



HYDROFIRE ΕΠΕ

Buildings - Industry - Marine – Waterworks
END OF AG. PANTELEIMONOS Str. (ELEONAS)
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Victaulic® FireLock NXT™ Deluge Valve Series 769N



Patented

1.0 PRODUCT DESCRIPTION

Available Sizes:

- 1 ½ – 8" /40 – 200mm

Pressure Class:

- Up to 300 psi/2068 kPa/21 Bar

Minimum Air Pressure (Dry Pilot):

- 13 psi/90 kPa/.90 Bar

Actuation Options:

- Dry Pilot
 - Series 776 Low Pressure Actuator
 - Optional: Series 746 LPA Dry Accelerator
- Wet Pilot
- Electric Release
 - 24V DC Normally closed solenoid

Valve Configurations:

- Bare
- Pre-trimmed
- Vic-Quick Riser: Pre-trimmed and includes:
 - Shut Off Valve (1 ½"/40 mm: Series 728 Ball Valve, 2" – 8"/50 – 200 mm: Series 705 FireLock Butterfly Valve)
 - Pre-set alarm pressure switch
 - Pre-set high or low air pressure switch - Dry Pilot only
 - Drain Connection Kit
- Fire-Pac Series 745 (refer to Victaulic [publication 30.23](#))

ALWAYS REFER TO ANY NOTIFICATIONS AT THE END OF THIS DOCUMENT REGARDING PRODUCT INSTALLATION, MAINTENANCE OR SUPPORT.

System No.		Location	
Submitted By		Date	

Spec Section		Paragraph	
Approved		Date	

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1.0 PRODUCT DESCRIPTION (Continued)

Pipe Preparation:

- Victaulic Original Groove System

Application/Media:

- For use on fire protection systems only.

2.0 CERTIFICATION/LISTINGS



104-1a/02

3.0 SPECIFICATIONS - MATERIAL

Body: Ductile iron conforming to ASTM A536, grade 65-45-12.

Clapper: Aluminum bronze UNS-C95500

Latch: Aluminum bronze UNS-C95500

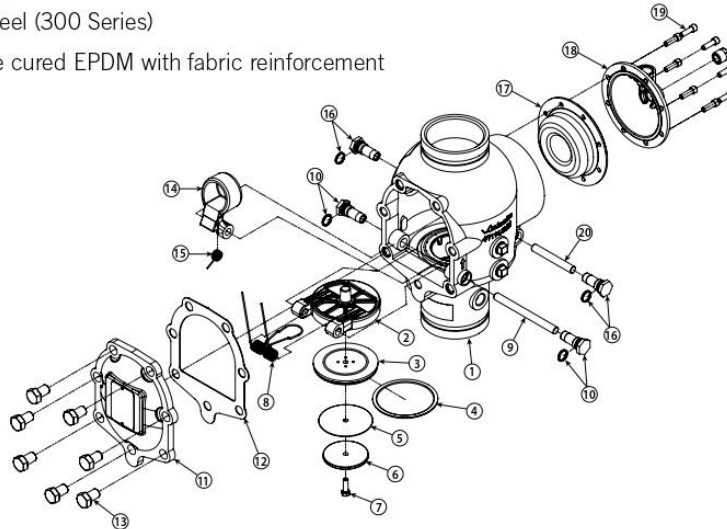
Shafts: Stainless 17-4

Clapper Seal: Peroxide cured EPDM, ASTM D2000

Bushings/Seat O-rings: Nitrile

Springs: Stainless Steel (300 Series)

Diaphragm: Peroxide cured EPDM with fabric reinforcement



The 1½-inch/48.3-mm and 2-inch/60.3-mm valve sizes contain washers under the heads of the cover plate bolts.

Item	Description
1	Valve Body
2	Clapper
3	Clapper Seal
4	Seal Ring
5	Seal Washer
6	Seal Retaining Ring
7	Seal Assembly Bolt
8	Clapper Spring
9	Clapper Shaft
10	Clapper Shaft Bushing and O-Ring (Qty. 2)

Item	Description
11	Cover Plate
12	Cover Plate Gasket
13	Cover Plate Bolts
14	Latch
15	Latch Spring
16	Latch Spring Bushing and O-Ring (Qty. 2)
17	Diaphragm
18	Diaphragm Cover
19	Diaphragm Cover Cap Screws (Qty. 8)
20	Latch Shaft



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3.0 SPECIFICATIONS - MATERIAL (Continued)

Standard Trim Package:

- Pneumatic Dry Pilot Release
 - Series 776 Low-Pressure Actuator – The Series 776 Low-Pressure Actuator is pneumatically actuated and requires only 13 psi/90 kPa minimum air pressure, regardless of the system supply pressure. This actuator allows the system to operate with a low air or gas pressure of 7 psi/48 kPa.
- Hydraulic Wet Pilot Release
- Electric Release
 - 24V DC Normally closed solenoid
- All required pipe nipples and fittings - standard galvanized finish
- All standard trim accessories
- All required gauges
- Series 755 Manual Release Panel

- Optional Trim Package:** Black Trim for Foam Systems – If the valve is intended for use in a foam system, black trim must be ordered, per NFPA requirements. Specify this requirement on the order.



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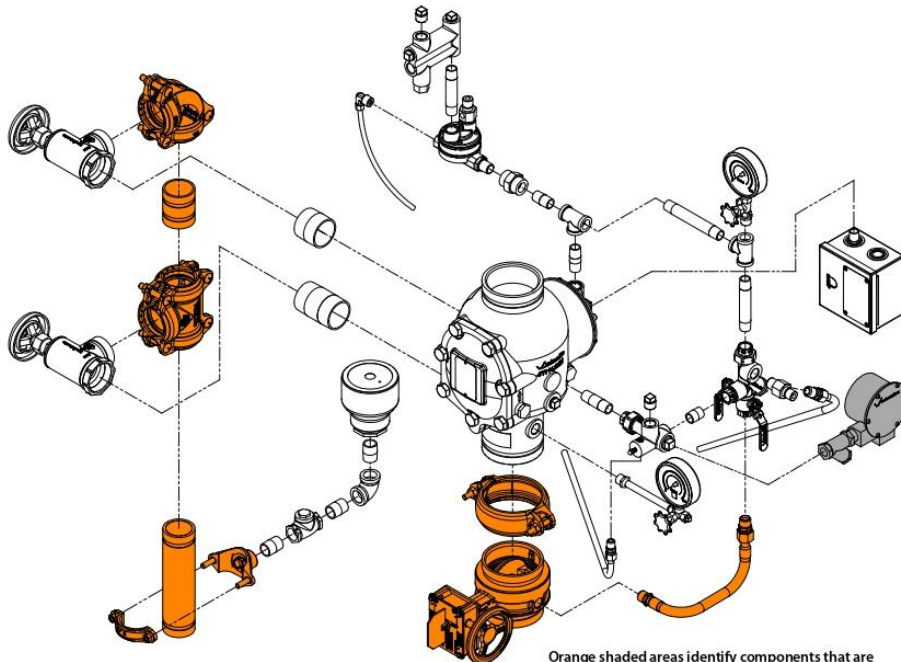


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3.0 SPECIFICATIONS - MATERIAL (Continued)

Optional Accessories:

- Alarm Pressure Switch** – Alarm Pressure Switches are designed to activate electrical alarms and control panels when a sustained flow of water occurs (such as with an open sprinkler).
- Air Supervisory Pressure Switch** – Air Pressure Supervisory Switches are used to monitor low and high system air pressure and are factory pre-set (dry pilot only).
- Series 746-LPA Dry Accelerator** – The Series 746-LPA Dry Accelerator is required when the Series 769N Dry Valve is installed in large systems to improve response time. Refer to Victaulic [publication 30.64](#).
- Series 753-E Solenoid Valve** – Designed for use with systems that require electrical activation. Refer to Victaulic [publication 30.63](#).
- Series 760 Water Motor Alarm** – The Series 760 Water Motor Alarm is a mechanical device that sounds when a sustained flow of water occurs (such as with an open sprinkler). Refer to Victaulic [publication 30.32](#).
- Series 75B Supplemental Alarm Device** – The Series 75B Supplemental Alarm Device is designed to provide a continuous alarm for systems equipped with a mechanical device. Refer to Victaulic [publication 30.33](#).
- Series 75D Water Column Kit** – The Series 75D Water Column Kit is designed to minimize residual water in the riser from collecting above the clapper. Refer to Victaulic [publication 30.34](#).
- Air Supply System** – The air supply system contains all components for establishing and maintaining air in the system. The compressor, low-pressure alarms, ball valves, and required trim are included in the air supply system.
- Air Compressor** Refer to Victaulic [publication 30.22](#).
- Air Maintenance Trim Assembly** Refer to Victaulic [publication 30.35](#).
- Fire Alarm Control Panels**
- Drain Connection Kit**



Orange shaded areas identify components that are optional equipment. These components are standard when the VQR assembly is ordered.

Gray shaded areas identify components that are optional equipment.

NOTE

- Deluge dry-pilot release trim shown above.



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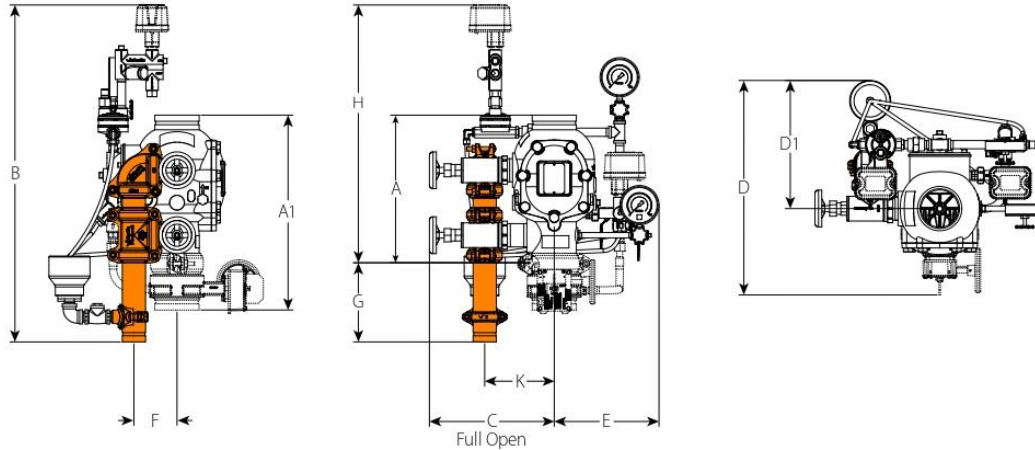
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4.0 DIMENSIONS



Size		Dimensions											Weight Each	
Nominal	Actual Outside Diameter	A	A1	B	C	D	D1	E	F	G	H	K	Without Trim	With Trim
inches	inches	inches	inches	inches	inches	inches	inches	inches	inches	inches	inches	inches	lb	lb
DN	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	kg
1½	1.900	9.00	16.37	33.75	8.75	16.25	11.00	9.00	3.25	10.25	23.50	5.50	16.7	43.0
DN40	48.3	228.60	415.80	857	222	413	279	229	83	260	597	140	7.6	19.5
2	2.375	9.00	13.83	33.75	8.75	17.25	11.00	9.00	3.25	10.25	23.50	5.50	17.0	43.0
DN50	60.3	228.60	351.28	857	222	438	279	229	83	260	597	140	7.7	19.5
2½	2.875	12.61	16.51	34.50	11.25	20.00	12.50	9.50	4.00	9.75	24.75	6.75	41.0	65.0
	73.0	320.29	419.35	876	286	508	318	241	102	248	629	171	18.7	29.5
DN65	3.000	12.61	16.51	34.50	11.25	20.00	12.50	9.50	4.00	9.75	24.75	6.75	41.0	65.0
	76.1	320.29	419.35	876	286	508	318	241	102	248	629	171	18.7	29.5
3	3.500	12.61	16.51	34.50	11.25	20.00	12.50	9.50	4.00	9.75	24.75	6.75	41.0	65.0
DN80	88.9	320.29	419.35	876	286	508	318	241	102	248	629	171	18.7	29.5
4	4.500	15.03	19.85	35.25	13.00	22.25	13.50	11.00	4.75	8.50	26.75	7.50	59.0	95.0
DN100	114.3	381.76	504.19	895	330	565	343	279	121	216	679	191	26.7	43.0
	6.500	16.00	22.13	36.50	14.00	24.75	13.50	11.00	4.50	8.50	28.00	8.25	80.0	116.0
	165.1	406.40	562.10	927	356	629	343	279	114	216	711	210	36.2	52.6
6	6.625	16.00	22.13	36.50	14.00	24.75	13.50	11.00	4.50	8.50	28.00	8.25	80.0	116.0
DN150	168.3	406.40	562.10	927	356	629	343	279	114	216	711	210	36.2	52.6
8	8.625	17.50	23.02	38.00	14.75	27.00	13.50	12.25	4.75	8.25	29.75	9.25	122.0	158.0
DN200	219.1	444.50	584.71	965	375	686	343	311	121	210	756	235	55.3	71.6

NOTES

- The drawings shown above reflect the pneumatic (dry pilot) release trim with Series 776 Low-Pressure Actuator. In addition, these dimensions can be applied to hydraulic (wet pilot) release trim and electric release trim.
- The "A" dimension is the actual takeout dimension of the valve body.
- The "A1" dimension is the actual takeout dimension of the valve body with water supply main control valve.
- The "D" and "D1" dimensions are not fixed measurements. The drip cup can be rotated to provide more clearance at the back of the trim.
- Components shown as dotted lines denote optional equipment.
- The recommended drain connection kit (shaded in orange) is for reference and takeout dimensions. This drain connection comes standard when the VQR assembly is ordered.



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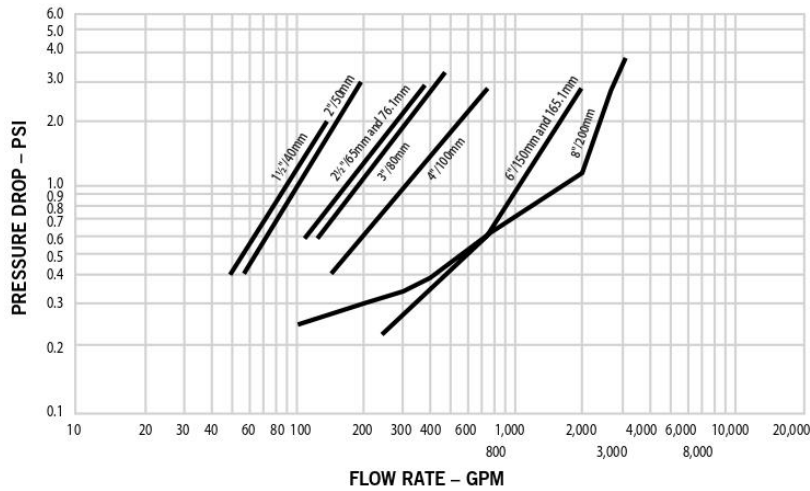


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5.0 PERFORMANCE

Hydraulic Friction Loss

The chart below expresses the flow of water at 65°F/18°C through an open valve.



Frictional Resistance

The chart below expresses the frictional resistance of Victaulic Series 769N FireLock NXT Deluge Valve in equivalent feet of straight pipe.

Nominal Size inches DN	Actual Outside Diameter inches mm	Equivalent Length of Pipe feet meters
1 1/2 DN40	1.900 48.3	3.00 0.914
2 DN50	2.375 60.3	9.00 2.743
2 1/2	2.875 73.0	8.00 2.438
DN65	3.000 76.1	8.00 2.439
3 DN80	3.500 88.9	17.00 5.182
4 DN100	4.500 114.3	21.00 6.401
165.1 mm	6.500 165.1	22.00 6.706
6 DN150	6.625 168.3	22.00 6.706
8 DN200	8.625 219.1	50.00 15.240

Cv Values:

Cv values for flow of water at +60°F/+16°C through a fully open valve are shown in the table below.

Formulas for Cv values

$$\Delta P = Q^2 / C_v^2$$

$$Q = C_v \times \sqrt{\Delta P}$$

Where:

Flow Coefficient	Cv
Q (Flow)	GPM
ΔP (Pressure Drop)	psi

Valve Size		Full Open
Nominal Size inches mm	Actual Outside Diameter inches mm	Flow Coefficient Cv Kv
1 1/2 DN40	1.900 48.3	60 52.0
2 DN50	2.375 60.3	110 95.0
2 1/2	2.875 73.0	180 156.0
DN65	3.000 76.1	180 156.0
3 DN80	3.500 88.9	200 173.0
4 DN100	4.500 114.3	350 302.8
165.1 mm	6.500 165.1	1000 865.0
6 DN150	6.625 168.3	1000 865.0
8 DN200	8.625 219.1	1500 1297.5



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5.0 PERFORMANCE (Continued)

Air Supply Requirements (Dry Pilot Only)

- Minimum: 13 psi/90 kPa/9 Bar regardless of the system water pressure
- Maximum Recommended: 18 psi/124 kPa/1.24 Bar
- Sizing the compressor:
 - Engineer/system designer is responsible
 - Entire system must be charged to the required air pressure within 30 minutes to meet NFPA requirements
 - An oversized compressor will slow down or possibly prevent valve operation
 - Compressor filling the system too fast:
 - May be necessary to restrict the air supply
 - Ensure that air exhausted from an open sprinkler or manual release valve is not replaced by the air supply system as fast as it is exhausted
- Compressor Requirements
 - Base or Riser Mounted Compressors:
 - “On” or “low” pressure setting: 13 psi/90 kPa/9 Bar
 - “Off” or “high” pressure setting: 18 psi/124 kPa/1.24 Bar
 - Victaulic Series 7C7 riser mounted and pre-set for pressure requirements (refer to Victaulic submittal 30.22).
 - If the compressor is not equipped with a pressure switch, the Series 757P Air Maintenance Trim Assembly with pressure switch should be installed (refer to Victaulic submittal 30.36).
 - Shop Air or Tank-Mounted Air Compressors:
 - Series 757 Regulated Air Maintenance Trim Assembly should be installed (refer to Victaulic [submittal 30.35](#))
 - Between 13 – 18 psi/90 – 124 kPa/0.9 – 1.24 Bar should be used as the set point for the air regulator
 - The compressor cut-in (turn-on) pressure setting should be at least 5 psi/34kPa/34 Bar above the set point of the air regulator.
 - Exploded View Trim: Series 757 Regulated Air Maintenance Trim Assembly (refer to Victaulic [submittal 30.35](#))
- Compressor Requirements and settings for systems installed with series 746 or series 746-LPA dry accelerators
 - A tank-mounted air compressor with a Series 757 Regulated AMTA must be used to supply air to system installed with a Series 746 or Series 746-LPA Dry Accelerator.
 - In the event a compressor becomes inoperative, a properly sized tank-mounted air compressor provides the greatest protection, since air can be supplied continuously to the sprinkler system for an extended time period.



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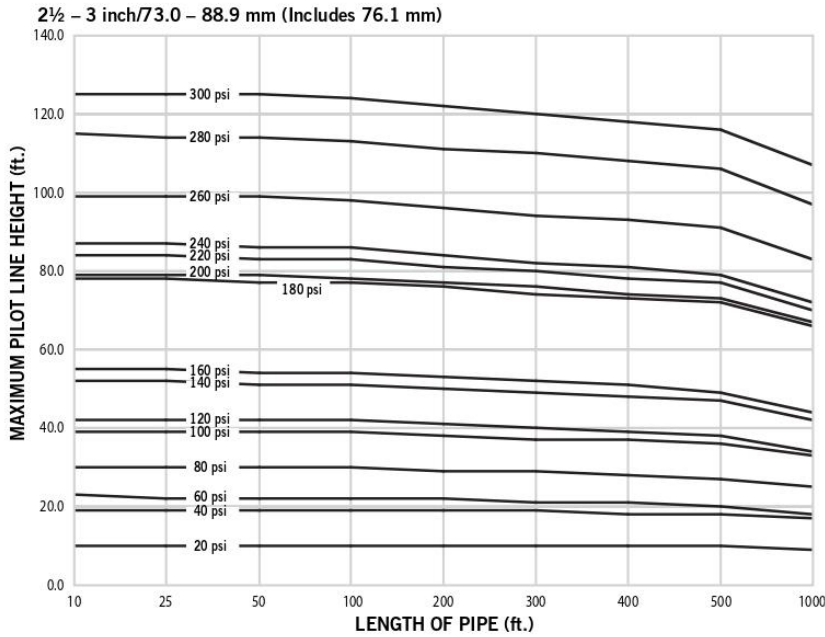
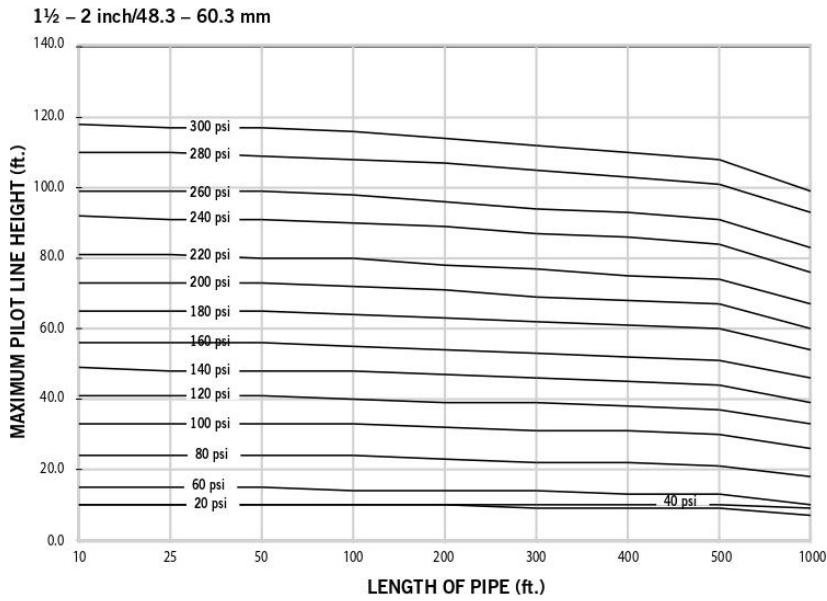


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5.0 PERFORMANCE (Continued)

Wet Pilot Line Charts:

Maximum allowable wet pilot line heights for specific equivalent lengths.
Heights are based on 1/2" schedule 40 pipe and a 1/2" sprinkler.





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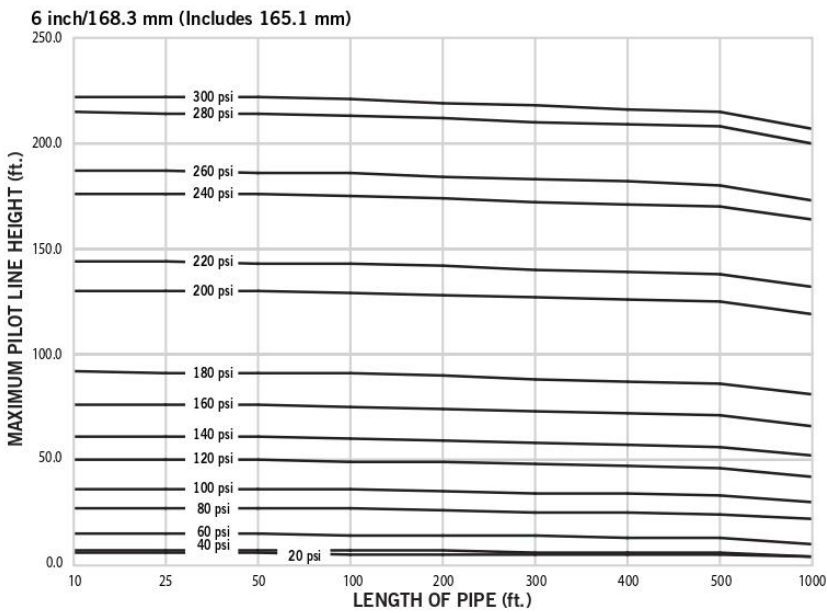
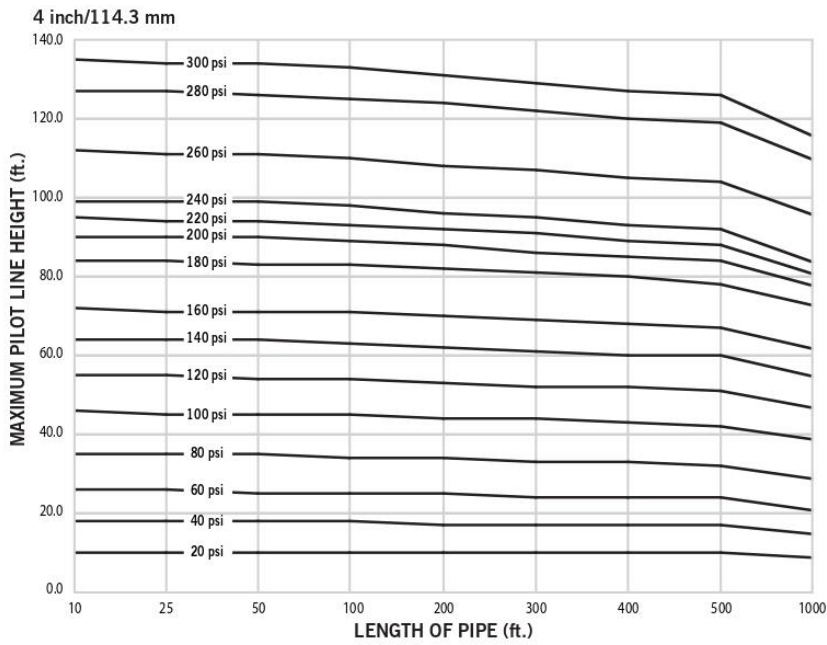


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5.0 PERFORMANCE (Continued)

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Maximum allowable wet pilot line heights for specific equivalent lengths.
Heights are based on 1/2" schedule 40 pipe and a 1/2" sprinkler.





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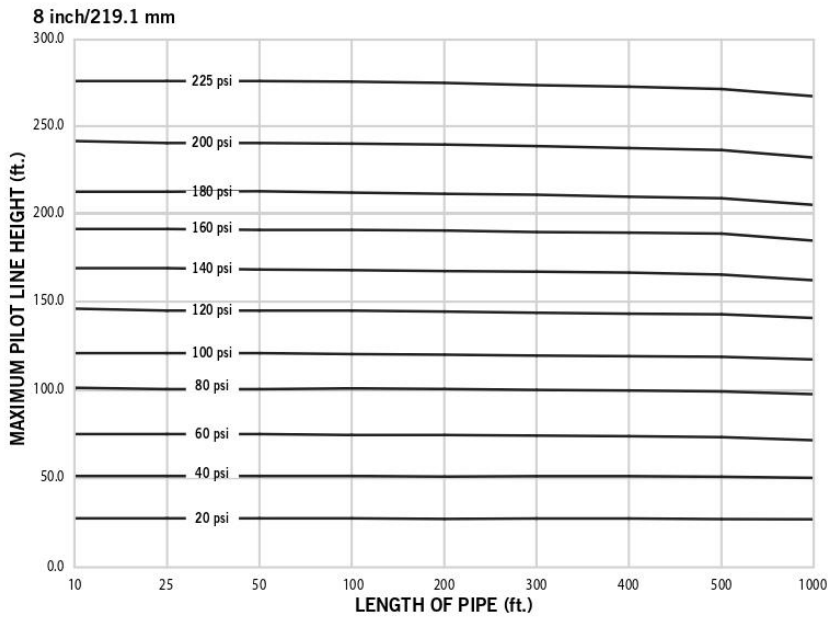


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5.0 PERFORMANCE (Continued)

Wet Pilot Line Charts:

Maximum allowable wet pilot line heights for specific equivalent lengths.
Heights are based on 1/2" schedule 40 pipe and a 1/2" sprinkler.



Electric Release Requirements

- Must have properly sized battery backups and be properly field programmed by a certified installer, reference publication I-769N.Deluge for more information.