

Nominee: Tyco Fire Protection Products

Nomination title: Acoustic Nozzle and Calculator

Tyco Fire Protection Products has launched its latest innovation for Fire Protection in Data Centre and Server Room applications. The new Acoustic Nozzle protects sensitive Hard Disk Drives (HDDs) and data in the event of a suppression system discharging when combating a fire.

The solution has been developed to solve the issues in Data Centres caused by noise emanating from the discharge of inert gas fire extinguishing systems. The solution has two significant features, the first is an Acoustic Nozzle that is designed to reduce the Sound Power developed at the discharge nozzle and the second is a unique calculation tool known as the Acoustic Calculator which will help the operator of a Data Centre in conjunction with the Fire Extinguishing System Designer to estimate and ultimately mitigate the impact of the noise level at the location of sensitive equipment. The Acoustic Nozzle system is also easily retrofitted in existing installations through its compatibility with standard piping systems.

The Acoustic Nozzle is one of the main methods that assist in reducing the Sound Pressure to an acceptable level, thereby reducing the risk of HDD damage. The Sound Pressure level can be further improved by a number of other factors including the positioning of the nozzles relative to the hard drives and optimizing the room acoustics through and understanding of the impact of sound absorbing room construction materials, and installation of sound absorption panels.

- Sound power is the amount of sound energy produced by a noise source like a fire suppression system discharge nozzle. The Acoustic Nozzle is designed to reduce the sound power level produced during a discharge of the iFLOW Suppression System.
- Sound pressure is the sound that is received at a location remote from the noise source. The remote location may include HDDs. It is sound pressure that is the critical sound energy relevant to the effects on the HDDs.

The Acoustic Nozzle system offers maximum coverage per nozzle of 9.8 x 9.8m (96.04m²) and up to a height of 6.1m. In addition to using the Acoustic Nozzle, Tyco recognises that further optimisation will occur through correct placement of the nozzle in relation to the HDDs, as well as the use of sound absorbing construction materials in the room. This further enhances the system performance and limits the risk of damage to hard disk drive equipment.

The Acoustic Nozzle and the Acoustic Calculator will assist Data Centre operators to reduce the risk of damage occurring to HDDs and potential loss of data, in the event that their inert gas fire extinguishing system discharges. The Tyco Acoustic Nozzle, combined with Tyco's INERGEN iFLOW technology, significantly reduces the sound output (Sound Power) from the nozzle.

Tyco have invested significant research and development into understanding sound behaviour and how this impacts sensitive electronic equipment and the factors beyond the sound source that will impact the sensitive equipment.

The result of this research was the creation of a calculation method to estimate how the Sound Power generated by the nozzle reduces by the time it reaches the sensitive equipment, i.e. the Sound Pressure level.

Some of the product differentiators against our competitors are:

- The extensive area coverage for the Acoustic Nozzle, which helps with retrofitting existing systems and can reduce disruption caused by extensive modifications to existing installations
- The area coverage of the acoustic nozzle is 9.8 x 9.8 m and at maximum height of 6.1 m. way above the
- The availability of the acoustic calculator

Why nominee should win

With our extensive research into understanding sound behaviours, we developed a unique solution which includes the Acoustic Calculation tool. This will assist Data Centre operators in conjunction with the Fire Extinguishing System Designers estimate and ultimately mitigate the impact of the noise level at the location of sensitive equipment.

Several cases including some high profile examples have been reported where damage has occurred to HDD's during the discharge of inert gas fire extinguishing systems resulting in loss of data, our solution is unique to the market.