Product Brochure

2020

BOMAC was founded in 1976, and has become one of the UK's leading companies specializing in the design and manufacture of heating elements and heating products.

BOMAC supplies products to markets worldwide, including some of the major global appliance manufacturers.

Whilst we are capable of meeting price, quality and volume demands of larger organizations through our Far Eastern manufacturing partnership, we are small enough to offer flexibility and a quick response to customer's new product requirements.

BOMAC also adds value by supporting applications with design, development and test resources. Our combination of skills and tools, including 2D & 3D CAD design capability, type approvals experience and test house contacts, performance and life test capabilities, support customers with integration of heating systems into the finished product.

We are an ISO 9001:2015 certified company meeting or exceeding the highest industry standards, ensuring that our products are safe, reliable and durable.

Bomac Electric Limited
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Business Park, Precot,
Merseyside, L34 9HX England

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E: enquiries@bomac-elec.co.uk

QUARTZ TUBE HEATERS

BOMAC offers a large range of purpose designed glass tube radiant heating elements.

The tubes are manufactured from quartz glass (fused silica), clear quartz glass or ceramic glass, which protect and support the heating coils. Both quartz and glass ceramic provide efficient transmission of infra-red radiation, whilst glass ceramic also provides good resistance to chemical and food contamination.

Heating coils are wound in various grades of iron-chrome-aluminium alloys to match the applications and operating conditions, and typically generate radiant emission in the short to medium wavelength range. Bomac also offer sealed quartz tube tungsten filament halogen heaters, for short wave, high energy applications.

Heaters may also be supplied with reflective coatings to part of the surface of the tube to provide directional output.

Bomac will provide end-caps, terminations or flying leads to meet customers' requirements, or additionally, build entire assemblies including housings and reflectors etc.

Typical Applications:

- Radiant space heaters
- Industrial process heaters (eg thermoforming, paint curing)
- Domestic and commercial oven grills
- Microwave oven browning grills
- Commercial toasters and salamanders

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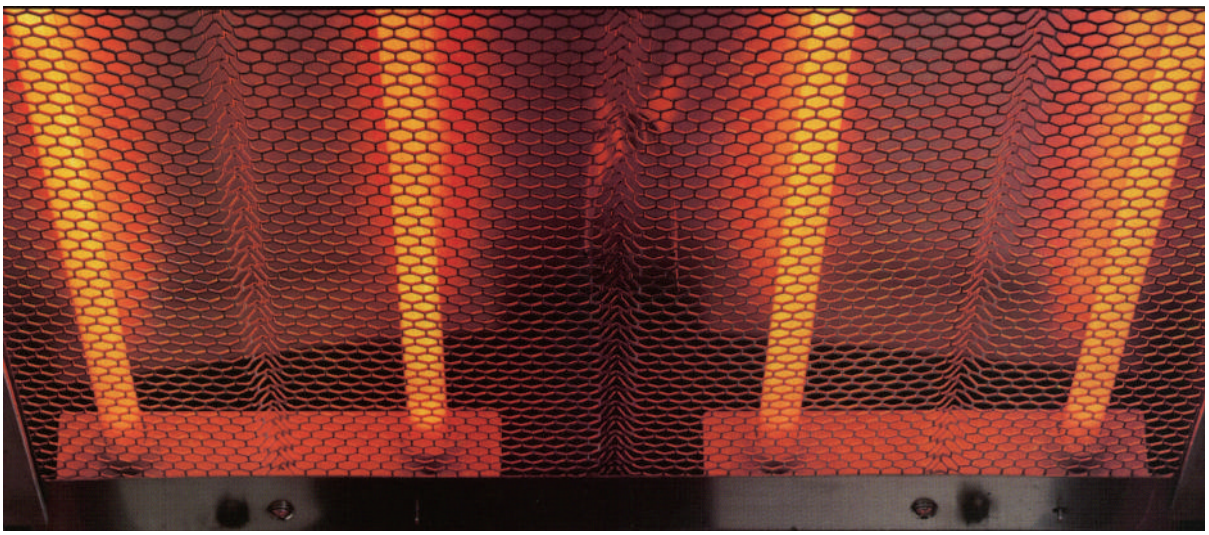
NEO-SPEED COOKER GRILL

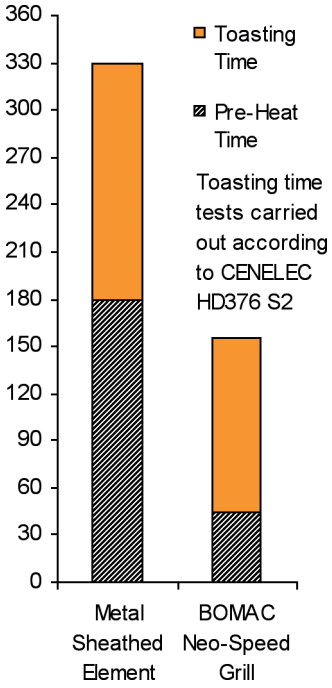


BOMAC produce a unique high speed grill system for cookers utilising 'NEOCERAM' glass-ceramic tubes which:

- Efficiently transmit infra-red radiation from the heating coils
- Protect and support the heating coils
- Are resistance to attack from food stuffs splashes

This well proven technology has been extensively used for many years both in this application and in microwave oven 'browners'. The heating elements will withstand arduous life testing even under salt spray conditions

Electrical loadings and element sizes can be made to suit individual cooker manufactures requirements. Two independent heat sections as can be made either left or right or inner outer.



Key benefits of the Neo-Speed Grill are:

- Faster and more uniform cooking than conventional sheathed grill elements.
- Fast heat-up time
- High radiation temperature at the correct wave length for efficient and even grilling

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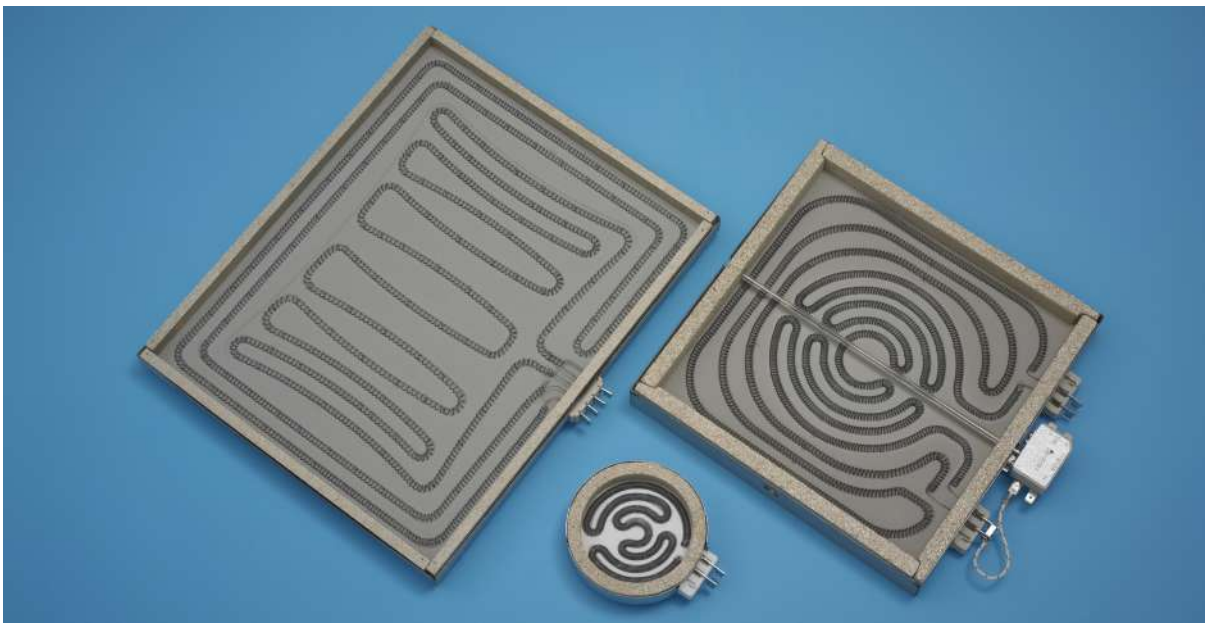
INFRA-TEC HEATERS



BOMAC provide radiant heating systems for a number of glass ceramic applications including professional and domestic cooking appliances, domestic heating and process heating.

Infra-tec heaters are designed to incorporate the best in current microporous thermal insulation materials technology and element resistance alloy grades are selected according to design requirement, supplied by proven sources.

All cook-on-glass and warming heaters are available with residual heat warning lamp thermostats. We fit thermal limiters with residual heat lamp contacts as standard on cooktop heaters.

Integration of wiring harnesses, switches and controls to reduce assembly costs is offered and Bomac hold a large range of cables and connectors with the associated application tooling in addition to a comprehensive range of switch, thermostat and controls approved suppliers.

Typical Applications:

- Commercial catering cooktops
- Domestic hobs and range ovens
- Combined cooking and warming zones
- Cook-on-glass grills, table-top and integrated, domestic & commercial
- High performance grilling, broiling and salamander appliances
- High performance, energy efficient panel heaters

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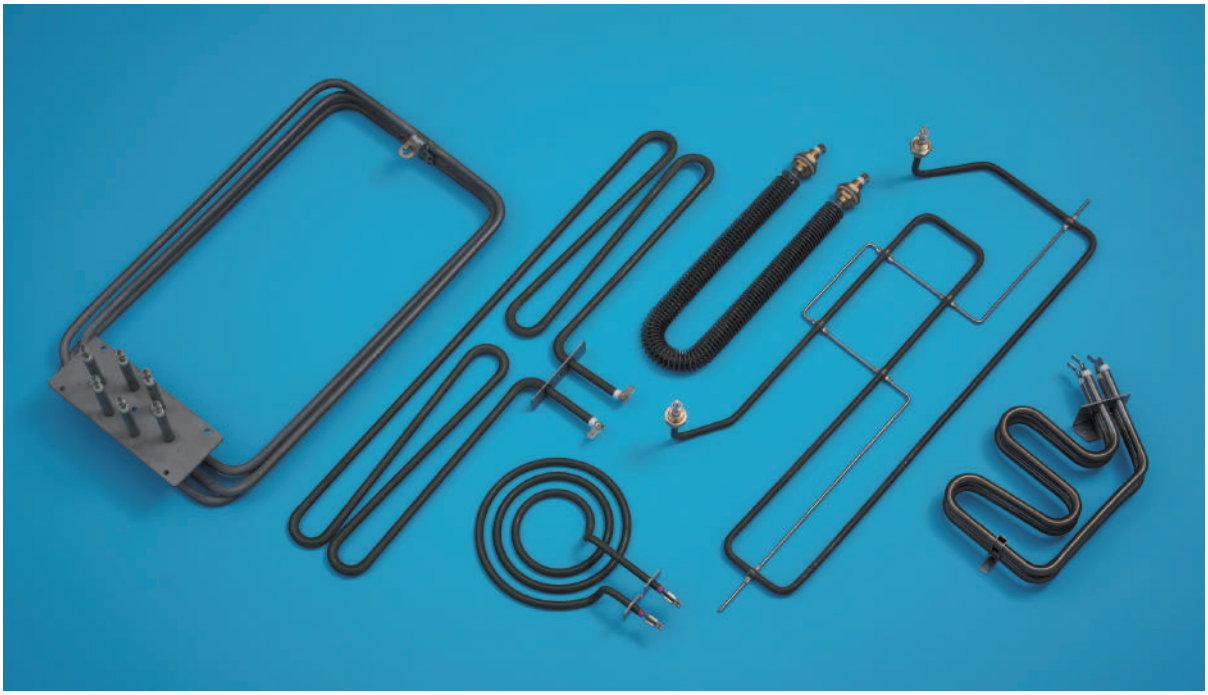
METAL TUBULAR ELEMENTS



BOMAC offer a comprehensive range of Metal Tubular sheathed elements for air heating, immersion and contact applications.

Straight lengths up to 5m can be supplied as well as formed elements to match specific requirements, typically in diameter 6.2mm, 8.0mm and 10.0mm.

Sheath materials, in order of temperature capability are: stainless steel in grades 304, 321, 310S, and Incoloy 800.

Numerous connection types and fittings attached to the cold pin are available, in addition to mounting brackets.

Spiral wound finned elements are available in both 8.0mm & 10.0mm sheath diameters, giving an overall finned diameter of 21mm and 26mm respectively. These offer a more robust alternative to open coil/ribbon heating elements for both convection and forced air heating applications.

They are particularly useful in applications where access to live parts is a problem and a fully electrically insulated element is required.

Typical Applications:

- Domestic and commercial oven grill elements
- Clothes dryer heaters
- Heavy duty immersion heaters
- Appliance spares - cooking rings, grills etc
- Commercial and industrial space heating
- Industrial furnaces
- Load banks

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HEATING COILS

BOMAC produce a wide range of wound resistance wire coils, produced on automatic coiling machines. These are made in various grades of nickel-chrome or iron-chrome aluminium alloys, depending on their application. Coils can be split into specified sections or can be supplied with fitted leads, terminals or prepared ends for terminating.

Size

- Wire sizes range from 0.1mm to 3.0mm diameter
- Coil sizes range from 1mm diameter to 15mm diameter

Typical Applications for air heating elements are:

- Aquarium heaters
- Bakery ovens
- Cast ceramic heaters
- Ceramic top cooker hot plates
- Industrial process heaters
- Tumble dryers
- Space heaters
- Storage and Electricaire heaters

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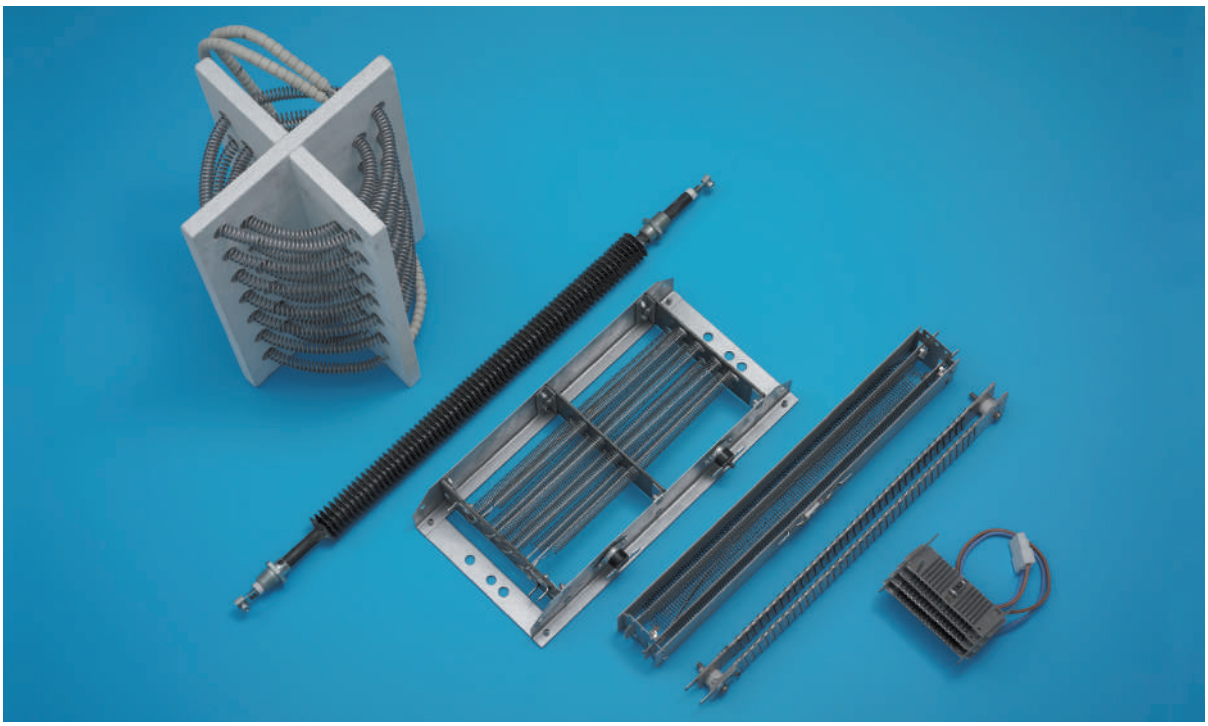
AIR HEATING ELEMENTS



BOMAC produce air heating elements manufactured to individual customer requirements. The heating alloy, either flat tape or coiled wire is suspended between insulating supports, made of ceramic or mica laminate.

Depending on the type of application, elements can be fitted with thermal cut-out devices for overheat protection and temperature control. These can be self reseting or self-hold types. Thermal fuses can also be fitted

Typical Applications for air heating elements are:

- Hand dryers
- Fan heaters
- Convector heaters
- Tumble dryers
- Over door curtains
- Plinth heaters
- Space heaters
- Industrial process heaters

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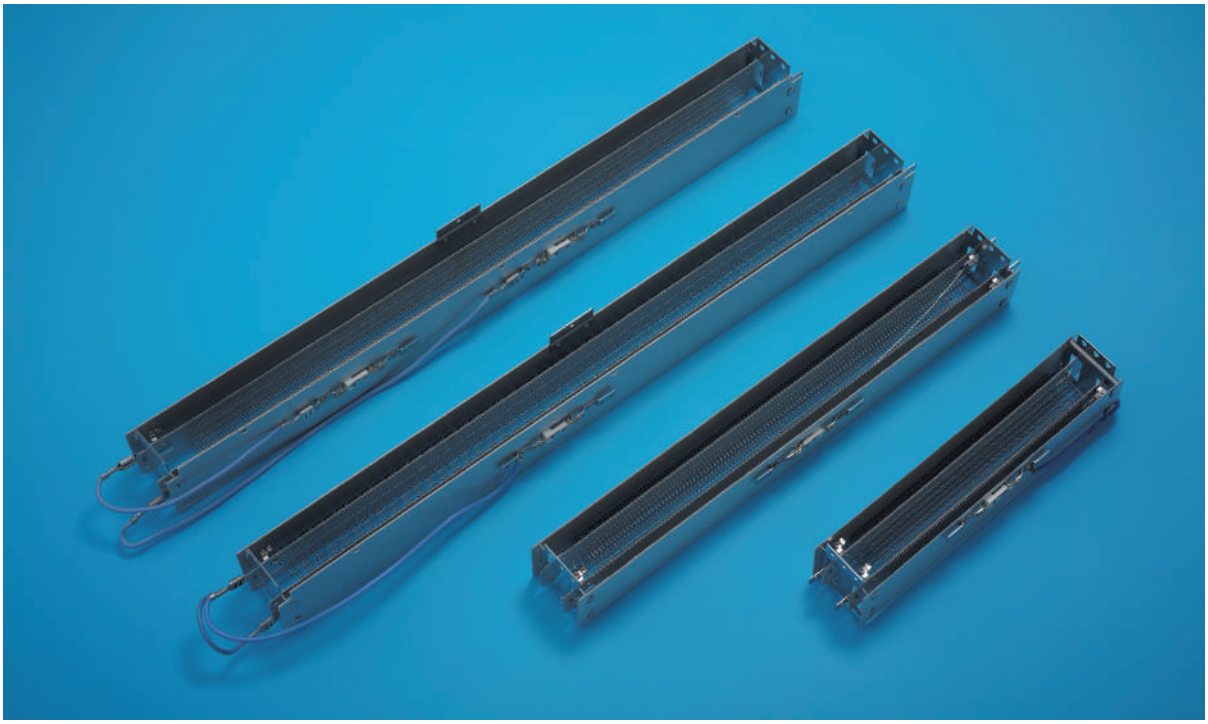
TANGENTIAL BLOWER ELEMENTS



Formed wire elements provide a cost effective and highly efficient solution to forced air heating applications.

Bomac offers a standard range of sizes and power outputs. Elements can also be manufactured to meet special requirements to include alternative lengths and mounting details.

The design allows for optimum positioning of thermal overheat protection cut-outs, providing close thermal coupling. Thermal cut-outs may be integrated as either auto re-setting or PTC self hold, mounted at one end or top centre.
A variety of terminal and lead wire options are available.

STANDARD SIZES	
Fan rotor length, mm	**Ratings**
180	2 x 1kW
240	2 or 3kW
300	2 or 3kW
360	2 or 3kW
420	3 or 4.5kW

Typical applications:

- Fan heaters
- Fuel effect fires
- Over door air curtains
- Plinth heaters

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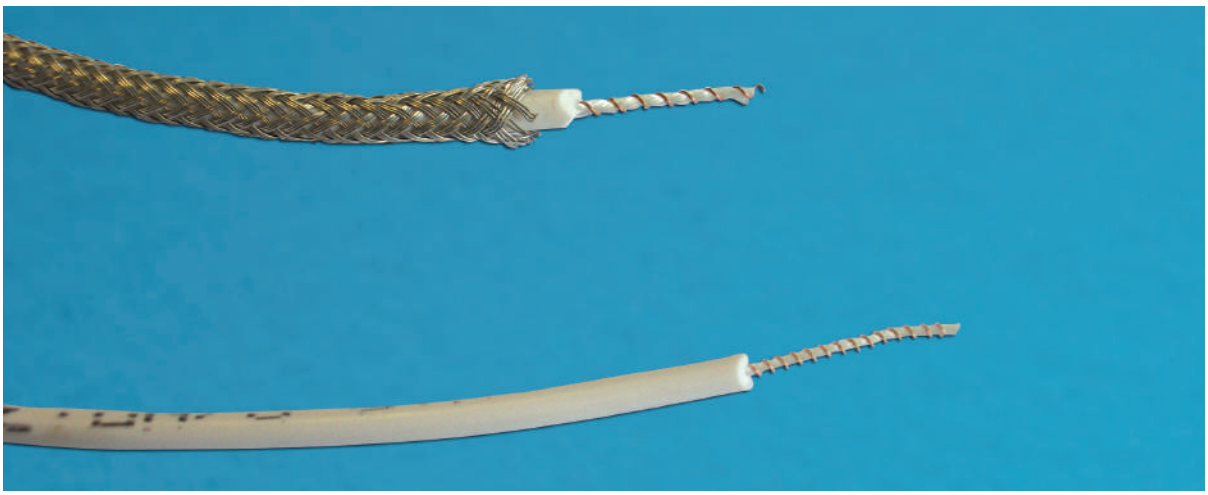
HEATER CABLE



BOMAC Heater cable is the essential core of many Heating Elements and is available in a variety of wattages and constructions

From standard PVC wire to high-temperature silicone with various over-braids, we can provide heater cable to suite many varied applications.

UL approved heater cables can also be supplied upon request.

Typical Applications:

- Refrigeration defrost
- Electric blankets
- Heat pads
- Tire warmers
- Towel rails
- Panel heaters
- Incubators
- IBC Heater jacket

Resistance	0.5 to 5000 ohms per metre	
Insulation	PVC	Silicone rubber
Max. cable surface temperature	105°C	180°C
Min. cable surface temperature	-30°C	-70°C
Heater wire	Copper-Nickel or Nickel-Chrome alloy	
Tolerance	+5% on resistance	
Insulation thickness	0.8mm	0.8mm
Winding carrier	0.7mm fibreglass core	

Options:

- Fibreglass over-braid for mechanical protection
- Tinned copper over-braid for mechanical protection and earthing
- Variable pitch winding to give varied heat zones
- Varied heat zones
- Integral cold leads - offering a totally moisture proof construction
- UL approval

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ALUMINIUM FOIL HEATERS

BOMAC Aluminium foil mat elements are constructed by sealing silicon rubber insulated heater cable between two layers of aluminium foil. The foil acts as a substrate providing a flexible heat sink for thermal transfer, enabling large surface areas to be heated effectively.

Key features of aluminium foil elements:

- Large heated surface areas achievable
- Easy to mount with option of self-adhesive backing
- Power density can be varied to provide low keep-warm temperatures through to a maximum rated temperature of 130°C
- Temperature limiters with pre-set switch points can be integrated to provide temperature control

Typical Applications:

- Room panel heaters
- Commercial catering food serving and display cabinets
- Heated food trolleys
- Plate warmers and keep-warm zones for domestic cooking appliances
- Refrigeration de-frost heaters
- De-mist heaters

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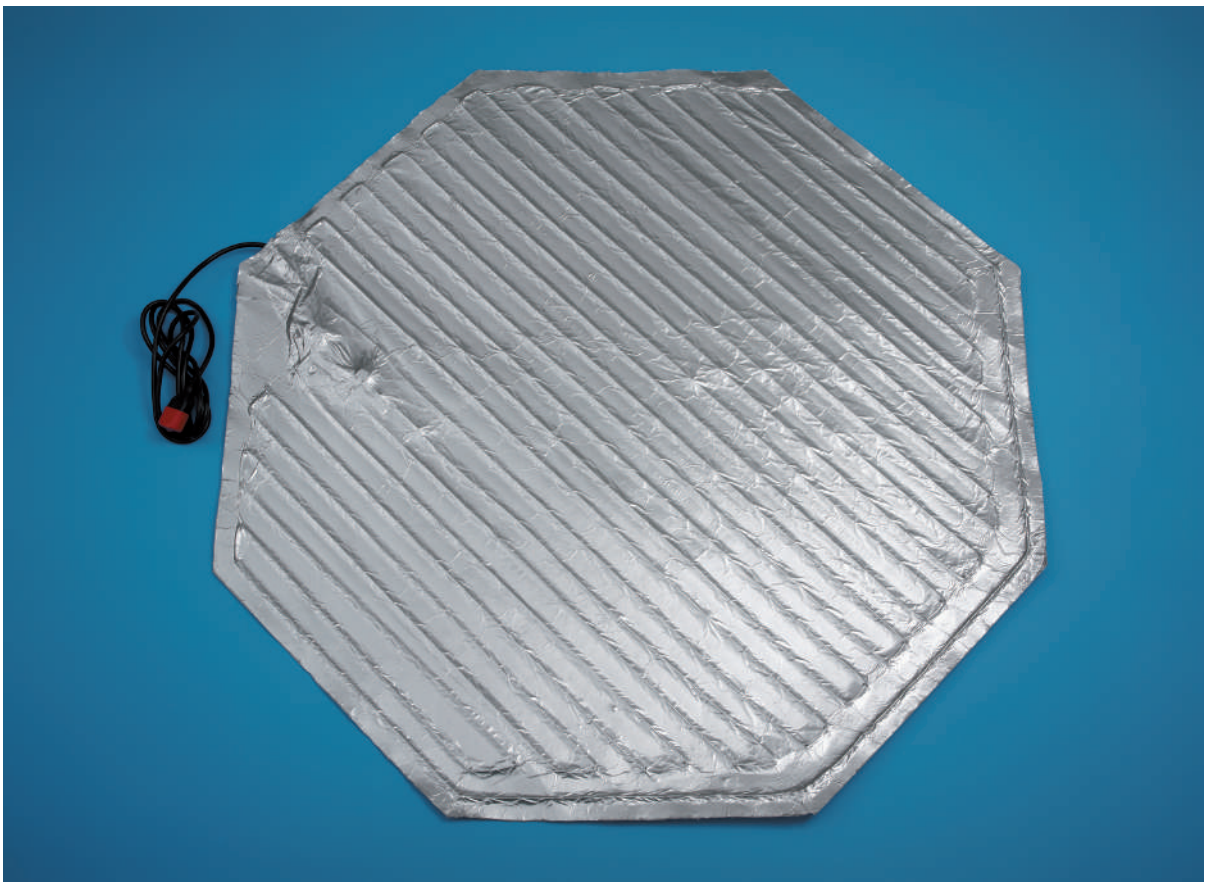
IBC HEATER - SINGLE-TRIP



BOMAC Aluminium foil mat elements provide a cost effective and highly efficient solution to the problem of removing semi-solid products from intermediate bulk containers (IBC).

Foil heaters are manufactured to individual specification for use in a wide variety of intermediate bulk containers; virtually any size/shape/power requirement can be accommodated. Preset temperature limiters are installed to protect both the product from spoiling and the IBC liner from damage due to over temperature. This system provides a fail safe mechanism that can be made for any temperature requirement.

The foil element is normally laid at the base of the container, underneath the flexible bag, but can be designed to cover the lower portion of the side walls if required. This allows semi-solid product to be melted for easy discharge from the container top or bottom valves. The use of an inbuilt heating element completely eliminates the need for hot air rooms or hot water baths.

Typical products discharged using mat heaters:

- Chocolate
- Butter milk
- Caramel
- Vegetable oils
- Liquid cheeses

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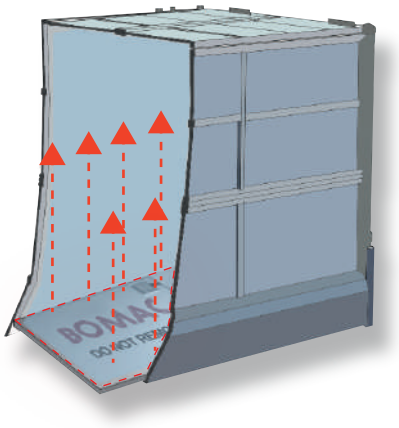
IBC HEATERS - MULTI-TRIP

BOMACre-useable IBC heaters provide a cost effective and highly efficient solution to the problem of removing semi-solid products from intermediate bulk containers (IBC). As they are of robust construction and sealed against the ingress of moisture, they can form part of the rental package offered by bulk storage logistics providers.

IBC Heaters are manufactured to individual specifications for use in a wide variety of intermediate bulk containers; virtually any size/shape/power requirement can be accommodated.

Overall thickness is kept to a minimum by employing our unique aluminium plate sandwich construction thus enabling them to be used in plastic collapsible totes where space is limited.



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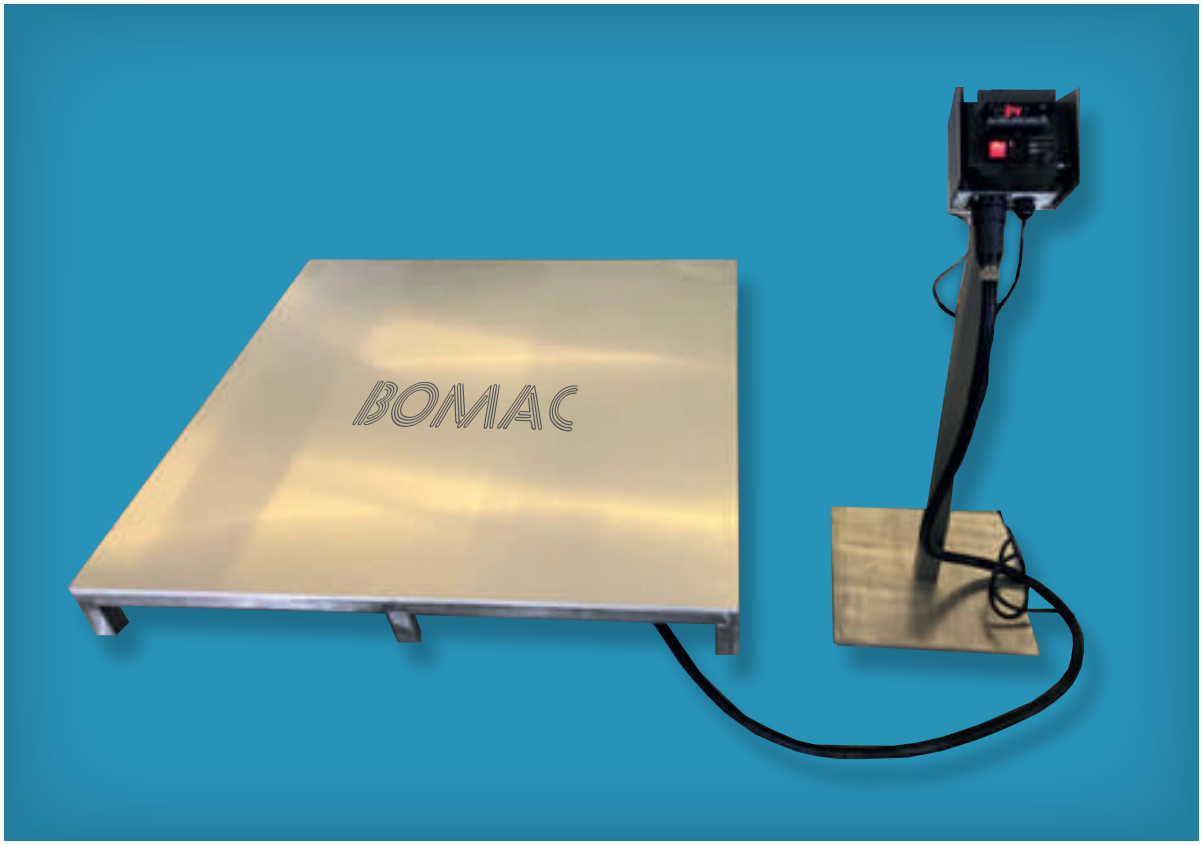
IBC HEATING TABLE



BOMAC produce a stainless steel heating table for use as a platform to thermally heat products in intermediate bulk containers (IBC) units. They are used to heat up the IBC from the outside of the unit rather than the inside which allows for transfer of IBC to alternative platform if required. The heater comes with a remote control panel PT100 mounted on a stand.

Standard Specification :

- 1x1m dimensions
- Stainless steel with an adhesive backed aluminium foil heating element
- 230V 2700W
- Collapsible stand for logistical purposes

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SERVER EMULATORS

With the increasing power consumption and heat generated from the latest server technology it has become imperative to estimate the environmental and power demand before either data centres are built or equipment installed in existing data centres.

To emulate, in so far as is possible, those demands there is a choice between just placing fan heaters which are unsuitable in terms of air flow and temperature measurement and unreliable in performance for a 'best guess' or renting expensive OEM server emulators which are often over complicated and full of redundant features such as fan speed control and temperature measurement displays.

Bomac fills that gap between expensive overcomplicated equipment and the simple but inaccurate employment of space heaters to simulate the full environmental and power demands of modern data centre services.

Bomac can provide either standard 19" 6U 4kW server emulators or if required a custom built solution to suit your specific requirements.

Standard Specification:

- Variable power settings 1.0KW, 2.0KW, 3.0KW & 4.0KW at rated voltage
- Airflow: 645 m^3/h (380 CFM) total
- Temperature safety cut-out on heaters (high set point to prevent nuisance tripping)
- Dimensions: 6U x 650 deep x 485 wide
- Power Supply: Dual IEC C20 16A chassis plug at rear
- Handles: 2 x front mounted 1 x rear to assist installation
- Leads and adapters to IEC C20 etc can be supplied

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AC PORTABLE LOAD BANKS

Bomac AC resistive load banks offer a simple, low cost solution ideally suited for the on-site testing of AC power sources such as stand-by emergency generators and UPS systems. Designed for outdoor & indoor use the Bomac load bank gives the user the freedom of a high capacity load in a convenient compact package which is practical, reliable and simple to use. The standard version is rated at 100kW 400VAC but other V/W combinations can be made.

Bomac load banks are mounted on sturdy non-floor marking rubber castors and feature horizontal air discharge to provide a low profile design. Quick-connect load terminals and simple operation allow the load bank to be set up and operated by a single technician, saving valuable time in the field.

An integral control panel is provided for operation which consists of sturdy neon indicated rocker switches to easily set up and indicate the desired load. Also provided is a main control on/off switch with indication and for safety a locking push button E-stop.

Specification (100kW unit)

- Variable power settings 5 x 1.0KW, 3 x 5.0KW, 4 x 10.0KW & 2 x 20.0KW at rated voltage
- Airflow: 11400 m^3/h
- Highly efficient stainless steel finned metal tubular heating elements
- Optional true off delay timer to ensure unit is fully cooled before fan shut down
- Power supplied via rear panel mounted, non interchangeable, fast connection, twist lock safety connectors for external cables. L1, L2, L3 N & Earth
- HRC fuse protection, fan failure shut down, over temperature cut-outs and E-Stop push button for safety
- Approximate dimensions: 1050mmL x 830mmW x 1070mmH
- Power leads terminated with safety twist lock connectors and eyelugs can be supplied to desired length (5m typical)

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AUTOMATED OIL SYSTEMS

BOMAC produce a self-fill/self-emptying freestanding containment tank system that offers multiple fill and emptying options; allowing clean, simple storage and collection of waste oil.

The simple standalone tanks require no fixed installation and no additional ancillaries, although many fixed installations may be accommodated.

Tanks are supplied with a built-in level telemetry system, featuring visual traffic light indication. Level telemetry data may be viewed via a web portal to monitor oil usage and analyse oil rebates. Email alerts are sent in accordance to tank status.

Standard Specification:

- 520/850 Litre capacity
- Fully enclosed, stainless steel construction
- Removable top cover, allows for easy installation and servicing
- Individually adjustable, stainless steel legs with non-scratch bottom pads for varied ceiling heights and uneven surfaces; thus protecting floors
- Integrated 36L/min 1/2hp oil pump for filling and emptying
- C13 power outlet for grease/oil caddy connection
- Power requirements 220-240V 13A
- 520L - 612mm W x 612mm D x 2050-2150mm H (adjustable)
- 850L - 762mm W x 762mm D x 2050-2150mm H (adjustable)

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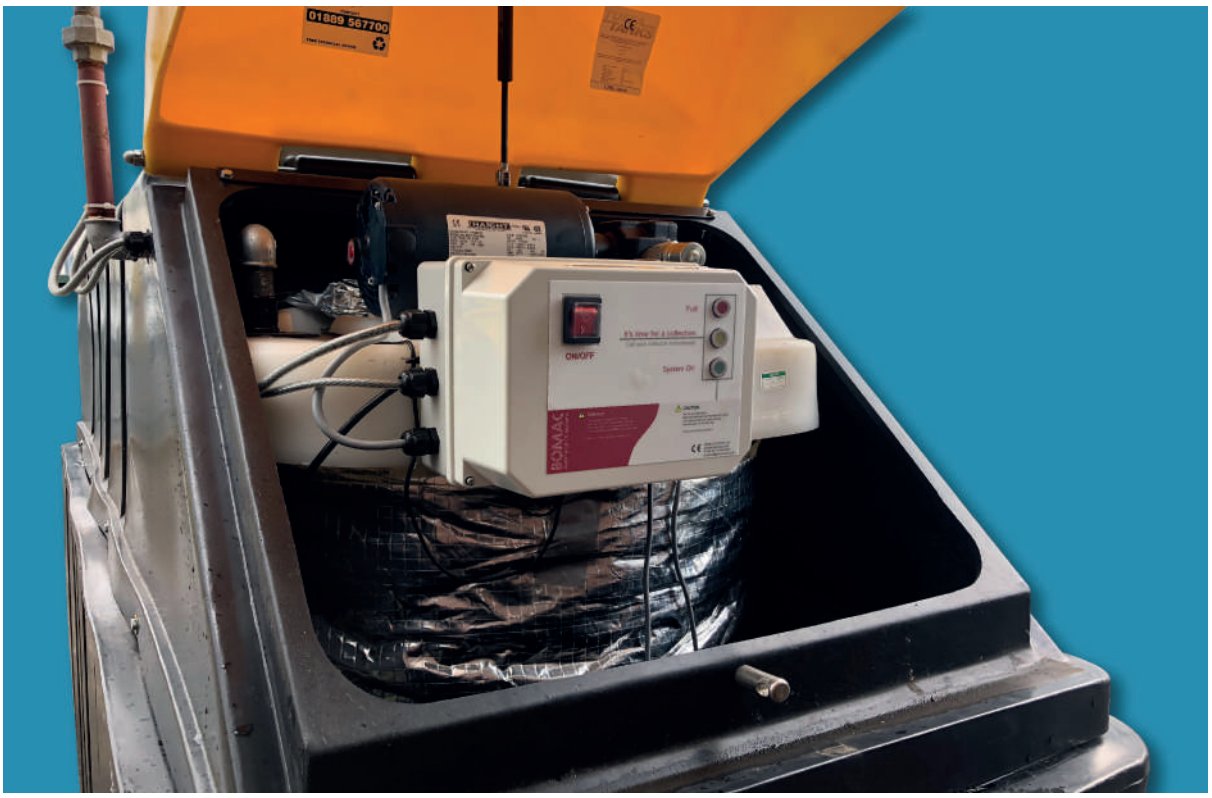
AUTOMATED OIL SYSTEMS



BOMAC produce a bunded external containment tank system that can offer multiple fill and emptying options.

The outdoor tank is quick and easy to position, requiring no fixed installation and no additional ancillaries, although many fixed installations may be accommodated.

The heated tank is insulated and the temperature regulated via a digital temperature controller. The thermal controller regulates tank temperature in varying climates to ensure the oil remains in a liquid state for ease of recovery. Maximum safety and cost efficiency is maintained in even the harshest of environments.

Tanks are supplied with a built-in telemetry system, featuring visual traffic light indication. Level telemetry data may be viewed via a web portal to monitor oil usage and analyse oil rebates. Email alerts are sent in accordance to tank status.

Standard Specification:

- 1350L capacity bunded tank, thermally insulated
- High output, high efficiency 1/2hp 38l/min steel concentric gear pump
- Digital temperature controller
- Power requirements 220-240V 13A
- 2680mm W x 880mm D x 1690mm H

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AUTOMATED OIL SYSTEMS

BOMAC produce a compact wall mounted oil pump designed to be compatible with our waste oil containment tanks.

The pump allows you to transfer waste oil directly from the fryer using a wand connected to a high temperature rubberised suction pipe.

The waste oil pump features a traffic light system allowing users to view tank status at point of use.

Standard Specification:

- 100% tig welded stainless steel with brushed finish on sides and top cover.
- High output, high efficiency 1/2hp 38L/min steel concentric gear pump.
- Rubber shrouded, red neon lit, splash proof 16A switch as standard.
- High temperature rubberised suction pipe 3/4 bore.
- 403mm W x 252mm D x 223mm H (wall mounted)
- 23kg Weight
- 220-240V 5A Power requirement supplied from tank (No additional socket outlet required)
- Compatible with 520L & 850L waste oil containment tanks

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AUTOMATED OIL SYSTEMS

BOMAC Oil Caddies are compact, portable ancillary equipment for easy handling and transfer of waste oil and grease from cooking equipment to the self-fill/empty containment tank.

The range feature a high strength perforated stainless steel filter basket to catch unwanted food waste to prevent pipework blockage or damage, leading to higher quality oil and therefore maximising revenue return.

A 270W 230V silicone rubber heating element is featured as standard to ensure fats and oils are in low viscosity, highly fluid state.

Standard Specification:

- 100% tig welded stainless steel construction with brushed finished sides and top cover
- Non-scratch nylon, food grade castors allowing easy mobility while preventing damage to floors
- Large high strength perforated stainless steel filter basket
- 270W 230V silicone rubber heating element
- C14 panel mounted power inlet plug to connect directly with containment tanks

Individual Specification:

20L Grill Grease Can	30L Grease Buster	40L Low Level Fryer Caddy
20L Maximum Capacity	30L Maximum Capacity	40L Maximum Capacity
Weight: 10kg	Weight: 17kg	Weight: 17kg
Power Requirements: 220-240V 1.125A	Power Requirements: 220-240V 1.125A	Power Requirements: 220-240V 1.125A
30cmW x 30cmL x 40cmH	42cmW x 42cmL x 35cmH	30cmW x 80cmL x 26cmH

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SERVER RACK WITH ATS MODULE

BOMAC have developed a bespoke system designed to test critical data centre environments, featuring comprehensive abilities of replicating computer server accuracy in terms of heat load, air flow, power and operational efficiency.

Utilised in both new build and refurbishment of data centres, the system temporarily simulates the heat generation and power consumption of computer servers prior to their installation. This enables highly accurate testing and commissioning of network power supply and cooling installation within both small and large facilities.

Standard Specification:

19" 18KW 415V 3PH rack

- 6x3 kW 230V 6U Server emulators
  - 3x1kW Switched
  - K-Type Thermocouples, air in air out
  - LCD Display showing Delta-T, AMPS drawn, supply source in use
- 3PH 4U Switching module
  - Newtork enabled
  - LCD display showing Delta-T, AMPs drawn, supply source in use
  - Manual or remote switching of power source, A or B
  - Power supply redundancy enabled
  - 32A 415V

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SERVER EMULATOR with AB supply redundancy

Bomac can now offer Rack Server Emulators fully power supply redundancy enabled. This provides the emulator with the ability to operate at full power, automatically, with either A & B or only A or B power supplies thus mimicking a servers ability to tolerate power supply failure.

This feature has been integrated into our 4kW 6U emulator, together with the provision of RCBO circuit breakers, as a result of customer requirements. We would be pleased to consider requests for any bespoke design of emulator involving special requirements for cabinet size, power rating, air flow or switching arrangements and are able to provide a quick and flexible approach. We can also offer purpose built robust carrying cases for the safe transport and storage of our server emulators. These are of fibre board and wood construction, foam lined with sturdy carrying handles.

Standard Specification:

- Variable power settings : 1.0, 2.0, 3.0 & 4.0kW at rated voltage.
- Power supply: Dual IEC C20 (UL 20A) chassis plugs at rear of cabinet.
- Supply redundancy feature: In the event of a power loss to either power supply the emulator automatically switches to draw full power from the remaining supply.
- Circuit protection: 2 x RCBO breakers mounted on the front panel.
- Fans: 4 x axial fans with a rate bearing life of 30,000/50,000h giving a maximum airflow of 700cu.m/h (410CFM).
- Heating load: 4 x mineral insualted stainless steel sheathed and finned elements each rated at 1kW.
- Thermal protection: Manual re-set thermal cut outs are fitted to each heating element to prevent overheating in the event of the loss of airflow.
- Leads with IEC connectors can be supplied to specification.
- Handles: 2 x front mounted and 1 X rear to assist insulation.
- Dimensions: 6U x 650mm D x 485mm W.

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