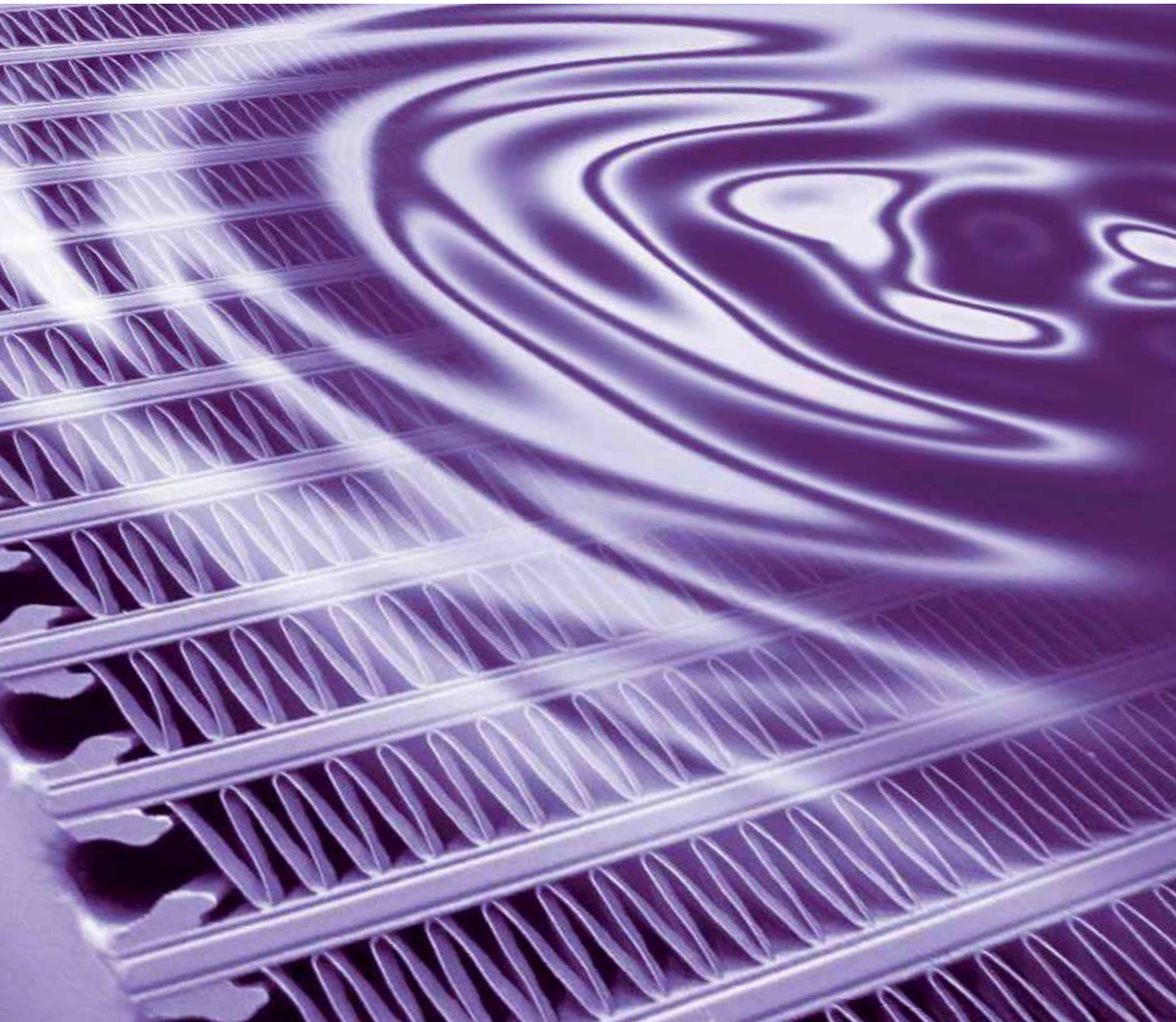




GLOBAL STANDARD COOLER  
**Cool-Line DB**



## OIL-TO-AIR COOLING SYSTEMS WITH BRUSHLESS 12 VOLT DC-MOTOR

### PRODUCT INFORMATION

AKG Cool-Line is an advanced 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, extremely reliable product quality, and very competitive prices.

The DB Brushless series consists of different models for mobile and stationary applications and are available through our global dealer network. This line of products embraces complete cooling systems that comply with both European and American standards. The DB Series is suited to perform well under standard conditions as well as for the most rugged environments.

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 in our own research facilities in Germany.

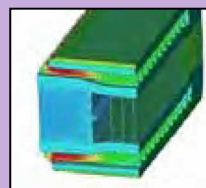
### PATENTED AKG HOLLOW PROFILE



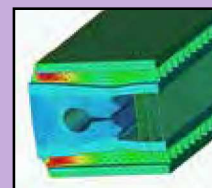
Cool-Line uses patented AKG hollow profiles to reduce local peak strains. This significantly increases the lifespan of AKG heat exchangers.

### AKG HOLLOW PROFILE FEATURES

**Reduced Strain:** Strength calculations show that using AKG hollow profiles reduces maximum strain by a factor of 2.  
**Prolonged Service Life Time:** Extensive rig tests have shown that life time increases by a factor of 3 to 5.



with standard profile



with hollow profile

### STANDARD FEATURES OF THE DB SERIES

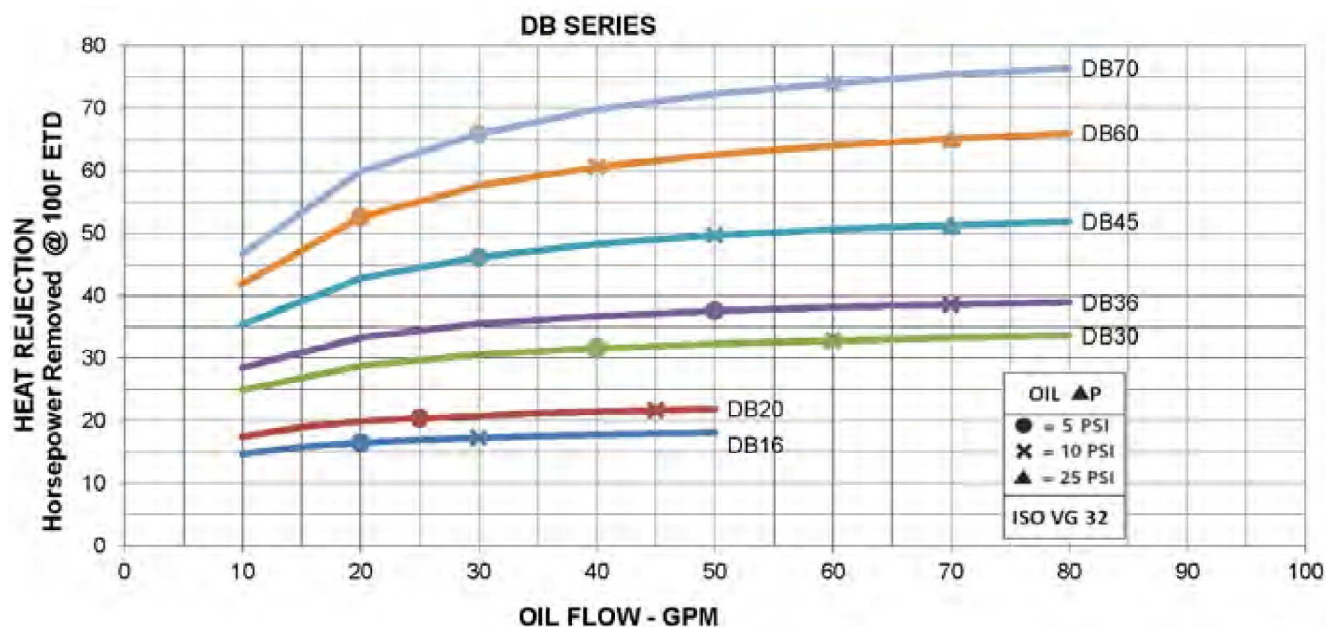
- **AKG SMART temperature controller** with plug and play set-up
- Brushless DC motor powered axial fan with product life up to 40,000 hours\*
- Compatibility with a variety of coolant circuits (hydraulic, transmission, engine, lubricating, etc.) up to an operating pressure of 377 psi (26 bar)
- Fan speed control with PWM input signal
- Protection against over temperature, over current, lock rotation, mechanical overload, and over/under voltage
- IP68 rated, spark free, fully sealed motor with double-sealed bearing
- Resistant to vibrations & mechanical stresses

### ADVANCED FEATURES

- High efficiency and low power consumption
- Highly versatile, ready-to-use cooling package
- Effective in a large range of ambient temperatures
- Ability to control oil temperature and viscosity

\* at optimal operating conditions

## STANDARD MODELS PERFORMANCE DATA (DB SERIES)



### Specifications:

Maximum Working Pressure	377-PSI
Maximum Working Temperature	250°F

### Materials:

Cooler	Aluminum
Fan Guard	Steel
Shroud	Steel
Fan Blade	Plastic

## SELECTION PROCEDURES

The performance curves are based on the following:

- VG32 Hydraulic Oil
- 100 °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 input power

Example: 30 hp power unit = 10 hp heat load

If you do not know input power, then calculate the heat load from flow and pressure.

Flow (gpm) x Pressure (psig) / 1714 = input power

Example: 25 gpm x 2056 psig/1714 = 30 hp

1/3 of input power = 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 entering the cooler.

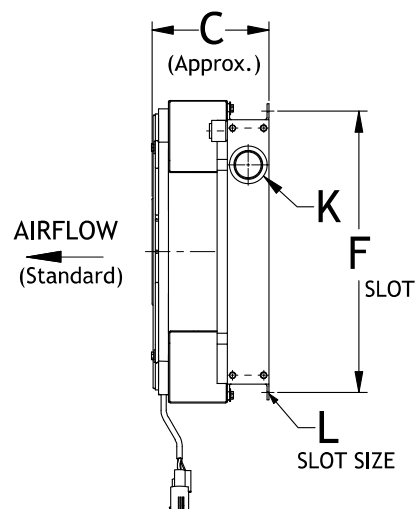
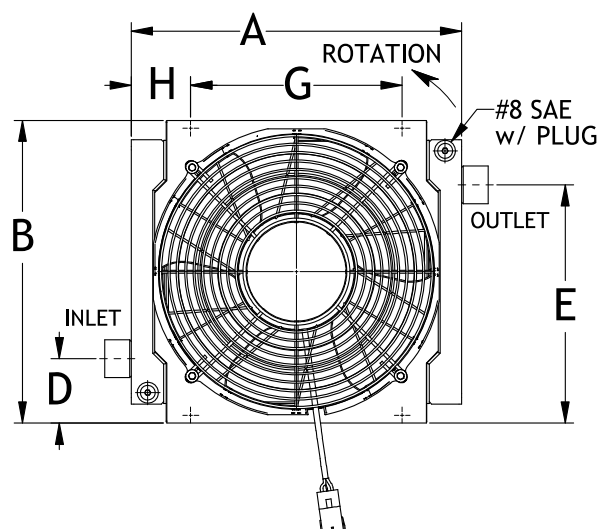
### STEP 3. CALCULATE THE ADJUSTED HORSEPOWER

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

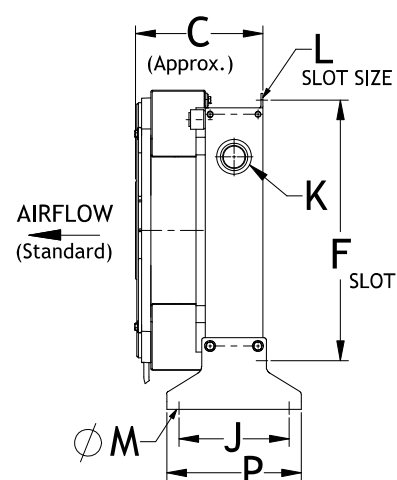
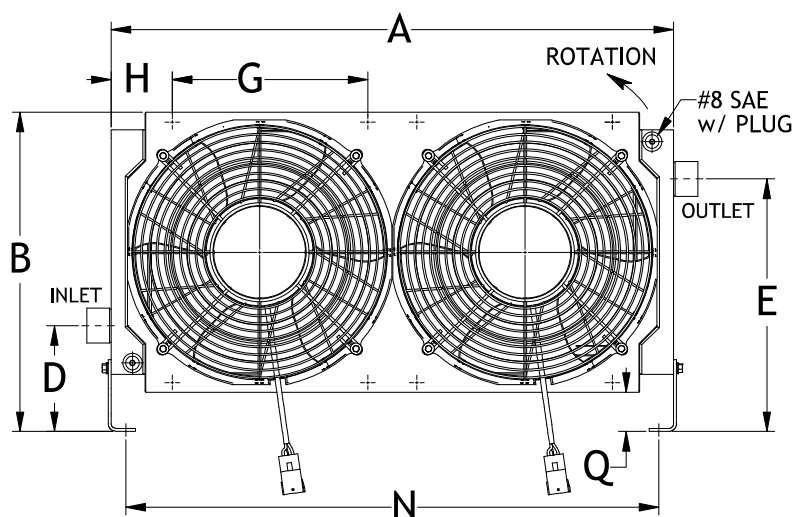
### STEP 4. SELECT THE MODEL FROM THE CURVES

Read up from the GPM to the required heat rejection. Select any model on, or above this point.

**COOLER DIMENSIONS DB16 TO DB36**



**COOLER DIMENSIONS DB45 TO DB70**



## DB SERIES TECHNICAL DATA

Model Size	Motor Voltage (V)	Number of Fans	Approx. Current Draw per Fan (A)	Approx. Noise Level (dB(A), 1 m)	Approx. Shipping Weight (lbs)
DB16	12	1	24	86	22
DB20	12	1	25	86	26
DB30	12	1	24	85	32
DB36	12	1	25	85	47
DB45	12	2	24	87	62
DB60	12	2	25	87	70
DB70	12	2	25	87	84

12 volt fan motors have a Yazaki connector

## DB16 TO DCS36 SERIES DIMENSIONS

Model Size	A	B	C	D	E	F	G	H	K	L
DB16	15.8	13.6	5.9	6.8	6.8	12.8	8.6	3.5	#16 SAE O-Ring	5/16 X 1/2" slot
DB20	15.8	13.6	6.7	6.8	6.8	12.8	8.6	3.5	#16 SAE O-Ring	5/16 X 1/2" slot
DB30	19.7	18.0	7.0	3.9	14.2	16.77	12.6	3.5	#20 SAE O-Ring	5/16 X 5/8" slot
DB36	20.5	18.0	8.2	4.3	13.7	17.08	12.6	3.5	#20 SAE O-Ring	5/16 X 5/8" slot

All Dimensions in inches

## DB45 TO DB70 SERIES DIMENSIONS

Model Size	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
DB45	28.7	16.6	7.9	6.8	12.4	12.9	11.8	8.4	7.1	#20 SAE O-Ring	7/16 x 3/4" slot	Ø 0.55	26.5	8.7	2.6
DB60	35.8	20.6	7.0	6.4	16.7	16.7	12.6	3.7	7.1	#20 SAE O-Ring	5/16 x 5/8" slot	Ø 0.55	33.5	8.7	2.6
DB70	36.2	20.6	8.2	6.81	16.14	16.77	12.6	4.13	7.1	#20 SAE O-Ring	5/16 x 5/8" slot	Ø 0.55	33.5	8.7	2.6

All Dimensions in inches

## SMART LED CONTROLLER

*The AKG SMART Controller varies the speed of the fan(s) to maintain the temperature set by the operator; between 90°F and 250°F. This SMART Controller includes plug and play connectors for easy installation, an LED temperature read out for programing, and displays continuous, real-time oil temperature.*

- *By controlling system temperature, the DB Series Cooler combined with SMART Controller provides consistent system viscosity while lowering energy costs and noise levels.*
- *The AKG SMART Controller can be installed on either the inlet or outlet side of the heat exchanger. Installing on the inlet side allows control of the hottest oil temperature in the system, while installing on the outlet will set the reservoir oil temperature.*

### VOLTAGE/CURRENT RATINGS

9-32 VDC  
30 AMP CONTINUOUS

## DEFAULT SETTINGS

SET POINT RANGE: MIN. 90°F (32°C)  
MAX. 250°F (121°C)  
DEFAULT. 25°F

## ADJUSTABLE PARAMETERS

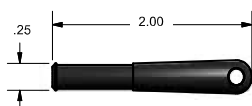
FROM MENU

SET POINT:  $\pm 1^{\circ}$   
DIFFERENTIAL:  $\pm 1^{\circ}$

NOTE:  
DIFFERENTIAL SETS RANGE TEMPERATURE  
SET POINTS MEDIAN FAN (50%) OUTPUT  
TEMPERATURE

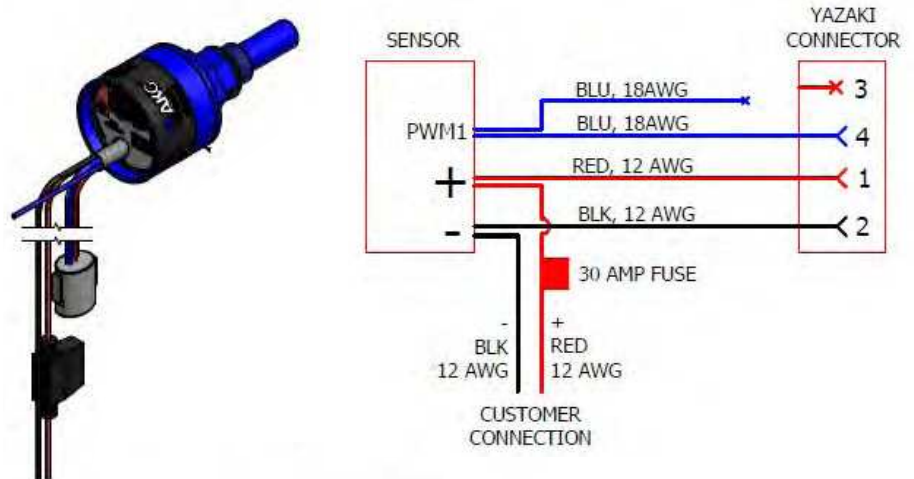
## OPTIONS

CHANGE FROM ° F TO ° C  
PRESSURE: 3,000 (PSI NOT TO EXCEED)  
RUN-TIME: AFTER SET POINT ACHIEVED  
1 MINUTE-MIN.

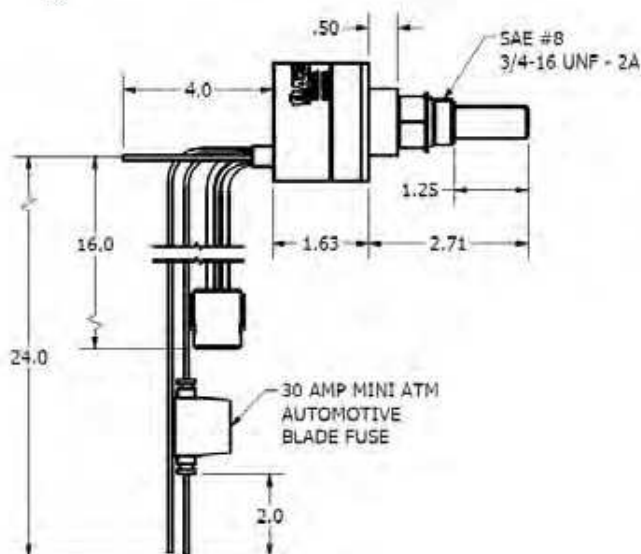


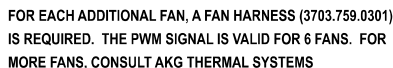
MAGNET WAND  
SCALE 1 : 1  
#MAG-WAND-HSG

NOTE: EACH AKG CONTROLLER IS PROVIDED WITH A MAGNET WAND USED TO ADJUST THE SETTINGS.

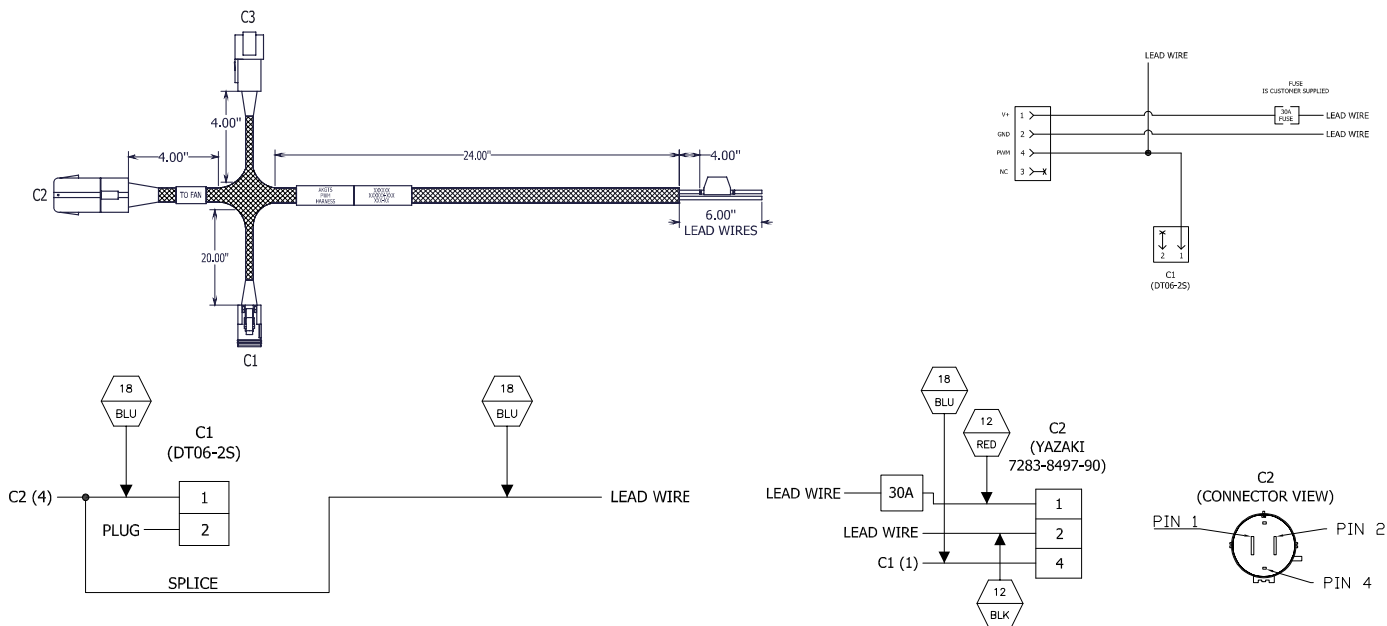


YAZAKI CONNECTOR	
PIN	CONNECTION
1	+V
2	GROUND
3	(NO CONN)
4	PWM SIGNAL





## PWM SMART CONTROLLER DUAL FAN WIRING HARNESS



## ORDERING INFORMATION

**SERIES CODE: MODEL SIZE:**

**MOTOR CODE:**

**BYPASS DATA:**

**CUSTOM FEATURE CODE:**

DB		—	12	—		—	
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**SERIES:**

**DB** = Standard with SMART Controller

**MODEL SIZE:**

Selected

**MOTOR CODE:**

**12 = 12 Volt**

**BYPASS DATA:**

**BP25** = 25 PSI Internal Bypass, **BP30** = 30 PSI Internal Bypass, **BP60** = 60 PSI Internal Bypass, **BP65** = 65 PSI Internal Bypass

**CUSTOM FEATURE CODE:** **AD** = SAE to NPT Adaptors shipped w/Cooler, **MTG** = Feet Mounting Bracket Set (Included on Models DB45/60/70), **N** = No Controller

**ORDER EXAMPLE:**

Heat Exchanger, 30 HP, 12 Volt, SAE to NPT Adaptors

**DB30-12-AD**



## AKG – A STRONG GLOBALLY INTEGRATED GROUP OF COMPANIES

AKG is a globally leading supplier of high-performance coolers and heat exchangers as well as customised system solutions, that comply with the highest quality standards.

On a world-wide scale, 2,800 employees work at 12 manufacturing facilities located in Germany, France, United Kingdom, Latvia, the U.S.A., China and India. Together with a number of additional overseas sales companies they are on duty around the clock.

### Your AKG-Partner

Thermal Transfer Systems Inc  
PH: 800-527-0131  
FAX: 972-242-7568  
Email: [Sales@ThermalTransfersystems.com](mailto:Sales@ThermalTransfersystems.com)

The longstanding and competent partnership with global OEM customers from 22 lines of business such as construction machinery, compressed-air systems, agricultural and forestry machines, vehicle construction and many other fields of application give fresh and innovative impetus to the mobile and industrial standard type series.

AKG operates one of the world's largest research, development, measurement and validation centres for cooling solutions and customised applications.

For 90 years AKG's heat exchangers have stood for innovative solutions as well as highest engineering and manufacturing competence.

Aluminum Coolers – Made by AKG  
DIN EN ISO 9001 : 2000