Victaulic® AGS™ Stainless Steel Flexible Coupling Style W77S

20.31

1.0 PRODUCT DESCRIPTION

Available Sizes

- 14 – 24"/DN350 – DN600

Pipe Requirements

- Stainless Steel: Type 304/304L/316/316L per ASTM A312, see publication 17.01
- Carbon Steel: API-5L, ASTM A53, AWWA C200 with a minimum yield strength of 35000 psi/241317 kPa/ 2413 Bar
- For pipe preparation requirements, reference publication 25.09

Maximum Allowable Working Pressure

- Accommodates pressures ranging from full vacuum (29.9 in Hg/760 mm Hg) up to 150 psi/1034 kPa/10 Bar

Application

- Provides limited linear and angular pipe movement at the pipe joint that can be used to compensate for thermal growth of piping systems, vibration attenuation, seismic, differential settlement, and other applications requiring flexibility

Function

- Wedge-shaped key profile increases allowable pipe end separation and facilitates assembly

NOTES

- Style W77S AGS Couplings are provided with Flush-Seal™ gaskets for a variety of services. Please specify gasket grade when ordering. See publication 05.01 for gasket service ratings.
- Style W77S AGS Couplings can also be used on abrasive/slurry services in combination with the AGS *Vic-Ring*. See publication 16.15.

2.0 CERTIFICATION/LISTINGS

Product manufactured by Victaulic and/or certified suppliers in accordance with ISO-9001.

NOTE

- See publication 02.06: Victaulic Potable Water Approvals ANSI/NSF for potable water approvals, if applicable.

ALWAYS REFER TO ANY NOTIFICATIONS AT THE END OF THIS DOCUMENT REGARDING PRODUCT INSTALLATION, MAINTENANCE OR SUPPORT.

3.0 SPECIFICATIONS – MATERIAL

Housing: CF8M (316 stainless steel) conforming to ASTM A351, A743 and A744

Coupling Gasket: (specify choice[1])

☐ **Grade "E" Flush-Seal™ EPDM**

EPDM (Green stripe color code). Temperature range –30°F to +230°F/–34°C to +110°C. May be specified for hot water service within the specified temperature range plus a variety of dilute acids, oil-free air and many chemical services. UL Classified in accordance with ANSI/NSF 61 for cold +73°F/+23°C and hot +180°F/+82°C potable water service and ANSI/NSF 372. **NOT COMPATIBLE FOR USE WITH PETROLEUM SERVICES OR STEAM SERVICES.**

☐ **Grade "T" Flush-Seal™ Nitrile**

Nitrile (Orange stripe color code). Temperature range –20°F to +180°F/–29°C to +82°C. May be specified for oil related services, including air with oil vapor, this gasket may be specified for temperatures rated up to +180°F/+82°C. For water related services, this gasket may be specified for temperatures rated up to +150°F/+66°C. For oil free, dry air services, this gasket may be specified for temperatures rated up to +140°F/+60°C. **NOT COMPATIBLE FOR USE WITH HOT WATER SERVICES OR STEAM SERVICES**.

☐ **Grade "L" Flush-Seal™ Silicone**

Silicone (Red stripe color code). Temperature range –30°F to +350°F/–34° C to +177° C. May be specified for dry heat, air without hydrocarbons to +350°F/+177°C and certain chemical services. **NOT COMPATIBLE FOR USE WITH PETROLEUM SERVICES, HOT WATER SERVICES, OR STEAM SERVICES**.

☐ **Others**

For alternate gasket selection, reference publication 05.01: Victaulic Seal Selection Guide.

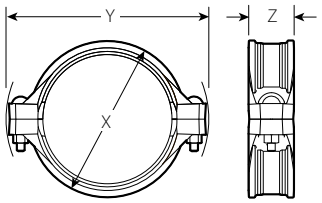
[1] Services listed are General Service Guidelines only. It should be noted that there are services for which these gaskets are not compatible. Reference should always be made to the latest Victaulic Seal Selection Guide for specific gasket service guidelines and for a listing of services which are not compatible.

Hardware:

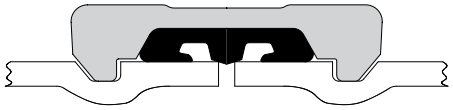
Stainless steel oval neck track bolts meeting the mechanical property requirements of ASTM A193 Grade B8M, Class 2 (316 stainless steel). Stainless steel heavy hex nuts meeting the mechanical property requirements of ASTM A194 Grade 8M (316 stainless steel), condition CW, with galling reducing coating.

4.0 DIMENSIONS

Style W77S



14 – 24"/DN350 – DN600



Typical Cross Section
Exaggerated for clarity

Size		Pipe End Separation	Deflection from Centerline		Bolt/Nut			Dimensions			Weight
Nominal inches DN	**Actual Outside Diameter** inches mm	**Nominal** inches mm	**Per** Cplg. Deg.	in/ft mm/m	**Qty.**	**Size** inches	**Required Torque** ft-lbs N•m	**X** inches mm	**Y** inches mm	**Z** inches mm	**Approximate (Each)** lb kg
14 DN350	14.000 355.6	0.13 – 0.31 3.3 – 7.9	0.73	0.154 12.86	2	1 ⅛ X 5 ½	375 508	15.63 396	21.38 542	4.75 121	65.0 29.5
16 DN400	16.000 406.4	0.13 – 0.31 3.3 – 7.9	0.64	0.135 11.25	2	1 ⅛ X 5 ½	375 508	18.88 479	23.38 593	4.75 121	80.0 36.3
18 DN450	18.000 457.2	0.13 – 0.31 3.3 – 7.9	0.57	0.120 10.00	2	1 ⅛ X 5 ½	375 508	21.00 531	25.50 648	4.75 121	93.0 42.2
20 DN500	20.000 508.0	0.13 – 0.31 3.3 – 7.9	0.51	0.108 9.00	2	1 ⅛ X 5 ½	375 508	23.75 601	27.50 697	4.75 121	114.0 51.7
24 DN600	24.000 609.6	0.13 – 0.31 3.3 – 7.9	0.42	0.090 7.50	2	1 ⅛ X 5 ½	375 508	29.88 756	31.88 807	4.75 121	181.2 82.2

NOTES

- The allowable pipe end separation dimension shown is for system layout purposes only. Style W77S AGS Couplings are considered flexible connections and will accommodate expansion/contraction or angular movement of the piping system.
- The outside diameter, ovality, and surface finish (including flat spots and imperfections) shall not vary more than the limits of API 5L end tolerance.
- The X, Y, and Z dimensions are intended to be used for layout and clearance purposes only.
- For additional pipe sizes, contact Victaulic.

5.0 PERFORMANCE

Size		Carbon Steel and Stainless Steel Schedule 10/10S and Heavier				
Nominal inches DN	**Actual Outside Diameter** inches mm	**Schedule 10 Nominal Wall Thickness** inches mm	**Schedule 10S Nominal Wall Thickness** inches mm	**Maximum Allowable Working Pressure (MAWP)[2]** psi kPa	**Maximum Permissible End Load[2]** lb N	**Activation Moment[3]** ft-lbs N•m
14 DN350	14.000 355.6	0.250 6.4	0.188 4.8	150 1034	23,091 102,714	13,500 18,304
16 DN400	16.000 406.4	0.250 6.4	0.188 4.8	150 1034	30,159 134,154	20,125 27,285
18 DN450	18.000 457.2	0.250 6.4	0.188 4.8	150 1034	38,170 169,789	28,630 38,820
20 DN500	20.000 508.0	0.250 6.4	0.218 4.8	150 1034	47,124 209,618	39,270 53,285
24 DN600	24.000 609.6	0.250 6.4	0.250 6.4	150 1034	67,858 301,847	67,860 92,005

[2] Maximum Allowable Working Pressure (MAWP) and Maximum Permissible End Load are total, from all internal and external loads, based on stainless steel or carbon steel pipe roll grooved to Victaulic specifications using Victaulic roll sets. Reference publication 17.01 for roll set requirements when grooving stainless steel pipe. Contact Victaulic for performance on other pipe.

[3] Victaulic Style W77S Couplings require an activation moment resulting in reaction forces and moments in the system. This moment is linearly proportional to the system MAWP and can be determined for system design pressure through this linear relationship. The design activation moment shall be used for piping system and structural design purposes

NOTES

- WARNING – FOR ONE TIME FIELD TEST ONLY: The Maximum Joint Working Pressure may be increased to 1 ½ times the figures shown.
- AGS is a fully self-restrained joint.

6.0 NOTIFICATIONS

⚠ WARNING

- **Read and understand all instructions before attempting to install any Victaulic products.**
- **Always verify that the piping system has been completely depressurized and drained immediately prior to installation, removal, adjustment, or maintenance of any Victaulic products.**
- **Confirm that any equipment, branch lines, or sections of piping that may have been isolated for/during testing or due to valve closures/positioning are identified, depressurized, and drained immediately prior to installation, removal, adjustment, or maintenance of any Victaulic products.**
- **Always read and follow the I-ENDCAP, Victaulic End Cap Installation Safety Instructions, which can be downloaded at Victaulic.com.**
- **Wear safety glasses, hardhat, foot protection, and hearing protection.**
- **It is the system designer's responsibility to verify suitability of stainless steel components for use with the intended fluid media within the piping system and external environment.**
- **The material specifier shall evaluate the effect of chemical composition, pH level, operating temperature, chloride level, oxygen level, and flow rate on stainless steel components to confirm system life will be acceptable for the intended service.**
- **Always reference Victaulic publication 17.01 for stainless steel pipe end preparation and grooving roll set requirements. Grooving roll sets for stainless steel pipe must be ordered separately.**

Failure to follow these instructions could compromise system integrity or cause system failure, resulting in death or serious personal injury and property damage.

⚠ WARNING

- **Style W77S Couplings shall be used only on pipe that is prepared with AGS *Vic-Rings* or grooved to AGS specifications, Victaulic publication 25.09, using Victaulic AGS roll sets (RWX specifically for light-wall stainless steel pipe and RW for standard-wall stainless steel pipe).**
- **DO NOT attempt to assemble the Style W77S Coupling on pipe that is direct-grooved with Victaulic Original Groove System (OGS) roll sets.**

Failure to follow these instructions will cause improper product assembly and joint failure, resulting in death or serious personal injury and property damage.

NOTICE

- **Victaulic RWX and RW grooving rolls must be ordered separately.**
- **RWX grooving roll sets are silver in color with a black stripe and the part code designation RWX on the front of the roll set.**
- **RW grooving roll sets are black in color with a yellow stripe and the part code designation RW on the front of the roll set.**

7.0 REFERENCE MATERIALS

02.06: Potable Water Approvals
05.01: Seal Selection Guide
16.15: Style W89 Rigid Coupling with AGS *Vic-Rings*
17.01: Stainless Steel Pipe End Preparation
17.05: AGS Grooved End Stainless Steel Fittings Schedule 10S
24.01: Pipe Preparation Tool Specifications
25.09: Advanced Groove System (AGS) Roll Groove Specifications
26.01: Grooved Piping System – Design Data
29.01: Terms and Conditions/Warranty
I-W100: Field Installation Handbook Advanced Groove System Products
I-ENDCAP: Victaulic® End Cap Installation Safety Instructions

