## Nonlinearities In Inerter Devices – A Historical Perspective

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In recent years there has been a huge growth in interest in mechanical inerter devices. The origins of these devices goes back to the development of vibration isolators and absorbers throughout the twentieth century. In this paper, we will review some of the key nonlinear characteristics of mechanical inerter devices, and how these characteristics have been dealt with during development and manufacture. Specifically, we will consider examples of mechanical and fluid-based nonlinear inerter devices that were developed in the mid- and late twentieth century. Having considered the history of the devices themselves, we will also discuss examples of how these devices are then used to create nonlinear inerter-based isolators and absorbers. We will also relate this to the development of more recent inerter-based systems, such as nonlinear energy sinks, nonlinear inerter isolators and geometrically nonlinear inerter devices, many of which rely on concepts such as quasi-zero- and/or negative stiffness springs.