

# Test report

Report Number:  
300-KLAB-21-210



DANISH  
TECHNOLOGICAL  
INSTITUTE

**Ice-cream freezer**

**Elcold Nova 45**

**Comparison with different glass lids**

Tested according to EN22043:2020

Date  
27<sup>th</sup> January 2022

Version 2

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**DANISH  
TECHNOLOGICAL  
INSTITUTE**

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Init: HAW/RECH

File no.: I21-21- 2007768

Enclosures: 3

Customer: Company: DTI  
Address: Gregersensvej 1  
City: DK-2630 Taastrup, Denmark

Component: Brand: Elcold  
Type: Ice-cream freezer  
Model: Nova 45

Dates: Ice-cream freezer delivered: 10<sup>th</sup> November 2020  
New glass delivered: 24<sup>th</sup> November 2021  
Tested: 19<sup>th</sup> November to 5<sup>th</sup> December 2021

Procedure: See references chapter 6

Remarks: The unit was delivered by the customer. The installation and test settings were done according to the manufacturer's instructions.

Terms: This analysis/test was conducted accredited in accordance with international requirements ISO/IEC 17025:2017 and in accordance with the General Terms and Conditions of Danish Technological Institute. The test results solely apply to the tested item. This analysis report/ test report may be quoted in extract only if Danish Technological Institute has granted its written consent.

Division/Centre: Danish Technological Institute  
Energy and Climate  
Refrigeration Laboratory, Taastrup

Signature: Hans Walløe  
Laboratory manager

René Christiansen  
Consultant



Test Reg. nr. 300

## **1. TEST PROGRAM**

This test report comprises results from the following tests accredited by DANAK:

**Test 1:** Net volume

**Test 2:** Energy consumption test at ambient conditions Set 2 (30°C-55% RH).

## **2. EQUIPMENT**

Power Analysers - Voltech PM 100

Temperature loggers –Measuring Computing TC 32

Ambient temperature and Humidity – Vaisala HMP 233

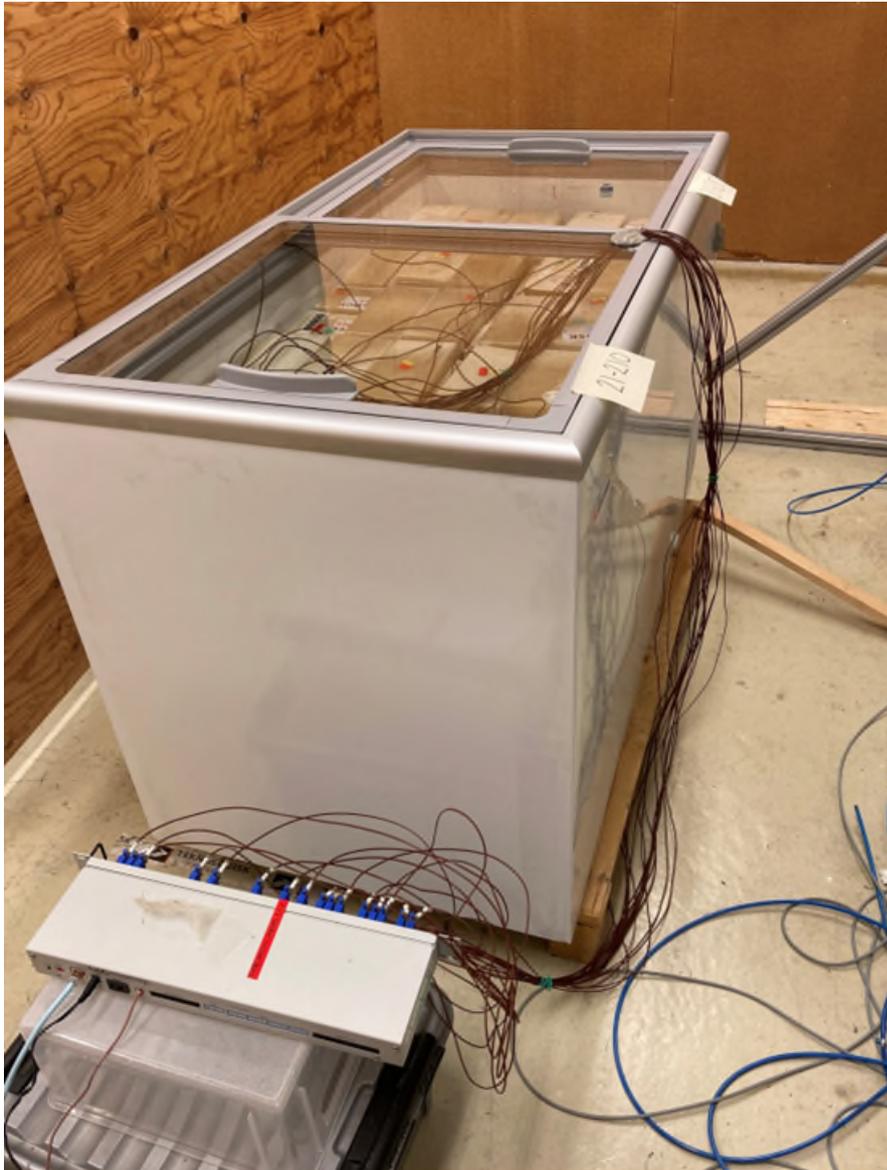
## **3. METHOD**

The accredited tests were carried out according to EN 22043:2020.

To different types of glass were used as lids:

1. Normal glass
2. New glass sample with low emissivity

The tests were performed on an Elcold Nova 45 ice-cream freezer. During the tests the normal sliding lids were replaced by new sliding lids with low emissivity plate.



Loaded and set up for test.

## 4. RESULTS

The test results solely apply to the tested appliance and the specific configuration.

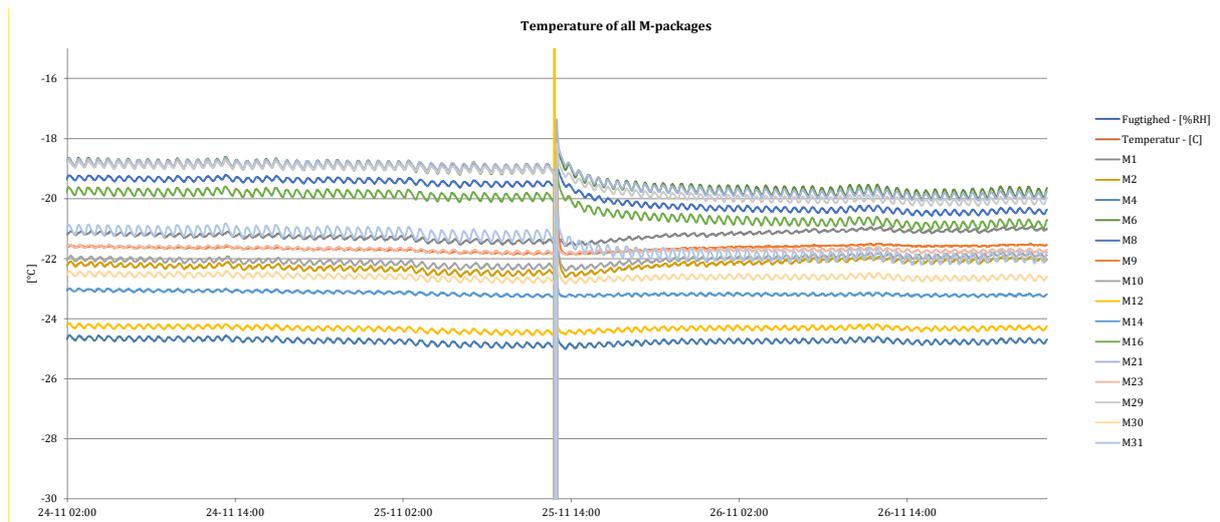
<b>Test 1 -Volume</b>				
	<b>Test results</b>	<b>Declared by manufacturer</b>	<b>Deviation %</b>	<b>**Meet requirements</b>
Net volume, [litres], rounded to nearest integer	343	345	-0,6	Yes

<b>Test 2 Energy consumption</b>		
	<b>Normal glass</b>	<b>New sample with low emissivity glass, new thermostat position.</b>
Ambient temperature [°C]	30,0	30,0
Ambient humidity [% Rh]	54,4	54,7
Thermostat position [hh:mm]	2 2/3	2 1/4
Highest temperature [°C]	-18,6	-18,7
Average temperature [°C]	-21,4	-20,8
Energy consumption [Wh/24h]	1897,7	1601,9
Adjusted energy consumption [Wh/24h] (a)	1874,3	1578,9
Energy saving compared to normal glass Glazing [%]	0,0	15,8

(a) The adjusted energy consumption is calculated from the following formula (Energy consumption / (ambient temperature-highest temperature)) x 48K

## 5. COMMENTS

When the glass was changed from normal glass to glass sample with low emissivity, the temperatures changed with the same thermostat position (See figure 1). The change of glass took place at 12:45 o'clock. Afterward the thermostat position was changed to have a temperature closer to  $-18,6^{\circ}\text{C}$ .



**Figure 1 Time/Temperature curves of all M-packages**

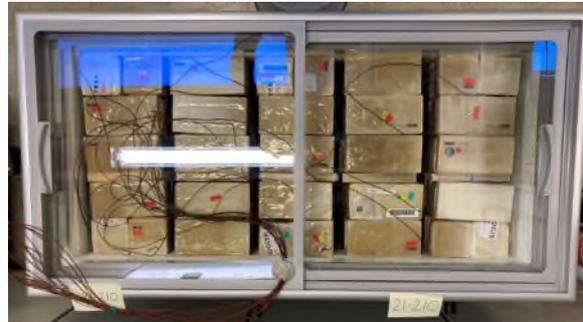
## 6. REFERENCES

1. European Standard EN 22043:2020 "Ice-cream freezers – Classification, requirements and test conditions".
2. COMMISSION DELEGATED REGULATION (EU) 2019/2018 of 11 March 2019 supplementing Regulation (EU) 2017/1369 of the European Parliament and of the Council with regard to energy labelling of refrigerating appliances with a direct sales function.
3. COMMISSION REGULATION (EU) 2019/2024 of 1 October 2019 laying down ecodesign requirements for refrigerating appliances with a direct sales function pursuant to Directive 2009/125/EC of the European Parliament and of the Council

**ENCLOSURE 1 Photos**



Elcold freezer



Loading for test

**NO: 53450547**      **TYPE: NOVA 45**  
 VOL.BR.  
**Volt: 220-240 Watt: 203**      **Amp: 4**      **Hz50**  
 FREEZ.CAP.      kWh/24h. 0  
**CLASS CC.4**      **R600A**      **80GR.**  
 TEMP.RISE TO 0 C      IN 0 HOURS  
 FUSE RATING      AMP.      TM05 08/05  
 GWP      **PO115733.1**  
 CO2-equivalent 0T  
**This is hermetically sealed equipment**  



  
 NOVA 45      **ELCOLD VIDEO INSTRUCTIONS**  
 Made in Denmark by Elcold

The insulation foam is blown using cyclo-pentane (CP).  
 If the substance R134a or R404a is listed at the rating plate above, the refrigeration system, which is hermetically sealed, contains fluorinated greenhouse gases covered by the Kyoto Protocol.  
 Please refer to the rating plate for type of gas and quantity.

Rating plate



Compressor

**ENCLOSURE 2 Volume**

No.: D3.13				 <b>DANISH TECHNOLOGICAL INSTITUTE</b>				
Edition: 6								
Area: KLAB-T								
Date:								
<b>Determination of volume - Freezer</b>								
Brand & model Elcold Nova 45				Report no. KLAB-21-210				
<b>Freezer:</b>								
Gross volume, stated by the manufacturer [L]							426	
Gross volume, measured [L]							402	
Deviation, calculated [%]							-5,6	
Net volume, stated by the manufacturer [L]							345	
Net volume, measured [L]							343	
Deviation, calculated [%]							-0,6	
No.: D3.13				 <b>DANISH TECHNOLOGICAL INSTITUTE</b>				
Edition: 6								
Area: KLAB-T								
Date:								
<b>Determination of volume - Freezer</b>								
Brand & model Elcold Nova 45				Report no. KLAB-21-210				
<b>FREEZER</b>								
<b>Gross volume:</b>								
	No.	Description	Total no.	Factor [x]	H [mm]	W [mm]	D [mm]	Volume [L]
Gross-(Basic)								-
Deduction	2	Compressor compartment	1	1	251,00	200,00	535,00	26,86
								-
Addition	1	Main compartment	1	1	583,00	1.187,00	535,00	370,23
	3	Above loadline to lid	1	1	92,00	1.187,00	535,00	58,42
							<b>Gross volume:</b>	<b>401,80</b>
<b>Net volume:</b>								
Deduction	2	Compressor compartment	1	1	251,00	200,00	535,00	26,86
								-
Addition	1	Main compartment	1	1	583,00	1.187,00	535,00	370,23
								-
							<b>Net volume:</b>	<b>343,37</b>

### ENCLOSURE 3 Loading plan

No.: Edition: Made by: Laboratory: Date:	D5.05 9 RECH KLAB-T	 <b>DANISH TECHNOLOGICAL INSTITUTE</b>
<b>Storage plan - energy consumption</b>		
Compartment 1 Loaded to the load line		
250 kg		

Compartment 1  
Top view

Back

1,4,6		5,11		23,29
2,5,8		10,14,21		30,31

Front

Compartment 1  
Side view from front

6,8		16,21		29,31
4,5		12,14		23,3
1,2		9,1		Compressor compartment