

<b>METROPOLITAN UTILITIES DISTRICT</b>	<b>Construction Standard</b>	No:	<b>6.0.6</b>
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Prepared by: Rich Baird	<b>3/4", 1", 1-1/2" or 2" Service Taps on 6", 8" and 12" HDPE PE 3408/4710 Water Mains</b>	<u>Supersedes:</u>	1-16-25
Approved by: Evan Martin		Effective:	1-10-26
<i>The latest revisions can be found at the end of this document</i>			

## GENERAL

All taps on 6", 8" and 12" HDPE water mains shall use sidewall fusion, electrofusion, or approved mechanical tapping saddles and shall have the same nominal size of tap as the proposed service line material for 1", 1-1/2" and 2" taps. **Note: For 1" water service lines, install water corp. saddles at a 45° angle (i.e. 10 or 2 o'clock position). For 1-1/2" and 2" water service lines, install the water corp. saddles at top-dead-center or at 90° from top-dead-center.** No additional fittings are allowed at the corporation stop. Mechanical tapping saddles with Belleville spring washers and direct taps are NOT permitted. Install corporations and make taps with a Mueller D-5 Tapping Machine (or approved equal) with the C900 PVC/HDPE Cutter. See C.S. [5.1.3](#). for Operation of Mueller D-5 Drilling Machine.

**Caution:** Sidewall fusion and electrofusion tapping saddles used for tapping DIPS PE3408/PE4710 HDPE water mains shall not be used for tapping IPS HDPE water mains (HDPE pipe with iron pipe size OD). Sidewall fusion and electrofusion tapping saddles for IPS HDPE pipe will be ordered from local suppliers as needed. If a sidewall fusion or electrofusion tapping saddle is required for tapping IPS HDPE pipe, contact Engineering.

See C.S. [11.7.0](#) for tapping saddle electrofusion procedure. See C.S. [11.7.1](#) for tapping saddle sidewall fusion procedure.

See C.S. [6.0.1, Section 3](#), for approved corporations using Ball Corporation Valves with AWWA/CC Taper Thread Inlet by Flare Copper Outlet Connections.

### TAPPING SADDLES FOR PE3408/PE4710 HDPE

<b>Tap Size (DIPS) x CC Thread Outlet</b>	<b>POLY-CAM SERIES 415 Stock Number</b>	<b>CENTRAL PLASTICS ELECTROFUSION Stock Number</b>	<b>DRESSER TPS TRIPLE TAP Stock Number</b>
6" x 3/4"*	21-595-06	21-560-66	21-445-06
6" x 1"	21-596-06	21-560-70	21-444-06
6" x 1-1/2"	21-597-06	21-560-74	21-446-06
6" x 2"	21-598-06	21-560-80	21-447-06
8" x 3/4"*	21-595-08	21-580-66	21-445-08
8" x 1"	21-596-08	21-580-70	21-444-08
8" x 1-1/2"	21-597-08	21-580-74	21-446-08
8" x 2"	21-598-08	21-580-80	21-447-08
12" x 3/4"	21-595-12	21-592-66	21-445-12
12" x 1"	21-596-12	21-592-70	21-444-12
12" x 1-1/2"	21-597-12	21-592-74	21-446-12
12" x 2"	21-598-12	21-592-80	21-447-12
16" x 3/4"*	**	**	21-445-16
16" x 1"	**	**	21-444-16
16" x 1-1/2"	**	**	21-446-16
16" x 2"	**	**	21-447-16

\* Allowed only on pipe bursting projects for existing 3/4" reconstructions

\*\* Contact Engineering

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## **SAFETY PRECAUTIONS**

1. Have a second worker close by to respond to an emergency situation.
2. Wear protective gloves and goggles. A face shield is recommended.
3. Ensure that there is a ladder in the trench to provide for a quick exit.
4. Be familiar with procedures to follow in the event of a main failure during the tapping process.
5. Do not tap an area of main that is discolored or damaged. The discoloring may be an indication of stress in the main.
6. Tapping HDPE Water Mains: The recommended temperature limits for tapping HDPE water lines is 32°F (0°C) to 90°F (32°C). Check the temperature of the main at the tap location with a digital temperature gun and contact the Construction Foreman to determine if procedures for warming or cooling the main are necessary.

## **TAP LOCATIONS**

1. Tap no closer than 24" from ends of the pipe.
2. Adjacent taps must be a minimum of 18" apart from each other lengthwise down the pipeline.
3. Do not tap a curved pipe if the radius of the bend is less than three hundred (100) times the pipe outside diameter.

## **INSTALLING FUSION SADDLE AND CORPORATION**

1. The District's Construction Foreman shall ensure that persons installing tapping saddles using heat fusion have received training according to the manufacturer's recommended fusion procedures for the size of installation in accordance with ASTM F2620 and Plastic Pipe Institute (PPI) TR-33 and TR-41. Proof of certification shall be available for inspection, if required. The Construction department shall maintain records of trained personnel verifying that training was received within twelve months before commencing construction.
2. Review Safety Precautions.
3. Thoroughly clean the main surface at the tap location.
4. Install an approved electrofusion saddle in accordance with C.S. [11.7.0](#) or an approved sidewall fusion saddle in accordance with C.S. [11.7.1](#).

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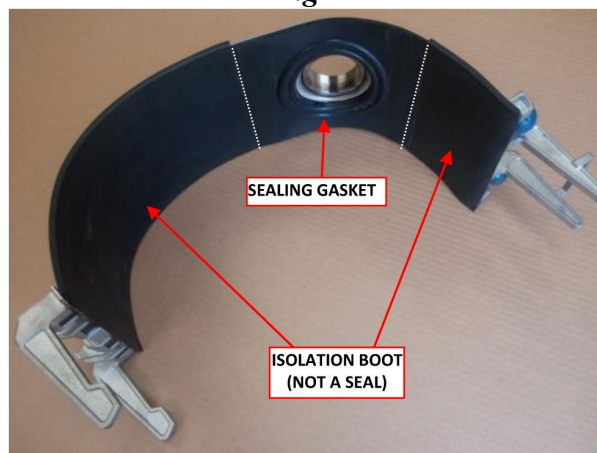
5. Apply Teflon tape to the threads of the corporation and screw the corporation into the saddle and tighten. *Note: When tightening the corporation, make sure a wrench is used to hold the saddle's brass insert in place and prevent it from turning. A slight turn of the brass insert is not detrimental to the saddle, but significant rotation could result in a leak.* Open the corporation.
6. Prior to making the tap, pressure test all sidewall fusion and electrofusion tapping saddles and corporations at 180 psi for ten (10) minutes using a manual air or hydrostatic pump. If leaking, apply soapy water solution to all joints to locate the leak and eliminate the leak as necessary.
7. Lubricate the shell-cutter that is designated for use on C900 PVC/HDPE water pipe and, using the appropriate adapter and gasket, attach the Mueller D-5 Drilling Machine or equivalent to the corporation. See C.S. [5.1.3](#).
8. **ALL TAPS ON HDPE WILL BE CONDUCTED MANUALLY. POWER HEADS SHALL NOT BE USED.** Lower the boring bar to the main and rotate the cutter while exerting finger-pull on the feed yolk. Rotate the ratchet handle one complete turn for every 1/8 turn of the feed yolk. Once the main is penetrated, withdraw the cutter, close the corporation, and then remove the drilling machine. Remove coupon from the cutter with a screwdriver or similar tool.
9. Water service is now ready to be connected to the corporation.

### INSTALLING MECHANICAL SADDLE AND CORPORATION

1. Clean the entire 360° circumference of the water main where the tapping saddle will be installed. Install tapping saddle per manufacturer's recommendations.

***NOTE: It is extremely important to lubricate the pipe surface, all saddle sealing gasket and isolation boot surfaces (see Fig 1 below) with pipe soap or a mixture of soapy water in order to allow the bolts to torque properly.***

*Fig 1*



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2. Apply thread sealant to the threads of the corporation and screw the corporation into the saddle and tighten. Open the corporation.  
**Note:** Thread sealant shall be NSF 61 approved Teflon tape or pipe dope (Rectorseal #5). The NSF 61 designation (not just NSF) shall be shown on the container to be approved.
3. Prior to making the tap, pressure test all mechanical tapping saddles and corporations at 180 psi for ten (10) minutes using a manual air or hydrostatic pump. If leaking, apply soapy water solution to all joints to locate the leak and eliminate the leak as necessary.
4. Attach Mueller D-5 tapping machine (or approved equal) to corporation.
5. Tap water main through the attached corporation and saddle. When tap is complete, retract tap and set the corporation in the closed position.
6. Remove tapping machine. Inspect for leaks and damage around the circumference of the pipe.
7. Wrap entire saddle with V-Bio wrap.

## Revision

The latest revision is detailed on the following page(s).

Pages affected: #2, #3 & #4

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**SAFETY PRECAUTIONS**

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5. Do not tap an area of main that is discolored or damaged. The discoloring may be an indication of stress in the main.
6. Tapping HDPE Water Mains: The recommended temperature limits for tapping HDPE water lines is 32°F (0°C) to 90°F (32°C). Check the temperature of the main at the tap location with a digital temperature gun and contact the Construction Foreman to determine if procedures for warming or cooling the main are necessary.

**TAP LOCATIONS**

1. Tap no closer than 24" from ends of the pipe.
2. Adjacent taps must be a minimum of 18" apart from each other lengthwise down the pipeline.
3. Do not tap a curved pipe if the radius of the bend is less than three hundred (~~300~~100) times the pipe outside diameter.

**INSTALLING FUSION SADDLE AND CORPORATION**

1. The District’s Construction Foreman shall ensure that persons installing tapping saddles using heat fusion have received training according to the manufacturer’s recommended fusion procedures for the size of installation in accordance with ASTM F2620 and Plastic Pipe Institute (PPI) TR-33 and TR-41. Proof of certification shall be available for inspection, if required. The Construction department shall maintain records of trained personnel verifying that training was received within twelve months before commencing construction.
2. Review Safety Precautions.
3. Thoroughly clean the main surface at the tap location.
4. Install an approved electrofusion saddle in accordance with ~~Construction Standard~~ **C.S. 11.7.0** or an approved sidewall fusion saddle in accordance with ~~Construction Standard~~ **C.S. 11.7.1**.

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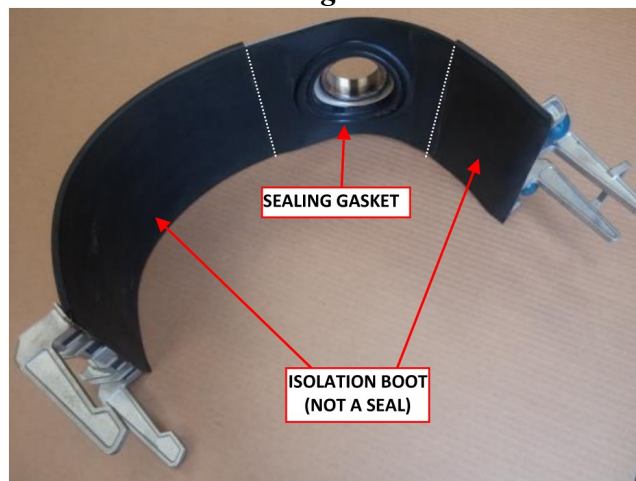
- Apply Teflon® tape to the threads of the corporation and screw the corporation into the saddle and tighten. *Note: When tightening the corporation, make sure a wrench is used to hold the saddle's brass insert in place and prevent it from turning. A slight turn of the brass insert is not detrimental to the saddle, but significant rotation could result in a leak.* Open the corporation.
- Prior to making the tap, leak-pressure test all heat fusion sidewall fusion and electrofusion tapping saddles and corporations at 100-180 psi for ten (10) minutes using a manual air or hydrostatic pump. If leaking, apply soapy water solution to all joints to locate the leak and eliminate the leak as necessary.
- Lubricate the shell-cutter that is designated for use on C900 PVC/HDPE water pipe and, using the appropriate adapter and gasket, attach the Mueller D-5 Drilling Machine or equivalent to the corporation. See Construction Standard C.S. 5.1.3.
- ALL TAPS ON HDPE WILL BE CONDUCTED MANUALLY. POWER HEADS SHALL NOT BE USED.** Lower the boring bar to the main and rotate the cutter while exerting finger-pull on the feed yolk. Rotate the ratchet handle one complete turn for every 1/8 turn of the feed yolk. Once the main is penetrated, withdraw the cutter, close the corporation, and then remove the drilling machine. Remove coupon from the cutter with a screwdriver or similar tool.
- Water service is now ready to be connected to the corporation.

**INSTALLING MECHANICAL SADDLE AND CORPORATION**

- Clean the entire 360° circumference of the water main where the tapping saddle will be installed. Install tapping saddle per manufacturer's recommendations.

*NOTE: It is extremely important to lubricate the pipe surface, all saddle sealing gasket and isolation boot surfaces (see Fig 1 below) with pipe soap or a mixture of soapy water in order to allow the bolts to torque properly.*

Fig 1



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2. Apply thread sealant to the threads of the corporation and screw the corporation into the saddle and tighten. Open the corporation.

**Note:** Thread sealant shall be NSF 61 approved Teflon tape or pipe dope (Rectorseal #5). The NSF 61 designation (not just NSF) shall be shown on the container to be approved.

3. Prior to making the tap, pressure test all mechanical tapping saddles and corporations at 180 psi for ten (10) minutes using a manual air or hydrostatic pump. If leaking, apply soapy water solution to all joints to locate the leak and eliminate the leak as necessary.

43. Attach Mueller D-5 tapping machine (or approved equal) to corporation.

54. Tap water main through the attached corporation and saddle. When tap is complete, retract tap and set the corporation in the closed position.

65. Remove tapping machine. Inspect for leaks and damage around the circumference of the pipe.

76. Wrap entire saddle with V-Bio wrap.