

## A Wide Variety of Electrodes for Long Lasting Reliability

- Standard Electrodes are made of stainless steel (SUS 304) and can be used in applications for purified water.
- SUS316 Electrodes can be used in applications where resistance to corrosion is required. Titanium and Hastelloy Electrodes can be used in applications where resistance to acid is required.
- For applications where long electrodes are required, a connection nut and two Lock Nuts can be used to extend the electrodes 1 m at a time.



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

## Ordering Information

Material indications are provided on all OMRON electrodes, connection nuts, and Lock Nuts.

### Electrodes

Select an electrode appropriate for the type of liquid. Refer to *Technical Guide for Level Controllers*.

| Model                      | Material             | Weight (g)  | Material indication lines |                       |
|----------------------------|----------------------|-------------|---------------------------|-----------------------|
| F03-01 SUS304              | SUS304               | Approx. 170 | 1 line                    | <div>Electrodes</div> |
| F03-01 SUS316              | SUS316               |             | 2 lines                   |                       |
| F03-01 HAS B (See note 1.) | N10665 (See note 2.) | Approx. 195 | 3 lines                   |                       |
| F03-01 HAS C (See note 1.) | N10276 (See note 2.) | Approx. 190 | 4 lines                   |                       |
| F03-01 TITANIUM            | Titanium             | Approx. 100 | 5 lines                   |                       |

**Note: 1.** Hastelloy® is a registered trade name of Haynes International Inc.

**2.** UNS No. (Unified Numbering System No.) is an international metal designation system that specifies a unique number for each material.

### Insulated Electrodes

Electrodes are insulated with a plastic sheath to prevent them from touching each other and to isolate them from debris in the liquid. Before application, strip back about 10 cm of the sheath at the end to ensure sufficient conductivity.

| Model         |                    |
|---------------|--------------------|
| F03-01 SUS304 | Vinyl Tubing       |
| F03-01 SUS304 | Fluororesin Tubing |
| F03-01 SUS316 | Vinyl Tubing       |
| F03-01 SUS316 | Fluororesin Tubing |

**Note:** Tubing comes in 1-m lengths with a sheath thickness of 0.5 mm.

### Connecting Nuts

| Model           | Material                      | Weight (g) | Material indication |
|-----------------|-------------------------------|------------|---------------------|
| F03-02 SUS304   | SUS303 (Equivalent to SUS304) | Approx. 12 | Blank               |
| F03-02 SUS316   | SUS316                        |            | 6                   |
| F03-02 HAS B    | N10665 (See note.)            | Approx. 20 | B                   |
| F03-02 HAS C    | N10276 (See note.)            |            | C                   |
| F03-02 TITANIUM | Titanium                      | Approx. 6  | T                   |

**Note:** UNS No. (Unified Numbering System No.) is an international metal designation system that specifies a unique number for each material.

## Electrode Sets

An Electrode Set consists of an electrode, a connecting nut, and two Lock Nuts.

| Set model     | Components    | No. of parts in an set | Weight (g)     |
|---------------|---------------|------------------------|----------------|
| F03-60 SUS304 | F03-01 SUS304 | 1                      | Approx.<br>190 |
|               | F03-02 SUS304 | 1                      |                |
|               | F03-03 SUS304 | 2                      |                |
| F03-60 SUS316 | F03-01 SUS316 | 1                      |                |
|               | F03-02 SUS316 | 1                      |                |
|               | F03-03 SUS316 | 2                      |                |

**Note:** Hastelloy and titanium Electrodes do not come in sets.

## Lock Nuts



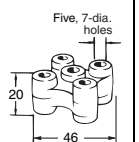
| Model                          | Material                         | Weight (g)   | Material indication |
|--------------------------------|----------------------------------|--------------|---------------------|
| F03-03 SUS304<br>(See note 1.) | SUS303<br>(Equivalent to SUS304) | Approx.<br>2 | Blank               |
| F03-03 SUS316<br>(See note 1.) | SUS316                           |              | 6                   |
| F03-03 HAS B                   | N10665<br>(See note 2.)          | Approx.<br>5 | B                   |
| F03-03 HAS C                   | N10276<br>(See note 2.)          |              | C                   |
| F03-03 TITANIUM                | Titanium                         | Approx.<br>2 | T                   |

**Note: 1.** Only SUS304 and SUS316 Lock Nuts come with spring washers made of the same material. HAS B, HAS C and TITANIUM don't come with spring washer.

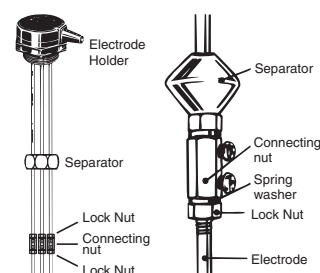
**2.** UNS No. (Unified Numbering System No.) is an international metal designation system that specifies a unique number for each material.

## Electrode Separators

When long electrodes are required, use Separators at each joint (every 1 m) to prevent the Electrodes from touching each other. Use a 1-pole Separator with BF Electrode Holders. The five-pole model can be used with PS-5S and PS-4S Electrode Holders. Separators cannot be used with PS-31 Electrode Holders.

| Model     | No. of Electrodes | Dimensions  | Applicable Electrode Holder | Weight (g) | Material | Operating Temperature |
|-----------|-------------------|---|-----------------------------|------------|----------|-----------------------|
| F03-14 1P | 1                 |  | BF-□(R)                     | Approx. 15 | Ceramic  | 250°C max.            |
| F03-14 3P | 3                 |  | PS-3S(R)                    | Approx. 30 |          |                       |
| F03-14 5P | 5                 |  | PS-4S(R)<br>PS-5S(R)        |            |          |                       |

**Note:** The Electrode Separators cannot be used unless the Electrodes are coupled.



**Note:** When using two or more Separators, be careful with the mounting direction of the connecting nut screws which connect electrodes. Avoid the screws from touching each other.

## Accessories (Order Separately)

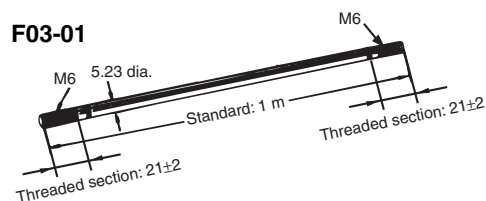
| Application   | Model  |
|---|--------|
| Protective Cover (for PS-□S and BF-3/-5)              | F03-11 |
| Mounting Frame (for PS-□S)                            | F03-12 |
| Mounting Frame for Installing in Concrete (for PS-□S) | F03-13 |
| Dust-proof Rubber Cap (for PS-31)                     | F03-31 |

# Dimensions of Electrodes and Accessories

**Note:** All units are in millimeters unless otherwise indicated.

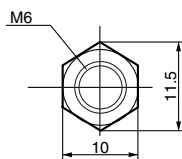
## Electrode

**F03-01**

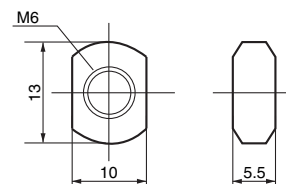


## Lock Nut

**F03-03  
SUS304  
SUS316  
Titanium**

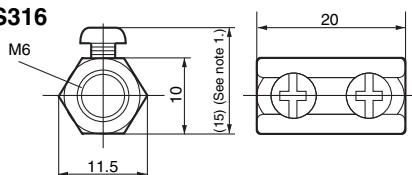


**F03-03  
HAS B  
HAS C**

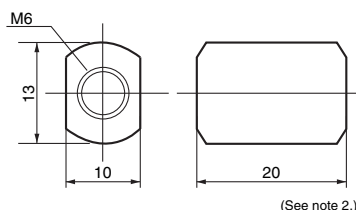


## Connecting nut

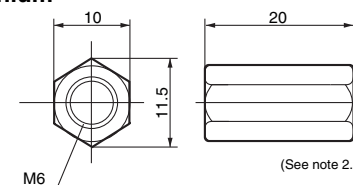
**F03-02  
SUS304  
SUS316**



**F03-02  
HAS B  
HAS C**



**F03-02  
Titanium**



**Note:** 1. Dimension when mounting Electrodes.

2. Clamp screws are not provided for Hastelloy B, Hastelloy C, or titanium models. F03-03 Lock Nuts are used to mount Electrodes.

## ■ Safety Precautions

Refer to *Safety Precautions for All Level Controllers*.

## ■ Precautions for Correct Use

### Cleaning Electrodes

Electrodes are clean when they are dispatched. In the rare occasion that they become dirty during transit or storage, such as forming an oil film on the surface, clean them again before using them.

### Operating Environment

Use the Electrode within the ambient operating temperature range of the Holder.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

In the interest of product improvement, specifications are subject to change without notice.

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