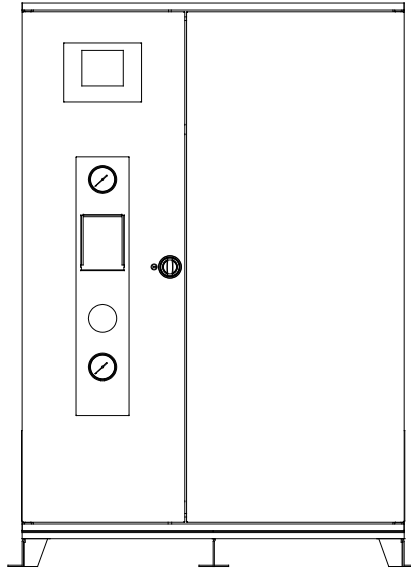


Dry pipe system c/w N₂ Blast[®] Nitrogen generating system.



FireFlex[®] N₂ Blast[®] description

The FIREFLEX[®] N₂ Blast[®] integrated system consists of an integrated Dry pipe system trim combined with a Nitrogen generating system, factory-assembled in a single cabinet. All the necessary components are integrated.

The FIREFLEX[®] N₂ Blast[®] is fully tested at factory.

The FIREFLEX[®] N₂ Blast[®] System uses the N₂ Blast[®] Nitrogen generator system Type 1 FPS-250 or FPS-750 system, made by **South-Tek Systems**.

All the valves are rated up to a maximum of 175 psi WWP (1207 kPa) max. and are available in the following diameters:

- 4" (100 mm)
- 6" (150 mm)

Warning:

6" (150 mm) available with N₂ Blast[®] Type 1 FPS-750 only.

Features

- Inhibits corrosion with 98%+ pure Nitrogen
- Trouble-free design for safe and easy application
- Available in 2 cabinet sizes
- Uses South-Tek N₂ Blast[®]
- Best value in nitrogen generation technology
- Limits the liability of early pipe replacement
- Uses the Viking Dry valve
- Trim is fully assembled and tested at the factory
- All trims are galvanized steel, Listed and Approved for 175 psi (1207 kPa) service maximum
- Quick connections to water supply and drain on left side, and sprinkler riser on top of unit, all available with grooved end or flanged fittings
- No open drain cup inside unit
- Separate unlocked access hatch to emergency manual release
- Compact, aesthetic and easy to move
- User-friendly standardized owner's manual with every unit
- Unique serial number on every unit
- Uses UL, ULC and/or FM Approved components
- Designed in accordance with NFPA Standards
- Sturdy 14 gauge steel cabinet painted fire red with oven baked polyester powder on phosphate base
- Textured rust proof finish
- Neoprene gasket on all doors to eliminate vibrations
- Manufactured under ISO-9001 quality control procedures
- Prewired to a terminals block.

Dry pipe system c/w N₂ Blast[®] Nitrogen generating system.

System configurations

- Dry pipe system combined with N₂ Blast[®] Type 1 FPS-250 (250 gallons system)
- Dry pipe system combined with N₂ Blast[®] Type 1 FPS-750 (750 gallons system)

Sequence of operation

Dry pipe operation

In a fire condition, the activation of at least one automatic sprinkler head is necessary to cause the water discharge.

The activation of at least one automatic sprinkler head will open the dry valve and cause the system to fill the piping network with water and spray through all open sprinklers. This will activate alarm and water flow switch contacts connected to the building fire alarm panel and sound an alarm.

Pressure loss on the piping system will activate an auxiliary contact indicating same.

N₂ Blast[®] Nitrogen generator system operation

1. The initial air supply fill of the piping system within 30 minutes as per NFPA 13 is accomplished using the "initial fill" air compressor. This compressor is equipped with an ON/OFF pressure switch which is tied into the sprinkler system piping. It has to be adjusted onsite for the cut-in and cut-out pressures respectively, according to **Table 1**. There is a "low air" supervisory pressure switch which monitors system piping air/nitrogen pressure at all times. It has to be adjusted onsite, according to **Table 1** to provide a "low air" supervisory signal.
2. The nitrogen generation/maintenance air compressor is supplied as an integral part of the STS N₂-Blast[®] Nitrogen Generation System. It is equipped with a factory-adjusted ON/OFF pressure switch which is tied into the nitrogen storage tank. It is factory-set at 25 psi and 25 psi (has to be adjusted onsite, according to **Table 1**) for the cut-in and cut-out pressures respectively. The Viking D-2 Air Pressure Maintenance Device is installed and factory-adjusted to 35 psi (has to be adjusted onsite, according to **Table 1**) downstream of the nitrogen storage tank. As the system continually purges with Nitrogen, the APMD will continually draw from the Nitrogen storage tank to maintain supervisory pressure. Should the N₂-Blast[®] generator run for more than 6 hours consecutively, the Leak Detection System (LDS) will automatically shut it down and activate a trouble contact.
3. The air and nitrogen supply systems are fully integrated and fully automatic in the FireFlex - N₂-Blast[®]. No shut-off or bypass valve is required. The nitrogen generator is equipped with a BlastOff[®] Leak Detection System (LDS). Should the nitrogen generator compressor fail or a leak occur that can not be compensated by the nitrogen generating system, the preaction system air compressor will act as a back-up.

Table 1: Dry pipe system

Maximum water pressure		System air pressure				Compressor settings				Pressure switch (E4) settings				Nitrogen air pressure maintenance device (N1) settings	
		Minimum		Maximum		Start		Stop		Low air		High air		Regulated at	
Psi	kPa	Psi	kPa	Psi	kPa	Psi	kPa	Psi	kPa	Psi	kPa	Psi	kPa	Psi	kPa
50	345	15	103	25	172	10	69	20	138	15	103	25	172	20	138
75	517	20	138	30	207	15	103	25	172	20	138	30	207	25	172
100	690	25	172	35	241	20	138	30	207	25	172	35	241	30	207
150	1034	35	241	50	345	30	207	40	276	35	241	45	310	40	276
175	1207	45	310	60	414	40	276	50	345	45	310	55	379	50	345

System hydraulic limitations

The information contained herewith is for estimation and evaluation purposes only. Its use remains the responsibility of the designer.

Designers should refer to the appropriate NFPA Standards and any other applicable codes for their final design. Also refer to FireFlex Systems Inc. appropriate user manuals and to manufacturer's data sheets for additional details.

Systems limitations indicated below are nominal flow limitations.

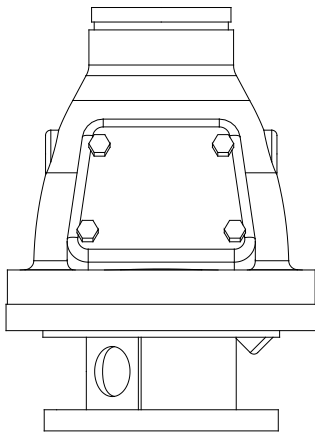
System size (in.)	Usage Range (gpm)	Piping Equivalent Lengths		Drain flow @ 175 PSIG w.p. GPM
		(m.)	(ft.)	
4	250 - 1200	20.28	66.53	1336
6	750 - 2800	31.23	102.45	1336

Dry pipe system c/w N₂ Blast[®] Nitrogen generating system.

Standard equipment

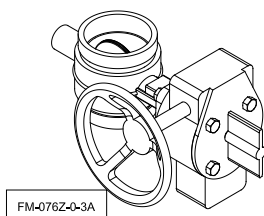
Dry valve

The Viking Model F-1 Dry Pipe Valve is a latching differential valve used to separate the water supply from the dry pipe sprinkler system. The valve combines a positive latching clapper and air plate assembly, with a differential air to water seat design. The latching clapper and air plate assembly provides a positive mechanical seal for the air pressure in the dry pipe system. The differential design allows an air supply of moderate pressure to control a higher water supply pressure. When the air pressure in the dry pipe system is lowered sufficiently to destroy the pressure differential, the valve opens allowing water to enter the dry pipe system.



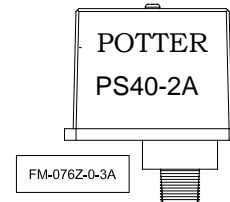
Water supply control valve

The water inlet control valve is a supervised, indicating butterfly valve. Purpose of this valve is to manually shutoff the preaction system.



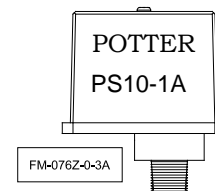
Low/High air supervisory switch

The low/high pressure switches monitors the pressure within the sprinkler piping should a loss or over pressure of the air occurs. The pressure switch contacts transfer indicating supervisory signal. (see table 1 for settings)



Alarm pressure switch

The alarm pressure switch monitors the water flow within the sprinkler piping. Should the Deluge Valve clapper opens to allow water to flow into the sprinkler piping. The alarm pressure switch will activate, indicating a water flow signal



Dry pipe system c/w N₂ Blast[®] Nitrogen generating system.

N₂ Blast[®] Nitrogen generator

South-Tek Systems utilizes Membrane technology in the N2-Blast[®] Corrosion Inhibiting Systems in order to efficiently separate Nitrogen molecules from the air we breathe. Membrane technology, used in our smaller applications, has a simple air flow design, is wall-mounted and easy to service. PSA technology is more cost effective and energy efficient in larger Fire Protection Systems, those requiring more Nitrogen to compensate for the NFPA "acceptable leak rate".

BlastOff[™] Leak detection system

Unless the leak rate is catastrophic, the supervisory low pressure alarm on the BlastOff[™] will not activate. Minor leaks cause the air compressor and N2-Blast[®] to run excessively in order to maintain supervisory pressure. The unnecessary additional run-time decreases the lifespan of the equipment. The Patent Pending BlastOff[™] - Leak Detection System is designed to detect significant leaks before they compromise the FPS and the Nitrogen Generation System. It has an internal audible alarm and dry contact that's is wired on the Sprinkler Low Air Supervisory Zone.

Nitrogen generator storage cylinder

Type 1 Nitrogen Generation Systems include a 16 gallon Nitrogen receiver tank (12.2"dia x 44.8"H). Nitrogen generated by the N2-Blast[®] is stored in the tank, and then sent to the sprinkler system through the Nitrogen air pressure maintenance device.

N₂ Blast[®] AutoPurge System[™]

High purity Nitrogen must be equally distributed throughout the entire sprinkler piping system in order to effectively inhibit corrosion. The Patent Pending AutoPurge System[™] provides a low volume, constant purge of Nitrogen within sprinkler piping. The rate in which gas is evacuated from the sprinkler piping is within NFPA guidelines and allows breathing to occur. The AutoPurge System[™] also assists in drying out the residual water from a hydro test. Computational Fluid Dynamics modeling proves that this is the most effective way to ensure that high purity Nitrogen reaches all branches within the sprinkler piping. Install one AutoPurge System[™] per system at a high point .

There is a Label on one side of the housing that lists the proper setting for a variety of zone sizes. The Label list: Gallons in Zone, and APS Flow Setting. The Flow Setting is labeled from A-E and has three Settings in between each letter.

Nitrogen generator air pressure maintenance device

FIREFLEX[®] N₂ Blast[®] use the Viking Model D-2 Air Pressure Maintenance Device (APMD) which is a pressure regulator that automatically reduces the supply air pressure to a preset requirement when connected to a constantly maintained air supply.

The APMD is used to regulate the nitrogen pressure (according to **Table1**) in the sprinkler piping at the specified system pressure for **FIREFLEX N₂ Blast[®]** Dry pipe system.

Dry pipe system c/w N₂ Blast[®] Nitrogen generating system.

Optional Dry pipe system equipment

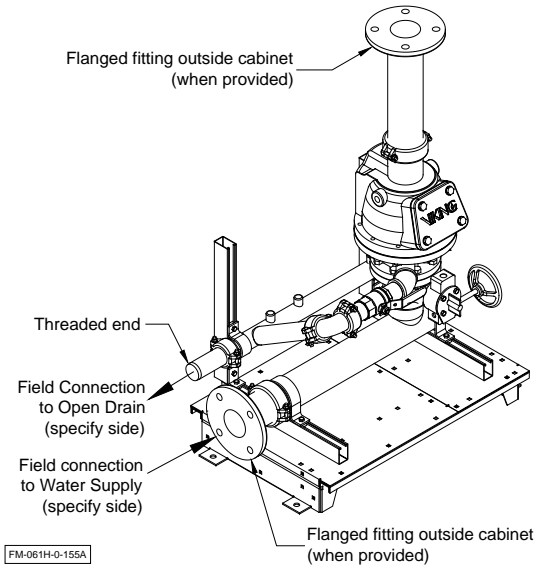
□ Semi and full flanged option

When required by the user, TOTALPAC[®]3 units can be provided in either a semi-flanged or full flanged configuration.

The semi flanged option provides flanged fittings only on the water inlet pipe (side needs to be specified at the time of order) and on the system riser outlet. The drain manifold is then provided with a threaded end that also needs to have its side specified (left or right). The rest of the fittings are the same as usual with the main components being provided in the standard grooved - grooved configuration.

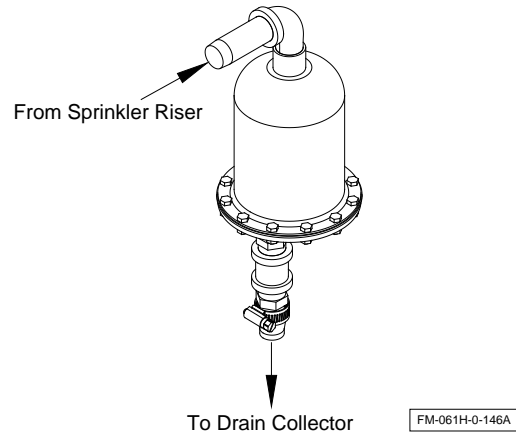
The full flanged option is the same as above but goes a step further with the main components being also provided with a flanged-flanged configuration.

When provided, the face of the flanges will always be situated 6 inches from the outside face of the mounting base or cabinet surface.



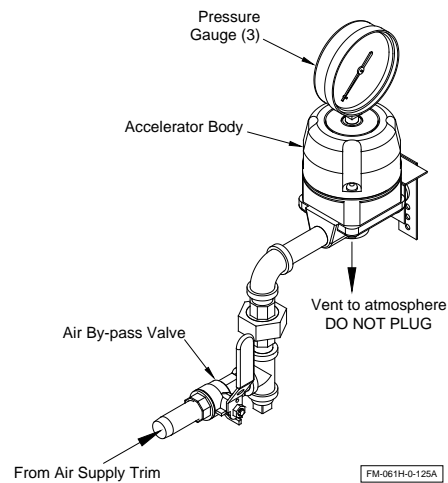
□ Anti-column device option

The model LD-1 anti-column device is an optional trim component designed for use with preaction sprinkler systems. The anti-column device automatically prevents an unwanted water column from establishing within the system riser. On preaction sprinkler systems the anti-column device prevents water from columning downstream of the easy riser check valve.



□ Accelerator option

The Viking Model E-1 Accelerator is a quick-opening device. The Viking Model E-1 Accelerator may be used with the Anti-flood device to speed the action of a dry pipe system.



Dry pipe system c/w N₂ Blast[®] Nitrogen generating system.

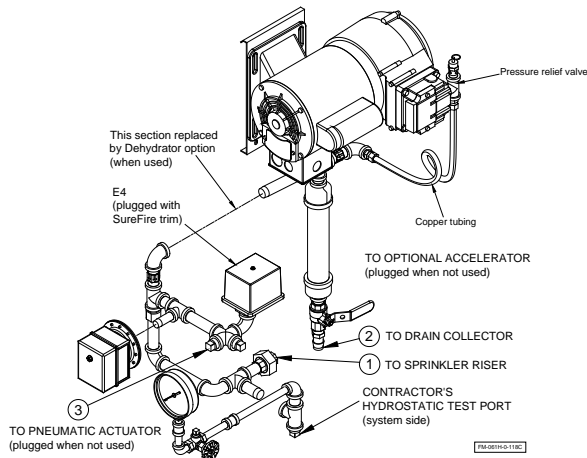
Preaction system - Air supply

Direct air compressor (Style "A")

Used only for the sprinkler piping network of the dry pipe system. Air supply style "A" includes the air compressor mounted inside the FIREFLEX N₂ Blast[®] cabinets with its supervisory trim and options. Compressors are of the tankless, oilless piston type and are factory piped to the sprinkler system riser, all within the FIREFLEX N₂ Blast[®] cabinets.

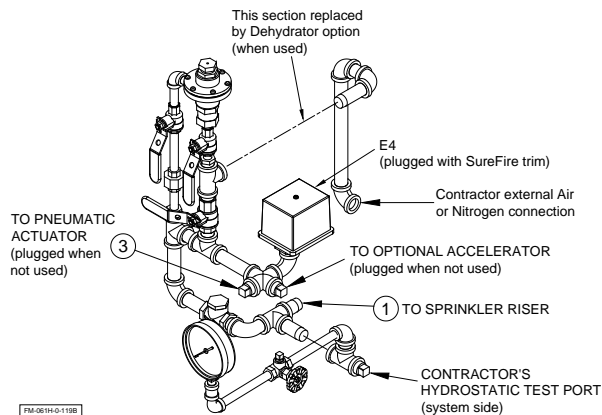
Compressors are available in four (4) sizes:

- 1/6HP 1/2HP
 1/3HP 1HP



Air Pressure Maintenance Device (Style "B")

Used only for the sprinkler piping network of the dry pipe system, when an external air supply is provided by others (tank mounted compressor, plant air or dry nitrogen cylinders) and piped to the air inlet port of the unit. Air supply style "B" provides an Air Pressure Maintenance Device (APMD) trim, factory mounted in the FIREFLEX N₂ Blast[®] cabinets.



Compressor Service Factor Amp (S.F.A) rating

Compressor Size (HP)	115Vac / 60Hz	230Vac / 60Hz	220Vac / 50Hz
1/6	5.0 Amp.	2.5 Amp.	1.3 Amp.
1/3	7.4 Amp.	3.7 Amp.	2.5 Amp.
1/2	10.0 Amp.	5.0 Amp.	4.0 Amp.
1	18.0 Amp.	9.0 Amp.	6.0 Amp.

115 / 230 Vac – 60Hz air compressor selection Table:

H.P	CFM @ 40 PSI	System capacity to fill system to 40 PSI in 30 minutes *
1/6	1.33	125 gal.
1/3	2.61	250 gal.
1/2	4.06	365 gal.
1	7.40	615 gal.

* Air pressure shall be adjusted as per Table 1

WARNING The information contained herewith is for estimation and evaluation purposes only. Its use remains the responsibility of the designer.

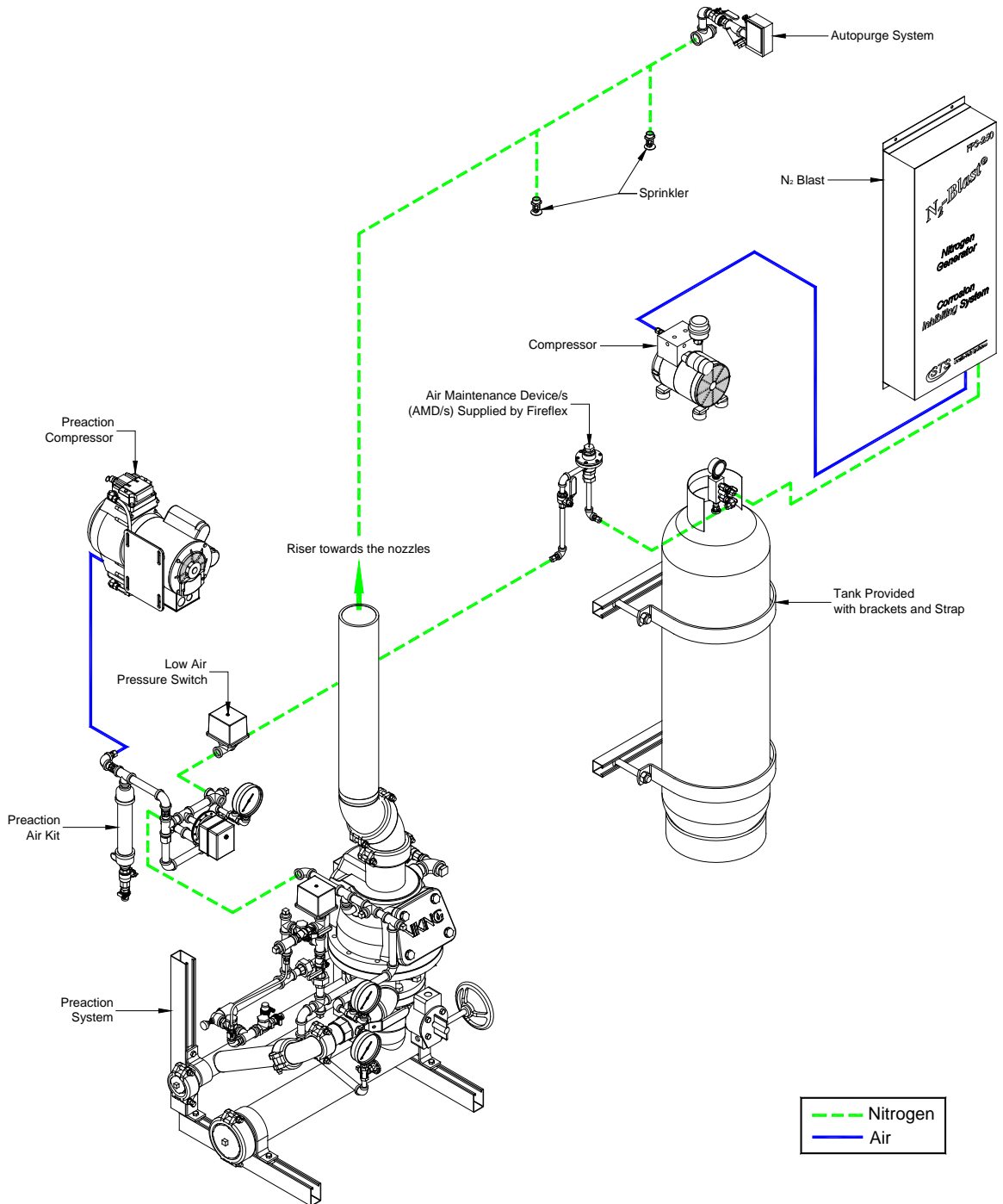
FIRE FLEX[®] N₂ BLAST[®]

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Details & field wiring diagrams

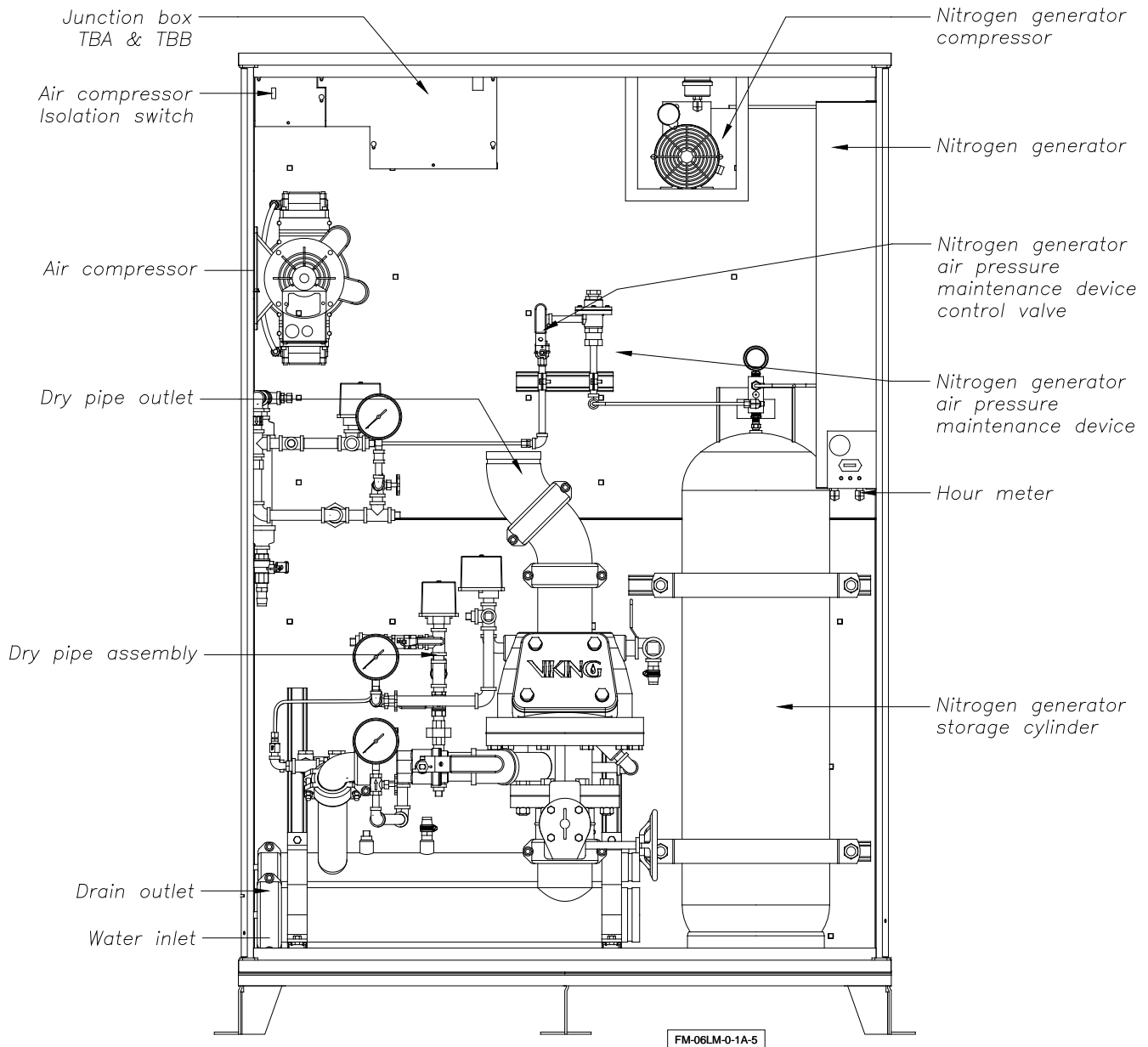
P & ID



Dry pipe system c/w N₂ Blast[®] Nitrogen generating system.

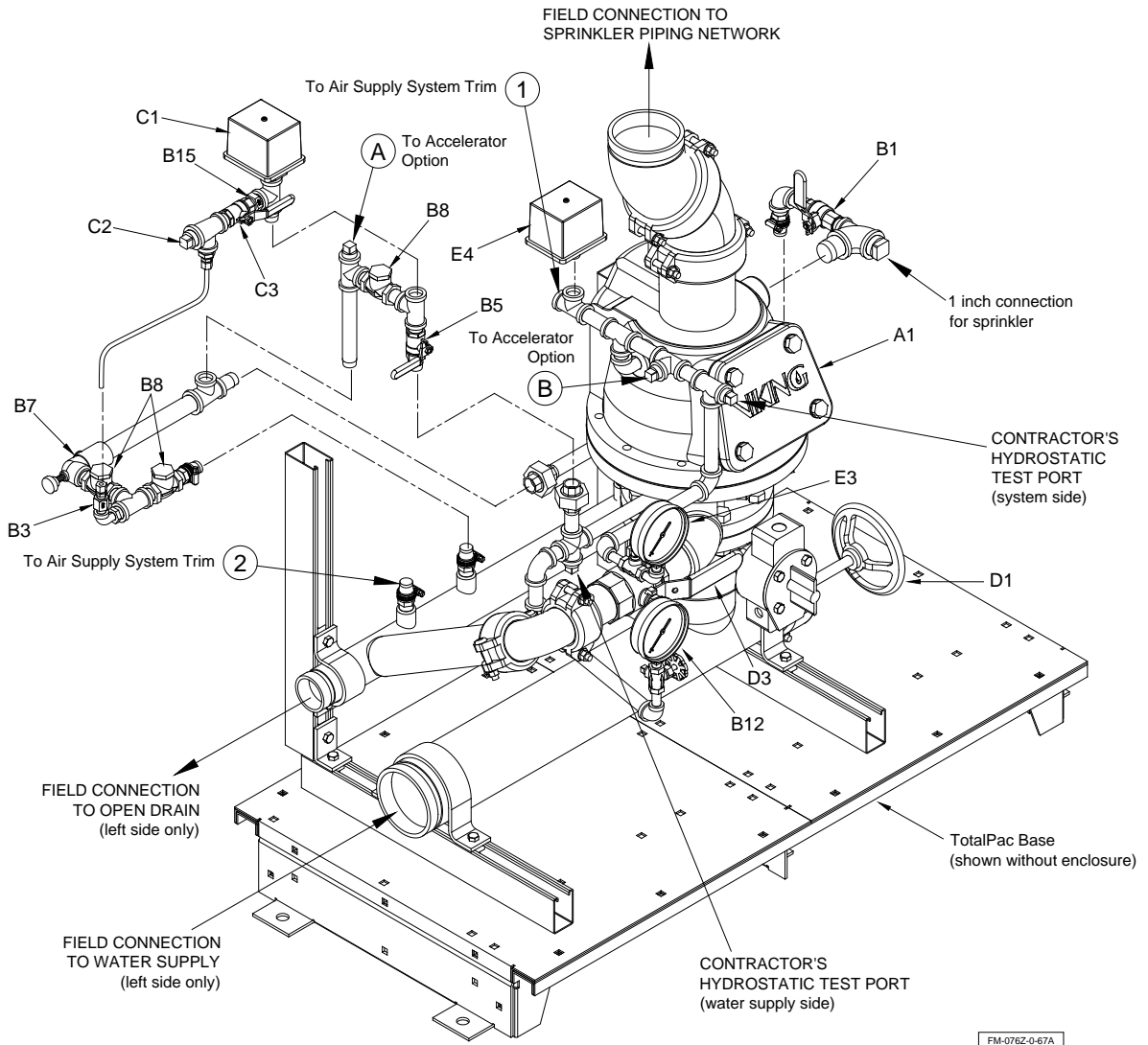
Details & field wiring diagrams

Cabinet with main components, shown without door(s)



Dry pipe system c/w N₂ Blast[®] Nitrogen generating system.

Trim diagram



Trim Components:

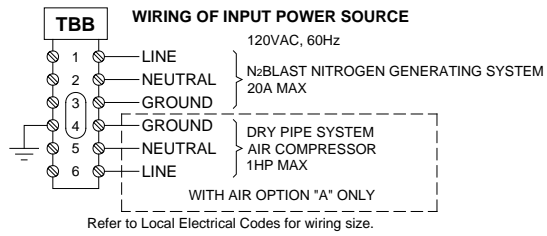
A1	Dry valve	C1	Alarm pressure switch
B1	Priming / water level test valve	C2	Connection to water motor gong (strainer supplied by contractor)
B3	1/16" Restricted orifice	C3	Hydraulic alarm cut-off valve
B5	Alarm test valve	D1	Water supply control valve
B7	Drip check valve	D3	Main drain valve
B8	Drain check valve	E4	Air supervisory pressure switch
B12	Water supply pressure gauge & valve		
B15	7/32" Restricted orifice		

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Datasheet

Dry pipe system c/w N₂ Blast[®] Nitrogen generating system.

Wiring diagram

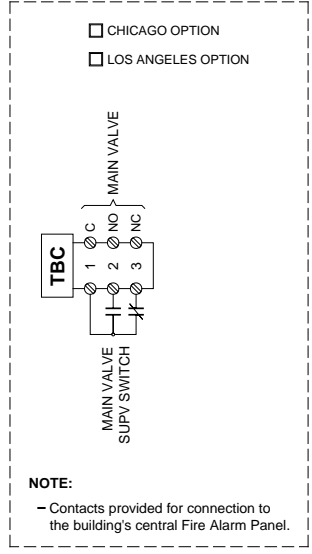
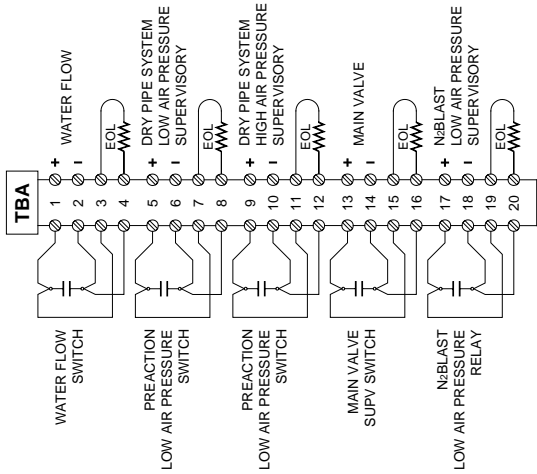


NOTES:

- All devices are factory wired.
- All devices are shown in their normal supervisory state.
- Contacts are rated:
Pressure switches: 2A, 30VDC 10A, 125/250VAC
Supervisory switches: 0.5A, 125VDC 0.25A, 250VDC 5A, 1/6HP, 125/250VAC
Relay module: 0.45A 125VDC 0.35A, 250VDC 16A, 30VDC 16A, 250VAC
- Use dry contacts with power limited circuits only.
- EOL devices (not included) must be compatible with the Release Control Panel used.

! Branch circuit for air compressor shall not be the same as the N₂Blast Nitrogen Generating System.

USED ONLY WITH NYC



FM-061H-0-217A

Dry pipe system c/w N₂ Blast[®] Nitrogen generating system.

Cabinet

The FIREFLEX N₂ Blast[®] cabinet is made of sturdy 14 gauge steel. Refer to figure 4 for dimensions.

All surfaces are rust proof coated, inside and outside, with fire red, oven baked polyester powder on phosphate base. Cabinet is provided with two doors, all provided with a neoprene gasket to avoid vibrations, giving the access to the pressure gauges reading.

The cabinet assembly is pre-assembled, pre-wired, and factory tested under ISO-9001 conditions. Refer to figures 2 & 3 for installation and clearances details.

Electrical junction boxes are integrated inside the cabinet for connection of the supervisory and alarm devices contacts. Knockouts are pre-punched for the installing contractor as indicated on figure 1.

Figure 1 - knockouts details

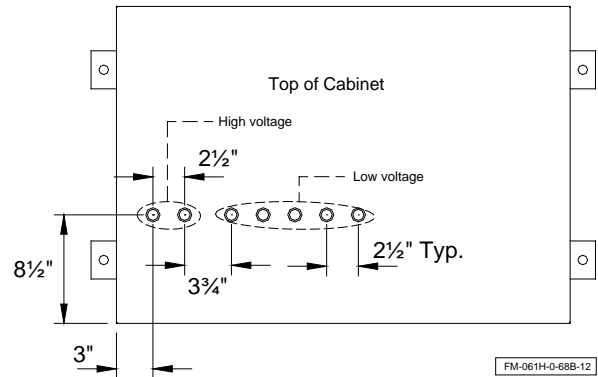
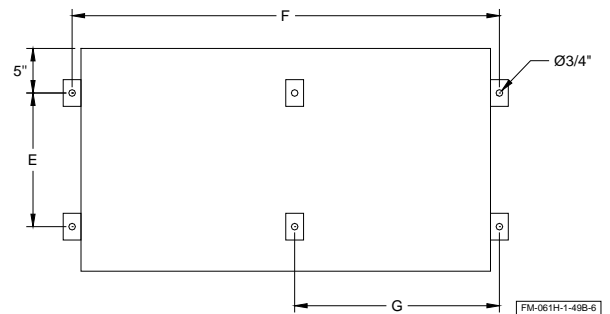
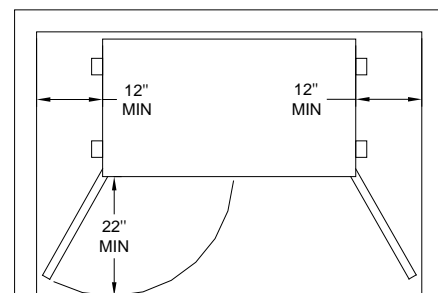


Figure 2 - Floor anchoring template



Size	E	F	G
54"	21"	56"	27"

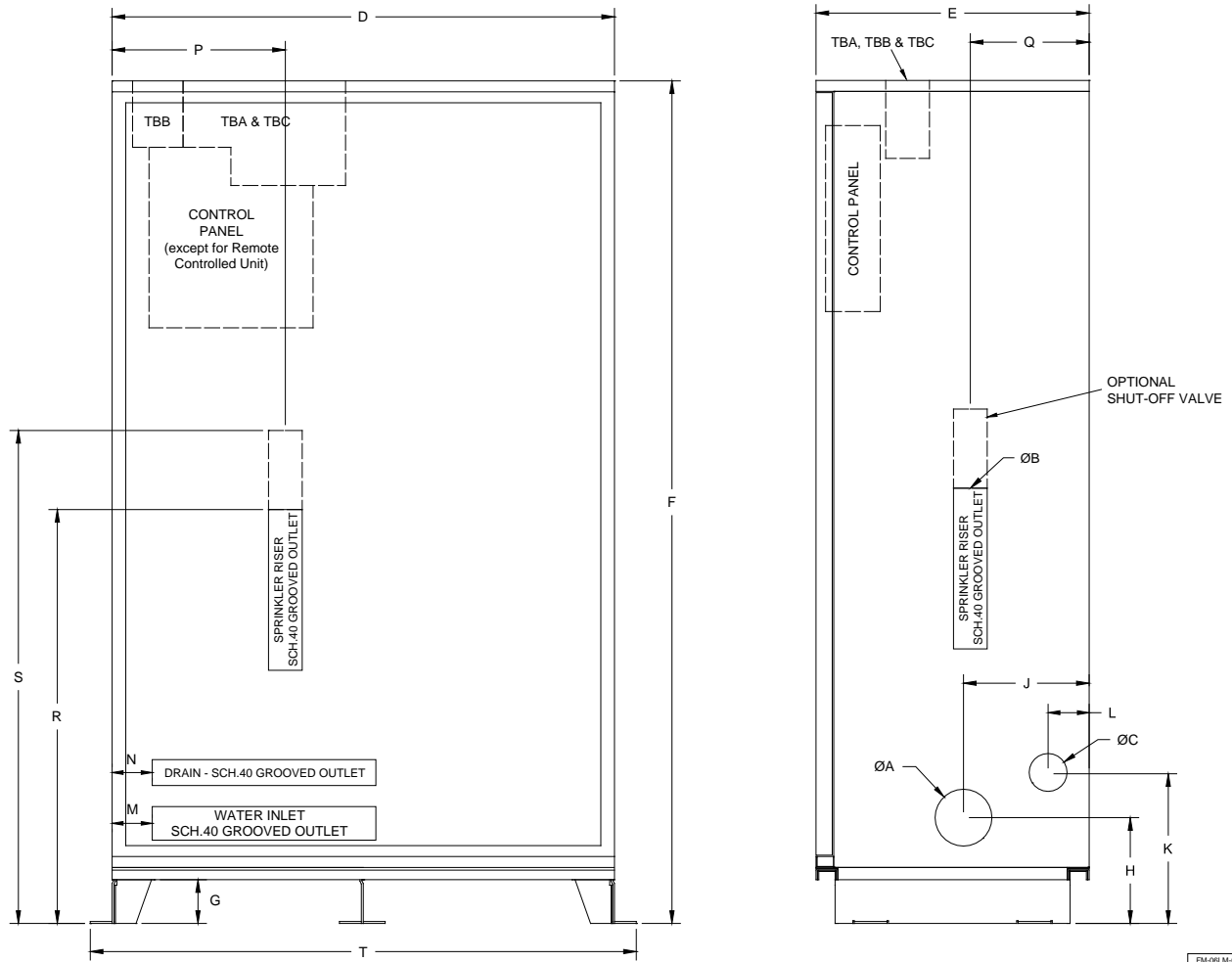
Figure 3 - Required clearance



Size	A
54"	32"

Dry pipe system c/w N₂ Blast[®] Nitrogen generating system.

Figure 4 - Cabinet dimensions



FM-0BLM-0-2A

System Size	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
4"	4"	4"	2"	54"	31"	81"	4"	11"	11¾"	13¾"	3¾"	2½"	2½"	22¾"	11½"	48½"	n/a	58"
6"	6"	6"	2"	54"	31"	81"	4"	11"	13"	13¾"	5¼"	2¾"	2¾"	22¾"	13"	48½"	n/a	58"

Dimensions are nominal and may vary by ¼"

FIRE FLEX[®] ***N₂ BLAST***[®]

Datasheet

Dry pipe system c/w N₂ Blast[®] Nitrogen generating system.



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