

Design Data for Seismic Applications of Victaulic® Grooved System

The following information is a general reference for using Victaulic products in regions that are prone to seismic forces. Because each system is different, this information is not to be used as a specification for all installations. Professional assistance is a requirement for any application. Published pressures, temperatures, external and/or internal loads, performance standards, and tolerances must never be exceeded.

THE BENEFITS OF VICTAULIC PRODUCTS IN SEISMIC AREAS

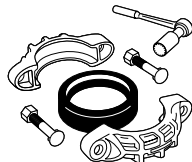
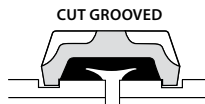
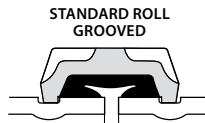
Piping systems in earthquake-prone areas can be exposed to forces and deflections beyond normal static conditions. These seismic forces can cause extensive damage when piping systems cannot accommodate these changes. Victaulic components can be used to accommodate seismic forces in the following piping system conditions:

- Code-regulated systems with adequate earthquake bracing
- Unregulated systems with little or no earthquake bracing
- Seismic joint connections between independently-moving sections
- Buried systems

When dealing with any of these applications, each must be considered individually.

The following information, when used in conjunction with established seismic design practices and requirements, provides an excellent guideline for piping system design.

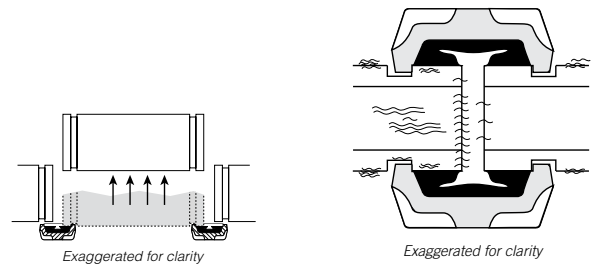
BUILT-IN STRESS RELIEF



The Victaulic grooved pipe joining method is simple and reliable. The four basic components are the grooved pipe, the housing, the bolts/nuts, and the gasket. The grooved pipe can be prepared with either a roll groove for standard wall and lighter pipe, or a cut groove for standard wall and heavier pipe. Both roll and cut grooved pipe will provide the same pressure rating for standard wall pipe. The coupling housing performs several functions as an integral part of the pipe joint. It fully encloses the elastomer gasket and secures it in position for a proper seal. It also engages the pipe around the full pipe circumference to create a unified joint, along with the advantages of mechanical joining. The bolts and nuts hold the housings together around the pipe. The synthetic elastomer gasket creates a triple seal effect on the pipe ends. A tension seal is created as the gasket is stretched around the pipe, and

a compression seal is created as the coupling housings press the gasket onto the pipe. Finally, the sealing lips of the gasket are forced down onto the pipe end when the system is energized. All of these features result in a leak-tight, self-restrained joint.

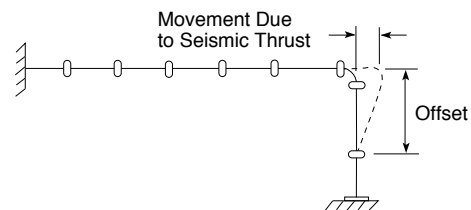
Victaulic grooved products have provided many successful years of reliable service in seismic applications, including fire protection, HVAC, municipal, and industrial systems. Our couplings are durable and are designed to last the life of the piping system when installed in accordance with our published installation instructions. Our couplings can be quickly and easily assembled and disassembled. This, in combination with a union at every joint, reduces labor costs and permits easy system access for maintenance, repair, component replacement, and retrofits. Also, fittings can be loosely assembled and rotated to line up with mating components before the couplings are tightened. This eases work in tight places and around existing pipe, structures, or equipment.



The Victaulic system provides many mechanical design features that are useful in systems exposed to earthquake conditions. The flexibility of Victaulic flexible grooved-pipe couplings reduces the transmission of stresses through a piping system, while the gasket damps vibration (refer to Victaulic Submittal 26.04, Vibration Attenuation Characteristics of Victaulic Couplings).

When flexibility is not desired, rigid couplings, such as the Style HP-70 and the Style 07 Zero-Flex®, can be used. Both flexible and rigid couplings provide discontinuity at each joint, which helps minimize pipeline stresses generated during seismic movement.

Where design considerations permit, flexible couplings can be used at changes in direction to provide stress relief through deflection for small differential movements.



When large differential movements between piping sections are anticipated, seismic swing joints that are comprised of flexible couplings, pipe nipples, and elbows may be required. Seismic swing joints provide simultaneous movement in all directions. By adding flexibility to the piping system, they help reduce pipe stress and potential system damage.

JOB OWNER

System No. _____
 Location _____

CONTRACTOR

Submitted By _____
 Date _____

ENGINEER

Spec Sect _____ Para _____
 Approved _____
 Date _____

