

# Chiller Configurations for SuperNova and PX Scanner Systems

## Data Sheet

X-ray Crystallography

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### Introduction

The KMW70 is a compact and economical chiller unit providing cooling for both the X-ray tubes and the CCD detector in SuperNova and PX Scanner instruments. The unit has been designed to provide maximum system reliability and temperature stability, employing an internal cooling circuit for fine temperature control. The X-ray tubes and CCD detector are also permanently shielded from any external water supply, thereby maintaining a controlled environment.

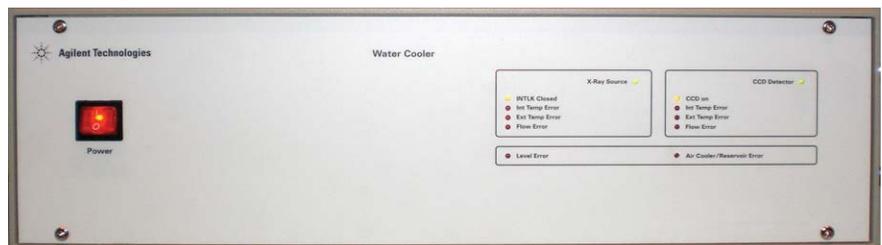


Figure 1. The KMW70 chiller unit

Purpose-built by Agilent Technologies, the KMW70 is available in two configurations:

- Water-to-air: When provided with an AirCooler radiator unit, this particular configuration makes the entire system completely self-contained, thereby independent of any external water supply. The AirCooler is suitable for all laboratories where the temperature does not exceed 25°C.
- Water-to-water: The KMW70 can be connected to an external water supply, where this is more appropriate. This includes integrated laboratory cooling circuits and secondary external chillers.



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These two system configurations allow both SuperNova and PX Scanner systems to be customized to the exact specifications required for any laboratory environment.

The chiller is a compact unit mounted as a single module within the base cabinet of the overall system (Figure 2). The system has been designed so that chiller maintenance is kept to an absolute minimum, with the flow sensor and the water filters mounted external to the unit for quick and easy cleaning or replacement if required.

## KMW70 Chiller Features

- Internal water reservoir designed for maximum temperature stability
- Compact and efficient
- High-speed Ethernet connection for system control and remote diagnostics
- Fully safety-interlocked for CCD and X-ray tube protection
- Quiet operation
- Simple maintenance when required

For the water-to-air configuration, the AirCooler radiator (Figure 3) has a very small footprint and is placed indoors, up to 10 metres from the main system. Employing an array of 8 fans, the AirCooler is a simple heat exchanger and is designed to be practically maintenance-free. Unlike some traditional external chiller units, the air cooler is almost silent when in operation.

## AirCooler Radiator Features

- Suitable up to temperatures of 25°C
- Compact and efficient
- Low maintenance
- Quiet operation



Figure 2. The KMW70 chiller (bottom unit) within the base cabinet of a SuperNova system



Figure 3. AirCooler Radiator

## Technical Specifications

The maximum heat dissipation from a SuperNova or PX Scanner system is 1250W (4265 BTU/hr). Where the AirCooler is installed and in the same room as the system, all heat will be dissipated into this room. Where sufficient air conditioning is not available, the AirCooler radiator can be installed in a different room (up to 10m away from the system). Alternatively, the water-to-water chiller option can be installed and connected to an integrated departmental water circuit or external chiller unit.

### Water-to-air Configuration

#### KMW70 Chiller Unit

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Power connection	1/N AC 110/230V, 50/60Hz
Maximum power consumption	700W
Maximum mains current	2.7A (230V)
Fuse	T 3.15A/230V (T 6.3A/110V)
Ground terminal	Yes
Temperature stability	± 0.1 °C
Coolant specification	90% distilled water and 10% ethylene glycol
Internal reservoir volume	2 litres
Weight	20 kg
Dimensions	53 x 49 x 14 cm

#### AirCooler Radiator

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Power connection	1/N AC 110/230V, 50/60Hz
Maximum power consumption	80W
Fuse	T 1A/230V (T 2A/110V)
External air temperature	<25°C
Internal circuit pressure	0.3 bar
Weight	25 kg
Dimensions	75 x 32 x 93 cm
Proximity of AirCooler radiator to KMW70 unit	Up to 10m
Coolant specification	90% distilled water and 10% ethylene glycol
Coolant volume	3 litres

### Water-to-water Configuration

#### KMW70 Chiller Unit

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Power connection	1/N AC 110/230V, 50/60Hz
Maximum power consumption	800W
Maximum mains current	2.8A (230V)
Fuse	T 3.15A/230V (T 6.3A/110V)
Ground terminal	Yes
Temperature stability	± 0.1 °C
Air temperature	<30°C
Internal circuit coolant specification	90% distilled water and 10% ethylene glycol
Internal circuit coolant volume	3L
External water temperature	<25°C
External water pressure	3 bar
Return line pressure (where required)	<2 bar (ideally <1 bar, for pressure drop of 2-3 bar between supply and return)
Weight	20 kg
Dimensions	53 x 49 x 14 cm

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