

## Material Specification – 13 for DRY-BARREL FIRE HYDRANTS

### 1. GENERAL

Dry-barrel fire hydrants shall be designed and manufactured in accordance with AWWA C502 with the following additional requirements or exceptions.

Components in contact with potable water shall be certified to comply with NSF/ANSI 61, NSF/ANSI 61 Annex G, and NSF/ANSI 372.

### 2. SERVICE

Fire hydrants supplied under these Specifications shall be designed for a working pressure of 150 psi.

### 3. SIZE OF HYDRANT

Hydrants shall have a main valve opening size of at least 5 1/4 inches.

### 4. TYPE OF HYDRANT

Hydrants shall be the three-way type with one pumper nozzle and two hose nozzles located on the same horizontal plane at least 18 inches above ground line.

### 5. INLET CONNECTION

The hydrant base shall be provided with a mechanical joint inlet to accommodate 6-inch DI pipe complete with plain rubber gasket, gland, bolts, and nuts in accordance with AWWA C111.

Bolts and nuts shall be a high strength, low alloy, corrosion-resistant steel, known in the industry as Cor-Ten, Usalloy, or Durabolt. Incorporated into the base shall be two lugs for the rodding of pipe.

Mechanical joint accessories shall be attached to the hydrant for shipment.

### 6. MAIN VALVE ASSEMBLY

The main valve of the hydrant shall be the compression type that closes with water pressure. The seat ring shall be bronze with a machined face and external threads for threading into a bronze drain ring or a bronze bushed shoe to provide bronze to bronze seating for the main valve. The assembly shall be sealed with O-rings.

The main valve shall be a replaceable type fabricated of a resilient material with a threaded bottom plate or nut, with a seal to prevent leakage of the hydrant shaft. The upper valve plate material shall be bronze or epoxy coated DI.

The valve assembly shall include one or more drain valves that work automatically with the main valve to drain the barrel when the main valve is in the closed position. Drain tubes shall be bronze lined and sized large enough for the barrel to drain within 12 minutes when sized for a 5 foot trench depth.

The components of the main valve assembly shall be designed so that removal of the assembly from the barrel may be accomplished without excavation.

### 7. OPERATING SHAFT AND NUT

The operating nut shall be bronze or DI and pentagon shaped with a finished height of 1 1/8 inch. The dimensions from point-to-flat shall be between 1 1/4 and 1 3/8 inch from the top to the bottom of the nut. Bushings in the bonnet shall be constructed to prevent the operating nut from traveling during opening or closing operation. Also, the bushing shall house a gasket or seal to prevent moisture or foreign materials from entering the lubricant reservoir.

Hydrants shall be grease lubricated or of a dry-top design where an oil reservoir will provide permanent lubrication of the operating nut threads.

A stop nut located in the hydrant bonnet on the operating shaft shall prevent the over travel of the main valve when it is being opened.

The hydrant shall open by turning the operating nut clockwise and shall have an arrow on top of the bonnet to designate the direction of opening.

## **8. PUMPER NOZZLE AND CAP**

The pumper nozzle shall be 4 1/2 inches nominal diameter with 5 3/8 inch outer diameter threads having 6 threads per inch; threads shall be right-hand. A sample nozzle will be furnished upon request.

The nozzle cap shall be furnished with a synthetic rubber gasket installed in a retaining groove. The dimensions and shape of the nozzle cap nut shall be the same as the operating shaft nut.

The nozzle cap shall be furnished with a security chain; the end shall be securely attached to the upper barrel section of the hydrant.

## **9. HOSE NOZZLES AND CAPS**

The two hose nozzles shall be 2 1/2 inch nominal diameter with 7 1/2 threads per inch (2.5 to 7.5 N.H.). Threads shall be right-hand and shall be National Standard in accordance with NFPA No. 194.

Nozzle caps shall be furnished with security chains; each end shall be securely attached to the upper barrel section of the hydrant.

## **10. NOZZLE ATTACHMENT**

Outlet nozzles shall be fastened into the barrel by mechanical means and secured by a stainless steel pin or screw, bronze wedge, or DI retainer. Nozzles shall be sealed by the use of O-rings.

## **11. TESTING**

Each factory assembled unit shall be hydrostatically tested in accordance with AWWA C502. Shop tests for the body and main valve will be conducted at a pressure of 300 psi.

## **12. COATINGS**

The upper exposed section of the hydrant shall be thoroughly cleaned and painted with a prime coat of a rust inhibitive primer followed by a 10 mil DFT shop coat of heavy duty alkyd enamel paint. The paint color shall be yellow, similar to Federal Color No. 13538.

Exposed exterior surfaces below the ground line shall be coated with asphalt varnish in accordance with AWWA C502.

The interior of the hydrant shall be coated with an epoxy coating in accordance with AWWA C502. Epoxy paint shall be NSF/ANSI 61 approved.

The hydrant shoe and connecting gland shall be lined and coated with fusion-bonded epoxy in accordance with AWWA C116.

**13. CERTIFICATION**

The manufacturer shall furnish a sworn statement stating that furnished hydrants are in accordance with applicable provisions of AWWA C502 as modified or supplemented herein. A copy of the Certification, including interior epoxy paint compliance with NSF/ANSI 61, shall be provided to Denver Water.

**14. TRAFFIC FEATURES**

Hydrants shall be equipped with traffic features that include a breakaway flange or lug system with a shaft coupling.

**15. ACCEPTABLE MANUFACTURERS AND MODELS**

<b>CITY AND COUNTY OF DENVER AND TOTAL SERVICE CONTRACT AREAS</b>	
<b>Manufacturers</b>	<b>Models</b>
ACIP/Waterous	Pacer WB-67-250
American AVK	Series 27
Kennedy	K-81DD
<b>DISTRIBUTOR CONTRACT AREAS</b>	
<b>Manufacturers</b>	<b>Models</b>
ACIP/Waterous	Pacer WB-67-250
American AVK	Series 27
Clow	Medallion F-2545
Kennedy	K-81D, K-81DD
Mueller Company	Centurion Model A-473

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