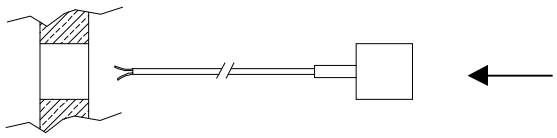
Use of Thermogage™ Circular Foil Heat Flux Gages

Installation

Thermogage™ heat flux gages come in a wide range of body designs that call for different mounting techniques. The three most common are listed below.

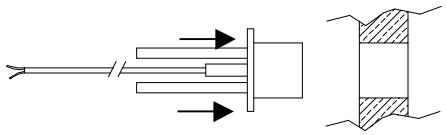
Press Fit

Many of our gages can be press fit into the test surface. To do this, machine a hole into the surface so that there is a 0.0005" interference fit and press the gage into the surface. Be careful not to damage the face of the sensor. Picture shown below is conduction-cooled gage (non-water cooled). For water-cooled gage, press fit from the opposite direction.



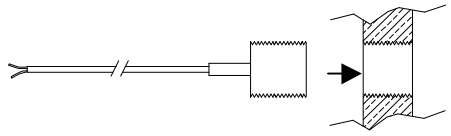
Press Fit with Flange

Our standard water-cooled gage comes with a flange on the back of the housing. To mount this gage, slide it into your surface and secure it by screwing the gage to the surface through the screw holes in the flange.



Threading

We also offer housings that are threaded. To install this type of gage, tap your surface to the appropriate specification and screw the gage in.



Taking Measurements

Your Thermogage™ Circular Foil Heat Flux Gage will be calibrated by Vatell and all of the necessary information will be included when you receive your shipment. When the instrument is exposed to a heat flux it produces a voltage output signal. You will record the voltage signal and convert it to its respective heat flux level using the calibration information.

Conduction-cooled Gages

Conduction cooled gages are designed to measure heat fluxes that will not cause the temperature of the gage to rise above 200°C. There is no maximum heat flux range as long as the temperature remains below the specified level.

Water-cooled Gages

Water cooled gages are capable of continuous operation if the water flow is sufficient. The table below should serve as a guideline for your water flow rate and pressure.

Maximum Heat Flux (BTU/ Ft^2 sec)	Minimum Water Flow (GPM)	Water Pressure (psi)
250 or less	¼	< 200
500	½	< 200
1000	1	< 200
2000	2	200
3000	3	250
4000	4	600
5000	5	800

Mounting

Most Thermogage™ instruments are designed to receive heat on the front face only. If excessive amounts of heat reach the sides of the gage your measurements could be effected and the water cooling system may not be sufficient to cool the gage properly.

Tips for Ensuring Better Results

- Use the gage only in its specified heat flux range
- Be certain that the gage has good thermal contact with the surrounding material
- Avoid touching the face of sensor as much as possible
- Send your gage to Vatell to be recalibrated once a year or after extensive use
- Handle the wiring connections with care