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Victaulic® FireLock NXT™ Dry Valve
Series 768N

31.80

Patented

1.0 PRODUCT DESCRIPTION

Available Sizes:
- 1 ½ – 8" /40 – 200 mm

Pressure Class:
- Up to 300 psi/2068 kPa/20 Bar

Minimum Air Pressure:
- 13 psi/90 kPa/.90 Bar

Acutation Options:
- Series 776 Low Pressure Actuator
- Optional: Series 746-LPA Dry Accelerator

Valve Configurations:
- Bare
- Pre-trimmed: Completely assembled with all necessary trim components.
- 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 high or low air and alarm pressure switches
  - Drain kit
- Fire-Pac Series 745 (refer to Victaulic submittal 30.23)

Pipe Preparation:
- Victaulic Original Groove System

Application/Media:
- For use on fire protection systems only.

2.0 CERTIFICATION/LISTINGS

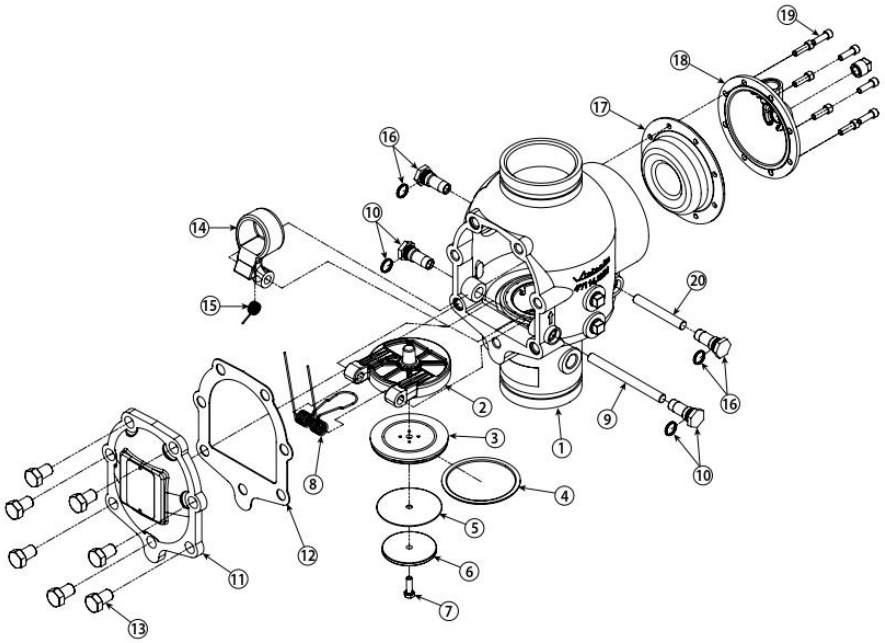
EN 12259-3: 2000
Cert/LPCB ref. 104c/02
2831

NOTE
- CCC approval for DN80, DN100, DN150, DN200.

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

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

3.0 SPECIFICATIONS – MATERIAL (CONTINUED)

☐ **Standard Trim Package:**

- 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.
- All required pipe nipples and fittings - standard galvanized finish
- All standard trim accessories
- All required gauges

☐ **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.

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). Included in VQR trim.

☐ **Air Supervisory Pressure Switch** – Air Pressure Supervisory Switches are used to monitor low and high system air pressure and are factory pre-set. Included in VQR trim.

☐ **Series 746-LPA Dry Accelerator** – The Series 746-LPA Dry Accelerator is required when the Series 768N Dry Valve is installed in large systems to improve response time. Refer to Victaulic submittal 30.64.

☐ **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 submittal 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 submittal 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 submittal 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.

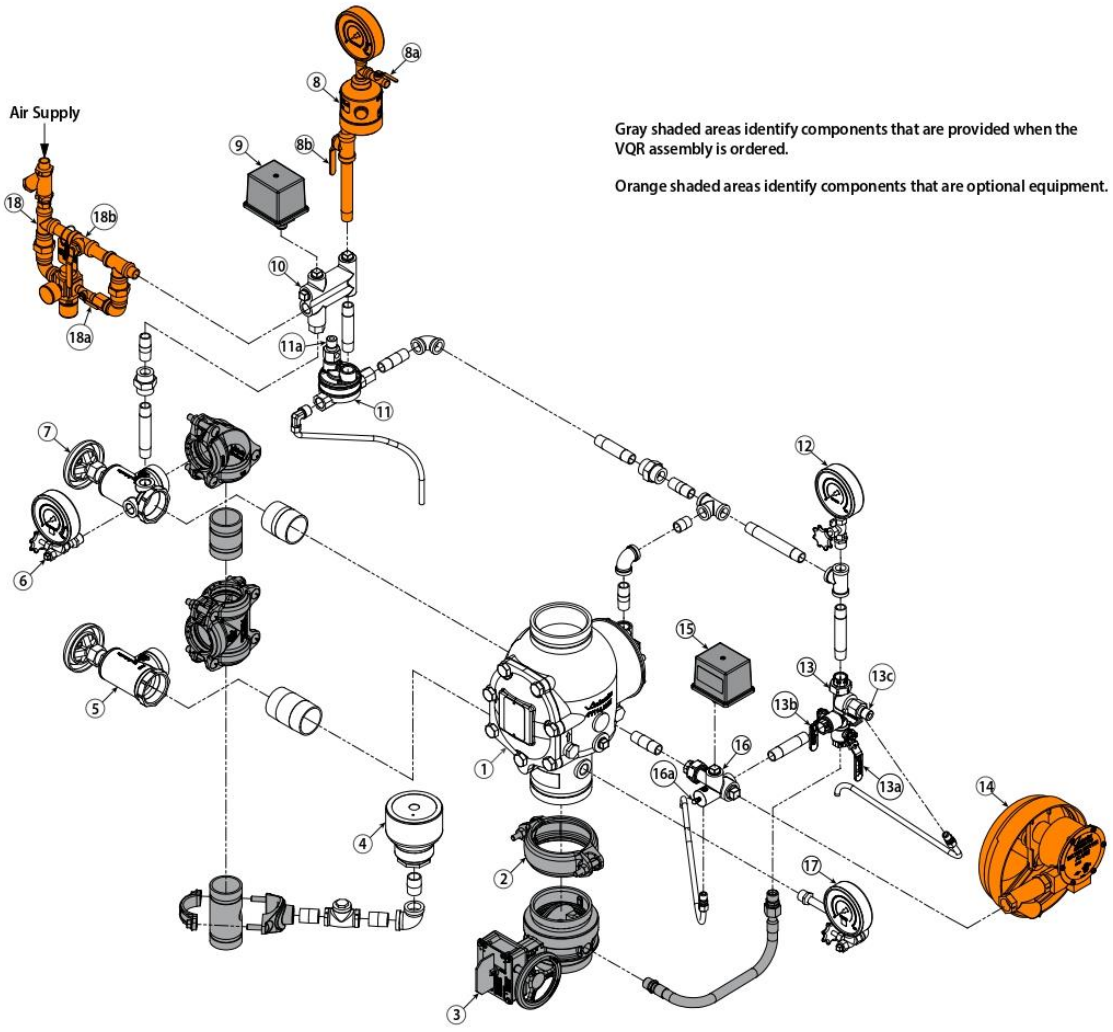
☐ **Air Compressor** (See page 6 for more on the Victaulic Series 7C7 Compressor Package)

☐ **Air Maintenance Trim Assembly**

☐ **Fire Alarm Control Panels**

☐ **Drain Connection Kit** – Included in VQR option.

3.0 SPECIFICATIONS – MATERIAL (CONTINUED)



Item	Description
1	Series 768N FireLock NXT Dry Valve
2	FireLock Rigid Coupling
3	Water Supply Main Control Valve
4	Drip Cup
5	Water Supply Main Drain Valve – Flow Test
6	System Pressure Gauge/Gauge Valve Assembly
7	System Main Drain Valve
8	Series 746-LPA Dry Accelerator Assembly
8a	Series 746-LPA Dry Accelerator ¼-Turn Vent Ball Valve
8b	Series 746-LPA Dry Accelerator Isolation Ball Valve
9	Air Supervisory Pressure Switch
10	Air Manifold
11	Series 776 Low-Pressure Actuator
11a	Auto Vent Sleeve of Series 776 Low-Pressure Actuator

Item	Description
12	Charge Line Pressure Gauge/Gauge Valve Assembly
13	Priming Manifold Assembly
13a	Charge Line Ball Valve
13b	Alarm Test Ball Valve
13c	Auto Drain Sleeve
14	Series 760 Water Motor Alarm Assembly
15	Alarm Pressure Switch
16	Alarm Manifold Assembly
16a	Ball Drip Plunger
17	Water Supply Pressure Gauge/Gauge Valve Assembly
18	Victaulic Air Maintenance Trim Assembly (AMTA)
18a	Slow-Fill Ball Valve of the Victaulic AMTA
18b	Fast-Fill Ball Valve of the Victaulic AMTA

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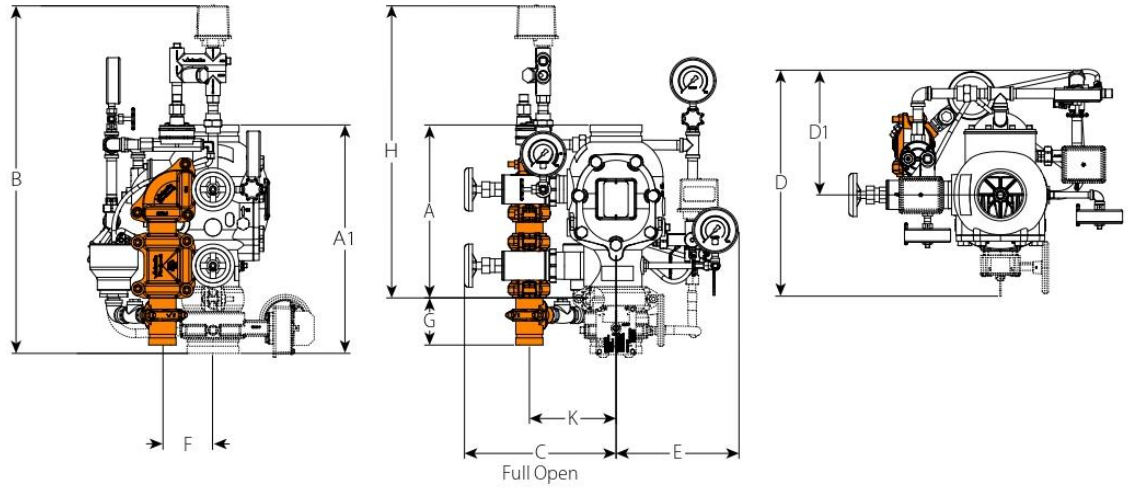
4.0 DIMENSIONS



Size	Dimensions											Weight	
												Approx. (Each)	
Nominal inches DN	A inches mm	A1 inches mm	B inches mm	C inches mm	D inches mm	D1 inches mm	E inches mm	F inches mm	G inches mm	H inches mm	K inches mm	Without Trim lbs kg	With Trim lbs kg
1½ DN40	9.00 228.60	16.37 415.80	31.50 800	9.25 235	15.25 387	10.00 254	9.25 235	3.25 83	10.25 260	21.75 552	6.00 152	16.7 7.6	43.0 19.5
2 DN50	9.00 228.60	13.83 351.28	31.50 800	9.25 235	16.25 413	10.00 254	9.25 235	3.25 83	10.25 260	21.75 552	6.00 152	17.0 7.7	43.0 19.5
2½	12.61 320.29	16.51 419.35	29.75 756	11.25 286	17.25 438	9.75 248	9.75 248	4.00 102	6.25 159	23.75 603	6.50 165	41.0 18.7	65.0 29.5
76.1 mm	12.61 320.29	16.51 419.35	29.75 756	11.25 286	17.25 438	9.75 248	9.75 248	4.00 102	6.25 159	23.75 603	6.50 165	41.0 18.7	65.0 29.5
3 DN80	12.61 320.29	16.51 419.35	29.75 756	11.25 286	17.25 438	9.75 248	9.75 248	4.00 102	6.25 159	23.75 603	6.50 165	41.0 18.7	65.0 29.5
4 DN100	15.03 381.76	19.85 504.19	31.50 800	13.50 343	20.00 508	11.25 286	11.00 279	4.75 121	4.50 114	25.75 654	8.00 203	59.0 26.7	95.0 43.0
165.1 mm	16.00 406.40	22.13 562.10	31.00 787	14.00 356	23.25 591	11.75 298	11.25 286	4.50 114	4.25 108	27.00 686	8.25 210	80.0 36.2	116.0 52.6
6 DN150	16.00 406.40	22.13 562.10	31.00 787	14.00 356	23.25 591	11.75 298	11.25 286	4.50 114	4.25 108	27.00 686	8.25 210	80.0 36.2	116.0 52.6
8 DN200	17.50 444.50	23.02 584.71	32.75 832	14.75 375	25.75 654	12.50 318	12.25 311	4.75 121	4.25 108	29.00 737	9.25 235	122.0 55.3	158.0 71.6

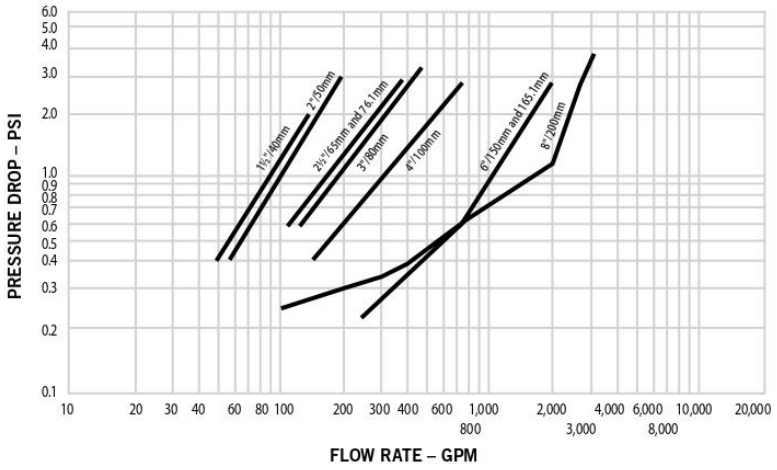
NOTES

- 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.
- For systems with the optional Series 746-LPA Dry Accelerator, add 11.50 inches/292 mm to the "B" dimension to account for the additional height.
- 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.

5.0 PERFORMANCE

Hydraulic Friction Loss

The chart below expresses the flow of water at 65ºF/18ºC through an open valve.



Frictional Resistance

The chart below expresses the frictional resistance of Victaulic Series 768N FireLock NXT.
Dry Valve in equivalent feet of straight pipe.

Nominal Size inches DN	Actual Outside Diameter inches mm	Equivalent Length of Pipe feet meters
1½ DN40	1.900 48.3	3.00 0.914
2 DN50	2.375 60.3	9.00 2.743
2½	2.875 73.0	8.00 2.438
76.1 mm	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	C_v
Q (Flow)	GPM
ΔP (Pressure Drop)	psi

Valve Size		Full Open
Nominal Size inches DN	Actual Outside Diameter inches mm	Flow Coefficient C_v K_v
1½ DN40	1.900 48.3	60 52.0
2 DN50	2.375 60.3	110 95.0
2½	2.875 73.0	180 156.0
76.1 mm	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 1499.1

5.0 PERFORMANCE (CONTINUED)

Air Supply Requirements

- Minimum: 13 psi/90 kPA/.9 Bar regardless of the system water pressure
- Maximum Recommended: 18 psi/124 kPa/1.24 Bar
- Multiple Series 768N FireLock NXT Dry Valves with a common air supply:
  - Isolate systems with a Victaulic spring –loaded, soft-seated ball check valve to ensure air integrity and serviceability of each system.
- 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)
  - 13 psi/90 kPA/.9 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.

