

SCOPE OF WORK

WASTEWATER TREATMENT PLANT



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 joints

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

Wastewater Treatment Plant Scope of Work

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.

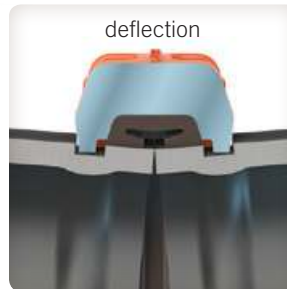
VICTAULIC GROOVED END PIPING SYSTEMS PROVIDE:



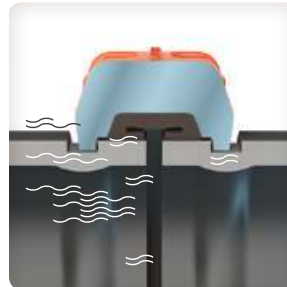
Easy system maintenance and expansion – through simple coupling disassembly that allows for easy access.



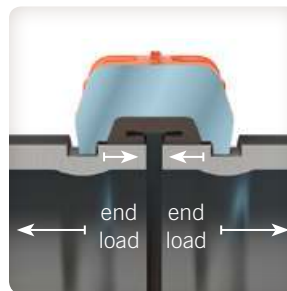
Alignment ease – through a design that allows for full rotation of the pipe and system components before tightening.



Flexibility – with the inherent axial movement and deflection properties of flexible joints in a groove system. Flexible couplings 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 – Rigid joints clamp between the two pipe ends, resisting torsional and flexible loads.

GROOVE VS. FLANGE

REDUCING WEIGHT AND SAVING SPACE



Space requirements

Problem: Confined spaces

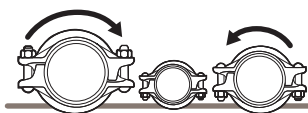
Solution: Grooved couplings have a smaller product profile than flanged components. Couplings can be rotated 360 degrees to ease installation.

Compressed schedules

Problem: Schedule overruns

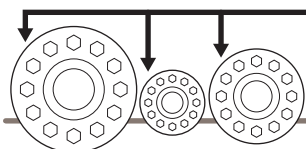
Solution: With far fewer bolts and nuts than a flanged joint, installation time can be dramatically reduced.

End view
grooved pipe gallery



Can be rotated
for easy installation

End view
flanged pipe gallery



Rear bolts and nuts
are inaccessible



Grooved



Flanged

WHY IS THIS IMPORTANT?

Flanges are considerably larger than grooved mechanical couplings. This makes installation and maintenance much harder in tight spaces.

WHY IS THIS IMPORTANT?

Victaulic installs faster and reduces downtime during retrofits and repairs, saving you money on labor and resource costs. Victaulic couplings ship with the appropriate nuts, bolts and gaskets, simplifying ordering and part location on a jobsite.

“ONE OF THE BENEFITS OF VICTAULIC FLEXIBLE COUPLINGS IS THAT THEY OFFER EXCELLENT VIBRATION ATTENUATION COMPARED WITH FLANGING.”

Willem van Koningsbruggen,
Superintendent for Smit International



Weight Constraints

Problem: Heavy system components

Solution: Lighter weight mechanical pipe-joining technique



Grooved

Flanged

WHY IS THIS IMPORTANT?

Flanged systems are nearly double the weight of grooved solutions. This not only makes installation more difficult and time consuming but adds a significant amount of weight to hanging requirements and supports.



THE FACILITY

4



SECONDARY TREATMENT

Victaulic secondary treatment solutions offer corrosion resistance, easy system access, and thermal movement accommodation, without the need for pickling and passivation creating a secondary treatment piping system that can withstand any environment.



3



PRIMARY TREATMENT

Victaulic products used in the primary treatment process offer fewer bolts and nuts than flanges, heat-free installation (eliminate this, since flanged systems don't require any heat), and easy access to the system, allowing for faster system maintenance, and multiple solutions for chemical feeds.



2



PRELIMINARY TREATMENT

This vital separation of large debris prevents plant damage, equipment failure, increased chemical usage, or blocked water flow in pipes which could all slow water treatment. Victaulic preliminary treatment solutions allow easy access to the piping system, quick maintenance; full port plug valves and glass lined product options minimize clogs in the piping.



5



TERTIARY TREATMENT

Victaulic tertiary treatment solutions offer high pressure couplings and long radius glass lined fittings, which allow for easy system access to clear any blockages in the line and faster installation from fewer bolts and nuts than flanged.

6



MONITORING AND TESTING

Victaulic monitoring and testing solutions offer a fire suppression system that offers nearly zero wetting, allowing your system to continue running.



1



INFLUENT PUMP STATION

Used to transport water to the plant for treatment, these facilities are crucial elements in the process and rely on Victaulic's reliability, space savings and ease of maintenance.

OWNER/ ENGINEER

CONCERNS FOR THE WASTE WATER TREATMENT PLANT:

	INFLUENT PUMP STATION	PRELIMINARY TREATMENT	PRIMARY TREATMENT	SECONDARY TREATMENT	TERTIARY TREATMENT	MONITORING AND TESTING
Reliability The Victaulic system for mechanically joining pipe has been used for nearly 100 years to simplify design, construction and maintenance of water and wastewater treatment piping systems.	●	●	●	●	●	●
Space Savings Victaulic couplings require little space along the pipe as bolts can be assembled from either side.	●	●	●	●	●	
Attenuation of Vibration Victaulic Style 31 couplings, assembled with flexible radius cut grooved AWWA ductile iron pipe, permit controlled pipe movement within the coupling while maintaining a positive seal and self-restrained joint.	●	●	●	●	●	
Thermal Expansion and Contraction Victaulic flexible grooved couplings utilize their linear movement and deflection capabilities to accommodate for pipe movement due to temperature changes.				●		
Self-restraining Victaulic couplings require no special restraints or tie-bars as with compression coupling and mechanical joints.	●	●	●	●	●	
System Accessibility With 75% fewer bolts and nuts than flanges, Victaulic couplings are easy to assemble and disassemble. This ease of disassembly allows you to have immediate access to your valves or system.	●	●	●	●	●	

CONTRACT

INFLUENT PUMP STATION	PRELIMINARY TREATMENT	PRIMARY TREATMENT	SECONDARY TREATMENT	TERTIARY TREATMENT	MONITORING AND TESTING
●	●	●	●	●	●
●	●	●	●	●	
●	●	●	●	●	
●	●	●	●	●	

CONCERNS FOR THE WASTE WATER TREATMENT PLANT:

Faster Assembly

Victaulic couplings have up to 75% fewer bolts than flanges, compression couplings or mechanical joints.

Lighter Weight

Victaulic couplings save up to 1/3 the weight of flanged joints – segmented design further eases handling, alignment and assembly.

Saves Space

Victaulic couplings require little space along the pipe as bolts can be assembled from either side of pipe.

Installation

Victaulic couplings can be rotated for ease of installation anywhere in the piping system. Victaulic couplings required.



Victaulic Style 31 couplings, assembled with flexible radius cut grooved AWWA ductile iron pipe, permit controlled pipe movement within the coupling while maintaining a positive seal and a self-restrained joint. Placing the Style 31 couplings in close proximity to the mechanical equipment attenuate system vibration.

VICTAULIC® PRODUCTS

	INFLUENT PUMP STATION	PRELIMINARY TREATMENT	PRIMARY TREATMENT	SECONDARY TREATMENT	TERTIARY TREATMENT	MONITORING AND TESTING
Style 31 Couplings	●	●	●			
Style 307 Transition Couplings	●	●	●			
Series 365 Plug Valves	●	●	●			



Style 31 Couplings

- Fewer bolts and nuts than flange offers a faster installation and easier maintenance
- Flexible cut groove option attenuates vibration around equipment, eliminating the need for flex connectors.
- Rigid cut groove option allows grooved systems to be hung the same as a flange system



Style 307 Transition Couplings

- Provides a direct, single coupling connection for grooved end IPS steel pipe, valves or fittings to grooved end AWWA ductile iron pipe, valves or fittings of the same nominal size.
- Offers rigidity from the angle-pad design that allows the housings to offset while clamping to the grooves.
- Contain assembly lugs by each bolt pad to aid proper positioning of AWWA-to-AWWA and IPS-to-IPS sides of the housings.



Series 365 Plug Valves

- Designed with a circular port offering greater flow than rectangular port valves of the same size
- Smaller profile than flanged valves, creates more space for piping in small areas
- Grooved ends eliminates the need for dismantling joints

INFLUENT PUMP STATION	PRELIMINARY TREATMENT	PRIMARY TREATMENT	SECONDARY TREATMENT	TERTIARY TREATMENT	MONITORING AND TESTING
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Series 317 Check Valves

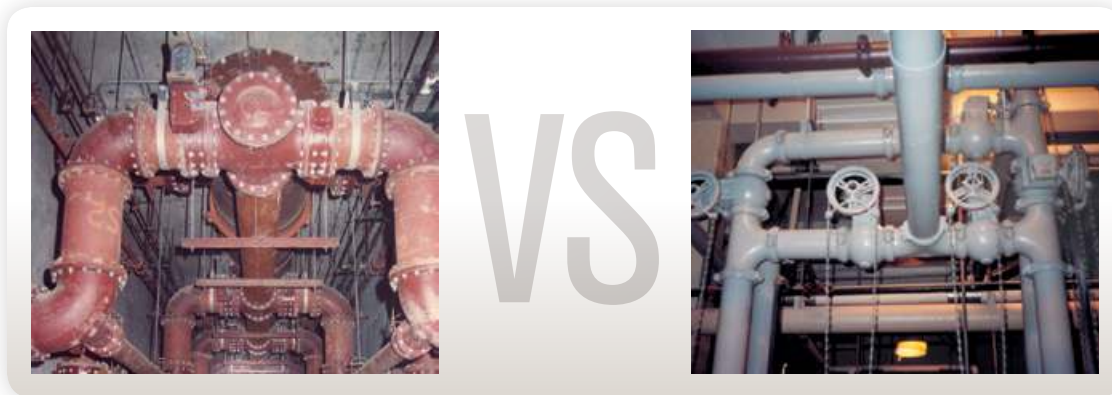
- Grooved cap on top of valve allows for easy clean out
- Smaller profile than flanged valves, creates more space for piping in small areas.
- Grooved ends eliminate the need for dismantling joints







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AWWA Grooved Fittings (G606)

- Fewer bolts and nuts than a flange allow for faster installation and easier maintenance
- The light weight of Victaulic fittings, increases job site safety, eases installation and offers easier maintenance
- Fitting grooved ends offer a smaller profile than flanged fittings, which allow for more pipe to be installed in small locations



VICTAULIC® PRODUCTS

	INFLUENT PUMP STATION	PRELIMINARY TREATMENT	PRIMARY TREATMENT	SECONDARY TREATMENT	TERTIARY TREATMENT	MONITORING AND TESTING
 <p>Victaulic HDPE System Solutions</p> <ul style="list-style-type: none"> • HDPE solutions including the new 905 and 907 Plain end mechanical pipe joints to eliminate the need for traditional butt fusing. • Installs by assembling bolts and nuts, allowing HDPE to be joined on any job sit in any weather condition 		●				
 <p>Series 908 Couplings for HDPE</p> <ul style="list-style-type: none"> • Double groove end design for highest performance service • Ready for immediate use with no heating or cooling time needed • Visual confirmation of correct installation when coupling housings are pad-to-pad 		●				
 <p>Style 997 Transition Couplings</p> <ul style="list-style-type: none"> • Grooved by plain end HDPE mechanical connection allows easy install and/or removal of valves and equipment on HDPE pipe 		●				
 <p>Style 489 Rigid Couplings</p> <ul style="list-style-type: none"> • System maintenance; only two nuts/bolts to access equipment/valves • Same support spacing requirements as welded • Value engineering; more maintainable/reliable system • Visual joint confirmation • Easy and fast installation 			●	●		



Victaulic HDPE System Solutions

- HDPE solutions including the new 905 and 907 Plain end mechanical pipe joints to eliminate the need for traditional butt fusing.
- Installs by assembling bolts and nuts, allowing HDPE to be joined on any job sit in any weather condition



Series 908 Couplings for HDPE

- Double groove end design for highest performance service
- Ready for immediate use with no heating or cooling time needed
- Visual confirmation of correct installation when coupling housings are pad-to-pad



Style 997 Transition Couplings

- Grooved by plain end HDPE mechanical connection allows easy install and/or removal of valves and equipment on HDPE pipe



Style 489 Rigid Couplings

- System maintenance; only two nuts/bolts to access equipment/valves
- Same support spacing requirements as welded
- Value engineering; more maintainable/reliable system
- Visual joint confirmation
- Easy and fast installation



INFLUENT PUMP STATION	PRELIMINARY TREATMENT	PRIMARY TREATMENT	SECONDARY TREATMENT	TERTIARY TREATMENT	MONITORING AND TESTING
		●	●		
			●		
		●	●		
		●	●		

Style 77S Flexible Couplings

- Accommodates thermal expansion and contraction
Provides flexibility for vibration attenuation around pumps/equipment, seismic movement accommodation, systems stress relief, deflection, and misalignment
- System maintenance; only two nuts/bolts to access equipment/valves



Stainless Steel Fittings

- Grooved ends; easy access and less downtime
- Designed specifically for use in grooved piping systems
- Allow fast installation without field preparation
- Eliminate the safety hazards and concerns associated with welding stainless steel



Vic-Press™ For Schedule 10S Stainless Steel Type 304 or 316

- Fast, easy, leak-proof means for joining stainless steel pipe
- No flame or arc required as with welding
- Eliminates the need to field weld stainless steel
- Schedule 10 versus schedule 40 pipe provides significant cost savings



Series 461 Stainless Steel Butterfly Valves

- Offset disc design provides reduced torque (up to 35%), greater flow coefficient, and reduced wear on the seal
- Grooved ends eliminate air leaks at valve connections
- Proven reliability, longer life than conventional valves
- Lightweight for easier handling and installation



VICTAULIC® PRODUCTS

INFLUENT PUMP STATION	PRELIMINARY TREATMENT	PRIMARY TREATMENT	SECONDARY TREATMENT	TERTIARY TREATMENT	MONITORING AND TESTING
				●	
				●	
					●



Series HP-70 and HP-808/809 High Pressure Couplings

- 1000 psi | 6895 kPa | 69 bar pressure rating designed for high pressure applications
- Fewer bolts and nuts than flange allows for faster installation and easier maintenance
- Offers rigidity removing flex, swivel and sag



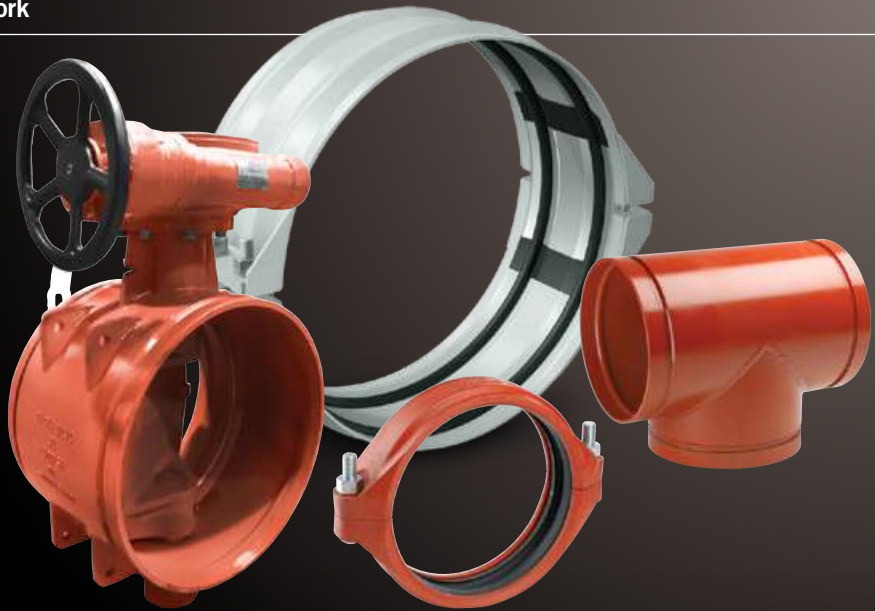
Long Radius Glass Lined Fittings

- Grooved ends; easy access and less downtime
- Designed specifically for use in grooved piping systems
- Allow fast installation without field preparation
- Elongated bend to allow for dense media to pass through with ease



Victaulic Vortex™ Fire Suppression Systems

- Ideal for protection of control/computer rooms, switch gear, turbine enclosures, chemical storage and other special hazards
- 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 assurance of tight room integrity



INFLUENT PUMP STATION	PRELIMINARY TREATMENT	PRIMARY TREATMENT	SECONDARY TREATMENT	TERTIARY TREATMENT	MONITORING AND TESTING
●			●		
●			●		
●			●		
●			●		

Advanced Groove System (AGS)

- Fewer bolts and nuts than flange allows for faster installation and easier maintenance
- Available in rigid and flexible options
- Joins pipe 14–96" | 350–2400 mm and larger
- Better than traditional sleeve couplings for dismantling joints around valves, meters, equipment, etc.



AGS Butterfly Valve

- Less weight than multi-bolt wafer or lug type flanged valves, increases job site safety, eases installation and offers easier maintenance
- Fewer bolts and nuts than flange allows for faster installation and easier maintenance
- Available in 14–24" | 350–600 mm



AGS Fittings

- Fewer bolts and nuts than flange allow for faster installation and easier maintenance
- The reduced weight, compared to flanged fittings, increases job site safety and eases installation
- Smaller profile than flanged fittings, which allows for more pipe to be installed in small locations



Victaulic Bolted Split Sleeve Couplings (VBSP)

- Restrained couplings eliminate the need for external harnessing
- Joins pipe using as few as three bolts and nuts allowing a faster install time than 52 bolt and nut sleeve-type couplings
- Available for pipe 8–206" | 200–5150 mm and larger
- Available for pressures up to 400 psi | 2758 kPa





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