

SECTION S904 - TAPPING SLEEVE WITH VALVE AND VALVE BOX

S904-1 DESCRIPTION

Work consists of installation of tapping sleeve with valve and valve box in existing water pipe, as required in Contract Documents and as directed by Project Manager.

Work and materials are to be in conformance with requirements of Section S900 General Water Provisions and S901 Water Main Pipe and Fittings.

S904-2 MATERIALS

S904-2.01 Cast/Ductile Iron Tapping Sleeve

Cast or ductile iron tapping sleeve is to be a split body tapping sleeve with mechanical joint ends and machined recess flanged outlet to accommodate tapping valve, capable of being installed on ductile iron, cast iron or PVC/PVCO water main pipe. It shall have a 3/4 inch tapped outlet with brass plug for testing and have a cement mortar lining or fusion bonded epoxy lining on the interior of the outlet branch. Sleeve is to be furnished with all glands, gaskets and fluorocarbon coated, cold formed, high strength, low-alloy steel bolts, washers and nuts.

Cast/ductile iron tapping sleeve is to be designed for maximum working pressures of at least:

Water Main Pipe Size	Pounds per Square Inch (psi)
4 through 12 inch	250 psi
16 through 24 inch	200 psi
larger than 24 inch	150 psi

S904-2.02 Stainless Steel Tapping Sleeve

Stainless steel tapping sleeves are not to be used on Holly water mains and may only be used in lieu of cast/ductile tapping sleeves on domestic water mains when the nominal diameter of the tapped outlet is at least one pipe size smaller than the nominal diameter of the existing water main pipe being tapped. When the nominal diameter of the tapped outlet is equal to the nominal diameter of the domestic water main pipe being tapped, a cast/ductile iron tapping sleeve must be used or a new tee cut into the existing water main.

Stainless steel tapping sleeves shall be fabricated two piece shell Type 304 stainless steel with a gridded SBR or Nitrile (Buna-N) rubber shell gasket. Flange shall be Type 304 stainless steel with recess to accommodate tapping valve. Sleeve shall be capable of being installed on ductile iron, cast iron and PVC/PVCO water main pipe. It shall have a 3/4 inch tapped outlet with stainless steel plug for testing. Sleeve is to be furnished with stainless steel bolts, washers and nuts. Nuts shall have a fusion bonded or fluoropolymer coating to prevent seizing and galling.

Stainless steel tapping sleeve is to be designed for maximum working pressures of at least:

Water Main Pipe Size	Pounds per Square Inch (psi)
4 inch through 20 inch	200 psi
larger than 20 inch	150 psi

S904-2.03 Tapping Valve

Tapping valve is to be resilient seat tapping gate valve in conformance with requirements of Section S903 Resilient Seat Gate Valve with Valve Box. Valve shall be designed to connect directly to the flanged end of the tapping sleeve. Tapping valve is to be provided with full face gasket at the flanged end and fluorocarbon coated, cold formed, high strength, low-alloy steel nuts and bolts.

S904-2.04 Valve Box

Valve box is to be in conformance with requirements of Section S909 Water Valve Box.

S904-2.05 Drilling/Tapping Machine and Tools

Drilling/tapping machine is to be capable of attaching to and cutting through tapping valve, and is to be designed to operate with drilling/cutting tools required for the specific pipe material being drilled. When tapping PVC/PVCO water main pipe, cutting tool is to be toothed core cutter of shell-type design with minimum of two slots to allow the cut material to exit the hole and retains the coupon after penetration of water pipe.

S904-3 CONSTRUCTION DETAILS

Tap is to be made with drilling/tapping machine specially designed for intended work, and must be in good working condition. Hand-held drills are not to be used for making taps.

Contractor is responsible to obtain actual outside diameter of existing water pipe to be tapped for proper sizing of tapping sleeve. Additional excavation is normally required to obtain actual outside diameter measurement of existing water pipe.

Tapping sleeve and valve are to be installed in conformance with manufacturer's instructions and as approved by Project Manager.

Before tapping the main - the pipe exterior, tapping saddle and valve and drilling/cutting tools are to be cleaned and disinfected using a chlorine solution; tapping sleeve and valve is to be inspected; and tapping sleeve and valve shall be hydrostatically pressure tested with water after installation at 150 p.s.i. for minimum 15 minutes to ensure that tapping sleeve and valve is not leaking.

Valve is to be installed with stem in vertical position.

Installation and joints are to be watertight, both prior to and after making connection.

Tapping sleeve and valve, including mechanical joint glands, are to be wrapped with polyethylene encasement and sealed with polyethylene tape.

Special attention is to be paid to backfill material placed under valve to ensure that it is well compacted for bedding valve.

To prevent any deflection of tapping sleeve installation due to thrust pressure, cast-in-place concrete thrust block is to be constructed between tapping sleeve and undisturbed soil to solidly brace and support tapping sleeve independently of water pipe. Concrete thrust block is to be left in place after tapping sleeve installation is completed.

Valve box is to be carefully set over valve stem or beveled gear shaft. Valve box top section is to be adjusted for elevation, and base centered over operating nut. Top of valve box is to be flush with finished surface.

Valve box is to be carefully set and braced to ensure that it remains in proper vertical position and centered on valve stem during and after backfilling operation. Backfilling of trench is to be done in manner so as to avoid damage to valve and valve box.

Proper alignment and height of valve box is to be maintained until completion of Project.

S904-4 METHOD OF MEASUREMENT

Quantity to be measured for payment will be number of tapping sleeves complete with valve and valve box installed.

S904-5 BASIS OF PAYMENT

Unit price bid includes cost of: furnishing and installing tapping sleeve complete with valve and valve box; making water main tap; polyethylene wrap; concrete thrust block; maintaining proper alignment and height of valve box; pavement saw cutting; pressure testing; bracing; additional excavation and backfill necessary to obtain outside diameter of existing water pipe; disinfectant to prevent contamination of existing water main; and furnishing all labor, material and equipment necessary to complete work.

Excavation, rock excavation, furnishing and placing of bedding and select granular backfill, and surface restoration will be paid for under separate bid items.

Payment will be made under:

ITEM NO.	ITEM	PAY UNIT
S904.03XXXX	X" x X" Tapping Sleeve with Valve and Valve Box	Each

REVISED February 13, 2014