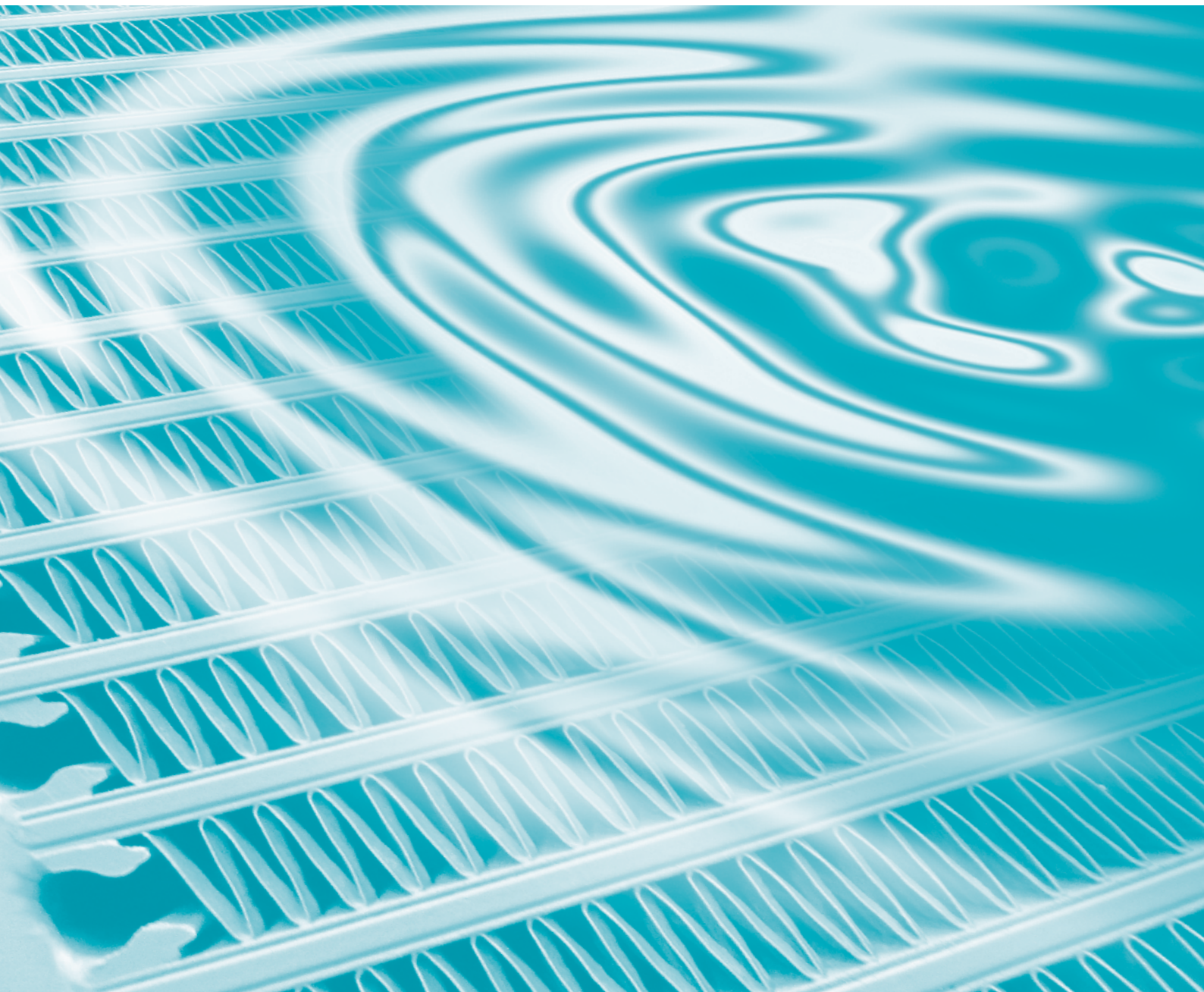




**GLOBAL STANDARD COOLER**  
**AKG-Line** **DY**



## MOBILE HYDRAULIC OIL-TO-AIR COOLING SYSTEMS WITH INTEGRATED BYPASS

### 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 DY SERIES

- High-Performance cooling assembly
- DC 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

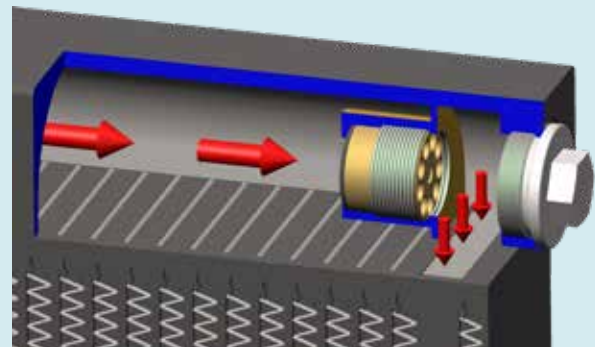
- Largest and most comprehensive series of mobile hydraulic coolers
- Highly flexible, complete ready-to-use cooling packages
- Compact design because of integration of bypass
- Faster approach of operating temperature
- Compact and robust design, field-tested during many years of use in rugged real 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
- Standard equipped with fouling resistant cooling air fins

### 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.

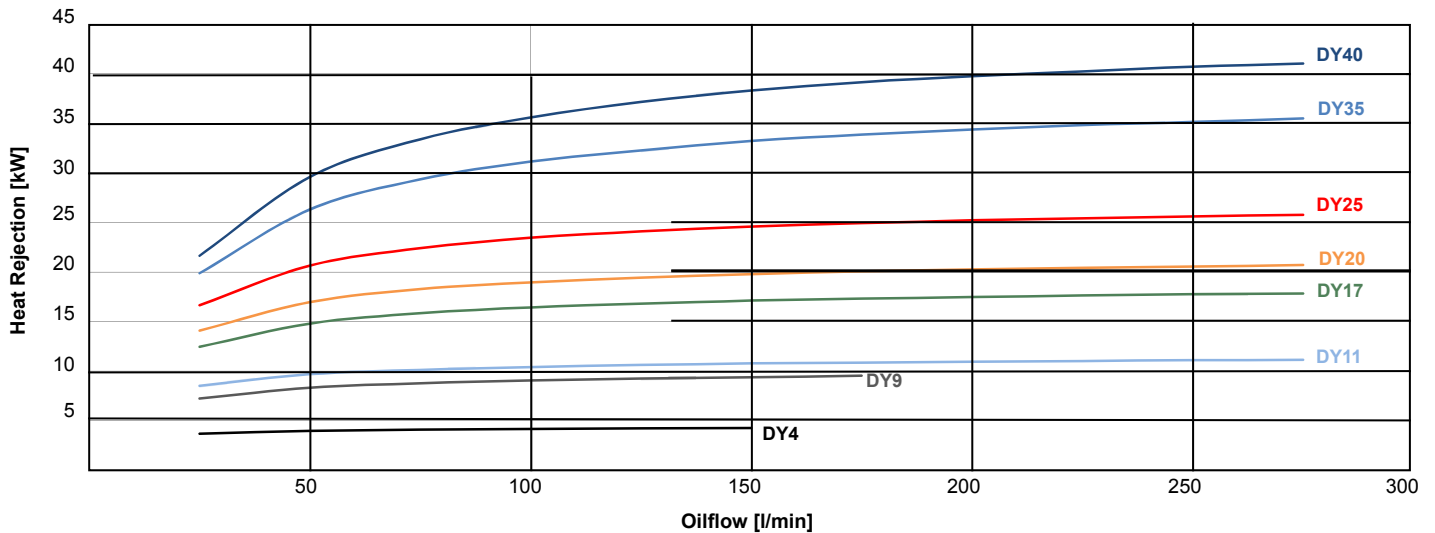
In this case part of the volume flow is bypassing the cooler core through the integrated valve.

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.

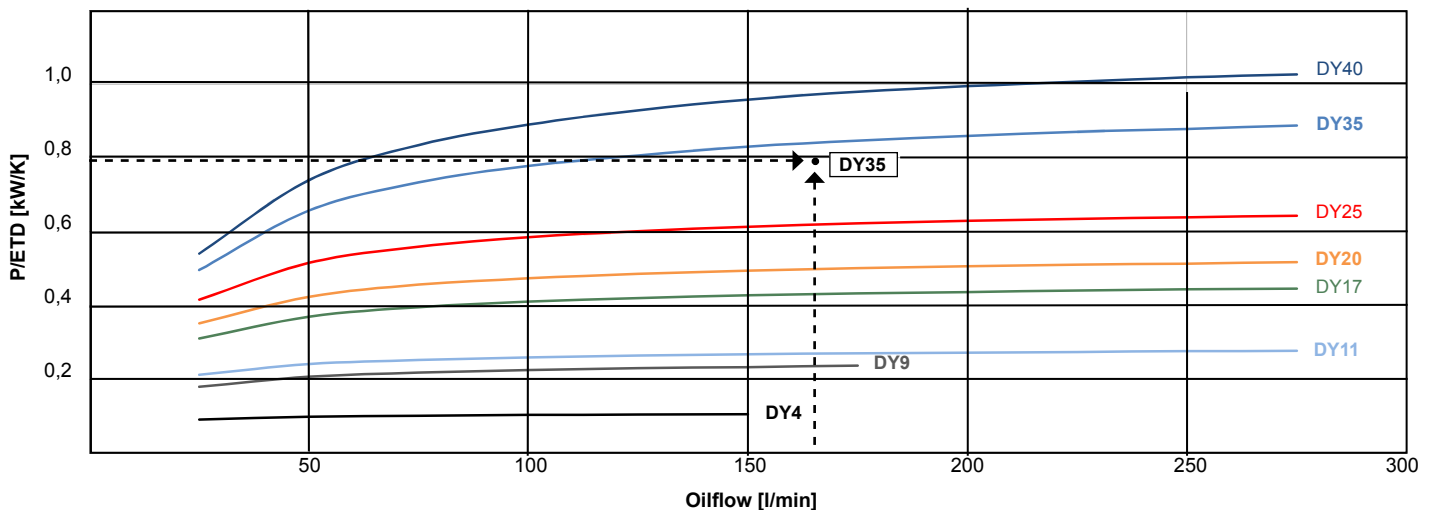
## EASY SIZING DIAGRAM FOR ENTRANCE-TEMPERATURE-DIFFERENCE 40 K



### Selection by Specific Heat Rejection

1. Input Data:		Example
Required Heat Rejection	P =	30 kW
Oilflow through Cooler	V =	170 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	30 kW/40 K = 0,75 kW/K
3. Select According to Diagram and Result:		
		Next higher curve <b>DY 35</b>

## SPECIFIC HEAT REJECTION



## TECHNICAL DATA

Modell Size	Motor Voltage (V)	Metri-Pack 630 Female Plug Data	Number of fans	Approx. Current Consumption per Fan (A)	Approx. Noise Level (dB(A), 1m)	Approx. Net Weight of Assembly (kg)	Valve opening pressure (bypass) (bar)	Volume (l)	Working Pressure (bar)
DY4	12/24	Female Connector 10737825  Contact 12052456  Seal 15324994  TPA 12147060	1	8/4	80	6,4	2,0	1,4	17
DY9	12/24		1	17/10	79	8,3	2,0	1,4	17
DY11	12/24		1	17/10	79	10,3	2,0	1,8	17
DY17	12/24		1	29/20	81	14,2	2,0	2,7	17
DY20	12/24		1	29/20	81	19,5	2,0	5,1	17
DY25	12/24		2	17/10	79	22,5	2,0	5,0	17
DY35	12/24		2	29/20	81	24,0	2,0	4,7	17
DY40	12/24		2	29/20	81	31,0	2,0	7,1	17

## DIMENSIONS

Model Size	A	B	C (approx.)	D*	E*	F	G	H	J	K	L	M
DY4	309	350	170	161 (214)	161 (109)	39	G1	315	110	160	M8	LL 11x16
DY9	371	400	170	194 (286)	194 (101)	39	G1	365	110	160	M6	LL 11x16
DY11	371	400	190	191 (284)	191 (99)	39	G1	365	110	160	M8	LL 11x16
DY17	465	550	215	359 (359)	119 (119)	39	G1 1/4	515	110	160	M8	LL 11x16
DY20	465	540	245	359 (359)	119 (119)	39	G1 1/4	510	200	250	M8	LL 11x16
DY25	371	740	220	264 (264)	119 (119)	39	G1 1/4	710	200	250	M8	LL 11x16
DY35	465	950	215	359 (359)	119 (119)	39	G1 1/4	915	110	160	M8	LL 11x16
DY40	465	940	245	359 (359)	119 (119)	39	G1 1/4	910	200	250	M8	LL 11x16

All dimensions in mm

\* [+AM] all dimensions in (...)

## ORDERING INFORMATION

Serial Code: Model Size:

**DY**

Motor Code:

Optional Custom Features:

with:

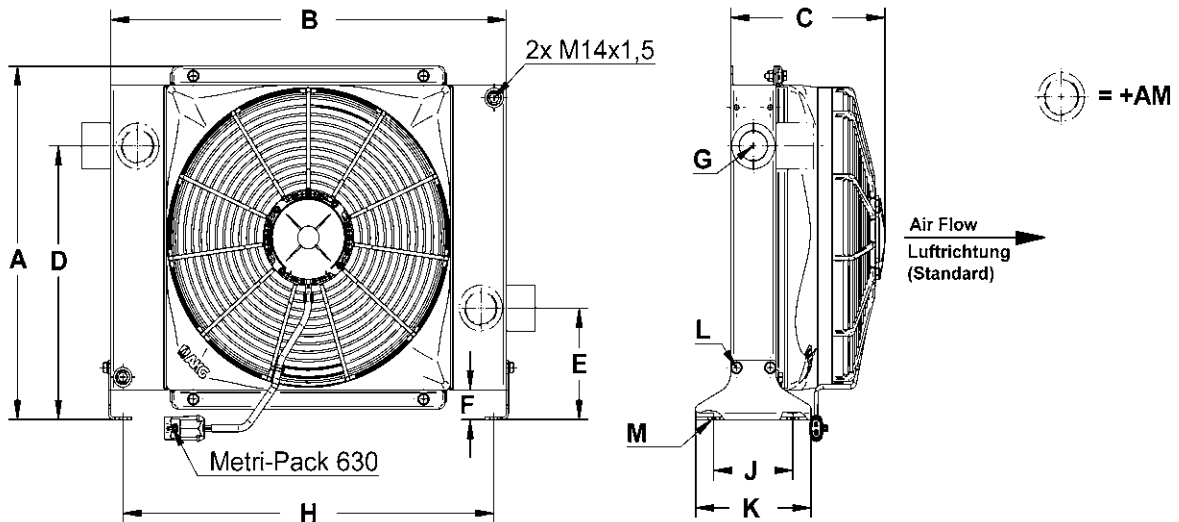
12 V [12] with Blower Fan [B]  
 24 V [24] with Resistplast Coating [+R]  
 PTFE Based Coating [+T]  
 only ports in motor direction [+AM]

without:

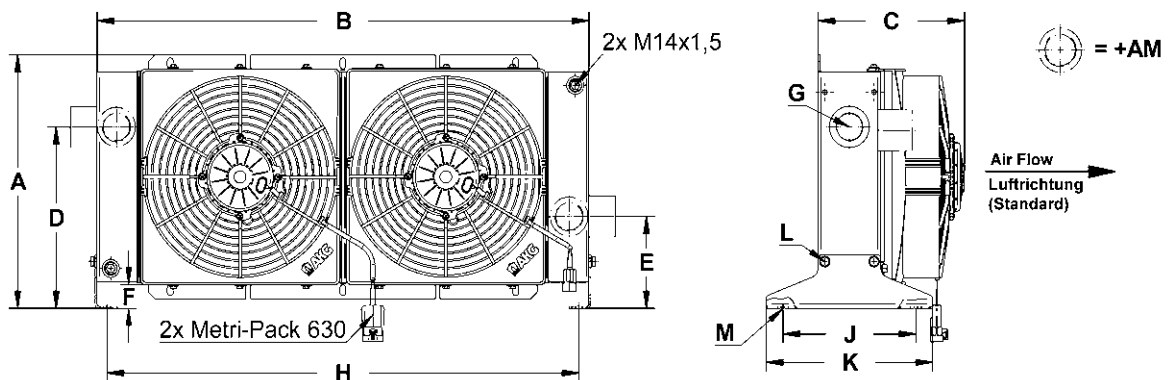
without Fan-Unit [-FM]  
 Cooler Only [C]  
 Cooler without Paint [-P]  
 without Support Feet [-F]

**Order Code Example:** Heat Exchanger, 9 KW, 12 V, sucking DC-fan, Bypass (2bar) -> **DY9-12**  
 Heat Exchanger, 25 KW, 24 V, blowing DC-fan, Bypass (2bar) -> **DY25-24B**

**COOLER DIMENSIONS DY4 TO DY20**



**COOLER DIMENSIONS DY25 TO DY40**



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

- Cooler made of painted aluminium with Bypass
- Fan unit made of plastic
- Support feed and fan-shroud (DY4) all made of steel (powder coated)



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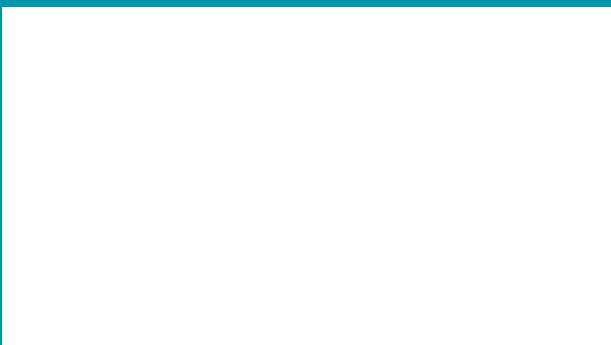
Internet: [www.akg-group.com](http://www.akg-group.com)

## 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