

# Cryogenic

-150°C Chest Freezer



MDF-1156-PE

## The most uniform storage temperatures for cryopreservation solutions

The MDF-1156 **Cryogenic** Freezer offers unparalleled safety, reliability and uniform temperatures well below -135°C for ideal long-term cryopreservation solutions.

### Long-term Storage

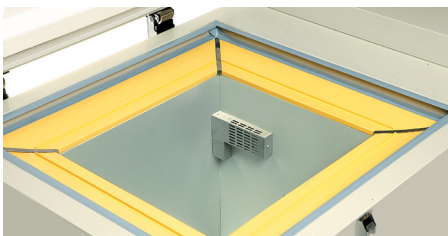
The electronically controlled freezer maintains inner cabinet temperature at an ultra-low -152°C (ambient temperature of 30°C), far lower than the re-crystallization point for pure water (-130°C). This low temperature provides the ideal preservation environment for long-term storage.

### Reliable Technologies

Compressors that are specifically designed for ultra-low temperature applications are employed in the proven cascade refrigeration system ensuring the highest levels of performance and reliability.

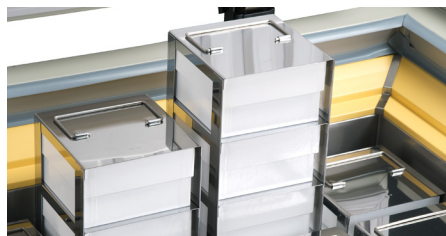
### Alarm and Safety Devices

Alarm and safety devices ensure high levels of protection in case of high temperature deviations, power failure or filter blockage. ATN models are also equipped with an auxiliary liquid nitrogen back-up system for added protection.



### Uniform Sample Storage

The uniform and stable temperatures provided are ideal for storage of cells, tissues and other important biological samples.



### Dry Storage

The highest levels of protection for valuable samples, without the risks of cross contamination and vertical temperature gradients.



### Easy Monitoring

The control panel provides a clear view of the temperature and gives a notification in the case of abnormalities.

# Cryogenic -150°C Chest Freezer



## Application Specific Design

Due to the extended operation of compressors within ultra-low temperature freezers, lubricant oil is essential to reduce wear, prevent abrasions and seizure and therefore maintain the highest levels of freezer performance.

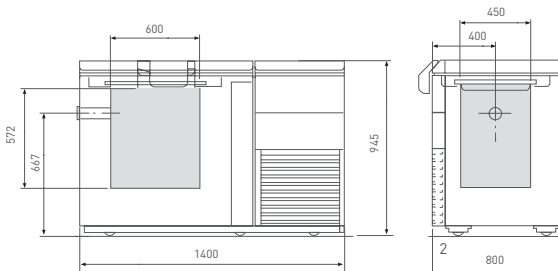
However, when lubricant oil circulates within the refrigeration circuit, it can cause piping to become clogged, resulting in compressor damage. Incorporating a high-efficiency oil separator, **Cryogenic -150°C** freezers effectively separate lubricant oil from refrigerant, increasing the durability of the compressors and offering a reliable ultra-low temperature environment.

## CoolSafe Compressor

A refrigeration circuit with the CoolSafe compressor cascade refrigeration system enhances reliability of long-term preservation. With a powerful low noise design, afforded by traditional ultra-low temperature technology, this freezer delivers durable, stable cooling.

## Microprocessor Control

Managed and monitored by an integrated microprocessor controller with a comprehensive alarm system and diagnostic functions.



MDf-1156-PE - 128 LITRES

Model Number		MDF-1156-PE	MDF-1156ATN-PE		
<b>Dimensions</b>					
External Dimensions (W x D x H) <sup>1)</sup>	mm	1400 x 800 x 945			
Internal Dimensions (W x D x H)	mm	500 x 450 x 572			
Volume	liters	128			
Capacity	2" boxes	81			
Net weight (approx)	kg	265	272		
<b>Performance</b>					
Cooling performance <sup>2)</sup>	°C	-152			
Temperature setting range	°C	-125 ~ -155			
Temperature control range <sup>2)</sup>	°C	-130 ~ -152			
<b>Control</b>					
Controller		Microprocessor, non-volatile memory			
Display		LED			
Temperature sensor		Pt-100			
<b>Refrigeration</b>					
Refrigeration system*		Cascade			
Compressors	W	1100			
Cooling circuit		High Stage	Low Stage	High Stage	Low Stage
Refrigerant		R-407D	MU-N711A	R-407D	MU-N711A
Refrigerant weight	g	470	632.5	470	632.5
GWP of refrigerant for each cooling circuit		1627	6346	1627	6346
Total Refrigerant weight (CO <sub>2</sub> equivalent)	t	4.779			
Insulation material		PUF			
Insulation thickness	mm	175			
<b>Construction</b>					
Exterior Material		Painted Steel			
Interior Material		Aluminium			
Outer door lock		Y			
Inner door/lid	qty	1			
Max. load - total	kg	300			
Access port	qty	1			
- position		Left			
- diameter	∅ mm	40			
Casters	qty	6 [2 levelling feet]			
<b>Alarms</b> [R = Remote Alarm, V = Visual Alarm, B = Buzzer Alarm]					
Power Failure		V-B-R			
High Temperature		V-B-R			
Filter		V-B			
<b>Electrical and Noise Level</b>					
Power Supply	V	230V 50Hz single phase			
Noise Level <sup>3)</sup>	dB [A]	61			
<b>Options</b>					
Liquid N <sub>2</sub> back-up		-	Supplied as standard		
LN <sub>2</sub> Lid Switch		-	CVK-DW1156-PE <sup>4)</sup>		
Temperature recorders					
- Continuous strip type		MTR-155H-PW	Supplied as standard		
- Chart paper		RP-155-PW			
- Ink pen		DF-38FP-PW			

Appearance and specifications are subject to change without notice.

- 1) Exterior dimensions of main cabinet only, excluding handle and other external projections
- 2) Air temperature measured at freezer centre, ambient temperature +30°C, no load

- 3) Nominal value. Background noise 20dB
  - 4) LN<sub>2</sub> Lid switch; CVK-DW1156-PE is supplied as standard for the MDf-1156ATN-PE
- \* Complies with Art. 11, Annex III of F-Gas Regulation [EU] No 517/2014. Contains fluorinated greenhouse gases.

**PHCbi**

PHC Europe B.V.