

# Tubular and Process Assemblies

## WATROD Heating Elements

### Double-Ended WATROD

| WATROD Description | Sheath A Dimension |      | Heated B Dimension |      | Watts | Code Number |           |           | Est. Net Weight |      |
|--------------------|--------------------|------|--------------------|------|-------|-------------|-----------|-----------|-----------------|------|
|                    | inch               | (mm) | inch               | (mm) |       | 120V~(ac)   | 240V~(ac) | 480V~(ac) | lbs             | (kg) |

#### Applications: Light Oils, Greases, Heat-Transfer Oils

|   |     |        |     |        |      |                |                  |                  |     |       |
|---|-----|--------|-----|--------|------|----------------|------------------|------------------|-----|-------|
| <b>23 W/in<sup>2</sup></b><br><b>0.475" Dia.</b><br><b>Steel</b><br>(3.6 W/cm <sup>2</sup> )<br>(12 mm) | 23  | (584)  | 14  | (356)  | 500  | <b>RGS231S</b> | <b>RGS2310S</b>  |                  | 0.7 | (0.4) |
|   | 31  | (787)  | 22  | (559)  | 750  | <b>RGS311S</b> | <b>RGS3110S</b>  |                  | 1.0 | (0.5) |
|   | 39  | (991)  | 27  | (686)  | 1000 | <b>RGS391S</b> | <b>RGS3910S</b>  | <b>RGS3911S</b>  | 1.2 | (0.6) |
|   | 45  | (1143) | 36  | (914)  | 1250 | <b>RGS451S</b> | <b>RGS4510S</b>  |                  | 1.4 | (0.7) |
|   | 54  | (1372) | 42  | (1067) | 1500 | <b>RGS541S</b> | <b>RGS5410S</b>  | <b>RGS5411S</b>  | 1.6 | (0.8) |
|   | 69  | (1753) | 57  | (1448) | 2000 | <b>RGS691S</b> | <b>RGS6910S</b>  | <b>RGS6911S</b>  | 2.1 | (1.0) |
|   | 84  | (2134) | 72  | (1829) | 2500 | <b>RGS841S</b> | <b>RGS8410S</b>  | <b>RGS8411S</b>  | 2.5 | (1.2) |
|   | 99  | (2515) | 87  | (2210) | 3000 |                | <b>RGS9910S</b>  | <b>RGS9911S</b>  | 3.0 | (1.4) |
|   | 106 | (2692) | 90  | (2286) | 2778 |                |                  | <b>RGS10611S</b> | 3.2 | (1.5) |
|   | 132 | (3353) | 120 | (3048) | 4167 |                | <b>RGS13210S</b> | <b>RGS13211S</b> | 4.0 | (1.8) |
|   | 144 | (3658) | 128 | (3251) | 3889 |                |                  | <b>RGS14411S</b> | 4.3 | (2.0) |
|   | 157 | (3988) | 145 | (3683) | 5000 |                | <b>RGS15710S</b> | <b>RGS15711S</b> | 4.7 | (2.2) |

#### Application: Air Heating

|   |   |        |        |        |       |                  |                 |                 |       |       |
|---|---|--------|--------|--------|-------|------------------|-----------------|-----------------|-------|-------|
| <b>30 W/in<sup>2</sup></b><br><b>0.260" Dia.</b><br><b>Incoloy®</b><br>(4.7 W/cm <sup>2</sup> )<br>(6.6 mm) | 20  | (508)  | 15     | (381)  | 400   |                  | <b>RAN2010S</b> |                 | 0.2   | (0.1) |
|   | 25  | (635)  | 20     | (508)  | 500   |                  | <b>RAN2510S</b> |                 | 0.3   | (0.2) |
|   | 30  | (762)  | 25     | (635)  | 600   |                  | <b>RAN3010S</b> |                 | 0.3   | (0.2) |
|   | 35  | (889)  | 30     | (762)  | 800   |                  | <b>RAN3510S</b> |                 | 0.4   | (0.2) |
|   | 40  | (1016) | 35     | (889)  | 900   |                  | <b>RAN4010S</b> |                 | 0.4   | (0.2) |
|   | 45  | (1143) | 40     | (1016) | 1000  |                  | <b>RAN4510S</b> |                 | 0.5   | (0.3) |
|   | 50  | (1270) | 45     | (1143) | 1200  |                  | <b>RAN5010S</b> |                 | 0.5   | (0.3) |
|   | 55  | (1397) | 50     | (1270) | 1200  |                  | <b>RAN5510S</b> |                 | 0.6   | (0.3) |
|   | 60  | (1524) | 55     | (1397) | 1400  |                  | <b>RAN6010S</b> |                 | 0.6   | (0.3) |
|   | 65  | (1651) | 60     | (1524) | 1600  |                  | <b>RAN6510S</b> |                 | 0.7   | (0.4) |
|   | 70  | (1778) | 65     | (1651) | 1800  |                  | <b>RAN7010S</b> |                 | 0.7   | (0.4) |
|   | 75  | (1905) | 70     | (1778) | 1800  |                  | <b>RAN7510S</b> |                 | 0.8   | (0.4) |
|   | 80  | (2032) | 75     | (1905) | 2000  |                  | <b>RAN8010S</b> |                 | 0.8   | (0.4) |
|   | <b>30 W/in<sup>2</sup></b><br><b>0.315" Dia.</b><br><b>Incoloy®</b><br>(4.7 W/cm <sup>2</sup> )<br>(8 mm) | 15     | (381)  | 10     | (254) | 300              |                 | <b>RBN1510S</b> |       | 0.2   |
| 20  |   | (508)  | 15     | (381)  | 400   |                  | <b>RBN2010S</b> |                 | 0.3   | (0.2) |
| 25  |   | (635)  | 20     | (508)  | 600   |                  | <b>RBN2510S</b> |                 | 0.4   | (0.2) |
| 30  |   | (762)  | 25     | (635)  | 800   |                  | <b>RBN3010S</b> |                 | 0.4   | (0.2) |
| 35  |   | (889)  | 30     | (762)  | 900   |                  | <b>RBN3510S</b> |                 | 0.5   | (0.3) |
| 40  |   | (1016) | 35     | (889)  | 1000  |                  | <b>RBN4010S</b> |                 | 0.5   | (0.3) |
| 45  |   | (1143) | 40     | (1016) | 1200  |                  | <b>RBN4510S</b> |                 | 0.6   | (0.3) |
| 50  |   | (1270) | 45     | (1143) | 1400  |                  | <b>RBN5010S</b> |                 | 0.7   | (0.4) |
| 55  |   | (1397) | 50     | (1270) | 1600  |                  | <b>RBN5510S</b> |                 | 0.7   | (0.4) |
| 60  |   | (1524) | 55     | (1397) | 1800  |                  | <b>RBN6010S</b> |                 | 0.8   | (0.4) |
| 65  |   | (1651) | 60     | (1524) | 1800  |                  | <b>RBN6510S</b> |                 | 0.8   | (0.4) |
| 70  |   | (1778) | 65     | (1651) | 2000  |                  | <b>RBN7010S</b> |                 | 0.9   | (0.5) |
| 75  |   | (1905) | 70     | (1778) | 2200  |                  | <b>RBN7510S</b> |                 | 1.0   | (0.5) |
| 80  |   | (2032) | 75     | (1905) | 2400  |                  | <b>RBN8010S</b> |                 | 1.0   | (0.5) |
| 90  | (2286)  | 85     | (2159) | 2600   |       | <b>RBN9010S</b>  |                 | 1.2             | (0.6) |       |
| 100   | (2540)  | 95     | (2413) | 3000   |       | <b>RBN10010S</b> |                 | 1.3             | (0.6) |       |

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All heating elements are Stock unless otherwise noted.   Truck Shipment only

#### Availability

**Stock:** Same day shipment

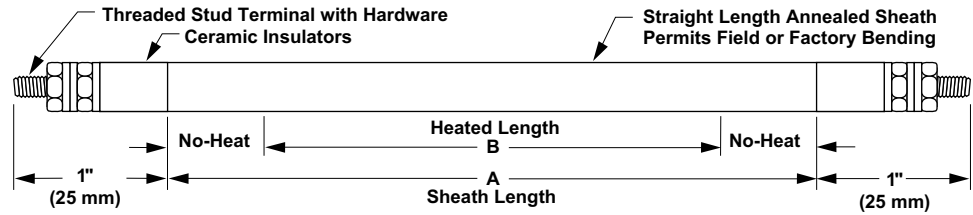
**Standard:** Straight length, three weeks; formed with options, four weeks

WATROD

# Tubular and Process Assemblies

## WATROD Heating Elements

### Double-Ended WATROD



| WATROD Description | Sheath A Dimension |      | Heated B Dimension |      | Watts | Code Number |           |           | Est. Net Weight |      |
|--------------------|--------------------|------|--------------------|------|-------|-------------|-----------|-----------|-----------------|------|
|                    | inch               | (mm) | inch               | (mm) |       | 120V~(ac)   | 240V~(ac) | 480V~(ac) | lbs             | (kg) |

#### Application: Air Heating

|  |        |        |        |        |      |                  |                   |                   |       |       |
|--|--------|--------|--------|--------|------|------------------|-------------------|-------------------|-------|-------|
| <b>30 W/in<sup>2</sup></b><br><b>0.430" Dia.</b><br><b>Incoloy®</b><br>(4.7 W/cm <sup>2</sup> )<br>(10.9 mm) | 15     | (381)  | 10     | (254)  | 400  |                  | <b>RCN1510S</b>   |                   | 0.3   | (0.2) |
|  | 20     | (508)  | 15     | (381)  | 600  |                  | <b>RCN2010S</b>   |                   | 0.4   | (0.2) |
|  | 25     | (635)  | 20     | (508)  | 800  |                  | <b>RCN2510S</b>   |                   | 0.5   | (0.3) |
|  | 30     | (762)  | 25     | (635)  | 1000 |                  | <b>RCN3010S</b>   |                   | 0.6   | (0.3) |
|  | 35     | (889)  | 30     | (762)  | 1200 |                  | <b>RCN3510S</b>   |                   | 0.7   | (0.4) |
|  | 40     | (1016) | 35     | (889)  | 1400 |                  | <b>RCN4010S</b>   |                   | 0.8   | (0.4) |
|  | 48 3/4 | (1238) | 38 3/4 | (984)  | 1500 |                  | <b>RCNX48N10S</b> | <b>RCNX48N11S</b> | 1.0   | (0.5) |
|  | 45     | (1143) | 40     | (1016) | 1600 |                  | <b>RCN4510S</b>   |                   | 0.9   | (0.5) |
|  | 50     | (1270) | 45     | (1143) | 1800 |                  | <b>RCN5010S</b>   |                   | 1.0   | (0.5) |
|  | 58 3/4 | (1492) | 48 3/4 | (1238) | 1917 |                  | <b>RCNX58N10S</b> | <b>RCNX58N11S</b> | 1.1   | (0.5) |
|  | 55     | (1397) | 50     | (1270) | 2000 |                  | <b>RCN5510S</b>   |                   | 1.0   | (0.5) |
|  | 60     | (1524) | 55     | (1397) | 2200 |                  | <b>RCN6010S</b>   |                   | 1.1   | (0.5) |
|  | 65     | (1651) | 60     | (1524) | 2400 |                  | <b>RCN6510S</b>   |                   | 1.2   | (0.6) |
|  | 73 3/4 | (1873) | 63 3/4 | (1619) | 2500 |                  |                   | <b>RCNX73N11S</b> | 1.4   | (0.7) |
|  | 70     | (1778) | 65     | (1651) | 2600 |                  | <b>RCN7010S</b>   |                   | 1.3   | (0.6) |
|  | 75     | (1905) | 70     | (1778) | 2800 |                  | <b>RCN7510S</b>   |                   | 1.4   | (0.7) |
|  | 80     | (2032) | 75     | (1905) | 3000 |                  | <b>RCN8010S</b>   |                   | 1.5   | (0.7) |
|  | 91 3/4 | (2330) | 81 3/4 | (2076) | 3167 |                  |                   | <b>RCNX91N11S</b> | 1.7   | (0.8) |
|  | 90     | (2286) | 85     | (2159) | 3500 |                  | <b>RCN9010S</b>   |                   | 1.7   | (0.8) |
| 100  | (2540) | 95     | (2413) | 4000   |      | <b>RCN10010S</b> |                   | 1.9               | (0.9) |       |
| 110  | (2794) | 105    | (2667) | 4500   |      | <b>RCN11010S</b> |                   | 2.1               | (1.0) |       |
| 120  | (3048) | 115    | (2921) | 5000   |      | <b>RCN12010S</b> |                   | 2.3               | (1.1) |       |

#### Application: Radiant Heating

|   |         |        |         |        |      |                 |                     |                  |     |       |
|---|---------|--------|---------|--------|------|-----------------|---------------------|------------------|-----|-------|
| <b>40 W/in<sup>2</sup></b><br><b>0.375" Dia.</b><br><b>Incoloy®</b><br>(6.2 W/cm <sup>2</sup> )<br>(9.5 mm) | 10 3/4  | (260)  | 7 3/4   | (184)  | 400  | <b>RDN10E1S</b> |                     |                  | 0.2 | (0.1) |
|   | 16 3/8  | (422)  | 13 3/8  | (346)  | 650  | <b>RDN16L1S</b> |                     |                  | 0.3 | (0.2) |
|   | 21 1/8  | (535)  | 16 1/8  | (427)  | 800  | <b>RDN21B1S</b> | <b>RDN21B10S</b>    |                  | 0.4 | (0.2) |
|   | 27 3/8  | (689)  | 22 3/8  | (581)  | 1100 | <b>RDN27C1S</b> | <b>RDN27C10S</b>    |                  | 0.5 | (0.3) |
|   | 32 3/8  | (816)  | 27 3/8  | (708)  | 1300 |                 | <b>RDN32C10S</b>    | <b>RDN32C11S</b> | 0.6 | (0.3) |
|   | 42 3/8  | (1089) | 38 3/8  | (981)  | 1800 |                 | <b>RDN42R10S</b>    | <b>RDN42R11S</b> | 0.8 | (0.4) |
|   | 57 1/2  | (1461) | 53 1/4  | (1353) | 2500 |                 | <b>RDN57J10S</b>    | <b>RDN57J11S</b> | 1.1 | (0.5) |
|   | 69 3/4  | (1759) | 65      | (1651) | 3000 |                 | <b>RDN69E10S</b>    | <b>RDN69E11S</b> | 1.3 | (0.6) |
|   | 81 1/4  | (2064) | 77      | (1956) | 3600 |                 | <b>RDN81E10S</b>    | <b>RDN81E11S</b> | 1.6 | (0.8) |
|   | 109 3/4 | (2775) | 105     | (2667) | 4000 |                 | <b>RDN109E10S</b> ① |                  | 2.1 | (1.0) |
|   | 134 1/2 | (3416) | 127 3/4 | (3245) | 5000 |                 | <b>RDN134J10S</b> ① |                  | 2.6 | (1.2) |
|   | 153 3/8 | (3896) | 145 3/8 | (3705) | 5500 |                 | <b>RDN153R10S</b> ① |                  | 2.9 | (1.4) |
|   | 179 3/4 | (4553) | 171 3/4 | (4350) | 6500 |                 | <b>RDN179E10S</b> ① |                  | 3.4 | (1.6) |

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All heating elements are Stock unless otherwise noted.

① Standard

#### Availability

**Stock:** Same day shipment

**Standard:** Straight length, three weeks; formed with options, four weeks

Truck Shipment only

# Tubular and Process Assemblies

## WATROD Heating Elements

### Double-Ended WATROD

#### Special 208V~(ac) and 277V~(ac) Voltages

| WATROD Description | Sheath A Dimension |      | Heated B Dimension |      | Watts | Code Number |           | Est. Net Weight |      |
|--------------------|--------------------|------|--------------------|------|-------|-------------|-----------|-----------------|------|
|                    | inch               | (mm) | inch               | (mm) |       | 208V~(ac)   | 277V~(ac) | lbs             | (kg) |

#### Application: Radiant Heating

|   |         |        |         |        |      |                   |                   |     |       |
|---|---------|--------|---------|--------|------|-------------------|-------------------|-----|-------|
| <b>40 W/in<sup>2</sup></b><br><b>0.375" Dia.</b><br><b>Incoloy®</b><br>(6.2 W/cm <sup>2</sup> )<br>(9.5 mm) | 21 1/16 | (535)  | 16 1/16 | (427)  | 800  | <b>RDN21B2S</b> ① | <b>RDN21B4S</b> ① | 0.4 | (0.2) |
|   | 27 1/8  | (689)  | 22 7/8  | (581)  | 1100 | <b>RDN27C2S</b> ① | <b>RDN27C4S</b> ① | 0.5 | (0.3) |
|   | 42 7/8  | (1089) | 38 7/8  | (981)  | 1800 | <b>RDN42R2S</b> ① | <b>RDN42R4S</b> ① | 0.8 | (0.4) |
|   | 57 1/2  | (1461) | 53 1/4  | (1353) | 2500 | <b>RDN57J2S</b> ① | <b>RDN57J4S</b> ① | 1.1 | (0.5) |
|   | 69 1/4  | (1759) | 65      | (1651) | 3000 | <b>RDN69E2S</b> ① | <b>RDN69E4S</b> ① | 1.3 | (0.6) |
|   | 81 1/4  | (2064) | 77      | (1956) | 3600 | <b>RDN81E2S</b> ① | <b>RDN81E4S</b> ① | 1.6 | (0.8) |

| WATROD Description | Sheath A Dimension |      | Heated B Dimension |      | Watts | Code Number |           |           | Est. Net Weight |      |
|--------------------|--------------------|------|--------------------|------|-------|-------------|-----------|-----------|-----------------|------|
|                    | inch               | (mm) | inch               | (mm) |       | 120V~(ac)   | 240V~(ac) | 480V~(ac) | lbs             | (kg) |

#### Application: Process Water

|  |     |        |     |        |      |                |                 |                  |     |       |
|--|-----|--------|-----|--------|------|----------------|-----------------|------------------|-----|-------|
| <b>48 W/in<sup>2</sup></b><br><b>0.475" Dia.</b><br><b>Incoloy®</b><br>(7.4 W/cm <sup>2</sup> )<br>(12 mm) | 23  | (584)  | 14  | (356)  | 1000 | <b>RGN231S</b> | <b>RGN2310S</b> | <b>RGN2311S</b>  | 0.7 | (0.4) |
|  | 30  | (762)  | 21  | (533)  | 1500 | <b>RGN301S</b> | <b>RGN3010S</b> | <b>RGN3011S</b>  | 0.9 | (0.5) |
|  | 39  | (991)  | 27  | (686)  | 2000 | <b>RGN391S</b> | <b>RGN3910S</b> | <b>RGN3911S</b>  | 1.2 | (0.6) |
|  | 44  | (1118) | 35  | (889)  | 2500 | <b>RGN441S</b> | <b>RGN4410S</b> | <b>RGN4411S</b>  | 1.3 | (0.6) |
|  | 54  | (1372) | 42  | (1067) | 3000 |                | <b>RGN5410S</b> | <b>RGN5411S</b>  | 1.6 | (0.8) |
|  | 69  | (1753) | 57  | (1448) | 4000 |                | <b>RGN6910S</b> | <b>RGN6911S</b>  | 2.1 | (1.0) |
|  | 84  | (2134) | 72  | (1829) | 5000 |                | <b>RGN8410S</b> | <b>RGN8411S</b>  | 2.5 | (1.2) |
|  | 92  | (2337) | 76  | (1930) | 5556 |                |                 | <b>RGN9211S</b>  | 2.8 | (1.3) |
|  | 99  | (2515) | 87  | (2210) | 6000 |                | <b>RGN9910S</b> | <b>RGN9911S</b>  | 3.0 | (1.4) |
|  | 149 | (3785) | 133 | (3378) | 9722 |                |                 | <b>RGN14911S</b> | 4.5 | (2.1) |

#### Application: Hot Runner Molds (Manifolds)

|   |    |        |    |        |      |  |                 |  |     |       |
|---|----|--------|----|--------|------|--|-----------------|--|-----|-------|
| <b>60 W/in<sup>2</sup></b><br><b>0.315" Dia.</b><br><b>316 SS</b><br>(9.3 W/cm <sup>2</sup> )<br>(8 mm) | 35 | (889)  | 25 | (635)  | 1500 |  | <b>RBR3510S</b> |  | 0.2 | (0.1) |
|   | 44 | (1118) | 34 | (864)  | 2000 |  | <b>RBR4410S</b> |  | 0.3 | (0.2) |
|   | 52 | (1321) | 42 | (1067) | 2500 |  | <b>RBR5210S</b> |  | 0.3 | (0.2) |
|   | 60 | (1524) | 50 | (1270) | 3000 |  | <b>RBR6010S</b> |  | 0.4 | (0.2) |
|   | 69 | (1753) | 59 | (1499) | 3500 |  | <b>RBR6910S</b> |  | 0.4 | (0.2) |
|   | 77 | (1956) | 67 | (1702) | 4000 |  | <b>RBR7710S</b> |  | 0.5 | (0.3) |
|   | 85 | (2159) | 75 | (1905) | 4500 |  | <b>RBR8510S</b> |  | 0.6 | (0.3) |

#### Applications: Deionized Water, Demineralized Water

|  |     |        |    |        |      |                                  |                 |                  |     |       |
|--|-----|--------|----|--------|------|----------------------------------|-----------------|------------------|-----|-------|
| <b>60 W/in<sup>2</sup></b><br><b>0.475" Dia.</b><br><b>316 SS</b><br>(9.3 W/cm <sup>2</sup> )<br>(12 mm) | 20  | (508)  | 11 | (279)  | 1000 | <b>RGR201S</b><br><b>RGR261S</b> | <b>RGR2010S</b> | <b>RGR2011S</b>  | 0.6 | (0.3) |
|  | 26  | (660)  | 17 | (432)  | 1500 |                                  | <b>RGR2610S</b> | <b>RGR2611S</b>  | 0.8 | (0.4) |
|  | 34  | (864)  | 22 | (559)  | 2000 |                                  | <b>RGR3410S</b> | <b>RGR3411S</b>  | 1.0 | (0.5) |
|  | 40  | (1016) | 28 | (711)  | 2500 |                                  | <b>RGR4010S</b> | <b>RGR4011S</b>  | 1.2 | (0.6) |
|  | 47  | (1194) | 31 | (787)  | 2778 |                                  |                 | <b>RGR4711S</b>  | 1.4 | (0.7) |
|  | 46  | (1168) | 34 | (864)  | 3000 |                                  | <b>RGR4610S</b> | <b>RGR4611S</b>  | 1.4 | (0.7) |
|  | 57  | (1448) | 45 | (1143) | 4000 |                                  | <b>RGR5710S</b> | <b>RGR5711S</b>  | 1.7 | (0.8) |
|  | 68  | (1727) | 56 | (1422) | 5000 |                                  | <b>RGR6810S</b> | <b>RGR6811S</b>  | 2.1 | (1.0) |
|  | 79  | (2007) | 67 | (1702) | 6000 |                                  | <b>RGR7910S</b> | <b>RGR7911S</b>  | 2.4 | (1.1) |
|  | 105 | (2667) | 93 | (2362) | 8333 |                                  |                 | <b>RGR10511S</b> | 3.2 | (1.5) |

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All heating elements are Stock unless otherwise noted.

① Standard

#### Availability

**Stock:** Same day shipment

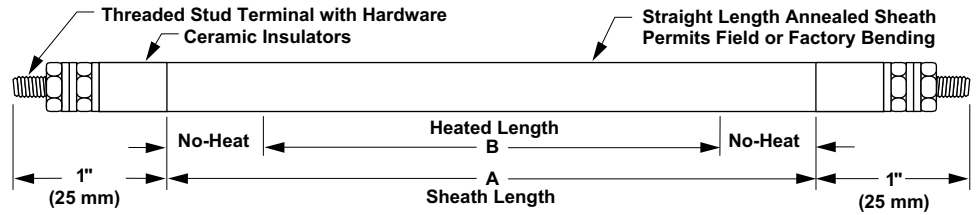
**Standard:** Straight length, three weeks; formed with options, four weeks

Truck Shipment only.

# Tubular and Process Assemblies

## WATROD Heating Elements

### Double-Ended WATROD



| WATROD Description | Sheath A Dimension |      | Heated B Dimension |      | Watts | Code Number |           |           | Est. Net Weight |      |
|--------------------|--------------------|------|--------------------|------|-------|-------------|-----------|-----------|-----------------|------|
|                    | inch               | (mm) | inch               | (mm) |       | 120V~(ac)   | 240V~(ac) | 480V~(ac) | lbs             | (kg) |

#### Application: Clean Water

|  |        |        |        |        |                      |                       |                        |                       |       |       |
|--|--------|--------|--------|--------|----------------------|-----------------------|------------------------|-----------------------|-------|-------|
| 60 W/in <sup>2</sup><br>0.315" Dia.<br>Copper<br>(9.3 W/cm <sup>2</sup> )<br>(8 mm)  | 12     | (305)  | 8      | (203)  | 500                  | RBC121S               | RBC1210S               |                       | 0.2   | (0.1) |
|  | 16     | (406)  | 12     | (305)  | 750                  | RBC161S               | RBC1610S               |                       | 0.2   | (0.1) |
|  | 19%    | (505)  | 12%    | (327)  | 750                  | RBC19R1S              |                        |                       | 0.3   | (0.2) |
|  | 20     | (508)  | 16     | (406)  | 1000                 | RBC201S               | RBC2010S               |                       | 0.3   | (0.2) |
|  | 23%    | (603)  | 16%    | (425)  | 1000                 | RBC23N1S              |                        |                       | 0.3   | (0.2) |
|  | 24     | (610)  | 20     | (508)  | 1250                 | RBC241S               | RBC2410S               |                       | 0.3   | (0.2) |
|  | 27%    | (705)  | 20%    | (527)  | 1250                 | RBC27N1S              |                        |                       | 0.4   | (0.2) |
|  | 33     | (838)  | 26     | (660)  | 1500                 | RBC331S               | RBC3310S               |                       | 0.5   | (0.3) |
|  | 41     | (1041) | 34     | (864)  | 2000                 | RBC411S               | RBC4110S               |                       | 0.6   | (0.3) |
|  | 50     | (1270) | 43     | (1092) | 2500                 | RBC501S <sup>②</sup>  | RBC5010S <sup>②</sup>  |                       | 0.7   | (0.4) |
| 58   | (1473) | 51     | (1295) | 3000   | RBC581S <sup>②</sup> | RBC5810S <sup>②</sup> |                        | 0.8                   | (0.4) |       |
| 74   | (1880) | 67     | (1702) | 4000   |                      | RBC7410S <sup>②</sup> |                        | 1.0                   | (0.5) |       |
| 60 W/in <sup>2</sup><br>0.475" Dia.<br>Copper<br>(9.3 W/cm <sup>2</sup> )<br>(12 mm) | 20     | (508)  | 11     | (279)  | 1000                 | RGC201S               | RGC2010S               |                       | 0.6   | (0.3) |
|  | 26     | (660)  | 17     | (432)  | 1500                 | RGC261S               | RGC2610S               | RGC2611S              | 0.8   | (0.4) |
|  | 34     | (864)  | 22     | (559)  | 2000                 | RGC341S               | RGC3410S               | RGC3411S              | 1.0   | (0.5) |
|  | 40     | (1016) | 28     | (711)  | 2500                 | RGC401S               | RGC4010S               | RGC4011S              | 1.2   | (0.6) |
|  | 46     | (1169) | 34     | (864)  | 3000                 |                       | RGC4610S <sup>②</sup>  | RGC4611S <sup>②</sup> | 1.4   | (0.7) |
|  | 47     | (1194) | 31     | (787)  | 2778                 |                       |                        | RGC4711S <sup>②</sup> | 1.4   | (0.7) |
|  | 57     | (1448) | 45     | (1143) | 4000                 |                       | RGC5710S <sup>②</sup>  | RGC5711S <sup>②</sup> | 1.7   | (0.8) |
|  | 68     | (1727) | 56     | (1422) | 5000                 |                       | RGC6810S <sup>②</sup>  | RGC6811S <sup>②</sup> | 2.1   | (1.0) |
|  | 78     | (1981) | 62     | (1575) | 5556                 |                       |                        | RGC7811S <sup>②</sup> | 2.4   | (1.1) |
|  | 79     | (2007) | 67     | (1702) | 6000                 |                       | RGC7910S <sup>②</sup>  | RGC7911S <sup>②</sup> | 2.4   | (1.1) |
| 105  | (2661) | 93     | (2362) | 8333   |                      |                       | RGC10511S <sup>②</sup> | 3.2                   | (1.5) |       |

All heating elements are Stock unless otherwise noted.

#### Availability

**Stock:** Same day shipment

**Standard:** Straight length, three weeks; formed with options, four weeks

<sup>②</sup> Stocked unannealed. Allow one day for annealing. Specify **DO NOT ANNEAL** if annealed WATROD not required.

Truck Shipment only

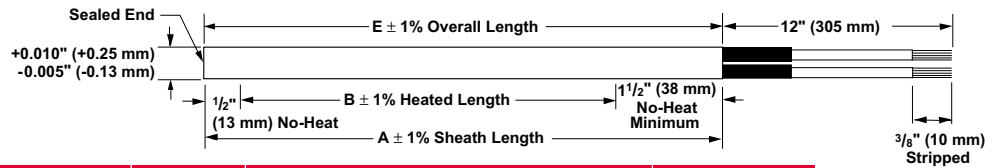
# Tubular and Process Assemblies

## WATROD Heating Elements

### Single-Ended WATROD Application Hints

The single-ended WATROD heater's construction limits its usefulness in some applications. The following are some guides to follow when considering a single-ended WATROD.

- When single-ended termination simplifies application wiring.
- Your application requires lower wattage or a smaller package.
- Do not locate the end of the heated length within a bend, unless the radius is three inches (75 mm) or more. Field bending is not recommended.
- Bending is limited to bend Figures 1, 6, 22 and 28 (see pages 282 to 286 for details).
- Ensure termination temperatures do not exceed 390°F (200°C) or the seal's maximum rating.
- Keep terminations clean, dry and tight.



### Single-Ended WATROD

| WATROD Description | Sheath A Dimension |      | Heated B Dimension |      | Watts | Code Number |           | Est. Net Weight |      |
|--------------------|--------------------|------|--------------------|------|-------|-------------|-----------|-----------------|------|
|                    | inch               | (mm) | inch               | (mm) |       | 120V~(ac)   | 240V~(ac) | lbs             | (kg) |

#### Applications: Platen and Forced Air Heating, and Deicing

|                            |    |        |        |       |     |                |                 |     |       |
|----------------------------|----|--------|--------|-------|-----|----------------|-----------------|-----|-------|
| <b>20 W/in<sup>2</sup></b> | 15 | (381)  | 11 1/2 | (292) | 270 | <b>RSN151W</b> | <b>RSN1510W</b> | 0.3 | (0.2) |
| <b>0.375" Dia.</b>         | 20 | (508)  | 16 1/2 | (419) | 390 | <b>RSN201W</b> | <b>RSN2010W</b> | 0.4 | (0.2) |
| <b>Incoloy®</b>            | 25 | (635)  | 21 1/2 | (546) | 500 | <b>RSN251W</b> | <b>RSN2510W</b> | 0.5 | (0.3) |
| (3.1 W/cm <sup>2</sup> )   | 30 | (762)  | 26 1/2 | (673) | 625 | <b>RSN301W</b> | <b>RSN3010W</b> | 0.6 | (0.3) |
| (9.5 mm)                   | 35 | (889)  | 31 1/2 | (800) | 750 | <b>RSN351W</b> | <b>RSN3510W</b> | 0.7 | (0.4) |
|                            | 40 | (1016) | 36 1/2 | (927) | 860 | <b>RSN401W</b> | <b>RSN4010W</b> | 0.8 | (0.4) |

All heating elements are Standard units.

#### Availability

**Standard:** Shipment within six weeks

**F.O.B.:** Hannibal, Missouri

### How to Order

#### Single or Double-Ended WATROD

To order a stock, standard or assembly stock WATROD element, specify:

- Watlow code number
- Volts/watts
- Termination options
- Options
- Quantity

If stock WATROD heaters do not meet your application needs, Watlow can provide a made-to-order unit. Please specify:

- Description of application, including heated material, operating temperature and flow rate, etc.
- Volts/watts
- Sheath material/diameter
- Sheath length

- Single or double-ended
- Heated length
- No-heat length at each end
- Terminal pin length or termination options
- Moisture seal type
- Bend configuration, dimensions and critical tolerances (send drawing, if available)
- Options, including external finish and mounting method
- Quantity

#### Availability

#### Double-Ended WATROD

##### Straight Length Element

**Stock:** Same day shipment

**Modified Stock<sup>Ⓢ</sup>:** Three to five working days

**Standard:** 10 working days

**Made-to-Order:** Three weeks

#### Formed Element

**Modified Stock<sup>Ⓢ</sup>:** Five to seven working days

**Standard:** Three weeks

**Made-to-Order:** Four to five weeks

#### Single-Ended WATROD

##### Straight Length Element

**Modified Stock<sup>Ⓢ</sup>:** Three weeks

**Standard:** Three weeks

**Made-to-Order:** Three weeks

#### Formed Element

**Modified Stock<sup>Ⓢ</sup>:** Three weeks

**Standard:** Three weeks

**Made-to-Order:** Four to five weeks

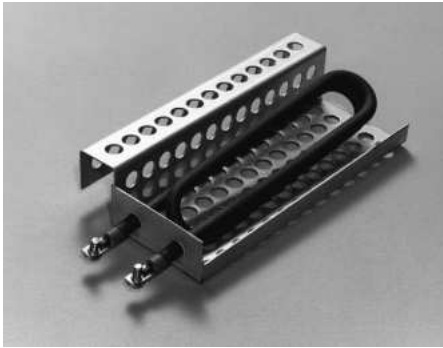
Options, complexity and quantity may affect availability and lead times. Consult factory.

<sup>Ⓢ</sup> Stock units with catalog options.

# Tubular and Process Assemblies

## WATROD Heating Elements

### Enclosure Heaters



Designed to prevent freezing and condensation in electrical and mechanical housings, the WATROD element is enclosed in a perforated, aluminized-steel bracket.

#### Performance Capabilities

- Watt densities to 15 W/in<sup>2</sup> (2.3 W/cm<sup>2</sup>)
- Wattages to 1000 watts
- UL® and CSA component recognition to 250V~(ac)

#### Features and Benefits

- **Stainless steel sheath wall** further resists corrosion and protects the heating coil from exposure.

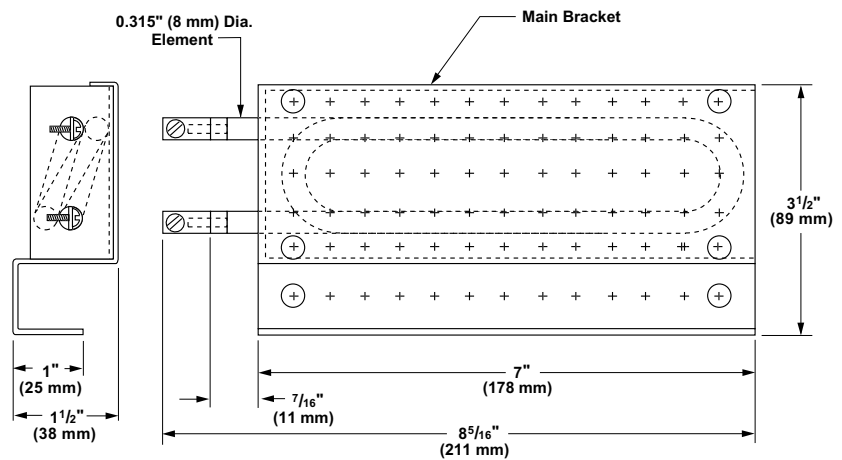
- **Silicone resin seal** provides protection against humid storage conditions and is effective to 390°F (200°C).
- **Perforated aluminized-steel mounting bracket** eases installation and helps prevent direct contact with the heating element.
- **Stock straight projection Type B #10-32 screw lug terminals** provide easy electrical connection.
- **Made-to-Order threaded stud,** quick connect and flexible lead wire termination options. See [page 281](#) for details.

#### Applications

- Control panels
- Traffic signal boxes
- Automatic teller machines
- Switch gear
- Electronic equipment

#### Application Hints

- Locate heater(s) in the lowest portion of the enclosure to maximize convection heating.
- Place thermostat(s) in the upper half of the enclosure, away from the heater(s).



| Watts | Watt Density      |                      | Code No.      |                | Availability | Est. Net Weight |       |
|-------|-------------------|----------------------|---------------|----------------|--------------|-----------------|-------|
|       | W/in <sup>2</sup> | (W/cm <sup>2</sup> ) | 125V~(ac)     | 250V~(ac)      |              | lbs             | (kg)  |
| 95    | 4                 | (0.6)                | <b>EN951</b>  |                | Stock        | 1.5             | (0.7) |
| 100   | 4                 | (0.6)                |               | <b>EN10010</b> | Stock        | 1.5             | (0.7) |
| 250   | 10                | (1.6)                | <b>EN2501</b> | <b>EN25010</b> | Stock        | 1.5             | (0.7) |
| 375   | 15                | (2.3)                | <b>EN3751</b> | <b>EN37510</b> | Stock        | 1.5             | (0.7) |

F.O.B.: Hannibal, Missouri

#### How to Order

To order a stock WATROD enclosure heater, please specify:

- Watlow code number
- Volts/watts
- Termination options
- Options
- Quantity

If our stock units do not meet your application, Watlow can provide

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**made-to-order** enclosure heaters.

Please specify:

- Volts/watts
- Sheath diameter/material
- No-heat section
- A, C, H, L and R dimensions per Figure 8 bend formation shown on catalog [page 283](#).
- Termination options
- Options
- Quantity

#### Availability

**Stock:** Same day shipment

**Modified Stock®:** Three to five working days

**Made-to-Order:** Four to five weeks

Options, complexity and quantity may affect availability and lead times. Consult factory.

® Stock units with catalog options.