



Please, refer to website for current Pricing and Lead Time

Sheathed Heaters for Liquid Heating

With Plug / With Overheating-Prevention

Be sure to refer to "cautions for use" stated in sheathed heaters for liquid heating guide on P.1870

With Plug

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)

MSHFV (Water Heating, Flanged Type, 200V / Three-Phase)

Element : 316 Stainless Steel
Plug : Steel Casting
Cap : Phenol Resin
Packing : Non Asbestos

Element : 316 Stainless Steel
Flanged : Steel Casting
Cap : Phenol Resin
Power Supply Outlet : NBR
Packing : Non Asbestos

| Part Number Type | No. | W (Electric Power) | V (Voltage) | Electric Power Density (W/cm ²) | L | Plugs (Thread Size) | Unit Price | | | | | | | | | | |
|---|-------|--------------------|-------------|---|-----------|---|------------|--------|-------|-------|-----|-----|----------|--|--|--|--|
| | | | | | | | MSHPW | MSHPWP | MSHFV | MSHPL | | | | | | | |
| MSHPW MSHPWP MSHFV (Only 1 marked sizes) (The values in () are for MSHFW10.) | 1 | 1000 | 200 | 3.5 | 170 | MSHPW G (PF) 2 MSHPWP R (PT) 2 | | | | | | | | | | | |
| | 2 | 2000 | | | 200 | | | | | | | | | | | | |
| | †3 | 3000 | | 230 | | | | | | | | | | | | | |
| | 4 | 4000 | | 300 | | | | | | | | | | | | | |
| | †5 | 5000 | | 370 | | | | | | | | | | | | | |
| | 6 | 6000 | | 430 | | | | | | | | | | | | | |
| | 8 | 8000 | | 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 | | | | | | | | | | | | | | |

With Overheating-Prevention

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

Heater Element : 316 Stainless Steel
Protection Pipes for a Bimetal Thermostat : 304 Stainless Steel
Cap : Phenol Resin
Braid Lead : Fluorine
Packing : Non Asbestos

| Part Number Type | No. | Bimetal Thermostat Temperature (°C) | W (Electric Power) | V (Voltage) | Electric Power Density (W/cm ²) | L | Unit Price | | | |
|------------------|-----|-------------------------------------|--------------------|-------------|---|-----|------------|--|--|--|
| | | | | | | | | | | |
| MSPND | 35 | 50 | 3000 | 200 | 7.0 | 230 | | | | |
| | 37 | 70 | | | | 230 | | | | |
| | 39 | 90 | | | | 230 | | | | |
| | 311 | 110 | | | | 230 | | | | |
| | 55 | 50 | | | | 370 | | | | |
| | 57 | 70 | | | 370 | | | | | |
| | 59 | 90 | | | 370 | | | | | |
| | 511 | 110 | | | 570 | | | | | |
| | 105 | 50 | | | 570 | | | | | |
| | 107 | 70 | | | 570 | | | | | |
| 109 | 90 | 570 | | | | | | | | |
| 1011 | 110 | 570 | | | | | | | | |

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

Cautions
 · Ensure a thermostat is fixed in the protection pipe before using.
 · When it exceeds rating, use an assistant relay.
 · This product is developed with an aim to prevent overheating of liquid. The thermostat does not run under the condition of boil-dry running after liquid is gone, and it may invite unexpected trouble.
 · Utilize 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.

Volume Discount Rate

| Quantity | 1 | 2~ |
|----------|------------|--|
| Rate | Price List | For larger quantity orders "Days to Ship" may differ from published catalog term. P.91 |

Part Name

| Number | Name | Number | Name |
|--------|---|--------|------------------------------------|
| (1) | Protection Pipes for a Bimetal Thermostat | (3) | Power Supply Export (NBR) |
| (2) | Bimetal Thermostat | (4) | Insertion Type Connecting Terminal |



Connecting Parts for Heater / Float Switches

-Welding Sockets / Screwed Fitting Flanges-

Reduced Production Time

Connecting Parts for Heater **RoHS**

Welding Sockets
MSHTS (PF Thread)
 G (PF) 2 Screw

MSHTT (PT Thread)
 Rc (PT) 2

Screwed Fitting Flanges
MSHFG (PF Thread)
MSHFT (PT Thread)

Type | **M** | **A**

| | | |
|-------|-----------------|--------------------|
| MSHTS | 304 | - |
| MSHTT | 304 | - |
| MSHFG | Stainless Steel | O-Rings |
| MSHFT | Stainless Steel | O-Rings (Fluorine) |

Welding Sockets

| Part Number Type | Unit Price |
|------------------|------------|
| MSHTS | |
| MSHTT | |

Screwed Fitting Flanges

| Part Number Type | T | Unit Price |
|------------------|-----------|------------|
| MSHFG | G (PF) 2 | |
| MSHFT | Rc (PT) 2 | |

Order Example Part Number: MSHTS

Volume Discount Rate

| Quantity | 1 | 2~ |
|----------|------------|----|
| Rate | Price List | |

Example
 Insert the projection part of the socket into the mounting hole, weld the † part.

When MSHTT, mounting holes of 057~60 is recommended.

Float Switches **RoHS**

FLOSK (Horizontal)

FLOST (Vertical)

Specifications FLOSK

| Applications | Water / Oil / General Liquid |
|-------------------------------------|------------------------------|
| Operating Range (Specific Gravity) | 0.8 or More |
| Pressure Resistance | 490kPa |
| Heat Resistance Temperature | -20°C~80°C |
| Contact Capacity | 10W DC/AC |
| Contact Resistance at Contact Point | 100 mΩ |
| Contact Type | Contact Point |

Specifications FLOST

| Applications | For liquid such as water, oil and other |
|-------------------------------------|---|
| Operating Range (Specific Gravity) | 0.7±0.05 |
| Pressure Resistance | 1MPa |
| Heat Resistance Temperature | 0°C~120°C |
| Contact Capacity | 50W DC/AC |
| Contact Resistance at Contact Point | 10MΩ |
| Contact Type | Contact Point |

Order Example: Part Number FLOSK80, Days to Ship 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 open-close box, it can be used as safety circuit to prevent liquid heaters from idle running.

Cautions on Attachment (FLOSK)
 Install horizontally. Attach it in the angle that the electronic wire end comes on the vertical line.

Cautions on Attachment (FLOST)
 Float may not move properly when mounted diagonally.

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

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

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.