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FireFlex® 1230 description

The **FireFlex® 1230** integrated system consists of a clean agent fire extinguishing system, factory-assembled in a cabinet and integrating all the components necessary for an extinguishing system. The **FireFlex® 1230** is fully tested at factory.

The **FireFlex® 1230** System uses Engineered **SEVO™ 1230 FORCE500™** Clean Agent Fire Suppression System for Class A, B and C fires. This clean extinguishing agent is based on sustainable technology and meets the most stringent actual and future environmental standard

Novec 1230 extinguishing agent description

Designed as per NFPA 2001, the extinguishing agent used in **FireFlex® 1230** system is Dodecafluoro-2-methylpentan-3-one known as **Novec 1230** Fire Protection Fluid (also known as **FK-5-1-12**, 3M™ NOVEC™ 1230 Fire Protection Fluid, C₆-F-ketone) produced by 3M. Volumetric concentration varies from 4 - 6 % (not to exceed 10%)

Novec 1230 Fire Protection Fluid is a colorless fluid. It is stored as a pressurized liquid and injected into a room, area, or compartment that has the structural integrity to retain the agent that has been discharged.

Novec 1230 is dispensed as an odorless, electrically non-conductive vapor. It leaves no residue.

Features

- **FireFlex® 1230** system utilizes Novec 1230 extinguishing agent which is highly efficient for total flooding applications.
- **FireFlex® 1230** system is FM Approved under the heading: "FIXED EXTINGUISHING SYSTEMS, CLEAN AGENT FIRE EXTINGUISHING SYSTEMS".
- **FireFlex® 1230** System is UL Listed under "Clean Agent Extinguishing System Unit" Category # GAQF-EX6174 and Category # GAQFC-EX6174 (ULC).
- Seismic type construction.
- ISO-9001 manufacturing and quality control procedures.
- Meet NFPA 2001, Sec. 4.3.4.1
- **Novec 1230** extinguishing agent has zero ozone depletion potential, an atmospheric lifetime of 0.014 year and a global warming potential of 1.
- No Observed Adverse Effect Level (NOAEL) of 10%.
- USA TSCA: product complies with chemical notification requirements.
- Canada CDSL: product complies with chemical notification requirements

FireFlex 1230

Remote controlled (no control panel),
Engineered system



System configurations

- Single cylinder system** with electric release
- Main/Reserve system**, double cylinder with electric release. Where uninterrupted protection is required, both the primary and the reserve agent supplies shall be permanently connected to the distribution piping and arranged for easy changeover.
- Main/Slave system**. double cylinder with electric release on Main cylinder **and** Pneumatic actuator on slave cylinder

Cabinet width	Size of cylinder (lbs)					
	40	76	164	322	601	850
24"	1	1	1	1	1	n/a
36"	2	2	2	n/a	n/a	n/a
46"	n/a	n/a	n/a	2	2	n/a
54"	n/a	n/a	n/a	n/a	n/a	1 - 2

Sequence of operation for the remote releasing control panel

Automatic release

1. Actuation of a detector from one detection zone:
 - a) "OUTPUT 1" (1ST ALARM) activates.
 - b) "ALARM" contact activates.
2. Actuation of a detector from the other detection zone (for crossed zones configuration):
 - c) "OUTPUT 2" (2ND ALARM) activates.
 - d) Pre-discharge delay starts (not exceeding 60 sec).

Note: The abort station will prevent the **NOVEC 1230** discharge as long as being maintained if activated during the pre-discharge delay.

3. After pre-discharge delay is completed:
 - a) **NOVEC 1230** electric actuator (C) activates.
 - b) "RELEASING" contact activates. (if optional NOVEC discharge pressure switch is selected)

Manual release

1. Actuation of a manual release pull station within the system:
 - a) "OUTPUT 2" (2ND ALARM) activates.
 - b) "ALARM" contact activates.
 - c) Pre-discharge delay starts (not exceeding 30 sec).
2. After pre-discharge delay is completed:
 - a) **NOVEC 1230** electric actuator (C) activates.
 - b) "RELEASING" contact activates. (if optional NOVEC discharge pressure switch is selected)

Note: At any time, if the optional mechanical activator (J) is activated, the **NOVEC 1230** will be released.

Abort Station

When abort release switch is activated, pre-discharge timer will continue to count down until it reaches 10 seconds and then stop. Releasing the abort release switch will allow the pre-discharge to continue its count down from 10 seconds. If the abort release switch is again activated before the pre-discharge timer reaches zero, the timer will reset to 10 seconds and hold.

CAUTION Abort does not function and has no effect on panel operation from zones programmed as Manual RELEASE.

For systems using abort switches, the switches shall be of the "dead man" type requiring constant manual pressure, properly installed, readily accessible within the hazard area, and clearly identified.

Standard equipment

Cabinet

The FireFlex® 1230 unit cabinet is made of sturdy 14 gauge steel. All surfaces are rust proof coated, inside and outside, with fire red, oven baked polyester powder on phosphate base. Cabinet is provided with one or two doors, all provided with a neoprene gasket to absorb vibrations. Electrical junction boxes are integrated inside the cabinet for connection of AC power, detection system, auxiliary contacts and signaling devices. Knockouts can be drilled by the installing contractor on-site. Cabinet doors are provided with hinges that can easily be disassembled on site to remove the door assemblies for servicing.

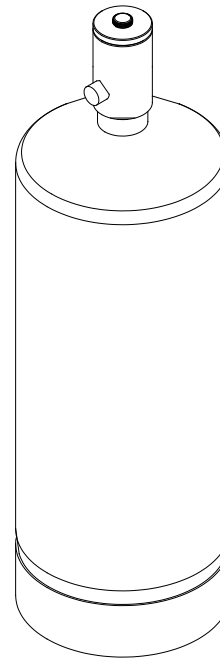
Standard SEVO SYSTEMS equipment

Agent storage cylinder

The agent storage cylinder by SEVO Systems is a steel pressure vessel manufactured, tested and stamped in accordance with DOT 4BW500 or DOT 4BA500, TC (Transport Canada).

The agent storage cylinder is designed to hold the clean agent at a normal operating pressure of 500 psi (34.5 bar) at 70°F (21.1°C). The agent storage cylinders are suitable use at temperatures of 0°F (-17.8°C) to 130°F (54.4°C).

A rupture disc is connected to the cylinder body to serve as a pressure relief device to protect the cylinder against excessive internal pressure. The disc rupture point is in the range of 864 psi (59.5 bar) to 950 psi (65.5 bar) at 70°F (21.1°C).



Cylinder filling range

FireFlex® 1230 Cylinders	
Size	Fill Capacity (lbs)
40	16 - 40
76	31 - 76
164	66 - 164
322	129 - 322
601	241 - 601
850	366 - 854

FireFlex 1230

Remote controlled (no control panel),
Engineered system

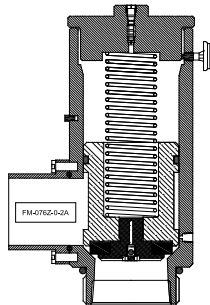


Standard SEVO SYSTEMS equipment (cont'd)

Discharge valve

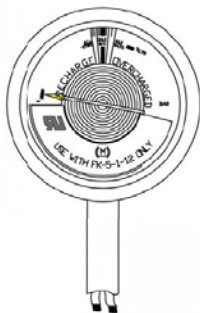
The discharge valve is a Brass construction backpressure type valve. The piston in the valve bore is equipped with copolymer seal that keeps the **Novac 1230** under pressure within the cylinder. A small hole in the axis of the piston allows the cylinder pressure to equalize on both sides of the piston. Since the area at the top of the piston is greater than the area at the bottom of the piston, the net force seals the piston against the valve discharge outlet. When the cylinder pressure on the top of the piston is released by means of automatic or manual actuation, the cylinder pressure acting against the piston causes it to slide to its fully open position allowing agent discharge.

The 40 lb and 76 lb cylinders are equipped with a 1" valve. The 164 lb cylinders are equipped with a 1 1/4" valve. The 322 lb. and 601 lb. cylinders are equipped with 2 1/2" valves and the 850 lb cylinders are equipped with a 3" valve.



Pressure gauge integrated low pressure switch

The pressure gauge integrated switch is a means for both visual and electronic monitoring of the pressure condition within the cylinder. Furthermore, the pressure gauge integrated switch eliminates the need for a separate pressure switch.



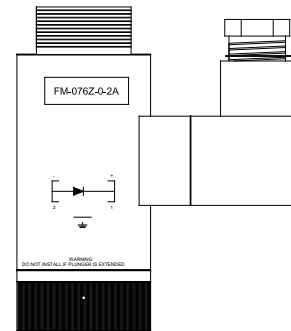
Electric actuator

The SEVO electrical actuator is mounted on the top plug of the cylinder valve. The 24 VDC electric actuator is required to discharge the system electrically from a releasing control panel.

Meets NFPA 2001, Sec. 4.3.4.1 with active installation supervision switch.

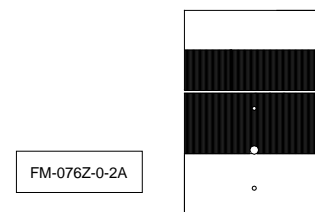
Power Requirements 24 Volts d.c.

Current 0.5A at 24 Volt d.c.



Pneumatic actuator

The Pneumatic Actuator Control Head, used on **Main/Slave system**, features a pneumatically driven piston that depresses a check valve, releasing the pressure from the top of the piston, allowing the cylinder discharge. The pneumatic pressure required to operate the Pneumatic Actuator Control Head is obtained from the "M" port of a main cylinder that is either mechanically and/or electrically actuated. Multiple cylinders (max.10) equipped with Pneumatic Actuator Control Heads can be activated from one main cylinder using 1/4" copper tubing, 1/4" metal flex hose or 1/8" pipe. The Pneumatic Actuator Control Head mounts directly to a top plug adapter directly on top of the cylinder valve.

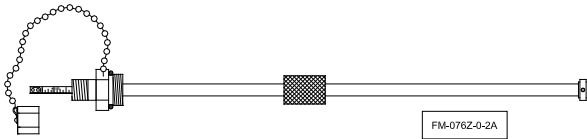


Standard SEVO SYSTEMS equipment (cont'd)

Liquid Level Indicator

The SEVO 1230 LL-30020-1 Series Liquid Level Indicator is a simple, manually operated device, which provides means to determine the fluid level in a vertically mounted cylinder. Use of this device allows for the content of fluid to be determined without removing cylinder from its bracketing and piping for weighing.

Provided and available only on 322, 601 and 850 Cyl.



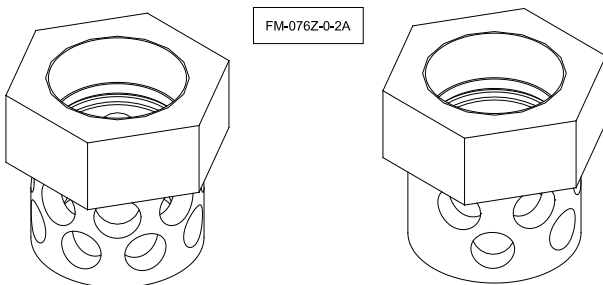
Nozzles

The Sevo® nozzles are designed to provide rapid and thorough vaporization and distribution of agent with the air in the protected space. Standard nozzles are made of aluminum.

Engineered system nozzles are available in five pipe sizes, 1/2", 1", 1-1/2", 2" and 2-1/2", 180° and 360° discharge pattern.

Each nozzle has a standard female pipe thread for attachment to discharge piping. Nozzle shall be spaced in accordance with the instructions in the "Engineered system design manual". Each nozzle shall be marked with the Sevo® Systems part number.

- | | |
|--|--|
| <input type="checkbox"/> 1/2" @ 180° | <input type="checkbox"/> 1/2" @ 360° |
| <input type="checkbox"/> 1" @ 180° | <input type="checkbox"/> 1" @ 360° |
| <input type="checkbox"/> 1-1/2" @ 180° | <input type="checkbox"/> 1-1/2" @ 360° |
| <input type="checkbox"/> 2" @ 180° | <input type="checkbox"/> 2" @ 360° |
| <input type="checkbox"/> 2-1/2" @ 180° | <input type="checkbox"/> 2-1/2" @ 360° |

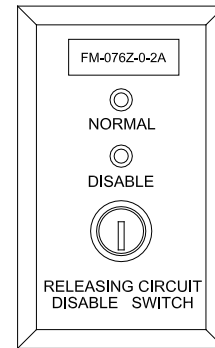


The maximum nozzle height per layer of coverage is 16'-4" (4.97 meters). Nozzles should be placed at least 1" below the ceiling surfaces. Both 180° and 360° nozzles were tested for a maximum area coverage using a 32' wide by 32' long enclosure.

Maintenance key switch

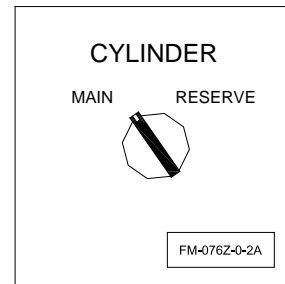
The releasing circuit disable key is used to disable the SEVO electrical actuator, preventing accidental discharge during maintenance / inspection.

Meet NFPA 72, Sec. 23.11.5.2



Main / Reserve switch

The Main / Reserve switch is used only on **Main/Reserve system** configuration. The Main / Reserve switch allows selecting of electric release on either Main **or** Reserve cylinder.



FireFlex 1230

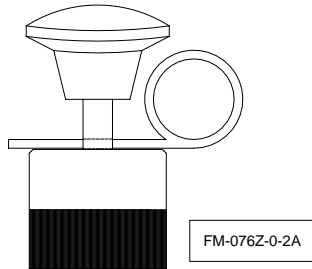
Remote controlled (no control panel),
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Optional SEVO SYSTEMS equipment

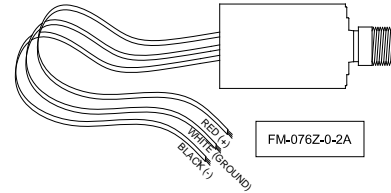
Manual actuator (optional)

The manual actuator features a push lever that vents pressure through the top of the valve causing the piston to rise and allow for Novec 1230 to discharge through the valve outlet. The manual actuator also has the option to mount on top of the stackable electric actuator allowing electrical or manual system activation.



Discharge pressure switch (optional)

The discharge pressure switch is used to provide a means of detecting system activation. Upon activation of the cylinder valve, the discharge pressure switch contacts transfer to indicate discharge and/or to perform auxiliary functions required during system operation.

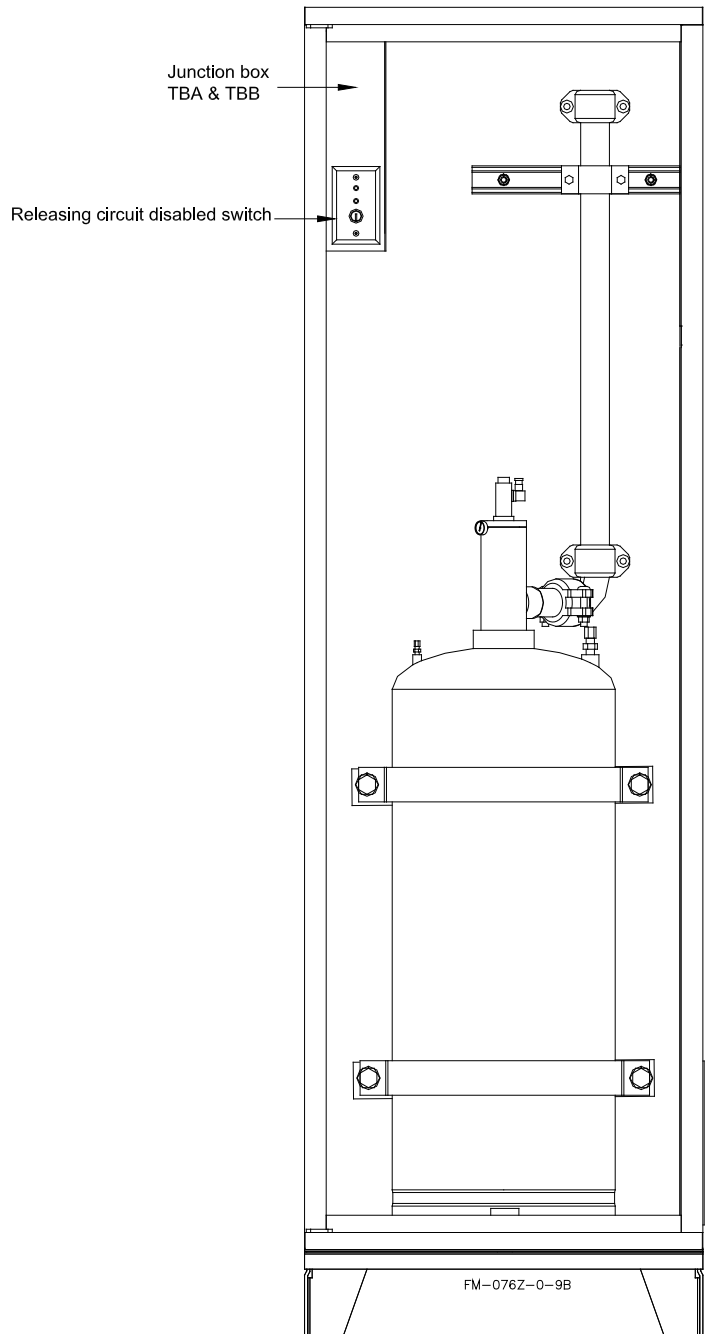


As per NFPA 2001 (2008 Edition), 4.3.3.5.1. A discharge pressure switch shall be required where mechanical system actuation is possible.

Field wiring diagrams & details

Cabinet with main components, shown without door

Single cylinder system



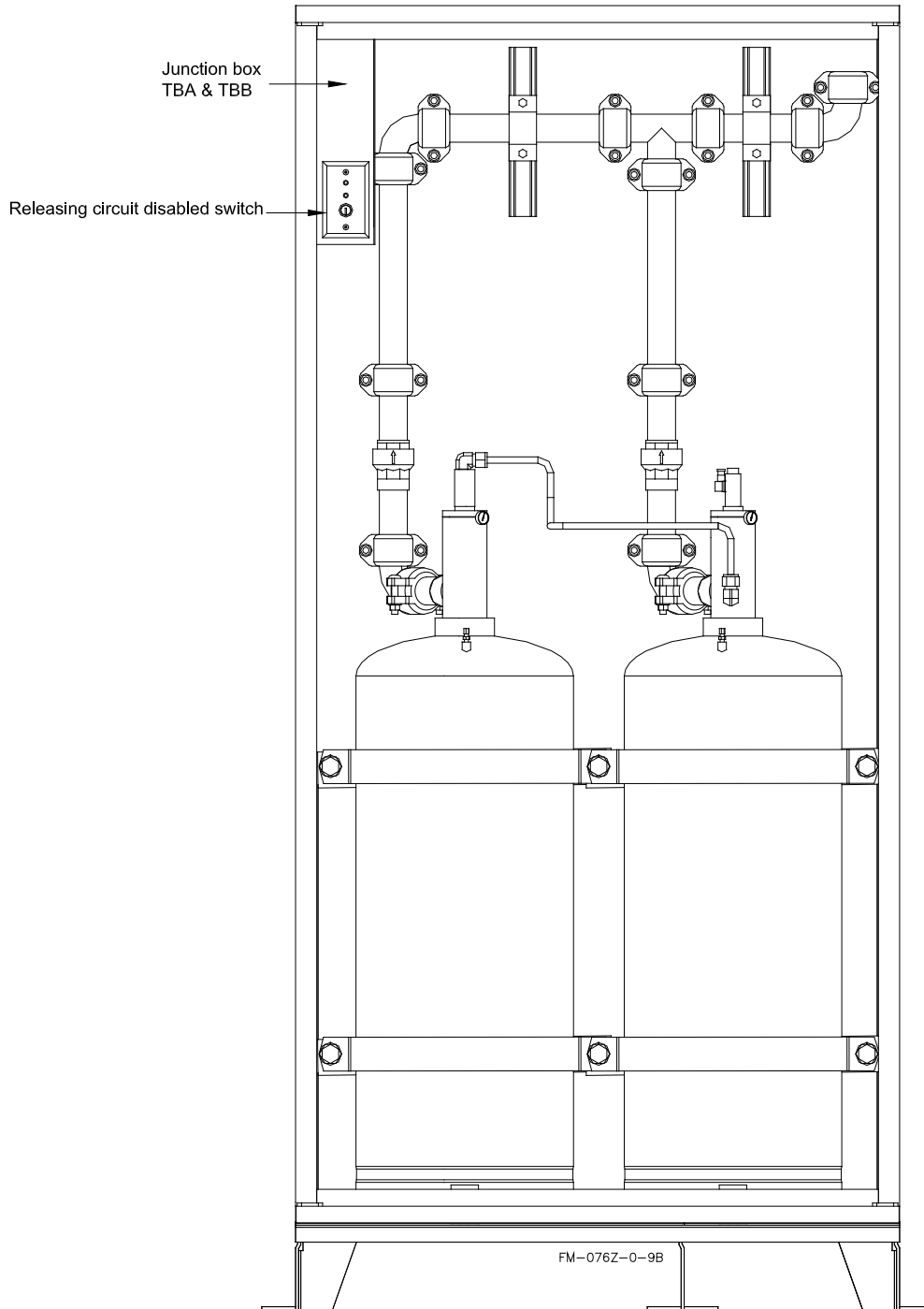
FireFlex 1230

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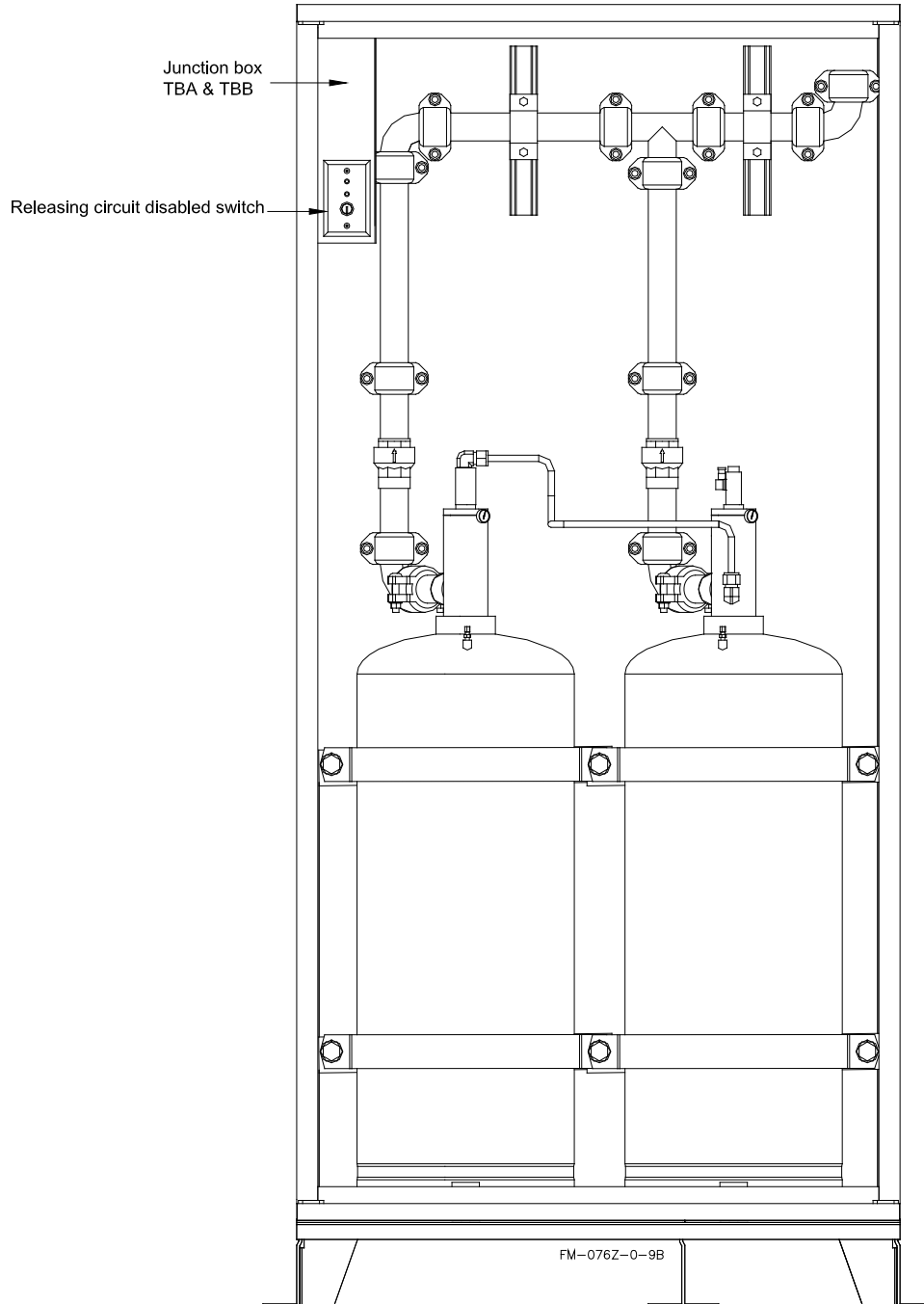
Cabinet with main components, shown without doors

Double cylinder system **Main/Slave**



Cabinet with main components, shown without doors

Double cylinder system **Main/Reserve**

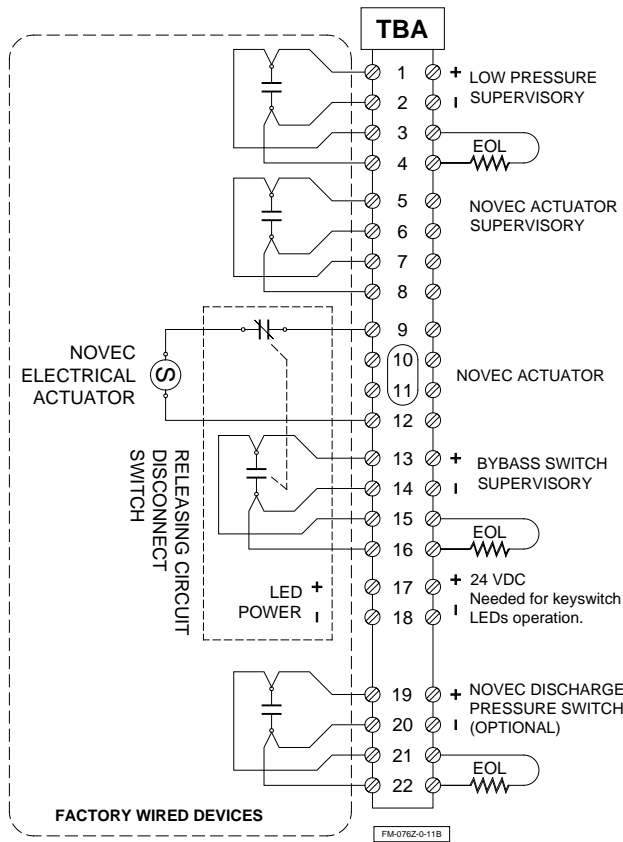


FireFlex 1230

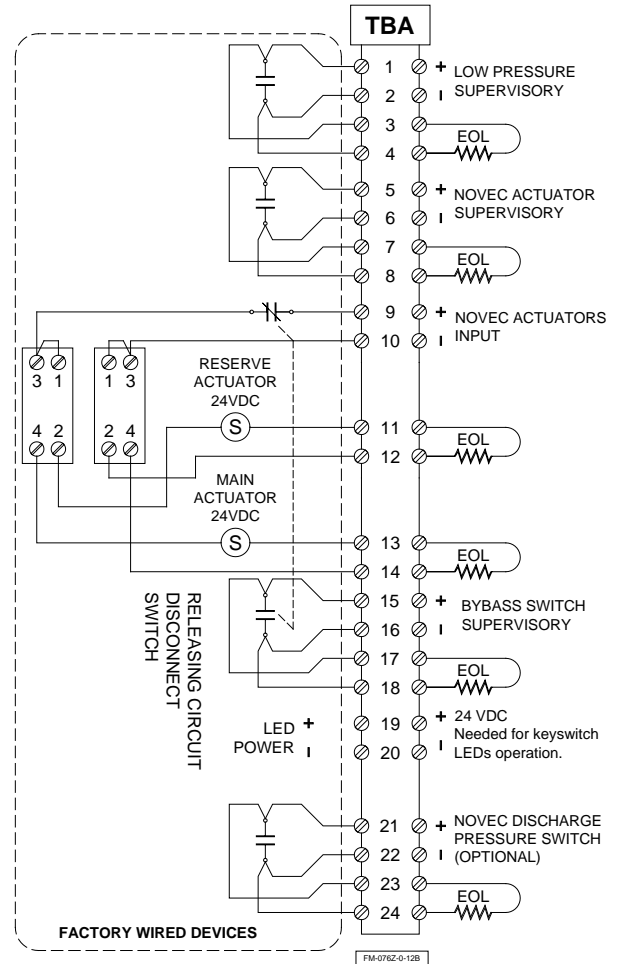
Remote controlled (no control panel),
Engineered system



Field wiring diagrams for single electric actuator



Field wiring diagrams for Main/Reserve electric actuators



Notes:

- All devices are shown in their normal supervisory state.
- Dry contacts ratings:
Cylinder pressure switch: 2A@28VDC, 375VA@120VAC
Discharge switch: 20A@120/240VAC
- USE ONLY WITH POWER LIMITED CIRCUITS.
- End-of-line devices shall be compatible with the release control panel (not included).
- NOVEC Actuator P/N SOL EA45 is rated 24VDC, 500mA, 12W

Cabinet

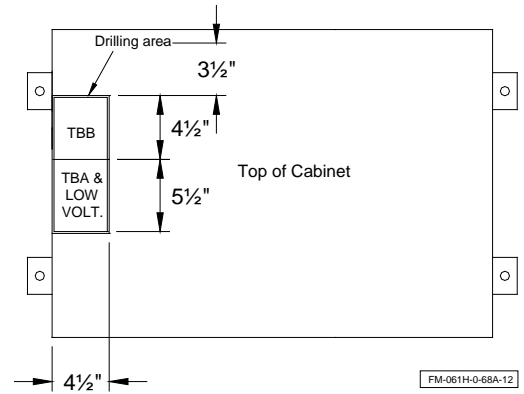
The **FIREFLEX® 1230** cabinet is made of sturdy 14 gauge steel.

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

The cabinet assembly is pre-assembled, pre-wired, and factory tested under ISO-9001 conditions.

Electrical junction box is integrated inside the cabinet for connection of detection system, auxiliary contacts and signaling devices. Knockouts can be drilled by the installing contractor on-site but must adhere to the restrictions indicated on figure 1.

Figure 1 - Drilling details

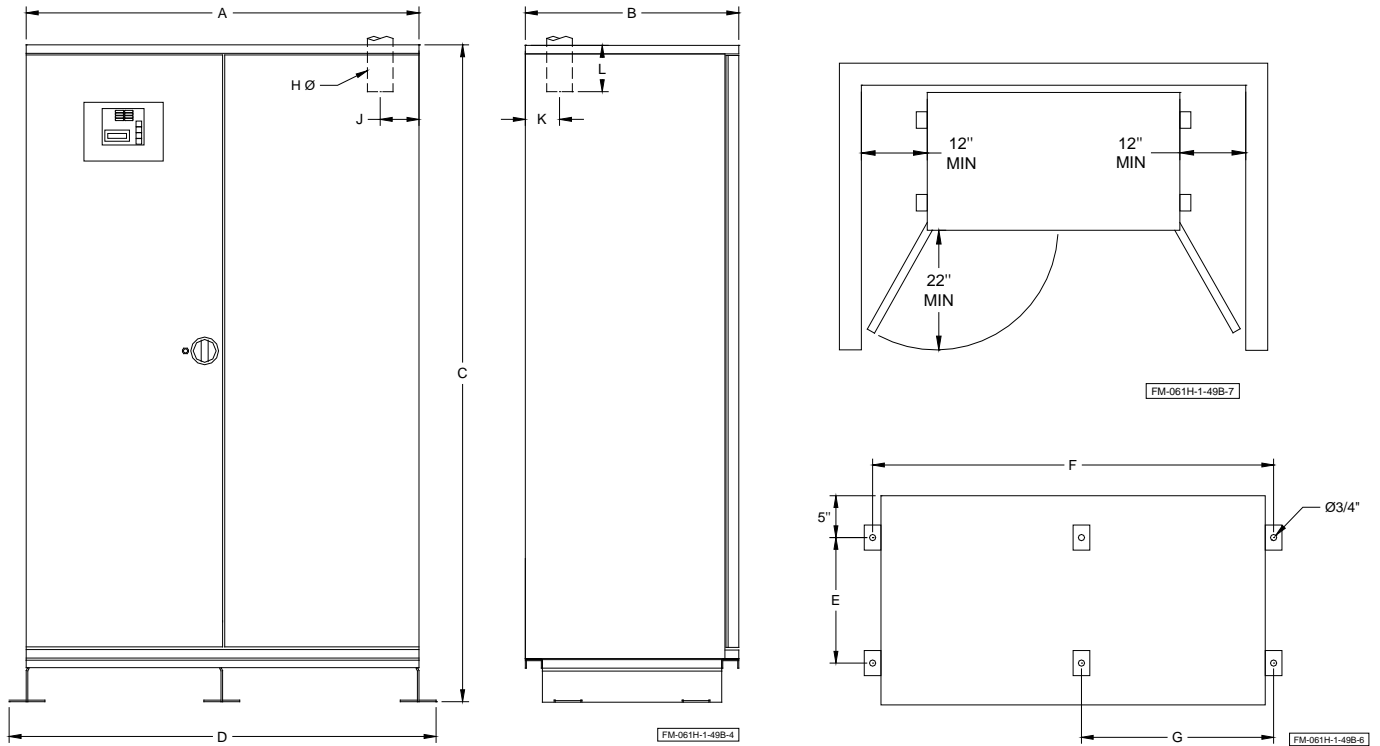


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Remote controlled (no control panel),
Engineered system



Figure 2 - Cabinet dimensions



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

Table 1 - Cabinet dimensions

Size	A	B	C	D	E	F	G
24"	23"	25"	77 $\frac{1}{8}$ "	29"	15"	27"	n/a
36"	35 $\frac{3}{4}$ "	25"	77 $\frac{1}{8}$ "	39 $\frac{3}{4}$ "	15"	37 $\frac{3}{4}$ "	12 $\frac{3}{4}$ "
46"	46"	25"	77 $\frac{1}{8}$ "	50"	15"	48"	23"
54"	54"	31"	81"	58"	21"	56"	26"

Table 2 - NOVEC 1230 piping installation

Lbs	H	J	K	L
40	1"	2 $\frac{3}{4}$ "	6"	3 $\frac{1}{4}$ "
76	1 $\frac{1}{4}$ "	2 $\frac{3}{4}$ "	6"	3 $\frac{1}{4}$ "
164	1 $\frac{1}{2}$ "	2 $\frac{3}{4}$ "	6"	1 $\frac{3}{4}$ "
322	2"	6 $\frac{3}{4}$ "	6"	4 $\frac{3}{4}$ "
601	2 $\frac{1}{2}$ "	6 $\frac{1}{2}$ "	6"	3 $\frac{3}{4}$ "
850	3"	9"	7"	5"



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