

IN-LINE DAMPENERS

Introduction

In the process industries – petrochemical, chemical, pharmaceutical, food preparation, steel working, electricity generation – many regulating and control valves are employed. Where these are used to control pressure noise is an unwanted byproduct. In the piping this can attain 150~160 dB(A) so forming a serious nuisance – dangerous hearing damage or general discontent especially when the valves operate during the night hours. By interposing an in-line dampener immediately connected to the valve constructive measures against the nuisance may be made.

High Quality in-line dampeners from Q.E. International B.V.

For many years Q.E. International B.V. has been at the forefront of the design, fabrication and supply of high quality in-line noise dampeners for industry. The units have been successfully installed in many plants throughout the world.

In addition to a standardized range of dampeners Q.E. International B.V. engineering group have specialized in producing solutions for each specific application and are able to help you to apply the optimum solution to your problem.

Q.E. International B.V. dampeners stand squarely for Quality. Thus, we are able to guarantee the specified noise attenuation. By selecting the site of dampener fabrication we are able to offer the most economical solution.



Isolated in-line dampener

Principle of operation

In its fundamental form a Q.E. International B.V. in-line dampener comprises an inlet diffuser zone, an expansion zone and an acoustic

absorption zone all arranged along a single axis.

The diffuser zone conditions the flowing medium so that the noise spectrum and fluid pressures are optimized for the absorption zone while the expansion zone provides a randomization of the noise characteristics to increase the efficiency of the absorption zone.

In the absorption zone itself noise is attenuated by friction across the fibers, the energy being dissipated as heat energy. Diffuser design, arranged for staged pressure drop and precise noise control, permit the dampener to accept high inlet pressures so that the noise radiated by the control valve is attenuated by reducing the velocities within the valve body.

Forms of construction

Standard units are taken from a range of sizes and materials of construction assembled over many years experience of industrial applications and these provide the most economical solution.

The units are formed from carbon steel components, the acoustic absorbent from mineral wool fibers. Speeds through the absorbent zone are proportioned to prevent migration of the acoustic absorbent.

The exterior of the dampener is blast-cleaned to SA 2 ½ and then spray-paint coated to a 40micron dry-film thickness of zinc-based primer.

Custom built units are individually designed and fabricated to meet the specific requirements of the plant. The expertise that we have amassed by has contributed to the leading position of Q.E. International B.V. within the industry and our ability to produce solutions to the most complex problems continues to confirm

that position. Our motto is "To go beyond the point where others stop" and this has been demonstrated many, many times.

Calculation

Those components of pressure containment forming the dampener can be designed and fabricated to the vessel codes ASME VIII Div 1, PED, BS 5500, AD-2000 or to any recognized National Code.

In order to be able to make the necessary calculations to size the plant item we need the following data:

- Medium (gas being compressed)
- Quantity of gas
- Temperature of the gas upstream of and downstream of the valve
- Gas pressure upstream of and downstream of the valve
- Desired attenuation of noise levels
- Maximum permissible pressure loss through the dampener
- Connection sizes to the valve and to the piping
- The installation configuration



High pressure in-line dampener

Q.E. International B.V. your partner in industrial noise suppression

In short, with more than 40 years of experience Q.E. International B.V. has demonstrated itself to its satisfied and trusted clientele to be the partner of choice in the solution of industrial noise problems. We are ready to advise you. Please make contact with us – our advisors are ready to examine your noise and vibration problem and to determine the best way of overcoming it.

Contact

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