



QHTM REFROIDISSEURS COOLERS

**HYDRAULIQUE MOBILE 12VDC 24VDC HYD.
MOBILE HYDRAULIC 12VDC 24VDC HYD.**



www.QuebecHydraulique.comTM



DESIGN TO PERFORM



COOLERS / REFROIDISSEURS

If you are replacing an OEM cooler, use the Dimensional Guide to choose one that best fits the mounting area and has at least the same surface area as the cooler you are replacing. It is always best to error in favor of a larger size if mounting space allows for it.

Review the Performance Metrics for each of our products to determine the oil cooler size needed based on oil flow and heat load*.

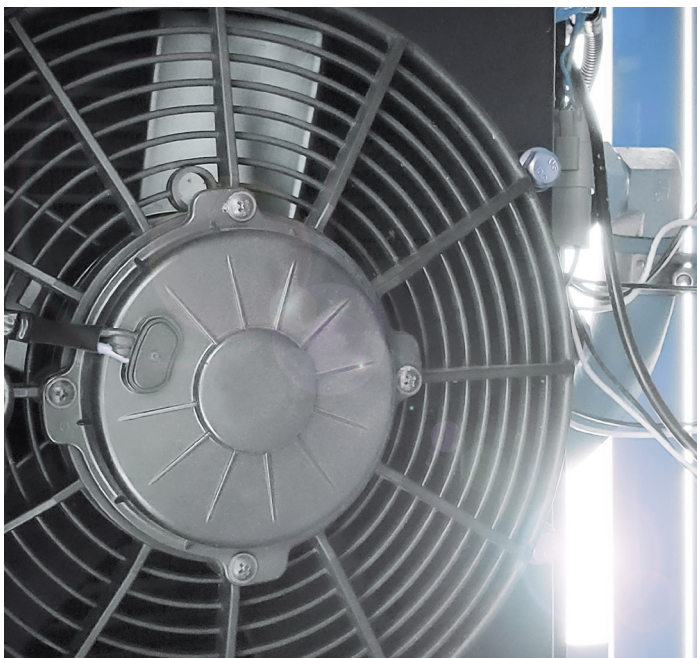
The performance metrics are based on the following:

- ♦ 1000 Standard Feet Per Minute (SFPM) Air Velocity
- ♦ 50 SUS Oil
- ♦ 100°F Inlet Temperature Difference

A rule of thumb for estimating the heat load for a simple hydraulic circuit is 25% of the of the input power. For example a 20hp motor generates a 5hp heat load.

For more complex hydraulic systems, please refer to the Technical Selection Guide in this document.

**Heat Load is the amount of heat energy that the hydraulic system is introduces in to the oil and is measured as horsepower (HP)*



QHDC-60 Cooler



ENGINEERED TO SURVIVE



- **High Performance Aluminum**
- **Durable Bar & Plate Construction**
- **Low Clogging, High Performance Air Fin Design**
- **Standard Sizes with SAE Ports**
- **Industrial Powder-coat Finish**
- **Factory Tested Prior to Delivery**



FLUID POWER COOLING SOLUTIONS

- Construction Equipment
- Mining Equipment
- Oil & Gas Equipment
- Agriculture Equipment
- Turf and Lawn Care Equipment
- On Highway Equipment
- Off Highway Equipment
- Material Handling Equipment
- Forestry Equipment

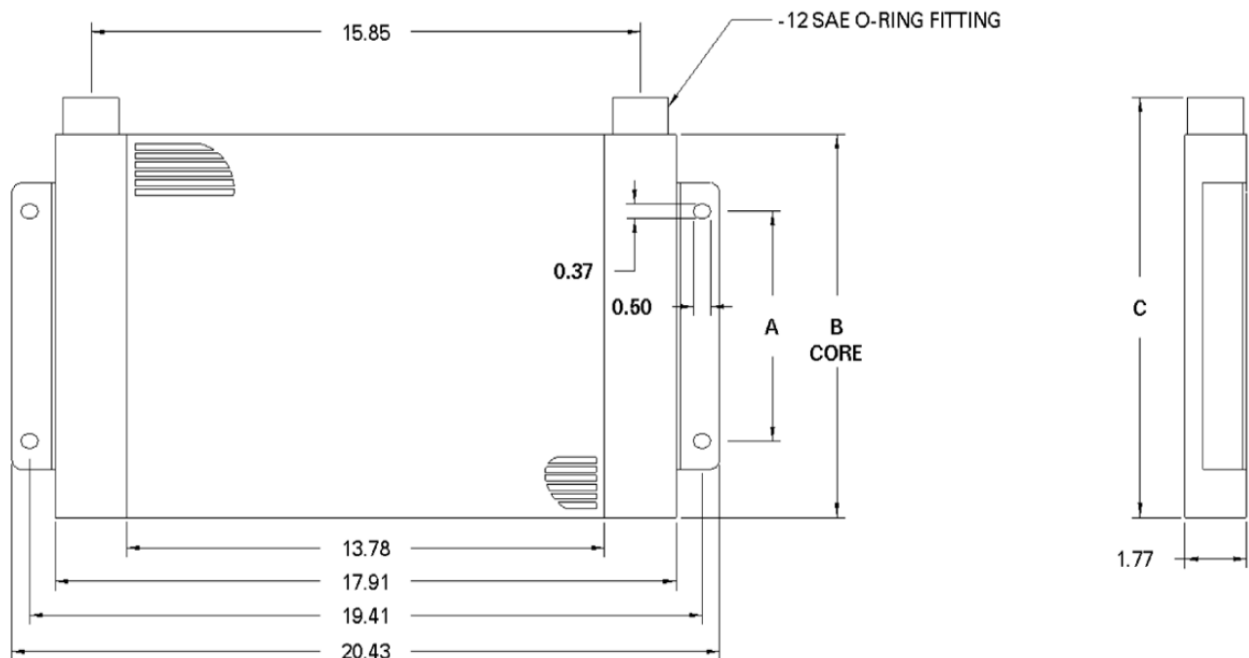
QHOC-40 Series



Small and versatile, the QHOC-40 series is Ideal for small to medium sized equipment such as:

Air Compressors
Turf and Lawn Care Equipment
Mini Skid Steer / Excavators

- ♦ Compact design
- ♦ Inlet and outlet ports on the same side
- ♦ Universal mounting using rigid mounting flanges
- ♦ Use with 7" or 10" fans if required



Dimensions (inches)

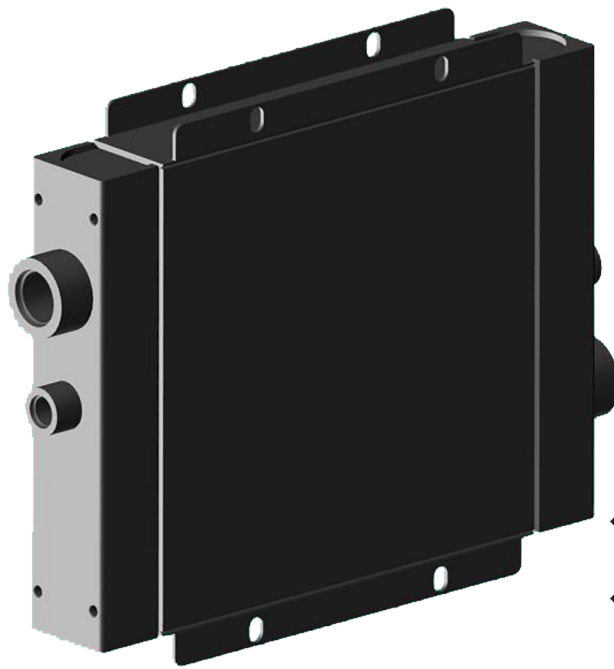
Model Number	A	B	C
QHOC-41	3	5.7	6.7
QHOC-42	6	10	11
QHOC-43	10	14.3	15.3



QHOC-60 Series



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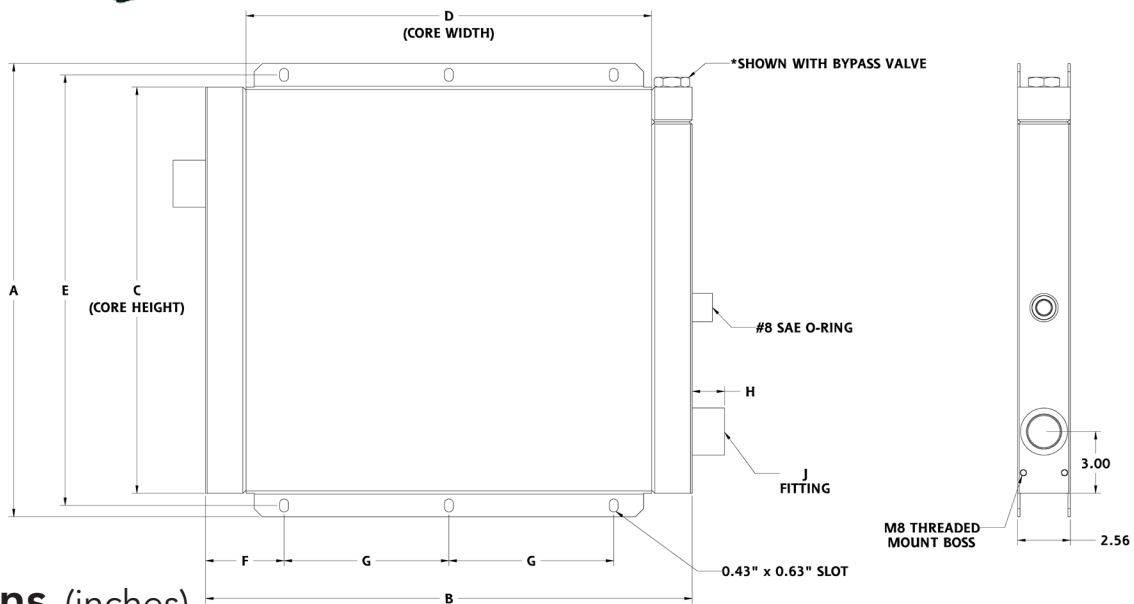
Our most versatile cooler family, the QHOC-60 is available in a wide range of sizes for all types of applications including, but not limited to:

Skid Steers
Paving Equipment
Cement Mixers
Hydraulic Conveyor
Systems

Material Handlers
Pull Behind Farming
Implements Sanitation
Trucks Street Sweepers
Wood Chippers

Concrete Pumping
Equipment

- ♦ Eliminates the need for a large hydraulic oil reservoir
- ♦ Universal mounting off of the flanges, or off of the tanks ends. Optional bracket kit available



Dimensions (inches)

Model Number	A	B	C	D	E	F	G	H	J
QHOC-61	11.6	13.8	9.9	9.8	10.7	4.4	2.5	1	#12 SAE O-RING
QHOC-62*	13.5	15.8	11.7	11.8	12.7	5	2.9	1	#16 SAE O-RING
QHOC-63*	18.3	19.7	16	15.8	17.2	3.9	6	1.6	#20 SAE O-RING
QHOC-64*	22	23.6	19.7	19.7	20.9	3.8	8	1.6	#20 SAE O-RING
QHOC-65	25.7	27.6	23.5	23.6	24.7	3.8	10	1.6	#20 SAE O-RING
QHOC-66	27.6	31.5	25.4	27.6	26.5	5.8	10	1.6	#24 SAE O-RING
QHOC-67	38.7	31.5	36.4	27.6	37.6	5.8	10	1.6	#24 SAE O-RING

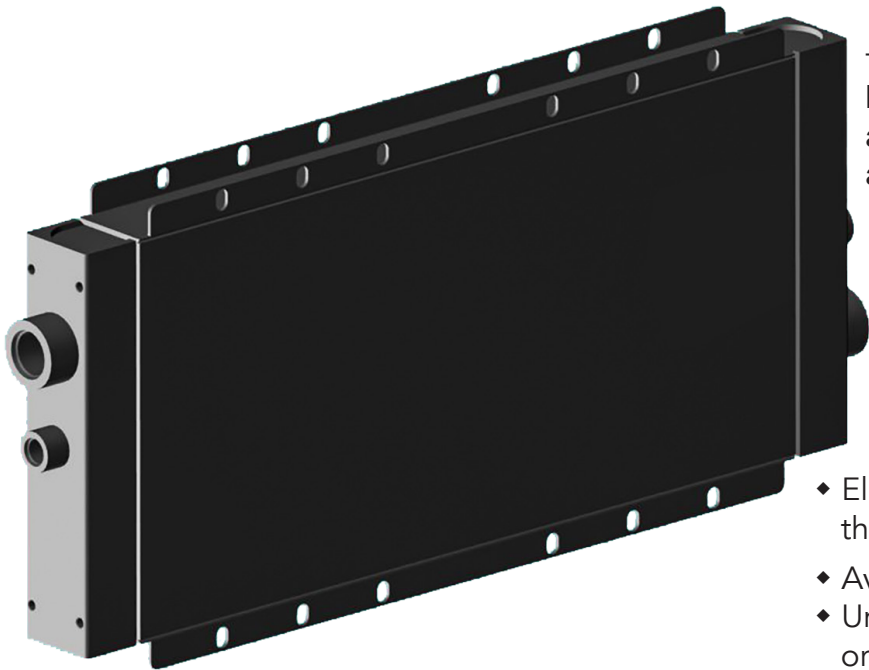
*Available with Optional Bypass Valve



QHOC-70 Series



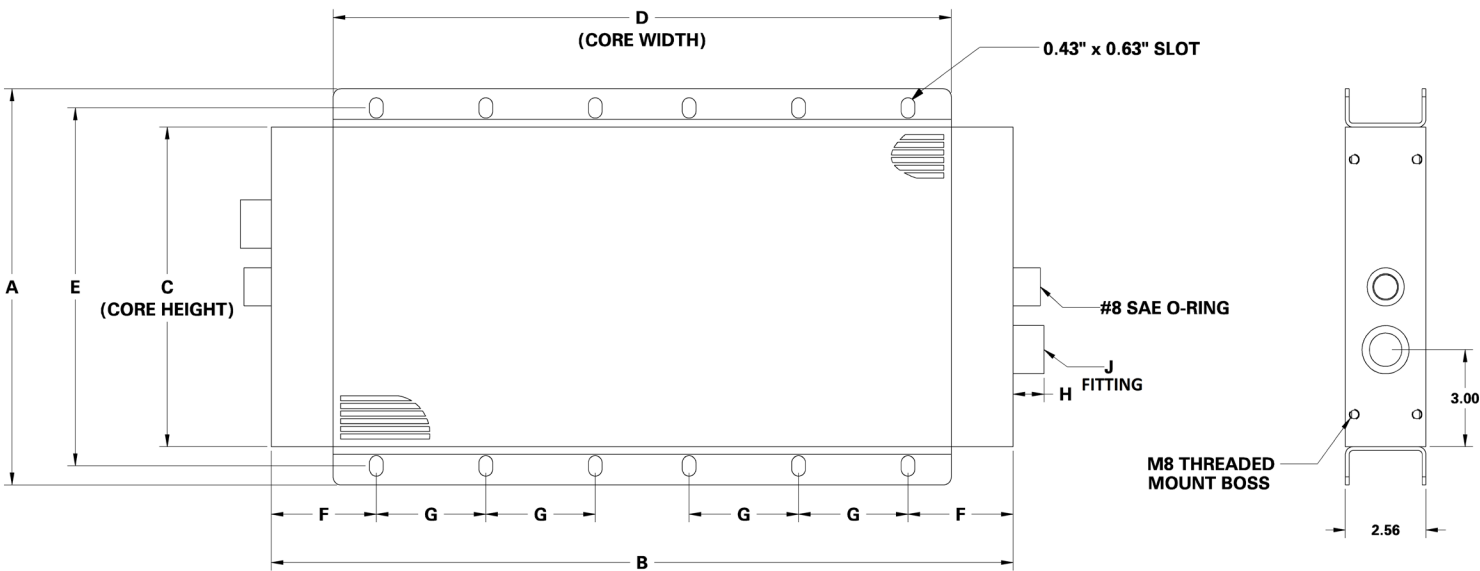
COOLERS / REFROIDISSEURS



The QHOC-70 Series is the optimal hydraulic cooling solution for high flow applications with large heat loads, such as:

- Forestry Machinery
- Paving Equipment
- Mining Equipment Oil & Gas Rigs

- ♦ Eliminates the need for multiple coolers on the same application
- ♦ Available with dual DC powered fans
- ♦ Universal mounting off of the flanges, or off of the tanks ends. Optional bracket kit available



Dimensions (Inches)

Model Number	A	B	C	D	E	F	G	H	J
QHOC-71	13.5	27.8	11.7	23.9	12.7	5.0	5.9	1.0	#16 SAE O-RING
QHOC-72	18.3	35.7	16.0	31.8	17.2	3.9	6.0	1.6	#20 SAE O-RING
QHOC-73	22.0	43.6	19.7	39.7	20.9	3.8	8.0	1.6	#20 SAE O-RING



QHDC-60 Series



COOLERS / REFROIDISSEURS



The **QHDC-60** Series starts with our popular QHOC-60 coolers with on-board fans for applications with limited air flow.

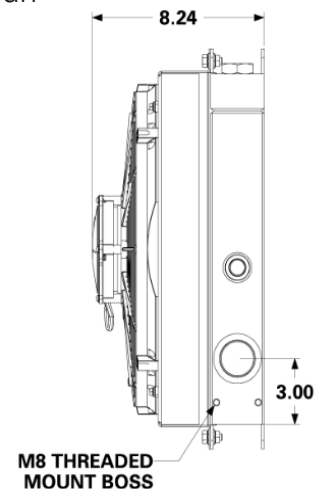
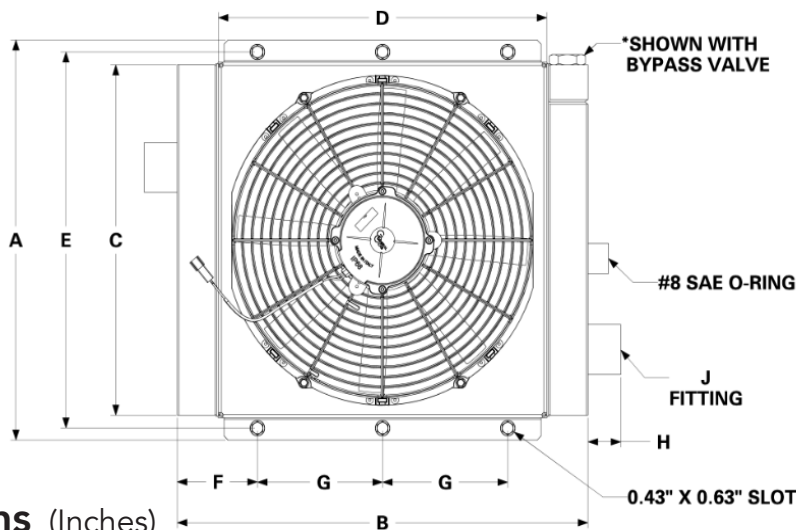
Paving Equipment

Cement Mixers

Hydraulic Conveyor Systems

Concrete Pumping Equipment

- Includes DC electric fan
- Available for 12V or 24V electrical systems.
- Fans are IP68 compliant with sealed connections
- Steel fan shroud installed to optimize air flow through the core
- Optional fan controller with temperature sensor available to control the fan



Dimensions (Inches)

Model Number	Oil Cooler	A	B	C	D	E	F	G	H	J
QHDC-12*	OC-62	13.5	15.8	11.7	11.8	12.7	4.92	5.91*	1	#16 SAE O-RING
QHDC-20*	OC-63	18.3	19.7	16.0	15.8	17.2	3.9	6.00	1.6	#20 SAE O-RING
QHDC-35*	OC-64	22.0	23.6	19.7	19.7	20.9	3.78	8.00	1.6	#20 SAE O-RING

*Available with Optional Bypass Valve

Technical Specifications

Model Number	Motor Voltage	Current Draw (Amps)	Approximate Weight (lbs)
QHDC-12	12 / 24	13 / 7	28
QHDC-20	12 / 24	22 / 10	35
QHDC-35	12 / 24	22 / 10	49



QHDC-70 Series



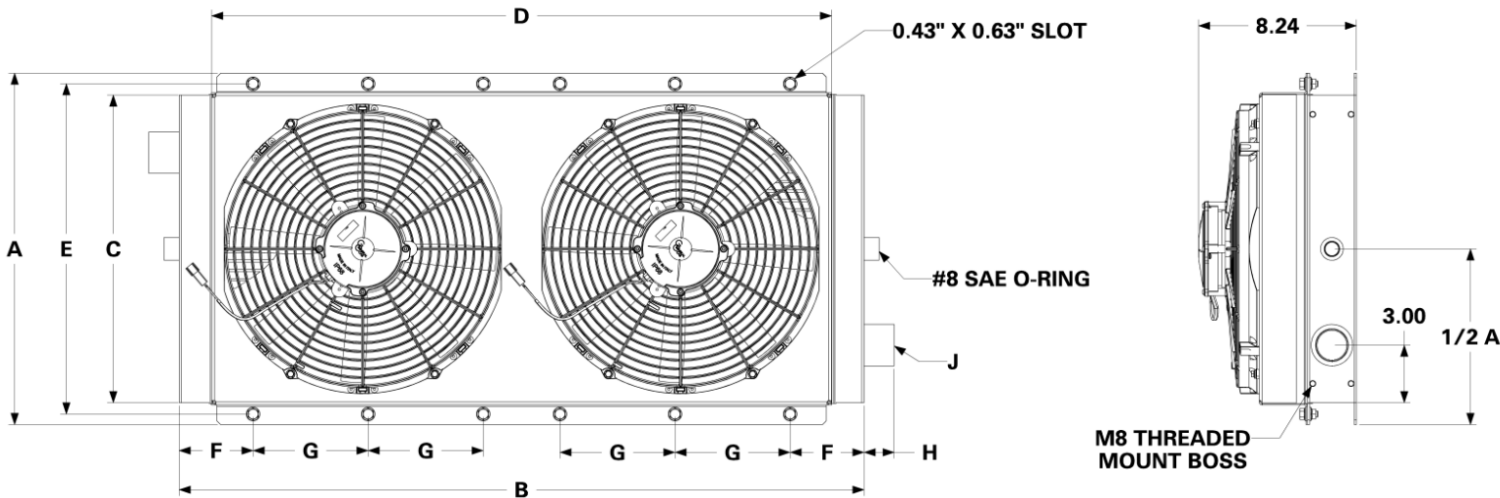
COOLERS / REFROIDISSEURS



Our QHDC-70 Series is built on the workhorse QHOC-70 coolers with dual on-board fans for applications with limited air flow or high heat generation.

Forestry Machinery
Paving Equipment
Mining Equipment Oil
& Gas Rigs

- Available for 12V or 24V electrical systems
- Fans are IP68 compliant with sealed connections
- Steel fan shroud installed to optimize air flow through the core
- Optional fan controller with temperature sensor available to control the fan



Dimensions (inches)

Model Number	A	1/2 A	B	C	D	E	F	G	H	J
QHDC-30	13.5	6.7	27.8	11.7	24.4	12.7	5.0	5.9	1.0	#16 SAE O-RING
QHDC-50	18.3	9.2	35.7	16.0	32.3	17.2	3.9	6.0	1.6	#20 SAE O-RING
QHDC-60	22.0	11.0	43.6	19.7	40.2	20.9	3.8	8.0	1.6	#20 SAE O-RING

Technical Specifications

Model Number	Motor Voltage	Current Draw Each Fan (Amps)	Approximate Weight (lbs)
QHDC-30	12 / 24	13 / 7	56
QHDC-50	12 / 24	22 / 10	70
QHDC-60	12 / 24	22 / 10	100



QHHC-60 Series



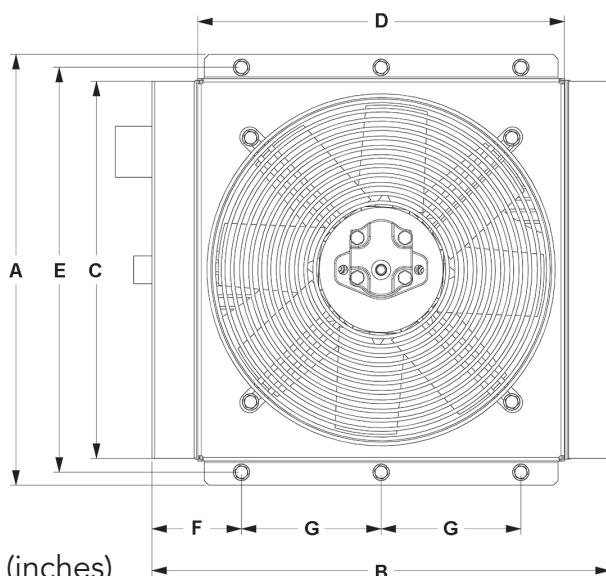
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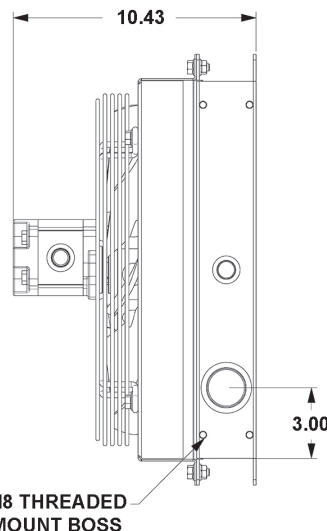
The QHHC-60 Series also starts with our popular QHOC-60 coolers but feature hydraulically driven on-board fans for applications with minimal electrical capacity.

**Industrial Manufacturing Equipment PTO
Driven Equipment
Mining Equipment
Oil and Gas Equipment
Concrete Crusher**

- Remote mount in locations without running electrical wiring
- May utilize the oil circuit it is cooling to operate the fan
- Includes mounting bracket kit



SHOWN WITHOUT
BYPASS VALVE



Dimensions (inches)

Model Number	Oil Cooler	A	B	C	D	E	F	G	H	J
QHHC-12*	OC-62	13.5	15.8	11.7	11.8	12.7	4.92	5.91*	1	#16 SAE O-RING
QHHC-20*	OC-63	18.3	19.7	16.0	15.8	17.2	3.9	6.00	1.6	#20 SAE O-RING
QHHC-35*	OC-64	22.0	23.6	19.7	19.7	20.9	3.78	8.00	1.6	#20 SAE O-RING

*Available with Optional Bypass Valve

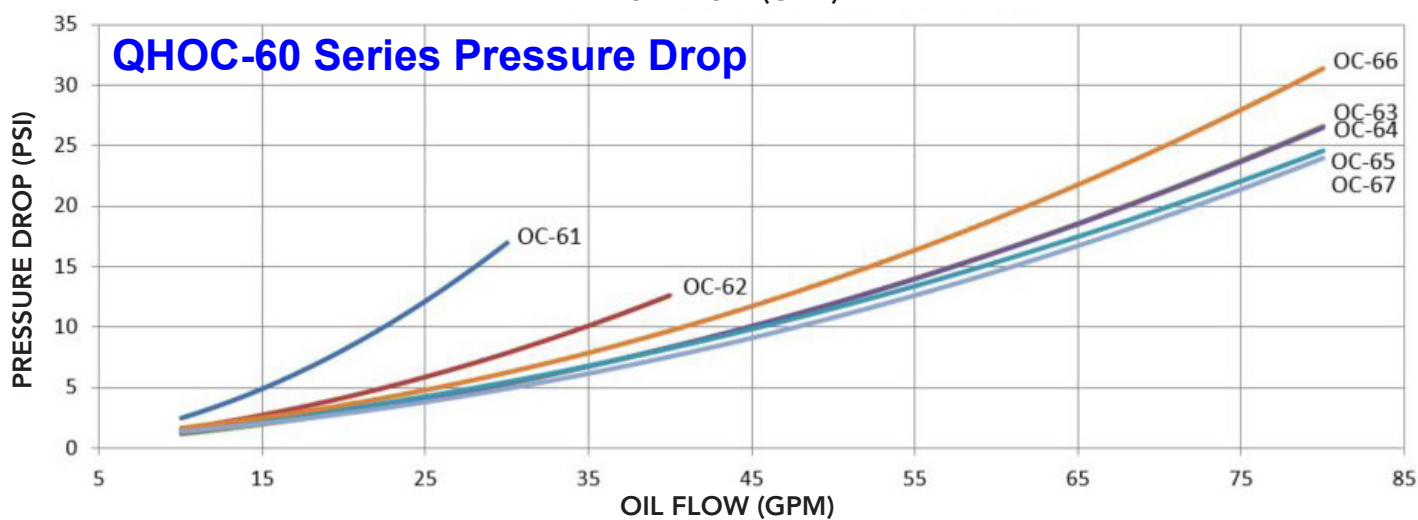
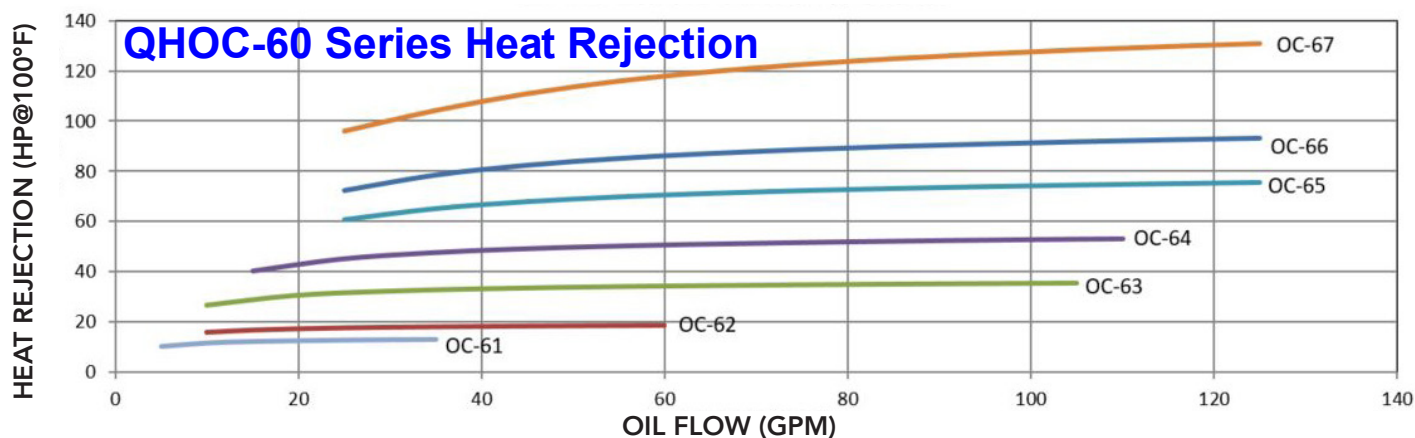
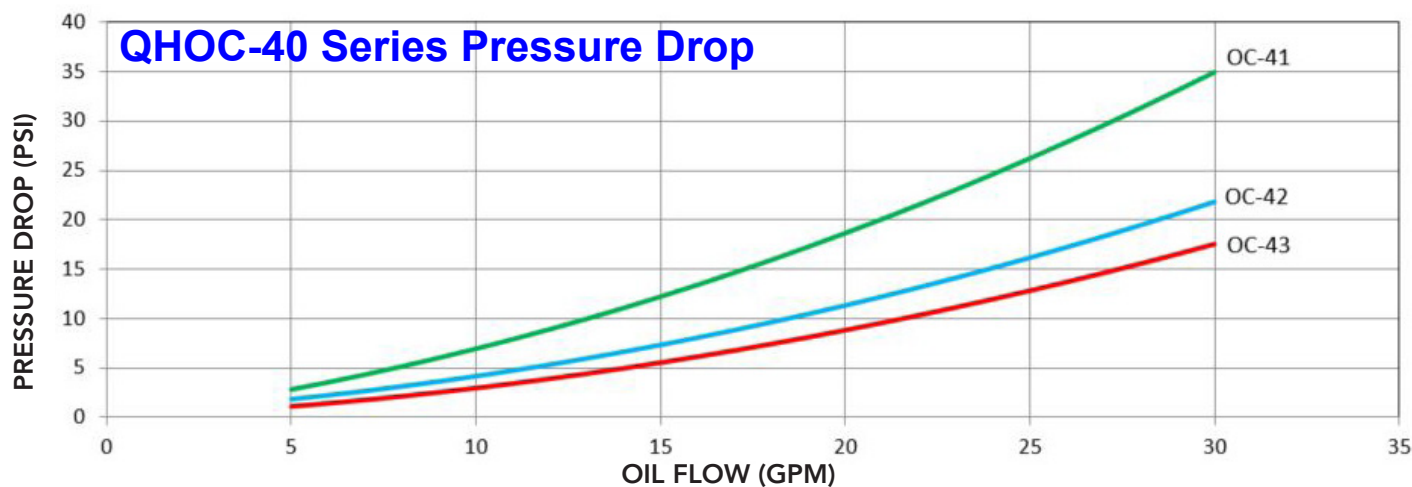
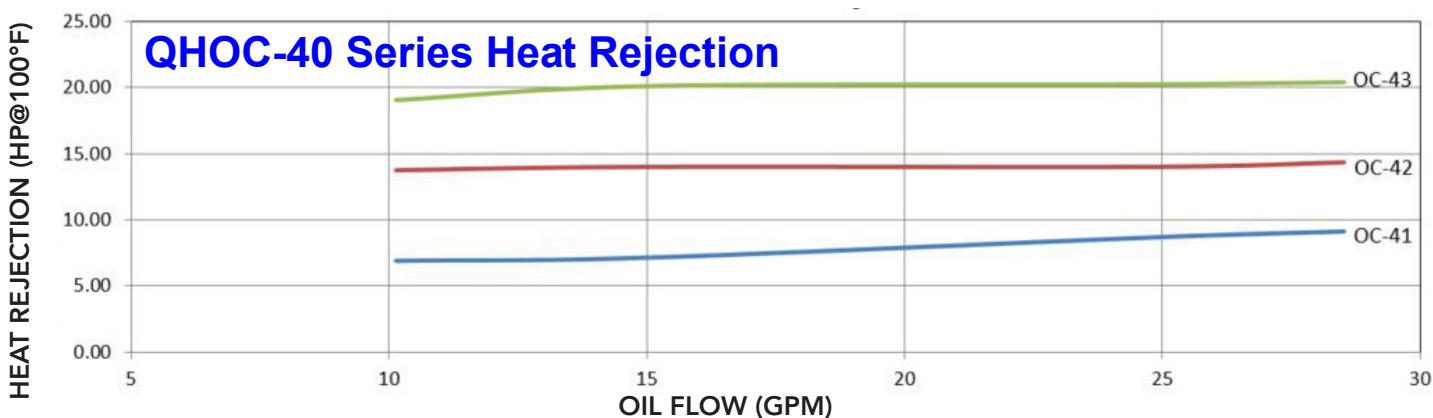
Technical Specifications

Model Number	Motor Size (in3)	Motor Flow Rate @ Operating Speed (gpm)	Motor Operating Speed (RPM)	Motor Operating Pressure (psi)	Motor Inlet / Outlet Ports
QHHC-12	0.218	2.64	2,800	500	#8 SAE O-RING
QHHC-20	0.218	1.89	2,000	500	#8 SAE O-RING
QHHC-35	0.372	3.22	2,000	500	#8 SAE O-RING



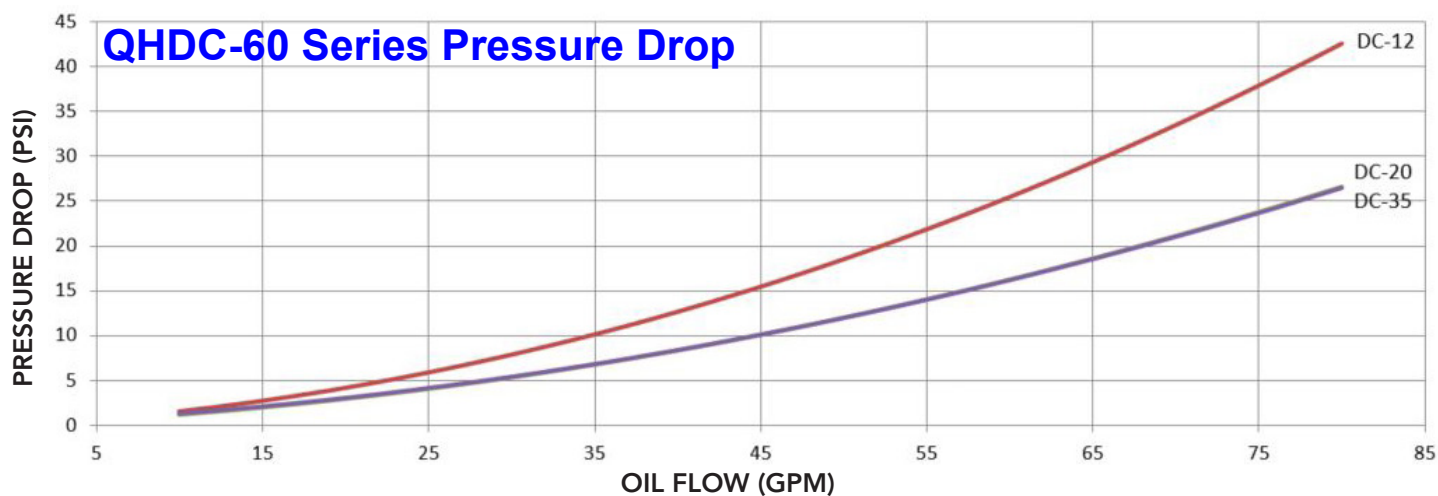
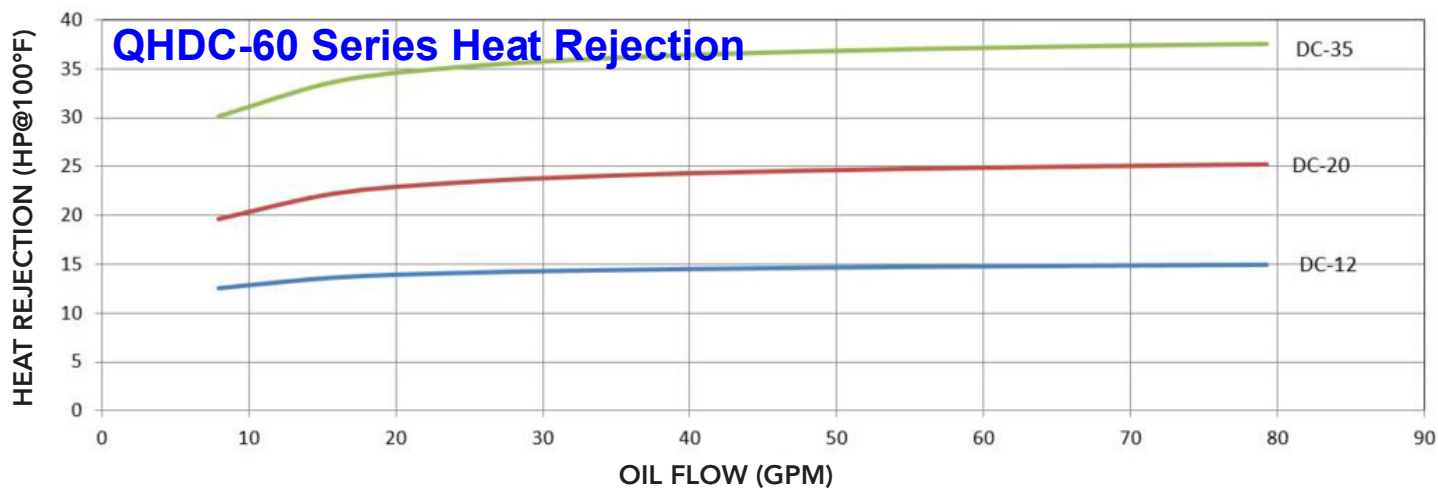
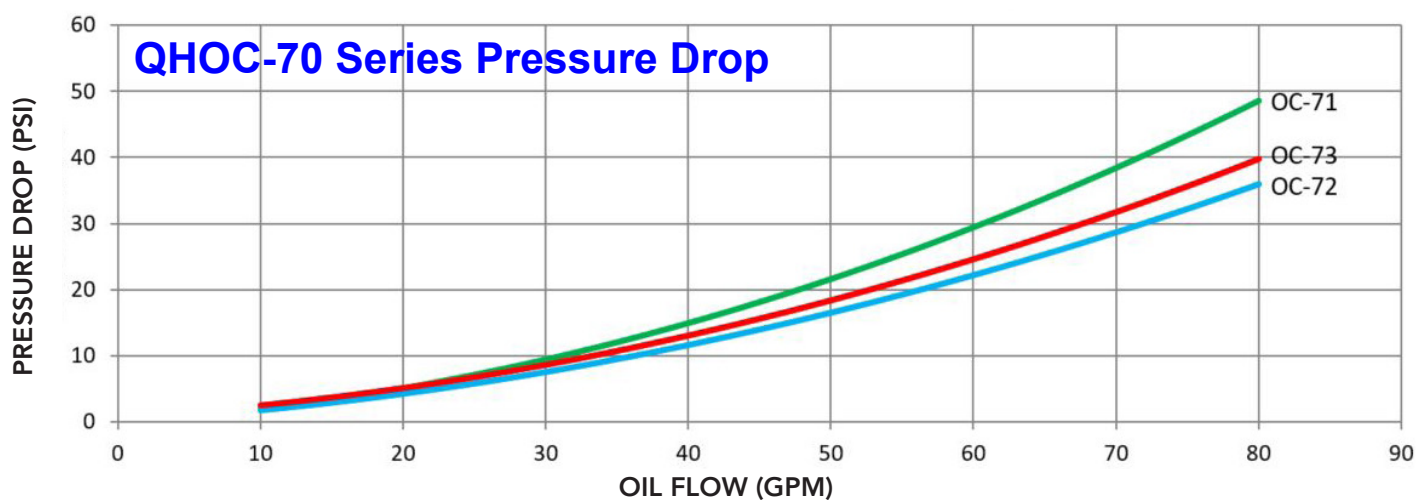
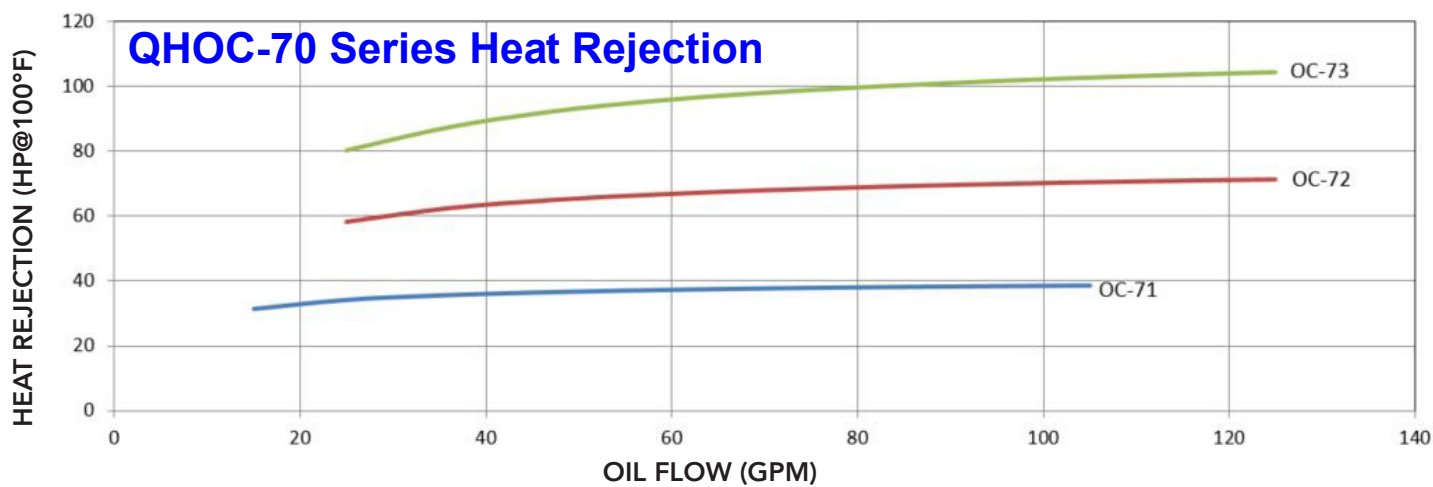
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PERFORMANCE



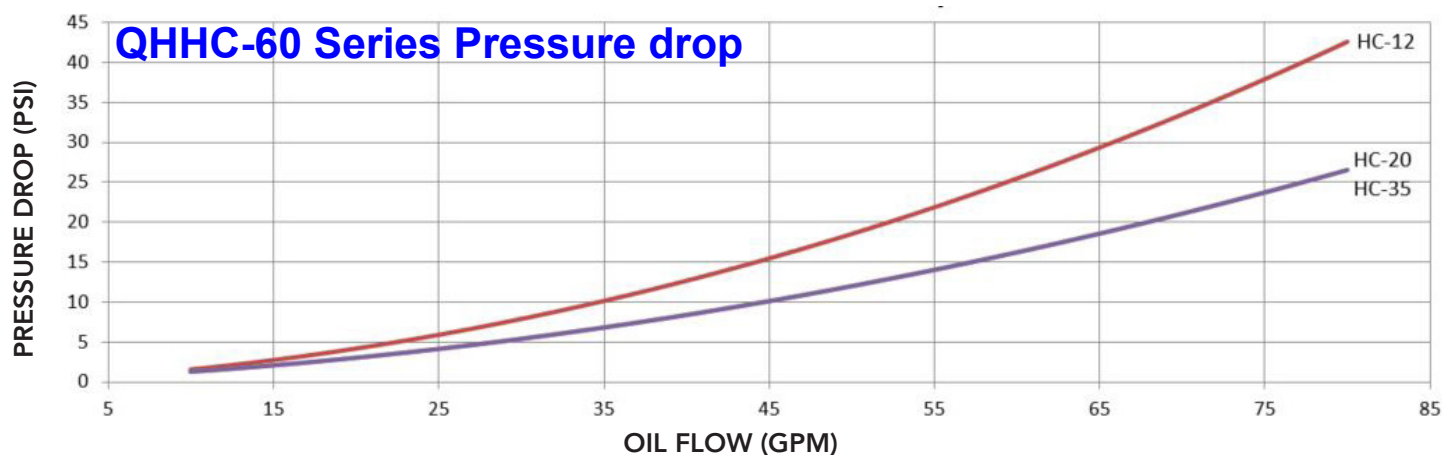
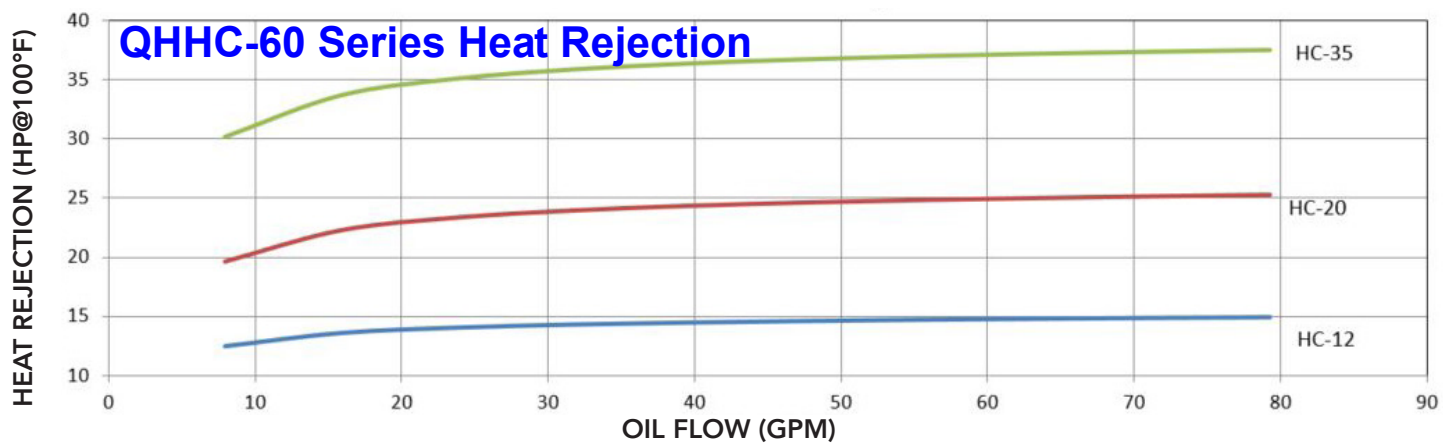
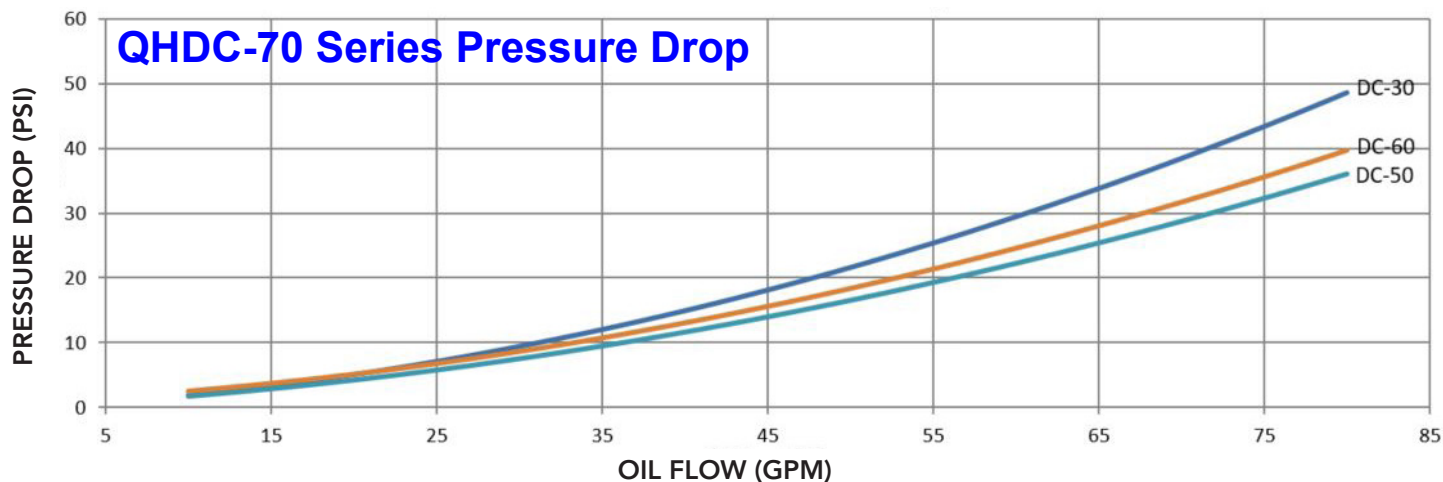
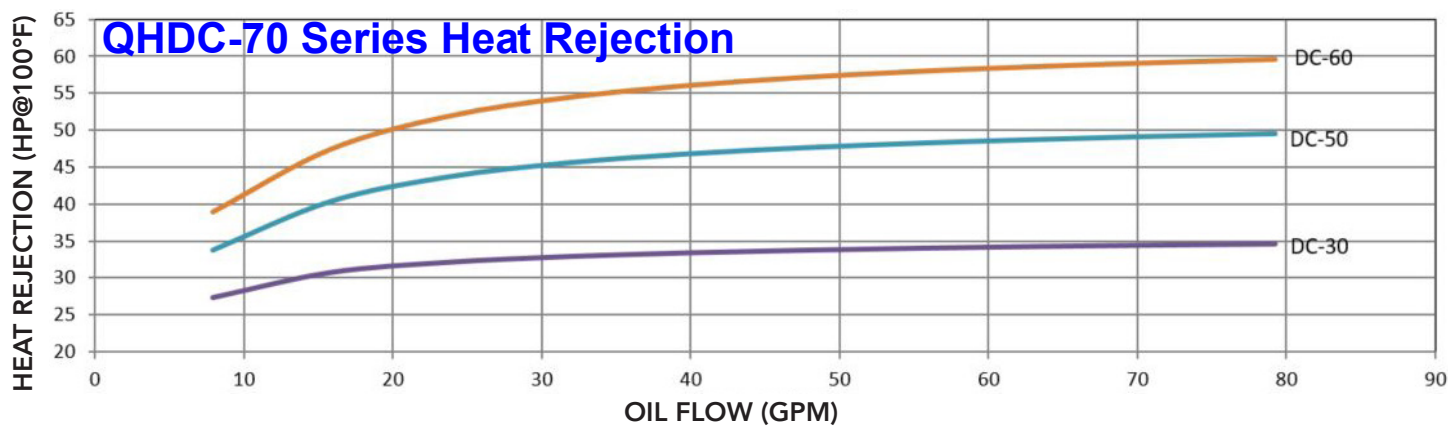


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TECHNICAL SELECTION GUIDE

STEP 1 Determine the Heat Load

If the system heat load is already known in BTU/hour, convert BTU/hour into HP using the following conversion:

$$\text{Horsepower Heat} = \frac{\text{BTU/hour}}{2545}$$

Actual heat load of the hydraulic system can be calculated by measuring the rise in temperature under full load conditions and using the following equation:

$$P = \frac{(V \times \Delta T \times C_p \times \rho)}{(\Delta t \times 317.3)}$$

$$P = ((V \times \Delta T \times C_p \times \rho)) / ((\Delta t \times 317.3))$$

P = Heat Load (Hp)

V = Fluid Volume of the Hydraulic System (Gal)

ΔT = Measured Temperature Increase (°F)

C_p = Specific Heat of Hydraulic Oil (Btu/lb °F)

ρ = Density of Hydraulic Oil (lb/ft³)

Δt = Time of test (min)

STEP 2 Determine the Actual ITD Desired

ITD = Inlet Oil Temperature — Inlet Air Temperature

STEP 3 Find the Air Velocity Correction Factor

$$\frac{\text{SCFM Air Flow Across Cooler}}{\text{Cooler Face Area (Feet}^2\text{)}} = \text{SFPM AIR VELOCITY}$$

SCFM = Standard Cubic Feet per Minute (from fan data)

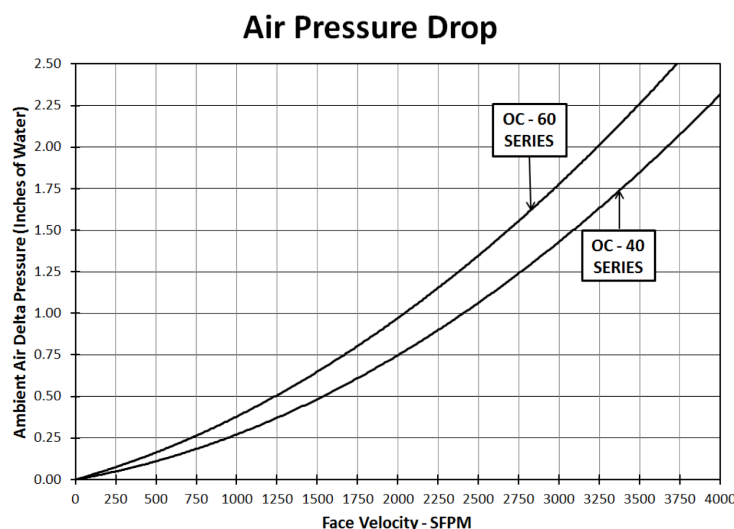
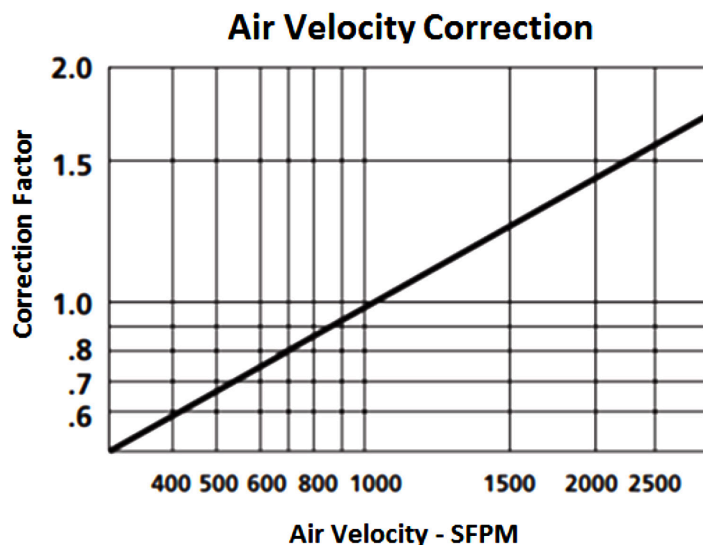
SFPM = Standard Feet per Minute (velocity of air over the cooler)

Once you have calculated the SFPM Velocity, enter the air velocity correction curve to determine the correction factor.



TECHNICAL SELECTION GUIDE

COOLERS / REFROIDISSEURS



STEP 4 Calculate Adjusted BTU/hour for Selection

$$\text{HP Heat Load} \times \left(\frac{100}{\text{Desired ITD} \times \text{Correction Factor}} \right) = \text{HP for use with Selection Chart}$$

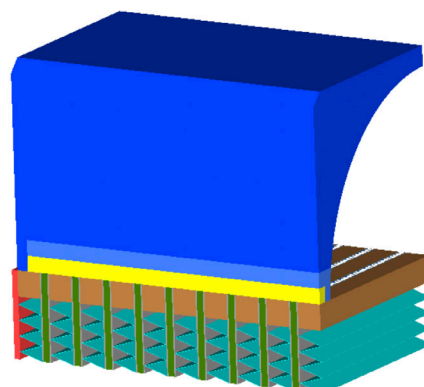
STEP 5 Select the Model From The Curves

Refer to the Performance Metrics on pages 10-12, and read up from the GPM to the required heat rejection. Select any model on or above this point.

QHTM TECH SUPPORT

Complex system requirements and new product development projects often require specialized expertise. The Design and Engineering Team at QHTM TECH is at your disposal to assist in virtually all aspects of your project. Our teams are equipped with state-of-the-art equipment and applications technology to insure quality world class quality products.

- Computer Aided Design
- Product Research & Development
- Digital 3D Rendering
- Prototype Construction
- Testing & Analysis
- Design for Manufacturing
- Manufacturing Integration



Finite Element Analysis (FEA)



PARTS AND ACCESSORIES



COOLERS / REFROIDISSEURS

FAN CONTROLLER WITH TEMP SENSOR

Programmed specifically for hydraulic oil applications.
Works with single and dual fan applications.
Ramped power control reduces the electrical load on the system.
In dual fan applications the second fan will engage only after the first fan has reached 100%.
Control module is designed for remote mounting and includes long lead wires for the fans and temperature sensor.
Temperature sensor comes with an adapter to mount directly into the oil cooler tank.



BYPASS VALVES

For use in applications that may experience low temperature startup.
Increases the cooler life for applications with frequent pressure fluctuation.
Protects system components from unexpected high pressure spikes.
Available in 29psi (2Bar), 73psi (5Bar), and 116psi (8Bar).



DC FANS

Long life DC electric fans available in both 12V and 24V.
Can be added to coolers without fans for added air flow.
Increases the efficiency in oil coolers relying on only vehicle movement for air flow.



Models	Fan Size	12V #	24V #
Universal	7"	838778	838779
QHDC-12 DC-30	10"	836758	836759
QHDC-20 DC-50	14"	834660	836095
QHDC-35 DC-60	16"	834662	836096

UNIVERSAL MOUNTING KIT

Powder coated steel for increased strength and corrosion resistance.
Includes (2) heavy duty brackets and (4) M8 bolts.

