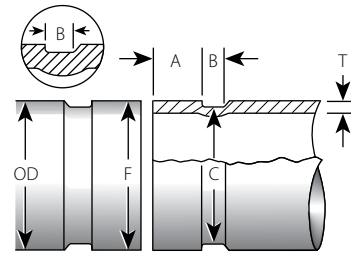


# Advanced Groove System (AGS) Roll Groove Specifications



25.09

## 1.0 DIMENSIONS



Exaggerated for Clarity

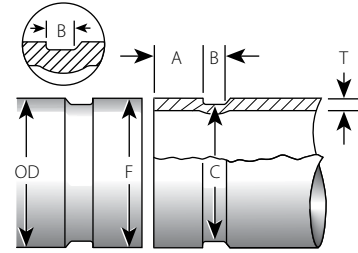
Size	Outside Diameter <sup>1</sup>			Nominal Wall Thickness for Grooving "T" <sup>5</sup>		Gasket Seat "A" <sup>2</sup> +0.031/ -0.063 +0.79/-1.60	Groove Width "B" <sup>3</sup>	Groove Diameter "C" <sup>4</sup>		Max Allow. Flare "F" <sup>6</sup>
	Nominal inches DN	Actual inches mm	Tolerance	Carbon Steel inches mm	Light Wall Stainless Steel Schedule 10S inches mm			Maximum inches mm	Minimum inches mm	
14 DN350	14.000	14.093	13.969	0.220 – 0.750	0.188	1.500	0.455	13.500	13.455	14.23
	355.6	358.0	354.8	5.6 – 19.1	4.8	38.1	11.6	342.9	341.8	361.4
16 DN400	14.843	14.937	14.812	0.217 – 0.750	–	1.500	0.455	14.343	14.298	15.07
	377.0	379.4	376.2	5.5 – 19.1	–	38.1	11.6	364.3	363.2	382.8
16 DN400	16.000	16.093	15.969	0.250 – 0.750	0.188	1.500	0.455	15.500	15.455	16.23
	406.4	408.8	405.6	6.4 – 19.1	4.8	38.1	11.6	393.7	392.6	412.2
18 DN450	16.772	16.866	16.741	0.256 – 0.750	–	1.500	0.455	16.272	16.227	17.00
	426.0	428.4	425.2	6.5 – 19.1	–	38.1	11.6	413.3	412.2	431.8
18 DN450	18.000	18.093	17.969	0.250 – 0.750	0.188	1.500	0.455	17.500	17.455	18.23
	457.2	459.6	456.4	6.4 – 19.1	4.8	38.1	11.6	444.5	443.4	463.0
20 DN500	18.898	18.992	18.867	0.256 – 0.750	–	1.500	0.455	18.398	18.353	19.13
	480.0	482.4	479.2	6.5 – 19.1	–	38.1	11.6	467.3	466.2	485.9
20 DN500	20.000	20.093	19.969	0.250 – 0.750	0.218	1.500	0.455	19.500	19.455	20.23
	508.0	510.4	507.2	6.4 – 19.1	5.5	38.1	11.6	495.3	494.2	513.8
22 DN550	20.866	20.960	20.835	0.256 – 0.750	–	1.500	0.455	20.366	20.321	21.09
	530.0	532.4	529.2	6.5 – 19.1	–	38.1	11.6	517.3	516.2	535.7
22 DN550	22.000	22.093	21.969	0.250 – 0.750	0.218	1.500	0.455	21.500	21.455	22.23
	558.8	561.2	558.0	6.4 – 19.1	5.5	38.1	11.6	546.1	545.0	564.6
24 DN600	24.000	24.093	23.969	0.250 – 0.750	0.218	1.500	0.455	23.500	23.455	24.23
	609.6	612.0	608.8	6.4 – 19.1	5.5	38.1	11.6	596.9	595.8	615.4
26 DN650	24.803	24.897	24.772	0.256 – 0.750	–	1.500	0.455	24.303	24.258	25.03
	630.0	632.4	629.2	6.5 – 19.1	–	38.1	11.6	617.3	616.2	635.8
26 DN650	26.000	26.063	25.937	0.313 – 0.750	–	1.750	0.535	25.430	25.370	26.30
	660.4	662.0	658.8	8.0 – 19.1	–	44.5	13.6	645.9	644.4	668.0

- Outside diameter:** The outside diameter of roll grooved pipe shall not vary more than the tolerance listed. The maximum allowable tolerance from square cut ends is 0.125"/3.2 mm, measured from true square line. For AWWA and other pipe sizes or wall thicknesses, contact Victaulic.
- Gasket seat "A":** The pipe surface shall be free from indentations, roll marks and projections from the end of the pipe to the groove to provide a leak-tight seal for the gasket. All loose paint, scale, dirt, chips, grease and rust must be removed. It continues to be Victaulic's first recommendation that pipe be square cut. Gasket seat "A" is measured from the end of the pipe. **IMPORTANT:** Roll grooving of beveled end pipe may result in unacceptable pipe end flare. See Maximum Allowable Flare "F".
- Groove width "B":** The bottom of the groove shall be free of loose dirt, chips, rust, scale, and/or excess coating material that may interfere with proper coupling assembly.
- Groove diameter "C":** The groove must be of uniform depth for the entire pipe circumference. The groove must be maintained within the "C" diameter tolerance listed.
- Nominal Wall Thickness for Grooving "T":** This is the nominal allowable pipe wall thickness which may be roll grooved.
- Maximum Allowable Flare "F":** Measured at the most extreme pipe end diameter square cut or beveled.

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



1.0 DIMENSIONS (CONTINUED)

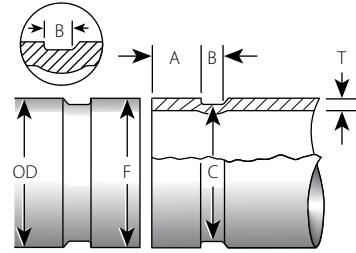


Exaggerated for Clarity

Size	Outside Diameter <sup>1</sup>			Nominal Wall Thickness for Grooving "T" <sup>5</sup>		Gasket Seat "A" <sup>2</sup> +0.031/ -0.063 +0.79/-1.60	Groove Width "B" <sup>3</sup>	Groove Diameter "C" <sup>4</sup>		Max Allow. Flare "F" <sup>6</sup>
	Nominal inches DN	Actual inches mm	Tolerance Maximum inches mm Minimum inches mm	Carbon Steel inches mm	Light Wall Stainless Steel Schedule 10S inches mm			Maximum inches mm	Minimum inches mm	
28 DN700	28.000 711.2	28.063 712.8	27.937 709.6	0.313 – 0.750 8.0 – 19.1	–	1.750 44.5	0.535 13.6	27.430 696.7	27.370 695.2	28.30 718.8
	28.346 720.0	28.409 721.6	28.283 718.4	0.313-0.750 8.0-19.1	-	1.750 44.5	0.535 13.6	27.776 705.5	27.716 704.0	28.65 727.6
30 DN750	30.000 762.0	30.063 763.6	29.937 760.4	0.313 – 0.750 8.0 – 19.1	–	1.750 44.5	0.535 13.6	29.430 747.5	29.370 746.0	30.30 769.6
32 DN800	32.000 812.8	32.063 814.4	31.937 811.2	0.313 – 0.750 8.0 – 19.1	–	1.750 44.5	0.535 13.6	31.430 798.3	31.370 796.8	32.30 820.4
	32.283 820.0	32.346 821.6	32.220 818.4	0.313-0.750 8.0-19.1	-	1.750 44.5	0.535 13.6	31.713 805.5	31.653 804.0	32.58 827.6
34 DN850	34.000 863.6	34.063 865.2	33.937 862.0	0.313 – 0.750 8.0 – 19.1	–	1.750 44.5	0.535 13.6	33.430 849.1	33.370 847.6	34.30 871.2
36 DN900	36.000 914.4	36.063 916.0	35.937 912.8	0.313 – 0.750 8.0 – 19.1	–	1.750 44.5	0.535 13.6	35.430 899.9	35.370 898.4	36.30 922.0
	36.220 920.0	36.283 921.6	36.157 918.4	0.313-0.750 8.0-19.1	-	1.750 44.5	0.535 13.6	35.650 905.5	35.590 904.0	36.52 927.6
38 DN950	38.000 965.0	38.063 966.8	37.937 963.6	0.313 – 0.750 8.0 – 19.1	–	1.750 44.5	0.535 13.6	37.430 950.7	37.370 949.2	38.30 972.8
40 DN1000	40.000 1016.0	40.063 1017.6	39.937 1014.4	0.313 – 0.750 8.0 – 19.1	–	2.000 50.8	0.562 14.3	39.375 1000.1	39.315 998.6	40.30 1023.6
42 DN1050	42.000 1066.8	42.063 1068.4	41.937 1065.2	0.313 – 0.750 8.0 – 19.1	–	2.000 50.8	0.562 14.3	41.375 1050.9	41.315 1049.4	42.30 1074.4
44 DN1100	44.000 1117.6	44.063 1119.2	43.937 1116.0	0.313 – 0.750 8.0 – 19.1	–	2.000 50.8	0.562 14.3	43.375 1101.7	43.315 1100.2	44.30 1125.2
46 DN1150	46.000 1168.4	46.063 1170.0	45.937 1166.8	0.313 – 0.750 8.0 – 19.1	–	2.000 50.8	0.562 14.3	45.375 1152.5	45.315 1151.0	46.30 1176.0
48 DN1200	48.000 1219.2	48.063 1220.8	47.937 1217.6	0.313 – 0.750 8.0 – 19.1	–	2.000 50.8	0.562 14.3	47.375 1203.3	47.315 1201.8	48.30 1226.8
50 DN1250	50.000 1270.0	50.063 1271.6	49.937 1268.4	0.313 – 0.750 8.0 – 19.1	–	2.000 50.8	0.562 14.3	49.375 1254.1	49.315 1252.6	50.30 1277.6
54 DN1350	54.000 1371.6	54.063 1373.2	53.937 1370.0	0.375 – 0.750 9.5 – 19.1	–	2.500 63.5	0.562 14.3	53.430 1357.1	53.370 1355.6	54.30 1379.2

- Outside diameter:** The outside diameter of roll grooved pipe shall not vary more than the tolerance listed. The maximum allowable tolerance from square cut ends is 0.125/3.2 mm, measured from true square line. For AWWA and other pipe sizes or wall thicknesses, contact Victaulic.
- Gasket seat "A":** The pipe surface shall be free from indentations, roll marks and projections from the end of the pipe to the groove to provide a leak-tight seal for the gasket. All loose paint, scale, dirt, chips, grease and rust must be removed. It continues to be Victaulic's first recommendation that pipe be square cut. Gasket seat "A" is measured from the end of the pipe. IMPORTANT: Roll grooving of beveled end pipe may result in unacceptable pipe end flare. See Maximum Allowable Flare "F".
- Groove width "B":** The bottom of the groove shall be free of loose dirt, chips, rust, scale, and/or excess coating material that may interfere with proper coupling assembly.
- Groove diameter "C":** The groove must be of uniform depth for the entire pipe circumference. The groove must be maintained within the "C" diameter tolerance listed.
- Nominal Wall Thickness for Grooving "T":** This is the nominal allowable pipe wall thickness which may be roll grooved.
- Maximum Allowable Flare "F":** Measured at the most extreme pipe end diameter square cut or beveled.

1.0 DIMENSIONS (CONTINUED)



Exaggerated for Clarity

Size	Outside Diameter <sup>1</sup>			Nominal Wall Thickness for Grooving "T" <sup>5</sup>		Gasket Seat "A" <sup>2</sup> +0.031/ -0.063 +0.79/-1.60	Groove Width "B" <sup>3</sup>	Groove Diameter "C" <sup>4</sup>		Max Allow. Flare "F" <sup>6</sup>
	Nominal inches DN	Actual inches mm	Tolerance Maximum inches mm Minimum inches mm	Carbon Steel inches mm	Light Wall Stainless Steel Schedule 10S inches mm			Maximum inches mm	Minimum inches mm	
56 DN1400	56.000 1422.2	56.063 1424.0	55.937 1420.8	0.375 – 0.750 9.5 – 19.1	– –	2.500 63.5	0.562 14.3	55.430 1407.9	55.370 1406.4	56.30 1430.0
58 DN1450	58.000 1473.2	58.063 1474.8	57.937 1471.6	0.375 – 0.750 9.5 – 19.1	– –	2.500 63.5	0.562 14.3	57.430 1458.7	57.370 1457.2	58.30 1480.8
60 DN1500	60.000 1524.0	60.063 1525.6	59.937 1522.4	0.375 – 0.750 9.5 – 19.1	– –	2.500 63.5	0.562 14.3	59.430 1509.5	59.370 1508.0	60.30 1531.6
62 DN1550	62.000 1574.8	62.063 1576.4	61.937 1573.2	0.375 – 0.750 9.5 – 19.1	– –	2.500 63.5	0.562 14.3	61.430 1560.3	61.370 1558.8	62.30 1582.4
64 DN1600	64.000 1625.6	64.063 1627.2	63.937 1624.0	0.500 – 0.750 12.7 – 19.1	– –	2.500 63.5	0.562 14.3	63.430 1611.1	63.370 1609.6	64.30 1633.2
66 DN1650	66.000 1676.4	66.063 1678.0	65.937 1674.8	0.500 – 0.750 12.7 – 19.1	– –	2.500 63.5	0.562 14.3	65.430 1661.9	65.370 1660.4	66.30 1684.0
68 DN1700	68.000 1727.2	68.063 1728.8	67.937 1725.6	0.500 – 0.750 12.7 – 19.1	– –	2.500 63.5	0.562 14.3	67.430 1712.7	67.370 1711.2	68.30 1734.8
72 DN1800	72.000 1828.8	72.063 1830.4	71.937 1827.2	0.500 – 0.750 12.7 – 19.1	– –	2.500 63.5	0.562 14.3	71.430 1814.3	71.370 1812.8	72.30 1836.4

- Outside diameter:** The outside diameter of roll grooved pipe shall not vary more than the tolerance listed. The maximum allowable tolerance from square cut ends is 0.125"/3.2 mm, measured from true square line. For AWWA and other pipe sizes or wall thicknesses, contact Victaulic.
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- Groove width "B":** The bottom of the groove shall be free of loose dirt, chips, rust, scale, and/or excess coating material that may interfere with proper coupling assembly.
- Groove diameter "C":** The groove must be of uniform depth for the entire pipe circumference. The groove must be maintained within the "C" diameter tolerance listed.
- Nominal Wall Thickness for Grooving "T":** This is the nominal allowable pipe wall thickness which may be roll grooved.
- Maximum Allowable Flare "F":** Measured at the most extreme pipe end diameter square cut or beveled.

## 2.0 NOTIFICATIONS

- Pipe shall meet the above dimensional requirements and shall meet the physical and mechanical properties of either ASTM A53, API 5L, AWWA C200, EN/BS10216-1, EN/BS10217-1, GB/T 3091, GB/T 8163 or other internationally recognized standards. Please contact Victaulic for consideration of pipe outside of the above physical, mechanical, and dimensional requirements.
- Steel pipe suitable for AGS roll grooving shall be Seamless, Electric-Welded (ERW), Longitudinal Seam Submerged-Arc Welded (SAW), Double Seam Submerged-Arc Welded (DSAW), or Helical Seam Submerged-Arc Welded (HSAW) construction.
- Pipe wall thickness shall be from 0.188" – 0.750"/4.8 mm – 19.05 mm. Refer to Section 1.0 - Dimensions for complete details. For other wall thickness and sizes, contact Victaulic for more information. 1(800) Pick-Vic.
- Manufactured/non-Factory Pipe Ends: For pipe sizes 14 – 24"/DN350 – DN600, manufactured pipe ends shall meet the dimensional requirements of the Victaulic published AGS grooving specifications in the above tables. For pipe sizes 26 – 54"/DN650 – DN1350, manufactured pipe ends shall meet the dimensional requirements of the above tables and API 5L Table 10 "Tolerances for diameter and out-of-roundness", Diameter tolerances, Pipe end, Welded Pipe. For pipe sizes greater than 56"/DN1400, where the pipe end tolerances in API 5L Table 10 are shown as "as agreed", pipe ends shall comply with Victaulic published AGS grooving specifications in the above tables. Pipe ovality and pipe end surface finish including flat spots and imperfections shall not vary more than the limits of API 5L end tolerance.
- Depending on pipe material strength and hardness, AGS grooves produce pipe growth that typically is 0.125"/3.2 mm per AGS groove. This typical growth may vary and should be estimated based on your specific material conditions. For a pipe length with an AGS roll groove at each end, the pipe length will grow approximately 0.250"/6.4 mm total. Therefore, the cut length should be adjusted to accommodate this growth. EXAMPLE: If you need a 24"/609.6 mm length of pipe that will contain an AGS roll groove at each end, cut the pipe to a length of approximately 23 ¾"/603.25 mm to allow for this growth.
- Prior to AGS roll grooving, weld seams at the pipe ends on the outside pipe surface and inside pipe surface must be ground flush with the OD and ID of the pipe in accordance with the applicable Victaulic roll grooving tool operating manual. Pipe ends shall be square to within 0.125"/3.2 mm and may be plain end, square cut, or beveled with an angle of 30-35 degrees.
- AGS roll sets for use on both lightwall and standard wall carbon steel pipe, as well as standard wall stainless steel pipe, are distinguished by a black appearance with a yellow band. AGS roll sets for light wall stainless steel are distinguished by a silver appearance with a black band.
- Refer to [publication 24.01](#) for roll groove tool capabilities by pipe size and pipe hardness.
- Maximum coating thickness shall be +0.010"/0.25 mm. When measuring pipe end dimensions of coated (non-bare) pipe and comparing them to the dimensions in the above table, coating thickness will affect measurements and must be considered. Nominal dimensions shown in table above will be adjusted as follows, tolerances will not change. Pipe Outside Diameter, Gasket Seat "A", Groove Diameter "C" and Maximum Allowable Flare Diameter "F", and Minimum Allowable Wall Thickness "T" shall increase by +0.020"/+0.50 mm. Groove Width "B" will be reduced by -0.020"/-0.50 mm.
- Roll grooving removes no metal, cold forming a groove by the action of an outer grooving roll being forced into pipe as it is rotated by an inner support roll.

## 2.0 NOTIFICATIONS (CONTINUED)

### WARNING



- Read and understand all instructions before attempting to install, remove, adjust, or maintain any Victaulic piping products.
- Depressurize and drain the piping system before attempting to install, remove, adjust, or maintain any Victaulic piping products.
- Wear safety glasses, hardhat, and foot protection.
- Victaulic Advanced Groove System (AGS) Couplings shall be installed only on pipe that is prepared with specialized roll sets to AGS specifications.
- Prior to AGS Coupling installation, verify that the adjoining pipe ends are prepared to AGS specifications.
- DO NOT attempt to install AGS Couplings on pipe ends that are prepared to any other groove specification.
- DO NOT attempt to install Victaulic Original Groove System (OGS) products on pipe ends that are prepared to AGS specifications.

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

## 3.0 REFERENCE MATERIALS

- [04.01: Anatomy of a Grooved Pipe Joint](#)
- [20.02: Victaulic AGS™ Rigid Coupling Style W07](#)
- [20.03: Victaulic AGS™ Flexible Coupling Style W77](#)
- [24.01: Victaulic Pipe Preparation Tools](#)
- [25.01: Original Groove System \(OGS\) Groove Specifications](#)
- [26.01: Grooved Piping System - Design Data](#)
- [26.06: ASME B31.1 Requirements](#)
- [26.07: ASME B31.9 Requirements](#)
- [26.11: ASME B31.3 Requirements](#)
- [26.15: Grooved Piping Systems in Buried Applications](#)
- [I-W07/W77: Victaulic AGS™ Couplings Installation Instructions](#)

### User Responsibility for Product Selection and Suitability

Each user bears final responsibility for making a determination as to the suitability of Victaulic products for a particular end-use application, in accordance with industry standards and project specifications, and the applicable building codes and related regulations as well as Victaulic performance, maintenance, safety, and warning instructions. Nothing in this or any other document, nor any verbal recommendation, advice, or opinion from any Victaulic employee, shall be deemed to alter, vary, supersede, or waive any provision of Victaulic Company's standard conditions of sale, installation guide, or this disclaimer.

### Intellectual Property Rights

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### Note

This product shall be manufactured by Victaulic or to Victaulic specifications. All products to be installed in accordance with current Victaulic installation/assembly instructions. Victaulic reserves the right to change product specifications, designs and standard equipment without notice and without incurring obligations.

### Installation

Reference should always be made to the Victaulic installation handbook or installation instructions of the product you are installing. Handbooks are included with each shipment of Victaulic products, providing complete installation and assembly data, and are available in PDF format on our website at [www.victaulic.com](http://www.victaulic.com).

### Warranty

Refer to the Warranty section of the current Price List or contact Victaulic for details.

### Trademarks

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