

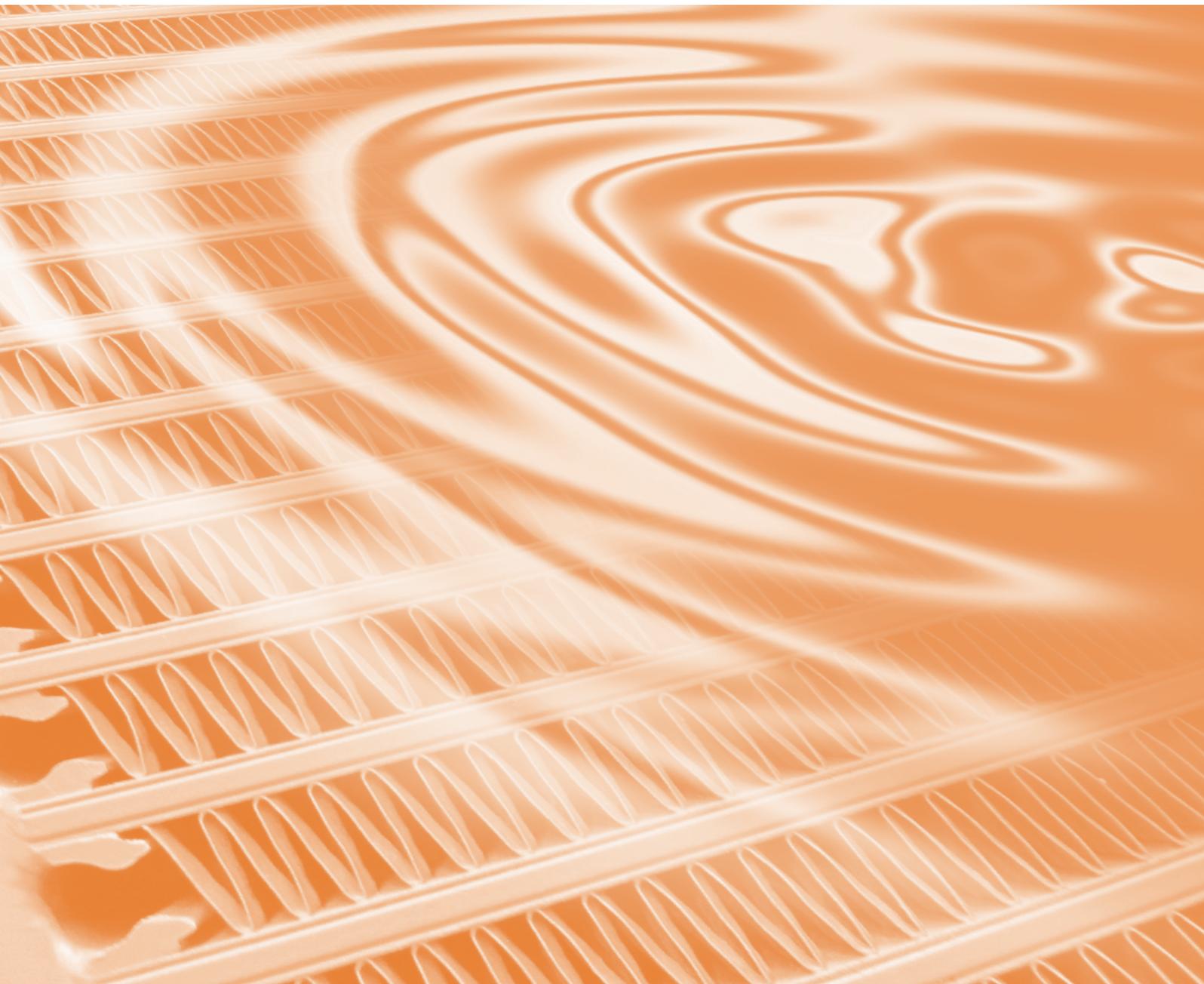


# BYPASS SERIES

GLOBAL STANDARD COOLER

AKG-Line

AY



## OIL-TO-AIR COOLING SYSTEMS WITH INTEGRATED BYPASS AND AC-MOTOR

### PRODUCT INFORMATION

**AKG-Line** is a standard line of products from the market leader in high performance aluminium 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 **AKG-Line Bypass** Series consists of different models for mobile and stationary applications. It is 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 and powered by AC- (AY), DC- (DY) or hydraulic-motor-driven (HY) fans.

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 the company's own research and test facility.

### FEATURES OF THE AY SERIES

- High-Performance cooling assembly
- AC motor powered fan
- Avoiding overstraining at cold start conditions and high oil flows
- The heat is transferred from the hot medium to the cooling ambient air
- Coolers can be universally used with hydraulic oil, transmission oil, engine oil and lubricating oil
- For the cooling of mineral oil, synthetic oil, biological oil as well as HFA, HFB, HFC and HFD liquids (other media on request)
- Can be exposed to operating pressures of up to 17 bar and operating temperatures of up to 120 °C
- Standard design with 2 bar opening pressure bypass valve (other pressures on request)

### BENEFITS

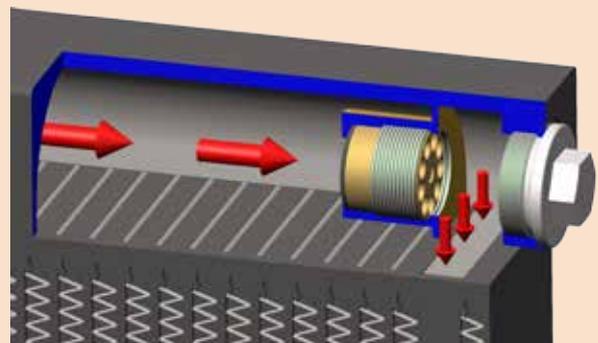
- Largest and most comprehensive series of mobile hydraulic coolers
- Highly flexible, complete ready-to-use cooling packages
- Compact design because of integration of bypass
- Faster approach of operating temperature
- Compact and robust design, field-tested during many years of use in rugged real life conditions
- Best heat transfer results per given cooler size due to comprehensive research and development
- Highest quality due to professional engineering and in-house manufacturing
- Available from stock or at short notice
- As a standard equipped with **AKG's double-life** hollow sections designed to increase cooler life span

### OPERATING MODE OF INTEGRATED BYPASS

Especially with high oil flows or at cold start conditions (low oil temperatures and high oil viscosities) high pressures can occur in the cooler core.

In this case part of the volume flow is bypassing the cooler core through the integrated valve.

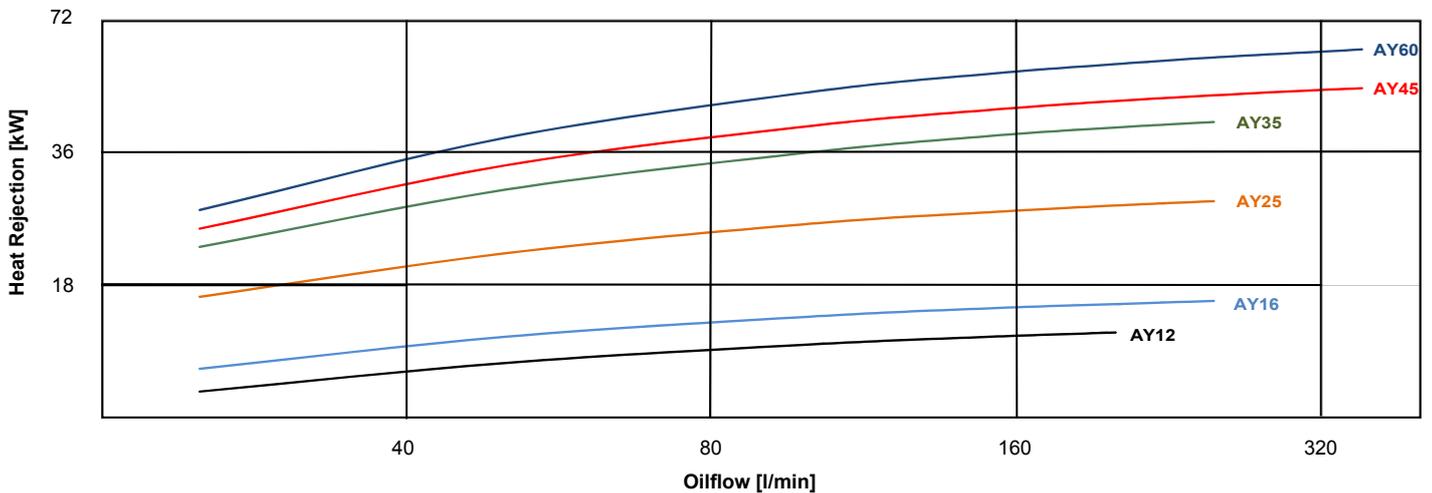
Like this a sufficient volume flow can be assured for the cooler and lubrication oil circuit - also with high pressure drops. Overstraining of the cooler core will be avoided effectively.



The installation of an external bypass is not necessary reducing costs and mounting space.

## EASY SIZING DIAGRAM

FOR ENTRANCE-TEMPERATURE-DIFFERENCE 40 K



### Selection by Specific Heat Rejection

#### 1. Input Data:

		Example
Required Heat Rejection	P =	20 kW
Oilflow through Cooler	V =	150 l/min
Oil Inlet Temperature	T <sub>Oil</sub>	70 °C
Cooling Airflow Temperature	T <sub>CAF</sub>	30 °C

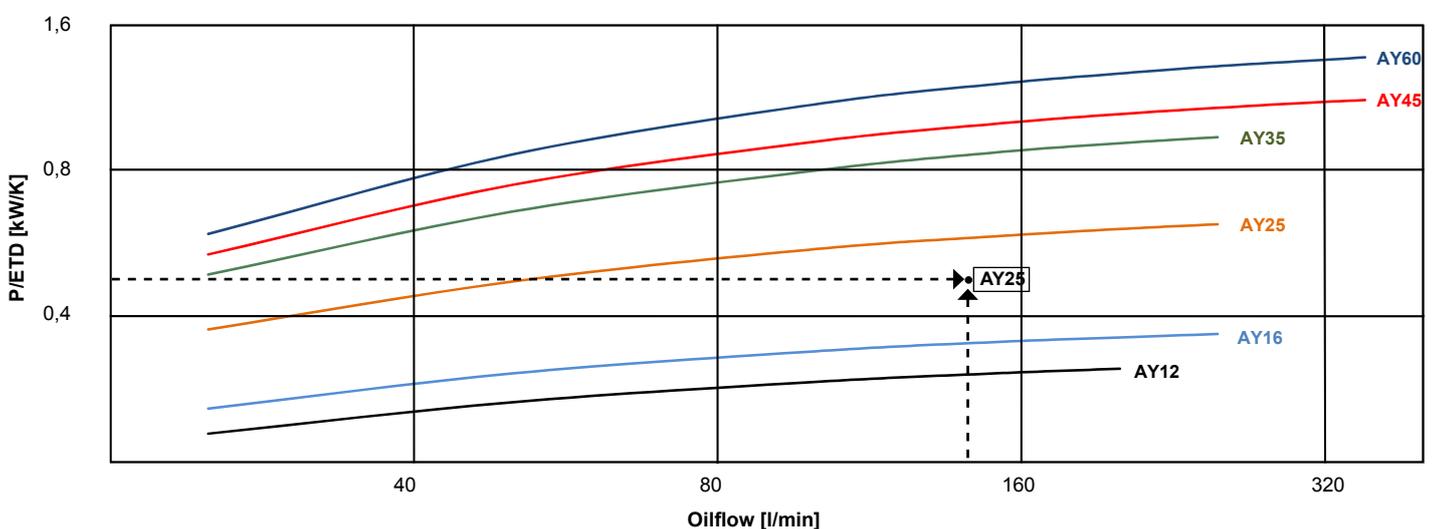
#### 2. Determination of Specific Heat Rejection:

Entering-Temperature-Difference	ETD =	70 °C - 30 °C = 40 K
Required Specific Heat Rejection	P/ETD	20 kW/40 K = 0,5 kW/K

#### 3. Select According to Diagram and Result:

Next higher curve  
AY 25

## SPECIFIC HEAT REJECTION



## TECHNICAL DATA

Model Size	Voltage of 3 Phase-Motor (V)	Motor Power Consumption (kW)	Nominal Speed (rpm)	Approx. Noise Level (dB(A), 1m)	Approx. Net Weight of Assembly (kg)	Valve opening pressure (Bypass) (bar)	Volume (l)	Frequency (Hz)	Working Pressure (bar)
AY12	230/400	0,37	3000	80	20	2,0	2,3	50	17
AY16	230/400	0,37	3000	83	24	2,0	3,5	50	17
AY25	230/400	0,55	1500	81	32	2,0	4,5	50	17
AY35	230/400	0,75	1500	80	43	2,0	5	50	17
AY45	230/400	0,75	1500	81	60	2,0	7,5	50	17
AY60	230/400	0,75	1500	83	69	2,0	9	50	17

All data based on nominal fan speed conditions

## DIMENSIONS

Model Size	A	B	C (approx.)	D	E	F	G	H	J	K	L	M
AY12	391	450	410	324	107	40	G1	392	180	220	M8	ø14
AY16	402	440	440	328	123	49	G1	382	240	280	M8	ø14
AY25	496	600	520	427	105	36	G1 1/4	542	180	220	M8	ø14
AY35	601	700	510	532	104	36	G1 1/4	638	180	220	M8	ø14
AY45	613	690	540	538	123	48	G1 1/4	632	240	280	M10	ø14
AY60	666	790	605	583	123	43	G1 1/4	732	240	280	M10	ø14

All dimensions in mm

## ORDERING INFORMATION

Serial Code: Model Size:

<b>AY</b>	
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Optional Custom Features:

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with:

with Blower Fan [B]  
 with Resistplast Coating [+R]  
 PTFE Based Coating [+T]  
 with Motor Frequency 60 Hz [+60 Hz]  
 with large Support Feet [+LF]

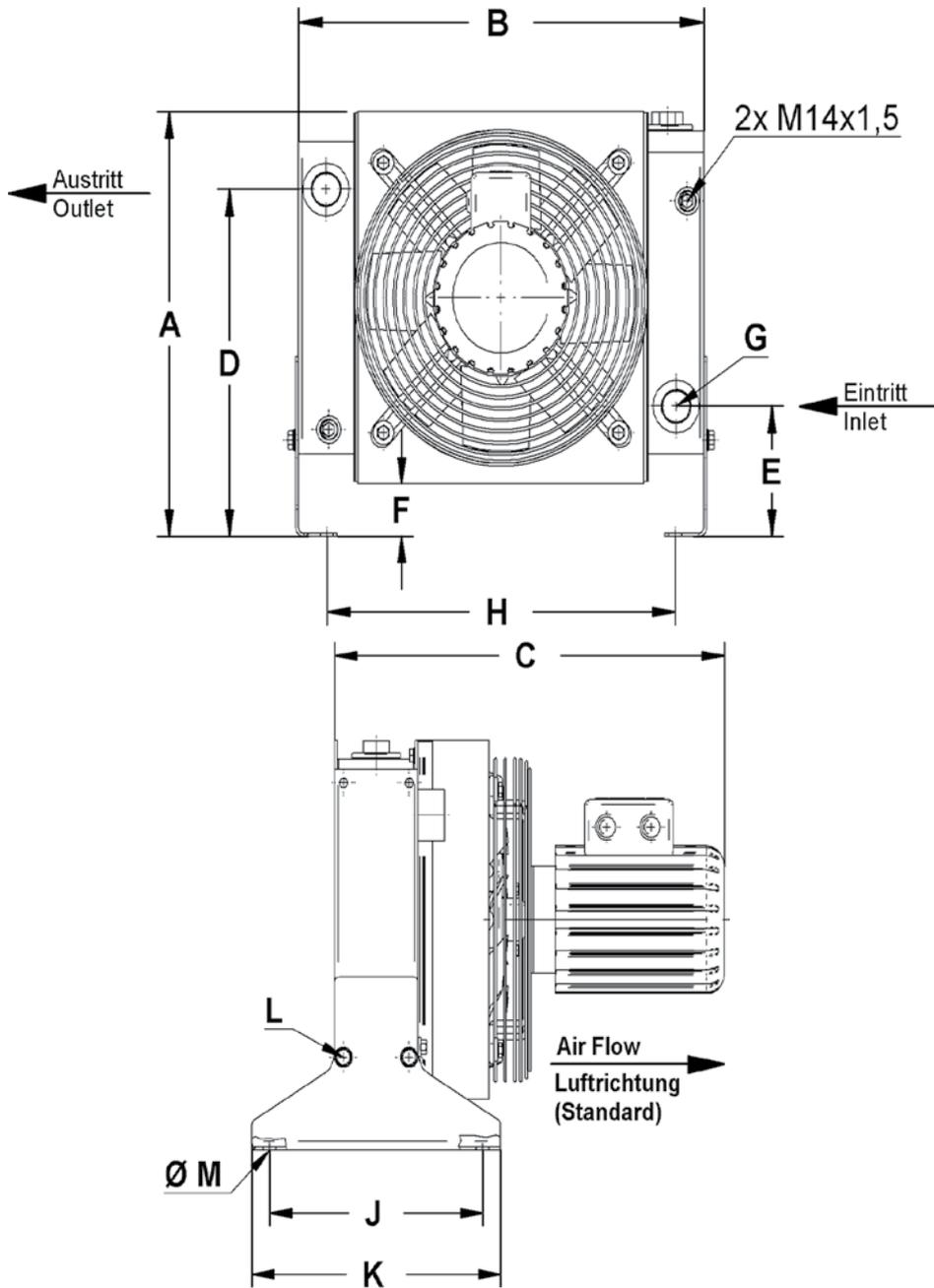
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without:

without Motor [-M]  
 without Motor, without Fan [-FM]  
 Cooler Only [C]  
 Cooler without Paint [-P]  
 without Support Feet [-F]

**Order Code Example:** Heat Exchanger, 35 KW, sucking AC-driven fan, Bypass (2 bar) -> **AY35**  
 Heat Exchanger, 60 KW, blowing AC-driven fan, Bypass (2 bar) -> **AY60B**

COOLER DIMENSIONS AY12 TO AY60



STANDARD SCOPE OF SUPPLY OF OIL-TO-AIR COOLING SYSTEM

Cooler made of painted aluminium with Bypass
Plastic fan
Fan-shroud, fingerguard and support feet all made of steel (chromated plated or powder coated)
AC-Motor



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## 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 2,500 employees work at 12 manufacturing facilities located in Germany, France, Latvia, Turkey, the U.S.A., Brasil, China and India. Together with a number of additional oversea sales companies they are on duty around the clock.

### Your AKG-Partner



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.

AKG's heat exchangers have stood for innovative solutions as well as highest engineering and manufacturing competence for more than 95 years.

Aluminium Coolers – Made by AKG  
DIN EN ISO 9001