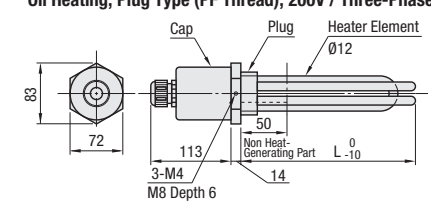


# Sheathed Heaters for Liquid Heating

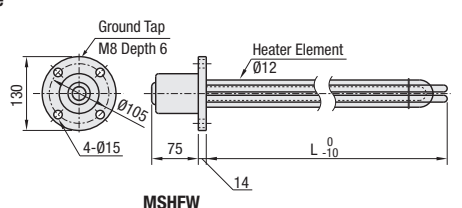
with Plug / with Overheating Prevention

**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

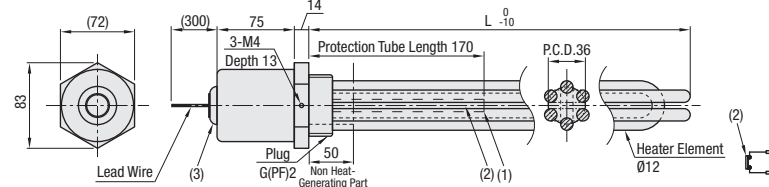


**MSHFW**  
**Material:** Heater Element: 316L Stainless Steel  
 Flange: CF-8M Stainless Steel Cast  
 Cap: Phenol Resin  
 Power Supply Outlet: NBR Nitrile Rubber  
**Accessories:** Gasket: Non Asbestos

Part Number Type	No.	W Electric Power	V Voltage	Electrical Power Density W/cm <sup>2</sup>	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					
	*3	3000		7.0	230					
	4	4000			300					
	*5	5000			370					
	6	6000			430					
MSHPWP	8	8000	8.0	500	MSHPWP R(PT)2	•	—	—	—	
	*10	10000	8.5 (7.0)	570 (700)						
	1	1000	2.5	230		MSHPL 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.

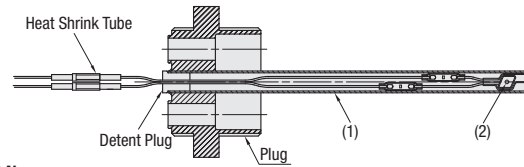
**MSHPND** Water Heating, Plug Type, 200V / Three-Phase



**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

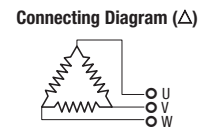
Part Number Type	No.	Bimetal Thermostat Operating Temperature (°C)	W (Electrical Power)	V (Voltage)	Electrical Power Density (W/cm <sup>2</sup> )	L
MSHPND	35	50	3000	200	7.0	230
	37	70				
	39	90				
	311	110	5000			370
	55	50				
	57	70				
	59	90				
	511	110	10000		570	
	105	50				
	107	70				
	109	90				
1011	110					

**Details of Protection Tube**



No.	Name	No.	Name
(1)	Protection tube for a Bimetal Thermostat	(3)	Power Supply Export (NBR)
(2)	Bimetal Thermostat	(4)	Insertion Type Connecting Terminal

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



**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 MSHPND35

# Connecting Parts for Heater / Float Switches

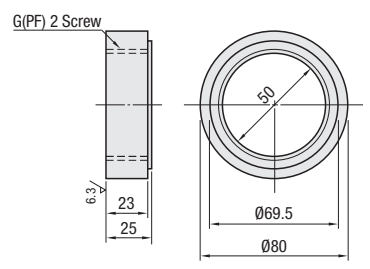
Welding Sockets / Horizontal / Vertical

**Connecting Parts for Heater – Welding Sockets, PF Threaded**



**RoHS 10**

**Welding Sockets MSHTS PF Thread**



**Material:** 304 Stainless Steel


**Welding Sockets**

**Part Number Example** MSHTS

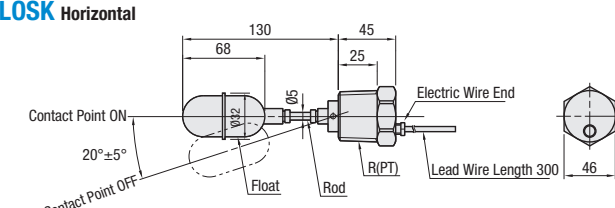
**Application Example**



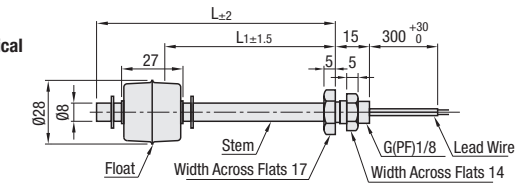
**Float Switches – Horizontal / Vertical**



**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

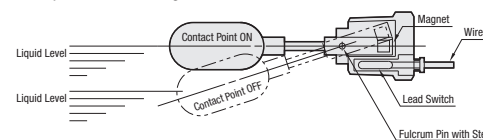
Part Number Type	No.	R(PT) / G(PF)	Lead Wire Length	L	L <sub>1</sub>	Mass (g)
FLOSK	80	R1 1/4	300	—	—	500
FLOST	2	G1/8		200	170	65
	3			300	270	85
	4			400	370	105

Part Number Example	Part Number
	FLOSK80 FLOST2

**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.

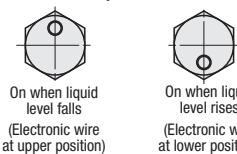
**Principle of Operation**

●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<sub>1</sub>, the contact point turns off.  
 ○ The contact point is where the upper part of the float overlaps with the L<sub>1</sub> dimension.

**Cautions on Installation (FLOSK)**  
 Install horizontally. The electrical wire should exit vertically.



– 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.

