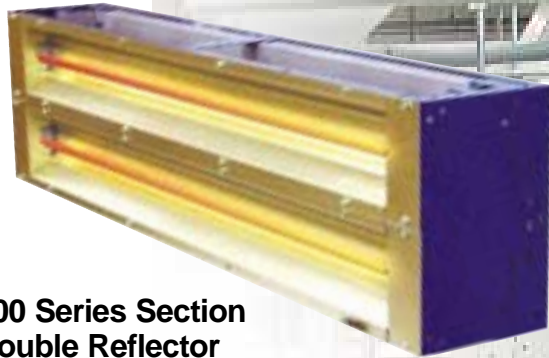




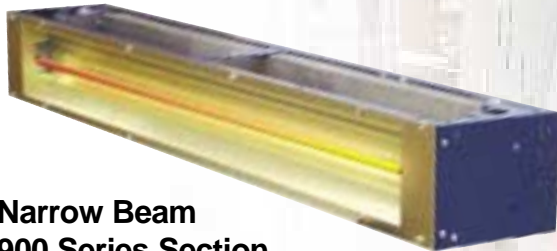
Quality Since 1917

# Modular Infrared Fixtures

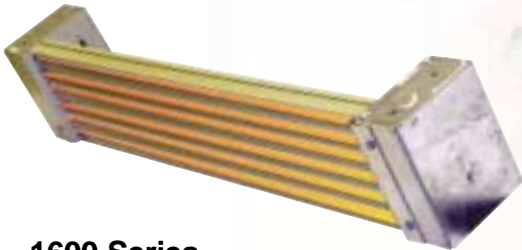
## Process Heating Equipment for Industrial Applications



**900 Series Section  
Double Reflector**



**Narrow Beam  
900 Series Section**

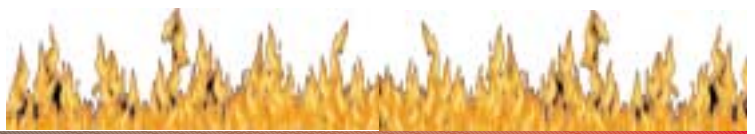


**1600 Series  
High Power Density Section**

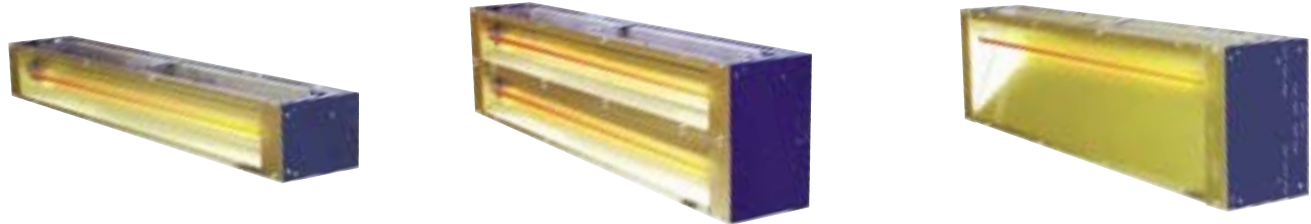


**Mitey Midget Section**

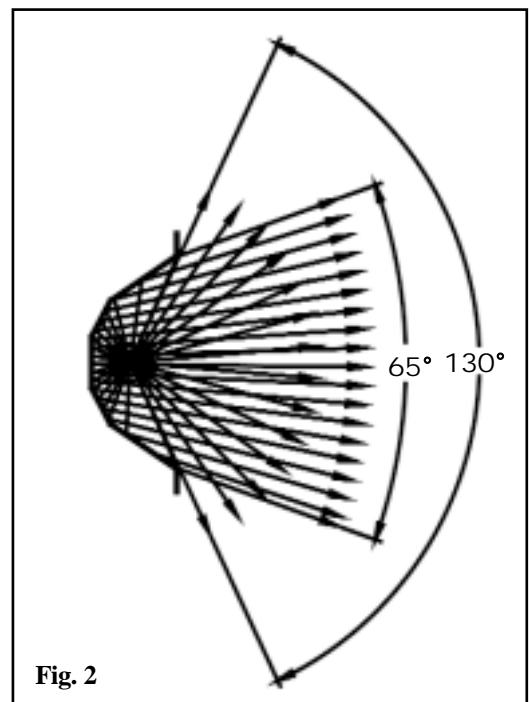
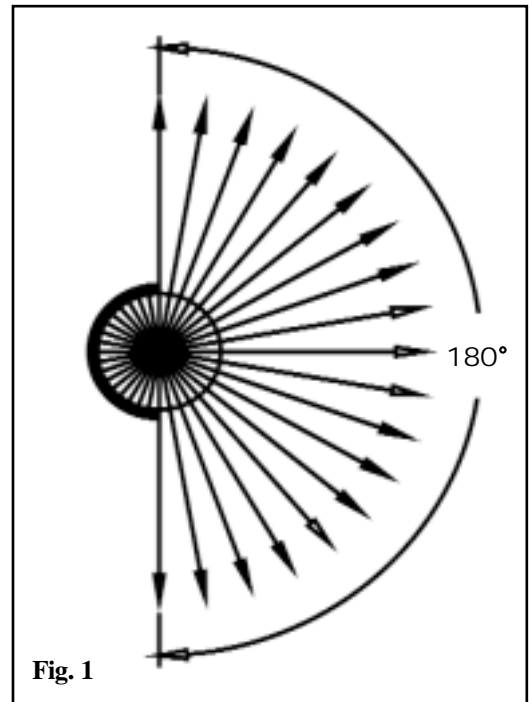




## Fostoria's 900 Series Line of Infrared Modular Sections Incorporate A Number of Advantages:



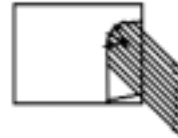
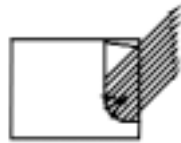
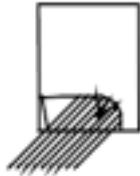
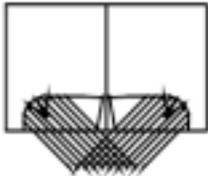
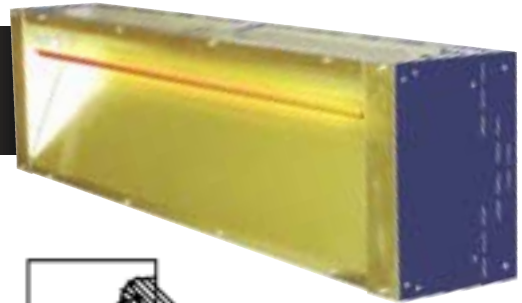
- Sections with a reflector integral to the heat source (fig. 1), disperse infrared energy across a 180 degree pattern.
- Sections with a parabolic reflector (fig. 2), deliver infrared energy across a 130 degree pattern with the reflected infrared in a tighter 65 degree pattern. More energy can be delivered to the product with the parabolic shape.
- Three different reflector widths are available: 5 ½", 11", and 16 ½" wide parabolic reflectors. This allows the customer to match the power density of the equipment (watts per square inch) to the application.
- Sections are offered in three different widths: 5 ½", 11" and 16 ½". The 11" wide sections can be purchased with one 11" reflector or two 5 ½" wide reflectors. The 16 ½" wide section can be purchased with one 16 ½" reflector or three 5 ½" wide reflectors.
- A variety of lengths are offered: 11", 16", 22", 31", 44", 55", and 66". These length are available in all section widths.
- 900 series sections are designed so they can be bolted together side by side or end to end. This makes the fabrication of large heat banks possible.
- Parabolic reflectors are formed from gold anodized aluminum. These reflectors are approximately 85% efficient when new. A normal maintenance schedule using non-abrasive liquid cleaners will keep the reflectors at a high degree of reflecting efficiency.
- For high temperature applications, gold porcelain reflectors (24K gold fired onto a porcelain coated steel reflector) are recommended.
- Quartz lamps, quartz tubes, and metal sheath rods can be used in the 900 series modular sections.
- 900 series modular sections use a sturdy ceramic SO9 socket. The socket provides an easy positive means for connecting the heat source leads.
- Heat sources can be wired in series, parallel or in any combination to suit process and control requirements.





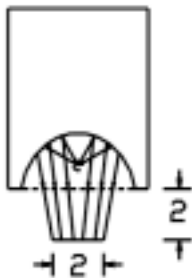
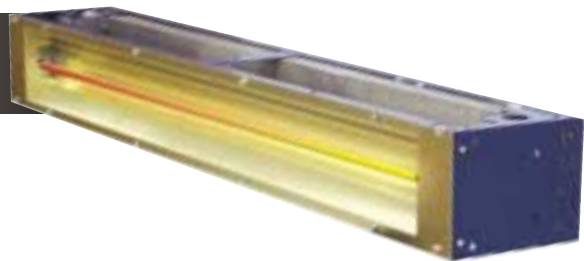
## 900 SERIES MODULAR SECTIONS

### Controlled Angular Beam Heating 5 1/2", 11", & 16 1/2" Wide Models



One of the advantages of infrared heating is the infrared energy can be directed by optically designed reflectors. Controlled angular beam reflectors are available for special heating applications. The reflectors direct the infrared energy at a 45 degree angle.

### Narrow Beam Heating 5 1/2" Wide Models



5 1/2" wide models can be supplied with a special "Narrow Beam" reflector which focuses the infrared onto a 2" wide area when positioned 2" above the target.

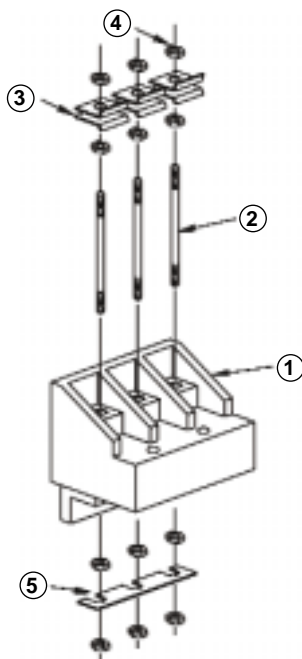
### Socket for 900 Series Sections

#### SO9 SOCKET ASSEMBLY

| PART NO. | DESCRIPTION  |
|----------|--|
| 9000950  | COMPLETELY ASSEMBLED SO9 SOCKET WITH SOCKET STUDS AND WIRE CLIPS |

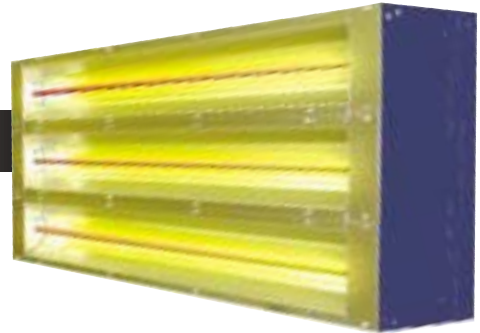
#### PARTS FOR SO9 SOCKET

| QTY. | PART NO.  | DESCRIPTION           | ITEM |
|------|-----------|-----------------------|------|
| 1    | 900-0948  | PORCELAIN SOCKET BODY | 1    |
| 3    | 900-0947  | #10-32 SOCKET STUD    | 2    |
| 6    | 900-0959  | WIRE CLIP             | 3    |
| 12   | 34-052-00 | #10-32 HEX NUT        | 4    |
| 1    | 900-0946  | SHUNT                 | 5    |





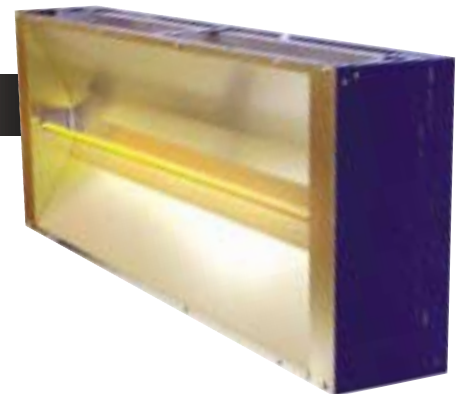
16 1/2" Wide (3-Reflector) Section



| Length | Gold Anodized Aluminum Reflector | Gold Porcelain Reflector | Metal Sheath Heater |
|--------|----------------------------------|--------------------------|---------------------|
| 11"    | 9521101P                         | 9531101P                 | 9521111P            |
| 16"    | 9521601P                         | 9531601P                 | 9521611P            |
| 22"    | 9522201P                         | 9532201P                 | 9522211P            |
| 31"    | 9523101P                         | 9533101P                 | 9523111P            |
| 44"    | 9524401P                         | 9534401P                 | 9524411P            |
| 55"    | 9525501P                         | 9535501P                 | 9525511P            |
| 66"    | 9526601P                         | 9536601P                 | 9526611P            |

All 900 Series Sections will accept one or two heat sources per reflector. You MUST contact Fostoria Industries for cooling requirements if two heat sources per reflector are used.

16 1/2" Wide (1-Reflector) Section



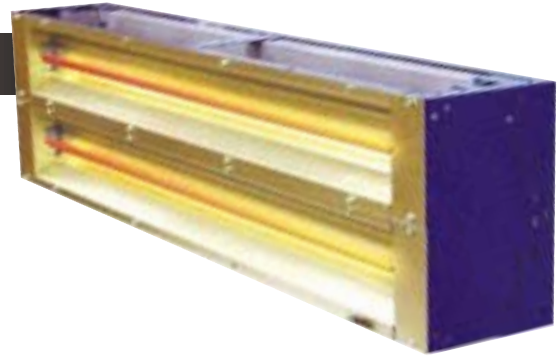
| Length | Gold Anodized Aluminum Reflector | Metal Sheath Heater | Angular Beam Reflector |
|--------|----------------------------------|---------------------|------------------------|
| 11"    | 9321101P                         | 9321111P            | 9321121P               |
| 16"    | 9321601P                         | 9321611P            | 9321621P               |
| 22"    | 9322201P                         | 9322211P            | 9322221P               |
| 31"    | 9323101P                         | 9323111P            | 9323121P               |
| 44"    | 9324401P                         | 9324411P            | 9324421P               |
| 55"    | 9325501P                         | 9325511P            | 9325521P               |
| 66"    | 9326601P                         | 9326611P            | 9326621P               |

All 900 Series Sections will be supplied assembled, but not wired. Wire and wiring to be supplied by the customer in the field.



**11" Wide (2-Reflector) Section**

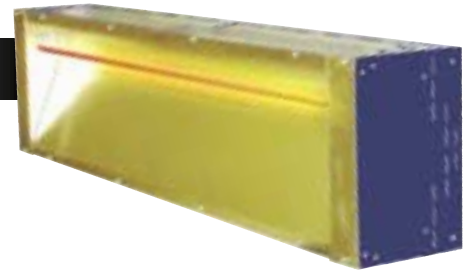
| Length | Gold Anodized Aluminum Reflector | Gold Porcelain Reflector | Metal Sheath Heater |
|--------|----------------------------------|--------------------------|---------------------|
| 11"    | 9421101P                         | 9431101P                 | 9421111P            |
| 16"    | 9421601P                         | 9431601P                 | 9421611P            |
| 22"    | 9422201P                         | 9432201P                 | 9422211P            |
| 31"    | 9423101P                         | 9433101P                 | 9423111P            |
| 44"    | 9424401P                         | 9434401P                 | 9424411P            |
| 55"    | 9425501P                         | 9435501P                 | 9425511P            |
| 66"    | 9426601P                         | 9436601P                 | 9426611P            |



All 900 Series Sections will accept one or two heat sources per reflector. You MUST contact Fostoria Industries for cooling requirements if two heat sources per reflector are used.

**11" Wide (1-Reflector) Section**

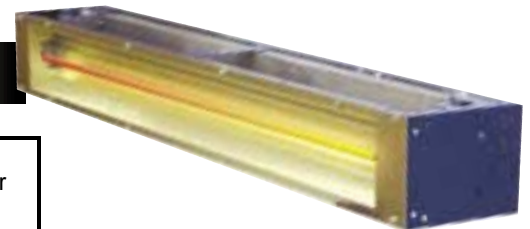
| Length | Gold Anodized Aluminum Reflector | Metal Sheath Heater | Angular Beam Reflector |
|--------|----------------------------------|---------------------|------------------------|
| 11"    | 9221101P                         | 9221111P            | 9221121P               |
| 16"    | 9221601P                         | 9221611P            | 9221621P               |
| 22"    | 9222201P                         | 9222211P            | 9222221P               |
| 31"    | 9223101P                         | 9223111P            | 9223121P               |
| 44"    | 9224401P                         | 9224411P            | 9224421P               |
| 55"    | 9225501P                         | 9225511P            | 9225521P               |
| 66"    | 9226601P                         | 9226611P            | 9226621P               |



All 900 Series Sections will be supplied assembled, but not wired. Wire and wiring to be supplied by the customer in the field.

**5 1/2" Wide (1-Reflector) Section**

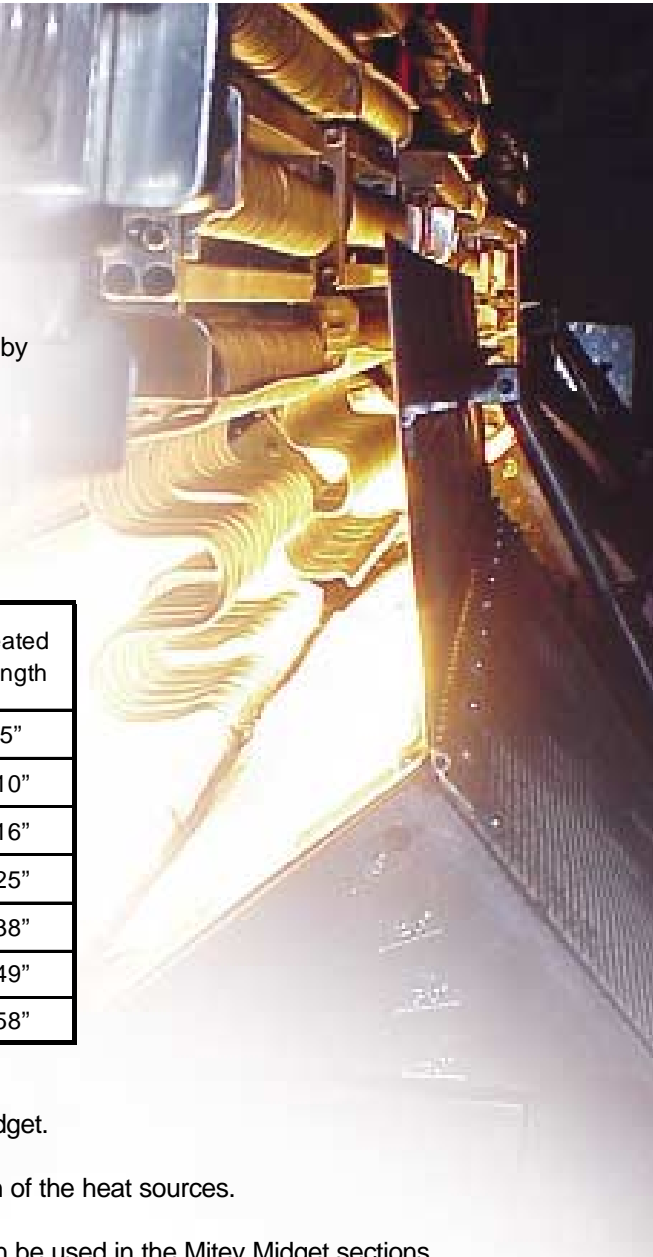
| Length | Gold Anodized Aluminum Reflector | Gold Porcelain Reflector | Metal Sheath Heater | Narrow Beam Reflector | Angular Beam Reflector |
|--------|----------------------------------|--------------------------|---------------------|-----------------------|------------------------|
| 11"    | 9121101P                         | 9131101P                 | 9121111P            | 9121131P              | 9121121P               |
| 16"    | 9121601P                         | 9131601P                 | 9121611P            | 9121631P              | 9121621P               |
| 22"    | 9122201P                         | 9132201P                 | 9122211P            | 9122231P              | 9122221P               |
| 31"    | 9123101P                         | 9133101P                 | 9123111P            | 9123131P              | 9123121P               |
| 44"    | 9124401P                         | 9134401P                 | 9124411P            | 9124431P              | 9124421P               |
| 55"    | 9125501P                         | 9135501P                 | 9125511P            | 9125531P              | 9125521P               |
| 66"    | 9126601P                         | 9136601P                 | 9126611P            | 9126631P              | 9126621P               |



All 900 Series Sections will accept one or two heat sources per reflector. You MUST contact Fostoria Industries for cooling requirements if two heat sources per reflector are used.



# MITEY MIDGET MODULAR SECTIONS



Fostoria Mitey Midget sections provide a means for applying infrared heat in confined spaces. They can be assembled side by side and end to end to form heating banks.

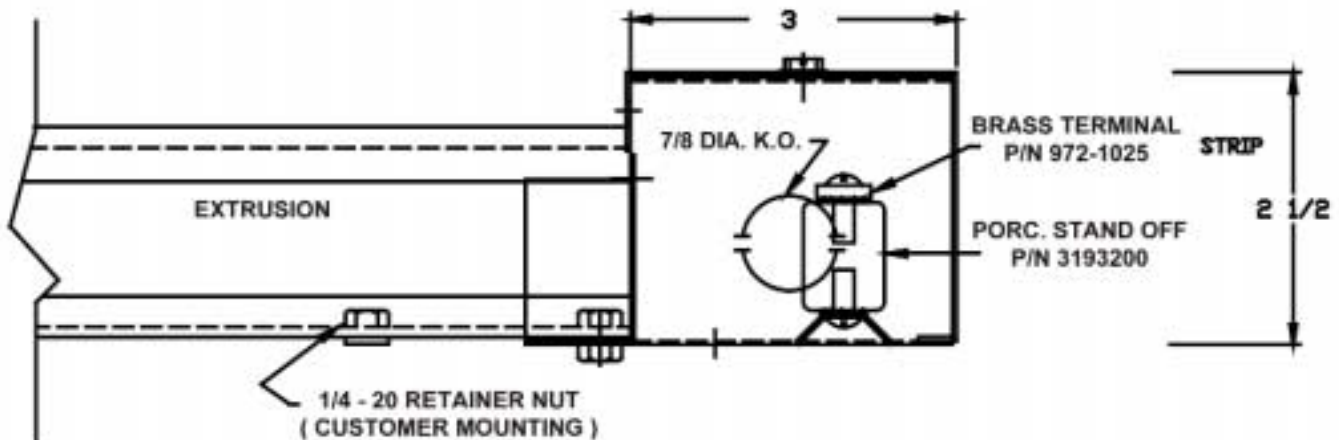
- Mounting the Mitey Midget can be easily accomplished:
1. The top of each end box has two slotted 5/16" holes.
  2. Each section has two 1/4 x 20 nuts that slide into the track extruded the full length of the section body.

| Part No. | Overall Length | Overall Width | Overall Depth | Heated Length |
|----------|----------------|---------------|---------------|---------------|
| 9721061  | 12"            | 3 1/2"        | 2 1/2"        | 5"            |
| 9721561  | 17"            | 3 1/2"        | 2 1/2"        | 10"           |
| 9722161  | 23"            | 3 1/2"        | 2 1/2"        | 16"           |
| 9723061  | 32"            | 3 1/2"        | 2 1/2"        | 25"           |
| 9724361  | 45"            | 3 1/2"        | 2 1/2"        | 38"           |
| 9725461  | 56"            | 3 1/2"        | 2 1/2"        | 49"           |
| 9726561  | 67"            | 3 1/2"        | 2 1/2"        | 58"           |

Three 7/8" knockouts are supplied in each end of the Mitey Midget.

There is a ceramic socket in each end box for easy termination of the heat sources.

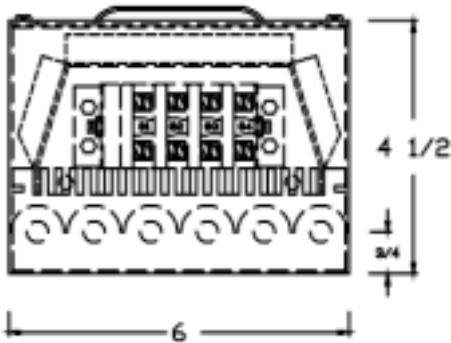
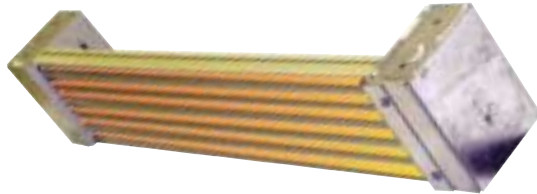
Quartz lamps, quartz tubes, and straight metal sheath rods can be used in the Mitey Midget sections.





# 1600 SERIES HIGH POWER DENSITY SECTIONS

## Air Cooled Aluminum Extrusion



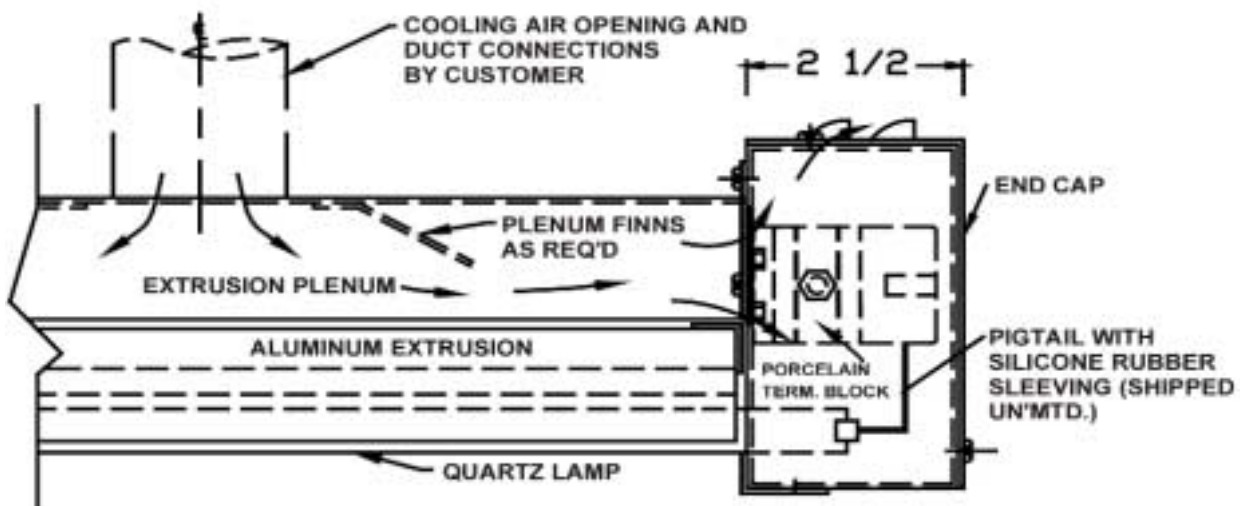
The Fostoria 1600 Series section consists of an aluminum extrusion in which a series of six reflectors are formed to accommodate a maximum of six quartz lamps (100 watts per square inch).

A cooling chamber is mounted above the extrusion to keep the section within safe operating temperatures.

Fostoria Industries must be contacted to determine the amount of cooling air needed for each application. The 1600 series sections are available as single modular units, or they can be used in multiple combinations to produce a larger heated area.

The 1600 series sections can accommodate quartz lamps and quartz tube heat sources (Fostoria Industries must be consulted if a quartz tube is required. Only certain quartz tubes will fit into the 1600 series sections).

| Part No. | Overall Length | Overall Width | Overall Depth | Heated Length | Quartz Lamps<br>Volts / Watts |
|----------|----------------|---------------|---------------|---------------|-------------------------------|
| 9718000  | 11"            | 6"            | 4½"           | 5"            | 500/120                       |
| 9718001  | 16"            | 6"            | 4½"           | 10"           | 1000 / 208 or 240             |
| 9718002  | 22"            | 6"            | 4½"           | 16"           | 1600 / 208 or 240             |
| 9718003  | 31"            | 6"            | 4½"           | 25"           | 2500 / 480 or 600             |
| 9718004  | 44"            | 6"            | 4½"           | 38"           | 3650 / 480 or 600             |
| 9718005  | 55"            | 6"            | 4½"           | 49"           | 4900 / 480                    |
| 9718006  | 66"            | 6"            | 4½"           | 58"           | 5800 / 480                    |





## ELECTRIC INFRARED HEAT SOURCES

Electricity is the energy of choice for many industrial infrared applications. There are many reasons for its popularity, such as: installation cost, controllability, ability to produce high temperatures quickly, and it is a clean form of heat.

Electric infrared emitters provide flexibility in producing the desired wavelength for a particular application. Fostoria offers a wide selection of electric infrared heat sources to meet the various requirements of industrial applications. Each of the different types of heat sources

has particular characteristics which determine the suitability of the heat source for a particular application.

For most applications, it is sufficient to know that short wavelength, tungsten filament sources (quartz lamps) provide high radiant efficiency, deep penetration and a fast rate of response. Medium and longer wavelength nickel chrome filament sources (quartz tubes and metal rods) are less radiant efficient, but are more rugged, less expensive, and in some cases provide the best wave length for the application.



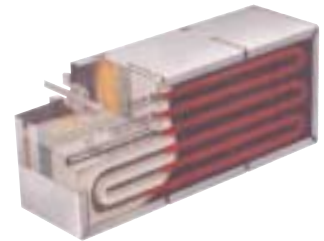
Metal Sheathed Rods



Quartz Tubes



T-3 Quartz Lamps



F-Series

| <b>Infrared Heat Source Chart</b> | <b>Metal Sheathed Rods<br/>Long-Wave Infrared</b>  | <b>Quartz Tube<br/>Medium-Wave Infrared</b>   | <b>Quartz Lamp (T-3)<br/>Short-Wave Infrared</b>   | <b>F-Series Panel Heater<br/>Medium-Wave Infrared</b>  |
|-----------------------------------|--|---|--|--|
| <b>Construction Features</b>      | Nickel chrome filament surrounded by magnesium oxide insulation, sealed in a 3/8" incoloy tube | Spiral wire nickel chrome filament wound and enclosed in a 3/8", 5/8" or 7/8" diameter translucent quartz tube enclosure. Ceramic end caps. Unsealed enclosure. | Tungsten filament supported by tantalum discs enclosed in a 3/8" diameter, clear quartz enclosure. Ceramic end caps. Sealed enclosure. | Ceramic refractory board supporting precision resistance coils welded to stainless buss bars and terminals, and bonded with high-temp cement to a quartz face. |
| <b>Peak Temperature</b>           | 1400°F   | 1800°F  | 4000°F   | 1800°F   |
| <b>Peak Wavelength Range</b>      | 2.8 to 3.6 Microns   | 2.3 to 2.8 Microns  | 1.15 Microns   | 2.3 to 2.8 Microns   |
| <b>Radiant Efficiency Avg.</b>    | 45 to 53%  | 40 to 60%   | 72 to 86%  | 80%  |
| <b>Response Time</b>              | One Min to 3 Minutes   | 30 Seconds  | Immediate  | 7 Minutes  |
| <b>Ruggedness</b>                 |  |   |  |  |
| <b>Mechanical</b>                 | Excellent  | Good  | Good   | Excellent  |
| <b>Thermal Shock</b>              | Excellent  | Excellent   | Excellent  | Excellent  |
| <b>Avg. Rated Life</b>            | 5000 Hours   | 5000 Hours  | 5000 Hours   | 25000 Hours  |
| <b>Unique Features</b>            | Extremely rugged. U-Shaped rods terminate at one end for easy wiring and source replacement.   | Wide selection of wattages and voltages in varying lengths. Optional terminations available   | High radiant efficiency. High energy output. Instant response. Controllability.  | High radiant efficiency. Even heat distribution. Many sizes and watt densities. Rugged.  |