



DESCRIPTION

This **TOTALPAC®X** integrated fire protection system by FireFlex Systems Inc. consists of a preaction system trim totally pre-assembled, pre-wired and factory tested. All electrical and mechanical components of the system are contained in one single unit

TOTALPAC®X preaction systems are built around the Viking trim using deluge valves model E-3 for 1½" (40 mm) diameter and model E-1 for 2" (50 mm) diameter and up.

Electrically operated preaction system use an electric solenoid valve controlled by an approved system control panel with a compatible detection system (provided by others). In fire condition, when the detection condition is satisfied the system control panel energizes the solenoid valve open, causing the deluge valve to open. The sprinkler system will fill with water. A pneumatic actuator is also required. In the event of non operation of the release system, the system will operate as a dry system. In the event of damage to the sprinkler piping or a sprinkler, the deluge valve will open; water will flow from any open sprinklers and any other opening in the sprinkler system piping.

All the valves are rated up to a maximum of 250 psi WWP (1724 kPa) max. and are available in the following diameters:

- | | |
|--------------------------------------|--------------------------------------|
| <input type="checkbox"/> 1½" (40 mm) | <input type="checkbox"/> 2" (50 mm) |
| <input type="checkbox"/> 3" (80 mm) | <input type="checkbox"/> 4" (100 mm) |
| <input type="checkbox"/> 6" (150 mm) | |

Standard features

- NEMA 3 or NEMA 4 construction
- Factory assembled and tested under ISO-9001 standards
- Prewired to a terminal block
- Easy and compact installation
- Viking conventional trim rated at 250 psi (1724 kPa)
- Galvanized trim piping
- Serial number for easy reference
- Wide door for easy access
- Quarter turn door latches
- Lockable door to protect against tampering
- Lifting lugs provided for safe and easy handling
- Corrosion resistant paint finish
- Water supply and drain through the bottom center of the unit to avoid freeze-up potential
- Single drain connection

Cabinet

NEMA 3

Enclosures constructed for either indoor or outdoor use to provide a degree of protection of the equipment inside the enclosure against ingress of solid foreign objects (falling dirt and windblown dust); to provide a degree of protection with respect to harmful effects on the equipment due to the ingress of water (rain, sleet, snow); and that will be undamaged by the external formation of ice on the enclosure.

NEMA 4

Enclosures constructed for either indoor or outdoor use to provide a degree of protection of the equipment inside the enclosure against ingress of solid foreign objects (falling dirt and windblown dust); to provide a degree of protection with respect to harmful effects on the equipment due to the ingress of water (rain, sleet, snow, splashing water, and hose directed water); and that will be undamaged by the external formation of ice on the enclosure.

NEMA 3X

Enclosures constructed for either indoor or outdoor use to provide a degree of protection of the equipment inside the enclosure against ingress of solid foreign objects (falling dirt and windblown dust); to provide a degree of protection with respect to harmful effects on the equipment due to the ingress of water (rain, sleet, snow); that provides an additional level of protection against corrosion and that will be undamaged by the external formation of ice on the enclosure.

NEMA 4X

Enclosures constructed for either indoor or outdoor use to provide a degree of protection of the equipment inside the enclosure against ingress of solid foreign objects (windblown dust); to provide a degree of protection with respect to harmful effects on the equipment due to the ingress of water (rain, sleet, snow, splashing water, and hose directed water); that provides an additional level of protection against corrosion; and that will be undamaged by the external formation of ice on the enclosure.

COMPARISON OF SPECIFIC NON-HAZARDOUS APPLICATIONS

Provide a degree of protection against the following environmental conditions	Type of enclosure			
	3 ^a	3X ^a	4	4X
Incidental contact with enclosed equipment	•	•	•	•
Rain, snow and sleet	•	•	•	•
Hose down and splashing water			•	•
Corrosive agents		•		•
Ingress of solid foreign object (circulating or setting airborne dust, lint, fibers, and flyings) ^b			•	•
Ingress of solid foreign objects (winblown dust, lint, fibers, and flyings) ^b	•	•	•	•

^a : these cabinet may be ventilated.

^b : these fibers and flyings are non hazardous materials and are not considered class III type ignitable fibers or combustible flyings.

Sequence of operation (see trim diagram)

In a fire condition, when the detection condition is satisfied, system control panel (supplied by others) activates an alarm and energizes normally closed solenoid valve (F1) open. If a sprinkler open pressure on the pneumatic actuator escapes causing the pneumatic actuator (F3) to open.

Pressure is released from the priming chamber of the deluge valve (A1) to the open drain manifold faster than it is supplied through the restricted orifice (B3). The Deluge Valve clapper opens to allow water to flow into the system piping and alarm devices, causing the alarm pressure switch (C1) and optional water motor alarm (C2) to activate. When a sprinkler head opens, water will flow from the system.

When the deluge valve operates, the sensing end of the PORV (B9) is pressurized, causing the PORV to open. When the PORV opens, it drains the priming water pressure to the priming chamber, preventing the deluge valve (A1) from resetting, even if the open releasing devices close. The deluge valve can only be reset after the system is taken out of service, and the outlet chamber of the deluge valve and associated trim piping is depressurized and drained.

Systems hydraulic limitations

WARNING 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.

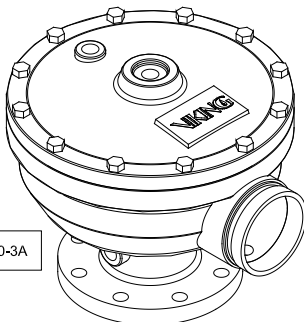
Systems limitations indicated below are nominal flow limitations.

System size (in.)	Usage Range (gpm)	Piping Equivalent Lengths w/o shut off valve	
		(m.)	(ft.)
1½	0 – 200	8.6	28.2
2	0 – 330	12.9	42.3
3	125 - 700	19.8	64.8
4	250 – 1200	27	88.8
6	750 - 2800	31.2	102.4

Standard equipment

Deluge valve

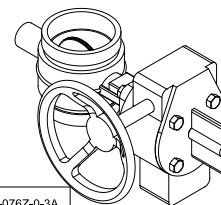
The Viking Model deluge valve is a quick-opening, differential diaphragm, flood valve with one moving mechanism. The deluge valve is used to control water flow in deluge and preaction sprinkler systems. The valve is held closed by system water pressure trapped in the priming chamber, keeping the outlet chamber and system piping dry. In fire conditions, when the releasing system operates, pressure is released from the priming chamber. The deluge valve clapper opens to allow water to flow into the system piping.



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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.

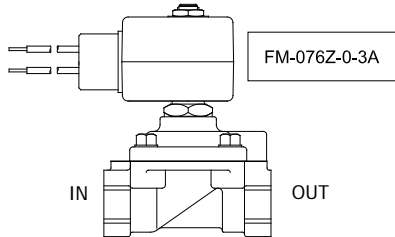


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Standard equipment (continued)

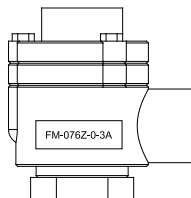
Solenoid valve

The high pressure solenoid valve is a two-way type with one inlet and one outlet. It is a packless, internal pilot operated valve, suitable for use in releasing water pressure from the priming chamber of Viking deluge valves. The solenoid valve has floating diaphragm construction, which requires a minimum pressure drop across the valve to operate properly.



Pneumatic actuator

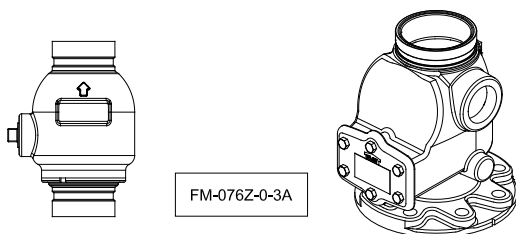
Used in conjunction with the solenoid valve, the Viking Pneumatic Actuator is a spring loaded, rolling diaphragm and piston operated valve. It is used wherever a combination is required between the detection and system's loss of air.



Preaction riser check valve

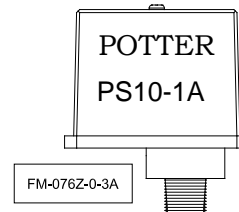
The Viking spring loaded In-Line check valve is a general purpose rubber-faced check valve approved for use in fire-service systems. The Spring Loaded In-Line check valve is manufactured with a brass body, brass seat, and a rubber-faced clapper assembly.

The Viking Easy Riser® Swing check valve is a general purpose rubber-faced check valve approved for use in fire service systems. The valve is for use in preaction system risers.



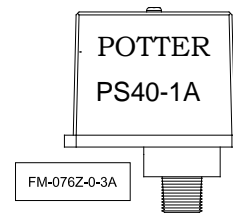
Alarm pressure switch

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.



Low air supervisory switch

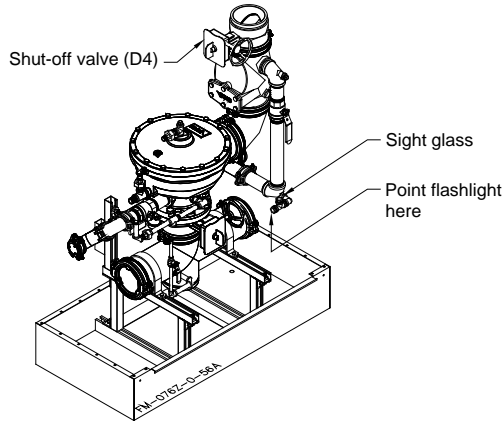
The low pressure switches monitors the pressure within the sprinkler piping should a loss pressure of the air below 25PSI occurs. The pressure switch contacts transfer indicating supervisory signal.



Optional equipment

Shut-off valve & sight glass option

The Shut-off Valve & Sight Glass Option is intended to be used for applications where testing of the system operation without filling the sprinkler piping network is desirable and where it is critical that all functions of the preaction system be tested under actual discharge conditions.



Heater option

Heater option is recommended where ambient temperatures can drop below 40°F (4.5°C). The cabinet's electric heater temperature cut-out point is set at 50°F (10°C). The heater option is equipped with a low temperature sensor that will activate a supervisory signal when temperature drops below 40°±5°F (4.5°±3°C).

Heater option can be ordered in two supply voltage settings:
 120Vac-60Hz. 400Watts.
 220Vac-50Hz. 400Watts.

Warning: TOTALPAC®X cabinet is rated to provide freeze protection down to a minimum temperature of 14°F (-10°C).

Insulated enclosure (standard with heater option)

Insulation is made on foam core 2" thick R13 and have a foil-faced sheathing board composed of a uniform closed cell polyisocyanurate foam core bonded on each side to a triminate foil facer. One side has a foil reflective facer and the other side has a non-reflective foil facer.

Low temperature sensor (standard with heater option)

The low temperature sensor will close the normally open contact when the temperature drops below 40°F (4,5°C). The sensor will automatically reset to its normal state when the temperature rises above 40°F (4,5°C).

Light option

Optional fluorescent enclosure light is available for all cabinet configurations. Remote door switch activates the light when the door is opened.

Light option can be ordered in two supply voltage settings:
 120Vac-60Hz. 220Vac-50Hz.

Air supply

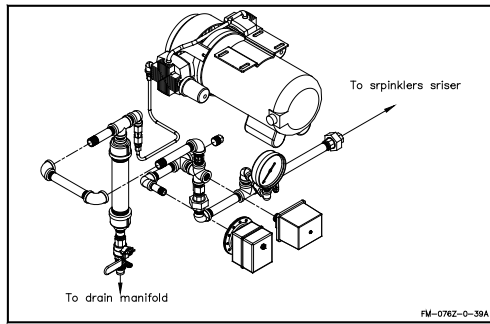
Direct air compressor (Style "A")

Used only for the sprinkler piping network of the preaction system. Air supply style "A" includes the air compressor mounted inside the **TOTALPAC®X** cabinet 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 **TOTALPAC®X** cabinet.

Note: Direct air compressor is available only with NEMA 3, 3X cabinet.

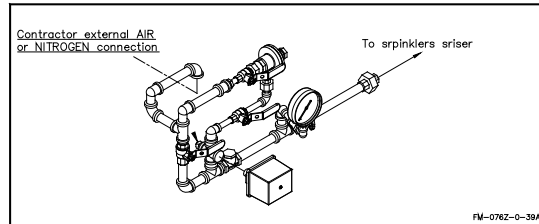
Compressors are available in four (4) sizes;

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



Air Pressure Maintenance Device (Style "B")

Used only for the sprinkler piping network of the preaction 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 **TOTALPAC®X** cabinet.



Direct air, external compressor (Style "D")

Mainly used with Preaction systems protecting refrigerated spaces and freezers, where a special dry external air supply unit is piped directly to the system riser inside the freezer itself, as shown in NFPA-13. Air supply Style "D" provides only an air supervisory and shut-off trim.

Note: The external air supply must be restricted to insure that it cannot replace air as fast as it escapes when a releasing device or sprinkler operates.

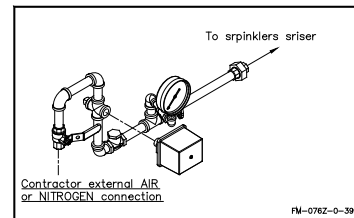
Air compressor selection Table:

H.P.	CFM @ 40 psi	120Vac System capacity (gallon) to Pump to 40 psi in 30 Minutes	220Vac System capacity (gallon) to Pump to 40 psi in 30 Minutes
1/6	1.33	110	90
1/3	2.61	215	170
1/2	4.06	335	270
1	7.40	610	400

Warning: When air supplies style "B" or "D" is selected, the air supply should be provided and installed by the sprinkler contractor OUTSIDE of the **TOTALPAC®X** cabinet. It is NOT provided with the unit.

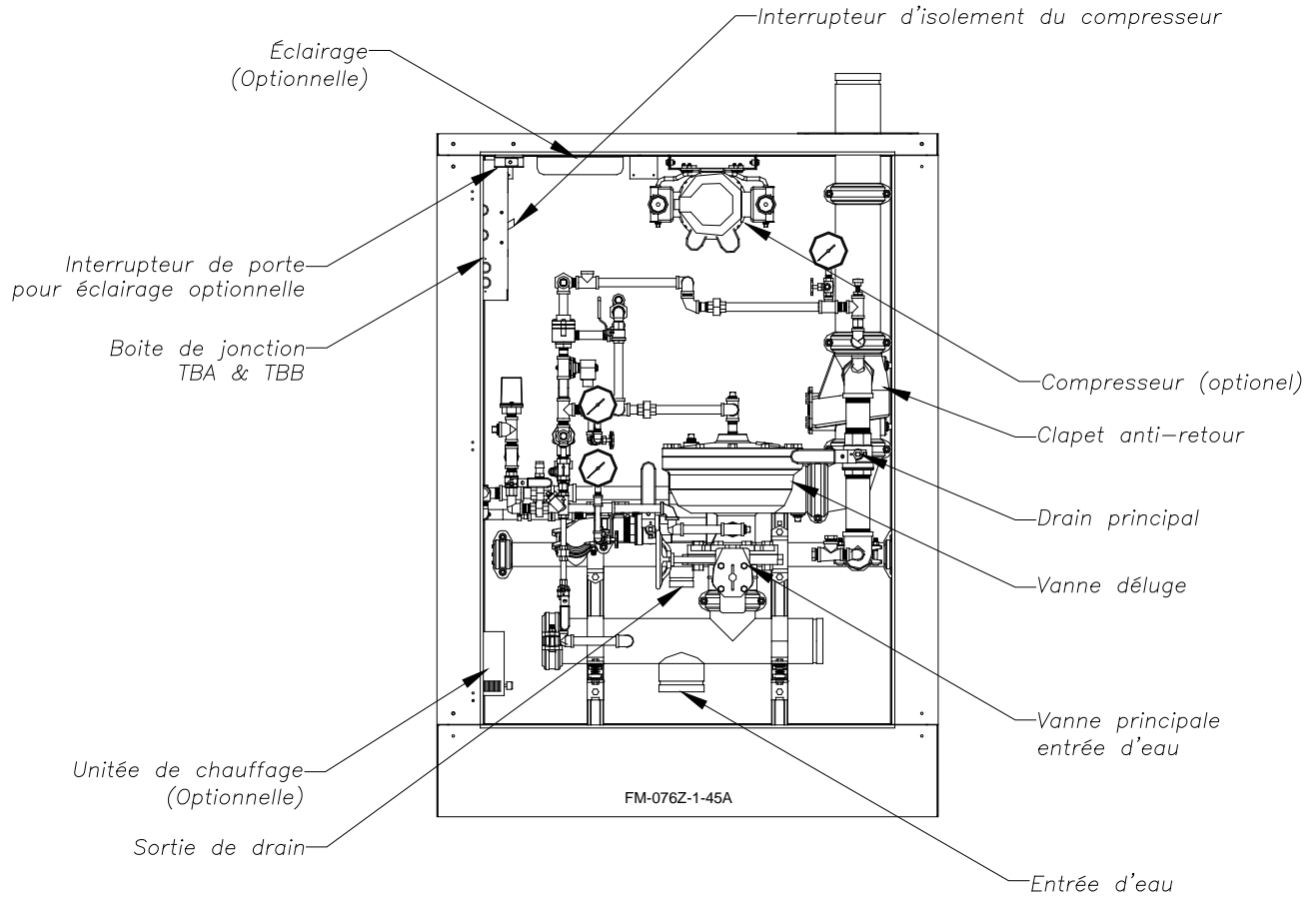
Compressor Amp rating

Compressor Size (HP)	Amp. Rating at 120Vac - 60Hz	Amp. Rating at 220Vac - 50Hz
1/6	6.6 A	3.3 A
1/3	6.6 A	3.3 A
1/2	8 A	4 A
1	12.4 A	6.2 A

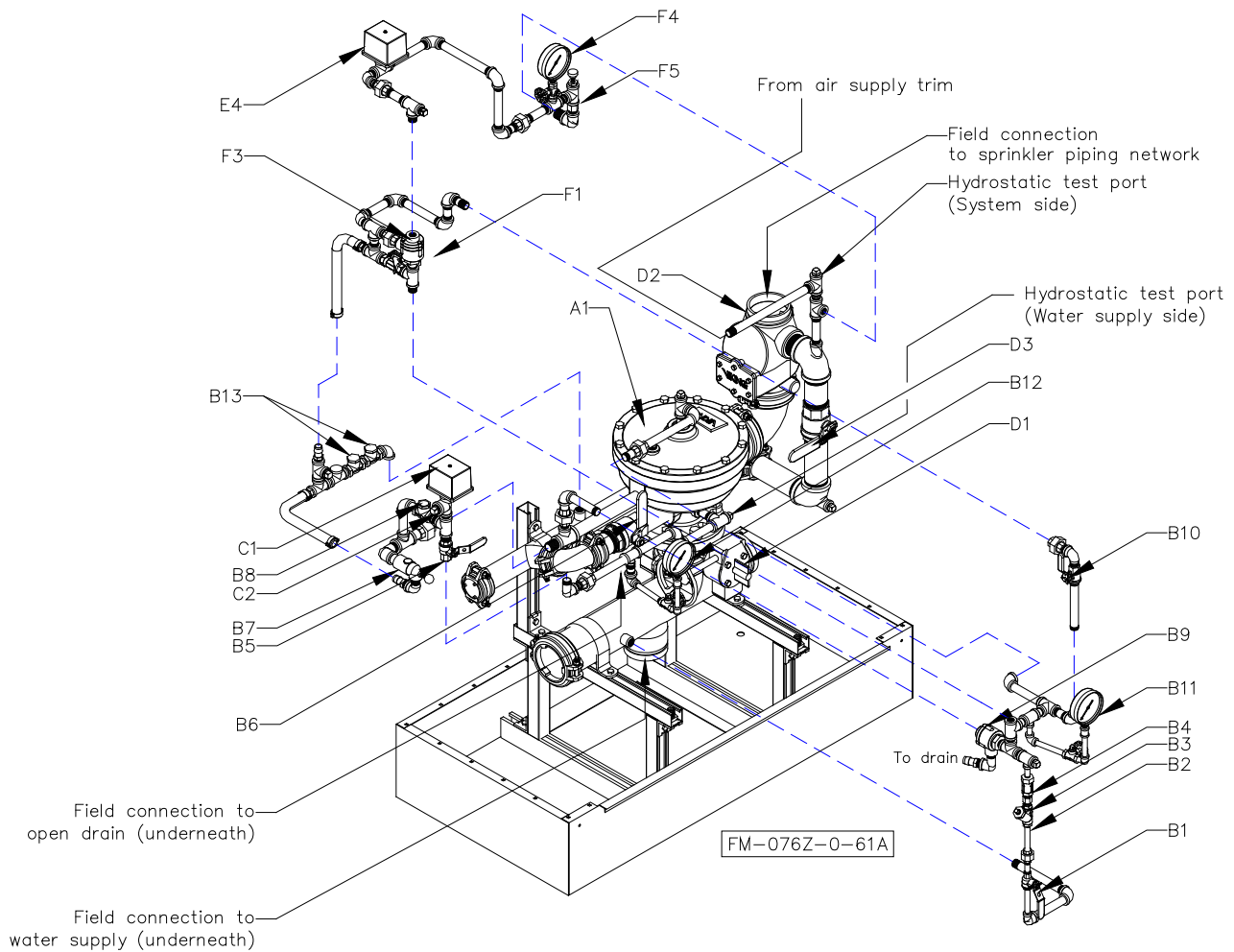


Details & field wiring diagrams

Cabinet with main components, shown without door



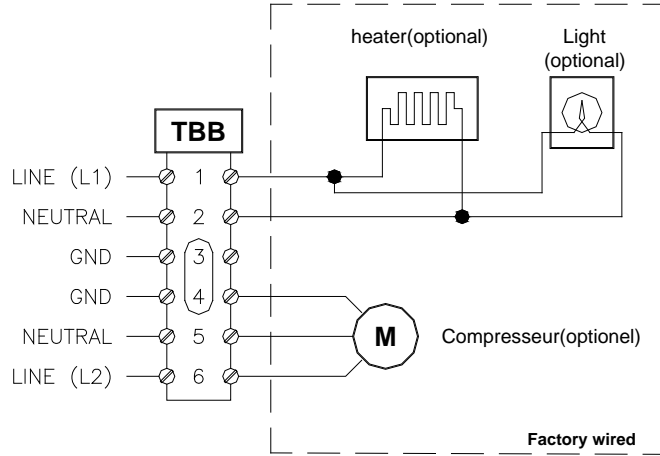
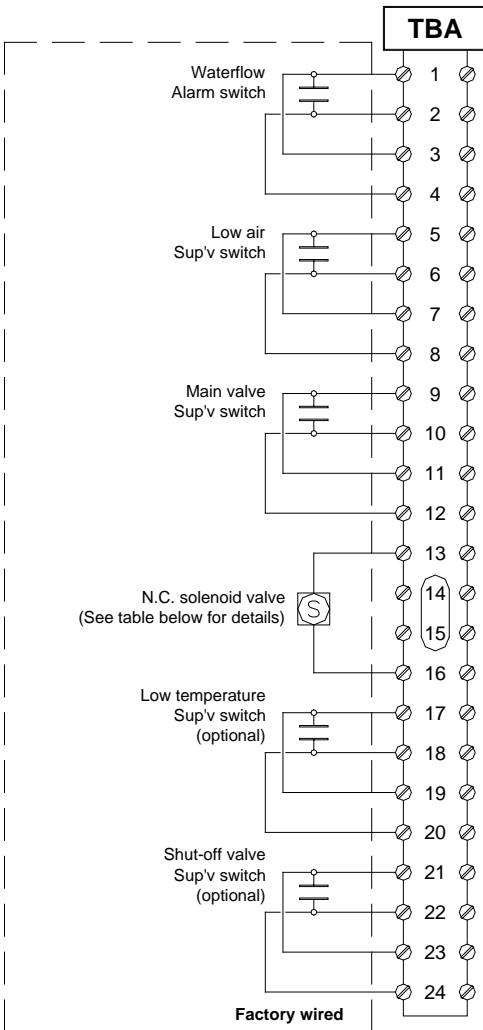
Trim diagram



Components:

A1	Deluge valve	C1	Alarm pressure switch
B1	Priming valve	C2	Connection to water motor gong (strainer supplied by contractor)
B2	Strainer	D1	Water supply control valve
B3	1/16" Restricted orifice	D2	Riser check valve
B4	Spring loaded check valve	D3	Main drain valve
B5	Alarm test valve	E4	Low air supervisory switch
B6	Flow test valve	F3	Pneumatic actuator
B7	Drip check valve	F4	Pneumatic actuator pressure gauge
B8	Drain check valve	F5	Float check valve assembly
B9	Pressure operated relief valve (PORV)		
B10	Emergency release valve		
B11	Prime pressure water gauge & valve		
B12	Water supply pressure gauge & valve		
B13	Clapper check valve		

Wiring diagram



NOTES:

- ALL DEVICES ARE SHOWN IN THEIR NORMAL SUPERVISORY STATE.

- DRY CONTACTS RATINGS:

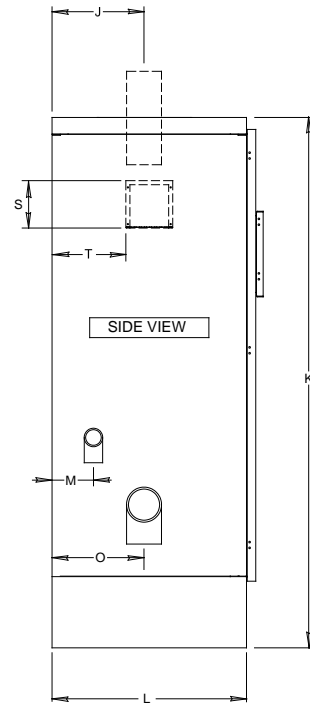
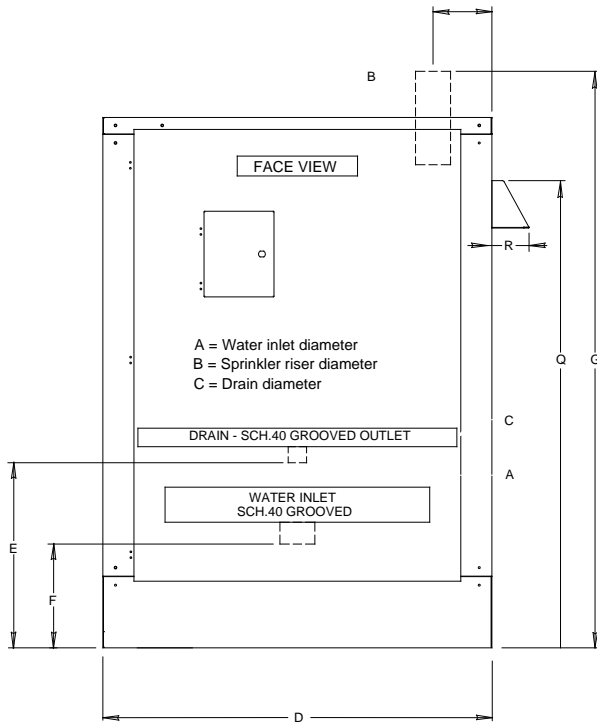
PRESS. SWITCHES: 2.0A, 30VDC / 10A, 125/250 VAC
SUPV. SWITCHES: 0.5A, 125 VDC / .025A, 250 VAC / 10A 125/250VAC
USE ONLY WITH POWER LIMITED CIRCUITS

- USE END-OF-LINE DEVICES COMPATIBLE WITH THE RELEASE CONTROL PANEL USED (NOT INCLUDED).

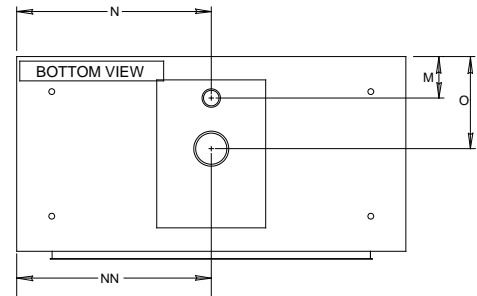
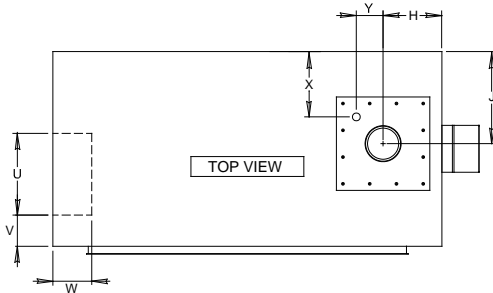
SOLENOID VALVE ELECTRICAL RATINGS					
Viking P/N	Description	Voltage	Watts	DC Amps	Pressure Rating
11591	N.C.	24 DVC	10 DC	416mA	300 psi (2068 kPa)
Notes:					
1. Solenoid Valve is UL Listed as Fire Protection Special System Water Control Release Service (UL 429A Product category VLTR).					
2. Voltage Drop: For proper operation, make sure that voltage at the solenoid valve is at least 85% of nameplate rating.					

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Dimensions

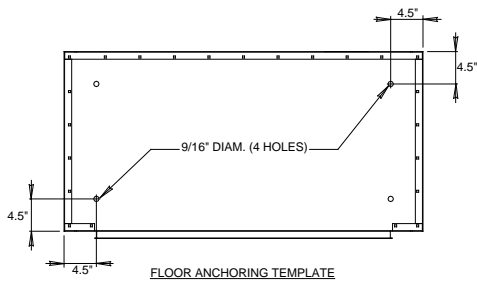


FM-076Z-0-54B



Dimensions are nominal and may vary $\pm 1/4"$.

Size	A	B	C	D	E	F	G	H	J	K	L	M	N	NN	O	Q	R	S	T	U	V	W	X	Y
1.5"	2"	1.5"	2"	50"	24.5"	14.5"	74"	11.5"	11"	68"	25"	5.5"	25"	25"	11"	60"	4.75"	6"	9.5"	10.5"	4"	5"	9.5"	7.75"
2"	2"	2"	2"	50"	23"	12"	74"	12"	11"	68"	25"	5"	25"	25"	11"	60"	4.75"	6"	9.5"	10.5"	4"	5"	9.5"	8"
3"	4"	3"	2"	50"	23"	12.5"	74"	8.5"	11"	68"	25"	5.5"	28.5"	22"	11"	60"	4.75"	6"	9.5"	10.5"	4"	5"	9.5"	8.5"
4"	4"	4"	2"	50"	22.5"	12.5"	74"	8"	12"	68"	25"	5.5"	25.5"	25.5"	12"	60"	4.75"	6"	9.5"	10.5"	4"	5"	9.5"	9"
6"	6"	6"	2"	50"	21"	12"	74"	8"	12"	68"	25"	5"	25"	25"	12"	60"	4.75"	6"	9.5"	10.5"	4"	5"	9.5"	9"





ADVANCED INTEGRATED FIRE PROTECTION SYSTEMS

TotalPac®X
Non interlock Preaction system
Electric release



ADVANCED INTEGRATED FIRE PROTECTION SYSTEMS

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