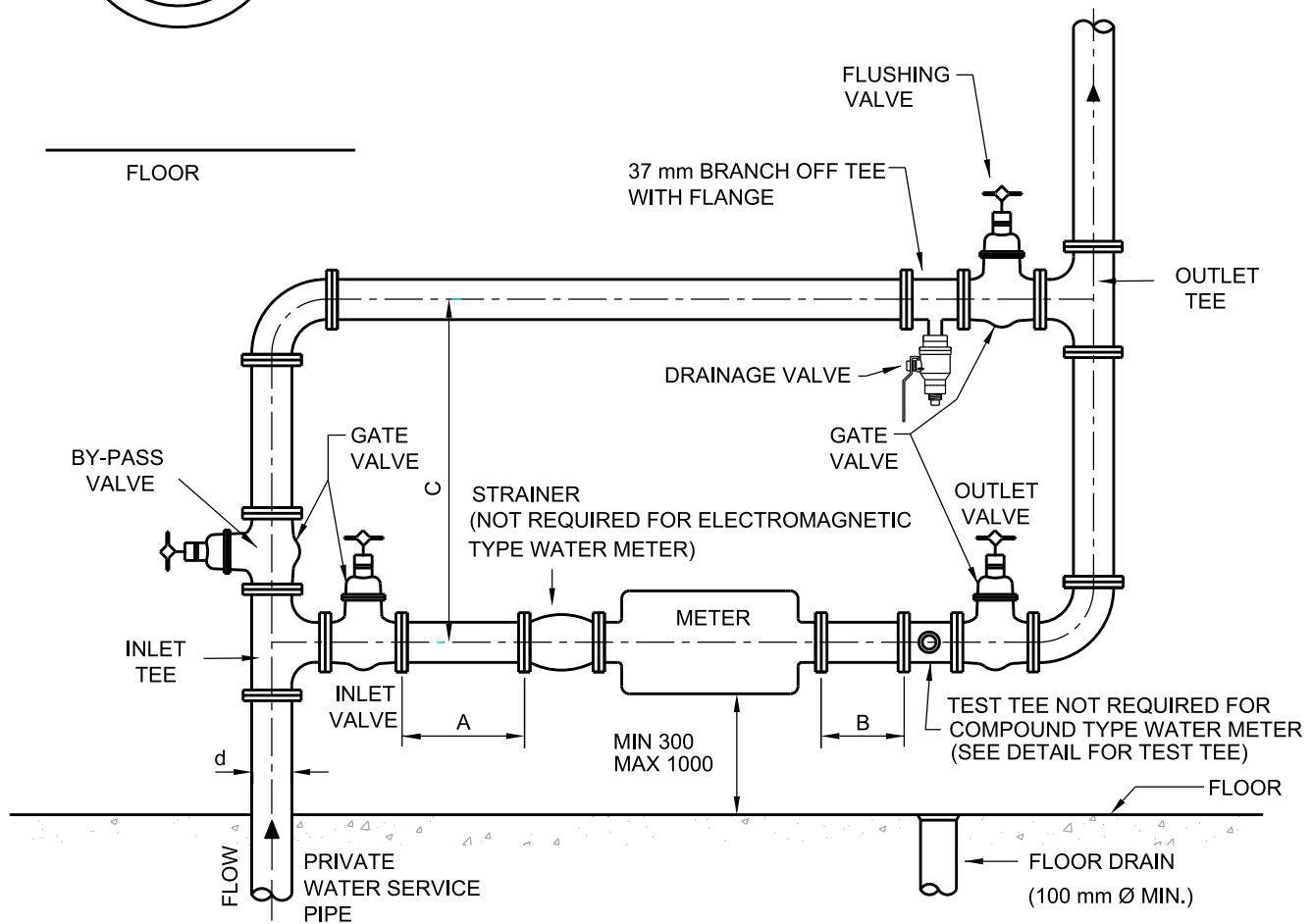
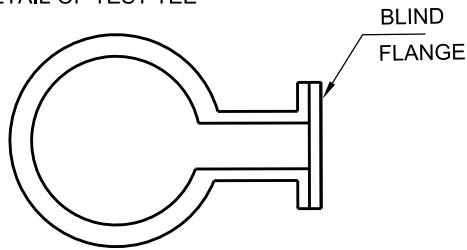


DETAIL OF TEST TEE



PRIVATE WATER SERVICE PIPE SIZE	A	B	C	TEST TEE SIZE
75 – 100 mm	SEE NOTE NO. 15	SEE NOTE NO. 16	750	75 mm BRANCH
150 – 200 mm			900	75 mm BRANCH
250 – 300 mm			1050	75 mm BRANCH

NOTES ON T-1107.03-1 SHEET 2 AND 3 ARE INTERGRAL PART OF THIS DRAWING

All dimensions are in millimetres unless otherwise shown.



ENGINEERING AND CONSTRUCTION SERVICES STANDARD DRAWING

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INSTALLATION DETAILS FOR
COMPOUND, TURBINE OR ELECTROMAGNETIC
TYPE WATER METER IN BUILDINGS

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Notes :

1. All water meters shall be installed in the horizontal position. By-pass piping may be installed in either the horizontal or vertical position around the water meter. The inlet tee must be installed within one metre from the floor or wall where the private water service pipe enters the building.
2. Water meters shall be installed with a minimum 1.5 m unobstructed clearance in front of water meter to nearest wall and 600 mm unobstructed clearance behind the water meter to nearest wall.
3. By-pass piping shall be installed with a minimum 600 mm unobstructed clearance from the outside wall of the by-pass pipe to the nearest ceiling or wall.
4. The working space in front of the meter shall have a minimum of 2 m unobstructed head clearance.
5. The meters and all piping shall be fully supported from the floor and such support shall be suitable for that purpose and shall be supplied and installed by the property owner at the time of the installation of the water meter. For all water meters, the pipe immediately adjacent to the meter, not the meter, shall be fully supported from the floor.
6. All valves, bends and tees shall be flanged or solder type. Acid core type solder is not permitted.
7. All piping, including by-pass pipe, tees, bends and valves, except for the tee on the drainage valve shall be the same diameter as the private water service pipe. Pipe reducers required to accommodate a smaller water meter than the private water service pipe shall only be installed between the inlet and outlet valves and shall be attached directly to the valves. All pipe reducers shall be concentric type reducers.
8. The by-pass and flushing valves shall remain closed at all times and shall be sealed by the City after the water meter has been installed.
9. All valves shall have a handle showing the open and close directions.
10. Only gate valves shall be permitted for inlet, outlet, by-pass or flushing valves. No ball valves or butterfly valves shall be permitted. Valves shall be designed for a minimum cold water working pressure of 1035 kPa. When cement lined ductile iron pipe is used, valves shall be cast or ductile iron gate valves and shall be according to AWWA C509.
11. Drainage valve shall be a brass ball valve with brass plug.
12. All pipe shall be either type "L" copper pipe (certified to ASTM B88), or cement lined ductile iron pipe (pipe to comply with ANSI/AWWA C115/A21.15 or ANSI/AWWA C151/A21.51; cement lining to comply with ANSI/AWWA C104/A21.4; fittings to comply with ANSI/AWWA C110/A21.10), or stainless steel pipe rated to a minimum working pressure of 1035 kPa. All pipe flanges shall be threaded or welded to the pipe. Galvanized, polyethylene, PVC and other plastic pipe and fittings shall not be permitted.
13. An approved strainer shall be supplied by the City and shall be bolted to the upstream side of the water meter. Strainer is not required for electromagnetic water meter installations.
14. All check valves, backflow preventers, pressure reducing valves, cross connection control devices and all other devices shall be located downstream of the outlet tee. No other fittings or connections shall be allowed upstream of such devices.
15. With the exception of items number 16 and 17 herein, all meter installations shall conform to the manufacturer's installation instructions.

NOTES CONTINUE ON SHEET 3 OF 3

All dimensions are in millimetres unless otherwise shown.



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16. The minimum distance between the flange on the outlet side of the inlet valve and the flange on the inlet side of the strainer shall be no less than six pipe diameters. For electromagnetic water meter installations, the minimum distance between the flange on the outlet side of the inlet valve and the flange on the inlet side of the meter shall be no less than five pipe diameters. No bends or other fittings shall be allowed in this pipe section.
17. The minimum distance between the flange on the outlet side of the water meter and the inlet side of the drain port tee shall be no less than four pipe diameters. For electromagnetic water meter installations, the minimum distance between the flange on the outlet side of the water meter and the inlet side of the tee shall be no less than three pipe diameters. No bends or other fittings shall be allowed in this pipe section.
18. The by-pass valve shall be bolted to the inlet tee, the flushing valve shall be bolted to the outlet tee and the drainage valve shall be bolted to the flushing valve. The test tee shall be bolted to the upstream side of the outlet valve. All valves shall be configured such that their handles shall not interfere with each other and all valves shall be readily accessible for operation, repair or replacement.
19. All water meters measuring both fire and domestic water consumption installed on a water service providing fire protection to a property shall be UL (Underwriters Laboratory) or FM (Factory Mutual) approved according to AWWA C703-11.
20. Any insulation placed on or around any water meter shall be easily removable and replaceable and shall not contain asbestos or any other toxic or hazardous materials. Such insulation shall not cover or obstruct the water meter register(s). The City shall not be responsible for any damage to such insulation during any removal or replacement of such insulation.
21. The room where the water meter is located shall be positioned in the building such that it is adjacent to the outside wall of the building at the point where the private water service pipe enters the building.
22. The room where the water meter is located shall have a door with a minimum opening of one metre wide and 2.2 m high. The floor, walls and ceiling shall be constructed of waterproof materials.
23. The private water service pipe shall be flushed prior to and after the installation of the water meter.
24. For remote readout device wire and conduit installation, refer to City of Toronto specifications.

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