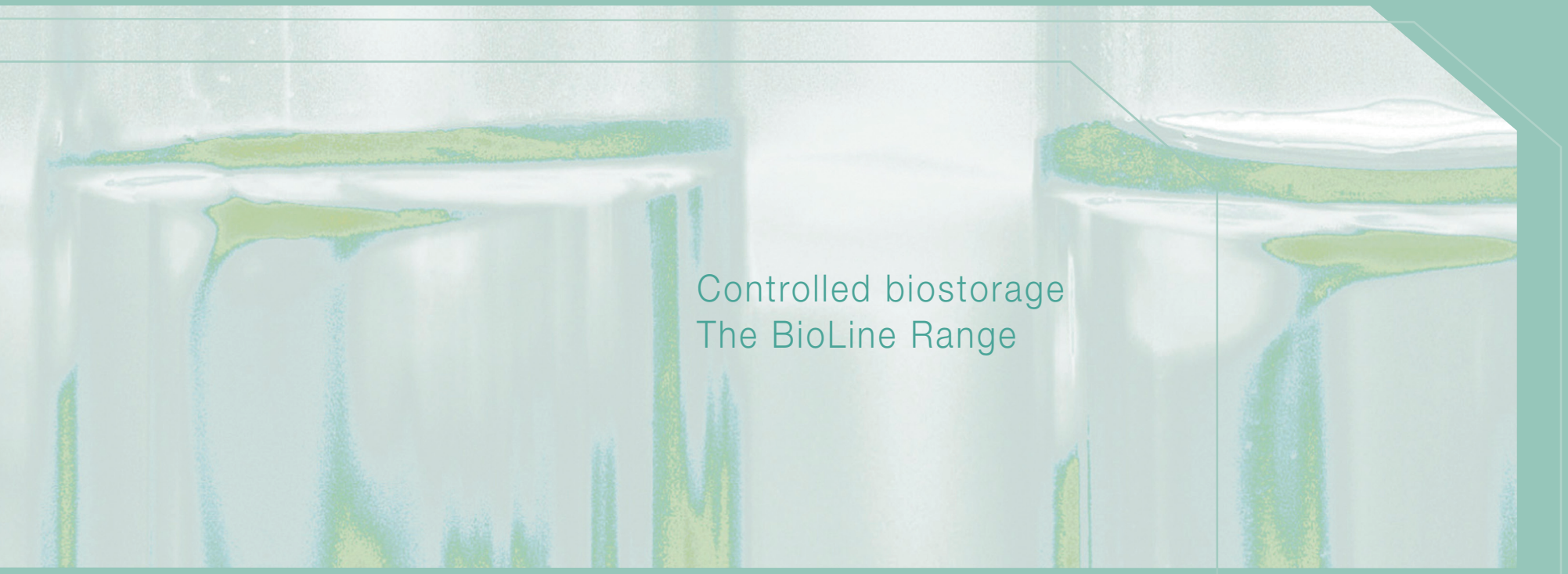
bioline



Controlled biostorage
The BioLine Range

GRAM

Biostorage you can depend on

Biostorage you can depend on

The BioLine advantage

The BioLine range features high performance and demanding specifications – including monitoring and control systems. We have designed, fine–tuned and optimised all the details in BioLine biostorage cabinets to ensure:

- maximum reliability
- stringent control
- optimised air flows
- a responsible environmental profile
- easy customisation
- rapid support from trained staff

This all means you can rely on every product in our BioLine range to meet and exceed any current performance requirements right across the board.

The BioLine range

There are five entirely separate product series in the BioLine range of controlled biostorage solutions. Together, these cover everything from high–specification biostorage designed for “mission–critical” work to general–purpose refrigeration and freezer units.

Scandinavian design and manufacture

Gram Commercial develops, manufactures and markets the complete BioLine range for customers in Europe, the Middle East and Asia, operating from our administration and manufacturing facilities in Denmark.

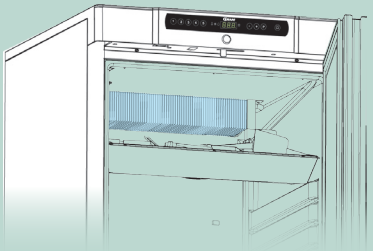
ATEX

BioLine units comply with the EN/IEC 60079-15 standard, which covers electrical apparatus for use in Category 3, Zone 2 locations where explosive gas atmospheres may be present.

BioLine products have been assessed to ATEX requirements by TÜV NORD

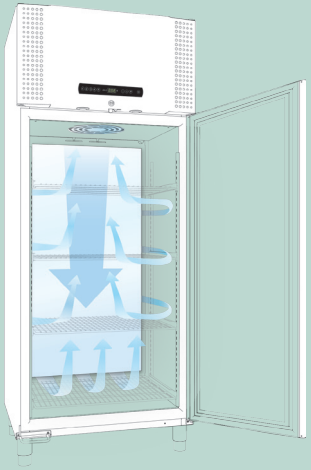
More than the sum of the parts

A wide range of new forward thinking, and technical innovations combine to make Gram BioLine biostorage systems the best-performing solutions currently available.



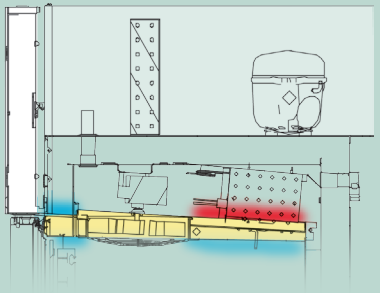
No cold walls

The refrigeration system based on a finned tube evaporator is the backbone of the complete range of BioLine products, and provides exceptional benefits compared with other systems.



Optimised air flow

The unique BioLine air distribution system makes sure the temperature is consistent everywhere in the cabinet and that the time taken to return to the programmed temperature after a door has been opened is very short.



Insulation · Heated surface during defrost period · Safe cold surface during defrost period

Temperature management

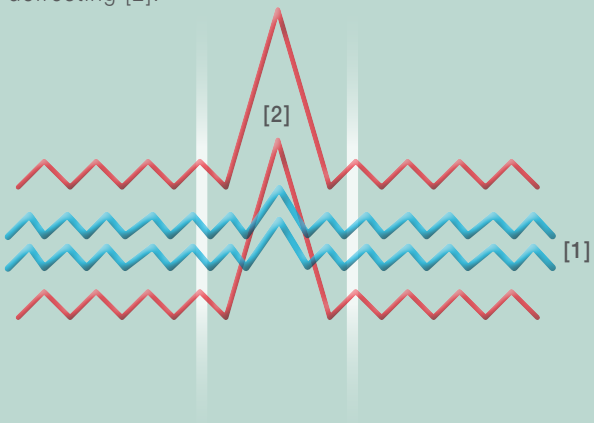
Freezers (BioPlus, BioMidi and BioBlood) are equipped with a defrost shield which ensures that only a minimum of heat is released into the storage compartment when the system is defrosting, keeping any temperature peaks to an absolute minimum.

... and controlled defrosting

All BioLine refrigerated units feature the “Smart defrost” automatic defrost function. Unlike conventional defrosting systems where the user has no control of the defrost cycle, this intelligent automatic system makes sure an absolute minimum of time and energy is used during each individual defrost cycle. The defrost water is automatically re-evaporated after each defrost cycle.

Safer biostorage

The sum of all these technical innovations results in supreme temperature stability inside the cabinet [1], with greatly reduced temperature peaks during defrosting [2].



Temperature performance, conventional defrosting

Temperature performance, Gram Bioline

BioPlus

II 3G Ex nA nC nL IIB T2

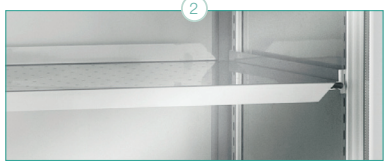
TÜV 08 ATEX 354663

The BioPlus range is designed for the storage of the most delicate biomaterials, in situations where even tiny fluctuations in conditions inside the storage cabinet can have a serious effect on the contents. BioPlus cabinets also enable you to reduce internal relative humidity, thus cutting down on any likelihood of undesirable contaminants getting near delicate biomaterials.

- **Access port**
- **Self-closing door with key lock**
- **Voltage-free contact**
- **Acoustic and visual door alarm**
- **E-sensor**
- **Acoustic and visual temperature alarm**
- **Alarm recording**
- **Foot pedal**
- **Material combinations:**
  L: Exterior/interior: white/stainless
  C: Exterior/interior: stainless/stainless

BioPlus					** Min. height without base/max. height with highest base*
Model	ER -2°/+15°C	RF -25°/-5°C	EF -35°/-5°C	W x D x H*	Volume Litres / Cubic feet
500	•	•		600 x 806 x 2025/2275	Gross: 500 /17.7 Net: 365 /12.9
600 D	•	•		695 x 876 x 1874/2124	Gross: 600 /21.2 Net: 432 /15.3
600 W	•	•	•	815 x 756 x 1874/2124	
660 D	•	•		695 x 876 x 2023/2273	Gross: 660 /23.3 Net: 484 /17.0
660 W	•	•	•	815 x 756 x 2023/2273	
1270	•	•		1390 x 876 x 1874/2124	Gross: 1270 /44.8 Net: 864 /30.6
1400	•	•		1390 x 876 x 2023/2273	Gross: 1400 /49.4 Net: 968 /34.0

1. The Gram MPC 4.6 lets you adjust several different parameters individually, so that you can adjust the cabinet's operating profile to specific requirements or changing needs.
2. Glass door makes it easy to carry out rapid, at-a-glance checks of the contents of the cabinet. Glass door is optional extra for refrigerators.
3. The interior is made of stainless steel that is extremely durable, easy to clean and ready to withstand many years of use. Access port located in the back of the cabinet.



II 3G Ex nA nC nL IIB T6
II 3G Ex nA nC nL IIB T3

TÜV 08 ATEX 354664

The BioMidi cabinet is designed to meet the majority of biomaterial refrigeration and freezer requirements, with very few limitations. The specifications include the major features from our top–of–the–range BioPlus model, making it the ideal choice when the ability to maintain stable temperatures is decisive in a purchasing decision.The functional design ensures easy, ergonomically correct access to the storage space.

- **Access port**
- **Self-closing door with key lock**
- **Voltage-free contact**
- **Acoustic and visual door alarm**
- **E-sensor**
- **Acoustic and visual temperature alarm**
- **Alarm recording**
- **Material combinations :**
  L: Exterior/interior: white/alu and stainless
  R: Exterior/interior: alu and stainless/ alu and stainless
  C: Exterior/interior: stainless/stainless

BioMidi ** Min. height without base/max. height with highest base*

Model	ER +2°/+15°C	RF -25°/-5°C	EF -40°/-5°C	W x D x H*	Volume Litres / Cubic feet
425	•	•	•	600 x 731 x 1979/2000	Gross: 425 /15.0 Net: 303 /10.7
625	•	•		815 x 731 x 1979/2000	Gross: 625 /22.1 Net: 451 /15.9

1. The user interface consist of large, easy to use buttons and an easy-to-read LED display. This helps make sure that adjusting cabinet settings is always a rapid, straightforward procedure.
2. Draught shield that minimizes cold loss when the outer door is opened is standard on the EF425 and optional extras to the other BioMidi variants.
3. Mounting the compressor in the base of the cabinet puts the interior space at an ideal working height, ensuring users better ergonomic positions and comfortable working heights.

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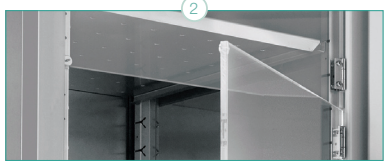


3

BioCompact II

II 3G Ex nA nC nL IIB T6
II 3G Ex nA nC nL IIB T4

TÜV 09 ATEX 367068
TÜV 10 ATEX 381563

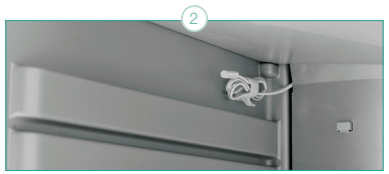
This is a compact refrigerator or freezer cabinet for a wide range of biostorage purposes where the prime focus is on dependability. The BioCompact II provides you with significantly better performance than any other cabinets in this segment for storing ordinary biomaterial under stable conditions. The small footprint of this design also makes it the perfect biostorage unit for use in confined spaces.

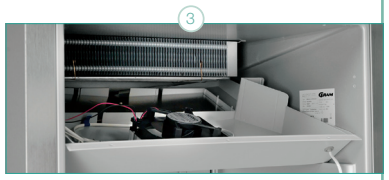
- Access port
- Door lock
- Voltage-free contact
- Acoustic and visual door alarm
- E-sensor
- Acoustic and visual temperature alarm
- Alarm recording
- Glass door with integrated LED lighting
- Material combinations:
  L: Exterior/interior: white/ABS
  C: Exterior/interior: stainless/ABS

BioCompact II ** Min. height without base/max. height with highest base*

Model	RR: +2°/+15°C	RF: -25°/-5°C	RR/RF: +2°/+15°C -25°/-5°C	RF/RF: -25°/-5°C -25°/-5°C	RR/RR: +2°/+15°C +2°/+15°C	W x D x H*	Volume Litres / Cubic feet
210	•	•				595 x 640 x 801/1001	Gross: 125 /4.4 Net: 104 /3.7
210/210			•	•	•	595 x 640 x 1602/1802	Gross: 250 /8.8 Net: 208 /7.4
410	•	•				595 x 640 x 1776/1976	Gross: 346 /12.3 Net: 312 /11.1
610	•	•				695 x 868 x 1874/2074	Gross: 625 /22.1 Net: 451 /15.9

1. Gram MPC 4.6 control unit with temperature and door alarms and voltage-free contact.
2. Extra sensor for providing a temperature reference within the storage is standard on all BioCompact II variants.
3. The refrigeration system based on a finned tube evaporator provides even better temperature stability and results in a storage place with no cold walls that can damage any delicate items stored in the cabinet.





II 3G Ex nA nC nL IIB T6
II 3G Ex nA nC nL IIB T4

TÜV 10 ATEX 381563

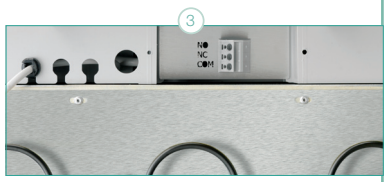
BioCompact is a general–purpose refrigerator/ freezer cabinet for basic biostorage purposes where the focus is on reliability and refined performance. These units are ideal if you need refrigerated and/or deep–freeze biostorage that is more reliable and consistent than a traditional household fridge. The small footprint of this design also makes it the perfect biostorage solution when space is limited.

- **Access port**
- **Door lock**
- **Voltage-free contact**
- **Acoustic and visual door alarm**
- **Glass door with integrated LED lighting**
- **Material combinations:**
  L: Exterior/interior: white/ABS
  C: Exterior/interior: stainless/ABS

BioCompact ** Min. height without base/max. height with highest base*

Model	RR: +2°/+15°C	RF: -25°/-5°C	RR/RF: +2°/+15°C -25°/-5°C	RF/RF: -25°/-5°C -25°/-5°C	RR/RR: +2°/+15°C +2°/+15°C	W x D x H*	Volume Litres / Cubic feet
210	•	•				595 x 640 x 801/1001	Gross: 125 /4.4 Net: 104 /3.7
210/210			•	•	•	595 x 640 x 1602/1802	Gross: 250 /8.8 Net: 208 /7.4
410	•	•				595 x 640 x 1776/1976	Gross: 346 /12.3 Net: 312 /11.1

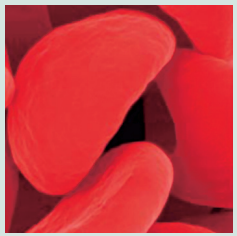
1. Reliable, straightforward control system that enables you to use the display panel to adjust parameters and calibrate sensors.
2. Access port for ease of access, e.g. sensors for external temperature surveillance.
3. Voltage-free contact that provides a remote alarm in case of power failure or door alarm.



BioBlood

II 3G Ex nA nC nL IIB T2
II 3G Ex nA nC nL IIB T3

TÜV 08 ATEX 354663



The BioBlood design is a special version of our top-of-the-range BioPlus cabinet, customised to meet the special requirements associated with the controlled storage of blood, plasma and blood-related products. These advanced cabinets have been developed exclusively for blood storage in order to help ensure high, consistent quality at every stage from donor to transfusion.

- **Access port**
- **Self-closing door with key lock**
- **Voltage-free contact**
- **Foot pedal**
- **Acoustic and visual door alarm**
- **E-sensor**
- **Acoustic and visual temperature alarm**
- **Alarm recording**
- **Reference container for room temperature sensor**
- **Material combinations:**
  L: Exterior/interior: white/stainless
  C: Exterior/interior: stainless/stainless

BioBlood ** Min. height without base/max. height with highest base*

Model	BR: +2°/+6°C	BF: -25°/-5°C	PF: -35°/-5°C	PF: -40°/-5°C	W x D x H*	Volume Litres / Cubic feet
500	•	•			600 x 806 x 2025/2275	Gross: 500 /17.7 Net: 365 /12.9
600 D	•	•			695 x 876 x 1874/2124	Gross: 600 /21.2 Net: 432 /15.3
600 W	•	•	•		815 x 756 x 1874/2124	
660 D	•	•			695 x 876 x 2023/2273	Gross: 660 /23.3 Net: 484 /17.0
660 W	•	•	•		815 x 756 x 2023/2273	
1270	•	•			1390 x 876 x 1874/2124	Gross: 1270 /44.8 Net: 864 /30.6
1400	•	•			1390 x 876 x 2023/2273	Gross: 1400 /49.4 Net: 968 /34.0
425				•	600 x 731 x 1979/2000	Gross: 425 /15.0 Net: 303 /10.7

1 The control system for the BioBlood cabinet features specially designed software that complies with the particular requirements associated with storage of blood products.

2 Low-temperature limitation preventing the refrigeration system from operating if the temperature falls below 2°C, ensuring safe storage of blood and blood products. Optional extra for BR cabinets.

3 Draught shield that minimises cold loss when the outer door is opened is standard on the PF variants and optional extras to the other BioBlood variants.

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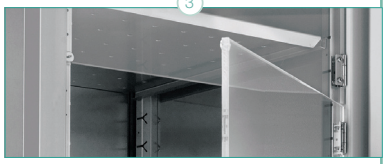
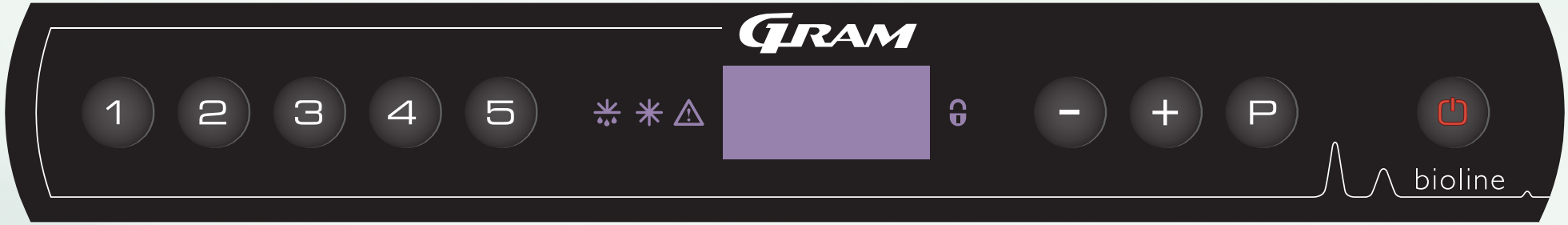


Control Unit – Gram MPC 4.6



The MPC 4.6 control unit was specially developed for users of BioLine storage cabinets.
Decades of experience blended with the best of modern technologies provide a uniquely capable control unit.

High/low temperature* – Logging of maximum and minimum temperatures in the period since these were last reset. The designated reference sensor can be either the room sensor (A-sensor) or the extra sensor (E-sensor).

Temperature history* – Records time and temperature if the upper or lower temperature limits set by the customer are exceeded. Records the total period of time during which the upper or lower temperature limits were exceeded, as well as the maximum or minimum temperatures reached in excess of those limits. The display flashes if the temperature history function has been activated.

Gram Monitor** – when connected to a computer, the MPC 4.6 control unit provides documentation of the temperature in set intervals over an indefinite period. This makes it possible to produce documentation for any requested period, in either graph or table form.

Software update – The MPC 4.6 control unit enables users to update BioLine cabinets with the latest software version, and to upgrade the cabinets with the most recent know-how and features.

E-sensor* – Extra sensor placed inside the storage space makes it possible to measure temperatures in the materials stored inside, or in a simulated substance. The E-sensor can be designated as the reference point for all temperature alarms.

Door alarm – Provides alerts via an acoustic and visual alarm if the door opens or if the door is left ajar. This alarm can be set with individual delays.

Temperature alarm* – Provides visual and acoustic alarms if the temperature exceeds the designated temperature limits. High and low alarm limits can be set separately, and the time delay before the alarm goes off can also be adjusted.

Voltage-free contact – Provides a remote alarm in case of power failure, door alarm or temperature alarm, with separate delay.

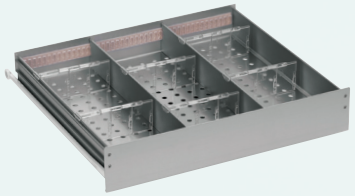
Calibration – Temperature sensors can be calibrated separately.

Key lock – Key pad can be locked using an individual alarm code. This ensures that nobody can change the settings or accidentally turn off the cabinet power supply.

Display – Easy-to-read LED display with soft-touch buttons.

* BioPlus, BioMidi, BioCompact II and BioBlood only
** Not available for -40ºC

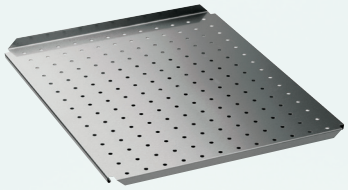
BioLine options



Aluminium drawers
Specially built, multi-purpose drawers provide a high degree of flexibility for your biostorage. The drawers can be divided horizontally and vertically according to your specific needs and changing daily requirements.

Stainless drawers
High-quality, heavy-duty drawers made of stainless steel are well-suited for use in particularly demanding environments. These drawers are available with a traditional stainless steel front or with a front made of glass. Equipped with telescopic drawer rails.

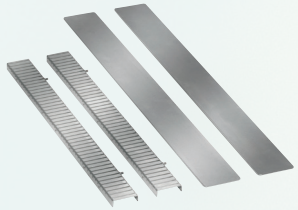
Wire shelves
The high-quality standard wire shelves are constructed of robust stainless steel for long life. Plastic-coated wire shelves are available for general use.



Stainless perforated shelves
The perforated shelves provide a flat surface that helps ensure stable storage. The special design ensures exceptional strength, making them ideal for bearing heavy items. These shelves are highly resistant to a wide range of substances.

Wire drawer
Basic small-mesh wire drawer mounted in u-shaped rails fitted into the walls of the cabinet. Ideal for storing small items.
Available for all 210 and 410 units.

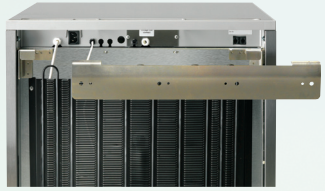
Wire basket
Large wire basket mounted in u-shaped rails fitted into the walls of the cabinet. Ideal for storing multiple items, with easy access.
Available for all 210 and 410 units.



Stainless dividers
Divider system when additional vertical compartments are needed in stainless steel drawers.

Glass doors
These make checking and access both quicker and easier. Fitted with an energy-saving, extra-insulated double layer of glass, the glass door is standard equipment for BioBlood cabinets, and is optional equipment for the other refrigerators in the BioLine range

Draught shields
Set of 3 extra inner doors that minimise cold loss when the outer cabinet door is opened. Each of the 3 inner doors can be opened separately for access to the storage compartment. Optional for BioPlus, BioMidi and BioBlood, and standard equipment on EF and PF versions.

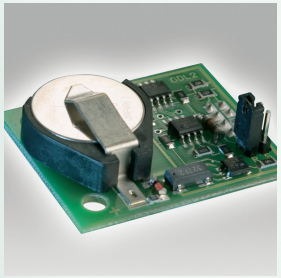


Wall mounting
All 210 and 410 units can also be wall-mounted, to save floor space and for easy cleaning.

Legs
Stainless steel legs are the ideal choice for mounting a stationary refrigerator securely and safely. You can also choose to have the refrigerator prepared for mounting on a plinth. Both options are included in the BioLine product range at no extra charge.

Wheels
A cabinet with wheels provides you with a biostorage unit you can move around. For an even more manoeuvrable cabinet, you can upgrade from the standard option of two lockable castors and two fixed wheels to the option with four lockable castors.

Chart recorder
The temperature chart recorder is for independent measurement of cabinet temperature. Sensors are placed in separate liquid containers. The recorder is powered by a 1.5 volt battery to ensure recording even in the event of a power failure.



Gram Monitor
The Gram Monitor ensures you a greater sense of security about your biostorage set-up, as well as providing documentation of the internal conditions of the cabinet. It is standard equipment on BioPlus and BioBlood cabinets, This feature cannot be combined with -40ºC cabinets.

Low-temperature protection
Low-temperature thermostat preventing the refrigerating system to operate if the temperature falls below the set minimum. This feature cannot be combined with an external compressor.

Compressors
If the local energy supply is incompatible with the 230V, 50Hz specification that is standard on BioLine products, a 230V, 60Hz compressor is also available as an option.

Dual refrigeration circuit
This additional safety feature ensures that the temperature inside the cabinet is maintained even in the unlikely event of a compressor failure. There are two independent refrigeration circuits that operate side-by-side under normal circumstances. However, each is designed to safely maintain the desired cabinet temperature on its own.

Reference container
Container in which the properties of the biomaterial can be simulated. The E-sensor or the customer's own sensor can be placed in the reference container.

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Gram Commercial is one of the world's prime manufacturers of high–performance refrigeration and freezer equipment for discerning professional users. We develop, manufacture and market this technology for customers in Europe, the Middle East and Asia, operating from our administration and manufacturing facilities in Denmark. This is all backed by subsidiaries in the UK, Germany, the Netherlands, France, Sweden and Norway and distributors throughout the world.

Dealer:

GRAM
Biostorage you can depend on