



BIOMEDICAL

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		VALUE
Outer Dimension HxWxD		672x595x642
Inner Dimension HxWxD		481x475x495
Weight Gross/Net, kg		54 / 43
Material inner cabinet		ABS
Material outer cabinet		Painted Steel
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		VALUE
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		VALUE
Volume, Gross/Net, L		90 / 76
Shelves, Full/Half		1 / 1
Shelf material		Perforated Alu
FEATURES		VALUE
Lock		Yes
LED light		Yes
Battery Backup for Controller, 24h		Yes
No-Frost System™		Yes
Perimeter Heater		Hot gas
Porthole		Yes - Ø 20 mm
Dry Contact		Yes
Reference bottle		No
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	UNIT	VALUE
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	110
U-Value	W/m ² K	0.59

COOLING COMPONENTS		VALUE
Refrigerant/Amount (gram)		R600a/38gr
Number of compressors	pcs	1
Varibel 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

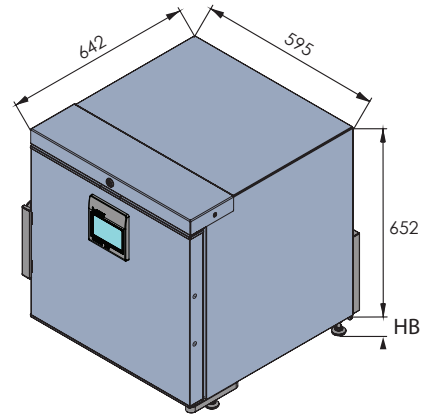
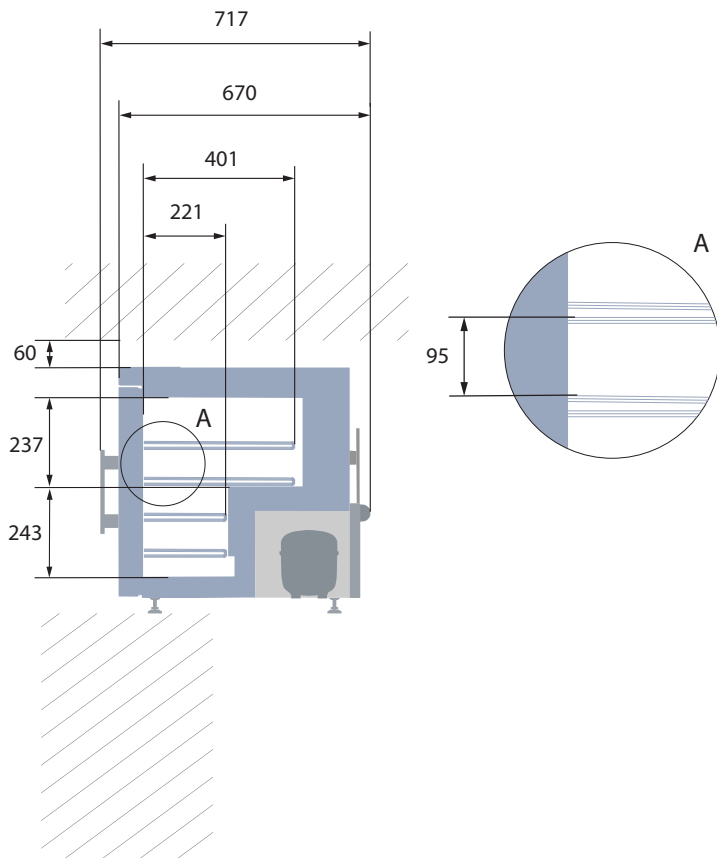
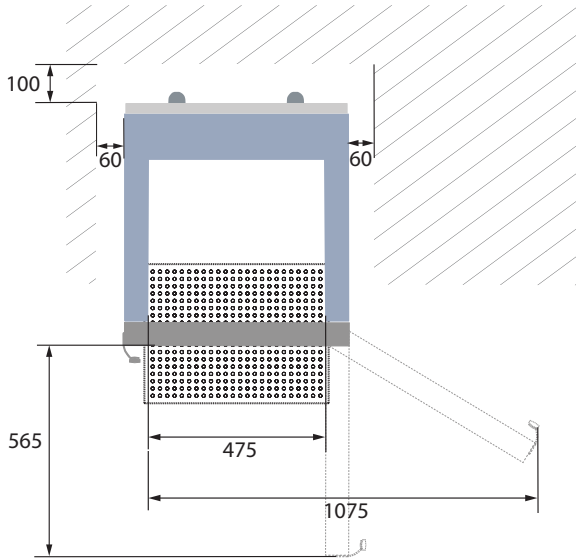
FEATURES		VALUE
Safety thermostat	y/n/optional	No
Lock	y/n	Yes
LED light	y/n	Yes
Battery Back Up For Controller	y/n/optional	Yes - 24h
Porthole	y/n - Ømm	Yes - Ø 20mm
Dry contact	y/n	Yes
Castors	y/n/optional	Optional
Door	glass/solid	Solid
Reference Bottle	y/n/optional	No
Door closure	y/n/optional	Yes
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



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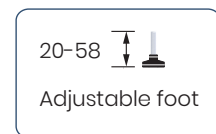
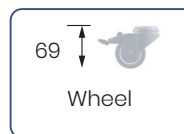


DIMENSIONS

Height, mm	631
Width, mm	630
Depth, mm	675
Depth incl. handle, mm	745

All measurements in mm.

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



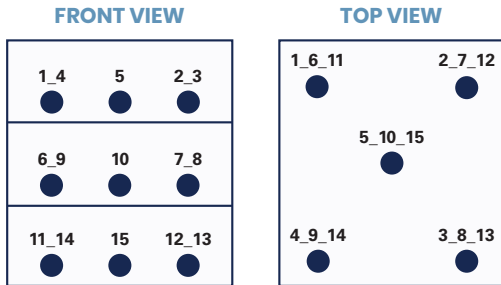


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SENSOR POSITION



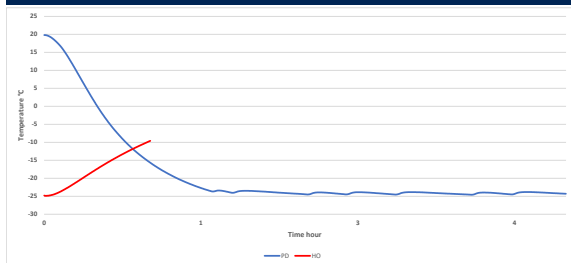
MODEL F-90i

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

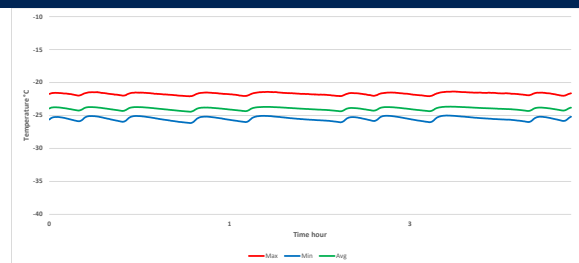
SENSOR TEMPERATURE

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 temperature	69 min.
Hold over time from -25°C to -10°C	54 min.
Sample temperature does not exceed	-15°C
Heat rejection	100