

FIRE HYDRANTS

756.1 GENERAL:

Fire Hydrants furnished by the Contractor shall be designed, manufactured, and tested in compliance with the latest edition of the American Water Works Association (AWWA) - C. 502 Standard for Dry-Barrel Fire Hydrants, supplemented as follows:

756.2 DRAWINGS:

Detail drawings or blue prints showing all components, principal dimensions, construction details and materials used shall be submitted to the Contracting Agency for approval. The Contracting Agency reserves the right to consider the quality, appearance and past performance of fire hydrants when reviewing drawings for approval.

756.3 HYDRANTS:

Fire hydrants shall be Mueller Super Centurion 250, Clow Medallion, Kennedy K-81. Alternate hydrants by request only to Owner. The diameter of the main valve seat opening shall be not less than 5 inches in diameter. The entire valve assembly shall be effectively sealed against moisture.

Deleted: shall comply with AWWA C-502, supplemented as follows:¶

All interior ferrous surfaces of the shoe exposed to fluid flow shall be epoxy coated to a minimum dry thickness of 6 mils. Epoxy coatings shall be factory applied by an electrostatic or thermosetting process in accordance with the manufacturer's printed instructions. The epoxy materials used shall be 100% powder epoxy or liquid epoxy that conforms to the requirements of AWWA C-550, and to the prevailing requirements of the Food and Drug Administration and of the Environmental Protection Agency.

Deleted: dry barrel similar or equal to the Corey or Mueller Improved Type.

Deleted: The inside diameter of the barrel shall be a minimum of 7 inches and t

Style of inlet shoe connections shall be bell or mechanical joint with accessories, gland, bolts, gaskets and having a 6 inch diameter inlet connection. Facing of the main valve against seats shall be synthetic rubber or balata. The top of the stem or bonnet shall be equipped with the O-ring seal. Hydrants shall be constructed so that extension sections in multiples of 6 inches, with rod and coupling, can be added to increase barrel length. The hose and streamer nozzle connections shall match the standard size and threads per inch of the Contracting Agency. Operating and outlet nozzle cap nuts shall be of solid pentagonal shape. The pentagon shall measure fifteen-sixteenths to thirty-one thirty-seconds inch on side, 1 1/2 inch from point to flat. All barrels above ground shall have a prime coat and painted with two coats of fire hydrant yellow paint. Hydrants shall be constructed so that the standpipe can be rotated to at least 8 different positions.

Hydrants shall be designed for a 250 psi working pressure and tested to a 500 psi hydrostatic pressure.

Hydrants shall be of the break flange traffic model type with a replaceable breakable unit immediately above the ground line to minimize repairs necessary due to traffic damage. The breakable stem coupling will be made of a corrosion resistant material such as stainless steel or bronze, or have a permanently applied non corrosive finish such as nickel plating or fusion bonded epoxy coating.

Hydrants shall be of the compression type; constructed such that the main valve closes with the water pressure to assure no loss of water in the event of damage to the upper portion of the fire hydrant.

Main valve opening shall have a minimum diameter of 5-inches to assure optimum flow. Facing of the main valve against the seats shall be of rubber or synthetic rubber minimum of 1 inch in thickness. Plastic or Neoprene type main valves will not be allowed.

Hydrants shall be of the dry top design with o-ring seals to ensure that the operating threads will be protected from water entry. Dry top design to include factory- lubricated operating mechanism which allows supplemental lubricant to be added in the field without removal of the upper barrel. Standard lubricant shall be a NSF 61 approved oil or grease suitable for a temperature range of 40 degrees to 150 degrees F.

Hydrants shall have a cast iron weather shield at the operating nut to protect the clearance area between the top casting and the operating nut.

The operating nut shall be a one-piece bronze casting. Both the operating nut and the nozzle cap nuts shall be National Standard Pentagon in shape and measure 1-1/2 inches from point to flat at the base of the nut.

Hydrants shall have two hose nozzles, 2-1/2 inch diameter, and one pumper nozzle approved by the Owner. Rubber gasket nozzle caps shall be provided. Screw Threads shall be per owner requirements.

Hydrant nozzle section shall be capable of rotation through 360 degrees with respect to the standpipe to allow the positioning of the hose or pumper nozzles

Minimum distance allowable between the centerline of the lowest nozzle and ground / bury line is 18-inches. Bury line shall be visibly marked on lower barrel of hydrant.

Hydrants shall have markings indicating direction of opening right to left (counter-clockwise).

Hydrants shall have permanent markings identifying the manufacturer name, model identification, size of the main valve opening and the year of manufacture

Hydrants shall have an automatic drain that is operated by the main valve rod. The drain valve is to open as the main valve is closed and close as the main valve is opened. The port and seat of the drain valve shall be bronze. Drain facings shall not be leather.

The outside of the hydrant top section shall be painted a minimum of one coat of non-lead base premium primer and two (2) finished coats of non-lead base premium durable paint. The surface will be properly prepared, smooth, clean, and dry before primer is applied. The primer coat will be applied to a DFT (Dry Film Thickness) of 3-4 mils. The final 2 coats will be applied to achieve a DFT of 6-8 mils on top of the primer coat. Paint will be a semi-gloss, bright chrome safety yellow in color. Paint will have high color retention. Paint will be fade and UV resistant, rust resistant, resistant to abrasions and chipping and have flexibility qualities.

The shoe of the hydrant shall be provided with a mechanical joint connection, 6-inch in size. All interior ferrous surfaces of the shoe, exposed to continuous fluid flow (including the valve plate and cap nut), shall be epoxy coated to a minimum dry thickness of 6 mils. Epoxy coatings shall be factory applied by an electrostatic or thermosetting process in accordance with the manufacturer's printed instructions. The epoxy material used shall be 100-percent powder epoxy or liquid epoxy that conforms to the requirements of AWWA C-550-81, NSF 61 approved, and to the prevailing requirements of the Food and Drug Administration and to the Environmental Protection Agency.

Hydrants shall have a bronze valve seat and shall be threaded into a bronze drain ring or shoe bushing to prevent electrolysis between these components

Hydrants shall be designed to permit the use of extension sections.

Hydrants shall be designed to allow all working parts to be removable through the top dome or bonnet section of the hydrant, which will be separate from the nozzle section of the upper barrel.

Hydrants shall be suitable for installation in 42-inch depth of trench.

All nuts and bolts to be buried below ground will be of 304 stainless steel.

The friction loss must be guaranteed by the manufacturer to match statistics in Table 756-1

756.4 MANUFACTURER:

The manufacturer shall guarantee that the hydrant is so constructed that the valve stem will not be bent when hydrant is damaged or broken at or near the grade level. A safety breaking flange or thimble, shall be provided. The friction loss must be guaranteed, by the manufacturer, to satisfy Table 756-1.

TABLE 756-1			
MAXIMUM PERMISSIBLE LOSS OF HEAD FOR HYDRANTS			
Number of Outlet Nozzles	Nominal Diameter of Outlet	Total Flow From Outlet Nozzles GPM	Maximum Permissible Head Loss PSI
2	2 1/2 inches	500	2.0
1	4 inches	600	2.5

756.5 WARRANTY:

All items shall be warranted for a minimum period of five (5) years from date of acceptance by the Owner, against defects in material and workmanship. At any time during that period, if a defect should occur in any item, it shall be repaired or replaced by the Seller at no obligation to the Owner, except where it would be shown that the defect was caused by misuse and not by fault of manufacturer. The bidder expressly warrants all items to be new, free from defect in design, materials, and workmanship and to be fit and sufficient for their intended purpose. All warranties shall survive acceptance and payment by the city.

756.6: INSPECTION

All items shall be inspected before acceptance by an authorized representative of the Owner for workmanship, acceptance and proper functioning of components, and conformance to all requirements of this specification.

Should deficiencies be found, it shall be the responsibility of the supplier to pack the item(s) in question, make necessary corrections, and then return to the Owner for re-inspection and acceptance at no additional expense or obligation to the Owner.

Supplements:

Municipality	Supplements
SC:	<p style="text-align: center;">SECTION 756 FIRE HYDRANTS</p> <p>756.3 HYDRANTS: <i>Delete the text in this subsection in its entirety and replace it with the following:</i></p> <p>All fire hydrants furnished to, or installed in, the City shall conform to the following specifications:</p> <ol style="list-style-type: none">(1) Hydrants shall be designed, manufactured, installed and tested in compliance with the latest edition of AWWA. C-502 Standard for Dry-Barrel Fire Hydrants, as published by the American Water Works Association.(2) Hydrants shall be designed to operate at the maximum pressure of the line, and tested at the same p.s.i. as the main line.(3) Hydrants shall be of the break flange traffic model type with a replaceable breakable unit immediately above the ground line for minimizing repairs due to traffic damage.(4) Hydrants shall be of the compression type. Construction such that the main valve closes with the water pressure to assure no loss of water in the event of damage to the upper portion of the fire hydrant.(5) Main valve opening shall have a minimum of diameter of 5 1/4 inch to assure optimum flow. The inside diameter of the barrel shall be a minimum of 7 inches. Facing of the main valve against the seats shall be synthetic rubber or balata.(6) Hydrants shall be of the drop top design with O-ring seals to insure that the operating threads will be protected from water entry. Dry top design to include factory lubricated operating mechanism which allows supplemental lubricant to be added in the field without removal of the top section. Standard lubricant shall be either oil or grease, suitable for a temperature range of 40 degrees to 150 degrees F.(7) All hydrants shall have a weather shield at the operating nut to protect the clearance area between the top casting and the operating nut.(8) The operating nut shall be one-piece bronze casting, both the operating nut and the nozzle cap nuts to be National Standard Pentagon in shape and measure 1 1/2 inch from point of flat at the base of the nut. Nozzle caps to be provided with rubber gaskets.(9) Hydrants shall have two 2 1/2 inch diameter hose nozzles with National Standard Fire Hose Coupling Screw Threads, and one 4 1/2 inch diameter pumper nozzle with National Standard Threads. Both the Pumper and Hose Nozzle shall be threaded and locked into place with "O" rings used as pressure seals. The use of caulked type nozzles is prohibited.(10) Hydrant nozzle section shall be capable of rotation through 360 degrees with respect to the standpipe to allow the positioning of the hose or pumper nozzles.(11) Hydrant shall have identification mark indicating direction of opening right to left (counter clockwise).(12) Hydrants shall have permanent markings identifying the manufacturer name, size of main valve opening, and year of manufacture.(13) Hydrants shall have an automatic drain that is operated by the main valve rod. Drain valve is to open as the main valve is closed and close as the main valve is opened. Drain valve systems shall be fully automatic.

	<p>Port and seats of drain valve to be bronze.</p> <p>(14) The outside of the hydrant top section shall be painted a minimum of one coat of primer and two finished coats of chrome yellow enamel.</p> <p>(15) The shoe of the hydrant shall be provided with a mechanical joint connection, 6 inch in size. All interior ferrous surfaces of the shoe exposed to continuous fluid flow (including the valve plate and cup nut) shall be epoxy coated to a minimum dry thickness of 6 mils. Epoxy coating shall be factory applied by an electrostatic or thermosetting process in accordance with the manufacturers printed instructions. The epoxy material used shall be 100 percent powder epoxy or liquid epoxy that conforms to the requirements of AWWA C550 and to the prevailing requirements of the Food and Drug Administration and of the Environmental Protection Agency.</p> <p>(16) The hydrant shall have bronze valve seat and shall be threaded into bronze drain ring or shoe bushing to prevent electrolysis between these components.</p> <p>(17) Hydrants shall be designed to permit the use of extension sections and allow all parts to be removable from ground level without requiring excavation of the hydrant.</p> <p>(18) The friction loss must be guaranteed by the manufacturer to satisfy the following table:</p> <p>(19) <i>Pour a PCC Collar around the fire hydrant barrel in accordance with AWWA Standard M 17 as shown in COS Standard 2366.</i></p>
--	--

Municipality	Supplements												
SC:	<p>756.4 MANUFACTURER: <i>Modify table 756-1 as follows:</i></p> <p style="text-align: center;">TABLE 756-1 MAXIMUM PERMISSIBLE LOSS OF HEAD FOR HYDRANTS</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">No. of Outlet Nozzles</th> <th style="text-align: center;">Nom. Diam. of Outlet</th> <th style="text-align: center;">Total Flow From Outlet Nozzles GPM</th> <th style="text-align: center;">Maximum Permissible Head Loss PSI</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">2</td> <td style="text-align: center;">2 1/2"</td> <td style="text-align: center;">500</td> <td style="text-align: center;">2.0</td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">4 1/2"</td> <td style="text-align: center;">600</td> <td style="text-align: center;">2.5</td> </tr> </tbody> </table>	No. of Outlet Nozzles	Nom. Diam. of Outlet	Total Flow From Outlet Nozzles GPM	Maximum Permissible Head Loss PSI	2	2 1/2"	500	2.0	1	4 1/2"	600	2.5
No. of Outlet Nozzles	Nom. Diam. of Outlet	Total Flow From Outlet Nozzles GPM	Maximum Permissible Head Loss PSI										
2	2 1/2"	500	2.0										
1	4 1/2"	600	2.5										

Municipality	Supplements
SC:	<p>756.5 CERTIFICATION <i>The Contractor shall provide, to the City, manufacturer certifications attesting the fire hydrants as shown on the submitted product data sheets meet the requirements of this specification.</i></p>

Municipality	Supplements												
SC:	<p data-bbox="285 285 805 306">756.4 MANUFACTURER: <i>Modify table 756-1 as follows:</i></p> <p data-bbox="440 327 1040 380" style="text-align: center;">TABLE 756-1 MAXIMUM PERMISSIBLE LOSS OF HEAD FOR HYDRANTS</p> <table border="1" data-bbox="298 407 1187 579"> <thead> <tr> <th data-bbox="298 407 521 495">No. of Outlet Nozzles</th> <th data-bbox="529 407 740 495">Nom. Diam. of Outlet</th> <th data-bbox="748 407 967 495">Total Flow From Outlet Nozzles GPM</th> <th data-bbox="976 407 1187 495">Maximum Permissible Head Loss PSI</th> </tr> </thead> <tbody> <tr> <td data-bbox="298 501 521 533" style="text-align: center;">2</td> <td data-bbox="529 501 740 533" style="text-align: center;">2 1/2"</td> <td data-bbox="748 501 967 533" style="text-align: center;">500</td> <td data-bbox="976 501 1187 533" style="text-align: center;">2.0</td> </tr> <tr> <td data-bbox="298 539 521 571" style="text-align: center;">1</td> <td data-bbox="529 539 740 571" style="text-align: center;">4 1/2"</td> <td data-bbox="748 539 967 571" style="text-align: center;">600</td> <td data-bbox="976 539 1187 571" style="text-align: center;">2.5</td> </tr> </tbody> </table>	No. of Outlet Nozzles	Nom. Diam. of Outlet	Total Flow From Outlet Nozzles GPM	Maximum Permissible Head Loss PSI	2	2 1/2"	500	2.0	1	4 1/2"	600	2.5
No. of Outlet Nozzles	Nom. Diam. of Outlet	Total Flow From Outlet Nozzles GPM	Maximum Permissible Head Loss PSI										
2	2 1/2"	500	2.0										
1	4 1/2"	600	2.5										

Municipality	Supplements
SC:	<p data-bbox="285 674 521 695">756.5 CERTIFICATION</p> <p data-bbox="285 695 1187 747"><i>The Contractor shall provide, to the City, manufacturer certifications attesting the fire hydrants as shown on the submitted product data sheets meet the requirements of this specification.</i></p>