

# Coolers / Chillers

## Accessories for oil cooled units



OMF molecular oil filter unit  
incl. mounting kit  
Ord. No. 10009817 (for XRC-4501-OA)  
Ord. No. 10009818 (for XRC-4501-OW)



Oil Shell Diala S3 ZX-I,  
5 liter can,  
Ord. No. 4512-101-63583



Set of oil hoses (inlet and outlet)  
5m, Ord. No. 9421-166-96052  
10m, Ord. No. 9421-166-96102  
15m, Ord. No. 9421-166-96152  
20m, Ord. No. 9421-166-96202

## Accessories for water cooled units



Hose nipple,  
inner diameter 13mm  
inlet, Ord. No. 10009223  
outlet, Ord. No. 10009222

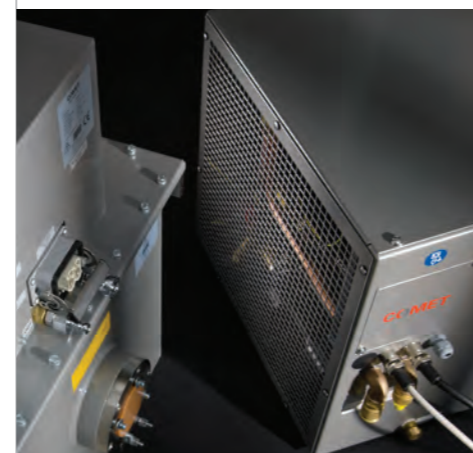


Water with antifreeze,  
10 liter can  
Ord. No. 20039712



Cooling hoses  
inlet 5m, Ord. No. 10009352.05  
inlet 10m, Ord. No. 10009352.10  
outlet 5m, Ord. No. 10009353.05  
outlet 10m, Ord. No. 10009353.10

Additional accessories and spare parts are available on request.



**COMET**  
Technology with Passion

**COMET AG**  
Industrial X-Ray  
Herrengasse 10, CH-3175 Flamatt  
T +41 31 744 90 00, F +41 31 744 90 90  
www.comet-xray.com  
info@comet-xray.com

**COMET Technologies USA, Inc.**  
100 Trap Falls Road Extension  
Shelton, CT 06484, USA  
T +1 203 447 3165, F +1 203 925 0364  
www.comet-xray.com  
xray@cometusa.com

**COMET China**  
1201 Guiqiao Road, Building 10, 1<sup>st</sup> floor  
Pudong, Shanghai 201206 / P.R. China  
T +86 21 6879 9000, F +86 21 6879 9009  
www.comet-xray.com  
xray@cometchina.com

06/2014 - V1, specification subject to change without notice

Industrial X-Ray

Overview



**COMET**  
Technology with Passion



**“One Stop Shop” for Industrial X-Ray: COMET’s XRS**

COMET is pleased to offer all of the necessary components for a customized X-Ray module: The XRS modules contain a COMET X-Ray tube, XRP Generator, HV-cables, cooler and interconnections designed for easy integration that will optimize system performance.

All XRS modules are factory pre-tested for hassle free installation and operation. This solution demonstrates COMET’s continuous commitment and investment in delivering real added value to our worldwide customer base.

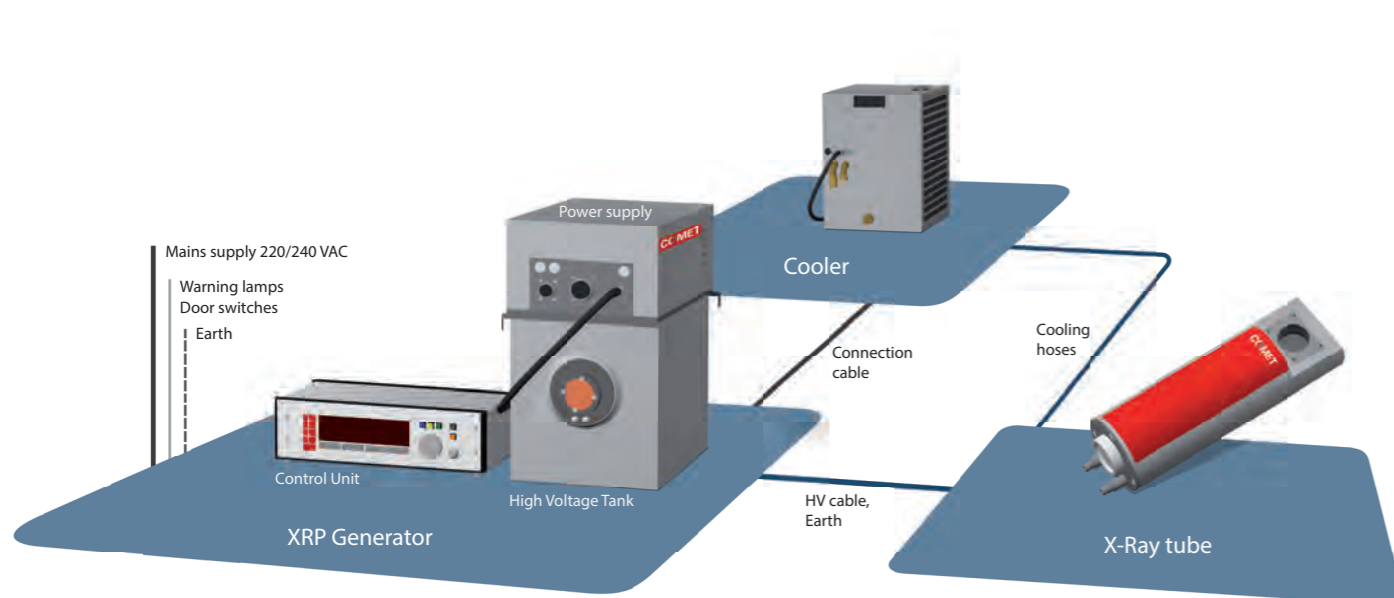
**About the Business Unit Industrial X-Ray**

COMET Industrial X-Ray is an experienced supplier of components and modules for industrial X-Ray applications and is proud of its reputation as the preferred engineering partner in terms of innovation potential, know how, flexibility and speed. Our product range

features X-Ray tubes and sources with small focal spot resolution up to 6 kW in output for more power demanding requirements. From the smallest footprint for use in portable units to 600 kV fixed gantry systems that are suitable for cargo screening, we offer a solution.

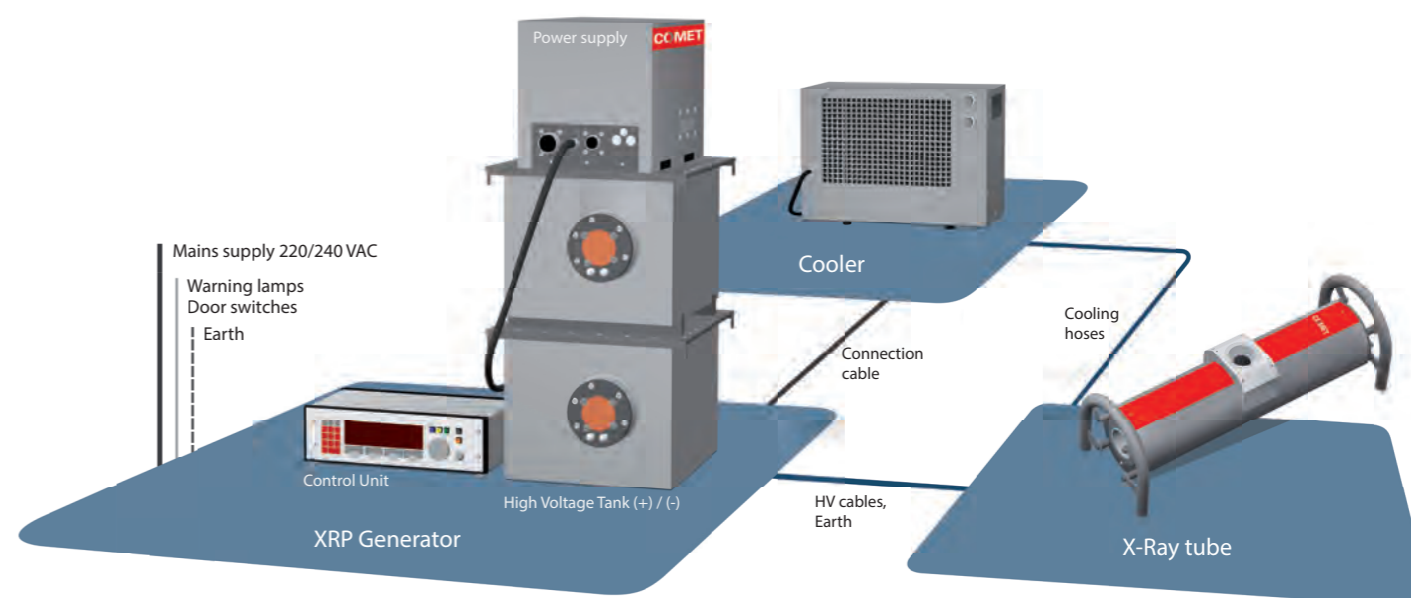
**Unipolar XRS Module**

Diagram of a water to air cooler and its environment.



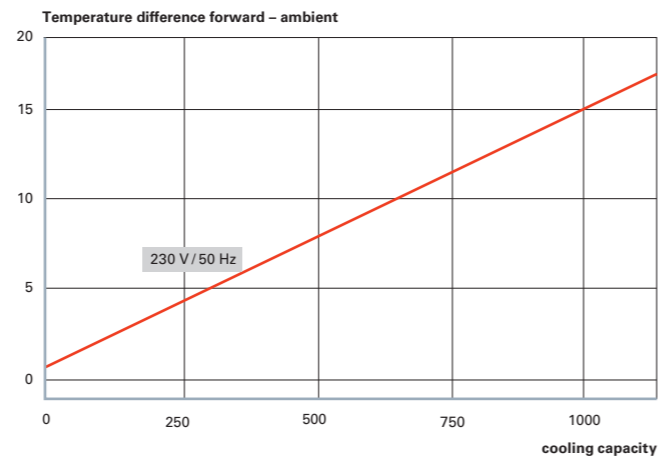
**Bipolar XRS Module**

Diagram of an oil to air cooler and its environment.





## Cooler XRC-1001-WA Ordering No. 20033773



- The cooling unit XRC-1001-WA is intended to cool the water circuit.
- The coolant can be water or a mixture of water and antifreeze (water-glycol).
- Water circulates between the cooling unit and the heat source. The water is re-cooled by an air-cooled heat exchanger.

### Technical data

#### Physical dimensions

Length:	330 mm
Width:	292 mm
Height:	300 mm
Weight:	17.0 kg without filling
Coolant capacity:	1.5 l

#### Performance data

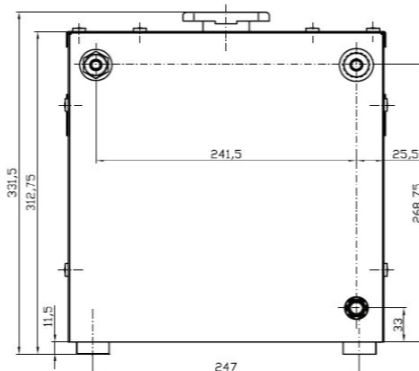
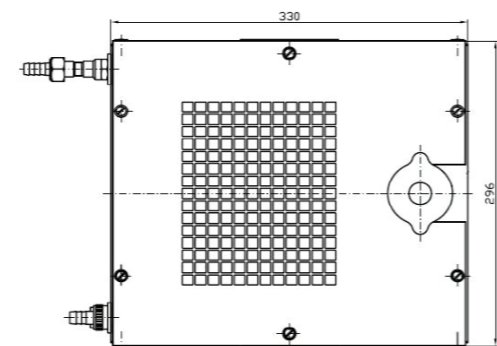
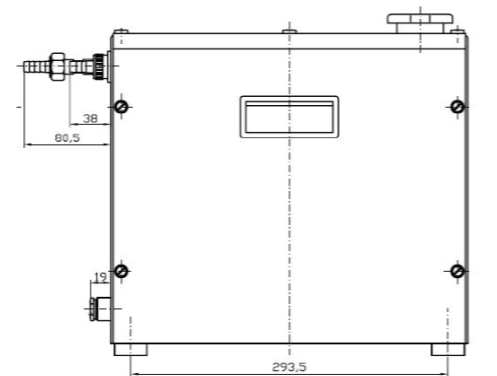
Cooling capacity:	1000 W ( $\Delta T < 15^\circ\text{K}$ )
Flow rate:	> 4.4 l/min at 4.0 bar
Main voltage:	230 V, 50/60 Hz
Current consumption:	< 2.0 A
Noise level at 1m distance:	< 70 dB(A)
Airflow at 50 Hz (60 Hz):	360 m <sup>3</sup> /h (275 m <sup>3</sup> /h)
Safety class:	IP 33

#### Environmental specifications

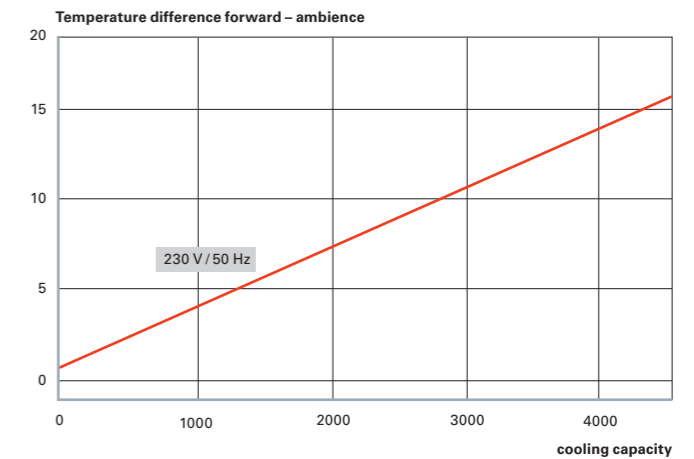
Operational temperature:	+ 10°C...+ 40°C (use antifreeze if ambient temperature is below 10°C)
Storage temperature:	- 25°C...+ 70°C (store with antifreeze)
Air humidity:	20%...90% non condensing

#### Settings

Maximum forward pressure:	6.0 bar
Flow switch open:	< 4 l/min
Flow switch close:	> 4.2 l/min
Thermal switch open:	> 50°C
Thermal switch close:	< 45°C



## Cooler XRC-3001-WA Ordering No. 10008640



- The cooling unit XRC-3001-WA is intended to cool the water circuit.
- The coolant can be water or a mixture of water and antifreeze (water-glycol).
- Water circulates between the cooling unit and the heat source. The water is re-cooled by an air-cooled heat exchanger.

### Technical data

#### Physical dimensions

Length:	483 mm
Width:	406 mm
Height:	481 mm
Weight:	38.5 kg without filling
Coolant capacity:	4.0 l

#### Performance data

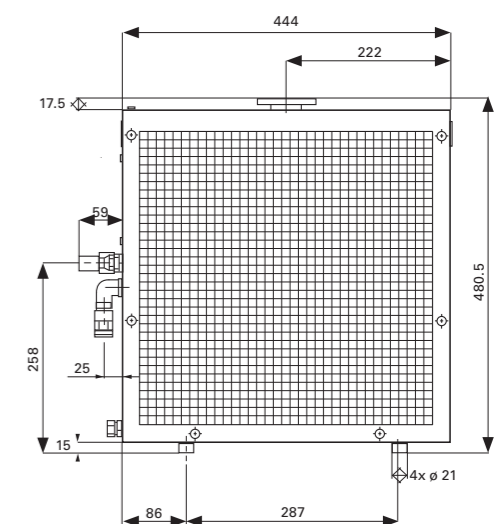
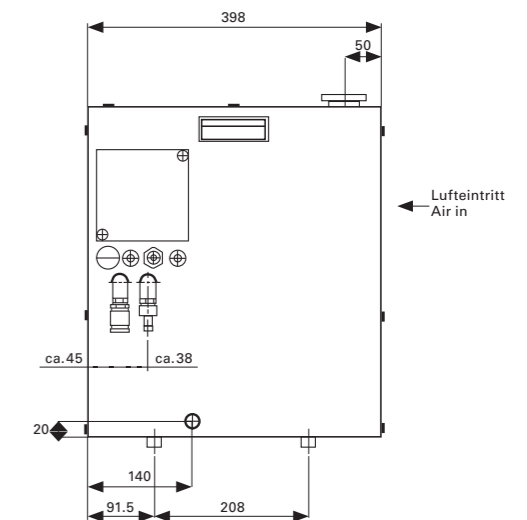
Cooling capacity:	3000 W ( $\Delta T < 11^\circ\text{K}$ )
Flow rate:	> 5.4 l/min at 4 bar
Main voltage:	230 V + 10% - 15%, 48 - 62 Hz
Current consumption:	< 2.6 A
Noise level at 1m distance:	55 dB(A) (50 Hz), 59 dB(A) (60 Hz)
Airflow at 50 Hz (60 Hz):	2200 m <sup>3</sup> /h (2600 m <sup>3</sup> /h)
Safety class:	IP 33

#### Environmental specifications

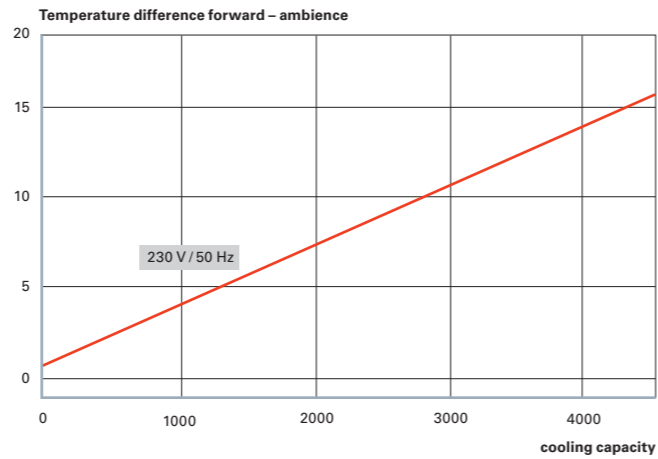
Operational temperature:	- 10°C...+ 40°C (use antifreeze if ambient temperature is below 10°C)
Storage temperature:	- 25°C...+ 70°C (store with antifreeze)
Air humidity:	20%...90% non condensing

#### Settings

Maximum forward pressure:	6.7 bar
Flow switch open:	< 4 l/min
Flow switch close:	> 4.2 l/min
Thermal switch open:	> 50°C
Thermal switch close:	< 45°C



## Cooler XRC-3012-WA Ordering No. 20049308



- The cooling unit XRC-3012-WA is intended to cool the water circuit.
- The coolant can be water or a mixture of water and antifreeze (water-glycol).
- Water circulates between the cooling unit and the heat source. The water is re-cooled by an air-cooled heat exchanger.

### Technical data

#### Physical dimensions

Length:	483 mm
Width:	406 mm
Height:	481 mm
Weight:	38.5 kg without filling
Coolant capacity:	4.0 l

#### Performance data

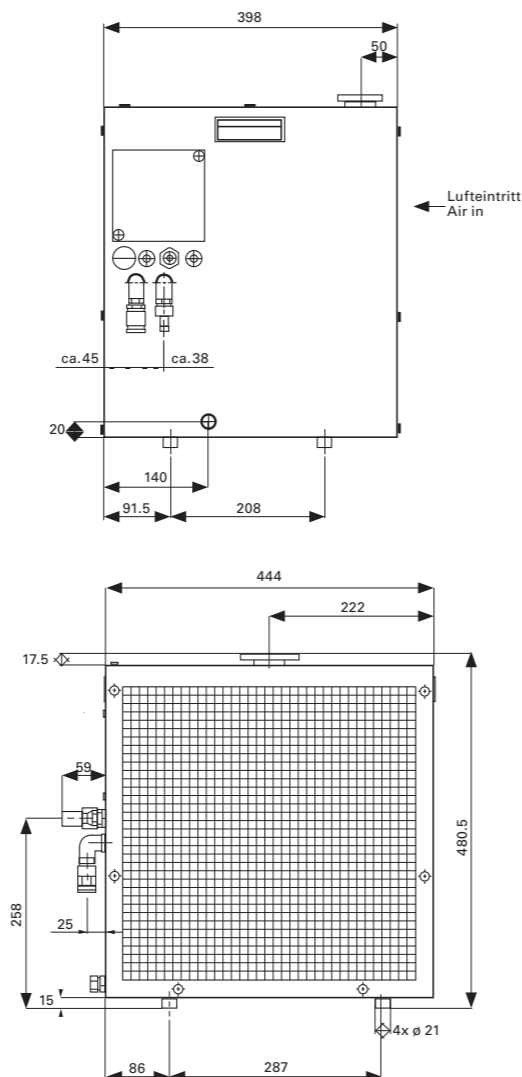
Cooling capacity:	3000 W ( $\Delta T < 11\text{ °K}$ )
Flow rate:	> 5.4 l/min at 4 bar
Main voltage:	230 V + 10% – 15%, 48 – 62 Hz
Current consumption:	< 2.6 A
Noise level at 1m distance:	55 dB(A) (50 Hz), 59 dB(A) (60 Hz)
Airflow at 50 Hz (60 Hz):	2200 m <sup>3</sup> /h (2600 m <sup>3</sup> /h)
Safety class:	IP 33

#### Environmental specifications

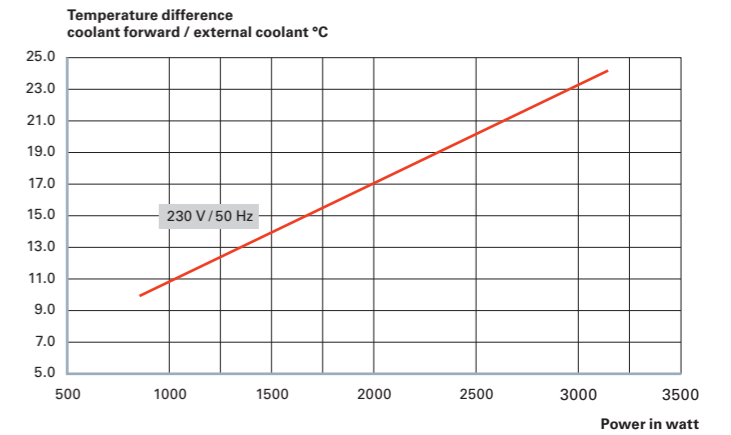
Operational temperature:	– 10°C...+ 40°C (use antifreeze if ambient temperature is below 10°C)
Storage temperature:	– 25°C...+ 70°C (store with antifreeze)
Air humidity:	20%...90% non condensing

#### Settings

Maximum forward pressure:	6.7 bar
Flow switch open:	< 4 l/min
Flow switch close:	> 4.2 l/min
Thermal switch open:	> 50°C
Thermal switch close:	< 45°C



## Cooler XRC-3001-WW Ordering No. 10008641



- The cooling unit XRC-3001-WW is intended to cool the water circuit.
- The coolant can be water or a mixture of water and antifreeze (water-glycol).
- Water circulates between the cooling unit and the heat source. The water is re-cooled by a water-cooled heat exchanger.

### Technical data

#### Physical dimensions

Length:	450 mm
Width:	270 mm
Height:	400 mm
Weight:	24 kg without filling
Coolant capacity:	8.5 l

#### Performance data

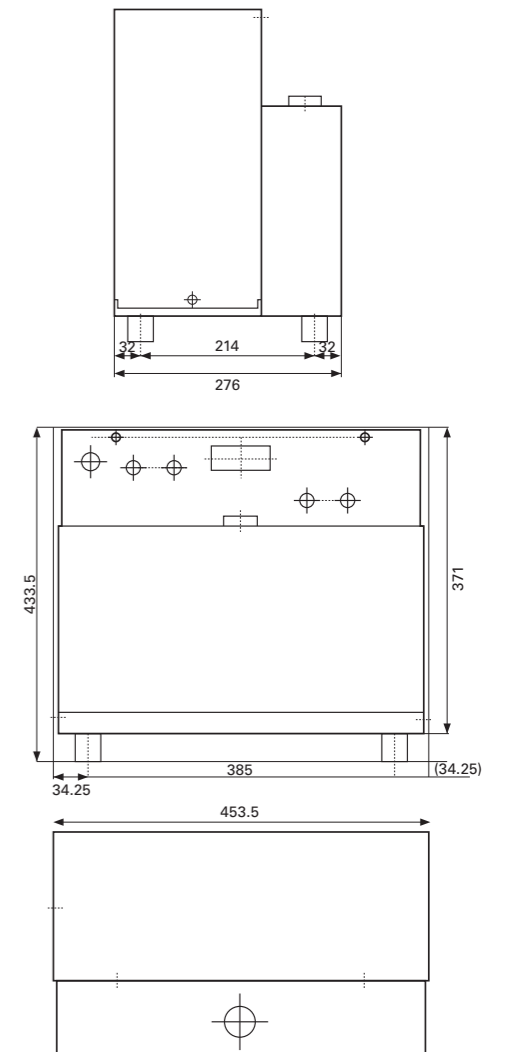
Cooling capacity:	3000 W ( $\Delta T < 22\text{ °K}$ )
Flow rate:	> 5.4 l/min at 4 bar
Main voltage:	230 V + 10% – 15% , 48 – 62 Hz
Current consumption:	< 1.8 A
Noise level at 1m distance:	47 dB(A) (50 Hz), 51 dB(A) (60 Hz)
Safety class:	IP 33

#### Environmental specifications

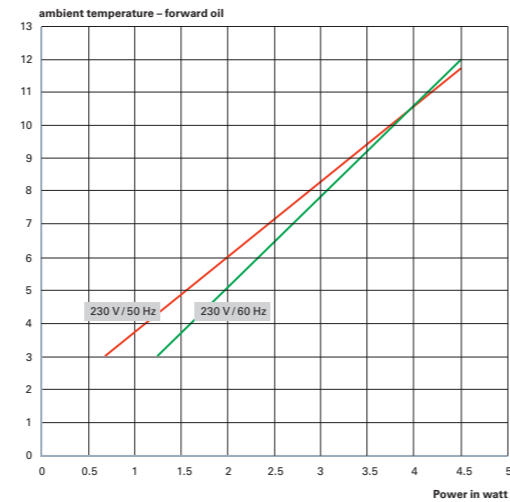
Operational temperature:	0°C...+ 40°C (use antifreeze if ambient temperature is below 10°C)
Storage temperature:	– 25°C...+ 70°C (store with antifreeze)
Air humidity:	10%...90% non condensing

#### Settings

Maximum forward pressure:	6.7 bar
Flow switch open:	< 4 l/min
Flow switch close:	> 4.2 l/min
Thermal switch open:	> 25°C
Thermal switch close:	< 45°C



### Cooler XRC-4501-OA Ordering No. 10008642



- The cooling unit XRC-4501-OA serves for cooling the oil circulation system.
- Oil circulates between the cooling unit and the heat source. The oil is re-cooled by an air-cooled heat exchanger.
- The capacity of the cooling unit depends on the ambient temperature difference between the cooling oil outlet and ambient temperature of the heat source.

#### Technical data

##### Physical dimensions

Length:	770 mm
Width:	340 mm
Height:	535 mm
Weight:	53 kg without filling
Coolant capacity:	12.5 l

##### Performance data

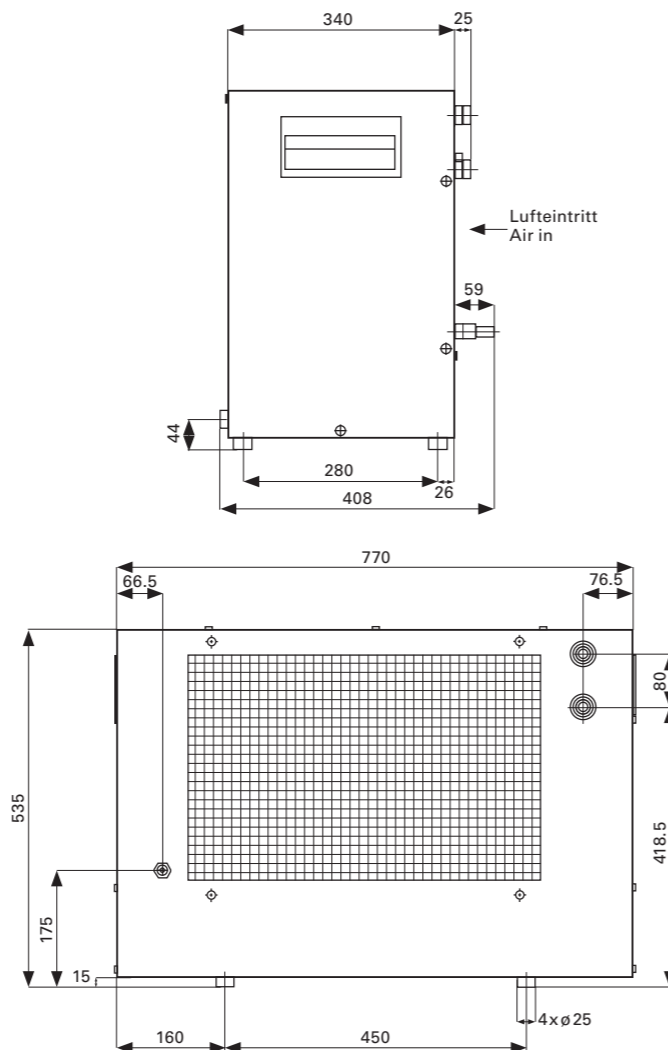
Cooling capacity:	4500 W ( $\Delta T < 11 \text{ }^\circ\text{K}$ )
Flow rate:	> 14 l/min at 8 bar
Main voltage:	230 V + 10% – 15%, 48–62 Hz
Input Power:	0.785 kW ( $P_{max}$ ; 230 V; 50 Hz) 1.058 kW ( $P_{max}$ ; 230 V; 60 Hz)
Noise level at 1m distance:	65 dB(A)
Airflow at 50 Hz (60 Hz):	2200 m <sup>3</sup> /h (2600 m <sup>3</sup> /h)
Safety class:	IP 33

##### Environmental specifications

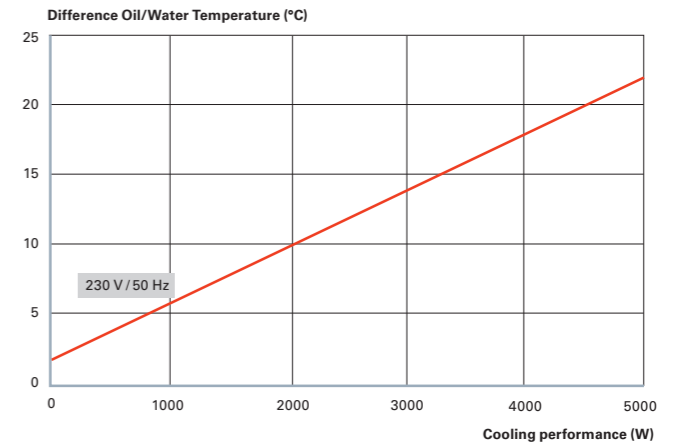
Operational temperature:	– 10°C...+ 40°C
Storage temperature:	– 25°C...+ 70°C
Air humidity:	20 %...90 % non condensing

##### Settings

Maximum forward pressure:	9.5 bar
Flow switch open:	< 14 l/min
Flow switch close:	> 15.5 l/min
Thermal switch open:	> 50°C
Thermal switch close:	< 47°C



### Cooler XRC-4501-OW Ordering No. 10008643



- The cooling unit XRC-4501-OW serves for cooling the oil circulation system.
- Oil circulates between the cooling unit and the heat source. The oil is re-cooled by a water-cooled heat exchanger.
- The capacity of the cooling unit depends on the ambient temperature difference between the cooling water and the oil outlet temperature of the heat source.

#### Technical data

##### Physical dimensions

Length:	621 mm
Width:	350 mm
Height:	551 mm
Weight:	65 kg without filling
Coolant capacity:	23 l

##### Performance data

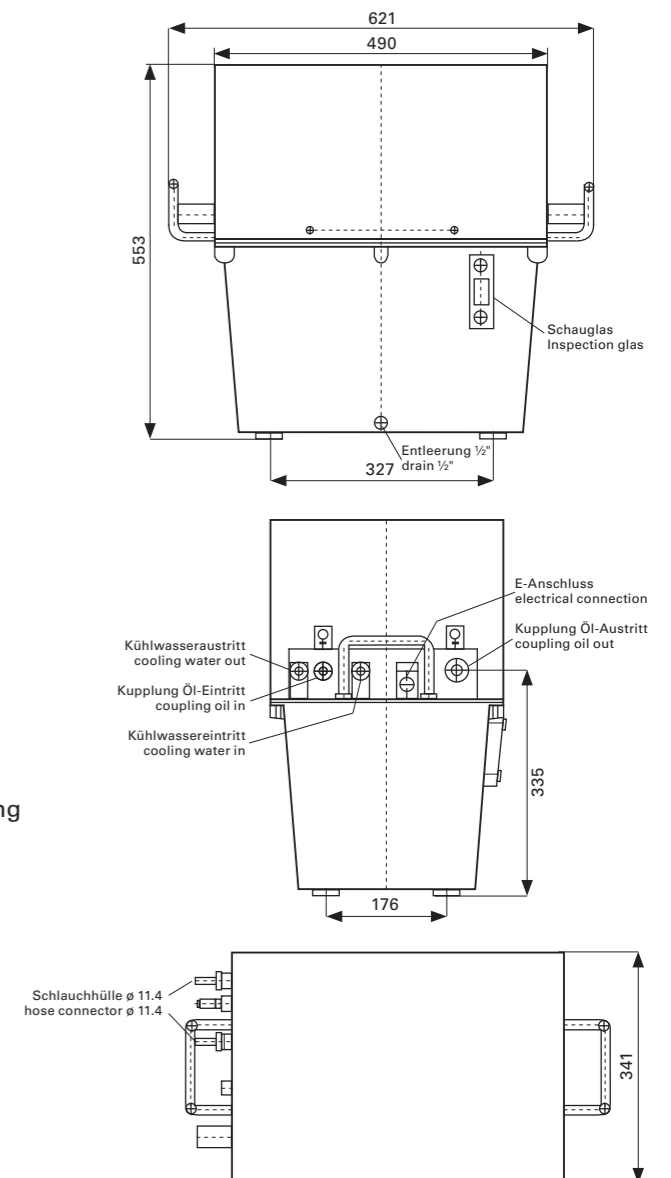
Cooling capacity:	4500 W ( $\Delta T < 20 \text{ }^\circ\text{K}$ )
Flow rate:	> 25 l/min at 3.5 bar
Main voltage:	230 V +/- 10% (50/60Hz)
Input power:	0.55 kW
Safety class:	IP 33

##### Environmental specifications

Operational temperature:	0°C...+ 40°C
Storage temperature:	– 25°C...+ 70°C
Air humidity:	20%...90% non condensing

##### Settings

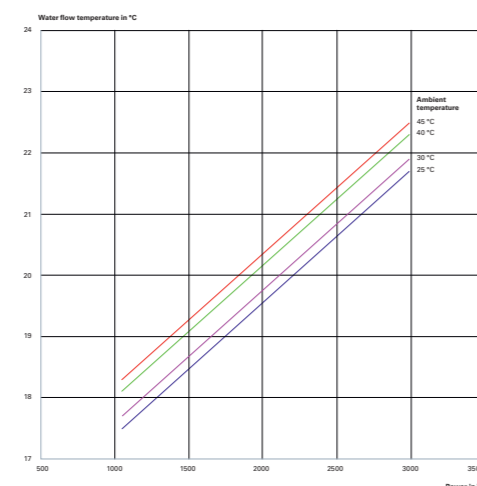
Maximum forward pressure:	9.5 bar
Flow switch open:	< 14 l/min
Flow switch close:	> 15.5 l/min
Thermal switch open:	> 50°C
Thermal switch close:	< 47°C





**Chiller XRCA-3001-WA** Ordering No. 20033337

- The cooling unit XRCA-3001-WA is designed to provide a continuous flow of coolant fluid at a constant temperature.
- Water circulates between the cooling unit and the heat source. The water is chilled by an air-cooled refrigeration system.
- The cooling capacity is 3000 W related to 40°C ambient temperature and +25°C +/- 2°C fluid temperature.
- Cooling hoses are connected to the cooling unit via quick connectors.

**Technical data****Physical dimensions**

Length:	590 mm
Width:	612 mm
Height:	925 mm
Weight:	115 kg without Water
Coolant capacity:	14 l

**Performance data**

Cooling capacity:	3000 W at 40°C ambient temperature
Water flow:	> 6 l/min at 4.0 bar
Voltage rating:	230 V 50/60 Hz (switchable to 208 V 50/60 Hz)
Current consumption:	< 9.3 A
Noise level at 1m distance:	≤ 65 dB(A), Distance
Airflow at 50 Hz (60 Hz):	1700 m³/h (2200 m³/h)
Safety class:	IP 33

**Environmental specifications**

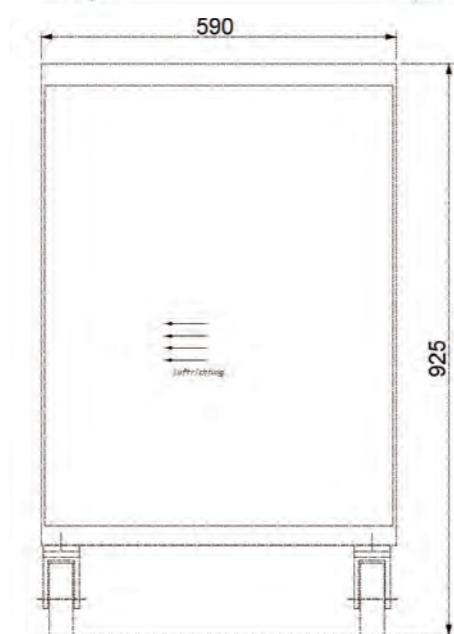
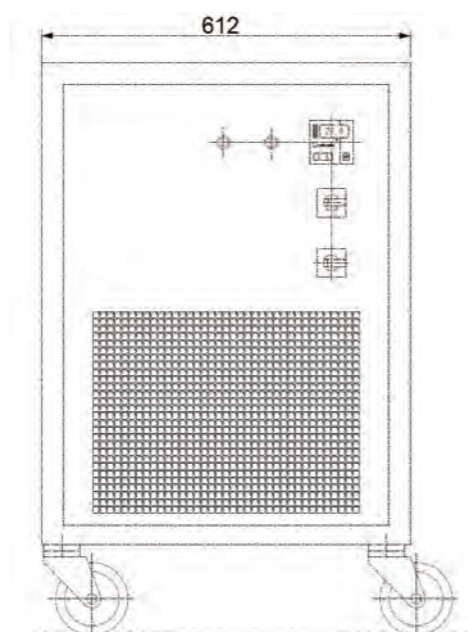
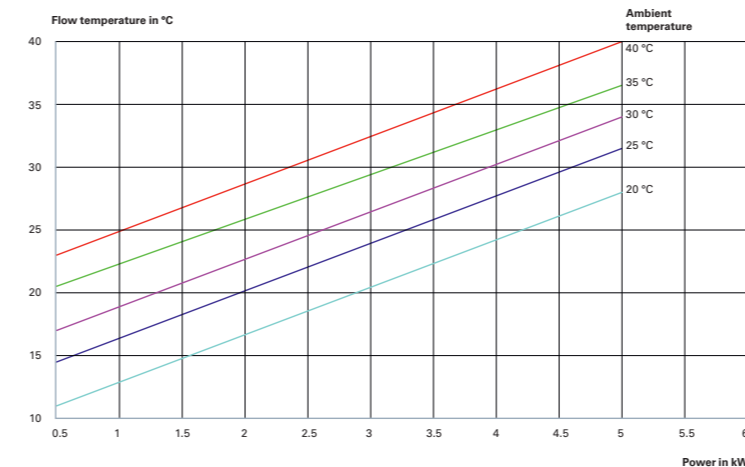
Ambient temperature:	+ 5°C ...+ 40°C
Storage temperature:	- 25°C ...+ 70°C (Storage without water)
Air humidity:	20% ... 90% not condensing

**Refrigeration cycle**

Refrigerant:	R 134 A
Capacity:	1.3 kg

**Settings**

Maximum pressure:	≤ 6.7 bar
Water outlet temperature (T1):	+ 25°C
Anti freezing (T2):	+ 5°C
Temperature MAX (T3):	+ 35°C
Flow switch open:	< 4 l/min
Flow switch close:	> 4.2 l/min

**Chiller XRCA-5001-OA** Ordering No. 20033338 (50Hz) / 20032910 (60Hz)

- The cooling unit XRCA-5001-OA is designed to provide a continuous flow of cooling fluid at a constant temperature.
- Oil circulates between the cooling unit and the heat source. The oil is chilled by an air-cooled refrigeration system.
- The cooling capacity is 5000W related to 40°C ambient temperature and +30°C ± 2°C fluid temperature.
- Cooling hoses are connected to the cooling unit via screw connection.

**Technical data****Physical dimensions**

Length:	1120 mm
Width:	750 mm
Height:	980 mm
Weight:	180 kg without coolant
Coolant capacity:	12.5 l

**Performance data**

Cooling capacity:	5000 W at 40°C ambient temperature
Oil flow:	> 22 l/min at 3.5 bar
Voltage rating:	230 V 50 Hz or 60 Hz
Current consumption:	< 8.2 A
Noise level at 1m distance:	≤ 70 dB (A)
Airflow at 50 Hz (60 Hz):	3400 m³/h (4400 m³/h)
Safety class:	IP 33

**Environmental specifications**

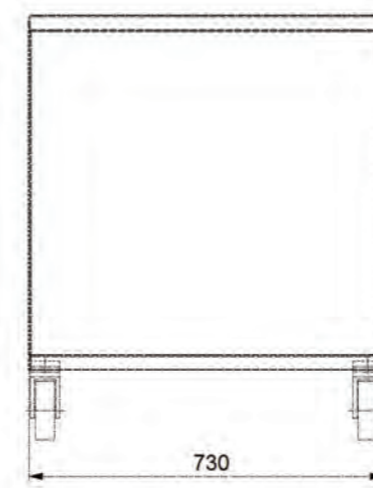
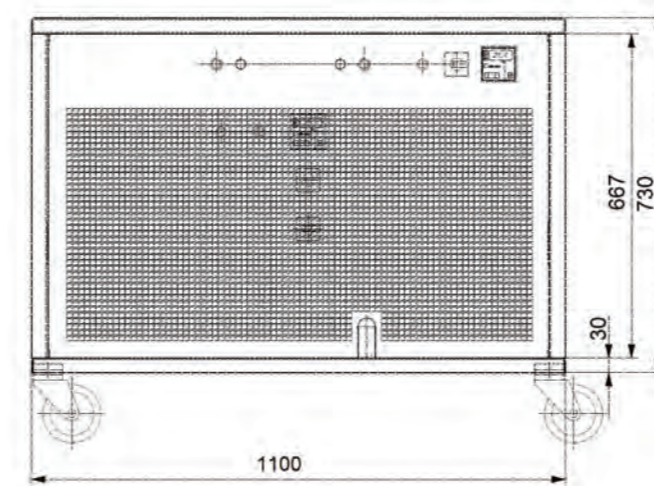
Ambient temperature:	+ 5°C ...+ 40°C
Storage temperature:	- 25°C ...+ 70°C (Storage without coolant)
Air humidity:	20% ... 90% not condensing

**Refrigeration cycle**

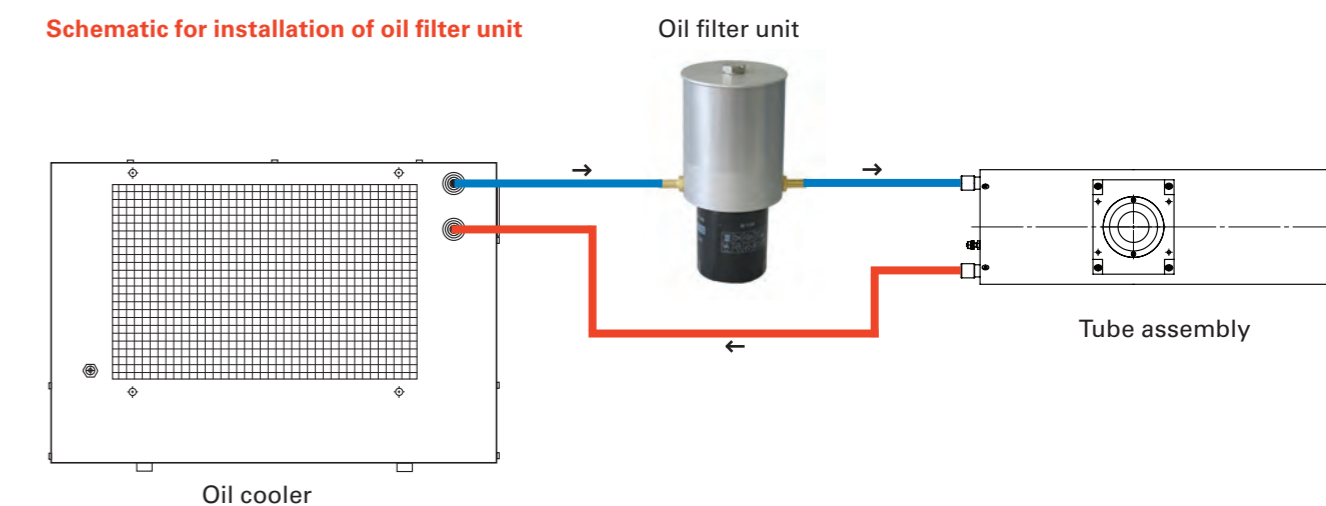
Refrigerant:	R 134 A
Capacity:	3.0 kg

**Settings**

Maximum pressure:	≤ 8.5 bar
Oil outlet temperature (T1):	+ 30°C
Anti freezing (T2):	+ 5°C
Temperature MAX (T3):	+ 50°C

**Oil filter OMF** Ordering No. 20073964

- The oil filter unit OMF has been developed to maintain the quality and dielectric strength of the cooling circuit.
- The oil filter consists of 2 stages, a molecular sieve to remove moisture from the oil and a particle filter.
- For the operation of oil cooled X-Ray tubes it is important to maintain the dielectric strength of the oil also during extended operation of the tube. The oil deteriorates when moisture is being absorbed, in particular during filling or in open cooling systems, when the oil decomposes, or by the formation of particles. This may happen by chemical reactions within the oil at the hot anode surface or by the influence of X-Rays.

**Schematic for installation of oil filter unit****Operation parameters**

Operating pressure, max:	10 bar
Weight:	5.6 kg
Cooling medium:	Oil
Cooling medium temp. at inlet, max:	50°C

