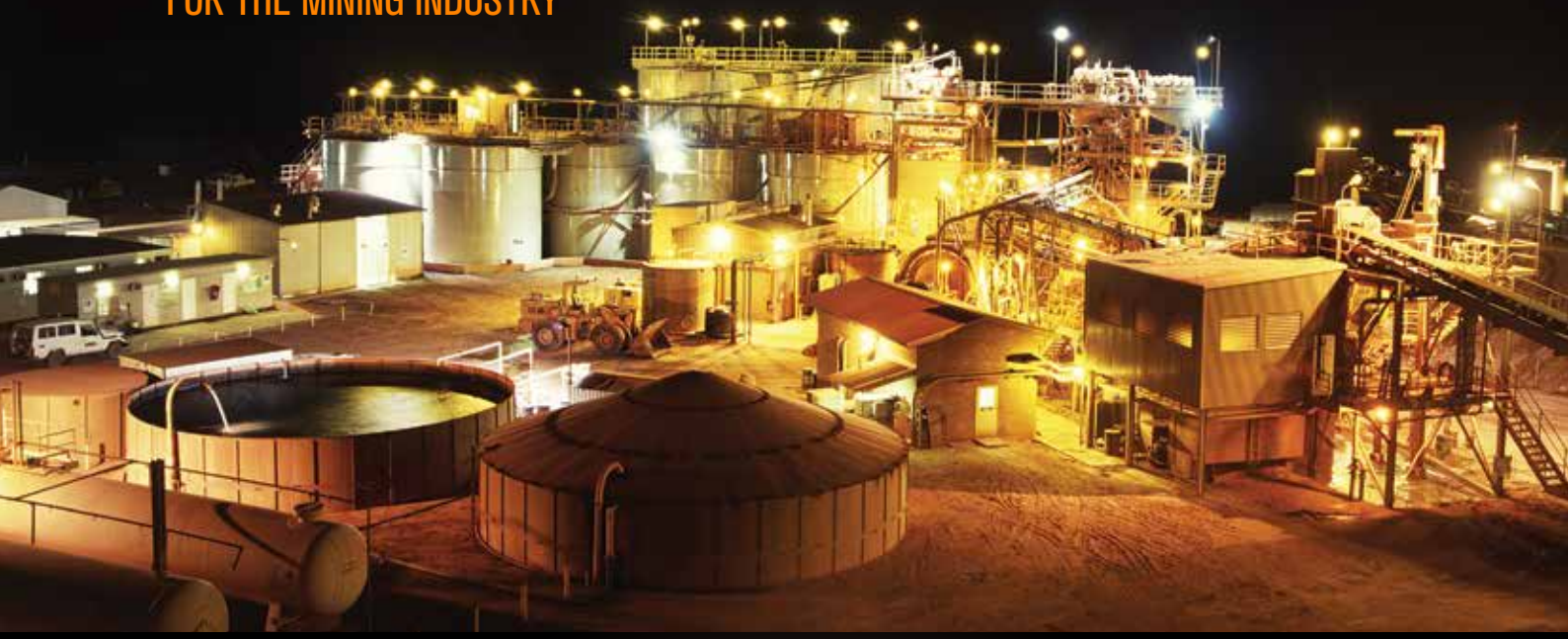
VICTAULIC®

INNOVATIVE PIPE JOINING & FLOW CONTROL SOLUTIONS

FOR THE MINING INDUSTRY



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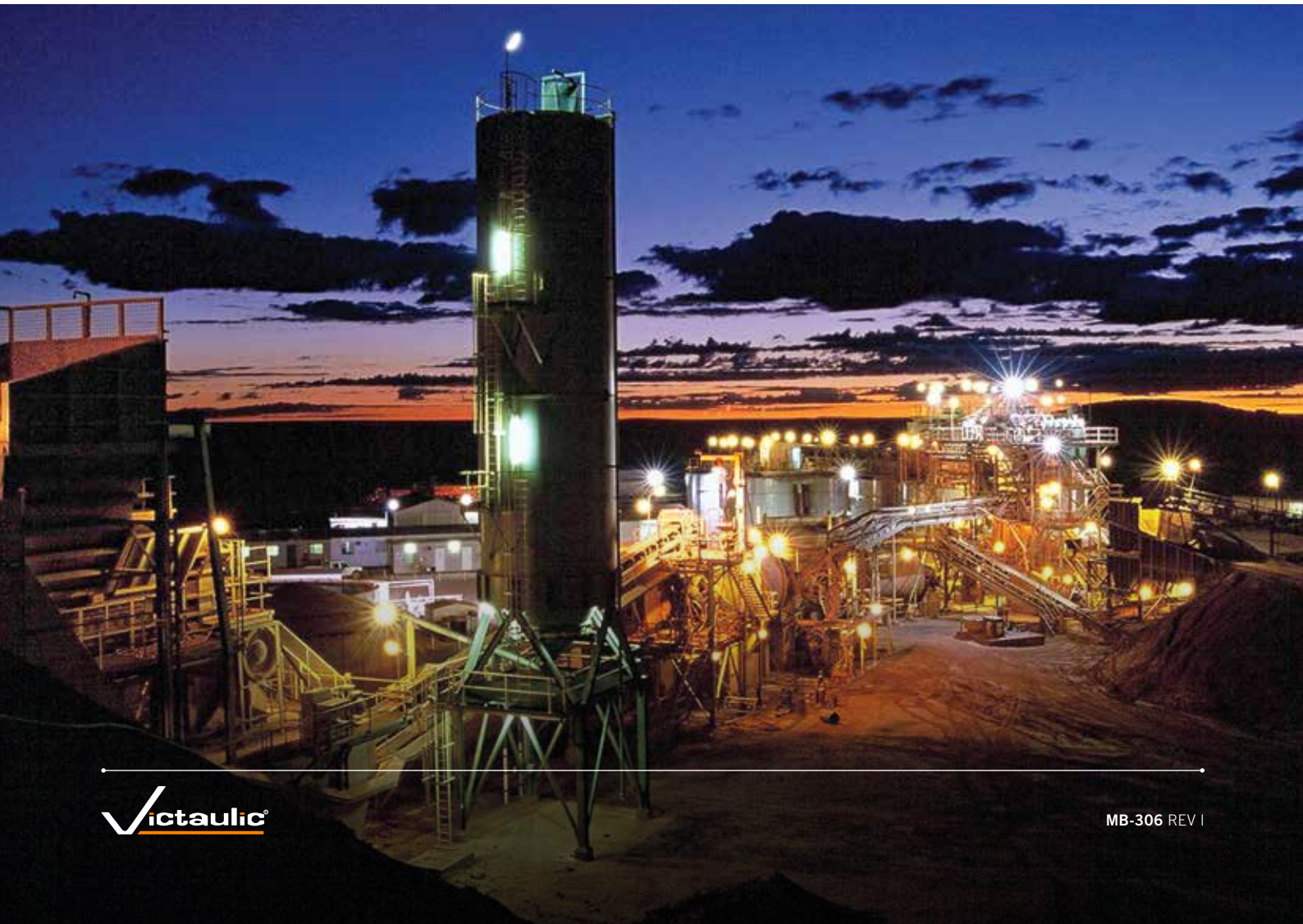

Victaulic®

MB-306 REV I

SINCE THE FIRST PATENT IN 1919, VICTAULIC HAS DELIVERED INNOVATIVE PIPE JOINING AND FLOW CONTROL SOLUTIONS THAT HELP CUSTOMERS SUCCEED WORLDWIDE.

Look inside many of the world's most critical mining operations, and you'll find Victaulic solutions at work making bold design innovations possible, speeding time to completion and minimizing downtime, and setting the stage for scalability. Across the globe, Victaulic solutions have benefitted mine owners, engineers, installers and maintenance personnel.

Mine Owners

- Total installed cost reduced by up to 50%
- 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 and 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

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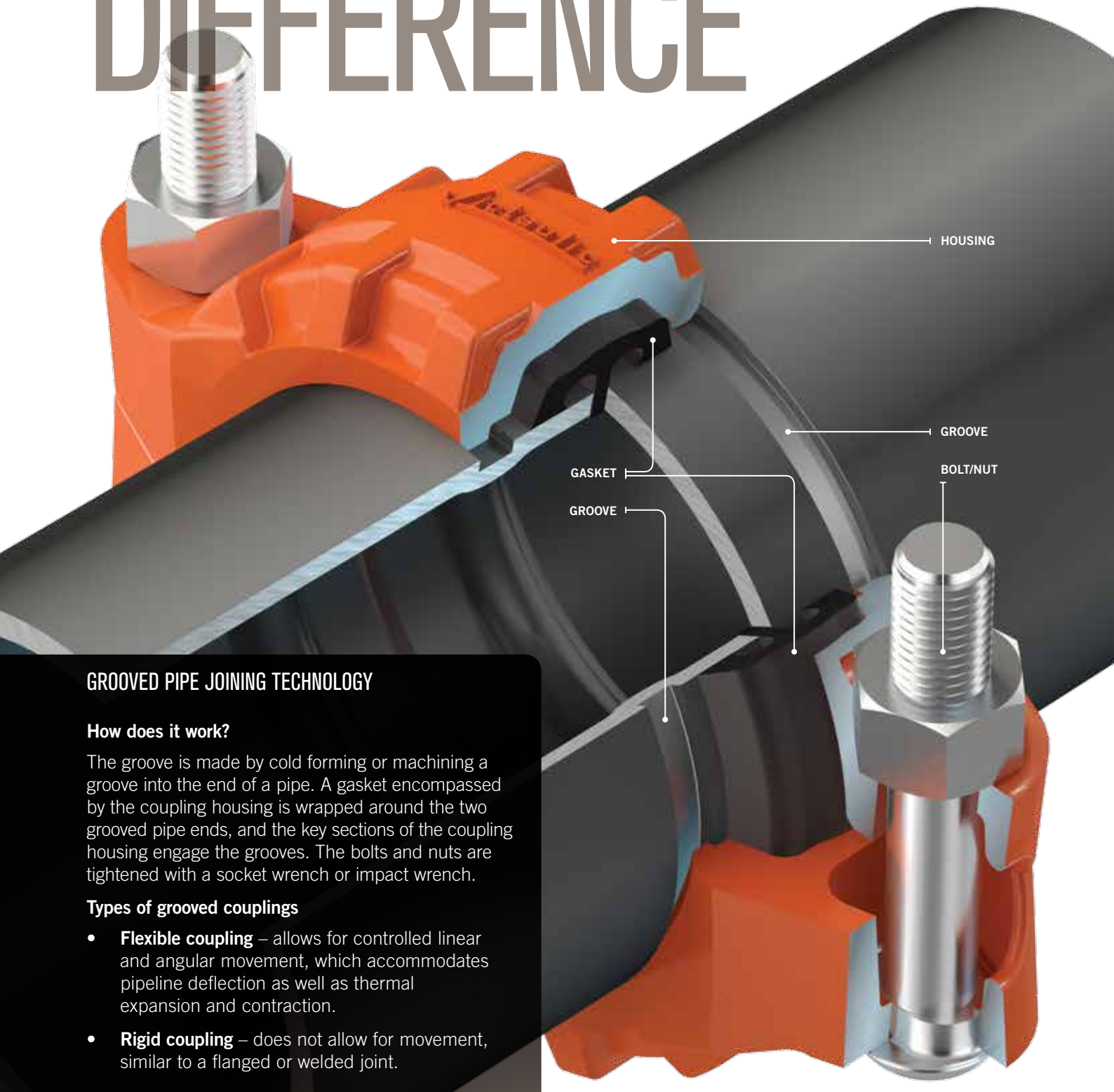
THE VICTAULIC® DIFFERENCE



GROOVED PIPE JOINING TECHNOLOGY

How does it work?

The groove is made by cold forming or machining a groove into the end of a pipe. A gasket encompassed by the coupling housing is wrapped around the two grooved pipe ends, and the key sections of the coupling housing engage the grooves. The bolts and nuts are tightened with a socket wrench or impact wrench.

Types of grooved couplings

- **Flexible coupling** – allows for controlled linear and angular movement, which accommodates pipeline deflection as well as thermal expansion and contraction.
- **Rigid coupling** – does not allow for movement, similar to a flanged or welded joint.

At the core of all the benefits that Victaulic® solutions bring to a project – such as productivity, safety, design flexibility and quality – are the unique features of our products.

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.

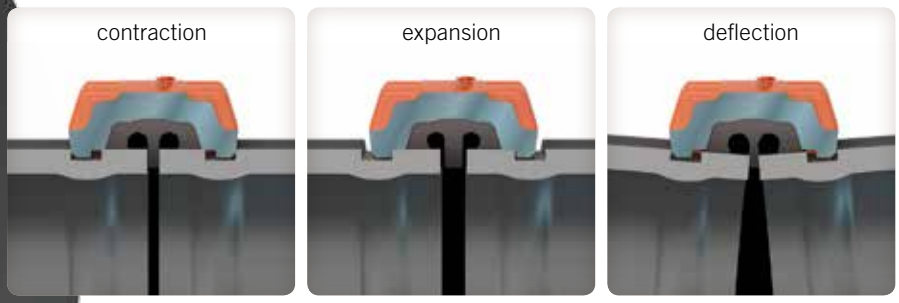
With its many benefits to piping designers Victaulic grooved systems add a level of versatility other joining systems cannot match.

Victaulic systems also continue to evolve and improve. For example the Victaulic Installation-Ready™ couplings install up to twice as fast as standard grooved couplings while maintaining performance and design capabilities.

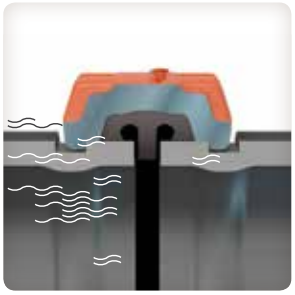
VICTAULIC® GROOVED END PIPING SYSTEMS PROVIDE:

Easy system maintenance and expansion – through simple coupling disassembly that allows for easy access.

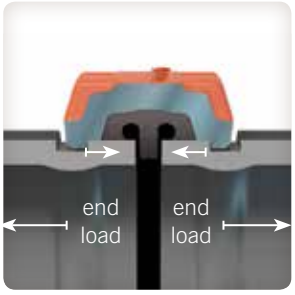
Alignment ease – through a design that allows for full rotation of the pipe and system components before tightening.



Flexibility – with the inherent axial movement and deflection properties of flexible couplings in a groove system. May be used to accommodate pipeline thermal expansion and contraction, misalignment and settlement, and seismic stress absorption.



Noise and vibration attenuation – by isolating the transference of vibration at each joint.



Self restrained pipe joints – Couplings engage the pipe grooves to hold the pipes against full pressure thrust loads without the need of supplemental restraints.

Rigidity – with an angled pad design that provides positive clamping of the pipe to resist torsional and flexural loads.

BENEFITS OF THE VICTAULIC® JOINING SYSTEM

Victaulic is the originator and leader in pipe joining and flow control technologies specific to the needs of the mining market. Since 1919, Victaulic has developed a number of innovative pipe joining and flow control technologies designed for reliable, worry-free service under the most severe conditions imaginable. Victaulic products benefit mine owners, engineers, installers and maintenance personnel.

LABOR SAVINGS

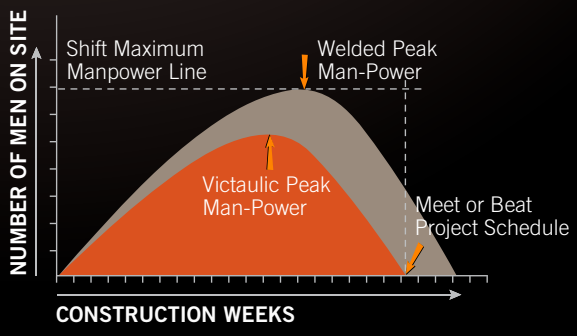
Easier maintenance and system expansion

- 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

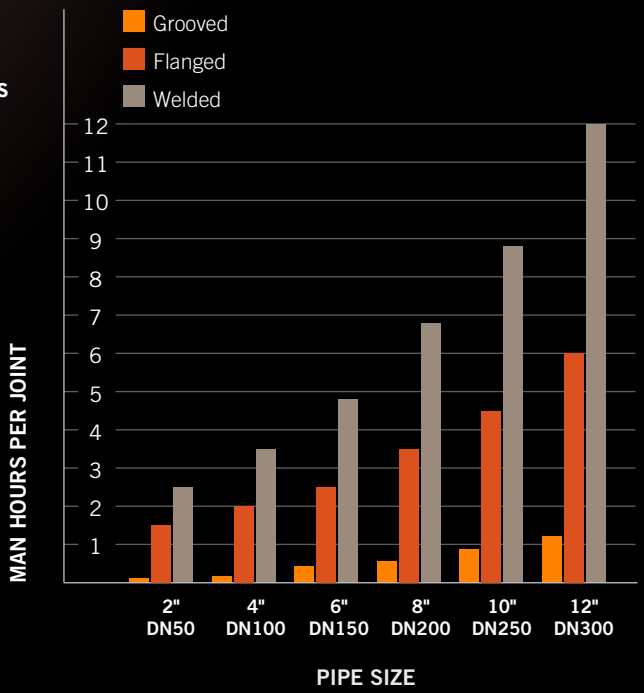


LOWER TOTAL INSTALLED COST

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



Design Flexibility

- Greatest versatility in design and performance
- Systems designed for slurry, tailings, high pressure applications, and air and water services
- Wide variety of elastomeric gaskets to meet the most demanding service requirements
- Victaulic® products are designed to accommodate for system requirements such as: flexibility, rigidity, expansion and contraction or deflection

Complete System

- Whether your system requires couplings, valves, fittings or other components, we have a solution that fits your piping needs
- Products are designed for specific use with various pipe material: HDPE, carbon steel, stainless steel, PVC, and more
- If your system requires a transition across varying pipe materials or pipe end types, Victaulic provides solutions for plain end, grooved end, flanged and other systems

Engineered Solutions

- Victaulic employs an expansive team of engineers that are continually developing new ideas, products and solutions for the mining market
- If your piping system requires something special, Victaulic engineers will work with you to develop a solution for whatever your system may need
- Customer feedback has led to many unique solutions that are now widely accepted in the mining marketplace

BENEFITS TO MINING OPERATIONS

LABOR SAVINGS

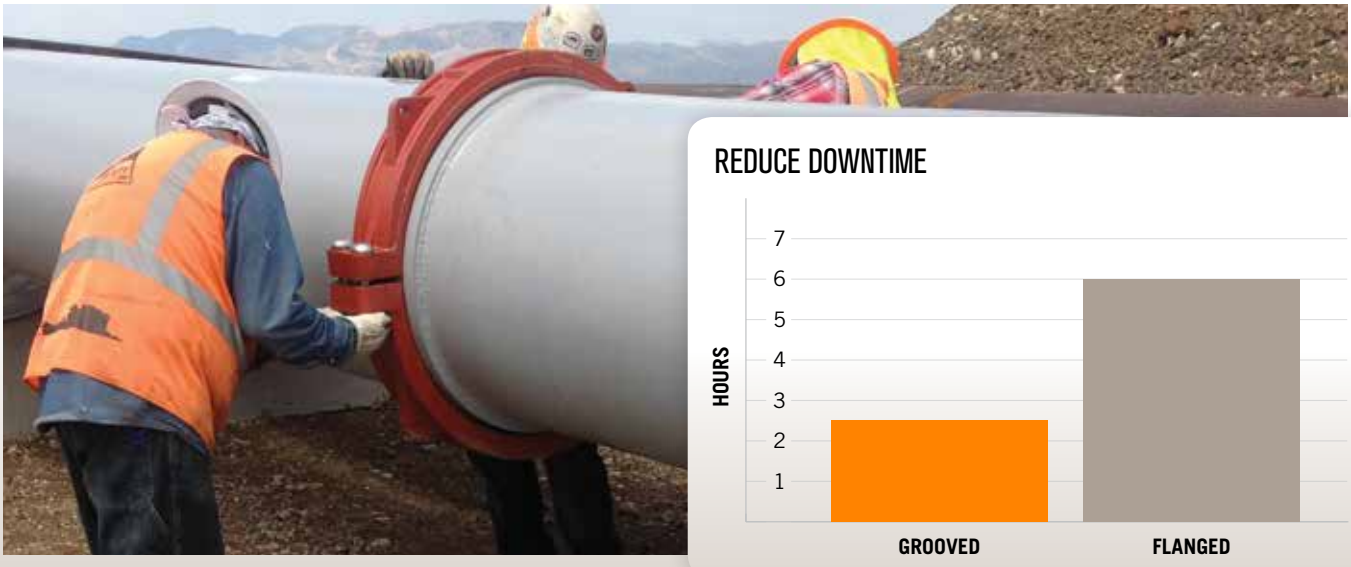
Cut plant downtime in half.

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 planned system shutdown at the Timbopeba Mine in Mariana, Brazil, to replace a long radius bend was originally scheduled for six hours. The replacement was completed in just two hours with the Victaulic system – totaling more than 50% in savings.



PERFORMANCE ENGINEERING

Solving the industry's toughest piping challenges

Victaulic® not only manufactures couplings for joining pipe and valves for flow control, it also provides solutions for the industry's toughest challenges. Whether its high pressures, extreme temperatures or abrasive services, Victaulic has created specialized solutions to address piping's most difficult challenges.

Extreme piping environments

To transport paste backfill, Garson Mine required a piping solution capable of handling pressure spikes up to 3200 psi | 22063 kPa | 220 bar through 8" | DN200 lines. To meet this challenge, Garson turned to Victaulic for a solution. The answer was the double-bolted Style 808 high pressure coupling which is rated to 4000 psi | 27579 kPa | 275 bar. This coupling was not only easier to install but was also more cost effective than alternative joining methods. Garson Mine has successfully been using this system for the past 15 years and has installed over 1,000 Style 808 high pressure couplings.

BENEFITS TO MINING OPERATIONS

IMPROVED SAFETY

Victaulic® systems provide a 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. Eliminate the potential to drop loose parts, and reduce the opportunity for injuries or lost work time.

Installed using standard tools, the joint provides visual verification of proper assembly. This feature greatly reduces the chance of improper installation.

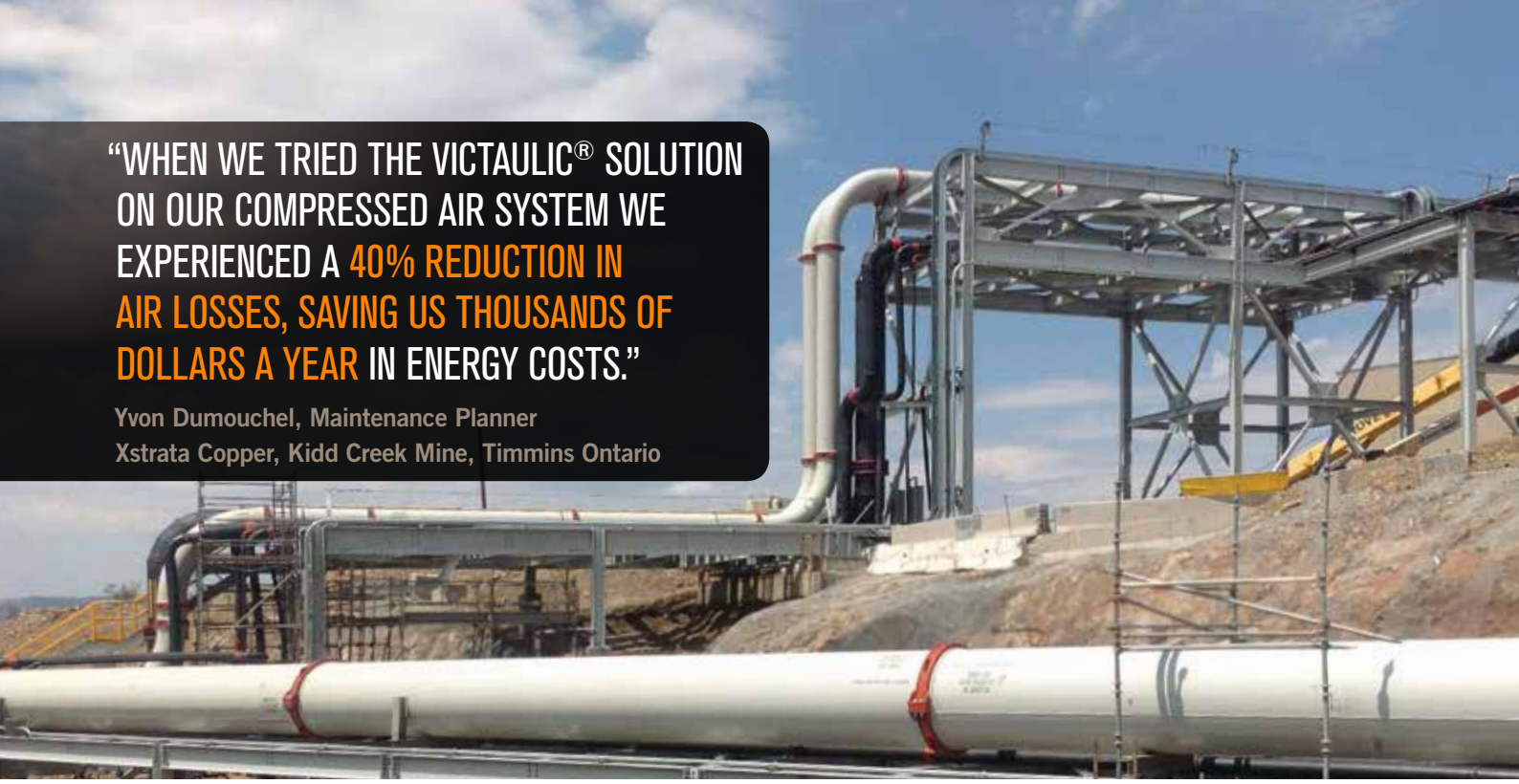
INSTALLATION-READY™ COUPLINGS

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, Maintenance Planner
Xstrata Copper, Kidd Creek Mine, Timmins Ontario

REDUCED OPERATING COST

Reduce Energy Costs by as Much as 40%.

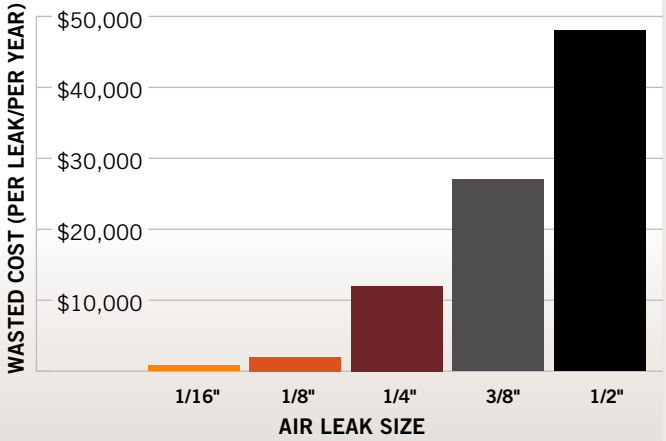
By using Victaulic systems, you can reduce operating costs through ways such as: faster installation times, less downtime during scheduled maintenance, and also reduced energy costs.

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 offers a line of flange adapters that provides a simple 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.**

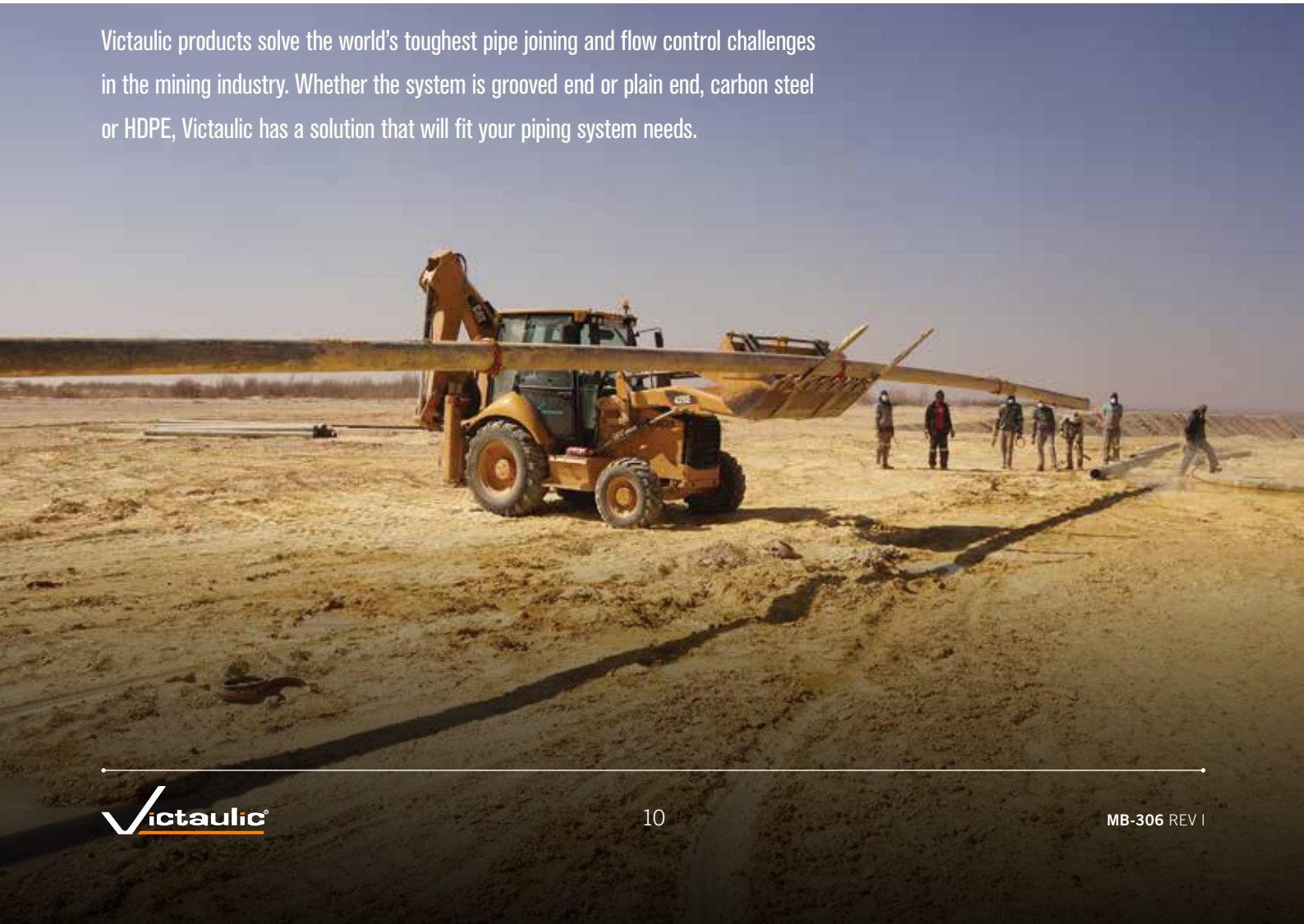
COMPRESSED AIR LOSS



These are average costs and will vary depending on your specific piping system requirements.

VICTAULIC® PIPE JOINING & FLOW CONTROL SOLUTIONS

Victaulic products solve the world's toughest pipe joining and flow control challenges in the mining industry. Whether the system is grooved end or plain end, carbon steel or HDPE, Victaulic has a solution that will fit your piping system needs.



Installation-Ready™ Couplings

Victaulic® *Installation-Ready* couplings use the same groove profile and have the same performance characteristics as traditional Victaulic 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" | DN50–DN200 systems
- Same design and pressure capabilities as original flexible and rigid couplings
- Bolt pad to bolt pad installation for visual verification of joint integrity

The Refuse-to-Fuse™ System for HDPE

Eliminate the need for specialty fusion equipment and increase your productivity. **Permanent pipe joints, including buried services**, with easy visual confirmation of correct installation and up to 10× faster assembly than traditional butt fusion. Weather-independent installation with no need for a dedicated power source or complex work station.

Features and Benefits

- *Refuse-to-Fuse* couplings meet or exceed the ratings of the HDPE pipe to ASTM F714
- Piping immediately in service
- Available for SDR 7–17
- Sizes from 2–36" | 63–900 mm
- Couplings, fittings, transition couplings, tools

Original Groove System (OGS)

In use since the 1920's, the original groove system is widely accepted as the joining method of choice in mining 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" | DN20–DN600

Installation-Ready™ Shouldered System

Up to 10 times faster than other pipe joining methods, the *Installation-Ready* technology of the Victaulic 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, butterfly valves and gate valves are also available
- Shouldered fittings can be lined for abrasive and/or corrosive services
- Offered in 2–8" | DN50–DN200 sizes *Installation-Ready* and 10–12" | DN250–DN300 standard couplings

Advanced Groove System (AGS)

Advanced 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 from Victaulic is the choice of designers and installers.

Features and Benefits

- Sizes range from 14–72" | DN350–DN1800 for pressures up to 350 psi | 2413 kPa | 24 bar
- 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

AGS *Vic-Ring* Systems

For larger diameter slurry and tailings lines, Victaulic® offers the AGS *Vic-Ring* system. A ring with a 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 14–48" | DN350–DN1200 for pressures up to 350 psi | 2413 kPa | 24 bar
- Provides a union at every joint for maintenance or future expansions

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 three reliable solutions specifically designed for high pressure applications: The Style 808 double groove system; The Style 809 ring system coupling; and EndSeal™ (ES) systems.

Style 808 Double Groove System Features and Benefits

- Highest pressure mechanical joint on the market today
- Sizes range from 6–12" | DN150–DN300
- Double groove system installs in half the time of welded systems
- Designed specifically for high pressure systems up to 4000 psi | 27579 kPa | 275 bar such as backfill paste, chilled water and dewatering systems

Style 809 Ring System Features and Benefits

- Designed specifically for high pressure systems up to 3000 psi | 20684 kPa | 207 bar that require full pipe wall thickness such as high pressure slurry lines and hydraulic systems
- Size range 6–10" | DN150–DN250
- Engages directly onto rings welded to the O.D. of the pipe without intrusion into the pipe I.D.

EndSeal™ (ES) System Features and Benefits

- Single groove with *EndSeal* profile for systems up to 2500 psi | 17237 kPa | 172 bar
- Fittings with *EndSeal* grooves also available
- Available from 2–12" | DN50–DN300 sizes
- *EndSeal* gasket specially formulated for excellent resistance to oil and extrusion
- *EndSeal* gaskets have an integral central leg which positions between the pipe ends for use with plastic-coated or cement-lined pipe

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 (O.D.) 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 (O.D.) of pipe
- Sizes from 1–12" | DN25–DN300 for pressures up to 750 psi | 5171 kPa | 52 bar
- No torque requirements for installation
- Full line of plain end fittings also available

Rubber-lined XL Couplings and Fittings

Victaulic® Extended Life (XL) 90° and 45° long radius elbows are specifically designed to allow for an additional ¼" | 6.4 mm of rubber lining thickness. When compared to industry standard rubber lined fittings, Victaulic XL fittings will extend the life of abrasive systems by up to 4 times longer.

Features and Benefits

- Reduces the need for scheduled maintenance
- Sizes 3–12" | DN80–DN600 1½D and 3D elbows
- Grooved systems do not compromise the lining during installation
- XL 77/79 and XL fittings are rated up to 1000 psi | 6985 kPa | 69 bar

Expansion Joints

Victaulic offers a variety of expansion joints to eliminate the need for multiple, space-consuming and expensive expansion loops.

Features and Benefits

- Reliable long life service
- Uses standard Victaulic OGS or AGS couplings to join to the rest of the system
- Style W256 Expansion Barrel provides up to 42" | 1067 mm in-line (axial) of movement from a single unit
- Style 155 and Style W155 expansion joints are a combination of flexible couplings and short nipples, made to spec to provide increased expansion
- Eliminates the need for large expansion loops
- Expansion joint solutions available from ¾–42" | DN20–DN1050

Mining Specialty Valves

Series 795 Knife Gate Valve Features and Benefits

The Series 795 is the industry's first in-line maintenance knife gate valve. All wear parts are contained in a single cartridge that can be replaced in-line in just minutes without the need to remove the valve from the pipeline.

- Removable cartridge provides in-line maintenance, saving 60% in maintenance costs and 95% in downtime
- Available in 3–12" | DN80–DN300 with pneumatic, hydraulic or manual actuation
- Pressures up to 150 psi | 1035 kPa | 10 bar

Series 725 Diverter Valve Features and Benefits

The Series 725 Diverter Valve is the first grooved end valve specifically designed for use on paste backfill lines. Providing 180° service, the Series 725 eliminates the need to re-position fill lines, reducing handling and leading to more efficient operations.

- Available in 6" | DN150 with electric, pneumatic or manual actuation
- Pressures up to 1000 psi | 6895 kPa | 69 bar

Grooved End Valves

Victaulic grooved end valves weigh ⅓ 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" | DN40–DN300 sizes; AGS groove valves available for systems from 14–24" | DN350–DN600

Long Radius 3D, 5D and 6D Bends

Long radius bends with grooved ends weigh substantially less than flanged bends and install in ⅓ 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

- Grooved end fittings can be lined for abrasive and/or corrosive services
- Pre-grooved 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
- Pressure rating matches the coupling used to install the elbow

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" | DN50–DN300 for pressures up to 350 psi | 2413 kPa | 24 bar
- System includes a repair coupling and transition couplings for PVC to HDPE and PVC to steel transitions and a ball and butterfly valve for on-off services

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 water, 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
- *Vic-Press* products install in a matter of seconds
- Sizes from ½–2" | DN15–DN50 for pressures up to 300 psi | 2068 kPa | 21 bar
- Complete system includes couplings, valves, fittings and hand-held pressing tool

Outlets

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
- Available with either grooved or female threaded outlets
- Sizes from 2–8" | DN50–DN200 for pressures up to 500 psi | 3447 kPa | 34 bar

Style 923 *Vic-Let* Strapless Outlet Features and Benefits

- Fast, easy-to-install outlet does not require a strap
- Fire hazard eliminated since no welding is required
- Available for 4" | DN100 and larger systems for pressures up to 300 psi | 2068 kPa | 21 bar

Style 924 *Vic-O-Well* Strapless Thermometer Outlet

- Fast, easy connection combines the features of a thermowell and strapless mechanical outlet
- Standard thread well dimensions make it ideal for a variety of industrial glass thermometers
- Available for 4" | DN100 and larger systems for pressures up to 300 psi | 2068 kPa | 21 bar

Style 72 Outlet Coupling Features and Benefits

- Coupling and outlet all in one component

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" | DN50–DN600
- Pressures up to 720 psi | 4964 kPa | 50 bar
- Two-piece hinged design eases installation

Fire Protection Systems

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

FireLock NXT Automatic Valve Systems Features and Benefits

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

FireLock Automatic Sprinklers Features and Benefits

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

Victaulic Vortex™ Systems

The *Victaulic Vortex* Fire Suppression System is designed to protect critical machine control rooms from costly clean up or equipment replacement in the event of a fire. The system is unique in that, unlike CO_2 foam and chemical systems, it can be safely discharged with people present in the discharge area. Comprised of a homogenous balance of water droplets and nitrogen gas, the system does not require post discharge cleanup and is easily recharged with minimal facility downtime.

Features and Benefits

The only hybrid nitrogen-water fire suppression system with:

- Nearly zero wetting of protected areas; no need for costly clean up or equipment replacement
- Green design that is safe for the environment and personnel
- Quick system recharge; minimal facility downtime
- No need for tight room integrity
- Turn-key systems available based upon customer requirements

Mining Speciality Products

For over 95 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.

- Style 926 *Mechanical-T* Spigot Assembly 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

Pipe Preparation Tools

Victaulic has been in the tool business since 1945, offering various solutions to prepare your pipe ends for joining systems together.

Roll Grooving Tools Features and Benefits

- Enhanced Tracking Rolls avoid pipe walk-off
- Available in manual, field and shop models
- Direct groove pipe sized ¾–72" | DN20–DN1800

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 ¾–24" | DN20–DN600

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 | 3447 kPa | 34 bar

Metal 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

Applications

Above Ground

Underground

Applications	Couplings													
	Style 177N Installation-Ready™ Flexible Coupling	Style 77 Flexible Coupling	Style 107N *Installation-Ready* Rigid Coupling	Style 07 Rigid Coupling	Style 741/743 *Vic-Flange* Adapter	Style 750 Reducing Coupling	Style 78 Snap-Joint™ Coupling	Style HP-70 Rigid Coupling	Style HP-70ES EndSeal™ Rigid Coupling	Style 99 *Roust-A-Bout* Coupling	Style 808 Double Groove Coupling	Style 809 Coupling for Ring Systems	Style SC77 *Installation-Ready* Shouldered Coupling	Style 905 HDPE Refuse-to-Fuse™ *Installation-Ready* Coupling
	06.20	06.02	06.21	06.04	06.06	06.08	06.09	06.12	06.13	14.02	15.01	15.02	16.10	19.07
Water Supply	●	●	●	●	●	●	●	●	●	●			●	●
Slurry	●	●					●	●	●	●		●	●	●
Tailings	●	●					●	●	●				●	●
Air Supply (compressed, instrument)	●	●	●	●	●	●	●	●						
Vacuum Systems	●	●	●	●			●	●	●					
Solutions (barren, pregnant, SO_2, soda ash)	●	●	●	●	●		●	●	●				●	
Chemical/Heap Leach (mains, spraying)	●	●	●	●			●	●						
Acids (cyanide, sulfuric)	●	●	●	●	●		●	●	●				●	
Flotation (air, oils, collectors)	●	●	●	●	●		●	●	●				●	
Slimes	●	●	●	●	●		●	●	●				●	
Reclaim Water	●	●	●	●	●	●	●	●	●	●			●	●
Air Supply (compressed, equipment)	●	●	●	●	●	●	●	●	●				●	
Water Supply	●	●	●	●	●	●	●	●	●	●			●	●
Sumpage/Dewatering Lines	●	●	●	●	●	●	●	●	●		●	●	●	●
Backfill/Paste Lines									●		●	●		●
Pump Stations	●	●	●	●	●	●	●	●	●	●			●	
Pressure Reducing Stations					●			●	●					
Dust Suppression	●	●	●	●		●	●	●						●
Fire Protection		●	●	●	●	●		●						●
Mine Cooling									●		●	●		

METAL MINE PIPING

Couplings

	Style 907 HDPE-to-Steel Coupling	Style 908 HDPE Double Grooved Coupling	Style 994 HDPE *Vic-Flange* Adapter	Style XL77 Flexible Coupling	Style XL79 Flexible Coupling	Style W07 AGS Rigid Coupling	Style W07 AGS Rigid Coupling with *Vic-Ring*	Style W77 AGS Flexible Coupling	Style W77 AGS Flexible Coupling with *Vic-Ring*	Style 44 *Vic-Ring* Coupling	Style W741 AGS *Vic-Flange* Adapter	Style W89 AGS Coupling for Stainless Steel	Style 89 Rigid Coupling for Stainless Steel and Carbon Steel	Style 77S Flexible Coupling for Stainless Steel	Style 489 Rigid Coupling for Stainless Steel
	19.10	19.09	19.04	07.07	07.07	20.02	16.11	20.03	16.12	16.05	20.04	20.15	17.24	17.03	17.25
	●	●	●			●		●			●	●	●	●	●
	●	●	●	●	●		●		●	●					
	●	●	●												
				●	●										
				●	●										
				●	●										
	●	●	●												
	●	●	●			●		●			●	●	●	●	●
	●	●	●												
	●	●	●	●	●										
						●		●			●				
	●	●	●												
	●	●	●												

Outlets

	Style 72 Outlet	Style 920 *Mechanical-T* Outlet	Style 923 *Vic-Let* Strapless Outlet	Style 924 *Vic-O-Well* Strapless Thermometer Outlet
	06.10	11.02	11.05	11.06
	●	●		
		●		
		●		
		●		
		●		
		●		
	●	●	●	●
	●	●		
	●	●		
		●	●	●
		●		
		●		

Metal 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

Applications

Above Ground

Underground

	Fittings								Valves/Strainers					
	Grooved End Fittings 07.01	Long Radius Bends (3D, 5D, 6D) Fittings 07.02	Rubber-lined XL Fittings 07.07	Plain End Fittings 14.04	HDPE Fittings 19.11	Shouldered Fittings 07.06	EndSeal™ (ES) Fittings 07.03	AGS Groove Fittings 20.05	Series 700 Butterfly Valve 08.05	Series 705 FireLock™ Butterfly Valve 10.81	Vic™-300 MasterSeal™ Butterfly Valve 08.20	*Vic*-300 AGS Butterfly Valve 20.06	Series 795 Knife Gate Valve 08.25	Series SC761 Shouldered Butterfly Valve 08.31
Water Supply	●	●		●	●	●	●	●	●		●	●		●
Slurry	●	●	●	●	●	●	●						●	●
Tailings	●	●			●	●	●						●	●
Air Supply (compressed, instrument)	●								●		●			
Vacuum Systems	●						●		●		●			
Solutions (barren, pregnant, SO_2, soda ash)	●	●				●	●		●		●			●
Chemical/Heap Leach (mains, spraying)	●	●	●			●			●		●			●
Acids (cyanide, sulfuric)	●					●	●		●		●			●
Flotation (air, oils, collectors)	●	●	●			●	●		●		●		●	●
Slimes	●	●	●			●	●		●		●		●	●
Reclaim Water	●	●		●	●	●	●		●		●			●
Air Supply (compressed, equipment)	●					●	●		●		●			●
Water Supply	●	●		●	●	●	●	●	●		●	●		●
Sumpage/Dewatering Lines	●	●			●	●	●		●		●			●
Backfill/Paste Lines		●	●		●		●							
Pump Stations	●	●		●		●	●	●	●		●	●		●
Pressure Reducing Stations	●	●					●							
Dust Suppression	●				●									
Fire Protection	●				●					●				
Mine Cooling							●							

Valves/Strainers

	Series 7S2L Shouldered Gate Valve	Series 721 Ball Valve	Series 725 Diverter Valve	Series 712 Swing Check Valve	Series 716/716H Check Valve	Series W715 AGS Dual Disk *Vic-Check* Valve	Series W709 AGS Butterfly Valve	Series 365 AWWA Vic™-Plug Valve	Series 730 Tee Strainer	Series W730 AGS Vic™-Strainer Tee	Series 732 Wye Strainer	Series W732 Vic™-Strainer Wye
	08.44	08.14	08.40	08.11	08.08	20.08	20.07	23.06	09.02	20.11	09.03	20.19
Series 7S2L Shouldered Gate Valve	08.44	●	●	●	●	●	●	●	●	●	●	●	●
Series 721 Ball Valve	08.14	●	●	●	●	●	●	●	●	●	●	●	●
Series 725 Diverter Valve	08.40	●	●	●									
Series 712 Swing Check Valve	08.11	●	●	●									
Series 716/716H Check Valve	08.08	●	●	●									
Series W715 AGS Dual Disk *Vic-Check* Valve	20.08	●	●	●									
Series W709 AGS Butterfly Valve	20.07	●	●	●									
Series 365 AWWA Vic™-Plug Valve	23.06	●	●	●									
Series 730 Tee Strainer	09.02	●	●	●									
Series W730 AGS Vic™-Strainer Tee	20.11	●	●	●									
Series 732 Wye Strainer	09.03	●	●	●									
Series W732 Vic™-Strainer Wye	20.19	●	●	●									

Expansion

	Style W256 Expansion Barrel	Style 155 Standard Expansion Joint	Style W155 AGS Expansion Joint
	09.16	09.05	20.12
Style W256 Expansion Barrel	09.16	●		
Style 155 Standard Expansion Joint	09.05		●	●
Style W155 AGS Expansion Joint	20.12		●	●

Tools

	Roll Grooving	Cut Grooving	Hole Cut
	24.01	24.01	24.01
Roll Grooving	24.01	●	●	●
Cut Grooving	24.01	●	●	●
Hole Cut	24.01	●	●	●

Specialty

	Series 926 *Mechanical-T* Spigot Assembly	No. 36 *Vic-Blast* Nozzle	Vic-Press™ 304/316 Plain End Stainless Steel	Aquamine™ Reusable PVC System
	11.07	07.05	18.11 18.12	50.01
Series 926 *Mechanical-T* Spigot Assembly	11.07	●			
No. 36 *Vic-Blast* Nozzle	07.05		●		
Vic-Press™ 304/316 Plain End Stainless Steel	18.11 18.12		●	●	
Aquamine™ Reusable PVC System	50.01		●	●	●

Fire Protection

	FireLock NXT™ Automatic Valve Systems	FireLock™ Automatic Sprinklers	Victaulic Vortex™ 500/1000/1500
	31.80 31.81	G-105	70.01 70.02 70.03
FireLock NXT™ Automatic Valve Systems	31.80 31.81	●	●	●
FireLock™ Automatic Sprinklers	G-105	●	●	●
Victaulic Vortex™ 500/1000/1500	70.01 70.02 70.03	●	●	●

ABOVE GROUND

METAL MINE APPLICATIONS

TAILINGS PONDS

The Style 926 mining spigot is an easy-to-install outlet for tailing pond feeds. Strapped on to the outside diameter of the main tailings line, the Style 926 provides a grooved carbon steel outlet to easily continue the system in grooved steel components or incorporate a valve for on/off service.

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 applications 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 steel 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

METAL MINE APPLICATIONS

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.

BACKFILL PASTE SYSTEMS

The Series 725 diverter valve is the first grooved end valve specifically designed for use on paste backfill lines. Providing 180° service the Series 725 eliminates the need to re-position fill lines reducing handling and leading to more efficient operations.

PUMPING STATION

From high pressure single lift pumps to multi-stage pumping stations Victaulic has couplings, fittings, valves and strainers to provide a single source solution that meet a range of pressure requirements.

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 4000 psi | 27579 kPa | 275 bar 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

Applications

Above Ground

Underground

	Couplings													
	Style 177N Installation-Ready™ Flexible Coupling	Style 77 Flexible Coupling	Style 107N *Installation-Ready* Rigid Coupling	Style 07 Rigid Coupling	Style 741/743 *Vic-Flange* Adapter	Style 750 Reducing Coupling	Style 78 Snap-Joint™ Coupling	Style HP-70 Rigid Coupling	Style HP-70ES EndSeal™ Rigid Coupling	Style 99 *Roust-A-Bout* Coupling	Style 808 Double Groove Coupling	Style 809 Coupling for Ring Systems	Style SC77 *Installation-Ready* Shouldered Coupling	Style 905 HDPE Refuse-to-Fuse™ *Installation-Ready* Coupling
	06.20	06.02	06.21	06.04	06.06	06.08	06.09	06.12	06.13	14.02	15.01	15.02	16.10	19.07
Cyclone Piping, Bends	●	●	●	●	●		●	●	●				●	
Slurry	●	●			●		●	●	●			●	●	●
Tailings	●	●					●	●	●			●	●	●
Water Supply	●	●	●	●	●	●	●	●	●	●			●	●
Clarifier Piping	●	●	●	●	●		●	●	●				●	●
Flotation (air, oils, collectors)	●	●	●	●	●		●	●	●				●	
Pump Stations	●	●	●	●	●	●	●	●	●	●			●	
Conveyor Dust/Fire Suppression	●	●	●	●	●	●	●							●
Fire Protection		●	●	●	●	●								●
Wastewater	●	●	●	●		●								●
Pressure Reducing Stations	●	●	●	●	●			●	●					
Water Supply	●	●	●	●	●		●	●	●	●			●	●
Sumpage/Dewatering Lines	●	●	●	●	●		●	●	●				●	●
Air Supply	●	●	●	●	●		●	●	●				●	
Pump Stations	●	●	●	●	●		●	●	●	●			●	
Dust Suppression	●	●	●	●			●	●						●
Fire Protection		●	●	●	●			●						●

COAL MINE PIPING

Couplings																	Outlet			
	19.10	19.09	19.04	07.07	07.07	20.02	16.11	20.03	16.12	16.05	20.04	20.15	17.24	17.03	17.25		06.10	11.02	11.05	11.06
	Style 907 HDPE-to-Steel Coupling	Style 908 HDPE Double Grooved Coupling	Style 994 HDPE *Vic-Flange* Adapter	Style XL77 Flexible Coupling	Style XL79 Flexible Coupling	Style W07 AGS Rigid Coupling	Style W07 AGS Rigid Coupling with *Vic-Ring*	Style W77 AGS Flexible Coupling	Style W77 AGS Flexible Coupling with *Vic-Ring*	Style 44 *Vic-Ring* Coupling	Style W741 AGS *Vic-Flange* Adapter	Style W89 AGS Coupling for Stainless Steel	Style 89 Rigid Coupling for Stainless Steel and Carbon Steel	Style 77S Flexible Coupling for Stainless Steel	Style 489 Rigid Coupling for Stainless Steel		Style 72 Outlet	Style 920 *Mechanical-T* Outlet	Style 923 *Vic-Let* Strapless Outlet	Style 924 *Vic-O-Well* Strapless Thermometer Outlet
				●	●													●		
	●	●	●	●	●	●		●												
	●	●	●				●		●	●										
	●	●	●								●	●	●	●	●		●	●	●	●
	●	●	●	●	●															
																		●		
																	●	●	●	●
	●	●	●															●		
	●	●	●															●		
	●	●	●	●	●						●									
	●	●	●			●		●			●	●	●	●	●		●	●	●	●
	●	●	●																	
																		●		
						●		●			●						●	●	●	●
	●	●	●															●		
	●	●	●															●		

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

Applications

	Fittings								Valves/Strainers					
	Grooved End Fittings 07.01	Long Radius Bends (3D, 5D, 6D) Fittings 07.02	Rubber-lined XL Fittings 07.07	Plain End Fittings 14.04	HDPE Fittings 19.11	Shouldered Fittings 07.06	EndSeal™ (ES) Fittings 07.03	AGS Groove Fittings 20.05	Series 700 Butterfly Valve 08.05	Series 705 FireLock™ Butterfly Valve 10.81	Vic™-300 MasterSeal™ Butterfly Valve 08.20	*Vic*-300 AGS Butterfly Valve 20.06	Series 795 Knife Gate Valve 08.25	Series SC761 Shouldered Butterfly Valve 08.31
Above Ground														
Cyclone Piping, Bends	●	●	●			●	●		●		●		●	●
Slurry	●	●	●		●	●	●	●					●	●
Tailings	●	●			●	●	●						●	●
Water Supply	●	●		●	●	●	●		●		●	●		●
Clarifier Piping	●	●	●		●	●	●		●		●			●
Flotation (air, oils, collectors)	●	●				●	●		●		●		●	●
Pump Stations	●	●		●		●	●		●		●			●
Conveyor Dust/Fire Suppression	●				●									
Fire Protection	●				●					●				
Wastewater	●		●		●									
Underground														
Pressure Reducing Stations	●						●							
Water Supply	●	●		●	●	●	●	●	●		●			●
Sumpage/Dewatering Lines	●	●			●	●	●		●		●			●
Air Supply	●					●	●		●		●			●
Pump Stations	●	●		●		●	●	●			●			●
Dust Suppression	●				●									
Fire Protection	●				●					●				

Valves/Strainers														Expansion			Tools			Specialty				Fire Protection		
08.44 Series 7S2L Shouldered Gate Valve	●																									
08.14 Series 721 Ball Valve	●	●																								
08.40 Series 725 Diverter Valve																										
08.11 Series 712 Swing Check Valve				●																						
08.08 Series 716/716H Check Valve				●	●																					
20.08 Series W715 AGS Dual Disk *Vic-Check* Valve				●	●	●																				
20.07 Series W709 AGS Butterfly Valve				●	●	●	●																			
23.06 Series 365 AWWA Vic™-Plug Valve		●		●	●	●	●	●																		
09.02 Series 730 Tee Strainer				●	●	●	●	●	●																	
20.11 Series W730 AGS Vic™-Strainer Tee				●	●	●	●	●	●	●																
09.03 Series 732 Wye Strainer				●	●	●	●	●	●	●	●															
20.19 Series W732 Vic™-Strainer Wye				●	●	●	●	●	●	●	●	●														
09.16 Style W256 Expansion Barrel	●	●	●					●						●												
09.05 Style 155 Standard Expansion Joint				●	●	●	●	●	●	●	●	●		●	●											
20.12 Style W155 AGS Expansion Joint				●	●	●	●	●	●	●	●	●		●	●											
24.01 Roll Grooving																	●	●	●							
24.01 Cut Grooving	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●							
24.01 Hole Cut																	●	●	●							
11.07 Series 926 *Mechanical-T* Spigot Assembly																				●						
07.05 No. 36 *Vic-Blast* Nozzle																					●					
18.11 Vic-Press™ 304/316 Plain End Stainless Steel																						●				
18.12																										
50.01 Aquamine™ Reusable PVC System																							●			
31.80 FireLock NXT™ Automatic Valve Systems																								●		●
31.81																										
G-105 FireLock™ Automatic Sprinklers																								●		●
70.01 Victaulic Vortex™ 500/1000/1500																								●		●
70.02																										
70.03																										

ABOVE GROUND

COAL MINE APPLICATIONS

TAILINGS LINES

Coal tailings are extremely abrasive and need innovative piping solutions to support frequently scheduled maintenance of the line. Victaulic® Refuse-to-Fuse™ couplings for HDPE pipe provide a union at every joint, up to 10× faster assembly than butt fusion, and installation in any weather conditions. Victaulic Series 795 knife gate valve allows for in-line maintenance, reducing downtime by as much as 95% when compared to alternative knife gate valves.

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.

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 while the Victaulic Series 795 knife gate valve provides fast, in-line maintenance that can result in up to a 95% reduction in downtime.

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.

SPECIAL HAZARD FIRE SUPPRESSION

Victaulic Vortex™ systems protect critical machine control rooms from costly clean up or equipment replacement in the event of a fire. Its green design makes it safe for the environment and personnel even during system activation allowing quick system recharge and minimal facility downtime.

System works the same in both open or closed spaces. Each system provides calibrated performance for the size of the space it is protecting.

UNDERGROUND

COAL MINE APPLICATIONS

EQUIPMENT WATER SUPPLY

Victaulic® has multiple solutions for providing supply water. With the Victaulic steel pipe system, you have the advantages of no loose parts with Installation-Ready™ couplings and a full line of valves for on/off and dead-end service. Where you need to move and redeploy pipe, the 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.

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.

SPANNING THE GLO

MINING PROJECTS

GARSON MINE
Garson, Ontario, Canada

Application: Backfill paste line
Solution: Victaulic® Style 808 double groove coupling for high pressure systems

MILLER CREEK MINE
Logan, West Virginia

Application: Machine control room
Solution: Victaulic Vortex™ Fire Suppression System will protect expensive machine control room equipment from fire damage

SIERRITTA 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

FRASER ALEXANDER MINE
Randfonein, South Africa

Application: Water transmission lines
Solution: Victaulic large diameter (AGS) couplings reduced installation time by 2/3 compared to flanging; flexible couplings were installed to accommodate system deflection due to rough terrain

BE

BRAUNKOHLEBAGGER MINE
Garzweilwer, Germany

Application: Fire Protection system
Solution: For the retrofit of a 20 year-old brown coal excavator, Victaulic galvanized couplings were chosen for speed of installation and rubber gasket components that provided vibration attenuation within the piping system

CAYELLI COPPER MINE
Rize City, Turkey

Application: Fire Protection system
Solution: Victaulic® grooved couplings speed and ease of installation for fire protection systems

JINCHUAN NICKEL MINE
Jinchang, Gansu, China

Applications: Pastefill system
Solution: Victaulic Series 725 diverter valve was installed on a high concentration pastefill line, providing 180° service and eliminating the need to reposition fill lines

MT. ISA MINES JAMESON CELL UPGRADE
Mt. Isa, Queensland, Australia

Application: Mineral Processing Chemicals **Solution:** Victaulic Vic-Press® Grade HNBR seals provided a single-product solution for a range of harsh processing chemicals including dextrin, sodium cyanide as well as process air and water lines, utilizing standard Schedule 10S pipe

CASE STUDIES

Mina Aguablanca

In June 2010, Rio Narcea Recursos and Lunding Mining finished the first phase of the expansion and upgrade of the piping system in the open pit Aguablanca nickel-copper mine, located in Spain.

To have an easy and fast installation, Rio Narcea Recursos and Lunding Mining employed Victaulic® products in their tailing and rewash nickel lines. Another reason why they opted for Victaulic, is to provide easy accessibility for maintenance and ease system expansion at a later stage, thus reducing future system downtime.

Replacing their traditional system with the Victaulic piping system, enabled the mine to stay operational, with cost-efficient, easy and speedy transitions from one system to another. Installing Victaulic couplings, like Style 995 plain-end couplings and Style 77 flexible couplings, also allows them to reduce system downtime and save time during daily and scheduled maintenance.

Kidd Creek Mine

Kidd Creek Mine is a leading producer of copper, zinc, and other base metals since 1966. With a current depth of 9,100 ft | 2,774 m a solution was required to ensure underground process water is distributed throughout the mine at reasonable working pressures.

To meet this need, 12 Victaulic Pressure Reducing Valve (PRV) assemblies were installed complete with strainers and 4" | DN100 Style 726 ball valves to isolate and protect the systems. The units were prefabricated off-site to allow for fast on-site installation. The couplings and fittings were galvanized to ensure against corrosion. In addition to the PRV assemblies, Kidd Creek has utilized Victaulic products on multiple systems over the years for their ease and speed of installation and their ability to minimize downtime during scheduled maintenance.

Victaulic® products can be found across the globe in a wide variety of mining applications and in all types of mines. Here are just a few examples of how Victaulic technologies have solved some of mining's toughest challenges.

For a complete list of references please visit the mining solutions page on victaulic.com.

Goldcorp Red Lake

To improve productivity, Goldcorp had interest in automating their paste backfill operations. At the time, directing paste to needed areas was done manually, and required two miners to go to multiple underground paste transfer stations and move a heavy Schedule 80 5D elbow to redirect flow. Labor-intensive and timing consuming, this process could take up to one full day.

In response to Goldcorp's needs, Victaulic created the first grooved end valve specifically designed for use on paste backfill lines – the Series 725 diverter valve. Providing 180° service, the valve greatly reduced the effort involved to re-position the paste backfill lines. With a rugged ductile iron body and a 5D bend profile the valve ensures smooth, continuous flow and durable, reliable service to 1000 psi | 6895 kPa | 69 bar.

Following the successful installation of two Victaulic diverter valves with gear operators in 2013, Goldcorp added five more valves in 2014, equipped with electric actuators to enable fully automated control by operators from a remote control room. Faster and safer, this Victaulic solution allows Goldcorp to backfill efficiently and move to new production areas quicker.

Fraser Alexander Mine Dumps

When retrofitting the 8" | DN200 high pressure water lines in the Fraser Alexander Mine, owners, AngloGold went looking for a solution that allows them to easily add and remove pipes to and from the system.

The Victaulic Style SC77HP high pressure shouldered coupling is especially designed for mine dump and waste solutions and with a pressure rating up to 725 psi | 4998 kPa | 50 bar, it could easily handle the high operating pressure of the water lines. Because the piping system continuously needs to be replaced to accommodate the location of the water cannons, AngloGold also needed a solution that allows for easy system assembly and dismantling.

This is exactly what the Style SC77HP coupling provides. The coupling design allows to easily remove a piece of 9 meter long pipe from the middle of the line by taking the housing apart, rolling the gasket over one pipe end creating the space necessary to roll the free pipe away from the others and not having to pull the surrounding pipes in any direction.

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