MCAA 2009 Smart Solutions

CONSIDER GOING WITH GROOVED OVER WELDED PIPING SYSTEMS

There are many good reasons why grooved piping systems are being increasingly used by mechanical contractors these days. Grooved systems are fast and safer to install, optimal for access for maintenance, repairs and system modification needs, and highly dependable over the life of the piping system.

Challenges with Welded Systems

Welded piping systems do not have coupled mechanical unions at the joints. A welded pipe system has permanently welded joints that essentially add up to one continuous piping unit. That can make access – be it for maintenance, repair and system modification or expansion - expensive, time consuming and also force shutting down and draining the piping system entirely before work can commence.

Plus, there's the expensive and potentially dangerous business of arc welding to contend with. While welded steel pipe systems work best under certain conditions – large size piping installations involving high pressure-temperature capabilities (typically steam)– grooved pipe systems are suitable for a host of applications employed in a number of industries, and can be used with any type of pipe, metallic or non-metallic, that is capable of being cut or rolled grooved. It's a "cold" flameless process as opposed to the "hot" process of welding.

Grooved Pipe System Components

What makes up a grooved piping system? Aside from the necessary pipe elements, the system consists of a series of mechanical joints, with rigid or flexible coupling connections called unions. Couplings provide a union at every joint. The joints consist of a groove pipe end, elastomer gasket, coupling housing and nuts and bolts.

The groove in the pipe has been created by cold forming or machining the groove into the end of a pipe section. The grooved pipe ends engage the coupling keys, thus providing a self-restraining mechanical joint capable of resisting the separation of the pipe ends due to the application of system pressure.

Installation & Maintenance

Installation and maintenance/repair of grooved pipe systems involves no welding, and therefore no possibility for smoke or fire in the work area, no need for a fire watch, no

potential for toxic fumes or smoke damage, and no need for an expensive, skilled pipe welder.

Assembly & Access
Grooved pipe systems can be assembled and dissembled faster than welded or flanged systems. Welded systems require more man-hours for welding work, and often a complete shut-down of the system. Access to a grooved pipe system requires no more from maintenance personnel than loosening the two coupling bolts at the mechanical joint, and no system shut-down is needed.

Pipe Rotation-Lighter-Wall Pipe
Unlike welded pipes, grooved pipes can also be rotated to account for slurry or coarse/corrosive fluids presence, thereby extending pipe life. Grooved pipe systems can also employ lighter-wall steel pipe than welded systems, which can improve cross-sectional flow through the pipes.

Easier Inspections
Inspecting grooved pipes for sealed tightness is a much easier process than inspecting welded pipes: joint installation integrity can be accomplished visually, by verifying that joint couplings maintain metal-to-metal bolt pad contact at the union. With welded systems, inspection can require X-ray verification of integrity.

Ideal for Buried Pipe
In-ground situations strongly favor grooved pipe systems. There’s less chance with grooved pipe for leaks and ruptures resulting from seismic stress. The flexibility of the couplings help absorb stress from settlement of buried pipe or from seismic tremors. Grooved pipe accommodates misalignment and joint deflection caused by uneven terrain conditions and drainage pitch.

Easy Grooving Process – Onsite or Prefab
The grooving process itself is easy to learn and can be accomplished prefab or at the jobsite by using grooving tools supplied by the piping components manufacturer. Tooling ensures consistent grooving and joint repeatability. Prefab or roll grooved at the jobsite, grooving pipe as opposed to welding pipe saves project time and money.

Why Use Grooved Over Welded: 10 Good Reasons
Here are ten good reasons for selecting and using grooved piping systems on future projects:

1. Grooved piping systems install faster and are less expensive, helping bring jobs in on time and on budget.

2. They’re clean and non-intrusive to existing structures.

3. They save space – grooved piping systems can be installed in tight/confined spaces where welding is not possible or advisable.

4. They can employ rigid or flexible couplings for system flexibility.

5. Are easier to maintain.

6. Noise and vibration are minimized.

7. Ease of process joint repeatability – groove dimensions are governed by AWWA C-606.

8. Prefab capabilities lessen installation time.

9. Grooved piping systems are recognized by ANSI, ASTM as a standardized system.

10. Safer to install.