American Industrial
Heat Transfer Inc.

Manufacturers of Quality Heat Exchangers

EOC SERIES

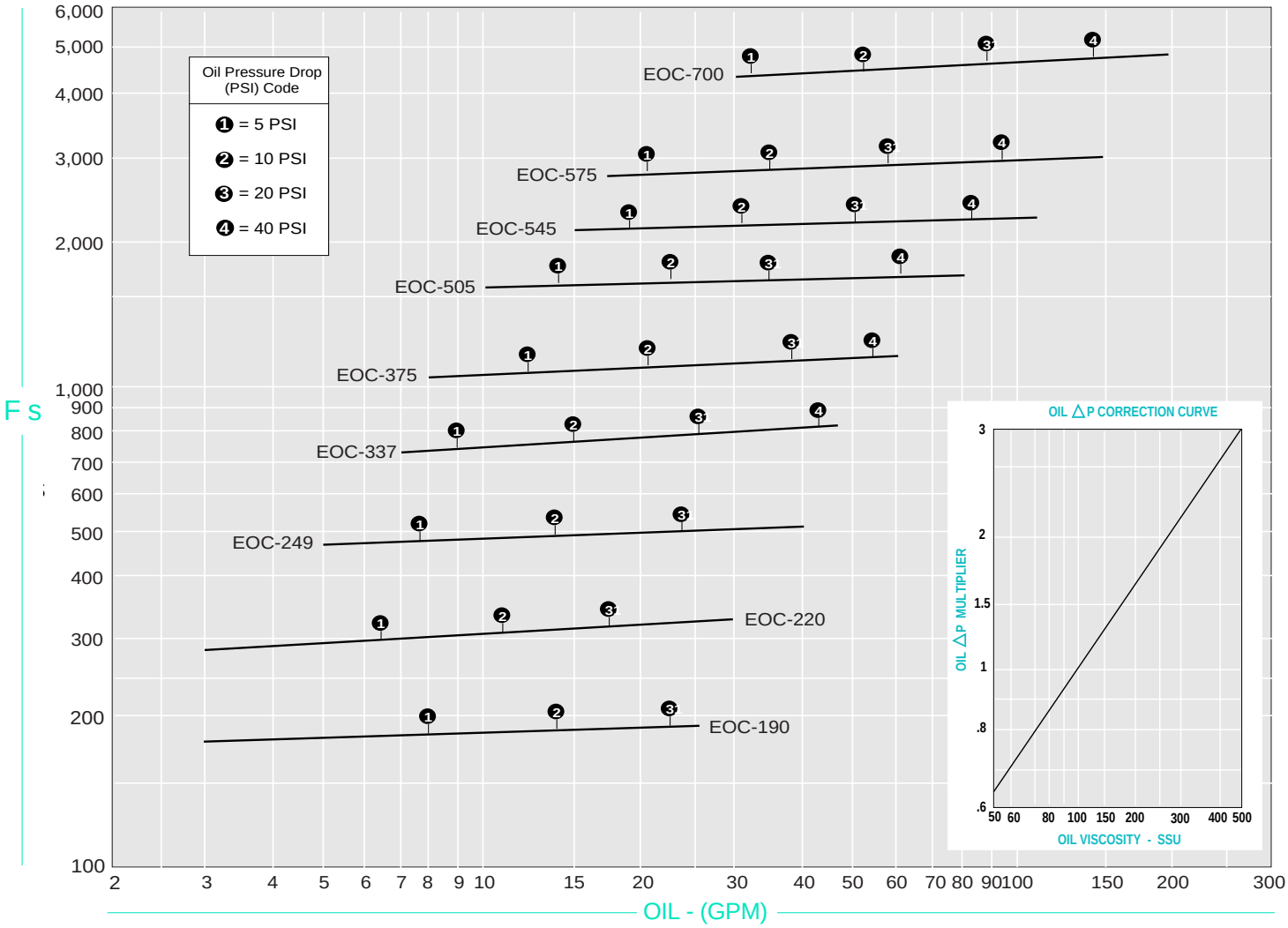
Hydraulic

With Filter

INDUSTRIAL & MOBILE
AIR COOLED
OIL COOLERS

- Economical, industrial grade, quiet operation.
- Standard NPT or SAE models in stock.
- AC - DC or hydraulic fan drives.
- High quality serviceable air filter.
- Operating temperature of 400°F & pressure of 300 PSI.
- Can be customized to fit your needs.
- Fan partition for single fan service on dual fan units.
- Optional: Built-in bypass relief valve.
- Adjustable mounting brackets included for easy installation.
- Cools: fluid power systems, injection molding machines, hydraulic presses, gear drives, torque convertors, machine tools, etc...
- Visit our Web Site at www.aihti.com

PERFORMANCE



SIZING

The performance curves provided are for petroleum oil at 100 ssu viscosity. However, fluids with characteristics other than the above mentioned may be used by applying a correction factor.

Heat Load

If the heat load is unknown, a horsepower value can be calculated by first determining the systems total potential. For a basic hydraulic system, it is helpful to know whether the system is open loop (with a large reservoir) or closed loop (normally on mobile equipment, with a very small reservoir). System potentials may be calculated quickly by using one of the two methods below.

Method 1.

Normally used for open loop circuits. Multiply the main hydraulic systems Electric Motor Name plate Horsepower by a heat removal factor (normally 30-50%).

Example: 50 HP motor x 0.3 = 15 HP heat load

Method 2.

Normally used when the HP input potential is unknown or for mobile applications where diesel engines operate the entire system. Multiply system pressure by the flow rate of the main system divided by 1714 equals system potential (HP). Multiply the system HP by a heat removal factor (Normally 25-35%). Note: In some closed loop systems only a portion of the total system flow is directed through the heat exchanger, this may affect the cooler selection process substantially. You may contact our factory for additional technical assistance.

Example: $\frac{(2000 \text{ psi} \times 30 \text{ gpm})}{1714} = [35 \text{ HP} \times .25] = 8.75 \text{ HP heat load}$

Determining Fs value.

To determine the proper size heat exchanger for your application, use the following equation to first determine the (Fs) factor.

$$Fs = \frac{\{\text{heat load (HP)} \times 2545 \times Cv\}}{\{\text{F (oil leaving - air entering)}\}}$$

Example:
Heat load = 8.75 HP
Cv = 1.1 (150 ssu) determined from chart. [Located on page 4.]
Desired operating temperature = 140 °F
Ambient air temp. = 100 °F

$$Fs = \frac{\{8.75 \times 2545 \times 1.1\}}{\{140\ ^{o}F - 100\ ^{o}F\}} = 618$$

Selection

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

Example: Fs = 618 = Model = EOC-337
GPM = 30

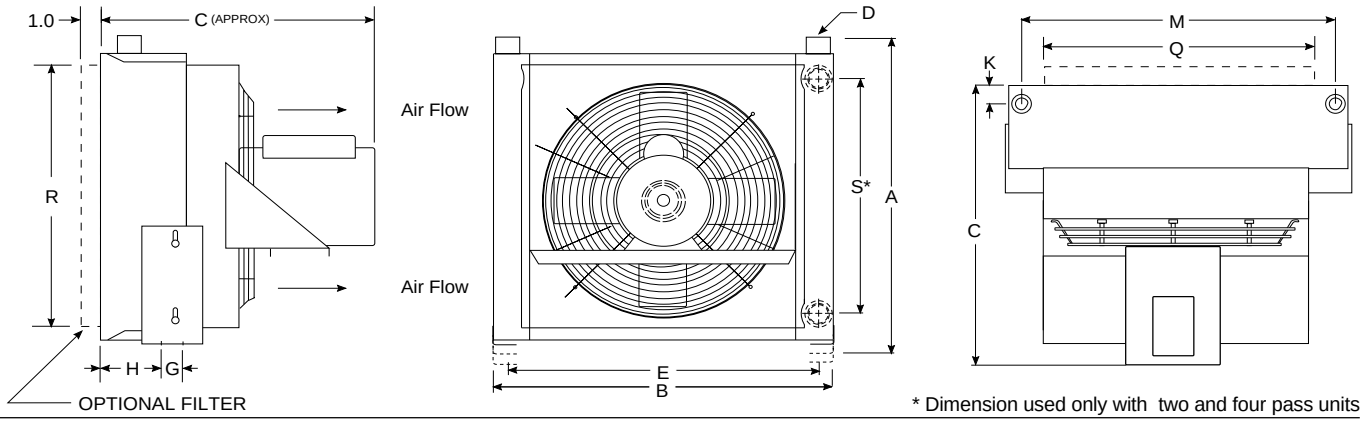
Pressure differentials

Determine the oil pressure drop from the curves as indicated. For viscosities other than 150 ssu, multiply the actual indicated pressure drop for your GPM flow by the value shown in the pressure differential curve for your viscosity value.

Example: EOC - 337 @ 30 gpm & 250 ssu.
Indicated pressure drop 23 psi (Approx).
{ 23 psi x 1.8 } = 41.4 psi

Dimensions and Weights:

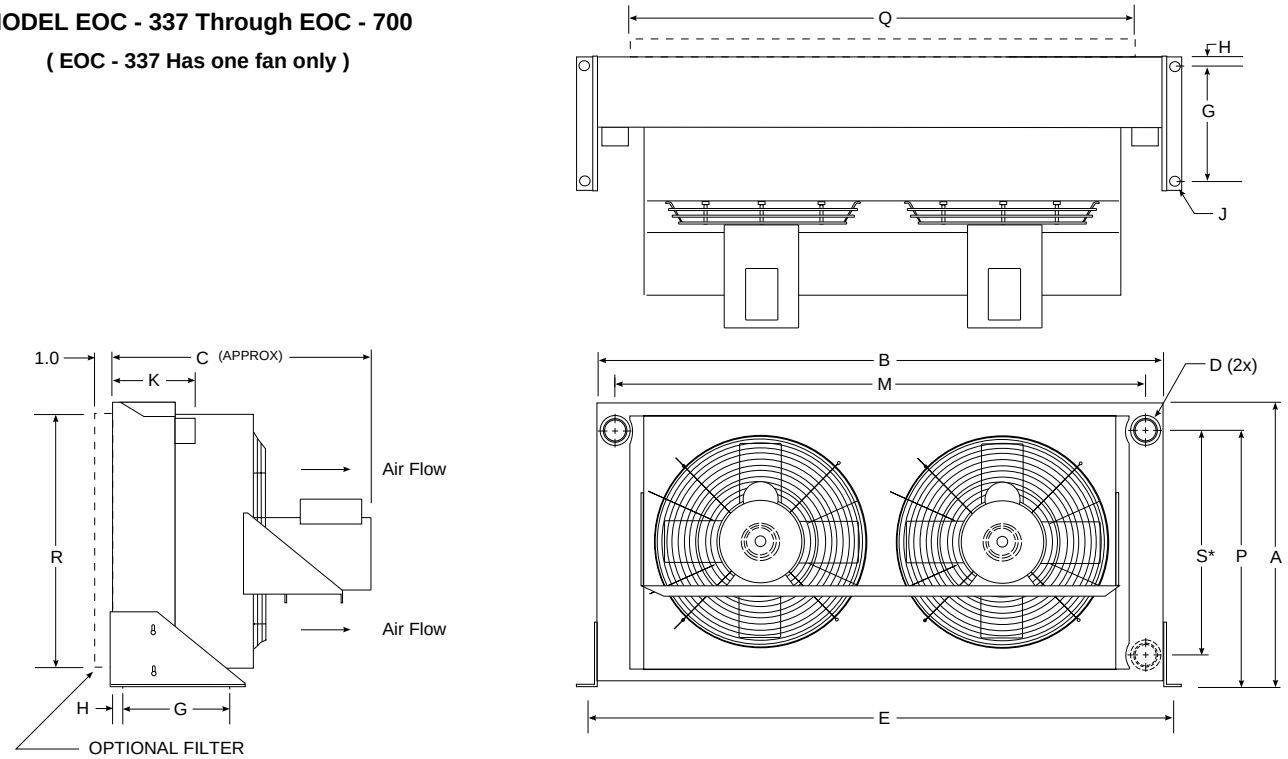
MODEL EOC - 190 Through EOC - 249



* Dimension used only with two and four pass units

MODEL EOC - 337 Through EOC - 700

(EOC - 337 Has one fan only)



DIMENSIONS (Inches) & WEIGHTS (lbs.)																	
Model	A	B	C			D		E	G	H	J	K	M	P	Q	R	S*	Avg. Weight
			Electric		Hydraulic	NPT	SAE											
			AC	DC														
EOC-190	14.88	16.75	16.1	16.0	13.0	.75	#12	14.75	1.50	2.31	.38x.75 Slot	1.31	14.63	—	15.25	13.13	10.25	50
EOC-220	15.25	22.25						18.69					20.12	—	20.75	13.58	10.25	61
EOC-249	19.38	25.00	18.7	17.0	14.0			21.44	2.50		.56x.75 Slot		22.88	—	23.50	17.63	15.00	77
EOC-337	24.75	31.25	18.7	18.5	15.5	1.00	#16	26.97				5.31	28.75	22.29	29.75	23.88	19.38	100
EOC-375	17.63	39.50				1.25	#20	41.13			.56x.75 Slot		36.50	15.25	38.00	16.38	12.50	125
EOC-505	21.63	41.50						43.13	6.50	.96			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	.56x.75 Slot		39.50	27.25	41.00	28.38	24.63	176
EOC-575	36.13	48.50				2.00	#32	50.13					45.50	32.75	47.00	34.88	30.75	313
EOC-700	37.38	51.50	20.7	20.7	17.7			53.12		1.50		7.50	48.50	34.00	50.00	36.25	32.50	423

NOTE: American Industrial reserves the right to make reasonable design changes without notice.

MOTOR & FAN DATA

ELECTRIC MOTORS

Model	No. of Motors	Horse Power	Single Phase	Three Phase	575 Volt	Nema Frame AC	RPM	Type	Thermal Over-load	12 Volt DC	24 Volt DC
EOC-190	1	1/4	115/ 230V/ 60/50 Hz 3.2/1.6 Amps Full Load 60 Hz 2.8/1.4 Amps Full Load 50 Hz	208-230/ 460V/ 60 Hz 190/ 380-415V/50Hz 1.3/.65 Amps Full Load 60 Hz 1.1/.55 Amps Full Load 50 Hz	575/ 500V/ 60/ 50Hz .65 Amps Full Load 60 Hz .60 Amps Full Load 50 Hz	48	1725	TEAO	YES	21 Amps Full Load 40 Frame Continuous Duty	10.5 Amps Full Load 40 Frame Continuous Duty
EOC-220											
EOC-249											
EOC-337											
EOC-375	2										
EOC-505											
EOC-545											
EOC-575											
EOC-700		1				56		TEFC	NO		

HYDRAULIC MOTOR

Model	No. of Motors	Motor Connections	RPM	Displacement IN^3/Rev	Min.Oil Flow Required (GPM)	Min.Operation Pressure (PSI)	Maximum Pressure (PSI)	Size	Shaft
EOC-190	1	SAE-12 1 - 1/16 -12	1725	.43	3.75	200	3000	SAE A 2 Bolt	.625 Keyed Short
EOC-220									
EOC-249									
EOC-337									
EOC-375	2								
EOC-505									
EOC-545									
EOC-575									
EOC-700				.68	6.00	400			

STANDARD FEATURES

Construction Materials

Tubes ..... Copper
Fins ..... Aluminum
Turbulators ..... Steel
Manifolds ..... Steel
Connection Pipes ..... Steel
Cabinet ..... Steel
Fan Blade ..... Aluminum w/ Steel Hub
Fan Guard ..... Zinc plated steel

Ratings

Operating Pressure .. 300 psi
Test Pressure ..... 350 psi
Operating Temp. ..... 400 °F

Cv VISCOSITY CORRECTION

AVERAGE TEMP. °F Of Liquid	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	50-50 ETHYLENE GLYCOL & WATER	POLY GLYCOL 195 SSU at 100°F 52 SSU at 210°F	PHOSPHATE ESTER 233 SSU at 100°F 43 SSU at 210°F	WATER IN OIL EMULSION (~60% OIL) 375 SSU at 100°F 75 SSU at 210°F
100	1.04	1.11	1.21	1.42	1.59	1.00	0.98	1.08	0.86
150	0.91	0.94	1.00	1.09	1.19	0.92	0.86	0.90	0.78
200	0.89	0.90	0.91	0.97	0.99	0.86	0.83	0.84	0.76
250	0.85	0.88	0.89	0.90	0.90	0.85	0.80	0.83	0.74

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