

Cooling Systems

FLKS - 170/1.6/M/...

FLKS - 170/1.7/M/...

1. DESCRIPTION

1.1. APPLICATIONS

Cooling circuits:

- Cooling of AC main drives
- Cooling of motor spindles on machining centres
- Cooling of transmission and braking systems
- Cooling of servo and linear motors
- Cooling of electrical converters and transformers
- Cooling and lubrication of transmissions

1.2. CONSTRUCTION

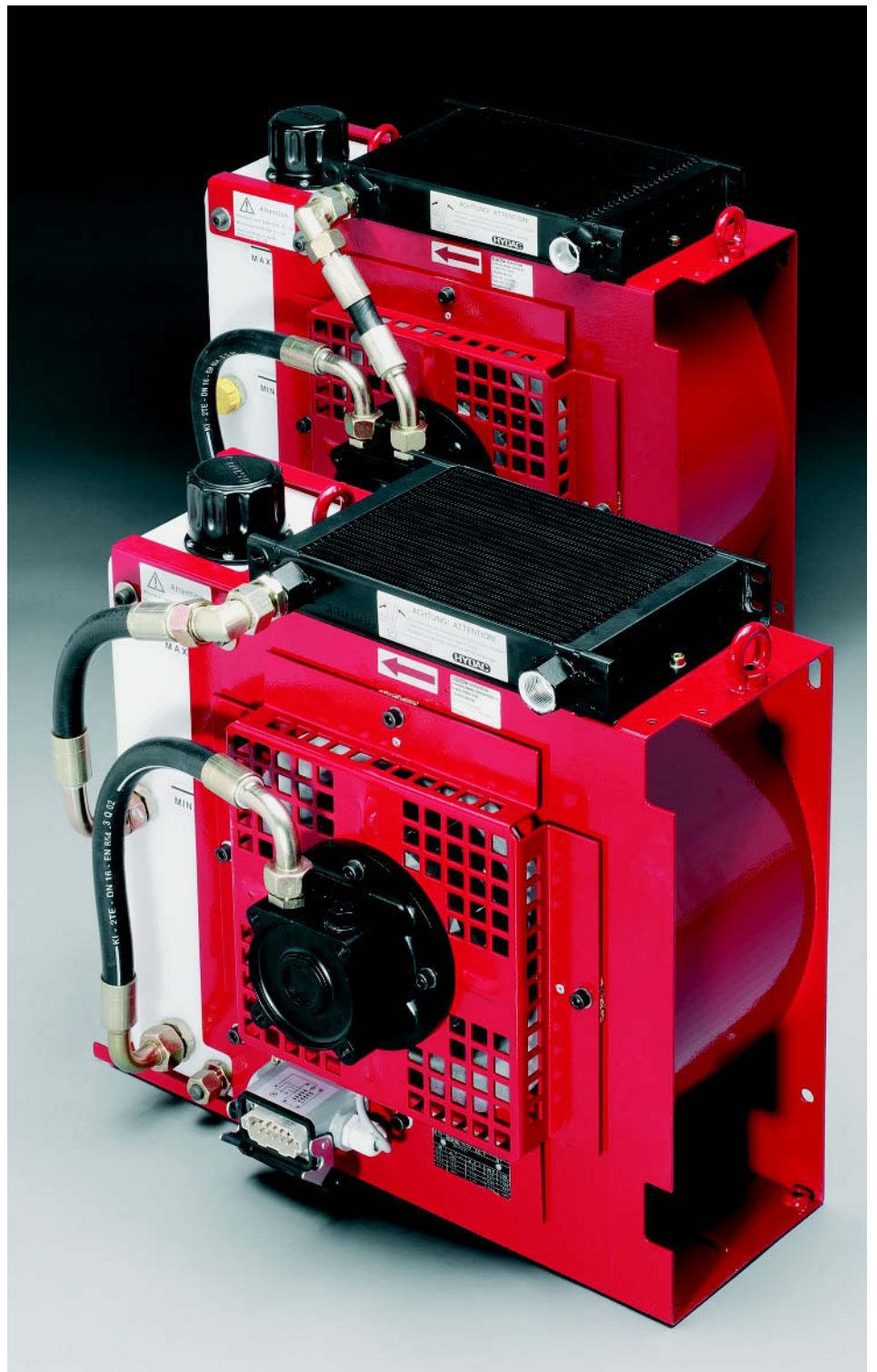
The HYDAC FLKS fluid air cooling system consists of a radial fan, a tank, a pump, a 3-phase motor and a heat exchanger.

Pressure line cooling, Type 1.6:

The fluid is pumped out of the tank by the pump and is fed to the user unit via the heat exchanger. Filtration before the heat exchanger is possible as an option. The return flow goes direct to the tank.

Return line cooling, Type 1.7:

The fluid is pumped out of the tank by the pump to the user unit. The return line flows through the heat exchanger back to the tank. Filtration after the pump outlet is possible as an option. The radial fan provides the necessary cooling air flow through the heat exchanger.



2. TECHNICAL SPECIFICATIONS

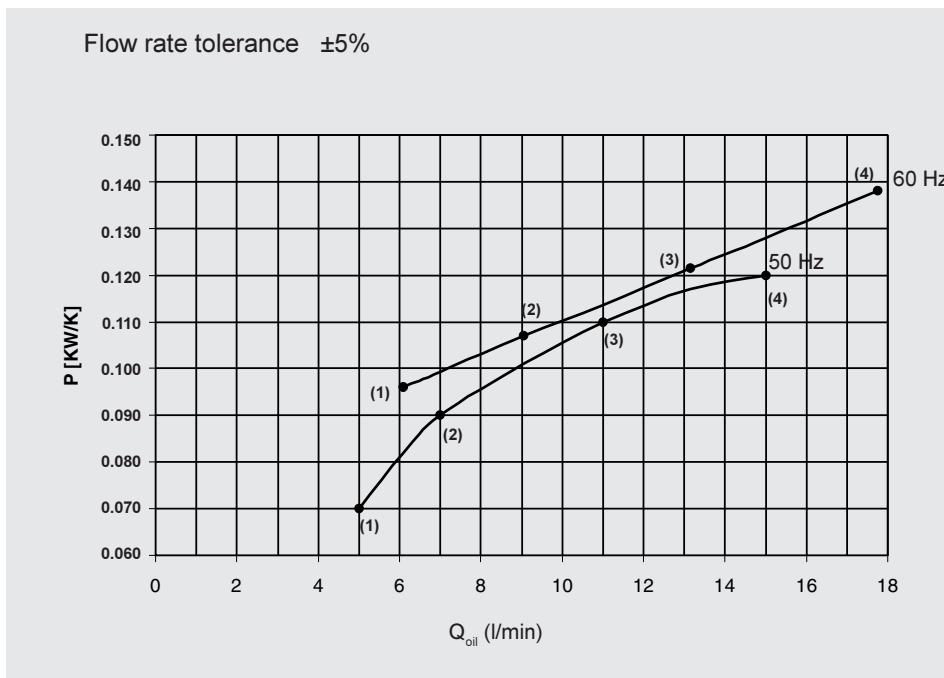
- 2.1. COOLING CAPACITY AND FLOW RATE OF PUMP (see 2.12)
- 2.2. PERMISSIBLE FLUID
Mineral oil to DIN 51525 part 1 and part 2
DIN ISO VG10
Permissible contamination ≤ NAS 12
- 2.3. PERMISSIBLE TEMPERATURES
- 2.3.1 Fluid temperature
+15 to 65 °C
- 2.3.2 Ambient temperature
0 °C to +40 °C
- 2.4. MOUNTING POSITION: VERTICAL
(HEAT EXCHANGER ON TOP)
- 2.5. NOISE LEVEL MEASURED TO DIN 45635 PART 1
69 dB(A) 4 pole 50Hz
- 2.6. DIRECTION OF ROTATION
Pump:
when looking at motor fan, anticlockwise
- 2.7. TANK SIZE:
Max. 8 l, Min. 5 l
- 2.8. WEIGHT
36 kg (standard)
- 2.9. ELECTRICAL CONNECTION
provided by customer: 10 pole connector
e.g. HARTING housing 09300101541 and female insert 09330102716 (see Point 5.)
- 2.10. HYDRAULIC CONNECTION
FLKS-170/1.6/M:
Pressure supply: P= G 3/4
Return line: K= 18L, M26 x 1.5
Tank drain: T = 12L, M18 x 1.5
FLKS-170/1.7/M:
Pressure supply: P= G 1/2
Return line: K= G 3/4
Tank drain: T = 12L, M18 x 1.5
Do not reduce pipe cross-section pre-determined by the threaded connections. (see 2.12)
- 2.11. ELECTRICAL SPECIFICATIONS
380-420V 50HZ
440-480V 60HZ
Voltage tolerances to EN 60034-1 ±5%
Rated current of motor:
See electric motor label
Motor putput:
at 50Hz P= 0.37 kW
at 60Hz P= 0.43 kW

2.12. PUMP FLOW RATE GRAPH

	at 50Hz:	at 60Hz:	
10ccm/ U =	approx. 15 l/min	approx. 18 l/min	(4)
8ccm/ U =	approx. 11 l/min	approx. 13 l/min	(3)
5ccm/ U =	approx. 7 l/min	approx. 9 l/min	(2)
3ccm/ U =	approx. 5 l/min	approx. 6 l/min	(1)

Operating pressure = max. 6 bar
Suction pressure = max. - 0.4 bar

The operating pressure of the pump depends on the system characteristics (pipe cross-sections, pipe lengths, threaded connections).



3. MODEL CODE

FLKS- 170 / 1.7 / M / 05 / 400-50 / LF60 / 05 / B / 1 / 0

(also order example))

Fluid Air Cooling System

FLKS

Nominal size

170

Type code

1.6 Pressure line cooling

1.7 Return line cooling

Fluid

M (see 2.2.)

Pump flow rate

03 (3 cm³/rev.)

05 (5 cm³/rev.)

08 (8 cm³/rev.)

10 (10 cm³/rev.)

Motor voltage (standard)

380-420V (Y) 50HZ

440-480V (Y) 60HZ

Filter size

LF 60

LF 110

Filter rating

without filter (no details in model code)

04 = 005 BN3HC-3 plus

05 = 010 BN3HC-3 plus

06 = 020 BN3HC-3 plus

Filter clogging indicator

without indicator (no details in model code)

B = with visual clogging indicator

C = with electrical clogging indicator

D = with electrical and visual clogging indicator

(for light, please state clearly 24, 48, 110 or 220 volt)

Paint

1=RAL 7043 (standard)

Accessories (see Point 6.)

0 = Standard (without accessories)

1 = Electrical fluid level and temperature monitoring

2 = Pressure gauge

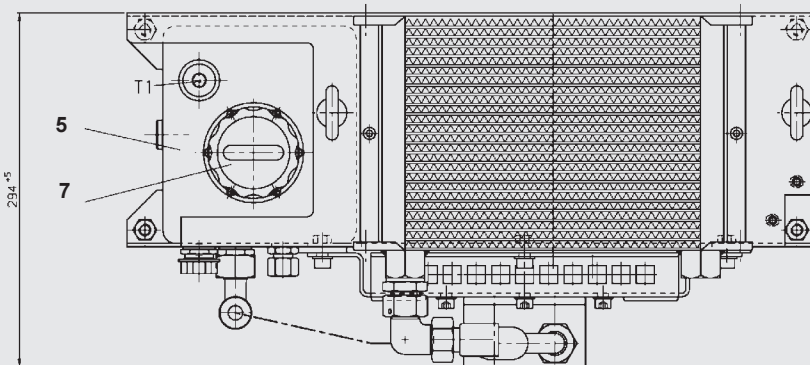
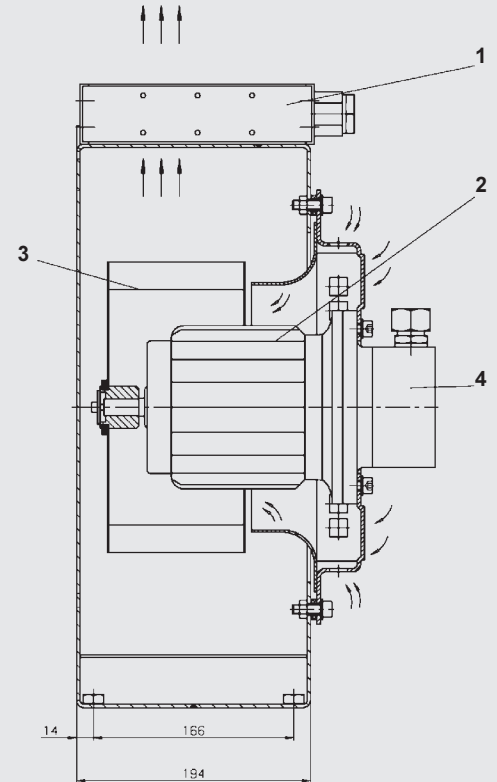
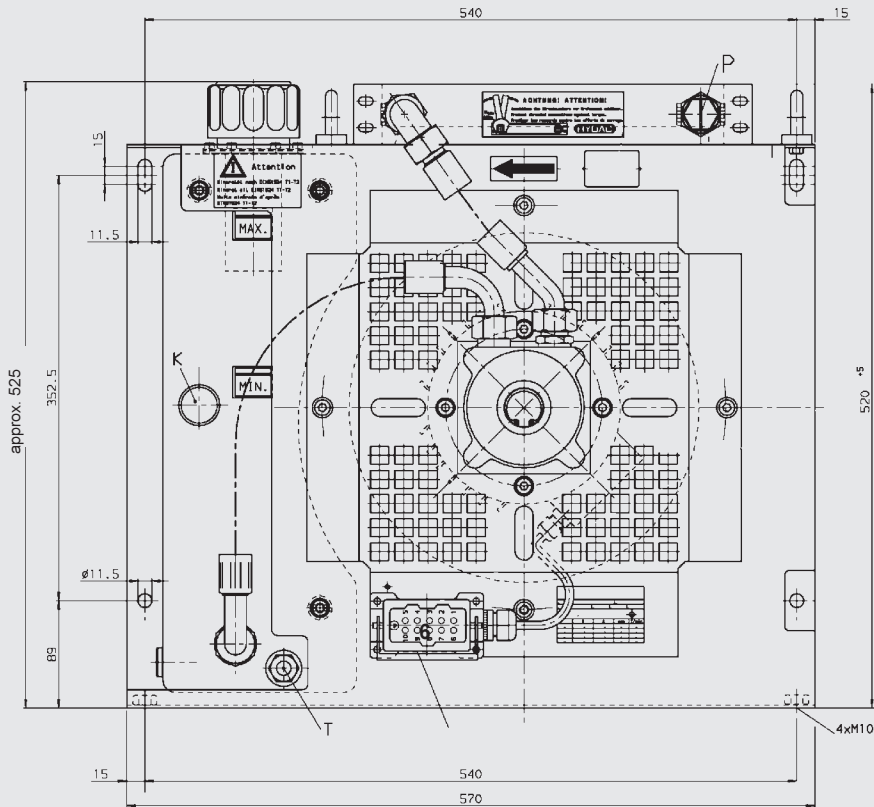
3 = Electrical fluid level and temperature monitoring + pressure gauge

5 = Pressure switch

7 = Electrical fluid level monitoring

4. DIMENSIONS

4.1 FLKS-170/1.6/M/...

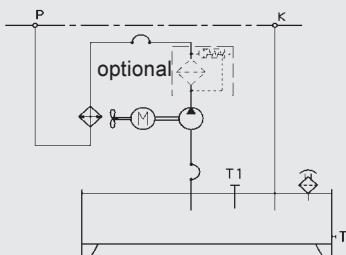


- 1 Heat exchanger
- 2 Electric motor
- 3 Fan wheel
- 4 Pump
- 5 Tank
- 6 Heavy duty rectangular connector with 1 x locking clip and 10-pole pin insert
- 7 Tank breather filter

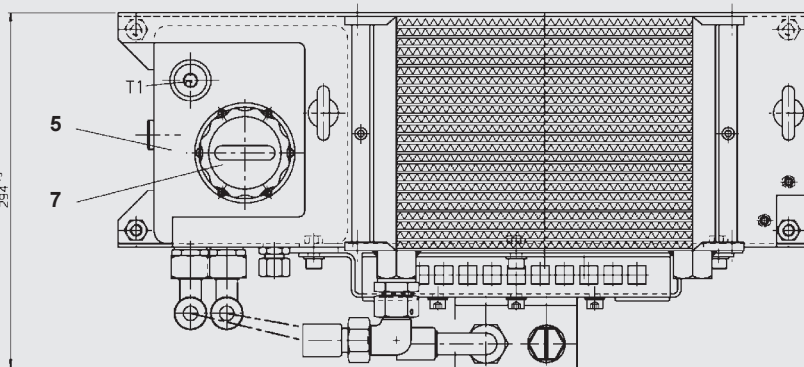
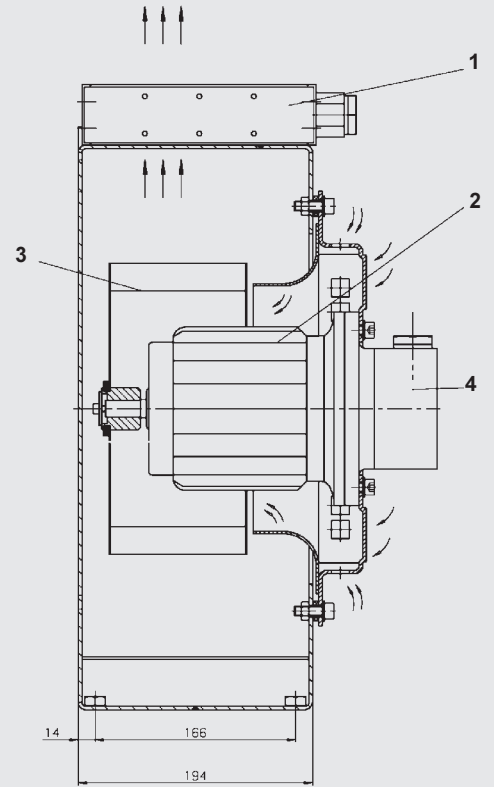
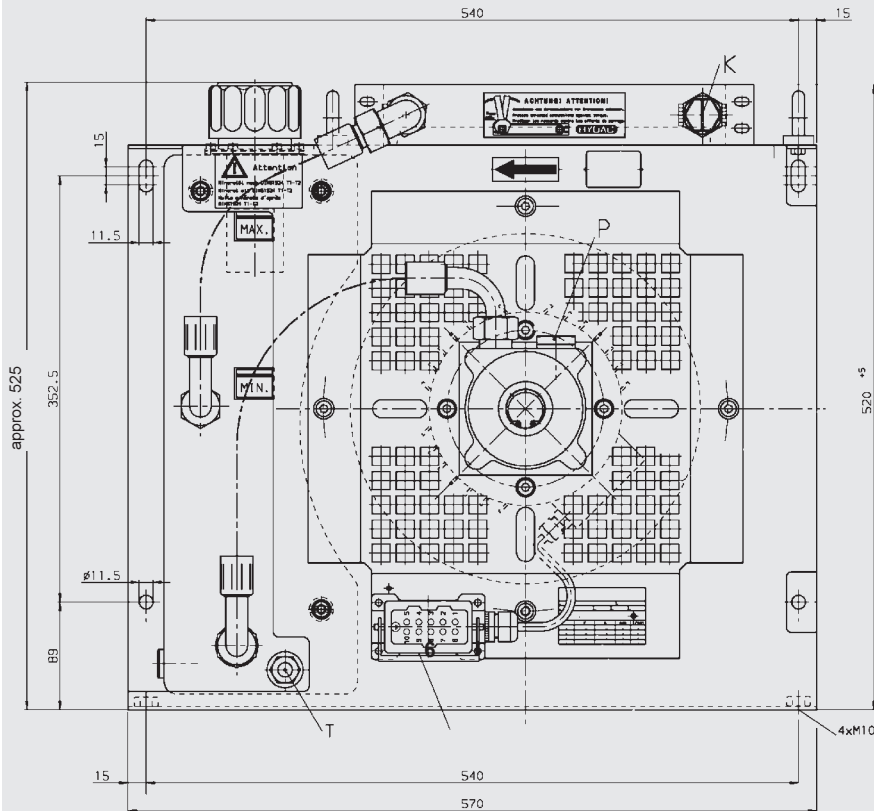
Hydraulic connections:

Pressure supply P = G 3/4
 Return line: K = 18L, M26 x 1.5
 Tank drain: T = 12L, M18 x 1.5
 Tank connection: T1 = M20 x 1.5

4.1.1 Circuit diagram



4.2 FLKS-170/1.7/M/...

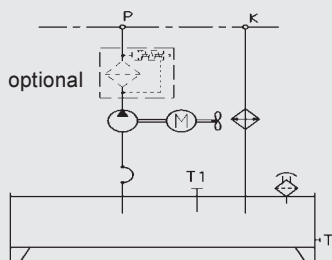


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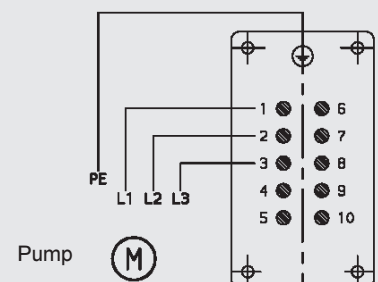
Pressure supply P = G 1/2
 Return line: K = G 3/4
 Tank drain: T = 12L, M18 x 1.5
 Tank connection: T1 = M20 x 1.5

4.2.1 Circuit diagram



5. ELECTRICAL PIN CONNECTIONS

Connection for female insert (to be supplied by customer)



6. ACCESSORIES

1. ELECTRICAL FLUID LEVEL AND TEMPERATURE MONITORING:

Fluid level and temperature switch 63°C (N/C);
Monitors the level of coolant and the temperature in the tank.

2. PRESSURE GAUGE:

Visual pressure indication of the coolant at the pump (0-10 bar).

3. ELECTRICAL FLUID LEVEL AND TEMPERATURE MONITORING + PRESSURE GAUGE:

Fluid level and temperature switch 63°C (N/C);
Monitors the level of coolant and the temperature in the tank. Also provides visual pressure indication of the coolant at the pump.

5. PRESSURE SWITCH:

Indicates when system pressure is falling
(standard p min 1 bar).

7. ELECTRICAL FLUID LEVEL MONITORING:

Monitors level of coolant in the tank.

Other accessories on request.

7. NOTE

The information in this brochure relates to the operating conditions and applications described.

For applications or operating conditions not described, please contact the relevant technical department.

Subject to technical modifications.

NOTES