NASA Ames Interaction Heating Facility (IHF)

**Mission:** The Interaction Heating Facility is designed to study aerodynamic heating in the thermal environment arising from the interaction of an energetic flow field during a hypersonic entry into a planetary atmosphere.

**Location:** NASA Ames Research Center, Moffett Field, CA, United States.

**Type of tunnel:** Constricted arc heater facility.

### Test Gas and Conditions

<table>
<thead>
<tr>
<th>Test gas</th>
<th>Nozzle exit (mm)</th>
<th>Test duration (min)</th>
<th>Test article type</th>
<th>Test article size (mm)</th>
<th>Heating rate (kW/m²) *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air</td>
<td>Conical (θ/2=10°), Ø 152,330,533,762 &amp; 1041</td>
<td>≤ 60</td>
<td>Stagnation point</td>
<td>Ø 380</td>
<td>250-20000</td>
</tr>
<tr>
<td></td>
<td>Semielliptical, 203x813</td>
<td></td>
<td>Wedge/Flat plate</td>
<td>610x610</td>
<td>60-4000</td>
</tr>
</tbody>
</table>

*Cold wall fully catalytic to a 102mm ø sphere (stagnation)*

**Input power (MW)** 60

**Bulk enthalpy (MJ/kg)** 2 to 28

**Flow rates (kg/s)** 0.03 to 1.7

**Surface pressure, kPa** 1-155

**0.01-2**

**Heating rate (kW/m²) *** 250-20000

**60-4000**

### Instrumentation:

- Hot wall temperature: thermocouples, IR pyrometry and radiometry
- Pressure: Pitot/static
- Cold wall heat flux: calorimetric probes with copper gauges (Gardon, Slug and Null Point types)
- Optical diagnostics: optical emission spectroscopy (OES), laser induced fluorescence (LIF), photogrammetric ablation rate

### References:


### Information Contacts:

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