# FIG. MT-2 Grooved Mechanical Branch Tee

Mechanical branch connections for reducing branch outlets without welding. The MT-2 is a bolted saddle type fitting with grooved outlets. Design assures superior sealing, full pipe support, excellent stability and easy installation.

For the latest UL/ULC listed, LPCB, VdS and FM Approved pressure ratings versus pipe schedule, see www.anvilintl.com or contact your local Anvil Representative.

For Listings/Approval Details and Limitations, visit our website at www.anvilintl.com or contact an Anvil® Sales Representative.

LPS 1219: Issue 3.1
Cert/LPCB ref. 519a/09

## MATERIAL SPECIFICATIONS

**HOUSING:**
Ductile Iron conforming to ASTM A-536, Grade 65-45-12

**BOLTS:**
SAE J429, Grade 5, Zinc Electroplated
*ISO 898-1, Class 8.8, Zinc Electroplated followed by a Yellow Chromate Dip*

**HEAVY HEX NUTS:**
ASTM A563, Grade A, Zinc Electroplated
*ISO 898-2, Class 8.8, Zinc Electroplated followed by a Yellow Chromate Dip*

**COATINGS:**
☐ Rust inhibiting paint Color: ORANGE (standard)
☐ Hot Dipped Zinc Galvanized (optional)
☐ Other available options: Example: RAL3000 or RAL9000 Series
For other coating requirements contact an Anvil Representative.

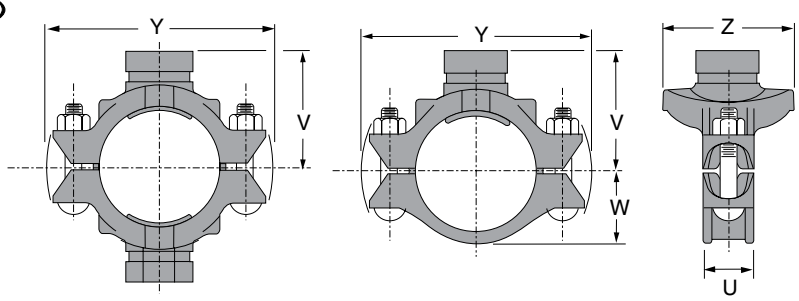
**LUBRICATION:**
☐ Standard Gruvlok
☐ Gruvlok Xtreme™ required for dry pipe systems and freezer applications.

**GASKETS:** Materials
Properties as designated in accordance with ASTM D-2000.

☐ **Grade "E" EPDM** (Green color code)
-40°F to 230°F (Service Temperature Range)(-40°C to 110°C)
Recommended for water service, diluted acids, alkalies solutions, oil-free air and many chemical services.
NOT FOR USE IN PETROLEUM APPLICATIONS.

| PROJECT INFORMATION | APPROVAL STAMP |
|---|---|
| **Project:** | ☐ **Approved** |
| **Address:** | ☐ **Approved as noted** |
| **Contractor:** | ☐ **Not approved** |
| **Engineer:** | **Remarks:** |
| **Submittal Date:** | |
| **Notes 1:** | |
| **Notes 2:** | |

# FIG. MT-2 Grooved Mechanical Branch Tee




**⚠ WARNING**

**For dry pipe systems and freezer applications lubrication of the gasket is required, Gruvlok® Xtreme™ Lubricant is required.**

## MT-2 GROOVED MECHANICAL BRANCH TEE (TABLE CONTINUES TO NEXT PAGE)

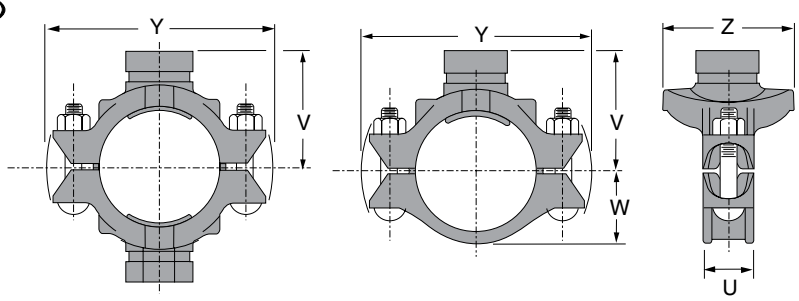
| Nominal Size | O.D. | Hole Dimensions | | Max. Working Pressure▲ | Dimensions | | | | | Bolt Size | Approx. Wt. Ea. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Min. Diameter | Max. Diameter | | U | V | W | Y | Z | | |
| *In./DN(mm)* | *In./mm* | *In./mm* | *In./mm* | *PSI/bar* | *In./mm* | *In./mm* | *In./mm* | *In./mm* | *In./mm* | *In./mm* | *Lbs./Kg* |
| *3 O.D. x 1¼* | *2.996 x 1.660* | *2* | *2⅛* | *300* | *2* | *3⁹⁄₁₆* | *1⅞* | *5¹¹⁄₁₆* | *3⅜* | *½ x 2¾* | *3.6* |
| 76.1 x 32 | 76.1 x 42.4 | 51 | 54 | 20.7 | 51 | 81 | 48 | 145 | 86 | | 1.6 |
| *3 O.D. x 1½* | *2.996 x 1.900* | *2* | *2⅛* | *300* | *2* | *3⁹⁄₁₆* | *1⅞* | *5¹¹⁄₁₆* | *3⅜* | *½ x 2¾* | *3.6* |
| 76.1 x 40 | 76.1 x 48.3 | 51 | 54 | 20.7 | 51 | 81 | 48 | 145 | 86 | | 1.6 |
| 3 x 1½ | 3.500 x 1.900 | 2 | 2⅛ | 300 | 2 | 3⁷⁄₁₆ | 2⅛ | 6¼ | 3¹⁵⁄₁₆ | ½ x 2¾ | 3.8 |
| *80 x 40* | *88.9 x 48.3* | *51* | *54* | *20.7* | *51* | *87* | *55* | *159* | *99* | | *1.7* |
| 3 x 2 | 3.500 x 2.375 | 2½ | 2⅝ | 300 | 2 | 3⁷⁄₁₆ | 2⅛ | 6¼ | 3¹⁵⁄₁₆ | ½ x 2¾ | 4.4 |
| *80 x 50* | *88.9 x 60.3* | *64* | *67* | *20.7* | *51* | *87* | *55* | *159* | *99* | | *2.0* |
| 4 x 1½ | 4.500 x 1.900 | 2 | 2⅛ | 300 | 2 | 4 | 2⅝ | 7¼ | 3¹³⁄₁₆ | ½ x 2¾ | 4.6 |
| *100 x 40* | *114.3 x 48.3* | *51* | *54* | *20.7* | *51* | *102* | *67* | *184* | *97* | | *2.1* |
| 4 x 2 | 4.500 x 2.375 | 2½ | 2⅝ | 300 | 2 | 4 | 2⅝ | 7¼ | 4½ | ½ x 2¾ | 4.8 |
| *100 x 50* | *114.3 x 60.3* | *64* | *67* | *20.7* | *51* | *102* | *67* | *184* | *115* | | *2.2* |
| 4 x 2½ | 4.500 x 2.875 | 2¾ | 2⅞ | 300 | 2 | 4 | 2⅝ | 7¼ | 4½ | ½ x 2¾ | 5.4 |
| *100 x 65* | *114.3 x 73.0* | *70* | *73* | *20.7* | *51* | *102* | *67* | *184* | *115* | | *2.4* |
| *4 x 3 O.D.* | *4.500 x 2.996* | *2¾* | *2⅞* | *300* | *2* | *4* | *2⅝* | *7¼* | *4½* | *½ x 2¾* | *7.6* |
| 100 x 76.1 | 114.3 x 76.1 | 70 | 73 | 20.7 | 51 | 102 | 67 | 184 | 115 | | 3.4 |
| 4 x 3 | 4.500 x 3.500 | 3½ | 3⅝ | 300 | 2 | 4⅛ | 2⅝ | 7¼ | 5⅛ | ½ x 2¾ | 7.6 |
| *100 x 80* | *114.3 x 88.9* | *89* | *92* | *20.7* | *51* | *105* | *67* | *184* | *130* | | *3.4* |
| 5 x 2 | 5.563 x 2.375 | 2½ | 2⅝ | 300 | 2¼ | 4¾ | 3³⁄₁₆ | 8⁵⁄₁₆ | 4½ | ⅝ x 4 | 7.9 |
| *125 x 50* | *141.3 x 60.3* | *64* | *67* | *20.7* | *57* | *121* | *81* | *211* | *115* | | *3.6* |
| 5 x 2½ | 5.563 x 2.875 | 2¾ | 2⅞ | 300 | 2¼ | 4¾ | 3³⁄₁₆ | 8⁵⁄₁₆ | 4½ | ⅝ x 4 | 7.9 |
| *125 x 65* | *141.3 x 73.0* | *70* | *73* | *20.7* | *57* | *121* | *81* | *211* | *115* | | *3.6* |
| 5 x 3 | 5.563 x 3.500 | 3½ | 3⅝ | 300 | 2¼ | 5 | 3³⁄₁₆ | 8⁵⁄₁₆ | 5⅛ | ⅝ x 4 | 7.9 |
| *125 x 80* | *141.3 x 88.9* | *89* | *92* | *20.7* | *57* | *127* | *81* | *211* | *130* | | *3.6* |
| *5½ O.D. x 2* | *5.500 x 2.375* | 2½ | 2⅝ | 300 | 2¼ | 4⅝ | 3³⁄₁₆ | 8⁵⁄₁₆ | 4½ | ⅝ x 4 | 7.9 |
| 139.7 x 50 | 139.7 x 60.3 | *64* | *67* | *20.7* | *57* | *117* | *81* | *211* | *115* | | *3.6* |
| *5½ O.D. x 3 O.D.* | *5.500 x 2.996* | 2¾ | 2⅞ | 300 | 2¼ | 4⅝ | 3³⁄₁₆ | 8⁵⁄₁₆ | 4½ | ⅝ x 4 | 7.9 |
| 139.7 x 76.1 | 139.7 x 76.1 | *70* | *73* | *20.7* | *57* | *117* | *81* | *211* | *115* | | *3.6* |
| *5½ O.D. x 3* | *5.500 x 3.500* | 3½ | 3⅝ | 300 | 2¼ | 4⅞ | 3³⁄₁₆ | 8⁵⁄₁₆ | 5⅛ | ⅝ x 4 | 7.9 |
| 139.7 x 88.9 | 139.7 x 88.9 | *89* | *92* | *20.7* | *57* | *124* | *81* | *211* | *130* | | *3.6* |
| 6 x 1¼ | 6.625 x 1.660 | 2 | 2⅛ | 300 | 2¼ | 5 | 3³⁄₁₆ | 9⅜ | 3⅞ | ⅝ x 4 | 8.0 |
| *150 x 32* | *168.3 x 42.2* | *51* | *54* | *20.7* | *57* | *127* | *81* | *238* | *98* | | *3.6* |
| 6 x 1½ | 6.625 x 1.900 | 2 | 2⅛ | 300 | 2¼ | 5⅛ | 3¹¹⁄₁₆ | 9⅜ | 3⅞ | ⅝ x 4 | 8.0 |
| *150 x 40* | *168.3 x 48.3* | *51* | *54* | *20.7* | *57* | *130* | *94* | *238* | *98* | | *3.6* |
| 6 x 2 | 6.625 x 2.375 | 2½ | 2⅝ | 300 | 2¼ | 5⅛ | 3¹¹⁄₁₆ | 9⅜ | 4⁷⁄₁₆ | ⅝ x 4 | 8.0 |
| *150 x 50* | *168.3 x 60.3* | *64* | *67* | *20.7* | *57* | *130* | *94* | *238* | *112* | | *3.6* |
| 6 x 2½ | 6.625 x 2.875 | 2¾ | 2⅞ | 300 | 2¼ | 5⅛ | 3¹¹⁄₁₆ | 9⅜ | 4⁷⁄₁₆ | ⅝ x 4 | 8.0 |
| *150 x 65* | *168.3 x 73.0* | *70* | *73* | *20.7* | *57* | *130* | *94* | *238* | *112* | | *3.6* |
| *6 x 3 O.D.* | *6.625 x 2.996* | *2¾* | *2⅞* | *300* | *2¹⁄₄* | *5⅛* | *3¹¹⁄₁₆* | *9⅜* | *4⁷⁄₁₆* | *⅝ x 4* | *9.7* |
| 150 x 76.1 | 168.3 x 76.1 | 70 | 73 | 20.7 | 57 | 130 | 94 | 238 | 112 | M16 x 108 | 4.4 |
| 6 x 3 | 6.625 x 3.500 | 3½ | 3⅝ | 300 | 2¼ | 5¼ | 3¹¹⁄₁₆ | 9⅜ | 5⅜ | ⅝ x 4 | 9.7 |
| *150 x 80* | *168.3 x 88.9* | *89* | *92* | *20.7* | *57* | *133* | *94* | *238* | *143* | *M16 x 108* | *4.4* |

All sizes may be used as mechanical crosses.

Outlet branch is machined per standard cut groove specification.

▲ – Working Pressure Ratings are for reference only and based on Sch. 10 and Sch. 40 pipe. For the latest UL/ULC, FM, VdS and LPCB pressure ratings versus pipe schedule, please visit anvilintl.com or contact your local Anvil Representative.

# FIG. MT-2 Grooved Mechanical Branch Tee




**⚠ WARNING**

**For dry pipe systems and freezer applications lubrication of the gasket is required, Gruvlok® Xtreme™ Lubricant is required.**

## MT-2 GROOVED MECHANICAL BRANCH TEE (CONTINUED FROM PREVIOUS PAGE)

| Nominal Size | O.D. | Hole Dimensions | | Max. Working Pressure▲ | Dimensions | | | | | Bolt Size | Approx. Wt. Ea. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Min. Diameter | Max. Diameter | | U | V | W | Y | Z | | |
| *In./DN(mm)* | *In./mm* | *In./mm* | *In./mm* | *PSI/bar* | *In./mm* | *In./mm* | *In./mm* | *In./mm* | *In./mm* | *In./mm* | *Lbs./Kg* |
| 6 x 4 | 6.625 x 4.500 | 4½ | 4⅝ | 300 | 2¼ | 5⅜ | 3 11/16 | 9⅜ | 6½ | ⅝ x 4 | 3.6 |
| *150 x 100* | *168.3 x 114.3* | *114* | *117* | *20.7* | *57* | *137* | *94* | *238* | *165* | *M16 x 108* | *1.6* |
| *6½ O.D. x 1¼* | *6.500 x 1.660* | *2* | *2⅛* | *300* | *2¼* | *5* | *3⅝* | *9¼* | *3⅞* | *⅝ x 4* | *3.2* |
| 165.1 x 32 | 165.1 x 42.2 | 51 | 54 | 20.7 | 57 | 127 | 93 | 235 | 98 | | 1.5 |
| *6½ O.D. x 1½* | *6.500 x 1.900* | *2* | *2⅛* | *300* | *2¼* | *5⅛* | *3⅝* | *9¼* | *3⅞* | *⅝ x 4* | *7.5* |
| 165.1 x 40 | 165.1 x 48.3 | 51 | 54 | 20.7 | 57 | 130 | 93 | 235 | 98 | | 3.4 |
| *6½ O.D. x 2* | *6.500 x 2.375* | *2½* | *2⅝* | *300* | *2¼* | *5⅛* | *3⅝* | *9¼* | *4 7/16* | *⅝ x 4* | *8.0* |
| 165.1 x 50 | 165.1 x 60.3 | 64 | 67 | 20.7 | 57 | 130 | 93 | 235 | 112 | | 3.6 |
| *6½ O.D. x 3 O.D.* | *6.500 x 2.996* | *2¾* | *2⅞* | *300* | *2¼* | *5⅛* | *3⅝* | *9¼* | *4 7/16* | *⅝ x 4* | *8.0* |
| 165.1 x 76.1 | 165.1 x 76.1 | 70 | 73 | 20.7 | 57 | 130 | 93 | 235 | 112 | | 3.6 |
| *6½ O.D. x 3* | *6.500 x 3.500* | *3½* | *3⅝* | *300* | *2¼* | *5¼* | *3⅝* | *9¼* | *5⅝* | *⅝ x 4* | *9.7* |
| 165.1 x 80 | 165.1 x 88.9 | 89 | 92 | 20.7 | 57 | 133 | 93 | 235 | 143 | | 4.4 |
| *6½ O.D. x 4* | *6.500 x 4.500* | *4½* | *4⅝* | *300* | *2¼* | *5⅜* | *3⅝* | *9⅜* | *6½* | *⅝ x 4* | *13.6* |
| 165.1 x 100 | 165.1 x 114.3 | 114 | 117 | 20.7 | 57 | 137 | 93 | 238 | 165 | | 6.2 |
| 8 x 2 | 8.625 x 2.375 | 2¾ | 2⅞ | 300 | 2½ | 6⅛ | 4⅞ | 12⅜ | 4⅜ | ¾ x 4¼ | 10.2 |
| *200 x 50* | *219.1 x 60.3* | *70* | *73* | *20.7* | *64* | *156* | *124* | *314* | *111* | | *4.6* |
| 8 x 2½ | 8.625 x 2.875 | 2¾ | 2⅞ | 300 | 2½ | 6⅛ | 4⅞ | 12⅜ | 4⅜ | ¾ x 4¼ | 10.4 |
| *200 x 65* | *219.1 x 73.0* | *70* | *73* | *20.7* | *64* | *156* | *124* | *314* | *111* | | *4.7* |
| *8 x 3 O.D.* | *8.625 x 2.996* | *2¾* | *2⅞* | *300* | *2½* | *6⅛* | *4⅞* | *12⅜* | *5¾* | *¾ x 4¼* | *10.6* |
| 200 x 76.1 | 219.1 x 76.1 | 70 | 73 | 20.7 | 64 | 156 | 124 | 314 | 146 | | 4.8 |
| 8 x 3 | 8.625 x 3.500 | 3½ | 3⅝ | 300 | 2½ | 6⅜ | 4⅞ | 12⅜ | 5¾ | ¾ x 4¼ | 11.1 |
| *200 x 80* | *219.1 x 88.9* | *89* | *92* | *20.7* | *64* | *162* | *124* | *314* | *146* | | *5.0* |
| 8 x 4 | 8.625 x 4.500 | 4½ | 4⅝ | 300 | 2½ | 6¼ | 4⅞ | 12⅜ | 6⅝ | ¾ x 4¼ | 15.5 |
| *200 x 100* | *219.1 x 114.3* | *114* | *117* | *20.7* | *64* | *159* | *124* | *314* | *168* | | *7.0* |

All sizes may be used as mechanical crosses.

Outlet branch is machined per standard cut groove specification.

▲ – Working Pressure Ratings are for reference only and based on Sch. 10 and Sch. 40 pipe. For the latest UL/ULC, FM, VdS and LPCB pressure ratings versus pipe schedule, please visit anvilintl.com or contact your local Anvil Representative.

# FIG. MT-2 Grooved Mechanical Branch Tee

ALWAYS USE A GRUVLOK® SPF/ANVIL® LUBRICANT FOR PROPER COUPLING ASSEMBLY. Thorough lubrication of the gasket is essential to assist the gasket into the proper sealing position.

## 1 Pipe preparation

Cut the appropriate size hole in the pipe and remove any burrs. Be sure to remove the slug from inside the pipe. Clean the gasket sealing surface within 5/8" (16mm) of the hole and visually inspect the sealing surface for defects that may prevent proper sealing of the gasket.

| BRANCH SIZE | HOLE SAW SIZE | FLOW DATA |
|---|---|---|
| Inches (*mm*) | Inches +1/8, -0 (*mm +3, -0*) | *(see note)* |
| 1¼, 1½ *32, 40* | 2 *51* | 4 *1.22* |
| 2 *50* | 2½ *64* | 9 *2.74* |
| 2½ *65* | 2¾ *70* | 10 *3.05* |
| 3 OD *76.1* | 2¾ *70* | 7 *2.13* |
| 3 *80* | 3½ *89* | 13 *3.96* |
| 4 *100* | 4½ *114* | 13 *3.96* |

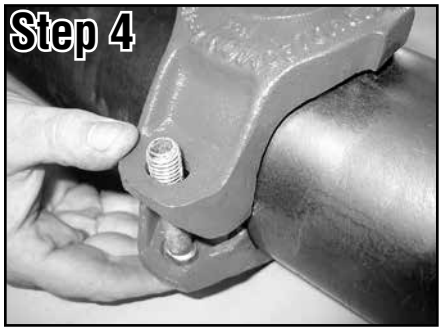
Note: Flow Data is expressed as Feet/Meters of Schedule 40 steel outlet pipe with a *"Hazen-Williams coefficient of friction value of 120"*.


## 2 Check and lubricate gasket

Check the gasket to be sure it is compatible for the intended service. Apply a thin layer of Gruvlok SPF/Anvil lubricant to the back surface of the gasket. Be careful that foreign particles do not adhere to the lubricated surfaces. Insert the gasket back into the outlet housing making sure the tabs in the gasket line up with the tab recesses in the housing.


## 3 Gasket installation

**Lubricate the exposed surface of the gasket.** Align the outlet housing over the pipe hole making sure that the locating collar is in the pipe hole.




## 4 Alignment

Align the strap around the pipe, insert the bolts and tighten the nuts finger tight.


## 5 Tighten nuts

Alternately and evenly tighten the nuts to the specified bolt torque.


## 6 Assembly is complete

# Specified Bolt Torque

Specified bolt torque is for the oval neck track bolts used on SPF® grooved mechanical branches. The nuts must be tightened alternately and evenly until fully tightened.

**Caution:** Proper torquing of mechanical branch bolts is required to obtain specified performance. **Over torquing the bolts may result in damage to the bolt and/or casting which could result in pipe joint separation.** Under torquing the bolts may result in lower pressure retention capabilities, lower bend load capabilities, joint leakage and pipe joint separation. Pipe joint separation may result in significant property damage and serious injury.

| ANSI Specified Bolt Torque | | |
|---|---|---|
| Bolt Size | Wrench Size | Specified Bolt Torque* |
| *In.* | *In.* | *Ft.-Lbs* |
| 1/2 | 7/8 | 80-100 |
| 5/8 | 1 1/16 | 100-130 |
| 3/4 | 1 1/4 | 130-180 |

* Non-lubricated bolt torque

| Metric Specified Bolt Torque | | |
|---|---|---|
| Bolt Size | Wrench Size | Specified Bolt Torque* |
| *mm* | *mm* | *N-M* |
| M12 | 22 | 110-150 |
| M16 | 24 | 135-175 |
| M20 | 30 | 175-245 |

* Non-lubricated bolt torque