SEGMAN
DETECTION TECHNOLOGIES

DISPOSITIVOS DOSIFICADORES

SOLBERG® FOAM PUMP PROPORTIONER

FEATURES

- **Bronze and stainless steel material construction for performance and durability**
- **Fresh, sea and brackish water compatible**
- **Horizontal or vertical mounted position**

DESCRIPTION

The SOLBERG® Foam Pump Proportioner is a foam solution proportioning device, designed to accurately proportion the foam concentrate into the water stream at both high and low system flow rates. The SOLBERG Foam Pump Proportioner is designed as an integral component of the SOLBERG foam pump proportioning system.

APPLICATION

The SOLBERG Foam Pump Proportioner is designed for open and closed-head foam/water sprinkler systems, foam monitor systems, and other SOLBERG foam discharge devices.

The primary applications for the SOLBERG Foam Pump Proportioner include closed-head foam/water sprinkler systems, protecting risks such as flammable and combustible liquid storage rooms, chemical processing, loading racks, aircraft hangars, and tank farm protection systems using foam chambers.

SPECIFICATIONS

The SOLBERG Foam Pump Proportioner is intended for use with SOLBERG foam concentrates (including ARCTIC 3% AFFF, ARCTIC 3x3 ATC), when used as an integral component of a SOLBERG foam pump proportioning system.

The SOLBERG Foam Pump Proportioner is designed to be installed as a between-the-flange proportioner, in sizes ranging from 2.0” (50 mm) up to and including 10.0” (250 mm) system piping.

The foam concentrate inlet size varies depending on the foam concentrate flow rate and proportioner size selected.

The Foam Pump Proportioner will accurately proportion foam concentrate at flow rates between 30 gpm (110 lpm) up to 6,340 gpm (24000 lpm) for SOLBERG foam concentrates[1].

The SOLBERG Foam Pump Proportioner is manufactured using a bronze body and bronze pressure balancing valve for corrosion resistance. The SOLBERG Foam Pump Proportioner is to be installed with a minimum of 5 pipe diameters (30.0” (762 mm)) of straight pipe both upstream and downstream of the proportioner. The proportioner body is cast with a directional flow arrow on the proportioner body indicating the proper orientation of installation.

[1] The unit will operate with higher flows if the foam system can accept a higher pressure loss.

SOLBERG® FOAM PUMP PROPORTIONER

PERFORMANCE INFORMATION

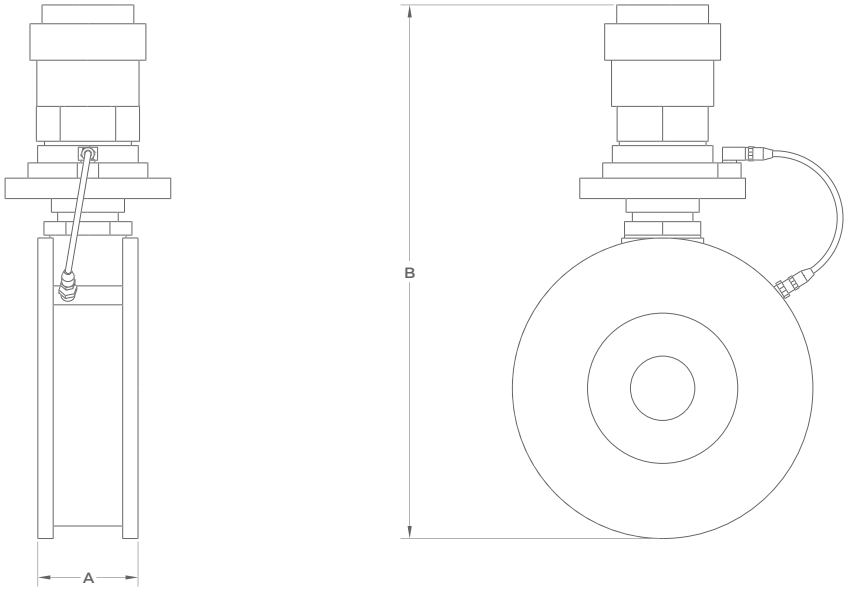
MODEL SFPP	2.0” (50 MM)	3.0” (76 MM)	4.0” (102 MM)
Size	DN 50	DN 80	DN 10
Foam Inlet	DN 20	DN 25	DN 40
Flow Rate (max)	300 gpm (1100 lpm)	792 gpm (3000 lpm)	1585 gpm (6000 lpm)
Flow Rate (min)	29-58 gpm (110-220 lpm)	66-120 gpm (250-450 lpm)	132-238 gpm (500-900 lpm)
Proportioning Rate	SOLBERG Foam Concentrates	SOLBERG Foam Concentrates	SOLBERG Foam Concentrates
Inlet Pressure (max)	232 psi (16 bar)	232 psi (16 bar)	232 psi (16 bar)
Inlet Pressure (min)	43 psi (3 bar)	43 psi (3 bar)	43 psi (3 bar)
Flange Type	DIN PN16	DIN PN16	DIN PN16
Between Flange Proportions (Dimension A)	1.0” (33 mm)	2.0” (50 mm)	2.3” (58 mm)
Height (Dimension B)	6.0” (160 mm)	10.0” (255 mm)	10.0” (255 mm)
Material	Bronze	Bronze	Bronze

MODEL SFPP	6.0” (152 MM)	8.0” (203 MM)	10.0” (254 MM)
Size	DN 150	DN 200	DN 250
Foam Inlet	DN 50	DN 65	DN 80
Flow Rate (max)	3408 gpm (12900 lpm)	4966 gpm (18800 lpm)	6340 gpm (24000 lpm)
Flow Rate (min)	290-490 gpm (1100-1850 lpm)	422-713 gpm (1600-2700 lpm)	528-911 gpm (2000-3450 lpm)
Proportioning Rate	SOLBERG Foam Concentrates	SOLBERG Foam Concentrates	SOLBERG Foam Concentrates
Inlet Pressure (max)	232 psi (16 bar)	232 psi (16 bar)	232 psi (16 bar)
Inlet Pressure (min)	43 psi (3 bar)	43 psi (3 bar)	43 psi (3 bar)
Flange Type	DIN PN16	DIN PN16	DIN PN16
Between Flange Proportions (Dimension A)	3.0” (74 mm)	3.3” (85 mm)	4.0” (100 mm)
Height (Dimension B)	312.0” (10 mm)	14.0” (355 mm)	17.0” (430 mm)
Material	Bronze	Bronze	Bronze

Note: Over pressurization of 14.5 psi (1 bar) minimum is required on the foam concentrate side.

SOLBERG® FOAM PUMP PROPORTIONER

DIMENSIONAL INFORMATION



ORDERING INFORMATION

FOAM PUMP PROPORTIONER		SHIPPING WEIGHT	
PART NO.	DESCRIPTION	lb	kg
30204	Solberg Foam Pump Proportioner, Model SFPP 2.0” (50 mm)	12	5
30205	Solberg Foam Pump Proportioner, Model SFPP 3.0” (76 mm)	15	7
30206	Solberg Foam Pump Proportioner, Model SFPP 4.0” (102 mm)	18	8
30207	Solberg Foam Pump Proportioner, Model SFPP 6.0” (152 mm)	32	14
30208	Solberg Foam Pump Proportioner, Model SFPP 8.0” (203 mm)	60	27
30209	Solberg Foam Pump Proportioner, Model SFPP 10.0” (254 mm)	80	36

Perimeter SOLUTIONS
Quality Products. Exceptional Response.

Solutions That Save.

SOLBERG® FOAM RATIO CONTROLLER (Between Flange)

SOLBERG

FEATURES

- **Compatible with all type foam concentrates**
- **Fresh or saltwater use**
- **Proportions at 1%, 3% or 6%**
- **Vertical or horizontal position for installation versatility**
- **Bronze construction for durability and performance**

DESCRIPTION

SOLBERG® Ratio Controllers are modified venturi devices designed to meter the correct amount of foam concentrate into a water stream over a specified range of flow and pressure rates with minimal pressure loss. The ratio controller consists of three components: the body with water inlet, metering orifice located in the foam concentrate inlet, and throat (nozzle) located downstream from the water inlet. The ratio controller is manufactured in four sizes 3.0", 4.0", 6.0" and 8.0" (76 mm, 102 mm, 152 mm, 203 mm).

Application

SOLBERG Ratio Controllers are commonly used in bladder tank systems, balanced or inline balanced* pressure proportioning systems for aircraft hangars, loading racks, tank farms, and foam-water sprinkler systems.

Specifications

The SOLBERG Ratio Controller is designed for installation between two Class 150 flanges of the same nominal size as the ratio controller. The components are constructed of ASTM 85-5-5-5 bronze and the inlet is tapered and machined to a smooth finish to maximize water stream efficiency. The inlet nozzle and metering orifice are secured by a stainless steel retaining ring. The foam concentrate inlet has a female NPT thread and contains a foam concentrate metering orifice to proportion over the specified flow range without any manual adjustment. The SOLBERG Foam Ratio Controller is to be installed with a minimum of 5 pipe diameters of straight pipe both upstream and downstream of the proportioner.

CERTIFICATIONS

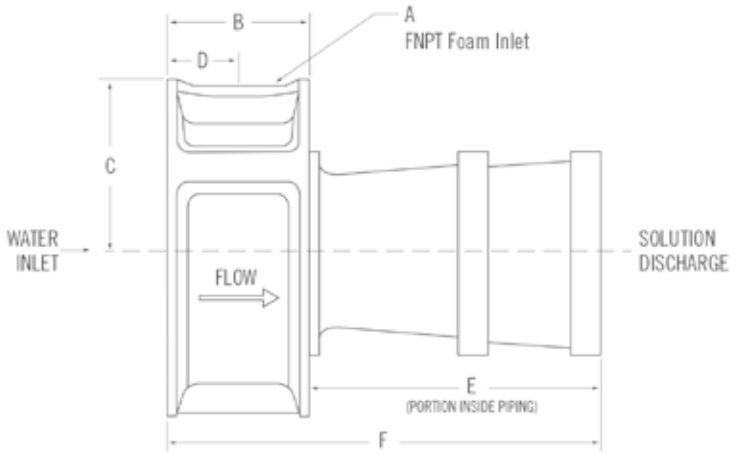
Underwriters Laboratories, Inc. (UL) Listed – Standard 162, FM Approved per Approval Standard 5130.

*Not an FM Approved Configuration

SOLBERG® FOAM RATIO CONTROLLER (Between Flange)

DIMENSIONAL INFORMATION

MODEL	APPROXIMATE DIMENSIONS Inches (Millimeters)						STANDARD CONCENTRATE LINE SIZES
	A	B	C	D	E	F	
3.0" SRCW	1.25 (32)	2.38 (60)	2.63 (67)	1.25 (32)	3.75 (95)	6.13 (156)	1.25
4.0" SRCW	1.50 (38)	2.63 (67)	3.38 (86)	1.31 (33)	5.38 (137)	8.00 (203)	1.50
6.0" SRCW	2.00 (51)	3.25 (83)	4.25 (108)	1.63 (41)	8.75 (222)	12.00 (305)	2.00
8.0" SRCW	2.50 (64)	3.50 (89)	5.25 (133)	1.75 (44)	8.50 (216)	12.00 (305)	2.50



Note: 1%, 3% or 6% proportioning and type of foam concentrate to be specified by customer.

FLOW RANGE

MODEL	CONFIGURATION	UL LISTED - NOMINAL FLOW				
		SOLBERG RE-HEALING RF3, 3% gpm (lpm)	SOLBERG ARCTIC 1% SP AFFF gpm (lpm)	SOLBERG ARCTIC 3% AFFF gpm (lpm)"	SOLBERG ARCTIC 3% MIL-SPEC AFFF gpm (lpm)"	SOLBERG ARCTIC 3x3% ATC gpm (lpm)"
3.0" SRCW	Between Flange	423-689 (1601-2608)	78-736 (295-2786)	93-768 (352-2907)	96-550 (363-2082)	206-812 (780-3074)
4.0" SRCW	Between Flange	752-1257 (2847-4758)	140-1360 (530-5148)	207-1532 (784-5799)	210-1335 (795-5053)	329-1530 (1245-5792)
4.0" SRCW	Between Flange	595-1335 (2252-5054)	-	-	-	-
6.0" SRCW	Between Flange	1019-1845 (3857-6984)	388-2830 (1469-10713)	318-2680 (1204-10145)	295-2250 (1117-8516)	736-2667 (2786-10096)
6.0" SRCW	Between Flange	1564-2027 (5920-7673)	-	-	-	-
8.0" SRCW	Between Flange	1909-4718 (7223-17860)	630-4920 (2385-18624)	975-4355 (3691-16485)	975-4250 (3690-16086)	1670-4590 (6322-17375)

MODEL	CONFIGURATION	FM APPROVED - NOMINAL FLOW	
		SOLBERG RE-HEALING RF3, 3% gpm (lpm)	SOLBERG RE-HEALING RF3, 3% gpm (lpm)
3.0" SRCW	Between Flange	490-665 (1855-2517)	206-785 (780-2971)
4.0" SRCW	Between Flange	700-1215 (2650-4600)	238-1153 (900-4365)
6.0" SRCW	Between Flange	1310-1955 (4960-7552)	730-2245 (2763-8498)

SOLBERG® FOAM RATIO CONTROLLER (Between Flange)

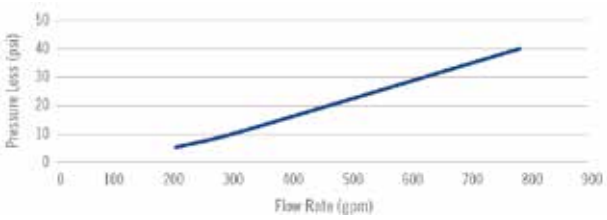
PRESSURE LOSS CURVES

NOMINAL FLOW RATES

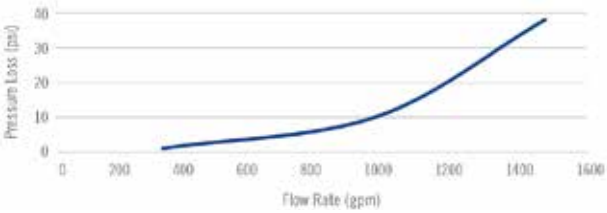
UL LISTED
NOMINAL FLOW RATES

RE-HEALING RF3, 3% FOAM CONCENTRATE

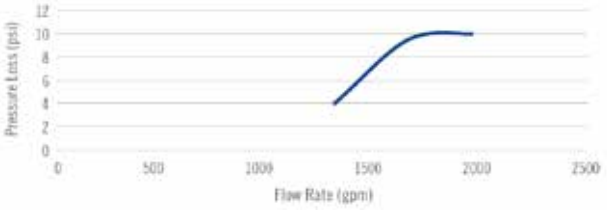
3 Inch Ratio Controller



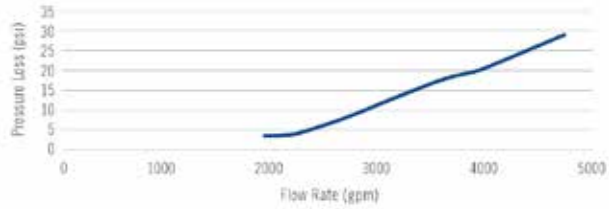
4 Inch Ratio Controller



6 Inch Ratio Controller



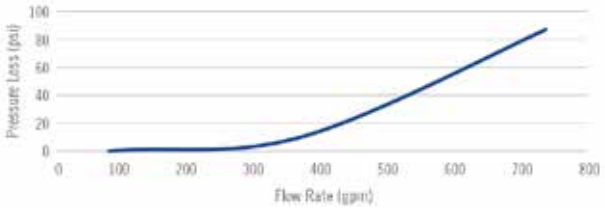
8 Inch Ratio Controller



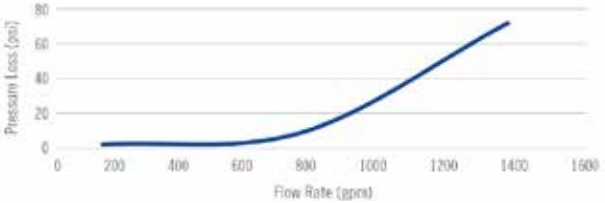
UL LISTED
NOMINAL FLOW RATES

ARCTIC™ 1% SP FOAM CONCENTRATE

3 Inch Ratio Controller



4 Inch Ratio Controller



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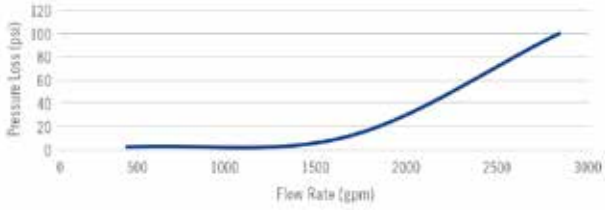

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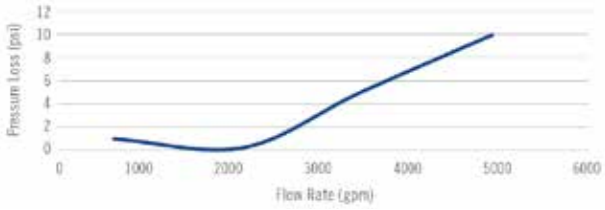


SOLBERG® FOAM RATIO CONTROLLER (Between Flange)

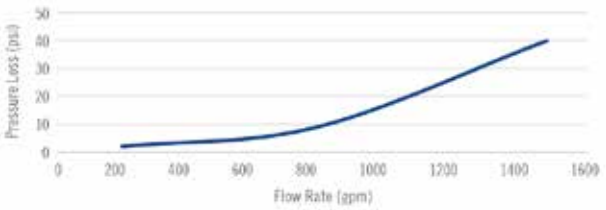
PRESSURE LOSS CURVES

NOMINAL FLOW RATES

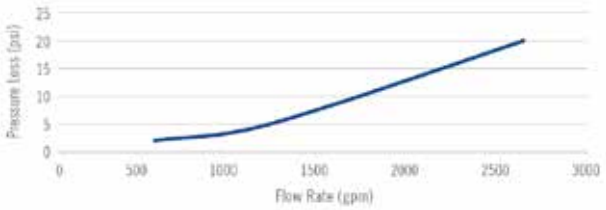
UL LISTED
NOMINAL FLOW RATES

ARCTIC™ 1% AFFF FOAM CONCENTRATE

3 Inch Ratio Controller



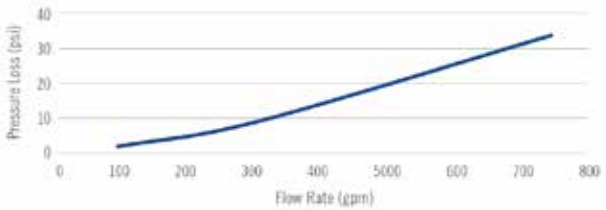
4 Inch Ratio Controller



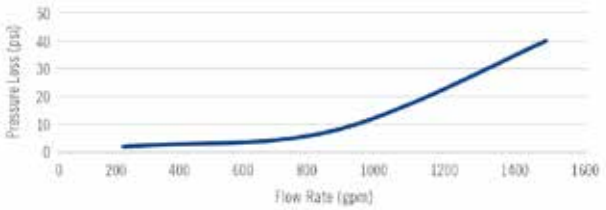
UL LISTED
NOMINAL FLOW RATES

ARCTIC™ 3% AFFF FOAM CONCENTRATE

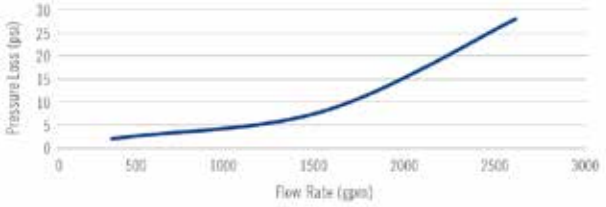
3 Inch Ratio Controller



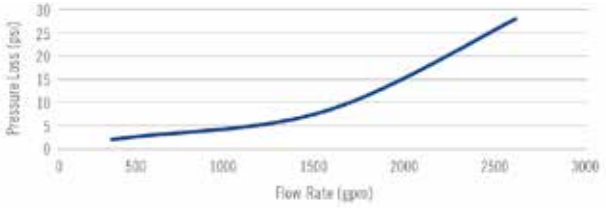
4 Inch Ratio Controller



6 Inch Ratio Controller



8 Inch Ratio Controller



SOLBERG® FOAM RATIO CONTROLLER (Between Flange)

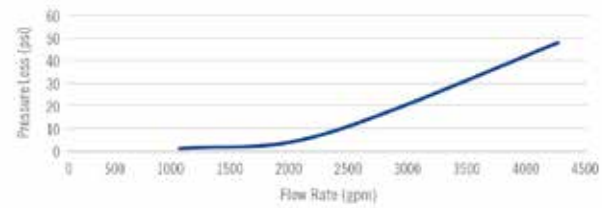
PRESSURE LOSS CURVES

NOMINAL FLOW RATES

UL LISTED
NOMINAL FLOW RATES

ARCTIC™ 3% MIL-SPEC FOAM CONCENTRATE

3 Inch Ratio Controller



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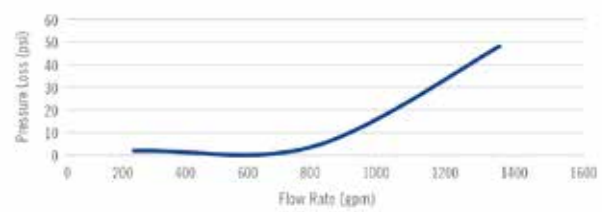

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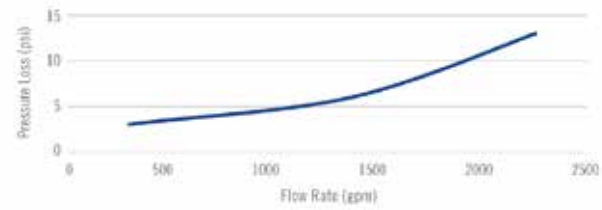
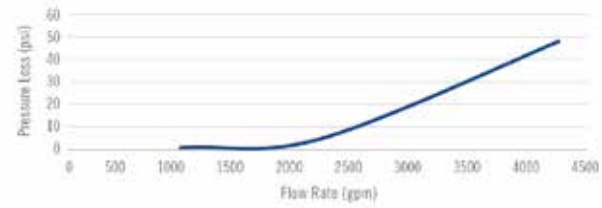


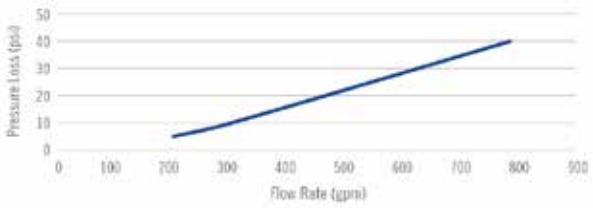
8 Inch Ratio Controller



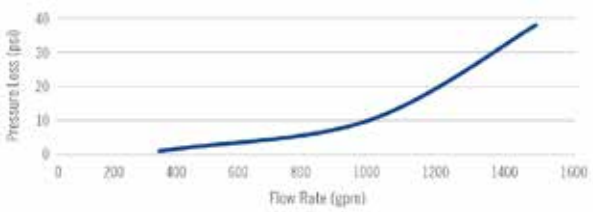
UL LISTED
NOMINAL FLOW RATES

ARCTIC™ 3X3% ATC™ FOAM CONCENTRATE

3 Inch Ratio Controller



4 Inch Ratio Controller



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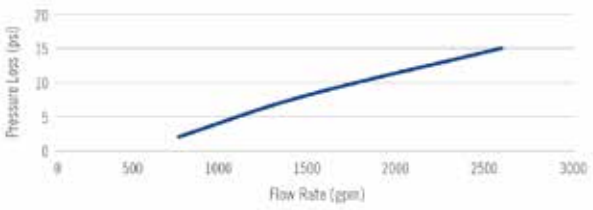
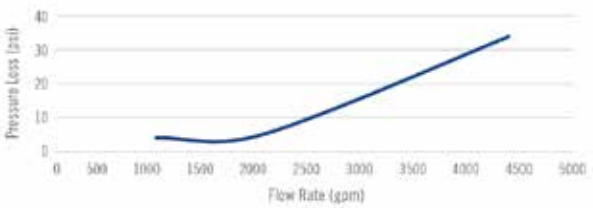


8 Inch Ratio Controller



SOLBERG® FOAM RATIO CONTROLLER (Between Flange)

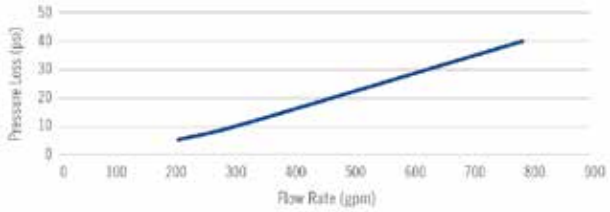
PRESSURE LOSS CURVES

NOMINAL FLOW RATES

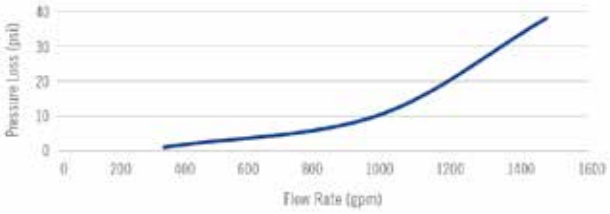
FM APPROVED
NOMINAL FLOW RATES

RE-HEALING RF3, 3% FOAM CONCENTRATE

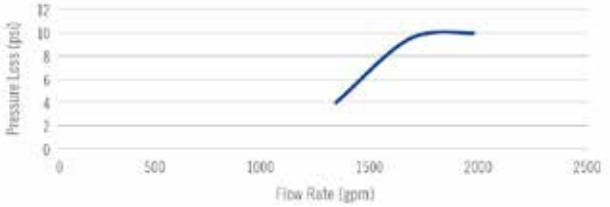
3 Inch Ratio Controller



4 Inch Ratio Controller



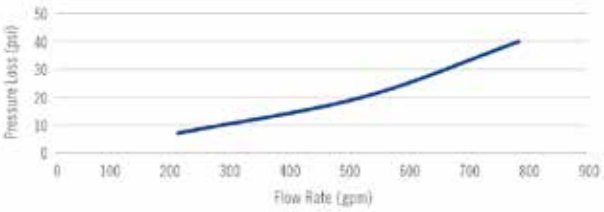
6 Inch Ratio Controller



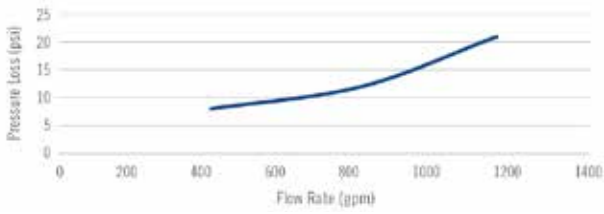
FM APPROVED
NOMINAL FLOW RATES

ARCTIC™ 3X3% ATC™ FOAM CONCENTRATE

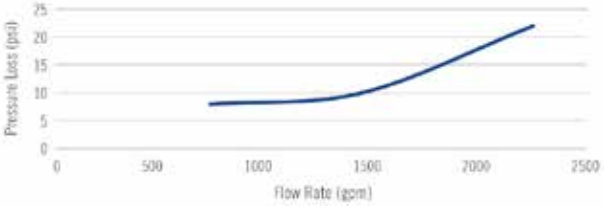
3 Inch Ratio Controller



4 Inch Ratio Controller



6 Inch Ratio Controller



SOLBERG® FOAM RATIO CONTROLLER (Between Flange)

ORDERING INFORMATION

RATIO CONTROLLERS / BETWEEN FLANGE		APPROXIMATE SHIPPING WEIGHT	
PART NO.	DESCRIPTION	lb	kg
30104	Ratio Controller - Between Flange, 3.0" (76 mm), SOLBERG RE-HEALING RF3, 3%	10	4
30108	Ratio Controller - Between Flange, 3.0" (76 mm), SOLBERG RE-HEALING RF6, 6%	10	4
30112	Ratio Controller - Between Flange, 3.0" (76 mm), SOLBERG HIGH-EXPANSION	10	4
30120	Ratio Controller - Between Flange, 3.0" (76 mm), SOLBERG ARCTIC 1% SP AFFF	10	4
30121	Ratio Controller - Between Flange, 3.0" (76 mm), SOLBERG ARCTIC 3% AFFF	10	4
30123	Ratio Controller - Between Flange, 3.0" (76 mm), SOLBERG ARCTIC 3% MIL-SPEC AFFF	10	4
30122	Ratio Controller - Between Flange, 3.0" (76 mm), SOLBERG ARCTIC 3x3% ATC	10	4
30105	Ratio Controller - Between Flange, 4.0" (102 mm), SOLBERG RE-HEALING RF3, 3%	16	7
30109	Ratio Controller - Between Flange, 4.0" (102 mm), SOLBERG RE-HEALING RF6, 6%	16	7
30113	Ratio Controller - Between Flange, 4.0" (102 mm), SOLBERG HIGH-EXPANSION	16	7
30130	Ratio Controller - Between Flange, 4.0" (102 mm), SOLBERG ARCTIC 1% AFFF	16	7
30134	Ratio Controller - Between Flange, 4.0" (102 mm), SOLBERG ARCTIC 1% SP AFFF	16	7
30131	Ratio Controller - Between Flange, 4.0" (102 mm), SOLBERG ARCTIC 3% AFFF	16	7
30133	Ratio Controller - Between Flange, 4.0" (102 mm), SOLBERG ARCTIC 3% MIL-SPEC AFFF	16	7
30132	Ratio Controller - Between Flange, 4.0" (102 mm), SOLBERG ARCTIC 3x3% ATC	16	7
30106	Ratio Controller - Between Flange, 6.0" (152 mm), SOLBERG RE-HEALING RF3, 3%	32	14
30110	Ratio Controller - Between Flange, 6.0" (152 mm), SOLBERG RE-HEALING RF6, 6%	32	14
30114	Ratio Controller - Between Flange, 6.0" (152 mm), SOLBERG HIGH-EXPANSION	32	14
30140	Ratio Controller - Between Flange, 6.0" (152 mm), SOLBERG ARCTIC 1% AFFF	32	14
30144	Ratio Controller - Between Flange, 6.0" (152 mm), SOLBERG ARCTIC 1% SP AFFF	32	14
30141	Ratio Controller - Between Flange, 6.0" (152 mm), SOLBERG ARCTIC 3% AFFF	32	14
30143	Ratio Controller - Between Flange, 6.0" (152 mm), SOLBERG ARCTIC 3% MIL-SPEC AFFF	32	14
30142	Ratio Controller - Between Flange, 6.0" (152 mm), SOLBERG ARCTIC 3x3% ATC	32	14
30107	Ratio Controller - Between Flange, 8.0" (203 mm), SOLBERG RE-HEALING RF3, 3%	53	24
30111	Ratio Controller - Between Flange, 8.0" (203 mm), SOLBERG RE-HEALING RF6, 6%	53	24
30115	Ratio Controller - Between Flange, 8.0" (203 mm), SOLBERG HIGH-EXPANSION	53	24
30150	Ratio Controller - Between Flange, 8.0" (203 mm), SOLBERG ARCTIC 1% SP AFFF	53	24
30151	Ratio Controller - Between Flange, 8.0" (203 mm), SOLBERG ARCTIC 3% AFFF	53	24
30153	Ratio Controller - Between Flange, 8.0" (203 mm), SOLBERG ARCTIC 3% MIL-SPEC AFFF	53	24
30152	Ratio Controller - Between Flange, 8.0" (203 mm), SOLBERG ARCTIC 3x3% ATC	53	24

SOLBERG® S-ZF BETWEEN FLANGE INDUCTORS

FEATURES

- **Fixed between-flange installation**
- **High back pressure**
- **High suction height**
- **Can be customized to handle various flow rates**
- **Compatible with alcohol resistant foam concentrates**

DESCRIPTION

The SOLBERG S-ZF Inductor is used to mix foam concentrate with water when the foam concentrate is supplied from a tank at atmospheric pressure. The S-ZF inductor can be installed in deluge systems where sprinklers are used, such as aircraft hangars and storage facilities. The inductor(s) are connected to the water line.

APPLICATION

The S-ZF inductor can be installed in all fixed flow systems, especially in areas where deluge nozzles are used such as storage facilities and aircraft hangars.

OPERATION/INSTALLATION

The S-ZF is installed inside the pipe work between two flanges. The S-ZF works using the venturi principle (i.e., foam concentrate is sucked into the inductor without using a foam pump). Both low and high viscosity foam concentrates can be used in conjunction with the S-ZF. Depending on the requested flow, pressure, foam concentrate type and proportioning ratio, the inductor will be equipped with the exact orifice at the entry of the foam pipe.

Induction performance and suction height can be adjusted up to a physical limit of approximately 26.0' (8.0 m). To ensure correct proportioning over the designed flow range of the inductor, the minimum water inlet pressure shall be 58 psi (4 bar) during operation of the system.

Note: review inductor dimension tables for information on the minimum recommended length of straight pipe required upstream and downstream from the controller.

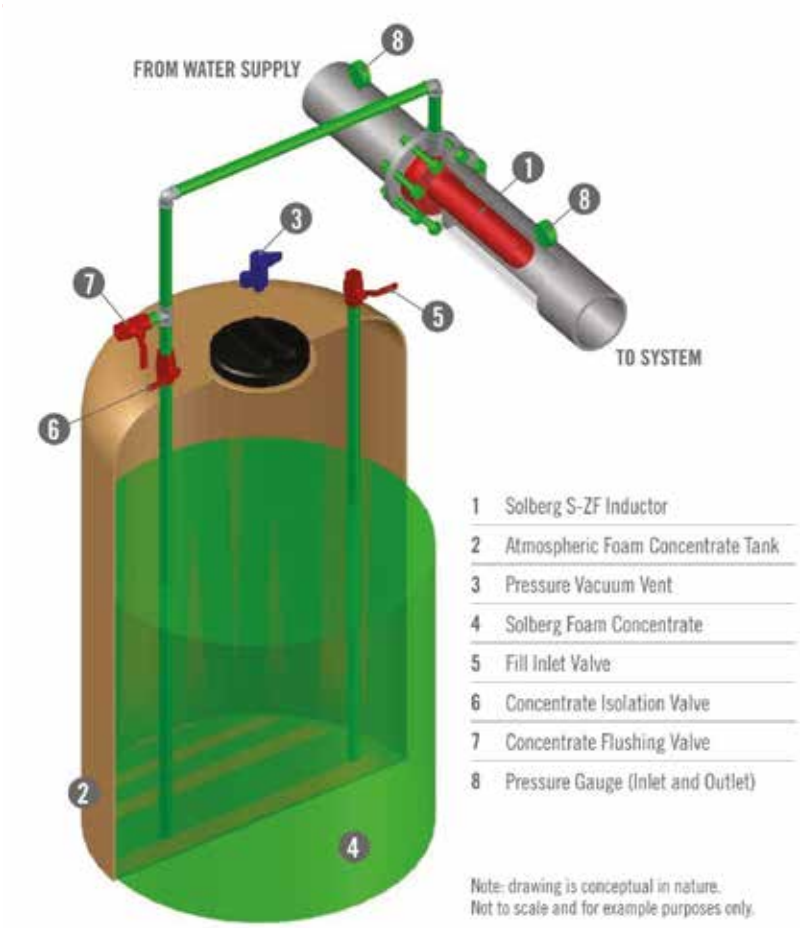
OPTIONAL

SOLBERG S-ZF inductor can be customized to handle a variety of flow rates as well as high viscous alcohol resistant concentrates.

INDUCTORS WITHOUT BALANCING VALVE

To obtain a 34% pressure drop over the inductor and get the inductors proper function, the system after the inductor shall have a K-factor which is 27% higher than the K-factor of the inductor when using a 3% foam concentrate and 30.5 % higher when using a 6% foam concentrate. If the K-factor, on the system after the inductor, is less than 1.22 x the K-factor of the inductor, the suction ceases completely.

SOLBERG® S-ZF BETWEEN FLANGE INDUCTORS



ORIFICE CALCULATION

$$\frac{(Qv + Qs)\ \sqrt{H}}{Qv\ \sqrt{0.66\ H}} = A$$

Qs = 1 %, 3% or 6%

Qv = Water flow

Qs = Foam Concentrate flow

H = Water pressure before the inductor

A = Orifice diameter

ORDER REQUIREMENTS

Each inductor is factory calibrated to match the specific system requirements. To ensure that the correct performance is achieved, the following parameters must be defined at time of order placement:

- Inlet pressure
- Total system flow
- Foam type & viscosity
- Mixing percentage
- Suction height
- Horizontal suction pipe length

ORDERING INFORMATION

S-ZF BETWEEN FLANGE INDUCTORS		APPROXIMATE SHIPPING WEIGHT	
PART NO.	DESCRIPTION	lb	kg
30220	S-ZF Between Flange Inductor, 1.5" (DN40)	7	3
30221	S-ZF Between Flange Inductor, 2.0" (DN50)	9	4
30222	S-ZF Between Flange Inductor, 2.5" (DN65)	9	4
30223	S-ZF Between Flange Inductor, 3.0" (DN80)	14	6
30224	S-ZF Between Flange Inductor, 4.0" (DNIOO)	16	7
30225	S-ZF Between Flange Inductor, 6.0" (DN150)	47	21
30226	S-ZF Between Flange Inductor, 8.0" (DN200)	89	40
30227	S-ZF Between Flange Inductor, 8.0"-S (DN201)	102	46

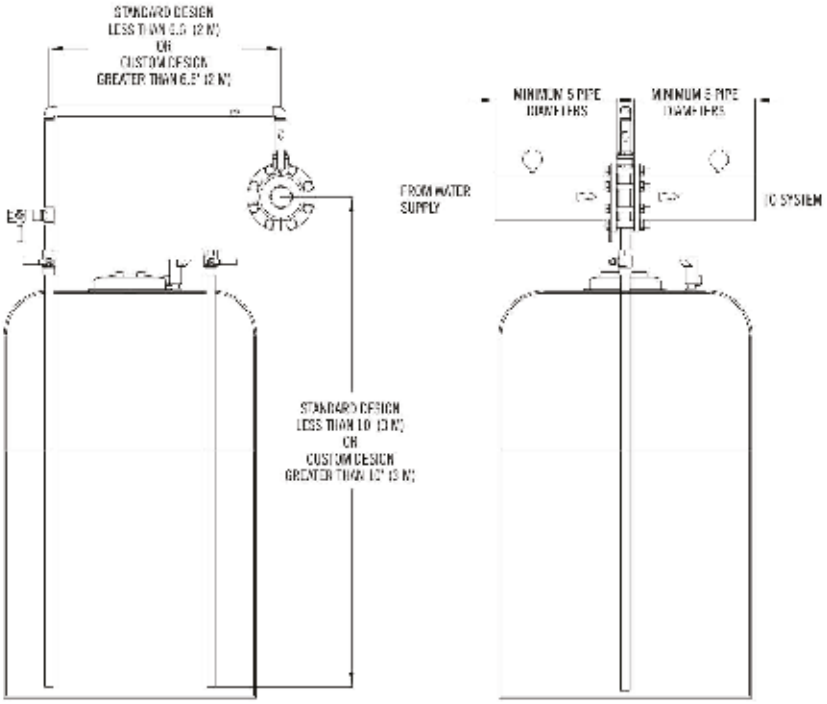
SOLBERG® S-ZF BETWEEN FLANGE INDUCTORS

INDUCTOR SPECIFICATIONS

Part Number	30220	30221	30222	30223	30224	30225	30226	30227
Size	1.5"	2.0"	2.5"	3.0"	4.0"	6.0"	8.0"	8.0"-S
Max Flow Rate gpm (lpm)	127 (480)	265 (1000)	423 (1600)	529 (2000)	872 (3300)	1744 (6600)	2616 (9900)	4359 (16500)
Min Flow rate gpm (lpm)	22 (80)	32 (120)	64 (240)	96 (360)	146 (550)	291 (1100)	436 (1650)	436 (1650)
Max Inlet pressure psi (bar)	233 (16)	233 (16)	233 (16)	233 (16)	233 (16)	233 (16)	233 (16)	233 (16)
Min Inlet pressure psi (bar)	59 (4)	59 (4)	59 (4)	59 (4)	59 (4)	59 (4)	59 (4)	59 (4)
Pressure drop	35%	35%	35%	35%	35%	35%	35%	35%
K Factor gpm (lpm)	2.9-8.4 (40-120)	4.2-17.4 (60-180)	8.4-27.8 (120-400)	12.5-34.7 (180-500)	19.1-57.2 (275-1000)	37.9-114.3 (550-2000)	56.8-171.4 (825-3000)	56.8-285.6 (1375-5000)
Proportioning rate	1, 3 or6%	1, 3 or6%	1, 3 or6%	1, 3 or6%	1, 3 or6%	1, 3 or6%	1, 3 or6%	1, 3 or6%
Suction height (max)	10' (3 m)	10' (3 m)	10' (3 m)	10' (3 m)	10' (3 m)	10' (3 m)	10' (3 m)	10' (3 m)
Flange type PN16*	1.5" (DN40)	2" (DN50)	2.5" (DN65)	3" (DN80)	4" (DNIO0)	6" (DN150)	8" (DN200)	8" (DN201)
Pipe length up & down stream	5x0	5x0	5x0	5x0	5x0	5x0	5x0	5x0
Weight lbs (kg)	7 (3)	9 (4)	9 (4)	14 (6)	16 (7)	47 (21)	89 (40)	102 (46)
Material	Bronze	Bronze	Bronze	Bronze	Bronze	Bronze	Bronze	Bronze

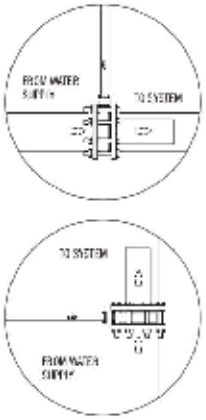
* 4.0" to 8.0" size flange fits ANSI #150 but 1.5",2.0",2.5" and 3.0" needs machining to fit

TYPICAL DESIGN LAYOUT



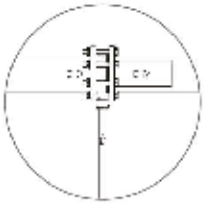
Note: drawing is conceptual in nature. Not to scale and for example purposes only.

ADVISABLE POSITIONS



NON-ADVISABLE POSITION

(Dirt can collect on the check valve in this position)

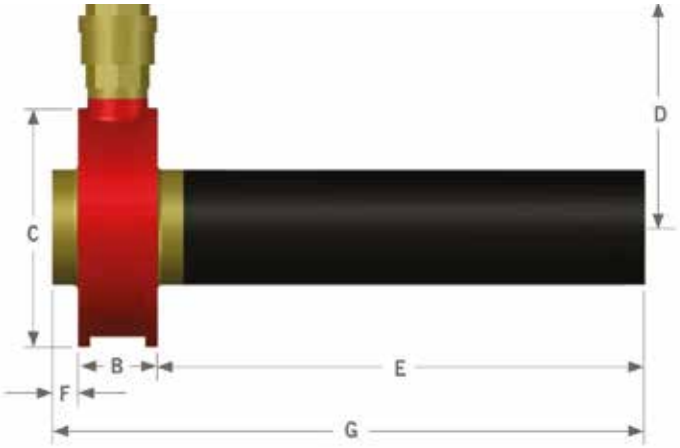


SOLBERG® S-ZF BETWEEN FLANGE INDUCTORS

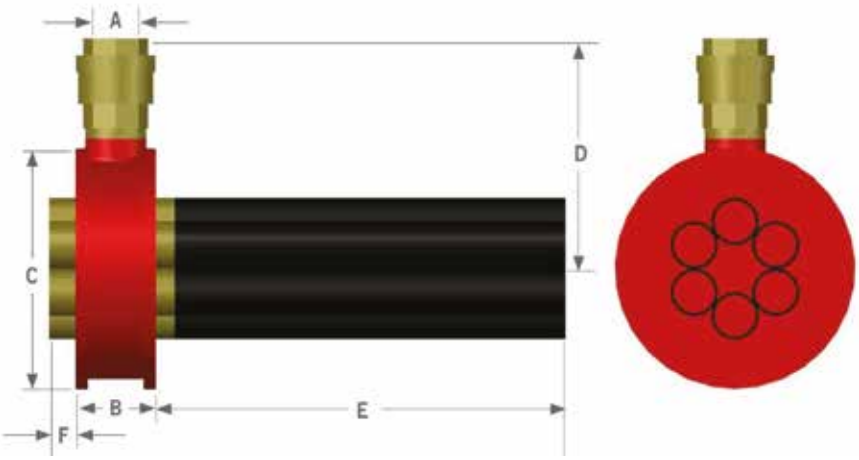
DIMENSIONAL INFORMATION

	APPROXIMATE DIMENSIONS Inches (Millimeters)							
Part Number	30220	30221	30222	30223	30224	30225	30226	30226
Foam inlet (A)	3/4"	3/4"	l"	l"	l½"	2"	2½"	2½"
Between Flange Proportions (B)	1.5 (38)	1.5 (38)	1.8 (45)	2.1 (52)	2.3 (58)	2.8 (70)	3.4 (85)	3.4 (85)
Body size (C)	3.6 (91)	4.2 (106)	5 (126)	5.7 (143)	6.3 (160)	8.5 (215)	10.7 (270)	10.7 (270)
Height (D)	4.5 (112)	4.8 (120)	5.4 (137)	5.9 (148)	7.4 (187)	9.1 (230)	13.4 (340)	13.4 (340)
Length (E)	8.8 (223)	8.8 (223)	14.2 (360)	14.2 (360)	13.6 (343)	13.2 (335)	13 (330)	13 (330)
Length (F)	0.5 (12)	0.5 (12)	0.6 (15)	0.4 (9)	0.8 (20)	1 (25)	0.8 (20)	0.8 (20)
Total Length (G)	10.8 (273)	10.8 (273)	16.6 (420)	16.6 (421)	16.6 (421)	17 (430)	17.2 (435)	17.2 (435)

SINGLE BARREL



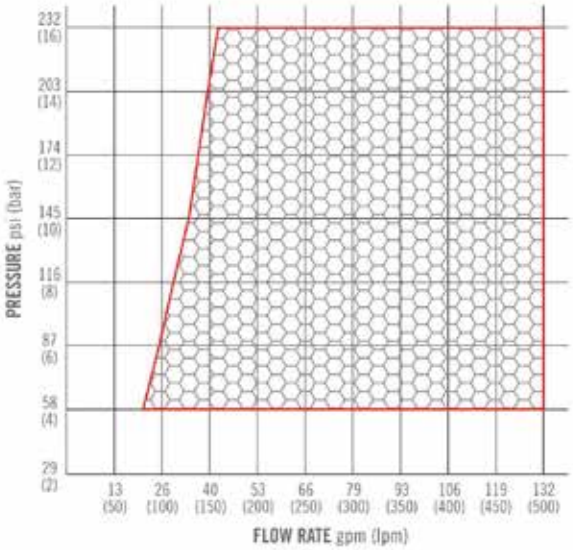
MULTIPLE BARREL



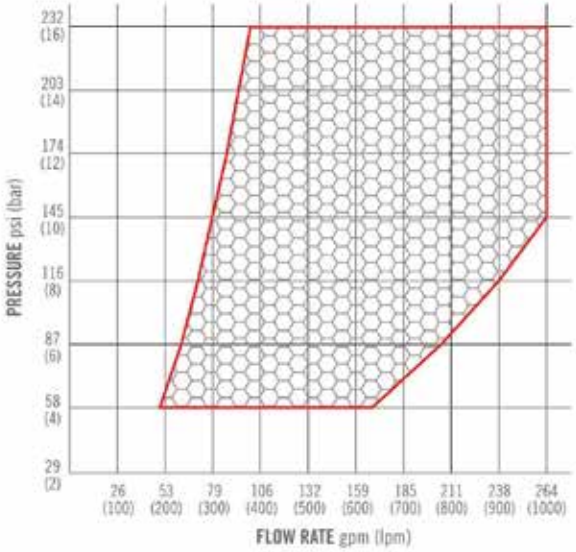
SOLBERG® S-ZF BETWEEN FLANGE INDUCTORS

PRESSURE LOSS CURVES

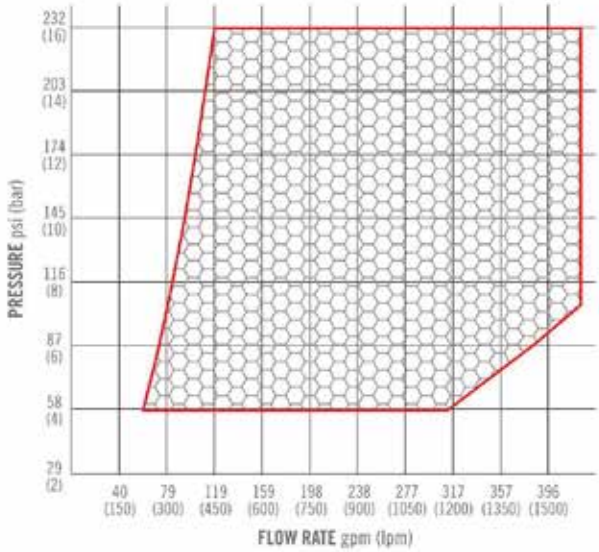
S-ZF 1.5”



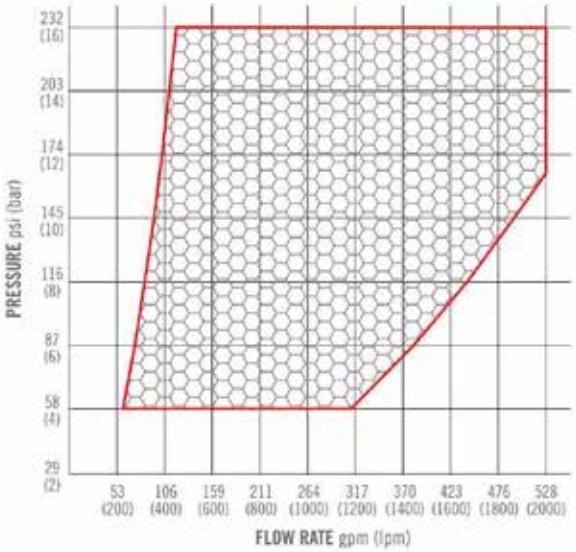
S-ZF 2.0”



S-ZF 2.5”



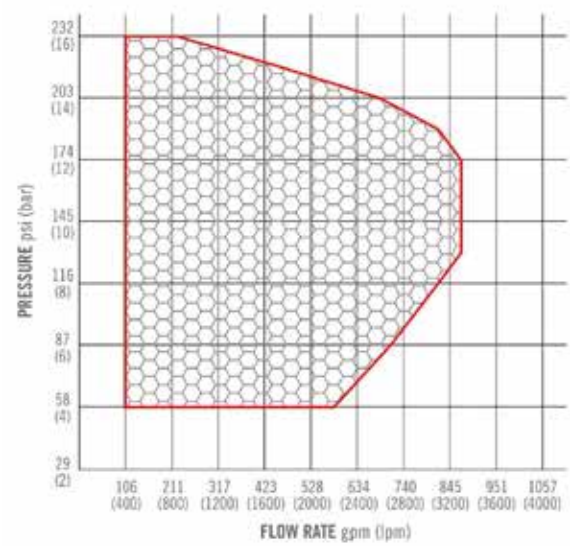
S-ZF 3.0”



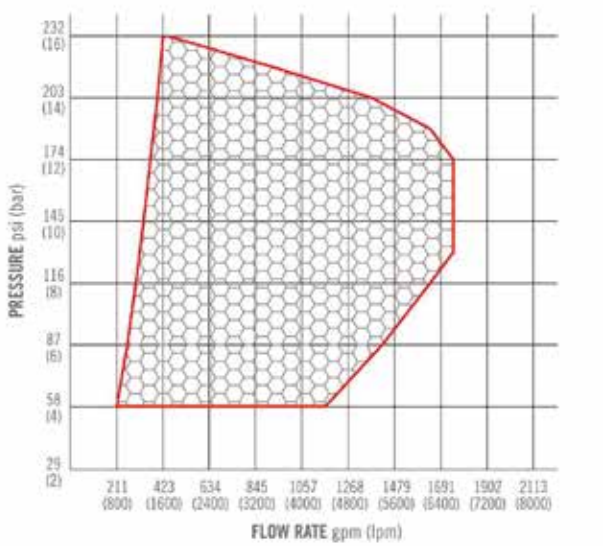
SOLBERG® S-ZF BETWEEN FLANGE INDUCTORS

PRESSURE LOSS CURVES

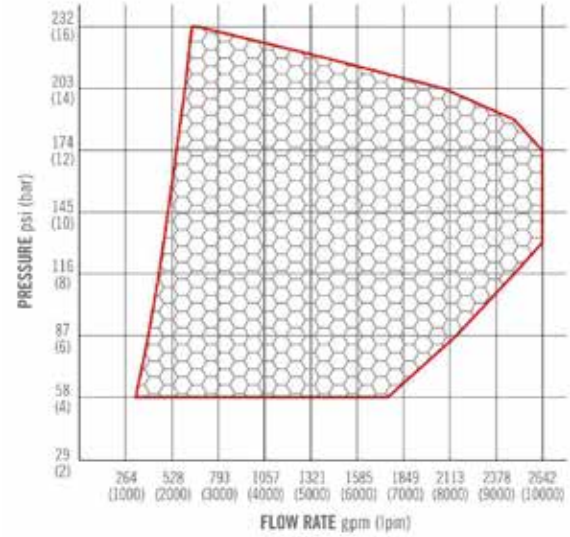
S-ZF 4.0”



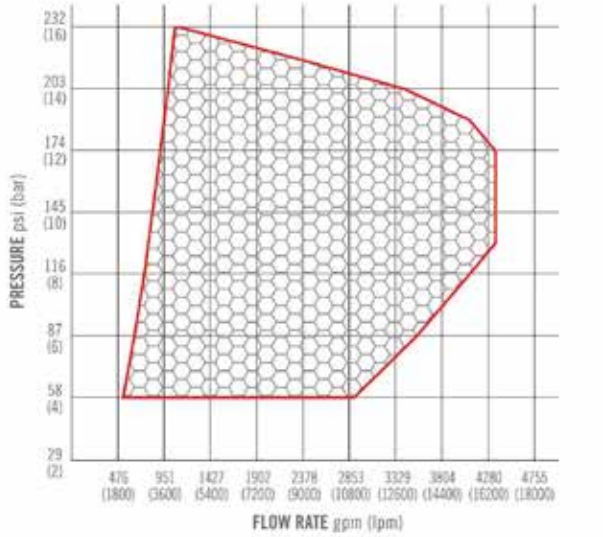
S-ZF 6.0”



S-ZF 8.0”



S-ZF 8.0” S



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THREADED PROPORTIONER

FEATURES

- **Bronze material construction for performance and durability**
- **Fresh or saltwater compatible**
- **Horizontal or vertical mounted position**

DESCRIPTION

Perimeter Solutions Threaded Proportioners are modified venturi ratio controllers that accurately mix and meter

foam concentrate into fire-water streams. Each proportioner consists of the following components: body, inlet nozzle, and metering orifice constructed out of ASTM 85-5-5-5 bronze material. The proportioner is designed with a male NPT threaded inlet and a male threaded outlet in sizes of 2.0" and 2.5", with the flow direction arrow clearly marked. During operation, water flows through the modified venturi to create an area of lower pressure which is directly effected by the water velocity as it flows through the ratio controller.

APPLICATION

Typical high-hazard, high-risk applications including flammable liquid storage tanks, loading racks, aircraft hangars, heliports and anywhere flammable liquids are used, stored, processed, or transported.

You can count on Perimeter Solutions Threaded Proportioners to correctly proportion and properly handle the mixing of SOLBERG foam concentrates into a water stream with little pressure loss. SOLBERG Threaded Proportioners are UL listed when used with Solberg foam concentrates and can be used with bladder tank systems and inline balanced pressure proportioning systems.

SPECIFICATIONS

Each Perimeter Solutions Threaded Proportioners body and inlet nozzle is made of bronze with the inlet nozzle and orifice being secured by a stainless retaining ring. The inlet and outlet of the proportioner body is to be a male NPT with clear markings indicating flow direction and concentrate type. The inlet nozzle is designed with a rounded inlet and a smooth machined finish to ensure minimum stream constriction and maximum velocity. The metering orifice is designed to the proper diameter for the specific foam concentrate type.

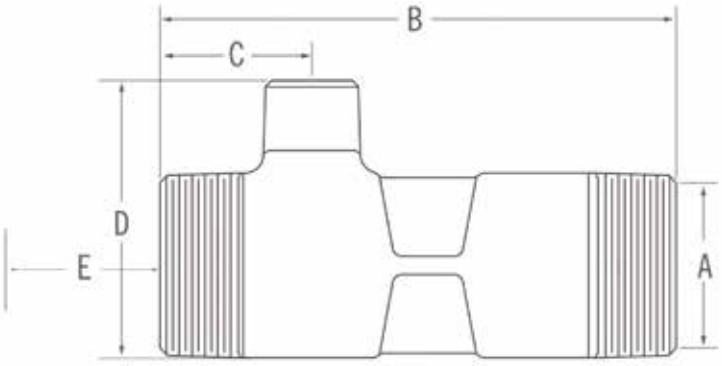
CERTIFICATIONS

Underwriters Laboratories, Inc. (UL) Listed - Standard 162, FM Approved per Approval Standard 5130 (see FM Approval Guide).

THREADED PROPORTIONER

DIMENSIONAL INFORMATION

	APPROXIMATE DIMENSIONS Inches (Millimeters)				
MODEL	A	B	C	D	E
2.0” SRCW	2.38 (60)	7.00 (178)	2.06 (52)	3.75 (95)	10.00 (254)
2.5” SRCW	2.88 (73)	7.00 (178)	2.06 (52)	4.13 (105)	13.00 (330)



FLOW RANGE

			UL LISTED - NOMINAL FLOW				
MODEL	CONFIGURATION	CONCENTRATE INLET	RE-HEALING RF3,3% gpm (lpm)	ARCTIC 1% SP AFFF gpm (lpm)	ARCTIC 3% AFFF gpm (lpm)	ARCTIC 3% MIL-SPEC AFFF gpm (lpm)	ARCTIC 3X3%ATC gpm (lpm)
2.0” SRCW	Threaded	1.0” FNPT	147-232 (556-878)	44-131 (167-496)	42-263 (159-996)	45-205 (170-776)	90-166 (341-628)
2.0” SRCW	Threaded	1.0” FNPT	60 (227)	-	-	-	13.00 (330)
2.5” SRCW	Threaded	1.0” FNPT	-	86-282 (326-1067)	119-392 (450-1484)	114-375 (432-1420)	-

			FM APPROVED - NOMINAL FLOW		
MODEL	CONFIGURATION	CONCENTRATE INLET	RE-HEALING RF3,3% gpm (lpm)	ARCTIC 1% SP AFFF gpm (lpm)	ARCTIC 3% AFFF gpm (lpm)
2.0” SRCW	Threaded	1.0” FNPT	143-248 (541-939)	44-131 (167-496)	89-233 (337-882)

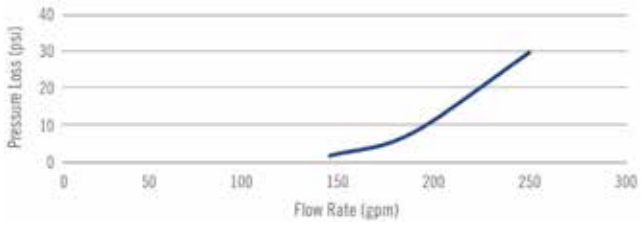
THREADED PROPORTIONER

PRESSURE LOSS CURVES

NOMINAL FLOW RATES

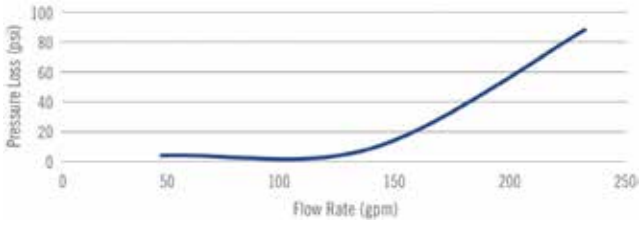
UL LISTED
RE-HEALING RF3, 3% FOAM CONCENTRATE

2 Inch Ratio Controller

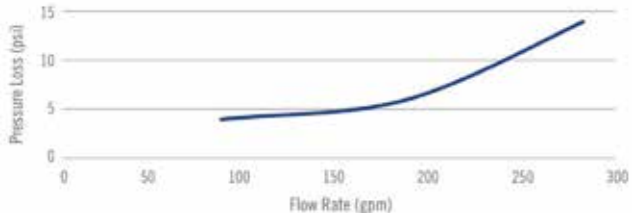


UL LISTED
ARCTIC™ 3% AFFF FOAM CONCENTRATE

2 Inch Ratio Controller

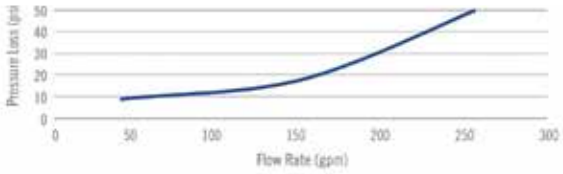


2.5 Inch Ratio Controller

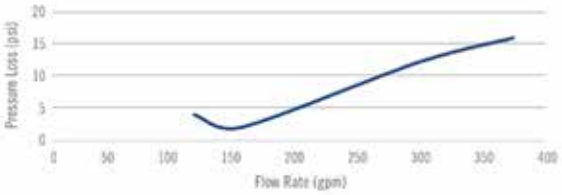


UL LISTED
ARCTIC™ 3% AFFF FOAM CONCENTRATE

2 Inch Ratio Controller

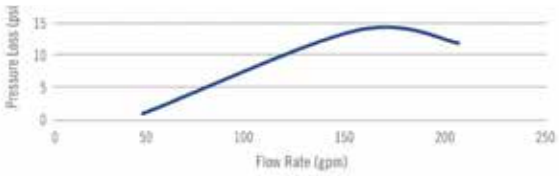


2.5 Inch Ratio Controller

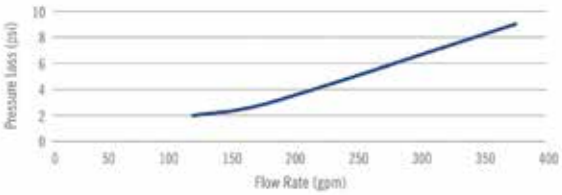


UL LISTED
ARCTIC™ 3% MIL-SPEC FOAM CONCENTRATE

2 Inch Ratio Controller



2.5 Inch Ratio Controller



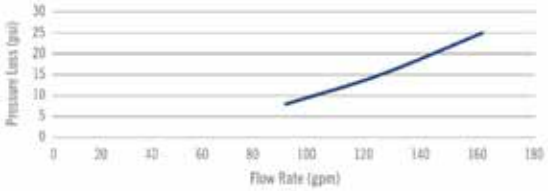
THREADED PROPORTIONER

PRESSURE LOSS CURVES

NOMINAL FLOW RATES

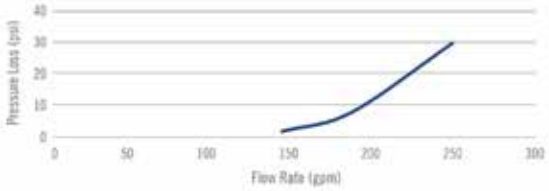
UL LISTED: ARCTIC™ 3X3% ATC™ FOAM CONCENTRATE

2 Inch Ratio Controller



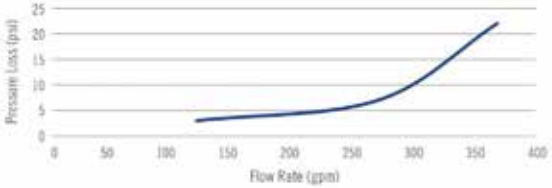
FM APPROVED: RE-HEALING RF3, 3% FOAM CONCENTRATE

2 Inch Ratio Controller



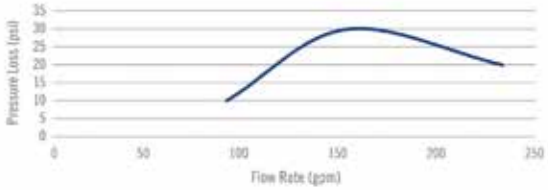
FM APPROVED: ARCTIC™ 3X3% ATC™ FOAM CONCENTRATE

2 Inch Ratio Controller



FM APPROVED: ARCTIC™ 3X3% ATC™ FOAM CONCENTRATE

2 Inch Ratio Controller



ORDERING INFORMATION

MOBILE FOAM CART

PART NO.	DESCRIPTION	APPROXIMATE SHIPPING WEIGHT lb	kg
30002	Ratio Controller - Threaded, 2.0" (51 mm), RE-HEALING RF 3, 3%	5	2
30003	Ratio Controller - Threaded, 2.0" (51 mm), RE-HEALING RF 6, 6%	5	2
30004	Ratio Controller- Threaded, 2.0" (51 mm), ARCTIC 1% SP AFFF	5	2
30005	Ratio Controller - Threaded, 2.0" (51 mm), ARCTIC 3% AFFF	5	2
30008	Ratio Controller - Threaded, 2.0" (51 mm), ARCTIC 3% MIL-SPEC AFFF	5	2
30006	Ratio Controller - Threaded , 2.0" (51 mm), ARCTIC 3x3% ATC	5	2
30031	Ratio Controller - Threaded, 2.5" (63 mm), RE-HEALING RF 3, 3%	6	3
30032	Ratio Controller - Threaded, 2.5" (63 mm), RE-HEALING RF 6, 6%	6	3
30033	Ratio Controller - Threaded, 2.5" (63 mm), ARCTIC 1% SP AFFF	6	3
30034	Ratio Controller - Threaded, 2.5" (63 mm), ARCTIC 3% AFFF	6	3
30037	Ratio Controller - Threaded, 2.5" (63 mm), ARCTIC 3% MIL-SPEC AFFF	6	3
30035	Ratio Controller - Threaded, 2.5" (63 mm), ARCTIC 3x3% ATC	6	3

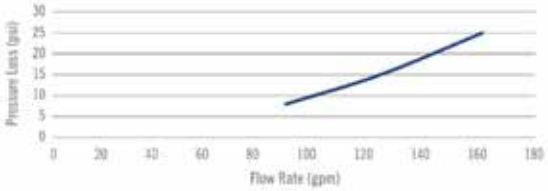
THREADED PROPORTIONER

PRESSURE LOSS CURVES

NOMINAL FLOW RATES

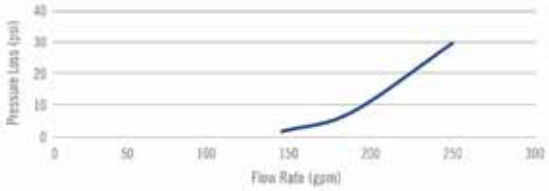
UL LISTED: ARCTIC™ 3X3% ATC™ FOAM CONCENTRATE

2 Inch Ratio Controller



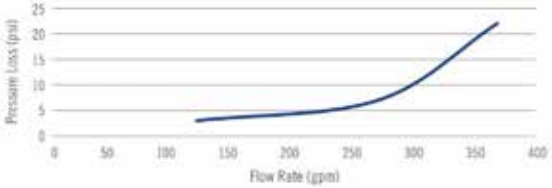
FM APPROVED: RE-HEALING RF3, 3% FOAM CONCENTRATE

2 Inch Ratio Controller



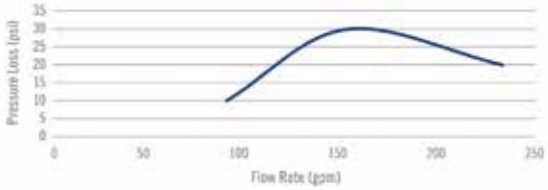
FM APPROVED: ARCTIC™ 3X3% ATC™ FOAM CONCENTRATE

2 Inch Ratio Controller



FM APPROVED: ARCTIC™ 3X3% ATC™ FOAM CONCENTRATE

2 Inch Ratio Controller



ORDERING INFORMATION

MOBILE FOAM CART

PART NO.	DESCRIPTION	APPROXIMATE SHIPPING WEIGHT lb	kg
30002	Ratio Controller - Threaded, 2.0" (51 mm), RE-HEALING RF 3, 3%	5	2
30003	Ratio Controller - Threaded, 2.0" (51 mm), RE-HEALING RF 6, 6%	5	2
30004	Ratio Controller- Threaded, 2.0" (51 mm), ARCTIC 1% SP AFFF	5	2
30005	Ratio Controller - Threaded, 2.0" (51 mm), ARCTIC 3% AFFF	5	2
30008	Ratio Controller - Threaded, 2.0" (51 mm), ARCTIC 3% MIL-SPEC AFFF	5	2
30006	Ratio Controller - Threaded , 2.0" (51 mm), ARCTIC 3x3% ATC	5	2
30031	Ratio Controller - Threaded, 2.5" (63 mm), RE-HEALING RF 3, 3%	6	3
30032	Ratio Controller - Threaded, 2.5" (63 mm), RE-HEALING RF 6, 6%	6	3
30033	Ratio Controller - Threaded, 2.5" (63 mm), ARCTIC 1% SP AFFF	6	3
30034	Ratio Controller - Threaded, 2.5" (63 mm), ARCTIC 3% AFFF	6	3
30037	Ratio Controller - Threaded, 2.5" (63 mm), ARCTIC 3% MIL-SPEC AFFF	6	3
30035	Ratio Controller - Threaded, 2.5" (63 mm), ARCTIC 3x3% ATC	6	3

Perimeter SOLUTIONS
Quality Products. Exceptional Response.

Solutions That Save.

VARIABLE RANGE PROPORTIONER

FEATURES

- **FM Approved with RE-HEALING RF3, 3% and ARCTIC 3x3% ATC Foam Concentrates**
- **UL Listed with RE-HEALING RF3, 3%, ARCTIC 3% AFFF and ARCTIC 3x3% ATC Foam Concentrates**
- **Bronze and stainless steel material construction for performance and durability**
- **Fresh, salt and brackish water compatible**
- **Horizontal or vertical mounted position**

DESCRIPTION

The Perimeter Solutions Variable Range Proportioner is a low foam solution proportioning device, designed to accurately proportion the foam concentrate into the water stream at both high and low system flow rates. The Perimeter Solutions Variable Range Proportioner is designed as an integral component of the Perimeter Solutions Bladder Tank proportioning system, to be used with SOLBERG foam concentrates in foam-water systems.

The Perimeter Solutions Variable Range Proportioner complies with NFPA 30, the Flammable and Combustible Liquids Code, Paragraph 16.5.1.6.2, which states that foam/water sprinkler systems are to provide foam solution to operating sprinklers with 4 sprinklers flowing. The Perimeter Solutions Variable Range Proportioner was designed to meet this Code requirement.

APPLICATION

The Perimeter Solutions Variable Range Proportioner is designed for closed-head foam-water sprinkler systems where proportioning of foam concentrate will begin at low flow rates, but as additional sprinklers operate, the proportioner will automatically adjust for the changes in system flow rates and maintain accurate foam concentrate proportioning. Considering that the fire data shows that only 4 to 5 sprinklers will be necessary to control the flammable liquid fire risks, the Perimeter Solutions Variable Range Proportioner is the perfect solution for low system flow proportioning.

The primary applications for the Perimeter Solutions Variable Range Proportioner include closed-head foam/water sprinkler systems, protecting risks such as flammable and combustible liquid storage rooms, chemical processing, loading racks, aircraft hangars, and tank farm protection systems using foam chambers.

SPECIFICATIONS

The Perimeter Solutions Variable Range Proportioner is certified for use with SOLBERG RE-HEALING RF3, 3%, ARCTIC 3% AFFF and ARCTIC 3x3 ATC* foam concentrates, when used as an integral component of a SOLBERG bladder tank proportioning system. The Perimeter Solutions Variable Range Proportioner is designed to be installed as a between-the-flange proportioner, in standard 6.0” (152 mm) system piping. The foam concentrate inlet is 2.0” (50 mm) NPT female pipe size.

VARIABLE RANGE PROPORTIONER

The proportioner will accurately proportion foam concentrate at flow rates between 80 to 2,100 gpm (302 to 7949 lpm) for 3% AFFF concentrate, between 80 to 1,698 gpm (302 to 6428 lpm) for 3x3 ATC concentrate and between 108-1700 gpm (405-6435 lpm) for RE-HEALING RF3, 3% foam concentrate.

The Perimeter Solutions Variable Range Proportioner is manufactured using a bronze body and cone shaped piston, stainless steel spring, and stainless steel foam metering orifice. The Perimeter Solutions Variable Range Proportioner is to be installed with a minimum of 5 pipe diameters (30.0" (762 mm)) of straight pipe both upstream and downstream of the proportioner. The proportioner body is cast with a directional flow arrow on the proportioner body indicating the proper orientation of installation.

The Perimeter Solutions Variable Range Proportioner operation in closed-head sprinkler systems is as follows:

Under static, no flow conditions in the water supply piping, the water and foam concentrate pressures are equal. During a fire situation as sprinklers begin to open, the foam concentrate is injected into the water supply through the foam concentrate metering orifice at the proper listed solution rate.

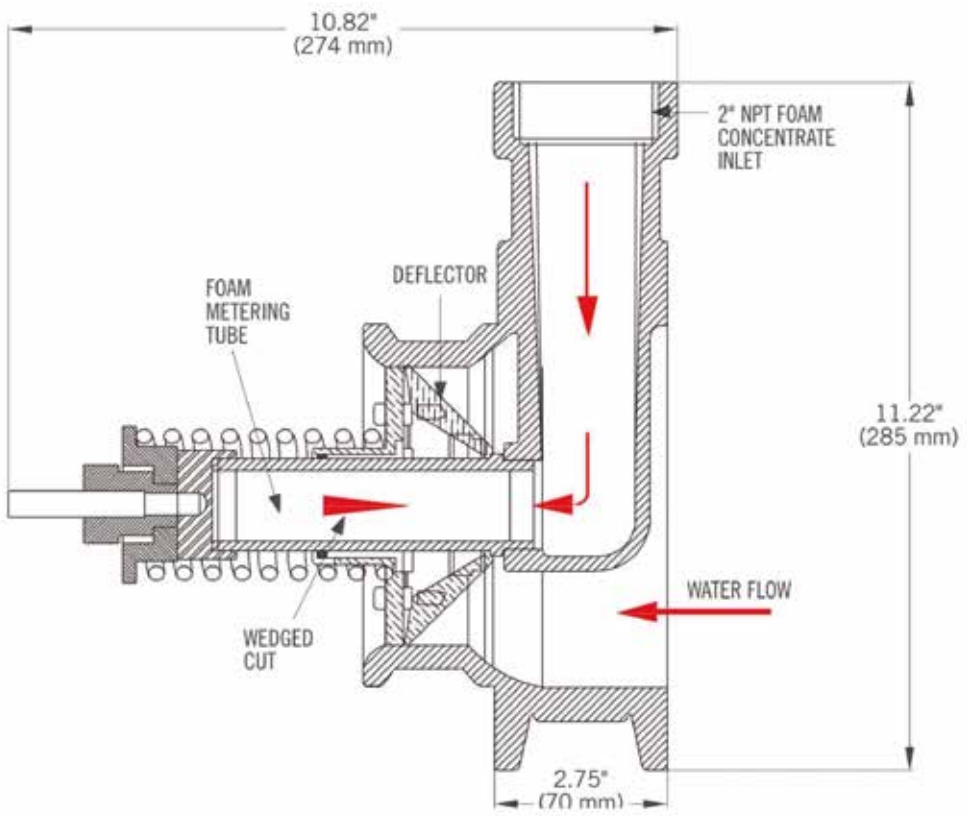
As more sprinklers begin to operate, the change in foam-water solution demand is automatically adjusted for by the Perimeter Solutions Variable Range Proportioner, by injecting a carefully calibrated increased quantity of foam concentrate into the piping.

CERTIFICATIONS

Underwriters Laboratories, Inc. (UL) Listed - Standard 162, FM Approved per Approval Standard 5130 with RE-HEALING RF3, 3% and ARCTIC 3x3 ATC Foam Concentrates.

*See FM Approval Guide for Details

DIMENSIONAL INFORMATION



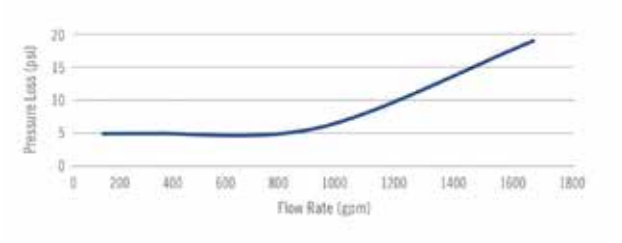
VARIABLE RANGE PROPORTIONER

PRESSURE LOSS CURVES

NOMINAL FLOW RATES

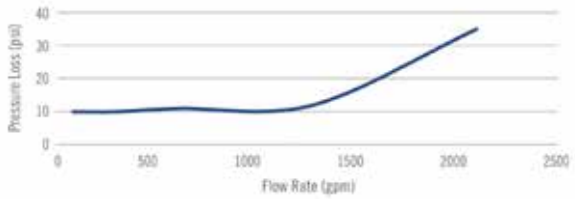
UL LISTED
RE-HEALING RF3, 3% FOAM CONCENTRATE

6 Inch Ratio Controller



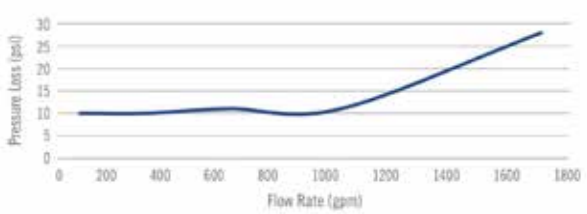
UL LISTED
ARCTIC™ 3% AFFF FOAM CONCENTRATE

6 Inch Ratio Controller



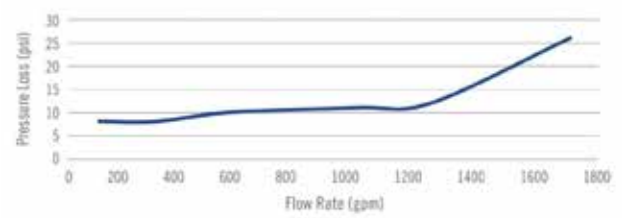
UL LISTED
ARCTIC™ 3X3% ATC™ FOAM CONCENTRATE

6 Inch Ratio Controller



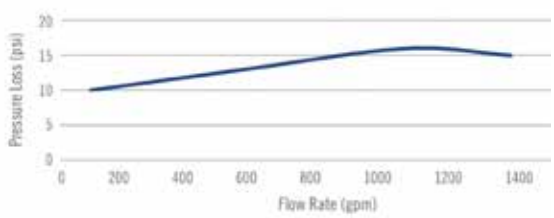
FM APPROVED
RE-HEALING RF3, 3% FOAM CONCENTRATE

6 Inch Ratio Controller



FM APPROVED
ARCTIC™ 3X3% ATC™ FOAM CONCENTRATE

6 Inch Ratio Controller

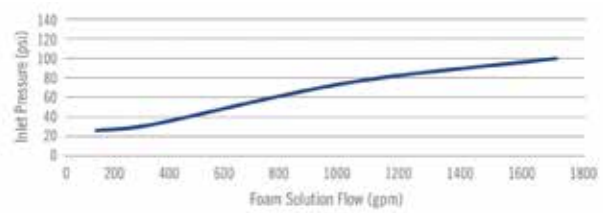


INLET PRESSURE VS. FOAM SOLUTION FLOW

FM APPROVED

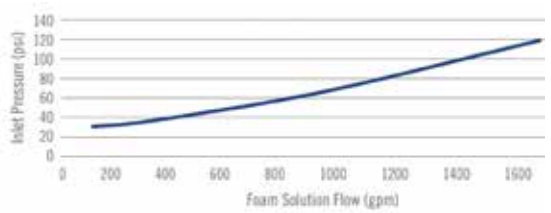
RE-HEALING RF3, 3% FOAM CONCENTRATE

6 Inch Ratio Controller



ARCTIC™ 3X3% ATC™ FOAM CONCENTRATE

6 Inch Ratio Controller



VARIABLE RANGE PROPORTIONER

PERFORMANCE INFORMATION

MODEL SRVP		UL LISTED NOMINAL FLOW			FM APPROVED NOMINAL FLOW	
		RE-HEALING RF3, 3% gpm (lpm)	ARCTIC 3% AFFF gpm (lpm)	ARCTIC 3x3% ATC gpm (lpm)	RE-HEALING RF3, 3% gpm (lpm)	ARCTIC 3x3% ATC gpm (lpm)
Proportioning Rate (pre-calibrated)	-	115-1700 (435-6435)	87-2171 (329-8218)	84-1761 (318-6666)	108-1700 (405-6435)	94-1355 (356-5129)
Size	6.0” (150 mm)	-	-	-	-	-
Foam Inlet Female	Threaded	-	-	-	-	-
Inlet Working Pressure (max.)	-	175 psi (12 bar)	175 psi (12 bar)	175 psi (12 bar)	175 psi (12 bar)	175 psi (12 bar)
Inlet Working Pressure (min.)	-	30 psi (2 bar)	30 psi (2 bar)	30 psi (2 bar)	30 psi (2 bar)	30 psi (2 bar)
Pipe Length Upstream	30.0” (762 mm)	-	-	-	-	-
Pipe Length Downstream	30.0” (762 mm)	-	-	-	-	-
Flange Size	6.0” (150 mm)	-	-	-	-	-
Between Flange Dimensions	2.75” (69 mm)	-	-	-	-	-
Height	11.0” (280 mm)	-	-	-	-	-
Weight	29 lb (13 kg)	-	-	-	-	-
Material	Bronze	-	-	-	-	-

Note: DO NOT Exceed 35.O’ (I 1 m) of equivalent length of pipe and fittings

ORDERING INFORMATION

VARIABLE RANGE PROPORTIONER

PART NO.	DESCRIPTION		APPROXIMATE SHIPPING WEIGHT lb	kg
30200	Ratio Controller - Variable Range, Model SVRP 6.0” (150 mm), ARCTIC 3% AFFF	UL	28.6	13
30201	Ratio Controller - Variable Range, Model SVRP 6.0” (150 mm), ARCTIC 3x3 ATC	UL, FM	28.6	13
30210	Ratio Controller - Variable Range, Model SVRP 6.0” (150 mm), RE-HEALING RF3, 3%	FM	28.6	13
30211	Ratio Controller - Variable Range, Model SVRP 6.0” (150 mm), RE-HEALING RF3, 3%	FM	28.6	13

† Not an FM Approved Component

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Quality Products. Exceptional Response.

Solutions That Save.

VARIABLE RANGE PUMP PROPORTIONER

FEATURES

- **Bronze and stainless steel material construction for performance and durability**
- **Fresh, sea and brackish water compatible**
- **Horizontal or vertical mounted position**

DESCRIPTION

The Perimeter Solutions Variable Range Pump Proportioner is a foam solution proportioning device, designed to accurately proportion the foam concentrate into the water stream at both high and low system flow rates. The Perimeter Solutions Variable Range Pump Proportioner is designed as an integral component of the SOLBERG foam pump proportioning system.

The Perimeter Solutions Variable Range Pump Proportioner complies with N FPA 30, the Flammable and Combustible Liquids Code, Paragraph 16.5.1.6.2, which states that foam/water sprinkler systems are to provide foam solution to operating sprinklers with 4 sprinklers flowing. The Perimeter Solutions Variable Range Pump Proportioner meets this Code requirement.

APPLICATION

The Perimeter Solutions Variable Range Pump Proportioner is designed for systems where proportioning of foam concentrate will begin at low flow rates, but as additional sprinklers operate, the proportioner will automatically adjust for the changes in system flow rates and maintain accurate foam concentrate proportioning. Considering that the fire data shows that only 4 to 5 sprinklers will be necessary to control the flammable liquid fire risks, the Perimeter Solutions Variable Pump Range Proportioner is the perfect solution for low system flow proportioning.

The primary applications for the Perimeter Solutions Variable Range Pump Proportioner include closed-head foam/water sprinkler systems, protecting risks such as flammable and combustible liquid storage rooms, chemical processing, loading racks, aircraft hangars, and tank farm protection systems using foam chambers.

SPECIFICATIONS

The Perimeter Solutions Variable Range Pump Proportioner is acceptable for use with Perimeter Solutions foam concentrates, when used as an integral component of a SOLBERG foam pump proportioning system. The Perimeter Solutions Variable Range Pump Proportioner is designed to be installed as a between-the-flange proportioner, in standard 6.0” (152 mm) or 8.0” (203 mm) system piping. The foam concentrate inlet is 2.0” (51 mm) or 2.5” (64 mm) BSP female pipe size depending on the proportioner size selected.

The proportioner will accurately proportion foam concentrate at flow rates between 18 to 1,850 gpm (70 to 7000 1pm) for 6.0” (152 mm), and between 40 to 3,963 gpm (150 to 150001pm) for 8.0” (203 mm) sizes[1] .

1. The unit will operate with higher flows if the foam system can accept a higher pressure loss.

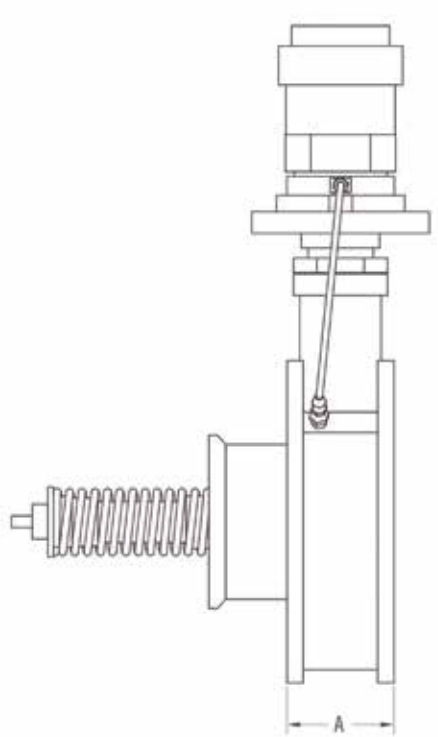
VARIABLE RANGE PUMP PROPORTIONER

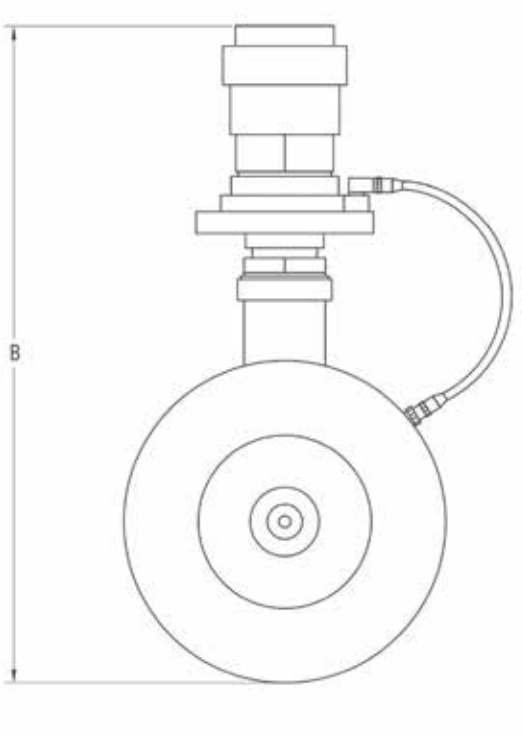
The Perimeter Solutions Variable Range Pump Proportioner is manufactured using a bronze body and cone shaped piston, stainless steel spring, and stainless steel foam metering orifice. The Perimeter Solutions Variable Range Pump Proportioner is to be installed with a minimum of 5 pipe diameters (30.0” (762 mm)) of straight pipe both upstream and downstream of the proportioner. The proportioner body is cast with a directional flow arrow on the proportioner body indicating the proper orientation of installation.

The Perimeter Solutions Variable Range Pump Proportioner operation in closed-head sprinkler systems is as follows:

Under static, no flow conditions in the water supply piping, the water and foam concentrate pressures are equal. During a fire situation as sprinklers begin to open, the foam concentrate is injected into the water supply through the foam concentrate metering orifice at the proper listed solution rate. As more sprinklers begin to operate, the change in foam-water solution demand is automatically adjusted for by the SOLBERG Variable Range Pump Proportioner, by injecting a carefully calibrated increased quantity of foam concentrate into the piping.

DIMENSIONAL INFORMATION





VARIABLE RANGE PUMP PROPORTIONER

PERFORMANCE INFORMATION

Model SVRPP	6.0” (152 mm)	8.0” (203 mm)
Size	ON 150	ON 200
Foam Inlet Female	R 2.0" (51 mm)	R 2.5" (64 mm)
Flow Range	18-1850 gpm (70-7000 lpm)	40-3963 gpm (150-15000 lpm)
Connection Water	6.0" between flange, DIN PN-16	8.0" between flange, DIN PN-16
Connection Foam	2.0" (51 mm) Female BSP	2.5" (64 mm) Female BSP
Proportioning Rate (pre-calibrated)	Foam Concentrates	Foam Concentrates
Inlet Pressure (max)	232 psi (16 bar)	232 psi (16 bar)
Inlet Pressure (min)	73 psi (5 bar)	73 psi (5 bar)
Pipe Length Upstream	30.0" (762 mm)	40.0" (1000 mm)
Pipe Length Downstream	30.0" (762 mm)	40.0" (1000 mm)
Flange Type	DIN PN16	DIN PN16
Between Flange Proportions (Dimension A)	2.75" (69 mm)	3.5" (88 mm)
Height (Dimension B)	13.0" (330 mm)	17.0" (430 mm)

Note: Over pressurization of 14.5 psi (1 bar) minimum is required on the foam concentrate side.

ORDERING INFORMATION

VARIABLE RANGE PROPORTIONER		APPROXIMATE SHIPPING WEIGHT	
PART NO.	DESCRIPTION	lb	kg
30202	Ratio Controller - Variable Range Pump Proportioner, Model SVRPP 6.0” (152 mm)	35	16
30203	Ratio Controller - Variable Range Pump Proportioner, Model SVRPP 8.0” (203 mm)	106	48

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