

Grooved Pipe Joining Solutions.

The safe alternative to welding.

A safe construction environment not only keeps workers free from injury, it also secures a contractor's profit margins, reputation and opportunities for new business. Today, as insurance costs continue to rise, a firm's safety record has become one of the most influential factors in contractor selection.

One area where contractors can make a measurable difference in safety is pipe joining. By using grooved pipe joining systems, also known as mechanical pipe joining, contractors can gain many safety, productivity and cost benefits over open flame methods. These include: reducing the risk of injury, shortening construction schedules, and minimizing business risks by lowering insurance costs and the chance of potential litigation.

Safety: No flames. No fumes. Less chance of injury.

Grooved end piping systems directly improve the safety environment of a jobsite. First and foremost, they require no flame for joining, and no exposure to hazardous fumes. Instead, the joining method consists of roll or cut grooved pipe, a gasket, and housings tightened by nuts and bolts. The result is a proven, dependable coupling that delivers design versatility and installation efficiency other systems can't match.



Grooved end piping systems, as shown in this cutaway of a Victaulic product, are significantly safer and faster to install than welded systems.

The safety advantages that grooved systems provide over welding are numerous. They require no volatile tanks or open torches. There are no lead lines to trip over, nor any need for firewatch personnel. And because there's no soldering or brazing involved, there's no resulting exposure to hazardous fumes or the diseases with

which they've been linked, such as lung cancer, urinary tract cancer, heart disease and Parkinson's disease.

To quote Parker & Waichma, a leading firm in personal injury and negligence law, "Welding is among the most dangerous industrial activities. The dangers of welding are fire safety, electric shock, compressed gases, toxic fumes and lack of personal protection for the eyes, hands, feet, and body." Grooved end piping systems provide a safer and faster solution to these issues.

Productivity: Grooved systems install up to three times faster

Grooved piping systems have been shown to install three times faster than welding. The obvious advantages are efficiency, productivity and the ability to meet even fast-track schedules. But faster installation also results in important indirect safety benefits, due largely to the reduction in manpower needed to complete the job.

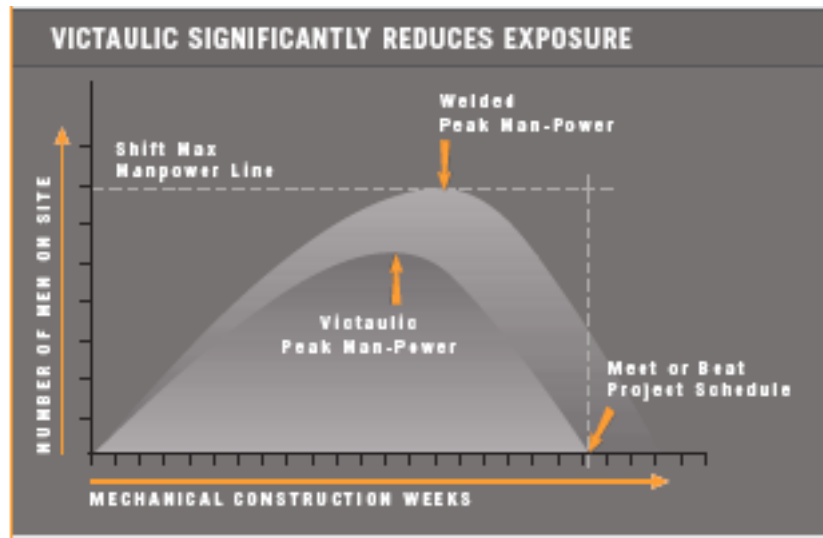
The hot work alternative

Welding often requires filing for a hot work permit that calls for contractors to detail the compliance procedures to be taken, and to identify possible alternate methods. For example, the Factory Mutual Hot Work Permit form asks directly, "Before initiating hot work, can this job be avoided? Is there a safer way?" The instructions then provide an 18-point Required Precautions checklist, including a rule that states "Fire watch will be provided during and for 60 minutes after work."

Grooved systems provide the solution, with joining methods that can be used across a wide range of pipe materials, including carbon steel, stainless steel, aluminum, copper, ductile iron, PVC and HDPE plastics plus coated, lined and specialty pipe. In terms of diameter, Victaulic manufactures couplings that can join pipe from 1/2 - 48". Pipe up to 144" (3650 mm) can be joined using the applied Vic-Ring® system.

Man-hours reduced by up to 45%

Job studies have shown that welding demands up to 45% more man-hours than grooved pipe joining. The simple math is that compared to welding, mechanical pipe joining takes less time and uses fewer people. This translates into reduced exposure to risk, which in turn leads to lower insurance costs.



According to job study estimates, projects requiring welding demand up to 45% more man-hours on average over no-flame piping solutions. The math is simple: fewer man-hours equals less exposure and risk.

No need for shutdowns

Grooved pipe joining systems pose little danger to surrounding workers, so nearby construction can continue while piping systems are being installed. On the other hand, when welding is taking place, safety compliance often requires all other work in an area to be shut down. This is done to safeguard workers, but business realities lead to yet another potential danger: the rush to catch up.

As CII, the Construction Industry Institute states, “Shutdown projects were found to have poorer safety performances. Shutdowns are characterized as having tight schedules, significant amounts of overtime work, workers frequently working multiple shifts, and generally having a rapid buildup of the work force.” The Institute also noted that as extended hours increase, “the possibility of human error increases, and so will the probability of injury causation.”

Simple system for a smoother project

Pipe joining solutions, as made by Victaulic, are designed to be simple, safe and durable. They are easy to install and provide a union at every joint, giving contractors maximum field flexibility and enhanced on-site decision making capability. For example, the system even enables piping to be hung before assembly, allowing for visibility checks and maximum flexibility. In addition, the Victaulic Product Delivery

System – bag and tag services – helps construction managers maximize site-workflow efficiency and reduce material handling. Victaulic systems are also designed to address thermal expansion and contraction, seismic movement and noise and vibration attenuation, making them safer and more beneficial than other pipe joining methods. In contrast, as Parker & Waichma states, “Welding requires an enormous degree of precautionary planning because the risks of personal injury from any mistake are so high.”

Risk minimization: Protecting the business for owners and contractors

Recently, the insurance industry’s EMR (Experience Modifier Rate) has become a powerful tool in contractor selection. Many owners are requiring contractors to have an EMR of 1.0 or lower just to qualify in the bidding process.

Rusty Gravitt, President of Gainesville Mechanical, Inc., knows that switching to mechanical pipe joining has made a big difference for his contracting firm. “Our EMR has been reduced from 1.6 in 1994 to as low as 0.86 with zero dollars attributable to accidents involving Victaulic systems. During this period, Gainesville also effectively reduced its Workmen’s Comp premiums by 75%.”

Avoid the risk of litigation

Owners are well aware of the dangers that litigation places on their business. Yet a recent Wall Street Journal article had this to say about welding and the courts: “The first in a series of trials claiming that exposure to welding fumes causes Parkinson’s Disease and other severe neurological ailments in welders has been settled for more than \$1.5 million.” This case was just one of 4,500 separate cases pending in federal courts and another 5,000 estimated to be pending in state courts.

HEALTH HAZARDS:

Side effects of open-flame methods cited in studies and pending litigation:

- Irritation of the eyes, nose, chest, and respiratory tract
- Nausea, headaches, dizziness
- Metal fume fever
- Lung cancer
- Urinary tract cancer

- Heart disease
- Kidney damage
- Parkinson's disease

The bottom line

Any time manpower is increased, construction costs increase proportionately. Any time health risks are increased, insurance costs rise proportionately. Grooved-end pipe joining systems, like those made by Victaulic, deliver construction solutions that consistently reduce both man-hours and health risks, while improving the overall safety environment.

Victaulic is the world's leading producer of mechanical pipe joining systems, developing products for a full range of industrial, commercial and institutional piping systems. Founded in 1925, the company has manufacturing and distribution facilities worldwide and employs approximately 3,000 people. For more information, visit Victaulic online at www.victaulic.com.