

PPW MK3 Wide Range Foam Pump Proportioner

Description

SKUM PPW MK3 wide range proportioning systems function by maintaining equal pressures in the foam concentrate and water inlets to the proportioner. This balancing ability and a variable orifice allows the proportioner to be used over a wider range of flows and pressures than standard balanced pressure pump proportioners.

The system utilizes a centrifugal or positive displacement foam pump to pressurize foam concentrate in the supply manifold. A pressure control valve located in the return line to the foam concentrate storage tank is set to maintain a regulated pressure in the supply manifold at a minimum of 1 bar to 2 bar (14.5 psi to 29 psi) higher than the maximum pressure in the water supply line. Foam concentrate that is not required by the proportioner returns to the atmospheric storage tank through the pressure control valve.

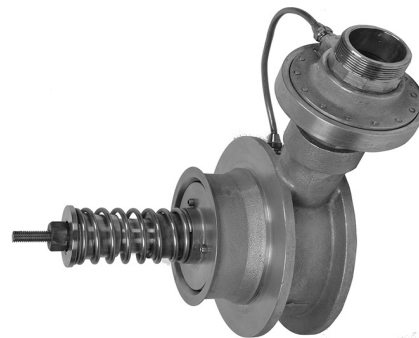
When installed in a closed head wet sprinkler system, the proportioner operates in the following way:

1. With the proportioner correctly installed in the sprinkler riser, the water pressure is equal on both sides of the proportioner.
2. As the sprinkler heads open during a fire situation, foam concentrate enters the water stream through a precisely machined metering tube.
3. As more sprinkler heads open, the increase in water flow causes the deflector to open further, increasing the orifice size on the metering tube, allowing more foam concentrate to enter the water stream. This feature gives the proportioner the ability to correctly proportion at both extremely low flow rates and at extremely high flow rates.

Each proportioner consists of the following components:

- Cast bronze body
- Bronze pressure balancing valve
- Pressure sensing tube
- Bronze deflector
- Stainless steel spring
- Stainless steel foam metering tube

The proportioner is available in three standard sizes (6 in., 8 in., and 10 in.) and is designed to fit between two DN150 (6 in.), DN200 (8 in.) or DN250 (10 in.) DIN PN16 (ANSI Class 150) pipe flanges. A minimum of five pipe diameters of straight pipe is necessary upstream and downstream of the proportioner.



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Features

- Designed to meet the proportioning requirements of EN 13565-1:2003+A1:2007 Chapter 7 and NFPA 16:2015 Chapter 4
- FM Approved for use with SKUM AFFF 3% UG and SKUM ARC 3X3 UG Foam Concentrates
- UL Listed for ANSULITE A336 concentrate for 6 in. and 8 in. proportioners and NFF 3x3 UL201 concentrate for 6 in. proportioners only
- Foam proportioning as low as 106 Lpm (28 gpm)
- Economical advantages for complex designs that normally require multiple remote in-line proportioners
- Less total system hardware and maintenance requirements with minimal moving parts and no electrical hookup requirement

Approvals and Listings

The SKUM PPW MK3 Wide Range Proportioner contains the following approvals and listings:

- FM Approved for use with SKUM AFFF 3% UG and SKUM ARC 3x3 UG foam concentrates.
- UL Listed and USCG Approved for use with ANSULITE A336 USCG 3x3 AR-AFFF concentrate.
- UL Listed for use with NFF 3x3 UL201 foam concentrate.

Note: SKUM PPW MK3 proportioners are only FM Approved when used in conjunction with the specific foam concentrates and equipment shown in the Approval Guide available at www.ApprovalGuide.com.



Application

The SKUM PPW MK3 Wide Range Proportioner is FM Approved for use with SKUM AFFF 3% UG and SKUM ARC 3x3 UG foam concentrates. Refer to the system specifications on page 2 for other SKUM foam concentrates that have been tested for use with this proportioner.

The SKUM PPW MK3 proportioner is part of an in-line balanced proportioning system that uses an atmospheric foam concentrate tank that connects to a positive displacement foam concentrate pump.

The SKUM PPW MK3 proportioner is designed to proportion and control the mixing of the foam concentrate into a water stream over a wide range of water flow rates and pressures. The proportioners have been tested by the foam concentrate manufacturer and are capable of proportioning at flow rates as low as 106 Lpm (28 gpm) to as high as 20,816 Lpm (5499 gpm) with a maximum working pressure of 16 bar (232 psi).

NFPA 30:2015 Chapter 16 requires correctly proportioned foam solution to be generated with as few as four sprinklers flowing. In many foam-water sprinkler systems, this condition produces flows considerably less than the minimum design flow of conventional proportioning equipment. Control of the fire may not be established if the installed proportioner is unable to correctly proportion foam across the entire critical flow range. The flow capacity of the SKUM PPW MK3 Wide Range Proportioner allows foam to be proportioned correctly across a wide design range for a system.

Designed with EN 13565 and NFPA 16 as references, these proportioners are suitable for closed head foam-water sprinkler applications where the system flow may start low and then increase as more sprinklers open. Other common applications include the following examples:

- Tank farm protection systems, as per NFPA 11:2016, using foam chambers or other means of foam delivery, where varied flow rates are encountered in conjunction with requirements for supplementary foam handlines.
- Closed head foam-water sprinkler systems including warehouse storage, chemical processing, loading racks, and locations where flammable liquids are used, stored, processed, or transported.

System Specifications

Model	Foam Agent	Minimum Flow		Maximum Flow	
		Lpm	(gpm)	Lpm	(gpm)
PPW 6 in.	SKUM AFFF 3% UG	117*	(31)	11,720*	(3,096)
	SKUM ARC 3x3 UG	106*	(28)	11,818*	(3,122)
	SKUM 2% HOTFOAM	189	(50)	10,599	(2,800)
	SKUM AFFF 1% UG	208	(55)	10,221	(2,700)
	SKUM FP3% EG	185	(49)	11,417	(3,016)
	ANSULITE A336 USCG	189†	(50)	11,148**	(2,945)
	NFF 3x3 UL201	326**	(86)	11,451**	(3,025)
PPW 8 in.	SKUM AFFF 3% UG	189*	(50)	17,553*	(4,637)
	SKUM ARC 3x3 UG	197*	(52)	18,863*	(4,983)
	SKUM 2% HOTFOAM	193	(51)	18,549	(4,900)
	SKUM AFFF 1% UG	189	(50)	19,457	(5,140)
	SKUM FP3% EG	193	(51)	18,927	(5,000)
	ANSULITE A336 USCG	303†	(80)	17,595**	(4,648)
PPW 10 in.	SKUM AFFF 3% UG	223*	(59)	20,063*	(5,300)
	SKUM ARC 3x3 UG	185*	(49)	20,138*	(5,320)
	SKUM 2% HOTFOAM	193	(51)	20,816	(5,499)
	SKUM AFFF 1% UG	568	(150)	20,441	(5,400)
	SKUM FP3% EG	201	(53)	19,718	(5,209)

* FM Approved flow range

** UL Listed flow range

† UL and USCG Approved flow range

Note: The SKUM PPW MK3 Wide Range Proportioners have been tested for use with the agents listed in the system specifications table. Results with other agents may vary.

Ordering Information

Part Number	Foam Agent	Approvals
SKUM PPW 6 in. MK3 with 1 1/2 in. BSP (Female) and 2 in. grooved foam inlet		

123515202A	3% AFFF	FM
123515202C	3x3 AR-AFFF	FM
123515202E	2% HOTFOAM	-
123515202B	1% AFFF	-
123515202F	3% Fluoroprotein	-
449718	ANSULITE A336 USCG 3x3 AR-AFFF Concentrate	UL and USCG
454682	NFF 3x3 UL201	UL

SKUM PPW 8 in. MK3 with 2 in. grooved foam inlet

123520222A	3% AFFF	FM
123520222C	3x3 AR-AFFF	FM
123520222E	2% HOTFOAM	-
123520222B	1% AFFF	-
123520222F	3% Fluoroprotein	-
449719	ANSULITE A336 USCG 3x3 AR-AFFF Concentrate	UL and USCG

SKUM PPW 8 in. MK3 with 2 in. DIN flange foam inlet

123520230A	3% AFFF	FM
123520230C	3x3 AR-AFFF	FM
123520230E	2% HOTFOAM	-
123520230B	1% AFFF	-
123520230F	3% Fluoroprotein	-

SKUM PPW 10 in. MK3 with 3 in. DIN flange foam inlet

123525214A	3% AFFF	FM
123525214C	3x3 AR-AFFF	FM
123525214E	2% HOTFOAM	-
123525214B	1% AFFF	-
123525214F	3% Fluoroprotein	-

SKUM PPW 10 in. MK3 with 3 in. ANSI flange foam inlet

123525331A	3% AFFF	FM
123525331C	3x3 AR-AFFF	FM
123525331E	2% HOTFOAM	-
123525331B	1% AFFF	-
123525331F	3% Fluoroprotein	-

Proportioner Information

Model	Size	Minimum Inlet Pressure		Maximum Inlet Pressure		Upstream Straight Pipe Length		Downstream Straight Pipe Length		Approx. Weight	
		bar	(psi)	bar	(psi)	mm	(in.)	mm	(in.)	kg	(lb)
PPW 6 in.	(6 in.) DN150	5	(72.5)	16	(232.1)	750	(29.5)	750	(29.5)	15	(33.1)
PPW 8 in.	(8 in.) DN200	5	(72.5)	16	(232.1)	1,000	(39.4)	1,000	(39.4)	35	(77.2)
PPW 10 in.	(10 in.) DN250	5	(72.5)	16	(232.1)	1,250	(49.2)	1,250	(49.2)	50	(110.2)

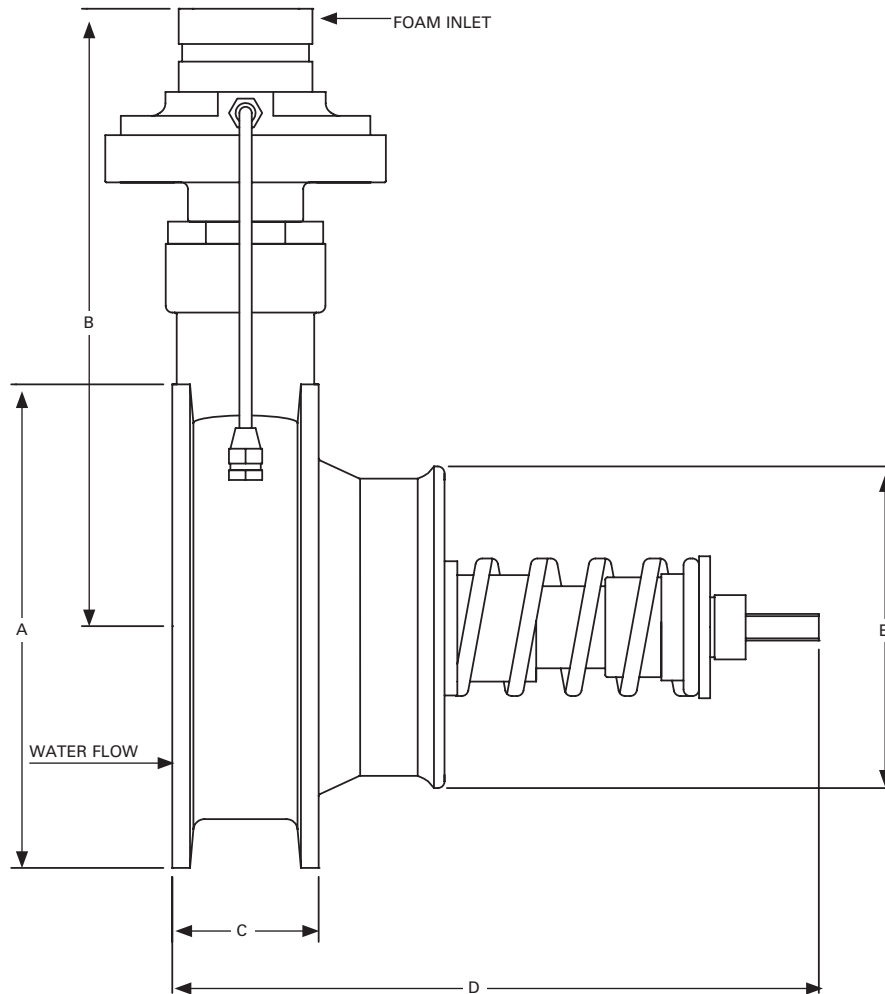
Model	Foam Inlet	A		B		C		D		E	
		mm	(in.)	mm	(in.)	mm	(in.)	mm	(in.)	mm	(in.)
PPW 6 in.	1 1/2 in. BSP (Female) and 2 in. Groove	218	(8.6)	278	(10.9)	69	(2.7)	281	(11.1)	145	(5.7)
PPW 8 in.	2 in. Groove	271	(10.7)	356*	(14.0)	90.8	(3.6)	326	(12.8)	203	(8.0)
PPW 8 in.	2 in. DIN Flange	271	(10.7)	350**	(13.8)	90.8	(3.6)	326	(12.8)	203	(8.0)
PPW 10 in.	3 in. DIN Flange or 3 in. ANSI Flange	328	(12.9)	358	(14.1)	100	(3.9)	351	(13.8)	250	(9.8)

Notes: The SKUM PPW 8 in. proportioners require a different balancing valve when used with 1% AFFF foam concentrate.

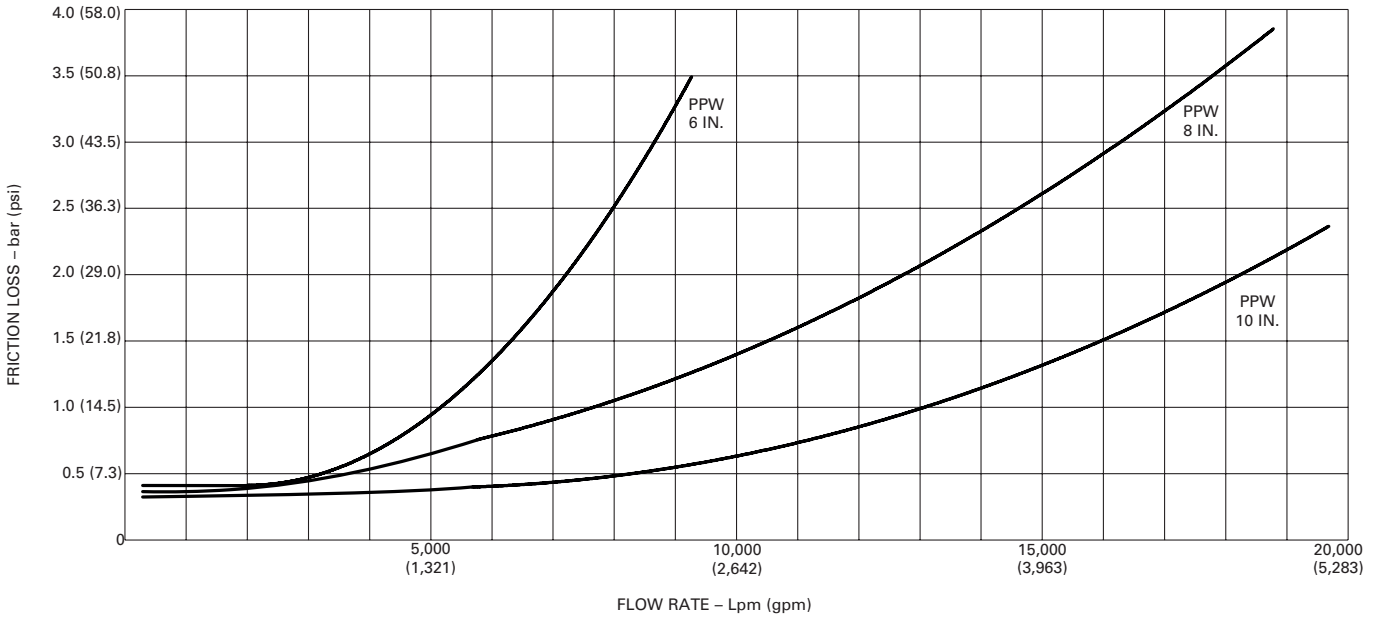
Dimension B for the 8 in. proportioners are the following lengths:

* 322 mm (12.7 in.)

** 325 mm (12.8 in.)

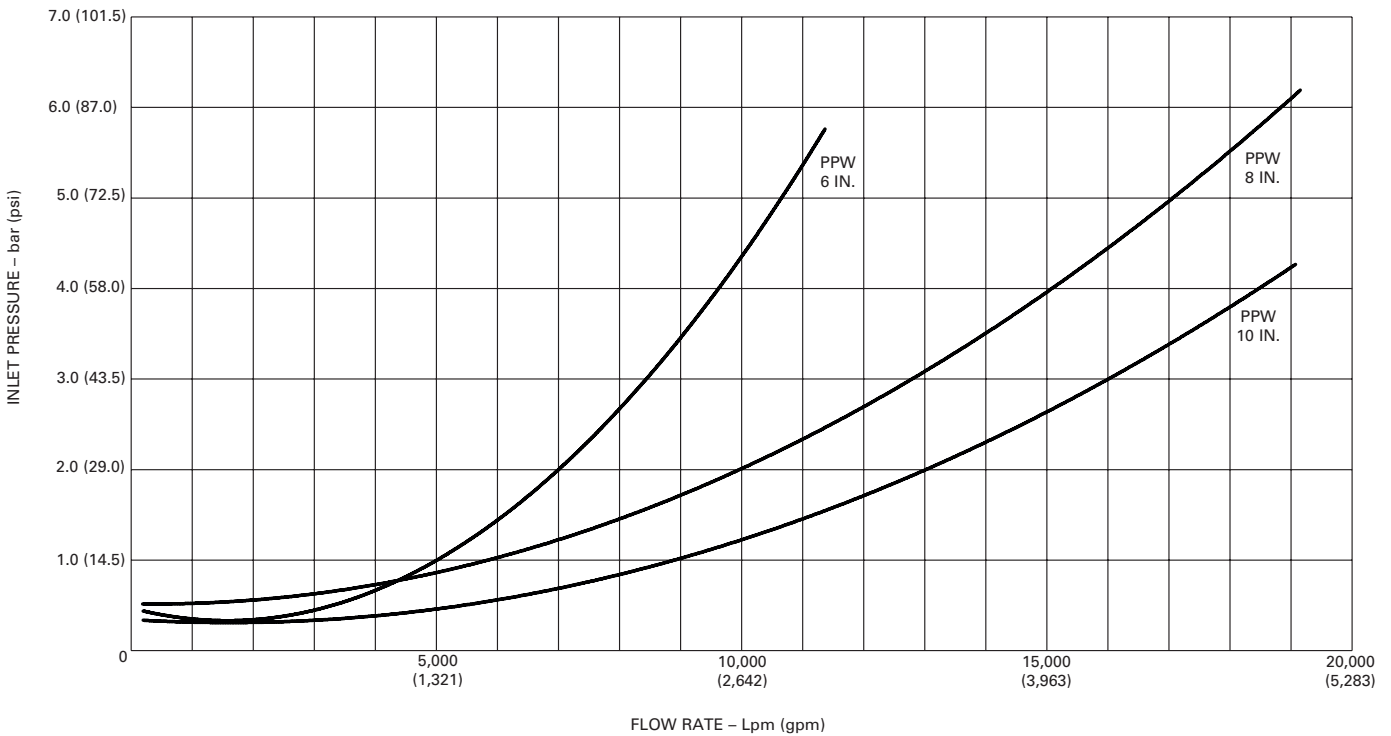


SKUM PPW MK3 Friction Loss



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SKUM PPW MK3 Minimum Inlet Pressure



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Note: The converted values in this document are provided for dimensional reference only and do not reflect an actual measurement.

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