

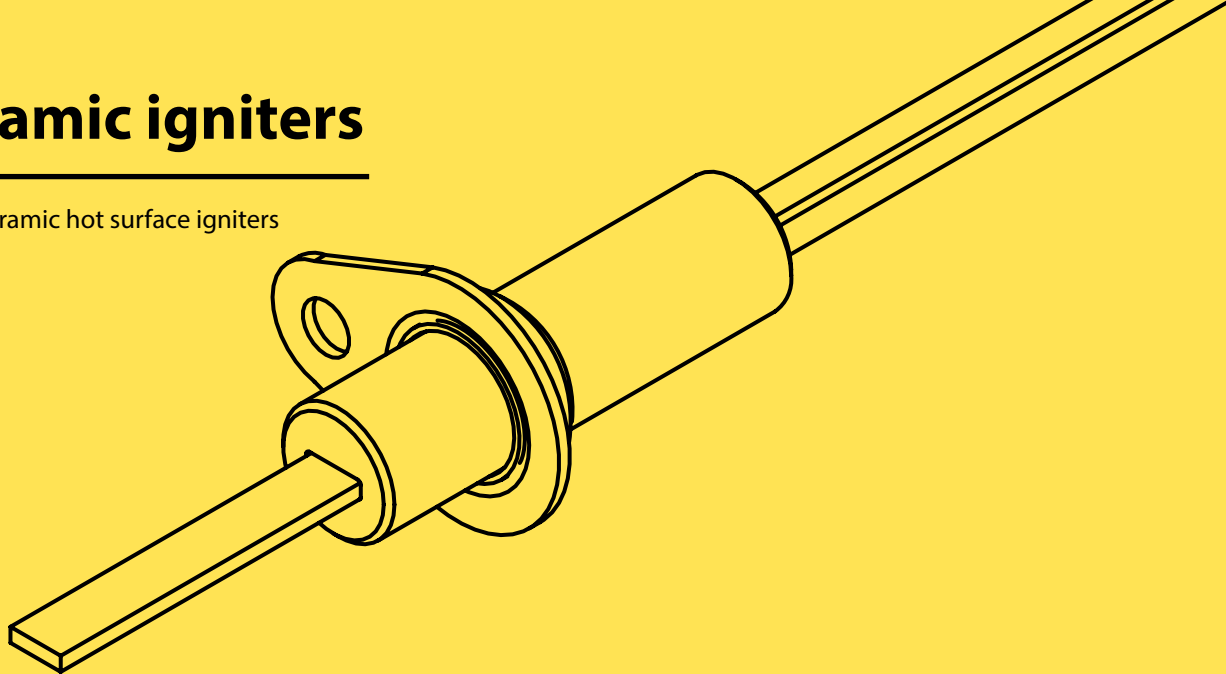


FKK

**Silicon nitride igniter
2023 Catalog**

SiN ceramic igniters

Silicone nitride ceramic hot surface igniters



FKK Corporation producing OEM custom order ceramic silicon nitride hot surface igniters for natural gas and hydrogen energy-efficient equipments. FKK Corporation is now one of the world's leading manufacturer of ceramic hot surface igniters for compact boilers and tankless water heater as well as Fuel Cell SOFC/PEFC and hydrogen direct combustion appliances, covering Asia, America and Europe.

Features

- 1 Long lifespan.**
While standard igniters only last 2 or 3 years, FKK hot surface igniters are made to last at least 90000 hours (nearly 10 years) according to Japanese standard and made to be very resistant in all conditions (high humidity, freezing temperatures, strong vibrations, etc.). We are the unique maker in the world to be able to design SiN igniters with average life greater than 90,000 hours in continuous operation at nearly 1400°C.
- 2 High temprature, high constraint.**
FKK ceramic hot surface igniters can reach 1400°C. However, due to perfect sealing process, lead wire junction temperature do not exceed 150°C. You can miniturize your system, make it safer and prolonged the rated life of other components.
- 3 Very fast.**
Rising temperature is faster: up to 1000°C in 6 seconds.
- 4 Highly efficienct.**
High-watt density discharge allow high thermic efficiency.
- 5 Superior in many ways.**
Highly resistant to mechanical strength, high temperature strength and thermal shock. Excellent electrical insulation, dielectric strength and thermal shock resistance.
- 6 No noise.**
Contrary to spark electrode, ceramic igniters generate no electromagnetic interference so it can be safely use in systems and applications sensitive to electromagnetic noise.

Material

- Silicone Nitride Si_3N_4

Range of temperature

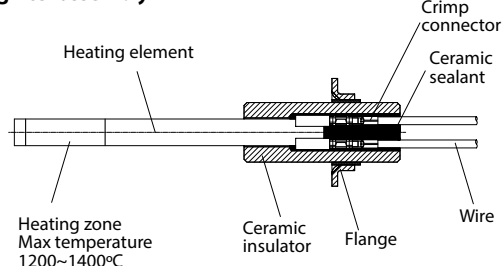
- 1100~1400 °C

Applications

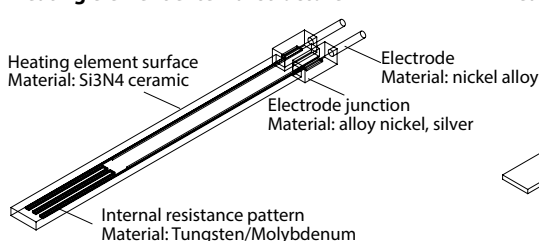
- Gas furnace, burner, kiln
- Gas or hydrogen water heater, boiler or other heating equipment
- SOFC, PEFC Fuel Cell MCHP burner and re-former unit
- Gas reforming to H₂
- H₂ Post gas combustion
- Laboratory equipment
- Biomass boiler secondary combustion
- Hydrogen combsution
- Flame detection in H₂ combustion burner

How hot surface igniters are made

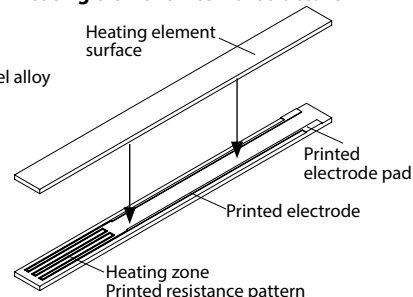
Igniter assembly



Heating element external structure



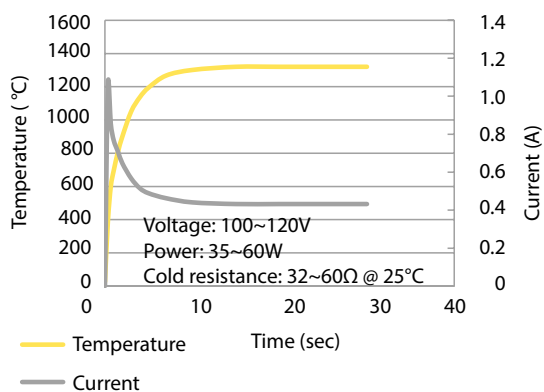
Heating element internal structure



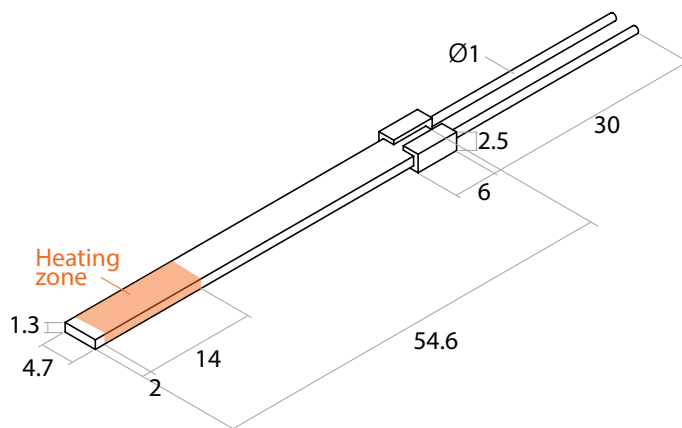
Heating element standard line up

Unit (mm)

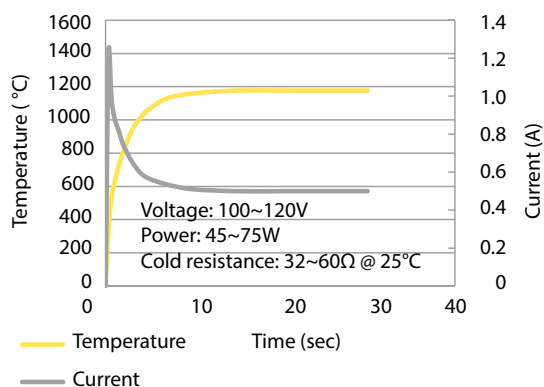
FJT-15 heating element



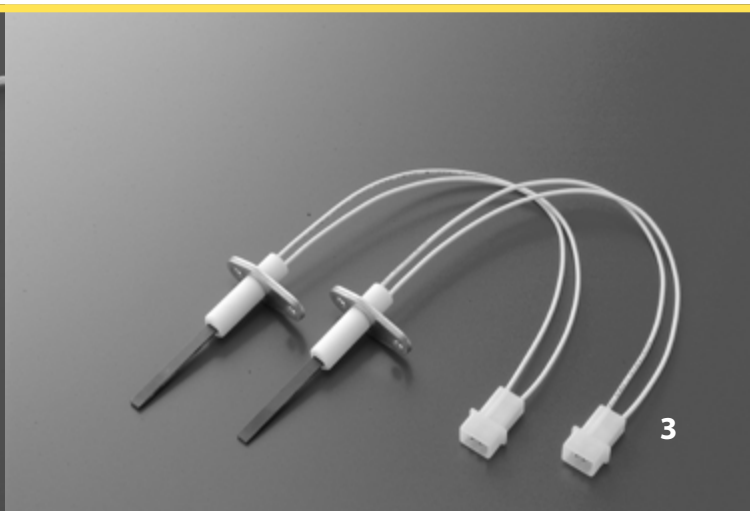
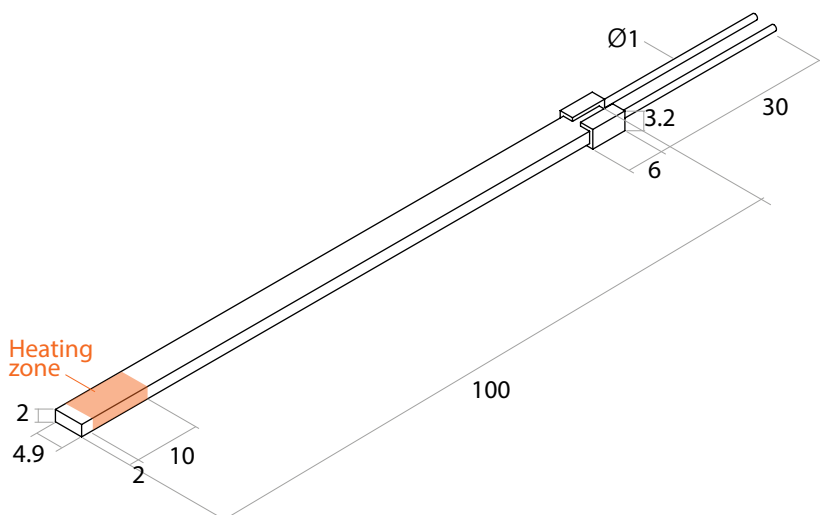
Heating element 54.6 mm



FJT-100 heating element



Heating element 100 mm



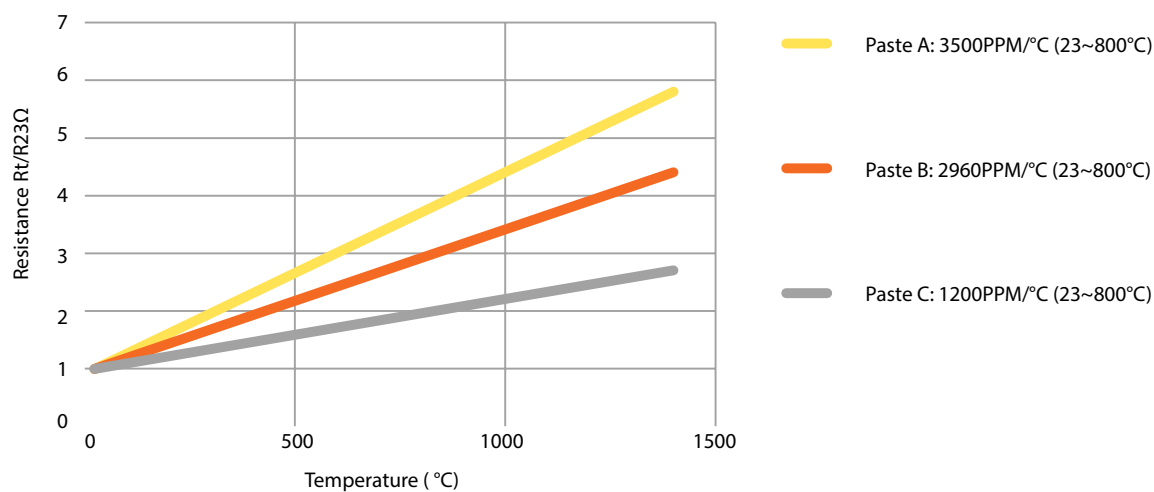
SiN ceramic properties

Si_3N_4 ceramic heating elements properties

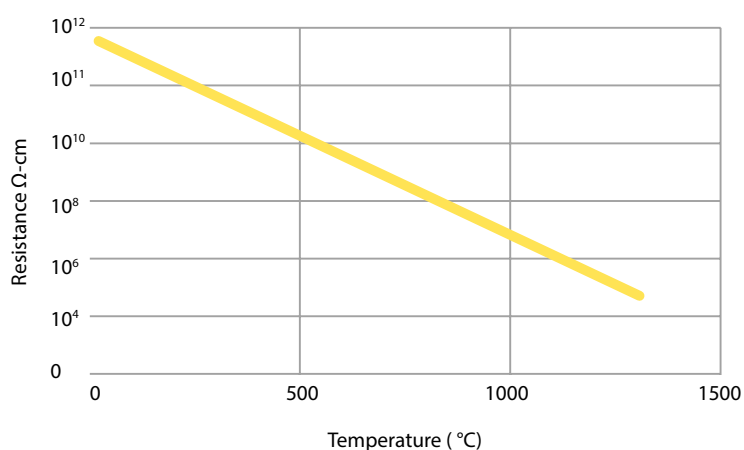
Mechanical and Thermal Properties

Items	Unit	Material SN362
Maximum temperature	°C	1400
Typical temperature	°C	1200
Thermal conductivity	w/mk	31
Linear expansion coefficient	/°C(40-800°C)	3.7×10^{-6}
Vickers hardness (500g load)	GPa	17.1
Bending strength	MPa	900
High-temperature strength (Flexural strength at 800°C)	MPa	900
Thermal shock resistance	°C	900

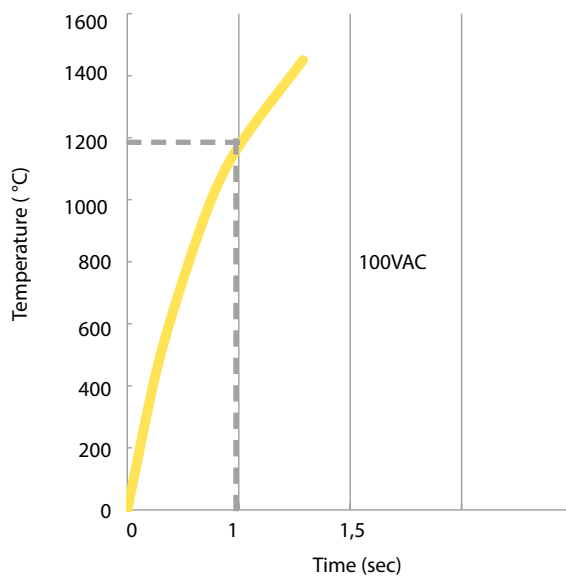
Temperature coefficient of resistance (TCR)



Resistance

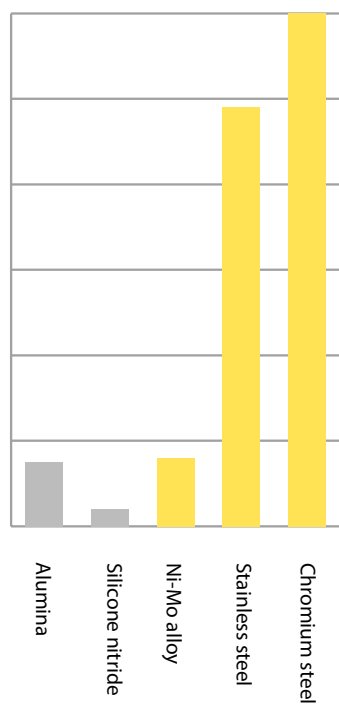


High speed type

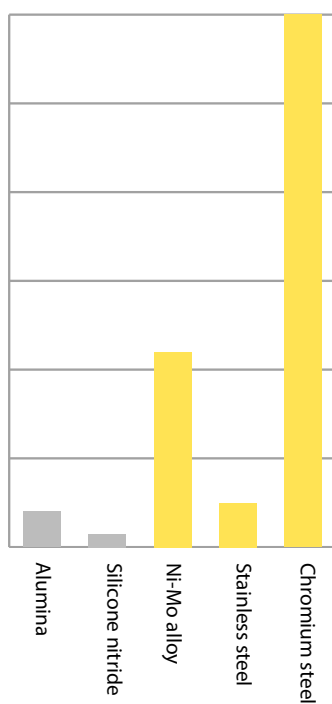


Chemical characteristics (nitric acid resistance)

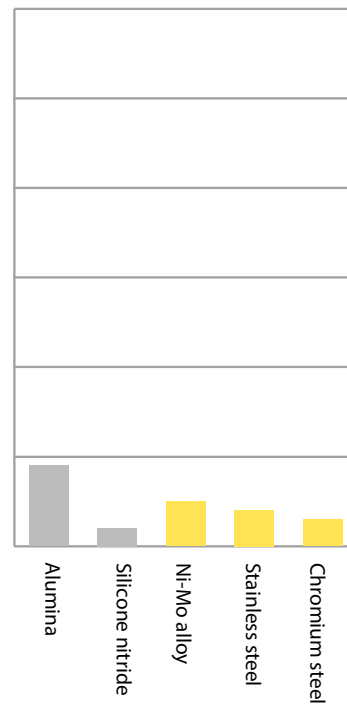
Corrosion Loss - 60% H_2SO_4



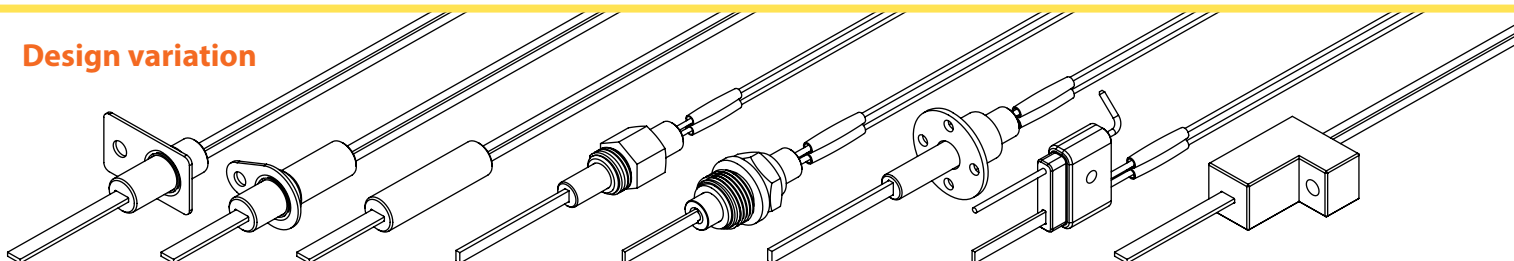
Corrosion Loss - 60% HNO_3



Corrosion Loss - 60% NaOH



Design variation



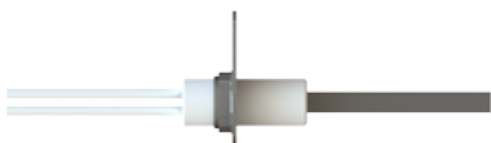
SNx series igniters line up

Silicone nitride ceramic hot surface igniters standard products

Features

- High temperature 1200~1400°C
- 1000°C in 6 seconds
- High resistance to thermal shock (600~900°C)
- Designed for over 90000h of powering
- 80~120V, 220~240V (also possible according to volume)
- Totally customizable solution, many designs available upon request

Most popular models



SNx-10

30mm elliptic metal flange

1200°C type



SNx-11

D10.5 x L28 mm ceramic body

1200°C type



SNx-3

D14 x L30 mm ceramic body

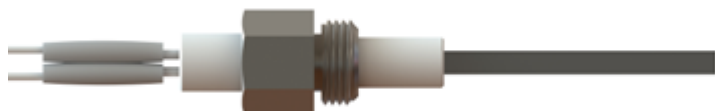
1200°C type



SNx-4

D19mm x L50mm ceramic body

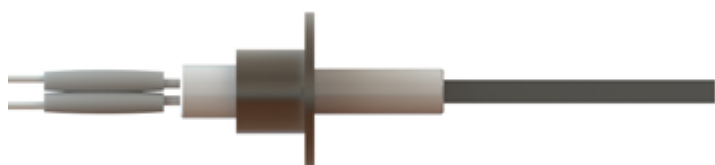
1300°C type



SNx-5

HEX M16 threaded bushing

1300°C type



SNx-6

32mm round metal flange

1300°C type

All drawings and data-sheets are available for download at:
www.plug.fkk-corporation.com/en/products/sin-ceramic-igniter

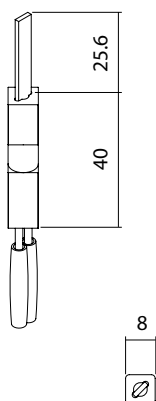
Scan the QR code to go directly to the related page.



Line up

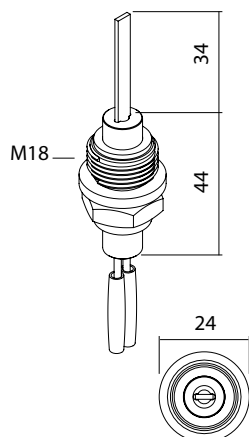
Unit (mm)

SNx-1



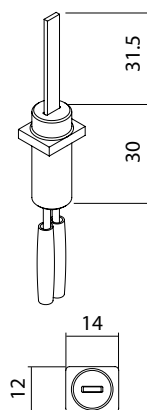
35~60W - 1200°C

SNx-2



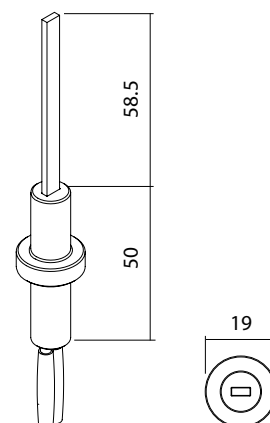
35~60W - 1200°C

SNx-3



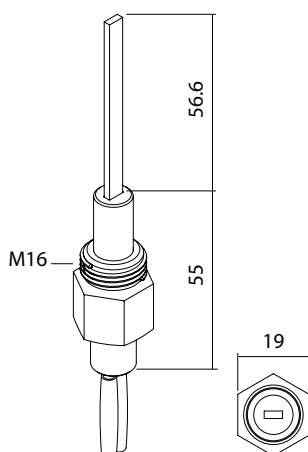
35~60W - 1200°C

SNx-4



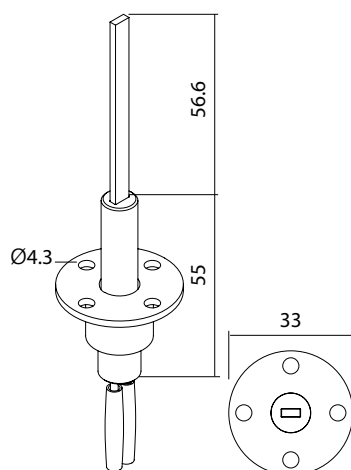
45~75W - 1300°C

SNx-5



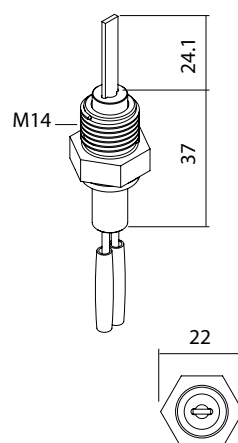
45~75W - 1300°C

SNx-6



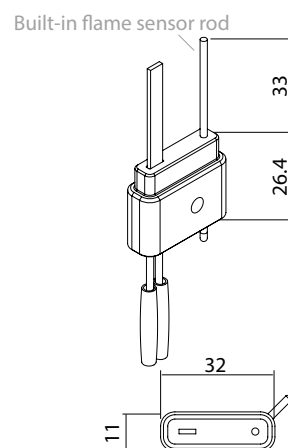
45~75W - 1300°C

SNx-7



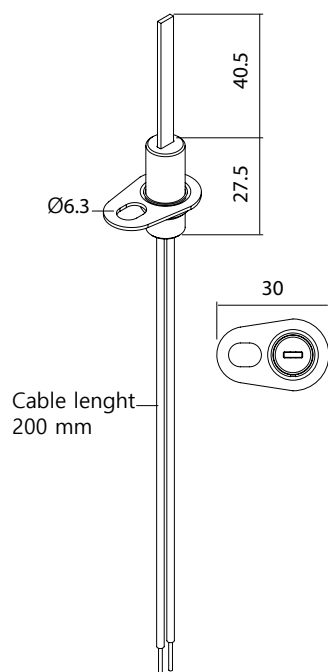
35~60W - 1200°C

SNx-8



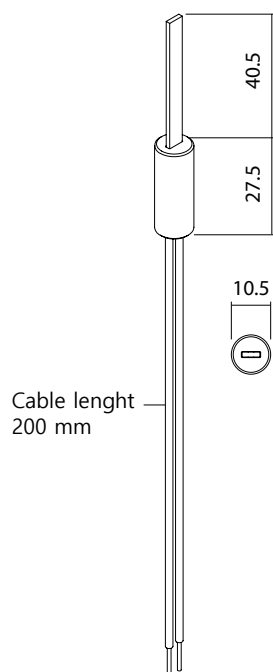
35~60W - 1200°C

SNx-10



35~60W - 1200°C

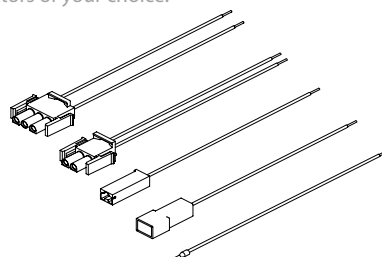
SNx-11



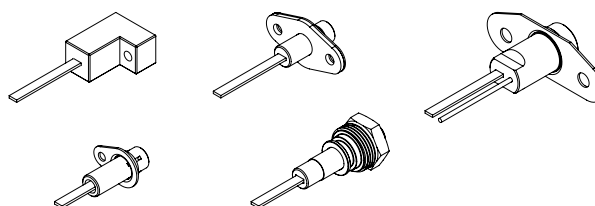
35~60W - 1200°C

Custom models

From 5000 pcs/year all models can be customized with the cables and connectors of your choice.



From 10000 pcs/year order made ceramic insulator body and metal bushing models are possible. A large variety of shapes can be produce upon request.



* Please note that ceramic heating elements are not customizable for projects with annual quantity below 150000 pcs.



FKK corporation

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