

## Sheathed Heaters



### High-reliability Heaters in Desired Shapes

Toshiba Materials offers thermal efficient, heat-resistant sheathed heaters that are tough against mechanical impact forces and shows no insulation degradation under a high-temperature, high-humidity atmosphere.



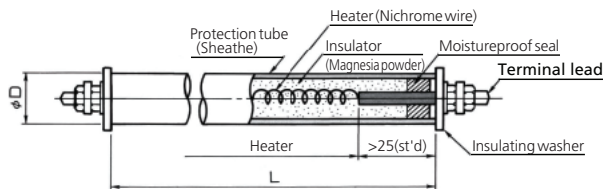
### [Advantages]

- The electrically conductive part and outer sheath are so safely insulated that our sheathed heaters can be applied both to the contact heating of metals and the immersion heating of liquids.
- High thermal efficiency and cost reduction
- Widely applicable because heaters can be deformed into various shapes.
- The heating element cannot be oxidized and has a long serviceable life.

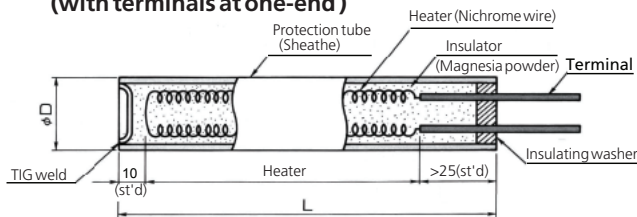
### [Applications]

- Train heaters
- General industrial heaters
- Cartridge heaters
- Heaters for nuclear devices

### Standard Type Sheathed Heater (with terminals at both ends)



### Cartridge Type Sheathed Heater (with terminals at one-end)



### Manufacturable Dimension

Type	Diameter ØD [mm]	Length [m] (max)
Both sides Terminal	8.0~25	4.0
One side Terminal	6.0~10	0.3
	12~19	3.0

### Maximum Operation Temperature (in the Air)

Sheath Material	Max. Temperature [°C]
INCOLOY 800, SUS310S	850
SUS 304, SUS 316	650
Aluminum	300
Copper	200
Iron	450