

SECTION S903 - RESILIENT SEAT GATE VALVE WITH VALVE BOX

S903-1 DESCRIPTION

Work consists of installation of resilient seat gate valve with valve box, 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.

S903-2 MATERIALS

S903-2.01 Resilient Seat Gate Valve

Resilient seat gate valve is to have non-rising stem (NRS), O-ring stem seals, standard 2 inch square AWWA operating nut, and open right (clockwise). Resilient seat gate valve 12 inch diameter and smaller is to meet or exceed all requirements of ANSI/AWWA C509. Resilient seat gate valve 16 inch through 24 inch in diameter is to meet or exceed all requirements of ANSI/AWWA C515.

Resilient seat gate valve sizes 4 through 12 inch are to have design working pressure of 250 pounds per square inch and test pressure (gate open) of 500 pounds per square inch. Resilient seat gate valve sizes 16 through 24 inch are to have design working pressure of 200 pounds per square inch and test pressure of 500 pounds per square inch. Pressure rating is to be cast on outside of resilient seat gate valve body.

Resilient seat gate valve body, bonnet and gate for valves 4 through 12 inch are to be cast iron or ductile iron. Valve body and bonnet for valves 16 through 24 inch are to be ductile iron with either cast iron or ductile iron gate. Interior and exterior surface of resilient seat gate valve body and bonnet are to be coated with fusion bonded epoxy in conformance with requirements of ANSI/AWWA C550.

Gate is to be completely encapsulated with rubber over all ferrous surfaces. Rubber is to be securely bonded to gate, including part which houses stem nut.

Resilient seat gate valve stem is to be made of high strength bronze having minimum tensile strength of 70,000 pounds per square inch and minimum yield strength of 32,000 pounds per square inch. Stem sealing is to utilize "O" ring seals which can be replaced while resilient seat gate valve is under pressure in both fully open and fully closed position.

Gate guides are to be provided to insure that gate is kept in proper alignment with body so that rubber sealing surfaces are evenly compressed when gate is closed to provide zero leakage at required design working pressure.

Resilient seat gate valve is to be designed so that during operation, or cycling of resilient seat gate valve, there is no friction, abrasion or rubbing together of gate and body that can wear away any rubber and epoxy, thus exposing bare metal.

Bolts and nuts for fastening bonnet to body of resilient seat gate valve are to be stainless steel.

Resilient seat gate valves 4 through 12 inch are to be vertical type. Unless otherwise specified, all resilient seat gate valves 16 inch and larger shall be horizontal type.

S903-2.02 Resilient Seat Gate Valve - Furnished

Resilient seat gate valve complete with valve box will be as furnished by Bureau of Water Materials and Equipment Section. Contractor is to pick-up complete resilient seat gate valve unit from Bureau of Water Materials and Equipment Section, 401 Dewey Avenue, Rochester, New York, (585) 428-7514. Bureau of Water Materials and Equipment Section requires a minimum of 2 working days advance notice to make arrangements for pick-up of complete resilient seat gate valve unit.

S903-2.03 Vertical Resilient Seat Gate Valve - Sizes 16 Inch to 24 Inch

Vertical resilient seat gate valve sizes 20 and 24 inch are to have 2:1 ratio enclosed low-profile spur gearing for buried service with AWWA 2 inch square operating nut to allow above ground operation through valve box.

Bolts and nuts on spur gear box are to be stainless steel.

Vertical resilient seat gate valves 16 inch and larger may only be used in locations where water main cover depths exceed 6 feet.

S903-2.04 Horizontal Resilient Seat Gate Valve

Horizontal resilient seat gate valves 16 inch and larger are to have 2:1 ratio right angle enclosed bevel gearing with AWWA 2 inch square operating nut to allow above ground operation through valve box.

Bolts and nuts on beveled gear box are to be stainless steel.

S903-2.05 Valve Box

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

S903-3 CONSTRUCTION DETAILS

Resilient seat gate valve is to be installed with new water pipe in conformance with requirements of ANSI/AWWA C509 Appendix A, C515 Appendix A.

Resilient seat gate valve is to be inspected, cleaned and bolts and nuts checked for tightness before installation to ensure that it is in proper working order.

Vertical type resilient seat gate valve is to be installed with stem in vertical position. Horizontal type resilient seat gate valve is to be installed with valve stem in horizontal position and shaft of enclosed beveled gear box in vertical position.

Joints are to be watertight.

Valves, including mechanical joint glands, installed on metallic and non-metallic pipe shall be wrapped with polyethylene encasement and sealed with polyethylene tape.

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

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

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

S903-4 METHOD OF MEASUREMENT

Quantity to be measured for payment will be number of resilient seat gate valves, with valve box, installed.

S903-5 BASIS OF PAYMENT

S903-5.01 General All Items

Unit price bid includes cost of: enclosed beveled gear box; pressure testing; bracing; connection to water pipe; polyethylene wrap, maintaining proper alignment and height of valve box; pavement saw cutting; disinfection; and furnishing all labor, material and equipment necessary to complete work.

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

S903-5.02 Resilient Seat Gate Valve

Unit price bid also includes cost of furnishing and installing resilient seat gate valve complete with valve box.

S903-5.03 Resilient Seat Gate Valve - Furnished

Unit price bid also includes cost of picking-up and installing resilient seat gate valve complete with valve box.

Payment will be made under:

ITEM NO.	ITEM	PAY UNIT
S903.01XX	X" Resilient Seat Gate Valve with Valve Box - Vertical Type	Each
S903.02XX	X" Resilient Seat Gate Valve with Valve Box - Horizontal Type	Each
S903.03XX	X" Resilient Seat Gate Valve with Valve Box - Vertical Type (Furnished)	Each
S903.04XX	X" Resilient Seat Gate Valve with Valve Box - Horizontal Type (Furnished)	Each

REVISED September 23, 2010