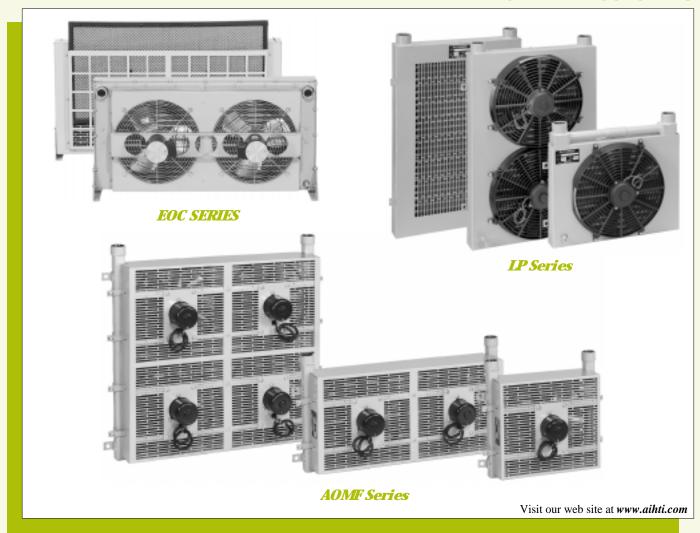
### American Industrial Heat Transfer Inc. /

Manufacturers of Quality Heat Exchangers

AOMF - LP - EOC SERIES

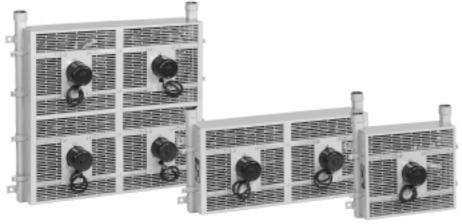


## 12V & 24V MOBILE AIR COOLED OIL COOLERS

- Computerized selection available.
- Standard ports NPT, optional SAE straight thread or flange connections.
- Optional: built-in by-pass relief valve.

- Operating temperature of 400° F & pressure of 300PSI.
- Custom designs to fit your needs.
- Cools: Fluid power systems, lubrication systems, hydraulic presses,gear drives, torque convertors, machine tools, etc...

### INTRODUCTION



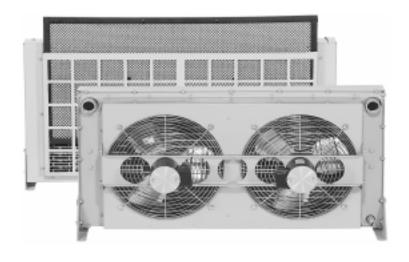
### **AOMF SERIES**

Mobile hydraulic air/oil heat exchangers with 12 & 24 volt DC electric fan drive motors. Protective cabinet provides long service protection with a clean appearance. Thermal capacity 85,000 BTU/HR based on 100°F ETD, with flow rates to 80gpm. Offered with NPT, SAE, and optional *serviceable relief* ™ bypass valve. Operating temperature 400°F, operating pressure 300psi.



### **LP SERIES**

Heavy-duty, Low Profile mobile hydraulic air/ oil heat exchangers with 12 & 24 volt DC electric drive motors. Protective cabinet & core screen provides a longer service life and a clean engineered appearance. Thermal capacity to 80,000 BTU/HR based on 100°F ETD, with flow rates to 150gpm. Offered with NPT, SAE and optional *serviceable relief* ™ bypass valve. Operating temperature 400°F, operating pressure 300psi.



### **EOC SERIES**

High capacity mobile air-cooled heat exchanger with optional filter, and heavy duty off-road 12 & 24 Volt DC electric motors. Designed for environments where dust and debris are present. Optional washable filter can be removed or installed in seconds for quick cleaning. Since the air is drawn through the filter first, the internal components remain clean and operational for optimal performance. Thermal capacity to 228,000 BTU/HR based on 100°F ETD, with flows to 180gpm. Operating temperature 400°F, operating pressure 300psi.

### SIZING INFORMATION

### **SIZING**

To properly size a DC fan drive air-cooled oil cooler for mobile equipment, you should first determine some basic parameters associated with the system.

### **HEAT LOAD**

In many instances the heat load must be determined by using a "total potential" method. This total potential or horse power method is the most common method, and is the simplest way to determine basic heat rejection requirements for mobile hydraulic systems. The total potential us equal to the maximum operating flow and pressure that are generated by the system under full load. To determine the total potential (HP) use the following formula.

HP = [ System Pressure (PSI) x System flow (GPM) ] / 1714

### Example:

 $HP = (3000 \text{ PSI} \times 40 \text{ GPM}) / 1714 = 70 \text{ HP}$  or the total input potential

To determine the system heat load in BTU / HR we must use a percentage (v) of the system potential HP. The factor (v) can be calculated by adding up the actual inefficiencies of a system; however, for most applications a (v) value of 25% - 30% can be used.

### Example:

70 HP x . 25 = 17.5 HP heat

To convert the horsepower of heat into BTU/HR use the formula below:  $HP \times 2542 = BTU/HR$ 

### Example:

17.5 HP x 2545 = 44,538 BTU/HR

### Applying into a return line

For most open loop systems with a vane or gear type fixed delivery pumps. To calculate the Fs value required when applying the air/oil cooler into a return line use the formula below.

$$Fs = \frac{BTU/HR \times Cv}{T - t_{ambient}}$$

T = Desired system oil temperature leaving the cooler °F  $t_{ambient}$  = Ambient air temperature entering the cooler °F CV = Correction factor for oil viscosity. Example: ISO68 oil @ 150°F = 1.13 (see chart)

### APPLYING INTO A CASE DRAIN LINE

In circumstances where the system is a closed loop or when return line flow is not

available, the case drain flow can be utilized to help cool the system However, in many instances, the case drain flow alone will not be enough to reject all of the heat generated by the system. Case drain lines should not be treated as a normal return lines since the pressure drop allowable usually can vary from 12-10 PSI max. Check with your pump manufacturer for the appropriate pressure drop tolerance before applying any cooler. To size the system for case flow or case flow plus any additional flushing loops, please use the following method.

### Formula

 $Tc_{exit} = \{ T - [ Q / (case flow gpm x 210) ] \}$ 

### Example

$$Tc_{exit} = \{ 150 - [44,538 / (8 \times 210)] \} = 123.5$$

Tc <sub>evit</sub> = The corrected temperature of the oil exiting the cooler.

$$Fs = \frac{Q \times Cv}{Tc_{max} - t_{max}} = \frac{44,538 \times 1.13}{123.5 - 100} = 2,142$$

### **SELECTION**

To select a model, locate the flow rate (GPM) at the bottom of the flow vs Fs graph of the series desired (AMOF, LP, EOC). Proceed upward until the GPM intersects with the calculated Fs. The curve closest above the intersection point will meet these conditions.

### Examples:

$$\begin{array}{ccc} \text{Return Line} & \text{Case Line} \\ \text{Fs} = 1,007 & \text{Fs} = 2,142 \\ \text{GPM} = 40 \text{ "return line flow"} & \text{GPM} = 8 \\ \text{Model} = \text{EOC} - 375 - 4 & \text{Model} = \text{EOC} - 575 - 4 - 2P \end{array}$$

### PRESSURE DROP

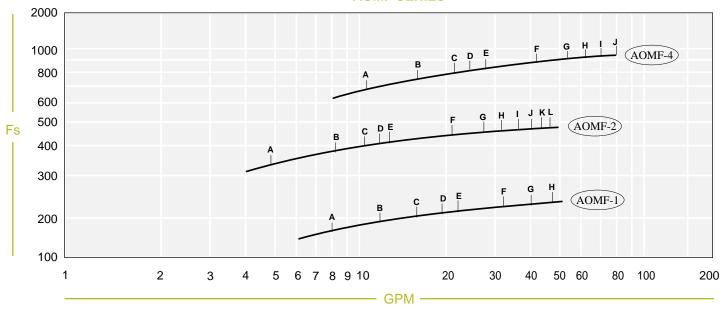
Determine the oil pressure drop from the curves as indicated. For viscosities other than 50 ssu, multiply the actual indicated pressure drop (psi) for your GPM by the value in the pressure differential curve for your viscosity value.

| Examples:   | $\underline{GPM} = 40$      | $\underline{GPM} = 8$     |
|---|-----------------------------|---------------------------|
| Indicated pressure drop<br>Cp correction factor for | 21PSI                       | 1.5 PSI                   |
| ISO 68 oil @ 150°F Pressure drop correction         | 1.61<br>7.8x1.61 = 12.6 psi | 1.5  1.5 x 1.61 = 2.4 psi |

| Average     |      |      |      |      |      |      | Cv vi | SCOSIT | Y CORR | ECTION | FACTO | RS   |      |          |          |                    |                                  |
|-------------|------|------|------|------|------|------|-------|--------|--------|--------|-------|------|------|----------|----------|--------------------|----------------------------------|
|             |      |      |      |      |      |      |       |        |        |        |       |      |      | ω,       | COL      | Ш                  | 뿌ᅩᄯ                              |
| Liquid      | 2    | 10   | 20   | 30   | 9    | 22   | 32    | 46     | 89     | 100    | 20    | 120  | 20   | 7808     | <b>→</b> | 동 ස                |                                  |
| Temperature | SAE  | SAE  | SAE  | SAE  | SAE  | SOSI | 180   | 081    | 180    | 1801   | ISO 1 | 1802 | 1803 | <u> </u> | POLYGL   | PHOSPHATE<br>ESTER | 50%<br>THYLEI<br>GLYCO<br>& WATE |
|             |      |      |      |      |      |      |       |        |        |        |       |      |      | Σ        | ۵        | Δ.                 | ш ~                              |
| 100         | 1.11 | 1.15 | 1.25 | 1.38 | 1.45 | 1.08 | 1.14  | 1.18   | 1.26   | 1.37   | 1.43  | 1.56 | 1.84 | 1.19     | 0.92     | 0.83               | 0.85                             |
| 110         | 1.09 | 1.12 | 1.20 | 1.32 | 1.40 | 1.06 | 1.13  | 1.16   | 1.25   | 1.31   | 1.39  | 1.48 | 1.67 | 1.14     | 0.89     | 0.80               | 0.84                             |
| 120         | 1.06 | 1.10 | 1.17 | 1.27 | 1.35 | 1.04 | 1.11  | 1.14   | 1.20   | 1.27   | 1.35  | 1.40 | 1.53 | 1.09     | 0.88     | 0.79               | 0.84                             |
| 130         | 1.04 | 1.08 | 1.13 | 1.24 | 1.29 | 1.03 | 1.09  | 1.13   | 1.17   | 1.24   | 1.30  | 1.34 | 1.44 | 1.05     | 0.85     | 0.77               | 0.83                             |
| 140         | 1.03 | 1.05 | 1.11 | 1.19 | 1.25 | 1.02 | 1.08  | 1.10   | 1.16   | 1.20   | 1.26  | 1.30 | 1.39 | 1.03     | 0.84     | 0.76               | 0.82                             |
| 150         | 1.01 | 1.04 | 1.09 | 1.16 | 1.22 | 1.02 | 1.06  | 1.09   | 1.13   | 1.17   | 1.22  | 1.27 | 1.33 | 1.01     | 0.83     | 0.74               | 0.82                             |
| 200         | 0.98 | 0.99 | 1.01 | 1.04 | 1.07 | 0.98 | 0.99  | 1.00   | 1.01   | 1.02   | 1.08  | 1.09 | 1.14 | 0.98     | 0.79     | 0.71               | 0.80                             |
| 250         | 0.95 | 0.96 | 0.97 | 0.98 | 0.99 | 0.95 | 0.96  | 0.96   | 0.96   | 0.97   | 0.99  | 1.01 | 1.02 | 0.97     | 0.76     | 0.69               | 0.79                             |

| Average     |      | Cp pressure drop correction factors |      |      |      |       |      |      |       |       |       |      |       |         |        |                    |                               |
|-------------|------|-------------------------------------|------|------|------|-------|------|------|-------|-------|-------|------|-------|---------|--------|--------------------|-------------------------------|
| Average     |      |                                     |      |      |      |       |      |      |       |       |       |      |       | ω       | YCOL   | ш                  | <b>当 1</b> 公                  |
| Liquid      | 2    | 10                                  | 20   | 30   | 40   | 22    | 32   | 46   | 89    | 8     | 20    | 220  | 320   | 7808    | 2      | \¥ \;              | 1%<br>LENE<br>COL             |
| Temperature | SAE  | SAE                                 | SAE  | SAE  | SAE  | ISO 3 | SOSI | 7081 | 180 6 | 180 1 | ISO 1 | 1802 | 1803  | MIL-L-7 | POLYGL | PHOSPHATE<br>ESTER | 50%<br>ETHYL<br>GLYC<br>& WAT |
|             |      |                                     |      |      |      |       |      |      |       |       |       |      |       |         |        | _                  | Ш                             |
| 100         | 2.00 | 2.40                                | 4.40 | 6.40 | 8.80 | 1.07  | 1.53 | 1.82 | 2.54  | 4.19  | 6.44  | 9.38 | 13.56 | 1.26    | 3.00   | 3.50               | 0.730                         |
| 110         | 1.70 | 2.10                                | 3.60 | 5.10 | 6.70 | 1.04  | 1.45 | 1.72 | 2.35  | 3.73  | 5.70  | 8.33 | 11.63 | 1.20    | 2.40   | 2.90               | 0.720                         |
| 120         | 1.50 | 1.80                                | 3.00 | 4.20 | 5.60 | 1.02  | 1.38 | 1.60 | 2.15  | 3.26  | 4.91  | 7.23 | 9.73  | 1.14    | 2.10   | 2.50               | 0.709                         |
| 130         | 1.40 | 1.60                                | 2.60 | 3.40 | 4.50 | 0.99  | 1.30 | 1.49 | 1.94  | 2.80  | 4.14  | 6.19 | 7.80  | 1.08    | 1.90   | 2.20               | 0.698                         |
| 140         | 1.30 | 1.50                                | 2.23 | 2.90 | 3.70 | 0.97  | 1.23 | 1.38 | 1.75  | 2.38  | 3.47  | 5.20 | 6.11  | 1.03    | 1.90   | 2.00               | 0.686                         |
| 150         | 1.20 | 1.30                                | 1.90 | 2.50 | 3.10 | 0.95  | 1.17 | 1.30 | 1.61  | 2.04  | 2.90  | 4.35 | 4.77  | 0.98    | 1.70   | 1.90               | 0.676                         |
| 200         | 0.93 | 0.96                                | 1.20 | 1.40 | 1.60 | 0.89  | 0.99 | 1.08 | 1.18  | 1.33  | 1.59  | 1.74 | 1.95  | 0.90    | 1.20   | 1.30               | 0.635                         |
| 250         | 0.81 | 0.82                                | 0.92 | 0.97 | 1.05 | 0.85  | 0.93 | 0.96 | 1.03  | 1.11  | 1.21  | 1.22 | 1.23  | 0.83    | 1.00   | 1.05               | 0.556                         |

### **AOMF SERIES**



| PERFORMANCE CALCULATION | OIL PRESSURE DROP (PSI) CODE   |
|-------------------------|--|
| <del>-</del>            | A = 1 PSI D = 4 PSI G = 15 PSI J = 30 PSI<br>B = 2 PSI E = 5 PSI H = 20 PSI K = 35 PSI<br>C = 3 PSI F = 10 PSI I = 25 PSI L = 40 PSI |

<sup>\*</sup>Represents desired fluid leaving the cooler.

### **AOMF ELECTRIC MOTOR DATA**

| Model    | Air<br>Flow | No. of<br>Motors | Volts     | RPM  | Full Load<br>Amperes |
|----------|-------------|------------------|-----------|------|----------------------|
| AOMF - 1 | 950         | 1                | 12V / 24V | 2100 | 9 / 4.5              |
| AOMF - 2 | 1900        | 2                | 12V / 24V | 2100 | 9 / 4.5              |
| AOMF - 4 | 3900        | 4                | 12V / 24V | 2100 | 9 / 4.5              |

### STANDARD CONSTRUCTION MATERIALS

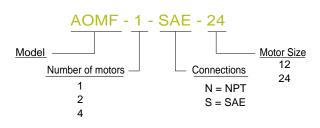
| Standard Construction Materials |          |                |          |  |  |  |  |
|---------------------------------|----------|----------------|----------|--|--|--|--|
| Tubes                           | Copper   | Mount. bracket | Steel    |  |  |  |  |
| Fins                            | Aluminum | Cabinet        | Steel    |  |  |  |  |
| Turbulators                     | Steel    | Fan Blade      | Aluminum |  |  |  |  |
| Manifold                        | Steel    | Fan Guard      | Steel    |  |  |  |  |

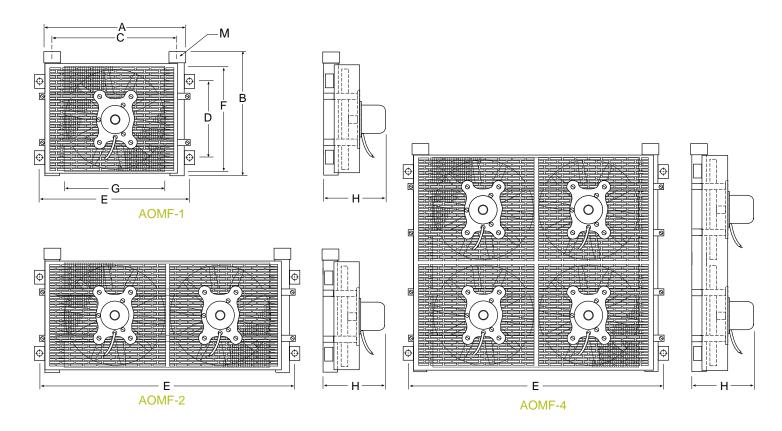
| Standard Unit Ratings |          |  |  |  |  |  |  |
|-----------------------|----------|--|--|--|--|--|--|
| Operating Pressure    | 300 psig |  |  |  |  |  |  |
| Test Pressure         | 350 psig |  |  |  |  |  |  |
| Operating Temp.       | 400 °F   |  |  |  |  |  |  |
|                       |          |  |  |  |  |  |  |

### **PIPING HOOK UP**

# IN or OUT OUT IN or OUT

### **EXAMPLE OF A MODEL**



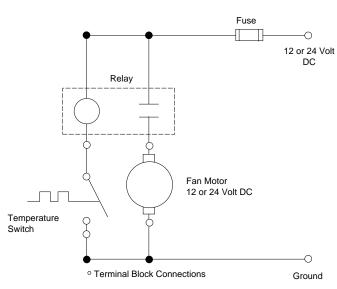


|          |       |       |       |       | DIMEN | ISIONS ( | (inches) |      |          |                    |        |          |
|----------|-------|-------|-------|-------|-------|----------|----------|------|----------|--------------------|--------|----------|
| Model    | Α     | В     | С     | D     | E     | F        | G        | Н    | M<br>NPT | M<br>SAE           | Weight | Model    |
| AOMF - 1 | 15.72 | 16.00 | 14.22 | 9.25  | 17.22 | 13.00    | 11.00    | 7.75 | 1.25     | 20 SAE             | 30.00  | AOMF - 1 |
| AOMF - 2 | 29.63 | 16.00 | 28.88 | 9.25  | 30.75 | 13.00    | 24.75    | 7.75 | 1.25     | 1 5/8 -12<br>UN-2B | 45.00  | AOMF - 2 |
| AOMF - 3 | 29.63 | 29.00 | 27.88 | 23.25 | 30.75 | 26.00    | 24.75    | 7.75 | 1.25     | Thread             | 75.00  | AOMF - 3 |

### **INSTALLATION DIAGRAM**

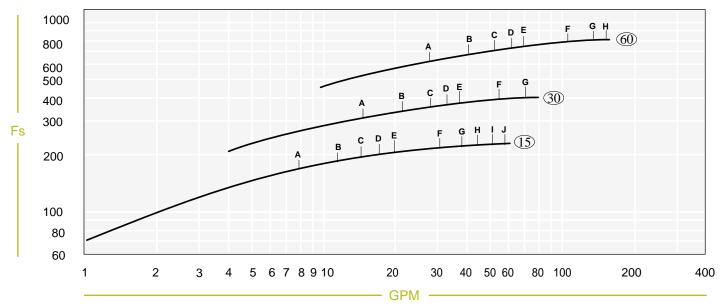
# Metal Conduit Of 1/2" (Flexible) Junction Box Control Box 4" x 8" x 10" 12 or 24 Volt DC Source Of Power Metal Conduit Of 3/4" (Flexible)

### CONTROL BOX CIRCUIT



NOTE: Electrical Equipment Not Included. It Is Show Here For Proper Installation.

### LP SERIES



| PERFORMANCE CALCULATION   | OIL PRESSURE DROP (PSI) CODE   |  |  |  |  |  |
|---|--|--|--|--|--|--|
| $F_s = \frac{\text{Horsepower to be removed (HP) x 2545 x Cv}}{{}^{\circ}F \text{ (Oil Leaving* - Ambient Air Entering)}} = \frac{BTU}{hr {}^{\circ}F}$ | A = 1 PSI D = 4 PSI G = 15 PSI J = 30 PSI<br>B = 2 PSI E = 5 PSI H = 20 PSI K = 35 PSI<br>C = 3 PSI F = 10 PSI I = 25 PSI L = 40 PSI |  |  |  |  |  |

<sup>\*</sup>Represents desired fluid leaving the cooler.

### LP MOTOR DATA

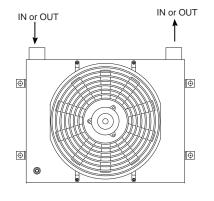
| Model     | Amps.      | Volts   | RPM  | CFM  |
|-----------|------------|---------|------|------|
| LP- 15    | 9.5 / 4.75 | 12 / 24 | 2200 | 1200 |
| LP- 15 -R | 9.5 / 4.75 | 12 / 24 | 2200 | 1200 |
| LP- 30    | 9.5 / 4.75 | 12 / 24 | 2200 | 1200 |
| LP- 30 -R | 9.5 / 4.75 | 12 / 24 | 2200 | 1200 |
| LP- 60    | 9.5 / 4.75 | 12 / 24 | 2200 | 2400 |
| LP- 60 -R | 9.5 / 4.75 | 12 / 24 | 2200 | 2400 |

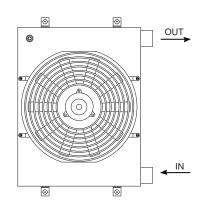
### STANDARD CONSTRUCTION MATERIALS

| Standard Construction Materials |                   |                |         |  |  |  |  |
|---------------------------------|-------------------|----------------|---------|--|--|--|--|
| Tubes                           | Copper            | Mount. bracket | Steel   |  |  |  |  |
| Fins                            | Aluminum          | Cabinet        | Steel   |  |  |  |  |
| Turbulators                     | Turbulators Steel |                | Plastic |  |  |  |  |
| Manifold                        | Steel             | Fan Guard      | Plastic |  |  |  |  |

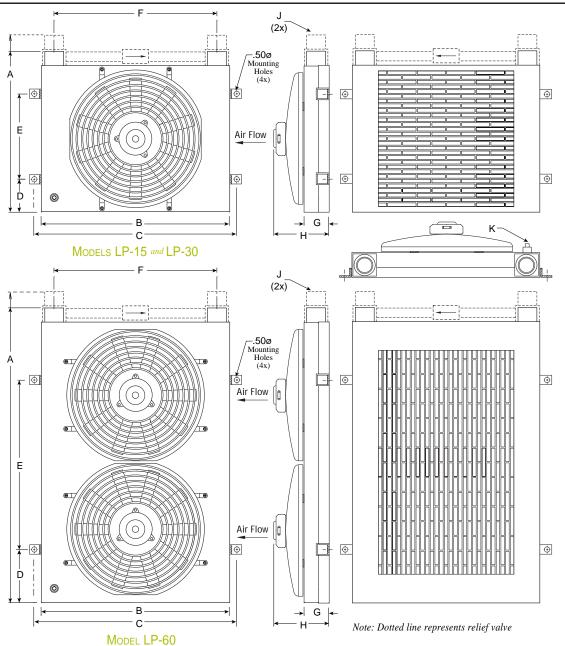
| Standard Unit Ratings |          |  |  |  |  |  |  |
|-----------------------|----------|--|--|--|--|--|--|
| Operating Pressure    | 300 psig |  |  |  |  |  |  |
| Test Pressure         | 350 psig |  |  |  |  |  |  |
| Operating Temp.       | 400 ° F  |  |  |  |  |  |  |
|                       |          |  |  |  |  |  |  |

### **PIPING HOOK-UP**

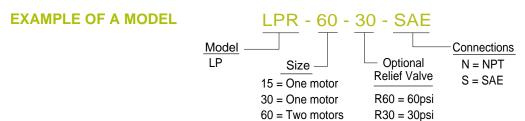




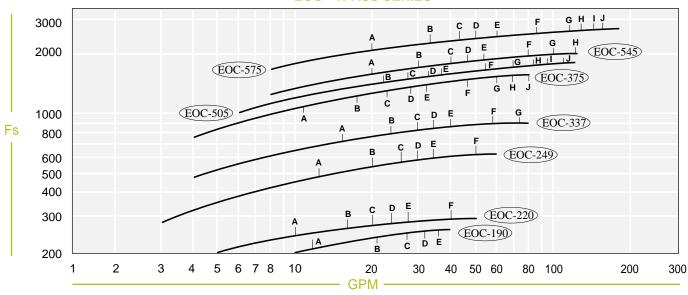




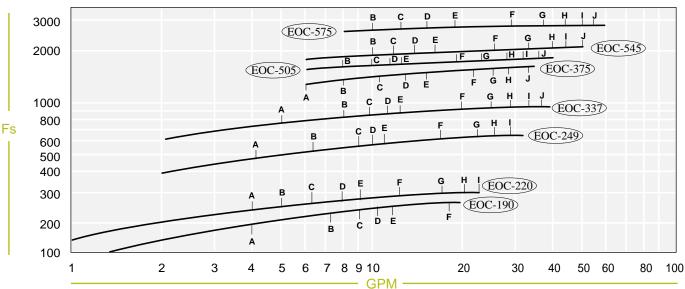
| STANDARD DIMENSIONS (inches) |       |       |       |      |       |       |      |              |          |                         |               |                   |  |
|------------------------------|-------|-------|-------|------|-------|-------|------|--------------|----------|-------------------------|---------------|-------------------|--|
| Model                        | Α     | В     | С     | D    | E     | F     | G    | H<br>Approx. | J<br>NPT | J<br>SAE                | K<br>NPT      | Net Weight<br>LBS |  |
| LP- 15                       | 13.88 | 15.75 | 17.25 | 1.88 | 9.00  | 14.25 | 1.50 | 4.79         | 1.00     | #16                     |               | 28                |  |
| LP- 15-R                     | 15.88 |       |       |      |       |       |      |              |          | 15/16-12<br>им-2в       | .38"<br>Drain | 31                |  |
| LP- 30                       | 16.47 | 19.75 | 21.25 | 3.00 |       | 17.25 | 2.50 | 6.21         | 1.50     | #24<br>17/8-12<br>UN-2B |               | 37                |  |
| LP- 30 - R                   | 18.72 |       |       | 3.00 |       |       |      |              |          |                         | Port          | 40                |  |
| LP- 60                       | 30.72 |       |       | 5.62 | 18.00 |       |      |              |          |                         |               | 69                |  |
| LP- 60 - R                   | 32.97 |       |       |      |       |       |      |              |          |                         |               | 73                |  |



### **EOC - 1PASS SERIES**



### **EOC - 2PASS SERIES**



### **ELECTRIC MOTOR DATA**

| Model   | Horse<br>Power | Vo    | olts | RPM  | Full Load<br>Amperes |           |  |  |  |  |  |  |
|---------|----------------|-------|------|------|----------------------|-----------|--|--|--|--|--|--|
| EOC-190 | 1 / 4          | 12 24 |      | 2000 | SEALED               | 21 / 10.5 |  |  |  |  |  |  |
| EOC-220 | 1 / 4          | 12    | 24   | 2000 | SEALED               | 21 / 10.5 |  |  |  |  |  |  |
| EOC-249 | 1 / 4          | 12    | 24   | 2000 | SEALED               | 21 / 10.5 |  |  |  |  |  |  |
| EOC-337 | 1/4            | 12    | 24   | 2000 | SEALED               | 21 / 10.5 |  |  |  |  |  |  |
| EOC-375 | 1/4            | 12    | 24   | 2000 | SEALED               | 21 / 10.5 |  |  |  |  |  |  |
| EOC-505 | 1/4            | 12    | 24   | 2000 | SEALED               | 21 / 10.5 |  |  |  |  |  |  |
| EOC-545 | 1/4            | 12    | 24   | 2000 | SEALED               | 21 / 10.5 |  |  |  |  |  |  |
| EOC-575 | 1/4            | 12    | 24   | 2000 | SEALED               | 21 / 10.5 |  |  |  |  |  |  |

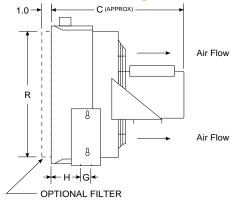
NOTE: Basic electric drive units are supplied with one of the corresponding above listed motors.

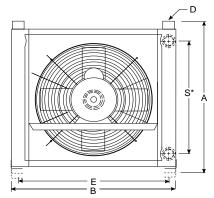
### STANDARD CONSTRUCTION MATERIALS

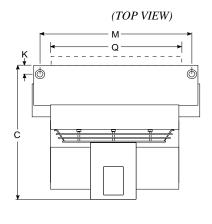
| Standard Construction Materials |          |                |                   |  |  |  |  |  |  |  |
|---------------------------------|----------|----------------|-------------------|--|--|--|--|--|--|--|
| Tubes                           | Copper   | Mount. bracket | Steel             |  |  |  |  |  |  |  |
| Fins                            | Aluminum | Cabinet        | Steel             |  |  |  |  |  |  |  |
| Turbulators                     | Steel    | Fan Blade      | Aluminum          |  |  |  |  |  |  |  |
| Manifold                        | Steel    | Fan Guard      | Zinc Plated Steel |  |  |  |  |  |  |  |

| Standard Unit Ratings |          |  |  |  |  |  |  |  |  |  |
|-----------------------|----------|--|--|--|--|--|--|--|--|--|
| Operating Pressure    | 300 psig |  |  |  |  |  |  |  |  |  |
| Test Pressure         | 350 psig |  |  |  |  |  |  |  |  |  |
| Operating Temp.       | 400 °F   |  |  |  |  |  |  |  |  |  |



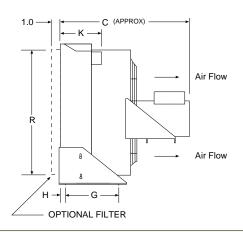


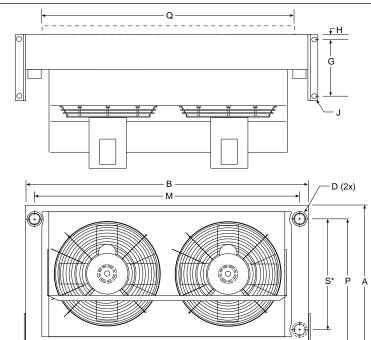




### **MODEL EOC - 337 Through EOC - 700**

(EOC - 337 Has one fan only)

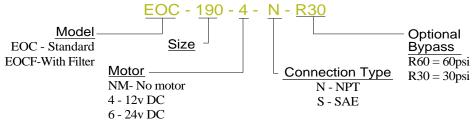




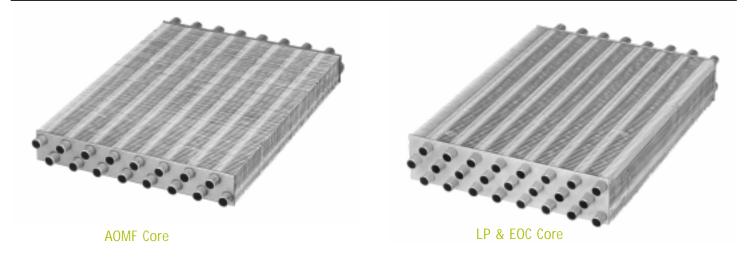
\* Dimension used only with two and four pass units

|           | DIMENSIONS (inches) |       |         |            |           |      |        |       |           |        |                    |      |       |       |       |       |       |        |
|-----------|---------------------|-------|---------|------------|-----------|------|--------|-------|-----------|--------|--------------------|------|-------|-------|-------|-------|-------|--------|
| Model     | Α                   | В     | С       |            |           | D    |        | _     |           |        |                    | 14   |       | _     |       |       | 0.4   | Weight |
|           |                     |       | AC Elec | tric<br>DC | Hydraulic | NPT  | SAE    | E     | G         | Н      | J                  | K    | M     | P     | Q     | R     | S*    | LBS.   |
| EOC-190 - | 14.88               | 16.75 | 16.13   | 16.00      | 13.00     | .75  |        | 14.75 | 14.75     | - 2.31 | .38ø x .75<br>Slot | 1.31 | 14.63 | -     | 15.25 | 13.13 | 10.25 | 50     |
| EOC-220 - | 15.25               | 22.25 |         |            |           |      | #12    | 18.69 | 1.50      |        |                    |      | 20.12 | _     | 20.75 | 13.58 | 10.25 | 61     |
| EOC-249 - | 19.38               | 25.00 | 18.70   | 17.00      | 14.00     |      |        | 21.44 | 2.50      | 2.31   |                    | 5.31 | 22.88 | _     | 23.50 | 17.63 | 15.00 | 77     |
| EOC-337 - | 24.75               | 31.25 |         |            |           | 1.00 | #16    | 26.97 | 6.50 0.96 |        | .56ø<br>x<br>.75   |      | 28.75 | 22.29 | 29.75 | 23.88 | 19.38 | 100    |
| EOC-375 - | 17.63               | 39.50 |         |            |           | 1.25 |        | 41.13 |           | 0.06   |                    |      | 36.50 | 15.25 | 38.00 | 16.38 | 12.50 | 125    |
| EOC-505 - | 21.63               | 41.50 | 18.70   | 18.50      | 15.50     |      | #20    | 43.13 |           | 0.90   |                    |      | 38.50 | 19.25 | 36.50 | 18.62 | 16.50 | 151    |
| EOC-545 - | 29.63               | 42.50 |         |            |           | 1.50 | #24    | 44.13 | 9.00      | 1.71   | Slot               |      | 39.50 | 27.25 | 41.00 | 28.38 | 24.63 | 176    |
| EOC-575 - | 36.13               | 48.50 |         |            |           | 2.00 | #32 50 | 50.13 | 9.00      | 1./1   |                    |      | 45.50 | 32.75 | 47.00 | 34.88 | 30.75 | 313    |





### **INSTALLATION & MAINTENANCE**



### **SUPERIOR COOLING FINS**

Seamless copper tubes are mechanically bonded to highly efficient aluminum cooling fins. Die-formed fin collars provide a durable precision fit for maximum heat transfer.

Custom fin design forces air to become turbulent and carry heat away more efficiently than old flat fin designs.

### **Receiving:**

a) Inspect unit for any shipping damage before uncrating. If damaged, indicate all damages to the trucking firms' delivery person, and mark it on the receiving bill before accepting the freight. Make sure that the core and fan are not damaged. Rotate the fan blade to make sure that it moves freely. Since the warranty is based upon the unit date code located on the model identification tag, removal or manipulation of the identification tag will void the manufactures warranty.

b) When handling DC heat exchanger, special care should be taken to avoid damage to the core and fan. All units are shipped with wood skids for easy forklift handling.

c) Models are shipped with one coat of factory applied gray enamel semigloss paint. A finish coat of paint should be applied to all steel surfaces unless storage is indoors. Caution: Do Not paint the aluminum core fins as this could impair the overall performance. The units are washed internally with a mineral spirit/oil solution to remove debris and for temporary rust protection. If storage will be longer than 60 days additional rust preventative should be added to the interior of the core. All openings are sealed with plastic pipe plugs prior to shipment. Check to make sure these are in place prior to storage.

### **Installation:**

a) Plan your installation in a location where there are no obstructions to the inlet or discharge airflow path. If the unit is to be installed in a wall, ample room ventilation should be provided. Duct work or additional cooling cores added to the housing of the cooler or in front of the cooler would increase the static pressure requirement of the fan motor thus increasing the horsepower requirement of the motor. Ducting should be slightly larger than the core area with long radius turns to prevent added static pressure. Prevailing winds should be considered before installing. Winds blowing heated air back into the cooler could cause loss of cooling especially on hot

summer days.

b) We recommend that flexible hose or non-rigid plumbing be used to reduce the risk of failure due to thermal expansion of the core and hydraulic vibration. Hydraulic carrying lines should be sized to handle the appropriate flow and to meet system pressure drop requirements based upon the systems parameters, and not based upon the units supply and return connection size. We suggest that preventative filtration should be located ahead of the cooler to catch any scale or sludge for the system before it enters the cooler.

Standard oil coolers are built with a brazed core, and carry a 300-PSI maximum working pressure at 400°F maximum temperature. We suggest that a three-way thermal by-pass valve or a direct acting low-pressure (65psi) relief valve be installed at the inlet to the cooler to protect it in cold weather environments. Units should not be placed into a corrosive environment, as rapid deterioration of all exposed components will occur resulting in shortened life or failure. For external corrosive environments please contact our factory prior to installation.

c) Electric motors should be connected only to a supply power of the same characteristics as stamped on the electric motor name-plate. Prior to starting, rotate motor by hand to ensure that the fan and motor were not damaged during handling. Check carefully that the fan turns in the correct motor rotation direction. Failure to operate the fan in the proper direction could reduce performance and cause serious damage to the heat exchanger.

### **Maintenance:**

a) Inspect the heat exchanger and motor for loosened bolts, connections, rust spots, corrosion, fin core clogging, and external fluid leakage.

b) Heat exchangers operating in dirty or dusty environments will often need to have the fins of the core cleaned. Clogged fins should

### **INSTALLATION & MAINTENANCE**

be cleaned by carefully brushing the fins and tubes with water or a light solvent. Use compressed air to blow and loose debris out of the fins. Rinse core with a light degreasing soap and water before reinstalling.

- c) Dirt, oil, and grease should be removed from the electric motor, fan, and fan guards. Rusty surfaces should be cleaned and re-coated with paint.
- d) In most cases with clean hydraulic system oils it will not be necessary to flush the interior of the core. In circumstances where the quality of hydraulic fluid is in question, the core should be disconnected and flushed on a yearly basis with a clean flushing oil/solvent to remove any sludge that has been deposited. For severe cases where the tubes are plugged and cannot be flushed clean with solvent consult factory. We suggest a filter be used at the cooler inlet to reduce the fouling of the tubes.
- f) Fan blades should be cleaned and inspected for tightness on a yearly basis. When handling a fan blade care must be taken to avoid bending or striking any of the blades. The fan blades are factory balanced and will not operate properly if bent or unbalanced. Damaged fan blades can cause vibration and severe damage to the heat exchanger and drive motor.
- g) American Industrial has gone to great lengths to provide components that are interchangeable and repairable. If your unit gets damaged, chances are that you can initiate the repairs in your own shop.

Most parts of heat exchanger cabinets are made of 18 gauge metals that can be bent back into position after external damage. The core is of brazed construction. Core replacement is suggested if it is ever damaged to the point of leakage. Please consult American Industrial for specific repair details.

### **Return Goods:**

If you are returning a product for credit, evaluation, or repair, you must obtain a Return Goods Authorization (RGA) number from American Industrial. Return goods must be shipped prepaid. A detailed written reason for return must accompany the shipment along with the RGA reference number clearly on the label. Failure to follow return procedures could result in lost items, delays, additional service charges, warrantee denial, or refusal of shipment.

All items being returned for restock to American Industrial are subject to a restocking charge. Items sent for service, evaluation or reconditioning are subject to a basic service charge. Please refer to the booklet or contact American Industrial or your local distributor for more detailed information regarding the American Industrial Heat Transfer, Inc. return goods policy.

### Review:

- 1) Contact American Industrial to obtain a RGA number.
- 2) Securely package shipment to prevent damage to the items.
- 3) Clearly label the shipping container with the RGA number and your company information.
- 4) Ship by designated freight carrier "Prepaid".

### **WARRANTY**

American Industrial Heat Transfer, Inc., hereinafter referred to as the "Company" warrants its commercial or industrial products against defects in material and workmanship under normal use and service for a period of one year from the date of shipment from its plant of manufacture.

All obligations and liabilities under this warranty are limited to repairing or replacing, at the Company's option, such as allegedly defective products or parts as are returned, carrier charges prepaid to the plant designated by the Company: 3905 Route 173, Zion, Illinois 60099. All such repairs or replacements are subject to inspection by the Company of the returned products parts at the company's plant. No liability is assumed for costs relating to deinstallation or reinstallation.

Warranty on components or accessories furnished by suppliers to the Company shall be limited to the warranty of the respective component or accessory supplier.

The Company shall not be liable for any contingent, incidental or consequential damages for alleged failure or failure of any of its products, components, or accessories.

If field service at the request of the Buyer is rendered by the Company, and the alleged fault is found not to be with the Company's product, component or accessory, the Buyer shall pay for the time and expenses of the field representative. Bills for service, labor or other expenses that have been incurred by the Buyer, their customer

or agent, without approval or authorization by the Company, will not be accepted.

This warranty does not cover failure resulting from the improper installation, mounting design or application nor does it cover failure due to corrosion. The Company's products are not packaged or protected for long periods of storages in generally corrosive atmospheric conditions.

Changes or repairs attempted or made in the field without written authorization from the Company automatically void this warranty.

The Company, whose policy is one of continuous improvement, reserves the right to improve its products through changes in design or material as it may deem desirable without being obligated to incorporate such changes in products of prior manufacture.

### WARRANTY PROCEDURES

If you've experienced a problem with your equipment and feel that it is a warranty matter, or you have equipment that needs to be repaired or replaced, contact American Industrial through your local distributor. The basic information that you will need to begin the process is the complete name plate data.

Units will not be accepted for return unless an RGA number has been assigned by American Industrial, and the unit is shipped prepaid.

### COMPANY PROFILE



American Industrial's state-of-the-art manufacturing facility.

### - Mission Statement

To manufacture Heat Transfer products by applying state-of-the-art technologies, with the ability to serve a wide variety of industries through professional distribution affiliations throughout North America and abroad.

Since 1985, American Industrial Heat Transfer, Inc. is pleased to offer more than thirty fully manufactured product lines to resolve your heat transfer needs. Our company manufactures all of the heat exchangers as advertised, so that your company is never compromised. Modern state-of-the-art CNC manufacturing machinery, top quality raw materials, and professional engineering services all offered at one source.

Many innovative liquid and air-cooled heat exchanger designs are offered for a wide variety of mobile and industrial applications. The latest technology data processing, manufacturing, and CAD systems are employed throughout our company.

American Industrial is proud to offer one of the strongest authorized distribution networks in the industry with worldwide coverage. Direct access to professional engineering services, no service charge 24 hour expedite delivery, custom modifications, competitive pricing, etc... are just a few benefits of being an American Industrial customer.

We know that our future relies on the future of our customers. For that reason we have invested in high-technology automation and professional personnel to give us the competitive edge far into the next millennium.

If you would like to know more about our products, please contact your local American Industrial distributor or contact our company. We appreciate your business and we hope to share with you in your successes.



CNC high accuracy mills and lathes produce precision parts.



A full line of engineering services are available to assist with technical support, design, Cad drawings, etc...



### **TECHNICAL**

For accurate technical answers contact our technical services department at 847-731-1055, or fax your requirements to 847-731-3440. A complete offering of product engineering and application services are always available Monday through Friday from 7:30 AM - 5:00 CST.

• Application assistance

- Certificate of conformance
- Certificate of test
- Computerized selection sheet
- Materials certificate
- CAD Drawings

**SALES** 

Our sales specialists are always available to provide help with your requests. To contact one of our sales specialist please call 1-800-338-5959 (847-731-1000) of fax your needs to 847-731-1010. Our sales office is open Monday through Friday from 7:00 AM - 5:00 PM CST.

- Order entry
- Trafficking
- Catalog literature
- Administrative services
- Sales
- Distribution
- Pricing

**ACCOUNTING** 

- Accounts receivable.
- Accounts payable.
- Account information.

To contact our accounting services office please call 847-731-1057 or fax your correspondence to 847-731-3440. Our accounting services is open Tuesday through Friday from 9:00 AM - 3:30 PM CST.

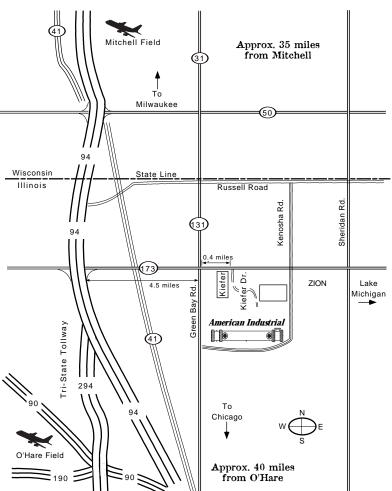
### **LOCATION**

STREET & MAILING ADDRESS: American Industrial Heat Transfer, Inc. 3905 Route 173 Zion, IL 60099

ACCOUNTING REMIT TO: American Industrial Heat Transfer, Inc. Department 77-2634 Chicago, IL 60678-2634

"American Industrial Heat Transfer, Inc. greatly appreciates your business. We are dedicated to do everything humanly possible to provide the highest quality products and services at the lowest possible prices."

"Thank you for your consideration and patronage. We are always aware that you, as a customer, have many choices available. We are sincerely grateful to you for choosing American Industrial Heat Transfer, Inc. and trusting our company as your supplier of heat exchanger products."



### **AVAILABLE PRODUCTS**







**AOCH Series** with louvers & Serviceable Core<sup>TM</sup>



**AOCH Series** with screen & Serviceable Core<sup>TM</sup>

### **AOCH Series**

• Industrial high capacity air/oil heat exchanger available in 8 standard sizes with electric or hydraulic drive.



• Industrial air/oil heat exchanger available in 8 standard sizes with electric or hydraulic drive.



### **ACA Series**

• Heavy-duty Serviceable Core™ air cooled air after-coolers for compressor sizes up to 500 HP.

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### **AVAILABLE PRODUCTS**

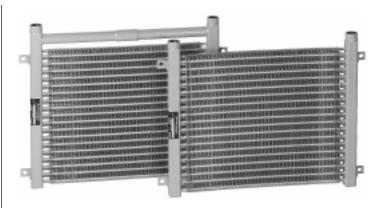


• Air/oil coolers designed for small heat removal requirements to be mounted directly to the vent side of TEFC electric motors. NEMA frame sizes from 48 to 184.



### BM-131 Thru BM-142 Series

• Light duty 115V fan cooled heat exchangers for low flow applications.



### **AOM & AOMR Series**

• Mobil oil coolers for applications not requiring a fan motor.



EOC Series with hydraulic motor



EOC Series with electric motor & filter as an option.

### **EOC Series**

• Versatile industrial/mobil grade heat exchanger available with Optional Filter, AC, DC, and hydraulic drives.

### **AVAILABLE PRODUCTS**





### **CS** Series

• Variety of sizes from 2"-8" diameters, available in a wide range of materials.



### **AB 2000-6000 Series**

• High capacity shell & tube heat exchangers, available in sizes from 10"-32" diameters.



• Variety of sizes from 2"-8" diameters, available in a wide range of materials.



• Variety of sizes from 2"-8" diameters, available in brass, 316L Stainless Steel.



• U-tube heat exchangers for steam services with removable tubes bundle in copper, 316L SS, or 90/10 Cu Ni.



• Fixed tube construction with SAE O-Ring or Four Bolt Flanges. Sizes from 2" through 10" diameters.

3905 Route 173 Zion, Illinois 60099 Telephone: (800) 338-5959 or (847) 731-1000

FAX: (847) 731-1010

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