

Heaters and Radiators DATASHEET

JUNHO 2013

Tel: (+351) 21 843 64 00
Fax: (+351) 21 843 64 09
geral@bhb.pt www.bhb.pt



Mini-heater

BARTEC



Mini-heater

Features

- Small, compact structure
- No temperature control necessary
- Available in different voltages
- Easy wiring

Description

The Mini-heater protects from frost and prevents the formation of condensation water inside enclosures and small electrical control panels.

The explosion-proof version can be mounted in Ex-enclosures according to EN 60079-7.

Structure

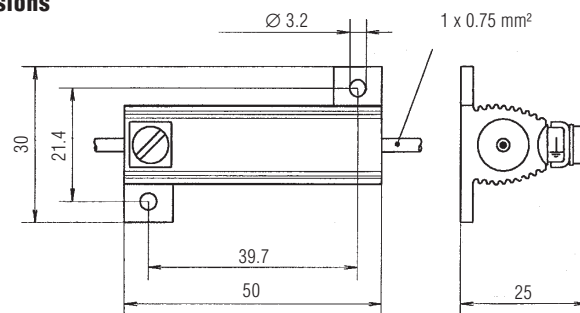
A heating resistor is flameproof encapsulated in an anodised aluminium enclosure. The terminal leads integrated on both sides make the device a ready-to-connect heater.

The heater is mounted by means of two fixing holes of $\varnothing 3.2$ mm. A heater of similar dimensions and power output is available for use in safe areas. This version is supplied without the earth connection.

Function

The Mini-heater can be used without a temperature limiter in hazardous areas providing the installation instructions are carefully adhered to. Attaching the Mini-heater to a metal body can reduce the surface temperature.

Dimensions





Mini-heater

BARTEC

➤ Explosion protection

Ex protection type

⊕ II 2G Ex d IIC

Certification

PTB 00 ATEX 1124 U

Installation instructions for use in Ex areas:

The temperature class can be specified:

- via a routine thermal test and approval by an authorised Ex inspector
- via a prototype test, e.g. together with other equipment based on presentation by a recognised testing agency.

Installation exclusively in Ex enclosures according to EN 60079-7

➤ Technical data

Nominal voltage

230 V
special voltages (6 up to 400 V)
available on request

Nominal output

6 W

Max. permissible surface temperature

+95 °C

Enclosure material

anodised aluminium

Connection leads

H07G-K or N4GAF - 0.75 mm²
standard length 0.5 m each side

Fixing details

2 fixing holes, Ø 3.2 mm

Weight

approx. 46 g



Radiator HCS

Features

- Various compact types of construction, therefore favourable mounting dimensions
- High heating capacity
- Integrated antifreezing protection device in the connection cable
- Large, black anodized convector surface
- Ready for connection, maintenance-free

Description

BARTEC compact radiators are used as anti-freezing and anticondensate heaters in potentially explosive areas.

Their use guarantees maximum operating safety, since temperature fluctuations are effectively prevented or the required minimum temperatures are maintained.

They reliably ensure that no malfunctioning through leakage current in electrical components, or other disturbances through corrosion formation on mechanical installation parts, can occur.

Places of use include switch and control cabinets, transmitter protective boxes, measuring equipment, analytical cabinets for sample preparation etc.

Function

The thermostat located in the connection cable keeps the inside temperature in the required range and reliably prevents overshooting the permissible ambient temperature of the heater.

In order to prevent accumulation of heat the specified fitting distances must be observed.

Do not cover the fins, in order that free convection is not hindered. For applications involving higher holding temperatures, please contact us.

Construction

The radiators are fitted with a constant ohmic resistance. Through the special construction of the aluminium profile a chimney effect is produced which gives a uniform temperature distribution in the interior of enclosures and cabinets.

In case of overheating, the heaters are permanently isolated from the mains supply, since the heat source is coupled with a temperature safety fuse.

Explosion protection

Ex protection type

- Ex II 2G Ex d IIC or dm IIC T4
- Ex II 2D Ex tD or tDmD A21 IP65 T135°C

Certification

PTB 03 ATEX 1139 X

Technical data

Protection class

IP 65, NEMA 4

Application temperature range

-50 °C up to +80 °C

Ambient temperature range

-50 °C up to +60 °C

Nominal voltage

AC 230 V

Connection

Hose line
EWKF 3 x 1.5 mm²; ø 8.1 mm;
length 3 m

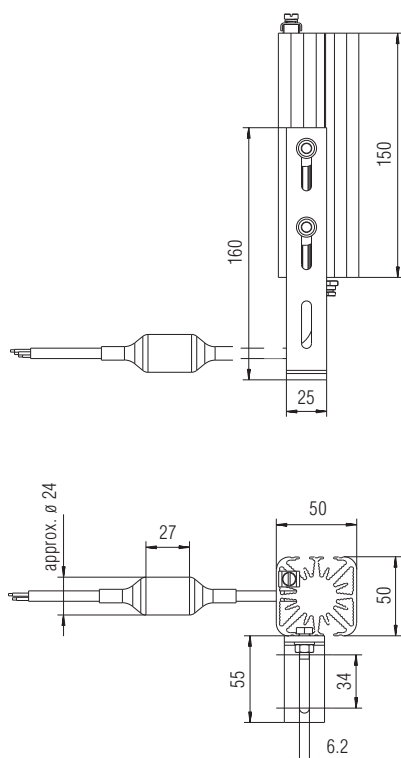
Mounting position

Vertical flow through fins

Material

black anodized aluminium
resistant to sea water

Dimensions



Selection chart

Designation	Nominal power	Version	Dimensions in mm (length x width x height)	Temperature class	
HCS 40-T4-10-3	40 W	with antifreezing protective device +10 °C ON +18 °C OFF	52 x 50 x 155	T4	



Radiator HCM

Features

- Various compact types of construction, therefore favourable mounting dimensions
- High heating capacity
- Integrated antifreezing protection device in the connection cable
- Large, black anodized convector surface
- Ready for connection, maintenance-free

Description

BARTEC compact radiators are used as anti-freezing and anticondensate heaters in potentially explosive areas.

Their use guarantees maximum operating safety, since temperature fluctuations are effectively prevented or the required minimum temperatures are maintained.

They reliably ensure that no malfunctioning through leakage current in electrical components, or other disturbances through corrosion formation on mechanical installation parts, can occur.

Places of use include switch and control cabinets, transmitter protective boxes, measuring equipment, analytical cabinets for sample preparation etc.

Function

The thermostat located in the connection cable keeps the inside temperature in the required range and reliably prevents overshooting the permissible ambient temperature of the heater.

In order to prevent accumulation of heat the specified fitting distances must be observed.

Do not cover the fins, in order that free convection is not hindered. For applications involving higher holding temperatures, please contact us.

Construction

The radiators are fitted with a constant ohmic resistance. Through the special construction of the aluminium profile a chimney effect is produced which gives a uniform temperature distribution in the interior of enclosures and cabinets.

In case of overheating, the heaters are permanently isolated from the mains supply, since the heat source is coupled with a temperature safety fuse.

Explosion protection

Ex protection type

- II 2G Ex d IIC or dm IIC T4, T3
- II 2D Ex tD or tDmD A21 IP 65
T 135 °C, T 200 °C

Certification

PTB 03 ATEX 1139 X

Technical data

Protection class

IP 65, NEMA 4

Application temperature range

-50 °C up to +80 °C

Ambient temperature range

-50 °C up to +60 °C

Nominal voltage

AC 230 V

Connection

Hose line
EWKF 3 x 1.5 mm²; Ø 8.1 mm;
length 3 m

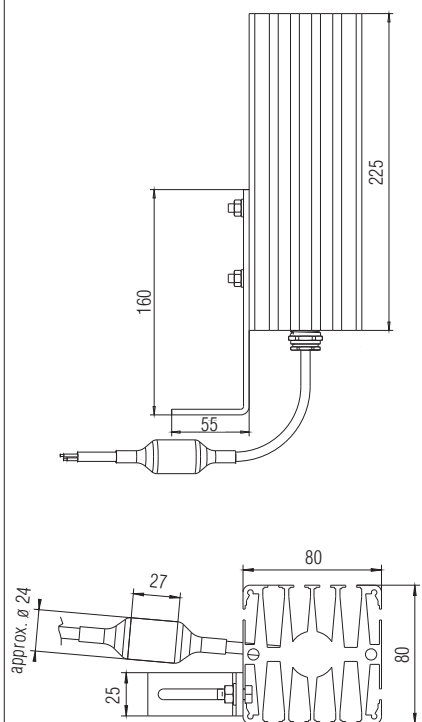
Mounting position

Vertical flow through fins

Material

black anodized aluminium
resistant to sea water

Dimensions



Selection chart

Designation	Nominal power	Version	Dimensions in mm (length x width x height)	Temperature class	
HCM 100-T4-10-3	100 W	with antifreezing protective device	80 x 80 x 225	T4	
HCM 250-T3-10-3	250 W	+10 °C ON +18 °C OFF	80 x 80 x 225	T3	



Radiator HCL

Features

- Various compact types of construction, therefore favourable mounting dimensions
- High heating capacity
- Integrated antifreezing protection device in the connection cable
- Large, black anodized convector surface
- Ready for connection, maintenance-free

Description

BARTEC compact radiators are used as anti-freezing and anticondensate heaters in potentially explosive areas. Their use guarantees maximum operating safety, since temperature fluctuations are effectively prevented or the required minimum temperatures are maintained.

They reliably ensure that no malfunctioning through leakage current in electrical components, or other disturbances through corrosion formation on mechanical installation parts, can occur.

Places of use include switch and control cabinets, transmitter protective boxes, measuring equipment, analytical cabinets for sample preparation etc.

Function

The thermostat located in the connection cable keeps the inside temperature in the required range and reliably prevents overshooting the permissible ambient temperature of the heater.

In order to prevent accumulation of heat the specified fitting distances must be observed. Do not cover the fins, in order that free convection is not hindered. For applications involving higher holding temperatures, please contact us.

Construction

The radiators are fitted with a constant ohmic resistance. Through the special construction of the aluminium profile a chimney effect is produced which gives a uniform temperature distribution in the interior of enclosures and cabinets.

In case of overheating, the heaters are permanently isolated from the mains supply, since the heat source is coupled with a temperature safety fuse.



Explosion protection

Ex protection type

II 2G Ex d IIC or dm IIC T4, T3
II 2D Ex tD or tDmD A21 IP 65
T 135 °C, T 200 °C

Certification

PTB 03 ATEX 1139 X

Technical data

Protection class

IP 65, NEMA 4

Application temperature range

-50 °C up to +80 °C

Ambient temperature range

-50 °C up to +60 °C

Nominal voltage

AC 230 V

Connection

Hose line
EWKF 3 x 1.5 mm²; Ø 8.1 mm; length 3 m

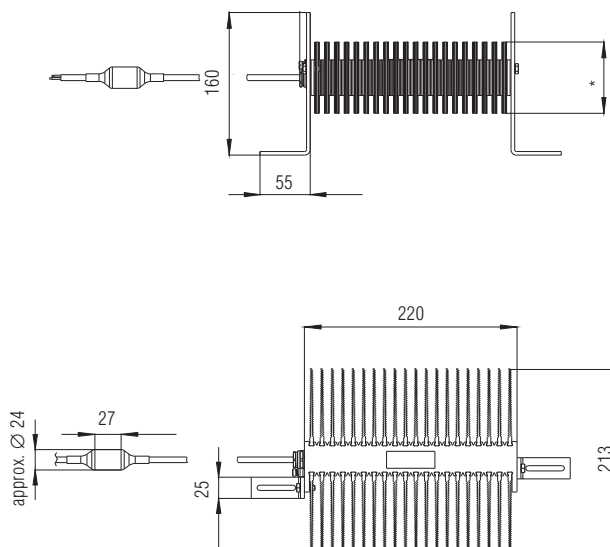
Mounting position

Vertical flow through fins

Material

black anodized aluminium
resistant to sea water

Dimensions



* see table

Selection chart

Designation	Nominal power	Version	Dimensions in mm (length x width x height)	Temperature class	
HCL 300-T4-10-3	300 W	with antifreezing protective device +10 °C ON +18 °C OFF	220 x 213 x 80	T4	
HCL 600-T3-10-3	600 W		220 x 213 x 120	T3	



HSF 300



HSF 120/HSF 200



HSF 50/HSF 100

Features

- Self-limiting characteristic
- Random mounting position
- Extremely flat design
- ATEX gas and dust application approval
- Wide rated voltage range
- Large, black, anodized convector surface
- Ready-to connect, maintenance-free

Description

The extremely flat BARTEC HSF heater plates are mainly used in potentially explosive areas for applications, which require the maintenance of a specific temperature. The use of these heater plates guarantees a maximum degree of operational safety, as temperature fluctuations can be efficiently avoided and, yet, the required minimum temperatures can be maintained.

The heater plates reliably protect electrical installations against function failures due to creepage currents and also offer protection against other failures caused by corrosion formation at mechanical system components. The application areas of these heaters comprise switch

and control cabinets, transmitter protection boxes, measuring equipment, analyzer cabinets for sample preparation, and many more.

Construction

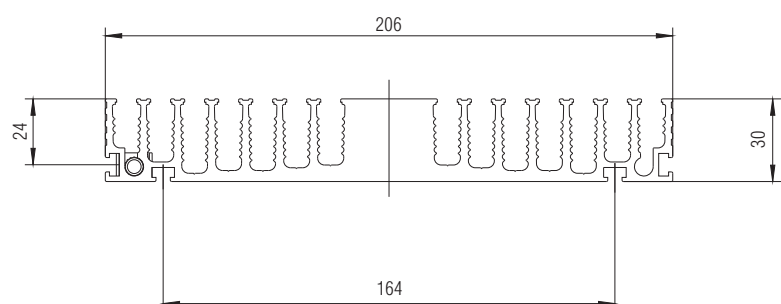
The HSF heater plates are based on a PTC (positive temperature coefficient) heating element. The special design of the aluminum profile facilitates an even temperature distribution in the interior of housings and cabinets. For an optimum free convection, the fins should not be covered.

Function

The PTC heating elements increase their electrical resistance as the temperatures rises. A high resistance results in a low heating output. At high temperatures, the heating capacity is reduced to a minimum heating output, which ensures that the limit temperature of the respective temperature class cannot be exceeded. Moreover, these heating elements regulate their resistance in dependence of the voltage. Therefore, the HSF heating plates can be applied in a wide supply voltage range.

Should you require further information on the detailed layout of the heating capacity in holding temperature applications, please contact us.

Dimensions



**➔ Explosion protection****Ex protection type**

- ⊕ II 2G Ex d or dm IIC T4, T3
- ⊕ II 2D Ex tD or tDmD A21 IP 65
T 135 °C or T 200 °C

Certification

PTB 03 ATEX 1221 X

➔ Technical data**Protection class**

IP 68, NEMA 4X

Application temperature range

-50 °C up to +180 °C

Ambient temperature range

-50 °C up to +60 °C

Rated voltage

AC/DC 120 V up to 240 V

Nominal power50, 100, 120, 200 and 300 W
(at 0 °C application temperature)**Connection**Hose line
EWKF 3 x 1.5 mm²; ∅ 8.1 mm**Mounting position**

random

Materialblack, anodized aluminum,
resistant to sea water**Selection chart**

Designation	Nominal power	Cable length	Weight (netto)	Dimensions mm (length x width x height)	Temperature class	
HSF 50 T4-1	50 W	1 m	0.9 kg	105 x 206 x 30	T4	
HSF 50-T4-5	50 W	5 m	1.3 kg	105 x 206 x 30	T4	
HSF 100-T3-1	100 W	1 m	0.9 kg	105 x 206 x 30	T3	
HSF 100-T3-5	100 W	5 m	1.3 kg	105 x 206 x 30	T3	
HSF 120-T4-1	120 W	1 m	1.8 kg	225 x 206 x 30	T4	
HSF 120-T4-5	120 W	5 m	2.2 kg	225 x 206 x 30	T4	
HSF 200-T3-1	200 W	1 m	1.8 kg	225 x 206 x 30	T3	
HSF 200-T3-5	200 W	5 m	2.2 kg	225 x 206 x 30	T3	
HSF 300-T3-1	300 W	1 m	2.5 kg	325 x 206 x 30	T3	
HSF 300-T3-5	300 W	5 m	2.9 kg	325 x 206 x 30	T3	



SSM Silicone heater plate for control cabinets

Features

- Space saving thanks to its flat structure
- Good and uniform heat distribution thanks to the uniplanar structure
- Random mounting position
- Excellent resistance to chemicals

Description

The SSM heater plate can be used for frost protection and as an anti-condensation heater. Its application ensures complete operational safety as the plates prevent malfunctions often due to leakage currents on electrical installations or the corrosion of metal components. Typical applications are switchgear and controlgear cabinets, instrument housings, analyser cases, glove boxes and other enclosures.

Structure

The heater plate consists of a thin, anodised aluminium baseplate, vulcanised with silicone-impregnated glass-fibre mats with an embedded heating coil. A bimetallic switch integrated in the terminal block limits the surface temperature of the heater approx. +70 °C. An alternative version is available for adjusting the surface temperature from +30 °C up to +150 °C.

Additional products

Thanks to the unusual structure of silicone heaters, it is possible to manufacture different versions for every application.

The following **parameters** can be altered for individual applications:

Geometry/Shape

Flexible large-area heaters up to a size of 2.5 m x 1.2 m and about 2.5 mm thick can be achieved. Cutouts, threads etc. can be provided at random. Heaters for cylindrical bodies (5 to 200 mm diameters) are preformed according to the required radius as a sleeve.

Fixing method

Large-area heaters can be installed with self-adhesive tape, with a special glue, by means of a clamping plate or tension springs.

Nominal voltage

6 V to 230 V; 3 N AC 100 V to 3 N AC 400 V are possible.

Power density

approx. 0.65 W/cm² for self-stabilisation; up to 2.0 W/cm² if limited by a thermostat.

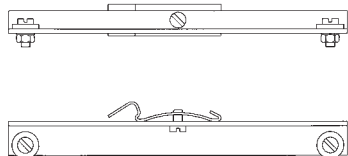
Temperature control

The surface temperature of the heater is influenced by the particular power density W/cm², temperature sensors for the control and limitation can be directly integrated in the heating system, sensor receptacles for external temperature sensors can be provided on the heater surface. The direct contact and large area format result in a very favourable heat flow in the desired direction. This means lower temperature differences between heater and object (medium).

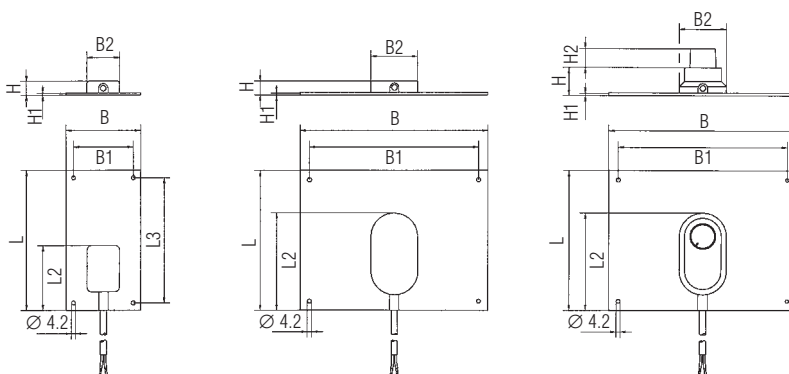


Dimensions

Snap-on rail mounting TS 35



Dimensions Silicone heater



Technical data

VDE certificate

License no. 101109

Norms

EN 60335-1

Min. ambient temperature

-60 °C

Max. ambient temperature

+80 °C (at Type 27-0222)

Plate temperature

+70 °C (pre-set value)
adjustable from +30 °C up to +150 °C

Fixing details

- with 4 x M4 screws
- with a special glue
- with mounting rails

Materials

baseplate	aluminium sheet, anodised 1.0 or 1.5 mm thick
Insulation	silicone rubber approx. 1.5 mm thick
heating element	CrNi or constantan wire
supply cable	of silicone 2 x 0.75 mm ² , 0.5 m long

Protection class

Type 27-0212-.. IP 53
Type 27-0222-.. IP 51

Electrical data

Heat output

40 W/100 W/250 W

Nominal voltage

AC 230 V/50 Hz

Di-electric strength

up to 12 KV/mm

Dimensions in mm

L	L1	L2	B	B1	B2	H	H1	H2	
150	134	70	80	64	35	15	2.5	without	
150	130	105	200	180	50	15	3	without	
150	130	105	200	180	50	30	3	20	
300	280	105	200	180	50	15	3	without	
300	280	105	200	180	50	30	3	20	



MSH Anti-condensation motor heater

Features

- Easy to connect thanks to its parallel structure
- High watts density power output
- Extremely flexible in a temperature range -50 °C up to +180 °C with high di-electric strength

Description

This highly flexible heating cable is used as an anti-condensation heater for electric motors and generators. The device offers added protection against corrosion damage that usually results in machine breakdowns by effectively preventing the formation of condensation water even under extreme climatic conditions.

Special versions on request

- differing supply voltage
- differing heating cables
- special heating cable length

Structure

MSH ant-condensation heaters are pre-wired, ready-to-use parallel heating cables with cold lead ends. Consisting of two parallel flexible copper leads with silicone glass-fibre insulation, the heating element of CuNi or NiCr alloy is wound around the cable. The 0.37 m long cold lead ends of FEP insulated stranded copper flex terminate the heating cable. The outer jacket consists of glass-fibre, covered with silicone rubber. Both ends of the heating cable are sealed with silicone rubber.

Function

The heating cables are integrated directly into the windings, i.e. built around the winding armature. Heat transfer is improved dramatically since the windings during the impregnation process.

Technical data

Material

Heating elements	CuNi or NiCr
Insulation	alkali-free glass-fibre with silicone rubber
Connection leads	2 x FEP-insulated stranded copper flex, 0.5 mm ² with crimped sleeve

Bending radius ≥ 25 mm

Electrical data

Heat output

12.5 W, 25 W, 50 W, 75 W, 100 W

Watts density

50 W/m at nominal voltage

Nominal voltage

standard 230 V
(special 110 V, others on request)

Permissible excess voltage

1.2 x nominal voltage

Test voltage

2000 V to earth

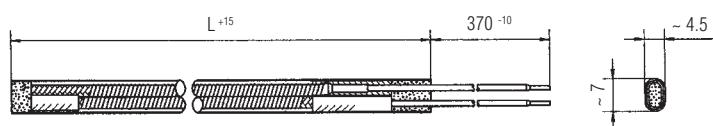
Temperature resistance class

H = +180 °C

Temperature range

-50 °C up to +180 °C

Dimensions





MSH^{ex} Anti-condensation motor heater

Features

- Silicone-free
- Self-limiting
- Other lengths on request

Description

This flexible heating cable is used in explosive atmospheres to heat electric motors and generators at standstill. It provides reliable protection against corrosion damage and the associated mechanical breakdowns because it effectively prevents condensation from forming, even under extreme conditions.

The heater is supplied ready to connect, which is done via an M20 screwed cable connection fed into an Ex e distributor, or is directly clamped to terminals in an Ex room without a screwed connection.

As these heating cables are self-limiting, overheating is prevented, even if they are laid on top of each other.

An additional temperature limiter is not required.

Structure of the heating cable

- Copper power conductor wire 1.2 mm², nickel-plated
- Self-limiting plastic heating element
- Insulation sleeve made of FEP
- Tin-plated copper braiding
- Protective sleeve made of FEP

Explosion protection

Ex protection type

Ex II 2G Ex e II T 200 °C (T2), T3

Certification

KEMA 08 ATEX 0109
IECEx KEM 09.0082

Thermal safety

EN 60519-2; Section 13, class 0

Temperature class

Version 110 V T2
Version 230 V T3

Technical data

Max. temperatures at place of use

switched-on	-40 °C up to +120 °C
permanently	
switched-off	-40 °C up to +170 °C

Nominal voltage

208 V to 254 V or 110 V to 120 V

Heating output at 10 °C

12 W, 24 W, 48 W and 96 W
at a specific heating output of 45 W/m

Insulation testing

AC 1500 V for 1 minute

Terminal wires with FEP isolation

fine-stranded with tin-plated copper
wires 1.5 mm²,
green and yellow protective earth
conductor 2.5 mm²

Heat conductor closing

shrink-fit hose made of PTFE/FEP

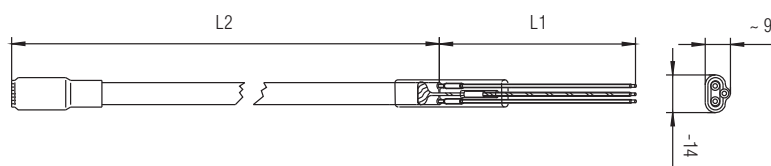
Min. bending radius

25 mm

Size of heating cable diameter

10.2 mm x 4.8 mm

Dimensions



Contactos/Contacts:

Comercial/Commercial:

Fernando Mena Costa

e-mail: fcosta@bhb.pt

Tel: (+351) 21 843 64 00

Fax: (+351) 21 843 64 09

Assistência/Service:

Patricia Costa

e-mail: ppcosta@bhb.pt

Tel: (+351) 21 843 64 00

