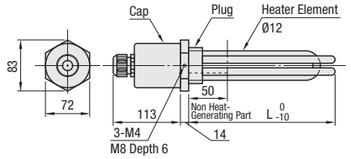
Sheathed Heaters for Liquid Heating

with Plug / with Overheating Prevention

Sheathed Heaters for Liquid Heating – with Plug

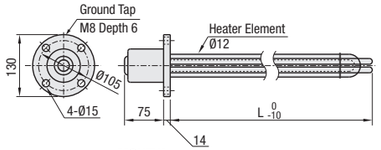
RoHS10

MSHPW Water Heating, Plug Type (PF Thread), 200V / Three-Phase
MSHPWP Water Heating, Plug Type (PT Thread), 200V / Three-Phase
MSHPL Oil Heating, Plug Type (PF Thread), 200V / Three-Phase



MSHPW / MSHPWP / MSHPL
Material: Heater Element: 316L Stainless Steel
Plug: CF-8M Stainless Steel Cast
Cap: Phenol Resin
Accessories: Gasket: Non Asbestos

MSHFW Water Heating, Flanged Type, 200V / Three-Phase



MSHFW
Material: Heater Element: 316L Stainless Steel
Flange: CF-8M Stainless Steel Cast
Cap: Phenol Resin
Power Supply Outlet: NBR Nitrile Rubber
Accessories: Gasket: Non Asbestos

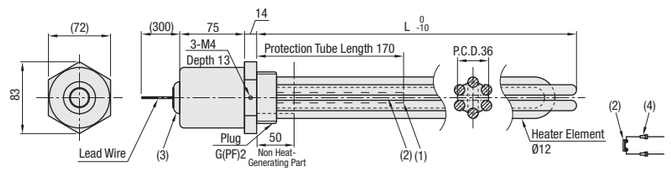
Maximum Operating Temperature: 160°C

Part Number Type	No.	W Electric Power	V Voltage	Electrical Power Density W/cm²	L	Plug Thread Size	Available Types MSHPW	MSHPWP	MSHFW	MSHPL
MSHPW	1	1000	200	3.5	170	MSHPW G(PF)2	•	—	—	—
	2	2000		6.0	200		•	—	—	
MSHPWP MSHFW Only *marked sizes	*3	3000		7.0	230		•	•	•	
	4	4000			300		•	—	—	
	*5	5000			370	MSHPWP R(PT)2	•	•	•	
The values in ( ) are for MSHFW10.	6	6000			430		•	—	—	
	8	8000		8.0	500		•	—	—	
	*10	10000		8.5 (7.0)	570 (700)		•	•	•	
MSHPL	1	1000	200	2.5	230	G(PF)2	—	—	—	•
	2	2000			400					•
	3	3000			580					•
	4	4000			760					•
	5	5000			890					•

Be sure to refer to "cautions for use" stated in sheathed heaters for liquid heating guide on **P.3741**.

Sheathed Heaters for Liquid Heating – with Overheating Prevention

MSPND Water Heating, Plug Type, 200V / Three-Phase

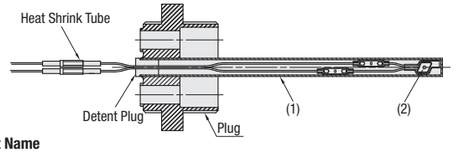


Maximum Operating Temperature: 160°C

Material:
Heater Element : 316L Stainless Steel
Protection Tube for a Bimetal Thermostat: 304 Stainless Steel
Cap: Phenol Resin
Braid Lead: Fluorine
Accessories:
Gasket : Non Asbestos

Part Number Type	No.	Bimetal Thermostat Operating Temperature (°C)	W (Electrical Power)	V (Voltage)	Electrical Power Density (W/cm²)	L
MSPND	35	50	3000	200	7.0	230
	37	70				
	39	90				
	311	110				
	55	50	5000			370
	57	70				
	59	90				
	511	110				
	105	50	10000		8.5	570
	107	70				
	109	90				
	1011	110				

Details of Protection Tube



Part Name

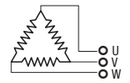
No.	Name
(1)	Protection tube for a Bimetal Thermostat
(2)	Bimetal Thermostat

No.	Name
(3)	Power Supply Export (NBR)
(4)	Insertion Type Connecting Terminal

Features

This heater has both protection pipe and bimetal thermostat. It prevents overheating of a heated object.

Connecting Diagram (△)



Precautions for Use

- Ensure a thermostat is fixed in the protection pipe before using. When it exceeds rating, use an assistant relay.
- This product is designed to prevent overheating of liquids. The thermostat does not function under dry-running condition after the liquid is gone, and it may invite unexpected trouble. Use with a monitoring system including a float switch to monitor the liquid level for boil-dry protection.
- Bimetal thermostat of water temperature plus 20°C or above is recommended.

Part Number Example

Part Number
MSHPW8
MSPND35

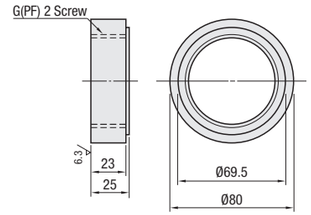
Connecting Parts for Heater / Float Switches

Welding Sockets / Horizontal / Vertical

Connecting Parts for Heater – Welding Sockets, PF Threaded

RoHS10

Welding Sockets
MSHTS PF Thread



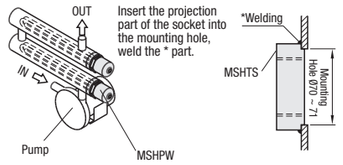
Material: 304 Stainless Steel

Welding Sockets

Part Number Example

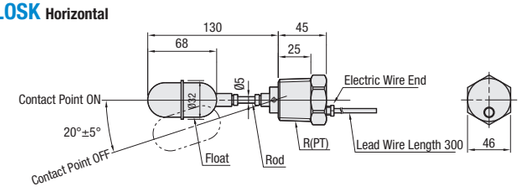
Part Number
MSHTS

Application Example

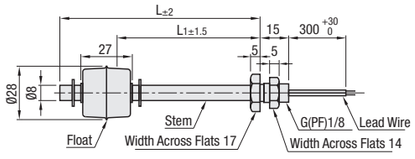


Float Switches – Horizontal / Vertical

FLOSK Horizontal



FLOST Vertical



Materials:
Rod / Stem / Float Portion: 304 Stainless Steel

Specifications FLOSK

Usage	Water / Oil / General Liquid
Operating Range (Specific Gravity)	0.8 or More
Pressure Resistance	0.49 MPa
Heat Resistance Temperature	-20~80°C
Contact Capacity	10W DC/AC
Contact Type	Contact Point

Specifications FLOST

Usage	Water / Oil / General Liquid
Operating Range (Specific Gravity)	0.8 or More
Pressure Resistance	1 MPa
Heat Resistance Temperature	0~120°C
Contact Capacity	50W DC/AC
Contact Type	Contact Point

Part Number Type	No.	R(PT) / G(PF)	Lead Wire Length	L	L_1	Mass (g)
FLOSK	80	R1 1/4	300	—	—	500
FLOST	2	G1/8		200	170	65
	3			300	270	85
	4			400	370	105

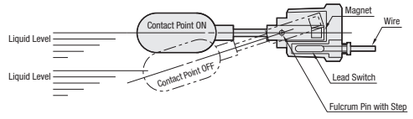
Part Number Example

Part Number
FLOSK80
FLOST2

Principle of Operation

●FLOSK (Horizontal)

The float moves according to changes in the liquid level. When the magnet comes close to the reed switch (high liquid level), the reed switch will be activated. When the liquid level falls, the contact point will be off again.



●FLOST (Vertical)

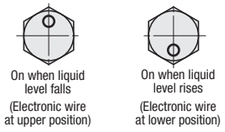
As the liquid level falls and the upper part of the float reaches L_1, the contact point turns off.
The contact point is where the upper part of the float overlaps with the L_1 dimension.

Features

These switches are designed as alarm or signal of water-level for liquids such as water and oil. By combining with a power supply interrupt circuit, it can be used as safety circuit to prevent liquid heaters from dry-running.

Cautions on Installation (FLOSK)

Install horizontally. The electrical wire should exit vertically.

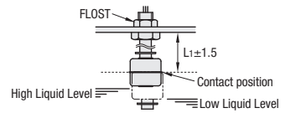


On when liquid level falls (Electronic wire at upper position)

On when liquid level rises (Electronic wire at lower position)

Cautions on Installation (FLOST)

Float may not move properly when mounted diagonally.



- Confirm that there is no liquid leakage before use.
- Avoid installing in places where the float cannot move smoothly.
- When pouring liquid, do not splash it on the body of this product.
- After the wires are connected, observe the liquid level with eyes and confirm the output before actual use.