

## CATALOGUE

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## Why Globe Heat Treatment?

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Founded in 1977 by Mr Frank Fisher, Globe Heat Treatment Services Ltd has grown from a family run business operating in a small workshop, into a globally recognised manufacturer and worldwide supplier of electrical heat treatment equipment and high velocity gas sets. These are designed and manufactured in-house by our team of highly skilled engineers and technicians. We are also able to offer a range of heat treatment services both in our workshops and in-house furnace.

The 'Globe Heat' brand is now internationally recognised as being associated with high quality heat treatment equipment which meets the needs and standards of the global heat treatment market. Although Globe has grown into a global supplier, we have maintained the family business traditions so that our customers benefit from the personalised service which Globe was established on.

Globe have now been supplying the global industrial market with heat treatment equipment for over 40 years. Globe's equipment provides the user with the ability to accurately, efficiently and cost effectively carry out the heat treating of pipe welds, welded fabrications, vessels and structures.

Our experienced engineering team have a wide knowledge of the heat treatment industry and its needs. Unique expertise enables them to provide advice and guidance on your heat treatment requirements. We manufacture all our products in the UK and export worldwide, directly from our workshop in North West England. Being close to the UK motorway networks, transportation to the port of Liverpool and airports in Manchester and Liverpool, makes our location ideal for the fast and efficient exporting of our products to the global market by road, air or sea.

Our ISO 9001: 2015 certification enables us to ensure that our products are designed and built to a high safety standard from quality components and materials. The modern designs of our transformers and heat treatment centres ensure that the equipment we manufacture is safe, reliable, durable and easy to use. Our friendly and professional sales team will assist with any queries you may have about our products and ensure that you receive an excellent service and products at competitive prices.

Globe Heat Treatment Services Limited


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In this catalogue all stated dimensions, weights and power ratings are nominal.



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## Glossary

### HEAT TREATMENT TERMS

**Heat treatment** of metals is a name for a range of heating processes that are used to improve or change the characteristics, qualities or performance of a metal.

**Post weld heat treatment (PWHT)** is a temperature-controlled process applied to a metal that has been welded. The PWHT process is most commonly applied to a metal in order to reduce the brittle hardness in the weld and, to reduce the residual stresses that have been created in the metal due to the welding process. During the process, the weld is reheated at a controlled rate to a temperature below its lower critical transformation temperature. It is then held (soaked) at that temperature for a specified amount of time, then cooled down at a controlled rate.

**Preheating** is the process of heating a material before welding. However, it has become common in the heat treatment and welding industry to also use this (preheating) term for heating material during the welding process. By applying a background heat to the parent material during the welding process, the rate at which the temperature of the weld and parent material drops is reduced. This results in a reduced rate of cooling, which in turn reduces the hardness of the weld, thus reducing the risk of weld fracture or failure. This background heating (preheating) also reduces the induced stress in the material being welded by reducing the rate at which the temperature radiating away from the weld drops off (this is also known as reducing the temperature gradient).

**Stress relieving** is a heat treatment process which is aimed at removing or reducing the internal stresses in a metal that have been created by processes such as welding, uneven cooling, uneven heating or cold working etc. Stress relieving is achieved by uniformly heating the stressed metal below the material's lower critical temperature and then cooling the heated area uniformly, under controlled conditions.

**Annealing** is the heat treatment process where steels are heated above their 'transformation' temperature which is then followed by a slow cool. This has the effect of increasing its ductility and reducing its hardness.

**Normalising** is a similar heat treatment process to annealing, the difference being that once the required temperature (dependent upon the material) is reached, the metal is then cooled in still air, which results in a faster cooling rate. This process improves the grain structure of the material which may have been affected by welding or cold working, improves the materials machinability and reduces the material's hardness.

**Solution annealing** is a heat treatment process which is usually applied to certain stainless steels. The steel is typically heated to a temperature of between 1000°C and 1150°C. Once the required temperature is reached, the steel is cooled at a very fast rate. After solution annealing the material has improved ductility and corrosion resistance.

### ELECTRICAL TERMS

**Voltage (V):** measured in volts (V) can be thought of as electric pressure. It is the difference in electric potential between two points.

**Current (I):** measured in amperes / amps (A) can be thought of as the flow, and electricity through, for example, a cable or heating element.

**Resistance (R):** measured in ohms ( $\Omega$ ) can be thought of as the opposition to the flow of electricity which, if the resistance and voltage is high enough, can cause a heating effect in the cable or heating element which the electricity is flowing through.

**Power (P):** measured in watts (W) which in this respect, relates to electrical power is the rate, per unit of time, at which electrical energy is transferred by an electric circuit. It is the rate of doing work. In terms of heating it is the power required to heat an object up. Often referred to in terms of kilowatts which is 1000 watts.

### TYPES OF HEAT TRANSFER IN HEAT TREATMENTS

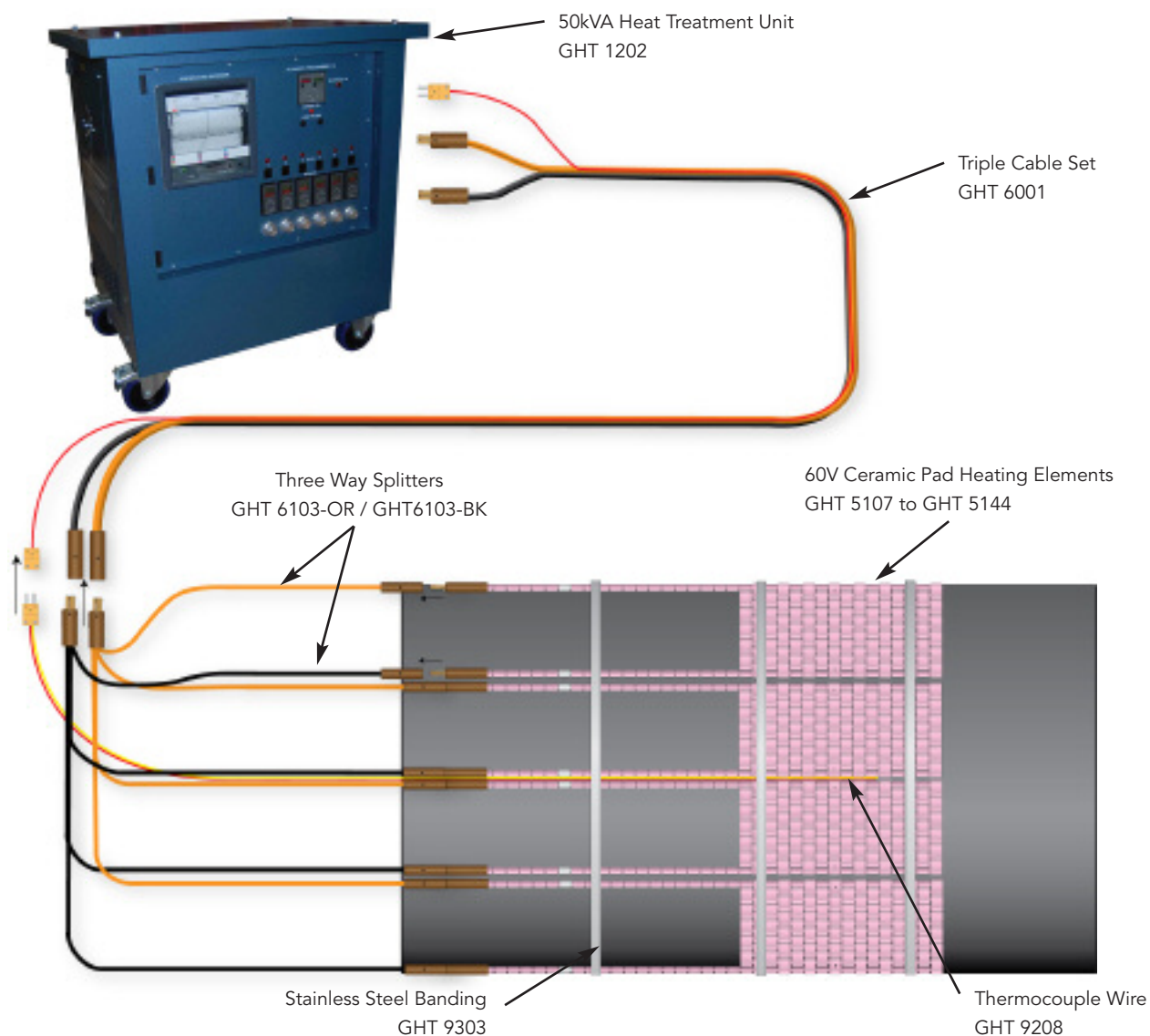
**Radiation** relies upon infrared radiation travelling through a space from the source of the radiation to the object being heated.

**Convection** relies upon the air being heated by a heat source and then moved to the object to be heated by hot air naturally rising or by means of an air convector such as a fan.

**Conduction** relies upon the heat source being in direct contact with the object being heated, to enable the heat to travel from the body of the heat source, to the body of the object to be heated. When we use ceramic pad heating elements to carry out preheating (or post weld heat treatment) we are mainly using conducted heat, as the heaters are in direct contact with the workpiece being heated.



## Example Set of Heat Treatment Equipment



Product Code	Description	Quantity	Page
GHT 1202	50kVA heat treatment unit with P183 six channel programmer, six P159TDA controllers and a twelve channel Chino recorder	1	7
GHT 6001	135A, 30m triple cable set	6	27
GHT 6103-OR	Three way splitters (orange)	6	27
GHT 6103-BK	Three way splitters (black)	6	27
GHT 5107 to GHT 5144	60V ceramic pad heating elements	18	22
GHT 7000 to GHT 7107	Superwool or meshed insulation mats	18	36
GHT 4100	GTW-V50 Thermocouple Welder, variable	1	19
GHT 9208	Thermocouple wire, type K, 0.711mm high density glass insulation	1	20
GHT 9046	Thermocouple plug, solid pin, type K	6	31
GHT 9301	Banding machine	1	38
GHT 9303	Stainless steel banding, 30m roll	2	38
GHT 9304	Stainless steel banding clips, box of 100	1	38
GHT 9305	Iron tie wire, 25kg roll	1	38



## Mobile Heat Treatment Units



### Features

- The front control panels includes:
  - six P159TDA single channel temperature controller/programmers
  - six energy regulators
  - six auto/manual selector switches which allow the use of a six channel external temperature controller/programmer
  - six type K thermocouple panel mounted input sockets
  - twelve 0V and 65V output, 300A panel mounted twistlock sockets

### Product Code: GHT 1001

#### Product: 50kVA Mobile Heat Treatment Unit

This 50kVA six control channel unit, utilises six P159TDA temperature controller/programmers, to provide power and temperature control of up to eighteen ceramic pad heating elements rated at 65V, 45A, 2.7kW. This controlled power is used for preheating or post weld heat treatment of pipe welds, fabrication welds and other fabrications requiring controlled heating.

### Product Code: GHT 1101

#### Product: 70kVA Mobile Heat Treatment Unit

This 70kVA six control channel unit, utilises six P159TDA temperature controller/programmers, to provide power and temperature control of up to twenty four ceramic pad heating elements rated at 65V, 45A, 2.7kW. This controlled power is used for preheating or post weld heat treatment of pipe welds, fabrication welds and other fabrications requiring controlled heating.

**Application:** These units have been designed and manufactured for use on site in a variety of global industrial environments or inside a workshop. The chassis trolley design enables the unit to be easily moved around in typical site conditions.

- The rear panel includes:
  - ventilation fan
  - moulded case circuit breaker (MCCB)
  - multi pin panel mounted plug for use with external temperature controller/programmer
  - six type K panel mounted thermocouple output sockets for connection to external temperature recorder
  - three 110V auxiliary sockets for supplying power to:
    - external temperature recorder
    - external six channel temperature controller/programmer
    - thermocouple attachment unit (TAU) for recharging



Specification	
Primary Input Supply Voltage & Current	<ul style="list-style-type: none"> <li>• 50kVA units : Three phase, 380V (75A) , 415V (69A) or 440V (65A)</li> <li>• 70kVA units : Three phase, 380V (106A) , 415V (97A) or 440V (92A)</li> </ul>
Frequency	50/60Hz
Secondary Output Voltage	65V a.c.
Transformer Coil	<ul style="list-style-type: none"> <li>• 50kVA unit : 50kVA Natural air cooled, class H</li> <li>• 70kVA unit : 70kVA Natural air cooled, class H</li> </ul>
Maximum Total Number of 2.7kW Ceramic Heating Elements	<ul style="list-style-type: none"> <li>• 50kVA unit : eighteen</li> <li>• 70kVA unit : twenty four</li> </ul>
Maximum Number of 2.7kW Heaters per Channel and per Phase	<ul style="list-style-type: none"> <li>• 50kVA unit three per channel : six per phase</li> <li>• 70kVA unit four per channel : eight per phase</li> </ul>
Protection	Over temperature sensor in each winding and three phase MCCB with shunt trip
Thermocouple Input and Output	Type K (NiCr/NiAl)
Temperature Control	Six P159TDA controller/programmers : Range: 0 to 1200°C
Switching	Six, UK manufactured single pole 200A contactors
Secondary 65V Output Connectors	Twelve 300A panel mounted twistlock sockets
Auxiliary Outputs	Three 110V auxiliary sockets
External Six Channel Controller/Programmer Connection	One 'Bulgin' 7 Pin panel mounted plug
Case	Mild steel, blue powder coated (stainless steel available on request)
Dimensions (including wooden packing box)	123cm x 67cm x 108cm
Weight	<ul style="list-style-type: none"> <li>• 50kVA unit : 360kg</li> <li>• 70kVA unit : 410kg</li> </ul>
Design Standards	EMC: EN 61326: 1998, LVD: EN 61010-1: 2001



## Mobile Heat Treatment Units with Built-In P183 Programmer



### Features

- The front control panels includes:
  - one P183 six channel controller/programmer
  - six type K thermocouple panel mounted input sockets
  - twelve 0V and 65V output , 300A panel mounted twistlock sockets

### Product Code: GHT 1002

**Product:** 50kVA Mobile Heat Treatment Unit with Built-In P183 Six Channel Programmer

This 50kVA six control channel unit, utilises a built-in P183 temperature controller/programmer, to provide power and temperature control of up to eighteen ceramic pad heating elements rated at 65V, 45A, 2.7kW. This controlled power is used for preheating or post weld heat treatment of pipe welds, fabrication welds and other fabrications requiring controlled heating.

### Product Code: GHT 1102

**Product:** 70kVA Mobile Heat Treatment Unit with Built-In P183 Six Channel Programmer

This 70kVA six control channel unit, utilises a built-in P183 temperature controller/programmer, to provide power and temperature control of up to twenty four ceramic pad heating elements rated at 65V, 45A, 2.7kW. This controlled power is used for preheating or post weld heat treatment of pipe welds, fabrication welds and other fabrications requiring controlled heating.

**Application:** These units have been designed and manufactured for use on site in a variety of global industrial environments or inside a workshop. The chassis trolley design enables the unit to be easily moved around in typical site conditions.

- The rear panel includes:
  - ventilation fan
  - moulded case circuit breaker (MCCB)
  - six type K panel mounted thermocouple output sockets for connection to external temperature recorder
  - three 110V auxiliary sockets for supplying power to:
    - external temperature recorder
    - thermocouple attachment unit (TAU) for recharging



Specification	
Primary Input Supply Voltage & Current	<ul style="list-style-type: none"> <li>• 50kVA units : Three phase, 380V (75A) , 415V (69A) or 440V (65A)</li> <li>• 70kVA units : Three phase, 380V (106A) , 415V (97A) or 440V (92A)</li> </ul>
Frequency	50/60Hz
Secondary Output Voltage	65V a.c.
Transformer Coil	<ul style="list-style-type: none"> <li>• 50kVA unit : 50kVA Natural air cooled, class H</li> <li>• 70kVA unit : 70kVA Natural air cooled, class H</li> </ul>
Maximum Total Number of 2.7kW Ceramic Heating Elements	<ul style="list-style-type: none"> <li>• 50kVA unit : eighteen</li> <li>• 70kVA unit : twenty four</li> </ul>
Maximum Number of 2.7kW Heaters per Channel and per Phase	<ul style="list-style-type: none"> <li>• 50kVA unit three per channel : six per phase</li> <li>• 70kVA unit four per channel : eight per phase</li> </ul>
Protection	Over temperature sensor in each winding and three phase MCCB with shunt trip
Thermocouple Input and Output	Type K (NiCr/NiAl)
Temperature Control	P183 six channel controller/programmer : Range: 0 to 1200°C
Switching	Six, UK manufactured single pole 200A contactors
Secondary 65V Output Connectors	Twelve 300A panel mounted twistlock sockets
Auxiliary Outputs	Three 110V auxiliary sockets
Case	Mild steel, blue powder coated (stainless steel available on request)
Dimensions (including wooden packing box)	123cm x 67cm x 108cm
Weight	<ul style="list-style-type: none"> <li>• 50kVA unit : 360kg</li> <li>• 70kVA unit : 410kg</li> </ul>
Design Standards	EMC: EN 61326: 1998, LVD: EN 61010-1: 2001



GHT 1201 &amp; GHT 1204



GHT 1202 &amp; GHT 1205



GHT 1203 &amp; GHT 1206

**Product:** Globe's range of 50kVA and 70kVA, six channel heat treatment centres, provide a complete solution for most heat treatment processes. The power transformer, switching, temperature recording and temperature profile programmer/controller instruments are all enclosed in a single mobile unit. These heat treatment centres provide power and temperature control of ceramic pad heating elements rated at 60V, 45A, 2.7kW across six control channels. This controlled power is used for preheating or post weld heat treatment of pipe welds, fabrication welds and other fabrications requiring controlled heating.

**Application:** These units have been designed and manufactured for use on site in a variety of global industrial environments or inside a workshop. The chassis trolley design enables the unit to be easily moved around in typical site conditions.

## 50kVA Mobile Heat Treatment Centres



### Product Code: GHT 1201

**Product:** 50kVA Six Way Heat Treatment Centre with Six Channel P183 Programmer, a Chino 12 Point Recorder and Six Ammeters

### Product Code: GHT 1202

**Product:** 50kVA Six Way Heat Treatment Centre with Six Channel P183 Programmer, Six P159TDA Programmer/Controllers, a Chino 12 Point Recorder and Six Ammeters

### Product Code: GHT 1203

**Product:** 50kVA Six Way Heat Treatment Centre with One PTC160 Programmer, Six P159TDA Programmers/Controllers, a Chino 12 Point Recorder and Six Ammeters

## 70kVA Mobile Heat Treatment Centres



### Product Code: GHT 1204

**Product:** 70kVA Six Way Heat Treatment Centre with Six Channel P183 Programmer, a Chino 12 Point Recorder and Six Ammeters

### Product Code: GHT 1205

**Product:** 70kVA Six Way Heat Treatment Centre with Six Channel P183 Programmer, Six P159TDA Programmer/Controllers, a Chino 12 Point Recorder and Six Ammeters

### Product Code: GHT 1206

**Product:** 70kVA Six Way Heat Treatment Centre with One PTC160 Programmer, Six P159TDA Programmer/Controllers, a Chino 12 Point Recorder and Six Ammeters

Specification	
Primary Input Supply Voltage & Current	<ul style="list-style-type: none"> <li>50kVA units : Three phase, 380V (75A) , 415V (69A) or 440V (65A)</li> <li>70kVA units : Three phase, 380V (106A) , 415V (97A) or 440V (92A)</li> </ul>
Frequency	50/60Hz
Secondary Output Voltage	65V a.c.
Transformer Coil	<ul style="list-style-type: none"> <li>50kVA unit : 50kVA Natural air cooled, class H</li> <li>70kVA unit : 70kVA Natural air cooled, class H</li> </ul>
Maximum Total Number of 2.7kW Ceramic Heating Elements	<ul style="list-style-type: none"> <li>50kVA units : eighteen</li> <li>70kVA units : twenty four</li> </ul>
Maximum Number of 2.7kW Heaters per Channel and per Phase	<ul style="list-style-type: none"> <li>50kVA unit three per channel : six per phase</li> <li>70kVA unit four per channel : eight per phase</li> </ul>
Protection	Over temperature sensor in each winding and three phase MCCB with shunt trip
Thermocouple Input and Output	Type K (NiCr/NiAl)
Secondary 65V Output Connectors	Twelve 300A panel mounted twistlock sockets
Auxiliary Outputs	Two 110V auxiliary sockets
Case	Mild steel, blue powder coated (stainless steel available on request)
Dimensions (including wooden packing box)	112cm x 98cm x 132cm
Weight	<ul style="list-style-type: none"> <li>50kVA unit : 420kg</li> <li>70kVA unit : 460kg</li> </ul>
Design Standards	EMC: EN 61326: 1998, LVD: EN 61010-1: 2001







GHT 1207 &amp; GHT 1210



GHT 1208 &amp; GHT 1211



GHT 1209 &amp; GHT 1212

**Product:** Globe's range of 100kVA and 130kVA, twelve channel heat treatment centres, provide a complete solution for most heat treatment processes with the power transformer, switching, temperature recording and temperature profile programmer/controller instruments enclosed in a single mobile unit.

These heat treatment centres provide power and temperature control of ceramic pad heating elements rated at 60V, 45A, 2.7kW across twelve control channels. This controlled power is used for preheating or post weld heat treatment of pipe welds, fabrication welds and other fabrications requiring controlled heating.

**Application:** These units have been designed and manufactured for use on site in a variety of global industrial environments or inside a workshop. The chassis trolley design enables the unit to be easily moved around in typical site conditions.

## 100kVA Mobile Heat Treatment Centres



### Product Code: GHT 1207

**Product:** 100kVA Twelve Way Heat Treatment Centre with two Six Channel P183 Programmers, a Chino 12 Point Recorder and Twelve Ammeters

### Product Code: GHT 1208

**Product:** 100kVA Twelve Way Heat Treatment Centre with two Six Channel P183 Programmers, Twelve P159TDA Programmer/Controllers, a Chino 12 Point Recorder and Twelve Ammeters

### Product Code: GHT 1209

**Product:** 100kVA Twelve Way Heat Treatment Centre with two PTC160 Programmers, Twelve P159TDA Programmers/Controllers, a Chino 12 Point Recorder and Twelve Ammeters.

## 130kVA Mobile Heat Treatment Centres



### Product Code: GHT 1210

**Product:** 130kVA Twelve Way Heat Treatment Centre with two Six Channel P183 Programmers, a Chino 12 Point Recorder and Twelve Ammeters

### Product Code: GHT 1211

**Product:** 130kVA Twelve Way Heat Treatment Centre with two Six Channel P183 Programmer, Twelve P159TDA Programmer/Controllers, a Chino 12 Point Recorder and Twelve Ammeters

### Product Code: GHT 1212

**Product:** 130kVA Twelve Way Heat Treatment Centre with two PTC160 Programmer, Twelve P159TDA Programmer/Controllers, a Chino 12 Point Recorder and Twelve Ammeters.

Specification	
Primary Input Supply Voltage & Current	<ul style="list-style-type: none"> <li>100kVA units : Three phase, 380V (152A), 415V (139A) or 440V (131A)</li> <li>130kVA units : Three phase, 380V (198A), 415V (181A) or 440V (171A)</li> </ul>
Frequency	50/60Hz
Secondary Output Voltage	65V a.c.
Transformer Coil	<ul style="list-style-type: none"> <li>100kVA units : 100kVA Natural air cooled, class H</li> <li>130kVA units : 130kVA Natural air cooled, class H</li> </ul>
Maximum Total Number of 2.7kW Ceramic Heating Elements	<ul style="list-style-type: none"> <li>100kVA units : thirty six</li> <li>130kVA units : forty eight</li> </ul>
Maximum 2.7kW Heaters per Channel and per Phase	<ul style="list-style-type: none"> <li>100kVA units : three per channel : twelve per phase</li> <li>130kVA units : four per channel : sixteen per phase</li> </ul>
Protection	Over temperature sensor in each winding and three phase MCCB with shunt trip
Thermocouple Input and Output	Type K (NiCr/NiAl)
Secondary 65V Output Connectors	Twenty four 300A panel mounted twistlock sockets
Auxiliary Outputs	Two 110V auxiliary sockets
Case	Mild steel, blue powder coated (stainless steel available on request)
Dimensions (including wooden packing box)	116cm x 116cm x 150cm
Weight	<ul style="list-style-type: none"> <li>100kVA units : 620kg</li> <li>130kVA units : 775kg</li> </ul>
Design Standards	EMC: EN 61326: 1998, LVD: EN 61010-1: 2001

## 50kVA 36 Way Mobile Heat Treatment Unit with Six Built-In P183 Programmers



**Product Code:** GHT 123855

**Product:** 50kVA, 36 Way Unit with Six Built-In P183 Programmers

This 50kVA, thirty six control channel unit, utilises six built-in P183 temperature controller/programmers to provide power and temperature control of up to thirty six ceramic pad heating elements rated at 30V, 45A, 1.35kW. This controlled power is used for preheating or post weld heat treatment of smaller diameter pipe welds, fabrication welds and other fabrications requiring controlled heating.

**Application:** Where larger quantities of small diameter pipe welds require heat treating (e.g. boiler tubes), there are significant cost savings in utilising a unit that has been both specially designed for small diameter pipe or tube welds, and has a larger number of control channels. This unit is able to power and control one heater on each of its thirty six outputs, which enables it to be used in place of using six, standard 50kVA six channel units, which can only be used for heat treating a maximum of six pipe welds. Whereas, Globe's thirty six channel unit can heat up to thirty six smaller pipe welds at one time using the same 50kVA output power.

By utilising this one, 50kVA thirty six channel unit in place of six, 50kVA six channel units, there are savings in capital outlay costs, along with the added benefits of having less machines to deliver and move on site. This results in reduced set up times, making this a more efficient and productive way of heat treating smaller welds.

### Features

- The front control panels includes:
  - six P183 six channel controller/programmers
  - thirty six channel neon indicators to show when each channel output power is on
  - moulded case circuit breaker (MCCB)
  - thirty six 0V and 32.5V output, 60A panel mounted twistlock sockets
- The rear panel includes:
  - thirty six type K thermocouple panel mounted input sockets
  - thirty six type K panel mounted thermocouple output sockets for connection to external temperature recorder
  - three 110V auxiliary sockets for supplying power to:
    - external temperature recorders
    - thermocouple attachment unit (TAU) for recharging



Specification	
Primary Input Supply Voltage	Three phase, 380V (76A), 415V (70A) or 440V (66A)
Frequency	50/60Hz
Secondary Output Voltage	65V a.c.
Transformer Coil	50kVA Natural air cooled, class H
Maximum Total Number of 30V, 1.35kW Heaters	Thirty six
Maximum 30V, 1.35kW Heaters per Channel and per Phase	One per channel : twelve per phase
Protection	Over temperature sensor in each winding and three phase MCCB with shunt trip
Thermocouple Input and Output	Type K (NiCr/NiAl)
Temperature Control	Six P183 six channel controller/programmers: Range:0 to 1200°C
Switching	Thirty six, UK manufactured single pole 100A contactors
Secondary 65V Output Connectors	Seventy-two 300A panel mounted twistlock sockets
Auxiliary Outputs	Three 110V auxiliary sockets
Case	Stainless Steel (also available in mild steel, blue powder coated as GHT1238)
Dimensions	123cm x 67cm x 108cm
Weight	390kg
Design Standards	EMC: EN 61326: 1998, LVD: EN 61010-1: 2001

## Portable Units

### Product Code: GHT 1232

**Product:** 10.5kW Inverter Power Source (In Mild Steel Case)

Globe's Inverter power source is a portable heat treatment unit designed for powering and controlling standard 60V, 48V or 30V heating elements dependent on the selected maximum output voltage.

**Application:** For the post weld heat treatment and preheating of pipe welds and welded fabrications where only one control zone is required. Up to eight additional units can be linked where multiple zone are required. At 17kg, the inverter's lightweight design is ideal for smaller heat treatment jobs, areas with limited access or where transportation limitations are an issue.

#### Features

- Capacity to store up to twenty user defined heat treatment profiles
- Each profile can contain up to nine ramp or hold segments
- Integrated temperature data logger for recording and storing up to 64 hours of data. Stored as a CSV File
- Includes disc containing software and instructions and USB connection cable for data
- Auxiliary thermocouple socket for use with optional external recorder
- Option for manual temperature control via the energy regulator mode



Specification	
Supply Voltage / Current	Three phase, 400V, 23A $\pm$ 15%
Frequency	50/60Hz
Output Voltage / Current	0-60V / 180A, 65V / 160A continuously adjustable, CV/CC
Load Type	Standard 60V, 48V or 30V ceramic heating elements
Supply Protection Fuse	25A
Temperature Sensor	Thermocouple - type K
Data Recording Range	-40°C to 1350°C
Temperature Control Range	-25°C to 1200°C
Alarm	Two adjustable - (1):deviation SV/PV and (2):set temperature reached
Fault Detection	Thermocouple disconnection, overload, overheating, output short circuit etc
Multizone Control	Up to nine units can be linked to follow an single profile from the master unit
Operating Temperature Protection	-20°C to 40°C (with a capacity limit to 50°C)
Case	Mild steel blue powder coated (stainless steel version - GHT 1235)
Dimensions	170mm x 370mm x 405mm
Weight	17kg
Design Standards	EN 60519-1 ED. 4, EN 60519-2 ED. 2, EN 55011 ED. 4, EN 61000

### Product Code: GHT 1300

**Product:** The Mini-Globe 9kVA, 3 Way Portable Heat Treatment Unit

Globe's portable and versatile 9kVA three way unit provides three output channels of power and temperature control of up to three heating elements rated at 60V, 45A, 2.7kW or 30V, 45A, 1.35kW for preheating or post weld heat treatment of pipe welds, fabrication welds, or other fabrications where controlled heating is required.

**Application:** For programming and controlling the post weld heat treatment and preheating of pipe welds and welded fabrications up to 1200°C. Ideal for smaller heat treatment jobs or in areas with limited access or where transportation limitations are an issue.

#### Features

- Three P159TDA single channel temperature controller/programmers
- Six type K thermocouple panel mounted input sockets
- Six type K panel mounted thermocouple output sockets for connection to external temperature recorder
- Six pairs of 300A panel mounted twistlock sockets providing 65V across the two 32.5V to 32.5V outputs per channel
- Two 110V auxiliary sockets supplying power to external temperature recorder & recharging thermocouple attachment unit
- One moulded case circuit breaker (MCCB)



Specification	
Supply Voltage, Current and Frequency	Three Phase, 380V (14A) 415V (13A) or 440V (12A) : 50/60Hz
Thermocouple Input	Type K (NiCr/NiAl)
Secondary Output Voltage	65 V (32.5-0-32.5V)
Protection	Over temperature sensor in each winding and three phase MCCB with shunt trip
Auxiliary Socket	Two 110V auxiliary socket
Dimensions (not including handle)	43cm x 36cm x 49cm
Weight	50Kg
Design Standards	EMC: EN 61326: 1998, LVD: EN 61010-1: 2001

## Mains Voltage Control Unit



CE

### Features

- Six P159TDA single channel, temperature controller/programmers
- Six three phase and neutral output sockets
- Six type K thermocouple panel mounted input sockets, and six output sockets, for connection to external temperature recorder
- Mains input isolator and fast acting emergency stop/power cut-off switch
- Multipin, Bulgin control input plug, for use with external six way programmer such as the P183: GHT 3300 supplied separately
- Two 110V auxiliary sockets for supplying power to temperature recorders and for recharging thermocouple attachment units (TAU)

### Product Code: GHT 8003

**Product:** Mains voltage control unit, six channel with six P159TDA temperature programmers and 110V auxiliary outputs

When connected to a three phase 380V/415V/440V, 330A supply, this unit provides up to 240kW of heating power to up to eighteen, 4-bank channel elements such as our GHT 5604, 13.3 kW channel elements. The heat treatment process is controlled by six built-in P159TDA temperature controller/programmers.

**Application:** This versatile unit is ideal for use in supplying and controlling thermal energy in temporary and permanent furnaces, and for the internal heating of vessels for post weld heat treatments.

The unit can also be used using the correct electrical safety procedures to power and control mains voltage, flexible ceramic pad elements up to 600°C such as our GHT 5426 ceramic pad elements.

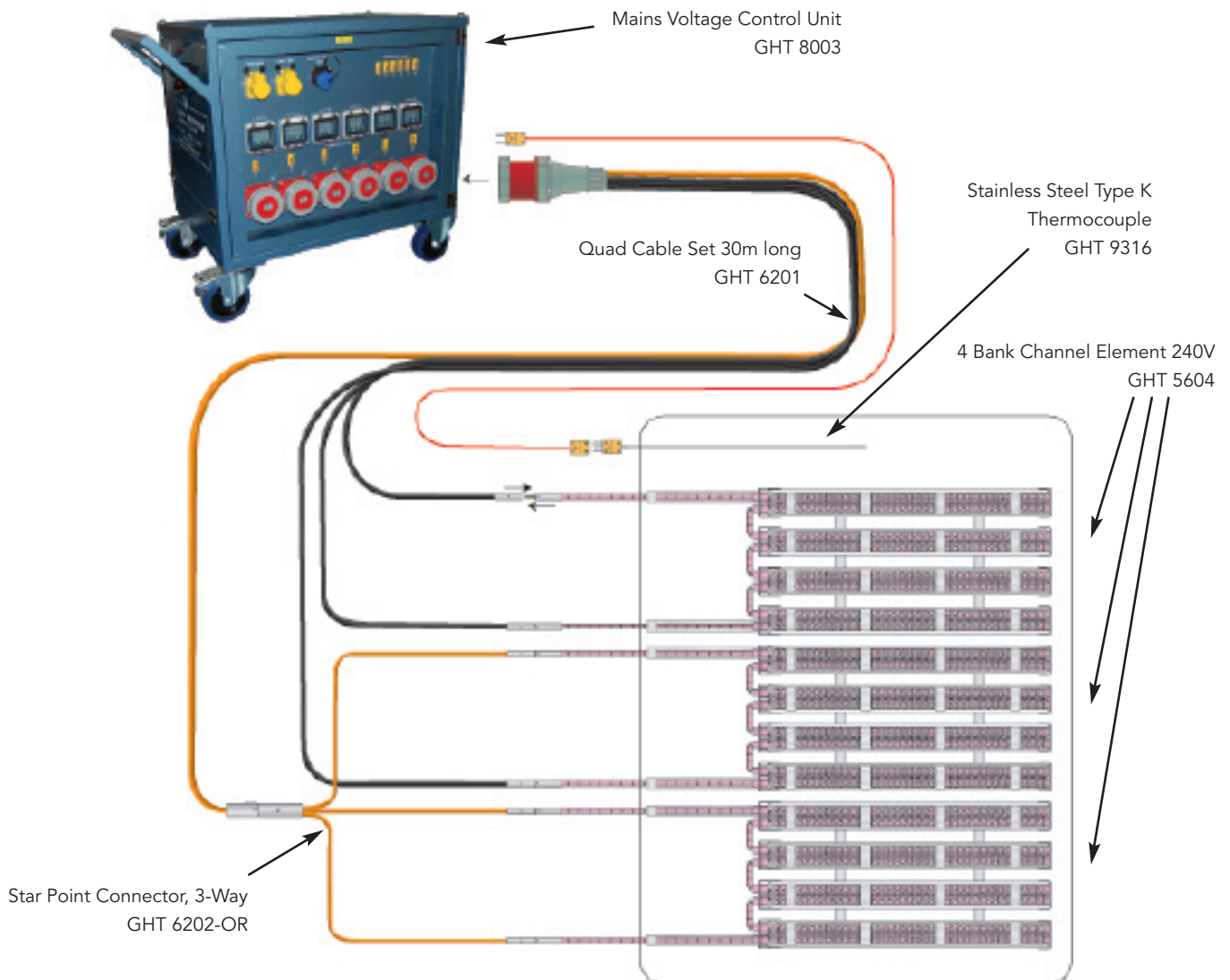
### Operation

- In total, six control channels, with three elements connected in star to each output channel circuit, can be used to provide 240kW of power when the unit is connected to a 415V three phase, neutral and earth supply.
- Each channel output supplies three phase power to each circuit of star connected elements, via a quad cable (see GHT 6201) and a star point connection cable (see GHT 6202-OR). All cables are supplied separately.
- The temperature of each control channel is controlled by a P159TDA temperature programmer and can be recorded via thermocouple outputs, utilising an external temperature recorder such as our GHT 2001 or GHT 2474 (supplied separately).

NOTE: Where three phase 380V/415V/440V supply currents on site are limited, we can supply units where each of the six channel outputs are supplied individually from a standard 63A three phase socket. Request our product data sheet GHT 8119 (six channel unit), or GHT 8002 (two channel unit) for further details of these units.

Specification	
Primary Input Supply Voltage and Current	Three phase, 380V, 415V, 440V (330A per phase fully loaded)
Frequency	50/60Hz
Output Voltage	Three phase, 380V, 415V, 440V (single phase voltage 220V, 240V or 255V)
Maximum Total Number of 13.2kW Elements	Eighteen
Over Current Protection	63A miniature circuit breaker (MCB) on each output channel
Earth Leakage Protection	Provided by earth leakage trip system
Input Protection	User's three phase supply must be protected by adequately rated fuses or circuit breakers
Thermocouple Input and Output	Type K (NiCr/NiAl)
Secondary 65V Output Connectors	Twenty four 300A panel mounted twistlock sockets
Auxiliary Outputs	Two 110V auxiliary sockets
Case	Mild steel, blue powder coated
Dimensions	123cm x 67cm x 108cm
Weight	180kg
Design Standards	EMC: EN 61326: 1998, LVD: EN 61010-1: 2001

## Example Set of Mains Voltage Control Unit



Product Code	Description	Quantity	Page
GHT 8003	Mains Voltage Control Unit, Six Channels with Six P159TDA Temperature Programmers and 110V Auxiliary Outputs	1	11
GHT 6201	Quad cable set, 30m long	6	27
GHT 6202-OR	Star point connector, three way splitters (orange), 1m long	6	27
GHT 5604	4 bank channel element, 240V	18	25
GHT 4100	GTW-V50 Thermocouple Welder, variable	1	19
GHT 9208	Thermocouple wire, type K, 0.711mm high density glass insulation	1	20
GHT 9046	Thermocouple plug, solid pin, type K	6	31
GHT 9316	Stainless Steel Thermocouple, Type K	1	38



## Spares



**Product Code: GHT 9147**

**Product:** Albright Contactor, Single Pole, 200A, 110V, SW200N-436

**Application:** Replacement contactor for all 65V heat treatment units with 110V control circuits.



**Product Code: GHT 9407**

**Product:** Albright contractor, Double pole, 200A, 110V, SW190-367L

**Application:** Replacement contactor for all 32V-0V-32V heat treatment units with 110V control circuits.



**Product Code: GHT 9126**

**Product:** Albright contactor, single pole, 200A, 110V, SW80-2116L

**Application:** Replacement single pole contactor for use in 50kVA, 36 way heat treatment units.



**Product Code: GHT 9151**

**Product:** Neon Indicator, 110V

**Application:** Replacement neon indicator light, for all heat treatment units with 110V control circuits.



**Product Code: GHT 9153**

**Product:** Panel Mounted Fuse Holder

**Application:** Replacement 32mm glass cartridge, fuse holder for all heat treatment units.



**Product Code: GHT 9032**

**Product:** 110V Panel Mounted Socket

**Application:** Replacement 110V, 16A, single phase, panel mounted power supply socket.



**Product Code: GHT 9021**

**Product:** 300A Female Panel Mounted Twistlock connector

**Application:** Replacement twistlock socket for 65V output heat treatment units where output is greater than 60A up to 300A.



**Product Code: GHT 9167**

**Product:** Energy Regulator, 110V

**Application:** Replacement energy regulator for use in all heat treatment units.



**Product Code: GHT 9149**

**Product:** Albright contactor Repair kit for SW200N (GHT 9147)

**Application:** For the repair of GHT 9147 & GHT 9148 single pole contactors containing two fixed and one moving contact.



**Product Code: GHT 9146**

**Product:** Albright contractor Repair Kit for SW190 (GHT 9407)

**Application:** For the repair of GHT 9407 double pole contactors containing two fixed and one moving contact.



**Product Code: GHT 9719**

**Product:** Albright contactor repair kit for SW80 (GHT 9126)

**Application:** Replacement contactor repair kit for single pole contactor SW80-2116L GHT 9126 (kit contains one moving and two fixed contacts)



**Product Code: GHT 9150**

**Product:** Auto/Manual Rocker Switch

**Application:** Replacement Auto/Manual operation selector switch for heat treatment units which can utilise manual or automatic temperature control.



**Product Code: GHT 9059**

**Product:** 5 Amp Fuse

**Application:** Replacement fuse for use in all heat treatment units.



**Product Code: GHT 9048**

**Product:** Bulgin, Seven Pin, Panel Mounted Plug and Cap

**Application:** Replacement part for use in Globe's Power Source Transformer units. GHT1001 and GHT 1101.



**Product Code: GHT 9044**

**Product:** Panel Mounted Thermocouple Socket, Type K in Yellow

**Application:** Replacement socket for use in heat treatment units, recorders and programmers.



**Product Code: GHT 9169**

**Product:** Aluminium Knob

**Application:** Replacement knob for energy regulator GHT 9167.

## Spares



**Product Code: GHT 9413**

**Product:** 50kVA MCCB (three pole : 80A)

**Application:** Replacement moulded case circuit breaker (MCCB) for 50kVA heat treatment units.



**Product Code: GHT 9158**

**Product:** Shunt Trip for Primary MCCB

**Application:** Replacement shunt trip for MCCB's GHT 9413 & GHT 9157.



**Product Code: GHT 9421**

**Product:** Wheel, 150mm Blue Rubber, Fixed

**Application:** Replacement fixed wheel for use on all heat treatment units.



**Product Code: GHT 9154**

**Product:** Fan, 110V

**Application:** Replacement fan, for all heat treatment units with 110V control circuits.



**Product Code: GHT 9171**

**Product:** 200A Ammeter

**Application:** Replacement ammeter for use in all 65V heat treatment units.



**Product Code: GHT 9404**

**Product:** 100A Ammeter

**Application:** Replacement ammeter for use in mains voltage control unit GHT 8003.



**Product Code: GHT 9408**

**Product:** 200A Inline Fuse

**Application:** Replacement inline 200A fuse for heat treatment units with fused outputs units.



**Product Code: GHT 8117**

**Product:** Three Pole Contactor

**Application:** Replacement three pole contactor for use in mains voltage control unit GHT 8003.



**Product Code: GHT 9157**

**Product:** 70kVA MCCB (three pole : 125A)

**Application:** Replacement moulded case circuit breaker (MCCB) for 70kVA heat treatment units.



**Product Code: GHT 9417**

**Product:** Leaf Hinge 50mm x 50mm with Screws

**Application:** Replacement leaf hinge for use in all heat treatment units.



**Product Code: GHT 9420**

**Product:** Wheel, 150mm Blue Rubber on Nylon Swivel with Brake

**Application:** Replacement wheel with break for use on all heat treatment units.



**Product Code: GHT 9155**

**Product:** Fan Guard

**Application:** Replacement fan guard for 110V fan, GHT 9154.



**Product Code: GHT 9172**

**Product:** Current Transformer Coil for 200A Ammeter

**Application:** Replacement current transformer coil for use in all 65V output heat treatment units.



**Product Code: GHT 9405**

**Product:** Current Transformer Coil for 100A Ammeter

**Application:** Replacement current transformer coil for use in mains voltage control unit GHT 8003.



**Product Code: GHT 9720**

**Product:** 200A Fuse Adaptor Kit

**Application:** For use with 200A inline fuse to retrofit fuse into outputs of existing heat treatment units (three pairs per kit).



**Product Code: GHT 8104**

**Product:** Four Pole 400A Load Break Switch

**Application:** Replacement four pole 400A load break switch for use in mains voltage control unit GHT 8003.

## Recorders


**Product Code: GHT 2001**

**Product:** Chino EH3127-001 Twelve Point Temperature Recorder

A popular, robust and simple to operate, analogue, temperature chart recorder used within the heat treatment industry throughout the world.

**Application:** Used for recording pre and post weld heat treatment processes up to 1200°C, in conjunction with Globe's range of mobile power source transformer heat treatment units. The recorder is housed within a resilient, powder coated, mild steel\* case enabling it to withstand normal site conditions in all regions of the world.

**Features**

- Twelve type K thermocouple sockets fitted to the rear of the unit
- Six chart speeds (12.5, 25, 50, 75, 100, 150 mm/h)
- Chart and scale illumination allowing the operator to view the chart detail in low light conditions
- Twelve separate colour traces for clear identification of each temperature trace on the chart
- One EH05035 (0-1200°C) chart paper supplied as standard
- Ergonomic folding handle fitted to each side of the case



Specification	
Supply Voltage	110V a.c. @ 50/60 Hz (230V a.c. available on request)
Thermocouple Input	Type K (NiCr/NiAl), Twelve Channels
Recording System	Twelve colour dotting inkpads
Temperature Recording Range	0 to 1200°C
Measurement Accuracy	±0.25%
Illumination	White LED lamp with three user selectable levels of brightness or off
Operating Temperature	0 to 50°C (20 to 65%RH, non-condensing)
Replacement Chart	EH05035 (0-1200°C) Chino chart
Case Material	Standard unit is powder coated, mild steel (*stainless steel case available on request)
Dimensions	430mm x 355mm x 365mm
Weight	18kg
Design Standards	EMC: EN 61326-1, LVD: EN 61010-1

**Product Code: GHT 2474**

**Product:** Chino AH4712-EOA Twelve Point Temperature Recorder

The AH4712-EOA is a hybrid analogue/digital temperature recorder with an LCD screen displaying the twelve channel's temperature values either one channel at a time, or multiple channels at the same time, with the option for digital display and simultaneous bar graph display. The recorder has the facility of printing to the paper chart and saving the data to SD card (sold separately). Data can then be viewed on a PC using Report Maker software (sold separately) or the measurement data can be saved as a CSV file and viewed in an Excel worksheet. The recorder can also be connected to a network and monitored using the supplied software or from a web browser.

**Application:** For recording pre and post weld heat treatment processes up to 1200°C. The recorder is housed within a resilient powder coated, mild steel\* case enabling it to withstand normal site conditions in all regions of the world.


**Features**

- Twelve type K thermocouple sockets fitted to the rear of the unit
- Chart speeds 1 to 1500mm/hour in 1mm increments
- Chart and scale illumination allowing the operator to view the chart detail in low light conditions
- One EH05035 (0-1200°C) chart paper supplied as standard
- SD Card (sold separately GHT 2514) to export data to PC via report maker software (sold separately GHT 2482)
- Ethernet connection for Web Viewer and E-mail Alarm notifications (via supplied software - KIDS)
- Four alarm types (no relay output)
- Ergonomic folding handle fitted to each side of the case



Specification	
Supply Voltage	110V a.c. @ 50/60 Hz (230V a.c. available on request)
Thermocouple Input	Type K (NiCr/NiAl), Twelve Channels
Recording System	Wire-dot type six-colour ribbon. Dotting Interval 5 or 2.5 seconds/point
Temperature Recording Range	0 to 1200°C
Digital display	Full dot monochrome LCD 264 x 48 dots Display area 184mm x 22mm
Measurement Accuracy	±0.1%FS ±1digit
Illumination	White LED backlight (turned off after 3-minute unused period when selecting AUTO)
Operating Temperature	0 to 50°C (20 to 65%RH, non-condensing)
Replacement Chart	EH05035 (0-1200°C) Chino chart
Case Material	Standard unit is powder coated, mild steel (*stainless steel case available on request)
Dimensions	430mm x 355mm x 365mm
Weight	18kg
Design Standards	EMC: EN 61326-1, LVD: EN 61010-1



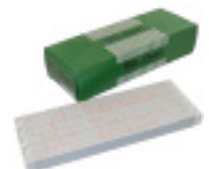
## Spares & Consumables



**Product Code: GHT 2401**

**Product:** Chino, Non-Linear Fan-fold Chart Paper (ET201) 0-1200°C. Sold individually.

**Application:** Low cost replacement chart for use with non-linear scale, EH100 series Chino temperature chart recorders.



**Product Code: GHT 2409**

**Product:** Chino Non-Linear Fan-fold Chart Paper (ET201) 0-1200°C Original. Sold individually.

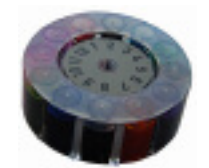
**Application:** Replacement chart for use with non-linear scale, EH100 series Chino temperature chart recorders.



**Product Code: GHT 2407**

**Product:** Fuji Fan-fold Chart Paper BL100-B for PHA series. Sold individually.

**Application:** Replacement chart for use with PHA series Fuji temperature chart recorders.



**Product Code: GHT 2438**

**Product:** Chino Recorder Ink Pad Wheel (Inked)

**Application:** Replacement ink pad wheel for use with Chino EH series temperature chart temperature recorders.



**Product Code: GHT 2436**

**Product:** Chino Recorder Ink Pads

**Application:** Pack of 12, replacement ink pads for use with Chino recorder ink pad wheel (GHT 2438 and GHT 2439) in Chino EH series temperature chart recorders.



**Product Code: GHT 2514**

**Product:** SD Card, 2GB, Industrial Grade

**Application:** For use with Chino hybrid temperature chart recorder AH4712-EOA.



**Product Code: GHT 2408**

**Product:** Fuji Printer Head

**Application:** Replacement printer head for use with PHA series Fuji temperature chart recorders.



**Product Code: GHT 2426**

**Product:** Chino Fluorescent Tube Starter

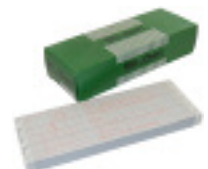
**Application:** Replacement fluorescent tube starter for use in Chino EH100 series temperature chart recorders.



**Product Code: GHT 2402**

**Product:** Chino Linear Fan-fold Chart Paper (EH05035) 0-1200°C. Sold individually.

**Application:** Low cost replacement chart for use with linear scale AH3000/EH3000/AH4000 Chino temperature recorders.



**Product Code: GHT 2501**

**Product:** Chino Linear Fan-fold Chart Paper (EH05035) 0-1200°C Original. Sold individually.

**Application:** Replacement chart for use with linear scale, EH3127-001 Chino temperature chart recorders.



**Product Code: GHT 2404**

**Product:** Chino Recorder Inks -Set of 12

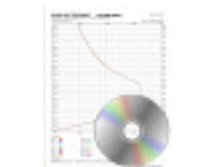
**Application:** For re-inking Chino temperature recorder ink pads.



**Product Code: GHT 2439**

**Product:** Chino Recorder Ink Pad Wheel (Not Inked)

**Application:** Replacement ink pad wheel for use with Chino EH series temperature chart temperature recorders.



**Product Code: GHT 2482**

**Product:** Report Maker (RM11) Software

**Application:** For use with Chino hybrid temperature chart recorder AH4712-EOA.



**Product Code: GHT 2406**

**Product:** Chino Cassette Ribbon

**Application:** Replacement cassette ribbon for AH series Chino temperature chart recorders.



**Product Code: GHT 2403**

**Product:** Chino Fluorescent Tube.

**Application:** Replacement fluorescent tube for chart illumination in Chino EH100 series recorders.



**Product Code: GHT 2476**

**Product:** Recorder Case Rubber Feet

**Application:** Replacement rubber feet for use on recorder cases.



## Programmiers



### Product Code: GHT 3300

**Product:** P183 Globe Six Channel Automatic Temperature Programmer / Controller

The P183 automatic temperature programmer/controller has been designed for use in conjunction with Globe's range of mobile heat treatment power source transformers for the programming and control of heat treatment processes. It is an excellent replacement for the popular though now obsolete P256 Programmer.

**Application:** For programming and controlling the post weld heat treatment and preheating of pipe welds and welded fabrications up to 1200°C

### Features

- Programmable temperature profile contains start and end temperatures, ramp up and down rate and hold temperature and time
- Twin digital displays indicating the process value (PV) i.e. the actual workpiece temperature and the setpoint value (SV) i.e. the target temperature of each point in the process
- Simple to program with a clear and bright display
- Each individual channel can be programmed to run in AUTO, MANUAL or OFF mode
- The LCD display provides visual indication of the running heat treatment program status and control zone output
- A neon light for each channel indicates when associated control zone contactor is energised
- A neon warning light indicating a faulty thermocouple, possibly due to a reversed thermocouple connection
- Housed in a robust mild steel case with carrying handles and crash bars to protect the front panel
- Control lead with 7 pin multi socket
- Twelve Type K thermocouple sockets fitted to the rear of the unit
- Two thermocouple sockets per channel for thermocouple input and output to external temperature recorder



Specification	
Supply Voltage	110V a.c. @ 50/60 Hz (230V a.c. available on request)
Thermocouple Input	Type K (NiCr/NiAl)
Temperature Control Range	0-1200°C
Ramp Up and Down Rates	0-1000°C per hour
Hold Time	0-100 hours
Ambient Operating Temperature	0 to 55°C (Storage: -20°C to 80°C)
Dimensions	260mm x 280mm x 200mm
Weight	8.5kg
Design Standards	EMC: EN 61326: 1998, LVD: EN 61010-1: 2001

### Product Code: GHT 3001

**Product:** PTC160 Six Channel Automatic Temperature Programmer/Controller

A compact, heat treatment programmer designed for use with Globe's range of mobile heat treatment power source transformers for the programming and control of heat treatment processes.

**Application:** For programming and controlling the post weld heat treatment and preheating of pipe welds and welded fabrications up to 1200°C



### Features

- Simple to program and operate with a bank of four, data entry push switches to enter rate, temperature and time program values
- Programmable temperature profile contains start and end temperatures, ramp up and down rate, hold temperature and time
- Numeric LED display of program set point temperature, hold time and actual process temperature of each control zone
- Compact and lightweight
- Ramp hold feature to ensure control zones do not fall behind the set point, to control temperature differential between zones
- Programmable for ramp rates up to 999°C per hour, maximum temperature 1200°C, a maximum hold period of 99.9 hours
- In the event of mains failure the program is stored indefinitely until the mains supply is restored
- Housed in a robust mild steel case with carrying handles
- Supplied with control lead with Bulgin seven pin multi socket
- Twelve Type K thermocouple sockets fitted to the rear of the unit



Specification	
Supply Voltage	110V a.c. @ 50/60 Hz (230V a.c. available on request)
Thermocouple Input	Type K (NiCr/NiAl)
Temperature Control Range	0-1200°C
Ramp Up and Down Rates	0-999°C per hour
Hold Time	0-100 hours
Ambient Operating Temperature	0 to 55°C (Storage: -20°C to 80°C)
Dimensions	270mm x 150mm x 425mm
Weight	8.5kg
Design Standards	EMC: EN 61326: 1998, LVD: EN 61010-1: 2001





**Product Code: GHT 3043****Product:** P159TDA - Digital Mini Controller and Programmer

The P159TDA is a single channel, panel mounted, temperature controller and programmer which is used in Globe's range of heat treatment units.

**Application:** For programming and controlling the post weld heat treatment and preheating of pipe welds and welded fabrications up to 1200°C.**Features**

- The program contains a start temperature, ramp up rate, hold temperature, hold time, ramp down rate and end temperature
- Twin digital displays indicating the process value (PV) i.e. the actual workpiece temperature and the setpoint value (SV) i.e. the target temperature of each point in the process
- Deviation alarm output which is user selectable (e.g. can be used as an over temperature alarm output or welding interpass temperature reached warning etc)
- Four Operating Modes :-
  - OFF -Temperature indication only
  - Auto - Ramps and hold program (for post weld heat treatments)
  - T.Con - Manual setpoint (for preheating)
  - E.rEG - Energy regulator (proportional relay output only which does not use a thermocouple input)
- Each programmer includes two mounting clips and two ferrite sleeves



Specification	
Supply Voltage	110V a.c. @ 50/60Hz (230V a.c. - GHT 3047)
Thermocouple Input	Type K (NiCr/NiAl)
Relay	Input Feed; max 240V a.c. @ 50/60Hz Output: max 3 Amp rating
Temperature Control Range	Range: 0 to 1200°C
Measurement Accuracy	0.3°C
Linearity	Better than +/- 0.5°C at any point
Calibration Accuracy	+/- 1 display digit (Uncertainty: 1 display digit)
Proportional-Band Settings	+/- 5°C, +/- 10°C, +/- 20°C and +/- 40°C
Hold-Back Settings	10°C, 20°C, 40°C and 60°C
Alarm Settings, Over & Under Temperature Alarms	Off, 25°C, 50°C, 100°C
Alarm Settings, Interpass	Off, 10°C to 100°C in 10°C (20°C) Increments
Operating Temperature	0 to 55°C (Storage: -20°C to 80°C)
Ambient Humidity	10 to 90% RH
Style	DIN 43700 (96mm x 48mm)
Dimensions	48mm x 98mm x 127mm (panel cut-out 45mm x 92mm)
Weight	0.4kg
Design Standards	EMC: EN 61326: 1998, LVD: EN 61010-1: 2001

## Programmer Accessories & Spares

**Product Code: GHT 3001PM****Product:** Panel Mounted P160 Programmer**Application:** Replacement panel mounted programmer for GHT 3001 programmer unit and various heat treatment units.**Product Code: GHT 3200****Product:** Adaptor Lead from 7 Pin Bulgin Plug to Six Cannon Inline Sockets**Application:** Used to connect programmer units with Bulgin seven pin control output to transformer units with cannon plug control inputs.**Product Code: GHT 3300PM****Product:** Panel Mounted P183 Programmer**Application:** Replacement panel mounted programmer for GHT 3300 programmer unit and various heat treatment units.**Product Code: Code: GHT 3201****Product:** Ferrite Sleeves**Application:** Replacement ferrite sleeves, fitted within controller/programmer units for reducing the effects of electromagnetic interference induced into thermocouple input, compensating cables.

## Thermocouple Attachment Units

### Product Code: GHT 4100

**Product:** GTW-V50 Automatic Thermocouple Attachment Unit, Variable Voltage

A portable, automatic, thermocouple attachment unit powered by a rechargeable battery. The unit uses the capacitance-discharge method for the attachment of a thermocouple wire to a workpiece to allow temperature recording and control instruments to accurately read the temperature of the workpiece being heat treated.

**Application:** Variable, operator selectable energy output suitable for attaching various sizes of thermocouple wire. With its optional manual or automatic operating mode, it is ideal for attaching thermocouples on difficult to reach areas of the workpiece and where for safety reasons, the operator requires a hand to be free.



#### Features

- Automatic and manual operation
- 22 to 50 Joules energy output suitable for attaching various sizes of thermocouple wire
- Rechargeable
- Low battery LED indicator
- Auto switch-off after three minutes to conserve battery
- 60V maximum output voltage
- Stainless-steel case includes shoulder strap and tool storage
- Supplied with one set of pliers and welding return magnet

Specification	
Supply Voltage	110V a.c. @ 50/60 Hz (230V a.c. available on request)
Thermocouple (TC) Wire size	0.5mm to 1.7mm solid thermocouple wire
Battery	Rechargeable, sealed lead-acid, 12V 2.1Ah
Number of welds from a fully charged battery	Approximately 1000
Operation time for fully charged battery	Up to 100 hours
Safety	Safety glasses should be worn by the operator. Safety glasses sold separately GHT 9657
Dimensions	190mm x 300mm x 100mm
Weight	5kg
Design Standards	EMC: EN61000-6-1:2001, EN61000-6-3:2001, LVD: EN 61010-1: 2001

### Product Code: GHT 4004

**Product:** TW158 Thermocouple Attachment Unit

A compact and lightweight portable unit. Powered by AA batteries the unit uses the capacitance-discharge method for the attachment of a thermocouple wire to a workpiece to allow temperature recording and control instruments to accurately read the temperature of the workpiece being heat treated.

**Application:** Variable, operator selectable 20 to 50 Joules energy output suitable for attaching various sizes of thermocouple wire. With its optional manual or automatic operating mode, it is ideal for attaching thermocouples on difficult to reach areas of the workpiece and where for safety reasons, the operator requires a hand to be free.



#### Features

- Compact and lightweight
- Automatic and manual operation
- 20 to 50 Joules energy output suitable for attaching various sizes of thermocouple wire
- Powered by four AA batteries
- Low battery LED indicator
- Auto switch-off after three minutes to conserve battery
- 60V maximum output voltage
- Supplied in a waterproof nylon carrying case with belt loop, shoulder strap and tool storage
- Supplied with one set of pliers and welding return magnet

Specification	
Thermocouple (TC) Wire size	0.5mm to 2.0mm solid thermocouple wire
Batteries	Four AA 1.5V batteries
Number of welds from a fully charged battery	Approx. 400 welds at 30 Joule setting
Safety	Safety glasses should be worn by the operator. Safety glasses sold separately GHT 9657
Dimensions	137mm x 190mm x 45mm
Weight	1.2kg
Design Standards	EMC: EN61000-6-1:2001, EN61000-6-3:2001, LVD: EN 61010-1: 2001

## Attachment Units

**Product Code:** GHT 4005

**Product:** SW12V Auto Pin Welder

The SW12V auto pin welder is a capacitance-discharge welding unit intended for general purpose attachment of pins and wires to workpieces. It has variable energy output to suit a range of pin or wire sizes. The SW12V is powered by a rechargeable battery or by connection to a 110VAC supply (or optional 230VAC supply).

**Application:** Ideal for attaching thermal insulation pins to a workpiece where not practical to use banding wire or steel tape. It can also be used to attach thermocouple wire when set in lower output energy range.



### Features

- Hand free operation with audible countdown to 'auto-weld'
- Two energy ranges selectable: 30 to 60 Joules or 125 to 250 Joules
- Rechargeable battery and low battery LED indicator and auto switch-off to conserve battery
- Robust, floor standing unit with hard rubber feet and tool storage tray
- Supplied with 2m welding cables, welding return magnet, supply lead, and interchangeable pliers: Long-nose pliers (GHT 4962) for low range thinner wire or pin welding and larger pliers (GHT 4933) for thicker wire or pin welding

### Specification

Supply Voltage	110V a.c. @ 50/60 Hz (230V a.c. available on request)
Battery	Sealed lead-acid (non-spillable) 12V 2.1Ah
Weld Voltage:	42V to 62V (minimum to maximum on energy scale)
Ready to Weld Charging Time	6s to 60J and 20s to 250J (with fully charged battery)
Number of Welds from Fully Charged Battery	Approximately 800 at 40 joules
Recommended Maximum Battery Recharge Time	6 hours (longer recharge time can degrade the battery)
Safety	Safety glasses should be worn by the operator. Safety glasses sold separately GHT 9657
Dimensions	225mm x 230mm x 310mm
Weight	10kg
Design Standards	EMC: EN61000-6-1:2001, EN61000-6-3:2001. LVD: EN 61010-1: 2001

## Thermocouple Unit Accessories



**Product Code:** GHT 9208

**Product:** Thermocouple Wire Type K, 0.711mm, High Density Glass Insulation, Red & Yellow on 100m Roll

**Application:** Attaches to the workpiece being heated to convert thermal energy into a mV signal which when connected to temperature controllers and recorders enables them to accurately control and record the workpiece temperature. Maximum use temperature 800°C.



**Product Code:** GHT 9209

**Product:** Thermocouple Wire Type K, 0.711mm, Standard Density Glass Insulation, Red & Yellow on 100m Roll

**Application:** As per GHT 9208 above but with a lower maximum use temperature of 700°C.



**Product Code:** GHT 9210

**Product:** Thermocouple Wire Type K, 0.711mm, High Density Glass Insulation, Green & White on 100m Roll

**Application:** As per GHT 9208 but with green and white coloured insulation as preferred in some European countries (IEC).



**Product Code:** GHT 9234

**Product:** High Temperature Thermocouple Wire Type K, 0.812mm, Silica Fibre Braided, 150m Roll

**Application:** This wire is suitable for high temperature performance, consisting of one pair of solid conductors, each is braided with silica fibre insulation. Both conductors are over-braided with silica fibre insulation. The insulation is rated to 1050°C continuous use.



**Product Code:** GHT 9325

**Product:** Mild Steel Stud

**Application:** 3mm diameter stud, for use with SW12V Auto Pin Welder (GHT 4005). Used to attach insulation blanket to a large work piece surface where banding is not practical. Also available in stainless steel as GHT 9609.



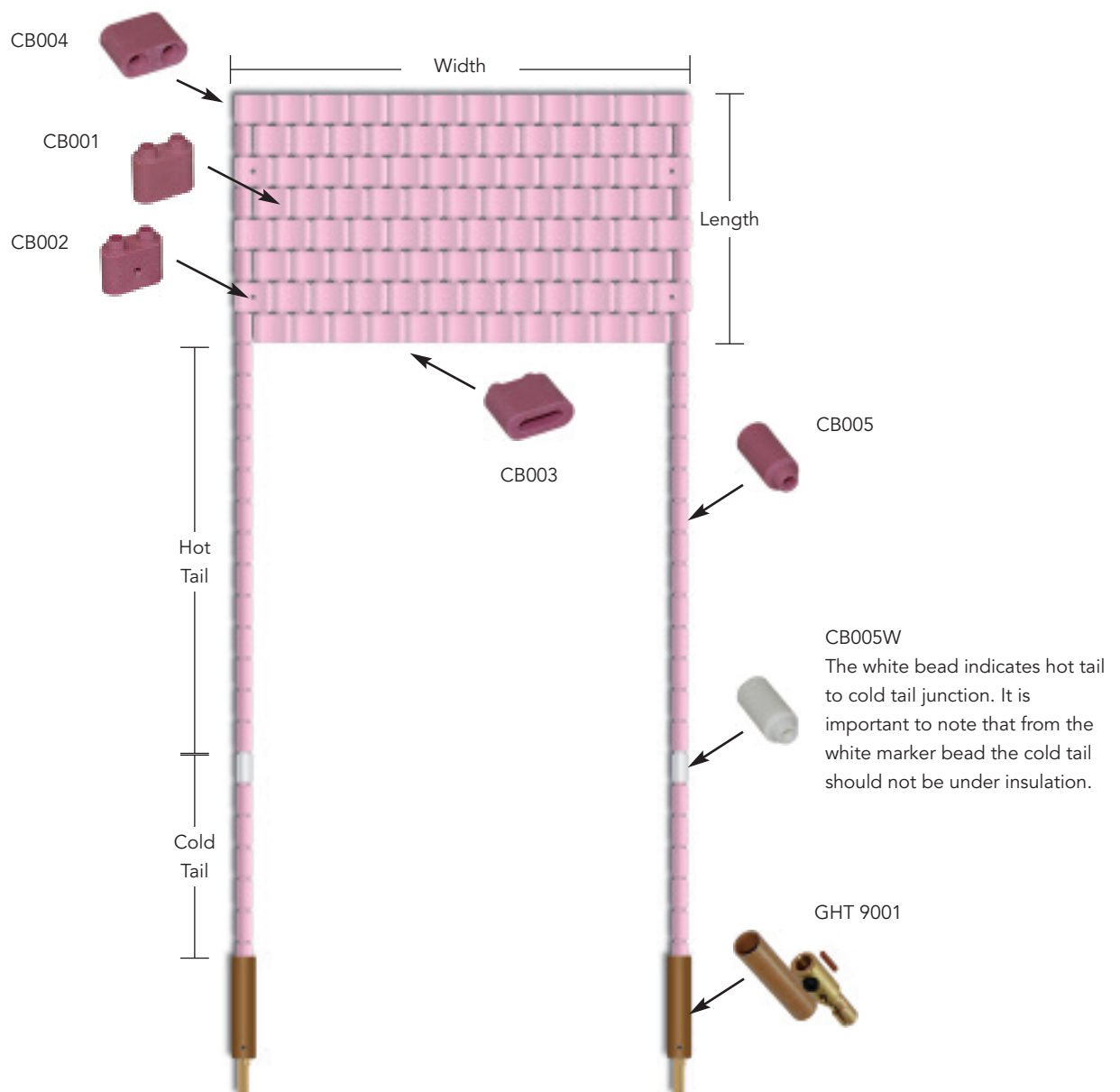
**Product Code:** GHT 9600

**Product:** Mild Steel Washer

**Application:** For use with 3mm mild steel studs to hold pinned insulation in place. Also available in stainless steel as GHT 9610.

For the full range of thermocouple attachment unit spares go to page 37.

## Ceramic Pad Heaters



Flexible ceramic pad heating elements are the key item of any localised heat treatment process. They are applied directly to the workpiece to be heated and are held securely in place by means of stainless-steel banding (or soft iron tie wire where only a few heating elements are in the heater band). The heating elements flexibility provides an efficient and high level of heat transfer to the surface being heated.

Globe's heating elements are manufactured from stranded, nickel chrome (NiCr), 80/20 core wire and stranded nickel 212 cold tail wire as standard. The core wire and cold tail are electrically insulated by European manufactured, ceramic interlocking beads produced from sintered aluminium. These beads have been selected for their high quality and resistance to thermal and physical shock.

Globe provide a wide variety of standard size elements which operate on a range of voltages. Should you require any non-standard heating element dimensions, voltages or power rating, our design team will be happy to provide you with a customised solution for your specific requirements.

If handled and used correctly, ceramic pad heating elements could be used up to fifty times at temperatures up to 1050°C. If heating elements are required for higher temperature we can upon request, provide heating elements that can be used up to 1200°C.



## 60V Ceramic Pad Heaters



**Product Code: GHT 5107**

**Product:** Ceramic Pad Heater 3 Beads x 32 Beads, 75mm x 660mm, 60V, 45A, 2.7kW

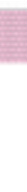
**Application:** Typically used for preheating and post weld heat treatment of thick wall pipe welds up to 1050°C.



**Product Code: GHT 5117**

**Product:** Ceramic Pad Heater 6 Beads x 16 Beads, 150mm x 335mm, 60V, 45A, 2.7kW

**Application:** Typically used for preheating and post weld heat treatment of thick wall pipe welds up to 1050°C.



**Product Code: GHT 5126**

**Product:** Ceramic Pad Heater 10 Beads x 10 Beads, 255mm x 210mm, 60V, 45A, 2.7kW

**Application:** One of the most versatile heater sizes typically used for preheating and post weld heat treatment of a wide range of pipe weld diameters up to 1050°C.



**Product Code: GHT 5136**

**Product:** Ceramic Pad Heater 15 Beads x 7 Beads, 380mm x 145mm, 60V, 45A, 2.7kW

**Application:** One of the most versatile heater sizes typically used for preheating and post weld heat treatment of a wide range of pipe weld diameters up to 1050°C.



**Product Code: GHT 5145**

**Product:** Ceramic Pad Heater 21 Beads x 5 Beads, 535mm x 100mm, 60V, 45A, 2.7kW

**Application:** One of the most versatile heater sizes typically used for preheating and post weld heat treatment of a wide range of pipe weld diameters up to 1050°C.



**Product Code: GHT 5110**

**Product:** Ceramic Pad Heater, 4 Beads x 24 Beads, 100mm x 495mm, 60V, 45A, 2.7kW

**Application:** Typically used for preheating and post weld heat treatment of thick wall pipe welds up to 1050°C.



**Product Code: GHT 5122**

**Product:** Ceramic Pad Heater, 8 Beads x 12 Beads, 200mm x 255mm, 60V, 45A, 2.7kW

**Application:** One of the most versatile heater sizes typically used for preheating and post weld heat treatment of a wide range of pipe weld diameters up to 1050°C.



**Product Code: GHT 5130**

**Product:** Ceramic Pad Heater, 12 Beads x 8 Beads, 305mm x 170 mm, 60V, 45A, 2.7kW

**Application:** One of the most versatile heater sizes typically used for preheating and post weld heat treatment of a wide range of pipe weld diameters up to 1050°C.



**Product Code: GHT 5137**

**Product:** Ceramic Pad Heater, 16 Beads x 6 Beads, 405mm x 125mm, 60V, 45A, 2.7kW

**Application:** One of the most versatile heater sizes typically used for preheating and post weld heat treatment of a wide range of pipe weld diameters up to 1050°C.



**Product Code: GHT 5151**

**Product:** Ceramic Pad Heater, 24 Beads x 4 Beads, 610mm x 85mm, 60V, 45A, 2.7kW

**Application:** Typically used for preheating and post weld heat treatment of thin wall pipe welds up to 1050°C.



**Product Code: GHT 5163**

**Product:** Ceramic Pad Heater, 48 Beads x 2 Beads, 1220mm x 45mm, 60V, 45A, 2.7kW

**Application:** Typically used for preheating and post weld heat treatment of thinner wall pipe welds up to 1050°C. Also ideal for providing support heating on the edge of flanges for pipe to flange welds to compensate for the heat sink effect caused by the flange.



## 30V Ceramic Pad Heaters



**Product Code: GHT 5004**

**Product:** Ceramic Pad Heater, 3 Beads x 17 Beads, 75mm x 360mm, 30V, 45A, 1.35kW

**Application:** Typically used for preheating and post weld heat treatment of thick wall, smaller diameter pipe welds up to 1050°C.



**Product Code: GHT 5013**

**Product:** Ceramic Pad Heater, 6 Beads x 7 Beads, 150mm x 150mm, 30V, 45A, 1.35kW

**Application:** Typically used for preheating and post weld heat treatment of smaller diameter pipe welds up to 1050°C.



**Product Code: GHT 5024**

**Product:** Ceramic Pad Heater, 10 Beads x 4 Beads, 255mm x 85mm, 30V, 45A, 1.35kW

**Application:** Typically used for preheating and post weld heat treatment of smaller diameter pipe welds up to 1050°C.



**Product Code: GHT 5031**

**Product:** Ceramic Pad Heater, 15 Beads x 3 Beads, 380mm x 65mm, 30V, 45A, 1.35kW

**Application:** Typically used for preheating and post weld heat treatment of smaller diameter, thin wall pipe welds up to 1050°C.



**Product Code: GHT 5006**

**Product:** Ceramic Pad Heater, 4 Beads x 11 Beads, 100mm x 235mm, 30V, 45A, 1.35kW

**Application:** Typically used for preheating and post weld heat treatment of thick wall, smaller diameter pipe welds up to 1050°C.



**Product Code: GHT 5019**

**Product:** Ceramic Pad Heater, 8 Beads x 5 Beads, 200mm x 105mm, 30V, 45A, 1.35kW

**Application:** Typically used for preheating and post weld heat treatment of smaller diameter pipe welds up to 1050°C.



**Product Code: GHT 5028**

**Product:** Ceramic Pad Heater, 12 Beads x 4 Beads, 305mm x 85mm, 30V, 45A, 1.35kW

**Application:** Typically used for preheating and post weld heat treatment of smaller diameter pipe welds up to 1050°C.



**Product Code: GHT 5035**

**Product:** Ceramic Pad Heater, 24 Beads x 2 Beads, 610mm x 45mm, 30V, 45A, 1.35kW

**Application:** Typically used for preheating and post weld heat treatment of medium diameter thin wall pipe welds up to 1050°C. Also used as support heating on flanges to compensate for flange heat sink effect.

## 48V Ceramic Pad Heaters



**Product Code: GHT 5301**

**Product:** Ceramic Pad Heater, 3 Beads x 32 Beads, 75mm x 670mm, 48V, 52A, 2.5kW

**Application:** Typically used for preheating and post weld heat treatment of thick wall pipe welds up to 1050°C in regions where maximum safe voltage is 48V.



**Product Code: GHT 5303**

**Product:** Ceramic Pad Heater, 6 Beads x 16 Beads, 150mm x 335mm, 48V, 52A, 2.5kW

**Application:** A versatile heater size used for preheating and post weld heat treatment of a wide range of pipe weld diameters up to 1050°C in regions where maximum safe voltage is 48V.



**Product Code: GHT 5305**

**Product:** Ceramic Pad Heater, 10 Beads x 10 Beads, 255mm x 210mm, 48V, 52A, 2.5kW

**Application:** A versatile heater size used for preheating and post weld heat treatment of a wide range of pipe weld diameters up to 1050°C in regions where maximum safe voltage is 48V.



**Product Code: GHT 5302**

**Product:** Ceramic Pad Heater, 4 Beads x 24 Beads, 100mm x 505mm, 48V, 52A, 2.5kW

**Application:** Typically used for preheating and post weld heat treatment of thick wall pipe welds up to 1050°C in regions where maximum safe voltage is 48V.



**Product Code: GHT 5304**

**Product:** Ceramic Pad Heater, 8 Beads x 12 Beads, 200mm x 250mm, 48V, 52A, 2.5kW

**Application:** A versatile heater size used for preheating and post weld heat treatment of a wide range of pipe weld diameters up to 1050°C in regions where maximum safe voltage is 48V.



**Product Code: GHT 5306**

**Product:** Ceramic Pad Heater, 12 Beads x 8 Beads, 300mm x 170mm, 48V, 52A, 2.5kW

**Application:** A versatile heater size used for preheating and post weld heat treatment of a wide range of pipe weld diameters up to 1050°C in regions where maximum safe voltage is 48V.

*N.B. The white central strip of ceramic beads identifies that this is a 48V ceramic pad heater.*





**Product Code: GHT 5307**

**Product:** Ceramic Pad Heater, 15 Beads x 7 Beads, 380mm x 145mm, 48V, 52A, 2.5kW  
**Application:** A versatile heater size used for preheating and post weld heat treatment of a wide range of pipe weld diameters up to 1050°C in regions where maximum safe voltage is 48V.



**Product Code: GHT 5309**

**Product:** Ceramic Pad Heater, 21 Beads x 5 Beads, 525mm x 105mm, 48V, 52A, 2.5kW  
**Application:** A versatile heater size used for preheating and post weld heat treatment range a wide range of pipe weld diameters up to 1050°C in regions where maximum safe voltage is 48V.



**Product Code: GHT 5308**

**Product:** Ceramic Pad Heater, 17 Beads x 6 Beads, 430mm x 125mm, 48V, 52A, 2.5kW  
**Application:** A versatile heater size used for preheating and post weld heat treatment of a wide range of pipe weld diameters up to 1050°C in regions where maximum safe voltage is 48V.



**Product Code: GHT 5310**

**Product:** Ceramic Pad Heater, 24 Beads x 4 Beads, 610mm x 85mm, 48V, 52A, 2.5kW  
**Application:** Typically used for preheating and post weld heat treatment of thin wall pipe welds up to 1050°C in regions where maximum safe voltage is 48V.



**Product Code: GHT 5311**

**Product:** Ceramic Pad Heater, 48 Beads x 2 Beads, 1220mm x 40mm, 48V, 52A, 2.5kW  
**Application:** Typically used for preheating and post weld heat treatment of thinner wall pipe welds up to 1050°C in regions where maximum safe voltage is 48V. Also ideal for providing support heating on the edge of flanges for pipe to flange welds to compensate for the heat sink effect caused by the flange.

## 80V Ceramic Pad Heaters



**Product Code: GHT 5201**

**Product:** Ceramic Pad Heater, 6 Beads x 22 Beads, 150mm x 460mm, 80V, 45A, 3.6kW  
**Application:** Typically used for preheating and post weld heat treatment of thick wall pipe welds up to 1050°C.



**Product Code: GHT 5203**

**Product:** Ceramic Pad Heater, 10 beads x 14 beads, 255mm x 290mm, 80V, 45A, 3.6kW  
**Application:** One of the most versatile heater sizes typically used for preheating and post weld heat treatment of a wide range of pipe weld diameters up to 1050°C.



**Product Code: GHT 5205**

**Product:** Ceramic Pad Heater, 15 Beads x 9 Beads, 380mm x 185mm, 80V, 45A, 3.6kW  
**Application:** One of the most versatile heater sizes typically used for preheating and post weld heat treatment of a wide range of pipe weld diameters up to 1050°C.



**Product Code: GHT 5207**

**Product:** Ceramic Pad Heater, 21 Beads x 7 Beads, 535mm x 145mm, 80V, 45A, 3.6kW  
**Application:** One of the most versatile heater sizes typically used for preheating and post weld heat treatment of a wide range of pipe weld diameters up to 1050°C.



**Product Code: GHT 5202**

**Product:** Ceramic Pad Heater, 8 Beads x 17 Beads, 205mm x 350mm, 80V, 45A, 3.6kW  
**Application:** One of the most versatile heater sizes typically used for preheating and post weld heat treatment of a wide range of pipe weld diameters up to 1050°C.



**Product Code: GHT 5204**

**Product:** Ceramic Pad Heater, 12 beads x 11 beads, 305mm x 230mm, 80V, 45A, 3.6kW  
**Application:** One of the most versatile heater sizes typically used for preheating and post weld heat treatment of a wide range of pipe weld diameters up to 1050°C.



**Product Code: GHT 5206**

**Product:** Ceramic Pad Heater, 17 Beads x 8 Beads, 430mm x 165mm, 80V, 45A, 3.6kW  
**Application:** One of the most versatile heater sizes typically used for preheating and post weld heat treatment of a wide range of pipe weld diameters up to 1050°C.



**Product Code: GHT 5208**

**Product:** Ceramic Pad Heater, 33 Beads x 4 Beads, 835mm x 85mm, 80V, 45A, 3.6kW  
**Application:** Typically used for preheating and post weld heat treatment of thin wall pipe welds up to 1050°C.



## Channel Heaters (all fitted with Twistlock Connectors)



**Product Code: GHT 5601**

**Product:** Single Channel Element, 70mm x 720mm, 60V, 55A, 3.3kW, Solid Drawn

**Application:** A versatile heater used for the internal heat treatment of fabricated vessels or to provide electrical heating power in heat treatment furnaces. Can be connected to any 65V output heat treatment unit.



**Product Code: GHT 5602**

**Product:** 2-Bank Channel Element, 165mm x 720mm, 110V, 55A, 6.6kW, Solid Drawn

**Application:** A versatile heater used for the internal heat treatment of fabricated vessels or to provide electrical heating power in heat treatment furnaces. Can be connected across two 65V output phases of a heat treatment unit with 65V outputs.



**Product Code: GHT 5603**

**Product:** 4-Bank Channel Element, 360mm x 720mm, 220V, 55A, 12.1kW, Solid Drawn

**Application:** A versatile heater used for the internal heat treatment of fabricated vessels or to provide electrical heating power in heat treatment furnaces. Used with Globe's mains unit GHT 8003.



**Product Code: GHT 5604**

**Product:** 4-Bank Channel Element, 360mm x 720mm, 240V, 55A, 13.2kW, Solid Drawn

**Application:** A versatile heater used for the internal heat treatment of fabricated vessels or to provide electrical heating power in heat treatment furnaces. Used with Globe's mains unit GHT 8003.

NB: Mild steel connector blocks (GHT 9052) can be fitted in place of twistlock connectors on request.

## 220V & 240V Ceramic Pad Heaters



**Product Code: GHT 5424**

**Product:** Ceramic Pad Heater, 24 Beads x 16 Beads, 610mm x 330mm, 220V, 45A, 10.4kW

**Application:** Typically used for post weld heat treatment of large diameter vessel welds up to 600°C.



**Product Code: GHT 5425**

**Product:** Ceramic Pad Heater, 26 Beads x 16 Beads, 660mm x 330mm, 220V, 45A, 9.7kW

**Application:** Typically used for post weld heat treatment of large diameter vessel welds up to 600°C.



**Product Code: GHT 5426**

**Product:** Ceramic Pad Heater, 13 Beads x 32 Beads, 330mm x 670mm, 240V, 45A, 10.8kW

**Application:** Typically used for post weld heat treatment of large diameter vessel welds up to 600°C.



**Product Code: GHT 5427**

**Product:** Ceramic Pad Heater, 28 Beads x 16 Beads, 710mm x 330mm, 240V, 45A, 10.6kW

**Application:** Typically used for post weld heat treatment of large diameter vessel welds up to 600°C.

## Rope Heaters



**Product Code: GHT 5801**

**Product:** Rope Heater, 2.9m Long, 30V, 45A, 1.35kW

**Application:** Highly flexible robust, heating element, manufactured using over braided, ball and socket beads. Ideal for wrapping around small to medium diameter pipes and complex pipe configurations.



**Product Code: GHT 5802**

**Product:** Rope Heater, 5.0m Long, 60V, 45A, 3.6kW

**Application:** Highly flexible robust, heating element, manufactured using over braided, ball and socket beads. Ideal for wrapping around medium diameter pipes and complex pipe configurations.

NB: Rope Heater in 48V (GHT 5805) and 80V (GHT 5803) are available.

## Flexible Insulated Preheaters (FIP) 60V



**Product Code: GHT 5501**

**Product:** FIP 3 Flexible Insulated Preheater, Stainless Steel Backed, 3 Beads x 32 Beads, 100mm x 760mm, 60V, 45A, 2.7kW  
**Application:** Used for preheating flat and large radius curved surfaces up to 250°C.



**Product Code: GHT 5502**

**Product:** FIP 4 Flexible Insulated Preheater, Stainless Steel Backed, 4 Beads x 24 Beads, 125mm x 580mm, 60V, 45A, 2.7kW  
**Application:** Used for preheating flat and large radius curved surfaces up to 250°C.



**Product Code: GHT 5038**

**Product:** FIP Flexible Insulated Preheater, Stainless Steel Backed, 3 Beads x 16 Beads, 100mm x 380mm, 30V, 45 Amp, 1.35kW  
**Application:** Used for preheating flat and large radius curved surfaces up to 250°C



**Product Code: GHT 5503**

**Product:** Tank Track, Flexible Insulated Preheater Stainless Steel Backed, 1 Tank Track Bead x 24 Tank Track Beads, 100mm x 775mm, 60V, 45A, 2.7kW  
**Application:** Used for preheating flat and large radius curved surfaces up to 250°C.



**Product Code: GHT 5504**

**Product:** FIP 3 Stainless Steel Backing, 100mm x 760mm  
**Application:** Replacement stainless steel backing for FIP3 flexible insulated preheater GHT 5501.



**Product Code: GHT 5506**

**Product:** FIP 3 Insulation Mat  
**Application:** Replacement meshed, insulated mat for FIP3 flexible insulated preheater GHT 5501.



**Product Code: GHT 9306**

**Product:** Square Magnetic Pair with Bar  
**Application:** Used to hold flexible insulated preheaters to the work piece during preheat up to 250°C. Two pairs of magnets per FIP are recommended to hold the FIP in place.



**Product Code: GHT 5167**

**Product:** FIP3 Flexible insulated preheater, fitted with three 60mm limpet magnets, stainless steel backed, 3 beads x 36 beads, 100mm x 900mm, 60V, 45A, 2.7kW  
**Application:** Used for preheating flat and large radius curved surfaces up to 250°C without the need for separate magnet pairs with bars..



**Product Code: GHT 5182**

**Product:** FIP4 Flexible insulated preheater, fitted with three 60mm limpet magnets, stainless steel backed, 4 beads x 28 beads, 125mm x 730mm, 60V, 45A, 2.7kW  
**Application:** Used for preheating flat and large radius curved surfaces up to 250°C without the need for separate magnet pairs with bars.



**Product Code: GHT 5037**

**Product:** FIP3 Flexible insulated preheater, fitted with two 60mm limpet magnets, stainless steel backed, 3 beads x 16 beads, 100mm x 500mm, 30V, 45A, 1.35kW  
**Application:** Used for preheating flat and large radius curved surfaces up to 250°C without the need for separate magnet pairs with bars.



**Product Code: GHT 5508**

**Product:** Split Pin  
**Application:** Replacement split pin for securing stainless steel backing and insulation mat to the FIP3 and FIP4 heating element (for use with M3 stainless steel washer GHT 5509)



**Product Code: GHT 5505**

**Product:** FIP 4 Stainless Steel Backing, 125mm x 580mm  
**Application:** Replacement stainless steel backing for FIP4 flexible insulated preheater GHT 5502.



**Product Code: GHT 5507**

**Product:** FIP 4 Insulation Mat  
**Application:** Replacement meshed, insulated mat for FIP4 flexible insulated preheater GHT 5502.



**Product Code: GHT 9307**

**Product:** Round Magnetic Pair with Bar  
**Application:** Used to hold flexible insulated preheaters to the work piece during preheat up to 250°C. Two pairs of magnets per FIP are recommended to hold the FIP in place.

## Triple Cable Sets (all fitted with Twistlock Connectors)



**Product Code:** GHT 6001

**Product:** Triple Cable Set, 16mm<sup>2</sup> Cable, Current Rating 135A , 30m Long

**Application:** For use with heat treatment units to provide power and thermocouple connection to a heater control zone of up to 3 heaters.



**Product Code:** GHT 6003

**Product:** Triple Cable Set, 25mm<sup>2</sup> Cable, Current Rating 180A , 30m Long

**Application:** For use with heat treatment units to provide power and thermocouple connection to a heater control zone of up to 4 heaters.



**Product Code:** GHT 6005

**Product:** Triple Cable Set, 35mm<sup>2</sup> Cable, Current Rating 225A , 30m Long

**Application:** For use with heat treatment units to provide power and thermocouple connection to a heater control zone of up to 5 heaters.



**Product Code:** GHT 6002

**Product:** Triple Cable Set, 16mm<sup>2</sup> Cable, Current Rating 135A , 15m Long

**Application:** For use with heat treatment units to provide power and thermocouple connection to a heater control zone of up to 3 heaters.



**Product Code:** GHT 6004

**Product:** Triple Cable Set, 25mm<sup>2</sup> Cable, Current Rating 180A , 15m Long

**Application:** For use with heat treatment units to provide power and thermocouple connection to a heater control zone of up to 4 heaters.



**Product Code:** GHT 6006

**Product:** Triple Cable Set, 35mm<sup>2</sup> Cable, Current Rating 225A , 15m Long

**Application:** For use with heat treatment units to provide power and thermocouple connection to a heater control zone of up to 5 heaters.

## Splitters (all fitted with Twistlock Connectors)



**Product Code:** GHT 6102-BK

**Product:** 2 Way Splitter, 10mm<sup>2</sup> Cable, 1m Long in Black Cable.

**Application:** For use with all triple cable sets to connect up to 2 heaters into one control group.



**Product Code:** GHT 6103-BK

**Product:** 3 Way Splitter, 10mm<sup>2</sup> Cable, 1m Long in Black Cable.

**Application:** For use with all triple cable sets to connect up to 3 heaters into one control group.



**Product Code:** GHT 6104-BK

**Product:** 4 Way Splitter, 10mm<sup>2</sup> Cable, 1m Long in Black Cable.

**Application:** For use with 180A and 225A triple cable sets to connect up to 4 heaters into one control group.



**Product Code:** GHT 6105-BK

**Product:** 5 Way Splitter, 10mm<sup>2</sup> Cable, 1m Long in Black Cable.

**Application:** For use with 225A triple cable sets to connect up to 5 heaters into one control group.



**Product Code:** GHT 6102-OR

**Product:** 2 Way Splitter, 10mm<sup>2</sup> Cable, 1m Long in Orange Cable.

**Application:** For use with all triple cable sets to connect up to 2 heaters into one control group.



**Product Code:** GHT 6103-OR

**Product:** 3 Way Splitter, 10mm<sup>2</sup> Cable, 1m Long in Orange Cable.

**Application:** For use with all triple cable sets to connect up to 3 heaters into one control group.



**Product Code:** GHT 6104-OR

**Product:** 4 Way Splitter, 10mm<sup>2</sup> Cable, 1m Long in Orange Cable.

**Application:** For use with 180A and 225A triple cable sets to connect up to 4 heaters into one control group.



**Product Code:** GHT 6105-OR

**Product:** 5 Way Splitter, 10mm<sup>2</sup> Cable, 1m Long in Orange Cable.

**Application:** For use with 225A triple cable sets to connect up to 5 heaters into one control group.

## Quad Cable Set & Star Point for Mains Voltage Control Units



**Product Code:** GHT 6201

**Product:** Quad 16mm<sup>2</sup> Cable Set 30m Long with 5 Pin 415V Plug to Three 60A Female Twistlock Connectors and One 300A Male Twistlock connector.

**Application:** For use with mains unit GHT 8003 to supply three phase, 415V power, to 4-bank channel heaters or ceramic pad mains heaters.



**Product Code:** GHT 6202-OR

**Product:** Star Point Connector, 3 Way, 10mm<sup>2</sup> Cable 1m Long in Orange Cable fitted with Twistlock Connectors.

**Application:** Used with quad cable set GHT 6201 to connect three 4-bank channel elements or mains heaters in a three phase star circuit.



## Copper Cables



**Product Code: GHT 9298**

**Product:** 10mm<sup>2</sup> HOFR, Double Insulated, Copper Splitter Cable, Black, 100A Rating, 100m Roll

**Application:** For manufacture or repair of 2,3,4 and 5 way splitter cables.



**Product Code: GHT 9216-120**

**Product:** 16mm<sup>2</sup> HOFR Double Insulated, Copper Splitter Cable, Black, 135A Rating, 120m Roll

**Application:** For repair of 135A triple cable sets.



**Product Code: GHT 9218-120**

**Product:** 25mm<sup>2</sup> HOFR Double Insulated, Copper Splitter Cable, Black, 180A Rating, 120m Roll

**Application:** For repair of 180A triple cable sets.



**Product Code: GHT 9220**

**Product:** 35mm<sup>2</sup> HOFR Double Insulated, Copper Splitter Cable, Black, 225A Rating, 120m Roll

**Application:** For repair of 225A triple cable sets.



**Product Code: GHT 9224**

**Product:** 70mm<sup>2</sup> HOFR Double Insulated, Copper Splitter Cable, Black, 285A Rating, Sold per Metre

**Application:** Used in the repair of internal heavy current circuits in heat treatment units.



**Product Code: GHT 9297**

**Product:** 10mm<sup>2</sup> HOFR, Double Insulated, Copper Splitter Cable, Orange, 100A Rating, 100m Roll

**Application:** For manufacture or repair of 2,3,4 and 5 way splitter cables.



**Product Code: GHT 9217-120**

**Product:** 16mm<sup>2</sup> HOFR Double Insulated, Copper Splitter Cable, Orange, 135A Rating, 120m Roll

**Application:** For repair of 135A triple cable sets.



**Product Code: GHT 9219-120**

**Product:** 25mm<sup>2</sup> HOFR Double Insulated, Copper Splitter Cable, Orange, 180A Rating, 120m Roll

**Application:** For repair of 180A triple cable sets.



**Product Code: GHT 9221**

**Product:** 35mm<sup>2</sup> HOFR Double Insulated, Copper Splitter Cable, Orange, 225A Rating, 120m Roll

**Application:** For repair of 225A triple cable sets.



**Product Code: GHT 9223**

**Product:** 50mm<sup>2</sup> HOFR Double Insulated, Copper Splitter Cable, Orange, 285A Rating, Sold per Metre

**Application:** Used in the repair of internal heavy current circuits in heat treatment units.

## Compensating Cables



**Product Code: GHT 9211**

**Product:** Compensating Cable 13/0.2mm PVC in Red, 100m Roll

**Application:** Used to repair triple cable sets. When fitted with a thermocouple plug and socket can be made into a separate compensating cable to connect additional thermocouples to a temperature recorder.



**Product Code: GHT 9213**

**Product:** Compensating Cable 13/0.2mm PVC in Green (IEC), 100m Roll

**Application:** Used to repair triple cable sets. When fitted with a thermocouple plug and socket can be made into a separate compensating cable to connect additional thermocouples to a temperature recorder.



**Product Code: GHT 9212**

**Product:** Compensating Cable 13/0.2mm PVC in Red, 500m Roll

**Application:** Used to repair triple cable sets. When fitted with a thermocouple plug and socket can be made into a separate compensating cable to connect additional thermocouples to a temperature recorder.



**Product Code: GHT 9314**

**Product:** Six Way, 1m Compensating Cable Link Set

**Application:** To connect six channel programmers or temperature recorders to heat treatment units.

## 60A Twistlock Connectors



**Product Code:** GHT 9001

**Product:** 60A Male Twistlock Connector Complete Set containing Brass, Sleeve & Pin

**Application:** Replacement 60A male twistlock connector for ceramic heating elements.



**Product Code:** GHT 9002

**Product:** 60A Male Brass Twistlock Connector

**Application:** Replacement 60A male twistlock brass connector for ceramic heating elements.



**Product Code:** GHT 9003

**Product:** 60A Male Twistlock Connector Sleeve

**Application:** Replacement 60A male twistlock connector sleeve for ceramic heating elements.



**Product Code:** GHT 9004

**Product:** 60A Male Twistlock Connector Higher Temperature Sleeve

**Application:** Higher temperature replacement 60A male twistlock connector sleeve for ceramic heating elements.



**Product Code:** GHT 9011

**Product:** 60A Female Panel Mounted Twistlock Connector

**Application:** Used in 60V output heat treatment units where output is equal to or less than 60A.



**Product Code:** GHT 9009

**Product:** 60A Pin

**Application:** For fixing 60A male and female connector sleeves to 60A brass connectors.



**Product Code:** GHT 9005

**Product:** 60A Female Twistlock Connector Complete Set containing Brass, Sleeve & Pin

**Application:** Replacement 60A female twistlock connector for splitter cables.



**Product Code:** GHT 9006

**Product:** 60A Female Brass Twistlock Connector

**Application:** Replacement 60A female twistlock brass connector for splitter cables.



**Product Code:** GHT 9007

**Product:** 60A Female Twistlock Connector Sleeve

**Application:** Replacement 60A female twistlock connector sleeve for splitter cables.



**Product Code:** GHT 9008

**Product:** 60A Female Twistlock Connector Higher Temperature Sleeve

**Application:** Higher temperature replacement 60A female twistlock connector sleeve for splitter cables.



**Product Code:** GHT 9010

**Product:** 60A Male Panel Mounted Twistlock Connector

**Application:** Used to connect 60V supply to units where in-line connectors are not suitable.

## 300A Twistlock Connectors



**Product Code:** GHT 9012

**Product:** 300A Male Twistlock Connector Complete Set containing Brass, Sleeve & Pin

**Application:** Replacement 300A male twistlock connector for splitters and cable sets.



**Product Code:** GHT 9013

**Product:** 300A Male Brass Twistlock Connector

**Application:** Replacement 300A male twistlock brass connector for splitters and cable sets.



**Product Code:** GHT 9014

**Product:** 300A Male Twistlock Connector Sleeve

**Application:** Replacement 300A male twistlock connector sleeve for splitters and cable sets.



**Product Code:** GHT 9016

**Product:** 300A Female Twistlock Connector Complete Set containing Brass, Sleeve & Pin

**Application:** Replacement 300A female twistlock connector for cable sets.



**Product Code:** GHT 9017

**Product:** 300A Female Brass Twistlock Connector

**Application:** Replacement 300A female twistlock brass connector for cable sets.



**Product Code:** GHT 9018

**Product:** 300A Female Twistlock Connector Sleeve

**Application:** Replacement 300A female twistlock connector sleeve for cable sets.



**Product Code: GHT 9015**

**Product:** 300A Male Twistlock Connector Higher Temperature Sleeve

**Application:** Higher temperature replacement 300A male twistlock connector sleeve for splitters and cable sets.

**Product Code: GHT 9022**

**Product:** 300A Male Panel Mounted Twistlock Connector

**Application:** Used to connect 60V supply to units where in-line connectors are not suitable.

**Product Code: GHT 9020**

**Product:** 300A Pin

**Application:** For fixing 300A male and female connector sleeves to 300A brass connectors.

**Product Code: GHT 9019**

**Product:** 300A Female Twistlock Connector Higher Temperature Sleeve

**Application:** Higher temperature replacement 300A female twistlock connector sleeve for cable sets.

**Product Code: GHT 9021**

**Product:** 300A Female Panel Mounted Twistlock Connector

**Application:** Replacement twistlock socket for 60V output heat treatment units where output is greater than 60A up to 300A.

## Dinse Connectors

**Product Code: GHT 9024**

**Product:** Dinse Plug 10/25

**Application:** 190A d.c. alternative to male 60A twistlock connector.

**Product Code: GHT 9023**

**Product:** Dinse Socket 10/25

**Application:** 190A d.c. alternative to female 60A twistlock connector.

**Product Code: GHT 9027**

**Product:** Panel Mounted Dinse Socket 35/50

**Application:** 325A d.c. alternative to 300A twistlock panel mounted female connector.

**Product Code: GHT 9026**

**Product:** Dinse Plug 35/50

**Application:** 325A d.c. alternative to male 300A twistlock connector.

**Product Code: GHT 9025**

**Product:** Dinse Socket 35/50

**Application:** 325A d.c. alternative to female 300A twistlock connector.

## Control Connectors Bulgin and Cannon

**Product Code: GHT 9048**

**Product:** Bulgin 7 Pin Panel Mounted Plug and Cap

**Application:** Replacement part for use in Globe's Power Source Transformer Units, GHT 1001 & GHT 1101.

**Product Code: GHT 9050**

**Product:** In-line Cannon Connector Socket

**Application:** Replacement part for Globe's Bulgin 7 pin plug to 6 socket cannon socket control lead adapter (GHT 3200).

**Product Code: GHT 9049**

**Product:** Bulgin 7 Pin Socket

**Application:** Replacement part for use on control output lead on Globe's range of heat treatment programmer units.

**Product Code: GHT 9051**

**Product:** Panel Mounted Cannon Plug

**Application:** Replacement panel mounted cannon control input plug for use on a range of manufacturers heat treatment units.

## Thermocouple Plugs & Sockets



**Product Code: GHT 9040**

**Product:** Thermocouple Plug Type K in Yellow with Hollow Pins

**Application:** For connecting to Type K thermocouple wire and as replacement plug for compensating cables and links.



**Product Code: GHT 9041**

**Product:** Thermocouple Socket Type K in Yellow for use with Hollow Pin Plugs

**Application:** Replacement socket for compensating cables.



**Product Code: GHT 9042**

**Product:** Thermocouple Plug Type K in Green with Solid Pins

**Application:** Solid pin plug, for connecting to Type K thermocouple wire and as replacement plug for compensating cables and links.



**Product Code: GHT 9043**

**Product:** Thermocouple Socket Type K in Green for use with Solid Pin Plugs

**Application:** Replacement socket for compensating cables.



**Product Code: GHT 9044**

**Product:** Panel Mounted Thermocouple Socket, Type K in Yellow

**Application:** Replacement socket for use in heat treatment units, recorders and programmers.



**Product Code: GHT 9045**

**Product:** Panel Mounted Thermocouple Socket Type K in Green

**Application:** Replacement socket for use in heat treatment units, recorders and programmers.



**Product Code: GHT 9046**

**Product:** Thermocouple Plug Type K in Yellow with Solid Pins

**Application:** Solid pin plug, for connecting to Type K thermocouple wire and as replacement plug for compensating cables and links.



**Product Code: GHT 9047**

**Product:** Thermocouple Inline Socket Type K in Yellow for use with Solid Pin Plugs

**Application:** Replacement socket for compensating cables.



**Product Code: GHT 9060**

**Product:** Thermocouple Plug Type K 'Quick Wire' in Yellow with Solid Pins

**Application:** For quick and easy connection to Type K thermocouple wire and as a replacement plug for compensating cables and links.



**Product Code: GHT 9077**

**Product:** Thermocouple Socket Type K 'Quick Wire' in Yellow for use with 'Quick Wire' Solid Pin Plugs

**Application:** Quick and easy to connect, replacement socket for compensating cables.



**Product Code: GHT 9078**

**Product:** Thermocouple Plug Type K 'Quick Wire' in Green with Solid Pins

**Application:** For quick and easy connection to Type K thermocouple wire and as replacement plug for compensating cables and links.



**Product Code: GHT 9079**

**Product:** Thermocouple Socket Type K 'Quick Wire' in Green for use with 'Quick Wire' Solid Pin Plugs

**Application:** Quick and easy to connect, replacement socket for compensating cables.



**Product Code: GHT 9075**

**Product:** Miniature Thermocouple Plug Type K in Green

**Application:** For use with Microcal calibration unit (GHT 2200) and Digital Infrared Thermometer (GHT 9319).



**Product Code: GHT 9095**

**Product:** Miniature Thermocouple Plug Type K in Yellow

**Application:** For use with Microcal Calibration unit (GHT 2200) and Digital Infrared Thermometer (GHT 9319).





## 110V, 240V Single Phase and 415V Three Phase Plugs & Sockets



**Product Code:** GHT 9028

**Product:** 110V In-Line Plug

**Application:** Replacement 110V, 16A, single phase, in-line power supply plug.



**Product Code:** GHT 9030

**Product:** 240V In-Line Plug

**Application:** Replacement 240V, 16A, single phase, in-line power supply plug.



**Product Code:** GHT 9029

**Product:** 110V In-line Socket

**Application:** Replacement 110V, 16A, single phase, in-line power supply socket.



**Product Code:** GHT 9031

**Product:** 240V In-Line Socket

**Application:** Replacement 240V, 16A, single phase, in-line power supply socket.



**Product Code:** GHT 9032

**Product:** 110V Panel Mounted Socket

**Application:** Replacement 110V, 16A, single phase, panel mounted power supply socket.



**Product Code:** GHT 9033

**Product:** 240V Panel Mounted Socket

**Application:** Replacement 240V, 16A, single phase, panel mounted power supply socket.



**Product Code:** GHT 9034

**Product:** 4 Pin, 415V In-line Plug

**Application:** Replacement 415V, 63A, three phase, in-line power supply plug.



**Product Code:** GHT 9037

**Product:** 5 Pin, 415V In-line Plug

**Application:** Replacement 415V, 63A, three phase and neutral, in-line power supply plug.



**Product Code:** GHT 9035

**Product:** 4 Pin, 415V In-line Socket

**Application:** Replacement 415V, 63A, three phase, in-line, power supply socket.



**Product Code:** GHT 9038

**Product:** 5 Pin, 415V In-line Socket

**Application:** Replacement 415V, 63A, three phase and neutral, in-line power supply socket.



**Product Code:** GHT 9036

**Product:** 4 Pin, 415V Panel Mounted Socket

**Application:** Replacement 415V, 63A, three phase, panel mounted, power supply socket.



**Product Code:** GHT 9039

**Product:** 5 Pin, 415V Panel Mounted Socket

**Application:** Replacement 415V, 63A, three phase and neutral, panel mounted, power supply socket.



**Product Code:** GHT 9082

**Product:** 4 Pin 415V In-line Plug 32A

**Application:** Replacement 415V, 32A three phase in-line power supply plug.



**Product Code:** GHT 9071

**Product:** 5 Pin 415V In-line Plug 32A

**Application:** Replacement 415V, 32A three phase and neutral in-line power supply plug.



**Product Code:** GHT 9083

**Product:** 4 Pin 415V In-line Socket 32A

**Application:** Replacement 415V, 32A, three phase in-line power supply plug.



**Product Code:** GHT 9084

**Product:** 5 Pin 415V In-line Socket 32A

**Application:** Replacement 415V, 32A three phase and neutral in-line power supply plug.



## Ceramic Pad Beads



**Product Code: CB001**

**Product:** Main Body Bead, Pink

**Application:** For manufacture of ceramic pad heating elements.



**Product Code: CB003**

**Product:** Male End Bead, Pink

**Application:** For manufacture of ceramic pad heating elements.



**Product Code: CB005**

**Product:** Tail Bead, Pink

**Application:** For repair or manufacture of ceramic pad heating elements.



**Product Code: CB001W**

**Product:** Main Body Bead, White

**Application:** For manufacture of ceramic pad heating elements.



**Product Code: CB002**

**Product:** Main Body Hole Bead, Pink

**Application:** For manufacture of ceramic pad heating elements.



**Product Code: CB004**

**Product:** Female End Bead, Pink

**Application:** For manufacture of ceramic pad heating elements.



**Product Code: CB005W**

**Product:** Tail Bead, White

**Application:** For repair or manufacture of ceramic pad heating elements.



**Product Code: CB002W**

**Product:** Main Body Hole Bead, White

**Application:** For manufacture of ceramic pad heating elements.

## Channel Element Beads



**Product Code: CB009**

**Product:** Channel Element Main Body Bead L=19mm, OD=30mm

**Application:** For repair or manufacture of channel elements.



**Product Code: CB011**

**Product:** Channel Element Main Body Bead L=10mm, OD=30mm

**Application:** For repair or manufacture of channel elements.



**Product Code: CB013**

**Product:** Junction Bead L=27mm, OD=13mm

**Application:** For repair or manufacture of channel elements..



**Product Code: CB016**

**Product:** Stepped Bead L=25mm, OD max=25mm, OD min =19mm

**Application:** For repair or manufacture of channel elements.



**Product Code: CB022**

**Product:** Tube Bead L=22mm, ID=5mm, OD=10mm

**Application:** For repair or manufacture of channel elements.



**Product Code: CB010**

**Product:** Channel Element Main Body Bead L=14mm, OD=30mm

**Application:** For repair or manufacture of channel elements.



**Product Code: CB012**

**Product:** Channel Element Main Body Bead L=5mm, OD=30mm

**Application:** For repair or manufacture of channel elements.



**Product Code: CB015**

**Product:** Castle Bead with Straight Edge L=19mm, OD=30mm

**Application:** For repair or manufacture of channel elements.



**Product Code: CB020**

**Product:** Twin Hole Bead L=19mm, OD=14mm

**Application:** For repair or manufacture of channel elements.



**Product Code: CB023**

**Product:** Tube Bead L=12mm, ID=5mm, OD=10mm

**Application:** For repair or manufacture of channel elements.

## Other Ceramic Beads



**Product Code: CB014**

**Product:** Castle Bead with Smooth Edge  
L=19mm, OD=30mm

**Application:** For manufacture or repair of finger elements.



**Product Code: CB018**

**Product:** Olive Bead L=9mm, OD=10, ID=4mm

**Application:** Multi use, general purpose bead.



**Product Code: CB025**

**Product:** Small Stepped Bead OD max=18mm,  
OD min =11mm, ID =4mm

**Application:** Top and bottom cap for tube bead  
CB029 and CB039.



**Product Code: CB027**

**Product:** Tube Bead L=32mm, OD=13mm,  
ID=7mm

**Application:** Multi use, general purpose bead.



**Product Code: CB029**

**Product:** Tube Bead L=50mm, OD=18mm,  
ID=12mm

**Application:** Multi use, general purpose bead.



**Product Code: CB031**

**Product:** Tank Track Bead L=22mm, OD=66mm,  
ID=12mm

**Application:** For repair or manufacture of tank  
track heating elements.



**Product Code: CB033**

**Product:** Tank Track Bead with Two Holes  
L=22mm, OD=66mm, ID=12mm

**Application:** For repair or manufacture of tank  
track heating elements.



**Product Code: CB037**

**Product:** Short Junction Bead L=15mm,  
OD=13mm, ID=8mm

**Application:** Multi use, general purpose bead.



**Product Code: CB039**

**Product:** Tube Bead L=38mm, OD=18mm,  
ID=12mm

**Application:** Multi use, general purpose bead.



**Product Code: CB017**

**Product:** Disc Washer, Furnace Coil End Bead  
L=6mm, OD=30mm, ID=5mm

**Application:** For manufacture or repair of furnace  
coil elements ceramic pad heating elements.



**Product Code: CB024**

**Product:** Small Stepped Bead Flat Top  
OD max=17mm, OD min =11mm, ID=10mm

**Application:** Top and bottom cap for tube bead  
CB029 and CB039.



**Product Code: CB026**

**Product:** Small Stepped Bead OD max=18mm,  
OD min =11mm, ID =10mm

**Application:** Top and bottom cap for tube bead  
CB029 and CB039.



**Product Code: CB028**

**Product:** Tube Bead L=42mm, OD=15, ID=10mm

**Application:** Multi use, general purpose bead.



**Product Code: CB030**

**Product:** Tube Bead L=27mm, OD=15mm,  
ID=10mm

**Application:** Multi use, general purpose bead.



**Product Code: CB032**

**Product:** Tank Track Bead with Single Hole  
L=22mm, W=66mm, H=12mm

**Application:** For repair or manufacture of tank  
track heating elements.



**Product Code: CB035**

**Product:** Tube Bead L=42mm, OD=30mm,  
ID=21mm

**Application:** Multi use, general purpose bead.



**Product Code: CB038**

**Product:** Small, Short Junction Bead  
L=10mm, OD=11mm, ID=6mm

**Application:** Multi use, general purpose bead.

## Ceramic Heating Element Core & Cold Tail Wire



**Product Code: GHT 9200**

**Product:** Nickel Chrome (NiCr) 80/20, 19 Strand, Heater Core Wire, 500m Roll

**Application:** For the repair and manufacture of standard ceramic pad heating elements required to operate at temperatures up to 800°C



**Product Code: GHT 9202**

**Product:** Nickel Chrome (NiCr) 60/16, 19 Strand, Heater Core Wire, 500m Roll

**Application:** For the repair and manufacture of NiCr 60/16 ceramic pad heating elements required to operate at temperatures up to 800°C



**Product Code: GHT 9204**

**Product:** Nickel 212, 7 Strand, Cold Tail Wire, 500m Roll (Available in 100m rolls GHT 9203)

**Application:** For the repair and manufacture of ceramic pad heating elements.



**Product Code: GHT 9201**

**Product:** Nickel Chrome (NiCr) 80/20, 37 Strand, Heater Core Wire, 500m Roll

**Application:** A highly flexible core wire or the repair and manufacture of ceramic pad heating elements required to operate at temperatures up to 800°C



**Product Code: GHT 9207**

**Product:** High Temperature Heater Core Wire, 500m Roll

**Application:** A high temperature heater core wire for the repair and manufacture of ceramic pad heating elements required to operate at temperatures up to 1200°C



**Product Code: GHT 9206**

**Product:** Nickel 212, 19 Strand, Cold Tail Wire, 500m Roll (Available in 100m rolls GHT 9205)

**Application:** A highly flexible cold tail wire for the repair and manufacture of ceramic pad heating elements.

## Stainless Steel Mesh



**Product Code: GHT 7901**

**Product:** Stainless Steel Mesh, 10kg Roll, 100mm wide. (Approx 127m long)

**Application:** For manufacture of insulation mats for FIP3 Flexible Insulated Preheaters.



**Product Code: GHT 7902**

**Product:** Stainless Steel Mesh, 10kg Roll, 125mm wide. (Approx 120m long)

**Application:** For manufacture of insulation mats for FIP4 Flexible Insulated Preheaters.



**Product Code: GHT 7903**

**Product:** Stainless Steel Mesh, 10kg Roll, 330mm wide. (Approx 64m long)  
15kg Roll available GHT 7906

**Application:** For manufacture of insulation mats.



**Product Code: GHT 7904**

**Product:** Stainless Steel Mesh, 10kg Roll, 635mm wide. (Approx 35m long)  
25kg Roll available GHT 7905

**Application:** For manufacture of insulation mats.

## Insulation Blankets (Silica Fibre)



**Product Code: GHT 7000**

**Product:** Roll of Superwool Plus Insulation Blanket 7.32m x 610mm, 25mm Thick, Density 96kg/m<sup>3</sup>

**Application:** For manufacture of insulation mats or used unmeshed for insulating pipe and fabrication heat treatments up to 1000°C or 1100°C short term.



**Product Code: GHT 7100**

**Product:** Roll of Superwool Plus Insulation Blanket 7.32m x 610mm, 25mm Thick, Density 128kg/m<sup>3</sup>

**Application:** For manufacture of insulation mats or used unmeshed for insulating pipe and fabrication heat treatments up to 1000°C or 1100°C short term.

## Insulation Mats



**Product Code: GHT 7001**

**Product:** Meshed Superwool Plus Insulation Mat 300mm x 300mm, 25mm Thick, Density 96kg/m<sup>3</sup>

**Application:** Insulating small diameter pipe heat treatments up to 1000°C or 1100°C short term.



**Product Code: GHT 7101**

**Product:** Meshed Superwool Plus Insulation Mat 300mm x 300mm, 25mm Thick, Density 128kg/m<sup>3</sup>

**Application:** Insulating small diameter pipe heat treatments up to 1000°C or 1100°C short term.



**Product Code: GHT 7002**

**Product:** Meshed Superwool Plus Insulation Mat 300mm x 600mm, 25mm Thick, Density 96kg/m<sup>3</sup>

**Application:** Insulating small diameter pipe heat treatments up to 1000°C or 1100°C short term.



**Product Code: GHT 7102**

**Product:** Meshed Superwool Plus Insulation Mat 300mm x 600mm, 25mm Thick, Density 128kg/m<sup>3</sup>

**Application:** Insulating small diameter pipe heat treatments up to 1000°C or 1100°C short term.



**Product Code: GHT 7003**

**Product:** Meshed Superwool Plus Insulation Mat 300mm x 900mm, 25mm Thick, Density 96kg/m<sup>3</sup>

**Application:** Insulating small diameter pipe heat treatments up to 1000°C or 1100°C short term.



**Product Code: GHT 7103**

**Product:** Meshed Superwool Plus Insulation Mat 300mm x 900mm, 25mm Thick, Density 128kg/m<sup>3</sup>

**Application:** Insulating small diameter pipe heat treatments up to 1000°C or 1100°C short term.



**Product Code: GHT 7004**

**Product:** Meshed Superwool Plus Insulation Mat 600mm x 600mm, 25mm Thick, Density 96kg/m<sup>3</sup>

**Application:** Insulating a range of heat treatments up to 1000°C or 1100°C short term.



**Product Code: GHT 7104**

**Product:** Meshed Superwool Plus Insulation Mat 600mm x 600mm, 25mm Thick, Density 128kg/m<sup>3</sup>

**Application:** Insulating a range of heat treatments up to 1000°C or 1100°C short term.



**Product Code: GHT 7005**

**Product:** Meshed Superwool Plus Insulation Mat 600mm x 900mm, 25mm Thick, Density 96kg/m<sup>3</sup>

**Application:** Insulating a range of heat treatments up to 1000°C or 1100°C short term.



**Product Code: GHT 7105**

**Product:** Meshed Superwool Plus Insulation Mat 600mm x 900mm, 25mm Thick, Density 128kg/m<sup>3</sup>

**Application:** Insulating a range of heat treatments up to 1000°C or 1100°C short term.



**Product Code: GHT 7006**

**Product:** Meshed Superwool Plus Insulation Mat 600mm x 1200mm, 25mm Thick, Density 96kg/m<sup>3</sup>

**Application:** Insulating a range of heat treatments up to 1000°C or 1100°C short term.



**Product Code: GHT 7106**

**Product:** Meshed Superwool Plus Insulation Mat 600mm x 1200mm, 25mm Thick, Density 128kg/m<sup>3</sup>

**Application:** Insulating a range of heat treatments up to 1000°C or 1100°C short term.



**Product Code: GHT 7007**

**Product:** Meshed Superwool Plus Insulation Mat 600mm x 1800mm, 25mm Thick, Density 96kg/m<sup>3</sup>

**Application:** Insulating a range of heat treatments up to 1000°C or 1100°C short term.



**Product Code: GHT 7107**

**Product:** Meshed Superwool Plus Insulation Mat 600mm x 1800mm, 25mm Thick, Density 128kg/m<sup>3</sup>

**Application:** Insulating a range of heat treatments up to 1000°C or 1100°C short term.



## Tools & Thermocouple Attachment Unit Spares



**Product Code: GHT 9319**

**Product:** Digital Infrared Thermometer

**Application:** This digital infrared thermometer features dual laser dot alignment and incorporates a 50:1 optic ratio (target distance/diameter ratio), which enables users to measure the temperature of small target areas from distance. This allows the operator to stand a safe and comfortable distance from the target surface to be measured. Ideal for measuring the temperature of vessels, storage tanks and hot pipes, or any other surface or point to be measured that is difficult or unsafe to reach. Surface temperatures from -59.9°C to 999.9°C with a 0.1°C (-9.9°C to 199.9°C) or 1°C resolution can be measured. The instrument also incorporates a socket for connection to a type K thermocouple.



**Product Code: GHT 2200**

**Product:** Microcal 1 Calibration Unit

**Application:** The Microcal 1 is a thermocouple output simulator, used to accurately calibrate temperature controllers, programmers and recorders. The simulator can be set to a specific °C or °F temperature output, which enables the operator to calibrate instruments which operate in conjunction with thermocouple types K, J, T, R, N, S and E. Each Microcal 1 is supplied with a one metre PVC type K thermocouple lead with miniature connectors and certificate of calibration. Output range for type K thermocouple simulation is -200°C to +1372°C.



**Product Code: GHT 9357**

**Product:** Fluke Clamp Meter 400A, 600V, 50/60 Hz

**Application:** For the measurement of a.c current (ranges 40A/400A) a.c and d.c voltage (range 600V), continuity and resistance (ranges 400.0 Ω/4000 Ω/40.00 kΩ). This useful meter and designed to perform in the toughest environments and provide noise-free, reliable results users can trust to help troubleshoot and diagnose electrical faults..



**Product Code: GHT 4901**

**Product:** Thermocouple Attachment Unit (TAU) Magnet

**Application:** Replacement (TAU) Magnet



**Product Code: GHT 4927**

**Product:** Thermocouple Attachment Unit (TAU) Magnet Assembly

**Application:** Replacement (TAU) magnet with cable assembly attachment for use with GHT 4001.



**Product Code: GHT 4903**

**Product:** Thermocouple Attachment Unit Battery

**Application:** Replacement (TAU) 12V battery.



**Product Code: GHT 4902**

**Product:** Thermocouple Attachment Unit (TAU) Pliers Assembly

**Application:** Replacement (TAU) pliers with cable assembly attachment.



**Product Code: GHT 4904**

**Product:** Thermocouple Attachment Unit Pliers

**Application:** Replacement (TAU) pliers.



**Product Code: GHT 4935**

**Product:** Magnet & Cable Assembly for SW12V

**Application:** Replacement magnet with cable assembly attachment for use with SW12V (GHT4005).



**Product Code: GHT 4933**

**Product:** Pliers, Large for SW12V with Male Dinse Plug

**Application:** Replacement pliers for attaching thicker wire or pins for use with SW12V.



**Product Code: GHT 4962**

**Product:** Pliers, Small Long Nose for SW12V with Male Dinse Plug

**Application:** Replacement pliers for attaching thinner wire for use with SW12V (GHT4005).



**Product Code: GHT 4971**

**Product:** TW158 Pliers & Cable Assembly

**Application:** Replacement pliers and cable assembly for use with TW158 (GHT 4004).



**Product Code: GHT 4970**

**Product:** TW158 Magnet & Cable Assembly

**Application:** Replacement magnet and cable assembly for use with TW158 (GHT 4004).



**Product Code: GHT 4972**

**Product:** AA Industrial Grade Battery

**Application:** Replacement battery for TW158.



**Product Code: GHT 4934**

**Product:** SW12V Male to Female Cable Assembly for Pliers

**Application:** Replacement male to female assembly for pliers with dines plug and socket for use with SW12V (GHT 4005).





## Other Spares



**Product Code:** GHT 9308

**Product:** Poldi Pocket Hardness Testing Kit

**Application:** To measure hardness of steel pipes and fabrications.



**Product Code:** GHT 9309

**Product:** Poldi Test Bars

**Application:** Spare Poldi test bars for use with Poldi pocket hardness testing kit.



**Product Code:** GHT 9310

**Product:** Telebrineller Hardness Testing Kit

**Application:** To measure hardness of steel pipes and fabrications.



**Product Code:** GHT 9311

**Product:** Telebrineller Hardness Bars

**Application:** Spare Telebrineller test bars for use with Telebrineller hardness testing kit (specify BHN of bar required when enquiring). Sold individually.



**Product Code:** GHT 9301

**Product:** Banding Machine - Winder Type

**Application:** Winder type banding machine for tightening stainless steel banding to secure larger heating element bands.



**Product Code:** GHT 9302

**Product:** Banding Machine - Ratchet Type

**Application:** Ratchet type banding machine for tightening stainless steel banding to secure larger heating element bands.



**Product Code:** GHT 9303

**Product:** Stainless Steel Banding 13mm wide, 30m Roll.

**Application:** Used to secure larger heating element bands to pipes and vessels.



**Product Code:** GHT 9304

**Product:** Stainless Steel Banding Clips (100 clips per box)

**Application:** Stainless steel clips for securing stainless steel banding.



**Product Code:** GHT 9305

**Product:** Iron Wire (Approx 25kg Roll)

**Application:** Used to secure smaller bands of heating elements and insulation mats and blankets.



**Product Code:** GHT 9312

**Product:** Thermocouple Putty (0.5kg jar)

**Application:** Hardens on the thermocouple hot junction to help avoid inaccurate readings due to possible short circuiting of the two thermocouple wires attached to the workpiece.



**Product Code:** GHT 9313

**Product:** PVC Tape (Various Colours)

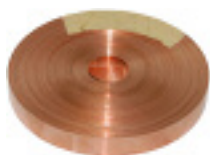
**Application:** General purpose use, for binding coiled cables when not in use or marking cables.



**Product Code:** GHT 9315

**Product:** Stainless Steel Crimp

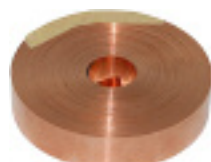
**Application:** Fitted to the end of ceramic heating element tails during manufacture or repair.



**Product Code:** GHT 9317

**Product:** Copper Shim 13mm, 1kg Roll

**Application:** For wrapping bare conductors in 10mm<sup>2</sup> and 16mm<sup>2</sup> cable prior to attaching twistlock plugs and sockets.



**Product Code:** GHT 9318

**Product:** Copper Shim 19mm, 1kg Roll

**Application:** For wrapping bare conductors in 25mm<sup>2</sup> and 35mm<sup>2</sup> cable prior to attaching twistlock plugs and sockets.



**Product Code:** GHT 9316

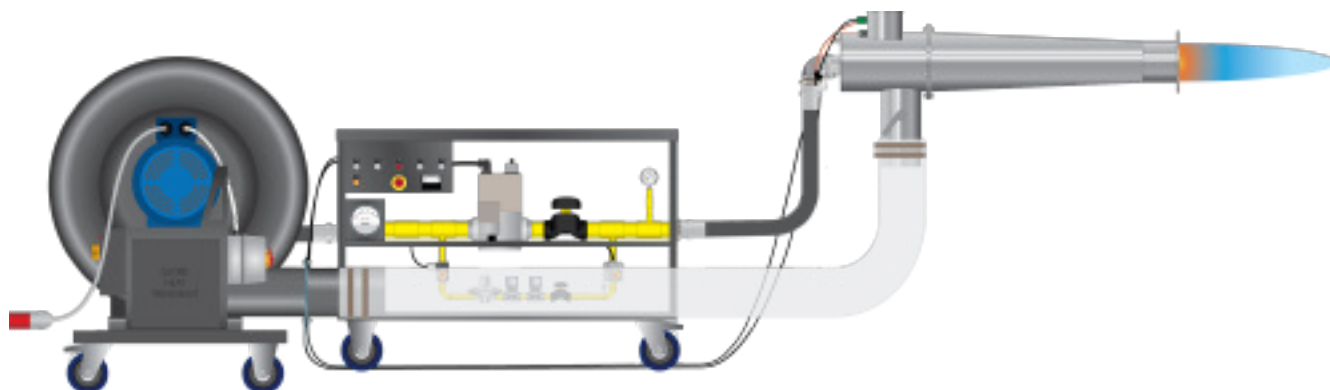
**Product:** Stainless Steel Type K Thermocouples with Thermocouple Plug (various sizes available, state diameter and length required when enquiring).

**Application:** Primarily for use in monitoring temperatures in furnaces.

## High Velocity Gas Equipment

Globe's high velocity gas equipment provides rapid and uniform heat distribution along with high turndown and excess air capability which can be utilised for a range of temperature applications. The equipment has been designed for use by skilled and trained gas heat treatment technicians and has been primarily developed for:

- performing post weld heat treatments by internal firing on large fabricated vessels, tanks, and spheres where it is impractical to heat treat a fabrication using localised electrical heat treatment.
- providing the heat source for temporary heat treatment furnaces
- for drying out of refractory linings



### Features

The three key components of our high velocity gas system are :-

- Gas burner 8,000,000 BTU
- Gas control train
- Fan blower, 11kW

Other required accessories include gas regulator (GHT G005), gas hoses (GHT G007), air duct (GHT G008) with clips (GHT G031), control lead (GHT G014) and a flame supervision UV cell (GHT G023).

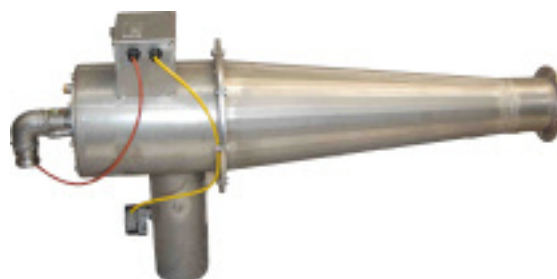
### Product Code: GHT G002

**Product:** Gas Burner, 8,000,000 BTU

Manufactured from stainless steel, Globe's 8,000,000 BTU (2345 kW) gas burner has a high turndown ratio at around 15:1 which enables tight control of the process temperature. The ratio of air to gas can be altered to increase or decrease heat input rate within the fabrication being heated.

### Features

- Air pressure safety switch
- Viewing window to manually monitor the flame status
- Butterfly lever valve
- Ignition transformer
- Ignition spark probe
- 150mm flanged output nozzle
- ½" fitting allowing connection of flame supervision UV cell



**Product Code: GHT G004****Product: Gas Control Train**

The gas control train includes the gas piping, valves, and burner control panel. The components are mounted in a robust mild steel frame fitted with caster wheels to enable the unit to be easily moved around typical site conditions..

**Features**

- 2 x ½" safety solenoid valves
- Manual diaphragm valve
- Double block safety solenoid valve
- 2" Diaphragm valve
- Gas lever stop ball valve
- Safety cut-out control unit
- Flame detection relay with audible alarm
- Low and high gas pressure safety switches
- Emergency stop switch

**Product Code: GHT G003****Product: 11kW Fan Blower**

The 11kW fan blower delivers the air flow necessary for combustion inside the burner nozzle. The fan is directly driven from a three phase electric motor and is mounted on a support frame with wheels, for ease of movement.

**Features**

- Delivers up to 2500m<sup>3</sup> of air per hour with damper 100% open
- 500VA transformer with two 110V auxiliary sockets (one for the control train)
- Control train power isolated for safety, if fan blower is not operating
- Guarded air inlet
- Power isolator switch with current overload cut-out
- Three phase supply voltage 415V, 32A, 50Hz
- Note: cannot be used on 60Hz. Please request a 60Hz motor if required.

A full set of globes standard high velocity gas equipment is available as product code GHT G001. This will include all the main components and accessories listed above.

## Useful Technical Information

### Pipe Size Outside Diameter & Wall Thickness

			WALL THICKNESS IN mm FOR PIPE SCHEDULES													
NB/NPS (inches)	DN (mm)	Outside diameter (mm)	Sch. 5	Sch. 10	Sch. 20	Sch. 30	Sch. 40	STD	Sch. 60	Sch. 80	XS	Sch. 100	Sch. 120	Sch. 120	Sch. 160	XXS
1	25	33.4	1.7	2.8	-	2.9	3.4	3.4	-	4.5	4.5	-	-	-	6.4	9.1
2	50	60.3	1.7	2.8	-	3.2	3.9	3.9	-	5.5	5.5	-	6.4	-	8.7	11.1
3	80	88.9	2.1	3.0	-	4.8	5.5	5.5	-	7.6	7.6	-	8.9	-	11.1	15.2
4	100	114.3	2.1	3.0	-	4.8	6.0	6.0	-	8.6	8.6	-	11.1	-	13.5	17.1
5	125	141.3	2.8	3.4	-	-	6.6	6.6	-	9.5	9.5	-	12.7	-	15.9	19.1
6	150	168.3	2.8	3.4	-	-	7.1	7.1	-	11.0	11.0	-	14.3	-	18.3	21.9
8	200	219.1	2.8	3.8	6.4	7.0	8.2	8.2	10.3	12.7	12.7	15.1	18.3	20.6	23.0	22.2
10	250	273.1	3.4	4.2	6.4	7.8	9.3	9.3	12.7	15.1	12.7	18.2	21.4	25.4	28.6	25.4
12	300	323.9	4.0	4.6	6.4	8.4	10.3	9.5	14.3	17.5	12.7	21.4	25.4	28.6	33.3	25.4
14	350	355.6	4.0	6.4	7.9	9.5	11.1	9.5	15.1	19.1	12.7	23.8	27.8	31.8	35.7	-
16	400	406.4	4.2	6.4	7.9	9.5	12.7	9.5	16.7	21.4	12.7	26.2	30.9	36.5	40.5	-
18	450	457.2	4.2	6.4	7.9	11.1	14.3	9.5	19.1	23.8	12.7	29.4	34.9	39.7	45.2	-
20	500	508.0	4.8	6.4	9.5	12.7	15.1	9.5	20.6	26.2	12.7	32.5	38.1	44.5	50.0	-
22	550	558.8	4.8	6.4	9.5	12.7	-	9.5	22.2	28.6	12.7	34.9	41.3	47.6	54.0	-
24	600	60.96	5.5	6.4	9.5	14.3	17.5	9.5	24.6	30.9	12.7	38.9	46.0	52.4	59.5	-

#### TEMPERATURE CONVERSIONS

Converting a temperature reading in °C to °F Multiply °C value by 1.8 and then add 32 Eg: (600°C x 1.8) + 32 = 1112	Converting a temperature reading in °F to °C Deduct 32 from the °F value and then divide by 1.8 Eg: (1112°F - 32) ÷ 1.8 = 600 °C
Converting a temperature heating or cooling rate in °C per hour to °F per hour : Multiply °C per hour value by 1.8 Eg: 200 °C per hour x 1.8 = 360 °F per hour	Converting a temperature heating or cooling in °F per hour to °C per hour : Divide °F per hour value by 1.8 Eg: 495 °F per hour ÷ 1.8 = 275 °C per hour

#### POWER, HEAT FLOW RATE CONVERSIONS

To convert kW to BTU/hr Multiply kW value by 3412.142 Eg: 50 kW x 3412.142 = 170,607.1 BTU/hr	To convert BTU/hr to kW Divide BTU/hr value by 3412.142 Eg: 6,000,000 BTU/hr ÷ 3412.142 = 1758.43 kW
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#### ELECTRICAL CALCULATIONS / OHMS LAW

Voltage = Resistance x Current: Eg: 1.33Ω x 45A = 60V	Current = Voltage ÷ Resistance: Eg: 60V ÷ 1.33Ω = 45A
Resistance = Voltage ÷ Current Eg: 60V ÷ 45A = 1.33Ω	Voltage = Power ÷ Current: Eg: 2,700 W ÷ 45A = 60V

#### PIPE CIRCUMFERENCE

Multiply outside diameter by 3.142 Eg: for an outside diameter of 168.3mm Circumference = 168.3mm x 3.142 = 529mm	For heater selection to calculate the effective circumference of a pipe with ceramic pad heating elements applied, use the formula (outside diameter of pipe + 10 mm) x 3.142 Eg: (168.3mm + 10mm) x 3.142 = 560mm
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#### LENGTH CONVERSIONS

To convert inches to millimetres Multiply inches value by 25.4 Eg: 6 inches x 25.4 = 152.4mm	To convert millimetres to inches Divide millimetres value by 25.4 Eg: 152.4mm ÷ 25.4 = 6 inches
To convert feet to metres Multiply feet value by 0.3048 Eg: 100ft x 0.3048 = 30.48m	To convert metres to feet Divide metres value by 0.3048 Eg: 30.48m ÷ 0.3048 = 100ft



## Ceramic Heater Selection Guide

NB inches	DN mm	OD mm	Up to Sch	Up to WT	Hours to reach 700°C	Power required kW	Ideal Ceramic Heaters (*referred to as heaters below)	Ceramic Heater Product Code & Quantity	Alternative Ceramic Heaters	Ceramic Heater Product Ref & Quantity
1	25	33.4	160	6.4	3.5	2.7	One 6 bead wide heater with 14mm overlap	GHT 5117 x 1	n/a	n/a
2	50	60.3	160	8.7	3.5	2.7	One 9 bead wide heater with 4mm overlap	GHT 5124 x 1	n/a	n/a
3	80	88.9	160	11.1	3.5	2.7	One 12 bead wide heater with 6mm gap	GHT 5130 x 1	n/a	n/a
4	100	114.3	160	13.4	3.5	2.7	One 15 bead wide heater with 11mm gap	GHT 5136 x 1	One 16 bead wide heater with 14 mm overlap	GHT 5137 x 1
6	150	168.3	160	18.3	3.5	5.6	One band of two 11 bead wide heaters with no gaps or overlaps	GHT 5128 x 2	One band of two 12 bead wide heaters with two 25 mm overlaps	GHT 5130 x 2
8	200	219.0	80	12.7	3.5	3.7	One band of two 14 bead wide heaters with 5 mm gaps between heaters	GHT 5134 x 2	One band of two 15 bead wide heaters with two 20 mm overlaps	GHT 5136 x 2
8	200	219.0	160	23.0	3.5	7.4	One band of three 9 bead wide heaters with 15 mm gaps between heaters	GHT 5124 x 3	One band of three 10 bead wide heaters with three 23 mm overlaps	GHT 5136 x 2
10	250	273.0	80	15.1	3.5	5.0	One band of three 12 bead wide heaters with three 23 mm overlaps	GHT 5130 x 3	n/a	n/a
10	250	273.0	160	28.6	4.0	10.0	One band of four 8 bead wide heaters with 22 mm gaps between heaters	GHT 5122 x 4	One band of four 9 bead wide heaters with one 11mm overlap	GHT 5124 x 4
12	300	323.9	80	17.5	3.5	7.0	One band of four 10 bead wide heaters with 7 mm gaps between heaters	GHT 5126 x 4	One band of four 11 bead wide heaters with four 18 mm overlaps	GHT 5128 x 4
12	300	323.9	160	33.3	4.5	14.0	One band of five 8 bead wide heaters with 10 mm gaps between heaters	GHT 5122 x 5	One band of five 9 bead wide heaters with four 18 mm overlaps	GHT 5124 x 5
14	350	355.6	80	19.1	5.0	9.0	One band of four 11 bead wide heaters with 7 mm gaps between heaters	GHT 5128 x 4	One band of four 12 bead wide heaters with four 18 mm overlaps	GHT 5130 x 4
14	350	355.6	160	35.7	5.0	16.0	One band of six 7 bead wide heaters with 16 mm gaps between heaters	GHT 5120 x 6	One band of six 8 bead wide heaters with six 9 mm overlaps	GHT 5122 x 6
16	400	406.4	80	21.4	3.5	11.0	One band of five 10 bead wide heaters with 7 mm gaps between heaters	GHT 5126 x 5	One band of five 11 bead wide heaters with five 19 mm overlaps	GHT 5128 x 5
16	400	406.4	160	40.5	6.0	19.0	Two bands of four 12 bead wide heaters with 22mm gaps between heaters	GHT 5130 x 8	n/a	n/a
18	450	457.2	80	23.8	3.5	15.0	One band of six 9 bead wide heaters with 20 mm gaps between heaters	GHT 5124 x 6	One band of six 10 bead wide heaters with six 10 mm overlaps	GHT 5126 x 6
18	450	457.2	160	45.2	6.5	24.0	Two bands of five 10 bead wide heaters with 39 mm gaps between heaters	GHT 5126 x 10	Two bands of five 11 bead wide heaters with 14 mm gaps between heaters	GHT 5128 x 10
20	500	508.0	80	26.2	3.5	18.0	One band of eight 8 bead wide heaters with 3 mm gaps between heaters	GHT 5122 x 8	One band of eight 9 bead wide heaters with eight 21 mm overlaps	GHT 5124 x 8
20	500	508.0	160	50.5	7.0	29.0	Two bands of six 10 bead wide heaters with 16 mm gaps between heaters	GHT 5126 x 12	Two bands of six 9 bead wide heaters with 46 mm gaps between heaters	GHT 5124 x 12
22	550	558.8	80	28.6	4.0	21.0	One band of eight 8 bead wide heaters with 23 mm gaps between heaters	GHT 5122 x 8	One band of eight 9 bead wide heaters with one 16 mm overlap	GHT 5124 x 8
22	550	558.8	160	54.0	7.5	35.0	Two bands of seven 10 bead wide heaters with no gaps or overlaps	GHT 5126 x 14	Two bands of seven 9 bead wide heaters with 30 mm gaps between	GHT 5124 x 14
24	600	609.9	80	31.0	4.0	25.0	Two bands of five 15 bead wide heaters with 10mm gaps between heaters	GHT 5136 x 10	Two bands of five 16 bead wide heaters with five 15mm overlaps	GHT 5137 x 10
24	600	609.9	160	60.0	8.5	41.0	Two bands of eight 9 bead wide heaters with 19 mm gaps between heaters	GHT 5124 x 16	Two bands of eight 8 bead wide heaters with 43mm gaps between heaters	GHT 5122 x 16

Suggested ceramic heaters are a general guide only and are based on meeting the following recommended criteria:

- Gap between heaters limited to wall thickness (WT) or 50mm whichever is the smaller to ensure temperature is reached throughout the wall thickness
- Maximum overlap of any heaters being limited to a maximum on 25mm to prevent hot spots and heater damage.
- Time to temperature based on typical codes and standards heating rate of 200°C per hour for up to 1" (25mm) WT and for WT above 1" (25mm) the heating rate is based on 200°C per hour ÷ WT inches (or ÷ WT mm ÷ 25 mm)
- Power required being that to reach 700° C in the detailed time to temperature
- Minimum of 25mm layer of 96kg/m<sup>3</sup> silica fibre insulation being applied to insulate the ceramic heaters
- Stated gaps and overlaps are nominal only and are dependent upon the age and condition of the heating element





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