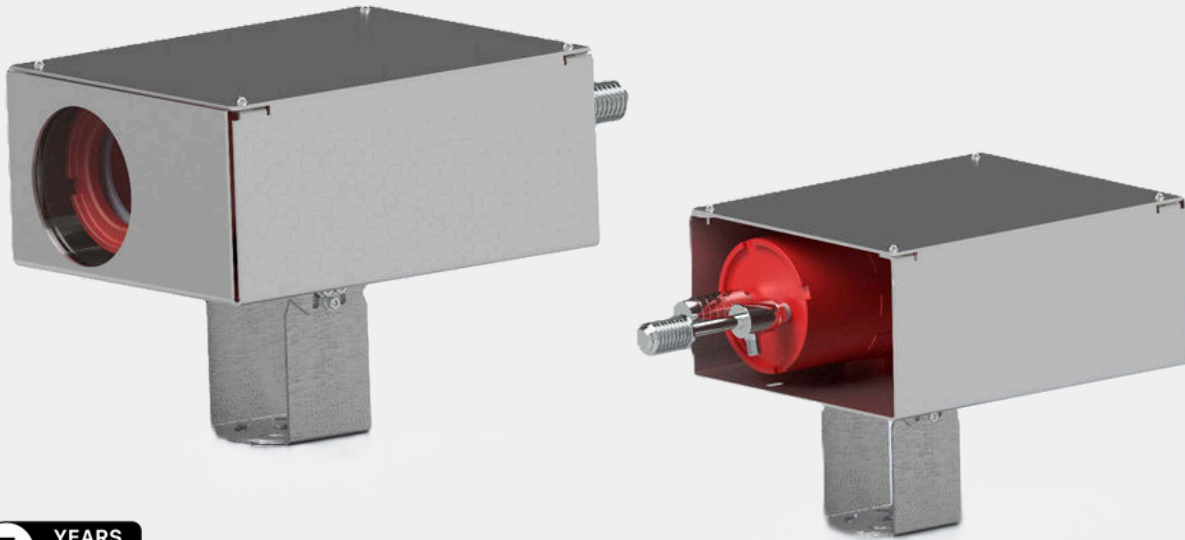


Spectrum SA-ACF1XX-XXXXX

GROUND FLARE COOLED CAMERA HOUSING
(with Spectrum Vortex cooling tubes)

EXPLOSION
PROOF CAMERA



Weatherproof Air Cooled Housing Design

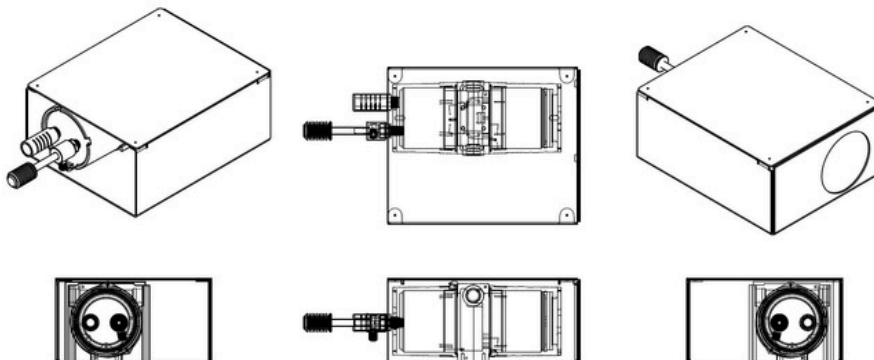
The Spectrum Flare Monitoring Kit comprises of a Stainless Steel enclosure, a ruggedized housing with the Spectrum Vortex Cooling Tubes pre-installed. Just choose which camera you want inside and get all the features of that camera, but for use in industrial environments for monitoring flares.

Below are 3 examples of the kits available.

SA-ACF101-P1377-iCS - All the features of the P1377-iCS camera, but for use in non-hazardous areas for Flare Monitoring utilizing the latest in Spectrum Vortex Cooling Tube technology.

SA-ACF101-Q1656 - All the features of the Q1656 camera, but for use in non-hazardous areas for Flare Monitoring utilizing the latest in Spectrum Vortex Cooling Tube technology.

SA-ACF101-Q1715 - All the features of the Q1715 camera, but for use in non-hazardous areas for Flare Monitoring utilizing the latest in Spectrum Vortex Cooling Tube technology.



SPECTRUM
CAMERA SOLUTIONS

SPECIALIZING IN EXPLOSION PROOF TECHNOLOGY
8935 ALMEDIA GENDRA RD. HOUSTON, TEXAS 77075 USA
MADE IN USA

MODEL: SA-ACF1XX-XXXXX
INPUT: IEEE802.3aX, XX W
SERIAL: XXXX-MN-DY-YEAR

Maintaining Optimum Performance

Filtration to maintain clean air is necessary at a rate of 25 microns or less for water and oil mist removal filters is oil mist is in the air lines.

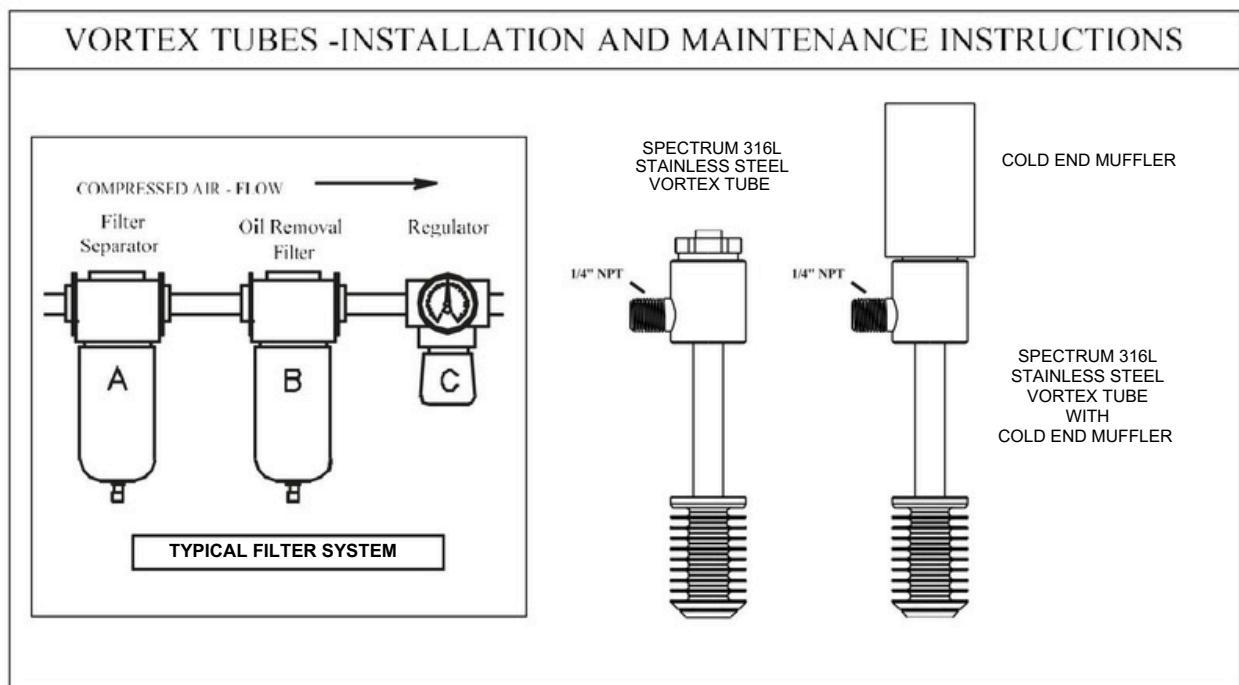
The Spectrum vortex coolers require filters (not supplied), that use five (5) micron filtration elements for water removal and optional 0.3 micron filters for oil mist removal if necessary. They are properly sized for the various vortex tube capacities. We strongly recommend to maintain a minimum back pressure on the cold end air exhaust. While much less susceptible to back pressure than standard vortex tube designs, back pressure will reduce effectiveness by lessening the temperature drop. Up to 2 PSIG will not affect performance.

5 PSIG back pressure will effect performance by approximately 2°F. Regular vortex tubes without ducts can be quite noisy.

If cold air is ducted, muffling is normally not necessary. However, mufflers are available for both the cold end if required. The Spectrum vortex tube does not require hot end muffling due to their high efficiency as the hot air is expelled on the hot side entrains surrounding air converting energy normally lost into increased for flow cooling the finned heat sink. As a result the hot side only becomes "warm" in addition to being quieter.

In expelling the air at the hot end, there is an adjustable hot end plug that is adjustable using a screwdriver. The optimum range is a 1/8th to 1/4" turn for optimum efficiency in cooling. The setting should be 1/8" if compressed air supply is under 86°F (30°C) and closer to 1/4" if 86°F (30°C) or more.

If cooling effect is not the most important, and lower temperature is desired, then can open beyond the 1/4 turn to 1/2 turn maximum. Cooling effect will be less despite lower temperatures because the cooling effect is based on both temperature drop and volume. But if cold temperature alone is of importance, then opening beyond the 1/4 turn can be done.



SPECTRUM VORTEX TUBES SPECIFICATIONS

The new patent pending SPECTRUM vortex tube is a significant technical development in vortex tube technology.

The new designs....

1. Are approximately 16% to 50% more efficient than the old versions, and closer to 50% in very hot environment applications.
2. Warm at the hot end - NOT hot, so more safe to handle as the hot end exhaust uses entrained air to cool the exhaust which is then diverted to cool heat removed via the heat sink assembly.
3. Can produce even below -50°C when tested at 26°C inlet air supply at 80PSIG.
4. Optimum cooling effect at 80% utilization of incoming compressed air producing approximately -20°C at the cold end with incoming compressed air at 26°C inlet air supply at 80 PSIG.
5. Much less sensitive to back pressure than old-style designs which allows you to convey sub-zero temperatures at a greater distance.
6. Patent Pending flow pattern control prevents the temperature fluctuations experienced in old vortex tube designs. These fluctuations were a combination of turbulence and the formation of small ice crystals when air temperature inside falls below the dew point but re-dissolve quickly due to spinning action.
7. The new designs spin much faster so any ice formation is immediately thrown to the edges where the spinning air is warmed and carried up and out of the unit. Temperatures have greater stability and more effective cooling.
8. The new designs incorporate a heat sink system with a patented cooling design utilizing the exhaust air from the hot end along with entrained air to cool the heat sink as it removes heat.
9. Other patent pending changes have been made to keep the vortex tube compact and lightweight and similar in overall size to old designs allowing for the use with the majority of the same attachments.
10. The new design is made from a choice of 304 stainless or 316L stainless steel as required. The heat sink is normally brass but can be supplied in stainless for very corrosive environments.

Nominal cooling rates as follows:.....

- 10 SCFM version: 1000 BTU/hr
- 15 SCFM version: 1600 BTU/hr
- 25 SCFM version: 2600 BTU/hr
- 30 SCFM version: 3000 BTU/hr
- (35 SCFM version and larger sizes are pending)

Installation is not position sensitive so may be installed in any orientation but keep in mind that cold air falls so the direction of the exiting cold air may be important in any installation and application.

