

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.



 **THERMAL SYSTEMS, INC.**

BULLETIN HCB-3

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



NEW

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

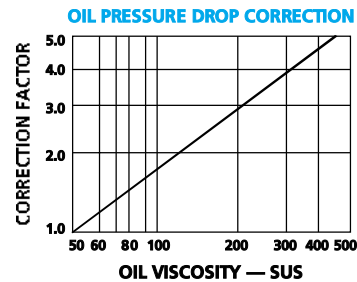
STEP 2. Determine the Actual ETD Desired
Entering OIL Temperature — Entering AIR Temperature = ETD
The entering oil temperature is the highest desired oil temperature. The entering air temperature is the highest anticipated ambient air temperature, plus any pre-heating of the air prior to its entering 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

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

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.

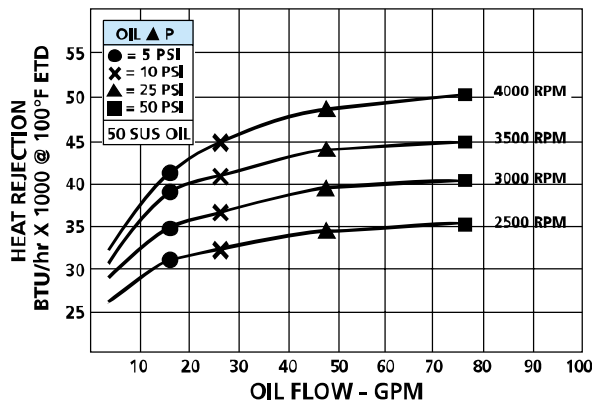


Performance

Performance

MODEL HC 14

Motor Data

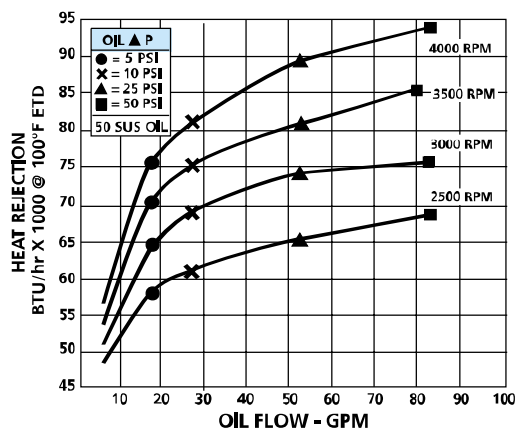


DISP./CU-IN		0.218		
HC14	FAN HP	REQUIRED OIL FLOW	MINIMUM PRESSURE	MAXIMUM PRESSURE
4000	0.29	4.2	500	2,000
3500	0.20	3.7		
3000	0.13	3.1		
2500	0.07	2.6		

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		

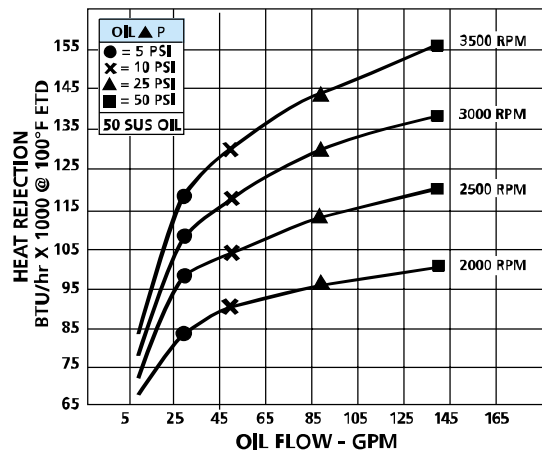
DISP./CU-IN		0.372		
HC26	FAN HP	REQUIRED OIL FLOW	MINIMUM PRESSURE	MAXIMUM PRESSURE
4000	0.67	7.2	500	2,000
3500	0.45	6.3		
3000	0.29	5.4		
2500	0.17	4.5		

Performance

Performance

MODEL HC 32

Motor Data



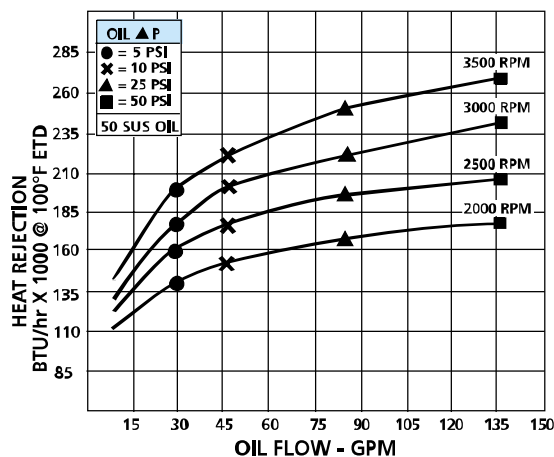
DISP./CU-IN		0.218		
HC32	FAN HP	REQUIRED OIL FLOW	MINIMUM PRESSURE	MAXIMUM PRESSURE
3500	2.24	3.7	1,240	2,000
3000	1.69	3.1	1,090	
2500	0.73	2.6	570	
2000	0.38	2.1	500	

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



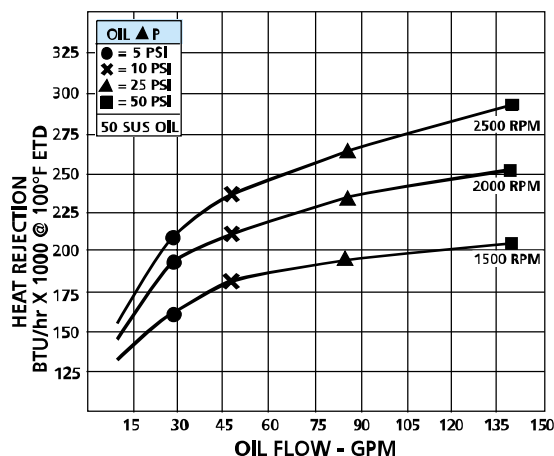
DISP./CU-IN		0.218		
HC48	FAN HP	REQUIRED OIL FLOW	MINIMUM PRESSURE	MAXIMUM PRESSURE
3500	3.54	EXCEEDS MOTOR CAPACITY		2,000
3000	2.23	3.1	1,430	
2500	1.30	2.6	1,000	
2000	0.67	2.1	650	

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	

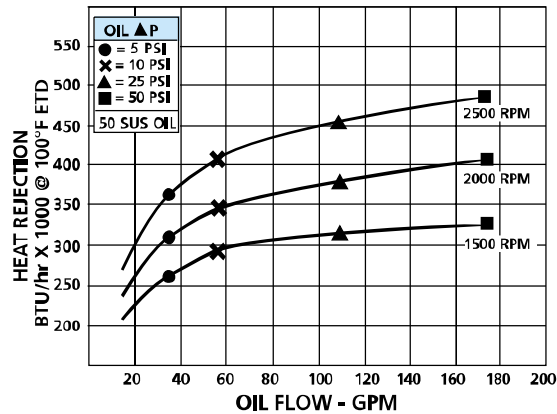
DISP./CU-IN		0.372		
HC66	FAN HP	REQUIRED OIL FLOW	MINIMUM PRESSURE	MAXIMUM PRESSURE
2500	2.19	4.5	990	2,000
2000	1.62	3.6	920	
1500	0.70	2.7	530	

Performance

Performance

MODEL HC 120

Motor Data



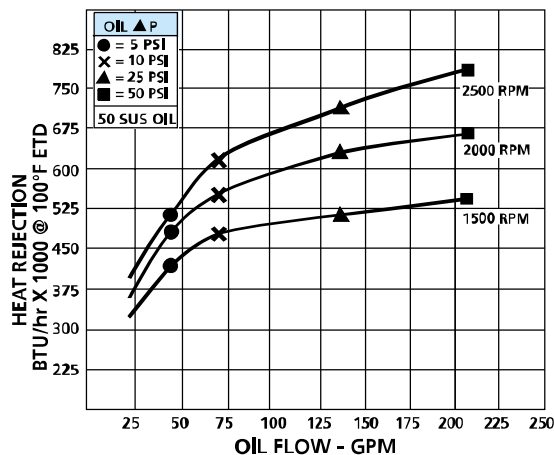
DISP./CU-IN		0.5		
HC120	FAN HP	REQUIRED OIL FLOW	MINIMUM PRESSURE	MAXIMUM PRESSURE
2500	3.96	6.0	1,330	3,625
2000	2.05	4.8	860	
1500	0.88	3.6	500	

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



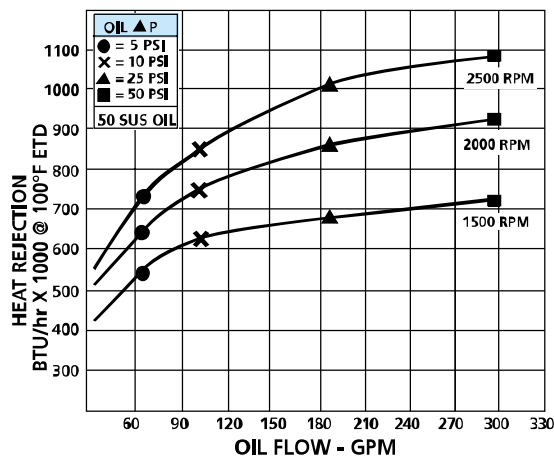
DISP./CU-IN		0.5		
HC180	FAN HP	REQUIRED OIL FLOW	MINIMUM PRESSURE	MAXIMUM PRESSURE
2500	14.00	EXCEEDS MOTOR CAPACITY		3,625
2000	7.21	4.8	3,030	
1500	3.09	3.6	1,730	

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		2610
2000	10.90	11.5	1,910	
1500	4.56	8.7	1,070	

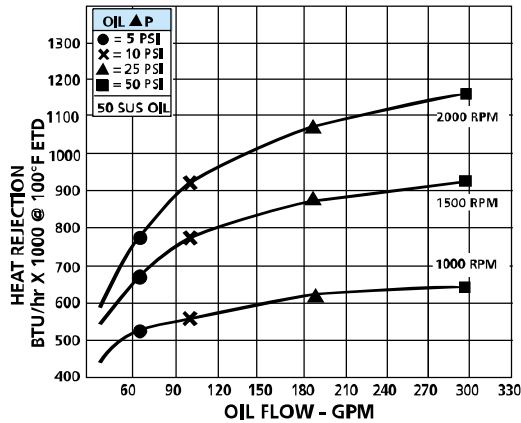
DISP./CU-IN		1.95		
HC240	FAN HP	REQUIRED OIL FLOW	MINIMUM PRESSURE	MAXIMUM PRESSURE
2500	21.30	23.4	1,840	3,000
2000	10.90	18.8	1,180	
1500	4.56	14.1	660	

Performance

Performance

MODEL HC 300

Motor Data



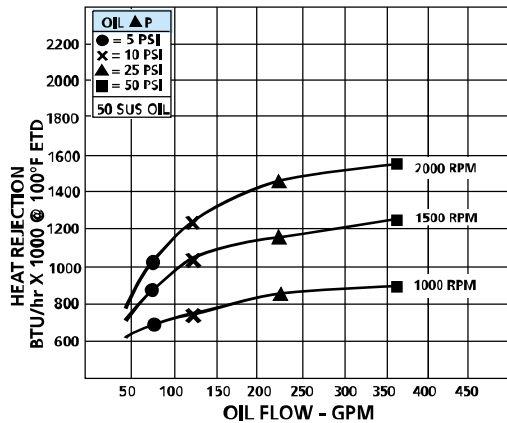
DISP./CU-IN		1.2		
HC300	FAN HP	REQUIRED OIL FLOW	MINIMUM PRESSURE	MAXIMUM PRESSURE
2000	12.10	11.5	2,120	2,610
1500	5.11	8.7	1,190	
1000	1.52	5.8	540	

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

Fan Blade Polypropylene Blades

Aluminum Hub

Shroud Powder Painted Steel

Mounting Brackets Powder Painted Steel

Fan Guard Zinc Plated Steel

Features

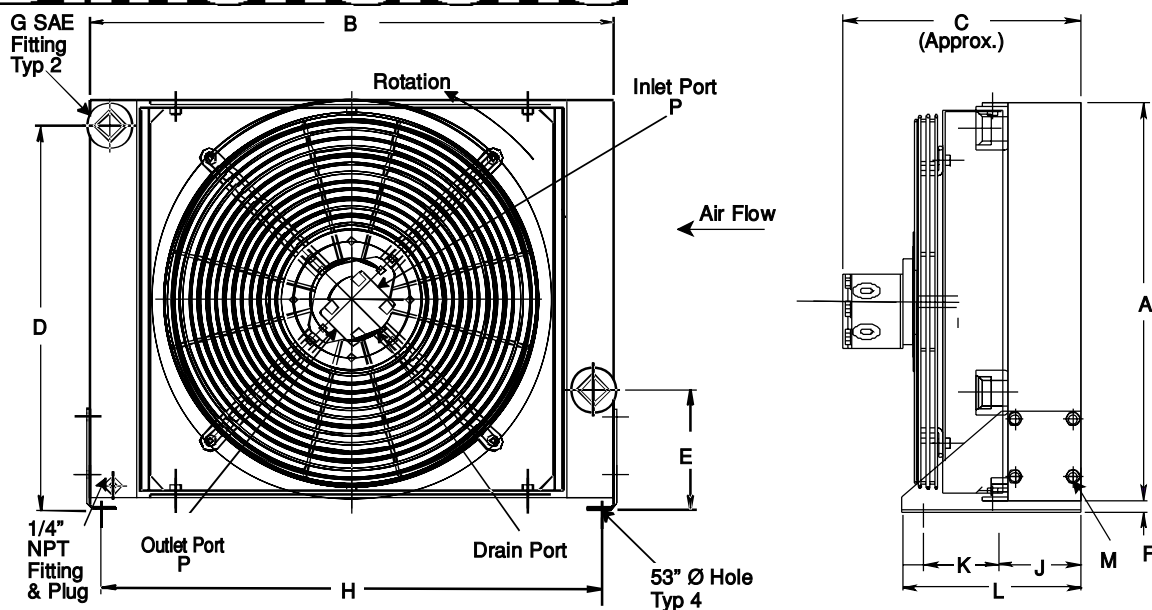
- ▶ **ADVANCED TECHNOLOGY**
Design Provides High Heat Transfer Capacity in Very Compact Sizes

- ▶ **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	Shipping
HC 14	12.44	15.75	11.00	11.30	3.27	0.55	#16 SAE 1 1/4-12 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 3/8-12 UN-2B	19.45	4.17	3.74	9.02	M10x20 Bolt (8 PL)	#12 SAE 1 1/16-12 UN-2B	65	75
HC 48	20.59	26.38	12.25	19.29	6.02	0.59		25.20						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	3/4 x 1 1/2 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

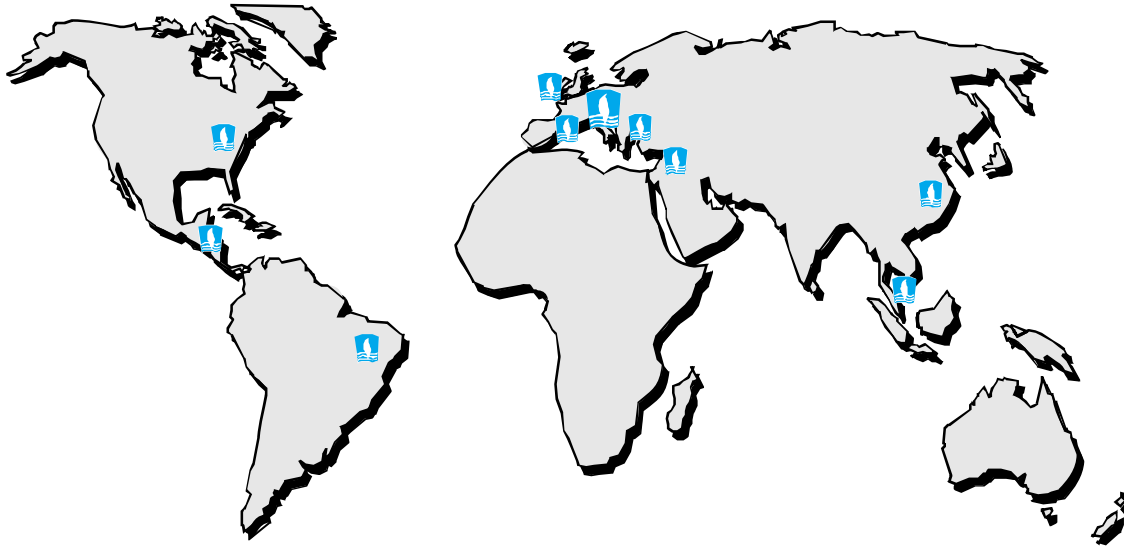
MODEL SIZE
SELECTED

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



AKG has been manufacturing high quality coolers and cooling systems since 1919. We have grown to include 10 facilities with over 1400 employees to serve you.

Your Business Partner



AKG Worldwide

AKG is a complete single source supply for all of your cooling requirements. Choose from both standard and custom engineered products depending on your specific needs.



Partnership

AKG believes in solid long-term business relationships built on partnerships with its customers.



Customer

AKG places heavy emphasis on development of leading edge technologies, products and finding creative solutions to our customers individual requirements.

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