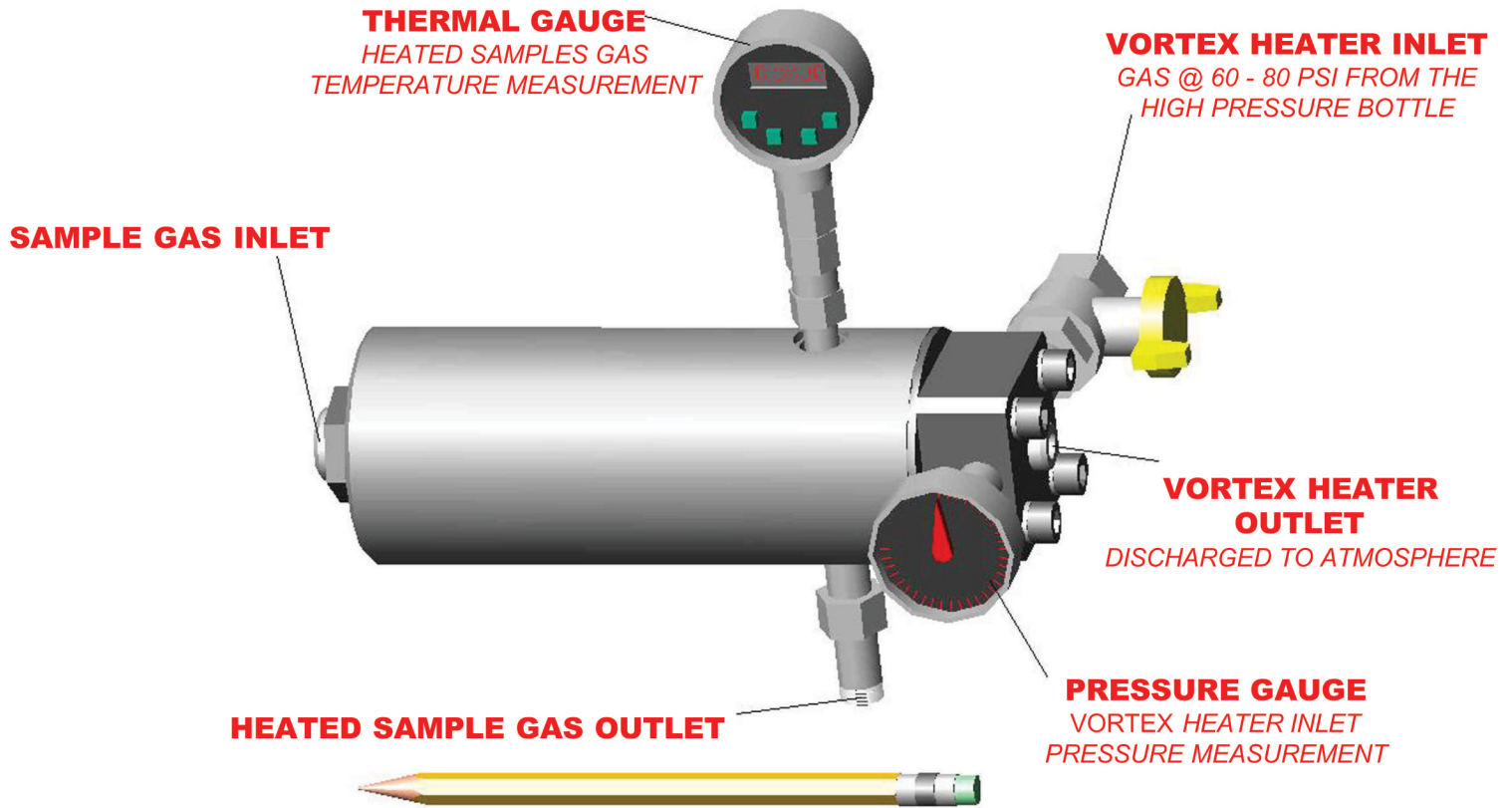


Universal Vortex, Inc.

VORTEX SAMPLE GAS HEATER



- Add up to 90°F to the sample gas inlet temperature
- No moving parts
- Generates heat as an outcome of compressed gas pressure reduction
- Utilizes bottled, environmentally friendly gas (nitrogen, oxygen etc.) to generate heat
- Low flow generates substantial heat
- Consistent heating & flexible operation

The **Vortex Sample Gas Heater** (VSGH) is a portable device for spot gas sample heating.

The core of the VSGH is UVI's proprietary Vortex Heater (VH), which converts the depressurizing gas flow's internal energy into high-temperature thermal flux. The thermal energy is then applied to the sample gas as it travels through a heat exchanger set up on the VH's walls.

To provide consistency in heating and flexibility in operation, the VH in the VSGH is fed with environmentally friendly gas (nitrogen, oxygen etc.) from the high-pressure bottle through a gas pressure reducer.

A small (6-8 scfm) flow of the working medium at the maintained 60-80 psi unit's inlet pressure expands in the VH, creating instant heat, and then vents into the atmosphere.

A gas sample travels alongside the VH's outer walls, picks up heat (sample gas temperature net increment is up to 90°F) and is then directed into the gas sampler.



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