

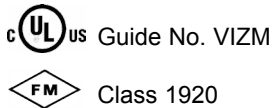
	<h2 style="margin: 0;">TECHNICAL DATA</h2>	<h3 style="margin: 0;">HOLE CUT SYSTEM MODELS V-M22 & V-7722 MECHANICAL TEE (GROOVED OUTLET)</h3>
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1. DESCRIPTION

VGS® Model V-M22 Mechanical Tees are available in sizes 2” through 6”, and Model V-7722 is available in 8” only. The Models V-M22 and V-7722 mechanical tees provide an easy take-out of a branch outlet without the need for welding. VGS® Mechanical Tees are manufactured at ISO9001 certified facilities and are designed to conform to ASTM and other standards where applicable. These products are manufactured and designed to meet ASTM F1548 and ANSI/AWWA C606 requirements for use with grooved outlet conforming to ASTM F1476.

2. LISTINGS AND APPROVALS



The latest VGS® Technical Data can be accessed at
<http://www.vikinggroupinc.com>.
 Scan to visit our Mobile website:



<http://vikinggroup.mobi/p/46374>

3. TECHNICAL DATA

Specifications:
 Maximum working pressure: 300 psi (21 bar)
 Ductile iron conforming to ASTM A536
 Grade 65-45-12
 Coating rust inhibiting paint - Orange RAL 2001
 Hot dipped Zinc galvanized versions are available (conforming to ASTM A153); when ordering, add a “G” suffix to the Model number.
 Rubber compound EPDM Grade E conforming to ASTM D2000, AWWA C606, NSF 61 and IAPMO.
 Nuts and Bolts: Zinc plated, Carbon Steel conforming to ASTM A183 Grade 2 (UNC nuts and bolts are a silver chromate color and ISO are a gold chromate color)

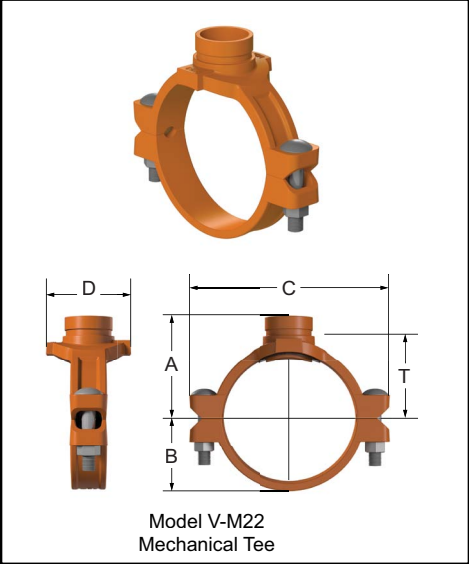


Table 1: V-M22 (2”– 6”) and V-7722 (8” Only)									
Nominal Size Run x Branch in (mm)	Pipe O.D. in (mm)	Hole Diameter +0.13, -0 (+3.2, -0) in (mm)	Dimensions				Bolt Size in (mm)	Weight Lbs (Kgs)	Torque ft-lbs (Nm)
			A in (mm)	B in (mm)	C in (mm)	D in (mm)			
2 x 1 (50 x 25)	2.375 x 1.315 (60 x 33)	1.5 (38)	2.9 (74)	1.5 (38)	4.56 (116)	3.19 (81)	3/8 x 2-1/8 (M10 x 54)	2.2 (0.99)	20-22 (27-30)
2 x 1.25 (50 x 32)	2.375 x 1.660 (60 x 42)	[1.75] [[45]]	2.99 (76)	1.5 (38)	4.56 (116)	3.31 (84)	3/8 x 2-1/8 (M10 x 54)	2.5 (1.13)	
2 x 1.5 (50 x 40)	2.375 x 7.900 (60 x 48)	[1.75] [[45]]	2.99 (76)	1.5 (38)	4.56 (116)	3.31 (84)	3/8 x 2-1/8 (M10 x 54)	2.7 (1.22)	
2.5 x 1 (65 x 25)	2.875 x 1.315 (73 x 33)	1.5 (38)	3.13 (79)	1.77 (45)	5.56 (141)	3.19 (81)	1/2 x 2-3/8 (M14 x 60)	2.9 (1.32)	45-50 (61-68)
2.5 x 1.25 (65 x 32)	2.875 x 1.660 (73 x 42)	2.0 (51)	3.54 (90)	1.77 (45)	5.56 (141)	3.2 (81)	1/2 x 2-3/8 (M14 x 60)	3.3 (1.5)	
2.5 x 1.5 (65 x 40)	2.875 x 1.900 (73 x 48)	2.0 (51)	3.54 (90)	1.77 (45)	5.56 (141)	3.2 (81)	1/2 x 2-3/8 (M14 x 60)	3.3 (1.5)	
3 x 1 (80 x 25)	3.500 x 1.315 (89 x 33)	1.5 (38)	3.44 (87)	2.09 (53)	6.19 (157)	3.19 (81)	1/2 x 2-3/8 (M14 x 60)	3.3 (1.5)	
3 x 1.25 (80 x 32)	3.500 x 1.660 (89 x 42)	2.0 (51)	3.5 (89)	2.09 (53)	6.19 (157)	3.70 (94)	1/2 x 2-3/8 (M14 x 60)	3.6 (1.63)	
3 x 1.5 (80 x 40)	3.500 x 1.900 (90 x 48)	2.0 (51)	3.5 (89)	2.09 (53)	6.19 (157)	3.70 (94)	1/2 x 2-3/8 (M14 x 60)	3.7 (1.68)	
3 x 2 (80 x 50)	3.500 x 2.375 (90 x 60)	2.5 (64)	3.56 (91)	2.09 (53)	6.19 (157)	4.25 (108)	1/2 x 2-3/8 (M14 x 60)	4.1 (1.86)	

*Hole diameters are suggested hole saw diameters. **T: Take-out (Center of run to end of pipe to be engaged)
 Special attention is required to some exceptional hole sizes shown in [].



TECHNICAL DATA

HOLE CUT SYSTEM MODELS V-M22 & V-7722 MECHANICAL TEE (GROOVED OUTLET)

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Table 1: V-M22 (2"– 6") and V-7722 (8" Only)

Nominal Size Run x Branch in (mm)	Pipe O.D. in (mm)	Hole Diameter +0.13, -0 (+3.2, -0) in (mm)	Dimensions				Bolt Size in (mm)	Weight Lbs (Kgs)	Torque ft-lbs (Nm)
			A in (mm)	B in (mm)	C in (mm)	D in (mm)			
4 x 1 (100 x 25)	4.500 x 1.315 (114 x 33)	1.5 (38)	3.9 (99)	2.64 (67)	7.19 (183)	3.13 (79)	1/2 x 3 (M12 x 75)	3.9 (1.77)	45-50 (61-68)
4 x 1.25 (100 x 32)	4.500 x 1.660 (114 x 42)	2.0 (51)	3.9 (99)	2.64 (67)	7.19 (183)	4.00 (102)	1/2 x 3 (M12 x 75)	4.3 (1.95)	
4 x 1.5 (100 x 40)	4.5 x 1.9 (114 x 48)	2.0 (51)	4.00 (102)	2.64 (67)	7.19 (183)	4.00 (102)	1/2 x 3 (M12 x 75)	4.4 (2.0)	
4 x 2 (100 x 50)	4.5 x 2.375 (114 x 60)	2.5 (64)	4.00 (102)	2.64 (67)	7.19 (183)	4.06 (103)	1/2 x 3 (M12 x 75)	4.7 (2.13)	
4 x 2.5 (100 x 65)	4.5 x 2.875 (114 x 73)	2.75 (70)	4.00 (102)	2.64 (67)	7.19 (183)	4.44 (113)	1/2 x 3 (M12 x 75)	5.0 (2.27)	
4 x 3 (100 x 80)	4.5 x 3.5 (114 x 90)	3.5 (89)	4.12 (105)	2.64 (67)	7.19 (183)	5.06 (129)	1/2 x 3 (M12 x 75)	5.7 (2.59)	
5 x 2 (125 x 50)	5.563 x 2.375 (141 x 60)	2.5 (64)	4.59 (117)	3.2 (81)	8.82 (224)	4.00 (102)	5/8 x 3-1/2 (M16 x 90)	6.2 (2.81)	85-90 (115-122)
5 x 2.5 (125 x 65)	5.563 x 2.875 (141 x 73)	2.75 (70)	4.59 (117)	3.2 (81)	8.82 (224)	4.45 (113)	5/8 x 3-1/2 (M16 x 90)	6.6 (2.99)	
5 x 3 (125 x 80)	5.563 x 3.500 (141 x 89)	3.5 (89)	4.59 (117)	3.2 (81)	8.82 (224)	5.28 (134)	5/8 x 3-1/2 (M16 x 90)	7.1 (3.22)	
6 x 1.25 (150 x 32)	6.625 x 1.660 (168 x 42)	2.0 (51)	5.17 (131)	3.72 (95)	9.87 (251)	3.63 (92)	5/8 x 3-1/2 (M16 x 90)	6.6 (2.99)	
6 x 1.5 (150 x 40)	6.625 x 1.990 (168 x 48)	2.0 (51)	5.15 (131)	3.72 (95)	9.87 (251)	3.63 (92)	5/8 x 3-1/2 (M16 x 90)	6.5 (2.95)	
6 x 2 (150 x 50)	6.625 x 2.375 (168 x 60)	2.5 (64)	5.13 (130)	3.72 (95)	9.87 (251)	4.19 (106)	5/8 x 3-1/2 (M16 x 90)	6.9 (3.13)	
6 x 2.5 (150 x 65)	6.625 x 2.875 (168 x 73)	2.75 (70)	5.33 (136)	3.72 (95)	9.87 (251)	4.61 (117)	5/8 x 3-1/2 (M16 x 90)	7.4 (3.36)	120-170 (163-230)
6 x 3 (150 x 80)	6.625 x 3.500 (168 x 90)	3.5 (89)	5.31 (135)	3.72 (95)	9.87 (251)	5.35 (136)	5/8 x 3-1/2 (M16 x 90)	8.0 (3.63)	
6 x 4 (150 x 100)	6.625 x 4.500 (168 x 114)	4.5 (114)	5.51 (140)	3.72 (95)	9.87 (251)	6.38 (162)	5/8 x 3-1/2 (M16 x 90)	9.9 (4.49)	
Model V-7722 Only									
8 x 2.5 (200 x 65)	8.625 x 2.875 (219 x 73)	2.75 (70)	6.54 (166)	5.02 (128)	12.87 (327)	4.57 (116)	3/4 x 4-3/4 (M20 x 120)	14.4 (6.53)	120-170 (163-230)
8 x 3 (200 x 80)	8.625 x 3.500 (219 x 89)	3.5 (89)	6.54 (166)	4.72 (120)	12.87 (327)	5.43 (138)	3/4 x 4-3/4 (M20 x 120)	15.4 (6.99)	
8 x 4 (200 x 100)	8.625 x 4.500 (219 x 114)	4.5 (114)	6.54 (166)	4.72 (120)	12.87 (327)	6.44 (164)	3/4 x 4-3/4 (M20 x 120)	17.3 (7.85)	

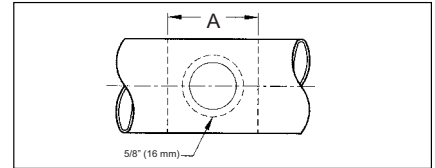
*Hole diameters are suggested hole saw diameters. **T: Take-out (Center of run to end of pipe to be engaged)

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4. HOLE CUTTING

The hole-cut method of pipe preparation is required when using mechanical tees, mechanical crosses, and saddle-lets. The method of pipe preparation requires the cutting or drilling of a specified hole size on the centerline of the pipe. Always use the correct hole saw size as shown this data sheet and never use a torch for cutting a hole. After the hole has been cut all rough edges must be removed and the area within 5/8" (16 mm) of the hole should be inspected to ensure a clean smooth surface, free of any indentations or projections that could affect proper gasket sealing. The area within the "A" dimension should also be inspected and must be free for dirt, scale or any imperfection that could affect proper seating or assembly of the fitting.

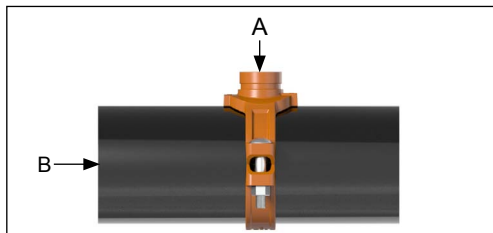


5. FLOW DATA

Equivalent Length of Outlet Size Schedule 40 Carbon Steel Pipe Per UL 213, Section 16 (C=120)				
Model	Nominal Inlet Size Inches	Nominal Outlet Size Inches	Equivalent Length Feet	C _v Values
V-M22	2	1	3	38
V-M22	2	1.25	4	67
V-M22	2	1.5	8	70
V-M22	2.5	1	3	38
V-M22	2.5	1.25	4	67
V-M22	2.5	1.5	8	70
V-M22	3	1	3	38
V-M22	3	1.25	4	67
V-M22	3	1.5	5	89
V-M22	3	2	9	127
V-M22	4	1	3	38
V-M22	4	1.25	6	55
V-M22	4	1.5	4	100
V-M22	4	2	7	144
V-M22	4	2.5	12	183
V-M22	4	3	15	284
V-M22	5	2	7	144
V-M22	5	2.5	12	183
V-M22	5	3	15	284
V-M22	6	1.25	4	67
V-M22	6	1.5	2	141
V-M22	6	2	7	144
V-M22	6	2.5	11	191
V-M22	6	3	13	305
V-M22	6	4	20	454
V-7722	8	2.5	8.4	219
V-7722	8	3	12.7	309
V-7722	8	4	15.3	519

Flow test data has shown that the total head loss between point A and B for the fittings can be expressed in terms of the pressure difference across the inlet and branch. The pressure difference can be obtained from the relationship below.

Form No. F_110415 16.12.08 Rev 16.2



Formulas for C_v Values:

$$\Delta P = \frac{Q^2}{C_v^2}$$

$$Q = C_v \times \sqrt{\Delta P}$$

Where:

Q = Flow (GPM)

ΔP = Pressure Drop (psi)

C_v = Flow Coefficient

Replaces form No. F_110415 Rev 16.1
(Added V-7722 and flow data)