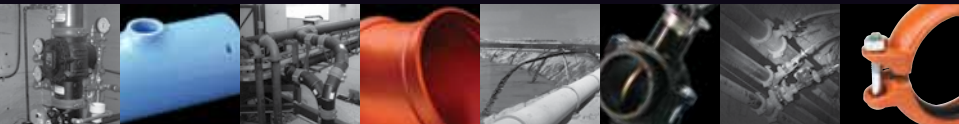




The World Leader in Pipe Joining Solutions



IDEALLY SUITED FOR THE

**Mining Market**

- High pressure solutions
- Abrasive services solutions
- Piping systems that are scalable and reusable
- No-flame, quick install joining methods
- Reduces downtime and costs

**Victaulic**<sup>®</sup>  
Piping. Systems. Solutions.



# The world leader in pipe joining solutions

# MINING

Victaulic is the single supplier with unique solutions and a comprehensive product line for mining's most demanding services. For over 85 years Victaulic has developed faster, safer and more efficient pipe joining technologies. Victaulic systems benefit owners, engineers, installers and maintenance personnel.

#### MINE OWNERS

- Total installed cost reduced by up to 50%
- Victaulic products are safer and faster to install reducing opportunity for injuries
- Keeps plants running more efficiently by drastically reducing the time required for scheduled and unscheduled maintenance

#### SPECIFYING ENGINEERS AND SYSTEM DESIGNERS

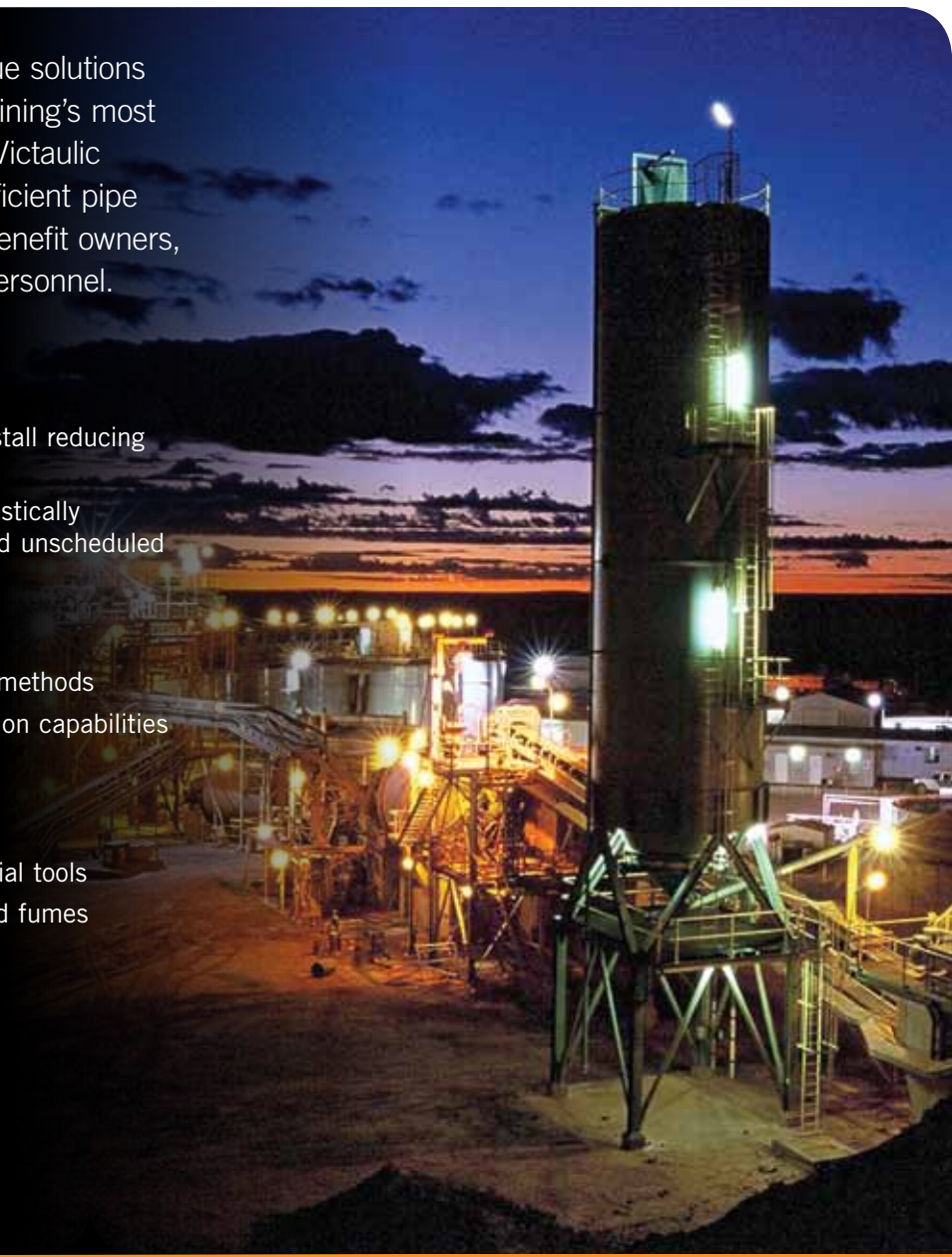
- Design versatility not found in other joining methods
- Unparalleled expansion, contraction, deflection capabilities
- Visual verification of joint integrity

#### PIPING INSTALLERS

- Faster installation without the need for special tools
- Cold formed joint eliminates fire hazards and fumes associated with welded systems

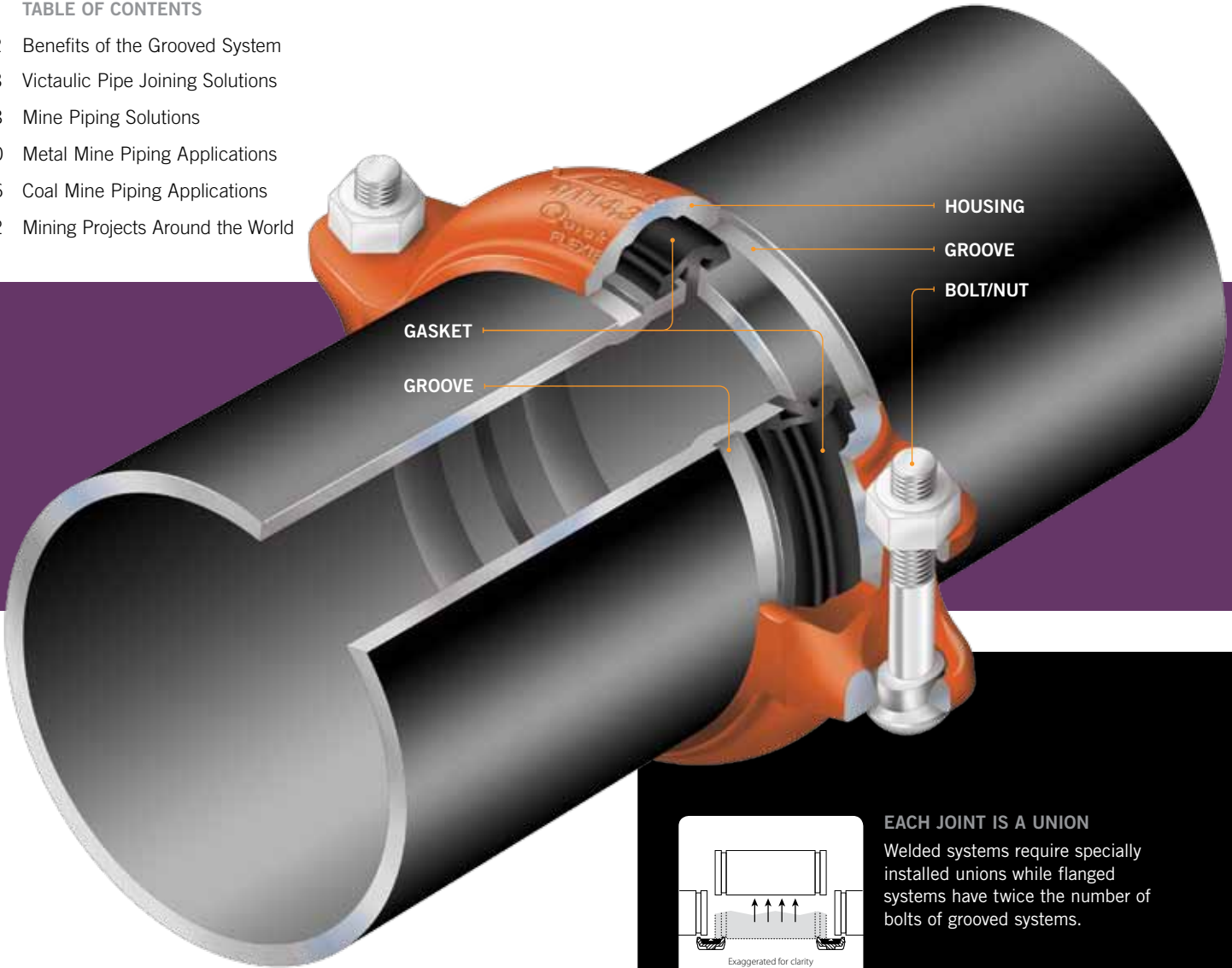
#### MINING MAINTENANCE PERSONNEL

- Downtime reduced by up to 50%
- Reusable parts expedite maintenance



**TABLE OF CONTENTS**

- 2 Benefits of the Grooved System
- 8 Victaulic Pipe Joining Solutions
- 18 Mine Piping Solutions
- 20 Metal Mine Piping Applications
- 26 Coal Mine Piping Applications
- 32 Mining Projects Around the World

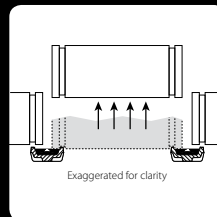


## Victaulic grooved systems

Known by mining owners, engineers and installers as the most efficient and effective method for joining pipe, Victaulic grooved systems are recognized for being easy-to-install and reliable.

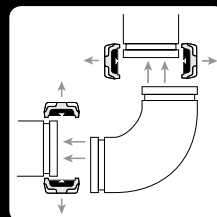
With its many benefits to piping designers Victaulic grooved systems add a level of versatility other joining systems cannot match.

Victaulic systems also continue to evolve and improve. For example the installation-ready couplings install up to twice as fast as existing grooved couplings while maintaining performance and design capabilities.



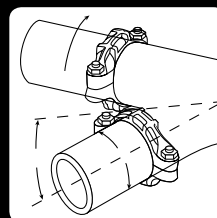
**EACH JOINT IS A UNION**

Welded systems require specially installed unions while flanged systems have twice the number of bolts of grooved systems.



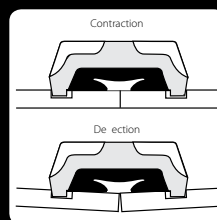
**SYSTEM MAINTENANCE AND EXPANSION**

Pipe wear occurs at changes of direction; requiring maintenance and replacement. Only the Victaulic system can reduce downtime by up to 50% for scheduled and unscheduled maintenance.



**ALIGNMENT EASE**

Couplings can be oriented in any direction during installation easing concerns when installed in tight spaces.



**MISALIGNMENT**

Pipe misalignment is a fact of life in mine piping systems. With a system of self-restraining flexible couplings Victaulic grooved products are designed to overcome the challenges caused by misaligned pipe.

# Benefits of the Grooved System

Victaulic is the originator and leader in pipe joining technologies specific to the needs of the mining market. Since 1925 Victaulic has developed a number of innovative pipe joining technologies designed for reliable, worry-free service under the most severe conditions imaginable. Victaulic products benefit mine owners, engineers and installers.

MINING

## Labor savings

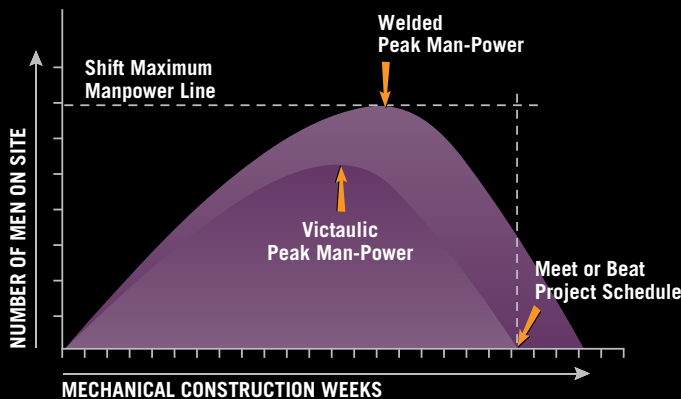
### EASIER MAINTENANCE AND SYSTEM EXPANSION

- Reduced downtime lowers plant operating costs
- A union at every joint simplifies maintenance and system expansions
- Simple joining system that allows for flexible use of crews for maintenance and installation

## Design versatility

### MORE OPTIONS AND EASILY ACCOMMODATES SYSTEM CHANGES

- System maintenance and installation completed in 50% less time than other joining methods

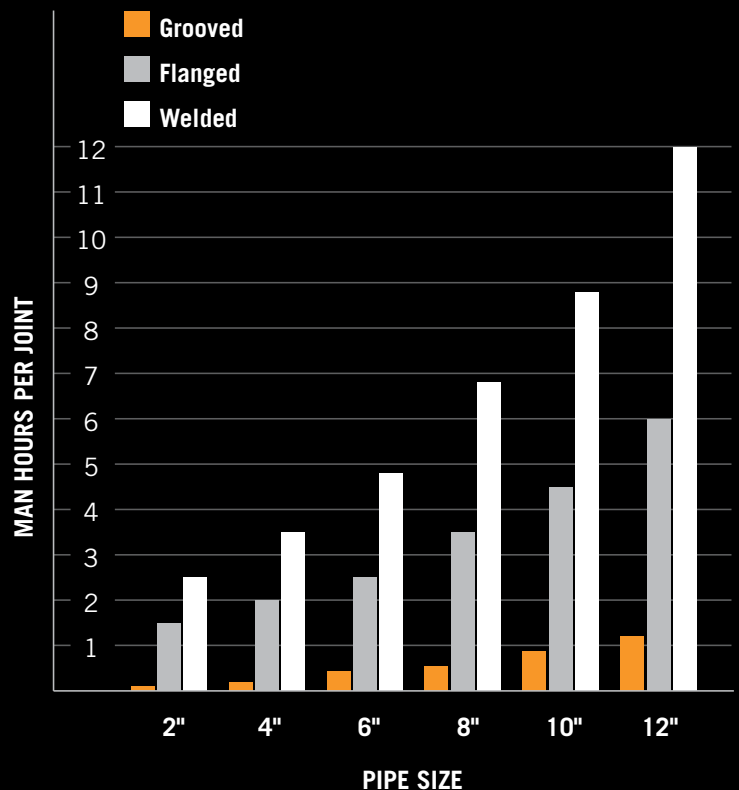


## Lower total installed cost

- Victaulic products can reduce installed costs by up to 50% when compared to other joining methods

## Quicker, easier installations

### 3 TO 5 TIMES FASTER TO INSTALL





## Performance engineered

- Greatest versatility in design and performance
- Systems designed for slurry, tailings, high pressure applications, and air and water services
- Wide variety of gaskets to meet the most demanding service requirements

## Improved safety

### NO-FLAME JOINING METHOD

- No hot works to create fire or fume hazards
- Less time installing piping systems translates to less opportunity for accidents
- Installation-ready means no loose parts eliminating another potential hazard

## Sustainable design

- No-flame joining methods eliminates the health risks associated with weld fumes
- Victaulic products are made from recycled material reducing their impact on the environment
- Since Victaulic products are installed using standard tools no electricity is needed for installation reducing energy needs. In contrast an 8"/200 mm welded joint can require up to 4000 watts per hour to install.



# Benefits to Mining Operations

## Labor savings

Cut plant downtime in half

Profitable mining operators are able to minimize downtime thereby keeping production rates high. No matter how efficient the operation, routine maintenance and downtime are part of everyday life. The question really is—**“How do I minimize the time required to do the maintenance I need to keep the plant running?”**

For mine piping systems, there is only one choice that will keep downtime to an absolute minimum—the Victaulic system. Most Victaulic couplings can be dismantled by removing only two bolts and nuts as opposed to eight bolts and nuts for the same sizes in flanged systems. When replacing a flange, the installer must scrape off the old gasket and replace it with a new gasket. With the Victaulic method, simply perform the maintenance work and replace the coupling using the existing gasket and coupling.

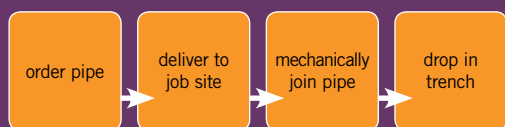
Piping systems converted from flanged to grooved have experienced significant time and cost savings. For example, a recent planned system shutdown that was scheduled for six hours turned into less than three hours with a Victaulic system—totaling more than 50% in savings.



## Labor saving piping technology

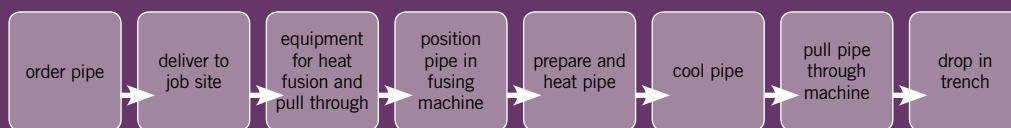
HDPE systems from Victaulic require half the steps of fused systems. And with no special equipment required to install, the system can be assembled using a standard wrench and one man. This plain end system allows you to easily rotate pipe to extend the life of the piping.

### VICTAULIC HDPE SYSTEM



Now, more than ever, time equals money. Since work is a process, the fastest way to save money is to reduce the number of steps. This flow chart is an example of how Victaulic HDPE products can streamline the installation process.

### TRADITIONAL HEAT FUSING





Athabasca Oil Sands



## Performance engineered

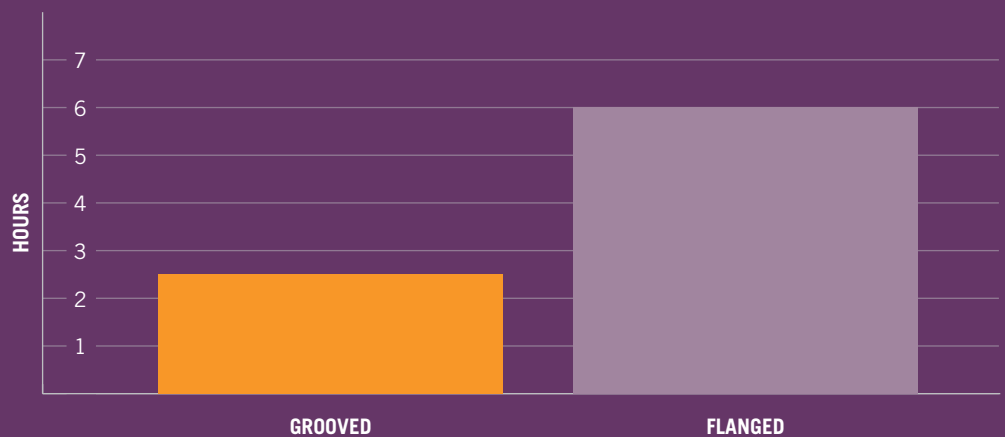
### Solving the industry's toughest piping issues

Victaulic not only manufactures couplings for joining pipe, it also provides solutions for the industry's toughest challenges. Whether its high pressures, extreme temperatures or abrasive services, Victaulic develops specialized solutions to address piping's most difficult systems.

### Extreme piping environments

At the Athabasca oil sands extreme low temperatures and highly abrasive services are the norm. Before the use of Victaulic products systems had to be joined using welding. Large diameter joints could require as much as a day and a half to join (dependent on size). Using Victaulic products reduced the time required to make the same joint to a fraction of the time while eliminating the environmentally harmful issues associated with welded systems. With grooved piping systems available up to 60"/1525mm and ring systems up to 144"/3650mm, Victaulic has a variety of pipe joining solutions to help with the most difficult service and pressure requirements.

### Reduce downtime



# Benefits to Mining Operations

## Improved safety

Victaulic systems provide no-flame joining method

Victaulic joining technologies do not require any hot works or flames, thus eliminating workers' exposure to potentially harmful fumes. In addition, our products are lighter, faster and easier to install than flanged components.

The exclusive installation-ready line of couplings allows installers to join systems without disassembling the coupling. Simply push the coupling on one pipe end, bring the other pipe end in, and tighten the bolts and nuts. It's that simple. No more potential to drop loose parts creating the opportunity for injuries and lost work time. Installed using standard tools the joint provides visual verification of proper assembly greatly reducing the chances of improper installation and accidental leakage. Victaulic couplings feature two-piece housings up to 60"/1525mm reducing the chance of mishandling and misinstallation associated with multiple segment couplings.



## Installation-ready couplings



LUBE IT

PUSH IT

JOIN IT

DRIVE IT





*“When we tried the Victaulic solution on our compressed air system we experienced a 40% reduction in air losses saving us thousands of dollars a year in energy costs.”*

YVON DUMOUCHEL

XSTRATA COPPER, KIDD CREEK MINE, TIMMINS ONTARIO

MAINTENANCE PLANNER



## Sustainable design

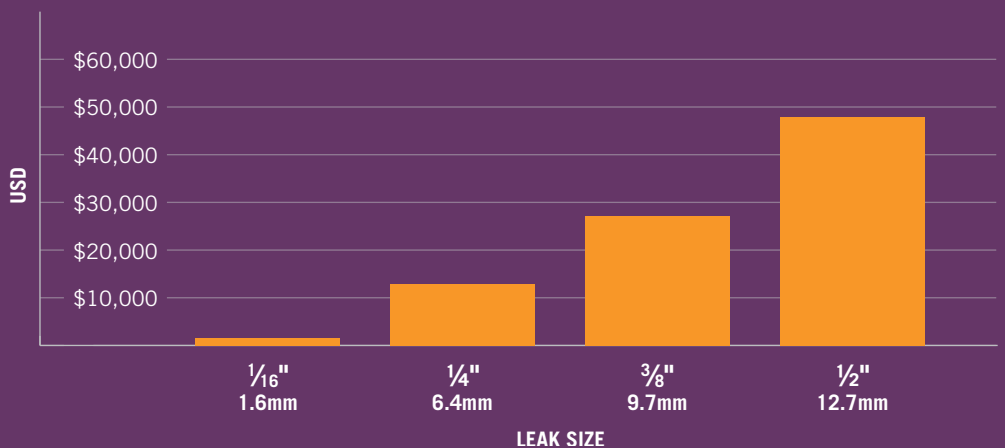
Reduce energy costs by as much as 40%

Equipment connected to compressed air lines need a steady pressurized flow of air to operate properly. Oftentimes the smallest leak can lead to significant air loss adding to energy costs and creating the need for larger pumps. In fact, 15% to 30% of all energy costs in a mine are spent on air lines.

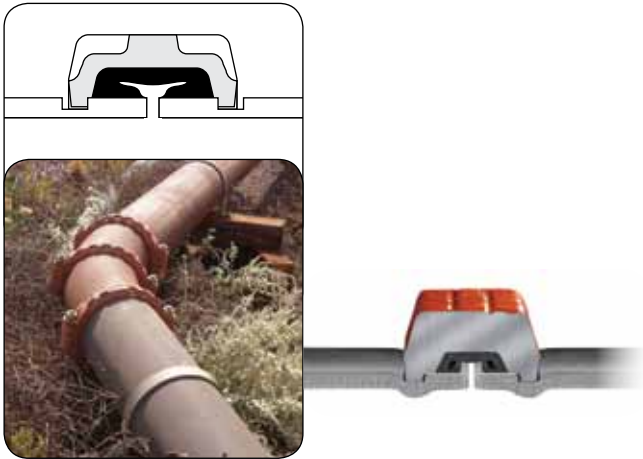
The Victaulic grooved piping system significantly impacts the energy costs of compressed air systems in mines. To connect to flanged equipment and other components Victaulic has a line of flange adapters that provides a single connection transition from flanged to grooved systems. Using a pre-lubricated nitrile gasket specifically designed to meet the requirements of compressed air systems, the Victaulic grooved system can reduce air loss in a typical system leading to energy savings totaling more than 40%. In a recent study in a typical mine during a six-month period, energy savings totaled more than \$200,000 USD.



### Compressed air loss



# Victaulic Pipe Joining Solutions



## Original Groove System

In use since the 1920's the original groove system is widely accepted as the joining method of choice in mine piping systems. Based on a flexible coupling design that allows for system expansion, contraction and deflection Victaulic couplings are known the world over for their versatility. Rugged and durable original groove system flexible couplings have grown from a single product to a complete family of couplings, fittings, valves and accessories.

### FEATURES AND BENEFITS

- 50% faster to install than welded systems
- Environmentally friendly—eliminates harmful fumes and reduces energy consumption
- Deflection capabilities allow for installation over uneven surfaces
- Cut groove systems provide a smooth inner flow path that allows for even wear on abrasive systems such as slurries, tailings and hydraulic backfill
- Two-piece coupling design from ¾–24"/20–600 mm

Visit [www.victaulic.com](http://www.victaulic.com) to view :  
Publication 06.02 for Style 77 flexible coupling  
Publication 06.04 for Style 07 rigid coupling  
Publication 07.01 for grooved fittings



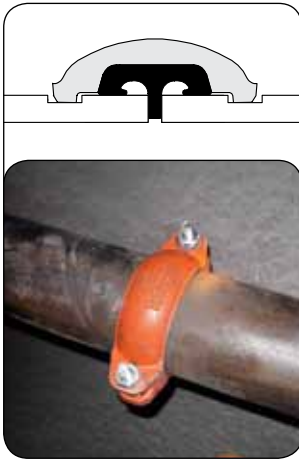
## Grooved End Valves

Victaulic grooved end valves weigh 1/3 less than equivalent flange valves for easier handling and installation. Featuring ISO standard mounting flanges Victaulic grooved valves can accept most types of actuators.

### FEATURES AND BENEFITS

- Grooved end valves available in butterfly, ball, check and plug configurations for carbon steel or stainless steel systems
- Valves available lined for severe services
- Original groove system valves for 1½–12"/40–300 mm sizes; AGS groove valves available for systems from 14–24"/350–600 mm

Visit [www.victaulic.com](http://www.victaulic.com) to view:  
Publication 08.20 for Vic-300® MasterSeal™ butterfly valve  
Publication 08.05 for Series 700 butterfly valve  
Publication 08.11 for Series 712 swing check valve  
Publication 08.14 for Series 721 ball valve  
Publication 08.23 for Series 726 ball valve  
Publication 08.08 for Series 716 check valve  
Publication 20.06 for Vic-300 AGS butterfly valve  
Publication 20.08 for Series W715 dual disc check valve



### Installation-ready Couplings

Victaulic installation-ready couplings use the same groove profile and have the same performance characteristics of original groove system couplings. The major difference is installation time. Installing up to 90% faster than welded systems and in 50% less time than standard groove couplings, installation-ready couplings eliminate the need for loose parts since the coupling is pre-assembled and ready to install.

#### FEATURES AND BENEFITS

- No loose parts to lose or drop; eliminates spare parts on job site
- The fastest way to mechanically join 2–8"/50–200 mm systems
- Same design and pressure capabilities as original Style 77 flexible and Style 07 rigid couplings
- Bolt pad-to-bolt pad installation for visual verification of joint integrity

Visit [www.victaulic.com](http://www.victaulic.com) to view publication 06.20 for Style 177 flexible coupling or 06.21 for Style 107H rigid coupling



### Installation-ready Shouldered System

Up to 10 times faster than other pipe joining methods, the installation-ready technology of our shouldered coupling line eliminates loose parts and the need to disassemble a coupling prior to installation. Carrying spare parts to the job site is eliminated when installing installation-ready shouldered couplings. Ideal for abrasive services since full pipe wall thickness is maintained.

#### FEATURES AND BENEFITS

- Installation-ready shouldered couplings are flexible allowing for system expansion, contraction and deflection
- All loose parts are eliminated
- A line of shouldered fittings is also available
- Shouldered fittings can be lined for abrasive and/or corrosive services
- Offered in 2–8"/50–200 mm sizes installation-ready and traditional Style for 10–12"/250–300 mm systems.

Visit [www.victaulic.com](http://www.victaulic.com) to view publication 16.10 for the SC77 flexible shouldered coupling or 07.06 for shouldered fittings

# Victaulic Pipe Joining Solutions



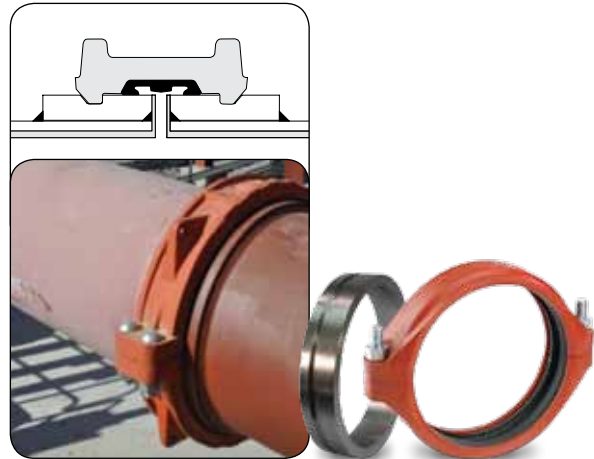
## Advanced Groove System (AGS)

Advance Groove System products are designed with a patented groove profile for large diameter, high pressure services. The two-piece coupling design for the full size range facilitates installation and maintenance when required. When compared to welded or flanged systems of the same size it is easy to see why AGS is the choice of designers and installers.

### FEATURES AND BENEFITS

- Two-piece coupling eases installation and maintenance
- Sizes range from 14–60"/350–1525 mm for pressures up to 350 psi/2400 kPa
- Full line of couplings, fittings, valves and strainers
- Flexible and rigid couplings available
- Ideal for water and non-abrasive services
- Couplings with ring available for abrasive services

Visit [www.victaulic.com](http://www.victaulic.com) to view:  
Publication 20.03 for Style W77 flexible coupling  
Publication 20.02 for Style W07 rigid coupling  
Publication 20.04 for Style W741 flange adapter  
Publication 20.05 for AGS fittings  
Publication 20.06 for Vic-300 AGS butterfly valve  
Publication 20.08 for Series W715 dual disc check valve  
Publication 20.11 for Series W730 AGS tee type strainer  
Publication 20.13 for Series W731-I AGS suction diffuser  
Publication 20.15 for Style W89 AGS rigid coupling  
Publication 20.19 for Series W732 AGS wye type strainer



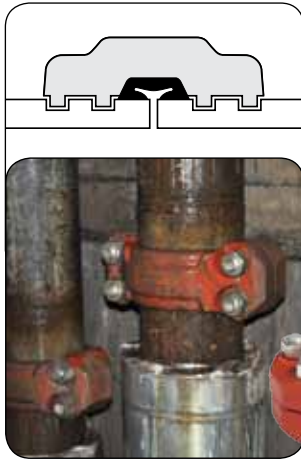
## AGS Vic-Ring Systems

For large diameter slurry and tailings lines Victaulic offers the AGS Vic-Ring system. A ring with patented AGS groove profile is mounted on the outside of the pipe. An AGS coupling completes the joint for the fastest and easiest way to join large diameter abrasive systems. The AGS Vic-Ring system maintains full pipe wall thickness while providing a smooth inner flow path to maximize pipe life.

### FEATURES AND BENEFITS

- Installs 30% faster than flanged and 50% faster than welded systems
- Two-piece couplings from 14–60"/350–1525 mm for pressures up to 350 psi/2400 kPa
- Provides a union at every joint for maintenance or future expansions
- For pipe sizes above 60"/1525 mm Victaulic offers original groove ring systems

Visit [www.victaulic.com](http://www.victaulic.com) to view publication 16.11 for Style W07 rigid coupling with Vic-Ring or 16.12 for Style W77 flexible coupling with Vic-Ring



Double Groove System



Style 808 Double Groove

## High Pressure Systems

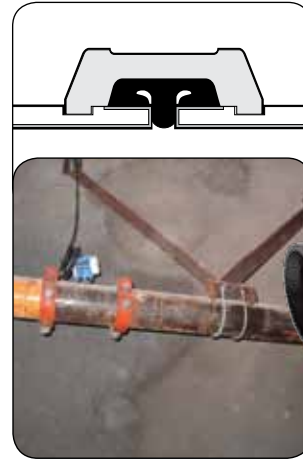
Extremely high pressure applications such as backfill paste lines, chilled water lines and dewatering lines can be beyond the capabilities of standard coupling designs. Victaulic has created two reliable solutions specifically designed for high pressure applications; Style 808 double groove system for pressures up to 4000 psi/27000 kPa or the EndSeal (ES) system for pressures up to 2500 psi/17500 kPa.

### Style 808 Double Groove System

#### FEATURES AND BENEFITS

- Highest pressure mechanical joint on the market today
- Sizes range from 6–12"/150–300 mm
- Double groove system installs in half the time of welded systems
- Designed specifically for high pressure systems up to 4000 psi/27000 kPa such as backfill paste, chilled water and dewatering systems

Visit [www.victaulic.com](http://www.victaulic.com) to view publication 15.01



EndSeal (ES) System



### EndSeal® (ES) System

#### FEATURES AND BENEFITS

- Single groove with EndSeal (ES) profile for systems up to 2500 psi/17250 kPa
- Fittings with EndSeal (ES) grooves also available
- Available from 2–12"/50–300 mm sizes

Visit [www.victaulic.com](http://www.victaulic.com) to view publication 06.13 for HP-70ES coupling or 07.03 for EndSeal fittings

# Victaulic Pipe Joining Solutions



## Long Radius 3D, 5D and 6D Bends

Long radius bends with grooved ends weigh substantially less than flanged bends and install in 1/3 the time of weld bends. A variety of linings and coatings can be applied to grooved 3D, 5D and 6D bends. Grooved bends with linings and coatings are not compromised during installation since no heat is generated during the joining process.

### FEATURES AND BENEFITS

- Groove end fittings can be lined for abrasive and/or corrosive services
- Pre-groove bends eliminate on-site preparation and reduce scheduled maintenance time by up to 65%
- Available linings include rubber-lined, urethane-lined, ceramic-lined and many others
- Epoxy and other customer specified coatings can also be applied
- Integrity of the lining is not compromised during installation

Visit [www.victaulic.com](http://www.victaulic.com) to view publication 07.02 for long radius 3D/5D/6D bends



## Rubber-lined Fittings

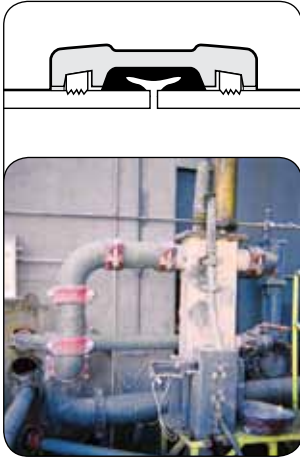
Victaulic rubber-lined fittings are used on abrasive, corrosive, and abrasive/corrosive services. Rubber lining the fittings extends life reducing the frequency of change outs. Regardless of fitting Style rubber linings can be applied for the most severe services.

Using Victaulic couplings ensures the lining will be intact when the system is installed. Welded systems compromise the integrity of the lining and can reduce the service life of the fitting.

### FEATURES AND BENEFITS

- Rubber lined fittings are readily available from Victaulic
- Fittings of all sizes and styles can be lined
- Grooved systems do not compromise the lining during installation

Visit [www.victaulic.com](http://www.victaulic.com) to view publication 25.03 for abrasive services and 25.10 for corrosive services or publication 07.01 for a complete list of grooved fittings



### Plain End Steel System

Where pipe preparation is impractical or where a quick repair may be required the Victaulic plain end piping system is the choice of many installers. The plain end coupling has hardened, sharpened teeth that firmly grip the outside diameter (OD) of the pipe. A full line of plain end fittings completes the system.

#### FEATURES AND BENEFITS

- No special pipe end preparation necessary
- Teeth bite into outside diameter (OD) of pipe
- Sizes from 1–12"/25–300mm for pressures up to 750psi/5175kPa
- No torque requirements for installation
- Full line of plain end fittings also available

Visit [www.victaulic.com](http://www.victaulic.com) to view publication 14.02 for Style 99 Roust-A-Bout® coupling or 14.04 for plain end fittings



### HDPE Plain End System

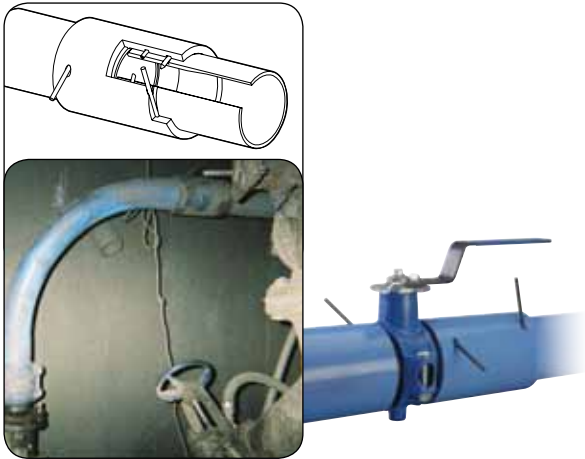
Butt fusing HDPE pipe is a labor intensive and expensive process. Victaulic HDPE plain end products eliminate the need for special equipment and crews. Using standard socket wrenches HDPE couplings can be installed in a matter of minutes. No special pipe end preparation is required and once the coupling is installed you have visual verification of proper installation.

#### FEATURES AND BENEFITS

- Provide a union at every joint for maintenance and/or system expansions
- Sizes from 2–20"/50–500mm
- HDPE plain end couplings are stronger than the pipe they join
- Flange adapter allows an easy transition from equipment to the piping system
- Transition coupling available for joining HDPE to steel piping

Visit [www.victaulic.com](http://www.victaulic.com) to view publication 19.02 for Style 995 coupling, 19.03 for Style 997 transition coupling, or 19.04 for Style 994 HDPE flange adapter

# Victaulic Pipe Joining Solutions



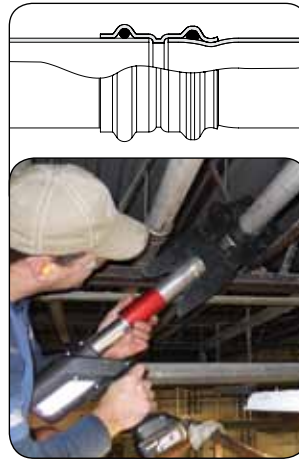
## Aquamine Reusable PVC Piping System

The Aquamine system is a reusable PVC system for water supply, dewatering and leaching lines or where rapid deployment of pipe is needed. A full line of pipe, fittings, valves and transition couplings complete the system. Transition couplings are available for PVC to HDPE and PVC to steel systems. To minimize downtime a repair coupling is also available.

### FEATURES AND BENEFITS

- Portable and reusable Aquamine products deploy in a matter of seconds
- Sizes from 2–12"/50–300mm for pressures up to 350psi/2400kPa
- System includes a repair coupling and transition couplings for PVC to HDPE and PVC to steel transitions and a valve for on-off services

Visit [www.victaulic.com](http://www.victaulic.com) to view publication 50.01



## Vic-Press™ for Schedule 10S Stainless Steel

This small diameter stainless steel system joins Schedule 10S pipe in just seconds using a hand-held pressing tool. Vic-Press systems are ideal for compressed air, instrument air, eye wash stations and a variety of other systems.

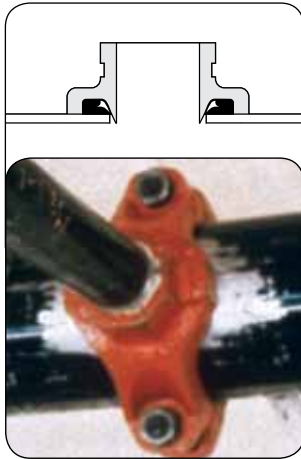
Unlike welded systems Vic-Press is environmentally friendly completely eliminating the noxious fumes and hazardous conditions associated with welding.

### FEATURES AND BENEFITS

- Uses standard Schedule 10S stainless steel pipe
- IPS size system for better flow and performance
- Pressfit products install in a matter of seconds
- Sizes from ½–2"/15–50mm for pressures up to 300psi/2065kPa
- Complete system includes couplings, valves, fittings and tools

Visit [www.victaulic.com](http://www.victaulic.com) to view publication 18.11 for Vic-Press 304 and 18.12 for Vic-Press 316





## Hole Cut Products

Victaulic mechanical outlets are easily installed with just a wrench. Victaulic outlet products feature saddle designs that ensure proper seating on the pipe.

### Style 920 Mechanical-T® Outlet

#### FEATURES AND BENEFITS

- Provide a direct connection at any location along the pipe
- Locating collar ensures proper seating on the pipe
- Available with either grooved or female threaded outlets
- Pressure responsive gasket creates the seal
- Sizes from 2–8"/50–200 mm for pressures up to 500 psi/3450 kPa
- Upper housings can be combined to create cross connections

### Style 923 Vic-Let® Outlet

#### FEATURES AND BENEFITS

- Fast, easy-to-install outlet does not require a strap
- Toe and heel design of locating collar eases installation
- Fire hazard eliminated since no welding is required
- Available for 4"/100 mm and larger systems for pressures up to 300 psi/2065 kPa

Visit [www.victaulic.com](http://www.victaulic.com) to view publication 11.02 for Style 920 Mechanical-T outlet and 11.05 for Style 923 Vic-Let outlet



## Vic-Flange® Adapters

Vic-Flange adapters allow an easy transition from flanged pipe and equipment to grooved systems. Available in ANSI CL125 and CL150, Australian Standard Table "E" and PN10 and PN16 configurations, Vic-Flange adapters incorporate small teeth in the key shoulder to prevent pipe rotation.

#### FEATURES AND BENEFITS

- Pipe sizes from 2–24"/50–600 mm
- Pressures up to 720 psi/4950 kPa
- Two-piece hinged design eases installation

Visit [www.victaulic.com](http://www.victaulic.com) to view publication 06.06 for Style 741/743 Vic-Flange adapter and 20.04 for Style W741 AGS Vic-Flange adapter

# Victaulic Pipe Joining Solutions



## Mining Specialty Products

For over 85 years Victaulic has been solving the toughest piping problems of the mining industry. Where needs are very specific Victaulic is the only company with the resources and experience to develop products to address application challenges.

Below are just two examples of where Victaulic has solved industry-specific challenges.

- Style 926 Mining Spigot was developed to provide an easy-to-install outlet assembly for large diameter tailings lines
- No. 36 Vic-Blast nozzle uses an efficient mixture of air and water to suppress dust and is commonly used for blast dust suppression

*For more information visit our web site to view publication 11.07 for the Style 926 Mining Spigot or publication 07.05 for the Vic-Blast nozzle*



## Fire Protection Systems

Victaulic was the first grooved piping system manufacturer to receive approval for use on fire protection systems. Since the 1950's Victaulic has been developing and manufacturing products for the fire protection industry. From our revolutionary NXT devices to our full line of sprinkler products Victaulic is a single source for fire protection systems in mines.

### FireLock NXT® Devices

#### FEATURES AND BENEFITS

- Lower operating pressure requirements
- Ultra-fast trip time and water delivery
- Reduced trim footprint
- Lightweight design

### Victaulic FireLock® Automatic Sprinklers

#### FEATURES AND BENEFITS

- Full line of sprinklers for any application
- Available in upright, pendent and horizontal side wall configurations

*Visit [www.victaulic.com](http://www.victaulic.com) to view publication 30.80 for dry systems, 30.81 for deluge systems or 30.82 for preaction systems; Visit the Victaulic web site for information on individual sprinklers or request publication G-105*



## Pipe Preparation Tools

Victaulic has been in the tool business for over 65 years with the introduction of cut grooving tools in 1945 and roll grooving tools in the 1950's.

### Roll Grooving Tools

#### FEATURES AND BENEFITS

- Patented Enhanced Tracking Rolls avoid pipe walk-off
- Available in manual, field and shop models
- Direct groove pipe sized  $\frac{3}{4}$ –60"/20–1525 mm

### Cut Grooving Tools

#### FEATURES AND BENEFITS

- Best method for pipe preparation on abrasive systems such as tailings, slurries and hydraulic fill lines
- Cut grooves maintain smooth inner flow path while removing less metal than threaded joints
- Direct groove pipe sized  $\frac{3}{4}$ –24"/20–600 mm

### Hole Cutting Tools

#### FEATURES AND BENEFITS

- Permits hole placement where needed along the pipe line
- Hot tap unit allows tapping into steel pipe systems under pressures up to 500 psi/3450 kPa

Visit our web site to view publication 24.01



# Mine Piping Solutions

## Complete solutions for the mining industry

Victaulic continues to develop products to meet the rigorous demands and challenging environments of the mining industry. Designed to make pipe joining faster, easier and more economical, Victaulic couplings, valves, fittings, and specialty products allow mining customers to build complete piping systems from a single source.

### Water Systems

Victaulic mechanical pipe joining systems provide solutions for every type of mine piping system. For water systems Victaulic provides a variety of solutions based on your needs.

#### INSTALLATION-READY TECHNOLOGY

Style 177 flexible and Style 107 rigid installation-ready couplings are ideal for water systems both above and under ground. With all the design benefits of the traditional Style 77 flexible and Style 07 rigid couplings, the new installation-ready couplings install in half the time. With no need to disassemble the product there is no opportunity to lose loose parts such as bolts and nuts and gaskets. In just four simple steps the coupling is installed and ready to provide the reliable service you expect from a Victaulic joining system.



#### AGS (ADVANCED GROOVE SYSTEM)

The Advanced Groove System for 14–60"/350–1525 mm systems is the fastest and easiest method for joining large diameter piping systems. Reducing installation times versus traditional joining methods by up to 50%, AGS systems are rated for services up to 350 psi/2400 kPa.

#### AQUAMINE REUSABLE PVC PIPING

Used on water, dewatering and leaching lines, Aquamine piping products are designed for situations where pipe will need to be moved or redeployed. The full product line includes fittings, valves for shut off service and transition couplings that allow you to easily join PVC to steel or PVC to HDPE pipe.

A spline is inserted to complete the joint. When the pipe needs to be redeployed the spline can be removed (once the system is depressurized) and the pipe moved to the next location.





## Air Systems

### INSTALLATION-READY TECHNOLOGY

Installation-ready couplings used in conjunction with nitrile gaskets are effective in reducing air losses by up to 40% on compressed air lines. Installation-ready couplings install up to 10 times faster than standard welded systems reducing the time needed for initial installation and maintenance.

### VIC-PRESS SYSTEM

This small diameter plain end system for Schedule 10S pipe is ideal for equipment air and compressed air applications. Joining pipe in a matter of seconds using a hand-held pressing tool the Vic-Press system is suitable for 500 psi/3450 kPa service.



## Slurries, Tailings, and Hydraulic Backfill

Abrasive services using HDPE and steel piping require solutions that extend service life. Linings such as rubber, ceramic and urethane as well as corrosion protection coatings such as epoxy, can be applied to grooved fittings and easily joined to the system using Victaulic couplings.

### CUT GROOVE SYSTEMS

Cut groove piping systems provide a smooth inner flow path that avoids wear points. Cut grooving is found on Schedule 40 or heavier pipe that allows for the removal of metal for the grooves. The Victaulic cut groove system is ideally suited for lined piping systems. The joint is cold formed and provides a smooth inner surface maintaining the integrity of the rubber or specified lining.

Cut groove systems allow the greatest flexibility where system deflection, expansion or contraction is required.

### RING TECHNOLOGY

Vic-Rings are available for pipe ranging from 4"/25mm up to 144"/3650mm. The coupling is assembled on the Vic-Ring to complete the joint. The ring is installed on the outside diameter (O.D.) of the pipe providing a smooth flow path and full pipe wall thickness. Pressures for ring systems vary by type of system, size and type of material.



### SHOULDERED SYSTEMS

For 2–8"/50–200mm shouldered systems Victaulic offers the patented installation-ready Style SC77 coupling. Rated to 580 psi/4000 kPa this flexible coupling is the fastest way to join shouldered pipe, fittings, and valves. Other mechanical couplings must be disassembled before they are installed. The SC77 joins pipe without disassembling the coupling greatly reducing installation times. SC77 is also available in a standard coupling design for sizes 10–12"/250–300mm.





		FITTINGS										VALVES/STRAINERS										TOOLS			SPECIALTIES										
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		
	•																																		

### TAILINGS PONDS



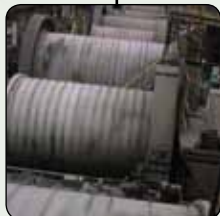
The Style 926 mining spigot is an easy-to-install outlet for tailings pond feeds. Strapped on to the outside diameter of the main tailings line the outlets have valves included in the feed assembly for on/off service. Available with HDPE or steel outlets the Style 926 is a ready-made solution for tailings pond piping.

ABOVE GROUND APPLICATIONS:

# Metal Mines



### BALL AND ROD MILL



Piping semi-solid abrasive material from the ball mill to the tailings line is one of the most demanding services in mine piping. The ability to easily maintain and replace worn pipe is paramount. With only two bolts and nuts to remove there is no faster way to replace worn pipe. What is that worth to your mining operation?

### FLOTATION CELLS



Whether its air, water or waste services Victaulic products are designed to meet the challenges of this application. A full line of fittings, valves and accessories creates a complete single source solution.





### SLURRIES/TAILINGS

Abrasive slurry and tailings lines are ideal for using Victaulic products. Groove system products create a union at every joint allowing access to the pipeline at multiple points. Plus the deflection capabilities of our flexible couplings accommodate pipe on uneven surfaces and where angular deflection is needed for less than straight runs.



### WASTEWATER TREATMENT

Victaulic has a complete line of products designed specifically for wastewater treatment services. Whether its stainless couplings, valves, and fittings for aeration piping or high pressure couplings for effluent and untreated water Victaulic products meet the demanding design specifications for these services.



### PROCESS PIPING

Process piping within a mine is critical to the ongoing operation and profitability of a mine. Downtime, whether scheduled or unplanned, is extremely expensive. With a union at every joint, Victaulic joining systems are the ideal choice for regular maintenance on any type of system. Providing a full line of couplings, valves, and fittings Victaulic is your single source for process piping systems.



### SOLUTIONS PIPING

When acids and other harsh chemicals need to be introduced to the process to separate metal from tailings Victaulic grooved couplings are used. Gasket materials are available for a wide variety of services.

UNDERGROUND APPLICATIONS:

# Metal Mines



## BACKFILL PASTE SYSTEMS

Backfill paste systems are used to strengthen the structure of the mine by piping sand fill or waste rock into areas that have been mined to replace the ore that has been removed. These systems are very high pressure requiring specially designed couplings. Victaulic has two systems, the ES system for 2500 psi/17250 kPa and the double groove system for 4000 psi/27500 kPa service.



## WATER AND AIR LINES

Water and air supply lines can be installed in seconds using installation-ready couplings. Since the coupling is not disassembled before installation carrying spare parts to the site can be eliminated. Victaulic offers a line of butterfly valves for on/off and dead-end services, plus ball and check valves as needed.



## DUST SUPPRESSION

Victaulic products create a single source solution for dust suppression systems. From the specialty nozzle to the grooved end couplings, fittings, and valves Victaulic products are designed to control flow on both air and water inlets. Vic-Blast nozzles use the minimum air and water necessary to quickly capture and suppress dust.



## MINE COOLING

As mines go deeper the need for reliable mine cooling systems and the piping to support them grows. Victaulic products offer the design capabilities required for this application. Whether it is deflection, expansion or contraction, Victaulic systems give designers the flexibility they need to design, construct and install mine cooling piping systems.



#### PUMPING STATION

Victaulic products are used on dewatering systems caused by naturally occurring water or hydraulic fill. From high pressure single lift pumps to multi-stage pumping stations Victaulic has couplings, fittings, valves and strainers to provide a single source for pumping stations.



#### DEWATERING SYSTEMS

Mine dewatering systems vary by depth and type of mine. No matter what the need Victaulic has a complete piping solution for dewatering systems. Grooved end couplings are designed for pressures up to 4000psi/27500kPa to meet the most demanding system requirements.



#### PRESSURE REDUCING STATION

Pumping water into deep shaft mines requires head pressures to be reduced at various stages for the process water lines. Head pressures need to be reduced to match the capabilities of the piping. Victaulic manufactures a full line of couplings, fittings and valves that are designed to match the service requirements of pressure reducing stations and can be ordered as a pre-fabricated unit.

# Coal Mine Piping Applications

## BENEFITS

- Able to install under adverse conditions (i.e. Low light, dry, hot, cold, etc.)
- Victaulic gaskets can reduce air loss in systems by up to 40%
- No fire, fume or hazard costs
- Flexible couplings accommodate misalignment and tunnel curvature
- Minimize time required for change-outs and scheduled maintenance

## APPLICATION

	COUPLINGS																		
	Style 177 Installation-ready Flexible	Style 77 Flexible	Style 107H Installation-ready Rigid	Style 07 Rigid	Style 741/743 Vic-Flange Adapter	Style 78 Snap-Joint	Style 72 Outlet	Style 791 Vic-Boltless	Style HP-70 Rigid	Style HP-70ES EndSeal Rigid	Style 99 Plain End for Steel	Style 808 Double Groove	Style 277 AGS Flexible Vic-Ring	Style 207 AGS Rigid Vic-Ring	Style SC77 Installation-ready Shouldered	Style 995 HDPE	Style 994 HDPE Vic-Flange Adapter	Style 997 HDPE-to-Steel	
<b>Above Ground</b>																			
Cyclone Piping, Bends	•	•	•	•	•	•		•	•	•					•				
Slurry Lines	•	•			•	•		•					•	•	•	•	•	•	
Water Supply Lines (mill water)	•	•	•	•	•	•	•	•	•	•	•				•	•	•	•	
Water Supply Lines (wash)	•	•	•	•	•	•	•	•	•	•	•				•	•	•	•	
Clarifier Piping	•	•	•	•	•	•		•	•	•					•	•	•	•	
Air Lines, flotation	•	•	•	•	•	•		•	•	•					•				
Pump Stations	•	•	•	•	•	•	•	•	•	•	•				•				
Dust Suppression	•	•	•	•	•	•		•											
Fire Protection (conveyors)		•	•	•	•														
Wastewater	•	•	•	•															
<b>Underground</b>																			
Pressure Reducing Stations	•	•	•	•	•			•	•	•									
Water Supply Lines	•	•	•	•	•	•	•	•	•	•	•				•				
Sumpage/Dewatering Lines	•	•	•	•	•	•		•	•	•					•				
Air Lines	•	•	•	•	•	•		•	•	•					•				
Pump Stations	•	•	•	•	•	•	•	•	•	•	•				•				
Dust Suppression	•	•	•	•		•		•	•										
Fire Protection		•	•	•	•				•										



		FITTINGS		VALVES/STRAINERS		TOOLS		SPECIALTIES	
	Style W07 AGS Rigid								
	Style W77 AGS Flexible								
	Style W741 AGS Vic-Flange Adapter								
	Style W89 AGS for SS								
	Style 920 Mechanical-T Outlet								
	Grooved End Fittings								
	Long Radius Bends (3D, 5D, 6D)								
	Lined Fittings								
	Shouldered Fittings								
	EndSeal (ES) Fittings								
	AGS Groove Fittings								
	Series 700 Butterfly								
	Vic-300 MasterSeal Butterfly								
	Vic-300 AGS Butterfly								
	Series 721 Ball								
	Series 726 Ball								
	Series 712 Swing Check								
	Series 716/716H Check								
	Series W715 AGS Check								
	Series 365 Plug								
	Series 730 Tee Strainer								
	Series 732 Wye Strainer								
	Roll Grooving								
	Cut Grooving								
	Hole Cut								
	Vic-Press 304/316 Plain End SS								
	Aquamine Reusable PVC System								
	Series 926 Tailings Spigot Outlet								
	Style 923 Strapless Outlet								
	No. 36 Vic-Blast Nozzle								



#### **TAILINGS LINES**

Coal tailings are extremely abrasive and need innovative piping solutions thanks to frequent scheduled maintenance of the line. Using Victaulic couplings for HDPE pipe provide a union at every joint so downtime is kept to a minimum. No special tools or pipe end preparation is needed to install these plain end couplings on HDPE systems.



#### **WASTEWATER TREATMENT**

Victaulic products are also found on wastewater treatment applications. The same supplier that provides all your mine piping needs can do the same for your wastewater treatment system. The full line of couplings, valves and fittings for wastewater applications provide all the same benefits as the products used on your mine piping systems.

ABOVE GROUND APPLICATIONS:

# Coal Mines



### COAL PREPARATION

Coal preparation plants use HDPE pipe to handle extremely abrasive coal dust. HDPE is difficult and costly to join when butt fused. Victaulic couplings for HDPE pipe provide a union at every joint allowing access to the piping system for maintenance and/or pipe rotation thereby extending the life of the pipe.



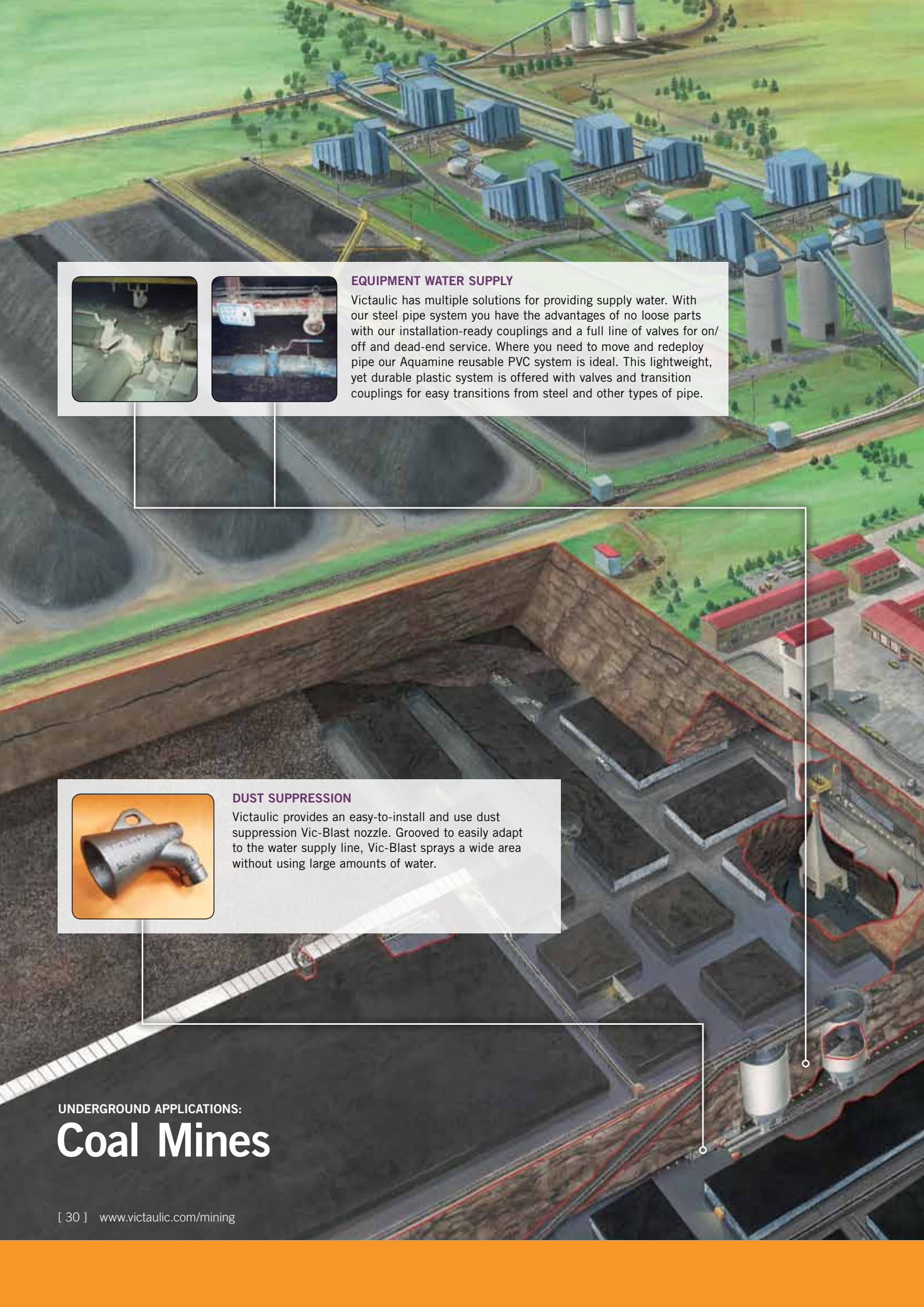
### CYCLONES

Cyclones need to be maintained regularly. The two-bolt design of Victaulic couplings allow fast easy access to each of the cyclone lines greatly reducing downtime required for maintenance.



### WATER SUPPLY

Water supply piping for the dewatering, tailings lines and plant equipment needs to be reliable and easy to maintain. Victaulic offers a number of joining methods, whether its grooved steel, plain end HDPE and steel, or our splined reusable PVC Aquamine system.



#### EQUIPMENT WATER SUPPLY

Victaulic has multiple solutions for providing supply water. With our steel pipe system you have the advantages of no loose parts with our installation-ready couplings and a full line of valves for on/off and dead-end service. Where you need to move and redeploy pipe our Aquamine reusable PVC system is ideal. This lightweight, yet durable plastic system is offered with valves and transition couplings for easy transitions from steel and other types of pipe.



#### DUST SUPPRESSION

Victaulic provides an easy-to-install and use dust suppression Vic-Blast nozzle. Grooved to easily adapt to the water supply line, Vic-Blast sprays a wide area without using large amounts of water.

UNDERGROUND APPLICATIONS:

# Coal Mines





#### FIRE PROTECTION

Victaulic sprinklers and devices provide fire protection to underground mining operations. Victaulic FireLock devices have the smallest footprint of any valve on the market today. With automatic resets the valve is easy to operate and maintain. A full line of sprinklers allows system designers flexibility to meet the requirements of their system.



#### WATER SUPPLY

Water supply for underground coal mines requires moving pipe frequently. The reusable Aquamine PVC system can be added to or picked up and moved very easily. And with a line of transition couplings and valves Aquamine can easily adapt to HDPE and steel piping systems.

# Mining Projects Around the World



## GARSON MINE

*Garson, Ontario, Canada*

**APPLICATION:** Backfill paste line  
**SOLUTION:** Victaulic Style 808 double groove coupling for high pressure systems



## SIERRITA MINE

*Green Valley, Arizona*

**APPLICATION:** Tailings line  
**SOLUTION:** Victaulic large diameter AGS Vic-Ring system maintains full pipe wall thickness and provide a union at every joint



## TIMBOPEBA MINE

*Mariana, Brazil*

**APPLICATION:** Scheduled plant maintenance  
**SOLUTION:** Victaulic grooved products reduced downtime required to replace this long radius bend from 6 hours to 2 hours versus flanged systems



#### CAYELLI COPPER MINE

*Rize City, Turkey*

**APPLICATION:** Plant fire protection system

**SOLUTION:** Victaulic grooved couplings speed and ease of installation for fire protection systems



#### ANHUI HUAINAN DINGJI MINING

*Anhui, Huainan, China*

**APPLICATIONS:** Compressed air, dewatering, water supply, nitrogen, pastefill, underground cooling, and water

**SOLUTION:** Victaulic flexible couplings deflection capabilities over uneven surfaces



#### KALGOORLIE NICKEL SMELTER

*Kalgoorlie, Western Australia*

**APPLICATION:** Fire ring main

**SOLUTION:** Aquamine reusable PVC piping system requires no special tools to join and does not require a special finish to be used in buried applications

# Piping. Systems. Solutions.

Victaulic invented the grooved end system for pipe joining in 1925. More than 85 years later, Victaulic continues to lead the industry with pipe joining innovations and solutions around the world. With offices and manufacturing facilities in Europe, Asia, the US and Canada, and a worldwide network of sales and service representatives, Victaulic works closely with engineers, contractors and owners to provide mechanical piping systems that lower costs, improve productivity, reduce risk and allows for system expansions.



Visit [www.victaulic.com/mining](http://www.victaulic.com/mining)

- Searchable product and global project database
- Download product submittals and literature
- Piping software demos and modules
- Engineering support services

## VICTAULIC GLOBAL CONTACT INFORMATION

### US & WORLD HEADQUARTERS

P.O. Box 31  
Easton, PA 18044-0031 USA  
4901 Kesslersville Road  
Easton, PA 18040 USA  
1-800-PICK-VIC  
(+1-800-742-5842)  
(within North America)  
+1-610-559-3300  
+1-610-250-8817 (fax)  
pickvic@victaulic.com

[www.victaulic.com](http://www.victaulic.com)

### CANADA

123 Newkirk Road  
Richmond Hill, ON L4C 3G5  
+1-905-884-7444  
+1-905-884-9774 (fax)  
viccanada@victaulic.com

### EUROPE

Prijkelstraat 36  
9810 Nazareth, Belgium  
+32-9-381-15-00  
+32-9-380-44-38 (fax)  
viceuro@victaulic.be

### MIDDLE EAST

P.O. Box 17683  
Unit XB 8  
Jebel Ali Free Zone  
Dubai  
United Arab Emirates  
+971-4-883-88-70  
+971-4-883-88-60 (fax)

### UNITED KINGDOM

Units B1 & B2, SG1 Industrial Park  
Cockerell Close  
Gunnels Wood Road  
Stevenage  
Hertfordshire, SG1 2NB (UK)  
+44-(0)-1438-310-690  
+44-(0)-1438-310-699 (fax)  
0124-60219 (direct to Ireland  
within the UK)  
viceuro@victaulic.be

### CENTRAL AND SOUTH AMERICA

P.O. Box 31  
Easton, PA 18044-0031 USA  
4901 Kesslersville Road  
Easton, PA 18040 USA  
+1-610-559-3300  
+1-610-559-3608 (fax)  
vical@victaulic.com

### ASIA

Unit 06-10, Floor 3A  
A Mansion 291 Fumin Road  
Shanghai, China 200031  
+86-21-6170-1222  
+86-21-6170-1221 (fax)  
vicap@victaulic.com

### AUSTRALIA/NEW ZEALAND

P.O. Box 173  
Williamstown  
Victoria, Australia 3016  
+61-(0)-41701-9905  
+61-(0)-39399-9905 (fax)  
vicaust@victaulic.com