

FIREFLEX® - VACTEC

Integrated Fire Protection Systems

INTRODUCING **VACUUM FIRE PROTECTION SYSTEMS**



UNIQUE FEATURES

- Inhibits corrosion by removing oxygen and moisture
- Inhibiting atmosphere quickly created as you start the system
- Automatically removes residual water preventing ice plug formations
- Roughness factor of C=120 on dry systems makes using black pipe possible
- Fast activation after sprinkler operation through **FLX-PC** controller
- Real-time Vacuum Pressure monitoring
- Free calculation software to estimate filling time

WITHIN THE SAME FIREFLEX®'S STANDARDS

- Factory assembled, programmed and tested under ISO-9001 standards
- Uses the **Viking Model F-1** Straight Through Deluge valve
- Comes standard prewired to the **Viking VFR-400** releasing control panel
- Compact, aesthetic and easy to move
- Neoprene gasket on all doors to eliminate vibrations
- No open drain cup inside unit
- Separate unlocked access hatch to emergency manual release
- Serial number on every unit for easy reference
- User-friendly standardized owner's manual with every unit

■ FIREFLEX®'S NEW VACUUM FIRE PROTECTION TECHNOLOGY

Proudly manufactured by the company that introduced and developed the concept of integrated fire protection systems in the market, **FIREFLEX®'s Vacuum Fire Protection System** is a complete FM approved integrated system that offers unique features and benefits such as corrosion mitigation measures and the use of gridded piping network** configurations.

Fully assembled, factory tested and ready to be connected to the water supply and piping network, system includes all control valves, a vacuum pump, release control panel and the unique **FIREFLEX® FLX-PC** (Patent Pending) Vacuum Pressure Controller which constitutes the heart of the system.

FIREFLEX®'s Vacuum Fire Protection Systems are available in Dry-pipe Vacuum and Pre-action Vacuum, Non-Interlocked, Single Interlocked and Double Interlocked configurations in sizes from 3" to 8" and all use the same components making it easy to order.

■ CORROSION INHIBITION

Vacuum technology provides inherent corrosion inhibiting capability by removing oxygen and moisture from the piping.

It offers an economical and long term solution on applications where piping corrosion, clogging or ice plugs can affect system performance or where maintenance issues are a concern.

The inhibiting atmosphere is quickly created, only a few minutes after you start the system, normal vacuum pressure is reached thus creating the proper atmosphere to inhibit corrosion. The system pressure is then monitored in real-time by the **FLX-PC** controller ensuring a proper level at all times.

■ C FACTOR

For corrosion mitigation measures, it is important to ensure that water is kept out of the piping network during its standard operation or supervisory mode. C-value of 120 can be used for design purposes when such measures are able to be fully implemented as outlined in **FIREFLEX®'s** design manual.

■ GRIDDED SYSTEMS**

The inherent nature of vacuum systems eliminates the necessity to expel large volumes of fluid prior to the water delivery after the system valve has operated. This fundamental characteristic can allow the use of gridded piping networks for all the described system types.

For example, if the static water pressure is 100 psi, only 10% of the entire piping network is filled with air. The quick sprinkler activation from the **FLX-PC** combined to the smaller volume of air required to be expelled results in the ability of water to be delivered much faster to the hazard.

**** Gridded systems are not currently recommended in FM Global data sheets but are presently under FM Global Review.**

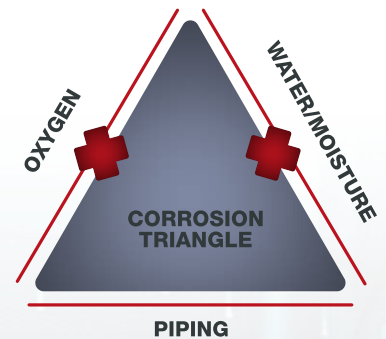
■ FIREFLEX®'S FLX-PC CONTROLLER

The **FLX-PC** (Patent Pending) device is used to precisely monitor and control the vacuum level in the piping network, display the vacuum pressure, vacuum pump run time and frequency of pump operation, in real time, thus providing useful information in regards to major changes in the piping network.

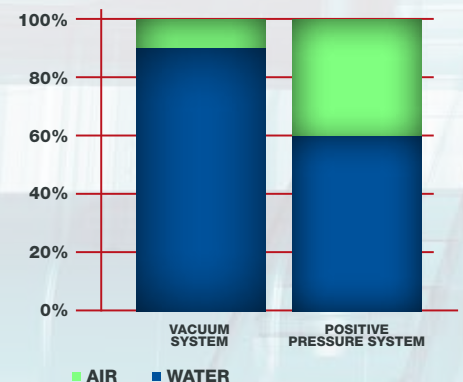
The **FLX-PC** Vacuum Pressure Controller controls the vacuum pump and is programmed to maintain vacuum pressure in the piping network between -180 mbar (-2.6 psi) and -150 mbar (-2.2 psi).

The piping network within the **FIREFLEX®'s Vacuum Fire Protection System** is supervised by the **FLX-PC** for vacuum pressure under normal conditions. In case of a fire, it will detect a sprinkler activation, generate an alarm and trip the system in less than 5 seconds.

The **FLX-PC** also supervises the vacuum pressure for low and high levels and supervisory signals are provided.



VOLUME OF RESIDUAL AIR IN A PIPING NETWORK



▼ RISER SHUT-OFF VALVE

For easier maintenance the riser shut-off valve comes as a standard on all units. It consists of a supervised butterfly valve which allows for a full flow trip test without flooding the system's piping and a sight glass located on the main drain for visual indication of the water flow.



▼ VACUUM PUMP

The vacuum is created using a (1.5 HP, 220V/60Hz/7 Amps) water ring seal vacuum pump controlled by the **FLX-PC**.

The vacuum pump used in the system allows for very quick start-ups. The required time to establish maximum supervisory vacuum level in the piping network is less than 4 minutes for a 1000 gallon system thus saving start-up and maintenance time in the field.

Quiet running and minimal vacuum pump maintenance requirements offers significant advantages compared to air compressors.

▼ CALCULATION SOFTWARE

FIREFLEX® provides a Vacuum System Calculator free of charge to ensure that the time taken to fill the entire volume of piping is within the prescribed time. A water delivery time software can also be used to perform these calculations.

▼ SPRINKLERS FOR VACUUM SYSTEM

Sprinklers must be approved and tested for use under vacuum conditions. Contact **FIREFLEX®** for complete list of approved sprinklers or refer to sprinkler manufacturer's datasheets.

▼ RELEASING CONTROL PANEL

The **Viking VFR-400** is cULus Listed, FM Approved and meets UL 864-9 requirements. It features onboard menu-driven programming with twelve pre-installed programs to facilitate set up. The panel is compatible with multiple initiating devices such as: linear heat detection, smoke and heat detectors, waterflow indicators, low & high air pressure switches as well as manual pull stations.



▼ RELEASING CIRCUIT DISCONNECT SWITCH

Required by NFPA 72 - 2010 Edition, this feature is standard on all our **FIREFLEX® VACTEC®** units and prevents accidental discharge during maintenance or inspection. Operation of the key switch physically disconnects the release circuit wiring and causes a trouble signal at the releasing control panel.



APPLICATIONS

Integrated **Vacuum Fire Protection Systems** can be used to protect all applications requiring the following types of systems:

DRY-PIPE • NON-INTERLOCK PREACTION • SINGLE-INTERLOCK PREACTION • DOUBLE-INTERLOCK PREACTION

The corrosion mitigation properties of the Vacuum technology make this technology suitable for all applications where piping corrosion or pipe clogging is a concern.

- Large parking garages where corrosion is often a concern.
- Freezer protection is also a suitable application, where no ice plugs are formed in the piping network.

The vacuum pump removes residual water in the riser each time it operates to maintain the proper vacuum level. No condensation problems occur, and no additional special equipment is required.

- Storage applications where not heating the building can significantly reduce operational costs.
- Mission critical and sensitive areas where water damage is a concern. Leaks in the piping network will not allow water droplets to escape, vacuum pulls air from outside and water, if any, will stay in the piping network.

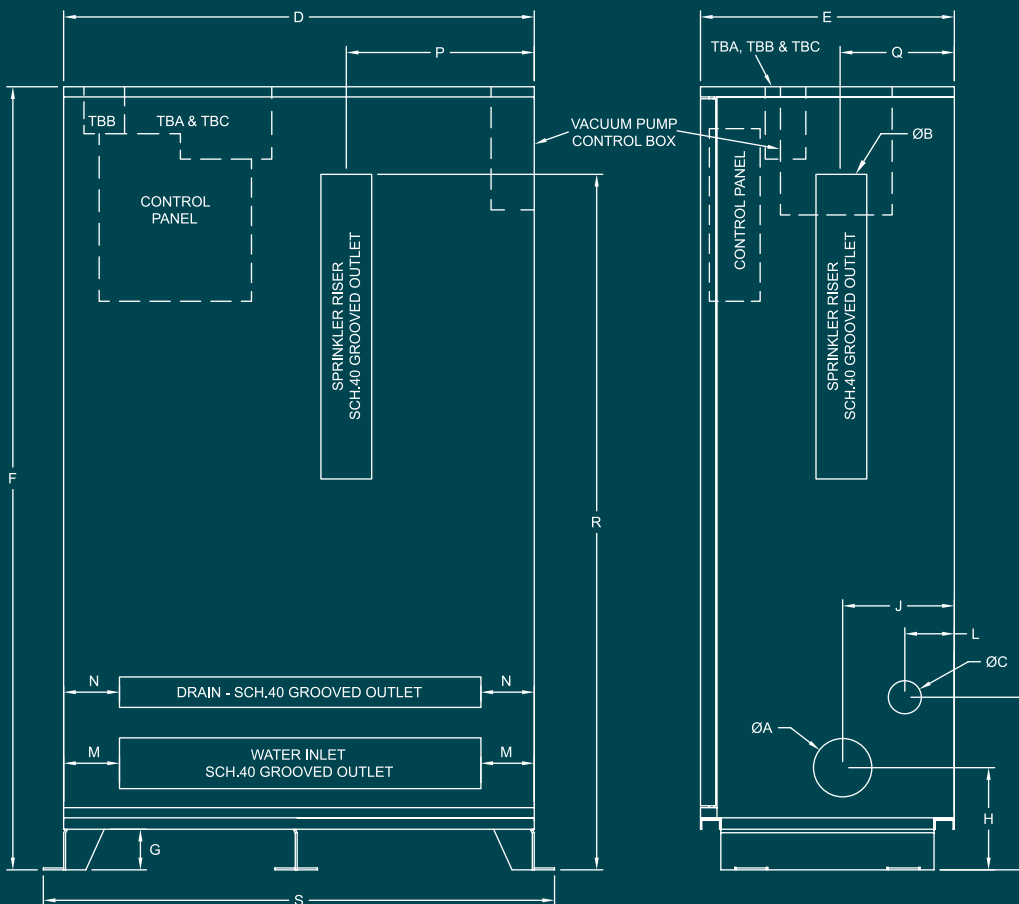


FIGURE 1 - CABINET DIMENSIONS

SYSTEM SIZE	A	B	C	D	E	F
3"	4"	3"	2"	46"	25"	77"
4"	4"	4"	2"	46"	25"	77"
6"	6"	6"	2"	46"	25"	77"
8"	8"	8"	2"	54"	31"	81"

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



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