CooL-Line
HR

HR SERIES FEATURES

- Bar and plate aluminum design
- High efficiency & low fouling
- Internal by-pass available
- Multiple displacement motor options
- Competitive pricing and assemblies from stock

RUGGED ENVIRONMENT COOLING SYSTEMS

PRODUCT INFORMATION

AKG CooL-Line is a standard line of products from the market leader in high performance aluminum cooling systems. AKG is best known for its world-wide presence, German engineering and extremely reliable product quality on the one hand and very competitive prices on the other hand.

The CooL-Line type series consist of different models for mobile and stationary applications and are available through our global specialist dealer network. This line of products embraces all-purpose complete cooling systems that comply with European or American Standards, is suited for normal or rugged environmental operating conditions, is powered by AC-, DC- or hydraulic-motor-driven fans and is also available with noise-optimized models.

FEATURES OF THE HR SERIES

- The coolers are equipped with anti-clogging fins
- High-Performance cooling assemblies
- Hydraulic motor powered fan
- The heat is transferred from the medium to be cooled to the ambient air
- Cooler can be universally used in hydraulic oil, transmission oil, engine oil, lubricating oil and coolant circuits
- For the cooling of mineral oil, synthetic oil, biological oil as well as of HFA, HFB, HFC and HFD liquids and water with at least 50 per cent of antifreeze and anticorrosive additives (other media available)
- Can be exposed to operating pressures of up to 26 bar or 17 bar, depending on model
- Available from stock or at short notice

BENEFITS

- Especially suited for rugged environments. Fin system prevents clogging and is easy to clean
- Highly flexible complete, ready-to-use cooling packages
- Compact and robust design, field-tested during many years of use in rugged real life conditions
- Largest and most comprehensive series of industrial and mobile hydraulic coolers
- Best heat transfer results per given cooler size due to comprehensive research and development
- Highest quality due to professional engineering and inhouse manufacturing
- Available from stock or at short notice
- As a standard, equipped with AKG's patented double-life hollow sections designed to increase cooler service life

HR-SERIES FEATURES/BENEFITS

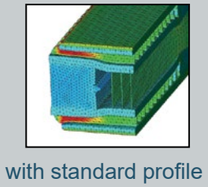
- New HR rugged series low fouling coolers with non louvered fin design provides the best HEAT TRANSFER per given cooler size in the industry.
- New HR rugged series coolers offer increased performance with lower pressure drop than current same size AKG THERMAL SYSTEMS HC SERIES COOLERS.
- New HR rugged series coolers have proprietary R & D designed, engineered and tested internal and external fins unique to AKG THERMAL SYSTEM coolers.
- All HR series coolers are available with internal pressure BYPASS option.
- New HR rugged series coolers offer the largest, most comprehensive cooler size ranges with competitive pricing and deliveries from stock.

PATENTED FLEXIBLE AKG HOLLOW PROFILE

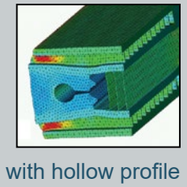
HD uses patented AKG hollow profiles to reduce local peak strains. This way the strength of heat exchangers is significantly increased and their service life time is considerably prolonged.

AKG HOLLOW PROFILE FEATURES

- Reduced Strain: Strength calculations show that when using AKG hollow profiles maximum strain is reduced by a factor of 2
- Prolonged Service Life Time: Extensive rig tests have shown that service life time increases by a factor ranging from 3 to 5



with standard profile

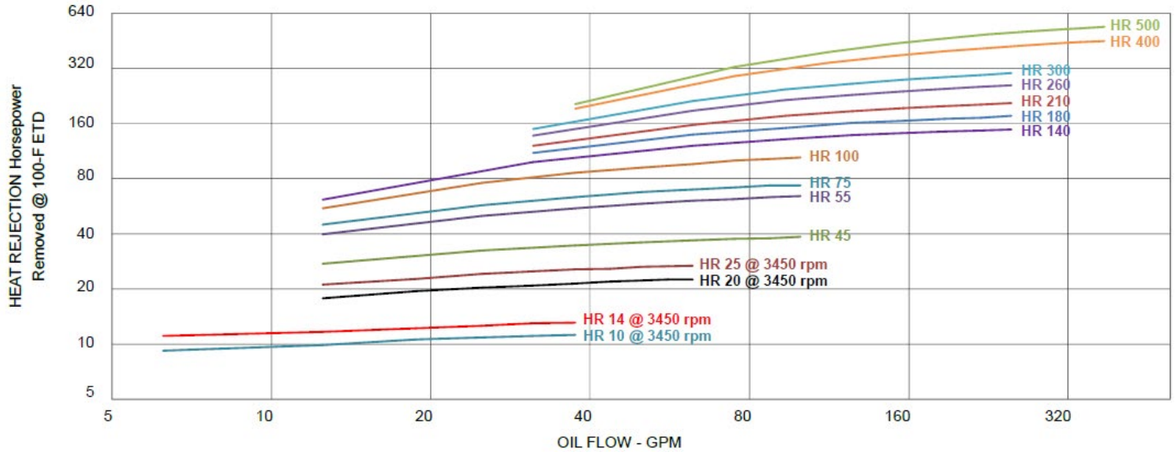


with hollow profile

HR CooL-Line Selection Software, which is available free of charge will guide you through the cooler model selection process in simple steps and will recommend the optimal AKG cooling package for your application: www.akgts.com

GLOBAL STANDARD COOLING SYSTEMS (HR SERIES)

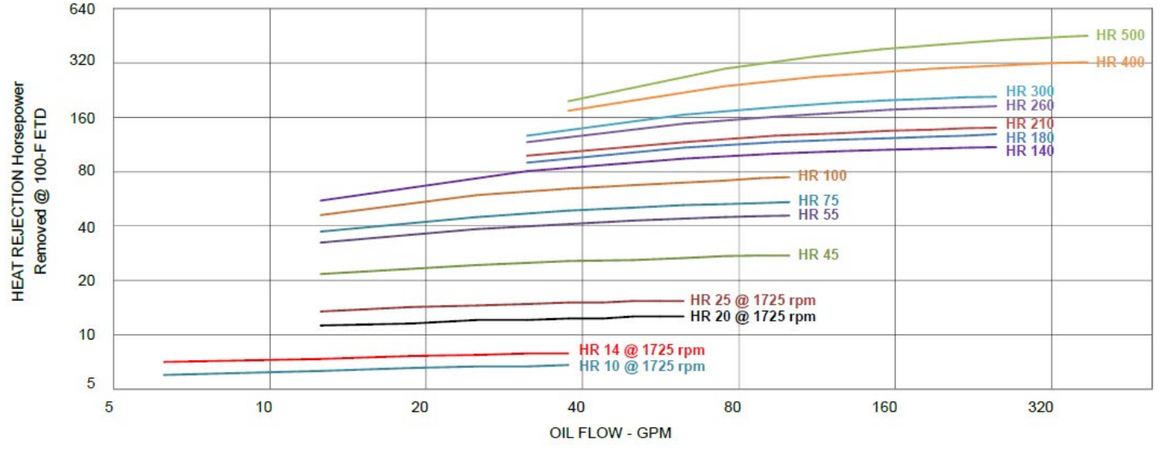
PERFORMANCE DATA (HR SERIES @ 1750 RPM FAN SPEED)



SPECIFICATIONS	
Maximum Working Pressure (HR10 through HR260)	377 psi
Maximum Working Pressure (HR300 through HR500)	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

PERFORMANCE DATA (HR SERIES @ 1140 RPM FAN SPEED)



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HR SERIES TECHNICAL DATA

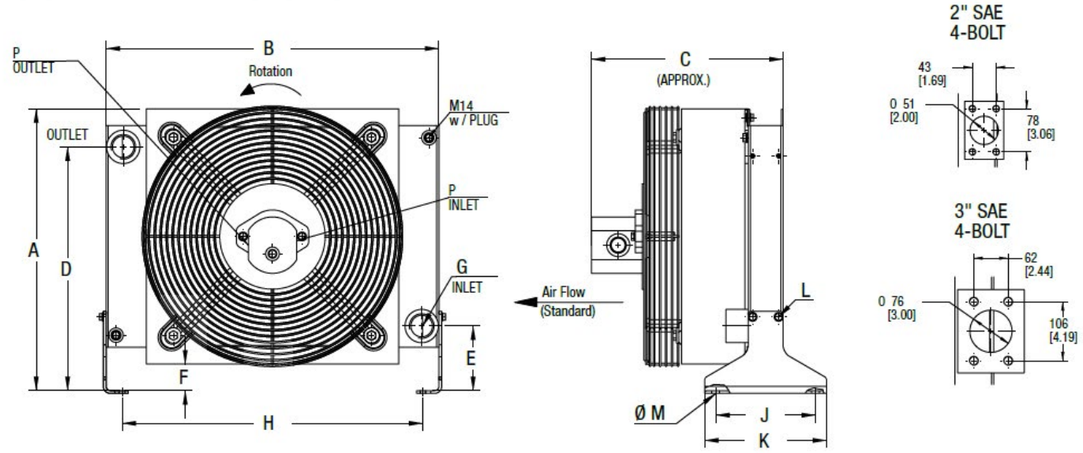
Model Size	Motor Size (cubic in.)	Operating Speed (RPM)	Motor Flow Rate @ Operating Speed (gpm)	Motor Pressure @ Operating Speed (psi)	Motor Max Pressure (psi)	Approx. Noise Level (dB(A), 1m)	Working Pressure (psi)	Approx. Shipping Weight (lbs)
HR10	0.218	3450/1725	3.6/1.8	500	2000	77/65	377	30
HR14	0.218	3450/1725	3.6/1.8	500	2000	77/65	377	36
HR20	0.218	3450/1725	3.6/1.8	500	2000	81/69	377	41
HR25	0.218	3450/1725	3.6/1.8	500	2000	86/73	377	50
	0.372	3450/1725	6.2/3.1	500	2000	86/73	377	50
HR45	0.218	1750/1140	1.8/1.2	500	2000	83/74	377	57
	0.372	1750/1140	3.1/2.1	1050/500	2000	83/74	377	57
HR55	0.372	1750/1140	3.1/2.1	650/500	2000	86/75	377	127
	0.5	1750/1140	4.2/2.7	500	3500	86/75	377	127
HR75	0.372	1750/1140	3.1/2.1	1160/500	2000	88/79	377	159
	0.5	1750/1140	4.2/2.7	870/500	3500	88/79	377	159
HR100	0.372	1750/1140	3.1/2.1	1440/560	2000	92/83	377	195
	0.5	1750/1140	4.2/2.7	520/500	3500	92/83	377	195
HR140	0.5	1750/1140	4.2/2.7	1440/560	3500	92/83	377	230
	1.4	1750/1140	11.8/7.7	520/500	2750	92/83	377	230
HR180	0.5	1750/1140	4.2/2.7	1440/560	3500	94/85	377	267
	1.4	1750/1140	11.8/7.7	520/500	2750	94/85	377	267
HR210	0.5	1750/1140	4.2/2.7	1440/560	3500	95/86	377	280
	1.4	1750/1140	11.8/7.7	520/500	2750	95/86	377	280
HR260	0.5	1750/1140	4.2/2.7	2300/1000	3500	97/88	377	405
	1.4	1750/1140	11.8/7.7	825/500	2750	97/88	377	405
HR300	1.4	1750/1140	11.8/7.7	1010/525	2750	98/89	250	500
	1.95	1750/1140	16.4/10.7	725/500	3500	98/89	250	500
HR400	1.4	1750/1140	11.8/7.7	1630/765	2750	101/92	250	590
	1.95	1750/1140	16.4/10.7	1170/550	3500	101/92	250	590
HR500	1.4	1750/1140	11.8/7.7	1600/735	2750	101/92	250	650
	1.95	1750/1140	16.4/10.7	1150/530	3500	101/92	250	650

HR SERIES DIMENSIONS

Model Size	A	B	C (Approx.)	D	E	F	G	H	J	K	L	M	P
HR10	13.7	13.78	10.00	11.38	4.21	1.97	#12 SAE 1 1/16-12 UN-2B	11.93	7.09	8.66	M6-1 X12MM Bolt (4 PL)	Ø 0.55	#8 SAE 3/4-16 UN-2B
HR14	14.15	13.78	11.00	11.83	4.66	2.48	#12 SAE 1 1/16-12 UN-2B	11.93	7.09	8.66		Ø 0.55	#8 SAE 3/4-16 UN-2B
HR20	15.81	15.75	10.00	12.88	5.11	1.50	#16 SAE 1 5/16-12 UN-2B	13.86	7.09	8.66	M8-1.25 X16MM Bolt (4 PL)	Ø 0.55	#8 SAE 3/4-16 UN-2B
HR25	15.53	16.54	11.20	12.17	5.24	1.50	#16 SAE 1 5/16-12 UN-2B	14.65				Ø 0.55	#8 SAE 3/4-16 UN-2B
HR45	19.45	21.65	11.10	15.69	5.1	1.50	#20 SAE 1 5/8 UN-2B	19.76				Ø 0.55	#8 SAE 3/4-16 UN-2B
HR55	23.94	25.59	11.00	20.26	5.06	1.50	#20 SAE 1 5/8-12 UN-2B	23.7				Ø 0.55	#12SAE 1 1/16-12 UN-2B
HR75	24.09	26.38	12.30	17.8	7.83	1.50	#20 SAE 1 5/8-12 UN-2B	24.49	10.24	11.81	M10-1.5 X20MM Bolt (8 PL)	Ø 0.55	#12SAE 1 1/16-12 UN-2B
HR100	26.26	30.31	12.20	19.96	8.15	1.50	#20 SAE 1 5/8-12 UN-2B	28.32	10.24	11.81		Ø 0.55	#12SAE 1 1/16-12 UN-2B
HR140	30.79	36.22	13.56	24.2	8.65	1.50	2" SAE 4-Bolt FLANGE	34.22	21.10	22.64		Ø 0.55	#12SAE 1 1/16-12 UN-2B
HR180	30.27	37.01	15.06	24.17	7.67	1.50		35.01	21.10	22.64	M12-1.75 X25MM Bolt (8 PL)	Ø 0.55	#12SAE 1 1/16-12 UN-2B
HR210	33.12	38.98	16.00	25.04	9.44	1.50		36.98	21.10	22.64		Ø 0.55	#12SAE 1 1/16-12 UN-2B
HR260	37.57	40.94	17.80	29.79	9.28	1.50		39.06	21.10	22.64		Ø 0.55	#12SAE 1 1/16-12 UN-2B
HR300	38.15	43.62	19.88	31.12	9.59	2.00		40.17	14.72	17.72		Ø 0.75	#16SAE 1 5/16-12 UN-2B
HR400	47.03	49.49	20.79	36.24	12.77	2.00	3" SAE 4-Bolt FLANGE	48.22	15.70	18.70		Ø 0.75	#16SAE 1 5/16-12 UN-2B
HR500	59.58	53.68	18.78	43.97	17.52	2.00		50.34	17.67	20.67	3/4-10 x 1.75 Bolt (8 PL)	Ø 0.55	#16SAE 1 5/16-12 UN-2B

GLOBAL STANDARD COOLING SYSTEMS (HR SERIES)

COOLER DIMENSIONS HR



SELECTION PROCEDURES

The performance curves are based on the following:

- 50 SUS Oil
- 50 °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.

ORDERING INFORMATION

SERIES CODE:	MODEL SIZE:		MOTOR CODE:	BYPASS DATA:	CUSTOM FEATURE CODE:
		—			

SERIES: HD = Standard
MODEL SIZE: Selected
MOTOR CODE: 0 = No Motor ; 0218 = 0.218 cu-in; 0372 = 0.372 cu-in; 0050 = 0.50 cu-in; 0140 = 1.40 cu-in; 0195 = 1.95 cu-in
BYPASS DATA: BPNV = Bypass No Valve, BP25 = 25PSI Internal Bypass, BP30 = 30PSI Internal Bypass, BP60 = 60PSI Internal Bypass, BP65 = 65PSI Internal Bypass
CUSTOM FEATURE: B = Blowing Fan, AD = SAE to NPT Adaptors, H = Heresite Coating Core, F = Foam Filter

ORDER EXAMPLE: Heat Exchanger, 75 HP; Suction Fan, No Motor; 60PSI Internal Bypass HR75-0-BP60

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AKG – A STRONG GLOBAL GROUP

AKG is a leading supplier of high-performance coolers and thermal management systems. We also provide customized system solutions, which comply with the highest quality standards.

On a world-wide scale, our over 3,000 employees work at 11 manufacturing facilities located in the United States, Germany, France, Latvia, Turkey, Mexico, Brazil, China and India. Together with our wide network of sales companies, AKG's team is on duty around the clock.

AKG's longstanding partnership with global OEM's across a wide range of markets supports the demanding needs of mobile and industrial applications. AKG products are found globally in a variety of markets including construction machinery, agricultural and forestry equipment, power generation and specialty on-highway vehicles and many more.

AKG operates one of the world's most extensive research, development, measurement and validation centers for cooling solutions and customized applications.

For over 100 years AKG has been a symbol of innovation, engineering excellence and manufacturing competence. This makes a winning combination that raises the bar for our competition and keeps us pushing forward.