

Technical Data

Cooling power	3000 W at 40° C ambient temperature	
Water flow rate	> 6 l/min at 4.0 bar	
Power connection	230 V ± 10 %, 50/60 Hz, 9.3 A	
Connecting cables	3 x 1.5 mm ² , length 10 m (32 ft), power plug 5 x 1.5 mm ² , length 10 m (32 ft), Schaltbau plug	
Water connection	diameter 12 mm (0.5"), thread 1/2"	
Operating temperature	+ 0° C ...+ 40° C	
Storage temperature	- 25° C ... + 70° C (with cooling agent)	
Relative humidity	20 % ... 90 %	
Capacity	14 litres (without hoses)	
Cooling agent	R 134a (CFC-free), capacity 1.3 kg (2.86 lbs)	
Dimensions	612 x 590 x 925 mm (24.1" x 22.2" x 36.4") (WxDxH)	
Weight	115 kg (253 lbs) (without connecting cables, without water)	
Noise level	< 65 db(A) in a distance of 1 m (3.2 ft)	
Noise level pump only	55 dB; at 1 m distance	
Compressor type	CAJ 4515 A	
Motor	1 PS 230 V	
rated speed	2900 min-1	
Oil	SHELL Clavus 887 cm ³	
Max. operation current	7,45 A	
Default settings	max. pressure	< 6.7 bar
	flow rate monitor OFF	4.0 l/min
	water forward line (T1)	25° C
	cooling agent (T2)	5° C
	max. temperature (T3)	35° C

SEIFERT WLK 31

Water Cooling Aggregate



Application

The WLK 31 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 cooling of the X-ray tube from the water supply is not feasible. The aggregate is mounted in a square tube frame and is mobile on 4 castors.

Filled with CFC-free coolant and equipped with a fail-safe water turbine flow rate monitor for our X-ray equipment ISOVOLT series.

Description

Function

The cooling aggregate is designed for cooling of water and other liquids like water. The air-cooled aggregate is suitable for tropical climate and can be operated at up to an ambient temperature of 40° C. A circulation pump for the cooling water, a water reservoir and safety devices for maximum temperature and minimum circulation flow rate 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 cooling water returns into the storage tank via the water flow switch. The reservoir is vented to atmospheric pressure. The circulation pump drains the water from the container and feeds the same to the forward line connector, at first through the heat exchanger and after cooling down 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 connectors

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 water 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 water. 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 230 V, 50/60 Hz power supply and is connected to the power via a 3-wire power cable. The brown lead is to be connected to the phase (R) , the blue conductor to the neutral (Mp) and the green/yellow to ground.

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 WLK 31.

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 water level in the water reservoir should be observed and topped up if required.

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.

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

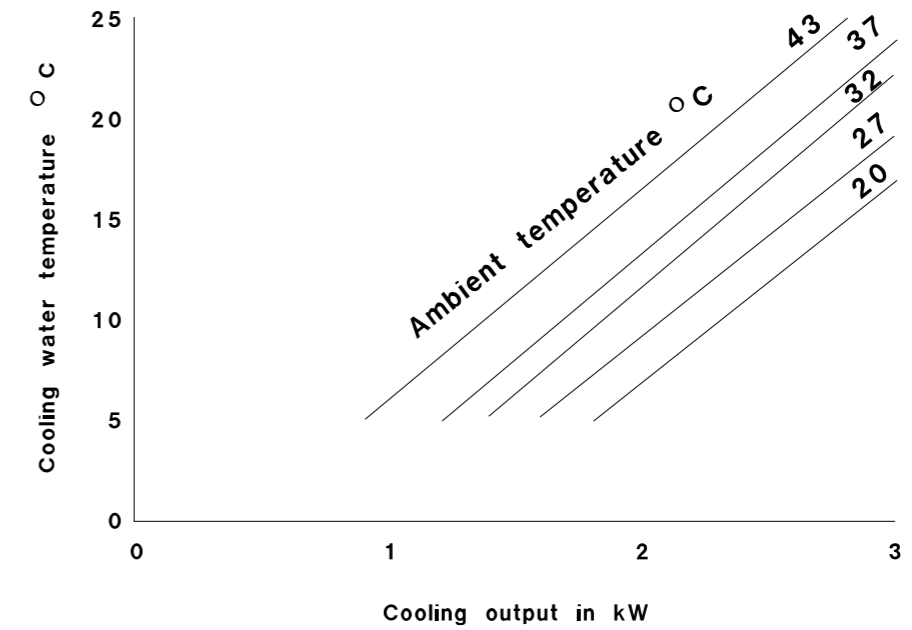


Figure 1 Output diagram