



F-90i

BIOMEDICAL FREEZER

With the smallest footprint, this unit is perfect for storing biomedical content in a room with limited space. The unit can be placed on a table for easy access in your work environment.

-5°C
-25°C



DIMENSIONS

Outer Dimensions HxWxD, mm	672x595x642
Inner Dimensions HxWxD, mm	481x475x495
Weight Gross/Net, kg	54 / 44
Material inner cabinet	ABS
Material outer cabinet	Painted Steel
Packaging weight, kg	10
Packaging dimensions HxWxD, mm	840x740x650
Insulation thickness	50
Insulation type	Polyurethane with Cyclopentane
Air distribution	Dynamic
Mobility	Standard: Adjustable Feet - Option: Castors
Refrigerant, Type / gram	R600a / 38
Variable Speed Compressor	Yes - Adaptive Cooling Technology
Number of probes	2

CONTROLLER

Controller	i-Care, Touch screen
Controller language	EN, DE, FR
USB Connection	Yes
Logging	Data, Alarms & Events
Temperature graph	Yes
High/Low temp. Alarm	Yes
Open door alarm	Yes
Probe failure alarm	Yes
Power failure alarm	Yes

STORAGE

Volume, Gross/Net, L	90 / 76
Shelves, Full/Half	1 / 1
Shelf material	Perforated stainless steel

FEATURES

Lock	Yes
LED light	Yes
Battery Backup for Controller, 24h	Yes
No-Frost System™	Yes
Door frame heater	Hot gas
Porthole	Yes - Ø 20 mm
Dry Contact	Yes
Door	Standard: Solid
Door Features	Automatic: Closure < 90° - Hold Closure > 90°
Door Reversibility	Yes



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Voltage/Frequency		
Voltage/Hz		230V/50-60Hz
Max Ambient		
°C		35°C
Max Humidity		
% rh		65%
PERFORMANCE		
All data in RT20°C		
Temperature Range		
°C		-5 to -25
Uniformity in performance - difference between top and bottom		
°C		+/- 1.9
Pull down time		
Minutes		69 min to -20°C
Hold over time		
Minutes		54 min to -10°C
Noise		
dB		40
Energy Saving Mode		
kWh/24h		0,94kWh/24h Set -20
Energy Consumption, kWh / 24h		
kWh/24h		1,1kWh/24h Set -25
Energy year		
kWh/year		401kWh/y Set -25°
Instant Power Consumption		
kW		PD 0,120/Stable 0,046
Heat Rejection*		
W		50
U-Value		
W/m^2 K		0.59
COOLING COMPONENTS		
Refrigerant/Amount (gram)		
		R600a/38gr
Number of compressors		
pcs		1
Variable speed compressor		
Yes/No		Yes
Internal air distribution (type of)		
		Dual Air Stream
Evaporator Fan		
Yes/No/Variable		Yes
Condenser Fan		
Yes/No/Variable		No
Number of probes		
pcs		2
Defrost		
Yes/No		Yes - automatic
FEATURES		
Safety thermostat		
y/n/optional		No
Lock		
y/n		Yes
LED light		
y/n		Yes
Battery Back Up For Controller		
y/n/optional		Yes - 24h
Porthole		
y/n - Ømm		Yes - Ø 20mm
Dry contact		
y/n		Yes
Castors		
y/n/optional		Optional
Door		
glass/solid		Solid
Door closure		
y/n/optional		Yes
Door reversibility		
y/n		Yes
Automatic Hold 90°C		
y/n		Yes
Vacuum valve		
y/n		Yes
VIP (Vacum panel)		
y/n		No
Perimeter heater		
		Hot gas loop

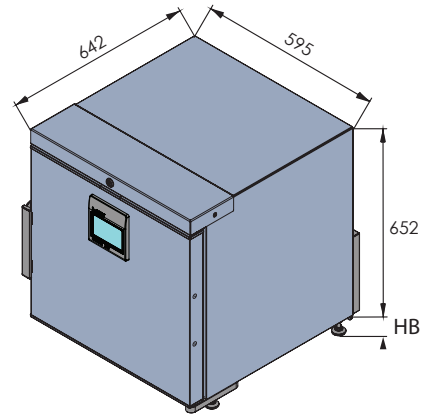
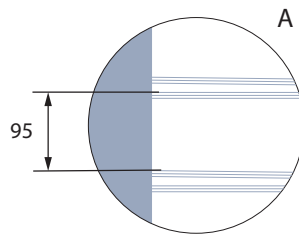
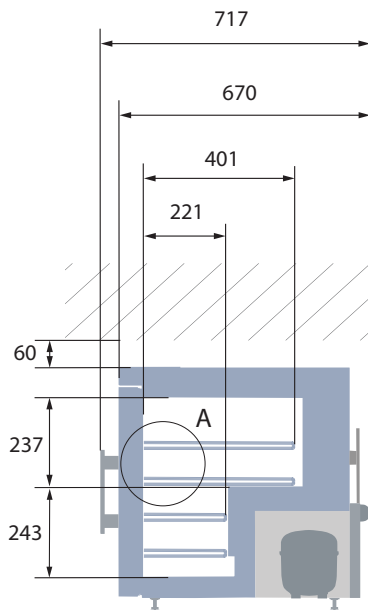
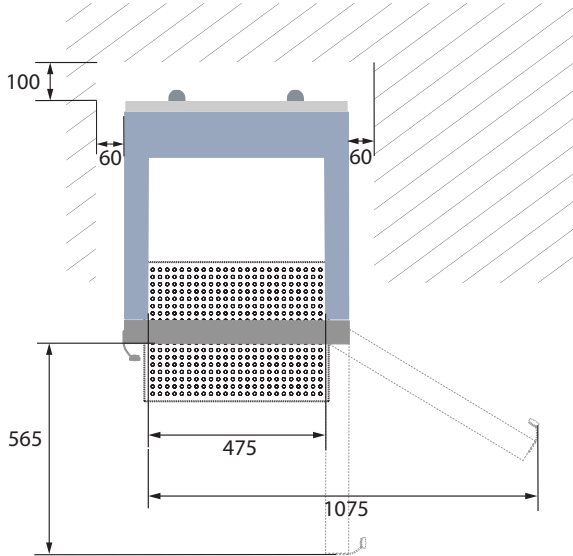
* Heat Rejection is defined as average power based on energy consumption, rounded up to nearest 50W.



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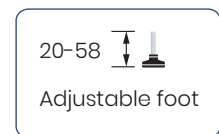
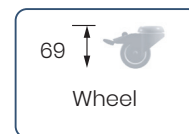
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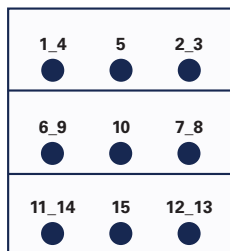
All measurements in mm.

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

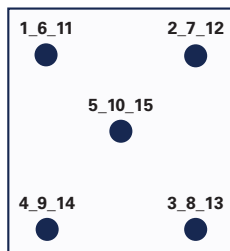


SENSOR POSITION

FRONT VIEW



TOP VIEW



MODEL

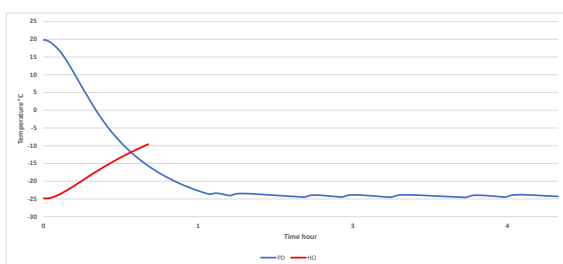
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Test type	15-point test
Test environment	Controlled conditions, empty cabinet
Ambient temperature	20°C
Humidity	60%
Set-point	-25°C
Sensor used	25gr tinned brass formed as a cylinder with a diameter of 15,2 mm
Installation	Appliance installed according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

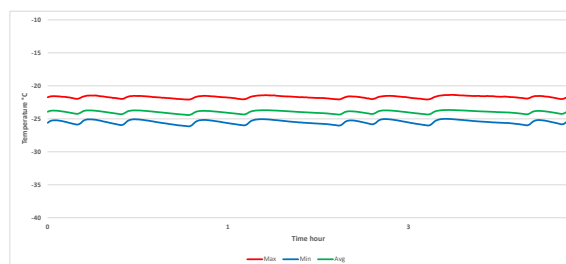
SENSOR TEMPERATURE

Sensor position	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15
Max	-22	-22,4	-22,9	-21,5	-22,6	-22,4	-23,5	-23,5	-22,4	-23,4	-22,6	-23,5	-23,6	-22,5	-23,5
Avg.	-22,9	-23,3	-24,1	-22,2	-23,2	-23,4	-24,3	-24,3	-23,5	-24,4	-23,6	-24,6	-24,7	-23,3	-24,6
Min.	-24	-24,6	-25,3	-23,1	-24	-24,6	-25,2	-25,3	-24,8	-25,5	-24,8	-25,9	-25,9	-24,4	-26

WARM UP & PULL DOWN



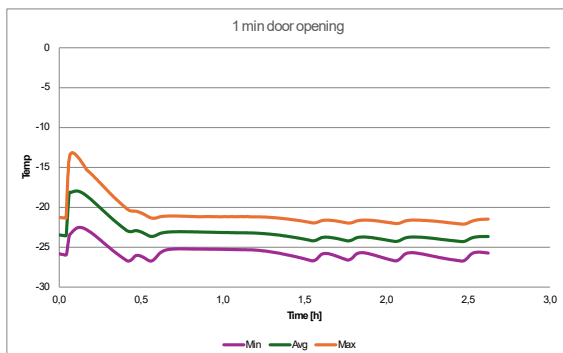
CYCLIC OPERATION



TYPICAL PERFORMANCE IN AMBIENT 20°C - EMPTY CABINET

Avg. cabinet temperature	-24°C
Uniformity	+/- 1,9°C
Stability in avg.	0,3°C
1 min. door open recovery to -20°C avg. temperature	9 min.
Cycle rate on/off	5,1 / 13,9 min.
Duty cycle	25,2%
Energy consumption - Normal mode	1,1 kWh/day
Energy consumption - Energy saving mode (-20)	0,94 kWh/day
Pull down time to -20°C avg. temperature	69 min.
Hold over time from -25°C to -10°C	61 min.
Sample temperature does not exceed	-15°C
Heat rejection	100

1 MIN DOOR OPENING



24 H STEADY WITH DEFROST SP -25°C

