

# METROPOLITAN/M-94 FIRE HYDRANT



## 1. GENERAL CLASSIFICATION

- 1.1 Suitable for general waterworks service.
- 1.2 Dry barrel, post type with compression main valve closing with the inlet pressure.
- 1.3 Replaceable Valve Rod Coupling and a replaceable Frangible Standpipe Coupling at the ground line to prevent or minimize traffic damage.
- 1.4 Complies with AWWA Standard C502, are UL listed and FM approved.
- 1.5 Certified to ANSI/NSF 61/372.

## 2. SELECTIVE SPECIFICATIONS (SELECTED BY THE CUSTOMER)

- 2.1 **Size of Hydrant** -- 4-1/2" or 5-1/4" hydrants are sized by seat ring internal diameters.
- 2.2 **Size and type of inlet connections:**
  - 2.2.1 **Flange** -- Horizontal or vertical in relation to hydrant barrel -- American Standard complying with ANSI/ASME B16.1 Class 125 and ISO PN10/16. 6" size.
  - 2.2.2 **Standardized Mechanical Joint** -- Dimensions comply with ANSI/AWWA C111/A21.11. Furnished with integral anti-rotation pads on all bolt holes (allowing use of standard tee-head bolts) and with two strapping lugs. 6" size.
  - 2.2.3 **D-150 Mechanical Joint** -- With two specially designed gaskets to fit either of two diameters of Cast Iron or Ductile Iron pipe: duck-tipped rubber gasket for Class 150 pipe or plain rubber gasket for Class D pit cast pipe. 6" size.
  - 2.2.4 **Slip-On Joint\*** -- Complete with US Pipe Slip-On Gasket, complies with ANSI/AWWA C111/A21.11. Fits Ductile Iron pipe manufactured to ANSI/AWWA C151/A21.51; including the plain end of all makes of Cast Iron or Ductile Iron of the slip connection type. Also fits Classes 150 and 200 Ductile Iron O.D. PVC plastic pipe. \*\*6" size.
- 2.3 **Operating nut and nozzle cap nut** -- shape and dimension according to customer selection.
- 2.4 **Opening direction** -- Open left or right. Arrow on bonnet indicates opening direction.
- 2.5 **Nozzle arrangement** -- Furnished 3-way, with 2 hose nozzles 180 degrees apart, 1 pumper in between, and all on the same horizontal plane.
  - 2.5.1 **Hose nozzle threading** -- Regularly furnished with 2-1/2" National Standard Hose Thread. Other 2-1/2" or 3" hose threads to customer specifications.
  - 2.5.2 **Pumper nozzle threading** -- Regularly furnished with 4-1/2" National Standard Pumper Hose Thread. Other 3-1/2", 4", 4-1/4", 4-1/2", and 5" pumper hose threads to customer specifications. Integral 4" or 5" Storz pumper connection available.

*\*Design and dimensions of the joint are manufactured under license of U.S. Pipe and Foundry Company.*

*\*\*When using DI O.D. PVC pipe, gaskets supplied by US Pipe must be used with this hydrant connection.*

## 3. WORKING AND TEST PRESSURES

- 3.1 Working pressure is 250 psi.
- 3.2 U.S. Pipe M94 Hydrants are subjected to two hydrostatic tests per AWWA C502 Standard.
  - 3.2.1 500 PSI Shell test (hydrant pressurized with main valve open).
  - 3.2.2 500 PSI Seat test (shoe pressurized with main valve closed).

*During the above tests, no indication of leakage is permitted through castings, joints, main valve, or stem seals. Drain valve leakage cannot exceed five (5) fluid ounces per minute.*

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## 4. DESIGN FEATURES

- 4.1 **Bonnet assembly** -- Dry top, factory lubricated. Sealed system grease filled chamber. Quarter turn design allows for easy removal.
- 4.2 **Operating Nut** -- Ductile Iron construction provides durability and doubles as a weather shield.
- 4.3 **Grease Fill Plug** -- Provides an easy access port for adding lubricant with insertion of a grease zerk.
- 4.4 **Upper operating system** -- Bronze encased for O-ring seal surface contact.
- 4.5 **Travel Stop Nut** -- Prevents over-opening of the hydrant main valve.
- 4.6 **Nozzles** -- Interchangeable, threaded in place and retained by stainless steel locks.
- 4.7 **Nozzle caps** -- Attached to upper barrel with individual non-kinking chains.
- 4.8 **Standpipe Coupling** -- Breaks cleanly upon impact, yet strong enough for normal handling, shipping, and use. Permits full 360-degree rotation of upper barrel to position nozzles in any desired direction. Extension sections or upper barrel with different nozzle size or arrangement can easily be added.
- 4.9 **Valve Rod Coupling** -- Cast iron, connects the upper and lower stems and is retained with stainless steel retaining pin and ring. When traffic damage occurs, the coupling breaks cleanly, flush with the lower stem. Lower stem retains bottom retaining pin and ring with no loose parts to fall into hydrant barrel. Upper end of lower stem is located below lower barrel flange surface to prevent it from being held open by vehicle wheel after traffic damage.
- 4.10 **Elbow** -- Has lugs for strapping anchors on Mechanical Joint, D-150 and Slip-On Joint ends. Bottom has a support pad and side opposite inlet has a backing support pad.
- 4.11 **Seat ring** -- Bronze ring threads into bronze drain ring, which has two drain holes to provide an all bronze drain way.
- 4.12 **Double drain valves** (with replaceable thermoplastic drain valve facings) -- operate automatically to force flush the drain way each time the hydrant is opened or closed. No toggles, springs, or adjustable mechanisms are required, and the drain valve facings can be replaced when seat ring and main valve assembly is removed.
- 4.13 **Main valve opening** -- Controlled by bonnet stop nut.
- 4.14 **Main valve and seat ring** -- Removable from above ground with seat removal wrench.
- 4.15 **Lower stem end threads** -- Covered with an epoxy coated valve bottom plate.
- 4.16 **Shoe and upper valve plate design** -- Permits maximum flow by minimizing friction loss.
- 4.17 **Shoe interior and Valve Bottom Plate** -- Epoxy coated to resist corrosion.

## 5. MATERIAL SPECIFICATIONS

- 5.1 **Bonnet, standpipe, elbow, and operating nut** -- Ductile Iron, ASTM-536.
- 5.2 **Hold down nut, nozzles, valve top, plate, seat ring and sub seat** -- Bronze, in compliance with AWWA Standard C502.
- 5.3 **O-ring seals** -- Buna N, ASTM D2000.
- 5.4 **Anti-friction bearing** -- Thermoplastic polymer with high resistance to dynamic and static wear.
- 5.5 **Bolts for bonnet and standpipe coupling** -- Stainless Steel, Type 18-8.
- 5.6 **Cap chains** -- Steel, Electrogalvanized.
- 5.7 **Upper and lower rods** -- Steel, ASTM A-576.
- 5.8 **Stem pin** -- Stainless Steel, ASTM A-276, 300 series.
- 5.9 **Nozzle lock** -- Stainless Steel, ASTM A-276 Type 410.
- 5.10 **O-rings for bonnet and barrel flanges** -- Buna N, ASTM D2000.
- 5.11 **Gaskets for nozzle caps** -- Neoprene, ASTM D2000.
- 5.12 **Rod coupling** -- Cast Iron ASTM A126.

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- 5.13 **Rod Coupling Pins** -- Stainless Steel, ASTM A-276 Type 431.
- 5.14 **Rod Coupling Retaining Rings** -- Stainless Steel, Type 18-8.
- 5.15 **Drain valve facings** -- Resilient precision molded thermoplastic with unique sealing characteristics.
- 5.16 **Main valve** -- Buna N, ASTM D2000.
- 5.17 **Valve bottom plate** -- Ductile Iron, ASTM A536 coated with high performance 2-part epoxy. NSF61 listed and AWWA C550 compliant.
- 5.18 **Shoe coating** -- Interior and exterior coated with high performance 2-part epoxy. NSF61 listed and AWWA C550 compliant.
- 5.19 **Paint** -- Interior and exterior above and below ground line coated with high performance 2-part epoxy. Exterior above ground line -- one coat UV resistant high gloss 2-part polyurethane enamel, color as specified by customer.



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