



# Cool-Line AR

## AR/ARL SERIES FEATURES

- Bar and Plate aluminum design
- Reduced noise series offered
- High efficiency & low fouling
- Three-Phase, single phase, class 1, division 2, 575-Volt three phase & three-phase explosion proof motor options
- Competitive pricing and assemblies from stock



# RUGGED ENVIRONMENT COOLING SYSTEMS



## Product Information

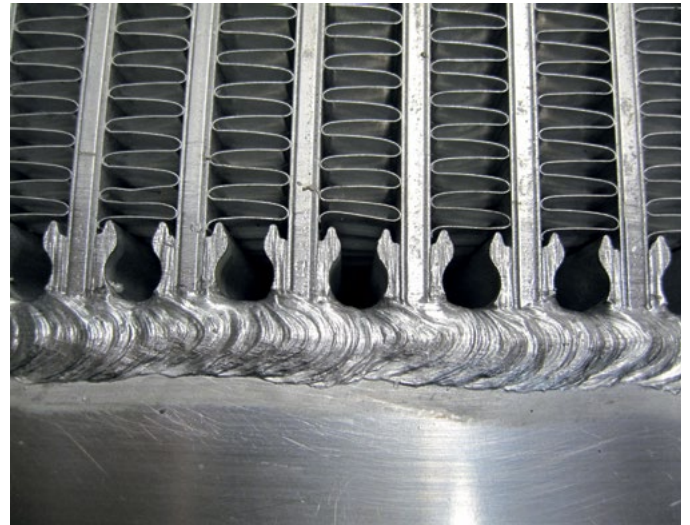
**Cool-Line** is the standard line of products from the market leader in high performance aluminum cooling systems. AKG is best known for its worldwide presence, German engineering, reliable product quality and very competitive prices.

The **Cool-Line models** embrace an all-purpose complete cooling systems that is suited for rugged environmental operating conditions.

All of AKG's solutions have been developed with state-of-the-art technology, produced in compliance with the highest quality standards and are comprehensively tested.

## Benefits

- Well suited for harsh 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.
- Cooler can be universally used in hydraulic oil, transmission oil, engine oil, lubricating oil and coolant circuits.
- Highest quality professional engineering and inhouse manufacturing.
- Available from stock or at short notice.
- Can be exposed to operating pressures of up to 26 bar, depending on model.



## AR/ARL SERIES FEATURES

- Rugged series coolers with non-louvered fin design.
- Coolers offer increased performance with low pressure drop.
- Low noise series coolers offer slower fan speeds for reduced noise level & lower fan HP requirements.
- Multiple motor options to select from - three phase, single phase, 575-volt & class 1, div. 2 and explosion-proof.
- AR/ARL series coolers are available with internal pressure by-pass option.
- Competitive pricing and deliveries from stock.

### Specifications

|                                                |         |
|------------------------------------------------|---------|
| Maximum working pressure (AR5 through AR130)   | 377 PSI |
| Maximum working pressure (AR160 through AR275) | 250 PSI |
| Maximum working temperature                    | 250 °F  |

### Materials

|                   |                                           |
|-------------------|-------------------------------------------|
| Cooler            | Aluminum                                  |
| Shroud            | AR5 - AR40 composite / AR55 - AR275 steel |
| Fan Guard         | Zinc plated steel                         |
| Fan Blade         | Polypropylene blades, Aluminum hub        |
| Mounting Brackets | Powder coated steel                       |

# STANDARD MODELS PERFORMANCE DATA (AR SERIES)

## 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

In most cases you can use 1/3 of the input horsepower. Example: 30 HP Power Unit = 10 HP Heat Load

### STEP 2: DETERMINE THE ACTUAL ETD DESIRED

Entering OIL Temperature -

Entering AIR Temperature = ETD

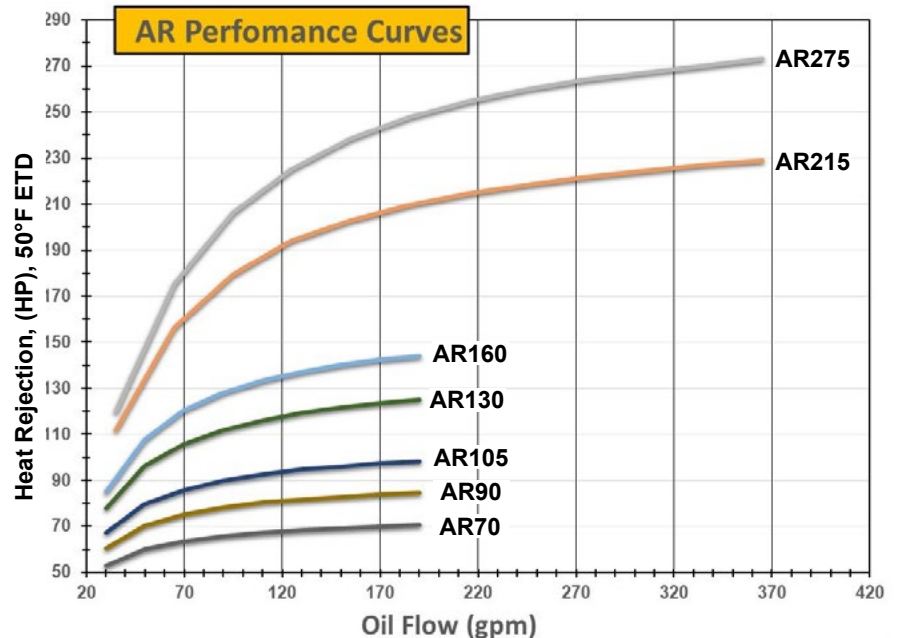
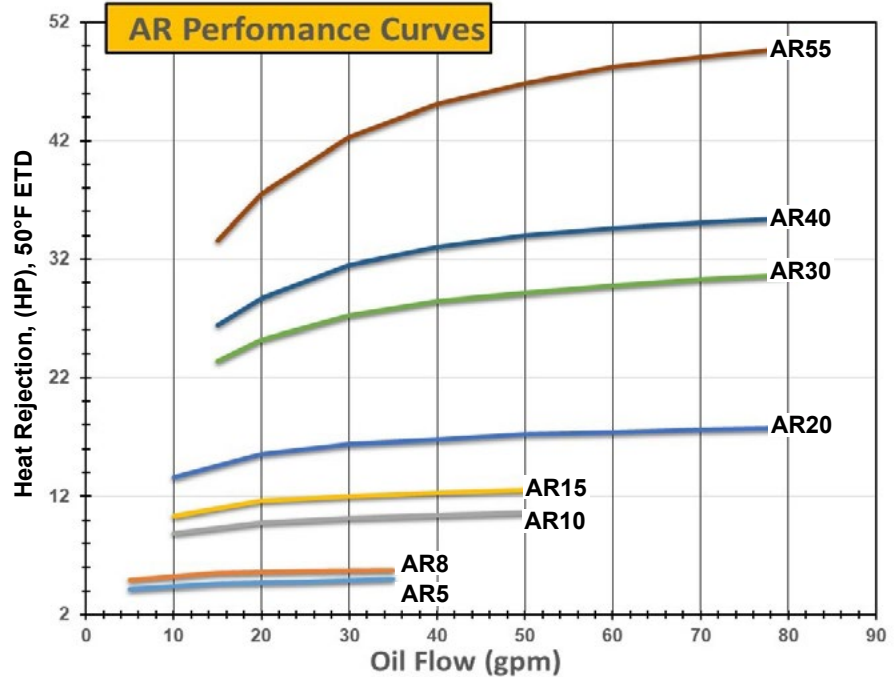
The entering oil temperature is the highest desired oil temperature. The entering air temperature is the highest anticipated ambient air temperature, plus any pre-heating of the air prior to its entering the cooler.

### STEP 3: CALCULATE THE ADJUSTED BTU/HR FOR SELECTION

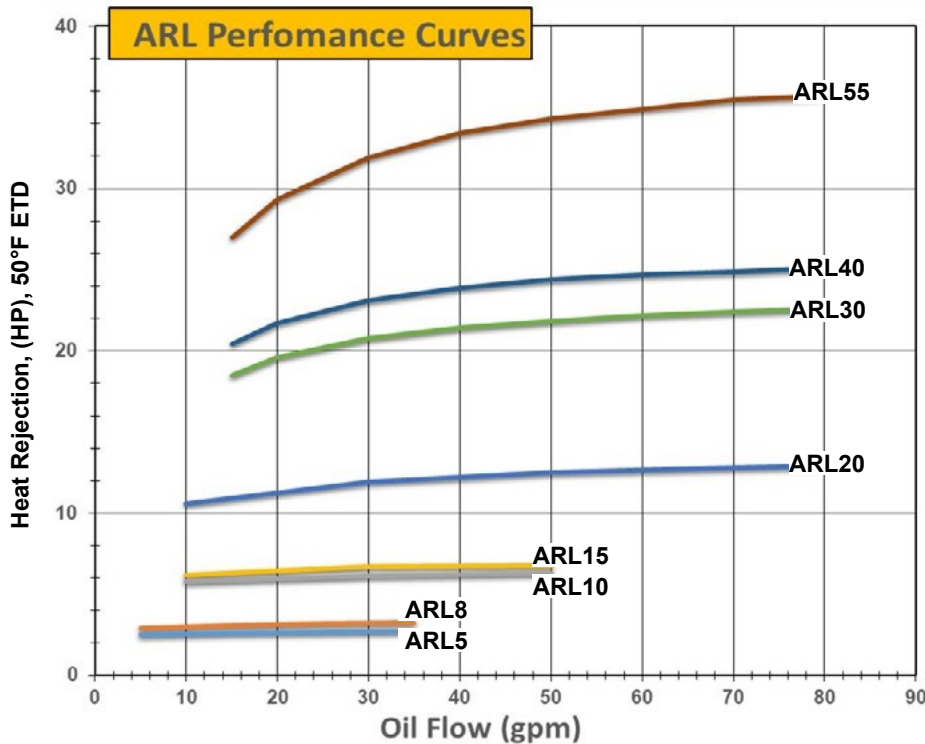
$$\frac{\text{Horsepower}}{\text{Heat Load}} \times \frac{50}{\text{Desired ETD}} = \text{Horsepower for use with selection chart}$$

### 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.



# LOW NOISE MODELS PERFORMANCE DATA (ARL SERIES)



## 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

In most cases you can use 1/3 of the input horsepower. Example: 30 HP Power Unit = 10 HP Heat Load

### STEP 2: DETERMINE THE ACTUAL ETD DESIRED

Entering **OIL** Temperature -

Entering **AIR** Temperature = **ETD**

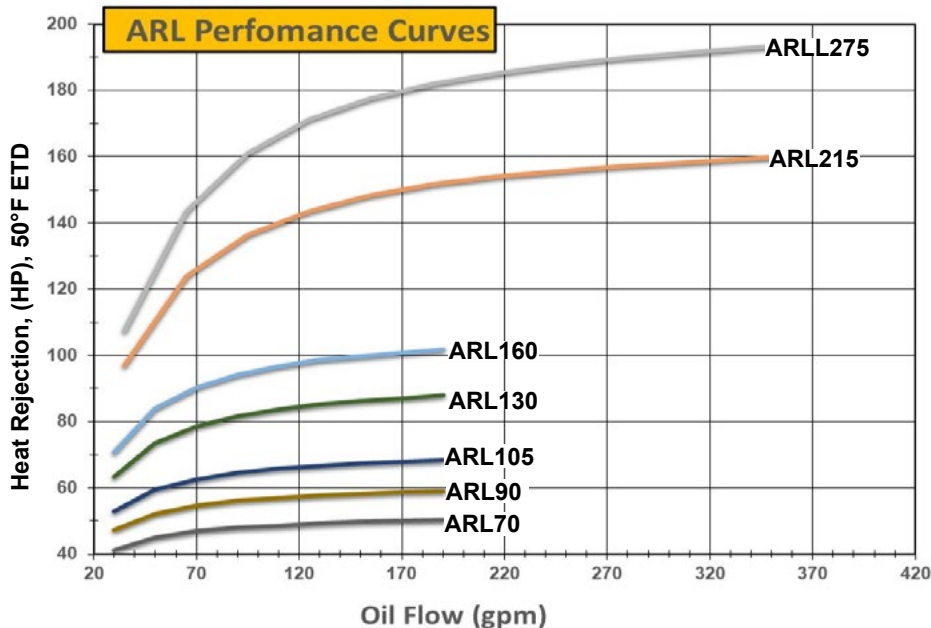
The entering oil temperature is the highest desired oil temperature. The entering air temperature is the highest anticipated ambient air temperature, plus any pre-heating of the air prior to its entering the cooler.

### STEP 3: CALCULATE THE ADJUSTED BTU/HR FOR SELECTION

$$\text{Horsepower Heat Load} \times \frac{50}{\text{Desired ETD}} = \text{Horsepower for use with selection chart}$$

### 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.



# AR/ARL SERIES TECHNICAL DATA

## 3 Phase Electric Motor Data

| MODEL  | Approx. CFM | Approx. Sound dB(A) @ 1-Meter | Hp    | Voltage | Full Load Amps 230V | RPM  | Frame     | Cooler Volume (gal.) | Approx. Shipping Weight (lbs.) |
|--------|-------------|-------------------------------|-------|---------|---------------------|------|-----------|----------------------|--------------------------------|
| AR5    | 890         | 75                            | 1/3   | 230/460 | 1.1                 | 3600 | 56TC      | 0.2                  | 37                             |
| ARL5   | 470         | 62                            | 1/4   | 230/460 | 1.4                 | 1800 | 56TC      |                      |                                |
| AR8    | 840         | 76                            | 1/3   | 230/460 | 1.1                 | 3600 | 56TC      | 0.3                  | 43                             |
| ARL8   | 440         | 68                            | 1/4   | 230/460 | 1.4                 | 1800 | 56TC      |                      |                                |
| AR10   | 1,380       | 83                            | 1/2   | 230/460 | 2.0                 | 3600 | 56TC      | 0.4                  | 46                             |
| ARL10  | 725         | 68                            | 1/3   | 230/460 | 1.3                 | 1800 | 56TC      |                      |                                |
| AR15   | 1,300       | 83                            | 1/2   | 230/460 | 2.0                 | 3600 | 56TC      | 0.8                  | 57                             |
| ARL15  | 685         | 68                            | 1/3   | 230/460 | 1.3                 | 1800 | 56TC      |                      |                                |
| AR20   | 2,520       | 75                            | 1/2   | 230/460 | 2.0                 | 1800 | 56TC      | 0.7                  | 67                             |
| ARL20  | 1,770       | 66                            | 1/2   | 230/460 | 2.4                 | 1200 | 56TC      |                      |                                |
| AR30   | 4,130       | 79                            | 1.0   | 230/460 | 3.1                 | 1800 | 56TC      | 1.0                  | 137                            |
| ARL30  | 2,820       | 70                            | 1/2   | 230/460 | 2.4                 | 1200 | 56TC      |                      |                                |
| AR40   | 3,820       | 79                            | 1.0   | 230/460 | 3.1                 | 1800 | 56TC      | 1.8                  | 169                            |
| ARL40  | 2,610       | 70                            | 1/2   | 230/460 | 2.4                 | 1200 | 56TC      |                      |                                |
| AR55   | 6,210       | 84                            | 2.0   | 230/460 | 2.9                 | 1800 | 56TC      | 2.1                  | 205                            |
| ARL55  | 4,270       | 75                            | 3/4   | 230/460 | 1.5                 | 1200 | 56TC      |                      |                                |
| AR70   | 6,730       | 82                            | 2.0   | 230/460 | 2.9                 | 1800 | 56TC      | 2.9                  | 240                            |
| ARL70  | 4,660       | 74                            | 3/4   | 230/460 | 1.5                 | 1200 | 56TC      |                      |                                |
| AR90   | 8,020       | 90                            | 3.0   | 230/460 | 7.8                 | 1800 | 56TC      | 3.7                  | 277                            |
| ARL90  | 5,490       | 81                            | 1.0   | 230/460 | 3.6                 | 1200 | 56TC      |                      |                                |
| AR105  | 9,730       | 95                            | 3.0   | 230/460 | 7.8                 | 1800 | 56TC      | 4.4                  | 290                            |
| ARL105 | 6,680       | 87                            | 1.0   | 230/460 | 3.6                 | 1200 | 56TC      |                      |                                |
| AR130  | 12,300      | 98                            | 5.0   | 230/460 | 6.3                 | 1800 | 184TC     | 5.2                  | 414                            |
| ARL130 | 8,400       | 89                            | 1-1/2 | 230/460 | 5.2                 | 1200 | 182TC     |                      |                                |
| AR160  | 13,200      | 99                            | 7-1/2 | 230/460 | 22.4                | 1800 | 213/215TC | 6.7                  | 560                            |
| ARL160 | 9,010       | 90                            | 2.0   | 230/460 | 6.4                 | 1200 | 184TC     |                      |                                |
| AR215  | 19,700      | 103                           | 10.0  | 230/460 | 26.8                | 1800 | 215TC     | 9.1                  | 640                            |
| ARL215 | 13,300      | 94                            | 5.0   | 230/460 | 7.0                 | 1200 | 215TC     |                      |                                |
| AR275  | 22,100      | 103                           | 10.0  | 230/460 | 26.8                | 1740 | 215TC     | 12.6                 | 710                            |
| ARL275 | 15,100      | 95                            | 5.0   | 230/460 | 7.0                 | 1200 | 215TC     |                      |                                |

All data based at nominal speed

Electric Motors are are not thermally protected. • Actual rating may vary with motor brand. Check motor nameplate for actual rating.  
External airflow and sound pressures calculated utilizing ASTM test standards. • Motor RPM is reduced by 1/6 for 50 Hz service.  
Motors can be rated for 50 Hz service. Contact factory for potential voltage options.

AR 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](http://www.akgts.com)

# AR/ARL SERIES TECHNICAL DATA

## Single Phase Electric Motor Data

| MODEL  | Approx. CFM | Approx. Sound dB(A) @ 1-Meter | Hp  | Voltage     | Full Load Amps 115V | RPM  | Frame     | Cooler Volume (gal.) | Approx. Shipping Weight (lbs.) |
|--------|-------------|-------------------------------|-----|-------------|---------------------|------|-----------|----------------------|--------------------------------|
| AR5    | 890         | 75                            | 1/3 | 115/208-230 | 5.2                 | 3600 | 56TC      | 0.2                  | 37                             |
| ARL5   | 470         | 62                            | 1/4 | 115/208-230 | 4.6                 | 1800 | 56TC      |                      |                                |
| AR8    | 840         | 76                            | 1/3 | 115/208-230 | 5.2                 | 3600 | 56TC      | 0.3                  | 43                             |
| ARL8   | 440         | 68                            | 1/4 | 115/208-230 | 4.6                 | 1800 | 56TC      |                      |                                |
| AR10   | 1,380       | 83                            | 1/2 | 115/208-230 | 7.0                 | 3600 | 56TC      | 0.4                  | 46                             |
| ARL10  | 725         | 68                            | 1/3 | 115/208-230 | 6.0                 | 1800 | 56TC      |                      |                                |
| AR15   | 1,300       | 83                            | 1/2 | 115/208-230 | 7.0                 | 3600 | 56TC      | 0.8                  | 57                             |
| ARL15  | 685         | 68                            | 1/3 | 115/208-230 | 6.0                 | 1800 | 56TC      |                      |                                |
| AR20   | 2,520       | 75                            | 1/2 | 115/208-230 | 8.0                 | 1800 | 56TC      | 0.7                  | 67                             |
| ARL20  | 1,770       | 66                            | 1/2 | 115/208-230 | 6.4                 | 1200 | 56TC      |                      |                                |
| AR30   | 4,130       | 79                            | 1.0 | 115/208-230 | 13.6                | 1800 | 56TC      | 1.0                  | 137                            |
| ARL30  | 2,820       | 70                            | 1/2 | 115/208-230 | 6.4                 | 1200 | 56TC      |                      |                                |
| AR40   | 3,820       | 79                            | 1.0 | 115/208-230 | 13.6                | 1800 | 56TC      | 1.8                  | 169                            |
| ARL40  | 2,610       | 70                            | 1/2 | 115/208-230 | 6.4                 | 1200 | 56TC      |                      |                                |
| AR55   | 6,210       | 84                            | 2.0 | 115/208-230 | 20.0                | 1800 | 143/145TC | 2.1                  | 205                            |
| ARL55  | 4,270       | 75                            | 3/4 | 115/208-230 | 9.4                 | 1200 | 56TC      |                      |                                |
| AR70   | 6,730       | 82                            | 2.0 | 115/208-230 | 20.0                | 1800 | 143/145TC | 2.9                  | 240                            |
| ARL70  | 4,660       | 74                            | 3/4 | 115/208-230 | 9.4                 | 1200 | 56TC      |                      |                                |
| AR90   | 8,020       | 90                            | 3.0 | 115/208-230 | 33.6                | 1725 | 184TC     | 3.7                  | 277                            |
| ARL90  | 5,490       | 81                            | 1.0 | 115/208-230 |                     |      |           |                      |                                |
| AR105  | 9,730       | 95                            | 3.0 | 115/208-230 | 33.6                | 1725 | 184TC     | 4.4                  | 290                            |
| ARL105 | 6,680       | 87                            | 1.0 | 115/208-230 |                     |      |           |                      |                                |

All data based at nominal speed

Electric Motors are not thermally protected. • Actual rating may vary with motor brand. Check motor nameplate for actual rating.  
External airflow and sound pressures calculated utilizing ASTM test standards. • Motor RPM is reduced by 1/6 for 50 Hz service.  
Motors can be rated for 50 Hz service. Contact factory for potential voltage options.

## 3 Phase Explosion Proof Motors (Class I, Grp. D & Class II)

| MODEL | Approx. CFM | Approx. Sound dB(A) @ 1-Meter | Hp   | Voltage | Full Load Amps 230V | RPM  | Frame     | Cooler Volume (gal.) | Approx. Shipping Weight (lbs.) |
|-------|-------------|-------------------------------|------|---------|---------------------|------|-----------|----------------------|--------------------------------|
| AR5   | 650         | 72                            | 1/2  | 230/460 | 1.8                 | 3600 | 56TC      | 0.2                  | 37                             |
| AR8   | 840         | 76                            | 1/2  | 230/460 | 1.8                 | 3600 | 56TC      | 0.3                  | 43                             |
| AR10  | 1,380       | 83                            | 1/2  | 230/460 | 1.8                 | 3600 | 56TC      | 0.4                  | 46                             |
| AR15  | 1,300       | 83                            | 1/2  | 230/460 | 1.8                 | 3600 | 56TC      | 0.8                  | 57                             |
| AR20  | 2,520       | 75                            | 1/2  | 230/460 | 1.7                 | 1800 | 56TC      | 0.7                  | 67                             |
| AR30  | 4,130       | 79                            | 1.0  | 230/460 | 2.9                 | 1800 | 143/145TC | 1.0                  | 137                            |
| AR40  | 3,820       | 79                            | 1.0  | 230/460 | 2.9                 | 1800 | 143/145TC | 1.8                  | 169                            |
| AR55  | 6,210       | 84                            | 2.0  | 230/460 | 5.6                 | 1800 | 143/145TC | 2.1                  | 205                            |
| AR70  | 6,730       | 82                            | 2.0  | 230/460 | 5.6                 | 1800 | 143/145TC | 2.9                  | 240                            |
| AR90  | 8,020       | 90                            | 3.0  | 230/460 | 7.8                 | 1800 | 182/184TC | 3.7                  | 277                            |
| AR105 | 9,730       | 95                            | 3.0  | 230/460 | 7.8                 | 1800 | 182/184TC | 4.4                  | 290                            |
| AR130 | 12,300      | 98                            | 5.0  | 230/460 | 13.1                | 1800 | 182/184TC | 5.2                  | 414                            |
| AR160 | 13,200      | 99                            | 7.5  | 230/460 | 18.8                | 1800 | 213/215TC | 6.7                  | 560                            |
| AR215 | 19,700      | 103                           | 10.0 | 230/460 | 25.4                | 1800 | 215TC     | 9.1                  | 640                            |
| AR275 | 22,100      | 103                           | 10.0 | 230/460 | 25.4                | 1800 | 215TC     | 12.6                 | 710                            |

All data based at nominal speed

Electric Motors are not thermally protected. • Actual rating may vary with motor brand. Check motor nameplate for actual rating.  
External airflow and sound pressures calculated utilizing ASTM test standards. • Motor RPM is reduced by 1/6 for 50 Hz service.  
Motors can be rated for 50 Hz service. Contact factory for potential voltage options.

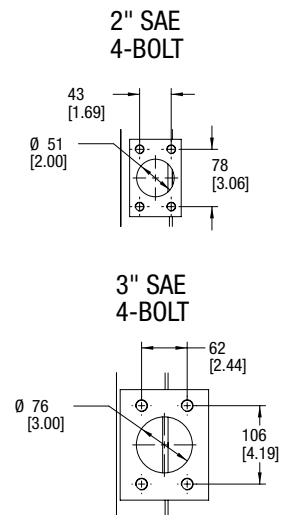
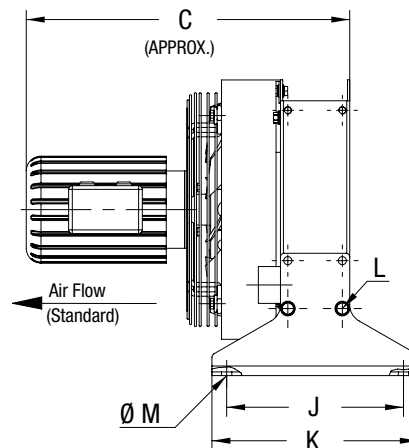
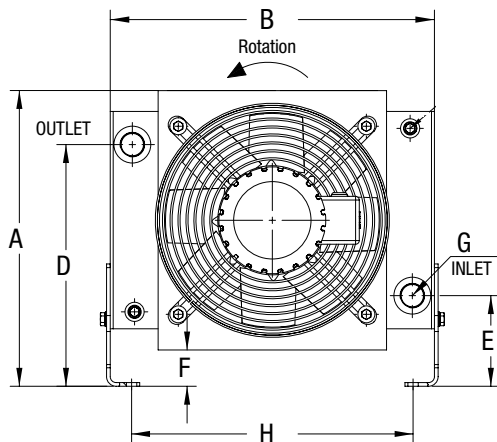
# AR/ARL SERIES DIMENSION

| MODEL     | A     | B     | C<br>(Approx. +/- 2.0") | D     | E     | F    | G                          | H     | J     | K     | L                               | M      |
|-----------|-------|-------|-------------------------|-------|-------|------|----------------------------|-------|-------|-------|---------------------------------|--------|
| AR/ARL5   | 13.7  | 13.78 | 12.56                   | 11.38 | 4.21  | 1.97 | #12 SAE<br>1 1/16-12 UN-2B | 11.93 | 7.09  | 8.66  | M6-1 • X12MM<br>Bolt (4 PL)     | Ø 0.55 |
| AR/ARL8   | 14.15 | 13.78 | 13.27                   | 11.83 | 4.66  | 2.48 | #12 SAE<br>1 1/16-12 UN-2B | 11.93 | 7.09  | 8.66  | M6-1 • X12MM<br>Bolt (4 PL)     | Ø 0.55 |
| AR/ARL10  | 15.81 | 15.75 | 14.50                   | 12.88 | 5.11  | 1.50 | #16 SAE<br>1 5/16-12 UN-2B | 13.86 | 7.09  | 8.66  | M8-1.25 • X16MM<br>Bolt (4 PL)  | Ø 0.55 |
| AR/ARL15  | 15.53 | 16.54 | 16.00                   | 12.17 | 5.24  | 1.50 | #16 SAE<br>1 5/16-12 UN-2B | 14.65 | 7.09  | 8.66  | M8-1.25 • X16MM<br>Bolt (4 PL)  | Ø 0.55 |
| AR/ARL20  | 19.45 | 21.65 | 15.50                   | 15.69 | 5.1   | 1.50 | #20 SAE<br>1 5/8-12 UN-2B  | 19.76 | 7.09  | 8.66  | M8-1.25 • X16MM<br>Bolt (4 PL)  | Ø 0.55 |
| AR/ARL30  | 23.94 | 25.59 | 16.75                   | 20.26 | 5.06  | 1.50 | #20 SAE<br>1 5/8-12 UN-2B  | 23.70 | 7.09  | 8.66  | M8-1.25 • X16MM<br>Bolt (4 PL)  | Ø 0.55 |
| AR/ARL40  | 24.09 | 26.38 | 18.00                   | 17.8  | 7.83  | 1.50 | #20 SAE<br>1 5/8-12 UN-2B  | 24.49 | 10.24 | 11.81 | M10-1.5 • X20MM<br>Bolt (8 PL)  | Ø 0.55 |
| AR/ARL55  | 26.26 | 30.31 | 19.50                   | 19.96 | 8.15  | 1.50 | #20 SAE<br>1 5/8-12 UN-2B  | 28.32 | 10.24 | 11.81 | M10-1.5 • X20MM<br>Bolt (8 PL)  | Ø 0.55 |
| AR/ARL70  | 30.79 | 36.22 | 21.80                   | 24.2  | 8.65  | 1.50 | 2" SAE • 4-Bolt<br>FLANGE  | 34.22 | 21.10 | 22.64 | M10-1.5 • X20MM<br>Bolt (8 PL)  | Ø 0.55 |
| AR/ARL90  | 30.27 | 37.01 | 23.30                   | 24.17 | 7.67  | 1.50 | 2" SAE • 4-Bolt<br>FLANGE  | 35.01 | 21.10 | 22.64 | M12-1.75 • X25MM<br>Bolt (8 PL) | Ø 0.55 |
| AR/ARL105 | 33.12 | 38.98 | 23.40                   | 25.04 | 9.44  | 1.50 | 2" SAE • 4-Bolt<br>FLANGE  | 36.98 | 21.10 | 22.64 | M12-1.75 • X25MM<br>Bolt (8 PL) | Ø 0.55 |
| AR/ARL130 | 37.57 | 40.94 | 25.10                   | 29.79 | 9.28  | 1.50 | 2" SAE • 4-Bolt<br>FLANGE  | 39.06 | 21.10 | 22.64 | M12-1.75 • X25MM<br>Bolt (8 PL) | Ø 0.55 |
| AR/ARL160 | 38.15 | 43.62 | 29.50                   | 31.12 | 9.59  | 2.00 | 2" SAE • 4-Bolt<br>FLANGE  | 40.17 | 14.72 | 17.72 | M12-1.75 • X25MM<br>Bolt (8 PL) | Ø 0.75 |
| AR/ARL215 | 47.03 | 49.49 | 30.80                   | 36.24 | 12.77 | 2.00 | 3" SAE • 4-Bolt<br>FLANGE  | 48.22 | 15.70 | 18.70 | M12-1.75 • X25MM<br>Bolt (8 PL) | Ø 0.75 |
| AR/ARL275 | 59.58 | 53.68 | 30.70                   | 43.97 | 17.52 | 2.00 | 3" SAE • 4-Bolt<br>FLANGE  | 50.34 | 17.67 | 20.67 | 3/4-10 x 1.75<br>Bolt (8 PL)    | Ø 0.75 |

All dimensions in inches

Dimensions are for general information only, all critical dimensions should be verified by requesting a certified print.

## COOLER DIMENSIONS A/ARL



## ORDERING INFORMATION

SERIES CODE: MODEL SIZE:

AR

MOTOR CODE:

—

BYPASS DATA:

CUSTOM FEATURE CODE:

SERIES: AR = Standard, ARL = Low Noise  
 MODEL SIZE: Selected  
 MOTOR CODE: 0 = No Motor, C = Core Only, 1 = Single Phase, 3 = Three Phase, 575 = 575 Volt, C1D2 = Class I, Division 2 3-phase, 3EXP = 3 Phase Explosion-Proof  
 BYPASS DATA: BP25 = 25PSI Internal Bypass, BP30 = 30PSI Internal Bypass, BP60 = 60PSI Internal Bypass, BP65 = 65PSI Internal Bypass,  
 CUSTOM FEATURE CODE: B = Blowing Fan, AD = SAE to NPT Adaptors, H = Heresite Coated Core, ACM = Classic Style Mounting Bracket

ORDER EXAMPLE: Heat Exchanger, 90 HP; Suction Fan, 3 Phase; 60PSI Internal Bypass

AR90-3-BP60



AKG Thermal Systems, Inc.  
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P.O. Box 189  
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E-Mail: [sales@akgts.com](mailto:sales@akgts.com)  
Website: [www.akgts.com](http://www.akgts.com)

## 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.