# Gas Phase Detonations: Effective Pressures Acting on the Walls of the Enclosures and Probability of Deflagration-to-Detonation Transition in Pipes, Vessels and Packings

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The 8 different detonative pressure scenarios brought about by gas phase detonations in pipes and their corresponding static equivalent pressures, which are required to determine a detonation pressure resistant design by the use of the established guidelines being only able to cope with quasi-static loads, are presented. For the other geometries relevant for chemical process plants (vessels, dry packings, irrigated packings) the probability of transition from deflagrative to detonative explosion is discussed and estimations for the resulting effective pressures are given. Finally a hint is given to “pathological” geometries that should always be avoided when dealing with potentially detonative gas mixtures.