Process Water Pump Performance

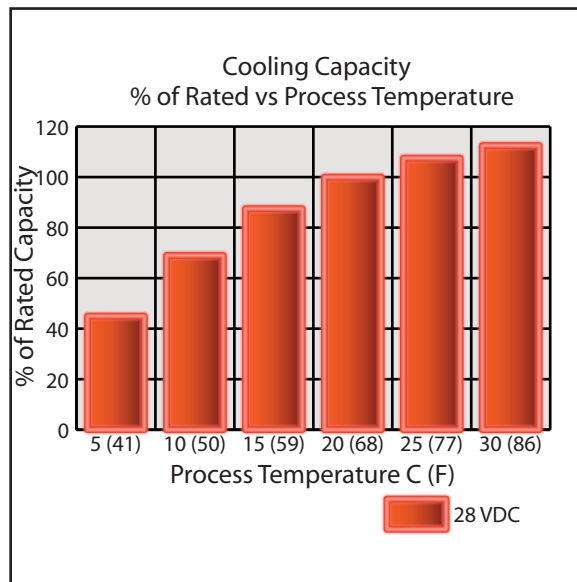


Optional Water Pump Performance



Note: Pump Model "PDM / 3-10" provides eight "8" selectable flow vs. pressure curves as shown. Internal valve setting shown starts coolant bypass @ 70 PSI / 4.8 bar & dead heads @ 100 PSI / 6.8 bar. Other pump curves & bypass values available upon request.

Thermal Performance



INTERFACE CONTROL DRAWING #: 25431800 AVAILABLE UPON REQUEST

K-O Concepts, Incorporated
 4375 South Street
 Titusville, Florida, 32780
 Phone: 407/296-7788 • Fax: 321/567-0046
 E-Mail: Sales@K-OConcepts • Web: www.K-OConcepts.com

