



## Datasheet

### Controller

|                      |           |
|----------------------|-----------|
| Defrost              | Automatic |
| High/Low Temp. Alarm | Yes       |
| Open Door Alarm      | Yes       |
| Probe Failure Alarm  | Yes       |
| Power Failure Alarm  | Option    |
| USB Connection       | Yes       |
| Datalogging          | Yes       |

### Features

|                                    |                                  |
|------------------------------------|----------------------------------|
| Lock                               | Yes                              |
| LED Light                          | Yes                              |
| Safety Thermostat                  | Option                           |
| Battery Backup for Controller, 48h | Option                           |
| Porthole                           | Yes                              |
| Dry Contact                        | Yes                              |
| Door                               | Standard: Solid<br>Option: Glass |
| Door Features                      | Automatic Closure                |
| Door Reversibility                 | Yes                              |

### Construction

|                          |                                                 |
|--------------------------|-------------------------------------------------|
| Outer Dimensions, HxWxD  | 1550x595x638                                    |
| Inner Dimensions, HxWxD  | 1287x518x460                                    |
| Volume Gross/net, L      | 306 / 281                                       |
| Weight Gross/Net, kg     | 82 / 80                                         |
| Material Inner Cabinet   | PVC                                             |
| Material Outer Cabinet   | Painted Steel                                   |
| Insulation Thickness, mm | 35                                              |
| Insulation Type          | Polyurethane with<br>Cyclopentane               |
| Refrigerant              | R600a                                           |
| Air Distribution         | Forced Air                                      |
| Mobility                 | Standard: Adjustable<br>Feet<br>Option: Castors |

+20°C  
+2°C



AKS 337

## Biomedical Refrigerator



LOW NOISE



ENVIRONMENT  
FRIENDLY



USER  
FRIENDLY

### Operation

|                              |            |
|------------------------------|------------|
| Temperature Range, C°        | +2 to +20  |
| Noise, dB                    | 41         |
| Energy Consumption 24/h, kWh | Solid: 0,5 |
| Frequency, Hz                | 50         |
| Power Supply, V              | 220 / 240  |
| Instant Power Consumption    | N/A        |
| K-Value                      | N/A        |
| Heat Rejection               | N/A        |

### Storage

|                                  |          |
|----------------------------------|----------|
| BioChill™ Shelves (Standard/max) | 4 / 16   |
| Half shelf (Standard/max)        | 1 / 1    |
| Shelf material                   | Aluminum |
| Max Loading pr. Shelf, kg        | 20       |
| BioChill™ Drawers Max. Fit       | 1        |
| Drawer Material                  | Aluminum |
| Max Loading pr. Drawer, kg       | 18       |



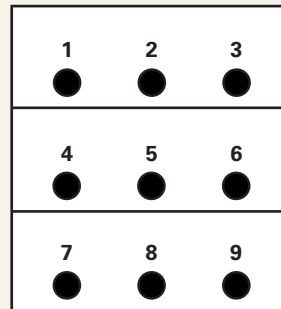
## Temperature Mapping

### Test overview

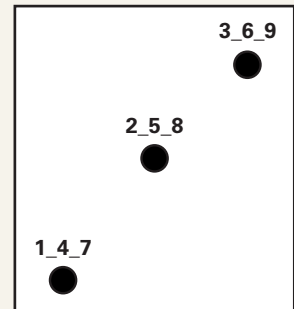
|                     |                                                                  |
|---------------------|------------------------------------------------------------------|
| Test type           | 9-point test                                                     |
| Test environment    | Controlled conditions, empty cabinet                             |
| Ambient temperature | 20°C                                                             |
| Humidity            | 60%                                                              |
| Set-point           | 5°C                                                              |
| Sensors used        | 25gr tinned brass formed as a cylinder with a diameter of 15,2mm |
| Installation        | Appliance installed according to instruction manual conditions   |
| Refrigerant         | R600a                                                            |

### Sensor position

#### Front View



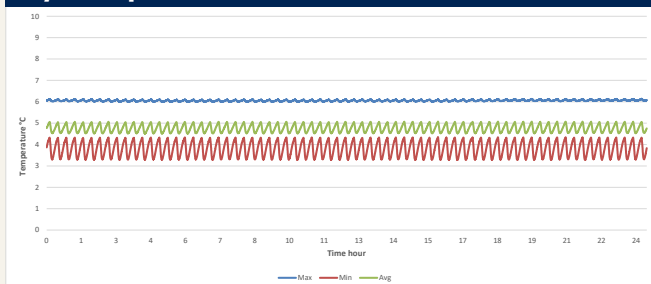
#### Top View



### Sensor temperature

| Sensor position | P1  | P2  | P3  | P4  | P5  | P6  | P7  | P8  | P9  |
|-----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Max.            | 6,1 | 5,3 | 5,7 | 4,8 | 4,4 | 4,3 | 5,3 | 4,7 | 5   |
| Avg.            | 6,1 | 5,2 | 5,4 | 4,5 | 3,8 | 3,9 | 5   | 4,4 | 4,6 |
| Min.            | 6   | 5,1 | 5,2 | 4,3 | 3,3 | 3,5 | 4,8 | 4,1 | 4,3 |

### Cyclic operation



### Warm up & Pull down

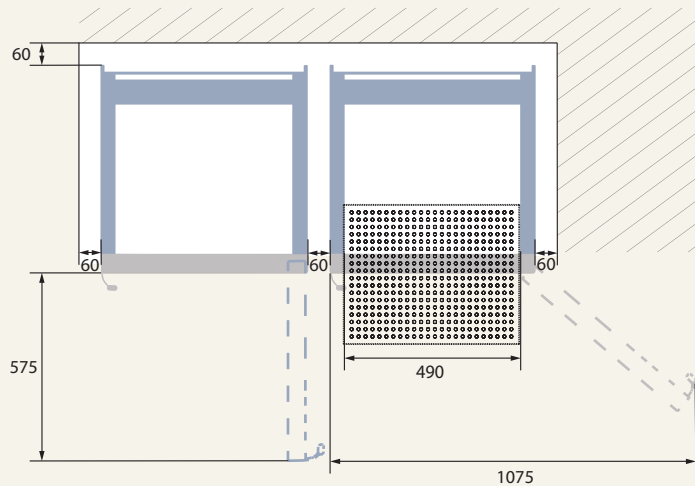


### Typical Performance data

|                                                   |              |
|---------------------------------------------------|--------------|
| Avg. cabinet temperature                          | 4,8°C        |
| Peak variation from set-point                     | +1,3/-1,5°C  |
| Stability in avg.                                 | 1,7°C        |
| 1 min. door open recovery to 6°C avg. temperature | 12 min.      |
| Cycle rate on/off                                 | 3,1/17 min.  |
| Duty cycle                                        | 15,4%        |
| Energy consumption                                | 0,56 kWh/day |
| Pull down time to 6°C avg. temperature            | 48 min.      |
| Hold over time from 5°C to 10°C                   | 70 min.      |
| Sample temperature does not exceed                | 8°C          |

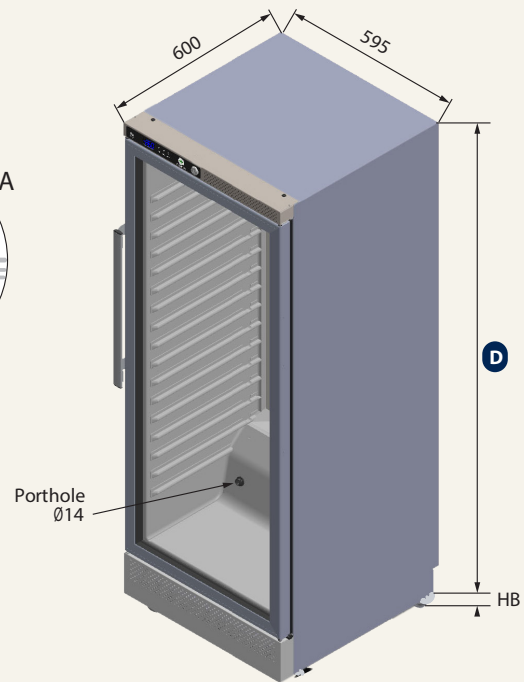
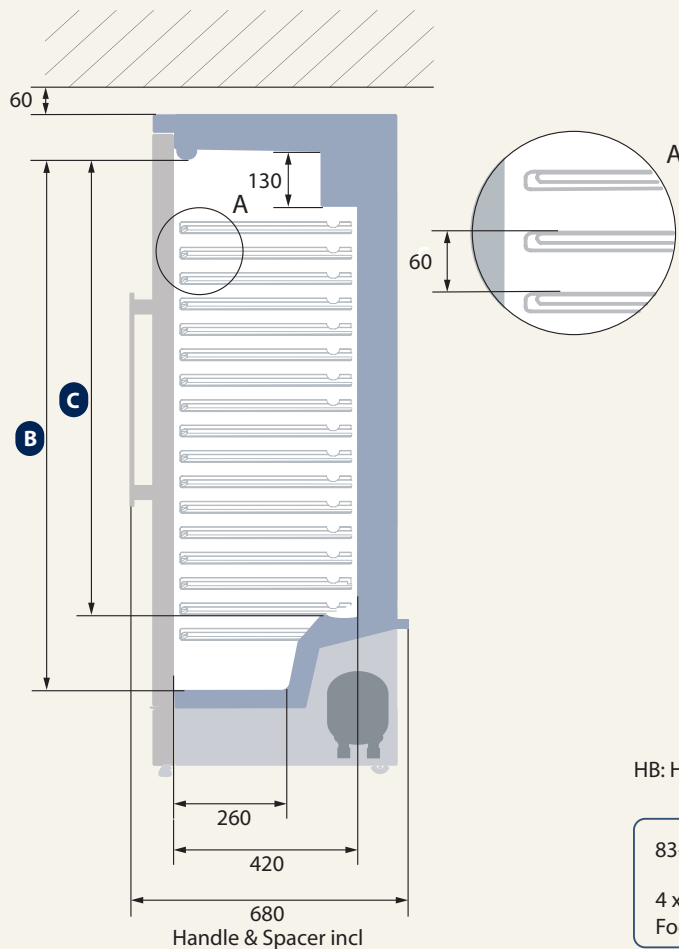


## Dimensions



| Model   | B    | C    | D    |
|---------|------|------|------|
| AKS 337 | 1260 | 965  | 1535 |
| AKS 397 | 1570 | 1175 | 1835 |

All measurements are in millimeters



HB: Height of base (HB is ajustastable when given value is xx-xxx)

83-101

4 x Wheel with  
Footmaster

20-58

Front:  
2 x Ajustable foot

13

Back:  
2 x Castor

# DIN 58345: 2007

We, Vestfrost Solutions A/S declare under sole responsibility that the following products:

**Product category:**

**Pharmacy Refrigerator**

**Model no.:**

**337, 397**

Is in compliance with DIN 58345.

*DIN stands for "Deutsches Institut für Normung" (German Institute for Standardization). The Institute's specialist bodies define industry standards. DIN 58345 relates to pharmaceutical refrigerators that are used to store pharmaceuticals at an operating temperature of 2°C to 8°C. DIN 58345 currently reflects the latest technological refrigerators.*

Basic requirements established by DIN 58345:

- Operating temperature: +2°C to +8°C
- Usable in ambient temperature: +10°C to +35°C
- Noise emissions: < 60dB(A)
- Visual and acoustic warning system for high and low temperatures
- Dry contact for external alarm systems
- Warning system active from min. 12 h in the event of a power cut
- Safety thermostat for preventing temperatures below +2°C
- Load bearing capacity at least 100 kg/m<sup>2</sup>
- Lockable door

|                                                                                     |            |
|-------------------------------------------------------------------------------------|------------|
|  | 10.04.2019 |
| SIGNATURE                                                                           | DATE       |

AUTHORITY:  
**TAJ BERNTH, COO**  
A/S VESTFROST

8181XXX rev 01

**VESTFROST**  
SOLUTIONS

Anexa 23. Frigider reactivi 240-300L

Vestfrost AKG 337

| Parametri ceruti                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Parametri oferiti                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Frigider pentru reactivi cu usa transparenta 240-300L</p> <p>Descriere Frigidere proiectate pentru a stoca produse de laborator, culturi și probe la temperaturi de obicei între 2 și 8 grade Celsius. Aceste frigidere constau în mod obișnuit dintr-o cameră cu un interior rezistent la coroziune (oțel inoxidabil de obicei), minimizarea riscului de alterare, contaminare și / sau coroziune a conținutului.</p> <p>Parametrul Specificația</p> <p>Configurație mobil</p> <p>Capacitatea 240 - 300 l da</p> <p>Număr de rafturi <math>\geq 4</math></p> <p>Ușa Număr 1</p> <p>Transparentă da</p> <p>Mecanism blocare cu cheie</p> <p>Roți da</p> <p>Frîne da</p> <p>Lumină interior da</p> <p>Construcție interioară rezistent la soluții de curățare / prelucrare</p> <p>Construcție exterioară cu acoperire anticorozivă</p> <p>Afisaj temperatură digital</p> <p>Alarmer acustică vizuală</p> <p>Răcire ventilată</p> <p>Temperatura reglabilă 2 ... +8 °C</p> <p>Alimentare 220 V, 50 Hz</p> <p>Refrigerent R 600a</p> <p>Zgomot &lt; 50 dB</p> <p>Accesorii coșuri tip sertar, da</p> <p>divizoare pentru sertar, da</p> <p>înregistrare permanentă a temperaturii și generarea raportului în format PDF da</p> | <p>Frigider pentru reactivi cu usa transparenta 240-300L</p> <p>Descriere Frigidere proiectate pentru a stoca produse de laborator, culturi și probe la temperaturi de obicei între 2 și 8 grade Celsius. Aceste frigidere constau în mod obișnuit dintr-o cameră cu un interior rezistent la coroziune (oțel inoxidabil de obicei), minimizarea riscului de alterare, contaminare și / sau coroziune a conținutului.</p> <p>Parametrul Specificația</p> <p>Configurație mobil</p> <p>Capacitatea 281 l da</p> <p>Număr de rafturi 4</p> <p>Ușa Număr 1</p> <p>Transparentă da</p> <p>Mecanism blocare cu cheie</p> <p>Roți da</p> <p>Frîne da</p> <p>Lumină interior da</p> <p>Construcție interioară rezistent la soluții de curățare / prelucrare</p> <p>Construcție exterioară cu acoperire anticorozivă</p> <p>Afisaj temperatură digital</p> <p>Alarmer acustică vizuală</p> <p>Răcire ventilată</p> <p>Temperatura reglabilă 2 ... +8 °C</p> <p>Alimentare 220 V, 50 Hz</p> <p>Refrigerent R 600a</p> <p>Zgomot 41 dB</p> <p>Accesorii rafturi</p> <p>înregistrare permanentă a temperaturii și generarea raportului în format PDF da</p> |



# CERTIFICATE

## NÜVE SANAYİ MALZEMELERİ İMALAT VE TİCARET ANONİM ŞİRKETİ

SARACALAR MAHALLESİ SARACALAR KÜMEEVLERİ NO:4/2  
AKYURT – ANKARA – TÜRKİYE

LABORATUVAR VE STERİLİZASYON CİHAZLARI TASARIMI,  
ÜRETİMİ, SATIŞ VE SATIŞ SONRASI SERVİS HİZMETLERİ

kapsamında

### ISO 9001:2015

Uluslararası kalite sistem standardına uygun  
bir kalite yönetim sistem kurmuştur.

*"Standardın aşağıda verilen maddeleri hariç tutulmuştur"*

*"Hariç tutma yoktur."*

|                          |                 |
|--------------------------|-----------------|
| Sertifika No             | : M 8215        |
| İlk Belgelendirme Tarihi | : 28 Nisan 2010 |
| Sertifika Tarihi         | : 19 Şubat 2019 |
| Son Geçerlilik Tarihi    | : 18 Şubat 2022 |



Genel Müdür

Kiwa Belgelendirme Hizmetleri A.Ş.  
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Tel: + 90 216 593 25 75 Faks : + 90 216 593 25 74  
Web: [www.kiwa.com.tr](http://www.kiwa.com.tr) E-mail: [info@kiwa.com.tr](mailto:info@kiwa.com.tr)

Sertifikalar periyodik ara denetimlerin başarılı ile tamamlanması kaydıyla geçerlidir.  
Detaylı bilgi için yukarıdaki numaralara başvurulabilir.

Sertifika Son Güncelleme Tarihi : 19 Şubat 2019 - R 05



Kalite Yönetim Sistemi  
TS EN ISO/IEC 17021-1

AB-0006-YS



TÜRKAK BDS NO  
YS-4AF4-45D4

## NÜVE SANAYİ MALZEMELERİ İMALAT VE TİCARET ANONİM ŞİRKETİ

SARACALAR MAHALLESİ SARACALAR KÜMEEVLERİ NO:4/2  
AKYURT – ANKARA – TURKEY

with a scope of

**DESIGN, MANUFACTURE, SALES AND AFTER SALES  
SERVICES OF LABORATORY AND STERILIZATION EQUIPMENTS**

Has established a quality management system in accordance  
with international standard.

*“ Following elements of the standard are excluded “*

*“None“*

### ISO 9001:2015

Certificate No : M 8215  
Initial Certification Date : 28 April 2010  
Certification Date : 19 February 2019  
Expiration Date : 18 February 2022



TÜRKAK BDS NO  
YS-4AF4-45D4



General Manager

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*Certificate is valid till expiration date, subject to successful completion of periodical surveillance audits.*

Please contact above numbers for detailed information.



CERTIFICATE

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SARACALAR MAHALLESİ SARACALAR KÜMEEVLERİ NO:4/2  
AKYURT – ANKARA – TÜRKİYE

LABORATUVAR VE STERİLİZASYON CİHAZLARI  
TASARIMI, ÜRETİMİ VE SATIŞ SONRASI SERVİS HİZMETLERİ

kapsamında

### EN ISO 13485:2016

Tıbbi Cihazlar - Kalite yönetim sistemleri – Düzenleyici amaçlar için gereklilikler

*"Standardın aşağıda verilen maddeleri hariç tutulmuştur"*

*" 7.5.5 " " 7.5.7 " " 7.5.9.2 "*

|                          |                 |
|--------------------------|-----------------|
| Sertifika No             | : M 8216        |
| İlk Belgelendirme Tarihi | : 28 Nisan 2010 |
| Sertifika Tarihi         | : 19 Şubat 2019 |
| Son Geçerlilik Tarihi    | : 18 Şubat 2022 |



Medikal Cihazlar K.Y.S.  
TS EN ISO/IEC 17021-1

AB-0006-YS



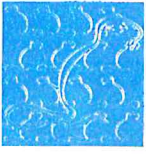
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YS-4DCF-FE40

Genel Müdür

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Web: [www.kiwa.com.tr](http://www.kiwa.com.tr) E-mail: [info@kiwa.com.tr](mailto:info@kiwa.com.tr)

Sertifikalar periyodik ara denetimlerin başarılı ile tamamlanması kaydıyla geçerlidir.  
Detaylı bilgi için yukarıdaki numaralara başvurulabilir.

Sertifika Son Güncelleme Tarihi : 19 Şubat 2019 - R 04



CERTIFICATE

## NÜVE SANAYİ MALZEMELERİ İMALAT VE TİCARET ANONİM ŞİRKETİ

SARACALAR MAHALLESİ SARACALAR KÜMEEVLERİ NO:4/2  
AKYURT – ANKARA – TURKEY

with a scope of

### DESIGN, MANUFACTURE AND AFTER SALES SERVICES OF LABORATORY AND STERILIZATION EQUIPMENTS

Medical devices - Quality management systems - Requirements for  
regulatory purposes

*"Following elements of the standard are excluded"*

*" 7.5.5 " " 7.5.7 " " 7.5.9.2 "*

## EN ISO 13485:2016

Certificate No : M 8216  
Initial Certification Date : 28 April 2010  
Certification Date : 19 February 2019  
Expiration Date : 18 February 2022



Medical Device Q.M.S.  
TS EN ISO/IEC 17021-1

AB-0006-YS



TÜRKAK BDS NO  
YS-4DCF-FE40

General Manager

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