

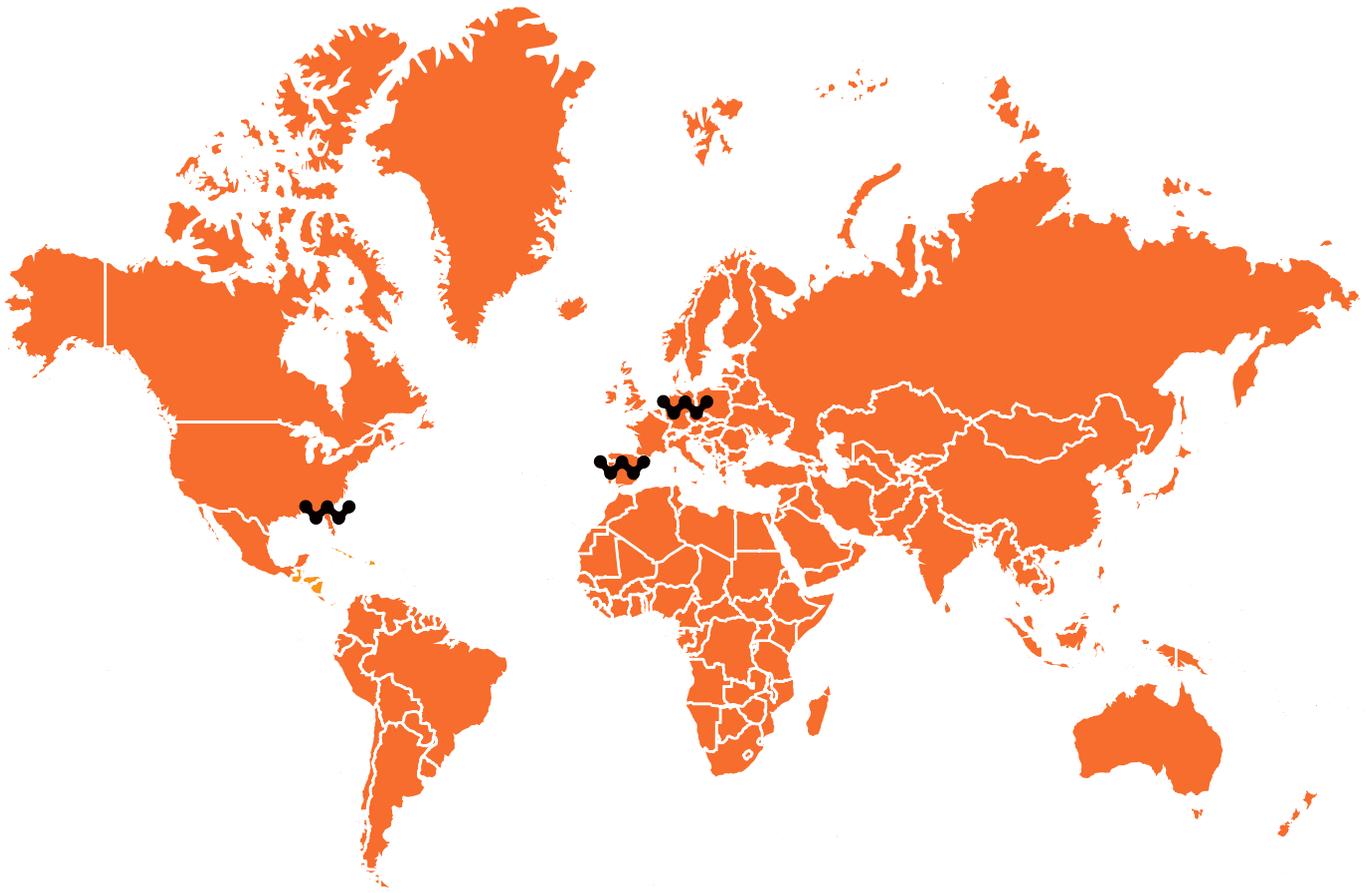


**Customized or made-to-order
products specialist.**



Cartridge Heaters

M A N U F A C T U R E R



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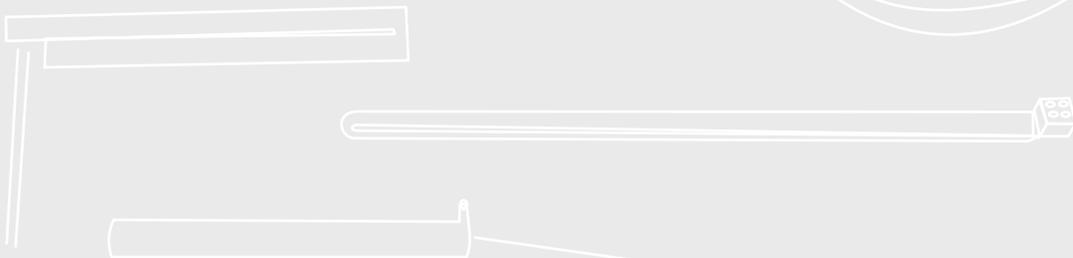
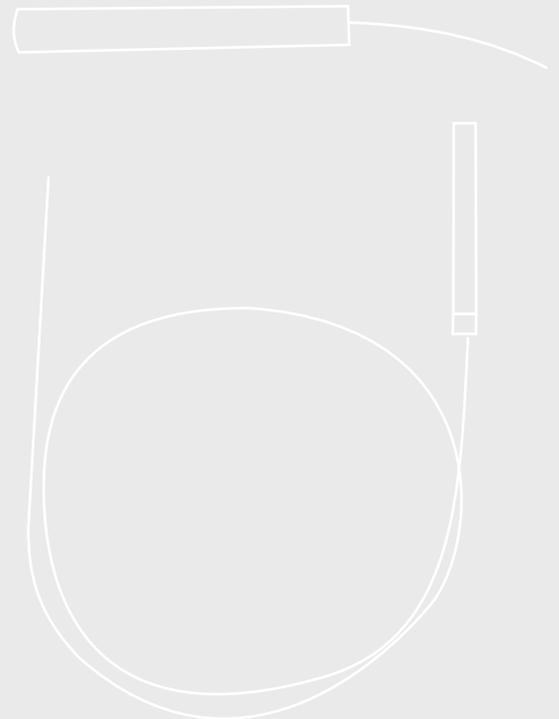
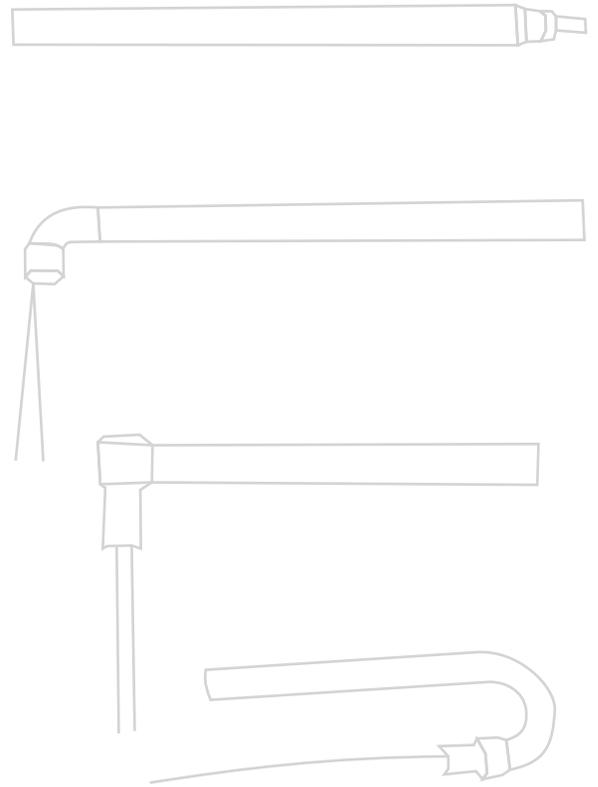
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Your Personal Advisor

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Maxiwatt[®]
www.cartridge-heater.com

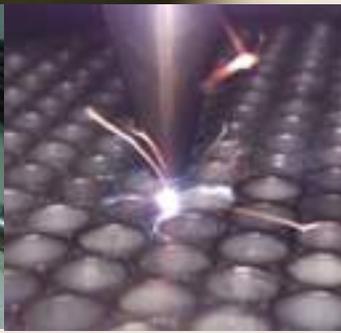


Knowing us

For over 50 years our aim has been to offer the best cartridge heaters to our customers. The highest technological standards are used in their manufacture. We ensure first class quality in our products. Before our products are incorporated into the cartridge, they must undergo the strictest quality tests. Therefore, we are able to supply the most suitable and reliable cartridge heaters, which may vary in size, from only 4 mm Microwatt cartridge to cartridges from 700 mm and 6 m length.

Together with the importance of good service, Maxiwatt offer our customers a 48-hour delivery service, permanent stock, made-to-order cartridges (available in 24 hours) as well as free consulting, manufacturing research, plus a long list of advantages for the benefit of our customers.





Maxiwatt

applies the following
American and European
Directives in system design and
production of resistors:

Directive 1989/336 EEC "relating to electromagnetic
compatibility"

Directive 2002/95/EC (ROHS) "on the restriction of the use of
certain hazardous substances in electrical and electronic equipment"

Directive 2002/96/EC (WEEE) "on waste electrical and electronic equip-
ment"

Directive 2006/95/EC "relating to electrical equipment designed for use within certain
voltage limits"

Quality.

C E R T I F I E D

Bureau Veritas certify that the Manager System of Cartridge-Heaters Maxi watt has been audited and found to be in accordance with the requirements of the management system standards: ISO9001:2008.



Maxiwatt are UL recognized, certificate no. 20130312-E358713, for Component Cartridge Heaters, Models BP, MC and AC



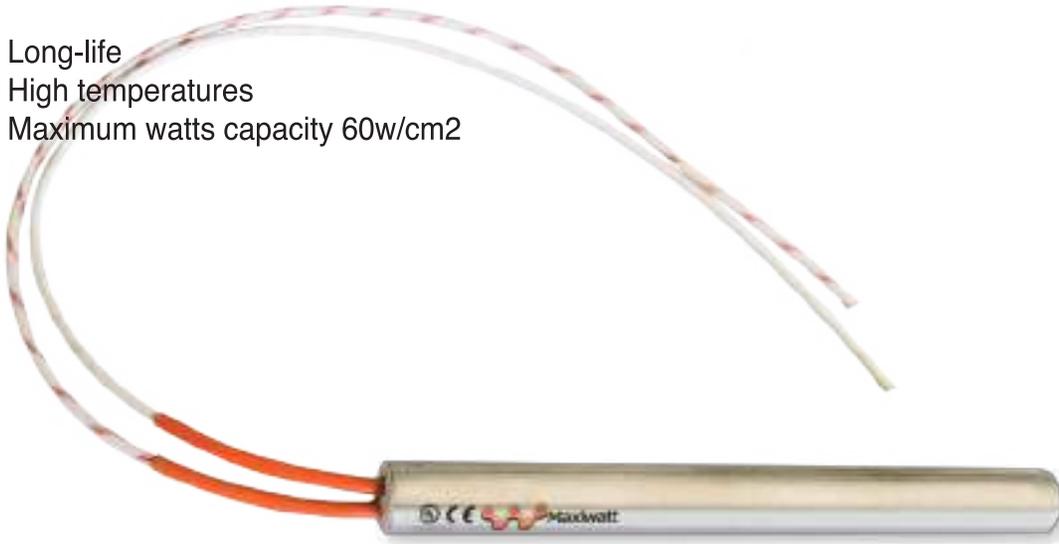
Premium Quality. High Density. Maxiwatt compressed cartridges

Cartridges with high watt density.

They provide a great uniform distribution of heat, and are hermetically manufactured, which considerably increases the long life of the resistance as well as preventing the oxidation of the heating wire even at high temperatures. Over 25.000 measurements in high density cartridges available.

High density Maxiwatt cartridges are manufactured from prime quality materials and undergoing the strictest safety controls, according with international standards.

- Long-life
- High temperatures
- Maximum watts capacity 60w/cm²



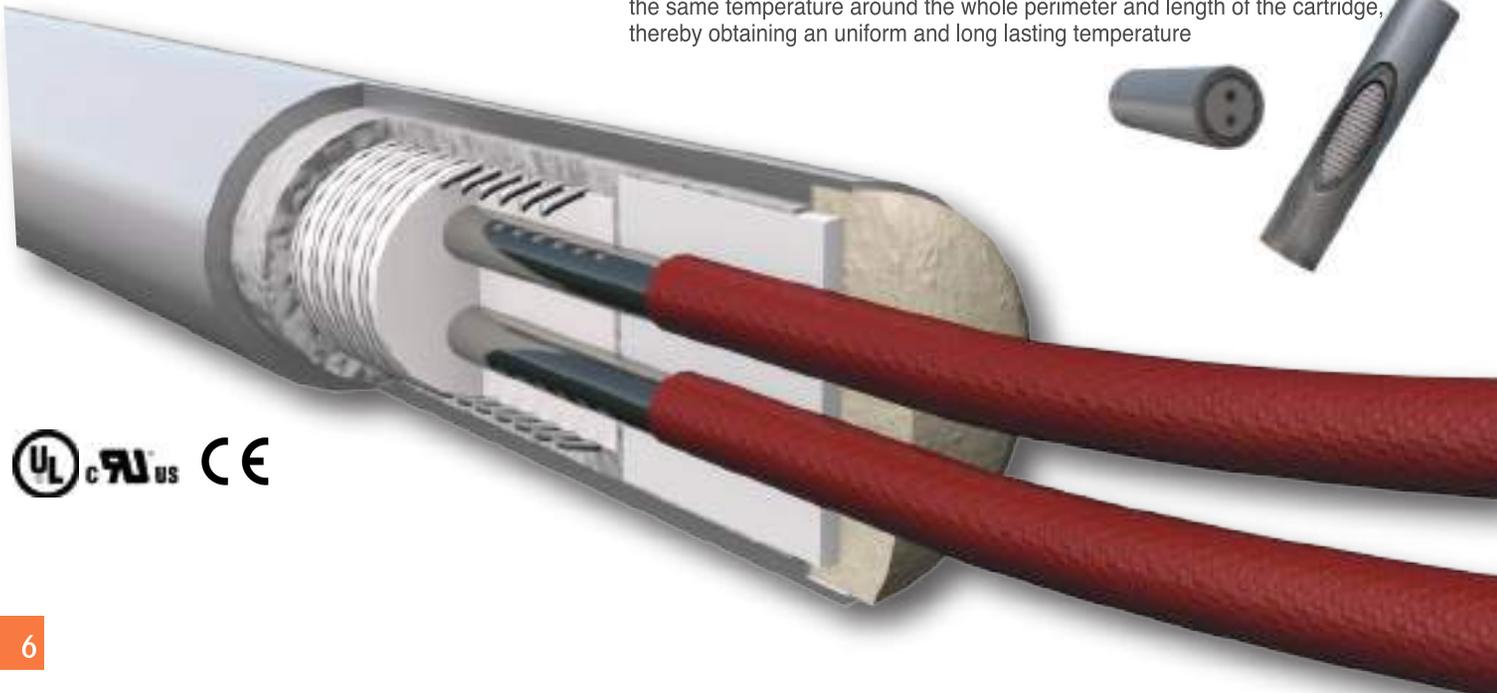
Use

They are able to resist the toughest working conditions, such as vibration, moisture, fluid, spills, frequent expansion and where temperatures until 750°C (1380° F) are required, or temperatures within a limited space.

Applications

- Molds
- Smelting of materials
- Heating of fluids
- Welding heating, etc

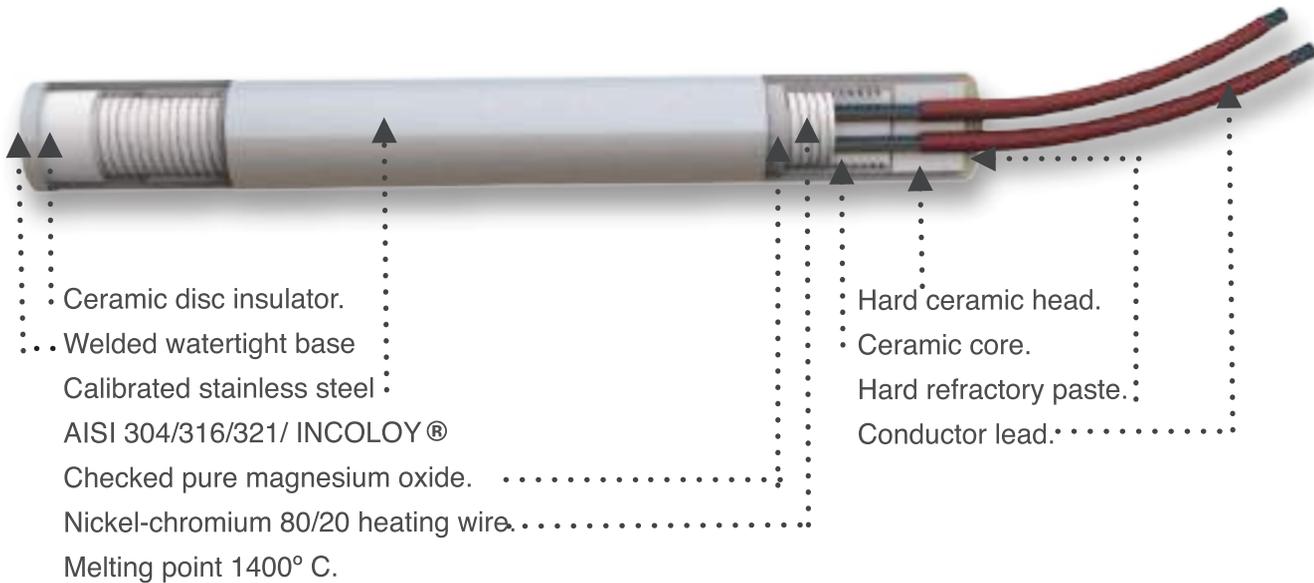
The unique system of Maxiwatt manufacture makes perfect concentricity possible and together with its electronic system of the space between the spirals guarantees the same temperature around the whole perimeter and length of the cartridge, thereby obtaining an uniform and long lasting temperature



Maxiwatt Model AC cartridge heaters are manufactured by means of compression for all their components, with the purpose of lengthening their working life.

The conductor wire is wound spirally the hard ceramic body into which the conductor lead is inserted, with no connection (sometimes, a connection may occur on the outside of the cartridge). Ceramic discs and heads are inserted to obtain insulation and protection. Everything is coated with checked pure magnesium oxide to ensure a total full cartridge.

Later a process of compression and another of correction of the surface is carried out until the required measure is calibrated. Finally, a strict quality control is carried out to guarantee the best performance of the cartridge



Ni-Cr 80/20 heating wire

The most important element for ensuring the long life of the cartridge heater is the heating wire used in its manufacturing. Maxiwatt uses the best to be found anywhere in the market. After extensive research and years of experience it has been shown that a heating wire made of Ni-Cr 80/20 is both efficient and resistant to the formation of metallic coating brought out by oxidation. As the austenitic combination of nickel and chromium lacks iron, it is the most recommended for the heating wire.

Total insulation

Magnesium oxide is used for insulation, and is the most suitable for insulating the heating wire and the conductor lead against the current of the sheath of the cartridge. When the space between the heating wire and the protecting sheath is too short, an insulator is required, this should be composed of the best qualities: purity, high degree of thermal cartridge heater, maximum melting point, uniform and exact compression, perfect thermal conductivity, etc, so that the best insulation is obtained. Control of the working temperature is essential. It must never exceed the working limits of the cartridge. It is very important to store the cartridge in a dry space because magnesium oxide is very hygroscopic. Just a few drops of water particles are enough to weaken considerably the insulating capacity of magnesium oxide bolts, opposite outputs, etc.

The different types of connection are shown on protections section

Conductor lead

For the induction of electricity a nickel cable (sheathed by fiberglass) is used. It is coated with silicone and fire-proof glazing. The cable wires are turned. Sometimes, the charge of the cartridge prevents the use of this type of connection. Finally, special procedures are used: threaded outputs with bolts, opposite outputs, etc. The different types of connection are shown on protections section

Stainless steel 321: cover

The stainless steel 321 cover provides the highest quality to the manufacture of cartridge heaters. The materials which can be used in their manufacture are limited due to the strain caused by constant expansion due to the cooling and heating of the cartridge heater, the lack of a metal cover, which causes oxidation, and abrasive action. Stainless steel has been shown to be the most suitable material for the construction of cartridge heaters.

Technical Key

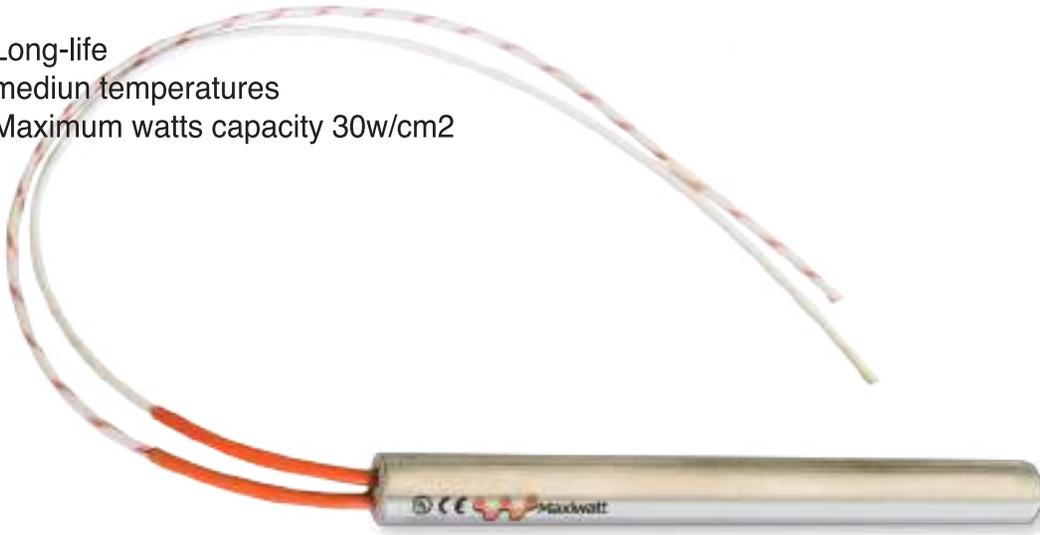
Sheath material	Stainless steel 1.4541
Heating conductor material	NiCr 8020
Max. Sheath temperature	750 °C / 1380 °F
Max. Voltage	480 V
Wattage tolerance*	.+5% -10%
High voltage resistance*	1500 V AC at > 24 V operation voltage
	500 V at <= 24 V operation voltage
Insulation resistance*	>= 5 MW at 500 V DC
Leakage current*	<= 0.5 mA at 253 V AC
Length tolerance	A 1.5%, min A 1mm
Standard diameter tolerance	metric -0.02 / -0.06 mm
	inch: A 0.79 mils [A 0.02 mm]

TESTED AT ENVIRONMENTAL TEMPERATURE

Medium Watt Density Maxiwatt compressed cartridges

Cartridges specially build for long elements that need high reability and porper temperature distribution. They are hermetically produced and compact to increase element's life, preventing wire's oxidation. The internal structure is characterized due to the different wires arranged in spring forms, along the entire length. Medium watt density cartridge heaters are produced with the best raw materials available in the market, that have supported the most rigorous security tests to international standards.

- Long-life
- mediun temperatures
- Maximum watts capacity 30w/cm2



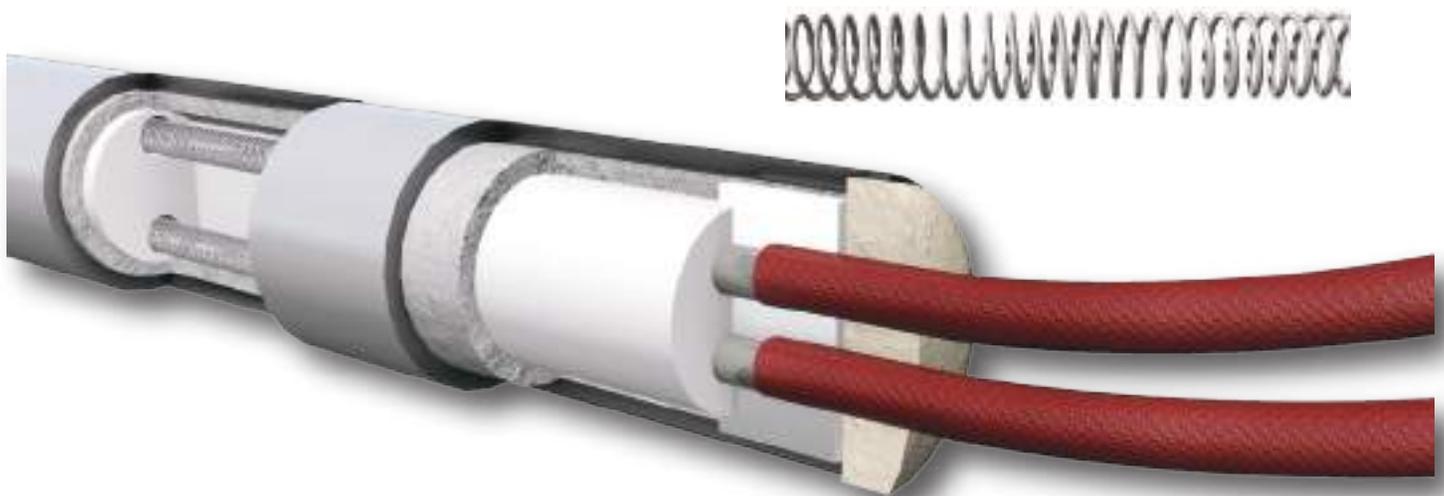
Use

They are able to resist the toughest working conditions, such as vibration, moisture, fluid, spills, frequent expansion and where temperatures until 750°C (1380° F) are required, or temperatures within a limited space.

Applications

- Molds
- Smelting of materials
- Heating of fluids
- Heat welding, etc

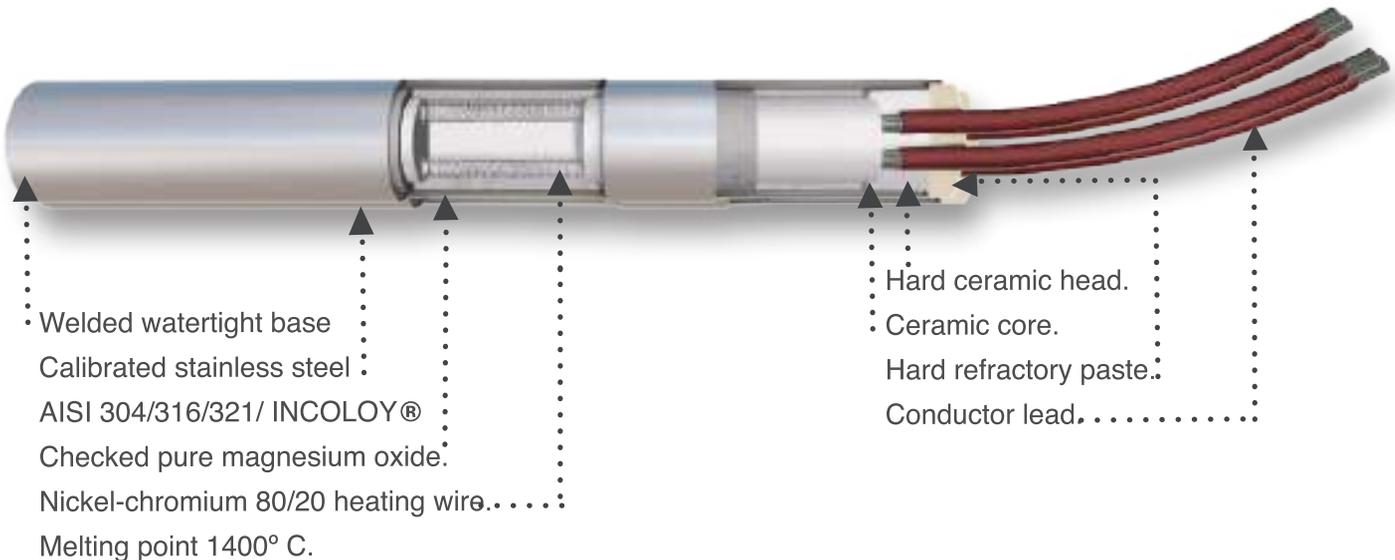
The unique Maxiwatt manufacturing system, together with its electronic system, makes it possible to separate the spirals, guaranteeing the same temperature for the whole perimeter and length of the cartridge. Therefore, an uniform and long lasting temperature is obtained



Maxiwatt Model MC cartridge heaters are manufactured by means of compression for all their components, with the purpose of lengthening their working life.

The conductor wire is wound spirally the hard ceramic body into which the conductor lead is inserted, with no connection (sometimes, a connection may occur on the outside of the cartridge). Ceramic discs and heads are inserted to obtain insulation and protection. Everything is coated with checked pure magnesium oxide to ensure a total full cartridge.

Later a process of compression and another of correction of the surface is carried out until the required measure is calibrated. Finally, a strict quality control is carried out to guarantee the best performance of the cartridge



Ni-Cr 80/20 heating wire

The most important element for ensuring the long life of the cartridge heater is the heating wire used in its manufacturing. Maxi watt uses the best to be found anywhere in the market. After extensive research and years of experience it has been shown that a heating wire made of Ni-Cr 80/20 is both efficient and resistant to the formation of metallic coating brought out by oxidation. As the austenitic combination of nickel and chromium lacks iron, it is the most recommended for the heating wire.

Total insulation

Magnesium oxide is used for insulation, and is the most suitable for insulating the heating wire and the conductor lead against the current of the sheath of the cartridge. When the space between the heating wire and the protecting sheath is too short, an insulator is required, this should be composed of the best qualities: purity, high degree of thermal cartridge heater, maximum melting point, uniform and exact compression, perfect thermal conductivity, etc, so that the best insulation is obtained.

Control of the working temperature is essential. It must never exceed the working limits of the cartridge. It is very important to store the cartridge in a dry space because magnesium oxide is very hygroscopic. Just a few drops of water particles are enough to weaken considerably the insulating capacity of magnesium oxide bolts, opposite outputs, etc.

The different types of connection are shown on protections section

Conductor lead

For the induction of electricity a nickel cable (sheathed by fiberglass) is used. It is coated with silicone and fire-proof glazing. The cable wires are turned. Sometimes, the charge of the cartridge prevents the use of this type of connection. Finally, special procedures are used: threaded outputs with bolts, opposite outputs, etc. The different types of connection are shown on protections section

Stainless steel 321: cover

The stainless steel 321 cover provides the highest quality to the manufacture of cartridge heaters. The materials which can be used in their manufacture are limited due to the strain caused by constant expansion due to the cooling and heating of the cartridge heater, the lack of a metal cover, which causes oxidation, and abrasive action. Stainless steel has been shown to be the most suitable material for the construction of cartridge heaters.

Technical Key

Sheath material	Stainless steel 1.4541
Heating conductor material	NiCr 8020
Max. Sheath temperature	750 °C / 1380 °F
Max. Voltage	480 V
Wattage tolerance*	,+5% -10%
High voltage resistance*	1500 V AC at > 24 V operation voltage
	500 V at <= 24 V operation voltage
Insulation resistance*	>= 5 MW at 500 V DC
Leakage current*	<= 0.5 mA at 253 V AC
Length tolerance	A 1.5%, min A 1mm
Standard diameter tolerance	metric -0.02 / -0.06 mm
	inch: A 0.79 mils [A 0.02 mm]

TESTED AT ENVIRONMENTAL TEMPERATURE

Low Watt Density.

Cartridges with low voltage charge are the most recommended for moderate heating. Made with the best quality stainless steel tube that can be found, or with other material such as copper, brass or aluminium. Everything is perfectly calibrated, such as the exterior. A long-life ceramic piece is inserted into the tube and stands up to every continuous temperature variation, together with the best possible thermal conductivity, as the piece is in contact with the wall of the tube, giving a perfect distribution of the heat.

- Economical
- Uniform temperature
- Variety of terminations



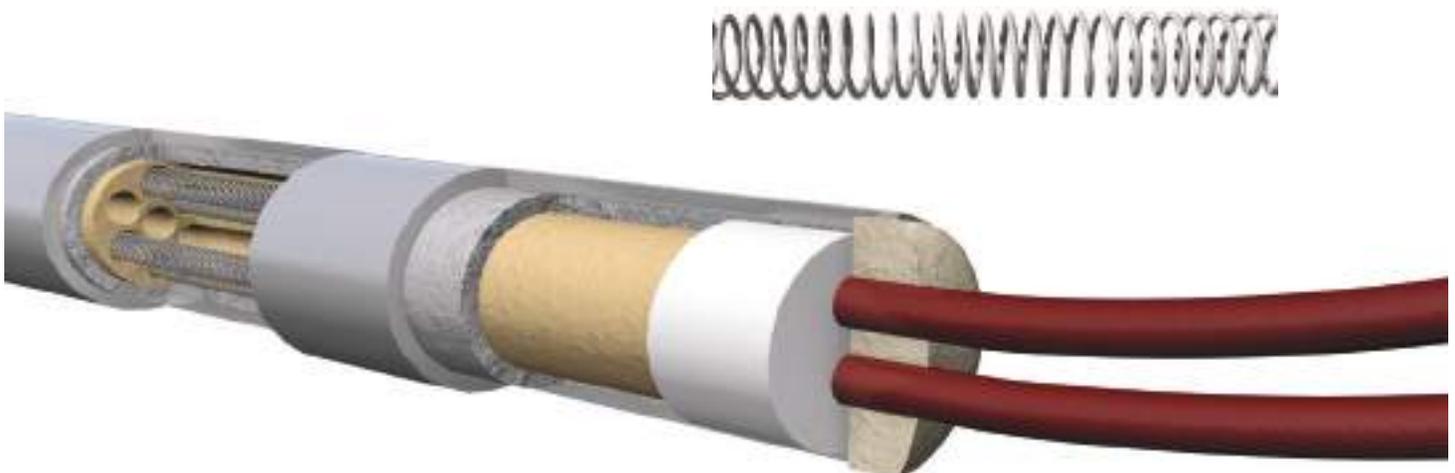
Use

They are able to resist the toughest working conditions, such as vibration, moisture, fluid, spills, frequent expansion and where temperatures of between 400°C and 750°C are required, or temperatures within a limited space.

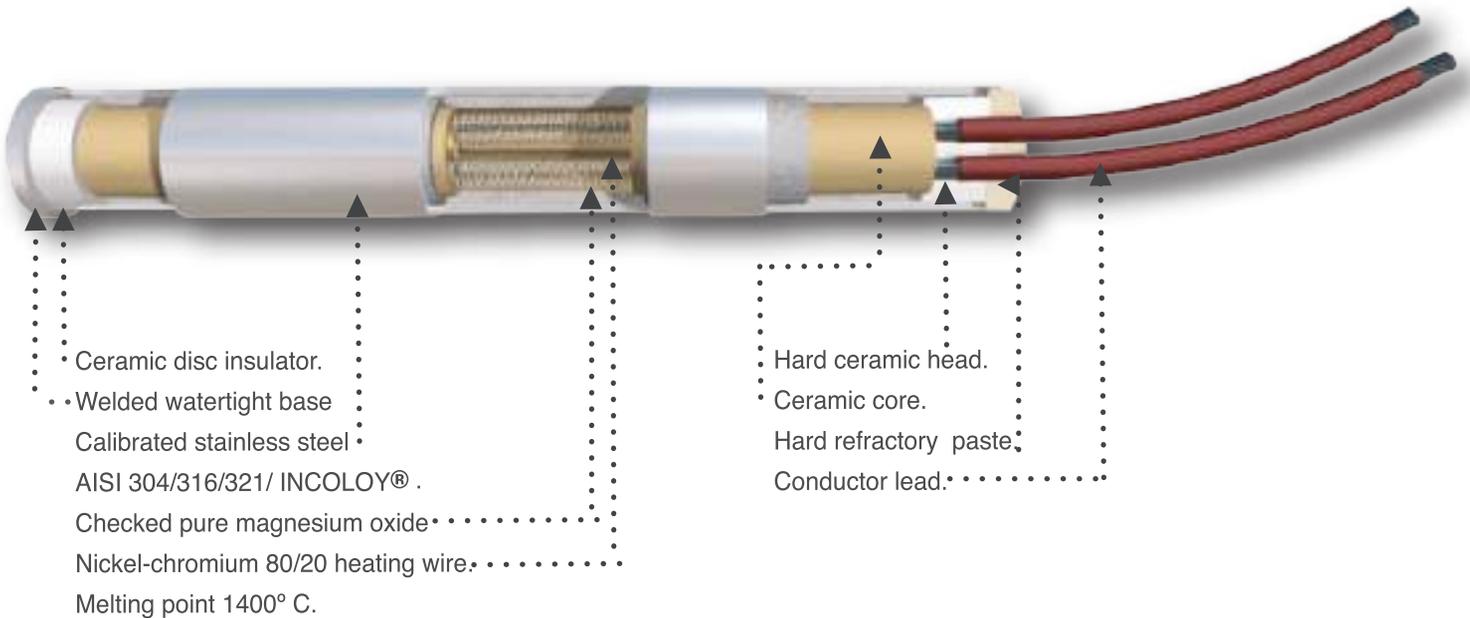
Applications

- Molds
- Smelting of materials
- Heating of fluids
- Welding heating, etc

The unique Maxiwatt manufacturing system, together with its electronic system, makes it possible to separate the spirals, guaranteeing the same temperature for the whole perimeter and length of the cartridge. Therefore, an uniform and long lasting temperature is obtained



Maxiwatt LC Model The heater wire is inside the ceramic piece and is of first class quality. The nickel-chromium heating wire is the most recommended in the manufacturing of cartridge heaters due to its high degree of tolerance to high temperatures. Coated with checked magnesium oxide, covering the whole inside of the cartridge heater. Obtaining, a perfect conductivity between the heating wire and the heater



Ni-Cr 80/20 heating wire

The most important element to ensure the long life of the cartridge heater is the heating wire used in its manufacturing. Maxi watt uses the best to be found anywhere in the market. After extensive research and years of experience it has been shown that a heating wire made of Ni-Cr 80/20 is both efficient and resistant to the formation of metallic coating brought out by oxidation. As the austenitic combination of nickel and chromium lacks iron, it is the most recommended for the heating wire.

Total insulation

Magnesium oxide is used for insulation, and is the most suitable for isolating the heating wire and the conductor lead against the current of the sheath of the cartridge. When the space between the heating wire and the protecting sheath is too short, an insulator is required, this should be composed of the best qualities: purity, high degree of thermic cartridge heater, maximum melting point, uniform and exact compression, perfect thermal conductivity, etc, so that the best isolation is obtained.

Control of the working temperature is essential. It must never exceed the working limits of the cartridge. It is very important to store the cartridge in a dry space because magnesium oxide is very hygroscopic. Just a few drops of water particles are enough to weaken considerably the isolating capacity of magnesium oxide bolts, opposite outputs, etc. The different types of connection are shown on protections section.

Conductor lead

For the induction of electricity a nickel cable (sheathed by fiberglass) is used. It is coated with silicone and fire-proof glazing. The cable wires are turned. Sometimes, the charge of the cartridge prevents the use of this type of connection. Finally, special procedures are used: threaded outputs with bolts, opposite outputs, etc. The different types of connection are shown on protections section

Stainless steel 321: cover

The stainless steel 321 cover provides the highest quality to the manufacture of cartridge heaters. The materials which can be used in their manufacture are limited due to the strain caused by constant expansion due to the cooling and heating of the cartridge heater, the lack of a metal cover, which causes oxidation, and abrasive action. Stainless steel has been shown to be the most suitable material for the construction of cartridge heaters

Technical Key

Sheath material	Stainless steel 1.4541
Heating conductor material	NiCr 8020
Max. Sheath temperature	750 °C / 1380 °F
Max. Voltage	480 V
Wattage tolerance*	.+5% -10%
High voltage resistance*	1500 V AC at > 24 V operation voltage
	500 V at <= 24 V operation voltage
Insulation resistance*	>= 5 MW at 500 V DC
Leakage current*	<= 0.5 mA at 253 V AC
Lenght tolerance	A 1.5%, min A 1mm
Standard diameter tolerance	metric -0,02 / -0,06 mm
	inch: A 0.79 mils [A 0,02 mm]

TESTED AT ENVIRONMENTAL TEMPERATURE

Medium Watt Density Square Maxiwatt compressed cartridges

Easy installation

They are especially designed for quick adaptation in molds or surfaces where the use of rivets either causes problems or impossibility to use. Cuadrawatt cartridges are the better choice. Cartridges with a low density of watts are most recommended for moderate heating up to a maximum temperatures of 300°C. The square tube is made of prime quality stainless steel.

All the tubes are perfectly calibrated both inside and outside, into which a long-life ceramic piece is inserted. The tube resists a continuous temperature variation and has the best possible thermal conductivity, as the ceramic piece is in contact with the wall of the tube, which makes the most perfect heat distribution possible.

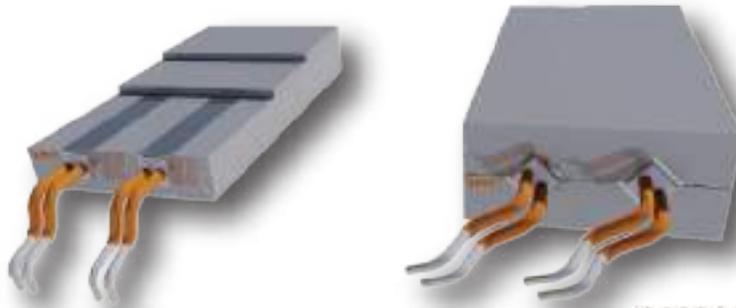
Options.

- Special Cold Sections
- Distributed Wattage
- Single Circuit Element
- Independent Heat Zones
- Three Phase Element
- Dual Voltage Designs
- Thermocouple A,B,C
- RTD Elements
- Thermostats



Use

They are able to resist the toughest working conditions, such as vibration, moisture, fluid, spills, frequent expansion and where temperatures of between 400°C and 750°C are required, or temperatures within a limited space.

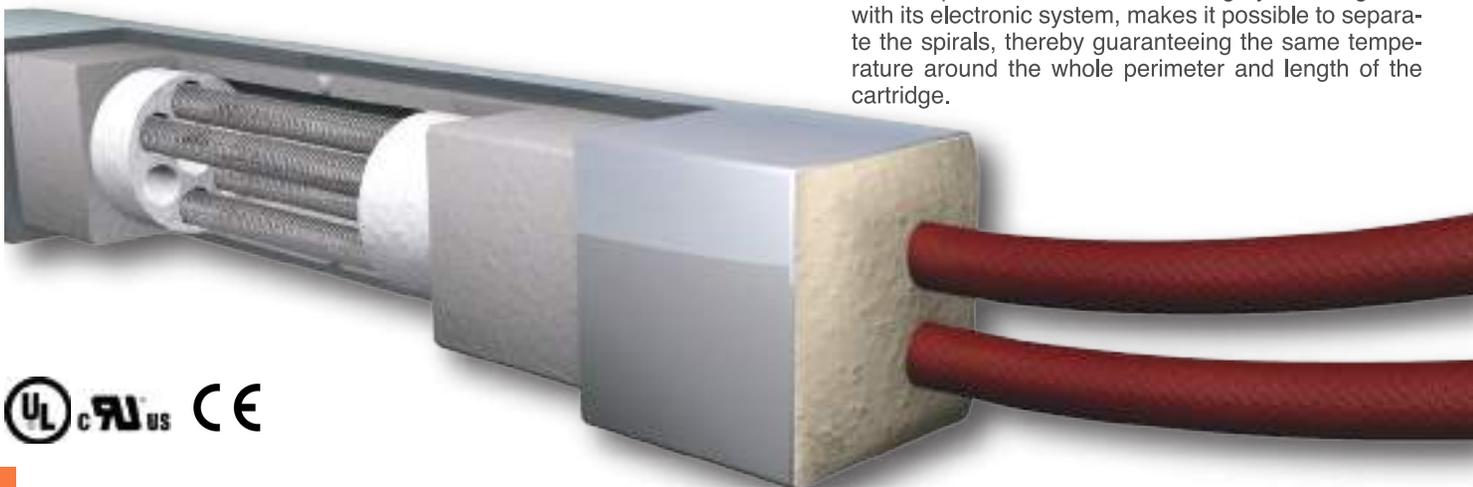


Applications

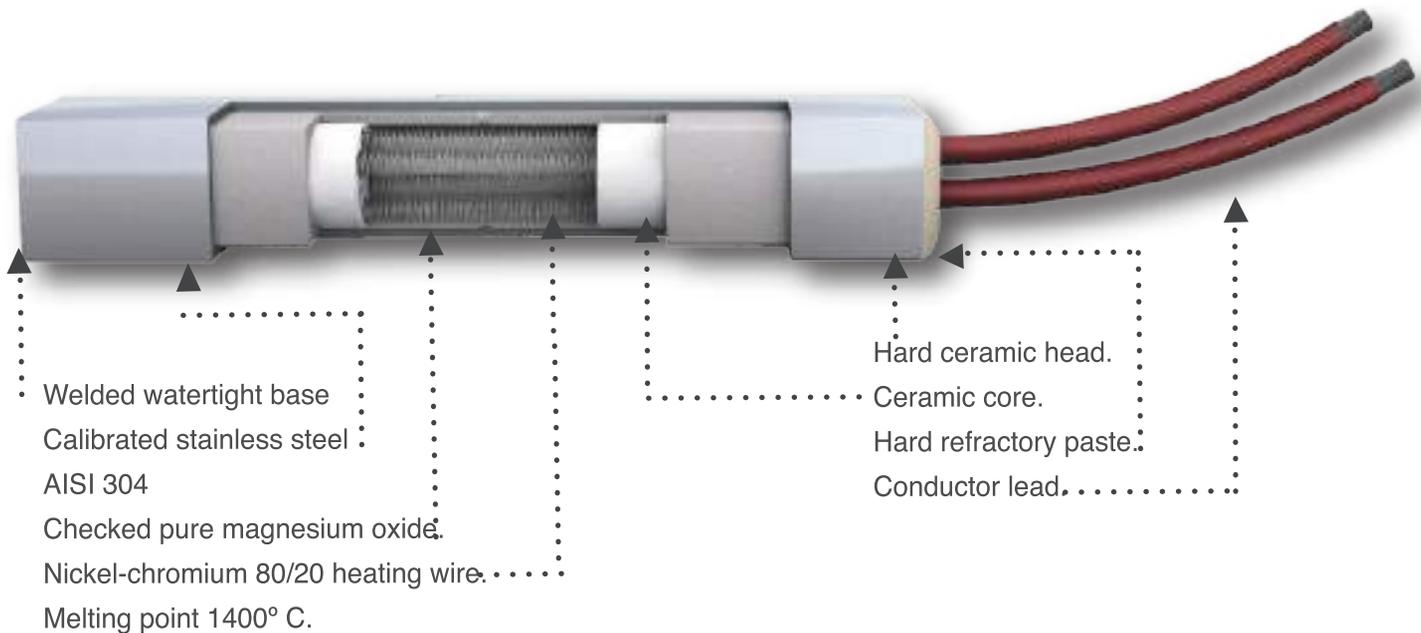
- Molds
- Smelting of materials
- Heating of fluids
- Welding heating, etc



The unique Maxiwatt manufacturing system, together with its electronic system, makes it possible to separate the spirals, thereby guaranteeing the same temperature around the whole perimeter and length of the cartridge.



Maxiwatt Model SC The heating wire is inside the ceramic piece. The nickel-chromium heater wire is of first-class quality and is the most recommended for the manufacturing of cartridge heaters due to its great tolerance to high temperatures. Everything is coated with checked magnesium oxide. The whole interior of the cartridge is also coated. Therefore, there is excellent conductivity between the heating wire and the object to be heated.



Ni-Cr 80/20 heating wire

The most important element for ensuring the long life of the cartridge heater is the heating wire used in its manufacture. Maxi watt uses the best to be found anywhere in the market. After extensive research and years of experience it has been shown that a heating wire made of Ni-Cr 80/20 is both efficient and resistant to the formation of metallic coating brought out by oxidation. As the austenitic combination of nickel and chromium lacks iron, it is the most recommended for the heating wire.

Total insulation

Magnesium oxide is used for insulation, and is the most suitable for insulating the heating wire and the conductor lead against the current of the sheath of the cartridge. When the space between the heating wire and the protecting sheath is too short, an insulator is required, this should be composed of the best qualities: purity, high degree of thermal cartridge heater, maximum melting point, uniform and exact compression, perfect thermal conductivity, etc, so that the best isolation is obtained. Control of the working temperature is essential. It must never exceed the working limits of the cartridge. It is very important to store the cartridge in a dry space because magnesium oxide is very hygroscopic. Just a few drops of water particles are enough to weaken considerably the insulating capacity of magnesium oxide bolts, opposite outputs, etc. The different types of connection are shown on protections section

Conductor lead

For the induction of electricity a nickel cable (sheathed by fiberglass) is used. It is coated with silicone and fire-proof glazing. The cable wires are turned. Sometimes, the charge of the cartridge prevents the use of this type of connection. Finally, special procedures are used: threaded outputs with bolts, opposite outputs, etc. The different types of connection are shown on protections section

Stainless steel 321: cover

The stainless steel 321 cover provides the highest quality for the manufacture of cartridge heaters. The materials which can be used in their manufacture are limited due to the strain caused by constant expansion due to the cooling and heating of the cartridge heater, the lack of a metal cover, which causes oxidation, and abrasive action. Stainless steel has been shown to be the most suitable material for the construction of cartridge heaters.

Technical Key

Sheath material	Stainless steel 1.4541
Heating conductor material	NiCr 8020
Max. Sheath temperature	750 °C / 1380 °F
Max. Voltage	480 V
Wattage tolerance*	±5% -10%
High voltage resistance*	1500 V AC at > 24 V operation voltage 500 V at ≤ 24 V operation voltage
Insulation resistance*	≥ 5 MW at 500 V DC
Leakage current*	≤ 0.5 mA at 253 V AC
Length tolerance	A 1.5%, min A 1mm
Standard diameter tolerance	metric -0.02 / -0.06 mm inch: A 0.79 mils [A 0.02 mm]

TESTED AT ENVIRONMENTAL TEMPERATURE

Split-Sheath Cartridge Heaters **Expan**

The most adjusted and faster extraction system.

The expandable cartridge Heaters solve two major problems with conventional high density heaters, poor durability and proper fit extraction improving the accuracy of the temperature with hundreds of attachments and exits for all kind of processes.

With the expandable cartridge heaters we join for the first time the best of the common cartridge heater with cartridge and an adaptive tuning quick and easy removal.



The system

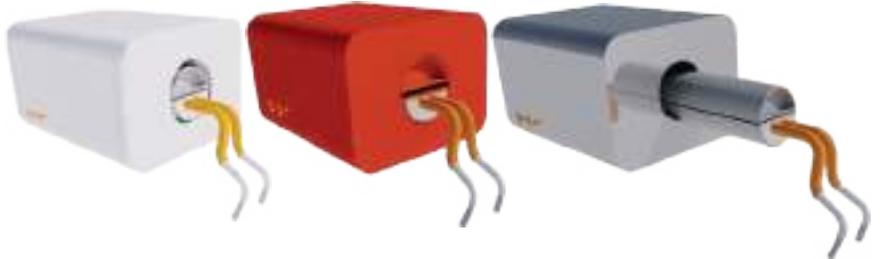
The Expandable Heaters consist of a compressed cartridge heater with high performance and are made with the best materials with the particularity of being able to expand itself because of the fork-shaped tensioned in a point that allows the expansion and retraction of the cartridge.

At the contraction process the Expandable Heaters returns to its original shape, helping for easy removal of the bore, with the subsequent advantages like not having to drill the mold, reuse them in other locations, reduction of stock since it will have the same diameter for different bores, etc.



The extraction, faster and easier even in long lengths.

Expandable heaters, due their unique construction, allow the easy removal when the cartridge is cold saving time and considerable effort, minimizing the time that the machine is arrested and human resources. Needs no adjustment paste and you will not have to drill, destroy or undertake the costly operations to remove the cartridge, you can quickly use the Expandable Heaters in other molds needing heating.



Please note that you must provide us with exact hole diameter in order to start EXPAN production with the right tolerance. It is important to get harmony between the hole and heating element for a perfect working. Tolerance for EXPAN heaters $-0.0039'' / -0.006''$. For example, if the hole you will insert the EXPAN element is $\varnothing 1/2''$ we will produce the split elements between $0.496'' - 0.494''$. You must inform us about the exact Diameter for the hole you will place the heater and we will produce with the right tolerance.

In the expansion process the expandable cartridge fits the walls the bore, providing the correct transference of the temperature, and avoiding the "oven effect" that occurs in other types of cartridge poorly dimensioned with respect to diameter and room. The drills that for any other circumstances are oversized have the best solution to allow more adjustment tolerance.

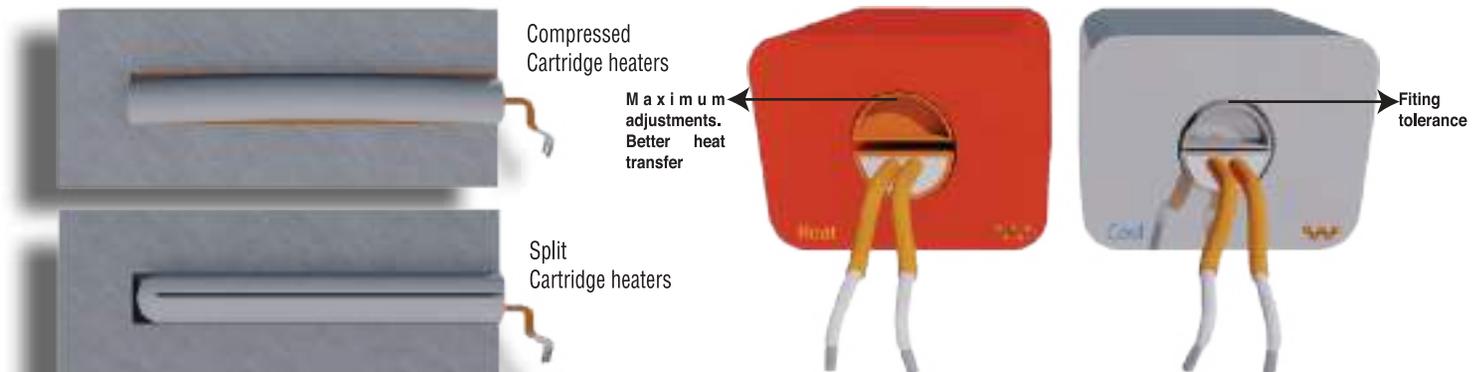
Long lengths

Expandable heaters will not bend, this is the main problem with conventional cartridges, due to the shape of their tubes which perform the function to reinforce the structure of expandable heaters longitudinally, helping for their removal, by expanding equally throughout the perimeter, heat transference will be uniform not creating curvatures which produce cavities resulting in overheating breaking the heater.

Faster Removal

The heater that fits in the hole.

The expansion around the perimeter of the cartridge makes of the Expandable Heater the best solution for large diameter holes, wear and tear caused by expansion or made out of tolerance.



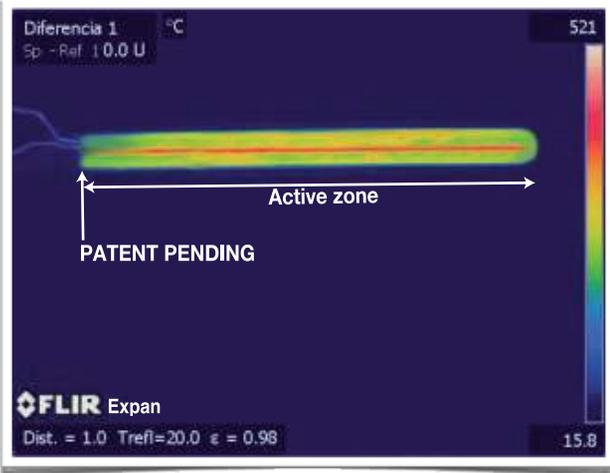
The adjustment tolerance of the heater is called the distance obtained between the surface of the cartridge and the inner wall of the hole, which must be uniform throughout its lineal perimeter.

Longer Durability "The Difference"

More Nickel/Chrome 80/20 heating wire at the Expandable Heaters than in a bipartite heater or a compressed cartridge heater with the same compression. The Expandable Heater has more heating wire (nickel / chromium 80/20) than the bipartite heaters or compressed cartridges with the same compression. The main key is the more heating wire, the larger diameter for the same amount of watts. The larger diameter reduces fatigue and use of the heating wire, resulting into a longer service life.

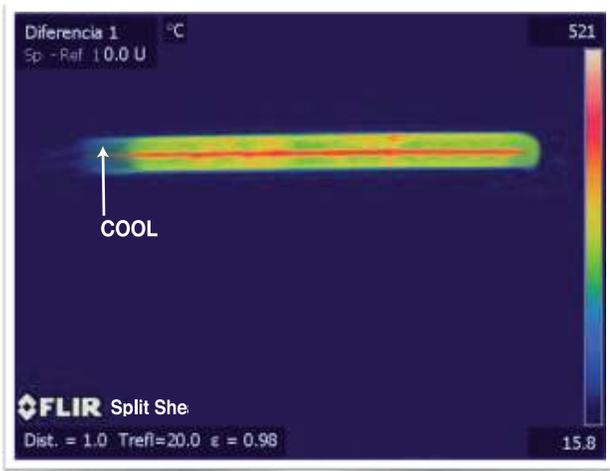
Expan Heaters thermography

Clearly shows the absence of cold zones due to its unique construction, which allows more heating wire in the whole area of the cartridge included in the connection areas.



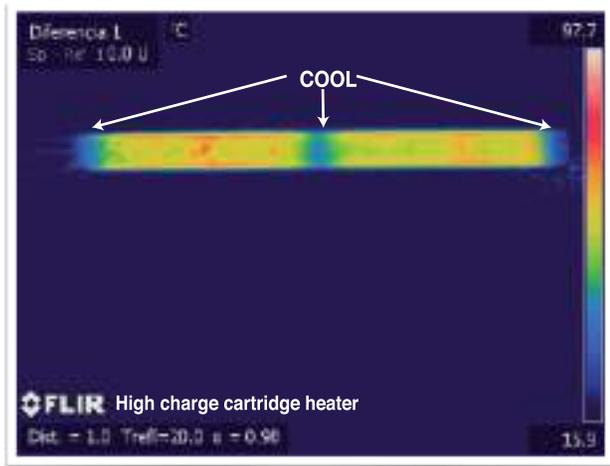
Split Sheath cartridge heater thermography

It is observed cold spots at the end of the connections. This does not heat evenly the mold or application.

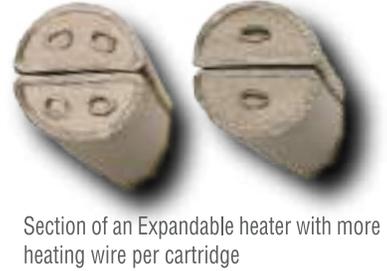


Compressed high density cartridge heater thermography

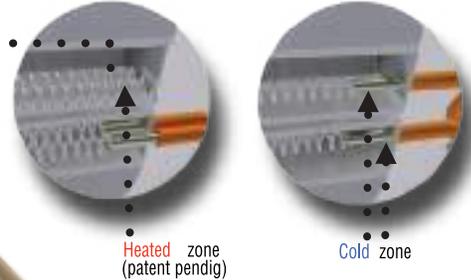
It is observed various cold areas, especially in the center of the heater from 250 mm



Expan Split Sheath Insertion



Expan Split Sheath



Advantage over common cartridge heaters

- Longer life
- Faster and easier extraction
- More length without bending
- More hole tolerance
- Heated ends

Advantage over split heaters

- The only one cartridge heater in the market that heats along the complete length.
- Compressed version.
- Flexible leads from inside.
- Built in Thermocouple.



Lead Wires

Each application with it special leads

Placing the correct lead for each application is fundamental for the security and life of the cartridge heater. Excessive vibration and temperature would cause them to lose insulation and produce breakage and short-circuits.

Insulation Material.	Operating temperature.	Useful life.	High temperatures.	Vibrations.	Hermetic.
Silicon Rubber.	302°F / 150°C	Poor	Poor	excellent	good
Fluoropolymer Lead (PFA).	392°F / 200°C	excellent	good	excellent	excellent
Fiberglass/silicone.	482°F / 250°C	good	good	poor	poor
Fiberglass/mica/silicone.	752°F / 400°C	good	excellent	poor	good
Ceramic Bead Insulation.	1200°F / 650°C	poor	excellent	male	male

Protect your Lead Wires.

Protect your leads to avoid shocks, scratches, overheating, cleaning, contamination, cuts, explosive environments, moisture, etc. you will win in security and life will increase, giving extra professionalism to your project.

Material.	First quality.	Useful life.	High temperatures.	Vibrations.	Hermetic.
Nickel Tube	Bumps / Dirt	poor	good	poor	good
Braided Metal	Cuts / Dirt	good	good	excellent	poor
Fiberglass sleeve	High temperatures	poor	good	good	good
silicone sleeve	Moisture/ Cleaning	poor	good	excellent	excellent
Stainless Steel Sleeve	Bumps/ Cuts/ Hermetic	excellent	excellent	good	excellent

Internal ending



External ending



Connection tube (inches)	6,5	8	10	12,5	16	20
Nickel Tube	–	6	8	10	12	12
Braided Metal	–	–	8	9	12	12
Fiberglass sleeve	4	6	8	10	12	12
Silicone sleeve	–	6	10	10	12	12
Stainless Steel Sleeve	–	–	10	10	12	12

Conection tube (mm)	6,5	8	10	12,5	16	20
Nickel Tube	–	6	8	10	12	12
Braided Metal	–	–	8	9	12	12
Fiberglass sleeve	4	6	8	10	12	12
Silicone sleeve	–	6	10	10	12	12
Stainless Steel Sleeve	–	–	10	10	12	12

We have all features you may require for underwater applications, vibration, high temperatures, special food grade, corrosive environment, moisture etc.

FiberGlass Lead

Ref. P.Cv.



Pure nickel lead, sheathed with fiberglass, coated with silicone, heat resistant. Standard lead.

Fluoropolymer Lead (PFA)

Ref. P.Tf.



Ideal for watertightness and cleanliness of the cable. Do not resist high temperatures.

3 Core Silicone Tube

Ref. P.Cs.



Ideal for long lengths. Does resist high temperatures. Copper core.

Steatite

Ref. P.st.



Ideal for high temperatures. Interior pure nickel wire. Not recommended for to knocking or excessive vibrations.

Braided Metal

Ref. P.Tm

For places with high friction and constant flexibility. Stainless steel.

Stainless steel armor

Ref. P.S.Sa.



Protects against shocks and spillage of viscous products, relative mobility. The maximum in protection for abrasive

Nickel Rod

Ref. Vn.



Rigid pure nickel rods where moving the position of the connection is required. They do not resist repeated movements. They are coated with insulated materials.

Flexible Silicone Lead

Ref. P.Sf.



Ideal for excessive movement, vibration and moderate temperature.

Silicone Sleeve

Re. P.Fs.



Ideal for moisture environment with moderate friction. Protects the interior of fiberglass lead

Fiberglass Sleeve

Ref. P.Fv.



Protects against high temperatures, moderate friction. Ideal for twined conduction cable.

Nickel Tube

Ref. P.Tv.



Protects against shocks and spillage of viscous products, relative mobility.

Moisture Protection.



S1 Standard ending, refractory paste

S2 With steatite ceramic piece

S3 Sealed with silicone are temperature resistant up to 180 °C and should be used in connection with silicone insulated leads.

S4 Epoxy resin are temperature resistant up to 120 °C and can be used in connection with silicone insulated as well as PTFE insulated leads.

1W PTFE dresins can resist temperatures resistant up to 230 °C and should be used in connection with PTFE insulated leads.

Termocouple: cartridge with termocouple.

The best complement.

Cartridges can be made with inbuilt sounding lead at any point of the cartridge, according to the customer's requirements. The advantages of the sounding lead are countless. For instance, length of cartridge life, accuracy e of localized temperature, energy saving and where a conventional sounding lead cannot be housed due to a question of space.

Several types of temperature regulators which require a special thermocouple can be found on the market, eg, J or K

Thermocouple isolated "Tr.A"

Model is fully insulated against the heating wire of the connections and the protecting sheath. Among its qualities the protection of the instruments for temperature measurements stands out. This is very important as the reading takes place within a few minutes and the reading-out continues to be quick.



Thermocouple "Tr.B"

The joint of the thermocouple, in this model, is in contact with the protecting sheath of the cartridge heater, thereby giving a quick and accurate reading where the cartridge is housed.



Thermocouple "Tr.C"

This model can be housed according to the customer's requirements. This is important for long cartridges so that a medium temperature is obtained.



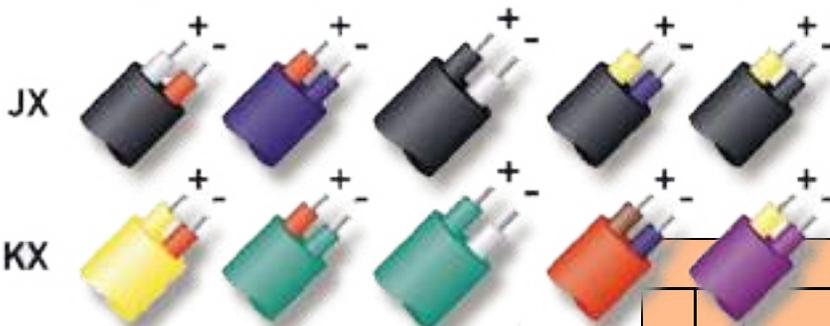
Installation tips

When a thermocouple cartridge heater is installed, several factors must be noted. If the temperatures of several cartridge heaters need to be controlled, it is advisable to place the thermocouple in the middle of the group.

The thermocouple should never be placed at one of the endings of the cartridge as this will send out wrong inner temperature information to the heater. The wire of the thermocouple is 1 meter long, you should compensate and adjust your regulator to have a more accurate temperature reading.



ANSI DIN IEC/CEI BS NF



THERMOCOUPLE CHARACTERISTICS TABLE

ANSI / ASTM	Symbol / Single	Generic Names	Color Coding		Magnetic Yes/No	Environment (Bare Wire)
			Individual Conductor	Overall Jacket Extension Grade Wire		
J	JP JN	Iron Constantan, Nominal Composition: 55% Cu, 45% Ni	WHITE	BLACK	x x	Reducing Vacuu, inert. Limited use in oxidizing at High Temperatures. Not recommended for low temps.
			RED			
K	KP KN	Chromel, Nominal Composition: 90% Ni, 10% Cr Alumel®, Nominal Composition: 95% Ni, 2% Mn, 2% Al	YELO	YELLOW	x x	Clean Oxidizing and Inert. Limited use in Vacuum or Reducing
			RED			

TOLERANCE OF THERMOCOUPLES						
ANSI / ASTM	Temperature Range	°C Standard	Special	Temperature Range	°F Standard	Special
J	-200° to -67°	±1.5%T	±0.8%T*	-328° to -88°	±1.5% (T-32)	±0.8% (T-32)*
	-67° to -62°	±1°	±0.8%T*	-88° to -80°	±1.8°	±0.8% (T-32)*
	-62° to 125°	±1°	±0.5*	-80° to 257°	±1.8°	±0.9*
	125° to 133°	±1°	±0.4%T	257° to 272°	±1.8°	±0.4% (T-32)
	133° to 370°	±0.75%T	±0.4%T	272° to 700°	±0.75% (T-32)	±0.4% (T-32)
K	-200° to -110°	±2%T	-	-328° to -166°	±2% (T-32)	-
	-100° to 0°	±2.2°	-	-166° to 32°	±3.96°	-0
	0° to 275°	±2.2°	±1.1*	32° to 527°	±3.96°	±1.98*
	275° to 293°	±2.2°	±0.4%T	527° to 560°	±3.96°	±0.4% (T-32)
	293° to 1260°	±0.75%T	±0.4%T	560° to 2300°	±0.75% (T-32)	±0.4% (T-32)

Thermal Fuses REF: "Tf"

Thermal fuses are installed inside the cartridge heater and are used to limit the heating element temperature, producing a cut-off electricity, protecting from overheating. Once open-system occurs, it can't be rearmed. It requires around 2 1/2" (43.5mm) at the beginning or ending of the cartridge to place it.



Thermostat REF: "Tm"

Thermostats are factory made in a broad range of temperature, max 300°F (150°C). Its function is to cut the electrical input, when it reaches the right temperature, and when the temperature goes down, they let electricity pass again.



REF: "PT100."

A PT100 is a temperature sensor. It consists in a platinum wire that at 0°C has 100 ohms and when the temperature grows, its electrical resistance also grows. The PT100 can easily give precise readings of a decimal of degree with the advantage that the PT100 don't split up gradually giving wrong readings. It's just that normally it opens, whereby the measuring device detects immediately the sensor failure and gives notice. The PT100 can also be settled at a distance of the measurer without any problem (until 30 meter) using the conventional copper wire to make the extension. In general a PT100 doesn't should be set in places submitted to excessive vibration, because it is probably that it breaks.

mm	6.5	8	10	12.5	16	20	25
PT100	S	S	S,F	S,F	S,F	S,F	S,F
THERMOSTAT	-	-	-	S	S,F	S,F	S,F
THERMOFUSIBLE	-	-	-	S	S,F	S,F	S,F

inches	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"
PT100	S	S	S,F	S,F	S,F	S,F	S,F
THERMOSTAT	-	-	-	S	S,F	S,F	S,F
THERMOFUSIBLE	-	-	-	S	S,F	S,F	S,F

Depending on the diameter it can be placed at the top of the cartridge, at leads side "S" or at the bottom "F".
For thermostats and thermal fuses, placing space is 2" (30.8mm). PT100 needs 1"(25.4mm).



+ Longer life

Breaking reasons.

Over temperature

Dissipation of the cartridge heater is critical for the life of the element. The fit between the housing and the cartridge has to be maximum, so that it can transmit a good heating to the entire mold.

The higher working temperature the lower life of the cartridge heater. So it is recommended to use the minimum power possible to do their job and not exceed.

Stainless steel sheath has to be 100% introduced into the hole, any part outside will produce an short-circuit as result of an overheating of the element.

Repetitive cycles.

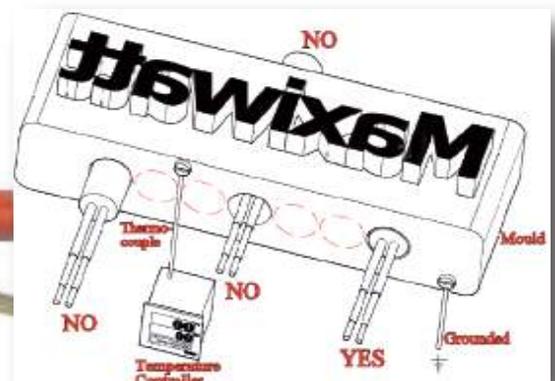
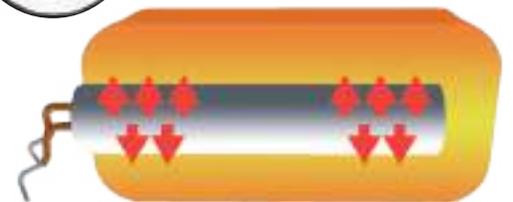
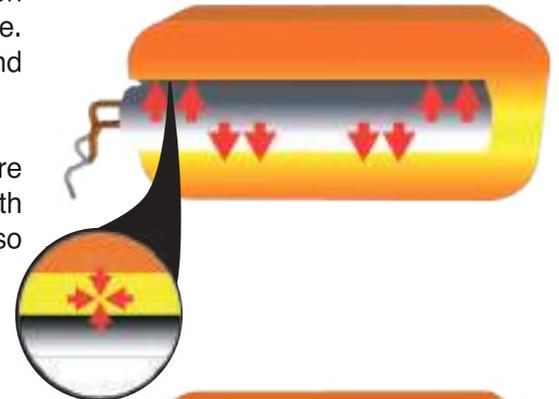
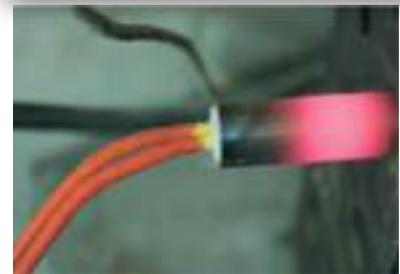
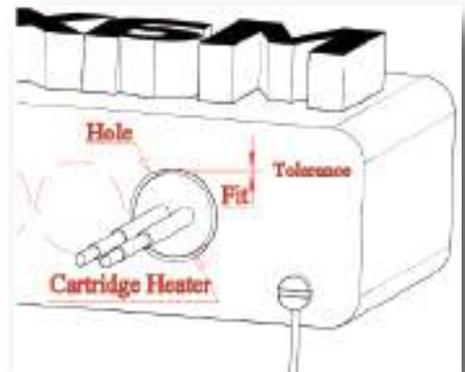
After the heating wire placed inside the cartridge heater has been heated, it forms a very thin oxide film which crystallized by high temperature. Once cooled, the heating wire is contracted. The oxide sheet breaks and exposes a fresh layer wire but smaller in diameter.

Cyclically repetition of this process is the main cause of heating wire breakings. Therefore it is recommended to use a fixed temperature with suitable power and not energize and de-energize. This process can also cause a different Ohm value registration during his life.

Vibrations and impacts.

Maxiwatt's heaters are the most compacted. Even so we have available special manufacturing systems to support excessive vibrations or repeated blows.

That information must be on the purchase order, otherwise we will produce them with a standard ending. Vibrations and impacts will gradually damage the internal compression until the wire comes in contact with the atmosphere and oxide.



Pollution inside the element.

Cartridge heaters are basically formed by ceramic powder and Magnesium Oxide. This last one is very hygroscopic and absorbs the moisture.

Together with the process of expansion and retraction, when a cartridge heater is energized the leads absorb all type of liquids and gases around, such as moisture, water, oil, polish, melted plastics, brine, organic debris, detergents, etc.

Elements that in normal conditions are harmless, when the cartridge is warm will be absorbed by the heater and produce an internal pollution. At the same time a short-circuit will reduce the heating wire and the heater will lose the electrical insulation.



Unsuitable leads.

An overheating at the leads cause damages at the heater. The element will lose the insulation protection causing short-circuit.

Excessive vibration and movement causes breakage. Maxi watt offers different type of leads for each use and specific protections over the leads.



Regulation.

Thermocouples and sensor should be placed in the hottest part of the mold or piece. If they are placed in other positions the heater must do an extra work due to the effort it must do to get the desired temperature. So that the heater will work over his normal conditions and that will reduce the elements life.

Breakage by	Over temperature	Repetitive cycles	Pollution	Leads
	Rated over temperature	Total cooling and maximum wire heating.	Absorption of contaminating elements inside the cartridge heater like moisture, water, oil, plastic, brine, etc.	broken or unprotected.
Effect	Heating wire melts or loses its insulation.	Dilation or contraction of the wire will finally reduce it or break itself due to the oxidation.	Short circuit, due to an internal contamination that causes grounding of the element.	No electricity input in the circuit or grounding due to a non insulation.
Reasons	Poor heating dissipation.	Working without any external regulator at maximum capacity and total disconnection until the element is cold, during short and repetitive cycles.	Moisture condenses forming a bridge between the heating wire, sheet and leads. Producing short-circuit. Materials that in normal do not conduct electricity can do it after support high temperatures and be charred.	Vibrations, movement, impacts and high temperatures at leads side. Also leads inside the hole.
Appearance	Blue tones and also dark brown with small oxide layer in parts where the cartridge heater is not in contact with the hole.	heating element fusion.	Standard colors on the heater. Internally different colorations and steel sheet crater-shaped.	Rubbings, peels, cuts, material breakup.

Premature breaking factors

You can think that previous elements had a longer life. We can say that there are a lot of different reasons that can cause a premature breaking. First of all you must analyze the previous element and check the internal construction (cold zones, wire thickness, isolation, granulometry, compression). These details can help us to check if two cartridge heaters with the same external length have the same internal heating zone. They can have a longer active zone and this part can be placed outside the hole, that causes an overheating and short-circuit. Both elements are perfectly produced, with details provided, and have the same appearance but internally they are different.

By the other hand, you should also control that the hole where the heater is placed must have a perfect tolerance type H7. Holes can have reduction in diameter due to the continuous friction when elements are installed. That occurs also due to the dilation or contraction of the elements causing a wrong diameter size. When a new cartridge heater is placed in the hole and it has a wrong tolerance, we mean diameter -0.02mm to -0.06mm, the heater can't dissipate the heating correctly and that will reduce heaters life. Due to these reasons we advise to send us an used sample to analyze and produce consequently.

Cartridge Heaters

Thermography: thermographic studies



Uses in plastic industry.

The infrared technic thermography can be used in plastic industries to optimize the process and improvement of quality, as well as in the development of new tools.

In the thermoplastic injection process, can be found wide information about the transformation process itself: through thermographic images upon items just injected, even on the mold, apart from those extracted from it, or on the mold's surface itself:



- Temperature deviation in critical points (injection points, inserts, item's thicker zones, etc)
- Hot points detection produced by thermoplastic material friction in any mold zone.
- Temperature control effectiveness.
- Mold's system tempering effectiveness.
- Heat accurate distribution, in both mold and item.
- Temperature development study on mold surface until the process is stabilized.
- Cooling time/course optimization.
- Result's obtained validation with simulation programs.

Thermographic infrared usefulness in plastic industry:

Resistencia Industriales Maxiwatt carries out studies with thermographic cameras to detect our cartridge heater's effectiveness, in client's mold or any wanted application, getting spectacular thermal precision results in graded cartridges..

According to application or mold, we basically get exact temperature effectiveness, through all mold's surface or application.

In order to achieve the proper use, it is built with right watts density, getting a bigger saving.

The cartridges are built with a bigger overload margin, producing higher durability due to the power study and calculation of the proper temperature.

In case of temperature loss we recommend different positions avoiding mold's or application's cooling or overheating.

Resistencia Industriales Maxiwatt provides detailed in writing study, about the thermographic process developed by skilled technicians, as we use the best international computer programs and cameras.



Inspection Report

Reporting date: 22/01/2013

Company: Maxiwatt

Client:

Address:

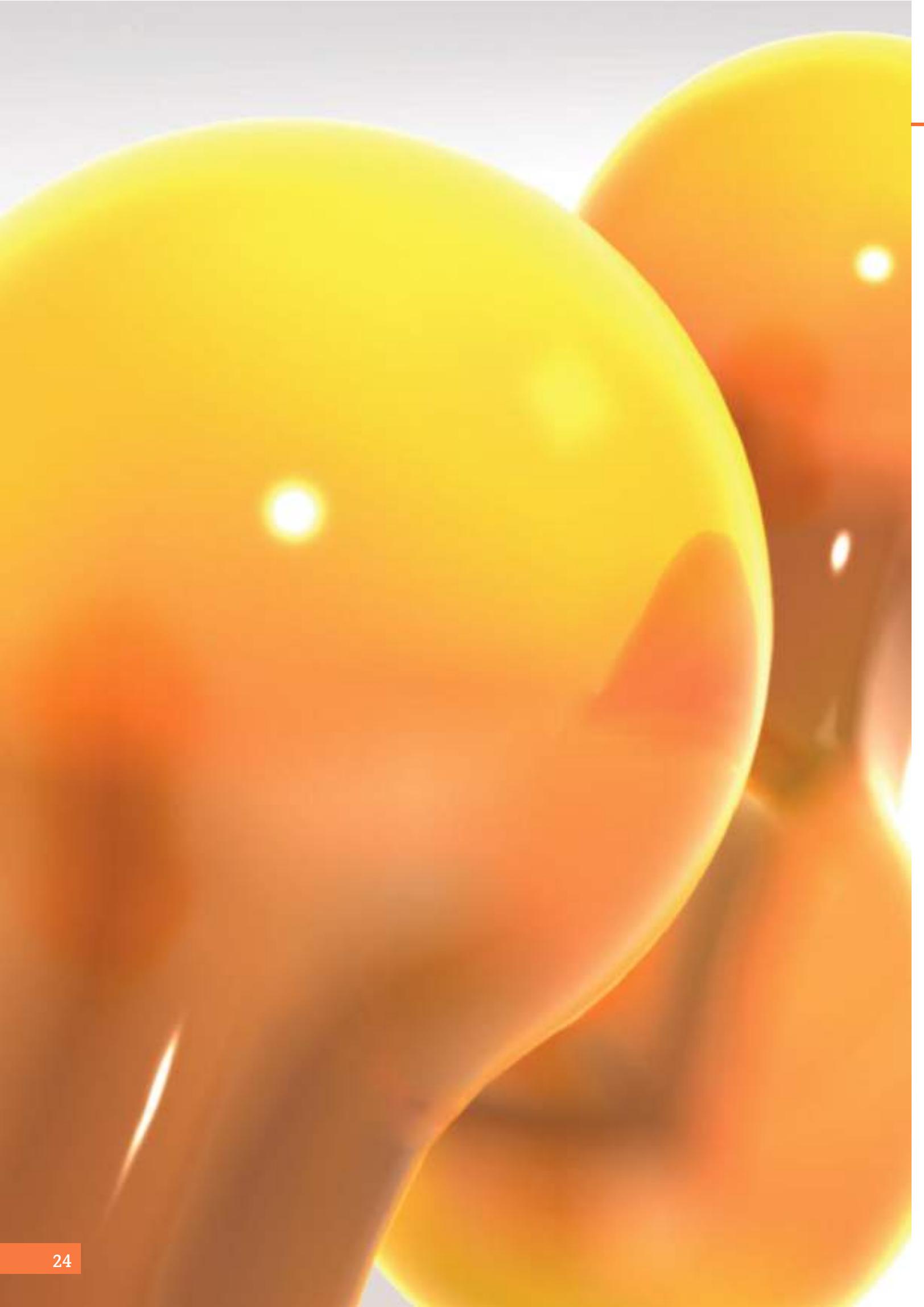
Client address:

Thermocouple:

Contact email:

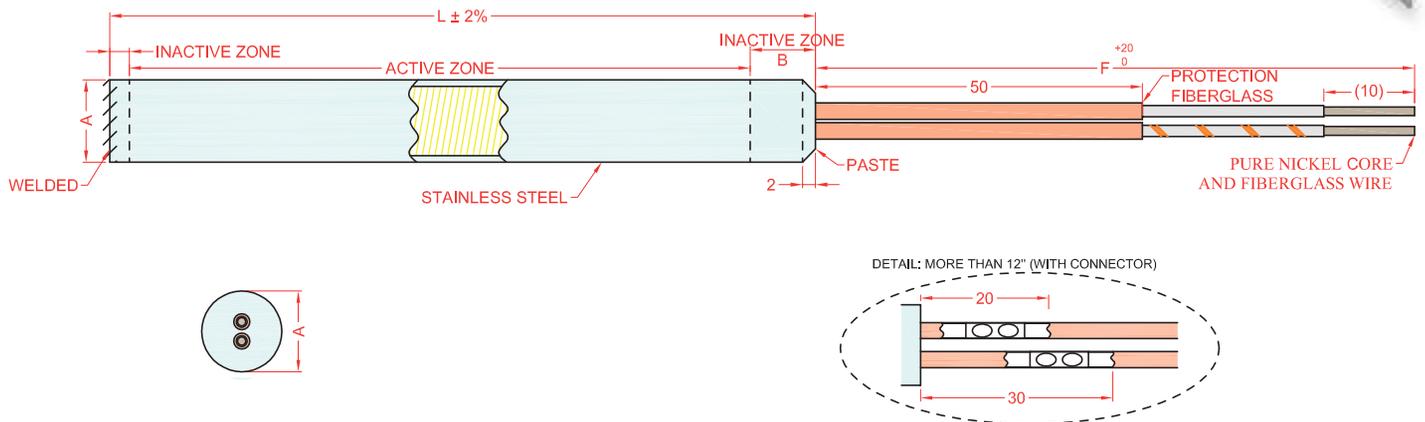


Parameters	Comments
Device model:	PLR T313
Image date:	22/01/2013
Image name:	PLI 30-170
Emissivity:	0.10
Reflected temperature:	20.0°C
Object distance:	1.8 m
Description:	



Cartridge Heaters

Reliable Premium Quality. **High Density** ●
Medium Density ● **Ending T1**
Low Density ●



Base Ending:

Compressed cartridge heaters, base ending Ref. "T1"

The cartridge is fully compressed, with a heat-resistant ceramic paste which seals the entry. The remaining cartridges are made from this base.

Inches

A Ø Diameter (in)	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"
Diameter nominal	0.250"	0.313"	0.375"	0.500"	0.625"	0.750"	1.000"
H7 minimum	0.248	0.310	0.372	0.496	0.620	0.744	0.992
B (inches)	0.197 +1%L	0.197 +1%L	0.276 +1%L	0.394 +1%L	0.591 +1%L	0.591 +1%L	0.787 +1%L
L (inches)	minimum	0.984					
	maximum	236.220					
F (inches)	Standard	9.843					
	Customer	∞					

mm

A Ø Diameter (mm)	6.5	8	10	12.5	16	20	25
Diameter nominal	6.44	7.94	9.94	12.44	15.94	19.94	24.94
H7 minimum	6.44	7.94	9.94	12.44	15.94	19.94	24.94
B (mm)	5 +1%L	5 +1%L	7 +1%L	10 +1%L	15 +1%L	15 +1%L	20 +1%L
L (mm)	minimum	25					
	maximum	6000					
F (mm)	Standard	250					
	Customer	∞					

Technical Key

Sheath material	Stainless steel 1.4541
Heating conductor material	NiCr 8020
Max. Sheath temperature	750 °C / 1380 °F
Max. Voltage	480 V
Wattage tolerance*	.+5% -10%
High voltage resistance*	1500 V AC at > 24 V operation voltage
	500 V at ≤ 24 V operation voltage
Insulation resistance*	> 5 MΩ at 500 V DC
Leakage current*	≤ 0.5 mA at 253 V AC
Length tolerance	A 1.5%, min A 1mm
Standard diameter tolerance	metric -0.02 / -0.06 mm
	inch: -0.003 -0.008

TESTED AT ENVIRONMENTAL TEMPERATURE

Options:

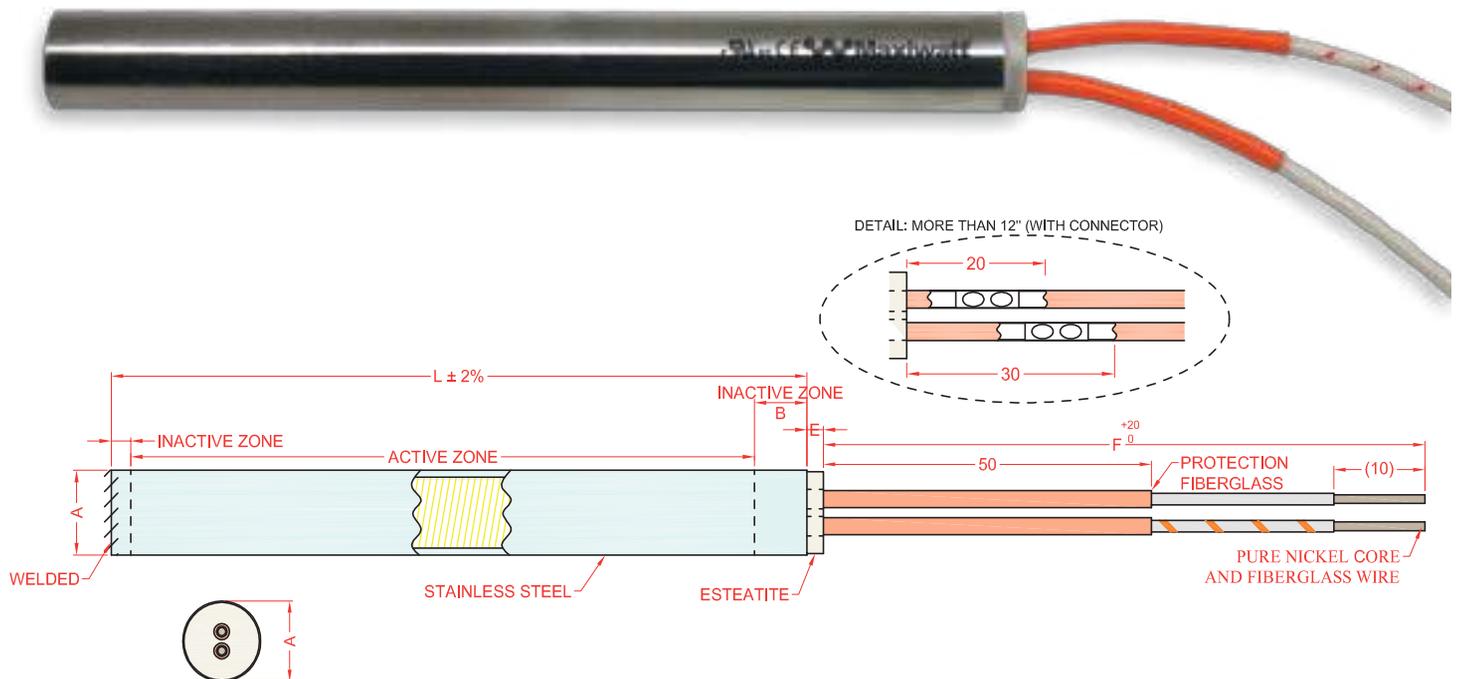
- Certified according to UL standards.
- Watt distribution:
- Isolated or non isolated thermocouples type "J" and "K", placed as customer's requirements.
- Ground lead.
- IP67: For extremely environments (wetness and dust)
- Different endings and protections.
- Diameter tolerance H7: +0 / -0.02 / -0.06mm

Urgent service.

Ordered by 10:00 a.m. CET / CEST, following urgent services are available:

- 24 hours: MOQ 4 pieces and maximum 25 pieces.
- 48 hours: MOQ 4 piece and maximum 50 pieces.
- 3/5 days: MOQ 2 pieces and maximum 150 pieces.
- 7/8 days: MOQ 2 pieces.

Reliable Premium Quality. **High Density** ●
Medium Density ● **Ending T2**
Low Density ●



Esteatite (soapstone) Ending :

Compressed cartridge heaters, steatite (soapstone) end Ref. "T2"

Cartridge with one steatite ceramic piece which juts out. It is 3mm to 6mm long, depending on the diameter of the cartridge.

It prevents the connection of the wire with the tube, thereby giving more consistency to the cable entry.

Inches

A Ø Diameter (in)	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"
Diameter nominal	0.250"	0.313"	0.375"	0.500"	0.625"	0.750"	1.000"
H7 minimum	0.248	0.310	0.372	0.496	0.620	0.744	0.992
B (inches)	0.197 +1%L	0.197 +1%L	0.276 +1%L	0.394 +1%L	0.591 +1%L	0.591 +1%L	0.787 +1%L
E (inches)	0.098	0.098	0.098	0.098	0.118	0.118	0.118
L (inches)	minimum			0.984	maximum		
				236.220			
F (inches)	Standard			9.843	Customer		
				∞			

mm

A Ø Diameter (mm)	6.5	8	10	12.5	16	20	25
Diameter nominal	6.44	7.94	9.94	12.44	15.94	19.94	24.94
H7 minimum							
B (mm)	5 +1%L	5 +1%L	7 +1%L	10 +1%L	15 +1%L	15 +1%L	20 +1%L
E (mm)	2.5	2.5	2.5	2.5	3	3	3
L (mm)	minimum			25	maximum		
				6000			
F (mm)	Standard			250	Customer		
				∞			

Technical Key

Sheath material	Stainless steel 1.4541
Heating conductor material	NiCr 8020
Max. Sheath temperature	750 °C / 1380 °F
Max. Voltage	480 V
Wattage tolerance*	.+5% -10%
High voltage resistance*	1500 V AC at > 24 V operation voltage 500 V at <= 24 V operation voltage
Insulation resistance*	> 5 MΩ at 500 V DC
Leakage current*	<= 0.5 mA at 253 V AC
Length tolerance	A 1.5%, min A 1mm
Standard diameter tolerance	metric -0.02 / -0.06 mm inch: -0.003 -0.008

TESTED AT ENVIRONMENTAL TEMPERATURE

Options:

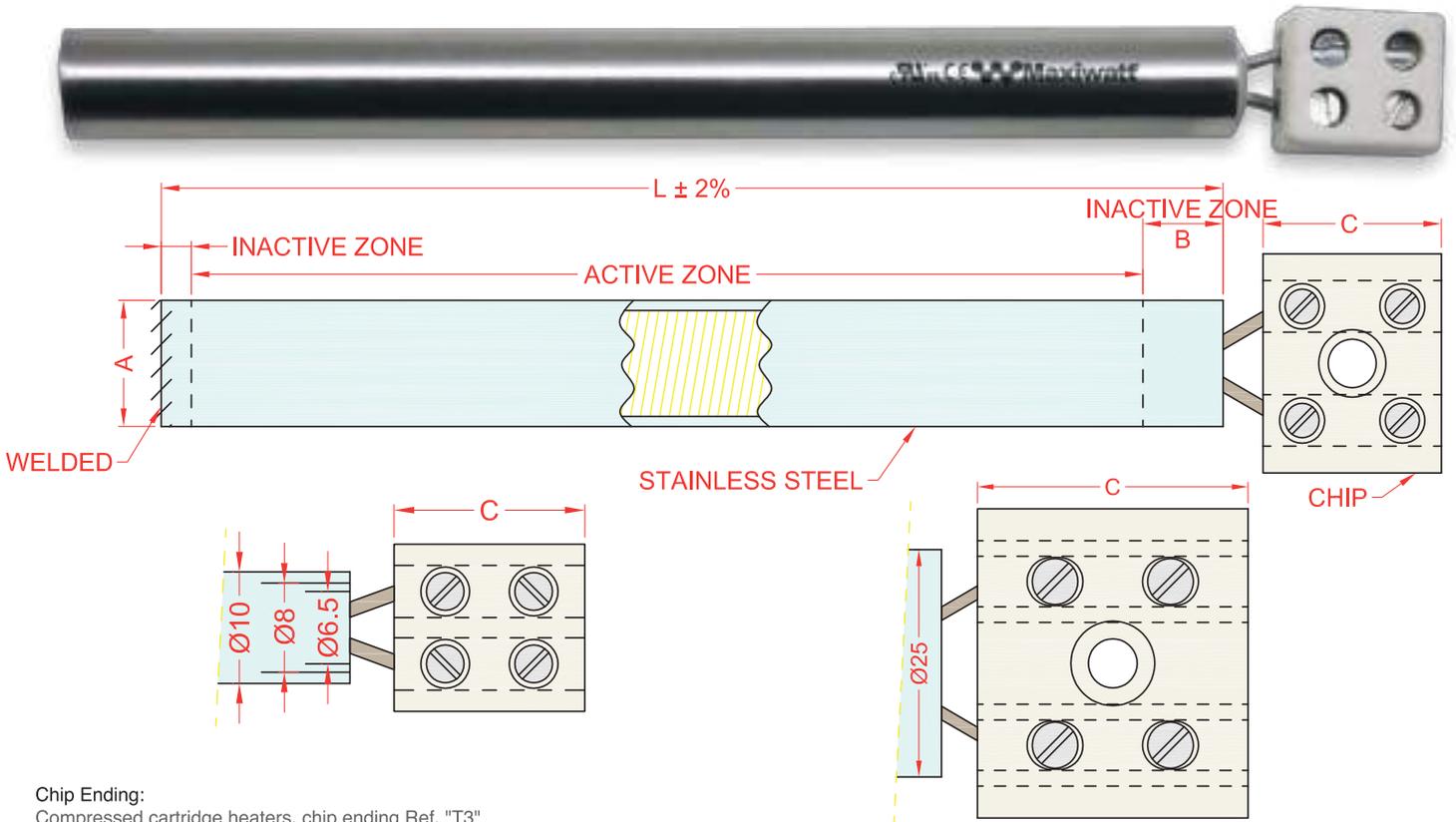
- Certified according to UL standards.
- Watt distribution:
- Isolated or non isolated thermocouples type "J" and "K", placed as customer's requirements.
- Ground lead.
- Different endings and protections.
- Diameter tolerance H7: +0 / -0.02 / -0.06mm

Urgent service.

- Ordered by 10:00 a.m. CET / CEST, following urgent services are available:
- 24 hours: MOQ 4 pieces and maximum 25 pieces.
 - 48 hours: MOQ 4 piece and maximum 50 pieces.
 - 3/5 days: MOQ 2 pieces and maximum 150 pieces.
 - 7/8 days: MOQ 2 pieces.

Cartridge Heaters

Reliable Premium Quality. **High Density** ●
Medium Density ● **Ending T3**
Low Density ●



Chip Ending:
 Compressed cartridge heaters, chip ending Ref. "T3"
 Cartridge with a steatite ceramic piece. Ready for a quick change of wires.

Inches

A Ø Diameter (in)	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"
Diameter nominal	0.250"	0.313"	0.375"	0.500"	0.625"	0.750"	1.000"
H7 minimum	0.248	0.310	0.372	0.496	0.620	0.744	0.992
B (inches)	0.197 +1%L	0.197 +1%L	0.276 +1%L	0.394 +1%L	0.591 +1%L	0.591 +1%L	0.787 +1%L
C (inches)	0.68	0.68	0.68	0.70	0.70	0.70	1.32
L (inches)	minimum			0.984			
	maximum			236.220			

mm

A Ø Diameter (mm)	6.5	8	10	12.5	16	20	25
Diameter nominal	6.44	7.94	9.94	12.44	15.94	19.94	24.94
H7 minimum	6.44	7.94	9.94	12.44	15.94	19.94	24.94
B (mm)	5 +1%L	5 +1%L	7 +1%L	10 +1%L	15 +1%L	15 +1%L	20 +1%L
C (mm)	17.25	17.25	17.25	17.80	17.80	17.80	33.60
L (mm)	minimum			25			
	maximum			6000			

Technical Key

Sheath material	Stainless steel 1.4541
Heating conductor material	NiCr 8020
Max. Sheath temperature	750 °C / 1380 °F
Max. Voltage	480 V
Wattage tolerance*	.+5% -10%
High voltage resistance*	1500 V AC at > 24 V operation voltage 500 V at <= 24 V operation voltage
Insulation resistance*	> 5 MΩ at 500 V DC
Leakage current*	<= 0.5 mA at 253 V AC
Length tolerance	A 1.5%, min A 1mm
Standard diameter tolerance	metric -0.02 / -0.06 mm inch: -0.003 -0.008

TESTED AT ENVIRONMENTAL TEMPERATURE

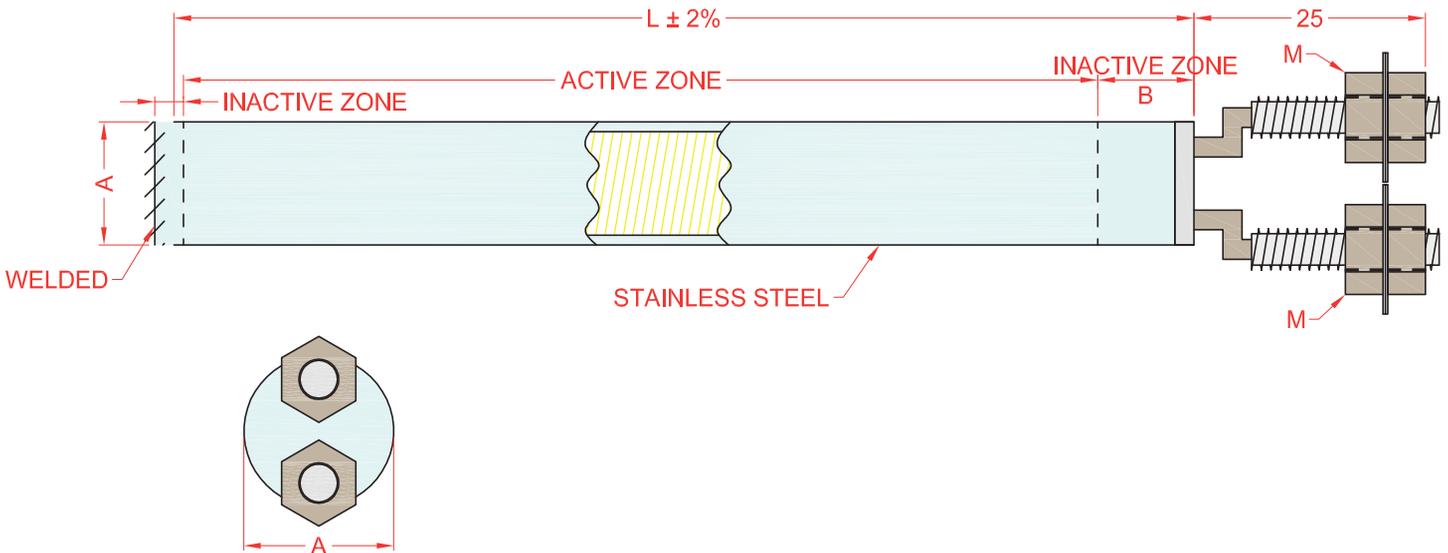
Options:

- Watt distribution:
- Isolated or non isolated thermocouples type "J" and "K", placed as customer's requirements.
- Ground lead.
- Different endings and protections.
- Diameter tolerance H7: +0 / -0.02 / -0.06mm

Urgent service.

- Ordered by 10:00 a.m. CET / CEST, following urgent services are available:
- 24 hours: MOQ 4 pieces and maximum 25 pieces.
 - 48 hours: MOQ 4 piece and maximum 50 pieces.
 - 3/5 days: MOQ 2 pieces and maximum 150 pieces.
 - 7/8 days: MOQ 2 pieces.

Reliable Premium Quality. High Density ●
 Medium Density ● **Ending T4**
 Low Density ●



Metric Ending:

Compressed cartridge heaters, metric ending Ref. "T4"
 Cartridge with stainless steel metric stud. Useful for quick change of wires.

Inches

A Ø Diameter (in)	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"
Diameter nominal	0.250"	0.313"	0.375"	0.500"	0.625"	0.750"	1.000"
H7 minimum	0.248	0.310	0.372	0.496	0.620	0.744	0.992
B (inches)	0.197 +1%L	0.197 +1%L	0.276 +1%L	0.394 +1%L	0.591 +1%L	0.591 +1%L	0.787 +1%L
L (inches)	minimum	0.984					
	maximum	236.220					
M	M3	M3 / M4	M3 / M4	M4 / M5	M5 / M6	M5 / M6	M6 / M8

mm

A Ø Diameter (mm)	6.5	8	10	12.5	16	20	25
Diameter nominal	6.44	7.94	9.94	12.44	15.94	19.94	24.94
H7 minimum	6.44	7.94	9.94	12.44	15.94	19.94	24.94
B (mm)	5 +1%L	5 +1%L	7 +1%L	10 +1%L	15 +1%L	15 +1%L	20 +1%L
L (mm)	minimum	25					
	maximum	6000					
M	M3	M3 / M4	M3 / M4	M4 / M5	M5 / M6	M5 / M6	M6 / M8

Technical Key

Sheath material	Stainless steel 1.4541
Heating conductor material	NiCr 8020
Max. Sheath temperature	750 °C / 1380 °F
Max. Voltage	480 V
Wattage tolerance*	.+5% -10%
High voltage resistance*	1500 V AC at > 24 V operation voltage
	500 V at ≤ 24 V operation voltage
Insulation resistance*	> 5 MΩ at 500 V DC
Leakage current*	≤ 0.5 mA at 253 V AC
Length tolerance	A 1.5%, min A 1mm
Standard diameter tolerance	metric -0.02 / -0.06 mm
	inch: -0.003 -0.008

TESTED AT ENVIRONMENTAL TEMPERATURE

Options:

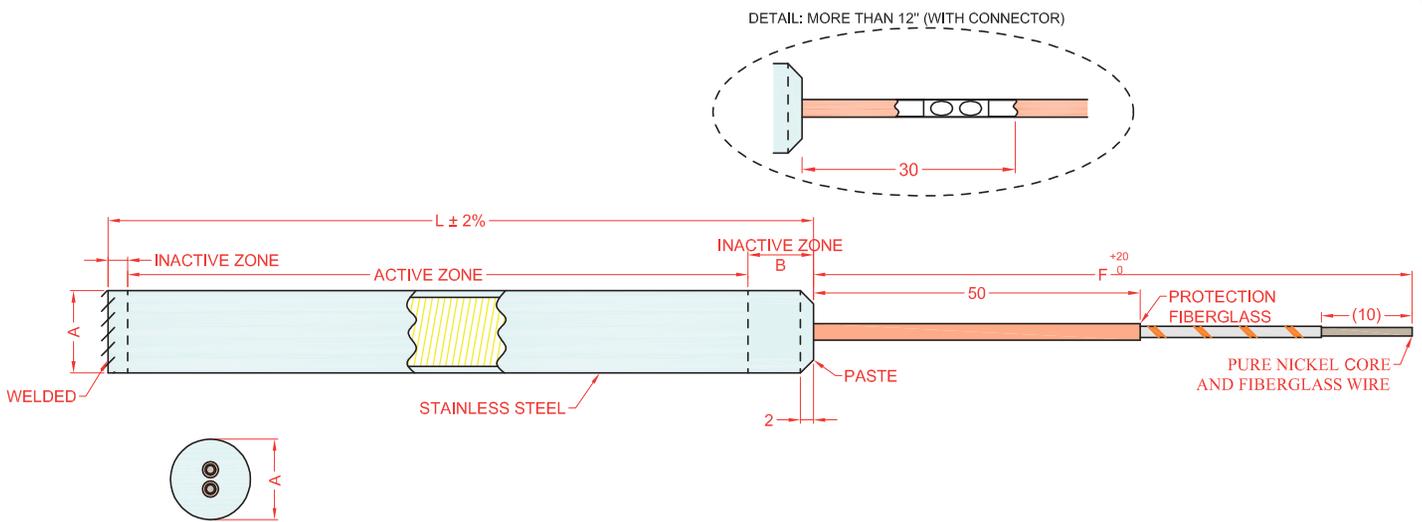
- Watt distribution:
- Isolated or non isolated thermocouples type "J" and "K", placed as customer's requirements.
- Ground lead.
- Different endings and protections.
- Diameter tolerance H7: +0 / -0.02 / -0.06mm

Urgent service.

- Ordered by 10:00 a.m. CET / CEST, following urgent services are available:
- 24 hours: MOQ 4 pieces and maximum 25 pieces.
 - 48 hours: MOQ 4 piece and maximum 50 pieces.
 - 3/5 days: MOQ 2 pieces and maximum 150 pieces.
 - 7/8 days: MOQ 2 pieces.

Cartridge Heaters

Reliable Premium Quality. High Density ●
 Medium Density ● **Ending T5**
 Low Density ●



Unipolar Ending:
 Compressed cartridge heaters, unipolar ending Ref. "T5"
 Cartridge with output for fiberglass cable. Unipolar for cartridges of low voltage.

Inches

A Ø Diameter (in)	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"
Diameter nominal	0.250"	0.313"	0.375"	0.500"	0.625"	0.750"	1.000"
H7 minimum	0.248	0.310	0.372	0.496	0.620	0.744	0.992
B (inches)	0.197 +1%L	0.315 +1%L	0.394 +1%L	0.492 +1%L	0.630 +1%L	0.787 +1%L	0.984 +1%L
L (inches)	minimum	0.984					
	maximum	236.220					
F (inches)	Standard	9.843					
	Customer	∞					

mm

A Ø Diameter (mm)	6.5	8	10	12.5	16	20	25
Diameter nominal	6.44	7.94	9.94	12.44	15.94	19.94	24.94
H7 minimum							
B (mm)	5 +1%L	5 +1%L	7 +1%L	10 +1%L	15 +1%L	15 +1%L	20 +1%L
L (mm)	minimum	25					
	maximum	6000					
F (mm)	Standard	250					
	Customer	∞					

Technical Key

Sheath material	Stainless steel 1.4541
Heating conductor material	NiCr 8020
Max. Sheath temperature	750 °C / 1380 °F
Max. Voltage	480 V
Wattage tolerance*	+.5% -10%
High voltage resistance*	1500 V AC at > 24 V operation voltage 500 V at <= 24 V operation voltage
Insulation resistance*	> 5 MΩ at 500 V DC
Leakage current*	<= 0.5 mA at 253 V AC
Length tolerance	A 1.5%, min A 1mm
Standard diameter tolerance	metric -0.02 / -0.06 mm inch: -0.003 -0.008

TESTED AT ENVIRONMENTAL TEMPERATURE

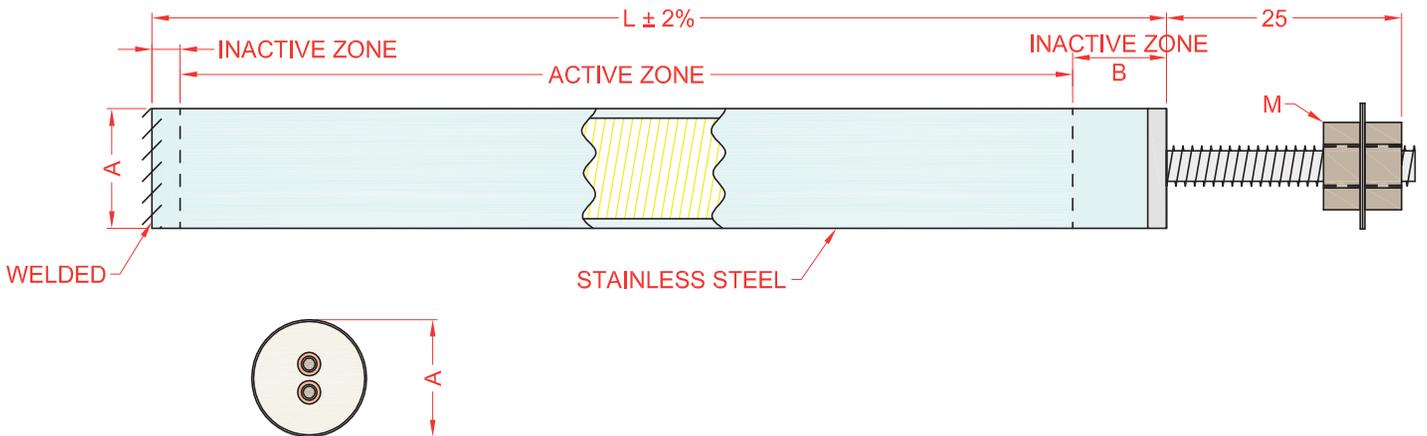
Options:

- Watt distribution:
- Isolated or non isolated thermocouples type "J" and "K", placed as customer's requirements.
- Ground lead.
- IP67: For extremely environments (wetness and dust)
- Different endings and protections.
- Diameter tolerance H7: +0 / -0.02 / -0.06mm

Urgent service.

- Ordered by 10:00 a.m. CET / CEST, following urgent services are available:
- 24 hours: MOQ 4 pieces and maximum 25 pieces.
 - 48 hours: MOQ 4 piece and maximum 50 pieces.
 - 3/5 days: MOQ 2 pieces and maximum 150 pieces.
 - 7/8 days: MOQ 2 pieces.

Reliable Premium Quality. High Density ●
 Medium Density ● Ending T6
 Low Density ●



Unipolar Screw Ending:
 Compressed cartridge heaters, unipolar screw ending Ref. "T6"
 Cartridge with a metric unipolar screw output for a quick cable extraction.

Inches

A Ø Diameter (in)	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"
Diameter nominal	0.250"	0.313"	0.375"	0.500"	0.625"	0.750"	1.000"
H7 minimum	0.248	0.310	0.372	0.496	0.620	0.744	0.992
B (inches)	0.197 +1%L	0.197 +1%L	0.276 +1%L	0.394 +1%L	0.591 +1%L	0.591 +1%L	0.787 +1%L
L (inches)	minimum	0.984					
	maximum	236.220					
M	M3	M3 / M4	M3 / M4	M4 / M5	M5 / M6	M5 / M6	M6 / M8

mm

A Ø Diameter (mm)	6.5	8	10	12.5	16	20	25
Diameter nominal	6.44	7.94	9.94	12.44	15.94	19.94	24.94
H7 minimum	6.44	7.94	9.94	12.44	15.94	19.94	24.94
B (mm)	5 +1%L	5 +1%L	7 +1%L	10 +1%L	15 +1%L	15 +1%L	20 +1%L
L (mm)	minimum	25					
	maximum	6000					
M	M3	M3 / M4	M3 / M4	M4 / M5	M5 / M6	M5 / M6	M6 / M8

Technical Key

Sheath material	Stainless steel 1.4541
Heating conductor material	NiCr 8020
Max. Sheath temperature	750 °C / 1380 °F
Max. Voltage	480 V
Wattage tolerance*	.+5% -10%
High voltage resistance*	1500 V AC at > 24 V operation voltage
	500 V at ≤ 24 V operation voltage
Insulation resistance*	> 5 MΩ at 500 V DC
Leakage current*	≤ 0.5 mA at 253 V AC
Length tolerance	A 1.5%, min A 1mm
Standard diameter tolerance	metric -0.02 / -0.06 mm
	inch: -0.003 -0.008

TESTED AT ENVIRONMENTAL TEMPERATURE

Options:

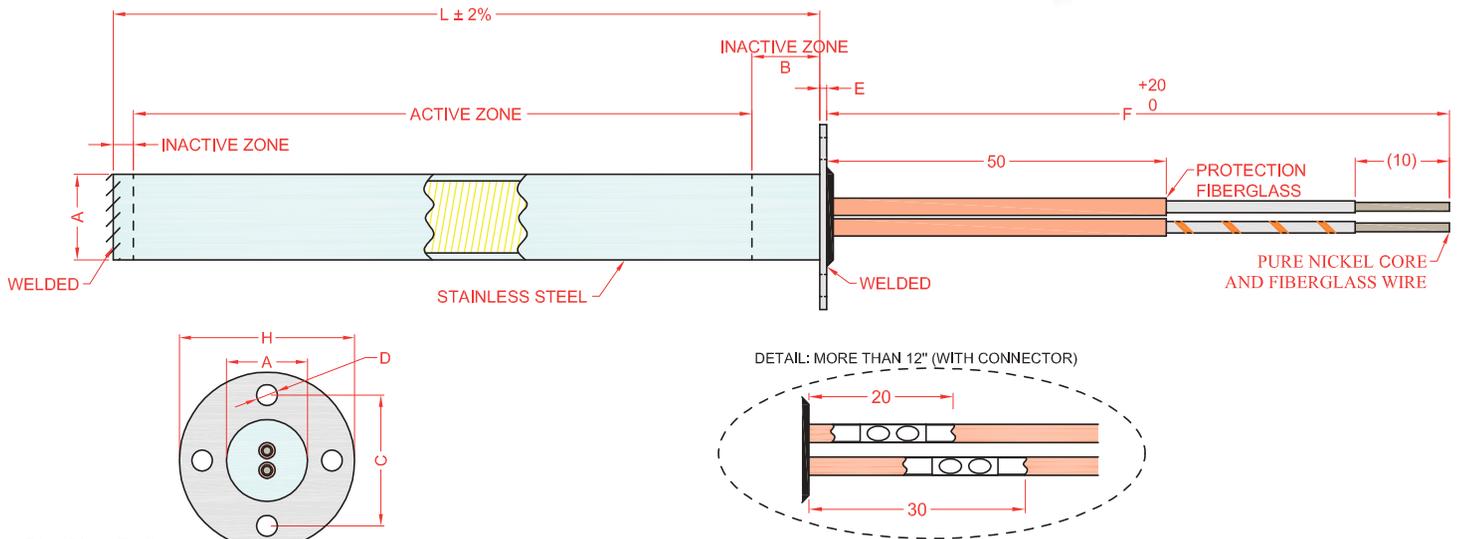
- Watt distribution:
- Isolated or non isolated thermocouples type "J" and "K", placed as customer's requirements.
- Ground lead.
- Different endings and protections.
- Diameter tolerance H7: +0 / -0.02 / -0.06mm

Urgent service.

- Ordered by 10:00 a.m. CET / CEST, following urgent services are available:
- 24 hours: MOQ 4 pieces and maximum 25 pieces.
 - 48 hours: MOQ 4 piece and maximum 50 pieces.
 - 3/5 days: MOQ 2 pieces and maximum 150 pieces.
 - 7/8 days: MOQ 2 pieces.

Cartridge Heaters

Reliable Premium Quality. **High Density** ●
Medium Density ● **Ending T7**
Low Density ●



Disc Plate Ending:

Compressed cartridge heaters. (pletina) iron plate ending Ref. "T7"

Fully compressed and reinforced cartridge. Ready for fastening the object to be heated. Ideal for areas with motion and vibration.

Inches

A Ø Diameter (in)	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"
Diameter nominal	0.250"	0.313"	0.375"	0.500"	0.625"	0.750"	1.000"
H7 minimum	0.248	0.310	0.372	0.496	0.620	0.744	0.992
B (inches)	0.197 +1%L	0.197 +1%L	0.275591 +1%L	0.394 +1%L	0.591 +1%L	0.591 +1%L	0.787 +1%L
C (inches)	0.512	0.512	0.787	0.787	1.008	1.008	1.299
D (inches)	0.126	0.126	0.126	0.126	0.165	0.165	0.205
E (inches)	0.0394 to 0.0472	0.0591 to 0.0787	0.0591 to 0.0787				
H (inches)	0.709	0.709	1.063	1.063	1.299	1.299	1.614
L (inches)	minimum			0.984			
	maximum			236.220			
F (inches)	standard			9.843			
	customer			∞			

mm

A Ø Diameter (mm)	6.5	8	10	12.5	16	20	25
Diameter nominal	6.44	7.94	9.94	12.44	15.94	19.94	24.94
H7 minimum							
B (mm)	5 +1%L	5 +1%L	7 +1%L	10 +1%L	15 +1%L	15 +1%L	20 +1%L
C (mm)	13	13	20	20	25.6	25.6	33
D (mm)	3.2	3.2	3.2	3.2	4.2	4.2	5.2
E (mm)	1 to 1.2	1 to 1.2	1 to 1.2	1.2 to 1.5	1.2 to 1.5	1.5 to 2	1.5 to 2
H (mm)	18	18	27	27	33	33	41
L (mm)	minimum			25			
	maximum			6000			
F (mm)	standard			250			
	customer			∞			

Technical Key

Sheath material	Stainless steel 1.4541
Heating conductor material	NiCr 8020
Max. Sheath temperature	750 °C / 1380 °F
Max. Voltage	480 V
Wattage tolerance*	.+5% -10%
High voltage resistance*	1500 V AC at > 24 V operation voltage 500 V at <= 24 V operation voltage
Insulation resistance*	> 5 MΩ at 500 V DC
Leakage current*	<= 0.5 mA at 253 V AC
Length tolerance	A 1.5%, min A 1mm
Standard diameter tolerance	metric -0.02 / -0.06 mm inch: -0.003 -0.008

TESTED AT ENVIRONMENTAL TEMPERATURE

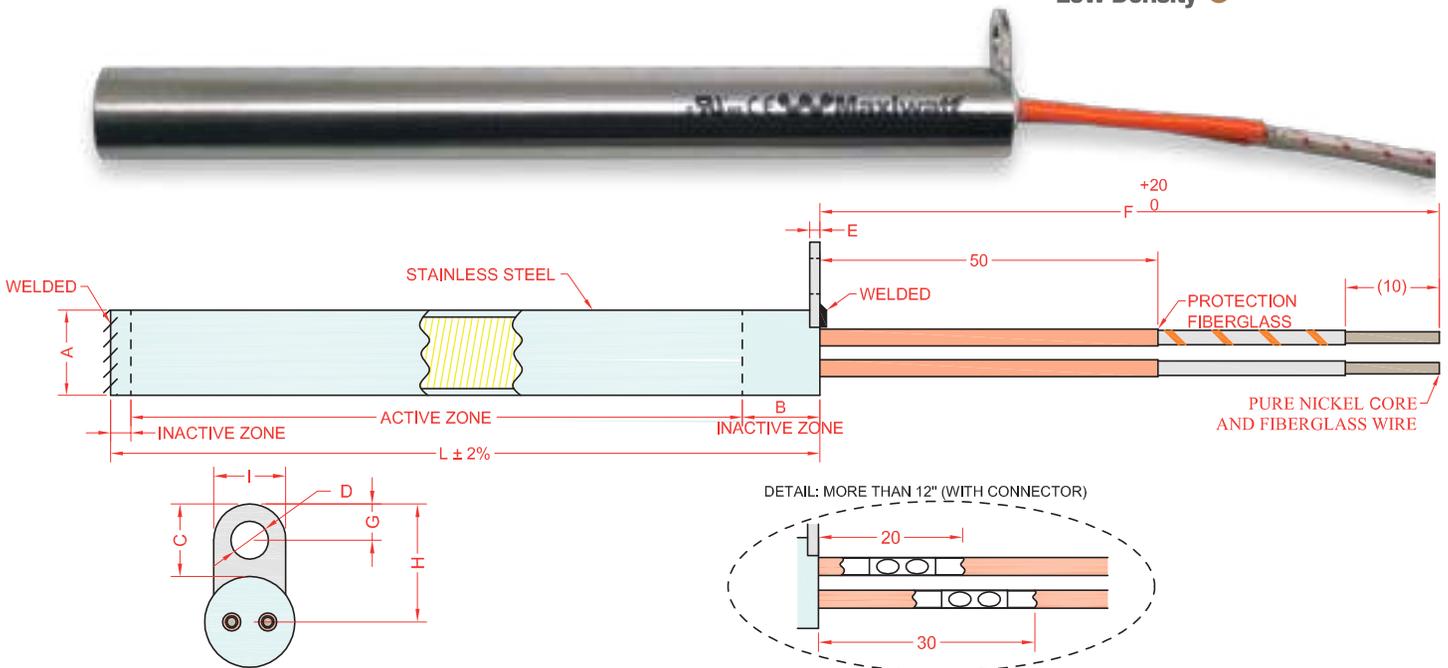
Options:

- Certified according to UL standards.
- Watt distribution:
- Isolated or non isolated thermocouples type "J" and "K", placed as customer's requirements.
- Ground lead.
- IP67: For extremely environments (wetness and dust)
- Different endings and protections.
- Diameter tolerance H7: +0 / -0.02 / -0.06mm

Urgent service.

- Ordered by 10:00 a.m., CET / CEST, following urgent services are available:
- 24 hours: MOQ 4 pieces and maximum 25 pieces.
 - 48 hours: MOQ 4 piece and maximum 50 pieces.
 - 3/5 days: MOQ 2 pieces and maximum 150 pieces.
 - 7/8 days: MOQ 2 pieces.

Reliable Premium Quality. **High Density** ●
Medium Density ● **Ending T7B**
Low Density ●



Iron Plate Ending:
 Compressed cartridge heaters. (pletina) iron plate ending Ref. "T7B"
 Fully compressed and reinforced cartridge. Ready for fastening the object to be heated.
 Ideal for areas with motion and vibration.

Inches

A Ø Diameter (in)	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"
Diameter nominal	0.250"	0.313"	0.375"	0.500"	0.625"	0.750"
H7 minimum	0.248	0.310	0.372	0.496	0.620	0.744
B (inches)	0.197 +1%L	0.197 +1%L	0.276 +1%L	0.394 +1%L	0.591 +1%L	0.591 +1%L
C (inches)	0.256	0.354	0.354	0.394	0.433	0.512
Ø D (inches)	0.126	0.165	0.165	0.205	0.205	0.244
E (inches)	0.089	0.079	0.079	0.059	0.079	0.079
G (inches)	0.130	0.177	0.177	0.197	0.217	0.256
H (inches)	0.512	0.669	0.748	0.886	1.063	1.299
I (inches)	0.256	0.315	0.374	0.394	0.472	0.709
L (inches)	minimum		0.984			
	maximum		236.22			
F (inches)	Standard		9.843			
	Customer		∞			

mm

A Ø Diameter (mm)	6.5	8	10	12.5	16	20
Diameter nominal H7 minimum	6.44	7.94	9.94	12.44	15.94	19.94
B (mm)	5 +1%L	5 +1%L	7 +1%L	10 +1%L	15 +1%L	15 +1%L
C (mm)	6.5	9	9	10	11	13
Ø D (mm)	3.2	4.2	4.2	5.2	5.2	6.2
E (mm)	2.25	2	2	1.5	2	2
G (mm)	3.3	4.5	4.5	5	5.5	6.5
H (mm)	13	17	19	22.5	27	33
I (mm)	6.5	8	9.5	10	12	18
L (mm)	minimum		25			
	maximum		6000			
F (mm)	Standard		250			
	Customer		∞			

Technical Key

Sheath material	Stainless steel 1.4541
Heating conductor material	NiCr 8020
Max. Sheath temperature	750 °C / 1380 °F
Max. Voltage	480 V
Wattage tolerance*	.+5% -10%
High voltage resistance*	1500 V AC at > 24 V operation voltage 500 V at <= 24 V operation voltage
Insulation resistance*	> 5 MΩ at 500 V DC
Leakage current*	<= 0.5 mA at 253 V AC
Length tolerance	A 1.5%, min A 1mm
Standard diameter tolerance	metric -0.02 / -0.06 mm inch: -0.003 -0.008

TESTED AT ENVIRONMENTAL TEMPERATURE

Options:

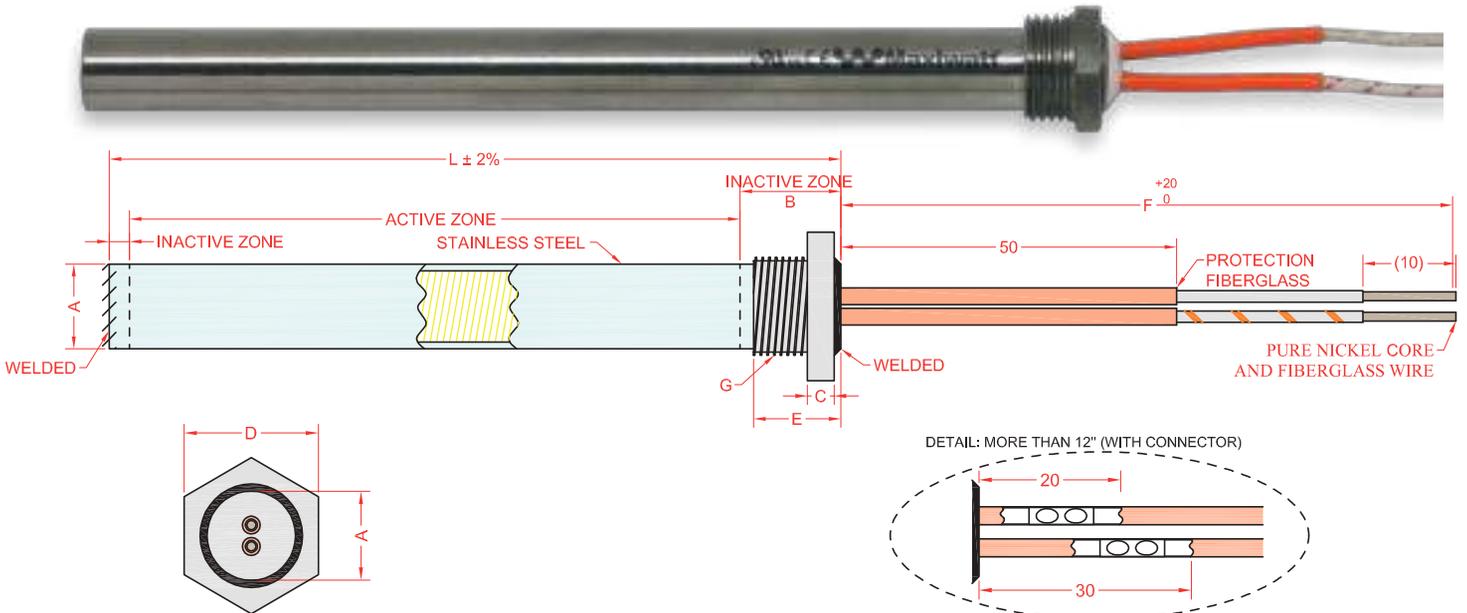
- Certified according to UL standards.
- Watt distribution:
- Isolated or non isolated thermocouples type "J" and "K", placed as customer's requirements.
- Ground lead.
- IP67: For extremely environments (wetness and dust)
- Different endings and protections.
- Diameter tolerance H7: +0 / -0.02 / -0.06mm

Urgent service.

- Ordered by 10:00 a.m. CET / CEST, following urgent services are available:
- 24 hours: MOQ 4 pieces and maximum 25 pieces.
 - 48 hours: MOQ 4 piece and maximum 50 pieces.
 - 3/5 days: MOQ 2 pieces and maximum 150 pieces.
 - 7/8 days: MOQ 2 pieces.

Cartridge Heaters

Reliable Premium Quality. **High Density** ●
Medium Density ● **Ending T8**
Low Density ●



Inches

A Ø Diameter (in)	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"
Diameter nominal	0.250"	0.313"	0.375"	0.500"	0.625"	0.750"
H7 minimum	0.248	0.310	0.372	0.496	0.620	0.744
B (inches)	E+1%L	E+1%L	E+1%L	E+1%L	E+1%L	E+1%L
C (inches)	0.157	0.157	0.157	0.157	0.157	0.157
D (inches)	0.472	0.551	0.669	0.748	0.945	1.063
E (inches)	0.423	0.423	0.502	0.512	0.591	0.591
G (inches)	1/8"	1/4"	1/4"	3/8"	1/2"	3/4"
L (inches)	minimum	0.984				
	maximum	236.22				
F (inches)	Standard	9.843				
	Customer	∞				

mm

A Ø Diameter (mm)	6.5	8	10	12.5	16	20
Diameter nominal H7 minimum	6.44	7.94	9.94	12.44	15.94	19.94
B (mm)	E+1%L	E+1%L	E+1%L	E+1%L	E+1%L	E+1%L
C (mm)	4	4	4	4	4.0	4.0
D (mm)	12	14	17	19	24	27
E (mm)	10.75	10.75	12.75	13	15	15
G (mm)	M10	M12	M14	M16	M20	M26
L (mm)	minimum	25				
	maximum	6000				
F (mm)	Standard	250				
	Customer	∞				

Technical Key

Sheath material	Stainless steel 1.4541
Heating conductor material	NiCr 8020
Max. Sheath temperature	750 °C / 1380 °F
Max. Voltage	480 V
Wattage tolerance*	.+5% -10%
High voltage resistance*	1500 V AC at > 24 V operation voltage 500 V at <= 24 V operation voltage
Insulation resistance*	> 5 MΩ at 500 V DC
Leakage current*	<= 0.5 mA at 253 V AC
Length tolerance	A 1.5%, min A 1mm
Standard diameter tolerance	metric -0.02 / -0.06 mm inch: -0.003 -0.008

TESTED AT ENVIRONMENTAL TEMPERATURE

Nipple Ending:

Compressed cartridge heaters, nipple ending Ref. "T8"
 Fully water resistant and reinforced cartridge. Ready for removal by means of a screw, should the cartridge become dislodged. Ideal for areas where pressure and fluids are watertight. The ending Ref. T8 is indicate for heating of areas with internal pressure (oil tanks, water, glue, plastic) or deflagration.

Options:

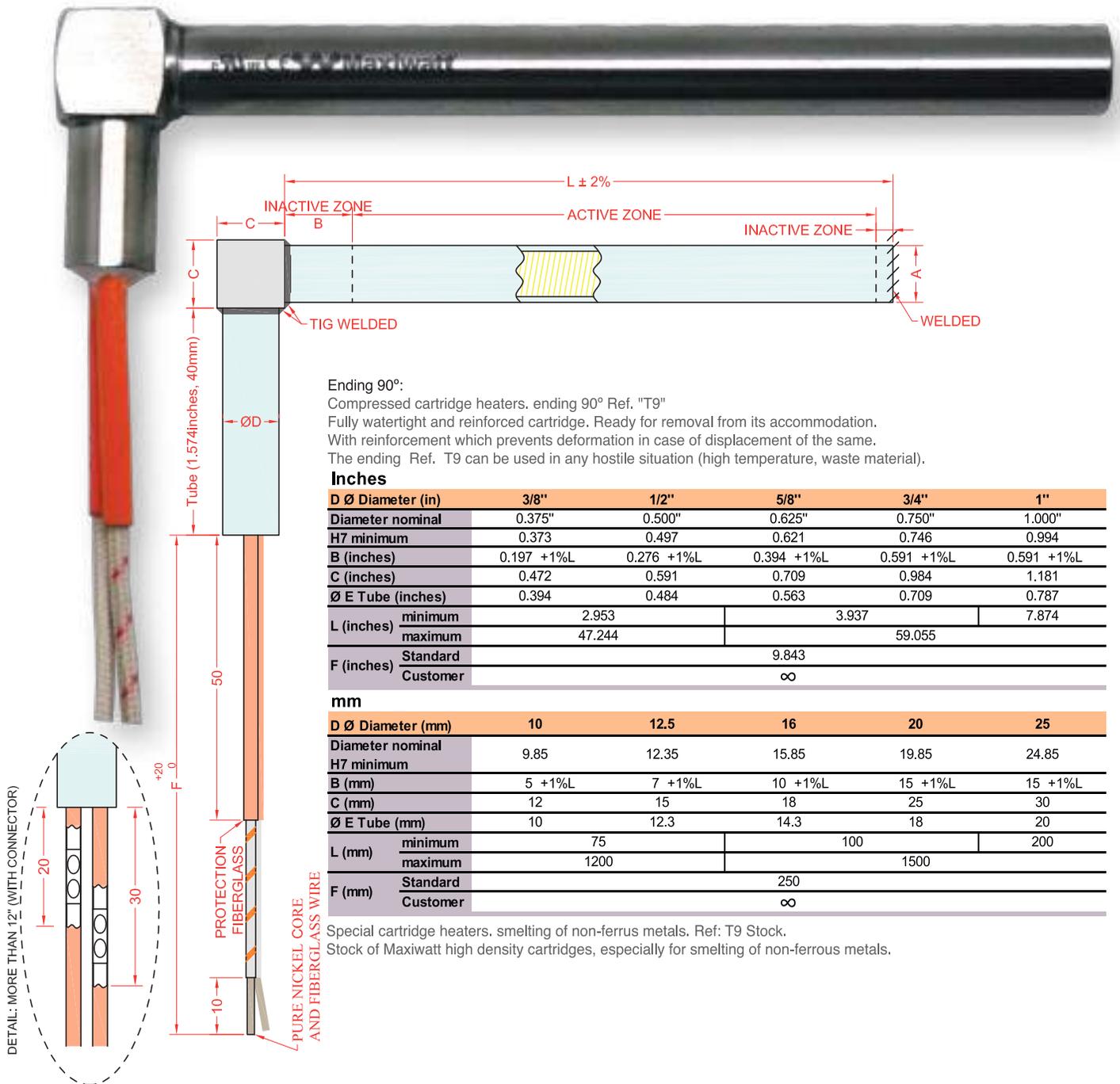
- Certified according to UL standards.
- Watt distribution:
- Isolated or non isolated thermocouples type "J" and "K", placed as customer's requirements.
- Ground lead.
- IP67: For extremely environments (wetness and dust)
- Different endings and protections.
- Diameter tolerance H7: +0 / -0.02 / -0.06mm

Urgent service.

Ordered by 10:00 a.m. CET / CEST, following urgent services are available:

- 24 hours: MOQ 4 pieces and maximum 25 pieces.
- 48 hours: MOQ 4 piece and maximum 50 pieces.
- 3/5 days: MOQ 2 pieces and maximum 150 pieces.
- 7/8 days: MOQ 2 pieces.

Reliable Premium Quality: **High Density** ●
Medium Density ● **Ending T9**
Low Density ●



Ending 90°:
 Compressed cartridge heaters. ending 90° Ref. "T9"
 Fully watertight and reinforced cartridge. Ready for removal from its accommodation.
 With reinforcement which prevents deformation in case of displacement of the same.
 The ending Ref. T9 can be used in any hostile situation (high temperature, waste material).

Inches

D Ø Diameter (in)	3/8"	1/2"	5/8"	3/4"	1"
Diameter nominal	0.375"	0.500"	0.625"	0.750"	1.000"
H7 minimum	0.373	0.497	0.621	0.746	0.994
B (inches)	0.197 +1%L	0.276 +1%L	0.394 +1%L	0.591 +1%L	0.591 +1%L
C (inches)	0.472	0.591	0.709	0.984	1.181
Ø E Tube (inches)	0.394	0.484	0.563	0.709	0.787
L (inches)	minimum 2.953		3.937		7.874
	maximum 47.244		59.055		
F (inches)	Standard		9.843		
	Customer		∞		

mm

D Ø Diameter (mm)	10	12.5	16	20	25
Diameter nominal	9.85	12.35	15.85	19.85	24.85
H7 minimum	9.85	12.35	15.85	19.85	24.85
B (mm)	5 +1%L	7 +1%L	10 +1%L	15 +1%L	15 +1%L
C (mm)	12	15	18	25	30
Ø E Tube (mm)	10	12.3	14.3	18	20
L (mm)	minimum 75		100		200
	maximum 1200		1500		
F (mm)	Standard		250		
	Customer		∞		

Special cartridge heaters. smelting of non-ferrous metals. Ref: T9 Stock.
 Stock of Maxi watt high density cartridges, especially for smelting of non-ferrous metals.

Technical Key

Sheath material	Stainless steel 1.4541
Heating conductor material	NiCr 8020
Max. Sheath temperature	750 °C / 1380 °F
Max. Voltage	480 V
Wattage tolerance*	.+5% -10%
High voltage resistance*	1500 V AC at > 24 V operation voltage 500 V at <= 24 V operation voltage
Insulation resistance*	> 5 MΩ at 500 V DC
Leakage current*	<= 0.5 mA at 253 V AC
Length tolerance	A 1.5%, min A 1mm
Standard diameter tolerance	metric -0.02 / -0.06 mm inch: -0.003 -0.008

TESTED AT ENVIRONMENTAL TEMPERATURE

Options:

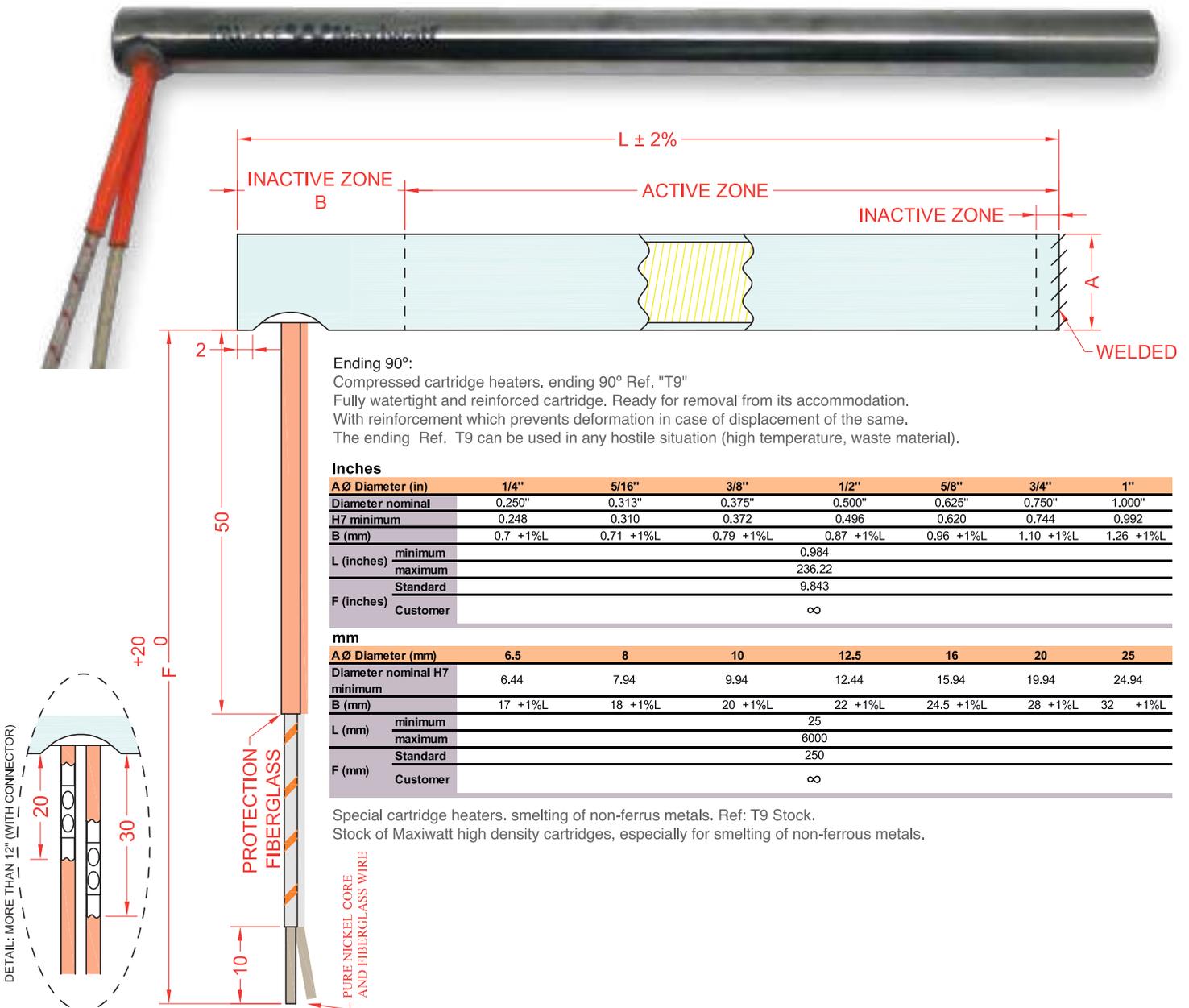
- Certified according to UL standards.
- Watt distribution:
- Isolated or non isolated thermocouples type "J" and "K", placed as customer's requirements.
- Ground lead.
- IP67: For extremely environments (wetness and dust)
- Different endings and protections.
- Diameter tolerance H7: +0 / -0.02 / -0.06mm

Urgent service.

- Ordered by 10:00 a.m. CET / CEST, following urgent services are available:
- 24 hours: MOQ 4 pieces and maximum 25 pieces.
 - 48 hours: MOQ 4 piece and maximum 50 pieces.
 - 3/5 days: MOQ 2 pieces and maximum 150 pieces.
 - 7/8 days: MOQ 2 pieces.

Cartridge Heaters

Reliable Premium Quality. **High Density** ●
Medium Density ● **Ending T9B**
Low Density ●



Technical Key

Sheath material	Stainless steel 1.4541
Heating conductor material	NiCr 8020
Max. Sheath temperature	750 °C / 1380 °F
Max. Voltage	480 V
Wattage tolerance*	.+5% -10%
High voltage resistance*	1500 V AC at > 24 V operation voltage 500 V at <= 24 V operation voltage
Insulation resistance*	> 5 MΩ at 500 V DC
Leakage current*	<= 0.5 mA at 253 V AC
Length tolerance	A 1.5%, min A 1mm
Standard diameter tolerance	metric -0.02 / -0.06 mm inch: -0.003 -0.008

TESTED AT ENVIRONMENTAL TEMPERATURE

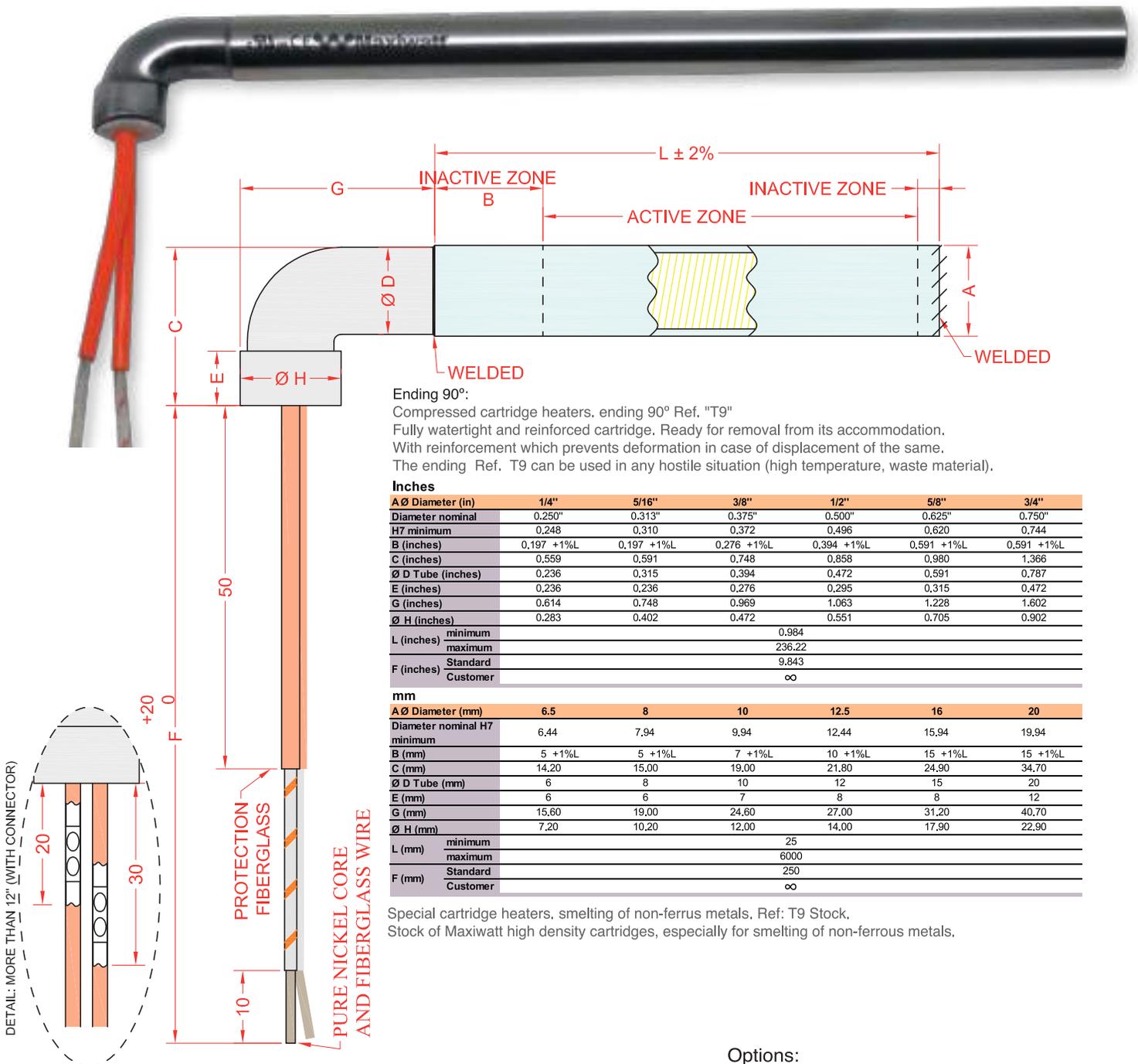
Options:

- Certified according to UL standards.
- Watt distribution:
- Isolated or non isolated thermocouples type "J" and "K", placed as customer's requirements.
- Ground lead.
- IP67: For extremely environments (wetness and dust)
- Different endings and protections.
- Diameter tolerance H7: +0 / -0.02 / -0.06mm

Urgent service.

- Ordered by 10:00 a.m. CET / CEST, following urgent services are available:
- 24 hours: MOQ 4 pieces and maximum 25 pieces.
 - 48 hours: MOQ 4 piece and maximum 50 pieces.
 - 3/5 days: MOQ 2 pieces and maximum 150 pieces.
 - 7/8 days: MOQ 2 pieces.

Reliable Premium Quality. **High Density** ●
Medium Density ● **Ending T9CA**
Low Density ●



Ending 90°:
 Compressed cartridge heaters, ending 90° Ref. "T9"
 Fully watertight and reinforced cartridge. Ready for removal from its accommodation.
 With reinforcement which prevents deformation in case of displacement of the same.
 The ending Ref. T9 can be used in any hostile situation (high temperature, waste material).

Inches		1/4"	5/16"	3/8"	1/2"	5/8"	3/4"
A Ø Diameter (in)		0.250"	0.313"	0.375"	0.500"	0.625"	0.750"
Diameter nominal		0.248	0.310	0.372	0.496	0.620	0.744
H7 minimum							
B (inches)		0.197 +1%L	0.197 +1%L	0.276 +1%L	0.394 +1%L	0.591 +1%L	0.591 +1%L
C (inches)		0.559	0.591	0.748	0.858	0.980	1.366
Ø D Tube (inches)		0.236	0.315	0.394	0.472	0.591	0.787
E (inches)		0.236	0.236	0.276	0.295	0.315	0.472
G (inches)		0.614	0.748	0.969	1.063	1.228	1.602
Ø H (inches)		0.283	0.402	0.472	0.551	0.705	0.902
L (inches)	minimum				0.984		
	maximum				236.22		
F (inches)	Standard				9.843		
	Customer				∞		
mm		6.5	8	10	12.5	16	20
A Ø Diameter (mm)		6.5	8	10	12.5	16	20
Diameter nominal H7		6.44	7.94	9.94	12.44	15.94	19.94
minimum							
B (mm)		5 +1%L	5 +1%L	7 +1%L	10 +1%L	15 +1%L	15 +1%L
C (mm)		14.20	15.00	19.00	21.80	24.90	34.70
Ø D Tube (mm)		6	8	10	12	15	20
E (mm)		6	6	7	8	8	12
G (mm)		15.60	19.00	24.60	27.00	31.20	40.70
Ø H (mm)		7.20	10.20	12.00	14.00	17.90	22.90
L (mm)	minimum				25		
	maximum				6000		
F (mm)	Standard				250		
	Customer				∞		

Special cartridge heaters, smelting of non-ferrous metals, Ref: T9 Stock.
 Stock of Maxiwatt high density cartridges, especially for smelting of non-ferrous metals.

Options:

- Certified according to UL standards.
- Watt distribution:
- Isolated or non isolated thermocouples type "J" and "K", placed as customer's requirements.
- Ground lead.
- IP67: For extremely environments (wetness and dust)
- Different endings and protections.
- Diameter tolerance H7: +0 / -0.02 / -0.06mm

Urgent service.

Ordered by 10:00 a.m. CET / CEST, following urgent services are available:

- 24 hours: MOQ 4 pieces and maximum 25 pieces.
- 48 hours: MOQ 4 piece and maximum 50 pieces.
- 3/5 days: MOQ 2 pieces and maximum 150 pieces.
- 7/8 days: MOQ 2 pieces.

Technical Key

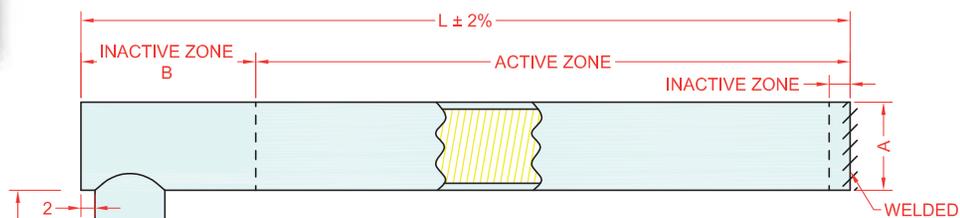
Sheath material	Stainless steel 1.4541
Heating conductor material	NiCr 8020
Max. Sheath temperature	750 °C / 1380 °F
Max. Voltage	480 V
Wattage tolerance*	.+5% -10%
High voltage resistance*	1500 V AC at > 24 V operation voltage 500 V at <= 24 V operation voltage
Insulation resistance*	> 5 MΩ at 500 V DC
Leakage current*	<= 0.5 mA at 253 V AC
Length tolerance	A 1.5%, min A 1mm
Standard diameter tolerance	metric -0.02 / -0.06 mm inch: -0.003 -0.008

TESTED AT ENVIRONMENTAL TEMPERATURE

Cartridge Heaters

Reliable Premium Quality. **High Density** ●
Medium Density ●
Low Density ●

Ending T9PB



Ending 90°:

Compressed cartridge heaters. ending 90° Ref. "T9"

Fully watertight and reinforced cartridge. Ready for removal from its accommodation.

With reinforcement which prevents deformation in case of displacement of the same.

The ending Ref. T9 can be used in any hostile situation (high temperature, waste material).

Inches

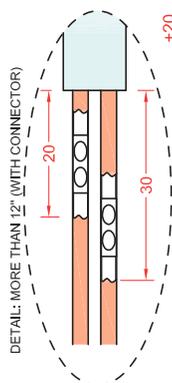
A Ø Diameter (in)	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"
Diameter nominal	0.250"	0.313"	0.375"	0.500"	0.625"	0.750"	1.000"
H7 minimum	0.248	0.310	0.372	0.496	0.620	0.744	0.992
B (mm)	0.7 +1%L	0.71 +1%L	0.79 +1%L	0.87 +1%L	0.96 +1%L	1.10 +1%L	1.26 +1%L
Ø D Tube (inches)	0.197	0.236	0.315	0.394	0.492	0.630	0.787
L (inches)	minimum			0.984	maximum		
				236.22			
F (inches)	Standard			9.843	Customer		
				∞			

mm

A Ø Diameter (mm)	6.5	8	10	12.5	16	20	25
Diameter nominal H7	6.44	7.94	9.94	12.44	15.94	19.94	24.94
H7 minimum	6.44	7.94	9.94	12.44	15.94	19.94	24.94
B (mm)	17 +1%L	18 +1%L	20 +1%L	22 +1%L	24.5 +1%L	28 +1%L	32 +1%L
Ø D Tube (mm)	5	6	8	10	12.5	16	20
L (mm)	minimum			25	maximum		
				6000			
F (mm)	Standard			250	Customer		
				∞			

Special cartridge heaters. smelting of non-ferrous metals. Ref: T9 Stock.

Stock of Maxi watt high density cartridges, especially for smelting of non-ferrous metals.



Technical Key

Sheath material	Stainless steel 1.4541
Heating conductor material	NiCr 8020
Max. Sheath temperature	750 °C / 1380 °F
Max. Voltage	480 V
Wattage tolerance*	.+5% -10%
High voltage resistance*	1500 V AC at > 24 V operation voltage 500 V at <= 24 V operation voltage
Insulation resistance*	> 5 MΩ at 500 V DC
Leakage current*	<= 0.5 mA at 253 V AC
Length tolerance	A 1.5%, min A 1mm
Standard diameter tolerance	metric -0.02 / -0.06 mm inch: -0.003 -0.008

TESTED AT ENVIRONMENTAL TEMPERATURE

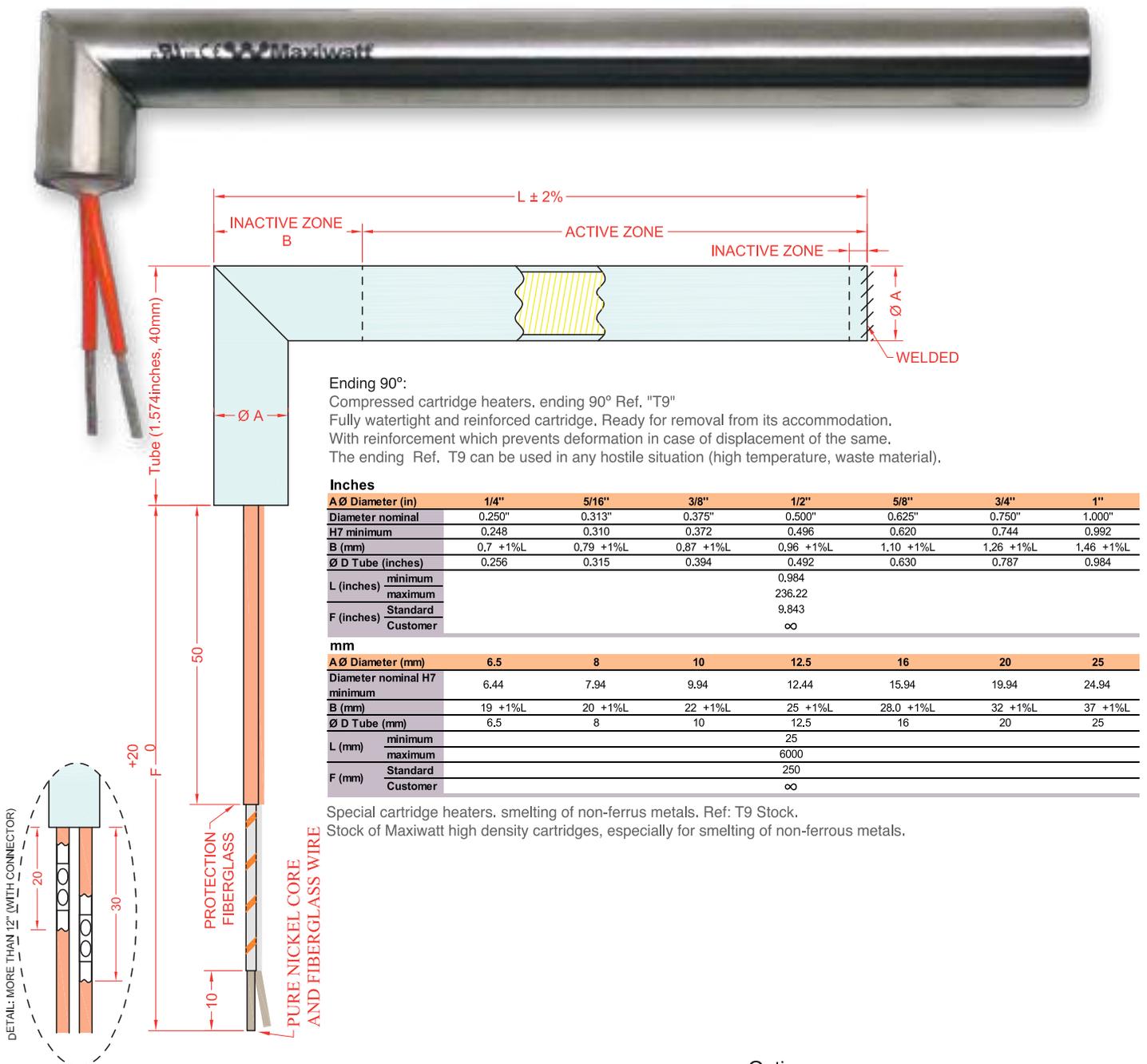
Options:

- Certified according to UL standards.
- Watt distribution:
- Isolated or non isolated thermocouples type "J" and "K", placed as customer's requirements.
- Ground lead.
- IP67: For extremely environments (wetness and dust)
- Different endings and protections.
- Diameter tolerance H7: +0 / -0.02 / -0.06mm

Urgent service.

- Ordered by 10:00 a.m. CET / CEST, following urgent services are available:
- 24 hours: MOQ 4 pieces and maximum 25 pieces.
 - 48 hours: MOQ 4 pieces and maximum 50 pieces.
 - 3/5 days: MOQ 2 pieces and maximum 150 pieces.
 - 7/8 days: MOQ 2 pieces.

Reliable Premium Quality. **High Density** ●
Medium Density ●
Low Density ●

Ending T9PBE

Ending 90°:

 Compressed cartridge heaters, ending 90° Ref. "T9"
 Fully watertight and reinforced cartridge. Ready for removal from its accommodation.
 With reinforcement which prevents deformation in case of displacement of the same.
 The ending Ref. T9 can be used in any hostile situation (high temperature, waste material).

Inches

A Ø Diameter (in)	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"
Diameter nominal	0.250"	0.313"	0.375"	0.500"	0.625"	0.750"	1.000"
H7 minimum	0.248	0.310	0.372	0.496	0.620	0.744	0.992
B (mm)	0.7 +1%L	0.79 +1%L	0.87 +1%L	0.96 +1%L	1.10 +1%L	1.26 +1%L	1.46 +1%L
Ø D Tube (inches)	0.256	0.315	0.394	0.492	0.630	0.787	0.984
L (inches) minimum				0.984			
L (inches) maximum				236.22			
F (inches) Standard				9.843			
F (inches) Customer				∞			

mm

A Ø Diameter (mm)	6.5	8	10	12.5	16	20	25
Diameter nominal H7	6.44	7.94	9.94	12.44	15.94	19.94	24.94
B (mm)	19 +1%L	20 +1%L	22 +1%L	25 +1%L	28.0 +1%L	32 +1%L	37 +1%L
Ø D Tube (mm)	6.5	8	10	12.5	16	20	25
L (mm) minimum				25			
L (mm) maximum				6000			
F (mm) Standard				250			
F (mm) Customer				∞			

Special cartridge heaters, smelting of non-ferrous metals. Ref: T9 Stock.

Stock of Maxiwatt high density cartridges, especially for smelting of non-ferrous metals.

Technical Key

Sheath material	Stainless steel 1.4541
Heating conductor material	NiCr 8020
Max. Sheath temperature	750 °C / 1380 °F
Max. Voltage	480 V
Wattage tolerance*	.+5% -10%
High voltage resistance*	1500 V AC at > 24 V operation voltage 500 V at <= 24 V operation voltage
Insulation resistance*	> 5 MΩ at 500 V DC
Leakage current*	<= 0.5 mA at 253 V AC
Length tolerance	A 1.5%, min A 1mm
Standard diameter tolerance	metric -0.02 / -0.06 mm inch: -0.003 -0.008

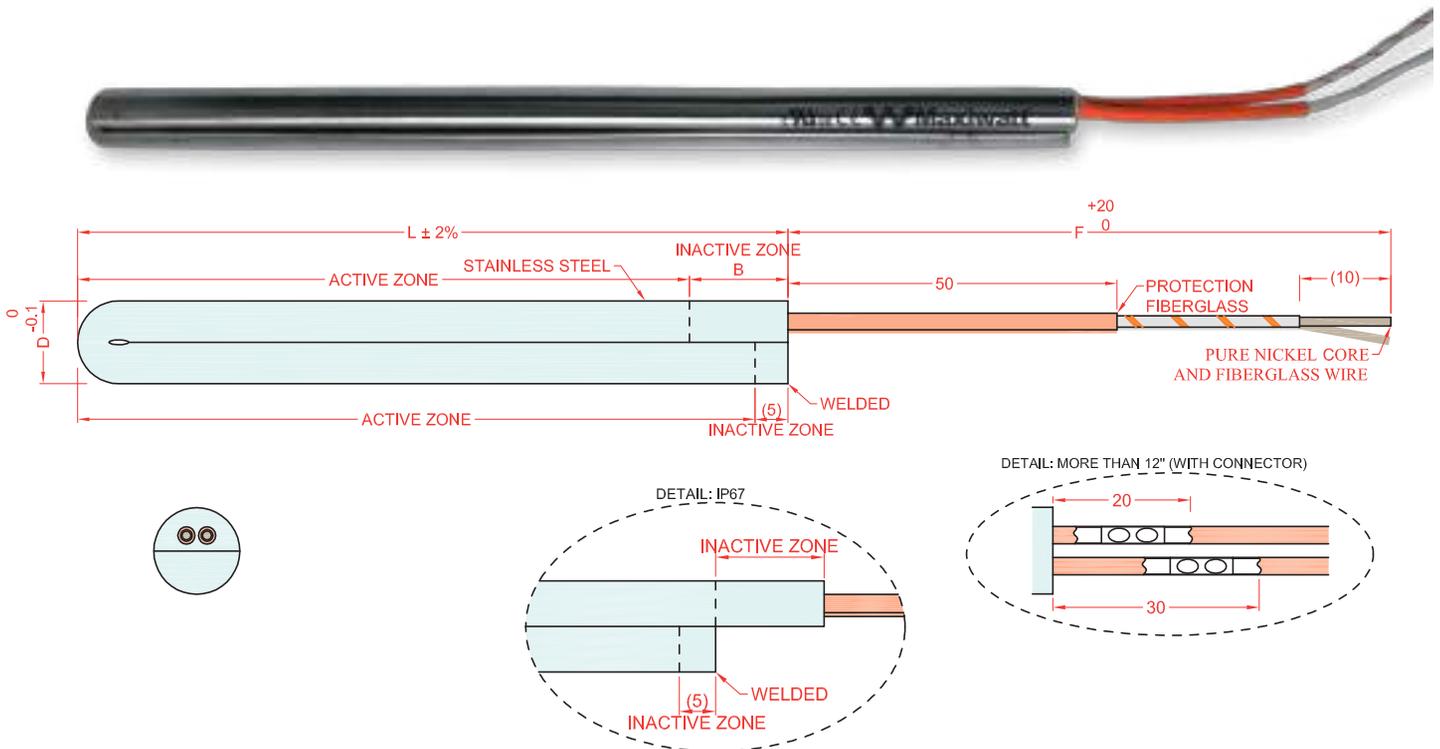
TESTED AT ENVIRONMENTAL TEMPERATURE

Options:

- Certified according to UL standards.
- Watt distribution:
- Isolated or non isolated thermocouples type "J" and "K", placed as customer's requirements.
- Ground lead.
- IP67: For extremely environments (wetness and dust)
- Different endings and protections.
- Diameter tolerance H7: +0 / -0,02 / -0,06mm

Urgent service.

- Ordered by 10:00 a.m. CET / CEST, following urgent services are available:
- 24 hours: MOQ 4 pieces and maximum 25 pieces.
 - 48 hours: MOQ 4 piece and maximum 50 pieces.
 - 3/5 days: MOQ 2 pieces and maximum 150 pieces.
 - 7/8 days: MOQ 2 pieces.



Inches

D Ø Diameter (in)	3/8"	1/2"	5/8"	3/4"	1"
Diameter nominal	0.375"	0.500"	0.625"	0.750"	1.000"
H7 minimum	0.373	0.497	0.621	0.746	0.994
B (inches)	0.276 +1%L	0.394 +1%L	0.591 +1%L	0.591 +1%L	0.787 +1%L
L (inches)	minimum 2.953			3.937	7.874
	maximum 47.244			59.055	
F (inches)	Standard 9.843				
	Customer ∞				

mm

D Ø Diameter (mm)	10	12.5	16	20	25
Diameter nominal	9.85	12.35	15.85	19.85	24.85
H7 minimum	9.85	12.35	15.85	19.85	24.85
B (mm)	7 +1%L	10 +1%L	15 +1%L	15 +1%L	20 +1%L
L (mm)	minimum 75			100	200
	maximum 1200			1500	
F (mm)	Standard 250				
	Customer ∞				

Technical Key

Sheath material	Stainless steel
Heating conductor material	NiCr 8020
Max. Sheath temperature	750 °C / 1380 °F
Max. Voltage	>120V <=480V (OTHER V.: TO CONSULT)
Wattage tolerance*	± 10%
High voltage resistance*	1500 V AC at > 24 V operation voltage 500 V at <= 24 V operation voltage
Insulation resistance*	> 5 MΩ at 500 V DC
Leakage current*	<= 0.5 mA at 253 V AC
Length tolerance	A 2%, min A 1mm
Standard diameter tolerance	metric -0°10-0°15 inch -0,003937 -0,0059055

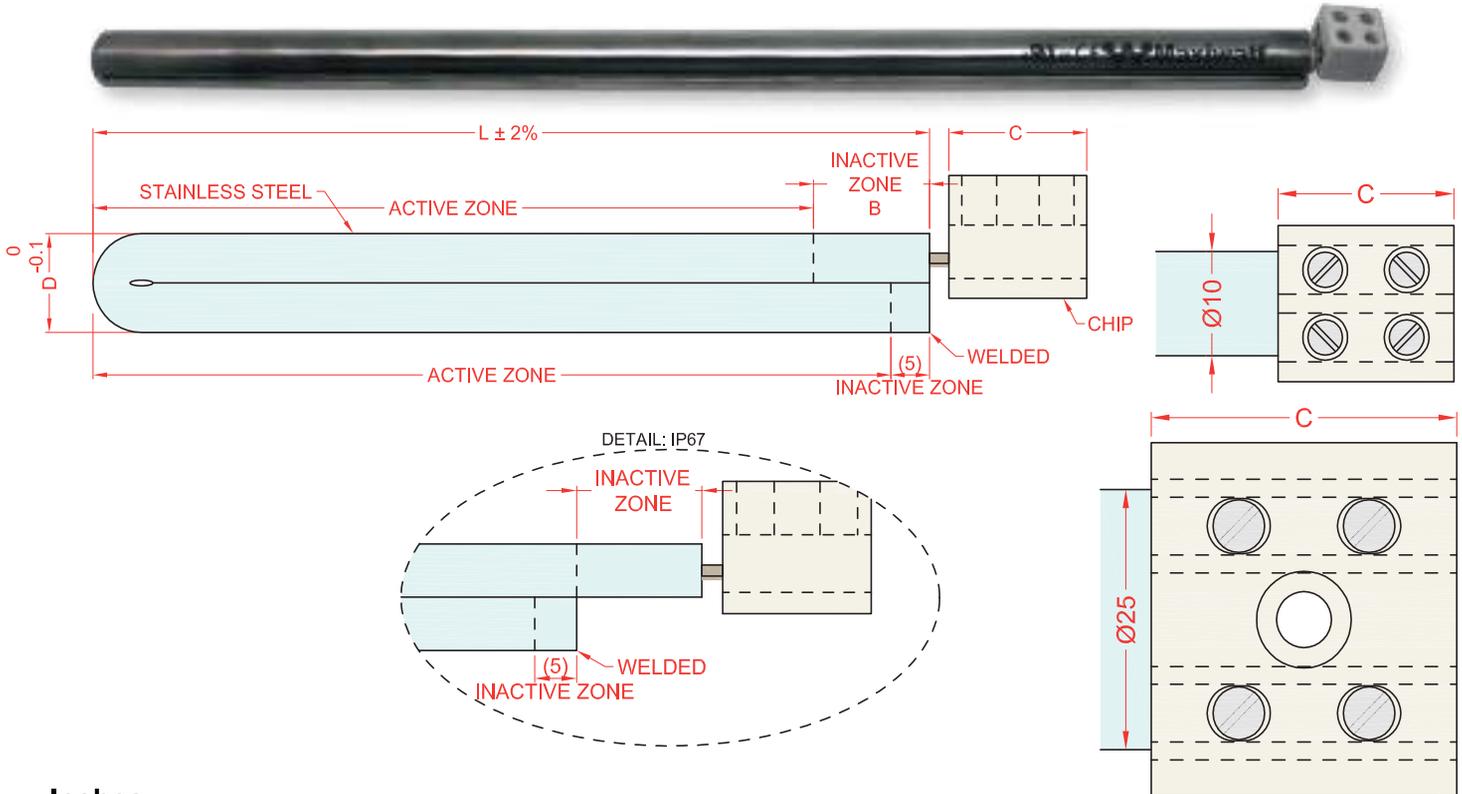
TESTED AT ENVIRONMENTAL TEMPERATURE

Options:

- Certified according to UL standards.
- Watt distribution:
- Isolated or non isolated thermocouples type "J" and "K", placed as customer's requirements.
- Ground lead.
- IP67: For extremely environments (wetness and dust)
- Different ends and protections.

Urgent service.

- Ordered by 10:00 a.m. CET / CEST, following urgent services are available:
- 24 hours: MOQ 4 pieces and maximum 25 pieces.
 - 48 hours: MOQ 4 piece and maximum 50 pieces.
 - 3/5 days: MOQ 2 pieces and maximum 150 pieces.
 - 7/8 days: MOQ 2 pieces.


Inches

D Ø Diameter (in)	3/8"	1/2"	5/8"	3/4"	1"
Diameter nominal	0.375"	0.500"	0.625"	0.750"	1.000"
H7 minimum	0.373	0.497	0.621	0.746	0.994
B (inches)	0.276 +1%L	0.394 +1%L	0.591 +1%L	0.591 +1%L	0.787 +1%L
C (inches)	0.68	0.70	0.70	0.70	1.32
L (inches)	minimum	2.953		3.937	7.874
	maximum	47.244		59.055	

mm

D Ø Diameter (mm)	10	12.5	16	20	25
Diameter nominal	9.85	12.35	15.85	19.85	24.85
H7 minimum	9.85	12.35	15.85	19.85	24.85
B (mm)	7 +1%L	10 +1%L	15 +1%L	15 +1%L	20 +1%L
C (mm)	17.25	17.80	17.80	17.80	33.60
L (mm)	minimum	75		100	200
	maximum	1200		1500	

Technical Key

Sheath material	Stainless steel
Heating conductor material	NiCr 8020
Max. Sheath temperature	750 °C / 1380 °F
Max. Voltage	>120V <=480V (OTHER V.: TO CONSULT)
Wattage tolerance*	± 10%
High voltage resistance*	1500 V AC at > 24 V operation voltage 500 V at <= 24 V operation voltage
Insulation resistance*	> 5 M Ω at 500 V DC
Leakage current*	<= 0.5 mA at 253 V AC
Length tolerance	A 2%, min A 1mm
Standard diameter tolerance	metric -0'10'-0'15 inch -0,003937 -0,0059055

TESTED AT ENVIRONMENTAL TEMPERATURE

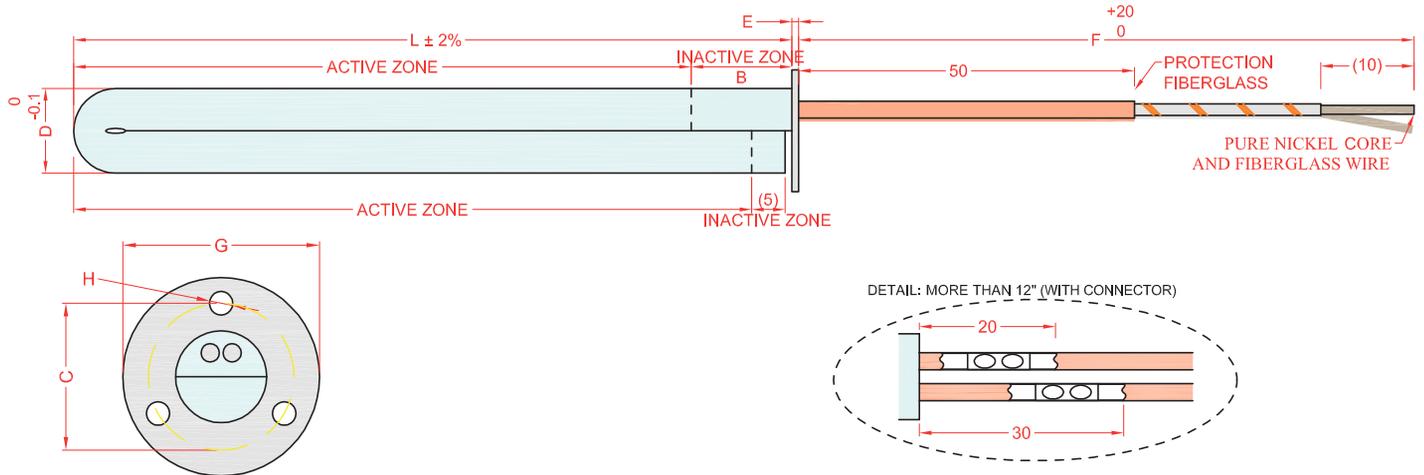
Options:

- Watt distribution:
- Isolated or non isolated thermocouples type "J" and "K", placed as customer's requirements.
- Ground lead.
- IP67: For extremely environments (wetness and dust)
- Different endings and protections.

Urgent service.

Ordered by 10:00 a.m. CET / CEST, following urgent services are available:

- 24 hours: MOQ 4 pieces and maximum 25 pieces.
- 48 hours: MOQ 4 piece and maximum 50 pieces.
- 3/5 days: MOQ 2 pieces and maximum 150 pieces.
- 7/8 days: MOQ 2 pieces.



Inches

D Ø Diameter (in)	3/8"	1/2"	5/8"	3/4"	1"
Diameter nominal	0.375"	0.500"	0.625"	0.750"	1.000"
H7 minimum	0.373	0.497	0.621	0.746	0.994
B (inches)	0.276 +1%L	0.394 +1%L	0.591 +1%L	0.591 +1%L	0.787 +1%L
C (inches)	0.787	0.787	1.008	1.008	1.299
E (inches)	0.039	0.059	0.059	0.059	0.059
G (inches)	1.063	1.063	1.299	1.299	1.614
H (inches)	0.126	0.126	0.165	0.165	0.205
L (inches)	minimum	2.953		3.937	7.874
	maximum	47.244		59.055	
F (inches)	Standard	9.843			
	Customer	∞			

mm

D Ø Diameter (mm)	10	12.5	16	20	25
Diameter nominal	9.85	12.35	15.85	19.85	24.85
H7 minimum					
B (mm)	7 +1%L	10 +1%L	15 +1%L	15 +1%L	20 +1%L
C (mm)	20	20	25.6	25.6	33
E (mm)	1	1.5	1.5	1.5	1.5
G (mm)	27	27	33	33	41
H (mm)	3.2	3.2	4.2	4.2	5.2
L (mm)	minimum	75		100	200
	maximum	1200		1500	
F (mm)	Standard	250			
	Customer	∞			

Technical Key

Sheath material	Stainless steel
Heating conductor material	NiCr 8020
Max. Sheath temperature	750 °C / 1380 °F
Max. Voltage	>120V <=480V (OTHER V.: TO CONSULT)
Wattage tolerance*	± 10%
High voltage resistance*	1500 V AC at > 24 V operation voltage
	500 V at <= 24 V operation voltage
Insulation resistance*	> 5 MΩ at 500 V DC
Leakage current*	<= 0.5 mA at 253 V AC
Length tolerance	A 2%, min A 1mm
Standard diameter tolerance	metric -0'10-0'15
	inch -0,003937 -0,0059055

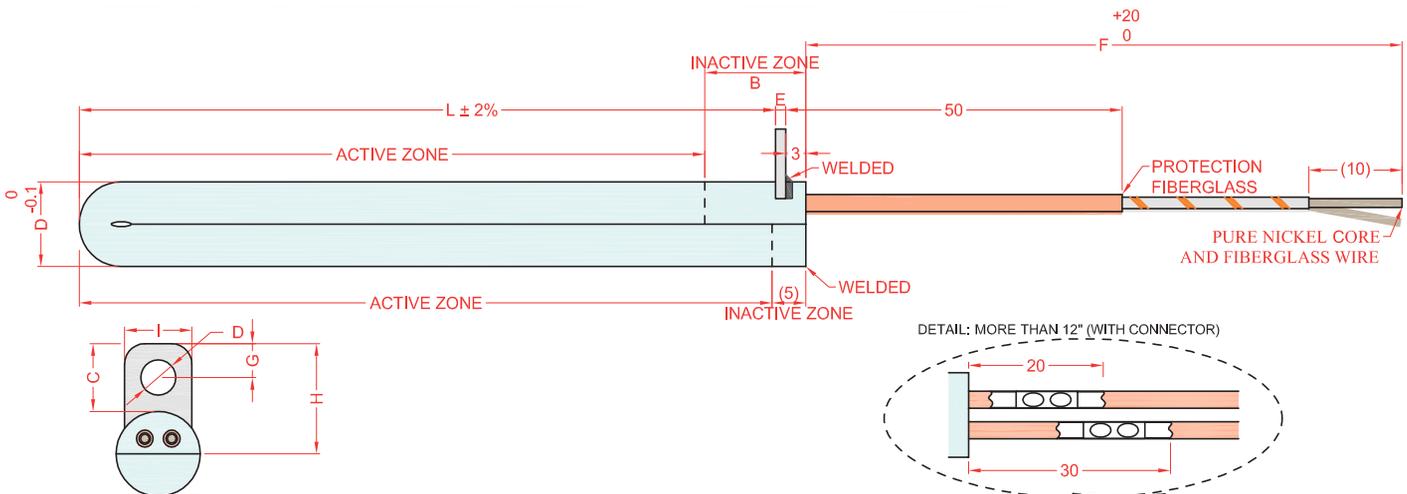
TESTED AT ENVIRONMENTAL TEMPERATURE

Options:

- Certified according to UL standards.
- Watt distribution:
- Isolated or non isolated thermocouples type "J" and "K", placed as customer's requirements.
- Ground lead.
- Different endings and protections.

Urgent service.

- Ordered by 10:00 a.m. CET / CEST, following urgent services are available:
- 24 hours: MOQ 4 pieces and maximum 25 pieces.
 - 48 hours: MOQ 4 pieces and maximum 50 pieces.
 - 3/5 days: MOQ 2 pieces and maximum 150 pieces.
 - 7/8 days: MOQ 2 pieces.

High Density ● **Expan T7B**

Inches

D Ø Diameter (in)	3/8"	1/2"	5/8"	3/4"
Diameter nominal	0.375"	0.500"	0.625"	0.750"
H7 minimum	0.373	0.497	0.621	0.746
B (inches)	0.276 +1%L	0.394 +1%L	0.591 +1%L	0.591 +1%L
C (inches)	0.354	0.394	0.433	0.512
Ø D (inches)	0.165	0.205	0.205	0.244
E (inches)	0.079	0.059	0.079	0.079
G (inches)	0.177	0.197	0.217	0.256
H (inches)	0.748	0.886	1.063	1.299
I (inches)	0.374	0.394	0.472	0.709
L (inches)	minimum	2.953		3.937
	maximum	47.244		59.055
F (inches)	Standard	9.843		
	Customer	∞		

mm

D Ø Diameter (mm)	10	12.5	16	20
Diameter nominal	9.85	12.35	15.85	19.85
H7 minimum				
B (mm)	7 +1%L	10 +1%L	15 +1%L	15 +1%L
C (mm)	9	10	11	13
Ø D (mm)	4.2	5.2	5.2	6.2
E (mm)	2	1.5	2	2
G (mm)	4.5	5	5.5	6.5
H (mm)	19	22.5	27	33
I (mm)	9.5	10	12	18
L (mm)	minimum	75		100
	maximum	1200		1500
F (mm)	Standard	250		
	Customer	∞		

Technical Key

Sheath material	Stainless steel
Heating conductor material	NiCr 8020
Max. Sheath temperature	750 °C / 1380 °F
Max. Voltage	>120V <=480V (OTHER V.: TO CONSULT)
Wattage tolerance*	± 10%
High voltage resistance*	1500 V AC at > 24 V operation voltage 500 V at <= 24 V operation voltage
Insulation resistance*	> 5 MΩ at 500 V DC
Leakage current*	<= 0.5 mA at 253 V AC
Length tolerance	A 2%, min A 1mm
Standard diameter tolerance	metric -0'10-0'15 inch -0,003937 -0,0059055

TESTED AT ENVIRONMENTAL TEMPERATURE

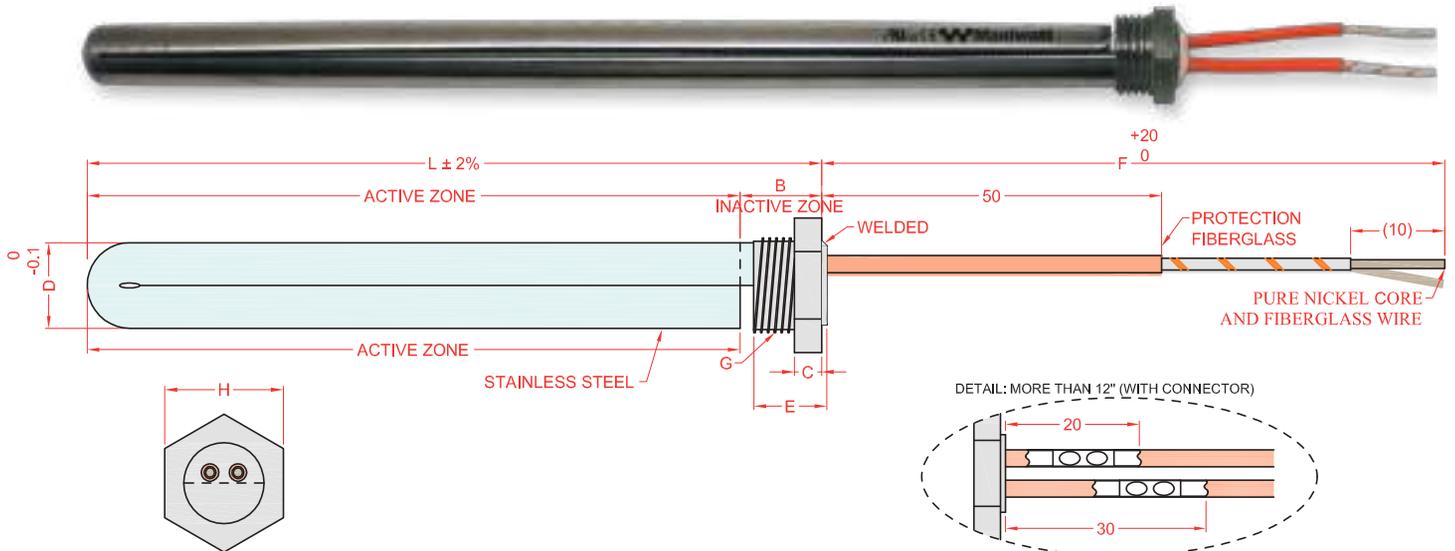
Options:

- Certified according to UL standards.
- Watt distribution:
- Isolated or non isolated thermocouples type "J" and "K", placed as customer's requirements.
- Ground lead.
- Different endings and protections.

Urgent service.

Ordered by 10:00 a.m. CET / CEST, following urgent services are available:

- 24 hours: MOQ 4 pieces and maximum 25 pieces.
- 48 hours: MOQ 4 piece and maximum 50 pieces.
- 3/5 days: MOQ 2 pieces and maximum 150 pieces.
- 7/8 days: MOQ 2 pieces.



Inches

D Ø Diameter (in)	3/8"	1/2"	5/8"	3/4"
Diameter nominal	0.375"	0.500"	0.625"	0.750"
H7 minimum	0.373	0.497	0.621	0.746
B (inches)	E+1%L	E+1%L	E+1%L	E+1%L
C (inches)	0.157	0.157	0.157	0.157
E (inches)	0.423	0.502	0.591	0.591
G (inches)	1/4"	3/8"	1/2"	3/4"
H (inches)	0.669	0.748	0.945	1.063
L (inches)	minimum	2.953		3.937
	maximum	47.244		59.055
F (inches)	Standard	9.843		
	Customer	∞		

mm

D Ø Diameter (mm)	10	12.5	16	20
Diameter nominal	9.85	12.35	15.85	19.85
H7 minimum	9.85	12.35	15.85	19.85
B (mm)	E+1%L	E+1%L	E+1%L	E+1%L
C (mm)	4	4	4	4
E (mm)	10.75	12.75	15	15
G (mm)	M14	M16	M20	M26
H (mm)	17	19	24	27
L (mm)	minimum	75		100
	maximum	1200		1500
F (mm)	Standard	250		
	Customer	∞		

Technical Key

Sheath material	Stainless steel
Heating conductor material	NiCr 8020
Max. Sheath temperature	750 °C / 1380 °F
Max. Voltage	>120V <=480V (OTHER V.: TO CONSULT)
Wattage tolerance*	± 10%
High voltage resistance*	1500 V AC at > 24 V operation voltage
	500 V at <= 24 V operation voltage
Insulation resistance*	> 5 MΩ at 500 V DC
Leakage current*	<= 0.5 mA at 253 V AC
Length tolerance	A 2%, min A 1mm
Standard diameter tolerance	metric -0°10-0°15
	inch -0,003937 -0,0059055

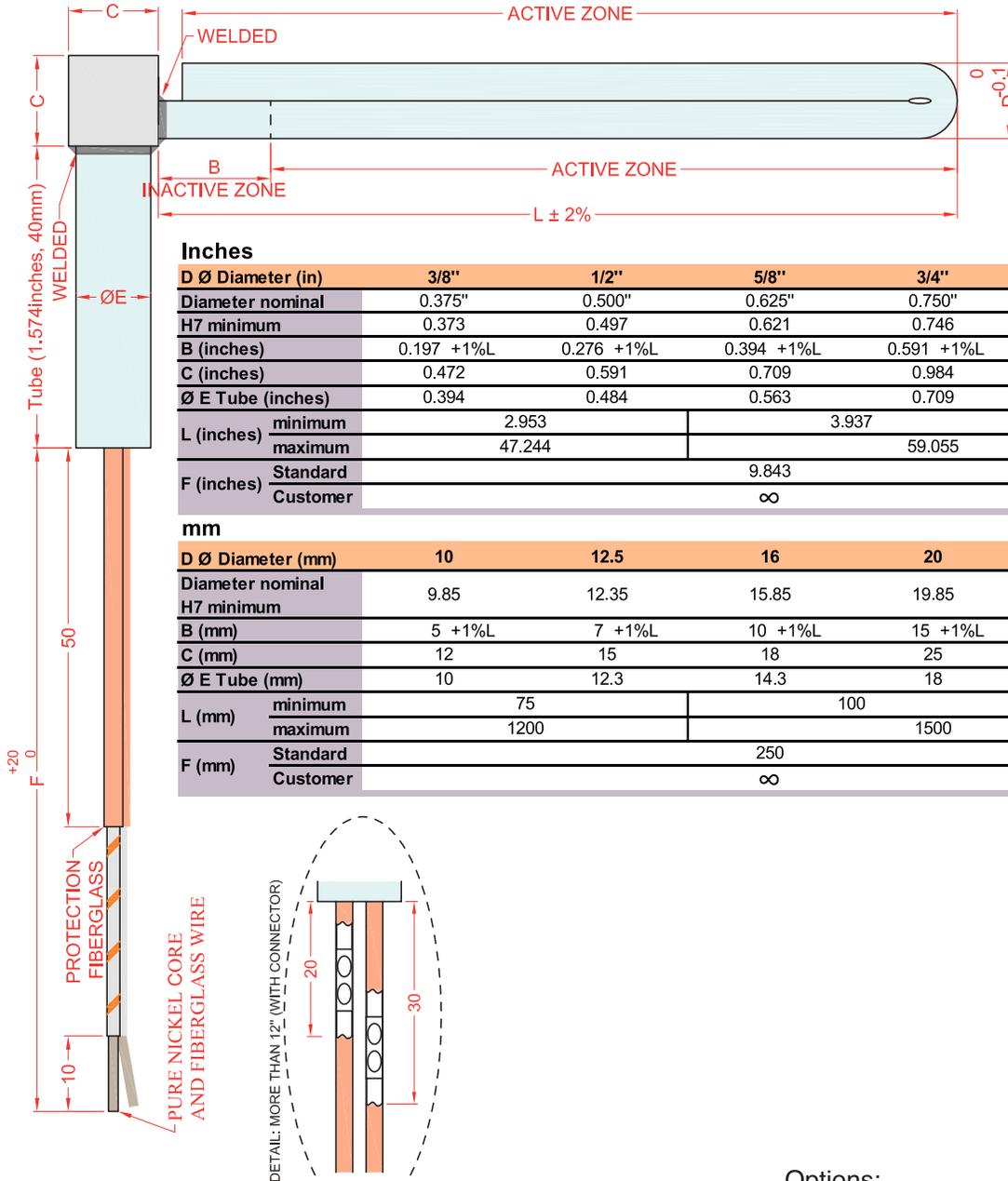
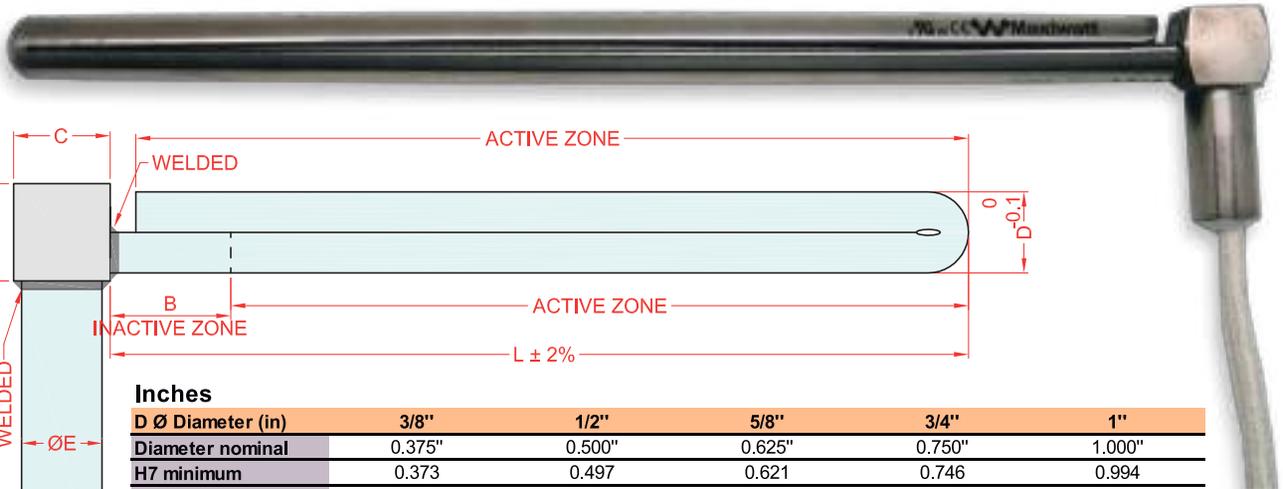
TESTED AT ENVIRONMENTAL TEMPERATURE

Options:

- Certified according to UL standards.
- Watt distribution:
- Isolated or non isolated thermocouples type "J" and "K", placed as customer's requirements.
- Ground lead.
- Different endings and protections.

Urgent service.

- Ordered by 10:00 a.m. CET / CEST, following urgent services are available:
- 24 hours: MOQ 4 pieces and maximum 25 pieces.
 - 48 hours: MOQ 4 piece and maximum 50 pieces.
 - 3/5 days: MOQ 2 pieces and maximum 150 pieces.
 - 7/8 days: MOQ 2 pieces.


Inches

D Ø Diameter (in)	3/8"	1/2"	5/8"	3/4"	1"
Diameter nominal	0.375"	0.500"	0.625"	0.750"	1.000"
H7 minimum	0.373	0.497	0.621	0.746	0.994
B (inches)	0.197 +1%L	0.276 +1%L	0.394 +1%L	0.591 +1%L	0.591 +1%L
C (inches)	0.472	0.591	0.709	0.984	1.181
Ø E Tube (inches)	0.394	0.484	0.563	0.709	0.787
L (inches)	minimum	2.953		3.937	7.874
	maximum	47.244		59.055	
F (inches)	Standard		9.843		
	Customer		∞		

mm

D Ø Diameter (mm)	10	12.5	16	20	25
Diameter nominal	9.85	12.35	15.85	19.85	24.85
H7 minimum	9.85	12.35	15.85	19.85	24.85
B (mm)	5 +1%L	7 +1%L	10 +1%L	15 +1%L	15 +1%L
C (mm)	12	15	18	25	30
Ø E Tube (mm)	10	12.3	14.3	18	20
L (mm)	minimum	75		100	200
	maximum	1200		1500	
F (mm)	Standard		250		
	Customer		∞		

Technical Key

Sheath material	Stainless steel
Heating conductor material	NiCr 8020
Max. Sheath temperature	750 °C / 1380 °F
Max. Voltage	>120V <=480V (OTHER V.: TO CONSULT)
Wattage tolerance*	± 10%
High voltage resistance*	1500 V AC at > 24 V operation voltage 500 V at <= 24 V operation voltage
Insulation resistance*	> 5 MΩ at 500 V DC
Leakage current*	<= 0.5 mA at 253 V AC
Length tolerance	A 2%, min A 1mm
Standard diameter tolerance	metric -0'10-0'15
	inch -0,003937 -0,0059055

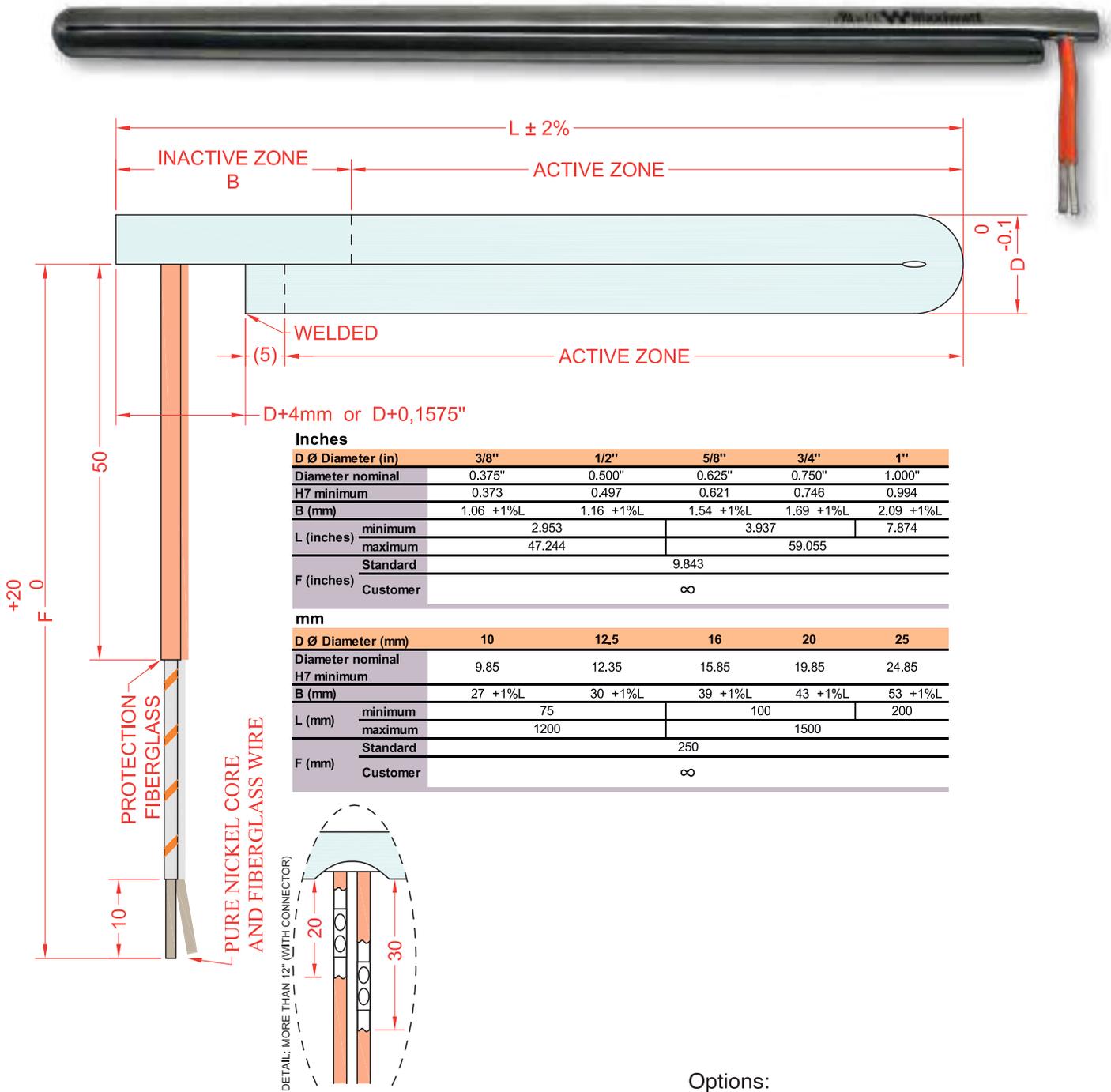
TESTED AT ENVIRONMENTAL TEMPERATURE

Options:

- Certified according to UL standards.
- Watt distribution:
- Isolated or non isolated thermocouples type "J" and "K", placed as customer's requirements.
- Ground lead.
- IP67: For extremely environments (wetness and dust)
- Different endings and protections.

Urgent service.

- Ordered by 10:00 a.m. CET / CEST, following urgent services are available:
- 24 hours: MOQ 4 pieces and maximum 25 pieces.
 - 48 hours: MOQ 4 piece and maximum 50 pieces.
 - 3/5 days: MOQ 2 pieces and maximum 150 pieces.
 - 7/8 days: MOQ 2 pieces.



Technical Key

Sheath material	Stainless steel
Heating conductor material	NiCr 8020
Max. Sheath temperature	750 °C / 1380 °F
Max. Voltage	>120V <=480V (OTHER V.: TO CONSULT)
Wattage tolerance*	± 10%
High voltage resistance*	1500 V AC at > 24 V operation voltage
	500 V at <= 24 V operation voltage
Insulation resistance*	> 5 MΩ at 500 V DC
Leakage current*	<= 0.5 mA at 253 V AC
Length tolerance	A 2%, min A 1mm
Standard diameter tolerance	metric -0'10-0'15
	inch -0,003937 -0,0059055

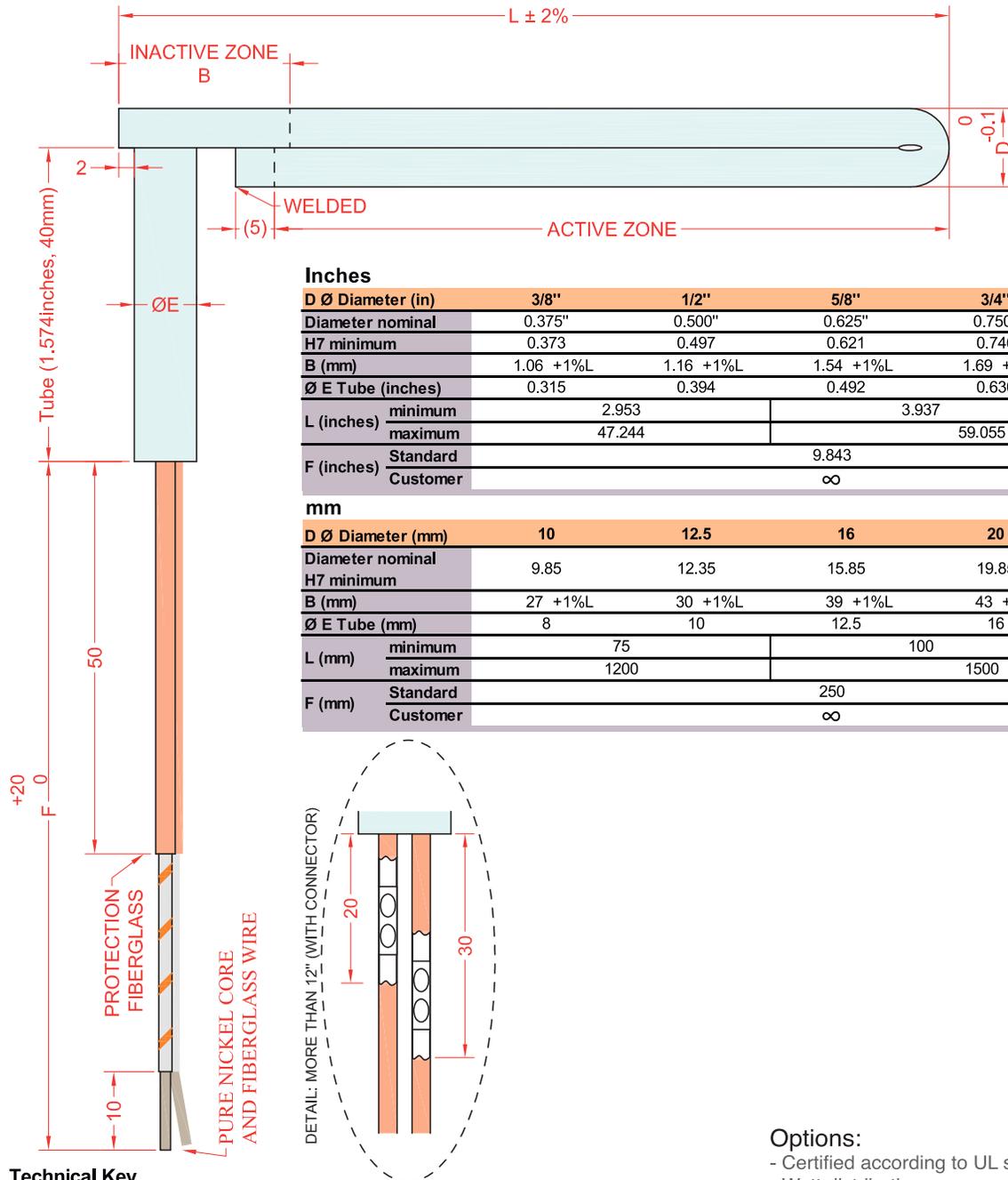
TESTED AT ENVIRONMENTAL TEMPERATURE

Options:

- Certified according to UL standards.
- Watt distribution:
- Isolated or non isolated thermocouples type "J" and "K", placed as costumer's requirements.
- Ground lead.
- Different endings and protections.

Urgent service.

- Ordered by 10:00 a.m. CET / CEST, following urgent services are available:
- 24 hours: MOQ 4 pieces and maximum 25 pieces.
 - 48 hours: MOQ 4 piece and maximum 50 pieces.
 - 3/5 days: MOQ 2 pieces and maximum 150 pieces.
 - 7/8 days: MOQ 2 pieces.


Inches

D Ø Diameter (in)	3/8"	1/2"	5/8"	3/4"	1"
Diameter nominal	0.375"	0.500"	0.625"	0.750"	1.000"
H7 minimum	0.373	0.497	0.621	0.746	0.994
B (mm)	1.06 +1%L	1.16 +1%L	1.54 +1%L	1.69 +1%L	2.09 +1%L
Ø E Tube (inches)	0.315	0.394	0.492	0.630	0.787
L (inches)	minimum 2.953		3.937		7.874
	maximum 47.244			59.055	
F (inches)	Standard	9.843			
	Customer	∞			

mm

D Ø Diameter (mm)	10	12.5	16	20	25
Diameter nominal	9.85	12.35	15.85	19.85	24.85
H7 minimum					
B (mm)	27 +1%L	30 +1%L	39 +1%L	43 +1%L	53 +1%L
Ø E Tube (mm)	8	10	12.5	16	20
L (mm)	minimum 75		100		200
	maximum 1200			1500	
F (mm)	Standard	250			
	Customer	∞			

Technical Key

Sheath material	Stainless steel
Heating conductor material	NiCr 8020
Max. Sheath temperature	750 °C / 1380 °F
Max. Voltage	>120V <=480V (OTHER V.: TO CONSULT)
Wattage tolerance*	± 10%
High voltage resistance*	1500 V AC at > 24 V operation voltage
	500 V at <= 24 V operation voltage
Insulation resistance*	> 5 MΩ at 500 V DC
Leakage current*	<= 0.5 mA at 253 V AC
Length tolerance	A 2%, min A 1mm
Standard diameter tolerance	metric -0'10'-0'15
	inch -0,003937 -0,0059055

TESTED AT ENVIRONMENTAL TEMPERATURE

Options:

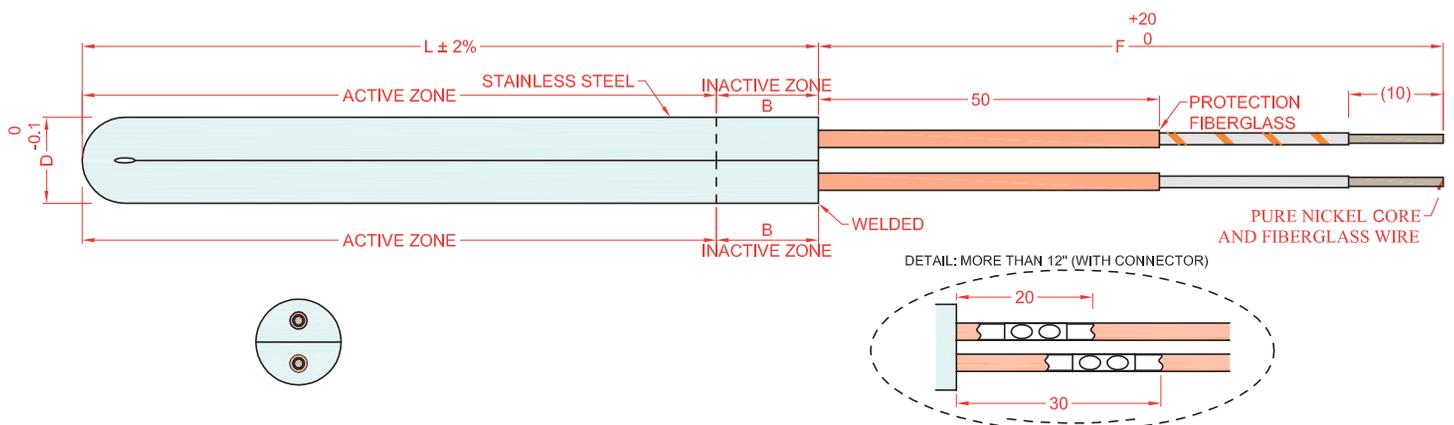
- Certified according to UL standards.
- Watt distribution:
- Isolated or non isolated thermocouples type "J" and "K", placed as customer's requirements.
- Ground lead.
- IP67: For extremely environments (wetness and dust)
- Different endings and protections.

Urgent service.

- Ordered by 10:00 a.m. CET / CEST, following urgent services are available:
- 24 hours: MOQ 4 pieces and maximum 25 pieces.
 - 48 hours: MOQ 4 piece and maximum 50 pieces.
 - 3/5 days: MOQ 2 pieces and maximum 150 pieces.
 - 7/8 days: MOQ 2 pieces.

Cartridge Heaters

Reliable Premium Quality. High Density ● Split-Sheath



Inches

D Ø Diameter (in)	3/8"	1/2"	5/8"	3/4"	1"
Diameter nominal	0.375"	0.500"	0.625"	0.750"	1.000"
H7 minimum	0.373	0.497	0.621	0.746	0.994
B (inches)	0.984	0.984	0.984	1.181	1.181
L (inches)	minimum maximum	2.953 47.244		3.937 59.055	7.874
F (inches)	Standard Customer		9.843 ∞		

mm

D Ø Diameter (mm)	10	12.5	16	20	25
Diameter nominal	9.85	12.35	15.85	19.85	24.85
H7 minimum	9.85	12.35	15.85	19.85	24.85
B (mm)	25	25	25	30	30
L (mm)	minimum maximum	75 1200		100 1500	200
F (mm)	Standard Customer		250 ∞		

Technical Key

Sheath material	Stainless steel 1.4541
Heating conductor material	NiCr 8020
Max. Sheath temperature	750 °C / 1380 °F
Max. Voltage	480 V
Wattage tolerance*	+.5% -10%
High voltage resistance*	1500 V AC at > 24 V operation voltage 500 V at ≤ 24 V operation voltage
Insulation resistance*	> 5 MΩ at 500 V DC
Leakage current*	≤ 0.5 mA at 253 V AC
Length tolerance	A 1.5%, min A 1mm
Standard diameter tolerance	metric -0.02 / -0.06 mm inch: -0.003 -0.008

TESTED AT ENVIRONMENTAL TEMPERATURE

Options:

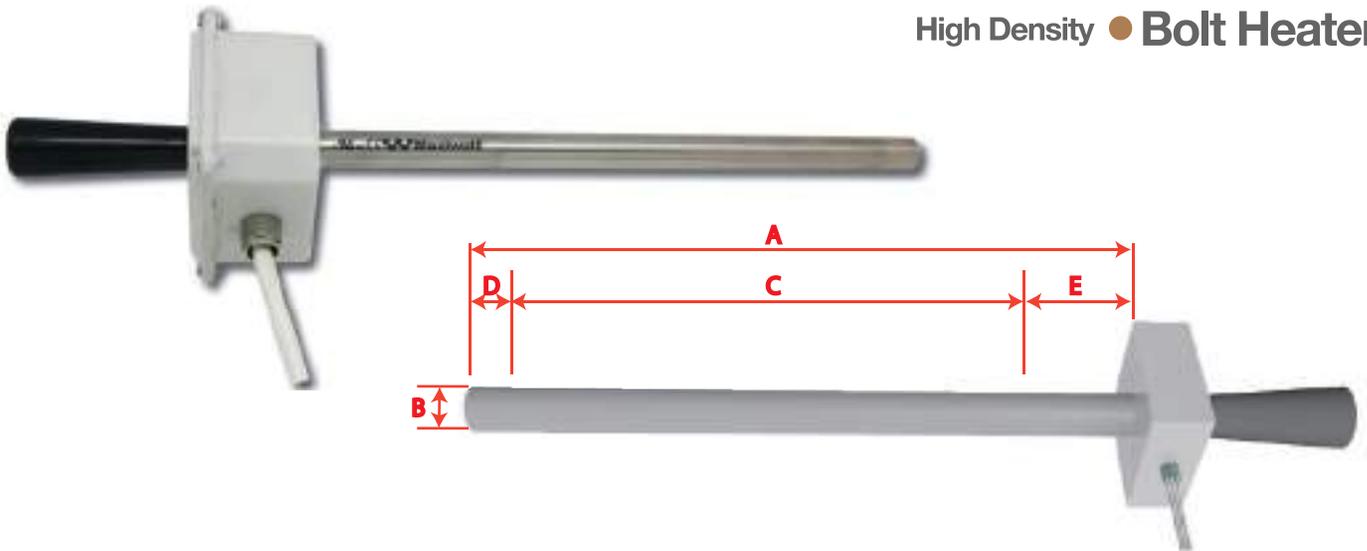
- Watt distribution:
- Isolated or non isolated thermocouples type "J" and "K", placed as customer's requirements.
- Ground lead.
- Different endings and protections.

Urgent service.

Ordered by 10:00 a.m. CET / CEST, following urgent services are available:

- 24 hours: MOQ 4 pieces and maximum 25 pieces.
- 48 hours: MOQ 4 piece and maximum 50 pieces.
- 3/5 days: MOQ 2 pieces and maximum 150 pieces.
- 7/8 days: MOQ 2 pieces.

High Density • Bolt Heater



Watts	Diam. B	Lenght A	Heated Lenght C	Lenght D	Lenght E
1000	.434"	19"	14"		3"
1500	.434"	25"	20"	1"	3"
2000	.434"	31"	25"		4"
3000	.434"	43"	37"		4"
1250	.562"	19"	14"		3"
1900	.562"	25"	20"	1"	3"
2500	.562"	31"	25"		4"
3800	.562"	43"	37"		4"
5000	.562"	55"	49"		4"
1500	.681"	19"	14"		3"
2300	.681"	25"	20"		3"
3100	.681"	31"	25"	1-1/8"	4"
4600	.681"	43"	37"		4"
6000	.681"	55"	49"		4"
7500	.681"	67"	61"		4"
1800	.813"	19"	14"		3"
2700	.813"	25"	20"		3"
3600	.813"	31"	25"	1-1/8"	4"
5300	.813"	43"	37"		4"
7000	.813"	55"	49"		4"
8500	.813"	67"	61"		4"
1800	.932"	22-1/4"	14-7/8"		4"
2100	.932"	28-1/4"	20-7/8"		4"
4200	.932"	34-1/4"	25-7/8"	1-1/8"	4"
6200	.932"	46-1/4"	37-7/8"		5"
8000	.932"	58-1/4"	49-7/8"		5"
9500	.932"	70-1/4"	61-7/8"		5"

Bolt heating Ending:

Maxiwatt Bolt Heaters are used as assistance to tight large bolts in machinery and heavy equipments. They are made in a size for an easy insertion of the empty of the bolt. The fast heating expands the bolt allowing a better adjustment of the nut.

The bolt heater discharges and is removed. As the bolt cools it comes back to its original size giving a perfect adjustment. Maxiwatt Bolt Heaters are manufactured with the most efficient and best quality heating components of the market.

Technical Key

Sheath material	Stainless steel 1.4541
Heating conductor material	NiCr 8020
Max. Sheath temperature	750 °C / 1380 °F
Max. Voltage	480 V
Wattage tolerance*	.+5% -10%
High voltage resistance*	1500 V AC at > 24 V operation voltage
	500 V at <= 24 V operation voltage
Insulation resistance*	> 5 MΩ at 500 V DC
Leakage current*	<= 0.5 mA at 253 V AC
Length tolerance	A 1.5%, min A 1mm
Standard diameter tolerance	metric -0.02 / -0.06 mm
	inch: -0.003 -0.008

*TESTED AT ENVIRONMENTAL TEMPERATURE

Industry:

- Large Machine and Die Manufacturers
- Construction
- Boiler Manufacturers

Application

- Large Compressors
- Turbines
- Large Cylinders
- Pressure Vessels

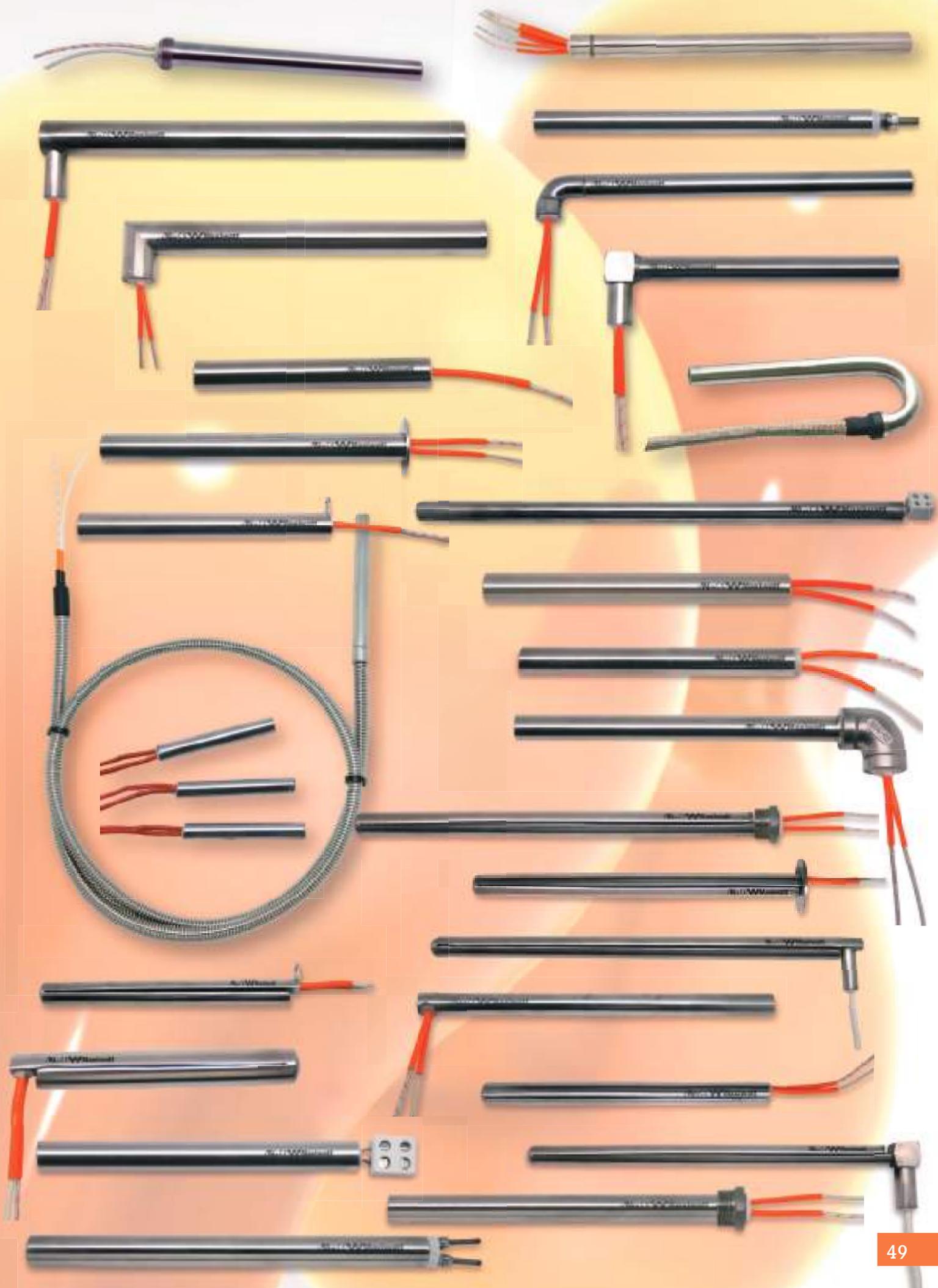
Optional:

- Quick disconnect Plugs

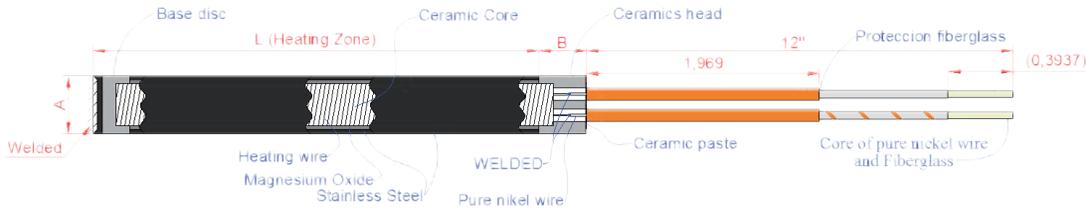
Features:

- High density made
- Metallic box with drillings
- Thermal insulation handle
- High temperature wire 250°C (480°C)
- Fast disconnection plug (optional)

STOCKS



Reliable Premium Quality Cartridge Heaters High Watt Density


6,5 mm

Length h	120v. Or 240v.												Code No.	
mm	WATTS												Example. AC652524080	
25	80	100	160											AC6525(volts)(watts)
30	80	100	125	160	200									AC6530(volts)(watts)
40	100	125	160	175	200	250								AC6540(volts)(watts)
50	100	125	160	180	200	250	300							AC6550(volts)(watts)
60	125	160	180	200	250	280	315							AC6560(volts)(watts)
80	125	160	180	200	250	280	315	350						AC6580(volts)(watts)
100	125	160	180	200	250	280	315	350	400					AC65100(volts)(watts)
130	220	250	280	315	350	400								AC65130(volts)(watts)
160	250	280	315	350	400	450								AC65160(volts)(watts)
180	250	350	400	450	500									AC65180(volts)(watts)
200	250	350	400	450	630									AC65200(volts)(watts)
250	250	350	400	450	630	800								AC65250(volts)(watts)

8 mm

Length h	120v. Or 240v.												Code No.	
mm	WATTS												Example. AC83024080	
30	80	100												AC830(volts)(watts)
40	100	125	160	175	200	250								AC840(volts)(watts)
50	100	125	160	175	200	250	315							AC850(volts)(watts)
60	100	125	140	160	180	200	220	250	280	315	350			AC860(volts)(watts)
80	160	180	200	250	280	315	350	400	500					AC880(volts)(watts)
100	180	200	250	280	315	350	400							AC8100(volts)(watts)
130	250	280	315	350	400	500								AC8130(volts)(watts)
160	200	250	280	315	350	400	450	500						AC8160(volts)(watts)
180	250	280	315	350	400	450	500	630						AC8180(volts)(watts)
200	350	400	450	500	630									AC8200(volts)(watts)
250	400	450	630	750										AC8250(volts)(watts)

10 mm

Length h	120v. Or 240v.												Code No.	
mm	WATTS												Example. AC103024080	
30	80	100	150	200										AC1030(volts)(watts)
40	80	100	120	160	200	250	315							AC1040(volts)(watts)
50	100	125	160	175	200	250	315	400						AC1050(volts)(watts)
60	125	160	180	200	250	315	400	500						AC1060(volts)(watts)
80	125	160	180	200	220	250	280	315	400	500	630			AC1080(volts)(watts)
100	160	200	220	250	280	315	350	400	500	560	630	700	850	AC10100(volts)(watts)
130	280	315	350	400	500	630	750							AC10130(volts)(watts)
160	350	400	500	630	750	800								AC10160(volts)(watts)
180	350	400	500	630	750	800	900							AC10180(volts)(watts)
200	350	400	500	630	750	800	900	1000						AC10200(volts)(watts)
250	400	500	630	750	800	900	1000							AC10250(volts)(watts)

*The code is made as follows: AC (high watts density) + 125 (12,5 mm of diameter) + 100 (100mm of length) + 240 (240 volts) + 500 (500 watts) = AC125100250500
 All of the intermediate sizes can be made in diameter and length, volts, watts distribution, cold areas, special endings, protections, etc

12,5 mm

Lengt h	120v. Or 240v.												Code No.	
mm	WATTS												Example. AC1254024080	
40	100	160	200	250	315	400								AC12540(volts)(watts)
50	100	160	200	250	315	400								AC12550(volts)(watts)
60	125	160	200	250	315	400	500							AC12560(volts)(watts)
80	160	200	250	315	400	500	630	800						AC12580(volts)(watts)
100	125	220	250	315	350	400	500	560	630	800	1000			AC125100(volts)(watts)
130	350	400	500	630	700	800	1000	1100	1250					AC125130(volts)(watts)
160	400	500	630	800	900	1000	1250							AC125160(volts)(watts)
180	400	500	630	700	800	900	1000	1250						AC125180(volts)(watts)
200	400	500	630	700	800	1000	1500							AC125200(volts)(watts)
250	630	800	900	1000	1250	1500								AC125250(volts)(watts)
300	630	800	1000	1250	1500	2000								AC125300(volts)(watts)

16 mm

Lengt h	120v. Or 240v.												Code No.	
mm	WATTS												Example. AC164024080	
40	100	160	200	250	315	400	500							AC1640(volts)(watts)
50	100	160	200	250	315	400	500	630						AC1650(volts)(watts)
60	125	160	200	250	315	400	500	630						AC1660(volts)(watts)
80	160	200	250	280	315	400	500	630	800	850	1000			AC1680(volts)(watts)
100	125	220	250	315	350	400	500	560	630	800	1000	1250		AC16100(volts)(watts)
130	400	500	630	700	800	1000	1100	1250	1400	1600	1800			AC16130(volts)(watts)
160	400	500	630	800	900	1000	1250	1600	1800					AC16160(volts)(watts)
180	400	500	630	700	800	850	1000	1100	1250	1800				AC16180(volts)(watts)
200	400	500	630	700	800	1000	1500	1800	2000					AC16200(volts)(watts)
250	630	800	1000	1250	1500	1600	1800							AC16250(volts)(watts)
300	630	800	1000	1250	1500	1800	2000							AC16300(volts)(watts)

20 mm

Lengt h	120v. Or 240v.												Code No.	
mm	WATTS												Example. AC204024080	
40	100	160	200	250	315									AC2040(volts)(watts)
50	100	160	200	250	315	400								AC2050(volts)(watts)
60	125	160	200	250	316	400	500	630	800					AC2060(volts)(watts)
80	160	200	250	315	400	500	630	800	1000	1250				AC2080(volts)(watts)
100	250	315	350	400	450	500	560	630	800	1000	1500			AC20100(volts)(watts)
130	500	630	800	900	1000	1100	1250	1400	1600	1800				AC20130(volts)(watts)
160	500	800	900	1000	1100	1250	1800	2000	2200					AC20160(volts)(watts)
180	800	1000	1100	1250	2000	2200								AC20180(volts)(watts)
200	500	800	1000	1250	1500	1600	2000	2500						AC20200(volts)(watts)
250	800	1000	1250	1600	1800	2000								AC20250(volts)(watts)
300	1000	1250	1500	1600	2000	2200	2500	3000						AC20300(volts)(watts)

*The code is made as follows: AC (high watts density) + 125 (12,5 mm of diameter) + 100 (100mm of length) + 240 (240 volts) + 500 (500 watts) = AC125100250500

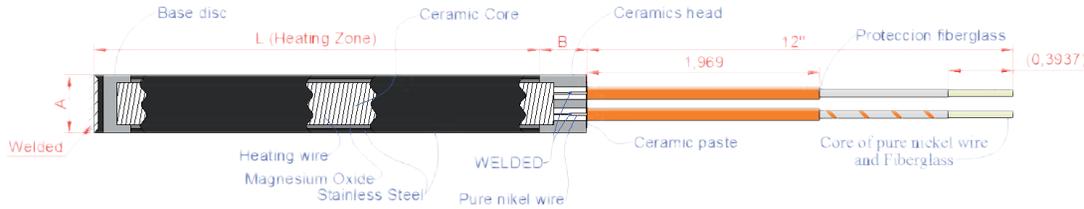
Technical Key

Sheath material	Stainless steel 1.4541
Heating conductor material	NiCr 8020
Max. Sheath temperature	750 °C / 1380 °F
Max. Voltage	480 V
Wattage tolerance*	.+5% -10%
High voltage resistance*	1500 V AC at > 24 V operation voltage 500 V at <= 24 V operation voltage
Insulation resistance*	> 5 MΩ at 500 V DC
Leakage current*	<= 0,5 mA at 253 V AC
Length tolerance	A 1.5%, min A 1mm
Standard diameter tolerance	metric -0.02 / -0.06 mm inch: -0.003 -0.008

TESTED AT ENVIRONMENTAL TEMPERATURE



Reliable Premium Quality Cartridge Heaters High Watt Density



1/4" Length		120v. Or 240v.										Code No.		
0.250 in		WATTS										Example. AC14124080		
1"	80	100	160											AC141 (volts)(watts)
1 1/4"	80	100	125	160	200									AC14114 (volts)(watts)
1.5"	100	125	160	175	200	250								AC1415 (volts)(watts)
2"	100	125	160	180	200	250	300							AC142 (volts)(watts)
2.5"	125	160	180	200	250	280	315							AC1425 (volts)(watts)
3"	125	160	180	200	250	280	315	350						AC143 (volts)(watts)
3 1/4"	125	160	180	200	250	280	315	350						AC14314 (volts)(watts)
4"	125	160	180	200	250	280	315	350	400					AC144 (volts)(watts)
5"	220	250	280	315	350	400								AC145 (volts)(watts)
5 1/4"	220	250	280	315	350	400								AC14514 (volts)(watts)
6"	250	280	315	350	400	450								AC146 (volts)(watts)
6.5"	250	280	315	350	400	450								AC1465 (volts)(watts)
7"	250	350	400	450	500									AC147 (volts)(watts)
8"	250	350	400	450	630									AC148 (volts)(watts)
10"	250	350	400	450	630	800								AC1410 (volts)(watts)

5/16" Length		120v. Or 240v.										Code No.		
0.313 in		WATTS										Example. AC5161142408		
1 1/4"	80	100												AC516114 (volts)(watts)
1.5"	100	125	160	175	200	250								AC51615 (volts)(watts)
2"	100	125	160	175	200	250	315							AC5162 (volts)(watts)
2.5"	100	125	140	160	180	200	220	250	280	315	350			AC51625 (volts)(watts)
3"	160	180	200	250	280	315	350	400	500					AC5163 (volts)(watts)
3 1/4"	160	180	200	250	280	315	350	400						AC516314 (volts)(watts)
4"	180	200	250	280	315	350	400							AC5164 (volts)(watts)
5"	250	280	315	350	400	500								AC5165 (volts)(watts)
5 1/4"	250	280	315	350	400	500								AC516514 (volts)(watts)
6"	200	250	280	315	350	400	450	500						AC5166 (volts)(watts)
6.5"	200	250	280	315	350	400	450	500						AC51665 (volts)(watts)
7"	250	280	315	350	400	450	500	630						AC5167 (volts)(watts)
8"	350	400	450	500	630									AC5168 (volts)(watts)
10"	400	450	630	750										AC51610 (volts)(watts)

3/8" Length		120v. Or 240v.										Code No.		
0.375 in		WATTS										Example. AC3811424080		
1 1/4"	80	100	150	200										AC38114 (volts)(watts)
1.5"	80	100	120	160	200	250	315							AC3815 (volts)(watts)
2"	100	125	160	175	200	250	315	400						AC382 (volts)(watts)
2.5"	125	160	180	200	250	315	400	500						AC3825 (volts)(watts)
3"	125	160	180	200	220	250	280	315	400	500	630			AC383 (volts)(watts)
3 1/4"	125	160	180	200	250	315	400	500	315					AC38314 (volts)(watts)
4"	160	200	220	250	280	315	350	400	500	560	630	700	850	AC384 (volts)(watts)
5"	280	315	350	400	500	630	750							AC385 (volts)(watts)
5 1/4"	280	315	350	400	500	630	750							AC38514 (volts)(watts)
6"	350	400	500	630	750	800								AC386 (volts)(watts)
6.5"	350	400	500	630	750	800								AC3865 (volts)(watts)
7"	350	400	500	630	750	800	900							AC387 (volts)(watts)
8"	350	400	500	630	750	800	900	1000						AC388 (volts)(watts)
10"	400	500	630	750	800	900	1000							AC3810 (volts)(watts)

*The code is made as follows: AC (high watts density) + 125 (12,5 mm of diameter) + 100 (100mm of length) + 240 (240 volts) + 500 (500 watts) = AC125100250500
 All of the intermediate sizes can be made in diameter and length, volts, watts distribution, cold areas, special endings, protections, etc

1/2"
0.50 in

Length	120v. Or 240v.												Code No.	
Inch.	WATTS												Example. AC121524080	
1.5"	100	160	200	250	315	400								AC1215(volts)(watts)
2"	100	160	200	250	315	400								AC122(volts)(watts)
2.5"	125	160	200	250	315	400	500							AC1225(volts)(watts)
3"	160	200	250	315	400	500	630	800						AC123(volts)(watts)
3 1/4"	160	200	250	315	400	500	630	800						AC12314(volts)(watts)
4"	125	220	250	315	350	400	500	560	630	800	1000			AC124(volts)(watts)
5"	350	400	500	630	700	800	1000	1100	1250					AC125(volts)(watts)
5 1/4"	350	400	500	630	700	800	1000	1100	1250					AC12514(volts)(watts)
6"	400	500	630	800	900	1000	1250							AC126(volts)(watts)
6.5"	400	500	630	700	800	900	1000	1250						AC1265(volts)(watts)
7"	400	500	630	700	800	1000	1100	1250						AC127(volts)(watts)
8"	400	500	630	700	800	1000	1500							AC128(volts)(watts)
10"	630	800	900	1000	1250	1500								AC1210(volts)(watts)
12"	630	800	1000	1250	1500	2000								AC1212(volts)(watts)

5/8"
0.625 in

Length	120v. Or 240v.												Code No.	
Inch.	WATTS												Example. AC581524080	
1.5"	100	160	200	250	315	400	500							AC5815(volts)(watts)
2"	100	160	200	250	315	400	500	630						AC582(volts)(watts)
2.5"	125	160	200	250	315	400	500	630						AC5825(volts)(watts)
3"	160	200	250	280	315	400	500	630	800	850	1000			AC583(volts)(watts)
3 1/4"	160	200	250	280	315	400	500	630	800	850	1000			AC58314(volts)(watts)
4"	125	220	250	315	350	400	500	560	630	800	1000	1250		AC584(volts)(watts)
5"	400	500	630	700	800	1000	1100	1250	1400	1600	1800			AC585(volts)(watts)
5 1/4"	400	500	630	700	800	1000	1100	1250	1400	1600	1800			AC58514(volts)(watts)
6"	400	500	630	800	900	1000	1250	1600	1800					AC586(volts)(watts)
6 1/2"	400	500	630	800	900	1000	1250	1600	1800					AC58612(volts)(watts)
7"	400	500	630	700	800	850	1000	1100	1250	1800				AC587(volts)(watts)
8"	400	500	630	700	800	1000	1500	1800	2000					AC588(volts)(watts)
10"	630	800	1000	1250	1500	1600	1800							AC5810(volts)(watts)
12"	630	800	1000	1250	1500	1800	2000							AC5812(volts)(watts)

3/4"
0.750 in

Length	120v. Or 240v.												Code No.	
Inch.	WATTS												Example. AC341524080	
1.5"	100	160	200	250	315									AC3415(volts)(watts)
2"	100	160	200	250	315	400								AC342(volts)(watts)
2.5"	125	160	200	250	316	400	500	630	800					AC3425(volts)(watts)
3"	160	200	250	315	400	500	630	800	1000	1250				AC343(volts)(watts)
3 1/4"	250	315	350	400	500	630	800	1000						AC34314(volts)(watts)
4"	250	315	350	400	450	500	560	630	800	1000	1500			AC344(volts)(watts)
5"	500	630	800	900	1000	1100	1250	1400	1600	1800				AC345(volts)(watts)
5 1/4"	500	630	800	900	1000	1100	1250	1400	1600	1800				AC34514(volts)(watts)
6"	500	800	900	1000	1100	1250	1800	2000	2200					AC346(volts)(watts)
6.5"	800	900	1000	1100	1250	1800	2000	2200						AC3465(volts)(watts)
7"	800	1000	1100	1250	2000	2200								AC347(volts)(watts)
8"	500	800	1000	1250	1500	1600	2000	2500						AC348(volts)(watts)
10"	800	1000	1250	1600	1800	2000								AC3410(volts)(watts)
12"	1000	1250	1500	1600	2000	2200	2500	3000						AC3412(volts)(watts)

*The code is made as follows: AC (high watts density) + 125 (12,5 mm of diameter) + 100 (100mm of length) + 240 (240 volts) + 500 (500 watts) = AC125100250500

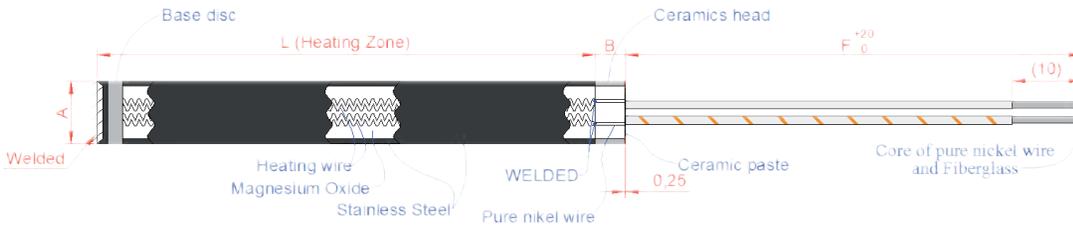
Technical Key

Sheath material	Stainless steel 1.4541
Heating conductor material	NiCr 8020
Max. Sheath temperature	750 °C / 1380 °F
Max. Voltage	480 V
Wattage tolerance*	.+5% -10%
High voltage resistance*	1500 V AC at > 24 V operation voltage
	500 V at <= 24 V operation voltage
Insulation resistance*	> 5 MΩ at 500 V DC
Leakage current*	<= 0.5 mA at 253 V AC
Length tolerance	A 1.5%, min A 1mm
Standard diameter tolerance	metric -0.02 / -0.06 mm
	inch: -0.003 -0.008

TESTED AT ENVIRONMENTAL TEMPERATURE



Cartridge Heaters Medium Watt Density



6,5 mm

Lenght	120v. Or 240v.									Code No.
mm	WATTS									Example MC1411424040
30	40	50								MC6530(volts)(watts)
40	40	50	60							MC6540(volts)(watts)
50	40	50	60	75	100					MC6550(volts)(watts)
60	40	50	60	75	100	120				MC6560(volts)(watts)
80	40	50	60	75	100	120	150			MC6580(volts)(watts)
100	50	60	75	100	120	150	175	210		MC65100(volts)(watts)
130	75	100	120	150	175	210	250			MC65130(volts)(watts)
160	100	120	150	175	210	250	315			MC65160(volts)(watts)
180	120	150	175	210	250	315	350			MC65180(volts)(watts)
200	150	175	210	250	315	350	400			MC65200(volts)(watts)
250	175	210	250	315	350	400	500			MC65250(volts)(watts)

8 mm

Lenght	120v. Or 240v.									Code No.
mm	WATTS									Example MC5161142405
30	50									MC830(volts)(watts)
40	50	60	80							MC840(volts)(watts)
50	50	60	75	100	120					MC850(volts)(watts)
60	50	60	75	100	120	150				MC860(volts)(watts)
80	50	60	75	100	120	150	175			MC880(volts)(watts)
100	60	75	100	120	150	175	210	250		MC8100(volts)(watts)
130	100	120	150	175	210	250	315			MC8130(volts)(watts)
160	120	150	175	210	250	315	400			MC8160(volts)(watts)
180	150	175	210	250	315	350	500			MC8180(volts)(watts)
200	175	210	250	315	350	400	550			MC8200(volts)(watts)
250	210	250	315	350	400	500	600			MC8250(volts)(watts)

10 mm

Lenght	120v. Or 240v.									Code No.
mm	WATTS									Example MC3811424050
30	50	60	90							MC1030(volts)(watts)
40	60	80	100							MC1040(volts)(watts)
50	60	75	100	120	140					MC1050(volts)(watts)
60	60	75	100	120	150	175				MC1060(volts)(watts)
80	60	75	100	120	150	175	200			MC1080(volts)(watts)
100	75	100	120	150	175	210	250	315		MC10100(volts)(watts)
130	120	150	175	210	250	315	350			MC10130(volts)(watts)
160	150	175	210	250	315	400	450			MC10160(volts)(watts)
180	175	210	250	315	350	500	550			MC10180(volts)(watts)
200	210	250	315	350	400	630	650			MC10200(volts)(watts)
250	250	315	350	400	500	630	700			MC10250(volts)(watts)

*The code is made as follows: MC (high watts density) + 125 (12,5 mm of diameter) + 100 (100mm of length) + 240 (240 volts) + 500 (500 watts) = MC125100250500

All of the intermediate sizes can be made in diameter and length, volts, watts distribution, cold areas, special endings, protections, etc

12,5 mm

Lenght	120v. Or 240v.										Code No.
mm	WATTS										Example MC1215424050
30	50	60	80	100							MC12530(volts)(watts)
40	50	60	75	120	150	175					MC12540(volts)(watts)
50	60	75	100	120	175	200					MC12550(volts)(watts)
60	60	75	100	120	150	175	200	250			MC12560(volts)(watts)
80	60	75	100	120	150	175	250	315			MC12580(volts)(watts)
100	100	120	150	175	210	315	350	450	630		MC125100(volts)(watts)
130	120	150	175	210	250	315	350	500			MC125130(volts)(watts)
160	150	175	210	250	315	400	500				MC125160(volts)(watts)
180	210	250	315	350	400	500	630				MC125180(volts)(watts)
200	250	315	350	400	500	630	700				MC125200(volts)(watts)
250	315	350	400	500	630	700	800	1000			MC125250(volts)(watts)

16 mm

Lenght	120v. Or 240v.										Code No.
mm	WATTS										Example MC5815424060
30	60	80	100	150							MC1630(volts)(watts)
40	60	75	120	150	175	250					MC1640(volts)(watts)
50	75	100	120	175	200	250	315				MC1650(volts)(watts)
60	75	100	120	150	175	200	250	315			MC1660(volts)(watts)
80	75	100	120	150	175	250	315	350			MC1680(volts)(watts)
100	150	175	210	315	350	450	500	630	650		MC16100(volts)(watts)
130	175	210	250	315	350	500	630	700			MC16130(volts)(watts)
160	210	250	315	400	500	630					MC16160(volts)(watts)
180	350	400	500	630	700	800					MC16180(volts)(watts)
200	400	500	630	700	900	1000					MC16200(volts)(watts)
250	500	630	700	800	1000	1100					MC16250(volts)(watts)

20 mm

Lenght	120v. Or 240v.										Code No.
mm	WATTS										Example MC3415424075
30	75	100	120	150							MC2030(volts)(watts)
40	80	120	150	200	250						MC2040(volts)(watts)
50	100	120	175	200	250	315	350				MC2050(volts)(watts)
60	100	120	150	175	200	250	315	350			MC2060(volts)(watts)
80	120	150	175	250	315	400	450				MC2080(volts)(watts)
100	210	315	350	450	500	630	700	750	800		MC20100(volts)(watts)
130	250	315	350	500	630	700	800				MC20130(volts)(watts)
160	315	400	500	630	800						MC20160(volts)(watts)
180	500	630	700	800	1000						MC20180(volts)(watts)
200	630	700	900	1000	1100						MC20200(volts)(watts)
250	700	800	1000	1100	1250	1500					MC20250(volts)(watts)

*The code is made as follows: MC (high watts density) + 125 (12,5 mm of diameter) + 100 (100mm of length) + 240 (240 volts) + 500 (500 watts) = MC125100250500

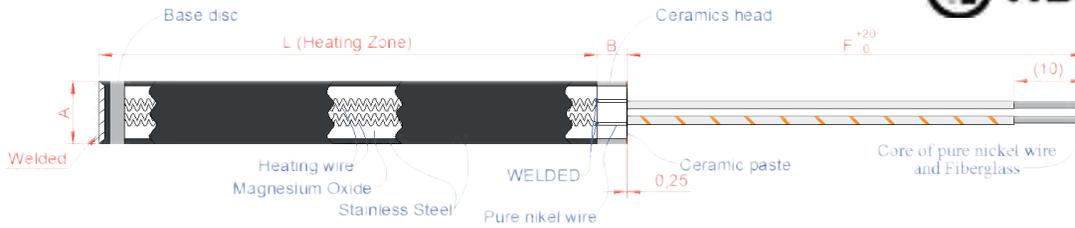
Technical Key

Sheath material	Stainless steel 1.4541
Heating conductor material	NiCr 8020
Max. Sheath temperature	750 °C / 1380 °F
Max. Voltage	480 V
Wattage tolerance*	.+5% -10%
High voltage resistance*	1500 V AC at > 24 V operation voltage 500 V at <= 24 V operation voltage
Insulation resistance*	> 5 MΩ at 500 V DC
Leakage current*	<= 0.5 mA at 253 V AC
Length tolerance	A 1.5%, min A 1mm
Standard diameter tolerance	metric -0.02 / -0.06 mm inch: -0.003 -0.008

TESTED AT ENVIRONMENTAL TEMPERATURE



Cartridge Heaters Medium Watt Density



1/4" 0.250 in	Length		120v. Or 240v.										Code No.	
	Inch.		WATTS										Example MC1411424040	
1 1/4"	40	50												MC14114(volts)(watts)
1.5"	40	50	60											MC1415(volts)(watts)
2"	40	50	60	75	100									MC142(volts)(watts)
2.5"	40	50	60	75	100	120								MC1425(volts)(watts)
3"	40	50	60	75	100	120	150							MC143(volts)(watts)
3 1/4"	50	60	75	100	120	150	175							MC14314(volts)(watts)
4"	50	60	75	100	120	150	175	210						MC144(volts)(watts)
5	75	100	120	150	175	210	250							MC145(volts)(watts)
5 1/4"	75	100	120	150	175	210	250							MC14514(volts)(watts)
6"	100	120	150	175	210	250	315							MC146(volts)(watts)
6.5"	100	120	150	175	210	250	315							MC1465(volts)(watts)
7"	120	150	175	210	250	315	350							MC147(volts)(watts)
8"	150	175	210	250	315	350	400							MC148(volts)(watts)
10"	175	210	250	315	350	400	500							MC1410(volts)(watts)

5/16" 0.313 in	Length		120v. Or 240v.										Code No.	
	Inch.		WATTS										Example MC5161142405	
1 1/4"	50													MC516114(volts)(watts)
1.5"	50	60	80											MC51615(volts)(watts)
2"	50	60	75	100	120									MC5162(volts)(watts)
2.5"	50	60	75	100	120	150								MC51625(volts)(watts)
3"	50	60	75	100	120	150	175							MC5163(volts)(watts)
3 1/4"	60	75	100	120	150	175	200							MC516314(volts)(watts)
4"	60	75	100	120	150	175	210	250						MC5164(volts)(watts)
5	100	120	150	175	210	250	315							MC5165(volts)(watts)
5 1/4"	100	120	150	175	210	250	350							MC516514(volts)(watts)
6"	120	150	175	210	250	315	400							MC5166(volts)(watts)
6.5"	120	150	175	210	250	315	400							MC51665(volts)(watts)
7"	150	175	210	250	315	350	500							MC5167(volts)(watts)
8"	175	210	250	315	350	400	550							MC5168(volts)(watts)
10"	210	250	315	350	400	500	600							MC51610(volts)(watts)

3/8" 0.375 in	Length		120v. Or 240v.										Code No.	
	Inch.		WATTS										Example MC3811424050	
1 1/4"	50	60	90											MC38114(volts)(watts)
1.5"	60	80	100											MC3815(volts)(watts)
2"	60	75	100	120	140									MC382(volts)(watts)
2.5"	60	75	100	120	150	175								MC3825(volts)(watts)
3"	60	75	100	120	150	175	200							MC383(volts)(watts)
3 1/4"	75	100	120	150	175	200	250							MC38314(volts)(watts)
4"	75	100	120	150	175	210	250	315						MC384(volts)(watts)
5	120	150	175	210	250	315	350							MC385(volts)(watts)
5 1/4"	120	150	175	210	250	350	400							MC38514(volts)(watts)
6"	150	175	210	250	315	400	450							MC386(volts)(watts)
6.5"	150	175	210	250	315	400	500							MC3865(volts)(watts)
7"	175	210	250	315	350	500	550							MC387(volts)(watts)
8"	210	250	315	350	400	630	650							MC388(volts)(watts)
10"	250	315	350	400	500	630	700							MC3810(volts)(watts)

*The code is made as follows: MC (medium watts density) + 125 (12,5 mm of diameter) + 100 (100mm of length) + 240 (240 volts) + 500 (500 watts) = MC125100250500

All of the intermediate sizes can be made in diameter and length, volts, watts distribution, cold areas, special endings, protections, etc

1/2"
0.50 in

Lenght	120v. Or 240v.										Code No.
Inch.	WATTS										Example MC1215424050
1.5"	50	60	80	100							MC1215(volts)(watts)
2"	50	60	75	120	150	175					MC122(volts)(watts)
2.5"	60	75	100	120	175	200					MC1225(volts)(watts)
3"	60	75	100	120	150	175	200	250			MC123(volts)(watts)
3 1/4"	60	75	100	120	150	175	250	315			MC12314(volts)(watts)
4"	75	100	120	150	175	250	315	400			MC124(volts)(watts)
5	100	120	150	175	210	315	350	450	630		MC125(volts)(watts)
5 1/4"	120	150	175	210	250	315	350	500			MC12514(volts)(watts)
6"	120	150	175	210	250	350	400	630			MC126(volts)(watts)
6.5"	150	175	210	250	315	400	500				MC1265(volts)(watts)
7"	150	175	210	250	315	400	500	630			MC127(volts)(watts)
8"	210	250	315	350	400	500	630				MC128(volts)(watts)
10"	250	315	350	400	500	630	700				MC1210(volts)(watts)
12"	315	350	400	500	630	700	800	1000			MC1212(volts)(watts)

5/8"
0.625 in

Lenght	120v. Or 240v.										Code No.
Inch.	WATTS										Example MC5815424060
1.5"	60	80	100	150							MC5815(volts)(watts)
2"	60	75	120	150	175	250					MC582(volts)(watts)
2.5"	75	100	120	175	200	250	315				MC5825(volts)(watts)
3"	75	100	120	150	175	200	250	315			MC583(volts)(watts)
3 1/4"	75	100	120	150	175	250	315	350			MC58314(volts)(watts)
4"	120	150	175	250	315	400	450				MC584(volts)(watts)
5	150	175	210	315	350	450	500	630	650		MC585(volts)(watts)
5 1/4"	175	210	250	315	350	500	630	700			MC58514(volts)(watts)
6"	175	210	250	350	400	630	700				MC586(volts)(watts)
6.5"	210	250	315	400	500	630					MC5865(volts)(watts)
7"	250	315	400	500	630	700					MC587(volts)(watts)
8"	350	400	500	630	700	800					MC588(volts)(watts)
10"	400	500	630	700	900	1000					MC5810(volts)(watts)
12"	500	630	700	800	1000	1100					MC5812(volts)(watts)

3/4"
0.750 in

Lenght	120v. Or 240v.										Code No.
Inch.	WATTS										Example MC3415424075
1.5"	75	100	120	150							MC3415(volts)(watts)
2"	80	120	150	200	250						MC342(volts)(watts)
2.5"	100	120	175	200	250	315	350				MC3425(volts)(watts)
3"	100	120	150	175	200	250	315	350			MC343(volts)(watts)
3 1/4"	120	150	175	250	315	400	450				MC34314(volts)(watts)
4"	175	250	315	400	450	500					MC344(volts)(watts)
5	210	315	350	450	500	630	700	750	800		MC345(volts)(watts)
5 1/4"	250	315	350	500	630	700	800				MC34514(volts)(watts)
6"	250	350	400	630	700	900					MC346(volts)(watts)
6.5"	315	400	500	630	800						MC3465(volts)(watts)
7"	400	500	630	700	900	1000					MC347(volts)(watts)
8"	500	630	700	800	1000						MC348(volts)(watts)
10"	630	700	900	1000	1100						MC3410(volts)(watts)
12"	700	800	1000	1100	1250	1500					MC3412(volts)(watts)

*The code is made as follows: MC (medium watts density) + 125 (12,5 mm of diameter) + 100 (100mm of length) + 240 (240 volts) + 500 (500 watts) = MC125100250500

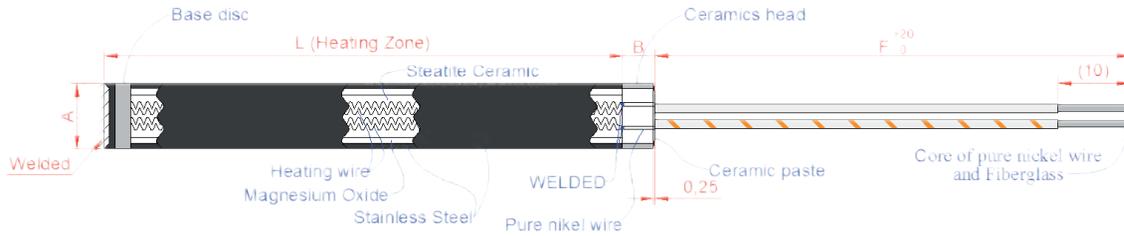
Technical Key

Sheath material	Stainless steel 1.4541
Heating conductor material	NiCr 8020
Max. Sheath temperature	750 °C / 1380 °F
Max. Voltage	480 V
Wattage tolerance*	.+5% -10%
High voltage resistance*	1500 V AC at > 24 V operation voltage 500 V at <= 24 V operation voltage
Insulation resistance*	> 5 MΩ at 500 V DC
Leakage current*	<= 0.5 mA at 253 V AC
Length tolerance	A 1.5%, min A 1mm
Standard diameter tolerance	metric -0.02 / -0.06 mm inch: -0.003 -0.008

TESTED AT ENVIRONMENTAL TEMPERATURE



Cartridge Heaters Low Watt Density



8 mm

Lenght	120v. Or 240v.							Code No.
mm	WATTS							Example BC5161524040
40	40							BC840(volts)(watts)
50	40	50	60					BC850(volts)(watts)
60	40	50	60	75				BC860(volts)(watts)
80	40	50	60	75	100			BC880(volts)(watts)
100	50	60	75	100	120	130		BC8100(volts)(watts)
130	75	100	120	150	175			BC8130(volts)(watts)
160	100	120	150	175	220			BC8160(volts)(watts)
180	120	150	175	220	250			BC8180(volts)(watts)
200	150	175	210	250				BC8200(volts)(watts)
250	175	210	250	315				BC8250(volts)(watts)

10 mm

Lenght	120v. Or 240v.							Code No.
mm	WATTS							Example BC381524040
40	40							BC1040(volts)(watts)
50	40	50	60	75				BC1050(volts)(watts)
60	40	50	60	75	100			BC1060(volts)(watts)
80	40	50	60	75	100	120		BC1080(volts)(watts)
100	50	60	75	100	120	130	150	BC10100(volts)(watts)
130	75	100	120	150	175	200		BC10130(volts)(watts)
160	100	120	150	175	220	250		BC10160(volts)(watts)
180	120	150	175	220	250	315		BC10180(volts)(watts)
200	150	175	210	250	315	350		BC10200(volts)(watts)
250	175	210	250	315	350	400		BC10250(volts)(watts)

*The code is made as follows: BC (low watts density) + 125 (12,5 mm of diameter) + 100 (100mm of length) + 240 (240 volts) + 500 (500 watts) = BC125100250500

All of the intermediate sizes can be made in diameter and length, volts, watts distribution, cold areas, special endings, protections, etc

12,5 mm

Lenght	120v. Or 240v.								Code No.
mm	WATTS								Example BC121524050
40	50	60							BC12540(volts)(watts)
50	50	60	75	100	120				BC12550(volts)(watts)
60	50	60	75	100	120				BC12560(volts)(watts)
80	50	60	75	100	120	150			BC12580(volts)(watts)
	60	75	100	120	150	175			BC125(volts)(watts)
100	60	75	100	120	150	175	200		BC125100(volts)(watts)
130	100	120	150	175	210	250			BC125130(volts)(watts)
160	120	150	175	210	250	315			BC125160(volts)(watts)
180	150	175	210	250	315	350			BC125180(volts)(watts)
200	175	210	250	315	350	400	450		BC125200(volts)(watts)
250	210	250	315	350	400	500			BC125250(volts)(watts)
300	315	350	400	500	630	700			BC125300(volts)(watts)

16 mm

Lenght	120v. Or 240v.								Code No.
mm	WATTS								Example BC581524050
40	50	60	80						BC1640(volts)(watts)
50	50	60	75	120					BC1650(volts)(watts)
60	60	75	100	120	150				BC1660(volts)(watts)
80	60	75	100	120	150	175	200		BC1680(volts)(watts)
100	75	100	120	150	175	250			BC16100(volts)(watts)
130	100	120	150	175	250	315			BC16130(volts)(watts)
160	120	150	175	210	250	350	450		BC16160(volts)(watts)
180	150	175	210	250	315	400	500		BC16180(volts)(watts)
200	210	250	315	350	400	500			BC16200(volts)(watts)
250	250	315	350	400	500	630	700		BC16250(volts)(watts)
300	315	350	400	500	630	700	800		BC16300(volts)(watts)

20 mm

Lenght	120v. Or 240v.								Code No.
mm	WATTS								Example BC341524050
40	50	60	80						BC2040(volts)(watts)
50	50	60	75	120					BC2050(volts)(watts)
60	60	75	100	120	175				BC2060(volts)(watts)
80	60	75	100	120	150	175	200		BC2080(volts)(watts)
100	75	100	120	150	175	250	315		BC20100(volts)(watts)
130	100	120	150	175	210	315	350	400	BC20130(volts)(watts)
160	120	150	175	210	250	350	400		BC20160(volts)(watts)
180	150	175	210	250	315	400	500		BC20180(volts)(watts)
200	210	250	315	350	400	500	630		BC20200(volts)(watts)
250	250	315	350	400	500	630	700		BC20250(volts)(watts)
12"	315	350	400	500	630	700	800	1000	BC20300(volts)(watts)

*The code is made as follows: BC (low watts density) + 125 (12,5 mm of diameter) + 100 (100mm of length) + 240 (240 volts) + 500 (500 watts) = BC125100250500

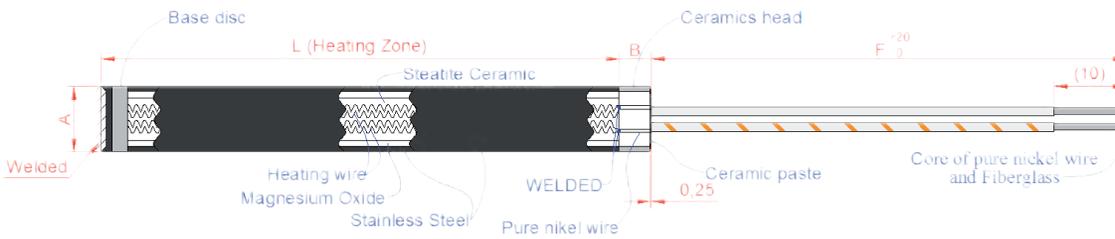
Technical Key

Sheath material	Stainless steel 1.4541
Heating conductor material	NiCr 8020
Max. Sheath temperature	750 °C / 1380 °F
Max. Voltage	480 V
Wattage tolerance*	.+5% -10%
High voltage resistance*	1500 V AC at > 24 V operation voltage 500 V at <= 24 V operation voltage
Insulation resistance*	> 5 MΩ at 500 V DC
Leakage current*	<= 0.5 mA at 253 V AC
Length tolerance	A 1.5%, min A 1mm
Standard diameter tolerance	metric -0.02 / -0.06 mm inch: -0.003 -0.008

TESTED AT ENVIRONMENTAL TEMPERATURE



Cartridge Heaters Low Watt Density



5/16"
0.313 in

Lenght	120v. Or 240v.								Code No.
Inch.	WATTS								Example BC5161524040
1,5"	40								BC51615(volts)(watts)
2"	40	50	60						BC5162(volts)(watts)
2,5"	40	50	60	75					BC51625(volts)(watts)
3"	40	50	60	75	100				BC5163(volts)(watts)
3 1/4"	50	60	75	100	120				BC516314(volts)(watts)
4"	50	60	75	100	120	130			BC5164(volts)(watts)
5"	75	100	120	150	175				BC5165(volts)(watts)
5 1/4"	75	100	120	150	175				BC516514(volts)(watts)
6"	100	120	150	175	220				BC5166(volts)(watts)
6,5"	100	120	150	175	220	250			BC51665(volts)(watts)
7"	120	150	175	220	250				BC5167(volts)(watts)
8"	150	175	210	250					BC5168(volts)(watts)
10"	175	210	250	315					BC51610(volts)(watts)

3/8"
0.375 in

Lenght	120v. Or 240v.								Code No.
Inch.	WATTS								Example BC381524040
1,5"	40								BC3815(volts)(watts)
2"	40	50	60	75					BC382(volts)(watts)
2,5"	40	50	60	75	100				BC3825(volts)(watts)
3"	40	50	60	75	100	120			BC383(volts)(watts)
3 1/4"	50	60	75	100	120	130			BC38314(volts)(watts)
4"	50	60	75	100	120	130	150		BC384(volts)(watts)
5"	75	100	120	150	175	200			BC385(volts)(watts)
5 1/4"	75	100	120	150	175	220			BC38514(volts)(watts)
6"	100	120	150	175	220	250			BC386(volts)(watts)
6,5"	100	120	150	175	220	250			BC3865(volts)(watts)
7"	120	150	175	220	250	315			BC387(volts)(watts)
8"	150	175	210	250	315	350			BC388(volts)(watts)
10"	175	210	250	315	350	400			BC3810(volts)(watts)

*The code is made as follows: BC (low watts density) + 125 (12,5 mm of diameter) + 100 (100mm of length) + 240 (240 volts) + 500 (500 watts) = BC125100250500

All of the intermediate sizes can be made in diameter and length, volts, watts distribution, cold areas, special endings, protections, etc

1/2"
0.50 in

Lenght	120v. Or 240v.								Code No.
Inch.	WATTS								Example BC121524050
1,5"	50	60							BC1215(volts)(watts)
2"	50	60	75	100	120				BC122(volts)(watts)
2,5"	50	60	75	100	120				BC1225(volts)(watts)
3"	50	60	75	100	120	150			BC123(volts)(watts)
3 1/4"	60	75	100	120	150	175			BC12314(volts)(watts)
4"	60	75	100	120	150	175	200		BC124(volts)(watts)
5"	100	120	150	175	210	250			BC125(volts)(watts)
5 1/4"	100	120	150	175	210	250			BC12514(volts)(watts)
6"	120	150	175	210	250	315			BC126(volts)(watts)
6,5"	120	150	175	210	250	315			BC1265(volts)(watts)
7"	150	175	210	250	315	350			BC127(volts)(watts)
8"	175	210	250	315	350	400	450		BC128(volts)(watts)
10"	210	250	315	350	400	500			BC1210(volts)(watts)
12"	315	350	400	500	630	700			BC1212(volts)(watts)

5/8"
0.625 in

Lenght	120v. Or 240v.								Code No.
Inch.	WATTS								Example BC581524050
1,5"	50	60	80						BC5815(volts)(watts)
2"	50	60	75	120					BC582(volts)(watts)
2,5"	60	75	100	120	150				BC5825(volts)(watts)
3"	60	75	100	120	150	175	200		BC583(volts)(watts)
3 1/4"	60	75	100	120	150	175	220		BC58314(volts)(watts)
4"	75	100	120	150	175	250			BC584(volts)(watts)
5"	100	120	150	175	250	315			BC585(volts)(watts)
5 1/4"	120	150	175	210	250	315	350		BC58514(volts)(watts)
6"	120	150	175	210	250	350	450		BC586(volts)(watts)
6,5"	150	175	210	250	315	400	500		BC5865(volts)(watts)
7"	150	175	210	250	315	400	500		BC587(volts)(watts)
8"	210	250	315	350	400	500			BC588(volts)(watts)
10"	250	315	350	400	500	630	700		BC5810(volts)(watts)
12"	315	350	400	500	630	700	800		BC5812(volts)(watts)

3/4"
0.750 in

Lenght	120v. Or 240v.								Code No.
Inch.	WATTS								Example BC341524050
1,5"	50	60	80						BC3415(volts)(watts)
2"	50	60	75	120					BC342(volts)(watts)
2,5"	60	75	100	120	175				BC3425(volts)(watts)
3"	60	75	100	120	150	175	200		BC343(volts)(watts)
3 1/4"	60	75	100	120	150	175	250		BC34314(volts)(watts)
4"	75	100	120	150	175	250	315		BC344(volts)(watts)
5"	100	120	150	175	210	315	350	400	BC345(volts)(watts)
5 1/4"	120	150	175	210	250	315	350	400	BC34514(volts)(watts)
6"	120	150	175	210	250	350	400		BC346(volts)(watts)
6,5"	150	175	210	250	315	400	500		BC3465(volts)(watts)
7"	150	175	210	250	315	400	500		BC347(volts)(watts)
8"	210	250	315	350	400	500	630		BC348(volts)(watts)
10"	250	315	350	400	500	630	700		BC3410(volts)(watts)
12"	315	350	400	500	630	700	800	1000	BC3412(volts)(watts)

*The code is made as follows: BC (low watts density) + 125 (12,5 mm of diameter) + 100 (100mm of length) + 240 (240 volts) + 500 (500 watts) = BC125100250500

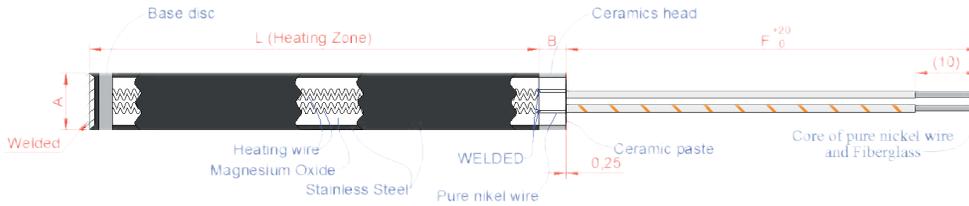
Technical Key

Sheath material	Stainless steel 1.4541
Heating conductor material	NiCr 8020
Max. Sheath temperature	750 °C / 1380 °F
Max. Voltage	480 V
Wattage tolerance*	.+5% -10%
High voltage resistance*	1500 V AC at > 24 V operation voltage 500 V at <= 24 V operation voltage
Insulation resistance*	> 5 MΩ at 500 V DC
Leakage current*	<= 0.5 mA at 253 V AC
Length tolerance	A 1.5%, min A 1mm
Standard diameter tolerance	metric -0.02 / -0.06 mm inch: -0.003 -0.008

TESTED AT ENVIRONMENTAL TEMPERATURE



Reliable Premium Quality Cartridge Heaters Medium Watt Density

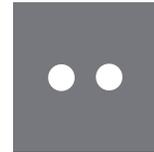


6,5 mm	Lenght		120v. Or 240v.							Code No.
	mm		WATTS							Example
60	40	50	60	75	100	120				SC6560(volts)(watts)
80	40	50	60	75	100	120	150			SC6580(volts)(watts)
										SC65(volts)(watts)
100	50	60	75	100	120	150	175	210		SC65100(volts)(watts)
130	75	100	120	150	175	210	250			SC65130(volts)(watts)
										SC65(volts)(watts)
160	100	120	150	175	210	250	315			SC65160(volts)(watts)
										SC65(volts)(watts)
180	120	150	175	210	250	315	350			SC65180(volts)(watts)
200	150	175	210	250	315	350	400			SC65200(volts)(watts)
250	175	210	250	315	350	400	500			SC65250(volts)(watts)

8 mm	Lenght		120v. Or 240v.							Code No.
	mm		WATTS							Example
60	50	60	75	100	120	150				SC860(volts)(watts)
80	50	60	75	100	120	150	175			SC880(volts)(watts)
										SC8(volts)(watts)
100	60	75	100	120	150	175	210	250		SC8100(volts)(watts)
130	100	120	150	175	210	250	315			SC8130(volts)(watts)
										SC8(volts)(watts)
160	120	150	175	210	250	315	400			SC8160(volts)(watts)
										SC8(volts)(watts)
180	150	175	210	250	315	350	500			SC8180(volts)(watts)
200	175	210	250	315	350	400	550			SC8200(volts)(watts)
250	210	250	315	350	400	500	600			SC8250(volts)(watts)

10 mm	Lenght		120v. Or 240v.							Code No.
	mm		WATTS							Example
60	60	75	100	120	150	175				SC1060(volts)(watts)
80	60	75	100	120	150	175	200			SC1080(volts)(watts)
										SC10(volts)(watts)
100	75	100	120	150	175	210	250	315		SC10100(volts)(watts)
130	120	150	175	210	250	315	350			SC10130(volts)(watts)
										SC10(volts)(watts)
160	150	175	210	250	315	400	450			SC10160(volts)(watts)
										SC10(volts)(watts)
180	175	210	250	315	350	500	550			SC10180(volts)(watts)
200	210	250	315	350	400	630	650			SC10200(volts)(watts)
250	250	315	350	400	500	630	700			SC10250(volts)(watts)

*The code is made as follows: BC (low watts density) + 125 (12,5 mm of diameter) + 100 (100mm of length) + 240 (240 volts) + 500 (500 watts) = BC125100250500
 All of the intermediate sizes can be made in diameter and length, volts, watts distribution, cold areas, special endings, protections, etc



12,5 mm	Lenght									120v. Or 240v.									Code No.	
	WATTS																		Example SC1215424050	
80	60	75	100	120	150	175	250	315											SC12580(volts)(watts)	
																			SC125(volts)(watts)	
100	100	120	150	175	210	315	350	450	630										SC125100(volts)(watts)	
130	120	150	175	210	250	315	350	500											SC125130(volts)(watts)	
																			SC125(volts)(watts)	
160	150	175	210	250	315	400	500												SC125160(volts)(watts)	
																			SC125(volts)(watts)	
180	210	250	315	350	400	500	630												SC125180(volts)(watts)	
200	250	315	350	400	500	630	700												SC125200(volts)(watts)	
250	315	350	400	500	630	700	800	1000											SC125250(volts)(watts)	

16 mm	Lenght									120v. Or 240v.									Code No.	
	WATTS																		Example SC5815424060	
80	75	100	120	150	175	250	315	350											SC1680(volts)(watts)	
																			SC16(volts)(watts)	
100	150	175	210	315	350	450	500	630	650										SC16100(volts)(watts)	
130	175	210	250	315	350	500	630	700											SC16130(volts)(watts)	
																			SC16(volts)(watts)	
160	210	250	315	400	500	630													SC16160(volts)(watts)	
																			SC16(volts)(watts)	
180	350	400	500	630	700	800													SC16180(volts)(watts)	
200	400	500	630	700	900	1000													SC16200(volts)(watts)	
250	500	630	700	800	1000	1100													SC16250(volts)(watts)	

20 mm	Lenght									120v. Or 240v.									Code No.	
	WATTS																		Example SC3415424075	
80	120	150	175	250	315	400	450												SC2080(volts)(watts)	
																			SC20(volts)(watts)	
100	210	315	350	450	500	630	700	750	800										SC20100(volts)(watts)	
130	250	315	350	500	630	700	800												SC20130(volts)(watts)	
																			SC20(volts)(watts)	
160	315	400	500	630	800														SC20160(volts)(watts)	
																			SC20(volts)(watts)	
180	500	630	700	800	1000														SC20180(volts)(watts)	
200	630	700	900	1000	1100														SC20200(volts)(watts)	
250	700	800	1000	1100	1250	1500													SC20250(volts)(watts)	

*The code is made as follows: BC (low watts density) + 125 (12,5 mm of diameter) + 100 (100mm of length) + 240 (240 volts) + 500 (500 watts) = BC125100250500

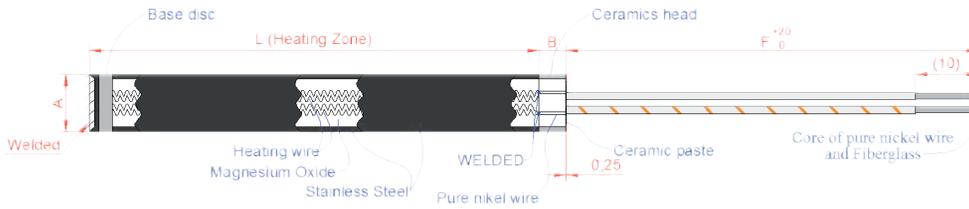
Technical Key

Sheath material	Stainless steel 1.4541
Heating conductor material	NiCr 8020
Max. Sheath temperature	750 °C / 1380 °F
Max. Voltage	480 V
Wattage tolerance*	.+5% -10%
High voltage resistance*	1500 V AC at > 24 V operation voltage 500 V at <= 24 V operation voltage
Insulation resistance*	> 5 MΩ at 500 V DC
Leakage current*	<= 0.5 mA at 253 V AC
Length tolerance	A 1.5%, min A 1mm
Standard diameter tolerance	metric ± 0.1 mm inch: ± 0.003937"

TESTED AT ENVIRONMENTAL TEMPERATURE



Reliable Premium Quality Cartridge Heaters Medium Watt Density



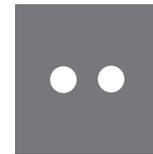
1/4" 0.246 in	Lenght		120v. Or 240v.							Code No.
	Inch.		WATTS							Example MC1411424040
2.5"	40	50	60	75	100	120				MC1425(volts)(watts)
3"	40	50	60	75	100	120	150			MC143(volts)(watts)
3 1/4"	50	60	75	100	120	150	175			MC14314(volts)(watts)
4"	50	60	75	100	120	150	175	210		MC144(volts)(watts)
5	75	100	120	150	175	210	250			MC145(volts)(watts)
5 1/4"	75	100	120	150	175	210	250			MC14514(volts)(watts)
6"	100	120	150	175	210	250	315			MC146(volts)(watts)
6.5"	100	120	150	175	210	250	315			MC1465(volts)(watts)
7"	120	150	175	210	250	315	350			MC147(volts)(watts)
8"	150	175	210	250	315	350	400			MC148(volts)(watts)
10"	175	210	250	315	350	400	500			MC1410(volts)(watts)

5/16" 0.313 in	Lenght		120v. Or 240v.							Code No.
	Inch.		WATTS							Example MC5161142405
2.5"	50	60	75	100	120	150				MC51625(volts)(watts)
3"	50	60	75	100	120	150	175			MC5163(volts)(watts)
3 1/4"	60	75	100	120	150	175	200			MC516314(volts)(watts)
4"	60	75	100	120	150	175	210	250		MC5164(volts)(watts)
5	100	120	150	175	210	250	315			MC5165(volts)(watts)
5 1/4"	100	120	150	175	210	250	350			MC516514(volts)(watts)
6"	120	150	175	210	250	315	400			MC5166(volts)(watts)
6.5"	120	150	175	210	250	315	400			MC51665(volts)(watts)
7"	150	175	210	250	315	350	500			MC5167(volts)(watts)
8"	175	210	250	315	350	400	550			MC5168(volts)(watts)
10"	210	250	315	350	400	500	600			MC51610(volts)(watts)

3/8" 0.375 in	Lenght		120v. Or 240v.							Code No.
	Inch.		WATTS							Example MC3811424050
2.5"	60	75	100	120	150	175				MC3825(volts)(watts)
3"	60	75	100	120	150	175	200			MC383(volts)(watts)
3 1/4"	75	100	120	150	175	200	250			MC38314(volts)(watts)
4"	75	100	120	150	175	210	250	315		MC384(volts)(watts)
5	120	150	175	210	250	315	350			MC385(volts)(watts)
5 1/4"	120	150	175	210	250	350	400			MC38514(volts)(watts)
6"	150	175	210	250	315	400	450			MC386(volts)(watts)
6.5"	150	175	210	250	315	400	500			MC3865(volts)(watts)
7"	175	210	250	315	350	500	550			MC387(volts)(watts)
8"	210	250	315	350	400	630	650			MC388(volts)(watts)
10"	250	315	350	400	500	630	700			MC3810(volts)(watts)

*The code is made as follows: SC (high watts density) + 125 (12,5 mm of diameter) + 100 (100mm of length) + 240 (240 volts) + 500 (500 watts) = SC125100250500
 All of the intermediate sizes can be made in diameter and length, volts, watts distribution, cold areas, special endings, protections, etc

Stock



Medium Watt Density Square
Compact
Inches

1/2"
0.50 in

Lenght	120v. Or 240v.										Code No.
Inch.	WATTS										Example SC1215424050
3 1/4"	60	75	100	120	150	175	250	315			SC12314(volts)(watts)
4"	75	100	120	150	175	250	315	400			SC124(volts)(watts)
5	100	120	150	175	210	315	350	450	630		SC125(volts)(watts)
5 1/4"	120	150	175	210	250	315	350	500			SC12514(volts)(watts)
6"	120	150	175	210	250	350	400	630			SC126(volts)(watts)
6.5"	150	175	210	250	315	400	500				SC1265(volts)(watts)
7"	150	175	210	250	315	400	500	630			SC127(volts)(watts)
8"	210	250	315	350	400	500	630				SC128(volts)(watts)
10"	250	315	350	400	500	630	700				SC1210(volts)(watts)
12"	315	350	400	500	630	700	800	1000			SC1212(volts)(watts)

5/8"
0.625 in

Lenght	120v. Or 240v.										Code No.
Inch.	WATTS										Example SC5815424060
3 1/4"	75	100	120	150	175	250	315	350			SC58314(volts)(watts)
4"	120	150	175	250	315	400	450				SC584(volts)(watts)
5	150	175	210	315	350	450	500	630	650		SC585(volts)(watts)
5 1/4"	175	210	250	315	350	500	630	700			SC58514(volts)(watts)
6"	175	210	250	350	400	630	700				SC586(volts)(watts)
6.5"	210	250	315	400	500	630					SC5865(volts)(watts)
7"	250	315	400	500	630	700					SC587(volts)(watts)
8"	350	400	500	630	700	800					SC588(volts)(watts)
10"	400	500	630	700	900	1000					SC5810(volts)(watts)
12"	500	630	700	800	1000	1100					SC5812(volts)(watts)

3/4"
0.75 in

Lenght	120v. Or 240v.										Code No.
Inch.	WATTS										Example SC3415424075
3 1/4"	120	150	175	250	315	400	450				SC34314(volts)(watts)
4"	175	250	315	400	450	500					SC344(volts)(watts)
5	210	315	350	450	500	630	700	750	800		SC345(volts)(watts)
5 1/4"	250	315	350	500	630	700	800				SC34514(volts)(watts)
6"	250	350	400	630	700	900					SC346(volts)(watts)
6.5"	315	400	500	630	800						SC3465(volts)(watts)
7"	400	500	630	700	900	1000					SC347(volts)(watts)
8"	500	630	700	800	1000						SC348(volts)(watts)
10"	630	700	900	1000	1100						SC3410(volts)(watts)
12"	700	800	1000	1100	1250	1500					SC3412(volts)(watts)

*The code is made as follows: SC (high watts density) + 125 (12,5 mm of diameter) + 100 (100mm of length) + 240 (240 volts) + 500 (500 watts) = SC125100250500

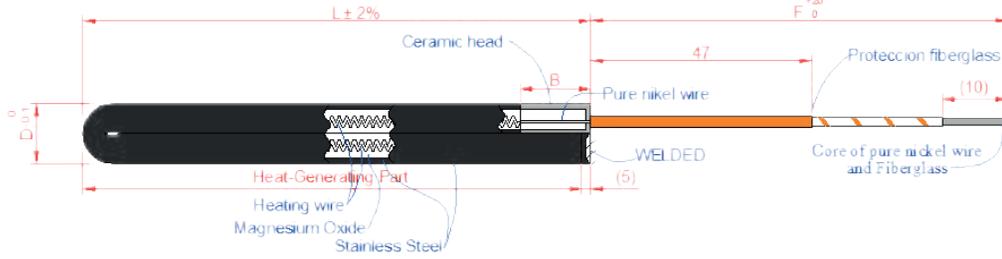
Technical Key

Sheath material	Stainless steel 1.4541
Heating conductor material	NiCr 8020
Max. Sheath temperature	750 °C / 1380 °F
Max. Voltage	480 V
Wattage tolerance*	+.5% -10%
High voltage resistance*	1500 V AC at > 24 V operation voltage 500 V at <= 24 V operation voltage
Insulation resistance*	> 5 MΩ at 500 V DC
Leakage current*	<= 0.5 mA at 253 V AC
Length tolerance	A 1.5%, min A 1mm
Standard diameter tolerance	metric ± 0.1 mm inch: ± 0.003937"

TESTED AT ENVIRONMENTAL TEMPERATURE



Cartridge Heaters Medium Watt Density



Length	Code No.				
	Ø 10	Ø 12.5	Ø 16	Ø 20	Ø 25
102	EX10102(volts)(watts)	EX125102(volts)(watts)	EX16102(volts)(watts)	EX20102(volts)(watts)	EX25102(volts)(watts)
127	EX10127(volts)(watts)	EX125127(volts)(watts)	EX16127(volts)(watts)	EX20127(volts)(watts)	EX25127(volts)(watts)
152	EX10152(volts)(watts)	EX125152(volts)(watts)	EX16152(volts)(watts)	EX20152(volts)(watts)	EX25152(volts)(watts)
178	EX10178(volts)(watts)	EX125178(volts)(watts)	EX16178(volts)(watts)	EX20178(volts)(watts)	EX25178(volts)(watts)
203	EX10203(volts)(watts)	EX125203(volts)(watts)	EX16203(volts)(watts)	EX20203(volts)(watts)	EX25203(volts)(watts)
229	EX10229(volts)(watts)	EX125229(volts)(watts)	EX16229(volts)(watts)	EX20229(volts)(watts)	EX25229(volts)(watts)
254	EX10254(volts)(watts)	EX125254(volts)(watts)	EX16254(volts)(watts)	EX20254(volts)(watts)	EX25254(volts)(watts)
279	EX10279(volts)(watts)	EX125279(volts)(watts)	EX16279(volts)(watts)	EX20279(volts)(watts)	EX25279(volts)(watts)
305	EX10305(volts)(watts)	EX125305(volts)(watts)	EX16305(volts)(watts)	EX20305(volts)(watts)	EX25305(volts)(watts)
330	EX10330(volts)(watts)	EX125330(volts)(watts)	EX16330(volts)(watts)	EX20330(volts)(watts)	EX25330(volts)(watts)
356	EX10356(volts)(watts)	EX125356(volts)(watts)	EX16356(volts)(watts)	EX20356(volts)(watts)	EX25356(volts)(watts)
381	EX10381(volts)(watts)	EX125381(volts)(watts)	EX16381(volts)(watts)	EX20381(volts)(watts)	EX25381(volts)(watts)
406	EX10406(volts)(watts)	EX125406(volts)(watts)	EX16406(volts)(watts)	EX20406(volts)(watts)	EX25406(volts)(watts)
432	EX10432(volts)(watts)	EX125432(volts)(watts)	EX16432(volts)(watts)	EX20432(volts)(watts)	EX25432(volts)(watts)
457	EX10457(volts)(watts)	EX125457(volts)(watts)	EX16457(volts)(watts)	EX20457(volts)(watts)	EX25457(volts)(watts)
483	EX10483(volts)(watts)	EX125483(volts)(watts)	EX16483(volts)(watts)	EX20483(volts)(watts)	EX25483(volts)(watts)
508	EX10508(volts)(watts)	EX125508(volts)(watts)	EX16508(volts)(watts)	EX20508(volts)(watts)	EX25508(volts)(watts)
533	EX10533(volts)(watts)	EX125533(volts)(watts)	EX16533(volts)(watts)	EX20533(volts)(watts)	EX25533(volts)(watts)
559	EX10559(volts)(watts)	EX125559(volts)(watts)	EX16559(volts)(watts)	EX20559(volts)(watts)	EX25559(volts)(watts)
584	EX10584(volts)(watts)	EX125584(volts)(watts)	EX16584(volts)(watts)	EX20584(volts)(watts)	EX25584(volts)(watts)
610	EX10610(volts)(watts)	EX125610(volts)(watts)	EX16610(volts)(watts)	EX20610(volts)(watts)	EX25610(volts)(watts)
635	EX10635(volts)(watts)	EX125635(volts)(watts)	EX16635(volts)(watts)	EX20635(volts)(watts)	EX25635(volts)(watts)
660	EX10660(volts)(watts)	EX125660(volts)(watts)	EX16660(volts)(watts)	EX20660(volts)(watts)	EX25660(volts)(watts)
686	EX10686(volts)(watts)	EX125686(volts)(watts)	EX16686(volts)(watts)	EX20686(volts)(watts)	EX25686(volts)(watts)
711	EX10711(volts)(watts)	EX125711(volts)(watts)	EX16711(volts)(watts)	EX20711(volts)(watts)	EX25711(volts)(watts)
737	EX10737(volts)(watts)	EX125737(volts)(watts)	EX16737(volts)(watts)	EX20737(volts)(watts)	EX25737(volts)(watts)
762	EX10762(volts)(watts)	EX125762(volts)(watts)	EX16762(volts)(watts)	EX20762(volts)(watts)	EX25762(volts)(watts)
787	EX10787(volts)(watts)	EX125787(volts)(watts)	EX16787(volts)(watts)	EX20787(volts)(watts)	EX25787(volts)(watts)
813	EX10813(volts)(watts)	EX125813(volts)(watts)	EX16813(volts)(watts)	EX20813(volts)(watts)	EX25813(volts)(watts)
838	EX10838(volts)(watts)	EX125838(volts)(watts)	EX16838(volts)(watts)	EX20838(volts)(watts)	EX25838(volts)(watts)
864	EX10864(volts)(watts)	EX125864(volts)(watts)	EX16864(volts)(watts)	EX20864(volts)(watts)	EX25864(volts)(watts)
889	EX10889(volts)(watts)	EX125889(volts)(watts)	EX16889(volts)(watts)	EX20889(volts)(watts)	EX25889(volts)(watts)
914	EX10914(volts)(watts)	EX125914(volts)(watts)	EX16914(volts)(watts)	EX20914(volts)(watts)	EX25914(volts)(watts)
940	EX10940(volts)(watts)	EX125940(volts)(watts)	EX16940(volts)(watts)	EX20940(volts)(watts)	EX25940(volts)(watts)
965	EX10965(volts)(watts)	EX125965(volts)(watts)	EX16965(volts)(watts)	EX20965(volts)(watts)	EX25965(volts)(watts)
991	EX10991(volts)(watts)	EX125991(volts)(watts)	EX16991(volts)(watts)	EX20991(volts)(watts)	EX25991(volts)(watts)
1016	EX101016(volts)(watts)	EX1251016(volts)(watts)	EX161016(volts)(watts)	EX201016(volts)(watts)	EX251016(volts)(watts)
1041	EX101041(volts)(watts)	EX1251041(volts)(watts)	EX161041(volts)(watts)	EX201041(volts)(watts)	EX251041(volts)(watts)
1067	EX101067(volts)(watts)	EX1251067(volts)(watts)	EX161067(volts)(watts)	EX201067(volts)(watts)	EX251067(volts)(watts)
1092	EX101092(volts)(watts)	EX1251092(volts)(watts)	EX161092(volts)(watts)	EX201092(volts)(watts)	EX251092(volts)(watts)
1118	EX101118(volts)(watts)	EX1251118(volts)(watts)	EX161118(volts)(watts)	EX201118(volts)(watts)	EX251118(volts)(watts)
1143	EX101143(volts)(watts)	EX1251143(volts)(watts)	EX161143(volts)(watts)	EX201143(volts)(watts)	EX251143(volts)(watts)
1168	EX101168(volts)(watts)	EX1251168(volts)(watts)	EX161168(volts)(watts)	EX201168(volts)(watts)	EX251168(volts)(watts)
1194	EX101194(volts)(watts)	EX1251194(volts)(watts)	EX161194(volts)(watts)	EX201194(volts)(watts)	EX251194(volts)(watts)
1219	EX101219(volts)(watts)	EX1251219(volts)(watts)	EX161219(volts)(watts)	EX201219(volts)(watts)	EX251219(volts)(watts)
1245	EX101245(volts)(watts)	EX1251245(volts)(watts)	EX161245(volts)(watts)	EX201245(volts)(watts)	EX251245(volts)(watts)
1270	EX101270(volts)(watts)	EX1251270(volts)(watts)	EX161270(volts)(watts)	EX201270(volts)(watts)	EX251270(volts)(watts)

*The code is made as follows: EX (high watts density) + 125 (12,5 mm of diameter) + 100 (100mm of length) + 240 (240 volts) + 500 (500 watts) = EX125100250500

All of the intermediate sizes can be made in diameter and length, volts, watts distribution, cold areas, special endings, protections, etc

Lenght		Code No.				
Inch	Ø 3/8"	Ø 1/2"	Ø 5/8"	Ø 3/4"	Ø 1"	
4"	EX384(volts)(watts)	EX124(volts)(watts)	EX584(volts)(watts)	EX344(volts)(watts)	EX14(volts)(watts)	
5"	EX385(volts)(watts)	EX125(volts)(watts)	EX585(volts)(watts)	EX345(volts)(watts)	EX15(volts)(watts)	
6"	EX386(volts)(watts)	EX126(volts)(watts)	EX586(volts)(watts)	EX346(volts)(watts)	EX16(volts)(watts)	
7"	EX387(volts)(watts)	EX127(volts)(watts)	EX587(volts)(watts)	EX347(volts)(watts)	EX17(volts)(watts)	
8"	EX388(volts)(watts)	EX128(volts)(watts)	EX588(volts)(watts)	EX348(volts)(watts)	EX18(volts)(watts)	
9"	EX389(volts)(watts)	EX129(volts)(watts)	EX589(volts)(watts)	EX349(volts)(watts)	EX19(volts)(watts)	
10"	EX3810(volts)(watts)	EX1210(volts)(watts)	EX5810(volts)(watts)	EX3410(volts)(watts)	EX110(volts)(watts)	
11"	EX3811(volts)(watts)	EX1211(volts)(watts)	EX5811(volts)(watts)	EX3411(volts)(watts)	EX111(volts)(watts)	
12"	EX3812(volts)(watts)	EX1212(volts)(watts)	EX5812(volts)(watts)	EX3412(volts)(watts)	EX112(volts)(watts)	
13"	EX3813(volts)(watts)	EX1213(volts)(watts)	EX5813(volts)(watts)	EX3413(volts)(watts)	EX113(volts)(watts)	
14"	EX3814(volts)(watts)	EX1214(volts)(watts)	EX5814(volts)(watts)	EX3414(volts)(watts)	EX114(volts)(watts)	
15"	EX3815(volts)(watts)	EX1215(volts)(watts)	EX5815(volts)(watts)	EX3415(volts)(watts)	EX115(volts)(watts)	
16"	EX3816(volts)(watts)	EX1216(volts)(watts)	EX5816(volts)(watts)	EX3416(volts)(watts)	EX116(volts)(watts)	
17"	EX3817(volts)(watts)	EX1217(volts)(watts)	EX5817(volts)(watts)	EX3417(volts)(watts)	EX117(volts)(watts)	
18"	EX3818(volts)(watts)	EX1218(volts)(watts)	EX5818(volts)(watts)	EX3418(volts)(watts)	EX118(volts)(watts)	
19"	EX3819(volts)(watts)	EX1219(volts)(watts)	EX5819(volts)(watts)	EX3419(volts)(watts)	EX119(volts)(watts)	
20"	EX3820(volts)(watts)	EX1220(volts)(watts)	EX5820(volts)(watts)	EX3420(volts)(watts)	EX120(volts)(watts)	
21"	EX3821(volts)(watts)	EX1221(volts)(watts)	EX5821(volts)(watts)	EX3421(volts)(watts)	EX121(volts)(watts)	
22"	EX3822(volts)(watts)	EX1222(volts)(watts)	EX5822(volts)(watts)	EX3422(volts)(watts)	EX122(volts)(watts)	
23"	EX3823(volts)(watts)	EX1223(volts)(watts)	EX5823(volts)(watts)	EX3423(volts)(watts)	EX123(volts)(watts)	
24"	EX3824(volts)(watts)	EX1224(volts)(watts)	EX5824(volts)(watts)	EX3424(volts)(watts)	EX124(volts)(watts)	
25"	EX3825(volts)(watts)	EX1225(volts)(watts)	EX5825(volts)(watts)	EX3425(volts)(watts)	EX125(volts)(watts)	
26"	EX3826(volts)(watts)	EX1226(volts)(watts)	EX5826(volts)(watts)	EX3426(volts)(watts)	EX126(volts)(watts)	
27"	EX3827(volts)(watts)	EX1227(volts)(watts)	EX5827(volts)(watts)	EX3427(volts)(watts)	EX127(volts)(watts)	
28"	EX3828(volts)(watts)	EX1228(volts)(watts)	EX5828(volts)(watts)	EX3428(volts)(watts)	EX128(volts)(watts)	
29"	EX3829(volts)(watts)	EX1229(volts)(watts)	EX5829(volts)(watts)	EX3429(volts)(watts)	EX129(volts)(watts)	
30"	EX3830(volts)(watts)	EX1230(volts)(watts)	EX5830(volts)(watts)	EX3430(volts)(watts)	EX130(volts)(watts)	
31"	EX3831(volts)(watts)	EX1231(volts)(watts)	EX5831(volts)(watts)	EX3431(volts)(watts)	EX131(volts)(watts)	
32"	EX3832(volts)(watts)	EX1232(volts)(watts)	EX5832(volts)(watts)	EX3432(volts)(watts)	EX132(volts)(watts)	
33"	EX3833(volts)(watts)	EX1233(volts)(watts)	EX5833(volts)(watts)	EX3433(volts)(watts)	EX133(volts)(watts)	
34"	EX3834(volts)(watts)	EX1234(volts)(watts)	EX5834(volts)(watts)	EX3434(volts)(watts)	EX134(volts)(watts)	
35"	EX3835(volts)(watts)	EX1235(volts)(watts)	EX5835(volts)(watts)	EX3435(volts)(watts)	EX135(volts)(watts)	
36"	EX3836(volts)(watts)	EX1236(volts)(watts)	EX5836(volts)(watts)	EX3436(volts)(watts)	EX136(volts)(watts)	
37"	EX3837(volts)(watts)	EX1237(volts)(watts)	EX5837(volts)(watts)	EX3437(volts)(watts)	EX137(volts)(watts)	
38"	EX3838(volts)(watts)	EX1238(volts)(watts)	EX5838(volts)(watts)	EX3438(volts)(watts)	EX138(volts)(watts)	
39"	EX3839(volts)(watts)	EX1239(volts)(watts)	EX5839(volts)(watts)	EX3439(volts)(watts)	EX139(volts)(watts)	
40"	EX3840(volts)(watts)	EX1240(volts)(watts)	EX5840(volts)(watts)	EX3440(volts)(watts)	EX140(volts)(watts)	
41"	EX3841(volts)(watts)	EX1241(volts)(watts)	EX5841(volts)(watts)	EX3441(volts)(watts)	EX141(volts)(watts)	
42"	EX3842(volts)(watts)	EX1242(volts)(watts)	EX5842(volts)(watts)	EX3442(volts)(watts)	EX142(volts)(watts)	
43"	EX3843(volts)(watts)	EX1243(volts)(watts)	EX5843(volts)(watts)	EX3443(volts)(watts)	EX143(volts)(watts)	
44"	EX3844(volts)(watts)	EX1244(volts)(watts)	EX5844(volts)(watts)	EX3444(volts)(watts)	EX144(volts)(watts)	
45"	EX3845(volts)(watts)	EX1245(volts)(watts)	EX5845(volts)(watts)	EX3445(volts)(watts)	EX145(volts)(watts)	
46"	EX3846(volts)(watts)	EX1246(volts)(watts)	EX5846(volts)(watts)	EX3446(volts)(watts)	EX146(volts)(watts)	
47"	EX3847(volts)(watts)	EX1247(volts)(watts)	EX5847(volts)(watts)	EX3447(volts)(watts)	EX147(volts)(watts)	
48"	EX3848(volts)(watts)	EX1248(volts)(watts)	EX5848(volts)(watts)	EX3448(volts)(watts)	EX148(volts)(watts)	
49"	EX3849(volts)(watts)	EX1249(volts)(watts)	EX5849(volts)(watts)	EX3449(volts)(watts)	EX149(volts)(watts)	
50"	EX3850(volts)(watts)	EX1250(volts)(watts)	EX5850(volts)(watts)	EX3450(volts)(watts)	EX150(volts)(watts)	

*The code is made as follows: EX (high watts density) + 125 (12,5 mm of diameter) + 100 (100mm of length)
+ 240 (240 volts) + 500 (500 watts) = EX125100250500

Technical Key

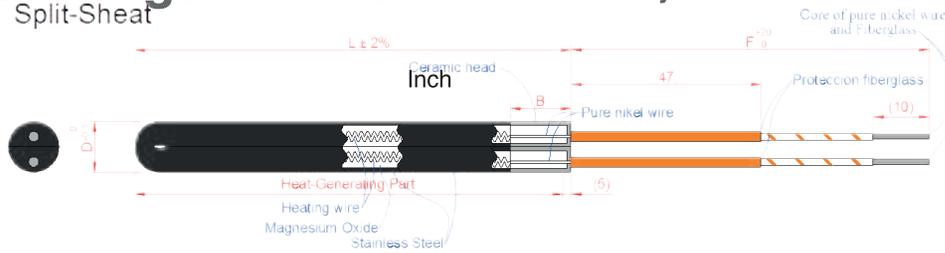
Sheath material	Stainless steel
Heating conductor material	NiCr 8020
Max. Sheath temperature	750 °C / 1380 °F
Max. Voltage	>120V <=480V (OTHER V.: TO CONSULT)
Wattage tolerance*	± 10%
High voltage resistance*	1500 V AC at > 24 V operation voltage 500 V at <= 24 V operation voltage
Insulation resistance*	> 5 MΩ at 500 V DC
Leakage current*	<= 0.5 mA at 253 V AC
Length tolerance	A 2%, min A 1mm
Standard diameter tolerance	metric -0'10-0'15 inch -0,003937 -0,0059055

TESTED AT ENVIRONMENTAL TEMPERATURE



Cartridge Heaters Medium Watt Density

Split-Sheet



Length	Code No.				
	Ø 10	Ø 12.5	Ø 16	Ø 20	Ø 25
102	SS10102(volts)(watts)	SS125102(volts)(watts)	SS16102(volts)(watts)	SS20102(volts)(watts)	SS25102(volts)(watts)
127	SS10127(volts)(watts)	SS125127(volts)(watts)	SS16127(volts)(watts)	SS20127(volts)(watts)	SS25127(volts)(watts)
152	SS10152(volts)(watts)	SS125152(volts)(watts)	SS16152(volts)(watts)	SS20152(volts)(watts)	SS25152(volts)(watts)
178	SS10178(volts)(watts)	SS125178(volts)(watts)	SS16178(volts)(watts)	SS20178(volts)(watts)	SS25178(volts)(watts)
203	SS10203(volts)(watts)	SS125203(volts)(watts)	SS16203(volts)(watts)	SS20203(volts)(watts)	SS25203(volts)(watts)
229	SS10229(volts)(watts)	SS125229(volts)(watts)	SS16229(volts)(watts)	SS20229(volts)(watts)	SS25229(volts)(watts)
254	SS10254(volts)(watts)	SS125254(volts)(watts)	SS16254(volts)(watts)	SS20254(volts)(watts)	SS25254(volts)(watts)
279	SS10279(volts)(watts)	SS125279(volts)(watts)	SS16279(volts)(watts)	SS20279(volts)(watts)	SS25279(volts)(watts)
305	SS10305(volts)(watts)	SS125305(volts)(watts)	SS16305(volts)(watts)	SS20305(volts)(watts)	SS25305(volts)(watts)
330	SS10330(volts)(watts)	SS125330(volts)(watts)	SS16330(volts)(watts)	SS20330(volts)(watts)	SS25330(volts)(watts)
356	SS10356(volts)(watts)	SS125356(volts)(watts)	SS16356(volts)(watts)	SS20356(volts)(watts)	SS25356(volts)(watts)
381	SS10381(volts)(watts)	SS125381(volts)(watts)	SS16381(volts)(watts)	SS20381(volts)(watts)	SS25381(volts)(watts)
406	SS10406(volts)(watts)	SS125406(volts)(watts)	SS16406(volts)(watts)	SS20406(volts)(watts)	SS25406(volts)(watts)
432	SS10432(volts)(watts)	SS125432(volts)(watts)	SS16432(volts)(watts)	SS20432(volts)(watts)	SS25432(volts)(watts)
457	SS10457(volts)(watts)	SS125457(volts)(watts)	SS16457(volts)(watts)	SS20457(volts)(watts)	SS25457(volts)(watts)
483	SS10483(volts)(watts)	SS125483(volts)(watts)	SS16483(volts)(watts)	SS20483(volts)(watts)	SS25483(volts)(watts)
508	SS10508(volts)(watts)	SS125508(volts)(watts)	SS16508(volts)(watts)	SS20508(volts)(watts)	SS25508(volts)(watts)
533	SS10533(volts)(watts)	SS125533(volts)(watts)	SS16533(volts)(watts)	SS20533(volts)(watts)	SS25533(volts)(watts)
559	SS10559(volts)(watts)	SS125559(volts)(watts)	SS16559(volts)(watts)	SS20559(volts)(watts)	SS25559(volts)(watts)
584	SS10584(volts)(watts)	SS125584(volts)(watts)	SS16584(volts)(watts)	SS20584(volts)(watts)	SS25584(volts)(watts)
610	SS10610(volts)(watts)	SS125610(volts)(watts)	SS16610(volts)(watts)	SS20610(volts)(watts)	SS25610(volts)(watts)
635	SS10635(volts)(watts)	SS125635(volts)(watts)	SS16635(volts)(watts)	SS20635(volts)(watts)	SS25635(volts)(watts)
660	SS10660(volts)(watts)	SS125660(volts)(watts)	SS16660(volts)(watts)	SS20660(volts)(watts)	SS25660(volts)(watts)
686	SS10686(volts)(watts)	SS125686(volts)(watts)	SS16686(volts)(watts)	SS20686(volts)(watts)	SS25686(volts)(watts)
711	SS10711(volts)(watts)	SS125711(volts)(watts)	SS16711(volts)(watts)	SS20711(volts)(watts)	SS25711(volts)(watts)
737	SS10737(volts)(watts)	SS125737(volts)(watts)	SS16737(volts)(watts)	SS20737(volts)(watts)	SS25737(volts)(watts)
762	SS10762(volts)(watts)	SS125762(volts)(watts)	SS16762(volts)(watts)	SS20762(volts)(watts)	SS25762(volts)(watts)
787	SS10787(volts)(watts)	SS125787(volts)(watts)	SS16787(volts)(watts)	SS20787(volts)(watts)	SS25787(volts)(watts)
813	SS10813(volts)(watts)	SS125813(volts)(watts)	SS16813(volts)(watts)	SS20813(volts)(watts)	SS25813(volts)(watts)
838	SS10838(volts)(watts)	SS125838(volts)(watts)	SS16838(volts)(watts)	SS20838(volts)(watts)	SS25838(volts)(watts)
864	SS10864(volts)(watts)	SS125864(volts)(watts)	SS16864(volts)(watts)	SS20864(volts)(watts)	SS25864(volts)(watts)
889	SS10889(volts)(watts)	SS125889(volts)(watts)	SS16889(volts)(watts)	SS20889(volts)(watts)	SS25889(volts)(watts)
914	SS10914(volts)(watts)	SS125914(volts)(watts)	SS16914(volts)(watts)	SS20914(volts)(watts)	SS25914(volts)(watts)
940	SS10940(volts)(watts)	SS125940(volts)(watts)	SS16940(volts)(watts)	SS20940(volts)(watts)	SS25940(volts)(watts)
965	SS10965(volts)(watts)	SS125965(volts)(watts)	SS16965(volts)(watts)	SS20965(volts)(watts)	SS25965(volts)(watts)
991	SS10991(volts)(watts)	SS125991(volts)(watts)	SS16991(volts)(watts)	SS20991(volts)(watts)	SS25991(volts)(watts)
1016	SS101016(volts)(watts)	SS1251016(volts)(watts)	SS161016(volts)(watts)	SS201016(volts)(watts)	SS251016(volts)(watts)
1041	SS101041(volts)(watts)	SS1251041(volts)(watts)	SS161041(volts)(watts)	SS201041(volts)(watts)	SS251041(volts)(watts)
1067	SS101067(volts)(watts)	SS1251067(volts)(watts)	SS161067(volts)(watts)	SS201067(volts)(watts)	SS251067(volts)(watts)
1092	SS101092(volts)(watts)	SS1251092(volts)(watts)	SS161092(volts)(watts)	SS201092(volts)(watts)	SS251092(volts)(watts)
1118	SS101118(volts)(watts)	SS1251118(volts)(watts)	SS161118(volts)(watts)	SS201118(volts)(watts)	SS251118(volts)(watts)
1143	SS101143(volts)(watts)	SS1251143(volts)(watts)	SS161143(volts)(watts)	SS201143(volts)(watts)	SS251143(volts)(watts)
1168	SS101168(volts)(watts)	SS1251168(volts)(watts)	SS161168(volts)(watts)	SS201168(volts)(watts)	SS251168(volts)(watts)
1194	SS101194(volts)(watts)	SS1251194(volts)(watts)	SS161194(volts)(watts)	SS201194(volts)(watts)	SS251194(volts)(watts)
1219	SS101219(volts)(watts)	SS1251219(volts)(watts)	SS161219(volts)(watts)	SS201219(volts)(watts)	SS251219(volts)(watts)
1245	SS101245(volts)(watts)	SS1251245(volts)(watts)	SS161245(volts)(watts)	SS201245(volts)(watts)	SS251245(volts)(watts)
1270	SS101270(volts)(watts)	SS1251270(volts)(watts)	SS161270(volts)(watts)	SS201270(volts)(watts)	SS251270(volts)(watts)

*The code is made as follows: SS (high watts density) + 125 (12,5 mm of diameter) + 100 (100mm of length) + 240 (240 volts) + 500 (500 watts) = SS125100250500

All of the intermediate sizes can be made in diameter and length, volts, watts distribution, cold areas, special endings, protections, etc

Length	Code No.				
	Ø 3/8"	Ø 1/2"	Ø 5/8"	Ø 3/4"	Ø 1"
4"	SS384(volts)(watts)	SS124(volts)(watts)	SS584(volts)(watts)	SS344(volts)(watts)	SS14(volts)(watts)
5"	SS385(volts)(watts)	SS125(volts)(watts)	SS585(volts)(watts)	SS345(volts)(watts)	SS15(volts)(watts)
6"	SS386(volts)(watts)	SS126(volts)(watts)	SS586(volts)(watts)	SS346(volts)(watts)	SS16(volts)(watts)
7"	SS387(volts)(watts)	SS127(volts)(watts)	SS587(volts)(watts)	SS347(volts)(watts)	SS17(volts)(watts)
8"	SS388(volts)(watts)	SS128(volts)(watts)	SS588(volts)(watts)	SS348(volts)(watts)	SS18(volts)(watts)
9"	SS389(volts)(watts)	SS129(volts)(watts)	SS589(volts)(watts)	SS349(volts)(watts)	SS19(volts)(watts)
10"	SS3810(volts)(watts)	SS1210(volts)(watts)	SS5810(volts)(watts)	SS3410(volts)(watts)	SS110(volts)(watts)
11"	SS3811(volts)(watts)	SS1211(volts)(watts)	SS5811(volts)(watts)	SS3411(volts)(watts)	SS111(volts)(watts)
12"	SS3812(volts)(watts)	SS1212(volts)(watts)	SS5812(volts)(watts)	SS3412(volts)(watts)	SS112(volts)(watts)
13"	SS3813(volts)(watts)	SS1213(volts)(watts)	SS5813(volts)(watts)	SS3413(volts)(watts)	SS113(volts)(watts)
14"	SS3814(volts)(watts)	SS1214(volts)(watts)	SS5814(volts)(watts)	SS3414(volts)(watts)	SS114(volts)(watts)
15"	SS3815(volts)(watts)	SS1215(volts)(watts)	SS5815(volts)(watts)	SS3415(volts)(watts)	SS115(volts)(watts)
16"	SS3816(volts)(watts)	SS1216(volts)(watts)	SS5816(volts)(watts)	SS3416(volts)(watts)	SS116(volts)(watts)
17"	SS3817(volts)(watts)	SS1217(volts)(watts)	SS5817(volts)(watts)	SS3417(volts)(watts)	SS117(volts)(watts)
18"	SS3818(volts)(watts)	SS1218(volts)(watts)	SS5818(volts)(watts)	SS3418(volts)(watts)	SS118(volts)(watts)
19"	SS3819(volts)(watts)	SS1219(volts)(watts)	SS5819(volts)(watts)	SS3419(volts)(watts)	SS119(volts)(watts)
20"	SS3820(volts)(watts)	SS1220(volts)(watts)	SS5820(volts)(watts)	SS3420(volts)(watts)	SS120(volts)(watts)
21"	SS3821(volts)(watts)	SS1221(volts)(watts)	SS5821(volts)(watts)	SS3421(volts)(watts)	SS121(volts)(watts)
22"	SS3822(volts)(watts)	SS1222(volts)(watts)	SS5822(volts)(watts)	SS3422(volts)(watts)	SS122(volts)(watts)
23"	SS3823(volts)(watts)	SS1223(volts)(watts)	SS5823(volts)(watts)	SS3423(volts)(watts)	SS123(volts)(watts)
24"	SS3824(volts)(watts)	SS1224(volts)(watts)	SS5824(volts)(watts)	SS3424(volts)(watts)	SS124(volts)(watts)
25"	SS3825(volts)(watts)	SS1225(volts)(watts)	SS5825(volts)(watts)	SS3425(volts)(watts)	SS125(volts)(watts)
26"	SS3826(volts)(watts)	SS1226(volts)(watts)	SS5826(volts)(watts)	SS3426(volts)(watts)	SS126(volts)(watts)
27"	SS3827(volts)(watts)	SS1227(volts)(watts)	SS5827(volts)(watts)	SS3427(volts)(watts)	SS127(volts)(watts)
28"	SS3828(volts)(watts)	SS1228(volts)(watts)	SS5828(volts)(watts)	SS3428(volts)(watts)	SS128(volts)(watts)
29"	SS3829(volts)(watts)	SS1229(volts)(watts)	SS5829(volts)(watts)	SS3429(volts)(watts)	SS129(volts)(watts)
30"	SS3830(volts)(watts)	SS1230(volts)(watts)	SS5830(volts)(watts)	SS3430(volts)(watts)	SS130(volts)(watts)
31"	SS3831(volts)(watts)	SS1231(volts)(watts)	SS5831(volts)(watts)	SS3431(volts)(watts)	SS131(volts)(watts)
32"	SS3832(volts)(watts)	SS1232(volts)(watts)	SS5832(volts)(watts)	SS3432(volts)(watts)	SS132(volts)(watts)
33"	SS3833(volts)(watts)	SS1233(volts)(watts)	SS5833(volts)(watts)	SS3433(volts)(watts)	SS133(volts)(watts)
34"	SS3834(volts)(watts)	SS1234(volts)(watts)	SS5834(volts)(watts)	SS3434(volts)(watts)	SS134(volts)(watts)
35"	SS3835(volts)(watts)	SS1235(volts)(watts)	SS5835(volts)(watts)	SS3435(volts)(watts)	SS135(volts)(watts)
36"	SS3836(volts)(watts)	SS1236(volts)(watts)	SS5836(volts)(watts)	SS3436(volts)(watts)	SS136(volts)(watts)
37"	SS3837(volts)(watts)	SS1237(volts)(watts)	SS5837(volts)(watts)	SS3437(volts)(watts)	SS137(volts)(watts)
38"	SS3838(volts)(watts)	SS1238(volts)(watts)	SS5838(volts)(watts)	SS3438(volts)(watts)	SS138(volts)(watts)
39"	SS3839(volts)(watts)	SS1239(volts)(watts)	SS5839(volts)(watts)	SS3439(volts)(watts)	SS139(volts)(watts)
40"	SS3840(volts)(watts)	SS1240(volts)(watts)	SS5840(volts)(watts)	SS3440(volts)(watts)	SS140(volts)(watts)
41"	SS3841(volts)(watts)	SS1241(volts)(watts)	SS5841(volts)(watts)	SS3441(volts)(watts)	SS141(volts)(watts)
42"	SS3842(volts)(watts)	SS1242(volts)(watts)	SS5842(volts)(watts)	SS3442(volts)(watts)	SS142(volts)(watts)
43"	SS3843(volts)(watts)	SS1243(volts)(watts)	SS5843(volts)(watts)	SS3443(volts)(watts)	SS143(volts)(watts)
44"	SS3844(volts)(watts)	SS1244(volts)(watts)	SS5844(volts)(watts)	SS3444(volts)(watts)	SS144(volts)(watts)
45"	SS3845(volts)(watts)	SS1245(volts)(watts)	SS5845(volts)(watts)	SS3445(volts)(watts)	SS145(volts)(watts)
46"	SS3846(volts)(watts)	SS1246(volts)(watts)	SS5846(volts)(watts)	SS3446(volts)(watts)	SS146(volts)(watts)
47"	SS3847(volts)(watts)	SS1247(volts)(watts)	SS5847(volts)(watts)	SS3447(volts)(watts)	SS147(volts)(watts)
48"	SS3848(volts)(watts)	SS1248(volts)(watts)	SS5848(volts)(watts)	SS3448(volts)(watts)	SS148(volts)(watts)
49"	SS3849(volts)(watts)	SS1249(volts)(watts)	SS5849(volts)(watts)	SS3449(volts)(watts)	SS149(volts)(watts)
50"	SS3850(volts)(watts)	SS1250(volts)(watts)	SS5850(volts)(watts)	SS3450(volts)(watts)	SS150(volts)(watts)

*The code is made as follows: SS (high watts density) + 125 (12,5 mm of diameter) + 100 (100mm of length) + 240 (240 volts) + 500 (500 watts) = SS125100250500

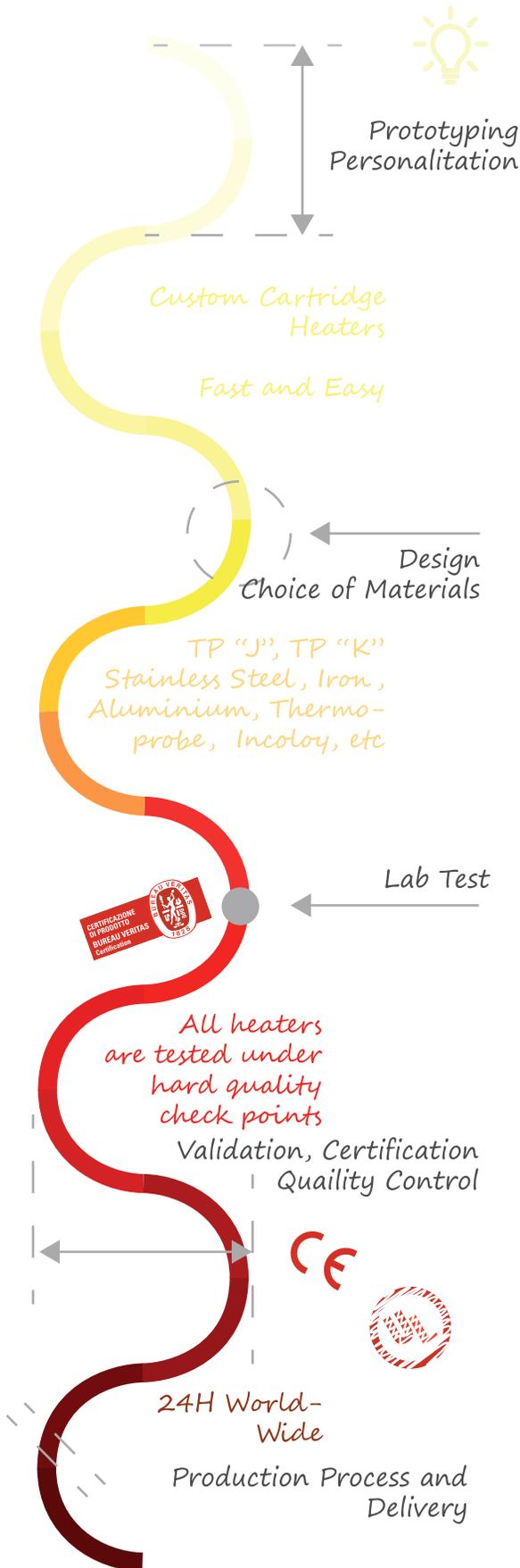
Technical Key

Sheath material	Stainless steel
Heating conductor material	NiCr 8020
Max. Sheath temperature	750 °C / 1380 °F
Max. Voltage	>120V <=480V (OTHER V.: TO CONSULT)
Wattage tolerance*	± 10%
High voltage resistance*	1500 V AC at > 24 V operation voltage 500 V at <= 24 V operation voltage
Insulation resistance*	> 5 M.Ω at 500 V DC
Leakage current*	<= 0.5 mA at 253 V AC
Length tolerance	A 2%, min A 1mm
Standard diameter tolerance	metric -0'10-0'15 inch -0,003937 -0,0059055

TESTED AT ENVIRONMENTAL TEMPERATURE



Research And Development



Maxiwatt disposes of a developing research team with extensive experience in the industrial sector of Cartridge Heaters.

For over 50 years they have carried out tests and studies to obtain better results.

Our study process of a new product always begins with an analysis of improving the needs of our clients: adapted designs, reducing handling time (installation, insertion and removal of heater elements).

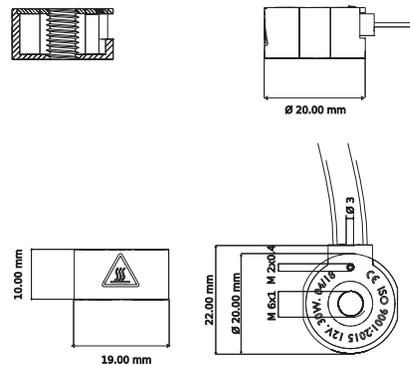
Our laboratory is certified for complying with the strictest standards in the market.

In Maxiwatt the process of looking for new improvements is endless, as the needs of the market are more demanding and changing each day.

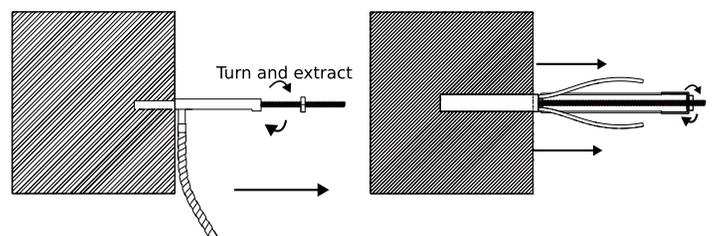
Cases of success:

- Cartridge Heaters of Split and Expan (see section in this catalog)

-Circular Heater blocks for domestic and professional 3D printers.



- Extractor of Cartridge heaters



Cylinder Heater Hotend 3D Printers

With our circular 3D resistor, you'll get your 3D printer to offer you a new range of possibilities, as you'll be able to use new, high-quality plastics such as Nylon, Ultem, PEEK and other types of plastic to make molds, medical devices, parts, etc., that aren't valid for most standard desktop printers. You set the limit.

Get to take the experience with your 3D printer to another level with a small Plug & Play modification, specially designed to adapt to any printer ensuring the desired results by melting the entire plastic filament at the same time, as only the thread of the nozzle is heated, where the casting process must take place.

Would you like to be able to produce high quality parts without any effort?



- Longer service life due to greater quantity and thickness
- Insulated connections to prevent short circuits
- No additional tools required for installation
- Wear-resistant brass internal thread
- Quick nozzle change
- Precise internal readings up to 932°F
- All types of plastic casting
- Compact design
- Fast and safe cleaning of heating elements
- Identification code for tracking, quality, cloning, .



Extractor

Our new patented extractor of Cartridge heaters design enables a quick, clean, and easy way to withdrawal the cartridge heaters, in another way it would be impossible.

The extractor can be installed in the vast majority of the cartridge heaters and no special tools required. Does not deteriorate with time.

Constructed of high strength stainless steel, as the cartridge heater.



The order confirmation means for the purchaser that the following sales conditions apply:

The minimum details required for correct manufacture are:

- Diameter.
- Length.
- Volts.
- Watts.
- Placed in vertical position, horizontal position, air or submerged...
- Tails length.
- Special pieces attached, if any. -Connection protections.
- Conditions of use such as humidity, vibration, bumps (or shocks), contamination.
- Function to perform: casting plastic, sealing bags, marking...
- Name and machine model.

Any omission from the required details will void the warranty understanding that it is an own design from the customer and he will assume full responsibility as we will produce a prototype or prototypes according to his specifications. It is also necessary to continue, without exception, all the installation processes and security measures reflected in the technical security specifications.

Quantity:

The sale of the product will be done by Buyer's order confirmation, accepting only by written confirmation (e-mail, fax, post...) but never by telephone, over or under production can occur. In the case of lack of material to begin production Maxiwatt may use without previous notice, superior quality material and production methods to improve the heater function, without any price increase. But this will not be a standard for future similar orders.

Delivery:

When deliveries are made with EXW conditions, the loss risk in transportation will be assumed by the buyer. Unless the customer specifies special shipping conditions in the order Maxiwatt will decide the transport method and conditions.

Restocking charges:

The stock size heaters may be returned if they have not been used, with a 20% surcharge of the purchase price. Special heater sizes, manufactured exclusively as clients request cannot be returned. The return for stock orders will only be accepted within 120 days after delivery date.

Return policy:

Before any return can take place Maxiwatt must be informed of the reason for the return. Upon receipt of this information Maxiwatt will allow the buyer to return faulty material, always with paid transport charges, to review and determine if it is a manufacturing defect. If it proves to be a manufacturing fault Maxiwatt will assume the transport and material payment or replace the goods. In case of credit, the amount will be set against future purchases. For items that have been mishandled, misused or mechanically damaged, Maxiwatt will not assume liability. The returned items will be available for collection by the purchaser for a period of 30 days. After which they will be destroyed.

Responsibility :

The total financial liability for any claim will have as its limit, the price of the product that has caused the complaint. It will never exceed the total price invoiced. In no case Maxiwatt will be responsible for consequences of accidents or incidents (accidents to persons, damage to property or financial consequences).

Changes to orders:

Please confirm in writing any change required for your order such as quantity, sizes and heater specifications before they are in production process. After receipt of such notification Maxiwatt will inform the client of any changes in the conditions for the production of the order, price and delivery as result of the requested changes. These changes must be approved by the client before Maxiwatt proceeds with production.

Prices:

The prices in our price list are referred to the materials and specifications detailed in the same or our catalogues. We will not include in our prices the transport costs and customs charges or any other taxes or fees that occur once the goods leave Maxiwatt. Changes in prices and stock material availability may occur without previous notice.

Tools:

All tools and accessories in Maxiwatt are property of the company, Maxiwatt will accept tools sent by the buyer to carry out his orders, even the shipment of the tools is done without any cost or shipping charges for the seller company. The tool will always be property of the purchaser and Maxiwatt undertakes to make good use of the tool in the production process.

Cancellation charges:

We will not charge our customers for cancellation of orders in stock items. Orders for specially manufactured products will be subjected to a cancellation fee depending on how far into the manufacturing process the goods are at the time of cancellation.

Prototypes:

If the goods ordered by the buyer, are based upon a prototype, there is no guarantee that covers the material purchased by the buyer because it is his responsibility to test the prototype before the execution and application, due to the possible modifications needed for the prototype such as material and assembly methods.

Warranty:

Maxiwatt guarantees its products against defects in materials and manufacturing for one year after the date of delivery, provided that they have been used and maintained correctly. This is not to be confused with useful life of the heater which can be from minutes to several years. Elements used in aggressive environments, fluids and chemical solutions are not guaranteed in any event against corrosion or other defects. Maxiwatt will not guarantee any of its products against damage caused by corrosion or use in aggressive environments. Heaters that are inactive or stored for long periods can absorb moisture electrical insulation value decreases, can be restored by either preheating or being slowly taken up to temperature. The Warranty is limited to replace or repair the defective element.

Law:

The validity, interpretation and execution of this agreement and/or order of any related dispute shall be submitted to the judges and courts of Miami FL to resign express of any other law.

Security specifications

- Cartridge heater to use only in industrial environments.
- Cartridge element with high wattage density in w/cm² which develops high temperatures.
- Serious burns can result if skin comes in contact with parts of the warming system.
- The installations process for a cartridge heater requires expert knows and qualified by the installer.
- It is necessary to use glasses, safety gloves and clothing for high temperatures.

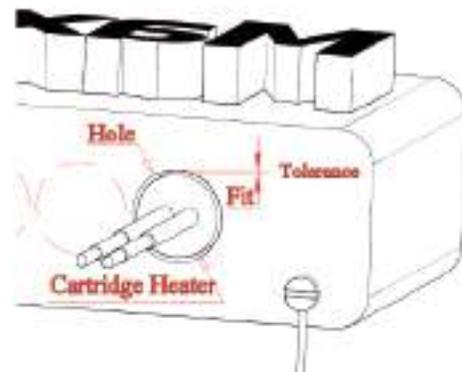
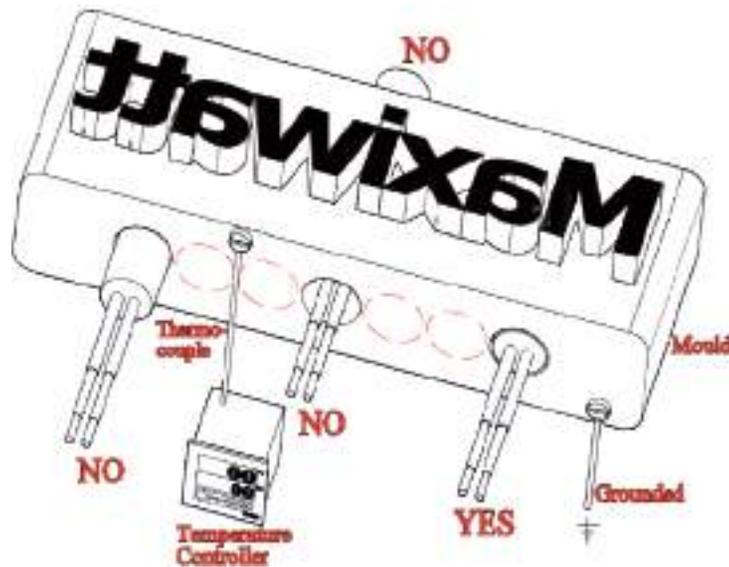
Installation:

- This equipment must be grounded.
- Indicate with symbols warning of hot surfaces.
- Store the most protected from any moisture.
- Cut the total current of the machine or mold.
- Check that the machine or mold is at room temperature.
- Introduction without any anti-grippant paste.
- Exclusively for holes with H7 tolerance.
- Attach regulator and cut systems (thermocouples and regulators).
- Introduce the 100% of the length of the heater.
- Do not place the cable inside the hole.
- Protect the heater cable and entrance connection against shocks, splashes and excess material.
- Neither take nor transport the heater for the tails.
- Keep the tails away from heat sources and protected from it.
- Do not repair damaged tails. Replace them with new ones identical to the originals.
- Indicate and send before accepting the order, in writing, the work conditions (vibration,blows,humid environments...).
- Never stop running without qualified human presence.
- All exposed parts are mandatory for safety people and goods.

Installation tips:

Cartridge heaters must be installed as tight as possible. You should take in consideration the following factors when drilling out:

- The inner of the drill must be uniform, no scratches or different diameters including minimal differences. We recommend finishing with a broach.
- Note that heat rises, the dissipation is higher at the ends and heat is concentrated in the centre.
- Choose stock sizes. -Try to have a hole with exit, it would be easier to remove the heater.
- The connection never have to be in the drill, run the risk of turn or burn.
- The connections have to be protected to prevent loss of liquid, plastic, gases, etc.
- We recommend gauges installation that must be placed at maximum 15mm of the heater. This last one must be
- Connected to a temperature controller.
- The cartridges must have minimum three diameters separation between them.



QUALITY CONTROL

All heaters are tested under hard quality check points that are certified by an independent company. In compliance with ISO 9001:2000.

Guidelines, we subject our heaters to the following tests:

Diameter.

Length.

Volts.

Watts:

Termination.

Tails length.

Leakage current:(cold) =0.1ma A 242V.

Isolation: (cold) =5ml Ohms minimum to 500V

Dielectric strength:1500v 1/seg.

Length tolerance: All units to 4 1/2 inches (115 mm) long: $\pm 3/32$ inch (± 2.4 mm)

1/8 inch diameter units over 4 1/2 inches (75 mm) long: $\pm 3\%$

All other units over 4 1/2 inches (115 mm) long: $\pm 2\%$

Diameter tolerance :1 in.units: ± 0.003 in. (0.02 to -0.08 mm).

All other units: ± 0.002 in.(0.02-0.07mm)

Connection tolerance: 0,59 in.(+/-15mm)

Power tolerance:(w) +5% / -10%

Cold zone pending length and diameter around 0,196 to 0,59 (5 to15mm)

This is very important
Introduce holes tolerance
 ± 0.002 in.
 (-0.02 / -0.06 mm)

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Headquarters

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Sede Central

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