

銀科工業的承諾

產品售後服務



所有經銀科工業售出的產品均享有一年產品質量保證，以及14天內退換保證（以出貨日期為準）
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香港總公司:
銀科工業(香港)有限公司
香港荃灣沙咀道66A號豪力中心2108室
電話: (852) 2499 9168
傳真: (852) 2417 9183 8343 6887
電郵: sales@silvertech.com.hk
網址: www.silvertech.com.hk

東莞分公司:
東莞動力銀科工業配件有限公司
東莞市塘廈鎮橋龍大道23號銀科大樓
電話: (86-769) 8798 1699 8798 2699
8625 2718 (10線)
傳真: (86-769) 8798 1313 8625 2719
電郵: dgoffice@silvertech.com.hk

青島辦事處:
青島市市南區寧夏路268號商務樓B413室
電話: (86-532) 8575 5305
傳真: (86-532) 8571 5015
電郵: qdoffice@silvertech.com.hk

深圳工廠:
銀錕德傳動件制造(深圳)有限公司

成都工廠:
成都銀科同步帶輪制造有限公司

常州工廠:
常州銀科傳動件有限公司

Hong Kong Headquarters: (For Import & Export Sales)
Silvertech Industrial (H.K.) Ltd.
Rm.2108, Ho Lik Centre, 66A Sha Tsui Road, Tsuen Wan, Hong Kong.
Tel: (852) 2499 9168
Fax: (852) 2417 9183 8343 6887
Email: sales@silvertech.com.hk
Web Site: www.silvertech.com.hk

China Guangdong Branch Office: (For Domestic Sales)
Silvertech Industrial (Dong Guan) Ltd.
Silvertech Building, 23 Qiao Long Road, Tangxia, Dongguan, Guangdong, China.
Tel: (86-769) 8798 1699 8798 2699
8625 2718 (10Lines)
Fax: (86-769) 8798 1313 8625 2719
Email: dgoffice@silvertech.com.hk

China Qingdao Sales Office: (For Domestic Sales)
Rm.B413, No. 268, Ningxia Road, Qingdao, Shandong, China
Tel: (86-532) 8575 5305
Fax: (86-532) 8571 5015
Email: qdoffice@silvertech.com.hk

China Shen Zhen Factory:
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服務投訴電話: (852) 2499 9168、(86) 138 2697 1737

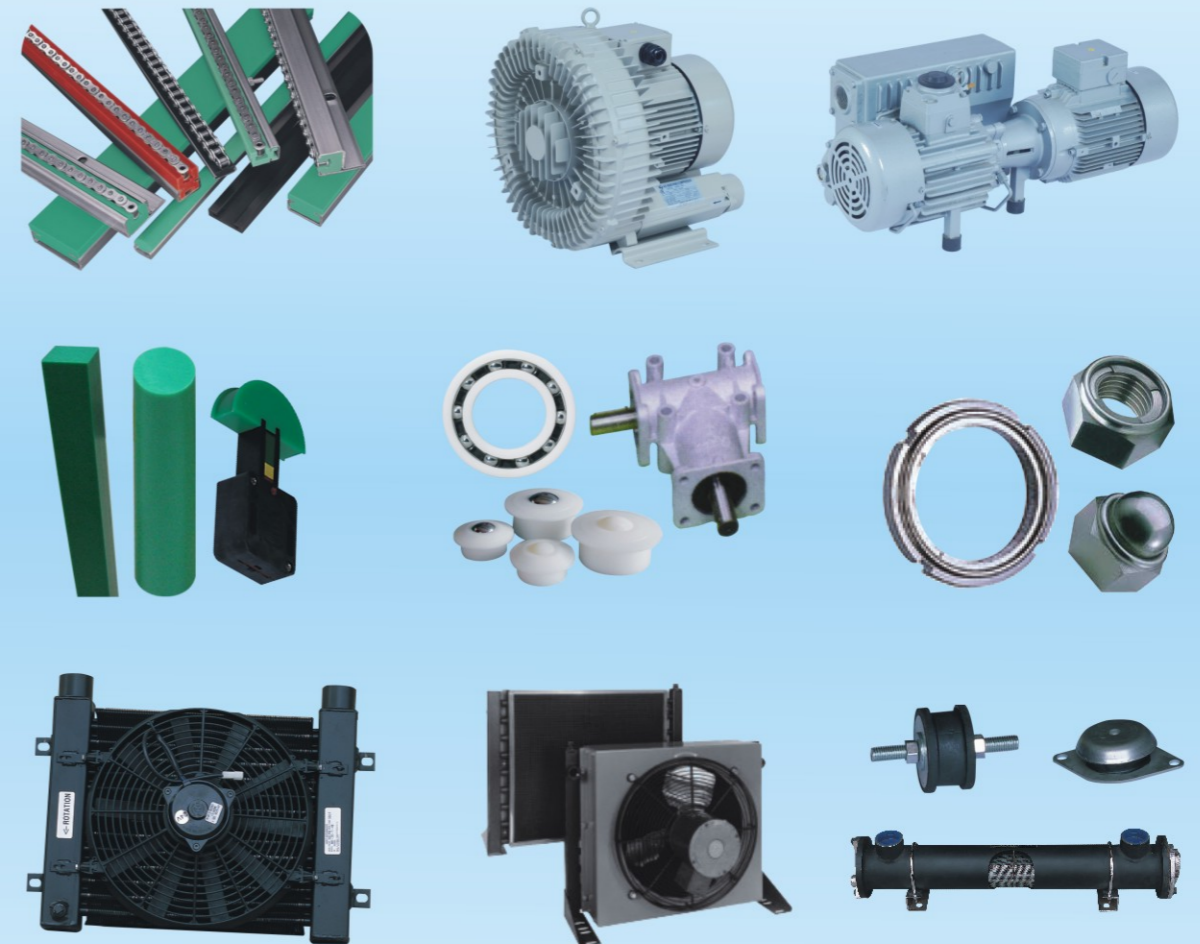
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STI

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Your 1st choice for Industrial Products



公司簡介

銀科工業(香港)有限公司 – 成立於1992年，總部位於香港，分公司和工廠設於中國內地。公司的主要業務及經營範圍：生產 **STI** 品牌屬下的高質量工業傳動零部件，出口外銷至歐美及其它世界各國，同時也內銷至大中華地區。此外，我們還進口德國、瑞士、意大利、美國、日本和台灣等國家和地區的高科技工業產品，並且是這些世界級著名品牌的大中華區域總代理。

累積近乎二十年服務海外和大中華客戶的經驗，我們不斷的總結、不斷發展、不斷進步，因此而奠下了堅實的基礎，在海內外業界均享有優良的聲譽和知名度。銀科工業無論由：原材料採購 – 生產管理 – 質量控制 – 倉存量控制 – 銷售方式 – 技術支援 – 包裝付運 – 跟蹤到貨 – 售後服務等等，每一環節都務求做到盡善盡美，因為我們切身體會只有得到客戶的信賴才是公司發展的最大希望！

在系統化的在職培訓再加上員工對公司的歸屬感，大家分別工作於香港、東莞、深圳、青島、成都和常州，今天的銀科工業已擁有一支非常專業且盡責的團隊，為國內外工業界提供優質產品，為貼近客戶而盡我們所能！

“選銀科工業 做最好機械” 這不僅是我們的承諾，更是對客戶的責任。

About us

Silvertech Industrial (HK) Ltd was established in 1992, with its headquarter in Hong Kong, and branches as well as factories in mainland China. Our business focuses on the production of high quality power transmission parts under the brand **STI**.

Our products are very popular in the global markets, such as Europe, North American, and Greater China Area. In addition, we are the exclusive dealer in the Greater China Area for a few world-renowned high tech industrial products from Germany, Switzerland, Italy, USA, Japan and Taiwan.

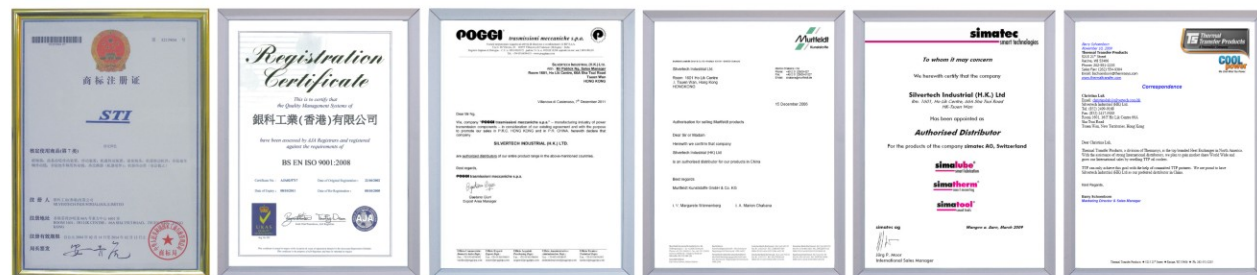
We are growing stronger with almost twenty years experience of serving clients in overseas and Greater China Area. Silvertech Industrial has well developed world reputation and brand loyalty. We aim to provide perfection in our value net, such as procurement of material, production management, quality control, stock and storage, marketing, technical support, logistics, and after sale service. It is our ultimate goal to maintain the trust from our clients and continue with sustainable growth.

Our company engages in systemic on the job training and invests in corporate human resource. We have developed an extremely competent and dedicated team working in Hong Kong, Dongguan, Shenzhen, Qingdao, Chengdu, and Changzhou. We are known as the company providing the best products and service for our customers.

Our promise: **Silvertech – Your 1st choice for Industrial Products**

We take this promise as our responsibility.

公司秉承“准時、準確、高質量為客戶服務”即二准一高的質量方針，將不斷總結和提高對客戶服務的質量。



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TS Thermal Transfer Products 美國熱動力油冷却器
A ThermoSys Company

美國“熱傳導”牌高性能油冷却器



熱交換器 | Industrial AOC Series 工業用AOC系列

FEATURES 優點

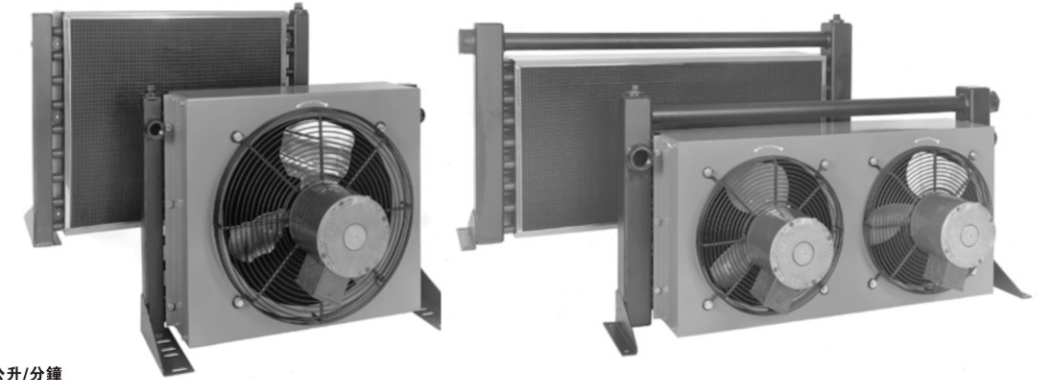
- AC Motors AC 交流電機
- Core Filter 散熱器帶空氣濾網
- 3/4" Tubes 3/4" 疏油管
- Low Cost 低成本
- Industrial Duty 適用於工業用途
- Quiet Operation 靜音運作
- For Low Flow Rates 用於低油流量
- Oil Flows to 150 GPM 油流量達562公升/分鐘
- Mounting Brackets Included 附帶固定支架
- SAE Connections SAE(美國汽車工程師學會)標準接頭
- Single or Three-Phase 60/50 Hz Motors 單相或三相 60/50Hz 交流電機
- Filter Standard 標準配置空氣濾網

OPTIONS 備選裝置

- Built-in Serviceable Bypass Valve; 內置超壓旁通閥
- NPT or BSPP Oil Connections 美制錐牙或英制直牙的油接口

Ratings 範圍

- Operating Pressure - 300 psi 工作壓力 - 21kg/cm²
- Test Pressure - 300 psi 測試壓力 - 21kg/cm²
- Operating Temperature - 350° F 工作溫度 - 177C°



Materials 材料

- Tubes Copper 疏油管 銅
- Fins Aluminum 散熱片 鋁
- Turbulators Aluminum 湍流器 鋁
- Fan Blade Aluminum with steel hub 風扇葉片 鋁和鋼輪軸
- Fan Guard Steel with black baked enamel finish 風扇護罩 鋼網外表烤漆
- Cabinet Steel with baked enamel finish 機身外殼 鋼外表烤漆
- Manifolds Copper: Model AOC-08 鋼: 型號 AOC-19~AOC-70
- 油路系統 銅: 型號 AOC-08 鋼: 型號 AOC-19~AOC-70
- Connections Brass: Model AOC-08 鋼: 型號 AOC-19~AOC-70
- 接頭 黃銅: 型號 AOC-08 鋼: 型號 AOC-19~AOC-70
- Nameplate Aluminum 銘牌 鋁
- Filter Stainless frame with washable media 空氣濾網 不銹鋼結構可清洗媒體

MODEL DESCRIPTION 型號介紹

- AOC-08 Available in one pass (30 and 60 psi), two pass (60 psi), designs only. Valves are built into tubes and do not affect external dimensions. All steel valves. Non-serviceable.
附有單流程(2.1kg/cm²和4.2kg/cm²), 雙流程(4.2kg/cm²)。閥門內置在油管內不影響外表尺寸, 所有鋼閥門都無需維護。
- AOC-19 thru AOC-33 Available in 30 psi or 60 psi settings. 3/4", external, all steel valve. May be removed for servicing.
附有2.1kg/cm²或4.2kg/cm²的設定, 3/4"外置鋼閥門可以拆卸更換。
- AOC-37 Thru AOC-70 Available in 30 psi or 60 psi settings. 1-1/2", external, all steel valve. May be removed for servicing.
附有2.1kg/cm²或4.2kg/cm²的設定, 3/4"外置鋼閥門可以拆卸更換。

How to Order (AOC-08 models only)

| | | | | | | | | | |
|-----------------|---|------------------------|---|---|--------------------------------|--|---|---|--|
| AOC | - | 0 | 8 | - | | - | | - | |
| 系列 Model Series | | 規格 Model Size Selected | | 水管流程 Number of Passes | 接口種類 Connection Type | 旁通壓力設定 Relief Bypass* | 馬達型式 Specify Motor Required | | |
| AOC - Standard | | | | 1 - One Pass 2 - Two Pass 4 - Four Pass | 1 - NPT 2 - SAE 3 - BSPP | Blank - No Bypass 空白 - 內旁通閥 30 - 30 psi 60 - 60 psi | 115/230V Single Phase 115/230V 單相 No Motor 無馬達 | | |

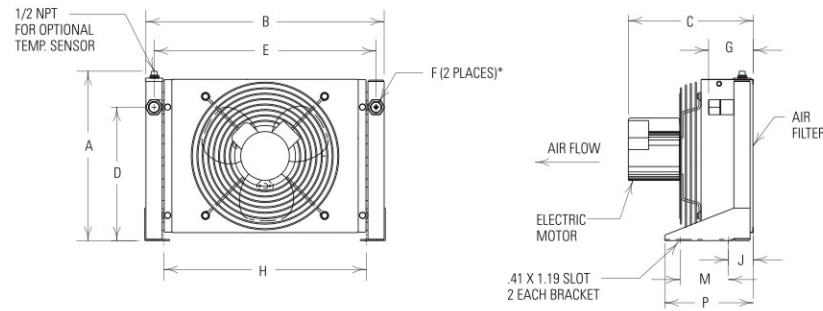
*Bypass not available in Four Pass

How to Order (Models AOC-19 through AOC-70)

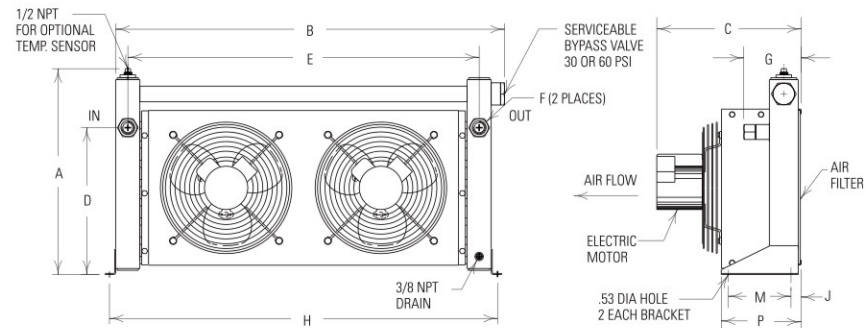
| | | | | | | | | |
|-----------------|---|------------------------|---|--------------------------------|--|--|---|--|
| AOC | - | | - | | - | | - | |
| 系列 Model Series | | 規格 Model Size Selected | | 接口種類 Connection Type | 旁通壓力設定 Relief Bypass | 馬達型式 Specify Motor Required | | |
| AOC - Standard | | | | 1 - NPT 2 - SAE 3 - BSPP | Blank - No Bypass 空白 - 內旁通閥 30 - 30 psi 60 - 60 psi | 115/230V Single Phase 115/230V 單相 208-230/460V Three Phase 208-230/460V 三相 575 Volt 575V No Motor 無馬達 | | |

Dimensions

Models AOC-19 Through AOC-33



Models AOC-37 Through AOC-70



| MODEL | A | | B | | C | D | E | F | | G | | H | J | M | P | LBS |
|--------|-----------|--------|-----------|--------|-------|-------|-------|------|------------|-------|------------|-------|------|-------|-------|-----|
| | No Bypass | Bypass | No Bypass | Bypass | | | | SAE | NPT & BSPP | SAE | NPT & BSPP | | | | | |
| AOC-19 | 13.62 | 16.00 | 16.50 | 18.16 | 13.08 | 10.31 | 15.00 | #12 | .75 | 3.05 | 4.12 | 14.75 | 2.61 | 5.00 | 8.18 | 19 |
| AOC-22 | 15.62 | 18.00 | 22.00 | 23.66 | 12.19 | 12.31 | 20.50 | | | | | 18.69 | | | | 33 |
| AOC-24 | 19.62 | 22.00 | 24.75 | 26.41 | 13.19 | 16.31 | 23.25 | | | | | 21.44 | | | | 46 |
| AOC-33 | 25.62 | 28.00 | 30.25 | 31.91 | | 22.31 | 28.75 | #16 | 1.00 | 4.34 | 26.97 | 65 | | | | |
| AOC-37 | 18.50 | 21.38 | 39.00 | 40.38 | 15.66 | 15.25 | 36.50 | #20 | 1.25 | 4.62 | 5.97 | 40.50 | 1.06 | 6.50 | 8.31 | 95 |
| AOC-50 | 22.50 | 25.38 | 41.00 | 42.38 | 15.62 | 19.25 | 38.50 | | | 4.68 | 6.03 | 42.50 | 1.12 | | 8.37 | 120 |
| AOC-54 | 30.50 | 33.28 | 42.00 | 43.38 | 17.09 | 27.25 | 39.50 | #24 | 1.50 | 4.89 | 6.30 | 43.75 | 1.87 | 9.00 | 12.37 | 154 |
| AOC-57 | 36.50 | 39.38 | 48.00 | 49.38 | 16.72 | 32.75 | 45.50 | 6.68 | 8.15 | 49.75 | 49.75 | 190 | | | | |
| AOC-70 | 38.38 | 41.25 | 51.00 | 52.38 | 22.62 | 34.00 | 48.50 | #32 | 2.00 | 8.44 | 9.91 | 52.75 | 1.62 | 12.12 | 322 | |

NOTE: All dimensions in inches. We reserve the right to make reasonable design changes without notice.
*Inlet and outlet oil ports reversible if relief bypass option is not used.

Specifications

Electric Motor Data

| MODEL | MOTOR POWER | # OF MOTORS | FRAME SIZE | SINGLE PHASE | THREE PHASE | 575 VOLT | RPM | TYPE | B-BALL S-SLEEVE | THERMAL OVERLOAD | dB(A) 3 FT. |
|--------------------|-------------|-------------|---|--|--|--|--------------|------|-----------------|------------------|-------------|
| AOC-19 thru AOC-33 | 1/4 | 1 | Custom | 115/230V/60/50Hz | 208-230/460V/60 Hz | 575/500V/60/50Hz | 1700 (60 Hz) | TEAO | S | YES | 80 |
| AOC-37 thru AOC-57 | | 2 | | 3.2/1.6 Amps Full Load 60 Hz 2.8/1.4 Amps Full Load 50 Hz | 1.3/.65 Amps Full Load 60 Hz 1.1/.55 Amps Full Load 50 Hz | .65 Amps Full Load 60 Hz .60 Amps Full Load 50 Hz | 1350 (50 Hz) | | | | |
| AOC-70 | 1 | 56C | 115/208-230V/60 Hz 12.8/6.4 Amps Full Load | 208-230/460V/60 Hz 190/380-415V/50 Hz | 575/500V/60/50Hz 1.5 Amps Full Load 60 Hz 1.4 Amps Full Load 50 Hz | 1725 (60 Hz) 1425 (50 Hz) | TEFC | B | NO | 90 | |

NOTE: Amp ratings are per motor.

Selection Procedure 選型指南

Performance Curves are based on 50SSU oil leaving the cooler 40°F higher than the ambient air temperature used for cooling. This is also referred to as a 40°F approach temperature.

性能曲線是根據50SSU油離開熱交換器時仍高於環境溫度4.4°C為冷卻目標。

STEP 1 Determine the Heat Load. This will vary with different systems, but typically coolers are sized to remove 25 to 50% of the input nameplate horsepower.

(Example: 100 HP Power Unit x .33 = 33 HP Heat load.)

$$\text{If BTU/Hr. is known: } \text{HP} = \frac{\text{BTU/Hr}}{2545}$$

額定熱負荷，這會根據不同的系統而改變，但通常冷卻目標是帶走動力源名牌上標示的功率或馬力的25-50%
(例如: 100Hp馬力單位 x 0.33 = 33Hp的熱負荷如果 BTU/Hr.)是已知數: $\text{Hp} = \frac{\text{BTU/Hr}}{2545}$

STEP 2 Determine Approach Temperature. Desired oil leaving cooler °F - Ambient air temp. °F = Actual Approach

額定冷卻後要達到的油溫度: 期望冷卻後的溫度C° - 環境溫度C° = 實際降溫幅度

STEP 3 Determine Curve Horsepower Heat Load. Enter the information from above:

$$\text{Horsepower heat load} \times \frac{40 \times \text{Cv}}{\text{Actual Approach}} = \text{Curve Horsepower}$$

額定熱負荷馬力或功率的曲線。輸入上述資料: 熱負荷馬力 × $\frac{40 \times \text{Cv}}{\text{實際降溫幅度}}$ = 馬力曲線

STEP 4 Enter curves at oil flow through cooler and curve horsepower.

Any curve above the intersecting point will work.

輸入馬力曲線和流經冷卻器的油流量於性能曲線圖上，在任何相交點上可找到合適的型號。

STEP 5 Determine Oil Pressure Drop from Curves:

● = 5 PSI; ■ = 10 PSI; ▲ = 20 PSI; + = 40 PSI. Multiply pressure drop from curve by correction factor found in oil ΔP correction curve.

從曲線上額定壓力損失: ● = 5 PSI; ■ = 10 PSI; ▲ = 20 PSI; + = 40 PSI. Multiply

ΔP 期望的油箱溫度

Desired Reservoir Temperature

Return Line Cooling: Desired temperature is the oil temperature leaving the cooler. This will be the same temperature that will be found in the reservoir.

Off-Line Recirculation Cooling Loop: Desired temperature is the oil temperature entering the cooler. In this case, the oil temperature change must be determined so that the actual oil leaving temperature can be found.

Calculate the oil temperature change (oil ΔT) with this formula:

$$\text{Oil } \Delta T = (\text{BTU's/Hr.}) / (\text{GPM Oil Flow} \times 210)$$

To calculate the oil leaving temperature from the cooler, use this formula:

$$\text{Oil Leaving Temp.} = \text{Oil Entering Temp.} - \text{Oil } \Delta T$$

This formula may also be used in any application where the only temperature available is the entering oil temperature.

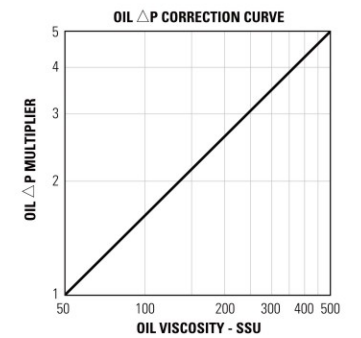
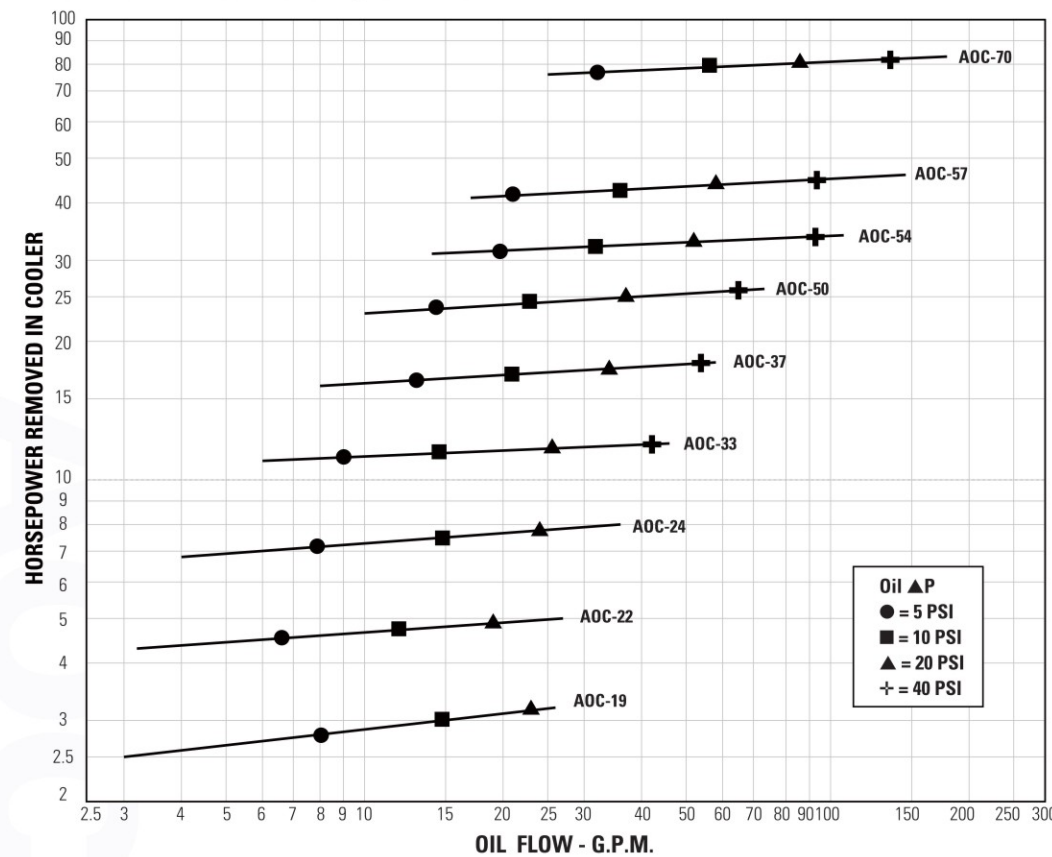
Oil Pressure Drop: Most systems can tolerate a pressure drop through the heat exchanger of 20 to 30 PSI. Excessive pressure drop should be avoided. Care should be taken to limit pressure drop to 5 PSI or less for case drain applications where high back pressure may damage the pump shaft seals.

Oil Temperature

Typical operating temperature ranges are:

| | |
|-----------------------|--------------|
| Hydraulic Motor Oil | 110° - 130°F |
| Hydrostatic Drive Oil | 130° - 180°F |
| Bearing Lube Oil | 120° - 160°F |
| Lube Oil Circuits | 110° - 130°F |

Performance Curves



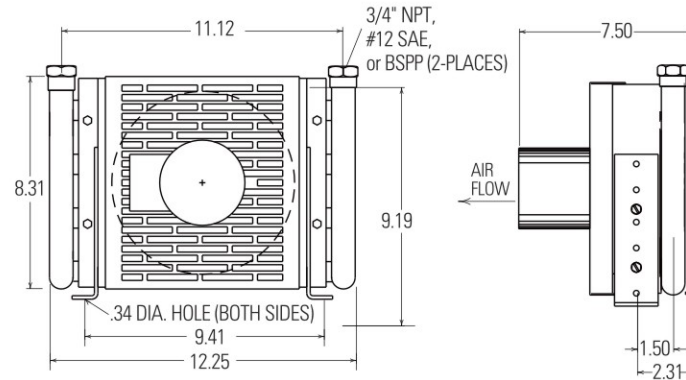
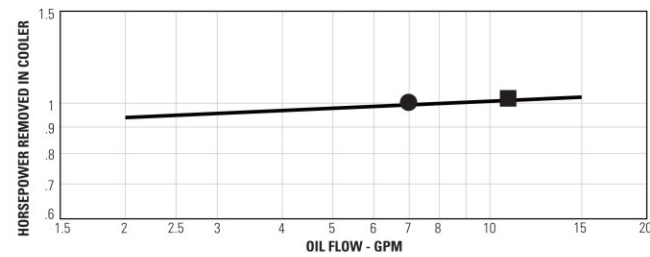
De-rate cooler performance by 10% when used in 50Hz service.

C_v Viscosity Correction

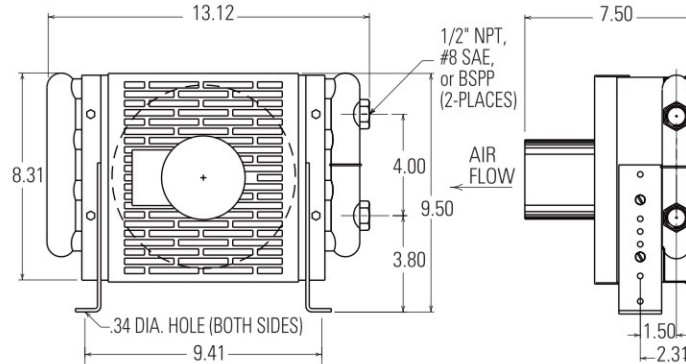
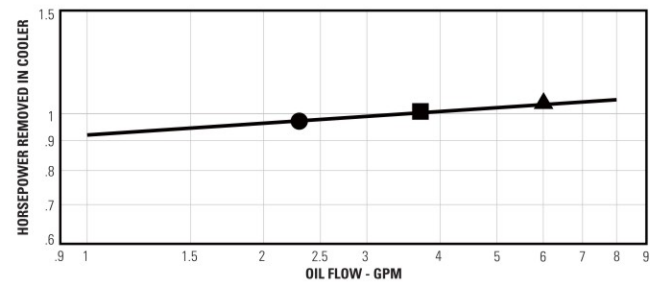
| Average Oil Temp °F | OIL | | | | |
|---------------------|--|---|---|---|---|
| | SAE 5 110 SSU at 100°F 40 SSU at 210°F | SAE 10 150 SSU at 100°F 43 SSU at 210°F | SAE 20 275 SSU at 100°F 50 SSU at 210°F | SAE 30 500 SSU at 100°F 65 SSU at 210°F | SAE 40 750 SSU at 100°F 75 SSU at 210°F |
| 100 | 1.14 | 1.22 | 1.35 | 1.58 | 1.77 |
| 150 | 1.01 | 1.05 | 1.11 | 1.21 | 1.31 |
| 200 | .99 | 1.00 | 1.01 | 1.08 | 1.10 |
| 250 | .95 | .98 | .99 | 1.00 | 1.00 |

AOC-08 Model Only

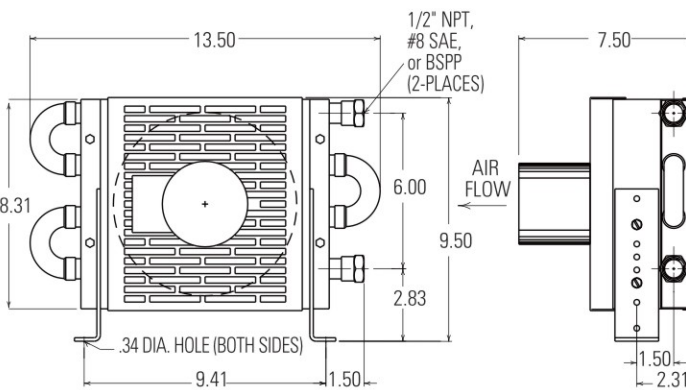
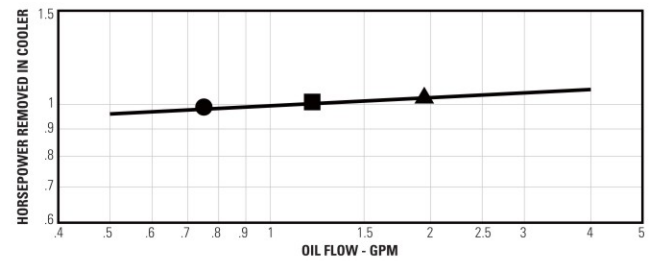
One Pass



Two Pass



Four Pass



Specifications

Electric Motor Data

| MODEL | MOTOR POWER | 115/230 VOLT | 50/60 Hz | TYPE | RPM | BEARINGS B-BALL S-SLEEVE | THERMAL OVERLOAD | SHIPPING WEIGHT (lbs.) | dB(A) 3 FT. |
|--------|-------------|----------------------|---|------|------|-----------------------------|---------------------|---------------------------|-------------|
| AOC-08 | 1/30 | 115 VOLT 230 VOLT | 1.1 Amps Full Load .7 Amps Full Load | TEAO | 3000 | S | YES | 12 | 70 |

熱交換器 | Shell & Tube EK Series 列管式EK系列

COPPER & STEEL CONSTRUCTION 銅和鋼構造

Features 優點

- **Compact Size** 節省空間
- **High Efficiency Finned Bundle Design** 高性能的鰭狀散熱片
- **Low Cost** 低成本
- **Optional Patented Built-in Surge-Cushion® Relief Bypass** 世界專利的內置旁通泄壓閥
- **3/16" Tube Size** 配備3/16"銅管，大量增加熱交換面積
- **Heat Removal up to 400 Horsepower** 能移走400Hp(300Kw)的熱能 (300 kW)
- **Oil Flow rates up to 80 U.S. GPM (300 Liters/min.)** 油流量達300公升
- **Large Oil Connections for Minimum Entering and Exiting Flow Restriction** 特大的油接口設計，能大量減少油在進出時的流量損耗
- **Removable End Bonnets for easy tube cleaning** 可裝拆的端蓋，方便清洗
- **Mounting Brackets Designed so that Cooler can be Rotated in 90° Increments** 活動式固定支架，最大安裝轉向角達90°
- **High Pressure Ratings** 高工作壓力
- **Complete Line of Accessories Available** 可配備周全的附件

Ratings 範圍

- Operating Pressure/Shell side** 500 psi
工作壓力/外殼達35kg/cm²
- Operating Pressure/Tubeshell side** 150 psi
工作壓力/列管達10.5kg/cm²
- Operating Temperature** 250° F
工作溫度120C°

Materials 材料

- Shell Steel** 鋼制外殼
- Tube Sheets Steel** 鋼制列管端支架
- Baffles Steel** 鋼制列管支架
- Mounting Brackets Steel** 鋼制固定支架
- Gaskets** Nitrile Rubber/Cellulose Fiber
丁腈橡膠纖維制密封圈
- Nameplate** Aluminum Foil 鋁制名牌
- Tubes** Copper 銅制列管
- Fins** Aluminum 鋁制鰭片
- End Caps** Grey Iron 鑄鐵制端蓋

Surge-Cushion (Option)

內置旁通泄壓閥(備選裝置)

The SURGE-CUSHION® is a protective device (patented) designed to internally bypass a portion of the oil flow during cold start conditions, or when sudden flow surges temporarily exceed the maximum flow allowed for a given cooler. This device may replace an external bypass valve, but it is not intended to bypass the total oil flow.

內置旁通泄壓閥的功能是它可以泄放(旁通)部份當系統在運行中所產生的瞬間特大油流量，使之系統不致於因此而增加背壓。TTP公司以此偉大發明已註冊了世界專利。

Maximum Flow Rates

| Unit Size | Shell Side GPM | Tube Side GPM | | |
|-----------|----------------|---------------|----------|-----------|
| | | One Pass | Two Pass | Four Pass |
| 500 | 20 | 13 | 6 | N/A |
| 700 | 60 | 24 | 12 | 6 |
| 1000 | 80 | 56 | 28 | 14 |

Incorrect installation can cause premature failure.



Cutaway view shows high performance copper tube/aluminum fin cooling chamber with patented SURGE-CUSHION® relief bypass valve. 剖視圖片可以看到高性能的銅管和鰭狀散熱片及世界專利的內置旁通泄壓閥。

選型指南

How to Order



| 系列 Model Series | 規格 Model Size Selected | 內擋油板 Baffle Spacing | 水管流程 Tubeside Passes | 內置旁通閥 Surge Cushion | 水管材料 Cooling Tube Material | 閥門蓋材料 End Bonnet Material |
|---------------------------------|---------------------------|-------------------------------------|---|---|--|--|
| EK EKS EKM EKF EKFM | | EK-1036 & EK-1048 Models Only | O - One Pass T - Two Pass F - Four Pass | Blank - No Relief Bypass 空白 - 無旁通閥 R - Relief Bypass R - 內置旁通閥 | Blank - Copper 空白 - 銅 CN - CuNi CN - 銅鎳 | Blank - Cast Iron 空白 - 鑄鐵 NP - Electroless Nickel Plate NP - 無電解鍍鎳層 |

EK = NPT Oil connections; NPT Water connections.

EKS = SAE O-Ring Oil connections; NPT Water connections.

EKM = BSPP Oil connections; BSPP Water connections.

EKF = SAE 4 Bolt Flange (Tapped SAE) Oil connections; NPT Water connections.

EKFM = SAE 4 Bolt Flange (Tapped Metric) Oil connections; BSPP Water connections.

EK = NPT 油接口; NPT 水接口。

EKS = SAE O型圈油接口; NPT 水接口。

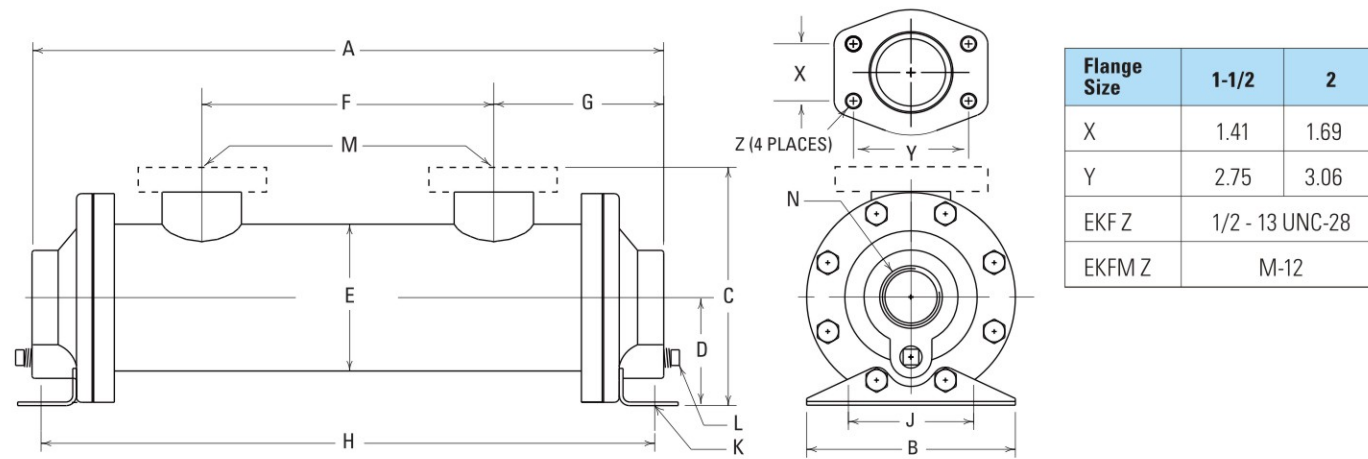
EKM = BSPP 油接口; BSPP 水接口。

EKF = SAE 4 螺栓法藍(已攻牙SAE) 油接口; NPT 水接口。

EKFM = SAE 4 螺栓法藍(已攻牙SAE) 油接口; BSPP 水接口。

Dimensions

One Pass

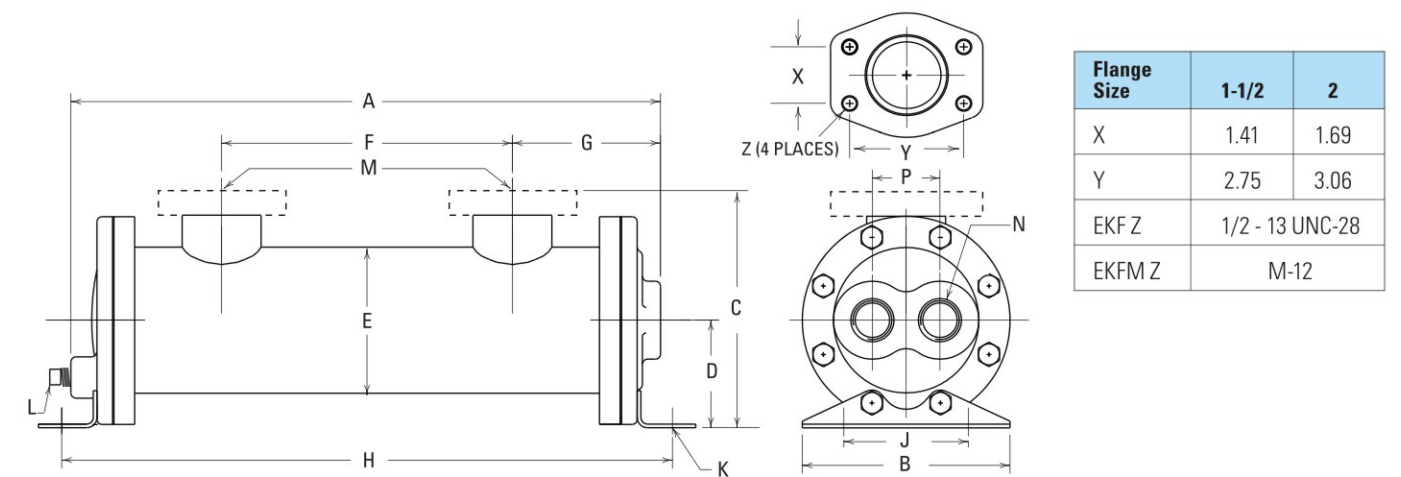


| MODEL | A | B | C | | D | E | F | G | H | J | K | L | M | | | | N | | | | | | | | | | | |
|---------|-------|----------------------|------------|------------|------|--------------|----------------------|------|-------|------|-------------------------|-------|------------|------------------------|-------|------------|------|------------|--------------|------|------|-------|------|--------------------------|---|---|-------|-------|
| | | | NPT / BSPP | SAE O-RING | | | | | | | | | SAE FLANGE | BSPP | NPT | SAE O-RING | | SAE FLANGE | BSPP | | | | | | | | | |
| EK-505 | 7.38 | 3.5 MAX. WIDTH | 3.90 | N/A | 1.62 | 2.55 DIA. | 2.19 | 2.59 | 7.44 | 2.50 | .34 x .62 SLOT | N/A | 3/4 | #8 3/4-16 UNF-2B | N/A | 3/4 | 3/4 | | | | | | | | | | | |
| EK-508 | 10.38 | | | | | | 3.85 | | 10.44 | | | | | | | | | | | | | | | | | | | |
| EK-510 | 12.38 | | | | | | 5.85 | | 12.44 | | | | | | | | | | | | | | | | | | | |
| EK-512 | 14.38 | | | | | | 7.85 | | 14.44 | | | | | | | | | | | | | | | | | | | |
| EK-514 | 16.38 | | | | | | 9.85 | | 16.44 | | | | | | | | | | | | | | | | | | | |
| EK-518 | 20.38 | | | | | | 13.85 | | 20.44 | | | | | | | | | | | | | | | | | | | |
| EK-524 | 26.38 | | | | | | 19.85 | | 26.44 | | | | | | | | | | | | | | | | | | | |
| EK-536 | 38.38 | | | | | | 31.85 | | 38.44 | | | | | | | | | | | | | | | | | | | |
| EK-708 | 11.12 | 5.0 MAX. WIDTH | 5.47 | 5.71 | 2.59 | 3.52 DIA. | 3.00 | 4.07 | 10.71 | 3.00 | .44 x .75 SLOT | 1 1/2 | 1 1/2 | 1 1/2 | 1 1/2 | 1 1/4 | | | | | | | | | | | | |
| EK-712 | 15.12 | | | | | | 7.00 | | 14.71 | | | | | | | | | | | | | | | | | | | |
| EK-714 | 17.12 | | | | | | 9.00 | | 16.71 | | | | | | | | | | | | | | | | | | | |
| EK-718 | 21.12 | | | | | | 13.00 | | 20.71 | | | | | | | | | | | | | | | | | | | |
| EK-724 | 27.12 | | | | | | 19.00 | | 26.71 | | | | | | | | | | | | | | | | | | | |
| EK-736 | 39.12 | | | | | | 31.00 | | 38.71 | | | | | | | | | | | | | | | | | | | |
| EK-1012 | 15.33 | | | | | | 6.5 MAX. WIDTH | | 7.64 | | | | | | | | 8.28 | 4.00 | 5.05 DIA. | 6.18 | 4.57 | 15.45 | 4.00 | .44 x 1.00 SLOT | 2 | 2 | 1 1/2 | 1 1/2 |
| EK-1014 | 17.33 | | | | | | | | | | | | | | | | | | | 8.18 | | 17.45 | | | | | | |
| EK-1018 | 21.33 | 12.18 | 21.45 | | | | | | | | | | | | | | | | | | | | | | | | | |
| EK-1024 | 27.33 | 18.18 | 27.45 | | | | | | | | | | | | | | | | | | | | | | | | | |
| EK-1036 | 39.33 | 30.18 | 39.45 | | | | | | | | | | | | | | | | | | | | | | | | | |
| EK-1048 | 51.33 | 42.18 | 51.45 | | | | | | | | | | | | | | | | | | | | | | | | | |

NOTE: We reserve the right to make reasonable design changes without notice. All dimensions are in inches.

Dimensions

Two Pass

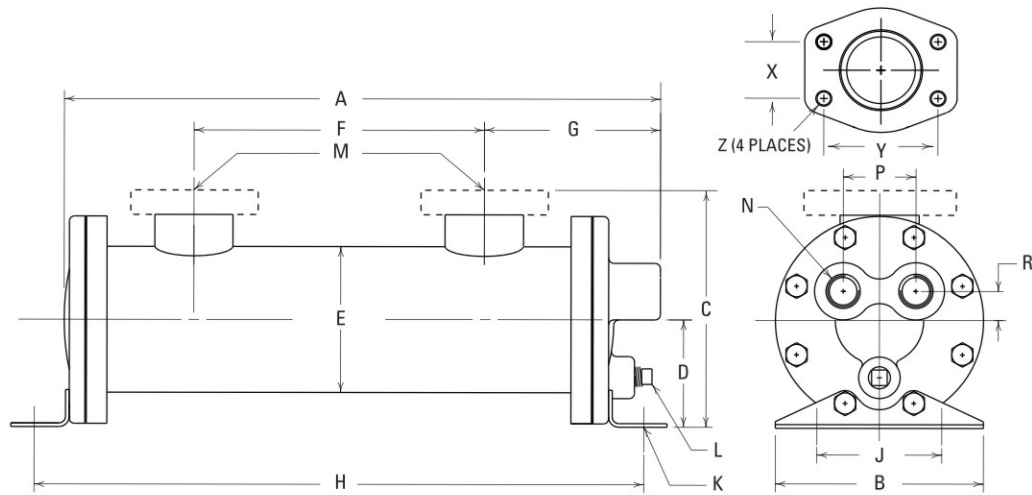


| MODEL | A | B | C | | D | E | F | G | H | J | K | L | M | | | | N | P | | | | | | | | | | | | | |
|---------|-------|----------------------|------------|------------|------|--------------|----------------------|------|-------|------|-------------------------|-------|------------|------------------------|-------|------------|------|------|------------|--------------|------|------|-------|------|--------------------------|---|---|-------|-------|-----|------|
| | | | NPT / BSPP | SAE O-RING | | | | | | | | | SAE FLANGE | BSPP | NPT | SAE O-RING | | | SAE FLANGE | BSPP | | | | | | | | | | | |
| EK-505 | 7.38 | 3.5 MAX. WIDTH | 3.90 | N/A | 1.62 | 2.55 DIA. | 2.19 | 2.59 | 7.44 | 2.50 | .34 x .62 SLOT | N/A | 3/4 | #8 3/4-16 UNF-2B | N/A | 3/4 | 3/4 | | | | | | | | | | | | | | |
| EK-508 | 10.38 | | | | | | 3.85 | | 10.44 | | | | | | | | | | | | | | | | | | | | | | |
| EK-510 | 12.38 | | | | | | 5.85 | | 12.44 | | | | | | | | | | | | | | | | | | | | | | |
| EK-512 | 14.38 | | | | | | 7.85 | | 14.44 | | | | | | | | | | | | | | | | | | | | | | |
| EK-514 | 16.38 | | | | | | 9.85 | | 16.44 | | | | | | | | | | | | | | | | | | | | | | |
| EK-518 | 20.38 | | | | | | 13.85 | | 20.44 | | | | | | | | | | | | | | | | | | | | | | |
| EK-524 | 26.38 | | | | | | 19.85 | | 26.44 | | | | | | | | | | | | | | | | | | | | | | |
| EK-536 | 38.38 | | | | | | 31.85 | | 38.44 | | | | | | | | | | | | | | | | | | | | | | |
| EK-708 | 11.12 | 5.0 MAX. WIDTH | 5.47 | 5.71 | 2.59 | 3.52 DIA. | 3.00 | 4.07 | 10.71 | 3.00 | .44 x .75 SLOT | 1 1/2 | 1 1/2 | 1 1/2 | 1 1/2 | 3/4 | 1.62 | | | | | | | | | | | | | | |
| EK-712 | 15.12 | | | | | | 7.00 | | 14.71 | | | | | | | | | | | | | | | | | | | | | | |
| EK-714 | 17.12 | | | | | | 9.00 | | 16.71 | | | | | | | | | | | | | | | | | | | | | | |
| EK-718 | 21.12 | | | | | | 13.00 | | 20.71 | | | | | | | | | | | | | | | | | | | | | | |
| EK-724 | 27.12 | | | | | | 19.00 | | 26.71 | | | | | | | | | | | | | | | | | | | | | | |
| EK-736 | 39.12 | | | | | | 31.00 | | 38.71 | | | | | | | | | | | | | | | | | | | | | | |
| EK-1012 | 14.58 | | | | | | 6.5 MAX. WIDTH | | 7.64 | | | | | | | | | 8.28 | 4.00 | 5.05 DIA. | 6.18 | 4.57 | 15.45 | 4.00 | .44 x 1.00 SLOT | 2 | 2 | 1 1/2 | 1 1/2 | 1.0 | 2.38 |
| EK-1014 | 16.58 | | | | | | | | | | | | | | | | | | | | 8.18 | | 17.45 | | | | | | | | |
| EK-1018 | 20.58 | 12.18 | 21.45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EK-1024 | 26.58 | 18.18 | 27.45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EK-1036 | 38.58 | 30.18 | 39.45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EK-1048 | 50.58 | 42.18 | 51.45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

NOTE: We reserve the right to make reasonable design changes without notice. All dimensions are in inches.

Dimensions

Four Pass



| Flange Size | 1-1/2 | 2 |
|-------------|-----------------|------|
| X | 1.41 | 1.69 |
| Y | 2.75 | 3.06 |
| EKF Z | 1/2 - 13 UNC-28 | |
| EKFM Z | M-12 | |

| MODEL | A | B | C | | D | E | F | G | H | J | K | L | M | | | | N | P | R |
|---------|-------|----------------------|------------------------|---------------|------|--------------|-------|------|-------|------|-------------------------|-----|-------------------------|---------------|---------------|------|-----|---|---|
| | | | NPT/BSPP SAE O-RING | SAE FLANGE | | | | | | | | | NPT | SAE O-RING | SAE FLANGE | BSPP | | | |
| EK-708 | 10.37 | 5.0 MAX. WIDTH | 5.47 | 5.71 | 2.59 | 3.52 DIA. | 3.00 | 4.25 | 10.71 | 3.00 | .44 x .75 SLOT | 1/4 | 1 1/2 | 1 1/2 | 1/2 | 1.75 | .70 | | |
| EK-712 | 14.37 | | | | | | 7.00 | | 14.71 | | | | | | | | | | |
| EK-714 | 16.37 | | | | | | 9.00 | | 16.71 | | | | | | | | | | |
| EK-718 | 20.37 | | | | | | 13.00 | | 20.71 | | | | | | | | | | |
| EK-724 | 26.37 | | | | | | 19.00 | | 26.71 | | | | | | | | | | |
| EK-736 | 38.37 | | | | | | 31.00 | | 38.71 | | | | | | | | | | |
| EK-1012 | 14.33 | 6.5 MAX. WIDTH | 7.64 | 8.28 | 4.00 | 5.05 DIA. | 6.18 | 4.45 | 15.45 | 4.00 | 1.00 SLOT | 2 | #24 17/8-12 UN-2B | 1 1/2 | 3/4 | 2.50 | .89 | | |
| EK-1014 | 16.33 | | | | | | 8.18 | | 17.45 | | | | | | | | | | |
| EK-1018 | 20.33 | | | | | | 12.18 | | 21.45 | | | | | | | | | | |
| EK-1024 | 26.33 | | | | | | 18.18 | | 27.45 | | | | | | | | | | |
| EK-1036 | 38.33 | | | | | | 30.18 | | 39.45 | | | | | | | | | | |
| EK-1048 | 50.33 | | | | | | 42.18 | | 51.45 | | | | | | | | | | |

NOTE: We reserve the right to make reasonable design changes without notice. All dimensions are in inches.

Selection Procedure 選型步驟

Performance Curves are based on 100SSU oil leaving the cooler 40°F higher than the incoming water temperature (40°F approach temperature).
性能曲線是根據油離開熱交換器時仍高於進口水溫4.4°C為冷卻目標。

Step 1 Determine the Heat Load. This will vary with different systems, but typically coolers are sized to remove 25 to 50% of the input nameplate horsepower. (Example: 100 HP Power Unit x .33 = 33 HP Heat load.)
If BTU/Hr. is known: $HP = \frac{BTU/Hr}{2545}$

額定熱負荷：這會根據不同的系統而改變，但通常冷卻目標是帶走動力源銘牌上標示的功率或馬力的25-50% (例如：100Hp馬力單位 x 0.33 = 33Hp的熱負荷)
如果 BTU/Hr. 是已知數: $HP = \frac{BTU/Hr}{2545}$

Step 2 Determine Approach Temperature.
Desired oil leaving cooler °F – Water Inlet temp. °F = Actual Approach

額定冷卻後要達到的油溫度：期望冷卻後的溫度°C – 進口水溫°C = 實際降溫幅度

Step 3 Determine Curve Horsepower Heat Load. Enter the information from above:

$$HP \text{ heat load} \times \frac{40}{\text{Actual Approach}} \times \frac{\text{Viscosity}}{\text{Correction A}} = \text{Curve Horsepower}$$

釐定熱負荷馬力或功率的曲線。輸入上述資料：

$$HP \text{ 熱負荷} \times \frac{40}{\text{實際降溫幅度}} \times \frac{\text{油粘度}}{\text{修正 A}} = \text{曲線馬力}$$

Step 4 Enter curves at oil flow through cooler and curve horsepower. Any curve above the intersecting point will work.
輸入馬力曲線和流經冷卻器的油流量於性能曲線上，在任何相交點上可找到合適的型號。

Step 5 Determine Oil Pressure Drop from Curves. Multiply pressure drop from curve by correction factor B found on oil viscosity correction curve.

從曲線上額定壓力損失

● = 5 PSI; ■ = 10 PSI; ▲ = 20 PSI.

Oil Temperature

Oil coolers can be selected by using entering or leaving oil temperatures.

Typical operating temperature ranges are:

| | |
|------------------------------|---------------|
| Hydraulic Motor Oil | 110°F - 130°F |
| Hydrostatic Drive Oil | 130°F - 180°F |
| Lube Oil Circuits | 110°F - 130°F |
| Automatic Transmission Fluid | 200°F - 300°F |

Desired Reservoir Temperature

Return Line Cooling: Desired temperature is the oil temperature leaving the cooler. This will be the same temperature that will be found in the reservoir.

Off-Line Recirculation Cooling Loop: Desired temperature is the temperature entering the cooler. In this case, the oil temperature change must be determined so that the actual oil leaving temperature can be found. Calculate the oil temperature change (Oil ΔT) with this formula:

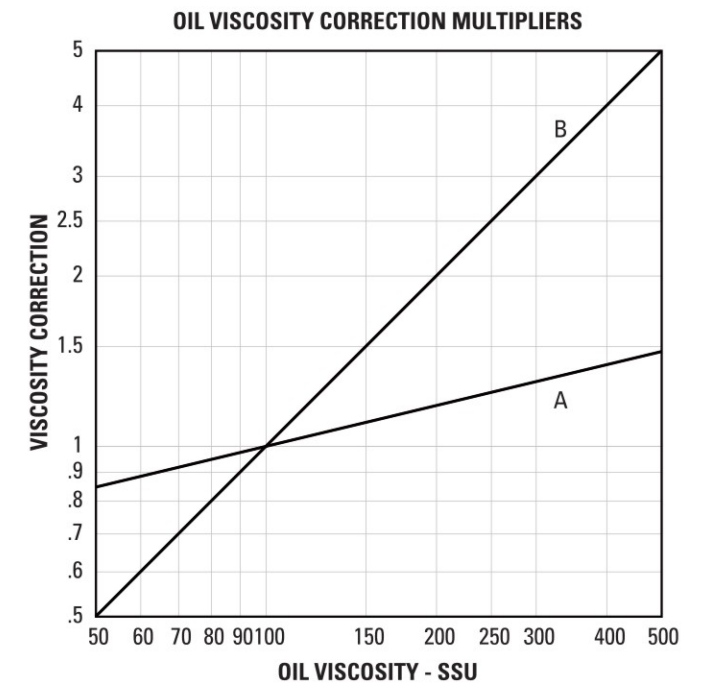
$$\text{Oil } \Delta T = (\text{BTU's/Hr.}) / (\text{GPM Oil Flow} \times 210).$$

To calculate the oil leaving temperature from the cooler, use this formula:

$$\text{Oil Leaving Temperature} = \text{Oil Entering Temperature} - \text{Oil } \Delta T.$$

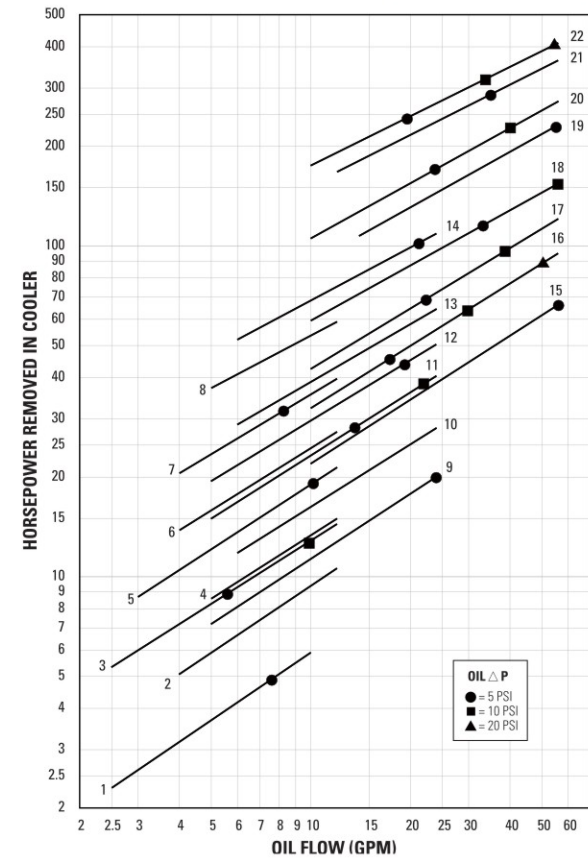
This formula may also be used in any application where the only temperature available is the entering oil temperature.

Oil Pressure Drop: Most systems can tolerate a pressure drop through the heat exchanger of 20 to 30 PSI. Excessive pressure drop should be avoided. Care should be taken to limit pressure drop to 5 PSI or less for case drain applications where high back pressure may damage the pump shaft seals.



Performance Curves

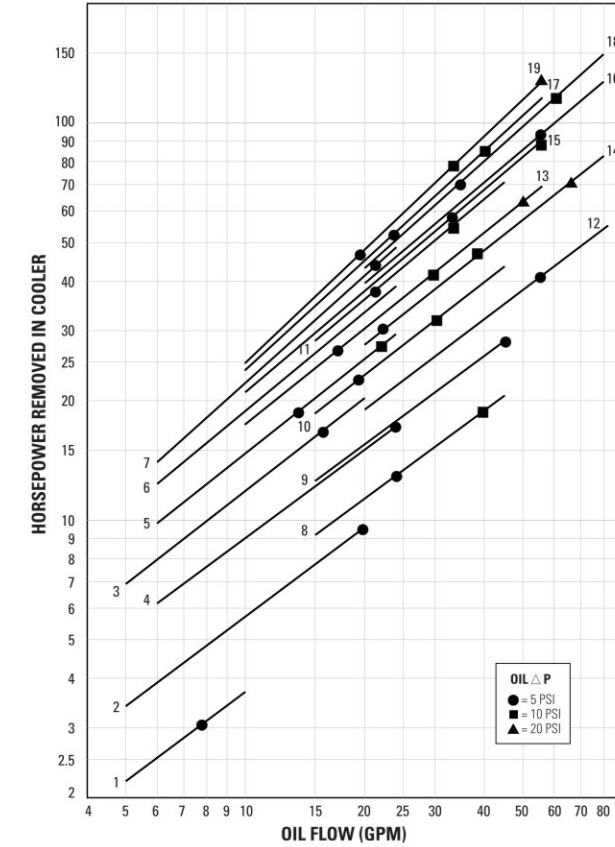
1:1 Oil to Water Ratio – High Water Usage



| Models | Net | Weights (lbs) Approx. Shipping |
|-----------------|-----|-----------------------------------|
| 1. EK-505-0 | 6 | 7 |
| 2. EK-508-0 | 7 | 8 |
| 3. EK-510-0 | 8 | 9 |
| 4. EK-512-0 | 9 | 10 |
| 5. EK-514-0 | 10 | 11 |
| 6. EK-518-0 | 11 | 12 |
| 7. EK-524-0 | 13 | 14 |
| 8. EK-536-0 | 17 | 18 |
| 9. EK-708-0 | 15 | 16 |
| 10. EK-712-0 | 18 | 19 |
| 11. EK-714-0 | 19 | 20 |
| 12. EK-718-0 | 22 | 23 |
| 13. EK-724-0 | 26 | 28 |
| 14. EK-736-0 | 34 | 36 |
| 15. EK-1012-0 | 35 | 37 |
| 16. EK-1014-0 | 38 | 40 |
| 17. EK-1018-0 | 42 | 45 |
| 18. EK-1024-0 | 50 | 55 |
| 19. EK-1036-9-0 | 67 | 85 |
| 20. EK-1036-6-0 | 67 | 85 |
| 21. EK-1048-8-0 | 78 | 95 |
| 22. EK-1048-6-0 | 78 | 95 |

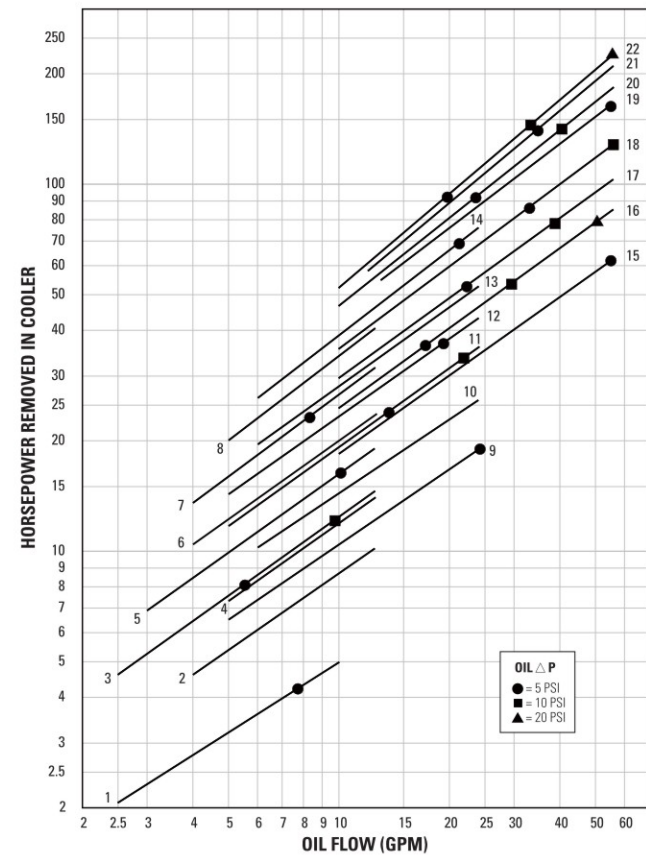
Performance Curves

4:1 Oil to Water Ratio – Low Water Usage



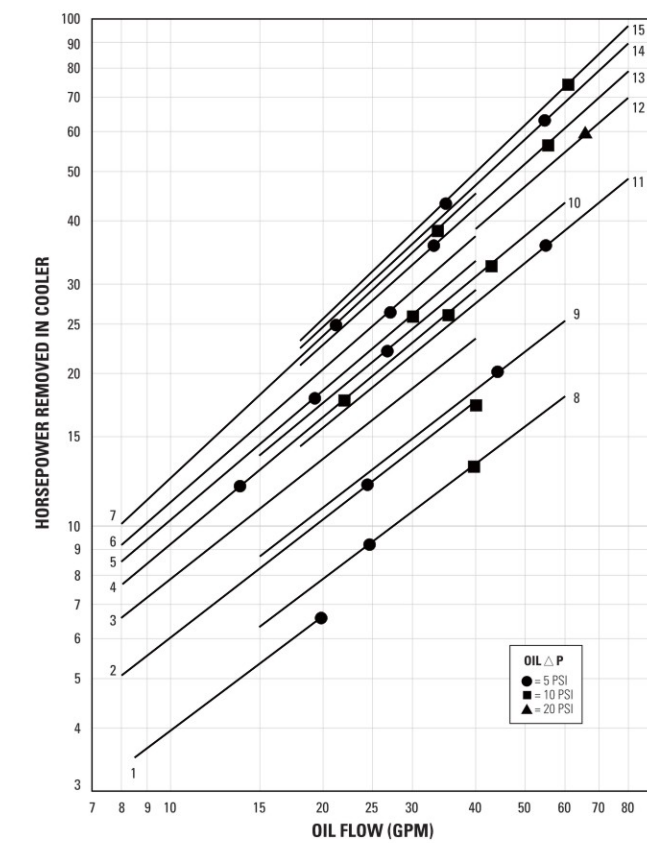
| Models | Net | Weights (lbs) Approx. Shipping |
|-----------------|-----|-----------------------------------|
| 1. EK-505-T | 6 | 7 |
| 2. EK-508-T | 7 | 8 |
| 3. EK-518-T | 11 | 12 |
| 4. EK-708-F | 15 | 16 |
| 5. EK-714-F | 19 | 20 |
| 6. EK-724-F | 26 | 28 |
| 7. EK-736-F | 34 | 36 |
| 8. EK-708-T | 15 | 16 |
| 9. EK-712-T | 18 | 19 |
| 10. EK-718-T | 22 | 23 |
| 11. EK-736-T | 34 | 36 |
| 12. EK-1012-T | 35 | 37 |
| 13. EK-1014-T | 38 | 40 |
| 14. EK-1018-T | 42 | 45 |
| 15. EK-1024-T | 50 | 55 |
| 16. EK-1036-9-T | 67 | 85 |
| 17. EK-1036-6-T | 67 | 85 |
| 18. EK-1048-8-T | 78 | 95 |
| 19. EK-1048-6-T | 78 | 95 |

2:1 Oil to Water Ratio – Medium Water Usage



| Models | Net | Weights (lbs) Approx. Shipping |
|-----------------|-----|-----------------------------------|
| 1. EK-505-T | 6 | 7 |
| 2. EK-508-T | 7 | 8 |
| 3. EK-510-T | 8 | 9 |
| 4. EK-512-T | 9 | 10 |
| 5. EK-514-T | 10 | 11 |
| 6. EK-518-T | 11 | 12 |
| 7. EK-524-T | 13 | 14 |
| 8. EK-536-T | 17 | 18 |
| 9. EK-708-T | 15 | 16 |
| 10. EK-712-T | 18 | 19 |
| 11. EK-714-T | 19 | 20 |
| 12. EK-718-T | 22 | 23 |
| 13. EK-724-T | 26 | 28 |
| 14. EK-736-T | 34 | 36 |
| 15. EK-1012-T | 35 | 37 |
| 16. EK-1014-T | 38 | 40 |
| 17. EK-1018-T | 42 | 45 |
| 18. EK-1024-T | 50 | 55 |
| 19. EK-1036-9-T | 67 | 85 |
| 20. EK-1036-6-T | 67 | 85 |
| 21. EK-1048-8-T | 78 | 95 |
| 22. EK-1048-6-T | 78 | 95 |

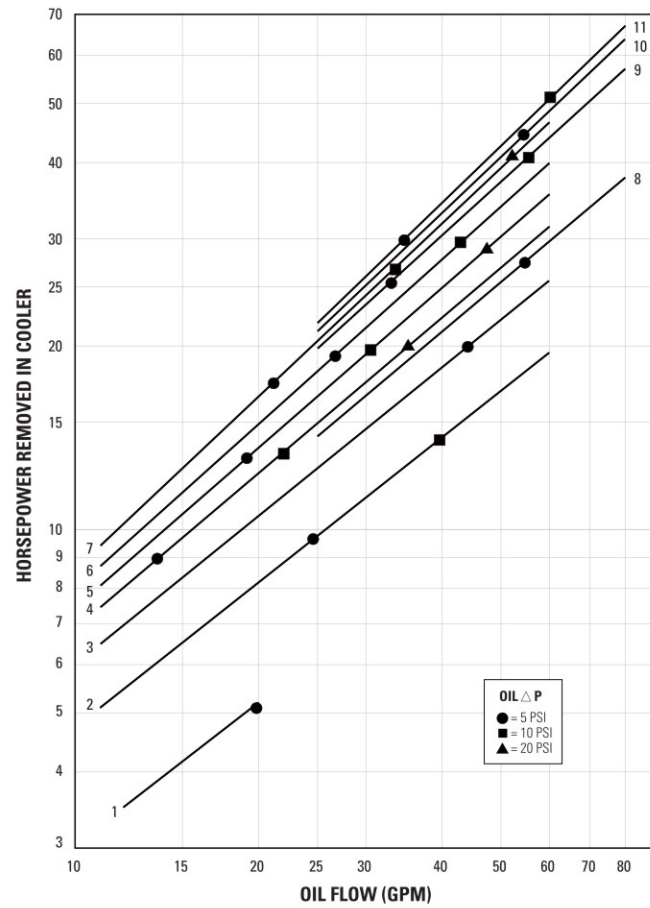
7:1 Oil to Water Ratio – Lower Water Usage



| Models | Net | Weights (lbs) Approx. Shipping |
|-----------------|-----|-----------------------------------|
| 1. EK-508-T | 7 | 8 |
| 2. EK-708-F | 15 | 16 |
| 3. EK-712-F | 18 | 19 |
| 4. EK-714-F | 19 | 20 |
| 5. EK-718-F | 22 | 23 |
| 6. EK-124-F | 26 | 28 |
| 7. EK-736-F | 34 | 36 |
| 8. EK-708-T | 15 | 16 |
| 9. EK-712-T | 18 | 19 |
| 10. EK-724-T | 26 | 28 |
| 11. EK-1012-T | 35 | 37 |
| 12. EK-1018-T | 42 | 45 |
| 13. EK-1024-T | 50 | 55 |
| 14. EK-1036-9-T | 67 | 85 |
| 15. EK-1048-8-T | 78 | 95 |

Performance Curves

10:1 Oil to Water Ratio – Lowest Water Usage



| Models | Net | Weights (lbs) Approx. Shipping |
|-----------------|-----|--------------------------------|
| 1. EK-508-T | 7 | 8 |
| 2. EK-708-F | 15 | 16 |
| 3. EK-712-F | 18 | 19 |
| 4. EK-714-F | 19 | 20 |
| 5. EK-718-F | 22 | 23 |
| 6. EK-724-F | 26 | 28 |
| 7. EK-736-F | 34 | 36 |
| 8. EK-1012-F | 35 | 37 |
| 9. EK-1014-F | 50 | 55 |
| 10. EK-1036-9-F | 67 | 85 |
| 11. EK-1048-8-F | 78 | 95 |

Recirculation Loop

Water Cooled Hydraulic Oil Coolers

BASIS:

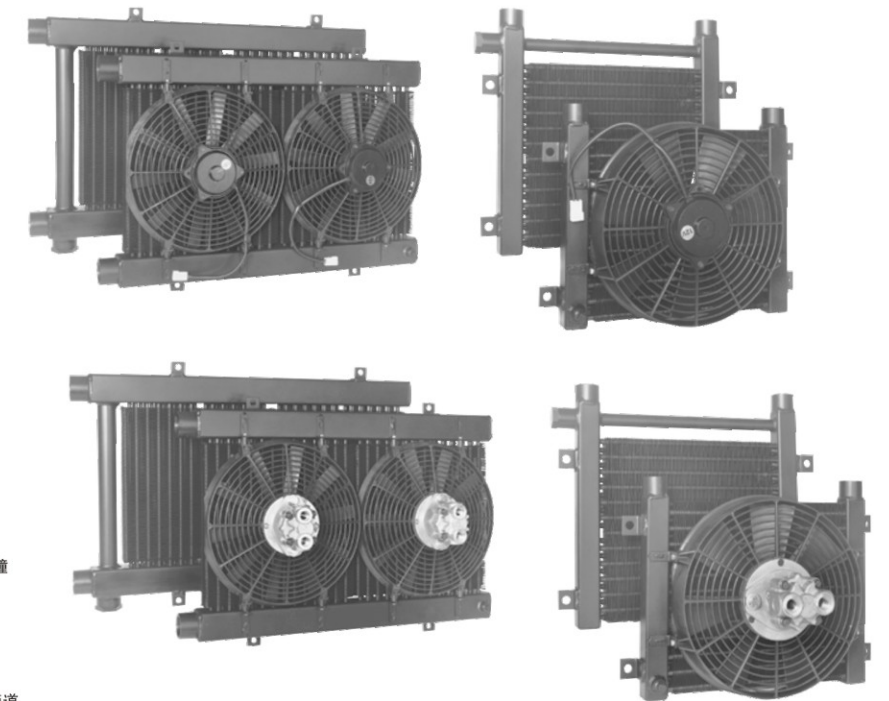
- 40°F Entering temperature difference (Maintain reservoir 40°F above the incoming water temperature)
- Heat removal 30% of input horsepower
- Hydraulic system flow (GPM) x 3 = Gallons; reservoir size
- 1 GPM cooler flow per HP heat to be removed
- Turn-over reservoir 3-4 times per hour
- Maximum flows

| System Horsepower | HP Heat Load | Minimum Required GPM Oil Flow | Minimum Required GPM Water Flow | Heat Exchanger Model Number |
|-------------------|--------------|-------------------------------|---------------------------------|-----------------------------|
| 3 | .9 | 1 | 1 | EK-505-T |
| 5 | 1.5 | 2 | | |
| 7.5 | 2.25 | 3 | | |
| 10 | 3 | 3 | 1.5 | EK-512-T |
| 15 | 4.5 | 4.5 | 2 | |
| 20 | 6 | 6 | 3 | |
| 25 | 7.5 | 7.5 | 4 | EK-712-T |
| 30 | 9 | 9 | 4.5 | |
| 40 | 12 | 12 | 6 | |
| 50 | 15 | 15 | 7.5 | EK-1012-T |
| 60 | 18 | 18 | 9 | |
| 75 | 22.5 | 23 | 12 | |
| 100 | 30 | 30 | 15 | |

熱交換器 | Mobile MF Series 移動式MF系列

Features 優點

- Same as M Series with DC Fan or Hydraulic Motor
在M系列基礎上加上直流風扇或者液壓馬達
- 3/8" Tube Size 3/8"列管
- Aluminum Fins 鋁散熱片
- Low AMP Draw 12 or 24 Volt DC Motor
低電流供給12或24V直流馬達
- Heavy Duty Construction 重載結構
- Optional Serviceable Relief Bypass Valve 備選內置旁通泄壓閥
- Optional Fan Control Switch 備選風扇控制開關
- Long Life Hydraulic Motors 液壓馬達, 壽命更長
- Heat Removal TO 50,000 BTU/Hr.
能移走熱能達50,000 BTU/小時。
- Oil Flows to 150 GPM 油流量達 150 公升/分鐘
- Mounting Brackets Included 附固定支架
- SAE, NPT or 37° Flare Oil Connections
SAE, NPT或37° 彎頭油接口
- Rugged Steel Manifolds 粗壯的鋼結構和油路管道



Ratings 範圍

Operating Pressure 300 psi
工作壓力 21kg/cm²

Operating Temperature 350° F
工作溫度 177C°

Materials 材料

- Tubes Copper 列管 銅
- Fins Aluminum 散熱片 鋁
- Turbulators Steel 滿流器 鋼
- Manifolds Steel 油路接口 鋼

Fan Assembly High Impact Plastic
風扇機構 高抗衝擊塑料

Motor Displacement .22in³/Rev. (Hydraulic)
馬達排量 .22in³/Rev. (Hydraulic)

Maximum Pressure 2000 PSI (Hydraulic)
最大壓力 2000 PSI (Hydraulic)

Allowable Backpressure 1000 PSI (Hydraulic)
容許背壓 1000 PSI (Hydraulic)

Relief Bypass Valve Option 備選內置旁通泄壓閥

MODEL DESCRIPTION
型號 說明

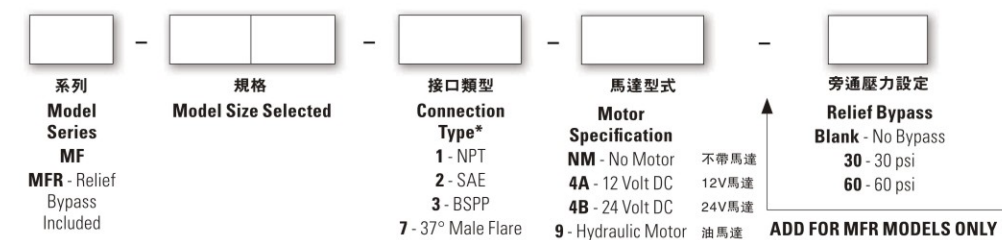
MFR-15 3/4", external, all steel valve. Available in either 30 PSI or 60 PSI settings. May be removed for servicing.

MFR-30 1-1/2", external, all steel valve. Available in either 30 PSI or 60 PSI settings. May be removed for servicing.

| Number of Fans | DC current required | | Hydraulic Motor Data | | |
|----------------|---------------------|-----------|-------------------------|----------------------------------|-------------------------|
| | 12 Volt | 24 Volt | Oil Flow Required (GPM) | Minimum Operating Pressure (PSI) | Maximum Fan Speed (RPM) |
| 1 | 12.5 amps | 6.3 amps | 2.1 | 300 | 2200 |
| 2 | 25 amps | 12.6 amps | 4.2 | 300 | 2200 |

選型指南

How to Order

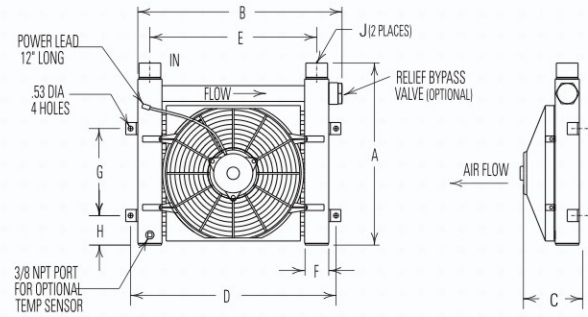


*Other connection types available. Please consult factory for assistance.

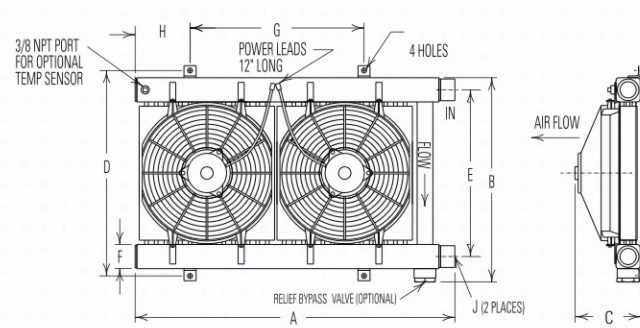
TTPSales@thermasys.com 262.554.8330 www.thermaltransfer.com

Dimensions - 12 & 24 Volt DC Motors

Models MF-15 and MF-30



Model MF-60

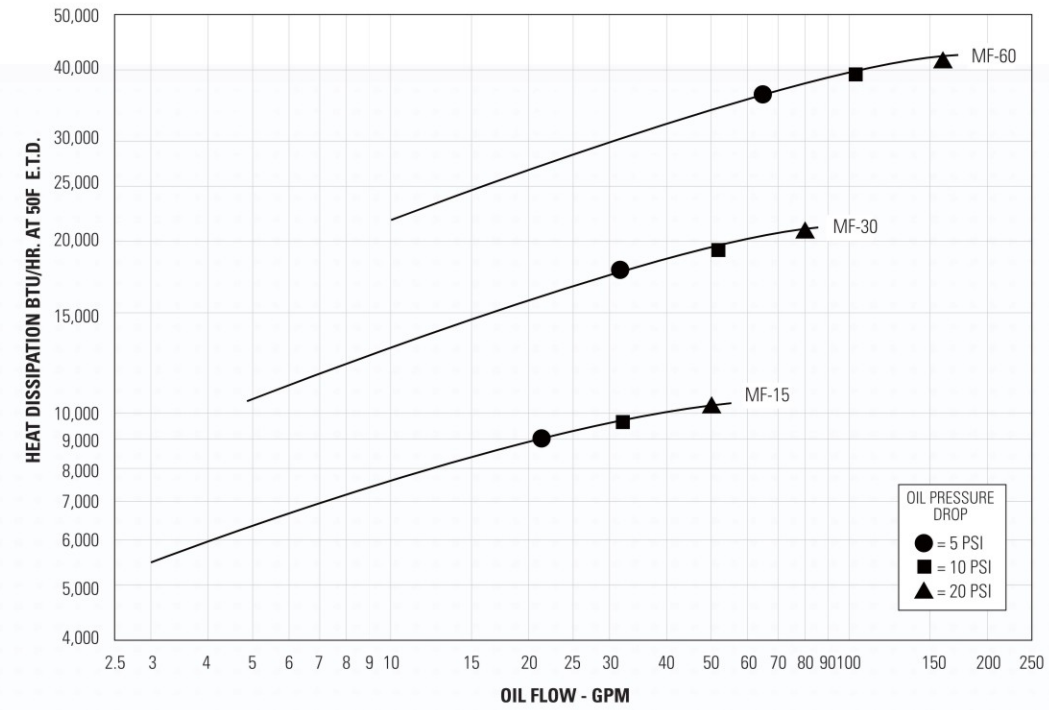


Units shown with optional bypass valve

| MODEL | A | | B | | C | D | E | F | G | H | J | | SHIPPING WEIGHT |
|-------|-------|-------|-------|-------|------|-------|-------|---------|------|------|------|-----|-----------------|
| | MF | MFR | MF | MFR | | | | | | | NPT | SAE | |
| MF-15 | 13.88 | 15.88 | 15.75 | 17.41 | 4.99 | 17.25 | 14.25 | 1.50 SQ | 9.00 | 1.88 | 1.00 | #16 | 27 |
| MF-30 | 16.58 | 18.83 | 19.75 | 21.12 | 6.10 | 21.25 | 17.25 | 2.50 SQ | | 3.06 | 1.50 | #24 | 41 |
| MF-60 | 30.83 | 33.08 | | | | | | | 5.68 | 78 | | | |

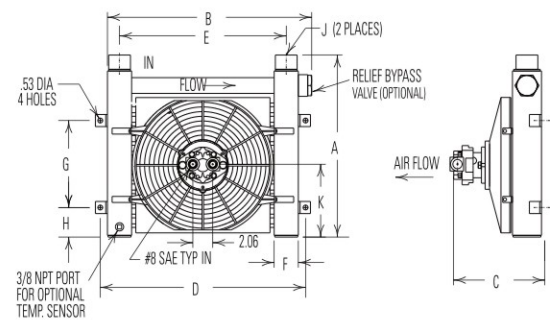
Note: All dimensions are in inches. We reserve the right to make reasonable design changes without notice. *Inlet and outlet oil connections can be reversed when the bypass valve is not used.

Performance Curves

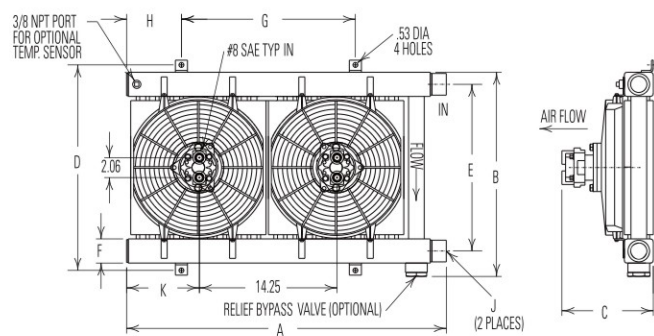


Dimensions - Hydraulic Motors

Models MF-15 and MF-30



Model MF-60



Units shown with optional bypass valve

| MODEL | A | | B | | C | D | E | F | G | H | J | | SHIPPING WEIGHT |
|-------|-------|-------|-------|-------|------|-------|-------|---------|------|------|------|-----|-----------------|
| | MF | MFR | MF | MFR | | | | | | | NPT | SAE | |
| MF-15 | 13.88 | 15.88 | 15.75 | 17.41 | 7.87 | 17.25 | 14.25 | 1.50 SQ | 9.00 | 1.88 | 1.00 | #16 | 27 |
| MF-30 | 16.58 | 18.83 | 19.75 | 21.12 | 8.96 | 21.25 | 17.25 | 2.50 SQ | | 3.06 | 1.50 | #24 | 41 |
| MF-60 | 30.83 | 33.08 | | | | | | | 5.68 | 78 | | | |

Note: All dimensions are in inches. We reserve the right to make reasonable design changes without notice. *Inlet and outlet oil connections can be reversed when the bypass valve is not used.

Selection Procedure

Performance Curves are based on 50 SSU oil entering the cooler 50°F higher than the ambient air temperature used for cooling. This is referred to as a 50°F E.T.D.

Step 1 Determine the Heat Load. Heat load may be expressed as either horsepower or BTU/Hr. To convert horsepower to BTU/Hr.:
 $BTU/HR = \text{Horsepower} \times 2545$

Step 2 Determine Entering Temperature Difference. The entering oil temperature is generally the maximum desired oil temperature.
 Entering oil temperature – Ambient air temperature = E.T.D.

Step 3 Determine the Corrected Heat Dissipation to use the curves.
 $\text{Corrected Heat Dissipation} = \text{BTU/HR heat load} \times \frac{50^\circ\text{F} \times C_v}{\text{E.T.D.}}$

Step 4 Enter curves at oil flow through cooler and curve heat dissipation. Any curve above the intersecting point will work.

Step 5 Determine Oil Pressure Drop from Curves:
 ● = 5 PSI; ■ = 10 PSI; ▲ = 20 PSI. Multiply pressure drop from curve by correction factor found in oil ΔP correction curve.

Oil Temperature

Typical operating temperature ranges are:
 Hydraulic Motor Oil 120°F - 180°F
 Hydrostatic Drive Oil 160°F - 180°F
 Engine Lube Oil 180°F - 200°F
 Automatic Transmission Fluid 200°F - 300°F

C_v Viscosity Correction

| Average Oil Temp °F | OIL | | | | |
|---------------------|--|---|---|---|---|
| | SAE 5 110 SSU at 100°F 40 SSU at 210°F | SAE 10 150 SSU at 100°F 43 SSU at 210°F | SAE 20 275 SSU at 100°F 50 SSU at 210°F | SAE 30 500 SSU at 100°F 65 SSU at 210°F | SAE 40 750 SSU at 100°F 75 SSU at 210°F |
| 100 | 1.14 | 1.22 | 1.35 | 1.58 | 1.77 |
| 150 | 1.01 | 1.05 | 1.11 | 1.21 | 1.31 |
| 200 | .99 | 1.00 | 1.01 | 1.08 | 1.10 |
| 250 | .95 | .98 | .99 | 1.00 | 1.00 |

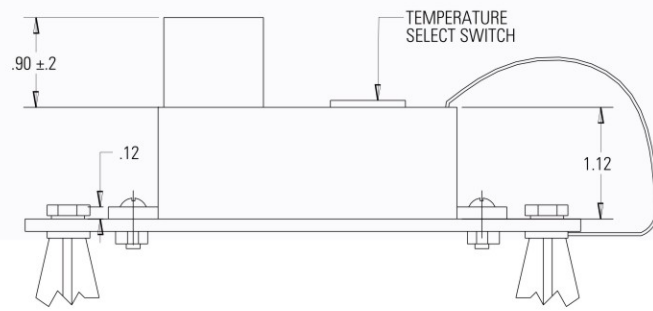
Thermostatic Temperature Control Option (DC)

This controller was designed to mount on the cooler without requiring extensive wiring or plumbing. It provides accurate temperature control by cycling the cooling fan(s) to maintain desired oil temperature.

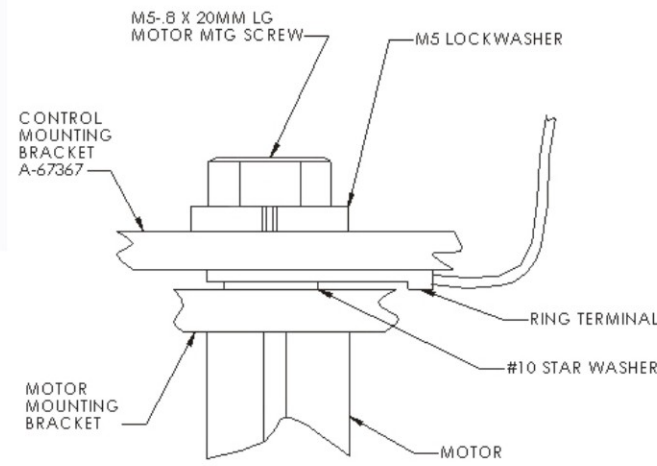
- 12 or 24 volt operation
- Adjustable temperature settings range from 100°F thru 210°F in 20°F increments
- For use with one or two fan models
- Temperature sensor provided
- Wiring provided for remote manual override
- Mounting hardware included

| Part Number | Description |
|-------------|----------------------------|
| 96171 | Electronic Fan Control Kit |
| 68790 | Replacement Control Only |
| 67699 | Replacement Sensor Only |

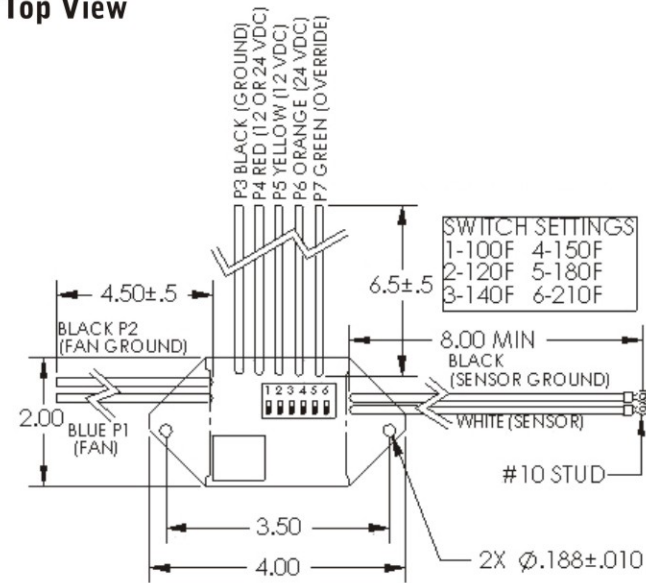
Side View



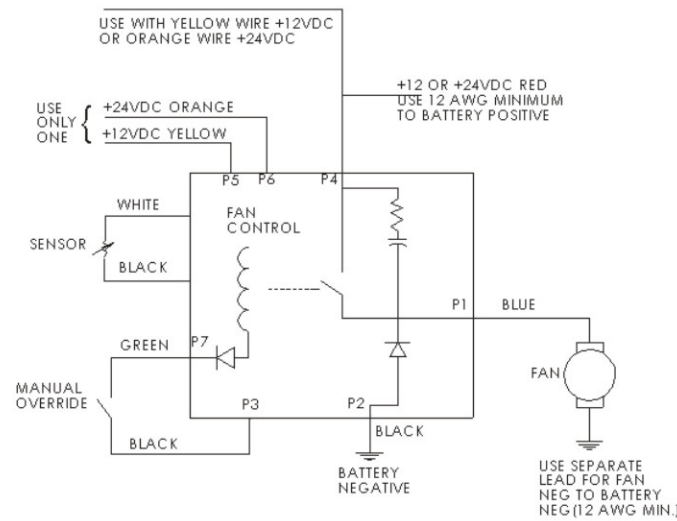
Connection Assembly



Top View



Electrical Schematic

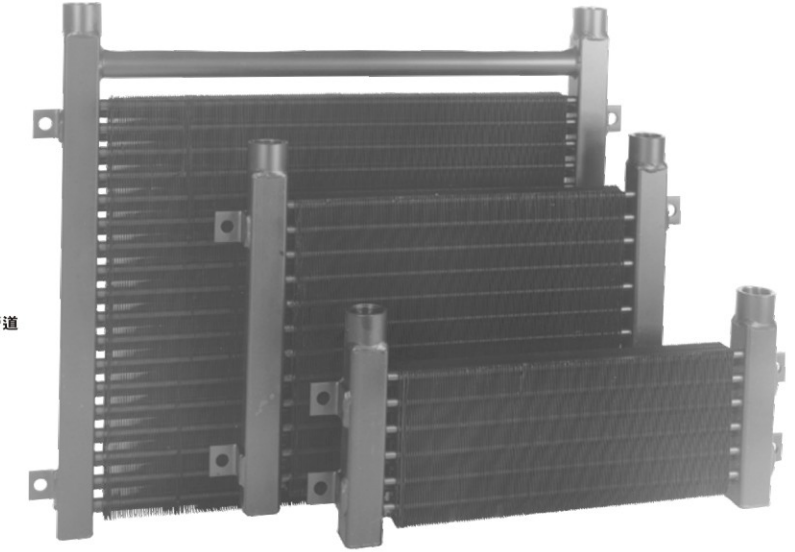


NOTE: This switch should be fused to prevent damage if ground is lost. A 30 amp fuse is required in the power supply.

熱交換器 | Mobile M Series 移動式M系列

Features 優點

- **High Strength Construction** 高強度結構
- **3/8" Tube Size** 3/8"列管
- **Eliminate Piping, Reduce Cost with** 減少接口, 節省成本
- **Optional Built-in Relief Bypass** 備選內置旁通泄壓閥
- **Aluminum Fins** 鋁製散熱片
- **Rugged Steel Manifolds** 粗壯的鋼結構和油路管道
- Heat Removal up to 90,000 BTU/Hr. 能移走熱能達90,000 BTU/小時
- Oil Flows to 100 GPM 油流量達375公升/分鐘
- Mounting Brackets Included 附固定支架
- SAE, NPT or 37° Flair Oil Connections SAE, NPT或37° 彎頭油接口



Ratings 範圍

Operating Pressure 300 psi
工作壓力 21kg/cm²

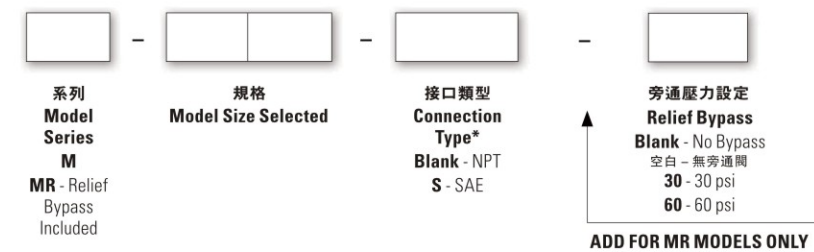
Test Pressure 300 psi
測試壓力 21kg/cm²

Operating Temperature 400° F
工作溫度 204C°

Materials 材料

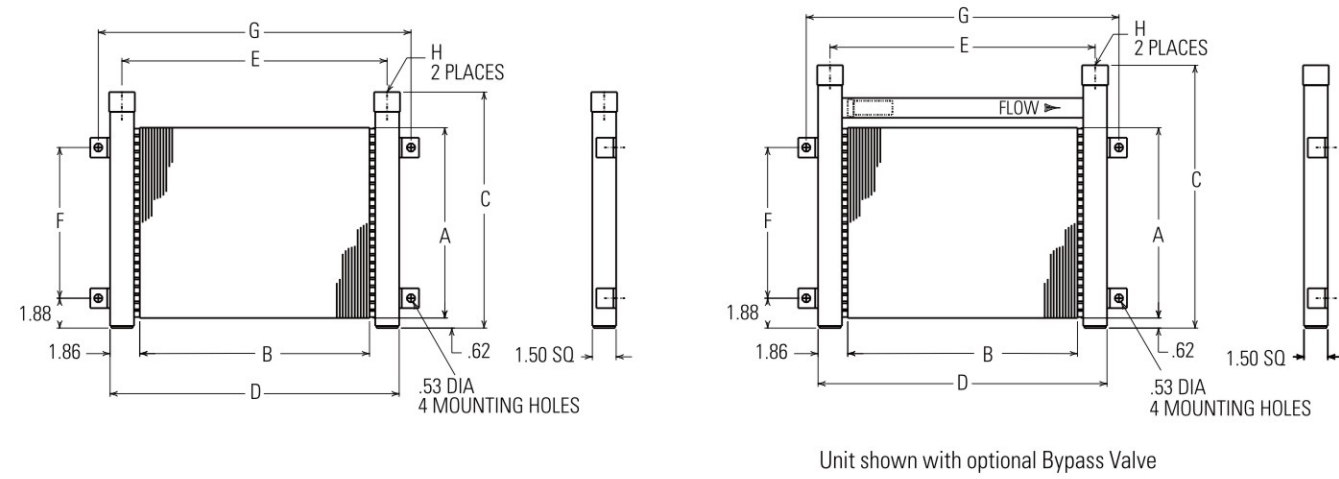
| | | |
|---------------------------|------|---|
| Tubes Copper | 列管 | 銅 |
| Fins Aluminum | 散熱片 | 鋁 |
| Turbulators Steel | 湍流器 | 鋼 |
| Manifolds Steel | 油路接口 | 鋼 |
| Relief Valve Steel | 泄壓閥 | 鋼 |
| Connections Steel | 接頭 | 鋼 |

選型指南 How to Order



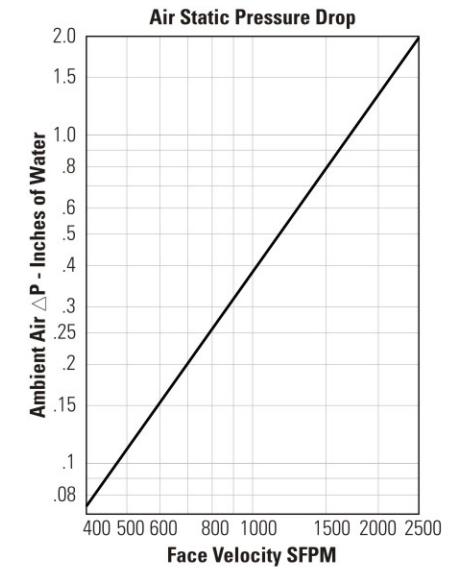
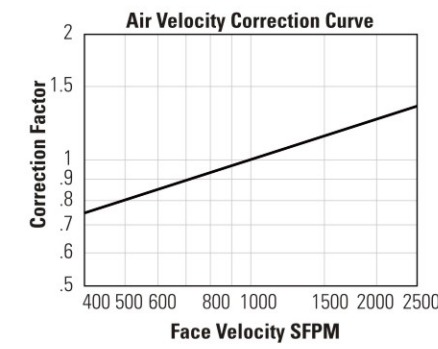
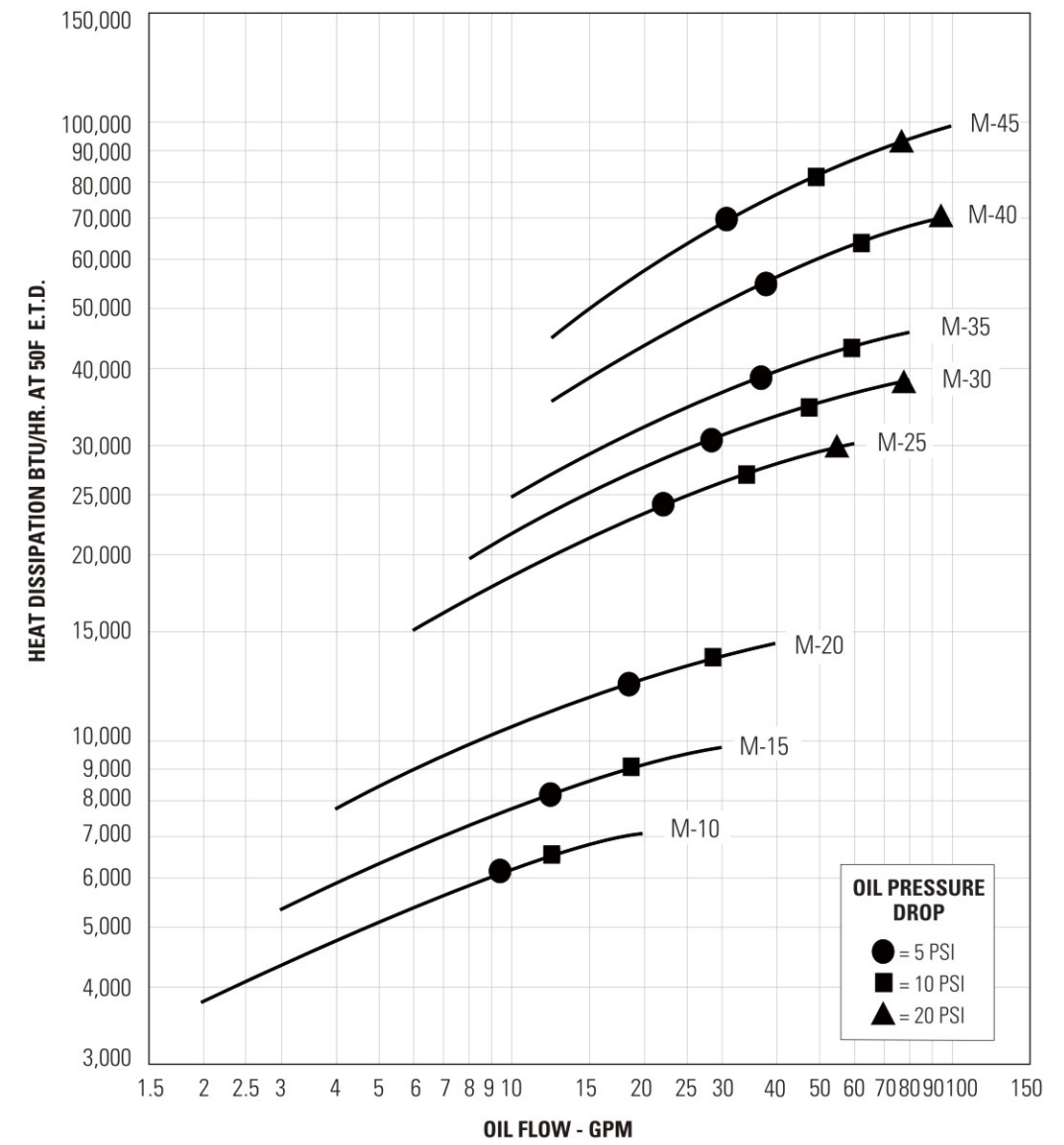
*Other connection types available. Please consult factory for assistance.

Dimensions & Weights



| Model | A | B | C | | D | E | F | G | H | | Face Area (Sq. Ft.) | Shipping Weight Lbs. |
|-------|-------|-------|----------|-----------|-------|-------|-------|-------|------|-----|---------------------|----------------------|
| | | | M Series | MR Series | | | | | NPT | SAE | | |
| M-10 | 6.00 | 14.50 | 8.88 | 10.56 | 18.22 | 16.72 | 3.50 | 19.72 | 1.00 | #16 | .60 | 11 |
| M-15 | 8.00 | | 10.88 | 12.56 | | | 5.50 | | | | .81 | 12 |
| M-20 | 12.00 | | 14.88 | 16.56 | | | 9.50 | | | | 1.21 | 16 |
| M-25 | 18.00 | 20.50 | 20.88 | 22.56 | 24.22 | 22.72 | 15.50 | 25.72 | 1.25 | #20 | 2.56 | 28 |
| M-30 | 24.00 | 19.50 | 26.88 | 28.62 | 23.22 | 21.72 | 21.50 | 24.72 | | | 3.25 | 34 |
| M-35 | 30.00 | | 32.88 | 34.62 | | | 27.50 | 4.06 | | | 40 | |
| M-40 | 36.00 | 25.00 | 38.62 | 40.69 | 28.72 | 27.22 | 33.50 | 30.22 | 1.25 | #20 | 6.25 | 56 |
| M-45 | | 35.50 | | | | | | 39.22 | | | 37.72 | 40.72 |

Performance Curves



Selection Procedure 選型步驟

Performance Curves are based on 50 SSU oil, 1000 Standard Feet per Minute (SFPM) Air Velocity, and a 50°F Entering Temperature Difference (E.T.D.) E.T.D. = Entering oil temperature - Ambient air temperature

性能曲線是根據50SSU油及每分鐘1000標準尺的風速(表面線速度英尺/分鐘)和冷卻後10C°的溫差 = 進口油溫 - 環境溫度。

Step 1 Determine Heat Load: Heat load may be expressed as either Horsepower or BTU/Hr. To convert Horsepower to BTU/Hr: BTU/Hr. = Horsepower x 2545
 額定熱負荷: 熱負荷將是馬力或BTU(英國熱量單位)/小時, 轉換馬力單位至BTU/小時的計算方式: BTU/小時 = 馬力 x 2545

Step 2 Calculate entering temperature difference: The entering oil temperature is generally the maximum desired oil temperature. E.T.D. = Entering oil temperature - Ambient air temperature
 計算進出口油溫差: 進口油溫通常被默認為最高油溫。
 冷卻後的溫差 = 進口油溫 - 環境溫度

Step 3 Determine Air Velocity Correction Factor:
 A. If SFPM (Standard Feet per Minute) air velocity is known, read value from curve above. A reasonable assumption for this value is 750 SFPM.
 B. If SCFM (Standard Cubic Feet per Minute) air flow is known, calculate velocity as follows:

$$\text{SFPM Air Velocity} = \frac{\text{SCFM Air Flow}}{\text{F}^2 \text{ Face Area of Cooler}}$$

額定風速修正因素:
 A. 如果表面線速度(英尺/分鐘)的風速是已知數, 然後從上表曲線找出的讀數。以1個合理的假定值是非英尺/分鐘。
 B. 如果SCFM(標準立方英尺/分鐘)的風速是已知數, 計速率方式如下:
 (標準立方英尺/分鐘)的風速 / (英尺/分鐘)的風 = 平方英尺 冷卻器的表面面積

Step 4 Calculate corrected heat load to enter curves:

$$\text{Corrected Heat Dissipation} = \frac{\text{BTU/Hr. (Heat Load)}}{\text{Desired E.T.D.}} \times \frac{50^\circ\text{F} \times \text{Cv}}{\text{Air Velocity Correction Factor}}$$

將修正的熱負荷代入曲線負:

$$\text{修正後的散熱數據} = \frac{\text{BTU/小時 熱負荷}}{\text{期望冷卻後的溫差}} \times \text{風速修正因素}$$

C_v Viscosity Correction

| Average Oil Temp °F | OIL | | | | |
|---------------------|--|---|---|---|---|
| | SAE 5 110 SSU at 100°F 40 SSU at 210°F | SAE 10 150 SSU at 100°F 43 SSU at 210°F | SAE 20 275 SSU at 100°F 50 SSU at 210°F | SAE 30 500 SSU at 100°F 65 SSU at 210°F | SAE 40 750 SSU at 100°F 75 SSU at 210°F |
| 100 | 1.14 | 1.22 | 1.35 | 1.58 | 1.77 |
| 150 | 1.01 | 1.05 | 1.11 | 1.21 | 1.31 |
| 200 | .99 | 1.00 | 1.01 | 1.08 | 1.10 |
| 250 | .95 | .98 | .99 | 1.00 | 1.00 |

Desired Reservoir Temperature

Return Line Cooling: Desired temperature is the oil temperature leaving the cooler. This will be the same temperature that will be found in the reservoir.

Off-Line Recirculation Cooling Loop: Desired temperature is the oil temperature entering the cooler. In this case, the oil temperature change must be determined so that the actual oil leaving temperature can be found. Calculate the oil temperature change (oil Δ T) with this formula:

$$\text{Oil } \Delta T = (\text{BTU's/Hr.}) / (\text{GPM Oil Flow} \times 210)$$

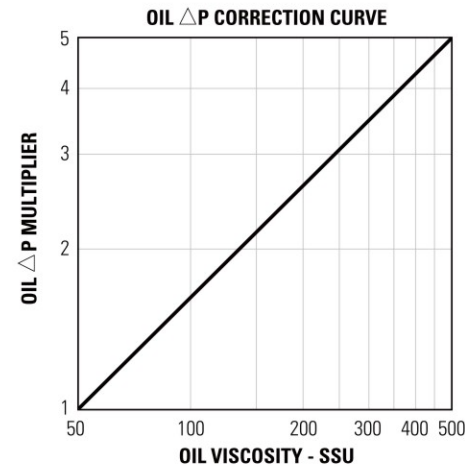
To calculate the oil leaving temperature from the cooler, use this formula:
 Oil Leaving Temp. = Oil Entering Temp - Oil Δ T.

This formula may also be used in any application where the only temperature available is the entering oil temperature.

Step 5 Enter the Performance Curves at the bottom with the GPM oil flow and proceed upward to the adjusted heat load from Step 4. Any curve on or above this point will meet these conditions.
 輸入性能曲線 於下表和油流量及和步驟4 修正後的熱負荷, 上曲線任何相交點或以上的均合適。

Step 6 Multiply oil Pressure Drop from curve by correction factor found in Oil Δ P Correction Curve.

壓力降的倍數 由曲線的修正因素找出油的壓力差 Δ P 的修正因素。

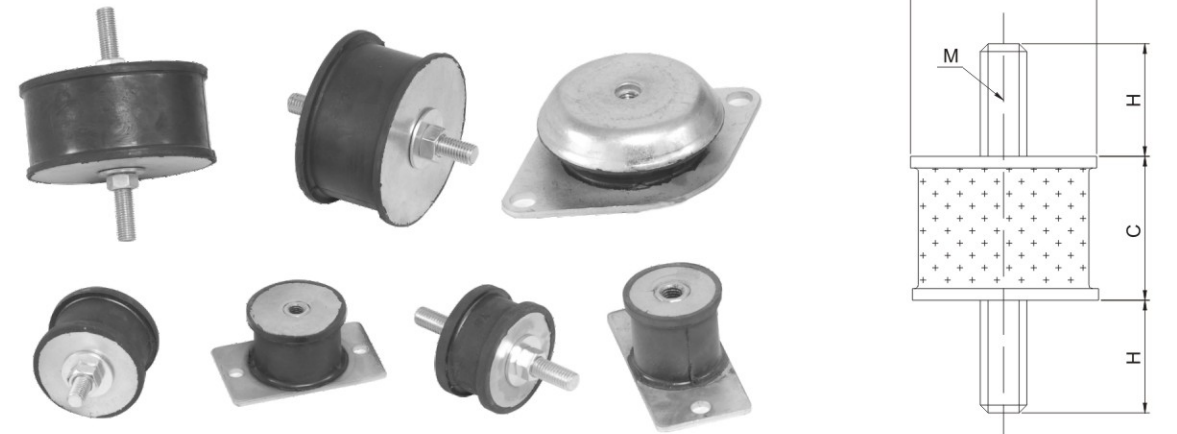


大中華總代理

臺灣YS 和 [®]STI 系列電馬達避震腳

臺灣電馬達避震器, 結構簡單, 目前已大量使用于各類型機械設備上, 能有效解決噪音及震動問題, 送風機、馬達、壓縮機、引擎、齒輪箱和電控制箱等均可使用。

- 橡膠材質均以丁基橡膠為主, 如果顧客需要耐油膠時, 請務必事先說明
- 降低噪音2~3分貝, 減低震幅70%



規格表

單位:mm

| 規格 MODEL | D | C | H | M | 荷重 Static Load (kgs) |
|-------------|-----|----|---------|-----|----------------------|
| YS-12I (M4) | 16 | 15 | 12 / 16 | M4 | 6 ~ 13 |
| YS-12I (M5) | 16 | 15 | 12 / 16 | M5 | 6 ~ 13 |
| YS-12I (M6) | 16 | 15 | 12 / 16 | M6 | 6 ~ 13 |
| YS-20I | 20 | 15 | 16 | M6 | 10 ~ 12 |
| YS-25I (S) | 25 | 18 | 16 / 18 | M6 | 13 ~ 25 |
| YS-25I (L) | 25 | 34 | 18 | M6 | 10 ~ 20 |
| YS-45I (S) | 32 | 30 | 22 | M8 | 20 ~ 50 |
| YS-45I (L) | 32 | 37 | 15 / 22 | M10 | 20 ~ 50 |
| YS-70I (S) | 40 | 25 | 32 | M10 | 40 ~ 75 |
| YS-70I (L) | 40 | 37 | 32 | M10 | 40 ~ 75 |
| YS-115I | 54 | 30 | 32 | M10 | 50 ~ 130 |
| YS-325I | 72 | 45 | 32 | M12 | 130 ~ 330 |
| YS-595I | 112 | 60 | 36 | M14 | 330 ~ 660 |
| YS-995I | 158 | 75 | 60 | M16 | 600 ~ 1200 |