60 years expertise in designing components for closed fluid systems

FIRE-X-TROL® by AMTROL®

FIRE-X-TROL®

Wet Pipe Sprinkler System

ASME and Non-ASME Expansion Chamber

For the Absorption of Expanded Fluids

WHERE BETTER IDEAS FLOW

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The AMTROL® Advantage

- AMTROL - A world-leading provider of advanced water system solutions supplies a complete line of quality engineered, cost efficient, fire suppression, heating and water systems that you can count on.
- First to design and patent EXTROL®, expansion tanks, redefining hydronic heating and chilled water systems forever.
- ISO 9001 - 2000 certified.
- With over 60 years experience, AMTROL sets the standard for service reliability, innovation, design, and manufacture of water system equipment.
- Fully qualified technical staff available to help ensure solid solutions for your expansion tank needs.

Protect your System with the FIRE-X-TROL®... UL®* Listed and ASME Compliant

The Fire-X-Trol® expansion chamber with pre-charged nitrogen or dry air pneumatic cushion reliably protects your system from pressure increases that result from fluid temperature change.

Since these systems are closed-loop systems, the expanded fluid needs to be accommodated with a pre-pressurized expansion tank.

As the temperature rises, the Fire-X-Trol® provides the additional space in the system to accommodate the expanded volume of solution. The pneumatic cushion is compressed as the system pressure increases creating the space for the increased volume of fluid. The nitrogen volume in the chamber will be great enough to keep the system pressure below the pressure limitations of the system components. Properly sized, the expansion chamber will maintain maximum system pressures within the working pressure limitations of the system equipment.

Your system is safely protected!

NFPA** 13 Requires Expansion Tanks When a Backflow Prevention Device is Used

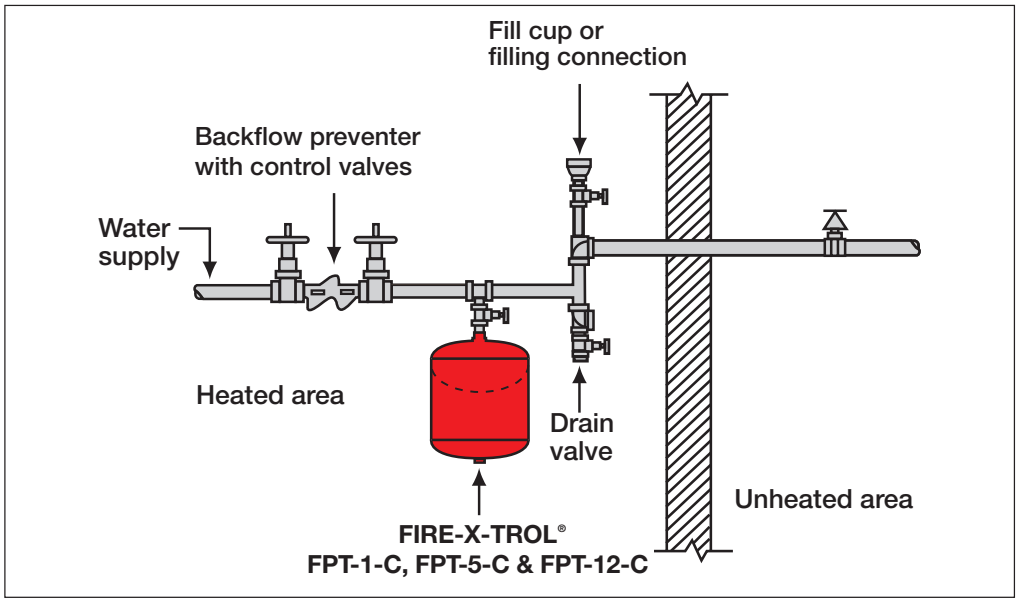
Many regulations require antifreeze systems to be equipped with a reduced-pressure zone backflow prevention device to eliminate the chance of contaminating the water supply with the antifreeze solution. The Fire-X-Trol can be located anywhere downstream from the backflow prevention device and safely protects system components from potential damage as a result of over pressurization.

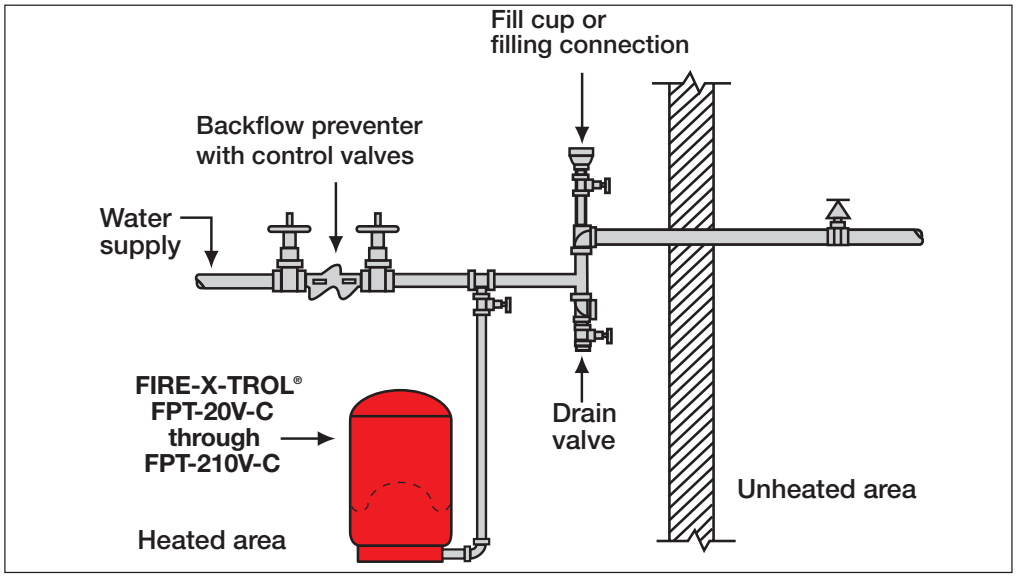
As stated in NFPA 13, 7.5.3.3.: *"Where the connection between the antifreeze solution and the wet pipe incorporates a backflow prevention device, a listed expansion chamber of appropriate size and pre-charged air pressure shall be provided to compensate for thermal expansion of the antifreeze solution...".*

* Underwriters' Laboratories.
** National Fire Protection Association.

TYPICAL SCHEMATIC

Typical Schematic with Fire-X-Trol® Expansion Chamber





Antifreeze solutions to be used if potable water is connected to sprinklers

Material	Solution (by Volume)	Specific Gravity at 60°F (15.6°C)	Freezing Point °F	Freezing Point °C
Glycerine C.P. or U.S.P. grade*	50% water	1.145	-20.9	-29.4
	40% water	1.171	-47.3	-44.1
	30% water	1.197	-22.2	-30.1
Hydrometer scale 1.000 to 1.200				
Propylene glycol	70% water	1.027	+9	-12.8
	60% water	1.034	-6	-21.1
	50% water	1.041	-26	-32.2
	40% water	1.045	-60	-51.1
Hydrometer scale 1.000 to 1.200 (subdivisions 0.002)				

*C.P. - chemically pure; U.S.P. - United States Pharmacopoeia 96.5%

Ref. NFPA13, 2002 Edition

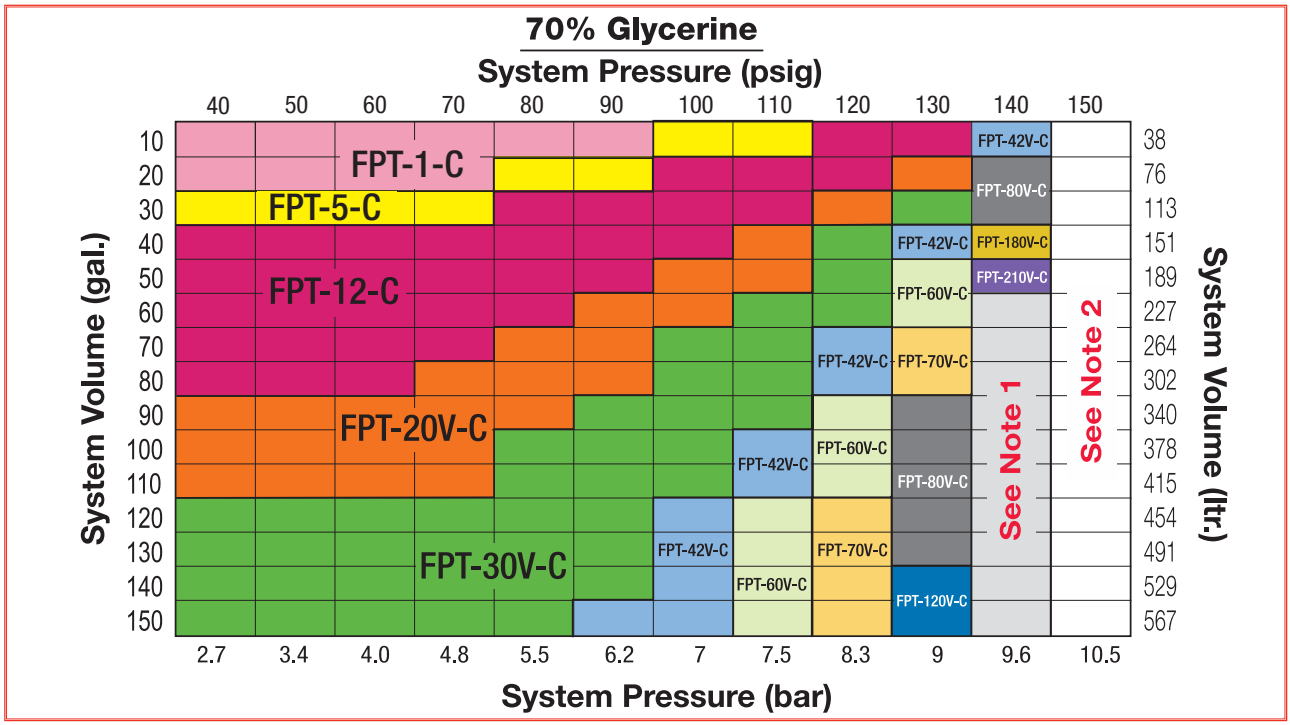
SIZING THE FIRE-X-TROL®

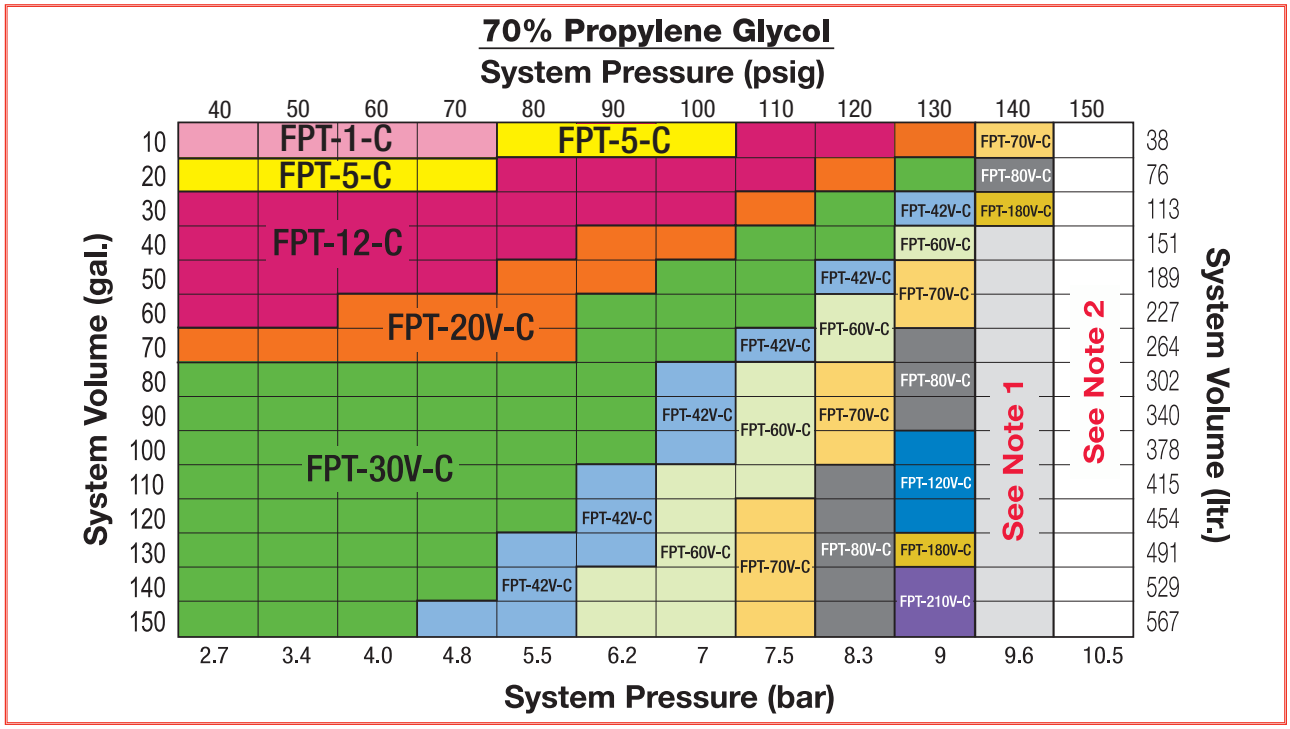
The sizing charts provided can be used to select the appropriate FIRE-X-TROL® for your antifreeze system. These charts can be used for glycerine or propylene glycol 70% by weight or less.

Example for determining FIRE-X-TROL® expansion chamber size:

Antifreeze Solution: 70% Propylene Glycol
System Volume (gal.): 50 gal.
System Pressure: 70 psig

Under these service conditions, a model FPT-12 (C) would be selected.





[1] **AMTROL** recommends installing a pressure reducing valve before the backflow preventer.
[2] The system pressure is too close to the maximum working pressure. NFPA 13 recommends installing a pressure reducing valve before the backflow preventer.

Assumptions: 175 psig (12 bar) Maximum Working Pressure, 100°F (37.7°C) change in temperature, expansion tank precharge 2 psig (0.14 bar) below System Static Pressure.

FIRE-X-TROL® UL® / ASME

Features

- UL® Listed - for use with Fire Protection Anti-Freeze Systems per NFPA 13, 2002 edition.
- Designed, constructed, and tested per ASME Section VIII, Division 1 Standards
- Compatible with antifreeze solutions (Glycerine and Propylene Glycol)
- Broad range of sizes . . . 1.5 to 90 gallons (15-341 lit.)
- Nitrogen or dry air (-50°F/-46°C dew point or lower) pre-charge is separated from the system fluid
- 5X safety factor by design
- Precharged to 25 psig at the factory

Benefits

- Keeps your system and components safe from thermal expansion
- Helps to prevent system from hydraulic lock-up

Materials of Construction

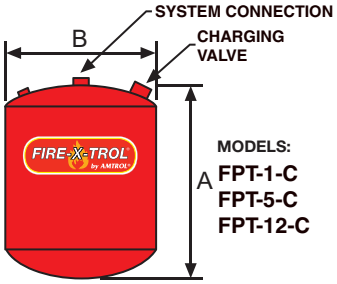
- All Steel Body Construction with Stainless Steel System Connection
- Polypropylene Liner Material
- Diaphragm Material: UL® Certified High-Performance Elastomeric Compound

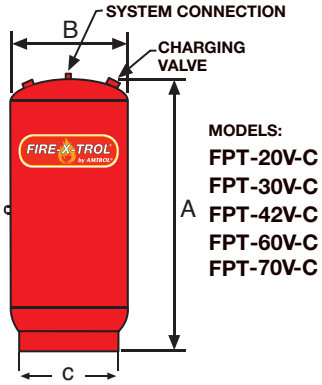
Maximum Operating Conditions

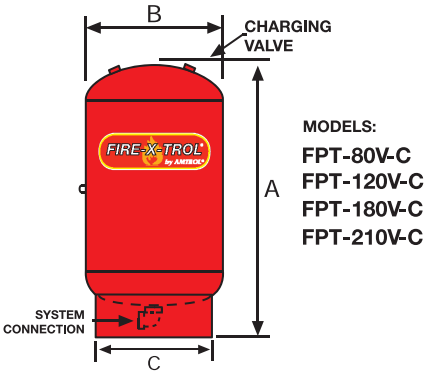
Maximum Working Pressure: 175 psig (12 bar)

Operating Temperature: -20°F (-29°C) to 200°F (93°C)

NOTE: When testing the system, the Fire-X-Trol® must be isolated until the test pressure has been reduced to the line pressure. Failure to do so may damage the diaphragm.







In-Line Models

Model No.	Tank Vol.		Max. Accept Vol. = Gals	A Height		B Diameter		Sys. Conn.	Ship Weight	
	Lit.	Gal.		mm	ins.	mm	ins.	ins.	kg	lbs.
FPT-1-C	5.7	1.5	.69	222	8¾	206	8¼	¾ NPTF	4.3	16
FPT-5-C	8	2.1	.9	264	10⅜	254	10	¾ NPTF	9.5	21
FPT-12-C	24	6.4	3.3	397	15⅝	305	12	¾ NPTF	15.4	36

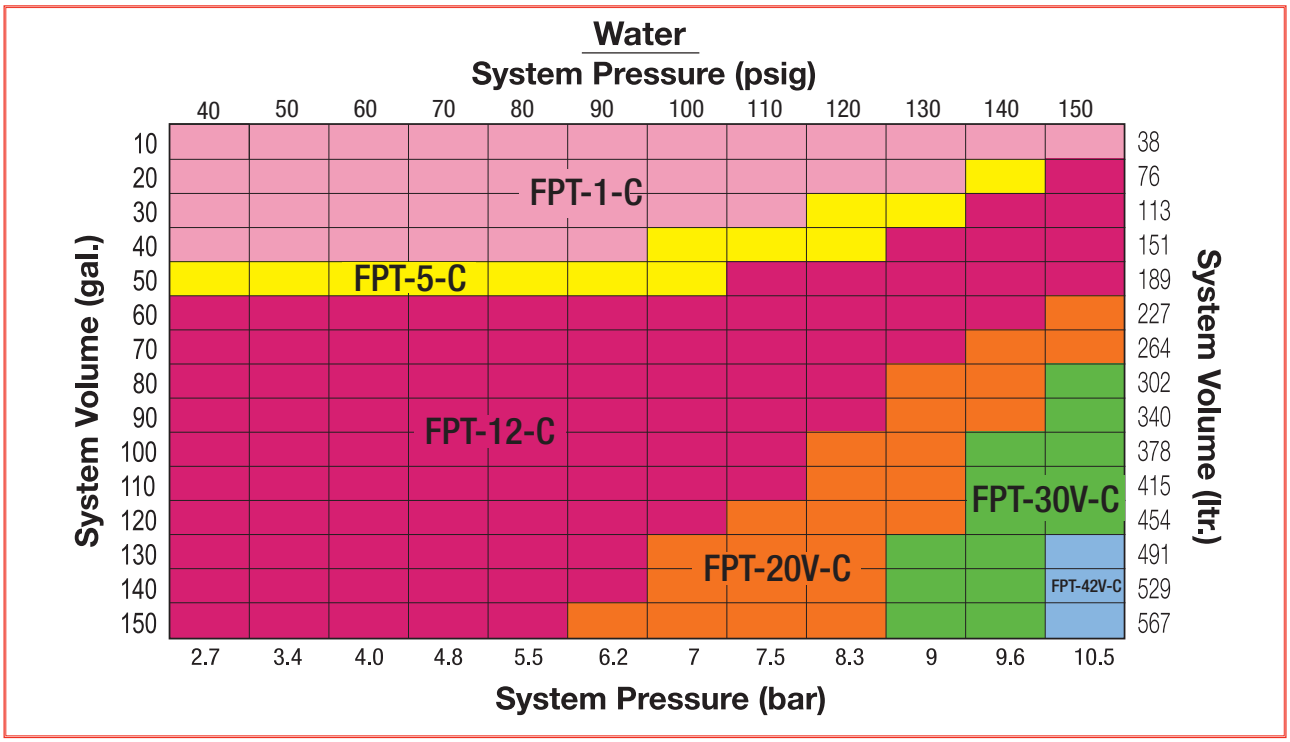
Stand Models

Model No.	Tank Vol.		Max. Accept Vol. = Gals	A Height		B Diameter		C Diameter		Sys. Conn.	Ship Weight	
	Lit.	Gal.		mm	ins.	mm	ins.	mm	ins.	ins.	kg	lbs.
FPT-20V-C	30	8.0	3.3	495	19½	305	12	273	10¾	¾ NPTF	23.6	52
FPT-30V-C	53	14.0	9.0	486	19⅛	419	16¼	324	12¾	¾ NPTF	44	97
FPT-42V-C	66	17.5	11.4	616	24¼	419	16¼	324	12¾	¾ NPTF	52.7	116
FPT-60V-C	95	25.0	11.4	838	33	419	16¼	324	12¾	¾ NPTF	70	154
FPT-70V-C	129	34.0	11.4	1054	41½	419	16¼	324	12¾	¾ NPTF	90	197
FPT-80V-C	200	53.0	34.0	908	35¾	610	24	406	16	1¼ NPTF	114	251
FPT-120V-C	250	66.0	34.0	1111	43¾	610	24	406	16	1¼ NPTF	127.6	281
FPT-180V-C	292	77.0	34.0	1235	48⅝	610	24	406	16	1¼ NPTF	160.3	353
FPT-210V-C	341	90.0	34.0	1410	55½	610	24	406	16	1¼ NPTF	173.4	382

Constructed per ASME Code Section VIII, Division 1. All dimensions and weights are approximate.

All Models are UL® Listed

FIRE-X-TROL® Typical Specifications



1 Please contact AMTROL Technical Services for Fire-X-Trol® vessel sizing for parameters not found on chart.
Assumptions: 175 psig (12 bar) Maximum Working Pressure, 100°F (37.7°C) change in temperature, expansion tank precharge to System Static Pressure.

Typical Specifications

Furnish and install, as shown on plans, an AMTROL FIRE-X-TROL® _____gallon (liter),_____inch (mm) diameter X_____inch (mm) high AMTROL FIRE-X-TROL® Model FPT-(V)_____(-C) wet pipe sprinkler system diaphragm expansion chamber.

The expansion chamber will accommodate the expanded fluid of the system generated within the normal operating temperature range, limiting the pressure increase at those components in the system to the maximum allowable pressure at those components. It shall maintain a minimum operating pressure. Each tank shall have a diaphragm used to isolate the nitrogen or dry air (-50°F/-46°C dewpoint or lower) charge from the fluid.

The expansion chamber shall be welded steel, constructed and tested in accordance with Section VIII, Division 1 of the ASME code for a working pressure of 175 psig (12 bar), factory pre-charged and field adjustable. All welds conforming to ASME Section IX.

Must be UL® (Underwriters' Laboratory) Listed for use with Fire Protection Antifreeze Systems per NFPA 13. Expansion chamber must be compatible with Glycerine (C.P. or U.S.P. Grade) and Propylene Glycol Antifreeze Solutions. The tank shall be supported by steel legs or a base (integral ring mount) for a vertical installation. Each tank shall have a polypropylene liner with stainless steel system connection.

The manufacturer shall be AMTROL Inc. The manufacturer shall have at least five years experience in the fabrication of diaphragm-type ASME expansion tanks.

*Refer to installation manual for warranty information or visit our website at **www.amtrol.com**

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Engineered Products

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