

Technical Data

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|--------------------------|-------------------------|---|
| Dimensions and weight | height | 925 mm / 36.4" |
| | width | 612 mm / 24.1" |
| | length | 590 mm / 23.2" |
| | weight | approx. 180 kg / 396 lbs without oil |
| | capacity | 25 liters |
| Characteristics | cooling power | 5000 W at 32°C ambient temperature |
| | oil flow rate | > 22 l/min at 4.0 bar |
| | power connection | 3N PE 400/230 V, 50 Hz |
| | max. mains current | 8.2 A |
| | noise level | < 70 dB(A) (in a distance of 1 m (3.2 ft)) |
| Environmental conditions | operating temperature | + 5° C ... + 40° C |
| | storage temperature | - 25° C ... + 70° C (with antifreeze filling) |
| | humidity | 20 % ... 80 % |
| Coolant circuit | cooling agent | R 22 (CFC-free) |
| Settings | pressure | max. 9.25 bar |
| | flow rate monitor OFF | 17 l/min |
| | oil forward line (T1) | 20° C |
| | temperature (T2) | 40° C |
| Compressor | type | TAH 4518 A |
| | motor | 0.55 kW |
| | rated speed | 2900 min-1 |
| Connecting cable | 5 x 1.5 mm ² | Grounding plug, length 10 m (32 ft) |
| | 5 x 1.5 mm ² | CECON plug, length 10 m (32 ft) |

SEIFERT OLK 50

Oil Cooling Aggregate



Application

The OLK 50 is an air-cooled refrigeration aggregate designed to facilitate anode heat dissipation of the X-ray tube when operating at high ambient temperatures (up to 40° C) and can also be used when, for economical reasons a re-cooling of the tube-cooling oil from the water supply is not feasible.

The design allows the cooling aggregate to transfer the heat from the X-ray tubes to the ambient air. Therefore, sufficient fresh air supply must be guaranteed.

For operation at up to approximately 20°C we recommend the oil cooling pump OL 4503.

If re-cooling from the water supply is available, the oil cooling pump OW 4002 is recommended.

The aggregate is mounted in a square tube frame and is mobile on 4 castors.

Equipped with CFC-free coolant.

Description

Function

The cooling aggregate is designed for re-cooling of tube-cooling oil for bipolar X-ray tubes. The air-cooled aggregate is suitable for tropical climate and can be operated at an ambient temperature of up to 40° C. A circulation pump for the cooling oil, a reservoir (approximately 25 l) and safety devices for maximum oil temperature (55° C) and minimum circulation flow rate (17l/min) are completely wired, installed in the aggregate and connected. The aggregate is mounted in a square tube frame and is mobile on 4 castors.

The hot tube cooling oil returns via the oil flow switch and through the heat exchanger and, after cooling down, into the oil reservoir. The oil reservoir is vented to the atmospheric pressure. The circulation pump drains the oil from the reservoir and feeds it to the oil outlet quick-lock connector, via the thermometer probe.

Cooling circuit

The cooling circuit consists of

- full-hermetic compressor
- air cooled condenser
- cooling agent dryer
- cooling agent viewing glass with hygroscope
- expansion valve
- evaporator/heat exchanger
- high and low pressure regulator
- corresponding quick-lock connectors

All mobile components of the compressor, including the drive motor, are hermetically sealed in a housing.

The surface of the air-cooled condenser has generous dimensions to ensure reliable operation even at high evaporation and ambient temperatures. The ambient air is taken in through the condenser by

means of the ventilator and is expelled via the compressor through the protective grill. Inverse rotation of the ventilator would reduce the air flow rate drastically, thus reducing the cooling capacity of the aggregate.

The cooling agent liquefied in the condenser gets to the expansion valve after passing through the oil reservoir, the dryer and the viewing glass. Here the pressure is released from the condenser to the evaporator pressure. In the heat exchanger the heat required for this expansion is taken from the hot cooling oil. The expansion valve controls the flow of cooling agent required to cool to a certain temperature sensed at the heat exchanger's output side.

Electrical control

The standard version of the cooling aggregate is sized for connection to a 400 V 50 Hz / 440 V 60 Hz three-phase power supply and is connected to the power via a 5-wire power cable. The live leads are labeled R/S/T to be connected to the phases, the blue conductor to the neutral (Mp) and the green/yellow to ground. A second 5-wire connecting cable supplies the circulation pump from the X-ray control unit and connects the safety circuits to the control to ensure safe operation of the X-ray tube.

Safety circuit

The safety circuit monitors the cooling oil supply to the X-ray tube. The circuit includes an oil flow switch, which opens the circuit in case a minimum flow rate of the cooling oil (17 l/min) is not ensured. A thermostat switch opens the circuit in case the cooling water temperature exceeds the set temperature (55°C). Both

switches reconnect automatically after safe cooling is ensured.

Air supply

The heat absorbed by the heat exchanger and also the dissipation heat from the drive of the compressor has to be discharged by the air cooled condenser. If the unit is operated in a small, self-contained room the room temperature will built up rapidly. As shown in the overleaf diagram the cooling capacity decreases with increasing ambient temperature. It is therefore important that sufficient air circulation is provided for the OLK 50.

Maintenance

All components of the cooling aggregate are selected to be maintenance-free. However, it is crucial that the condenser be kept clean.

Also, the cooling oil level in the oil reservoir should be observed and topped up if required.

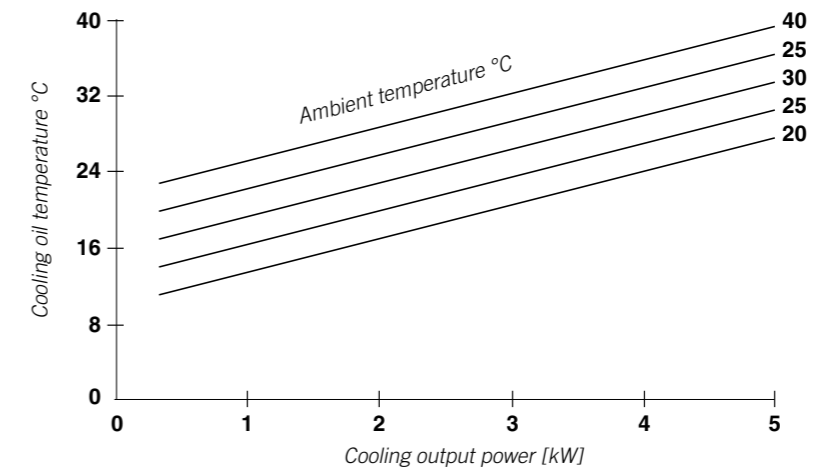


Fig. 1 Output diagram

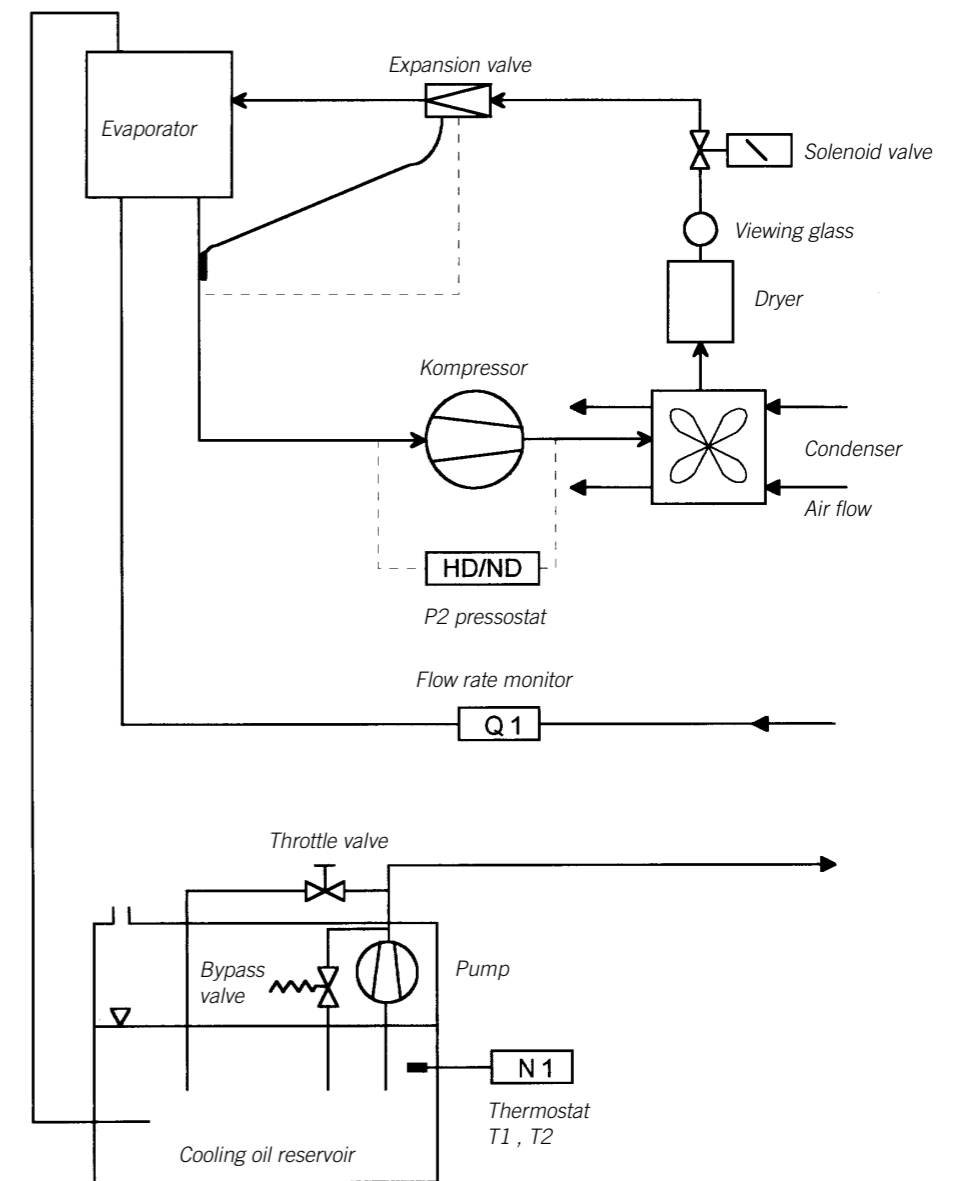


Fig. 2 Flow diagram