

2T & T2T Series

PRODUCT DATA SHEET

Screw Plug Heater

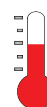
Durable, efficient chemical heater

For use in most aqueous alkaline solutions and rinse tanks

Heavy wall metal sheaths and screwplug in 316 stainless steel & titanium

Vapor tight, flame retardant PVC enclosure

Grounded construction



Up to 82°C (180°F)



2,000 watts to 18,000 watts.



240 or 480 Volts
208, 380, 415, 600 and other voltages available



Steel, 304 stainless steel, 316 stainless steel and titanium.

| 2T SERIES, 2" (STAINLESS STEEL) SCREW PLUG HEATERS | | | | | | |
|--|-------|----------------------------|-------------|-----------------|--------------|------------------------|
| WATTS | VOLTS | OVERALL LENGTH In./(mm) | PIPE THREAD | NO. OF ELEMENTS | MODEL NUMBER | SHIP WGT. Lbs./(kg) |
| 2000 | 240 | 8 | 2 | 2 | 2T2208 | 5 |
| | 480 | (203) | | | 2T2408 | (2.3) |
| 3000 | 240 | 12 | 2 | 2 | 2T3212 | 6 |
| | 480 | (305) | | | 2T3412 | (2.7) |
| 4000 | 240 | 18 | 2 | 2 | 2T4218 | 7 |
| | 480 | (457) | | | 2T4418 | (3.2) |
| 6000 | 240 | 25 | 2 | 2 | 2T6225 | 8 |
| | 480 | (635) | | | 2T6425 | (3.6) |
| 8000 | 240 | 32 | 2 | 2 | 2T8232 | 10 |
| | 480 | (813) | | | 2T8432 | (4.5) |
| 10000 | 240 | 40 | 2 | 2 | 2T10240 | 11 |
| | 480 | (1016) | | | 2T10440 | (5) |
| 12000 | 480 | 48 | 2 | 2 | 2T12448 | 13 |
| | | (1219) | | | | (5.9) |
| 15000 | 480 | 54 | 2 | 2 | 2T15454 | 15 |
| | | (1372) | | | | (6.8) |

| T2T SERIES, 2" (TITANIUM) SCREW PLUG HEATERS | | | | | | |
|--|-------|----------------------------|-------------|-----------------|--------------|------------------------|
| WATTS | VOLTS | OVERALL LENGTH In./(mm) | PIPE THREAD | NO. OF ELEMENTS | MODEL NUMBER | SHIP WGT. Lbs./(kg) |
| 2000 | 240 | 8 | 2 | 2 | T2T2208 | 5 |
| | 480 | (203) | | | T2T2408 | (2.3) |
| 4000 | 240 | 18 | 2 | 2 | T2T4218 | 7 |
| | 480 | (457) | | | T2T4418 | (3.2) |
| 6000 | 240 | 25 | 2 | 2 | T2T6225 | 8 |
| | 480 | (635) | | | T2T6425 | (3.6) |
| 8000 | 240 | 32 | 2 | 2 | T2T8232 | 10 |
| | 480 | (813) | | | T2T8432 | (4.5) |
| 12000 | 480 | 48 | 2 | 2 | T2T12448 | 13 |
| | | (1219) | | | | (5.9) |

Single phase standard

PROCESS TECHNOLOGY

ISO 9001:2015
WITH DESIGN CERTIFIED

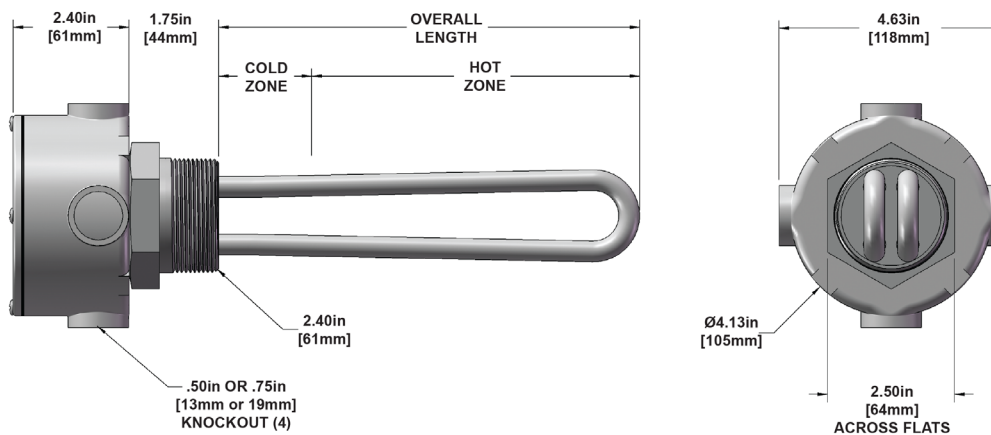
Features & Values

- For use in most aqueous alkaline solutions and rinse tanks. Check solution recommendation chart with your chemical supplier for proper sheath material selection
- Heavy wall metal sheaths and screwplug in 316 stainless steel and titanium
- Watt densities up to 45-55 watts per square inch for 316 Stainless steel and <60 watts per square inch for titanium ensure long life service
- Vapor tight, flame retardant PVC enclosure
- Temperature and level controls sized to match the heater
- Lower watt densities for highly viscous solutions

Specifications

| | |
|--------------------------|---|
| Wattages | 2,000 to 18,000 Watts |
| Voltages | 240 or 480 Volts 208, 380, 415, 600 and other voltages available |
| Temperature Range | Up to 180°C (82°F) |
| Options | <ul style="list-style-type: none"> ▫ Special configurations and lengths ▫ Thermowells ▫ Explosion resistant enclosures ▫ Carbon steel or incoloy elements ▫ Integral thermostats |
| Safety Features | <ul style="list-style-type: none"> ▫ Grounded construction |

Dimensions



Model Number Breakdown

| Series | Wattage | Voltage | Overall Length | Phase |
|--------------------------|------------|---------|---------------------|--|
| 2T = 316 stainless steel | 2 = 2000 | 1 = 120 | 8 = 2kW | no designator = Single phase (std) |
| T2T = titanium | 3 = 3000 | 2 = 240 | 12 = 3kW | -3 = three phase power (three elements) |
| IN2T = incoloy | 4 = 4000 | 3 = 380 | 18 = 4kW | -M2 = explosion/moisture resisting housing |
| | 6 = 6000 | 4 = 480 | 25 = 6kW | -W = thermowell |
| | 8 = 8000 | 5 = 415 | 32 = 8kW | -T = intergral thermostat |
| | 10 = 10000 | 6 = 600 | 40 = 10kW (SS only) | |
| | 12 = 12000 | 7 = 400 | 48 = 12kW | |
| | 15 = 15000 | 8 = 208 | 54 = 15kW (SS only) | |
| | | 9 = 220 | | |
| | | 0 = 200 | | |



3HS Series

PRODUCT DATA SHEET

Metal Heater

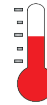
Durable, efficient chemical heater

For use in most aqueous alkaline solutions and rinse tanks

Low watt density design saves space & ensures long life

Vapor resistant, flame retardant polypropylene terminal enclosure

Grounded construction and built in thermal protector



Up to 82°C (180°F)



3,000 watts to 10,500 watts.



200 to 600 Volts
600V on 4,500W or lower only



Steel, 304 stainless steel, 316 stainless steel, and titanium



cULus listed (except steel).
CE compliant (except 600 volts)

3HS SERIES, THREE ELEMENT STAINLESS STEEL HEATERS

| WATTS | VOLTS | HOT | OVERALL | MODEL NUMBER | SHIP |
|-------|-------|----------|----------|---------------|-----------|
| | | ZONE | LENGTH | | WGT. |
| | | in./(mm) | in./(mm) | | Lbs./(kg) |
| 3000 | 240 | 11 | 17 | 3HS3217-** | 9 |
| | 480 | (279) | (432) | 3HS3417-** | (4.1) |
| 4500 | 240 | 17 | 23 | 3HS4.5223-** | 10 |
| | 480 | (432) | (584) | 3HS4.5423-** | (4.5) |
| 7500 | 240 | 21 | 29 | 3HS7.5229-** | 12 |
| | 480 | (533) | (737) | 3HS7.5429-** | (5.4) |
| 10500 | 240 | 26 | 34 | 3HS10.5234-** | 14 |
| | 480 | (660) | (864) | 3HS10.5434-** | (6.4) |

*Three phase standard, single phase available as option. Add "-1" before thermal protector designator.

PROCESS TECHNOLOGY

ISO 9001:2015
WITH DESIGN CERTIFIED

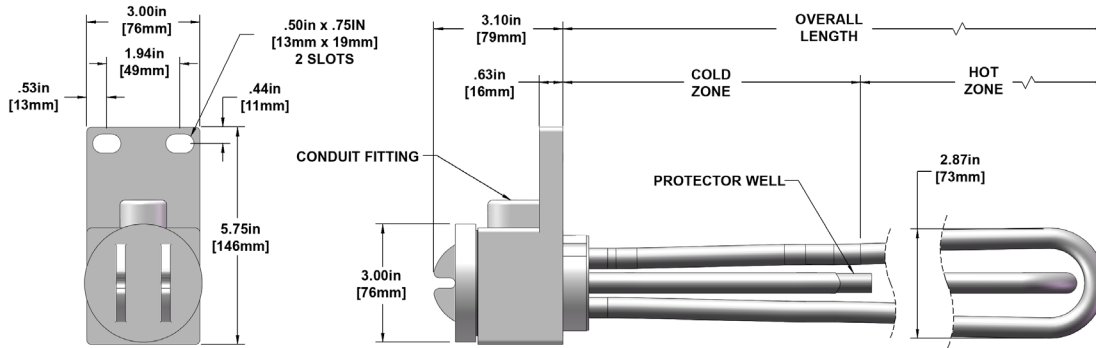
Features & Values

- For use in most aqueous alkaline solutions and rinse tanks. Check solution recommendation chart with your chemical supplier for proper sheath material selection
- Heavy wall metal sheaths available in: steel, 304 stainless steel, 316 stainless steel and titanium
- Watt densities up to 40 watts per square inch (6.2 w/cm²) ensure long service life
- Vapor-resistant, flame retardant polypropylene terminal enclosure with 3 ft (.9m) flexible PVC liquid tight conduit.
- Temperature and level controls sized to match the heater
- Lower watt densities for highly viscous solutions

Specifications

| | |
|--------------------------|---|
| Wattages | 3,000 to 10,500 Watts |
| Voltages | 200 to 600 Volts (600V on 4,500W or lower only) |
| Temperature Range | Up to 180°C (82°F) |
| Options | <ul style="list-style-type: none"> ▫ Special configurations & lengths ▫ Longer wire and conduit lengths ▫ All metal welded junction box |
| Safety Features | <ul style="list-style-type: none"> ▫ Grounded construction ▫ Thermal protector built in. Replaceable PI protector standard for solutions up to 180°F (82°C). ▫ See chart below for protector options |
| Certifications | cULus compliant (except 600V) |

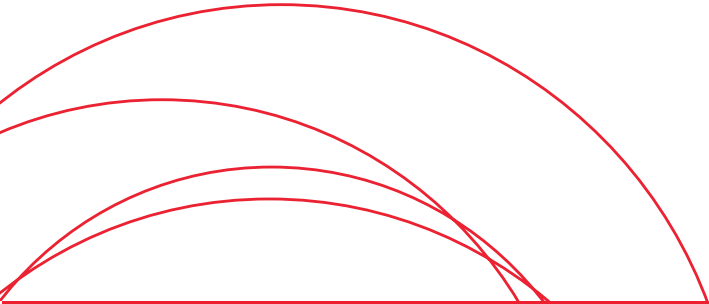
Dimensions



Model Number Breakdown

| Series | Wattage | Voltage | Overall Length (In.) | Phase | Type of Protector | Wire & Conduit Length |
|--------------------------------------|--------------|---------|----------------------|---|----------------------------------|---|
| 3HS = 3 element, 316 stainless steel | 3 = 3000 | 1 = 120 | 17 = 3kW | no designator = three phase(std) | Replaceable Fuse | 36" length standard (no designator) |
| | 4.5 = 4500 | 2 = 240 | 23 = 4.5kW | -1 = single phase | P1 (std) = solutions up to 180°F | Specify variations from standard Ex: -X84 = 84" |
| | 7.5 = 7500 | 3 = 380 | 29 = 7.5kW | M = Metal welded junction box (resettable protector required) | P4 = solutions up to 230°F | |
| | 10.5 = 10500 | 4 = 480 | 34 = 10.5kW | | P5 = solutions up to 300°F | |
| | | 5 = 415 | | | Resettable Fuse | |
| | | 6 = 600 | | | P2 = solutions up to 180°F | |
| | | 7 = 400 | | | P6 = solutions up to 230°F | |
| | | 8 = 208 | | | P7 = solutions up to 300°F | |
| | | 9 = 220 | | | | |
| | | 0 = 200 | | | | |





Triple L Shaped Metal Bottom Heater

Durable, efficient metal heater. Available in Steel, 304 Stainless Steel, 316 Stainless Steel, and Titanium.



FEATURES

For use in most aqueous alkaline solutions, plating and phosphate tanks. Check solution recommendation chart with your chemical supplier for proper sheath material selection.

Heavy wall metal sheaths available in: steel, 304 stainless steel, 316 stainless steel, titanium.

Watt densities up to 35 watts per square inch (5.4 w/cm²) ensure long service life.

Vapor-resistant, flame retardant polypropylene terminal enclosure with 3 ft (.9m) flexible PVC liquid tight conduit.

Temperature and level controls sized to match the heater.

Lower watt densities for highly viscous solutions.

| 3L SERIES, TRIPLE METAL L-SHAPED HEATERS | | | | | | | | | |
|--|-------|-------------------|-------------------|----------------|----------------|----------------|----------------|-----------|------------|
| WATTS | VOLTS | STD. | | STEEL | 304 SS | 316 SS | TITANIUM | SHIP WGT. | Lbs./ (Kg) |
| | | HORIZ. In. / (mm) | VERT.* In. / (mm) | | | | | | |
| 3000 | 240 | 13 | 15 | 3LP3213-R*-** | 3LF3213-R*-** | 3LS3213-R*-** | 3LT3213-R*-** | | 30 |
| | 480 | (330) | (381) | 3LP3413-R*-** | 3LF3413-R*-** | 3LS3413-R*-** | 3LT3413-R*-** | | (13.6) |
| 6000 | 240 | 17 | 37 | 3LP6217-R*-** | 3LF6217-R*-** | 3LS6217-R*-** | 3LT6217-R*-** | | 33 |
| | 480 | (432) | (940) | 3LP6417-R*-** | 3LF6417-R*-** | 3LS6417-R*-** | 3LT6417-R*-** | | (15) |
| 9000 | 240 | 22 | 37 | 3LP9222-R*-** | 3LF9222-R*-** | 3LS9222-R*-** | 3LT9222-R*-** | | 36 |
| | 480 | (559) | (940) | 3LP9422-R*-** | 3LF9422-R*-** | 3LS9422-R*-** | 3LT9422-R*-** | | (16.3) |
| 12000 | 240 | 26 | 37 | 3LP12226-R*-** | 3LF12226-R*-** | 3LS12226-R*-** | 3LT12226-R*-** | | 39 |
| | 480 | (660) | (940) | 3LP12426-R*-** | 3LF12426-R*-** | 3LS12426-R*-** | 3LT12426-R*-** | | (17.7) |
| 15000 | 240 | 31 | 37 | 3LP15231-R*-** | 3LF15231-R*-** | 3LS15231-R*-** | 3LT15231-R*-** | | 42 |
| | 480 | (787) | (940) | 3LP15431-R*-** | 3LF15431-R*-** | 3LS15431-R*-** | 3LT15431-R*-** | | (19.1) |
| 18000 | 240 | 36 | 50 | 3LP18236-R*-** | 3LF18236-R*-** | 3LS18236-R*-** | 3LT18236-R*-** | | 45 |
| | 480 | (914) | (1270) | 3LP18436-R*-** | 3LF18436-R*-** | 3LS18436-R*-** | 3LT18436-R*-** | | (20.4) |
| 24000 | 240 | 44 | 50 | 3LP24244-R*-** | 3LF24244-R*-** | 3LS24244-R*-** | 3LT24244-R*-** | | 54 |
| | 480 | (1118) | (1270) | 3LP24444-R*-** | 3LF24444-R*-** | 3LS24444-R*-** | 3LT24444-R*-** | | (24.5) |
| 27000 | 480 | 50 | 50 | 3LP27450-R*-** | 3LF27450-R*-** | 3LS27450-R*-** | 3LT27450-R*-** | | 60 |
| | | | (1270) | (1270) | | | | | (27.2) |
| 30000 | 480 | 55 | 50 | 3LP30455-R*-** | 3LF30455-R*-** | 3LS30455-R*-** | 3LT30455-R*-** | | 66 |
| | | | (1397) | (1270) | | | | | (29.9) |
| 36000 | 480 | 64 | 50 | 3LP36464-R*-** | 3LF36464-R*-** | 3LS36464-R*-** | 3LT36464-R*-** | | 75 |
| | | | (1626) | (1270) | | | | | (34) |



Temperature: Up to 180°C



120 to 600 volts, 600V on 4,500W or lower only



Watts: 3000 to 36,000



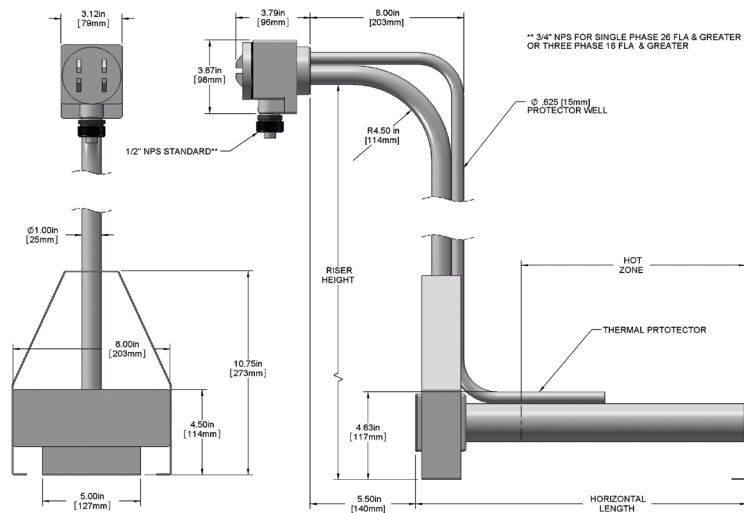
cULus listed (except steel). CE compliant (except 600 volts)

Triple L Shaped Metal Bottom Heater

SPECIFICATIONS

| | |
|-------------------|--|
| Wattages | 3000 Watts to 36,000 Watts |
| Voltages | 120 volts to 600 volts, (600V on 4,500W or lower only) |
| Temperature Range | Up to 180°C (82°F) |
| Options | Special configurations & lengths Longer wire and conduit lengths All metal welded junction box |
| Safety Features | Grounded construction Thermal protector built in. Replaceable PI protector standard for solutions up to 180°C (82°F). See chart below for options |

DIMENSIONS



MODEL NUMBER BREAKDOWN

| Series | Wattage | Voltage | Horizontal Length (in.) | Vertical Length (in.) | Riser Option | Phase | Type of Protector | Wire & Conduit Length |
|---------------------------|------------|---------|-------------------------|-----------------------|-----------------------------------|---------------------------|--|--|
| 3LP = Steel | 3 = 3000 | 1 = 120 | 13 = 3kW | -R15 = 3kW | Blank = 90° horizontal bend (std) | blank = three phase (std) | Replaceable Fuse P1 (std) = solutions up to 180°F P4 = solutions up to 230°F P5 = solutions up to 300°F | 36" length standard (no designator) Specify variations from standard Ex: -X84 = 84" |
| 3LF = 304 stainless steel | 6 = 6000 | 2 = 240 | 17 = 6kW | -R37 = 6kW | -S = straight riser | -1 = single phase | | |
| 3LS = 316 stainless steel | 9 = 9000 | 3 = 380 | 22 = 9kW | -R37 = 9kW | | | Resettable Fuse P2 = solutions up to 180°F P6 = solutions up to 230°F P7 = solutions up to 300°F | |
| 3LT = Titanium | 12 = 12000 | 4 = 480 | 26 = 12kW | -R37 = 12kW | | | | |
| | 15 = 15000 | 5 = 415 | 31 = 15kW | -R37 = 15kW | | | | |
| | 18 = 18000 | 6 = 600 | 36 = 18kW | -R50 = 18kW | | | | |
| | 24 = 24000 | 7 = 400 | 44 = 24kW | -R50 = 24kW | | | | |
| | 27 = 27000 | 8 = 208 | 50 = 27kW | -R50 = 27kW | | | | |
| | 30 = 30000 | 9 = 220 | 55 = 30kW | -R50 = 30kW | | | | |
| | 36 = 36000 | 0 = 200 | 64 = 36kW | -R50 = 36kW | | | | |

3LV Series

PRODUCT DATA SHEET

Metal Bottom Heater

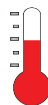
Durable, efficient chemical heater

For use in most aqueous alkaline solutions

Low watt density design saves space & ensures long life

Vapor resistant, flame retardant polypropylene terminal enclosure

Grounded construction and built in thermal protector



Up to 180°C (82°F)



3,000 watts to 36,000 watts



200 to 600 Volts
600V on 4,500W or lower only



Steel, 304 stainless steel, 316 stainless steel and titanium.



cULus (except steel and 600 volts)

| 3LV SERIES, VERTICAL STACK TRIPLE METAL L-SHAPED HEATERS | | | | | | | | | |
|--|-------|----------------|----------------|---------------|---------------|---------------|---------------|-----------|----------|
| WATTS | VOLTS | STD. | | STEEL | 304 SS | 316 SS | TITANIUM | SHIP WGT. | Lbs./kg) |
| | | HORIZ. In./mm) | VERT.* In./mm) | | | | | | |
| 3000 | 240 | 13 | 15 | 3LVP3213-R** | 3LVF3213-R** | 3LVS3213-R** | 3LVT3213-R** | 30 | |
| | 480 | (330) | (381) | 3LVP3413-R** | 3LVF3413-R** | 3LVS3413-R** | 3LVT3413-R** | (13.6) | |
| 6000 | 240 | 17 | 37 | 3LVP6217-R** | 3LVF6217-R** | 3LVS6217-R** | 3LVT6217-R** | 33 | |
| | 480 | (432) | (940) | 3LVP6417-R** | 3LVF6417-R** | 3LVS6417-R** | 3LVT6417-R** | (15) | |
| 9000 | 240 | 22 | 37 | 3LVP9222-R** | 3LVF9222-R** | 3LVS9222-R** | 3LVT9222-R** | 36 | |
| | 480 | (559) | (940) | 3LVP9422-R** | 3LVF9422-R** | 3LVS9422-R** | 3LVT9422-R** | (16.3) | |
| 12000 | 240 | 26 | 37 | 3LVP12226-R** | 3LVF12226-R** | 3LVS12226-R** | 3LVT12226-R** | 39 | |
| | 480 | (660) | (940) | 3LVP12426-R** | 3LVF12426-R** | 3LVS12426-R** | 3LVT12426-R** | (17.7) | |
| 15000 | 240 | 31 | 37 | 3LVP15231-R** | 3LVF15231-R** | 3LVS15231-R** | 3LVT15231-R** | 42 | |
| | 480 | (787) | (940) | 3LVP15431-R** | 3LVF15431-R** | 3LVS15431-R** | 3LVT15431-R** | (19.1) | |
| 18000 | 240 | 36 | 50 | 3LVP18236-R** | 3LVF18236-R** | 3LVS18236-R** | 3LVT18236-R** | 45 | |
| | 480 | (914) | (1270) | 3LVP18436-R** | 3LVF18436-R** | 3LVS18436-R** | 3LVT18436-R** | (20.4) | |
| 24000 | 240 | 44 | 50 | 3LVP24244-R** | 3LVF24244-R** | 3LVS24244-R** | 3LVT24244-R** | 54 | |
| | 480 | (1118) | (1270) | 3LVP24444-R** | 3LVF24444-R** | 3LVS24444-R** | 3LVT24444-R** | (24.5) | |
| 27000 | 480 | 50 | 50 | 3LVP27450-R** | 3LVF27450-R** | 3LVS27450-R** | 3LVT27450-R** | 60 | |
| | | (1270) | (1270) | | | | | (27.2) | |
| 30000 | 480 | 55 | 50 | 3LVP30455-R** | 3LVF30455-R** | 3LVS30455-R** | 3LVT30455-R** | 66 | |
| | | (1397) | (1270) | | | | | (29.9) | |
| 36000 | 480 | 64 | 50 | 3LVP36464-R** | 3LVF36464-R** | 3LVS36464-R** | 3LVT36464-R** | 75 | |
| | | (1626) | (1270) | | | | | (34) | |

Three phase standard



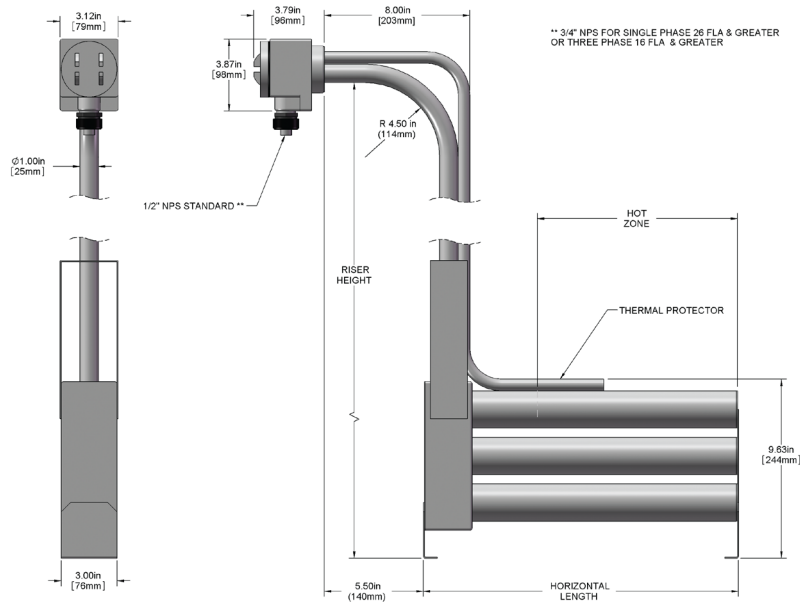
Features & Values

- For use in most aqueous alkaline solutions, plating and phosphate tanks. Check solution recommendation chart with your chemical supplier for proper sheath material selection
- Heavy wall metal sheaths available in: steel, 304 stainless steel, 316 stainless steel, titanium
- Watt densities up to 35 watts per square inch (5.4 w/cm²) ensure long service life
- Vapor-resistant, flame retardant polypropylene terminal enclosure with 3 ft (.9m) flexible PVC liquid tight conduit.
- Temperature and level controls sized to match the heater
- Lower watt densities for highly viscous solutions

Specifications

| | |
|--------------------------|---|
| Wattages | 3,000 to 36,000 Watts |
| Voltages | 200 to 600 Volts (600V on 4,500W or lower only) |
| Temperature Range | Up to 180°C (82°F) |
| Options | <ul style="list-style-type: none"> ▫ Special configurations & lengths ▫ Longer wire and conduit lengths ▫ All metal welded junction box |
| Safety Features | <ul style="list-style-type: none"> ▫ Grounded construction ▫ Thermal protector built in. Replaceable PI protector standard for solutions up to 180°F (82°C). ▫ See chart below for protector options |
| Certifications | cULus compliant (except 600V) |

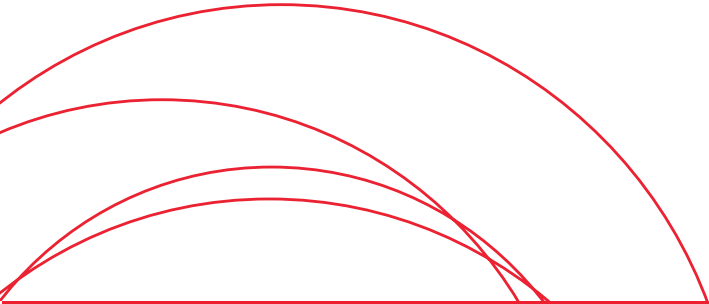
Dimensions



Model Number Breakdown

| Series | Wattage | Voltage | Horizontal Length (in.) | Vertical Length (in.) | Riser Option | Phase | Type of Protector | Wire & Conduit Length |
|----------------------------|------------|---------|-------------------------|-----------------------|-----------------------------------|---------------------------|----------------------------------|---|
| 3LVP = Steel | 3 = 3000 | 2 = 240 | 13 = 3kW | -R19 = 3kW | Blank = 90° horizontal bend (std) | blank = three phase (std) | Replaceable Fuse | 36" length standard (no designator) |
| 3LVF = 304 stainless steel | 6 = 6000 | 3 = 380 | 17 = 6kW | -R37 = 6kW | -S = straight riser | -1 = single phase | P1 (std) = solutions up to 180°F | Specify variations from standard Ex: -X84 = 84" |
| 3LVS = 316 stainless steel | 9 = 9000 | 4 = 480 | 22 = 9kW | -R37 = 9kW | | | P4 = solutions up to 230°F | |
| 3LVT = Titanium | 12 = 12000 | 5 = 415 | 26 = 12kW | -R37 = 12kW | | | P5 = solutions up to 300°F | |
| | 15 = 15000 | 6 = 600 | 31 = 15kW | -R37 = 15kW | | | Resettable Fuse | |
| | 18 = 18000 | 7 = 400 | 36 = 18kW | -R50 = 18kW | | | P2 = solutions up to 180°F | |
| | 24 = 24000 | 8 = 208 | 44 = 24kW | -R50 = 24kW | | | P6 = solutions up to 230°F | |
| | 27 = 27000 | 9 = 220 | 50 = 27kW | -R50 = 27kW | | | P7 = solutions up to 300°F | |
| | 30 = 30000 | 0 = 200 | 55 = 30kW | -R50 = 30kW | | | | |
| | 36 = 36000 | | 64 = 36kW | -R50 = 36kW | | | | |





3P, 3F, 3S and 3T Metal Heater

Durable, efficient metal heater. Available in Steel, 304 Stainless Steel, 316 Stainless Steel, and Titanium.



FEATURES

For use in most aqueous alkaline solutions, plating and phosphate tanks. Check solution recommendation chart with your chemical supplier for proper sheath material selection.

Heavy wall metal sheaths available in: steel, 304 stainless steel, 316 stainless steel, titanium.

Watt densities up to 35 watts per square inch (5.4 w/cm²) ensure long service life.

Vapor-resistant, flame retardant polypropylene terminal enclosure with 3 ft (.9m) flexible PVC liquid tight conduit.

Temperature and level controls sized to match the heater.

Lower watt densities for highly viscous solutions.

NOTE: Intended for vertical installation only.

| | |
|-------------------------------------|---|
| <p>Temperature: Up to 180°C</p> | <p>200 to 600 volts, 600V on 4,500W or lower only</p> |
| <p>Watts: 3000 to 36000</p> | <p>cULus listed (except steel). CE compliant (except 600 volts)</p> |

| 3P, 3F, 3S, and 3T SERIES, TRIPLE METAL HEATERS | | | | | | | | |
|---|-------|----------------------|----------------------------|-------------|-------------|-------------|-------------|------------------------|
| WATTS | VOLTS | HOT ZONE In./(mm) | OVERALL LENGTH In./(mm) | STEEL | 304 SS | 316 SS | TITANIUM | SHIP WGT. Lbs./(kg) |
| 3000 | 240 | 6 | 11 | 3P3211-*** | 3F3211-*** | 3S3211-*** | 3T3211-*** | 21 |
| | 480 | (152) | (279) | 3P3411-*** | 3F3411-*** | 3S3411-*** | 3T3411-*** | (9.5) |
| 6000 | 240 | 10 | 17 | 3P6217-*** | 3F6217-*** | 3S6217-*** | 3T6217-*** | 30 |
| | 480 | (254) | (432) | 3P6417-*** | 3F6417-*** | 3S6417-*** | 3T6417-*** | (13.6) |
| 9000 | 240 | 16 | 23 | 3P9223-*** | 3F9223-*** | 3S9223-*** | 3T9223-*** | 33 |
| | 480 | (406) | (584) | 3P9423-*** | 3F9423-*** | 3S9423-*** | 3T9423-*** | (15) |
| 12000 | 240 | 20 | 29 | 3P12229-*** | 3F12229-*** | 3S12229-*** | 3T12229-*** | 39 |
| | 480 | (508) | (737) | 3P12429-*** | 3F12429-*** | 3S12429-*** | 3T12429-*** | (17.7) |
| 15000 | 240 | 25 | 35 | 3P15235-*** | 3F15235-*** | 3S15235-*** | 3T15235-*** | 45 |
| | 480 | (635) | (889) | 3P15435-*** | 3F15435-*** | 3S15435-*** | 3T15435-*** | (20.4) |
| 18000 | 240 | 30 | 40 | 3P18240-*** | 3F18240-*** | 3S18240-*** | 3T18240-*** | 51 |
| | 480 | (762) | (1016) | 3P18440-*** | 3F18440-*** | 3S18440-*** | 3T18440-*** | (23.1) |
| 24000 | 240 | 37 | 47 | 3P24247-*** | 3F24247-*** | 3S24247-*** | 3T24247-*** | 63 |
| | 480 | (940) | (1194) | 3P24447-*** | 3F24447-*** | 3S24447-*** | 3T24447-*** | (28.6) |
| 27000 | 240 | 44 | 54 | 3P27254-*** | 3F27254-*** | 3S27254-*** | 3T27254-*** | 69 |
| | 480 | (1118) | (1372) | 3P27454-*** | 3F27454-*** | 3S27454-*** | 3T27454-*** | (31.3) |
| 30000 | 240 | 49 | 59 | 3P30259-*** | 3F30259-*** | 3S30259-*** | 3T30259-*** | 75 |
| | 480 | (1245) | (1499) | 3P30459-*** | 3F30459-*** | 3S30459-*** | 3T30459-*** | (34) |
| 36000 | 240 | 58 | 68 | 3P36268-*** | 3F36268-*** | 3S36268-*** | 3T36268-*** | 84 |
| | 480 | (1473) | (1727) | 3P36468-*** | 3F36468-*** | 3S36468-*** | 3T36468-*** | (38.1) |

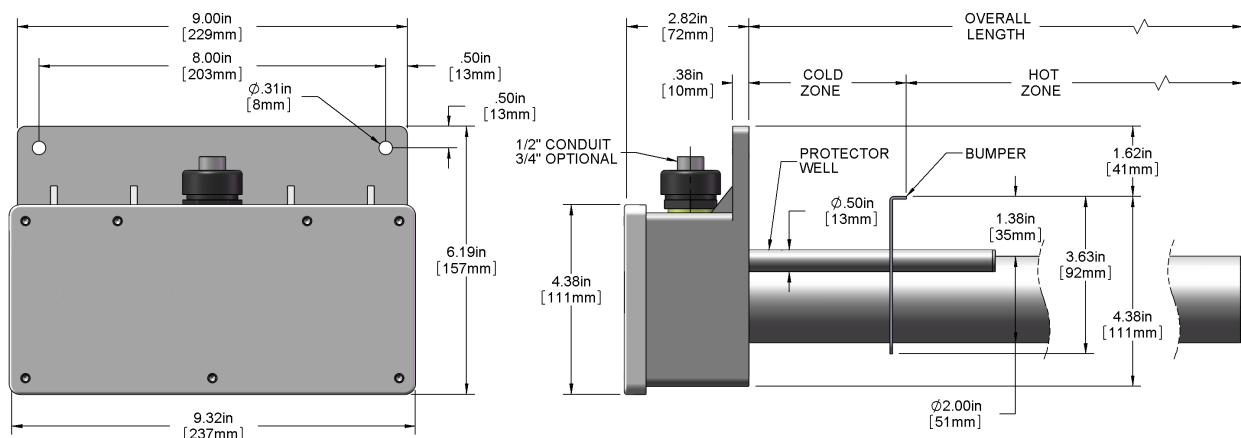
Three Phase Standard

3P, 3F, 3S and 3T Metal Heater

SPECIFICATIONS

| | |
|-------------------|--|
| Wattages | 3000 Watts to 36,000 Watts |
| Voltages | 200 volts to 600 volts, (600V on 4,500W or lower only) |
| Temperature Range | Up to 180°C (82°F) |
| Options | Special configurations & lengths Longer wire and conduit lengths All metal welded junction box |
| Safety Features | Grounded construction Thermal protector built in. Replaceable PI protector standard for solutions up to 180°C (82°F). See chart below for options |

DIMENSIONS



MODEL NUMBER BREAKDOWN

| Series | Wattage | Voltage | Overall Length | Phase | Type of Protector | Wire & Conduit Length |
|--------------------------|------------|---------|----------------|--------------------|---|--|
| 3P = Steel | 3 = 3000 | 1 = 120 | 11 = 3kW | -3 = 3 phase (std) | Replaceable Fuse P1 (std) = solutions up to 180°F P4 = solutions up to 230°F P5 = solutions up to 300°F | 36" length standard (no designator) Specify variations from standard Ex: -X84 = 84" |
| 3F = 304 stainless steel | 6 = 6000 | 2 = 240 | 17 = 6kW | -1 = single phase | Resettable Fuse P2 = solutions up to 180°F P6 = solutions up to 230°F P7 = solutions up to 300°F | |
| 3S = 316 stainless steel | 9 = 9000 | 3 = 380 | 23 = 9kW | | | |
| 3T = Titanium | 12 = 12000 | 4 = 480 | 29 = 12kW | | | |
| | 15 = 15000 | 5 = 415 | 35 = 15kW | | | |
| | 18 = 18000 | 6 = 600 | 40 = 18kW | | | |
| | 24 = 24000 | 7 = 400 | 47 = 24kW | | | |
| | 27 = 27000 | 8 = 208 | 54 = 27kW | | | |
| | 30 = 30000 | 9 = 220 | 59 = 30kW | | | |
| | 36 = 36000 | 0 = 200 | 60 = 68kW | | | |

5T & T5T Series

PRODUCT DATA SHEET

Screw Plug Heater

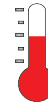
Durable, efficient chemical heater

For use in most aqueous alkaline solutions and rinse tanks

Heavy wall metal sheaths and screwplug in 316 stainless steel & titanium

Vapor tight, flame retardant PVC enclosure

Grounded construction



Up to 82°C (180°F)



2,000 watts to 18,000 watts



240 or 480 Volts
208, 380, 415, 600 and other voltages available



Steel, 304 stainless steel, 316 stainless steel and titanium.

| 5T SERIES, 2-1/2" (STAINLESS STEEL) SCREW PLUG HEATERS | | | | | | |
|--|-------|--------------------------|-------------|-----------------|--------------|----------------------|
| WATTS | VOLTS | OVERALL LENGTH In./mm | PIPE THREAD | NO. OF ELEMENTS | MODEL NUMBER | SHIP WGT. Lbs./kg |
| 4500 | 240 | 12 | 2-1/2 | 3 | 5T4.5212 | 7 |
| | 480 | (305) | | | 5T4.5412 | (3.5) |
| 6000 | 240 | 18 | 2-1/2 | 3 | 5T6218 | 8 |
| | 480 | (458) | | | 5T6418 | (4) |
| 9000 | 240 | 25 | 2-1/2 | 3 | 5T9225 | 9 |
| | 480 | (635) | | | 5T9425 | (4.5) |
| 12000 | 240 | 32 | 2-1/2 | 3 | 5T12232 | 10 |
| | 480 | (813) | | | 5T12432 | (4.5) |
| 15000 | 240 | 40 | 2-1/2 | 3 | 5T15240 | 12 |
| | 480 | (1016) | | | 5T15440 | (5.5) |
| 18000 | 240 | 48 | 2-1/2 | 3 | 5T18248 | 15 |
| | 480 | (1220) | | | 5T18448 | (7) |

| T5T SERIES, 2-1/2" (TITANIUM) SCREW PLUG HEATERS | | | | | | |
|--|-------|--------------------------|-------------|-----------------|--------------|----------------------|
| WATTS | VOLTS | OVERALL LENGTH In./mm | PIPE THREAD | NO. OF ELEMENTS | MODEL NUMBER | SHIP WGT. Lbs./kg |
| 6000 | 240 | 18 | 2-1/2 | 3 | T5T6218 | 6 |
| | 480 | (460) | | | T5T6418 | (3) |
| 9000 | 240 | 25 | 2-1/2 | 3 | T5T9225 | 7 |
| | 480 | (635) | | | T5T9425 | (3.5) |
| 12000 | 240 | 32 | 2-1/2 | 3 | T5T12232 | 8 |
| | 480 | (815) | | | T5T12432 | (4) |
| 18000 | 240 | 48 | 2-1/2 | 3 | T5T18248 | 13 |
| | 480 | (1220) | | | T5T18448 | (6) |

Single phase standard

PROCESS TECHNOLOGY

ISO 9001:2015
WITH DESIGN CERTIFIED

5T & T5T Series DATA SHEET

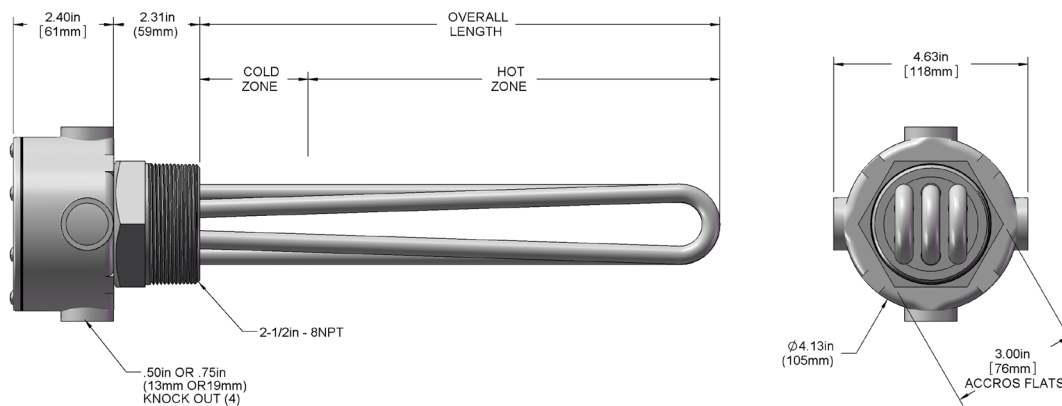
Features & Values

- For use in most aqueous alkaline solutions and rinse tanks. Check solution recommendation chart with your chemical supplier for proper sheath material selection
- Heavy wall metal sheaths and screwplug in 316 stainless steel and titanium
- Watt densities up to 45-55 watts per square inch for 316 Stainless steel and <60 watts per square inch for titanium ensure long life service
- Vapor tight, flame retardant PVC enclosure
- Temperature and level controls sized to match the heater
- Lower watt densities for highly viscous solutions

Specifications

| | |
|--------------------------|---|
| Wattages | 2,000 to 18,000 Watts |
| Voltages | 240 or 480 Volts 208, 380, 415, 600 and other voltages available |
| Temperature Range | Up to 180°C (82°F) |
| Options | <ul style="list-style-type: none"> ▫ Special configurations and lengths ▫ Thermowells ▫ Explosion resistant enclosures ▫ Carbon steel or incoloy elements ▫ Integral thermostats |
| Safety Features | <ul style="list-style-type: none"> ▫ Grounded construction |

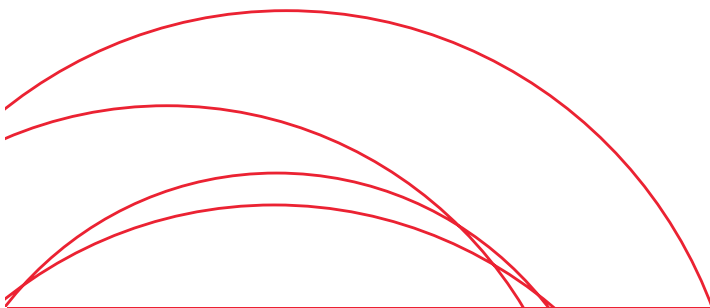
Dimensions



Model Number Breakdown

| 5T | 6 | 4 | 25 | |
|--------------------------|------------|-------------|----------------|---|
| Series | Wattage | Voltage | Overall Length | Phase |
| 5T = 316 stainless steel | 4.5 = 4500 | 2 = 240 | 12 = 4.5kW | no designator = three phase power (standard) |
| IN5T = incoloy | 6 = 6000 | 4 = 480 | 13 = 6kW | -1 = single phase power |
| T5T = titanium | 9 = 9000 | -208- = 208 | 17 = 6kW | -M2 = explosion/moisture resistant housing |
| | 12 = 12000 | -380- = 380 | 23 = 9kW | -W = thermowell |
| | 15 = 15000 | -415- = 415 | 25 = 9kW | -T2 = integral thermostat |
| | 18 = 18000 | -600- = 600 | 28 = 12kW | -X = any special configuration not called out |
| | | 7 = 400 | 32 = 12kW | |
| | | 8 = 208 | 38 = 18kW | |
| | | 9 = 220 | 40 = 15kW | |
| | | 0 = 200 | 48 = 18kW | |





6HS Metal Heater

Durable, efficient metal heater. Available in Steel, 304 Stainless Steel, 316 Stainless Steel, and Titanium.



FEATURES

For use in most aqueous alkaline solutions, plating and phosphate tanks. Check solution recommendation chart with your chemical supplier for proper sheath material selection.





Heavy wall metal sheaths available in: steel, 304 stainless steel, 316 stainless steel, titanium.

Watt densities up to 46 watts per square inch (6.2 w/cm²) ensure long service life.

Vapor-resistant, flame retardant polypropylene terminal enclosure with 3 ft (.9m) flexible PVC liquid tight conduit.

Temperature and level controls sized to match the heater.

Lower watt densities for highly viscous solutions.

| | |
|--|---|
|  <p>Temperature: Up to 180 °C</p> |  <p>200 to 600 volts, 600V on 4,500W or lower only</p> |
|  <p>Watts: 6000 to 21,000</p> |  <p>cULus listed (except steel). CE compliant (except 600 volts)</p> |

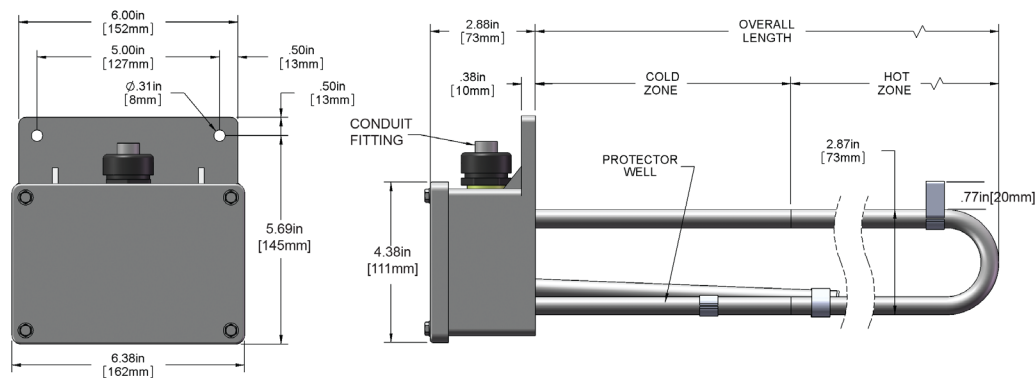
| 6HS SERIES, SIX ELEMENT STAINLESS STEEL HEATERS | | | | | |
|---|-------|----------------------|----------------------------|--------------|------------------------|
| WATTS | VOLTS | HOT ZONE In./(mm) | OVERALL LENGTH In./(mm) | MODEL NUMBER | SHIP WGT. Lbs./(kg) |
| 6000 | 240 | 10 | 17 | 6HS6217-** | 12 |
| | 480 | (254) | (432) | 6HS6417-** | (5.4) |
| 9000 | 240 | 16 | 23 | 6HS9223-** | 13 |
| | 480 | (406) | (584) | 6HS9423-** | (5.9) |
| 15000 | 240 | 20 | 29 | 6HS15229-** | 16 |
| | 480 | (508) | (737) | 6HS15429-** | (7.3) |
| 21000 | 240 | 25 | 34 | 6HS21234-** | 18 |
| | 480 | (635) | (864) | 6HS21434-** | (8.2) |

6HS Metal Heater

SPECIFICATIONS

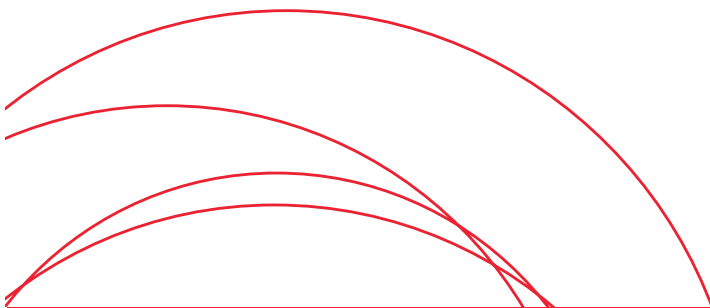
| | |
|-------------------|--|
| Wattages | 1000 Watts to 12,000 Watts |
| Voltages | 120 volts to 600 volts, (600V on 4,500W or lower only) |
| Temperature Range | Up to 180°C (82°F) |
| Options | Special configurations & lengths Longer wire and conduit lengths All metal welded junction box |
| Safety Features | Grounded construction Thermal protector built in. Replaceable PI protector standard for solutions up to 180°C (82°F). See chart below for options |

DIMENSIONS



MODEL NUMBER BREAKDOWN

| 6HS 6 2 29 | | | | P4 | | |
|--------------------------------------|------------|------------|----------------------|---|----------------------------------|---|
| Series | Wattage | Voltage | Overall Length (In.) | Phase | Type of Protector | Wire & Conduit Length |
| 6HS = 6 element, 316 stainless steel | 6 = 6000 | 1 = 120 | 17 = 6kW | X = any special configuration | Replaceable Fuse | 36" length standard (no designator) |
| | 9 = 9000 | 2 = 240 | 23 = 9kW | no designator = three phase power (std) | P1 (std) = solutions up to 180°F | Specify variations from standard Ex: -X84 = 84" |
| | 15 = 15000 | 4 = 480 | 29 = 15kW | -1 = single phase power | P4 = solutions up to 230°F | |
| | 21 = 21000 | -208 = 208 | 34 = 21kW | | P5 = solutions up to 300°F | |
| | | -380 = 380 | | | Resettable Fuse | |
| | | -415 = 415 | | | P2 = solutions up to 180°F | |
| | | -600 = 600 | | | P6 = solutions up to 230°F | |
| | | | | | P7 = solutions up to 300°F | |



9HS Metal Heater

Durable, efficient metal heater. Available in Steel, 304 Stainless Steel, 316 Stainless Steel, and Titanium.



FEATURES

For use in most aqueous alkaline solutions, plating and phosphate tanks. Check solution recommendation chart with your chemical supplier for proper sheath material selection.





Heavy wall metal sheaths available in: steel, 304 stainless steel, 316 stainless steel, titanium.

Watt densities up to 46 watts per square inch (7.1 w/cm²) ensure long service life.

Vapor-resistant, flame retardant polypropylene terminal enclosure with 3 ft (.9m) flexible PVC liquid tight conduit.

Temperature and level controls sized to match the heater.

Lower watt densities for highly viscous solutions.

| | |
|---|---|
|  <p>Temperature: Up to 180°C</p> |  <p>200 to 600 volts, 600V on 4,500W or lower only</p> |
|  <p>Watts: 9000 to 31,500</p> |  <p>cULus listed (except steel). CE compliant (except 600 volts)</p> |

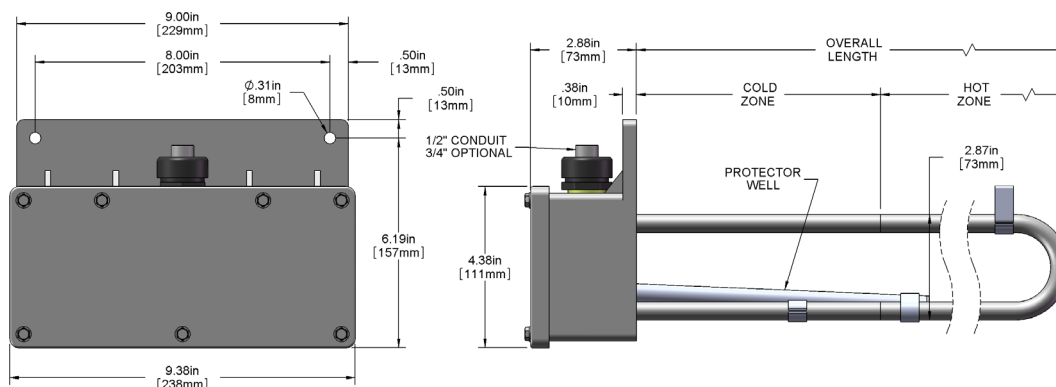
| 9HS SERIES, NINE ELEMENT STAINLESS STEEL HEATERS | | | | | |
|--|-------|----------------------|----------------------------|-----------------|------------------------|
| WATTS | VOLTS | HOT ZONE In./(mm) | OVERALL LENGTH In./(mm) | MODEL NUMBER | SHIP WGT. Lbs./(kg) |
| 9000 | 240 | 10 | 17 | 9HS9217-** | 16 |
| | 480 | (254) | (432) | 9HS9417-** | (7.3) |
| 13500 | 240 | 16 | 23 | 9HS13.5223-** | 19 |
| | 480 | (406) | (584) | 9HS13.5423-** | (8.6) |
| 22500 | 240 | 20 | 29 | 9HS22.5229-** | 23 |
| | 480 | (508) | (737) | 9HS22.5429-** | (10.4) |
| 31500 | 240* | 25 | 34 | 9HS31.5234-M-** | 25 |
| | 480 | (635) | (864) | 9HS31.5434-** | (11.3) |

9HS Metal Heater

SPECIFICATIONS

| | |
|-------------------|--|
| Wattages | 9000 Watts to 31.500 Watts |
| Voltages | 200 volts to 600 volts, (600V on 4,500W or lower only) |
| Temperature Range | Up to 180°C (82°F) |
| Options | Special configurations & lengths Longer wire and conduit lengths All metal welded junction box |
| Safety Features | Grounded construction Thermal protector built in. Replaceable PI protector standard for solutions up to 180°C (82°F). See chart below for options |

DIMENSIONS



MODEL NUMBER BREAKDOWN

| 9HS | 13.5 | 3 | 23 | - | P4 | - |
|--------------------------------------|--------------|---------|----------------------|----------------------------------|----------------------------------|---|
| Series | Wattage | Voltage | Overall Length (In.) | Phase | Type of Protector | Wire & Conduit Length |
| 9HS = 9 element, 316 stainless steel | 9 = 9000 | 2 = 240 | 17 = 9kW | no designator = three phase(std) | Replaceable Fuse | 36" length standard (no designator) |
| | 13.5 = 13500 | 3 = 380 | 23 = 13.5kW | -1 = single phase | P1 (std) = solutions up to 180°F | Specify variations from standard Ex: -X84 = 84" |
| | 22.5 = 22500 | 4 = 480 | 29 = 22.5kW | | P4 = solutions up to 230°F | |
| | 31.5 = 31500 | 5 = 415 | 34 = 31.5kW | | P5 = solutions up to 300°F | |
| | | 6 = 600 | | | Resettable Fuse | |
| | | 7 = 400 | | | P2 = solutions up to 180°F | |
| | | 8 = 208 | | | P6 = solutions up to 230°F | |
| | | 9 = 220 | | | P7 = solutions up to 300°F | |
| | | 0 = 200 | | | | |



Derated Triple L Shaped Metal Bottom Heater

Durable, efficient chemical heater. Available in Steel, 304 Stainless Steel, 316 Stainless Steel, and Titanium.



FEATURES

For use in most aqueous alkaline solutions, plating and phosphate tanks. Check solution recommendation chart with your chemical supplier for proper sheath material selection.

Heavy wall metal sheaths available in: steel, 304 stainless steel, 316 stainless steel, titanium.

Watt densities up to 18 watts per square inch (2.7 w/cm²) ensure long service life.

Vapor-resistant, flame retardant polypropylene terminal enclosure with 3 ft (.9m) flexible PVC liquid tight conduit.

Temperature and level controls sized to match the heater.

Lower watt densities for highly viscous solutions.

D3L SERIES, DERATED TRIPLE METAL L-SHAPED HEATERS

| WATTS | VOLTS | STD. | | STEEL | 304 SS | 316 SS | TITANIUM | SHIP WGT. Lbs./kg) |
|-------|-------|----------------|----------------|-------------------|-------------------|-------------------|-------------------|--------------------|
| | | HORIZ. In./mm) | VERT.* In./mm) | | | | | |
| 1500 | 120 | 13 | 15 | D3LP1.5113-R-*** | D3LF1.5113-R-*** | D3LS1.5113-R-*** | D3LT1.5113-R-*** | 30 |
| | 240 | (330) | (381) | D3LP1.5213-R-*** | D3LF1.5213-R-*** | D3LS1.5213-R-*** | D3LT1.5213-R-*** | (13.6) |
| 3000 | 240 | 17 | 37 | D3LP3217-R-*** | D3LF3217-R-*** | D3LS3217-R-*** | D3LT3217-R-*** | 33 |
| | 480 | (432) | (940) | D3LP3417-R-*** | D3LF3417-R-*** | D3LS3417-R-*** | D3LT3417-R-*** | (15) |
| 4500 | 240 | 22 | 37 | D3LP4.5222-R-*** | D3LF4.5222-R-*** | D3LS4.5222-R-*** | D3LT4.5222-R-*** | 36 |
| | 480 | (559) | (940) | D3LP4.5422-R-*** | D3LF4.5422-R-*** | D3LS4.5422-R-*** | D3LT4.5422-R-*** | (16.3) |
| 6000 | 240 | 26 | 37 | D3LP6226-R-*** | D3LF6226-R-*** | D3LS6226-R-*** | D3LT6226-R-*** | 39 |
| | 480 | (660) | (940) | D3LP6426-R-*** | D3LF6426-R-*** | D3LS6426-R-*** | D3LT6426-R-*** | (17.7) |
| 7500 | 240 | 31 | 37 | D3LP7.5231-R-*** | D3LF7.5231-R-*** | D3LS7.5231-R-*** | D3LT7.5231-R-*** | 42 |
| | 480 | (787) | (940) | D3LP7.5431-R-*** | D3LF7.5431-R-*** | D3LS7.5431-R-*** | D3LT7.5431-R-*** | (19.1) |
| 9000 | 240 | 36 | 50 | D3LP9236-R-*** | D3LF9236-R-*** | D3LS9236-R-*** | D3LT9236-R-*** | 45 |
| | 480 | (914) | (1270) | D3LP9436-R-*** | D3LF9436-R-*** | D3LS9436-R-*** | D3LT9436-R-*** | (20.4) |
| 12000 | 240 | 44 | 50 | D3LP12244-R-*** | D3LF12244-R-*** | D3LS12244-R-*** | D3LT12244-R-*** | 54 |
| | 480 | (1118) | (1270) | D3LP12444-R-*** | D3LF12444-R-*** | D3LS12444-R-*** | D3LT12444-R-*** | (24.5) |
| 13500 | 240 | 50 | 50 | D3LP13.5250-R-*** | D3LF13.5250-R-*** | D3LS13.5250-R-*** | D3LT13.5250-R-*** | 60 |
| | 480 | (1270) | (1270) | D3LP13.5450-R-*** | D3LF13.5450-R-*** | D3LS13.5450-R-*** | D3LT13.5450-R-*** | (27.2) |
| 15000 | 240 | 55 | 50 | D3LP15255-R-*** | D3LF15255-R-*** | D3LS15255-R-*** | D3LT15255-R-*** | 66 |
| | 480 | (1397) | (1270) | D3LP15455-R-*** | D3LF15455-R-*** | D3LS15455-R-*** | D3LT15455-R-*** | (29.9) |
| 18000 | 240 | 64 | 50 | D3LP18264-R-*** | D3LF18264-R-*** | D3LS18264-R-*** | D3LT18264-R-*** | 75 |
| | 480 | (1626) | (1270) | D3LP18464-R-*** | D3LF18464-R-*** | D3LS18464-R-*** | D3LT18464-R-*** | (34) |

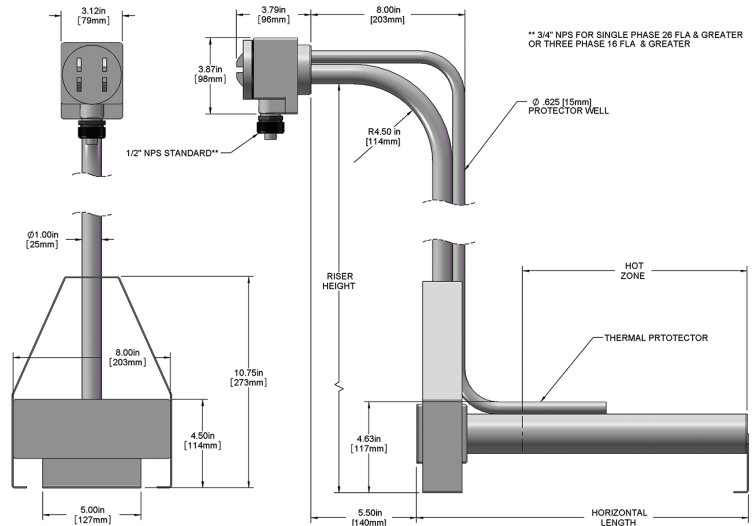
Three phase standard

Derated Triple L Shaped Metal Bottom Heater

SPECIFICATIONS

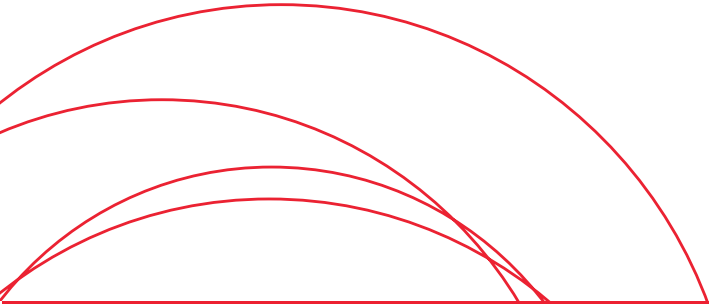
| | |
|-------------------|--|
| Wattages | 1500 Watts to 18,000 Watts |
| Voltages | 120 volts to 600 volts, (600V on 4,500W or lower only) |
| Temperature Range | Up to 180°C (82°F) |
| Options | Special configurations & lengths Longer wire and conduit lengths All metal welded junction box |
| Safety Features | Grounded construction Thermal protector built in. Replaceable PI protector standard for solutions up to 180°C (82°F). See chart below for options |

DIMENSIONS



MODEL NUMBER BREAKDOWN

| Series | Wattage | Voltage | Horizontal Length (In.) | Vertical Length (In.) | Riser Option | Phase | Type of Protector | Wire & Conduit Length |
|----------------------------|--------------|---------|-------------------------|-----------------------|-----------------------------------|---------------------------|----------------------------------|---|
| D3LP = Steel | 1.5 = 1500 | 1 = 120 | 13 = 1.5kW | -R15 = 1.5kW | Blank = 90° horizontal bend (std) | blank = three phase (std) | Replaceable Fuse | 36" length standard (no designator) |
| D3LF = 304 stainless steel | 3 = 3000 | 2 = 240 | 17 = 3kW | -R19 = 3kW | S = straight riser | -1 = single phase | P1 (std) = solutions up to 180°F | Specify variations from standard Ex: -X84 = 84" |
| D3LS = 316 stainless steel | 4.5 = 4500 | 3 = 380 | 22 = 4.5kW | -R25 = 4.5kW | | | P4 = solutions up to 230°F | |
| D3LT = Titanium | 6 = 6000 | 4 = 480 | 26 = 6kW | -R25 = 6kW | | | P5 = solutions up to 300°F | |
| | 7.5 = 7500 | 5 = 415 | 31 = 7.5kW | -R37 = 7.5kW | | | Resettable Fuse | |
| | 9 = 9000 | 6 = 600 | 36 = 9kW | -R50 = 9kW | | | P2 = solutions up to 180°F | |
| | 12 = 12000 | 7 = 400 | 44 = 12kW | -R50 = 12kW | | | P6 = solutions up to 230°F | |
| | 13.5 = 13500 | 8 = 208 | 50 = 13.5kW | -R50 = 13kW | | | P7 = solutions up to 300°F | |
| | 15 = 15000 | 9 = 220 | 55 = 15kW | -R50 = 15kW | | | | |
| | 18 = 18000 | 0 = 200 | 64 = 18kW | -R50 = 18kW | | | | |



Derated Triple Metal Over the Side Heaters

Low watt density, 3 phase, durable, efficient metal heaters for concentrated alkaline or caustic solutions. Available in Steel, 304 Stainless Steel, 316 Stainless Steel, and Titanium.



FEATURES

For use in most aqueous alkaline solutions, plating and phosphate tanks. Check solution recommendation chart with your chemical supplier for proper sheath material selection.

Heavy wall metal sheaths available in: steel, 304 stainless steel, 316 stainless steel, titanium.

Watt densities up to 35 watts per square inch (5.4 w/cm²) ensure long service life.

Vapor-resistant, flame retardant polypropylene terminal enclosure with 3 ft (.9m) flexible PVC liquid tight conduit.

Temperature and level controls sized to match the heater.

Lower watt densities for highly viscous solutions.

NOTE: Intended for vertical installation only.

| | |
|---|---|
| <p>Temperature: Up to 180 °C</p> | <p>120 to 600 volts, 600V on 4,500W or lower only</p> |
| <p>Watts: 1,500 to 18,000 watts</p> | <p>cULus listed (except steel). CE compliant (except 600 volts)</p> |

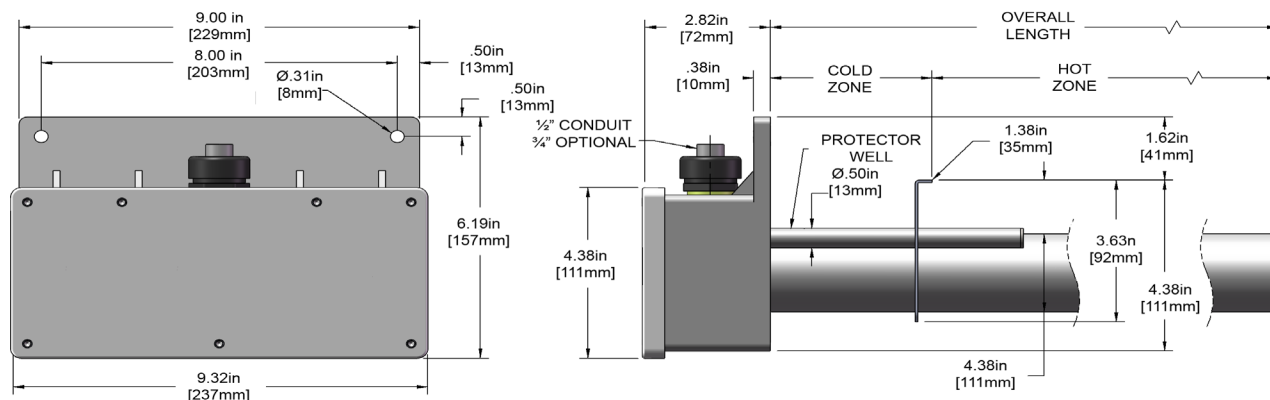
| D3 SERIES, DERATED TRIPLE METAL HEATERS | | | | | | | | |
|---|-------|---------|---------|-----------------|-----------------|-----------------|-----------------|--------------------|
| WATTS | VOLTS | HOT | OVERALL | STEEL | 304 SS | 316 SS | TITANIUM | SHIP WGT. Lbs./kg) |
| | | ZONE | LENGTH | | | | | |
| | | In./mm) | In./mm) | | | | | |
| 1500 | 120 | 6 | 11 | D3P1.5111-*.** | D3F1.5111-*.** | D3S1.5111-*.** | D3T1.5111-*.** | 21 |
| | 240 | (152) | (279) | D3P1.5211-*.** | D3F1.5211-*.** | D3S1.5211-*.** | D3T1.5211-*.** | (9.5) |
| 3000 | 240 | 10 | 17 | D3P3217-*.** | D3F3217-*.** | D3S3217-*.** | D3T3217-*.** | 30 |
| | 480 | (254) | (432) | D3P3417-*.** | D3F3417-*.** | D3S3417-*.** | D3T3417-*.** | (13.6) |
| 4500 | 240 | 16 | 23 | D3P4.5223-*.** | D3F4.5223-*.** | D3S4.5223-*.** | D3T4.5223-*.** | 33 |
| | 480 | (406) | (584) | D3P4.5423-*.** | D3F4.5423-*.** | D3S4.5423-*.** | D3T4.5423-*.** | (15) |
| 6000 | 240 | 20 | 29 | D3P6229-*.** | D3F6229-*.** | D3S6229-*.** | D3T6229-*.** | 39 |
| | 480 | (508) | (737) | D3P6429-*.** | D3F6429-*.** | D3S6429-*.** | D3T6429-*.** | (17.7) |
| 7500 | 240 | 25 | 35 | D3P7.5235-*.** | D3F7.5235-*.** | D3S7.5235-*.** | D3T7.5235-*.** | 45 |
| | 480 | (635) | (889) | D3P7.5435-*.** | D3F7.5435-*.** | D3S7.5435-*.** | D3T7.5435-*.** | (20.4) |
| 9000 | 240 | 30 | 40 | D3P9240-*.** | D3F9240-*.** | D3S9240-*.** | D3T9240-*.** | 51 |
| | 480 | (762) | (1016) | D3P9440-*.** | D3F9440-*.** | D3S9440-*.** | D3T9440-*.** | (23.1) |
| 12000 | 240 | 37 | 47 | D3P12247-*.** | D3F12247-*.** | D3S12247-*.** | D3T12247-*.** | 63 |
| | 480 | (940) | (1194) | D3P12447-*.** | D3F12447-*.** | D3S12447-*.** | D3T12447-*.** | (28.6) |
| 13500 | 240 | 44 | 54 | D3P13.5254-*.** | D3F13.5254-*.** | D3S13.5254-*.** | D3T13.5254-*.** | 69 |
| | 480 | (1118) | (1372) | D3P13.5454-*.** | D3F13.5454-*.** | D3S13.5454-*.** | D3T13.5454-*.** | (31.3) |
| 15000 | 240 | 49 | 59 | D3P15259-*.** | D3F15259-*.** | D3S15259-*.** | D3T15259-*.** | 75 |
| | 480 | (1245) | (1499) | D3P15459-*.** | D3F15459-*.** | D3S15459-*.** | D3T15459-*.** | (34) |
| 18000 | 240 | 58 | 68 | D3P18268-*.** | D3F18268-*.** | D3S18268-*.** | D3T18268-*.** | 84 |
| | 480 | (1473) | (1727) | D3P18468-*.** | D3F18468-*.** | D3S18468-*.** | D3T18468-*.** | (38.1) |

Derated Triple Metal Over the Side Heaters

SPECIFICATIONS

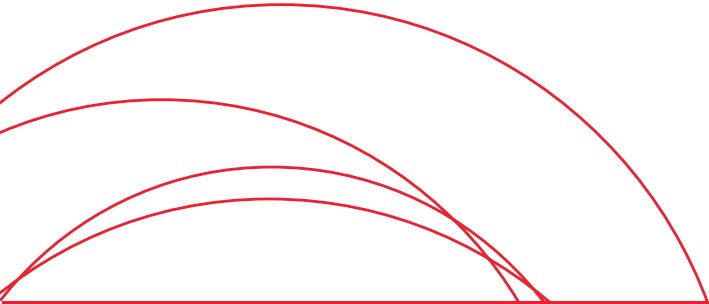
| | |
|-------------------|---|
| Wattages | 1,500 Watts to 18,000 Watts |
| Voltages | 120 volts to 600 volts, (600V on 4,500W or lower only) |
| Temperature Range | Up to 180° C (82°F) |
| Options | Special configurations & lengths Longer wire and conduit lengths All metal welded junction box |
| Safety Features | Grounded construction Thermal protector built in. Replaceable PI protector standard for solutions up to 180°C (82°F). See chart below for options. |

DIMENSIONS



MODEL NUMBER BREAKDOWN

| Series | Wattage | Voltage | Overall Length | Phase | Type of Protector | Wire & Conduit Length |
|---------------------------|--------------|---------|----------------|---------------------------|----------------------------------|---|
| D3P = Steel | 1.5 = 1500 | 1 = 120 | 11 = 1.5kW | Blank = three phase (std) | Replaceable Fuse | 36" length standard (no designator) |
| D3F = 304 stainless steel | 3 = 3000 | 2 = 240 | 17 = 3kW | -1 = single phase | P1 (std) = solutions up to 180°F | Specify variations from standard Ex: -X84 = 84" |
| D3S = 316 stainless steel | 4.5 = 4500 | 3 = 380 | 23 = 4.5kW | | P4 = solutions up to 230°F | |
| D3T = Titanium | 6 = 6000 | 4 = 480 | 29 = 6kW | | P5 = solutions up to 300°F | |
| | 7.5 = 7500 | 5 = 415 | 35 = 7.5kW | | Resettable Fuse | |
| | 9 = 9000 | 6 = 600 | 40 = 9kW | | P2 = solutions up to 180°F | |
| | 12 = 12000 | 7 = 400 | 47 = 12kW | | P6 = solutions up to 230°F | |
| | 13.5 = 13500 | 8 = 208 | 54 = 13.5kW | | P7 = solutions up to 300°F | |
| | 15 = 15000 | 9 = 220 | 59 = 15kW | | | |
| | 18 = 18000 | 0 = 200 | 68 = 18kW | | | |



Derated Single Metal Over the Side Heaters

Low watt density, durable, efficient metal heaters for concentrated alkaline or caustic solutions. Available in Steel, 304 Stainless Steel, 316 Stainless Steel, and Titanium.



FEATURES

For use in most aqueous alkaline solutions, plating and phosphate tanks. Check solution recommendation chart with your chemical supplier for proper sheath material selection.

Heavy wall metal sheaths available in: steel, 304 stainless steel, 316 stainless steel, titanium.

Watt densities up to 18 watts per square inch (2.8 w/cm²) ensure long service life.

Vapor-resistant, flame retardant polypropylene terminal enclosure with 3 ft (.9m) flexible PVC liquid tight conduit.

Temperature and level controls sized to match the heater.

Lower watt densities for highly viscous solutions.

NOTE: Intended for vertical installation only.

| | |
|--------------------------------------|---|
| <p>Temperature: Up to 180 °C</p> | <p>120 to 600 volts, 600V on 4,500W or lower only</p> |
| <p>Watts: 500 to 6,000 watts</p> | <p>cULus listed (except steel). CE compliant (except 600 volts)</p> |

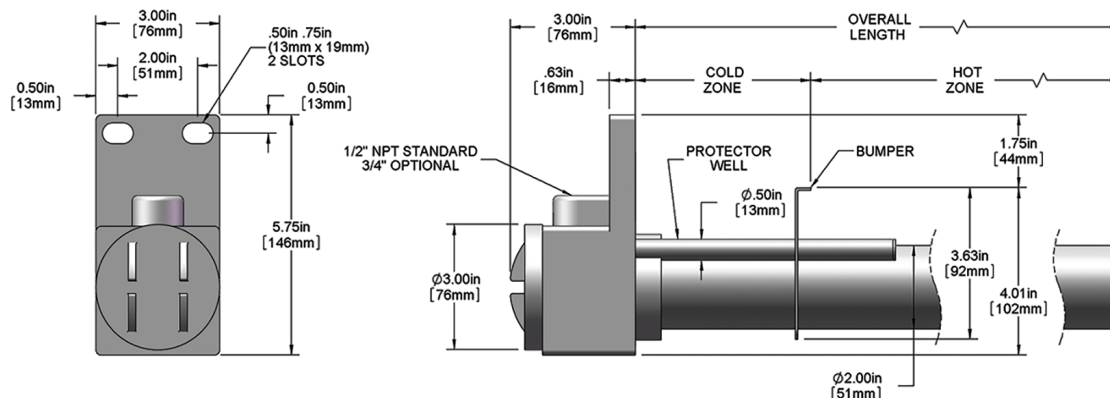
| D SERIES, DERATED METAL HEATERS | | | | | | | | |
|---------------------------------|-------|-----------------------|-----------------------------|---------------|---------------|---------------|---------------|-------------------------|
| WATTS | VOLTS | HOT ZONE In./ (mm) | OVERALL LENGTH In./ (mm) | STEEL | 304 SS | 316 SS | TITANIUM | SHIP WGT. Lbs./ (kg) |
| | | | | DP5111-**-** | DF5111-**-** | DS5111-**-** | DT5111-**-** | |
| 500 | 120 | 6 | 11 | DP5211-**-** | DF5211-**-** | DS5211-**-** | DT5211-**-** | 7 (3.2) |
| | 240 | (152) | (279) | DP1217-**-** | DF1217-**-** | DS1217-**-** | DT1217-**-** | 10 |
| 1000 | 240 | 10 | 17 | DP1417-**-** | DF1417-**-** | DS1417-**-** | DT1417-**-** | 10 (4.5) |
| | 480 | (254) | (432) | DP15223-**-** | DF15223-**-** | DS15223-**-** | DT15223-**-** | 11 |
| 1500 | 240 | 16 | 23 | DP15423-**-** | DF15423-**-** | DS15423-**-** | DT15423-**-** | 11 (5) |
| | 480 | (406) | (584) | DP2229-**-** | DF2229-**-** | DS2229-**-** | DT2229-**-** | 13 |
| 2000 | 240 | 20 | 29 | DP2429-**-** | DF2429-**-** | DS2429-**-** | DT2429-**-** | 13 (5.9) |
| | 480 | (508) | (737) | DP25235-**-** | DF25235-**-** | DS25235-**-** | DT25235-**-** | 15 |
| 2500 | 240 | 25 | 35 | DP25435-**-** | DF25435-**-** | DS25435-**-** | DT25435-**-** | 15 (6.8) |
| | 480 | (635) | (889) | DP3240-**-** | DF3240-**-** | DS3240-**-** | DT3240-**-** | 17 |
| 3000 | 240 | 30 | 40 | DP3440-**-** | DF3440-**-** | DS3440-**-** | DT3440-**-** | 17 (7.7) |
| | 480 | (762) | (1016) | DP4247-**-** | DF4247-**-** | DS4247-**-** | DT4247-**-** | 23 |
| 4000 | 240 | 37 | 47 | DP4447-**-** | DF4447-**-** | DS4447-**-** | DT4447-**-** | 23 (10.4) |
| | 480 | (940) | (1194) | DP45254-**-** | DF45254-**-** | DS45254-**-** | DT45254-**-** | 24 |
| 4500 | 240 | 44 | 54 | DP45454-**-** | DF45454-**-** | DS45454-**-** | DT45454-**-** | 24 (10.9) |
| | 480 | (1118) | (1372) | DP5259-**-** | DF5259-**-** | DS5259-**-** | DT5259-**-** | 25 |
| 5000 | 240 | 49 | 59 | DP5459-**-** | DF5459-**-** | DS5459-**-** | DT5459-**-** | 25 (11.3) |
| | 480 | (1245) | (1499) | DP6268-**-** | DF6268-**-** | DS6268-**-** | DT6268-**-** | 28 |
| 6000 | 240 | 58 | 68 | DP6468-**-** | DF6468-**-** | DS6468-**-** | DT6468-**-** | 28 (12.7) |
| | 480 | (1473) | (1727) | | | | | |

Derated Single Metal Over the Side Heaters

SPECIFICATIONS

| | |
|-------------------|---|
| Wattages | 500 Watts to 6,000 Watts |
| Voltages | 120 volts to 600 volts, (600V on 4,500W or lower only) |
| Temperature Range | Up to 180°C (82°F) |
| Options | Special configurations & lengths Longer wire and conduit lengths All metal welded junction box |
| Safety Features | Grounded construction Thermal protector built in. Replaceable PI protector standard for solutions up to 180°C (82°F). See chart below for options. |

DIMENSIONS



MODEL NUMBER BREAKDOWN

| Series | Wattage | Voltage | Overall Length | Phase | Type of Protector | Wire & Conduit Length |
|--------------------------|------------|---------|----------------|----------------------------|----------------------------------|---|
| DP = Steel | .5 = 500 | 1 = 120 | 11 = .5kW | Blank = single phase (std) | Replaceable Fuse | 36" length standard (no designator) |
| DF = 304 stainless steel | 1 = 1000 | 2 = 240 | 17 = 1kW | -3 = 3 phase | P1 (std) = solutions up to 180°F | Specify variations from standard Ex: -X84 = 84" |
| DS = 316 stainless steel | 1.5 = 1500 | 3 = 380 | 23 = 1.5kW | | P4 = solutions up to 230°F | |
| DT = Titanium | 2 = 2000 | 4 = 480 | 29 = 2kW | | P5 = solutions up to 300°F | |
| | 2.5 = 2500 | 5 = 415 | 35 = 2.5kW | | Resettable Fuse | |
| | 3 = 3000 | 6 = 600 | 40 = 3kW | | P2 = solutions up to 180°F | |
| | 4 = 4000 | 7 = 400 | 47 = 4kW | | P6 = solutions up to 230°F | |
| | 4.5 = 4500 | 8 = 208 | 54 = 4.5kW | | P7 = solutions up to 180°F | |
| | 5 = 5000 | 9 = 220 | 59 = 5kW | | | |
| | 6 = 6000 | 0 = 200 | 60 = 6kW | | | |



FL Series Flanged Heater

Durable, efficient chemical heater with a variety of options for use in most aqueous alkaline solutions, plating and phosphate tanks.



FEATURES

Vapor resistant, flame retardant polypropylene terminal.

Heavy wall metal sheaths available in 316 stainless steel, carbon steel, incoloy and titanium. 316 Stainless Steel standard with metal explosion resistant M2 terminal enclosure.

Vapor-resistant, painted metal enclosures.

Grounded construction and built-in P1 thermal protector for solutions up to 180°F (82°C).

Temperature and level controls sized to match the heater.

Lower watt densities for highly viscous solutions and long service life (up to 40 watts per square inch - 6.2w/cm²).





3" and 5" fluoropolymer flanged heaters.

OPTIONS

Resettable thermal protectors.

Custom configurations and lengths.

Custom wire and conduit lengths.

| | |
|---|---|
|  Temperature: Up to 180°F |  240 to 600 volts |
|  Watts: 3000 to 72,000 |  CE certified (except steel and 600 volts) |

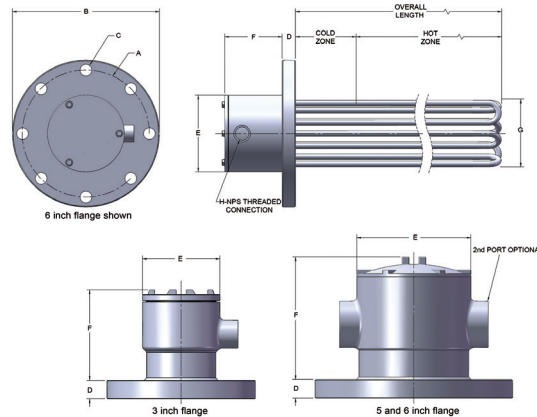
FL Series Flanged Heater

SPECIFICATIONS

| | |
|-------------------|---|
| Wattages | 3000 Watts to 72,000 Watts |
| Voltages | 240 volts to 600 volts |
| Temperature Range | Up to 180°F (82°C) |
| Options | Special configurations & lengths Resettable thermal protectors Metric flanges |
| Safety Features | Grounded construction Thermal protector built in. Replaceable PI protector standard for solutions up to 180°F (82°C). |

DIMENSIONS

NOTE: Gasket and bolts not provided. Intended for horizontal installation only.



3", 5" AND 6" FLANGE SIZES

| 3" 150 LBS. SS FLANGE 3 STAINLESS STEEL ELEMENTS | | | | | 5" 150 LBS. SS FLANGE 6 STAINLESS STEEL ELEMENTS | | | | | 6" 150 LBS. SS FLANGE 12 STAINLESS STEEL ELEMENTS | | | | |
|---|-------|------------------------|------------------|--------------------|---|-------|------------------------|-----------------|--------------------|--|-------|------------------------|-----------------|--------------------|
| WATTS | VOLTS | OVERALL LENGTH in/(mm) | MODEL NUMBER | SHIP WGT. lbs/(kg) | WATTS | VOLTS | OVERALL LENGTH in/(mm) | MODEL NUMBER | SHIP WGT. lbs/(kg) | WATTS | VOLTS | OVERALL LENGTH in/(mm) | MODEL NUMBER | SHIP WGT. lbs/(kg) |
| 3000 | 240 | 9 | 3FLS3209-M2-** | 14 | 6000 | 240 | 9 | 5FLS6209-M2-** | 25 | 12000 | 240 | 9 | 6FLS12209-M2-** | 48 |
| | | (229) | 3FLS3409-M2-** | (6.4) | | | (229) | 5FLS6409-M2-** | (11.3) | | | (229) | 6FLS12409-M2-** | (21.8) |
| 4500 | 240 | 13 | 3FLS4.5213-M2-** | 15 | 9000 | 240 | 13 | 5FLS9213-M2-** | 28 | 18000 | 240 | 13 | 6FLS18213-M2-** | 54 |
| | | (330) | 3FLS4.5413-M2-** | (6.8) | | | (330) | 5FLS9413-M2-** | (12.7) | | | (330) | 6FLS18413-M2-** | (24.5) |
| 6000 | 240 | 19 | 3FLS6219-M2-** | 16 | 12000 | 240 | 19 | 5FLS12219-M2-** | 30 | 24000 | 240 | 19 | 6FLS24219-M2-** | 60 |
| | | (483) | 3FLS6419-M2-** | (7.3) | | | (483) | 5FLS12419-M2-** | (13.6) | | | (483) | 6FLS24419-M2-** | (27.2) |
| 9000 | 240 | 26 | 3FLS9226-M2-** | 17 | 18000 | 240 | 26 | 5FLS18226-M2-** | 33 | 36000 | 240 | 26 | 6FLS36226-M2-** | 67 |
| | | (660) | 3FLS9426-M2-** | (7.7) | | | (660) | 5FLS18426-M2-** | (15) | | | (660) | 6FLS36426-M2-** | (30.4) |
| 12000 | 240 | 33 | 3FLS12233-M2-** | 18 | 24000 | 240 | 33 | 5FLS24233-M2-** | 37 | 48000 | 240 | 33 | 6FLS48233-M2-** | 76 |
| | | (838) | 3FLS12433-M2-** | (8.2) | | | (838) | 5FLS24433-M2-** | (16.8) | | | (838) | 6FLS48433-M2-** | (34.5) |
| 15000 | 240 | 41 | 3FLS15241-M2-** | 20 | 30000 | 240 | 41 | 5FLS30241-M2-** | 40 | 60000 | 240 | 41 | 6FLS60241-M2-** | 84 |
| | | (1041) | 3FLS15441-M2-** | (9.1) | | | (1041) | 5FLS30441-M2-** | (18.1) | | | (1041) | 6FLS60441-M2-** | (38.1) |
| 18000 | 240 | 49 | 3FLS18249-M2-** | 21 | 36000 | 240 | 49 | 5FLS36249-M2-** | 43 | 72000 | 240 | 49 | 6FLS72249-M2-** | 111 |
| | | (1245) | 3FLS18449-M2-** | (9.5) | | | (1245) | 5FLS36559-M2-** | (19.5) | | | (1245) | 6FLS72449-M2-** | (50.3) |

| FLANGE SIZE | DIM A | DIM B | DIM C | DIM D | DIM E +/- | DIM F +/- | DIM G +/- | DIM H |
|-------------|-------|--------|-----------|-------|-----------|-----------|-----------|-------|
| 3" 150 lb. | 6.00" | 7.50" | 0.75" (4) | 0.94" | 3.88" | 4.55" | 2.48" | 0.75" |
| 5" 150 lb. | 8.50" | 10.00" | 0.88" (8) | 0.94" | 5.80" | 6.30" | 4.70" | 1.50" |
| 6" 150 lb. | 9.50" | 11.00" | 0.88" (8) | 1.00" | 6.63" | 5.63" | 5.70" | 1.00" |

5" 150 LBS. SS FLANGE

MODEL NUMBER BREAKDOWN

| SIZE | A | B | C | D | E | F | G | H | | | | |
|-------------|---------------------------|--------------|-----------|--------------------------------|-----------------|----------------------------------|---|-------|---|----|---|----|
| 3" 150LB | 6.00" | 7.50" | 0.75" (4) | 0.94" | 3.88" | 4.55" | 2.48" | 0.75" | | | | |
| 3 | 8.50" | FLS | 0.88" (8) | 3 | 5.80" | 4 6.30" | 4.70" | 09 | - | M2 | - | P4 |
| | 9.50" | | 0.88" (8) | | 6.63" | 5.63" | 5.70" | 1.00" | | | | |
| Flange Size | Series | Wattage | Voltage | Horizontal Length (in.) | Heater Head | Type of Protector | Wire & Conduit Length | | | | | |
| 3 = 3" | FLS = 316 Stainless Steel | 3000 - 72000 | 2 = 240 | Consult model chart for length | M2 = Metal head | Replaceable Fuse | 36" length standard (no designator) | | | | | |
| 5 = 5" | FLT = Titanium | | 3 = 380 | | | P1 (std) = solutions up to 180°F | Specify variations from standard Ex: -X84 = 84" | | | | | |
| 6 = 6" | | | 4 = 480 | | | P4 = solutions up to 230°F | | | | | | |
| | | | 5 = 415 | | | P5 = solutions up to 300°F | | | | | | |
| | | | 6 = 600 | | | Resettable Fuse | | | | | | |
| | | | 7 = 400 | | | P2 = solutions up to 180°F | | | | | | |
| | | | | | | P6 = solutions up to 220°F | | | | | | |
| | | | | | | P7 = solutions up to 300°F | | | | | | |



Single L Shaped Metal Bottom Heater

Durable, efficient metal heater. Available in Steel, 304 Stainless Steel, 316 Stainless Steel, and Titanium.



FEATURES

For use in most aqueous alkaline solutions, plating and phosphate tanks. Check solution recommendation chart with your chemical supplier for proper sheath material selection.

Heavy wall metal sheaths available in: steel, 304 stainless steel, 316 stainless steel, titanium.

Watt densities up to 35 watts per square inch (5.4 w/cm²) ensure long service life.

Vapor-resistant, flame retardant polypropylene terminal enclosure with 3 ft (.9m) flexible PVC liquid tight conduit.

Temperature and level controls sized to match the heater.

Lower watt densities for highly viscous solutions.

| L SERIES, METAL L-SHAPED HEATERS | | | | | | | | |
|----------------------------------|-------|--------------------|----------------------------|---------------|---------------|---------------|---------------|--------------------------|
| WATTS | VOLTS | HORIZ. In./(mm) | STD. VERT.* In./(mm) | STEEL | 304 SS | 316 SS | TITANIUM | SHIP WGT. Lbs/(kg) |
| 1000 | 120 | 13 | 15 | LP1113-R*.** | LF1113-R*.** | LS1113-R*.** | LT1113-R*.** | 10 |
| | 240 | (330) | (381) | LP1213-R*.** | LF1213-R*.** | LS1213-R*.** | LT1213-R*.** | (4.5) |
| 2000 | 120 | 17 | 19 | LP2117-R*.** | LF2117-R*.** | LS2117-R*.** | LT2117-R*.** | 11 |
| | 240 | (432) | (483) | LP2217-R*.** | LF2217-R*.** | LS2217-R*.** | LT2217-R*.** | (5) |
| | 480 | | | LP2417-R*.** | LF2417-R*.** | LS2417-R*.** | LT2417-R*.** | |
| 3000 | 240 | 22 | 25 | LP3222-R*.** | LF3222-R*.** | LS3222-R*.** | LT3222-R*.** | 12 |
| | 480 | (559) | (635) | LP3422-R*.** | LF3422-R*.** | LS3422-R*.** | LT3422-R*.** | (5.4) |
| 4000 | 240 | 26 | 25 | LP4226-R*.** | LF4226-R*.** | LS4226-R*.** | LT4226-R*.** | 13 |
| | 480 | (660) | (635) | LP4426-R*.** | LF4426-R*.** | LS4426-R*.** | LT4426-R*.** | (5.9) |
| 5000 | 240 | 31 | 37 | LP5231-R*.** | LF5231-R*.** | LS5231-R*.** | LT5231-R*.** | 14 |
| | 480 | (787) | (940) | LP5431-R*.** | LF5431-R*.** | LS5431-R*.** | LT5431-R*.** | (6.4) |
| 6000 | 240 | 36 | 50 | LP6236-R*.** | LF6236-R*.** | LS6236-R*.** | LT6236-R*.** | 15 |
| | 480 | (914) | (1270) | LP6436-R*.** | LF6436-R*.** | LS6436-R*.** | LT6436-R*.** | (6.8) |
| 8000 | 240 | 44 | 50 | LP8244-R*.** | LF8244-R*.** | LS8244-R*.** | LT8244-R*.** | 18 |
| | 480 | (1118) | (1270) | LP8444-R*.** | LF8444-R*.** | LS8444-R*.** | LT8444-R*.** | (8.2) |
| 9000 | 240 | 50 | 50 | LP9250-R*.** | LF9250-R*.** | LS9250-R*.** | LT9250-R*.** | 20 |
| | 480 | (1270) | (1270) | LP9450-R*.** | LF9450-R*.** | LS9450-R*.** | LT9450-R*.** | (9.1) |
| 10000 | 240 | 55 | 50 | LP10255-R*.** | LF10255-R*.** | LS10255-R*.** | LT10255-R*.** | 22 |
| | 480 | (1397) | (1270) | LP10455-R*.** | LF10455-R*.** | LS10455-R*.** | LT10455-R*.** | (10) |
| 12000 | 240 | 64 | 50 | LP12264-R*.** | LF12264-R*.** | LS12264-R*.** | LT12264-R*.** | 25 |
| | 480 | (1626) | (1270) | LP12464-R*.** | LF12464-R*.** | LS12464-R*.** | LT12464-R*.** | (11.3) |



Temperature:
Up to 180°C



120 to 600 volts,
600V on 4,500W
or lower only



Watts: 1000 to
12,000



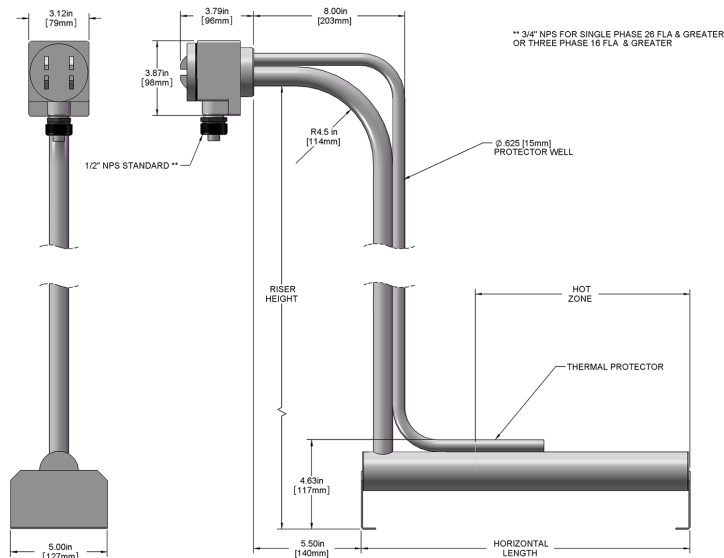
cULus listed (except
steel). CE compliant
(except 600 volts)

Single L Shaped Metal Bottom Heater

SPECIFICATIONS

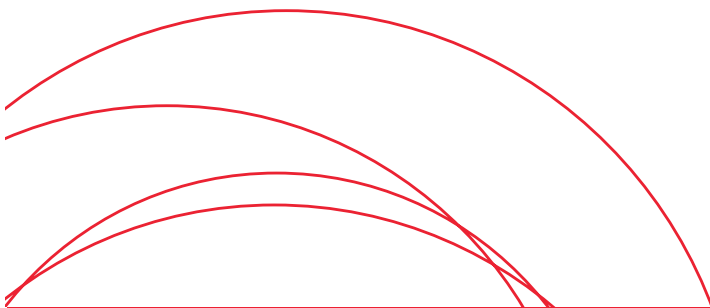
| | |
|-------------------|--|
| Wattages | 1000 Watts to 12,000 Watts |
| Voltages | 120 volts to 600 volts, (600V on 4,500W or lower only) |
| Temperature Range | Up to 180°C (82°F) |
| Options | Special configurations & lengths Longer wire and conduit lengths All metal welded junction box |
| Safety Features | Grounded construction Thermal protector built in. Replaceable PI protector standard for solutions up to 180°C (82°F). See chart below for options |

DIMENSIONS



MODEL NUMBER BREAKDOWN

| Series | Wattage | Voltage | Horizontal Length (in.) | Vertical Length (in.) | Riser Option | Phase | Type of Protector | Wire & Conduit Length |
|--------------------------|------------|---------|-------------------------|-----------------------|-----------------------------------|----------------------------|----------------------------------|---|
| LP = Steel | 1 = 1000 | 1 = 120 | 13 = 1kW | -R15 = 1kW | Blank = 90° horizontal bend (std) | blank = single phase (std) | Replaceable Fuse (Type-J TC) | 36" length standard (no designator) |
| LF = 304 stainless steel | 2 = 2000 | 2 = 240 | 17 = 2kW | -R19 = 2kW | S = straight riser | -3 = three phase | P1 (std) = solutions up to 180°F | Specify variations from standard Ex: -X84 = 84" |
| LS = 316 stainless steel | 3 = 3000 | 3 = 380 | 22 = 3kW | -R25 = 3kW | | | P4 = solutions up to 230°F | |
| LT = Titanium | 4 = 4000 | 4 = 480 | 26 = 4kW | -R25 = 4kW | | | P5 = solutions up to 300°F | |
| | 5 = 5000 | 5 = 415 | 31 = 5kW | -R37 = 5kW | | | Resettable Fuse (Type-J TC) | |
| | 6 = 6000 | 6 = 600 | 36 = 6kW | -R50 = 6kW | | | P2 = solutions up to 180°F | |
| | 7 = 7000 | 7 = 400 | 44 = 8kW | -R50 = 8kW | | | P6 = solutions up to 230°F | |
| | 8 = 8000 | 8 = 208 | 50 = 9kW | -R50 = 9kW | | | P7 = solutions up to 300°F | |
| | 9 = 9000 | 9 = 220 | 55 = 10kW | -R50 = 10kW | | | | |
| | 10 = 10000 | 0 = 200 | 64 = 12kW | -R50 = 12kW | | | | |
| | 11 = 11000 | | | | | | | |
| | 12 = 12000 | | | | | | | |



Single Metal Over the Side Heater

Durable, efficient metal heater. Available in Steel, 304 Stainless Steel, 316 Stainless Steel, and Titanium.



FEATURES

For use in most aqueous alkaline solutions, plating and phosphate tanks. Check solution recommendation chart with your chemical supplier for proper sheath material selection.

Heavy wall metal sheaths available in: steel, 304 stainless steel, 316 stainless steel, titanium.

Watt densities up to 35 watts per square inch (5.4 w/cm²) ensure long service life.

Vapor-resistant, flame retardant polypropylene terminal enclosure with 3 ft (.9m) flexible PVC liquid tight conduit.

Temperature and level controls sized to match the heater.

Lower watt densities for highly viscous solutions.

NOTE: Intended for vertical installation only.

| P, F, S, and T SERIES, METAL HEATERS | | | | | | | | |
|--------------------------------------|-------|----------|----------------|-----------|-----------|-----------|-----------|--------------------|
| WATTS | VOLTS | HOT ZONE | OVERALL LENGTH | STEEL | 304 SS | 316 SS | TITANIUM | SHIP WGT. Lbs./kg) |
| | | In./(mm) | In./(mm) | | | | | |
| 1000 | 120 | 6 | 11 | P1111-** | F1111-** | S1111-** | T1111-** | 8 |
| | 240 | (152) | (279) | P1211-** | F1211-** | S1211-** | T1211-** | (3.6) |
| | 480 | (254) | (432) | P2417-** | F2417-** | S2417-** | T2417-** | (4.5) |
| 2000 | 240 | 10 | 17 | P2217-** | F2217-** | S2217-** | T2217-** | 10 |
| | 480 | (254) | (432) | P2417-** | F2417-** | S2417-** | T2417-** | (4.5) |
| 3000 | 240 | 16 | 23 | P3223-** | F3223-** | S3223-** | T3223-** | 12 |
| | 480 | (406) | (584) | P3423-** | F3423-** | S3423-** | T3423-** | (5.4) |
| 4000 | 240 | 20 | 29 | P4229-** | F4229-** | S4229-** | T4229-** | 13 |
| | 480 | (508) | (737) | P4429-** | F4429-** | S4429-** | T4429-** | (5.9) |
| 5000 | 240 | 25 | 35 | P5235-** | F5235-** | S5235-** | T5235-** | 16 |
| | 480 | (635) | (889) | P5435-** | F5435-** | S5435-** | T5435-** | (7.3) |
| 6000 | 240 | 30 | 40 | P6240-** | F6240-** | S6240-** | T6240-** | 18 |
| | 480 | (762) | (1016) | P6440-** | F6440-** | S6440-** | T6440-** | (8.2) |
| 8000 | 240 | 37 | 47 | P8247-** | F8247-** | S8247-** | T8247-** | 23 |
| | 480 | (940) | (1194) | P8447-** | F8447-** | S8447-** | T8447-** | (10.4) |
| 9000 | 240 | 44 | 54 | P9254-** | F9254-** | S9254-** | T9254-** | 24 |
| | 480 | (1118) | (1372) | P9454-** | F9454-** | S9454-** | T9454-** | (10.9) |
| 10000 | 240 | 49 | 59 | P10259-** | F10259-** | S10259-** | T10259-** | 25 |
| | 480 | (1245) | (1499) | P10459-** | F10459-** | S10459-** | T10459-** | (11.3) |
| 12000 | 240 | 58 | 68 | P12268-** | F12268-** | S12268-** | T12268-** | 29 |
| | 480 | (1473) | (1727) | P12468-** | F12468-** | S12468-** | T12468-** | (13.2) |

Temperature: Up to 180°C

120 to 600 volts, 600V on 4,500W or lower only

Watts: 1000 to 12,000

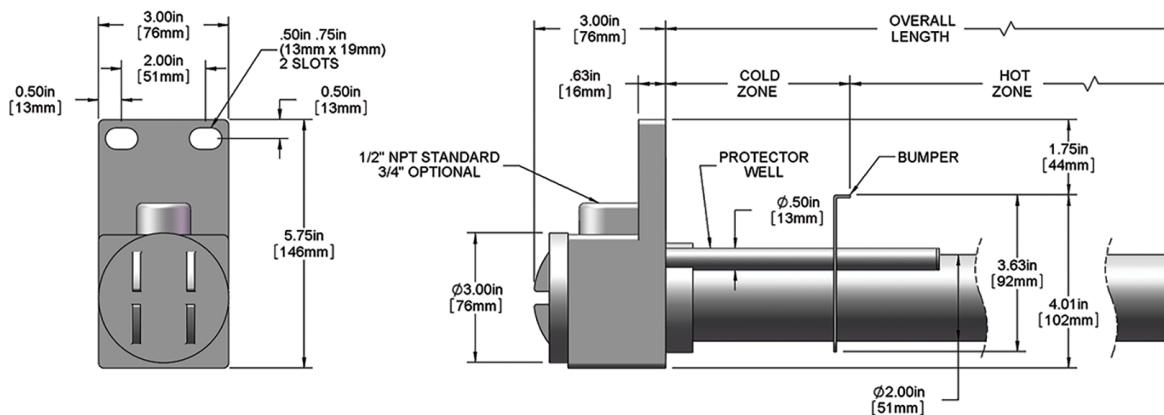
cULus listed (except steel). CE compliant (except 600 volts)

Metal Over the Side Heater

SPECIFICATIONS

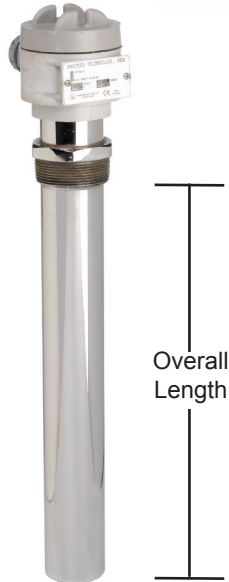
| | |
|-------------------|---|
| Wattages | 1000 Watts to 12,000 Watts |
| Voltages | 120 volts to 600 volts, (600V on 4,500W or lower only) |
| Temperature Range | Up to 180°C (82°F) |
| Options | Special configurations & lengths Longer wire and conduit lengths All metal welded junction box |
| Safety Features | Grounded construction Thermal protector built in. Replaceable PI protector standard for solutions up to 180°C (82°F) See chart below for options |

DIMENSIONS



MODEL NUMBER BREAKDOWN

| Series | Wattage | Voltage | Overall Length | Phase | Type of Protector | Wire & Conduit Length |
|-------------------------|------------|---------|----------------|----------------------|-------------------------------------|---|
| P = Steel | 1 = 1000 | 1 = 120 | 11 = 1kW | Blank = single (std) | Replaceable Fuse (Type-J TC) | 36" length standard (no designator) |
| F = 304 stainless steel | 2 = 2000 | 2 = 240 | 17 = 2kW | -3 = 3 phase | P1 (std) = solutions up to 180°F | Specify variations from standard Ex: -X84 = 84" |
| S = 316 stainless steel | 3 = 3000 | 3 = 380 | 23 = 3kW | | P4 = solutions up to 230°F | |
| T = titanium | 4 = 4000 | 4 = 480 | 29 = 4kW | | P5 = solutions up to 300°F | |
| | 5 = 5000 | 5 = 415 | 35 = 5kW | | Resettable Fuse (Type-J TC) | |
| | 6 = 6000 | 6 = 600 | 40 = 6kW | | P2 = solutions up to 180°F | |
| | 7 = 7000 | 7 = 400 | 47 = 8kW | | P6 = solutions up to 230°F | |
| | 8 = 8000 | 8 = 208 | 54 = 9kW | | P7 = solutions up to 300°F | |
| | 9 = 9000 | 9 = 220 | 59 = 10kW | | | |
| | 10 = 10000 | 0 = 200 | 60 = 12kW | | | |
| | 11 = 11000 | | | | | |
| | 12 = 12000 | | | | | |



| T SERIES, 2" TUBULAR SCREW PLUG HEATERS | | | | | | | |
|---|-------|----------------------------|-------------|---------|---------|----------|------------------------|
| WATTS | VOLTS | OVERALL LENGTH In./(mm) | PIPE THREAD | 304 SS | 316 SS | TITANIUM | SHIP WGT. Lbs./(kg) |
| 1000 | 120 | 10 | 2 | FT1110 | ST1110 | TT1110 | 11 |
| | 240 | (254) | | FT1210 | ST1210 | TT1210 | (5) |
| 2000 | 120 | 14 | 2 | FT2114 | ST2114 | TT2114 | 14 |
| | 240 | (356) | | FT2214 | ST2214 | TT2214 | (6.4) |
| | 480 | | | FT2414 | ST2414 | TT2414 | |
| 3000 | 240 | 19 | 2 | FT3219 | ST3219 | TT3219 | 16 |
| | 480 | (483) | | FT3419 | ST3419 | TT3419 | (7.3) |
| 4000 | 240 | 23 | 2 | FT4223 | ST4223 | TT4223 | 20 |
| | 480 | (584) | | FT4423 | ST4423 | TT4423 | (9.1) |
| 6000 | 240 | 33 | 2 | FT6233 | ST6233 | TT6233 | 26 |
| | 480 | (838) | | FT6433 | ST6433 | TT6433 | (11.8) |
| 8000 | 240 | 40 | 2 | FT8240 | ST8240 | TT8240 | 29 |
| | 480 | (1016) | | FT8440 | ST8440 | TT8440 | (13.2) |
| 9000 | 240 | 47 | 2 | FT9247 | ST9247 | TT9247 | 32 |
| | 480 | (1194) | | FT9447 | ST9447 | TT9447 | (14.5) |
| 12000 | 240 | 61 | 2 | FT12261 | ST12261 | TT12261 | 37 |
| | 480 | (1549) | | FT12461 | ST12461 | TT12461 | (16.8) |

Other sizes available, consult factory.



T Series Heater Features and Benefits

SUPERIOR CHEMICAL RESISTANCE:

- ◆ For use in most aqueous alkaline solutions, and plating and phosphate tanks. Check solution recommendation chart with your chemical supplier for proper sheath material selection.

RUGGED CONSTRUCTION:

- ◆ Heavy wall metal sheaths and screwplug available in:
 - 304 stainless steel
 - 316 stainless steel
 - Titanium

OUTSTANDING PERFORMANCE:

- ◆ Watt densities up to 35 watts per square inch (5.4 w/cm²) ensure long service life.

CORROSION RESISTANT HEAD:

- ◆ Vapor resistant, flame retardant polypropylene terminal enclosure with 3 ft (.9m) flexible PVC liquid tight conduit.

SAFETY FEATURES:

- ◆ Grounded construction.

CERTIFICATIONS: cULus listed (except steel) and CE compliant.

SIZES: 1,000 watts to 12,000 watts.

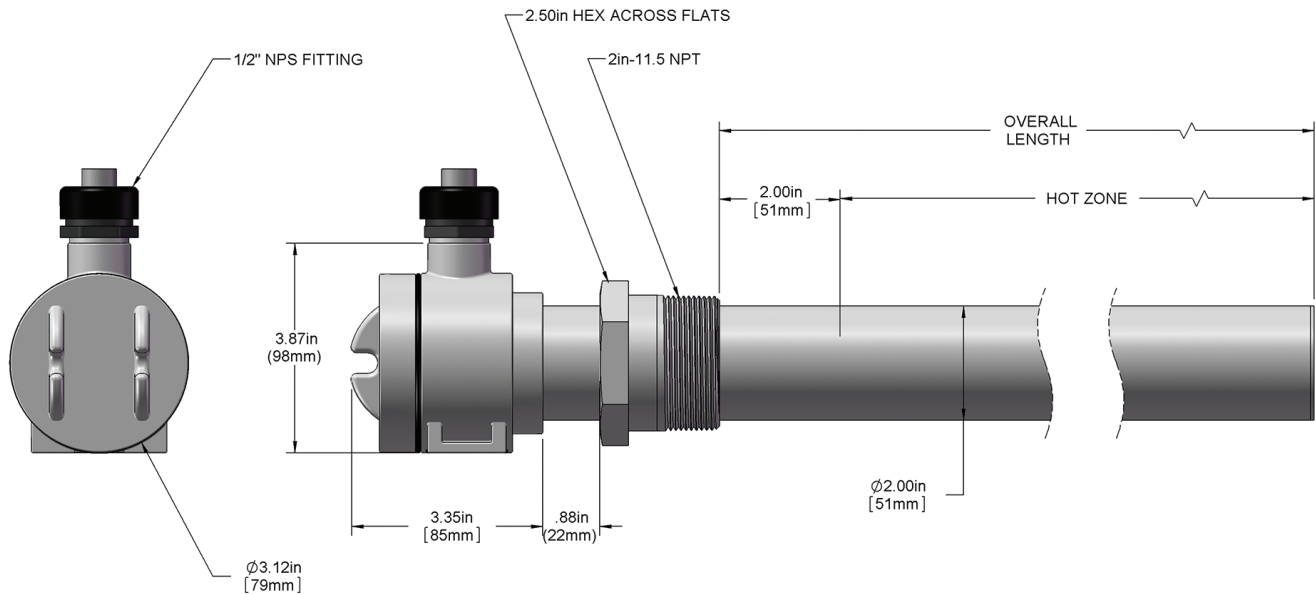
VOLTAGES:

- ◆ 120 to 600 volts.

OPTIONS AVAILABLE (consult factory):

- ◆ Special configurations and lengths.
- ◆ Explosion resistant enclosures.
- ◆ Longer wire and conduit lengths.
- ◆ Lower watt densities for highly viscous solutions.
- ◆ Temperature and level controls sized to match the heater.

DIMENSIONS



2" TUBULAR SCREW PLUG HEATER ORDERING INFORMATION

| Series | Wattage | Voltage | Length (in.) | Options | Wire and Conduit Length |
|--|--|---|---|---|-------------------------|
| 1 = 1000 2 = 2000 3 = 3000 4 = 4000 6 = 6000 8 = 8000 9 = 9000 12 = 12000 | 1 = 120 2 = 240 3 = 380 4 = 480 5 = 415 6 = 600 7 = 400 8 = 208 9 = 220 0 = 200 | 10 = 1kW 14 = 2kW 19 = 3kW 23 = 4kW 33 = 6kW 40 = 8kW 47 = 9kW 61 = 12kW specify (custom lengths available) | no designator = single phase power (standard) -3 = three phase power | no designator = 36" length standard specify variations from standard Ex: -X84 = 84" | |
| FT = 304 stainless steel ST = 316 stainless steel TT = titanium | | | | | |

ORDERING EXAMPLE:

FT12261

304 stainless steel, 12,000 watts, 240 volts, 61" overall length.

