

Filter-cooler circulation circuit with in-line filter according to DIN 24550

RE 50126/02.05

1/10

Type ABUGK

Component series 1X

- with:
- circulation pump type PGF2 or type PVV
 - el. motor, frame sizes 80 to 132
 - low-pressure in-line filter to DIN 24550
 - plate-type heat exchanger
 - electrically operated water valve



HAD 7235

Type ABUGK-.K...
(console mounting)

HAD 7236

Type ABUGK-.V...
(tank top mounting)

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Features

- Compact circulation circuit with pump, mounted low pressure filter and plate-type heat exchanger
- Designed according to the modular principle
- Depending on the requirements, mounted on a console or on a mounting plate

Application

Any hydraulic system, in which heat is generated through power losses, requires active cooling during continuous operation. The dissipation capacity of the tank is often not sufficient to ensure a stable heat balance during long periods of operation. Due to their compact design, these circulation circuits can be mounted to the tank wall, on top of the tank or on other machine components.

The basic elements are an internal gear pump of type PGF2 or a fixed displacement vane pump type PVV, a low-pressure filter and a plate-type heat exchanger.

General

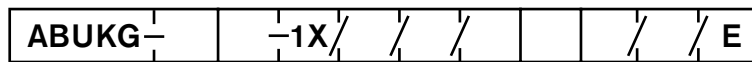
The units are fitted with a low-pressure filter. Electrical clogging indicators signal when a filter element has to be changed.

The water consumption depends on the utilisation of the power unit and the inlet temperature differential.

The water supply for cooling purposes is regulated by an electrically operated water valve.

Circulation units of version ABUGK-.K are fitted with a drip tray for collecting oil that is spilled during filter changes.

Ordering code



Filter-cooler circulation circuit

Cooling capacity with inlet temperature differential of 30 K

4 kW	= 04
7.5 kW	= 07
15 kW	= 15
22 kW	= 22
28 kW	= 28
37 kW	= 37

Design principle

Console mounting	= K
Tank top mounting	= V

Component series 10 to 19 (10 to 19: unchanged installation dimensions) = 1X

Heat exchanger

AB32-12/00-K-006-22	= 0K06
AB32-12/00-K-010-22	= 0K10
AB32-12/00-K-026-22	= 0K26
AB32-12/00-K-034-22	= 0K34
AB32-12/00-K-038-22	= 0K38
AB32-12/00-K-042-22	= 0K42

¹⁾ For a detailed description of supply voltages, see AB42-30

Order example:

ABUKG-15V-1X/0K26/46/100L4A0/160/E

Water valve
E = El. operated G1

In-line filter to DIN 24550

Flow q_v
at $\Delta p = 0.5$ bar
and HLP at 50 °C
Without in-line filter
- =
63 = $q_v = 35$ L/min
100 = $q_v = 48$ L/min
160 = $q_v = 110$ L/min
250 = $q_v = 150$ L/min

Supply voltage

(example) ¹⁾
A0 = 230/400V D/Y; 460V Y

Number of pins

4 = For example, 4-pin

Motor frame size

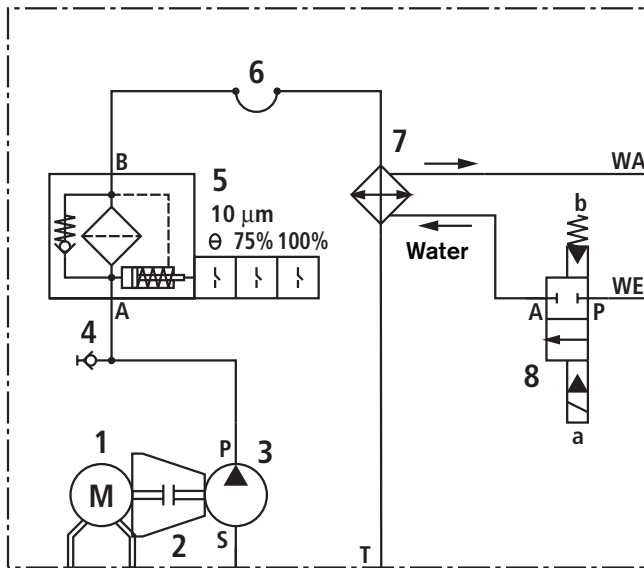
	Version: "K"	Version: "V"
80- =	B35-80	B5-80
90S =	B35-90S	B5-90S
100L =	B35-100L	B5-100L
132S =	B35-132S	B5-132S

Pump size

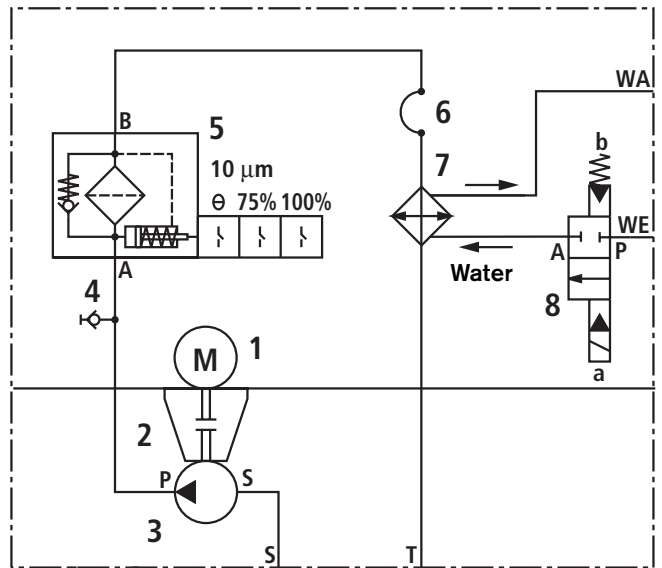
13 =	PGF2-2X/013RE01VE4
18 =	PVV1-1X/018RA15UMB
46 =	PVV1-1X/046RA15UMB
60 =	PVV2-1X/060RA15UMB
98 =	PVV4-1X/098RA15UMC

Circuit diagram

Type ABUKG-..K...



Type ABUKG-..V...



- 1 El. motor
- 2 Pump mounting bracket + coupling
- 3 Fixed displacement pump
- 4 Pressure measuring point

- 5 In-line filter
- 6 Hose
- 7 Oil/water heat exchanger
- 8 El. operated water valve

Selection table: Filter-cooler circulation circuit

The material numbers include all of the components shown on the circuit diagram!

Cooling capacity in kW	q_{Vmax} in L/min at 1500 min ⁻¹	p_{max} in bar	Power in kW at 1500 min ⁻¹	El. motor	Low-pressure filter size	Cooler type
4	18	10	0.75	80-4-A1	63	AB32-12/00-K-006-22
7.5	25		1.10	90S-4-A0	100	AB32-12/00-K-010-22
15	63		2.20	100L-4-A0	160	AB32-12/00-K-026-22
22	63		2.20	100L-4-A0	160	AB32-12/00-K-034-22
28	83		3.00	100L-4-A1	160	AB32-12/00-K-038-22
37	135		5.50	132S-4-B0	250	AB32-12/00-K-042-22

Cooling capacity in kW	Version for console mounting ABUKG-..K...	Weight in kg	Version for tank top mounting ABUKG-..V...	Weight in kg
4	R901061642	40	R901068757	45
7.5	R901061643	56	R901068758	72
15	R901061644	76	R901068759	86
22	R901061645	78	R901068760	87
28	R901061646	94	R901068761	90
37	R901061647	120	R901068762	136

Technical data (for applications outside these parameters, please consult us!)

Line ports	Oil side	Connection thread to ISO 1179 Pipe connections to DIN 2353 / ISO 8434 Flanges to ISO 6162		
	Water side	Thread to ISO 228/1		
Type of piping	Fitting to DIN 2353 light / heavy series			
Hydraulic fluids	Mineral oil HLP46 to DIN 51524 part 2 (other hydraulic fluids on inquiry) Please observe our regulations and data sheet RE 07075.			
Hydraulic fluid temperature range	°C	30 to 80, for other temperatures, please consult us		
Installation position	Vertical			
Cooling medium	Potable, process, stream and river water Cooling water requirement: $V_K = 0.5 \times V_{oil}$ [L/min] Heating (H ₂ O): $\Delta\vartheta = 14 \times \text{power loss (kW)} / V_K$ [°K]			
Perm. operating pressures at inlet (absolute)	Oil side	Pump type PGF2	bar	0.6 to 3
		Pump type PVV	bar	0.83 to 1.5
	Water side		bar	16 (at least 3 to 5 bar)
Motor voltage / frequency	4 – 28 kW cooling capacity			230 / 400 V - 50 Hz to IEC 38; 460 V - 60 Hz or
	37 kW cooling capacity			400 / 690 V - 50 Hz to IEC 38; 460 V - 60 Hz
Direction of rotation of pump	Clockwise			
Water valve	Electrically operated 2/2 directional water valve AB21-23 Controlling of water valve: e.g. with thermostat to AB31-14			
Max. permissible degree of contamination of the hydraulic fluid Cleanliness class to ISO 4406 (c)	Class 21/19/16			
Filter rating				µm
Surface protection	The components are provided with a primer coat!			

For installation, commissioning and maintenance of oil-hydraulic systems, please observe RE 07900!

Further data sheets: **AB 32-12** Heat exchanger oil / water system: Plate-type heat exchanger
 RE 10213 Internal gear pump type PGF, fixed displacement
 RE 10335 Fixed displacement pump types PVV and PVQ
RE 50086 Pressure filter to DIN 24550 for installation in pressure lines, type ABZFD
RE 51066 Pump-motor group type ABUPG for circulation circuits

The units are designed and manufactured in accordance with the harmonised EN standards / specifications.

Noise level guidelines

Cooling capacity in kW	Noise pressure level in dB(A)
4	60
7,5	62
15	64
22	64
28	67
37	68

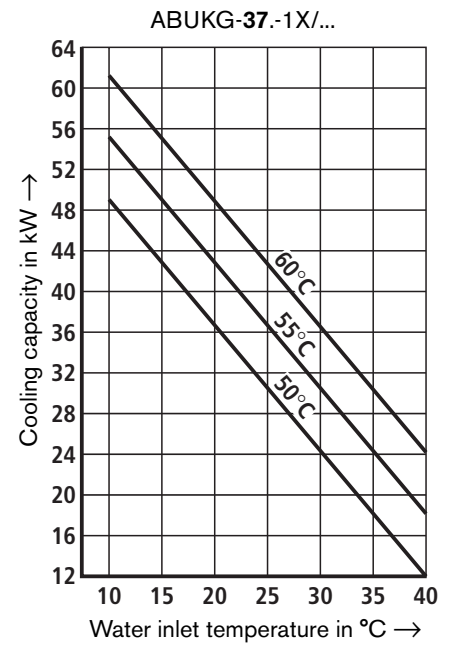
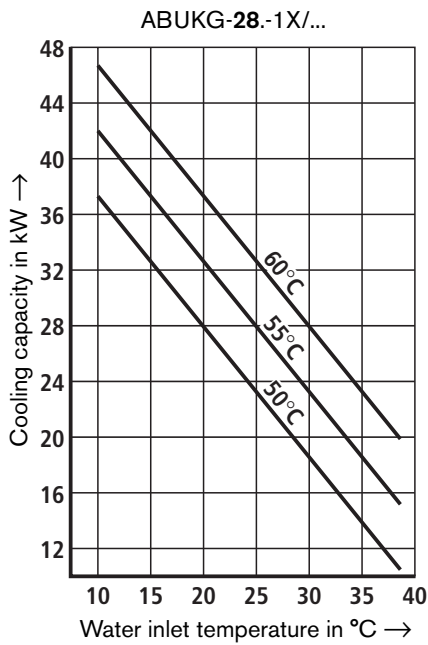
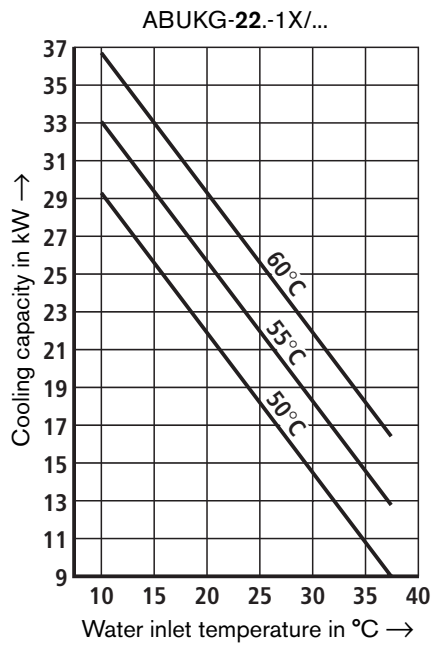
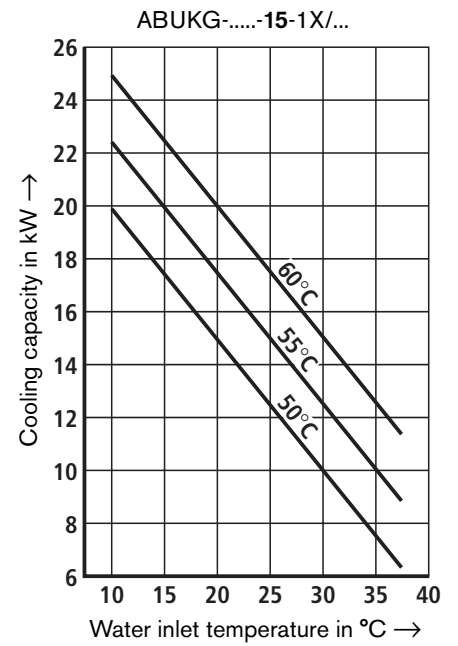
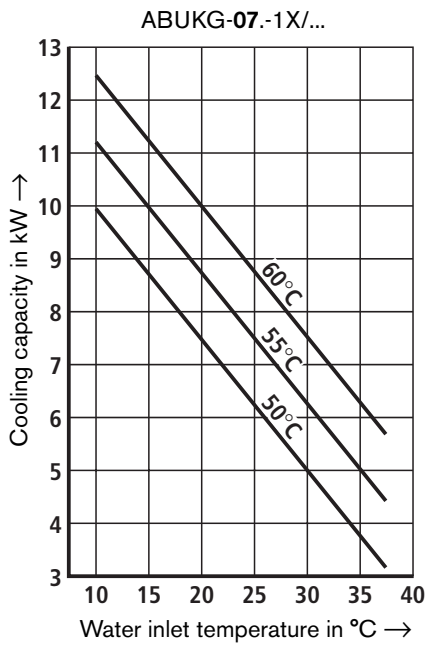
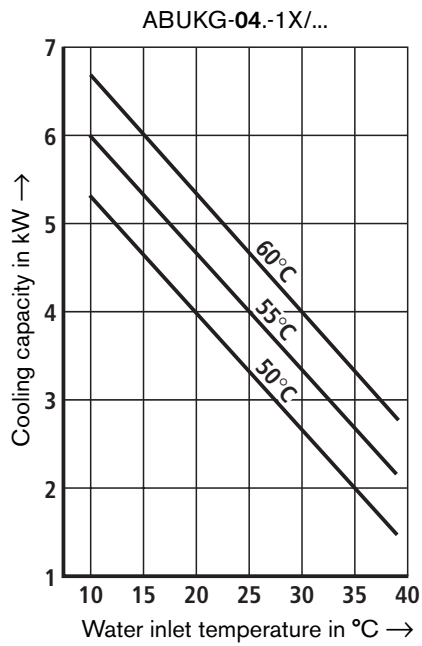
Noise pressure level according to DIN 45635 part 1 and 41; measurement distance 1 m

Measured at 1450 min⁻¹ at an operating temperature of $\vartheta = 50$ °C

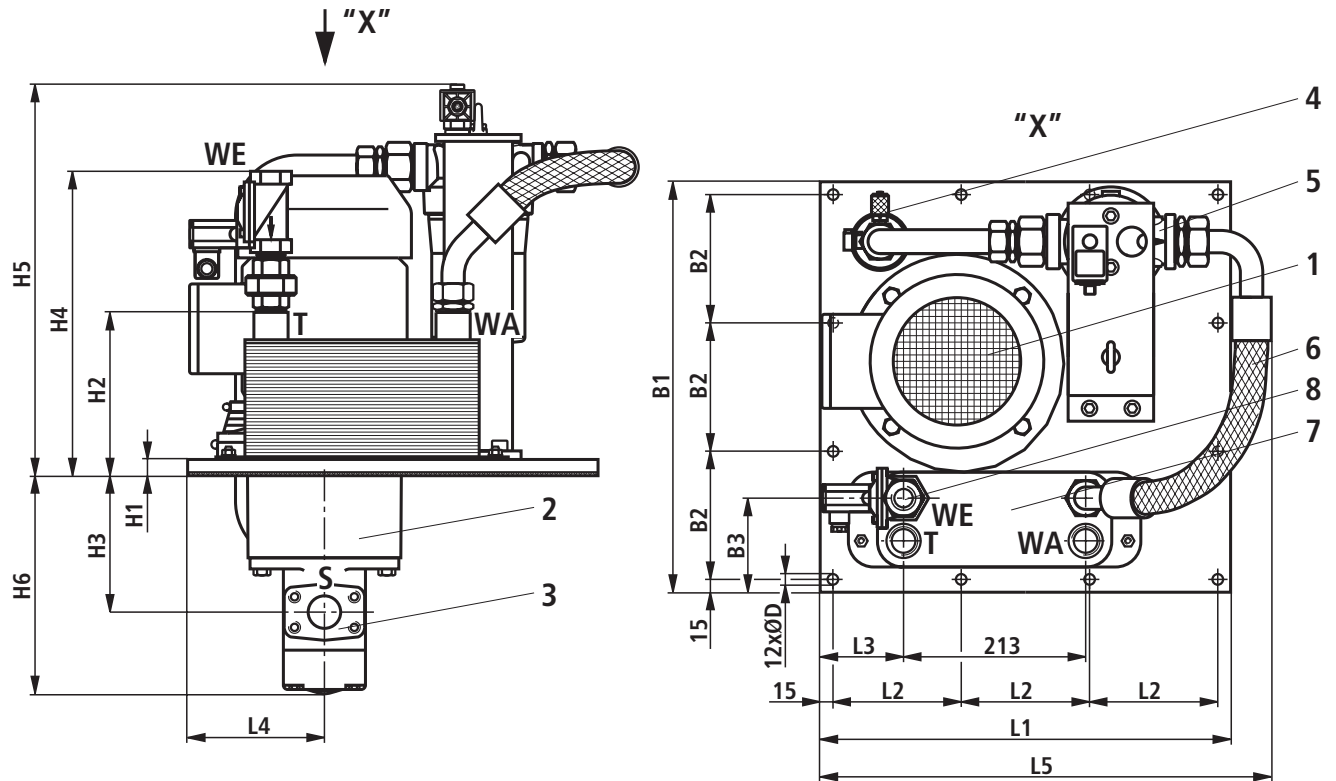
Hydraulic fluid: Mineral oil HLP to DIN 51524 part 2

Cooling capacity curves

The cooling capacity of the individual units differ depending on the water and oil inlet temperatures. The oil inlet temperatures selected were 50, 55 and 60 °C.



Unit dimensions: Type ABUKG-..V... (nominal dimensions in mm)



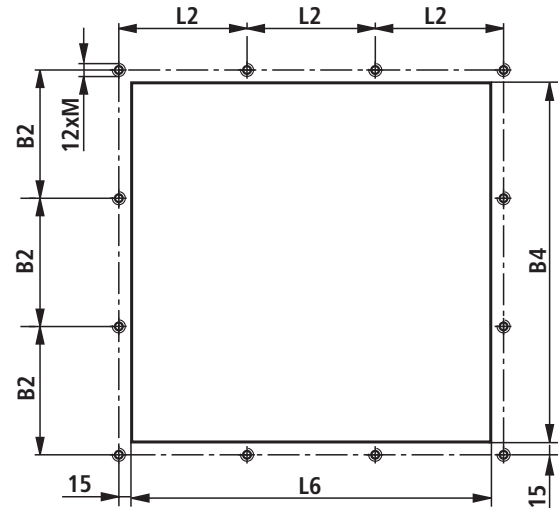
- 1 El. motor
- 2 Pump mounting bracket + coupling
- 3 Fixed displacement pump
- 4 Pressure measuring point
- 5 In-line filter
- 6 Hose
- 7 Oil/water heat exchanger
- 8 El. operated water valve

Cooling capacity in kW	Dimensions														
	L1	L2	L3	L4	L5 ¹⁾	B1	B2	B3	ØD	H1	H2	H3	H4	H5 ¹⁾	H6 ¹⁾
4	420	130	112	127	430	420	130	60	11,5	16	79	146	244	390	205
7.5			157	137	480			115			98	166	263	495	265
15	480	150	97	160	530	480	150	110	13,5	19	162	159	327	465	255
22											191				
28											210	216	375		
37	570	180	100	190	600	570	180				226	252	391	555	315

¹⁾ Dimensions L5, H5 and H6 are approximate dimensions.

For connection sizes S, T, WE and WA, see top of page 8.

Recommended tank opening for ABUKG-..V-...



Tolerances according to:

- General tolerances to ISO 2768-mK
- Tolerancing principle to ISO 8015

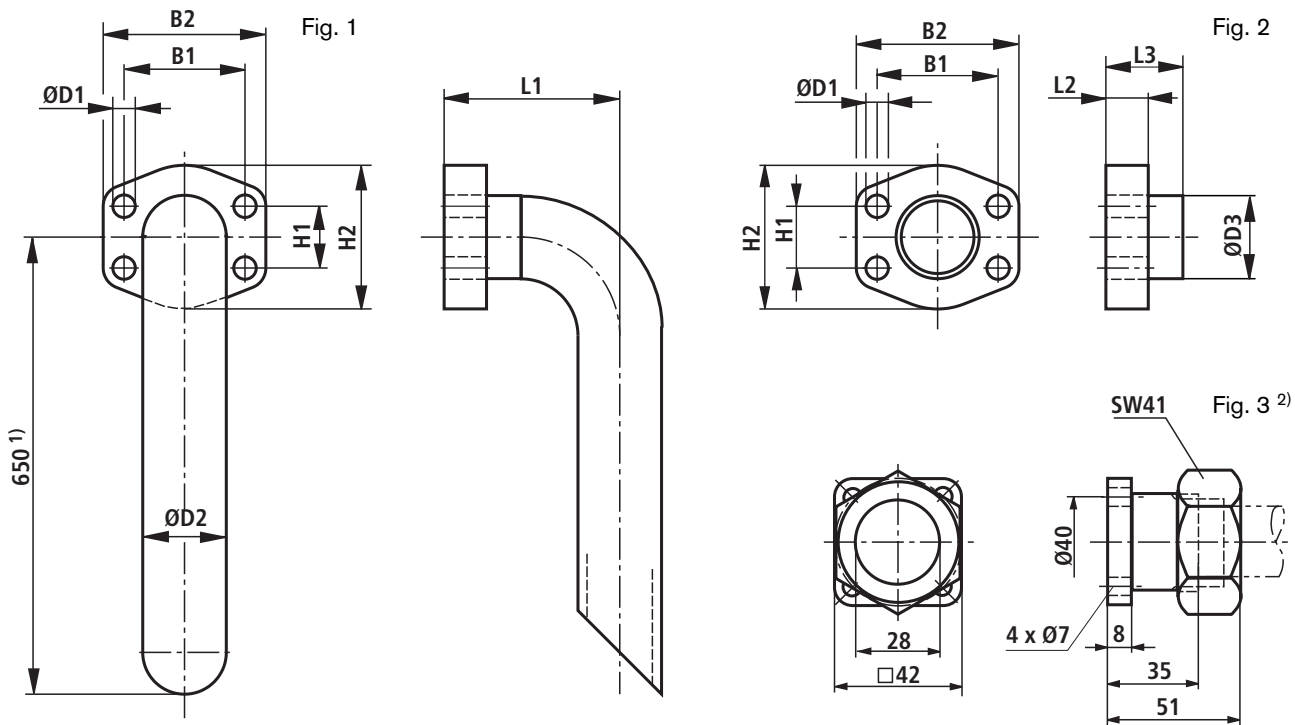
Cooling capacity in kW	Dimensions				
	L2	L6	B2	B4	M
4	130	360	130	360	M10
7.5 / 15 / 22 / 28	150	420	150	420	M12
37	180	510	180	510	

Recommended min. material thickness = 1.2 x M

Connection sizes for flanges and fittings

Cooling capacity in kW	Suction port S	Oil outlet T	Water - in WE	Water - out WA
	Threaded / flange connection	Thread	Thread	Thread
4	Ø 28 mm	G1	G1	G1
7,5	SAE 1 1/2"-S UNC			
15				
22				
28	SAE 2"-S UNC			
37				

Flange connection for suction line (nominal dimensions in mm)



ABUKG-..K-...

Heat to be dissipated in kW	Material number	Dimensions							Fig.
		B1	B2	L1	H1	H2	ØD1	ØD2	
4	R900323237	-	-	-	-	-	-	-	3 ²⁾
7.5	R900755038	69.9	94.0	150	35.7	83.0	13	28	1
15	R900755039							42	
22	R900729998							48.3	
28	R901061820							60.3	
37	R901061820	77.8	102	200	42.9	97			

ABUKG-..V-...

Heat to be dissipated in kW	Material number	Dimensions							Fig.	
		B1	B2	L2	L3	H1	H2	ØD1		ØD3
4	R900323237	-	-	-	-	-	-	-	-	3 ²⁾
7.5	R900727370	69.9	94.0	24.5	44.5	35.7	83.0	13	48.3	2
15										
22										
28										
37	R900053722	77.8	102	25	45	42.9	97		60.3	

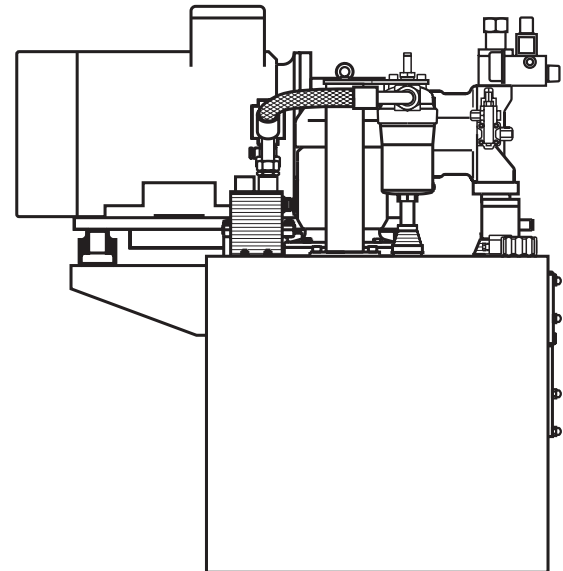
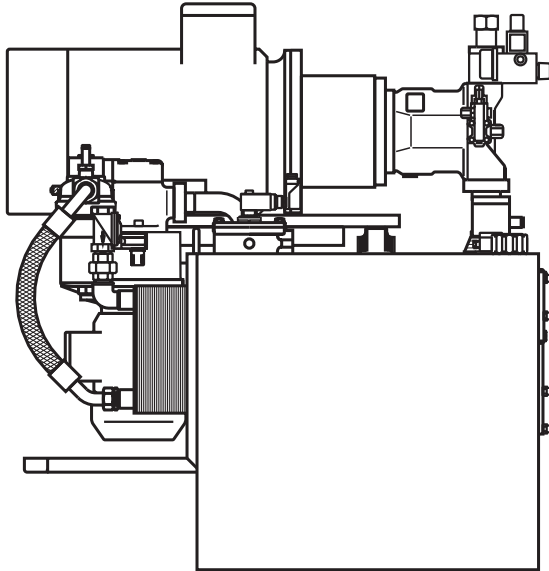
¹⁾ Cut to required length

²⁾ Included in scope of supply

Mounting option

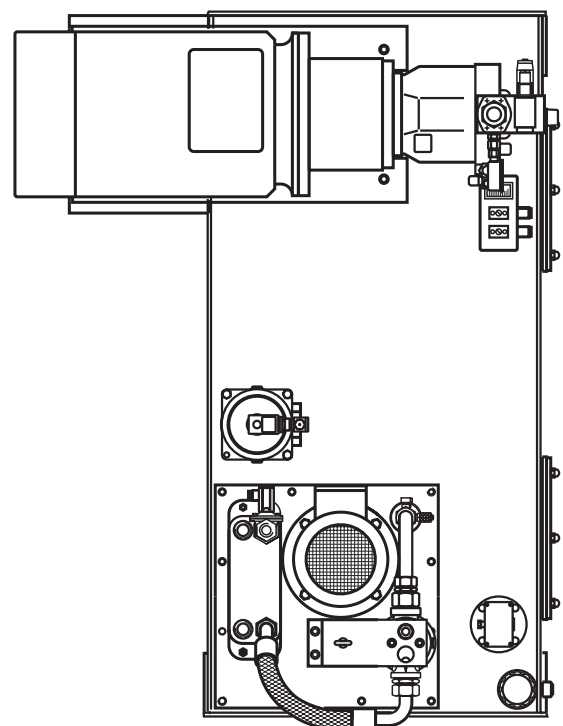
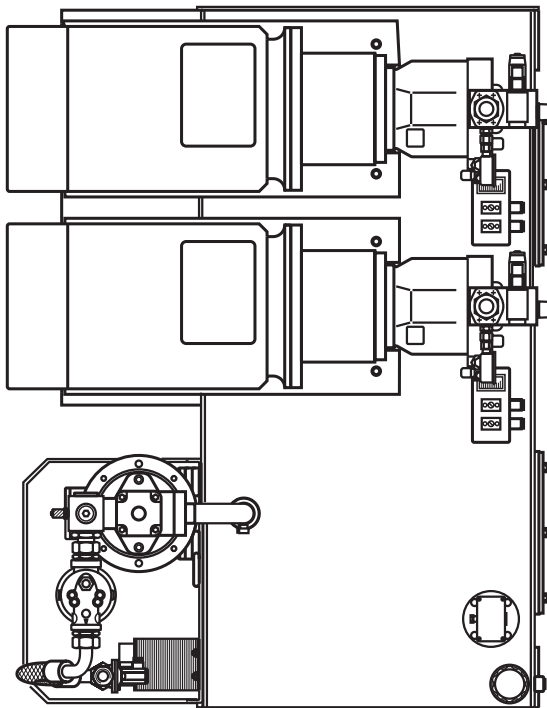
The filter-cooler circuit of version **ABUKG-..K-...** is to be mounted preferably to the side of a hydraulic tank.

Separate erection is also possible.



The filter-cooler circuit of version **ABUKG-..V-...** is intended for mounting onto a hydraulic tank.

It cannot be erected separately without a corresponding mounting fixture.



Spare and wear parts list

Type ABUKG-...	Filter element		Clogging indicator	
	Type	Material number	Type	Material number
04	ABZFE-N0063-10-1X/M-DIN	R901025361	ABZFE-E2SPSU-M12X1-1X/-DIN	R901025341
07	ABZFE-N0100-10-1X/M-DIN	R901025362		
15	ABZFE-N0160-10-1X/M-DIN	R901025363		
22				
28				
37	ABZFE-N0250-10-1X/M-DIN	R901025364		

Type ABUKG-...	Coupling	
	Type	Material number
04	AB33-22/KD 19-20/19X37	R900326051
07	AB33-22/KD 24-G (22,23)/24X50	R900715760
15	AB33-22/KD 24-G (22,23)/28-98	R900214351
22		
28		
37	AB33-22/KD 38-K (31,75)/38	R900214348

Type ABUKG-...	Hose (item 6)			
	ABUKG-K...		ABUKG-V...	
	Type	Material number	Hose	Material number
04	AB23-14/2SC-19/...	R901 ...	AB23-14/2SC-19/...	R901 ...
07	AB23-14/2SC-19/...	R901 ...	AB23-14/2SC-19/...	R901 ...
15	AB23-14/2SC-25/...	R901 ...	AB23-14/2SC-25/...	R901 ...
22	AB23-14/2SC-25/...	R901 ...	AB23-14/2SC-25/...	R901 ...
28	AB23-14/2SC-25/...	R901 ...	AB23-14/2SC-25/...	R901 ...
37	AB23-14/2SC-25/...	R901 ...	AB23-14/2SC-25/...	R901 ...

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