



ISO 9001:2008  
CERTIFIED

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## - QUOTATION -

M.I.T.

Middleton, MA

Attn: **Zander Auerbach**

Subject: 25 GPM dry cooler

Proposal: P-27829A  
Date: September 12, 2019  
Work: 917-991-8533  
Fax/Email: zandera@mit.edu

QTY	ITEM NO.	DESCRIPTION	NET PRICE	TOTAL
	D1961	<b><u>Air Cooled Fluid Cooler</u></b>		
1	D1945	Aqua-Vent Model AVI-2F-5R-37C-800-AC Air Cooled Heat Exchanger. SPECIAL PRICE, one unit available subject to prior sale. 1-2 week delivery.	\$5,500.00	\$5,500.00

This quotation is subject to the attached standard terms and conditions.

**SHIPMENT:** will be made freight collect, Ex-Works point of shipment **2 weeks\*** after approval of contract and receipt of complete information from Purchaser.

\*Dry Coolers reserves the right to modify the delivery schedule as necessary based upon the current production schedule at the time of drawing approval.

**TERMS:** of payment for domestic shipments are 25% with order, balance 30 days net.

**IMPORTANT:** This proposal is for acceptance within 30 days from the date hereof and shall constitute a contract when accepted by the Purchaser and approved by our contract administrator. Price subject to change due to fluctuations in raw material prices.

Best regards,  
Gary Berwick

**REFERENCE INFORMATION PROVIDED BY CUSTOMER:**

- Application: Fluid cooling
- Fluid: 40% propylene glycol balance water
- 115°F cooled to 110°F or 135°F cooled to 115°F
- Flow: 25 GPM
- Location: Middleton, MA
- Design dry bulb: 95°F
- 460 Volt - 3 phase - 60 Hertz
- Offer R&D 2 fan AVI from stock
- Standard speed motors acceptable

**Air-Cooled Fluid Cooler**

We are pleased to quote an air-cooled heat exchanger for cooling your process.

**Aqua-Vent Model AVI-2F-5R-37C-800-AC Air-Cooled Heat Exchanger**

Cooling Duty: See attached specification sheet

The major components in the air-cooled heat exchanger include the copper tube heat transfer coil, two (2) propeller fans driven by external rotor motors, fan venturi panels, fan guards, mounting legs, and control panel.

The heat transfer coil is fabricated of 1/2" diameter seamless copper tubing with mechanically expanded full fin collars for permanent fin-tube contact. Fins are die formed aluminum with corrugations for optimum heat transfer capability. Headers are seamless heavy wall copper tubing. Coil is dry nitrogen leak tested at 380 PSIG in an illuminated water test tank. 250 PSIG maximum operating pressure at 300°F.

Housing for the air-cooler is constructed from heavy gauge galvanized steel and powder coat painted RAL9002 grey white for redundant corrosion protection. Legs are designed for easy stacking of units if space savings is a priority.

Fans are 31.5" (800mm) diameter and constructed of steel blades welded to external rotor of motor. Fans are statically balanced and factory run prior to shipping to ensure quiet, trouble-free operation.

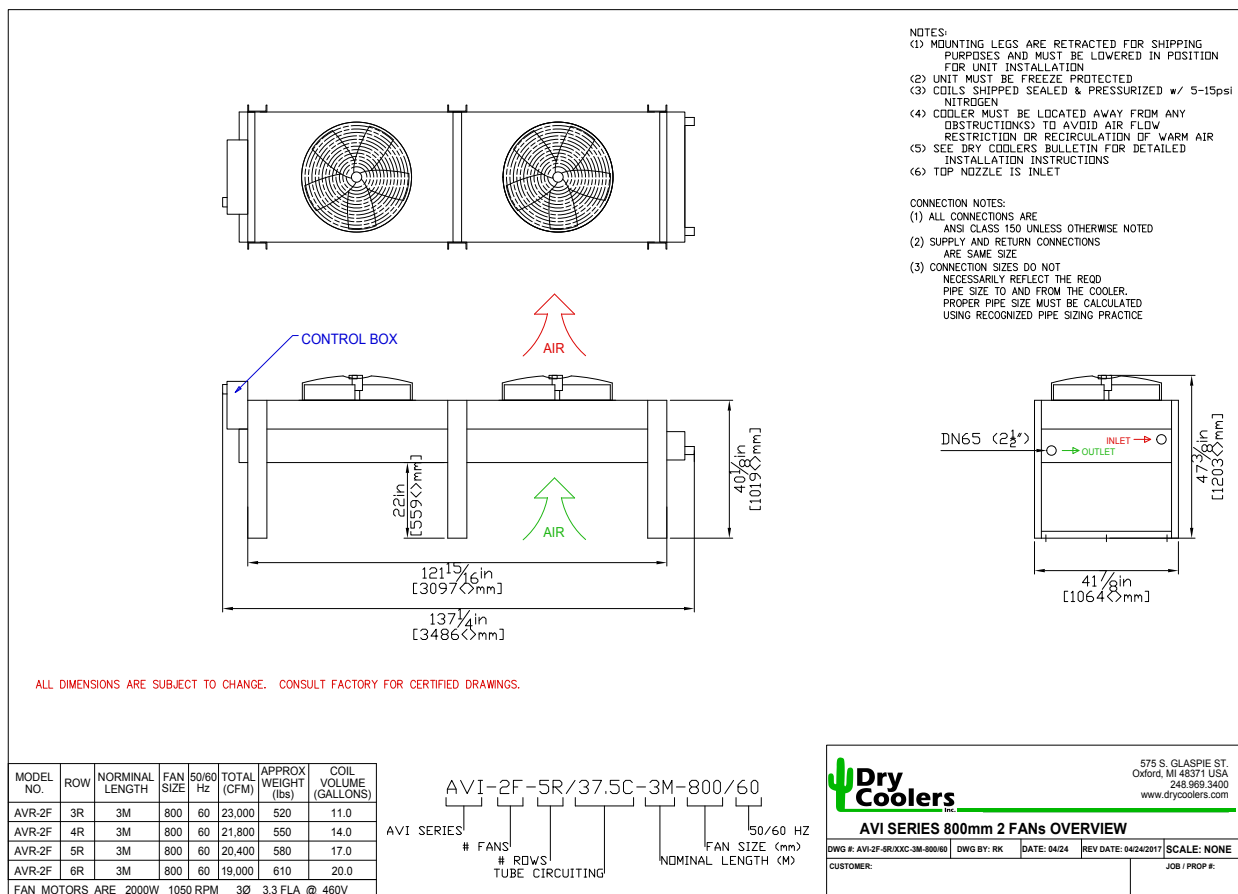
Motors are designed for dual voltage operation at 230V/460V/3Ø/60 Hz, 2.9HP (2.2 KW), 1050 RPM, 7.0/4.0 A each. Motors are totally enclosed IP54 (water tight) with permanently lubricated ball bearings. Consult factory for other voltage options.

The fan motors are factory wired to a control panel with a non-fused lockable disconnect, rated at 5kA SCCR. Fused 120V motor protectors with circuit breakers are provided in the control panel for fan cycling. Fan cycling will require 120V signal from a temperature controller or thermostats. For outdoor installation.

Customer must take appropriate precautions to prevent the fluid from freezing in the coil.  
Warranty does not cover freeze damage to the coil.

**FREEZE WARNING:** Customer must take appropriate precautions to prevent the fluid from freezing. Warranty does not cover freeze damage to the coil. Coolers located in freezing climate must be freeze protected using the appropriate concentration of glycol / water.

## STOCK R&D Unit



AVI  
SERIES

## AIR COOLED HEAT EXCHANGER

AquaVent AVI Series Air Cooled Heat Exchangers are ideal for efficient, cost effective direct heat exchange with ambient air. These simple, highly efficient heat exchangers are capable of cooling your fluid to within 5 - 10° F (3 - 5° C) above ambient.

When combined with the CLEANLOOP closed-loop pump station, the AquaVent air cooler becomes a corrosion resistant, maintenance free method of cooling. There is no need for water makeup, water treatment, water blowdown, unsightly open tanks, clogged strainers or equipment that has to be flushed and cleaned. Fill the AVI + CLEANLOOP system with the appropriate concentration of inhibited glycol for freeze protection and your system is ready for a lifetime of work.



The AquaVent AVI Series air coolers come in two- to four-fan configurations and can be arranged side-by-side or stacked on top of each other.



AQUAVENT AVI AIR COOLED HEAT EXCHANGERS

**135F to 115F**Dry Coolers, Inc.  
Solanus Selector R77  
Date: 9/12/2019

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**Customer:** M.I.T.  
**Reference:** P27829A

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**Model:** AVI-2F-5R-37C-800-EC-S-V2.0 V18900 - 37  
**Quantity:** 1

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**Thermal Performance:**

Name of Fluid:	Glycol, Ethylene 40%
Flow Rate:	25.0 gpm
Inlet Temperature:	135.0 deg F
Outlet Temperature:	107.7 deg F
Heat Exchanged (Total):	305,631 btu/hr
Pressure Loss:	0.5 psi
Ambient Air:	95.0 deg F
Altitude:	200 feet
Fouling Factor:	0.00000 ft <sup>2</sup> -hr-F/BTU

**Fan Type:**

Quantity (each):	2
Airflow:	21760 SCFM
Fan Type:	AVI-ZA-EC 460V/60Hz 800mm 950rpm 480V-3ø 60Hz 1.950 kW 2.6A

**Construction:**

Tube info :	0.5" OD Copper
Tube fins:	9 FPI Plate Fin - Staggered Aluminum

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**Dimensions per Unit:**

Length:	137 Inches	Weight:	580 lbm
Width:	42 Inches	Volume:	17 gallon
Height:	48 Inches		

**115F to 110F**Dry Coolers, Inc.  
Solanus Selector R77  
Date: 9/12/2019

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**Customer:** M.I.T.  
**Reference:** P27829A

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**Model:** AVI-2F-5R-37C-800-EC-S-V2.0 V18900 - 37  
**Quantity:** 1

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**Thermal Performance:**

Name of Fluid:	Glycol, Ethylene 40%
Flow Rate:	25.0 gpm
Inlet Temperature:	115.0 deg F
Outlet Temperature:	101.8 deg F
Heat Exchanged (Total):	147,428 btu/hr
Pressure Loss:	0.6 psi
Ambient Air:	95.0 deg F
Altitude:	200 feet
Fouling Factor:	0.00000 ft <sup>2</sup> -hr-F/BTU

**Fan Type:**

Quantity (each):	2
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**Dry Coolers Inc.**

**TERMS AND CONDITIONS**

This Quotation is subject to the following standard terms and conditions:

1. This is a Quotation, not a firm offer, and any purchase order issued pursuant to this Quotation shall not result in a contract until it is accepted and acknowledged in writing by Dry Coolers Inc. (DCI) at its office in Oxford, Michigan.
2. UNIT PRICES are subject to adjustment if the quantity actually purchased is less than the quantity described herein.
3. PURCHASER SHALL assume all responsibility for taxes levied by the state in which they operate.
4. TERMS OF PAYMENT are as stated in the previous page.
5. DELIVERY TERMS are as stated in the previous page. Dates of delivery are determined from the date of DCI's acceptance of any order or orders issued by Buyer and are estimates of approximate delivery dates and are not a guarantee of a particular day of delivery. DCI is not liable for any failure or delay in shipment due to any cause beyond its control including, but not limited to, acts of God, war labor difficulties, accidents, shortages or lack of materials, or failure by DCI's suppliers or subcontractors.
6. DCI WARRANTS that all products furnished hereunder will be free from defects in materials and workmanship for one year from the date of shipment and when operated and maintained under design conditions and in accordance with DCI's instructions, will perform in accordance with applicable specifications for one year from date of shipment. If within such one year period any product or portion thereof proves, after receipt of prompt notice and inspection by DCI, to be defective as to materials or workmanship, DCI will, at its option, either repair or replace any such product or portion thereof. This warranty is in lieu of all other warranties and DCI DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE. DCI makes no warranty with respect to components or accessories manufactured by any other party except a expressly warranted by such other party; or for deterioration or failure due to effects of erosion or corrosion. DCI is not liable for any consequential or incidental damages, and in no event shall be liable for any amount in excess of the purchase price of the products described herein.
7. DCI IS NOT RESPONSIBLE FOR compliance with any codes other than as specifically referred to herein. Buyer shall pay any additional costs resulting from the need to comply with any other code.
8. CANCELLATION of any contract resulting from this Quotation or delay by Buyer in acceptance of any shipment may be made only by written agreement executed by both parties.
9. THERE ARE NO provisions with respect to this Quotation not specified herein, this Quotation together with the Buyer's and DCI's acceptance or acknowledgment thereof will constitute the entire contract between the parties with respect to the furnishing of such products.
10. ANY contract resulting from this Quotation shall be governed by and construed in accordance with the laws of the State of Michigan.