BIOBASIC
INSTRUCTIONS FOR USE

Models: 210, 310, 410 & 600



Item number: 765042590
Rev.: 20261018
Language: English

BIOBASIC

Before you proceed

This instructions for use is intended for the following product series:

BIOBASIC

We recommend that you read this instructions for use through thoroughly before using the cabinet for the first time. Gram Scientific does not guarantee safe operation if the cabinet is used for anything other than its intended use. Contents of the instructions for use can be subject to change without notice. No part of this instructions for use may be reproduced in any form without expressed written consent of Gram Scientific. Gram Scientific guarantees the cabinet under certain warranty conditions. Gram Scientific is not responsible for any loss or damage of content.

This instructions for use should be considered an integral part of the cabinet and should be stored close to the cabinet and be easy to access. If the instructions for use is lost, please refer to your local distributor or Gram Scientific for a replacement.

For current versions of the instructions for use, please go to: **www.gram-bioline.com**.

Gram BioLine equipment is designed to be used in a system with monitored additional independent alarms to ensure timely reaction to alarms and thereby maximum item safety.

When storing valuable or temperature-sensitive materials or products, it is advisable to employ a continuously monitoring autonomous alarm system. This alarm system should be designed in a manner that allows authorized individuals to promptly detect each alarm state and take the necessary corrective actions.

In the event of need for product support, do not hesitate to contact us at: **support@gram-bioline.com**.

In the event of technical difficulties always contact Gram BioLine technical support or a Gram BioLine authorized service partner.

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Table of content

Before you proceed 2

Table of content 4

Intended use 6
Temperature setpoint range and ambient requirements 6

Symbols used 7

Installation 8
Initial setup steps 8
Adjusting the base 11
Anti tilt bracket 12
Wall mounting 14
Surroundings 16
Product inspection 17
Voltage free contact 18
Connecting to power 20
Equipotential bonding 26

Start up 28
The digital display controls 28
General introduction to the controller interface 29
Alarm settings 30
Buttons and useful short cuts 31
Operation parameters 32
Error codes 33
Sensor offset 34
Practical examples of offsetting 35

Ordinary use 36
Door gaskets 38

General info 39
Responsibility 39
Service 40

Type number plate 41

Access port 42

Regular maintenance 44
Cleaning 44

Important 46
Disposal 47

Datasheet 49
General data: BIOBASIC 210, 310, 410 49
BIOBASIC RR210 – with solid door 50
BIOBASIC RR210 – with glass door 51
BIOBASIC RR310 – with solid door 52
BIOBASIC RR310 – with glass door 53
BIOBASIC RR410 – with solid door 54
BIOBASIC RR410 – with glass door 55
BIOBASIC RF210 – with solid door 56
BIOBASIC RF310 – with solid door 57
BIOBASIC RF410 – with solid door 58
General data: BIOBASIC 600 59
BIOBASIC RR600 – with solid door 60
BIOBASIC RF600 – with solid door 61

Declaration of Conformity 62

Wiring diagrams 63
BIOBASIC RR/RF210, RR/RF310, RR/RF410 63
BIOBASIC RR600 64
BIOBASIC RF600 65

Piping diagram 66

Index 67

Intended use

BIOBASIC refrigerators (RR) and freezers (RF), are designed and manufactured to provide general purpose storage of non-critical laboratory items.

The BIOBASIC range complies with EN/IEC 60079-0, covering electrical apparatus in Category 3, Zone 2 locations where explosive atmospheres may be present. Enabling placement of BIOBASIC refrigerators and freezers, in Zone 2 areas categorised according to EN/IEC 60079-14.

The cabinets are designed for the following operating ranges:

RR +2/+15 °C
RF -25/-5 °C

at the maximum ambient temperature specified in this instructions for use, and a maximum relative humidity of 70% The user must ensure that the cabinet is used in accordance with its intended use.

Abnormal use or use conflicting with the intended use or guidelines stipulated in the product documentation can lead to; danger to patient safety, damage to stored items, damage to cabinet, danger to user. Gram BIOBASIC equipment is designed to be used in a system with monitored additional independent alarms to ensure timely reaction to alarms and thereby maximum item safety.

Temperature setpoint range and ambient requirements

Model + temperature setpoint range	Minimum ambient operating temperature	Maximum ambient operating temperature
BIOBASIC 210, 310, 410		
RR with solid door: +2/+15 ºC	+10 ºC	+35 ºC
RR with glass door: +2/+15 ºC	+10 ºC	+32 ºC
RF: -25/-5 ºC	+10 ºC	+35 ºC
BIOBASIC 600		
RR: +2/+15 ºC	+10 ºC	+43 ºC
RF: -25/-5 ºC	+10 ºC	+43 ºC

Symbols used



Hazard



Risk of electric shock



Risk of material damage



Risk of personal injury



Risk of burning/freezing



Risk of fire/flammable materials



Risk of explosion/explosive materials



Info

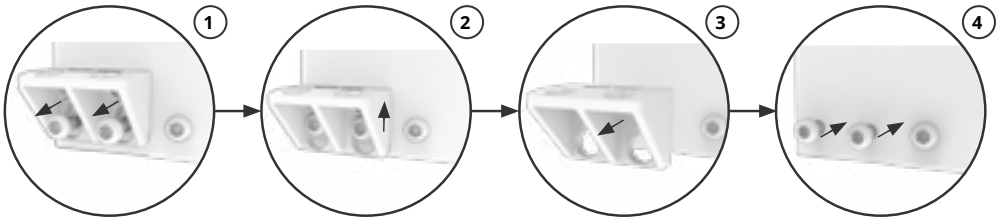


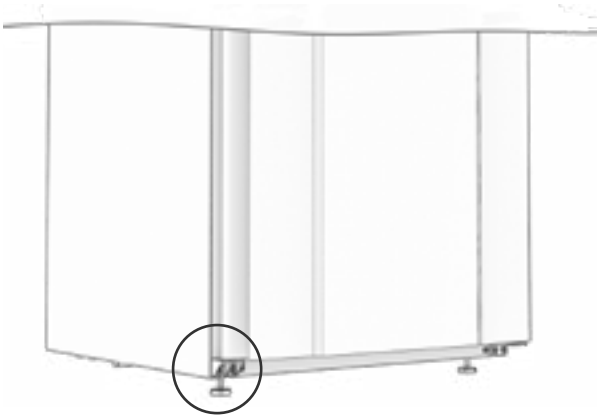
ATEX information

Installation

Initial setup steps

ⓘ The cabinet is shipped with a transport bracket that should be removed prior to use.





Due to safety and operating considerations, the cabinet must not be used outdoors. The cabinet should be installed in a dry and sufficiently ventilated area. To ensure efficient operation, the cabinet should not be installed in direct sunlight or close to heat sources.



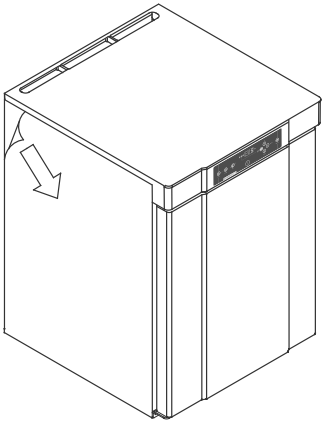
Ensure the use of appropriate personal protective equipment such as gloves, when handling the cabinet.



The cabinet interior must not be exposed to corrosive atmospheres.



Avoid placement of the cabinet in a chloric/acidic environment due to risk of corrosion.



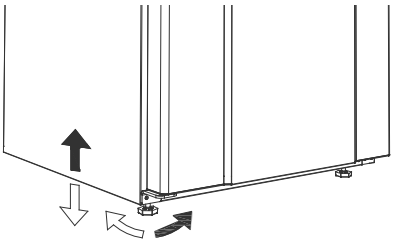
WARNING – POTENTIAL ELECTROSTATIC CHARGING HAZARD
Removing protective packaging and film may cause electrostatic discharge. protective packaging and film shall not be removed in ATEX zones.

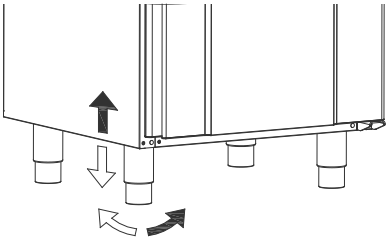
The cabinet is shipped with a protective film that shall be removed prior to use.

Clean the cabinet with a mild soap solution prior to use.

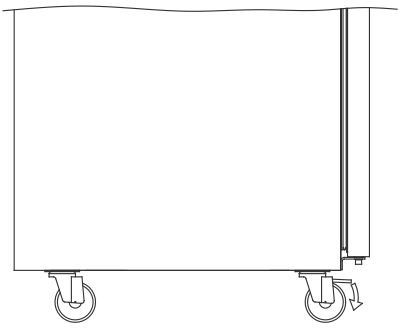
The cabinet is only allowed to lay down for very short durations (for instance handling through a doorway). If the cabinet has been laying down, the cabinet must stand up-right for at least 24 hours prior to use. This enables oil in the compressors to run back into place.

Adjusting the base





Cabinets equipped with legs should be levelled as shown in the illustrations to the left.



For cabinets equipped with castors, the floor must be level to ensure stable positioning and safe use. When the cabinet is positioned, the 2 front castors should be locked.

Anti tilt bracket

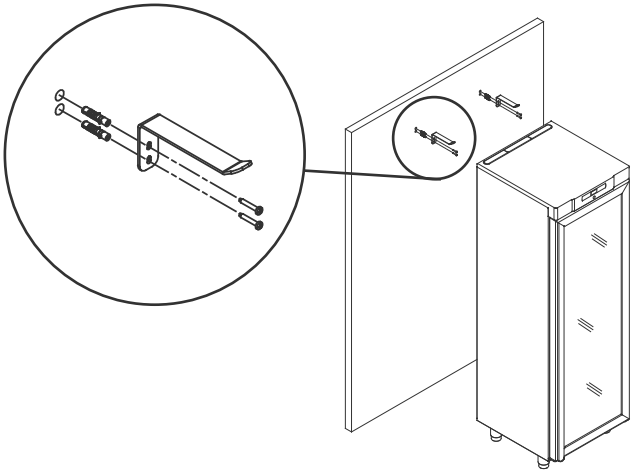


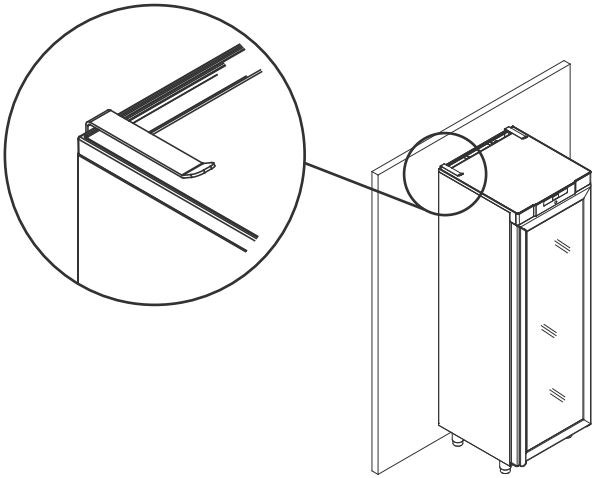
Cabinets with drawers and/or glass door must be secured to a stable vertical surface, ensuring that the cabinet cannot tip over when the drawers are drawn to the outermost position, or the door is open. Brackets for securing the cabinet are included from the factory.



The anti-tilt brackets must be fitted when installing the cabinet, ensuring that the users, surroundings and stored items are not damaged.

Find the instructions for the tilt bracket below.

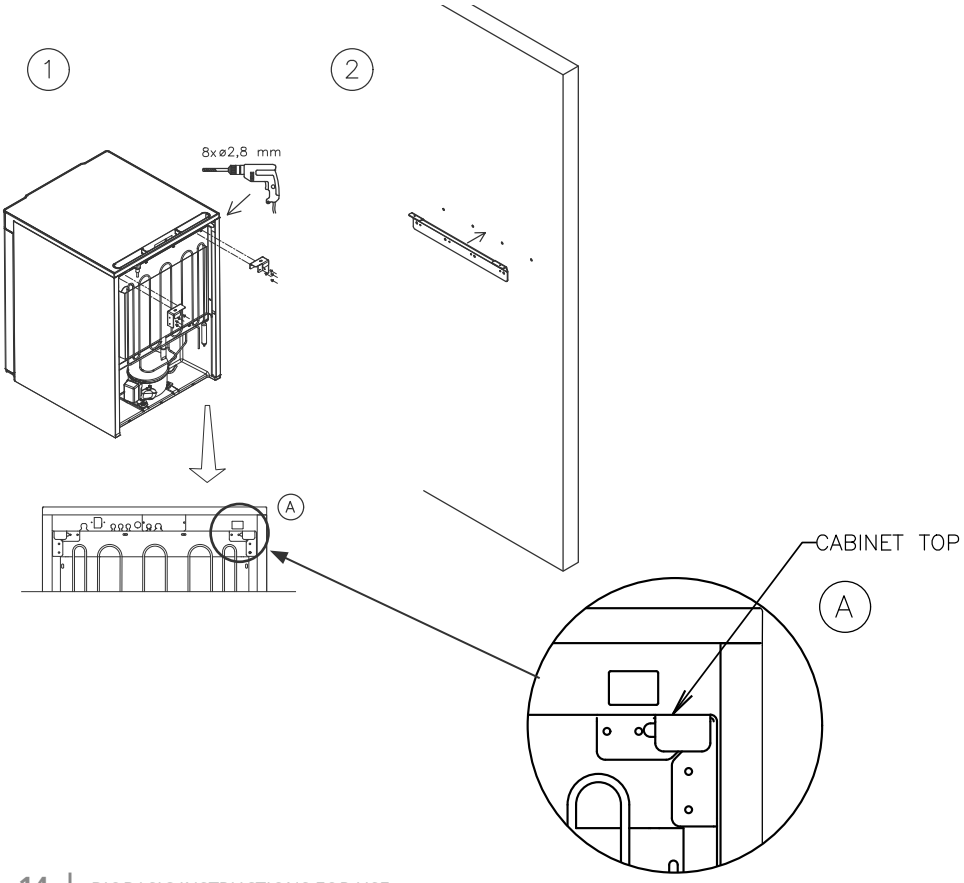


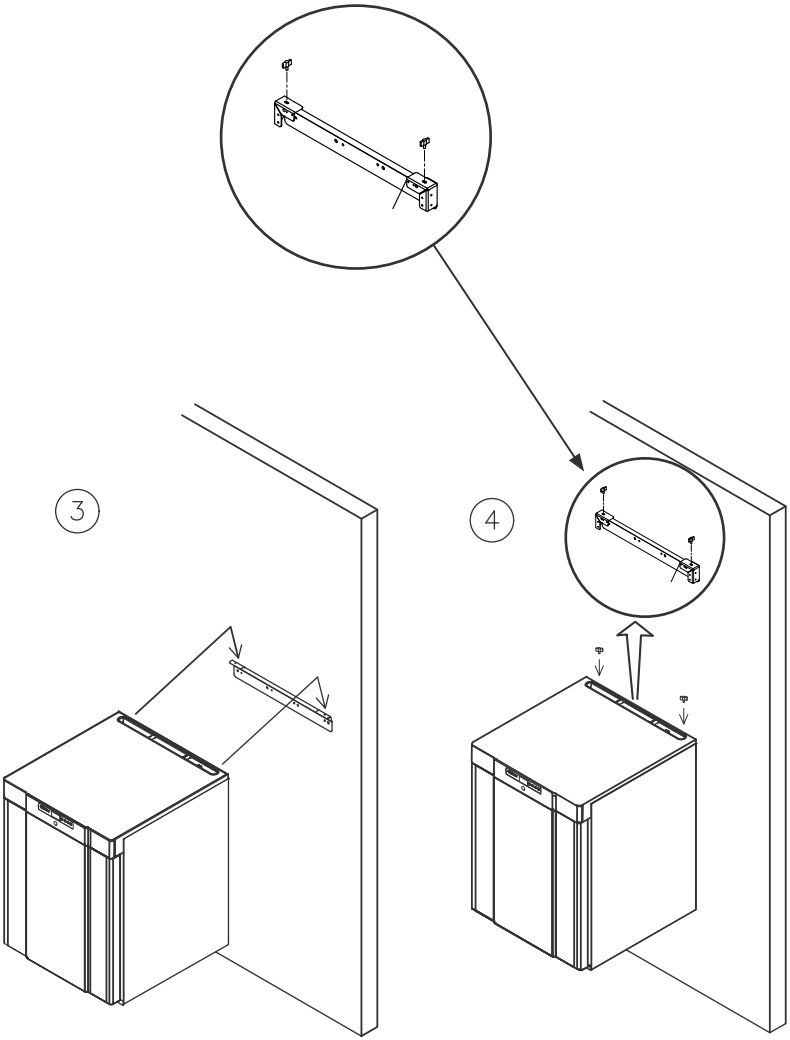


Wall mounting

Wall mounting brackets can be supplied if specified. Allowing the cabinet to be lifted from the floor. Find instructions on wall mounting of a BIOBASIC 210 below, the same procedure applies for mounting 310 and 410.

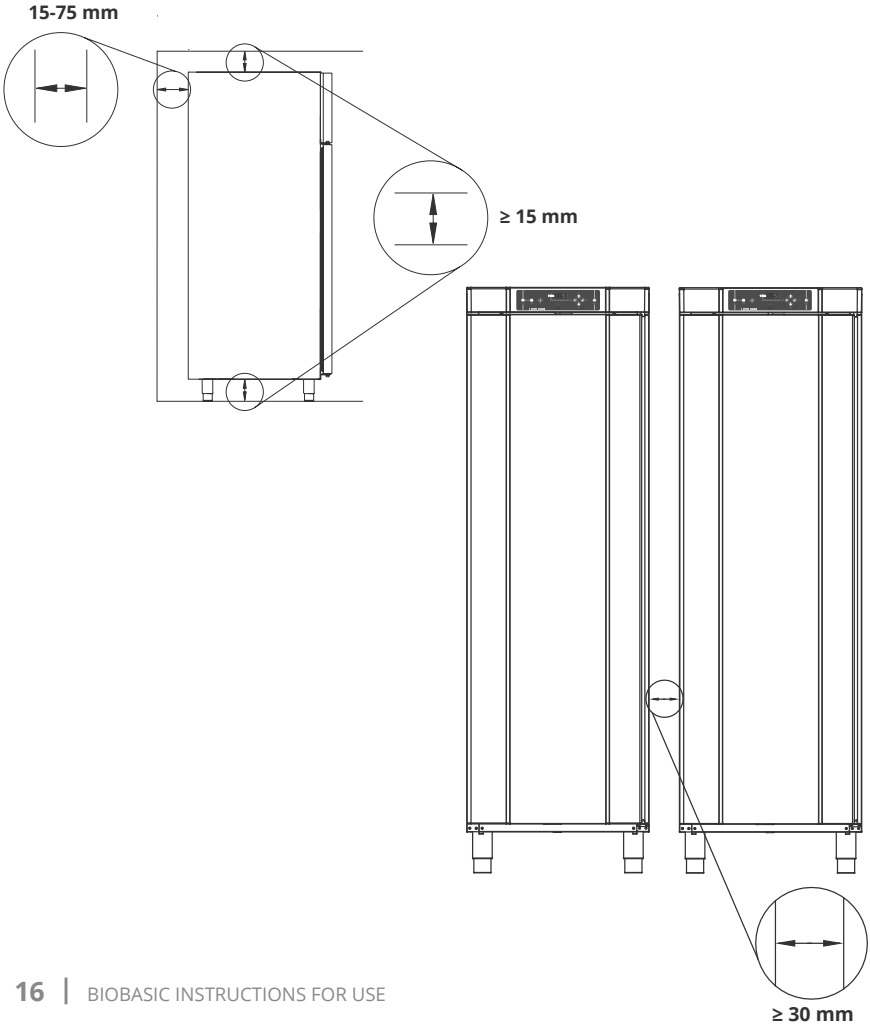
NB: Applies for 210/310/410 models.




3
4

Surroundings

The cabinet must be installed in accordance with the illustrations below.



Product inspection



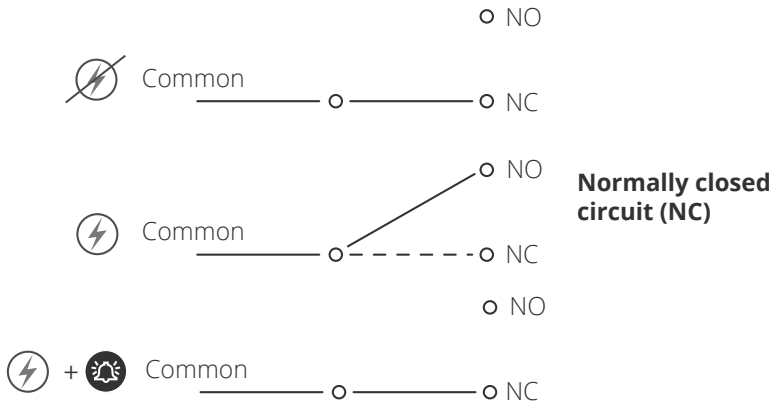
A visual inspection of the cabinet must be conducted prior to putting the cabinet into service. Check the cabinets structural integrity, that door frames and doors don't have deformities, gaskets seal properly and the doors sit flush up against the door frame.

Voltage free contact

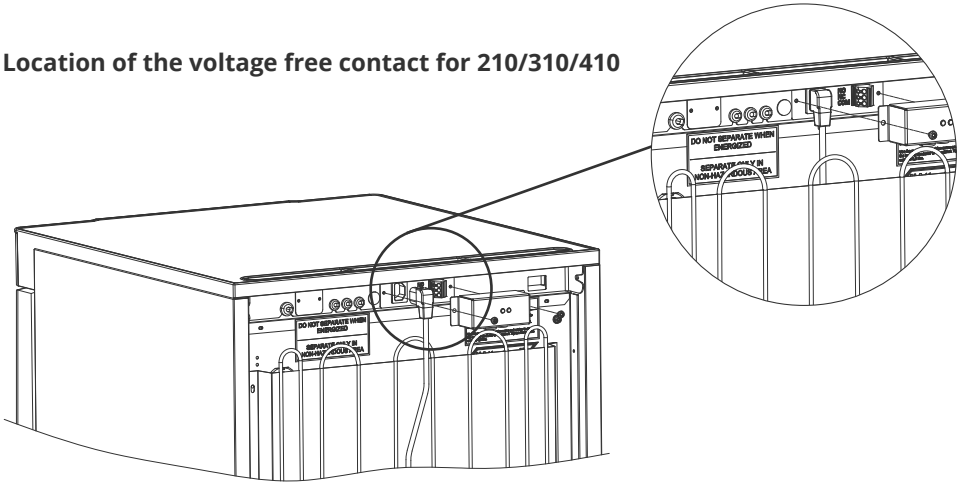
The illustration below shows the three connectors for the relay (e.g. in connecting to CTS or other external monitoring systems). The three connections are respectively Common, NO (Normally Open) and NC (Normally Closed).

The moment voltage is applied, the controller draws the relay, this makes it possible for the controller to respond to both high and low temperature alarms, door alarms and power failures.

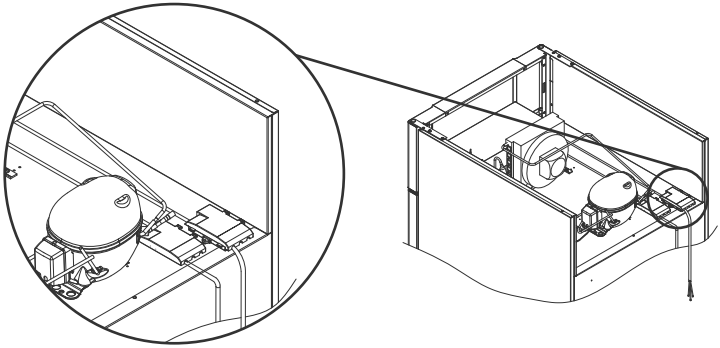
Find instructions on setting the alarms in the controller settings section.



Location of the voltage free contact for 210/310/410



Location of the voltage free contact for 600



Connection of the voltage free contact should be done by a qualified installer.

Connecting to power



When setting up in an ordinary scenario that is not subject to regulations for EN 60079-0 zone 2:
The appliance may be connected in accordance with applicable local heavy current regulations.

Note that there are special regulations for products that are in accordance with EN 60079-0 zone 2 and EN 60079-14: Explosive atmospheres – Electrical installations design, selection and erection

The appliance has been manufactured in accordance with EN 60079-7: Explosive atmospheres – Part 7: Equipment protection by increased safety "e" and EN 60079-11: Explosive atmospheres – Part 11: Equipment protection by intrinsic safety "i": Type of protection ll 3G Ex ec ic llB Tx Gc. Zone 2 is the applicable zone.

If the appliance is to be installed in a zone 2 environment, specialist personnel should perform the installation, or be consulted beforehand, in order to ensure that the appliance is installed in compliance with the guidelines currently contained in the standard.

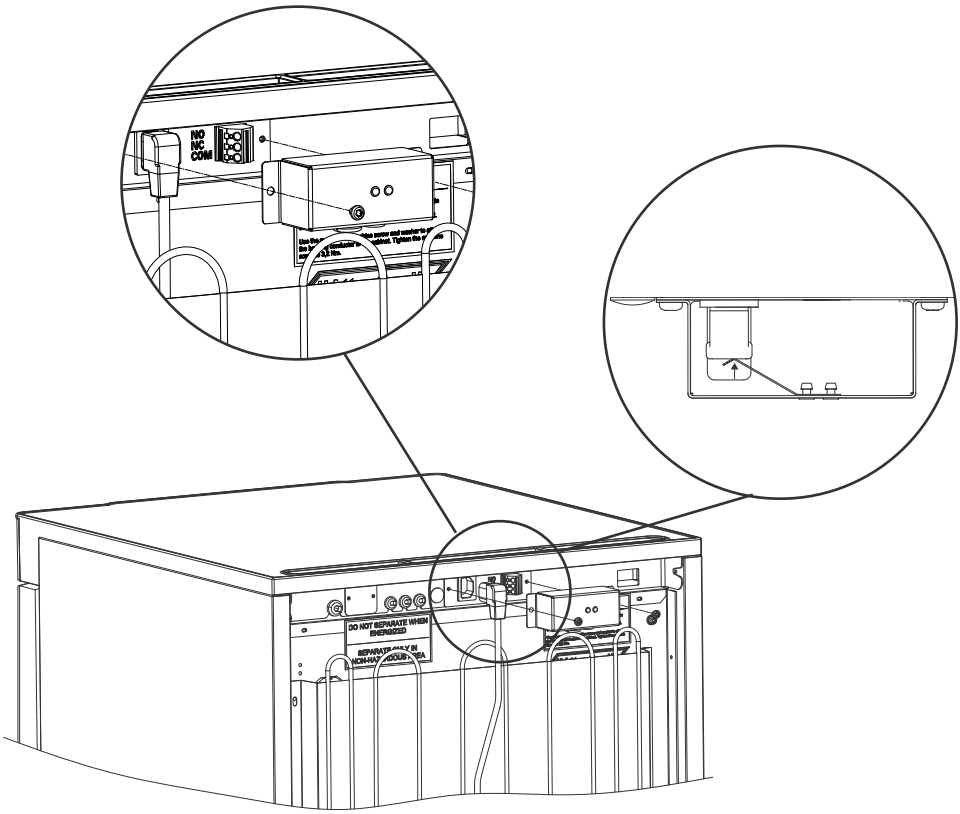
The cabinet is intended for connection to alternating current. The connection values for voltage (V) and frequency (Hz) are given on the type/number plate.

BIOBASIC 210, 310, 410
The mains terminal is accessed via the preload cover on the back of the cabinet. Unscrew the preload cover to access the mains supply terminal. Ensure that the preload cover is reinstalled after plugging in the power cord.

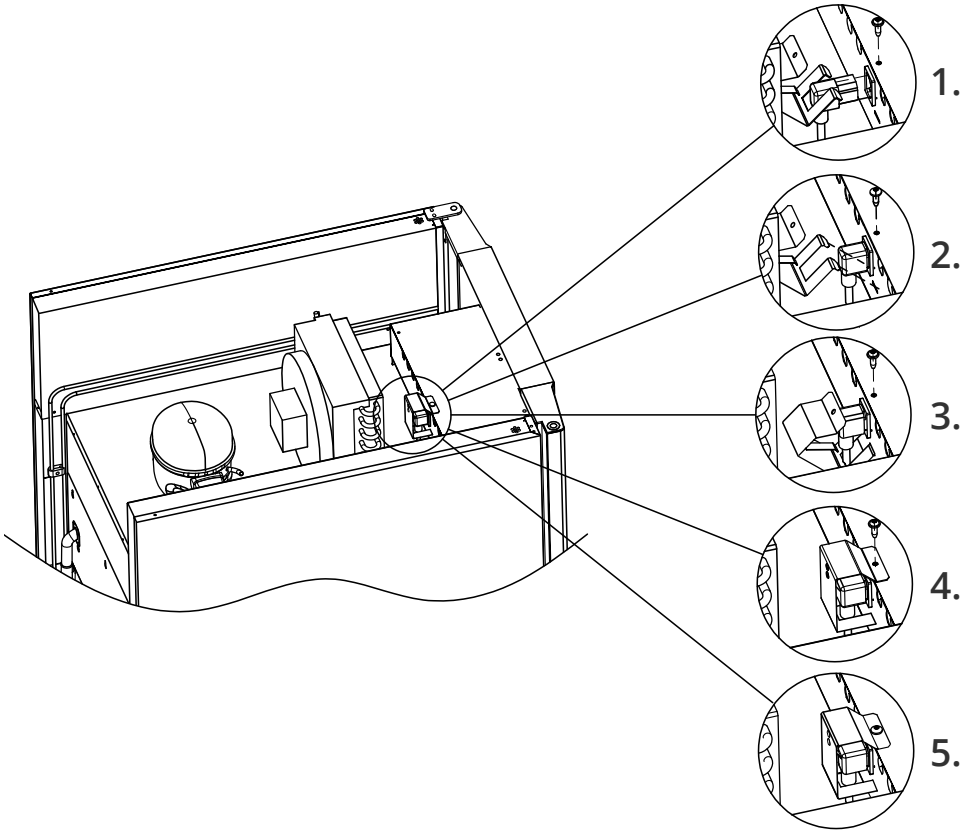
The leaf spring in the preload cover must engage and preload the plug of the cord as shown in the illustrations below.

BIOBASIC 600
The power cord is plugged in the terminal box on the back of the cabinet. The plug is then fixated in place by the hanger that is built into the terminal box. Please note that the hanger should be fitted tightly around the plug, as shown.

In all cases, ensure that the mains plug is seated completely in the terminal of terminal on the cabinet.



Power cord plugged into 210/310/410 cabinets



Power cord plugged into 600 cabinet

The appliance must be connected to the external power supply using a suitable device which mechanically prevents the plug and socket from being separated unintentionally. The connection must be labelled:

"DO NOT SEPARATE WHEN ENERGIZED".

Fuses and similar must never be removed or replaced while the appliance is connected to a power source. The electrical terminal box must never be opened while the appliance is connected to a power source. The compressor starting equipment must never be dismantled while the appliance is connected to a power source. The LED lighting must never be dismantled while the appliance is connected to a power source. Whenever electrical components are dismantled or replaced, the appliance must be moved to an area in which there is no risk of ignition caused by the electrical components or gases contained in the appliance. Never use the cabinet if the plug is damaged. The cabinet should be examined by a Gram BioLine authorised service technician in such cases.

Please refer to EN 60079-14: Explosive atmospheres – Electrical installations design, selection and erection for installation requirements in an ATEX environment.

In both cases
Use a three-wire plug, if the power outlet is intended for a three-wire plug, the lead in green/yellow insulation should be connected to the ground terminal. The mains plug is used as the means of disconnecting the appliance from the supply. The socket-outlet shall be installed close to the appliance and shall remain freely accessible at all times, so that the appliance can be disconnected from mains power supply. The mains cord must be rated to minimum 10A. All earthing requirements stipulated by the local electricity authorities must be observed. The cabinet plug and wall socket should then give correct earthing. If in doubt, contact your local supplier or authorized electrician.

– Technical support –
In the event of technical difficulties always contact Gram BioLine technical support or a Gram BioLine authorized service partner.

– For Ex environments –
Special conditions for safe use may apply to this product when installing in an EN 60079-14 environment.
Please see corresponding Ex certificate for specifications.

– For Ex environments –
Open containers inside the storage chamber may impact the ATEX zone classification.

Equipotential bonding

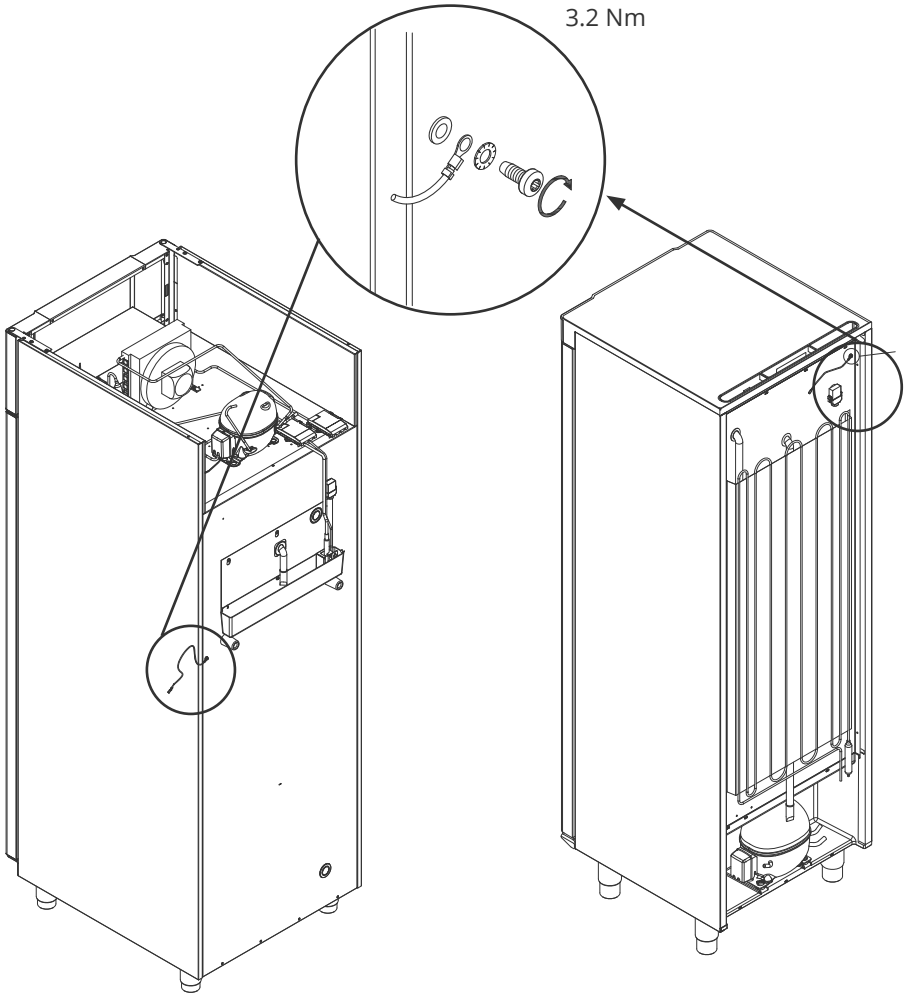
For installation in ATEX Cat. 3 Zone 2 areas, it is mandatory to have a equipotential bonding, it is not sufficient to use protective earth through the mains connection.

To secure equipotential bonding of the unit – the mounted external bonding conductor must be used in accordance with national installation requirements e.g. EN 60079-14.

- Mounting of the bonding conductor should be done according to the following illustrations.
- Please find location for connection facilities on the back of the cabinet marked with “Attention – Equipotential bonding”.
- The bonding conductor should be at least 4 mm^2 gauge.
- Use a ring terminal to ensure adequate bonding.
- Use the supplied M5 machine screw and washer to attach the bonding conductor to the cabinet. Tighten the machine screw to 3.2 Nm.

Bonding of the cabinet is illustrated on the following page.

– ATTENTION –
Please note, this location is the only manufacturer approved location for equipotential bonding.

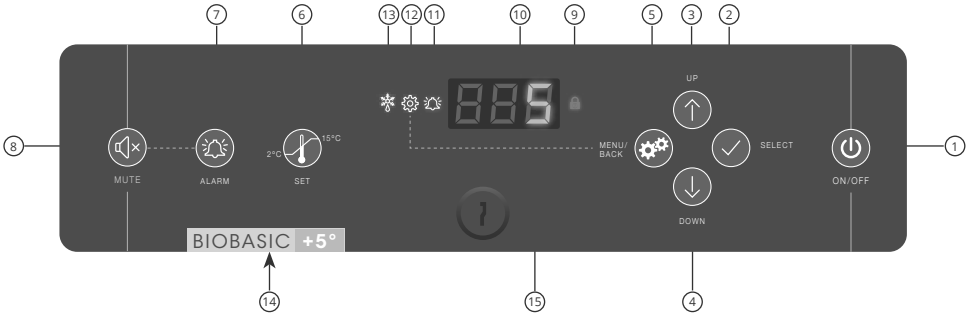


BIOBASIC 600

BIOBASIC 210/310/410

Start up

The digital display controls



1. On/Off
2. Select or confirm a menu parameter
3. Navigate upwards in a given menu/raise a given value
4. Navigate downwards in a given menu/lower a given value
5. Parameter settings menu / go a menu-step back
6. Setpoint temperature setting
7. Temperature alarm settings
8. Acknowledge alarm, mute for 5 minutes
9. Keypad lock engaged
10. Display
11. Alarm registered
12. Parameter settings menu is open
13. Defrost in progress
14. Visual distinction between refrigerator or freezer
15. Door lock

General introduction to the controller interface

Turn On/Off
Shortly press ⏻ to turn the cabinet On and press for 6 seconds to turn the cabinet Off.

Initiation procedure
Readout of the software version and variant will occur shortly after turning the cabinet on. The cabinet will then automatically start a defrost cycle, and terminate it again after a system check.
The cabinet is ready when the temperature is displayed.

The cabinet will always commence operation when initially connected to a power supply. For instance after a power outage or when plugging the cabinet in for the first time.

Setpoint temperature adjustments
Temperature adjustments are done by pressing for 6 seconds, prompting the set point temperature. Adjust the set point temperature by either pressing ↑ or ↓. Confirm the settings by pressing ✓.

Alarm settings

Press  for 6 seconds to enter the alarm settings

Alarm settings 		Unit	Explanation
	HL	[°C]	High temperature alarm limit. Code for activated alarm [A2]
	LL	[°C]	Low temperature alarm limit. Code for activated alarm [A3]
	Hd	[Min.]	Delay of high temperature alarm
	Ld	[Min.]	Delay of low temperature alarm
	dA	On/Off	Door alarm. Code for activated alarm [A1]. [1=on/0=Off]
	dAd	[Min.]	Delay of door alarm
	BU	On/Off	Acoustic signal for alarm codes [A1], [A2] and [A3]. [1=on/0=Off]

Buttons and useful short cuts

Buttons	Press for	Function
	–	Acknowledge alarm, mute for 5 minutes
	> 6 seconds	Access the alarm settings
	> 6 seconds	Access the parameter settings
	> 6 seconds	Adjust/show setpoint temperature value
	> 3 seconds	Manually start or stop a defrost
	> 6 seconds	Activating/deactivating the keypad lock
	–	Show highest registered temperature spike (since the last reset of alarm and temperature history)
	–	Show lowest registered temperature spike (since the last reset of alarm and temperature history)
	> 3 seconds	Clear and reset alarm and temperature history
	> 6 seconds	Restores factory settings

Operation parameters

– ATTENTION –
Changing operation parameters without the expressed consent from Gram BioLine can have unintended implications on performance and potentially void warranty.

Press ⚙ for 6 seconds to enter operation parameters

Operation parameters ⚙	↴		Unit	
	cA		[K]	Offset of A-sensor. Reference sensor for refrigeration and alarm system
	d1			Number of defrosts per 24 hours (4 is factory setting)
	d2		[°C]	Termination temperature in the evaporator during a defrost
	Li		On/Off	*Only for glass door models* – Turn light on or Off
	tEr	✓ ↴		Relay test/Component test
		tC	[°C]	Test compressor relay
		tF	[Min.]	Test evaporator fan
		td	[Min.]	Test defrost element relay (RF models)
		tL	On/Off	Test
		tA	[Min.]	Test alarm relay (will trip voltage free)
		tdP	On/Off	Test display
Sensor read-out	P-A		[°C]	Test output of A-sensor
	P-B		[°C]	Test output of B-sensor

Error codes

Display code	Explanation
- 0 -	Door is open
[A1]	Door alarm “dAd” has been activated
[A2]	High temperature alarm “HL” is or has been activated
[A3]	Low temperature alarm “LL” is or has been activated
F1	Error on the main cabinet sensor. The refrigeration system will use an emergency program to make the cabinet run. Temperature stability will be affected. **Service is required**
F2	Error on the evaporator sensor. **Service is required**

– ATTENTION –
High and low temperature alarms set up in the cabinets controller must be accompanied by additional redundant independent external alarms to ensure maximum item safety.

Please, find instructions for connecting the “voltage-free contact” in the “Installation” section.

Latching alarms: [A2], [A3]
Due to the potential implications of alarms, the red alarm bell icon will turn on along with the corresponding alarm code will flash in the display. The alarm state will remain on until acknowledged by pressing .

Sensor offset

Sensor offset is used in cases where there are deviations in the cabinets actual operation compared to control measurements by independent temperature measuring systems.

The A-sensor is used to manage the cabinets refrigeration system, and is also the reference sensor for the display and alarms.

The A-sensor is offset if the actual temperature in the cabinet does not match the setpoint, despite taking the hysteresis into consideration. Offset of A sensor is named “cA”.

Offsetting the A-sensor

- ↳ Press and hold  for more than 6 seconds
- ↳ Press  to select “cA”
- ↳ Press  +  to offset the A-sensor
- ↳ Press  to confirm the set value

The A-sensor is now offset, proceed to other parameters by pressing  navigate by using  or .

- ↳ Leave the user menu by pressing  several times until the cabinet temperature is shown in the display.

Practical examples of offsetting

ⓘ **Example 1 – The temperature in the cabinet is operating colder than the actual setpoint**
With a setpoint of +4 °C, the actual temperature inside the cabinet is between +2 °C and +4 °C. The desired temperature range is between +3 °C and +5 °C.

This means that “cA”, in this case, should be -1.0 K, so that the refrigeration system stops 1.0 K before and starts 1.0 K later than the setpoint normally otherwise would dictate.

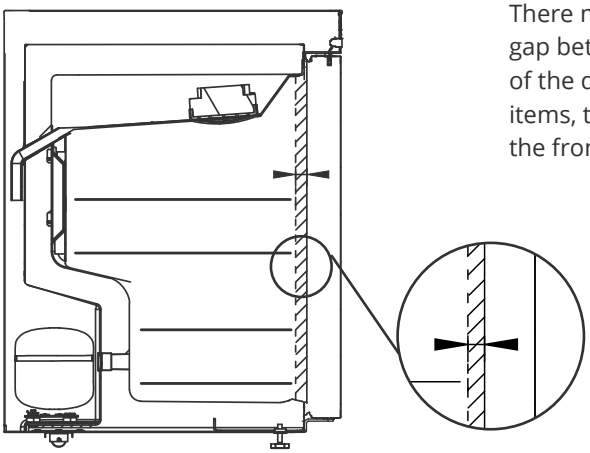
Example 2 – The temperature in the cabinet is operating warmer than the actual setpoint
With a setpoint of +4 °C, the actual temperature inside the cabinet is between +4 °C and +6 °C. The desired temperature range is between +3 °C and +5 °C.

This means that “cA”, in this case, should be 1.0 K, so that the refrigeration system stops 1.0 K later and starts 1.0 K earlier than the setpoint normally otherwise would dictate.

Ordinary use

The cabinet is not suited for storing items that emit vapours, as they might corrode the cabinet and its components.

All items in the cabinet that are not encapsulated, or wrapped, should be covered to reduce the risk of corrosion of the cabinet and its components. The cabinet interior must not be exposed to corrosive atmospheres. Items should be evenly distributed in the cabinet, with minimum layer thickness/maximum surface. And at the same time, the air should be able to circulate freely between the items.

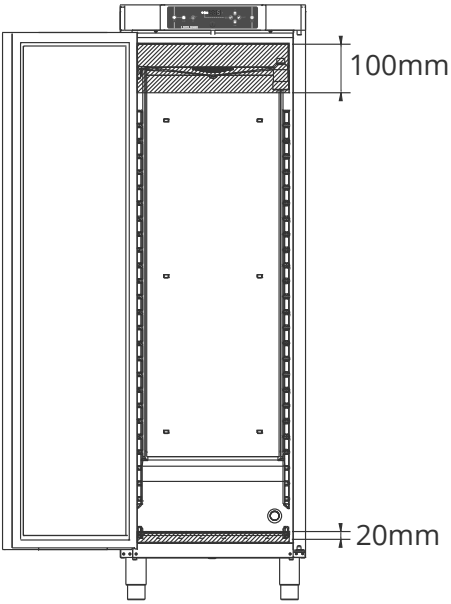


There must be a 20 mm gap between the inner part of the door and the stored items, to enable airflow at the front of the cabinet.

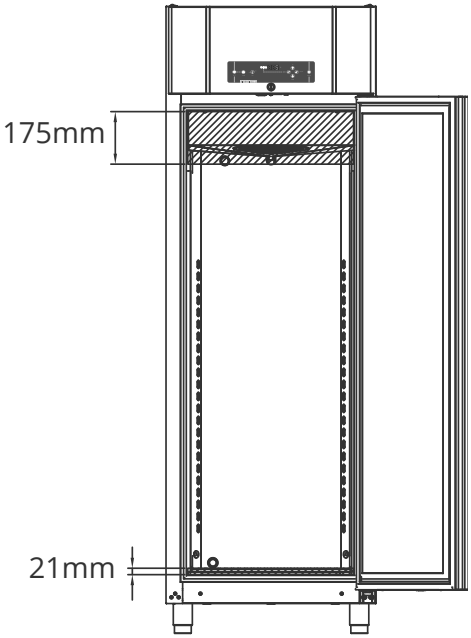
Items placed on the top, bottom or very front of the cabinet will cause the air circulation to be impeded, reducing the cabinet's performance.

Keep the marked areas in the cabinet (shown on this page) clear of all items, ensuring adequate air circulation, and therein cooling.

Do not place items beneath the lowest shelf bracket.



BIOBASIC 210/310/410

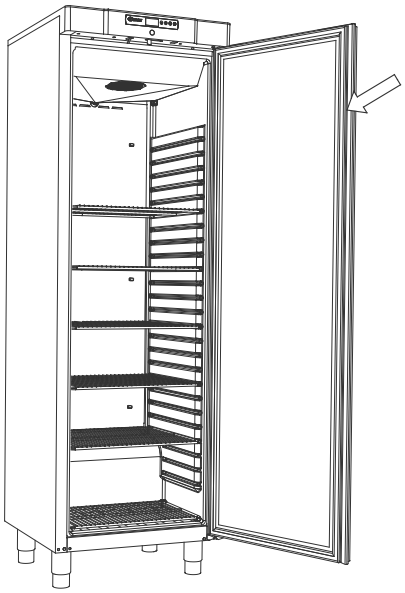


BIOBASIC 600

Door gaskets

Door gaskets are an important part of a cabinet, door gaskets with impaired functionality reduces a cabinets seal with the door.

Impaired seals can lead to increased humidity in the storage chamber, iced evaporator (and thus reduced cooling capacity), and in some cases, decreased lifetime expectancy of the cabinet. It is therefore very important to be aware of the door gaskets condition. Regular inspections are recommended.



The door gasket should be cleaned regularly with a mild soap solution.

If a gasket is to be replaced, please contact your local Gram BioLine distributor.

General info

Responsibility



Read the following carefully, for information on technical safety and responsibility on Gram BioLine products. Warranty may be void in the instance the cabinet is being used for applications other than its intended use, or otherwise not in accordance with the guidelines stipulated in the instructions for use.



Defective parts must be replaced with original parts from Gram BioLine. Gram BioLine can only guarantee functional and safety requirements on the cabinets, if above-mentioned is adhered to.



The cabinet should be checked at least once yearly by a Gram BioLine-authorised technician.

Service



– WARNING –
DO NOT OPEN, MAINTAIN OR SERVICE IN AN AREA WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT

The refrigeration system and the hermetically sealed compressor require no maintenance.

However, the condenser and air filter require regular cleaning. If refrigeration fails, first look to see whether the cabinet has been unintentionally switched Off, or whether a fuse has blown.

If the cause of failure cannot be found, contact your supplier quoting Type and S/N, find this on the type number plate.



– When servicing –
Make sure the appliance is switched Off at the socket before service is performed on the cabinet. It is not sufficient to switch Off the cabinet on the On/Off ⏻ button, as current will persist in some electrical parts of the cabinet.

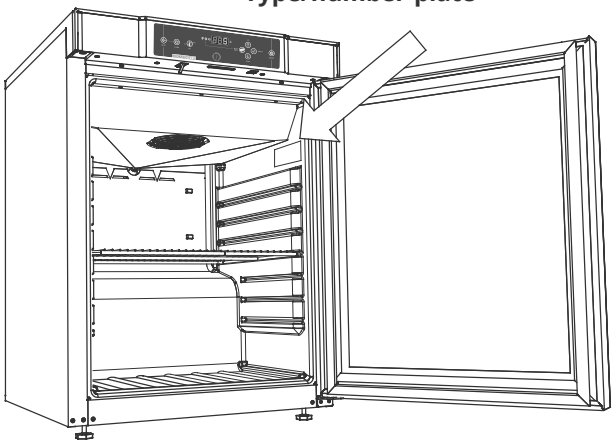


Be aware that cabinets using hydrocarbons (HC) as refrigerant, may require special handling by qualified technicians.

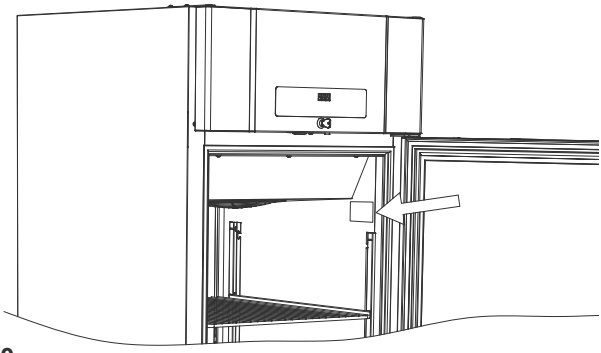
Type number plate

The type/number-plate located on the inside of the storage chamber, please find reference for location below.

Type/number-plate



BIOBASIC 210/310/410

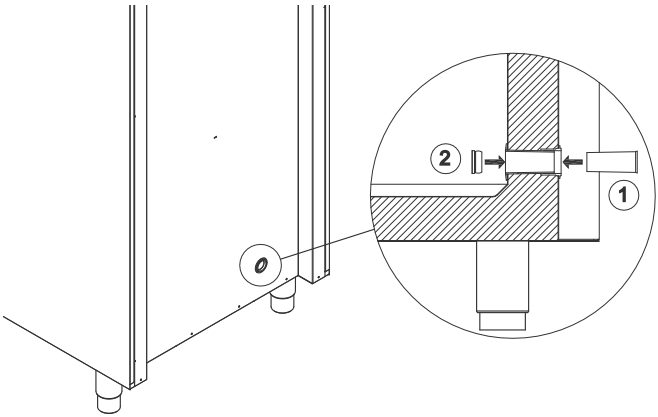


BIOBASIC 600

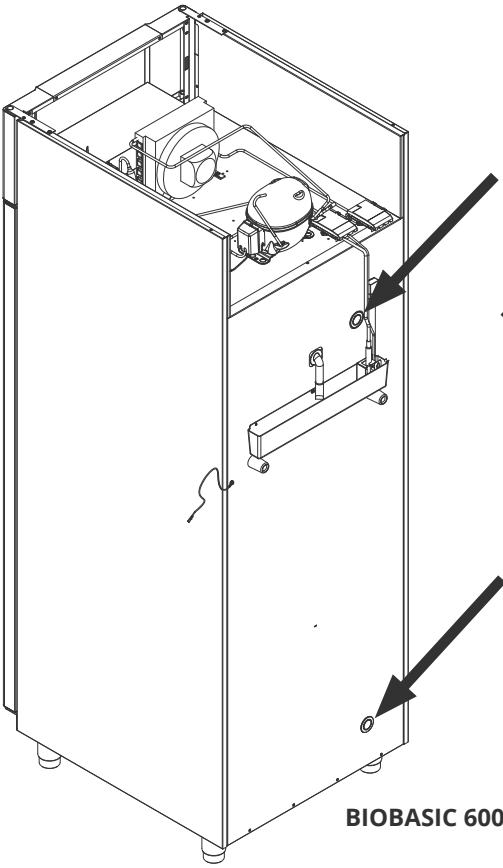
Access port

All access ports are constructed in the same fashion, with a conical polystyrene plug (1), fitted from the back of the cabinet and a plastic cap (2), fitted from the inside of the cabinet.

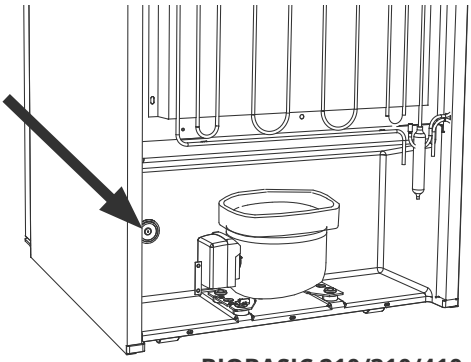
Please note, it is very important to re-fit the polystyrene plug and plastic cap after mounting sensor, probe etc. Failing to do so can result in lowered performance or malfunction of the cabinet.



Access ports are clearly marked “Access port” on the cabinet.
Find locations below.



BIOBASIC 600



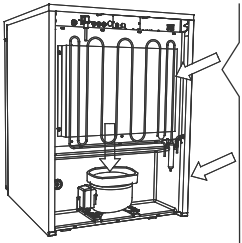
BIOBASIC 210/310/410

Regular maintenance

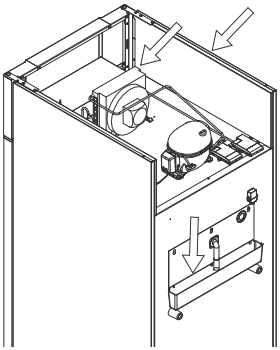
Cleaning

The cabinet should be cleaned internally with a mild soap solution (max. 85 °C) at suitable intervals and checked thoroughly before it is put into operation again.

Cleaning agents with a pH of 5 ±1 can be used when a mild soap solution and/or water is used to remove any substance that might damage cabinet components or surfaces. The cleaning agent should be compatible with materials such as steel, alloy, sheet metal, paint, and plastics.



The compressor compartment and in particular the condenser must be kept free from dust and dirt. This is best done with a vacuum cleaner and a brush. Do not flush compressor compartment or evaporator with water as this may cause short circuits in the electrical system.



It is recommended that the re-evaporation tray is checked regularly for foreign objects and cleaned accordingly.

Be careful not to damage the defrost water tube and heating element (located in the tray) when cleaning.



Cleaning agents containing chlorine or compounds of chlorine as well as other corrosive agents may not be used, as they might cause corrosion to the stainless panels of the cabinet and the evaporator system.



The cabinet must not be connected to a power source while cleaning.

Important

 **– Attention –** 

There may occur sharp edges on the cabinet housing, compressor room, and interior furnishings. Show due diligence when handling the cabinet, neglect of these precautions can lead to injuries.

Danger of wedging in the frame slot between the door and the cabinet, show due diligence when opening and closing the cabinet door. Negligence of these precautions can lead to injuries. Danger of wedging in the drawer column between the drawers and interior of the cabinet, show due diligence when using the drawers. Negligence of these precautions can lead to injuries.

Unlocked castors can lead to unexpected movements of the cabinet. Lock the castors after installation. Negligence of these precautions can lead to injuries.

The re-evaporation tray, re-evaporation tray heating element, pressure pipes and compressors develop considerable heat during operation. Assure that these components are sufficiently tempered before touching. Negligence of these precautions can lead to injuries.

The evaporator develops considerable cold during operation. Assure that the evaporator is sufficiently tempered before touching. Negligence of this precaution may lead to injuries.

The fan may cause injury during operation, avoid touching the fans while the cabinet is connected to the main power. Negligence of these precautions can lead to injuries.

Do not use electrical appliances inside the cabinet.

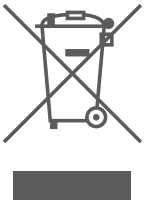
Unauthorized modifications to the cabinet can void warranty.

Disposal

At Gram BioLine we are dedicated to environmental sustainability and comply fully with the Waste Electrical and Electronic Equipment (WEEE) Directive.

Electrical and electronic equipment (EEE) contains materials, components and substances that can be dangerous and harmful to human health and the environment if the waste (WEEE) is not disposed of correctly.

When disposing the appliance in an EU Member State, it should be in accordance with the Waste Electrical and Electronic Equipment Regulations (WEEE).



Products that are labelled with a “crossed-out wheelie bin” are electric and electronic equipment.

The crossed-out wheelie bin symbolizes that waste of this type cannot be disposed of with unsorted municipal waste but must be collected separately.

This refrigerator or freezer is specifically designed for bioscience purposes, it is therefore important to thoroughly clean the appliance to ensure that no residues or harmful substances remain.

While it is not a requirement under the (WEEE) Directive to document the cleaning, it is considered good practice to ensure the refrigerator is free of contamination before it is sent for recycling or disposal. This helps protect individuals responsible for handling the appliance and ensures a safe and environmentally friendly recycling process.

Correct disposal and recycling of electrical and electronic equipment help reduce waste and minimize environmental impact.

By adhering to proper handling practices, your organization supports pollution prevention and resource conservation.

Recycled materials are sorted, cleaned, and processed for reuse, contributing to sustainability and reducing the need for new raw materials.



Should you have any uncertainties, please feel free to contact Gram BioLine for professional support and guidance.

Datasheet

General data: BIOBASIC 210, 310, 410

Technical specifications	Data
Connection	230 VAC, 50 Hz
Control Unit	Gram BIOBASIC MPC-46
Alarms	Acoustic and visual temperature and door alarms
Alarm ports	Voltage free contact (230 VAC/ 8A)
Access port	1 pcs. ø24 mm
Door	Right or left hinged
Material interior	PS lining
Materiale exterior	White lacquered steel
Wall thickness	52 mm
Insulation	Polyurethane foam with HFC-free cyclopentane propellant
Air system	Gram BioLine ventilated air distribution system
IP class	IP21

BIOBASIC RR210 – with solid door

Technical specifications	Data
Temperature range	+2/+15 °C
Ambient temperature range	+10/+35 °C
SW variant	K72
K-Value	0.36 W/(m2*K)
ATEX certificate	ExVeritas 26 ATEX 2343 X
ATEX Marking	ll 3G Ex ec ic IIB T6 Gc
Gross volume	125 litres
Net volume	104 litres
Dimensions – H x W x D	830 x 595 x 640 mm
Defrost system	Automatic smart defrost with re-evaporation of the defrost water. Air defrost.
Refrigerant	R600a
Refrigerant charge	33 g
Refrigeration capacity at -10 °C	154 Watt
GWP – CO2e	0.1089
Energy consumption – default setpoint	0.434 kWh/24h
Heat emission 100 %	97 Watt
Heat emission default setpoint	19 Watt
Nominal consumption	95 Watt
Start current	7.6 A
Sound level	33.3 dB(A)

BIOBASIC RR210 – with glass door

Technical specifications	Data
Temperature range	+2/+15 °C
Ambient temperature range	+10/+32 °C
SW variant	K73
K-Value	0.36 W/(m2*K)
ATEX certificate	ExVeritas 26 ATEX 2343 X
ATEX Marking	ll 3G Ex ec ic IIB T6 Gc
Gross volume	125 litres
Net volume	104 litres
Dimensions – H x W x D	830 x 595 x 640 mm
Defrost system	Automatic smart defrost with re-evaporation of the defrost water. Air defrost.
Refrigerant	R600a
Refrigerant charge	33 g
Refrigeration capacity at -10 °C	154 Watt
GWP – CO2e	0.1089
Energy consumption – default setpoint	0.796 kWh/24h
Heat emission 100 %	101Watt
Heat emission default setpoint	32 Watt
Nominal consumption	100 Watt
Start current	7.6 A
Sound level	33.6 dB(A)

BIOBASIC RR310 – with solid door

Technical specifications	Data
Temperature range	+2/+15 °C
Ambient temperature range	+10/+35 °C
SW variant	K72
K-Value	0.36 W/(m2*K)
ATEX certificate	ExVeritas 26 ATEX 2343 X
ATEX Marking	ll 3G Ex ec ic IIB T6 Gc
Gross volume	218 litres
Net volume	189 litres
Dimensions – H x W x D	1220 x 595 x 640 mm
Defrost system	Automatic smart defrost with re-evaporation of the defrost water. Air defrost.
Refrigerant	R600a
Refrigerant charge	45 g
Refrigeration capacity at -10 °C	154 Watt
GWP – CO2e	0.1485
Energy consumption – default setpoint	0.519 kWh/24h
Heat emission 100 %	93 Watt
Heat emission default setpoint	20 Watt
Nominal consumption	95 Watt
Start current	7.6 A
Sound level	34.1 dB(A)

BIOBASIC RR310 – with glass door

Technical specifications	Data
Temperature range	+2/+15 °C
Ambient temperature range	+10/+32 °C
SW variant	K73
K-Value	0.36 W/(m2*K)
ATEX certificate	ExVeritas 26 ATEX 2343 X
ATEX Marking	ll 3G Ex ec ic IIB T6 Gc
Gross volume	218 litres
Net volume	189 litres
Dimensions – H x W x D	1220 x 595 x 640 mm
Defrost system	Automatic smart defrost with re-evaporation of the defrost water. Air defrost.
Refrigerant	R600a
Refrigerant charge	45 g
Refrigeration capacity at -10 °C	154 Watt
GWP – CO2e	0.1485
Energy consumption – default setpoint	0.907 kWh/24h
Heat emission 100 %	103 Watt
Heat emission default setpoint	36 Watt
Nominal consumption	101 Watt
Start current	7.6 A
Sound level	35.2 dB(A)

BIOBASIC RR410 – with solid door

Technical specifications	Data
Temperature range	+2/+15 °C
Ambient temperature range	+10/+35 °C
SW variant	K70
K-Value	0.35 W/(m2*K)
ATEX certificate	ExVeritas 26 ATEX 2343 X
ATEX Marking	ll 3G Ex ec ic IIB T6 Gc
Gross volume	346 litres
Net volume	312 litres
Dimensions – H x W x D	1876 x 595 x 640 mm
Defrost system	Automatic smart defrost with re-evaporation of the defrost water. Air defrost.
Refrigerant	R600a
Refrigerant charge	60 g
Refrigeration capacity at -10 °C	207 Watt
GWP – CO2e	0.198
Energy consumption – default setpoint	0.597 kWh/24h
Heat emission 100 %	106 Watt
Heat emission default setpoint	24 Watt
Nominal consumption	122 Watt
Start current	3.16 A
Sound level	33.2 dB(A)

BIOBASIC RR410 – with glass door

Technical specifications	Data
Temperature range	+2/+15 °C
Ambient temperature range	+10/+32 °C
SW variant	K73
K-Value	0.35 W/(m2*K)
ATEX certificate	ExVeritas 26 ATEX 2343 X
ATEX Marking	ll 3G Ex ec ic IIB T6 Gc
Gross volume	346 litres
Net volume	312 litres
Dimensions – H x W x D	1876 x 595 x 640 mm
Defrost system	Automatic smart defrost with re-evaporation of the defrost water. Air defrost.
Refrigerant	R600a
Refrigerant charge	51 g
Refrigeration capacity at -10 °C	312 Watt
GWP – CO2e	0.1683
Energy consumption – default setpoint	1.319 kWh/24h
Heat emission 100 %	159 Watt
Heat emission default setpoint	52 Watt
Nominal consumption	156 Watt
Start current	17.2 A
Sound level	33.7 dB(A)

BIOBASIC RF210 – with solid door

Technical specifications	Data
Temperature range	-25/-5 °C
Ambient temperature range	+10/+35 °C
SW variant	F70
K-Value	0.36 W/(m2*K)
ATEX certificate	ExVeritas 26 ATEX 2343 X
ATEX Marking	ll 3G Ex ec ic IIB T3 Gc
Gross volume	125 litres
Net volume	104 litres
Dimensions – H x W x D	830 x 595 x 640 mm
Defrost system	Automatic smart defrost with re-evaporation of the defrost water. Heating element.
Refrigerant	R600a
Refrigerant charge	43 g
Refrigeration capacity at -25 °C	159 Watt
GWP – CO2e	0.1419
Energy consumption – default setpoint	1.476 kWh/24h
Heat emission 100 %	134 Watt
Heat emission default setpoint	57 Watt
Nominal consumption	132.8 Watt
Start current	17.2 A
Sound level	37.7 dB(A)

BIOBASIC RF310 – with solid door

Technical specifications	Data
Temperature range	-25/-5 °C
Ambient temperature range	+10/+35 °C
SW variant	F70
K-Value	0.36 W/(m2*K)
ATEX certificate	ExVeritas 26 ATEX 2343 X
ATEX Marking	ll 3G Ex ec ic IIB T3 Gc
Gross volume	218 litres
Net volume	189 litres
Dimensions – H x W x D	1220 x 595 x 640 mm
Defrost system	Automatic smart defrost with re-evaporation of the defrost water. Heating element.
Refrigerant	R600a
Refrigerant charge	35 g
Refrigeration capacity at -25 °C	204 Watt
GWP – CO2e	0.1155
Energy consumption – default setpoint	1.565 kWh/24h
Heat emission 100 %	138 Watt
Heat emission default setpoint	63 Watt
Nominal consumption	143 Watt
Start current	8.0 A
Sound level	37.8 dB(A)

BIOBASIC RF410 – with solid door

Technical specifications	Data
Temperature range	-25/-5 °C
Ambient temperature range	+10/+35 °C
SW variant	F70
K-Value	0.35 W/(m2*K)
ATEX certificate	ExVeritas 26 ATEX 2343 X
ATEX Marking	ll 3G Ex ec ic IIB T3 Gc
Gross volume	346 litres
Net volume	312 litres
Dimensions – H x W x D	1875 x 595 x 640 mm
Defrost system	Automatic smart defrost with re-evaporation of the defrost water. Heating element.
Refrigerant	R600a
Refrigerant charge	47 g
Refrigeration capacity at -25 °C	204 Watt
GWP – CO2e	0.1551
Energy consumption – default setpoint	2.068 kWh/24h
Heat emission 100 %	147.74 Watt
Heat emission default setpoint	80 Watt
Nominal consumption	154 Watt
Start current	8A
Sound level	36.6 dB(A)

General data: BIOBASIC 600

Technical specifications	Data
Ambient temperature range	+10/+43 °C
Connection	230 VAC, 50 Hz
Control Unit	Gram BIOBASIC MPC-46
Alarms	Acoustic and visual temperature and door alarms
Alarm ports	Voltage free contact (230 VAC/8A)
Access port	2 pcs. ø24 mm
Gross volume	610 litres
Net volume	536 litres
Door	Right or left hinged
Material interior	Stainless steel
Materiale exterior	White lacquered steel
Wall thickness	70 mm
K-Value	0.27 W/(m2*K)
Dimensions – H x W x D	2125 x 700 x 895 mm
Gross weight	140 kg
Net weight	130 kg
Insulation	Polyurethane foam
Air system	Gram BioLine ventilated air distribution system
IP class	IP21

BIOBASIC RR600 – with solid door

Technical specifications	Data
Temperature range	+2/+15 °C
SW variant	K70
Defrost system	Automatic smart defrost with re-evaporation of the defrost water. Air defrost.
ATEX certificate	ExVeritas 26 ATEX 2342 X
ATEX Marking	ll 3G Ex ec ic IIB T6 Gc
Refrigerant	R290
Refrigerant charge	75 g
Refrigeration capacity at -10 °C	336 Watt
GWP – CO2e	N/A
Energy consumption – default setpoint	1.44 kWh/24h
Heat emission 100 %	198 Watt
Heat emission default setpoint	N/A
Nominal consumption	288 Watt/1.4 A
Start current	10.1 A
Sound level	44.4 dB(A)

BIOBASIC RF600 – with solid door

Technical specifications	Data
Temperature range	-25/-5 °C
SW variant	F71
Defrost system	Automatic smart defrost with re-evaporation of the defrost water. Heating element.
ATEX certificate	ExVeritas 26 ATEX 2342 X
ATEX Marking	ll 3G Ex ec ic IIB T2 Gc
Refrigerant	R290
Refrigerant charge	73 g
Refrigeration capacity at -25 °C	339 Watt
GWP – CO2e	N/A
Energy consumption – default setpoint	3.77 kWh/24h
Heat emission 100 %	344 Watt
Heat emission default setpoint	N/A
Nominal consumption	357 Watt/1.8 A
Start current	13.8 A
Sound level	44.4 dB(A)

Declaration of Conformity

English EC Declaration of Conformity

We, **Gram Scientific ApS**, declare as manufacturer under sole responsibility that the following products comply with all relevant regulations:

Range:	**BIOBASIC**
Model:	RR210, RF210, RR310, RF310, RR410, RF410, RR600 & RF600
Refrigeration:	R600a & R290
Product description:	Refrigerators and freezer for laboratory
Valid from (Year/Week):	2026/20

This declaration pertains to compliance with all applicable essential requirements and other provisions of the European Council Directive and regulations. Specifically, the following Directives and Regulations of the European Parliament and of the Council apply:

Directives and Regulations of the European Parliament and of the Council:
Machinery Directive 2006/42/EC - ATEX Directive 2014/34/EU - Pressure Equipment Directive 2014/68/EU - Low Voltage Directive 2014/35/EU - EMC Directive 2014/30/EU - RoHS Directive 2011/65/EU - REACH EC No.1907/2006 - F-Gas Regulation (EU) No 2024/573

Product compliance has been demonstrated based on the following harmonized standards:

Harmonized Standards:	Text:
EN 61010-1:2010	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements
EN 61326-1:2013	Electrical equipment for measurement, control and laboratory use – EMC requirements – Part 1: General requirements
EN IEC 60079-0:2018 EN IEC 60079-0:2018/AC:2020	Explosive atmospheres – Part 0: Equipment – General requirements
EN 60079-7:2015 EN 60079-7:2015/A1:2018	Explosive atmospheres – Part 7: Equipment protection by increased safety "e"
EN 60079-11:2012	Explosive atmospheres – Part 11: Equipment protection by intrinsic safety "i"
EN ISO 3744:2010	Acoustics – Determination of sound power levels and sound energy levels of noise sources using sound pressure – Engineering methods for an essentially free field over a reflecting plane
EN ISO 9001:2015	Quality management systems – Requirements
EN ISO 14001:2015	Environmental management systems – Requirements with guidance for use

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Vojens, 03.07.2026

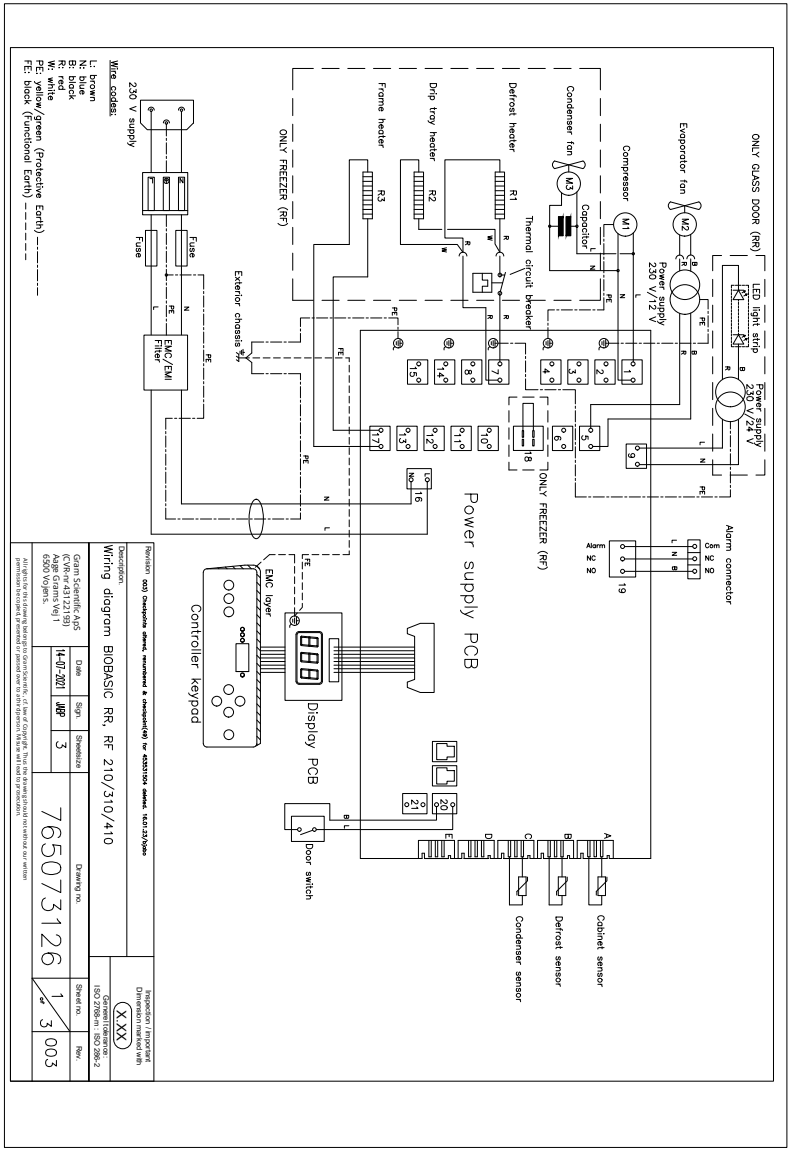


John B. S. Petersen
Approval Manager

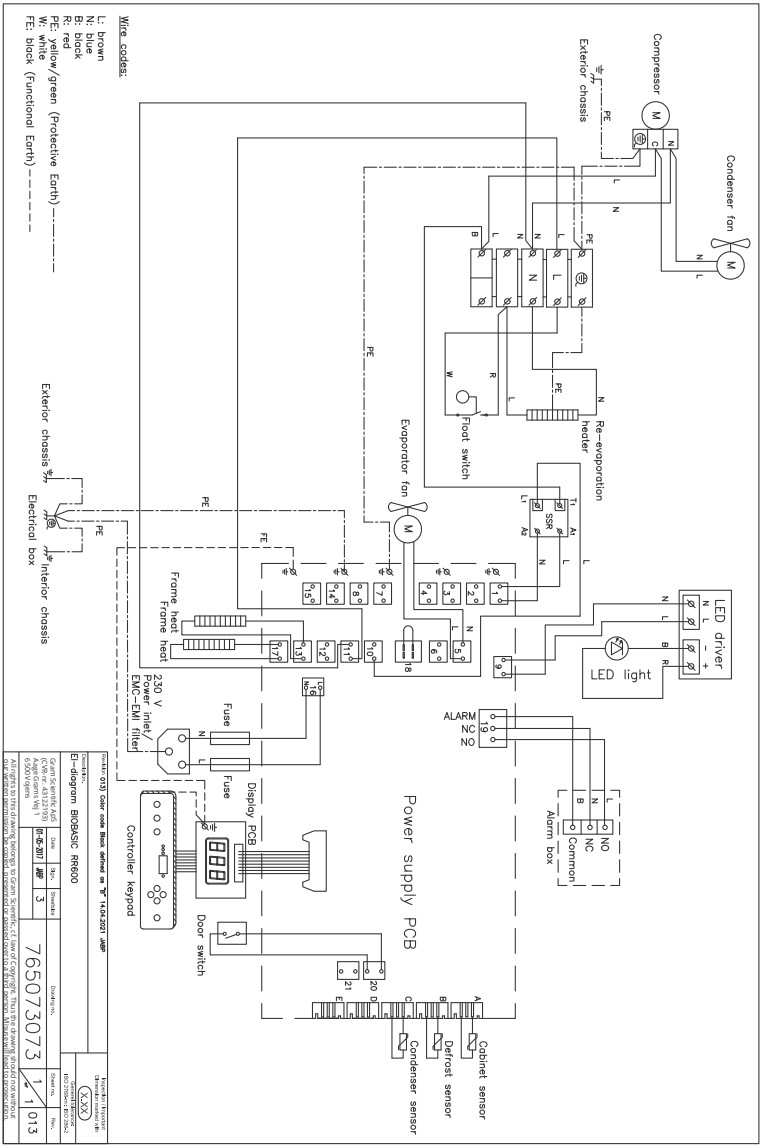
Rev. 008 – 03.07.2026

Wiring diagrams

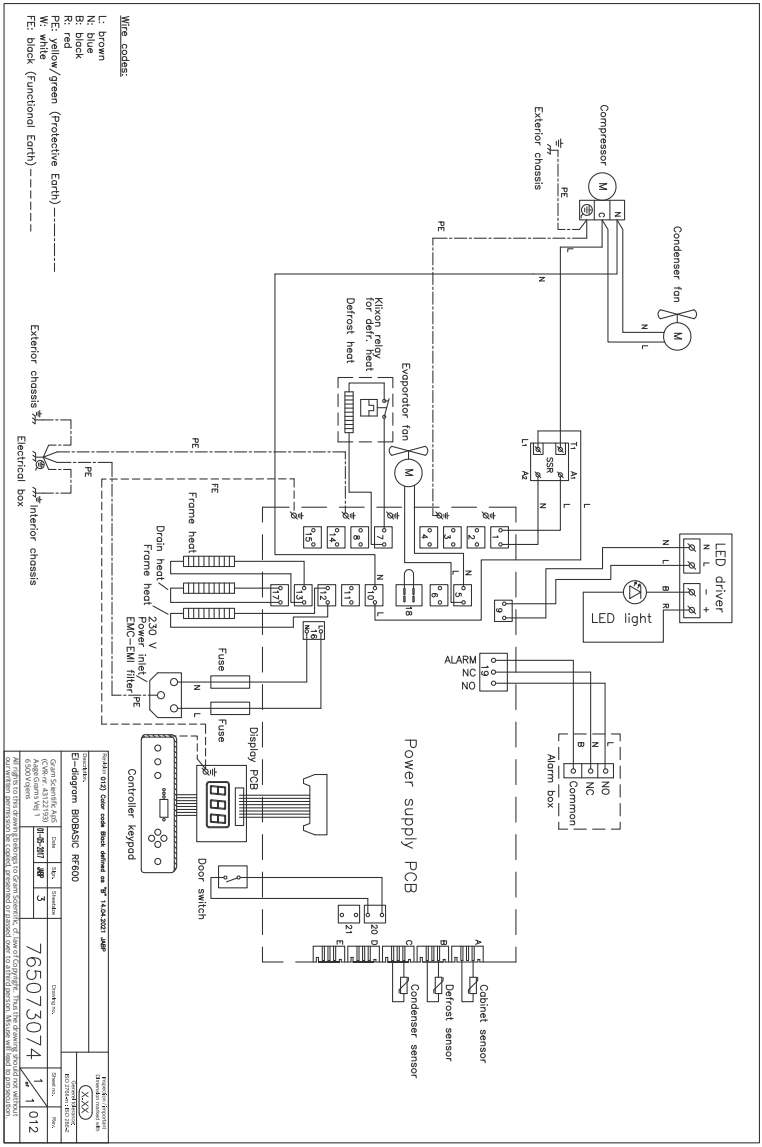
BIOBASIC RR/RF210, RR/RF310, RR/RF410



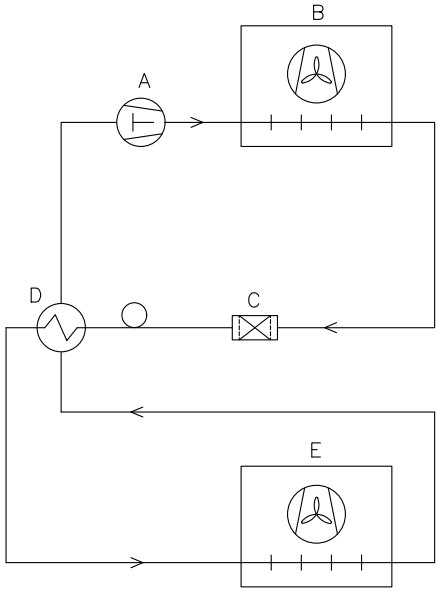
BIOBASIC RR600



BIOBASIC RF600



Piping diagram



	DK	GB	D
A	Kompressor	Compressor	Kompressor
B	Kondensator	Condenser	Verflüssiger
C	Tørrefilter	Filter drier	Trockenfilter
D	Varmeudveksler	Heat exchanger	Wärmeaustauscher
E	Fordamper	Evaporator	Verdampfer

Revision

Inspection / important Dimension marked with X.XX

Description.
Piping diagram BioCompact II

Generel tolerance: ISO 2768-m : ISO 286-2

Gram Scientific ApS (CVR-nr. 43122193) Aage Grams Vej 1 6500 Vojens	Date	Sign.	Sheetsize	Drawing no.	Sheet no.	Rev.
	02-01-2023	JABP	4	765042593	1 of 1	000

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Index

A
Access port 42
Adjusting the base 11
Alarm settings 30
Anti tilt bracket 12

B
Before you proceed 2
Buttons and short cuts 31

C
Cleaning 44
Connecting to power 20
Controller interface 29

D
Datasheet 49
Declaration of conformity 62
Digital display controls 28
Disposal 47
Door gaskets 38

E
Equipotential bonding 26
Error codes 33

G
General info 39
General introduction to the controller interface 29

I
Important 46
Index 67
Initial setup steps 8
Initiation procedure 29
Installation 8
Intended use 6

M
Maintenance 44

O
Operation parameters 32
Ordinary use 36

P
Piping diagram 66
Product inspection 17

R
Responsibility 39

S
Sensor offset 34
Service 40
Setpoint temperature 29
Start up 28
Surroundings 16, 17
Symbols 7

T
Table of content 4
Transport bracket 8
Type number plate 41

V
Voltage free contact 18

W
Wall mounting 14
Wiring diagrams 63

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BIOBASIC