Vortex Cooled
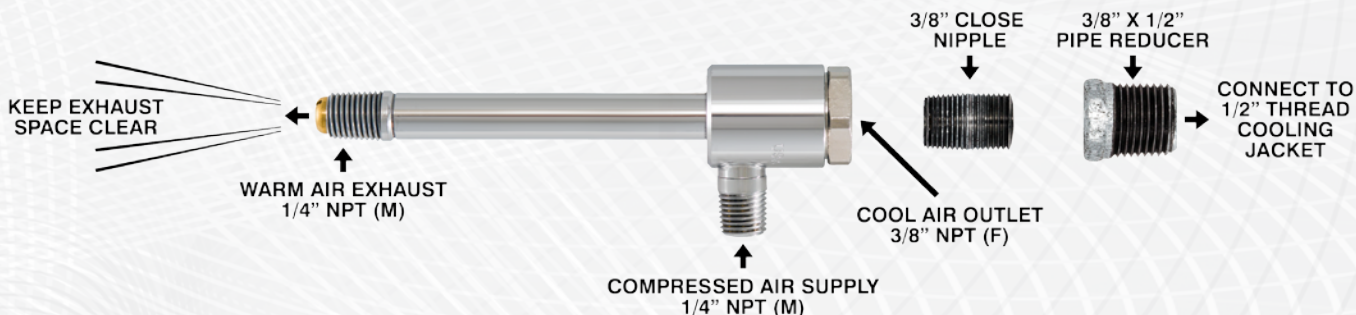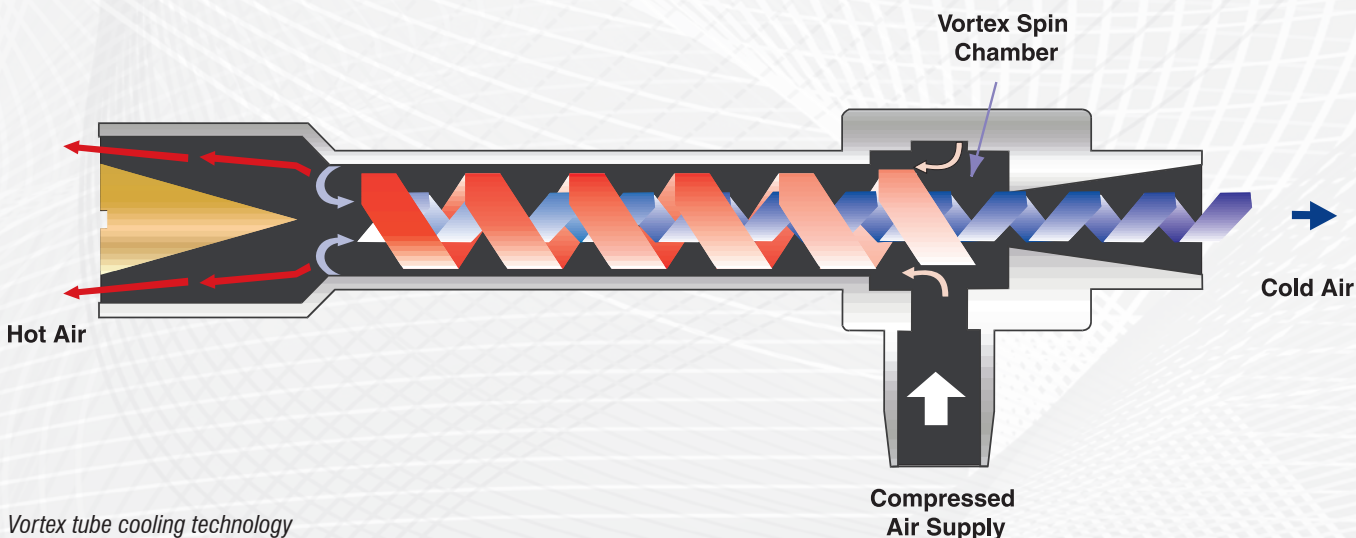
ZEECO® Flame Scanners use vortex tube cooling technology to spot cool the scanner internals. Vortex tubes use compressed air as a power source, have no moving parts, and operate according to accepted physical properties of energy and motion.

Simply put, vortex tubes provide a simple, reliable method of producing hot and cold air and make ZEECO Flame Scanners easy to own and to maintain long term.

How does a vortex tube work? Compressed air enters the tube through nozzles that are perpendicular to the internal counterbore. (see illustration). The nozzles cause the air to spin (form a vortex). The valves within the tube allow some air, warmed by the energy of the spinning, to escape. The rest returns through the tube, forming a second vortex inside the core of the larger/outer vortex. The inner vortex loses angular momentum, shedding heat as the lost energy. The heat transfers to the outer vortex and is exhausted through warm air outlets. Thus, the inner vortex becomes cooler and the outer vortex becomes warmer. The cooled air exits at a cold air exhaust, providing up to a 50°F (28°C) temperature drop from the incoming compressed air.

Vortex-Cooled ZEECO® Flame Scanner

Vortex tube cooling technology

Vortex-Cooled ZEECO® Flame Scanner

SPECIFICATIONS

Optimal Pressure Range	80-110 psi (5.5 - 7.6 Bar)
Flow Rate	10 SCFM @ 100 psi (283 SLPM @ 6.9 Bar)
Alternate Flow	Up to 40 SCFM (1,132 SLPM)
Supply Air	Compressed Air (clean, dry, filtered to less than 25 microns)
Minimum Pressure	20 PSI (1.4 Bar)
Material	Stainless Steel
Weight	0.9 lbs (0.4 Kg)
Length Installed	7" (177.8 mm)
Air Temperature	-50˚F to 260˚F (-46˚C to 127˚C)

Air Supply Pressure, PSIG (Bar)	20 (1.38)	40 (2.76)	60 (4.14)	80 (5.52)	100 (6.90)	120 (8.27)
Temperature Drop ˚F (˚C)	28 (16)	38 (21)	46 (26)	50 (28)	54 (30)	55 (31)

ZEECO® combustion and environmental solutions are designed and manufactured to comply with applicable local and international standards as defined by our customers.

NSF
REGISTERED
ISO 9001: 2008

CERTIFICATION APPLIES TO ZEECO HEADQUARTERS ONLY.

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