

Typical Specifications
Grooved Piping Method

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Victaulic Company of America, Attn.: Technical Services, P.O. Box 31, Easton, PA 18044-0031, and request:
"Victaulic[®] Guide Specification."**

GROOVED PIPING METHOD

(CSI-Div. 15, Sect. 15050, Sect. A - Information, Methods and Instructions)

Mechanical grooved pipe couplings, fittings, butterfly, ball and check valves, expansion joints, Mechanical-T[®]'s, and other products as manufactured and/or supplied by Victaulic Company of America, shall be used for piping systems and mechanical equipment connections (in lieu of welded, flanged and threaded methods) (and also may be used as unions, seismic joints, flexible connections, expansion joints, expansion compensators, vibration reducers) in systems specified. Operating conditions not to exceed -30°F to +230°F (-34°C to +110°C) temperature range according to the gasket or valve lining selected and working pressures as shown in the coupling manufacturer's current product specifications, for the following systems, as detailed under specific systems specifications (subject to local code approval):

The contractor, at his option, may use Victaulic grooved piping products in lieu of welded, flanged or threaded joints, fittings and valves within their pressure and temperature range on all circulating water systems, installed using manufacturer's recommendations as shown in their latest General Catalog, Piping Design Manual (G-100) or Pocket Handbook (I-100).

Building Services

PLUMBING		HEATING & AIR CONDITIONG		FIRE PROTECTION		OTHER	
	Domestic Hot Water		Chilled Water		Wet Standpipe		Air
	Domestic Cold Water		Condenser Water		Dry Standpipe		Vacuum
	Roof Drains		Cooling Tower		Automatic Sprinklers		Elevator Hydraulic
	Storm Drains		Machinery Room		Water Supply		
	Sanitary Drains (DWV)		Heating Hot Water		Special Hazards		
			Utility Water		Halon 1301		
			Glycol				

Water/Waste Treatment Services

	Sludge		Chemical Feed		Filter Lines
	Scum		Raw Water		Effluent
	Spray Water		Wash Water		Grit
	Air		Treated Water		

Industrial Services

	Air		Process (refer to Victaulic Gasket Selection Guide)
	Water		Process waste treatment (refer to Victaulic Gasket Selection Guide)
	Lubrication		
	Materials Conveyors		

Mining, Oilfield and Power Plant Services

MINING		POWER PLANT		OILFIELD	

SECTION 1 VIC/GUIDE SPEC™

VICTAULIC PRODUCT SPECIFICATIONS

Introduction – This Victaulic product specification was developed as a guide for writing detailed piping specifications that address specific project requirements. Any references made regarding service applications, product usage, and installation practices, must be verified with the latest Victaulic product literature. Contact Victaulic for information regarding specific applications not addressed in this guide.

Complete and submit the Vic/Guide Spec request form behind this printed specification to receive your *free* diskette.

CAUTION

Use Vic/Guide Spec for selecting and specifying only Victaulic products. Due to unique Victaulic product characteristics, Victaulic specifications, noted herein, are not interchangeable with other grooved products. Use of incompatible products may result in personal injury or property damage.

NOTICE

Victaulic Company of America maintains a continual policy of product improvement and, therefore, reserves the right to change product specifications, designs and all data contained herein without notice and without incurring obligation.

The material presented in VIC/GUIDE SPEC is intended as a reference guide for the utilization of Victaulic products and is not intended for design purposes.

Good piping practices should always prevail. Specific pressures, temperatures, external or internal loads, performance standards and tolerances must never be exceeded.

Many applications require recognition of special conditions, code requirements and use of safety factors. Qualified engineers must make these decisions and should refer to Victaulic Design Data and Gasket Selection (publications 26.01 & 05.01) available at no charge on request.

While every effort has been made to ensure its accuracy, Victaulic Company of America, its subsidiaries and affiliated companies, make no express or implied warranty of any kind respecting the information contained in VIC/GUIDE SPEC or the materials referred to therein. Anyone making use of the information or material contained herein does so at his own risk and assumes any and all liability resulting from such use.

1.0 Victaulic Product Service Applications

1.1 General – Victaulic piping products generally are designed for above/below ground applications in 150# and 300# ANSI class piping systems except steam at -30°F to +230°F (-34°C to +110°C) temperatures using standard Victaulic EPDM gasket material. Other special gasket materials are available for most special applications. Refer to latest published Victaulic literature for design data pertaining to pressure and temperature ratings and other design characteristics of Victaulic products.

The following are typical service applications for Victaulic products categorized by specific industries. This is not a complete list of Victaulic product usage. Please contact Victaulic Company regarding any questions involving Victaulic product capability to meet piping system service conditions not outlined in Victaulic literature.

1.2 Building Service Piping Systems –

HVAC: Air Lines; Chilled Water; Condenser Water; Glycol; Hot Water Heating; Make-up Water; Vacuum Lines.

Plumbing: Domestic Hot and Cold Water; Roof Drains; Sanitary Drains (DWV); Storm Drains.

Fire Protection: Automatic Sprinklers - Wet and Dry; CO₂, FM-200 and Halon Systems; Fire Standpipe - Wet and Dry; Special Hazards; Water Supply.

1.3 Municipal Piping Systems – Air Flotation Effluent; Applied Water; Backwash Water; Biofilter Circulation; Biofilter Effluent; Centrate; Centrifuge Feed; Chilled Water; Circulating Sludge; Digested Sludge; Drain; Equalized Sludge; Filtered Water; Filtrate; Float; Flotation Sludge; Grit; Medium Pressure Sludge Gas; Mixed Liquor; Mixed Sludge; No. 3 Water (Secondary Effluent); Nonpotable City Water; Overflow; Potable Soft Water; Potable Water (City Water); Pressurized Flow; Primary Effluent; Primary Scum; Primary Sludge; Pumped Drainage; Raw Sewage; Raw Water; Reclaimed Water; Return Activated Sludge; Screened Digested Sludge; Secondary Effluent; Secondary Scum; Secondary Sludge; Septage; Sludge Cake; Supernatant; Tank Drain; Thickened Scum; Thickened Sludge; Thickened Waste Acti-

vated Sludge; Thickener Overflow; Transfer Sludge; Waste Activated Sludge; Waste Mixed Liquor.

1.4 Process, Power and Industrial Piping Systems –

Process Water System Piping: Ash Pond Recirculation Water; Auxiliary Cooling Water; Blowdown Systems; Booster Pumps; Circulating Hot Water to +230°F (+110°C); Circulating Tower; Cooling Water; Demineralized Water; Export Water; FGD; Feedwater to +230°F; Filtered Water; Gravity Filters to Clearwell; Heat Exchanger to to +230°F (+110°C); Lube Water (+110°C) - - Raw Water; Recirculating Cooling Water; Recovery Boiler Water to +230°F (+110°C); Sealing Water Pump Suction & Discharge; Service Water; Turbine Auxiliary Cooling Water; Turbine Cooling Water; Welder Water.

Utility and Infrastructure Piping: Ash Handling; Condenser Water Vents & Drains; Drain from Auxiliary Boiler Silencer; Drainage Piping Floor & Wall; Fire Protection Overflow & Drains; Fire Water Loop Below Ground; Industrial Waste Water; Plant Drains; Recirculation Drain Piping; Roof Collection Basins; Roof Drainage; Sump Pump Discharge Sleeves; Vent From Overflow Sump; Waste Water Underground; Yard Sump Waste Water.

Chemical & Air Piping Systems: Air Coolers to Gas Turbine; Air Dryers; Air Preheater Wash Returns; Ash Handling Water Pump Suction; Ash Hopper Seal Through Drains & Overflow; Chemical Feed to Cooling Towers; Chemical Injection System; Coagulator and Clearwell Overflow; Condensate Cleanup System to Demineralizer; Cooling Tower Chlorine Solution; Fly Ash Slurry Tanks; Hydrogen Cooling; Instrument Air; Jet-Pulsion Sump Pump Suction; Lube Oil; Oil & Hydraulic System to 2500 PSI (17235 kPa); Oil Vent Systems; Overflow from Pyrites; Plant Air; Potable Water; Powdered Coal Lines; Process Air; Scrubber Piping - (Lined & Unlined); Seal Air; Slurry Transport Systems Collecting & Fly Ash Slurry Tank; Soot Blower Piping; Strainers Backwash; Sump Pump Discharge; Vacuum.

SECTION 2 VIC/GUIDE SPEC

VICTAULIC PRODUCT SPECIFICATIONS FOR USE WITH CARBON STEEL PIPE (BLACK OR GALVANIZED)

2.0 IPS Grooved Piping System – Victaulic grooved mechanical pipe couplings, fittings, valves and other grooved components may be used as an option to welding, threading or flanged methods. All grooved components shall be of one manufacturer (Victaulic Company of America), and conform to local code approval and/or as listed by ANSI-B-31.1, B-31.3, B-31.9, ASME, UL/ULC, FM, IAPMO or BOCA. Grooved end product manufacturer to be ISO-9001 certified. Grooved couplings shall meet the requirements of ASTM F-1476.

2.1 Pipe/Grooved (Standard/Lightwall) – Carbon Steel, A-53B/A-106B - Roll or cut grooved-ends as appropriate to pipe material, wall thickness, pressures, size and method of joining. Pipe ends to be grooved in accordance with Victaulic current listed standards conforming to ANSI/AWWA C-606.

2.2 Victaulic Mechanical Couplings for Joining Carbon Steel Pipe

2.2.a Mechanical Couplings – Mechanical couplings shall be Victaulic Style 07 (Zero-Flex®) Rigid coupling or Style HP-70 Rigid coupling for high pressure service. Victaulic Style 77 or 75 coupling shall be used where system flexibility is desired. Noise and vibration reduction at mechanical equipment connections is achieved by installing three Style 77 or 75 flexible couplings near the vibrations source. Couplings shall be cast of ductile iron conforming to ASTM A-536, Grade 65-45-12 or malleable iron conforming to ASTM A-47, Grade 32510.

2.2.b Reducing Mechanical Couplings – Use Victaulic Style 750 reducing couplings for pipe runs for direct reduction on 2" (DN50) through 8" (DN200) pipe sizes.

2.2.c Snap-Joint® Quick Disconnect Mechanical Coupling – Where indicated on drawings, use Victaulic Style 78 Snap Joint® couplings for quick disconnect requirements.

2.2.d Victaulic Boltless Couplings – Where indicated on drawings, use Victaulic Style 791 boltless couplings for tamper resistant requirements.

2.2.e Mechanical Coupling Bolts – Mechanical Coupling bolts shall be zinc plated (ASTM B-633) heat treated carbon steel track head conforming to physical properties of ASTM A-183, minimum tensile strength 110,000 PSI (758450 kPa) as provided standard Victaulic. Optional Type 304 or 316 stainless steel bolts per ASTM A-193, Grade B8 or B8M class.

2.2.f Outlet Mechanical Coupling – Use Victaulic Style 72 outlet couplings on header sizes 1½" (DN40) through 6" (DN150) for grooved or threaded reduced outlet sizes ½" (DN15) through 2" (DN50).

2.3 Victaulic Flange Adapters

2.3.a Vic-Flange® Adapter Style 741 – 2 - 24" (DN50-DN600), for connection to ANSI class 125/150 flanged components. Cast of ductile iron conforming to ASTM A-536, Grade 65-45-12.

2.3.b Vic-Flange Adapter Style 743 – 2 - 12" (DN50-DN300), for connection to ANSI class 250/300 flanged components. Cast of ductile iron conforming to ASTM A-536, Grade 65-45-12.

2.3.c Victaulic Flanged Adapter Nipples – ¾ - 24" (DN20-DN600), No. 41, 45 and 46 for connection to ANSI class 125, 150 and 300 flanged components.

2.4 Miscellaneous Connections (Vent, Drain, Pressure, Temperature, Taps, etc.)

2.4.a Vic-Let™ Style 923 – ½" or ¾" NPT outlet on 4" (DN100) and larger header sizes rated for 300 PSI (2065 kPa).

2.4.b Vic-O-Well™ Style 924 – To accommodate industrial glass bulb thermometers with standard 1¼"-18 NEF 2B extra fine thread and 6" (152mm) nominal bulb length on 4" (DN100) and larger header sizes rated for 300 PSI (2065 kPa).

Note: Victaulic Pressfit® plain end system may be used on ¾ - 2" (DN20 - DN50) piping, refer to VIC/GUIDE SPEC section 8.0.

2.5 Victaulic Gaskets

2.5.a Water and Oil Free Air Service – Shall be Grade "E" EPDM compound (green color coded) conforming to ASTM D-2000 designation 2CA615A25B24F17Z. Grade "E" gaskets are UL/ULC classified to ANSI/NSF 61 for cold +86°F (+30°C) and hot +180°F (+82°C) potable water service. Temperature operating range -30°F to +230°F (-34°C to +110°C). (Note: Air systems without hydrocarbons.) Use Grade "L" Silicone compound (red color coded) for dry air service operating temperatures up to +350°F (+177°C).

2.5.b Oil and Air Service with Oil Vapors – Shall be Grade "T" nitrile compound (orange color coded) conforming to ASTM D-2000 designation 5BG615A14B24. Temperature operating range -20°F to +180°F (-29°C to +82°C). Use Grade "O" fluoroelastomer compound (blue color coded) for operating temperatures above +180°F up to +300°F (+82°C up to +149°C).

2.5.c Vacuum, Dry Freezer, Slurry Systems – Shall be Grade "E" or "T" FlushSeal® gaskets. Vacuum service may also use standard gaskets with a Victaulic internal metal liner.

2.5.d Chemical Service – Refer to latest published Victaulic literature, Gasket Selection Guide section, for gasket type recommendations for various chemical services.

2.6 Valves – Grooved End Butterfly Valves

2.6.a 2 - 12" (DN50 - DN300) Victaulic Vic®-300 Butterfly Valve – 300 PSI (2065 kPa), grooved ends, polyphenylene sulfide (PPS) coated ductile iron body (ASTM A-536, Grade 65-45-12). Ductile iron disc, rubber encapsulated suited for the intended service. Seat tested to MSS-SP-67. Bubble tight, dead-end or bi-directional service. With memory stop for throttling, metering or balancing service.

2.6.b DN65 - DN300 Victaulic International Vic®-10 Butterfly Valve – PN-10 rated for pressures ranging from

vacuum to 10 Bar (150 PSI), grooved ends, polyphenylene sulfide (PPS) coated ductile iron body (ASTM A-536, Grade 65-45-12). Ductile iron disc, rubber encapsulated suited for the intended service. Seat tested to MSS-SP-67. Bubble tight, dead-end or bi-directional service. With memory stop for throttling, metering or balancing service.

2.6.c 14 - 24" (DN350 - DN600) Victaulic Series 706 and 709 Butterfly Valve – Grooved ends, polyphenylene sulfide (PPS) coated ductile iron body (ASTM A-536, Grade 65-45-12), ductile iron disc (ASTM A-536), and two piece 17-4 PH S/S stem design. Seat and seal material to suit intended service. Type 304 S/S disc bolts and nuts, reinforced Teflon® bearings, gear operator, electric or pneumatic actuator. Seat tested to MSS-SP-67. Bubble tight, dead-end, or bi-directional service. With memory stop for throttling, metering or balancing service. Series 706 rated to 300 PSI (2065 kPa) and Series 709 rated to 175 PSI (1200 kPa).

2.6.d 1½ - 6" (DN40 - DN150) Series 700 Butterfly Valve – 200 PSI (1375 kPa) grooved ends Sch. 40 C.S. zinc plated (ASTM B-633) EPDM or nitrile lined body. Ductile iron housing, ASTM A-536, Grade 65-45-12. Disc aluminum bronze (316 S/S optional) two piece 416 S/S stem design. Seat tested to MSS-SP-67. Bubble tight, dead-end or bi-directional service. With memory stop for throttling, metering or balancing service.

Note: Refer to latest published Victaulic literature, Butterfly Valve Material Selection section, for liner/seat and disc material recommendations for chemical service.

2.6.e Tri-Service Valves – Combination shut-off, throttling and non-slam check valve Series Vic-300 butterfly valve assembled with standard Vic-Check®. Working pressures to 300 PSI (2065 kPa). (Optional: Vic-Plug™ valve Series 377 assembled with standard Vic-Check. Working pressure to 175 PSI (1200 kPa). Memory stops standard. Transition couplings Style 307 required for plug valve assembly.)

Ball Valves

2.6.f Victaulic Series 721 Vic-Ball® Standard Port Ball Valve – 1½ - 6" (DN40 - DN150) ductile iron body, ASTM A-536, Grade 65-45-12, nickel plated carbon steel and Type 316 stainless steel ball and stem, TFE seats, 600 PSI (4130 kPa) (special coating, manual handle, lock/seal, gear operators or valve automation available).

Note: Provide Victaulic Style 722 threaded end ball valve, forged brass body, ASTM B-16, where required for ¼" (DN8) through 2" (DN50) threaded pipe end conditions, 600 PSI (4130 kPa).

2.6.g Victaulic Series 723 Diverter Ball Valve – 2" (DN50) with three ports, 600 PSI (4130 kPa), common bottom inlet for diverting flow 90 degrees left or right. Ductile iron body (ASTM A-536, Grade 65-45-12), with Type 316 stainless steel ball and stem. For 180 degree operation, contact Victaulic for special order.

Check Valves (Dual & Single Disc)

2.6.h Victaulic Series 716 Vic-Check Valve – 2½ - 3" (DN65 - DN80) PPS coated ductile iron body, ASTM A-536, Grade 65-45-12, aluminum bronze non-slam tilting disc, stainless steel spring and shaft, rubber seat suitable for intended service, 300 PSI (2065 kPa). 4 - 14" (DN100-DN350) - Black enamel painted ductile iron body, ASTM A-536, Grade 65-45-12, elastomer encapsulated ductile iron disc, stainless steel spring and shaft, welded-in nickel seat suitable for intended service, 300 PSI (2065 kPa).

2.6.i Victaulic Series 779 Venturi Check Valve – 4 - 14" (DN100 - DN350) Black enamel painted ductile iron body, ASTM A-536, Grade 65-45-12, elastomer encapsulated ductile iron disc, stainless steel spring and shaft, welded-in nickel seat suitable for intended service, 300 PSI (2065 kPa). Valve inlet is drilled, with venturi-like taps and plugged for flow kit (included with valve). Twin taps on both sides of valve for meter connections and flow measurement.

Check Valves (Swing)

- 2.6.j Victaulic Series 712 Swinger® Swing Check Valve** – 2 - 4" (DN50 - DN100). Horizontal installation. Working pressure to 300 PSI (2065 kPa). Ductile iron body, ASTM A-536, Grade 65-45-12, and Type 316 stainless steel clapper. EPDM, nitrile or optional Viton® Bumper & Bonnet seals. Stainless steel wetted parts.

Plug Valves

- 2.6.k Victaulic Series 365 Vic-Plug™ Eccentric Plug Valves** – 3 - 12" (DN80 - DN300), 175 PSI (1200 kPa), unidirectional bubble-tight shut-off, bi-directional sealing to 50 PSI (345 kPa) is standard with full bi-directional to 175 PSI (1200 kPa) optionally available, cast iron body, A-126, Class B, or ductile iron body ASTM A-536, Grade 65-45-12, ductile iron bonnet and plug, ASTM A-536, Grade 65-45-12. Plug encapsulated with rubber suitable for intended service. Welded nickel seat, stainless steel self-lubricating bearings. AWWA rigid groove dimensions may be adapted to IPS sized system through the use of Victaulic Style 307 transition couplings.
- 2.6.l Victaulic Series 377 Eccentric Plug Balancing Valves** – 3 - 12" (DN80 - DN300), 175 PSI (1200 kPa), with memory stop for throttling, metering or balancing service. Unidirectional bubble-tight shut-off, bi-directional sealing optional. Cast iron body, A-126, Class B, or ductile iron body ASTM A-536, Grade 65-45-12, ductile iron bonnet and plug, ASTM A-536, Grade 65-45-12. Plug encapsulated with rubber suitable for intended service. Welded nickel seat, stainless steel self-lubricating bearings. AWWA rigid groove dimensions may be adapted to IPS sized system through the use of Victaulic Style 307 transition couplings.

Balancing Valves

(*FOR USE IN CANADA, MEXICO AND USA ONLY)

- *2.6.m Tour & Andersson Series 785 Circuit Balancing Valves** – 125 PSI (850 kPa), solder style ends, Ametal® brass copper alloy body, EPDM o-ring seals. One full turn handwheel, memory feature with locking tamper-proof setting.
- *2.6.n Tour & Andersson Series 786 Circuit Balancing Valves** – 300 PSI (2065 kPa), solder style ends, non-ferrous Ametal brass copper alloy body, EPDM o-ring seals. 4 turn digital readout handwheel for balancing, hidden memory feature with locking tamper-proof setting.
- *2.6.o Tour & Andersson Series 787 Circuit Balancing Valves** – 300 PSI (2065 kPa), threaded ends, non-ferrous Ametal brass copper alloy body, EPDM o-ring seals. 4 turn digital readout handwheel for balancing, hidden memory feature with locking tamper-proof setting.
- *2.6.p Tour & Andersson Series 788 Circuit Balancing Valves** – 250 PSI (1700 kPa), Class 125 flanged ends, ASTM A-536 ductile iron body, all other metal parts of Ametal brass copper alloy, EPDM o-ring seals. 8, 12 or 16 turn digital readout handwheel for balancing, hidden memory feature with locking tamper-proof setting.
- *2.6.q Tour & Andersson Series 789 Circuit Balancing Valves** – 300 PSI (2065 kPa), grooved ends, ASTM A-536 ductile iron body, all other metal parts of Ametal brass copper alloy, EPDM o-ring seals. 8, 12 or 16 turn digital readout handwheel for balancing, hidden memory feature with locking tamper-proof setting.
- 2.7 Bolted Branch Outlet** – Branch reductions on 2" (DN50) through 8" (DN200) header piping shall be made with Victaulic hole cut products. Style 920 or Style 921 Mechanical-T® Outlet with locating collar engaging into hole or Style 72 outlet coupling for use in joining grooved pipe with a branch connection at the joint.
- 2.8 Expansion Joints** – Expansion and contraction compensation shall be achieved utilizing either Victaulic Style 150 Mover® 2 - 6" (DN50 - DN150) or Style 155 expansion joints ¾ - 24" (DN20 - DN600). Select expansion joint and support method in accordance with design conditions and performance data published in Victaulic literature.
- 2.9 Fittings and Coatings** – Victaulic fittings shall be full flow ductile iron fittings, steel fittings or segmentally welded fittings

with grooves or shoulders designed to accept Victaulic grooved end couplings. Specific style numbers are listed in the Victaulic current catalog.

Standard Fittings – Shall be cast of ductile iron conforming to ASTM A-536, Grade 65-45-12, or malleable iron conforming to ASTM A-47, Grade 32510, forged steel conforming to ASTM A-234, Grade WPB 0.375" wall (9.53 mm wall), or fabricated of Std., Wt. carbon steel pipe conforming to ASTM A-53, Type F, E or S, Grade B.

Note: Use Victaulic Style 47 Dielectric Waterway when connecting dissimilar metals in liquid systems. ½" through 8" (DN15-DN200) size range available with grooved, threaded or plain end for FIT® combinations.

Coatings – Standard Victaulic fittings and couplings are provided with an alkyd enamel finish. Fittings and couplings are available hot dip galvanized to ASTM A-153. Zinc electroplated fittings and couplings conform to ASTM B633.

2.10 Strainers - Grooved End

- 2.10.a T-Type Strainer** – Victaulic Series 730 Vic-Strainer® 300 PSI (2065 kPa) T-Type Strainer shall consist of ductile iron (ASTM A-536, Grade 65-45-12) or steel body, Type 304 stainless steel convoluted removable basket with No. 12 mesh, 2 - 3" (DN50 - DN80) strainer sizes, or No. 6 mesh, 4 - 16" (DN100 - DN400) strainer sizes, 57% free open area.
- 2.10.b Y-Type Strainer** – Victaulic Series 732 Vic-Strainer 300 PSI (2065 kPa) Y-Type Strainer shall consist of ductile iron body, ASTM A-536, Grade 65-45-12, Type 304 stainless steel cylindrical removable baskets with ¼" (1.6 mm) diameter perforations and 41% open area 2 - 3" (DN50 - DN80) strainer sizes or ⅜" (3.2mm) strainer sizes diameter perforations and 40% open area 4 - 12" (DN100 - DN300) strainer sizes.

2.11 Suction Diffuser - Grooved/Flanged End – Series 731 Suction Diffuser rated to 300 PSI (2065 kPa). Ductile ASTM A-536, Grade 65-45-12, or steel body. Basket strainer 304 stainless sheet with ¾" (4.8 mm) diameter holes, 51% open area. Removable start-up prefilter 16 mesh bronze screen. Outlets for pressure/temperature drain connections. Access coupling Style 07. Flange Series 741 ANSI Class 125 or 150 standard.

2.12 Flow Measuring Sensors - Grooved End

- 2.12.a Venturi-Type** – Victaulic Style 733 Rated 250 PSI (1725 kPa). Sizes 2½ - 30" (DN65 - DN750) diameter. Minimum straight pipe installation of five diameters upstream and two diameters downstream.
- 2.12.b Orifice-Type** – Victaulic Style 734 Rated 250 PSI (1725 kPa). Sizes 2½ - 24" (DN65 - DN600) diameter. 2½ - 4" (DN65 - DN100) minimum straight pipe installation of five diameters upstream and two diameters downstream. Minimum straight pipe installation ten diameters upstream and 4 diameters downstream for sizes 5 - 24" (DN125 - DN600) diameter.

Note: Flow sensors available in threaded or sweat ends. Sizes ½ - 2" (DN15 - DN50) diameter.

Test Meter – Where required by contract, provide Style S4 or L6 portable master meter for flow measurement.

2.13 Assembly – Pipe ends shall be clean and free from indentations, projections and roll marks in the area from pipe end to groove for proper gasket sealing.

The gasket style and elastomeric material (grade) shall be verified as suitable for the intended service as specified.

See the latest copy of the Victaulic Field Assembly and Installation Instruction Pocket Handbook (I-100).

All grooved components (couplings, fittings, valves, gaskets, bolts and nuts shall be of one manufacturer (Victaulic Company of America).

Note: Refer to the latest Victaulic G-100 general catalog for additional pressure ratings and application information.

General Note

All Victaulic products described herein are to be installed in accordance with latest Victaulic published literature. Victaulic is a registered trademark of Victaulic Company of America, Copyright 1998, Victaulic Company of America. All rights reserved.

SECTION 3
VIC/GUIDE SPEC
VICTAULIC PRODUCT SPECIFICATIONS
FOR USE WITH STAINLESS STEEL PIPE

3.0 IPS Grooved Piping System – Victaulic grooved mechanical pipe couplings, fittings, valves and other grooved components may be used as a proprietary system and/or as an option to welding, threading or flanged methods. All grooved components shall be of one manufacturer (Victaulic Company of America), and conform to local code approval and/or as listed by ANSI-B-31.1, B-31.3, B-31.9, ASME, UL/ULC, FM, IAPMO or BOCA. Grooved end product manufacturer to be ISO-9001 certified. Grooved couplings shall meet the requirements of ASTM F-1476.

3.1 Pipe/Grooved (Standard/Lightwall) – Stainless Steel, ASTM A312 - Roll or cut grooved ends as appropriate to pipe material, wall thickness, pressures, size and method of joining. Pipe ends to be grooved in accordance with Victaulic current listed standards conforming to ANSI/AWWA C-606.

3.2 Victaulic Mechanical Couplings for Joining Stainless Steel Pipe

Note: Where design conditions require use of non-ferrous piping materials for both interior and exterior piping surfaces, Victaulic stainless steel couplings described in VIC/GUIDE SPEC sections 3.2.a are to be used.

3.2.a Mechanical Couplings – Shall be Style 008 Rigid Stainless Steel or Style 77S Flexible Stainless Steel, Type 316, conforming to ASTM A-351, Grade CF-8M. Type 304 Stainless Steel conforming to ASTM A-351, 743, 744, Grade CF-8 optional.

3.2.b Stainless Steel Bolts – See submittal for Style 77S and Style 008.

Note: Where design conditions permit and where only interior piping surfaces require use of non-ferrous materials and where ferrous materials are acceptable for external piping surfaces, couplings and flange adapters described in VIC/GUIDE SPEC sections 2.2 and 3.3 are to be used.

3.3 Victaulic Flange Adapters

3.3.a Vic-Flange Style 741 – 2 - 24" (DN50 - DN600) for connection to ANSI class 125/150 flanged components. Cast of ductile iron conforming to ASTM A-536, Grade 65-45-12.

3.3.b Vic-Flange Style 743 – 2 - 12" (DN50 - DN300) for connection to ANSI class 250/300 flanged components. Cast of ductile iron conforming to ASTM A-536, Grade 65-45-12.

Note: Victaulic Pressfit[®] system for Type 316 and Vic-Press 304™ for stainless steel pipe may be used on ½ - 2" (DN15 - DN50) piping. Refer to VIC/GUIDE SPEC sections 9.0 and 10.0.

3.4 Victaulic Gaskets

3.4.a Water and Oil-Free Air Service – Shall be Grade "E" EPDM compound (green color coded) conforming to ASTM D-2000 designation 2CA615A25B24F17Z. Grade "E" gaskets are UL/ULC classified to ANSI/NSF 61 for cold +86°F (+30°C) and hot +180°F (+82°C) potable water service. Temperature operating range -30°F to +230°F (-34°C to +110°C). (Note: Air systems without hydrocarbons.) Use Grade "L" Silicone compound (red color coded) for dry air service operating temperatures up to +350°F (+177°C).

3.4.b Oil and Air Service with Oil Vapors – Shall be Grade "T" nitrile compound (orange color coded) conforming to ASTM D-2000 designation 5BG615A14B24. Temperature operating range -20°F to +180°F (-29°C to +82°C). Use Grade "O" fluoroelastomer compound (blue color coded) for operating temperatures above +180°F up to +300°F (+82°C up to +149°C).

3.4.c Vacuum or Slurry Systems – Shall be Grade "E" or "T" FlushSeal gaskets. Vacuum service may also use standard gaskets with a Victaulic internal metal liner.

3.4.d Chemical Service – Refer to latest published Victaulic literature, Gasket Selection Guide section, for gasket type recommendations for various chemical services.

3.5 Fittings and Coatings – Victaulic fittings shall be smooth turn full flow stainless steel fittings or segmentally welded fittings with grooves designed to accept Victaulic grooved end couplings. Fittings are available in Schedule 10. Other wall thicknesses are optionally available. Specific style numbers are listed in Victaulic's current literature.

Coatings – Standard Victaulic ductile iron couplings are provided with an alkyd enamel finish. Hot dip galvanizing to ASTM A-153 and other coatings are optionally available.

3.6 Valves - Stainless Steel Butterfly Valves

3.6.a 2"-12" (DN50 - DN300) Victaulic Vic[®]-300S Butterfly Valve – 300 PSI (2065 kPa), grooved ends. Type 316 cast stainless steel body, ductile iron disc, rubber encapsulated suited for the intended service. Bubble tight, dead-end or bidirectional service. With memory stop for throttling, metering or balancing service.

Ball Valves

3.6.b 2"-4" (DN50 - DN100) Victaulic 721S Vic-Ball[®] Ball Valve – ASTM A-743, standard port ball valve, 600 PSI (4130 kPa), Type 316 cast stainless steel body, ball and stem polished 316 stainless steel.

Check Valves

3.6.c 2" (DN50) Victaulic 712S Swinger Check Valve – ASTM A-743, 300 PSI (2065 kPa), Type 316 stainless steel body and trim for horizontal installation.

3.7 Assembly – Pipe ends shall be clean and free from indentations, projections and roll marks in the area from pipe end to groove for proper gasket sealing. The gasket style and elastomeric material (grade) shall be verified as suitable for the intended service as specified. See the latest copy of the Victaulic Field Assembly and Installation Instruction Pocket Handbook (I-100). All grooved components (couplings, fittings, valves, gaskets, bolts and nuts) shall be of one manufacturer (Victaulic Company of America).

Note: Refer to the latest Victaulic G-100 general catalog for additional pressure ratings and application information.

General Note

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Note: Use Victaulic special RX tracking enhanced chrome plated rolls for roll grooving lightwall Schedules 5S, 10S and 10 stainless steel piping. Use Victaulic standard rolls when roll grooving Schedule 40 stainless steel piping.

SECTION 4
VIC/GUIDE SPEC

VICTAULIC PRODUCT SPECIFICATIONS
FOR USE WITH ALUMINUM PIPE

4.0 IPS Grooved Piping System – Victaulic grooved mechanical pipe couplings and fittings may be used as a proprietary system and/or an option to welding, threading or flanged methods. All grooved components shall be of one manufacturer (Victaulic Company of America), and conform to local code approval and/or as listed by ANSI-B-31.1, B-31.3, B-31.9, ASME, UL/ULC, FM, IAPMO or BOCA. Grooved end product manufacturer to be ISO-9001 certified. Grooved couplings shall meet the requirements of ASTM F-1476.

4.1 Pipe/Grooved (Standard/Lightwall) – Aluminum, ASTM B-210 - Roll or cut grooved ends as suited to pipe material, wall thickness, pressures, size and method of joining. For grooving information regarding specific pipe material, refer to latest Victaulic published literature section 21.01. Pipe ends to be grooved in accordance with Victaulic current listed standards, conforming to ANSI/AWWA C-606.

4.2 Victaulic Mechanical Couplings for Joining Aluminum Pipe – Mechanical Couplings - Shall be Style 77A aluminum alloy 356-T6 to ASTM B-26.

Note: Where design conditions permit and where only interior piping surfaces require use of non-ferrous materials and where ferrous materials are acceptable for external piping surfaces,

couplings and flange adapters described in VIC/GUIDE SPEC sections 2.2 and 2.3 are to be used.

4.3 Victaulic Gaskets

4.3.a Water and Oil-Free Air Service – Shall be Grade “E” EPDM compound (green color coded) conforming to ASTM D-2000 designation 2CA615A25B24F17Z. Grade “E” gaskets are UL/ULC classified to ANSI/NSF 61 for cold +86°F (+30°C) and hot +180°F (+82°C) potable water service. Temperature operating range -30°F to +230°F (-34°C to +110°C). (Note: Air systems without hydrocarbons.) Use Grade “L” Silicone compound (red color coded) for dry air service operating temperatures up to +350°F (+177°C).

4.3.b Oil and Air Service with Oil Vapors – Shall be Grade “T” nitrile compound (orange color coded) conforming to ASTM D-2000 designation 5BG615A14B24. Temperature operating range -20°F to +180°F (-29°C to +82°C). Use grade “O” fluoroelastomer compound (blue color coded) for operating temperatures above +180°F up to +300°F (+82°C up to +149°C).

4.3.c Vacuum or Slurry Systems – Shall be Grade “E” or “T” FlushSeal gaskets. Vacuum service may also use standard gaskets with a Victaulic internal metal liner.

4.3.d Chemical Service – Refer to latest published Victaulic literature, Gasket Selection Guide section, for gasket type recommendations for various chemical services.

4.4 Fittings - Victaulic Fittings – Shall be smooth turn full flow cast with grooves or shoulders designed to accept Victaulic grooved end couplings. Specific style numbers are listed in Victaulic’s current literature.

Standard Fittings – Shall be cast of aluminum, 356-T6 alloy conforming to ASTM B-26, or fabricated aluminum to ASTM B-210.

4.5 Valves – Refer to VIC/GUIDE SPEC sections 2.6 and 3.6 for valve selection.

4.6 Assembly – Pipe ends shall be clean and free from indentations, projections and roll marks in the area from pipe end to groove for proper gasket sealing. The gasket style and elastomeric material (grade) shall be verified as suitable for the intended service as specified. See the latest copy of the Victaulic Field Assembly and Installation Instruction Pocket Handbook (I-100). All grooved components (couplings, fittings, valves, gaskets, bolts and nuts) shall be of one manufacturer (Victaulic Company of America).

Note: Aluminum pipe ratings are based on: alloy 6061-T4/6063-T4. For alloy 6061-T6/6063-T6 refer to Victaulic published literature section 21.01.

Note: Refer to the latest Victaulic G-100 general catalog for additional pressure ratings and application information.

General Note

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SECTION 5 VIC/GUIDE SPEC

VICTAULIC PRODUCT SPECIFICATIONS FOR USE WITH FIRE PROTECTION PIPING SYSTEM (BLACK OR GALVANIZED)

5.0 IPS Grooved & Plain End FIT Piping Systems – Fire protection piping systems, as further detailed below, shall be installed by using Victaulic mechanical pipe couplings of a bolted or mechanical locking device type, with central cavity pressure-responsive gaskets, for use on wet and dry automatic sprinklers, inspector drain lines, outside protection, low pressure carbon dioxide, FM-200, Halon and Halon replacement systems. All materials and products shall be either Underwriters Laboratories Listed (Canada and USA) or Factory Mutual Approved, and installed in accordance with NFPA Standard 13, other applicable Standards and manufacturer’s published recommendations. Grooved end product manufacturer to be ISO-9001 certified. To assure system integrity and performance, all mechanical couplings, fittings, flanges, grooved valves and bolted branch outlets

shall be furnished by the same manufacturer (Victaulic Company of America). All gaskets shall be of the central cavity-pressure-responsive design.

5.1 Pipe (Standard/Lightwall) – Pipe shall be prepared in accordance with the latest published Victaulic specifications, ANSI/AWWA C606, UL, FM NFPA or other standards as applicable.

5.1.a Steel Pipe – Shall be steel pipe conforming to ASTM A-135, A-795 or A-53.

5.1.b Grooved End Pipe – Shall be grooved utilizing Victaulic Vic-Easy® roll grooving tools or prepared in accordance with Victaulic cut grooving specifications.

5.1.c Hole Cut Pipe – Shall have a machine cut hole at a predetermined position, on the centerline of the pipe, of a size to receive the housing locating collar, in accordance with Victaulic specifications.

5.1.d Plain End for FIT Products – Pipe ends shall be square cut and thoroughly cleaned on the O.D., for 1" (25 mm) from the pipe end to remove pipe coatings, mill scale, rust and raised weld beads. O.D. burrs and sharp edges shall be removed. Pipe shall be marked 1½" (38 mm) from the end and pipe end configuration shall be in conformance with Victaulic specifications.

5.2 Couplings and Gaskets – As manufactured by Victaulic Company of America shall be cast of ductile iron conforming to ASTM A-536, Grade 65-45-12, or malleable iron to ASTM A-47, with bolts/nuts conforming to ASTM A-183. Standard Grade “E” gaskets to be used for all water supply systems. Style 005 shall have Grade “E” (Type A) gaskets for wet fire protection sprinkler service (FlushSeal® for dry service). Victaulic recommends the use of Grade “L” (Silicone) FlushSeal gaskets for all dry systems operating below 0°F (-18°C).

5.2.a Rigid Joints – Shall be Victaulic FireLock Style 005, 1¼ - 8" (DN32 - DN200), Zero-Flex Style 07, 1½ - 24" (DN40 - DN600) or Style HP-70, 2 - 12" (DN50 - DN300) couplings with gasket bolts and nuts.

5.2.b Flexible Joints – Shall be Victaulic Style 75, FireLock Vic-Flex™ 1½ - 8" (DN40 - DN200), Style 77, ¾ - 24" (DN20 - DN600), or Style 791, 2 - 8" (DN50 - DN200) couplings with Grade “E” standard gaskets and galvanized bolts/nuts.

5.2.c Reducing Joints – Shall be Victaulic 750 Reducing Couplings 2 - 8" (DN50 - DN200) with Grade “E” standard gaskets and galvanized bolts/nuts for direct connection of pipe of different sizes.

5.2.d Outlet Couplings – All joints designated Outlet Couplings, or where feasible to replace reducing outlet tees, shall be Victaulic Style 72 outlet couplings 1½ - 6" (DN40 - DN150) (specify grooved, female or male threaded outlet) with Grade “E” standard gaskets and galvanized nuts and bolts. Outlets for ESFR/ELO systems shall be Victaulic Style 073 FireLock Outlet Couplings 2½ X ¾" (DN65 X DN20).

5.3 Victaulic Flange Adapters

5.3.a Victaulic FireLock Flange Adapter Style 744 – 2 - 8" (DN50 - DN200) for connection to ANSI CL 125 or CL 150 flanged components.

5.4 Victaulic Fire Protection Fittings

5.4.a Fittings for Grooved End Steel Pipe – Shall be cast of ductile iron conforming to ASTM A-536. Grade 65-45-12, with grooved or shouldered ends for direct connection into grooved piping systems with steel pipe - prepared as in VIC/GUIDE SPEC Section 5.1.b. Fittings may be standard dimension or FireLock type.

5.4.b Branch Outlets – Shall be made from Victaulic Style 920, 921, 925, or 929 Mechanical-T branch connections with locating collar engaging into hole. Grade “E” standard pressure-responsive gasket and zinc plated bolts/nuts. (Specify outlet/branch connection type - grooved, female threaded or FIT, as available.) 2½ - 6" (DN65 - DN150) No. 10 DR 90 degree elbow optional.

5.4.c Sprinkler Head Connections – Direct sprinkler head connections, branch connections, drop nipples and sprigs shall be made with Victaulic Style 925 Snap-Let outlet con-

nections with locating collar engaging into hole. Grade "E" standard pressure responsive gasket and standard plated bolt. Specify ½" (DN15), ¾" (DN20) or 1" (DN25) female threaded outlet.

5.4.d Fittings for Plain End Schedule 10 through 40 and Specialty (Non-Schedule) Steel Pipe – Shall be Victaulic FIT fittings sizes 1" (DN25), 1¼" (DN32), 1½" (DN40), and 2" (DN50) with self-contained Grade "E" standard gaskets, internal pipe stop for uniform takeoff dimensions, plated ¼-turn positive locking lugs of heat treated carbon steel with externally visible locked position indicator for easy inspection of plain end steel pipe connections prepared as in VIC/GUIDE SPEC section 5.1.d. FIT products to be used in dry systems and all systems operating below 0°F (-18°C) shall have Grade "L" silicon gaskets.

5.4.e Reducing Outlet Tees – Shall be Victaulic FIT Style 96 with female threaded outlet. Specify ½" (DN15), ¾" (DN20) or 1" (DN25) outlet for direct sprinkler head, sprig, or drop nipple connections.

5.4.f Reducing Run and Outlet Tees – Shall be Victaulic FIT Style 969 with female threaded outlet. Specify ½" (DN15), ¾" (DN20), or 1" (DN25) outlet for direct sprinkler head, sprig or drop nipple connections.

5.4.g 90 Degree Elbows – Shall be Victaulic FIT Style 961.

5.4.h FIT Outlet/Mechanical-T – Shall be Victaulic FIT Style 929 with FIT locking lug branch outlet. Specify 1¼" (DN32), 1½" (DN40) or 2" (DN50) outlet for direct branch connections.

5.4.i Straight Tee – Shall be Victaulic FIT Style 963 with FIT locking lug on all three outlets.

5.4.j Coupling – Shall be Victaulic FIT Style 960.

5.4.k Reducing Elbows – Shall be Victaulic Style 966 with female threaded reduction. Specify ½" (DN15), ¾" (DN20) or 1" (DN25) outlet for direct sprinkler head, sprigs, or drop nipple.

NOTE: Victaulic Pressfit plain end system may be used on ¾" - 2" (DN20 - DN50) piping, refer to VIC/GUIDE SPEC section 8.0.

5.5 Valves - Grooved End

5.5.a Check Valves – Shall be Victaulic Series 717, 2½ - 3" (DN65 - DN80) and 4 - 12" (DN100 - DN300), and 717R FireLock Check Valve 4 - 12" (DN100 - DN300) single disc, spring loaded, check valves 4 - 12" (DN100 - DN300), as Underwriters Laboratories Listed (Canada and USA) and Factory Mutual Approved for a single check and anti-water hammer service and for horizontal or vertical installation, supplied drilled, tapped and plugged downstream for drainage outlet with Grade "E" EPDM seal, housing cast of ductile iron conforming to ASTM A-536, Grade 65-45-12, with grooved ends for installation with Victaulic grooved end couplings rated for service up to 250 PSI (1725 kPa) working pressure.

5.5.b Butterfly Valves – Shall be Victaulic Series 708W, Underwriters Laboratories Listed (Canada and USA) for UL Butterfly Specification 1091 and Factory Mutual Approval Standard 1112, sizes 2½ - 12" (DN65 - DN300), supplied with a ductile iron body conforming to ASTM A-536, Grade 65-45-12, coated with a polyphenylene sulfide blend, a disc of ductile iron conforming to ASTM A-536, Grade 65-45-12, with EPDM coating providing bubble tight shut-off. Sizes 2½ - 12" (DN65 - DN300) shall have an approved weatherproof manual actuator suitable for indoor or outdoor use with two single pole, double throw supervisory switches either pre-wired (WRD) or unwired (UWD) monitoring the open position as specified on the drawings. The Series 708 is supplied with grooved ends for installation with Victaulic grooved end couplings and rated for service up to 175 PSI (1200 kPa) working pressure. Valves shall be installed in accordance with the latest published Victaulic specifications.

5.5.c Ball Valves – Shall be Series 727 FireBall® Valves, sizes 2 - 3" (DN50 - DN80), Underwriters Laboratories Listed (Canada and USA) for UL Specification 1091 and Factory Mutual Approval Standard 1112, supplied with a ductile iron body conforming to ASTM A-536, Grade 65-45-12,

painted, and a ball conforming to Type 316 stainless steel. Series 727 will be unsupervised or have factory installed double pole, double throw switches monitoring the open position as specified on the drawings. The Series 727 is supplied with grooved ends to connect with Victaulic grooved end couplings and rated for service up to 300 PSI (2065 kPa) working pressure. Valves shall be installed in accordance with the latest published Victaulic specifications.

Note: Provide Victaulic Style 722 threaded end ball valve, forged brass body, ASTM B-16, where required for ½" (DN15) through 2" (DN50) threaded pipe end conditions. ½" (DN15) and above are UL/ULC Listed at 175 PSI and FM approved at 600 PSI (4135 kPa) for ½" (DN15) and ¾" (DN20) sizes. 1 - 2" (DN25 - DN50) sizes are UL/ULC Listed/FM Approved for 500 PSI (3450 kPa).

5.5.d Alarm Check Valves – Shall be Victaulic FireLock Series 751 1½ - 6" (DN40 - DN150) spring assisted Alarm Check Valves, as Underwriters Laboratories Listed (Canada and USA) and Factory Mutual Approved, for vertical installation, supplied with Grade "E" EPDM clapper seal, housing cast of ductile iron conforming to ASTM A-536, Grade 65-45-12, serviceable without removal from the line, with grooved 1½ - 6" (DN40 - DN150) or flange by groove 4 - 6" (DN100 - DN150) ends for installation with ANSI Class 150 flange or Victaulic grooved end couplings as applicable, rated for service up to 300 PSI (2065 kPa) working pressure.

5.5.e Dry Pipe Valves – Shall be Victaulic FireLock Series 756, 1½ - 6" (DN40 - DN150) low differential, latched closed spring assisted, self resetting clapper, Dry Pipe Valves as Underwriters Laboratories Listed (Canada and USA) and Factory Mutual Approved, for vertical installation, supplied with Grade "E" EPDM seal, housing cast of ductile iron conforming to ASTM A-536, Grade 65-45-12, serviceable without removal from the line, with grooved 1½ - 6" (DN40 - DN150) or flange by groove 4 - 6" (DN100 - DN150) ends for installation with ANSI Class 150 flange or Victaulic grooved end couplings as applicable, rated for service up to 300 PSI (2065 kPa) working pressure.

5.5.f Actuated Check Valve with Deluge Trim – Shall be Victaulic FireLock Series 758, 1½ - 6" (DN40 - DN150) low differential, latched closed spring assisted, self resetting clapper, pneumatic, hydraulic, or electric release, Actuated Check Valve with Deluge Trim as Underwriters Laboratories Listed (Canada and USA) and Factory Mutual Approved, for vertical installation, supplied with Grade "E" EPDM clapper seal, housing cast of ductile iron conforming to ASTM A-536, Grade 65-45-12, serviceable without removal from the line, with grooved 1½ - 6" (DN40 - DN150) or flange by groove 4 - 6" (DN100 - DN150) ends for installation with ANSI Class 150 flange or Victaulic grooved end couplings as applicable, rated for service up to 300 PSI (2065 kPa) working pressure.

5.5.g Actuated Check Valve with Pre-Action Trim – Shall be Victaulic FireLock Series 758, 1½ - 6" (DN40 - DN150) low differential, latched closed spring assisted, self resetting clapper, pneumatic or electric release, non, single, or double interlock Actuated Check Valve with Pre-Action Trim as Underwriters Laboratories Listed (Canada and USA) and Factory Mutual Approved, for vertical installation, supplied with Grade "E" EPDM clapper seal, housing cast of ductile iron conforming to ASTM A-536, Grade 65-45-12, serviceable without removal from the line, with grooved 1½ - 6" (DN40 - DN150) or flange by groove 4 - 6" (DN100 - DN150) ends for installation with ANSI Class 150 flange or Victaulic grooved end couplings as applicable, rated for service up to 300 PSI (2065 kPa) working pressure.

5.6 Alarm Test Module

5.6.a FIT Outlet Alarm Test Module – Shall be Victaulic Style 719 TestMaster™ with FIT locking lugs for the 1¼" (DN32) IPS inlet and outlet, a combination sight glass/orifice, bronze top works and ¼" NPT plug for attachment of a gauge or water hose for pressure testing.

5.6.b Threaded Outlet Alarm Test Module – Shall be Victaulic Style 718 TestMaster with 1¼" NPT (threaded) inlet

and outlet, a combination sight glass/orifice, bronze top works and 1/4" NPT plug for attachment of a gauge water hose for pressure testing.

5.7 Meters - Fire Pump Test Meters – Shall be Victaulic Style 735, 2½ - 12" (DN65 - DN300) Fire Pump Test Meter, Factory Mutual Approved, incorporating a calibrated venturi and attached GPM meter, to be installed on the discharge side of the fire pump, to accurately measure pump performance. Test Meter shall be supplied with grooved ends for installation with Victaulic grooved end couplings.

5.8 Assembly – Pipe ends shall be clean and free from indentations, projections and roll marks in the area from pipe end to groove for proper gasket sealing. The gasket style and elastomeric material (grade) shall be verified as suitable for the intended service as specified. See the latest copy of the the Victaulic Field Assembly and Installation Instructions Pocket Handbook (I-100). All grooved components (couplings, fittings, valves, gaskets, bolts and nuts shall be of one manufacturer (Victaulic Company of America).

Note: Refer to Victaulic G-100 general catalog section 10.01 for a complete listing of Victaulic products which are Underwriters Laboratory Listed (Canada and USA) and/or Factory Mutual System Approved for Fire Protection Piping Systems.

Note: Refer to the latest Victaulic G-100 general catalog for additional pressure ratings and application information.

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SECTION 6 VIC/GUIDE SPEC VICTAULIC PRODUCT SPECIFICATIONS FOR USE WITH AWWA GROOVED PIPE

6.0 Grooved Piping System for AWWA Ductile Pipe – Victaulic AWWA Grooved Piping System - Mechanical grooved pipe couplings and fittings as manufactured by Victaulic Company of America or equal shall be used on all ductile iron piping systems. Grooved pipe couplings and fittings shall conform to the following requirements. Grooved end product manufacturer to be ISO-9001 certified.

6.1 Pipe Materials – Grooved end cast or ductile iron pipe shall be grooved in accordance with AWWA Standard C606. Rigid radius groove dimensions shall be utilized where flexibility is neither required or desired. Flexible grooves shall be provided as necessary for settlement or expansion as determined and approved by the engineer.

6.2 Couplings – Couplings shall be Victaulic Style 31 cast of ductile iron conforming to ASTM A-536, Grade 65-45-12, with an alkyd-phenolic primer coating (unless specified otherwise) with a synthetic rubber gasket and plated nuts and bolts, 3 - 36" (DN80 - DN900) size range.

6.2.a Couplings Bolts/Nuts – Bolts shall be heat treated plated carbon steel, track head, conforming to the physical properties of ASTM A-183, minimum tensile strength 110,000 PSI (758450 kPa) or optional - bolts and nuts shall be Type 304 (or 316) stainless steel conforming to ASTM A-193, Grade B-8, (or B-8M), Class 2 or heavy hex head bolt and nut to ASTM A325 Type 3 (Cor-Ten) as an alternate for buried service.

6.3 Grooved/Flanged Transition Components – Victaulic Style 341 Vic-Flange Adapter shall be used to facilitate connection from grooved fittings to flanged valves, pumps, pipe, fittings, and other flanged components. The flange adapters shall be ductile iron conforming to ASTM A-536, Grade 65-45-12, 3 - 24" (DN80 - DN600) size range. Gaskets shall have properties as designated by ASTM D-2000 of the same specially compounded elastomer as the couplings, and shall be suitable for the required service. Transition between 3 - 12" (DN80 - DN300) IPS pipe and ductile iron pipe shall be made with a grooved coupling, Victaulic Style 307, designed to make this transition.

6.4 Victaulic Gaskets – Gaskets shall be FlushSeal design molded of synthetic rubber specially compounded to conform to ductile pipe surfaces with a short center leg which shall bridge the pipe

ends offering an initial seal on the leading edge of the pipe ends. Elastomers shall have properties as designated in ASTM D-2000. Reference shall always be made to the latest published Selection Guide for Victaulic gaskets for proper gasket selection for the intended service.

6.4.a Water Service/Ductile Iron Pipe – Gasket supplied for water service from -20°F to +200°F (-29°C to +93°C) on ductile iron pipe, from 3 - 36" (DN75 - DN900) shall be Grade "M" halogenated butyl, with brown color code, specially compounded to conform to ductile pipe surfaces recommended for water service within the specified temperature range plus a variety of diluted acids, oil-free air, and many chemical services. Grade "M" gaskets are UL/ULC classified to ANSI/NSF 61 for cold +86°F (+30°C) potable water service. Not recommended for petroleum services.

6.4.b Oil Service/Ductile Iron Pipe – Gasket supplied from -20°F to +180°F (-29°C to +82°C) on ductile iron pipe from 3 - 36" (DN75 - DN800), shall be Grade "S" nitrile, with red color code, specially compounded to conform to ductile pipe surfaces recommended for petroleum products, air with oil vapors, vegetable and mineral oils within the specified temperature range, except hot dry air over +140°F (+60°C) and water over +150°F (+66°C). Not recommended for hot water services.

6.5 Fittings – Fittings shall be ductile, ASTM A-536, Grade 65-45-12, or cast iron, ASTM A-48, conforming to the requirements of AWWA C110 for center to end dimensions, AWWA C153 or AWWA 21.10/AWWA C110 for wall thickness, and AWWA C606 rigid radius grooving dimensions for end preparation.

Coatings and Linings – Provide coatings and linings for specified piping systems in accordance with applicable section of mechanical piping specification.

6.6 Plug Valves – Valves shall be Victaulic Series 365 Vic-Plug grooved end eccentric plug valves, 3"-18" (DN80-DN450), with a resilient faced plug suitable for required service. Valves shall have self-lubricating bearing and be rated at 175 PSI (1200 kPa). The port shall be circular, have a minimum flow area of 81% of the full pipe area and be able to pass a cleaning pig when fully open. Flow direction shall be indicated on valve body.

6.6.a Body – The valve body materials shall be cast iron per ASTM A-126 Grade B or ductile iron per ASTM A-536, Grade 65-45-12, specifications. Valve seats shall be welded in nickel overlay. The bonnet shall be ductile iron material per ASTM A-536, Grade 65-45-12. The end-to-end dimensions shall conform to the requirements of AWWA C-509 for "resilient seat gate valves 3 - 12" (DN80 - DN300) for water and sewage service." The end configuration shall be rigid groove conforming to AWWA C-606 rigid grooving dimensions.

6.6.b Plug – 3 - 12" (DN80 - DN300) valve plug shall be ductile iron meeting ASTM A- 536, Grade 65-45-12, and encapsulated with a resilient material suitable for service and provide drip-tight shut-off without the use of sealing lubricants. 14 - 18" (DN350 - DN450) valve plug shall be cast iron meeting ASTM A-126B and encapsulated with a resilient material suitable for service and provide drip-tight shut-off without the use of sealing lubricants.

6.6.c Bearings – Valves shall have upper and lower self-lubricating stainless steel bearings.

6.6.d Stem Seal – Stem seal shall have multiple chevron packing. Packing shall be adjustable and replaceable without removal of valve from service.

6.6.e Operators – Operators shall be specified on the system drawings.

6.7 Check Valve – Valves shall be Victaulic Series 317 check valves 3 - 12" (DN80 - DN300), designed for working pressures up to 175 PSI (1200 kPa). The end-to-end dimensions shall conform to AWWA C508 with rigid groove specifications to ANSI/AWWA C606. Cast iron body, ASTM A-126 Class B, standard alkyd phenolic primer coating, other coatings available as options. Removable bronze seat, ASTM B-584, with optional elastomeric coating appropriate for service. Ductile iron closure coupling and cap for maintenance access, ASTM A-536, Grade 65-45-12, with appropriate gasketing elastomer for service.

Disc: 3 - 4" (DN80 - DN100) bronze, ASTM B-584 and 6 - 12" (DN150 - DN300) ductile iron, ASTM A-536, Grade 65-45-12, with welded nickel seat. Accessories available: arm (lever) and spring, arm (lever) and counterweight and arm (lever) and air cushion.

6.8 Grooving – Grooving dimensions shall conform to AWWA C606, or the Victaulic published specifications.

6.9 Assembly – Pipe ends shall be clean and free from indentations, projections and roll marks in the area from pipe end to groove for proper gasket sealing. The gasket style and elastomeric material (grade) shall be verified as suitable for the intended service as specified. See the latest copy of the the Victaulic Field Assembly and Installation Instructions Pocket Handbook (I-100). All grooved components (couplings, fittings, valves, gaskets, bolts and nuts) shall be of one manufacturer (Victaulic Company of America).

Normally Vic-Plug valves will be oriented with the shaft vertical and the handle/operator at the top when installed in a horizontal position. For easier access and cramped locations Vic-Plug valves may be installed on their side with the plug horizontal and rotating to the top of the valve when open. This orientation is recommended for sludge, slurries, and suspended solids services such as encountered in municipal waste treatment, industrial and mining. This orientation reduces the tendency of the plug cavity to fill up and allows the eccentric plug to close in a manner similar to a gate valve.

Note: Refer to the latest Victaulic G-100 general catalog for additional pressure ratings and application information.

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SECTION 7 VIC/GUIDE SPEC

VICTAULIC PRODUCT SPECIFICATIONS FOR USE WITH COPPER GROOVED PIPING SYSTEM

7.0 Victaulic CTS Copper Grooved Piping System – Copper tubing systems from 2 - 8" (DN50 - DN200) shall be installed using mechanical pipe couplings of a bolted type, with a Flush-Seal design pressure-responsive gasket along with grooved end copper or bronze fittings as available, as manufactured by Victaulic Company of America.

7.1 Copper Tube – ASTM B-88 (Type K, L, M, or DWV), roll grooved only in accordance to Victaulic current listed standards.

7.2 Mechanical Couplings – Shall be Style 606 rigid couplings 2 - 8" (DN50 - DN200) for copper consisting of a ductile iron cast housing, a synthetic rubber gasket of a FlushSeal, pressure-responsive design, with plated nuts and bolts to secure unit together.

7.2.a Coupling Housings – Shall be cast of ductile iron conforming to ASTM A-536, Grade 65-45-12, with a copper color alkyl enamel paint coating, as manufactured by Victaulic Company of America.

7.3 Victaulic Gaskets – Shall be molded of synthetic rubber in a FlushSeal configuration conforming to the copper tube size (CTS) outside diameter and coupling housing of elastomers having properties as designated in ASTM D-2000. Reference shall always be made to the latest published Selection Guide for Victaulic Gaskets for proper gasket selection for the intended service.

Water Service – Gasket supplied for water services from -30°F to +230°F (-34°C to +110°C), shall be a Grade "E" EPDM compound molded of materials conforming to ASTM D-2000, designation 2CA615A25B24F17Z, recommended for hot water service within the specified temperature range, plus a variety of dilute acids, oil-free air, and many chemical services. Grade "E" gaskets are UL/ULC classified to ANSI/NSF 61 for cold +86°F (+30°C) and hot +180°F (+82°C) potable water service. Not recommended for petroleum services.

7.4 Victaulic Flange Adapters – Shall be Victaulic Style 641 Vic-Flange adapters 2 - 6" (DN50 - DN150), ductile iron ASTM A-

536, Grade 65-45-12, engaging directly into roll grooved copper tube and fittings and bolting directly to ANSI Class 125 cast iron and Class 150 steel flanged components; installer to supply standard flange bolts. Flange casting shall be as in VIC/GUIDE SPEC section 7.2.a, above, with a corresponding Vic-Flange gasket as in VIC/GUIDE SPEC section 7.3, above.

7.5 Fittings – Fittings shall be Victaulic full flow (smooth turn elbows) copper fittings with grooves designed to accept Victaulic grooved end couplings. Standard Fittings - Shall be copper per ASTM B-75 alloy C12200; bronze sand castings per ASTM B-584 copper alloy CDA 844 (81-3-7-9) per ANSI B16.18.

Note: Use Victaulic Style 47 dielectric waterway when connecting dissimilar metals in liquid systems. ½ - 8" (DN15 - DN200) size range available with combinations of grooved, threaded or plain end for FIT (refer to VIC/GUIDE SPEC section 5.1.d.)

7.6 Valves - Grooved End Butterfly Valves

7.6.a Victaulic Series 608 Butterfly Valve – 2½ - 6" (DN65 - DN150), 300 PSI (2065 kPa), grooved ends. Cast bronze body to CDA-836 (85-5-5-5). Ductile iron disc, ASTM A-536, Grade 65-45-12, rubber encapsulated suited for the intended service. Seat test to MSS-SP-67. Bubble tight, dead-end or bi-directional service. With memory stop for throttling, metering or balancing service.

7.7 Assembly – Pipe ends shall be clean and free from indentations, projections and roll marks in the area from pipe end to groove for proper gasket sealing. The gasket style and elastomeric material (grade) shall be verified as suitable for the intended service as specified. See the latest copy of the Victaulic Field Assembly and Installation Instruction Pocket hHandbook (I-100). All grooved components (couplings, fittings, valves, gaskets, bolts and nuts) shall be of one manufacturer (Victaulic Company of America).

Note: Refer to the latest Victaulic G-100 general catalog for additional pressure ratings and application information.

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SECTION 8 VIC/GUIDE SPEC

VICTAULIC PRODUCT SPECIFICATIONS FOR USE WITH PRESSFIT SCHEDULE 5 CARBON STEEL PIPE (AUSTRALIA, CANADA, MEXICO, NEW ZEALAND AND USA ONLY)

8.0 Victaulic Pressfit System - Carbon Steel – Carbon Steel Victaulic Pressfit System for 2" (DN50) down through ¾" (DN20) Schedule 5, .065 wall (1.65 mm wall) pipe conforming to ASTM A135, A795 or A53, having a maximum yield strength of 45,000 psi (310275 kPa) and a maximum hardness of Rb70. Water, air, chemical, oil and vacuum systems with working pressures to 300 PSI (2065 kPa). UL/ULC Listed and FM Approved to 175 PSI (1200 kPa). Pressfit products for carbon steel are acceptable for use in mechanical system in accordance with BOCA, SBCCI, ICBO (UMC) and ICC (IMC) mechanical codes. Request BOCA-ES research report No.93.3, SBCCI-ES report No.9535 and ICBO-ES report No.5079 for details.

8.1 Couplings and Fittings – Coupling and fitting housings shall be Pressfit products formed of precision cold drawn steel pipe, as manufactured by Victaulic Company of America, with self contained O-ring seals in the coupling/fitting ends. Couplings and fittings shall be zinc electroplated ASTM B-633 (external only).

8.2 O-ring Seals – O-ring seals shall be molded of synthetic rubber, Grade "E" EPDM recommended for water services from -30°F to +230°F (-34°C to +110°C). Use Grade "T" (nitrile) for petroleum services from -20°F to +180°F (-29°C to +82°C). (Grade "T" is not to be used for hot water services.) Use Grade "O" (fluoroelastomer) for oxidizing acids and high temperature petroleum services +20°F to +300°F (-7°C to +149°C).

8.3 Valves – ¾ - 2" (DN20 - DN50) Victaulic Series 522 Ball Valve with carbon steel Pressfit ends, 300 PSI (2056 kPa), forged brass

body ASTM B-16, chrome plated brass ball and stem, ASTM B-16. TFE seats.

8.4 Pipe Preparation – Schedule 5 steel pipe shall be square cut plus or minus 0.030" (0.76 mm), properly deburred and cleaned to ensure leak-tight o-ring seal.

8.5 Assembly – Pipe ends must be marked at the required location and fully inserted into the coupling/fitting housing up to the pipe stop (except for Style 506 Slip Coupling which does not contain internal pipe stops). All instructions as found in the Victaulic "Pressfit Product Assembly Instructions," I-500 must be followed. Fitting ends shall be pressed onto the pipe using only a Victaulic Pressfit Tool equipped with the proper size pressing jaws in accordance with the latest Victaulic tool operating and maintenance instruction manual.

Note: Pressfit products for carbon steel pipe are externally zinc electroplated. It is the responsibility of designers of piping systems to verify that an adequate corrosion allowance, corrosion inhibitors or experience confirms system life will be adequate for the intended service. Schedule 5 carbon steel pipe compatible with Pressfit products provides corrosion resistance equivalent to ASTM A-53, A-135 and A-795 pipe.

Note: Refer to the latest Victaulic G-100 general catalog for additional pressure ratings and application information.

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SECTION 9 VIC/GUIDE SPEC

VICTAULIC PRODUCT SPECIFICATIONS FOR USE WITH VIC-PRESS 304 STAINLESS STEEL SYSTEM (AUSTRALIA, CANADA, MEXICO, NEW ZEALAND AND USA ONLY)

9.0 Victaulic Vic-Press 304 Stainless Steel System – The Vic-Press 304 stainless steel system, 2" (DN50) down through ½" (DN15), shall contain Victaulic stainless steel Pressfit fittings, couplings and pipe. All pipe shall be Certified for the use with this system by Victaulic. Vic-Press 304 couplings and fittings and Victaulic Certified Type 304 Vic-Press 304 pipe is UL/ULC classified to ANSI/NSF61 for cold +86°F (+30°C) and hot +180°F (+82°C) potable water service. This system shall be rated to a maximum working pressure of 300 PSI (2065 kPa) for water, oil, gas, chemical, and air services. (Also may be used on vacuum.)

9.1 Couplings and Fittings – Coupling and fitting shall be Pressfit products formed of austenitic stainless steel tubing. Couplings and fittings with Pressfit ends incorporate a self-contained o-ring seal.

9.2 O-ring Seals – O-ring seals shall be molded of synthetic rubber, Grade "E" (EPDM) recommended for water services from -30°F to +230°F (-34°C to +110°C). Use Grade "T" (nitrile) for petroleum services from -20°F to +180°F (-29°C to +82°C). (Grade "T" is not to be used for hot water services, use Grade "E".) Use Grade "O" (fluoroelastomer) for oxidizing acids and high temperature petroleum services +20°F to +300°F (-7°C to +149°C).

9.3 Valves – ½ - 2" (DN15 - DN50) Victaulic Series 589 Ball Valve with stainless steel Pressfit ends, 300 PSI (2056 kPa), forged brass body ASTM B-16, chrome plated brass ball and stem, ASTM B-16. TFE seats. ½ - 2" (DN15 - DN50) Victaulic Series 569 Ball Valve with Type 316 stainless steel plain ends for Pressfit assembly, 300 PSI (2056 kPa), stainless steel body and ball CF8M, Type 316 stainless steel stem, PTFE seats.

9.4 Pipe – Pipe shall be stainless steel Vic-Press 304 pipe, .049 wall (1.24 mm wall), A-269 Type 304/304L and be Certified for use with Pressfit products. Pipe shall be full finished annealed.

9.5 Pipe Preparation – Schedule 5 steel pipe shall be square cut plus or minus 0.030" (0.76 mm), properly deburred and cleaned to ensure leak-tight o-ring seal.

9.6 Assembly – Pipe ends must be marked at the required location and fully inserted into the coupling/fitting housing up to the pipe stop (except for Style 598 Slip Coupling which does not contain internal pipe stops). All instructions as found in the Victaulic "Pressfit Product Assembly Instructions," I-500 must be followed.

Fitting ends shall be pressed onto the pipe using only a Victaulic Pressfit Tool equipped with the proper size pressing jaws in accordance with the latest Victaulic tool operating and maintenance instruction manual.

Note: Refer to the latest Victaulic G-100 general catalog for additional pressure ratings and application information.

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SECTION 10 VIC/GUIDE SPEC

VICTAULIC PRODUCT SPECIFICATIONS FOR USE WITH PRESSFIT TYPE 316 STAINLESS STEEL SYSTEM (AUSTRALIA, CANADA, MEXICO, NEW ZEALAND AND USA ONLY)

10.0 Victaulic Type 316 Stainless Steel Pressfit System – The stainless steel Pressfit system, 2" (DN50) down through ½" (DN15) schedule 5S, shall contain Victaulic stainless steel Pressfit fittings, couplings and pipe. All pipe shall be Certified for the use with this system by Victaulic. Type 316 stainless steel Pressfit couplings and fittings and Victaulic Certified Type 316 stainless steel Pressfit pipe are UL/ULC classified to ANSI/NSF 61 for cold +86°F (+30°C) and hot +180°F (+82°C) potable water service. This system shall be valid to a maximum working pressure of 300 PSI (2065 kPa) for water, oil, gas, chemical, air and vacuum services.

10.1 Couplings and Fittings – Couplings and fittings shall be Pressfit products formed of 316/316L stainless steel tubing. Couplings and fittings with Pressfit ends incorporate a self-contained o-ring seal.

10.2 O-ring Seals – O-ring seals shall be molded of synthetic rubber, Grade "E" (EPDM) recommended for water services from -30°F to +230°F (-34°C to +110°C). Use Grade "T" (nitrile) for petroleum services from -20°F to +180°F (-29°C to +82°C). (Grade "T" is not to be used for hot water services, use Grade "E".) Use Grade "O" (fluoroelastomer) for oxidizing acids and high temperature petroleum services +20°F to +300°F (-7°C to +149°C).

10.3 Valves – ½ - 2" (DN15 - DN50) Victaulic Series 569 Ball Valve with Type 316 stainless steel plain ends for Pressfit assembly, 300 PSI (2056 kPa), stainless steel body and ball CF8M, Type 316 stainless steel stem, PTFE seats.

10.4 Pipe – Pipe shall be stainless steel Pressfit pipe, .065 wall, (1.65 mm wall) A-312 Type 316/316L and be Certified for use with Pressfit products. Pipe shall be full finished annealed with polished O.D.

10.5 Pipe Preparation – Schedule 5 steel pipe shall be square cut plus or minus 0.030" (0.76 mm), properly deburred and cleaned to ensure leak-tight o-ring seal.

10.6 Assembly – Pipe ends must be marked at the required location and fully inserted into the coupling/fitting housing up to the pipe stop (except for Style 508 Slip Coupling which does not contain internal pipe stops). All instructions as found in the Victaulic "Pressfit Product Assembly Instructions," I-500 must be followed. Fitting ends shall be pressed onto the pipe using only a Victaulic Pressfit Tool equipped with the proper size pressing jaws in accordance with the latest Victaulic tool operating and maintenance instruction manual.

Note: Refer to the latest Victaulic G-100 general catalog for additional pressure ratings and application information.

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SECTION 11
VIC/GUIDE SPEC
VICTAULIC PRODUCT SPECIFICATIONS
FOR USE WITH CARBON STEEL
PLAIN END PIPING SYSTEM
(BLACK OR GALVANIZED)

11.0 Victaulic Plain End System – Where shown on drawings, provide Victaulic plain end fittings and couplings in conjunction with plain end or beveled end carbon steel pipe.

11.1 Couplings

11.1.a Victaulic Style 90 Plainlock® Coupling – 1 - 6" (DN25 - DN150)

Housing: Ductile iron conforming to ASTM A-536, Grade 65-45-12, or malleable iron conforming to ASTM A-47.

Housing Coating: Orange enamel

Grips: Stainless steel, Type 416, hardened.

11.1.b Victaulic Style 99 Roust-A-Bout® Coupling – 1½ - 16" (DN40 - DN400)

Housing: Ductile iron conforming to ASTM A-536, Grade 65-45-12.

Housing Coating: Orange enamel

Jaws: Carbon steel, case hardened, electroplated.

11.2 Victaulic Gaskets

11.2.a Water and Oil Free Air Service – Shall be Grade "E" EPDM compound (green color coded) conforming to ASTM D-2000 designation 2CA615A25B24F17Z. Temperature operating range -30°F to +230°F (-34°C to +110°C). Grade "E" gaskets are UL/ULC classified to ANSI/NSF 61 for cold +86°F (+30°C) and hot +180°F (+82°C) potable water service. (Note: Air systems without hydrocarbons.) Use Grade "L" Silicone compound (red color coded) for dry air service operating temperatures +350°F (+177°C).

11.2.b Oil and Air Service with Oil Vapors – Shall be Grade "T" nitrile compound (orange color coded) conforming to ASTM D-2000 designation 5BG615A14B24. Temperature operating range -20°F to +180°F (-29°C to +82°C).

11.2.c Vacuum, Slurry Systems – Shall be Grade "E" or "T" FlushSeal gaskets. Vacuum service may also use standard gaskets with a Victaulic internal metal liner.

11.2.d Chemical Service – Refer to latest published Victaulic literature, Gasket Selection Guide section, for gasket type recommendations for various chemical services.

11.3 Fittings – Full Flow Victaulic Plain End Fittings designed for use with Style 90 Plainlock and Style 99 Roust-A-Bout couplings in conjunction with plain end or beveled end pipe. Fittings are cast of ductile iron in accordance with ASTM A-536, Grade 65-45-12, or malleable iron in accordance with ASTM A-47 or steel to ASTM A-53 with orange enamel coating.

Note that Style 99 Roust-A-Bout couplings can be used with No. 10P and No. 11P elbows in sizes 6" (DN150) and above only. NOTE: Standard 90° and 45° plain end elbows for 1 - 5" (DN25 - DN125) may be used with Style 90 Plainlock couplings only. If using Style 99 Roust-A-Bout couplings, specify special fittings. A minimum tangent length is required for proper assembly. (See current Victaulic literature.)

For Plain End FIT Fittings and Specialties see VIC/GUIDE SPEC Section 5.0 shown under IPS Grooved & Plain End FIT Systems for Fire Protection Piping.

11.4 Valves – Refer to VIC/GUIDE SPEC section 2.6 and 3.6 for valve selection. Grooved by plain end adapter nipples with Style 07 couplings are required for assembly.

11.5 Assembly – The gasket style and elastomeric material (grade) shall be verified as suitable for the intended service as specified. See the latest copy of the the Victaulic Field Assembly and Installation Instruction Pocket Handbook (I-100). All plain end piping components (couplings, fittings, valves, gaskets, bolts and nuts shall be of one manufacturer (Victaulic Company of America).

Note: Refer to the latest Victaulic G-100 general catalog for additional pressure ratings and application information.

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SECTION 12
VIC/GUIDE SPEC
VICTAULIC PRODUCT SPECIFICATIONS
FOR USE WITH PVC PIPE

12.0 IPS Grooved Piping Connections – For PVC Pipe, utilize Victaulic Style HP-70, Style 775, Style 77, Style 75, Style 78, Style 791, Style 750 or Style 72 couplings for connecting radius cut grooved or standard roll grooved PVC pipe. Contact Victaulic for joint pressure ratings specific to the type of PVC pipe and other determining factors.

Use Victaulic IPS products listed in VIC/GUIDE SPEC section 2.0, i.e.: fittings, valves, etc. (excluding rigid couplings and hole cut products) where necessary in conjunction with PVC plastic piping system.

12.1 Housing – Ductile iron conforming to ASTM A-536, Grade 65-45-12, or malleable iron conforming to ASTM A-47.

12.2 Victaulic Gasket

12.2.a EPDM (Green color code) – Temperature range -30°F to +230°F (-34°C to +110°C). Grade "E" gaskets are UL/ULC classified to ANSI/NSF 61 for cold +86°F (+30°C) and hot +180°F (+82°C) potable water service. Recommended for hot water service within the specified temperature range plus a variety of dilute acids, oil-free air and many chemical services. NOT RECOMMENDED FOR PETROLEUM SERVICES.

12.2.b Nitrile (Orange color code) – Temperature range -20°F to +180°F (-29°C to +82°C). Recommended for petroleum products, hydrocarbons, air with oil vapors, except hot dry air over +140°F (+60°C); vegetable and mineral oils and water up to +150°F (+66°C) temperature range. NOT RECOMMENDED FOR HOT WATER SERVICES.

NOTE: System temperatures will be limited by the piping material. Gasket recommendations may exceed the permissible operating temperature of the pipe.

12.3 Valves – Refer to VIC/GUIDE SPEC sections 2.6 and 3.6 for valve selection where non-PVC valves are acceptable.

12.4 Assembly – Pipe ends shall be clean and free from indentations, projections and roll marks in the area from pipe end to groove for proper gasket sealing. The gasket style and elastomeric material (grade) shall be verified as suitable for the intended service as specified. See the latest copy of the the Victaulic Field Assembly and Installation Instructions Pocket Handbook (I-100). All grooved components (couplings, fittings, valves, gaskets, bolts and nuts) shall be of one manufacturer (Victaulic Company of America).

Note: Refer to the latest Victaulic G-100 general catalog for additional pressure ratings and application information.

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SECTION 13
VIC/GUIDE SPEC
VICTAULIC PRODUCT SPECIFICATIONS
FOR USE WITH PLAIN END PIPING CONNECTIONS
FOR HDPE PIPE

13.0 Plain End Piping Connections - For HDPE Pipe – Victaulic style 995 HDPE couplings for joining plain end HDPE pipe SDR 35 minimum. For connection of HDPE to grooved components, use Victaulic Style 977 HDPE to IPS transition coupling. For connection of HDPE to Class 150 lb. Flange components, use Victaulic Style 944 HDPE flange adapter. Victaulic products for HDPE pipe are rated to pressures equal to the pipe with which they are used. The pipe manufacturer's listing is dependent upon wall thickness, pipe composition and temperature.

13.1 Couplings – Victaulic Style 995 couplings, Style 997 Transition Coupling and Style 994 flange adapters shall be of ductile iron conforming to ASTM A-536, Grade 65-45-12.

13.2 Bolts and Nuts – Victaulic Style 995 and 997 coupling bolts shall be heat treated carbon steel trackhead conforming to physical properties of ASTM A-183, minimum tensile strength 110,000 PSI (758450 kPa) zinc plated to ASTM B-633 standard as provided by Victaulic. Optional stainless steel to ASTM A-193 Grade B8, Class 2 (Type 304) or grade B8M, Class 2 (Type 316).

13.3 Gaskets – Gaskets for HDPE products shall be Victaulic Grade “E” EPDM compound (green color code) conforming to ASTM D-2000 designation 2CA615A25B24F17Z, for water, air without hydrocarbons, or certain chemical services to +230°F (+110°C). Grade “E” gaskets are UL/ULC classified to ANSI/NSF 61 for cold +86°F (+30°C) and hot +180°F (+82°C) potable water service. Note: Consult pipe manufacturer for acceptable operating temperature range of HDPE pipe.

13.4 Assembly – Assembly of HDPE couplings and flange adapters shall be in accordance with latest published edition of the Victaulic Field Assembly and Installation Instructions Pocket Handbook (I-100).

Note: Gasket shall be lubricated with corn oil, glycerin, silicone oil, or silicone release agent. Do not use Victaulic Lubricant, hydrocarbon based oils, greases or soap-based solutions. All plain end components (couplings, fittings, valves, gaskets, bolts and nuts) shall be of one manufacturer (Victaulic Company of America).

Note: Refer to the latest Victaulic G-100 general catalog for additional pressure ratings and application information.

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SECTION 14 VIC/GUIDE SPEC

VICTAULIC PRODUCT SPECIFICATIONS FOR USE WITH AQUAMINE® HIGH IMPACT PVC PIPING CONNECTIONS

14.0 Aquamine® Spline-Type Piping Connections - For High Impact PVC – Quick-joining reusable system using Aquamine® Aqualink couplings for joining spline-grooved high impact PVC 1120 Aquamine pipe. Note: Not to be used in compressed air/gas services.

14.1 Couplings – Aquamine Aqualink couplings shall be of high impact PVC 1120 conforming to ASTM D-2241, and shall utilize polyisoprene o-rings.

14.2 Pipe – Aquamine high impact PVC 1120 conforming to ASTM D-2241.

14.3 Fittings – Aquamine fittings with spline-grooved ends for use with Aquamine pipe and couplings.

14.4 Valves – Valves shall be Aquamine AQV Series butterfly valves, 250 PSI at +73°F (1725 kPa at +23°C) reduced operating pressure at temperatures greater than +70°F. Ductile iron (ASTM A-536, Grade 65-45-12) housing, PVC 1120 body. Ductile iron disc, rubber encapsulated with Grade “T” nitrile compound conforming to ASTM D-2000 designation 5BG615A14B24.

14.5 Assembly – Assembly of Aquamine couplings and pipe shall be in accordance with the latest revision of the Aquamine Assembly and Installation Instructions AM-I-100). All components (couplings, fittings, valves, gaskets, PVC pipe) shall be of one manufacturer (Aquamine, LLC or Victaulic Company of America).

Note: Refer to the latest Victaulic G-100 general catalog for additional pressure ratings and application information.

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SECTION 15 VIC/GUIDE SPEC

VICTAULIC PRODUCT SPECIFICATIONS FOR USE WITH PIPING SYSTEM DRAWINGS

15.0 Victaulic Piping System Drawings – The Victaulic Technical Services Division shall provide all equipment location drawings, piping layout drawings and piping isometric drawings for fabrication and erection of 2½" (DN65) and larger Victaulic piping systems required for this project. All of the above data will be provided in reliance upon mechanical drawings, specifications and project information furnished by the contractor. Bills of material and pipe cutting sheets will be provided by Victaulic Technical Services and will be cross-referenced to all drawings. The drawings provided will govern only those systems directly related to Victaulic piping systems exclusively employing Victaulic products installed in strict accordance with the latest specifications provided by the Victaulic Company of America

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