

## Cooling Systems

FLKS - 3S/1.0/W...

FLKS - 3L/1.0/W...

### 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

#### 1.2. CONSTRUCTION

The HYDAC FLKS fluid air cooling system consists of an axial fan, a tank, a submersible pump and a heat exchanger.

The submersible pump built into the plastic tank pumps the coolant through the heat exchanger.

The axial fan provides the necessary cooling air through the heat exchanger.



## 2. TECHNICAL SPECIFICATIONS

2.1. COOLING CAPACITY AND FLOW RATE OF PUMP  
(see graphs 2.12 and 2.13)

2.2. PERMISSIBLE FLUID

2.2.1 **Preferred fluid:**  
Mains water with 30-40%  
GLYSANTIN G48  
PROTECT PLUS (BASF)

2.2.2 **Other permissible cooling fluids:**  
Mains water with 30-40%  
-PARAFLU 11  
Mains water with 5-10%  
-MOTOREX COOLANT-F  
Other coolants on request!

2.3. PERMISSIBLE TEMPERATURES

2.3.1 **Fluid temperature**  
max. 60 °C

2.3.2 **Ambient temperature**  
0 °C to +40 °C

2.4. MOUNTING POSITION: VERTICAL  
(TANK AT THE BOTTOM)

2.5. NOISE LEVEL MEASURED  
TO DIN45635 PART 1

FLKS-3S: 74 dB(A) 4pole 50Hz  
79 dB(A) 4pole 60Hz

FLKS-3L: 64 dB(A) 4pole 50Hz  
68 dB(A) 4pole 60Hz

2.6. DIRECTION OF ROTATION

Pump:  
when looking at motor fan,  
clockwise  
Cooling fan:  
when looking at motor fan,  
clockwise

2.7. TANK SIZE:

Max. 21 l, Min. 11 l

2.8. WEIGHT

43.5 kg

2.9. ELECTRICAL CONNECTION

Terminal box of electric motor

2.10. HYDRAULIC CONNECTION

Pump: P = G 3/4

Heat exchanger: K = G 1

Tank drain: T = G 3/4

Do not reduce pipe cross-section  
pre-determined by the threaded  
connections (see 2.12).

2.11. ELECTRICAL SPECIFICATIONS

Design voltage range:

380-420 V star /

220-240 V delta - 50Hz

440-480 V star /

254-277 V delta - 60Hz

(motor rating x 1.15)

Voltage tolerances to

EN 60034-1 ±5%

**Motor rating at 50 Hz:**

Model:

FLKS-3S

Cooling fan 4 pole 0.37 KW

Pump 2 pole 0.5 KW

FLKS-3L

Cooling fan 6 pole 0.25 KW

Pump 2 pole 0.5 KW

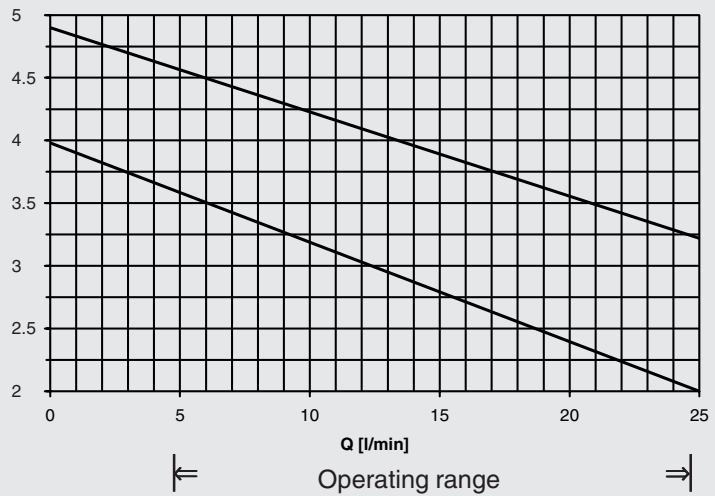
### 2.12. PUMP FLOW RATE GRAPH

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

Generally, the following applies:

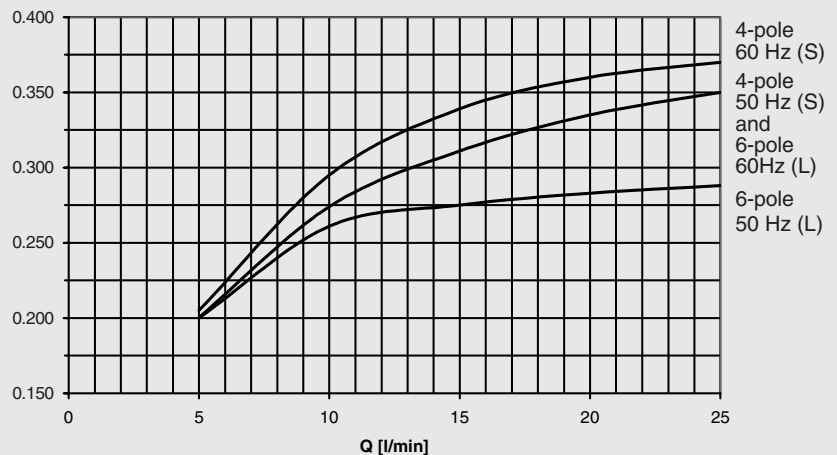
The smaller the pressure losses in the system, the greater the flow rate and therefore the greater the cooling capacity.

Flow rate tolerance ±10%



### 2.13. COOLING CAPACITY GRAPH

Cooling capacity tolerance ±5%



### 3. MODEL CODE

**FLKS - 3 S / 1 . 0 / W / TP / 400-50 / 1 / 0**

(also order example)

#### Fluid Air Cooling System

FLKS

#### Nominal size

3

#### Fan speed

S = 4 pole (1500 rpm)

L = 6 pole (1000 rpm)

#### Type code

#### Modification number

#### Fluid

W (see 2.2.)

#### Submersible pump

2 pole (2800 rpm) 0.5KW

for flow rate, see graph 2.12

#### Motor voltage (standard)

380-420 V star / 220-240 V delta - 50Hz

440-480 V star / 254-277 V delta - 60Hz (motor rating x 1.15)

Other voltages on request

#### Paint

1=RAL 7043 (standard)

#### Accessories (see Point 6.)

0 = Standard (without accessories)

1 = Electrical fluid level and temperature monitoring

2 = Pressure gauge

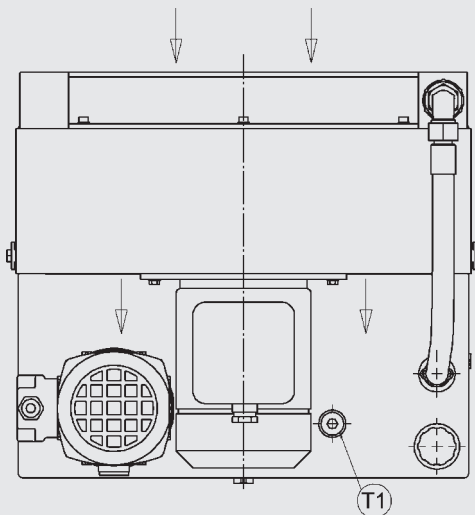
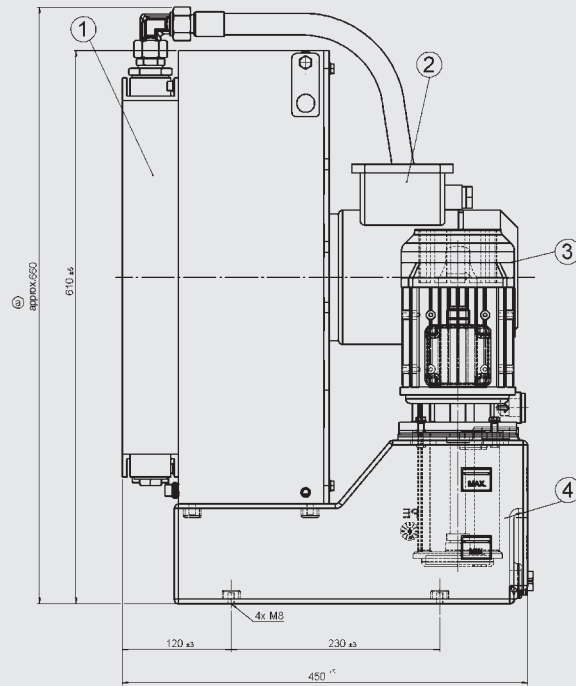
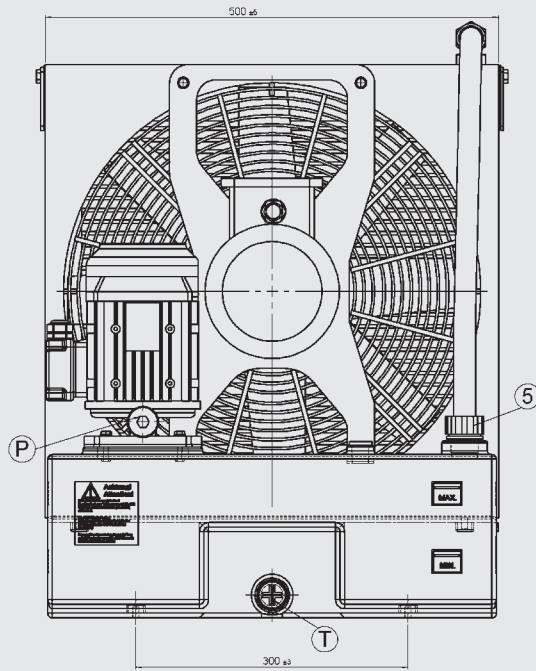
3 = Electrical fluid level and temperature monitoring + pressure gauge

7 = Electrical fluid level monitoring

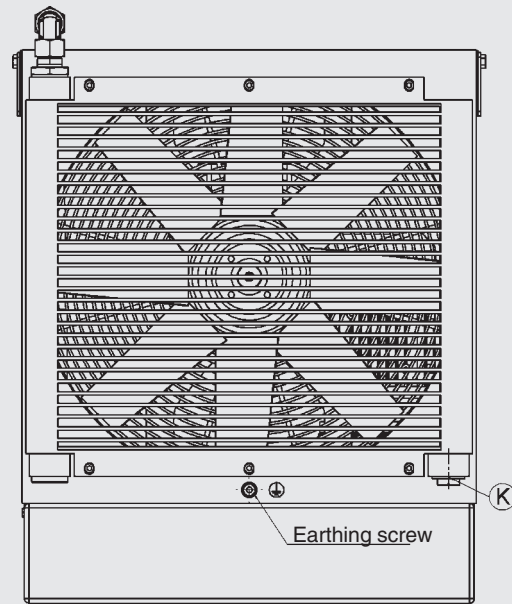
11 = Flow indicator

15 = Flow indicator and electrical fluid level monitoring

## 4. DIMENSIONS

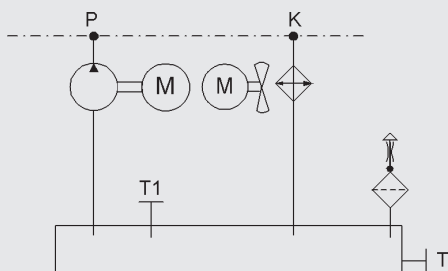


View of heat exchanger



- |                       |              |
|-----------------------|--------------|
| 1 Heat exchanger      | K = G 1      |
| 2 Cooling fan motor   | P = G 3/4    |
| 3 Pump                | T = G 3/4    |
| 4 Plastic tank        | T1 = M20x1.5 |
| 5 Filler breather cap |              |

### 4.1. CIRCUIT DIAGRAM



Standard circuit

## 5. ELECTRICAL PIN CONNECTIONS

The motor is connected electrically via the terminal box.

The appropriate circuit must be selected according to the available mains voltage.

The circuit diagram is displayed in the terminal box.

## 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.

### 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.

### 7. ELECTRICAL FLUID LEVEL MONITORING:

Fluid level switch (N/C) to monitor the coolant level in the tank.

### 11. ELECTRICAL FLOW INDICATOR

Flow rate monitoring of the coolant  
(switch-off point set to 5 l/min).

### 15. FLOW INDICATOR AND ELECTRICAL FLUID LEVEL MONITORING

Flow rate monitoring of the coolant (switch-off point set to 5 l/min) and fluid level switch (N/C) to monitor the coolant level 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.