

# Grooved Piping Systems

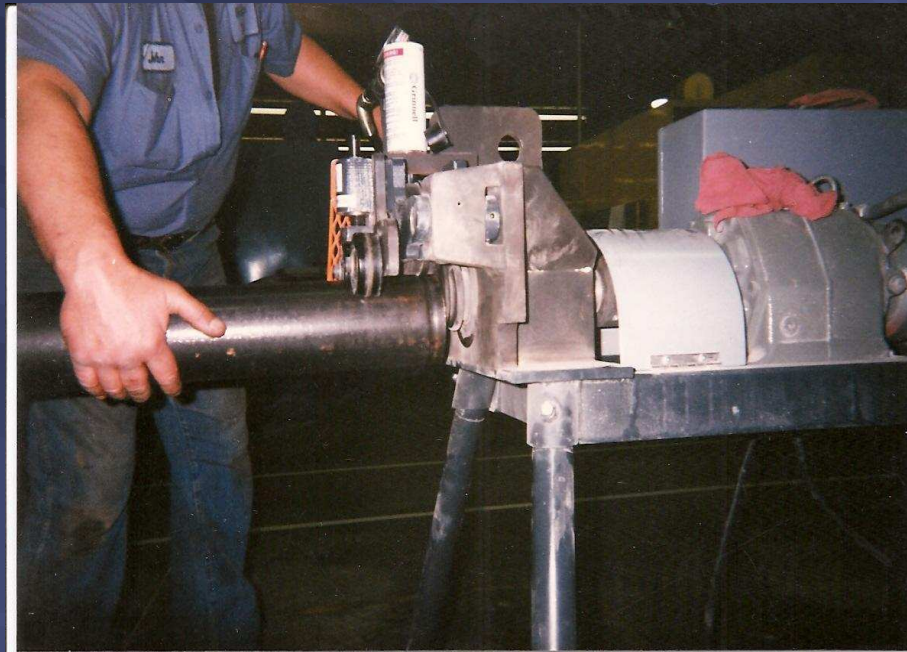
An Overview of Features,  
Benefits, and Applications

- What are grooved systems?
- How do grooved systems work?
- What are the components of a grooved system?
- What are features of the system?
- What are the benefits of using the system?
- What applications are grooved systems used in?

- Grooved systems are fast, clean, dependable, and are alternate ways of joining pipe as opposed to welding, threading, flanging, and soldering



- Grooves are rolled or cut into the ends of the pipe



- Fittings, valves, and other components are manufactured with the same grooves



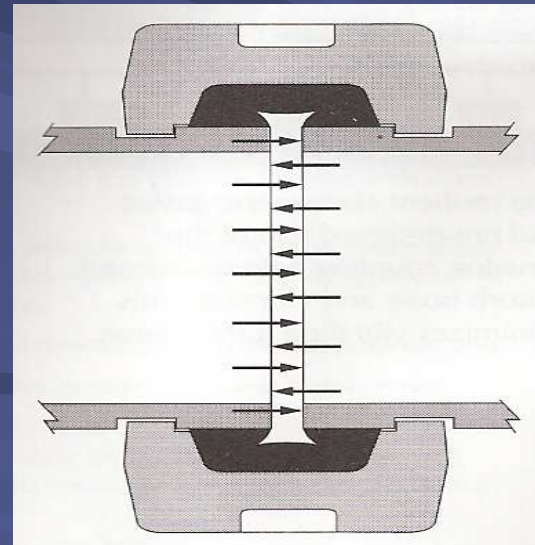
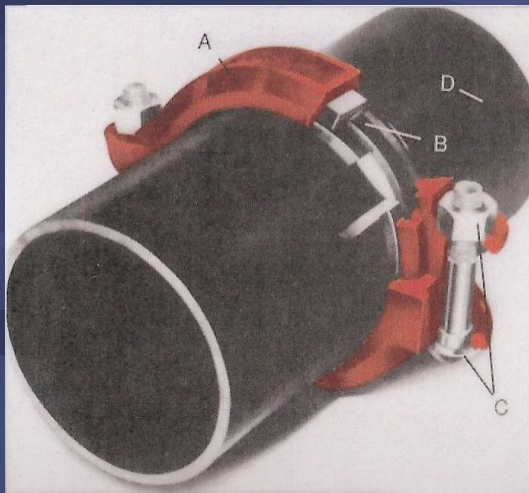
- Couplings with pressure responsive gaskets and shoulders to fit the grooves are used to join grooved pipe to grooved pipe or grooved components



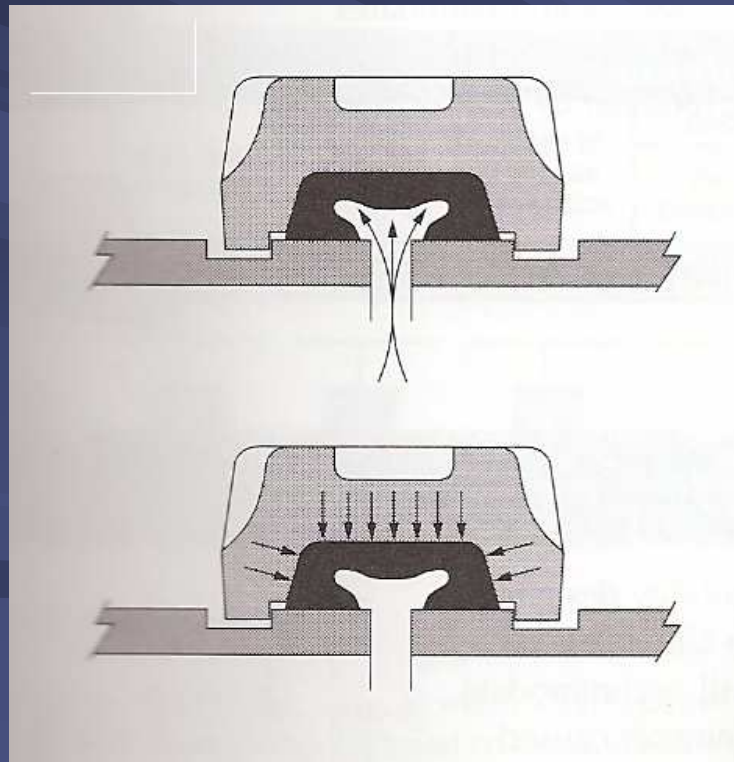
- When the grooved components are connected by the shouldered gasketed couplings, the result is a pressure-tight pipe system



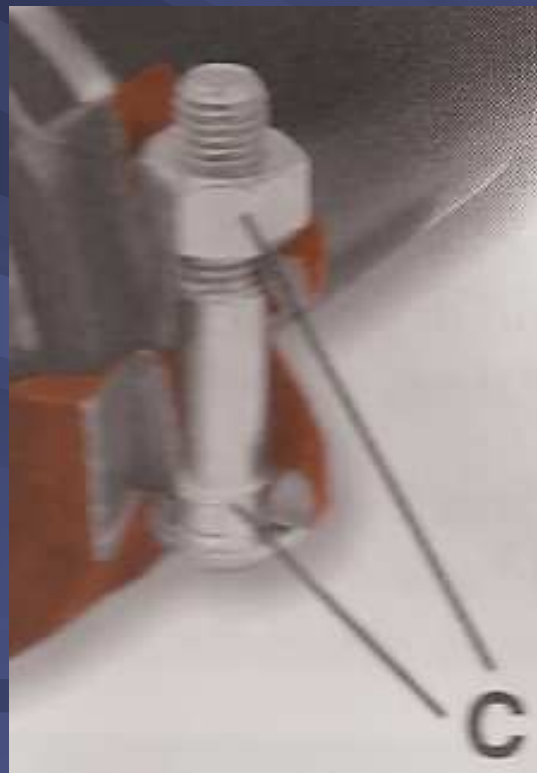
- The coupling is composed of three parts:
  - The housing, which encircles and contains the gasket against the application of internal pressure or vacuum. Housing key sections fit into and engage the pipe end grooves around the entire pipe-end circumference, thus restraining the pipe ends from separation.



- The pressure-responsive gasket
  - Works in both pressure and vacuum applications



- The track head bolts and nuts
  - Served to connect the housing segments together



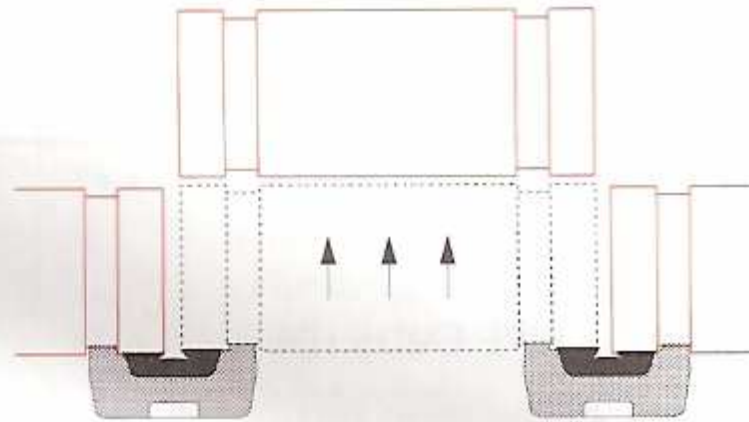
## ■ Features of a grooved system

- Ridged or flexible connection (couplings). Couplings are available where ridged connections are required. Couplings with flexible design allow for pipe expansion or contraction with temperature changes. The need for expansion joint is minimized or eliminated.

# Accessibility

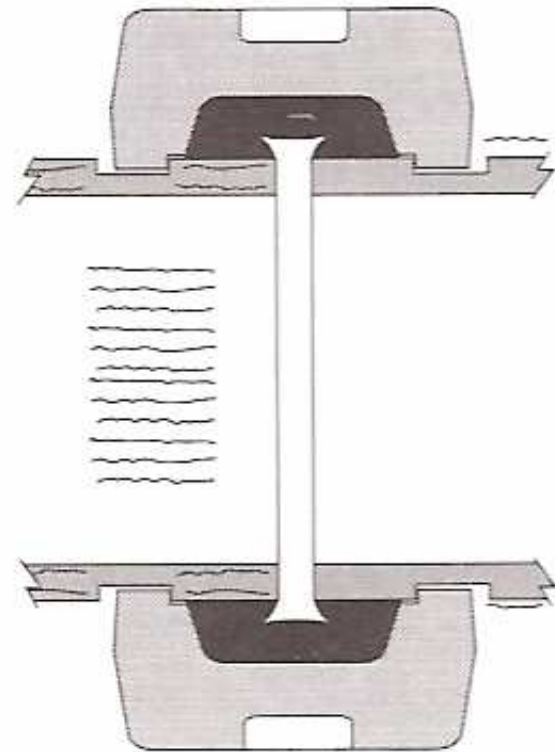
## UNION AT EVERY JOINT

Gruvlok couplings can be disassembled easily permitting maintenance and servicing of the piping system. It will facilitate periodic rotation of pipe to distribute internal wear from slurries or other abrasive media.



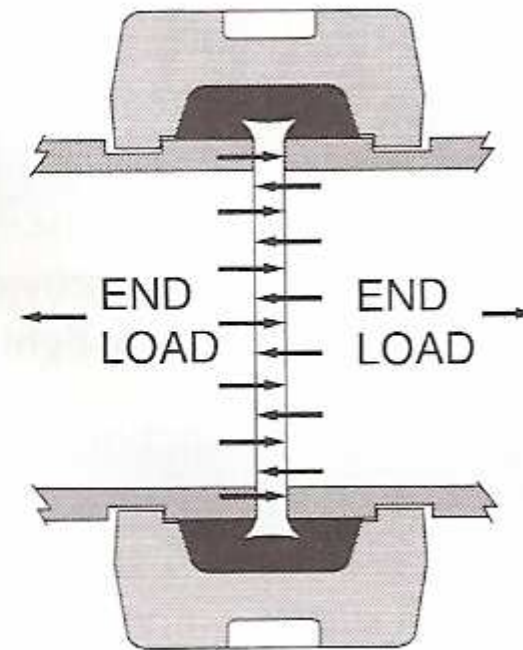
# Minimize Noise and Vibration

The resilient elastomeric gasket and pre-designed gap of the Gruvlok coupling help isolate and absorb noise and vibration, this minimizes vibration transmission.



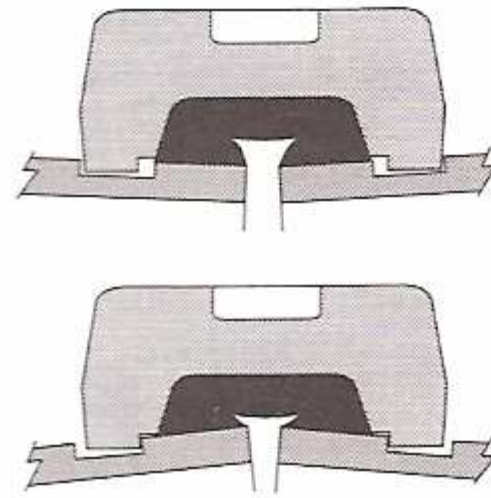
# Self-Restraining Joint

The couplings engage the pipe around the entire circumference and restrain the pipe ends from separation due to pressure and other forces, up to the maximum coupling rated working pressure.



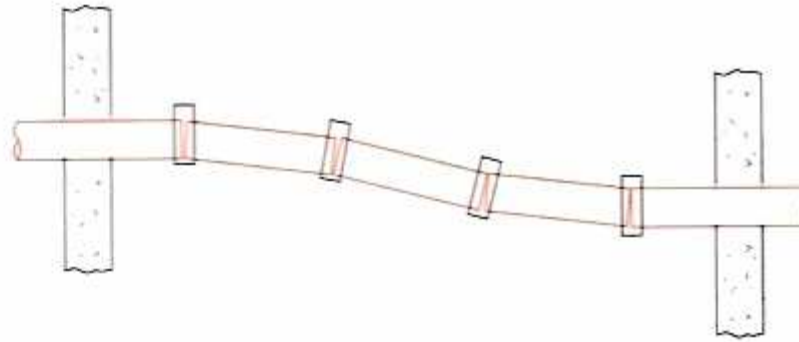
# Stress-Free System

Flexibility designed in the Gruvlok coupling absorbs and eliminates stress from settlement of buried pipe or those induced by seismic tremors.



# Accommodates Misalignment and Joint Deflection

The flexibility designed into the Gruvlok coupling will accommodate misalignments caused by imprecise location of pipe opening through walls and floors, will provide pitch for drainage piping systems and facilitate laying pipe on uneven terrain, thus permitting deflection in any direction.



# Benefits

- No welding

  - No smoke or fire in work area

  - No need for fire watch

  - No smoke damage

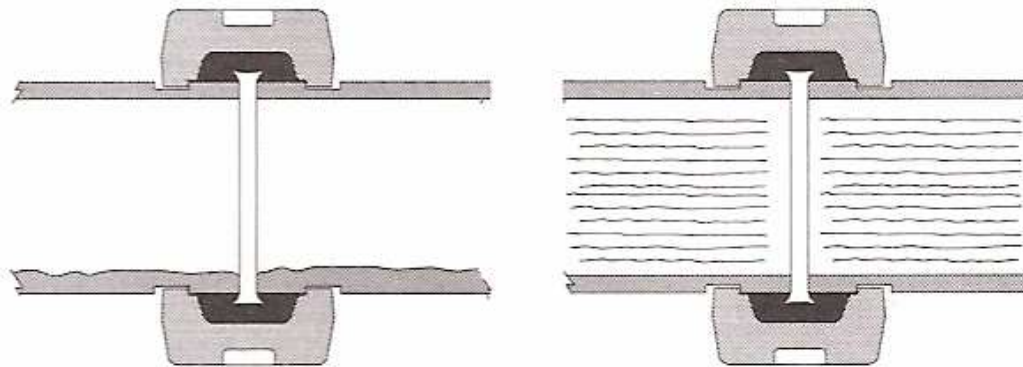
  - No need for skilled welder

# Benefits (cont.)

## ■ Rotational Movement

Grooved piping systems have rotational capability that can extend system pipe life in slurry or coarse material piping systems

EXAMPLE:



Before Pipe Rotation

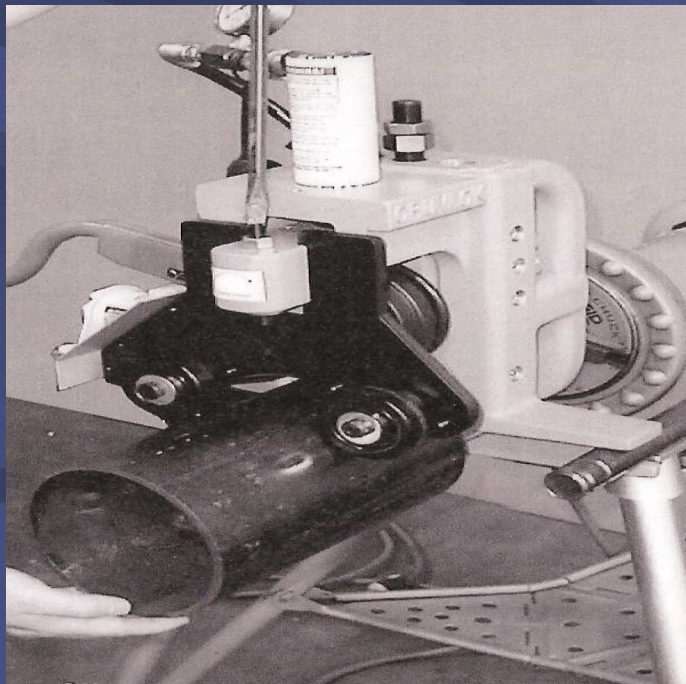
After Pipe Rotation

- **Grooving Process Easily Learned**

Grooving of pipe ends, (operation of grooving tool), simple to do

- **Joint Repeatability**

Tooling ensures consistent groove every time



# Benefits (cont.)

## ■ Prefab Capabilities

System piping can be grooved ahead of time offsite, allowing for ease of installation onsite.

## ■ Time of Installation

Grooved systems take less time to install allowing projects to come in on time

## ■ Ease of Access to Pipe System

Because each coupling can be easily taken apart, (disassembly of two bolts), access to the internal piping is easily achieved

# Applications

## ■ Condenser Water



# Applications

## ■ Chilled Water



# Applications

## ■ Heating and Hot Water



# Applications

## ■ Air Handling Units



# Applications

## ■ Duel Temperature Systems



# Applications

## ■ Heat Pump Systems



# Applications

## ■ Storm or Sewage Ejection Systems



# Applications

- Domestic Water Systems (GALV. Or Copper)



# Applications

## ■ Oil field



# Applications

## ■ Mining



# Applications

- Fire Protection

# Why Specify It?

- Fast- Bring jobs in on time
- Clean- Nonintrusive to existing structures
- Space Requirements- Can be installed in confined spaces where welding is not possible
- Rigid or flexible couplings- allows for system flexibility
- System Accessibility- allows for piping changes and maintenance

- Minimizes System Noise and Vibration
- Ease of Process Joint Repeatability- groove dimensions governed by AWWA, C-606
- Prefabricating Capabilities- installation ease
- Recognized by ANSI, ASTM as a standardized system

The End