Electrode Holder

BF-□(R)/BS-1(T)

CSM_BF-□(R)/BS-1(T)_DS_E_8_3

Complete Lineup for Use in High-temperature, High-pressure Environments or Where Exposed to Chemicals

- The BF-1 is ideal for liquids with low specific resistance, such as wastewater.
- The BF-□(R) is used when a strong mounting is required.
- The BS-1 is used when high-temperature, high-pressure resistant is required.
- The BS-1T is used when corrosion resistance is required.

⚠ **Refer to *Safety Precautions for Electrodes and Electrode Holders.***

Ordering Information

■ Electrode Holders

Application	Model
• Liquid with low specific resistance For 1-pole electrode	BF-1
• When sturdy mounting is required For 3-pole electrode For 3-pole electrode (2-wire) For 5-pole electrode For 5-pole electrode (2-wire)	 BF-3 BF-3R BF-5 BF-5R
• Applications where resistance to high-temperature, high-pressure is required For 1-pole electrodes, 250°C, 1.96 MPa	BS-1 BS-1S BS-1S-1 BS-1S2
• High-pressure application where resistance to corrosion is required For 1-pole electrode, SUS304 981 kPa For 1-pole electrode, SUS316 981 kPa For 1-pole electrode, Titanium 981 kPa For 1-pole electrode, HAS B 981 kPa For 1-pole electrode, HAS C 981 kPa	 BS-1T SUS304 BS-1T SUS316 BS-1T TITANIUM BS-1T HAS B BS-1T HAS C

■ Accessories (Order Separately)

Application	Model
Protective Cover (For PS-□S and BF-3/-5)	F03-11
Protective Cover (For BS-1, BS-1S and BS-1T)	F03-19
M18 Nut (For BS-1)	F03-17
M18 Nut (For BS-1T)	F03-18

Note: Refer to *Installing an Electrode Holder on a Tank* under Level Controller Installation in the Technical Guide for Level Controllers for information on Level Controller installation. Refer to *PS-□S(R) Electrode Holder Accessories (Order Separately)* for dimensions.

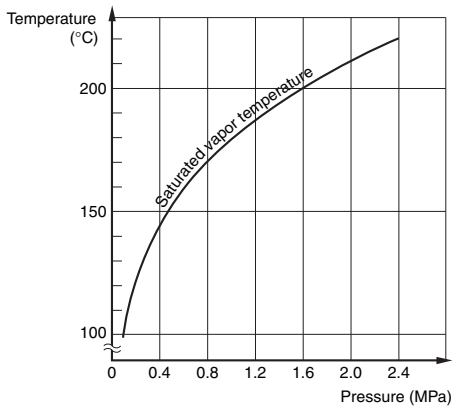
Specifications

Item \ Model	BF-1	BF-3 (R) (See note 1.)	BF-5 (R) (See note 1.)	BS-1	BS-1T
No. of Electrodes	1	3	5	---	---
Insulator material	PPS resin (Metallic section is SUS.)			Fluorocarbon polymer (PFA)	
Insulation resistance	100 MΩ				
Operating temperature	Electrode section: –10 to 150°C (with no icing) Terminal section: –10 to 70°C (with no icing or condensation)			250°C max.	180°C max.
Operating pressure	Atmospheric pressure			1.96 MPa (See note 2.)	981 kPa (See note 2.)
Applications	Liquids with low specific resistance, such as wastewater and cloudy water	General applications for purified water and wastewater		Boiler water level detection or high-temperature tanks	Acid or alkaline solution level detection

Note: 1. Two-wire Electrode Holders (R models) have a built-in resistance of 6.8 kΩ. They should be used with the Two-wire 61F Controllers.

2. There must be a sufficient ambient temperature in a high-pressure environment to prevent vapor leakage. Use the Electrode Holder according to the following pressure-temperature curve.

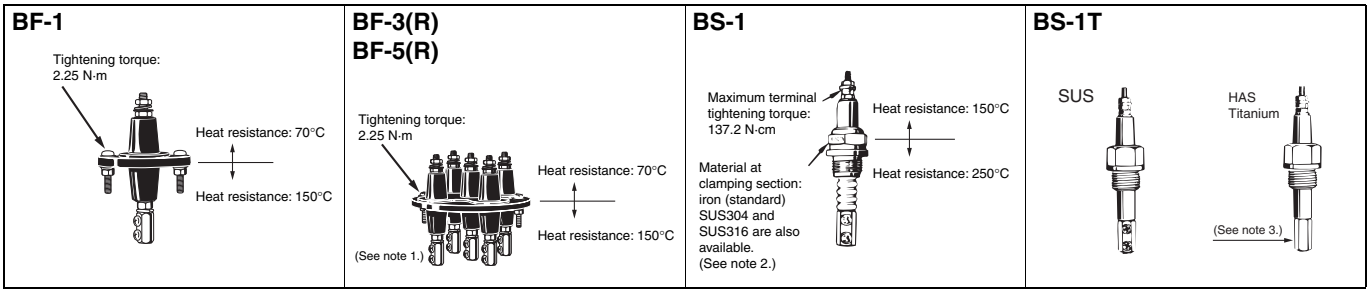
Pressure-Temperature Curve



Example

For a pressure of 1.6 MPa, the temperature inside the water tank must be at least 200°C.

■ Appearance



Note: 1. The F03-11 Protective Cover (sold separately) is available.

2.

Model	Material at tightening section	Screws
BS-1	Iron	M18 P = 1.5
BS-1S	SUS304	M18 P = 1.5
BS-1S-1	SUS304	PT1/2
BS-1S2	SUS316	M18 P = 1.5

3. Clamp screws are not provided for HAS B, HAS C, or titanium Electrode Holders. When placing an order, specify the type of material from the following five: SUS304, SUS316, HAS B, HAS C, or Titanium.

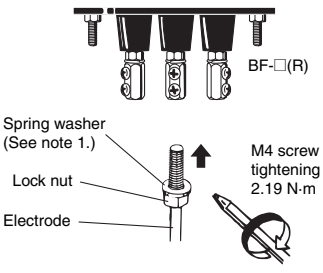
■ Accessories Required for Connecting Electrodes to the BF-□(R) (Order Separately)

Electrode Shorter than 1 m

The following items are required for each pole.

- 1 × F03-01 Electrode
- 1 × F03-03 Lock Nut

The Electrode can be cut anywhere to a desired control level.

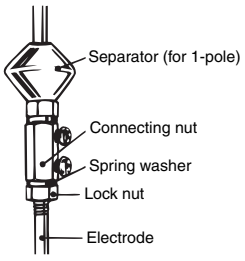


Electrode Longer than 1 m

The following items are required for every additional meter of electrode for each pole.

- 1 × F03-01 Electrode
- 1 × F03-02 Connecting Nut
- 2 × F03-03 Lock Nuts

Use F03-14 1P Separators to prevent the electrodes from touching each another.



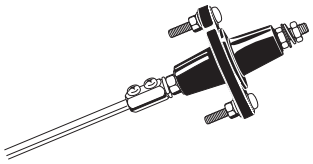
Note: 1. The spring washer comes with the lock nut.
Contact your OMRON representative to purchase a replacement if the spring washer wears out or is lost.

2. Refer to *F03-□* for details on Electrodes, Connecting Nuts, Lock Nuts, and Separators.

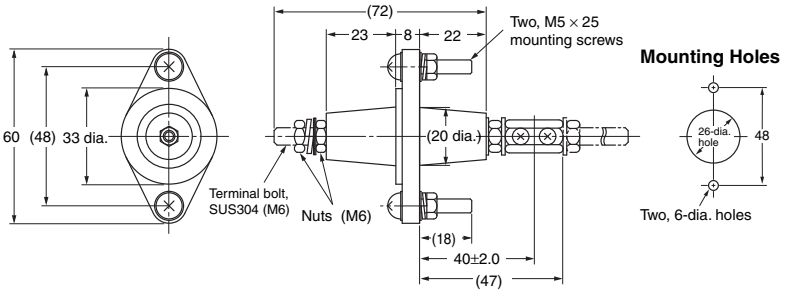
Dimensions

Note: All units are in millimeters unless otherwise indicated.

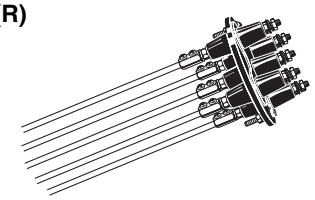
BF-1

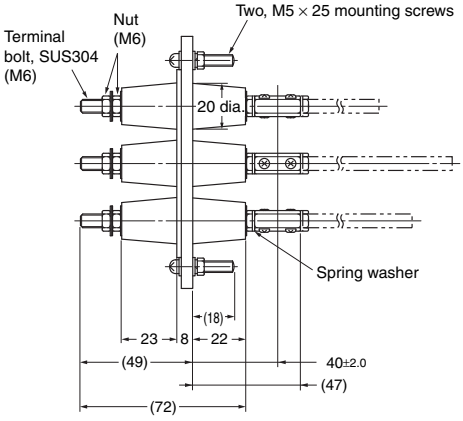


Weight: approx. 75 g



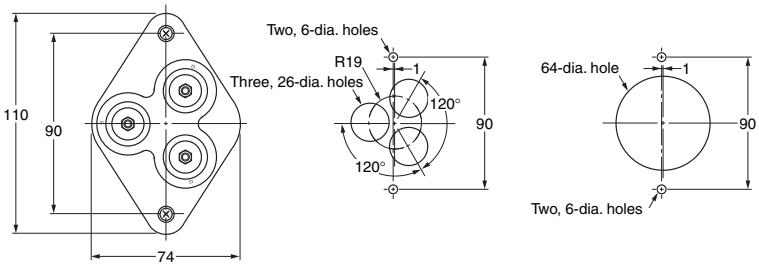
BF-3(R)
BF-5(R)





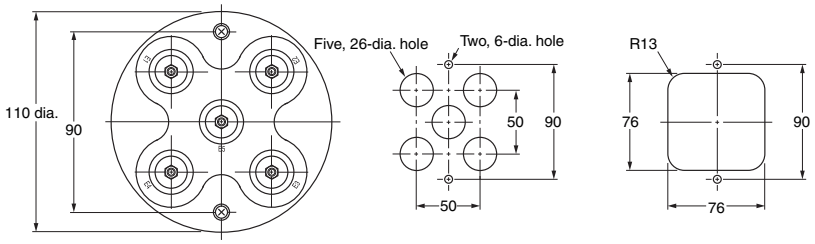
BF-3(R)

Weight
BF-3: approx. 210 g
BF-3R: approx. 215 g

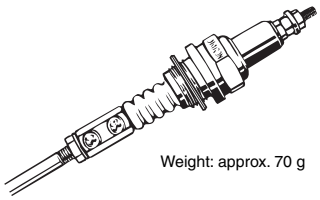


BF-5(R)

Weight
BF-5: approx. 360 g
BF-5R: approx. 365 g

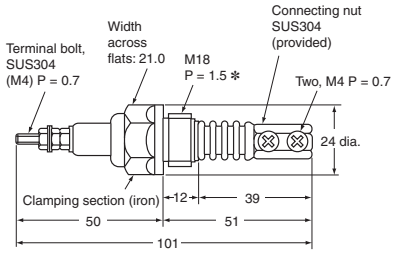


BS-1(S)

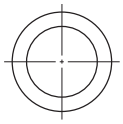


Weight: approx. 70 g

BS-1



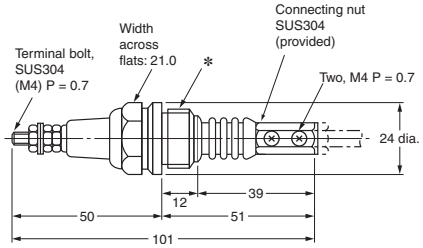
Mounting Holes



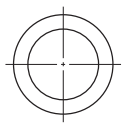
M18 P = 1.5 (fine screw thread)

✻. If it is not necessary to seal the tank inside and outside. The Electrode can be secured with F03-17 Nuts. (Refer to page 1.)

BS-1S
BS-1S-1
BS-1S2



Mounting Holes

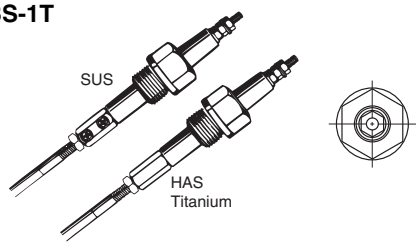


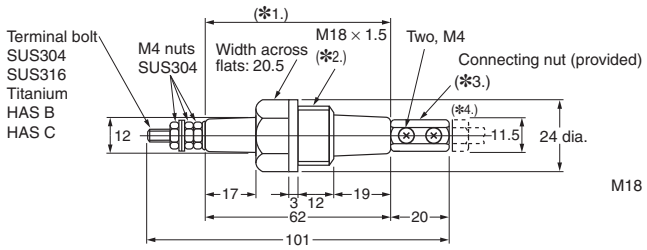
M18 P = 1.5 (fine screw thread)

✻

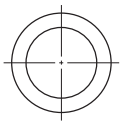
BS-1S	BS-1S-1	BS-1S2
M18 P=1.5	Taper pipe thread PT1/2 JIS B 0203	M18 P=1.5

BS-1T





Mounting Holes



M18 P = 1.5 (fine screw thread)

Material	SUS304	SUS316	Titanium	HAS B	HAS C
Weight	Approx. 55 g	Approx. 55 g	Approx. 45 g	Approx. 65 g	Approx. 60 g

✻1. All of the clamping section is made of fluororesin.
✻2. If it is not necessary to seal the tank inside and outside. The Electrode can be secured with F03-18 Nuts. (Refer to page 1.)
✻3. The material of the Connecting Nuts is the same as the material of the BS-1T. Connecting Nuts made of HAS B, HAS C, or titanium, however, do not have the screw or screw hole labeled 2-M4 in the figure.
✻4. The section shown with dotted lines is sold separately.

■ Safety Precautions

Refer to *Safety Precautions for All Level Controllers*.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

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2018.2

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