

Coolers / Chillers

Industrial X-Ray

Overview





“One Stop Shop” for Industrial X-Ray: Comet’s iXRS

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

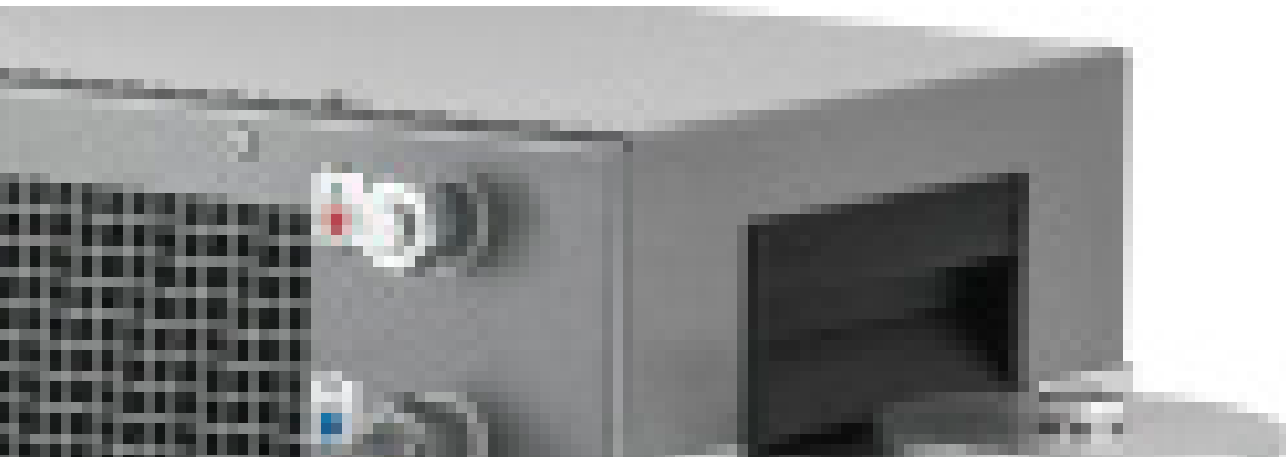
All iXRS modules are factory pre-tested for hassle free installation and operation.

This solution demonstrates Comet’s continuous commitment and investment in delivering real added value to our worldwide customer base.

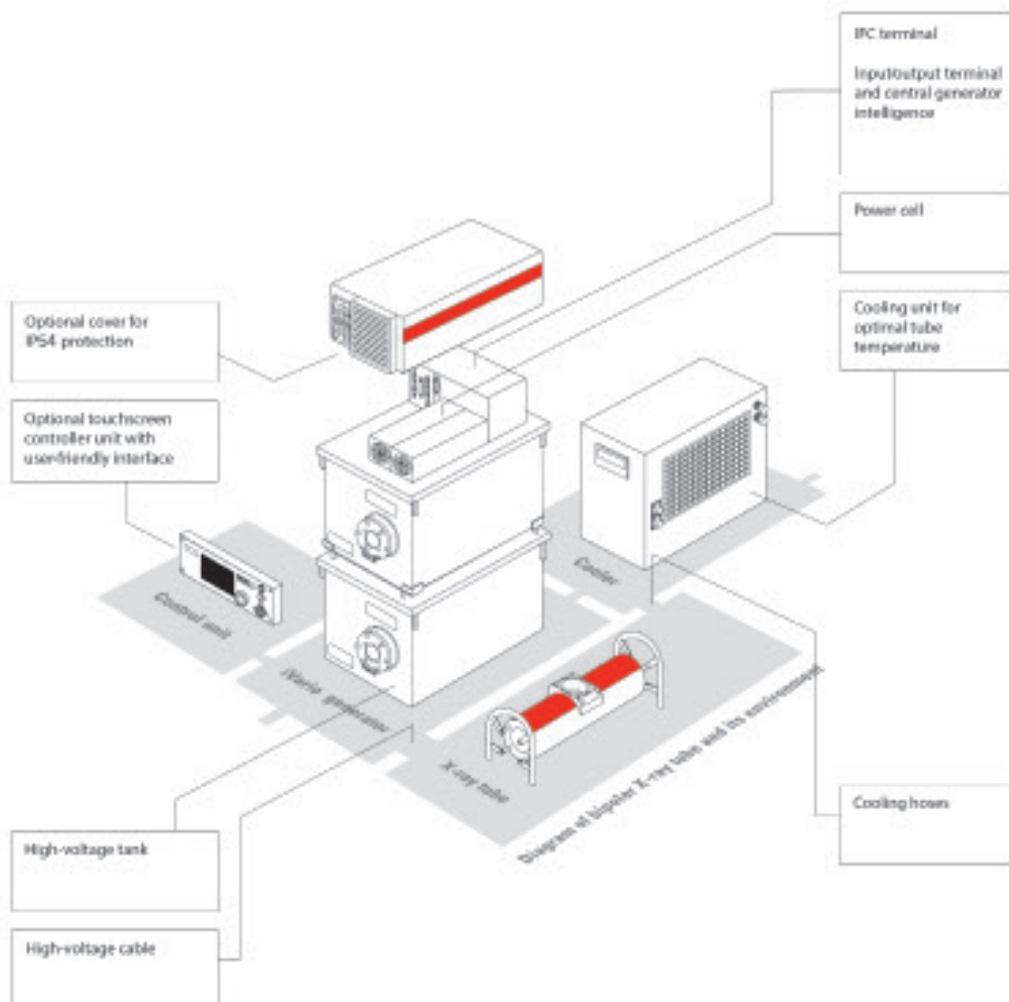
About the Business Unit Industrial X-Ray

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

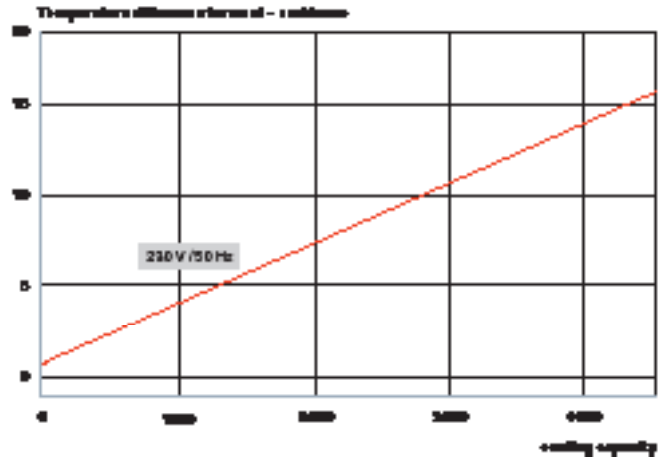
features X-Ray tubes and sources with small focal spot resolution up to 6 kW in output for more power demanding requirements. From the smallest footprint for use in portable units to 600 kV fixed gantry systems that are suitable for cargo screening, we offer a solution.



Bipolar XRS Module



Cooler XRC-3023-WA Ordering No. 20086162



- The cooling unit XRC-3023-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

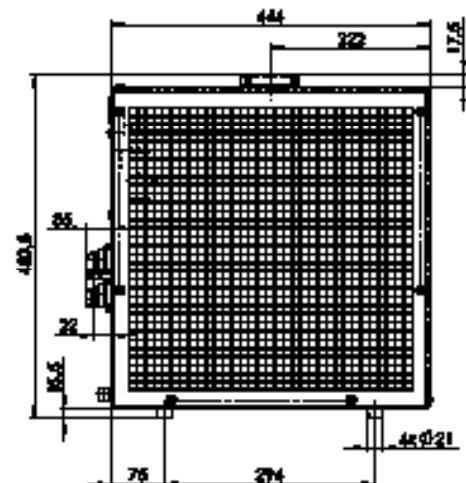
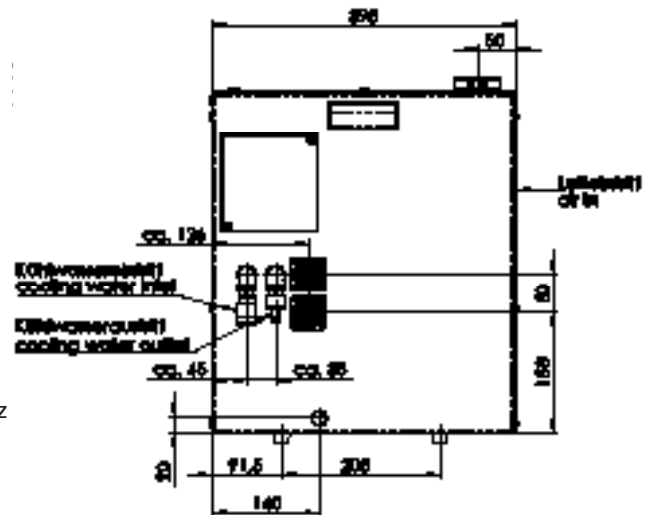
Cooling capacity:	3000 W ($\Delta T=11^{\circ}\text{C}$)
Flow rate:	≥ 5.4 l/min at 4 bar
Main voltage:	230 V AC $+10\%$ / -15% , 50/60 Hz
Current consumption:	≤ 2.6 A
Noise level at 1m distance:	55 dB (50 Hz), 59 dB (60 Hz)
Airflow at 50 Hz (60 Hz):	2200 m ³ /h (2600 m ³ /h)
Safety class:	IP 21

Environmental specifications

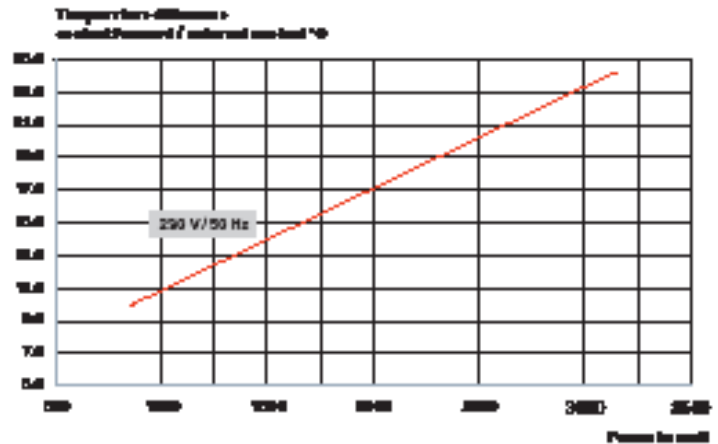
Operational temperature:	-10°C up to $+40^{\circ}\text{C}$ (use antifreeze if ambient temperature is below 10°C)
Storage temperature:	-25°C up to $+70^{\circ}\text{C}$ (store with antifreeze)
Air humidity:	20% up to 90% non condensing

Settings

Maximum forward pressure:	6.7 ± 0.2 bar
Flow switch open:	< 4 l/min
Flow switch close:	> 4.2 l/min
Thermal switch open:	$> 50^{\circ}\text{C}$
Thermal switch close:	$< 45^{\circ}\text{C}$



Cooler XRC-3023-WW Ordering No. 20086163



- The cooling unit XRC-3023-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.

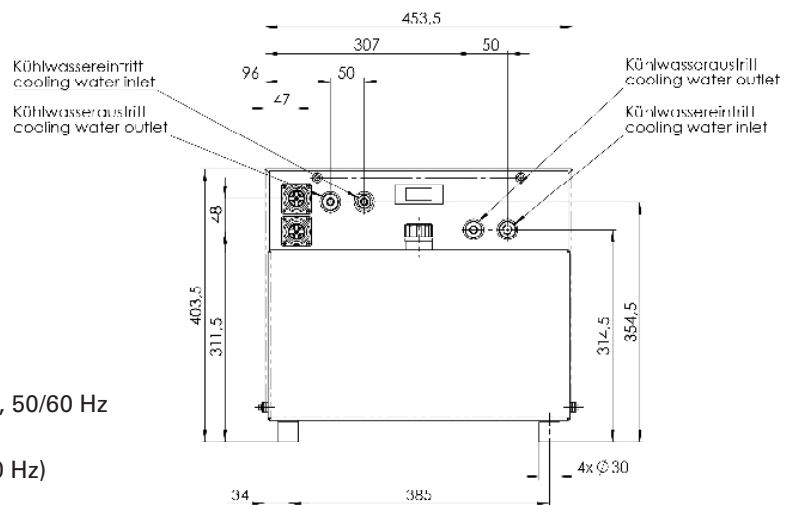
Technical data

Physical dimensions

Length:	460 mm
Width:	296 mm
Height:	404 mm
Weight:	24 kg without filling
Coolant capacity:	8.5 l

Performance data

Cooling capacity:	3000 W ($\Delta T=22^\circ\text{C}$)
Flow rate:	≥ 5.4 l/min at 4 bar
Main voltage:	230 V AC $\pm 10\%$ / -15% , 50/60 Hz
Current consumption:	≤ 1.8 A
Noise level at 1m distance:	47 dB (50 Hz), 51 dB (60 Hz)
Safety class:	IP 21

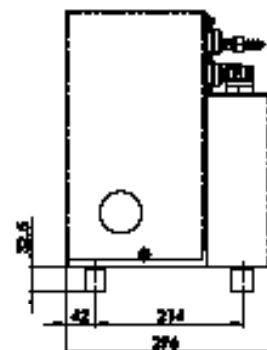


Environmental specifications

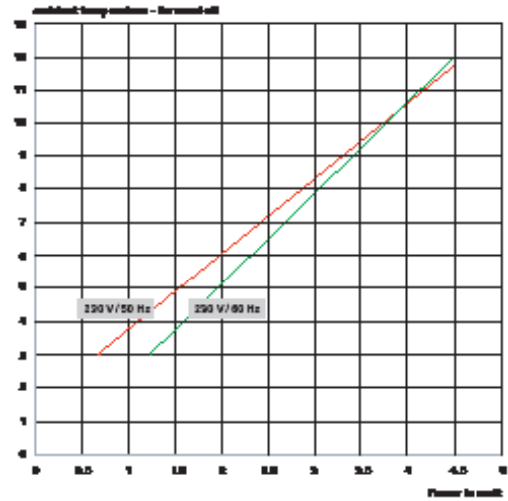
Operational temperature:	+5°C up to +40°C (use antifreeze if ambient temperature is below 10°C)
Storage temperature:	-25°C up to +70°C (store with antifreeze)
Air humidity:	20% up to 90% non condensing

Settings

Maximum forward pressure:	6.5 \pm 0.2 bar
Flow switch open:	< 4 l/min
Flow switch close:	> 4.8 l/min
Thermal switch open:	> 25°C
Thermal switch close:	< 45°C



Cooler XRC-4523-OA Ordering No. 20086164



- The cooling unit XRC-4523-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:	778 mm
Width:	390 mm
Height:	539 mm
Weight:	53 kg without filling
Coolant capacity:	12.5 l

Performance data

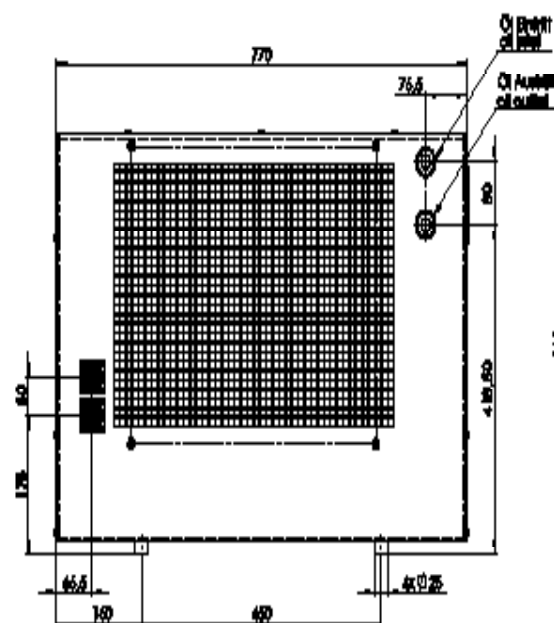
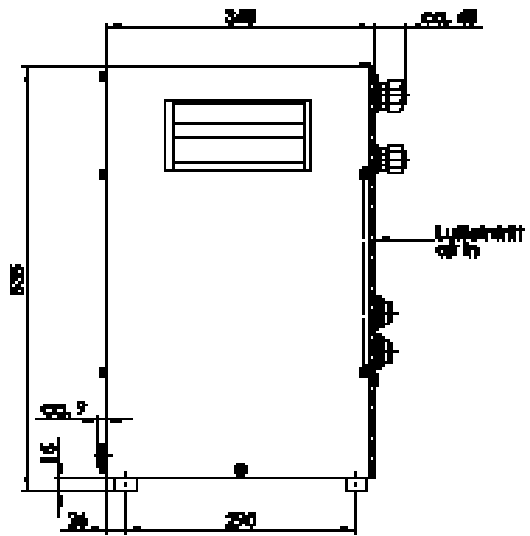
Cooling capacity:	4500 W ($\Delta T=11^{\circ}\text{C}$)
Flow rate:	≥ 14 l/min at 8 bar
Main voltage:	230 V AC $+10\%$ / -15% , 50/60 Hz
Input Power:	0.785 kW (P_{max} ; 230 V; 50 Hz) 1.058 kW (P_{max} ; 230 V; 60 Hz)
Noise level at 1m distance:	65 dB
Airflow at 50 Hz (60 Hz):	2200 m ³ /h (2600 m ³ /h)
Safety class:	IP 21

Environmental specifications

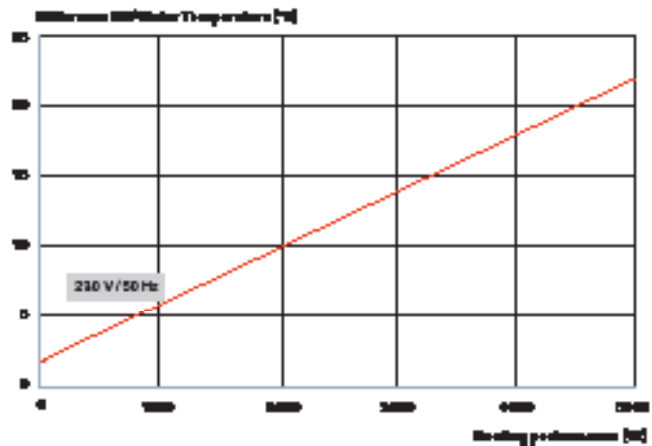
Operational temperature:	-10°C up to $+40^{\circ}\text{C}$
Storage temperature:	-25°C up to $+70^{\circ}\text{C}$
Air humidity:	20 % up to 90 % non condensing

Settings

Maximum forward pressure:	9.5 ± 0.2 bar
Flow switch open:	< 20.5 l/min
Flow switch close:	> 22 l/min
Thermal switch open:	$> 50^{\circ}\text{C}$
Thermal switch close:	$< 47^{\circ}\text{C}$



Cooler XRC-4523-OW Ordering No. 20086165



- The cooling unit XRC-4523-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:	45 kg without filling
Coolant capacity:	23 l

Performance data

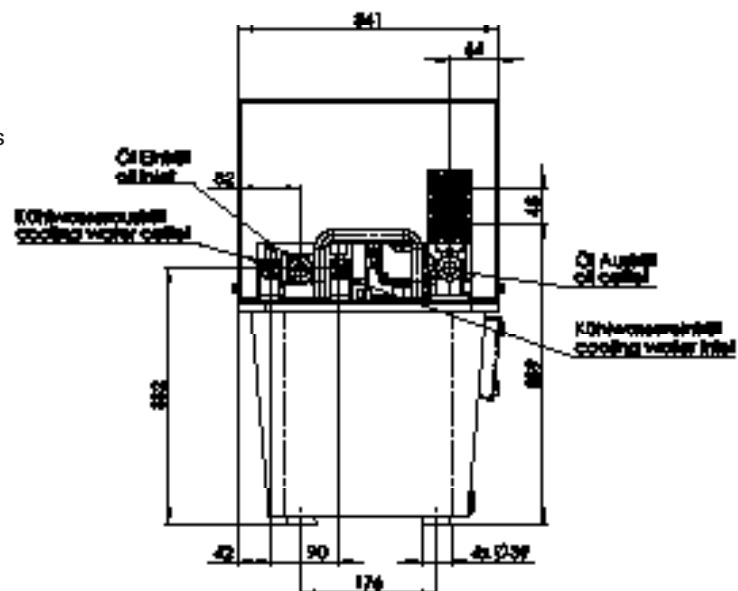
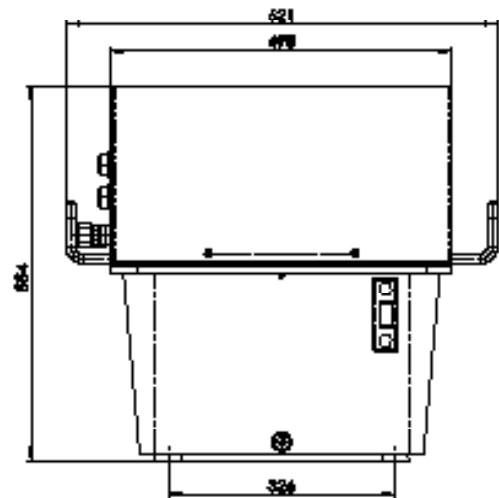
Cooling capacity:	4500 W ($\Delta T=20^{\circ}\text{C}$)
Flow rate:	≥ 25 l/min at 3.5 bar
Main voltage:	230 V AC $\pm 10\%$ / -15% , 50/60Hz
Input power:	0.55 kW
Noise level at 1m distance:	60 dB
Safety class:	IP 21

Environmental specifications

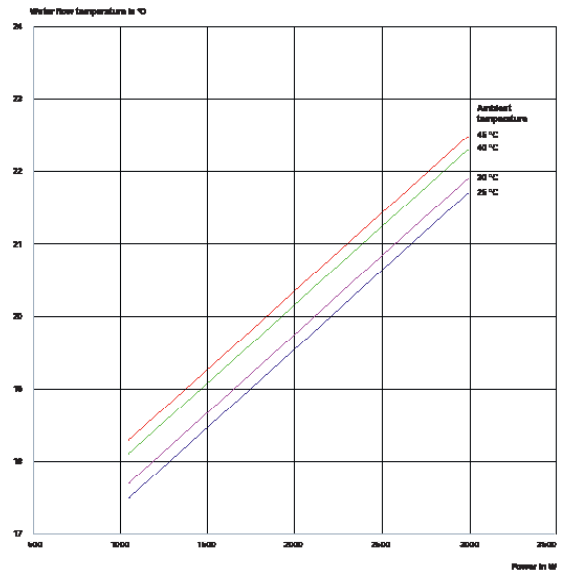
Operational temperature:	$+5^{\circ}\text{C}$ up to $+40^{\circ}\text{C}$
Storage temperature:	-25°C up to $+70^{\circ}\text{C}$
Air humidity:	20% up to 90% non condens

Settings

Maximum forward pressure:	9.5 ± 0.2 bar
Flow switch open:	< 20.5 l/min
Flow switch close:	> 13 l/min
Thermal switch open:	$> 50^{\circ}\text{C}$
Thermal switch close:	$< 47^{\circ}\text{C}$



Chiller XRCA-3023-WA Ordering No. 20086166



- The cooling unit XRCA-3023-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 ($\Delta T=15^{\circ}\text{C}$)
Water flow:	≥ 4.4 l/min at 4.0 bar
Voltage rating:	230 V AC +10% / -15%, 50/60 Hz
Current consumption:	≤ 9.3 A
Noise level at 1m distance:	≤ 65 dB
Airflow at 50 Hz (60 Hz):	1700 m ³ /h (2200 m ³ /h)
Safety class:	IP 21

Environmental specifications

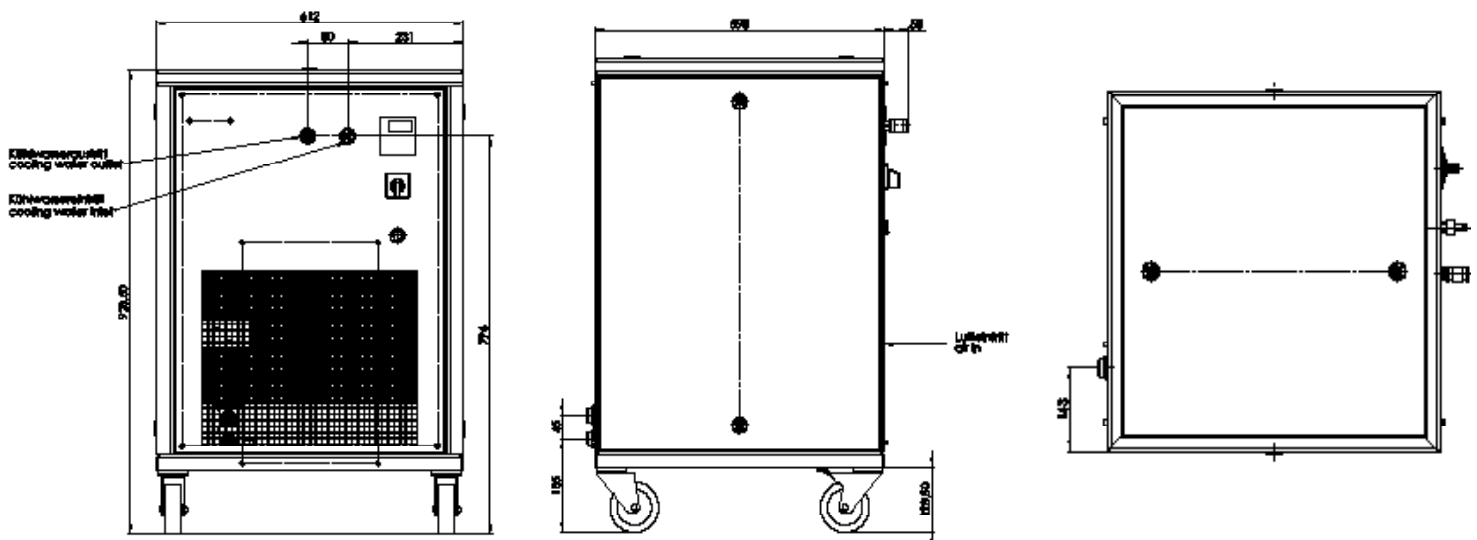
Ambient temperature:	+5°C up to +40°C
Storage temperature:	-25°C up to +70°C (Storage without water)
Air humidity:	20% up to 90% not condensing

Refrigeration cycle

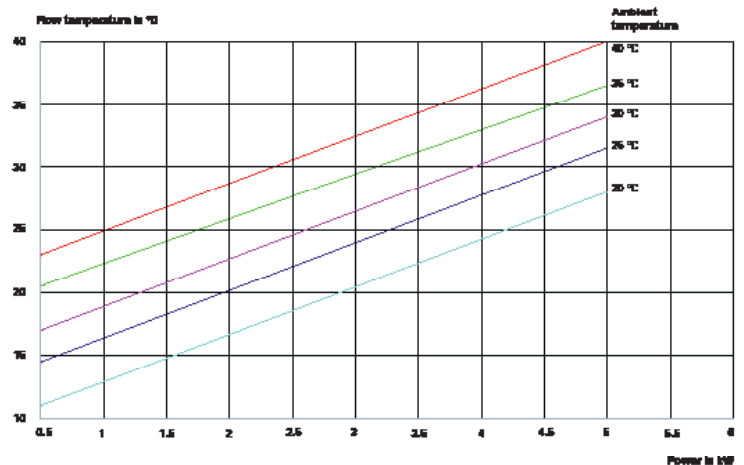
Refrigerant:	R 134 A
Capacity:	1.3 kg

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-5023-OA Ordering No. 20086167 (50Hz) / 20086168 (60Hz)



- The cooling unit XRCA-5023-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 AC +10% / -15%, 50/60 Hz
Current consumption:	≤ 8.2 A
Noise level at 1m distance:	≤ 70 dB
Airflow at 50 Hz (60 Hz):	3400 m ³ /h (4400 m ³ /h)
Safety class:	IP 21

Environmental specifications

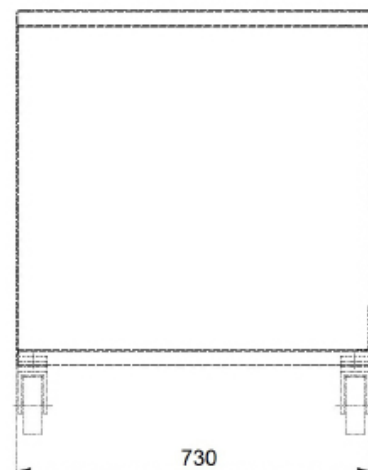
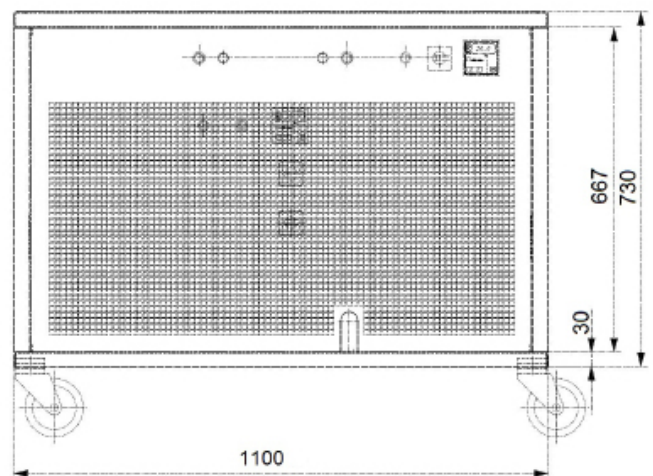
Ambient temperature:	+5°C up to +40°C
Storage temperature:	-25°C up to +70°C (Storage without coolant)
Air humidity:	20% up to 90% not condensing

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

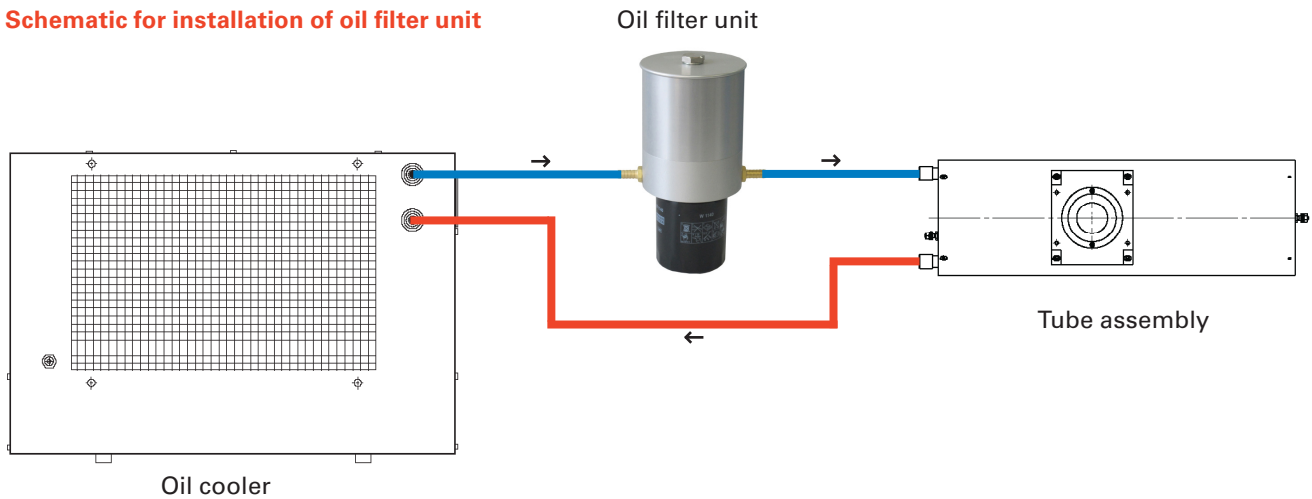


Oil filter OMF Ordering No. 20073964



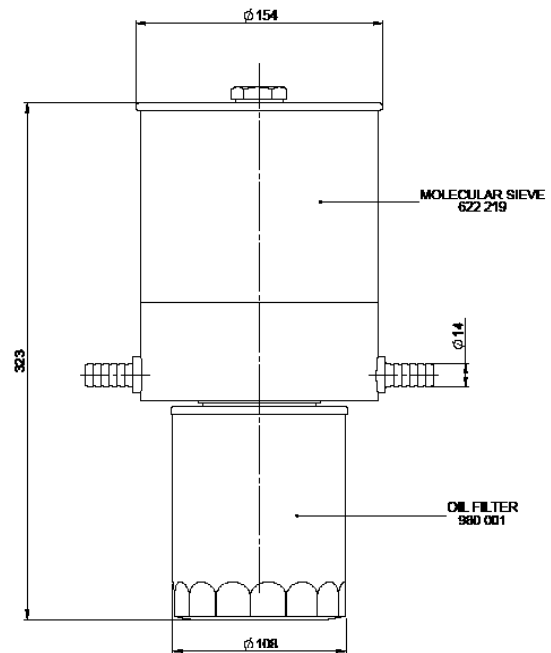
- The oil filter unit OMF has been developed to maintain the quality and dielectric strength of the cooling circuit.
- The oil filter consists of 2 stages, a molecular sieve to remove moisture from the oil and a particle filter.
- For the operation of oil cooled X-Ray tubes it is important to maintain 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



Accessories for oil cooled units



OMF molecular oil filter unit
incl. mounting kit
Ord. No. 10009817 (for XRC-4523-OA)
Ord. No. 10009818 (for XRC-4523-OW)
Ord. No. 20102753 (for XRCA-5023-OA)



Oil Shell Diala S4
5 liter can,
Ord. No. 20082759



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
inlet 15m, Ord. No. 10009352.15
inlet 20m, Ord. No. 10009352.20
inlet 25m, Ord. No. 10009352.25
inlet 30m, Ord. No. 10009352.30
outlet 5m, Ord. No. 10009353.05
outlet 10m, Ord. No. 10009353.10
outlet 15m, Ord. No. 10009353.15
outlet 20m, Ord. No. 10009353.20
outlet 25m, Ord. No. 10009353.25
outlet 30m, Ord. No. 10009353.30

Additional accessories and spare parts are available on request.



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COMET

Technology with Passion

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