

Over-the-Side Immersion Heaters

Overview

Description

Over-the-Side Immersion Heaters are designed for installing in the top of a tank with the heated portion directly immersed along the side or at the bottom. This provides easy removal of the heater and ample working space inside the tank. These heaters are available with heating elements made of Copper, Steel, Stainless Steel, Cast Iron, INCOLOY®, Titanium, Fluoropolymer coated, and Quartz. A wide selection of kW ratings, shapes and mounting methods are available to suit many different types of applications.



Over-the-Side Immersion Heaters — Selection Guidelines

| Configuration | Model | Sheath Material | Typ. Watt Density | Phase | See Note | |
|---|--|-----------------|-------------------|-----------|----------|---|
| L-Shaped This type of heater puts the heat at the bottom of the tank. The vertical riser is unheated so lower liquid levels are acceptable. Many types of heating element materials are available along with various riser heights and element configurations. Legs are provided at the bottom of most heaters to prevent direct contact of the heating elements with the bottom of the tank. | KBLS | 304SS | 11 | 1 | 1 | |
| | TLS, KTLS | 304SS | 40 | 1 or 3 | 1 | |
| | GSL | 316SS | 20 and 40 | 1 | 2 | |
| | GSL3, GSV3 | 316SS | 20 and 40 | 3 | 2 | |
| | CIT | Cast Iron | 20 | 1 | — | |
| | TLC, KTLC | Copper | 40 | 1 or 3 | 1 | |
| | TBL | INCOLOY® | 20 | 1 | — | |
| | TLI | INCOLOY® | 40 | 1 or 3 | 1 | |
| | KTLI | INCOLOY® | 40 | 1 | 1 | |
| | KBLC | Steel | 11 | 1 | 1 | |
| | TBL | Steel | 20 | 1 | — | |
| | TLO, KTLO | Steel | 20 | 1 or 3 | 1 | |
| | BLCK-MH | Steel | 12 and 18 | 1 or 3 | 1 | |
| | BLCS | Steel | 12 and 18 | 1 or 3 | — | |
| | GTFL, GXFL | Fluoropolymer | 10 | 1 | 2 | |
| | GTFNL3 | Fluoropolymer | 10 | 3 | 2 | |
| | GTL | Titanium | 20 and 40 | 1 | 2 | |
| | GTL3, GTV3 | Titanium | 20 and 40 | 3 | 2 | |
| | Side Mount/Top Mount This heater is placed on the side of the tank with mounting brackets for easy installation. A cold section is provided at the top of the heater for various levels of liquid in the tank (consult heater specification tables for the specific length of the cold section). Low profile side mounted heaters provide more working space in the heated tank. | PTHF | 304SS | 20 | 3 | 2 |
| | | CTSS | 304SS | 25 and 40 | 1 | — |
| PTH | | 316SS | 30 | 1 | — | |
| GS | | 316SS | 20 and 40 | 1 | 2 | |
| GS3 | | 316SS | 20 and 40 | 1 or 3 | 2 | |
| CTAC | | Carp 20 SS | 25 and 40 | 1 | — | |
| CS | | Ceramic-SiAlON | 70 | 1 - 3 | — | |
| CH-OTS | | Copper | 60 | 1 | 3 | |
| CTC | | Copper | 25 and 40 | 1 | — | |
| QM | | Quartz | 25 | 1 | 2 | |
| QM3 | | Quartz | 25 | 1 or 3 | 2 | |
| GTF, GXF | | Fluoropolymer | 10 | 1 | 2 | |
| GTF6, GTF9 | | Fluoropolymer | 10 | 3 | 2 | |
| TPR | | Fluoropolymer | 20 | 1 | 2 | |
| TPF | | Fluoropolymer | 20 | 3 | 2 | |
| PTHT | | Titanium | 20 | 1 | — | |
| CTT | | Titanium | 44 | 1 | — | |
| GT | | Titanium | 20 and 40 | 1 | 2 | |
| Heat/Cool Exchangers Side mounted metal or fluoropolymer coils provide heat or cooling of tanks from remote mounted heating or cooling sources. | | GT3 | Titanium | 20 and 40 | 1 or 3 | 2 |
| | | GHTF | Fluoropolymer | N/A | N/A | — |
| | GRS | 316SS | N/A | N/A | — | |
| | GRT | Titanium | N/A | N/A | — | |
| | US | 316SS | N/A | N/A | — | |
| | UT | Titanium | N/A | N/A | — | |

1. Optional Integral Thermostat - requires wiring to remote relay (not included).
2. Integral Overheat Thermal Protection - requires wiring to remote relay (not included).
3. Integral Thermostat and Cutout.



More Information is Available Online on Tank Heating.

Bookmark Your Browser to

www.chromalox.com and Select Manuals.

Over-the-Side Immersion Heaters

Application & Selection Guidelines

Applications

The large variation in heating element material and shapes of over-the-side immersion heaters offers a wide selection in the application of these units. Water, oils, solvents, plating baths, salts and acids are some of the many liquids and viscous materials commonly heated with immersion heaters. Over-the-side types permit portability, easy removal for cleaning of tanks and heaters and ample working area within the tank when installed.

Important — When selecting a tank heater design, the user should make sure the sheath material is suitable for the solution being heated at the maximum temperature expected, with proper safety factor.

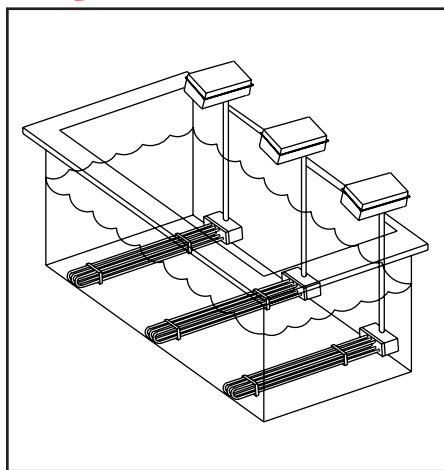
Sheath Material — Selection Guidelines¹

| Material Being Heated | Typical Sheath Material |
|--|---|
| Clean Water (pH6 to pH8) | Copper |
| Demineralized or De-ionized Water | Stainless Steel (passivated) INCOLOY® Fluoropolymer |
| Medium Weight Oil, Alkaline Cleaning (low concentration) Mild Soaking Cleaners | Steel |
| Mild to Medium Corrosive Solutions, Many Oxidizing Acids, Organic Chemicals, Mild Aqueous Solutions | Stainless Steel INCOLOY® |
| Chromic Acid (10%), Nitric Acid (to 65%) Salt Brine, Many Plating Solutions (i.e. Nickel, Silver, Zinc, Gold) | Titanium |
| Soft Metal Melting | Cast Iron |
| Molten Metal, High Corrosive | Ceramic |
| Most Acids, Plating Solutions, Pickling Solutions | Fluoropolymer Quartz ² |

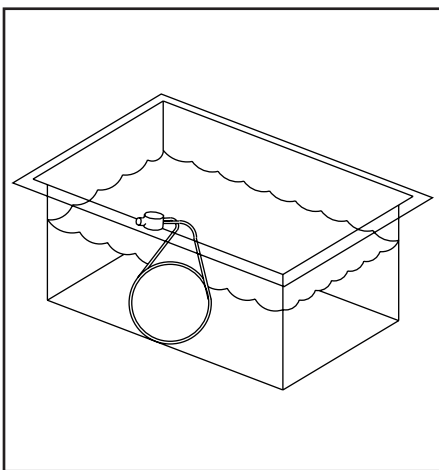
1. Consult Corrosion Guide in the Technical section for specific material recommendations.
2. Not for use in hydrofluoric acid and alkaline solutions.

OVER-THE-SIDE

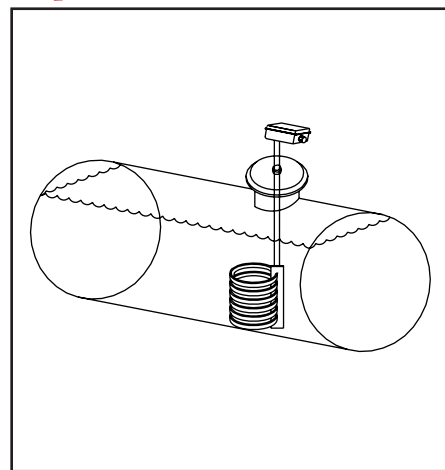
L-Shaped Installation



Side Mount Installation



Deep Tank Installation



Over-the-Side Immersion Heaters — Selection Guidelines

| Heater | Model | Page |
|---------------------------------|-------------|-------|
| L-Shaped Metal Sheath | TLC & KTLC | B-115 |
| | TLO & KTLO | B-116 |
| | TLS & KTLS | B-117 |
| | TLI & KTLI | B-118 |
| Side Mount Metal Tube | GS & GT | B-119 |
| | GS3 & GT3 | B-120 |
| L-Shaped Metal Tube | GSL & GTL | B-121 |
| | GSL3 & GTL3 | B-122 |
| | GSV3 & GTV3 | B-123 |
| Side Mount Quartz Tube | QM & QM3 | B-124 |
| Side Mount Metal Sheath | PTH & PTHT | B-125 |
| | PTHF | B-126 |
| | CT | B-127 |
| Side Mount Fluoropolymer Coated | TPR & TPF | B-128 |
| | GTF & GTFL | B-129 |
| | GXF & GXFL | B-130 |
| | GTF6 & GTF9 | B-132 |
| L-Shaped Fluoropolymer Coated | GTFL3 | B-133 |

| Heater | Model | Page |
|-------------------------------|----------------|-------|
| Drum Heater | KBLC & KBLS | B-134 |
| Salt Bath Heater | TBL & TBL-A | B-135 |
| Deep Tank Heater | BLCK-MH & BLCS | B-136 |
| Portable Tank Heater | CH-OTS | B-137 |
| Soft Metal Melting Heater | CIT | B-138 |
| Ceramic Sheath | CS | B-139 |
| Side Mount Heat Exchanger | GRT & GRS | B-141 |
| | US & UT | B-143 |
| | GHTF | B-144 |
| Terminal Enclosure Dimensions | | B-145 |
| Optional Accessories | | B-147 |

Over-the-Side Immersion Heaters

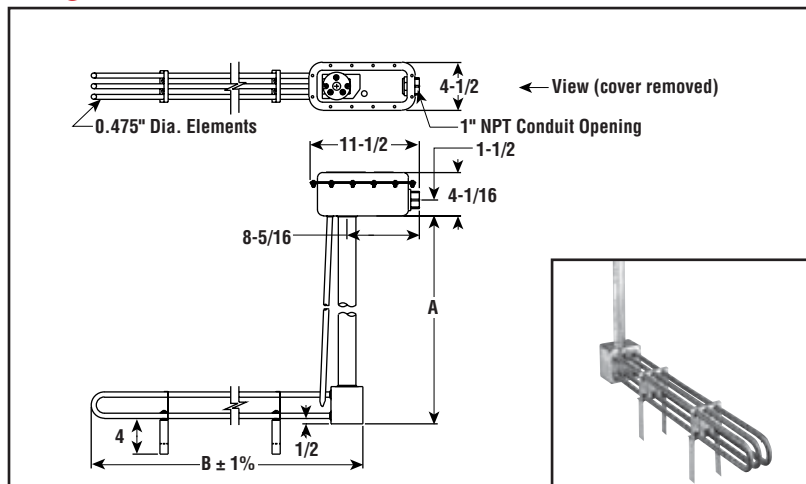
L-Shaped Metal Sheath Heaters



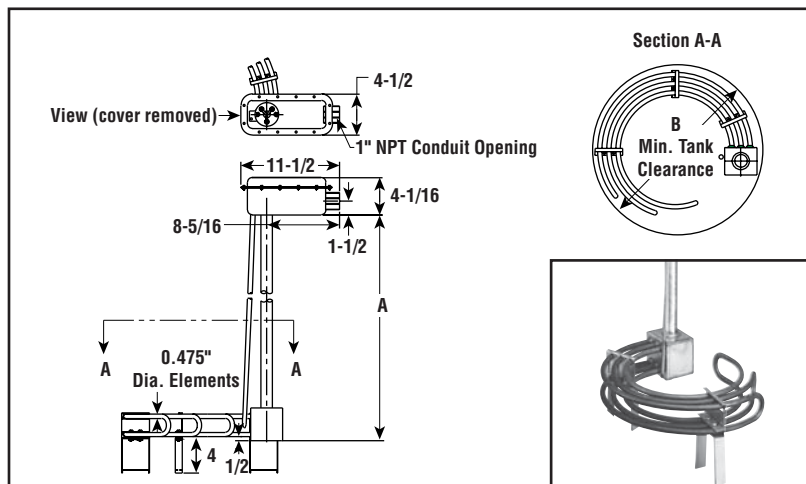
TLC, KTLC, TLO, KTLO,
TLS, KTLS, TLI, KTLI

- Copper, Steel, Stainless Steel, INCOLOY® Sheath Elements
- 20 and 40 W/In²
- 2 - 18 kW
- 120, 240 and 480 Volt, 1 & 3 Phase
- Moisture Resistant Terminal Enclosure
- Optional Integral Thermostat

Straight Elements — Dimensions (Inches)



Circular Elements — Dimensions (Inches)



Description

Light weight, portable, easy to install L-shape construction, puts the heat at the bottom of the tank and the terminal enclosure at the top of the tank. Capacities, dimensions and heater sheaths fit a wide range of heating applications. Easy to install and remove for cleaning with straight or circular element designs to fit many tank configurations.

Features

- Copper Sheath and Riser (40 W/In²)
- Steel Sheath and Riser (20 W/In²)
- Stainless Steel Sheath and Riser (40 W/In²)
- INCOLOY® Sheath and Stainless Steel Riser (40 W/In²)
- 36 and 48" Riser Heights
- Moisture Resistant Terminal Enclosure
- Thermowell (standard on S and AS heaters)
- 4" Sludge Legs (standard on S and AS heaters). Increases A dimension 3-1/2". Keeps heated section off bottom of tank.

Optional Features

- Integral Thermostat Kit DPST "AR" type rated 30 Amp at 120 - 277V (field installed)
 - 60 - 250°F (AR-219 Kit, PCN 277819)
 - 200 - 550°F (AR-519 Kit, PCN 277827)¹
 - 0 - 100°F (AR-115 Kit, PCN 277835)
- Factory Installed Thermostat (specify range above)
- Explosion Resistant Terminal Enclosure (GSA/NRTL Certified)
- Longer Riser and Sludge Leg Heights
- INCOLOY® Riser
- Process and Overtemperature Protection Thermocouples
- Increase Number of Elements (horizontally and/or vertically) for larger kW ratings
- Lower Watt Densities for heating Viscous Materials
- Manhole Construction for Covered Tanks

Note —

1. Not UL Listed or CSA Certified with 200 - 550°F Thermostat Kit