

VERSATILE MULTIPURPOSE HEATERS RANGE

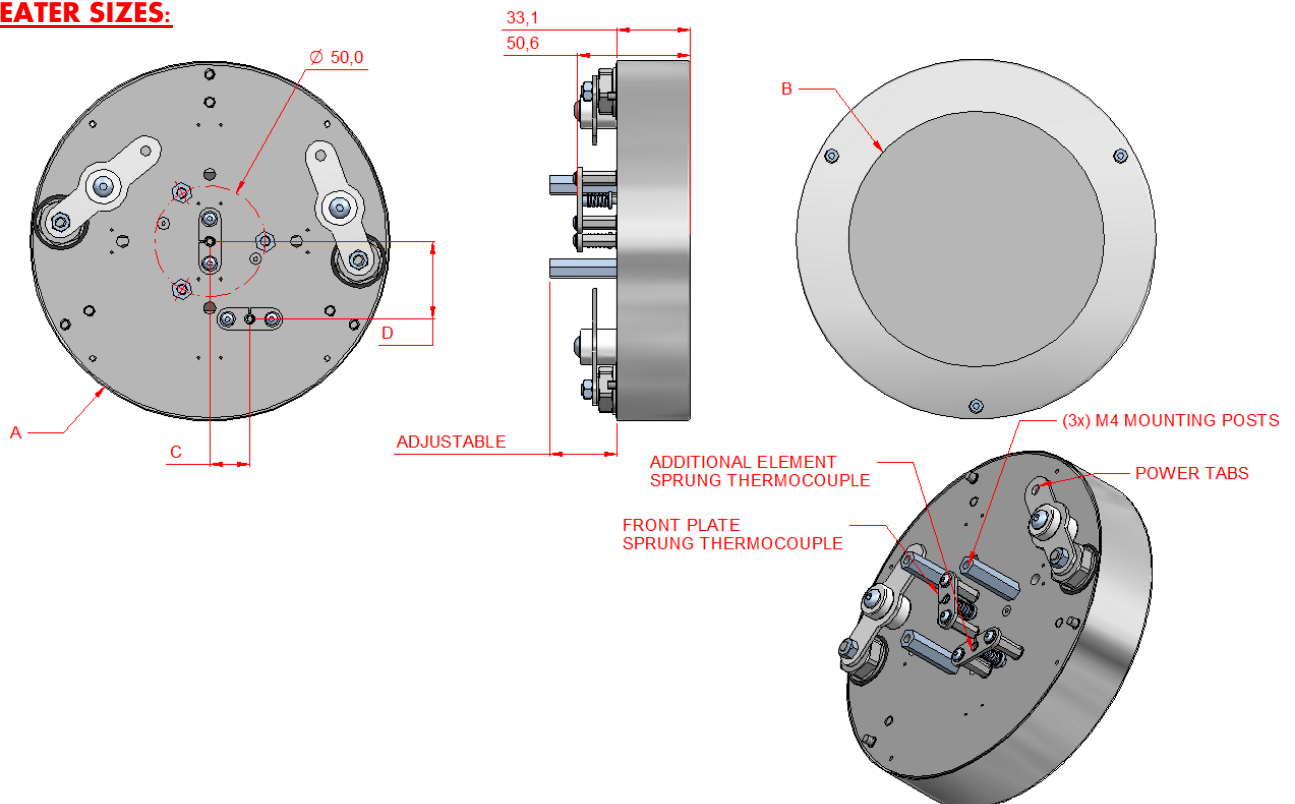
The New Thermic Edge Versatile Heater offers a new approach to sample heating. The sample heater is very **versatile** enabling it to be **easily upgraded**, so that body or element materials can be easily changed to suit different heating requirements and environments. The sample heater layout can be easily modified to allow for **different sample mounting options**. The heater is also very **high performance**, with **high power density** (enabling very **fast ramp** up times), with **low mass** body (**reducing cool down** times) and **high thermal uniformity** over the entire hot zone. The sample heater can be manufactured using different body and element materials to suit a wide range of applications and temperatures. The following element and body materials are available:

Heater body materials range: st/stl 304, Inconel alloy 600, Molybdenum, Tungsten

Element Range: Inconel alloy 600 (O2 compatible), Molybdenum, Tungsten, CCC, Graphite + SiC coating (O2 compatible), Graphite + PBN coating, PBN/PG/PBN ceramic composite

The sample heater can be supplied with or without a ceramic top plate, and with various sample holder options. The sample heater has rear mounting posts, and can be mounted in any orientation. The figure below details the spun st/stl & Inconel alloy 600 casings, whilst the mounting options figures (next page) detail the higher temperature rated Molybdenum & Tungsten casings.

HEATER SIZES:



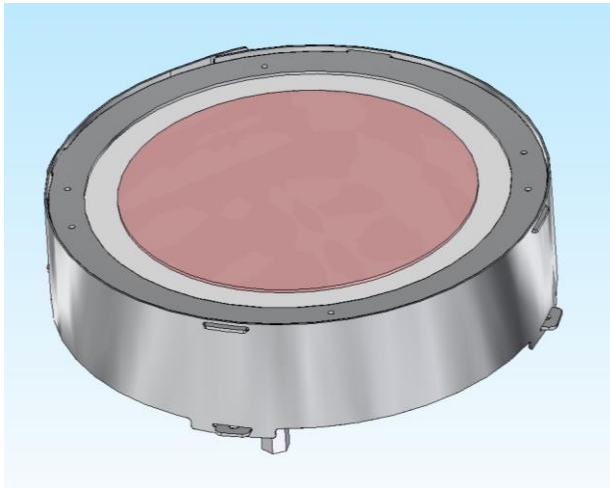
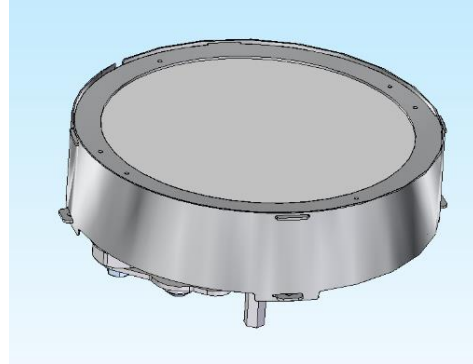
| | | A | B | C | D | W | Volts | Amps |
|-------------|----|-----|-----|------|------|------|-------|------|
| Sample Size | 2" | 103 | 56 | 10 | 15 | 750 | 25 | 30 |
| | 3" | 129 | 82 | 0 | 25 | 1350 | 27 | 48 |
| | 4" | 154 | 107 | 20.5 | 35.5 | 3000 | 45 | 64 |
| | 5" | 179 | 132 | 20.5 | 35.5 | 3600 | 58 | 62 |
| | 6" | 205 | 158 | 20.5 | 35.5 | 4700 | 77 | 60 |

Voltage and current figures for 1000c based on ccc element with top plate in vacuum. Other nonstandard sizes available by custom design.

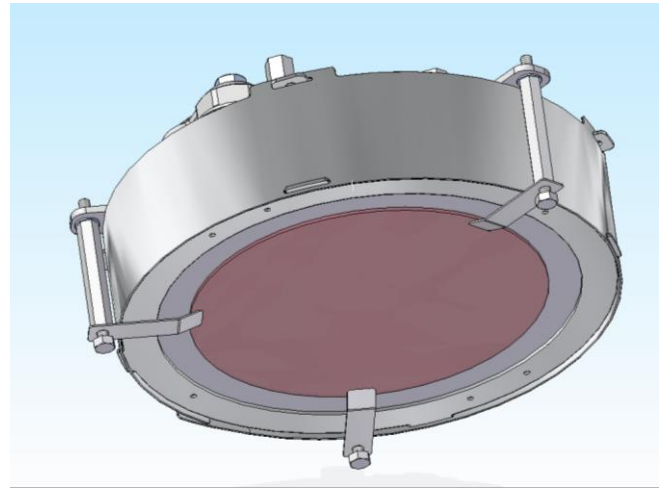
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SAMPLE MOUNTING OPTIONS:

CERAMIC TOP PLATE HEATER:

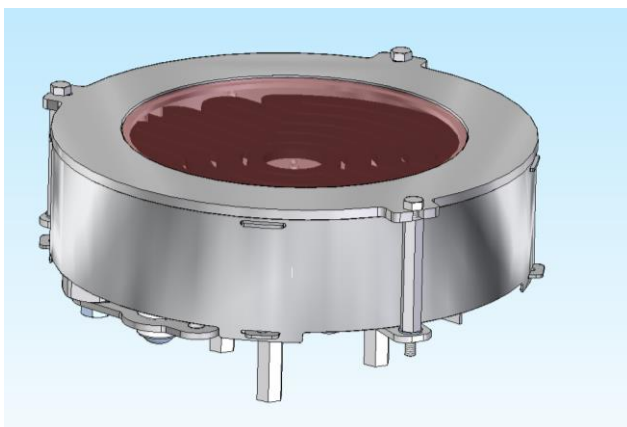


Sample straight on top plate



Sample pressed by fingers against top plate

EXPOSED ELEMENT:



Exposed element, element masked by sample & holder



Exposed element, no sample holder

VERSATILE MULTIPURPOSE HEATERS RANGE



VERSATILE HEATER STANDARD RANGE

800c ceramic top plate temperature with st/stl body, heatshields and inconel element

For use in High vacuum, O₂, N₂, H₂ environment or Air

| Part No. | Hot zone ø | o.d. | Body | Base plate | Heatshields | element | Power legs | Ceramic supports | Top plate | TC type |
|----------------|------------|-------|------------|------------|-------------|---------|------------|------------------|-----------|---------|
| VH-2-800-IN-O2 | 2" | 103mm | st/stl 304 | st/stl 304 | st/stl 304 | Inconel | Nickel | Alumina | ABN1000 | K |
| VH-3-800-IN-O2 | 3" | 129mm | st/stl 304 | st/stl 304 | st/stl 304 | Inconel | Nickel | Alumina | ABN1000 | K |
| VH-4-800-IN-O2 | 4" | 154mm | st/stl 304 | st/stl 304 | st/stl 304 | Inconel | Nickel | Alumina | ABN1000 | K |
| VH-5-800-IN-O2 | 5" | 179mm | st/stl 304 | st/stl 304 | st/stl 304 | Inconel | Nickel | Alumina | ABN1000 | K |
| VH-6-800-IN-O2 | 6" | 205mm | st/stl 304 | st/stl 304 | st/stl 304 | Inconel | Nickel | Alumina | ABN1000 | K |

1000c ceramic top plate temperature with inconel body, alumina / inconel heatshields and G + SiC3 element

For use in High vacuum, O₂, N₂, H₂ environment or Air

| Part No. | Hot zone ø | o.d. | Body | Base plate | Heatshields | element | Power legs | Ceramic supports | Top plate | TC type |
|-----------------|------------|-------|---------|------------|---------------------------------------|---------|------------|------------------|-----------|---------|
| VH-2-1000-GS-O2 | 2" | 103mm | Inconel | st/stl 304 | Al ₂ O ₃ +In600 | G + SiC | Nickel | Alumina | ABN1000 | K |
| VH-3-1000-GS-O2 | 3" | 129mm | Inconel | st/stl 304 | Al ₂ O ₃ +In600 | G + SiC | Nickel | Alumina | ABN1000 | K |
| VH-4-1000-GS-O2 | 4" | 154mm | Inconel | st/stl 304 | Al ₂ O ₃ +In600 | G + SiC | Nickel | Alumina | ABN1000 | K |
| VH-5-1000-GS-O2 | 5" | 179mm | Inconel | st/stl 304 | Al ₂ O ₃ +In600 | G + SiC | Nickel | Alumina | ABN1000 | K |
| VH-6-1000-GS-O2 | 6" | 205mm | Inconel | st/stl 304 | Al ₂ O ₃ +In600 | G + SiC | Nickel | Alumina | ABN1000 | K |

VERSATILE MULTIPURPOSE HEATERS RANGE

1000c ceramic top plate temperature with molybdenum body, heatshields and CCC element

For use in High vacuum, N2 or inert atmosphere

| Part No. | Hot zone ϕ | o.d. | Body | Base plate | Heatshields | element | Power legs | Ceramic supports | Top plate | TC type |
|-----------------|-----------------|-------|------|------------|-------------|---------|------------|------------------|-----------|---------|
| VH-2-1000-CC-HV | 2" | 103mm | Moly | st/stl 304 | Moly | CCC | Moly | Alumina | ABN1000 | K |
| VH-3-1000-CC-HV | 3" | 129mm | Moly | st/stl 304 | Moly | CCC | Moly | Alumina | ABN1000 | K |
| VH-4-1000-CC-HV | 4" | 154mm | Moly | st/stl 304 | Moly | CCC | Moly | Alumina | ABN1000 | K |
| VH-5-1000-CC-HV | 5" | 179mm | Moly | st/stl 304 | Moly | CCC | Moly | Alumina | ABN1000 | K |
| VH-6-1000-CC-HV | 6" | 205mm | Moly | st/stl 304 | Moly | CCC | Moly | Alumina | ABN1000 | K |

1600c ceramic top plate temperature with molybdenum body, heatshields and CCC element

For use in High vacuum, N2 or inert atmosphere. Good for UHV with top plate removed

| Part No. | Hot zone ϕ | o.d. | Body | Base plate | Heatshields | element | Power legs | Ceramic supports | Top plate | TC type |
|-----------------|-----------------|-------|------|------------|-------------|---------|------------|------------------|-----------|---------|
| VH-2-1600-CC-HV | 2" | 103mm | Moly | Moly | Moly | CCC | Moly | Alumina | ABN1000 | C |
| VH-3-1600-CC-HV | 3" | 129mm | Moly | Moly | Moly | CCC | Moly | Alumina | ABN1000 | C |
| VH-4-1600-CC-HV | 4" | 154mm | Moly | Moly | Moly | CCC | Moly | Alumina | ABN1000 | C |
| VH-5-1600-CC-HV | 5" | 179mm | Moly | Moly | Moly | CCC | Moly | Alumina | ABN1000 | C |
| VH-6-1600-CC-HV | 6" | 205mm | Moly | Moly | Moly | CCC | Moly | Alumina | ABN1000 | C |

VERSATILE MULTIPURPOSE HEATERS RANGE



1600c ceramic top plate temperature with Tungsten body, heatshields and element
For use in High vacuum, N₂, H₂ or inert atmosphere. Good for UHV with top plate removed

| Part No. | Hot zone ø | o.d. | Body | Base plate | Heatshields | element | Power legs | Ceramic supports | Top plate | TC type |
|------------------|------------|-------|----------|------------|-------------|----------|------------|------------------|-----------|---------|
| VH-2-1600-TU-UHV | 2" | 103mm | Tungsten | Tungsten | Tungsten | Tungsten | Tungsten | Alumina | ABN1000 | C |
| VH-3-1600-TU-UHV | 3" | 129mm | Tungsten | Tungsten | Tungsten | Tungsten | Tungsten | Alumina | ABN1000 | C |
| VH-4-1600-TU-UHV | 4" | 154mm | Tungsten | Tungsten | Tungsten | Tungsten | Tungsten | Alumina | ABN1000 | C |
| VH-5-1600-TU-UHV | 5" | 179mm | Tungsten | Tungsten | Tungsten | Tungsten | Tungsten | Alumina | ABN1000 | C |
| VH-6-1600-TU-UHV | 6" | 205mm | Tungsten | Tungsten | Tungsten | Tungsten | Tungsten | Alumina | ABN1000 | C |

Abbreviations: ABN1000 = AlN +BN ceramic, CCC = Carbon carbon composite, G + SiC = Silicon carbide coated graphite, Moly = Molybdenum, st/stl = Stainless steel, PBN = Pyrolytic Boron Nitride, PG = Pyrolytic Graphite, AlN = Aluminium Nitride, TC = Thermocouple, Al₂O₃ = Alumina, In600 = Inconel Alloy 600.

Alternative elements also available on request: - Graphite + PBN coating, PBN/PG/PBN ceramic composite, Moly, Tantalum, CCC + PG coating

Alternative top plate materials also available: Alumina, AlN, PBN, Graphite + PBN, Sapphire, SiC coated graphite.