AKG®

HC

SERIES

HYDRAULIC MOTOR DRIVEN

Oil Coolers

- Low Fouling, Non-Louvered Air Fins.
- Dependable Long-Life Hydraulic Driven Fans.
- Compact, Advanced Technology Design is both rugged and up to 60% smaller than competitors products.
- Fan Motors may be operated at a variety of oil flows to reduce noise levels or simplify installation.
- Competitive Pricing, Deliveries from Stock.

AKG® THERMAL SYSTEMS, INC.

BULLETIN HCB-3

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General Information

Performance for the HC Series is variable depending on the fan speed. The fan speed may be changed by increasing / decreasing the oil flow rate to the hydraulic motor driving the fan.

Each model of the HC Series is cataloged at several different hydraulic motor oil flow rates and fan speeds. This has been done for the following reasons:

- **Convenience**
  You may make a product selection based on a limitations to oil flow / pressure available to drive the cooling fan.
- **Noise Levels**
  Higher fan speeds create more noise than slower speeds, but are typically smaller in size and less expensive. Lower fan speeds are quieter than higher speeds, but are typically larger in size and more expensive

The product selection curves allow you to balance these considerations, and select a model that will best suit your specific requirements.

All models have off the shelf availability.

HYDRAULIC MOTOR INFORMATION

We are now offering multiple displacements for every model with exception to the HC14.

Your selection can be based on maintaining system efficiencies while achieving the desired level of heat transfer. We have listed the best two available motor displacements for each model detailing the required oil flow and pressure for proper performance.

HYDRAULIC MOTOR NOTES

1) Standard units are supplied with a hydraulic gear motor for the fan drive. Units with an external case drain should be connected to hydraulic reservoir or a return line with no greater than 45-PSIG back pressure. (Note failure to properly connect and use external drain during operation could result in motor failure and external damage.)

2) Hydraulic motor flow requirements are provided with an efficiency rating of approximately 85%. Pressure requirement are calculated theoretically taking into account minimum operating conditions.

3) Fan rotation is clock wise when facing motor shaft.

4) Maximum degree of fluid contamination, Class 18/15 according to ISO 4406. It is recommended to use a filter with retention rating of B20 >. For longer life, it is recommended to use Class17/14 achievable with filter B10 > -100.

5) AKG Thermal Systems, Inc. reserves the right to make reasonable design changes not limited to hydraulic motor, brand, type, rating, ports or any attribute to standard product without notice.

! **NEVER EXCEED MAXIMUM PRESSURE OR RPM.**

Selection Procedures

The performance curves above are based on the following:

- 50 SUS Oil.
- 100°F Entering Temperature Difference (ETD)

If your application conditions are different, use the following selection procedure:

STEP 1. Determine the Heat Load
Horsepower Heat x 2545 = BTU/hr

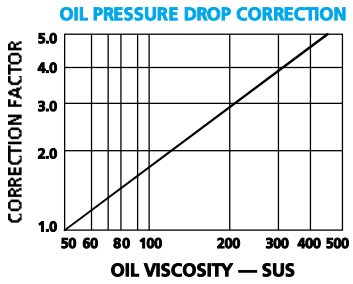
STEP 2. Determine the Actual ETD Desired
Entering **OIL** Temperature — Entering **AIR** Temperature = **ETD**
The entering oil temperature is the highest desired oil temperature. The entering air temperature is the highest anticipated ambient air temperature, plus any pre-heating of the air prior to its entering the cooler. This is especially important if air is drawn from the engine compartment for cooling.

STEP 3. Calculate the Adjusted BTU/hr for Selection

$$\text{BTU/hr Heat Load} \times \frac{100}{\text{Desired ETD}} = \text{BTU/hr For Use With Selection Chart}$$

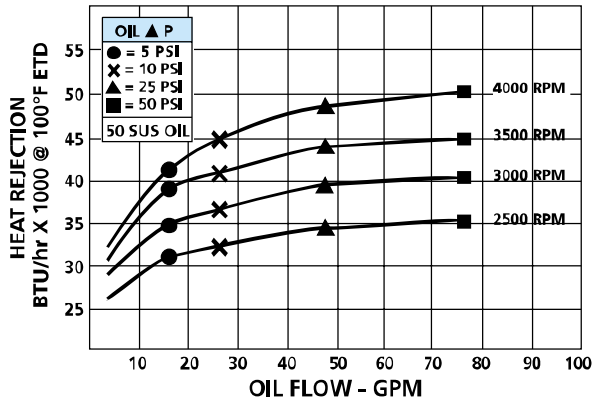
STEP 4. Select The Model From The Curves
Read up from the GPM to the required heat rejection. Select any model on, or above this point.

STEP 5. Calculate Oil Pressure Drop
Find the oil pressure drop correction factor and multiply it by the oil pressure drop found on the performance curve.



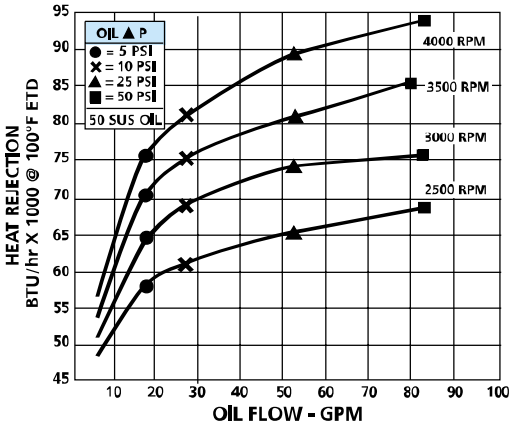
Performance

Performance MODEL HC 14 Motor Data



DISP./CU-IN			0.218	
HC14	FAN HP	REQUIRED OIL FLOW	MINIMUM PRESSURE	MAXIMUM PRESSURE
4000	0.29	4.2	500	2,000
3500	0.20	3.7		
3000	0.13	3.1		
2500	0.07	2.6		

Performance MODEL HC 26 Motor Data

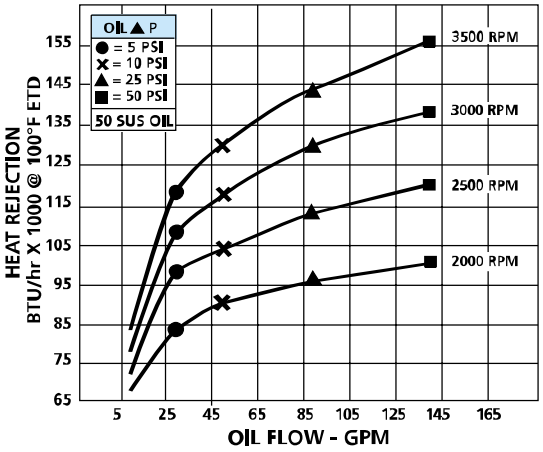


DISP./CU-IN			0.218	
HC26	FAN HP	REQUIRED OIL FLOW	MINIMUM PRESSURE	MAXIMUM PRESSURE
4000	0.67	4.2	500	2,000
3500	0.45	3.7		
3000	0.29	3.2		
2500	0.17	2.3		

DISP./CU-IN			0.372	
HC26	FAN HP	REQUIRED OIL FLOW	MINIMUM PRESSURE	MAXIMUM PRESSURE
4000	0.67	7.2	500	2,000
3500	0.45	6.3		
3000	0.29	5.4		
2500	0.17	4.5		

Performance

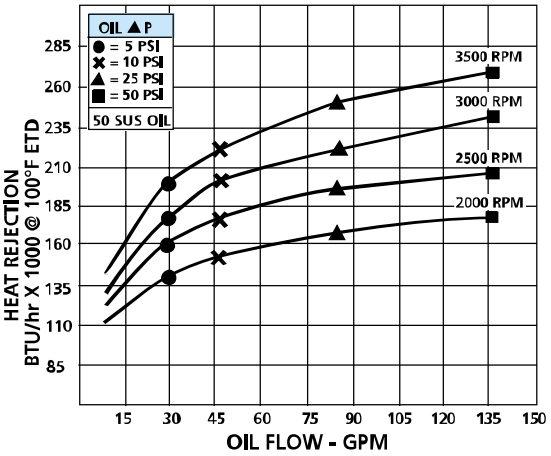
Performance — MODEL HC 32 — Motor Data



DISP./CU-IN			0.218	
HC32	FAN HP	REQUIRED OIL FLOW	MINIMUM PRESSURE	MAXIMUM PRESSURE
3500	2.24	3.7	1,240	2,000
3000	1.69	3.1	1,090	
2500	0.73	2.6	570	
2000	0.38	2.1	500	

DISP./CU-IN			0.372	
HC32	FAN HP	REQUIRED OIL FLOW	MINIMUM PRESSURE	MAXIMUM PRESSURE
3500	2.24	6.3	730	2,000
3000	1.69	5.4	640	
2500	0.73	4.5	500	
2000	0.38	3.6	500	

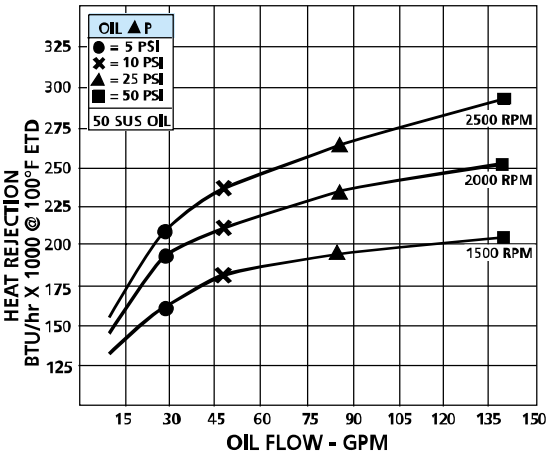
Performance — MODEL HC 48 — Motor Data



DISP./CU-IN			0.218	
HC48	FAN HP	REQUIRED OIL FLOW	MINIMUM PRESSURE	MAXIMUM PRESSURE
3500	3.54	EXCEEDS MOTOR CAPACITY		
3000	2.23	3.1	1,430	2,000
2500	1.30	2.6	1,000	
2000	0.67	2.1	650	

DISP./CU-IN			0.372	
HC48	FAN HP	REQUIRED OIL FLOW	MINIMUM PRESSURE	MAXIMUM PRESSURE
3500	3.54	6.3	1,140	2,000
3000	2.23	5.4	840	
2500	1.30	4.5	590	
2000	0.67	3.6	500	

Performance — MODEL HC 66 — Motor Data

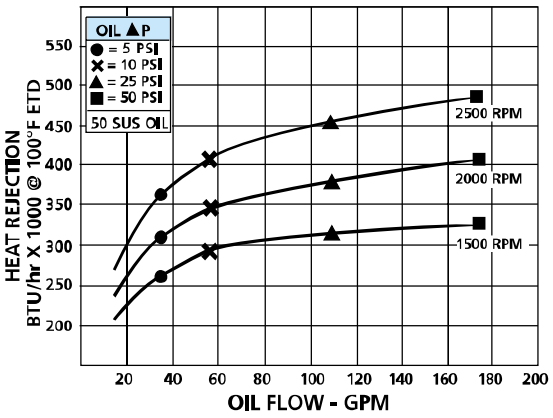


DISP./CU-IN			0.218	
HC66	FAN HP	REQUIRED OIL FLOW	MINIMUM PRESSURE	MAXIMUM PRESSURE
2500	2.19	2.6	1,690	2,000
2000	1.62	2.1	1,560	
1500	0.70	1.6	900	

DISP./CU-IN			0.372	
HC66	FAN HP	REQUIRED OIL FLOW	MINIMUM PRESSURE	MAXIMUM PRESSURE
2500	2.19	4.5	990	2,000
2000	1.62	3.6	920	
1500	0.70	2.7	530	

Performance

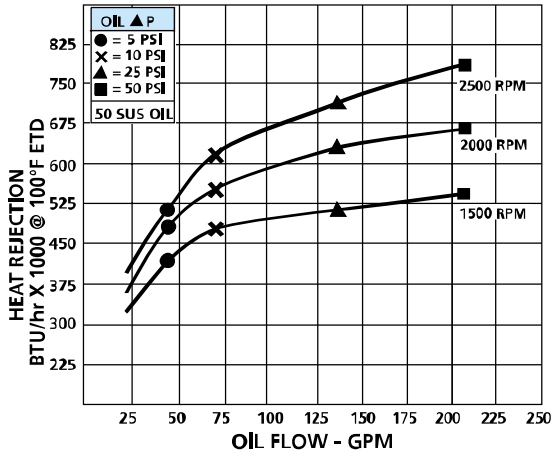
Performance — MODEL HC 120 — Motor Data



DISP./CU-IN			0.5	
HC120	FAN HP	REQUIRED OIL FLOW	MINIMUM PRESSURE	MAXIMUM PRESSURE
2500	3.96	6.0	1,330	3,625
2000	2.05	4.8	860	
1500	0.88	3.6	500	

DISP./CU-IN			1.2	
HC120	FAN HP	REQUIRED OIL FLOW	MINIMUM PRESSURE	MAXIMUM PRESSURE
2500	3.96	14.4	560	2,610
2000	2.05	11.5	500	
1500	0.88	8.7		

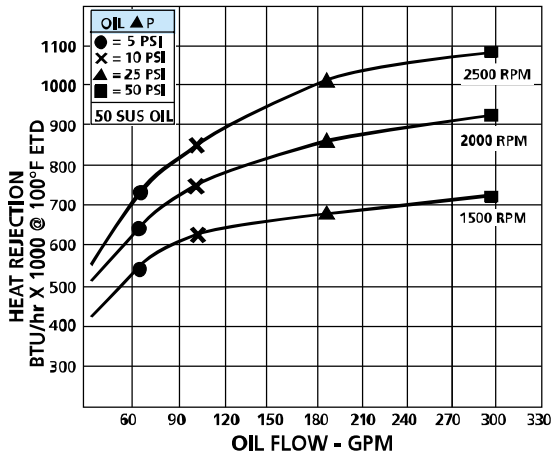
Performance — MODEL HC 180 — Motor Data



DISP./CU-IN			0.5	
HC180	FAN HP	REQUIRED OIL FLOW	MINIMUM PRESSURE	MAXIMUM PRESSURE
2500	14.00	EXCEEDS MOTOR CAPACITY		
2000	7.21	4.8	3,030	3,625
1500	3.09	3.6	1,730	

DISP./CU-IN			1.2	
HC180	FAN HP	REQUIRED OIL FLOW	MINIMUM PRESSURE	MAXIMUM PRESSURE
2500	14.00	14.4	1,960	2,610
2000	7.21	11.5	1,260	
1500	3.09	8.7	720	

Performance — MODEL HC 240 — Motor Data

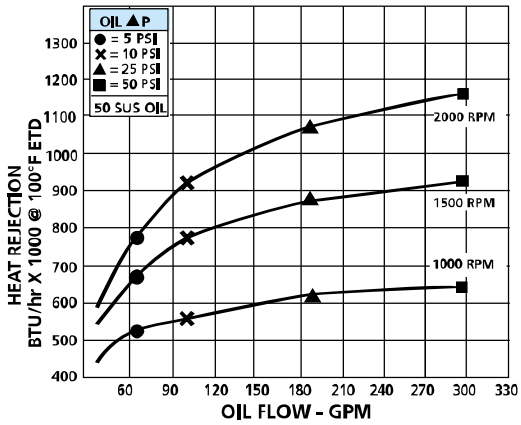


DISP./CU-IN			1.2	
HC240	FAN HP	REQUIRED OIL FLOW	MINIMUM PRESSURE	MAXIMUM PRESSURE
2500	21.30	EXCEEDS MOTOR CAPACITY		
2000	10.90	11.5	1,910	2610
1500	4.56	8.7	1,070	

DISP./CU-IN			1.95	
HC240	FAN HP	REQUIRED OIL FLOW	MINIMUM PRESSURE	MAXIMUM PRESSURE
2500	21.30	23.4	1,840	3,000
2000	10.90	18.8	1,180	
1500	4.56	14.1	660	

Performance

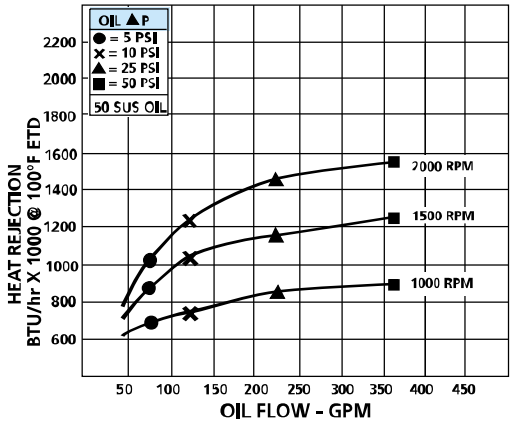
Performance — MODEL HC 300 — Motor Data



DISP./CU-IN			1.2	
HC300	FAN HP	REQUIRED OIL FLOW	MINIMUM PRESSURE	MAXIMUM PRESSURE
2000	12.10	11.5	2,120	2,610
1500	5.11	8.7	1,190	
1000	1.52	5.8	540	

DISP./CU-IN			1.95	
HC300	FAN HP	REQUIRED OIL FLOW	MINIMUM PRESSURE	MAXIMUM PRESSURE
2000	12.10	18.8	1,310	3,000
1500	5.11	14.1	740	
1000	1.52	9.4	500	

Performance — MODEL HC 380 — Motor Data



DISP./CU-IN			1.2	
HC380	FAN HP	REQUIRED OIL FLOW	MINIMUM PRESSURE	MAXIMUM PRESSURE
2000	17.50	EXCEEDS MOTOR CAPACITY		
1500	7.37	8.7	1,720	2,610
1000	2.17	5.8	760	

DISP./CU-IN			1.95	
HC380	FAN HP	REQUIRED OIL FLOW	MINIMUM PRESSURE	MAXIMUM PRESSURE
2000	17.50	18.8	1,890	3,000
1500	7.37	14.1	1,060	
1000	2.17	9.4	500	

Specifications

RATINGS:

Maximum Working Pressure ..... **250 PSI**

Maximum Working Temperature ..... **250 °F**

MATERIALS:

Cooler ..... **Aluminum**

Shroud ..... **Powder Painted Steel**

Fan Guard ..... **Zinc Plated Steel**

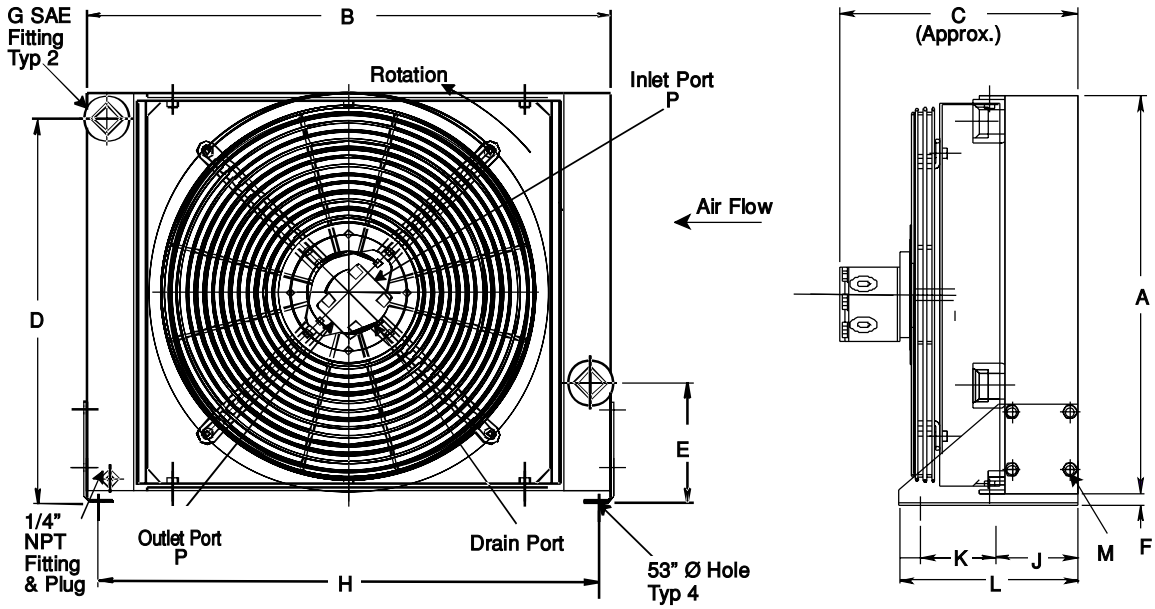
Fan Blade ..... **Polypropylene Blades Aluminum Hub**

Mounting Brackets ..... **Powder Painted Steel**

Features

- **ADVANCED TECHNOLOGY**
  Design Provides High Heat Transfer Capacity in Very Compact Sizes
- **LOW FOULING**
  Non-Louvered Fin System
- **RUGGED**
  Bar and Plate Construction
- **WIDE SELECTION**
  Of Standard Models Shipped from Stock

Dimensions



MODEL	A	B	C (Approx.)	D	E	F	G	H	J	K	L	M	P	Approx. Weights Net	Approx. Weights Shipping
HC 14	12.44	15.75	11.00	11.30	3.27	0.55	#16 SAE 1 1/16-12 UN-2B	14.53	3.07	3.50	7.36	M8x10 Bolt (4 PL)	#8 SAE 3/4-16 UN-2B	40	45
HC 26	16.26	19.88	11.00	15.08	3.35	0.59		18.66						60	65
HC 32	15.91	15.94	12.59	14.92	6.02	0.59	#20 SAE 1 5/8-12 UN-2B	19.45	4.17	3.74	9.02	M10x20 Bolt (8 PL)		65	75
HC 48	20.59	26.38	12.25	19.29	6.02	0.59		25.20					#12 SAE 1 1/16-12 UN-2B	137	175
HC 66	22.44	30.32	12.25	21.18				29.09						163	208
HC 120	28.27	37.01	16.18	20.47	9.92	2.09	2" SAE 4-Bolt FLANGE	37.48	5.39	7.87	15.47	M12x20 Bolt (8 PL)		240	300
HC 180	33.60	40.95	17.20	29.69	9.02	0.59		41.42						350	405
HC 240	37.52	42.91	18.75	35.52	9.13	0.59		43.49						378	445
HC 300	44.09	48.82	20.43	34.72	11.02	0.65	3" SAE 4-Bolt FLANGE	49.29	7.80	10.00	20.00	¾ x 1½ Bolt (8 PL)	#16 SAE 1 5/16-12 UN-2B	530	618
HC 380	57.64	52.76	20.43	43.62	17.56	2.04		50.55						785	875

- Dimensions are in inches.
- We reserve the right to make reasonable design changes without notice.
- Weights are in pounds.

Ordering Information

SERIES HC Series	MODEL SIZE SELECTED	MOTOR DATA 0= No Motor 0218 = 0.218 cu-in. 0372 = 0.372 cu-in. 0050 = 0.50 cu-in. 0120 = 1.2 cu-in. 0140 = 1.4 cu-in. 0195 = 1.95 cu-in.	CUSTOM FEATURE CODE R=REVERSED AIR FLOW AD=SAE TO NPT F=FILTER H=HERESITE COATED CORE