

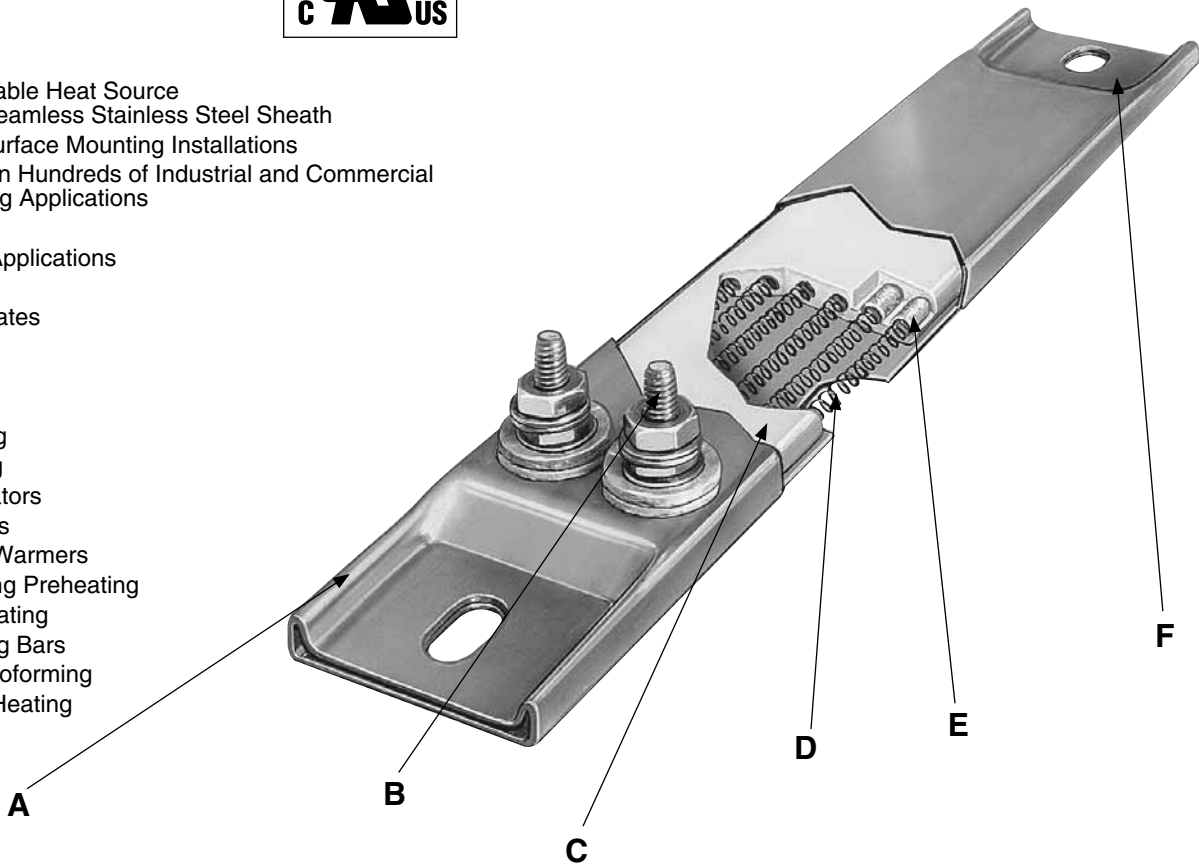
## Channel Strip Heaters Ceramic Insulated



- A Reliable Heat Source with Seamless Stainless Steel Sheath
- Flat Surface Mounting Installations
- Used in Hundreds of Industrial and Commercial Heating Applications

### Typical Applications

- Ovens
- Hot Plates
- Dies
- Molds
- Drying
- Melting
- Baking
- Incubators
- Platens
- Food Warmers
- Welding Preheating
- Air Heating
- Sealing Bars
- Thermoforming
- Tank Heating



**A** Type 304 Stainless Steel sheath provides the best combination of physical strength and resistance to high temperatures and chemical corrosion. Dependable at sheath temperatures of up to 650°C (1200°F).

**B** Stainless Steel 10-32 threaded screws are standard and are securely fastened. Various termination configurations and options are available.

**C** Specially selected and designed ceramic insulator houses the resistance wire coil, insulating it from the outer sheath.

**D** Helically wound resistance wire coil made from nickel-chrome wire is evenly stretched and precisely strung through the ceramic insulator, providing uniform heat. Resistance wire is then mechanically connected to screw terminals or lead wires for a strong positive joint.

**E** A custom mixture of several high purity magnesium oxide grain sizes, chosen to increase thermal conductivity and dielectric strength, are used to fill all remaining space inside and around the ceramic insulator. Voids are densely packed.

**F** Channel strip heaters are available with or without mounting tabs. If without, the ends are silver soldered shut to prevent moisture and contaminants from entering the heater. Tabs are not available on 6.35 thick x 16 mm wide (¼ x ⅝") heaters.

### Agency Approvals

Channel Strip Heaters have been certified as Recognized Components by Underwriters Laboratories (File Number E65652) under CCN KSOT2/8 to meet UL standard 499 and Canadian Standard C22.2, No 72.

This file specifies the end use limitations and conditions of acceptability for the use of this type of heater. For additional information consult OMEGA.

*If you require UL, CSA, or other NRTL Agency Approvals, please specify when ordering.*



## Channel Strip Heaters Ceramic Insulated

Channel Strip Heaters have proven to be extremely efficient and dependable as a heat source for surface heating in hundreds of industrial and commercial applications. The rectangular tube gives full surface contact when used in a milled slot to provide maximum heat transfer area.

For surface mounting installations, channel strip heaters must be securely clamped along their entire length to a smooth metal surface. When supported by mounting tabs, the terminal end should be secured firmly. Opposite end should be loose to allow for thermal expansion.

### PERFORMANCE RATINGS

**Maximum Sheath Temperature:** 650°C (1200°F)

**Nominal Watt Density:** 20 Watts/in<sup>2</sup> (3.1 Watts/cm<sup>2</sup>)

**Maximum Watt Density:** 45 Watts/in<sup>2</sup> (dependent on design parameters)

### ELECTRICAL SPECIFICATIONS

**Maximum Voltage:** 480 Vac (dependent on design parameters)

**Maximum Recommended Voltage with Leads:** 480V

**Maximum Amperage:**

**Lead Wire Termination:** 10 amp

**Screw Terminations:** 10-32UNF—25 amp

**Resistance Tolerance:** 10%, -5%

**Wattage Tolerance:** 5%, -10%

### PHYSICAL SIZE CONSTRUCTION LIMITATIONS

**Width:**

**16 mm ( $\frac{5}{8}$ " ) Wide Heaters:** +0.000, -0.005"

**25 mm and 38 mm (1 and 1½" ) Wide Heaters:**  
+0.000, -0.010"

**Thickness:**

**6 mm ( $\frac{1}{4}$ " ) Thick Heaters:** +0.000, -0.005"

**8 and 10 mm ( $\frac{5}{16}$  and  $\frac{3}{8}$ " ) Thick Heaters:** +0.000, -0.008"  
[10 mm ( $\frac{3}{8}$ " ) thick heaters have radius corners]

**Length:**

**Up to 24":**  $\pm\frac{1}{16}$ "

**Over 24":**  $\pm\frac{1}{8}$ "

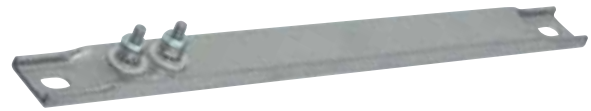
**Mounting Slot Size:** Standard 8 x 13 mm ( $\frac{5}{16}$  x  $\frac{1}{2}$ " )

**Special Bushings:** 13 x 16 mm ( $\frac{1}{2}$  x  $\frac{5}{8}$ " )

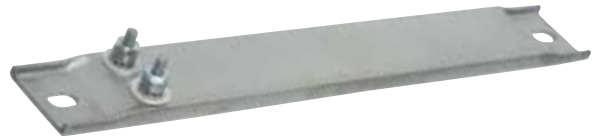
### OMEGA Offers Channel Strip Heaters in Four Rectangular Sizes



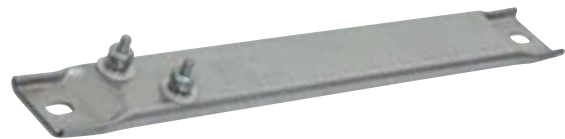
**16 W x 6 mm thick ( $\frac{5}{8}$ " x  $\frac{1}{4}$ " ).**  
Available without mounting tabs only.



**25 W x 8 mm thick (1" x  $\frac{5}{16}$ " ).**  
Available with or without mounting tabs. When supplied with Type L lead wire termination, mounting tabs are not available.



**38 W x 8 mm thick (1½" x  $\frac{5}{16}$ " ).**  
Available with or without mounting tabs. When supplied with Type L lead wire termination, mounting tabs are not available.



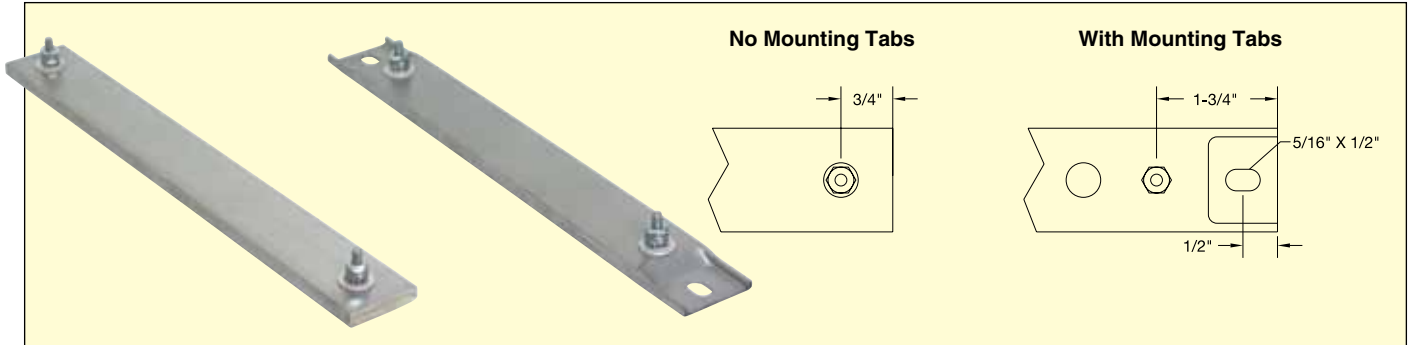
**38 W x 10 mm thick (1½" x  $\frac{3}{8}$ " ).**  
Available with or without mounting tabs. When supplied with Type L lead wire termination, mounting tabs are not available. [10 mm ( $\frac{3}{8}$ " ) thick heaters have radius corners]

Standard Specifications and Tolerances of Channel Strip Heaters If tighter tolerances are required, consult OMEGA.

## Channel Strip Heaters Screw Terminal Terminations

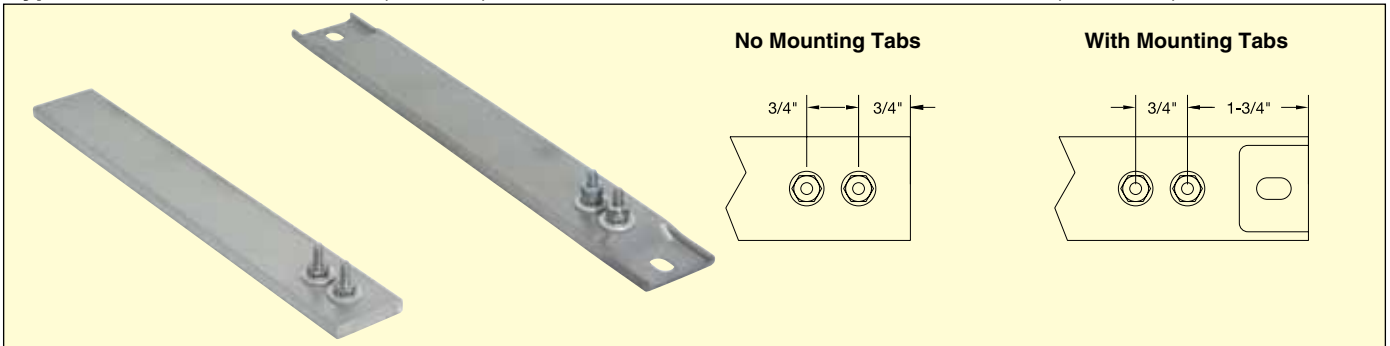
**Type T1** 10-32 Screw Terminals at each end

Available on 25 and 38 mm (1 and 1½") wide heaters



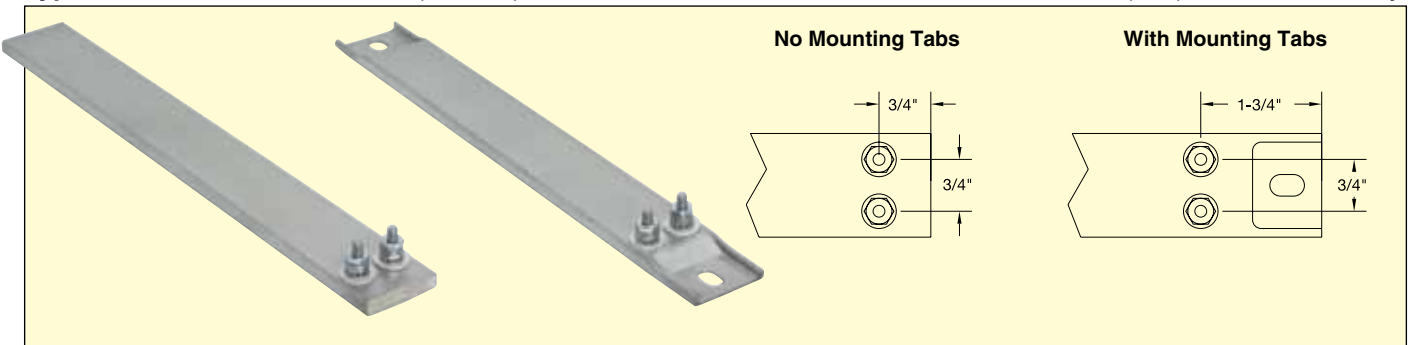
**Type T2** 10-32 Screw Terminals (Tandem) at one end

Available on 25 and 38 mm (1 and 1½") wide heaters



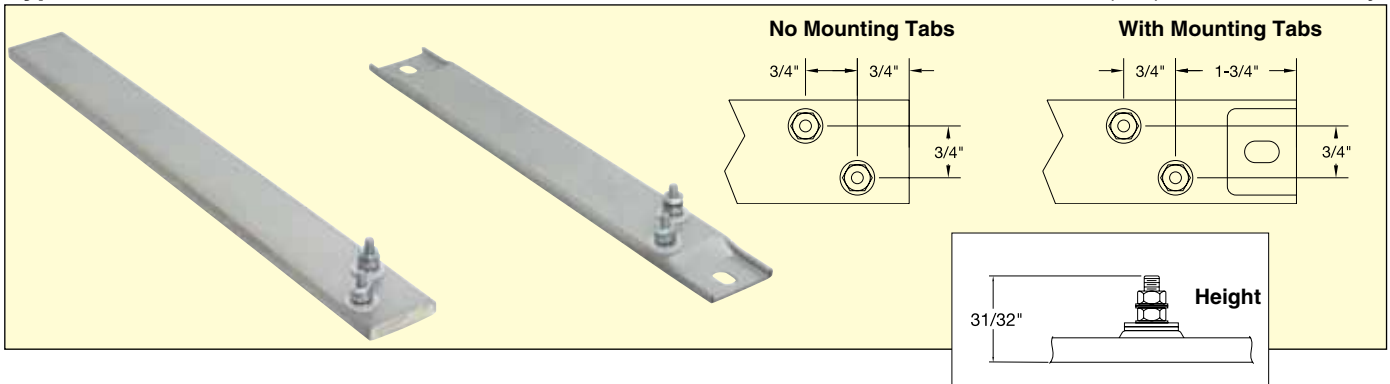
**Type T3** 10-32 Screw Terminals (Parallel) at one end

Available on 38 mm (1½") wide heaters only



**Type T4** 10-32 Terminals offset at one end

Available on 38 mm (1½") wide heaters only



## Channel Strip Heaters Lead Wire Terminations

### Type L

Flexible lead wires exit from end of heater. 254 mm (10") long leads standard; if longer leads are required, specify. Recommended only for tight quarters or where flexibility of the lead wire is required. Not available on heaters with tabs.

**Maximum Amps:** 10 at 240 Vac **Maximum Volts:** 480

### Type L1

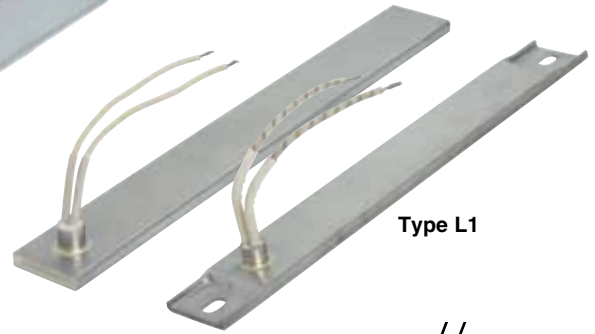
Flexible lead wires exit from top of heater. 254 mm (10") long leads standard; if longer leads are required, specify.

**Maximum Amps:** 10 at 240 Vac **Maximum Volts:** 480

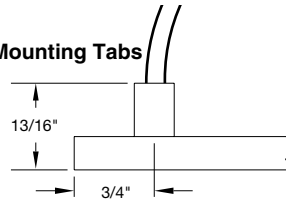
Type L



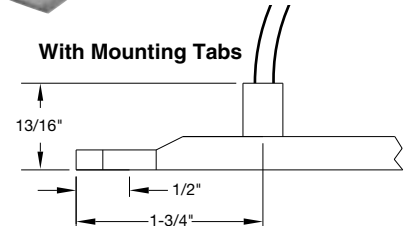
Type L1



No Mounting Tabs



With Mounting Tabs



Type W1

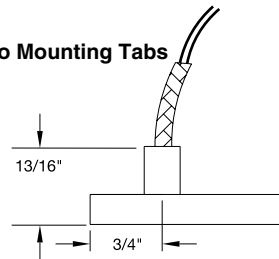


### Type W1

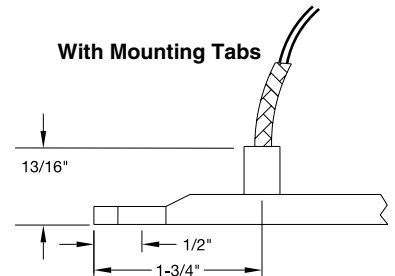
Wire braid provides strength and protection to the lead wire insulation, offering sharp bending not possible with armor cable. 254 mm (10") of wire braid over 12" long leads is standard; if longer leads or braid are required, specify.

**Maximum Amps:** 10 at 240 Vac **Maximum Volts:** 480

No Mounting Tabs



With Mounting Tabs



### Type W2

Stainless steel braid over each lead wire offers sharp bending not possible with armor cable, as well as abrasion protection. 254 mm (10") long leads standard; if longer leads are required, specify. Not available on heaters with tabs.

**Maximum Amps:** 10 at 240 Vac **Maximum Volts:** 480

### Type R1

Armor cable provides strength and prevents contamination from getting into the heater. 254 mm (10") of armor over 305 mm (12") long leads are standard; if longer leads or armor are required, please specify.

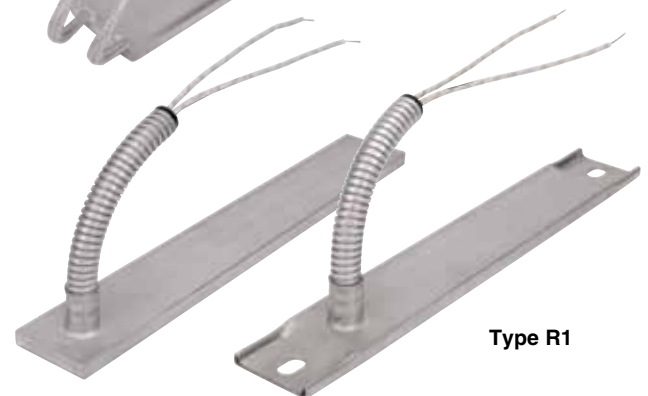
**Maximum Amps:** 10 at 240 Vac **Maximum Volts:** 480

**Type R1A:** Galvanized cable **Type R2A:** Stainless steel cable

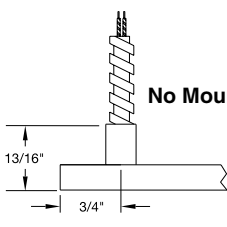
Type W2



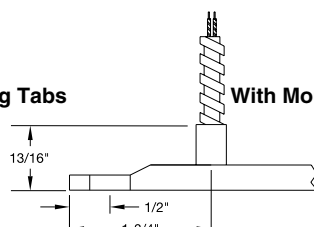
Type R1



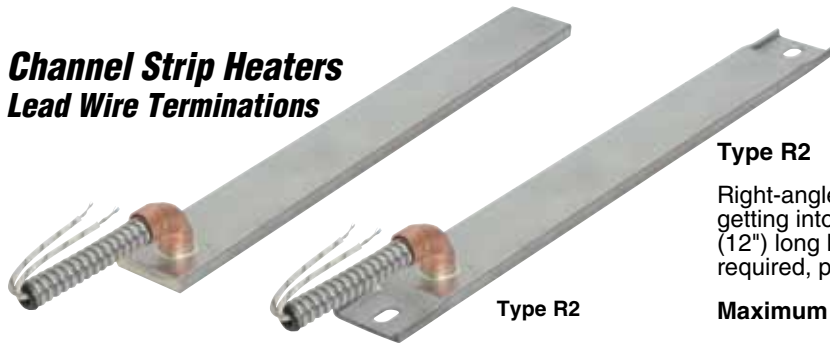
No Mounting Tabs



With Mounting Tabs



## Channel Strip Heaters Lead Wire Terminations

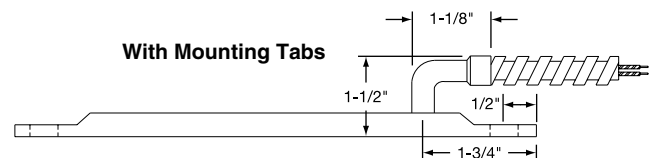
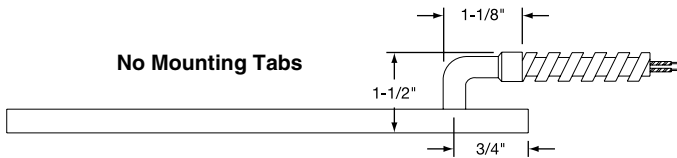


### Type R2

Right-angle armor cable prevents contamination from getting into the heater. 254 mm (10") of armor over 305 mm (12") long leads is standard; if longer leads or armor are required, please specify.

**Maximum Amps:** 10 at 240 Vac **Maximum Volts:** 480

- Type R2A** Galvanized cable
- Type R2B** Stainless steel cable
- Type R2C** Elbow and leads only (no cable)



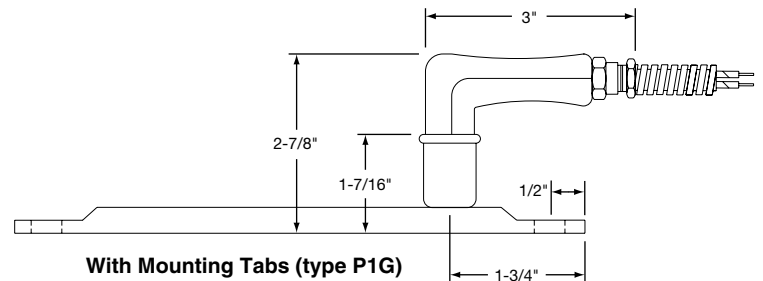
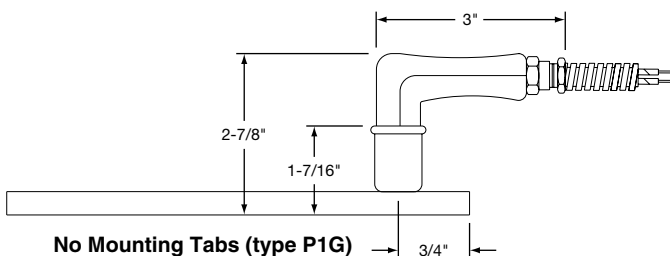
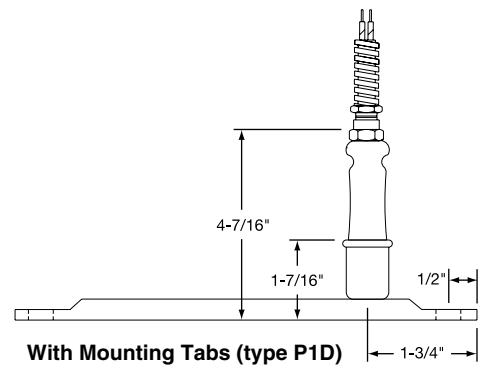
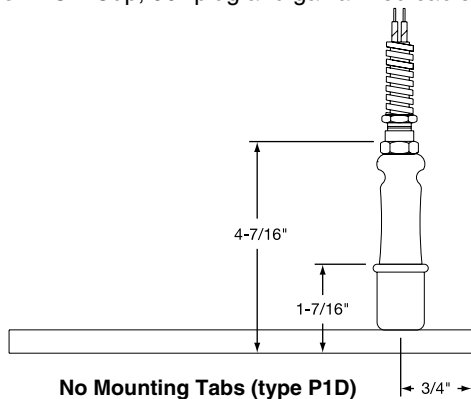
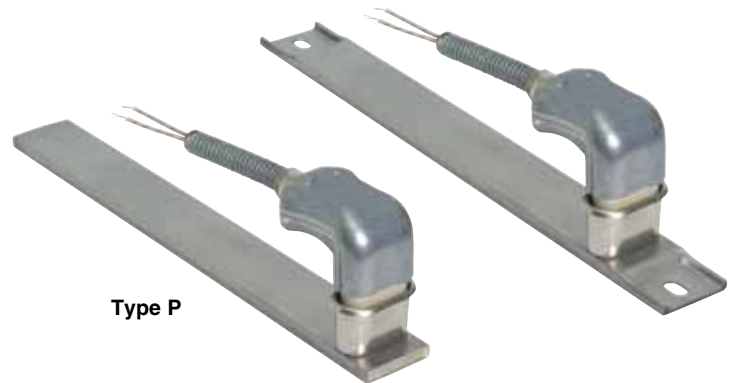
## Terminal Protection

### Type P

High-Temperature Quick Disconnect Plug. If armor protected lead wires are required, specify armor and lead length. Available on 38 mm (1 1/2") wide heaters only.

**Maximum Amps:** 10 at 240 Vac **Maximum Volts:** 250

- Type P1A** Cup only (UT900)
- Type P1B** Cup and straight plug (H900)
- Type P1C** Cup and 90° plug (HW900)
- Type P1D** Cup, straight plug and galvanized cable
- Type P1G** Cup, 90° plug and galvanized cable



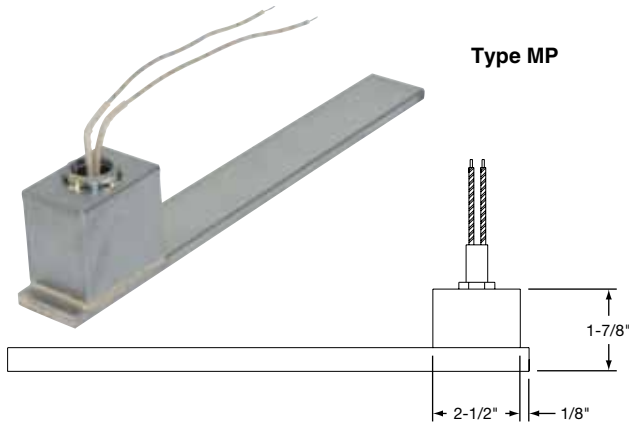
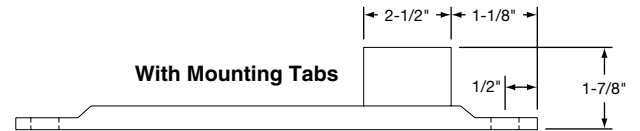
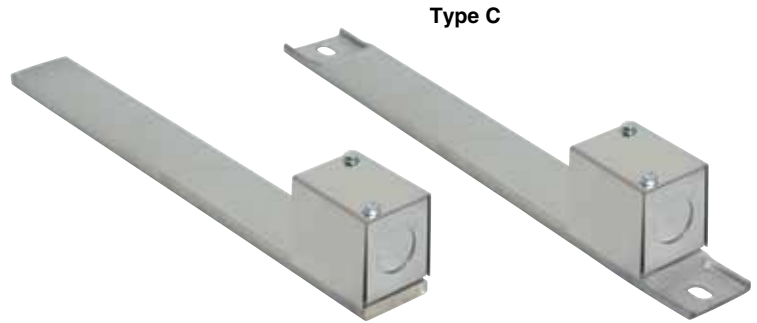
**Caution:** Exposed electrical wiring on Strip Heaters is a violation of electrical safety codes, including O.S.H.A.

## Channel Strip Heaters Terminal Protection

### Type C

Terminal box has a 13 mm ( $\frac{1}{2}$ " trade size knockout (actual diameter 22 mm ( $\frac{7}{8}$ ")). Box provides excellent protection to exposed terminals. If armor-protected lead wires are required, specify armor and lead length. Available on 25 and 38 mm (1 and 1  $\frac{1}{2}$ ") wide heaters.

- Type CA** No cable or braid
- Type CB** Galvanized cable
- Type CC** Stainless steel cable
- Type CD** Wire braid



### Type MP

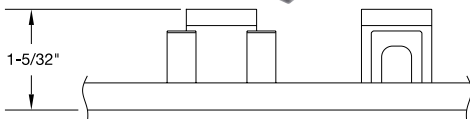
Specially designed box is welded to the Channel Strip Heater and potted with epoxy. The ends of the heater are also welded. Leads exit through a 1/2 NPT nut that can be located at the top or in the front of the box. Armor cable can be supplied with the male fitting, providing a completely sealed channel strip. Available on 38 mm (1  $\frac{1}{2}$ ") wide heaters only.

254 mm (10") long leads standard; if longer leads are required, specify.

**Maximum Amps: 25 Maximum Volts: 480**

## Ceramic Covers for Insulating Terminals

Igloo™ Ceramic terminal covers consist of two individual ceramic parts. With a tight-fitting cap and a solid base, an Igloo cover will fully insulate any standard 10-32 terminal lug used for electrical wiring hookups. Igloo covers can be assembled on all Channel Strip heaters with Type 1 and Type 4 screw terminals.



Ceramic Cap



Thread 10-32  
Part Number  
CER-102-101



**Type C6**  
Double Port In-Line  
Part Number: CER-101-104



**Type C7**  
Double Port 90°  
Part Number: CER-101-106

Three different types of Igloo bases are available for your wiring convenience. Double Port In-Line, Double Port 90° and Single Port.

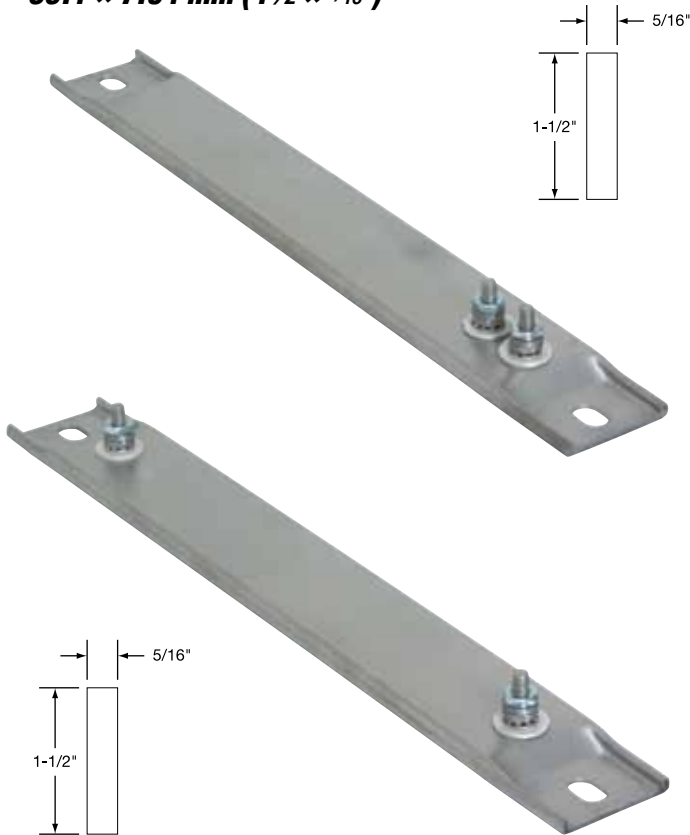
When ordering, specify the type of Igloo.



**Type C8**  
Single Port  
Part Number:  
CER-101-107



## Channel Strip 38.1 x 7.94 mm (1½ x 5/16")



Part numbers shown are for heaters with T2 Terminals and Mounting Tabs.

**To Order Visit [omega.com/csh4\\_series](http://omega.com/csh4_series) for Pricing and Details**

Model No.		Length		Wattage	Watt Density	
120V	240V	inch	mm		Watt/in <sup>2</sup>	Watt/cm <sup>2</sup>
CSH00317	CSH00320	6	152.4	150	21	3
CSH00189	CSH00190	8	203.2	150	13	2
CSH00342	CSH00343	8	203.2	250	21	3
CSH00322	CSH00325	8	203.2	500	42	7
CSH00191	CSH00192	10½	266.7	250	12	2
CSH00193	CSH00194	12	304.8	350	13	2
CSH00195	CSH00196	14	355.6	500	15	2
CSH00197	CSH00198	17⅞	454.2	750	16	2
CSH00327	CSH00331	19½	495.3	1200	23	4
CSH00199	CSH00200	23¾	603.3	750	11	2
—	CSH00201	25½	647.7	500	7	1
CSH00202	CSH00203	29¼	743.0	750	8	1
CSH00204	—	33½	850.9	750	7	1
CSH00205	CSH00206	34⅝	879.5	1000	9	1
CSH00207	CSH00208	35⅞	911.2	1000	9	1
CSH00209	CSH00210	37¼	946.2	1500	13	2
CSH00211	—	38½	977.9	800	7	1
—	CSH00212	53⅞	1368.6	1500	8	1
—	CSH00213	53⅞	1368.6	2500	14	2
—	CSH00214	63⅞	1622.6	1800	8	1
—	CSH00215	63⅞	1622.6	3000	14	2
—	CSH00216	71⅞	1825.8	2000	8	1
—	CSH00217	71⅞	1825.8	3000	12	2

Part numbers shown are for heaters with T1 Terminals and Mounting Tabs.

Model No.		Length		Wattage	Watt Density	
120V	240V	inch	mm		Watt/in <sup>2</sup>	Watt/cm <sup>2</sup>
CSH00316	CSH00583	6	152.4	150	21	3
CSH00218	CSH00219	8	203.2	150	14	2
CSH00220	CSH00221	8	203.2	250	23	4
CSH00222	CSH00223	9½	241.3	200	12	2
CSH00224	CSH00225	9½	241.3	300	18	3
CSH00226	CSH00227	10½	266.7	250	13	2
CSH00228	CSH00229	12	304.8	250	10	2
CSH00230	CSH00231	12	304.8	500	20	3
CSH00345	CSH00528	12	304.8	350	12	2
CSH00232	CSH00233	14	355.6	300	9	1
CSH00234	CSH00235	14	355.6	500	15	2
CSH00236	CSH00237	15¼	387.4	325	9	1
CSH00238	CSH00239	15¼	387.4	500	13	2
CSH00240	CSH00241	17⅞	454.2	375	8	1
CSH00242	CSH00243	17⅞	454.2	500	11	2
CSH00244	CSH00245	17⅞	454.2	750	16	2
CSH00246	CSH00247	17⅞	454.2	1000	21	3
CSH00248	CSH00249	19½	495.3	500	10	1
CSH00250	CSH00251	19½	495.3	750	14	2
CSH00252	CSH00253	19½	495.3	1000	19	3
CSH00326	CSH00330	19½	495.3	1200	23	4
CSH00254	CSH00255	21	533.4	500	9	1

Part numbers shown are for heaters with T1 Terminals and Mounting Tabs.

Model No.		Length		Wattage	Watt Density	
120V	240V	inch	mm		Watt/in <sup>2</sup>	Watt/cm <sup>2</sup>
CSH00256	CSH00257	23¾	603.3	250	4	1
CSH00258	CSH00259	23¾	603.3	500	7	1
CSH00260	CSH00261	23¾	603.3	750	11	2
CSH00262	CSH00263	23¾	603.3	1000	15	2
CSH00264	CSH00265	23¾	603.3	1500	22	3
CSH00266	CSH00267	25½	647.7	750	10	2
CSH00268	CSH00269	25½	647.7	1000	13	2
CSH00270	CSH00271	26¾	679.5	700	9	1
CSH00272	CSH00273	26¾	679.5	750	10	1
CSH00347	CSH00348	29¼	742.0	750	8	1
CSH00274	CSH00275	29⅞	758.8	750	8	1
CSH00276	CSH00277	30½	774.7	750	8	1
CSH00278	CSH00279	33½	850.9	750	7	1
CSH00280	CSH00281	33½	850.9	1000	10	2
CSH00282	CSH00283	34⅝	879.5	1000	9	1
CSH00284	CSH00285	35⅞	911.4	1000	9	1
CSH00286	CSH00287	37¼	946.2	1500	13	2
CSH00288	CSH00289	38⅞	977.9	1000	8	1
CSH00290	CSH00291	42½	1079.5	1250	9	1
CSH00292	CSH00293	42½	1079.5	1500	11	2