

Properties

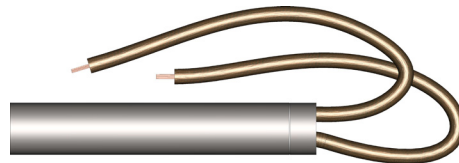
All cartridge heaters can be equipped with different kinds of accessories to fit in any existing application.

Except the most common requested accessories listed below, we are also able to offer cartridges with other kinds of cable outlets, electric connections, nipples and flanges, explosion proof equipment, cable strain relief, built-in thermostat, different heating zones etc.

S 1. Internal cable connection with flexible cables

Suitable when a highly flexible cable also near the element head is required.

Note that with this solution, the temperature of the cartridge connection end may not exceed 260°C.



S 2. Flexible metallic conduit

The cables are protected by a flexible tube galvanized steel in the standard version.

On demand a stainless protective tube is also offered.

Advisable to protect the cables from being smashed, grazed or torn.



Diameter of the protective tube

Element Ø	6.5-1/4"	8	10-3/8"	12-1/2"	16-5/8"	20-3/4"
T	6.7	7.5	8.5	10.5	12.5	13

S 3. Flexible metallic braid

The cables are protected by a flexible metal braid in galvanized steel.

On demand we also offer stainless protective braid.

Advisable for protection of the cables against damages but with maximal preserved flexibility.



S 4. Solid Nickel wires

The elements can be fitted with solid nickel wires, naked or insulated with a silicon hose, glass armoured silicon, teflon or ceramic bushings.

Useful when the input wires, by mechanical needs or assembly purposes, need to be particularly rigid.



S 5. Insulated cables for high temperatures

The elements can be fitted with nickel wires insulated with ceramic beads (A) or ceramic fibres (B).

One of the solutions is demanded when the cables are exposed to a temperature continuously over 260°C.



S 6. Corrugated flexible metallic conduit

The cables are protected by a corrugated, flexible and completely tight protective tube in stainless steel welded to the cartridge sheath.

This solution is indispensable when the cables must go through areas with liquids, corrosive gases, etc.



CARTRIDGE HEATERS OPTIONS AND ACCESSORIES

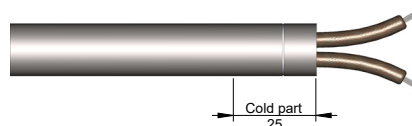
S 7. Sealed cartridges

All cartridge heaters can be produced completely sealed. Due to the high level of hygroscopicity of the insulating ceramic material, the heaters can easily absorb atmospheric humidity and thus decrease their electrical installation.

Though this drawback can be remedied with a short period of pre-heating, the cartridges must be sealed to avoid humidity absorption.

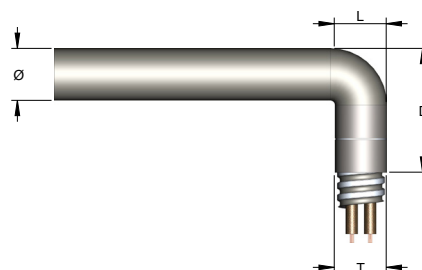
This is done by resins or silicone when the head temperature is below 260°C, or with the patented SC-sealing when the temperature is over 260°C.

Sealing is indispensable when the cartridge head might be exposed to washing, oil leakage, corrosive gases, etc.



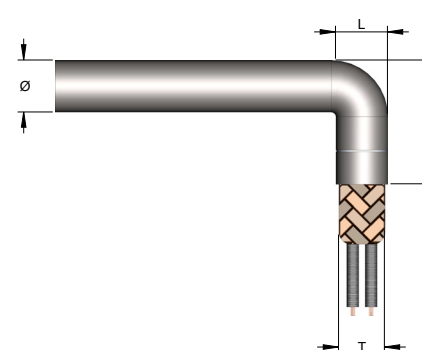
S 8. Right-angled cable outlet with flexible metallic conduit

The cables are protected by a flexible protective tube in galvanized steel.



S 9. Right-angled cable outlet with flexible metallic braid

The cables are protected by a flexible metal braid in galvanized steel.



Angular head dimensions

ø	6.5-1/4"	8	10-3/8"	12-1/2"	16-5/8"	20-3/4"
L	7.5	8	10	12.5	16	20
D	18	20	23	27	30	36

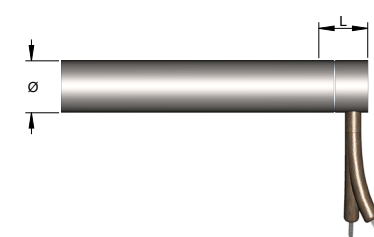
Dimensions of tube or flexible braid

T	6.7	7.5	8.5	10.5	12.5	13
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S 10. Right-angled cable outlet

Flexible cables coming out of the tube directly from bilateral opening in a 90° angle.

Particularly suitable for very small spaces.



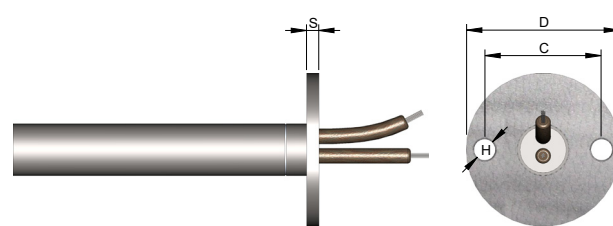
ø	6.5-1/4"	8-5/16"	10-3/8"	12.5-1/2"	16-5/8"	20-3/4"
T	6.7	7.5	8.5	10.5	12.5	13

S 15. Flanged cartridges

All heaters can be supplied with a stainless steel flange.

Dimensions standard flanges

ø	ø	D	C	H	S
6.5-1/4"	8-5/16"	25	19	3.5	2
10-5/8"	12.5-1/2"				
6.5-1/4"	8-5/16"	35	28	4.5	2
10-3/8"	12.5-1/2"				
16-5/8"	20-3/4"				



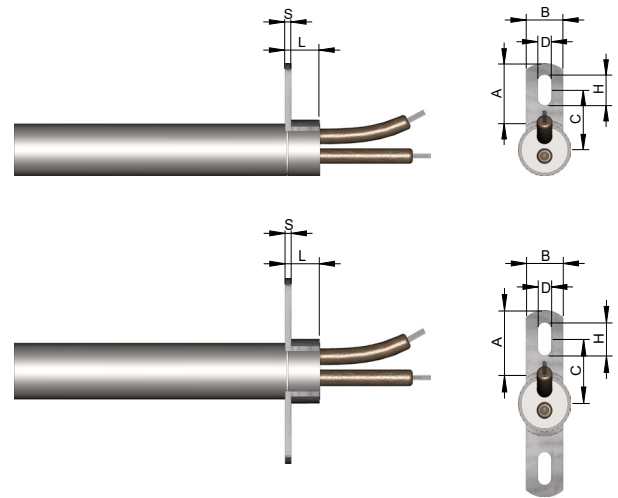
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S 16. Single angle bracket S 17. Double angle bracket

Dimensions of small flanges

Ø	6.5-1/4"	8-5/16"	10-3/8"	12.5-1/2"	16-5/8"	20-3/4"
A	10	11	13	15	18	22
B	6	7	9	10	13	15
C	8.7	10	13	15.8	18	23
D	3.2	3.2	4.2	5.3	5.4	6.2
H	6	7	9	11	13.5	16.6
L	5.7	6	6.6	6.8	10.3	12
S	1	1	1	1	1.5	2



S 21. Welded nipple - Thread towards element bottom end S 22. Welded nipple - Thread towards element connection end

The elements can be fitted with threaded fittings in stainless steel as indicated in the table below or acc. to particular specification. Particularly suitable for liquid heating.

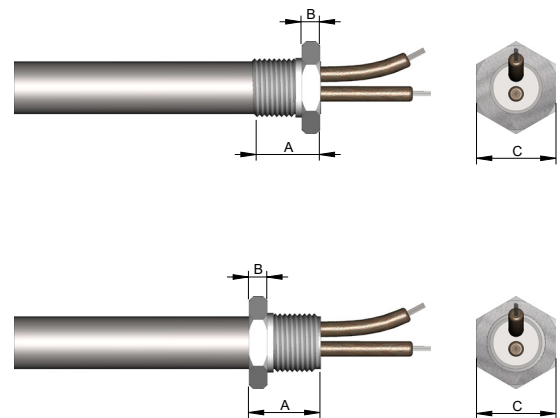
Standard stainless steel threaded fittings:

Element diameter in millimeters

Ø	6.5	8	10	12.5	16	20
A	11	13	15	17	20	25
B	4	4.5	5	5.5	6	7
C	12	14	17	19	24	30
Thread	10x1	12x1.5	14x1.5	16x1.5	20x1.5	27x1.5

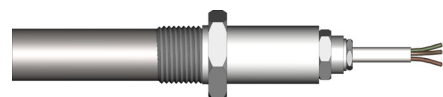
Element diameter in inches

Ø	1/4"	3/8"	1/2"	5/8"	3/4"
A	11	15	17	20	25
B	4	5	5.5	6	7
C	12	17	19	24	30
Thread	1/8"	1/4"	3/8"	1/2"	3/4"



S 26. Cable connection with strain relief

The elements can be built with a multi-polar input cable and connections protected from tears and external agents by a water-proof cable clamp.



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SC 400. Waterproof high temperature sealing type SC 400

The magnesium oxide used in the cartridge heaters is an excellent electrical insulator and a good heat conductor.

It has however a high hygroscopic level, implying that a non-operating elements tend to loose their insulation and sometimes drop to values so low that during power-up they could cause the safety devices to intervene.

In worst case the elements can be irreversibly damaged by short circuit.

If the element end does not exceed 260°C, the sealing can be done by resins or silicone.

In cases where higher temperature resistance or bigger safety margins are required other solutions are required, we offer the SC 400 solution.

It is a completely water-proof sealing, irreversible, unorganic and resistant to high pressures and continuous high temperatures, up to 400°C.

The sealing does not undergo the aging process and is resistant to water, acids atmospheric agents and it does not char.

SC 400 is an unorganic compound, fused to the heater head by a controlled cycle process, thus forming a cohesive seal adherent to the metal surfaces on a molecular level.

SC 400 protects the inner components completely from pollutants and oxydation, meaning a striking increase of the element life time.

The use of SC 400 is totally necessary in cases where high level of safety and reliability are needed, like electric medical equipment, manual tools, aeronautics-, space-, nuclear-, surgical- or military appliances.

