TECFLOW

Post Type Dry Barrel Fire Hydrant – GGG50

Model: MH-1510FA / MH-1510A

TECHNICAL FEATURES

- **Nominal Operating Pressure: 250 PSI / 17 BAR.**
- **Maximum Operating Pressure**: 500 PSI / 35 BAR.
- **Design Standard**: Meets all applicable parts of ANSI / AWWA C502 Standard Latest Version.
- **Inlet Flange Size**: 6" (DN150), **Main Valve Size**: 133.4 mm / 5-1/4"
- **One Pumper Nozzle**: 4.5-4NH Threads, **Two Hose Nozzles**: 2.5-7.5NH Threads. Other kinds of threads are available.
- **Mechanical Connector**: AWWA / ANSI C153 / A21.53 Model No. **MH-1510A**
- **Flange Connector**: ASME B16.5 CLASS 150 / DIND2501 PN16 Model No. **MH-1510FA**
- **Painting Details**: Interior and Exterior conforms to AWWA C550
- Epoxy Coated by **AKZO NOBEL** Resicoat® R4-ES Code: HGF14R Electrostatic Spray.
- **Note**: Each Hydrant is supplied with a hydrant wrench.
- Seating type is resilient material to bronze seal construction.
- Dry top design with O-ring sealed oil reservoir.
- The seat shall be of bronze ring threaded to a bronze insert in the hydrant shoe, with O-Rings to seal the drain way and barrel from leakage of water in the shoe.
- Easily removable main valve from either the bonnet or grounded line flange.
- 360° nozzle section rotation.
- Efficient hydraulic design provides optimum performance and maximum flow.
- Secured by the stainless-steel safety stem coupling and hydrant prevent traffic damage by pulling out if hit by a vehicle preventing damage to the main valve and stem.
- A thrust washer shall be supplied between the operating nut and stem lock nut to facilitate operation.
- Ductile Iron Body
- Compression-type main valve closes with pressure for positive seal; it is made of rubber and is conveniently reversible providing a spare for long service life.
- Lubrication: Lube Oil Cold Temperature.
- All fasteners below ground 316 Stainless Steel.
- Suitable for general waterworks service.
- An O-Ring shall be provided to seal between the upper and lower barrels.
- The main valve shall be of synthetic rubber reinforced with steel.
- Drain Bronze Valve.
- Less torque leads to zero leakage.
- **Approvals**: UL246 Listed, FM1510 Approved, NSF, ANSI 61& 372.

ACCESSORIES

- **SEAT REMOVAL WRENCH** — A light-weight universal combination tool is used to remove the main valve components. The copper alloy seat ring unthreads from the drain ring by engaging the wrench with the upper stem pin.
- **THRUST NUT WRENCH** — The wrench fits the thrust nut for easy removal.
- **LUBRICATION** — The lubrication reservoir is filled with grease during manufacture. To add lubrication, remove the weather cap and put the lubricant into the reservoir through the opening on the top of the operating nut, or remove operating nut and fill lubrication reservoir with food grade grease oroil.
- **EXTENSION KIT** — Contains everything required to extend the stem and barrel. Available in 6" increments.
- **SAFETY FLANGE REPAIR KIT** — Includes safety flange, stem coupling and pins, flange O-rings, all bolts, nuts, and hardware to repair a hydrant damaged due to a trafficaccident.
- **MAIN VALVE SEAT REPAIR KIT** — Contains two drain valve facings and pins, seat ring O-rings, lower valve plate lock washer, main valve seat, container of lubrication.
- **BONNET REPAIR KIT** — Complete with O-rings for the bonnet, stem, and thrust nut. Operating nut thrust washers andlubrication.

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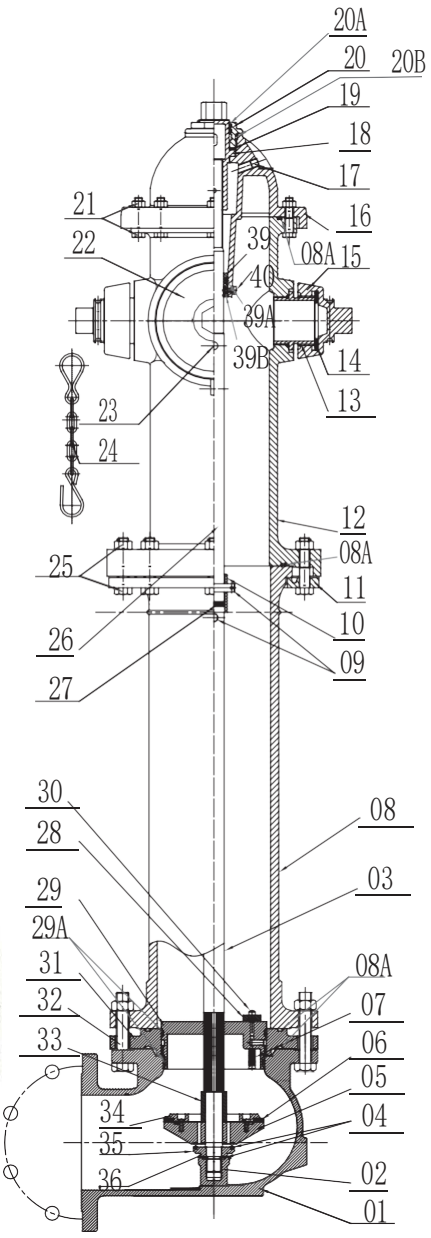
MATERIAL LIST

NO.	NAME	MATERIAL	Standard
1	Flange Connector or Mechanical Connector	Ductile Iron	ASTM A536 Grade 65-45-12
2	Locking Nut	Ductile Iron	ASTM A536 Grade 65-45-12
3	Connecting Rod	Highly Corrosion Carbon Steel 1045	ASTM A29
4	Locking Nut Gasket (Ø24 x 4)	EPDM	ASTM D2000
5	Tray	Ductile Iron	ASTM A536 Grade 65-45-12
6	Sealed Rubber Sheet	EPDM	ASTM D2000
7	Drain Hole Spring Pressure Relief Valve	Stainless Steel SS316	ASTM A240
8	Lower Barrel Connecting Cylinder	Ductile Iron	ASTM A536 Grade 65-45-12
8A	O-Ring (Ø200 x 7)	NBR	ASTM D2000
9	Perforated Cylindrical Pin	Highly Corrosion Carbon Steel 1045	ASTM A29
10	Connecting Rod Sleeve	Stainless Steel	ASTM A351
11	Clamp Ring for Connection Tube	Ductile Iron	ASTM A536 Grade 65-45-12
12	Main Body Upper Barrel on Ground	Ductile Iron	ASTM A536 Grade 65-45-12
13	65 Connector Outlet Nipple	UNS C95400	ASTM B148
14	65 Cover Outlet Gasket	EPDM	ASTM D2000
15	65 Cover Outlet Cap	Ductile Iron	ASTM A536 Grade 65-45-12
16	Upper End Cover Bonnet	Ductile Iron	ASTM A536 Grade 65-45-12
17	Thread Plug	UNS C95400	ASTM B148
18	Screw Stem Nut	UNS C95400	ASTM B148
19	Screw Nut Gasket	UNS C95400	ASTM B148
19A	Anti Fricition Washer	PTFE	
20	Screw Hold Down Nut	UNS C95400	ASTM B148
20A	O-Ring (Ø47.5 x 3.55)	NBR	ASTM D2000
20B	O-Ring (Ø67 x 3.55)	NBR	ASTM D2000
21	Bonnet Bolts and Nuts	Highly Corrosion Carbon Steel 1045	ASTM A29
22	100 Cover Pumper Connection Cap	Ductile Iron	ASTM A536 Grade 65-45-12
23	Cylindrical Pin	Highly Corrosion Carbon Steel 1045	ASTM A29
24	Cover Chain	Gr.B	ASTM A283-B
25	Body Bolts & Nuts	Highly Corrosion Carbon Steel 1045	ASTM A29
26	Upper Screw Stem	Highly Corrosion Carbon Steel 1045	ASTM B148
27	Cushion Rubber	EPDM	ASTM D2000
28	Drain Hole Cover	UNS C95400 + EPDM	ASTM B148 + ASTM D2000
29	Seat	UNS C95400	ASTM B148
29A	O-Ring (Ø150 x 3.55)	NBR	ASTM D2000
30	Bolt & Nut	Stainless Steel SS304	ASTM A240
31	Seat Fixing Retainer Plate	Ductile Iron	ASTM A536 Grade 65-45-12
32	Lower Barrel Bolts & Nuts	Highly Corrosion Carbon Steel 1045	ASTM A29
33	Annular Tube	Highly Corrosion Carbon Steel 1045	ASTM A29
34	Plate Retainer	Ductile Iron	ASTM A536 Grade 65-45-12
35	Lock Nut Seat	Ductile Iron	ASTM A536 Grade 65-45-12
36	Check Turn Gasket	Gr.B	ASTM A283-B
37	100 Steamer Connector Tube	UNS C95400	ASTM B148
38	100 Steamer Cover Gasket	EPDM	ASTM D2000
39	Screw Stem Bushing	Stainless Steel SS304	ASTM A240
39A	O-Ring (Ø35 x 3.55)	NBR	ASTM D2000
39B	O-Ring (Ø30 x 3.55)	NBR	ASTM D2000
40	Bolt	Stainless Steel SS304	ASTM A240
41	Operating Nut	UNS C95400	ASTM B148



Seat Repair Kit: Includes all seals, O-rings and removal tool "T" Handle. (1) item #4, (1) item #6, (1) item 8A, (1) item 20A, (1) item 20B, (2) item 29A, (3) item 29B, (2) item 39A, (2) item 39B and (1) T handle stem wrench.

Traffic Repair Kit: Includes new connecting sleeve, clamp ring, pins and O-rings for above ground repair. (2) item 8A, (2) item 9, (1) item 10, (1) item 11, (1) item 20A, (1) item 27, (1) item 20B, (2) item 39A, (2) item 39B

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INSTALLATION

- Hydrants should be handled with care to avoid damage. It is recommended to keep hydrants closed until use.
- If the hydrant is not to be used straight away, then it is recommended to coat threads and other machined parts with anti-rust oil and the hydrant should be stored in a dry and ventilated area. For long-term storage, the hydrant should be checked regularly.
- Before installation of hydrants, the connection should be free from dirt or other matter.
- The positioning of the hydrant should be in accordance with local requirements. Ideally the pumper should face the street and all connections should be away from any obstruction to connecting hoses.
- The inlet elbow should be placed on a solid surface and if possible, brace the side opposite the incoming flow to reduce reaction stresses.
- The underground parts of the hydrant should be surrounded with coarse gravel for support and drainage.
- After the hydrant has been installed and tested, it is recommended to fully flush the hydrant before closing for service. Before replacing the nozzle caps, it is recommended to check for correct drainage of the hydrant on closing of the valve. This can be achieved by placing a hand over the nozzle opening, a suction should be felt.

OPERATION

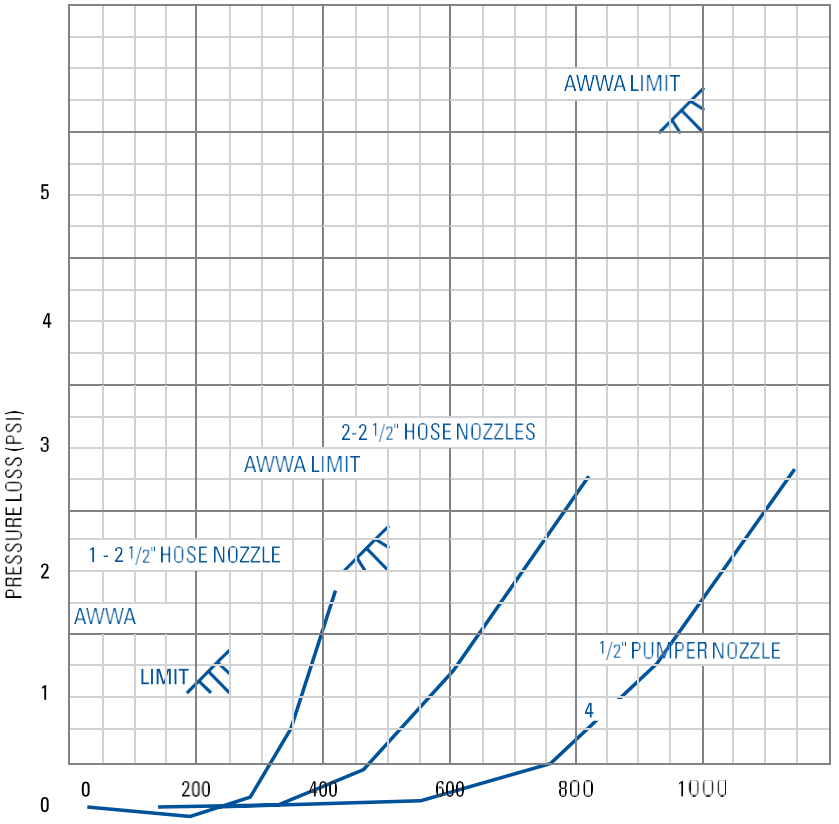
- Unscrew the nozzle caps and connect hose.
- Open the hydrant using the hydrant key (included) to the fully open position by turning the operation nut in an anti-clockwise direction – Do not force the hydrant to open further past the fully open position. Note that the hydrant valve is not intended to control the flow, it should be used in either the fully open or fully closed position.
- To control flow, a pressure/flow control valve should be fitted to the nozzle outlets on the hydrant.
- To close, turn the operation nut into a clockwise direction again, do not over tighten.

MAINTENANCE

- Carry out a visual inspection for signs of significant corrosion which may impair performance.
- Where possible, carry out leakage tests by opening one of the nozzle caps slightly and then open the hydrant valve. Once the air has escaped, tighten the hose cap and check for leaks.
- Close hydrant and remove one nozzle cap so that the drainage can be checked.
- Flush the hydrant.
- Clean and lubricate all nozzle threads.
- Clean the exterior of the hydrant and repaint if required.

FLOW RATE GRAPH

PRESSURE LOSS VS. FLOW



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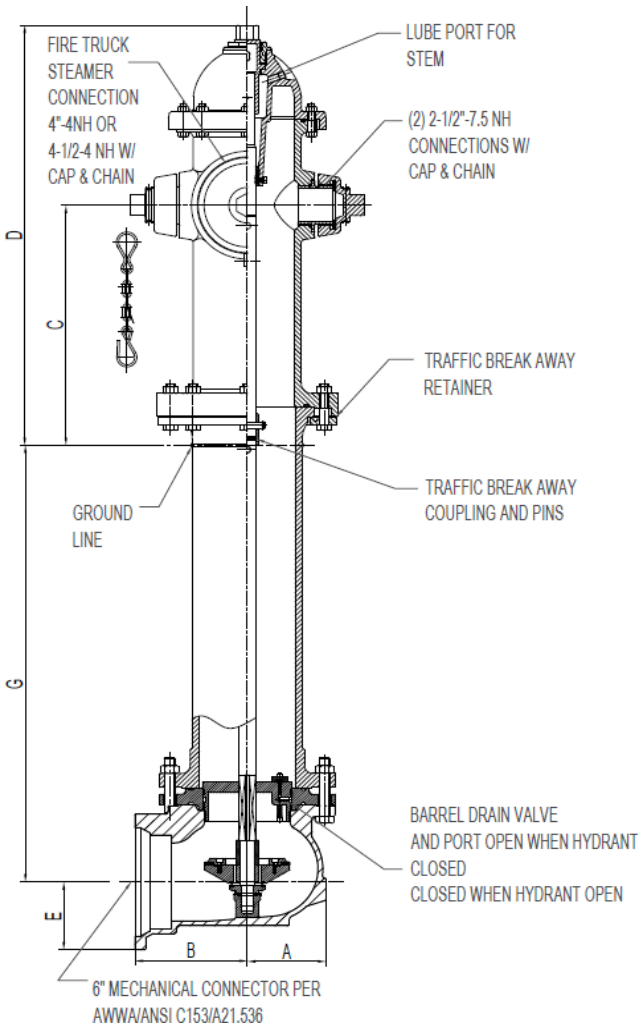
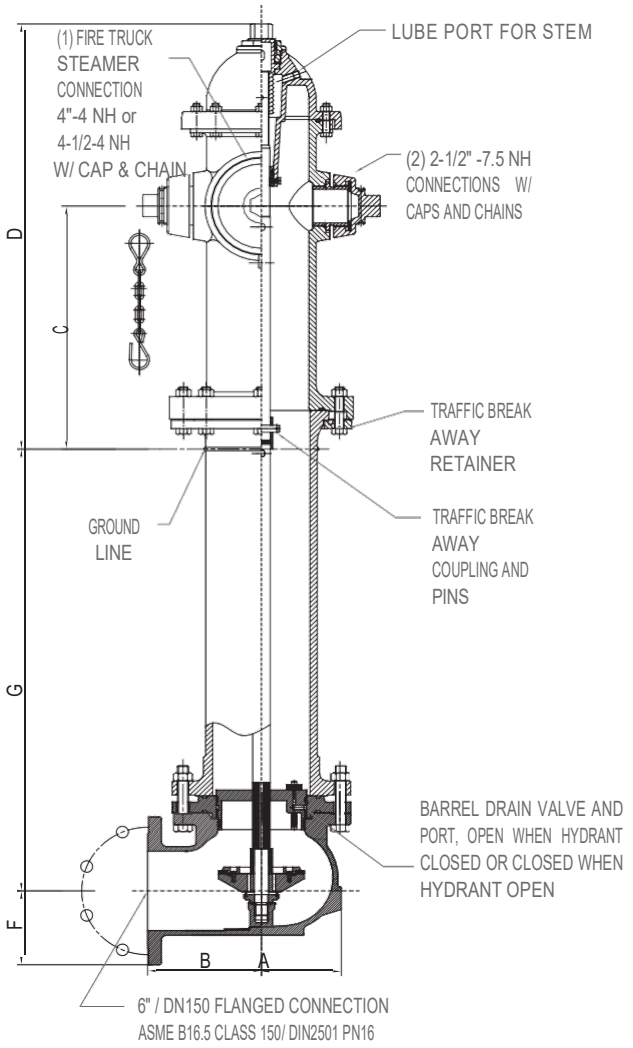
DIMENSIONAL INFORMATION



MH-1510A

AWWA Mechanical Joint



MH-1510FA

ASME Class 150 / ISO PN16 Flange

Dry Barrel Hydrant 6" (DN 150) Flanged or Mechanical Inlet, STD Outlets (2) 2-1/2"-7.5NH Male Outlets and (1) 4-1/2"-4 NH Male Steamer Pumper Connection:

Part Number Flanged	Part Number Mechanical	A (mm/ inch)	B (mm/ inch)	C (mm/ inch)	D (mm/ inch)	E (mm/ inch)	F (mm/ inch)	G (mm/inch)	Weight (kg)
MH-1510FA	MH-1510FA	146/ 5.75	208/ 8.18	460/ 18.11	805/ 31.7	130/5.12	140/5.51	1063/42	185
								1215/48	190
								1368/54	196
								1520/60	211
								1673/66	220
								1825/72	241
								1978/78	246
								2130/84	251

Options:

- Inlet flanged ASME B16.5 Class 150 or ISO2501 PN16, or / mechanical AWWA C153 / A21.536
- Depth chooses one of above Dimension "G"
- Outlet (2) 2-1/2" hose connection thread type specifies, standard =7.5NH (other thread types available)
- Steamer pumper outlet standard= (1) 4-1/2"-4NH, also available 4"-4NH optional adapter fitting

MODELING FIRE HYDRANT

- The hydraulic performance of the fire hydrant depends on how many and which ports are used. Figure 1 shows the hydraulic performance graph of the APC MH1510 fire hydrant as the head loss (or pressure drop) as a function of the flow rate through the hydrant. The steepest curve is the performance when just one 2-1/2" hose nozzle is used (dash-dot line). If both 2-1/2" hose nozzles are used, the curve becomes less steep (dotted line). When the 4 -1/2" pumper nozzle is used the hydrant has even less resistance, as indicated by the shallower solid line. Some models can be configured with a 4-1/2" pumper nozzle, in which case the performance would be

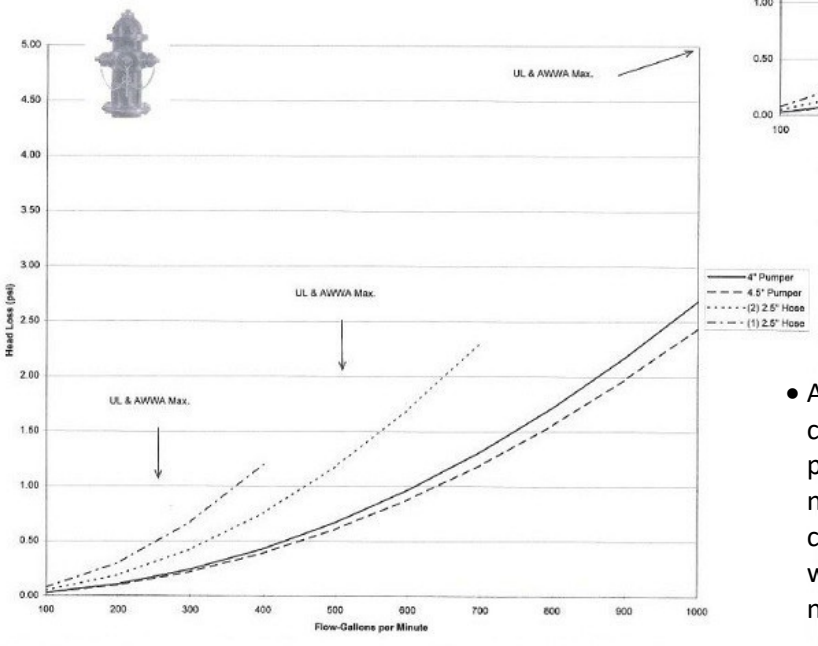


Figure 1 Hydraulic performance graph for APC hydrant

- At the top of the lower barrel, connect three pipelines to branch out to the hydrant nozzles. Make one of these a 4 ½" pipeline and the other two 2 ½" pipelines. A component is added to each branch to represent the hydraulic performance of the hydrant when operated with one 2 ½" port being used, the 4-1/2" port being used, or both 2 ½" ports being used. Lineups can be created to change which port is used and which ones are isolated based on the application being modeled.

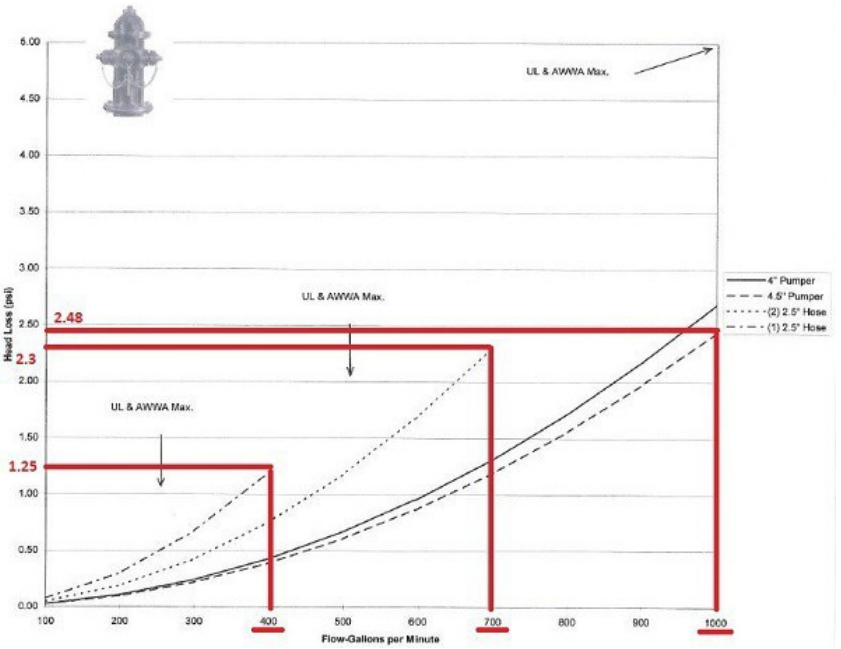


Figure 2

- A short length pipe is attached to the outlet of the component and a spray set to zero psig for a boundary pressure is added to show the operation if the hydrant nozzles are opened for cleaning, for example. Pipelines could be added instead of the spray boundary if the user wants to model the flow through the fire hoses and spray nozzles.

- The curve for each component can be generated from the hydrant's resistance curve obtained from the manufacture. For APC Hydrant Hydraulic graph shown in Figure 1, a single data point was taken off the curve for each mode of operation, one from the 2 ½ inch single line, 2 ½ inch double line, and 4-1/2-inch singleline

MODELING FIRE HYDRANT

- These points are then used to generate the 2nd order curve for the components representing the port configuration being modeled. The resistance curve data points used for this article are the following.

LINE	FLOW	PRESSURE LOSS
2 ½ inch single line	400 gpm	1.25psi
2 ½ inch double line	700 gpm	2.30psi
4-1/2-inch single line	1000 gpm	2.48psi

- A short length pipe is attached to the outlet of the component and a spray set to zero psig for a boundary pressure is added to show the operation if the hydrant nozzles are opened for cleaning, for example. Pipelines could be added instead of the spray boundary if the user wants to model the flow through the fire hoses and spray nozzles.

- PIPE-FLO can generate the individual component resistance curves from these points. These are shown in Figure 3 below.

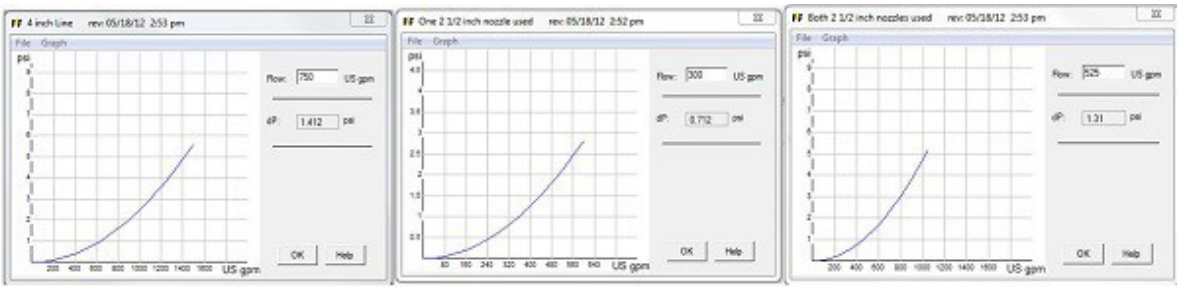


Figure 3 Component performance curves for the 4-1/2-inch port operation (left), a single 2- 1/2-inch port in operation (center), and both 2-1/2-inch port operated at the same time (right)